

AWS EC2 & EBS Assignment Submission

Name: Vikram

Course: AWS DevOps (Intellipaat)

Assignment: EC2 & EBS Volume Configuration Task

Problem Statement

You work for XYZ Corporation. Your corporation wants to launch a new web-based application using AWS Virtual Machines. Configure the resources accordingly with appropriate storage for the tasks.

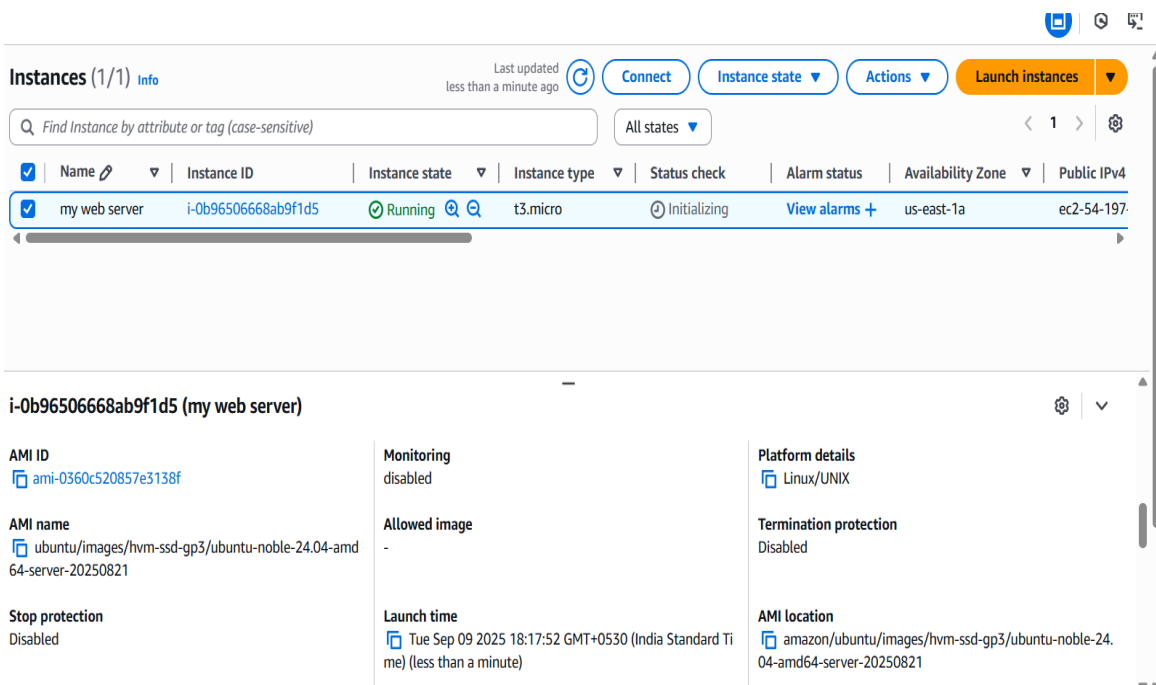
Tasks Performed

Task 1: Launch a Linux EC2 instance

Steps taken:

- Logged into AWS Console and set region to US-East-1 (N. Virginia).
- Went to EC2 → Instances → Launch instances.
- Selected Ubuntu Server 22.04 LTS (Free tier eligible) AMI.
- Chose t3.micro as instance type.
- Created/used existing key pair.
- Configured security group to allow SSH (22) for remote login.
- Launched the instance and verified it was running.

Screenshot Placeholder:



Task 2: Create an EBS volume with 20 GB of storage and attach it

Steps taken:

- Went to EC2 → Volumes → Create Volume.
- Selected 20 GB size and made sure the Availability Zone matched the EC2 instance.
- Created the volume and attached it to the instance.

Screenshot Placeholder:

The screenshot shows the AWS Management Console 'Volumes' page. At the top, there's a header with 'Volumes (1/2)' and an 'Info' link. To the right, it says 'Last updated less than a minute ago' with a refresh icon, and buttons for 'Actions' and 'Create volume'. Below the header is a 'Saved filter sets' section with a 'Choose filter set' dropdown and a search bar. The main part of the screenshot is a table of volumes. The first volume is selected, and its details are shown below the table.

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone
<input checked="" type="checkbox"/>		vol-0b2b494e117867f3c	gp3	20 GiB	3000	125	-	2025/09/09 18:19 GMT+5:...	us-east-1a
<input type="checkbox"/>		vol-0e73a220c42	gp3	8 GiB	3000	125	snap-05ebf17...	2025/09/09 18:17 GMT+5:...	us-east-1a


Volume ID: vol-0b2b494e117867f3c

Attach volume [Info](#)

Attach a volume to an instance to use it as you would a regular physical hard disk drive.

Basic details

Volume ID

 vol-0b2b494e117867f3c

Availability Zone

us-east-1a

Instance [Info](#)

i-0b96506668ab9f1d5
(my web server) (running)

Only instances in the same Availability Zone as the selected volume are displayed.

Device name [Info](#)

Select a device name

Recommended device names for Linux: /dev/sda1 for root volume. /dev/sd[f-p] for data volumes.

Additional Steps After Attaching the Volume

- Selected the instance and clicked Connect → EC2 Instance Connect.
- Opened the Ubuntu terminal and executed:

```
sudo apt update
df -h
lsblk
sudo mkfs -t ext4 /dev/nvme1n1
sudo mkdir /data
sudo mount /dev/nvme1n1 /data
df -h
```

Verified that the volume was successfully mounted at /data.

Screenshot Placeholder:

```
ubuntu@ip-172-31-29-106:~$ sudo apt update
Hit:1 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
Get:5 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:6 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
Get:7 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
Get:8 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
Get:9 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
Get:10 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
Get:11 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]
Get:12 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]
Get:13 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [1390 kB]
Get:14 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [274 kB]
Get:15 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [175 kB]
Get:16 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [14.9 kB]
Get:17 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [1481 kB]
Get:18 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [298 kB]
Get:19 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [377 kB]
Get:20 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [31.0 kB]
Get:21 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [1791 kB]
Get:22 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [1118 kB]
Get:23 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [400 kB]
Get:24 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:25 http://us-east-1.ec2.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [33.2 kB]
```

```
ubuntu@ip-172-31-30-90:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        6.8G  2.0G  4.8G  30% /
tmpfs            458M   0  458M   0% /dev/shm
tmpfs            183M  892K  182M   1% /run
tmpfs            5.0M   0   5.0M   0% /run/lock
efivarfs         128K   3.6K  120K   3% /sys/firmware/efi/efivars
/dev/nvme0n1p16  881M   87M  733M  11% /boot
/dev/nvme0n1p15  105M   6.2M   99M   6% /boot/efi
tmpfs            92M   12K   92M   1% /run/user/1000
ubuntu@ip-172-31-30-90:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0         7:0    0  27.6M  1 loop /snap/amazon-ssm-agent/11797
loop1         7:1    0  73.9M  1 loop /snap/core22/2045
loop2         7:2    0  49.3M  1 loop /snap/snapd/24792
nvme0n1      259:0    0    8G   0 disk
├─nvme0n1p1  259:1    0    7G   0 part /
├─nvme0n1p14 259:2    0    4M   0 part
├─nvme0n1p15 259:3    0  106M  0 part /boot/efi
└─nvme0n1p16 259:4    0   913M  0 part /boot
nvme1n1      259:5    0   20G   0 disk
```

```

ubuntu@ip-172-31-30-90:~$ sudo mkfs -t ext4 /dev/nvme1n1
mke2fs 1.47.0 (5-Feb-2023)
Creating filesystem with 5242880 4k blocks and 1310720 inodes
Filesystem UUID: 80ae465e-ec6e-44a6-9572-c97bf43fe539
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000

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

ubuntu@ip-172-31-30-90:~$ sudo mkdir /data
ubuntu@ip-172-31-30-90:~$ sudo mount /dev/nvme1n1 /data

```

```

ubuntu@ip-172-31-30-90:~$ lsblk
NAME                MAJ:MIN RM   SIZE RO TYPE MOUNTPOINTS
loop0                 7:0      0  27.6M  1 loop /snap/amazon-ssm-agent/11797
loop1                 7:1      0  73.9M  1 loop /snap/core22/2045
loop2                 7:2      0  49.3M  1 loop /snap/snapd/24792
nvme0n1              259:0     0    8G   0 disk
├─nvme0n1p1          259:1     0    7G   0 part /
├─nvme0n1p14         259:2     0    4M   0 part
├─nvme0n1p15         259:3     0  106M   0 part /boot/efi
└─nvme0n1p16         259:4     0  913M   0 part /boot
nvme1n1              259:5     0   20G   0 disk /data
ubuntu@ip-172-31-30-90:~$ df -h
Filesystem            Size  Used Avail Use% Mounted on
/dev/root              6.8G  2.0G  4.8G  30% /
tmpfs                  458M     0  458M   0% /dev/shm
tmpfs                  183M  892K  182M   1% /run
tmpfs                   5.0M     0   5.0M   0% /run/lock
efivarfs              128K   3.6K  120K   3% /sys/firmware/efi/efivars
/dev/nvme0n1p16       881M   87M  733M  11% /boot
/dev/nvme0n1p15       105M   6.2M   99M   6% /boot/efi
tmpfs                  92M   12K   92M   1% /run/user/1000
/dev/nvme1n1          20G   24K   19G   1% /data

```

Task 3: Resize the attached volume and reflect changes in the instance

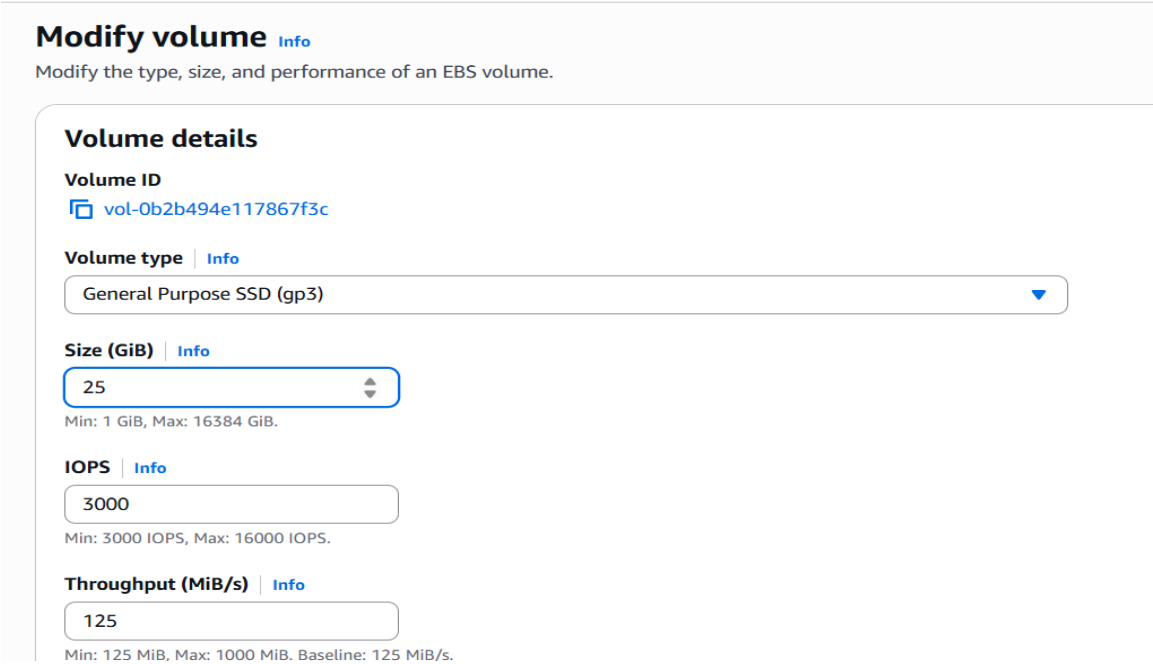
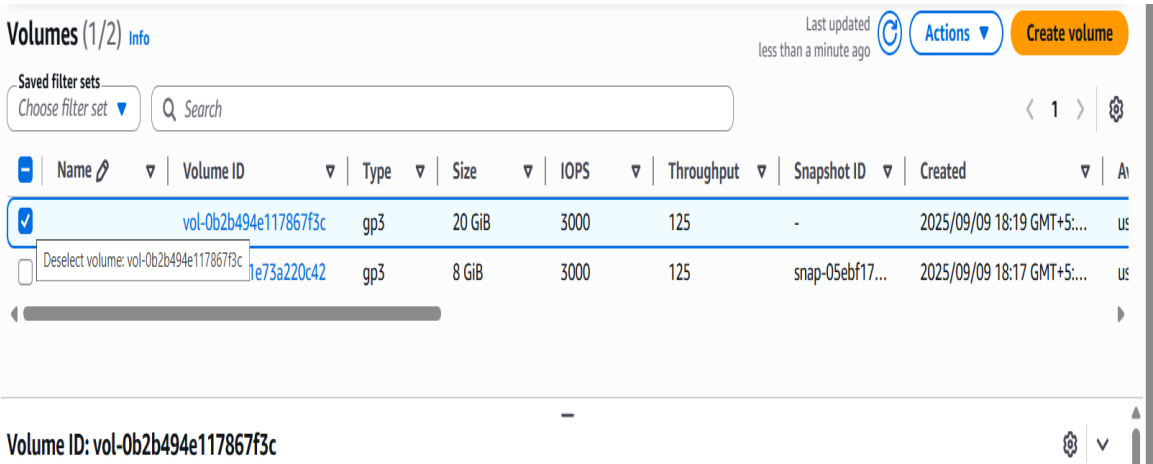
Steps taken:

- Increased the EBS volume size in the AWS Console (e.g., 20 GB → 25 GB).
- Logged into the instance and verified new size:
lsblk

- Resized filesystem:
sudo resize2fs /dev/nvme1n1

- Confirmed updated storage:
df -h /data

Screenshot Placeholder:



```
ubuntu@ip-172-31-30-90:~$ lsblk
NAME                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0                7:0      0  27.6M  1 loop /snap/amazon-ssm-agent/11797
loop1                7:1      0  73.9M  1 loop /snap/core22/2045
loop2                7:2      0  49.3M  1 loop /snap/snapd/24792
nvme0n1              259:0     0    8G  0 disk
├─nvme0n1p1          259:1     0    7G  0 part /
├─nvme0n1p14         259:2     0    4M  0 part
├─nvme0n1p15         259:3     0   106M  0 part /boot/efi
└─nvme0n1p16         259:4     0   913M  0 part /boot
nvme1n1              259:5     0   25G  0 disk /data
ubuntu@ip-172-31-30-90:~$ sudo resize2fs /dev/nvme1n1
resize2fs 1.47.0 (5-Feb-2023)
Filesystem at /dev/nvme1n1 is mounted on /data; on-line resizing required
old_desc_blocks = 3, new_desc_blocks = 4
The filesystem on /dev/nvme1n1 is now 6553600 (4k) blocks long.
```

```
ubuntu@ip-172-31-30-90:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/root        6.8G  2.0G  4.8G  30% /
tmpfs            458M    0  458M   0% /dev/shm
tmpfs            183M  888K  182M   1% /run
tmpfs            5.0M    0   5.0M   0% /run/lock
efivarfs         128K   3.6K  120K   3% /sys/firmware/efi/efivars
/dev/nvme0n1p16  881M   87M  733M  11% /boot
/dev/nvme0n1p15  105M   6.2M   99M   6% /boot/efi
tmpfs            92M   12K   92M   1% /run/user/1000
/dev/nvme1n1     25G    24K   24G   1% /data
ubuntu@ip-172-31-30-90:~$
```

Conclusion

Successfully launched a Linux EC2 instance, created and attached a 20 GB EBS volume, formatted and mounted it on /data, and resized the storage to confirm it reflects inside the instance. This demonstrates dynamic EBS volume management for EC2.