Implementing Automation for Cisco Enterprise Solutions

Duration: 3 Days   Course Code: ENAUI   Version: 1.3   Delivery Method: Virtual Learning

Overview:

Implementing Automation for Cisco Enterprise Solutions (ENAUI) teaches you how to implement Cisco Enterprise automated solutions, including programming concepts, orchestration, telemetry, and automation tools.

This course highlights the tools and the benefits of leveraging programmability and automation in the Cisco-powered Enterprise Campus and WAN. You will also examine platforms including IOS XE software for device-centric automation, Cisco DNA Center for the intent-based enterprise network, Cisco Software-Defined WAN, and Cisco Meraki. Their current ecosystem of APIs, software development toolkits, and relevant workflows are studied in detail together with open industry standards, tools, and APIs, such as Python, Ansible, Git, JSON/YAML, NETCONF/RESTCONF, and YANG.

This course will help you
Gain high-demand skills using modern programming languages, APIs, and systems such as Python, Ansible, and Git to automate, streamline, and enhance business operations
Acquire the skills and knowledge to customize tools, methods, and processes that improve network performance and agility
Earn 24 CE credits toward recertification

Target Audience:

Network engineers who need to use modern programming, automation and orchestration tools such as Python, Ansible and Git to automate, streamline and enhance their Cisco enterprise network.

Objectives:

- **After completing this course you should be able to:**

- Get familiar with different API styles (REST, RPC) and synchronous and asynchronous API requests

- Learn how to use Postman software development tool in order to test the API calls

- Learn how to automate repetitive tasks using Ansible automation engine

- Explore a Python programming language, Python libraries and Python virtual environments and learn how can they be used for automation of network configuration tasks

- Get introduced to GIT version control system and its common operations

- Learn how to leverage the various models and APIs of the Cisco IOS XE platform to perform day-zero operations, improve troubleshooting methodologies with custom tools, augment the CLI using scripts, and integrate various workflows using Ansible and Python

- Learn about the paradigm shift of model-driven telemetry and the building blocks of a working solution

- Learn how to leverage the tools and APIs to automate Cisco DNA infrastructure managed by Cisco DNA Center™

- Demonstrate workflows (configuration, verification, health checking, and monitoring) using Python, Ansible, and Postman

- Understand Cisco SD-WAN solution components, implement a Python library that works with the Cisco SD-WAN APIs to perform configuration, inventory management, and monitoring tasks, and implement reusable Ansible roles to automate provisioning new branch sites on an existing Cisco SD-WAN infrastructure

- Learn how to leverage the tools and APIs to automate Cisco Meraki managed infrastructure and demonstrate workflows (configuration, verification, health checking, monitoring) using Python, Ansible, and Postman

Prerequisites:

Attendees should meet the following prerequisites:

Testing and Certification

Recommended as preparation for the following exams:

- Basic programming language concepts
- Basic understanding of virtualization
- Ability to use Linux and CLI tools, such as Secure Shell (SSH) and bash
- Networking knowledge equivalent to the CCNP level
- Foundational understanding of Cisco DNA, Meraki, and Cisco SD-WAN
- CCNA - Implementing and Administering Cisco Solutions
- ENCOR - Implementing and Operating Cisco Enterprise Network Core Technologies
- CSAU - Introducing Automation for Cisco Solutions

- **300-435** - Automating Cisco Enterprise Solutions (ENAUTO) exam
After you pass **300-435 ENAUTO**, you earn the **Cisco Certified DevNet Specialist - Enterprise Automation and Programmability** certification, you will also satisfy the concentration exam requirements for both the CCNP Enterprise certification and the Cisco Certified DevNet Professional certification.

Content:

Network Programmability Foundation

- Version Control with GIT
- Introduction to Network-Based APIs
- Characteristics of API styles (REST and RPC)
- Synchronous and Asynchronus API Requests
- Python Fundamentals
- Python Modules
- Introduction to Ansible for Network Automation
- Cisco DevNet Resources

Automating APIs and Protocols

- JavaScript Object Notation
- Extensible Markup Language
- YAML Data Serialization Standard
- Introduction to YANG
- Types of YANG Models
- Introduction to NETCONF
- Introduction to RESTCONF
- Postman for REST API Consumption

Managing Configuration with Python and Ansible

- Enterprise LAN Network Automations Overview

Implementing On-Box Programmability and Automation with Cisco IOS XE Software

- Introduction to Programmability Features on Cisco IOS XE

Implementing Model-Driven Telemetry

- Data Models on Cisco IOS XE Software
- Streaming Telemetry
- Streaming Telemetry Models
- Streaming Telemetry Transport Protocols

Day-Zero Provisioning with Cisco IOS-XE

- Day-Zero Operations
- iPXE Overview
- Cisco Network Plug and Play Overview
- ZTP Overview

Implementing Automation in Enterprise Networks

- Cisco Intent-Based Network Overview
- Cisco Catalyst Center Architecture
- Cisco Catalyst Center APIs

Building Cisco Catalyst Center Automation with Python

- Explore Cisco Catalyst Center Python Libraries

Automating Operations using Cisco Catalyst Center

- Introduction to Cisco Catalyst Center Assurance Workflows
- Cisco Catalyst Center Event Webhooks

Introducing Cisco Catalyst SD-WAN Programmability

- SD-WAN Overview
- Cisco Catalyst SD-WAN Architecture
- Cisco SD-WAN REST API Overview

Building Cisco SD-WAN Automation with Python

- Working with Templates in Cisco Catalyst SD-WAN
- Python Workflows for Cisco Catalyst SD-WAN

Building Cisco Catalyst SD-WAN Automation with Ansible

- Shaping SD-WAN Overlay with Policies
- Using Ansible with Cisco SD-WAN APIs

Automating Cisco Meraki

- Cisco Meraki Architecture and Automation Capabilities
- Cisco Meraki REST API Overview

Implementing Meraki Integration APIs

- Cisco Meraki Integrations Overview
- Location Scanning APIs
- Cisco Meraki Camera APIs
- Cisco Meraki Captive Portals
- Cisco Meraki Wireless Health
- Cisco Meraki Webhook Alerts

Labs

- Automate Networks with Netmiko
- Use Postman for REST API Consumption
- Use Ansible to Configure and Verify Device Configuration
- Implement On-Box Programmability and Automation with Cisco IOS XE Software
- Use Python on Cisco IOS XE Software
- Implement Streaming Telemetry with Cisco IOS XE
- Explore Cisco Catalyst Center APIs
- Build Python Scripts to Interact with Cisco Catalyst Center Intent APIs
- Execute Cisco Catalyst Center SD-Access APIs to Manage SD-Access Fabric Networks
- Build Python Scripts with Cisco Catalyst Center Assurance APIs
- Troubleshoot End-to-End Connectivity and Health-Check the Network via the Cisco Catalyst Center API
- Perform Administrative Tasks Using the Cisco Catalyst SD-WAN API
- Build, Manage, and Operate Cisco Catalyst SD-WAN Programmatically
- Consume Cisco Catalyst SD-WAN APIs Using the Uniform Resource Identifier (URI) Module
- Manage Policies with Ansible
- Build Reports Using Ansible
- Implement Cisco Meraki API Automation
- Explore Cisco Meraki Integration APIs
- Explore Cisco Meraki Webhook Alerts

Further Information:

For More information, or to book your course, please call us on 00 971 4 446 4987

training@globalknowledge.ae

www.globalknowledge.com/en-ae/

Global Knowledge, Dubai Knowledge Village, Block 2A,First Floor, Office F68, Dubai, UAE