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S3 Cross Region Replication

Replication enables automatic, asynchronous copying of objects across Amazon S3 buckets. Buckets that are configured for object replication can be owned by the same AWS account or by different accounts. Objects may be replicated to a single destination bucket or multiple destination buckets. Destination buckets can be in different AWS Regions or within the same Region as the source bucket.

By default, replication only supports copying new Amazon S3 objects after it is enabled. You can use replication to copy existing objects and clone them to a different bucket, but in order to do so, you must contact AWS Support Center. When you contact support, give your AWS Support case the subject “Replication for Existing Objects” and include the following information:

- Source bucket
- Destination bucket or buckets
- Estimated storage volume to replicate (in terabytes)
- Estimated storage object count to replicate

To enable object replication, you add a replication configuration to your source bucket. The minimum configuration must provide the following:

- The destination bucket or buckets where you want Amazon S3 to replicate objects
- An AWS Identity and Access Management (IAM) role that Amazon S3 can assume to replicate objects on your behalf

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Why use Replication:

Replication can help you do the following:

- **Replicate objects while retaining metadata** — You can use replication to make copies of your objects that retain all metadata, such as the original object creation time and version IDs. This capability is important if you need to ensure that your replica is identical to the source object.
- **Replicate objects into different storage classes** — You can use replication to directly put objects into S3 Glacier, S3 Glacier Deep Archive, or another storage class in the destination buckets. You can also replicate your data to the same storage class and use lifecycle policies on the destination buckets to move your objects to a colder storage class as it ages.
- **Maintain object copies under different ownership** — Regardless of who owns the source object, you can tell Amazon S3 to change replica ownership to the AWS account that owns the destination bucket. This is referred to as the *owner override* option. You can use this option to restrict access to object replicas.
- **Keep objects stored over multiple AWS Regions** — You can set multiple destination buckets across different AWS Regions to ensure geographic differences in where your data is kept. This could be useful in meeting certain compliance requirements.
- **Replicate objects within 15 minutes** — You can use S3 Replication Time Control (S3 RTC) to replicate your data in the same AWS Region or across different Regions in a predictable time frame. S3 RTC replicates 99.99 percent of new objects stored in Amazon S3 within 15 minutes (backed by a service level agreement).

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When to use Cross-Region Replication:

S3 Cross-Region Replication (CRR) is used to copy objects across Amazon S3 buckets in different AWS Regions. CRR can help you do the following:

- **Meet compliance requirements** — Although Amazon S3 stores your data across multiple geographically distant Availability Zones by default, compliance requirements might dictate that you store data at even greater distances. Cross-Region Replication allows you to replicate data between distant AWS Regions to satisfy these requirements.
- **Minimize latency** — If your customers are in two geographic locations, you can minimize latency in accessing objects by maintaining object copies in AWS Regions that are geographically closer to your users.
- **Increase operational efficiency** — If you have compute clusters in two different AWS Regions that analyze the same set of objects, you might choose to maintain object copies in those Regions

Replication requires the following:

- The source bucket owner must have the source and destination AWS Regions enabled for their account. The destination bucket owner must have the destination Region-enabled for their account.

  For more information about enabling or disabling an AWS Region, see AWS Service Endpoints in the *AWS General Reference*.

- Both source and destination buckets must have versioning enabled. For more information about versioning, see Using versioning in S3 buckets.
- Amazon S3 must have permissions to replicate objects from the source bucket to the destination bucket or buckets on your behalf.

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- If the owner of the source bucket doesn't own the object in the bucket, the object owner must grant the bucket owner READ and READ_ACP permissions with the object access control list (ACL). For more information, see Access control list (ACL) overview.
- If the source bucket has S3 Object Lock enabled, the destination buckets must also have S3 Object Lock enabled.

Demo:

For this demo we are going to create two new buckets in different regions and do the replication. FYI, you can follow the same process for existing buckets as well.

Create two buckets with versioning enabled.

You can anytime enable versioning after the bucket creation as well in the bucket properties.

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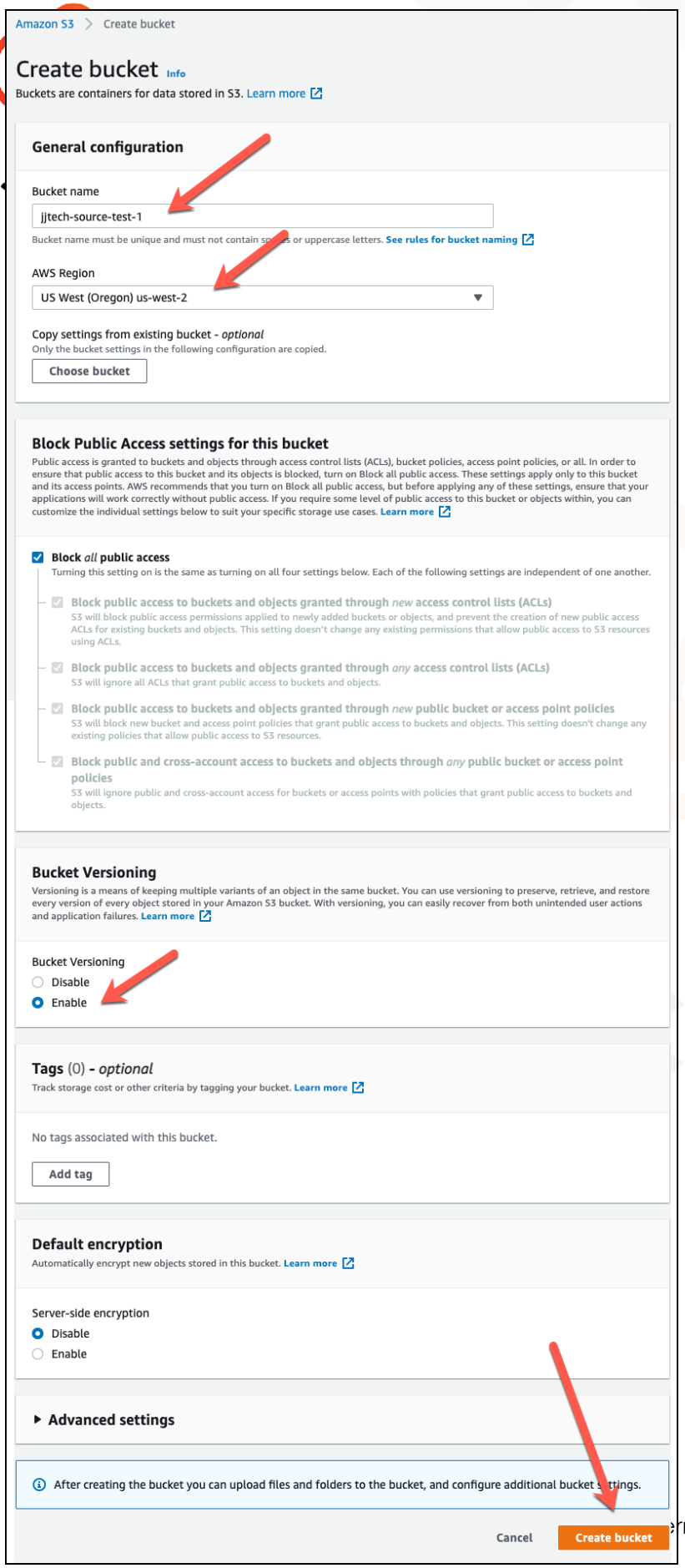

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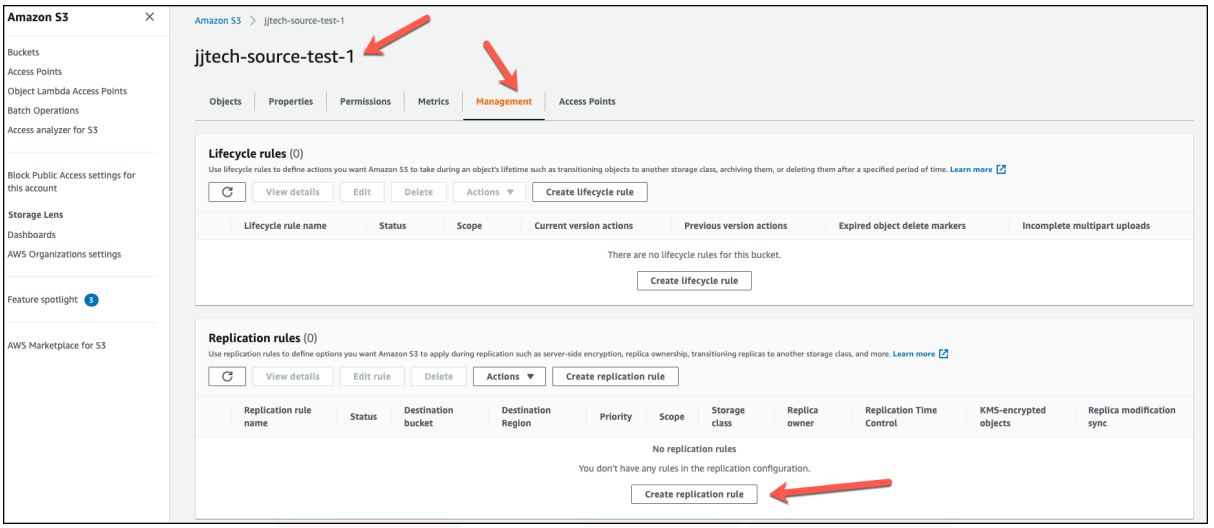
- Once you create two buckets with versioning enabled, You have to navigate to the management tab on bucket 1.
- Then click create Replication rule.



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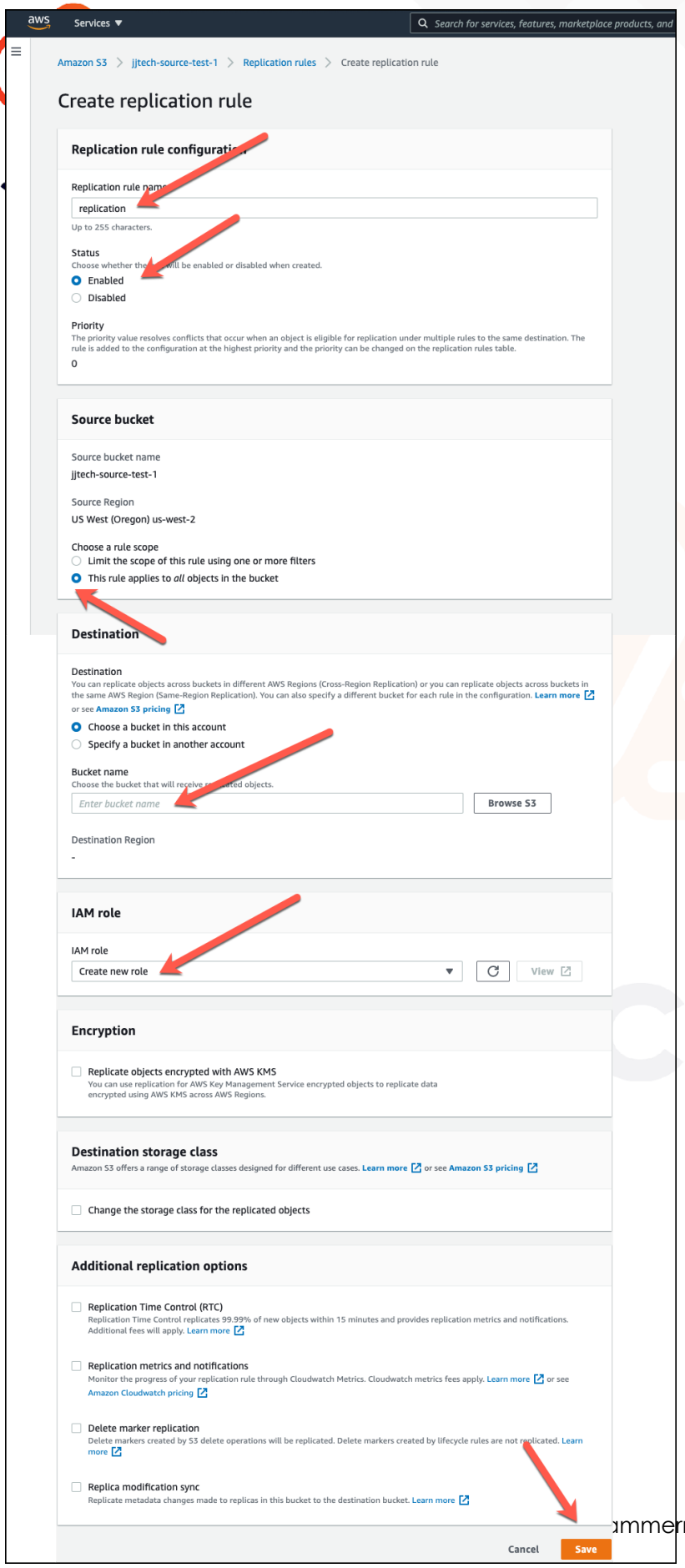

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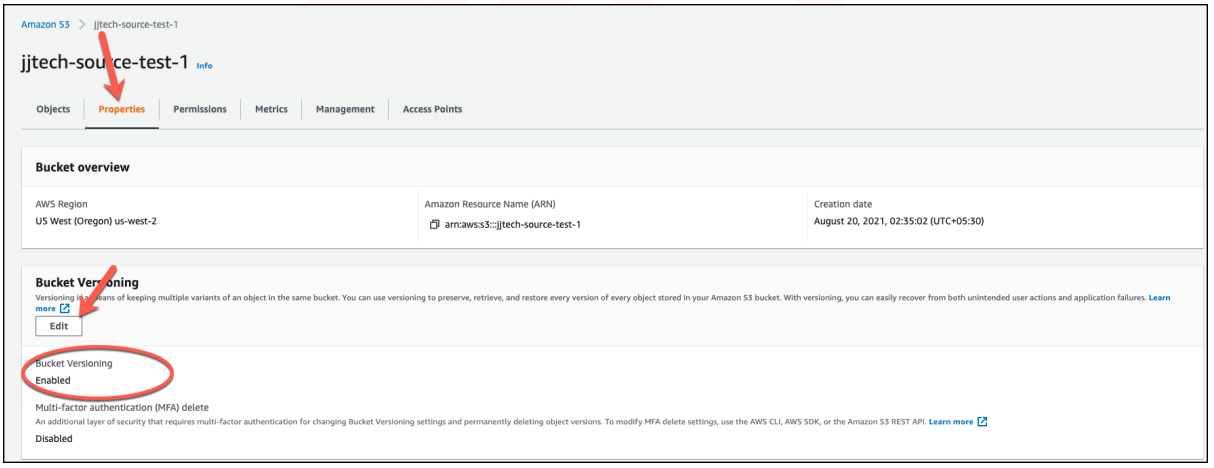
- Once you click save, one replication rule is saved on bucket one.
- Test the replication rule by adding any objects to bucket one, you can see the same objects in bucket two in some time automatically.

Enable versioning on existing buckets:



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