

# Ec2 & EBS

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## Assessment

**TO  
THE  
NEW™**



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

| Name          | Instance ID         | Instance Type | Availability Zone | Instance State | Status Checks  | Alarm Status |
|---------------|---------------------|---------------|-------------------|----------------|----------------|--------------|
| maithelyA-ec2 | i-082d0d25e26e9ada8 | t2.micro      | us-east-1c        | running        | 2/2 checks ... | None         |

Instance: **i-082d0d25e26e9ada8 (maithelyA-ec2)** Public DNS: **ec2-52-90-196-110.compute-1.amazonaws.com**

**Description** | Status Checks | Monitoring | Tags

|                |                     |                   |   |
|----------------|---------------------|-------------------|---|
| Instance ID    | i-082d0d25e26e9ada8 | Public DNS (IPv4) | ec2-52-90-196-110.compute-1.amazonaws.com |
| Instance state | running             | IPv4 Public IP    | 52.90.196.110                             |
| Instance type  | t2.micro            | IPv6 IPs          | -   |

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

The screenshot shows the AWS Management Console interface. The 'Instances' page is active, displaying a list of instances. The instance 'maithelyA-ec2' (ID: i-082d0d25e26e9ada8) is in the 'running' state. A context menu is open over this instance, with the 'Create Image' option selected. The console also shows the 'Launch Instance' button and the 'Actions' dropdown menu. The bottom of the screen displays the file manager with various files like 'maithelykey....pem', 'sample.war', 'ADHAR.jpg', and 'unnamed (3).jpg'.

| Name          | Instance ID         | Availability Zone | Instance State | Status Checks  | Alarm Status | Public DNS (IP)                           |
|---------------|---------------------|-------------------|----------------|----------------|--------------|---|
| maithelyA-ec2 | i-082d0d25e26e9ada8 | us-east-1c        | running        | 2/2 checks ... | None         | ec2-52-90-196-110.compute-1.amazonaws.com |
| maithely-ec2  | i-0d66ab5d5         | us-east-1c        | terminated     | None           | None         |   |

## Create Image



Instance ID ⓘ i-082d0d25e26e9ada8  
Image name ⓘ maithely-imageA  
Image description ⓘ maithely-imageA  
No reboot ⓘ ☐

### Instance Volumes

| Volume Type ⓘ | Device ⓘ  | Snapshot ⓘ            | Size (GiB) ⓘ | Volume Type ⓘ             | IOPS ⓘ     | Throughput (MB/s) ⓘ | Delete on Termination ⓘ             | Encrypted ⓘ   |
|---------------|-----------|-----------------------|--------------|---------------------------|------------|---------------------|-------------------------------------|---------------|
| Root          | /dev/sda1 | snap-0e078112eedec9db | 8            | General Purpose SSD (gp2) | 100 / 3000 | N/A                 | <input checked="" type="checkbox"/> | Not Encrypted |

Add New Volume

Total size of EBS Volumes: 8 GiB

When you create an EBS image, an EBS snapshot will also be created for each of the above volumes.

Cancel Create Image

## Create Image



✓ Create Image request received.  
[View pending image ami-0283be8dad9c02efb](#)

Any snapshots backing your new EBS image can be managed on the [snapshots screen](#) after successful image creation.

Close

Owned by me search : maithely Add filter

1 to 1 of 1

| Name            | AMI Name        | AMI ID                | Source           | Owner        | Visibility | Status    | Creation |
|-----------------|-----------------|-----------------------|------------------|--------------|------------|-----------|----------|
| maithely-imageA | maithely-imageA | ami-0283be8dad9c02efb | 187632318301/... | 187632318301 | Private    | available | February |

Image: ami-0283be8dad9c02efb

Details

Permissions

Tags

Edit

|                     |  |                  |                              |
|---------------------|--|------------------|------------------------------|
| AMI ID              | ami-0283be8dad9c02efb                    | AMI Name         | maithely-imageA              |
| Owner               | 187632318301                             | Source           | 187632318301/maithely-imageA |
| Status              | available                                | State Reason     | -                            |
| Creation date       | February 20, 2020 at 1:29:32 PM UTC+5:30 | Platform         | Other Linux                  |
| Architecture        | x86_64                                   | Image Type       | machine                      |
| Virtualization type | hvm                                      | Description      | maithely-imageA              |
| Root Device Name    | /dev/sda1                                | Root Device Type | ebs                          |

|  | Name          | Instance ID          | Instance Type | Availability Zone | Instance State | Status Checks  | Alarm Status | Public DNS  |
|--|---------------|----------------------|---------------|-------------------|----------------|----------------|--------------|-------------|
|  | maithelyA-ec2 | i-082d0d25e26e9ad... | t2.micro      | us-east-1c        | running        | 2/2 checks ... | None         | ec2-52-90-1 |
|  | maithelyB-ec2 | i-09f9dee84bdc3b958  | t2.micro      | us-east-1c        | running        | 2/2 checks ... | None         | ec2-52-202- |

|                       |  |                   |   |
|-----------------------|--|-------------------|---|
| Instance state        | running  | IPv4 Public IP    | 52.202.115.25   |
| Instance type         | t2.micro   | IPv6 IPs          | -   |
| Finding               | You may not have permission to access AWS Compute Optimizer. | Elastic IPs       | -   |
| Private DNS           | ip-172-31-207-187.ec2.internal                               | Availability zone | us-east-1c  |
| Private IPs           | 172.31.207.187   | Security groups   | <a href="#">launch-wizard-50</a> , <a href="#">view inbound rules</a> , <a href="#">view outbound rules</a> |
| Secondary private IPs | -  | Scheduled events  | No scheduled events   |
| VPC ID                | vpc-d38d68b7 (default)                                       | AMI ID            | maithely-imageA (ami-0283be8dad9c02efb)   |
| Subnet ID             | subnet-06680a5b651f104dc (testpusubnet)                      | Platform          | -   |
| Network interfaces    | eth0   | IAM role          | -   |

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

#### Create Volume

|                    |  |   |
|--------------------|--|---|
| Volume Type        | General Purpose SSD (gp2)                    |   |
| Size (GiB)         | 8  | (Min: 1 GiB, Max: 16384 GiB)  |
| IOPS               | 100 / 3000                                   | (Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS) |
| Availability Zone* | us-east-1c                                   |   |
| Throughput (MB/s)  | Not applicable                               |   |
| Snapshot ID        | Select a snapshot                            |   |
| Encryption         | <input type="checkbox"/> Encrypt this volume |   |

| Key         | Value            |
|-------------|------------------|
| maithelyebs | boot-camp-assign |

## Attach Volume



### Volume

vol-01259a321e142d37b (maithelyebs) in us-east-1c

### Instance

i-082d0d25e26e9ada8

in us-east-1c

### Device

/dev/sdf

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

Note: 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

| <input checked="" type="checkbox"/> | Name        | Volume ID      | Size  | Volume Type | IOPS | Snapshot | Created               | Avail |
|-------------------------------------|-------------|----------------|-------|-------------|------|----------|-----------------------|-------|
| <input checked="" type="checkbox"/> | maithelyebs | vol-01259a3... | 8 GiB | gp2         | 100  |          | February 20, 2020 ... | us-ea |

Volumes: **vol-01259a321e142d37b (maithelyebs)**

#### Description

#### Status Checks

#### Monitoring

#### Tags

|                        |   |                      |               |
|------------------------|---|----------------------|---------------|
| Volume ID              | vol-01259a321e142d37b                                   | Alarm status         | None          |
| Size                   | 8 GiB   | Snapshot             | -             |
| Created                | February 20, 2020 at 1:57:02 PM UTC+5:30                | Availability Zone    | us-east-1c    |
| State                  | in-use  | Encryption           | Not Encrypted |
| Attachment information | i-082d0d25e26e9ada8 (maithelyA-ec2):/dev/sdf (attached) |                      |               |
| Volume type            | gp2   | KMS Key ID           |               |
| Product codes          | -   | KMS Key Aliases      |               |
| IOPS                   | 100   | KMS Key ARN          |               |
|                        |   | Multi-Attach Enabled | No            |

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



```
maithely@maithely:~/Downloads$ chmod 400 maithelykeypair.pem
maithely@maithely:~/Downloads$ ssh -i "maithelykeypair.pem" ubuntu@ec2-52-90-196-110.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 Thu Feb 20 09:42:43 UTC 2020

System load:  0.0               Processes:            86
Usage of /:   13.6% of 7.69GB   Users logged in:     0
Memory usage: 14%              IP address for eth0: 172.31.215.147
Swap usage:   0%

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

```
ubuntu@ip-172-31-215-147:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0        7:0    0   18M  1 loop /snap/amazon-ssm-agent/1480
loop1        7:1    0  89.1M  1 loop /snap/core/8268
xvda        202:0    0    8G   0 disk
└─xvda1     202:1    0    8G   0 part /
xvdf        202:80   0    8G   0 disk
```

```
ubuntu@ip-172-31-215-147:~$ sudo fdisk /dev/xvdf

Welcome to fdisk (util-linux 2.31.1).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0xf89630b3.

Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p): p
Partition number (1-4, default 1): 1
First sector (2048-16777215, default 2048):
Last sector, +sectors or +size{K,M,G,T,P} (2048-16777215, default 16777215):

Created a new partition 1 of type 'Linux' and of size 8 GiB.

Command (m for help):
```

```
ubuntu@ip-172-31-215-147:~$ sudo fdisk -l /dev/xvdf
Disk /dev/xvdf: 8 GiB, 8589934592 bytes, 16777216 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
ubuntu@ip-172-31-215-147:~$
```

```

ubuntu@ip-172-31-215-147:~$ sudo mkfs.ext4 /dev/xvdf
mke2fs 1.44.1 (24-Mar-2018)
Creating filesystem with 2097152 4k blocks and 524288 inodes
Filesystem UUID: 86b7fcd3-52f5-4925-9d92-75dd40feff5f
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-172-31-215-147:~$ mkdir partition
ubuntu@ip-172-31-215-147:~$ pwd
/home/ubuntu
ubuntu@ip-172-31-215-147:~$ l
partition/
ubuntu@ip-172-31-215-147:~$ sudo mount /dev/xvdf /home/ubuntu/partition/
ubuntu@ip-172-31-215-147:~$ mount -a
mount: only root can use "--all" option
ubuntu@ip-172-31-215-147:~$ sudo mount -a
ubuntu@ip-172-31-215-147:~$ cd partition/
ubuntu@ip-172-31-215-147:~/partition$ df -h

```

| Filesystem | Size | Used | Avail | Use% | Mounted on                  |
|------------|------|------|-------|------|-----------------------------|
| udev       | 481M | 0    | 481M  | 0%   | /dev                        |
| tmpfs      | 99M  | 748K | 98M   | 1%   | /run                        |
| /dev/xvda1 | 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 | 18M  | 18M  | 0     | 100% | /snap/amazon-ssm-agent/1480 |
| /dev/loop1 | 90M  | 90M  | 0     | 100% | /snap/core/8268             |
| tmpfs      | 99M  | 0    | 99M   | 0%   | /run/user/1000              |
| /dev/xvdf  | 7.9G | 36M  | 7.4G  | 1%   | /home/ubuntu/partition      |

```

ubuntu@ip-172-31-215-147:~/partition$

```

Sudo vim /etc/fstab

```

File Edit View Search Terminal Help
LABEL=cloudimg-rootfs / ext4 defaults,discard 0 0
/dev/xvdf /home/ubuntu/partition ext4 defaults 0 0
~
~
~

```

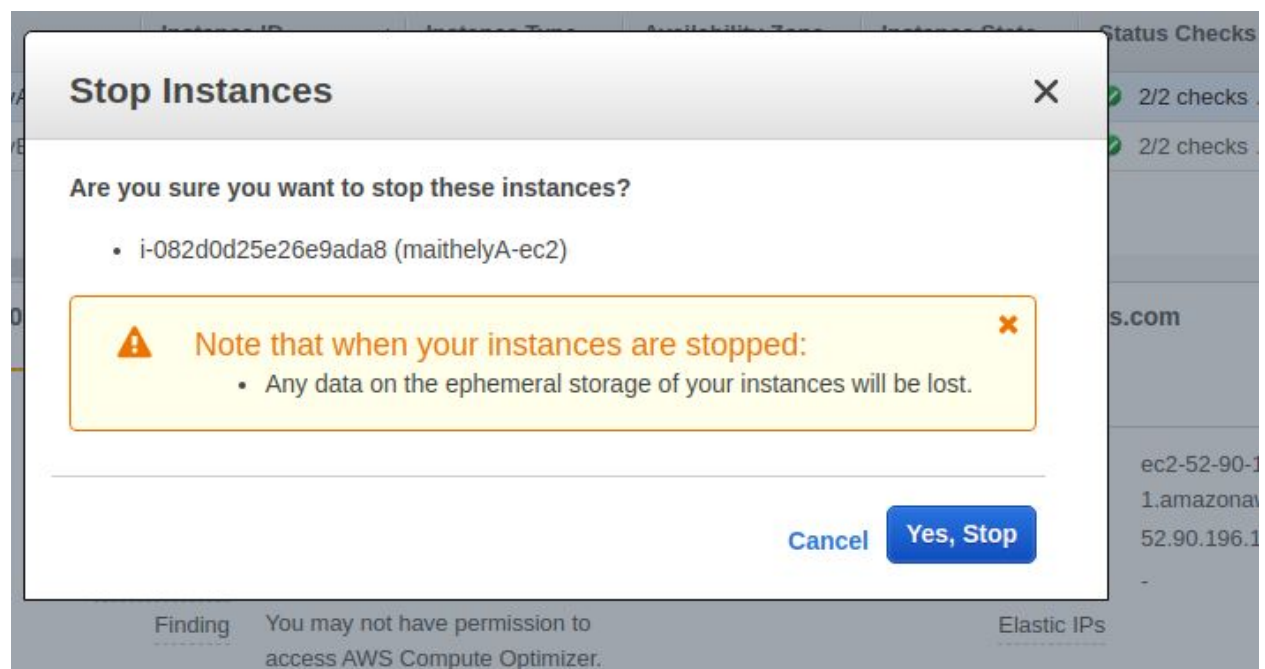


```

ubuntu@ip-172-31-215-147:~/partition$ sudo mount -a
ubuntu@ip-172-31-215-147:~/partition$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            481M   0    481M   0% /dev
tmpfs           99M   748K  98M    1% /run
/dev/xvda1      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      18M   18M    0 100% /snap/amazon-ssm-agent/1480
/dev/loop1      90M   90M    0 100% /snap/core/8268
tmpfs           99M   0    99M   0% /run/user/1000
/dev/xvdf       7.9G  36M   7.4G   1% /home/ubuntu/partition

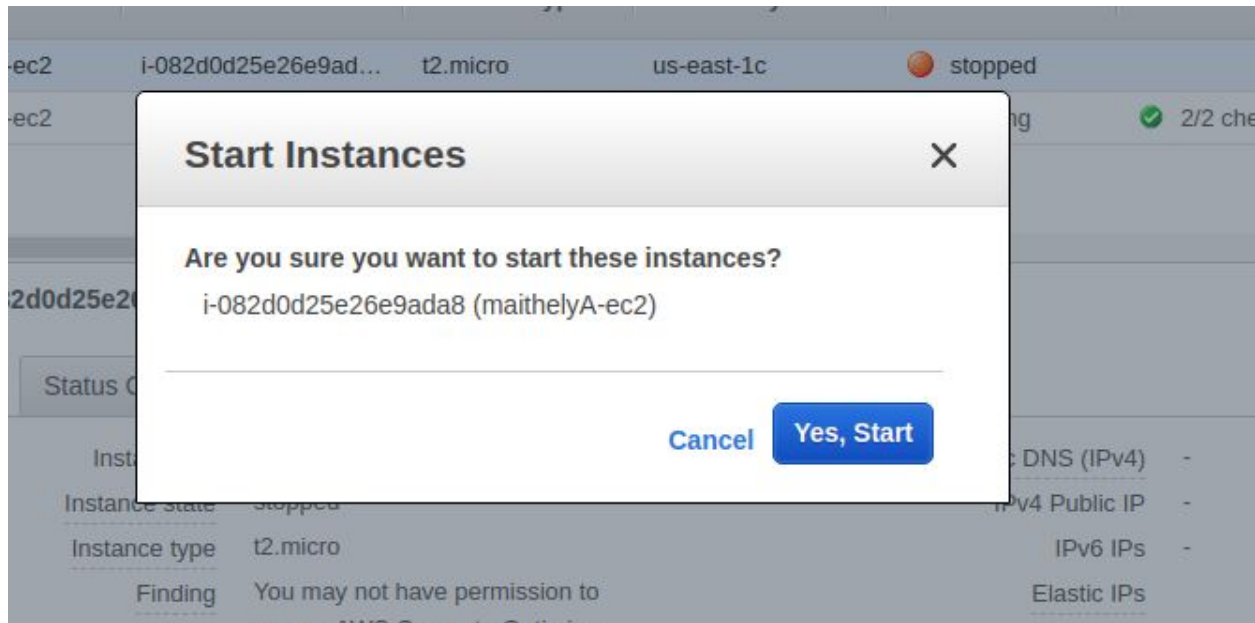
```

STOP INSTANCE:



START INSTANCE:





Ssh again:

```
maithely@maithely:~/Downloads$ ssh -i maithelykeypair.pem ubuntu@52.207.236.124
The authenticity of host '52.207.236.124 (52.207.236.124)' can't be established.
ECDSA key fingerprint is SHA256:00BUPm4Ytqk57jGC/6PypBHp7YEiIwqd9pofTJh0ZBE.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '52.207.236.124' (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 Thu Feb 20 11:54:15 UTC 2020

System load:  0.15               Processes:    93
Usage of /:   15.0% of 7.69GB    Users logged in: 0
Memory usage: 15%               IP address for eth0: 172.31.215.147
Swap usage:   0%

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

Last login: Thu Feb 20 09:42:45 2020 from 61.12.91.218
```

Now check the mounted partition again:

```

ubuntu@ip-172-31-215-147:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            481M   0    481M   0% /dev
tmpfs           99M   752K  98M    1% /run
/dev/xvda1      7.7G  1.2G  6.6G   16% /
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
/dev/xvdf       7.9G   36M   7.4G   1% /home/ubuntu/partition
/dev/loop2      92M   92M    0 100% /snap/core/8689
tmpfs           99M   0    99M   0% /run/user/1000
ubuntu@ip-172-31-215-147:~$

```

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

Make a mistake

```

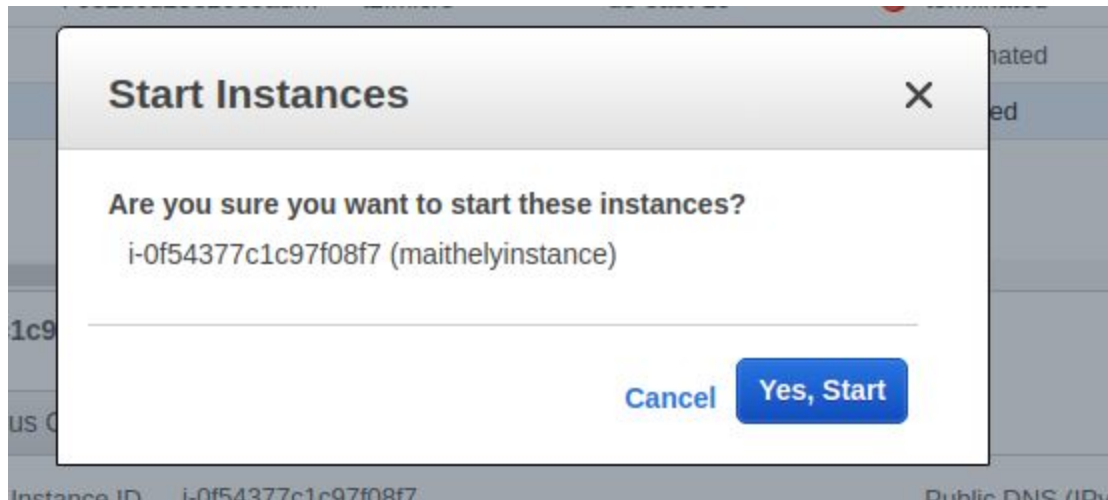
ubuntu@ip-172-31-108-44:~$ sudo vim /etc/fstab
ubuntu@ip-172-31-108-44:~$ sudo mount -a
mount: /home/ubuntu/part/byeeee: mount point does not exist.
ubuntu@ip-172-31-108-44:~$ cat /etc/fstab
LABEL=cloudimg-rootfs /          ext4  defaults,discard    0 0
/dev/xvdf/hellooo    /home/ubuntu/part/byeeee    ext4  defaults            0 0
ubuntu@ip-172-31-108-44:~$

```

Stop instance :

|                                     |                  |                      |          |            |  |
|-------------------------------------|------------------|----------------------|----------|------------|--|
| <input type="checkbox"/>            | maithelyA-ec2    | i-082d0d25e26e9ad... | t2.micro | us-east-1c | <span style="color: red;">●</span> terminated  |
| <input type="checkbox"/>            | maithelyB-ec2    | i-09f9dee84bdc3b958  | t2.micro | us-east-1c | <span style="color: red;">●</span> terminated  |
| <input checked="" type="checkbox"/> | maithelyinstance | i-0f54377c1c97f08f7  | t2.micro | us-east-1c | <span style="color: orange;">●</span> stopping |

Start instance :

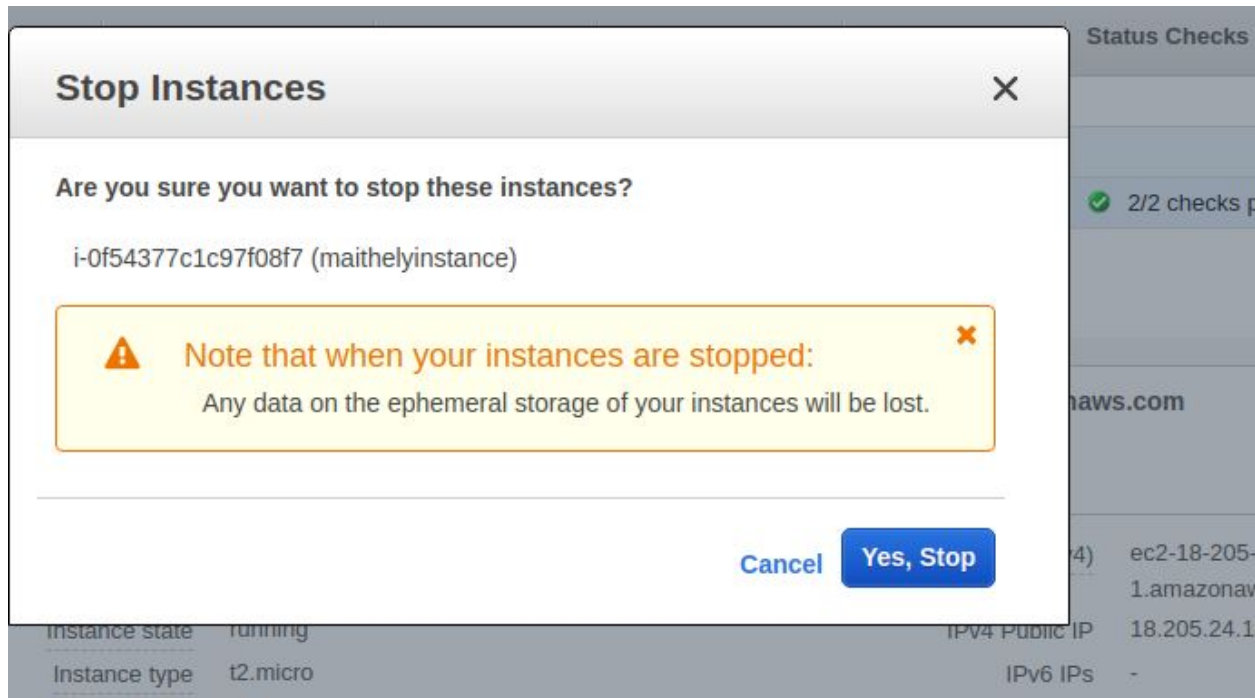


Login

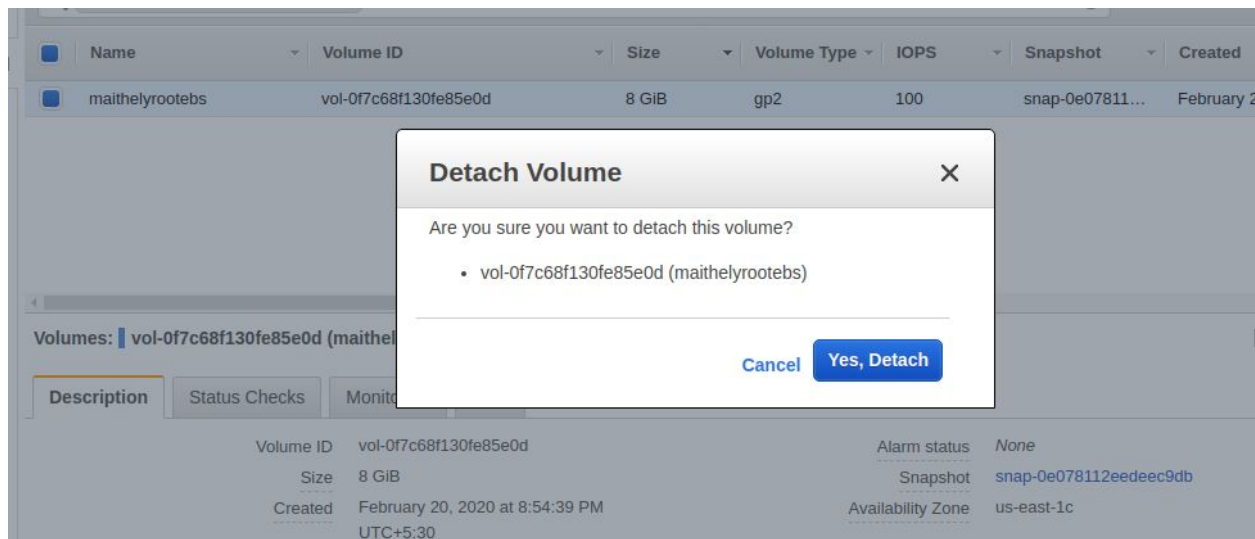
```
maithely@maithely:~/Downloads$ ssh -i maithelykeypair.pem ubuntu@18.205.24.184
ssh: connect to host 18.205.24.184 port 22: Connection timed out
maithely@maithely:~/Downloads$
```

Now you can see that connection has been refused.  
Now we have to correct the FSTAB file:

- 1) Stop the instance



2) Detach the root EBS volume from the *instance*



3) Select the *instance* EC2 instance in the AWS console and view the content in the “Description” tab in the window below the instance list and Search for the “Root device” field



|                                     | Name             | Instance ID          | Instance Type | Availability Zone |
|-------------------------------------|------------------|----------------------|---------------|-------------------|
| <input type="checkbox"/>            | maithelyA-ec2    | i-082d0d25e26e9ad... | t2.micro      | us-east-1c        |
| <input type="checkbox"/>            | maithelyB-ec2    | i-09f9dee84bdc3b958  | t2.micro      | us-east-1c        |
| <input checked="" type="checkbox"/> | maithelyinstance | i-0f54377c1c97f08f7  | t2.micro      | us-east-1c        |

System device name that contains the boot volume (e.g., /dev/sda1). Click the device name for more information about it.

EBS-

Root d

Root device

Block devices

Elastic Graphics ID

Elastic Inference accelerator ID

Capacity Reservation

Capacity Reservation Settings

Outpost Arn

- Click on the link next to it i.e:EBSID and take note of it for the following steps (maithelyvol1)

|                                     |                  |                     |          |            |            |
|-------------------------------------|------------------|---------------------|----------|------------|------------|
| <input type="checkbox"/>            | maithelyB-ec2    | i-09f9dee84bdc3b958 | t2.micro | us-east-1c | terminated |
| <input checked="" type="checkbox"/> | maithelyinstance | i-0f54377c1c97f08f7 | t2.micro | us-east-1c | stopped    |

Source/dest. check

T2/T3 Unlimited

EBS-optimized

Root device type

Root device

Block devices

Elastic Graphics ID

Elastic Inference accelerator ID

Capacity Reservation

/dev/sdf

-

-

-

pair na

Owr

aunch tir

protecti

Lifecyc

Monitori

Alarm stal

Kernel

RAM disk

Block Device /dev/sdf

EBS ID

Root device type

Attachment time

Block device status

Delete on termination

vol-0d051fbd697117344

EBS

2020-02-20T15:35:02.000Z

attached

False

vol-0d051fbd697117344

5) Now detach the above mentioned volume.

search : vol-0d051fbd697117344 Add filter

| Name         | Volume ID             | Size  | Volume Type | IOPS | Snapshot |
|--------------|-----------------------|-------|-------------|------|----------|
| maithelyvol1 | vol-0d051fbd697117344 | 8 GiB | gp2         | 100  |          |

Volumes: vol-0d051fbd697117344 (maithelyvol1)

Description

Status Checks

Monitor

Volume ID

Size

Created

State

Volume ID

Size

Created

State

Alarm status

Snapshot

Availability Zone

Encryption

Alarm status

Snapshot

Availability Zone

Encryption

Detach Volume

Are you sure you want to detach this volume?

vol-0d051fbd697117344 (maithelyvol1)

Cancel

Yes, Detach

Volume ID

Size

Created

State

Volume ID

Size

Created

State

Alarm status

Snapshot

Availability Zone

Encryption

Alarm status

Snapshot

Availability Zone

Encryption

## 6) Create a brand new micro instance

| search : i-0b506ea0f5da8ea5c Add filter ? |                  |                     |               |                   |  |               |
|---|------------------|---------------------|---------------|-------------------|--|---------------|
|   | Name             | Instance ID         | Instance Type | Availability Zone | Instance State                               | Status Checks |
| <input checked="" type="checkbox"/>       | maithelymaintain | i-0b506ea0f5da8ea5c | t2.micro      | us-east-1c        | <span style="color: green;">●</span> running | Initializing  |

## 7) Attach root volume to new instance created

| Name         | Volume ID             | Size    | Volume Type | IOPS | Snapshot | Created          |
|--------------|-----------------------|---------|-------------|------|----------|------------------|
| maithelyvol2 | vol-0c94f5541805b7c9f | 100 GiB | gp2         | 300  |          | February 20, 202 |

### Attach Volume

**Volume** ⓘ vol-0f7c68f130fe85e0d (maithelyrootbs) in us-east-1c

**Instance** ⓘ  in us-east-1c

**Device** ⓘ

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

Note: 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](#)

## 8) Ssh onto new instance created

```
maithely@maithely:~/Downloads$ ssh -i maithelykeypair.pem ubuntu@18.205.24.184
ssh: connect to host 18.205.24.184 port 22: Connection timed out
maithely@maithely:~/Downloads$ ssh -i maithelykeypair.pem ubuntu@3.82.126.212
The authenticity of host '3.82.126.212 (3.82.126.212)' can't be established.
ECDSA key fingerprint is SHA256:99q9Yeez6WhuMLHRuK3kzNNW38l5zIh0s7vLFLaRcoQ.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '3.82.126.212' (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 Thu Feb 20 16:36:37 UTC 2020

System load:  0.0               Processes:            86
Usage of /:   13.6% of 7.69GB   Users logged in:     0
Memory usage: 15%              IP address for eth0: 172.31.192.135
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.

ubuntu@ip-172-31-192-135:~$
```

- 9) Check the disk to ensure that the old root EBS volume is available and get the device name



```

ubuntu@ip-172-31-192-135:~$ sudo su
root@ip-172-31-192-135:/home/ubuntu# df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            481M     0  481M   0% /dev
tmpfs           99M    756K   98M   1% /run
/dev/xvda1      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
root@ip-172-31-192-135:/home/ubuntu# 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
└─xvdf1      202:81    0    8G   0 part

```

- 10) Create the directory that you want to mount the volume to

```

root@ip-172-31-192-135:/home/ubuntu# mkdir newpartition
root@ip-172-31-192-135:/home/ubuntu# pwd
/home/ubuntu
root@ip-172-31-192-135:/home/ubuntu# mount /dev/xvdf1 /home/ubuntu/newpartition/
root@ip-172-31-192-135:/home/ubuntu# 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
└─xvdf1      202:81    0    8G   0 part /home/ubuntu/newpartition
root@ip-172-31-192-135:/home/ubuntu# █

```

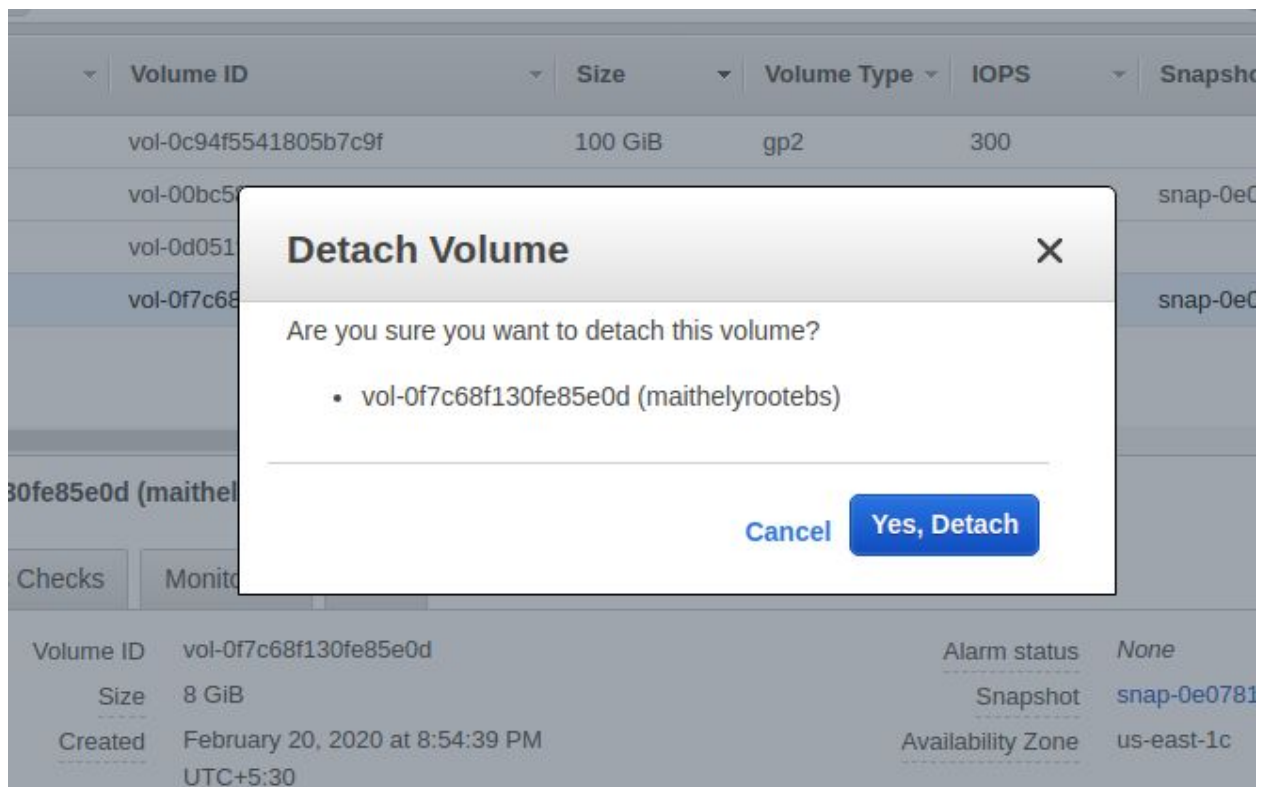
- 11) Now make changes in the fstab file to make it correct
- 12) Unmount the drive from the machine

```

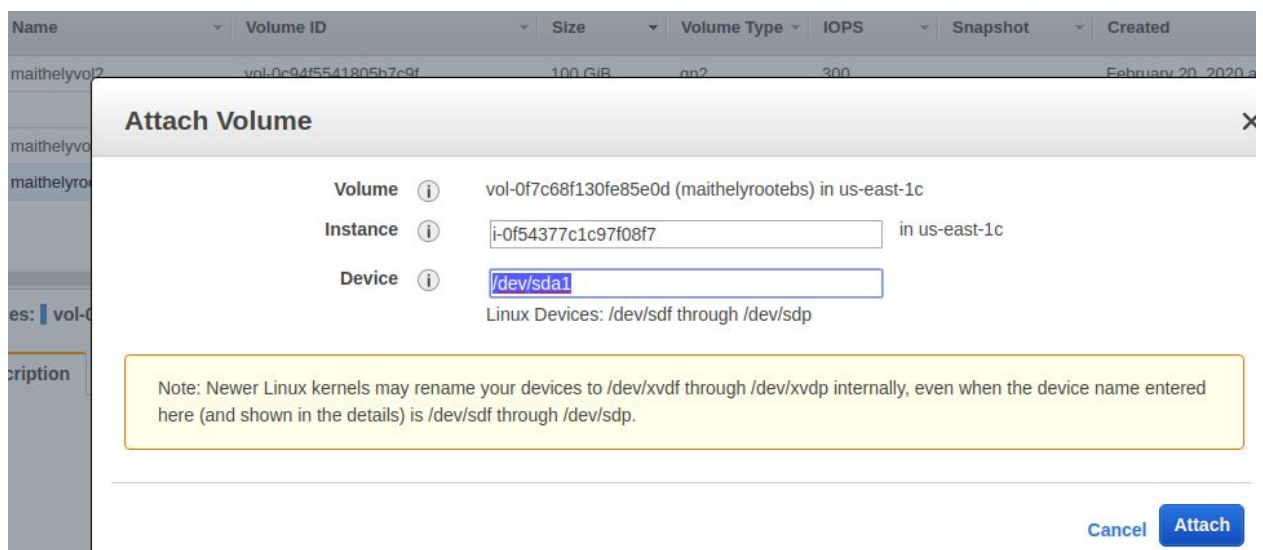
root@ip-172-31-192-135:/home/ubuntu/newpartition# cd
root@ip-172-31-192-135:~# sudo umount /home/ubuntu/newpartition/
root@ip-172-31-192-135:~# █

```

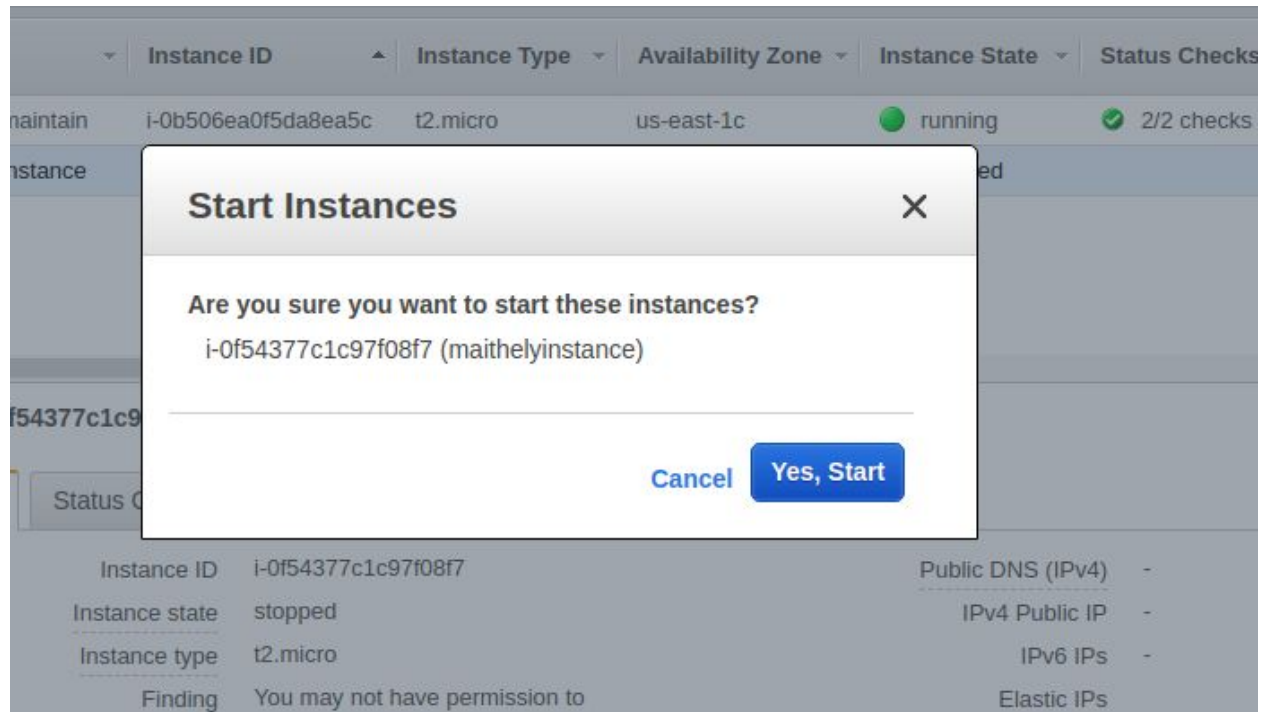
- 13) Switch back to the AWS Web Console and detach the volume from new instance created



- 14) Now reattach the volume to the older instance as root volume



- 15) Now start the older instance



16) Now ssh with the instance started

6. Resize the EBS from 8 to 10GB

| Name            | Volume ID             | Size  | Volume Type | IOPS | Snapshot        | Created         |
|-----------------|-----------------------|-------|-------------|------|-----------------|-----------------|
| maithely-vol3   | vol-00bc586f439c1ec03 | 8 GiB | gp2         | 100  | snap-0e07811... | February 20, 20 |
| maithelyvol1    | vol-0c4112134f0ehf6ba | 8 GiB | gp2         | 100  | snap-0e07811... | February 21, 20 |
| maithelyrootefs |                       |       |             |      |                 | February 20, 20 |
| maithelyvol2    |                       |       |             |      |                 | February 20, 20 |

**Modify Volume** ✕

Volume ID vol-0d051fbd697117344

Volume Type General Purpose SSD (gp2) ⓘ

Size  (Min: 1 GiB, Max: 16384 GiB) ⓘ

IOPS 100 / 3000 (Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS) ⓘ

Cancel Modify

**Modify Volume** ✕

**Are you sure that you want to modify volume vol-0d051fbd697117344?**

It may take some time for performance changes to take full effect.

You may need to extend the OS file system on the volume to use any newly-allocated space.

Learn more about resizing an EBS volume on [Linux](#) and [Windows](#).

Cancel No Yes


State available

Encryption Not Encrypted



|                       |       |     |     |                 |
|-----------------------|-------|-----|-----|-----------------|
| vol-00bc586f439c1ec03 | 8 GiB | gp2 | 100 | snap-0e07811... |
| vol-0c4112134f0e9f6ba | 8 GiB | gp2 | 100 | snap-0e07811... |

### Modify Volume

 **Modify Volume Request Succeeded**  
Your volume is now being modified.

Close

|           |                       |              |      |
|-----------|-----------------------|--------------|------|
| Volume ID | vol-0d051fbd697117344 | Alarm status | None |
| Size      | 8 GiB                 | Snapshot     | -    |

|           |                       |      |       |             |     |      |     |          |                 |         |                            |
|-----------|-----------------------|------|-------|-------------|-----|------|-----|----------|-----------------|---------|----------------------------|
| Volume ID | vol-00bc586f439c1ec03 | Size | 8 GiB | Volume type | gp2 | IOPS | 100 | Snapshot | snap-0e07811... | Created | February 20, 2020 at 9:... |
|-----------|-----------------------|------|-------|-------------|-----|------|-----|----------|-----------------|---------|----------------------------|

### Attach Volume

**Volume** ⓘ vol-0d051fbd697117344 (maithelyvol1) in us-east-1c

**Instance** ⓘ  in us-east-1c

**Device** ⓘ   
Linux Devices: /dev/sdf through /dev/sdp

Note: 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

```

maithely@maithely:~/Downloads$ ssh -i "maithelykeypair.pem" ubuntu@ec2-3-84-49-131.compute-1.amazonaws.com
The authenticity of host 'ec2-3-84-49-131.compute-1.amazonaws.com (3.84.49.131)' can't be established.
ECDSA key fingerprint is SHA256:mKEKPYqhSF/6/mOPY/1wAELLwxqJ/y+MVV2wgy1/Lf4.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-3-84-49-131.compute-1.amazonaws.com' (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 Fri Feb 21 06:09:43 UTC 2020

System load:  0.0           Processes:      87
Usage of /:   15.0% of 7.69GB Users logged in: 0
Memory usage: 15%          IP address for eth0: 172.31.113.165
Swap usage:   0%

 * Multipass 1.0 is out! Get Ubuntu VMs on demand on your Linux, Windows or
   Mac. Supports cloud-init for fast, local, cloud devops simulation.

   https://multipass.run/

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

Last login: Thu Feb 20 19:07:33 2020 from 103.195.202.156
ubuntu@ip-172-31-113-165:~$

```

```

ubuntu@ip-172-31-113-165:~$ 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
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   10G   0 disk

```

When there is root volume and we have made a partition.

0e08a094bfda1238c

8 GiB

gp2

100

snap-0e07811...

Detach Volume

×

Are you sure you want to detach this volume?

- vol-0e08a094bfda1238c (maithely-volA)

Cancel

Yes, Detach

vol-0e08a094bfda1238c

8 GiB

February 21, 2020 at 12:23:58 AM UTC+5:30

in-use

Alarm status

Snapshot

Availability Zone

Encryption

None

snap-0e078112eede

us-east-1c

Not Encrypted

Modify Volume

×

Volume ID

vol-0e08a094bfda1238c

Volume Type

General Purpose SSD (gp2)

ⓘ

Size

10

(Min: 1 GiB, Max: 16384 GiB)

ⓘ

iopts

100 / 3000

(Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS)

ⓘ

Cancel

Modify

Modify Volume

×

Are you sure that you want to modify volume vol-0e08a094bfda1238c?

It may take some time for performance changes to take full effect.

You may need to extend the OS file system on the volume to use any newly-allocated space.

Learn more about resizing an EBS volume on [Linux](#) and [Windows](#).

Cancel

No

Yes

State

in-use

Encryption

Not Encrypted

Modify Volume

×

✔

Modify Volume Request Succeeded

Your volume is now being modified.

Close

Volume ID

vol-0e08a094bfda1238c

Alarm status

None

Size

8 GiB

Snapshot

[snap-0e078112eede9db](#)

Created

February 21, 2020 at 12:23:58 AM

Availability Zone

us-east-1c



```
maithely@maithely:~/Downloads$ ssh -i "maithelykeypair.pem" ubuntu@ec2-3-84-49-131.compute-1.amazonaws.com
The authenticity of host 'ec2-3-84-49-131.compute-1.amazonaws.com (3.84.49.131)' can't be established.
ECDSA key fingerprint is SHA256:mKEKPYqhsF/6/mOPY/1wAELLwxqJ/y+MVV2wgy1/Lf4.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-3-84-49-131.compute-1.amazonaws.com' (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 Fri Feb 21 06:09:43 UTC 2020
```

```
System load:  0.0           Processes:      87
Usage of /:   15.0% of 7.69GB Users logged in: 0
Memory usage: 15%          IP address for eth0: 172.31.113.165
Swap usage:   0%
```

```
* Multipass 1.0 is out! Get Ubuntu VMs on demand on your Linux, Windows or
  Mac. Supports cloud-init for fast, local, cloud devops simulation.
```

```
https://multipass.run/
```

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

```
Last login: Thu Feb 20 19:07:33 2020 from 103.195.202.156
```

```
ubuntu@ip-172-31-113-165:~$ 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
loop2        7:2      0  91.4M  1 loop /snap/core/8689
xvda         202:0     0   10G   0 disk
└─xvda1      202:1     0    8G   0 part /
xvdf         202:80    0   10G   0 disk
ubuntu@ip-172-31-113-165:~$
```

Now we are extending the partition

```
CHANGED: partition=1 start=2048 old: size=16775135 end=16777183 new: size=20969439,end=20971487
ubuntu@ip-172-31-113-165:~$ 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
loop2        7:2      0  91.4M  1 loop /snap/core/8689
xvda         202:0     0   10G   0 disk
└─xvda1      202:1     0   10G   0 part /
xvdf         202:80    0   10G   0 disk
```

7. SSH from one instance A to instance B.  
Create instance 1

|                                     |                   |                     |          |            |
|-------------------------------------|-------------------|---------------------|----------|------------|
| <input type="checkbox"/>            | maithely-b        | i-03d6f15d17d76fec  | t2.micro | us-east-1c |
| <input type="checkbox"/>            |                   | i-096a13e50f0e98f60 | t2.micro | us-east-1c |
| <input checked="" type="checkbox"/> | maithelyinstance1 | i-0a3585c77c33c1387 | t2.micro | us-east-1c |
| <input type="checkbox"/>            | maithelymaintain  | i-0b506ea0f5da8ea5c | t2.micro | us-east-1c |
| <input type="checkbox"/>            | maithelyinstance  | i-0f54377c1c97f08f7 | t2.micro | us-east-1c |

Now scp and ssh at instance1

```
maithely@maithely:~/Downloads$ scp -i maithelykeypair.pem maithelykeypair.pem ubuntu@52.91.106.94:
maithelykeypair.pem 100% 1692 6.7KB/s 00:00
maithely@maithely:~/Downloads$ ssh -i "maithelykeypair.pem" ubuntu@ec2-52-91-106-94.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 Fri Feb 21 09:27:21 UTC 2020

System load:  0.0          Processes:      87
Usage of /:   13.8% of 7.69GB   Users logged in: 0
Memory usage: 15%          IP address for eth0: 172.31.114.200
Swap usage:   0%

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

Last login: Fri Feb 21 09:24:58 2020 from 182.71.160.186
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-114-200:~$ ls
maithelykeypair.pem
ubuntu@ip-172-31-114-200:~$
```

Now ssh from instance 1 to ip:2 and see that IP has changed

```

ubuntu@ip-172-31-114-200:~$ ssh -i maithelykeypair.pem ubuntu@54.162.81.0
The authenticity of host '54.162.81.0 (54.162.81.0)' can't be established.
ECDSA key fingerprint is SHA256:QpAaDVnTHYUm5vz+0v4YgE/lay1k7mrpWVdN5HfK38.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '54.162.81.0' (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 Fri Feb 21 09:29:21 UTC 2020

System load:  0.0                       Processes:            86
Usage of /:   13.6% of 7.69GB           Users logged in:     0
Memory usage: 15%                      IP address for eth0: 172.31.149.209
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.

ubuntu@ip-172-31-149-209:~$

```

---

```

ubuntu@ip-172-31-149-209:~$ exit
logout
Connection to 54.162.81.0 closed.
ubuntu@ip-172-31-114-200:~$ exit
logout
Connection to ec2-52-91-106-94.compute-1.amazonaws.com closed.
maithely@maithely:~/Downloads$

```

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

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

The screenshot displays two sequential dialog boxes from the AWS Management Console. The first dialog, titled "Stop Instances", asks for confirmation to stop the instance "i-0a3585c77c33c1387 (maithelyinstance1)". It includes a warning that data on ephemeral storage will be lost. The second dialog, titled "Detach Volume", asks for confirmation to detach the volume "vol-07c84a4403817de82 (maithelyinstance1)".

**Stop Instances**

Are you sure you want to stop these instances?

i-0a3585c77c33c1387 (maithelyinstance1)

**Note that when your instances are stopped:**  
Any data on the ephemeral storage of your instances will be lost.

Cancel Yes, Stop

**Detach Volume**

Are you sure you want to detach this volume?

- vol-07c84a4403817de82 (maithelyinstance1)

Cancel Yes, Detach

Showing data for: Last



## Create Snapshot

Volume vol-07c84a4403817de82 ⓘ

Description snapshot of instance 1 ⓘ

Encrypted Not Encrypted ⓘ

| Key  | Value           |
|------|-----------------|
| Name | maithelysnap1 ✕ |

Add Tag 49 remaining (Up to 50 tags maximum)

\* Required

Cancel Create Snapshot

## Create Snapshot

✓ Create Snapshot Request Succeeded

snap-00be9a369ce75d23a

Manage Fast Snapshot Restore Close

Create Image from EBS Snapshot

✕

Name

maithelyimage1

Description

image created for maithelysnap1

Architecture ⓘ

x86\_64 ⌵

Virtualization type ⓘ

Hardware-assisted virtualization ⌵

Root device name ⓘ

/dev/sda1

Kernel ID ⓘ

Use default ⌵

RAM disk ID ⓘ

Use default ⌵

Block Device Mappings

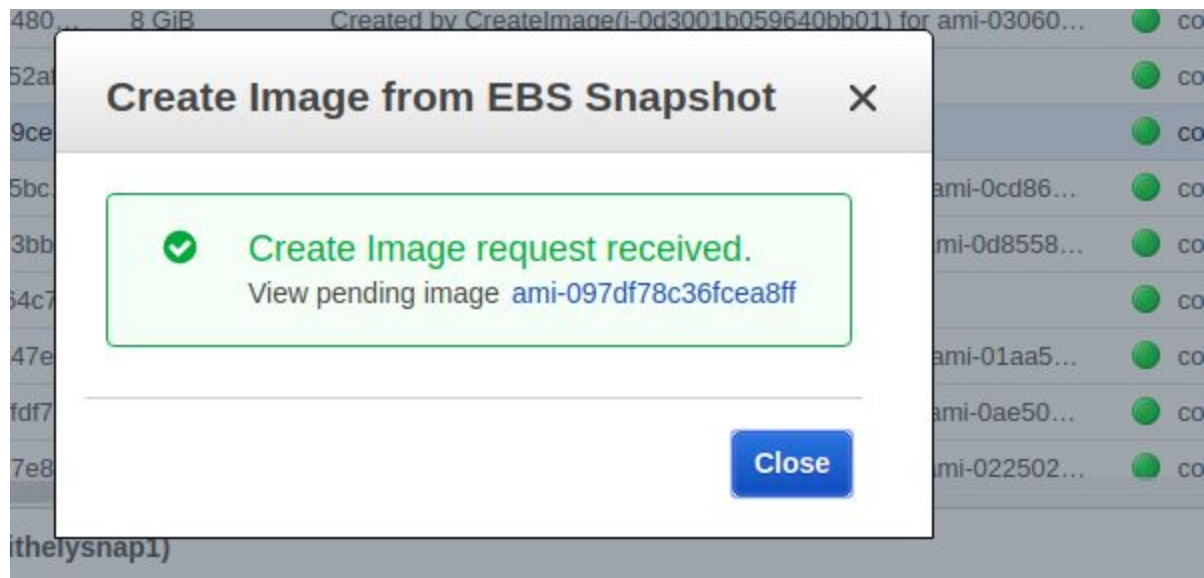
| Volume Type ⓘ | Device ⓘ  | Snapshot ⓘ             | Size (GiB) ⓘ | Volume Type ⓘ     | IOPS ⓘ     | Throughput (MB/s) ⓘ | Delete on Termination ⓘ             | Encrypted ⓘ   |
|---------------|-----------|------------------------|--------------|-------------------|------------|---------------------|-------------------------------------|---------------|
| Root          | /dev/sda1 | snap-00be9a369ce75d23a | 8            | General Purpose S | 100 / 3000 | N/A                 | <input checked="" type="checkbox"/> | Not Encrypted |

Add New Volume

Cancel

Create





Create an instance from image created

**Launch** Actions ▾

Owned by me ▾  Add filter

| <input type="checkbox"/>            | Name            | AMI Name        | AMI ID                | Source           |
|-------------------------------------|-----------------|-----------------|-----------------------|------------------|
| <input type="checkbox"/>            | maithely-imageA | maithely-imageA | ami-0283be8dad9c02efb | 187632318301/... |
| <input checked="" type="checkbox"/> | maithelyimage1  | maithelyimage1  | ami-097df78c36fcea8ff | 187632318301/... |

Image: ami-097df78c36fcea8ff

DetailsPermissionsTags

AMI ID

ami-097df78c36fcea8ff

Owner

187632318301

Status

available

Creation date

February 21, 2020 at 3:38:27 PM UTC+5:30

Architecture

x86\_64

Virtualization type

hvm

## Step 3: Configure Instance Details

File systems ⓘ

Add file system

Create new file system

### Network interfaces ⓘ

| Device | Network Interface       | Subnet            | Primary IP  | Secondary IP addresses |
|--------|-------------------------|-------------------|-------------|------------------------|
| eth0   | New network interface ▾ | subnet-06680a5b ▾ | Auto-assign | <a href="#">Add IP</a> |

Add Device

### Advanced Details

User data ⓘ

☒ As text ☐ As file ☐ Input is already base64 encoded

```
#!/bin/bash
sudo apt-get update -y
sudo apt-get install nginx -y
```

Edit inbound rules

| Type ⓘ | Protocol ⓘ | Port Range ⓘ | Source ⓘ           | Description ⓘ                |
|--------|------------|--------------|--------------------|------------------------------|
| SSH ▾  | TCP        | 22           | Custom ▾ 0.0.0.0/0 | e.g. SSH for Admin Desktop ✕ |
| HTTP ▾ | TCP        | 80           | Custom ▾ 0.0.0.0/0 | e.g. SSH for Admin Desktop ✕ |

Add Rule

NOTE: Any edits made on existing rules will result in the edited rule being deleted and a new rule created with the new details. This will cause traffic that depends on that rule to be dropped for a very brief period of time until the new rule can be created.

Cancel Save

Welcome to nginx! - Google Chrome

Security groups | EC2 Man x EC2 - Google Docs x Welcome to nginx! x +

← → ↻ ⓘ Not secure | 54.197.35.230

## 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](http://nginx.org).  
Commercial support is available at [nginx.com](http://nginx.com).

Thank you for using nginx.