Automating Fortinet FortiOS and FortiGate with Python and Ansible

- 5 Days
- Lecture and Hands-on Labs

Course Overview

Supercharge the pace of FortiOS and FortiGate Next Generation Firewalls (NGFWs) administration operations with Python and Ansible tool sets. In this 5 day instructor led course, students write code to automate the FortiOS and FortiGate REST APIs. 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

- FortiGate and FortiOS Administrators
- Security Engineers
- DevOps Engineers
- System and Cloud Administrators
- Network Engineers and Developers
- Python and Ansible Developers

What You'll Learn

- Automating the FortiGate and FortiOS APIs with Python and Ansible
- AI LLM prompt engineering for generating Ansible solutions
- Ansible collections for FortiGate and FortiOS network security 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 FortiGate and FortiOS APIs
- 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 FortiGate and FortiOS with Python and Ansible Certification

AI LLM Toolkit

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

Overview

- 🗨 Lecture: FortiGate and FortiOS Automation Options

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Software Control Management

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

Automating with Linux Tools

- 🖥 Lecture + Lab: Postman and FortiGate and FortiOS
- 🖥 Lecture + Lab: cURL and FortiGate and FortiOS
- 🖥 Lecture + Lab: FortiGate and FortiOS JSON

FortiGate and FortiOS REST API

- 🗩 Lecture: FortiGate and FortiOS REST API

Python

- 🖥 Lecture + Lab: Up and Running with Python
- 🖥 Lecture + Lab: Python requests library
- 🗩 Lecture: FortiGate and FortiOS Python Clients
- 🖥 Lecture + Lab: Using FortiGate and FortiOS Python Clients

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 FortiGate and FortiOS

- 🗩 Lecture: Ansible Collections
- 🖥 Lecture + Lab: Ansible Collection for FortiGate and FortiOS
- 🖥 Lecture + Lab: Building Playbooks for FortiGate and FortiOS
- 🖥 Lecture + Lab: Loops and Vars Files in Playbooks
- 🗩 Lecture: FortiGate and FortiOS Ansible Modules
- 🖥 Lecture + Lab: Common FortiGate and FortiOS Operations with Ansible
- 🖥 Lecture + Lab: Error Handling in FortiGate and FortiOS Playbooks
- 🖥 Lecture + Lab: Building When Conditionals for FortiGate and FortiOS Playbooks
- 🖥 Lecture + Lab: FortiGate and FortiOS 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 FortiGate and FortiOS 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 FortiGate and FortiOS

- 🖥 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 FortiGate and FortiOS Playbook
- 💬 Lecture: From a Playbook to a Role
- 🖥 Lecture + Lab: Creating a FortiGate and FortiOS Playbook with Roles

Security

- 💬 Lecture: Secret Management Options and Considerations for FortiGate and FortiOS
- 🖥 Lecture + Lab: Ansible Lookup Plugin
- 🖥 Lecture + Lab: Ansible Vault

AI LLM Prompting

- 💬 Lecture: Creating FortiGate and FortiOS Automation Solutions with AI LLM tools
- 🖥 Lecture + Lab: Writing Prompts for AI LLM tools to Automate FortiGate and FortiOS
- 🖥 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 FortiGate and FortiOS 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)