

S3

Lifecycle Management

Bucket Replication

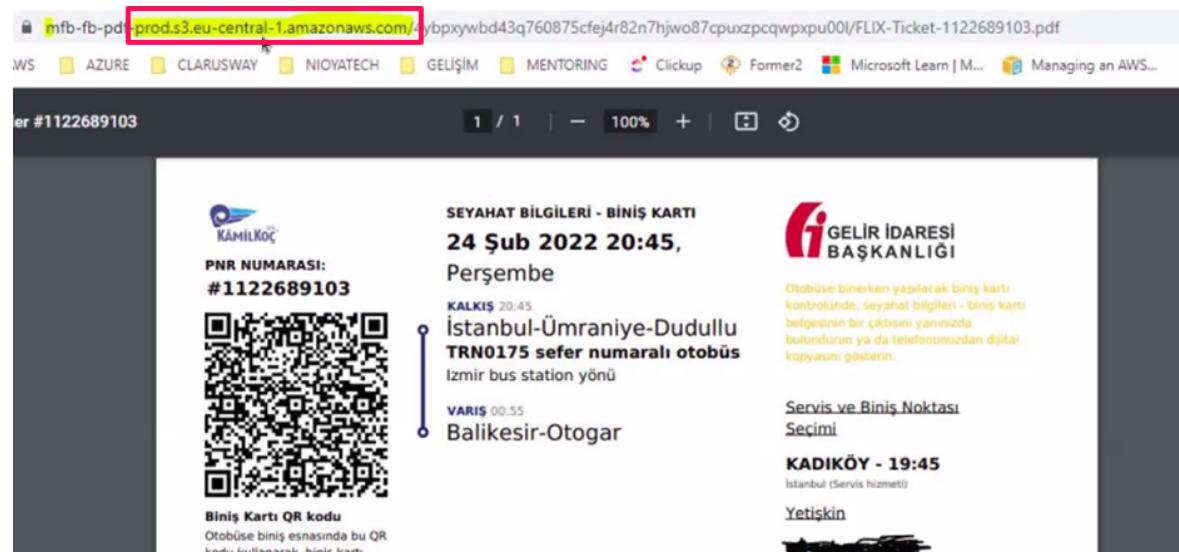
Bir aplikasyon geliştirirken variable lar kullanıyoruz, bu variable ları consume ediyoruz, çağrıyoruz, farklı işlemler yapıyoruz.

Biz verileri üreteceksek ve bunu bir yerde tutmamız gerekiyorsa bir storage mekanizmasına ihtiyaç oluyor. Programların ürettiği ve variable dan daha büyük verilerin tutulması için çeşitli storage çeşitleri var. Bunlardan birisi database, ilerde bakacaz. Bir diğeri de S3 tür.

Static imajlar (compute içinde kullanıyoruz), pdf dosyaları (üretelebiliriz, kullanabiliriz), log kayıtları S3 te tutulan datalardır.

S3 bir compute mekanizmasının arkasında ihtiyaç duyulan dataların storage edildiği bir depolama şekli olduğunu da akılda tutmak lazım.

Örneğin;



Bir Türk firması aplikasyonunun ürettiği bir pdf dosyasını S3 te saklıyor.

S3 te tutulan veriler birkaç pdf vs den oluşmuyor. Milyonlarca ve neredeyse sonsuz kapasitede (AWS nin iddiası) veriden bahsediyoruz. Bu verilerin yönetilmesi ve maliyet tarafı var. AWS de yüklenen objeler için lifecycle management sistemi geliştirmiştir.

Lifecycle Management

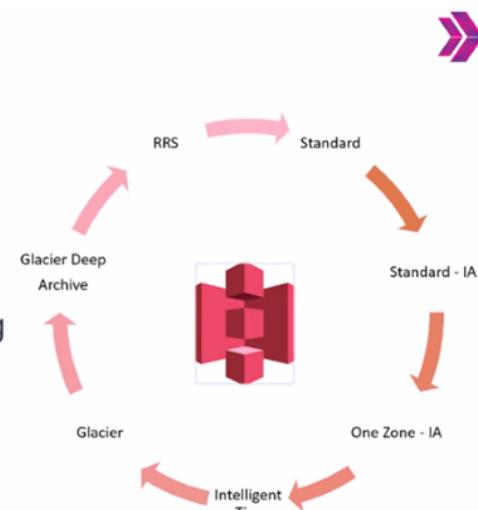
What is Lifecycle Management?

Lifecycle management is to determine how an object will be subject to a **storage policy** during the time it is stored in S3.

So, it is used to ;

Transition objects to another storage class,
Archive objects,

Delete objects after a specified period of time.



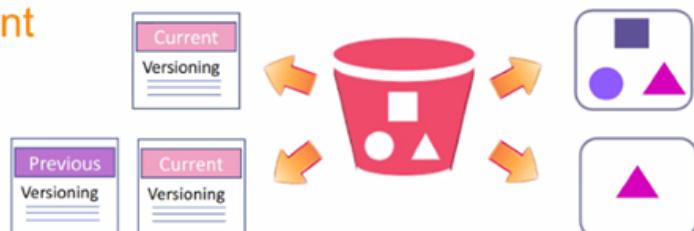
Tuttuğumuz verileri erişim sıklığı ile ayırtırarak storage class lara ayırıyoruz.

Her bir storage classın ödeme yöntemi yani maliyeti farklı. Storage class lar arasında geçişkenlik ve silinmesi var: Transition ve Expiration

S3 te hangi verinin hangi class ta tutulacağını S3 te set ettiğimiz policylerle belirleyebiliyoruz.

Bu sayede maliyetleri de düşürmiş oluyoruz.

Lifecycle Management



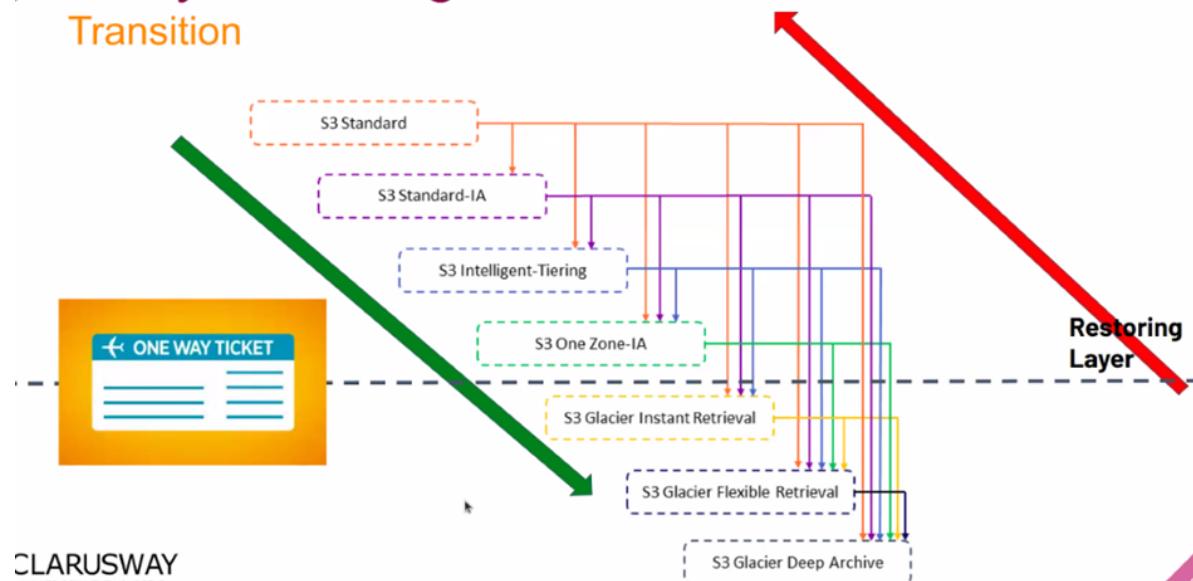
- A lifecycle policy is **bucket-base component**.
- You can narrow Lifecycle Management by using a **prefix** or **tag**
- Available for both **current and previous**
- Minimum days for transition

Bucket içinde prefix ya da tag dediğimiz yapılarla lifecycle managementın kurallarını daraltabiliriz.

Prefix dediğimiz şey hiyerarşik bir yapıdaki folder lama değil. Bir önek olarak bilmemiz gereklidir.

Güncel versiyonlar gibi eski versiyonlar için de kurallar set edilebiliyor. Class lar arasında geçişkenlik için de kurallar set edilebiliyor.

Class lar arasında geçişkenlikler için kurallar:



CLARUSWAY
WAY TO REINVENT YOURSELF

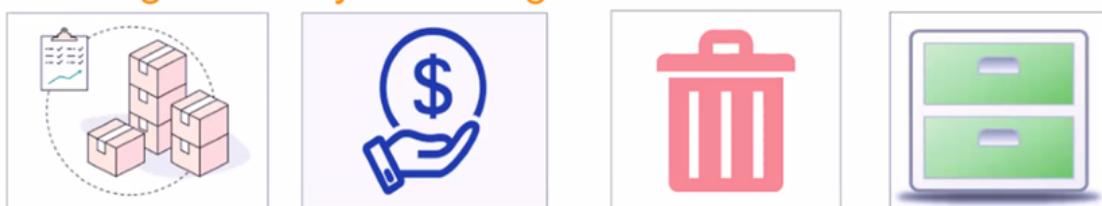
Policy set edip AWS nin policy ye göre transition etmesini istediğimizde Geçişkenlik ile ilgili hiyerarşi yukarıdaki gibidir. Tek yönlü bir geçiş vardır. Oluşturduğumuz policy leri kosnoldan oluşturuyoruz AWS ise bunları xml dosyası olarak tutuyor. Bu bilgiler de sınavda çıkabilir.

Lifecycle configuration examples:

<https://docs.aws.amazon.com/AmazonS3/latest/userguide/lifecycle-configuration-examples.html>

Buradaki örnekler de sınavda çıkabilir.

Advantage of Lifecycle Management



It provides you to **arrange your S3 inventory**,

You can **save money** by transition the objects to the cost-effective storage class,

You can **get rid of redundant objects**,

Lifecycle management S3 envanterini düzenlemeyi, maliyet tasarrufu yapmayı ve kullanılmayacak objelerden kurtulmayı sağlar.

Konsoldan şu yolla ulaşılıyor:

Lifecycle Management Path

S3>Bucket> **Management** > Lifecycle>Add a Lifecycle Rule

Bucket Replication:

What is Bucket Replication?



- Replication is to **copy** the objects in the buckets to **another bucket** in **different region** or in the **same region**.
- There are **2 types** of replication in S3:
 - **Cross-Region Replication (CRR)** is used to copy objects in different AWS Regions
 - **Same-Region Replication (SRR)** is used to copy objects in the same AWS Region

Bucket in verilerinin bir başka region ya da account ta tutulma ihtiyacı olabilir.

AWS iki seçenek sunuyor

Cross-Region Replication (Farklı regionlar) ve Same-Region Replication (Aynı region içinde)

Why Replication?

- Compliance requirements
- Backup
- Minimize latency
- Aggregating related data into a single bucket.

Kanuni gereklilikler, yedekleme ihtiyacı, farklı ülke ve kıtalarda hizmet verildiği durumda gecikmeyi ortadan kaldırma ve ilişkili dataları tek bir bucket ta toplama nedenleriyle Replication gerekebilir.

Replication Features



Keep the object's **metadata** while replicating

Replicating in Different storage class

Option of changing ownership **of the** replicated object

- Synchronizing **within 15 minutes**.
- Narrowing replication based on **prefix or tag**

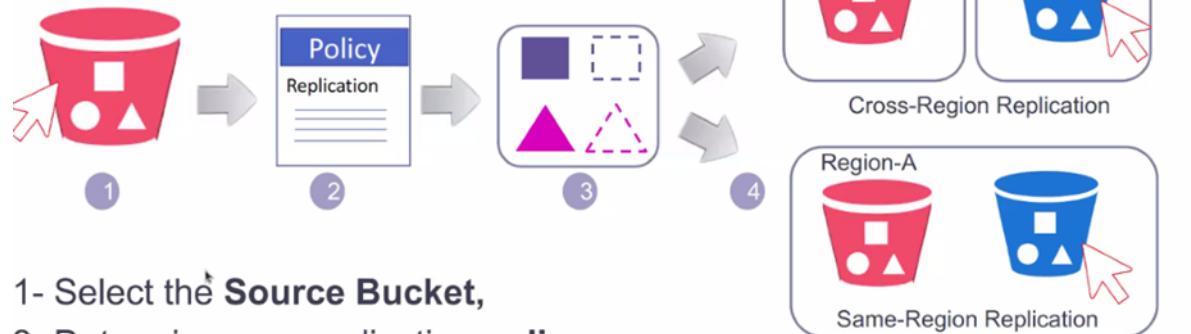
Objenin metadata'sı replikasyon işlemi sırasında korunur. Replikasyon işlemi sonrasında farklı storage class'lar set edebiliriz. Replikasyonlar aynı storage class olmak zorunda değildir.

Objenin ownershipliğini değiştirebiliriz. AWS replikasyon işleminin 15 dk içinde olacağını belirtiyor.

Bucket içindeki prefix ya da tag e istinaden replikasyon kuralı oluşturabiliriz.

▶ Bucket Replication

How S3 Replication Works?



- 1- Select the **Source Bucket**,
- 2- Determine your replication **policy**,
- 3- Select your data set by object **tag, prefix or entire bucket**,
- 4- Select the **Destination Bucket** in the same region or in different region.

Replication yapılabilmesi için her iki bucket ta da **version özelliğinin** açık olması gerekiyor.

Kırmızı failure

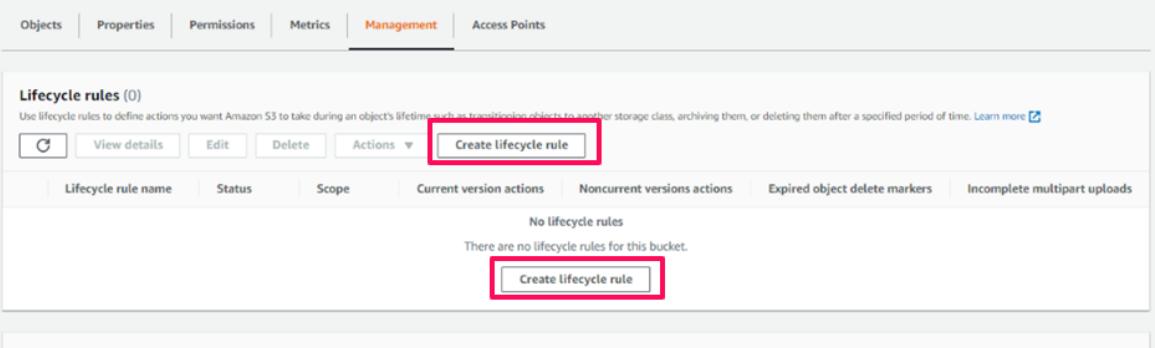
Yeşil success

Mavi on process i simgeler.

Hands-on dayız:

pet.clarusway.lifecycle- isimli bir bucket oluşturduk. İçine cat.jpg ile index.html i upload edip bir de new-folder isimli bir folder oluşturuyoruz.

Lifecycle management ayarlarını Management menüsünden set ediyoruz:



The screenshot shows the 'Lifecycle rules (0)' section of the AWS S3 Management console. At the top, there are buttons for 'View details', 'Edit', 'Delete', 'Actions', and a prominent 'Create lifecycle rule' button, which is highlighted with a red box. Below this, there is a table header with columns: 'Lifecycle rule name', 'Status', 'Scope', 'Current version actions', 'Noncurrent versions actions', 'Expired object delete markers', and 'Incomplete multipart uploads'. A message below the table states 'There are no lifecycle rules for this bucket.' and features another 'Create lifecycle rule' button, also highlighted with a red box.

Create LifeCycle Rule diyoruz:

Kural ismi koyuyoruz. Filter type altında prefix kısmına folder ismi girersek sadece o folder için geçerli olur kural:

Lifecycle rule configuration

Lifecycle rule name

lcrule

Up to 255 characters

Prefix ve tag lere göre lifecycle yapmak istersek.

Choose a rule scope

- Limit the scope of this rule using one or more filters
- Apply to all objects in the bucket

Filter type

You can filter objects by prefix, object tags, object size, or whatever combination suits your usecase.

Prefix ↗ prefix kısmına folder ismi girersek sadece o folder için geçerli olur kural

Prefix ↗ Add filter to limit the scope of this rule to a single prefix.

Enter prefix

Don't include the bucket name in the prefix. Using certain characters in key names can cause problems with some applications and protocols. [Learn more](#)

Eğer objelere verilen tag lere göre yapmak istersek yapmak istediğimiz objelerin tag ini yazarız.

Object tags ↗ You can limit the scope of this rule to the key/value pairs added below.

Add tag

Bu kuralın kapsamını, nesnelerin boyutlarına göre uygulanacak şekilde sınırlayabilirsiniz

Object size ↗ You can limit the scope of this rule to apply to objects based on their size. For example, you can filter out objects that might not be cost effective to transition to Glacier Flexible Retrieval (formerly Glacier) because of per-object fees.

- Specify minimum object size
- Specify maximum object size

Biz tüm bucket için oluşturmak istiyoruz bu nedenle ikinci seçeneği seçecez ve sadece current version için oluşturacaz:

Lifecycle rule configuration

Lifecycle rule name

lcrule

Up to 255 characters

Choose a rule scope

- Limit the scope of this rule using one or more filters
- Apply to all objects in the bucket **Tüm bucket için oluşturmak istiyoruz.**



Apply to all objects in the bucket

If you want the rule to apply to specific objects, you must use a filter to identify those objects. Choose "Limit the scope of this rule using one or more filters". [Learn more](#)

I acknowledge that this rule will apply to all objects in the bucket.

Bu kuralın gruptaki tüm nesneler için geçerli olacağını kabul ediyorum.

Lifecycle rule actions

Choose the actions you want this rule to perform. Per-request fees apply. [Learn more](#) or see [Amazon S3 pricing](#)

Objelerin geçerli(güncel) sürümlerini depolama sınıfları arasında taşıma

Objelerin güncel olmayan sürümlerini depolama sınıfları arasında taşıma

- Move current versions of objects between storage classes
- Move noncurrent versions of objects between storage classes
- Expire current versions of objects **Objelerin geçerli sürümlerinin süresinin dolması.**
- Permanently delete noncurrent versions of objects **Objelerin güncel olmayan sürümlerini kalıcı olarak silin**
- Delete expired object delete markers or incomplete multipart uploads

These actions are not supported when filtering by object tags or object size.

Süresi dolmuş (delete marker)nesne silme işaretlerini veya tamamlanmamış çok parçalı yüklemeleri silin

Storage classları belirliyoruz. Standart Class defaulttur. Classların açıklamasında o class ta kaç gün durması gerekiği yazıyor:

Transition **current versions** of objects between storage classes **Güncel versiyonlar için**

Choose transitions to move current versions of objects between storage classes based on your use case scenario and performance access requirements. These transitions start from when the objects are created and are consecutively applied. [Learn more](#)

Choose storage class transitions

Standard-IA

Standard-IA

Infrequently accessed data (once a month) with milliseconds access
30 days minimum storage duration

Intelligent-Tiering

Data with changing or unknown access patterns
No minimum storage duration

One Zone-IA

Recreatable, infrequently accessed data (once a month) stored in a single Availability Zone with milliseconds access
30 days minimum storage duration

Glacier Instant Retrieval

Long-lived archive data accessed once a quarter with instant retrieval in milliseconds
90 days minimum storage duration

Glacier Flexible Retrieval (formerly Glacier)

Long-lived archive data accessed once a year with retrieval of minutes to hours
90 days minimum storage duration

Glacier Deep Archive

Long-lived archive data accessed less than once a year with retrieval of hours

Days after object creation

Number of days

Remove

A valid integer value is required.

Standart class default tur.

Diğer sınıfları da classların açıklamalarına göre kaç gün durması gereği yazıyor.

Birden fazla class seçilebilir.

actions

Noncurrent versions actions

Day 0

No actions defined.

Cancel

Create rule

Object creation dan 30 gün sonra Standart-IA classına geçsin istiyorum. Standart-IA da en az 30 gün kalması lazım. Standart-IA dan başka bir class'a geçmesi için ikinci süreyi en az 60 gün girmem gerekiyor artık.

Transition noncurrent versions of objects between storage classes **Güncel olmayanlar için**

Choose transitions to move noncurrent versions of objects between storage classes based on your use case scenario and performance access requirements. These transitions start from when the objects become noncurrent and are consecutively applied. [Learn more](#)

Choose storage class transitions

Standard-IA
Standard-IA
Infrequently accessed data (once a month) with milliseconds access
30 days minimum storage duration
Intelligent-Tiering

Days after objects become noncurrent

Number of days

A valid integer value is required.

Number of newer versions to retain - *Optional*

Number of versions

Remove

Can be up to 100 versions. All other noncurrent versions will be moved.

Expiration actions

Data with changing or unknown access patterns
No minimum storage duration

One Zone-IA
Recreatable, infrequently accessed data (once a month) stored in a single Availability Zone with milliseconds access
30 days minimum storage duration

Glacier Instant Retrieval
Long-lived archive data accessed once a quarter with instant retrieval in milliseconds
90 days minimum storage duration

Glacier Flexible Retrieval (formerly

IS

Noncurrent versions actions

Day 0

- Objects become noncurrent



Day --

- 0 newest noncurrent versions are retained
- All other noncurrent versions move to Standard-IA

Cancel

Create rule

- Move current versions of objects between storage classes
- Move noncurrent versions of objects between storage classes
- Exire current versions of objects
- Permanently delete noncurrent versions of objects
- Delete expired object delete markers or incomplete multipart uploads

These actions are not supported when filtering by object tags or object size.

Expire current versions of objects

For version-enabled buckets, Amazon S3 adds a delete marker and the current version of an object is retained as a noncurrent version. For non-versioned buckets, Amazon S3 permanently removes the object. [Learn more](#)

Expiration ayarı aktif oldu. Burada obje oluşturulduktan kaç gün sonra expire edileceğine onu yazmamız gereklidir: (expire silmek demektir)

Days after object creation

Enter number of days

Expiration is required for the selected action. Enter a value or deselect the action.

- Move current versions of objects between storage classes
 - Move noncurrent versions of objects between storage classes
 - Expire current versions of objects
 - Permanently delete noncurrent versions of objects
 - Delete expired object delete markers or incomplete multipart uploads
- These actions are not supported when filtering by object tags or object size.

Permanently delete noncurrent versions of objects

Choose when Amazon S3 permanently deletes specified noncurrent versions of objects. [Learn more](#)

Days after objects become noncurrent

Enter number of days

Expiration is required for the selected action. Enter a value or deselect the action.

Number of newer versions to retain - *Optional*

Number of versions

Can be up to 100 versions. All other noncurrent versions will be moved.

- Move current versions of objects between storage classes
 - Move noncurrent versions of objects between storage classes
 - Expire current versions of objects
 - Permanently delete noncurrent versions of objects
 - Delete expired object delete markers or incomplete multipart uploads
- These actions are not supported when filtering by object tags or object size.

Delete expired object delete markers or incomplete multipart uploads

Expired object delete markers

This action will remove expired object delete markers and may improve performance. An expired object delete marker is removed if all noncurrent versions of an object expire after deleting a versioned object. This action is not available when "Expire current versions of objects" is selected. [Learn more](#)

- Delete expired object delete markers

Incomplete multipart uploads

This action will stop all incomplete multipart uploads, and the parts associated with the multipart upload will be deleted. [Learn more](#)

- Delete incomplete multipart uploads

Review transition and expiration actions

Current version actions

Day 0

- Objects uploaded



Day 30

- Objects move to Standard-IA



Day 60

- Objects move to Glacier Instant Retrieval



Day --

- Objects expire

Noncurrent versions actions

Day 0

No actions defined.

Policy ayarlarının özeti en alta görebiliyoruz

Bu classlar manuel olarak da değiştirilebilir. Objeyi seçip actions menüsünden edit storage class diyerek o menüye gelebiliriz:

The screenshot shows the AWS S3 console interface. On the left, there is a list of objects: 'cat.jpg' (checked) and 'index.html'. On the right, there is a detailed Actions menu. The 'Edit storage class' option is highlighted with a red box. Other options visible in the menu include 'Download as', 'Share with a presigned URL', 'Calculate total size', 'Copy', 'Move', 'Initiate restore', 'Query with S3 Select', 'Rename object', 'Edit server-side encryption', 'Edit metadata', 'Edit tags', and 'Make public using ACL'.

Intelligent-Tiering access tiers AWS hangi class ta ne sürede kalacağını otomatik ayarlıyordu: [link](#)

Replication a geçelim:

Öncelikle **source.replica.clarusway-**... isimli source bucket oluşturuyoruz ve içine cat.jpg index.html dosyalarımız atıyoruz. Bucket oluştururken versionlama nın açık olması gerekiyor aksi takdirde replication yapamayız.

Bu bucket için static web site hostingi aditleyerek aktif hale getiriyoruz (dünkü dersin notlarında var)

Permission bölümünden bucket policy set etmediğimiz için hata aldık:

403 Forbidden *403 hata kodu, sunucuya erişimin reddedildiğini ifade eder.*

- Code: AccessDenied
- Message: Access Denied
- RequestId: 83NCZF1BDJRMZ12G
- HostId: MIhE/R1alIiDFd/F8c1UoBfmq/sgecK/n12ICWHvjL2P/K6tslt77bBy/2Bh85E+DTg3lwlWfnM=

Bucket policy imizi set ediyoruz:

Bucket ARN

arn:aws:s3:::source.replica.clarusway.muslim

Policy

```
1  {
2      "Version": "2012-10-17",
3      "Statement": [
4          {
5              "Sid": "PublicReadGetObject",
6              "Effect": "Allow",
7              "Principal": "*",
8              "Action": "s3:GetObject",
9              "Resource": "arn:aws:s3:::source.replica.clarusway.muslim/*"
10         }
11     ]
12 }
```

Şimdi browser da görebilecez:

Bu source bucketımızdı. Şimdi **destination bucket** oluşturacağız.

Cross-region replication yapmak için region u ohio olarak değiştiriyoruz. (Versioning enable olmalı replication için):

Create bucket Info

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

General configuration

Bucket name

destination.cross.region.replica.clarusway-mba

Bucket name must be globally unique and must not contain spaces or uppercase letters. See [rules for bucket naming](#)

AWS Region

US East (Ohio) us-east-2



Copy settings from existing bucket - optional

Only the bucket settings in the following configuration are copied.

[Choose bucket](#)

Destination bucket için de static website aktif hale getirecem. Index.html i yazıyoruz ancak index.html i bucket a yüklemeyecez. Replication ile çalışacak.:

Static website hosting

Use this bucket to host a website or redirect requests. [Learn more](#)

Static website hosting

- Disable
- Enable

Hosting type

- Host a static website
Use the bucket endpoint as the web address. [Learn more](#)
- Redirect requests for an object
Redirect requests to another bucket or domain. [Learn more](#)

For your customers to access content at the website endpoint, you must make all your content publicly readable. To do so, you can edit the S3 Block Public Access settings for the bucket. For more information, see [Using Amazon S3 Block Public Access](#)

index.html replikasyondan sonra geleceği

için buraya yazıyoruz.

Index document 

Specify the home or default page of the website.

index.html

Error document - optional

This is returned when an error occurs.

error.html

Redirection rules - optional

Redirection rules, written in JSON, automatically redirect webpage requests for specific content. [Learn more](#)

Website policy i de edit ediyoruz:

Bucket ARN

```
arn:aws:s3:::destination.cross.region.replica.clarusway.muslim
```

Policy

```

1  {
2      "Version": "2012-10-17",
3      "Statement": [
4          {
5              "Sid": "PublicReadGetObject",
6              "Effect": "Allow",
7              "Principal": "*",
8              "Action": "s3:GetObject",
9              "Resource": "arn:aws:s3:::destination.cross.region.replica.clarusway.muslim/*"
10         }
11     ]
12 }
13

```

404 Not Found 404 hatası, dosya veya kaynak sunucuda mevcut değil.

- Code: NoSuchKey
- Message: The specified key does not exist.
- Key: index.html
- RequestId: H76BHFACZC4NWM3PD
- HostId: 42kvWPrZ0huyucmRy5Az38ruz0S8ExBErnRzz175HSc7s8MPoxhOTByHEKTLDBIEEkw4ZI3Gb20=

Biz static website enable yapsakta, website policy eklesekte bucket içinde dosya bulunmazsa 404 hatası verir.

Şimdi AWS ye her iki bucket arasındaki replication işlemi için vekalet vermemiz gereklidir IAM yetkisiyle yapıyoruz bunu. Bunun için IAM servisine gidip, sol menüden policies i seçip create policy diyoruz:

The screenshot shows the AWS IAM Policies list interface. On the left, there's a sidebar with 'Identity and Access Management (IAM)' at the top, followed by 'Access management' which includes 'User groups', 'Users', 'Roles', and 'Policies'. The 'Policies' link is highlighted with a red box. The main content area has a blue header bar with the text 'Introducing the new Policies list experience' and 'We've redesigned the Policies list experience to make it easier to use. Let us know what you think.' Below this, the title 'Policies (1024) Info' is shown, along with a sub-instruction 'A policy is an object in AWS that defines permissions.' There's a search bar and a pagination bar with pages 1 through 52. At the top right of the main content area, there's a 'Create policy' button, which is also highlighted with a red box.

Hangi işlemler için yetki verdigimizi policy lerle belirliyoruz.

Burada JSON u seçip boş policy i silip hazırladıktan sonra policy mizi buraya yapıştırıyoruz:

Policy editor

Visual JSON Actions ▾

```
1 | "Version": "2012-10-17",
2 | "Statement": [
3 |   {
4 |     "Action": [
5 |       "s3:Get*",
6 |       "s3>ListBucket"
7 |     ],
8 |     "Effect": "Allow",
9 |     "Resource": [
10 |       "arn:aws:s3:::source.replica.clarusway.muslim",
11 |       "arn:aws:s3:::source.replica.clarusway.muslim/*"
12 |     ]
13 |   },
14 |   {
15 |     "Action": [
16 |       "s3:ReplicateObject",
17 |       "s3:ReplicatedDelete",
18 |       "s3:ReplicateTags",
19 |       "s3GetObjectVersionTagging"
20 |     ],
21 |     "Effect": "Allow",
22 |     "Resource": "arn:aws:s3:::destination.cross.region.replica.clarusway.muslim/*"
23 |   }
24 | ]
25 | ]
26 | ]
```

Edit statement

Select a statement

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

+ Add new statement

Policy de source bucket adresini değiştirdiyorum:

Destination bucket adresini de değiştirdiyorum:

Bu sayede izinleri yerleştirmiş olduk. Next diyoruz. Tag sayfasından da Next diyoruz:

NAme ve description ekliyoruz ve create policy diyoruz:

Policy details

Policy name Create a meaningful name to identify this policy.

Description - optional Add a short explanation for this policy.

This policy defines some actions, resources, or conditions that do not provide permissions. To grant access, policies must have an action that has an applicable resource or condition. For details, choose Show remaining. Learn more

Permissions defined in this policy Info

Permissions in the policy document specify which actions are allowed or denied.

Service	Access level	Resource	Request condition
S3	Limited: Read, List, Tagging, Write	Multiple	None

Add tags - optional Info

Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.

No tags associated with the resource.

Add tag You can add up to 50 more tags.

Rol tanımlamak için sol menüden role e tıklıyoruz ve create role diyoruz.

The screenshot shows the AWS Identity and Access Management (IAM) service. On the left, there's a sidebar with options like Dashboard, Access management (with Roles selected), Policies, Identity providers, and Account settings. The main area is titled 'Roles (10)' and shows a table with columns for Role name, Trusted entities, and Last activity. A blue 'Create role' button is at the top right of the table area.

Burada AWS Service e yetki vereceğimiz için o seçili olacak. Aşağıdan da S3 servisini seçiyoruz:

This screenshot shows the 'Use case' configuration for a new role. It lists five options: 'AWS service' (selected), 'AWS account', 'Web identity', 'SAML 2.0 federation', and 'Custom trust policy'. The 'AWS service' option is highlighted with a red box.

Use case

Allow an AWS service like EC2, Lambda, or others to perform actions in this account.

Common use cases

- EC2**
Allows EC2 instances to call AWS services on your behalf.
- Lambda**
Allows Lambda functions to call AWS services on your behalf.

Use cases for other AWS services:

This screenshot shows a dropdown menu for 'Use cases for other AWS services' with 'S3' selected. A red arrow points to the 'S3' option, which is highlighted with a red box. The text 'S3'ün sizin adınıza AWS hizmetlerini aramasını sağlar.' is overlaid on the image.

Burada policy mizi seçip next diyoruz:

Add permissions Info

This screenshot shows the 'Permissions policies' list. The 'S3_policy_replica' policy is selected and highlighted with a red box. A red arrow points to the selected row with the text 'Oluşturdugumuz policy i seçiyoruz.' The table has columns for Policy name, Type, and Description.

Policy name	Type	Description
<input checked="" type="checkbox"/> S3_policy_replica	Custom...	S3_policy_replica
<input type="checkbox"/> AdministratorAccess	AWS m...	Provides full access to AWS services and resources.
<input type="checkbox"/> PowerUserAccess	AWS m...	Provides full access to AWS services and resources, but does not allow management of Users and groups.
<input type="checkbox"/> ReadOnlyAccess	AWS m...	Provides read-only access to AWS services and resources.
<input type="checkbox"/> AWSCloudFormatio...	AWS m...	Provides access to AWS CloudFormation via the AWS Management Console.

Role için isim ve description yazıyoruz ve create diyoruz:

Name, review, and create

Role details

Role name ←

Description ←

Step 1: Select trusted entities

```
1 * [ ]  
2   "Version": "2012-10-17",  
3   "Statement": [  
4     {  
5       "Effect": "Allow",  
6       "Principal": {  
7         "Service": "s3.amazonaws.com"  
8       },  
9       "Action": "sts:AssumeRole"  
10     }  
11   ]  
12 ]
```

Edit

Şimdi source bucket ta management tarafına geçiyoruz:

Create replication rule diyoruz:

Replication rules (0) * Source bucketi içerisinde managementtan geliyoruz buraya.

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](#) ↗

C	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	Replica modification sync

No replication rules

You don't have any rules in the replication configuration.

Create replication rule

İsim veriyoruz ve apply to all objects seçeneğini seçiyoruz.

Bizden hangi hesap için replication oluşturacağımız soruyor:

Replication rule configuration

Replication rule name

MyReplicationRule

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

Source bucket

Source bucket name

source.replica.clarusway.muslim

Source Region

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

Choose a rule scope

Bir veya daha fazla filtre kullanarak bu kuralın kapsamını sınırlayın

- Limit the scope of this rule using one or more filters
- Apply to all objects in the bucket

Filter type

You can filter objects by prefix, object tags, or a combination of both.

Prefix

Add a filter to limit the scope of this rule to a single prefix.

Enter prefix

Don't include the bucket name in the prefix. Using certain characters in key names can cause problems with some applications and protocols.

Tag sınırlaması için

Tags

You can limit the scope of this rule to the key value pairs added below.

Add tag

İsim veriyoruz ve **apply to all objects** seçeneğini seçiyoruz.

Bizden hangi hesap için replication oluşturacağımız soruyor:

Source bucket

Source bucket name
source.replica.clarusway.muslim

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

Choose a rule scope

- Limit the scope of this rule using one or more filters
- Apply to all objects in the bucket ← bütün bucket için geçerli olsun istiyoruz.

Aynı hesapta oluşturacağız. Değiştirmeden Browse S3 diyoruz:

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](#) ← Bu hesaptan bucket seçmek için.

- Choose a bucket in this account ← Başka hesaptan bucket seçmek için.
- Specify a bucket in another account

Bucket name
Choose the bucket that will receive replicated objects.

[Browse S3](#)

Destination Region
—

Destinaiton bucketımızı seçiyoruz. Choose path diyoruz.

Choose a bucket

S3 Buckets

Name	AWS Region
destination.cross.region.replica.clarusway.muslim	US East (Ohio) us-east-2
pet.clarusway.lifecycle.muslim	US East (N. Virginia) us-east-1
source.replica.clarusway.muslim	US East (N. Virginia) us-east-1

← Choose path

IAM role oluşturduğumuz rolü seçiyoruz:

IAM role

- Choose from existing IAM roles
 Enter IAM role ARN

IAM role

Choose IAM role



View



Create new role

aws-ec2-spot-fleet-tagging-role

AWSServiceRoleForAutoScaling

AWSServiceRoleForElasticLoadBalancing

AWSServiceRoleForRDS

AWSServiceRoleForSupport

AWSServiceRoleForTrustedAdvisor

haldun_s3_full

muslum-role

muslum_s3_full

rds-monitoring-role

S3_Replica_Role

Choose IAM role



Encryption

Server-side encryption protects data at rest.

- Replicate objects encrypted with AWS KMS
You can replicate objects that are encrypted with AWS Key Management Service (AWS KMS) keys.

Destination storage class

Amazon S3 offers a range of storage classes designed for different use cases. Learn more [\[\]](#) or see Amazon S3 pricing [\[\]](#)

- Change the storage class for the replicated objects

Replica edilen objelerin classlarını değiştirebiliyoruz.

Storage class

Storage class	Designed for	Availability Zones	Min storage duration	Cost
Standard	Frequently accessed data (more than once a month) with milliseconds access	≥ 3	-	-
Intelligent-Tiering	Data with changing or unknown access patterns	≥ 3	-	-
Standard-IA	Infrequently accessed data (once a month) with milliseconds access	≥ 3	30 days	1
One Zone-IA	Recreatable, Infrequently accessed data (once a month) stored in a single Availability Zone with milliseconds access	1	30 days	1
Glacier Instant Retrieval	Long-lived archive data accessed once a quarter with instant retrieval in milliseconds	≥ 3	90 days	1
Glacier Flexible Retrieval (formerly Glacier)	Long-lived archive data accessed once a year with retrieval of minutes to hours	≥ 3	90 days	-
Glacier Deep Archive	Long-lived archive data accessed less than once a year with retrieval of hours	≥ 3	180 days	-
Reduced redundancy	Noncritical, frequently accessed data with milliseconds access (not recommended as S3 Standard is more cost effective)	≥ 3	-	-

Additional replication options

Çoğaltma Zaman Kontrolü, yeni nesnelerin %99,99'unu 15 dakika içinde çoğaltır

- 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 [\[\]](#)

Büyük ebatlı obje gönderirken şu kadar kaldı bu kaldı diye mecricler veriyor.

- 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 [\[\]](#)

Source buckettaki delete markerları da karşı tarafa gönderir seçilirse.

- Delete marker replication

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

İki data arasında senkronizasyonu sağlıyor.

- Replica modification sync

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

Save diyoruz. Önümüze böyle bir uyarı gelecek:

Burada No seçili olacak ve submit ediyoruz. (Yeni değişiklikler ve upload işlemleri geçerli olacak.)

Replicate existing objects? X

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 Daha sonraki güncellemleri replicate edecek. (radio button) No, do not replicate existing objects.

Yes, replicate existing objects. Mevcut objeleri çoğaltmak istiyorsak. (radio button)

Cancel Submit

(radio button) Replication configuration successfully updated
If changes to the configuration aren't displayed, choose the refresh button. Changes apply only to new objects. To replicate existing objects with this configuration, choose [Create replication job](#). Create replication job X

Amazon S3 > Buckets > source.replica.clarusway.muslim > Replication rules

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		Create replication job	Edit
Configuration settings affect all replication rules in the bucket.			
Source bucket	source.replica.clarusway.muslim	IAM role	muslim-role
Source Region	US East (N. Virginia) us-east-1		

Ancak destination bucket a gittiğimizde objects te bir şey göremeyecez:

destination.cross.region.replica.clarusway.muslim [Info](#)

Publicly accessible

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

Objects (0)
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](#)

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

Find objects by prefix Show versions

Upload

No objects
You don't have any objects in this bucket.

Şimdi index dosyamızda ufak bir değişiklik yapıp yeni version oluşturmuşuz gibi bir senaryo gerçekleştirelim:

Şimdi source bucket a gidip cat ve index i tekrar yükleyelim. Source bucket ımızda version olarak bunları görebileceğiz:

source.replica.clarusway.muslum [Info](#)

Publicly accessible

Objects | Properties | Permissions | Metrics | Management | Access Points

Objects (4)

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 [\[?\]](#)

[C](#) [Copy S3 URI](#) [Copy URL](#) [Download](#) [Open](#) [Delete](#) [Actions](#) [Create folder](#) [Upload](#)

Find objects by prefix [Show versions](#)

<input type="checkbox"/>	Name	Type	Version ID	Last modified	Size	Storage class
<input type="checkbox"/>	cat.jpg	jpg	.ewAwAAyi343xeay3NrX951KAa_4P1g	June 10, 2023, 20:59:52 (UTC+03:00)	25.9 KB	Standard
<input type="checkbox"/>	cat.jpg	jpg	w_UzphdWqABj_2NjyKW.605wzHE7_wz	June 10, 2023, 17:47:26 (UTC+03:00)	25.9 KB	Standard
<input type="checkbox"/>	index.html	html	PG12T1Va5bQKxDc2hDj2YuH99EbGNOq	June 10, 2023, 20:59:53 (UTC+03:00)	223.0 B	Standard
<input type="checkbox"/>	index.html	html	iyAHHIlobxJWWoECq0aqBpVNm_X0WE	June 10, 2023, 17:47:27 (UTC+03:00)	223.0 B	Standard

Destination bucket ımıza gittiğimizde de dosyaların burada olduğunu görebiliyoruz:

destination.cross.region.replica.clarusway.muslum [Info](#)

Publicly accessible

Objects | Properties | Permissions | Metrics | Management | Access Points

Objects (2)

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 [\[?\]](#)

[C](#) [Copy S3 URI](#) [Copy URL](#) [Download](#) [Open](#) [Delete](#) [Actions](#) [Create folder](#) [Upload](#)

Find objects by prefix [Show versions](#)

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	cat.jpg	jpg	June 10, 2023, 20:59:52 (UTC+03:00)	25.9 KB	Standard
<input type="checkbox"/>	index.html	html	June 10, 2023, 20:59:53 (UTC+03:00)	223.0 B	Standard

My Cutest Cat Version 2



Şimdi **Yes, replicate existing objects**. seçerek ilerleyelim.

Replicate existing objects?

X

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

Submit dedikten sonra aşağıdaki ekran gelecek ve aynı ayarları kullanarak save edicez.

Job settings

A job is used to execute batch operations on a list of S3 objects. The list of objects is contained in a replication manifest object generated by S3.

Job run options

You can choose whether to have the job start automatically after the replication manifest is generated or to have the job wait in the "Awaiting your confirmation to run" status until you run the job.

Automatically run the job when it's ready
When selected, the job automatically runs without waiting for you to start.

Wait to run the job when it's ready
Recommended if you want to review the manifest or job details before running the job.

Completion report

Generate a CSV completion report that lists your target objects, task success or error codes, outputs, and descriptions. Completion reports are encrypted using SSE-S3. Learn more [\(opens in new tab\)](#)

Generate completion report

Completion report scope

Failed tasks only

All tasks

Path to completion report destination Learn more [\(opens in new tab\)](#)
'/obj-[obj-id]/report.json' will automatically be appended to the path.

s3://destination.cross.region.replica.clarusway.muslum 

[View](#)  [Browse S3](#)

Format: s3://mybucket/myprefix. S3 will append the path with a "/". If you add a "/" to the prefix, it will appear as an extra folder in the S3 console.

Permissions

Choose an IAM role with the required access permissions and trust relationships [\(opens in new tab\)](#). An IAM role policy template based on your job configuration, and the IAM trust policy required for batch operations to assume the IAM role are available below. Learn more about IAM roles [\(opens in new tab\)](#)

IAM role 

muslum-role  [View](#) 

[Cancel](#) [Save](#)

Jobs (1)									
<input type="text"/> Search by job ID or description		<input type="button"/> All status types							
US East (N. Virginia) us-east-1									
Job ID	Status	Description	Operation	Date created	Total objects	% Complete	Total failed (rate)	Priority	
2d344c8d-8968-4bb1-aa42-e8ca890ac65d	 Failed	2023-06-10 - Replicate	Replicate	June 10, 2023, 21:12:29 (UTC+03:00)	0	0%	0 (0%)	10	

Failed verdi çünkü burda ayrıca role tanımlaması yapılması lazım.

Bütün bucket için replication yaptık. **Ancak tag veya prefix ile de sınırlanabiliriz:**

Öncelikle kitten diye bir folder açıyoruz source bucket ta. (destination da da kendisi replikasyon yapacağı için orada da görülecektir) şimdi source bucket ta managements a giderek create replication rule diyerek yeni bir kural oluşturacaz:

Bu kez filter type da kitten prefix ini yazıyorum:

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

Choose a rule scope
 Limit the scope of this rule using one or more filters
 Apply to all objects in the bucket

Filter type
You can filter objects by prefix, object tags, or a combination of both.

Prefix
Add a filter to limit the scope of this rule to a single prefix.
kitten

Don't include the bucket name in the prefix. Using certain characters in key names can cause problems with some applications and protocols.

Tags
You can limit the scope of this rule to the key value pairs added below.
[Add tag](#)

Destination u seçiyoruz:

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](#)

Choose a bucket in this account
 Specify a bucket in another account

Bucket name
Choose the bucket that will receive replicated objects.
destination.cross.region.replica.clarusway-mba [Browse S3](#)

Destination Region
US East (Ohio) us-east-2

Destination storage class i da değiştirebiliriz:

Destination storage class

Amazon S3 offers a range of storage classes designed for different use cases. Learn more or see Amazon S3 pricing.

Change the storage class for the replicated objects

Storage class	Designed for	Availability Zones	Min storage duration
Standard	Frequently accessed data (more than once a month) with milliseconds access	≥ 3	-
Intelligent-Tiering	Data with changing or unknown access patterns	≥ 3	-
Standard-IA	Infrequently accessed data (once a month) with milliseconds access	≥ 3	30 days
One Zone-IA	Recreatable, infrequently accessed data (once a month) stored in a single Availability Zone with milliseconds access	1	30 days
Glacier Instant Retrieval	Long-lived archive data accessed once a quarter with instant retrieval in milliseconds	≥ 3	90 days

Hali hazırda source bucket in tamamı için replication rule olduğu için yenilikler zaten destinationda görülecek ve yeni prefix replication rule u test edemeyecez. Bu nedene ilk replication rule umuzu seçip actions tan disable rule diyerek disable edecez:

Replication configuration settings

Configuration settings affect all replication rules in the bucket.

Create replication job **Edit**

Source bucket source.replica.clarusway-mba	IAM role emre.cross.replication.iam.role
Source Region US East (N. Virginia) us-east-1	

Replication rules (2)

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

Actions	Create replication rule
<input type="button"/> View details	
<input type="button"/> Edit rule	
<input type="button"/> Delete	
<input type="button"/> Actions ▾	
<input type="button"/> Create replication rule	

Replication rule name	Status	Destination bucket	Destination Region	Priority	Scope	Storage class	Replica owner	Replication Time Control	KMS-encrypted objects	Replica modifc sync
Prefixrule	Enabled	s3://destination.cross.region.replica.clarusway-mba	US East (Ohio) us-east-2	1	Prefix: kitten	Transition to One Zone-IA	Same as source	Disabled	Do not replicate	Disabled
MyReplicationRule	Enabled	s3://destination.cross.region.replica.clarusway-mba	US East (Ohio) us-east-2	0	Entire bucket	Same as source	Same as source	Disabled	Do not replicate	Disabled

Source bucket ımıza yeni objeler atalım. Bir dosyayı bucketin içine atalım. Başka bir dosyayı da kitten folder ina atalım:

Amazon S3 > Buckets > source.replica.clarusway-mba

source.replica.clarusway-mba Info

Publicly accessible

Objects Properties Permissions Metrics Management Access Points

Objects (6)
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 [\[?\]](#)

[Actions](#) [Upload](#)

Find objects by prefix [Show versions](#)

Name	Type	Version ID	Last modified	Size	Storage class
cat.jpg	jpg	r5GP2HOe2jR1nOgI6R24m6YgQMTKTFE	December 24, 2022, 12:49:07 (UTC+01:00)	25.9 kB	Standard
cat.jpg	jpg	QCL_olZNN0qXnBZTafQnLXWloZEC3	December 24, 2022, 11:56:17 (UTC+01:00)	25.9 kB	Standard
index.html	html	H2VXJ3NkzsdJ2BInyVfLqgCWpfttCVM9	December 24, 2022, 12:49:06 (UTC+01:00)	223.0 B	Standard
index.html	html	4DRR2OVb81pubqDijAK1X9jL_7FuQS	December 24, 2022, 11:56:18 (UTC+01:00)	223.0 B	Standard
kitten/	Folder	-	-	-	-
outside_folder.txt	txt	q5dWzoY6fcFKoujbKEVq2JH9reTIV3ey	December 24, 2022, 12:58:15 (UTC+01:00)	1.0 B	Standard

Amazon S3 > Buckets > source.replica.clarusway-mba > kitten/

kitten/

Objects Properties

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 [\[?\]](#)

[Actions](#) [Upload](#)

Find objects by prefix [Show versions](#)

Name	Type	Version ID	Last modified
inside_kitten_folder.txt	txt	gHXIBhHlHt6n3q9vuy0.szKge3Ls5vLj	December 24, 2022, 12:58:52 (UTC+01:00)

Destination bucket a gidelim ve refresh edelim:

Amazon S3 > Buckets > destination.cross.region.replica.clarusway-mba > kitten/

kitten/

Objects Properties

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 [\[?\]](#)

[Actions](#) [Upload](#)

Find objects by prefix [Show versions](#)

Name	Type	Last modified	Size
inside_kitten_folder.txt	txt	December 24, 2022, 12:58:52 (UTC+01:00)	1.0 B

Kitten içine eklediğimiz dosyayı görüyoruz.

Tag için de kural oluşturalım:

Source bucket ta managements a giderek create replication rule diyoruz. İsim veriyoruz. Alt kısmda tag ekliyoruz:

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

Choose a rule scope
 Limit the scope of this rule using one or more filters
 Apply to all objects in the bucket

Filter type

You can filter objects by prefix, object tags, or a combination of both.

Prefix

Add a filter to limit the scope of this rule to a single prefix.

Enter prefix

Don't include the bucket name in the prefix. Using certain characters in key names can cause problems with some applications and protocols.

Tags

You can limit the scope of this rule to the key value pairs added below.

Key	Value	
Name	cat	<button>Remove</button>
<button>Add tag</button>		

Tag isimleri value leri case sensitive dir.

Daha sonra Browse S3 sekmesinden destination u seçip save ediyoruz.

Source içine tag file i tag lemeden tag_file2 yi de tag leyrek ekliyoruz:

Upload ederekken properties kısmından tag eklemeye ulaşıyoruz ve Add Tag diyoruz:

Files and folders (1 Total, 1.0 B)
All files and folders in this table will be uploaded.

	Name	Folder	Type	Size
<input type="checkbox"/>	tag_file 2.txt	-	text/plain	1.0 B

Destination

Destination
s3://source.replica.clarusway-mba

▶ Destination details

Bucket settings that impact new objects stored in the specified destination.

▶ Permissions

Grant public access and access to other AWS accounts.

▼ Properties

Specify storage class, encryption settings, tags, and more.

Case sensitive olduğunu unutmayalım. Rules ta verdigimiz şekilde tag ekliyoruz:

Tags - optional

You can use object tags to analyze, manage, and specify permissions for objects. [Learn more](#)

Key	Value - optional	Remove
Name	cat	Remove
Add tag		

Upload ettik ve destination bucketımız gidiyoruz:

Amazon S3 > Buckets > destination.cross.region.replica.clarusway-mba [Info](#)

destination.cross.region.replica.clarusway-mba [Info](#)

Publicly accessible

Objects Properties Permissions Metrics Management Access Points

Objects (4)

Objects are 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](#)

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	cat.jpg	jpg	December 24, 2022, 12:49:07 (UTC+01:00)	25.9 KB	Standard
<input type="checkbox"/>	index.html	html	December 24, 2022, 12:49:06 (UTC+01:00)	223.0 B	Standard
<input type="checkbox"/>	kitten/	Folder	-	-	-
<input type="checkbox"/>	tag_file_2.txt	txt	December 24, 2022, 13:06:26 (UTC+01:00)	1.0 B	Standard

Tag_file görünmüyorken tag ile eklediğimiz tag_file_2 yi görebiliyoruz.