

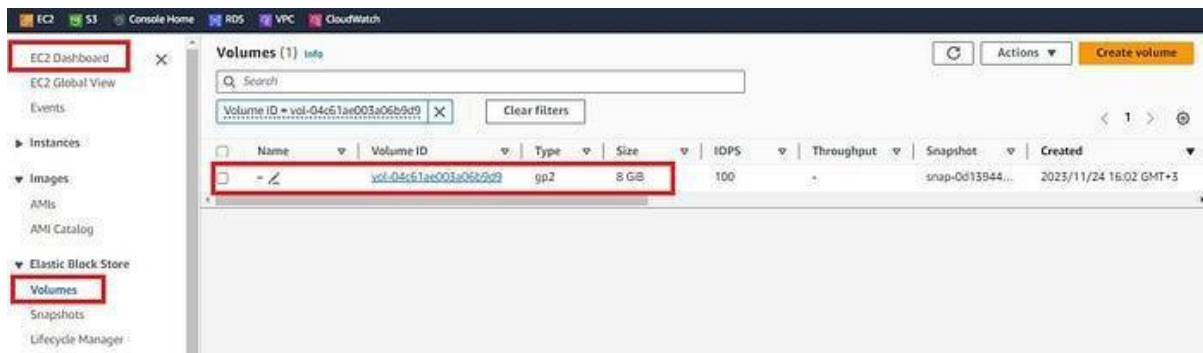
Program 9a: Experiment to attach EBS to an EC2 instance

Prerequisites(jump to)

Create a Linux and Windows based EC2 Instance.

Step 1: Create an EBS Volume:

1. Open the AWS Management Console and navigate to the EC2 dashboard.
2. In the left navigation pane, choose “Volumes” under the “Elastic Block Store” section.
3. Take note of the existing volumes. In this example, we have an 8GB volume.



4. Click “Create Volume” to add a new EBS volume.

- Volume Type: General Purpose SSD (gp2)
- Size (GiB): Enter 10 for a 10GB volume.
- Availability Zone: Choose the same availability zone as your EC2 instance.

Create volume Info

Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.

Volume settings

Volume type Info

General Purpose SSD (gp3)

i General Purpose SSD gp3 is now the default selection. gp3 provides up to 20% lower cost per GB than gp2.
[Learn More](#)

Size (GiB) Info

10

Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

IOPS Info

3000

Min: 3000 IOPS, Max: 16000 IOPS. The value must be an integer.

We can a tag which 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.

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

125

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

Availability Zone [Info](#)

eu-west-1a

Snapshot ID - optional [Info](#)

Don't create volume from a snapshot

Encryption [Info](#)

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

☐ Encrypt this volume

Tags - optional [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 Extra Volume	Remove

Finally, Click “Create” to create the EBS volume.

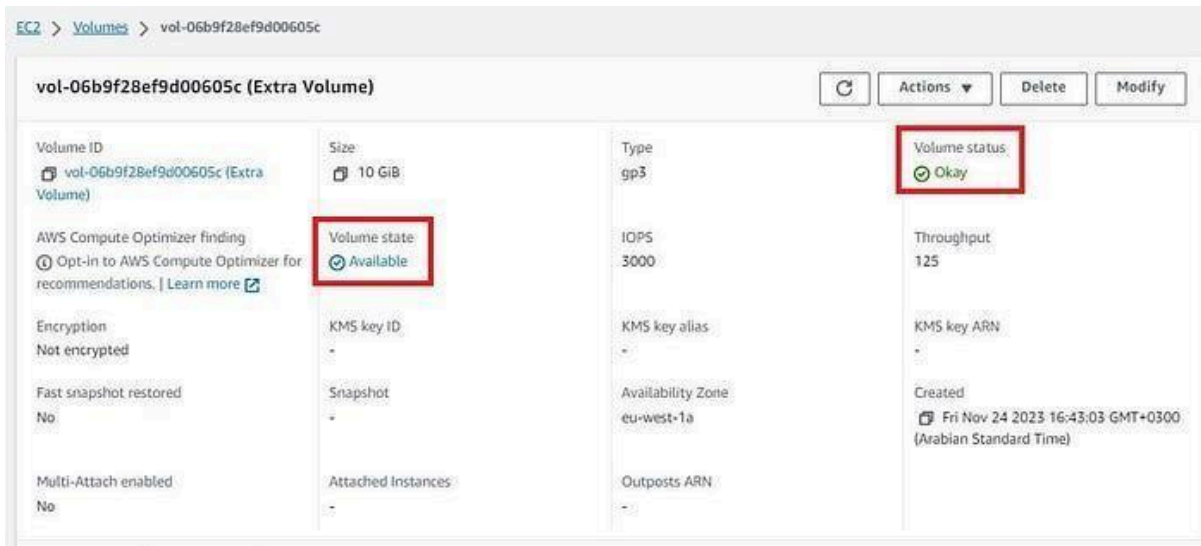
Snapshot summary [Info](#)

Click refresh to view backup information

The volume type that you select and the tags that you assign determine whether the volume will be backed up by any Data Lifecycle Manager policies.

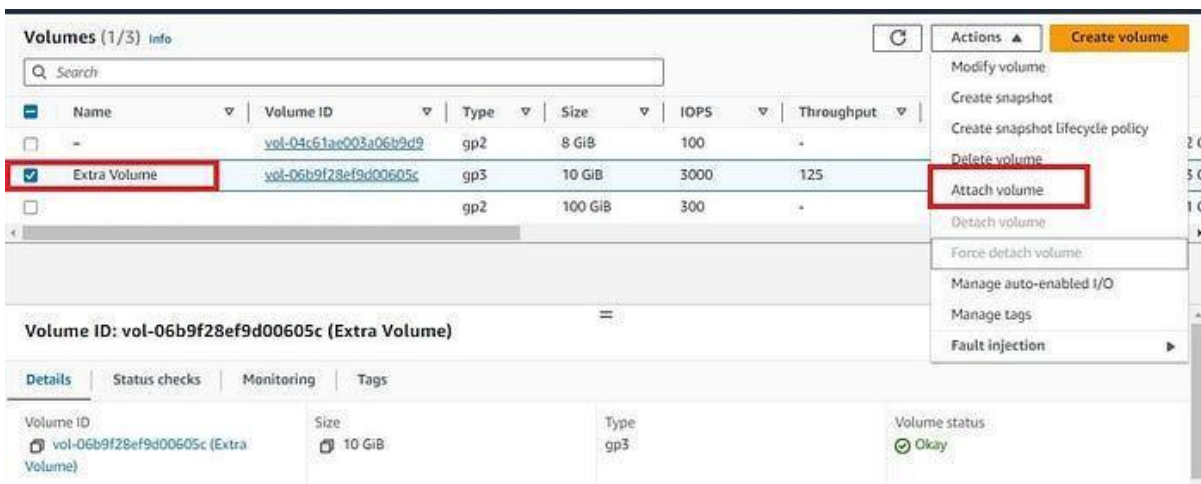
Cancel **Create volume**

Now if we can check the status of the newly created volume will be available.



Step 2: Attach EBS Volume to EC2 Instance:

1. In the Volumes dashboard, select the newly created volume.
2. Click “Actions” > “Attach Volume” and choose your EC2 instance.
3. Confirm the attachment by clicking “Attach.”




Make sure to select the instance on which you have to attach the additional volume.

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-06b9f28ef9d00605c \(Extra Volume\)](#)

Availability Zone
eu-west-1a

Instance [Info](#)

i-0e4c780ad70d3ff7a

▼




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

Device name [Info](#)

/dev/sdf

Recommended device names for Linux: /dev/sda1 for root volume, /dev/sd[f-p] for data volumes.

 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**.

Cancel

Attach volume

To verify that the volume has been successfully attached to the EC2 Instance you can go to the Volume section, select the newly created volume, and check the attached instance section as shown below:

2023/11/24 16:43 GMT+3	eu-west-1a	 In-use	No alarms	+	i-0e4c780ad70d3ff7a (my-ec2): /dev/sdf (attached)
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Step 3: Connect to your EC2 Instance:

1. Use SSH to connect to your EC2 instance.
2. Use the following command to list the available block devices:

lsblk

Identify your attached volume (e.g., `/dev/xvdf`).

```
ubuntu@ip-172-31-41-73:~$ 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
xvda         202:0     0     8G   0 disk
├─xvda1      202:1     0    7.9G  0 part /
├─xvda14     202:14    0     4M   0 part
└─xvda15     202:15    0   106M  0 part /boot/efi
xvdf         202:80    0    10G   0 disk
```

Step 4: Create a Filesystem on the EBS Volume:

1. Let's first create a directory to be used as the mount point:

sudo -i

mkdir -p /mnt/ebs_volume

2. Now use the below command to create a filesystem on the attached volume:

```
mkfs -t ext4 /dev/xvdf
```

```
root@ip-172-31-41-73:~# mkfs -t ext4 /dev/xvdf
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 2621440 4k blocks and 655360 inodes
Filesystem UUID: 8e2aa1fb-46c9-4461-a150-eb3336b1abb2
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
```

Now if we verify if the new file system exists use the below command and you should see the output:

```
file -s /dev/xvdf
```

```
/dev/xvdf: Linux rev 1.0 ext4 filesystem data, UUID=8e2aa1fb-46c9-4461-a150-eb3336b1abb2 (extents) (64bit)
(large files) (huge files)
```

Step 5: Mount the EBS Volume:

1. Mount the EBS volume to the specified mount point:

```
mount /dev/xvdf /mnt/ebs_volume
```

Now you should see the new EBS volume mounted to the directory you created in the earlier steps:


```

root@ip-172-31-41-73:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        7.6G  1.8G  5.9G  24% /
tmpfs            475M   0  475M   0% /dev/shm
tmpfs            190M  892K  190M   1% /run
tmpfs            5.0M   0   5.0M   0% /run/lock
/dev/xvda15      105M  6.1M   99M   6% /boot/efi
tmpfs            95M   4.0K   95M   1% /run/user/1000
/dev/xvdf        9.8G   24K   9.3G   1% /mnt/ebs_volume
root@ip-172-31-41-73:~#
root@ip-172-31-41-73:~#
root@ip-172-31-41-73:~#
root@ip-172-31-41-73:~# 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
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loop3         7:3    0  111.9M  1 loop /snap/lxd/24322
loop4         7:4    0   40.8M  1 loop /snap/snapd/20092
xvda         202:0    0     8G   0 disk
├─xvda1      202:1    0    7.9G  0 part /
├─xvda14     202:14   0     4M   0 part
└─xvda15     202:15   0   106M  0 part /boot/efi
xvdf         202:80   0    10G   0 disk /mnt/ebs_volume

```

Step 6: Configure Automatic Mount on Boot:

1. Open the `/etc/fstab` file in a text editor:

```
vi /etc/fstab
```

2. Add the following line to the end of the file:

```
/dev/xvdf /mnt/ebs_volume ext4 defaults,nofail 0 2
```

Save and exit the editor.

You can also verify on the AWS console the new EBS volume has been successfully added and mounted:

Take a screenshot of the “added” and mounted” volume with /dev/xvdf seen in the AWS console

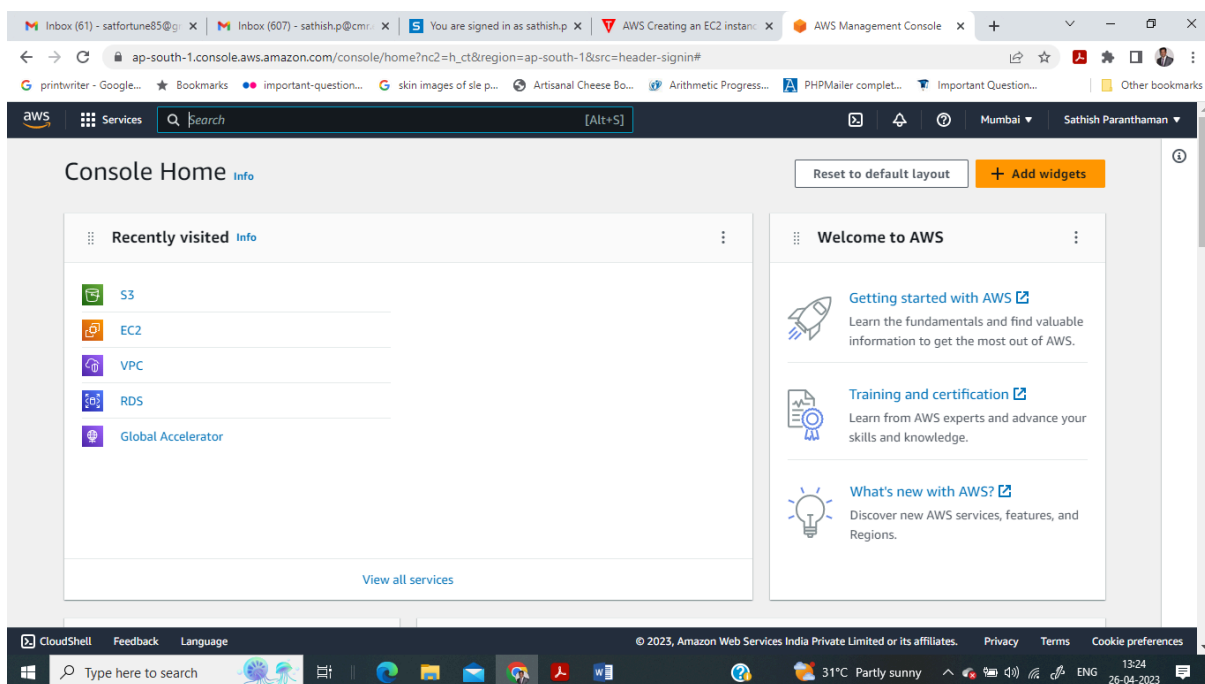
Step 7: Clean up resources like Volumes, EBS and EC2 to avoid incurring costs.,

Prerequisites

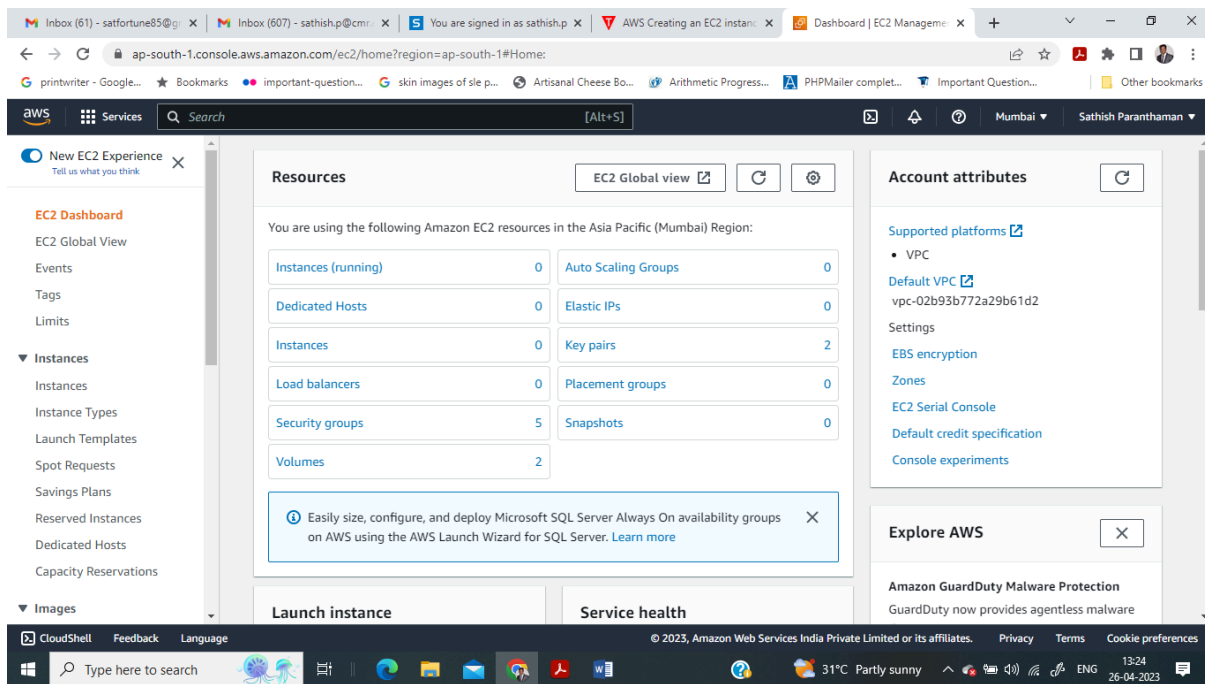
Create a Linux and Windows based EC2 Instance.

Create a Linux based EC2 Instance

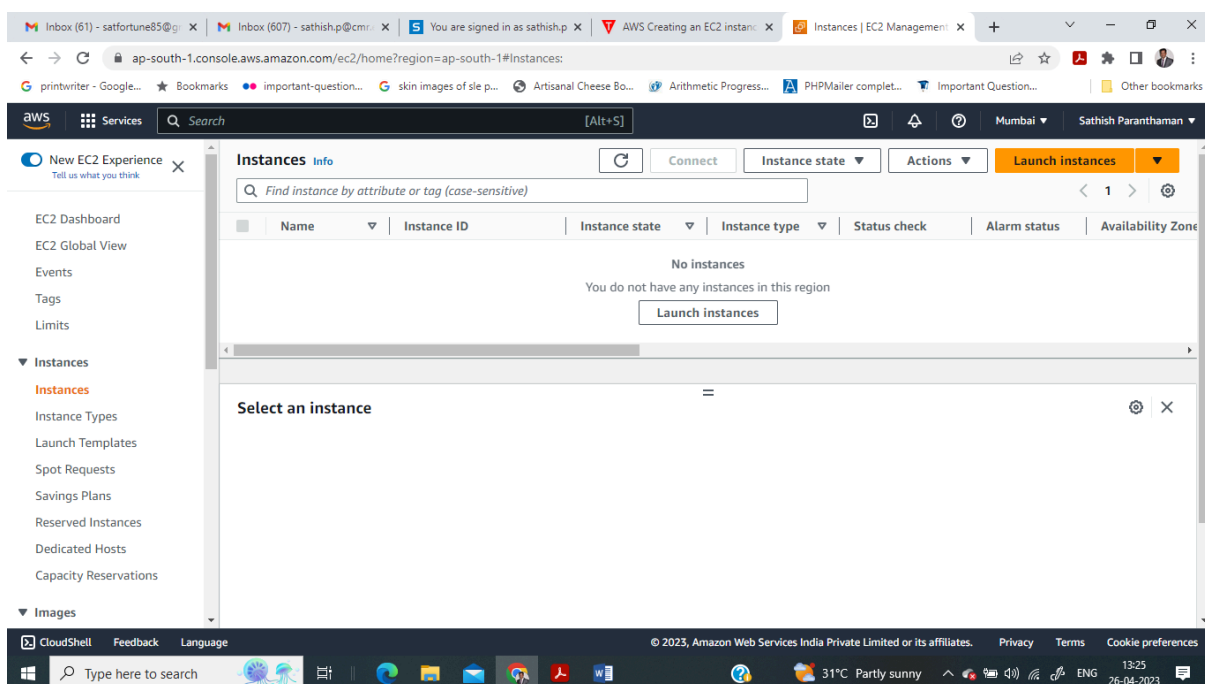
Step 1: Sign in to the AWS Management Console.



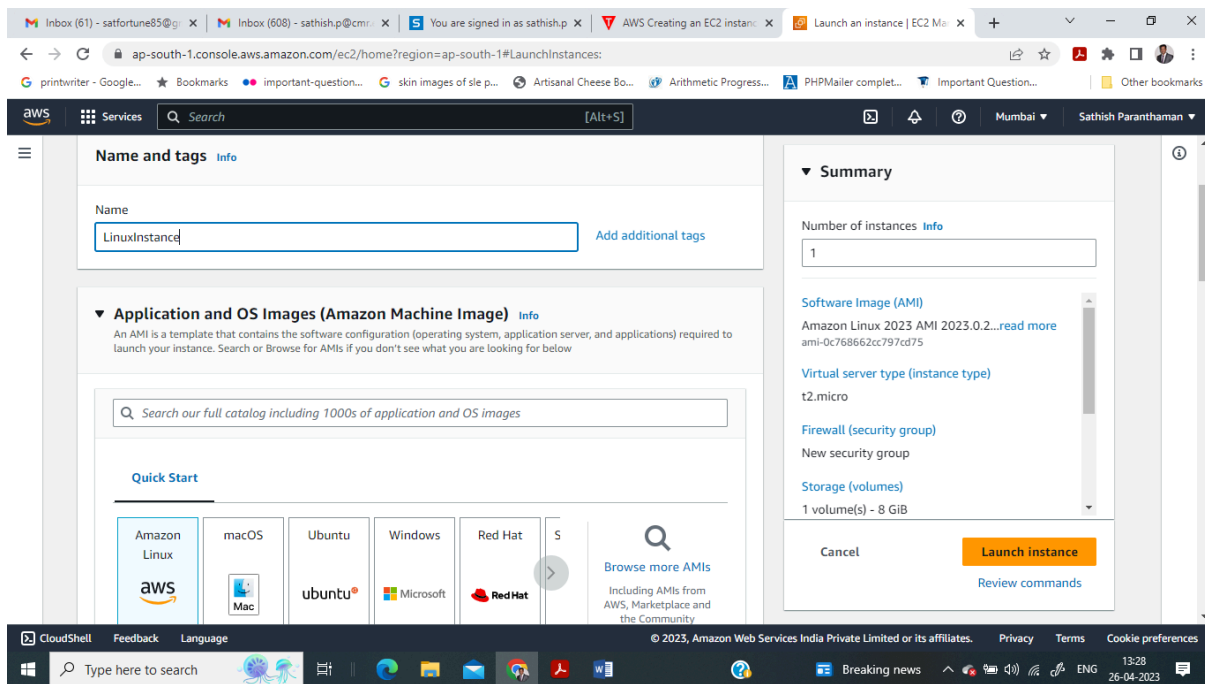
Step 2: Click on the EC2 service. Select instances.



Step 3: Click on the **Launch Instance** button to create a new instance.

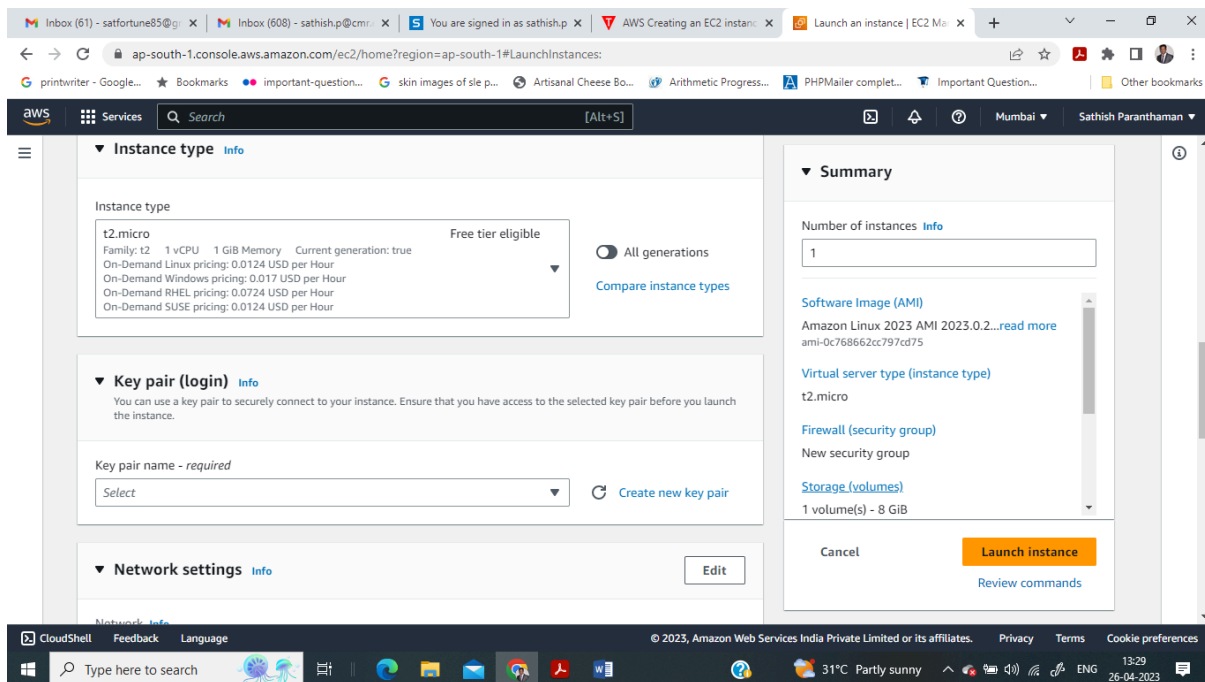


Step 4: Enter the name of the instance and select Amazon Linux AMI

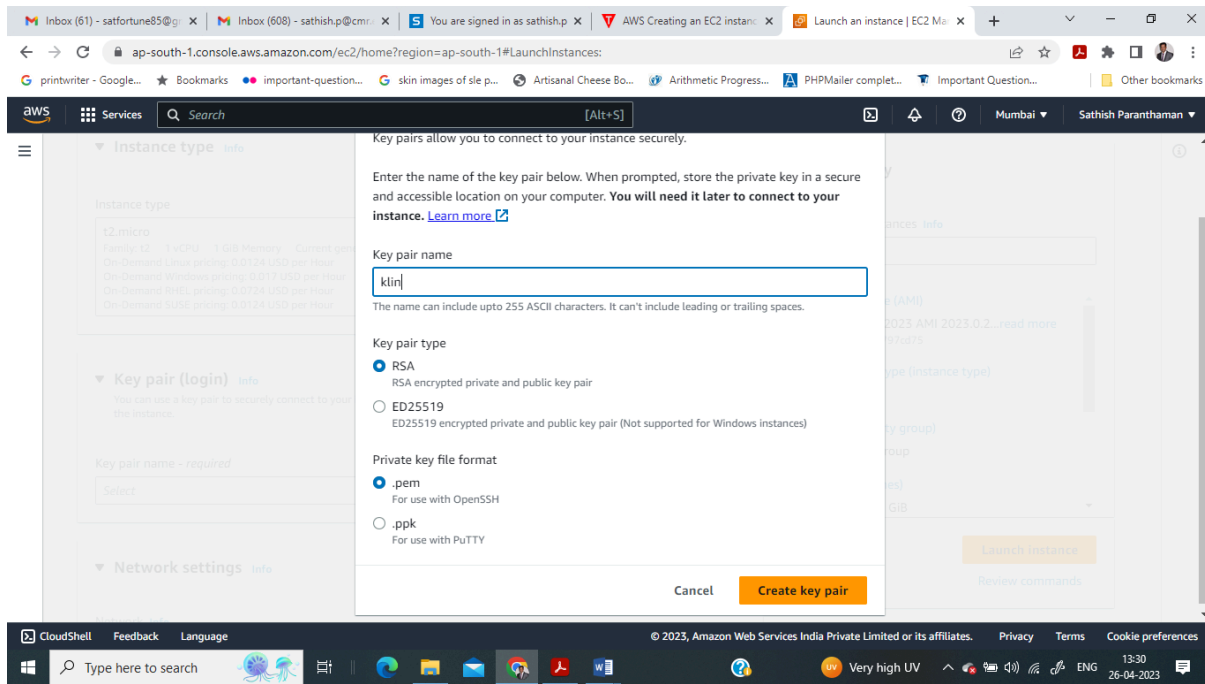


Step 5: Under instance type select free tier eligible instance.

Click on create new key pair to generate the .pem file



Step 6: Enter the name of the key pair and click create key pair. Now .pem file is created and downloaded to the local computer.



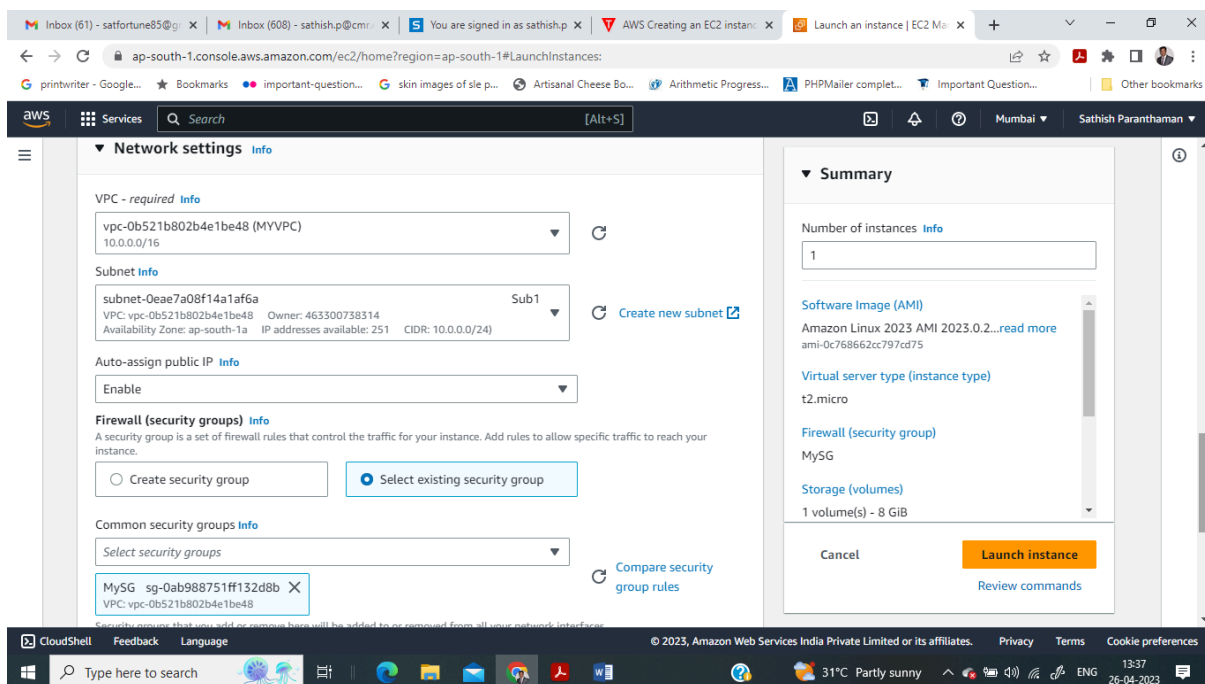
Step 7: Network settings

Click on edit button to edit the network details as follows

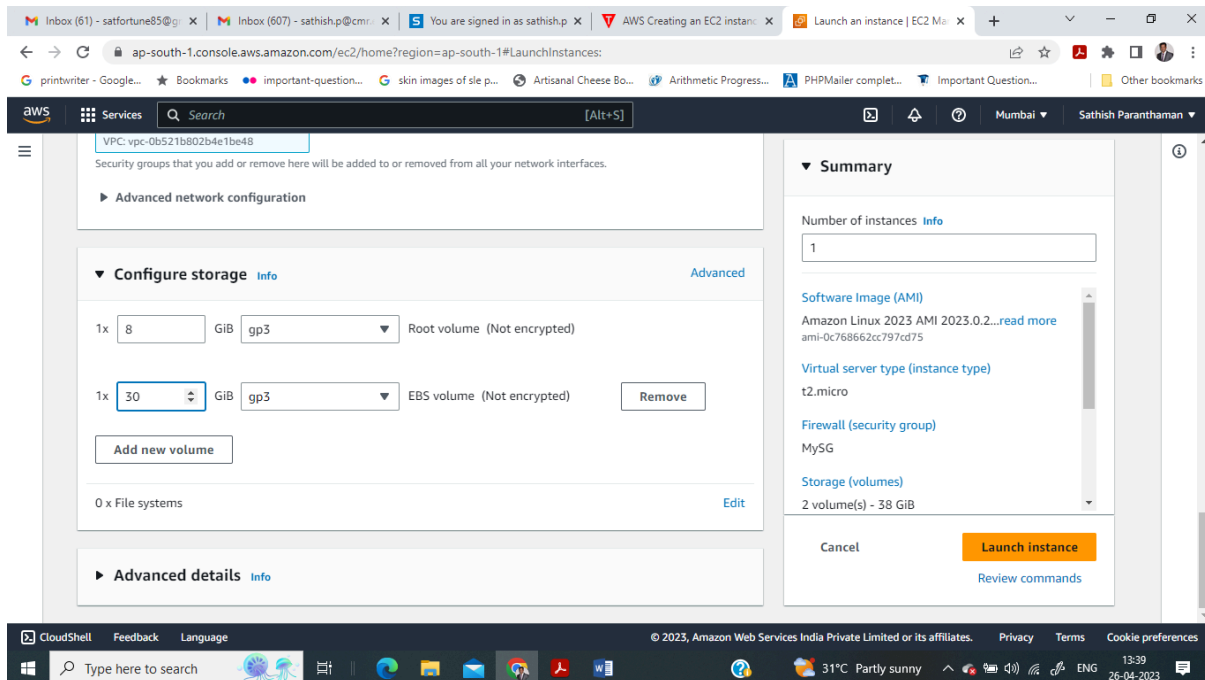
Select the custom VPC which was created

Select the appropriate subnet

Select the security group which was assigned to VPC



Step 8: Add required elastic block storages(EBS) under Configure storage section. Click on Launch Instance



Step 9: Now instance has been created successfully

