



## Amazon S3 Cross Region Replication

Amazon S3 Cross-Region Replication (CRR) is a feature that allows you to replicate objects from a source S3 bucket in one AWS region to a destination S3 bucket in another AWS region. This feature helps you achieve data redundancy, disaster recovery, and compliance requirements by maintaining copies of your data in different geographic locations.

Key features and aspects of S3 Cross-Region Replication include:

1. **Replication Setup:** To set up Cross-Region Replication, you need two S3 buckets—one as the source bucket and another as the destination bucket. These buckets can be in different AWS regions. Both source and destination buckets must have versioning enabled.
2. **Replication Configuration:** Replication is configured at the bucket level. You define a replication configuration that specifies which objects in the source bucket should be replicated and where they should be replicated to.
3. **Replication Rules:** Replication rules are part of the replication configuration and define the criteria for replicating objects. You can use rules to include or exclude objects based on prefixes, tags, or other conditions. For example, you might replicate all objects in the source bucket or only objects with a specific tag.
4. **Replication Behavior:** When you configure Cross-Region Replication, S3 automatically replicates any new objects added to the source bucket and updates to existing objects to the destination bucket. Delete markers (used in versioning) and deletions are also replicated to the destination bucket.
5. **Permissions and Replication:** The AWS Identity and Access Management (IAM) roles associated with the source and destination buckets need appropriate permissions to allow replication. IAM roles play a crucial role in granting the necessary access for replication.
6. **Cross-Region Replication Status:** You can monitor the status of Cross-Region Replication using Amazon S3 management tools, AWS CloudWatch metrics, and AWS CloudTrail logs.
7. **Consistency and Durability:** Cross-Region Replication provides durability and availability by replicating data across different AWS regions. This ensures that your data remains available even in the event of regional outages or failures.
8. **Data Transfer Costs:** While replicating data across regions provides redundancy, it's important to be aware of the associated data transfer costs between regions.

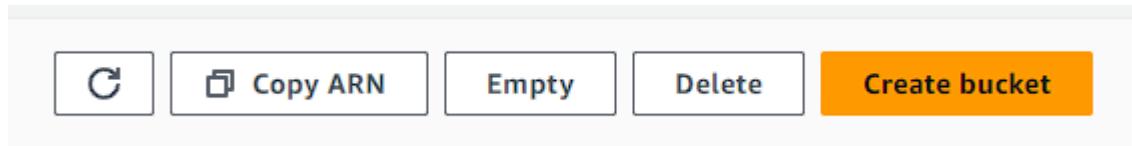
**Cross-Region Replication is a powerful feature for enhancing the availability and durability of your data. It is commonly used for disaster recovery scenarios, ensuring that your data remains accessible even if an entire AWS region becomes unavailable. Additionally, it helps meet compliance requirements by storing copies of data in geographically distinct locations.**



### To begin with the lab

1. So, in this lab what you are going to do is, you have to create two buckets.

2. One should be source bucket in Mumbai region.
3. Then another should be in Singapore region.
4. Now click on create bucket.



5. This is your source bucket in Mumbai region. Give it a name.

### Create bucket Info

Buckets are containers for data stored in S3. [Learn more](#)

#### General configuration

Bucket name  
 Bucket name must be unique within the global namespace and follow the bucket naming rules. [See rules for bucket naming](#)

AWS Region

Copy settings from existing bucket - *optional*  
Only the bucket settings in the following configuration are copied.  
[Choose bucket](#)

6. Now enable bucket versioning because it is needed for you to create replication.
7. You can keep block public access option enabled because you are not going to access the buckets.
8. After that just create your bucket.

#### Bucket Versioning

Versioning is a means of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your Amazon S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. [Learn more](#)

Bucket Versioning  
 Disable  
 Enable

9. Now your bucket is available.

Buckets (2) <a href="#">Info</a>				
Buckets are containers for data stored in S3. <a href="#">Learn more</a>				
		AWS Region	Access	Creation date
<input type="radio"/>	data-config1234	Asia Pacific (Mumbai) ap-south-1	<span style="color: red;">⚠️</span> Public	August 14, 2023, 10:48:34 (UTC+04:00)
<input type="radio"/>	sourcebucket7000	Asia Pacific (Mumbai) ap-south-1	Bucket and objects not public	August 14, 2023, 12:24:20 (UTC+04:00)

10. Now go and create a bucket in Singapore with same specification. Enable bucket versioning.

11. Then just create your bucket.

### General configuration

Bucket name	<input type="text" value="destinationbucket7000"/>
Bucket name must be unique within the global namespace and follow the bucket naming rules. <a href="#">See rules for bucket naming</a>	
AWS Region	<input type="text" value="Asia Pacific (Singapore) ap-southeast-1"/>
Copy settings from existing bucket - <i>optional</i> Only the bucket settings in the following configuration are copied.	
<a href="#">Choose bucket</a>	

12. Here you can see both of your buckets for source and destination.

Buckets (3) <a href="#">Info</a>				
Buckets are containers for data stored in S3. <a href="#">Learn more</a>				
		AWS Region	Access	Creation date
<input type="radio"/>	data-config1234	Asia Pacific (Mumbai) ap-south-1	<span style="color: red;">⚠️</span> Public	August 14, 2023, 10:48:34 (UTC+04:00)
<input type="radio"/>	destinationbucket7000	Asia Pacific (Singapore) ap-southeast-1	Bucket and objects not public	August 14, 2023, 12:24:48 (UTC+04:00)
<input type="radio"/>	sourcebucket7000	Asia Pacific (Mumbai) ap-south-1	Bucket and objects not public	August 14, 2023, 12:24:20 (UTC+04:00)

13. Now open your source bucket and upload some file to it.

14. After uploading your files. Go to management.

Objects	Properties	Permissions	Metrics	Management	Access Points

15. Then in management, you have to scroll down to something known as create replication rule.

Replication rules (0)									
Use replication rules to define options you want Amazon S3 to apply during replication such as server-side encryption, replica ownership, transitioning replicas to another storage class, and more. <a href="#">Learn more</a>									
	<a href="#">View details</a>	<a href="#">Edit rule</a>	<a href="#">Delete</a>	<a href="#">Actions ▾</a>	<a href="#">Create replication rule</a>				
Replication rule name	Status	Destination bucket	Destination Region	Priority	Scope	Storage class	Replica owner	Replication Time Control	KMS-encrypted objects (SSE-KMS or DSSE-KMS)
No replication rules									
You don't have any rules in the replication configuration.									
<a href="#">Create replication rule</a>									

16. Here you have to give a replication rule name.

17. The status should be enabled.

### Replication rule configuration

Replication rule name

source-destination-repl

Up to 255 characters. In order to be able to use CloudWatch metrics to monitor the progress of your replication rule, the replication rule name must only contain English characters.

Status

Choose whether the rule will be enabled or disabled when created.

Enabled

Disabled



Priority

The priority value resolves conflicts that occur when an object is eligible for replication under multiple rules to the same destination. The rule is added to the configuration at the highest priority and the priority can be changed on the replication rules table.

0

18. Then for the source bucket option, click on apply to all objects in the bucket.

### Source bucket

Source bucket name

sourcebucket7000

Source Region

Asia Pacific (Mumbai) ap-south-1

Choose a rule scope

Limit the scope of this rule using one or more filters

Apply to all objects in the bucket



19. Now you to choose the destination.

## Destination

### Destination

You can replicate objects across buckets in different AWS Regions (Cross-Region Replication) or you can replicate objects across buckets in the same AWS Region (Same-Region Replication). You can also specify a different bucket for each rule in the configuration. [Learn more](#)

or see [Amazon S3 pricing](#)

Choose a bucket in this account

Specify a bucket in another account



### Bucket name

Choose the bucket that will receive replicated objects.

[Browse S3](#)

### Destination Region

-

## Choose a bucket



### S3 Buckets

#### Buckets (3)



< 1 >

Name	AWS Region
<input type="radio"/> data-config1234	Asia Pacific (Mumbai) ap-south-1
<input checked="" type="radio"/> destinationbucket7000	Asia Pacific (Singapore) ap-southeast-1
<input type="radio"/> sourcebucket7000	Asia Pacific (Mumbai) ap-south-1

[Cancel](#)[Choose path](#)

20. After this you need an IAM role.

21. But you to create this IAM role because you don't have any.

22. But if you will see carefully, it has an option to create a new role itself. Select that option and move forward.

## IAM role

Choose from existing IAM roles

Enter IAM role ARN



### IAM role



23. After that click on save and save your replication settings.

24. After that you will see that it will take some time to get your files into your destination but if you will wait for time they will there.