Lab Manual -- Attach Data Volume to existing EC2 instance.

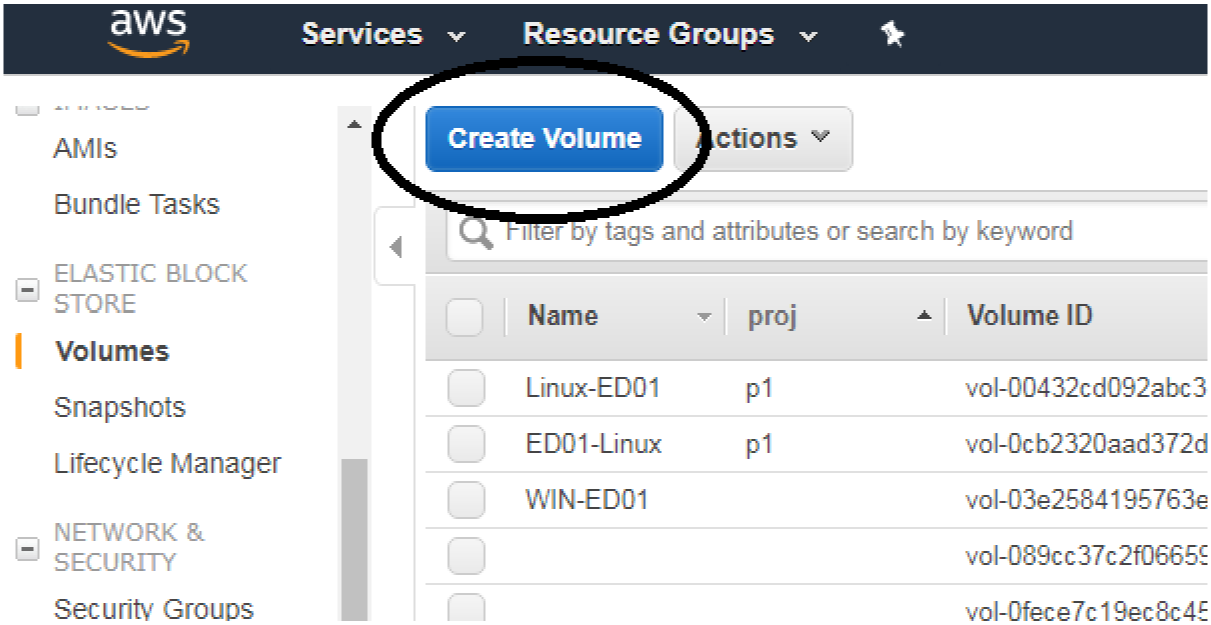
Steps

1. Attach the volume to the EC2 instance from the AWS console
2. Format and mount the volume inside the Linux Machine.
3. Detach the Volume from the Linux Machine.

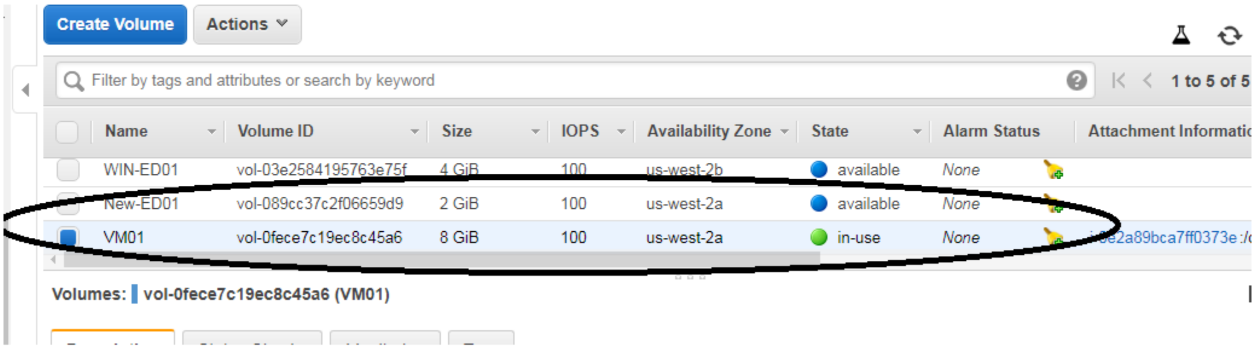
1. Attach the volume to the EC2 instance from the AWS console.

Note: -- Assuming the Volume and the EC2 instance are in the same "Availability Zone"

Click on "Volumes" on the left panel under EC2 page.



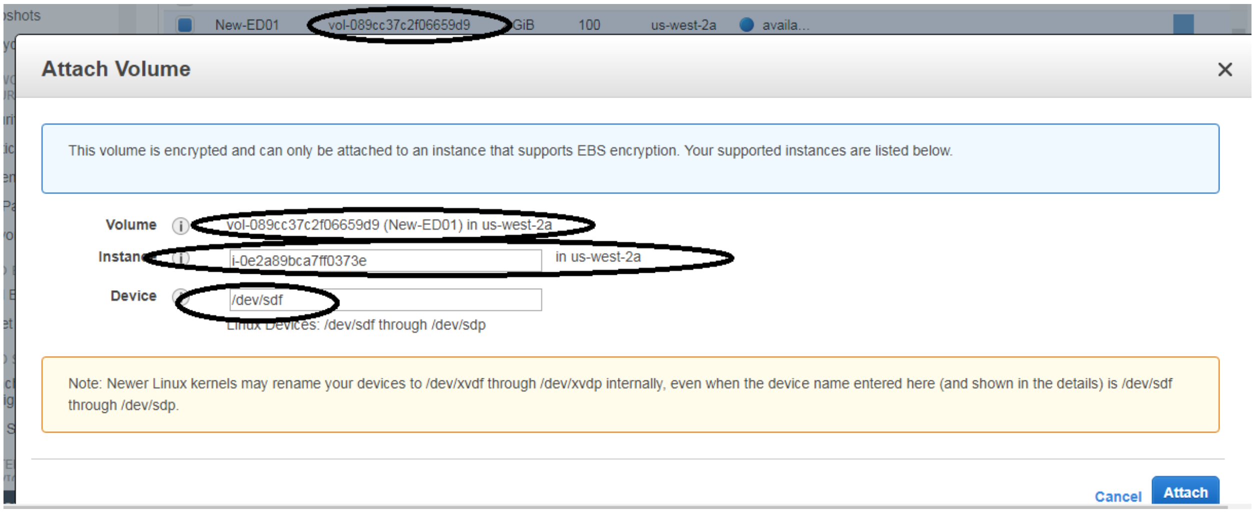
Name	proj	Volume ID
Linux-ED01	p1	vol-00432cd092abc3
ED01-Linux	p1	vol-0cb2320aad372d
WIN-ED01		vol-03e2584195763e
		vol-089cc37c2f06659
		vol-0fece7c19ec8c45



Name	Volume ID	Size	IOPS	Availability Zone	State	Alarm Status	Attachment Informatio
WIN-ED01	vol-03e2584195763e75f	4 GiB	100	us-west-2b	● available	None	
New-ED01	vol-089cc37c2f06659d9	2 GiB	100	us-west-2a	● available	None	
VM01	vol-0fece7c19ec8c45a6	8 GiB	100	us-west-2a	● in-use	None	i-0e2a89bca7ff0373e :/

Volumes: vol-0fece7c19ec8c45a6 (VM01)

Make sure the EC2 instance and new volume (2 GB) are in the same AZ.



New-ED01 vol-089cc37c2f06659d9 GiB 100 us-west-2a ● availa...

Attach Volume

This volume is encrypted and can only be attached to an instance that supports EBS encryption. Your supported instances are listed below.

Volume: vol-089cc37c2f06659d9 (New-ED01) in us-west-2a

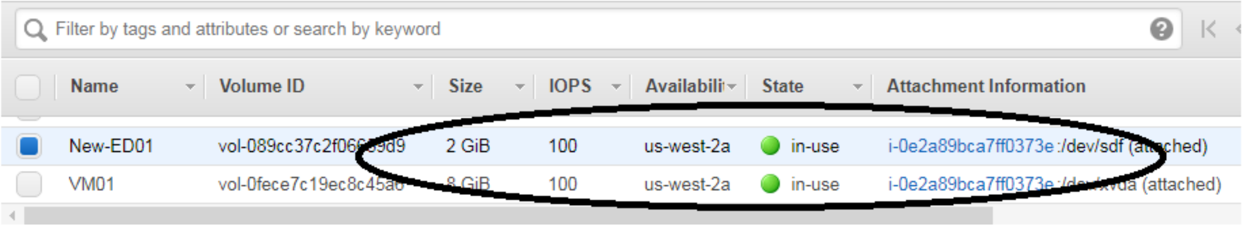
Instance: i-0e2a89bca7ff0373e in us-west-2a

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.

The Device says → **"/dev/sdf"** – which means that this virtual disk would be listed as this in the linux



Filter by tags and attributes or search by keyword

	Name	Volume ID	Size	IOPS	Availabili	State	Attachment Information
☑	New-ED01	vol-089cc37c2f06659d9	2 GiB	100	us-west-2a	● in-use	i-0e2a89bca7ff0373e :/dev/sdf (attached)
□	VM01	vol-0fece7c19ec8c45a0	8 GiB	100	us-west-2a	● in-use	i-0e2a89bca7ff0373e :/dev/xvda (attached)

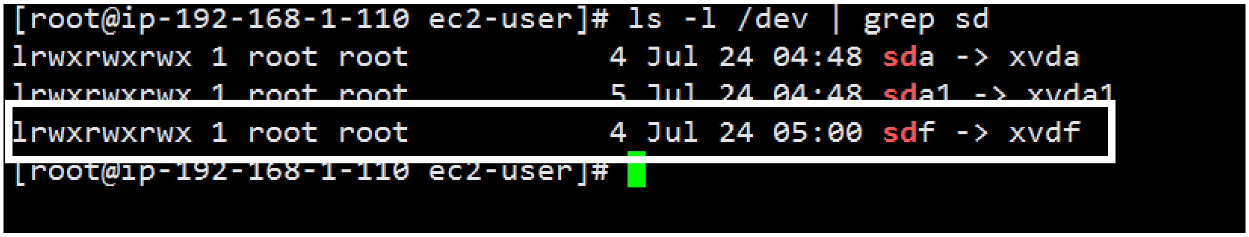
The volume is attached to the EC2 instance now.

2. Format and mount the volume inside the Linux Machine.

Step 1:

Login to the EC2 instance

# ls -l /dev | grep sd – This command will list the files and folders in the directory "dev" with a filter for the name as "sd"



```
[root@ip-192-168-1-110 ec2-user]# ls -l /dev | grep sd
lrwxrwxrwx 1 root root          4 Jul 24 04:48 sda -> xvda
lrwxrwxrwx 1 root root          5 Jul 24 04:48 sda1 -> xvda1
lrwxrwxrwx 1 root root          4 Jul 24 05:00 sdf -> xvdf
[root@ip-192-168-1-110 ec2-user]#
```

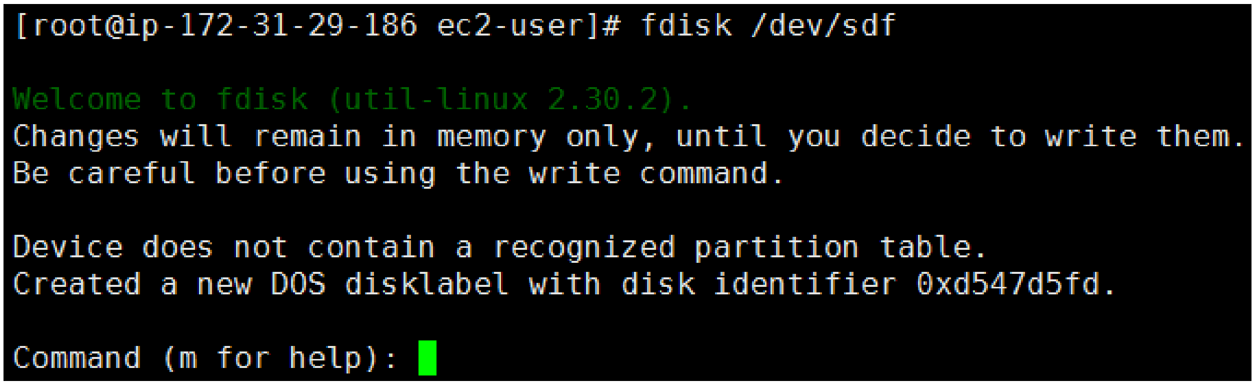
The above screen shows that the disk is attached to the OS.

Ex: -- "**sdf**" in the above image.

Step2:

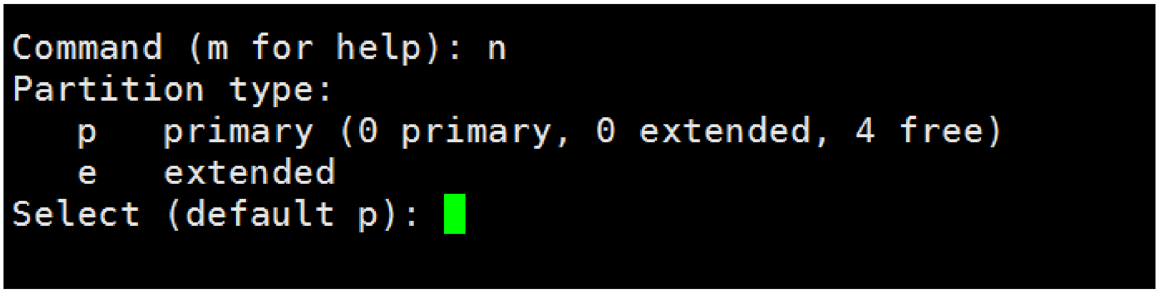
$ **sudo su**

$ "**fdisk /dev/sdf**"



```
[root@ip-172-31-29-186 ec2-user]# fdisk /dev/sdf

Welcome to fdisk (util-linux 2.30.2).
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 0xd547d5fd.

Command (m for help):
```

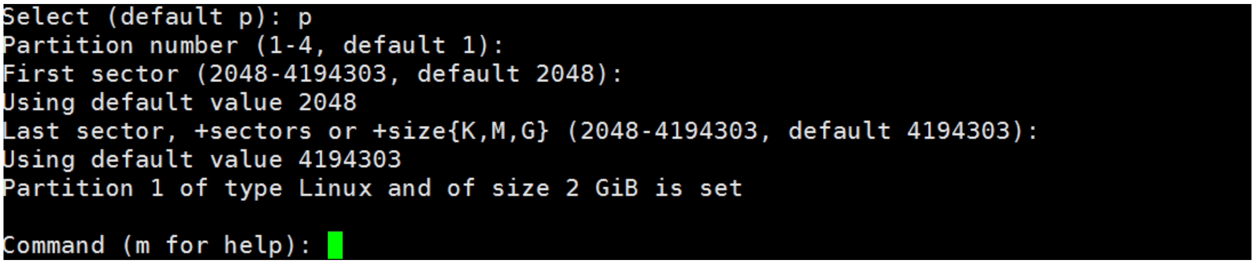
Press "n" for "new partition"



```
Command (m for help): n
Partition type:
   p   primary (0 primary, 0 extended, 4 free)
   e   extended
Select (default p): 
```

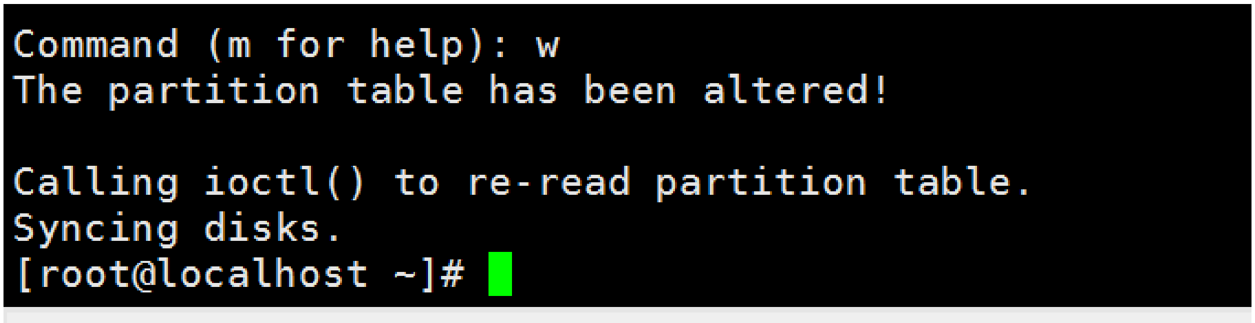
Select “p”

And keep pressing “Enter” (3times)



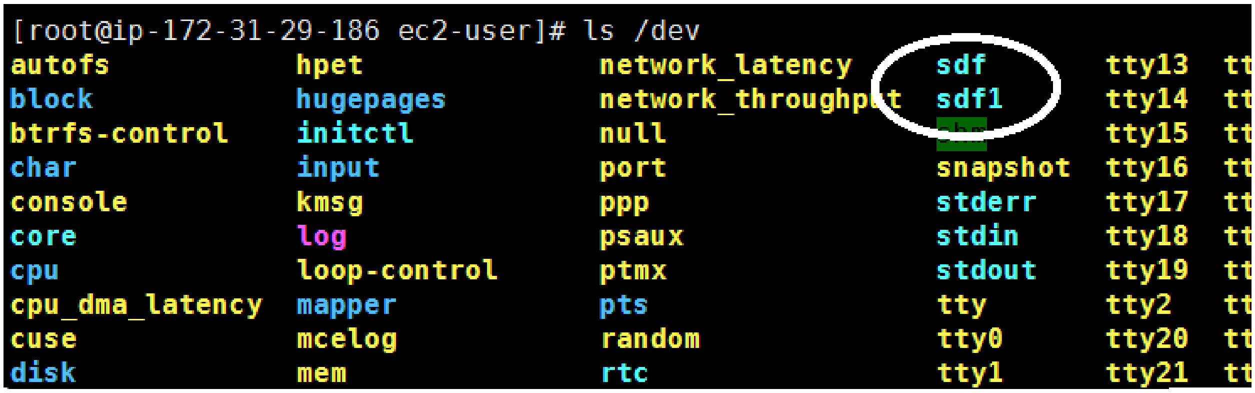
```
Select (default p): p
Partition number (1-4, default 1):
First sector (2048-4194303, default 2048):
Using default value 2048
Last sector, +sectors or +size{K,M,G} (2048-4194303, default 4194303):
Using default value 4194303
Partition 1 of type Linux and of size 2 GiB is set

Command (m for help): 
```

Now save the configuration “w”



```
Command (m for help): w
The partition table has been altered!

Calling ioctl() to re-read partition table.
Syncing disks.
[root@localhost ~]# 
```

Now lets check if the partition is created.

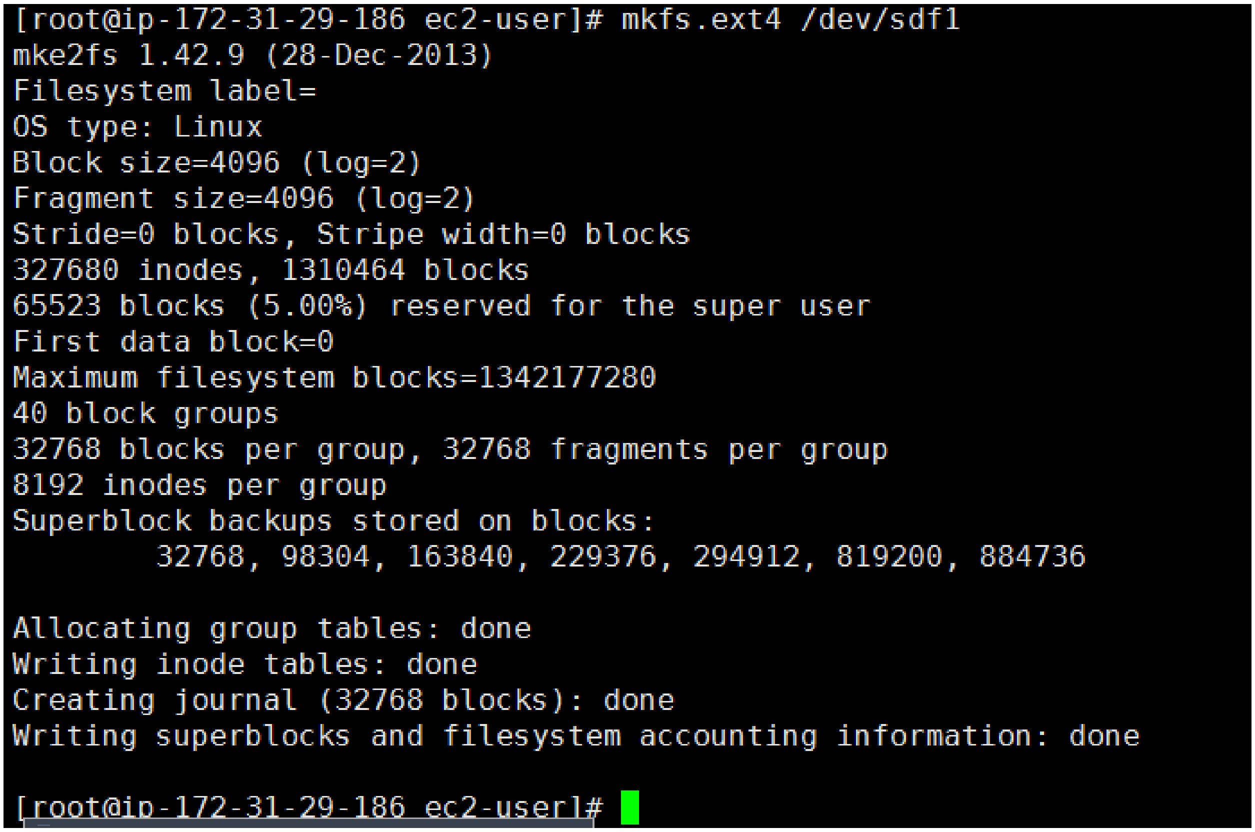


```
[root@ip-172-31-29-186 ec2-user]# ls /dev
autofs            hpet             network_latency     sdf       tty13  tt
block             hugepages        network_throughput  sdf1      tty14  tt
btrfs-control     initctl          null                shm       tty15  tt
char              input            port                snapshot  tty16  tt
console           kmsg             ppp                 stderr    tty17  tt
core              log              psaux               stdin     tty18  tt
cpu               loop-control     ptmx                stdout    tty19  tt
cpu_dma_latency   mapper           pts                 tty       tty2   tt
cuse              mcelog           random              tty0      tty20  tt
disk              mem              rtc                 tty1      tty21  tt
```

The one marked in the circle, shows that “sdf1” is created, which proves that the partition for the virtual disk “sdf” is created.

Step3: Format the disk

Command → **“mkfs.ext4 /dev/sdf1”**



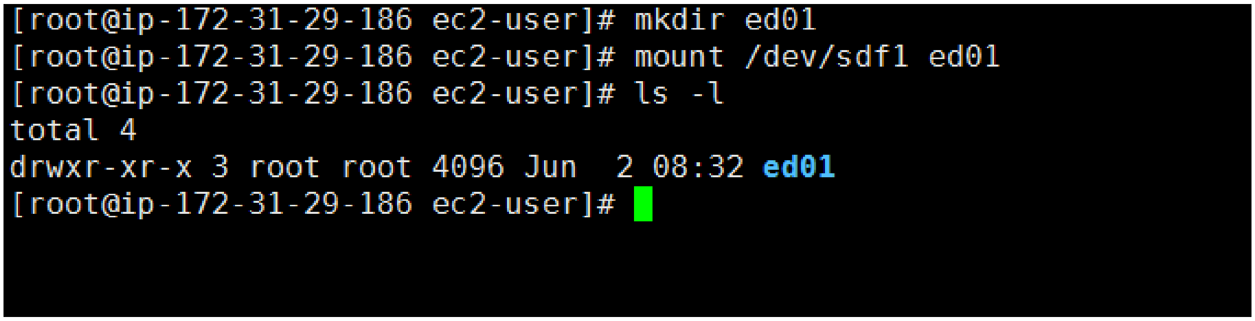
```
[root@ip-172-31-29-186 ec2-user]# mkfs.ext4 /dev/sdf1
mke2fs 1.42.9 (28-Dec-2013)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
327680 inodes, 1310464 blocks
65523 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=1342177280
40 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736

Allocating group tables: done
Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

[root@ip-172-31-29-186 ec2-user]#
```

Step4: Mount the disk “mount”

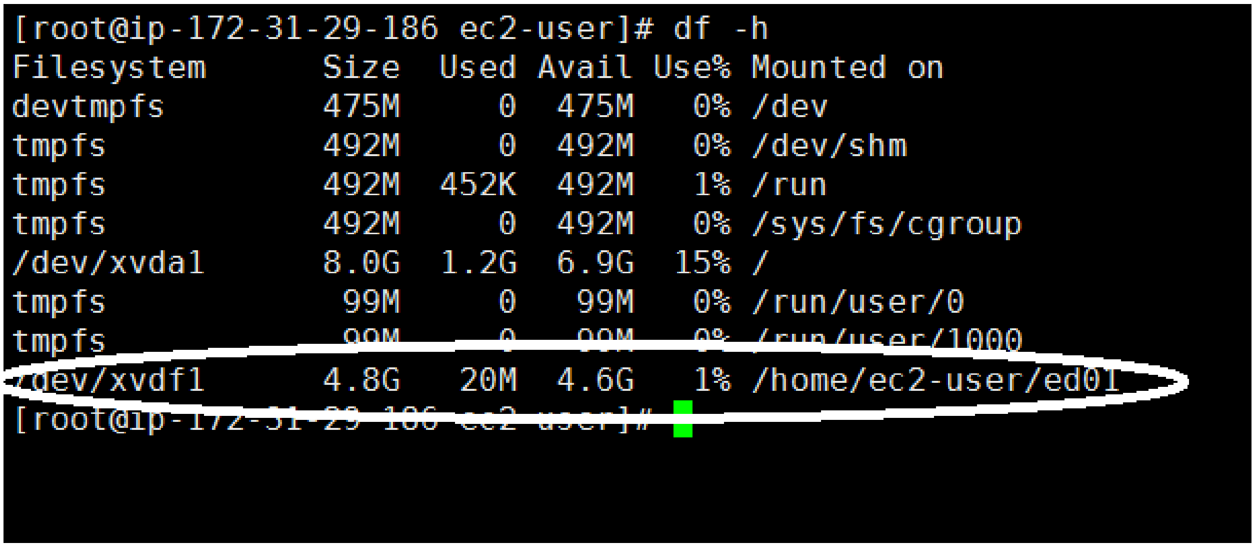
Create a new folder and mount the new partition

Command → **mkdir ed01**

→“mount /dev/sdf1 ed01”



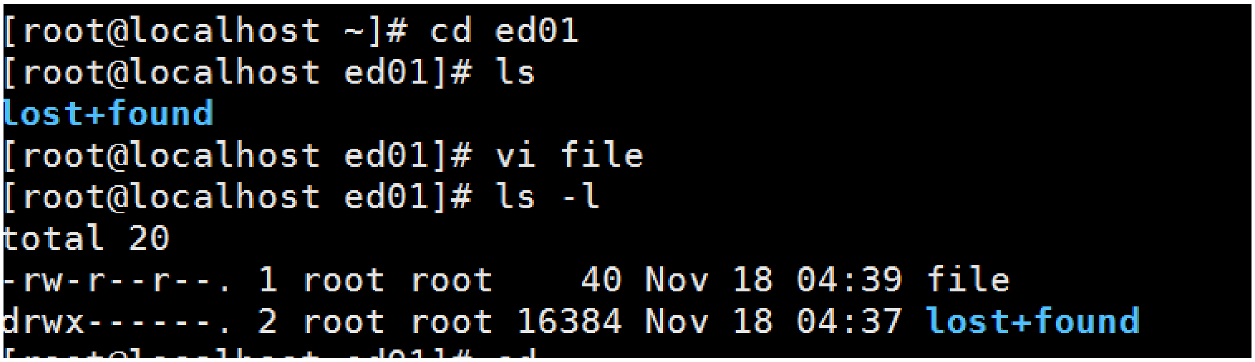
```
[root@ip-172-31-29-186 ec2-user]# mkdir ed01
[root@ip-172-31-29-186 ec2-user]# mount /dev/sdf1 ed01
[root@ip-172-31-29-186 ec2-user]# ls -l
total 4
drwxr-xr-x 3 root root 4096 Jun  2 08:32 ed01
[root@ip-172-31-29-186 ec2-user]#
```



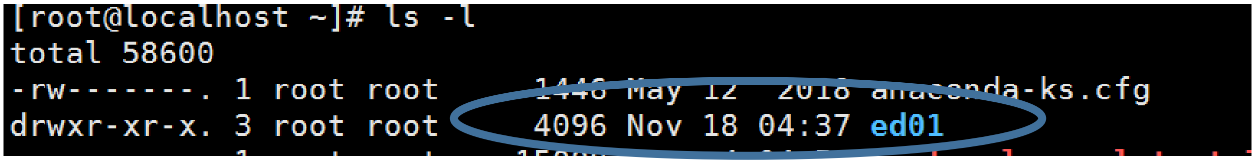
```
[root@ip-172-31-29-186 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        475M     0  475M   0% /dev
tmpfs           492M     0  492M   0% /dev/shm
tmpfs           492M  452K  492M   1% /run
tmpfs           492M     0  492M   0% /sys/fs/cgroup
/dev/xvda1      8.0G  1.2G  6.9G  15% /
tmpfs            99M     0   99M   0% /run/user/0
tmpfs            99M     0   99M   0% /run/user/1000
/dev/xvdf1      4.8G   20M  4.6G   1% /home/ec2-user/ed01
[root@ip-172-31-29-186 ec2-user]#
```

The above screen shows that the new volume is attached to a folder inside the LINUX OS.

Step5: Create a file in the new volume.



```
[root@localhost ~]# cd ed01
[root@localhost ed01]# ls
lost+found
[root@localhost ed01]# vi file
[root@localhost ed01]# ls -l
total 20
-rw-r--r--. 1 root root    40 Nov 18 04:39 file
drwx------. 2 root root 16384 Nov 18 04:37 lost+found
[root@localhost ed01]# cd
```

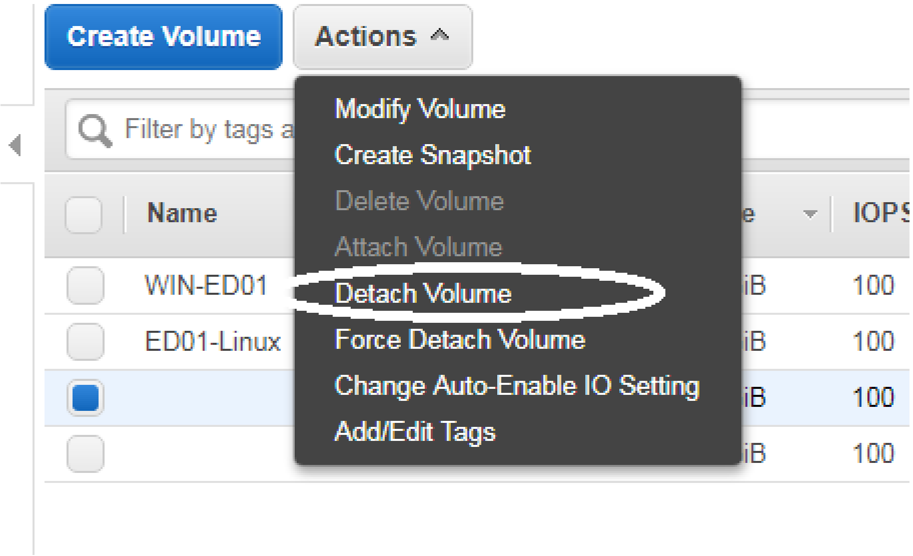


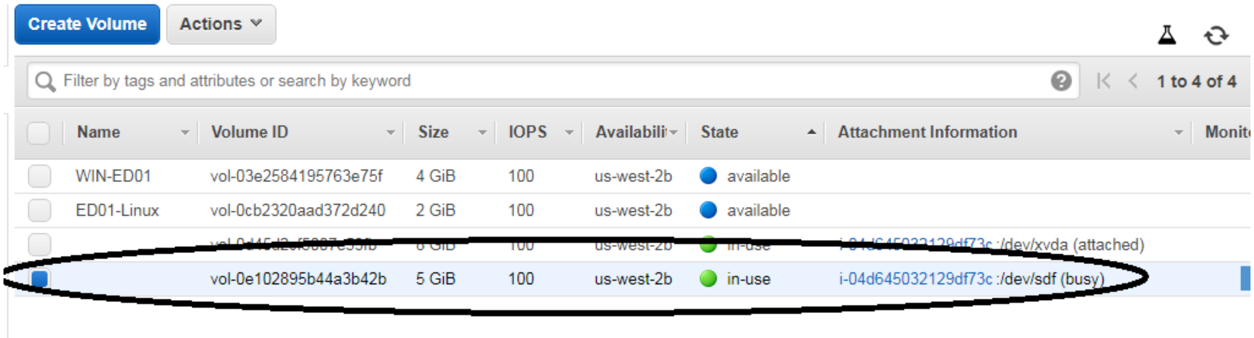
```
[root@localhost ~]# ls -l
total 58600
-rw-------. 1 root root      1446 May 12  2018 anaconda-ks.cfg
drwxr-xr-x. 3 root root      4096 Nov 18 04:37 ed01
```

3. Detach the volume from the Linux Machine.

Note: -- The volume is attached inside the linux machine to a folder .

Lets detach the volume from the AWS Console



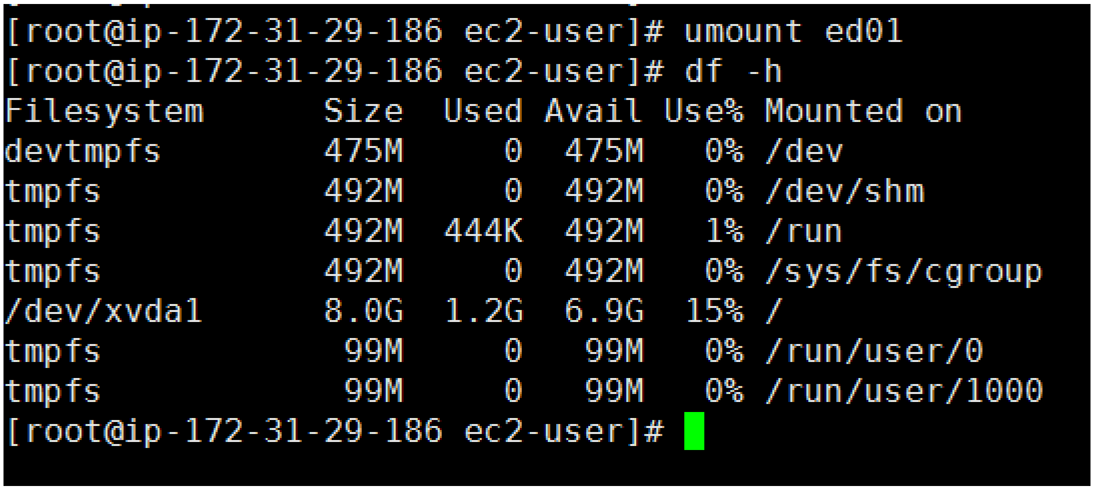


	Name	Volume ID	Size	IOPS	Availabili	State	Attachment Information	Monit
□	WIN-ED01	vol-03e2584195763e75f	4 GiB	100	us-west-2b	● available		
□	ED01-Linux	vol-0cb2320aad372d240	2 GiB	100	us-west-2b	● available		
□		vol-0d45d2cf5887e35fb	8 GiB	100	us-west-2b	● in-use	i-04d645032129df73c :/dev/xvda (attached)	
☑		vol-0e102895b44a3b42b	5 GiB	100	us-west-2b	● in-use	i-04d645032129df73c :/dev/sdf (busy)	

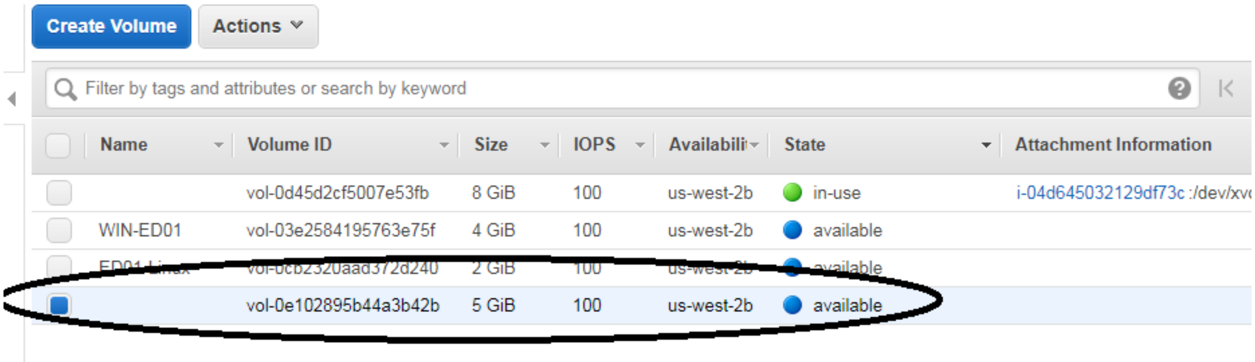
The Volume is NOT getting detached, Because the LINUX OS will not allow it to do so, until we “UN MOUNT” the partition inside the LINUX OS.

Command

- ➔ $ **umount ed01**



```
[root@ip-172-31-29-186 ec2-user]# umount ed01
[root@ip-172-31-29-186 ec2-user]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        475M     0  475M   0% /dev
tmpfs           492M     0  492M   0% /dev/shm
tmpfs           492M  444K  492M   1% /run
tmpfs           492M     0  492M   0% /sys/fs/cgroup
/dev/xvda1      8.0G  1.2G  6.9G  15% /
tmpfs            99M     0   99M   0% /run/user/0
tmpfs            99M     0   99M   0% /run/user/1000
[root@ip-172-31-29-186 ec2-user]#
```



☐	Name	Volume ID	Size	IOPS	Availabili	State	Attachment Information
☐		vol-0d45d2cf5007e53fb	8 GiB	100	us-west-2b	● in-use	i-04d645032129df73c :/dev/xv
☐	WIN-ED01	vol-03e2584195763e75f	4 GiB	100	us-west-2b	● available	
☐	ED01-Linux	vol-0cb2320aad372d240	2 GiB	100	us-west-2b	● available	
☑		vol-0e102895b44a3b42b	5 GiB	100	us-west-2b	● available	

Now the 5GB Volume is got Detached on the AWS Console.