ProTech Professional Technical Services, Inc.

Implementing Automation For Cisco Enterprise Solutions (ENAUI)

Course Summary

Description

Implementing Automation for Cisco Enterprise Solutions (ENAUI) v.1.2 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
- Prepare for the 300-435 ENAUTO exam and join the DevNet class of 2020

Objectives

At the end of this course, students will 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

Topics

- Network Programmability Foundation
- Automating APIs and Protocols

- Managing Configuration with Python and Ansible

Course Outline

Course Summary (cont'd)

- Implementing On-Box Programmability and Automation with Cisco IOS XE Software
- Implementing Model-Driven Telemetry
- Day 0 Provisioning with Cisco IOS-XE Software
- Implementing Automation in Enterprise Networks
- Building Cisco DNA Center Automation with Python
- Automating Operations using Cisco DNA Center
- Introducing Cisco SD-WAN Programmability
- Building Cisco SD-WAN Automation with Python
- Building Cisco SD-WAN Automation with Ansible
- Automating Cisco Meraki
- Implementing Meraki Integration APIs

Lab outline

- 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 DNA Center APIs
- Build Python Scripts to Interact with Cisco DNA Center Intent APIs
- Build Python Scripts with Cisco DNA Center Assurance APIs
- Troubleshoot End-to-End Connectivity and Health-Check the Network via the Cisco DNA Center API
- Perform Administrative Tasks Using the Cisco SD-WAN API
- Build, Manage, and Operate Cisco SD-WAN Programmatically
- Consume SD-WAN APIs Using the Uniform Resource Identifier (URI) Module
- Manage Policies with Ansible
- Build Reports Using Ansible-Cisco SD_WAN Role
- Implement Cisco Meraki API Automation
- Explore Cisco Meraki Integration APIs
- Explore Cisco Meraki Webhook Alerts

Audience

This course is designed primarily for network and software engineers who are interested in learning about automation and programmability and hold the following job roles:

- Account manager
- Consulting systems engineer
- Network administrator
- Network engineer
- Network manager

- Sales engineer
- Systems engineer
- Technical solutions architect
- Wireless design engineer
- Wireless engineer

Prerequisites

Before taking this course, you should have the following knowledge and skills:

- Basic programming language concepts
- Basic understanding of virtualization
- Ability to use Linux and CLI tools, such as Secure Shell (SSH) and bash
- CCNP level core networking knowledge equivalent to the
- A foundational understanding of Cisco DNA, Meraki, and Cisco SD-WAN

The following Cisco courses can help you gain the knowledge you need to prepare for this course:

- Introducing Automation for Cisco Solutions (CSAU)
- Implementing and Administering Cisco Solutions (CCNA©_)
- Implementing Cisco Enterprise Network Core Technologies (ENCOR)

Duration

Three days