

Volume - Elastic Block Storage

EBS - Block based storage

1. Volume can be attached and detached when required.
2. We can attach multiple Additional Volume to the EC2 Instance.
3. EC2 instance has default Volume and that is called **ROOT VOLUME**
4. The Root Volume always has **OS** (Windows , Linux Mac ..)
5. EC2 can have one **ROOT Volume** but EC2 instance can have multiple **Additional Volume**.
6. Maximum Size of EBS Volume is **16TB** but it's Default **8GB**
7. Volume Size Can be Increase **NOT NEED TO STOP EC2 instance** & **Volume Size can't be decrease**
8. **It's not possible to Detach the ROOT volume** without stopping the instance , **we have to STOP** first EC2 instance then **We can detach the ROOT Volume**
9. It's possible to Detach the ROOT volume without stopping the instance , **BUT It's NOT RECOMMENDED**
10. **EC2 instance & Volume should be in the same Availability Zone**

Here is my Hands-on Practice Screenshots :-

(Attach & Detach the Additional Volume in EC2 and also increased Root Volume & Additional Volume size)

myaccess.wisseninfotech x Launch instance wizard | EC2 Ma x +

ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance families Current generation Show/Hide Columns

Currently selected: t2.micro (- ECUS, 1 vCPUs, 2.5 GHz, -, 1 GiB memory, EBS only)

	Family	Type	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance	IPv6 Support
<input type="checkbox"/>	t2	t2.nano	1	0.5	EBS only	-	Low to Moderate	Yes
<input checked="" type="checkbox"/>	t2	t2.micro Free tier eligible	1	1	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.small	1	2	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.medium	2	4	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.large	2	8	EBS only	-	Low to Moderate	Yes
<input type="checkbox"/>	t2	t2.xlarge	4	16	EBS only	-	Moderate	Yes

Cancel Previous Review and Launch Next: Configure Instance Details

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ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#LaunchInstanceWizard:

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1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type	Device	Snapshot	Size (GiB)	Volume Type	IOPS	Throughput (MB/s)	Delete on Termination	Encryption
Root	/dev/xvda	snap-000c267b4e261131c	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypt

Add New Volume

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

Shared file systems

Cancel Previous Review and Launch Next: Add Tags

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myaccess.wisseninfotech x Instances | EC2 Management Console x +

ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#instances:instanceState=running

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Events
Tags
Limits

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Dedicated Hosts
Capacity Reservations

Images
AMIs New

Instances (1) Info

Search

Instance state = running X Clear filters

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	EBS_Vol_Pract...	i-0e8700db56890fcb9	Running	t2.micro	2/2 checks passed	No alarms	ap-south-1a

Select an instance

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myaccess.wisseninfotech x Connect to instance | EC2 Management Console x EC2 Instance Connect x +

ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0e8700db56890fcb9&osUser=ec2-user®ion=ap-south-1&sshPort=22

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 _ _ | _ _ |

Amazon Linux 2 AMI

https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-39-150 ~]$ sudo su -
[root@ip-172-31-39-150 ~]# lsblk
NAME        MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda        202:0    0  8G  0 disk
└─xvda1     202:1    0  8G  0 part /
[root@ip-172-31-39-150 ~]#
```

i-0e8700db56890fcb9 (EBS_Vol_Practice)

PublicIPs: 65.0.18.107 PrivateIPs: 172.31.39.150

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ap-south-1.console.aws.amazon.com/ec2-instance-connect/ssh?connType=standard&instanceId=i-0e8700db56890fcb9&osUser=ec2-user®ion=ap-south-1&sshPor...

Amazon Linux 2 AMI

```
https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-39-150 ~]$ sudo su -
[root@ip-172-31-39-150 ~]# lsblk
NAME        MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda        202:0    0  8G  0 disk 
└─xvda1     202:1    0  8G  0 part /
[root@ip-172-31-39-150 ~]# df -h
-bash: df -h: command not found
[root@ip-172-31-39-150 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        474M   0   474M   0% /dev
tmpfs           483M   0   483M   0% /dev/shm
tmpfs           483M  408K   483M   1% /run
tmpfs           483M   0   483M   0% /sys/fs/cgroup
/dev/xvda1       8.0G  1.6G   6.5G  20% /
tmpfs           97M    0    97M   0% /run/user/1000
[root@ip-172-31-39-150 ~]#
```

i-0e8700db56890fcb9 (EBS_Vol_Practice)

PublicIPs: 65.0.18.107 PrivateIPs: 172.31.39.150

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myaccess.wisseninfotech x Volumes | EC2 Management Con... x EC2 Instance Connect x +

ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Volumes:

Successfully created volume vol-0d78c424b14196619.

Volumes (1/2)

Search

	Name	Volu...	Type	Size			Snapshot	Created
<input type="checkbox"/>	ROOT EBS_Vol_Practice	vol-0e8...	gp2	8 GiB	1...	-	snap-000c267...	2022/08/02 15:52 GMT+5...
<input checked="" type="checkbox"/>	Additional 3GiB Vol Created by ...	vol-0d7...	gp2	3 GiB	1...	-	-	2022/08/02 16:05 GMT+5...

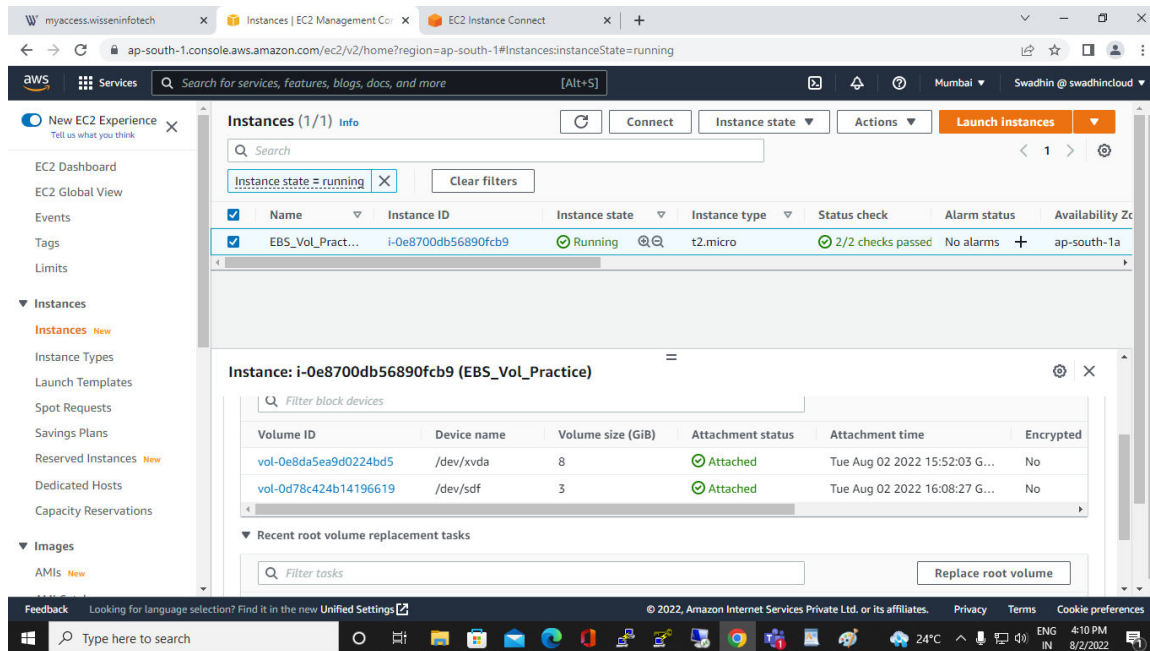
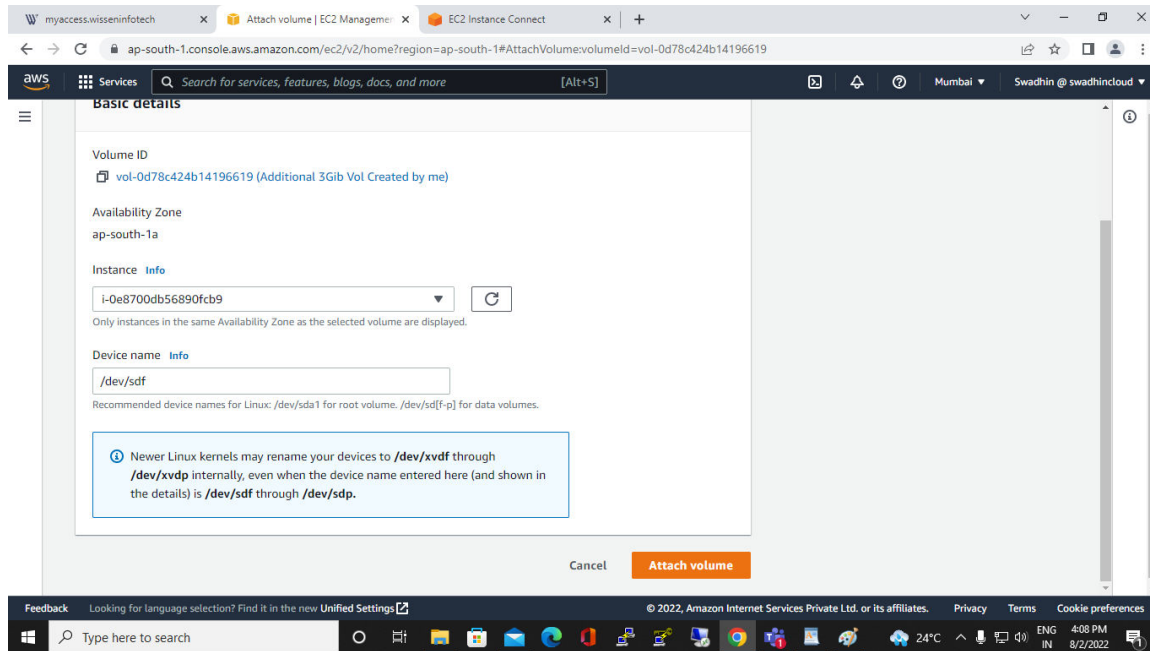
Volume ID: vol-0d78c424b14196619 (Additional 3GiB Vol Created by me)

Details Status checks Monitoring Tags

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myaccess.wisseninfotech x Modify volume | EC2 Manage EC2 Instance Connect x +

ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#ModifyVolume:volumeId=vol-0d78c424b14196619

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Modify volume Info

Modify the type, size, and performance of an EBS volume.

Volume details

Volume ID
vol-0d78c424b14196619 (Additional 3GiB Vol Created by me)

Volume type Info
General Purpose SSD (gp2)

Size (GiB) Info
10
Min: 1 GiB, Max: 16384 GiB. The value must be an integer.

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

Cancel **Modify**

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myaccess.wisseninfotech x Instances | EC2 Management Console x EC2 Instance Connect x +

ap-south-1.console.aws.amazon.com/ec2/v2/home?region=ap-south-1#Instances:

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Instances (1/2) Info

Search

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	JenkinsServer	i-08d7ade046ef93e42	Terminated	t2.micro	-	No alarms	ap-southeast-1
<input checked="" type="checkbox"/>	EBS_Vol_Practice	i-0e8700db56890fcb9	Running	t2.micro	2/2 checks passed	No alarms	ap-southeast-1

Instance: i-0e8700db56890fcb9 (EBS_Vol_Practice)

Block devices

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted
vol-0e8da5ea9d0224bd5	/dev/xvda	8	Attached	Tue Aug 02 2022 15:52:03 G...	No
vol-0d78c424b14196619	/dev/sdf	10	Attached	Tue Aug 02 2022 16:08:27 G...	No

Recent root volume replacement tasks

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Terminal Output:

```

[root@ip-172-31-39-150 ~]# df -h
bash: df-h: command not found
[root@ip-172-31-39-150 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        474M   0  474M   0% /dev
tmpfs           483M   0  483M   0% /dev/shm
tmpfs           483M 408K  483M   1% /run
tmpfs           483M   0  483M   0% /sys/fs/cgroup
/dev/xvda1      8.0G  1.6G   6.5G  20% /
tmpfs           97M   0   97M   0% /run/user/1000

[root@ip-172-31-39-150 ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        474M   0  474M   0% /dev
tmpfs           483M   0  483M   0% /dev/shm
tmpfs           483M 412K  483M   1% /run
tmpfs           483M   0  483M   0% /sys/fs/cgroup
/dev/xvda1      8.0G  1.6G   6.5G  20% /
tmpfs           97M   0   97M   0% /run/user/1000

[root@ip-172-31-39-150 ~]# lsblk
NAME        MAJ:MIN RM SIZE RO TYPE MOUNTPOINT
xvda        202:0    0   8G  0 disk 
└─xvda1     202:1    0   8G  0 part /
xvdf        202:80   0  10G  0 disk 

```

i-0e8700db56890fcb9 (EBS_Vol_Practice)
PublicIPs: 65.0.18.107 PrivateIPs: 172.31.39.150

Modify Volume Request Failed for volume vol-0d78c424b14196619.
You've reached the maximum modification rate per volume limit. Wait at least 6 hours between modifications per EBS volume.

Volumes (1/2)

	Name	Volu...	Type	Size		Snapshot	Created
<input checked="" type="checkbox"/>	ROOT EBS_Vol_Practice	vol-0e8...	gp2	10 GiB	1...	snap-000c267...	2022/08/02 15:52 GMT+5...
<input type="checkbox"/>	Additional 3Gib Vol Created by me	vol-0d7...	gp2	10 GiB	1...	-	2022/08/02 16:05 GMT+5...

Volume ID: vol-0e8da5ea9d0224bd5 (ROOT EBS_Vol_Practice)

CONCLUSION :- Additional Volume size can be increase at once after 6 hours again can be change. But we cannot decrease the volume size.

-- By Swadhin Kumar Barik 😊

