S3 Storage Classes

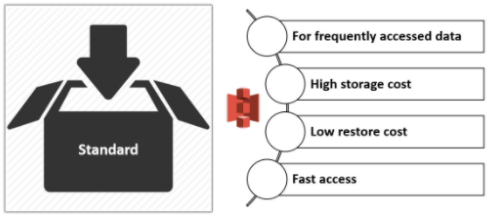
Storage Class in AWS

Amazon S3 offers a range of storage classes for the objects that you store.

You choose a class depending on your use case scenario and performance access requirements. All of these storage classes offer high durability. There are 7 types of storage class in AWS:

- Standard
- Reduced Redundancy
- Intelligent-Tiering
- Standart-IA
- One Zone-IA
- Glacier
- Glacier Deep Archive

Standard Storage



Standard is the default storage class. If users don't specify the storage class when uploading an object, Amazon S3 assigns the STANDARD storage class. This is the basic storage solution for the objects that you always need and use.

Standard storage class has the following features:

- High capacity and low latency.
- Reliability at 99,999999999% level (Customers run the risk of losing only one of 100 billion objects per year).
- Availability at 99,99% level (For 10 thousand hours, the data will not be available only within one hour).

The scenarios such as cloud applications and web-services, mobile games and apps, website hosting, content distribution can be counted as the most appropriate areas of use for standard storage class.

Reduced Redundancy Storage (RRS)

The Reduced Redundancy Storage (RRS) storage class is designed for noncritical, reproducible data that can be stored with less redundancy than the STANDARD storage class. It allows reducing the storage costs for uncritical data.

- The main difference between RRS and S3 Standard is reliability at 99,99%.
- This means that if you store 10,000 items, you run the risk of losing just one of them within a year.
- If an RRS object is lost, when requests are made to that object, Amazon S3 returns a 405 error.
- AWS recommends not to use this storage class because the Standard storage class is more cost-effective.

There are ..... types of storage class in AWS S3.

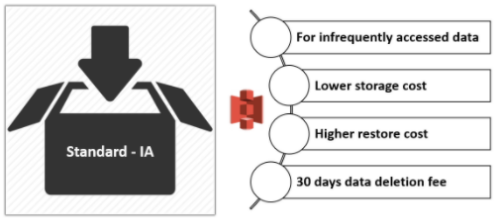
Select one:

- 8
- 6
- 7 ✔
- 9
- 5

Clear my choice

Check

Standard IA



Standard IA (Infrequent Access) is a convenient storage solution for files that are not frequently accessed but need to be accessed quickly when needed. It designed for the data which requires less frequent access, but with longer storage time than in case of Standard.

Standard IA storage class has the following features:

- Lower storage cost
- Higher restore cost
- Availability at 99.9% level within a year (For 10 thousand hours, the data will not be available within 10 hours).
- Data retrieval charge

If you access a file frequently, you should keep it in the normal standard layer. Because in Standard-IA Infrequent Access, extra money is deducted each time you access the files you keep, apart from the price you pay normally. So if an object is accessed every day and used frequently, it is cheaper to keep it as standard. But if the object is accessed 2 times a year, it is cheaper to transfer it to Standard-IA Infrequent Access and keep it there.

One Zone IA

AWS introduced another Amazon S3 storage class in April 2018, One-Zone IA (Infrequent Access) which is 20 percent less expensive than Standard IA due to less availability. Instead of three available zones such as the other storage classes, One Zone IA only stores data in one.

One-Zone IA can be considered as an affordable alternative storage class for files

If users don't specify the storage class when uploading an object, Amazon S3 assigns the ..... class.

Select one:

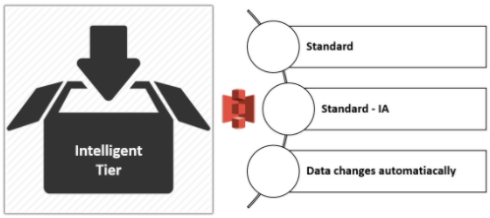
- Standard ✔
- One Zone-IA
- Intelligent-Tiering
- Reduced Redundancy
- Standard IA

Clear my choice

Check

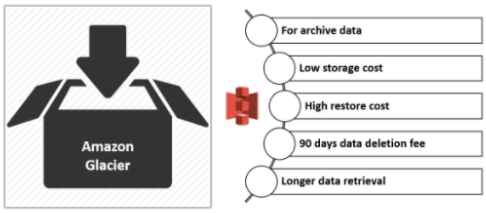
Intelligent Tier

The **Intelligent Tier** storage class is designed to optimize storage costs by automatically moving data to the most cost-effective storage access tier, without performance impact or operational overhead.



- It delivers automatic cost savings by moving data on a granular object-level between two access tiers, a frequent access tier and a lower-cost infrequent access tier, when access patterns change.
- It is ideal if you want to optimize storage costs automatically for long-lived data when access patterns are unknown or unpredictable.
- For example, if an object has not been accessed in 30 days, AWS will move it to the infrequent access.
- When the object is then accessed after being transferred to infrequent access, AWS can move it back for cheaper subsequent accesses to the frequent access storage class.

Amazon Glacier



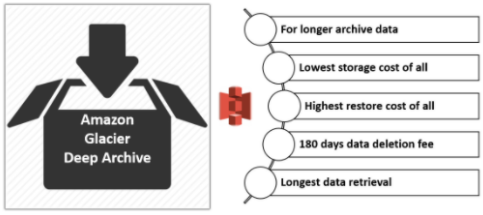
Amazon Glacier is an independent service from S3. It is a perfect solution for long-term storage and data archiving that doesn't require instant access.

- For example, you have backups you need once a year. These are not urgent, you don't have to access them in milliseconds when you need them.
- Here you can store such files at a very affordable price in Glacier service.
- Data stored in the GLACIER storage class has a minimum storage the duration period of 90 days and can be accessed in as little as 1-5 minutes using expedited retrieval.
- If you have deleted, overwritten, or transitioned to a different storage class an object before the 90-day minimum, you are charged for 90 days.

The following scenarios can be thought as the most appropriate examples of use for Glacier.

- Media resources archives
- Backup copies of databases with long storage.
- Archives of organizations working in the different businesses such as health, sport, insurance, etc.

Amazon Glacier Deep Archive



Amazon Glacier Deep Archive is the lowest cost storage option in AWS. Storage costs for DEEP_ARCHIVE is less expensive than using the Glacier storage class.

- It is used for archiving data that rarely need to be accessed.
- You can reduce Amazon Glacier Deep Archive retrieval costs by using bulk retrieval, which returns data within 48 hours.
- The fastest retrieval time is up to 12 hours.
- Data stored in the Amazon Glacier Deep Archive storage class has a minimum storage duration period of 180 days and a default retrieval time of 12 hours.
- If you have deleted, overwritten, or transitioned to a different storage class an object before the 180-day minimum, you are charged for 180 days.

Storage Classes Comparison

Storage Class	Designed for	Durability (designed for)	Availability (designed for)	Availability Zones	Min storage duration	Min billable object size	Other Considerations
STANDARD	Frequently accessed data	99.999999999%	99.99%	>= 3	None	None	None
STANDARD_IA	Long-lived, infrequently accessed data	99.999999999%	99.9%	>= 3	30 days	128 KB	Per GB retrieval fees apply.
INTELLIGENT_TIERING	Long-lived data with changing or unknown access patterns	99.999999999%	99.9%	>= 3	30 days	None	Monitoring and automation fees per object apply. No retrieval fees.
ONEZONE_IA	Long-lived, infrequently accessed, non-critical data	99.999999999%	99.5%	1	30 days	128 KB	Per GB retrieval fees apply. Not resilient to the loss of the Availability Zone.
GLACIER	Long-term data archiving with retrieval times ranging from minutes to hours	99.999999999%	99.99% (after you restore objects)	>= 3	90 days	40 KB	Per GB retrieval fees apply. You must first restore archived objects before you can access them. For more information, see Restoring Archived Objects.
DEEP_ARCHIVE	Archiving rarely accessed data with a default retrieval time of 12 hours	99.999999999%	99.99% (after you restore objects)	>= 3	180 days	40 KB	Per GB retrieval fees apply. You must first restore archived objects before you can access them. For more information, see Restoring Archived Objects.
RRS (Not recommended)	Frequently accessed, non-critical data	99.99%	99.99%	>= 3	None	None	None

The above table compares the storage classes.