

# EBS Volume Mounting on Ubuntu EC2 (Zero to Hero Guide)

This document explains, step by step, how to attach an AWS EBS volume to an Ubuntu EC2 instance, partition it, format it, and mount it both temporarily and permanently. No prior Linux or AWS storage knowledge is assumed.

## Basic Concepts (Very Important)

- **Disk:** A raw storage device attached to your server (example: `/dev/xvdf`).
- **Partition:** A logical division of a disk (example: `/dev/xvdf1`).
- **File System:** The structure used to store files (example: `ext4`).
- **Mounting:** Making a disk accessible at a directory like `/data`.

## Step 1: Attach EBS Volume to EC2

Create an EBS volume in the AWS EC2 console and attach it to your Ubuntu EC2 instance. Ensure the Availability Zone is the same. The device name may appear as `/dev/xvdf` inside the OS.

## Step 2: Login and Identify the Disk

Connect to your EC2 instance using SSH and list all disks:

```
lsblk
```

You will see a new disk without partitions (no `xvdf1` yet). This means the disk is raw and unused.

## Step 3: Partition the Disk

Partitioning means dividing the disk so the OS can manage it properly. We will create one primary partition.

```
sudo fdisk /dev/xvdf
```

Inside `fdisk`, use these options:

`n` → new partition

`p` → primary

`1` → partition number

Press ENTER for defaults (use full disk)

`w` → write changes

## Step 4: Verify Partition

```
lsblk
```

You should now see `/dev/xvdf1`. This confirms partition creation.

## Step 5: Format the Partition

Formatting creates a file system so files can be stored. We use `ext4` because it is stable and widely supported.

```
sudo mkfs.ext4 /dev/xvdf1
```

## Step 6: Create a Mount Directory

A mount directory is a normal folder that acts as an entry point to the disk.

```
sudo mkdir /data
```

## Step 7: Temporary Mounting

Temporary mounting works until the system reboots.

```
sudo mount /dev/xvdf1 /data
```

Verify:

```
df -h
```

## Step 8: Understanding Temporary vs Permanent Mount

Temporary mount disappears after reboot. Permanent mount uses `/etc/fstab` so the disk mounts automatically.

## Step 9: Permanent Mounting (fstab)

Open the filesystem table file:

```
sudo nano /etc/fstab
```

Add this line at the end:

```
/dev/xvdf1 /data ext4 defaults,nofail 0 2
```

## Step 10: Test Permanent Mount

Test without rebooting:

```
sudo mount -a
```

If no errors occur, reboot and verify:

```
df -h
```

## Important Beginner Tips

- Never format the wrong disk (check `lsblk` carefully).
- Always test `fstab` using `mount -a` before reboot.
- Use UUIDs in production for safer mounting.