

## Lab EBS

### Creating and Attaching an EBS Volume

- Launch awslinux type resource
- Go to volume and check which available zone volume has created
- EC2->Volume section

The screenshot shows the AWS Management Console with the search bar set to 'ec2'. On the left, a sidebar lists various services: Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes, Snapshots). The main content area displays a detailed view of a volume named 'vol-02b4f258939a5edfb'. The volume is 8 GiB, gp3, and has an IOPS of 3000. It is in the 'In-use' state and was created on Sun Jan 12 2025 01:50:26 GMT+0530 (India Standard Time). The availability zone is 'ap-south-1b'. The volume is attached to an instance 'i-016737d019afec9c1 (awslinux)'. The 'Source' section shows the snapshot ID 'Snapshot ID'. An 'AWS Compute Optimizer finding' note suggests opting-in to the service.

### 1. Create an EBS Volume:

- Go to the AWS Management Console.
- Navigate to the EC2 Dashboard.

The screenshot shows the AWS Management Console search results for 'ec2'. The search bar at the top contains 'ec2'. Below it, a card for the 'EC2' service is displayed, which is described as 'Virtual Servers in the Cloud'. The card includes a star icon and links to 'Top features' such as Dashboard, Launch templates, Instances, Spot Instance requests, and Savings plans. To the left of the card, there is a sidebar with categories: Services (13), Features (57), Resources (New), Documentation (30,699), Knowledge Articles (617), and Marketplace (3,587).

- Click on "Volumes" under "Elastic Block Store".

The screenshot shows the AWS Cloud9 interface. The top navigation bar includes the AWS logo, a services menu, and a search bar. Below the navigation, there's a sidebar with sections for Reservations (New), Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes, Snapshots). The 'Volumes' option under EBS is highlighted with a red box. To the right, a 'Resources' panel displays usage statistics: Instances (running) 0, Elastic IPs 1, and Load balancers 0.

- Click "Create Volume".

The screenshot shows the 'Volumes' list in the AWS Management Console. There are two existing volumes listed. At the top right of the list table, there is a yellow 'Create volume' button, which is also highlighted with a red box.

- Specify the volume type, size, and availability zone, then click "Create Volume".

The screenshot shows the 'Create volume' configuration page in the AWS Management Console. It includes fields for IOPS (set to 3000), Throughput (set to 125 MiB/s), Availability Zone (set to ap-south-1b), and a dropdown for Snapshot ID (set to 'Don't create volume from a snapshot'). The 'Create volume' button is at the bottom right.

## 2. Attach the EBS Volume to an Instance:

- Select the newly created volume from the "Volumes" list.
- Click on "Actions" and select "Attach Volume".

The screenshot shows the AWS EBS Volumes list interface. A specific volume, 'vol-0523e2e68d2f22025', is selected. In the 'Actions' dropdown menu, the 'Attach volume' option is highlighted with a red box.

- Choose the instance to attach the volume to and specify the device name (e.g., /dev/sdf), then click “Attach Volume”.

The screenshot shows the 'Attach Volume' configuration dialog for volume 'vol-0523e2e68d2f22025'. It includes fields for 'Availability Zone' (ap-south-1b), 'Instance' (selected as 'i-016737d019afec9c1 (awslinux) (running)'), 'Device name' ('/dev/sde'), and a note about Linux kernel device renaming.

**Availability Zone**  
ap-south-1b

**Instance** | [Info](#)  
i-016737d019afec9c1  
(awslinux) (running)

**Device name** | [Info](#)  
/dev/sde

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

Recommended device names for Linux: /dev/xvda for root volume. /dev/sd[f-p] for data volumes.

**Note:** Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in the details) is /dev/sdf through /dev/sdp.

- Since the Volume is created in us-west-1a Availability zone, it will automatically detect all the instances in same availability zone. (EBS is AZ service).

### 3. Formatting and Using the EBS Volume

- Connect to the EC2 Instance:
  - Use SSH to connect to your EC2 instance.

#### 2. Format the EBS Volume:

```
[ec2-user@ip-172-31-2-152 ~]$ sudo fdisk -l
Disk /dev/xvda: 8 GiB, 8589934592 bytes, 16777216 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: 174813BE-7DC8-40F8-A11F-AC3DAA194142

Device      Start    End  Sectors Size Type
/dev/xvda1   24576 16777182 16752607   8G Linux filesystem
/dev/xvda127 22528   24575     2048   1M BIOS boot
/dev/xvda128  2048    22527    20480  10M EFI System
```

Partition table entries are not in disk order.

```
Disk /dev/xvdb: 10 GiB, 10737418240 bytes, 20971520 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
[ec2-user@ip-172-31-2-152 ~]$ █
```

```
sudo mkfs.ext4 /dev/xvdb
```

```
[ec2-user@ip-172-31-2-152 ~]$ sudo mkfs.ext4 /dev/xvdb
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 2621440 4k blocks and 655360 inodes
Filesystem UUID: 87499014-3421-440a-888a-7b38817af800
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-172-31-2-152 ~]$ █
```

3. Mount the Volume:

```
sudo mkdir /data
sudo mount /dev/xvdb /data
```

```
[ec2-user@ip-172-31-2-152 ~]$ sudo mkdir /data
[ec2-user@ip-172-31-2-152 ~]$ sudo mount /dev/xvdb /data
[ec2-user@ip-172-31-2-152 ~]$
[ec2-user@ip-172-31-2-152 ~]$ sudo df -h
Filesystem      Size  Used Avail Use% Mounted on
/devtmpfs        4.0M    0   4.0M   0% /dev
tmpfs           475M    0   475M   0% /dev/shm
tmpfs           190M  2.9M  188M   2% /run
/dev/xvda1       8.0G  1.6G  6.4G  20% /
tmpfs           475M    0   475M   0% /tmp
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi
tmpfs            95M    0   95M   0% /run/user/1000
/dev/xvdb       9.8G   24K  9.3G   1% /data
[ec2-user@ip-172-31-2-152 ~]$
```

#### 4. Store Data:

- You can now store data in the /data directory.

```
sudo cd /data
touch a
touch b
```

#### 4. Create a Snapshot:

- Go to the “Volumes” section in the EC2 Dashboard.
- Select the volume, click “Actions”, and then “Create Snapshot”.
- Provide a description and click “Create Snapshot”.

Volumes (1/3) [Info](#)

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot
-	vol-088951c3f5dbfb1f5	gp3	10 GiB	3000	125	snap-0f590
-	vol-075582b69b4df3188	gp3	8 GiB	3000	125	snap-08fd4
<input checked="" type="checkbox"/>	vol-0523e2e68d2f22025	gp3	10 GiB	3000	125	-

[Actions ▾](#) [Create volume](#)

- [Modify volume](#)
- [Create snapshot](#) **>Create snapshot**
- [Create snapshot lifecycle policy](#)
- [Delete volume](#)
- [Attach volume](#)
- [Detach volume](#)

## Create snapshot Info

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

### Details

#### Volume ID

 vol-0523e2e68d2f22025

#### Description

Add a description for your snapshot

first snapshot

255 characters maximum.

#### Encryption Info

Not encrypted

### Tags Info

A tag is a label that you assign 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 AWS costs.

#### Key

#### Value - optional

 Name 

 First Snap 

 Remove

 Add tag

## 5. Create a Volume from a Snapshot:

- Go to the “Snapshots” section.
- Select the snapshot, click “Actions”, and then “Create Volume”.
- Specify the new volume details, including the availability zone, and click “Create Volume”.

Snapshots (1/2) Info

Owned by me  Search

Name	Snapshot ID	Volume size	Description	Storage tier	Actions
-	snap-0abf3c9c6b7a5f406	10 GiB	first snapshot	Standard	     
<input checked="" type="checkbox"/>	snap-01e29103cb68d25f2	10 GiB	second snapshot	Standard	     

  Actions     

Create volume from snapshot 

Create image from snapshot  
Copy snapshot  
Delete snapshot  
Manage tags

IOPS | [Info](#)

3000

Min: 3000 IOPS, Max: 16000 IOPS.

Throughput (MiB/s) | [Info](#)

125

Min: 125 MiB, Max: 1000 MiB. Baseline: 125 MiB/s.

Availability Zone | [Info](#)

ap-south-1c



Fast snapshot restore | [Info](#)

Not enabled for selected snapshot

Encryption

Use Amazon EBS encryption as an encryption solution for your EBS resources associated with your EC2 instances.

Encrypt this volume

- Choose the Availability zone where you want to create that volume.
- We have choose ap-south-c

## 6. Verification:

- After this Attach this volume to other instance in us-south-c

## 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-0beaa674e472e9ae6

Availability Zone

us-west-1b

Instance | [Info](#)

i-0d5df07a3ed6ea019



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

Device name | [Info](#)

/dev/sdb



Recommended device names for Linux: /dev/xvda for root volume. /dev/sd[f-p] for data volumes.

Newer Linux kernels may rename your devices to **/dev/xvdf** through **/dev/xvdः** internally, even when the device name entered here (and shown in the details) is **/dev/sdf** through **/dev/sdp**.

- Connect to that instance and mount the volume to /mydata folder.

```
[ec2-user@ip-172-31-24-67 ~]$  
[ec2-user@ip-172-31-24-67 ~]$ sudo mkdir /mydata  
[ec2-user@ip-172-31-24-67 ~]$ sudo mount /dev/xvdb /mydata  
[ec2-user@ip-172-31-24-67 ~]$  
[ec2-user@ip-172-31-24-67 ~]$ sudo df -h  
Filesystem      Size  Used Avail Use% Mounted on  
devtmpfs        4.0M   0    4.0M  0% /dev  
tmpfs          475M   0    475M  0% /dev/shm  
tmpfs          190M  2.9M  188M  2% /run  
/dev/xvda1       8.0G  1.6G  6.5G  20% /  
tmpfs          475M   0    475M  0% /tmp  
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi  
tmpfs          95M   0    95M  0% /run/user/1000  
/dev/xvdb       9.8G  40K  9.3G  1% /mydata  
[ec2-user@ip-172-31-24-67 ~]$ █
```

- And see whether the same data is present or not.
- Hence the verification is successful.