



## Managing Azure with Terraform

- 3 Days
- Lecture and Hands-on Labs
- Includes all objectives found on HashiCorp's Terraform Associate Certification

### Course Overview

As enterprises seek to deploy and maintain increasingly complex Azure cloud infrastructure, there is a necessity to use “Infrastructure as Code” (IaC) tools, like Terraform. An open-source, state management tool developed by HashiCorp, Terraform allows developers to use a common coding interface to work through their various clouds safely and efficiently. Attendees will leave being able to write and understand Terraform code (HCL), have a clear understanding of Terraform's various components and supporting tools, as well as when to reach for Terraform over another IaC tool, such as Ansible.

### Who Should Attend

- DevOps Engineers
- Software Developers
- Technical Managers and Leads
- System and Cloud Administrators
- Network Engineers and Developers

### What You'll Learn



- Writing Terraform HCL code for managing Azure
- Deploying into Azure
- Where Terraform fits in the Enterprise CI/CD model
- Differences between Terraform and Ansible
- Best practices
- Prepare for HashiCorp's Terraform Associate Certification
- AI LLM prompt engineering for Terraform snippets and jumpstarting solutions

### Outline



#### AI LLM Toolkit

-  Lecture + Lab: Large Language Model toolkit for AI Solution Assistance


#### Introduction to Terraform

-  Lecture: Terraform Course Map
-  Lecture: Introduction to Terraform and Azure






#### Software Control Management

-  Lecture + Lab: SCM Option #1 - GitHub
-  Lecture + Lab: SCM Option #2 - GitLab








## Overview of Terraform

-  Lecture + Lab: Terraform Install









## Terraform Modules

-  Lecture: Terraform HCL Syntax
-  Lecture + Lab: Up and Running with Terraform
-  Lecture + Lab: Terraform Variables
-  Lecture + Lab: Output Values
-  Lecture: Avoid the :latest Tag

## Azure

-  Lecture: Managing Azure with Terraform
-  Lecture + Lab: Terraform and Azure
-  Lecture: Exploring Terraform Azure modules
-  Lecture + Lab: Starting with VNet
-  Lecture + Lab: Creating Virtual Machines
-  Lecture + Lab: Tracking State with Storage and Databases
-  Lecture + Lab: Creating an Azure Module




## Beyond Basics

-  Lecture + Lab: Terraform CLI Workspaces
-  Lecture + Lab: Terraform Expressions and Errors
-  Lecture + Lab: Resources - replace vs taint
-  Lecture + Lab: Dynamic Operations with Functions
-  Lecture + Lab: Creating a Terraform Module
-  Lecture + Lab: Moving State - terraform state mv
-  Lecture + Lab: Dynamic Provisioning with tfvars Files
-  Lecture + Lab: Data Sources and HTTP Provider

## Loops

-  Lecture: for\_each
-  Lecture + Lab: Looping Constructs - for\_each


## Provisioning

-  Lecture + Lab: local-exec Provisioner
-  Lecture + Lab: Creating Delays
-  Lecture + Lab: Terraform - templatefile Function

## Terraform Cloud

-  Lecture + Lab: Terraform Cloud and Terraform Enterprise
-  Lecture + Lab: Triggering Cloud Builds via Git Commits

## Dynamic Blocks

-  Lecture + Lab: Dynamic Blocks

## Terraform and Enterprise

- 🖥️ Lecture + Lab: Deploy a Go RESTful API microservice with Terraform
- 🗨️ Lecture: Terraform vs. Ansible
- 🖥️ Lecture + Lab: Terraform and Ansible

## Helpful DevOps Tools (OPTIONAL)

- 🖥️ Lecture + Lab: GitHub Actions - GitLeaks
- 🖥️ Lecture + Lab: GitHub Actions - Terraform

## Terraform Review

- 🗨️ Lecture: HashiCorp Terraform Study Guide

## Prerequisites

Although not required, students with some experience programming, or pre-existing knowledge of Azure or other cloud architecture, will most appreciate the technical nature of this hands-on course.

## Next Courses

- Jenkins Automation Server Essentials (2 days)
- Ansible Essentials (5 days)
- Go Essentials (5 days)
- Git and GitHub (2 days)
- Git and GitLab (2 days)

## Certification

- Managing Azure with Terraform - Certification Project