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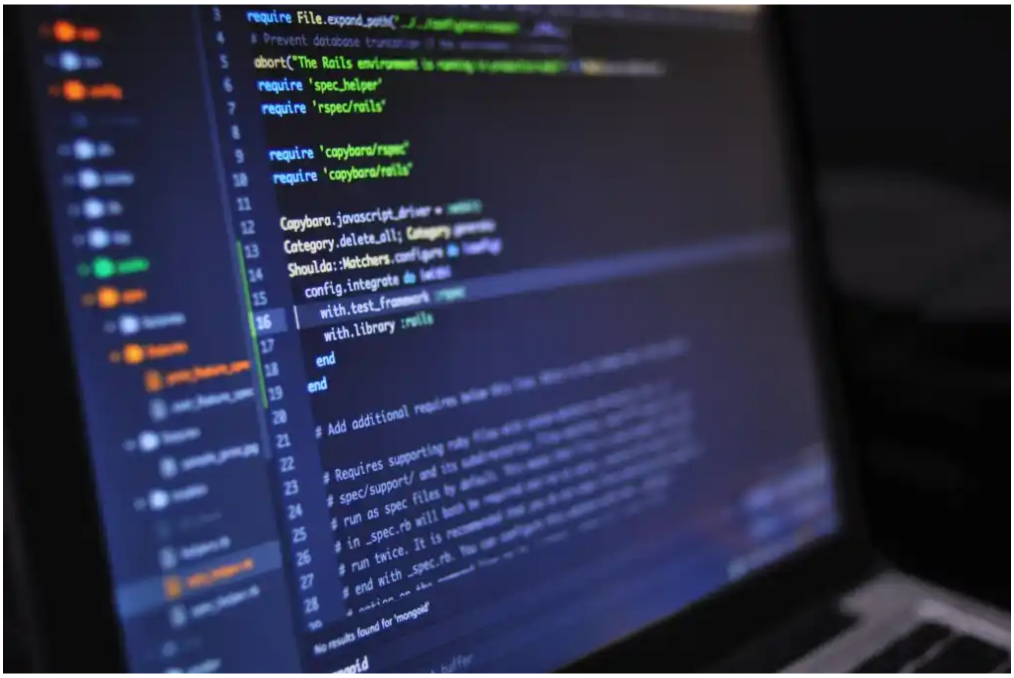
How to Create a Storage Bucket in GCP with Terraform?



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Reading Time: 3 minutes

In this article, we are going to provision a Cloud Storage Bucket and maintain it with the help of terraform.

Let us first understand cloud storage first

What is Cloud Storage(Buckets)?

Cloud Storage is the Google Cloud platform's object storage system. Objects here can be of any type, either files or large binary objects. These objects are organized into buckets. Please note that cloud storage is not a file system. A service that receives, stores, and retrieves files and objects. You can also access it from your VM.

Each stored object is uniquely addressable via a URL. You can also assign an IAM role to allow your application to read and write to your bucket.

Creating a Bucket?

Creating a Bucket in Google cloud is quite simple and there are various ways through which you can create a bucket such as:

1. Through Console
2. Through Gcloud Cli
3. IAC

In this blog, we are going to use terraform which is an Infrastructure as a code tool and we will be learning how you can create a Bucket with it.

Let's Create a Main.tf file first

Add Provider for terraform

Whenever we want to use terraform, the first thing we do is define a provider, which in our case today is google.

```
provider "google" {
credentials = file("~/gcp/access-keys.json")
project = var.project_id

}
```

In the provider, we have also defined the path of the credentials that will be used for authentication and also mentioned the project ID.

Create a Bucket resource variables file

Before creating a Bucket resource let's create a few variables that we will be using

```
variable "bucket_name" {
  type = string
  Description = "The name of our bucket"
}
variable "bucket_location" {
  type = string
  default = "us-east1"
}
variable "project_id" {
  type = string
}
variable "storage_class" {
  type = string
}
```

We have defined these four variables i.e

1. bucket name – which will be used for defining the bucket name
2. Bucket location – location of the GCS
3. project id – which defines the project id we will use
4. storage class – it will define the storage class for the bucket.

Create a Google storage Bucket resource

```
resource "google_storage_bucket" "default" {
  name = var.bucket_name
  storage_class = var.storage_class
  location = var.bucket_location
}
```

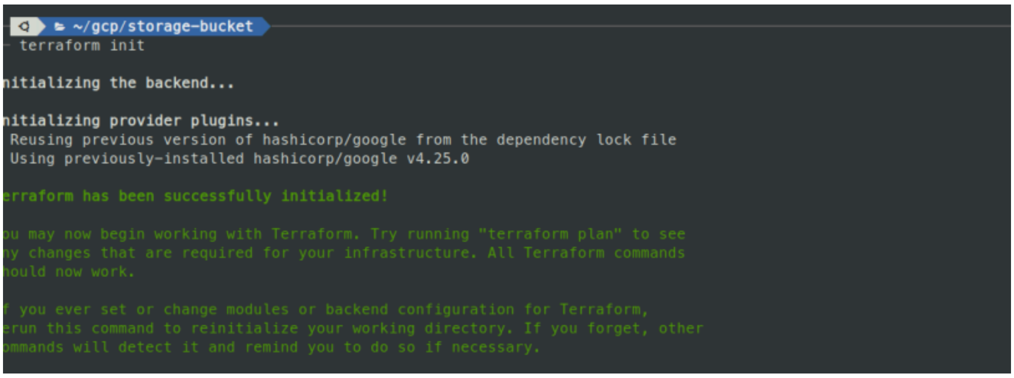
Here you can also enable versioning or encryption and lifecycle for this bucket You can explore these resources in the official terraform documentation. The storage class we will be using here is REGIONAL, If you don't provide a storage class then google by default gives STANDARD as a storage class. It also supports other options as well such as MULTI_REGIONAL, NEARLINE, COLD LINE, and ARCHIVE. You can select any of them as your use case describes.

Let's add another file terraform.tfvars and pass the values for the variables we created

```
bucket_name = "my-bucket-tf"
storage_class = "REGIONAL"
project_id = "neon-semiotics-351410"
```

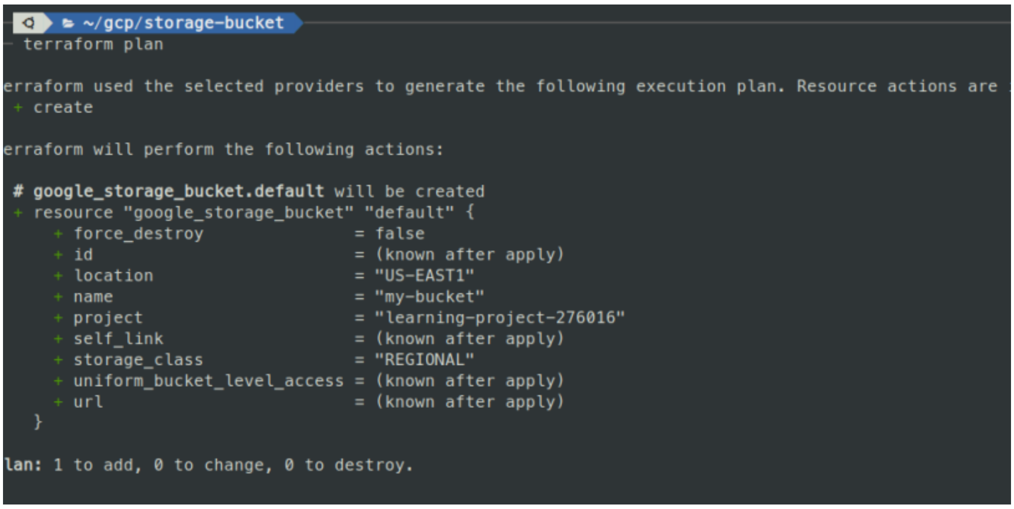
Let's provision these resources with the help of Terraform

```
terraform init
```



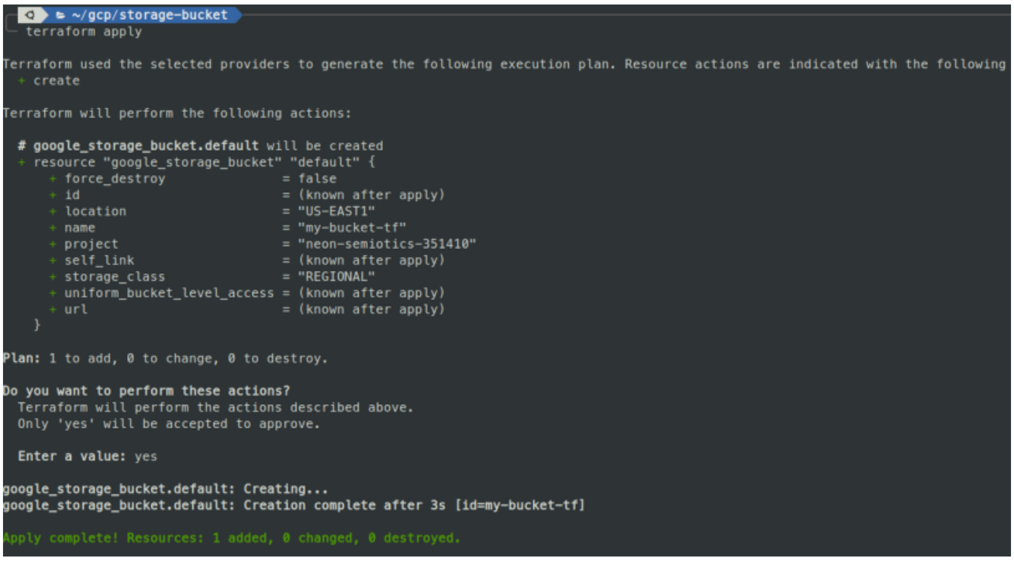
```
 ~/gcp/storage-bucket
─ terraform init

nitializing the backend...

nitializing provider plugins...
 Reusing previous version of hashicorp/google from the dependency lock file
 Using previously-installed hashicorp/google v4.25.0

erraform has been successfully initialized!

ou may now begin working with Terraform. Try running "terraform plan" to see
ny changes that are required for your infrastructure. All Terraform commands
hould now work.

f you ever set or change modules or backend configuration for Terraform,
erun this command to reinitialize your working directory. If you forget, other
ommands will detect it and remind you to do so if necessary.
```

Run terraform Plan



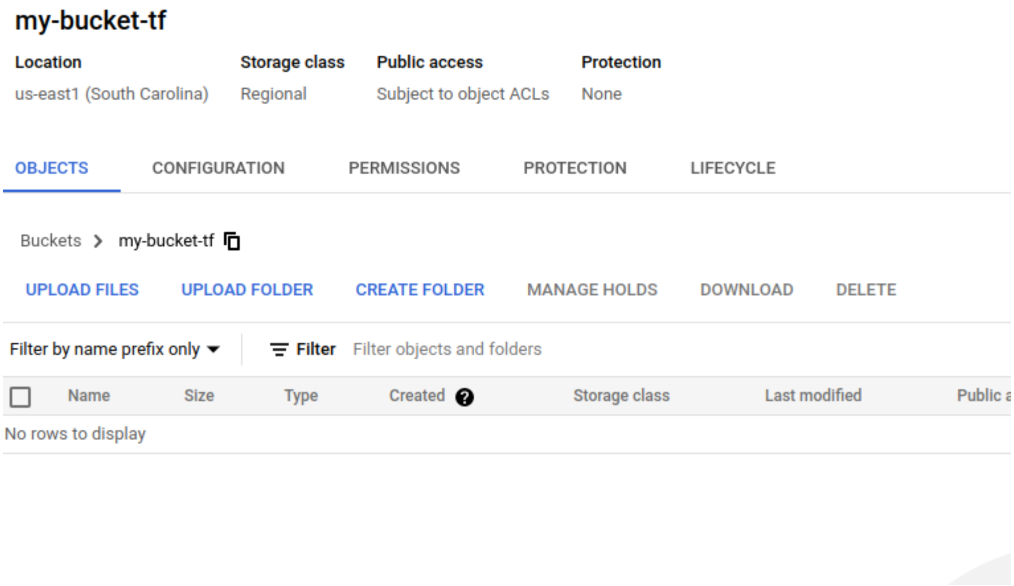
```
 ~/gcp/storage-bucket
─ terraform plan

erraform used the selected providers to generate the following execution plan. Resource actions are
 + create

erraform will perform the following actions:

 # google_storage_bucket.default will be created
 + resource "google_storage_bucket" "default" {
     + force_destroy               = false
     + id                          = (known after apply)
     + location                    = "US-EAST1"
     + name                        = "my-bucket"
     + project                     = "learning-project-276016"
     + self_link                   = (known after apply)
     + storage_class               = "REGIONAL"
     + uniform_bucket_level_access = (known after apply)
     + url                         = (known after apply)
   }

lan: 1 to add, 0 to change, 0 to destroy.
```

The terraform plan looks fine, Now we can run terraform apply



```
~/gcp/storage-bucket
 terraform apply

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

Terraform will perform the following actions:

  # google_storage_bucket.default will be created
  + resource "google_storage_bucket" "default" {
      + force_destroy               = false
      + id                          = (known after apply)
      + location                    = "US-EAST1"
      + name                        = "my-bucket-tf"
      + project                     = "neon-semiotics-351410"
      + self_link                   = (known after apply)
      + storage_class               = "REGIONAL"
      + uniform_bucket_level_access = (known after apply)
      + url                         = (known after apply)
    }

Plan: 1 to add, 0 to change, 0 to destroy.

Do you want to perform these actions?
  Terraform will perform the actions described above.
  Only 'yes' will be accepted to approve.

  Enter a value: yes

google_storage_bucket.default: Creating...
google_storage_bucket.default: Creation complete after 3s [id=my-bucket-tf]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
```

The terraform Plan is also successful, As you can see it has created resources Now to verify it we can log in to the console and check if it has created this resource.



my-bucket-tf

Location	Storage class	Public access	Protection
us-east1 (South Carolina)	Regional	Subject to object ACLs	None

Buckets > my-bucket-tf

□	Name	Size	Type	Created	Storage class	Last modified	Public a

No rows to display

You can see it has created your GCS resource and now you can use it for storing purposes.

Conclusion

In this blog we saw, how we can provision a GCS bucket with the help of Terraform, You can also use this for storing your tfstate , if you liked this blog please do comment and share. If you want to explore more on this resource, You can visit this official documentation (https://registry.terraform.io/providers/hashicorp/google/latest/docs/resources/storage_bucket#argument-reference) from terraform itself.

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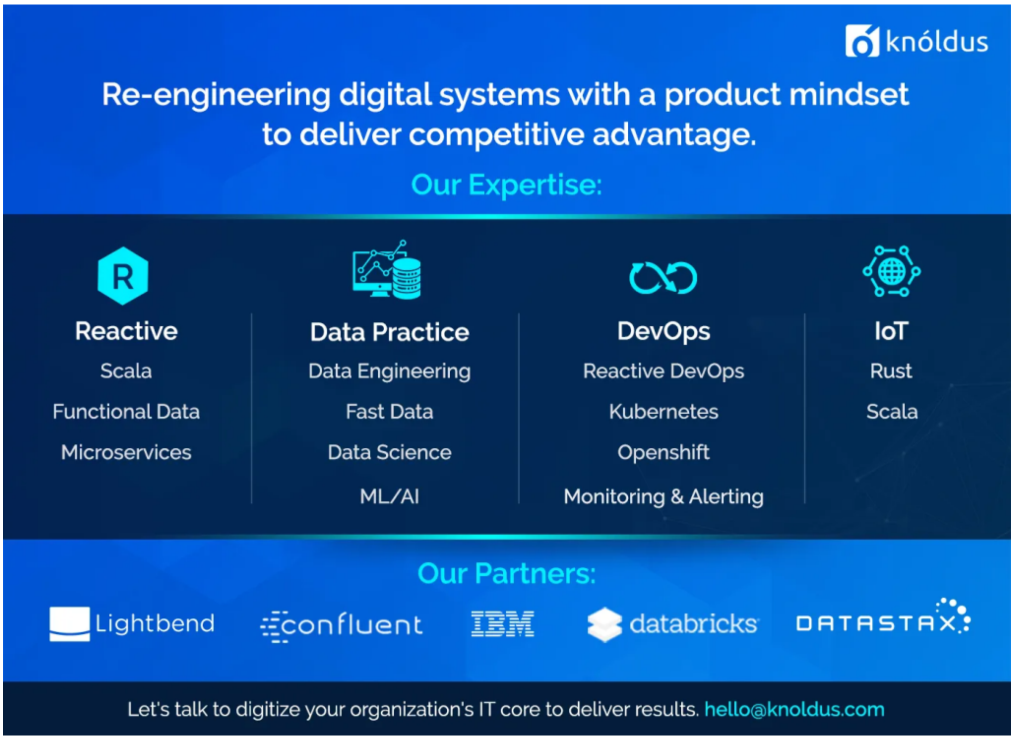

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Passionate about Technology and always Interested to Upskill myself in new technology, Working in the field of DevOps

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