

**Aim: -** To create Elastic Block Storage in AWS, attach it to EC2 instance and detach it from the EC2 instance.

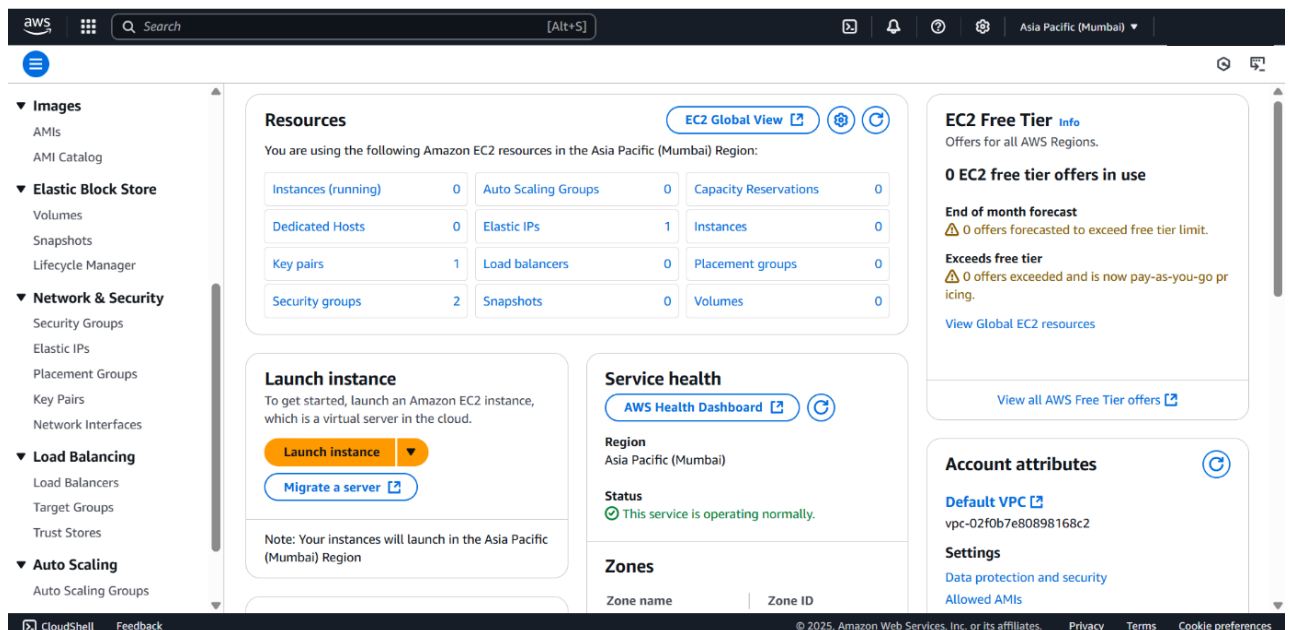
**Theory: -**

Amazon EBS (Elastic Block Store) is a high-performance block-level storage service designed for use with Amazon EC2 (Elastic Compute Cloud) instances. It provides durable, reliable, and low-latency storage that behaves like raw, unformatted block devices. EBS volumes can be used for a variety of workloads, such as databases, file systems, or application data.

Key points:

- EBS volumes are region-specific.
- They can be attached/detached without stopping the EC2 instance.
- Data persists independently of the EC2 instance lifecycle

**Performance Screenshot: -**



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Volumes Info

Last updated 1 minute ago

Actions

Create volume

Saved filter sets

Choose filter set

Search

< 1 >

Name

Volume ID

Type

Size

IOPS

Throughput

Snapshot ID

Created

You currently have no volumes in this region

Fault tolerance for all volumes in this Region

Snapshot summary

Recently backed up volumes / Total # volumes

0 / 0

Last updated on Tue, Apr 22, 2025, 08:43:54 AM (GMT+05:30)

Data Lifecycle Manager default policy for EBS Snapshots status

No default policy set up | Create policy

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EC2 > Volumes > Create volume

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 (gp2)

Size (GiB) Info

5

Min: 1 GiB, Max: 16384 GiB.

IOPS Info

100 / 3000

Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS.

Throughput (MiB/s) Info

Not applicable

Availability Zone Info

ap-south-1a

Snapshot ID - optional Info

Don't create volume from a snapshot

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Volumes (2) Info

Last updated less than a minute ago

Actions

Create volume

Saved filter sets

Choose filter set

Search

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone
<input type="checkbox"/>	-	vol-02553d5efa4644d8a	gp2	5 GiB	100	-	-	2025/04/22 08:47 GMT+5:...	ap-south-1b
<input type="checkbox"/>	-	vol-02d218c2fa7d4eb3a	gp2	5 GiB	100	-	-	2025/04/22 08:45 GMT+5:...	ap-south-1a

Fault tolerance for all volumes in this Region

Snapshot summary

Recently backed up volumes / Total # volumes

0 / 2

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Volumes (1/2) Info

Last updated 1 minute ago

Actions

Create volume

Saved filter sets

Choose filter set

Search

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone
<input checked="" type="checkbox"/>	South 1b vol	vol-02553d5efa4644d8a	gp2	5 GiB	100	-	-	2025/04/22 08:47 GMT+5:...	ap-south-1b
<input type="checkbox"/>	South 1a vol	vol-02d218c2fa7d4eb3a	gp2	5 GiB	100	-	-	2025/04/22 08:45 GMT+5:...	ap-south-1a

Volume ID: vol-02553d5efa4644d8a (South 1b vol)

Details

Status checks

Monitoring

Tags

Volume ID

vol-02553d5efa4644d8a (South 1b vol)

AWS Compute Optimizer finding

Opt-in to AWS Compute Optimizer for recommendations. | Learn more

Fast snapshot restored

No

Size

5 GiB

Volume state

Available

Availability Zone

ap-south-1b

Type

gp2

IOPS

100

Created

Tue Apr 22 2025 08:47:10 GMT+0530 (India Standard Time)

Status check

Okay

Throughput

-

Multi-Attach enabled

No

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EC2

Instances

Launch an instance

▼ Network settings

Info

VPC - required

Info

vpc-02f0b7e80898168c2

(default)

172.31.0.0/16

Subnet

Info

subnet-0bdbf2afba8aebf0a

VPC: vpc-02f0b7e80898168c2

Owner: 545009830124

Availability Zone: ap-south-1a

Zone type: Availability Zone

IP addresses available: 4091

CIDR: 172.31.32.0/20

Auto-assign public IP

Info

Enable

Additional charges apply when outside of free tier allowance

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

launch-wizard-2

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

▼ Summary

Number of instances

Info

1

Software Image (AMI)

Canonical, Ubuntu, 24.04, amd64...read more

ami-0e35ddab05955cf57

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

2 volume(s) - 14 GiB

Free tier: In your first year of opening an AWS account, you get 750 hours per

Cancel

Launch instance

Preview code

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EC2

Instances

Launch an instance

Success

Successfully initiated launch of instance (i-07f7586ab53b0986e)

Launch log

Next Steps

What would you like to do next with this instance, for example "create alarm" or "create backup"

Create billing and free tier usage alerts

To manage costs and avoid surprise bills, set up email notifications for billing and free tier usage thresholds.

Create billing alerts

Connect to your instance

Once your instance is running, log into it from your local computer.

Connect to instance

Learn more

Connect an RDS database

Configure the connection between an EC2 instance and a database to allow traffic flow between them.

Connect an RDS database

Create a new RDS database

Learn more

Create EBS snapshot policy

Create a policy that automates the creation, retention, and deletion of EBS snapshots

Create EBS snapshot policy

https://ap-south-1.console.aws.amazon.com/ec2/home?region=ap-south-1#CreateLifecyclePolicy:policyType=EBS\_SNAPSHOT\_MANAGEMENT

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```
System load: 0.0          Processes:    104
Usage of /: 25.0% of 6.71GB Users logged in: 0
Memory usage: 20%        IPv4 address for enX0: 172.31.41.197
Swap usage: 0%

Expanded Security Maintenance for Applications is not enabled.

0 updates can be applied immediately.

Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-41-197:~$
```

i-07f7586ab53b0986e (IoT EBS)

PublicIPs: 13.127.167.25 PrivateIPs: 172.31.41.197

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Elastic Block Store

Volumes

Snapshots

Successfully attached volume vol-02d218c2fa7d4eb3a to instance i-07f7586ab53b0986e.

Volumes (4)

Info

Last updated less than a minute ago

Actions

Create volume

Choose filter set

Search

< 1 >

	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created
<input type="checkbox"/>	South 1b vol	vol-02553d5efa4644d8a	gp2	5 GiB	100	-	-	2025/04/22 08:47
<input type="checkbox"/>	-	vol-0ded2916c26a18c60	gp3	6 GiB	3000	125	-	2025/04/22 08:56
<input type="checkbox"/>	-	vol-015d5ac44180cba8c	gp2	8 GiB	100	-	snap-00a5570...	2025/04/22 08:56
<input type="checkbox"/>	South 1a vol	vol-02d218c2fa7d4eb3a	gp2	5 GiB	100	-	-	2025/04/22 08:45

Fault tolerance for all volumes in this Region

Snapshot summary

Recently backed up volumes / Total # volumes

0 / 4

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Data Lifecycle Manager default policy for EBS Snapshots status

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clear

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```
Last login: Tue Apr 22 03:32:01 2025 from 13.233.177.4
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

ubuntu@ip-172-31-41-197:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9881
loop1        7:1      0  73.9M  1 loop /snap/core22/1748
loop2        7:2      0  44.4M  1 loop /snap/snapd/23545
xvda        202:0    0     8G  0 disk 
└─xvda1      202:1    0     7G  0 part /
└─xvda14     202:14   0     4M  0 part 
└─xvda15     202:15   0    106M  0 part /boot/efi
└─xvda16     202:16   0    913M  0 part /boot
xvdb         202:16   0     6G  0 disk 
ubuntu@ip-172-31-41-197:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9881
loop1        7:1      0  73.9M  1 loop /snap/core22/1748
loop2        7:2      0  44.4M  1 loop /snap/snapd/23545
xvda        202:0    0     8G  0 disk 
└─xvda1      202:1    0     7G  0 part /
└─xvda14     202:14   0     4M  0 part 
└─xvda15     202:15   0    106M  0 part /boot/efi
└─xvda16     202:16   0    913M  0 part /boot
xvdb         202:16   0     6G  0 disk 
xvdf         202:80   0     5G  0 disk 
ubuntu@ip-172-31-41-197:~$
```

i-07f7586ab53b0986e (IoT EBS)

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Volumes

Snapshots

Successfully detached volume.

Volumes (4) Info

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Actions

Create volume

Choose filter set

Search

1

Table with 10 columns: Name, Volume ID, Type, Size, IOPS, Throughput, Snapshot ID, Created. Rows include South 1b vol, -, -, and South 1a vol.

Fault tolerance for all volumes in this Region

Snapshot summary

Recently backed up volumes / Total # volumes

0 / 4

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Data Lifecycle Manager default policy for EBS Snapshots status

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--xvda14 202:14 0 4M 0 part
--xvda15 202:15 0 106M 0 part /boot/efi
--xvda16 259:0 0 913M 0 part /boot
xvdb 202:16 0 6G 0 disk
ubuntu@ip-172-31-41-197:~$ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
loop0 7:0 0 26.3M 1 loop /snap/amazon-ssm-agent/9881
loop1 7:1 0 73.9M 1 loop /snap/core22/1748
loop2 7:2 0 44.4M 1 loop /snap/snapd/23545
xvda 202:0 0 8G 0 disk
--xvda1 202:1 0 7G 0 part /
--xvda14 202:14 0 4M 0 part
--xvda15 202:15 0 106M 0 part /boot/efi
--xvda16 259:0 0 913M 0 part /boot
xvdb 202:16 0 6G 0 disk
xvdf 202:80 0 5G 0 disk
ubuntu@ip-172-31-41-197:~$ lsblk
NAME MAJ:MIN RM SIZE RO TYPE MOUNTPOINTS
loop0 7:0 0 26.3M 1 loop /snap/amazon-ssm-agent/9881
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loop2 7:2 0 44.4M 1 loop /snap/snapd/23545
xvda 202:0 0 8G 0 disk
--xvda1 202:1 0 7G 0 part /
--xvda14 202:14 0 4M 0 part
--xvda15 202:15 0 106M 0 part /boot/efi
--xvda16 259:0 0 913M 0 part /boot
xvdb 202:16 0 6G 0 disk
xvdf 202:80 0 5G 0 disk
ubuntu@ip-172-31-41-197:~$
```

i-07f7586ab53b0986e (IoT EBS)

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```
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Filesystem UUID: 5d08c897-3ca9-4760-86a8-412f3ca6e09e
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736
Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done

ubuntu@ip-172-31-41-197:~$ sudo mkdir /test
ubuntu@ip-172-31-41-197:~$ sudo su
root@ip-172-31-41-197:/home/ubuntu# cd /
root@ip-172-31-41-197:/# id
Command 'id' not found, but can be installed with:
apt install binutils
root@ip-172-31-41-197:/# ls
bin      boot    etc     lib     lib64   media  opt     root    sbin    snap    sys    var
bin.usr-is-merged  dev     home   lib.usr-is-merged  lost+found  mnt     proc    run     sbin.usr-is-merged  srv     test    usr
root@ip-172-31-41-197:/# mount /dev/xvdf /test/
root@ip-172-31-41-197:/# mo
mo: command not found
root@ip-172-31-41-197:/# mountpoint/test
bash: mountpoint/test: No such file or directory
root@ip-172-31-41-197:/# ^C
root@ip-172-31-41-197:/# mount /dev/xvd
mount: /dev/xvd: can't find in /etc/fstab.
root@ip-172-31-41-197:/# mo
mo: command not found

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root@ip-172-31-41-197:/#
root@ip-172-31-41-197:/#
root@ip-172-31-41-197:/# ^C
root@ip-172-31-41-197:/# ^C
root@ip-172-31-41-197:/# ^C
root@ip-172-31-41-197:/# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9081
loop1        7:1      0  73.9M  1 loop /snap/core22/1748
loop2        7:2      0  44.4M  1 loop /snap/snapd/23545
xvda        202:0    0     8G  0 disk
├--xvda1    202:1    0     7G  0 part /
├--xvda14   202:14   0      4M  0 part
├--xvda15   202:15   0   106M  0 part /boot/efi
├--xvda16   259:0    0   913M  0 part /boot
└--xvdf     202:80    0     5G  0 disk /test
root@ip-172-31-41-197:/# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
loop0        7:0      0  26.3M  1 loop /snap/amazon-ssm-agent/9081
loop1        7:1      0  73.9M  1 loop /snap/core22/1748
loop2        7:2      0  44.4M  1 loop /snap/snapd/23545
xvda        202:0    0     8G  0 disk
├--xvda1    202:1    0     7G  0 part /
├--xvda14   202:14   0      4M  0 part
├--xvda15   202:15   0   106M  0 part /boot/efi
├--xvda16   259:0    0   913M  0 part /boot
└--xvdf     202:80    0     5G  0 disk /test
root@ip-172-31-41-197:/#

i-07f7586ab53b0986e (IoT EBS)
PublicIPs: 13.127.167.25 PrivateIPs: 172.31.41.197

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```

**Conclusion:** In this practical, we successfully created Elastic Block Storage in AWS, attached it to EC2 instance and detached it from the EC2 instance.