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Computer Learning Centers

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Introducing Automation for Cisco Solutions (CSAU)

WHERE GREAT TRAINING HAPPENS EVERYDAY!

Introducing Automation for Cisco Solutions (CSAU)

Course Duration

3 Days

Course Price

$3,995.00
29 CLCs

Methods of Delivery

In-Person ILT
Virtual ILT
Onsite ILT

About this Class

In this Introducing Automation for Cisco Solutions course provides a comprehensive introduction to network automation and NetDevOps practices, focusing on how modern networks are designed, operated, and maintained using software-driven methodologies. It establishes the foundational knowledge required to transition from manual, device-by-device management to automated, scalable, and repeatable network operations. Emphasis is placed on aligning network engineering workflows with proven software development and DevOps principles. The curriculum introduces Python as the primary automation language, covering core scripting concepts, API consumption, and interaction with network devices. Students learn how HTTP-based network APIs work, how data is structured and encoded using JSON and YAML, and how model-driven interfaces such as YANG, NETCONF, and RESTCONF enable structured, programmatic configuration and telemetry. Automation frameworks such as Ansible are introduced to demonstrate how configuration templating, data collection, and large-scale deployments are simplified in enterprise environments. Hands-on labs reinforce each topic through practical exercises, including building automation scripts, using Git for version control, interacting with APIs through Postman and Python Requests, automating devices with Netmiko, and deploying configurations with Ansible and Jinja2 templates. By the end of the course, students gain the practical skills and operational mindset needed to begin implementing network automation and NetDevOps workflows in real-world production networks.

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How you will benefit

This class will help you:

- Gain an overview of the skills you need to become a next-generation engineer
- Prepare to accelerate network automation in your organization
- Increase collaboration across internal and external teams using version control systems
- Earn 16 CE credits toward recertification

Why Attend with Current Technologies CLC

- Our Instructors are the top 10% rated by Cisco
- Our Lab has a dedicated 1 Gig Fiber Connection for our Labs
- Our Labs run up to Date Code for all our courses

Who Should Attend

The job roles best suited to the material in this course are:

- Automation Architects
- Automation Engineers
- Consulting Systems Engineers
- DevOps Engineers
- Network Administrators
- Network Architects
- Network Consulting Engineers
- Network Design Engineers
- Network Engineers
- Network Operators
- Network Reliability Engineers
- Sales Engineers

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Cont. Who Should Attend

- Site Reliability Engineers
- Systems Engineers
- Technical Solutions Architects
- Application Developers
- Collaboration Developers
- Collaboration Solutions Architects
- IT Directors
- Mobile Developers
- Network Operations Center (NOC) Managers
- Software Architects
- Web Developers

Objectives

After taking this course, you should be able to:

- Articulate the role network automation and programmability play in the context of end-to-end network management and operations
- Define and differentiate between waterfall and agile software development methodologies
- Interpret and troubleshoot Python scripts with fundamental programming constructs built for network automation use cases
- Describe how DevOps principles, tools, and pipelines can be applied to network operations
- Understand the role of network automation development environments and associated technologies such as Python virtual environments, Vagrant, and Docker
- Understand and construct HTTP-based application programming interface (API) calls to network devices
- Articulate the differences among and common use cases for XML, JSON, YAML, and protocol buffer (protobuf)

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Objectives

After taking this course, you should be able to:

- Construct and interpret Python scripts using the Python requests module to automate devices that have HTTP-based APIs
- Understand the role YANG plays in network automation
- Understand that several tools exist to simplify working with YANG models
- Describe the functionality of RESTCONF and NETCONF and the differences between them
- Construct Ansible playbooks to configure network devices and retrieve operational state data from them
- Build Jinja2 templates and YAML data structures to generate desired state configurations

Prerequisites

There are no prerequisites for this training. However, the knowledge and skills you are recommended to have before attending this training are:

- Routing and switching including open shortest path first (OSPF), border gateway protocol (BGP), and basic configuration features such as interfaces, simple network management protocol (SNMP), and static routes
- Fundamentals of Python data structures and programming constructs, such as loops, conditionals, and classes, or the equivalent of 3–6 months of experience writing Python scripts
- Basic Linux commands for navigating the file system and executing scripts
- Knowledge of working with text editors

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Course Outline

Module 1: Examining Network Management and Operations

Module 2: Exploring Software Development Methodologies

Module 3: Using Python for Network Automation

Module 4: Describing NetDevOps: DevOps for Networking

Module 5: Managing Automation Development Environments

Module 6: Introducing HTTP Network APIs

Module 7: Reviewing Data Formats and Data Encoding

Module 8: Using Python Requests to Automate HTTP-Based APIs

Module 9: Exploring YANG

Module 10: Using YANG Tools

Module 11: Automating Model-Driven APIs with Python

Module 12: Introducing Ansible for Network Automation

Module 13: Templating Configurations with Jinja2

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Lab Outline

- Lab 1: Use Network Automation Scripts
- Lab 2: Enforce Python Fundamentals on the Interactive Interpreter
- Lab 3: Automate Networks with Netmiko
- Lab 4: Use the Git Version-Control System and Collaborate on an Internal Project
- Lab 5: Build Reproduceable Automation Environments
- Lab 6: Use HTTP-Based APIs with Postman
- Lab 7: Explore YAML and JSON Data
- Lab 8: Consume HTTP-Based APIs with Python Requests
- Lab 9: Explore YANG Tools
- Lab 10: Explore RESTCONF with Python
- Lab 11: Explore NETCONF with Python
- Lab 12: Configure Network Devices with Ansible
- Lab 13: Collect Network Data with Ansible
- Lab 14: Build and Deploy Configurations with Ansible