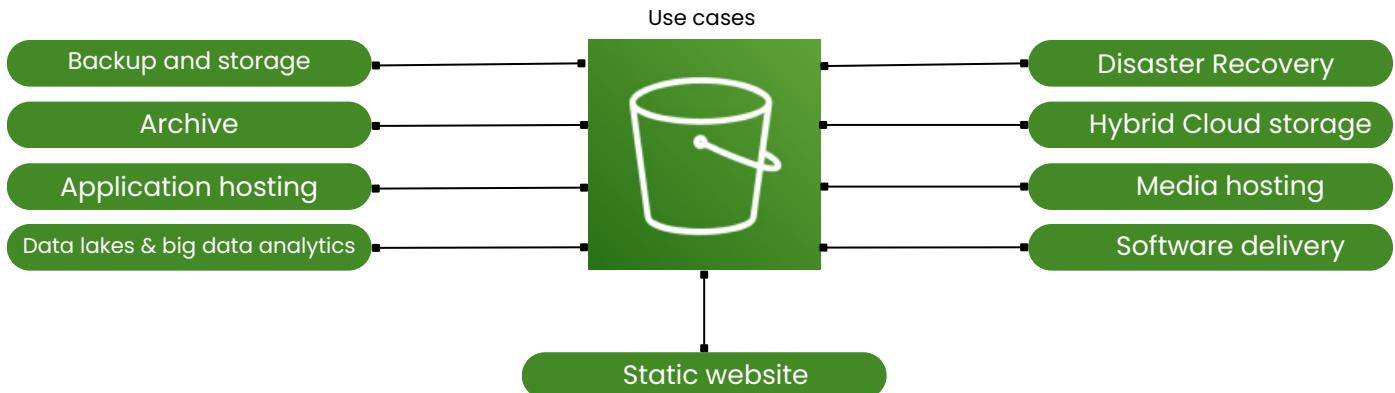




Amazon S3

Amazon S3 is an important part of AWS

- It can store a huge amount of data without limits.
- Many websites depend on Amazon S3 for storage.
- Many AWS services also connect with Amazon S3.



Amazon S3 - Hand On

- I'll create a Terraform script to set up an S3 bucket in the us-west-2 region and add some objects with structured keys to simulate folders

Steps to Follow

- Install Terraform (if not installed)
- Set up AWS credentials using aws configure
- Create a Terraform file (**main.tf**)
- Initialize and apply Terraform to create the S3 bucket and upload files

```

burhan@Hensex:~/terraform$ aws configure
AWS Access Key ID [*****VL3N]:
AWS Secret Access Key [*****pp2]:
Default region name [us-west-2]:
Default output format [None]:
burhan@Hensex:~/terraform$ 
  
```

Amazon S3 Created by Terraform



```
terraform {
  required_providers {
    aws = {
      source  = "hashicorp/aws"
      version = "5.78.0"
    }
  }
}

provider "aws" {
  region = "us-west-2"
}

# Create the S3 Bucket
resource "aws_s3_bucket" "my_bucket" {
  bucket = "burhan1009" # Change this to a globally unique name
}

# Create an empty "directory" by adding an empty object
resource "aws_s3_object" "folder1" {
  bucket = aws_s3_bucket.my_bucket.id
  key    = "travel/" # Creates a folder named "travel"
  source = "/dev/null" # Creates an empty object (simulates a folder)
}

resource "aws_s3_object" "folder2" {
  bucket = aws_s3_bucket.my_bucket.id
  key    = "travel/italy/" # Creates a sub-folder "italy" inside "travel"
  source = "/dev/null" # Creates an empty object (simulates a folder)
}
```

```
burhan@Hensex:~/terraform$ ls
burhan@Hensex:~/terraform$ vim main.tf
burhan@Hensex:~/terraform$ terraform init
Initializing the backend...
Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.85.0...
```

```
burhan@Hensex:~/terraform$ terraform plan

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create

Terraform will perform the following actions:

# aws_s3_bucket.my_bucket will be created
+ resource "aws_s3_bucket" "my_bucket" {
  + acceleration_status      = (known after apply)
  + acl                      = (known after apply)
  + arn                      = (known after apply)
  + bucket                   = "burhan1009" (arrow)
  + bucket_domain_name       = (known after apply)
  + bucket_prefix             = (known after apply)
```

```
burhan@Hensex:~/terraform$ terraform apply

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
+ create

Terraform will perform the following actions:

# aws_s3_bucket.my_bucket will be created
+ resource "aws_s3_bucket" "my_bucket" {
  + acceleration_status      = (known after apply)
  + acl                      = (known after apply)
  + arn                      = (known after apply)
  + bucket                   = "burhan1009"
  + bucket_domain_name       = (known after apply)
  + bucket_prefix             = (known after apply)
  + bucketRegionalDomainName = (known after apply)
  + force_destroy             = false
```

```
aws_s3_bucket.my_bucket: Creating...
aws_s3_bucket.my_bucket: Creation complete after 6s [id=burhan1009]
aws_s3_object.folder1: Creating...
aws_s3_object.folder2: Creating...
aws_s3_object.folder2: Creation complete after 1s [id=travel/italy/]
aws_s3_object.folder1: Creation complete after 1s [id=travel/]
```

Amazon S3 Created by Terraform



General purpose buckets (1) [Info](#) [All AWS Regions](#)

Buckets are containers for data stored in S3.

Find buckets by name

| Name | AWS Region |
|----------------------------|----------------------------|
| burhan1009 | US West (Oregon) us-west-2 |

[Amazon S3](#) > [Buckets](#) > [burhan1009](#) > [travel/](#) > [italy/](#)

Amazon S3

- General purpose buckets
- Directory buckets
- Table buckets
- Access Grants
- Access Points
- Object Lambda Access Points
- Multi-Region Access Points
- Batch Operations
- IAM Access Analyzer for S3

Block Public Access settings for this account

italy/

[Objects](#) [Properties](#)

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 other

Find objects by prefix

| Name | Type |
|------|------|
|------|------|

No objects
You don't have any objects in this folder

[Upload](#)

Destroy s3

```
burhan@Hensex:~/terraform$ terraform destroy
aws_s3_bucket.my_bucket: Refreshing state... [id=burhan1009]
aws_s3_object.folder2: Refreshing state... [id=travel/italy/]
aws_s3_object.folder1: Refreshing state... [id=travel/]

Terraform used the selected providers to generate the following execution plan. Resource actions are indicated with the following symbols:
- destroy

Terraform will perform the following actions:

# aws_s3_bucket.my_bucket will be destroyed
- resource "aws_s3_bucket" "my_bucket" {
  - arn = "arn:aws:s3:::burhan1009" -> null
  - bucket = "burhan1009" -> null
  - bucket_domain_name = "burhan1009.s3.amazonaws.com" -> null
  - bucketRegionalDomainName = "burhan1009.s3.us-west-2.amazonaws.com" -> null
  - force_destroy = false -> null
}
```

[General purpose buckets](#) [Directory buckets](#)

General purpose buckets [Info](#) [All AWS Regions](#)

Buckets are containers for data stored in S3.

Find buckets by name

| Name | AWS Region |
|------|------------|
|------|------------|

[IAM Access Analyzer](#) [Creation date](#)

No buckets
You don't have any buckets.

[Create bucket](#)

The example we took is for creating an S3 bucket through Terraform.

Amazon S3 Created by Amazon



Storage

Amazon S3

Store and retrieve any amount of data from anywhere

Amazon S3 is an object storage service that offers industry-leading scalability, data availability, security, and performance.

Create a bucket

Every object in S3 is stored in a bucket. To upload folders to S3, you'll need to create a bucket where your files will be stored.

Create bucket

Click On Create Bucket

Create bucket Info

Buckets are containers for data stored in S3.

General configuration

AWS Region
US West (Oregon) us-west-2

Bucket type Info

- General purpose
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

Bucket name Info
burhan1009

Bucket name must be unique within the global namespace and follow the bucket naming rules. [See rules for bucket naming](#) [↗]

Object Ownership Info

Control ownership of objects written to this bucket

ACLs disabled (recommended)
All objects in this bucket are owned by this account. A bucket owner can always change ownership of objects in the bucket.

Object Ownership
Bucket owner enforced

Block Public Access settings for this bucket

Public access is granted to buckets and objects through AWS Lambda functions. You can use Lambda functions to apply only to this bucket and its access points. AWS Lambda functions can grant public access to this bucket or objects within it, you can also use them to block public access.

Block all public access
Turning this setting on is the same as turning on all four of the following options:

General purpose buckets (1) Info All AWS Regions

Buckets are containers for data stored in S3.

| Name | AWS Region |
|------------|----------------------------|
| burhan1009 | US West (Oregon) us-west-2 |

Create bucket

Amazon S3 Created by Amazon



Amazon s3 create folder

- click on create folder or sub folder

burhan1009 Info

Objects | **Metadata** | **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](#)

Find objects by prefix

Name ▲ | Type ▾ | Last modified ▾ | Size ▾ | Storage class ▾

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

[Upload](#)

Folder

Folder name

travel

Folder names can't contain "/". [See rules for naming](#)

Folder

Folder name

italy

Folder names can't contain "/". [See rules for naming](#)

Amazon s3 create folder

- Folder Structure Travel > Italy > photo.jpg

Amazon S3 > Buckets > burhan1009 > travel/ > italy/ > Upload

Upload Info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDKs or Amazon S3 REST API. [Learn more](#)

Drag and drop files and folders you want to upload here, or choose [Add files](#) or [Add folder](#)

Files and folders (0)

All files and folders in this table will be uploaded.

Find by name

Name ▲ | Folder ▾ | Type ▾

No files or folders
You have not chosen any files or folders to upload.

Amazon S3 > Buckets > burhan1009 > travel/ > italy/

italy/

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. [Learn more](#)

Find objects by prefix

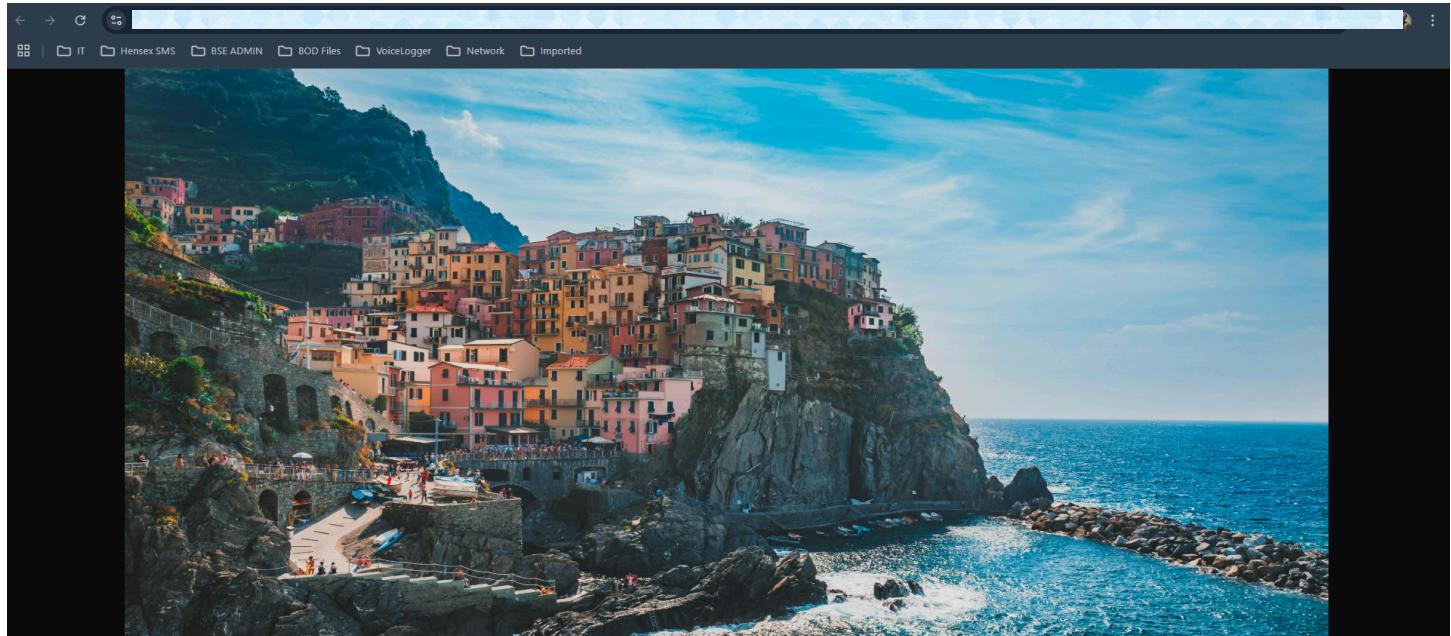
| Name | Type |
|---|------|
| <input checked="" type="checkbox"/> photo.jpg | jpg |

Amazon S3 Created by Amazon



Amazon s3 File Upload

- photo.jpg



Creating an S3 Bucket with Terraform

- Terraform is an **infrastructure-as-code** tool used to manage cloud resources.
- AWS S3 (Simple Storage Service) is a service that allows storing files in the cloud.
- In Terraform, an **S3 bucket** is created using the **aws_s3_bucket resource**.
- You can simulate directories in S3 by using object keys that end with a slash (/), as S3 doesn't have native directories.
- No files are uploaded in this example, only empty "**folders**" (**objects with a / key**) are created.

Key Terraform Resources Used

- **aws_s3_bucket:** Defines the S3 bucket.
- **aws_s3_object:** Defines an empty object, which simulates a folder in S3 by using a / in the key name.