



ASSIGNMENT - 01

COURSE : AWS DEVOPS

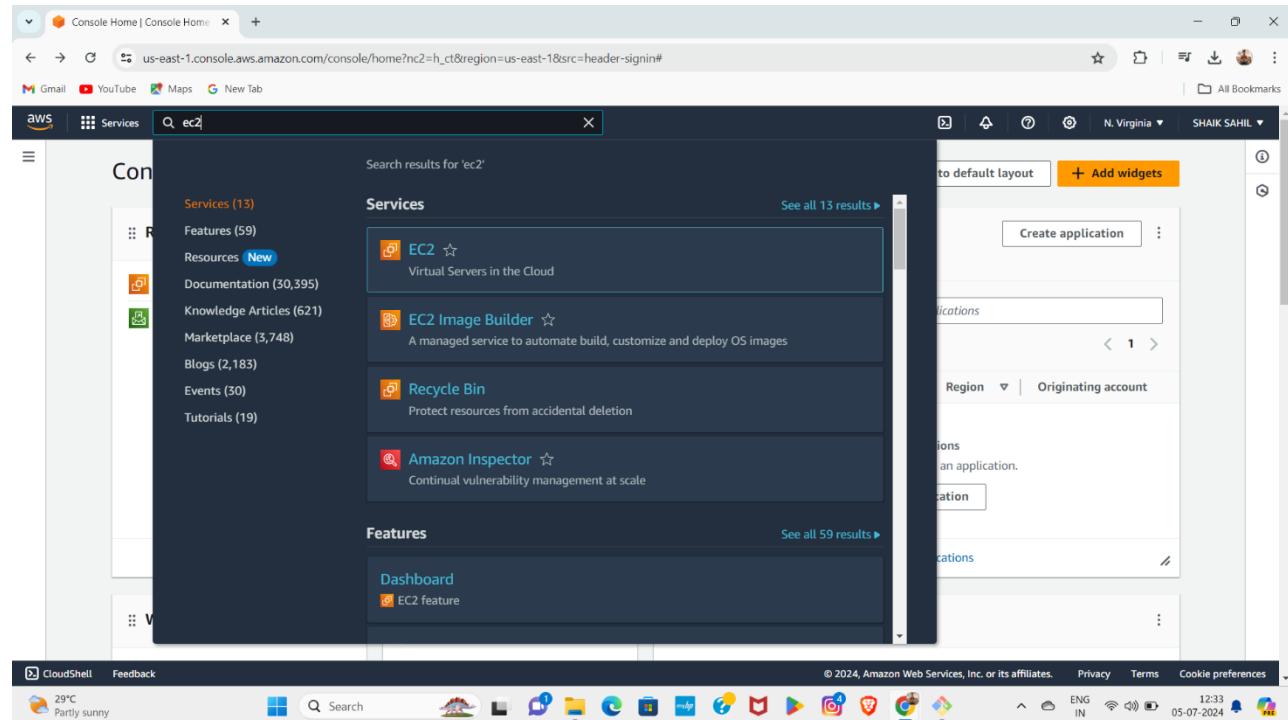
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NAME : SHAIK SAHIL

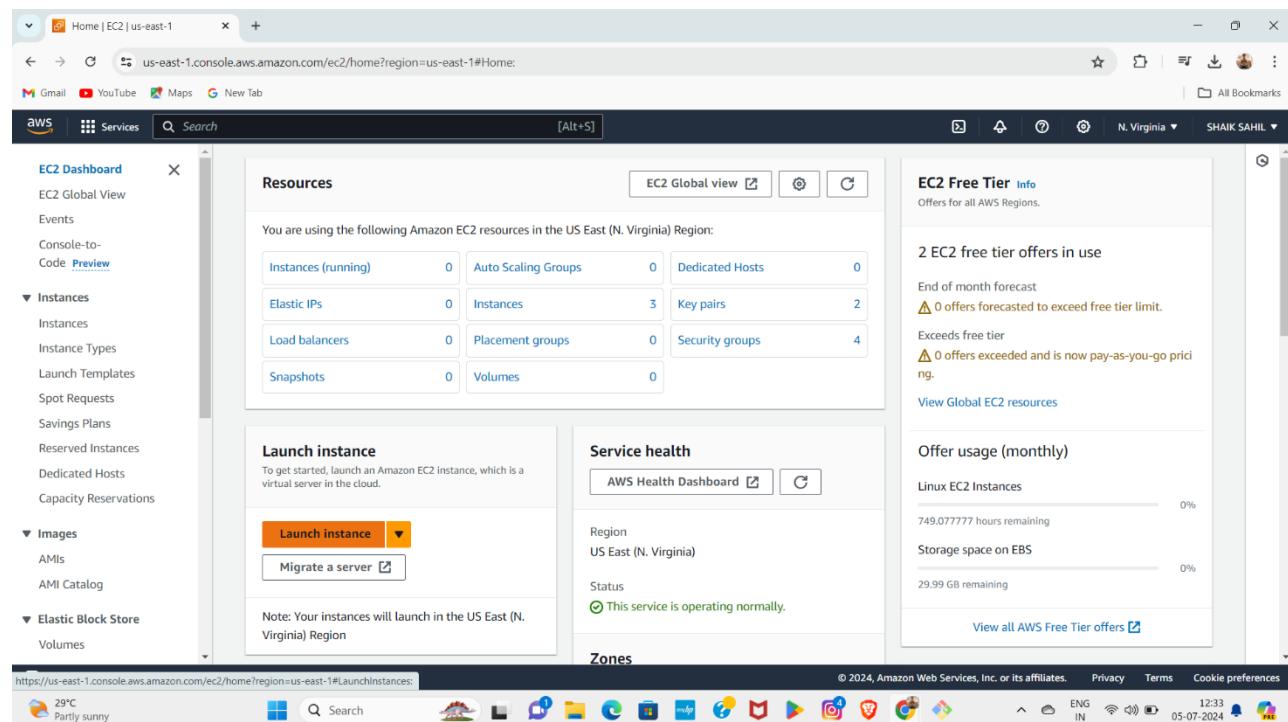
Mail id : sksahil012002@gmail.com

1 . CREATE THREE INSTANCE

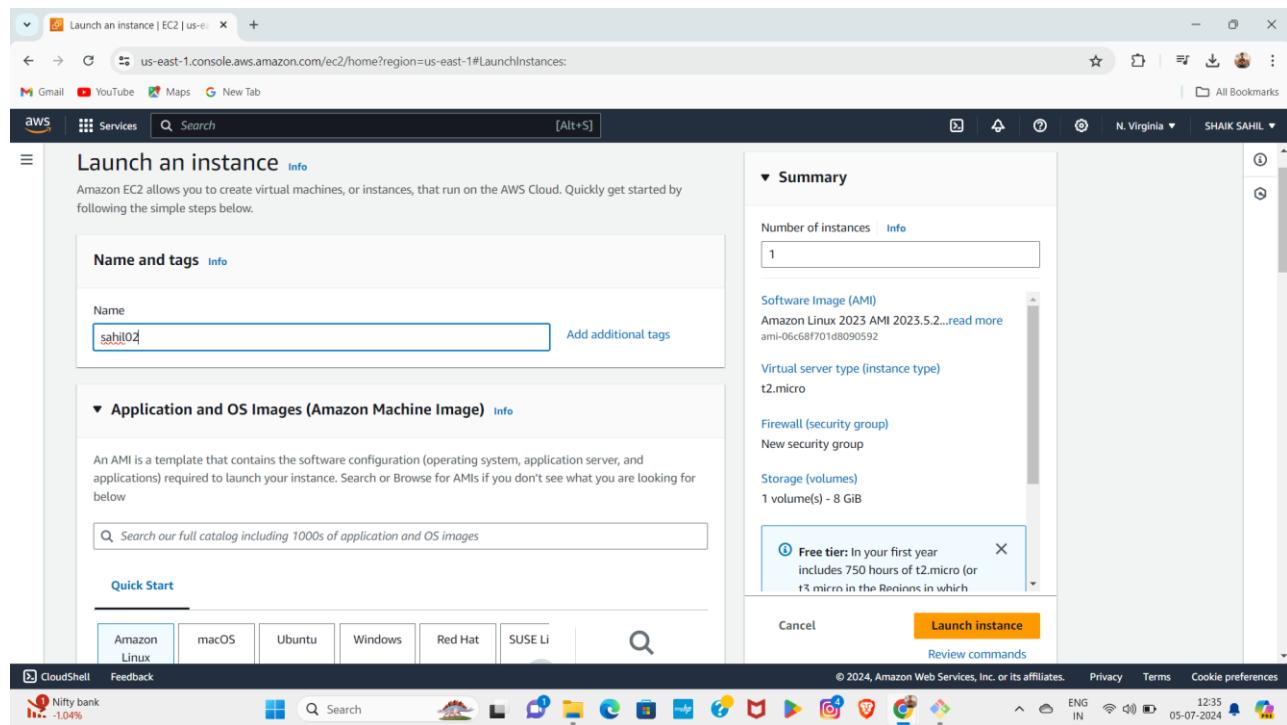
Go to AWS search bar and search EC2 and click on it.



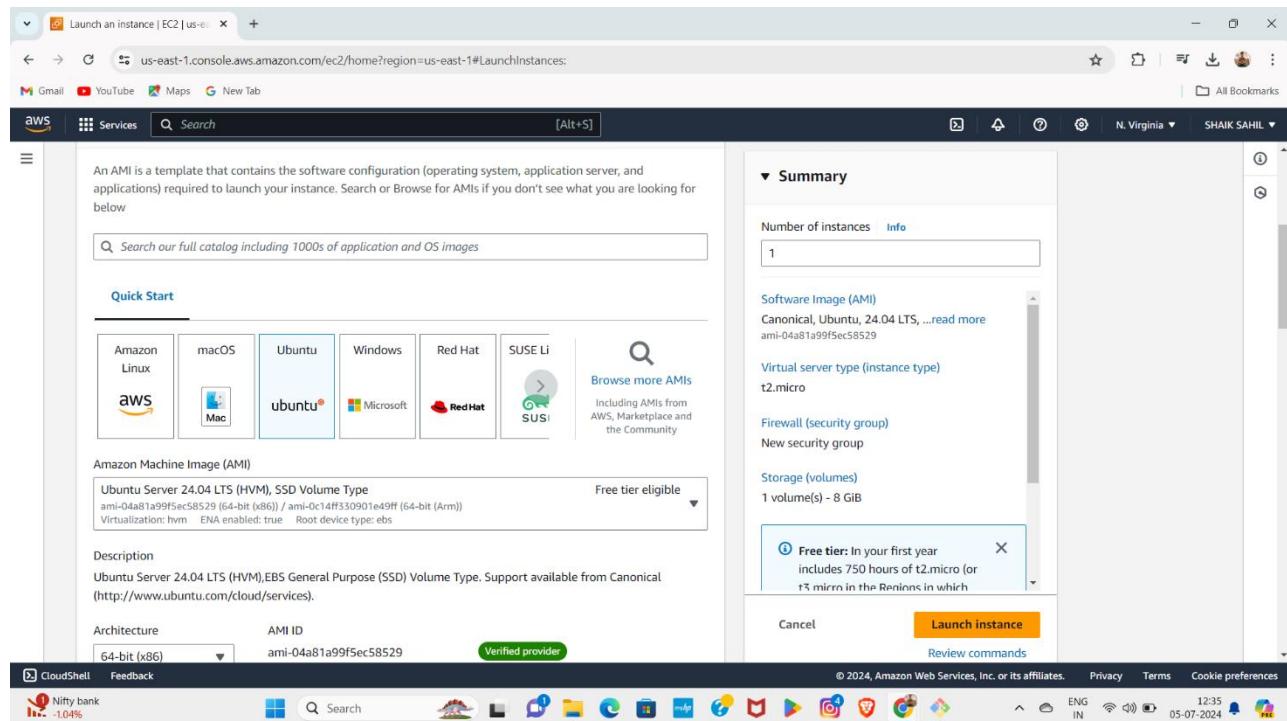
Click on launch instance



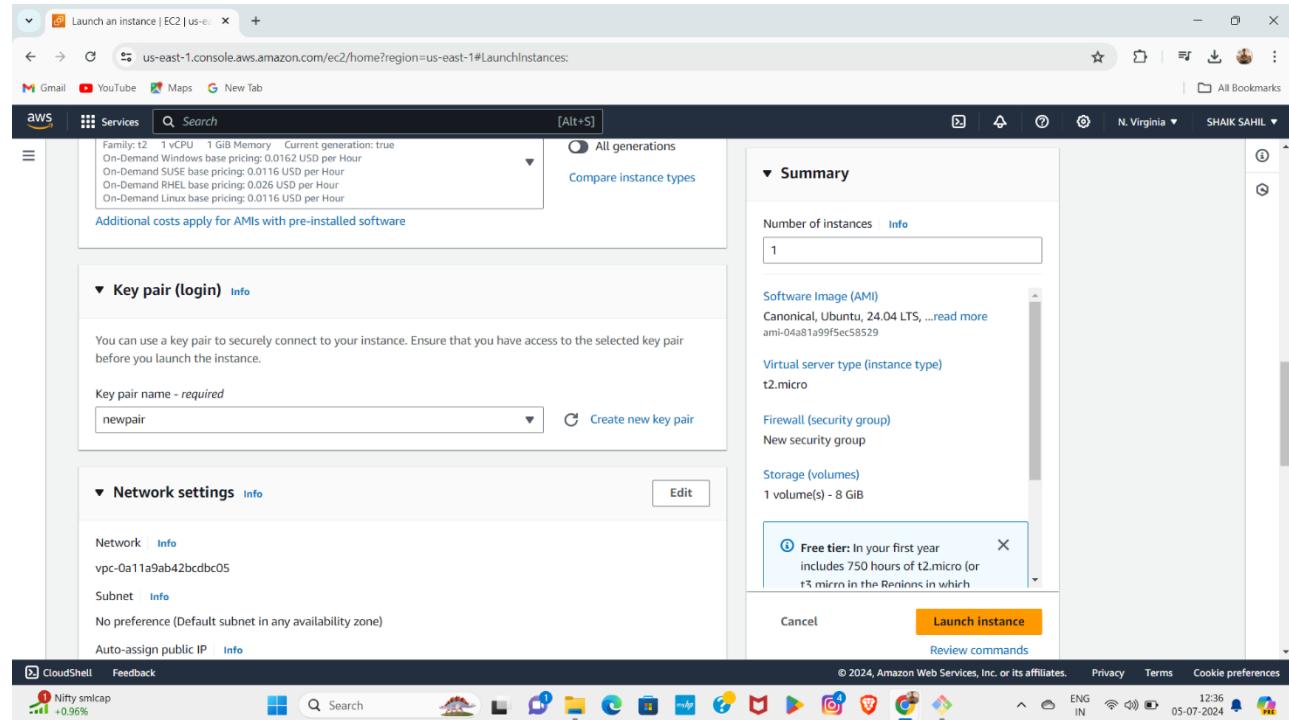
Give a name to the server.



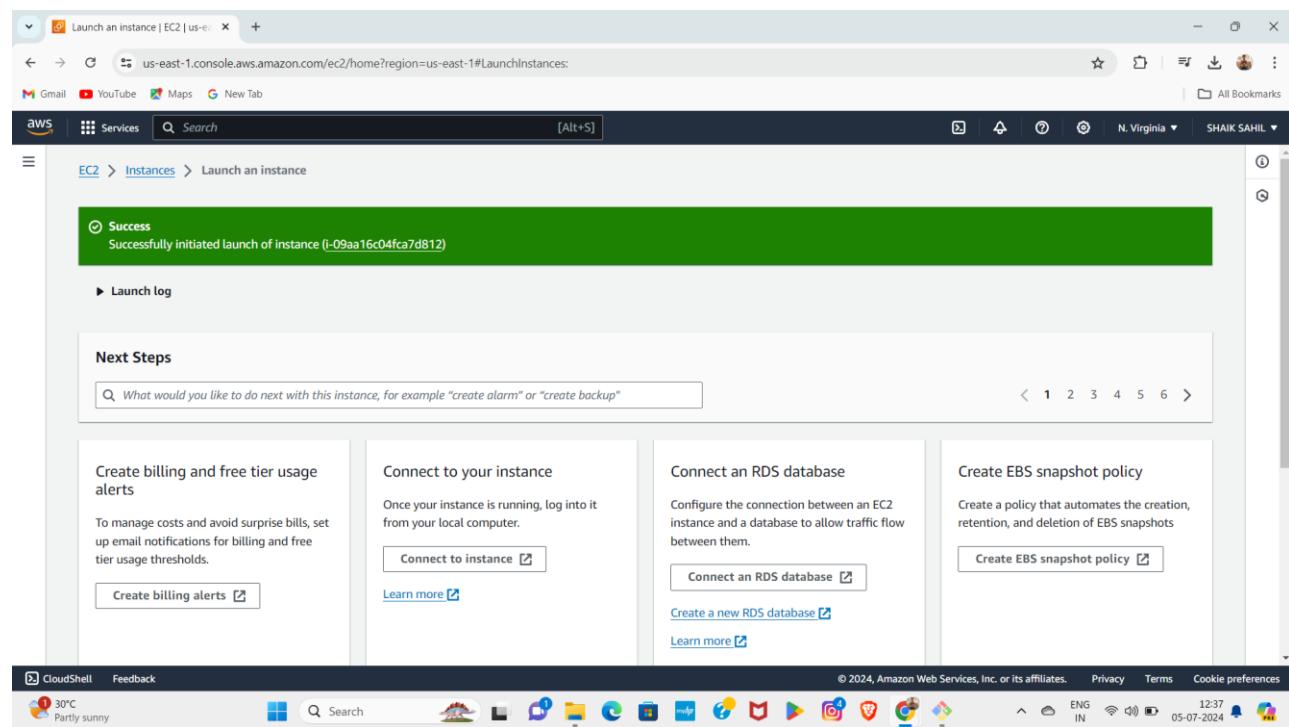
Select an Operating system(OS).



Create a key pair and Click on launch instance.



Repeat the same process to have three instances.



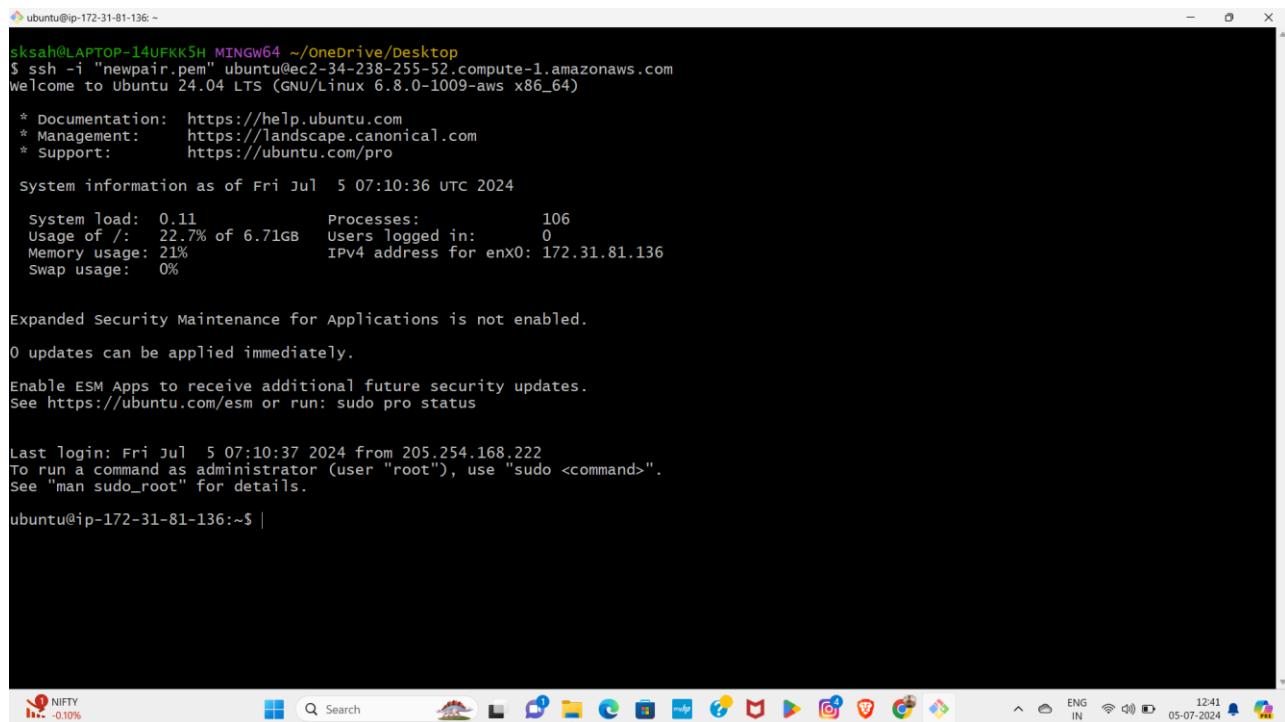
To check the storage of the instances-
Go to instances click on instance ID.

The screenshot shows the AWS EC2 Instances page. On the left, there's a navigation sidebar with links like EC2 Dashboard, EC2 Global View, Events, and various instance-related options. The main area displays a table of instances with columns for Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, and Public IPv4 DNS. One instance, 'sahil02', is selected and highlighted. Below the table, the instance details for 'i-09aa16c04fca7d812 (sahil02)' are shown, including its summary information.

Connect to instance and copy the command below in SSH Client.

The screenshot shows the 'Connect to instance' page for the selected instance 'i-09aa16c04fca7d812 (sahil02)'. The 'SSH client' tab is selected. It provides instructions for connecting via SSH, including steps to open an SSH client, locate the private key file 'newpair.pem', run the command 'chmod 400 "newpair.pem"', and connect using the public DNS 'ec2-34-238-255-52.compute-1.amazonaws.com'. A message indicates that the command has been copied to the clipboard. A note at the bottom states: 'Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.'

Check storage in OS with copied command and modify or increase the volume of the instance.



```
ubuntu@ip-172-31-81-136: ~
skshah@LAPTOP-14UFKK5H MINGW64 ~/OneDrive/Desktop
$ ssh -i "newpair.pem" ubuntu@ec2-34-238-255-52.compute-1.amazonaws.com
welcome to Ubuntu 24.04 LTS (GNU/Linux 6.8.0-1009-aws x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Fri Jul 5 07:10:36 UTC 2024

System load: 0.11      Processes:          106
Usage of /: 22.7% of 6.71GB  Users logged in:    0
Memory usage: 21%          IPv4 address for enx0: 172.31.81.136
Swap usage:  0%

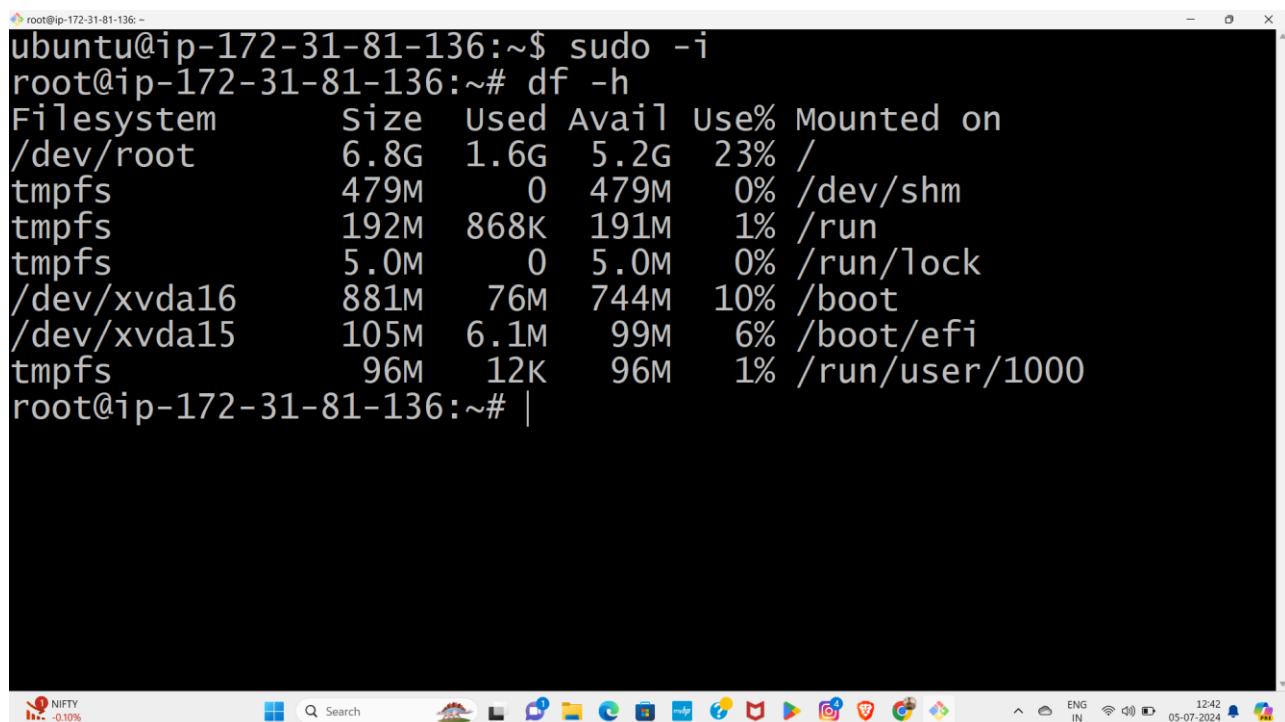
Expanded security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

Last login: Fri Jul 5 07:10:37 2024 from 205.254.168.222
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-81-136:~$ |
```



```
root@ip-172-31-81-136: ~$ sudo -i
root@ip-172-31-81-136:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root       6.8G  1.6G  5.2G  23% /
tmpfs           479M     0  479M   0% /dev/shm
tmpfs           192M  868K  191M   1% /run
tmpfs            5.0M     0  5.0M   0% /run/lock
/dev/xvda16     881M   76M  744M  10% /boot
/dev/xvda15     105M  6.1M  99M   6% /boot/efi
tmpfs            96M   12K   96M   1% /run/user/1000
root@ip-172-31-81-136:~# |
```

ELASTIC BLOCK STORE:

a.Attach one ebs to one instance.

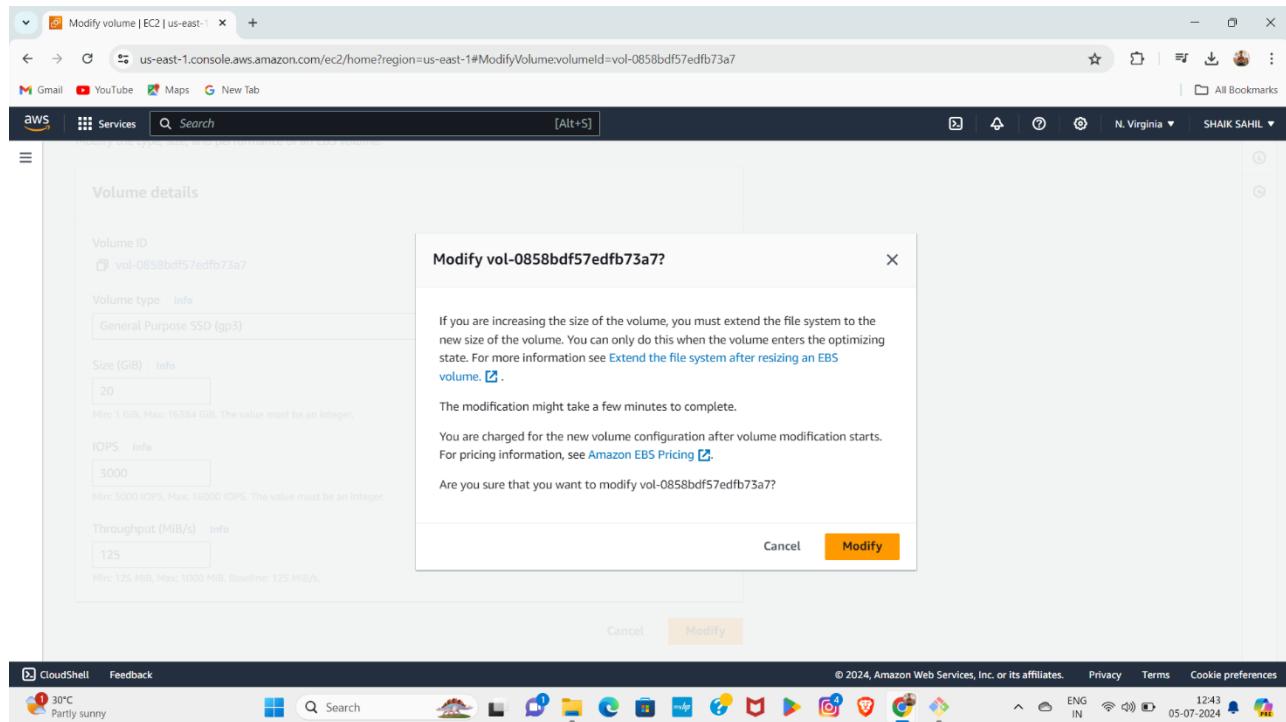
-Go to volumes and click on actions and the modify volume.

The screenshot shows the AWS Management Console with the URL us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Volumes. The left sidebar is expanded to show the 'Elastic Block Store' section. The main area displays a table of volumes with one row selected. The 'Actions' menu on the right is open, with 'Modify volume' highlighted. The volume details panel at the bottom shows the selected volume's ID, type, size, and status.

Increase or modify the volume with required size.

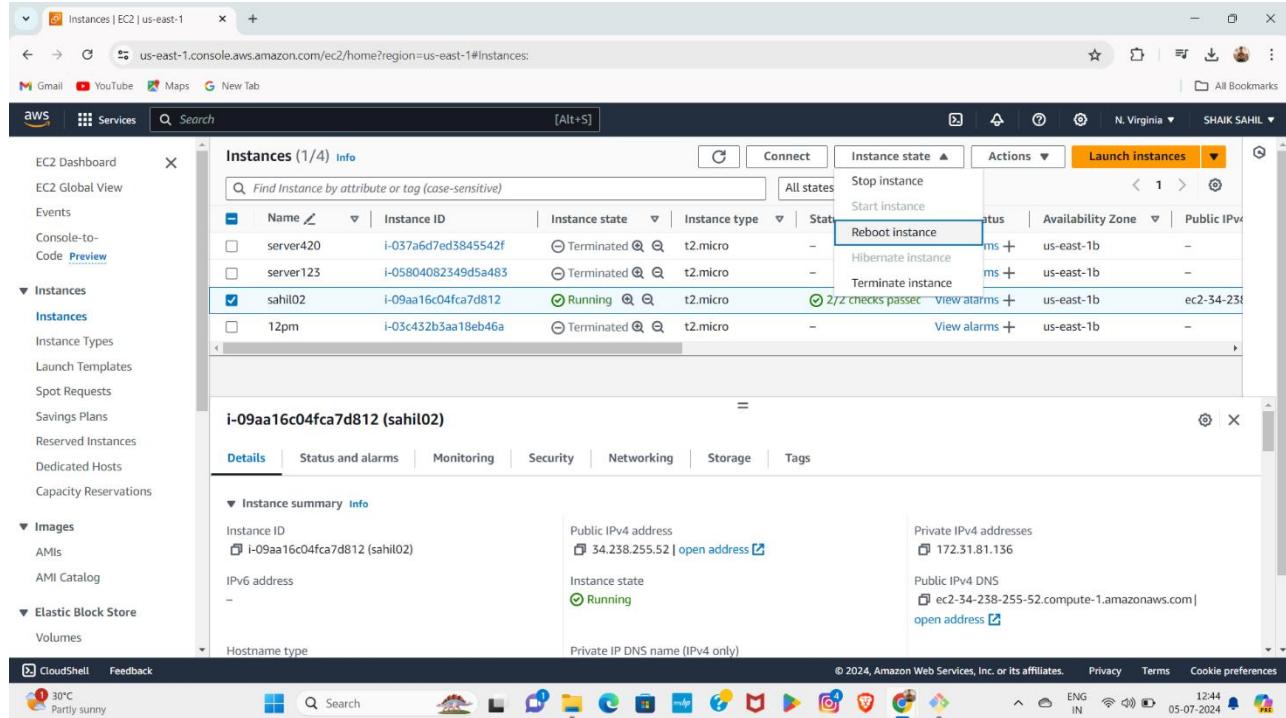
The screenshot shows the AWS Management Console with the URL us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#ModifyVolume?volumeId=vol-0858bdf57edfb73a7. The left sidebar shows the 'EC2 > Volumes' path. The main area contains a form for modifying volume details, including fields for Volume ID, Volume type, Size (GiB), IOPS, and Throughput. The 'Size (GiB)' field is set to 20, and the 'IOPS' field is set to 3000.

Click on modify.



Go to instance

-Click on instance state and reboot instance for before checking storage of volume.



```
root@ip-172-31-81-136:~$ sudo -i
root@ip-172-31-81-136:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        19G   1.6G   17G   9% /
tmpfs           479M     0  479M   0% /dev/shm
tmpfs           192M  860K  191M   1% /run
tmpfs            5.0M     0  5.0M   0% /run/lock
/dev/xvda16      881M   76M  744M  10% /boot
/dev/xvda15      105M   6.1M  99M   6% /boot/efi
tmpfs            96M   12K   96M   1% /run/user/1000
root@ip-172-31-81-136:~# |
```

Go to volumes and click on create volume.

The screenshot shows the AWS CloudShell interface with the following details:

- CloudShell:** A terminal window showing the command history and output of the previous command.
- EC2 Volumes Page:** The user is navigating to the EC2 Volumes section of the AWS Management Console. The URL is us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Volumes:sort=desc:attachment.
- Left Sidebar:** The sidebar includes links for Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Images (AMIs, AMI Catalog), Elastic Block Store (Volumes, Snapshots, Lifecycle Manager), Network & Security (Security Groups, Elastic IPs, Placement Groups, Key Pairs, Network Interfaces), and Support (Feedback).
- Volume List:** The main content area displays a table titled "Volumes (1) Info" with one item:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot	Created
-	vol-0858bdf57edfb73a7	gp3	20 GiB	3000	125	snap-0e23f46...	2024/07/05 12:36 GMT+5:...
- Fault tolerance:** A message states "Fault tolerance for all volumes in this Region".
- Snapshot summary:** Shows "Recently backed up volumes / Total # volumes" as 0 / 1. It also indicates "Data Lifecycle Manager default policy for EBS Snapshots status" and "No default policy set up | Create policy".
- Bottom Navigation:** Includes links for CloudShell, Feedback, and various AWS services like S3, Lambda, and CloudWatch.

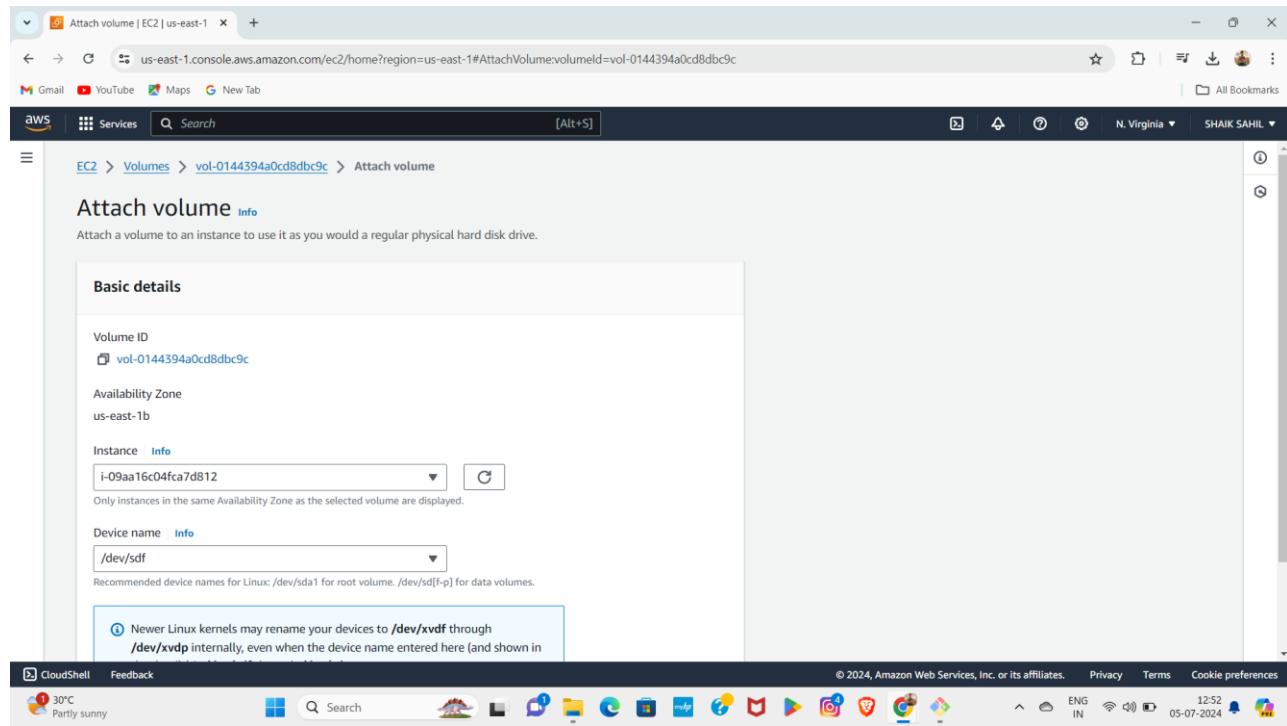
Create a volume size as required with same availability zone as instance.

The screenshot shows the 'Modify volume' page in the AWS EC2 console. The volume ID is 'vol-0858bdf57edfb73a7'. The volume type is set to 'General Purpose SSD (gp3)'. The size is set to 20 GiB, with a note indicating it must be an integer between 1 GiB and 16384 GiB. The IOPS value is 3000, and the throughput value is 125 MiB/s. The page includes a sidebar with 'Volume details' and a bottom navigation bar with CloudShell, Feedback, and various system icons.

Go to volumes and click on Actions and then Attach volume.

The screenshot shows the 'Volumes' page in the AWS EC2 console. A success message indicates a volume was created. The table lists two volumes: one with ID 'vol-0858bdf57edfb73a7' and another with ID 'vol-0144394a0cd8dbc9c'. The Actions menu for the second volume is open, showing options like 'Actions ▾', 'Create volume', 'Modify volume', 'Create snapshot', 'Delete volume', 'Attach volume' (which is highlighted), 'Detach volume', 'Force detach volume', 'Manage auto-enabled I/O', 'Manage tags', and 'Fault injection'. The page includes a sidebar with 'EC2 Dashboard', 'EC2 Global View', 'Events', and sections for 'Instances', 'Images', and 'Elastic Block Store'. The bottom navigation bar includes CloudShell, Feedback, and various system icons.

Check the availability zone , instance Id and select device name.



So the volume is attached to instance.

- To check list of all block device by using “lsblk” command.
- To check file system by using “file -s /dev/xvdf” command.
- To create file system by using “mkfs -t xfs /dev/xvdf” command.
- To create directory by using “mkdir -p apps/volume” command.
- Mount the directory by using “mount /dev/xvdf apps/volume” command.
- To check the disk free with human readable language by using “df -h” command.

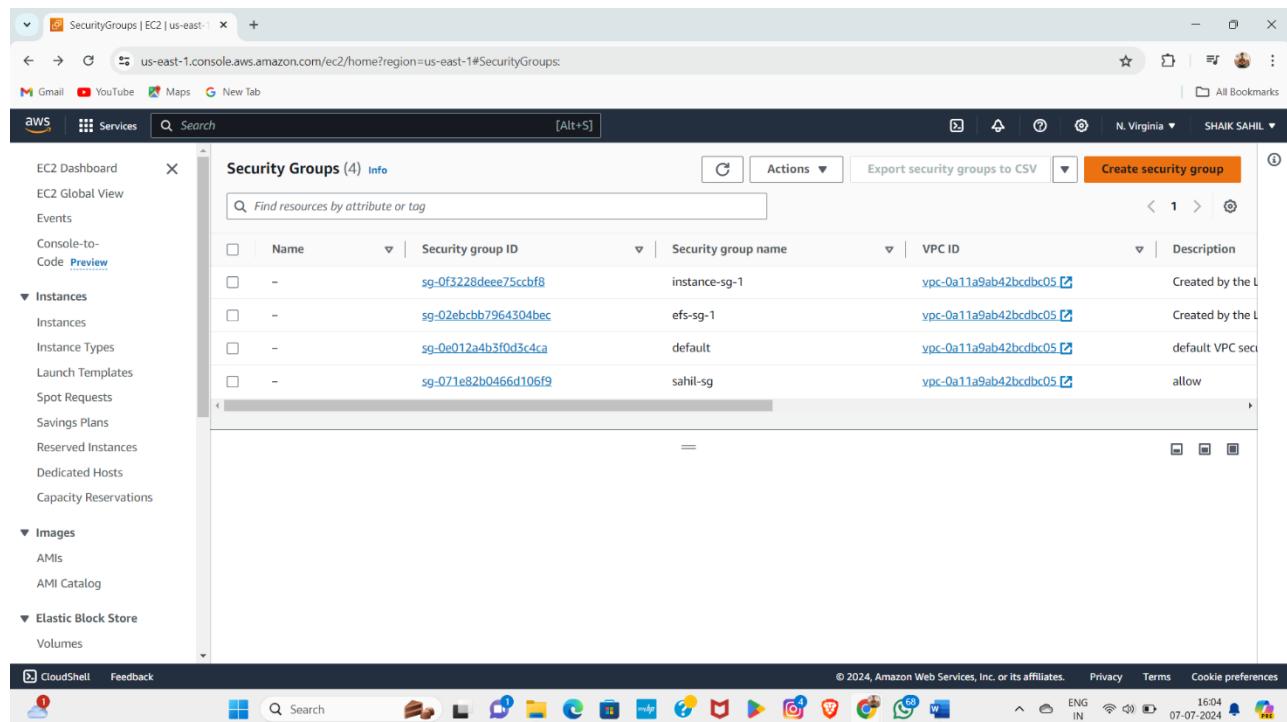
```
root@ip-172-31-81-136:~# file -s /dev/xvdf
/dev/xvdf: data
root@ip-172-31-81-136:~# lsblk
NAME   MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0    7:0    0 25.2M  1 loop /snap/amazon-ssm-agent/7993
loop1    7:1    0 55.7M  1 loop /snap/core18/2829
loop2    7:2    0 38.8M  1 loop /snap/snapd/21759
xvda   202:0    0  20G  0 disk 
└─xvda1  202:1    0  19G  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   30G  0 disk
root@ip-172-31-81-136:~# mkfs -t xfs /dev/xvdf
meta-data=/dev/xvdf      isize=512  agcount=4, agsize=1966080 blks
                      = sectsz=512  attr=2, projid32bit=1
                      =          crc=1   finobt=1, sparse=1, rmapbt=1
data     =             bsize=4096 blocks=7864320, imaxpct=25
                      =          sunit=0 swidth=0 blks
naming   =version 2   bsize=4096 ascii-ci=0, ftype=1
log      =internal log bsize=4096 blocks=16384, version=2
          =          sectsz=512 sunit=0 blks, lazy-count=1
realtime =none        extsz=4096 blocks=0, rtextents=0
root@ip-172-31-81-136:~# file -s /dev/xvdf
/dev/xvdf: SG1 XFS filesystem data (blksz 4096, inosz 512, v2 dirs)
root@ip-172-31-81-136:~# mkdir -p vcube/vcube126
root@ip-172-31-81-136:~# mount /dev/xvdf vcube/vcube126
root@ip-172-31-81-136:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root       19G  1.6G   17G  9% /
tmpfs          479M    0  479M  0% /dev/shm
tmpfs          192M 864k  191M  1% /run
tmpfs          5.0M    0  5.0M  0% /run/lock
/dev/xvda16    881M   76M  744M 10% /boot
/dev/xvda15    105M  6.1M  99M  6% /boot/efi
tmpfs          96M  12K  96M  1% /run/user/1000
/dev/xvdf      30G  620M   30G  3% /root/vcube/vcube126
root@ip-172-31-81-136:~|
```

NOTE: One ebs can be attached to one instance but it cannot be attached to multiple instances.

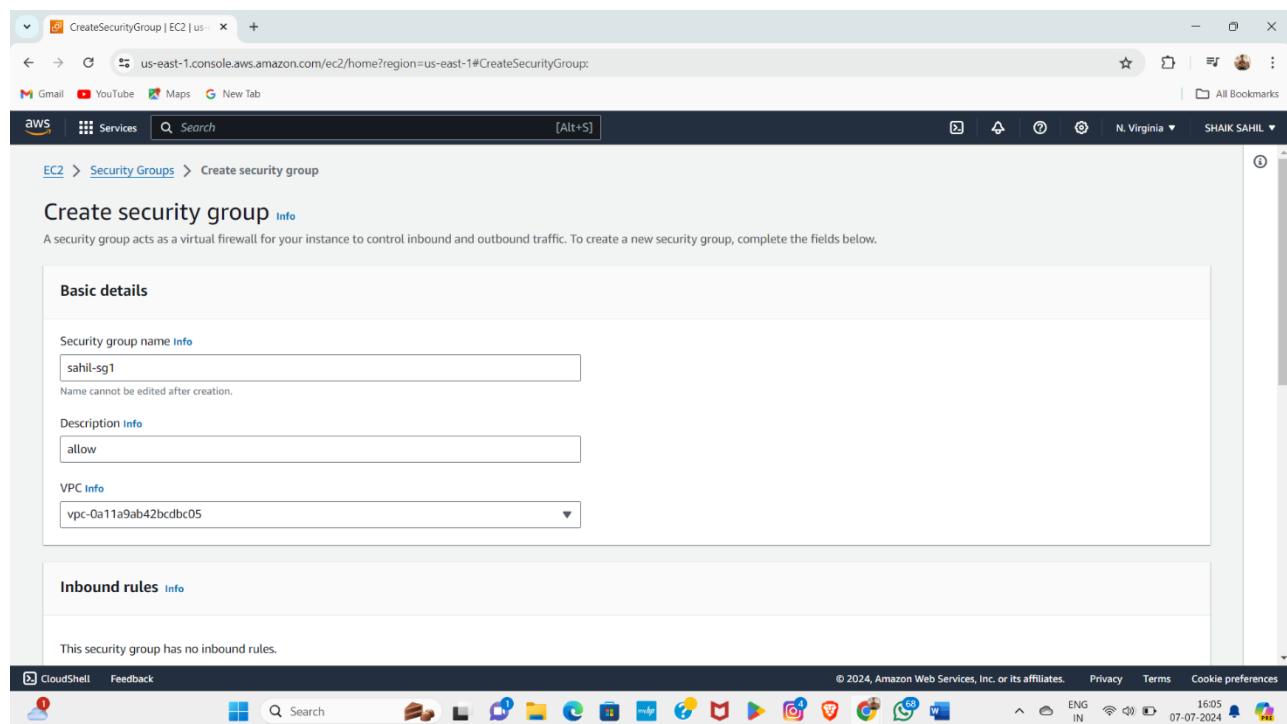
ELASTIC FILE SYSTEM :

b. Attach one efs to two instances.

Go to security groups and create a security group with basic details.



The screenshot shows the AWS EC2 Security Groups page. The left sidebar includes links for EC2 Dashboard, EC2 Global View, Events, Console-to-Code Preview, Instances (with sub-links for Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations), Images (AMIs, AMI Catalog), and Elastic Block Store (Volumes). The main content area displays a table titled "Security Groups (4) Info" with columns for Name, Security group ID, Security group name, VPC ID, and Description. The table lists four security groups: "instance-sg-1" (sg-0f3228deee75ccb8), "efs-sg-1" (sg-02ebcbb7964304bec), "default" (sg-0e012a4b3fd0d5c4ca), and "sahil-sg" (sg-071e82b0466d106f9). The "Actions" button is visible at the top right of the table.



The screenshot shows the "Create security group" wizard. The top navigation bar includes CloudShell, Feedback, and a search bar. The main content area has a breadcrumb trail: EC2 > Security Groups > Create security group. The title is "Create security group" with an "Info" link. A sub-instruction says: "A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below." The "Basic details" section contains fields for "Security group name" (sahil-sg1), "Description" (allow), and "VPC Info" (vpc-0a11a9ab42bcdcb05). The "Inbound rules" section notes: "This security group has no inbound rules." The bottom navigation bar includes CloudShell, Feedback, and a search bar.

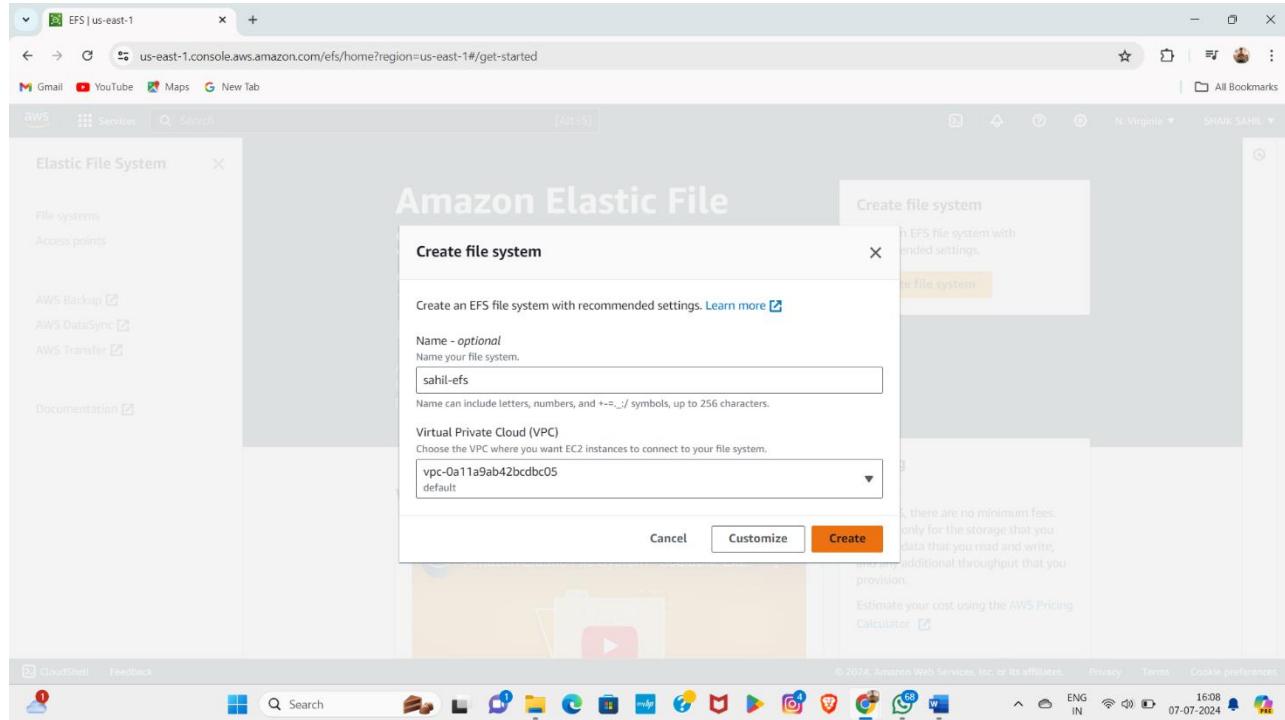
Search efs in AWS search bar .

The screenshot shows the AWS CloudWatch Metrics console with a search bar at the top containing 'efs'. The results are displayed in two sections: 'Services' and 'Features'. In the 'Services' section, 'EFS' is highlighted, showing its description as 'Managed File Storage for EC2'. Below it are 'DataSync', 'AWS Transfer Family', and 'MediaStore'. In the 'Features' section, 'Access points' is listed. On the right side of the interface, there is a detailed view of an EFS file system, including fields for 'VPC ID' (set to 'vpc-0a11a9ab42bcd05') and 'Protocol' (set to '1'). The bottom of the screen shows the Windows taskbar with various pinned icons.

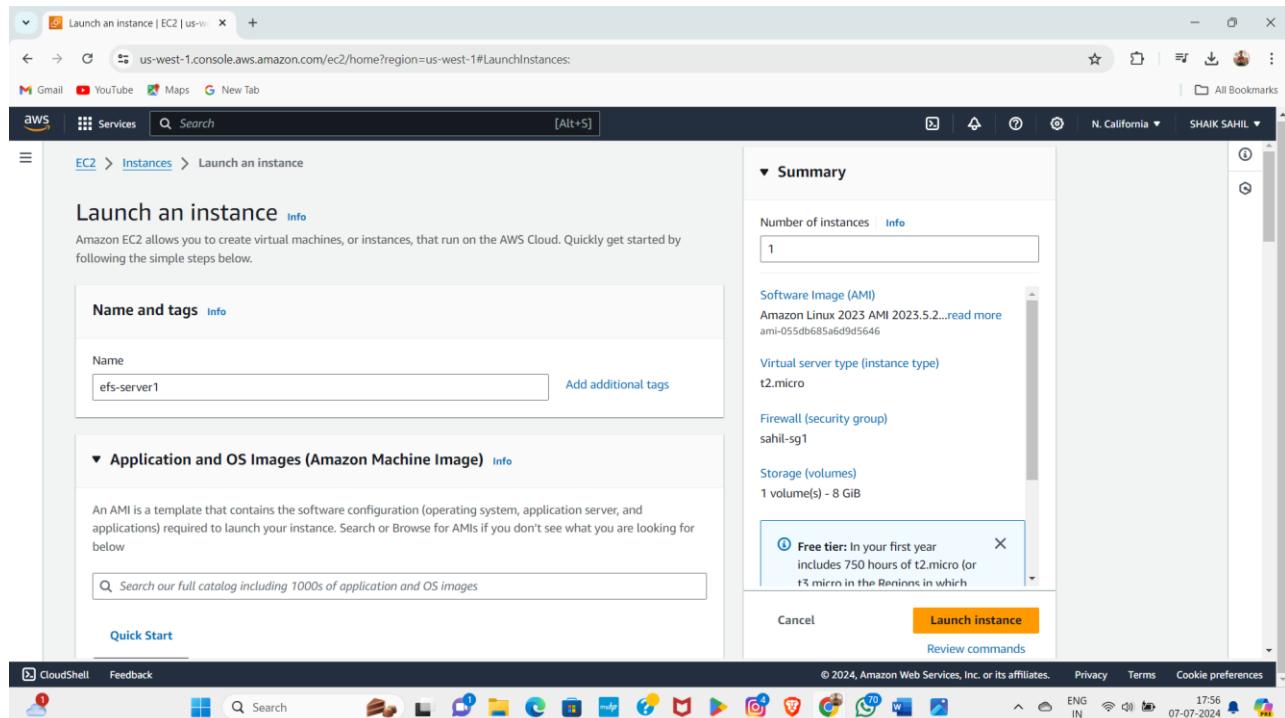
Click on create file system.

The screenshot shows the AWS EFS landing page. The main heading is 'Amazon Elastic File System' with the subtitle 'Scalable, elastic, cloud-native NFS file system'. A call-to-action button 'Create file system' is visible. To the left, a sidebar lists 'File systems' and 'Access points' under the 'Elastic File System' category, along with links for 'AWS Backup', 'AWS DataSync', 'AWS Transfer', and 'Documentation'. At the bottom, there is a section titled 'What is Amazon Elastic File System?' featuring a video thumbnail. The bottom of the screen shows the Windows taskbar with various pinned icons.

Name a file system and create it.



Go to instances and launch one instance with name,os and key pair.



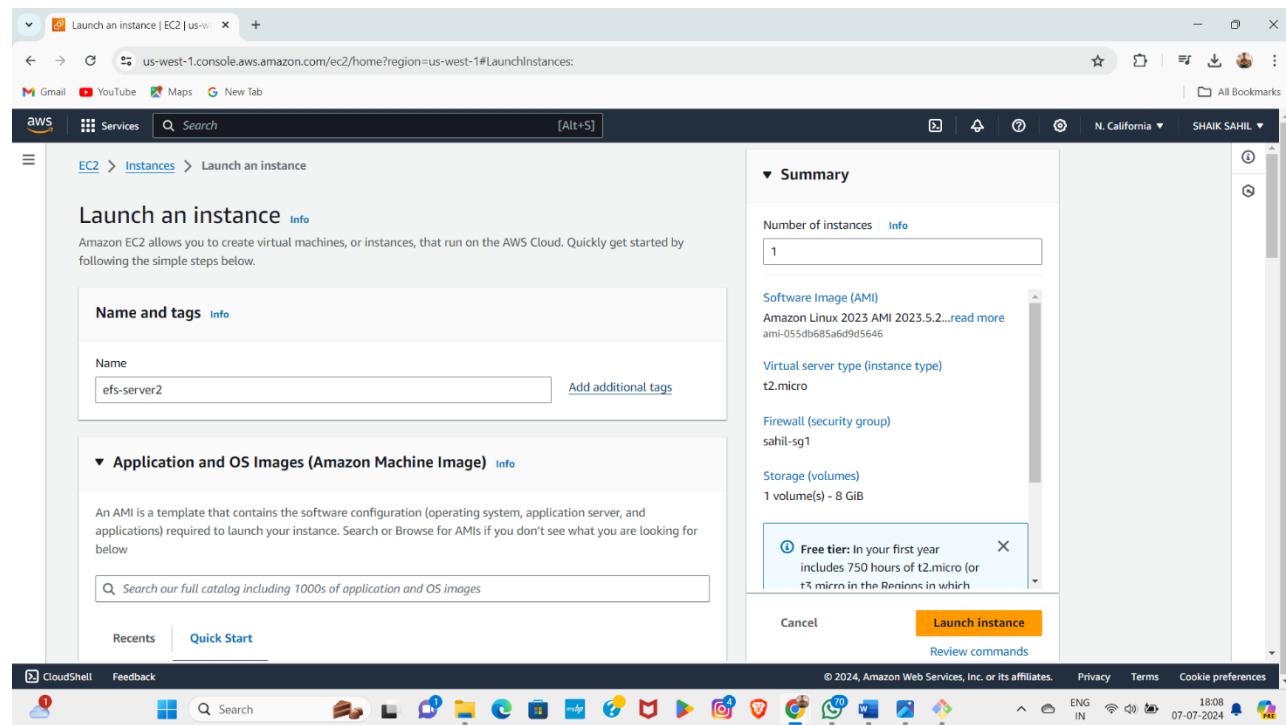
Select one availability zone(ex:us-west-1a) in subnet and existing security group that you have created.

The screenshot shows the AWS EC2 Launch Instance wizard. In the 'Network settings' section, a VPC (vpc-0d509e06ee1a0d1b2) and a subnet (subnet-0c82cf480e14281f) are selected. A security group (sahil-sg1) is chosen. The instance type is set to t2.micro. The summary indicates 1 instance will be launched. The software image is Amazon Linux 2023 AMI 2023.5.2... and storage is 1 volume(s) - 8 GiB. A free tier notice is displayed, stating it includes 750 hours of t2.micro or t3.micro in the Regions in which the instance runs. The 'Launch instance' button is visible at the bottom right.

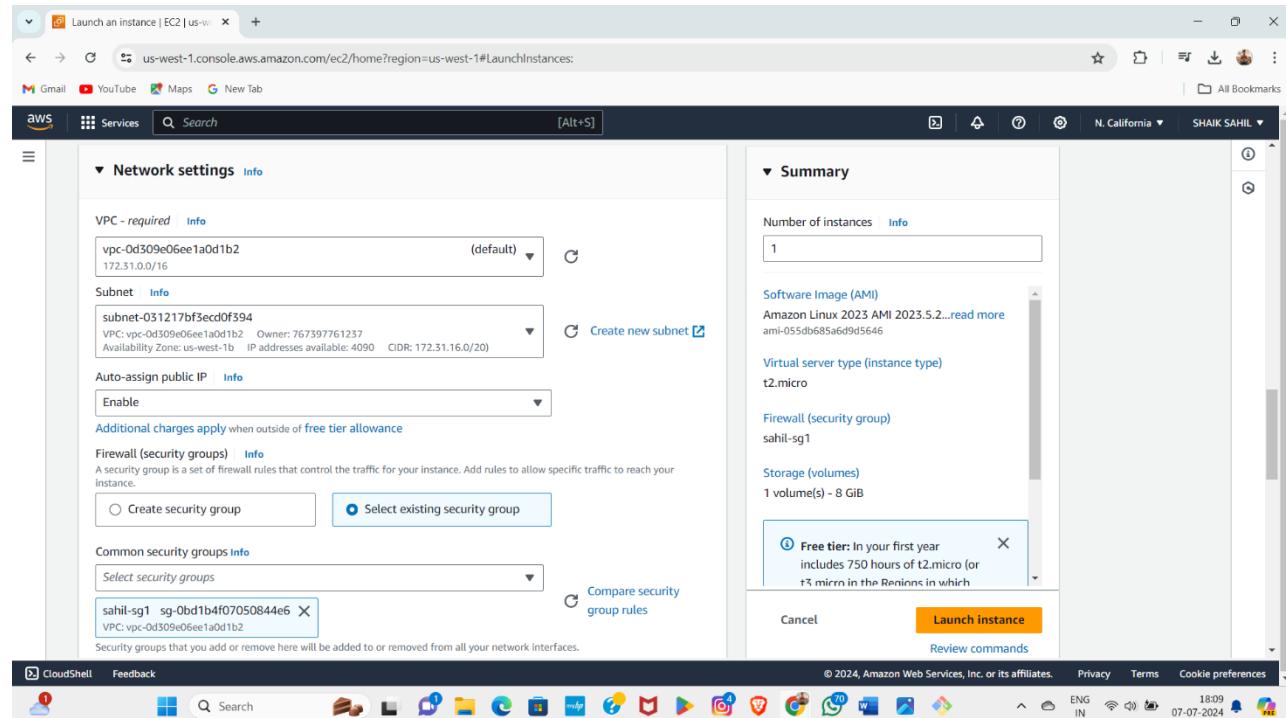
Add already created file system and launch instance.

The screenshot shows the AWS EC2 Launch Instance wizard. In the 'File systems' section, an EFS file system (fs-0e419d4cc5db6ee1a) is selected and mounted at /mnt/efs/fs1. The instance type is t2.micro, and it's launching with 1 instance. The software image is Amazon Linux 2023 AMI 2023.5.2... and storage is 1 volume(s) - 8 GiB. A free tier notice is displayed, stating it includes 750 hours of t2.micro or t3.micro in the Regions in which the instance runs. The 'Launch instance' button is visible at the bottom right.

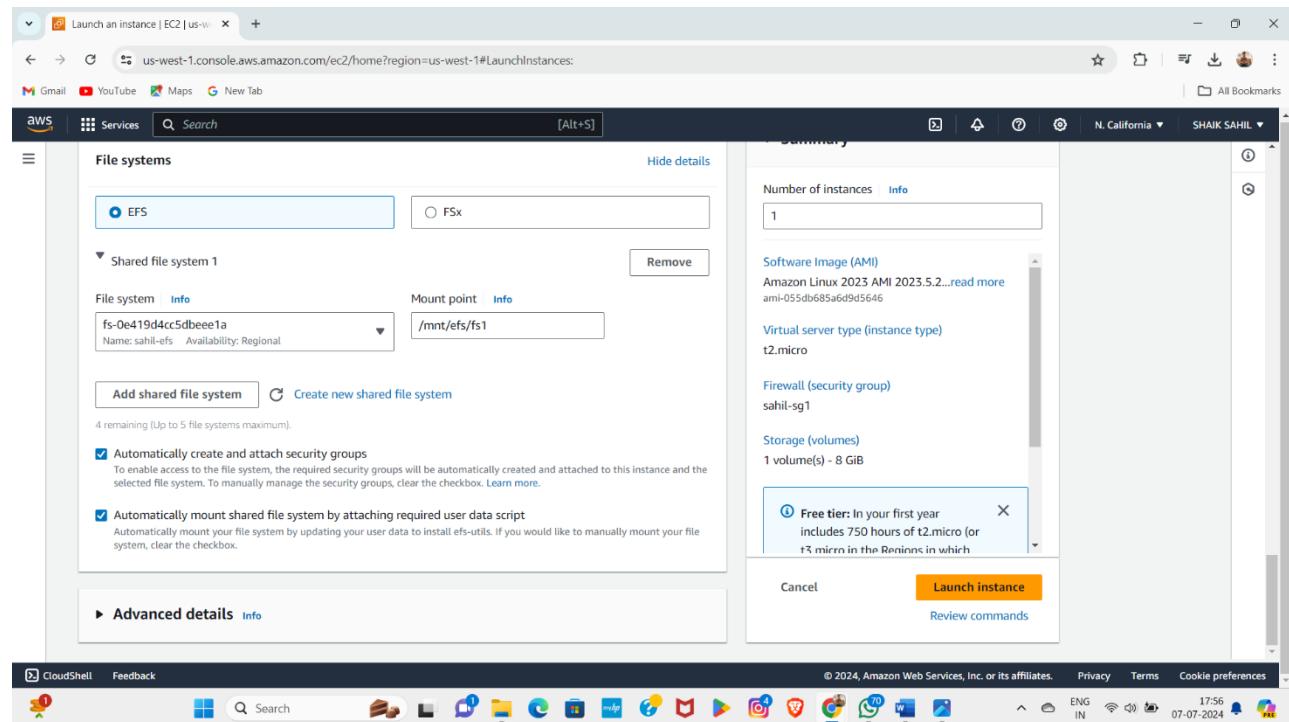
Create the second instance as same as first instance that we have created.



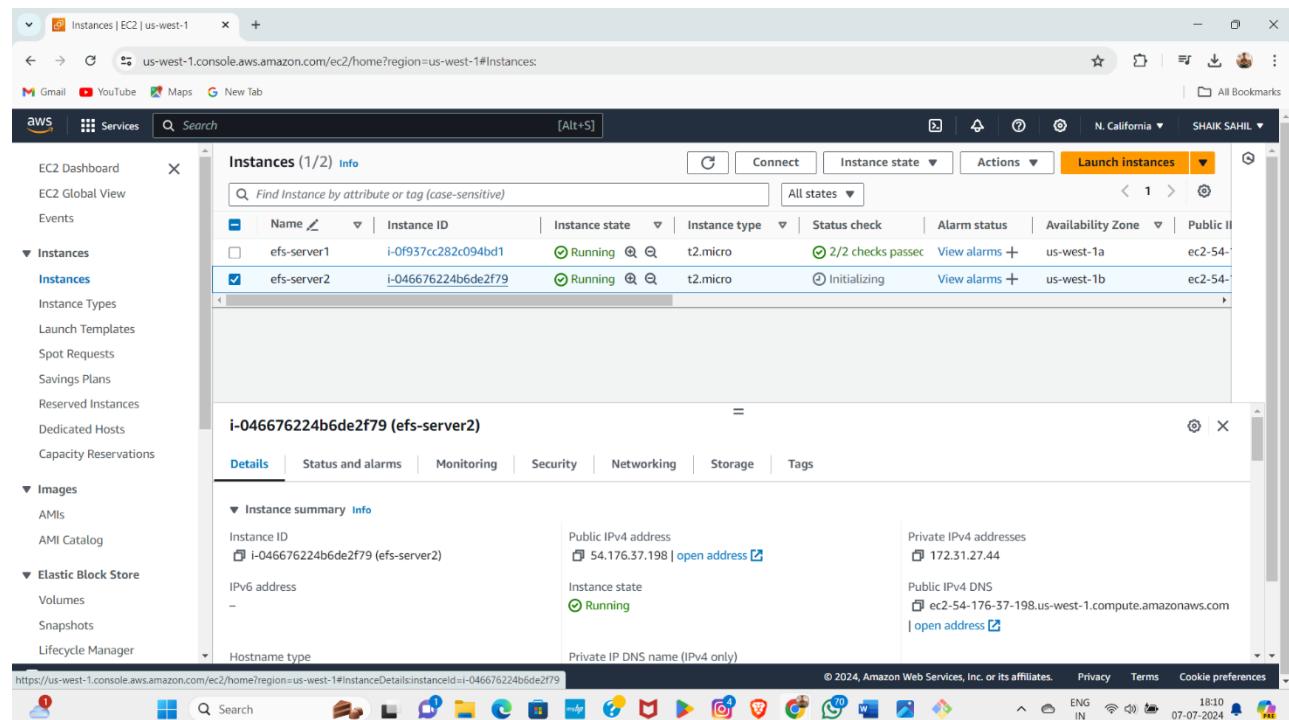
Select the different availability zone(ex:us-west-1b) in subnet and existing security group.



Add file system and launch instance.



Two instances are launched.



Go to both instance ID and connect to instance and copy the command from SSH client.

INSTANCE -1

The screenshot shows the AWS Connect to instance dialog for instance `i-0f937cc282c094bd1`. The `SSH client` tab is selected. The instance ID is listed as `i-0f937cc282c094bd1 (efs-server1)`. Below it, a numbered list provides instructions for connecting via SSH:

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is `efs-key.pem`.
3. Run this command, if necessary, to ensure your key is not publicly viewable.
`chmod 400 "efs-key.pem"`
4. Connect to your instance using its Public DNS:
`ec2-54-176-17-96.us-west-1.compute.amazonaws.com`

A green button labeled `Command copied` is visible, indicating the connection command has been copied to the clipboard. A note at the bottom states: `Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.`

INSTANCE-2

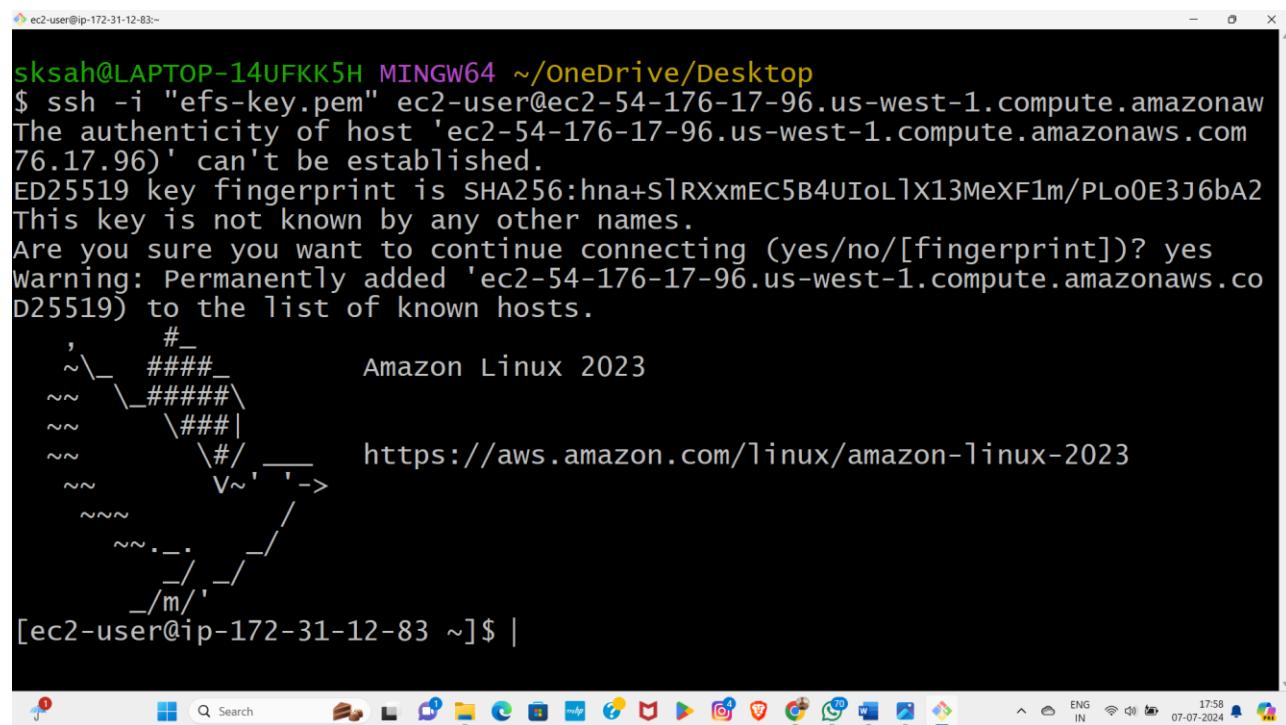
The screenshot shows the AWS Connect to instance dialog for instance `i-046676224b6de2f79`. The `SSH client` tab is selected. The instance ID is listed as `i-046676224b6de2f79 (efs-server2)`. Below it, a numbered list provides instructions for connecting via SSH:

1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is `efs-key.pem`.
3. Run this command, if necessary, to ensure your key is not publicly viewable.
`chmod 400 "efs-key.pem"`
4. Connect to your instance using its Public DNS:
`ec2-54-176-37-198.us-west-1.compute.amazonaws.com`

A green button labeled `Command copied` is visible, indicating the connection command has been copied to the clipboard. A note at the bottom states: `Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.`

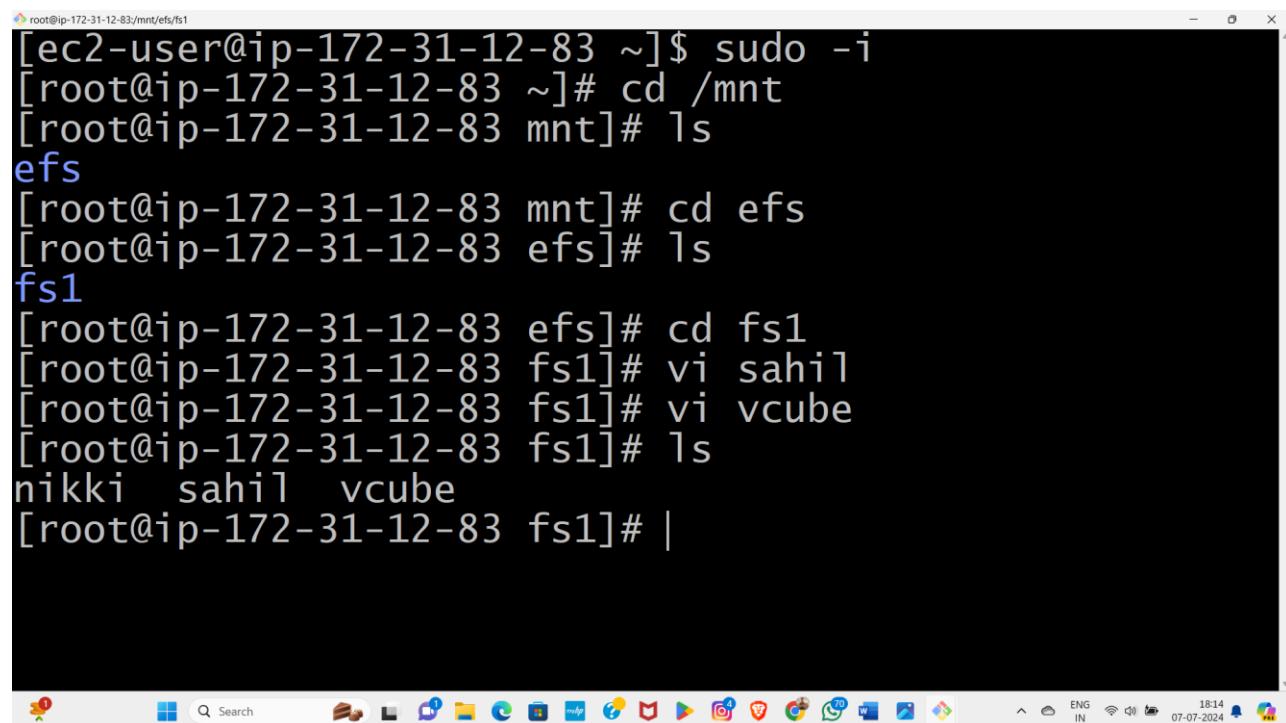
Create files in both instances and check those files in different OS platforms.

Git bash-1



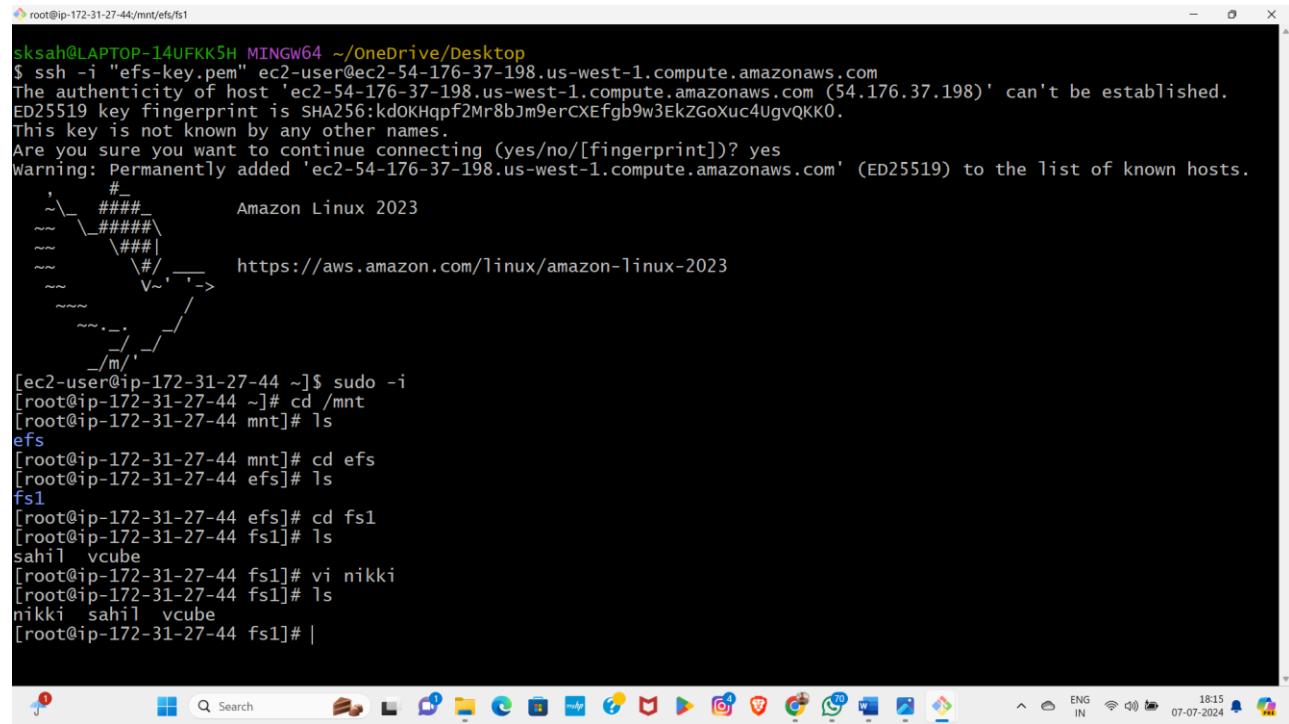
```
ec2-user@ip-172-31-12-83:~$ ssh -i "efs-key.pem" ec2-user@ec2-54-176-17-96.us-west-1.compute.amazonaws.com
The authenticity of host 'ec2-54-176-17-96.us-west-1.compute.amazonaws.com (54.176.17.96)' can't be established.
ED25519 key fingerprint is SHA256:hna+sLRXxmEC5B4UIoLlX13MeXF1m/PLo0E3J6bA2
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-176-17-96.us-west-1.compute.amazonaws.com' (ED25519) to the list of known hosts.

,      #
~\_\_ #####_      Amazon Linux 2023
~~ \_\#\#\#\_\_
~~   \#\#\|
~~     \#/ ,__->
~~     V~'    __->
~~~      /      /
~~~ .-.      /
~~~ /' ,--/
~~~ /m/ ,--/
[ec2-user@ip-172-31-12-83 ~]$ |
```



```
[ec2-user@ip-172-31-12-83 ~]$ sudo -i
[root@ip-172-31-12-83 ~]# cd /mnt
[root@ip-172-31-12-83 mnt]# ls
efs
[root@ip-172-31-12-83 mnt]# cd efs
[root@ip-172-31-12-83 efs]# ls
fs1
[root@ip-172-31-12-83 efs]# cd fs1
[root@ip-172-31-12-83 fs1]# vi sahil
[root@ip-172-31-12-83 fs1]# vi vcube
[root@ip-172-31-12-83 fs1]# ls
nikki sahil vcube
[root@ip-172-31-12-83 fs1]# |
```

Git bash-2



```
sksah@LAPTOP-14UFKK5H MINGW64 ~/OneDrive/Desktop
$ ssh -i "efs-key.pem" ec2-user@ec2-54-176-37-198.us-west-1.compute.amazonaws.com
The authenticity of host 'ec2-54-176-37-198.us-west-1.compute.amazonaws.com (54.176.37.198)' can't be established.
ED25519 key fingerprint is SHA256:kDOKHqpf2Mr8bJm9erCXEfgb9w3EkZGoXuc4UgvQKK0.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-176-37-198.us-west-1.compute.amazonaws.com' (ED25519) to the list of known hosts.

      #_
      \_ #####_          Amazon Linux 2023
      ~\_ #####\_
      ~~\###_
      ~~\#/   _-->
      ~~\#/   V~`_,_
      ~~\_._,_/
      ~~\_,_/
      ~~\m/,_/
[ec2-user@ip-172-31-27-44 ~]$ sudo -i
[root@ip-172-31-27-44 ~]# cd /mnt
[root@ip-172-31-27-44 mnt]# ls
efs
[root@ip-172-31-27-44 mnt]# cd efs
[root@ip-172-31-27-44 efs]# ls
fs1
[root@ip-172-31-27-44 efs]# cd fs1
[root@ip-172-31-27-44 fs1]# ls
sahil vcube
[root@ip-172-31-27-44 fs1]# vi nikki
[root@ip-172-31-27-44 fs1]# ls
nikki sahil vcube
[root@ip-172-31-27-44 fs1]# |
```