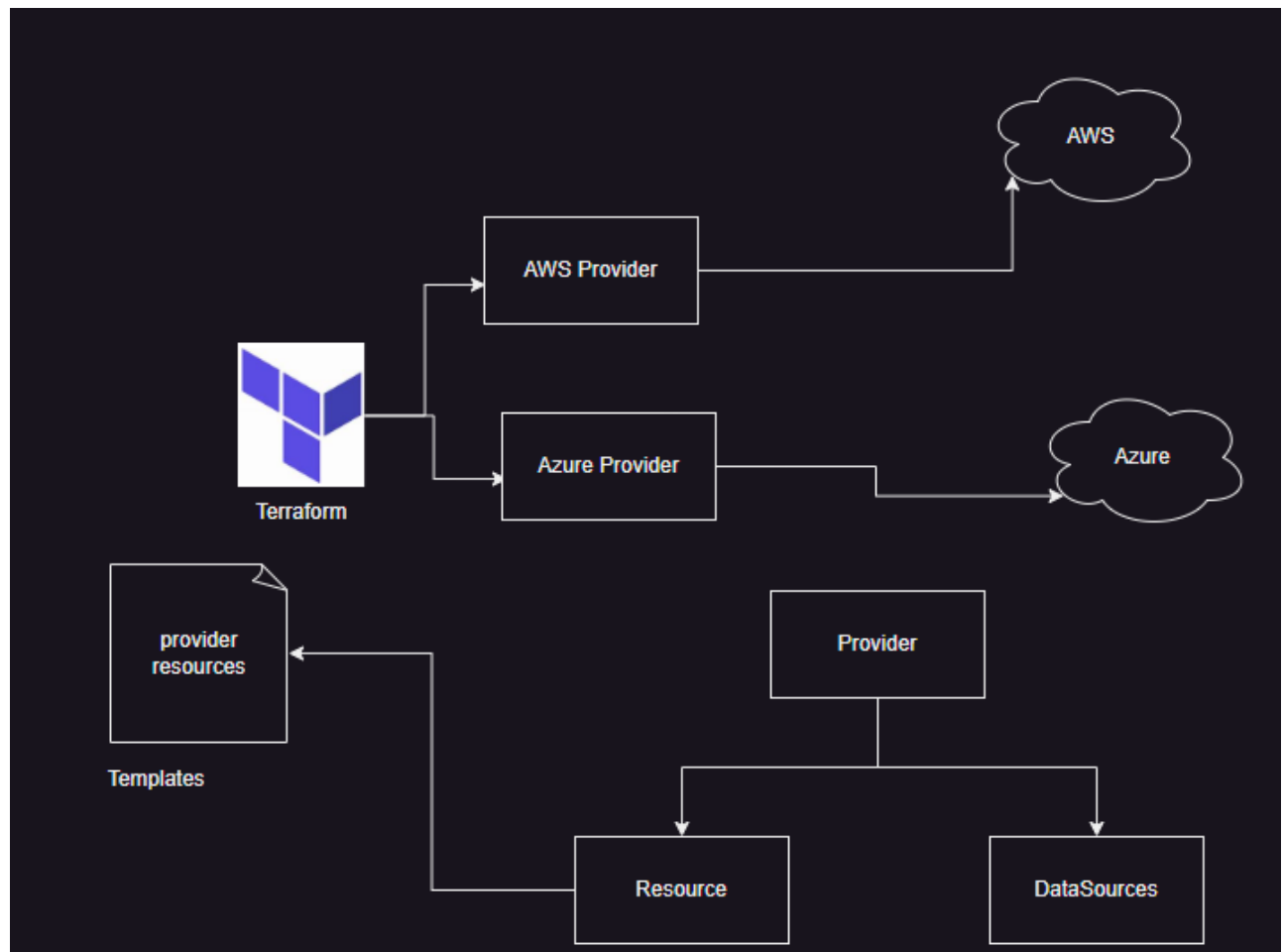


How Terraform Works

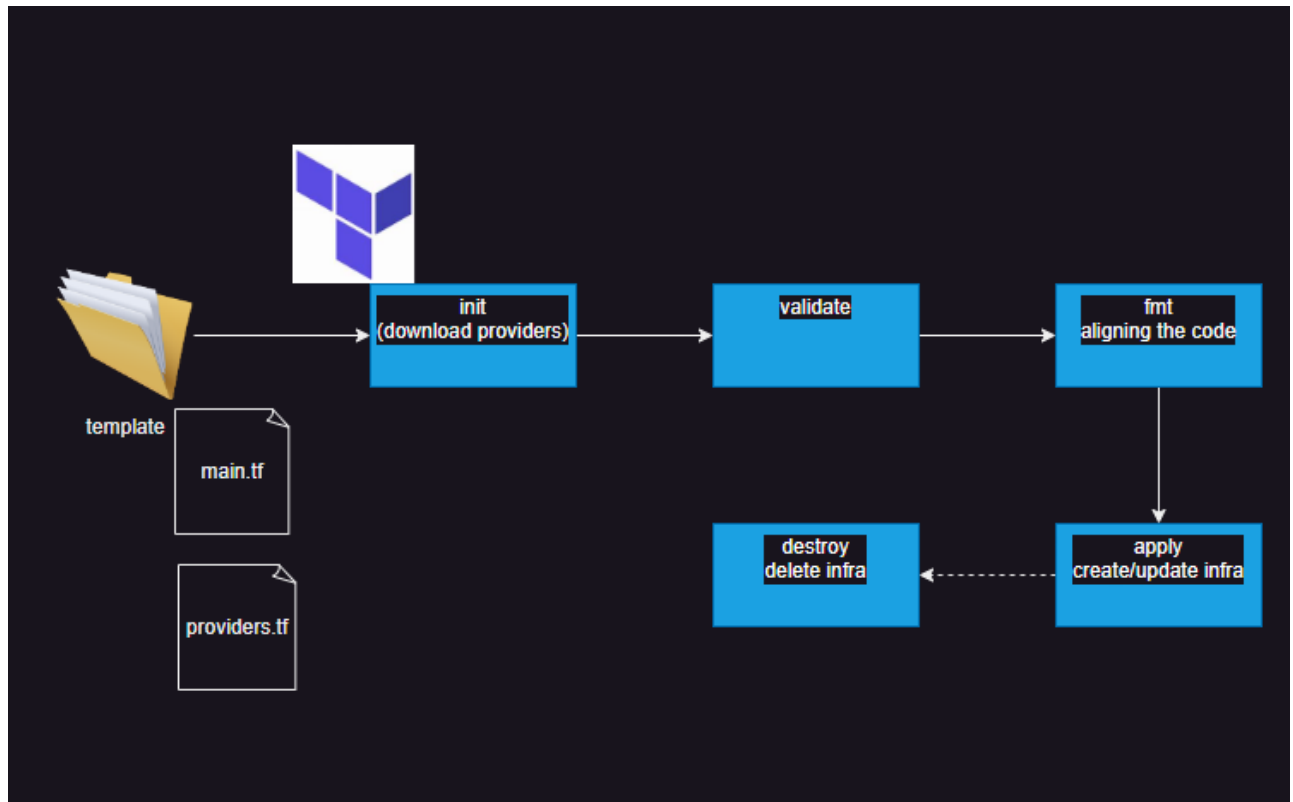
- Overview



- Terraform is a single executable.
- Terraform has the capability to communicate with multiple clouds or virtualization platforms to create infra via providers
- Each provider has
 - Resources: What can be created
 - DataSources: query the cloud/virtualization platform
- We would be creating templates where we define
 - provider
 - resources
- For authoring Templates, Terraform uses declarative approach via a language called as Hashicorp Configuration Language (HCL).

Workflow

- Terraform workflow

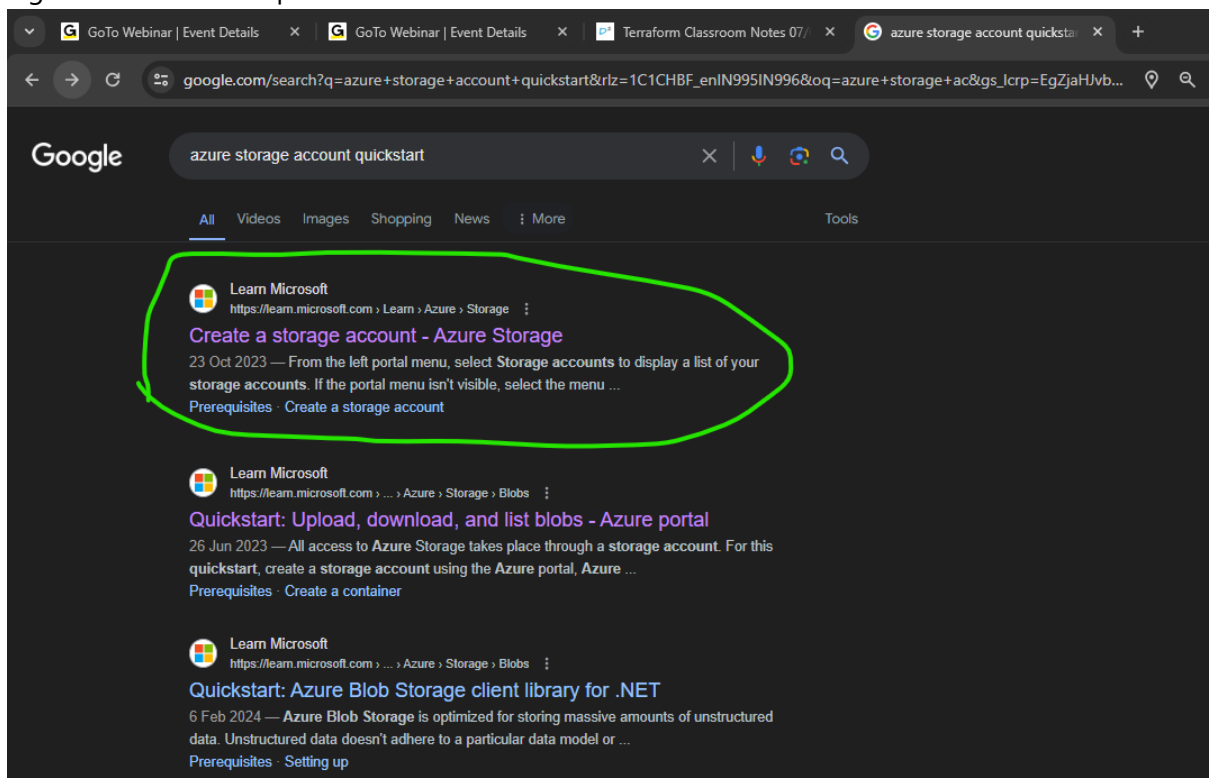


Setting up Terraform

- Downloading terraform [Refer Here](#)

Activity 1: Creating a storage account in Azure

- First Step:
 - Figure out manual steps [Refer Here](#)



- Azure needs a resource group

- Create a storage account

Home > Storage accounts >

Create a storage account

manage your storage account together with other resources.

Subscription *

Resource group * [Create new](#)

Instance details

Storage account name *

Region * [Deploy to an Azure Extended Zone](#)

Performance * ☒ **Standard:** Recommended for most scenarios (general-purpose v2 account)
☐ **Premium:** Recommended for scenarios that require low latency.

Redundancy * ☒ Make read access to data available in the event of regional unavailability.

[Previous](#) [Next](#) [Review + create](#)

Home > tfdemo8may_1715136635306 | Overview >

tfdemo8may Storage account

Search

Upload Open in Explorer Delete Move Refresh Open in mobile CLI / PS Feedback

Overview

- Activity log
- Tags
- Diagnose and solve problems
- Access Control (IAM)
- Data migration
- Events
- Storage browser
- Storage Mover

Data storage

- Containers
- File shares
- Queues
- Tables

Security + networking

Essentials

Resource group ([move](#))
[terraformdemo](#)

Location
 centralindia

Primary/Secondary Location
 Primary: Central India, Secondary: South India

Subscription ([move](#))
[Azure subscription 1](#)

Subscription ID
 7ee23928-6bf0-4a1b-8e1d-b854f8f98d81

Disk state
 Primary: Available, Secondary: Available

Tags ([edit](#))
[Add tags](#)

Properties Monitoring Capabilities (7) Recommendations (0) Tutorials Tools + SDKs

Performance
 Standard

Replication
 Read-access geo-redundant storage (RA-GRS)

Account kind
 StorageV2 (general purpose v2)

Provisioning state
 Succeeded

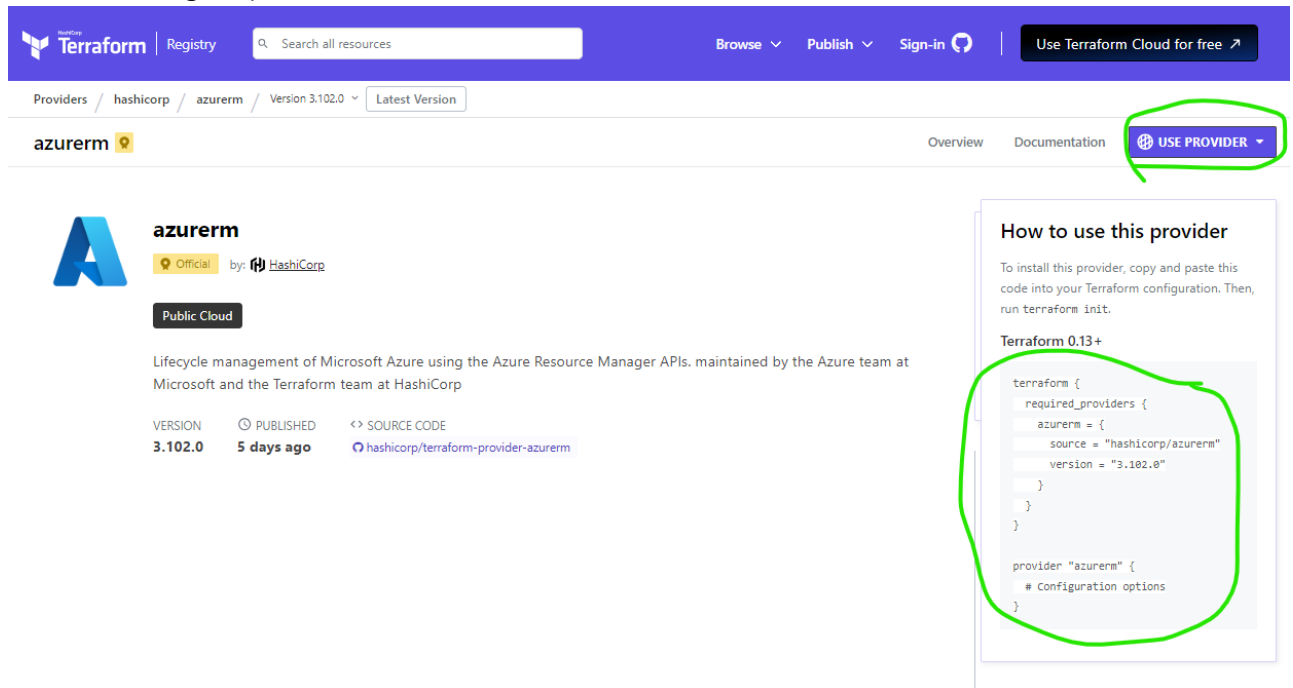
Created
 5/8/2024, 8:20:45 AM

[JSON View](#)

[Blob service](#) [Security](#)

- Roughly our inputs
 - resource group name
 - location
 - storage account name
 - Redundancy level
- Create a folder `storageaccount` and create a file called as `main.tf`.

- Now lets configure provider [Refer Here](#)



The screenshot shows the Terraform Registry page for the **azurerm** provider. The page header includes the Terraform logo, a search bar, and navigation links like 'Browse', 'Publish', and 'Sign-in'. The breadcrumb trail shows 'Providers / hashicorp / azurerm / Version 3.102.0 / Latest Version'. The main content area displays the **azurerm** provider details, including its official status, version 3.102.0, and a 'USE PROVIDER' button circled in green. A code snippet for configuring the provider is also shown, circled in green.

How to use this provider

To install this provider, copy and paste this code into your Terraform configuration. Then, run `terraform init`.

Terraform 0.13+

```
terraform {
  required_providers {
    azurerm = {
      source = "hashicorp/azurerm"
      version = "3.102.0"
    }
  }
}

provider "azurerm" {
  # Configuration options
}
```

- The template will be as shown below

```
terraform {
  required_providers {
    azurerm = {
      source = "hashicorp/azurerm"
      version = "3.102.0"
    }
  }
}

provider "azurerm" {
  features {
  }
}
```

- Now execute `terraform init`

```
Windows PowerShell
PS C:\khajaclassroom\devops\terraform\May24\azure\storageaccount> terraform init

Initializing the backend...

Initializing provider plugins...
- Finding hashicorp/azurerm versions matching "3.102.0"...
- Installing hashicorp/azurerm v3.102.0...
- Installed hashicorp/azurerm v3.102.0 (signed by HashiCorp)

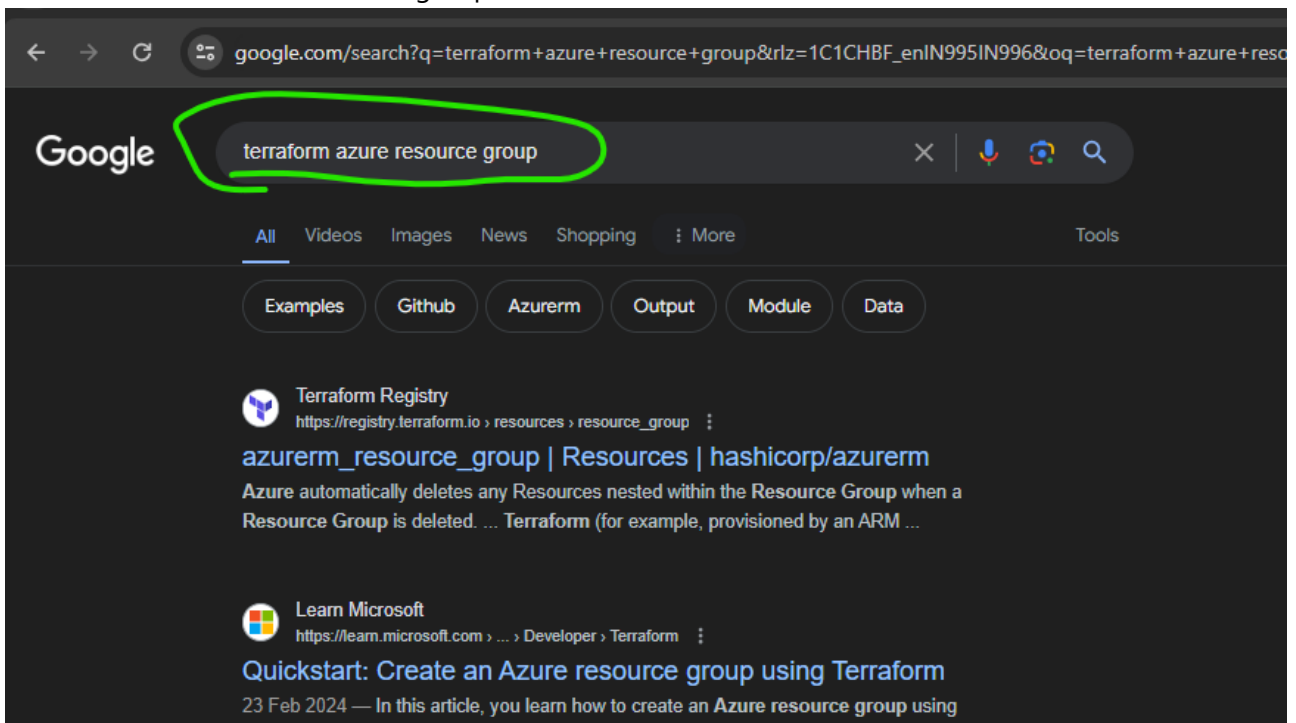
Terraform has created a lock file .terraform.lock.hcl to record the provider
selections it made above. Include this file in your version control repository
so that Terraform can guarantee to make the same selections by default when
you run "terraform init" in the future.

Terraform has been successfully initialized!

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

If you ever set or change modules or backend configuration for Terraform,
rerun this command to reinitialize your working directory. If you forget, other
commands will detect it and remind you to do so if necessary.
PS C:\khajaclassroom\devops\terraform\May24\azure\storageaccount>
```

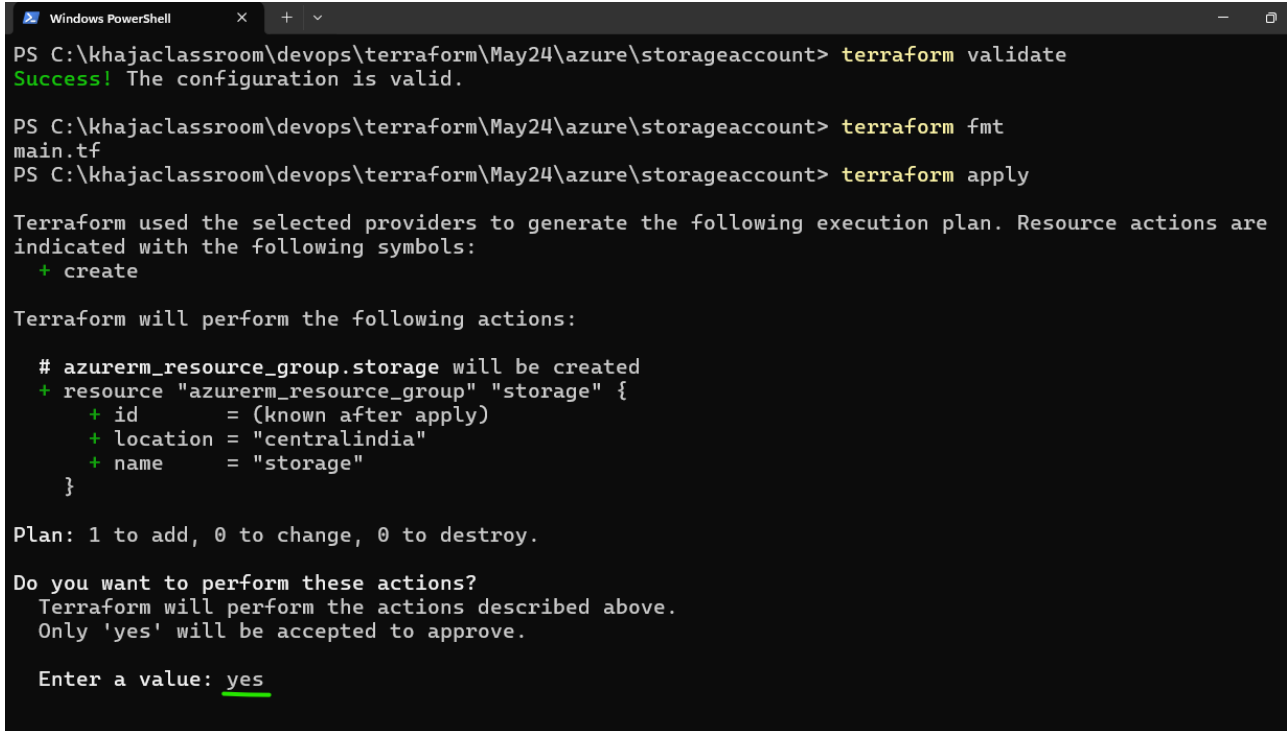
- Terraform provider is downloaded, we need to configure credentials, easiest way to configure credentials is download azure cli [Refer Here](#)
- Once azure cli is installed, launch terminal and execute `az login`
- lets write a resource for resource group



- Now declare the resource

```
resource "azurerm_resource_group" "storage" {
  name      = "storage"
  location = "Central India"
}
```

- Execute the workflow



```
Windows PowerShell
PS C:\khajaclassroom\devops\terraform\May24\azure\storageaccount> terraform validate
Success! The configuration is valid.

PS C:\khajaclassroom\devops\terraform\May24\azure\storageaccount> terraform fmt
main.tf
PS C:\khajaclassroom\devops\terraform\May24\azure\storageaccount> 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:

# azurerm_resource_group.storage will be created
+ resource "azurerm_resource_group" "storage" {
  + id          = (known after apply)
  + location    = "centralindia"
  + name        = "storage"
}

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
```

```

main.tf
PS C:\khajaclassroom\devops\terraform\May24\azure\storageaccount> 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:

# azurerm_resource_group.storage will be created
+ resource "azurerm_resource_group" "storage" {
  + id          = (known after apply)
  + location    = "centralindia"
  + name        = "storage"
}

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

azurerm_resource_group.storage: Creating...
azurerm_resource_group.storage: Creation complete after 9s [id=/subscriptions/7ee23928-6bf0-4a1b-8e1d-b8
54f8f98d81/resourceGroups/storage]

Apply complete! Resources: 1 added, 0 changed, 0 destroyed.
PS C:\khajaclassroom\devops\terraform\May24\azure\storageaccount>

```

Resource groups

khaja.tech (khaja.tech)

[+ Create](#) [Manage view](#) [Refresh](#) [Export to CSV](#) [Open query](#) | [Assign tags](#)











Filter for any field...

Subscription equals all

Location equals all X

[+ Add filter](#)

Showing 1 to 11 of 11 records.

<input type="checkbox"/> Name ↑↓	Subscription ↑↓
<input type="checkbox"/>  cloud-shell-storage-centralindia	Azure subscription 1
<input type="checkbox"/>  DefaultResourceGroup-EUS	applications
<input type="checkbox"/>  DefaultResourceGroup-EUS	Azure subscription 1
<input type="checkbox"/>  desktop	Azure subscription 1
<input type="checkbox"/>  licenseserver	applications
<input type="checkbox"/>  NetworkWatcherRG	applications
<input type="checkbox"/>  NetworkWatcherRG	Azure subscription 1
<input type="checkbox"/>  samplepaas	Azure subscription 1
<input type="checkbox"/>  ssh	Azure subscription 1
<input type="checkbox"/>  storage	Azure subscription 1

- To be continued in next session