

# 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:mF3LTBZJ1ROEoM0FFkhSi2jQZB09CdmH7yhBHn10UDs.
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 'Create Image' window shows the configuration for creating an Amazon Machine Image (AMI) from an existing EC2 instance. The 'Instance ID' is 'i-0e9bfb2a65dfcd03f'. The 'Image name' and 'Image description' fields are empty. The 'No reboot' checkbox is unchecked. Under 'Instance Volumes', a single volume is configured: 'Volume Type' is 'EBS', 'Device' is '/dev/sdf', 'Snapshot' is 'Search (case-insensitive)', 'Size (GiB)' is '12', 'Volume Type' is 'General Purpose SSD (gp2)', 'IOPS' is '100 / 3000', 'Throughput (MB/s)' is 'N/A', 'Delete on Termination' is unchecked, and 'Encrypted' is 'Not Encrypted'. A button 'Add New Volume' is present. At the bottom, there are 'Cancel' and 'Create Image' buttons.

The 'My AMIs' console shows a list of AMIs. The 'Fahad-Test' AMI is selected. Below the list, the 'Details' tab is active, showing the following information:

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 'Instance Details' console for the 'Fahad-Test' instance (ID: i-0ac45881f26ced5af) shows 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

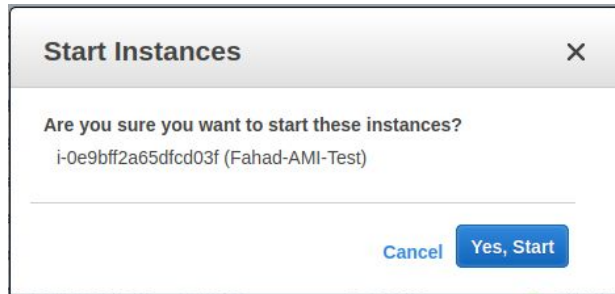
<input type="checkbox"/>	Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone
<input type="checkbox"/>	Fahad-EBS-...	vol-0d3e5450c0491a478	10 GiB	gp2	100		February 19, 2020 ...	us-east-1c
<input type="checkbox"/>	Fahad-Test-...	vol-0f2f3de94dd8ac4f2	8 GiB	gp2	100	snap-0f8e45b0...	February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



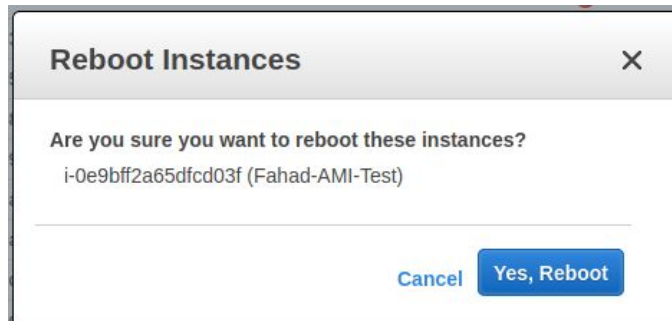
## ON-START

<input checked="" type="checkbox"/>	Fahad-AMI-T...	i-0e9bff2a65dfcd03f	t3.nano	us-east-1c	<span style="color: green;">●</span> running	Initializing	None	ec2-54-161-135-25
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## ON SEARCHING INSTANCE ID IT IS STILL ATTACHED IN THE EC2

<input type="text" value="search : i-0e9bff2a65dfcd03f"/> <input type="button" value="Add filter"/> <span>1 to 2 of 2</span>								
<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

## ON-RESTARTING



## The Instance is still running

<input checked="" type="checkbox"/>	Fahad-AMI-T...	i-0e9bff2a65dfcd03f	t3.nano	us-east-1c	<span style="color: green;">●</span> running	<span style="color: green;">✔</span> 2/2 checks ...	None	ec2-54-161-135-25
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## STILL VOLUMES ARE ATTACHED

<input type="text" value="search : i-0e9bff2a65dfcd03f"/> <input type="button" value="Add filter"/> <span>1 to 2 of 2</span>								
<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 6:-Resize the EBS from 8 to 10GB

## Ans 6:-

<input type="text" value="search : i-0e9bff2a65dfcd03f"/> <input type="button" value="Add filter"/> <span>1 to 2 of 2</span>								
<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				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	12 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 7:-SSH from one instance A to instance B.**

**Ans 7:-**



Filter by tags and attributes or search by keyword								
	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
	Rishabh	i-05a17c2550813206	t2.nano	us-east-1c	running	2/2 checks ...	None	ec2-18-205-158-22
	Fahad (B-Ins...	i-091ea4c6f387e916c	t3.nano	us-east-1c	running	2/2 checks ...	None	ec2-54-210-132-15

Instance: **i-091ea4c6f387e916c (Fahad (B-Instance))** Public DNS: **ec2-54-210-132-154.compute-1.amazonaws.com**

Description	Status Checks	Monitoring	Tags
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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.		
Private DNS	ip-172-31-37-2.ec2.internal	Elastic IPs	
Private IPs	172.31.37.2	Availability zone	us-east-1c
Secondary private IPs		Security groups	launch-wizard-20, view inbound rules, view outbound rules
VPC ID	vpc-d39d69b7 (default)	Scheduled events	No scheduled events
		AMI ID	ubuntu/images/hvm-ec2/ubuntu-hirnie

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

## Copy Snapshot



This snapshot, **snap-0dd44adc895ef686b (FSTAB-ERROR)**, will be copied to a new snapshot. Set the new snapshot settings below:

Destination Region	US West (Oregon) ⓘ
Description	[Copied snap-0dd44adc895ef686b from us-east-1] FSTAB E ⓘ
Encryption	<input type="checkbox"/> Encrypt this snapshot ⓘ

### ❗ Error copying Snapshot

You are not authorized to perform this operation. Encoded authorization failure message:

h2hR1sRLyJZhilDHOmWgXdaHluPpFqH4z7fTLRqBnPbK\_27qoH5e2EvxYpeFWXJkk--  
ntkwsYLj71GDUZ6LJntpps5Jzhl9szMWQOO-IYJmOHrIzhBa0CWMai3meSWPNUD9uPdSLIVQy8Q8L4dUS96iL0Kptm-  
SvAwOrg4XdGtqHX8zMrJdEGMy\_j\_cjWKKsSwwtXaeO2WBwn4mGvFBc1fBtGxXF\_Ww\_JocOW4KwVqNmB5Z2\_vTNLaYa5-  
FKimX0GOS\_NOO7PMvw9JgDQNaV\_6adDz7zr9IND4izQR59dYpf9OomUPie-  
97bF5AHNYB4MlcwLHQqe0bSbHfiC0y6EopdsEfEGhEavl8-hL1yccT42jqREteUtk8wwl-HS8JAnlYtgPjtgrfrhAx-  
WnDYv8w06lpjHOxyQVBA\_rcwVYj4rCSwjbrX-  
kfryqxH6UviBkdT0Ewm9DU7stup9vKmbOOBUipolhKn6SfpvcAWyNIQ\_7AWLIJb5j3v5nt7j6pRvws0F3rW7s48hrj8svzODj65yP5k  
mV4fTw

Cancel

Copy

**Ques 9:-Detach 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.**

**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

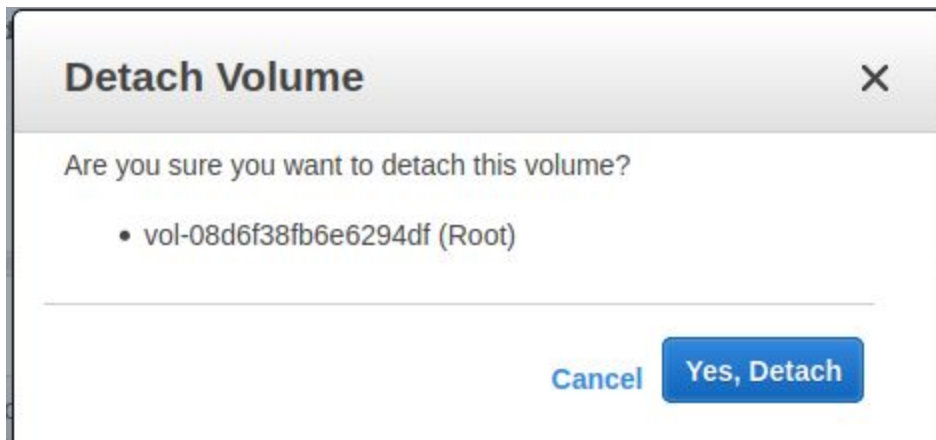
## Create Snapshot

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**



Create Image from EBS Snapshot

×

Name

Description

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-0f1df13b045d35efe	8	General Purpose	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

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)
Nginx-Test-fa...	i-02e4f840effbe9d05	t3.nano	us-east-1c	running	2/2 checks ...	None	ec2-100-24-35-69.c

Instance: i-02e4f840effbe9d05 (Nginx-Test-fahad)

Public DNS: ec2-100-24-35-69.compute-1.amazonaws.com

Description

Status Checks

Monitoring

Tags

Instance ID

i-02e4f840effbe9d05

Instance state

running

Instance type

t3.nano

Finding

You may not have permission to access AWS Compute Optimizer.

Private DNS

ip-172-31-235-222.ec2.internal

Private IPs

172.31.235.222

Secondary private IPs

VPC ID

vpc-d38d68b7 (default)

Public DNS (IPv4)

ec2-100-24-35-69.compute-1.amazonaws.com

IPv4 Public IP

100.24.35.69

IPv6 IPs

-

Elastic IPs

Availability zone

us-east-1c

Security groups

launch-wizard-23. view inbound rules.  
view outbound rules

Scheduled events

No scheduled events

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  
qwewqeweqewqewqewqT#$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	<span>in-use</span>

```
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      tmp       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 VolumeActions

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 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	availat
<input type="checkbox"/>		vol-0b9bcf26018e49b77	8 GiB	gp2	100	snap-0e078112eedec9db	February 20, 2020 at 2:04:29 PM UTC+5:30	us-east-1c	in-use