

AWS-EC2

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

Ans1:-

```
ubuntu@ip-172-31-105-33: -
File Edit View Search Terminal Tabs Help
sudo bin/mongod --port 27009 x ubuntu@ip-172-31-105-33: ~ x
fahad@fahad ~/Downloads (master*)
> ssh -i "T34aK.pem" ubuntu@ec2-18-205-247-104.compute-1.amazonaws.com
The authenticity of host 'ec2-18-205-247-104.compute-1.amazonaws.com (18.205.247.104)' can't be established.
ECDSA key fingerprint is SHA256:mF3LTBZJ1R0EoM0FFkhSi2jQZB09CdmH7yhBHn10UDs.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-18-205-247-104.compute-1.amazonaws.com,18.205.247.104' (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 disabled due to load higher than 2.0

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-172-31-105-33:~$
```

Ques2:-Create AMI of the above instance and launch it. (instance B)

Ans2:-First we have to create the EC2 instance Then by clicking on action and selecting image then create Image option

The screenshot shows the 'Create Image' window in the AWS Management Console. It includes fields for 'Instance ID' (i-0e9bfb2a65dfcd03f), 'Image name', and 'Image description'. There is a 'No reboot' checkbox. Below these are 'Instance Volumes' with a table showing volume details: Volume Type (EBS), Device (/dev/sdf), Snapshot (Search (case-insensitive)), Size (12 GiB), Volume Type (General Purpose SSD (gp2)), IOPS (100 / 3000), Throughput (N/A), Delete on Termination (checkbox), and Encrypted (Not Encrypted). A 'Total size of EBS Volumes: 12 GiB' note is present. At the bottom are 'Cancel' and 'Create Image' buttons.

The screenshot shows the 'AMI' console. The top section lists AMIs with columns: Name, AMI Name, AMI ID, Source, Owner, Visibility, Status, Creation Date, and Platform. Two AMIs are listed: 'Fahad-AMI' and 'Ketan-Test-Ins...'. Below this is a 'Details' tab for the 'Fahad-Test' AMI (ami-0066ec388befcde21). The details are as follows:

Property	Value
AMI ID	ami-0066ec388befcde21
Owner	187632318301
Status	available
Creation date	February 19, 2020 at 8:27:16 PM UTC+5:30
Architecture	x86_64
Virtualization type	hvm
Root Device Name	/dev/sda1
RAM disk ID	-
Product Codes	-
AMI Name	Fahad-Test
Source	187632318301/Fahad-Test
State Reason	-
Platform	Other Linux
Image Type	machine
Description	First EC2 image
Root Device Type	ebs
Kernel ID	-
Block Devices	/dev/sda1=snap-0f8e45b03e4327168:8:true:gp2, /dev/sdb=snap-06748bba03c985482:10:false:gp2

Image will be Created

The screenshot shows the 'Instance' console for the instance 'Fahad-Test' (i-0ac45881f26ced5af). The 'Description' tab is active, showing the following details:

Property	Value
Instance ID	i-0ac45881f26ced5af
Instance state	running
Instance type	t3a.nano
Finding	You may not have permission to access AWS Compute Optimizer.
Private DNS	ip-172-31-105-33.ec2.internal
Private IPs	172.31.105.33
Secondary private IPs	-
VPC ID	vpc-d38d68b7 (default)
Public DNS (IPv4)	ec2-18-205-247-104.compute-1.amazonaws.com
IPv4 Public IP	18.205.247.104
IPv6 IPs	-
Elastic IPs	-
Availability zone	us-east-1c
Security groups	launch-wizard-5, view inbound rules, view outbound rules
Scheduled events	No scheduled events
AMI ID	ubuntu/images/hvm-ssd/ubuntu-bionic-18.04-amd64-server-20200112 (ami-07ebfd5b3428b6f4d)

After launching through ssh

```
fahad@fahad ~/Downloads <master*>
> ssh -i "T34aK.pem" ubuntu@ec2-100-24-44-179.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 15:25:06 UTC 2020

System load:  0.0                Processes:    92
Usage of /:   13.8% of 7.69GB    Users logged in:  0
Memory usage: 33%               IP address for ens5: 172.31.84.91
Swap usage:   0%

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

Last login: Wed Feb 19 14:48:41 2020 from 103.83.127.156
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-84-91:~$
```

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

Ans 3:-

<input type="checkbox"/>	Fahad-AMI-T...	i-0e9bff2a65dfcd03f	t3.nano	us-east-1c	running	2/2 checks ...	None	ec2-100-24-44-179
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For attaching the EBS we first have to create the volume then by clicking on actions and clicking on attach volume it will be attached

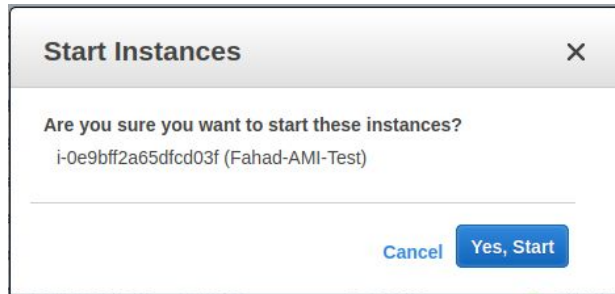
<input type="checkbox"/>	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone
<input type="checkbox"/>	Fahad-EBS-...	vol-0d3e5450c0491a478	10 GiB	gp2	100		February 19, 2020 ...	us-east-1c
<input type="checkbox"/>	Fahad-Test-...	vol-0f2f3de94dd8ac4f2	8 GiB	gp2	100	snap-0f8e45b0...	February 19, 2020 ...	us-east-1c

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

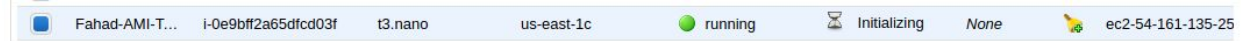
Ans 4:-

STOP

<input checked="" type="checkbox"/>	Fahad-AMI-T...	i-0e9bff2a65dfcd03f	t3.nano	us-east-1c	stopped		None	
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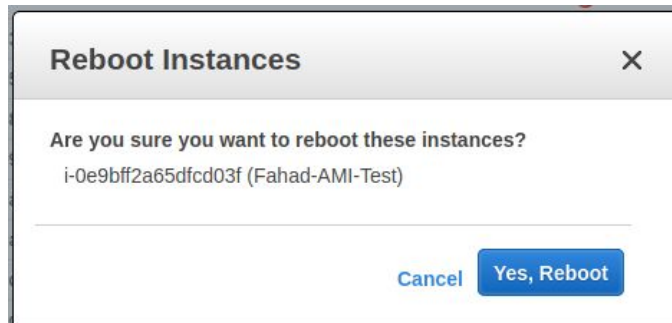
ON-START



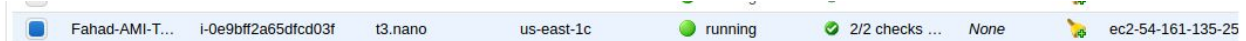
ON SEARCHING INSTANCE ID IT IS STILL ATTACHED IN THE EC2

search : i-0e9bff2a65dfcd03f Add filter								
	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone
<input type="checkbox"/>	Fahad-EBS-...	vol-0d3e5450c0491a478	10 GiB	gp2	100		February 19, 2020 ...	us-east-1c
<input type="checkbox"/>	Fahad-Test-...	vol-0f2f3de94dd8ac4f2	8 GiB	gp2	100	snap-0f8e45b0...	February 19, 2020 ...	us-east-1c

ON-RESTARTING



The Instance is still running



STILL VOLUMES ARE ATTACHED

search : i-0e9bff2a65dfcd03f Add filter								
	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone
<input type="checkbox"/>	Fahad-EBS-...	vol-0d3e5450c0491a478	10 GiB	gp2	100		February 19, 2020 ...	us-east-1c
<input type="checkbox"/>	Fahad-Test-...	vol-0f2f3de94dd8ac4f2	8 GiB	gp2	100	snap-0f8e45b0...	February 19, 2020 ...	us-east-1c

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

Ans 5:-

Ques 6:-Resize the EBS from 8 to 10GB

Ans 6:-

search : i-0e9bff2a65dfcd03f

Add filter

1 to 2 of 2

<input type="checkbox"/>	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone
<input checked="" type="checkbox"/>	Fahad-EBS-...	vol-0d3e5450c0491a478	10 GiB	gp2	100		February 19, 2020 ...	us-east-1c
<input type="checkbox"/>	Fahad-Test-...	vol-0f2f3de94dd8ac4f2	8 GiB	gp2	100	snap-0f8e45b0...	February 19, 2020 ...	us-east-1c

Modify Volume ×

Are you sure that you want to modify volume vol-0d3e5450c0491a478?

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

Modify Volume ×

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

Close

search : i-0e9bff2a65dfcd03f

Add filter

</

Ques 7:-SSH from one instance A to instance B.

Ans 7:-

Filter by tags and attributes or search by keyword							
<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status
<input type="checkbox"/>	Rishabh	i-05a17c2550813206	t2.nano	us-east-1c	running	2/2 checks ...	None
<input checked="" type="checkbox"/>	Fahad (B-Ins...	i-091ea4c6f387e916c	t3.nano	us-east-1c	running	2/2 checks ...	None
Instance: i-091ea4c6f387e916c (Fahad (B-Instance)) Public DNS: ec2-54-210-132-154.compute-1.amazonaws.com							
Description							
Instance ID		i-091ea4c6f387e916c		Public DNS (IPv4)		ec2-54-210-132-154.compute-1.amazonaws.com	
Instance state		running		IPv4 Public IP		54.210.132.154	
Instance type		t3.nano		IPv6 IPs		-	
Finding		You may not have permission to access AWS Compute Optimizer.		Elastic IPs			
Private DNS		ip-172-31-37-2.ec2.internal		Availability zone		us-east-1c	
Private IPs		172.31.37.2		Security groups		launch-wizard-20. view inbound rules. view outbound rules	
Secondary private IPs				Scheduled events		No scheduled events	
VPC ID		vpc-df38d69b7 (default)		AMI ID		ubuntu/images/hvm-ec2/ubuntu-hirnie	

```
ubuntu@ip-172-31-84-91:~$ ssh -i "T34aK.pem" ubuntu@ec2-54-210-132-154.compute-1.amazonaws.com
The authenticity of host 'ec2-54-210-132-154.compute-1.amazonaws.com (172.31.37.2)' can't be established.
ECDSA key fingerprint is SHA256:aTXWees+JEQKKC/vZF/KKL0Eu8SaCatB8Dync6RRZM0.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-54-210-132-154.compute-1.amazonaws.com,172.31.37.2' (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 16:10:49 UTC 2020

System load:  0.0          Processes:      90
Usage of /:   13.6% of 7.69GB   Users logged in:  0
Memory usage: 33%          IP address for ens5: 172.31.37.2
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-172-31-37-2:~$
```

```
ubuntu@ip-172-31-37-2:~$ exit
logout
Connection to ec2-54-210-132-154.compute-1.amazonaws.com closed.
ubuntu@ip-172-31-84-91:~$ exit
logout
Connection to ec2-54-161-135-251.compute-1.amazonaws.com closed.
fahad@fahad ~/Downloads (master*)
➤
```

Ques 8:- Copy the EBS in different region(oregon).

Ans 8:- First we have to click on the action button then we have to click on copy to copy this to other location by choosing the other remote location

Ques 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.

Ans 9:-

First we have to go in the one instance and install the nginx

```
Last login: Wed Feb 19 17:42:09 2020 from 103.83.127.158
ubuntu@ip-172-31-37-2:~$ sudo service nginx status
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2020-02-19 17:42:41 UTC; 3min 26s ago
     Docs: man:nginx(8)
    Main PID: 1952 (nginx)
      Tasks: 3 (limit: 522)
   CGroup: /system.slice/nginx.service
           └─1952 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
              └─1953 nginx: worker process
                 1954 nginx: worker process

Feb 19 17:42:41 ip-172-31-37-2 systemd[1]: Starting A high performance web server and a reverse proxy server...
Feb 19 17:42:41 ip-172-31-37-2 systemd[1]: Started A high performance web server and a reverse proxy server.
ubuntu@ip-172-31-37-2:~$ exit
```

Then we have to create the snapshot of the volume

[Volumes](#) > Create Snapshot

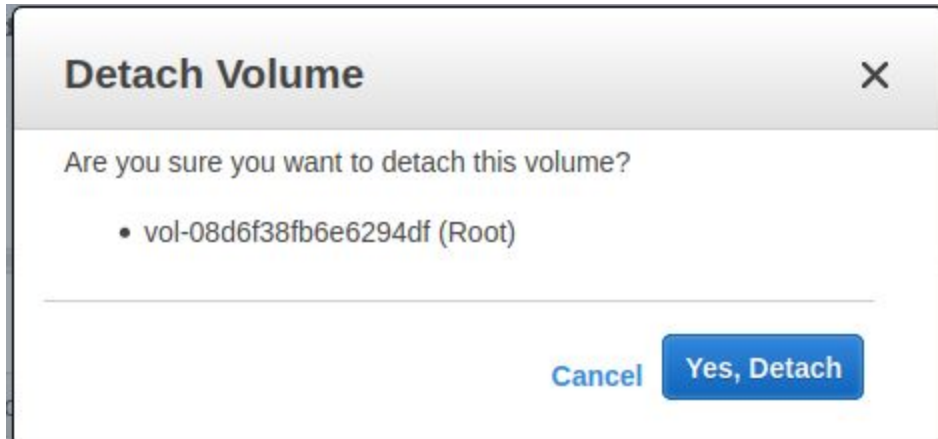
Create Snapshot

Volume vol-08d6f38fb6e6294df ⓘ

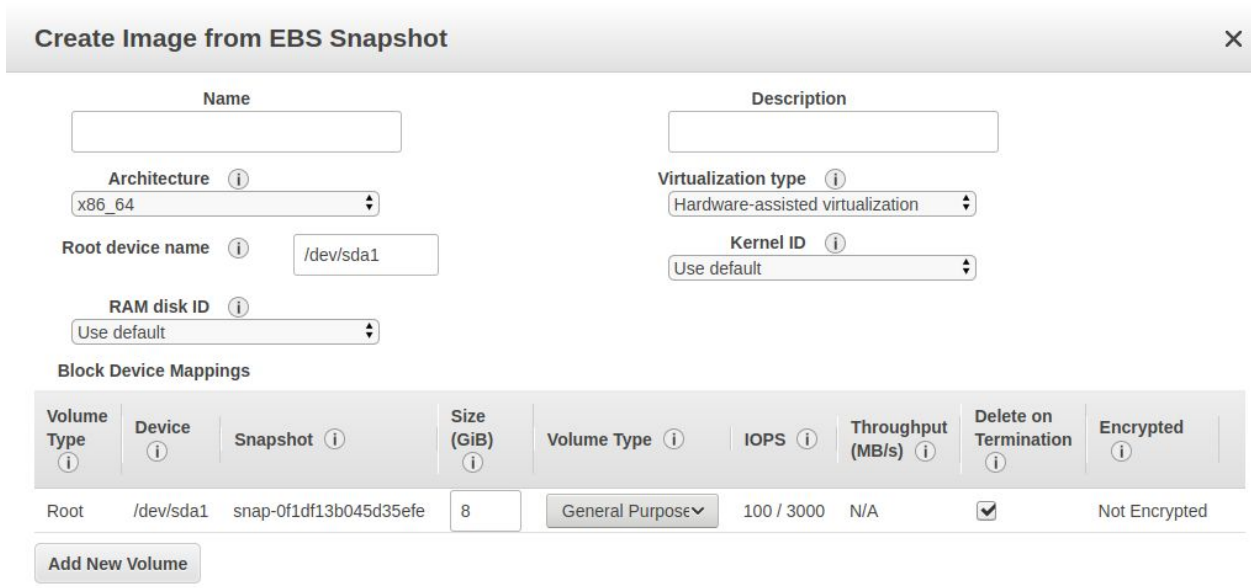
Description ⓘ

Encrypted ☒ Not Encrypted ⓘ

Then we have to Detach the volume from the console



Then we have to create the Image from that Snapshot

A form titled "Create Image from EBS Snapshot" with a close button (X) in the top right corner. The form contains several input fields and dropdown menus. On the left side, there are fields for "Name", "Architecture" (dropdown with "x86_64" selected), "Root device name" (input with "/dev/sda1"), and "RAM disk ID" (dropdown with "Use default"). On the right side, there are fields for "Description", "Virtualization type" (dropdown with "Hardware-assisted virtualization" selected), and "Kernel ID" (dropdown with "Use default"). Below these fields is a section titled "Block Device Mappings" which contains a table. The table has columns: "Volume Type", "Device", "Snapshot", "Size (GiB)", "Volume Type", "IOPS", "Throughput (MB/s)", "Delete on Termination", and "Encrypted". There is one row of data: "Root", "/dev/sda1", "snap-0f1df13b045d35efe", "8", "General Purpose", "100 / 3000", "N/A", a checked checkbox, and "Not Encrypted". At the bottom left of the table is a button "Add New Volume".

After creating the image we have to launch the instance

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
Ngini-Test-fa...	i-02e4f840effbe9d05	t3.nano	us-east-1c	running	2/2 checks ...	None	ec2-100-24-35-69.c

Instance: **i-02e4f840effbe9d05 (Ngini-Test-fahad)** Public DNS: **ec2-100-24-35-69.compute-1.amazonaws.com**

Description	Status Checks	Monitoring	Tags
Instance ID	i-02e4f840effbe9d05	Public DNS (IPv4)	ec2-100-24-35-69.compute-1.amazonaws.com
Instance state	running	IPv4 Public IP	100.24.35.69
Instance type	t3.nano	IPv6 IPs	-
Finding	You may not have permission to access AWS Compute Optimizer.	Elastic IPs	
Private DNS	ip-172-31-235-222.ec2.internal	Availability zone	us-east-1c
Private IPs	172.31.235.222	Security groups	launch-wizard-23. view inbound rules. view outbound rules
Secondary private IPs		Scheduled events	No scheduled events
VPC ID	vpc-d38d68b7 (default)	AMI ID	Fahad-Nginx (ami-0e0ba30b2ad3944ea)

Now just going to ssh to the new Instance created and check for the nginx service and that all were working

```
ubuntu@ip-172-31-235-222:~$
ubuntu@ip-172-31-235-222:~$ sudo service nginx status
● nginx.service - A high performance web server and a reverse proxy server
   Loaded: loaded (/lib/systemd/system/nginx.service; enabled; vendor preset: enabled)
   Active: active (running) since Wed 2020-02-19 17:51:29 UTC; 34s ago
     Docs: man:nginx(8)
  Process: 861 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
  Process: 791 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process on; (code=exited, status=0/SUCCESS)
 Main PID: 865 (nginx)
    Tasks: 3 (limit: 522)
   CGroup: /system.slice/nginx.service
           └─865 nginx: master process /usr/sbin/nginx -g daemon on; master_process on;
             └─866 nginx: worker process
               └─867 nginx: worker process

Feb 19 17:51:29 ip-172-31-235-222 systemd[1]: Starting A high performance web server and a reverse proxy server...
Feb 19 17:51:29 ip-172-31-235-222 systemd[1]: Started A high performance web server and a reverse proxy server.
ubuntu@ip-172-31-235-222:~$
```

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

Ans 5:-

```
ubuntu@ip-172-31-235-222: /etc
File Edit View Search Terminal Help
LABEL=cloudimg-rootfs / ext4 defaults,discard 0 0
qwewqeweqeqwqeqqwewqT#$AK
```

```
fahad@fahad ~/Downloads (master*)
> ssh -i "T34aK.pem" root@ec2-54-235-229-38.compute-1.amazonaws.com
ssh: connect to host ec2-54-235-229-38.compute-1.amazonaws.com port 22: Connection refused
fahad@fahad ~/Downloads (master*)
> ssh -i "T34aK.pem" root@54.235.229.38
ssh: connect to host 54.235.229.38 port 22: Connection refused
fahad@fahad ~/Downloads (master*)
> ssh -i "T34aK.pem" root@54.235.229.38
ssh: connect to host 54.235.229.38 port 22: Connection refused
fahad@fahad ~/Downloads (master*)
>
```

search : fstab

Add filter

?

<< 1 to 2 of 2 >>

<input type="checkbox"/>	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	State
<input type="checkbox"/>	FSTAB ERR...	vol-05d167ca2463af382	8 GiB	gp2	100	snap-0f1df13b045d35efe	February 19, 2020 at 11:21:01 PM UTC+5:30	us-east-1c	<div>in-use</div>

```
ubuntu@ip-172-31-170-211:~$ 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 /
xvdh        202:112  0    8G   0 disk
└─xvdh1     202:113  0    8G   0 part
```

```
ubuntu@ip-172-31-170-211:~$ sudo mount /dev/xvdh1 /mnt/
ubuntu@ip-172-31-170-211:~$ cd /mnt
ubuntu@ip-172-31-170-211:/mnt$ ls
bin    home    lib64   opt     sbin    temp    vmlinuz.old
boot   initrd.img  lost+found  proc    snap    usr
dev    initrd.img.old  media     root    srv     var
etc    lib        mnt      run     sys     vmlinuz
ubuntu@ip-172-31-170-211:/mnt$ cd /etc/
ubuntu@ip-172-31-170-211:/etc$ ls -ld fstab
-rw-r--r-- 1 root root 51 Jan 12 17:42 fstab
ubuntu@ip-172-31-170-211:/etc$
```

```
ubuntu@ip-172-31-170-211: /etc
File Edit View Search Terminal Tabs Help
ubuntu@ip-172-31-170-211: /e... x fahad@fahad: /etc x
LABEL=cloudimg-rootfs /qweqW ext4 defaults,discard 0 0
```

Create Volume Actions

search : fstab Add filter 1 to 2 of 2

	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	State
<input checked="" type="checkbox"/>	FSTAB ERR...	vol-05d167ca2463af382	8 GiB	gp2	100	snap-0f1df13b045d35efe	February 19, 2020 at 11:21:01 PM UTC+5:30	us-east-1c	available
<input type="checkbox"/>		vol-0b9bcl26018e49b77	8 GiB	gp2	100	snap-0e078112eedec9db	February 20, 2020 at 2:04:29 PM UTC+5:30	us-east-1c	in-use