

Terraform Certified Associate with IBM Cloud

Learn to provision and manage IBM Cloud infrastructure with Terraform, from providers and state to modules and Terraform Cloud.

4 Days

8 HOURS A DAY

7

MODULES

31

TOPICS

30

HANDS-ON LABS

COURSE OVERVIEW

Equip participants with the essential skills to proficiently leverage Terraform for Infrastructure as Code (IaC) on IBM Cloud, 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

Infrastructure Engineers

DevOps Engineers

System Administrators

Cloud Architects

PREREQUISITES

- Basic knowledge of IBM Cloud.

TOOLS AND REQUIREMENTS

- Cloud Platform: IBM Cloud
- Terraform Version: Latest

LEARNING OBJECTIVES

- Explain Infrastructure as Code concepts and Terraform providers
- Configure IBM Cloud authentication and run init, plan, apply
- Describe Terraform state file behaviour and versioning
- Apply variables, meta-arguments, functions and expressions
- Implement provisioners such as file, remote-exec and local-exec
- Build and use Terraform modules and workspaces
- Plan remote state management and Git-based collaboration
- Deploy infrastructure using Terraform Cloud and Sentinel security

7 Modules, 31 Topics

01

3 Labs

Getting Started & Setting Up Labs

TOPICS

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

02

5 Labs

Building Cloud Infrastructure with Terraform

TOPICS

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

03

15 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 Terraform Functions
- 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**2 Labs**

Remote State Management

TOPICS

- Integrating Terraform with Git for team collaboration
- Understanding Basic Working of Git
- Challenges and security considerations in Terraform state
- Understand 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	Getting Started & Setting Up Labs	■ Installation of Terraform on Windows ■ Setting Up Terraform on Windows and IBM Cloud Authentication ■ Defining Provider & Using Basic Terraform commands
02	Building Cloud Infrastructure with Terraform	■ Creating Resource Groups in IBM Cloud ■ Provisioning Virtual Networks, Subnets, Floating IPs, and Network Interfaces of VPC Infra ■ Deploying Windows and Linux Virtual Servers in VPC infra ■ Configuring Cloud Storage, Security Groups, and Load Balancers in VPC infra ■ Methods to define Terraform Provider Versions
03	Read, Generate, Modify Configurations	■ Handling Terraform attributes and output values ■ Referencing attributes across resources ■ Methods to Define Variables & Variable Arguments ■ Fetching Data from List & Map in Variables ■ Using Meta-Arguments ■ Using element, zipmap, lookup function in terraform ■ Using Conditional expression and Locals ■ Using for and Splat expression ■ Using Data Sources ■ Using Dynamic Blocks ■ Exploring debugging techniques in Terraform ■ Using terraform validate and terraform fmt ■ Replacing Resource in terraform manually - taint and replace ■ Using Terraform Graph utility ■ Saving Terraform Plan to a file and apply from plan file
04	Terraform Provisioners	Implementing file, remote-exec and local-exec provisioners
05	Terraform Modules & Workspaces	■ Creating and Using local Modules ■ Utilizing Modules from Terraform Registry ■ Working with Terraform Workspaces
06	Remote State Management	■ Handling Git commands (initialize, commit, push, tagging, branching) ■ Remote state management with Terraform, including importing existing resources
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.

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