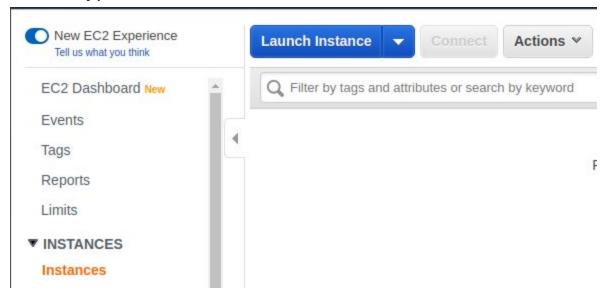
ASSESSMENT - 8

EC2 & EBS



1. Create an EC2 instance (Ubunutu 18.04, T3 micro)(instance bootcamp)



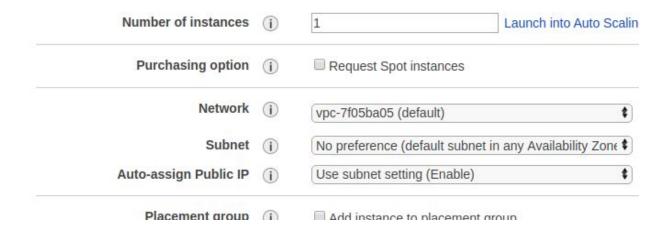
• Select ami.



Select the instance type



• Configure your instance



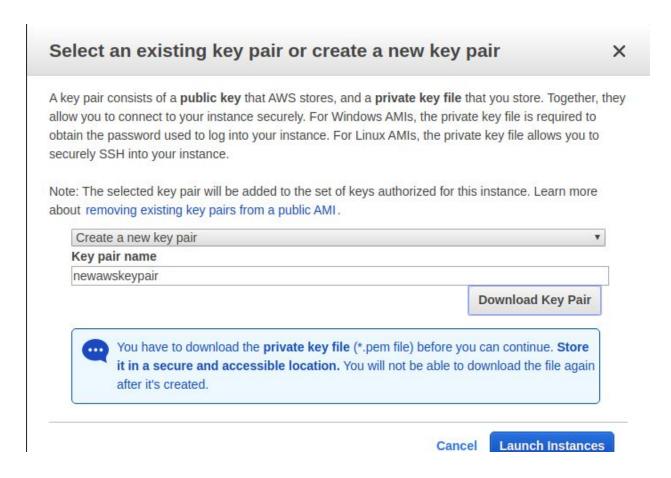
Configure storage



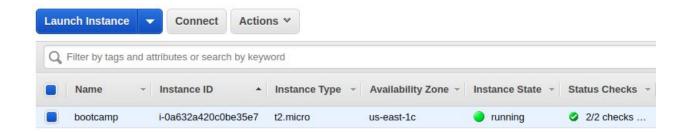
Select and configure security groups



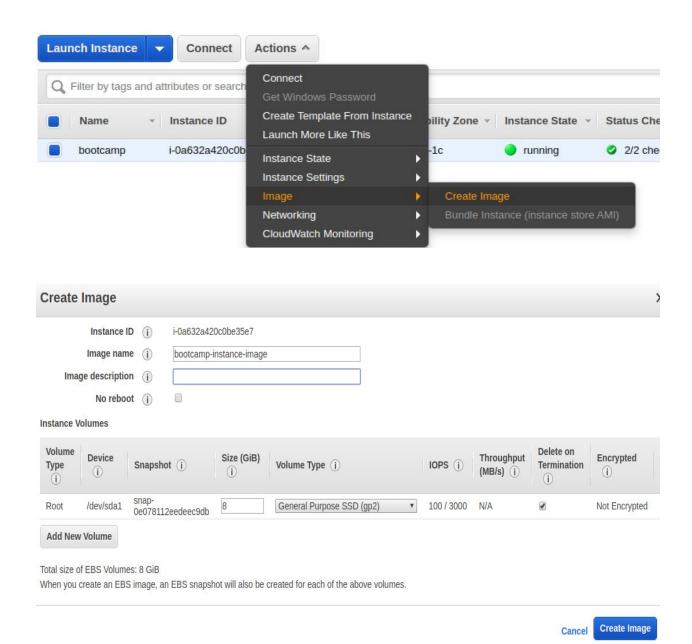
Add a key pair



Review your instance



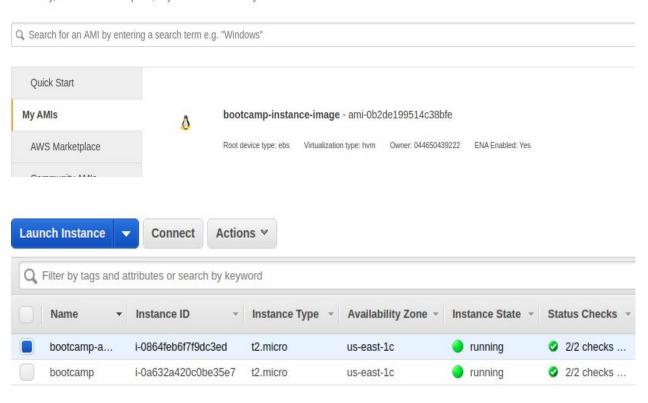
2. Create AMI of above instance and launch it. (instance bootcamp-ami-instance)





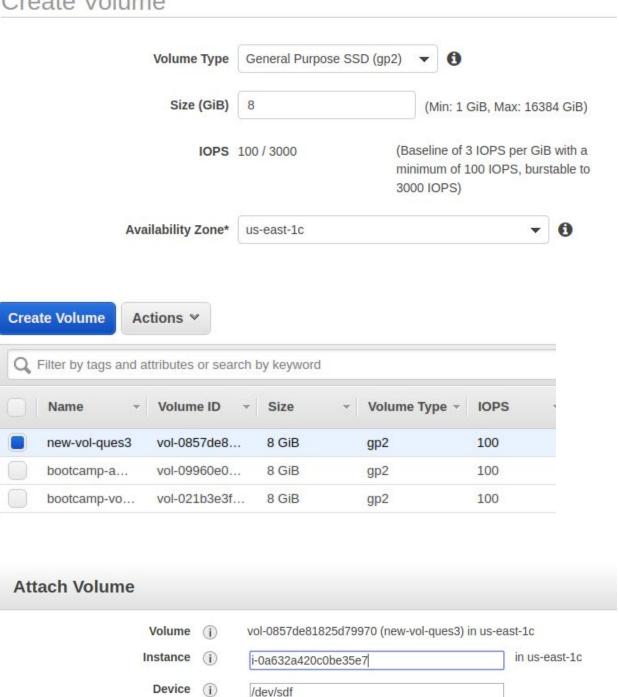
Step 1: Choose an Amazon Machine Image (AMI)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can s community, or the AWS Marketplace; or you can select one of your own AMIs.



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

Create Volume



Linux Devices: /dev/sdf through /dev/sdp



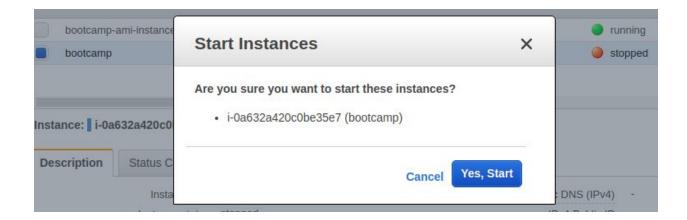
4. Stop, Start, Restart that EBS (EBS must be auto-attached).

```
garima@garima:~$ ssh -i "/home/garima/Downloads/newawskeypair.pem" ubuntu@3.84.1
94.38
The authenticity of host '3.84.194.38 (3.84.194.38)' can't be established.
ECDSA key fingerprint is SHA256:YCPHjWvr7Qn0QWNWCPTq9aUlqI+WxuPl4AD/ZGndkgo.
Are you sure you want to continue connecting (yes/no)? y
Please type 'yes' or 'no': yes
Warning: Permanently added '3.84.194.38' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)
```

```
ubuntu@ip-172-31-93-69:~$ lsblk
       MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
NAME
                   18M 1 loop /snap/amazon-ssm-agent/1480
loop0
         7:0
loop1
         7:1
               0 89.1M 1 loop /snap/core/8268
xvda
       202:0
              0
                   8G 0 disk
_xvda1 202:1
                    8G 0 part /
              0
xvdf 202:80 0
                    8G 0 disk
```

```
ubuntu@ip-172-31-93-69:~$ sudo mount /dev/xvdf /mnt/
ubuntu@ip-172-31-93-69:~$ lsblkid
Isblkid: command not found
ubuntu@ip-172-31-93-69:~$ lsblk
       MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
NAME
loop0
         7:0
              0
                   18M 1 loop /snap/amazon-ssm-agent/1480
loop1
         7:1
               0 89.1M 1 loop /snap/core/8268
                    8G 0 disk
xvda
       202:0
              0
_xvda1 202:1
              0
                    8G 0 part /
xvdf
      202:80 0 8G 0 disk /mnt
```

```
ubuntu@ip-172-31-93-69:/etc$ sudo blkid
/dev/xvda1: LABEL="cloudimg-rootfs" UUID="c03b791b-60ef-4ae1-82b5-5c9ab6b4d08f"
TYPE="ext4" PARTUUID="b32e823c-01"
/dev/loop0: TYPE="squashfs"
/dev/loop1: TYPE="squashfs"
/dev/xvdf: UUID="868ce88a-799e-4d7a-ab99-5195059bcdc9" TYPE="ext4"
ubuntu@ip-172-31-93-69:/etc$ sudo vim fstab
ubuntu@ip-172-31-93-69:/etc$ sudo cat fstab
LABEL=cloudimg-rootfs /
                                        defaults, discard
                                 ext4
UUID=868ce88a-799e-4d7a-ab99-5195059bcdc9
                                                /mnt/
                                                         ext4
                                                                defaults, discard
0 0
ubuntu@ip-172-31-93-69:/etc$
```

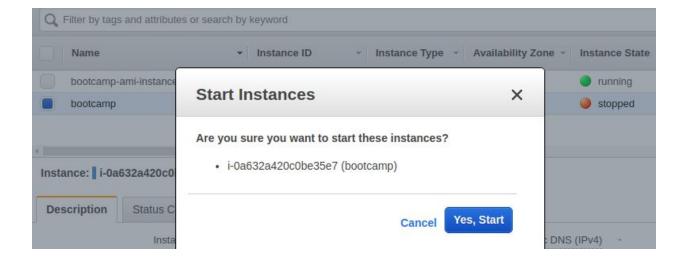


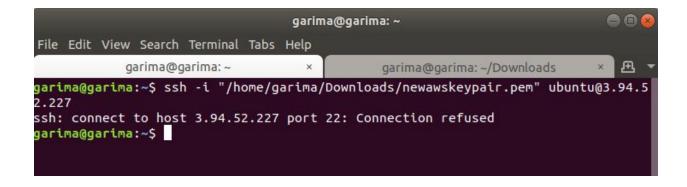
garima@garima:~\$ ssh -i "/home/garima/Downloads/newawskeypair.pem" ubuntu@54.173
.142.238
The authenticity of host '54.173.142.238 (54.173.142.238)' can't be established.
ECDSA key fingerprint is SHA256:YCPHjWvr7Qn0QWNWCPTq9aUlqI+WxuPl4AD/ZGndkgo.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '54.173.142.238' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)

```
ubuntu@ip-172-31-93-69:~$ lsblk
NAME
                    SIZE RO TYPE MOUNTPOINT
       MAJ:MIN RM
loop0
                 0 89.1M 1 loop /snap/core/8268
          7:0
loop1
          7:1
                 0
                     18M 1 loop /snap/amazon-ssm-agent/1480
loop2
          7:2
                 0 91.4M 1 loop /snap/core/8689
xvda
        202:0
                 0
                      8G
                          0 disk
_xvda1 202:1
                 0
                      8G
                          0 part /
xvdf
        202:80
                 0
                      8G 0 disk /mnt
```

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

```
ubuntu@ip-172-31-93-69:/etc$ sudo cat fstab
LABEL=cloudimg-rootfs
                                        defaults, discard
                                 ext4
                                                                 0 0
                                                                 defaults, discard
UUID=868ce88a-799e-4d7a-ab99-5195059bcdc9
                                                 /mnt/
0 0
ubuntu@ip-172-31-93-69:/etc$ sudo vim fstab
ubuntu@ip-172-31-93-69:/etc$ sudo cat fstab
LABEL=cloudimg-rootfs /
                                        defaults, discard
                                 ext4
                                                                 0 0
UUID=868ce88a-799e-4d7a-ab99-5195059bcdc9
                                                 /dev/xvdf
                                                                 ext4
                                                                         defaults
,discard
                0 0
ubuntu@ip-172-31-93-69:/etc$ exit
logout
Connection to 54.173.142.238 closed.
garima@garima:~$
```





```
garima@garima:~$ ssh -i "/home/garima/Downloads/newawskeypair.pem" ubuntu@34.239
.105.228
The authenticity of host '34.239.105.228 (34.239.105.228)' can't be established.
ECDSA key fingerprint is SHA256:6C13fLRyKER63MDiNsZCTq7GkQxCJ0i9weKb75yX9fQ.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '34.239.105.228' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)
```

Now detach the root volume from the instance 'bootcamp' and attach it to the instance 'bootcamp-ami-instance'

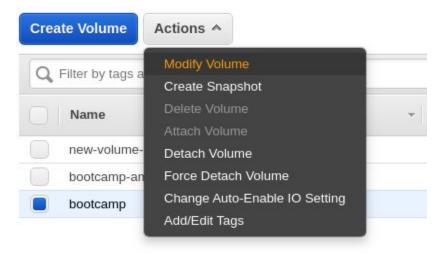
```
ubuntu@ip-172-31-86-64:~$ lsblk
       MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
NAME
                0 89.1M 1 loop /snap/core/8268
loop0
         7:0
loop1
         7:1
                0
                    18M 1 loop /snap/amazon-ssm-agent/1480
loop2
         7:2
                0 91.4M 1 loop /snap/core/8689
xvda
       202:0
               0
                     8G 0 disk
_xvda1 202:1
                     8G 0 part /
               0
xvdf
       202:80 0
                     8G 0 disk
ubuntu@ip-172-31-86-64:~$ mount -t ext4
/dev/xvda1 on / type ext4 (rw,relatime,discard,data=ordered)
ubuntu@ip-172-31-86-64:~$ sudo mkfs.ext4 /dev/xvdf
mke2fs 1.44.1 (24-Mar-2018)
/dev/xvdf contains a ext4 file system
       last mounted on Thu Feb 20 08:28:32 2020
Proceed anyway? (v.N) v
Creating filesystem with 2097152 4k blocks and 524288 inodes
Filesystem UUID: 93bc05fd-a653-4313-bd85-08c401e7007e
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
ubuntu@ip-172-31-86-64:~$ sudo mount /dev/xvdf /mnt/
ubuntu@ip-172-31-86-64:~$ lsblk
NAME
       MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
loop0
         7:0
                0 89.1M 1 loop /snap/core/8268
         7:1
                    18M 1 loop /snap/amazon-ssm-agent/1480
loop1
                0
loop2
         7:2
                0 91.4M 1 loop /snap/core/8689
                     8G 0 disk
xvda
       202:0
               0
_xvda1 202:1
               0
                     8G 0 part /
                         0 disk /mnt
xvdf
       202:80 0
                     8G
```

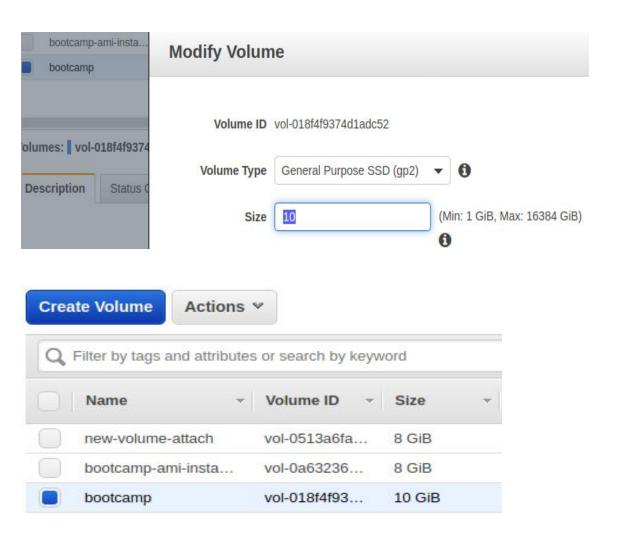
```
ubuntu@ip-172-31-82-183:/mnt/etc$ sudo vim fstab
ubuntu@ip-172-31-82-183:/mnt/etc$ sudo blkid
/dev/xvda1: LABEL="cloudimg-rootfs" UUID="c03b791b-60ef-4ae1-82b5-5c9ab6b4d08f"
TYPE="ext4" PARTUUID="b32e823c-01"
/dev/xvdf1: LABEL="cloudimg-rootfs" UUID="c03b791b-60ef-4ae1-82b5-5c9ab6b4d08f"
TYPE="ext4" PARTUUID="b32e823c-01"
/dev/loop0: TYPE="squashfs"
/dev/loop1: TYPE="squashfs"
ubuntu@ip-172-31-82-183:/mnt/etc$ sudo cat fstab
LABEL=cloudimg-rootfs / ext4
                                       defaults.discard
                                                               0 0
UUID=6f34918c-c58c-40ae-a738-82ce225a9835
                                               /mnt/ ext4
                                                               defaults, discard
0 0
ubuntu@ip-172-31-82-183:/mnt/etc$ logout
Connection to 3.82.204.110 closed.
garima@garima:~$
```

After troubleshooting again detatch and reattach the volume to instance 'bootstrap' as the root volume

```
garima@garima:~$ ssh -i "/home/garima/Downloads/newawskeypair.pem" ubuntu@3.83.1
5.206
The authenticity of host '3.83.15.206 (3.83.15.206)' can't be established.
ECDSA key fingerprint is SHA256:IFnJGhNyqnbzLM0WMAh2ohRkd7aI2fEMh6SE9Brz0+0.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '3.83.15.206' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)
```

6. Resize the EBS from 8 to 10GB

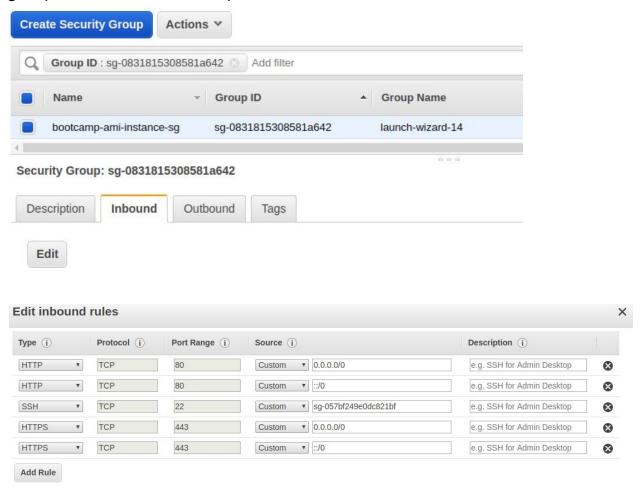




```
ubuntu@ip-172-31-87-70:~$ lsblk
NAME
                   SIZE RO TYPE MOUNTPOINT
       MAJ:MIN RM
loop0
         7:0
                0 91.4M 1 loop /snap/core/8689
loop1
                    18M 1 loop /snap/amazon-ssm-agent/1480
         7:1
                0
                0 91.3M 1 loop /snap/core/8592
loop2
         7:2
xvda
       202:0
                0
                    10G
                         0 disk
∟xvda1 202:1
                0
                    10G
                         0 part /
       202:80
                0
                     8G 0 disk /mnt
ubuntu@ip-172-31-87-70:~$ df -h /
               Size Used Avail Use% Mounted on
Filesystem
/dev/xvda1
               9.7G 1.7G 8.1G 17% /
ubuntu@ip-172-31-87-70:~$
```

7. SSH from one instance 'bootcamp' to instance 'bootcamp-ami-instance'.

Edit the inbound rules of bootcamp-ami-instance and add the security group of instance bootcamp in it's inbound rules.



```
garima@garima:~/Downloads$ scp -i "/home/garima/Downloads/newawskeypair.pem" new
awskeypair.pem ubuntu@3.83.15.206:~
newawskeypair.pem 100% 1692 2.3KB/s 00:00
garima@garima:~/Downloads$ ssh -i "/home/garima/Downloads/newawskeypair.pem" ubu
ntu@3.83.15.206
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)
```

```
ubuntu@ip-172-31-87-70:~$ ls
newawskeypair.pem
ubuntu@ip-172-31-87-70:~$ ssh -i newawskeypair.pem ubuntu@172.31.82.183
The authenticity of host '172.31.82.183 (172.31.82.183)' can't be established.
ECDSA key fingerprint is SHA256:dYHMLxE40GvAXNNGljJIHevsM+jMLSQD3oILtW8h/yI.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '172.31.82.183' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1057-aws x86_64)
```

```
Last login: Thu Feb 20 15:31:57 2020 from 182.69.242.57

ubuntu@ip-172-31-82-183:~$ logout

Connection to 172.31.82.183 closed.

ubuntu@ip-172-31-87-70:~$ logout

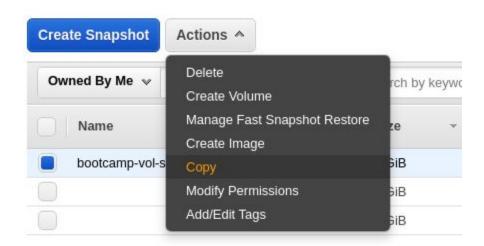
Connection to 3.83.15.206 closed.

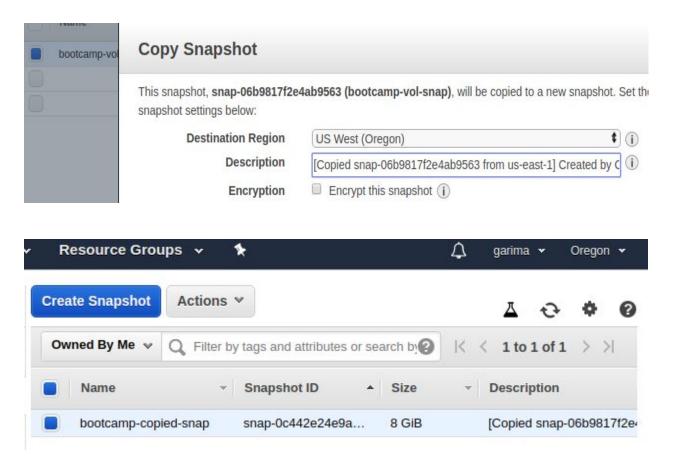
garima@garima:~/Downloads$
```

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

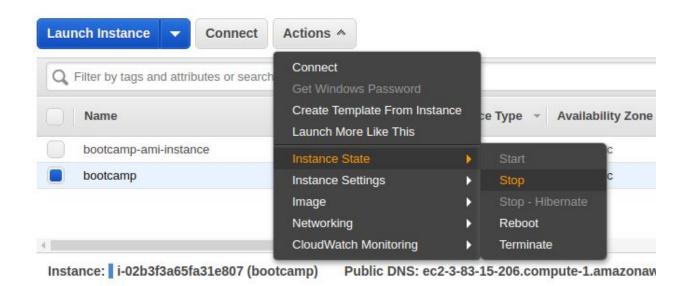
Go to the volume where your EBS snapshot resides.

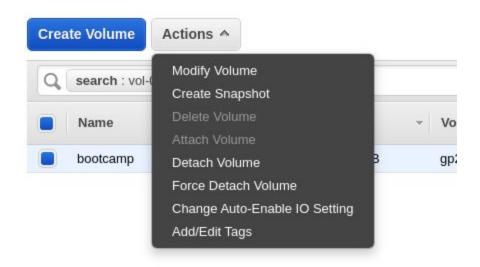
Select the EBS snapshot you want to copy to another region and then click on the Copy Snapshot button.

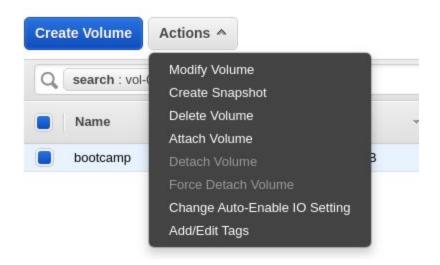




9. Detach the root EBS, create its snapshot, then create the AMI and run it as instance such that nginx should be pre installed at the boot time of instance.



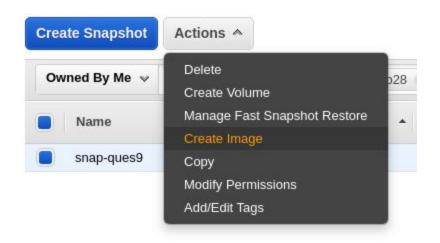




Volumes > Create Snapshot

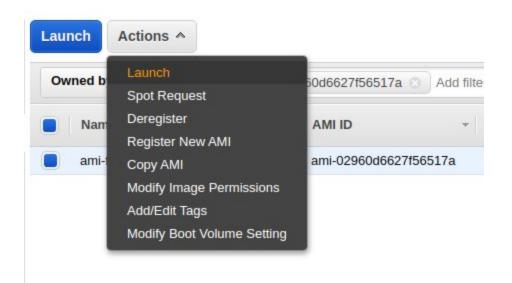
Create Snapshot

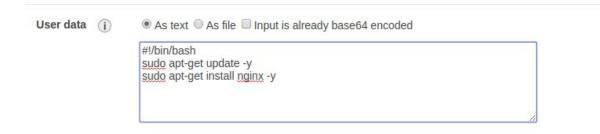


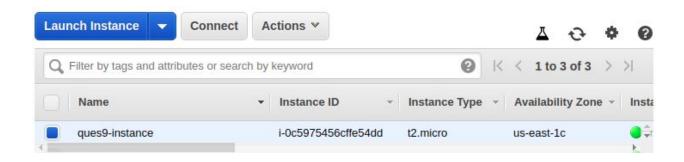


Create Image from EBS Snapshot









garima@garima:~\$ ssh -i "/home/garima/Downloads/newawskeypair.pem" ubuntu@54.211.137.166
The authenticity of host '54.211.137.166 (54.211.137.166)' can't be established.
ECDSA key fingerprint is SHA256:4pJgBUt1N6XDm+IA5szh+uk8BvxaPlOzjNQ1EnnQQkU.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '54.211.137.166' (ECDSA) to the list of known hosts.
Welcome to Ubuntu 18.04.3 LTS (GNU/Linux 4.15.0-1060-aws x86_64)

```
Last login: Fri Feb 21 07:57:05 2020 from 61.12.91.218

ubuntu@ip-172-31-92-140:~$ sudo systemctl nginx status

Unknown operation nginx.

ubuntu@ip-172-31-92-140:~$ sudo systemctl status nginx

nginx.service - A high performance web server and a reverse proxy server

Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: en

Active: active (running) since Fri 2020-02-21 08:18:24 UTC; 3min 40s ago

Docs: man:nginx(8)

Main PID: 1882 (nginx)

Tasks: 2 (limit: 1152)

CGroup: /system.slice/nginx.service

-1882 nginx: master process /usr/sbin/nginx -g daemon on; master_pro-

1883 nginx: worker process
```