Hands-On Practice with AWS S3

Introduction to S3 (Simple Storage Service)

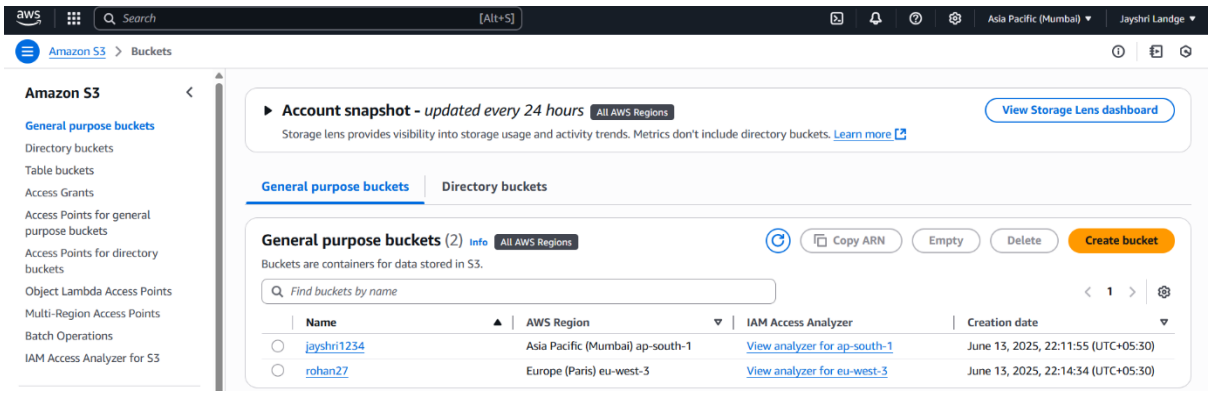
- S3 stands for **Simple Storage Service**
- It is a **global service** that stores data as **objects**
- **Supports** both Linux and Windows OS
- S3 does **not** provide bootable drives

Task 1: Creating an S3 Bucket

Concept: In S3, data is stored inside **buckets**, which are globally unique and region-specific.

Steps:

1. Go to the **AWS Management Console**
2. Navigate to **S3**
3. Click on **"Create bucket"**
4. Enter a globally unique **bucket name**
5. Choose the **Region** (e.g., Asia Pacific - Mumbai)
6. Keep the bucket **private** by default (recommended)
7. Click on **"Create bucket"**



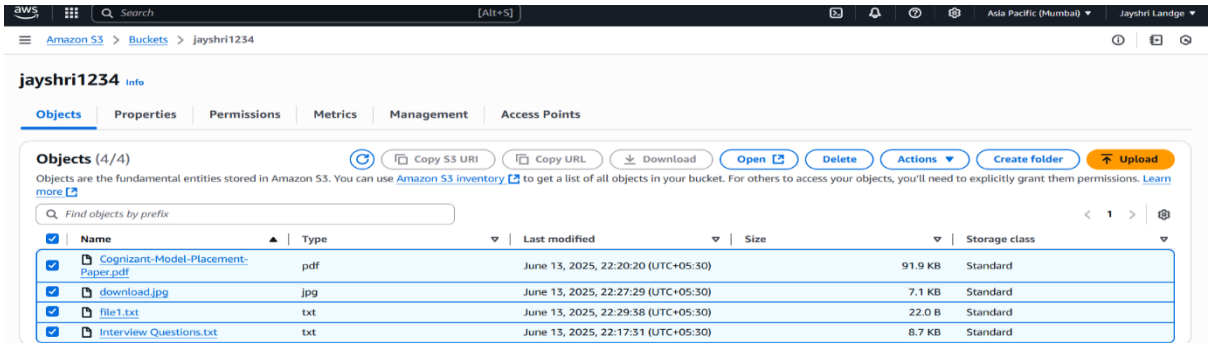
Screenshot 1: Bucket Creation Configuration

Task 2: Uploading Objects to the Bucket

Objects can be uploaded from Linux or Windows systems.

Steps:

1. Open the bucket you created
2. Click on **“Upload”**
3. Select files or folders to upload
4. Set permissions (default is private)
5. Click **Upload**



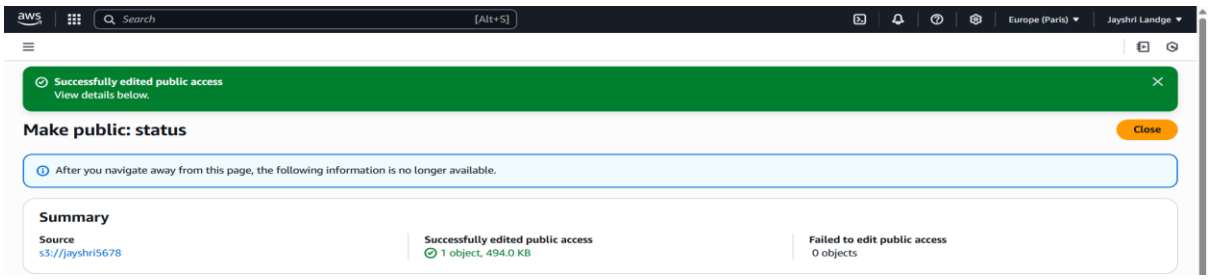
Screenshot 2: Object Upload Screen

Task 3: Make Object Public Using ACL

By default, all objects are private. You can make them public using ACL.

Steps:

1. Go to the bucket
2. Select the object
3. Click **Actions > Make public using ACL**
4. Confirm the action



Screenshot 3: Make Public ACL Option

Comparison of EBS, EFS, and S3

Feature	EBS	EFS	S3
Stands for	Elastic Block Store	Elastic File System	Simple Storage Service
Scope	Zone-specific	Region-specific	Global
Storage Type	Blocks	Files	Objects
OS Support	Linux & Windows	Linux only	Linux & Windows
Bootable Drives	Yes	No	No
Port Requirement	No	Yes (2049 - NFS)	No

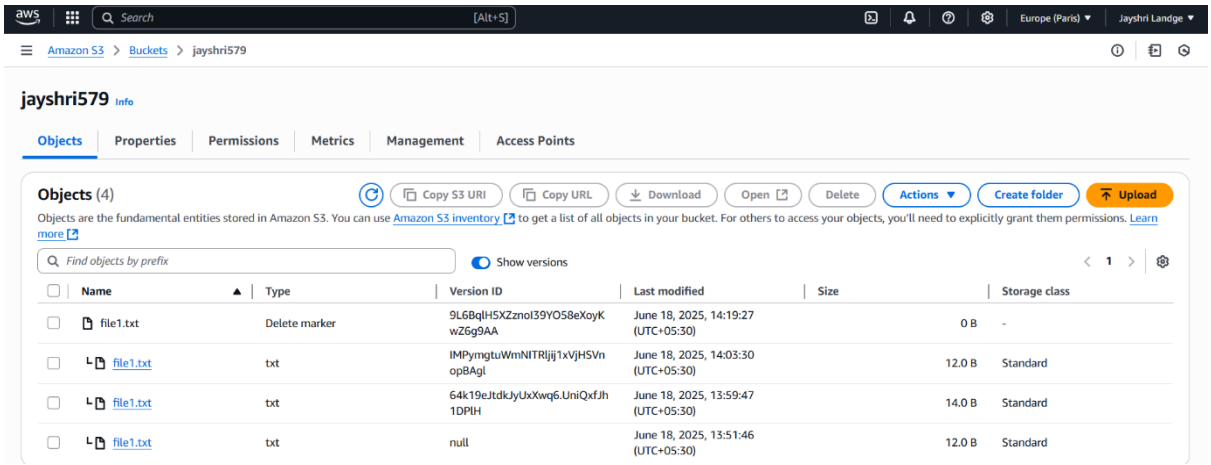
Task 4: Enabling Versioning on an S3 Bucket

Versioning keeps **multiple versions** of objects.

Steps:

1. Go to the **Properties** tab of the bucket
2. Find **Bucket Versioning**
3. Click **Edit** > Enable
4. Save changes

   Deleting an object with versioning enabled creates a **delete marker**. To recover, remove the marker.



Screenshot 4: Versioning Enable Section

Task 5: Cross-Region Replication

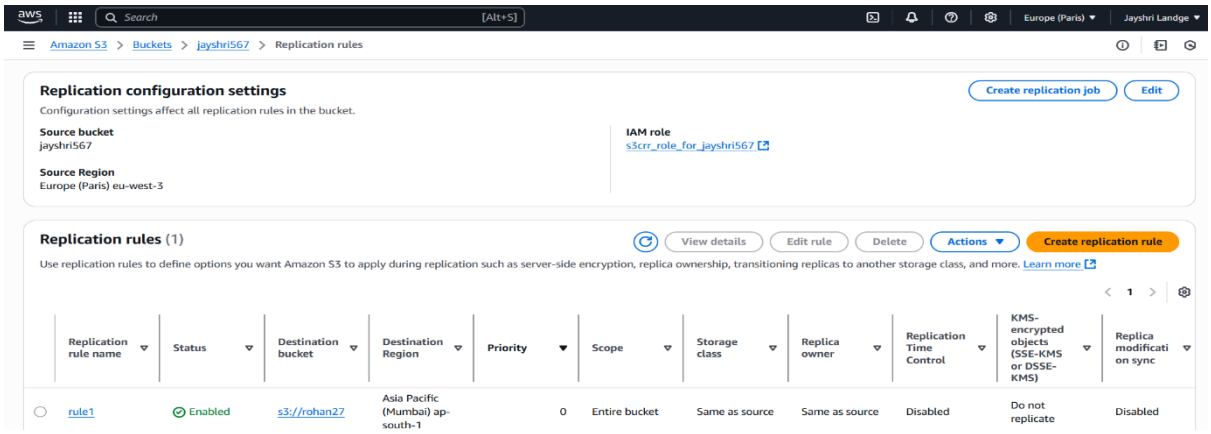
Used to **backup** objects and reduce **latency**.

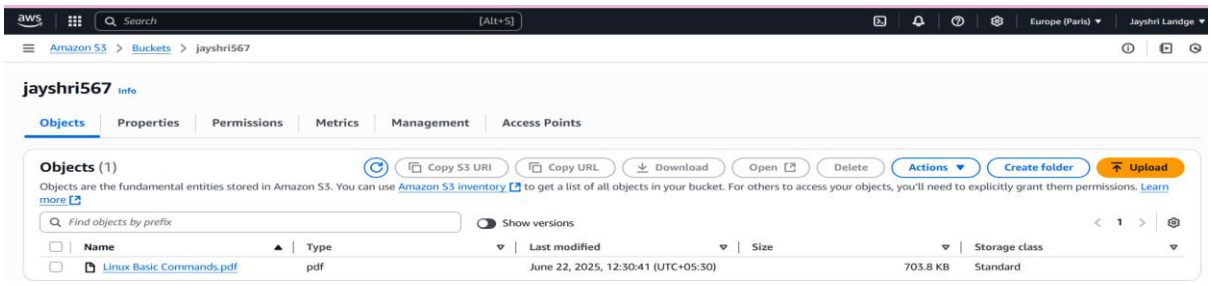
Prerequisites:

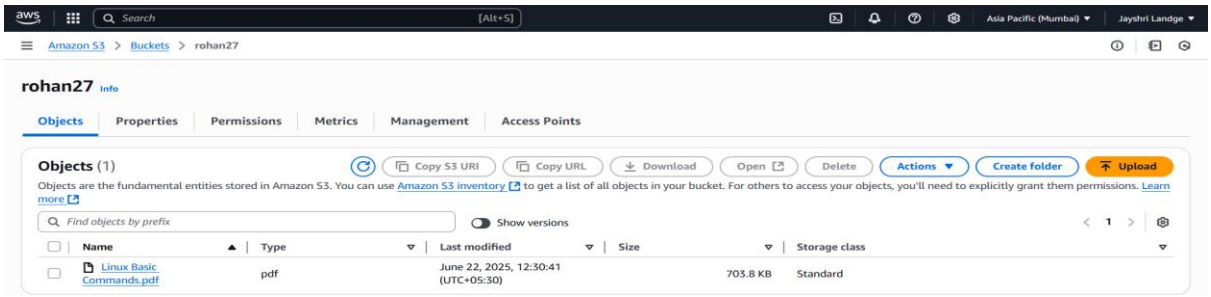
- Versioning must be **enabled**
- Source and destination buckets should exist

Steps:

1. Go to the **Management** tab of the source bucket
2. Click **Replication Rules**
3. Create a rule with destination bucket in a **different region**
4. Save rule







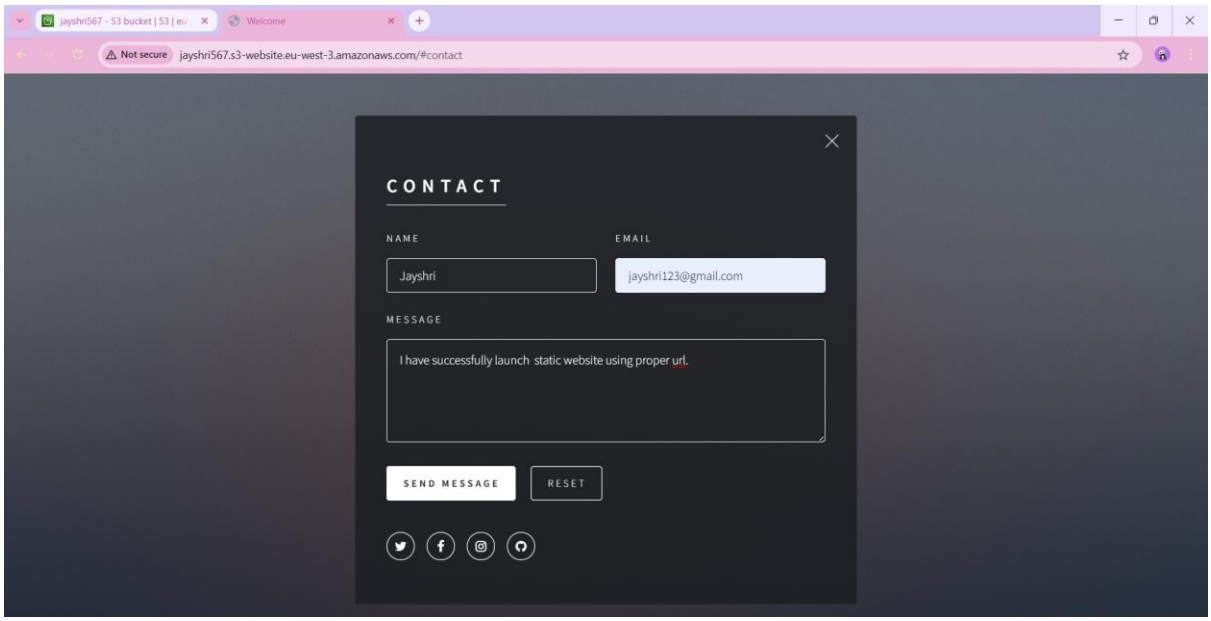
Screenshot 5: Replication Rule Setup

Task 6: Static Website Hosting

S3 supports only **static websites** (no dynamic content)

Steps:

1. Upload your HTML files (e.g., index.html)
2. Go to **Properties > Static Website Hosting**
3. Enable and set the index document (e.g., index.html)
4. Save and note the **URL** provided



Screenshot 6: Static Website Hosting

Static websites = fixed content
No PHP, Node.js, or backend databases

Ways to Access AWS

Method	Description
Management Console	GUI-based AWS interface
AWS CLI	Command Line tool for AWS
AWS SDK	APIs for languages like Python, Java, etc.
AWS API	Low-level HTTP-based access to AWS services

Task 7: Configure AWS CLI

The aws configure command sets up the CLI.

Run the following command:

aws configure

Provide:

- **Access Key ID**
- **Secret Access Key**
- **Default region** (e.g., ap-south-1)
- **Output format** (json, table, or text)

```
[root@ip-172-31-41-145 ~]# aws configure
AWS Access Key ID [****************SDRC]: AKIAVYV5Z3XZIOQEGAXM
AWS Secret Access Key [None]: LBQMjU4gRy9PQ8wXpHqo/h4S2nZmcbfSYqzW9oVs
Default region name [None]: ap-south-1
Default output format [None]: text
```

Screenshot 7: AWS CLI Configuration

Task 8: S3 CLI Commands

Bucket Management

aws s3 ls # List all buckets

aws s3 mb s3://bucketname # Create a new bucket

aws s3 mb s3://bucketname --region us-east-1 # Create bucket in region

aws s3 rb s3://bucketname # Remove bucket

aws s3 rb s3://bucketname --force # Force delete non-empty bucket

```
[root@ip-172-31-41-145 /]# aws s3 mb s3://jayshri456789
make_bucket: jayshri456789
[root@ip-172-31-41-145 /]# aws s3 ls
2025-06-22 09:16:29 bucketjayshri1234567
2025-06-22 09:29:20 jayshri456789
2025-06-22 09:03:03 roshani567
[root@ip-172-31-41-145 /]# aws s3 ls s3://roshani567
                           PRE dir1/
2025-06-22 09:26:23          0 a
2025-06-22 09:26:23          0 b
2025-06-22 09:26:23          0 c
[root@ip-172-31-41-145 /]# aws s3 rb s3://bucketjayshri1234567
remove_bucket failed: s3://bucketjayshri1234567 An error occurred (BucketNotEmpty) when calling the DeleteBucket operation: The bucket you tried to delete is not empty
[root@ip-172-31-41-145 /]# aws s3 rb s3://bucketjayshri1234567 --force
delete: s3://bucketjayshri1234567/file1
remove_bucket: bucketjayshri1234567
```

Screenshot 8: CLI Bucket Commands Output

Object Management

aws s3 cp file.txt s3://bucketname # Upload file

aws s3 mv file.txt s3://bucketname # Move file

aws s3 ls s3://bucketname # List objects

aws s3 rm s3://bucketname/file.txt # Delete file

aws s3 cp /dir1 s3://bucketname --recursive # Upload directory

```
17  aws s3 cp /tmp/file1 s3://rohan456789
18  aws s3 ls
19  aws s3 ls s3://rohan456789
20  touch /tmp/file2
21  aws s3 mv /tmp/file2 s3://rohan456789
22  aws s3 ls s3://rohan456789
23  aws s3 rm s3://rohan456789/file1
24  aws s3 ls s3://rohan456789
25  aws s3 rb s3://rohan456789
26  aws s3 rb s3://rohan456789 --force
```

Screenshot 9: CLI Object Commands Output

Storage Classes in S3

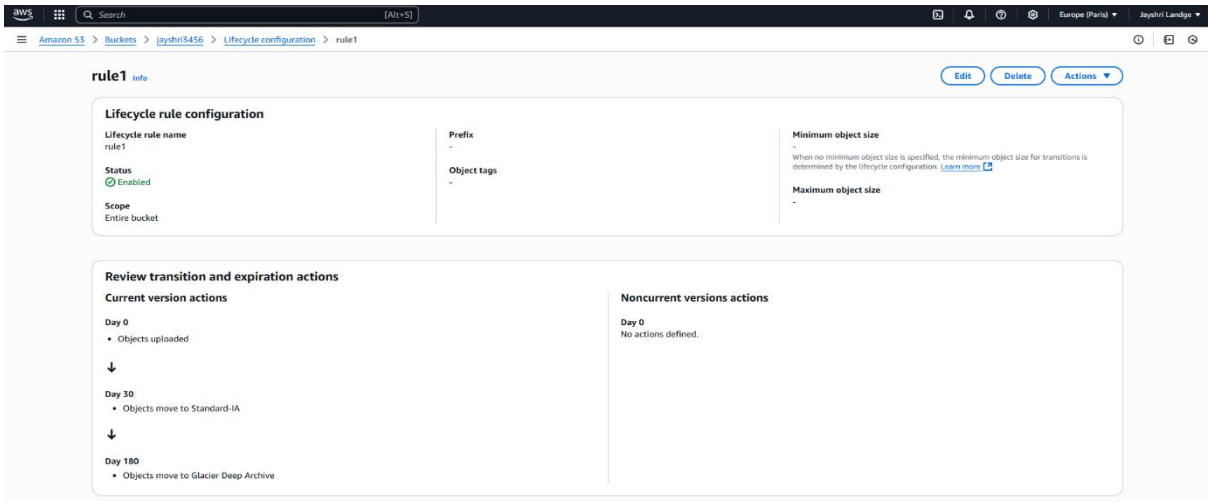
Storage Class	Use Case	Durability/Availability
Standard	Frequent access	99.999999999% durability, 99.99% avail.
Standard-IA	Infrequent access (1–2 times/week)	Cheaper, multi-AZ
One Zone-IA	Infrequent, in one AZ	Lower cost, less availability
Intelligent-Tiering	Automatic adjustment based on access pattern	Optimized cost
Glacier	Archival (60–90 days)	Low cost, retrieval time minutes–hours
Glacier Deep Archive	Long-term archival (180+ days)	Lowest cost, long retrieval time

S3 Lifecycle Management

Automate object transitions between storage classes to save cost.

Steps:

1. Go to **Management > Lifecycle rules**
2. Click **Create lifecycle rule**
3. Add rule name, select prefix or tags
4. Choose actions (e.g., move to Glacier after 30 days)
5. Save rule



Screenshot 10: Lifecycle Rule Setup

Conclusion

Through this hands-on guide, we explored and practiced key functionalities of **AWS S3**, from creating buckets and uploading objects to enabling versioning, configuring cross-region replication, and hosting static websites. We also worked with different **storage classes**, implemented **lifecycle management**, and executed essential **AWS CLI commands** for real-time control.

This practical exposure reinforces your understanding of how S3 works in real-world cloud environments and prepares you for **DevOps**, **cloud projects**, and **certification scenarios**. Mastering S3 is a fundamental step toward becoming proficient in AWS and cloud-based storage solutions.