

# **S3 cross replication**

# S3 REPLICATION



**S3 Bucket**



**S3 Bucket**

Transfer of data or replication between two different AWS accounts of two different regions.

## **Introduction:**

In today's fast-paced digital landscape, businesses often require seamless data replication and backup strategies to ensure data durability and availability. AWS S3 (Simple Storage Service) comes to the rescue with its powerful cross-account replication feature, allowing organizations to replicate data across different AWS accounts. In this blog, we'll explore the benefits and implementation of S3 replication across multiple AWS accounts.

## Benefits of Cross-Account S3 Replication:

1. **Enhanced Data Resiliency:** Replicating data across different AWS accounts provides an added layer of resiliency, protecting your critical data against accidental deletions, data corruption, or regional outages.
2. **Compliance and Governance:** Cross-account replication enables organizations to meet compliance requirements by securely storing data in separate AWS accounts, ensuring data privacy and separation of responsibilities.
3. **Disaster Recovery:** By replicating data to a different AWS account, you can establish a robust disaster recovery mechanism, ensuring business continuity in case of unexpected events or system failures.
4. **Simplified Collaboration:** Sharing data across accounts becomes easier with cross-account replication. Different teams or business units can securely access and work on the replicated data without compromising its integrity or security.

# Implementing Cross-Account S3 Replication:

To enable cross-account replication in AWS S3, follow these steps:

## Step 1:

First login 2 aws account Source s3 account and Destination s3 account.

In the source account create an s3 bucket here I created "multi-region-s3-sana" (this bucket I was created in ap-south-1) and destination I created a bucket in the name of "destination-bucket-sana" (this bucket I created in us-east-1)

Enable versioning on both the source and destination buckets. Versioning allows S3 to keep track of changes to objects and ensures accurate replication across accounts.

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Amazon S3

Buckets

Access Points

Object Lambda Access Points

Multi-Region Access Points

Batch Operations

IAM Access Analyzer for S3

Block Public Access settings for this account

Storage Lens

Dashboards

AWS Organizations settings

Amazon S3

Account snapshot

Storage lens provides visibility into storage usage and activity trends. [Learn more](#)

View Storage Lens dashboard

Buckets (1) [Info](#)

Copy content

Empty

Delete

Create bucket

Find buckets by name

< 1 > ⌕

Name	AWS Region	Access
<input type="radio"/> <a href="#">mutti-region-s3-sana</a>	Asia Pacific (Mumbai) ap-south-1	<a href="#">Bucket and objects not public</a>

Buckets (1) [Info](#)

Copy content

Empty

Delete

Create bucket

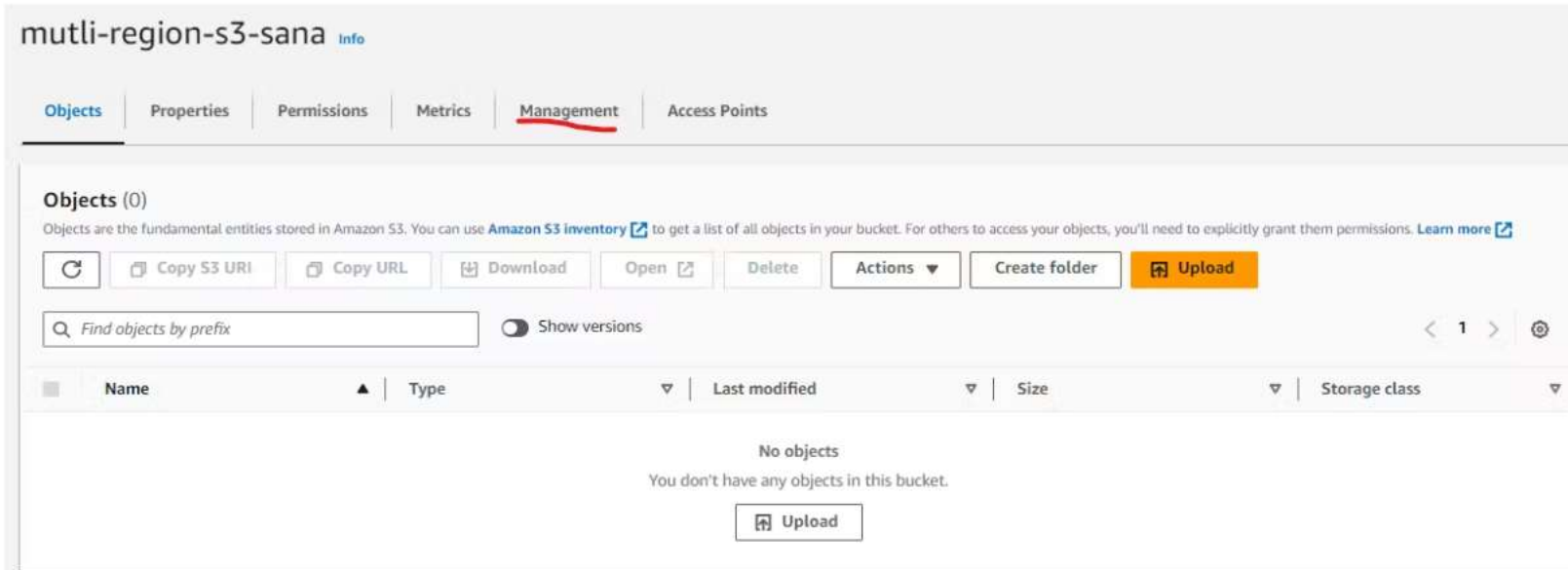
Find buckets by name

< 1 > ⌕

Name	AWS Region	Access	Creation date
<input type="radio"/> <a href="#">destination-bucket-sana</a>	US East (N. Virginia) us-east-1	<a href="#">Bucket and objects not public</a>	July 1, 2023, 10:25:26 (UTC+05:30)

## Step-2:

In the source bucket create the replication rules for transferring data from different accounts to different regions.



click on the source bucket and go to the management, then 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. [Learn more](#)

↺

View details

Edit rule

Delete

Actions ▼

Create replication rule

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)	Replica modification sync
<div>No replication rules</div> <div>You don't have any rules in the replication configuration.</div> <div>Create replication rule</div>										

give replication rule id.



## Create replication rule [Info](#)

### Replication rule configuration

Replication rule name

mumbai-nv

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

make sure your bucket region is in the replication rule.

**Source bucket**

Source bucket name  
mutli-region-s3-sana

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 ✓

Now in the replication rule destination, u can choose ur requirements like if you want to transfer the data within the account of different buckets of different regions. (or) if you want to transfer the data from different accounts of different regions.

Here I selected another account for that u have to destination account id and destination bucket name.

## 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 ✓

### Account ID

691186113147

### Bucket name

Choose the bucket that will receive replicated objects.

destination-bucket-sana

### Destination Region

US East (N. Virginia) us-east-1

- ☐ Change object ownership to destination bucket owner

Objects in the source bucket not owned by the source bucket owner will be replaced with access policy that grants full permission to the destination bucket owner

In the IAM role select create a new role for replication.

**IAM role**

☒ Choose from existing IAM roles  
☐ Enter IAM role ARN

IAM role

Create new role ▼



View 

And save your replication settings

### Additional replication options

☐ Replication Time Control (RTC)

Replication Time Control replicates 99.99% of new objects within 15 minutes and includes replication metrics. Additional fees will apply. [Learn more](#)

☐ Replication metrics

With replication metrics, you can monitor the total number and size of objects that are pending replication, and the maximum replication time to the destination Region. You can also view and diagnose replication failures. CloudWatch metrics fees apply. [Learn more](#) or see [Amazon CloudWatch pricing](#)

☐ Delete marker replication

Delete markers created by S3 delete operations will be replicated. Delete markers created by lifecycle rules are not replicated. [Learn more](#)

☐ Replica modification sync

Replicate metadata changes made to replicas in this bucket to the destination bucket. [Learn more](#)

Cancel

Save

After clicking on save You will get a pop-up like this it means that if u have any existing objects to replicate to the destination bucket or not, I don't want to replicate existing objects to a destination bucket.

Based on your requirement you will select the options, here I am selecting "No, don't replicate existing objects".

### Replicate existing objects?



You can enable a one-time Batch Operations job from this replication configuration to replicate objects that already exist in the bucket and to synchronize the source and destination buckets. [Learn more](#) or [see pricing](#)

Existing objects

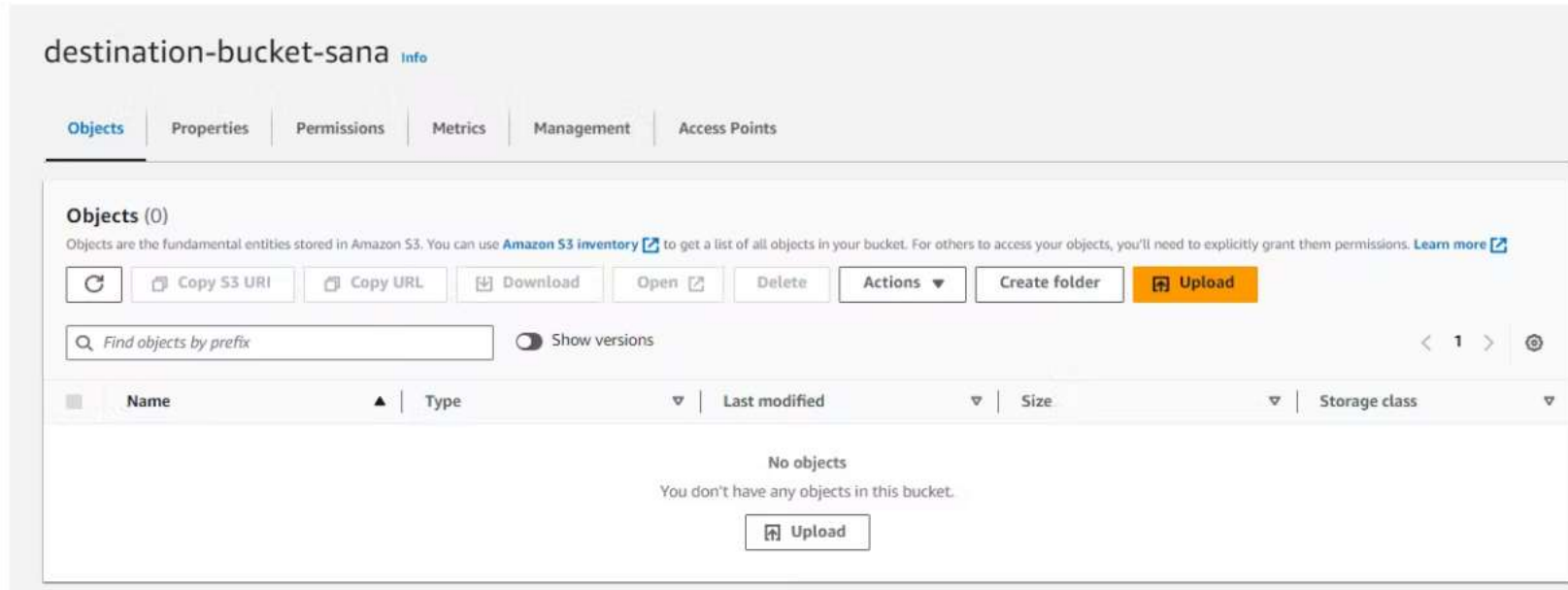
- ☒ No, do not replicate existing objects.
- ☐ Yes, replicate existing objects.

Cancel

Submit

## Step-3:

Now go to the destination bucket of 2nd aws account.



Now go to the permission option of the destination account of aws and edit the bucket policy of the destination bucket.


## Edit bucket policy Info

### Bucket policy

The bucket policy, written in JSON, provides access to the objects stored in the bucket. Bucket policies don't apply to objects owned by other accounts. [Learn more](#)

[Policy examples](#)[Policy generator](#)

Bucket ARN

 `arn:aws:s3:::destination-bucket-sana`


Policy

1	
---	--

#### Edit statement

**Select a statement**

Select an existing statement in the policy or add a new statement.

 Add new statement

Now I followed the code of the bucket policy



```
1  {
2    "Version": "2012-10-17",
3    "Id": "",
4    "Statement": [
5      {
6        "Sid": "1",
7        "Effect": "Allow",
8        "Principal": {
9          "AWS": "arn:aws:iam::223161695683:role/service-role/s3crr_role_for_mutli-region-s3-sana_2"
10       },
11       "Action": ["s3:ReplicateObject", "s3:ReplicateDelete"],
12       "Resource": "arn:aws:s3:::destination-bucket-sana/*"
13     },
14     {
15       "Sid": "2",
16       "Effect": "Allow",
17       "Principal": {
18         "AWS": "arn:aws:iam::223161695683:role/service-role/s3crr_role_for_mutli-region-s3-sana_2"
19       },
20       "Action": ["s3:List*", "s3:GetBucketVersioning", "s3:PutBucketVersioning"],
21       "Resource": "arn:aws:s3:::destination-bucket-sana"
22     }
23   ]
24 }
```

To get the replication arn IAM policy, go to the replication rule of the source bucket click on IAM role and copy IAM arn role, and paste it into the destination bucket policy.

## Replication rules [Info](#)

Replication enables automatic and asynchronous copying of objects across buckets in the same or different AWS Regions. A replication configuration is a set of rules that define what options should be applied to a group of objects during replication.

### Replication configuration settings

Configuration settings affect all replication rules in the bucket.

[Create replication job](#)[Edit](#)

Source bucket

mutli-region-s3-sana

Source Region

Asia Pacific (Mumbai) ap-south-1

IAM role

[s3crr\\_role\\_for\\_mutli-region-s3-sana 2](#)

s3crr\_role\_for\_mutli-region-s3-sana\_2

Delete

Summary

Edit

Creation date  
July 01, 2023, 10:54 (UTC+05:30)

Last activity  
None

✓ ARN Copied

arn:aws:iam::223161695683:role/service-role/s3crr\_role\_for\_mutli-region-s3-sana\_2

Maximum session duration  
1 hour

- Permissions
- Trust relationships
- Tags
- Access Advisor
- Revoke sessions

**Permissions policies (1)** [Info](#)

You can attach up to 10 managed policies.

Refresh

Simulate

Remove

Add permissions

< 1 >

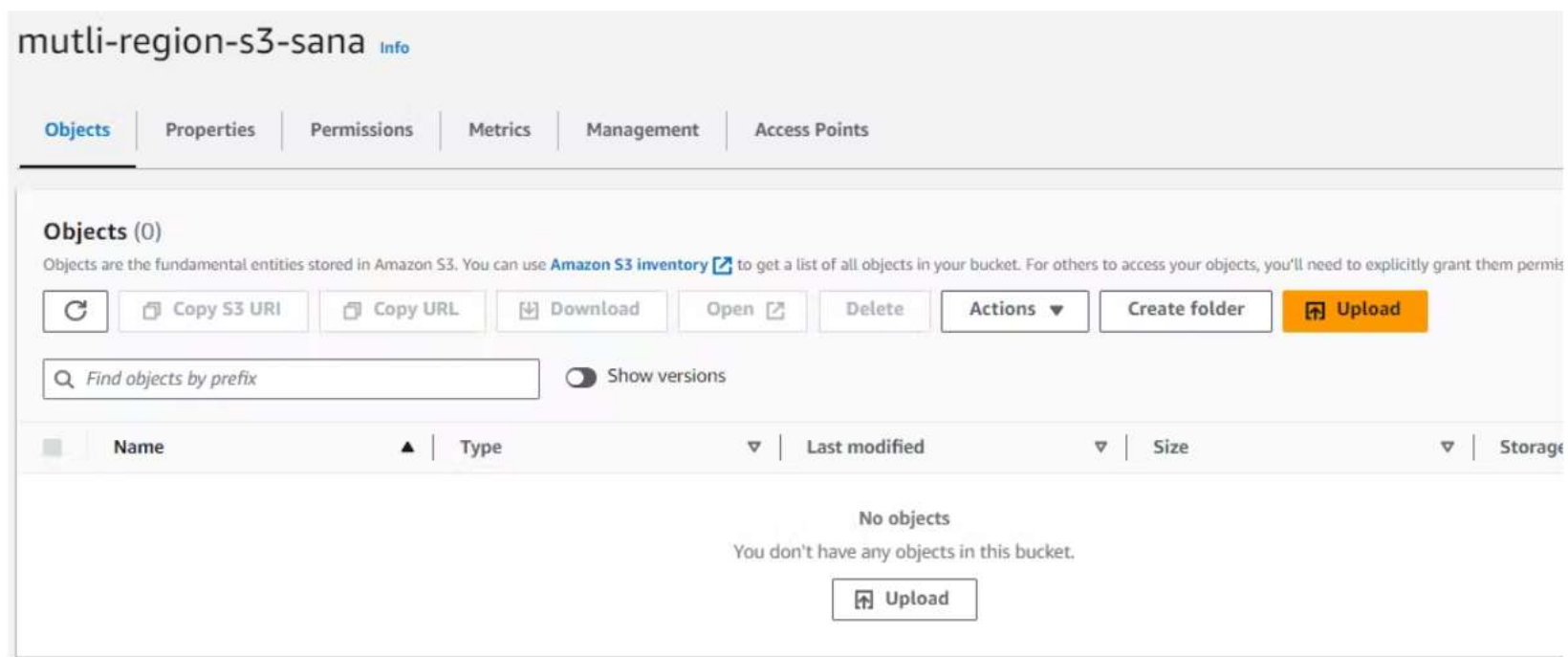
Settings

<input type="checkbox"/>	Policy name	Type	Description
<input type="checkbox"/>	<div><div>+</div><div>s3crr_for_mutli-region-s3-sana_54b450</div></div>	Customer managed	

And finally, we did a replication of two different accounts of two different regions.  
Let's check if it will work or not.

For checking purpose I am uploading a few files in source bucket.

At present, in my source, nothing is there.



Drag and drop files and folders you want to upload here, or choose **Add files** or **Add folder**.

### Files and folders (1 Total, 20.5 MB)

All files and folders in this table will be uploaded.

Remove

Add files

Add folder

< 1 >

<input type="checkbox"/>	Name	Folder	Type	Size
<input type="checkbox"/>	DEVOPS FULL NOTES.pdf	-	application/pdf	20.5 MB

#### Uploading

25%

Cancel

Total remaining: 1 file: 15.4 MB(75.29%)  
Estimated time remaining: a few seconds  
Transfer rate: 517.7 KB/s

#### Upload: status

Close

 The information below will no longer be available after you navigate away from this page.

#### Summary

Destination  
s3://mutli-region-s3-sana










Succeeded  
 0 files, 5.1 MB (24.71%)



Failed  
 0 files, 0 B (0%)


mutli-region-s3-sana [Info](#)

[Objects](#) | [Properties](#) | [Permissions](#) | [Metrics](#) | [Management](#) | [Access Points](#)

**Objects (1)**  
Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

  Copy S3 URI  Copy URL  Download  Open  Delete  Actions  Create folder  Upload

 Show versions < 1 > 

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	 <u>DEVOPS FULL NOTES.pdf</u>	pdf	July 1, 2023, 11:30:00 (UTC+05:30)	20.5 MB	Standard

Here I uploaded one file to my source bucket. Now go to the destination bucket and refresh the page of the 2nd AWS account.

destination-bucket-sana

Info

Objects

Properties

Permissions

Metrics

Management

Access Points

Objects (1)

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Copy S3 URI

Copy URL

Download

Open

Delete

Actions

Create folder

Upload

Find objects by prefix

Show versions

1

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	<a href="#">DEVOPS FULL NOTES.pdf</a>	pdf	July 1, 2023, 11:30:00 (UTC+05:30)	20.5 MB	Standard

So, here we transfer the data from one account of s3 aws to another account os s3 aws.