Day 17

“CLOUD SECURITY”

Amazon EBS Snapshots for Data Backup:

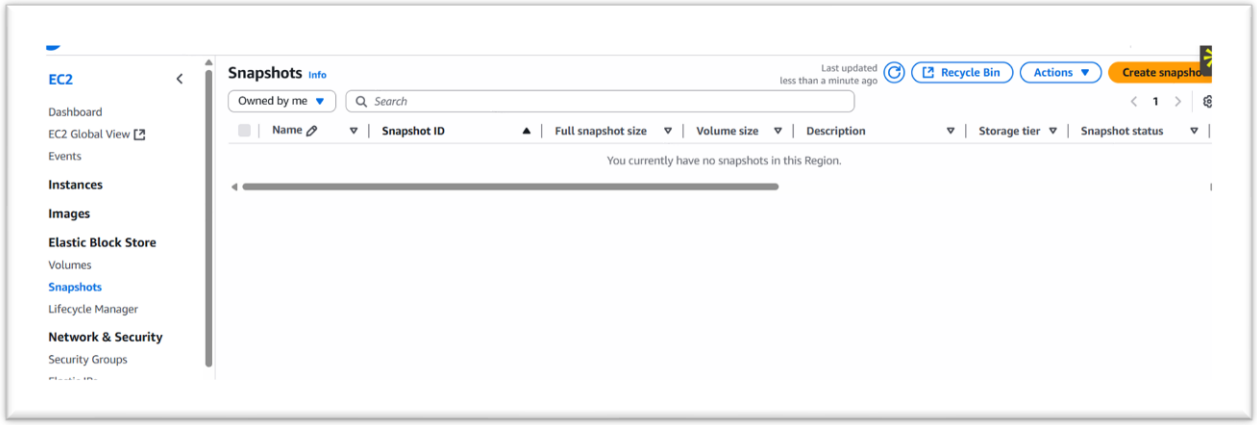
- Amazon EBS Snapshots are point-in-time backups of EBS volumes, offering secure, incremental data protection for disaster recovery, migration, and compliance.
- They support encryption by default, integrate with Amazon Data Lifecycle Manager for automation, and protect data both in transit and at rest.
- Snapshots can be shared across AWS accounts (with proper CMK permissions) and support multi-volume backups for EC2 instances.

Some basic info:

- EBS (Elastic Block Store): A block-level storage service used with EC2 instances to store data persistently, such as OS, application files, and databases.
- EBS Snapshot: A point-in-time, incremental backup of an EBS volume. It captures only the data that has changed since the last snapshot.
- Incremental Backup: Only modified blocks (since the last snapshot) are stored, making snapshots efficient in storage and faster.
- Encrypted Snapshot: A snapshot taken from an encrypted EBS volume. It stays encrypted at rest and in transit. It can be shared only with authorized AWS accounts via CMK (Customer Master Key).
- Data Lifecycle Manager (DLM): An AWS service used to automate creation, retention, and deletion of EBS snapshots based on policies.
- Multi-Volume Snapshot: Allows simultaneous backup of all EBS volumes attached to an EC2 instance to ensure data consistency.

Where can we find the option for EBS?

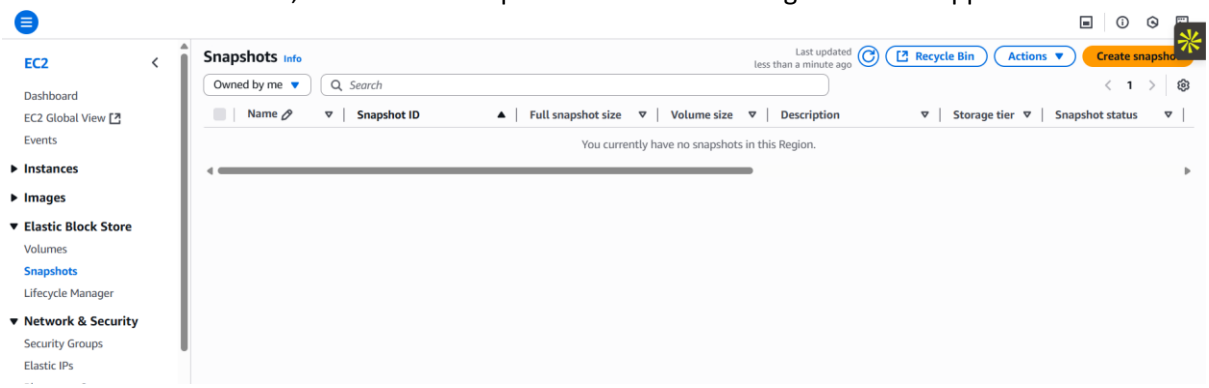
It can be found under the “EBS” section in EC2 instance page:



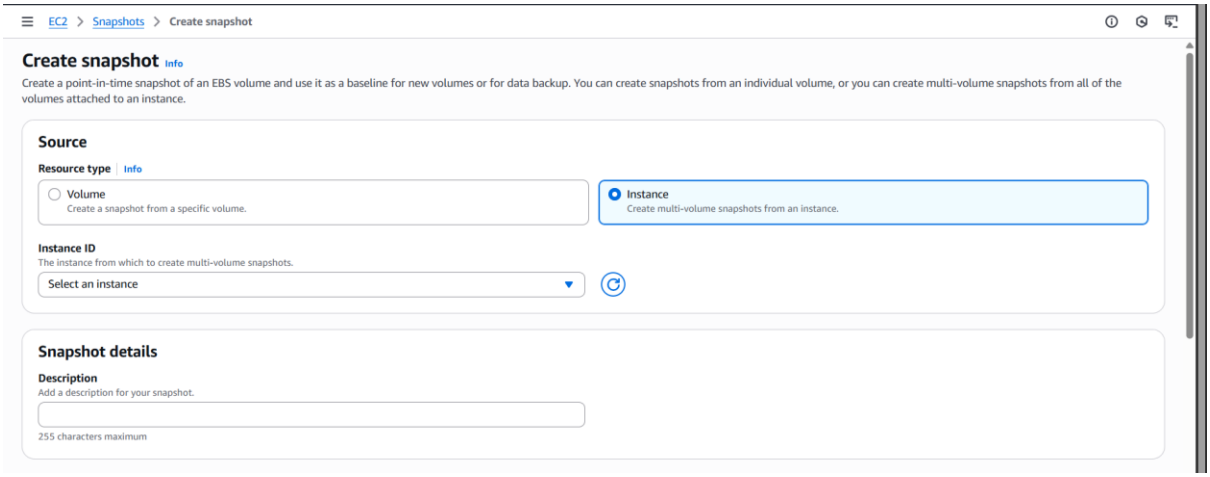
Creating a snapshot:

Steps:

Under the EBS submenu, click on the “snapshot” section: following screen will appear.



Click on the “orange button” following screen will appear:



Fill it as required, and click on the orange button at the bottom right corner for creating it.

Best Practices for keeping Snapshots safe and secure:

1. Enable Encryption

- Always use EBS encryption when creating volumes or snapshots.
- Snapshots of encrypted volumes are automatically encrypted.
- Encryption protects data both at rest and in transit using AWS-managed or customer-managed CMKs.

2. Control Snapshot Sharing

- Never make snapshots public unless absolutely necessary.
- If sharing is required, share encrypted snapshots only with trusted AWS accounts and also share the corresponding CMK.
- Regularly audit shared snapshots using AWS CLI or AWS Config.

3. Use IAM Policies and Permissions

- Implement strict IAM policies to control who can:

    - Create snapshots
    - Delete snapshots
    - Share snapshots
    - Restore snapshots
- Always follow the principle of least privilege.

4. Enable AWS CloudTrail

- Use AWS CloudTrail to log snapshot-related actions, such as:
    - Who created or deleted snapshots
    - Who shared them and with whom
- These logs help in auditing and identifying unauthorized access.

5. Automate with Lifecycle Policies

- Use Amazon Data Lifecycle Manager (DLM) to:
    - Automate snapshot creation and deletion
    - Reduce the risk of forgotten or outdated snapshots containing sensitive data

6. Avoid Unused or Orphan Snapshots

- Periodically review and delete old or unused snapshots to minimize risk exposure.
- Orphaned snapshots may cause data leakage if mistakenly accessed or shared.

7. Use CMK Rotation and Access Logging

- When using customer-managed keys (CMKs):
    - Rotate the keys regularly
    - Enable CloudWatch Logs to track key usage and ensure transparency

--The End--