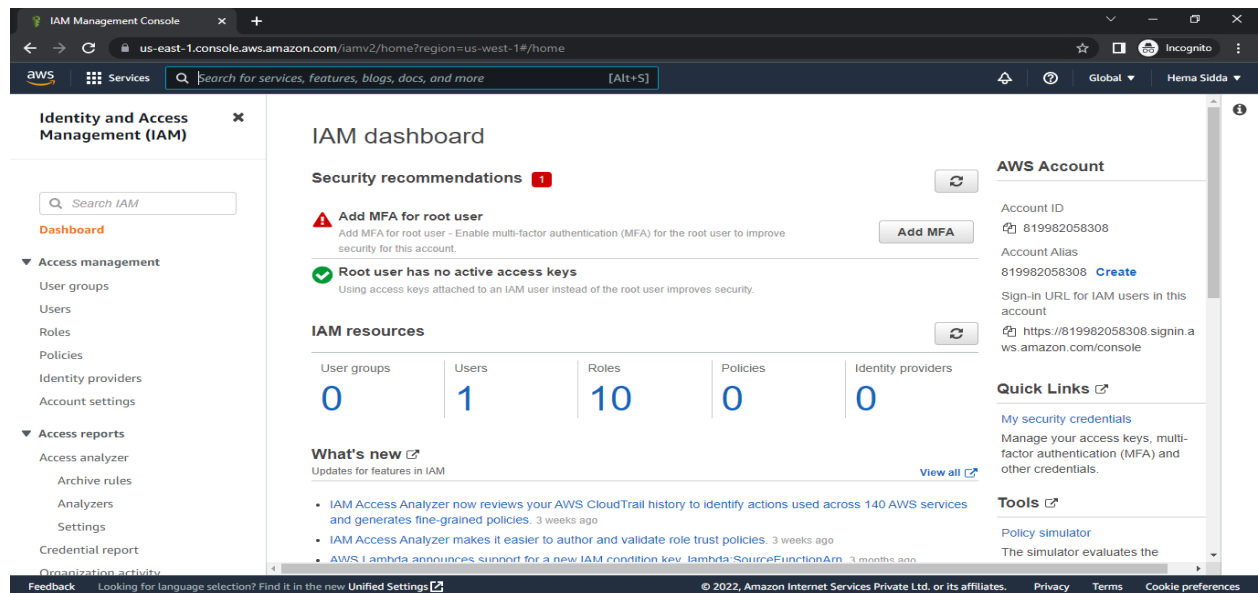


AMAZON WEB SERVICES

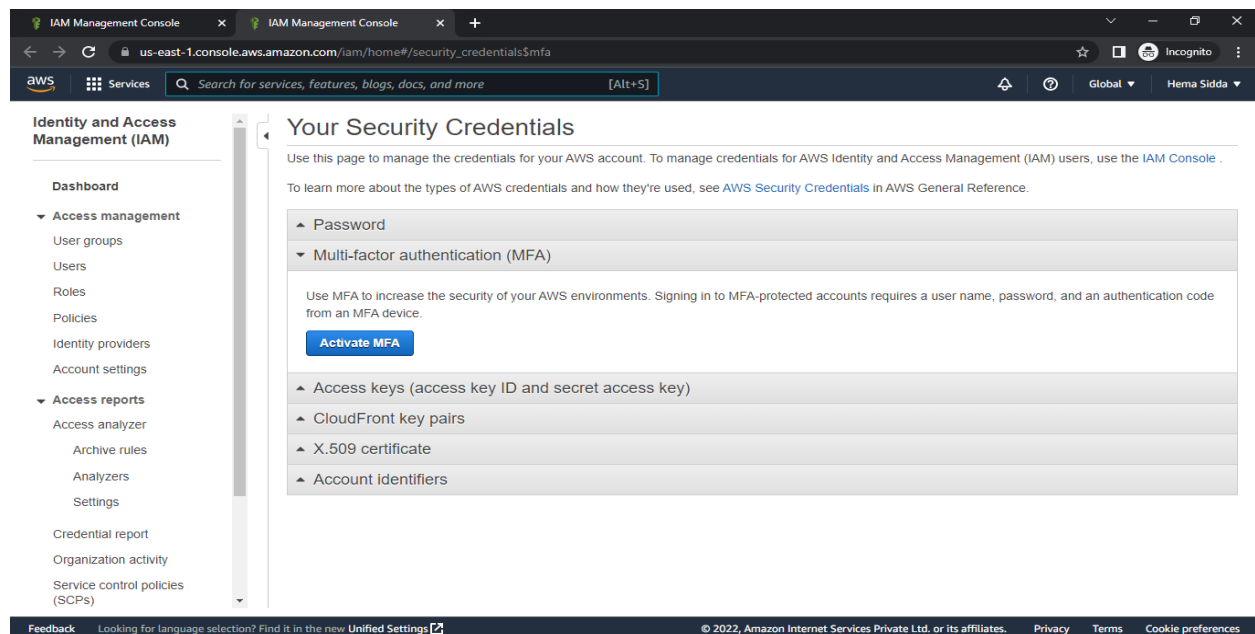
LAB-1

IAM Hands-on:

- First login aws account and go in to the IAM services.

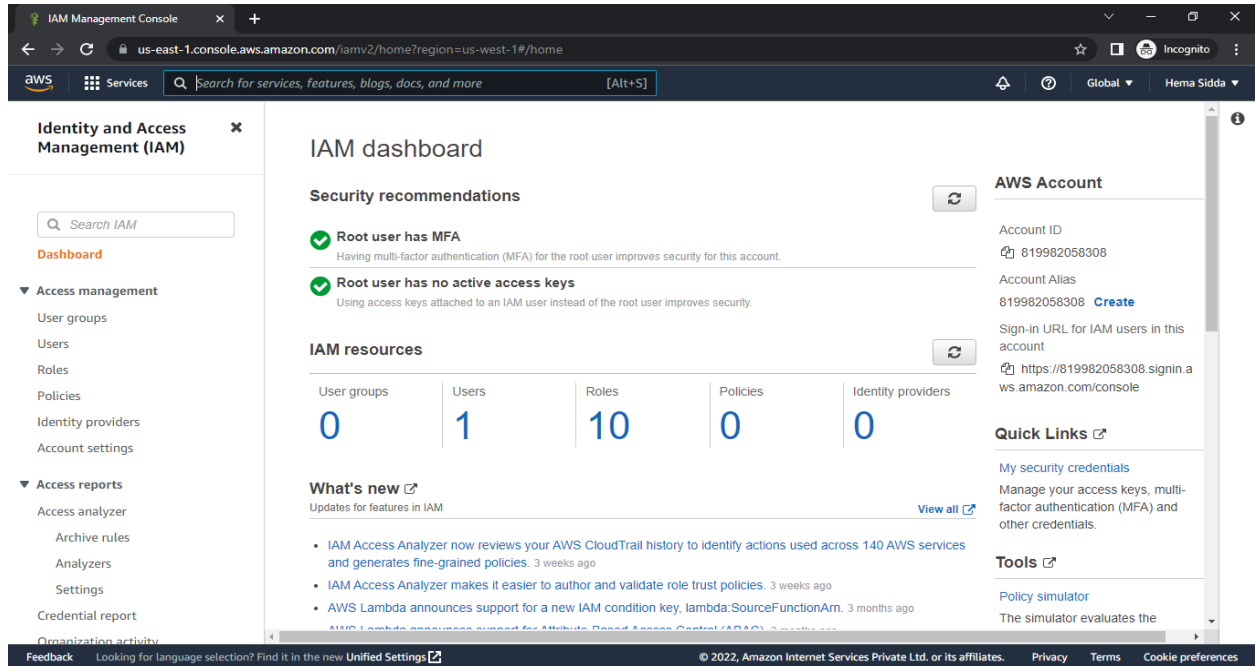


- Now click on Add MFA and create a MFA(Multi-Factor Authentication) for root user.

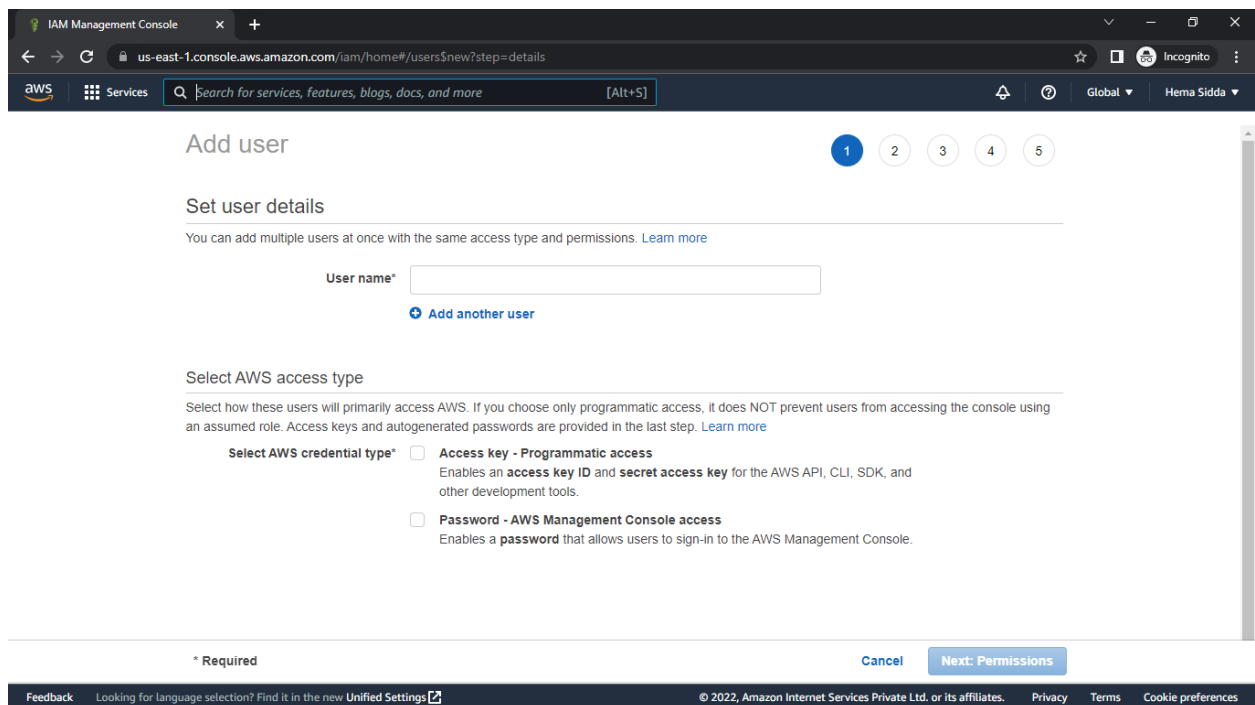


AMAZON WEB SERVICES

- Finally MFA created for root user successfully.

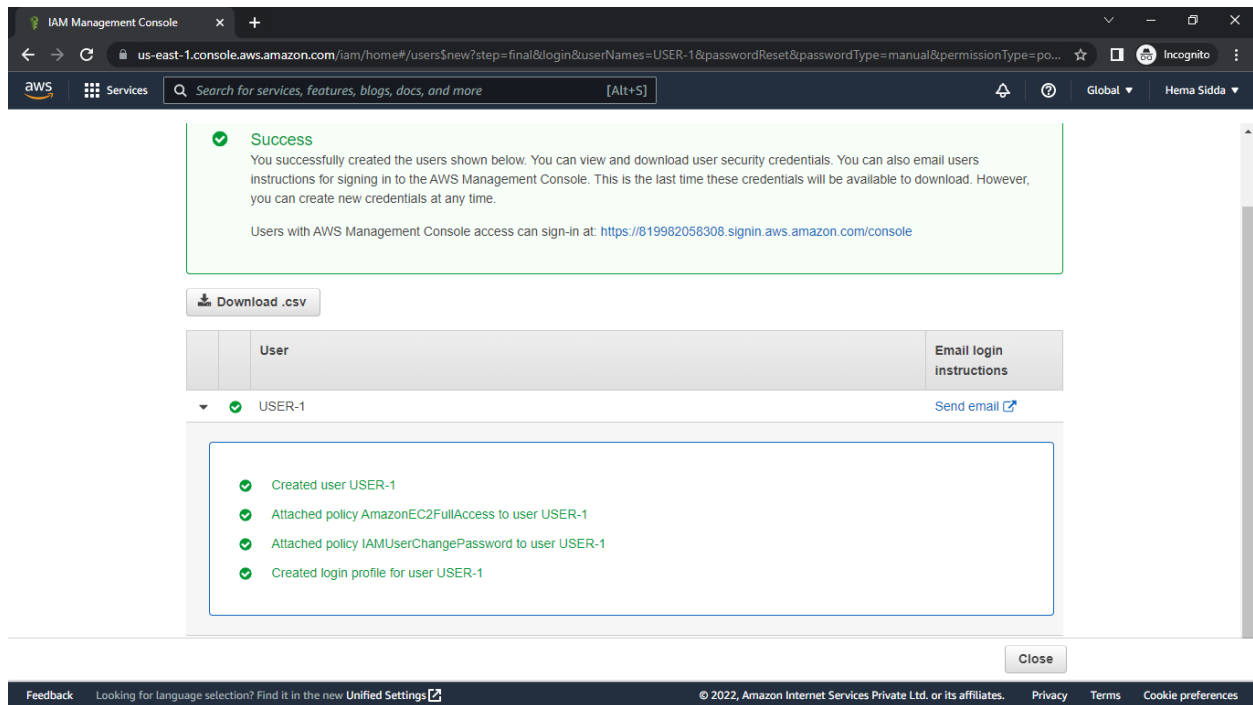


- Create a user account with EC2 full permissions only then first click on add user.

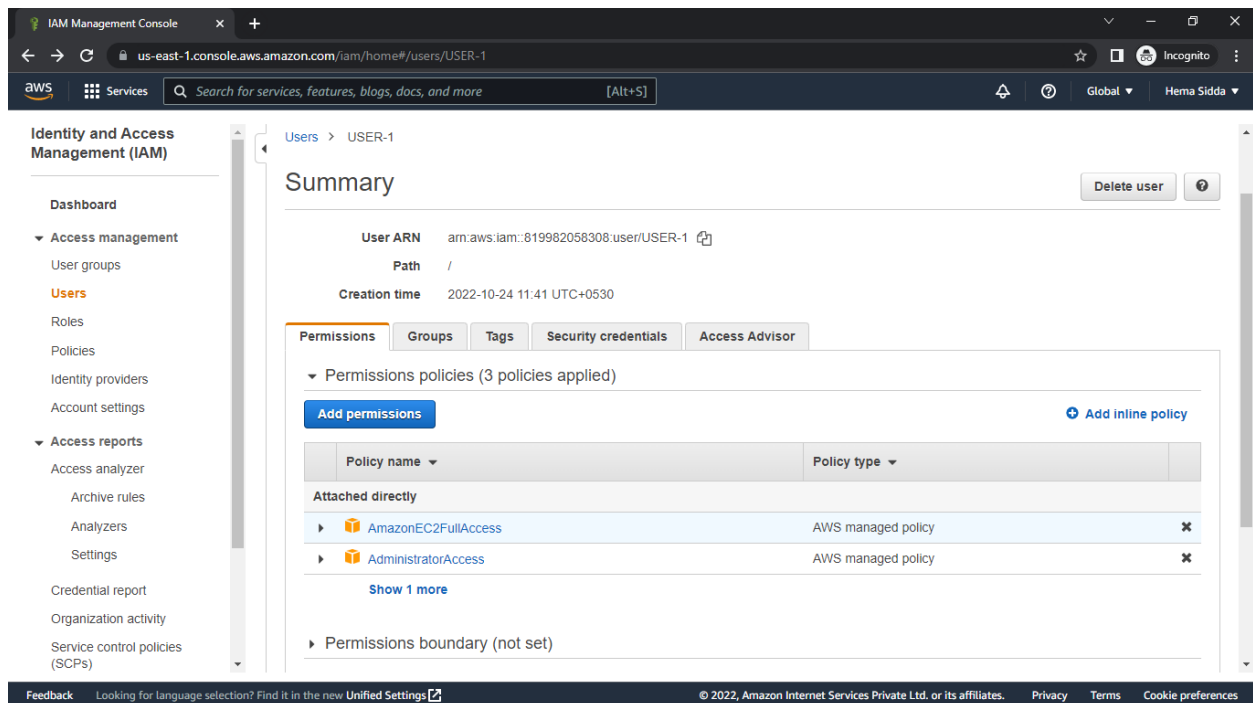


AMAZON WEB SERVICES

- Finally created a user account with only EC2 full permissions.



- Now give Administrator Access to this created user account(USER-1).

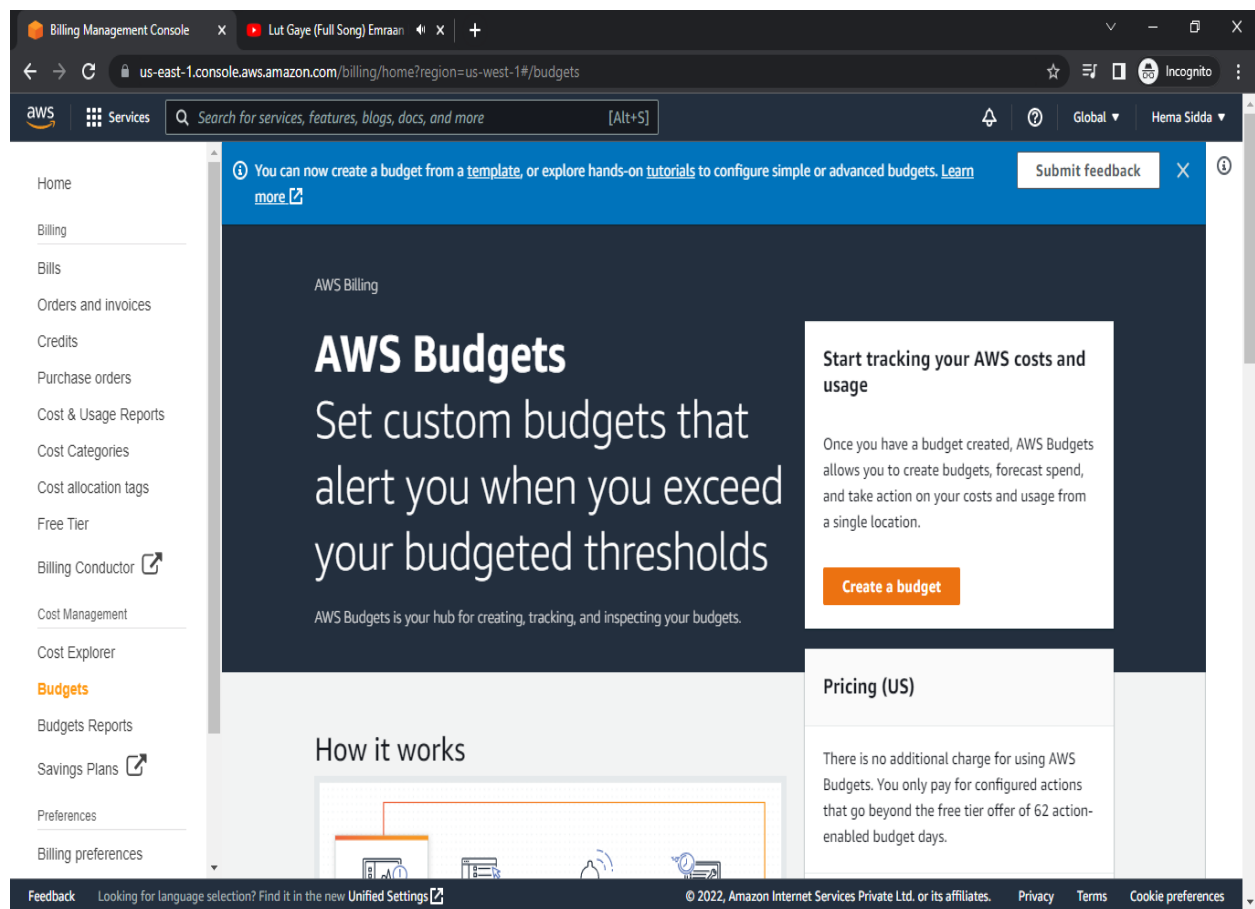


AMAZON WEB SERVICES

LAB-2

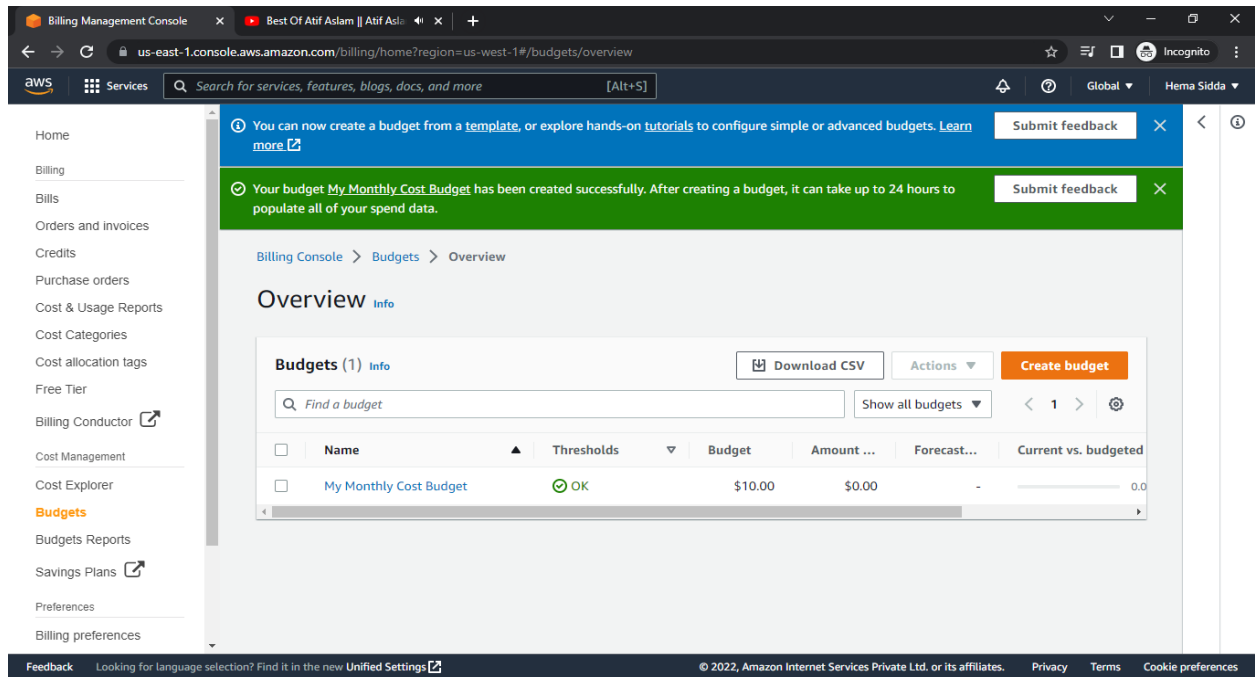
Billing Alarm:

- Now setup a billing Alarm for your account to get a notification when you cross the billing threshold.
- First go to billing dashboard at budgets and click on it and setup a budget for your account.



AMAZON WEB SERVICES

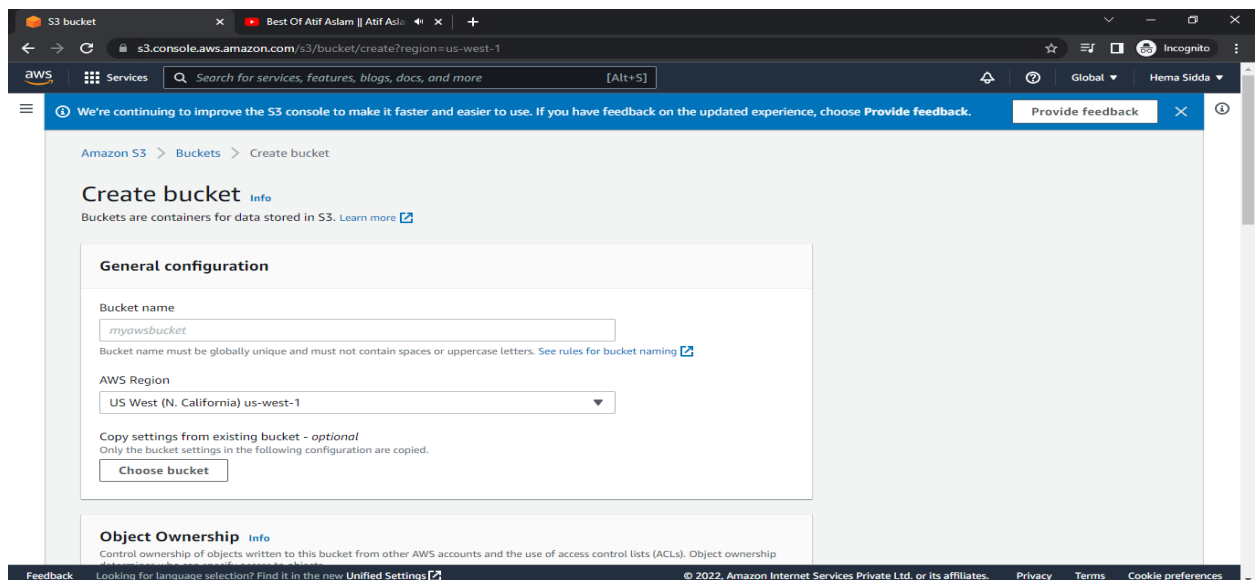
- Finally setup the billing alarm at some threshold value successfully.



LAB-3

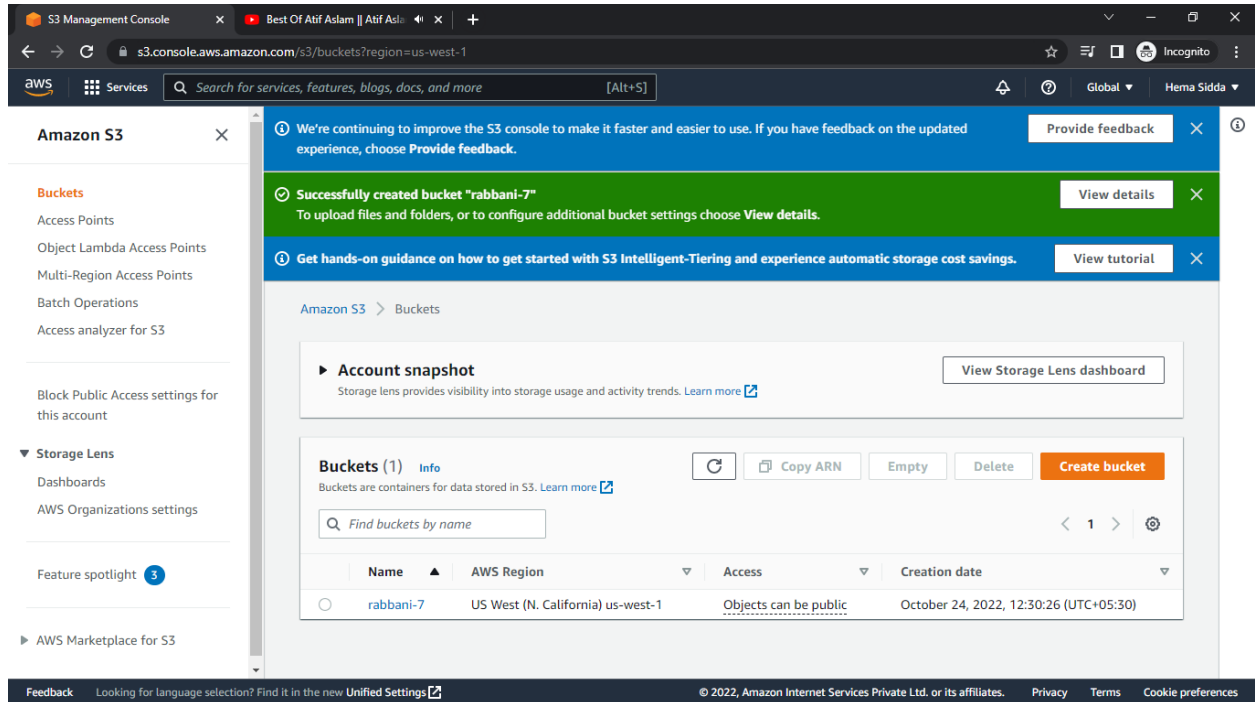
S3-BUCKET:

- Create a S3 bucket and add some files and browse it through url.

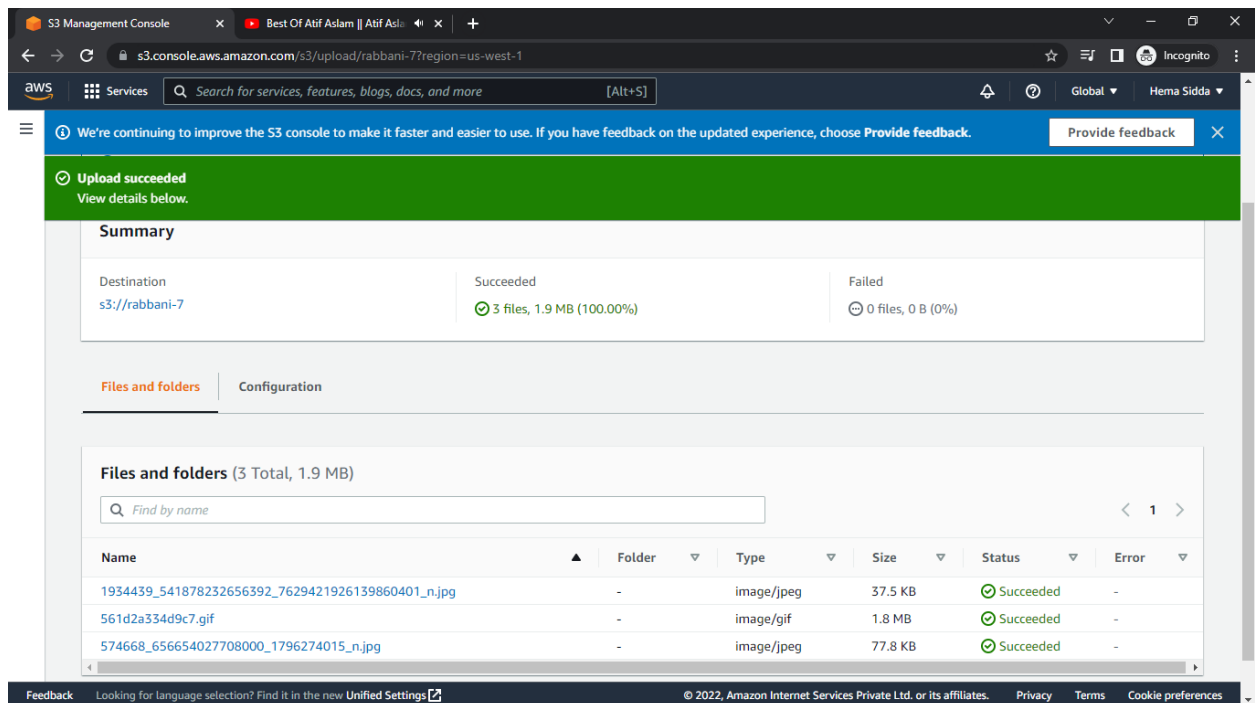


AMAZON WEB SERVICES

- Finally S3 bucket is created successfully.

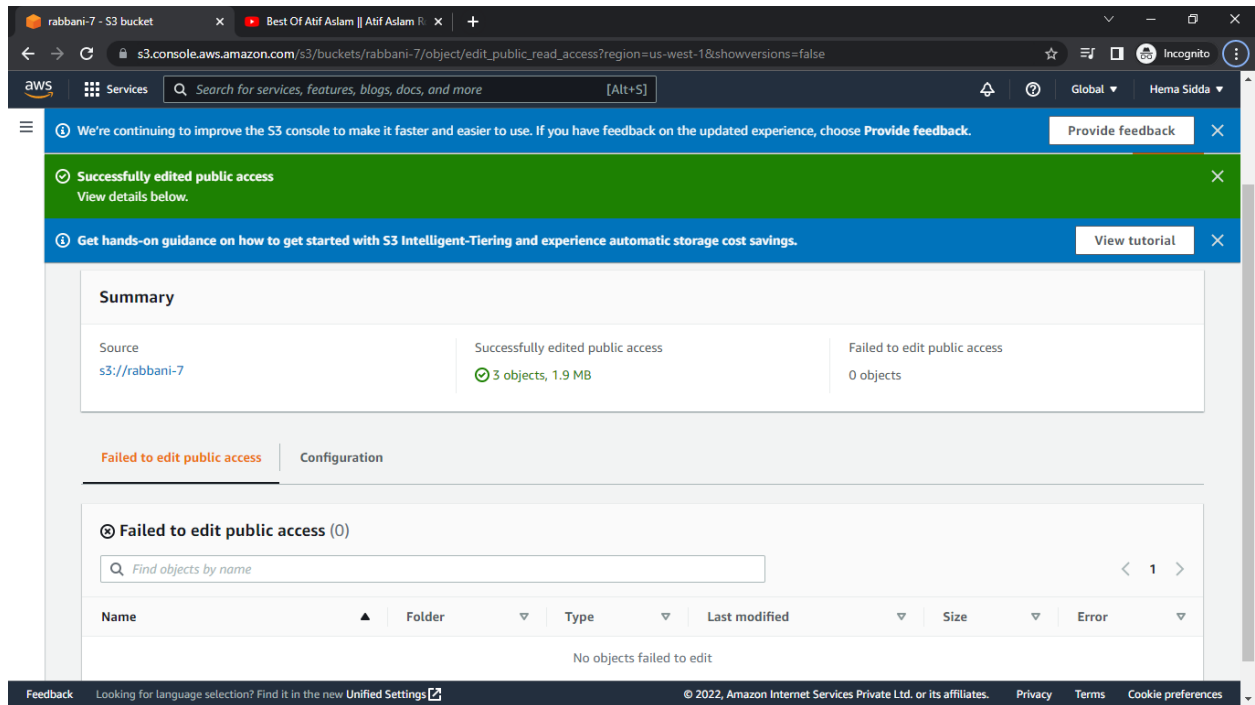


- To add some files or folders to S3 bucket under objects option.

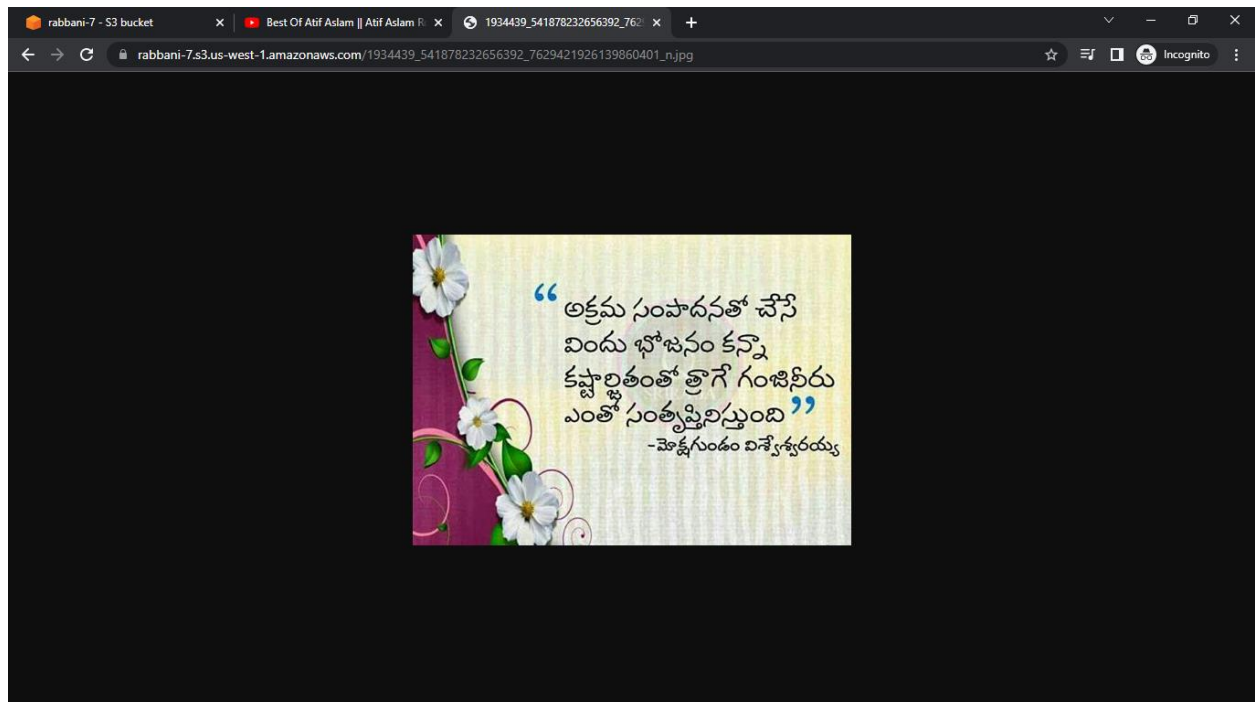


AMAZON WEB SERVICES

- Now browse the added files by configure make a public using ACL option.

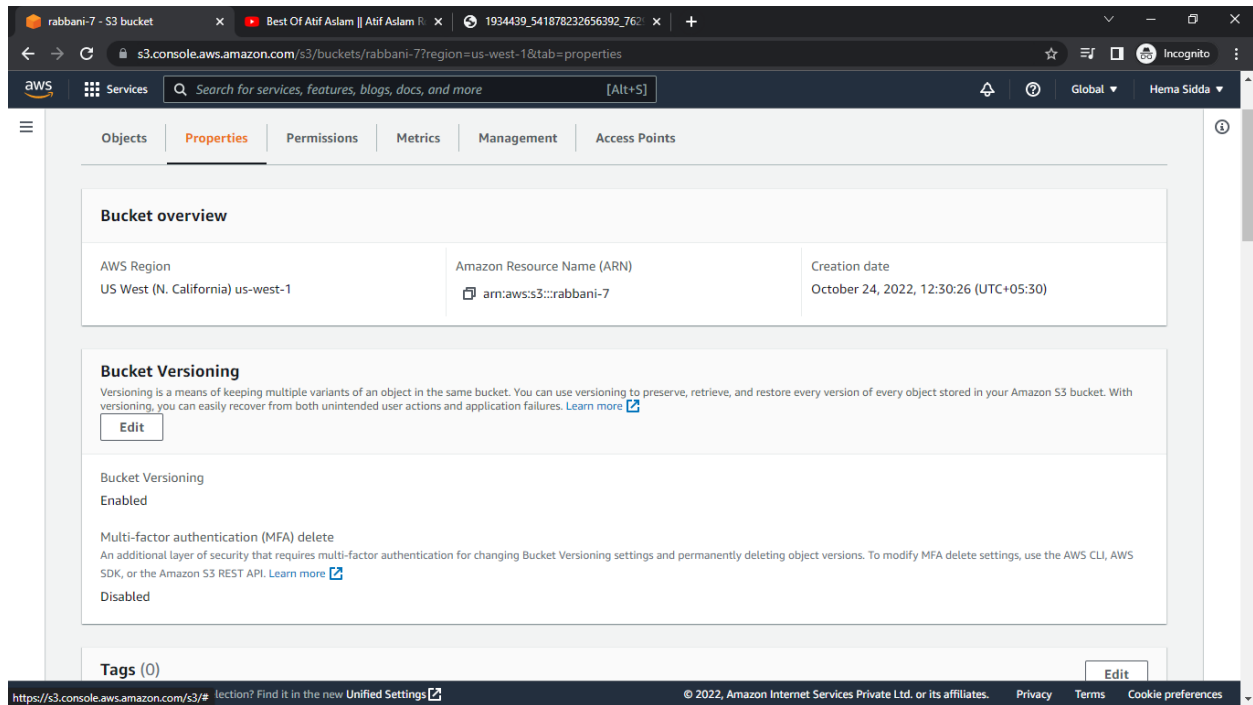


- Now copy the URL of file and paste it in a Google tab and browse it.

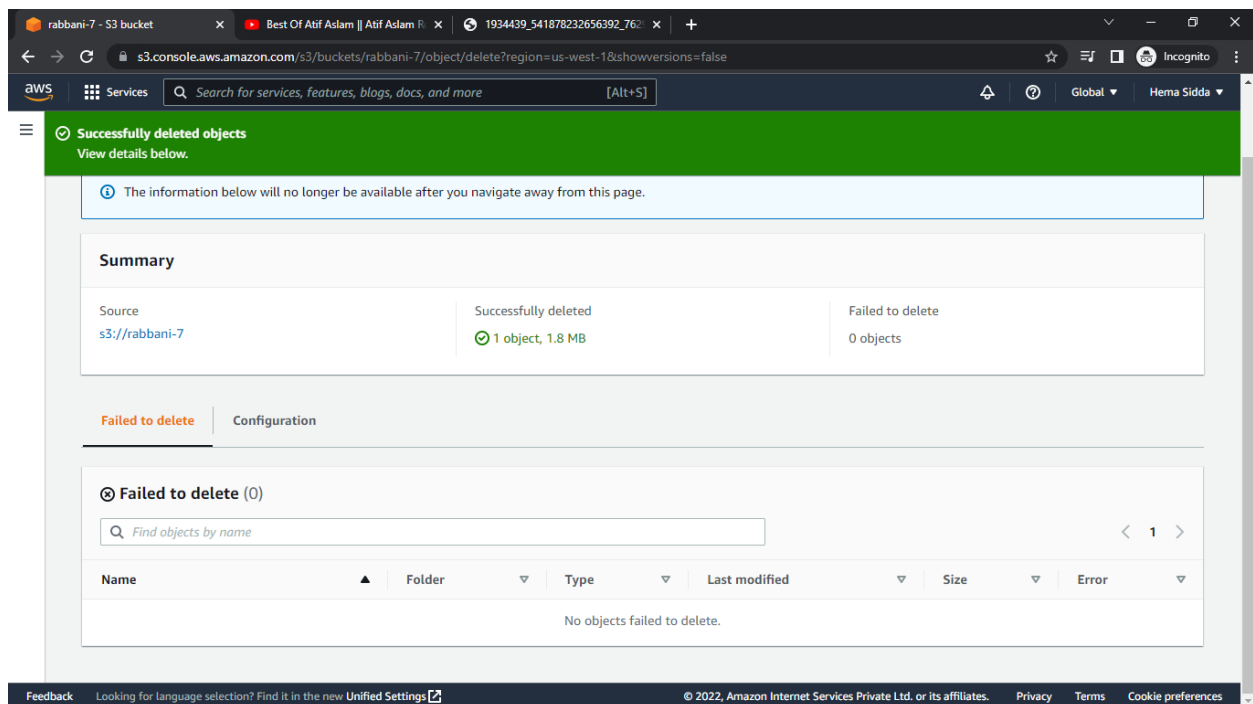


AMAZON WEB SERVICES

- Now go to properties and enable bucket versioning and upload new files and delete that file.

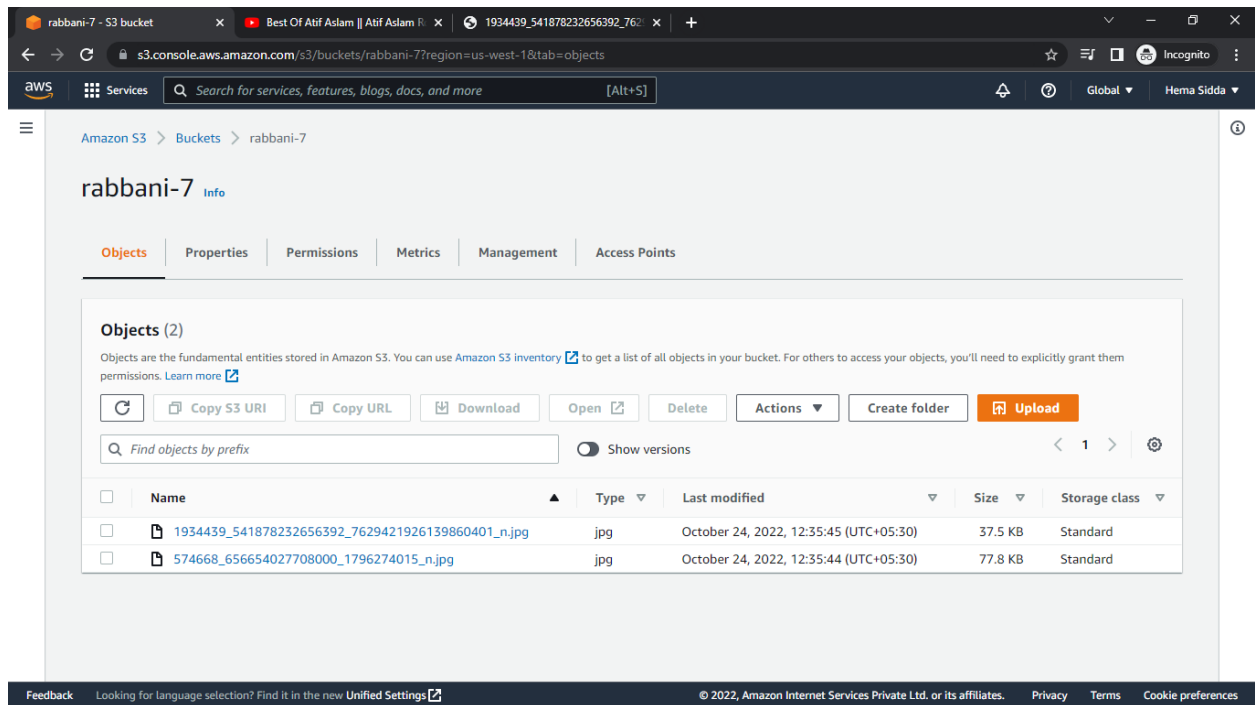


- Now delete the files which are uploaded, below shows before delete

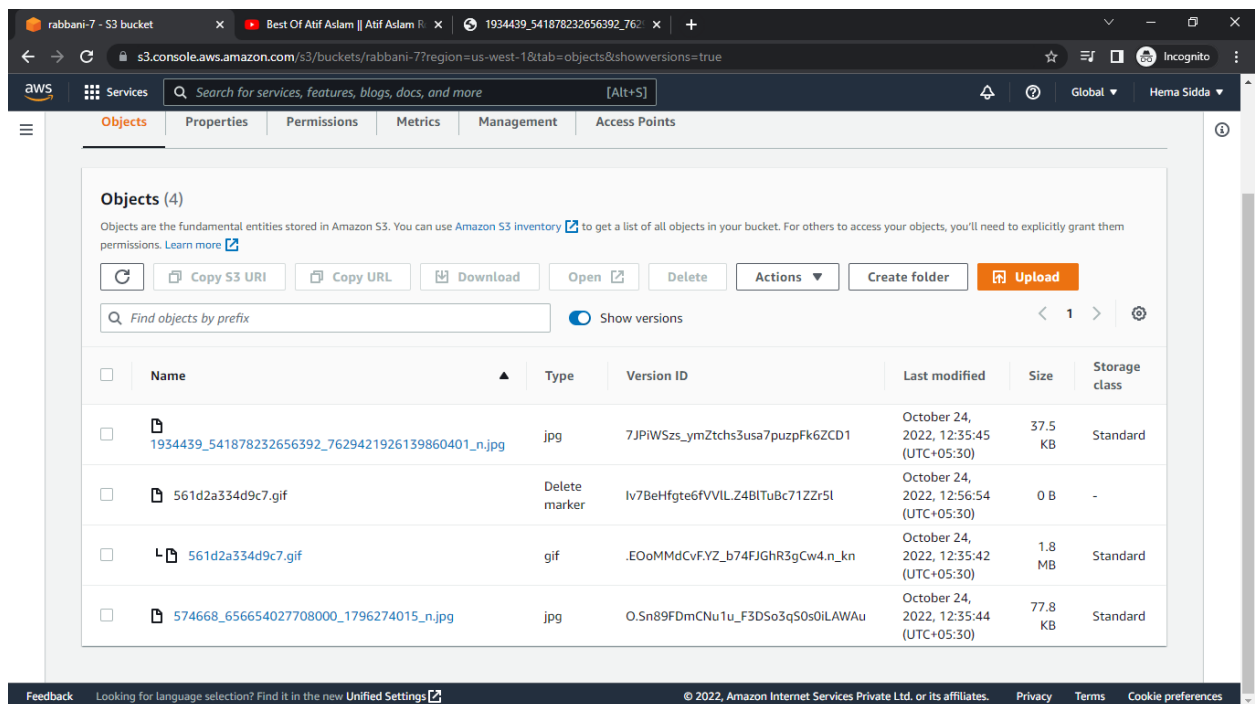


AMAZON WEB SERVICES

- Now delete the files which are uploaded, below shows after delete

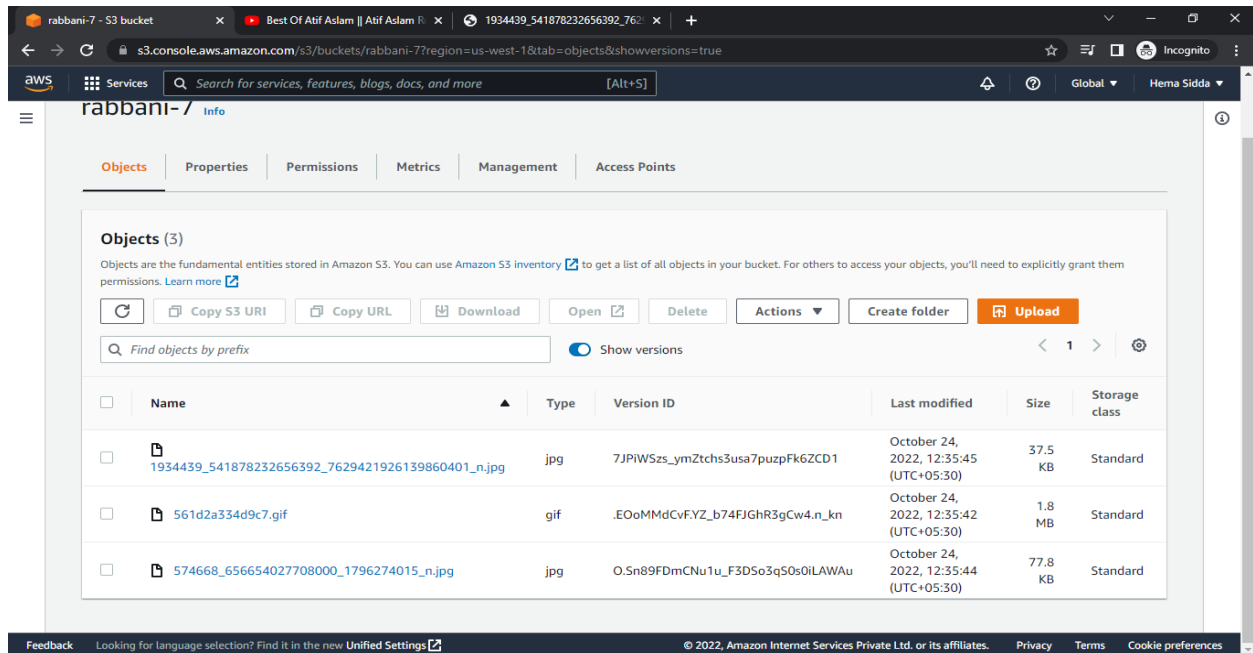


- Now recover the deleted file by using bucket versioning option and it shows the deleted original file with size and dummy file is 0 size.

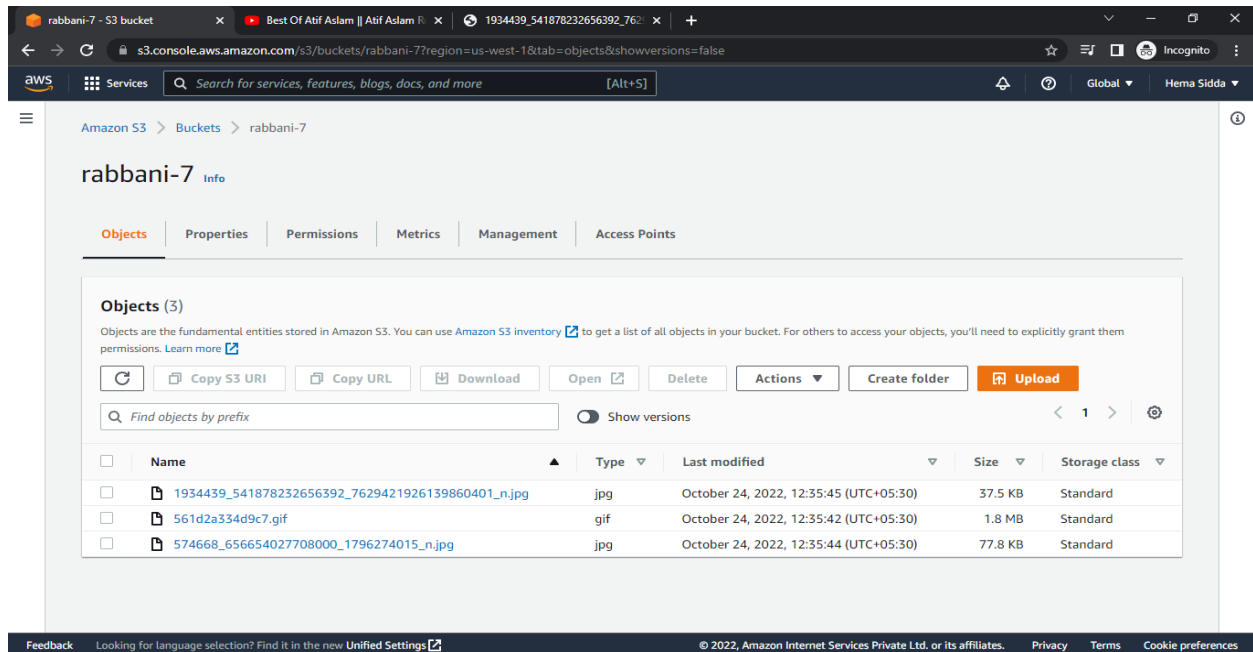


AMAZON WEB SERVICES

- Now recover the deleted file by using bucket versioning option and here deleted the delete marker file permanently to recover original file.



- Finally deleted file is recovered by using bucket versioning option.

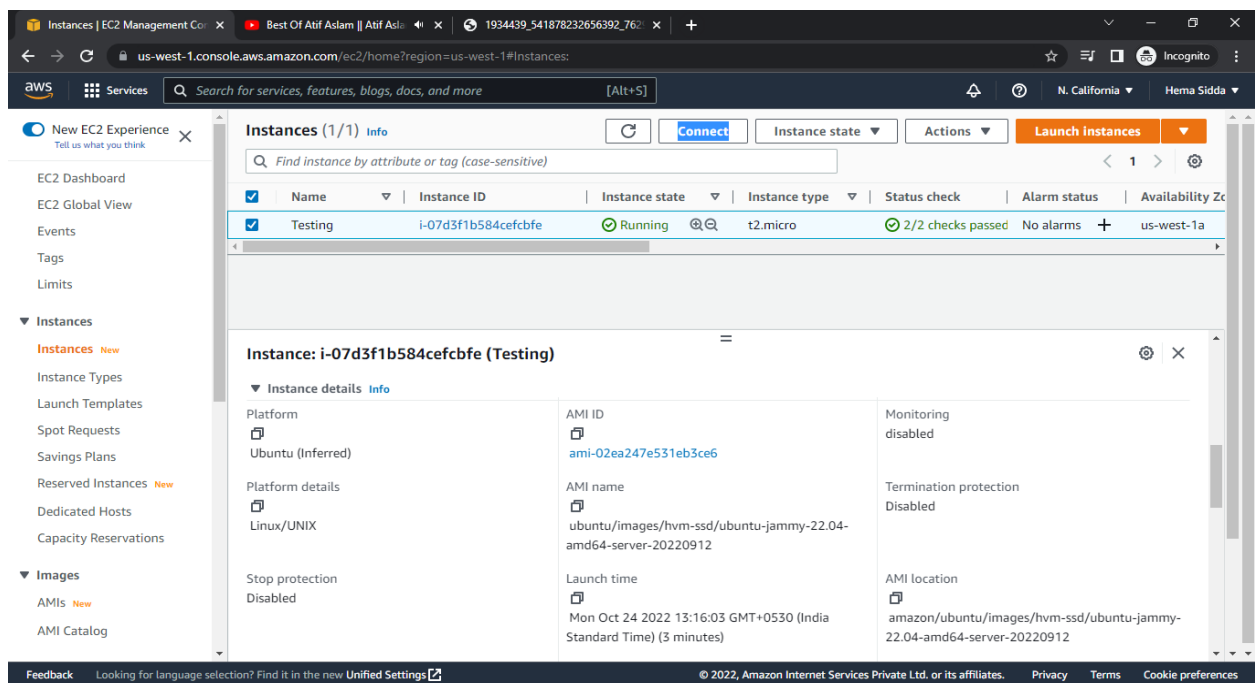
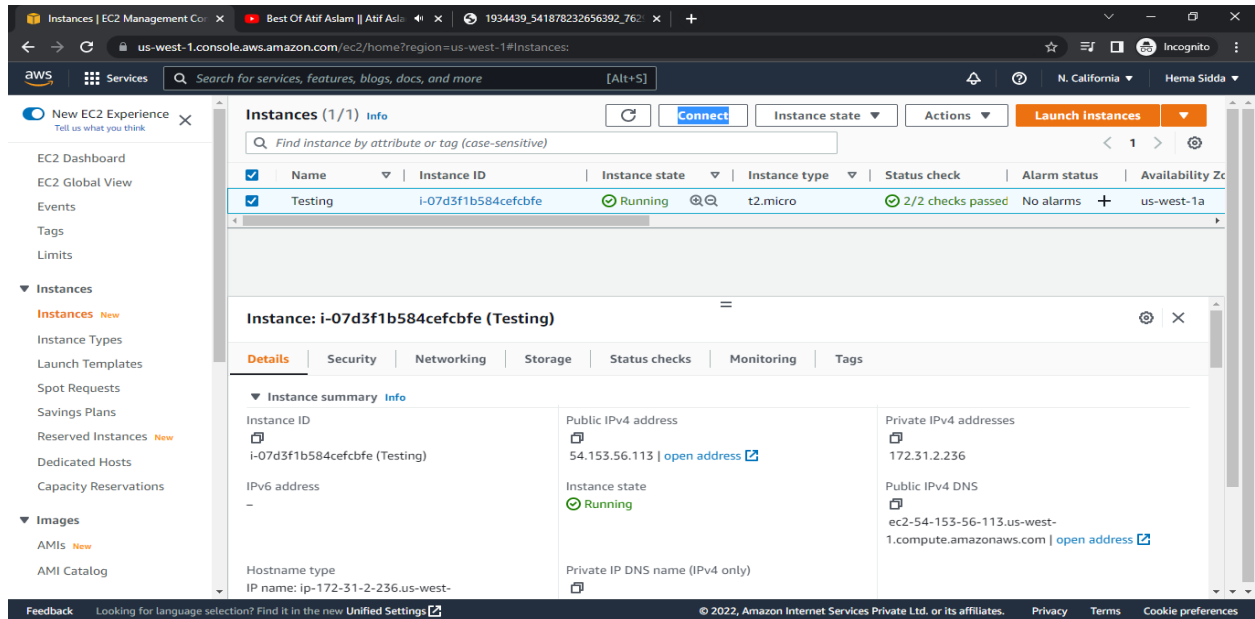


AMAZON WEB SERVICES

LAB-4

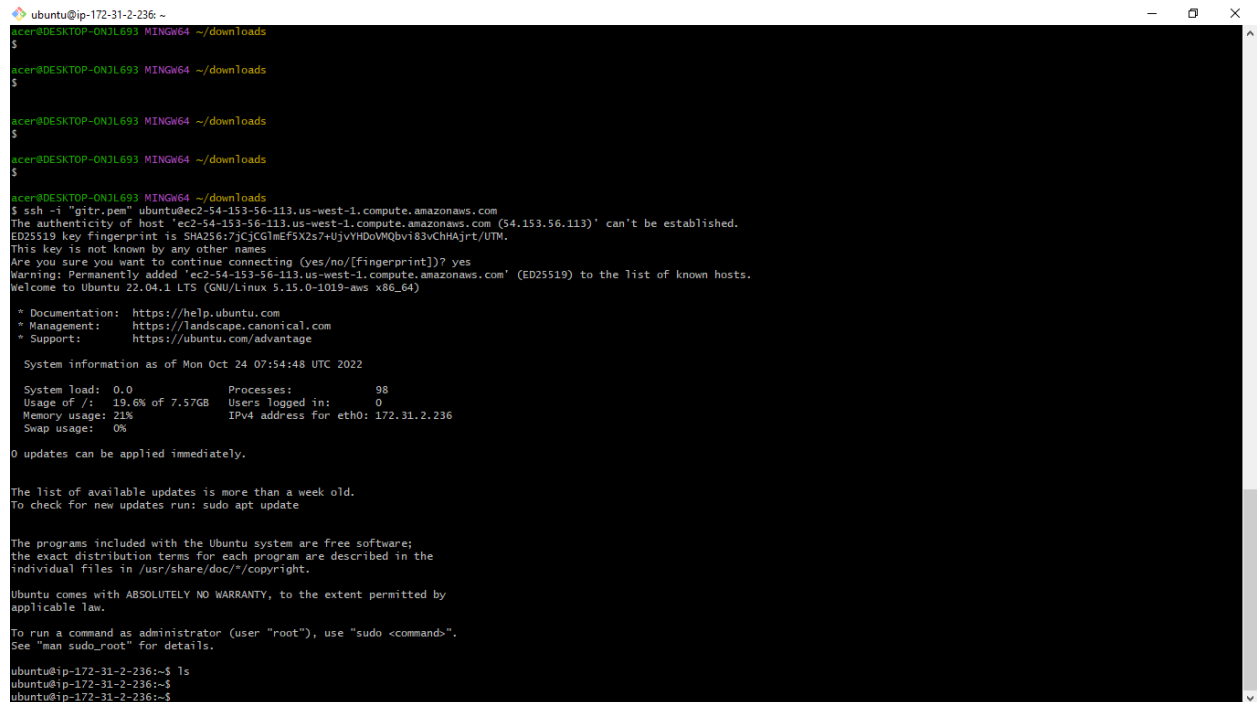
EC2 Instance:

- Create an EC2 instance by using ubuntu operating system with t2.micro instance type and give port SSH(22) at security group.



AMAZON WEB SERVICES

- The above picture shows the instances details.
- Now access the instance from local machine by using git bash ssh software.



```
ubuntu@ip-172-31-2-236: ~
acer@DESKTOP-ONJL693 MINGW64 ~/downloads
$
acer@DESKTOP-ONJL693 MINGW64 ~/downloads
$
acer@DESKTOP-ONJL693 MINGW64 ~/downloads
$
acer@DESKTOP-ONJL693 MINGW64 ~/downloads
$
acer@DESKTOP-ONJL693 MINGW64 ~/downloads
$ ssh -i "gitr.pem" ubuntu@ec2-54-153-56-113.us-west-1.compute.amazonaws.com
The authenticity of host 'ec2-54-153-56-113.us-west-1.compute.amazonaws.com (54.153.56.113)' can't be established.
ED25519 key fingerprint is SHA256:7jCjCGlneEf5X2s7+UjvYHDoVMQbvi83vChHAjrt/UTM.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'ec2-54-153-56-113.us-west-1.compute.amazonaws.com' (ED25519) to the list of known hosts.
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-1019-aws x86_64)

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

System information as of Mon Oct 24 07:54:48 UTC 2022

System load: 0.0          Processes: 98
Usage of /: 19.6% of 7.57GB Users logged in: 0
Memory usage: 21%        IPv4 address for eth0: 172.31.2.236
Swap usage: 0%

0 updates can be applied immediately.

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-2-236:~$ ls
ubuntu@ip-172-31-2-236:~$
ubuntu@ip-172-31-2-236:~$
```

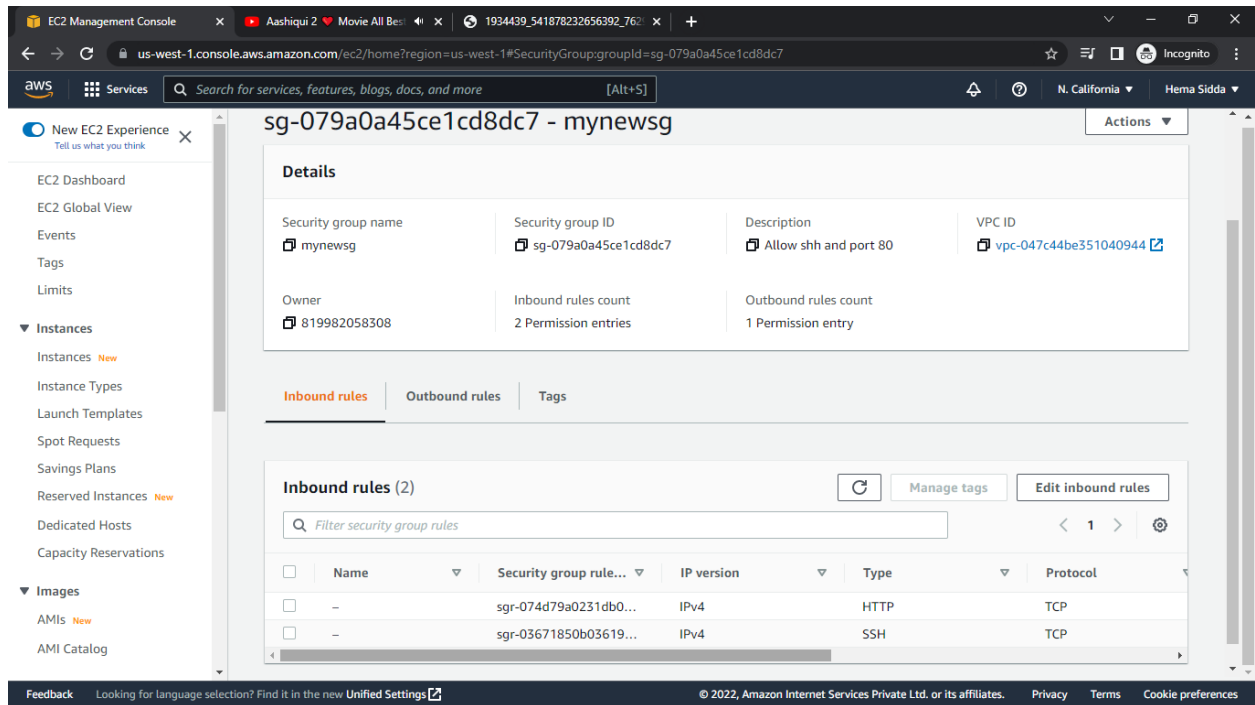
- Finally created EC2 instances launched successfully, by using git bash ssh software.

LAB-5

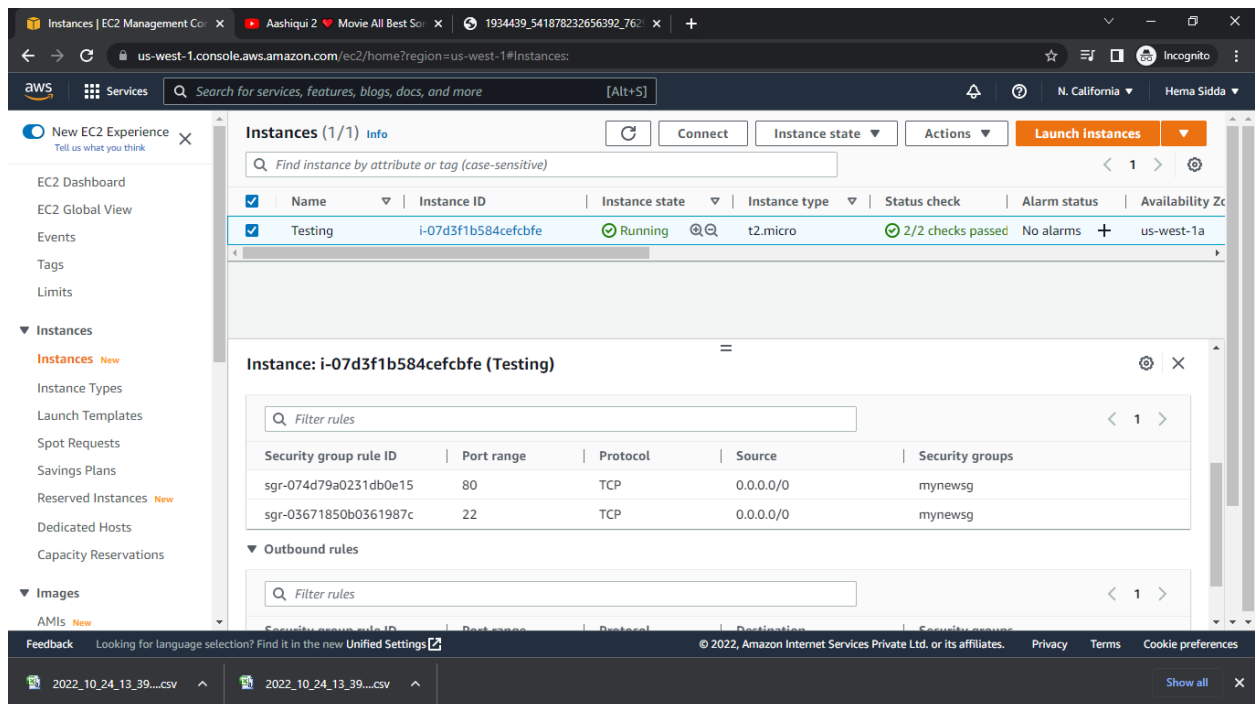
Security Group:

- Create a security group along with port 80 and 22 at inbound rules with name “mynewsg”.

AMAZON WEB SERVICES



- Now attach this created security group to existing Ec2 instance successfully.



AMAZON WEB SERVICES

- Now connect the EC2 instances by newly added security group through Git bash ssh software.

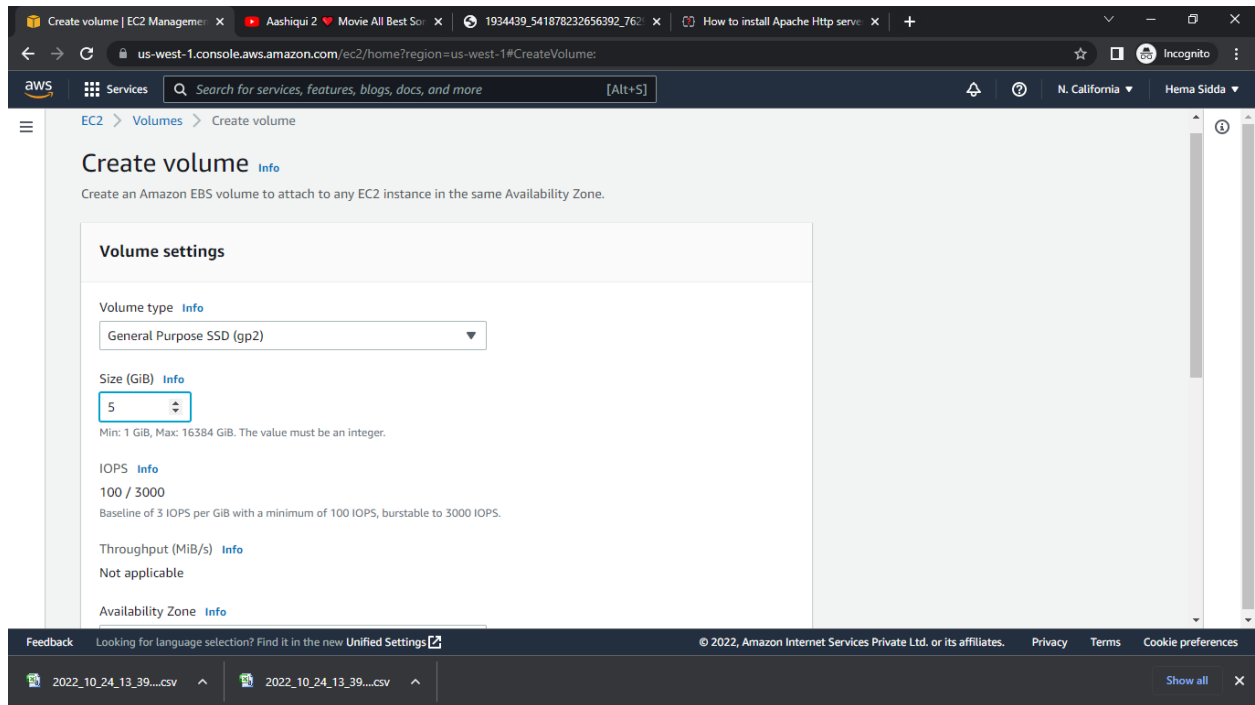
```
ubuntu@ip-172-31-2-236:~$  
Setting up apache2 (2.4.18-1ubuntu4.1) ...  
Enabling module mpm_event.  
Enabling module authz_core.  
Enabling module authz_host.  
Enabling module authn_core.  
Enabling module auth_basic.  
Enabling module access_compat.  
Enabling module authn_file.  
Enabling module authz_user.  
Enabling module alias.  
Enabling module dir.  
Enabling module autoindex.  
Enabling module env.  
Enabling module mime.  
Enabling module negotiation.  
Enabling module setenvif.  
Enabling module filter.  
Enabling module deflate.  
Enabling module status.  
Enabling module ssl.  
Enabling conf charset.  
Enabling conf localized-error-pages.  
Enabling conf other-vhosts-access-log.  
Enabling conf security.  
Enabling conf serve-cgi-bin.  
Enabling site 000-default.  
Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service - /lib/systemd/system/apache2.service.  
Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service - /lib/systemd/system/apache-htcacheclean.service.  
Processing triggers for ufw (0.36.1-4build1) ...  
Processing triggers for man-db (2.10.2-1) ...  
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...  
Scanning processes...  
Scanning linux images...  
  
Running kernel seems to be up-to-date.  
No services need to be restarted.  
No containers need to be restarted.  
No user sessions are running outdated binaries.  
No VM guests are running outdated hypervisor (qemu) binaries on this host.  
ubuntu@ip-172-31-2-236:~$ sudo systemctl start httpd  
Failed to start httpd.service: Unit httpd.service not found.  
ubuntu@ip-172-31-2-236:~$ sudo netstat -ntlp  
Active Internet connections (only servers)  
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name  
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN      728/sshd: /usr/sbin  
tcp        0      0 0.0.0.0:80              0.0.0.0:*               LISTEN      2346/apache2  
tcp6       0      0 :::22                  :::*                    LISTEN      728/sshd: /usr/sbin
```

LAB-6

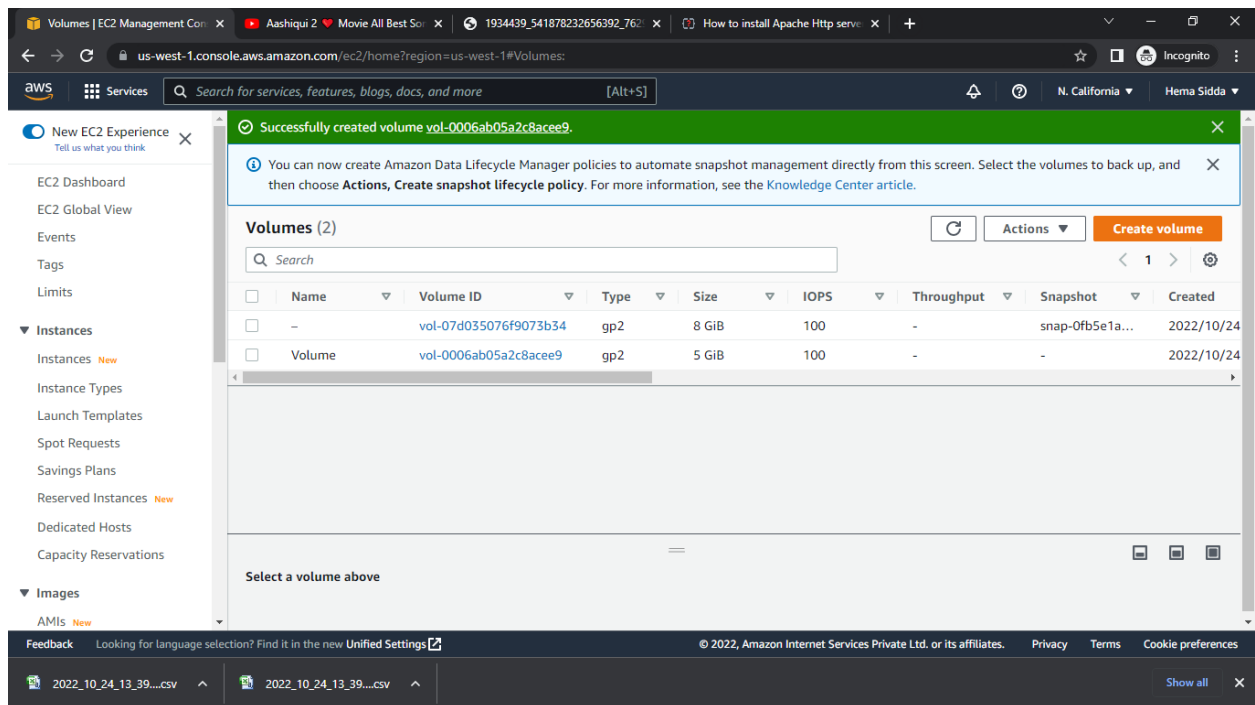
Volumes and snapshots:

- Create the volume and Attach this volume to the existing instance.
- First go to the EC2 dashboard and under this dashboard go to at Elastic block Store volumes and select it and open it.

AMAZON WEB SERVICES

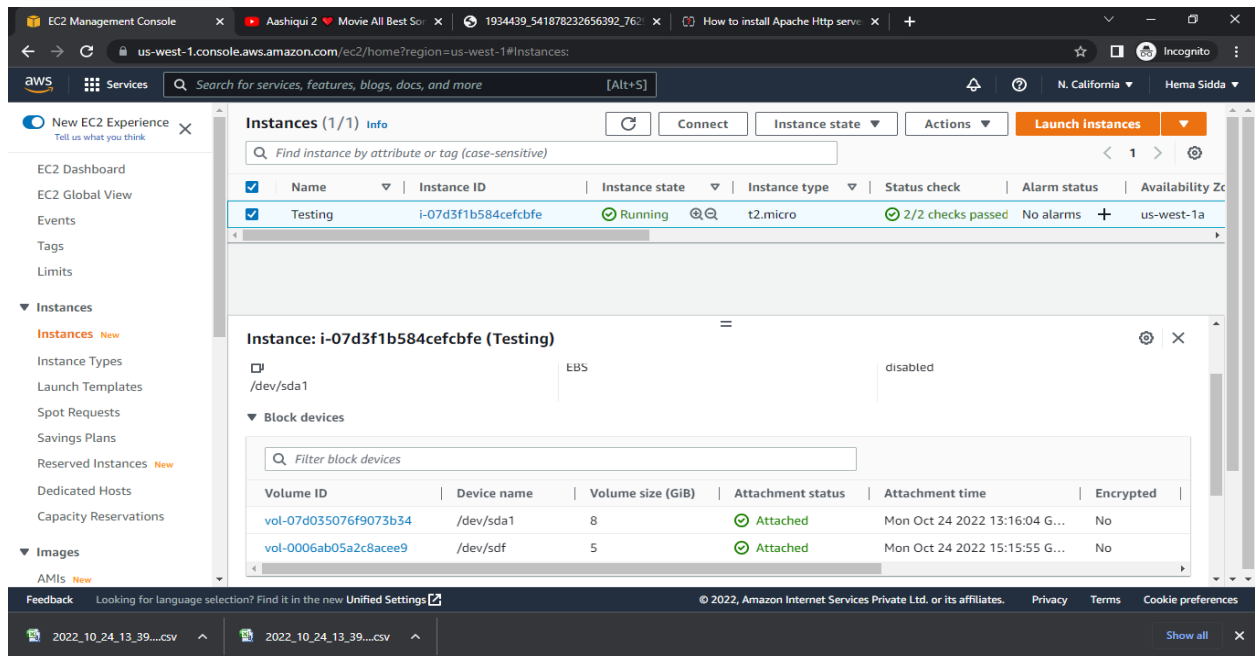


➤ Finally the volume with 5gb is created successfully.



AMAZON WEB SERVICES

- Now attach this volume to existing EC2 instance.



- Now creating file system for created volume which stored under /dev/ by using command as “sudo mkfs -t ext4 /dev/<volume name>”

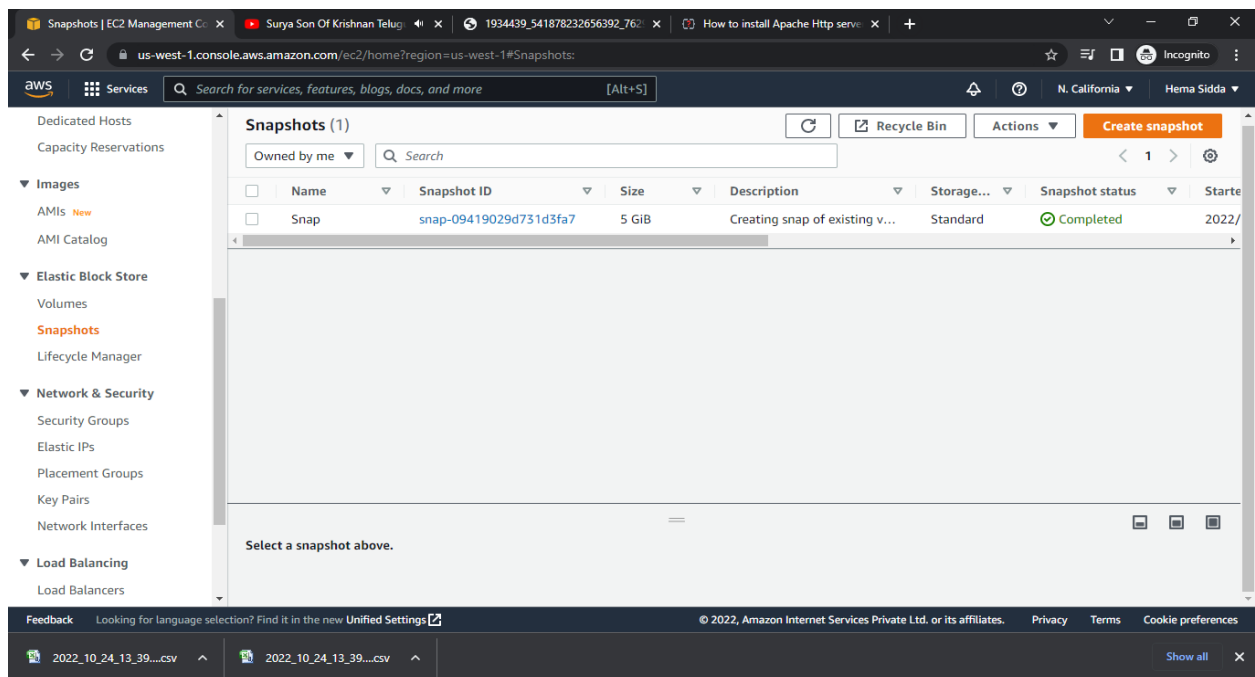
```
ubuntu@ip-172-31-2-236:~$  
+ Management: https://landscape.canonical.com  
+ Support: https://ubuntu.com/advantage  
  
System information as of Mon Oct 24 09:49:55 UTC 2022  
  
System load: 0.0 Processes: 108  
Usage of /: 19.9% of 7.57GB Users logged in: 1  
Memory usage: 26% IPv4 address for eth0: 172.31.2.236  
Swap usage: 0%  
  
+ Ubuntu Pro delivers the most comprehensive open source security and  
compliance Features.  
https://ubuntu.com/aws/pro  
  
0 updates can be applied immediately.  
  
Last login: Mon Oct 24 08:23:36 2022 from 192.140.155.204  
ubuntu@ip-172-31-2-236:~$ ls  
ubuntu@ip-172-31-2-236:~$ df -h  
Filesystem      Size  Used Avail Use% Mounted on  
/dev/root       7.6G  1.6G  6.1G  20% /  
tmpfs           484M   0  484M   0% /dev/shm  
tmpfs          194M  856K  193M   1% /run  
tmpfs           5.0M   0   5.0M   0% /run/lock  
/dev/xvda15     105M  5.3M  100M   5% /boot/efi  
tmpfs           97M   4.0K   97M   1% /run/user/1000  
ubuntu@ip-172-31-2-236:~$ lsblk  
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS  
loop0       7:0      1  25.1M  1 loop /snap/amazon-ssm-agent/5656  
loop1       7:1      1  55.6M  1 loop /snap/core18/2560  
loop2       7:2      1  63.2M  1 loop /snap/core20/1623  
loop3       7:3      1  103M   1 loop /snap/lxd/23541  
loop4       7:4      1   47M   1 loop /snap/snapd/16292  
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    5G   0 disk  
ubuntu@ip-172-31-2-236:~$ sudo mkfs -t ext4 /dev/xvdf  
mkfs2fs 1.46.5 (30-Dec-2021)  
Creating filesystem with 1310720 4k blocks and 327680 inodes  
Filesystem UUID: 37fc6216-5b80-4a56-9c1d-b4c75e3a4c5a  
Superblock backups stored on blocks:  
32768, 98304, 163840, 229376, 294912, 819200, 884736  
  
Allocating group tables: done  
Writing inode tables: done  
Creating journal (16384 blocks): done  
Writing superblocks and filesystem accounting information: done  
ubuntu@ip-172-31-2-236:~$
```


AMAZON WEB SERVICES

- Now create a empty directory under root for mount the volume to this directory and mount it and create and store the files under root directory which is created.

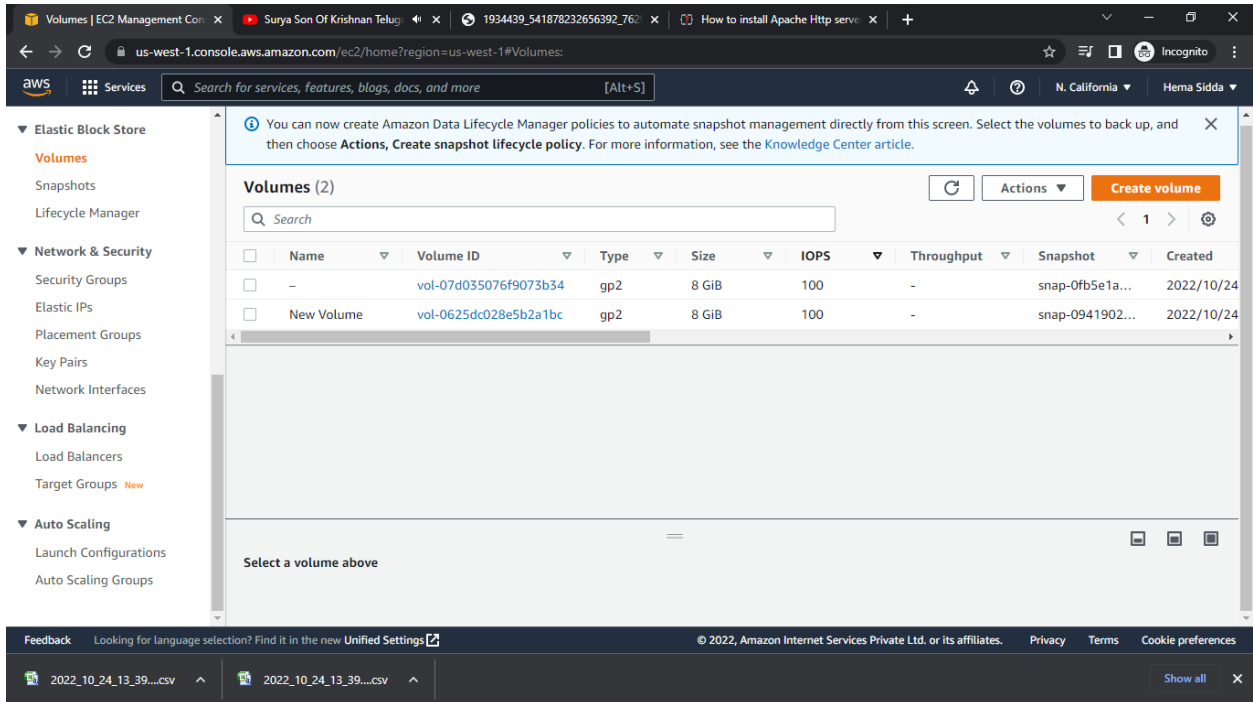
```
ubuntu@ip-172-31-2-236: /hello
ubuntu@ip-172-31-2-236:~$
ubuntu@ip-172-31-2-236:~$
ubuntu@ip-172-31-2-236:~$
ubuntu@ip-172-31-2-236:~$
ubuntu@ip-172-31-2-236:~$
ubuntu@ip-172-31-2-236:~$ mkdir /hello
mkdir: cannot create directory '/hello': Permission denied
ubuntu@ip-172-31-2-236:~$ sudo mkdir /hello
ubuntu@ip-172-31-2-236:~$ ls
bin boot dev etc hello home lib lib32 lib64 libx32 lost-found media mnt opt proc root run sbin snap srv sys tmp usr var
ubuntu@ip-172-31-2-236:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        7.6G  1.6G  6.1G   20% /
tmpfs            484M   0  484M   0% /dev/shm
tmpfs           194M  856K  193M   1% /run
tmpfs            5.0M   0   5.0M   0% /run/lock
/dev/xvda1s     105M   5.3M  100M   5% /boot/efi
tmpfs           97M   4.0K   97M   1% /run/user/1000
ubuntu@ip-172-31-2-236:~$ mount /dev/xdf /hello/
mount: /hello: must be superuser to use mount.
ubuntu@ip-172-31-2-236:~$ sudo mount /dev/xdf /hello/
mount: /hello: special device /dev/xdf does not exist.
ubuntu@ip-172-31-2-236:~$ sudo mount /dev/xdf /hello/
mount: /hello: special device /dev/xdf does not exist.
ubuntu@ip-172-31-2-236:~$ sudo mount /dev/xvdf /hello/
ubuntu@ip-172-31-2-236:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        7.6G  1.6G  6.1G   20% /
tmpfs            484M   0  484M   0% /dev/shm
tmpfs           194M  856K  193M   1% /run
tmpfs            5.0M   0   5.0M   0% /run/lock
/dev/xvda1s     105M   5.3M  100M   5% /boot/efi
tmpfs           97M   4.0K   97M   1% /run/user/1000
/dev/xvdf       4.9G   24K   4.6G   1% /hello
ubuntu@ip-172-31-2-236:~$ cd /hello/
ubuntu@ip-172-31-2-236:/hello$ ls
lost-found
ubuntu@ip-172-31-2-236:/hello$ touch file{1..5}.txt
touch: cannot touch 'file1.txt': Permission denied
touch: cannot touch 'file2.txt': Permission denied
touch: cannot touch 'file3.txt': Permission denied
touch: cannot touch 'file4.txt': Permission denied
touch: cannot touch 'file5.txt': Permission denied
ubuntu@ip-172-31-2-236:/hello$ sudo touch file{1..5}.txt
ubuntu@ip-172-31-2-236:/hello$ ls
file1.txt file2.txt file3.txt file4.txt file5.txt lost-found
ubuntu@ip-172-31-2-236:/hello$
ubuntu@ip-172-31-2-236:/hello$
ubuntu@ip-172-31-2-236:/hello$
ubuntu@ip-172-31-2-236:/hello$
```

- Now create a snapshot from created volume and delete volume.



AMAZON WEB SERVICES

➤ Now create a volume from snapshot with 8gb volume.

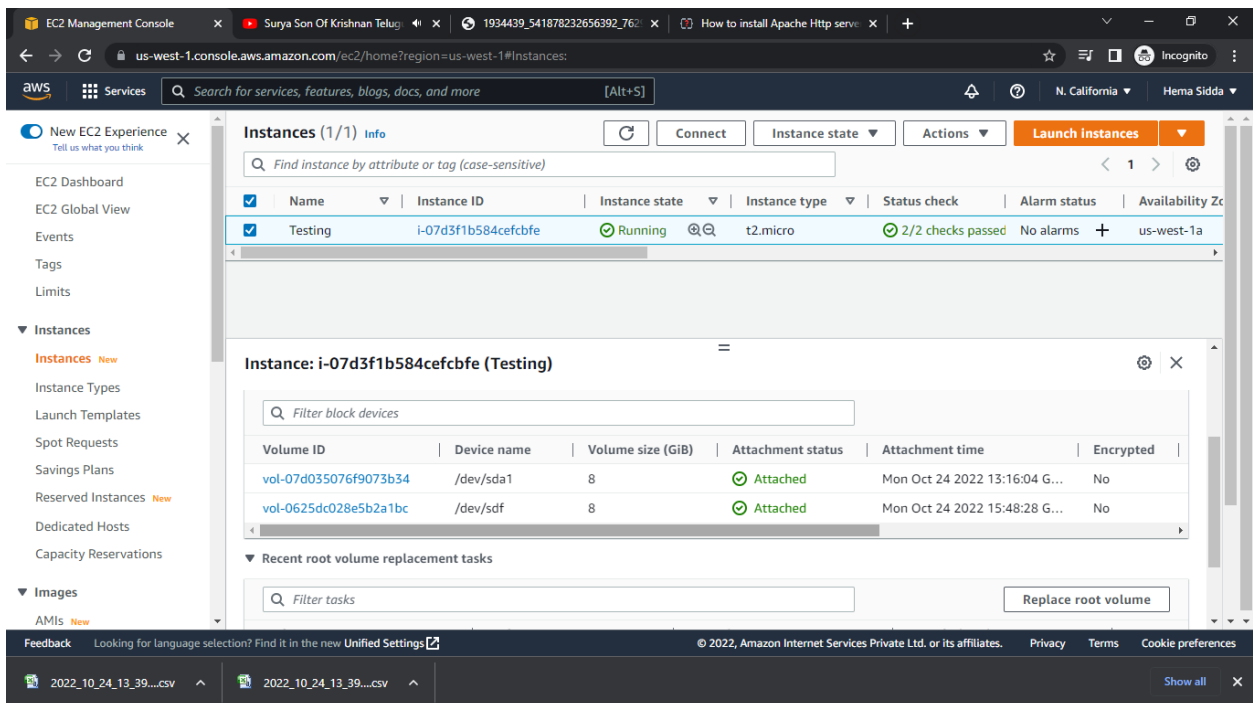


The screenshot shows the AWS Management Console Volumes page. A notification banner at the top states: "You can now create Amazon Data Lifecycle Manager policies to automate snapshot management directly from this screen. Select the volumes to back up, and then choose Actions, Create snapshot lifecycle policy. For more information, see the Knowledge Center article." Below this, the "Volumes (2)" section contains a table with the following data:

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot	Created
<input type="checkbox"/>	-	vol-07d035076f9073b34	gp2	8 GiB	100	-	snap-0fb5e1a...	2022/10/24
<input type="checkbox"/>	New Volume	vol-0625dc028e5b2a1bc	gp2	8 GiB	100	-	snap-0941902...	2022/10/24

Below the table, there is a "Select a volume above" prompt and three icons for volume actions.

➤ Now attach this new volume to the existing EC2 instance.



The screenshot shows the AWS Management Console EC2 page. The "Instances (1/1) Info" section displays a table with the following data:

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input checked="" type="checkbox"/>	Testing	i-07d3f1b584cefcfbfe	Running	t2.micro	2/2 checks passed	No alarms	us-west-1a

Below the table, the "Instance: i-07d3f1b584cefcfbfe (Testing)" section shows a table of attached volumes:

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted
vol-07d035076f9073b34	/dev/sda1	8	Attached	Mon Oct 24 2022 13:16:04 G...	No
vol-0625dc028e5b2a1bc	/dev/sdf	8	Attached	Mon Oct 24 2022 15:48:28 G...	No

Below the volume table, there is a "Recent root volume replacement tasks" section with a "Replace root volume" button.

AMAZON WEB SERVICES

- Now mount this created new volume to the existing instances.

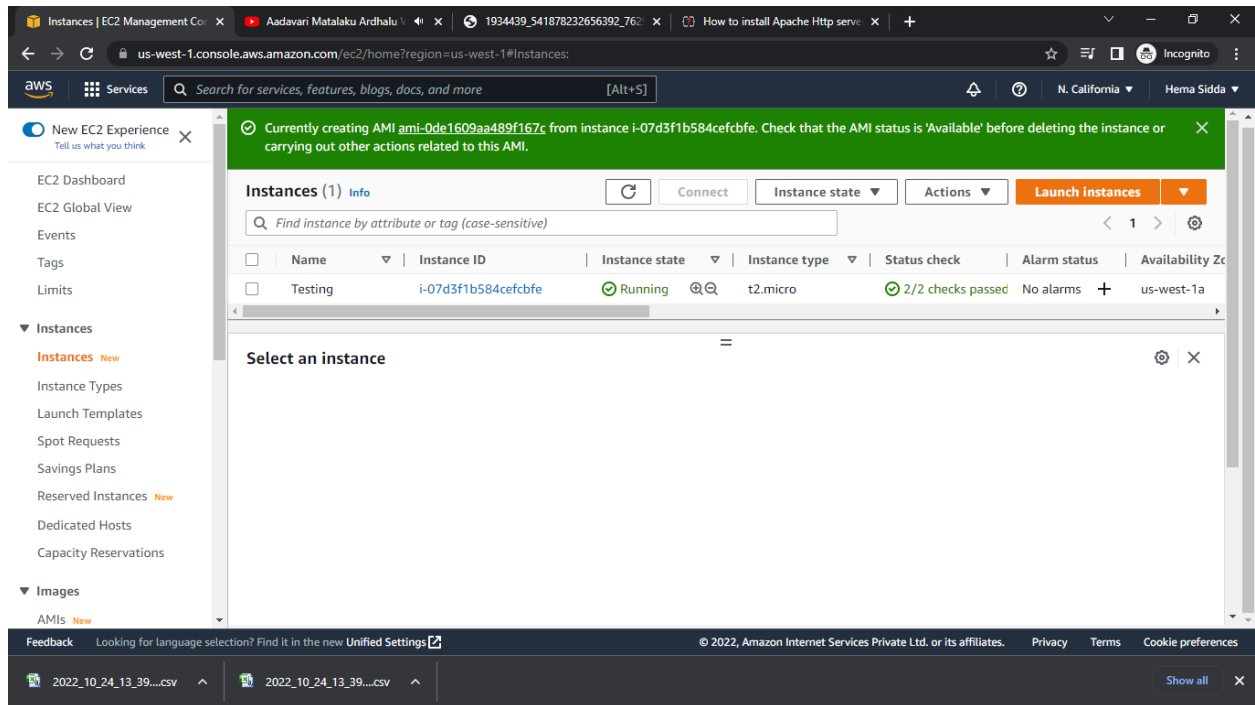
```
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$  
ubuntu@ip-172-31-2-236:~$ lsblk  
NAME        MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS  
loop0       7:0    0 25.1M  1 loop /snap/amazon-ssm-agent/5656  
loop1       7:1    0 55.0M  1 loop /snap/core18/2560  
loop2       7:2    0 63.2M  1 loop /snap/core20/1623  
loop3       7:3    0 103M   1 loop /snap/lxd/23541  
loop4       7:4    0 47M    1 loop /snap/snapd/16292  
xvda        202:0    0   8G    disk  
├─xvda1     202:1    0   7.9G  0 part /  
└─xvda15    202:14   0   4M    0 part  
├─xvda15    202:15   0 106M   0 part /boot/efi  
xvdf        202:80   0   8G    disk /gouse  
ubuntu@ip-172-31-2-236:~$ df -h  
Filesystem      Size  Used Avail Use% Mounted on  
/dev/root        7.6G  1.6G  6.1G   20% /  
tmpfs            484M   16K   484M    0% /dev/shm  
tmpfs           194M  856K  193M    1% /run  
tmpfs            5.0M   0B   5.0M    0% /run/lock  
/dev/xvda15      105M  5.3M   100M    5% /boot/efi  
tmpfs             97M   4.0K   97M    1% /run/user/1000  
/dev/xvdf         4.9G  24K   4.6G    1% /gouse  
ubuntu@ip-172-31-2-236:~$
```

LAB-7

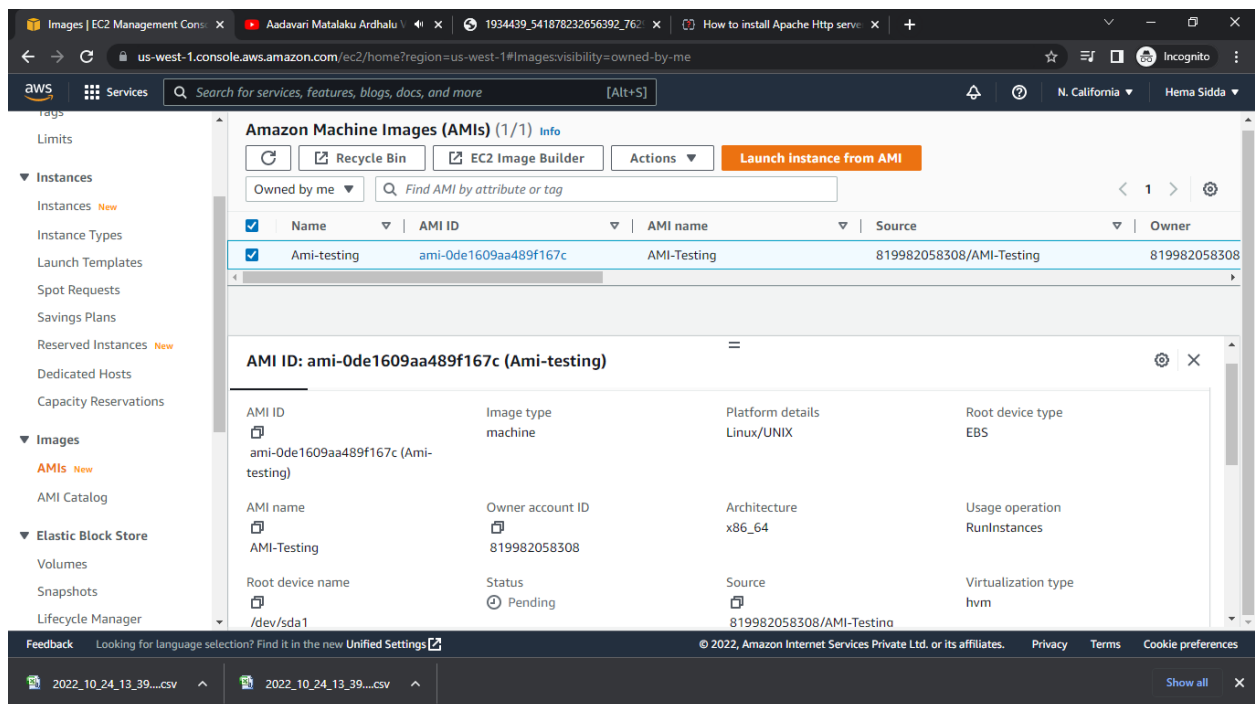
AMI'S:

- Creating an AMI of running instance first go to running instance page and select running instances go to actions and create AMI of running instances.

AMAZON WEB SERVICES



➤ Finally AMI of running instance is created successfully.



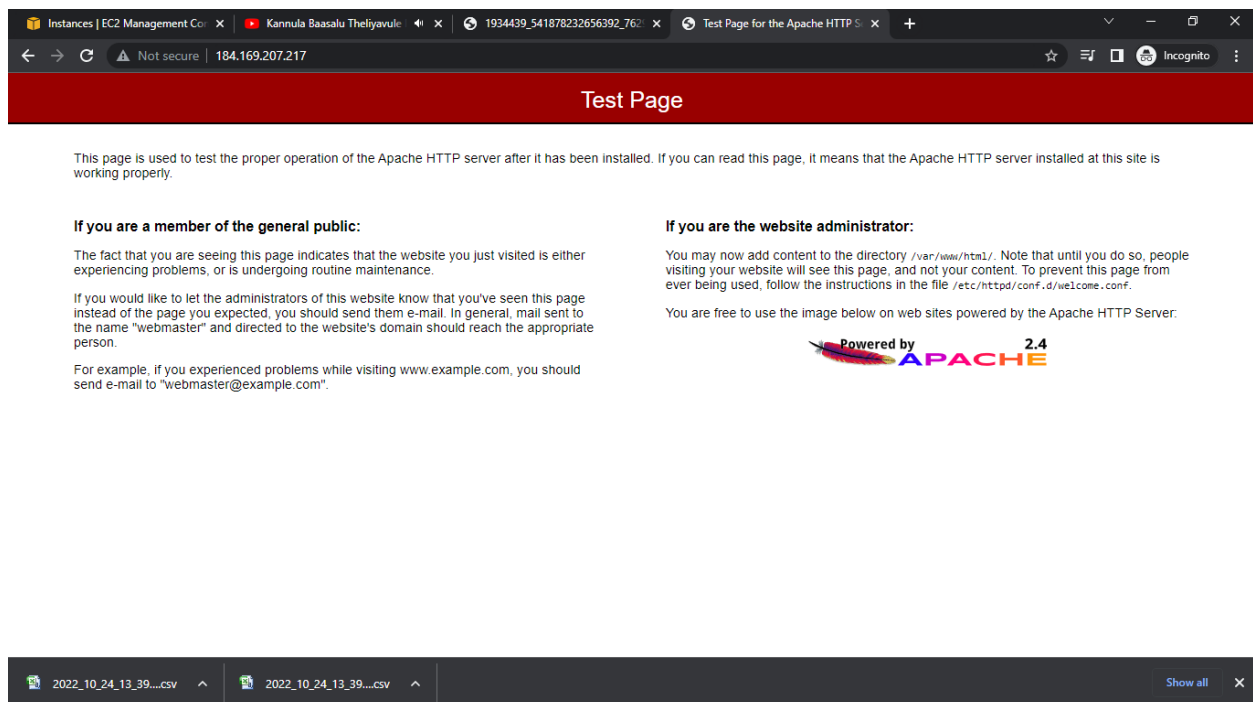
SHAIK.GOUSE RABBANI

AMAZON WEB SERVICES

LAB-8

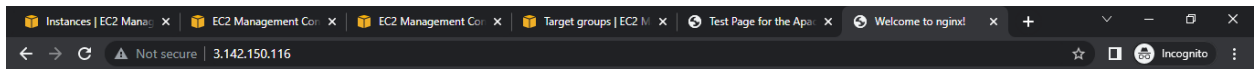
Load Balancer:

- Create two EC2 instances and install nginx server on one machine and httpd apache server on another machine.
- Now show apache server official page by browsing the public ip of instance, which runs on apache server.



- Now show nginx server official page by browsing the public ip of instance, which runs on nginx server.

AMAZON WEB SERVICES



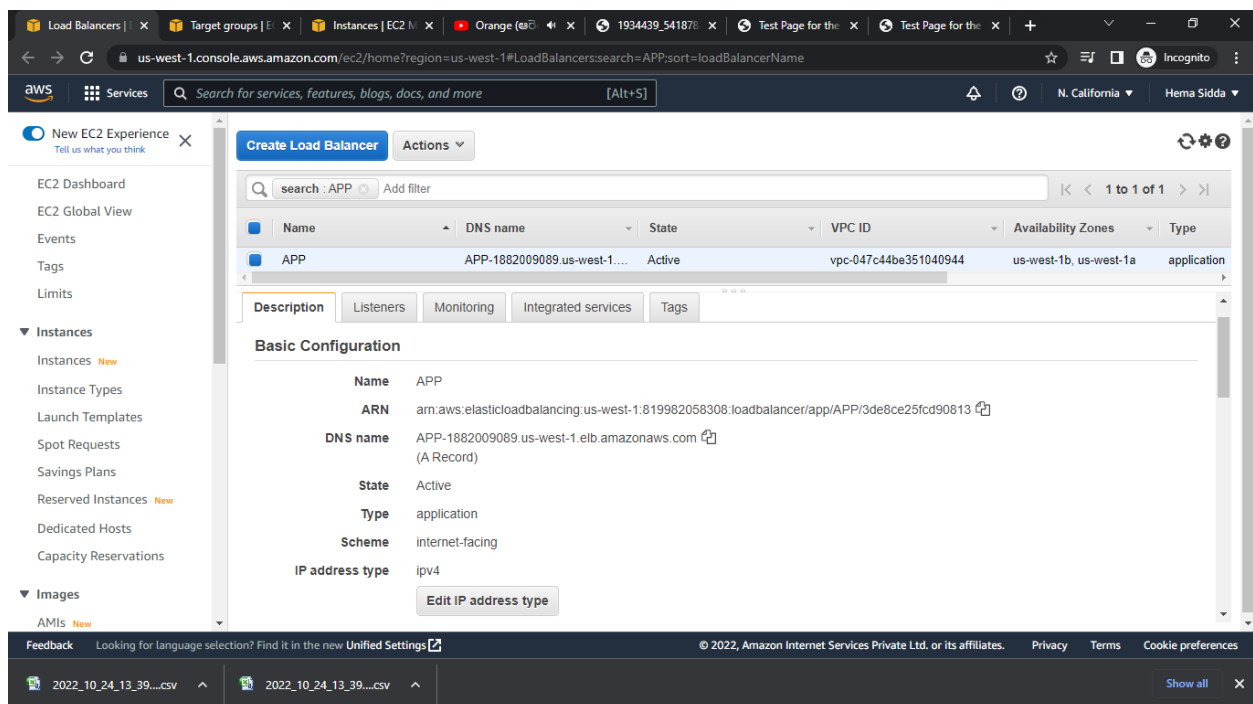
Welcome to nginx!

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.

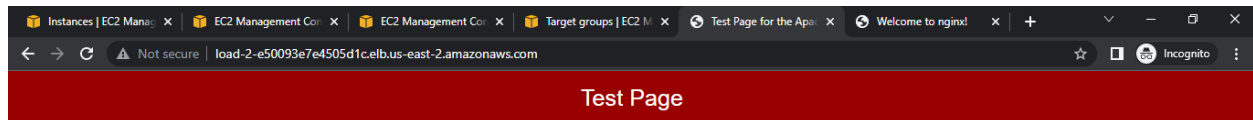
Thank you for using nginx.

- Now create an Network Load Balancer and attach two EC2 instances to this Load Balancer.



AMAZON WEB SERVICES

- Now go to Load Balancer under details select DNS copy it and past it in browser and reload the page.



If you are a member of the general public:

The fact that you are seeing this page indicates that the website you just visited is either experiencing problems, or is undergoing routine maintenance.

If you would like to let the administrators of this website know that you've seen this page instead of the page you expected, you should send them e-mail. In general, mail sent to the name "webmaster" and directed to the website's domain should reach the appropriate person.

For example, if you experienced problems while visiting www.example.com, you should send e-mail to "webmaster@example.com".

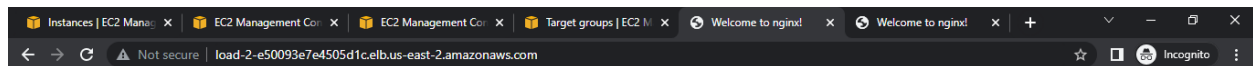
If you are the website administrator:

You may now add content to the directory `/var/www/html/`. Note that until you do so, people visiting your website will see this page, and not your content. To prevent this page from ever being used, follow the instructions in the file `/etc/httpd/conf.d/welcome.conf`.

You are free to use the image below on web sites powered by the Apache HTTP Server:



- Again reload the page it shows the another web server official page.



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.

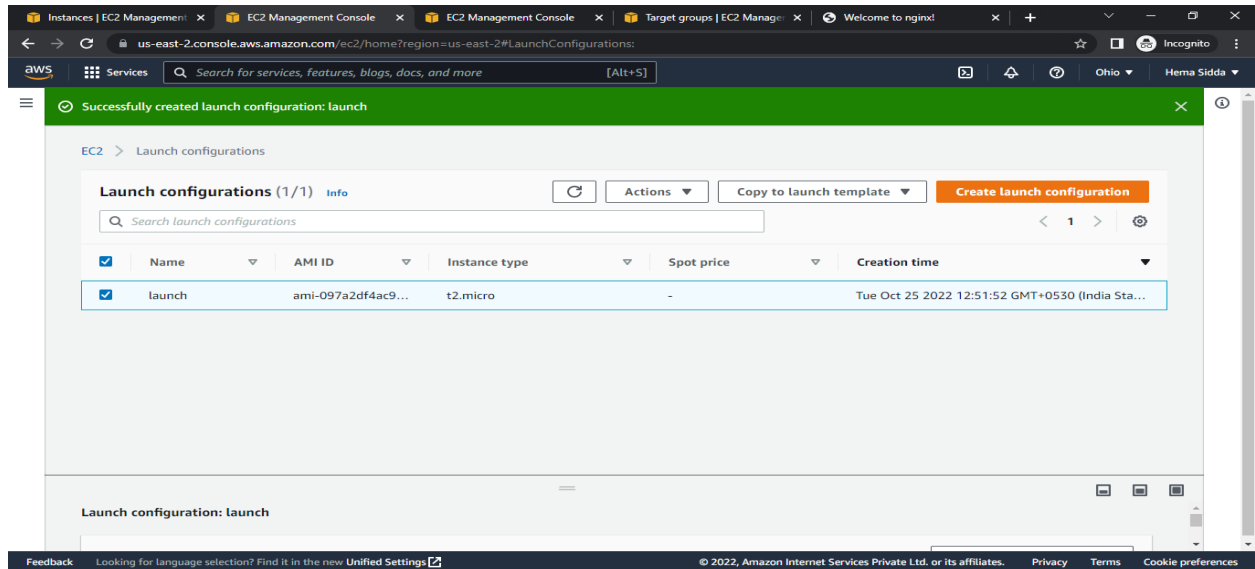
Thank you for using nginx.

AMAZON WEB SERVICES

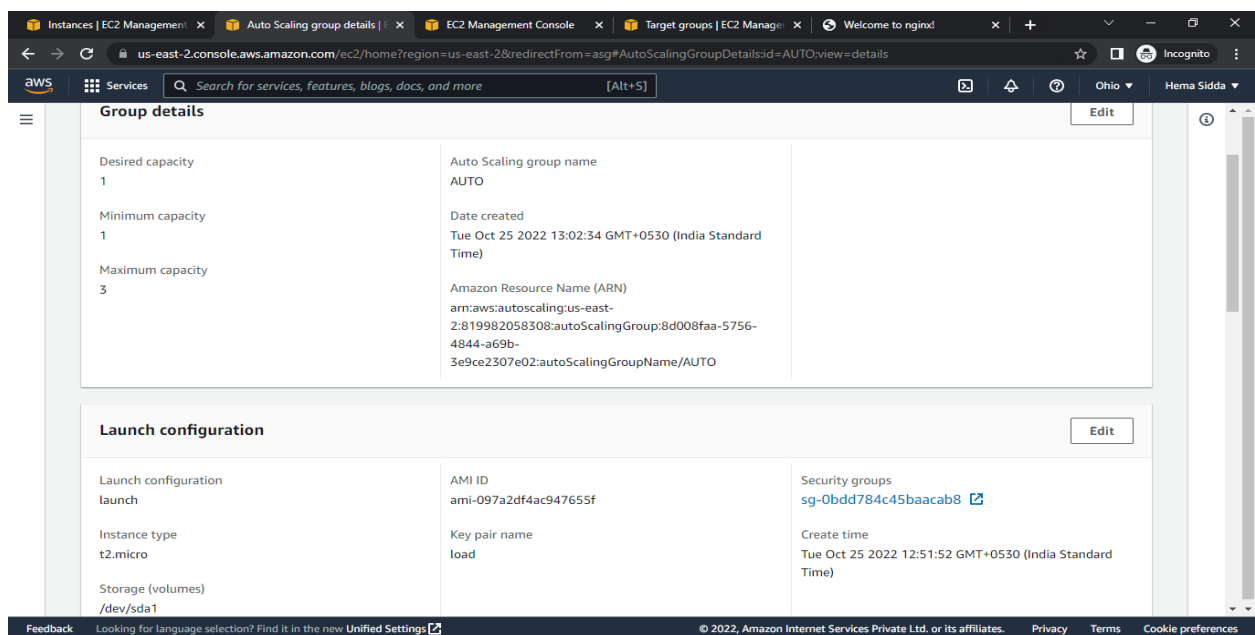
LAB-9

ASG & LC:

- Create one launch configuration with ubuntu server.

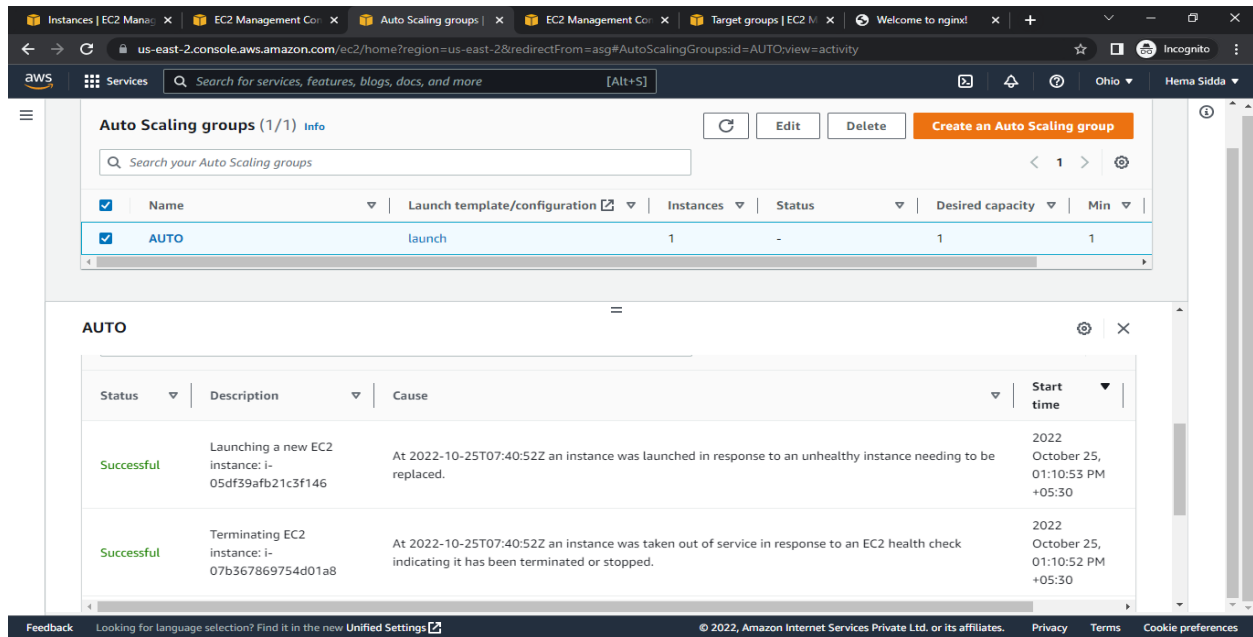


- Create Auto Scaling Group and attach the launch configuration which is created newly(launch).

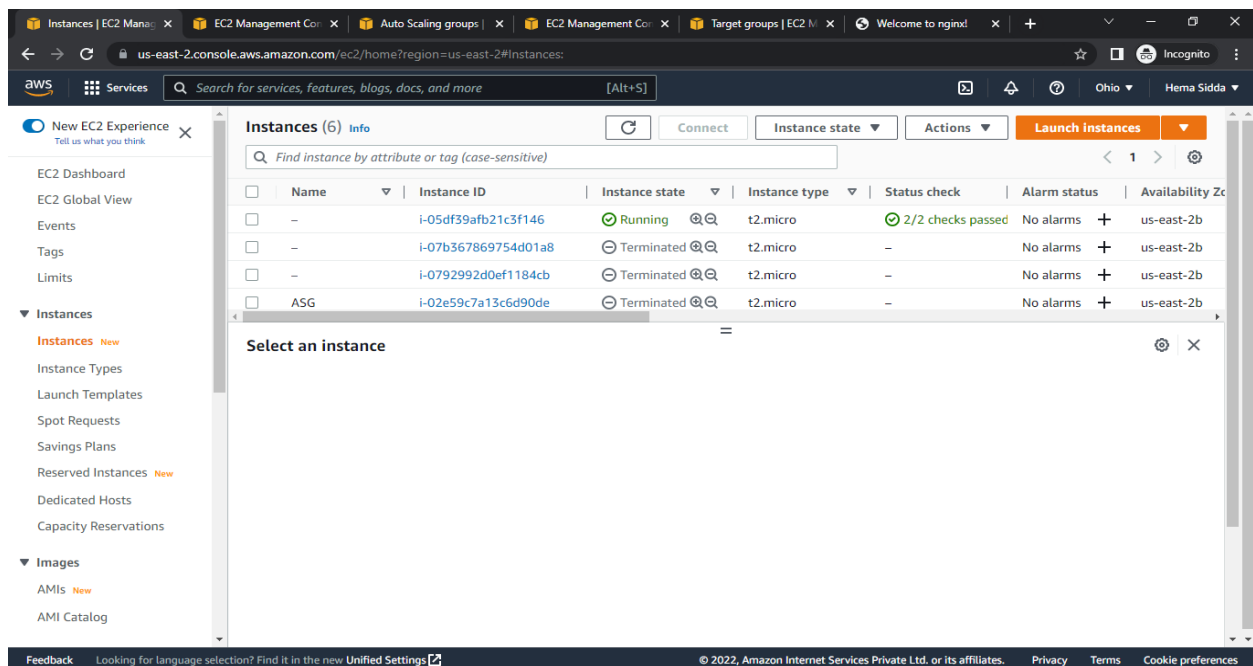


AMAZON WEB SERVICES

- Now I delete the created virtual server and the auto scaling group replace or re-generate the deleted server.



- Finally the auto scaling group replace the virtual server which one is deleted before or recently.

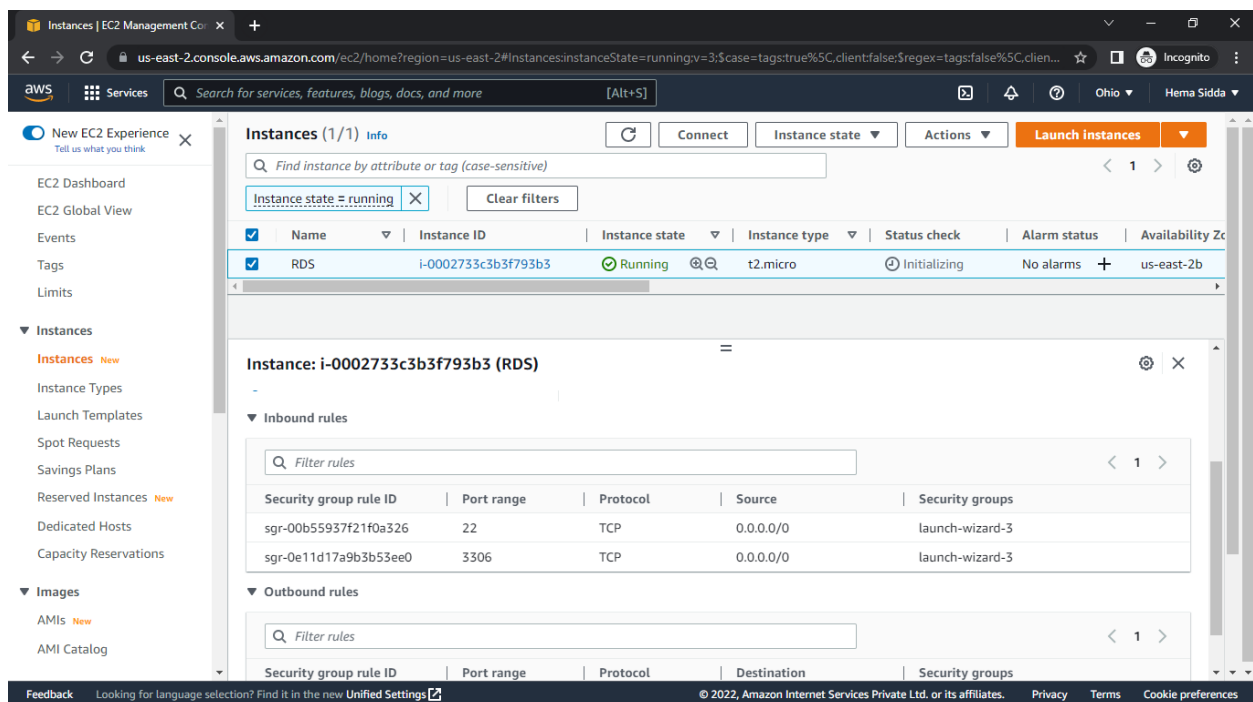


AMAZON WEB SERVICES

LAB-10

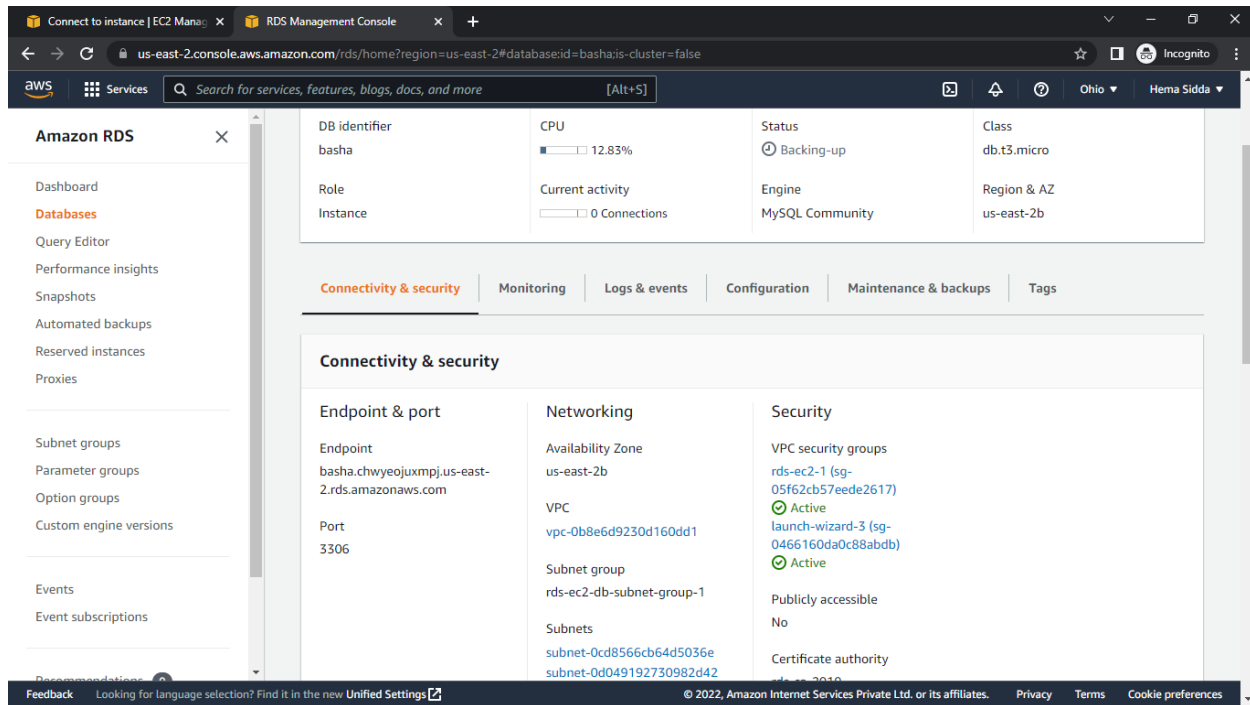
RDS:

- First create an EC2 instance in private subnet and give the port 3306 mysql/aurora at security group.



- Now go to RDS service and create the mysql(3306) database.

AMAZON WEB SERVICES



- Finally access the created RDS database from created virtual machine or EC2 instance by using command as “mysql -h endpoint -u username -p”.

```
ec2-user@ip-172-31-22-147:~
Total download size: 8.8 M
Installed size: 49 M
Downloading packages:
mariadb-5.5.68-1.amzn2.x86_64.rpm
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
Installing : 1:mariadb-5.5.68-1.amzn2.x86_64
Verifying : 1:mariadb-5.5.68-1.amzn2.x86_64
Installed:
mariadb.x86_64 1:5.5.68-1.amzn2

Complete!
[ec2-user@ip-172-31-22-147 ~]$ mysql -h basha.chwyuojuxmpj.us-east-2.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 9
Server version: 5.7.37-log Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> show database
-> Ctrl-C -- exit!
Aborted
[ec2-user@ip-172-31-22-147 ~]$ mysql -h basha.chwyuojuxmpj.us-east-2.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 5.7.37-log Source distribution

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MySQL [(none)]> show database;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'database' at line 1
MySQL [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| innodb |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

MySQL [(none)]>
```

AMAZON WEB SERVICES

THE END