What is Terraform?

🡪Terraform is a tool for building, changing, and versioning infrastructure safely and efficiently.

🡪Configuration files describe to Terraform the components needed to run a single application or your entire datacenter. Terraform generates an execution plan describing what it will do to reach the desired state, and then executes it to build the described infrastructure. As the configuration changes, Terraform is able to determine what changed and create incremental execution plans which can be applied.

Infrastructure as Code

Infrastructure is described using a high-level configuration syntax. This allows a blueprint of your datacenter to be versioned and treated as you would any other code. Additionally, infrastructure can be shared and re-used.

Execution Plans

Terraform has a "planning" step where it generates an execution plan. The execution plan shows what Terraform will do when you call apply. This lets you avoid any surprises when Terraform manipulates infrastructure.

## **Terraform CLI**

You interact with Terraform via its command line interface. After you have created the configuration files in your Terraform project, you need to run the init command from the project’s directory:

terraform init

This command will download the Linode provider plugin and take other actions needed to initialize your project. It is safe to run this command more than once, but you generally will only need to run it again if you are adding another provider to your project.

### Plan and Apply:

After you have declared your resources in your configuration files, you create them by running Terraform’s apply command from your project’s directory. However, you should always verify that Terraform will create the resources as you expect them to be created before making any actual changes to your infrastructure. To do this, you can first run the plan command:

terraform plan

This command will generate a report detailing what actions Terraform will take to set up your Linode resources.

If you are satisfied with this report, run apply:

terraform apply

This command will ask you to confirm that you want to proceed. When Terraform has finished applying your configuration, it will show a report of what actions were taken.

### State:

When Terraform analyzes and applies your configuration, it creates an internal representation of the infrastructure it created and uses it to track the changes made. This state information is recorded in JSON in a local file named terraform.tfstate by default, but it can also be stored in other backends.

## **Provisioners**

In addition to resource declarations, Terraform configurations can include provisioners. You declare provisioners to run scripts and commands in your local development environment or on your Terraform-managed servers. These actions are performed when you apply your Terraform configuration.