

# Terraform Essentials

**Duration: 2 days (8hrs/day)**

**Prerequisites:** Basic knowledge of Cloud AWS.

**Course Objective:** The objective of this course is to equip learners with the skills to efficiently create, manage, and automate AWS cloud infrastructure using Terraform. Through theoretical lessons and hands-on labs, participants will gain proficiency in Terraform commands, providers, state management, and modules.

**Cloud Platform:** AWS, **Terraform Version:** Latest

## Module 1 - Getting Started & Setting Up Labs (Day1)

Introduction to Infrastructure as Code and Terraform

**Lab:** Installation of Terraform on Windows

Comparison between Terraform and Ansible

Understanding Terraform Providers

Authenticate AWS with Terraform

**Lab:** Setting Up Terraform on Windows and AWS Authentication

Basic Terraform commands: init, plan, apply

Understanding Provider Block

**Lab:** Defining Provider & Using Basic Terraform commands

## Module 2 – Building Cloud Infrastructure with Terraform (Day 1)

**Lab:** Creating EC2 instances in AWS

**Lab:** Provisioning Virtual Private Cloud, Subnets & Elastic IP, NIC

**Lab:** Deploying accessible Linux EC2s

**Lab:** Configuring S3 Buckets, Security Group, and Load Balancers, RDS Service

Understanding Terraform State file

Understanding Working of State file – Desired State & Current State

Challenges and security considerations in Terraform state

**Lab:** Remote state management with Terraform, including importing existing resources

### **Module 3 - Read, Generate, Modify Configurations (Day 2)**

Understanding Attributes and Output Values in Terraform

**Lab:** Handling Terraform attributes and output values

**Lab:** Referencing attributes across resources

Understanding Terraform Variables and Data Types – (String, Number, Boolean, List, Map)

**Lab:** Methods to Define Variables & Variable Arguments

**Lab:** Fetching Data from List & Map in Variables

### **Module 4 - Terraform Provisioners (Day2)**

Understanding provisioners in Terraform

Understanding Connection Block

Types of provisioners

**Lab:** Implementing file, remote-exec, and local-exec provisioners

### **Module 5 – Understanding Terraform Modules & Backend Configuration (Day2)**

Applying the DRY (Don't Repeat Yourself) principle

Understanding Usage of Terraform Modules

Standard Structure of Terraform Modules

Terraform State Backend Configuration

**Lab:** Putting terraform state file on S3 Bucket