

Days: 3

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.

Audience: DevOps Engineers, Software Developers, Technical Managers and Leads, System and Cloud Administrators, Network Engineers, and Developers.

Description: 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.

Course Objectives: In this course, you will 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 LAB ASSISTANCE

- Lecture + Lab: Meet VIRGIL: Your AI Lab Coach

INTRODUCTION TO TERRAFORM

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

SOFTWARE CONTROL MANAGEMENT

- Lecture + Lab: SCM Option #1 - GitHub

OVERVIEW OF TERRAFORM

- Lecture + Lab: Terraform Install
- Lecture + Lab: gitignore for Terraform

TERRAFORM

- Lecture: Managing Azure with Terraform
- Lecture: Terraform HCL Syntax
- Lecture + Lab: Azure and Terraform Resources
- Lecture: Terraform Variables
- Lecture + Lab: Azure and Terraform Variables
- Lecture: Terraform Locals
- Lecture + Lab: Output Values

AZURE

- Lecture: Exploring Terraform Azure Providers
- Lecture + Lab: Terraform and Azure
- Lecture + Lab: Building a Virtual Network
- Lecture + Lab: Dynamic Provisioning with tfvars Files
- Lecture + Lab: Creating a Windows **VM**
- Lecture: Microsoft Verified Modules
- Lecture + Lab: Azure Verified Modules for Terraform

BEYOND BASICS

- Lecture: Import Pre-Existing Infrastructure
- Lecture + Lab: Data Sources and HTTP Provider
- Lecture + Lab: Dynamic Operations with Functions
- Lecture + Lab: Creating a Terraform Module

LOOPS

- Lecture: for_each
- Lecture + Lab: Looping Constructs - for_each

PROVISIONING

- Lecture + Lab: local-exec Provisioner

Managing Azure with Terraform



DYNAMIC BLOCKS

- Lecture + Lab: Dynamic Blocks

AZURE PIPELINES

- Lecture + Lab: Azure Pipelines for Terraform

TERRAFORM REVIEW

- Lecture: HashiCorp Terraform Study Guide