# Terraform

Duration: 3 Days

**Course type**

● Instructor-Led Classroom Training

**Course Duration**

● 24+ Hours (3 days) Approx.

**Prerequisites**

● A foundational understanding of IT infrastructure

● Knowledge of Unix/Linux operating system

● Basic knowledge about Software Development Life Cycle

● Basic understanding of Docker containers would be desirable

**Learning outcomes**

● Describe what Terraform is.

● Write Terraform configuration files

● Understand how Terraform integrates infrastructure sources

● Manage multiple infrastructure environments with Terraform

**Course Content**

**Introduction to Terraform**

● Introduction to terraform

● Infrastructure Automation

● Install Terraform

● Providers

● Resources

● Basic Syntax

● Exercise: Your First Script main.tf

**2. Getting started with Terraform**

Terraform Plan, show, Apply, Destroy

Exploring Terraform Registry

Interpolation

Tainting and Updating Resources

Terraform Console and Output

Terraform Variables

Breaking Out Our Variables and Outputs

Lab exercises: Breaking down main.tf into variables.tf, output.tf

**3. Terraform Modules**

Introduction to Modules

Module repositories

First Basic Module

Module code

Main Terraform Code

Using git repositories to save modules

Lab exercises: Modules for Docker

Lab exercises: The Docker Image Module

Lab exercises: Container Module

Lab exercises: Modules - Root Module

**4. Terraform: Writing in a more organized way**

Maps and Lookups

Terraform Workspaces

Breaking Out Our Variable Definitions

Null Resources and Local-Exec

Terraform Console

**5. Terraform with AWS: lab Part 1**

Setting up the system for AWS

AWS Storage: The S3 Bucket and Random ID

AWS Storage: The Root Module

AWS Compute: AMI Data, Key Pair, and the File Function

AWS Compute: The EC2 Instance

AWS Compute: User Data and Template Files

AWS Compute: The Root Module

**6. Terraform**

Remote state

Data Sources

Templates

Conditionals

Built-in Functions

Working with state files

Outputs, count and Join Function

**7. Terraform Integration**

Integration with Git

Packer introduction

Terraform with Packer

Terraform with Jenkins

Terraform Formatting and Remote State

Terraform RandomID and S3 Buckets

**8. Terraform with AWS: Lab Part 2**

AWS Networking: VPC, IGW, and Route Tables

AWS Networking: Subnets, Security, and the Count Attribute

AWS Networking: The Root Module

**9. Terraform Troubleshooting and Testing**

Terraform Plan revisited

Debugging the script

Terraform Testing

Lab: Writing test scripts for Terraform.

Lab: Testing with Docker

**10. Terraform Best Practices**

Best practices in writing terraform scripts

Terraform Workflow

Terraform projects