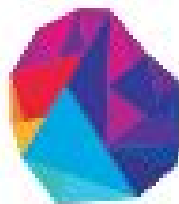


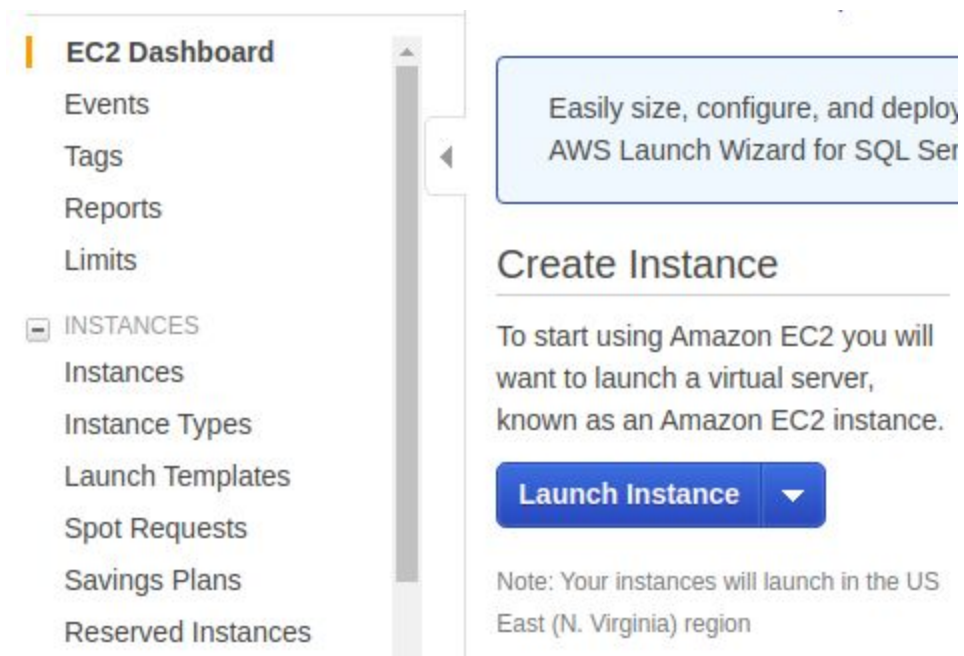
ASSESSMENT ON AWS EC2 AND EBS

**TO
THE
NEW**



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


STEP 1: Click on EC2 and then click on launch instance.



STEP 2: Choose an AMI


Step 1: Choose an Amazon Machine Image (AMI)

[Cancel and Exit](#)


SUSE Linux
Free tier eligible

SUSE Linux Enterprise Server 15 SP1 (HVM), SSD Volume Type - ami-0df6cfabfbc4385b7 (64-bit x86) / ami-0e83525f58b2878f0 (64-bit Arm)
SUSE Linux Enterprise Server 15 Service Pack 1 (HVM), EBS General Purpose (SSD) Volume Type. Public Cloud, Advanced Systems Management, Web and Scripting, and Legacy modules enabled.
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select


Ubuntu Server 18.04 LTS (HVM), SSD Volume Type - ami-07ebfd5b3428b6f4d (64-bit x86) / ami-0400a1104d5b9caa1 (64-bit Arm)
Free tier eligible

Ubuntu Server 18.04 LTS (HVM), EBS General Purpose (SSD) Volume Type. Support available from Canonical (<http://www.ubuntu.com/cloud/services>).
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Select

STEP 3: Choose an instance type

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#).

Filter by: All instance types Current generation Show/Hide Columns

Currently selected: t2.nano (Variable ECUs, 1 vCPUs, 2.4 GHz, Intel Xeon Family, 0.5 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)
<input checked="" type="checkbox"/>	General purpose	t2.nano	1	0.5	EBS only
<input type="checkbox"/>	General purpose	t2.micro Free tier eligible	1	1	EBS only

STEP 4: Add tags

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances	Volumes	
Name	Instance A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="X"/>
Owner	Diksha	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="X"/>
Purpose	Launching an Ubuntu instance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="X"/>
<div>Add another tag (Up to 50 tags maximum)</div>				

STEP 5: Instance is launched

Launch Instance ▾ Connect Actions ▾								
Filter by tags and attributes or search by keyword								
1 to 15 of 15								
<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)
<input type="checkbox"/>	Instance B	i-06de16d292995d6...	t2.micro	us-east-1c	running	2/2 checks ...	None	
<input type="checkbox"/>	Ketan3	i-07a6d4f30b88ac15b	t2.micro	us-east-1c	running	2/2 checks ...	None	
<input checked="" type="checkbox"/>	Instance A(di...	i-0810b15f53871cc07	t2.nano	us-east-1c	running	Initializing	None	

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

New EC2 Experience
Learn more

EC2 Dashboard
Events
Tags
Reports
Limits
INSTANCES
Instances
Instance Types

Launch Instance ▾ Connect Actions ▴

Filter by tags and attributes or search

Connect
Get Windows Password
Create Template From Instance
Launch More Like This
Instance State
Instance Settings
Image
Networking
CloudWatch Monitoring

<input type="checkbox"/>	Name	Instance ID	Availability Zone	Instance State	Status Checks	Alarm Status
<input type="checkbox"/>	Nginx-Test-fa...	i-02e4f840effbe9c...	c	running	2/2 checks ...	None
<input type="checkbox"/>	Instance A	i-04350e6a95906...	c	running	2/2 checks ...	None
<input type="checkbox"/>	Instance B	i-06de16d292995...	c	running	2/2 checks ...	None
<input type="checkbox"/>	Ketan3	i-07a6d4f30b88ac...	c	running	2/2 checks ...	None
<input checked="" type="checkbox"/>	Instance A(di...	i-0810b15f53871c...	c	running	2/2 checks ...	None

Create Image

Instance ID ⓘ i-0810b15f53871cc07

Image name ⓘ

Image description ⓘ

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	<input type="text" value="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

Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances ⓘ	Volumes ⓘ	
Name	Instance A	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	✕
Owner	Diksha	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	✕
Purpose	Launching an Ubuntu instance	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	✕

[Add another tag](#) (Up to 50 tags maximum)

New EC2 Experience
[Learn more](#)

Savings Plans

Reserved Instances

Dedicated Hosts

Scheduled Instances

Capacity Reservations

IMAGES

AMIs

Bundle Tasks

ELASTIC BLOCK STORE

Volumes

Snapshots

Launch

Actions ^

Owned by

Attributes or search by keyword

	Name	AMI ID	Source	Owner	Visibility
<input type="checkbox"/>	Abhi	ami-02934105a97479c69	187632318301/...	187632318301	Private
<input type="checkbox"/>	EC2	ami-062ed1f669fc829c4	187632318301/...	187632318301	Private
<input type="checkbox"/>	Faha	ami-0e0ba30b2ad3944ea	187632318301/...	187632318301	Private
<input type="checkbox"/>	Instance_A	ami-0066ec388befcde21	187632318301/...	187632318301	Private
<input checked="" type="checkbox"/>	Instance A(di...	ami-0ae5031c6962da7c0	187632318301/...	187632318301	Private
<input type="checkbox"/>	kaushlendra ...	ami-0d8558d71a225db8b	187632318301/k...	187632318301	Private
<input type="checkbox"/>	kashlendra d...	ami-0b3689a040176a372	187632318301/k...	187632318301	Private

Launch Instance

Connect

Actions




Filter by tags and attributes or search by keyword

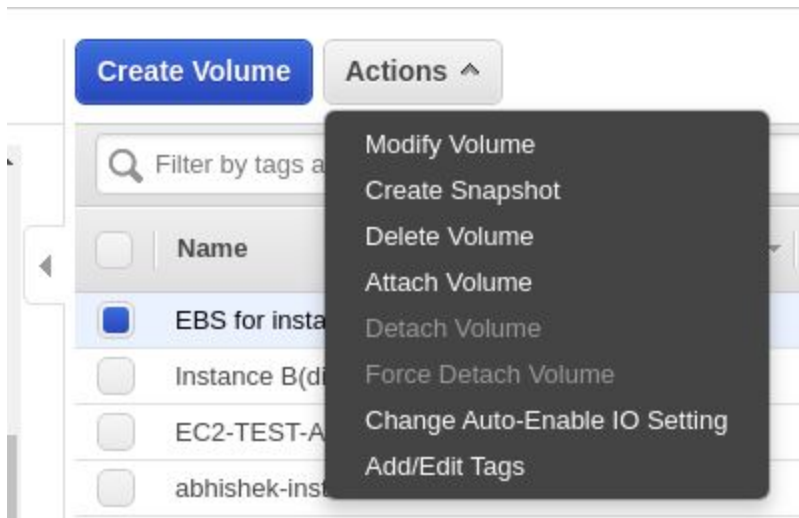
1 to 1

<input type="checkbox"/>	Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status
<input type="checkbox"/>	abhishek-inst...	i-00377d54c79cb3209	t2.micro	us-east-1c	running	2/2 checks ...	None
<input type="checkbox"/>	Ketan-1	i-018899d57c31e4682	t2.nano	us-east-1c	running	2/2 checks ...	None
<input type="checkbox"/>	Yash-Khand...	i-01f360b65b933f4e5	t2.nano	us-east-1c	stopped		None
<input type="checkbox"/>	Nginx-Test-fa...	i-02e4f840effbe9d05	t3.nano	us-east-1c	running	2/2 checks ...	None
<input checked="" type="checkbox"/>	Instance B(di...	i-0359bb174515d61...	t2.nano	us-east-1c	running	Initializing	None

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

STEP 1: Click on create EBS and then click on Create volume.

Key (128 characters maximum)	Value (256 characters maximum)	
<input type="text" value="Name"/>	<input type="text" value="EBS for instanceB"/>	
<input type="text" value="Owner"/>	<input type="text" value="Diksha"/>	
<input type="text" value="Purpose"/>	<input type="text" value="attaching an extra EBS to instance__B"/>	
<div><div>Add Tag</div><div>47 remaining (Up to 50 tags maximum)</div></div>		



STEP 4: Copy and paste the `instanc_id` of the instance on which you want to attach the volume.

A screenshot of the 'Attach Volume' dialog box in the AWS Management Console. The dialog has a title bar with 'Attach Volume' and a close button. It contains three fields: 'Volume' with the value 'vol-0d4fb9c6825be03cd (EBS for instanceB) in us-east-1c', 'Instance' with the value 'i-03779091825879f3f in us-east-1c', and 'Device' with the value '/dev/sdc'. Below the 'Device' field, it says 'Linux Devices: /dev/sdf through /dev/sdp'. A yellow note box at the bottom states: '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.' At the bottom right, there are 'Cancel' and 'Attach' buttons.

<input type="checkbox"/>	Nginx-Test-fa...	To check the ...	i-02e4f840effbe9d05	t3.nano
<input checked="" type="checkbox"/>	InstanceB(di...	Launching a...	i-03779091825879f3f	t2.nano
<input type="checkbox"/>	InstaceA	BootcampAs...	i-03b466c9ee31c8ba2	t2.micro
<input type="checkbox"/>	AdityaUinsta...		i-03e2f18b5be0e6d0b	t2.micro
<input type="checkbox"/>	Rishabh b		i-03f80857a0c02cf27	t2.micro

T2/T3 Unlimited	Disabled
EBS-optimized	False
Root device type	ebs
Root device	/dev/sda1
Block devices	/dev/sda1 /dev/sdc

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

STEP 1: SSH into Instance B. Checking the block-devices and their mounting points.

```
ubuntu@ip-172-31-40-239:~$ 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
ubuntu@ip-172-31-40-239:~$
```

* We can see that /dev/xvda1 is the root (that has OS in it) and it is mounted to the root ("/),
but our attached EBS is not mounted to any point (it is just the raw block).

* Before mounting it, we have to provide a file-system to it.

STEP 2: Create a file system using `$mkfs.ext4 /dev/xvdb`


```

root@ip-172-31-40-239:~# mkfs.ext4 /dev/xvdf
mke2fs 1.44.1 (24-Mar-2018)
/dev/xvdf contains a ext4 file system
    last mounted on Thu Feb 20 11:56:33 2020
Proceed anyway? (y,N) y
Creating filesystem with 2097152 4k blocks and 524288 inodes
Filesystem UUID: afddf037-4b28-4ff7-ab78-174ec14e38e0
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

root@ip-172-31-40-239:~# file -s /dev/xvdf
/dev/xvdf: Linux rev 1.0 ext4 filesystem data, UUID=afddf037-4b28-4ff7-ab78-174e
c14e38e0 (extents) (64bit) (large files) (huge files)
root@ip-172-31-40-239:~#

```

STEP 3: Make a mount point “newvolume” in home

STEP 4: Mount the above file system

```

root@ip-172-31-40-239:~# mkdir /new_volume
root@ip-172-31-40-239:~# mount /dev/xvdf /new_volume
root@ip-172-31-40-239:~# 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 /new_volume
root@ip-172-31-40-239:~#

```

*If we want to mount this EBS Volume on every startup, we must add an antry of this in /etc/fstab. The default (root) EBS has the following entry in fstab.

```

root@ip-172-31-40-239:~# df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            229M   0    229M   0% /dev
tmpfs           48M   760K   48M    2% /run
/dev/xvda1      7.7G  1.1G   6.7G   14% /
tmpfs           240M   0    240M   0% /dev/shm
tmpfs           5.0M   0     5.0M   0% /run/lock
tmpfs           240M   0    240M   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           48M   0     48M   0% /run/user/1000
/dev/xvdf       7.9G   36M   7.4G    1% /new_volume
root@ip-172-31-40-239:~#

```

```

root@ip-172-31-40-239:~# cat /etc/fstab
LABEL=cloudimg-rootfs / ext4 defaults,discard 0 0
root@ip-172-31-40-239:~#

```

NOTE: /etc/fstab has 6 columns:

- 1- Device Name - LABEL=cloudimg-rootfs
- 2- Mount Point - /
- 3- File System - ext4
- 4- Mount Options - defaults , discard
- 5- Backup Operation - 0
- 6- File System Check Order - 0

Mount Option:

How the kernel treats the file system (Mount options can be more than one).

Backup Operation:

0 - No backup for the file system.

1 - Takes backup for the file system.

File System Check Order (done at boot):

0 - fsck should not check the file for any error (fsck – file checking command for repairing the partitions)

1 - fsck Only check the root partition

2 – fsck Check the rest partition (other than root)

STEP 5: Entry in /etc/fstab file.

```
LABEL=cloudimg-rootfs / ext4 defaults,discard 0 0
/dev/xvdf /new_volume ext4 defaults,discard 0 0
~
~
```

*** Now if we stop and start our instance, our EBS will be mounted automatically**

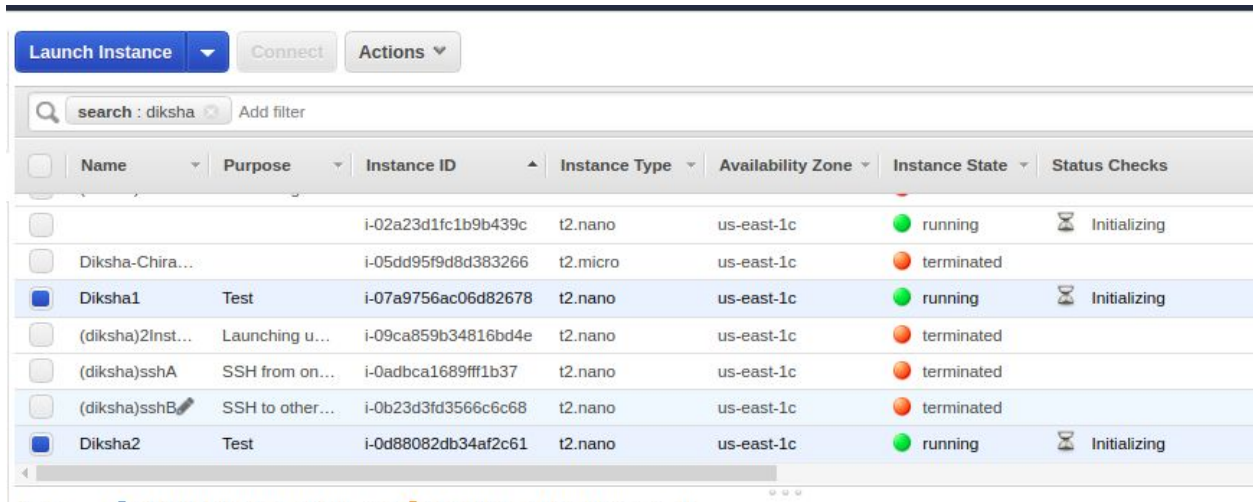
STEP 6: Stop the instance and then again start and check that the attached EBS is mounted

STEP 7: Starting again and verifying by using df -h and lsblk commands.

```
ubuntu@ip-172-31-40-239:~$ sudo 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
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 /new_volume
ubuntu@ip-172-31-40-239:~$ sudo df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            229M   0    229M   0% /dev
tmpfs           48M   752K   48M   2% /run
/dev/xvda1      7.7G  1.2G  6.6G  15% /
tmpfs          240M   0    240M   0% /dev/shm
tmpfs           5.0M   0   5.0M   0% /run/lock
tmpfs          240M   0    240M   0% /sys/fs/cgroup
/dev/loop0       18M   18M     0 100% /snap/amazon-ssm-agent/1480
/dev/loop1       90M   90M     0 100% /snap/core/8268
/dev/loop2       92M   92M     0 100% /snap/core/8689
/dev/xvdf        7.9G   36M   7.4G   1% /new_volume
tmpfs           48M   0    48M   0% /run/user/1000
ubuntu@ip-172-31-40-239:~$
```

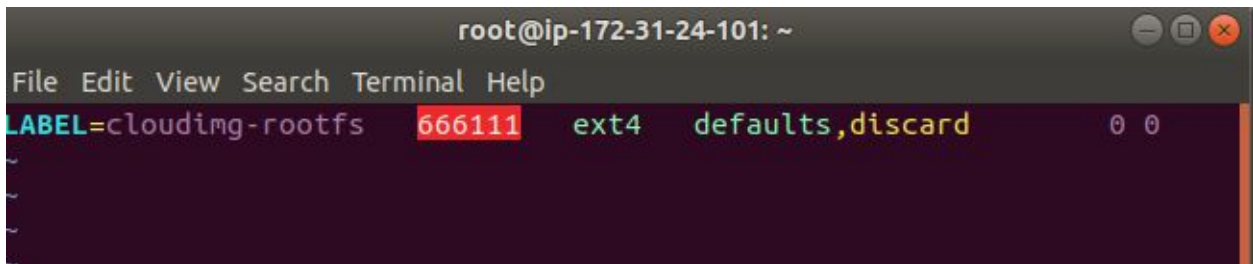
5. Make some mistake in fstab file, stop and start the instance, then troubleshoot it.

ANS:



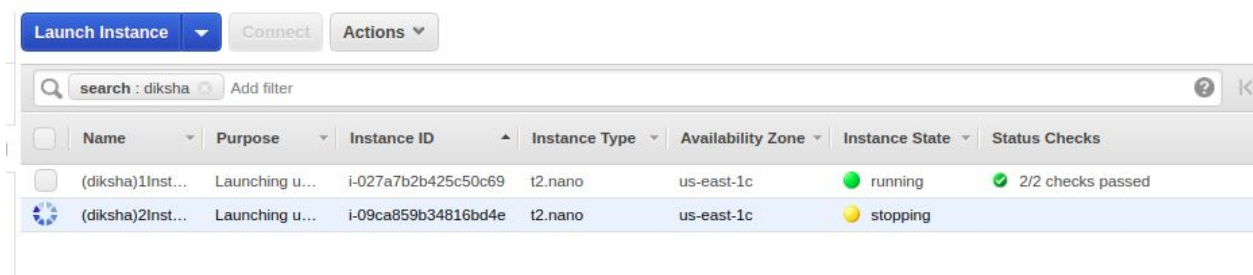
	Name	Purpose	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks
<input type="checkbox"/>			i-02a23d1fc1b9b439c	t2.nano	us-east-1c	running	Initializing
<input type="checkbox"/>	Diksha-Chira...		i-05dd95f9d8d383266	t2.micro	us-east-1c	terminated	
<input checked="" type="checkbox"/>	Diksha1	Test	i-07a9756ac06d82678	t2.nano	us-east-1c	running	Initializing
<input type="checkbox"/>	(diksha)2Inst...	Launching u...	i-09ca859b34816bd4e	t2.nano	us-east-1c	terminated	
<input type="checkbox"/>	(diksha)sshA	SSH from on...	i-0adbca1689fff1b37	t2.nano	us-east-1c	terminated	
<input type="checkbox"/>	(diksha)sshB	SSH to other...	i-0b23d3fd3566c6c68	t2.nano	us-east-1c	terminated	
<input checked="" type="checkbox"/>	Diksha2	Test	i-0d88082db34af2c61	t2.nano	us-east-1c	running	Initializing

STEP 1: Make errors in fstab file . Remove root's file extension(root: /etc/fstab)



```
root@ip-172-31-24-101: ~  
File Edit View Search Terminal Help  
LABEL=cloudimg-rootfs 666111 ext4 defaults,discard 0 0
```

STEP 2: Now stop and start the Instance.(* We noticed that instance is running at only “Read Only Mode”, because of the error is file system in fstab.)



	Name	Purpose	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks
<input type="checkbox"/>	(diksha)1Inst...	Launching u...	i-027a7b2b425c50c69	t2.nano	us-east-1c	running	2/2 checks passed
<input checked="" type="checkbox"/>	(diksha)2Inst...	Launching u...	i-09ca859b34816bd4e	t2.nano	us-east-1c	stopping	

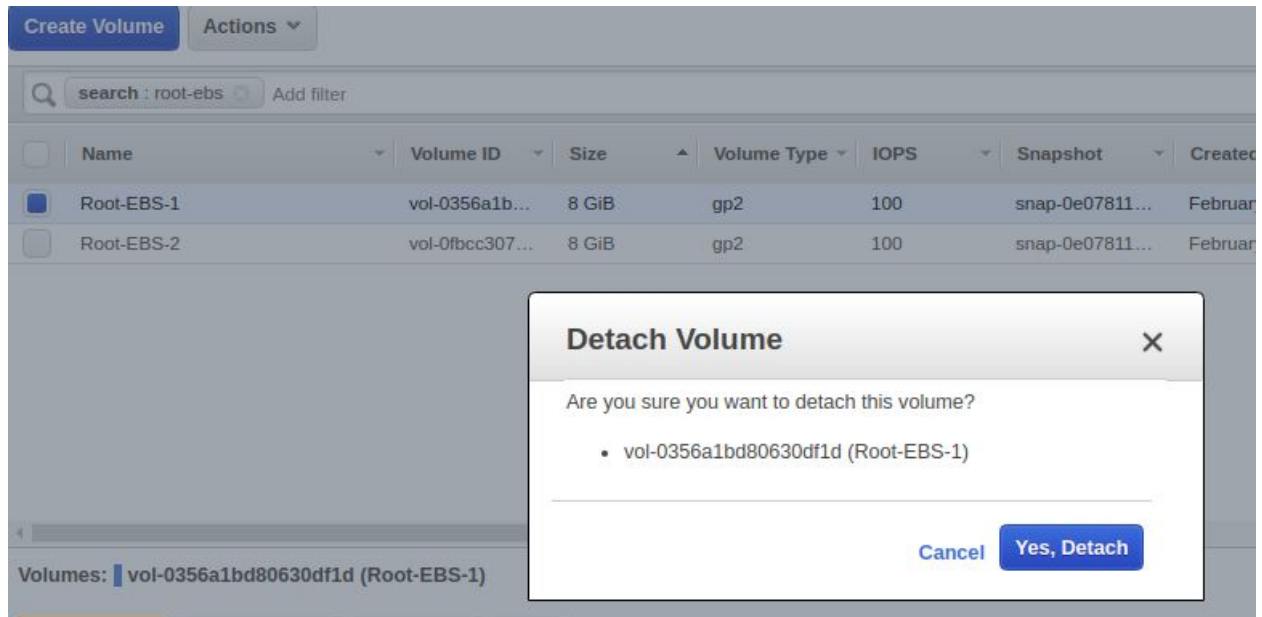

```

ubuntu@ip-172-31-40-239:~$ Connection to ec2-52-91-106-106.compute-1.amazonaws.com closed by remote host.
Connection to ec2-52-91-106-106.compute-1.amazonaws.com closed.
diksha@diksha:~/Downloads$ ssh -i "diksha_awskey.pem" ubuntu@ec2-18-234-201-159.compute-1.amazonaws.com
The authenticity of host 'ec2-18-234-201-159.compute-1.amazonaws.com (18.234.201.159)' can't be established.
ECDSA key fingerprint is SHA256:0CgewlRboDNN/sr0P2ff6MGRWM+P/GavxkJZXmWuH5A.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-18-234-201-159.compute-1.amazonaws.com,18.234.201.159' (ECDSA) to the list of known hosts.
Last login: Thu Feb 20 17:51:57 2020 from 182.69.242.57
ubuntu@ip-172-31-40-239:~$ sudo bash
sudo: unable to resolve host ip-172-31-40-239: Resource temporarily unavailable
root@ip-172-31-40-239:~# cat >file
bash: file: Read-only file system
root@ip-172-31-40-239:~#

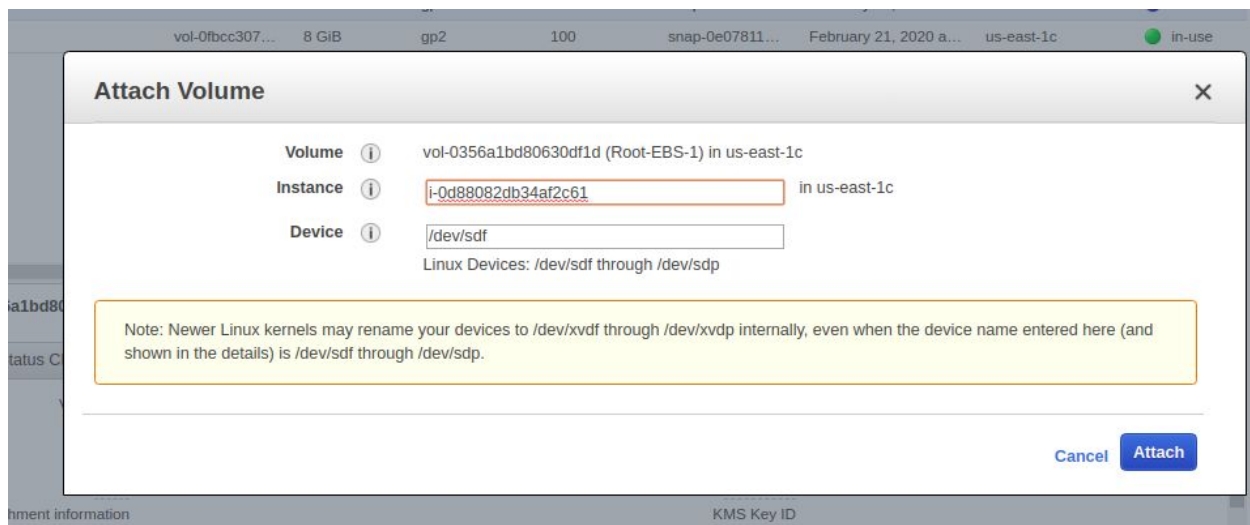
```

STEP 3: Stop the instance again and then detach the root EBS for correcting the file system.(Detach volume from instance 1)

<div> Launch Instance Connect Actions </div>							
<div> search : diksha Add filter </div>							
	Name	Purpose	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks
<input type="checkbox"/>	(diksha)1Inst...	Launching u...	i-027a7b2b425c50c69	t2.nano	us-east-1c	terminated	
<input type="checkbox"/>			i-02a23d1fc1b9b439c	t2.nano	us-east-1c	terminated	
<input type="checkbox"/>	Diksha-Chira...		i-05dd95f9d8d383266	t2.micro	us-east-1c	terminated	
<input checked="" type="checkbox"/>	Diksha1	Test	i-07a9756ac06d82678	t2.nano	us-east-1c	stopping	
<input type="checkbox"/>	(diksha)2Inst...	Launching u...	i-09ca859b34816bd4e	t2.nano	us-east-1c	terminated	
<input type="checkbox"/>	(diksha)sshA	SSH from on...	i-0adbca1689fff1b37	t2.nano	us-east-1c	terminated	
<input type="checkbox"/>	(diksha)sshB	SSH to other...	i-0b23d3fd3566c6c68	t2.nano	us-east-1c	terminated	
<input type="checkbox"/>	Diksha2	Test	i-0d88082db34af2c61	t2.nano	us-east-1c	running	2/2 checks passed



STEP 4: Attach that root EBS to the other “InstanceA” as secondary EBS, and see the status in console.(Attach in Instance 2 as secondary EBS)



STEP 5: SSH into "InstanceA" and list all block devices.

```
root@ip-172-31-130-224:~# 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
root@ip-172-31-130-224:~#
```

STEP 6: Mount that EBS in “Instance2” (checking file system also)

```
ubuntu@ip-172-31-26-247:~$ sudo bash
root@ip-172-31-26-247:~# 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
root@ip-172-31-26-247:~# mkdir /vol
root@ip-172-31-26-247:~# mount /dev/xvdf1 /vol
root@ip-172-31-26-247:~# 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 /vol
root@ip-172-31-26-247:~#
```

STEP 7: Correcting the fstab file of the mounted disk here.

```
root@ip-172-31-26-247:~# cat /etc/fstab
# FILESYSTEM MOUNT POINTS
# LABEL=cloudimg-rootfs / ext4 defaults,discard 0 0
#
```

STEP 8: Now detach this EBS from “Instance2” and attach back to original “Instance1”.

Attach Volume



Volume ⓘ vol-0356a1bd80630df1d (Root-EBS-1) in us-east-1c
Instance ⓘ i-07a9756ac06d82678 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.

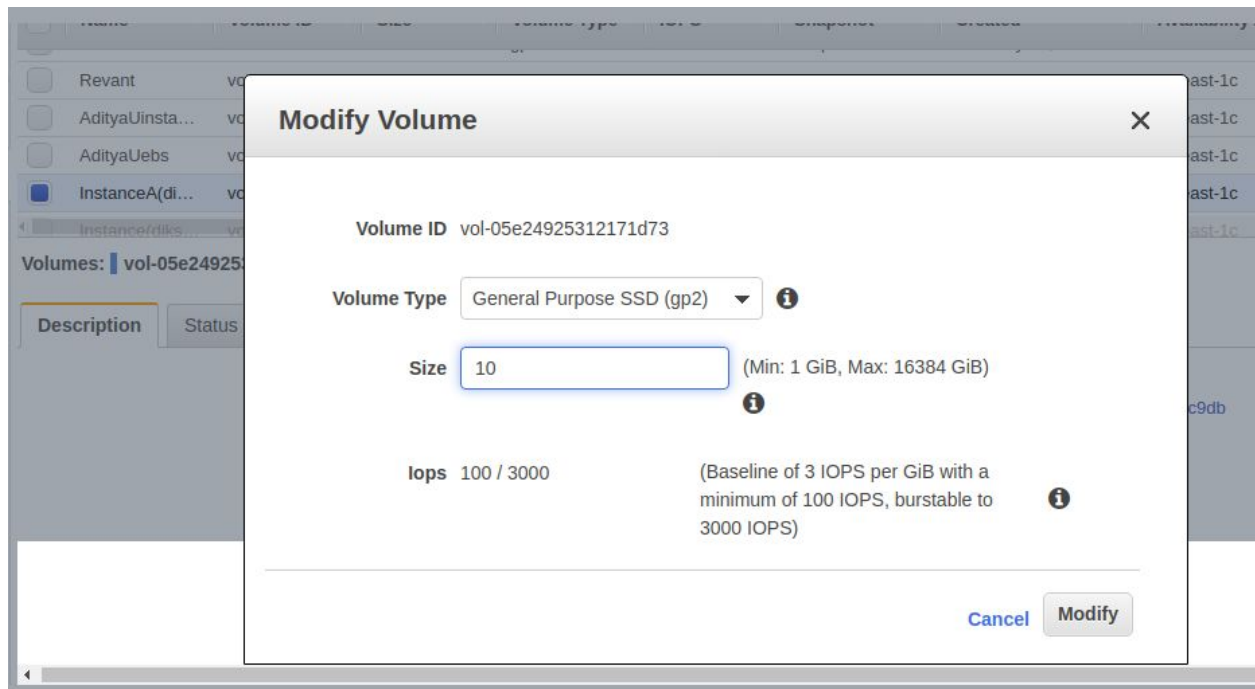
Cancel

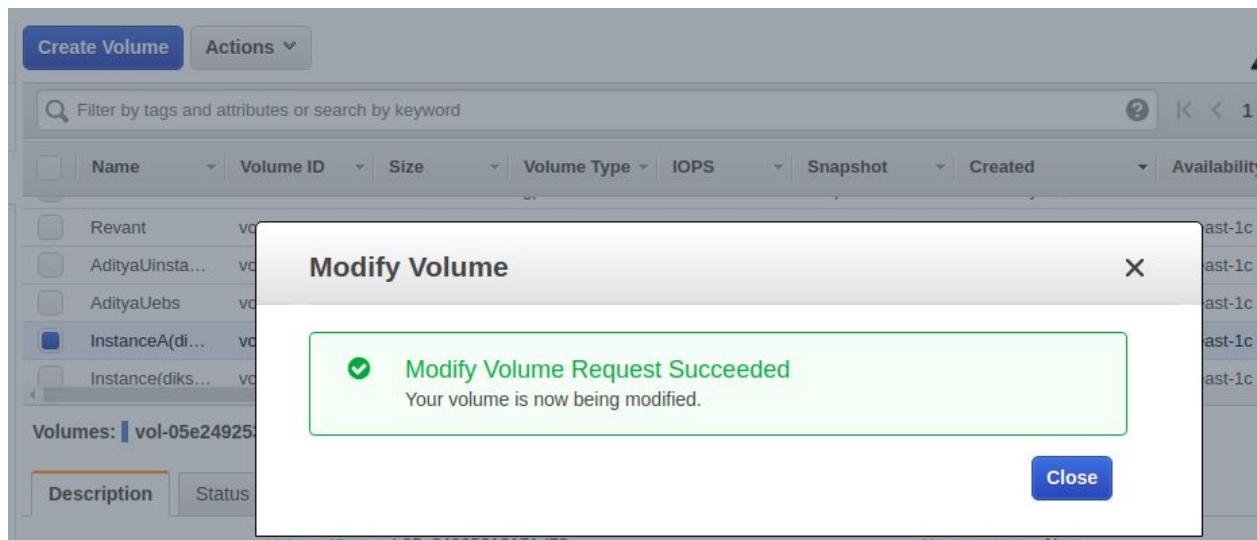
Attach

STEP 9: Start “Instance1” and SSH into it ,checking whether the file system is mounted perfectly or not (It is perfectly fine).

```
Last login: Fri Feb 21 11:04:49 2020 from 182.71.160.186
ubuntu@ip-172-31-24-101:~$ cd /etc/fstab
-bash: cd: /etc/fstab: Not a directory
ubuntu@ip-172-31-24-101:~$ cat /etc/fstab
LABEL=cloudimg-rootfs /          ext4    defaults,discard    0 0
ubuntu@ip-172-31-24-101:~$
```

6. Resize the EBS from 8 to 10GB





<input type="checkbox"/>	InstanceA(di...	vol-05e2492...	10 GiB	gp2	100	snap-0e07811...	February 20, 2020 ...	us-east-1c
--------------------------	-----------------	----------------	--------	-----	-----	-----------------	-----------------------	------------

7. SSH from one instance A to instance B.

STEP 1: Copy pem file to your instance.

```
diksha@diksha:~/Downloads$ scp -i diksha_awskey.pem diksha_awskey.pem ubuntu@ec2-184-72-121-108.compute-1.amazonaws.com:
diksha_awskey.pem                                100% 1692    5.5KB/s   00:00
diksha@diksha:~/Downloads$
```

STEP 2: Now ssh into the instance

```

diksha@diksha:~/Downloads$ ssh -i "diksha_awskey.pem" ubuntu@ec2-184-72-121-108.
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 04:58:35 UTC 2020

System load:  0.01               Processes:            89
Usage of /:   15.0% of 7.69GB    Users logged in:     0
Memory usage: 30%               IP address for eth0: 172.31.155.240
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.

```

STEP 3: Then ssh into Server B from A

```

ubuntu@ip-172-31-155-240:~$ ls
diksha_awskey.pem
ubuntu@ip-172-31-155-240:~$ ssh -i diksha_awskey.pem ubuntu@172.31.20.8
Welcome to Ubuntu 16.04.6 LTS (GNU/Linux 4.4.0-1101-aws x86_64)

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

 * 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.

New release '18.04.4 LTS' available.
Run 'do-release-upgrade' to upgrade to it.

```

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

STEP 1: First Create Snapshot of the EBS.

Create Snapshot

Volume vol-0693b2283dda1bcab ⓘ

Description EBS Snapshot for sharing ebs ⓘ

Encrypted Not Encrypted ⓘ

Key (128 characters maximum)	Value (256 characters maximum)
Name	Snapshot(diksha) ✕
Owner	Diksha ✕
Purpose	Sharing EBS over regions ✕

Add Tag 47 remaining (Up to 50 tags maximum)

STEP 2: Copy Snapshot.

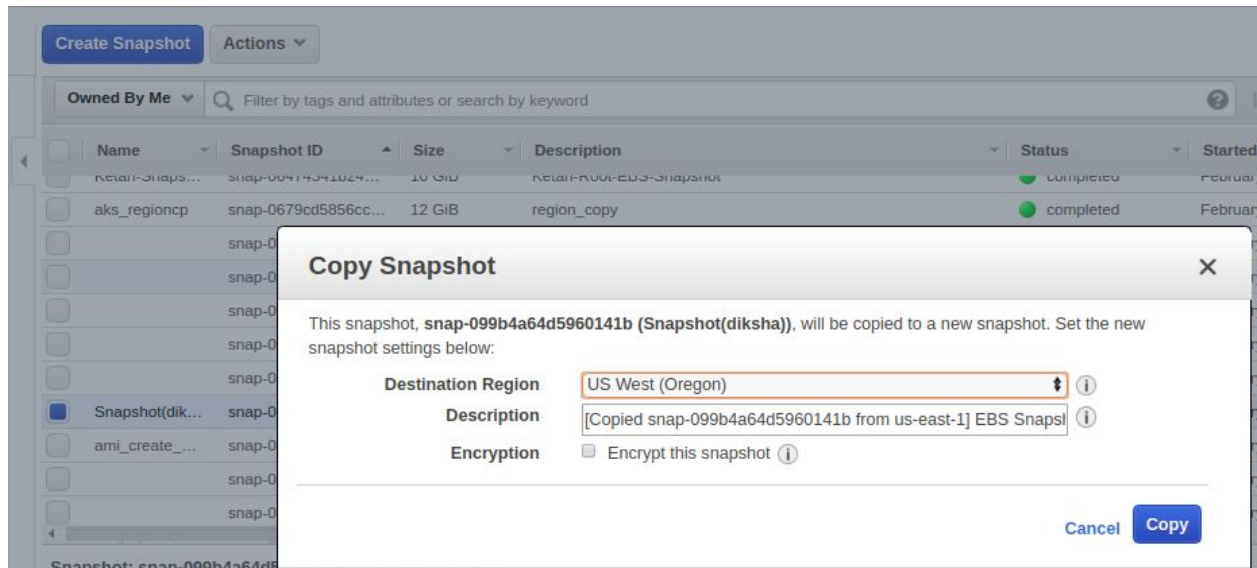
Create Snapshot Actions ^

Owned By Me ▾

	Name	
<input type="checkbox"/>	Retain-Snaps...	
<input type="checkbox"/>	aks_regioncp	
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>	snap-077a0c0a784...	8 GiB
<input type="checkbox"/>	snap-08da938fa64b...	8 GiB
<input type="checkbox"/>	snap-095fec4288e1...	8 GiB
<input type="checkbox"/>	snap-096a273f5cdd...	8 GiB
<input checked="" type="checkbox"/>	Snapshot(dik... snap-099b4a64d59...	8 GiB

- Delete
- Create Volume
- Manage Fast Snapshot Restore
- Create Image
- Copy
- Modify Permissions
- Add/Edit Tags

STEP 3: Give the region to which it will be copied (In our case it is Oregon).



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.

STEP 1: Detach the root EBS

<input checked="" type="checkbox"/>	(diksha)sshA	SSH from on...	i-0adbca1689fff1b37	t2.nano	us-east-1c
<input type="checkbox"/>	(diksha)sshB	SSH to other...	i-0b23d3fd3566c6c68	t2.nano	us-east-1c

EBS-optimized
False

Root device type
ebs

Root device
/dev/sda1

Block devices

Elastic Graphics ID

Elastic Inference accelerator ID

Capacity Reservation

Capacity Reservation Settings

Outpost Arn

Block Device /dev/sda1

EBS ID	vol-0aab4112cb3e7eefa
Root device type	EBS
Attachment time	2020-02-20T18:52:43.000Z
Block device status	attached
Delete on termination	True

STEP 2: Detach volume

Create Volume
Actions

search : vol-

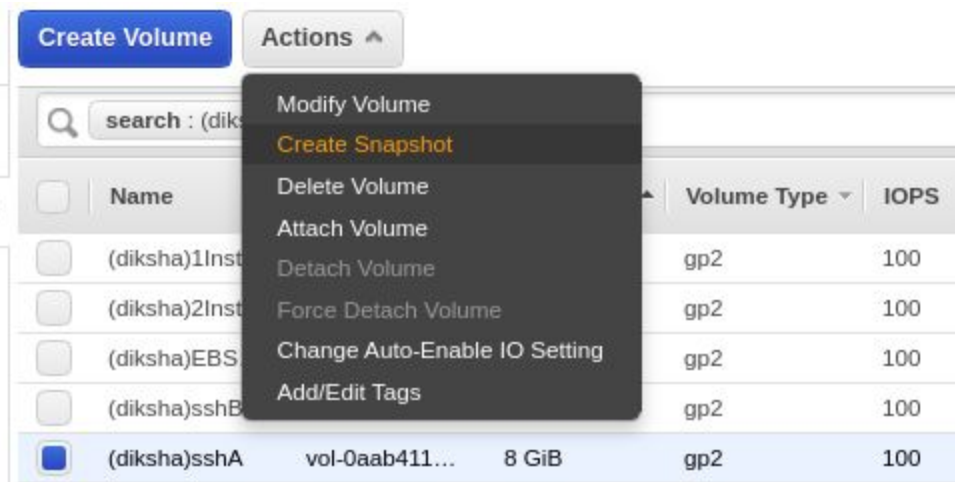
Name
(diksha)sshA

Modify Volume
Create Snapshot
Delete Volume
Attach Volume
Detach Volume
Force Detach Volume
Change Auto-Enable IO Setting
Add/Edit Tags

STEP 3:

<input checked="" type="checkbox"/>	(diksha)sshA	vol-0aab411...	8 GiB	gp2	100	snap-0e07811...	February 21, 2020 a...	us-east-1c	<input checked="" type="radio"/> available	None
-------------------------------------	--------------	----------------	-------	-----	-----	-----------------	------------------------	------------	--------------------------------------------	------

STEP 4: Create its snapshot



STEP 5:

Create Snapshot

Volume: vol-0aab4112cb3e7eefa ⓘ

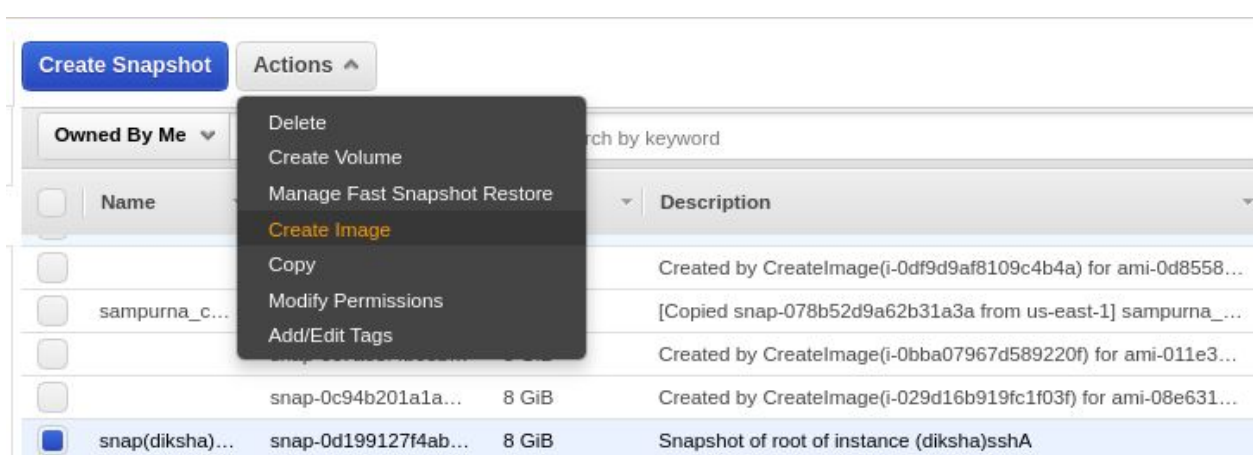
Description: Snapshot of root of Instance (diksha)sshA ⓘ

Encrypted: Not Encrypted ⓘ

Key	Value
Name	sanp(diksha)sshA
Owner	Diksha
Purpose	Creating snapshot

Add Tag 47 remaining (Up to 50 tags maximum)

STEP 6: Create AMI



Create Image from EBS Snapshot

Name: Description:

Architecture: Virtualization type:

Root device name: Kernel ID:

RAM disk ID:

Block Device Mappings

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encrypted
Root	/dev/sda1	snap-0d199127f4abea56f	8	General Purpose S	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted

[Add New Volume](#)

[Cancel](#) [Create](#)

STEP 7: Launch instance with this AMI and save it with userdata file having installation of nginx.

Activities Google Chrome Fri 3:05 PM

console.aws.amazon.com/ec2/v2/home?region=us-east-1#LaunchInstanceWizard:ami=ami-085f6887ea6334abd

aws Services Resource Groups

1. Choose AMI 2. Choose Instance Type 3. Configure Instance Details 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 3: Configure Instance Details

T2/T3 Unlimited ☐ Enable Additional charges may apply

File systems

Network interfaces

Device	Network Interface	Subnet	Primary IP	Secondary IP addresses	IPv6 IPs
eth0	New network interface	subnet-06680a5b	Auto-assign	Add IP	Add IP

Advanced Details

User data ☐ As text ☐ As file ☐ Input is already base64 encoded

```
#/bin/bash
sudo apt-get update && sudo apt-get -y install nginx
sudo service nginx restart
```

[Cancel](#) [Previous](#) [Review and Launch](#) [Next: Add Storage](#)

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Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (128 characters maximum)	Value (256 characters maximum)	Instances ⓘ	Volumes ⓘ	
Name	(diksha)nginxInstancessshA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="✕"/>
Owner	Diksha	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="✕"/>
Purpose	Launching instance with installed nginx	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button" value="✕"/>
<input type="button" value="Add another tag"/> (Up to 50 tags maximum)				

```
diksha@diksha:~/Downloads$ sudo ssh -i "diksha_awskey.pem" ubuntu@ec2-52-91-24-188.compute-1.amazonaws.com
[sudo] password for diksha:
The authenticity of host 'ec2-52-91-24-188.compute-1.amazonaws.com (52.91.24.188)' can't be established.
ECDSA key fingerprint is SHA256:ULWfItfIQeOvS4YT9hod0sXlwanSJT/NHtt2qjUtA+E.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'ec2-52-91-24-188.compute-1.amazonaws.com,52.91.24.188' (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
```

```
ubuntu@ip-172-31-74-80:~$
ubuntu@ip-172-31-74-80:~$ 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: en
   Active: active (running) since Fri 2020-02-21 09:37:15 UTC; 18s ago
     Docs: man:nginx(8)
  Process: 1835 ExecStop=/sbin/start-stop-daemon --quiet --stop --retry QUIT/5 -
  Process: 1849 ExecStart=/usr/sbin/nginx -g daemon on; master_process on; (code
  Process: 1838 ExecStartPre=/usr/sbin/nginx -t -q -g daemon on; master_process
 Main PID: 1853 (nginx)
    Tasks: 2 (limit: 1152)
   CGroup: /system.slice/nginx.service
           └─1853 nginx: master process /usr/sbin/nginx -g daemon on; master_pro
             └─1855 nginx: worker process

Feb 21 09:37:15 ip-172-31-74-80 systemd[1]: Starting A high performance web serv
Feb 21 09:37:15 ip-172-31-74-80 systemd[1]: nginx.service: Failed to parse PID f
Feb 21 09:37:15 ip-172-31-74-80 systemd[1]: Started A high performance web serve
lines 1-16/16 (END)
```