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Implementing Automation for Cisco Data Center Solutions 1.1 (DCAUI)
Duration: 3 Days (24 hours)

Course Prerequisites

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

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

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 and Operating Cisco Data Center Core Technologies (DCCOR)
- Programming Use Cases for Cisco Digital Network Architecture (DNAPUC)
- Introducing Cisco Network Programmability (NPICNP)

Course Objectives

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

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This course 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 course also earns you 24 Continuing Education (CE) credits towards recertification.

This course will help you:

- Gain high-demand knowledge and skills in modern programming language to create powerful APIs that enhance network functioning
- Earn 24 CE credits toward recertification
- Prepare for the **300-635 DCAUTO** exam

The **300-635 DCAUTO** exam certifies your knowledge and skills related to implementing Data Center automated solutions including programming concepts, orchestration, and automation tools. After you pass **300-635 DCAUTO** exam, you earn the **Cisco Certified DevNet Specialist – Data Center Automation and Programmability** certification, and you satisfy the concentration exam requirement for these professional-level certifications:

- **CCNP® Data Center**
- **Cisco Certified DevNet Professional**

After taking this course, you should be able to:

- Leverage the tools and APIs to automate Cisco ACI powered data centers.
- Demonstrate workflows (configuration, verification, healthchecking, monitoring) using Python, Ansible, and Postman.
- Leverage the various models and APIs of the Cisco Nexus OS platform to perform day 0 operations, improve troubleshooting methodologies with custom tools, augment the CLI using scripts, and integrate various workflows using Ansible and Python.
- Describe the paradigm shift of Model Driven Telemetry and understand the building blocks of a working solution.
- Describe how the Cisco Data Center compute solutions can be managed and automated using API centric tooling, by using the Python SDK, PowerTool, and Ansible modules to implement various workflows on Cisco UCS, Cisco IMC, Cisco UCS Manager, Cisco UCS Director, and Cisco Intersight.

Course Outline

- Describing the Cisco ACI Policy Model
- Describing the Cisco APIC REST API
- Using Python to Interact with the 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
- Implementing Workflows Using Cisco UCS Director
- Describing Cisco DCNM
- Describing Cisco Intersight

Lab Outline

- Use Cisco APIC Web GUI
- Discover the Cisco APIC REST API
- Use Postman with the APIC REST API
- Use Python with the 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 Cisco Embedded Event Manager (EEM)
- Configure and Verify Using NX-API and Python
- Configure and Verify Using NETCONF/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 Integrated Management Controller (IMC) Objects Using Cisco IMC PowerTool
- Utilize Cisco UCS Python Software Development Kit (SDK)
- Utilize Cisco IMC Python SDK
- Implement Ansible Playbooks to Modify and Verify the Configuration of Cisco UCS Manager

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Who Should Enroll

This course is designed for network and software engineers who hold the following job roles:

- Network engineer
- Systems engineer
- Wireless engineer
- Consulting systems engineer
- Technical solutions architect
- Network administrator
- Wireless design engineer
- Network manager
- Site reliability engineer
- Deployment engineer
- Sales engineer
- Account manager