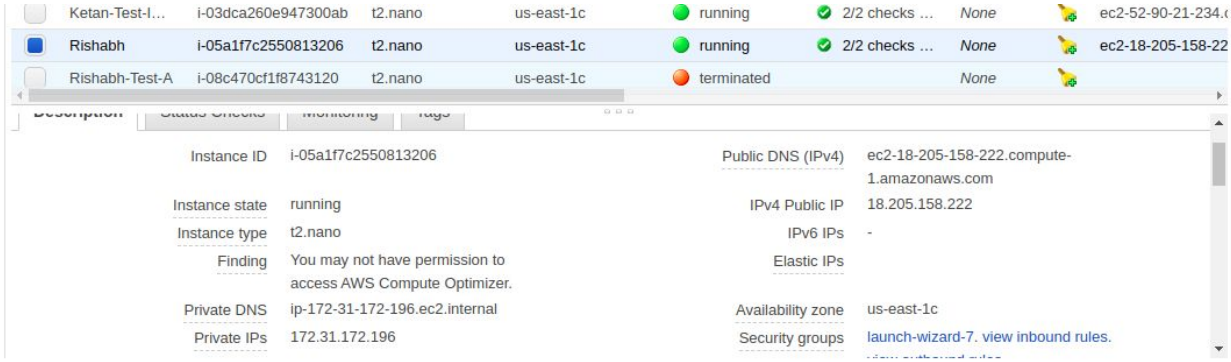
EC2 and EBS

1. Create an EC2 instance (Ubunutu 18.04, T3 nano).(instance A)

Created an EC2 instance(Rishabh)

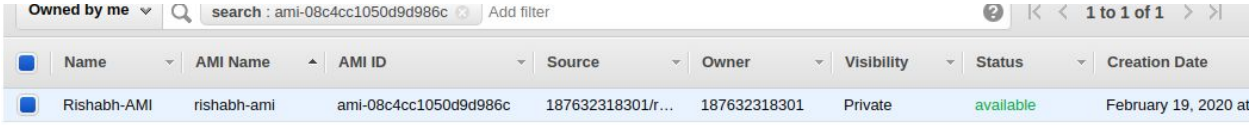


Logging in through local system

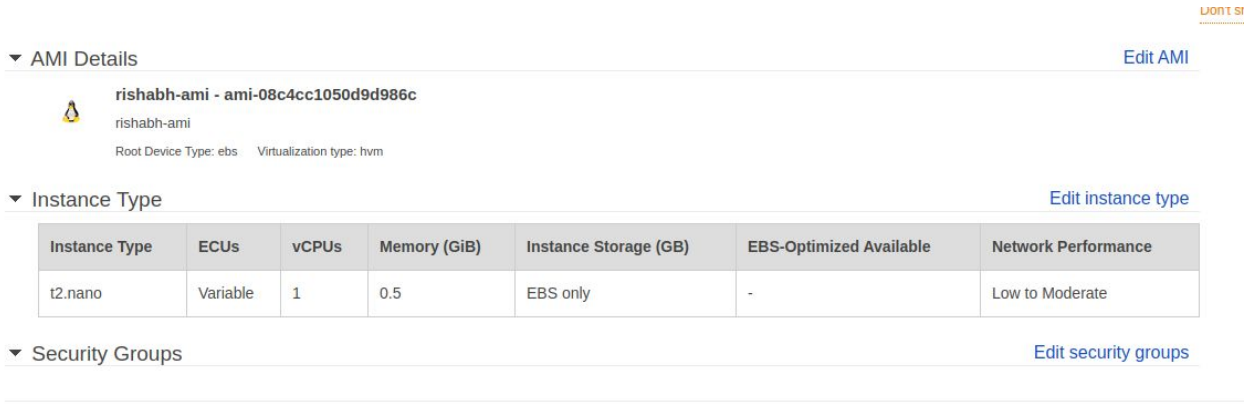
```
rishabh@rishabh:Downloads $ ssh -i "rishabh.pem" ubuntu@ec2-18-205-158-222.compute-1.amazonaws.com
The authenticity of host 'ec2-18-205-158-222.compute-1.amazonaws.com (18.205.158.222)' can't be established.
ECDSA key fingerprint is SHA256:yfF9D7snSuvy19oOC5e6D7sqVzRDZSVd2JBHwMFC59Q.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-18-205-158-222.compute-1.amazonaws.com,18.205.158.222' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

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

  System information as of Wed Feb 19 15:07:50 UTC 2020

  System load:  0.02              Processes:           88
  Usage of /:   13.6% of 7.69GB   Users logged in:     0
  Memory usage: 31%               IP address for eth0: 172.31.172.196
  Swap usage:   0%

0 packages can be updated.
0 updates are security updates.



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.
```

2. Create AMI of above instance and launch it. (instance B)

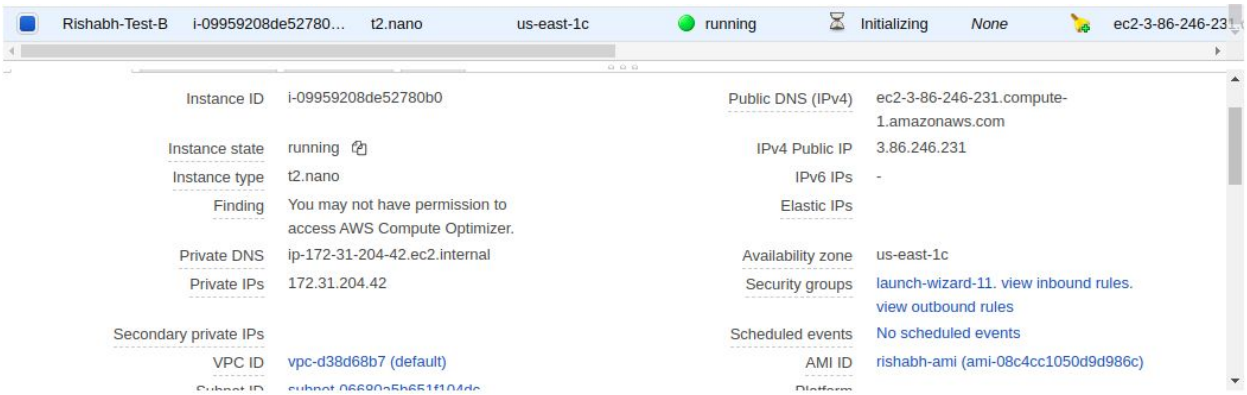
Created AMI with the name Rishabh-AMI



Review page at the time of creating instance



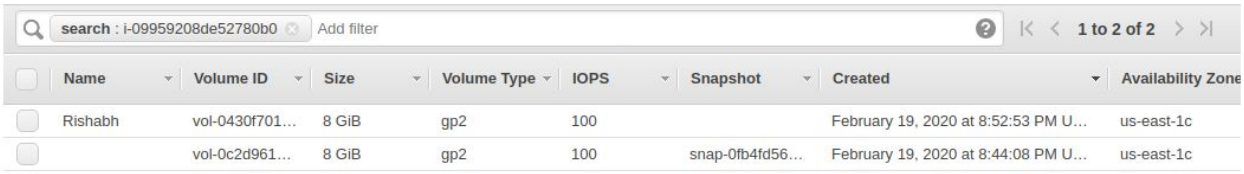
Instance created with created AMI(rishabh-ami)



3. Attach EBS (8 GB) on that running instance.

Attaching volume to Instance

EBS attached in instance. Two EBS in the same instance



4. Stop, Start, Restart that EBS (EBS must be auto-attached).

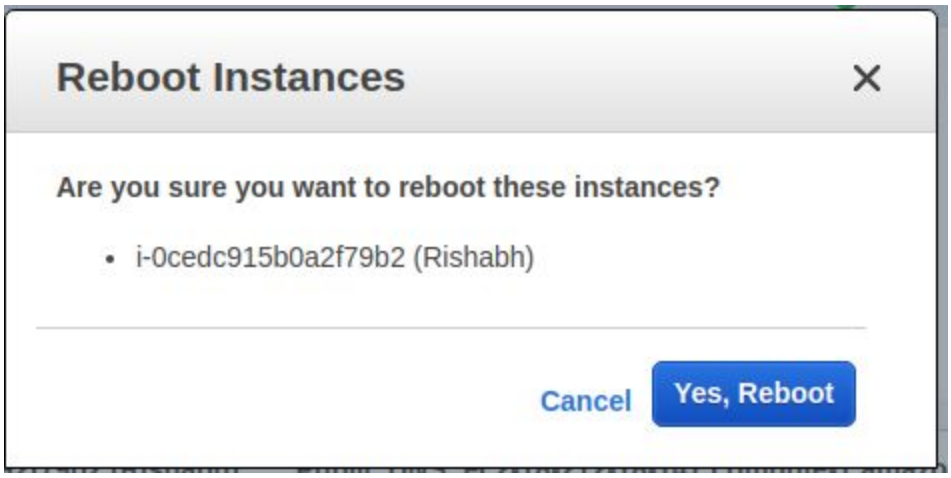
Stopped

Started

Already attached

```
Last login: Thu Feb 20 08:02:44 2020 from 182.71.160.186
ubuntu@ip-172-31-162-124:~$ lsblk
NAME    MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0     7:0    0 89.1M  1 loop /snap/core/8268
loop1     7:1    0   18M  1 loop /snap/amazon-ssm-agent/1480
xvda    202:0    0    8G  0 disk
└─xvda1 202:1    0    8G  0 part /
xvdf    202:80   0    8G  0 disk /home/rishabh/ebs
ubuntu@ip-172-31-162-124:~$
```

Rebooting



EBS auto attached with instance

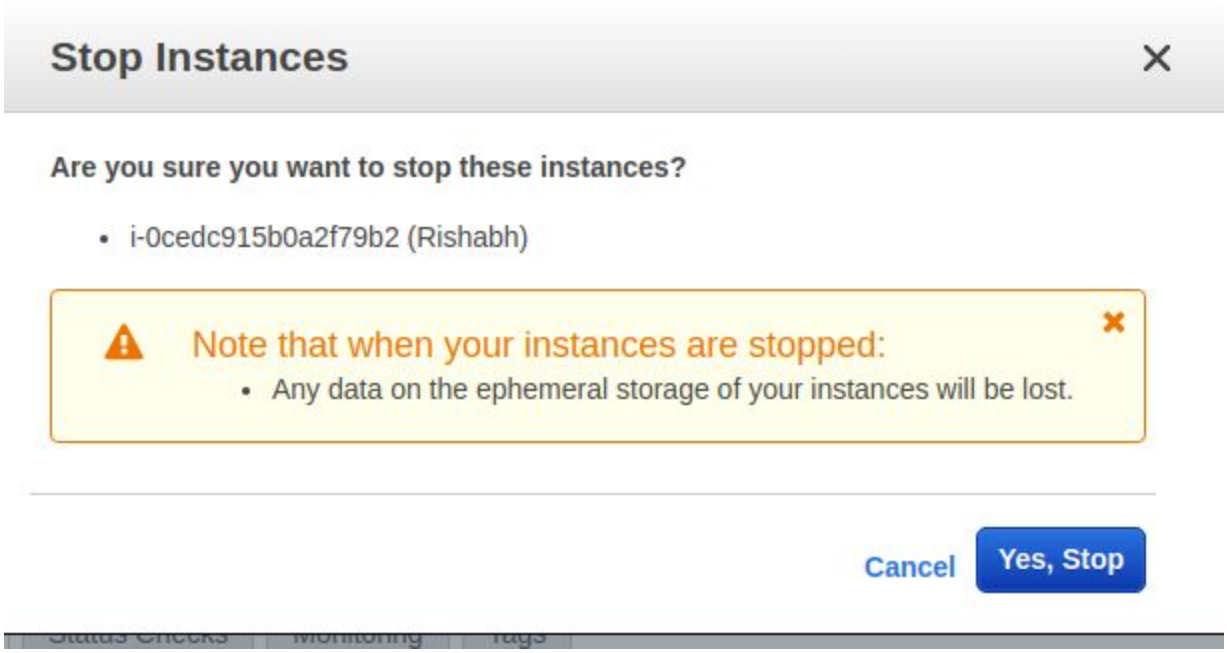
```
Last login: Thu Feb 20 08:11:34 2020 from 61.12.91.218
ubuntu@ip-172-31-162-124:~$ lsblk
NAME    MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0     7:0    0 89.1M  1 loop /snap/core/8268
loop1     7:1    0   18M  1 loop /snap/amazon-ssm-agent/1480
xvda    202:0    0    8G  0 disk
└─xvda1 202:1    0    8G  0 part /
xvdf    202:80   0    8G  0 disk /home/rishabh/ebs
ubuntu@ip-172-31-162-124:~$
```

5. Make some mistake in fstab file, stop and start the instance, then troubleshoot it.

Entered EBS in fstab file and detached the volume from instance.

```
LABEL=cloudimg-rootfs   /        ext4   defaults,discard        0 0
UUID=78913bab-9154-4b21-b15b-191830a7f24a /home/rishabh/ebs     ext4    defaults        0 0
~
~
```

Now stopping and starting the instance again



Started Again

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (I
Rishabh	i-0cedc915b0a2f79b2	t2.micro	us-east-1c	running	2/2 checks ...	None	ec2-3-94-179-1

No response on doing SSH now

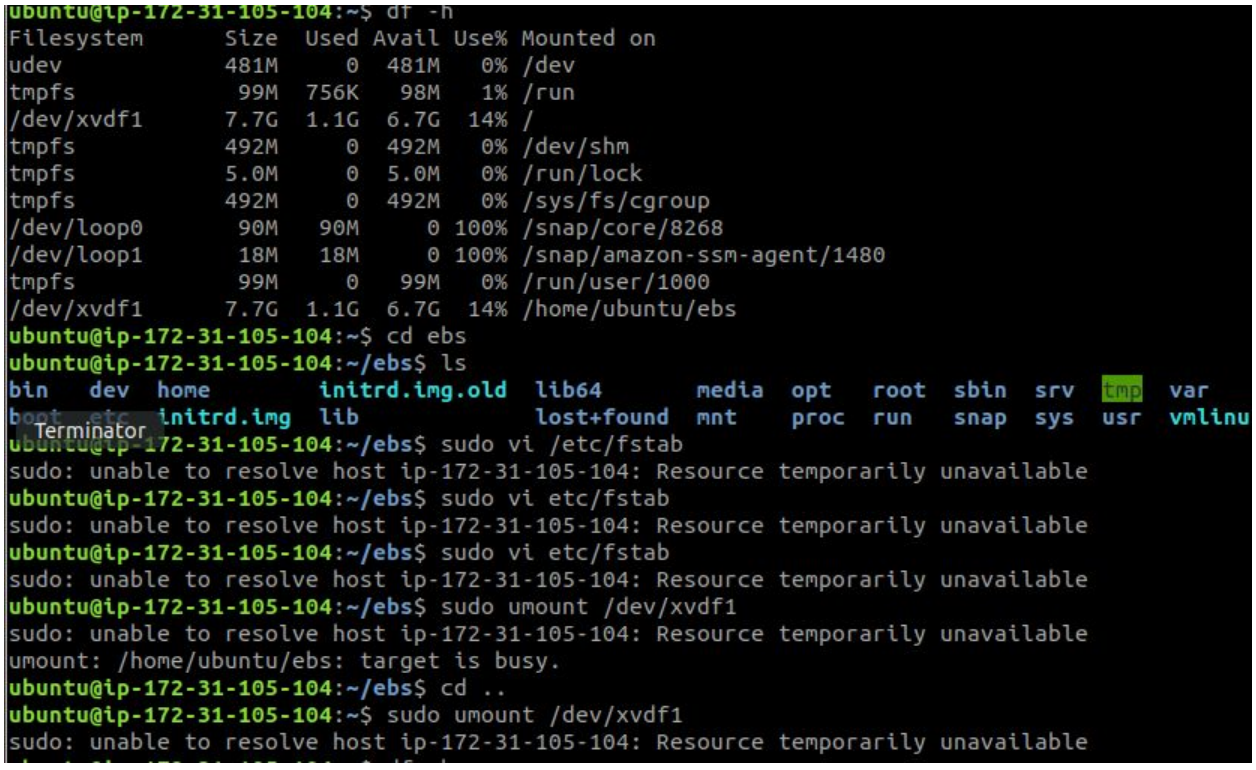
```
rishabh@rishabh:Downloads $ ssh -i "rishabh.pem" ubuntu@ec2-3-94-179-156.compute-1.amazonaws.com
```

Now detach the root /dev/sda1 from the instance A and attach it to another instanceB

Size	8 GiB
Created	February 20, 2020 at 1:22:56 PM UTC+5:30
State	in-use
Attachment information	i-0cedc915b0a2f79b2 (Rishabh):/dev/sda1 (detaching)
Volume type	gp2
Product codes	-

Size	8 GiB
Created	February 20, 2020 at 1:22:56 PM UTC+5:30
State	in-use
Attachment information	i-03f80857a0c02cf27 (Rishabh b):/dev/sdf (attached)
Volume type	gp2

Now login to instance B and mount the new attached volume to fix the /etc/fstab file



Make the changes

```
LABEL=cloudimg-rootfs   /        ext4   defaults,discard        0 0
UUID=78913bab-9154-4b21-b15b-191830a7f24a /home/rishabh/ebs     ext4    defaults        0 0
~
~
~
~
~
```

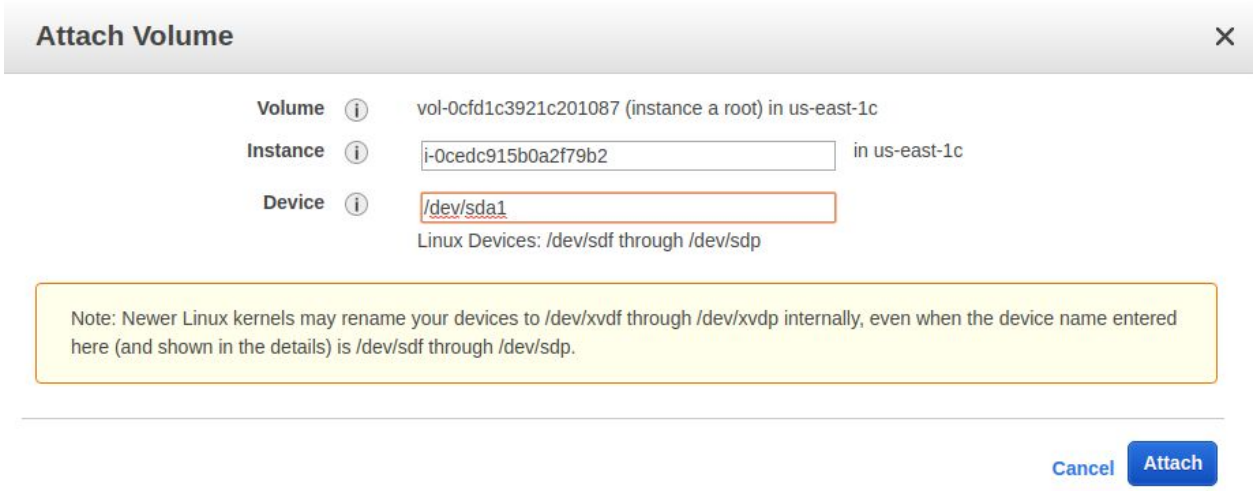
Unmount it

```
ubuntu@ip-172-31-105-104:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            481M     0  481M   0% /dev
tmpfs            99M  756K   98M   1% /run
/dev/xvdf1      7.7G  1.1G  6.7G  14% /
tmpfs           492M     0  492M   0% /dev/shm
tmpfs           5.0M     0  5.0M   0% /run/lock
tmpfs           492M     0  492M   0% /sys/fs/cgroup
/dev/loop0       90M   90M     0 100% /snap/core/8268
/dev/loop1       18M   18M     0 100% /snap/amazon-ssm-agent/1480
tmpfs            99M     0   99M   0% /run/user/1000
ubuntu@ip-172-31-105-104:~$
```

Now go back to console and detach it from instance B and attach it back to instance A

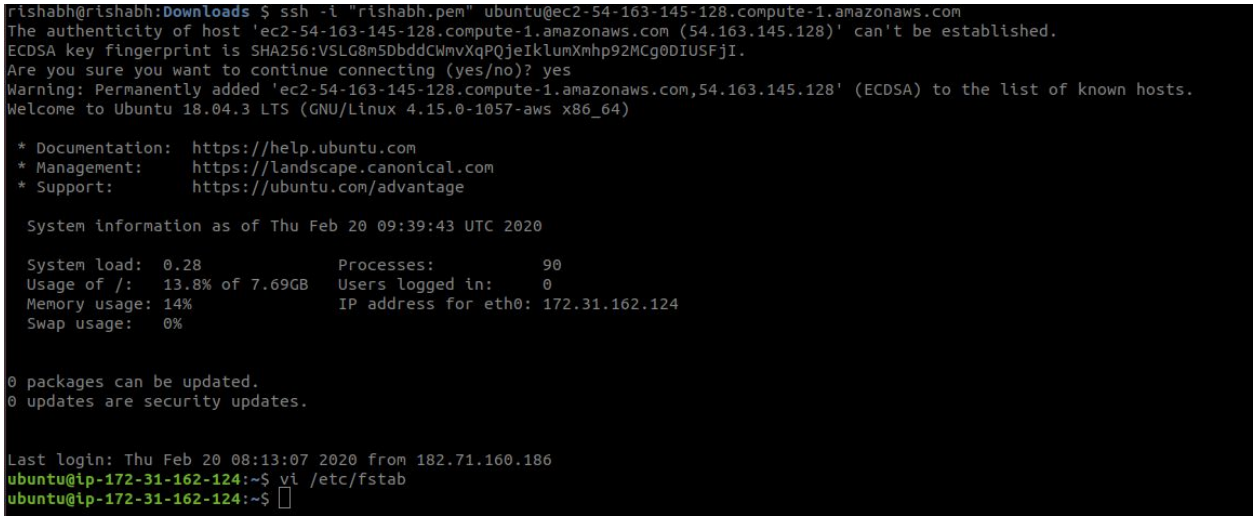
Size	8 GiB
Created	February 20, 2020 at 1:22:56 PM UTC+5:30
State	in-use
Attachment information	i-03f80857a0c02cf27 (Rishabh b):/dev/sdf (detaching)
Volume type	gp2
Product codes	-

Attach it back to Instance A

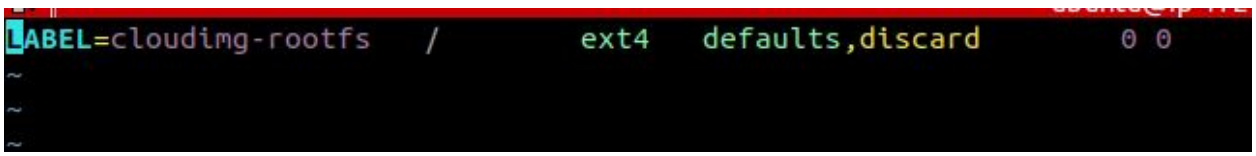


Volume attached

Now we can login back to the instance A

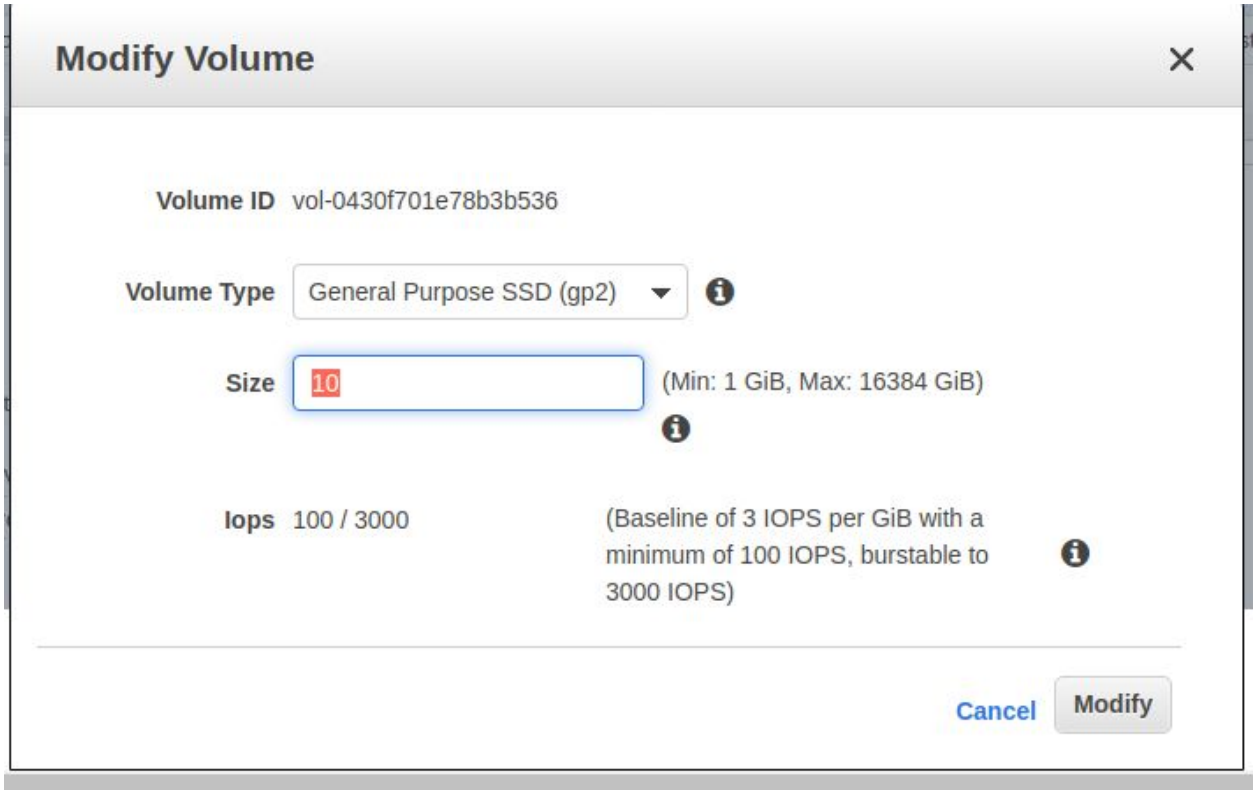


File is fixed now

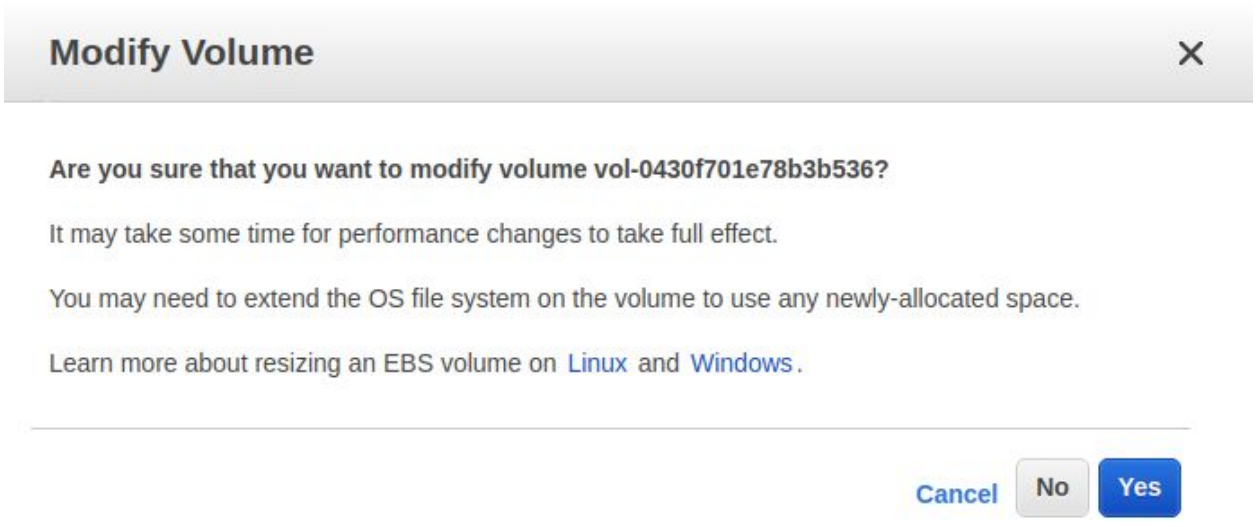


6. Resize the EBS from 8 to 10GB

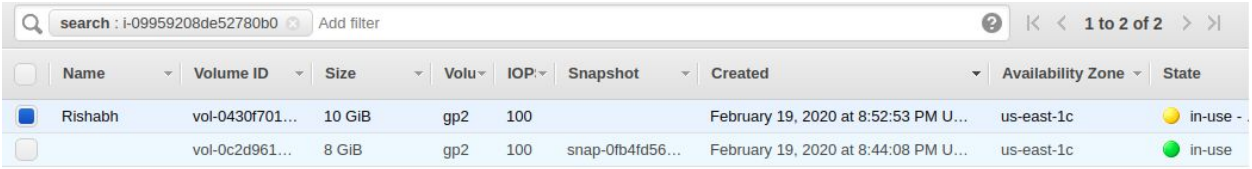
Resizing



Asking for permission



Volume Resized



7. SSH from one instance A to instance B.

First scp rishabh.pem file from local system to instance A. Login into instance A and check the file is present or not

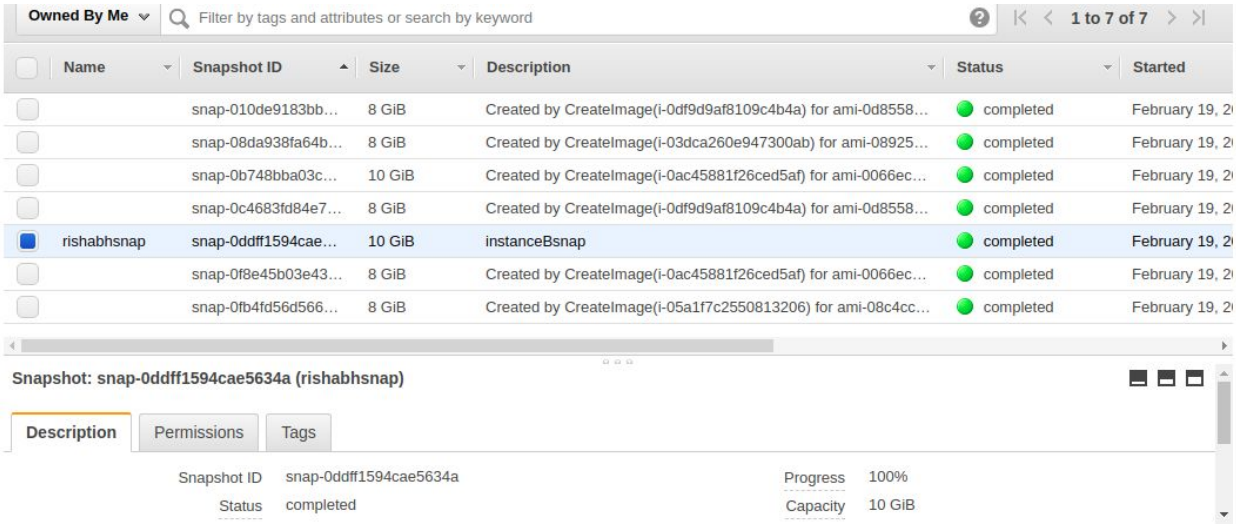
```
rishabh@rishabh:Downloads $ scp -i "rishabh.pem" rishabh.pem ubuntu@18.205.158.222:~
rishabh.pem                                                                   100% 1696     5.6KB/s   00:00
rishabh@rishabh:Downloads $ ssh -i "rishabh.pem" ubuntu@ec2-18-205-158-222.compute-1.amazonaws.com
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

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

  System information as of Wed Feb 19 15:56:14 UTC 2020

  System load:  0.0               Processes:           87
  Usage of /:   13.8% of 7.69GB   Users logged in:     0
  Memory usage: 29%               IP address for eth0: 172.31.172.196
  Swap usage:   0%


0 packages can be updated.
0 updates are security updates.


Last login: Wed Feb 19 15:52:11 2020 from 103.83.127.156
ubuntu@ip-172-31-172-196:~$ ls
rishabh.pem
ubuntu@ip-172-31-172-196:~$
```

Now ssh from instance A to instance B using the pem file.

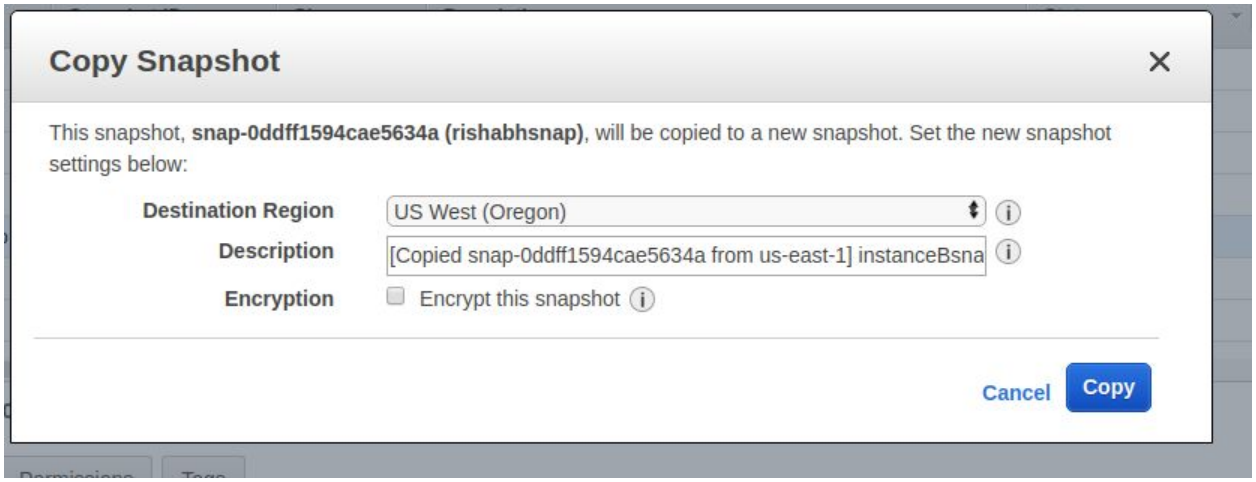
```
ubuntu@ip-172-31-172-196:~$ ssh -i "rishabh.pem" ubuntu@ec2-54-166-117-71.compute-1.amazonaws.com
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

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

  System information as of Wed Feb 19 15:57:38 UTC 2020

  System load:  0.0               Processes:           87
  Usage of /:   13.8% of 7.69GB   Users logged in:     0
  Memory usage: 29%               IP address for eth0: 172.31.204.42
  Swap usage:   0%


0 packages can be updated.
0 updates are security updates.


Last login: Wed Feb 19 15:47:14 2020 from 103.83.127.156
ubuntu@ip-172-31-204-42:~$
```

8. Copy the EBS in different region(oregon).

Created the snapshot of that EBS



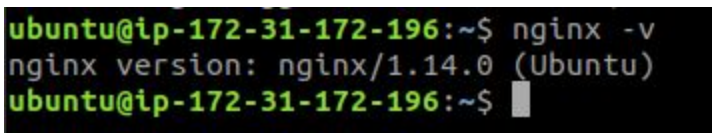
Copy the snapshot to Oregon



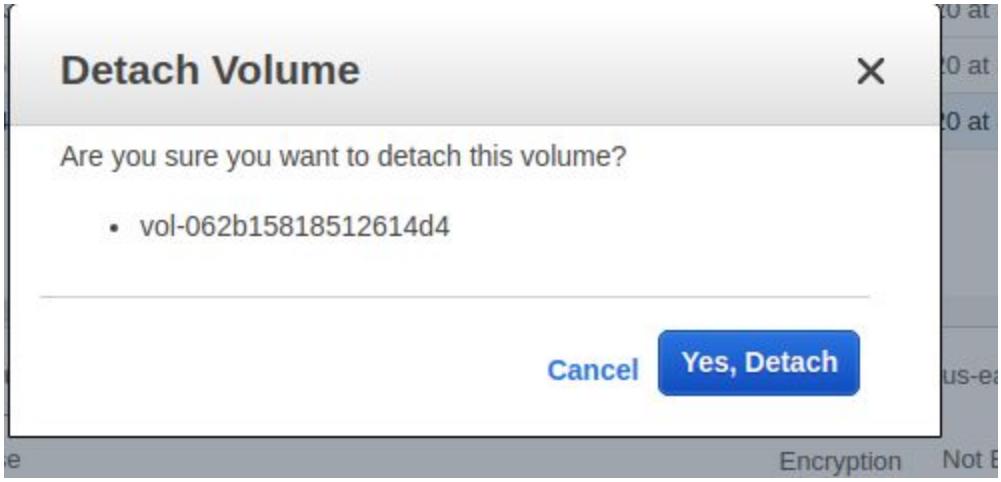
Now we can check the snapshot in Oregon region and create another copy of the volume in that region.

9. Deatach the root EBS, create its snapshot, than create the AMI and run it as instance such that nginx should be preinstalled at the boot time of instance.

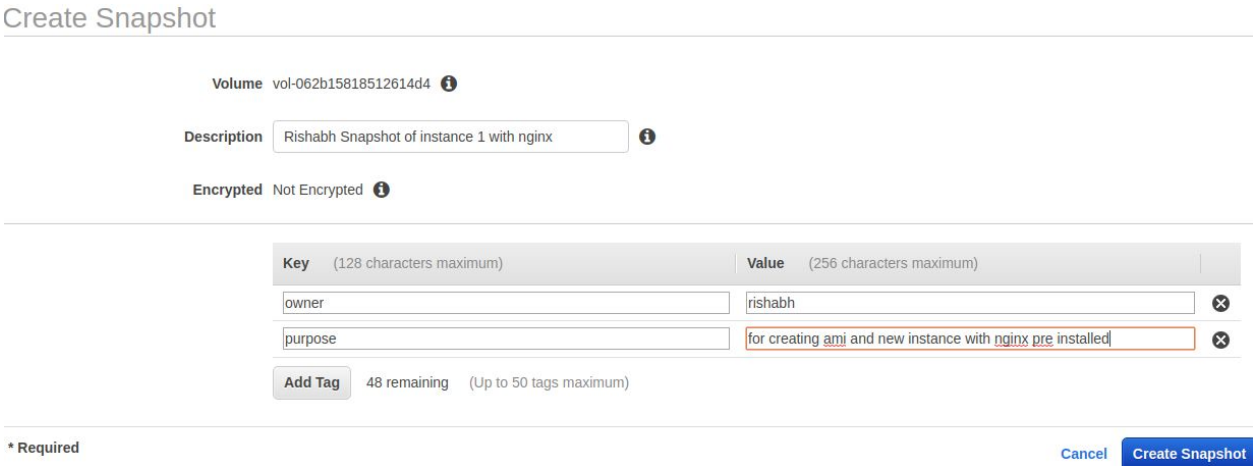
Installed nginx on one instance



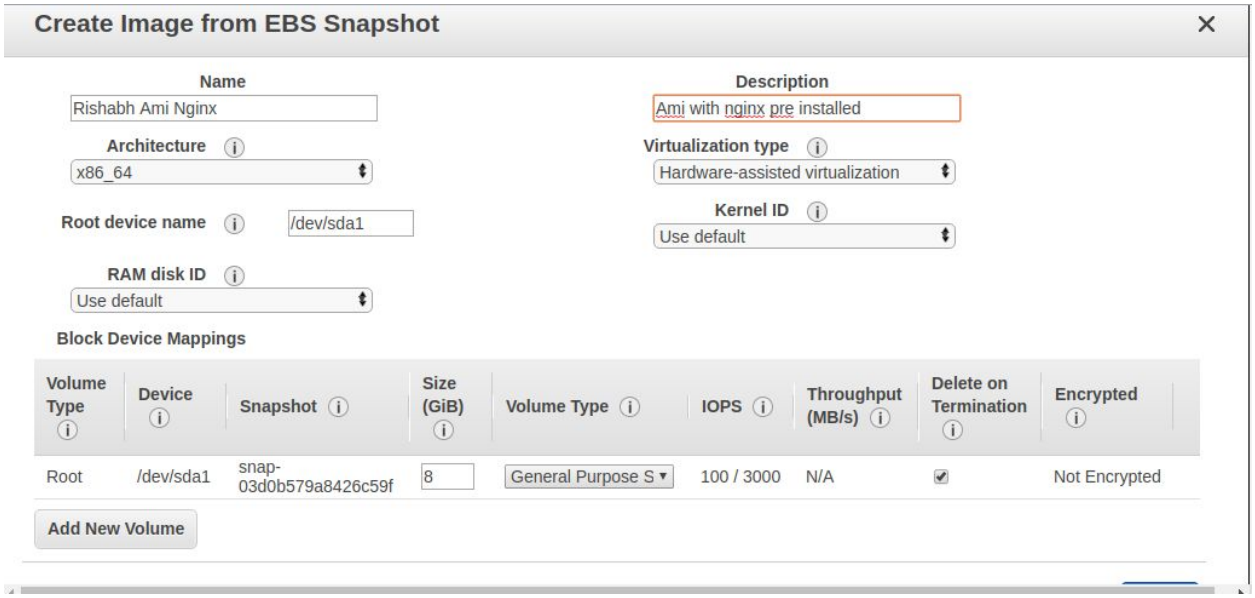
Detached volume after stopping the machine



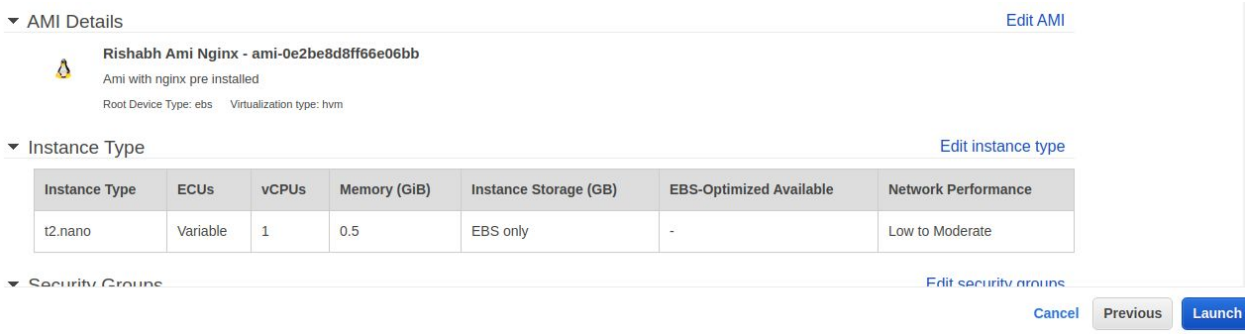
Creating the snapshot of that volume



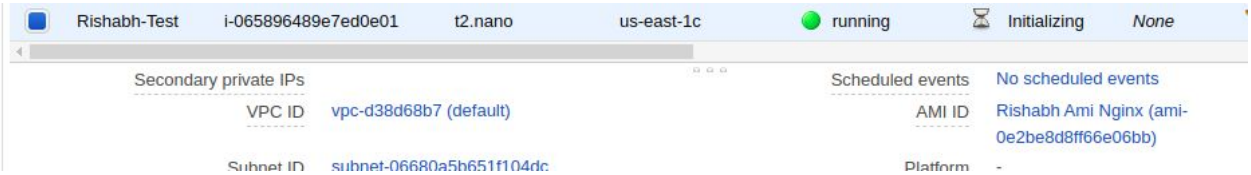
Creating image from the snapshot



Creating new instance from the AMI created



Instance created with the saved AMI



Logging in the new instance and checking the nginx version. It is pre-installed.

```
ubuntu@ip-172-31-172-196:~$ nginx -v
nginx version: nginx/1.14.0 (Ubuntu)
ubuntu@ip-172-31-172-196:~$ logout
Connection to ec2-174-129-57-162.compute-1.amazonaws.com closed.
rishabh@rishabh:Downloads $ ssh -i "rishabh.pem" ubuntu@ec2-54-173-242-107.compute-1.amazona
The authenticity of host 'ec2-54-173-242-107.compute-1.amazonaws.com (54.173.242.107)' can't
ECDSA key fingerprint is SHA256:yZZBtCqdMvcsEVuQi56bvIVN9hFUjBlm1NFP9ALIe4E.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-54-173-242-107.compute-1.amazonaws.com,54.173.242.107' (ECDS
Welcome to Ubuntu 18.04.4 LTS (GNU/Linux 4.15.0-1060-aws x86_64)

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

  System information as of Wed Feb 19 17:51:00 UTC 2020

  System load:  0.18              Processes:           93
  Usage of /:   19.9% of 7.69GB   Users logged in:     0
  Memory usage: 32%               IP address for eth0: 172.31.50.116
  Swap usage:   0%


0 packages can be updated.
0 updates are security updates.


Last login: Wed Feb 19 17:25:56 2020 from 103.83.127.158
ubuntu@ip-172-31-50-116:~$ nginx -v
nginx version: nginx/1.14.0 (Ubuntu)
ubuntu@ip-172-31-50-116:~$
```