

What is Amazon Elastic Block Store (Amazon EBS)?

First, we should know about Storage classes in AWS.

- 1. Block level storage ===→ Amazon EBS, Instance store
- 2. File level storage ===→ Amazon EFS, Amazon FSx
- 3. Object level storage ===→ Amazon S3, Amazon Glacier

Amazon EBS

Amazon Elastic Block Store (Amazon EBS) provides block level storage volumes for use with EC2 instances. These block level storage volumes are called as EBS Volumes.

You can attach EBS volume to your instances. After you attach a volume to an instance, you can use it as you would use a physical hard drive.

1. EBS volumes that are attached to an instance are exposed as storage volumes that persist independently from the life of the instance. (i.e. even we have terminated the instance the EBS volume data attached to that instance will not be deleted).

Note: By default, Amazon EBS-backed instance root volumes have **DeleteOnTermination** flag set to **True**. We should make it as False if we don't want to Delete EBS on Instance termination.

2. EBS volumes are flexible. For current-generation volumes attached to current-generation instance types, you can dynamically increase size, modify the provisioned IOPS capacity, and change volume type on live production volumes without need a stop/start or attach/detach.

3. You can attach multiple EBS volumes to a single instance. The volume and instance must be in the same Availability Zone.

4. You can attach single EBS volume to multiple instances with Amazon EBS Multi-attach depending on the volume and instance types.

5. You can use separate boot(os) and data EBS volumes for an instance.

6. EBS volumes can be encrypted for data security. If a volume is encrypted, it can only be attached to an instance that supports Amazon EBS encryption.

Types of EBS

Amazon EBS provides the following volume types.

1. SSD
2. HDD

SSD

SSD provides low latency (<1ms) and I/O operations are much faster.

- ===→ General Purpose SSD (gp2) -----→ Good to go if cost matter
- ===→ Provisioned IOPS SSD (io1 and io2) -----→ Good to go if performance matter

good for

Enterprise applications (SAP, Microsoft SharePoint etc.).

Relational data bases (MySQL, oracle, etc.).

No-Sql databases (mongo dB, Cassandra).

HDD

HDD provides better throughput optimization.

- ===→ Throughput Optimized HDD (st1) -----→ Good to go if performance matter
- ===→ Cold HDD (sc1) -----→ Good to go if cost matter
- ===→ Magnetic (standard)

good for

Bigdata, analytics (Hadoop, Kafka, data warehousing).

streaming content requires high throughput.

media workloads, transcoding, logging and application backups.

Note: if you don't know workload it's recommended to start with general purpose SSD. You can dynamically increase size, modify the provisioned IOPS capacity, and change volume type when required depending on workload.

Note: modifications should fit within the volume specifications (1gb gp2 != 1gb st1).