Implementing Automation for Cisco Data Center Solutions (DCAUI) v1.1

Duration: 3 Days

Prerequisites:

Before taking this offering, you should have:

- Basic knowledge of programming language concepts
- Basic understanding of virtualization and VMware
- Ability to use Linux and CLI tools, such as SSH and bash
- CCNP level data center knowledge
- Foundational understanding of Cisco ACI

Course Description:

The Implementing Automation for Cisco Data Center Solutions (DCAUI) v1.1 training teaches you how to implement Cisco® Data Center automated solutions including programming concepts, orchestration, and automation tools. Through a combination of lessons and hands-on practice, you will manage the tools and learn the benefits of programmability and automation in the Cisco-powered Data Center. You will examine Cisco Application Centric Infrastructure (Cisco ACI®), Software-Defined Networking (SDN) for data center and cloud networks, Cisco Nexus® (Cisco NX-OS) platforms for device-centric automation, and Cisco Unified Computing System (Cisco UCS®) for Data Center compute. You will study their current ecosystem of Application Programming Interfaces (APIs), software development toolkits, and relevant workflows along with open industry standards, tools, and APIs, such as Python, Ansible, Git, JavaScript Object Notation (JSON), Yaml Ain't Markup Language (YAML), Network Configuration Protocol (NETCONF), Representational State Transfer Configuration Protocol (RESTCONF), and Yet Another Generation (YANG).

This training prepares you for the 300-635 Automating Cisco Data Center Solutions (DCAUTO) certification exam. Introducing Automation for Cisco Solutions (CSAU) is required prior to enrolling in Implementing Automation for Cisco Data Center Solutions (DCAUI) because it provides crucial foundational knowledge essential to success. This training also earns you 24 Continuing Education (CE) credits towards recertification.

Course Objectives:

After taking this training, you should be able to:

- Review Cisco ACI fundamental concepts, GUI workflows, and create the case for implementing automation
- Introduce the Cisco ACI REST API, the tools already available on the Cisco APIC, and understand basic API interaction using Postman
- Understand the functionality provided by the Python ACI libraries and write scripts that apply configuration and verify state on the Cisco ACI fabric
- Understand Cisco ACI Ansible modules, build playbooks that apply Infrastructure-as-Code concepts to Cisco ACI tenant configuration, and generate a
- health report using Ansible
- Understand Cisco ACI Apps Center integration and the benefits of integrating Kubernetes infrastructure with Cisco ACI
- Understand the API types and capabilities available on Cisco Nexus product family
- Understand Day 0 operations and how ZTP, POAP, and iPXE fulfill these goals with their respective tooling
- Understand functionality provided by the on-box tooling on the Cisco Nexus series switches and implement simple solutions to improve daily operations
- Use Python and Ansible to leverage the NX-API to implement and verify configuration state using modern workflows
- Understand the paradigm shift of Model-Driven Telemetry and explore a fully set up pipeline for data collection and analysis
- Understand the Cisco UCS developer tools and implement management workflows leveraging Cisco UCS APIs, Python, and Ansible modules
- Review Cisco NDFC product capabilities and understand how its API can be leveraged to automate the Cisco Data Center
- Understand the advantages of using Cisco Intersight and how to implement automation tasks using its REST APIs via Python and Ansible
- Describe Terraform plans for Cisco ACI deployments

Intended Audience:

- Channel and Customer Engineers including Network Engineers, System Engineers, Wireless Engineers, Consulting Systems Engineers, TechnicalbSolutions Architects, Network Administrators, Wireless Design Engineers, Network Managers, Site Reliability Engineers, and Deployment Engineers
- Channel Sales Engineers
- Channel Account Managers

Course Outlines:

- Describing the Cisco ACI Policy Model
- Describing the Cisco APIC REST API
- Using Python to Interact with the Cisco ACI REST API
- Using Ansible to Automate Cisco ACI
- Introducing Cisco NX-OS Programmability
- Describing Day-Zero Provisioning with Cisco NX-OS
- Implementing On-Box Programmability and Automation with Cisco NX-OS
- Implementing Off-Box Programmability and Automation with Cisco NX-OS
- Automating Cisco UCS Using Developer Tools
- Describing Cisco Intersight

Lab outline

- Use Cisco APCI Web GUI
- Discover the Cisco APIC REST API
- Use Postman with the APIC REST API
- Use Python with Cisco APIC REST API
- Configure and Verify Cisco ACI Using Acitoolkit
- Use Cobra and Arya to Recreate a Tenant
- Manage Configuration Using Ansible
- Set Up a New Tenant the NetDevOps Way
- Create an Infrastructure Health Report
- Set Up Power On Auto Provisioning on the Cisco Nexus 9000
- Use Bash and Guest Shell on Cisco NX-OS
- Use Python to Enhance CLI Commands
- Trigger a Python Script Using EEM
- Configure and Verify Using NX-API and Python
- Configure and Verify Using NETCONF and YANG
- Use Ansible with Cisco NX-OS
- Connect, Query, and Modify Cisco UCS Manager Objects Using Cisco UCS PowerTool
- Connect, Query, and Modify Cisco UCS IMC Objects Using Cisco UCS PowerTool
- Utilize Cisco UCS Python SDK
- Utilize Cisco IMC Python SDK
- Implement Ansible Playbooks to Modify and Verify the Configuration of Cisco UCS Manager