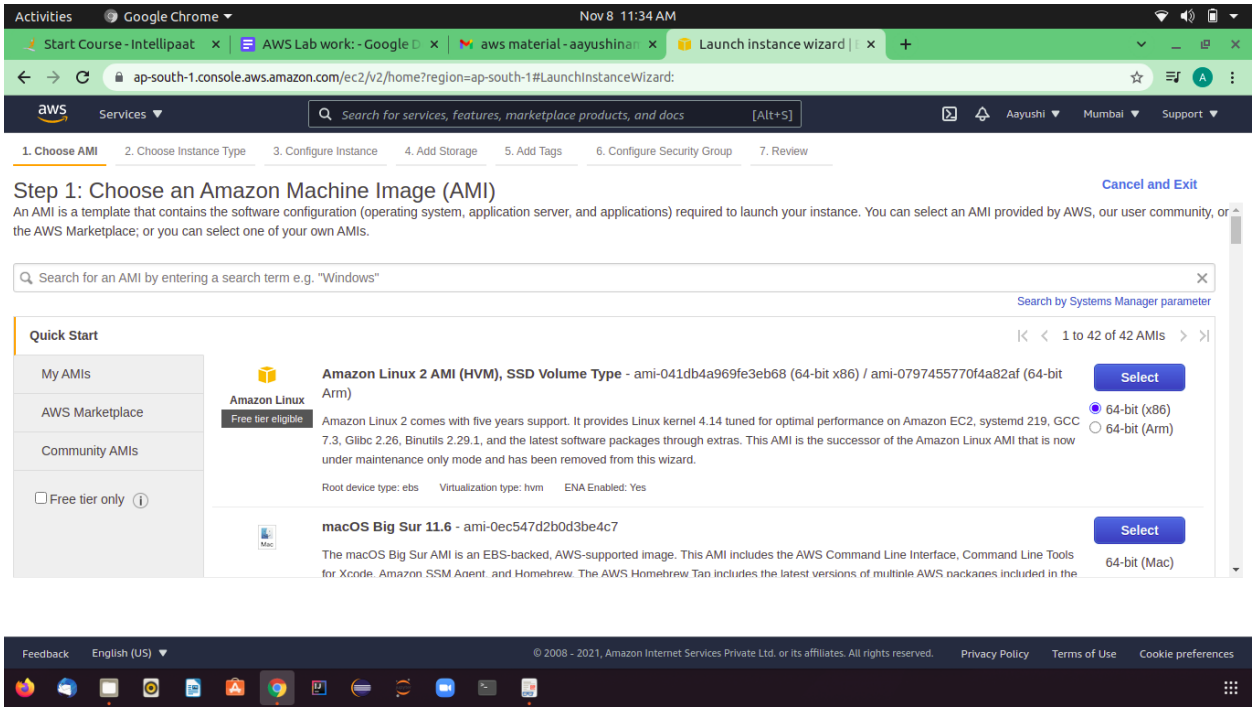
Module- 2: EC2 and EBS Assignment- 2

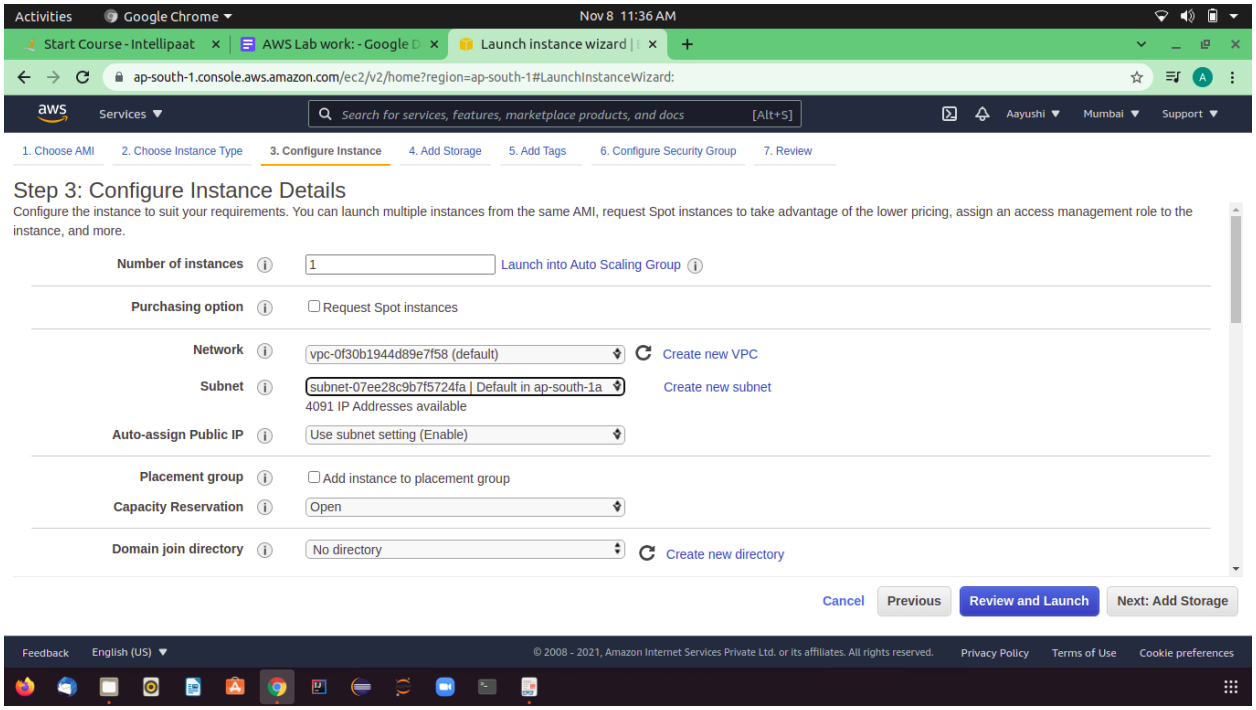
1. Launch a linux EC2 instance
2. Create a EBS volume with 20GB of storage and attach it the created EC2 instance
3. Resize the attached volume and make sure it reflects in the connected instance

First we create an Linux instance by following these steps:

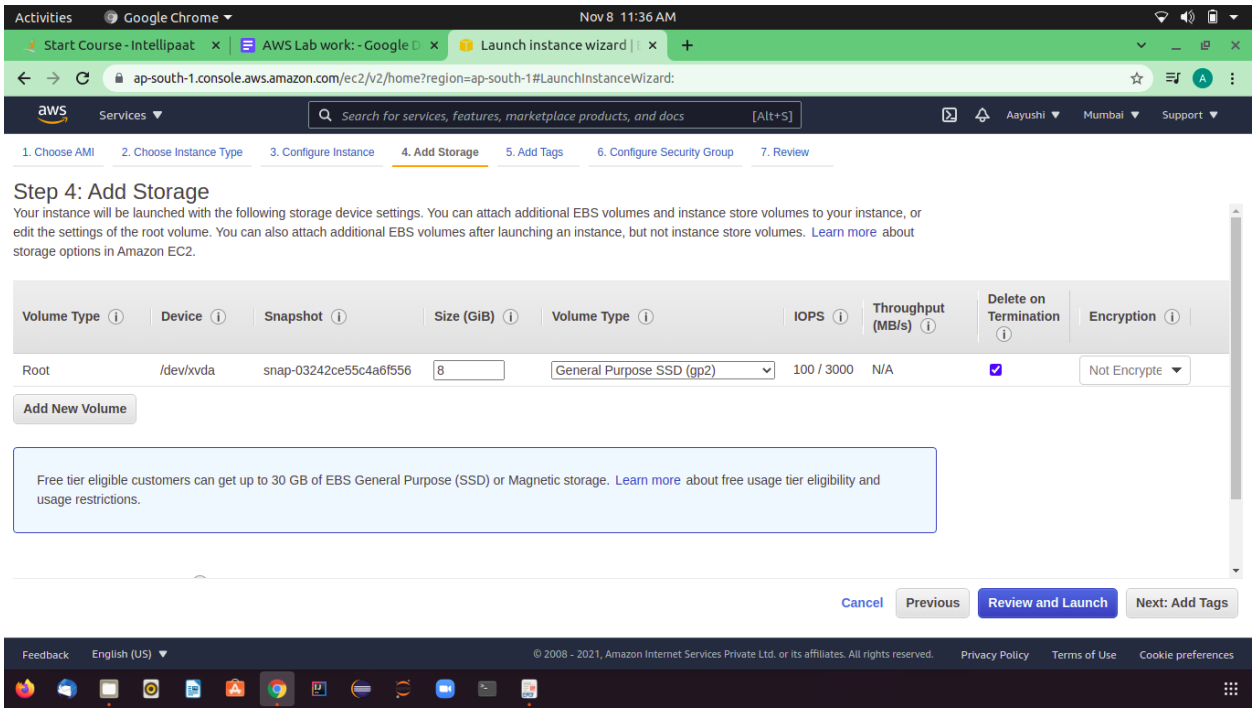
1. Choose an amazon machine Image
2. Choose Instance type



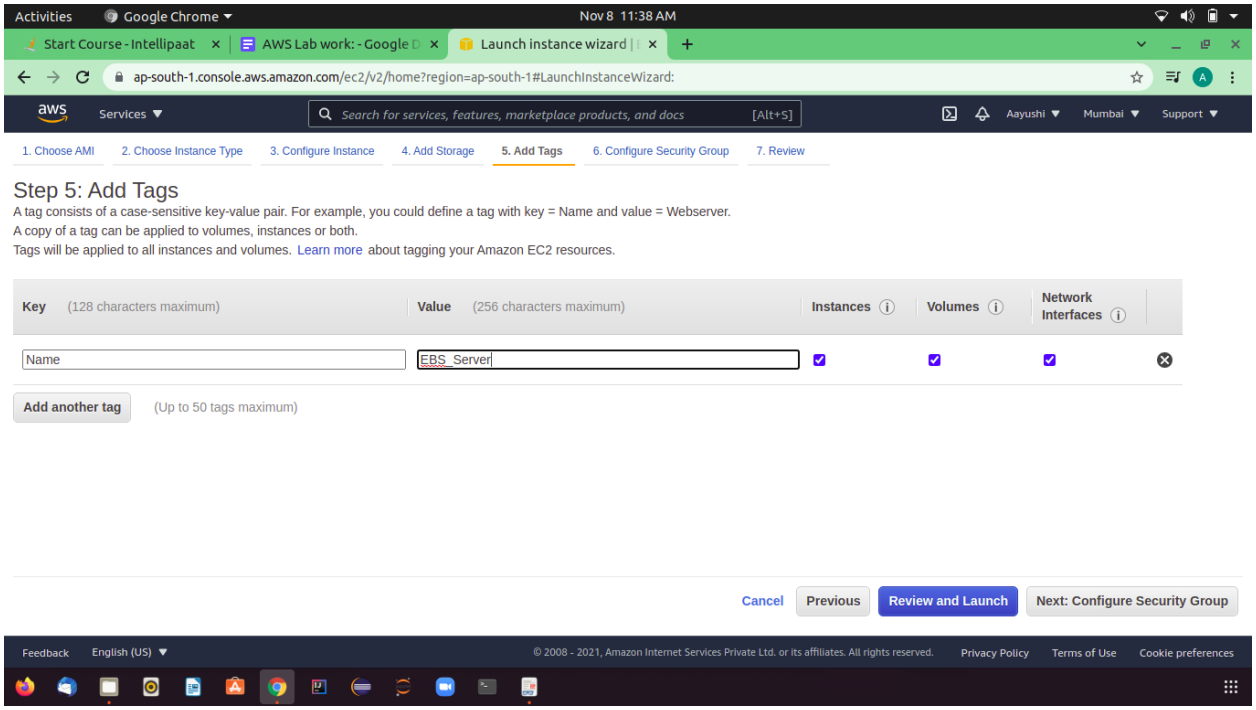
3. Configure Instance



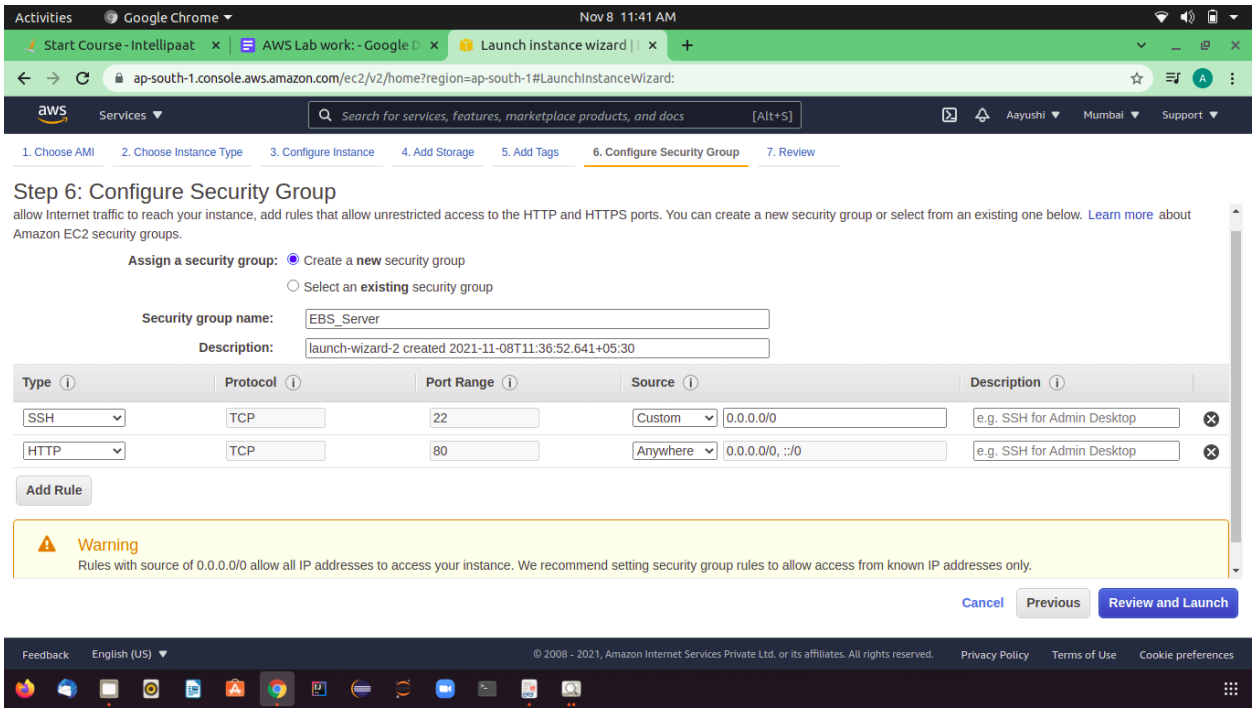
4. Add storage



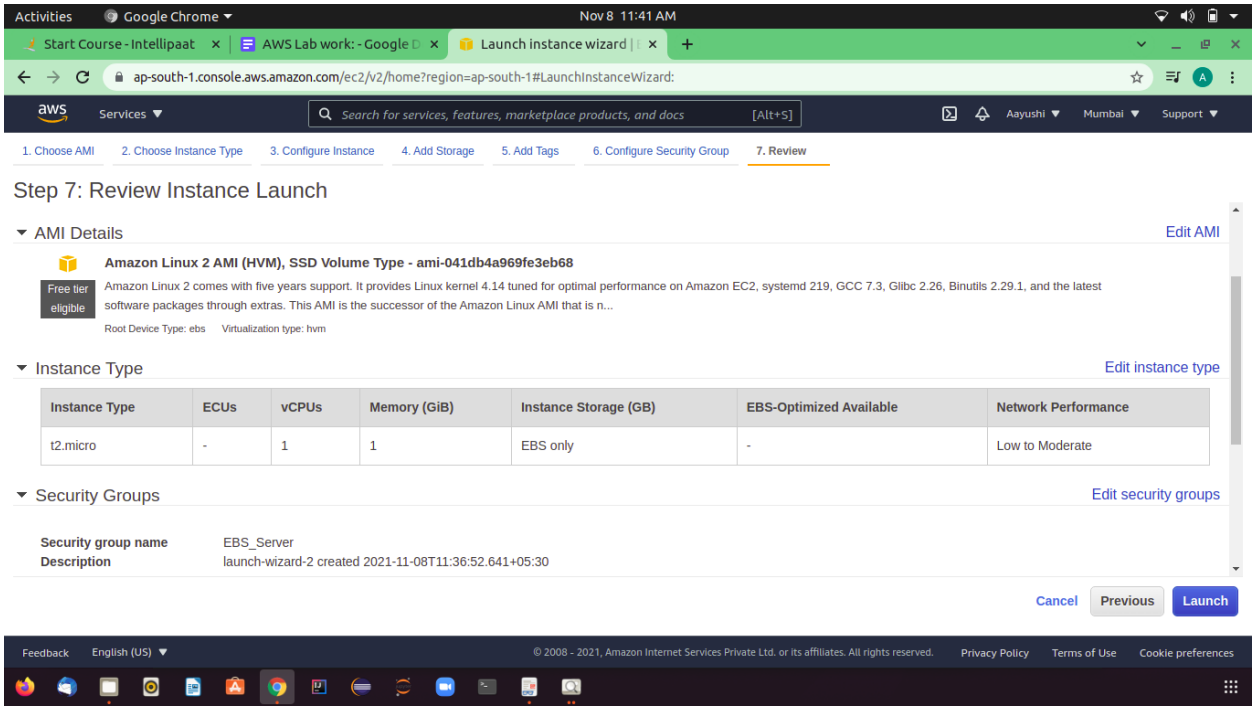
5. Add tags



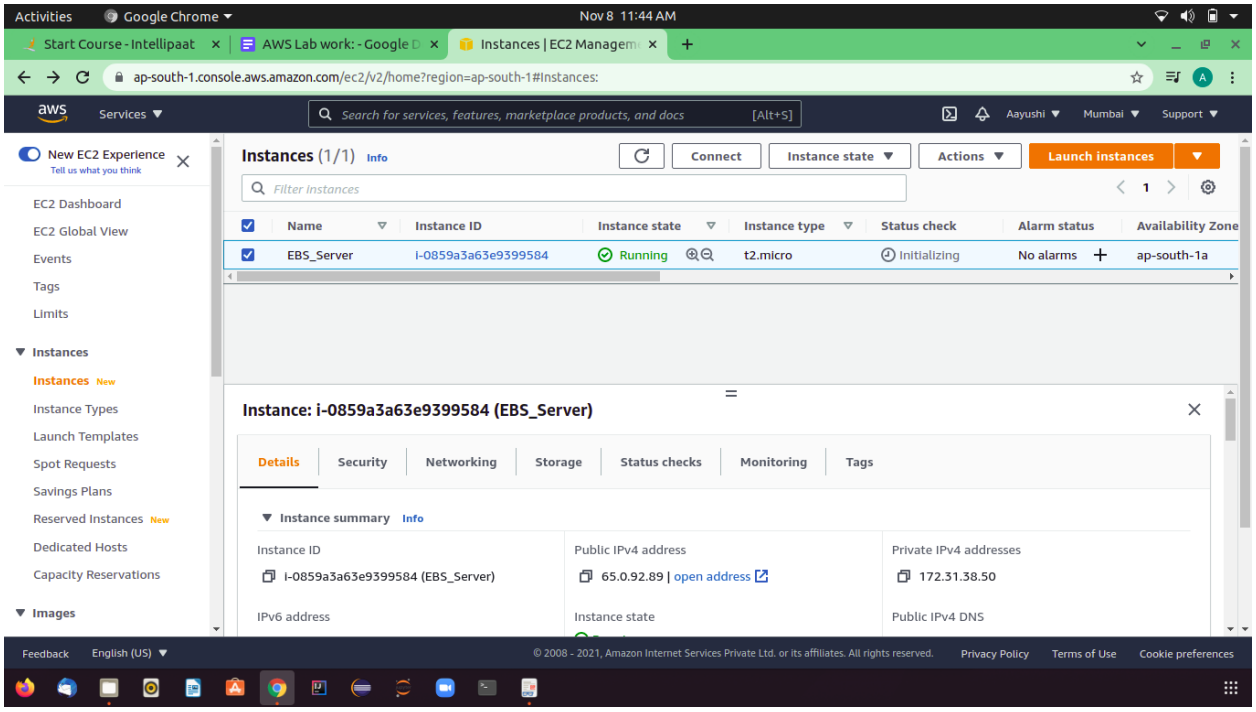
6. Configure Security group



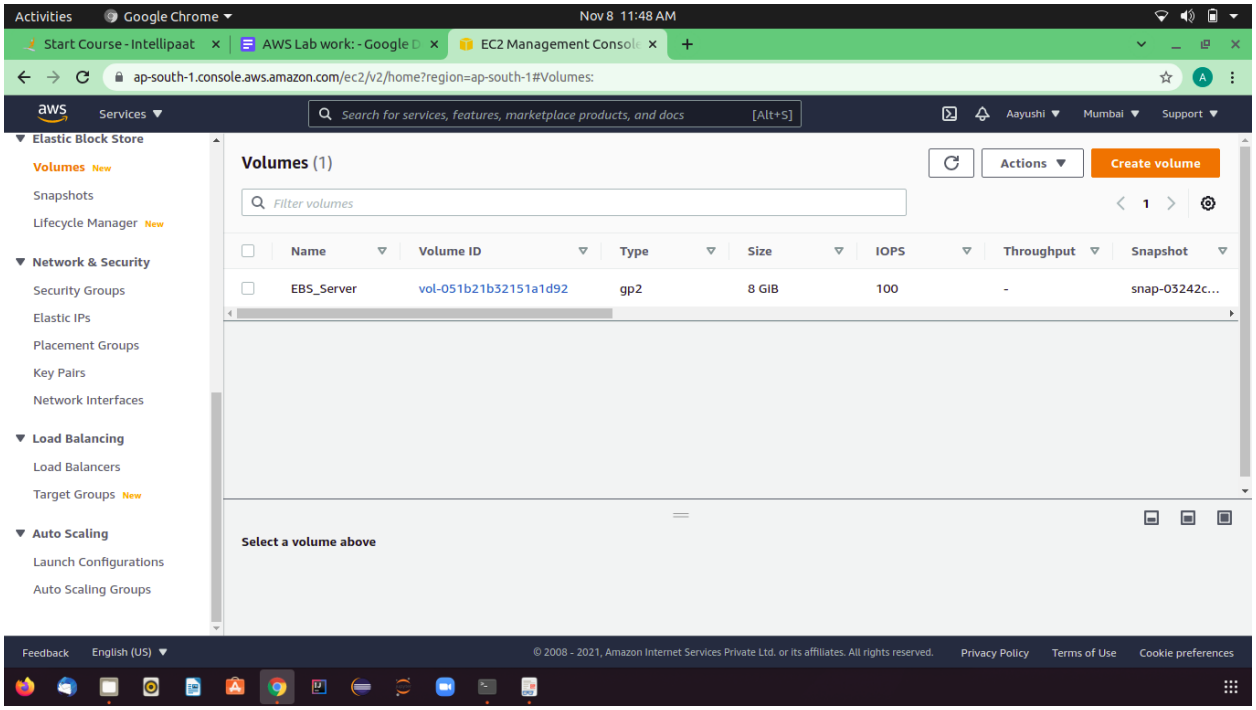
7. Review



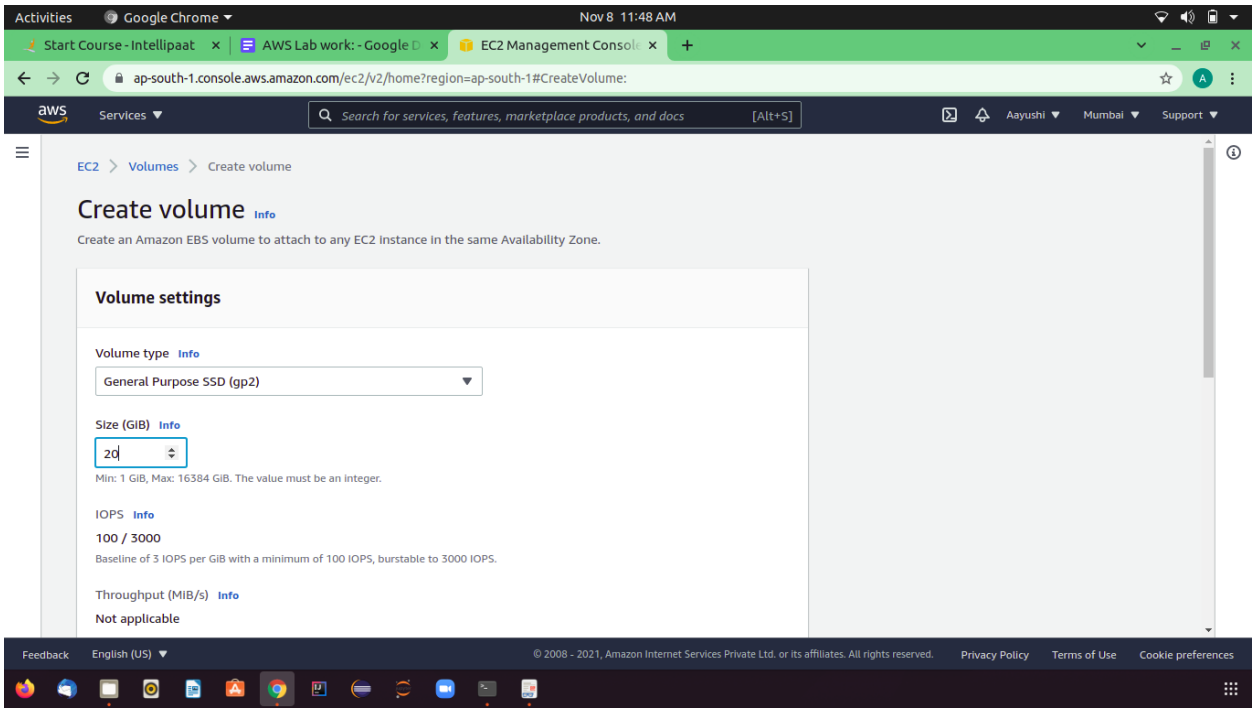
8. Generate key pair
9. Launch Instance

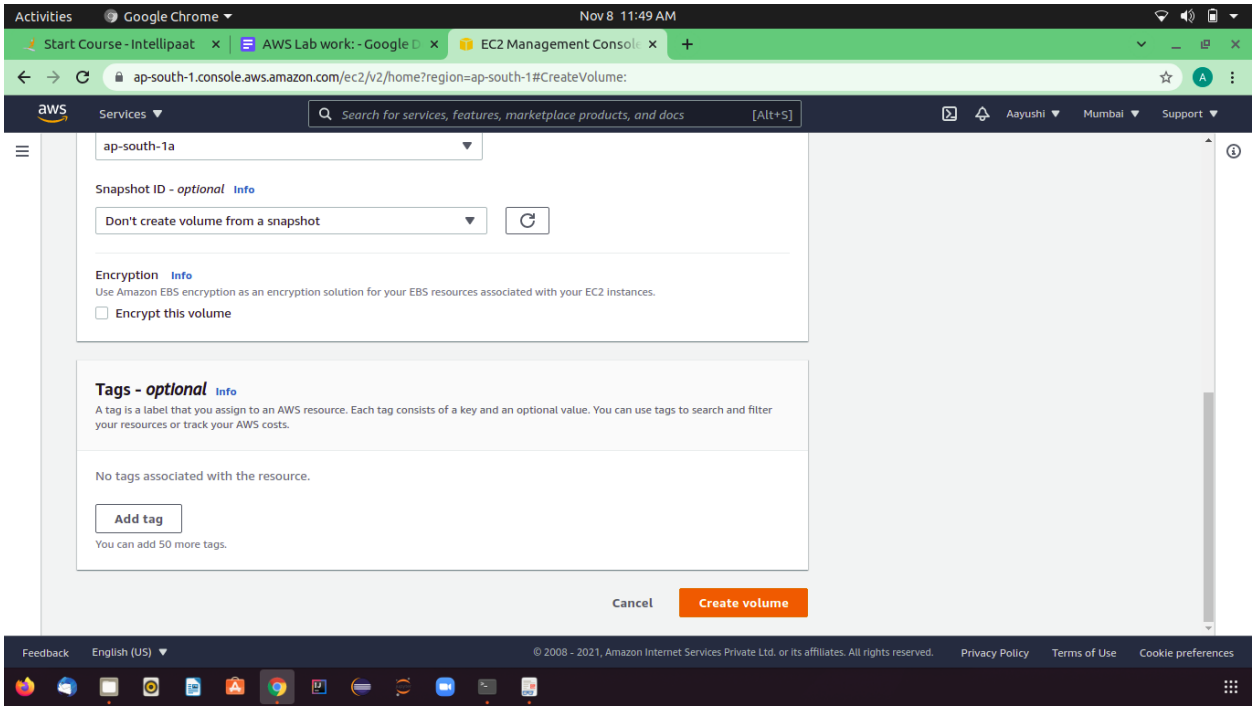


Now create EBS Volume
Goto the volume and create Volume

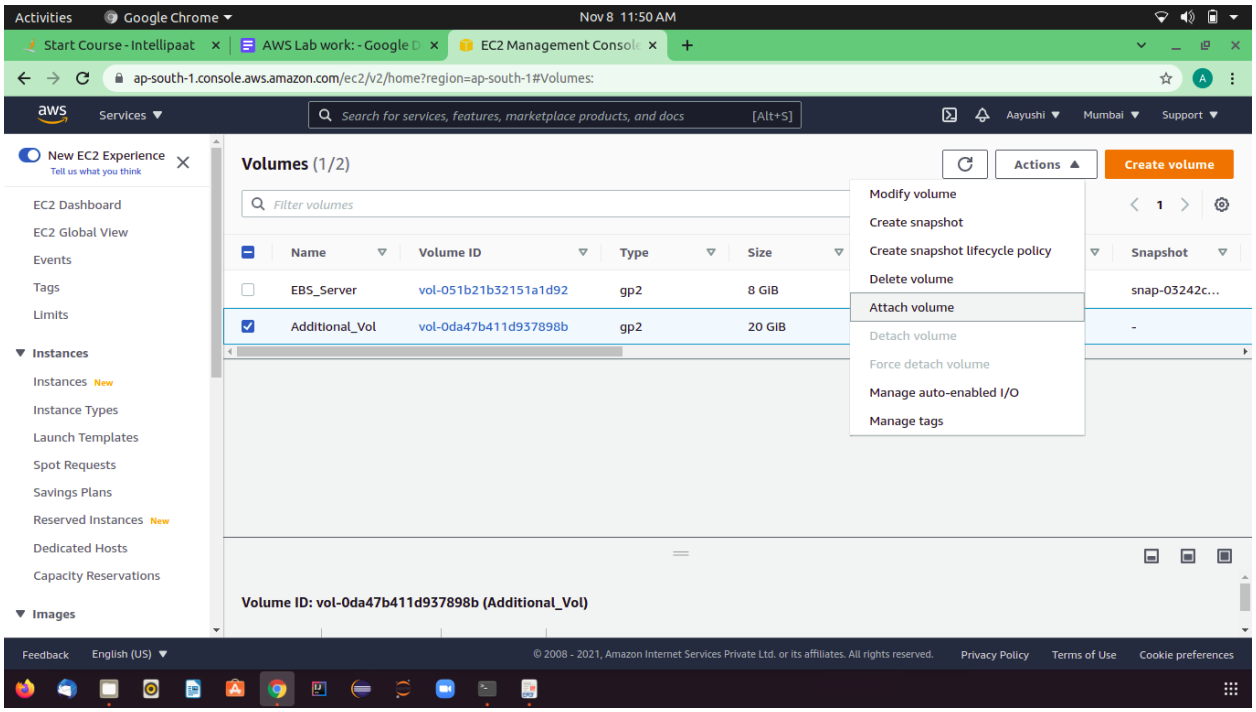


Add 20GB size of additional volume select zone



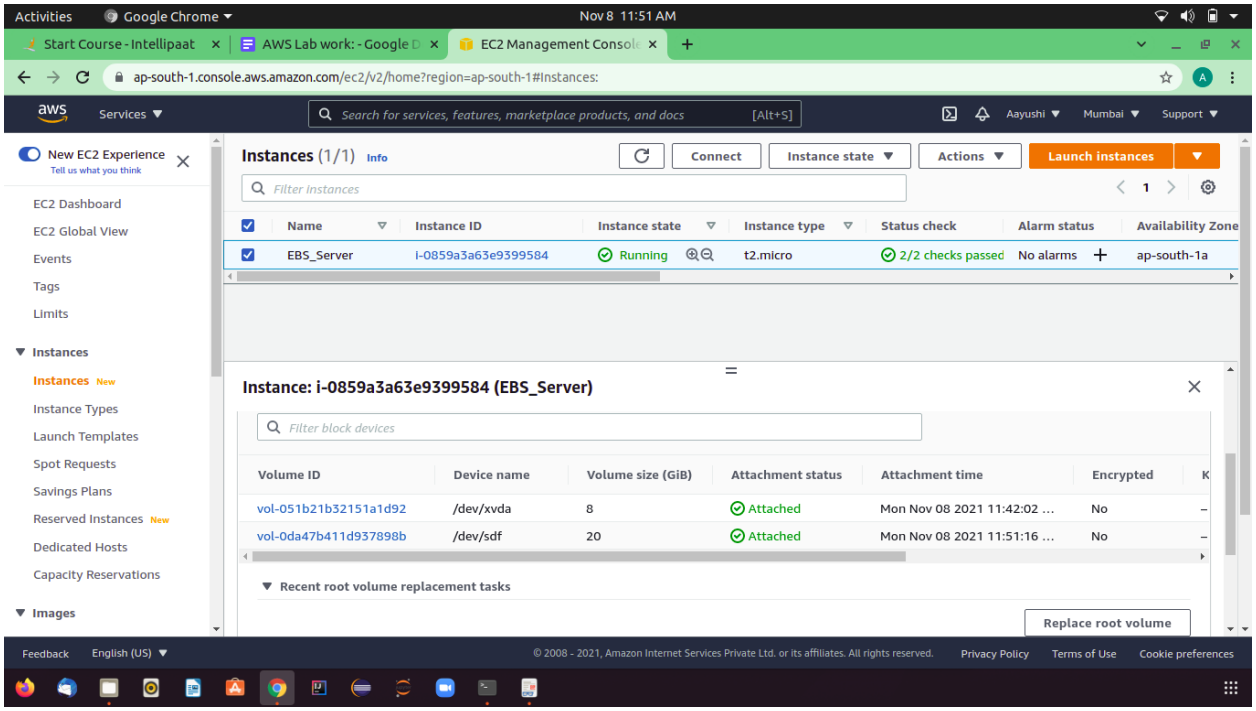


Attached volume to the EC2 Instance



Now, go back to Instances and see there are two volumes

1. 8 GB Root volume
2. 20 GBAdditional Volume



Open the Command prompt
Switch to the Super user by using: **sudo su**

```
aayushi@Varonica:~/Downloads$ sudo su
[sudo] password for aayushi:
root@Varonica:/home/aayushi/Downloads#
```

Now get the permission of private key
Using command: **chmod 400 Key name.pem**

```
#
# chmod 400 Mykey.pem
```

This is the explanation of the SSH command:

- ssh: Command to use SSH protocol
- -i: Flag that specifies an alternate identification file to use for public key authentication.
- username: Username that uses your instance
- ip-address: IP address given to your instance

Using command **ssh -i key name.pem username@Public-ip-address**

```
root@Varonica:/home/aayushi/Downloads# ssh -i Mykey.pem ec2-user@65.0.92.89
The authenticity of host '65.0.92.89 (65.0.92.89)' can't be established.
ECDSA key fingerprint is SHA256:O5Ky9lYshxrRh9zD8gDts9ExyoodzaY5eFOrs9+QdTg.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '65.0.92.89' (ECDSA) to the list of known hosts.

       __|  __|_  )
       _|  (     /   Amazon Linux 2 AMI
      ___|\___|___|

https://aws.amazon.com/amazon-linux-2/
1 package(s) needed for security, out of 14 available
Run "sudo yum update" to apply all updates.
```

Packages need to update by using command: **sudo yum update**

```
[ec2-user@ip-172-31-38-50 ~]$ sudo yum update
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
--> Running transaction check
---> Package aws-cfn-bootstrap.noarch 0:2.0-6.amzn2 will be updated
```

Connect to your EC2 instance and install the Apache web server
Command: **sudo yum install httpd**

```
[ec2-user@ip-172-31-38-50 ~]$ sudo yum install httpd
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
amzn2-core                                               | 3.7 kB     00:00
```

Go to super user by using: **sudo su**

```
[ec2-user@ip-172-31-38-50 ~]$
[ec2-user@ip-172-31-38-50 ~]$ sudo su
```

Checking your Web server

1. **systemctl start httpd.service**

```
[root@ip-172-31-38-50 ec2-user]#
[root@ip-172-31-38-50 ec2-user]# systemctl start httpd.service
```

2. **systemctl enable httpd.service**

```
[root@ip-172-31-38-50 ec2-user]#
[root@ip-172-31-38-50 ec2-user]# systemctl enable httpd.service
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service
to /usr/lib/systemd/system/httpd.service.
```

3. **systemctl status httpd.service**

```
[root@ip-172-31-38-50 ec2-user]# systemctl status httpd.service
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor prese
t: disabled)
   Active: active (running) since Mon 2021-11-08 06:23:41 UTC; 25s ago
     Docs: man:httpd.service(8)
 Main PID: 6576 (httpd)
   Status: "Total requests: 0; Idle/Busy workers 100/0;Requests/sec: 0; Bytes s
erved/sec:    0 B/sec"
   CGroup: /system.slice/httpd.service
           ├─6576 /usr/sbin/httpd -DFOREGROUND
           ├─6577 /usr/sbin/httpd -DFOREGROUND
           ├─6578 /usr/sbin/httpd -DFOREGROUND
           ├─6579 /usr/sbin/httpd -DFOREGROUND
           ├─6580 /usr/sbin/httpd -DFOREGROUND
           └─6581 /usr/sbin/httpd -DFOREGROUND

Nov 08 06:23:41 ip-172-31-38-50.ap-south-1.compute.internal systemd[1]: Start..
.
Nov 08 06:23:41 ip-172-31-38-50.ap-south-1.compute.internal systemd[1]: Start..
.
Hint: Some lines were ellipsized, use -l to show in full.
```

Check our available disk devices and their mount points to help us determine the correct device name to us: **lsblk**

```
[root@ip-172-31-38-50 ec2-user]# lsblk
NAME    MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda    202:0    0   8G  0 disk
└─xvda1 202:1    0   8G  0 part /
xvdf    202:80   0  20G  0 disk
```

You can verify the disk utilization at the OS level using the command : **df -h**

```
[root@ip-172-31-38-50 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        482M     0  482M   0% /dev
tmpfs           492M     0  492M   0% /dev/shm
tmpfs           492M  416K  491M   1% /run
tmpfs           492M     0  492M   0% /sys/fs/cgroup
/dev/xvda1      8.0G  1.7G  6.4G  21% /
tmpfs            99M     0   99M   0% /run/user/1000
```

Now you can format the partition. For this tutorial, let us use ext4 filesystem to partition using: **mkfs -t ext4 /dev/device name**

```
[root@ip-172-31-38-50 ec2-user]# mkfs -t ext4 /dev/sdf
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
1310720 inodes, 5242880 blocks
262144 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=2153775104
160 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done
```

Use the command to get information about a specific device, such as its file system type: **file -s /dev/device name**

```
[root@ip-172-31-38-50 ec2-user]# file -s /dev/xvdf
/dev/xvdf: Linux rev 1.0 ext4 filesystem data, UUID=62e4c705-257f-4027-a1b0-52
1915c2a02e (extents) (64bit) (large files) (huge files)
```

Make the directory: **mkdir Volume name**

```
[root@ip-172-31-38-50 ec2-user]# mkdir Additional_Vol
[root@ip-172-31-38-50 ec2-user]#
```

Use the following command to mount the volume at the directory you created in the previous step: **mount /dev/device_name Volume_name**

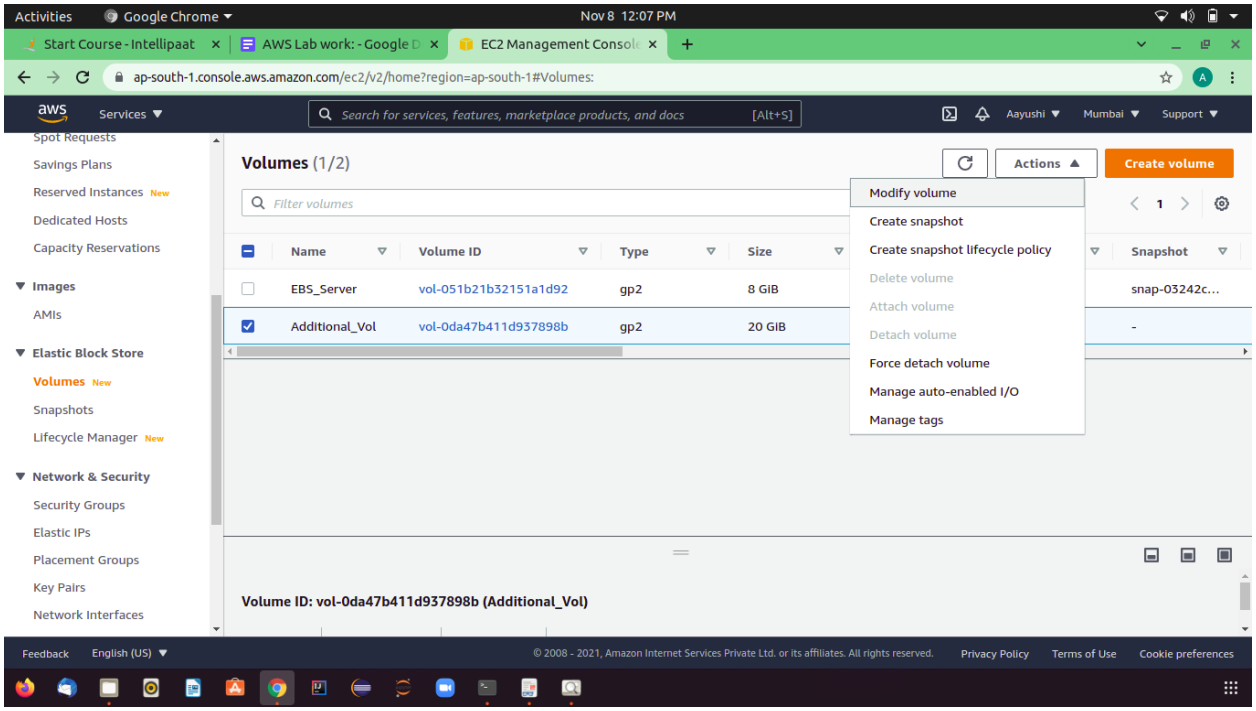
```
[root@ip-172-31-38-50 ec2-user]#
[root@ip-172-31-38-50 ec2-user]# mount /dev/xvdf Additional_Vol
```

Now, you see the file is mounted, use command **df -h** again and see the result.

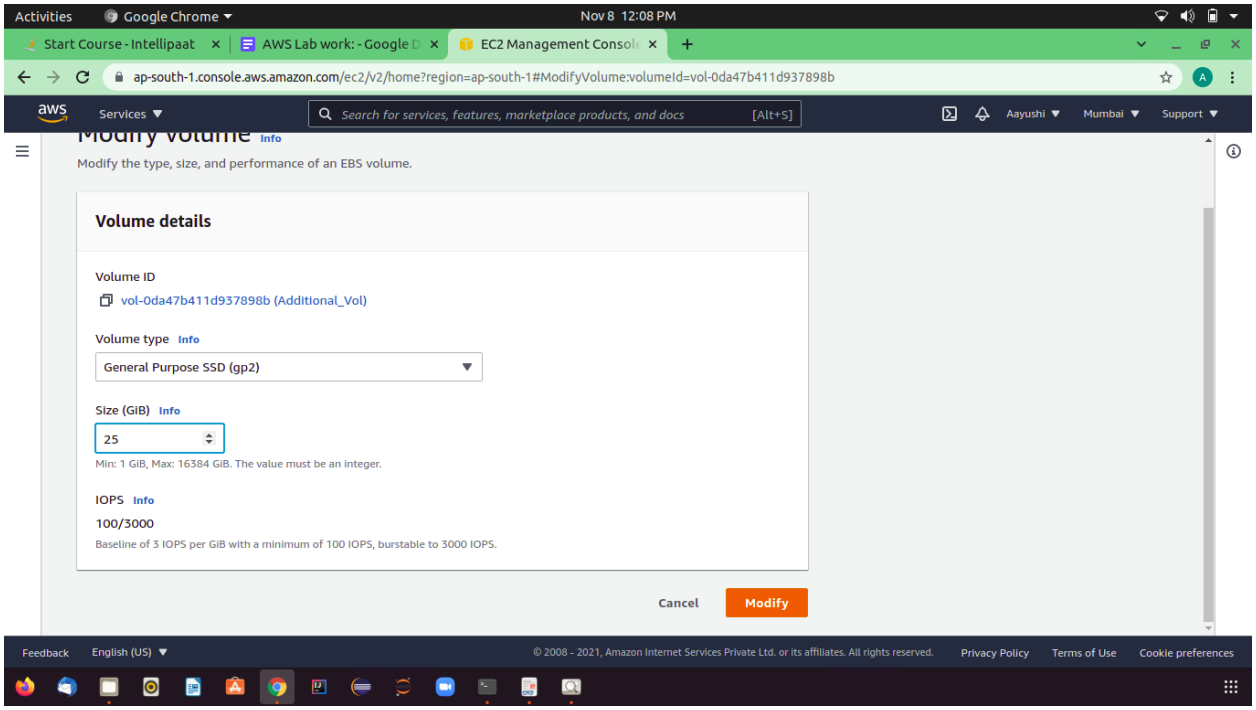
```
[root@ip-172-31-38-50 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        482M     0  482M   0% /dev
tmpfs           492M     0  492M   0% /dev/shm
tmpfs           492M  416K  491M   1% /run
tmpfs           492M     0  492M   0% /sys/fs/cgroup
/dev/xvda1      8.0G  1.7G  6.4G  21% /
tmpfs            99M     0   99M   0% /run/user/1000
/dev/xvdf        20G   45M   19G   1% /home/ec2-user/Additional_Vol
```

```
[root@ip-172-31-38-50 ec2-user]# lsblk
NAME    MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda    202:0    0   8G  0 disk
└─xvda1 202:1    0   8G  0 part /
xvdf    202:80   0  20G  0 disk /home/ec2-user/Additional_Vol
```

Now, resize the volume we will go back the volume click on action there are an modify volume click on that



Modify the volume and increase 5 GB, so the current size of additional volume is 25 Gb.


Activities
Google Chrome
Nov 8 12:08 PM
Start Course - Intellipaat
AWS Lab work: - Google D
EC2 Management Console
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#ModifyVolume:volumeId=vol-0da47b411d937898b
aws
Services
Search for services, features, marketplace products, and docs [Alt+S]
Aayushi
Mumbai
Support
Modify volume Info
Modify the type, size, and performance of an EBS volume.
Volume details
Volume ID
vol-0da47b411d937898b (Additional_Vol)
Volume type Info
General Purpose SSD (gp2)
Size (GiB) Info
25
Min: 1 GiB, Max: 16384 GiB. The value must be an integer.
IOPS Info
100/3000
Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS.
Cancel
Modify
Feedback
English (US)
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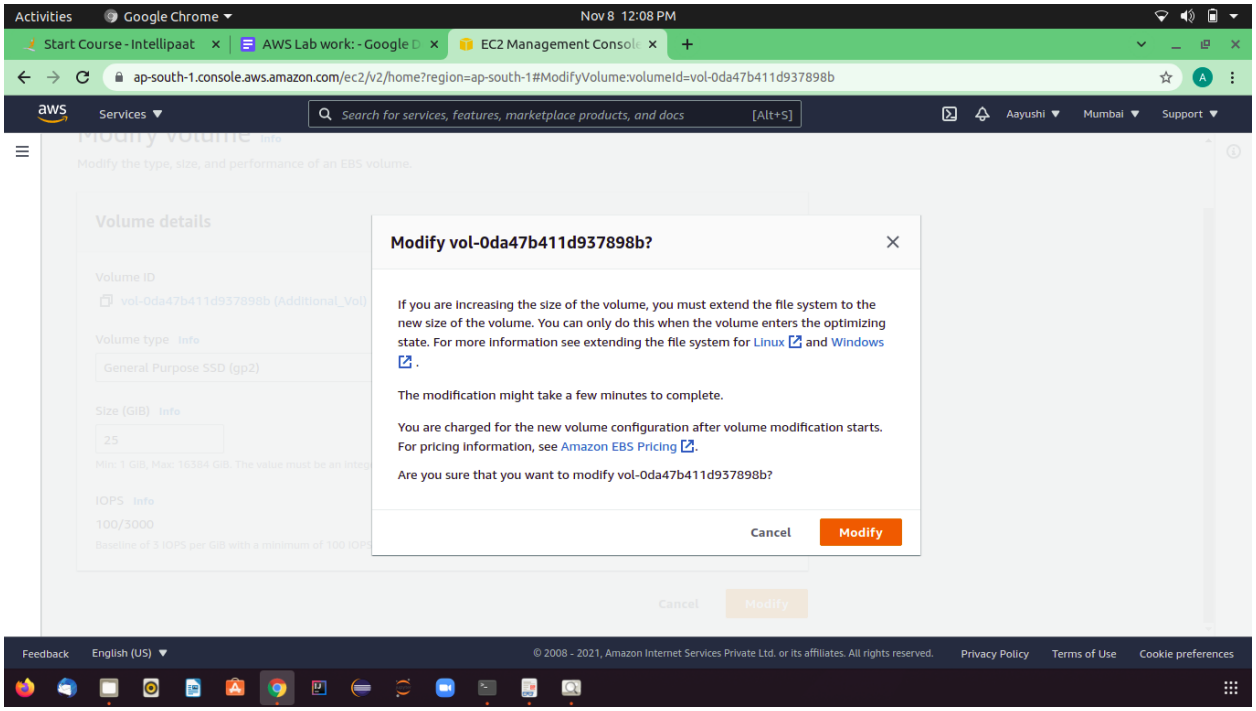
Activities
Google Chrome
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Start Course - Intellipaat
AWS Lab work: - Google D
EC2 Management Console
ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#ModifyVolume:volumeId=vol-0da47b411d937898b
aws
Services
Search for services, features, marketplace products, and docs [Alt+S]
Aayushi
Mumbai
Support
Modify volume Info
Modify the type, size, and performance of an EBS volume.
Volume details
Volume ID
vol-0da47b411d937898b (Additional_Vol)
Volume type Info
General Purpose SSD (gp2)
Size (GiB) Info
25
IOPS Info
100/3000
Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS.
Cancel
Modify
Modify vol-0da47b411d937898b?
If you are increasing the size of the volume, you must extend the file system to the new size of the volume. You can only do this when the volume enters the optimizing state. For more information see extending the file system for Linux and Windows.
The modification might take a few minutes to complete.
You are charged for the new volume configuration after volume modification starts. For pricing information, see Amazon EBS Pricing.
Are you sure that you want to modify vol-0da47b411d937898b?
Cancel
Modify
Feedback
English (US)
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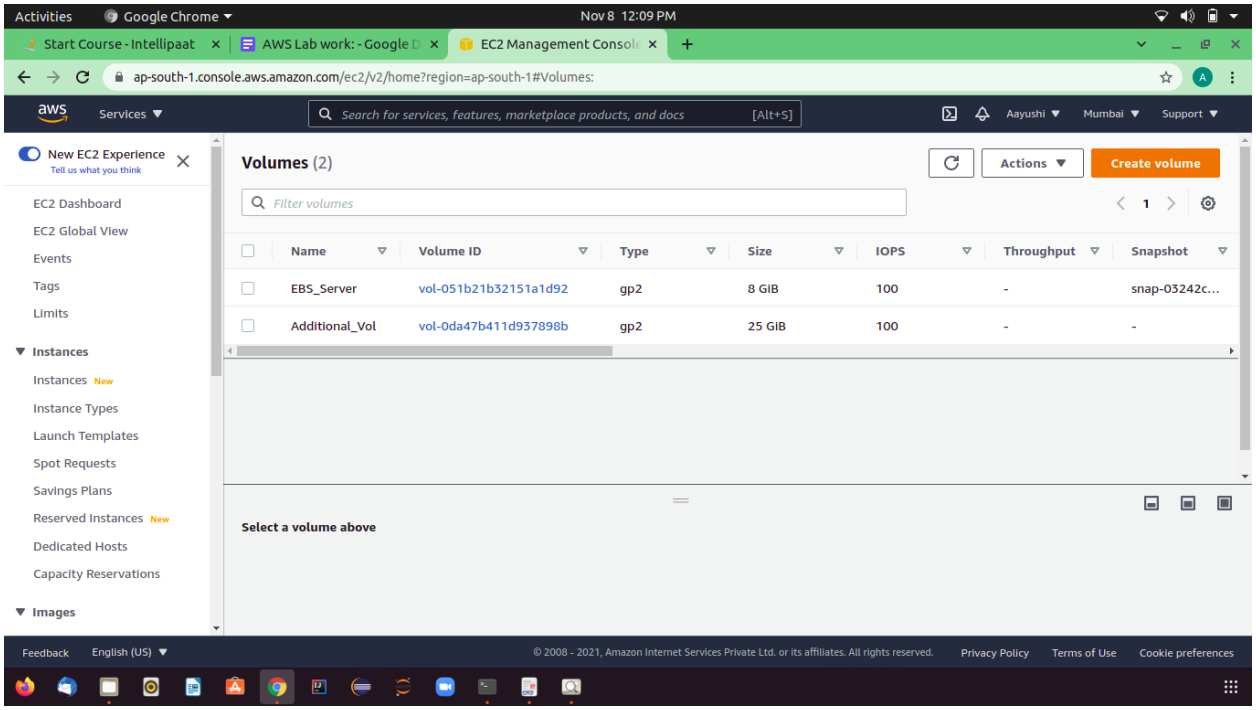
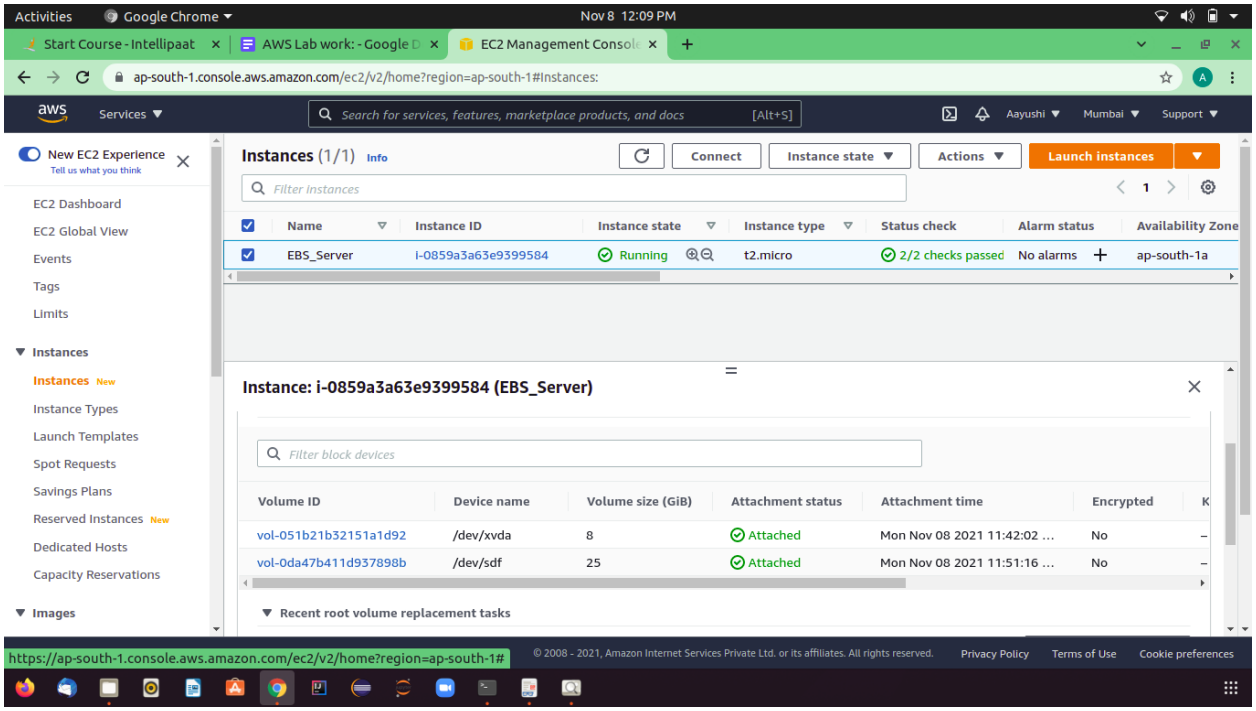


Goto the instance back and see there are two volumes

1. Root volume 8 GB
2. Additional volume which is 25 GB



But if u check in command prompt by using **df -h** command resized volume is not mounted

```
[root@ip-172-31-38-50 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        482M     0  482M   0% /dev
tmpfs           492M     0  492M   0% /dev/shm
tmpfs           492M  416K  491M   1% /run
tmpfs           492M     0  492M   0% /sys/fs/cgroup
/dev/xvda1      8.0G  1.7G  6.4G  21% /
tmpfs            99M     0   99M   0% /run/user/1000
/dev/xvdf        20G   45M   19G   1% /home/ec2-user/Additional_Vol
```

Now, resized command is used: **resize2fs /dev/xvdf**

```
[root@ip-172-31-38-50 ec2-user]# resize2fs  /dev/xvdf
resize2fs 1.42.9 (28-Dec-2013)
Filesystem at /dev/xvdf is mounted on /home/ec2-user/Additional_Vol; on-line
 resizing required
old_desc_blocks = 3, new_desc_blocks = 4
The filesystem on /dev/xvdf is now 6553600 blocks long.
```

Check by using **df -h** resized volume is 25 GB.

```
[root@ip-172-31-38-50 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        482M     0  482M   0% /dev
tmpfs           492M     0  492M   0% /dev/shm
tmpfs           492M  416K  491M   1% /run
tmpfs           492M     0  492M   0% /sys/fs/cgroup
/dev/xvda1      8.0G  1.7G  6.4G  21% /
tmpfs            99M     0   99M   0% /run/user/1000
/dev/xvdf        25G   44M   24G   1% /home/ec2-user/Additional_Vol
```