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Project-05

Mount S3 bucket as a drive in both linux and windows, configure MFA delete and versioning on the bucket.

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1. Mount an S3 bucket on ubuntu AMI.

1. Created an EC2 instance to mount an S3 bucket using the Ubuntu AMI available.

The screenshot shows the AWS Management Console interface for an EC2 instance. At the top, there's a search bar and navigation tabs. Below, a table lists instances, with 's3ubuntu' selected. The instance details panel shows the following information:

- Instance ID:** i-012ea754e340faa46 (s3ubuntu)
- Instance state:** Running
- Instance type:** t2.micro
- Status check:** 2/2 checks passed
- Alarm status:** No alarms
- Availability Zone:** ap-south-1a
- Public IPv4 DNS:** ec2-3-108-185-228.ap-south-1a.compute.amazonaws.com
- Public IPv4 address:** 3.108.185.228
- Private IPv4 address:** 172.31.42.167
- Private IP DNS name (IPv4 only):** ip-172-31-42-167.ap-south-1.compute.internal
- Instance type:** t2.micro
- VPC ID:** (not visible)

2. Created an S3 bucket to mount to the EC2 instance. (Also uploaded a file named 'abc.text').

The screenshot shows the Amazon S3 console for a bucket named 's3bucketofubuntu'. The 'Objects' tab is selected, showing a list of objects. One object, 'abc.txt', is listed with the following details:

- Name:** abc.txt
- Type:** txt
- Last modified:** July 23, 2022, 16:17:03 (UTC+05:30)
- Size:** 0 B
- Storage class:** Standard

3. Connected to the EC2 instance using SSH client.

4. Fired the following commands to setup and mount the s3 bucket on the instance:

a) 'sudo apt-get update' to update all libraries of Ubuntu.

```
root@ip-172-31-42-167:~# sudo apt-get update
Hit:1 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:4 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]
Get:5 http://ap-south-1.ec2.archive.ubuntu.com/ubuntu jammy/universe amd64 Packages [14.1 MB]
Get:6 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [228 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [56.1 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Metadata [3564 B]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [203 kB]
```

b) **'sudo apt-get install s3fs'** to install s3fs.

```
root@ip-172-31-42-167:~# sudo apt-get install s3fs
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bzip2 libfuse2 mailcap mime-support
Suggested packages:
  bzip2-doc
The following NEW packages will be installed:
```

c) **'echo**

AKIATYFGC35IFYZNP7HA:5WR1bzCxVytPcfp1zRDedFJnR/JLD8Rm3zHqUxcP>~/.passwd-s3fs' to create a configuration file for IAM user having access key and secret access key.

```
root@ip-172-31-42-167:~# echo AKIATYFGC35IFYZNP7HA:5WR1bzCxVytPcfp1zRDedFJnR/JLD8Rm3zHqUxcP>~/.passwd-s3fs
```

d) **'cat ~/.passwd-s3fs'** to check if the file has been created and contents have been filled in it or not.

```
root@ip-172-31-42-167:~# cat ~/.passwd-s3fs
```

e) **'chmod 600 ~/.passwd-s3fs'** to set permissions for the configuration file.

```
root@ip-172-31-42-167:~# chmod 600 ~/.passwd-s3fs
```

f) **'mkdir ~/s3-bucket-folder'** to make a directory to mount the s3 volume to.

```
root@ip-172-31-42-167:~# chmod 600 ~/.passwd-s3fs
root@ip-172-31-42-167:~# mkdir ~/s3-bucket-folder
```

g) **'s3fs s3bucketofubuntu ~/s3-bucket-folder -o passwd_file=~/.passwd-s3fs'** to mount the s3 bucket to the specified directory using the specified configuration file.

h) **'mount', 'df -h'** to check if the s3 bucket has been mounted to the directory or not.

```
root@ip-172-31-42-167:~# s3fs s3bucketofubuntu ~/s3-bucket-folder -o passwd_file=~/.passwd-s3fs
root@ip-172-31-42-167:~# mount
```

i) **'cd ~/s3-bucket-folder'** to go to the directory where the volume has been mounted.

j) **'ls'** to check if the file 'abc.txt' is present or not.

k) **'touch xyz.txt'** to create a text inside that directory and check if it reflects in the s3 bucket in the console or not.

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							
	Copy S3 URI	Copy URL	Download	Open	Delete	Actions ▾	Create folder Upload
<input type="text" value="Find objects by prefix"/>							
<input type="checkbox"/>	Name	Type	Last modified		Size	Storage class	
<input type="checkbox"/>	abc.txt	txt	July 23, 2022, 16:17:03 (UTC+05:30)		0 B	Standard	
<input type="checkbox"/>	xyz.txt	txt	July 23, 2022, 18:04:49 (UTC+05:30)		0 B	Standard	

2. Enable MFA delete on s3 bucket.

1. Creating a new access key and secret access key for the root user account.

▼ Access keys (access key ID and secret access key)

Use access keys to make programmatic calls to AWS from the AWS CLI, Tools for PowerShell, AWS SDKs, or direct AWS API calls. You can have a maximum of two access keys (active or inactive) at a time.

For your protection, you should never share your secret keys with anyone. As a best practice, we recommend frequent key rotation.
 If you lose or forget your secret key, you cannot retrieve it. Instead, create a new access key and make the old key inactive. [Learn more](#)

Created	Access Key ID	Last Used	Last Used Region	Last Used Service	Status	Actions
Jul 23rd 2022	AKIATYFGC35IAUXPXE65	N/A	N/A	N/A	Active	Make Inactive Delete

[Create New Access Key](#)

2. Configuring IAM account with the help of the generated access key and secret access key of the root user account.

```
PS C:\Users\cr7su> aws configure
AWS Access Key ID [*****P7HA]: AKIATYFGC35IAUXPXE65
AWS Secret Access Key [*****UxcP]: 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
Default region name [ap-south-1]:
Default output format [json]:
PS C:\Users\cr7su> |
```

3. 'aws s3 ls' to display all the buckets in this region.

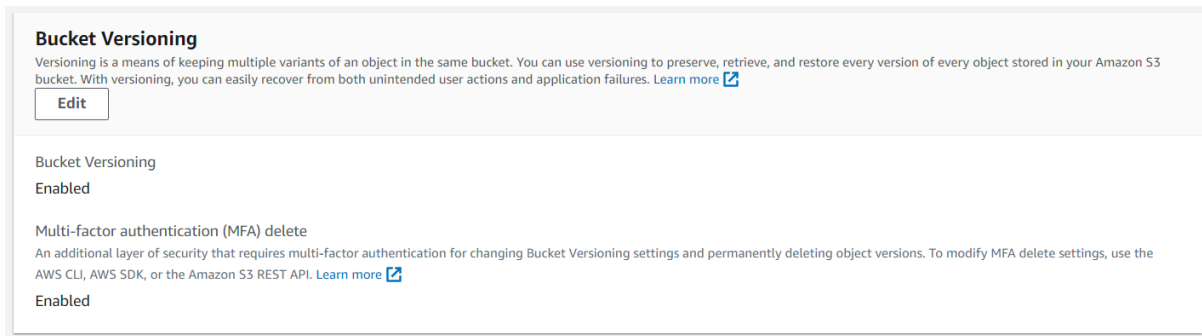
```
PS C:\Users\cr7su> aws s3 ls
2022-07-23 16:16:53 s3bucketofubuntu
```

4. 'aws s3api put-bucket-versioning --bucket s3bucketofubuntu --versioning-configuration Status=Enabled,MFADelete=Enabled --mfa "arn:aws:iam::258046353232:mfa/root-account-mfa-device 090201"' to enable MFA delete on the root account for s3 bucket.

```
PS C:\Users\cr7su> aws s3api put-bucket-versioning --bucket s3bucketofubuntu --versioning-configuration Status=Enabled,MFADelete=Enabled --mfa "arn:aws:iam::258046353232:mfa/root-account-mfa-device 090201"
```

5. Checking if MFA delete and bucket versioning for the s3 bucket are enabled or not (also reflected in the console).

```
PS C:\Users\cr7su> aws s3api get-bucket-versioning --bucket s3bucketofubuntu
{
  "Status": "Enabled",
  "MFADelete": "Enabled"
}
```



6. Deleting the 729 B abc.txt file without providing MFA key using CLI command.

```
PS C:\Users\cr7su> aws s3api delete-object --bucket s3bucketofubuntu --key abc.txt --version-id _4Ck2K8yjCwOdNf_AwntIS7qUI08GTDe
```

An error occurred (AccessDenied) when calling the DeleteObject operation: Mfa Authentication must be used for this request

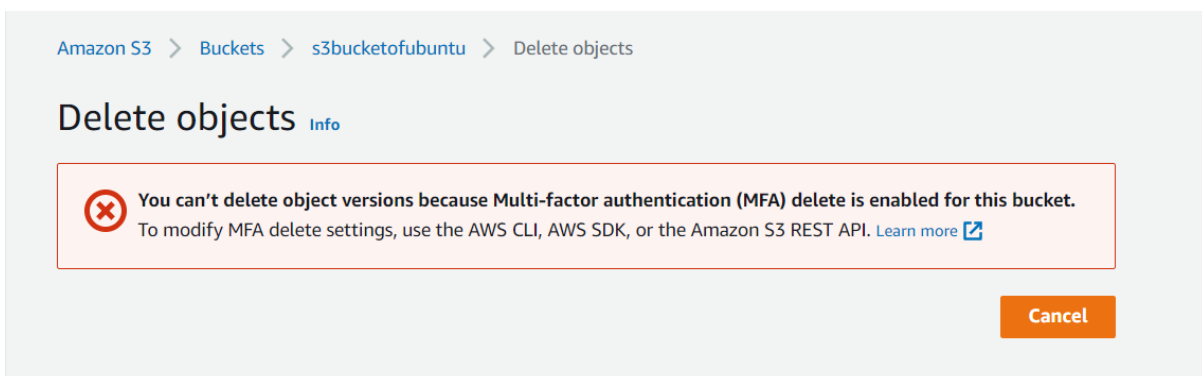
```
PS C:\Users\cr7su> |
```

7. Now, trying to delete the same file version using MFA code using CLI command. (We can see that the version of the abc.txt file has been deleted).

```
PS C:\Users\cr7su> aws s3api delete-object --bucket s3bucketofubuntu --key abc.txt --version-id _4Ck2K8yjCwOdNf_AwntIS7qUI08GTDe --mfa "arn:aws:iam::258046353232:mfa/root-account-mfa-device 399091"
```

```
{
  "VersionId": "_4Ck2K8yjCwOdNf_AwntIS7qUI08GTDe"
}
```

8. Now, trying to delete xyz.txt version using the s3 management console we get error message.



3. Syncing files between two s3 buckets.

1. Creating Source bucket and enabling versioning to it.

```
PS C:\Users\cr7su> aws s3api create-bucket --bucket source-bucket-for-sumit
--region ap-south-1 --create-bucket-configuration LocationConstraint=ap-south-1
{
  "Location": "http://source-bucket-for-sumit.s3.amazonaws.com/"
}

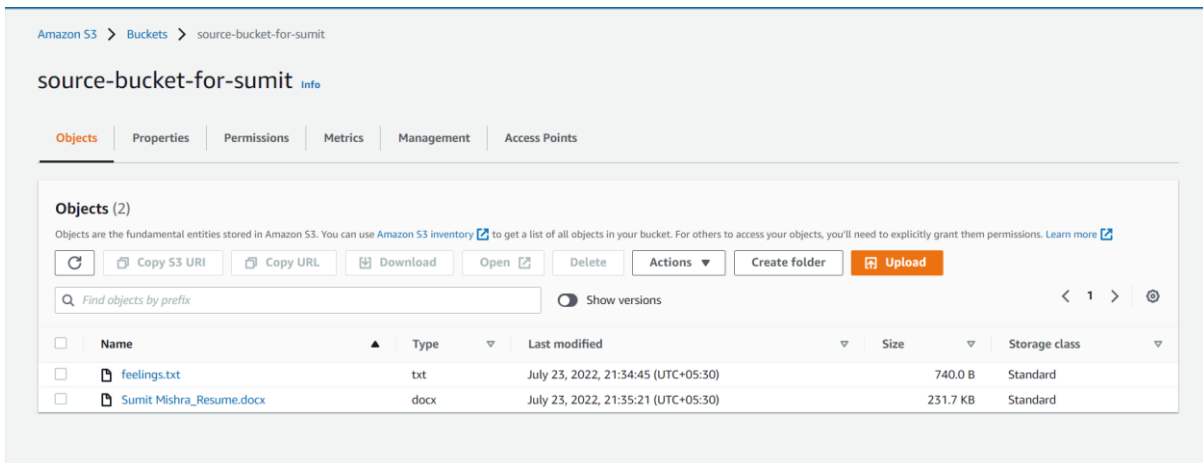
PS C:\Users\cr7su>
PS C:\Users\cr7su>
PS C:\Users\cr7su>
PS C:\Users\cr7su>
PS C:\Users\cr7su>
PS C:\Users\cr7su>
PS C:\Users\cr7su> aws s3api put-bucket-versioning --bucket source-bucket-for-sumit --versioning-configuration Status=Enabled
PS C:\Users\cr7su> |
```

2. Creating the destination bucket and enabling versioning to it.

```
PS C:\Users\cr7su> aws s3api create-bucket --bucket destn-bucket-for-sumit --region ap-south-1 --create-bucket-configuration LocationConstraint=ap-south-1
{
  "Location": "http://destn-bucket-for-sumit.s3.amazonaws.com/"
}

PS C:\Users\cr7su> aws s3api put-bucket-versioning --bucket destn-bucket-for-sumit --versioning-configuration Status=Enabled
PS C:\Users\cr7su> |
```

3. Uploading some files into the source bucket.



Amazon S3 > Buckets > source-bucket-for-sumit

source-bucket-for-sumit [Info](#)

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](#)

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

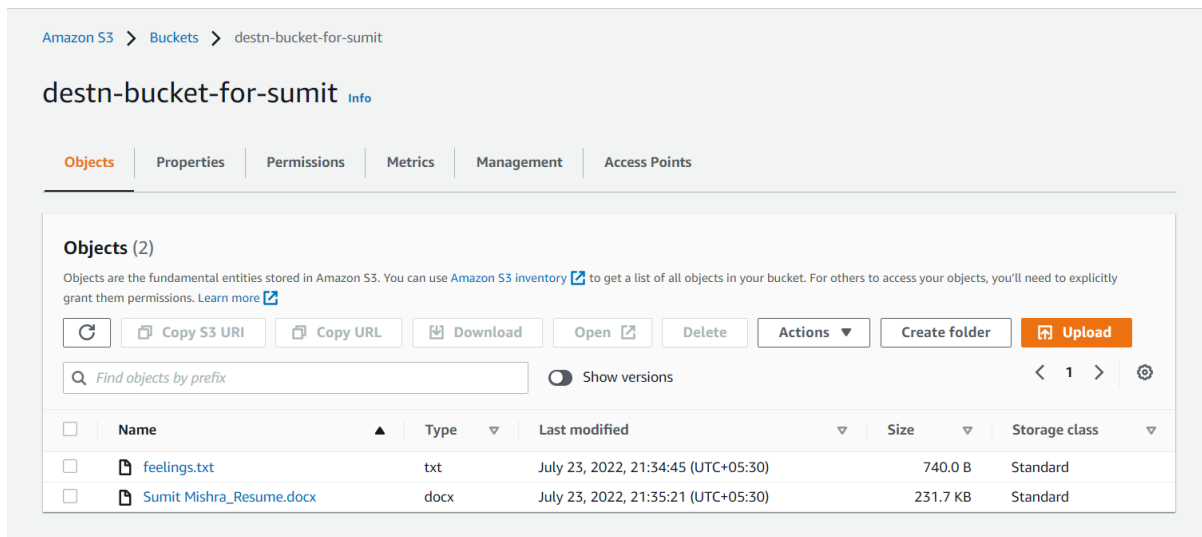
☐ Show versions < 1 >

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	feelings.txt	txt	July 23, 2022, 21:34:45 (UTC+05:30)	740.0 B	Standard
<input type="checkbox"/>	Sumit Mishra_Resume.docx	docx	July 23, 2022, 21:35:21 (UTC+05:30)	231.7 KB	Standard

4. Syncing the files from source bucket to destination bucket using CLI.

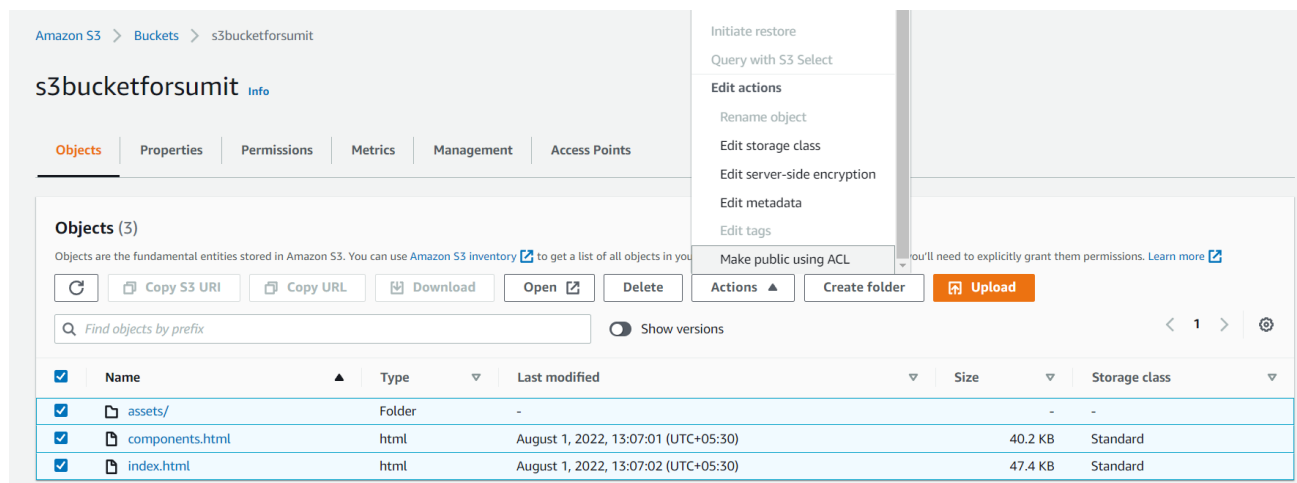
```
PS C:\Users\cr7su> aws s3 sync s3://source-bucket-for-sumit/ s3://destn-bucket-for-sumit/
PS C:\Users\cr7su> |
```

5. Checking if the synced files are being reflected in the destination bucket in the s3 management console.



4. Mounting an s3 bucket on windows.

1. Create an S3 bucket on AWS console and upload some files into it.
2. Make them public using ACL.



3. Allow versioning to the bucket.

Amazon S3 > Buckets > s3bucketforsumit > Edit Bucket Versioning

Edit Bucket Versioning [Info](#)

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

☐ Suspend
This suspends the creation of object versions for all operations but preserves any existing object versions.

☒ **Enable**

Multi-factor authentication (MFA) delete
An additional layer of security that requires multi-factor authentication for changing Bucket Versioning settings and permanently deleting object versions. To modify MFA delete settings, use the AWS CLI, AWS SDK, or the Amazon S3 REST API. [Learn more](#)

Disabled

Cancel **Save changes**

- Download tntdrive from the internet and install it.
- Create an IAM user for accessing the s3 bucket.

IAM > Users

Users (1) [Info](#)

An IAM user is an identity with long-term credentials that is used to interact with AWS in an account.

[Refresh](#) [Delete](#) [Add users](#)

	User name	Groups	Last activity	MFA	Password age	Active key age
<input type="checkbox"/>	s3-sumit	None	Never	None	None	Now

6. Open Tntdrive, select new user, provide the access key and secret access key for the IAM user created and click on add new account.

Add New Account [online help](#)

Enter new account details and click Add new account

Account Name:
Sumit-s3-iam
Assign any name to your account

Account Type:
Amazon S3
Choose the storage you want to work with. Default is Amazon S3 Storage.

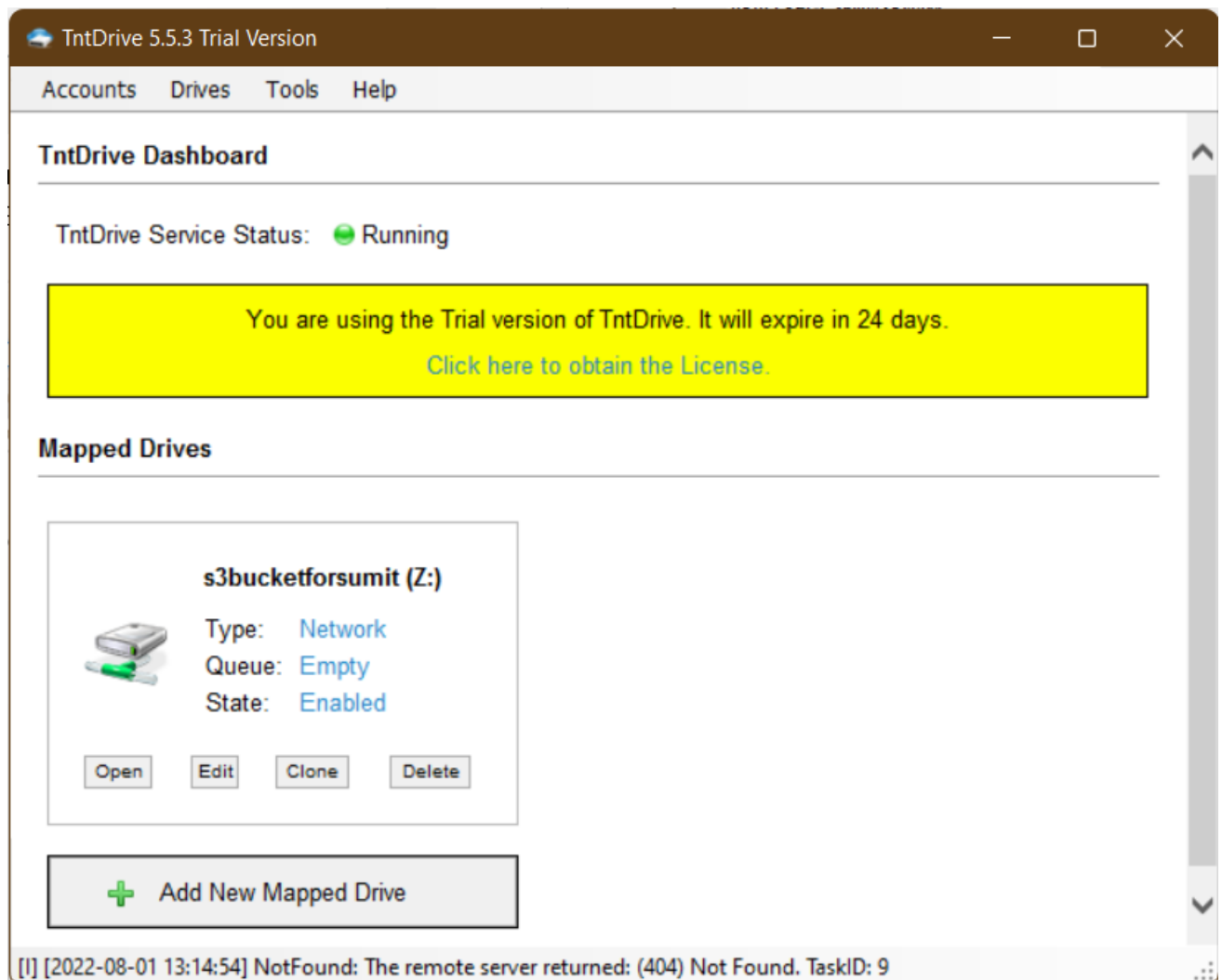
Access Key ID:
AKIATYFGC35IN4XKI44M
Required to sign the requests you send to Amazon S3, see more details at <https://tntdrive.com/keys>

Secret Access Key:
.....
Required to sign the requests you send to Amazon S3, see more details at <https://tntdrive.com/keys>

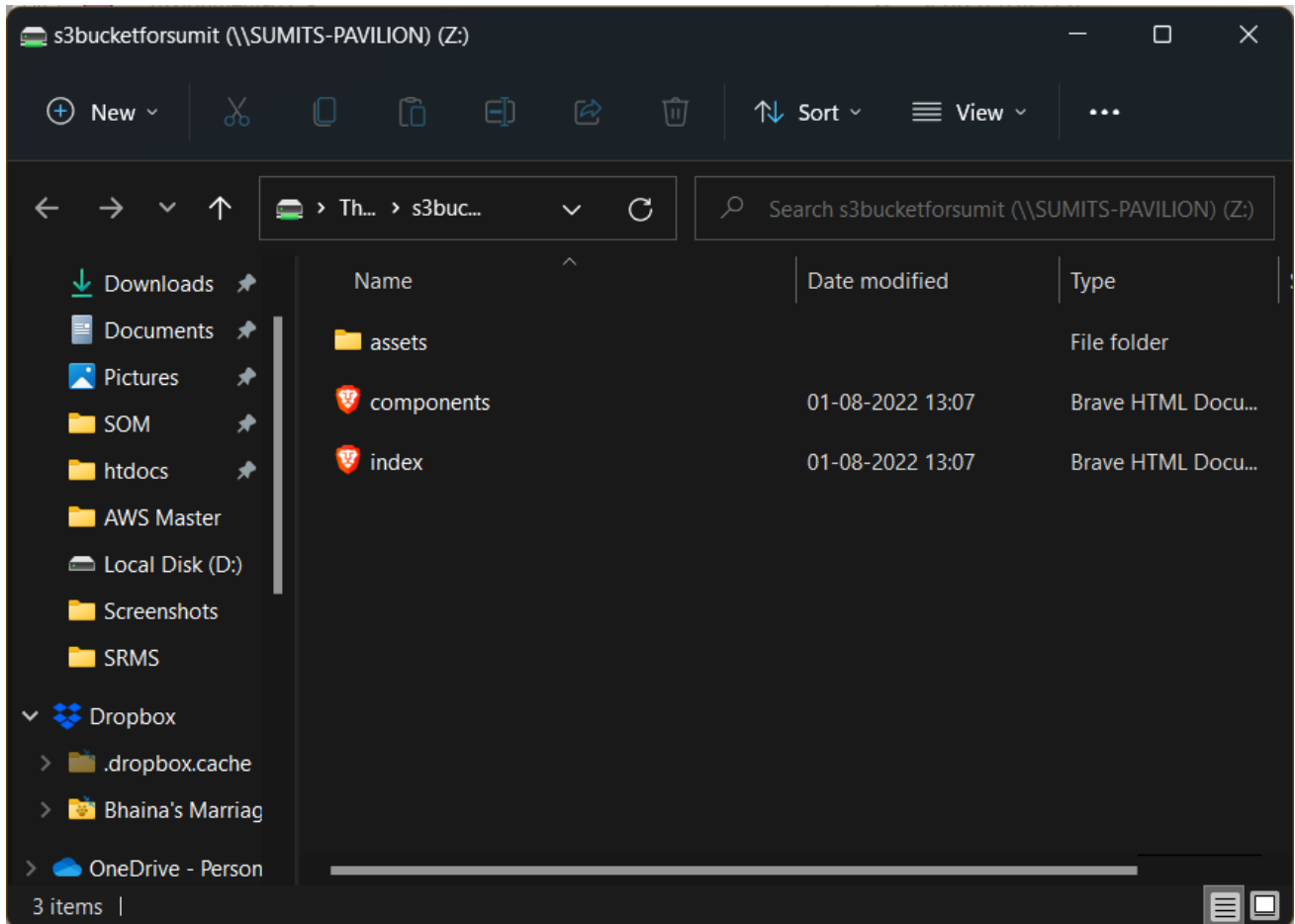
☒ Use secure transfer (SSL/TLS)
If checked, all communications with the storage will go through encrypted SSL/TLS channel

[Click here to sign up for Amazon S3](#)

7. Then click on add new mapped drive, type the name of the s3 bucket and click on create.



8. On opening we can see the contents of the bucket on windows file explorer.



9. Adding a folder name `folder_sumit`, we can see that folder being reflected on the AWS S3 bucket console also.

