

# What Is S3?



S3 provides developers and IT teams with secure, durable, highly-scalable object storage. Amazon S3 is easy to use, with a simple web services interface to store and retrieve any amount of data from anywhere on the web.

# What Is S3?



S3 is a safe place to store your files.

It is Object-based storage.

The data is spread across multiple devices and facilities.

# S3 - The Basics

- S3 is Object-based — i.e. allows you to upload files.
- Files can be from 0 Bytes to 5 TB.
- There is unlimited storage.
- Files are stored in Buckets (similar to a folder)
- S3 is a universal namespace. That is, names must be unique globally.
- <https://s3-eu-west-1.amazonaws.com/acloudguru>
- When you upload a file to S3, you will receive a HTTP 200 code if the upload was successful.



Region and bucket name

Upload status code is seen if we are using api or cli. Status code is not seen if we are using AWS console.



# Data Consistency Model For S3

- Read after Write consistency for PUTS of new Objects
- Eventual Consistency for overwrite PUTS and DELETES (can take some time to propagate)

# S3 Is A Simple Key-value Store

- S3 is Object based. Objects consist of the following:
  - Key (This is simply the name of the object)
  - Value (This is simply the data, which is made up of a sequence of bytes).
  - Version ID (Important for versioning)
  - Metadata (Data about data you are storing)
  - Subresources - bucket-specific configuration:
    - Bucket Policies, Access Control Lists,
    - Cross Origin Resource Sharing (CORS)
    - Transfer Acceleration







# S3 - The Basics

- Built for 99.99% availability for the S3 platform
- Amazon Guarantee 99.9% availability
- Amazon guarantees 99.999999999% durability for S3 information. (Remember 11 x 9s).
- Tiered Storage Available
- Lifecycle Management
- Versioning
- Encryption
- Secure your data - Access Control Lists and Bucket Policies



# S3 - Storage Tiers/Classes

- S3: 99.99% availability, 99.999999999% durability, stored redundantly across multiple devices in multiple facilities, and is designed to sustain the loss of 2 facilities concurrently.
- S3 - IA (Infrequently Accessed): For data that is accessed less frequently, but requires rapid access when needed. Lower fee than S3, but you are charged a retrieval fee.
- S3 - One Zone IA: Same as IA however data is stored in a single Availability Zone only, still 99.999999999% durability, but only 99.5% availability. Cost is 20% less than regular S3 - IA.
- Reduced Redundancy Storage: Designed to provide 99.99% durability and 99.99% availability of objects over a given year. Used for data that can be recreated if lost, e.g. thumbnails. (Starting to disappear from AWS documentation but may still feature in exam)
- Glacier: Very cheap, but used for archival only. Optimised for data that is infrequently accessed and it takes 3 - 5 hours to restore from Glacier.

S3 101

## S3 - Storage Tiers/Classes

Storage Class	Durability (designed for)	Availability (designed for)	Other Considerations
STANDARD	99.999999999%	99.99%	None
STANDARD_IA	99.999999999%	99.9%	Retrieval fee for all S3 IA objects
ONEZONE_IA	99.999999999%	99.5%	Not resilient to loss of the Availability Zone.
GLACIER	99.999999999%	99.99% (after you restore objects)	No real-time access, 4-5 hours to access.
RRS	99.99%	99.99%	None

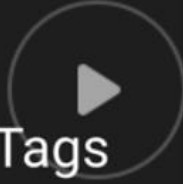
# S3 - Intelligent Tiering

- Unknown or unpredictable access patterns
- 2 tiers - frequent and infrequent access
- Automatically moves your data to most cost-effective tier based on how frequently you access each object
- 99.9999999999% durability
- 99.9 availability over a given year
- Optimizes cost
- No fees for accessing your data but a small monthly fee for monitoring /automation \$0.0025 per 1,000 objects



# S3 - Charges

- Charged for:
  - Storage per GB
  - Requests (Get, Put, Copy, etc.)
  - Storage Management Pricing
    - Inventory, Analytics, and Object Tags
  - Data Management Pricing
    - Data transferred out of S3
  - Transfer Acceleration
    - Use of CloudFront to optimize transfers





# S3 - Exam Tips For S3 101

- Remember that S3 is Object-based: i.e. allows you to upload files. Object-based storage only (for files.)
- **Not suitable to install an operating system or running a database on.**
- Files can be from 0 Bytes to 5 TB.
- There is unlimited storage.
- Files are stored in Buckets.
- S3 is a universal namespace. That is, names must be unique globally.
- <https://s3-eu-west-1.amazonaws.com/acloudguru>



# S3 - Exam Tips For S3 101

- Read after Write consistency for PUTS of new Objects
- Eventual Consistency for overwrite PUTS and DELETES (can take some time to propagate)

## S3 - Exam Tips for S3 101

- S3 Storage Classes/Tiers:
  - S3 (durable, immediately available, frequently accessed)
  - S3 - IA (durable, immediately available, infrequently accessed)
  - S3 - One Zone IA: Same as IA. However, data is stored in a single Availability Zone only.
  - S3 - Reduced Redundancy Storage (data that is easily reproducible, such as thumbnails, etc.)
  - Glacier - Archived data, where you can wait 3 - 5 hours before accessing





# S3 - Exam Tips For S3 101

- Remember the core fundamentals of an S3 object:
  - Key (name)
  - Value (data)
  - Version ID
  - Metadata
  - Subresources - bucket-specific configuration:
    - Bucket Policies, Access Control Lists,
    - Cross Origin Resource Sharing (CORS)
    - Transfer Acceleration



# S3 - Exam Tips For S3 101

- Successful uploads will generate a HTTP 200 status code. - when you use the CLI or API
- Make sure you read the S3 FAQ: <https://aws.amazon.com/s3/faqs/>