

Amazon EBS is like a harddisk or root volume.

We will be focussing on EBS volume, EBS Snapshot, Datalifecycle Manager.

EBS volume is raw unformated block level storage that we can attach to ec2 instance.

An ebs volume can attach to a single ec2 instance at a time.

Both EBS volume and EC2 should be in same availability zone.

Feature of EBS Volume

Allow you to dynamically increase capacity.

Attach them to Amazon EC2 instance.

Offer durable snapshot capabilities.

Allow us to optimize storage performance.

Demo - How to create a volume.

Go to EC2 > Elastic Block Storage > Volumes

The screenshot shows the AWS EC2 Dashboard with the 'Volumes' section selected. The left sidebar includes links for EC2 Global View, Events, Console-to-Code, Instances, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, and Security Groups. The main content area displays the 'Resources' section with a table of EC2 resources in the US East (N. Virginia) Region. It also shows the 'EC2 Free Tier' info, 'Launch instance' options, 'Service health' status (AWS Health Dashboard), 'Offer usage (monthly)' metrics for Linux and Windows instances, and 'Storage space on EBS' usage. A note at the bottom indicates instances will launch in the US East (N. Virginia) Region.

Click on Create Volumes.
Select size 10 Gib. and change the availability zone. Click on create

The screenshot shows the AWS EBS Volume creation interface. The 'Volume type' is set to 'General Purpose SSD (gp3)'. The 'Size (GiB)' is set to '10'. The 'IOPS' is set to '3000'. The 'Throughput (MiB/s)' is set to '125'. The 'Availability Zone' is set to 'us-east-1b'. Under 'Encryption', there is a note about using Amazon EBS encryption and a checkbox for 'Encrypt this volume' which is unchecked. At the bottom right, there is a 'Create volume' button.

Click on Create Volume.

The screenshot shows the AWS EBS Volume list page. A green banner at the top indicates 'Successfully created volume vol-0bd6f41ce681a3f03.' The main table displays one volume entry:

Name	Type	Size	IOPS	Throughput	Snapshot ID	Created
vol-0bd6f41ce681a3f03	gp3	10 GiB	3000	125	-	2024/09/01 00:01

Below the table, there is a section titled 'Fault tolerance for all volumes in this Region' and a 'Snapshot summary' section showing '0 / 0' recently backed up volumes.

Diff type of EBS Volume

SSD - Solid state drive backend volume

HDD - Hard Disk Drive Backend Volume

MS - Magnetic Standard Backed Volume

Let's go back to Volume.

Lets see the diff type of EBS volume.

How to attach and detach to multiple instance

The screenshot shows the AWS Management Console with the URL `us-east-1.console.aws.amazon.com`. The left sidebar is open, showing navigation options like EC2 Dashboard, Instances, Images, and Elastic Block Store. Under EBS, 'Volumes' is selected. A success message at the top says 'Successfully created volume vol-0bd6f41ce681a3f03.' Below it, the 'Volumes (1) Info' section displays a table with one row:

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created
-	vol-0bd6f41ce681a3f03	gp3	10 GiB	3000	125	-	2024/09/01 00:01

Below the table, a section titled 'Fault tolerance for all volumes in this Region' shows 'Snapshot summary' with '0 / 0' recently backed up volumes. The bottom right corner of the page includes links for 'Privacy', 'Terms', and 'Cookie preferences'.

How to attach volume.

Create an EC2 instance. MAke sure you have same availability zone in this case us-east-1b.

Instances (2) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
EC2	i-04738515e3dd9456b	Terminated	t2.micro	-	View alarms +	us-east-1f
DEMO-ebs	i-004d0b892f7c11f	Running	t2.micro	Initializing	View alarms +	us-east-1b

Select an instance

Go to Volumes.

Volumes (2) Info

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created
-	vol-09fce6bf8a0eaa705	gp3	8 GiB	3000	125	snap-0cf83ce6...	2024/09/01 00:05
-	vol-0bd6f41ce681a3f03	gp3	10 GiB	3000	125	-	2024/09/01 00:01

Fault tolerance for all volumes in this Region

Snapshot summary

Recently backed up volumes / Total # volumes

Last updated on Sun, Sep 01, 2024, 12:10:08 AM (GMT+05:30)

Data Lifecycle Manager default policy for EBS Snapshots status
No default policy set up | Create policy

Go to Volumes.

Click on attach volume.

The screenshot shows the 'Attach volume' step in the AWS EBS Volume creation process. It includes fields for Volume ID (vol-0bd6f41ce681a3f03), Availability Zone (us-east-1b), Instance (i-004d0b892ff77c11f), Device name (/dev/sdb), and a note about kernel renaming. The 'Attach volume' button is highlighted.

Attach Volumes.

Go and check EC2 instance and check volumes.

The screenshot shows the EC2 Instances page with two volumes attached to an instance. The volumes are listed under the 'Storage' tab, with details like Volume ID, Device name, Volume size (8 GiB and 10 GiB), Attachment status (Attached), and Attachment time (2024-09-01 00:09 GMT+5:30 and 2024-09-01 00:11 GMT+5:30).

Volume ID	Device name	Volume size (GiB)	Attachment status	Attachment time	Encrypted
vol-09fce6bf8a0eaa705	/dev/xvda	8	Attached	2024/09/01 00:09 GMT+5:30	No
vol-0bd6f41ce681a3f03	/dev/sdb	10	Attached	2024/09/01 00:11 GMT+5:30	No

We can attach more than one instance if they are in same availability zone.

You can detach the volume by going to volume > detach volumes.

The screenshot shows the AWS EC2 Volumes page. A single EBS volume, `vol-0bd6f41ce681a3f03`, is listed. The volume is 10 GiB, type gp3, and has an IOPS of 3000. It is attached to an instance in the `i-004d0b892f77c11f (DEMO-eks)` and `/dev/sdb (attached)`. The `Actions` menu is open, and the `Detach volume` option is highlighted.

Click on Detach volume.

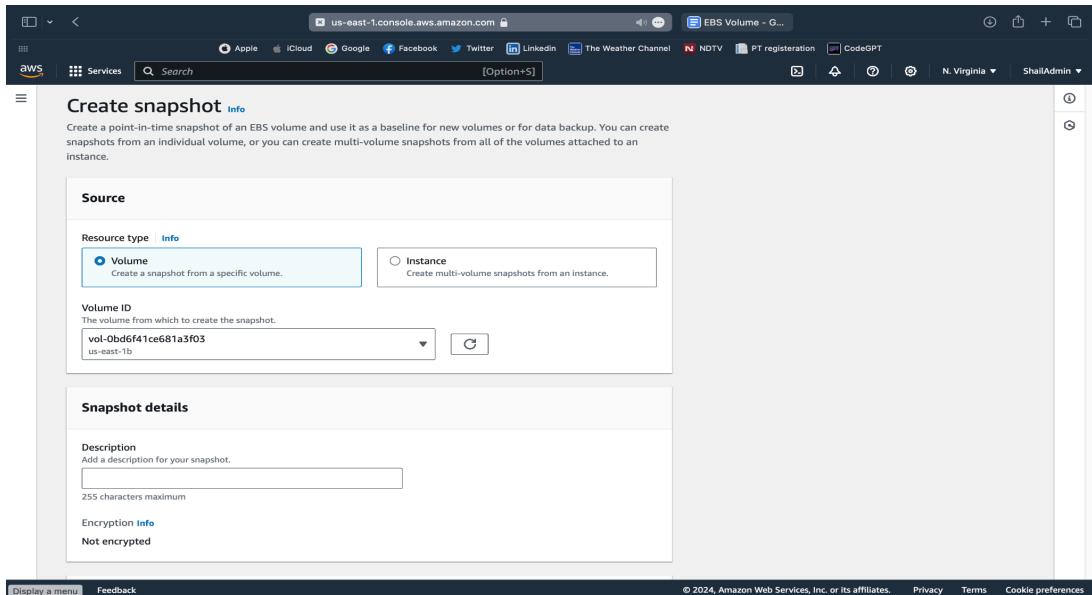
The screenshot shows the AWS EC2 Volumes page with the same volume details. A confirmation dialog box titled `Detach vol-0bd6f41ce681a3f03?` is displayed. The dialog contains a message about potential charges after detachment and a question asking if the user is sure. There are `Cancel` and `Detach` buttons at the bottom.

EBS Snapshot.

Click on EC2 > Elastic Block share > Snapshots

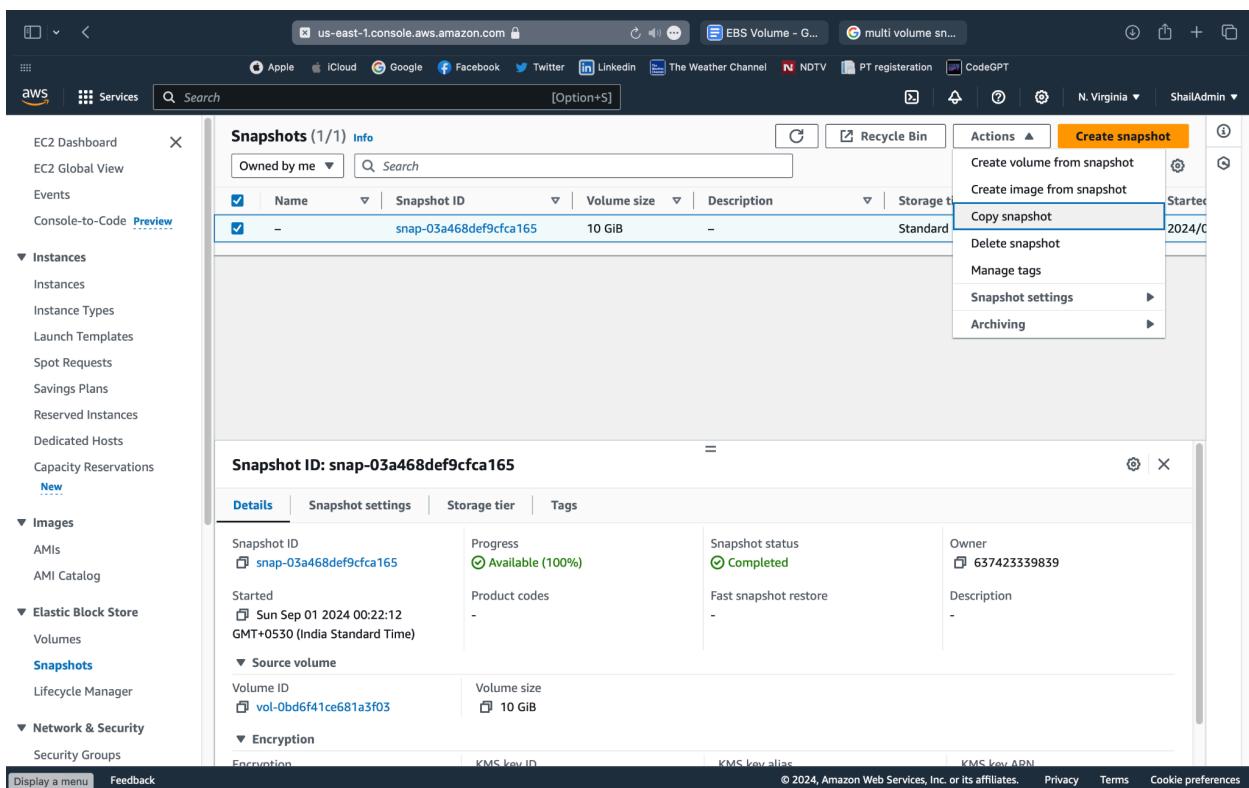
The screenshot shows the AWS EC2 Snapshots page. The left sidebar has sections for Instances, Images, Elastic Block Store (with Snapshots selected), and Network & Security. The main content area is titled "Snapshots Info" and shows a table header with columns: Name, Snapshot ID, Volume size, Description, Storage tier, Snapshot status, and Started. Below the header, a message says "You currently have no snapshots in this Region." At the bottom of the page, there is a note "Select a snapshot above." and standard footer links for Privacy, Terms, and Cookie preferences.

Click on Create Snapshot.



Click on create snapshot.

To create an image or volume from snapshot you can go to snapshot.



If you want to modify permission.

The screenshot shows the AWS EC2 Snapshots page. On the left, there's a navigation sidebar with sections like Instances, Images, Elastic Block Store, and Network & Security. The main area displays a single snapshot named "snap-03a468def9fcfa165". The snapshot details include:

- Snapshot ID: snap-03a468def9fcfa165
- Progress: Available (100%)
- Started: Sun Sep 01 2024 00:22:12 GMT+0530 (India Standard Time)
- Source volume: Volume ID vol-0bd6f41ce681a3f03, Volume size 10 GiB
- Encryption: Not encrypted
- Snapshot status: Completed

The Actions menu is open, showing options like "Create volume from snapshot", "Create image from snapshot", "Copy snapshot", "Modify permissions" (which is highlighted), "Snapshot settings", and "Archiving".

Delete Snapshot.

The screenshot shows the AWS EC2 Snapshots page with the "Delete snapshot" option selected in the Actions menu. The main area displays the snapshot details for "snap-03a468def9fcfa165".

The snapshot details are identical to the previous screenshot:

- Snapshot ID: snap-03a468def9fcfa165
- Progress: Available (100%)
- Started: Sun Sep 01 2024 00:22:12 GMT+0530 (India Standard Time)
- Source volume: Volume ID vol-0bd6f41ce681a3f03, Volume size 10 GiB
- Encryption: Not encrypted
- Snapshot status: Completed

The Actions menu is open, showing options like "Create volume from snapshot", "Create image from snapshot", "Copy snapshot", "Delete snapshot" (which is highlighted), "Manage tags", "Snapshot settings", and "Archiving".

EBS Data lifecycle Manager.

EBS (Elastic Block Store) Data Lifecycle Manager (DLM) is a feature provided by AWS (Amazon Web Services) that allows you to automate the creation, retention, and deletion of EBS snapshots. This helps in managing the lifecycle of EBS volumes by defining policies that automate these processes, reducing manual effort and improving data backup strategies.

Key Features of EBS Data Lifecycle Manager:

1. **Automated Snapshot Management:** You can set up policies that automatically create EBS snapshots at specified intervals, such as daily or weekly.
2. **Retention Rules:** Define how long to retain snapshots before they are automatically deleted, helping to manage storage costs and ensuring that you are only keeping data that you need.
3. **Cross-Region and Cross-Account Copying:** You can copy snapshots to other AWS regions or accounts for disaster recovery or compliance purposes.
4. **Tagging and Policy Control:** DLM policies can be applied based on tags, allowing you to selectively manage the lifecycle of certain EBS volumes.
5. **Resource Efficiency:** By automating snapshot management, you can ensure that your data backup processes are consistent and efficient, reducing the risk of data loss.

Common Use Cases:

- **Backup and Recovery:** Ensuring that critical data is regularly backed up and can be restored quickly in case of failure.
- **Disaster Recovery:** Automating the process of copying snapshots to other regions or accounts for recovery in case of regional failures.
- **Compliance:** Managing data retention to meet regulatory requirements by ensuring that data is kept for a specific period and then deleted.

How to Set Up EBS Data Lifecycle Manager:

- Create a Lifecycle Policy:** In the AWS Management Console, go to the "Data Lifecycle Manager" section under the EC2 Dashboard.
- Define Policy Rules:** Set up rules for when snapshots should be created, how long they should be retained, and any cross-region or cross-account copying requirements.
- Apply Tags:** If needed, apply tags to the EBS volumes that you want the policy to manage.
- Monitor and Manage:** Use AWS CloudWatch and other monitoring tools to track the performance of your lifecycle policies.

