



Automating Palo Alto with Terraform

- 3 Days
- Lecture and Hands-on Labs

Course Overview

Get hands-on and use Terraform to automate the PAN-OS operating system for Palo Alto Networks NGFWs and Panorama products. Students will learn to manage various aspects of a firewall's or a Panorama's config, such as data interfaces and security policies. Optional lecture may also cover Palo Alto Networks Terraform providers for Prisma Cloud, Bridgecrew Security Platform, or Palo Alto Networks Cloud Next-Gen Firewalls for AWS. All lessons focus on best practice techniques, including interacting with git, GitHub or GitLab, and writing prompts for AI LLM tools to generate relevant solutions.

Review this course online at https://www.alta3.com/courses/auto-paloalto-terraform

Who Should Attend

- Palo Alto Administrators
- Security Engineers
- DevOps Engineers
- System and Cloud Administrators
- Network Engineers and Developers
- Terraform Developers
- Go Programmers

What You'll Learn

- Automating the PAN-OS and Panorama APIs with Python and Ansible
- AI LLM prompt engineering for generating Ansible solutions
- Ansible collections for Palo Alto network appliances
- YAML formatting
- Playbook construction and order of execution
- Credential Management and Encryption with Ansible Vault and other credential management best practices
- Python and other client side software for exploring PAN-OS and Panorama APIs
- Exploring the PAN-OS
- Version controlling code with Git
- CI / CD Pipeline Scenarios common across Industry (GitHub Actions, GitLab, AWX Tower, and more)

Outline

AI LLM Toolkit

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

Introduction to Terraform

• \blacksquare Lecture: Terraform Course Map

• \blacksquare Lecture: Introduction to Terraform

Software Control Management

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

Up and Running

- \Box Lecture + Lab: Terraform Install
- 🗐 Lecture: Special Considerations for Palo Alto Networks

Terraform Modules

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

Palo Alto Provider

- \blacksquare Lecture: Terraform Providers
- 🖳 Lecture + Lab: Palo Alto Network on the Terraform Registry
- 🗐 Lecture: Terraform and PAN-OS Interaction
- 🖳 Lecture + Lab: Installing the PaloAltoNetwork panos Provider
- 🖳 Lecture + Lab: Managing State with PaloAltoNetwork panos Provider
- 🗐 Lecture: Terraform Data Sources
- 🖳 Lecture + Lab: Palo Alto Network panos Data Sources

Beyond Basics

- 🗐 Lecture: Credential Management Options for Terraform and Palo Alto Interactions
- 🖳 Lecture + Lab: Terraform CLI Workspaces
- 🖳 Lecture + Lab: Handling Errors on from PaloAltoNetwork Providers
- \blacksquare Lecture: Resources replace vs taint
- \Box , Lecture + Lab: Dynamic Operations with Functions
- 🗐 Lecture: Short-cutting Solutions for Palo Alto with Terraform Modules
- 🖳 Lecture + Lab: Creating a Terraform Module
- 🖳 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

- \Box , Lecture + Lab: Creating Delays
- \blacksquare Lecture + Lab: Terraform templatefile Function

Dynamic Blocks

• \Box Lecture + Lab: Dynamic Blocks

Generative AI LLM Toolkits

- 🖳 Lecture + Lab: Creating prompts for AI LLM tools to Generate Palo Alto Terraform Code
- 🖳 Lecture + Lab: Testing Terraform Solutions Generated by AI

Expanding on Palo Alto Network Providers (OPTIONAL)

- \bullet P Lecture: Palo Alto Providers panos, prismacloud, bridgecrew, prismacloudcompute, prismacloudwaas, cloud
ngfwaws
- \blacksquare Lecture: Palo Alto Networks Cloud Next-Gen Firewalls for AWS
- 🖳 Lecture + Lab: Terraform and Palo Alto Networks Cloud Next-Gen Firewalls for AWS
- 🗐 Lecture: Terraform and Palo Alto Networks Prisma Cloud
- 🗐 Lecture: Terraform and Palo Alto Networks Bridgecrew Security Platform

Terraform Cloud (OPTIONAL)

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

Industry Scenarios (OPTIONAL)

- 🗐 Lecture: Common Workflows and Pipelines for Automating Security Platforms
- \Box Lecture + Lab: GitHub Actions Terraform

Terraform Review

• 🗐 Lecture: HashiCorp Terraform Study Guide

Prerequisites

• Coding experience in another language serves as an adequate prerequisite

Next Courses

- Automating Palo Alto with Python and Ansible (5 days)
- Consulting with an Automation Expert (varies per request)
- Go (Programming) Essentials (4 days)
- Git and GitHub (2 days)
- Git and GitLab CI/CD (2 days)