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EXPERIMENT NO . 12

- **Title:-** To study the difference between **EBS** and **S3** storage. Create Buckets on AWS and explore the **Versioning** option on the AWS console.
- **Objective :-**
 - To compare the features, use cases, and functionality of **EBS** and **S3** storage.
 - To learn how to create, manage, and configure **S3 buckets** using the **AWS Console**.
 - To explore **Versioning** in S3 for maintaining multiple versions of objects.
 - To upload, download, and delete objects from an S3 bucket.
 - To perform S3 bucket operations using the **AWS CLI**.

Resources used :- AWS Account (Free Tier), AWS Management Console, AWS CLI, PC/Laptop with Internet connection.

▪ **Theory :-**

Create your first S3 bucket

1. Sign in to the AWS Management Console and open the Amazon S3 console at <https://console.aws.amazon.com/s3/>.
2. In the left navigation pane, choose **Buckets**.
3. Choose **Create bucket**.

The **Create bucket** page opens.

4. For **Bucket name**, enter a name for your bucket.

The bucket name must:

- Be unique within a partition. A partition is a grouping of Regions. AWS currently has three partitions: aws (Standard Regions), aws-cn (China Regions), and aws-us-gov (AWS GovCloud [US] Regions).
- Be between 3 and 63 characters long.
- Consist only of lowercase letters, numbers, dots (.), and hyphens (-). For best compatibility, we recommend that you avoid using dots (.) in bucket names, except for buckets that are used only for static website hosting.
- Begin and end with a letter or number.
- 5. For **Region**, choose the AWS Region where you want the bucket to reside.

To minimize latency and costs and address regulatory requirements, choose a Region close to you. Objects stored in a Region never leave that Region unless you explicitly transfer them to another Region. For a list of Amazon S3 AWS Regions, see [AWS service endpoints](#) in the *Amazon Web Services General Reference*.

6. Under **Object Ownership**, to disable or enable ACLs and control ownership of objects uploaded in your bucket, choose one of the following settings:

ACLs disabled

- **Bucket owner enforced** – ACLs are disabled, and the bucket owner automatically owns and has full control over every object in the bucket. ACLs no longer affect access permissions to data in the S3 bucket. The bucket uses policies to define access control.

To require that all new buckets are created with ACLs disabled by using AWS Identity and Access Management (IAM) or AWS Organizations policies, see [Disabling ACLs for all new buckets \(bucket owner enforced\)](#).

ACLs enabled

- **Bucket owner preferred** – The bucket owner owns and has full control over new objects that other accounts write to the bucket with the bucket-owner-full-control canned ACL.

If you apply the bucket owner preferred setting, to require all Amazon S3 uploads to include the bucket-owner-full-control canned ACL, you can [add a bucket policy](#) that allows only object uploads that use this ACL.

- **Object writer** – The AWS account that uploads an object owns the object, has full control over it, and can grant other users access to it through ACLs.

Note

To apply the **Bucket owner enforced** setting or the **Bucket owner preferred** setting, you must have permission to use the following actions: s3:CreateBucket and s3:PutBucketOwnershipControls.

7. Under **Block Public Access settings for this bucket**, choose the Block Public Access settings that you want to apply to the bucket.

We recommend that you keep all settings enabled unless you know that you need to turn off one or more of them for your use case, such as to host a public website. The Block Public Access settings that you enable for the bucket are also enabled for all access points that you create on the bucket. For more information about blocking public access, see [Blocking public access to your Amazon S3 storage](#).

8. (Optional) Under **Bucket Versioning**, you can choose if you wish to keep variants of objects in your bucket. For more information about versioning, see [Using versioning in S3 buckets](#).

To disable or enable versioning on your bucket, choose either **Disable** or **Enable**.

9. (Optional) Under **Tags**, you can choose to add tags to your bucket. Tags are key-value pairs used to categorize storage.

To add a bucket tag, enter a **Key** and optionally a **Value** and choose **Add Tag**.

10. Under **Default encryption**, choose **Edit**.
11. To configure default encryption, under **Encryption key type**, choose one of the following:
 - **Amazon S3 managed key (SSE-S3)**
 - **AWS Key Management Service key (SSE-KMS)**
12. Choose **Create bucket**.

You've created a bucket in Amazon S3.

Upload an object to your bucket

To upload an object to a bucket

1. Open the Amazon S3 console at <https://console.aws.amazon.com/s3/>.
2. In the **Buckets** list, choose the name of the bucket that you want to upload your object to.
3. On the **Objects** tab for your bucket, choose **Upload**.
4. Under **Files and folders**, choose **Add files**.
5. Choose a file to upload, and then choose **Open**.
6. Choose **Upload**.

You've successfully uploaded an object to your bucket.

Download an object

1. Sign in to the AWS Management Console and open the Amazon S3 console at <https://console.aws.amazon.com/s3/>.
2. In the **Buckets** list, choose the name of the bucket that you want to download an object from.
3. You can download an object from an S3 bucket in any of the following ways:
 - Select the object and choose **Download** or choose **Download as** from the **Actions** menu if you want to download the object to a specific folder.
 - If you want to download a specific version of the object, select the **Show versions** button. Select the version of the object that you want and choose **Download** or choose **Download as** from the **Actions** menu if you want to download the object to a specific folder.

Deleting an object

If you want to choose which objects you delete without emptying all the objects from your bucket, you can delete an object.

1. In the **Buckets** list, choose the name of the bucket that you want to delete an object from.
2. Select the object that you want to delete.
3. Choose **Delete** from the options in the upper right.
4. On the **Delete objects** page, type **delete** to confirm deletion of your objects.
5. Choose **Delete objects**.

Emptying your bucket

If you plan to delete your bucket, you must first empty your bucket, which deletes all the objects in the bucket.

To empty a bucket

1. In the **Buckets** list, select the bucket that you want to empty, and then choose **Empty**.
2. To confirm that you want to empty the bucket and delete all the objects in it, in **Empty bucket**, type **permanently delete**.
3. To empty the bucket and delete all the objects in it, and choose **Empty**.

An **Empty bucket: Status** page opens that you can use to review a summary of failed and successful object deletions.

4. To return to your bucket list, choose **Exit**.

Enabling versioning on buckets

Using the S3 console

Follow these steps to use the AWS Management Console to enable versioning on an S3 bucket.

To enable or disable versioning on an S3 bucket

1. Sign in to the AWS Management Console and open the Amazon S3 console at <https://console.aws.amazon.com/s3/>.
2. In the **Buckets** list, choose the name of the bucket that you want to enable versioning for.
3. Choose **Properties**.
4. Under **Bucket Versioning**, choose **Edit**.
5. Choose **Suspend** or **Enable**, and then choose **Save changes**.

Using AWS CLI:

1>list out existing buckets

\$aws s3 ls

2>describe bucket data

\$aws s3 ls s3://h999

3>remove bucket

\$aws s3 rb s3://h999

4>force fully remove buckets

\$aws s3 rb s3://h999 --force

5>downloading from buckets

\$aws S3 sync . S3://h999

6>uploading data to bucket

\$aws S3 sync S3://h999 .

Conclusion:-

we have created s3 buckets using AWS dashboard and CLI with versioning facility.