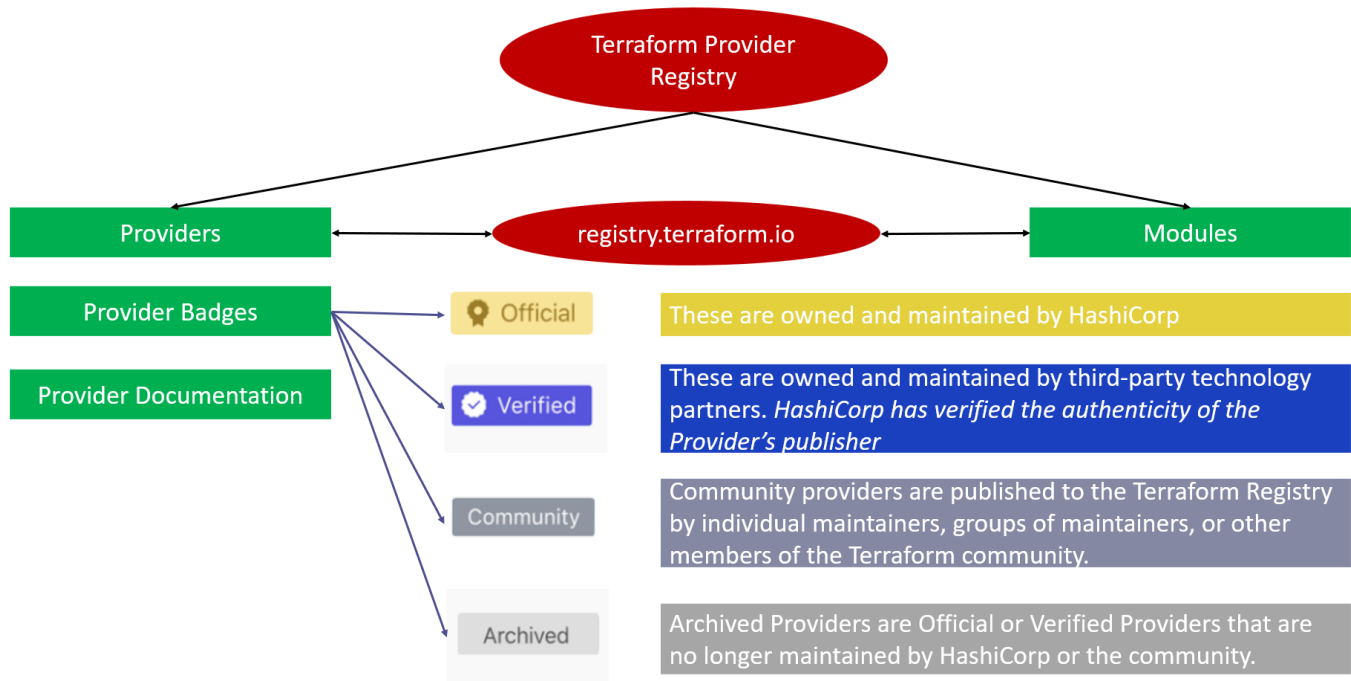# 06-Terraform Providers

- Terraform relies on plugins called **"providers"** to interact with cloud providers, SaaS providers, and other APIs. Terraform configurations must declare which providers they require so that Terraform can install and use them.
- Providers are **HEART** of Terraform
- Without Providers, Terraform cannot manage any infrastructure.
- Providers are distributed separately from Terraform and each provider has its own **release** cycles and **Version Numbers**
- Terraform **Registry** is publicly available which contains many Terraform Providers for most major Infra Platforms
- To find providers for the infrastructure platforms you use, browse the provider's section of the Terraform Registry.

```
                    ┌──────────────────────────┐
                    │   Terraform Provider     │
                    │        Registry          │
                    └──────────────────────────┘
         ┌─────────────────────┼──────────────────────┐
┌─────────────────┐   ┌─────────────────────┐   ┌─────────────────┐
│    Providers    │◄─►│ registry.terraform.io│◄─►│     Modules     │
└─────────────────┘   └─────────────────────┘   └─────────────────┘

┌─────────────────┐      🏅 Official       These are owned and maintained by HashiCorp
│ Provider Badges │
└─────────────────┘      ✅ Verified       These are owned and maintained by third-party technology
                                           partners. *HashiCorp has verified the authenticity of the*
┌─────────────────┐                        *Provider's publisher*
│Provider         │
│Documentation    │      Community         Community providers are published to the Terraform Registry
└─────────────────┘                        by individual maintainers, groups of maintainers, or other
                                           members of the Terraform community.

                         Archived          Archived Providers are Official or Verified Providers that are
                                           no longer maintained by HashiCorp or the community.
```

**Terraform Registry:** It is a repository where we can find all Terraform providers

https://registry.terraform.io/

https://registry.terraform.io/browse/providers

**Official providers** are owned and maintained by HashiCorp

https://registry.terraform.io/browse/providers?tier=official

**Community providers** are published to the Terraform Registry by individual maintainers, groups of maintainers, or other members of the Terraform community.

https://registry.terraform.io/browse/providers?tier=community

**Verified providers** are owned and maintained by third-party technology partners (Third-party organizations)

https://registry.terraform.io/providers/zededa/zedcloud/1.0.1

## Terraform Block Definition

https://registry.terraform.io/providers/hashicorp/aws/latest

This is where we define the Terraform version and the provider version

**PS:** never use the latest provider because if it has a bug, your application will breaks

```
terraform {
  required_version = "~> 0.14" # which means any version equal & above
0.14 like 0.15, 0.16 etc and < 1.xx
  required_providers {
    aws = {
      source = "hashicorp/aws"
      version = "~> 3.0"
    }
  }
}
```
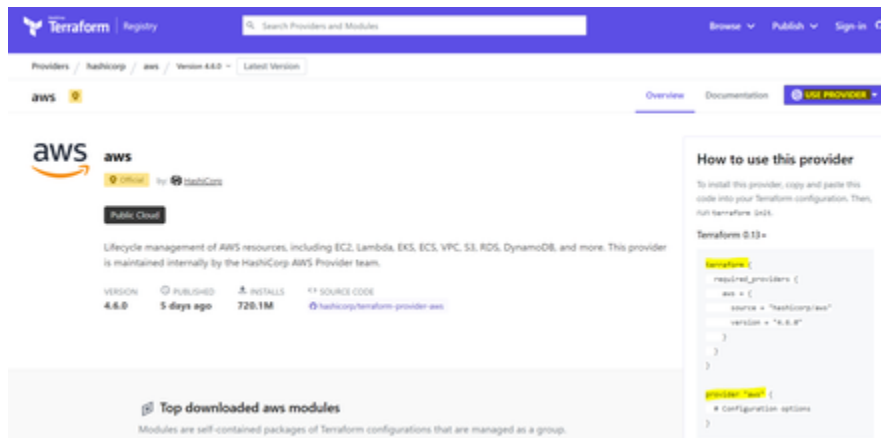
Provider Block

This is where we define the provider that we are going to use and the region where to create the resources

```
provider "aws" {
  region = "us-east-1"
}
```

```
# Terraform Block
terraform {
  required_version = "~> 0.14.3"
  required_providers {
    aws = {
      source = "hashicorp/aws"
      version = "~> 3.0"
    }
  }
}

# Provider Block
provider "aws" {
  profile = "default"
  region  = "us-east-1"
}
```

**Local Names**

Local Names are Module specific and should be unique per-module

Terraform configurations always refer to local name of provider outside required_provider block

Users of a provider can choose any local name for it (myaws, aws1, aws2).

Recommended way of choosing local name is to use preferred local name of that provider (For AWS Provider: hashicorp/aws, preferred local name is aws)
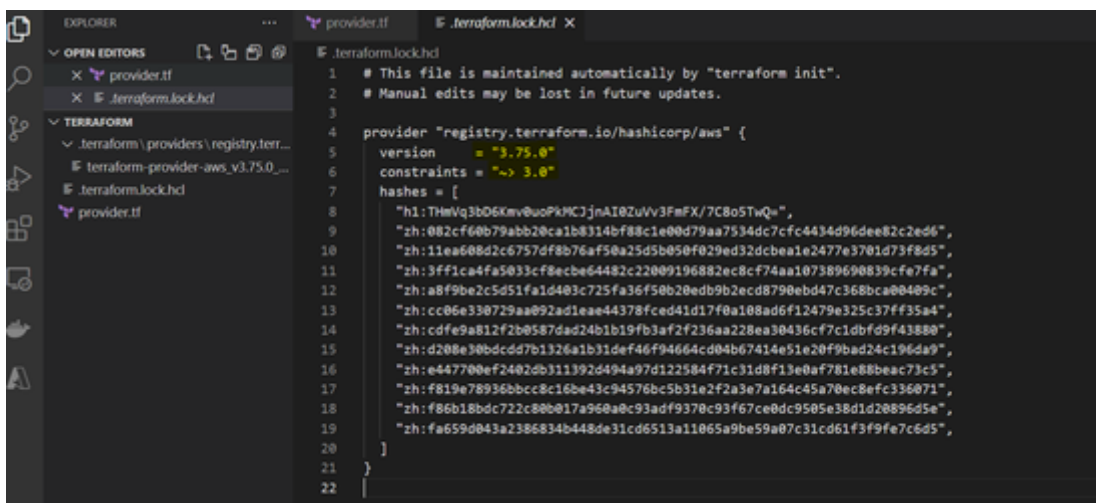
**Source**

It is the primary location where we can download the Terraform Provider

## Download the provider with terraform init

```
terraform {
  required_version = "> 0.14"
  required_providers {
    aws = {
      source  = "hashicorp/aws"
      version = "~> 3.0"
    }
  }
}

provider "aws" {
  region = "us-east-1"
}
```