

# Hands-On Practice with AWS S3

## Introduction to S3 (Simple Storage Service)

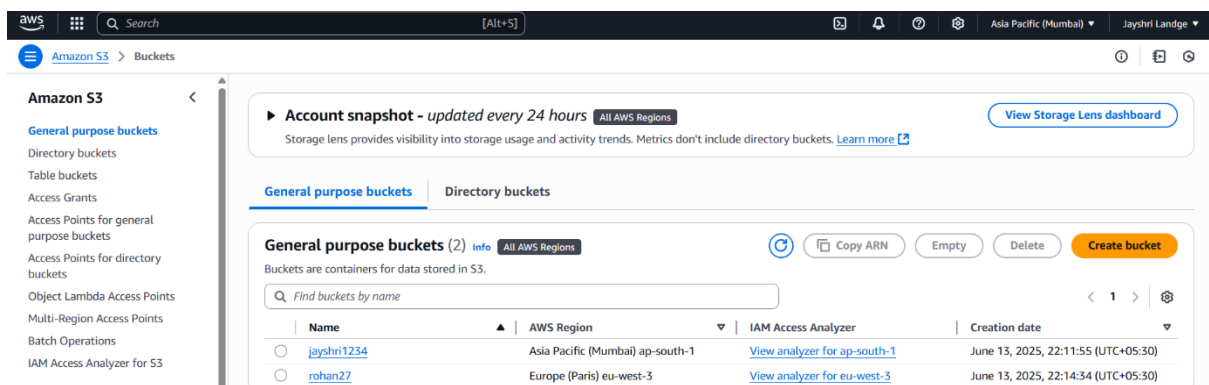
- S3 stands for **Simple Storage Service**
- It is a **global service** that stores data as **objects**
- **Supports** both Linux and Windows OS
- S3 does **not** provide bootable drives

## 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**”



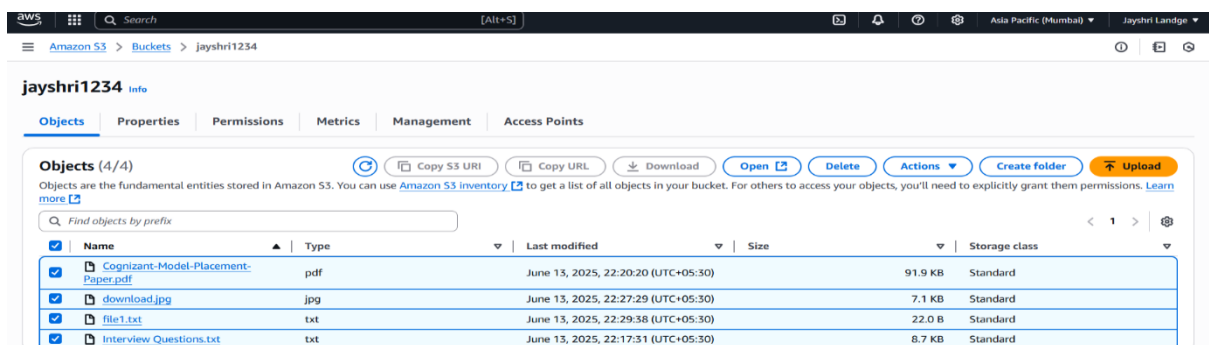
**Screenshot 1: Bucket Creation Configuration**

## 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**



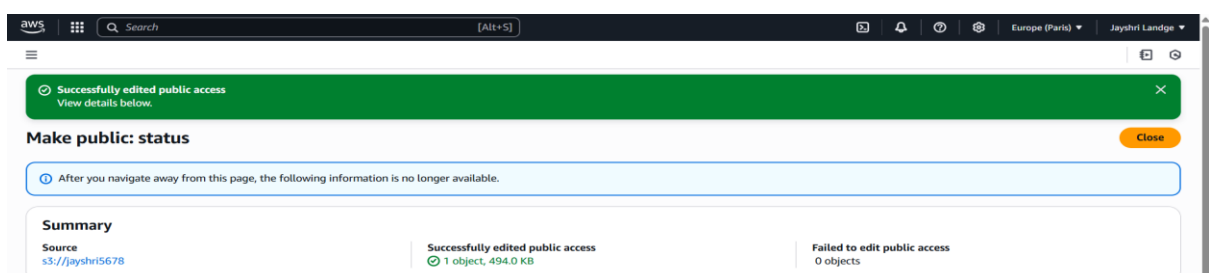
Screenshot 2: Object Upload Screen

## 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
<b>Stands for</b>	Elastic Block Store	Elastic File System	Simple Storage Service
<b>Scope</b>	Zone-specific	Region-specific	Global
<b>Storage Type</b>	Blocks	Files	Objects
<b>OS Support</b>	Linux & Windows	Linux only	Linux & Windows
<b>Bootable Drives</b>	Yes	No	No
<b>Port Requirement</b>	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.

The screenshot shows the AWS S3 console interface for a bucket named 'jayshri579'. The 'Objects' tab is selected, displaying a table of objects. The table has columns for Name, Type, Version ID, Last modified, Size, and Storage class. There are four objects listed: a 'Delete marker' and three 'txt' files. The 'Show versions' toggle is turned on, and the table shows the version ID for each object.

Name	Type	Version ID	Last modified	Size	Storage class
file1.txt	Delete marker	9L6BqlH5XZznoI39YOS8eXoyKwZ6g9AA	June 18, 2025, 14:19:27 (UTC+05:30)	0 B	-
file1.txt	txt	IMPymgtuWmNITRijj1xVjH5Vn op8Agl	June 18, 2025, 14:03:30 (UTC+05:30)	12.0 B	Standard
file1.txt	txt	64k19eJtdkUyUxXwq6.UniQxfjh 1DPIH	June 18, 2025, 13:59:47 (UTC+05:30)	14.0 B	Standard
file1.txt	txt	null	June 18, 2025, 13:51:46 (UTC+05:30)	12.0 B	Standard

**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

The screenshot displays the AWS Management Console interface for setting up a Cross-Region Replication rule. It is divided into three main sections:

- Replication configuration settings:** This section shows the configuration for the replication rule. The source bucket is 'jayshri567' in the 'Europe (Paris) eu-west-3' region. The IAM role is 's3crr\_role\_for\_jayshri567'. Buttons for 'Create replication job' and 'Edit' are visible.
- Replication rules (1):** This section shows a table of replication rules. The table has columns for Replication rule name, Status, Destination bucket, Destination Region, Priority, Scope, Storage class, Replica owner, Replication Time Control, KMS-encrypted objects (SSE-KMS or DSE-KMS), and Replica modification on sync. A rule named 'rule1' is listed with a status of 'Enabled', destination bucket 's3://rohan27', and destination region 'Asia Pacific (Mumbai) ap-south-1'.
- Bucket Management:** The screenshot also shows the 'jayshri567' bucket management page with the 'Objects' tab selected, and the 'rohan27' bucket management page with the 'Objects' tab selected. Both pages show a list of objects, including 'Linux Basic Commands.pdf'.

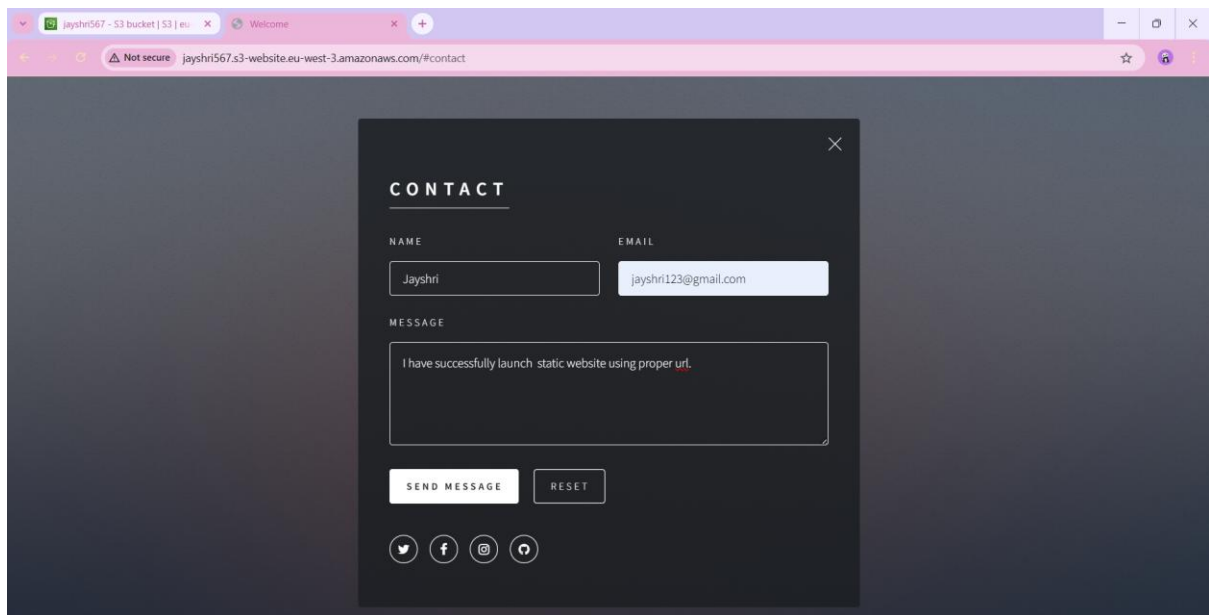
**Screenshot 5: Replication Rule Setup**

## 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

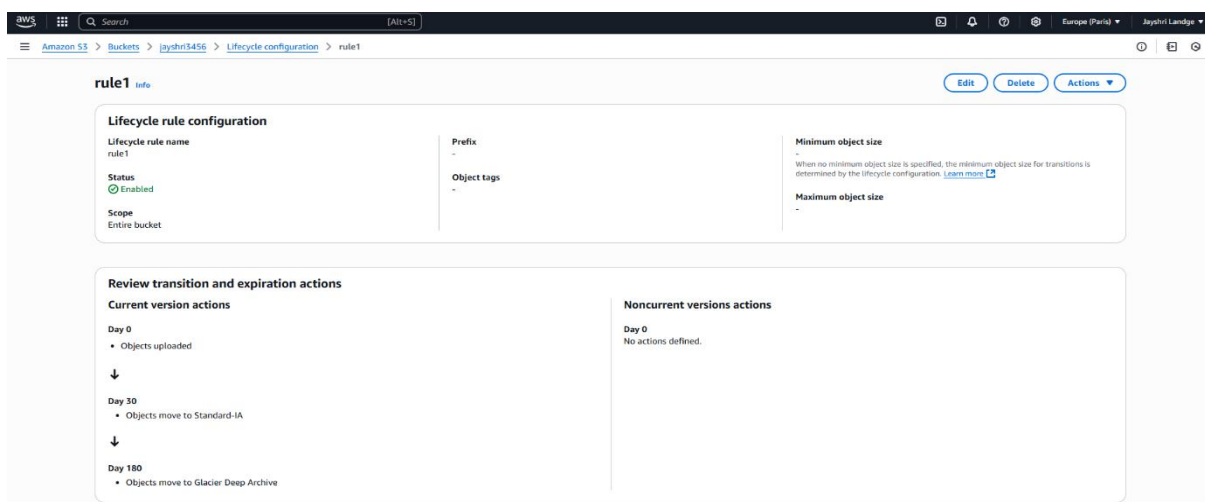
Storage Class	Use Case	Durability/Availability
<b>Standard</b>	Frequent access	99.999999999% durability, 99.99% avail.
<b>Standard-IA</b>	Infrequent access (1–2 times/week)	Cheaper, multi-AZ
<b>One Zone-IA</b>	Infrequent, in one AZ	Lower cost, less availability
<b>Intelligent-Tiering</b>	Automatic adjustment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