CLOUD COMPUTING

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Infrastructure as a Service

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Storage Service

Cloud storage services allow storage and retrieval of any amount of data, at any time from anywhere on the web.

Most cloud storage services organize data into buckets or containers.

Scalability: Objects upto several terabytes in size can be uploaded and multiple buckets/containers can be created on cloud storages.

Replication : When an object is uploaded it is replicated at multiple facilities and/or on multiple devices within each facility.

Access Policies: CSP should provide several security features such as Access Control Lists (ACLs), bucket/container level policies, etc.

ACLs can be used to selectively grant access permissions on individual objects. Bucket/container level policies can also be defined to allow or deny permissions across some or all of the objects within a single bucket/container.

Storage Service

Encryption : Cloud storage services provide Server Side Encryption (SSE) options to encrypt all data stored in the cloud storage.

Consistency: Strong data consistency is provided for all upload and delete operations. Any object that is uploaded can be immediately downloaded after the upload is complete.

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AWS Storage Service

- S3 – Simple cloud storage
- EBS – similar C drive or E drive (ssd drives attached to instances)
- EFS - shared file systems (multiple systems)
- Glacier – archiving solution (low cost back up)
- Storage gateway – safely moving data from on-premises to cloud
- Snowball – data import and export system (h/w given to premise for data storage)
- Snowmobile – datacenter on mobile

Amazon Simple Storage Service

Amazon Simple Storage Service(S3) is an online cloud-based data storage infrastructure for storing and retrieving any amount of data.

S3 provides highly reliable, scalable, fast, fully redundant and affordable storage infrastructure.

Buckets : Data stored on S3 is organized in the form of buckets. You must create a bucket before you can store data on S3.

You cannot install anything on S3

Amazon Simple Storage Service

- Stores upto 5 TB in size
- 11 9 durability (99.999999999)
- 99.99% availability
- Very Cheap
- Region wise service
- Encryption

Source: Simplilearn-know-about-s3

Create a Bucket

1. From the Amazon S3 console dashboard, choose **Create Bucket**.
2. In **Create a Bucket**, type a bucket name in **Bucket Name**.
3. In **Region**, choose **region**.
4. Choose **Create**.

When Amazon S3 successfully creates your bucket, the console displays your empty bucket in the **Buckets** pane

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Uploading Files in S3

1. In the Amazon S3 console, choose the bucket where you want to upload an object, choose **Upload**, and then choose **Add Files**

2. In the file selection dialog box, find the file that you want to upload, choose it, choose **Open**, and then choose **Start Upload**.

3. You can watch the progress of the upload in the **Transfer** pane

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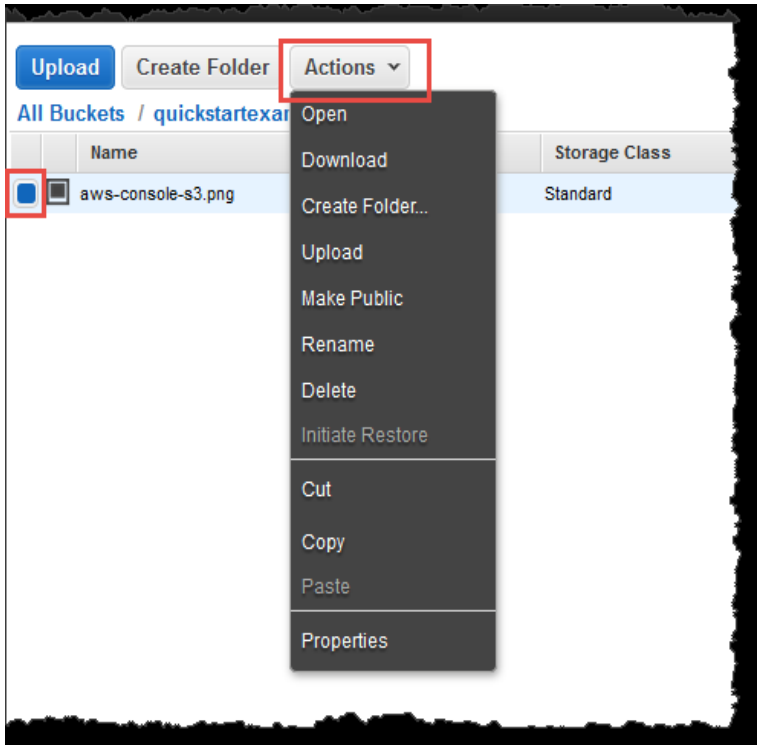
Retrieving Files in S3

1. In the Amazon S3 console, choose your S3 bucket, choose the file that you want to open or download, choose **Actions**, and then choose **Open** or **Download**.
2. If you are downloading an object, specify where you want to save it



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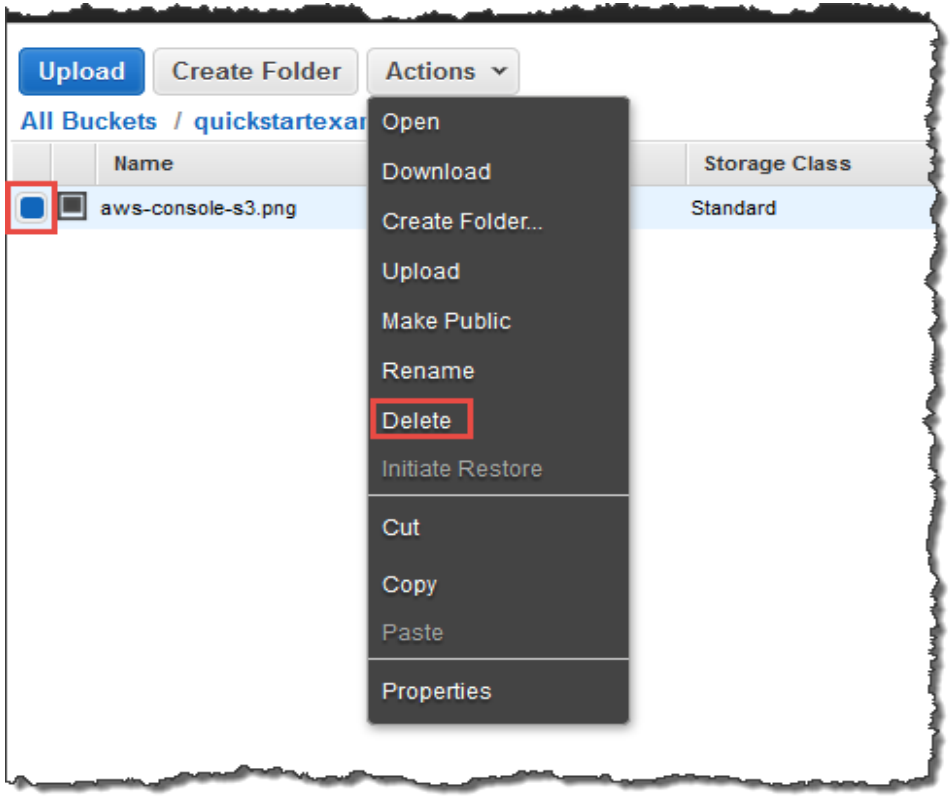
Deleting Files in S3

1. Within your S3 bucket, select the file that you want to delete, choose **Actions**, and then choose **Delete**.
2. In the confirmation message, choose **OK**



Emptying the 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**, enter the name of the bucket.
3. To empty the bucket and delete all the objects in it, and choose **Empty**.
4. To return to your bucket list, choose **Exit**.

Deleting the Bucket

1. After you empty your bucket or delete all the objects from your bucket, you can delete your bucket.
2. To delete a bucket, in the **Buckets** list, select the bucket.
3. Choose **Delete**.
4. To confirm deletion, in **Delete bucket**, enter the name of the bucket

Configuring the Bucket

- Storage Class
- Versioning
- Replication
- Encryption

Configuring the S3 Bucket

Storage Classes

- Standard: For frequently accessed data. Stores object data redundantly across multiple geographically separated Availability Zones
- Standard IA: For infrequently accessed data. Stores object data redundantly across multiple geographically separated Availability Zones. Minimum 30-day retention period and minimum 128 KB object size.

Configuring the S3 Bucket

Storage Classes

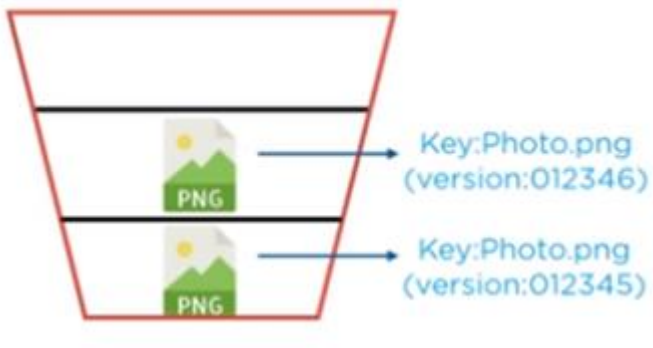
- One-Zone IA: For infrequently accessed data. Stores object data in only one Availability Zone at a lower price than Standard-IA. Minimum 30-day retention period and minimum 128 KB object size
- Reduced Redundancy: For frequently accessed data. Stores noncritical, reproducible data at lower levels of redundancy than Standard.
- To define the storage classes – Go to objects – click properties

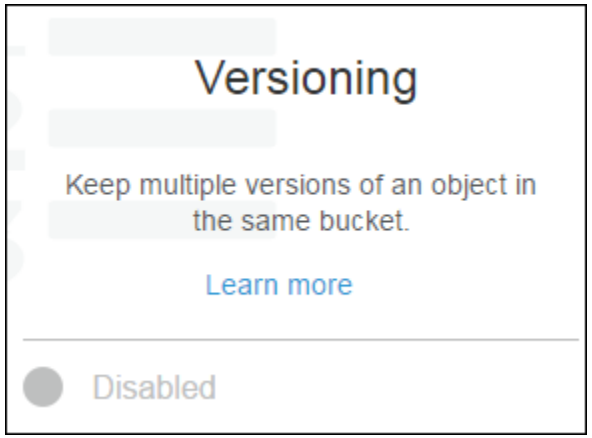
Configuring the S3 Bucket

Versioning

Preserve, recover and restore the earlier versions of every object in the bucket

1. In the **Bucket name** list, choose the name of the bucket that you want.
2. Choose **Properties.** Choose **Versioning. Enable & Save**



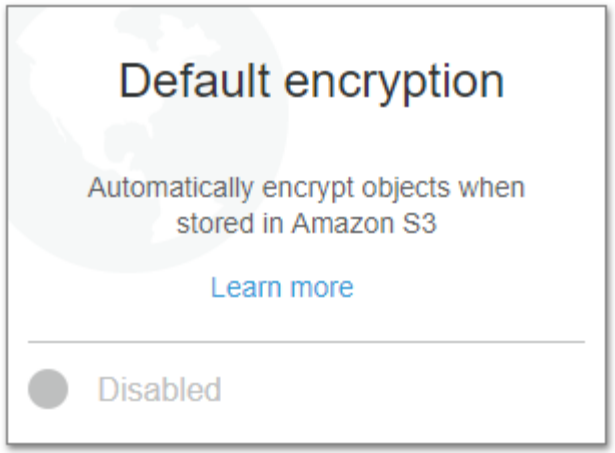


Configuring the S3 Bucket

Encryption

Server side Encryption is provided by CSP.

1. In the **Bucket name** list, choose the name of the bucket that you want.
2. Choose **Properties.** Choose **Default encryption. Enable.** choose **AES-256**, and choose **Save.**



Configuring the S3 Bucket

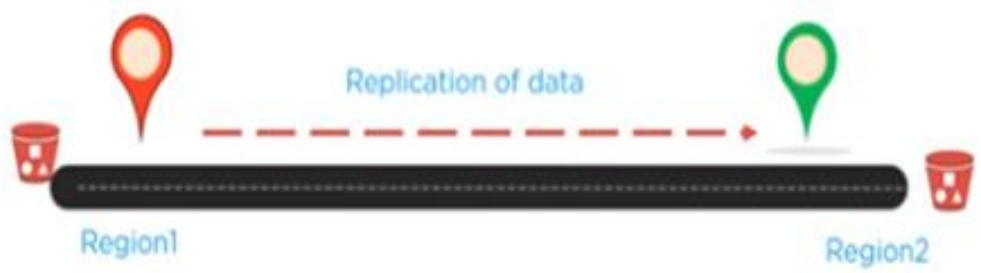
Cross Region Replication

Automatic copying of every object uploaded to your buckets in different AWS region

Before doing CRR both buckets should have versioning enabled

Create a destination bucket in a different region

Under Bucket -> properties -> Replicate



Managing the S3 Bucket

Life Cycle Management

To do Life cycle management go to bucket and click to Management tab and add the transition action and expiration action

- Transition actions: Move data from one storage class and another storage class
- Expiration actions: Expiration date can be fixed for any object

THANK YOU

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