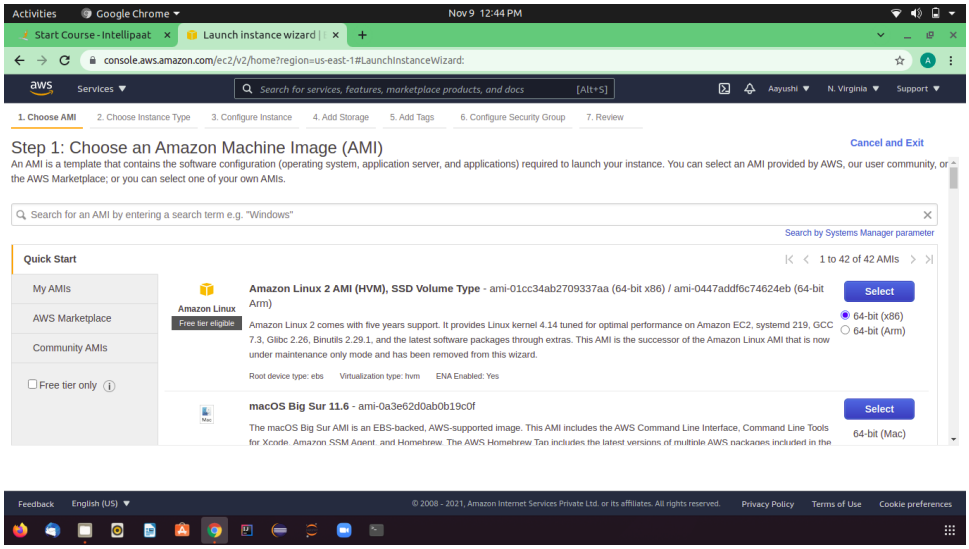
Module-2 Case Study

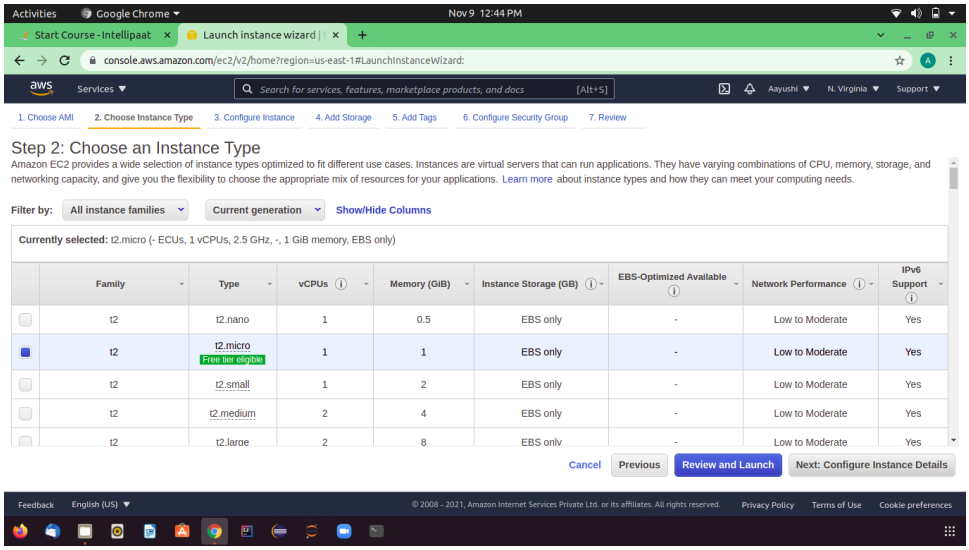
1. Create an instance in us-east-1 (N.virginia) region with OS and manage the requirement of web server of your company using AMI
2. Replicate the instance in us-west-2(Oregon) region
3. Build two EBS volume and attach them to the instance in us-east-1(N.Virginia) region
4. Delete one volume after detaching it and extend the size of other volume
5. Take backup of this EBS volume

Create Instance in N.Virginia

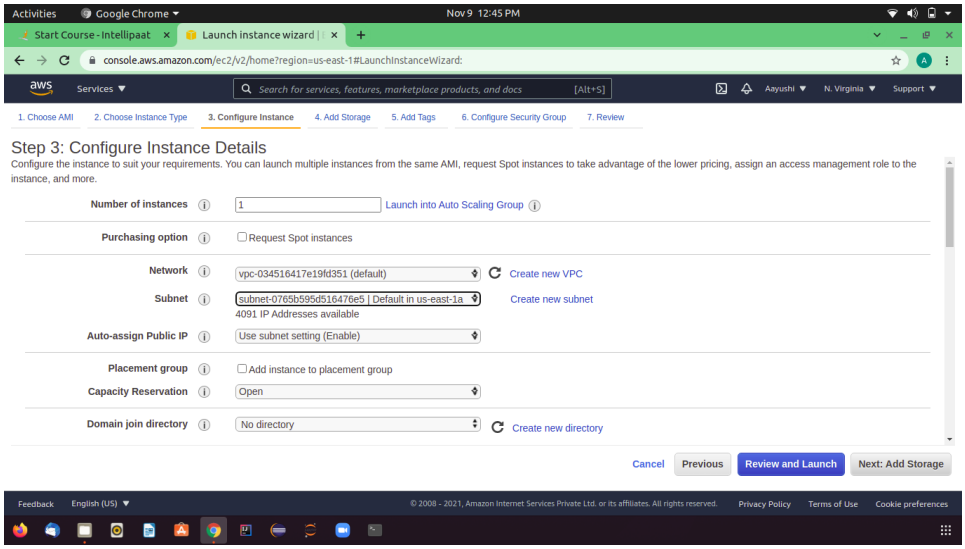
1. Choose an Amazon machine image



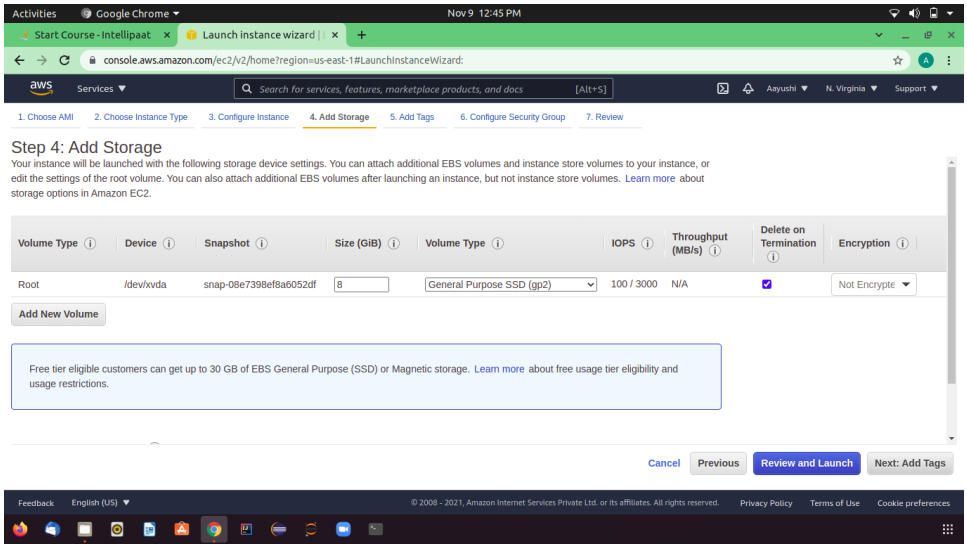
2. Choose instance type



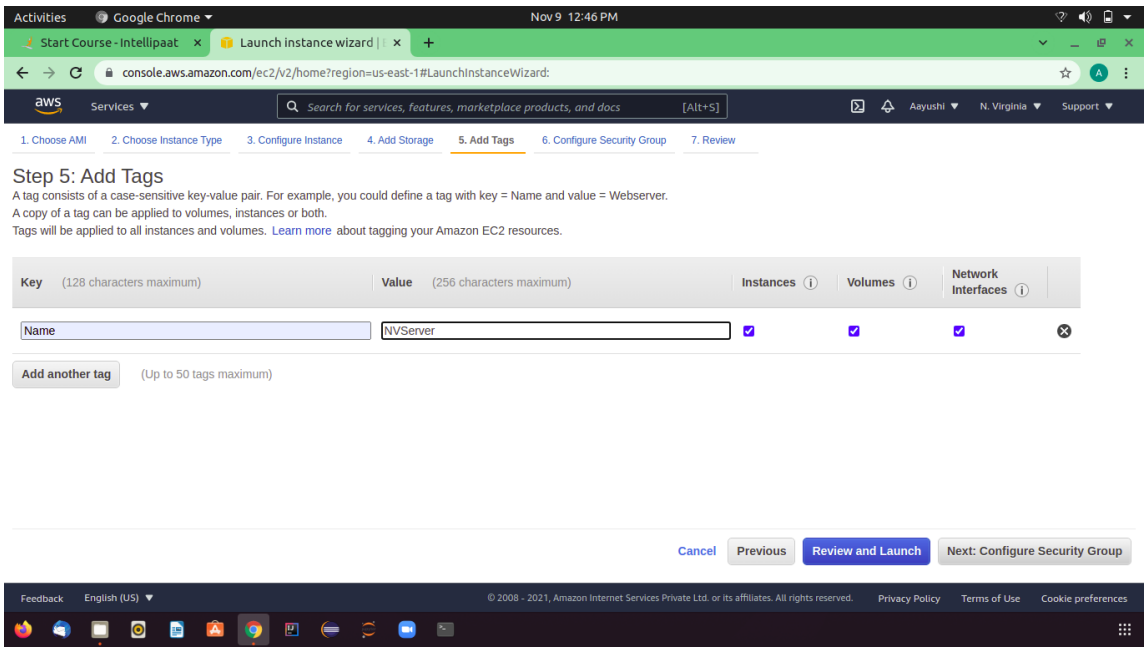
3. Configure instance



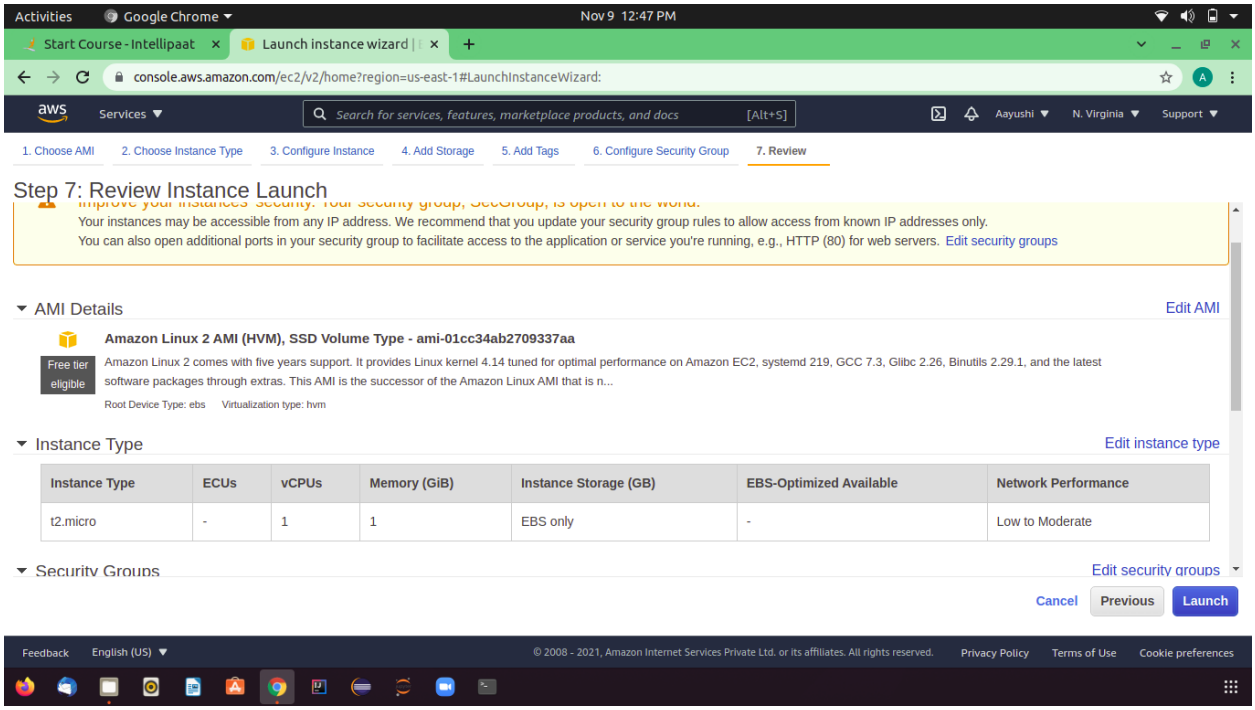
4. Add storage



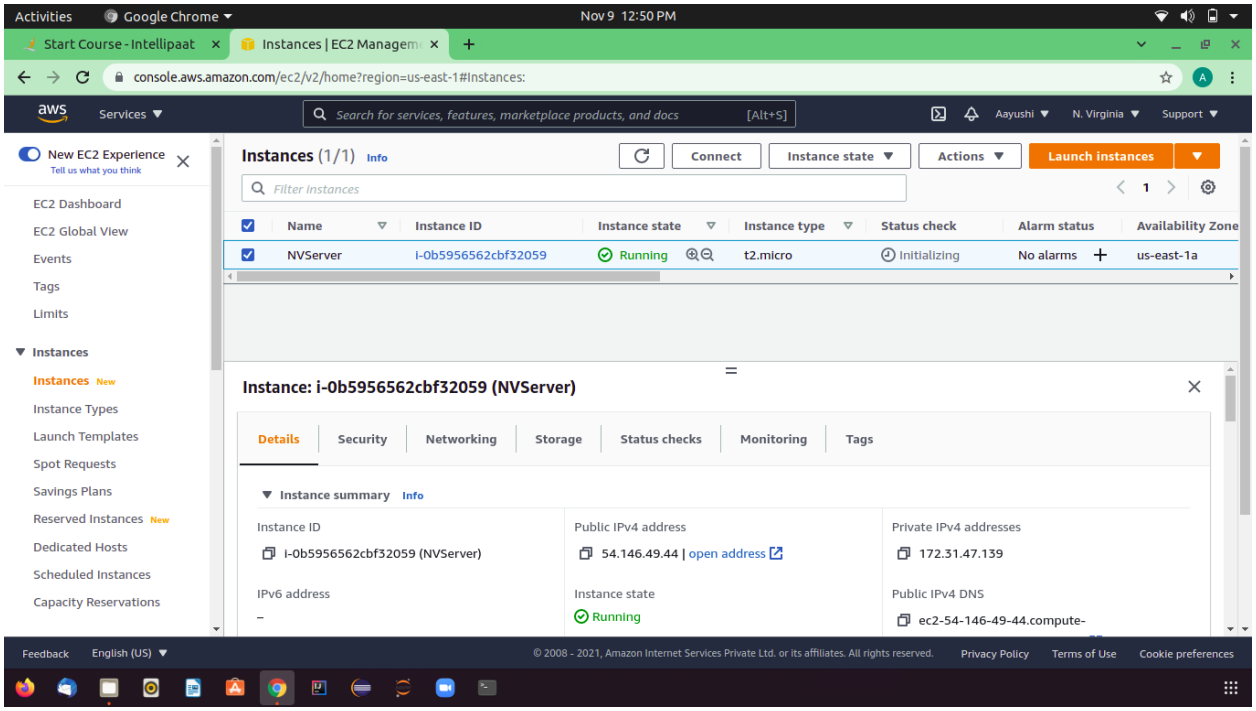
5. Add tags



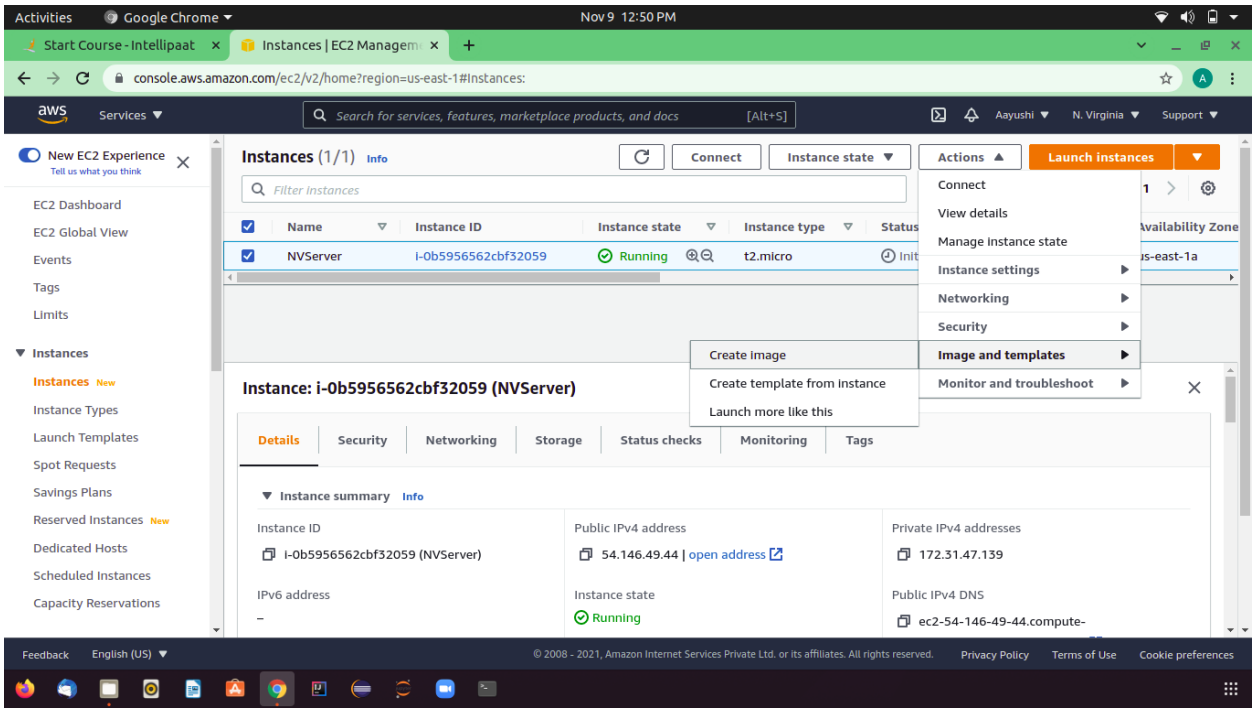
6. Configure security group
7. Review Instance Launch



8. Generate key pair
9. Launch Instance



Create an AMI in N.Virginia


Activities
Google Chrome
Nov 9 12:50 PM
Start Course - Intellipaat
Instances | EC2 Managem
console.aws.amazon.com/ec2/v2/home?region=us-east-1#Instances:
Services
Search for services, features, marketplace products, and docs [Alt+S]
Aayushi
N. Virginia
Support
New EC2 Experience
Tell us what you think
EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Instances (1/1) Info
Connect
Instance state
Actions
Launch instances
Filter instances
Name
Instance ID
Instance state
Instance type
Status
Availability Zone
NVServer
i-0b5956562cbf32059
Running
t2.micro
us-east-1a
Connect
View details
Manage instance state
Instance settings
Networking
Security
Image and templates
Monitor and troubleshoot
Create image
Create template from instance
Launch more like this
Instance: i-0b5956562cbf32059 (NVServer)
Details
Security
Networking
Storage
Status checks
Monitoring
Tags
Instance summary Info
Instance ID
i-0b5956562cbf32059 (NVServer)
Public IPv4 address
54.146.49.44 | open address
Private IPv4 addresses
172.31.47.139
IPv6 address
–
Instance state
Running
Public IPv4 DNS
ec2-54-146-49-44.compute-
Feedback
English (US)
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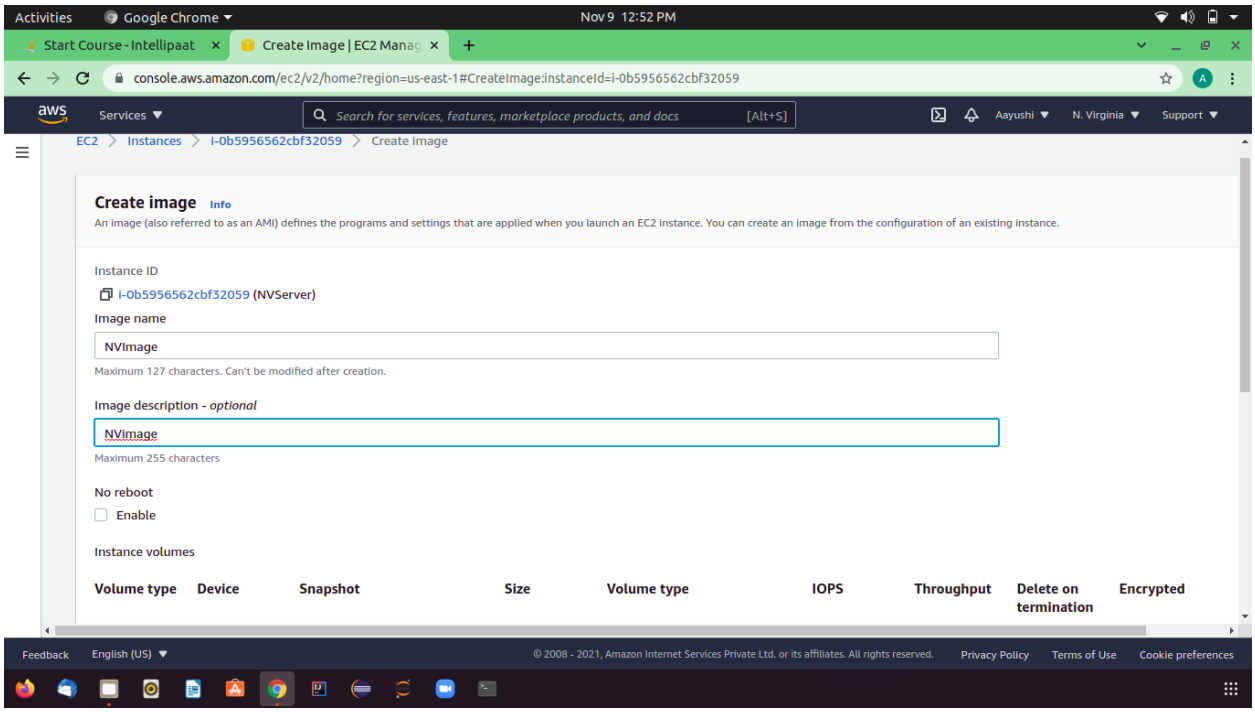
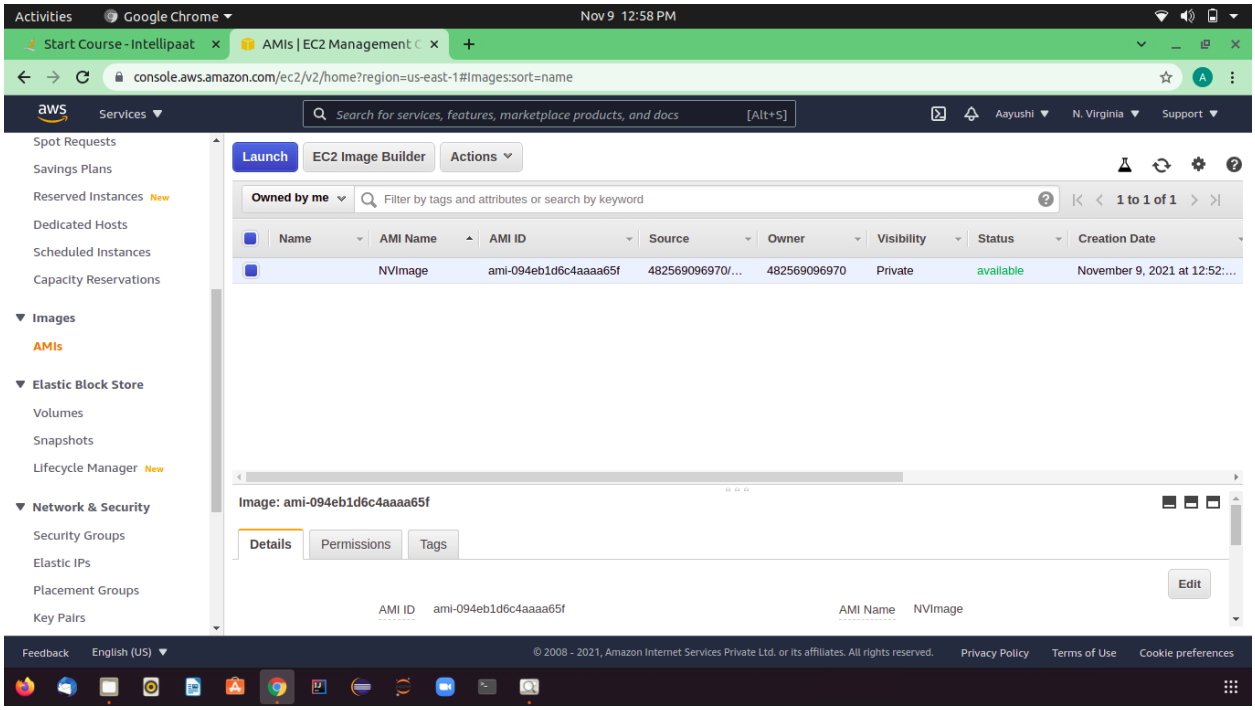
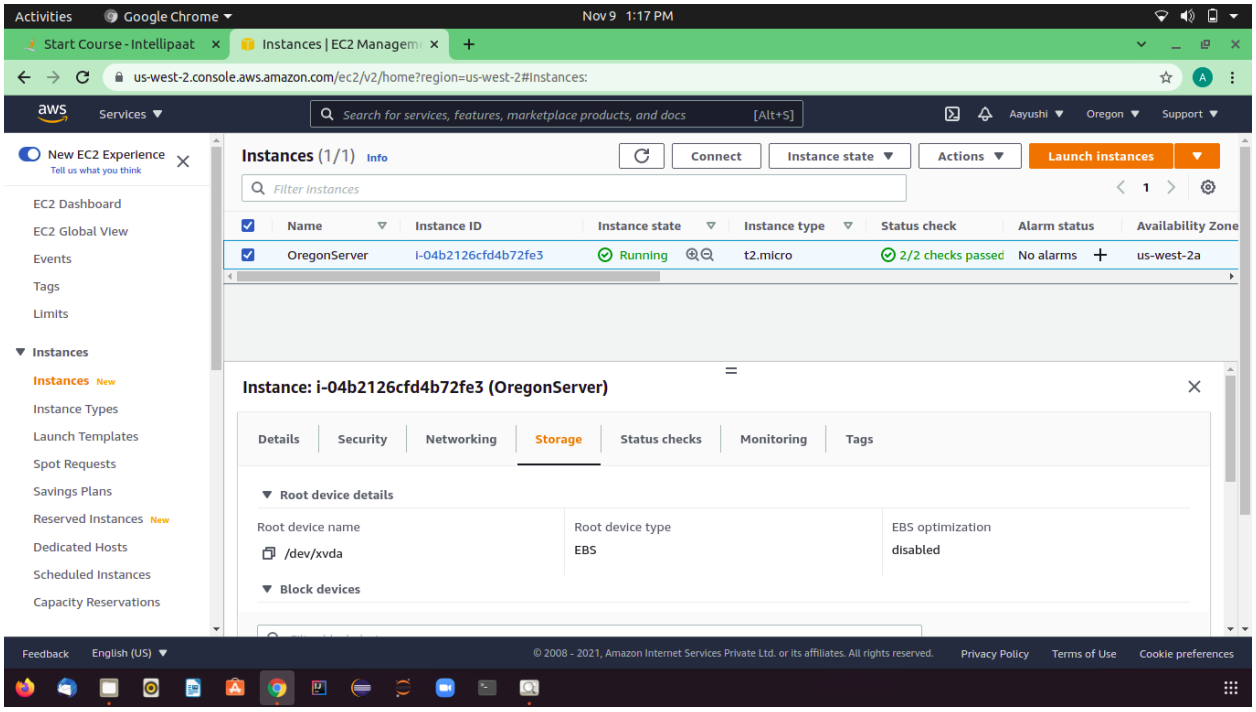

Activities
Google Chrome
Nov 9 12:52 PM
Start Course - Intellipaat
Create Image | EC2 Manag
console.aws.amazon.com/ec2/v2/home?region=us-east-1#CreateImage:instanceId=i-0b5956562cbf32059
Services
Search for services, features, marketplace products, and docs [Alt+S]
Aayushi
N. Virginia
Support
EC2 > Instances > i-0b5956562cbf32059 > Create image
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-0b5956562cbf32059 (NVServer)
Image name
NVImage
Maximum 127 characters. Can't be modified after creation.
Image description - optional
NVimage
Maximum 255 characters
No reboot
Enable
Instance volumes
Volume type
Device
Snapshot
Size
Volume type
IOPS
Throughput
Delete on termination
Encrypted
Feedback
English (US)
© 2008 - 2021, Amazon Internet Services Private Ltd. or its affiliates. All rights reserved.
Privacy Policy
Terms of Use
Cookie preferences

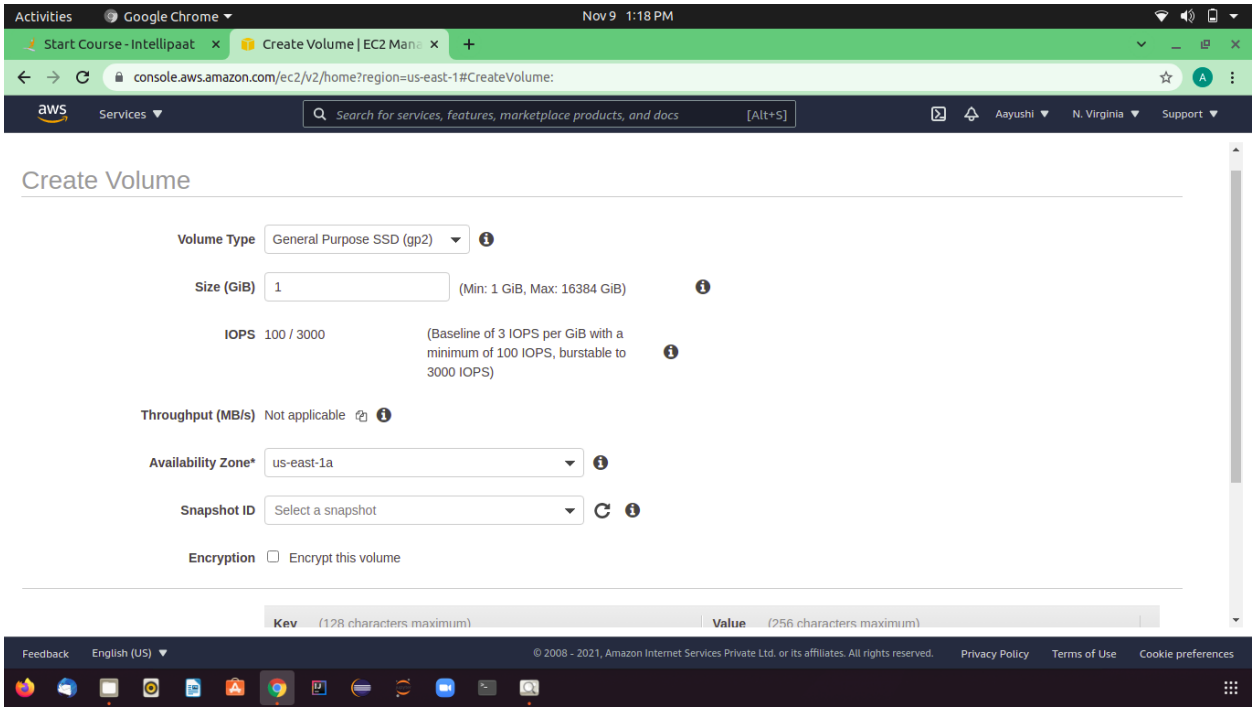


Now, copy this AMI in Oregon and then create an instance from AMI

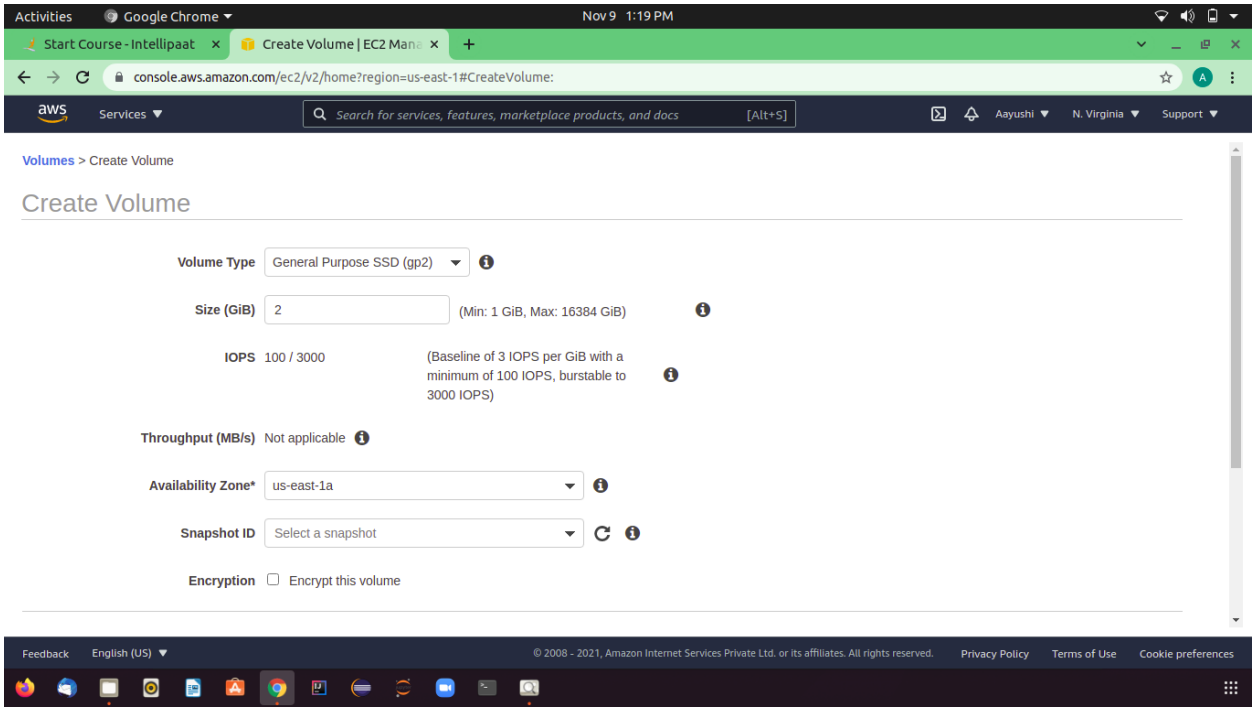


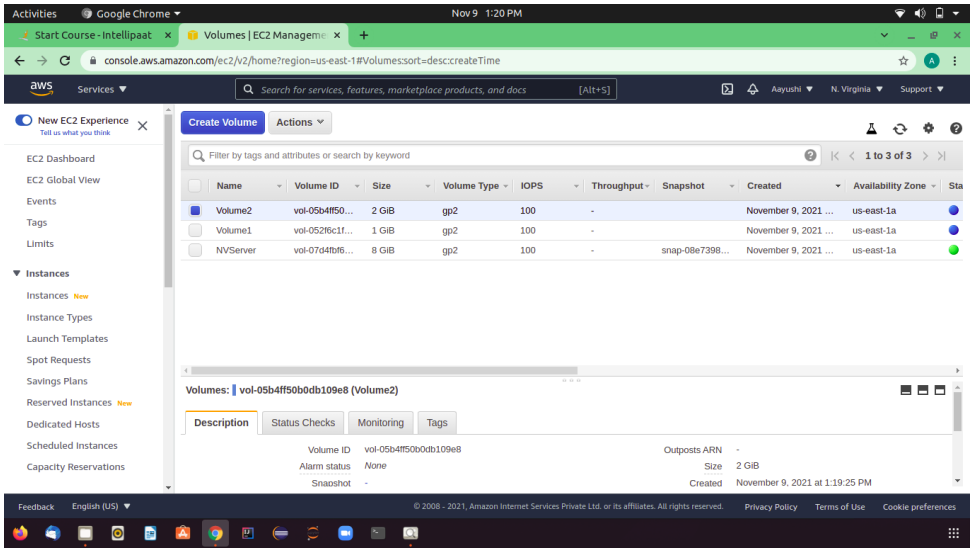
Create two volumes in N.Virginia

1. Create 1GB Volume1

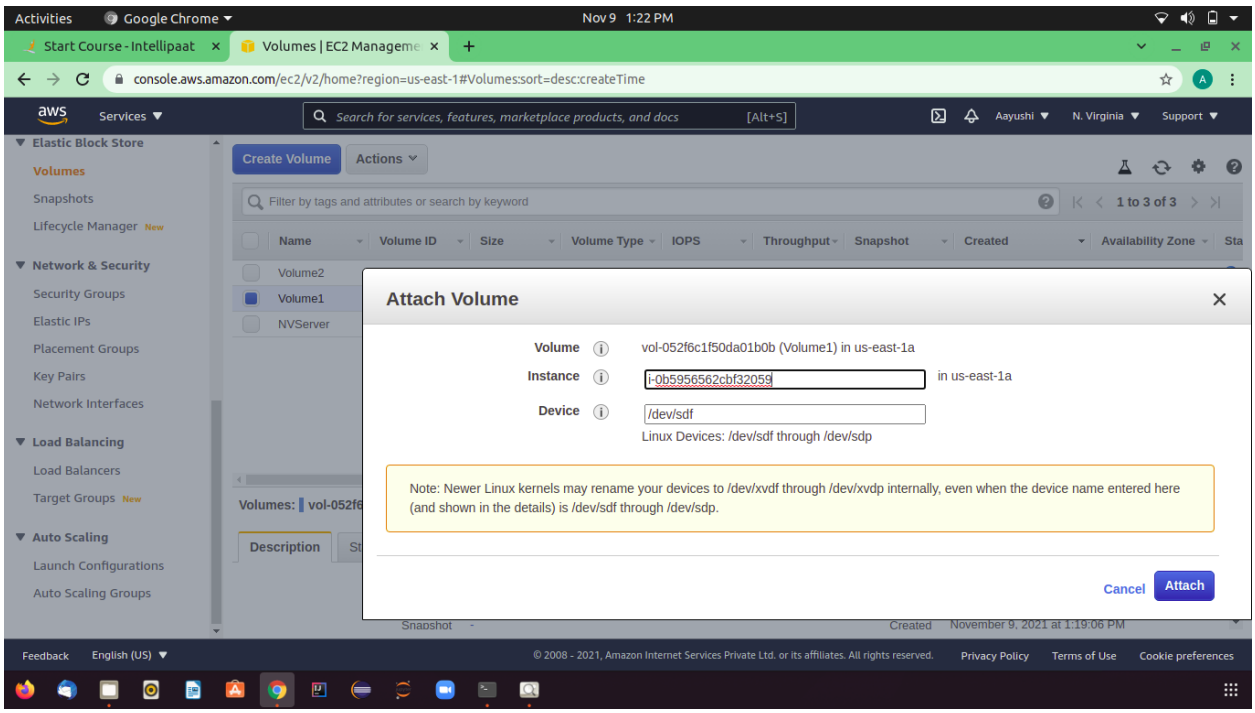


2. Create 2 GB Volume2

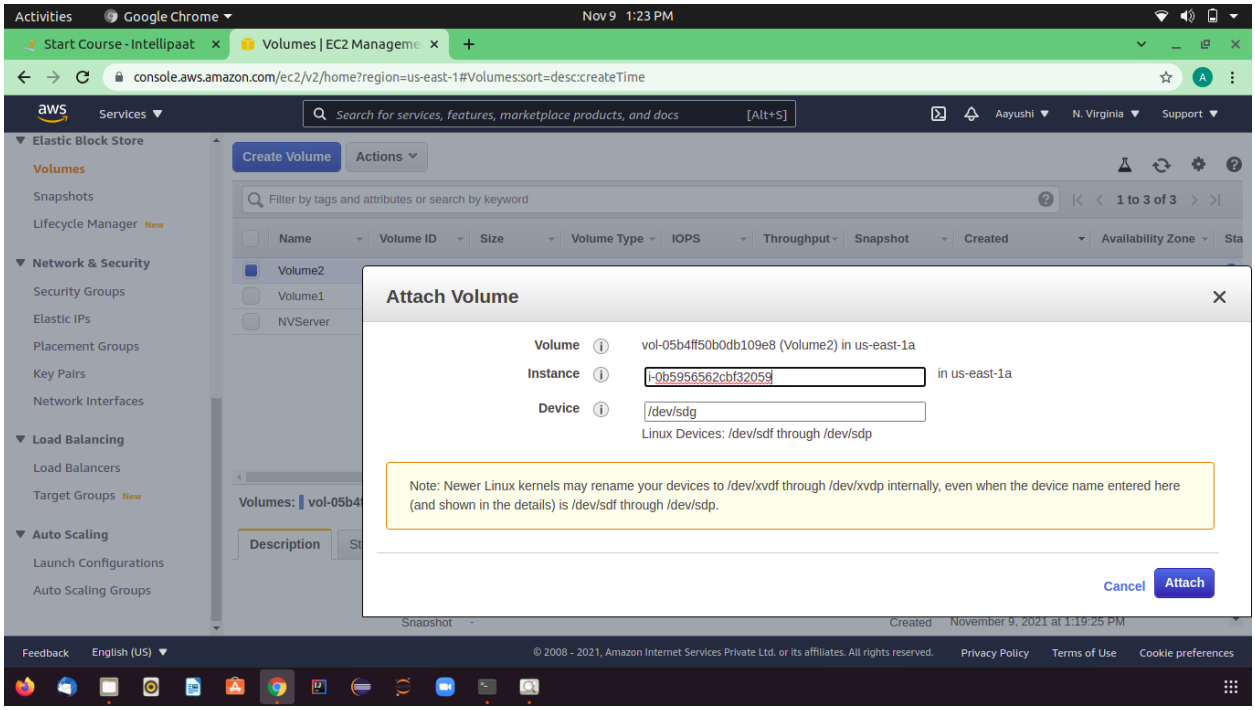




Now attach the Volume1 to N.Virginia

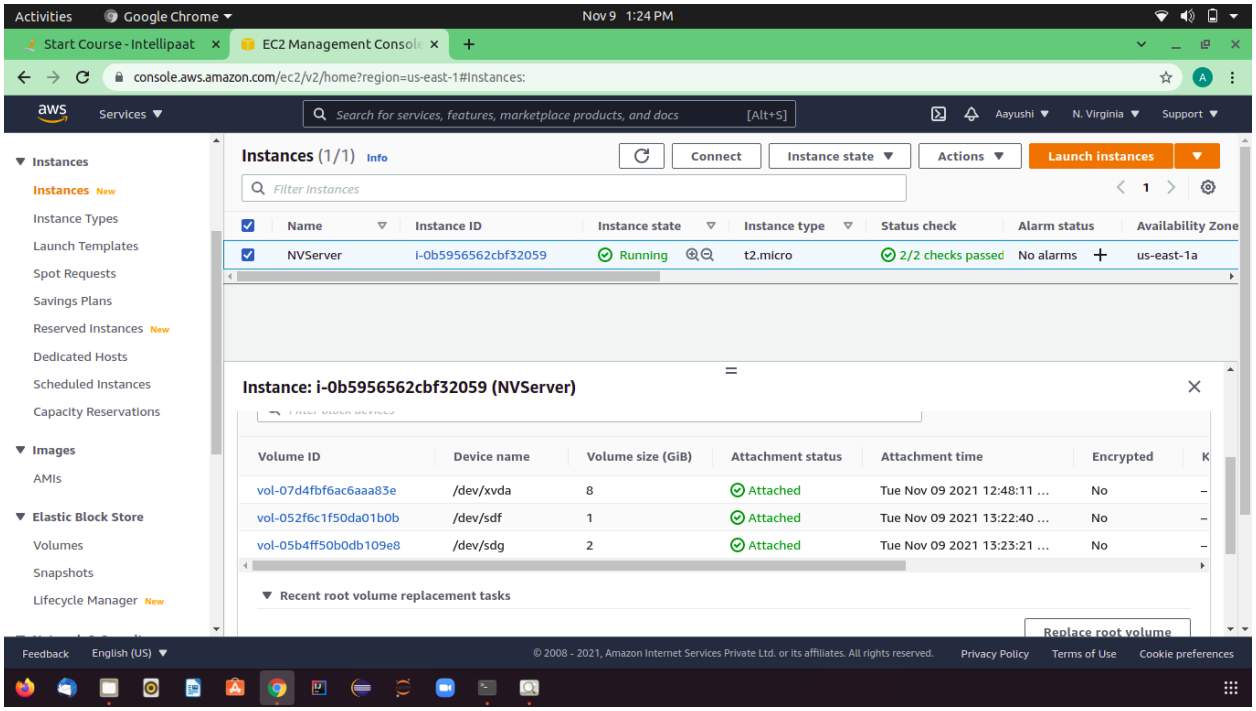


Again attach the Volume2 to N.Virginia



Check to the instance and see there are three volumes

1. Root volume 8gb
2. Volume1 1gb
3. Volume2 2gb



Go to 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**

```
root@Varonica:/home/aayushi/Downloads#
root@Varonica:/home/aayushi/Downloads# chmod 400 MyNVkey.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 MyNVkey.pem ec2-user@54.146.49.44
The authenticity of host '54.146.49.44 (54.146.49.44)' can't be established.
ECDSA key fingerprint is SHA256:mwY/0iAAt9FJU8SBMNib2q03IZO42Rg34lTo8ccjs/0.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '54.146.49.44' (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-172-31-47-139 ~]$
[ec2-user@ip-172-31-47-139 ~]$ sudo yum update
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-172-31-47-139 ~]$
[ec2-user@ip-172-31-47-139 ~]$ sudo su
```

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

```
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]# yum install httpd
Loaded plugins: extras_suggestions, langpacks, priorities, update-motd
Resolving Dependencies
```

Checking your Web server

1. **systemctl start httpd.service**

```
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]# systemctl start httpd
```

2. **systemctl enable httpd.service**

```
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]# systemctl enable httpd
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-172-31-47-139 ec2-user]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; enabled; vendor prese
t: disabled)
   Active: active (running) since Tue 2021-11-09 07:57:24 UTC; 29s ago
     Docs: man:httpd.service(8)
 Main PID: 6547 (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
           ├─6547 /usr/sbin/httpd -DFOREGROUND
           ├─6548 /usr/sbin/httpd -DFOREGROUND
           ├─6549 /usr/sbin/httpd -DFOREGROUND
           ├─6550 /usr/sbin/httpd -DFOREGROUND
           ├─6551 /usr/sbin/httpd -DFOREGROUND
           └─6552 /usr/sbin/httpd -DFOREGROUND

Nov 09 07:57:24 ip-172-31-47-139.ec2.internal systemd[1]: Starting The Apache..
.
Nov 09 07:57:24 ip-172-31-47-139.ec2.internal systemd[1]: Started The Apache ..
.
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-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 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   1G  0 disk
xvdg    202:96   0   2G  0 disk
```

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

```
[root@ip-172-31-47-139 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  420K  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-172-31-47-139 ec2-user]# mkfs -t ext4 /dev/xvdf
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
65536 inodes, 262144 blocks
13107 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=268435456
8 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done
```

```
[root@ip-172-31-47-139 ec2-user]# mkfs -t ext4 /dev/xvdg
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
131072 inodes, 524288 blocks
26214 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=536870912
16 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 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-172-31-47-139 ec2-user]# file -s /dev/xvdf
/dev/xvdf: Linux rev 1.0 ext4 filesystem data, UUID=57894292-d9cf-43b7-9da0-2e
6f533f43eb (extents) (64bit) (large files) (huge files)
```

```
[root@ip-172-31-47-139 ec2-user]# file -s /dev/xvdg
/dev/xvdg: Linux rev 1.0 ext4 filesystem data, UUID=57866acf-24d2-4b56-896e-4a
c7e2b914e0 (extents) (64bit) (large files) (huge files)
```

Make the directory: **mkdir Volume name**

```
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]# mkdir Volume1
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]# mkdir Volume2
```

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-172-31-47-139 ec2-user]# mount /dev/xvdf Volume1
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]# mount /dev/xvdg Volume2
```

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

```
[root@ip-172-31-47-139 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  476K  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
tmpfs            99M     0   99M   0% /run/user/0
/dev/xvdf       976M  2.6M  907M   1% /home/ec2-user/Volume1
/dev/xvdg       2.0G  6.0M  1.8G   1% /home/ec2-user/Volume2
```

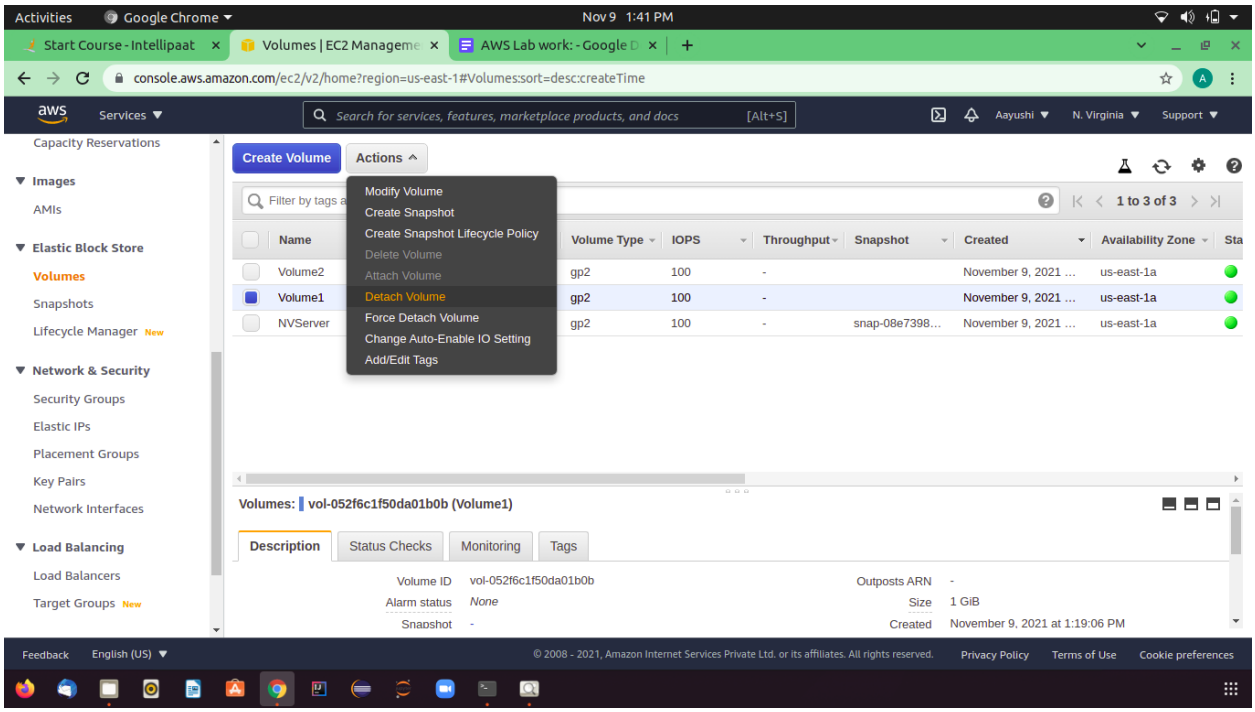
Check our available disk devices and their mount points to help us determine the correct device name to us: **lsblk**

```
[root@ip-172-31-47-139 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   1G  0 disk /home/ec2-user/Volume1
xvdg    202:96   0   2G  0 disk /home/ec2-user/Volume2
```

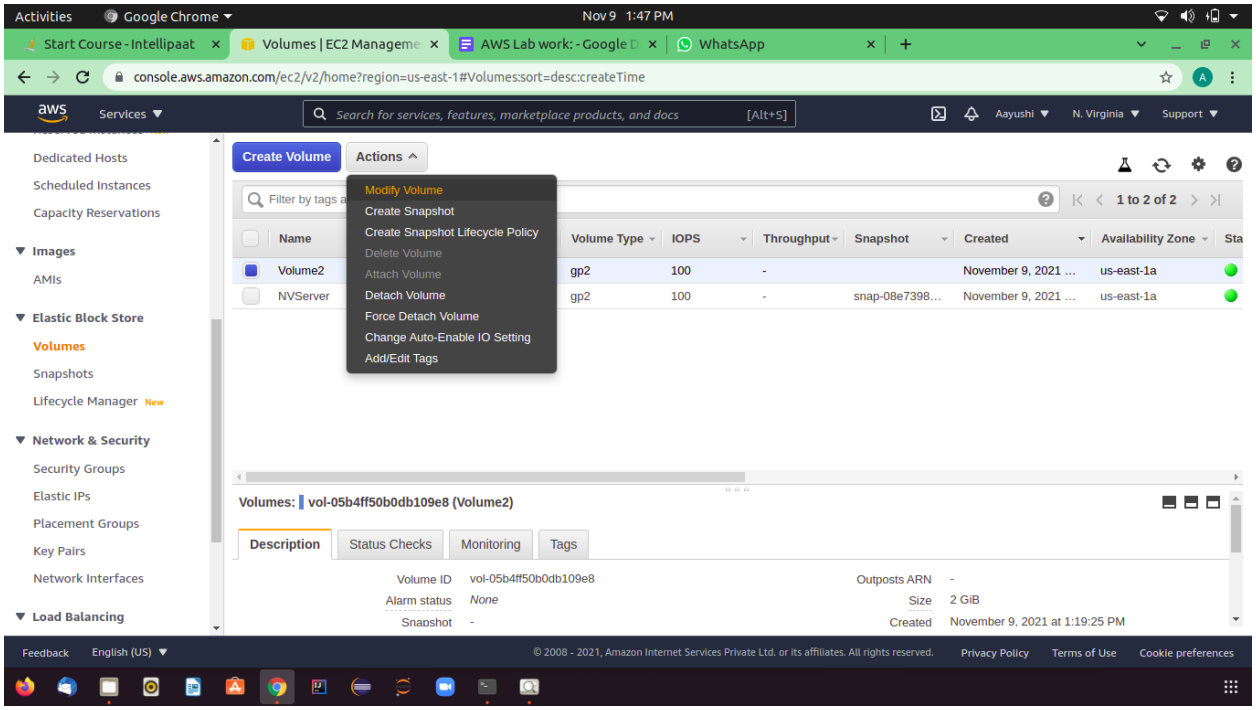
Now delete first Volume1

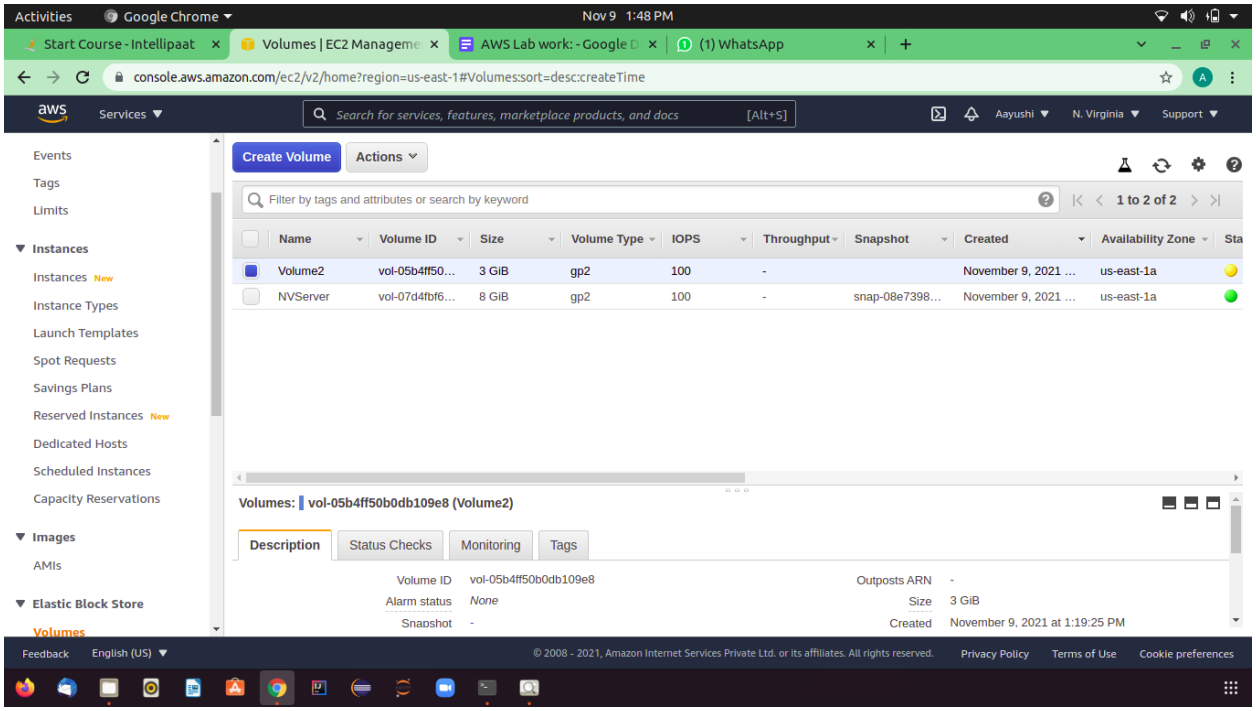
First we umount by using: umount /dev/device_name Volume_name

```
[root@ip-172-31-47-139 ec2-user]#
[root@ip-172-31-47-139 ec2-user]# umount /dev/xvdf Volume1
```



And extend the volume2 and make it size 3 gb





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

```
[root@ip-172-31-47-139 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 /
xvdg    202:96   0   2G  0 disk /home/ec2-user/Volume2
```

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

```
[root@ip-172-31-47-139 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  472K  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
tmpfs            99M     0   99M   0% /run/user/0
/dev/xvdg       2.0G  6.0M  1.8G   1% /home/ec2-user/Volume2
```

Now resize the value by using resize2fs /dev/device_name

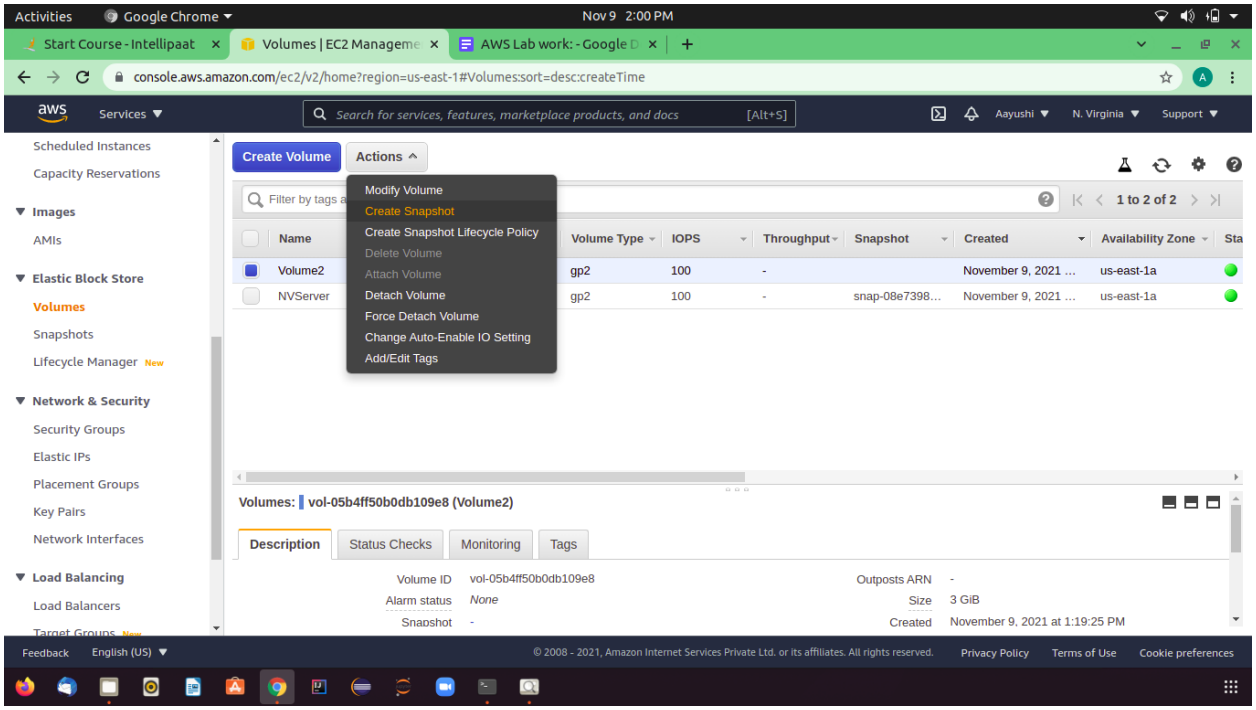
```
[root@ip-172-31-47-139 ec2-user]# resize2fs  /dev/xvdg
resize2fs 1.42.9 (28-Dec-2013)
Filesystem at /dev/xvdg is mounted on /home/ec2-user/Volume2; on-line resizin
g required
old_desc_blocks = 1, new_desc_blocks = 1
The filesystem on /dev/xvdg is now 786432 blocks long.
```

```
[root@ip-172-31-47-139 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 /
xvdg    202:96   0   3G  0 disk /home/ec2-user/Volume2
[root@ip-172-31-47-139 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  472K  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
tmpfs            99M     0   99M   0% /run/user/0
/dev/xvdg       2.9G  6.0M  2.8G   1% /home/ec2-user/Volume2
```

Create file inside Volume2

```
[root@ip-172-31-47-139 ec2-user]# cd /home/ec2-user/Volume2
[root@ip-172-31-47-139 Volume2]#
[root@ip-172-31-47-139 Volume2]#
[root@ip-172-31-47-139 Volume2]#
[root@ip-172-31-47-139 Volume2]#
[root@ip-172-31-47-139 Volume2]#
[root@ip-172-31-47-139 Volume2]# echo "HELLO" > hello.html
```

Create snapshot as backup of volume2


Activities
Google Chrome
Nov 9 2:00 PM
Start Course - Intellipaat
Volumes | EC2 Manageme
AWS Lab work: - Google D
console.aws.amazon.com/ec2/v2/home?region=us-east-1#Volumes:sort=desc:createTime
Services
Search for services, features, marketplace products, and docs [Alt+S]
Aayushi
N. Virginia
Support
Scheduled Instances
Capacity Reservations
Images
AMIs
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager New
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Load Balancing
Load Balancers
Target Groups New
Create Volume
Actions
Modify Volume
Create Snapshot
Create Snapshot Lifecycle Policy
Delete Volume
Attach Volume
Detach Volume
Force Detach Volume
Change Auto-Enable IO Setting
Add/Edit Tags
Filter by tags
1 to 2 of 2
Name
Volume Type
IOPS
Throughput
Snapshot
Created
Availability Zone
Volume2
gp2
100
-
November 9, 2021 ...
us-east-1a
NVServer
gp2
100
-
snap-08e7398...
November 9, 2021 ...
us-east-1a
Volumes: vol-05b4ff50b0db109e8 (Volume2)
Description
Status Checks
Monitoring
Tags
Volume ID
vol-05b4ff50b0db109e8
Alarm status
None
Snapshot
-
Outposts ARN
-
Size
3 GiB
Created
November 9, 2021 at 1:19:25 PM
Feedback
English (US)
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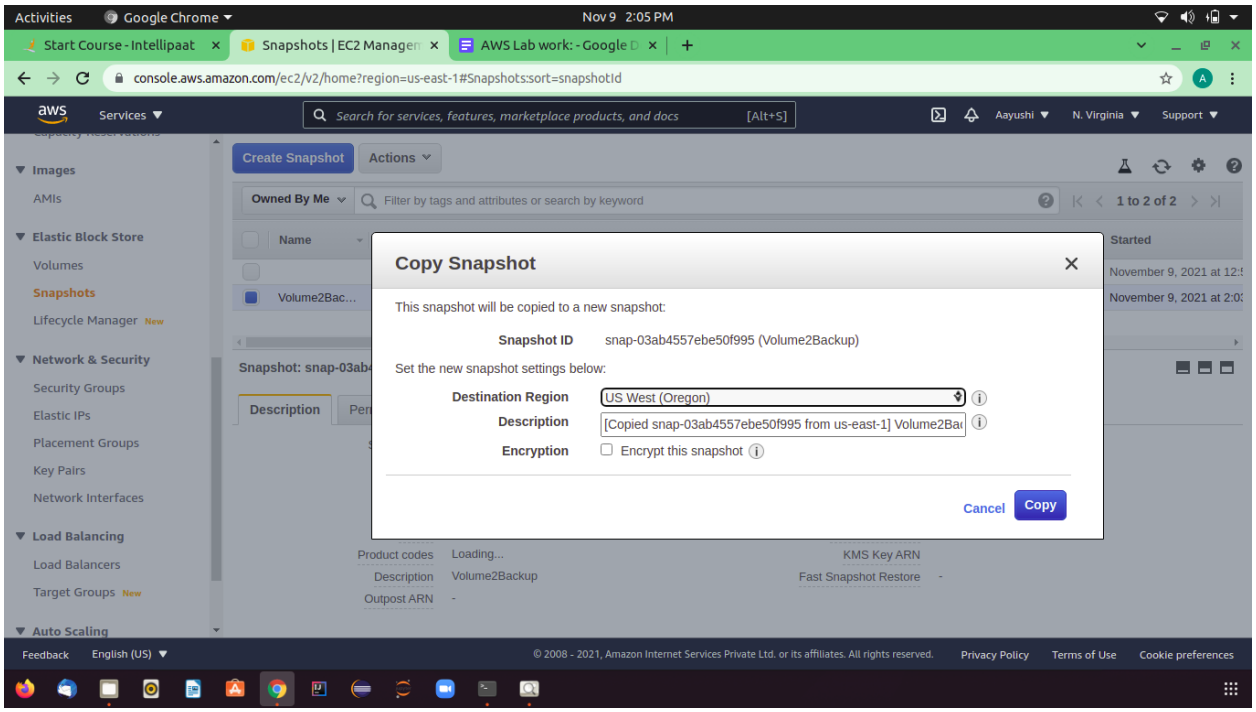
Activities
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Snapshots | EC2 Manager
AWS Lab work: - Google D
console.aws.amazon.com/ec2/v2/home?region=us-east-1#Snapshots:sort=snapshotId
Services
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Support
Images
AMIs
Elastic Block Store
Volumes
Snapshots
Lifecycle Manager New
Network & Security
Security Groups
Elastic IPs
Placement Groups
Key Pairs
Network Interfaces
Load Balancing
Load Balancers
Target Groups New
Auto Scaling
Create Snapshot
Actions
Owned By Me
Filter by tags and attributes or search by keyword
1 to 2 of 2
Name
Started
Volume2Bac...
November 9, 2021 at 12:5
November 9, 2021 at 2:0
Snapshot: snap-03ab
Description
Copy Snapshot
This snapshot will be copied to a new snapshot:
Snapshot ID
snap-03ab4557ebe50f995 (Volume2Backup)
Set the new snapshot settings below:
Destination Region
US West (Oregon)
Description
[Copied snap-03ab4557ebe50f995 from us-east-1] Volume2Bac
Encryption
Encrypt this snapshot
Cancel
Copy
Product codes
Loading...
Description
Volume2Backup
Outpost ARN
-
KMS Key ARN
Fast Snapshot Restore
-
Feedback
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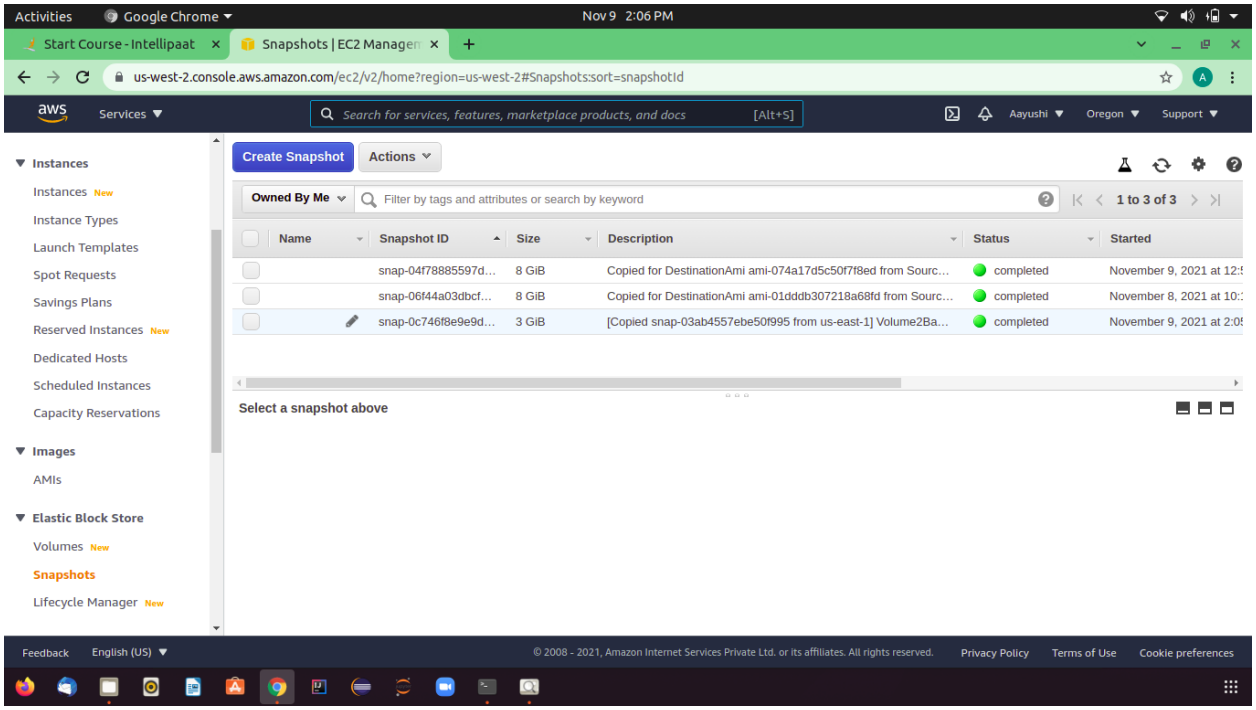
Activities
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Snapshots | EC2 Manager
us-west-2.console.aws.amazon.com/ec2/v2/home?region=us-west-2#Snapshots:sort=snapshotId
aws
Services
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Aayushi
Oregon
Support
Instances
Instances New
Instance Types
Launch Templates
Spot Requests
Savings Plans
Reserved Instances New
Dedicated Hosts
Scheduled Instances
Capacity Reservations
Images
AMIs
Elastic Block Store
Volumes New
Snapshots
Lifecycle Manager New
Create Snapshot
Actions
Owned By Me
Filter by tags and attributes or search by keyword
1 to 3 of 3
Name
Snapshot ID
Size
Description
Status
Started
snap-04f78885597d...
8 GiB
Copied for DestinationAmi ami-074a17d5c50f7f8ed from Sourc...
completed
November 9, 2021 at 12:
snap-06f44a03dbcf...
8 GiB
Copied for DestinationAmi ami-01dddb307218a68fd from Sourc...
completed
November 8, 2021 at 10:
snap-0c746f8e9e9d...
3 GiB
[Copied snap-03ab4557ebe50f995 from us-east-1] Volume2Ba...
completed
November 9, 2021 at 2:0
Select a snapshot above
Feedback
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