

STEP BY STEP PROCESS OF HOW TO ADD AND MOUNT EBS VOLUME ON EC2 LINUX INSTANCE

AMAZON ELASTIC BLOCK STORE [EBS]

- ➔ Amazon Elastic Block Store (Amazon EBS) is an easy-to-easy , Scalable , high-performance block-storage service designed for Amazon Elastic Compute Cloud [Amazon Ec2].
- ➔ In the realm of AWS Capabilities , you have the Flexibility to generate Fresh EBS volumes , ready to be linked with instance for additional storage .
- ➔ In this guide , we'll walk through the process of attaching and mounting an EBS volume to an EC2 Linux instance running .

Prerequisites:

- ➔ An active aws account.
- ➔ An EC2 instance running Linux.

1. Launching an EC2 Instance

- Log in to the AWS Management Console
- Navigate to the EC2 Dashboard
- Click on “Launch Instance” and Choose an Amazon Machine Image(AMI) with Your Preferred OS.

Name and tags [Info](#)

Name

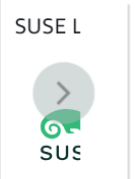





[Add additional tags](#)


▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

 Search our full catalog including 1000s of application and OS images

Quick Start




[Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

- Select an Instance type , Configure instance details ,add storage and Configure Security Groups .in our Case ,we will select t2.micro to remain in the AWS Free tier.

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI

Free tier eligible

ami-0a70b9d193ae8a799 (64-bit (x86), uefi-preferred) / ami-0a911ace2794b9c40 (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 AMI 2023.4.20240319.1 x86_64 HVM kernel-6.1

Architecture

64-bit (x86)

Boot mode

uefi-preferred

AMI ID

ami-0a70b9d193ae8a799

Verified provider

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t2.micro

Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0116 USD per Hour
On-Demand SUSE base pricing: 0.0116 USD per Hour
On-Demand Windows base pricing: 0.0162 USD per Hour
On-Demand RHEL base pricing: 0.0716 USD per Hour

☒ All generations

[Compare instance types](#)

[Additional costs apply for AMIs with pre-installed software](#)

- Generate a new key pair or utilize an Existing one under the key-pair section . in this instance , I will generate a new key pair.

▼ Key pair (login) Info

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

Select ▼

↻ Create new key pair

- Give a name to your key pair and click on Create key pair as shown below.

Create key pair X

Key pair name

Key pairs allow you to connect to your instance securely.

EBS-volume

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

☒ RSA
RSA encrypted private and public key pair

☐ ED25519
ED25519 encrypted private and public key pair

Private key file format

☒ .pem
For use with OpenSSH

☐ .ppk
For use with PuTTY

⚠ When prompted, store the private key in a secure and accessible location on your computer. You will need it later to connect to your instance. [Learn more](#)

Cancel

Create key pair

- Adjust the network settings and established a new security group. Choose a fitting name and ensure that the “Auto-assign public Ip” option is Enable.

▼ Network settings [Info](#)

VPC - *required* [Info](#)

vpc-011e1b2515ddaf359
172.31.0.0/16

(default) ▼

↻

Subnet [Info](#)

No preference ▼

↻ [Create new subnet](#) [↗](#)

Auto-assign public IP [Info](#)

Enable ▼

Firewall (security groups) [Info](#)

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group

☐ Select existing security group

Security group name - *required*

EBS-security group

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-./()#,@[]+=&;{}!\$*

Description - *required* [Info](#)

EBS-security group

- Configure the inbound security group rules to permit SSH, HTTP. Additional ports can be allowed later based on the application requirements.

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, 0.0.0.0/0)

Remove

Type [Info](#)

ssh ▼

Protocol [Info](#)

TCP

Port range [Info](#)

22

Source type [Info](#)

Anywhere ▼

Source [Info](#)

Q Add CIDR, prefix list or security group
0.0.0.0/0 X

Description - optional [Info](#)

e.g. SSH for admin desktop

▼ Security group rule 2 (TCP, 80, 0.0.0.0/0)

Remove

Type [Info](#)

HTTP ▼

Protocol [Info](#)

TCP

Port range [Info](#)

80

Source type [Info](#)

Anywhere ▼

Source [Info](#)

Q Add CIDR, prefix list or security group
0.0.0.0/0 X

Description - optional [Info](#)

e.g. SSH for admin desktop

- Configure to the storage.

▼ Configure storage [Info](#)

Advanced

1x 8 GiB gp3 ▼ Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

- Maintain the default setting for the remaining Configurations and proceed to launch the instance.

Instances (1) Info									
Find Instance by attribute or tag (case-sensitive)									
All states ▼									
<input type="checkbox"/>	Name ↗	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4
<input type="checkbox"/>	instance-EBS	i-07e998d47e99207c9	Running	t2.micro	Initializing	View alarms	us-west-2b	ec2-54-185-244-219.us...	54.185.244...

2. In the left navigation pane, Choose “volume” under the “Elastic Block store” section.

- Take note of the existing volume.in this example, we have an 8GB volume.
- Select volume----->to Click on Modify volume----->to change the 8GB volume to 20 GB assign it .

The screenshot shows the AWS Management Console interface. At the top, there's a navigation pane on the left with options like 'EC2 Dashboard', 'Events', 'Instances', etc. The main area displays a table of volumes. One volume is selected, and the 'Modify volume' form is open. The form contains the following fields:

- Volume ID:** vol-05a7138779bc09782 (EBS-volume)
- Volume type:** General Purpose SSD (gp3)
- Size (GiB):** 20 (with a note: Min: 1 GiB, Max: 16384 GiB. The value must be an integer.)
- IOPS:** 3000 (with a note: Min: 3000 IOPS, Max: 16000 IOPS. The value must be an integer.)
- Throughput (MiB/s):** 125 (with a note: Min: 125 MiB, Max: 1000 MiB. Baseline: 125 MiB/s.)

At the bottom of the form, there are 'Cancel' and 'Modify' buttons.

➔ Connecting to the Ec2 Instance

Utilize your preferred SSH terminal to connect to the Ec2 instance .in my case, I will be using Gitbash by the below command use.

```
ssh -i <pem.file> user_name@public_ip
```

```
duggi@pavansiva MINGW64 ~/Downloads  
$ ssh -i "EBS-volume.pem" ec2-user@ec2-54-185-244-219.us-west-2.compute.amazonaws.com  
  
#_ Amazon Linux 2023  
~\#####  
~~\#####\  
~~\###|  
~~\#/ https://aws.amazon.com/linux/amazon-linux-2023  
~~V~'-'->  
~~~~  
~~.-.  
~~/_/  
~~/_m/'-_  
  
Last login: Mon Mar 25 17:34:13 UTC 2024 from 104.28.220.171  
[ec2-user@ip-172-31-18-75 ~]$ sudo su -  
Last login: Mon Mar 25 17:34:19 UTC 2024 on pts/1
```

➔ After we run to the below commands

```
lsblk ---show all Volumes
```

```
root@ip-172-31-18-75 ~]# lsblk
NAME            MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda            202:0    0   20G  0 disk
├─xvda1         202:1    0    8G  0 part /
├─xvda127       259:0    0    1M  0 part
└─xvda128       259:1    0   10M  0 part /boot/efi
root@ip-172-31-18-75 ~]#
```

df -h ---shows only root volumes

```
root@ip-172-31-18-75 ~]# df -h
filesystem      Size  Used Avail Use% Mounted on
evtmpfs         4.0M    0  4.0M   0% /dev
mpfs            475M    0  475M   0% /dev/shm
mpfs            190M   2.9M  188M   2% /run
dev/xvda1       8.0G   1.6G   6.5G  19% /
mpfs            475M    0  475M   0% /tmp
dev/xvda128     10M   1.3M   8.7M  13% /boot/efi
mpfs            95M    0    95M   0% /run/user/1000
root@ip-172-31-18-75 ~]#
```

Volume attached to the console below command use:

```
1. growpart /dev/xvda 1
```

```
[root@ip-172-31-18-75 ~]# growpart /dev/xvda 1
CHANGED: partition=1 start=24576 old: size=16752607 end=16777183 new: size=41918431 end=41943007
```

2. xfs_growfs -d /

```
[root@ip-172-31-18-75 ~]# xfs_growfs -d /
meta-data=/dev/xvda1      isize=512    agcount=2, agsize=1047040 blks
                =                  sectsz=4096   attr=2, projid32bit=1
                =                  crc=1        finobt=1, sparse=1, rmapbt=0
                =                  reflink=1    bigtime=1 inobtcount=1
data      =                  bsize=4096    blocks=2094075, imaxpct=25
                =                  sunit=128    swidth=128 blks
naming    =version 2        bsize=16384  ascii-ci=0, ftype=1
log       =internal log    bsize=4096   blocks=16384, version=2
                =                  sectsz=4096   sunit=4 blks, lazy-count=1
realtime  =none            extsz=4096    blocks=0, rtextents=0
data blocks changed from 2094075 to 5239803
```

3. lsblk

NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINTS
xvda	202:0	0	20G	0	disk	
└─xvda1	202:1	0	20G	0	part	/
└─xvda127	259:0	0	1M	0	part	
└─xvda128	259:1	0	10M	0	part	/boot/efi

→ Temporary mount

Click “Create volume” to add a new EBS volume.

- Volume type : General Purpose SSD (gp2)
- Size (GiB): Enter 50 for a 50GB Volume.
- Availability Zone: Choose the same availability zone as your Ec2 instance.

Create volume [Info](#)

Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.

Volume settings

Volume type [Info](#)

General Purpose SSD (gp3) ▼

i General Purpose SSD gp3 is now the default selection. gp3 provides up to 20% lower cost per GB than gp2. [Learn More](#)

Size (GiB) [Info](#)

50

Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

- We can a tag which is a label that you assign to an AWS resource .Each tag Consists of a key and an optional value . you can use tags to search and filter your resource or track your AWS costs.

Availability Zone | Info

us-west-2b ▼

Snapshot ID - *optional* [Info](#)

Don't create volume from a snapshot

Encryption | Info

Use Amazon EBS encryption as an encryption solution for your EBS resources associated with your EC2 instances.

☐ Encrypt this volume

Tags - *optional* [Info](#)

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key

Q Name X

Value - *optional*

Q Extra-volume

Remove

Add tag

You can add 10 more tags

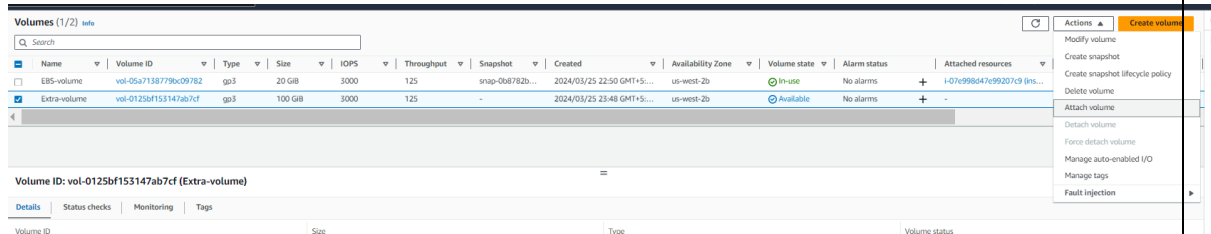
- Finally, Click “ Create ” to Create the EBS volume.

- Now if we can check the status of the newly created volume will be available.

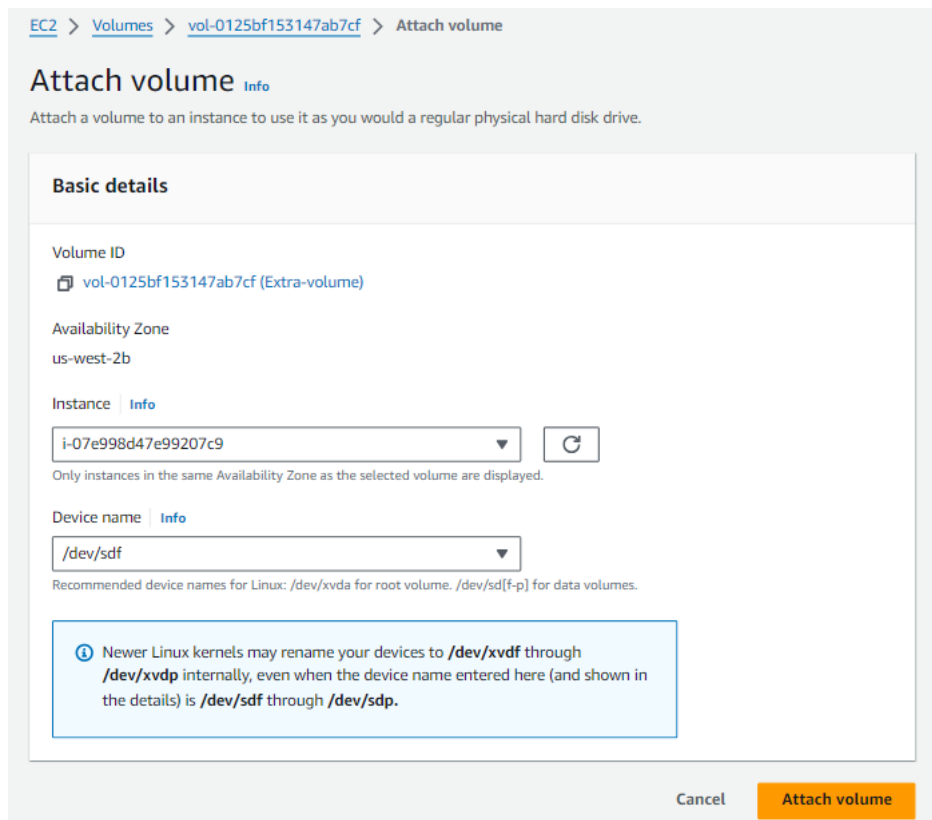
vol-0125bf153147ab7cf (Extra-volume)				<div><div></div></div> <div>Actions</div>
Volume ID <div><div></div> vol-0125bf153147ab7cf (Extra-volume)</div>	Size <div><div></div> 100 GiB</div>	Type <div><div></div> gp3</div>	Volume status <div><div></div> Ok</div>	
AWS Compute Optimizer finding <div><div></div> Opt-in to AWS Compute Optimizer for recommendations. Learn more</div>	Volume state <div><div></div> Available</div>	IOPS <div><div></div> 3000</div>	Throughput <div><div></div> 125</div>	
Encryption <div><div></div> Not encrypted</div>	KMS key ID <div><div></div> -</div>	KMS key alias <div><div></div> -</div>	KMS key ARN <div><div></div> -</div>	
Fast snapshot restored <div><div></div> No</div>	Snapshot <div><div></div> -</div>	Availability Zone <div><div></div> us-west-2b</div>	Created <div><div></div> Mon Mar 25 2024 23:48:17 GMT+0530 (IST)</div>	
Multi-Attach enabled <div><div></div> No</div>	Attached resources <div><div></div> -</div>	Outposts ARN <div><div></div> -</div>		

➔ Temporary mount Attached to the Ec2 instance.

- In the volume dashboard , select the newly created volume.
- Click “actions”> “attach volume” and choose your Ec2 instance.
- Confirm the attachment by clicking “attach”



- Make sure to select the instance on which you have to attach the additional volume.



- To verify that the volume has been successfully attached to the Ec2 instance you can go to the Volume section, select the newly created volume ,and check the attached instance section as shown below.

Details

Status and alarms [New](#)

Monitoring

Security

Networking

Storage

Tags

▼ Root device details

Root device name

/dev/xvda

Root device type

EBS

EBS optimization

disabled

▼ Block devices

Filter block devices

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted	KMS key ID	Delete on termination
vol-05a7138779bc09782	/dev/xvda	20	<div>Attached</div>	2024/03/25 22:50 GMT+5:30	No	-	Yes
vol-0125bf153147ab7cf	/dev/xvdf	100	<div>Attached</div>	2024/03/26 00:03 GMT+5:30	No	-	No

➔ Connect to your Ec2 instance.

- Use SSH to connect to your Ec2 instance.
- Use the following Command to list the available block device.

1. Lsblk

```
[root@ip-172-31-18-75 ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda         202:0    0   20G  0 disk
├─xvda1      202:1    0   20G  0 part /
├─xvda127    259:0    0    1M  0 part
└─xvda128    259:1    0   10M  0 part /boot/efi
xvdf         202:80   0  100G  0 disk
```

2. mkfs.xfs /dev/xvdf

```
[root@ip-172-31-18-75 ~]# mkfs.xfs /dev/xvdf
meta-data=/dev/xvdf          isize=512    agcount=4, agsize=6553600 blks
                     =                  sectsz=512   attr=2, projid32bit=1
                     =                  crc=1      finobt=1, sparse=1, rmapbt=0
                     =                  reflink=1   bigtime=1 inobtcount=1
data      =                  bsize=4096   blocks=26214400, imaxpct=25
                     =                  sunit=0    swidth=0 blks
naming    =version 2        bsize=4096   ascii-ci=0, ftype=1
log       =internal log    bsize=4096   blocks=16384, version=2
                     =                  sectsz=512   sunit=0 blks, lazy-count=1
realtime  =none            extsz=4096   blocks=0, rtextents=0
```

3. mount /dev/xvdf /home/ec2-user

```
[root@ip-172-31-18-75 ~]# mount /dev/xvdf /home/ec2-user
```

4. lsblk

```
[root@ip-172-31-18-75 ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
xvda        202:0    0   20G  0 disk
├─xvda1     202:1    0   20G  0 part /
├─xvda127   259:0    0    1M  0 part
└─xvda128   259:1    0   10M  0 part /boot/efi
xvdf        202:80   0  100G  0 disk /home/ec2-user
```

➔ Permanent mount:

- Open the /etc/fstab file in text editor:

```
vi /etc/fstab
```

- Add the Following line to the end of the file:

```
/dev/xvdf    /home/ec2-user  ext4  defaults,noatime 1 1
```

Save and exit the editor.

You can also verify on the aws console the new EBS volume has been successfully added and mounted.

Instance: i-07e998d47e99207c9 (instance-EBS)

Details | Status and alarms [New](#) | Monitoring | Security | Networking | [Storage](#) | Tags

▼ Root device details

Root device name	Root device type	EBS optimization
/dev/xvda	EBS	disabled

▼ Block devices

Q Filter block devices

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted	KMS key ID	Delete on termination
vol-05a7138779bc09782	/dev/xvda	20	Attached	2024/03/25 22:50 GMT+5:30	No	—	Yes
vol-0129bf153147ab7cf	/dev/xdf	100	Attached	2024/03/26 00:03 GMT+5:30	No	—	No

▼ [View all volume attachment facts](#)