

# Terraform Certified Associate (AWS + Azure)

Learn to provision and manage infrastructure as code on Azure and AWS using Terraform, from providers and state to modules and Terraform Cloud.

**5 Days**

8 HOURS A DAY

**7**

MODULES

**31**

TOPICS

**36**

HANDS-ON LABS

## COURSE OVERVIEW

Equip participants with the essential skills to proficiently leverage Terraform for Infrastructure as Code (IaC) on Microsoft Azure and Amazon Web Services, covering setup, configuration management, modularization, remote state handling, and utilization of Terraform Cloud for scalable and secure infrastructure deployment, ultimately preparing them for success in obtaining the Terraform Certified Associate (003) certification.

## WHO THIS COURSE IS FOR

Cloud Engineers

DevOps Engineers

Infrastructure Engineers

Systems Administrators

Cloud Architects

## PREREQUISITES

- Basic knowledge of both Cloud AWS/Azure.

## TOOLS AND REQUIREMENTS

- Cloud Platform: Microsoft Azure and AWS
- Terraform Version: Latest
- Lab Requirement: Participant Azure and AWS Trial Account Required

## LEARNING OBJECTIVES

- Explain infrastructure as code concepts and Terraform providers
- Authenticate Terraform against Azure and AWS
- Apply basic commands such as init, plan and apply
- Describe how the Terraform state file tracks desired state
- Configure variables, meta-arguments and dynamic blocks
- Implement provisioners such as file and remote-exec
- Build reusable modules and manage Terraform workspaces
- Configure remote state backends and Terraform Cloud with Sentinel

# 7 Modules, 31 Topics

01

4 Labs

## Getting Started & Setting Up Labs

### TOPICS

- Introduction to Infrastructure as Code and Terraform
- Comparison between Terraform and Ansible
- Introduction to Azure and AWS CLI
- Understanding Terraform Providers
- Authenticate Azure with Terraform
- Authenticate AWS with Terraform
- **Basic Terraform commands:** init, plan, apply

02

9 Labs

## Building Cloud Infrastructure with Terraform

### TOPICS

- Understanding Terraform State file
- Understanding Working of State file – Desired State & Current State
- Terraform Provider Versioning

03

14 Labs

## Read, Generate, Modify Configurations

### TOPICS

- Understanding Attributes and Output Values in Terraform
- Understanding Terraform Variables and Data Types – (String, Number, Boolean, List, Map)
- Understanding Meta-Arguments – (for\_each, count, depends\_on)
- Understanding conditional expression and locals
- Understanding Expressions – for & Splat expression
- Understanding Data Sources & Dynamic Blocks
- Terraform Commands – validate, fmt

04

Lab

## Terraform Provisioners

### TOPICS

Understanding provisioners in Terraform · Understanding Connection Block · Types of provisioners

**05****3 Labs**

## Terraform Modules & Workspaces

### TOPICS

- Applying the DRY (Don't Repeat Yourself) principle
- Understanding Usage of Terraform Modules
- Standard Structure of Terraform Modules
- Understanding and implementing Terraform workspaces

**06****4 Labs**

## Remote State Management

### TOPICS

- Integrating Terraform with Git for team collaboration
- Understanding Basic Working of Git
- Challenges and security considerations in Terraform state
- Terraform State Backend Configuration

**07****Lab**

## Terraform Cloud and Enterprise Overview

### TOPICS

Introduction to Terraform Cloud · Creating infrastructure with Terraform Cloud · Overview of Sentinel Security in Terraform

# Practise What You Learn

| #  | MODULE                                              | ACTIVITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01 | <b>Getting Started &amp; Setting Up Labs</b>        | <ul style="list-style-type: none"> <li>■ Installation of Terraform on Windows</li> <li>■ Setting Up Terraform on Windows and Azure Authentication</li> <li>■ Setting Up Terraform on Windows and AWS Authentication</li> <li>■ Defining Provider &amp; Using Basic Terraform commands</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 02 | <b>Building Cloud Infrastructure with Terraform</b> | <ul style="list-style-type: none"> <li>■ Creating Resource Groups in Azure</li> <li>■ Provisioning Virtual Networks, Subnets, Public IPs, and Network Interfaces in Azure</li> <li>■ Deploying Windows and Linux VMs Azure</li> <li>■ Configuring Azure Storage, Security Groups, and Load Balancers in Azure</li> <li>■ Creating EC2 instances in AWS</li> <li>■ Provisioning Virtual Networks, Subnets, Elastic IPs, and Network Interfaces in AWS</li> <li>■ Deploying Windows and Linux EC2 in AWS</li> <li>■ Configuring S3 Storage, Security Groups in AWS</li> <li>■ Methods to define Terraform Provider Versions</li> </ul>                                                                                                                                          |
| 03 | <b>Read, Generate, Modify Configurations</b>        | <ul style="list-style-type: none"> <li>■ Handling Terraform attributes and output values</li> <li>■ Referencing attributes across resources</li> <li>■ Methods to Define Variables &amp; Variable Arguments</li> <li>■ Fetching Data from List &amp; Map in Variables</li> <li>■ Using Meta-Arguments</li> <li>■ Using Conditional expression and Locals</li> <li>■ Using for and Splat expression</li> <li>■ Using Data Sources</li> <li>■ Using Dynamic Blocks</li> <li>■ Exploring debugging techniques in Terraform</li> <li>■ Using terraform validate and terraform fmt</li> <li>■ Replacing Resource in terraform manually – taint and replace</li> <li>■ Using Terraform Graph utility</li> <li>■ Saving Terraform Plan to a file and apply from plan file</li> </ul> |
| 04 | <b>Terraform Provisioners</b>                       | Implementing file, remote-exec and local-exec provisioners                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 05 | <b>Terraform Modules &amp; Workspaces</b>           | <ul style="list-style-type: none"> <li>■ Creating and Using local Modules</li> <li>■ Utilizing Modules from Terraform Registry</li> <li>■ Working with Terraform Workspaces</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| #  | MODULE                                  | ACTIVITY                                                                                                                                                                                                                                                                                                                             |
|----|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06 | Remote State Management                 | <ul style="list-style-type: none"> <li>■ Handling Git commands (initialize, commit, push, tagging, branching)</li> <li>■ Remote state management with Terraform, including importing existing resources</li> <li>■ Putting terraform state file on Azure Blob Container</li> <li>■ Putting terraform state file on AWS S3</li> </ul> |
| 07 | Terraform Cloud and Enterprise Overview | Deploying Infrastructure with Terraform Cloud and Sentinel Security                                                                                                                                                                                                                                                                  |

#### WHAT IS INCLUDED

## Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

#### ABOUT KOENIG

## Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

#### FLEXIBLE DELIVERY

## Learn the Way That Suits You

Classroom Training

Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

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