Terraform Certified Associate with AWS

Course Duration: 32 Hours (4 Days)

Overview

The Terraform Certified Associate with AWS course is designed for learners seeking to leverage Infrastructure as Code (IaC) for efficient cloud resource management on Amazon Web Services (AWS). Through hands-on labs and comprehensive lessons, participants will master the use of Terraform, a popular IaC tool, to build, change, and version AWS infrastructure safely and efficiently. From setting up the development environment to advanced concepts like module creation and state management, this AWS Terraform course covers all the essential skills required to become proficient in automating infrastructure deployments. Participants will gain practical experience with Terraform's core features and will understand best practices for security and maintenance within AWS environments. The course's structured approach ensures that learners become adept at writing, planning, and creating reproducible and scalable cloud infrastructures. Upon completion, individuals will be well-prepared for real-world IaC challenges, making this AWS Terraform training crucial for professionals aiming to enhance their DevOps and cloud engineering skills

Audience Profile

The Terraform Certified Associate with AWS course caters to professionals seeking expertise in cloud infrastructure automation and DevOps practices.

- DevOps Engineers
- Cloud Infrastructure Architects
- Systems Administrators interested in infrastructure as code (IaC)
- Software Developers looking to provision and manage cloud resources
- IT Managers wanting to understand IaC for team integration
- Technical Project Managers overseeing cloud-based projects
- Site Reliability Engineers (SREs) focusing on automation and scalability
- Security Professionals ensuring infrastructure compliance
- Cloud Consultants providing advice on AWS resource management with Terraform
- AWS Certified Professionals aiming to enhance their skill set with IaC tools
- Students and individuals aiming for a career in cloud services and infrastructure automation
- Technical Support Staff who manage and troubleshoot cloud-based environments
- Quality Assurance Engineers involved in environment setup and testing

Course Syllabus

Module 1 - Getting Started & Setting Up Labs

- 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
- Lab: Defining Provider & Using Basic Terraform commands

Module 2 – Building Cloud Infrastructure with Terraform

- Lab: Creating EC2 instances in AWS
- Lab: Provisioning Virtual Networks, Subnets, Elastic IPs, and Network Interfaces
- Lab: Deploying Windows and Linux EC2
- Lab: Configuring S3 Storage, Security Groups
- Understanding Terraform State file
- Understanding Working of State file – Desired State & Current State
- Terraform Provider Versioning
- Lab: Methods to define Terraform Provider Versions

Module 3 - Read, Generate, Modify Configurations

- 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
- Understanding Meta-Arguments – (for_each & count)
- Lab: Using Meta-Arguments
- Understanding conditional expression and locals
- Lab: Using Conditional expression and Locals
- Understanding Expressions – for & Splat expression
- Lab: Using for and Splat expression
- Understanding Data Sources & Dynamic Blocks
- Lab: Using Data Sources
- Lab: Using Dynamic Blocks
- Lab: Exploring debugging techniques in Terraform
- Terraform Commands – validate, fmt

- Lab: Using terraform validate and terraform fmt
- Lab: Replacing Resource in terraform manually – taint and replace
- Lab: Using Terraform Graph utility
- Lab: Saving Terraform Plan to a file and apply from plan file

Module 4 - Terraform Provisioners

- Understanding provisioners in Terraform
- Understanding Connection Block
- Types of provisioners
- Lab: Implementing file, remote-exec and local-exec provisioners

Module 5 - Terraform Modules & Workspaces

- Applying the DRY (Don't Repeat Yourself) principle
- Understanding Usage of Terraform Modules
- Standard Structure of Terraform Modules
- Lab: Creating and Using local Modules
- Lab: Utilizing Modules from Terraform Registry
- Understanding and implementing Terraform workspaces
- Lab: Working with Terraform Workspaces

Module 6 - Remote State Management

- Integrating Terraform with Git for team collaboration
- Understanding Basic Working of Git
- Lab: Handling Git commands (initialize, commit, push, tagging, branching)
- Challenges and security considerations in Terraform state
- Lab: Remote state management with Terraform, including importing existing resources
- Terraform State Backend Configuration
- Lab: Putting terraform state file on AWS S3

Module 7 – Terraform Cloud and Enterprise Overview

- Introduction to Terraform Cloud
- Creating infrastructure with Terraform Cloud
- Overview of Sentinel Security in Terraform
- Lab: Basic Deploying Infrastructure with Terraform Cloud and Sentinel Security