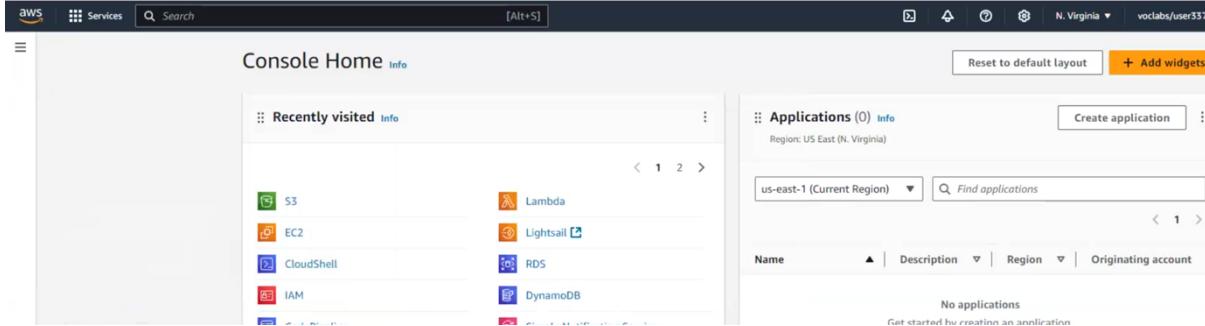


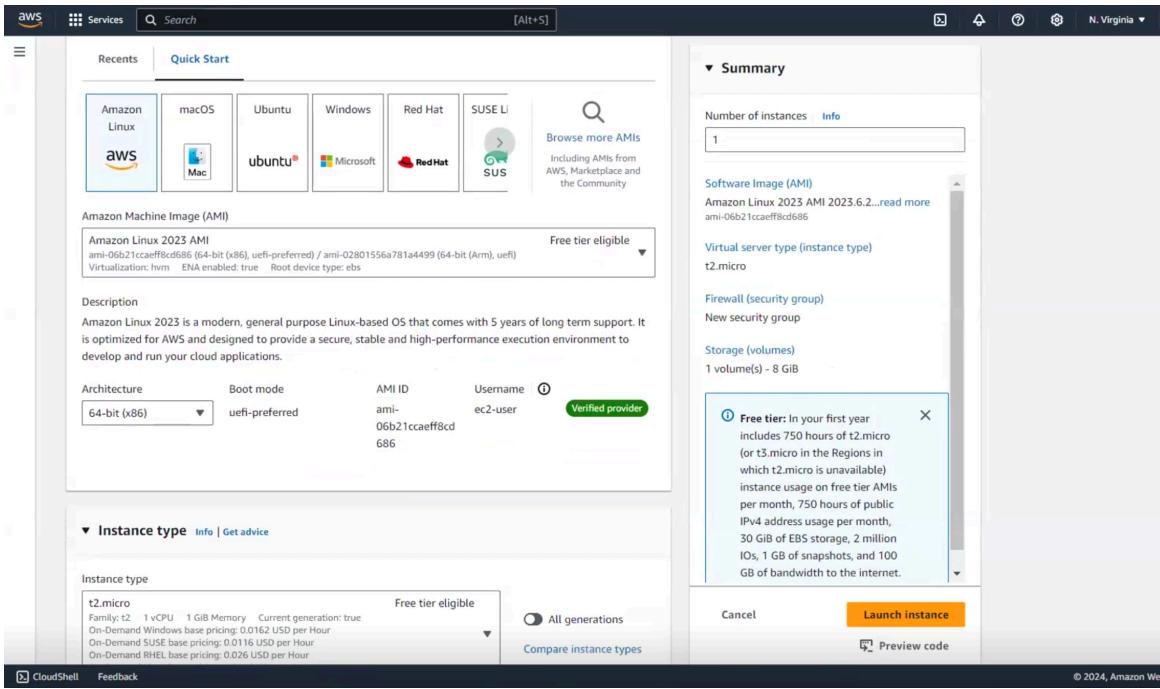
EBS

1. Ensure your region is set to “N Virginia”



2. Create 1 EC2 instance using the 7 step workflow

a) Use the usual Amazon Linux AMI in AZ1



The screenshot shows the AWS EC2 Instances page. The left sidebar navigation includes: EC2 Dashboard, EC2 Global View, Events, Instances (selected), Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity, Reservations (New), Images, Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), CloudShell, and Feedback.

The main content area displays the "Instances (1/1) Info" section. A search bar at the top allows filtering by instance ID or tag. The table lists one instance:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status
GL-Lab-01-EC2	i-0c7f65d3ffc8df826	Running	t2.micro	2/2 checks passed	View alarms +

A detailed view for the instance i-0c7f65d3ffc8df826 (GL-Lab-01-EC2) is shown. The "Details" tab is selected, followed by Status alarms, Monitoring, Security, Networking, Storage, and Tags.

Instance summary

Attribute	Value
Instance ID	i-0c7f65d3ffc8df826 (GL-Lab-01-EC2)
IPv6 address	-
Hostname type	IP name: ip-172-31-44-188.ec2.internal
Public IPv4 address	35.173.201.152 [open address]
Instance state	Running
Private IP DNS name (IPv4 only)	ip-172-31-44-188.ec2.internal
Private IPv4 addresses	172.31.44.188
Public IPv4 DNS	ec2-35-173-201-152.compute-1.amazonaws.com

At the bottom, there are links for "Create new instance", "CloudWatch Metrics", "CloudWatch Logs", "CloudWatch Metrics Insights", "CloudWatch Metrics Insights", and "Feedback".

b) Download a new PEM file and SSH to the instance

A screenshot of a Google Chrome browser window. The address bar shows 'chrome://downloads'. The main content area is titled 'Download history' and shows a single item: a file named 'lab-01.pem' with a file icon. A search bar at the top says 'Search download history' and a 'Clear all' button is in the top right corner. The date 'Today' is indicated above the download entry.

aws Services Search [Alt+S] N. Virginia vocabs/user337

CloudShell

us-east-1 +

```
[cloudshell-user@ip-10-136-51-72 ~]$ ls
lab-01.pem
[cloudshell-user@ip-10-136-51-72 ~]$ ssh -i ./lab-01.pem ec2-user@35.173.201.152
The authenticity of host '35.173.201.152 (35.173.201.152)' can't be established.
ED25519 key fingerprint is SHA256:khgYfgpwYyNyp4gNUntxMTEGAYNmZCRcc3IvkvTw4.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '35.173.201.152' (ED25519) to the list of known hosts.

          #
~\### Amazon Linux 2023
~~\###\
~~\###|
~~ #/ https://aws.amazon.com/linux/amazon-linux-2023
~~ V~' ->
~~ / \
~~-.-
~/-
~/m/
[ec2-user@ip-172-31-44-188 ~]$ █
```

3. Volumes

a) Use the console to get a 10G magnetic volume in the same AZ1

The screenshot shows the AWS EC2 Dashboard with the 'Elastic Block Store' section selected. A success message at the top says 'Successfully created volume vol-05d0f9969636a8f03.' Below it, the 'Volumes (1/2)' table lists one item:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability...	Volume state	Alarm
10GB-us-east-1b-Vol	vol-05d0f9969636a8f03	gp3	10 GiB	3000	125	snap-0bc7570...	2024/10/20 10:22 GMT+5:...	us-east-1b	In-use	No alarm

Below the table, a detailed view for 'Volume ID: vol-05d0f9969636a8f03 (10GB-us-east-1b-Vol)' is shown. It includes fields like Volume ID, Size (10 GiB), Type (gp3), Volume status (Okay), and Created (Sun Oct 20 2024 11:02:15 GMT+0530 (India Standard Time)).

b) Attach the volume to the instance

The screenshot shows the 'Attach volume' page under the 'Volumes' section. The URL is EC2 > Volumes > vol-05d0f9969636a8f03 > Attach volume.

The 'Basic details' section contains the following information:

- Volume ID: vol-05d0f9969636a8f03 (10GB-us-east-1b-Vol)
- Availability Zone: us-east-1b
- Instance: i-0c765d3ff8cf826
- Device name: /dev/sdf

A note below the device name field states: "Only instances in the same Availability Zone as the selected volume are displayed."

A warning box notes: "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."

At the bottom right are 'Cancel' and 'Attach volume' buttons.

The screenshot shows the AWS EC2 Dashboard. On the left, there's a sidebar with navigation links like Instances, Images, and Elastic Block Store. The main area is titled 'Volumes (1/2) Info' and shows a table with one row. The row details a volume named '10GB-us-east-1b-Vol' with Volume ID 'vol-05d0f9969636a8f03'. It's a gp3 type, 10 GiB size, 3000 IOPS, 125 throughput, and was created on 2024/10/20 10:22 GMT+5:30. The status is 'In-use' and it's located in 'us-east-1b'. A note says 'No auto-termination'.

c) Format the volume and mount it

```
[ec2-user@ip-172-31-44-188 ~]$ sudo su
[root@ip-172-31-44-188 ec2-user]# 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
xvdf     202:80   0  10G  0 disk 
[root@ip-172-31-44-188 ec2-user]#
```

```
[root@ip-172-31-44-188 ec2-user]# file -s /dev/xvdf
/dev/xvdf: data
```

```
[root@ip-172-31-44-188 ec2-user]# mkfs -t ext4 /dev/xvdf
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 2621440 4k blocks and 655360 inodes
Filesystem UUID: b6cf892e-3dbf-4587-9d33-094bc53e1872
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-172-31-44-188 ec2-user]#
```

```
[root@ip-172-31-44-188 ec2-user]# file -s /dev/xvdf
/dev/xvdf: Linux rev 1.0 ext4 filesystem data, UUID=b6cf892e-3dbf-4587-9d33-094bc53e1872 (extents) (64bit) (large files) (huge files)
[root@ip-172-31-44-188 ec2-user]#
```

```
[root@ip-172-31-44-188 ec2-user]# mkdir /ext-vol-1
[root@ip-172-31-44-188 ec2-user]# mount /dev/xvdf /ext-vol-1
[root@ip-172-31-44-188 ec2-user]#
```

```
[root@ip-172-31-44-188 ec2-user]# 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
xvdf    202:80   0  10G  0 disk /ext-vol-1
[root@ip-172-31-44-188 ec2-user]#
```

d) Create a sample text file in the volume to simulate data creation

```
[root@ip-172-31-44-188 ec2-user]# cd /ext-vol-1/
[root@ip-172-31-44-188 ext-vol-1]# echo "A file with some sample content" >> ./sample.txt
[root@ip-172-31-44-188 ext-vol-1]# cat ./sample.txt
A file with some sample content
[root@ip-172-31-44-188 ext-vol-1]#
```

e) Unmount, detach the volume

```
[root@ip-172-31-44-188 ext-vol-1]# pwd
/ext-vol-1
[root@ip-172-31-44-188 ext-vol-1]# cd /
[root@ip-172-31-44-188/]# umount /dev/xvdf
[root@ip-172-31-44-188/]# 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
xvdf    202:80   0  10G  0 disk
[root@ip-172-31-44-188/]#
```

Screenshot of the AWS EC2 Dashboard showing the Volumes (1/2) page. A modal window titled "Detach vol-05d0f9969636a8f03" is open, asking for confirmation to detach the volume. The volume details shown are:

Volume ID	Name	Type	Size	IOPS	Throughput	Snapshot ID	Created	Volume state
vol-05d0f9969636a8f03	-	gp3	10 GiB	3000	125	snap-0bc7570...	2024/10/20 10:22 GMT+5:...	in-use
vol-05d0f9969636a8f03	10GB-us-east-1b-Vol	gp3	10 GiB	3000	125		2024/10/20 11:02 GMT+5:...	available

The modal has "Cancel" and "Detach" buttons.

Screenshot of the AWS EC2 Dashboard showing the Volumes (2) page after the volume has been detached. A success message "Successfully detached volume." is displayed. The volume details now show the detached state:

Volume ID	Name	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability...	Volume state
vol-05d0f9969636a8f03	-	gp3	10 GiB	3000	125	snap-0bc7570...	2024/10/20 10:22 GMT+5:...	us-east-1b	in-use
vol-05d0f9969636a8f03	10GB-us-east-1b-Vol	gp3	10 GiB	3000	125	-	2024/10/20 11:02 GMT+5:...	us-east-1b	available

4. Snapshot

a) Create a snapshot of the detached volume

AWS Services Search [Alt+S] N. Virginia vocabs/user3372

Source volume

Volume ID	vol-05d0f9969636a8f03 (10GB-us-east-1b-Vol)	Availability Zone	us-east-1b
-----------	---	-------------------	------------

Snapshot details

Description
Add a description for your snapshot
Snapshot of 10GB Volume
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
Q Name	Q 10GB-Snapshot

Add tag
You can add 49 more tags.

Create snapshot

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Successfully created snapshot snap-09ccf018d07f80e0f from volume vol-05d0f9969636a8f03. If you need your snapshot to be immediately available consider using Fast Snapshot Restore.

Volumes (2) Info

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability...	Volume state	Alarm
vol-0a59497f58611d51c	gp3	8 GiB	3000	125	-	snap-0bc7570...	2024/10/20 10:22 GMT+5:...	us-east-1b	In-use	No alarm
10GB-us-east-1b-Vol	vol-05d0f9969636a8f03	gp3	10 GiB	3000	125	-	2024/10/20 11:02 GMT+5:...	us-east-1b	Available	No alarm

Fault tolerance for all volumes in this Region

Snapshot summary

Recently backed up volumes / Total # volumes
0 / 1

Data Lifecycle Manager default policy for EBS Snapshots status
Failed to fetch default policy status

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Snapshots (1/1) Info

Name	Snapshot ID	Volume size	Description	Storage tier	Snapshot status	Started	Progress	Encryption
10GB-Snapshot	snap-09ccf018d07f80e0f	10 GiB	Snapshot of 10GB Volume	Standard	Pending	2024/10/20 11:37 GMT+5:...	Unavailable (1%)	Not encrypted

Snapshot ID: snap-09ccf018d07f80e0f (10GB-Snapshot)

Details | Snapshot settings | Storage tier | Tags

Snapshot ID: snap-09ccf018d07f80e0f (10GB-Snapshot)
Started: Sun Oct 20 2024 11:37:33 GMT+0530 (India Standard Time)
Source volume: Volume ID vol-05d0f9969636a8f03
Encryption: KMS key ID
KMS key alias
Owner: 154859184757
Description: Snapshot of 10GB Volume

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b) Create a new SSD volume of 15G and apply the snapshot to it

The screenshot shows the AWS EC2 Dashboard. On the left, there's a sidebar with various navigation options like Instances, Images, and Elastic Block Store. The main area displays a table titled "Successfully created volume vol-045db8c177911e849." The table has columns for Name, Volume ID, Type, Size, IOPS, Throughput, Snapshot ID, Created, Availability..., and Volume state. There are three rows: one for the newly created 15GB volume (gp3), one for an 8GB volume (gp3), and one for a 10GB volume (gp3). Below the table, a detailed view for the 15GB volume is shown, including its volume ID, size (15 GiB), type (gp3), and status (Available, Okay). It also shows AWS Compute Optimizer findings, volume state, availability zone (us-east-1b), and creation time (Sun Oct 20 2024 11:45:11 GMT+0530 (India Standard Time)).

c) Attach, mount and check if the data is there

The screenshot shows the "Attach volume" page in the AWS EC2 service. The URL is EC2 > Volumes > vol-045db8c177911e849 > Attach volume. The page has a header with AWS services and a search bar. The main form is titled "Attach volume" and contains sections for "Basic details" and "Advanced options". In the "Basic details" section, the "Volume ID" is set to vol-045db8c177911e849, the "Availability Zone" is us-east-1b, and the "Instance" dropdown is set to i-0c7f65d3ff8df826. The "Device name" field is set to /dev/sdf. A note below the device name field states: "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." At the bottom of the form are "Cancel" and "Attach volume" buttons.

Successfully attached volume vol-045db8c177911e849 to instance i-0c7f65d3ffcf8df826.

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability...	Volume state
15GB-Vol-Created-From-S...	vol-045db8c177911e849	gp3	15 GiB	3000	125	snap-09ccf01...	2024/10/20 11:45 GMT+5:...	us-east-1b	In-use
-	vol-0a59497f58611d1c	gp3	8 GiB	3000	125	snap-0bc7570...	2024/10/20 10:22 GMT+5:...	us-east-1b	In-use
10GB-us-east-1b-Vol	vol-05d0f9969636a8f03	gp3	10 GiB	3000	125	-	2024/10/20 11:02 GMT+5:...	us-east-1b	Available

Volume ID: vol-045db8c177911e849 (15GB-Vol-Created-From-Snapshot)

Details	Status checks	Monitoring	Tags
Volume ID <input checked="" type="checkbox"/> vol-045db8c177911e849 (15GB-Vol-Created-From-Snapshot)	Size <input checked="" type="checkbox"/> 15 GiB	Type <input checked="" type="checkbox"/> gp3	Volume status <input checked="" type="checkbox"/> Insufficient data
AWS Compute Optimizer finding <input checked="" type="checkbox"/> This user is not authorized to call AWS Compute Optimized. Retry	Volume state <input checked="" type="checkbox"/> In-use	IOPS <input checked="" type="checkbox"/> 3000	Throughput <input checked="" type="checkbox"/> 125
Fast snapshot restored <input checked="" type="checkbox"/> No	Availability Zone <input checked="" type="checkbox"/> us-east-1b	Created <input checked="" type="checkbox"/> Sun Oct 20 2024 11:45:11 GMT+0530 (India Standard Time)	Multi-Attach enabled <input checked="" type="checkbox"/> No
Attached resources <input checked="" type="checkbox"/> i-0c7f65d3ffcf8df826 (GL-Lab-01-EC2) :/dev/sdf (attached)	Outposts ARN		

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```
[root@ip-172-31-44-188 /]# 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
xvdf    202:80   0  15G  0 disk
[root@ip-172-31-44-188 /]#
```

```
[root@ip-172-31-44-188 /]# file -s /dev/xvdf
/dev/xvdf: Linux rev 1.0 ext4 filesystem data, UUID=b6cf892e-3dbf-4587-9d33-094bc53e1872 (extents) (64bit) (large files) (huge files)
[root@ip-172-31-44-188 /]#
```

```
[root@ip-172-31-44-188 /]# mkdir /ext-vol-1-15-gb
[root@ip-172-31-44-188 /]# mount /dev/xvdf /ext-vol-1-15-gb
[root@ip-172-31-44-188 /]# 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
xvdf    202:80   0  15G  0 disk /ext-vol-1-15-gb
[root@ip-172-31-44-188 /]#
```

```
xvdf    202:80   0  15G  0 disk /ext-vol-1-15-gb
[root@ip-172-31-44-188 /]# cd /ext-vol-1-15-gb
[root@ip-172-31-44-188 ext-vol-1-15-gb]# ls
lost+found  sample.txt
[root@ip-172-31-44-188 ext-vol-1-15-gb]#
```

```
[root@ip-172-31-44-188 ext-vol-1-15-gb]# cat ./sample.txt
A file with some sample content
[root@ip-172-31-44-188 ext-vol-1-15-gb]#
```

```
[root@ip-172-31-44-188 ext-vol-1-15-gb]# cd /
[root@ip-172-31-44-188 /]# umount /dev/xvdf
[root@ip-172-31-44-188 /]# 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
xvdf      202:80  0  15G  0 disk
[root@ip-172-31-44-188 /]#
```

The screenshot shows the AWS EC2 Dashboard with the 'Elastic Block Store' section selected. A modal dialog is open, prompting the user to confirm the detachment of volume 'vol-045db8c177911e849'. The background displays a table of volumes with columns including Name, Volume ID, Type, Size, IOPS, Throughput, Snapshot ID, Created, Availability Zone, and Volume state.

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone	Volume state
15GB-Vol-Created-From-Snapshot	vol-045db8c177911e849	gp3	15 GiB	3000	125	snap-09ccf01...	2024/10/20 11:45 GMT+5...	us-east-1b	Available
-	vol-0a59497f58611d51c	gp3	8 GiB	3000	125	snap-0bc7570...	2024/10/20 10:22 GMT+5...	us-east-1b	In-use
10GB-us-east-1b-Vol	vol-05d0f9969636a8f03	gp3	10 GiB	3000	125	-	2024/10/20 11:02 GMT+5...	us-east-1b	Available

The screenshot shows the AWS EC2 Dashboard with the 'Elastic Block Store' section selected. A success message 'Successfully detached volume.' is displayed above the volume list. The volume '15GB-Vol-Created-From-Snapshot' is now listed as 'In-use' in the 'Volume state' column. The background shows the same volume table and configuration details as the previous screenshot.

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone	Volume state
15GB-Vol-Created-From-Snapshot	vol-045db8c177911e849	gp3	15 GiB	3000	125	snap-09ccf01...	2024/10/20 11:45 GMT+5...	us-east-1b	In-use
-	vol-0a59497f58611d51c	gp3	8 GiB	3000	125	snap-0bc7570...	2024/10/20 10:22 GMT+5...	us-east-1b	Available
10GB-us-east-1b-Vol	vol-05d0f9969636a8f03	gp3	10 GiB	3000	125	-	2024/10/20 11:02 GMT+5...	us-east-1b	Available

```
[root@ip-172-31-44-188 /]# 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
[root@ip-172-31-44-188 /]#
```