

Migration of GCP Bucket from 1 project to another

24 April 2024 20:54

Agenda:: There are 2 GCP project testing and testing 2 There are 4 GCP buckets in testing project that needs to be migrated to test2 project .

STEP 1::

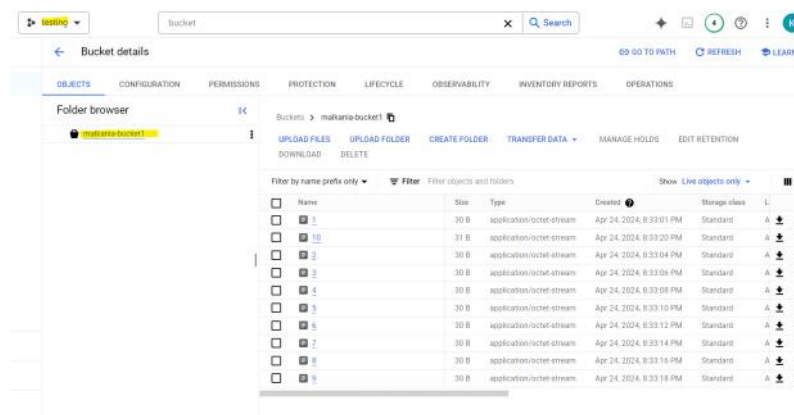
Use below mentioned terraform code to create 4 GCP buckets in 1st project

```
# Define the names of the buckets
variable "bucket_names" {
  default = ["bucket1", "bucket2", "bucket3", "bucket4"]
}
# Create GCS buckets
resource "google_storage_bucket" "buckets" {
  count    = length(var.bucket_names)
  name     = "malkania-${var.bucket_names[count.index]}"
  location = "US"
  force_destroy = true
}
# Output the URLs of the created buckets
output "bucket_urls" {
  value = [for bucket_name in var.bucket_names : google_storage_bucket.buckets[bucket_name].url]
}
terraform {
  required_providers {
    google = {
      source = "hashicorp/google"
      version = "5.26.0"
    }
  }
}

provider "google" {
  project = "testing-417202"
  region  = "eu-west1"
}
```

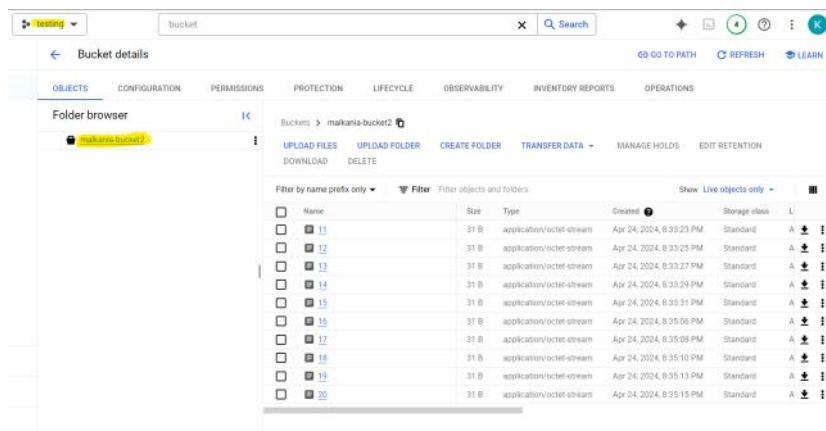
After the bucket creation created temporary 40 test files to be uploaded in 4 buckets 10 files each attaching screenshot for the same.

Bucket:: -1

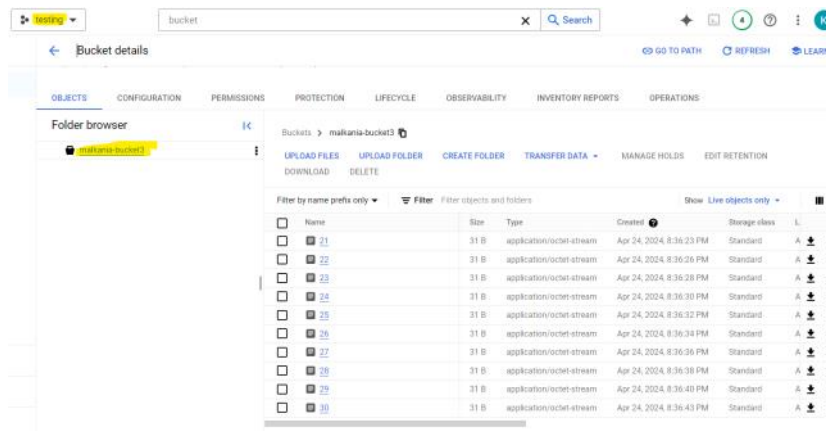


Name	Size	Type	Created	Storage class	L
test_1	30 B	application/octet-stream	Apr 24, 2024, 8:33:01 PM	Standard	A
test_2	30 B	application/octet-stream	Apr 24, 2024, 8:33:02 PM	Standard	A
test_3	30 B	application/octet-stream	Apr 24, 2024, 8:33:03 PM	Standard	A
test_4	30 B	application/octet-stream	Apr 24, 2024, 8:33:04 PM	Standard	A
test_5	30 B	application/octet-stream	Apr 24, 2024, 8:33:05 PM	Standard	A
test_6	30 B	application/octet-stream	Apr 24, 2024, 8:33:06 PM	Standard	A
test_7	30 B	application/octet-stream	Apr 24, 2024, 8:33:07 PM	Standard	A
test_8	30 B	application/octet-stream	Apr 24, 2024, 8:33:08 PM	Standard	A
test_9	30 B	application/octet-stream	Apr 24, 2024, 8:33:09 PM	Standard	A
test_10	30 B	application/octet-stream	Apr 24, 2024, 8:33:10 PM	Standard	A

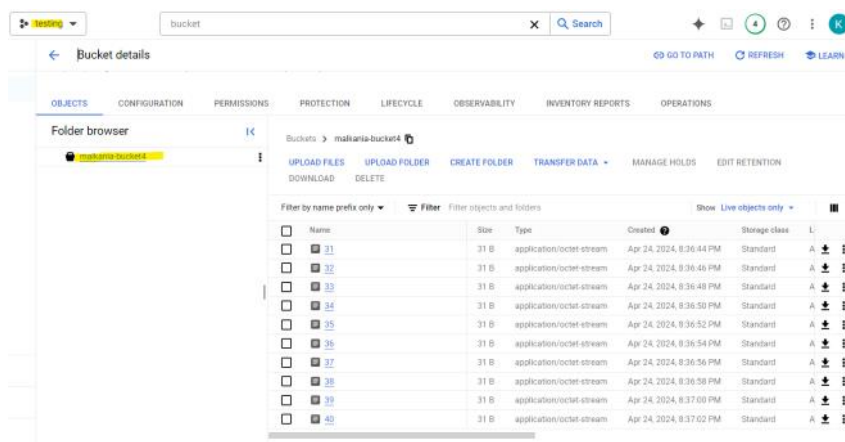
Bucket:: -2



Bucket:: -3



Bucket:: -4



Step 2:-

Create a gcp bucket in project 2 i.e testing-2 with 4 empty folders in it where data from 1st project bucket will be copied individually

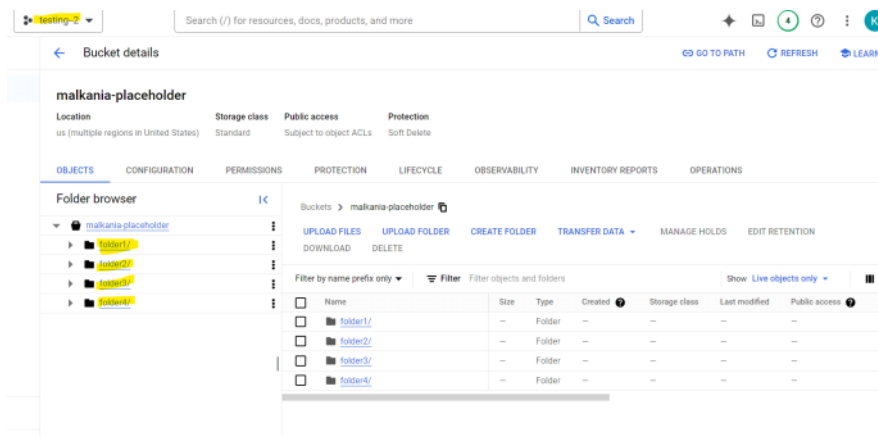
```
# Create a GCS bucket
resource "google_storage_bucket" "my_bucket" {
  name     = "malkania-placeholder"
  location = "US"
  force_destroy = true
}
# Create empty objects to mimic folders
resource "google_storage_bucket_object" "folder1" {
```

```

bucket = google_storage_bucket.my_bucket.name
name = "folder1/"
content = " "
}
resource "google_storage_bucket_object" "folder2" {
  bucket = google_storage_bucket.my_bucket.name
  name = "folder2/"
  content = " "
}
resource "google_storage_bucket_object" "folder3" {
  bucket = google_storage_bucket.my_bucket.name
  name = "folder3/"
  content = " "
}
resource "google_storage_bucket_object" "folder4" {
  bucket = google_storage_bucket.my_bucket.name
  name = "folder4/"
  content = " "
}

terraform {
  required_providers {
    google = {
      source = "hashicorp/google"
      version = "5.26.0"
    }
  }
}
provider "google" {
  project = "testing-2-421314"
  region = "eu-west1"
}

```



Step::3 Copy files from project 1 bucket to project -2/bucket/folder

```

gsutil cp gs://malkania-bucket1/8 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/9 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/10 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket2/11 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket3/29 gs://malkania-placeholder/folder3
gsutil cp gs://malkania-bucket3/30 gs://malkania-placeholder/folder3
gsutil cp gs://malkania-bucket4/31 gs://malkania-placeholder/folder4
gsutil cp gs://malkania-bucket4/32 gs://malkania-placeholder/folder4

```

```
kumarkartikmk51@cloudshell:~/moving_buckets/test_1_project/files (testing-417202)
#!/bin/bash
gsutil cp gs://malkania-bucket1/1 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/2 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/3 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/4 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/5 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/6 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/7 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/8 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/9 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket1/10 gs://malkania-placeholder/folder1
gsutil cp gs://malkania-bucket2/11 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/12 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/13 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/14 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/15 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/16 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/17 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/18 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/19 gs://malkania-placeholder/folder2
gsutil cp gs://malkania-bucket2/20 gs://malkania-placeholder/folder2
```

It should be visible on the console of second project once copy is complete

testing-2

Search (/) for resources, docs, products, and more

Search

4

Bucket details
GO TO PATH
REFRESH
LEARN

us (multiple regions in United States)
Standard
Subject to object ACLs
Soft Delete

OBJECTS
CONFIGURATION
PERMISSIONS
PROTECTION
LIFECYCLE
OBSERVABILITY
INVENTORY REPORTS
OPERATIONS

Folder browser

malkania-placeholder

folder1/

folder2/

folder3/

folder4/

Buckets > malkania-placeholder > folder1

UPLOAD FILES
UPLOAD FOLDER
CREATE FOLDER
TRANSFER DATA
MANAGE HOLDS
EDIT RETENTION

DOWNLOAD
DELETE

Filter by name prefix only
Filter
Filter objects and folders
Show Live objects only

<input type="checkbox"/>	Name	Size	Type	Created	Storage class	L	
<input type="checkbox"/>	1	30 B	application/octet-stream	Apr 24, 2024, 8:46:09 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	10	31 B	application/octet-stream	Apr 24, 2024, 8:46:36 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	2	30 B	application/octet-stream	Apr 24, 2024, 8:46:12 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	3	30 B	application/octet-stream	Apr 24, 2024, 8:46:15 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	4	30 B	application/octet-stream	Apr 24, 2024, 8:46:18 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	5	30 B	application/octet-stream	Apr 24, 2024, 8:46:21 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	6	30 B	application/octet-stream	Apr 24, 2024, 8:46:24 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	7	30 B	application/octet-stream	Apr 24, 2024, 8:46:27 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	8	30 B	application/octet-stream	Apr 24, 2024, 8:46:30 PM	Standard	A	⬇ ⋮
<input type="checkbox"/>	9	30 B	application/octet-stream	Apr 24, 2024, 8:46:33 PM	Standard	A	⬇ ⋮

Similar for all the other folders as well

Step::4 Comment the terraform code which is mentioned in step 1 it will destroy the buckets in original project i.e. test project

```

Plan: 0 to add, 0 to change, 4 to destroy.
google_storage_bucket.buckets[2]: Destroying... [id=malkania-bucket3]
google_storage_bucket.buckets[1]: Destroying... [id=malkania-bucket2]
google_storage_bucket.buckets[0]: Destroying... [id=malkania-bucket1]
google_storage_bucket.buckets[3]: Destroying... [id=malkania-bucket4]
google_storage_bucket.buckets[3]: Destruction complete after 6s
google_storage_bucket.buckets[1]: Destruction complete after 6s
google_storage_bucket.buckets[2]: Destruction complete after 6s
google_storage_bucket.buckets[0]: Destruction complete after 6s

```

Apply complete! Resources: 0 added, 0 changed, 4 destroyed.

```
kumarkartikmk51@cloudshell:~/moving_buckets/test_1_project (testing-417202) $
```

Step::5 append the code of step1 under step2 code it should look like below mentioned code::

```

# Create a GCS bucket
resource "google_storage_bucket" "my_bucket" {
  name     = "malkania-placeholder"
  location = "US"
  force_destroy = true
}

# Create empty objects to mimic folders
resource "google_storage_bucket_object" "folder1" {
  bucket = google_storage_bucket.my_bucket.name
  name   = "folder1/"
  content = ""
}

resource "google_storage_bucket_object" "folder2" {
  bucket = google_storage_bucket.my_bucket.name
  name   = "folder2/"
  content = ""
}

resource "google_storage_bucket_object" "folder3" {
  bucket = google_storage_bucket.my_bucket.name
  name   = "folder3/"
  content = ""
}

resource "google_storage_bucket_object" "folder4" {
  bucket = google_storage_bucket.my_bucket.name
  name   = "folder4/"
  content = ""
}

# Define the names of the buckets
variable "bucket_names" {
  default = ["bucket1", "bucket2", "bucket3", "bucket4"]
}

# Create GCS buckets
resource "google_storage_bucket" "buckets" {
  count      = length(var.bucket_names)
  name      = "malkania-${var.bucket_names[count.index]}"
  location  = "US"
  force_destroy = true
}

```

Note::Please make sure that it is not destroying the folders inside the placeholder bucket as data was copied manually and not via terraform (Usually it is not the case as it matched the infrastructure not the directory structure under it)

Try running [terraform plan](#) and make sure it does not destroy anything if so please use [terraform import](#) command mentioned below to update the state file

```
terraform import google_storage_bucket_object.folder1 gs://your-bucket-name/folder1/your-file-name
```

Once code is completed buckets should be visible in second project

testing-2	Search (/) for resources, docs, products, and more	Search						
Buckets	CREATE	REFRESH	GO TO PATH	LEARN				
Beginning on April 29th, 2024 at-scale policy analysis and advanced IAM recommendation capabilities will require Security Command Center Premium. Learn more								
DISMISS								
Filter	Filter buckets							
<input type="checkbox"/>	Name ↑	Created	Location type	Location	Default storage class	Last modified	Public access	Access control
<input type="checkbox"/>	malkania-bucket1	Apr 24, 2024, 9:20:28 PM	Multi-region	us	Standard	Apr 24, 2024, 9:20:28 PM	Subject to object ACLs	Fine-grained
<input type="checkbox"/>	malkania-bucket2	Apr 24, 2024, 9:20:28 PM	Multi-region	us	Standard	Apr 24, 2024, 9:20:28 PM	Subject to object ACLs	Fine-grained
<input type="checkbox"/>	malkania-bucket3	Apr 24, 2024, 9:20:28 PM	Multi-region	us	Standard	Apr 24, 2024, 9:20:28 PM	Subject to object ACLs	Fine-grained
<input type="checkbox"/>	malkania-bucket4	Apr 24, 2024, 9:20:28 PM	Multi-region	us	Standard	Apr 24, 2024, 9:20:28 PM	Subject to object ACLs	Fine-grained
<input type="checkbox"/>	malkania-placeholder	Apr 24, 2024, 8:17:19 PM	Multi-region	us	Standard	Apr 24, 2024, 8:17:19 PM	Subject to object ACLs	Fine-grained

Step:: 6 Run below mentioned command to copy content from placeholder bucket to original buckets

```
gsutil cp gs://malkania-placeholder/folder1/* gs://malkania-bucket1/
gsutil cp gs://malkania-placeholder/folder2/* gs://malkania-bucket2/
gsutil cp gs://malkania-placeholder/folder3/* gs://malkania-bucket3/
gsutil cp gs://malkania-placeholder/folder4/* gs://malkania-bucket4/
```

```
Copying gs://malkania-placeholder/folder1/1 [Content-Type=application/octet-stream]...
Copying gs://malkania-placeholder/folder1/10 [Content-Type=application/octet-stream]...
Copying gs://malkania-placeholder/folder1/2 [Content-Type=application/octet-stream]...
- [3 files][ 91.0 B/ 91.0 B]
==> NOTE: You are performing a sequence of gsutil operations that may
run significantly faster if you instead use gsutil -m cp ... Please
see the -m section under "gsutil help options" for further information
about when gsutil -m can be advantageous.

Copying gs://malkania-placeholder/folder1/3 [Content-Type=application/octet-stream]...
Copying gs://malkania-placeholder/folder1/4 [Content-Type=application/octet-stream]...
Copying gs://malkania-placeholder/folder1/5 [Content-Type=application/octet-stream]...
Copying gs://malkania-placeholder/folder1/6 [Content-Type=application/octet-stream]...
Copying gs://malkania-placeholder/folder1/7 [Content-Type=application/octet-stream]...
Copying gs://malkania-placeholder/folder1/8 [Content-Type=application/octet-stream]...
Copying gs://malkania-placeholder/folder1/9 [Content-Type=application/octet-stream]...
- [10 files][ 301.0 B/ 301.0 B]
Operation completed over 10 objects/301.0 B.
```

Verify:-

```
kumarkartikmk51@cloudshell:~ (testing-2-421314)$ gsutil ls gs://malkania-bucket1/wc -l
10
kumarkartikmk51@cloudshell:~ (testing-2-421314)$ gsutil ls gs://malkania-bucket2/wc -l
10
kumarkartikmk51@cloudshell:~ (testing-2-421314)$ gsutil ls gs://malkania-bucket3/wc -l
10
kumarkartikmk51@cloudshell:~ (testing-2-421314)$ gsutil ls gs://malkania-bucket4/wc -l
10
kumarkartikmk51@cloudshell:~ (testing-2-421314)$
```

testing-2

Search (/) for resources, docs, products, and more

Search

5

Bucket details

GO TO PATH REFRESH LEARN

malkania-bucket4

Location

us (multiple regions in United States)

Storage class

Standard

Public access

Subject to object ACLs

Protection

Soft Delete

OBJECTS

CONFIGURATION

PERMISSIONS

PROTECTION

LIFECYCLE

OBSERVABILITY

INVENTORY REPORTS

OPERATIONS

Folder browser

malkania-bucket4

UPLOAD FILES

UPLOAD FOLDER

CREATE FOLDER

TRANSFER DATA

MANAGE HOLDS

EDIT RETENTION

DOWNLOAD

DELETE

Filter by name prefix only

Filter

Filter objects and folders

Show Live objects only

<input type="checkbox"/>	Name	Size	Type	Created	Storage class	L
<input type="checkbox"/>	31	31 B	application/octet-stream	Apr 24, 2024, 9:36:53 PM	Standard	A
<input type="checkbox"/>	32	31 B	application/octet-stream	Apr 24, 2024, 9:36:54 PM	Standard	A
<input type="checkbox"/>	33	31 B	application/octet-stream	Apr 24, 2024, 9:36:54 PM	Standard	A
<input type="checkbox"/>	34	31 B	application/octet-stream	Apr 24, 2024, 9:36:55 PM	Standard	A
<input type="checkbox"/>	35	31 B	application/octet-stream	Apr 24, 2024, 9:36:55 PM	Standard	A
<input type="checkbox"/>	36	31 B	application/octet-stream	Apr 24, 2024, 9:36:56 PM	Standard	A
<input type="checkbox"/>	37	31 B	application/octet-stream	Apr 24, 2024, 9:36:56 PM	Standard	A
<input type="checkbox"/>	38	31 B	application/octet-stream	Apr 24, 2024, 9:36:57 PM	Standard	A

Step::6 Clean UP

Comment the code of steps 2 so that placeholder bucket and folders are removed

testing-2

Search (/) for resources, docs, products, and more

Search

5

Open Terminal

Use the Legacy Editor

main.tf

moving_buckets > test_2_project > main.tf

```

1  # Create a GCS bucket
2  # resource "google_storage_bucket" "my_bucket" {
3  #   name       = "malkania-placeholder"
4  #   location   = "us"
5  #   force_destroy = true
6  # }
7
8  # Create empty objects to mimic folders
9  # resource "google_storage_bucket_object" "folder1" {
10 #   bucket = google_storage_bucket.my_bucket.name
11 #   name   = "folder1/"
12 #   content = ""
13 # }
14
15 # resource "google_storage_bucket_object" "folder2" {
16 #   bucket = google_storage_bucket.my_bucket.name
17 #   name   = "folder2/"
18 #   content = ""
19 # }
20
21 # resource "google_storage_bucket_object" "folder3" {
22 #   bucket = google_storage_bucket.my_bucket.name
23 #   name   = "folder3/"
24 #   content = ""
25 # }
26
27 # resource "google_storage_bucket_object" "folder4" {
28 #   bucket = google_storage_bucket.my_bucket.name
29 #   name   = "folder4/"

```

COMPLETED:-

testing-2

Search (/) for resources, docs, products, and more

Search

5

K

Buckets

CREATEREFRESH

GO TO PATHLEARN

Beginning on April 29th, 2024 at-scale policy analysis and advanced IAM recommendation capabilities will require Security Command Center Premium. [Learn more](#)

DISMISS

Filter

Filter buckets

<input type="checkbox"/>	Name ↑	Created	Location type	Location	Default storage class ?	Last modified	Public access ?	Access control ?	
<input type="checkbox"/>	malkania-bucket1	Apr 24, 2024, 9:20:28 PM	Multi-region	us	Standard	Apr 24, 2024, 9:20:28 PM	Subject to object ACLs	Fine-grained	⋮
<input type="checkbox"/>	malkania-bucket2	Apr 24, 2024, 9:20:28 PM	Multi-region	us	Standard	Apr 24, 2024, 9:20:28 PM	Subject to object ACLs	Fine-grained	⋮
<input type="checkbox"/>	malkania-bucket3	Apr 24, 2024, 9:20:28 PM	Multi-region	us	Standard	Apr 24, 2024, 9:20:28 PM	Subject to object ACLs	Fine-grained	⋮
<input type="checkbox"/>	malkania-bucket4	Apr 24, 2024, 9:20:28 PM	Multi-region	us	Standard	Apr 24, 2024, 9:20:28 PM	Subject to object ACLs	Fine-grained	⋮