



Network Automation with Palo Alto

- 5 Days
- Lecture and Hands-on Labs

Course Overview

Supercharge the pace of Palo Alto Next Generation Firewalls (NGFWs) and Panorama administration operations with Python and Ansible tool sets. In this 5 day instructor led course, students write code to automate the PAN-OS and Panorama XML-API and REST API. Automate common tasks such as update, change, backup operations, and more. 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.

Who Should Attend

- DevOps Engineers
- System and Cloud Administrators
- Network Engineers and Developers
- Python Developers

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

Certification

-  Lecture + Lab: Alta3 Research Automating Palo Alto with Python and Ansible Certification

AI LLM Toolkit

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



Overview

-  Lecture: PAN-OS and Panorama Automation Options


Software Control Management

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





Automating with Linux Tools

-  Lecture + Lab: Postman and Palo Alto
-  Lecture + Lab: cURL and Palo Alto






Palo Alto REST API

-  Lecture: PAN-OS and Panorama REST API









Python

-  Lecture + Lab: Up and Running with Python
-  Lecture + Lab: Python requests library
-  Lecture: Palo Alto Python Clients
-  Lecture + Lab: Using Palo Alto Python Clients










Palo Alto XML API

-  Lecture: PAN-OS and Panorama XML API
-  Lecture + Lab: Automating XML APIs
-  Lecture: Breaking down XML with pandas
-  Lecture + Lab: XML and pandas
-  Lecture + Lab: XML, pandas, and Palo Alto

Ansible Basics













-  Lecture: Introduction to Ansible
-  Lecture + Lab: Methods for Installing Ansible
-  Lecture: Static Inventory
-  Lecture + Lab: Ansible Host Inventory
-  Lecture: Introduction to YAML
-  Lecture + Lab: Running a Playbook
-  Lecture + Lab: ansible.cfg setup
-  Lecture: Ansible Galaxy

Ansible and Palo Alto




-  Lecture: Ansible Collections
-  Lecture + Lab: Ansible Collection for Palo Alto PanOS and Panorama
-  Lecture + Lab: Building Playbooks for Palo Alto
-  Lecture + Lab: Loops and Vars Files in Playbooks
-  Lecture: Palo Alto Ansible Modules
-  Lecture + Lab: Common Palo Alto Operations with Ansible
-  Lecture + Lab: Error Handling in Palo Alto Playbooks
-  Lecture + Lab: Building When Conditionals for Palo Alto Playbooks
-  Lecture + Lab: Palo Alto Change Operations with Ansible

Critical Ansible Modules and Techniques

-  Lecture: Avoiding Command Line Operations
-  Lecture + Lab: Ansible Module - shell

-  Lecture: Backing up and Writing Out Palo Alto Configuration
-  Lecture + Lab: Ansible Module - copy
-  Lecture: Automate Every API
-  Lecture + Lab: Ansible Module - get_url and uri
-  Lecture: Create and Remove Files and Directories
-  Lecture + Lab: Ansible Module - file
-  Lecture: Cloning Resources and Prerequisites for Palo Alto
-  Lecture + Lab: Ansible Module - git
-  Lecture: Modifying Configuration with Ansible
-  Lecture + Lab: Ansible Module - lineinfile and replace
-  Lecture: Running Scripting with Ansible
-  Lecture + Lab: Ansible Module - script




Creating Manageable Solutions

-  Lecture + Lab: Writing A Palo Alto Playbook
-  Lecture: From a Playbook to a Role
-  Lecture + Lab: Writing A Palo Alto Playbook with Roles





Security

-  Lecture: Secret Management Options and Considerations for Palo Alto
-  Lecture + Lab: Ansible Lookup Plugin
-  Lecture + Lab: Ansible Vault

AI LLM Prompting

-  Lecture: Creating Palo Alto Automation Solutions with AI LLM tools
-  Lecture + Lab: Writing Prompts for AI LLM tools to Automate Palo Alto
-  Lecture + Lab: Proofing Solutions Generated by AI

Industry Scenarios

-  Lecture: optional - Building Pipelines with GitHub Actions
-  Lecture: optional - Automating CI CD Operations with GitLab
-  Lecture: optional - Overview of AWX, Tower, or Ansible Automation Platform
-  Lecture: optional - Applying Our Training within Your Organization

Prerequisites

- Coding experience in another language serves as an adequate prerequisite

Next Courses

- Automating Palo Alto with Terraform (3 days)
- Consulting with an Automation Expert (varies per request)
- Ansible 301 - Customizing Ansible (4 days)
- API and API Design with Python (5 days)
- Git and GitHub (2 days)
- Git and GitLab CI/CD (2 days)