**-: Terraform :-**

Terraform is an open-source infrastructure as code software tool that provides a consistent CLI workflow to manage hundreds of cloud services. Terraform codifies cloud APIs into declarative configuration files.

**Deliver Infrastructure as Code**

* **Write**

Write infrastructure as code using declarative configuration files. HashiCorp Configuration Language (HCL) allows for concise descriptions of resources using blocks, arguments, and expressions.

* **Plan**

Run terraform plan to check whether the execution plan for a configuration matches your expectations before provisioning or changing infrastructure.

* **Apply**

Apply changes to hundreds of cloud providers with terraform apply to reach the desired state of the configuration.

**Installation of Terraform:** Linux – Ubuntu

* Install HashiCorp's Debian package repository.

sudo apt-get update && sudo apt-get install -y gnupg software-properties-common curl

* Add the HashiCorp GPG Key

curl -fsSL https://apt.releases.hashicorp.com/gpg | sudo apt-key add -

* Add the official HashiCorp Linux repository.

sudo apt-add-repository "deb [arch=amd64] https://apt.releases.hashicorp.com $(lsb\_release -cs) main"

* Update to add the repository, and install the Terraform CLI.

sudo apt-get update && sudo apt-get install terraform

**Terraform sections required in configuration file ( main.tf )**

1. Terraform Block
2. Providers
3. Resources

**Deploying NGNIX Server using Terraform**

* Ensure Docker engine is installed in your box.
* Create a directory named learn-terraform-docker-container
  + mkdir learn-terraform-docker-container
* Navigate to it
  + cd learn-terraform-docker-container
* Paste the following Terraform configuration into a file and name it main.tf

terraform {

required\_providers {

docker = {

source = "kreuzwerker/docker"

version = "~> 2.13.0"

}

}

}

provider "docker" {}

resource "docker\_image" "nginx" {

name = "nginx:latest"

keep\_locally = false

}

resource "docker\_container" "nginx" {

image = docker\_image.nginx.latest

name = "tutorial" ports {

internal = 80

external = 8000

}

}

* Initialize the project, which downloads a plugin that allows Terraform to interact with Docker.
  + terraform init
* Provision the NGINX server container with apply. When Terraform asks you to confirm type yes and press ENTER.
  + terraform apply
* Verify the existence of the NGINX container by visiting **localhost:8000** in your web browser or running **docker p**s to see the container.
* To make sure your configuration is syntactically valid and internally consistent by using the terraform validate command
  + terraform validate

Success! The configuration is valid.

* Inspect the current state using terraform show
* To stop the container, run terraform destroy.
  + terraform destroy

**Terraform in AWS: Requirements**

* 1. The Terraform CLI ( 1.14.9+) Installed
  2. The AWS CLI Installed
  3. An AWS Account
  4. AWS Credentials with access key