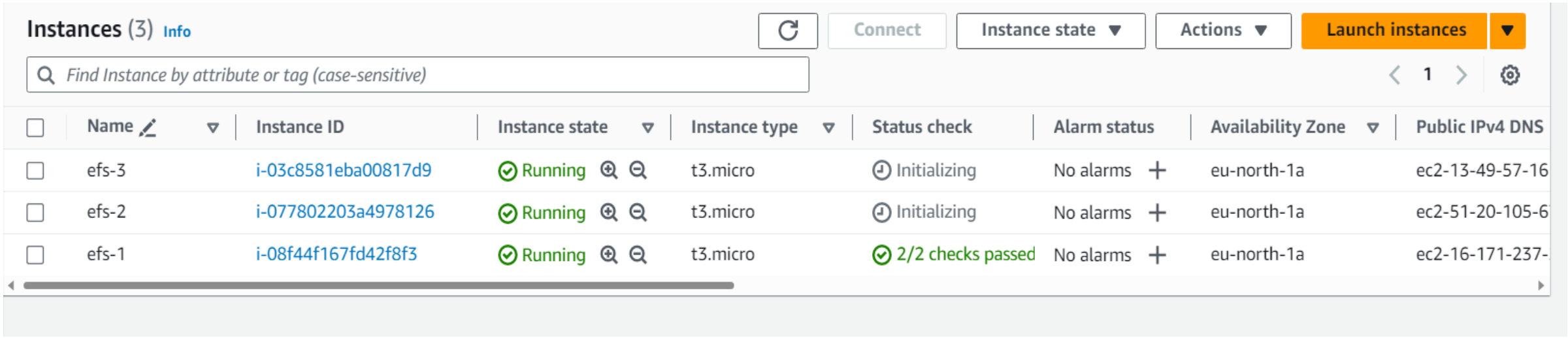
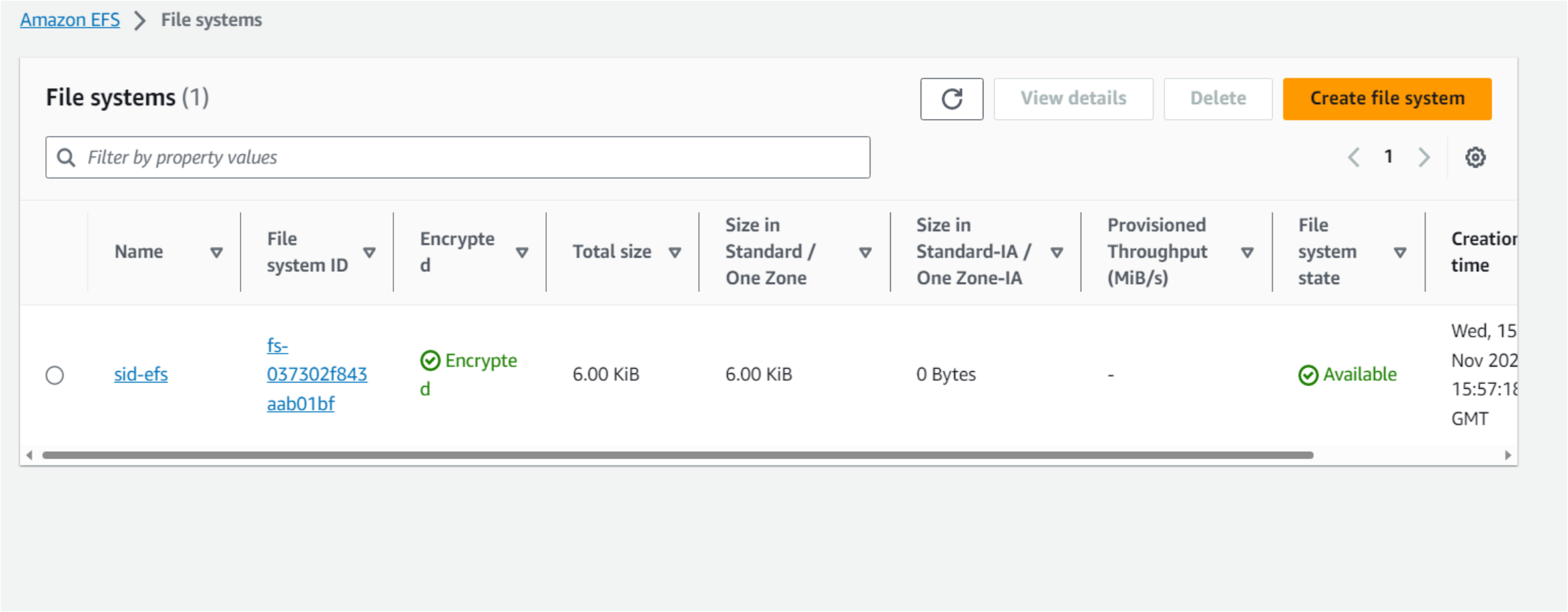
EC2 and EFS assignment

Tasks To Be Performed:

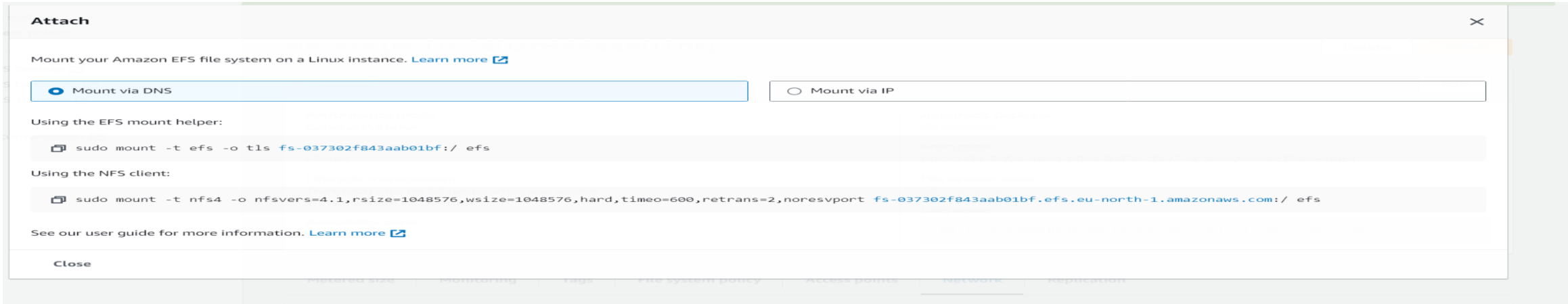
1. Create an EFS and connect it to 3 different EC2 instances. Make sure that all instances have different operating systems. For instance, Ubuntu, Red Hat Linux and Amazon Linux 2.



Three instance with redhat ,amazon linux 2 and ubuntu os .



Choose EFS service open in new tab link
Go on file system – create fs- name- create
Click on efs go on network unselect default one choose with sg with all traffic allows services
Go on attach – copy second link – change directory name which is in last and mount .



You must delete all existing mount targets in order to change the VPC of your file system.

Mount targets

A mount target provides an NFSv4 endpoint at which you can mount an Amazon EFS file system. We recommend creating one mount target per Availability Zone. Learn more

Availability zone	Subnet ID	IP address	Security groups	
eu-north-1a	subnet-04fef07ed760f4ba5	172.31.20.154	Choose security groups sg-0ea6c1cd698da37c8 launch-wizard-17	Remove
eu-north-1b	subnet-06dfdd82fb120796:	172.31.42.131	Choose security groups sg-0ea6c1cd698da37c8 launch-wizard-17	Remove
eu-north-1c	subnet-06d7f09cca266494f	172.31.5.240	Choose security groups sg-0ea6c1cd698da37c8 launch-wizard-17	Remove

Add mount target

You can only create one mount target per Availability Zone.

Cancel Save

```
[root@ip-172-31-28-10 ec2-user]# sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-037302f843aab01bf.efs.eu-north-1.amazo
naws.com:/ sid
[root@ip-172-31-28-10 ec2-user]# ls
sid
[root@ip-172-31-28-10 ec2-user]# cd sid
[root@ip-172-31-28-10 sid]# ls
[root@ip-172-31-28-10 sid]# df -h
Filesystem                                      Size  Used Avail Use% Mounted on
devtmpfs                                        4.0M     0  4.0M   0% /dev
tmpfs                                           453M     0  453M   0% /dev/shm
tmpfs                                           181M  440K  181M   1% /run
/dev/nvme0n1p1                                  8.0G  1.5G  6.5G  19% /
tmpfs                                           453M     0  453M   0% /tmp
/dev/nvme0n1p128                                 10M  1.3M  8.7M  13% /boot/efi
tmpfs                                            91M     0   91M   0% /run/user/1000
fs-037302f843aab01bf.efs.eu-north-1.amazonaws.com:/  8.0E     0  8.0E   0% /home/ec2-user/sid
[root@ip-172-31-28-10 sid]# touch 1.txt
[root@ip-172-31-28-10 sid]# ls
1.txt
[root@ip-172-31-28-10 sid]#
```

i-08f44f167fd42f8f3 (efs-1)

PublicIPs: 16.171.237.206 PrivateIPs: 172.31.28.10

```
root@ip-172-31-29-93:/home/ubuntu# ls
sid
root@ip-172-31-29-93:/home/ubuntu# sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-037302f843aab01bf.efs.eu-north-1.ama
zonaws.com:/ sid
root@ip-172-31-29-93:/home/ubuntu# cd sid
root@ip-172-31-29-93:/home/ubuntu/sid# ls
root@ip-172-31-29-93:/home/ubuntu/sid# df -h
Filesystem                                      Size  Used Avail Use% Mounted on
/dev/root                                       7.6G  1.8G  5.9G  24% /
tmpfs                                           463M     0  463M   0% /dev/shm
tmpfs                                           185M  844K  185M   1% /run
tmpfs                                           5.0M     0  5.0M   0% /run/lock
/dev/nvme0n1p15                                 105M  6.1M   99M   6% /boot/efi
tmpfs                                            93M  4.0K   93M   1% /run/user/1000
fs-037302f843aab01bf.efs.eu-north-1.amazonaws.com:/  8.0E     0  8.0E   0% /home/ubuntu/sid
root@ip-172-31-29-93:/home/ubuntu/sid# ls
root@ip-172-31-29-93:/home/ubuntu/sid# cd ..
root@ip-172-31-29-93:/home/ubuntu# ls
sid
root@ip-172-31-29-93:/home/ubuntu# cd sid
root@ip-172-31-29-93:/home/ubuntu/sid# ls
1.txt
root@ip-172-31-29-93:/home/ubuntu/sid#
```

i-077802203a4978126 (efs-2)

PublicIPs: 51.20.105.67 PrivateIPs: 172.31.29.93

sudo yum -y install nfs-utils – for amazon and redhat instance

sudo apt-get install nfs-common -y for ubuntu instance .

```
[ec2-user@ip-172-31-26-143 ~]$ mkdir sid
[ec2-user@ip-172-31-26-143 ~]$ ls
sid
[ec2-user@ip-172-31-26-143 ~]$ cd sid
[ec2-user@ip-172-31-26-143 sid]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M     0  4.0M   0% /dev
tmpfs           366M     0  366M   0% /dev/shm
tmpfs           147M  3.5M  143M   3% /run
/dev/nvme0n1p4  9.4G  1.3G  8.1G  14% /
/dev/nvme0n1p3  495M  165M  331M  34% /boot
/dev/nvme0n1p2  200M  8.0K  200M   1% /boot/efi
tmpfs            74M     0   74M   0% /run/user/1000
[ec2-user@ip-172-31-26-143 sid]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-037302f843aab01bf.efs.eu-north-1.amazonaws.com:/ sid
mount.nfs4: mount point sid does not exist
[ec2-user@ip-172-31-26-143 sid]$ cd ..
[ec2-user@ip-172-31-26-143 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-037302f843aab01bf.efs.eu-north-1.amazonaws.com:/sid
mount: fs-037302f843aab01bf.efs.eu-north-1.amazonaws.com:/sid: can't find in /etc/fstab.
[ec2-user@ip-172-31-26-143 ~]$ ls
sid
[ec2-user@ip-172-31-26-143 ~]$ cd sid
[ec2-user@ip-172-31-26-143 sid]$ ls
[ec2-user@ip-172-31-26-143 sid]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M     0  4.0M   0% /dev
tmpfs           366M     0  366M   0% /dev/shm
tmpfs           147M  3.5M  143M   3% /run
/dev/nvme0n1p4  9.4G  1.3G  8.1G  14% /
/dev/nvme0n1p3  495M  165M  331M  34% /boot
/dev/nvme0n1p2  200M  8.0K  200M   1% /boot/efi
tmpfs            74M     0   74M   0% /run/user/1000
[ec2-user@ip-172-31-26-143 sid]$ cd ..
[ec2-user@ip-172-31-26-143 ~]$ sudo mount -t nfs4 -o nfsvers=4.1,rsize=1048576,wsize=1048576,hard,timeo=600,retrans=2,noresvport fs-037302f843aab01bf.efs.eu-north-1.amazonaws.com:/ sid
[ec2-user@ip-172-31-26-143 ~]$ df -h
Filesystem                                      Size  Used Avail Use% Mounted on
devtmpfs                                        4.0M     0  4.0M   0% /dev
tmpfs                                           366M     0  366M   0% /dev/shm
tmpfs                                           147M  3.5M  143M   3% /run
/dev/nvme0n1p4                                  9.4G  1.3G  8.1G  14% /
/dev/nvme0n1p3                                  495M  165M  331M  34% /boot
/dev/nvme0n1p2                                  200M  8.0K  200M   1% /boot/efi
tmpfs                                            74M     0   74M   0% /run/user/1000
fs-037302f843aab01bf.efs.eu-north-1.amazonaws.com:/  8.0E     0  8.0E   0% /home/ec2-user/sid
[ec2-user@ip-172-31-26-143 ~]$ cd sid
[ec2-user@ip-172-31-26-143 sid]$ ls
1.txt
[ec2-user@ip-172-31-26-143 sid]$
```

EC2 EFS and EBS assignment

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.

```
ubuntu@ip-172-31-17-115:/var/www/html$ history
    1  sudo apt-get update -y
    2  sudo apt-get install nginx -y
    3  cd /var/www/html
    4  ls
    5  sudo nano index.nginx-debian.html
    6  history
ubuntu@ip-172-31-17-115:/var/www/html$
```

i-09b6938eb9698022b (ebs_instance)

PublicIPs: 51.20.135.88 PrivateIPs: 172.31.17.115

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.

This is a Heading

This is a paragraph.

Create image Info

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-09b6938eb9698022b (ebs_instance)

Image name

nginx-ami

Maximum 127 characters. Can't be modified after creation.

Image description - *optional*

nginx sever containing

Maximum 255 characters

No reboot

Enable

Instance volumes

Instance volumes

Storage type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/...	Create new snapshot fr...	8	EBS General Purpose S...	100		Enable	Enable

Add volume

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

Tags - *optional*

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.

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.

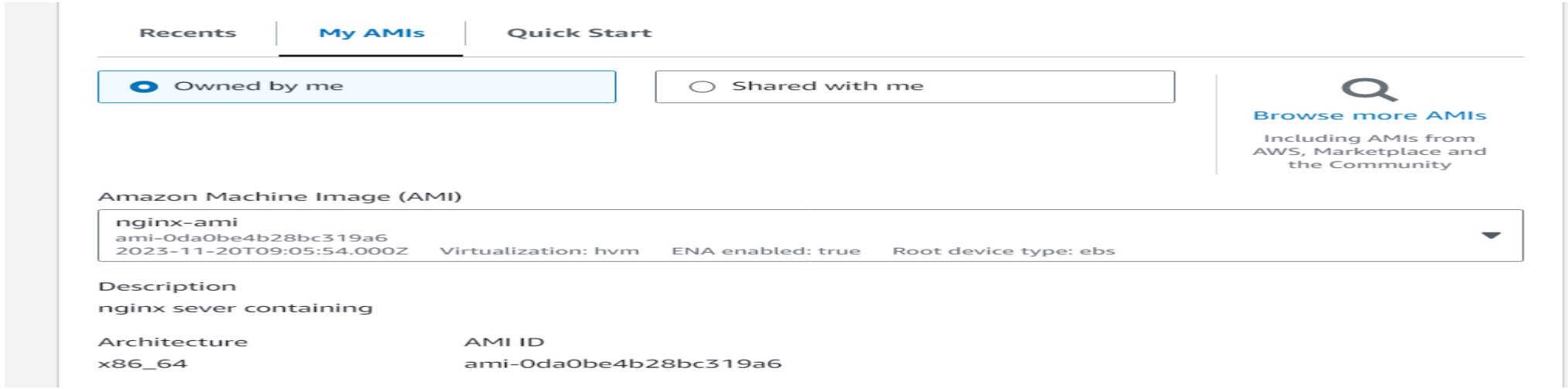
No tags associated with the resource.

Add new tag

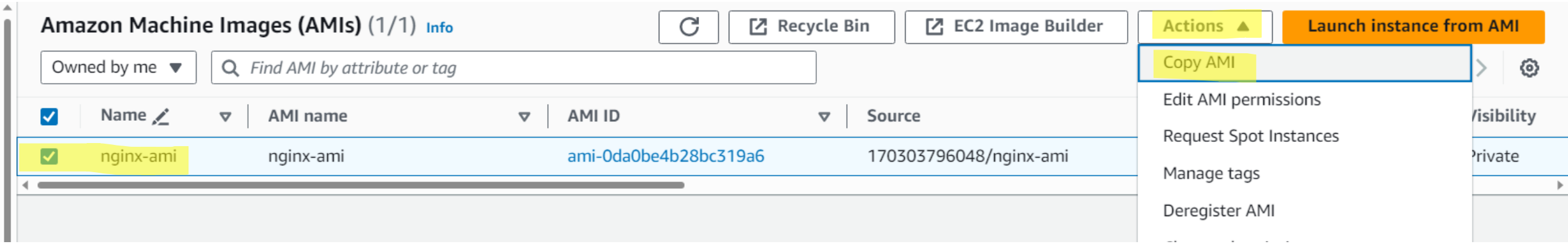
You can add up to 50 more tags.

Cancel Create image

You can launch the instance in the same region using your own created ami by choose ami in ami section or come back launch new instance section then choose your own my ami.



For launching ami in another region follow below steps.



Copy AMI Info

Create a copy of an Amazon Machine Image in a Region.

Copy Amazon Machine Image (AMI)

Original AMI ID

ami-0da0be4b28bc319a6 (nginx-ami)

AMI copy name

nginx-ami-mumbai

AMI copy description

[Copied ami-0da0be4b28bc319a6 (nginx-ami) from eu-north-1] nginx-ami

Destination Region

A copy of the original AMI will be created in the destination Region.

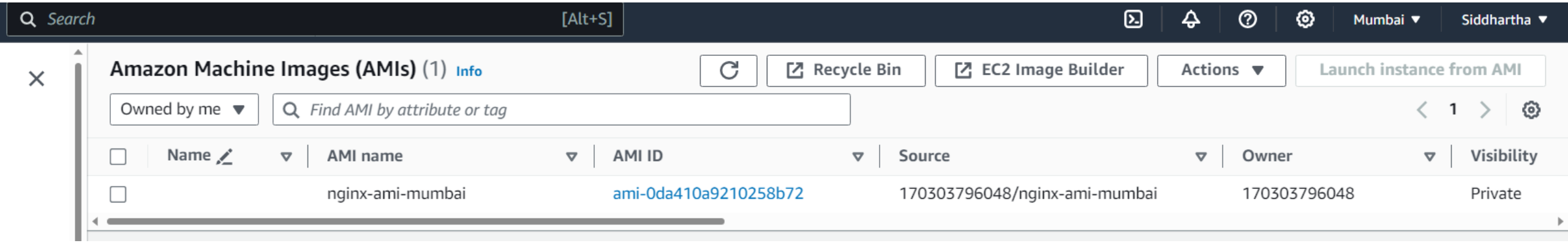
Asia Pacific (Mumbai)

- [ ] Copy tags
  Includes your user-defined AMI tags when copying the AMI.

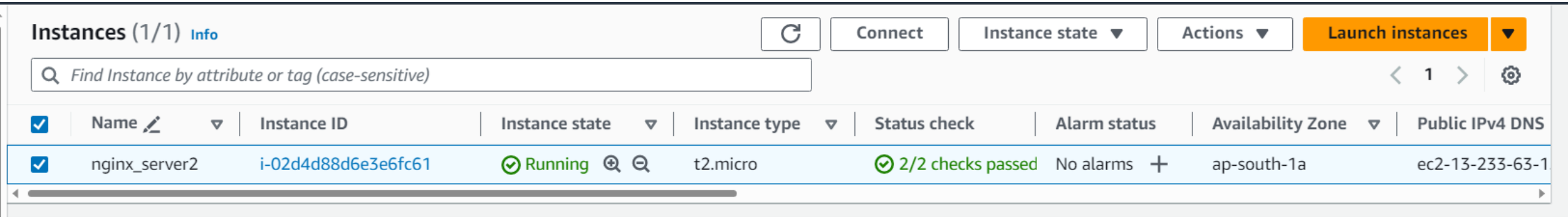
- [ ] Encrypt EBS snapshots of AMI copy
  Encrypts all snapshots in the AMI copy with the same key.

Cancel Copy AMI

Change the region and see the ami is already copied.



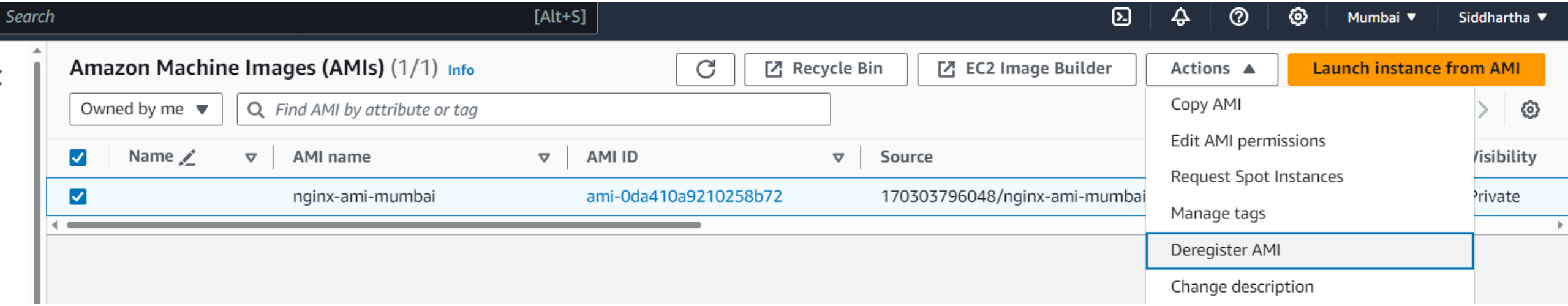
Launch the instance using ami copy the ip address and browse .



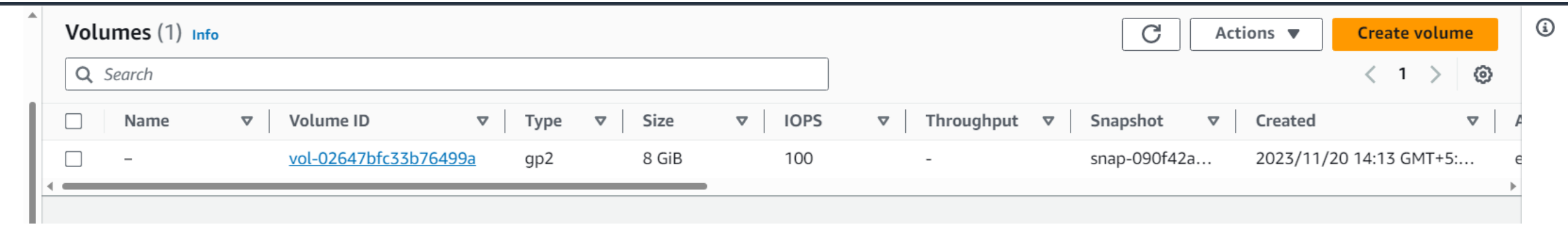
This is a Heading

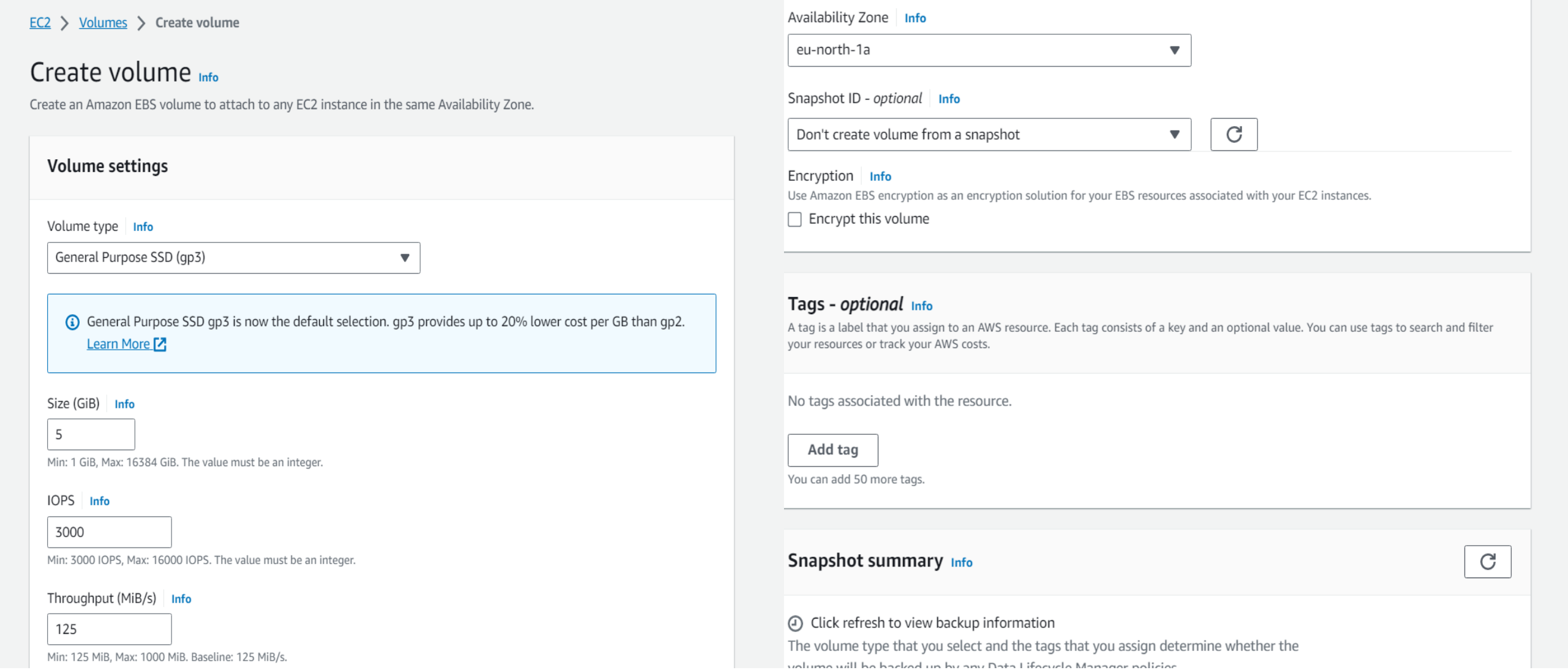
This is a paragraph.

Terminate the instance and deregister the ami which is deleting and delete the snapshot or choose don’t create the snapshot .

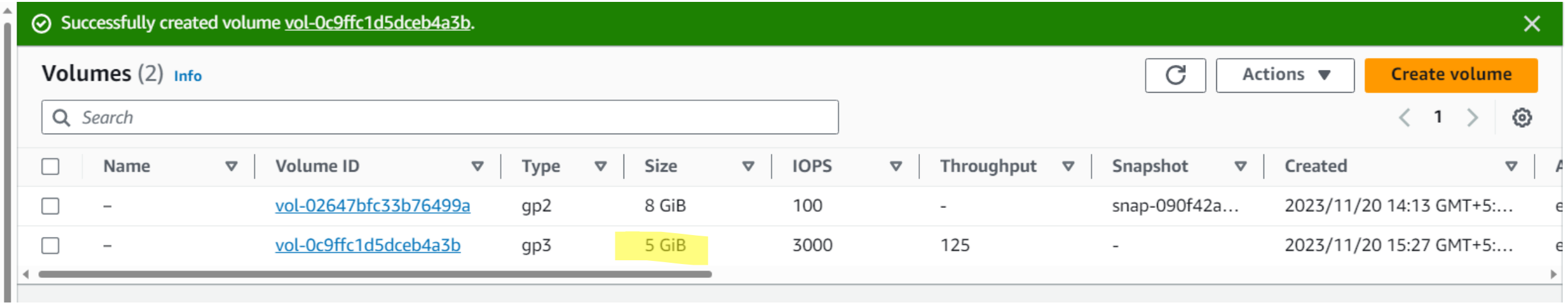


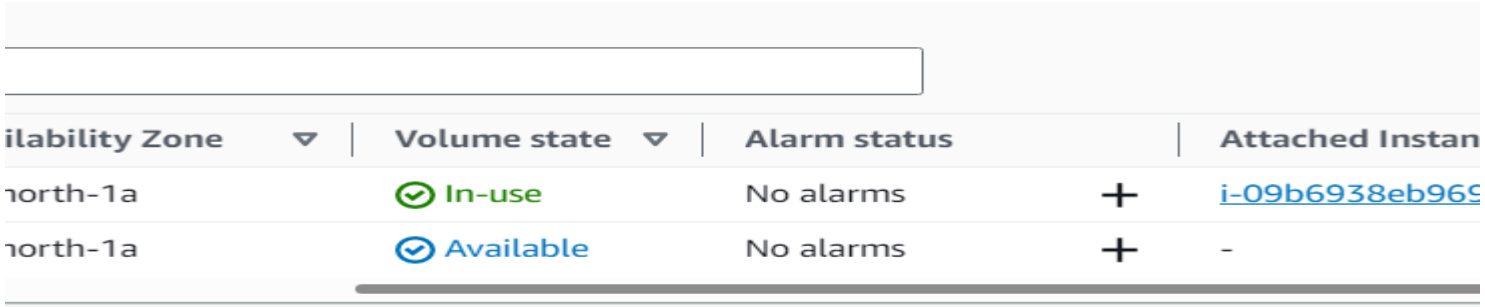
Now we are going to create new volume and attach to launched instance.



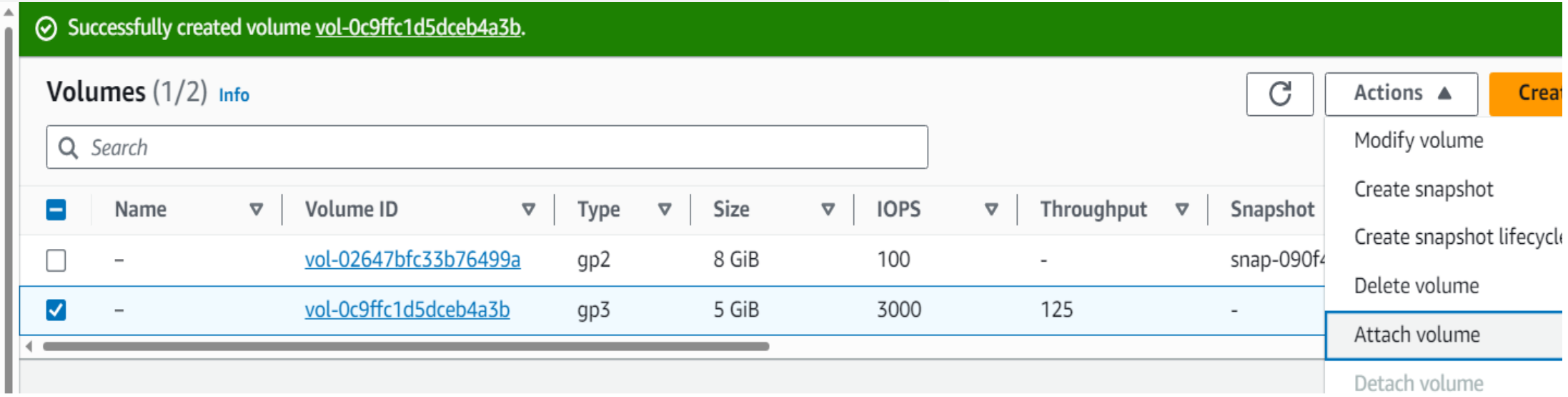


You can choose any size, and availability zone will be same as instance region. You can also tag some name and create volume.

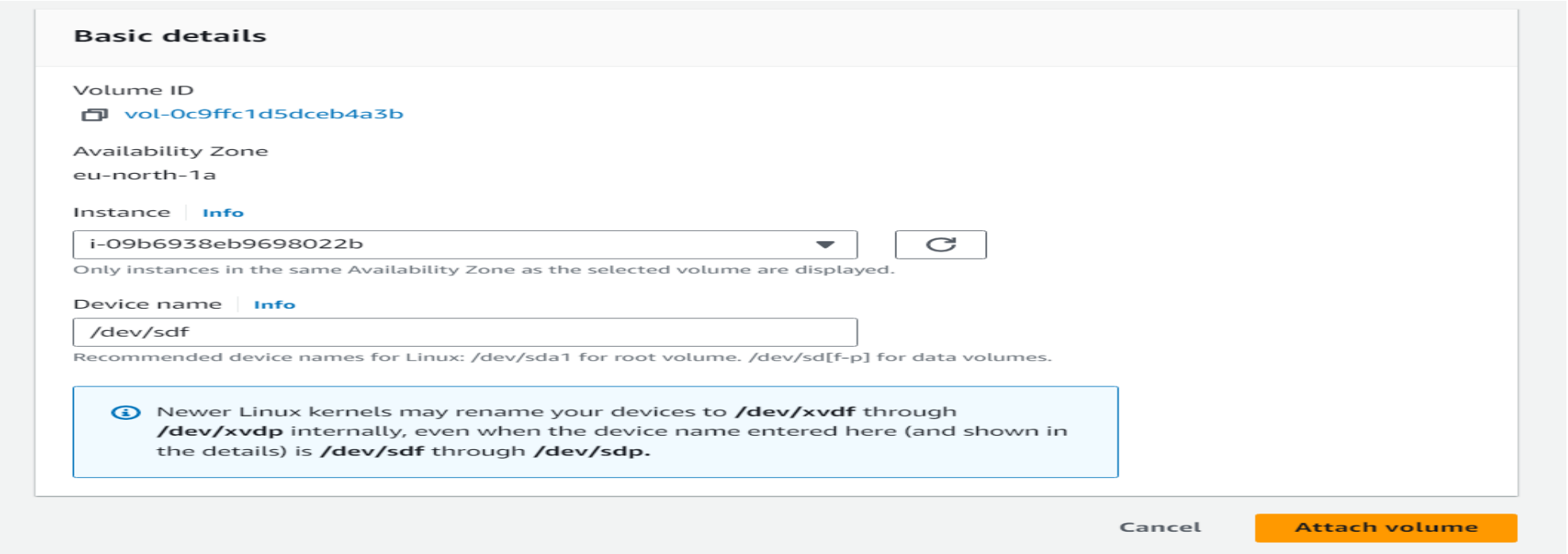


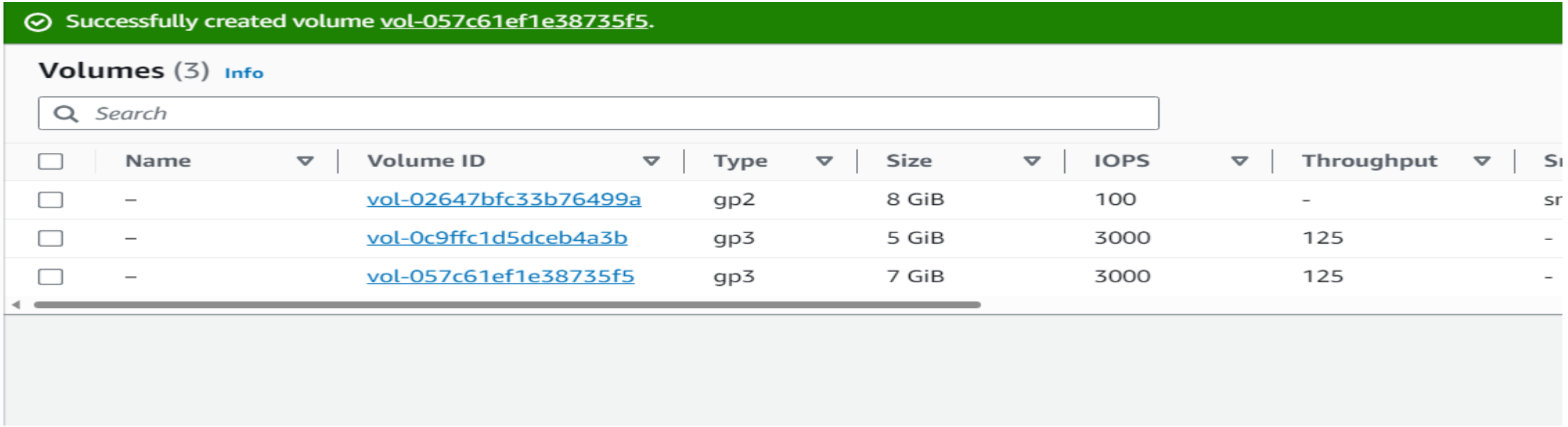


Is in available stage but not is use so we attach it.



Choose the running instance and attach. follow the same process with second volume also.





Select an instance – storage

Instance: i-09b6938eb9698022b (ebs_instance)

▼ Block devices

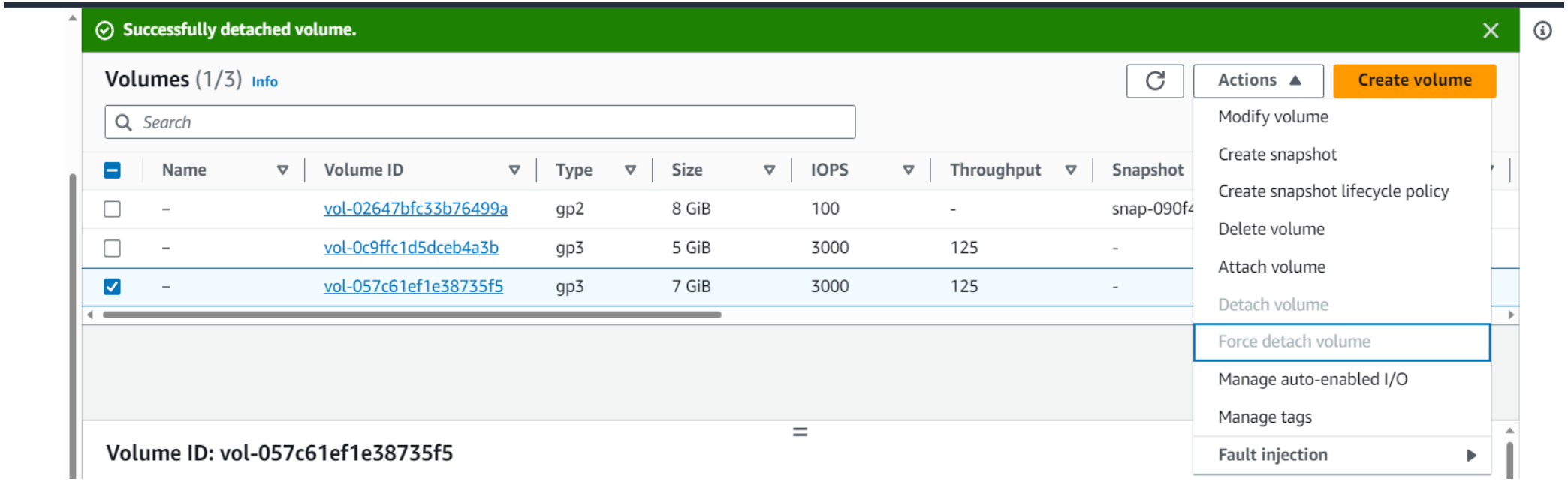
Filter block devices

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted	KMS key ID
vol-02647bfc33b76499a	/dev/sda1	8	Attached	2023/11/20 14:13 GMT+5:30	No	–
vol-0c9ffc1d5dceb4a3b	/dev/sdf	5	Attached	2023/11/20 15:34 GMT+5:30	No	–
vol-057c61ef1e38735f5	/dev/sdg	7	Attached	2023/11/20 15:39 GMT+5:30	No	–

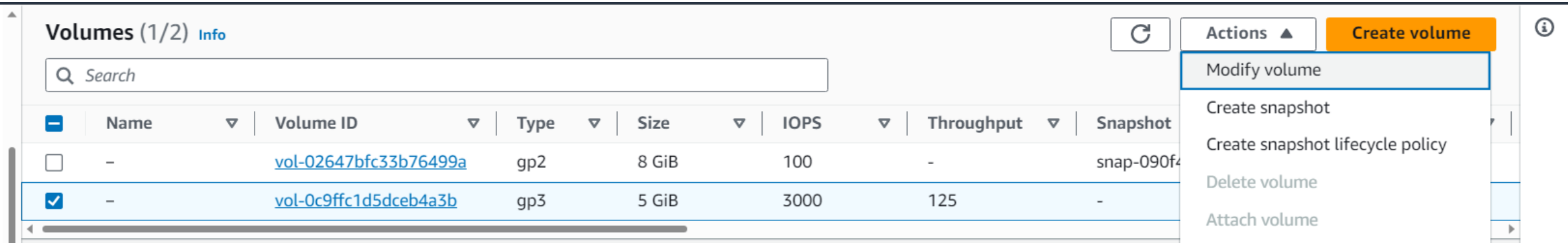
aws Services Search

```
ubuntu@ip-172-31-17-115:~$ lsblk
NAME          MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
loop0           7:0    0  24.6M  1 loop /snap/amazon-ssm-agent/7528
loop1           7:1    0  55.7M  1 loop /snap/core18/2790
loop2           7:2    0  63.5M  1 loop /snap/core20/2015
loop3           7:3    0 111.9M  1 loop /snap/lxd/24322
loop4           7:4    0  40.8M  1 loop /snap/snapd/20092
nvme0n1       259:0    0     8G  0 disk
├─nvme0n1p1   259:1    0   7.9G  0 part /
├─nvme0n1p14  259:2    0     4M  0 part
└─nvme0n1p15  259:3    0   106M  0 part /boot/efi
nvme1n1       259:4    0     5G  0 disk
nvme2n1       259:5    0     7G  0 disk
ubuntu@ip-172-31-17-115:~$
```

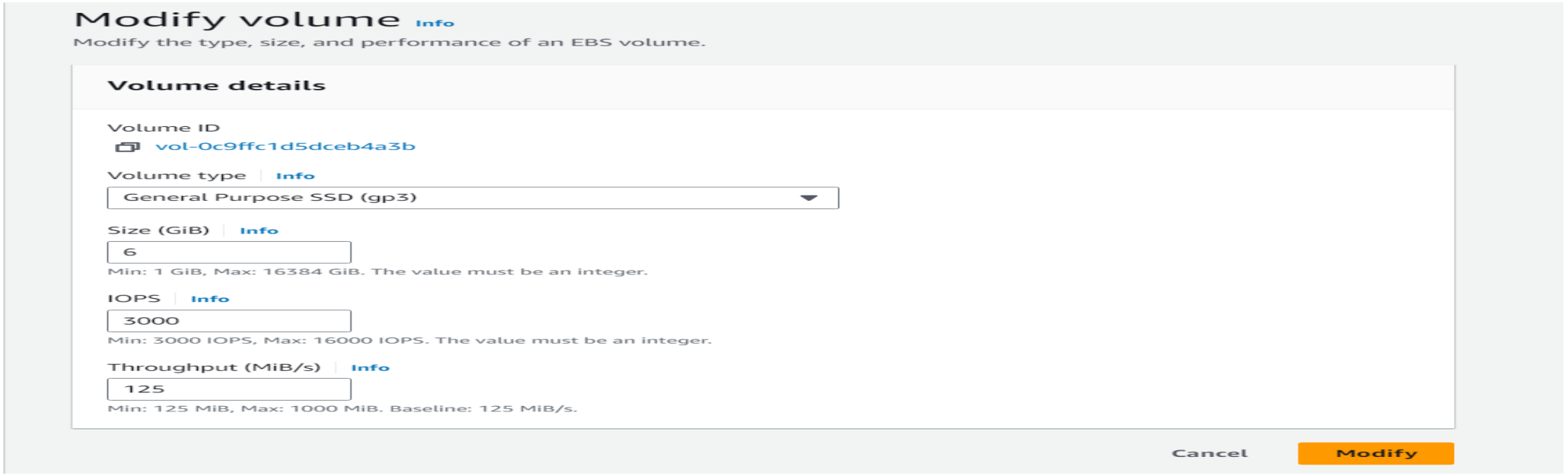
For deleting the volume first detach and then delete.



Now select the volume actions- modify



You must always increase the size not decrease because data might get deleted .

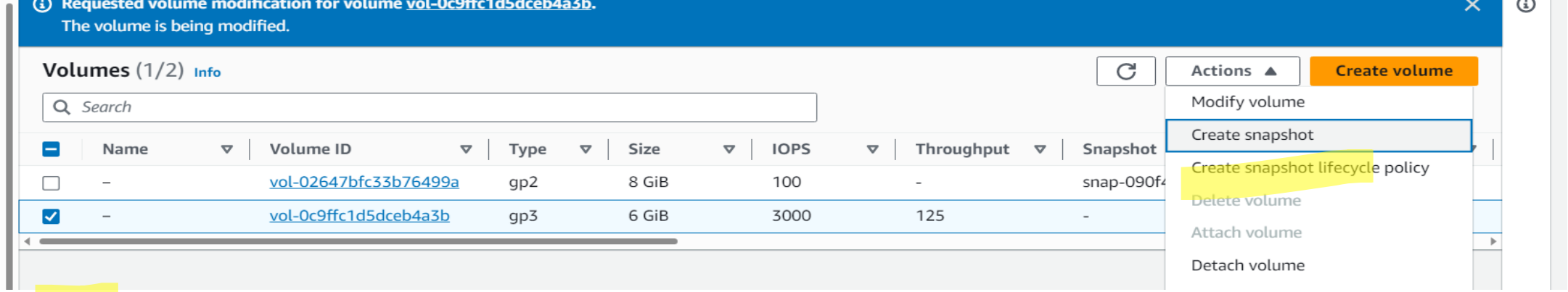


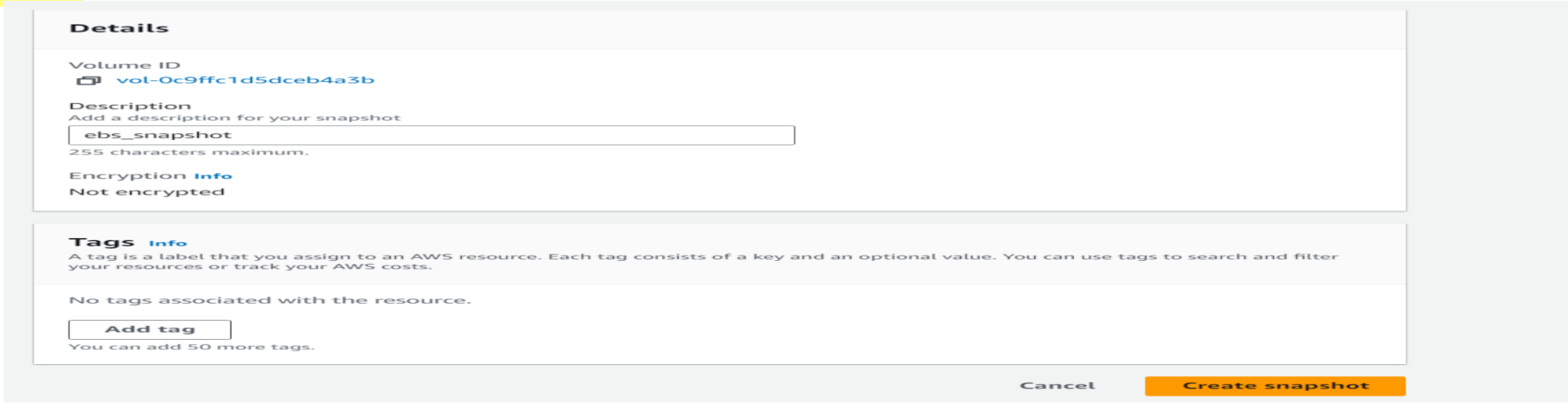

```
nvme1n1     259:0    0     6G  0 disk
nvme0n1     259:1    0     8G  0 disk
```

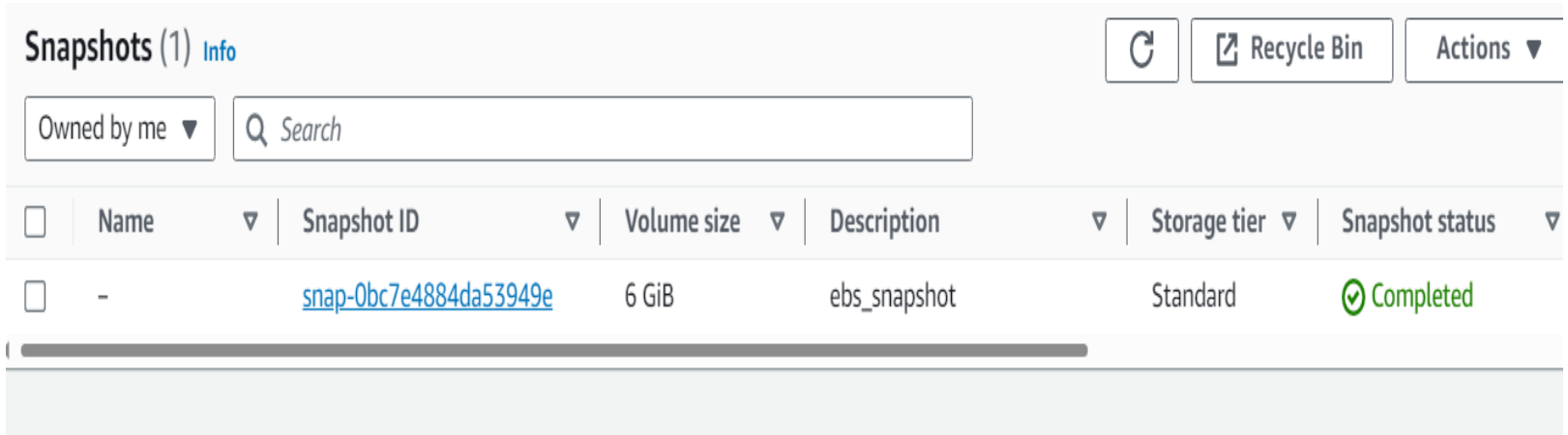
▼ Block devices

Filter block devices

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted	KMS key ID
vol-02647bfc33b76499a	/dev/sda1	8	Attached	2023/11/20 14:13 GMT+5:30	No	–
vol-0c9ffc1d5dceb4a3b	/dev/sdf	6	Attached	2023/11/20 15:34 GMT+5:30	No	–


Requested volume modification for volume vol-0c9ffc1d5dceb4a3b.
The volume is being modified.
Volumes (1/2) Info
Search
Actions
Create volume
Modify volume
Create snapshot
Create snapshot lifecycle policy
Delete volume
Attach volume
Detach volume
Name
Volume ID
Type
Size
IOPS
Throughput
Snapshot
– vol-02647bfc33b76499a gp2 8 GiB 100 - snap-090f4
– vol-0c9ffc1d5dceb4a3b gp3 6 GiB 3000 125 -


Details
Volume ID
vol-0c9ffc1d5dceb4a3b
Description
Add a description for your snapshot
ebs_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.
No tags associated with the resource.
Add tag
You can add 50 more tags.
Cancel
Create snapshot


Snapshots (1) Info
Recycle Bin
Actions
Owned by me
Search
Name
Snapshot ID
Volume size
Description
Storage tier
Snapshot status
- snap-0bc7e4884da53949e 6 GiB ebs_snapshot Standard Completed