AmazeOnCloud

# AWS Service guide

# Storage #1

Simple Storage Service(S3)

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Scalable object storage service that offers industry-leading durability, availability, and performance

Provides highly reliable and secure storage for various types of data, such as images, videos, documents, backups, and log files

Designed to be highly available and durable, ensuring that your data is protected against failures and accessible whenever you need it

S3 stores objects (files) in buckets, and each object is identified by a unique key

**AWS Documentation:**
https://aws.amazon.com/s3

# Simple Storage Service (S3)

## How it works


## Use cases

**Backup and Restore -** S3 can be used as a backup solution for your on-premises or cloud-based infrastructure, allowing you to store and retrieve data easily

**Web Hosting -** S3 can serve as a reliable and scalable solution for hosting static websites, offering cost-effective storage and high availability

# Simple Storage Service (S3)

**Data Archiving** - S3 Glacier provides long-term storage options for archival data, enabling cost-effective retention and retrieval of infrequently accessed data

**Content Distribution** - S3 integrates seamlessly with other AWS services like CloudFront, allowing you to deliver content globally with low latency and high data transfer speeds

## Real time examples

**Dropbox** - Uses S3 as its storage backend to store and sync user files across multiple devices.

**Netflix -** Leverages S3 for storing and delivering streaming video content to millions of users worldwide

**Airbnb -** Uses S3 to store and serve property images and other media files for their listings

# Simple Storage Service (S3)

## Different Storage plans

S3 offers various storage classes to meet different performance, availability, and cost requirements

**S3 Standard** - The default storage class with high durability and availability

**S3 Intelligent-Tiering** - Automatically moves data between two tiers based on access patterns to optimize costs

**S3 Standard-IA (Infrequent Access)** - Lower-cost storage for infrequently accessed data

**S3 One Zone-IA** - Similar to Standard-IA but stores data in a single availability zone, reducing costs

**S3 Glacier**- For long-term archival storage with retrieval times ranging from minutes to hours

**S3 Glacier Deep Archive** - Lowest-cost storage for data accessed once or twice per year

# Simple Storage Service (S3)

## Security Best Practices

- Use bucket policies and access control lists (ACLs) to control access to your S3 buckets and objects
- Enable versioning to protect against accidental overwrites or deletions
- Encrypt sensitive data at rest using AWS Key Management Service (KMS) or server-side encryption with S3-managed keys
- Use AWS Identity and Access Management (IAM) to manage user permissions and roles
- Enable logging to track access and usage of your S3 resources
- Regularly review and audit your S3 configurations and permissions

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## Steps to create - AWS Console

- Sign in to the AWS Management Console
- Open the S3 service
- Click on "Create Bucket" and provide a unique bucket name and region
- Configure bucket properties, such as versioning, logging, and encryption
- Set permissions for bucket access using bucket policies or ACLs
- Click "Create Bucket" to create the S3 bucket

Versioning once activated on a bucket cannot be turned off, it can only be suspended

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## Features

- **Scalability -** S3 can handle any amount of data and scale to support high request rates
- **Durability and Availability**- S3 stores data redundantly across multiple facilities, ensuring high durability and availability
- **Lifecycle Management** - Automatically transitions objects between storage classes based on their lifecycle policies
- **Event Notifications** - S3 can trigger notifications or events in response to actions performed on objects
- **Cross-Region Replication** - Replicate data across different AWS regions for disaster recovery or low-latency access
- **Transfer Acceleration** - Accelerate data transfers to and from S3 using the AWS global network

# Simple Storage Service (S3)

## Limitations

- S3 has limits on the size of individual objects (currently 5 TB) and the number of objects per bucket (billions)
- S3 charges for data transfer out of the storage, which can impact costs if there are high download volumes
- While S3 offers strong durability, it is still possible to accidentally delete or overwrite objects without versioning enabled

## Cost calculator

Calculator takes into account storage, data transfer, requests, and other factors based on your usage patterns and chosen storage class

**https://aws.amazon.com/s3/pricing/**


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