

# Amazon EBS Volumes

An Amazon EBS volume is a durable, block-level storage device that you can attach to a single EC2 instance.

It is a disk where operating system is installed.

It is not a part of virtual machine, It is a separate external disk.

AWS Storage Service contains:-

- a) EBS (Elastic Block Store)
- b) S3 (Simple Storage Service)

EBS is a hard disk for EC2, It is block level storage.

It is highly durable and highly available, your data is replicated on a different physical component, if one component fails it auto failovers to other component.

You can detach volume from one EC2 and attach to another EC2. You can change **size of EBS Volume ( you can only increase and cannot decrease).**

The screenshot shows the AWS Management Console interface for the Amazon EBS Volumes page. The top navigation bar includes the AWS logo, 'Services', 'Resource Groups', and a user profile. The left sidebar contains a navigation menu with options like 'Launch Templates', 'Spot Requests', 'Reserved Instances', 'Dedicated Hosts', 'Capacity Reservations', 'IMAGES', 'AMIs', 'Bundle Tasks', 'ELASTIC BLOCK STORE', 'Volumes', 'Snapshots', 'Lifecycle Manager', 'NETWORK & SECURITY', 'Security Groups', 'Elastic IPs', 'Placement Groups', 'Key Pairs', and 'Network Interfaces'. The main content area displays a table of EBS volumes. The table has columns for Name, Volume ID, Size, Volume Type, IOPS, Snapshot, Created, Availability Zone, State, and Alarm. The 'tomcat-vin' volume is selected, and its details are shown in the bottom pane. The details include the volume's state (in-use), attachment information (i-030f42ee37f39daa (tomcat-vin) /dev/xvda (attached)), volume type (gp2), and product codes (marketplace: IOPS 100). The bottom pane also shows the volume's UTC+5:30 time zone, encryption status (Encrypted), and KMS Key ID (Not Encrypted).

Name	Volume ID	Size	Volume Type	IOPS	Snapshot	Created	Availability Zone	State	Alarm
Tomcat	vol-0a1f071b...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2b	in-use	None
tomcat-nidhi	vol-0458c50...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2b	in-use	None
tomcat-vin	vol-0a7b4cd...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2b	in-use	None
tomcat-god	vol-0339c50...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2b	in-use	None
tomcat-divyasri	vol-007bb27...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2c	in-use	None
tomcat-pooja	vol-083acbc...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2c	in-use	None
vol-0e85a52...	vol-0e85a52...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2b	in-use	None
tomcat-kavya	vol-0ef188a8...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2c	in-use	None
vol-00cb272...	vol-00cb272...	8 GiB	gp2	100	snap-040ce2c...	November 20, 2018...	us-east-2b	in-use	None

Step 1: After creating bucket in S3, Click on Create Volume button.  
(Refer S3 file for creating a bucket)

EC2 Management Console

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#CreateVolume:

Services Resource Groups

Sumanth2\_bng @ 6446-3932-... Ohio Support

Volumes > Create Volume

### Create Volume

Volume Type: General Purpose SSD (gp2)

Size (GiB): 100 (Min: 1 GiB, Max: 16384 GiB)

IOPS: 300 / 3000 (Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS)

Availability Zone\*: us-east-2a

Throughput (MB/s): Not applicable

Snapshot ID: Select a snapshot

Encryption: ☐ Encrypt this volume

Key (127 characters maximum) Value (255 characters maximum)

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Step 2: Change the size of volume from 100 Gb to 1 Gb (depends upon user requirements).

EC2 Management Console

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#CreateVolume:

Services Resource Groups

Sumanth2\_bng @ 6446-3932-... Ohio Support

Volumes > Create Volume

### Create Volume

Volume Type: General Purpose SSD (gp2)

Size (GiB): 1 (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-2b

Throughput (MB/s): Not applicable

Snapshot ID: Select a snapshot

Encryption: ☐ Encrypt this volume

Key (127 characters maximum) Value (255 characters maximum)

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Select Availability Zone (make sure that the availability zone of your EC2 instance and Volume is same)

EC2 Management Console

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#CreateVolume:

Services Resource Groups

Sumanth2\_bng @ 6446-3932-... Ohio Support

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

Availability Zone\* us-east-2b

Throughput (MB/s) Not applicable

Snapshot ID Select a snapshot

Encryption ☐ Encrypt this volume

Key (127 characters maximum) Value (255 characters maximum)

This resource currently has no tags  
Choose the Add tag button or click to add a Name tag

Add Tag 50 remaining (Up to 50 tags maximum)

Cancel Create Volume

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Step 3: Click on create Volume to create new AWS EBS Volume.

EC2 Management Console

https://us-east-2.console.aws.amazon.com/ec2/v2/home?region=us-east-2#CreateVolume:

Services Resource Groups

Sumanth2\_bng @ 6446-3932-... Ohio Support

Volumes > Create Volume

### Create Volume

✓ Volume created successfully

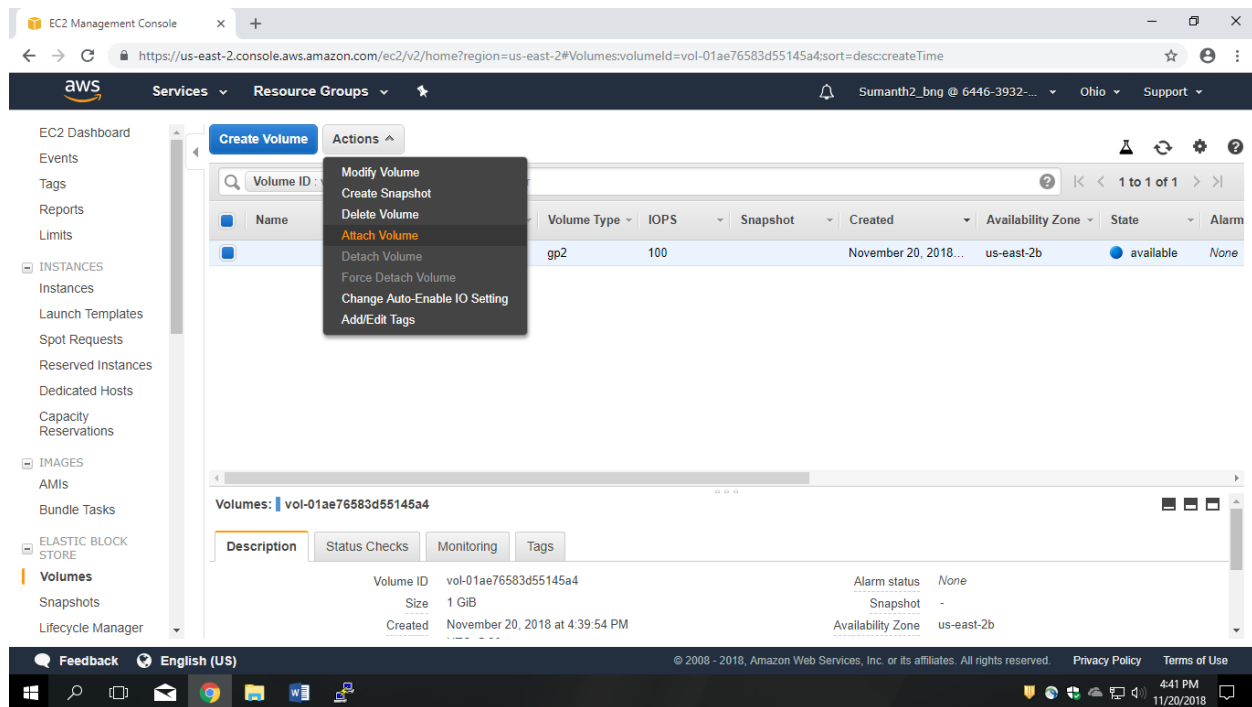
Volume ID vol-01ae76583d55145a4

Close

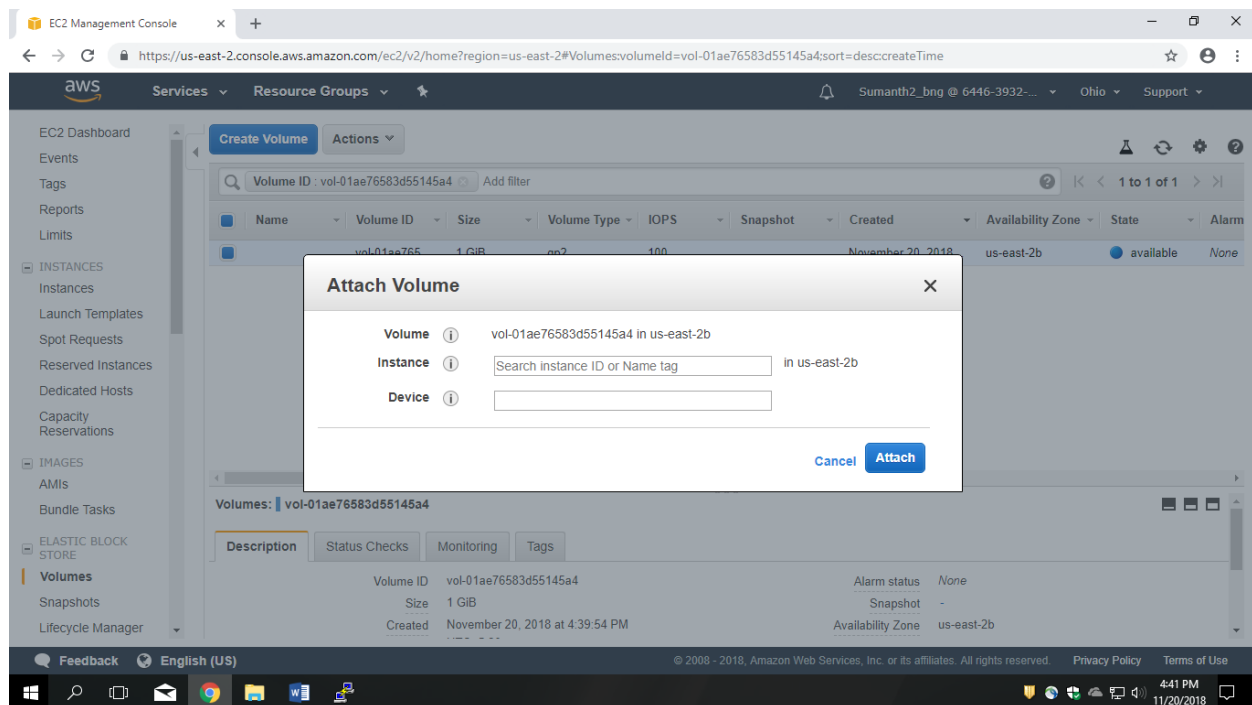
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Note down Volume Id.

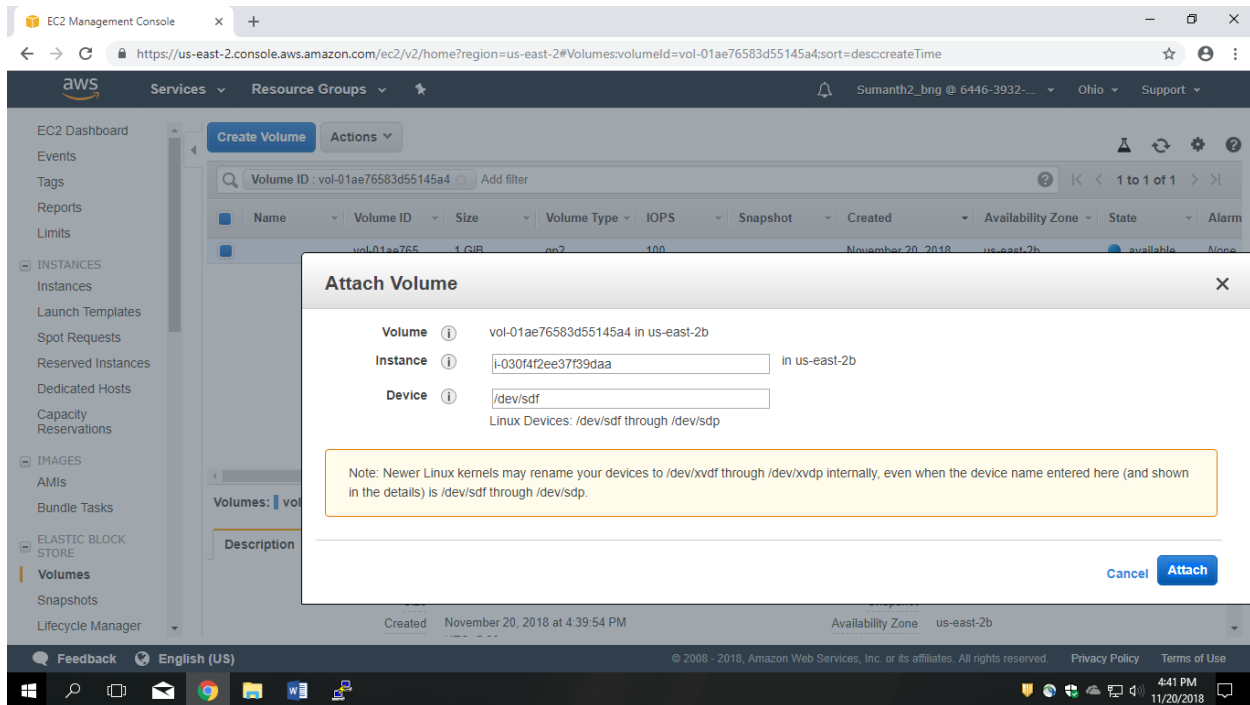
Step 4: Click on Volume Id.



Step 5: Click on Actions, Select Attach Volume



Step 6: Enter your EC2 instance Id and device name.



Step 7: Click on Attach.

After attaching, we have to mount the volume. Before mounting, open putty.exe and enter the following commands.

```

ec2-user@ip-172-31-26-24:~
Using username "ec2-user".
Authenticating with public key "imported-openssh-key"

  ____|  _||_ _ )
  _|| ( _||_ /   Amazon Linux AMI
 _||\ _||_||_||

https://aws.amazon.com/amazon-linux-ami/2018.03-release-notes/
[ec2-user@ip-172-31-26-24 ~]$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
xvda         202:0    0   8G  0 disk
└─xvda1      202:1    0   8G  0 part /
xvdf         202:80    0   1G  0 disk
[ec2-user@ip-172-31-26-24 ~]$

```

ec2-user@ip-172-31-26-24:~

Using username "ec2-user".

Authenticating with public key "imported-openssh-key"

```
  _ |  _ |  _ )
 _ | (  _ |  /  Amazon Linux AMI
 _ | \  _ |  _ |
```

<https://aws.amazon.com/amazon-linux-ami/2018.03-release-notes/>

[ec2-user@ip-172-31-26-24 ~]\$ lsblk

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
xvda	202:0	0	8G	0	disk	
└─xvda1	202:1	0	8G	0	part	/
xvdf	202:80	0	1G	0	disk	

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkfs -t ext4 /dev/xvdf

ec2-user@ip-172-31-26-24:~

```
  _ |  _ |  _ )
 _ | (  _ |  /  Amazon Linux AMI
 _ | \  _ |  _ |
```

<https://aws.amazon.com/amazon-linux-ami/2018.03-release-notes/>

[ec2-user@ip-172-31-26-24 ~]\$ lsblk

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
xvda	202:0	0	8G	0	disk	
└─xvda1	202:1	0	8G	0	part	/
xvdf	202:80	0	1G	0	disk	

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkfs -t ext4 /dev/xvdf

mke2fs 1.43.5 (04-Aug-2017)

Creating filesystem with 262144 4k blocks and 65536 inodes

Filesystem UUID: 38ea0a82-a1cd-4bd6-8f1b-787f46971203

Superblock backups stored on blocks:

32768, 98304, 163840, 229376

Allocating group tables: done

Writing inode tables: done

Creating journal (8192 blocks): done

Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-26-24 ~]\$

ec2-user@ip-172-31-26-24:~

\_ | ( / Amazon Linux AMI  
\_ | \ \_ | \_ |

<https://aws.amazon.com/amazon-linux-ami/2018.03-release-notes/>

[ec2-user@ip-172-31-26-24 ~]\$ lsblk

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
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└─xvda1	202:1	0	8G	0	part	/
xvdf	202:80	0	1G	0	disk	

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Allocating group tables: done

Writing inode tables: done

Creating journal (8192 blocks): done

Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkdir /vol2

[ec2-user@ip-172-31-26-24 ~]\$

ec2-user@ip-172-31-26-24:~

\_ | ( / Amazon Linux AMI  
\_ | \ \_ | \_ |

<https://aws.amazon.com/amazon-linux-ami/2018.03-release-notes/>

[ec2-user@ip-172-31-26-24 ~]\$ lsblk

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
xvda	202:0	0	8G	0	disk	
└─xvda1	202:1	0	8G	0	part	/
xvdf	202:80	0	1G	0	disk	

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkfs -t ext4 /dev/xvdf  
mke2fs 1.43.5 (04-Aug-2017)

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Allocating group tables: done

Writing inode tables: done

Creating journal (8192 blocks): done

Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkdir /vol2

[ec2-user@ip-172-31-26-24 ~]\$ sudo mount /dev/xvdf /vol2

ec2-user@ip-172-31-26-24:~

\_\_\_\_|\\\_\_\_\_|\_\_\_\_|

<https://aws.amazon.com/amazon-linux-ami/2018.03-release-notes/>

[ec2-user@ip-172-31-26-24 ~]\$ lsblk

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
------	---------	----	------	----	------	------------

xvda	202:0	0	8G	0	disk	
------	-------	---	----	---	------	--

└─xvda1	202:1	0	8G	0	part	/
---------	-------	---	----	---	------	---

xvdf	202:80	0	1G	0	disk	
------	--------	---	----	---	------	--

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkfs -t ext4 /dev/xvdf

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Allocating group tables: done

Writing inode tables: done

Creating journal (8192 blocks): done

Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkdir /vol2

[ec2-user@ip-172-31-26-24 ~]\$ sudo mount /dev/xvdf /vol2

[ec2-user@ip-172-31-26-24 ~]\$ lsblk

ec2-user@ip-172-31-26-24:~

xvda	202:0	0	8G	0	disk	
------	-------	---	----	---	------	--

└─xvda1	202:1	0	8G	0	part	/
---------	-------	---	----	---	------	---

xvdf	202:80	0	1G	0	disk	
------	--------	---	----	---	------	--

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkfs -t ext4 /dev/xvdf

mke2fs 1.43.5 (04-Aug-2017)

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Allocating group tables: done

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Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-26-24 ~]\$ sudo mkdir /vol2

[ec2-user@ip-172-31-26-24 ~]\$ sudo mount /dev/xvdf /vol2

[ec2-user@ip-172-31-26-24 ~]\$ lsblk

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINT
------	---------	----	------	----	------	------------

xvda	202:0	0	8G	0	disk	
------	-------	---	----	---	------	--

└─xvda1	202:1	0	8G	0	part	/
---------	-------	---	----	---	------	---

xvdf	202:80	0	1G	0	disk	/vol2
------	--------	---	----	---	------	-------

[ec2-user@ip-172-31-26-24 ~]\$



```
ec2-user@ip-172-31-26-24:~$ lsblk
xvda      202:0      0   8G   0 disk
└─xvda1   202:1      0   8G   0 part /
xvdf      202:80     0   1G   0 disk
[ec2-user@ip-172-31-26-24 ~]$ sudo mkfs -t ext4 /dev/xvdf
mke2fs 1.43.5 (04-Aug-2017)
Creating filesystem with 262144 4k blocks and 65536 inodes
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Superblock backups stored on blocks:
    32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-26-24 ~]$ sudo mkdir /vol2
[ec2-user@ip-172-31-26-24 ~]$ sudo mount /dev/xvdf /vol2
[ec2-user@ip-172-31-26-24 ~]$ lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
xvda      202:0      0   8G   0 disk
└─xvda1   202:1      0   8G   0 part /
xvdf      202:80     0   1G   0 disk /vol2
[ec2-user@ip-172-31-26-24 ~]$ cd /vol2/
```

```
ec2-user@ip-172-31-26-24/vol2$ lsblk
└─xvda1   202:1      0   8G   0 part /
xvdf      202:80     0   1G   0 disk
[ec2-user@ip-172-31-26-24 ~]$ sudo mkfs -t ext4 /dev/xvdf
mke2fs 1.43.5 (04-Aug-2017)
Creating filesystem with 262144 4k blocks and 65536 inodes
Filesystem UUID: 38ea0a82-a1cd-4bd6-8f1b-787f46971203
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-26-24 ~]$ sudo mkdir /vol2
[ec2-user@ip-172-31-26-24 ~]$ sudo mount /dev/xvdf /vol2
[ec2-user@ip-172-31-26-24 ~]$ lsblk
NAME      MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
xvda      202:0      0   8G   0 disk
└─xvda1   202:1      0   8G   0 part /
xvdf      202:80     0   1G   0 disk /vol2
[ec2-user@ip-172-31-26-24 ~]$ cd /vol2/
[ec2-user@ip-172-31-26-24 vol2]$ sudo vi welcome.txt
```

Step 8: Create Welcome.txt file and edit this file using vi editor.

[illegible]

Step 9: To Save the file and exit from editor, press Escape key and then type :wq

```
ec2-user@ip-172-31-26-24:/vol1
Filesystem UUID: 38ea0a82-a1cd-4bd6-8f1b-787f46971203
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376

Allocating group tables: done
Writing inode tables: done
Creating journal (8192 blocks): done
Writing superblocks and filesystem accounting information: done

[ec2-user@ip-172-31-26-24 ~]$ sudo mkdir /vol2
[ec2-user@ip-172-31-26-24 ~]$ sudo mount /dev/xvdf /vol2
[ec2-user@ip-172-31-26-24 ~]$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
xvda        202:0    0   8G  0 disk 
└─xvda1     202:1    0   8G  0 part /
xvdf        202:80    0   1G  0 disk /vol2
[ec2-user@ip-172-31-26-24 ~]$ cd /vol2/
[ec2-user@ip-172-31-26-24 vol2]$ sudo vi welcome.txt
[ec2-user@ip-172-31-26-24 vol2]$ pwd
/vol2
[ec2-user@ip-172-31-26-24 vol2]$ ls
lost+found  welcome.txt
[ec2-user@ip-172-31-26-24 vol2]$ sudo vi /etc/fstab
```

Step 10: To auto-mount volume, follow the following commands.

```
sudo vi /etc/fstab
```



Save the file and exit from vi editor.

AWS EBS Volume is created.