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Cisco CCNA Automation Certification Training

5 days (35 hours)

Overview

Prepare for the CCNA Automation certification and demonstrate your ability to develop, integrate, and automate solutions based on Cisco platforms and technologies.

The 200-901 CCNAAUTO exam assesses your skills in software development, API usage, Cisco platforms, application deployment and security, infrastructure automation, and networking fundamentals.

During our exam preparation course, you will study all areas of the official exam syllabus and put essential concepts into practice through exercises focused on Python, REST APIs, Git, and network infrastructure automation.

In particular, you'll learn how to use Cisco platform APIs, develop automation scripts, understand the principles of Infrastructure as Code, and incorporate best practices for security and application deployment.

This program is regularly updated to remain aligned with the latest version of the CCNA Automation 200-901 exam and the technologies currently in use within the Cisco ecosystem.

Like all our training courses, this one will introduce you to **the latest stable version** of the technology and its new features.

Objectives

- Master the fundamentals of software development and code management with Git
- Effectively use REST APIs, data formats, and authentication mechanisms
- Understand the main Cisco platforms and their APIs

- Deploy and secure applications in modern environments
- Automate network infrastructure using Python and Infrastructure as Code tools
- Master the knowledge required to prepare for the 200-901 CCNAAUTO exam

Target Audience

- Network Engineers
- Network and system administrators
- Developers working with network infrastructure
- DevOps and automation engineers

Prerequisites

- Basic knowledge of TCP/IP networks and Cisco infrastructure
- Basic programming skills, particularly in Python
- Understanding of the fundamentals of REST APIs
- Basic knowledge of Git and the command line is recommended

Note: Ambient IT does not own Cisco Certifications™; this certification is owned by Cisco Systems, Inc.

Curriculum for our Cisco CCNA Automation Certification (200-901 CCNAAUTO) Training Course

[Day 1 - Morning]

Software Development and Design

- Compare the XML, JSON, and YAML data formats used in automation workflows
- Analyze and convert common data formats into Python data structures
- Understand the principles of Test-Driven Development (TDD) and unit testing
- Compare Agile, Lean, and Waterfall development methods
- Organize code using functions, classes, and modules, and understand key design patterns
- Use Git: clone, add, commit, push, pull, branches, merge, conflict resolution, and diff
- Hands-on workshop: working with JSON/YAML data in Python and managing code for an automation project with Git.

[Day 1 - Afternoon]

Understanding and Using APIs

- Understand how HTTP/HTTPS protocols work and interpret requests, responses, headers, and bodies
- Build a REST API request based on API documentation
- Understand HTTP response codes and diagnose errors encountered during API calls
- Implement authentication mechanisms: Basic Authentication, tokens, and API keys
- Compare REST, RPC, synchronous, and asynchronous API styles and understand the use of webhooks
- Build Python scripts that use a REST API with the `requests` library
- Hands-on workshop: Querying an API with Postman and Python, then diagnosing various HTTP error scenarios.

Automate Cisco platforms

- Understand the programmability capabilities and APIs of Cisco platforms
- Use APIs and SDKs to automate operations on network, security, collaboration, and computing infrastructures
- Working with Cisco platforms such as Meraki, Catalyst Center, ACI, SD-WAN, and NSO
- Understand the automation capabilities offered by Webex, Intersight, and Cisco security platforms
- Use model-driven programmability with YANG, NETCONF, and RESTCONF
- Identify Cisco resources suitable for development and testing: API documentation, sandbox environments, and Cisco U. resources
- Hands-on workshop: Automate an operation on a Cisco platform using Python and an API.

[Day 2 - Morning]

Deploying and Securing Applications

- Compare private, public, hybrid, and edge computing deployment models
- Understand the differences between virtual machines, bare metal, and containers
- Identify the components of a CI/CD pipeline and their role in application deployment
- Interpret a Dockerfile and use Docker to create a local development environment
- Build Python unit tests and integrate testing into the development cycle
- Secure secrets and data and understand key application vulnerabilities
- Hands-on workshop: containerize a Python application, run its tests, and identify and fix a security vulnerability.

[Day 2 - Afternoon]

Understanding programmable network infrastructures

- Understanding the networking fundamentals required for infrastructure automation
- Interpret a network topology and identify network devices, services, and application flows
- Distinguish between the management, control, and data planes of a network device
- Understand the IP services required for applications and automation: DNS, DHCP, NAT, and management services

- Compare controller-level management with direct device management
- Diagnose connectivity issues related to ports, proxies, VPNs, NAT, and other network constraints
- Hands-on workshop: Analyze a topology and diagnose a connectivity issue between an application and a network API.

Automate the infrastructure and prepare for the CCNA Automation exam

- Understand the principles of Infrastructure as Code (IaC) and model-driven programmability
- Identify the capabilities of automation tools such as Ansible, Terraform, and Cisco NSO
- Build workflows combining Python, Cisco APIs, RESTCONF, NETCONF, and YANG
- Understand the role of CI/CD, code review, and configuration differences in network automation
- Review the topics covered in the 200-901 CCNAAUTO v1.1 exam outline and develop a strategy for managing the 120-minute exam
- Take a practice exam, analyze mistakes, and identify areas requiring further review
- Hands-on workshop: Build a complete network automation workflow and then implement a simulation to prepare for the CCNA Automation certification.

Target Audience

This training is intended for both individuals and companies—large or small—that wish to train their teams in a new, advanced IT technology or to acquire specific industry knowledge or modern methods.

Entry-Level Assessment

The pre-training assessment complies with Qualiopi quality standards. Upon final registration, the learner receives a self-assessment questionnaire that allows us to evaluate their estimated proficiency in various types of technologies, as well as their expectations and personal goals for the upcoming training, within the limits imposed by the selected format. This questionnaire also allows us to anticipate certain connection or internal security issues within the company (intra-company or virtual classroom) that could pose challenges for monitoring and ensuring the smooth running of the training session.

Teaching Methods

Hands-On Training: 60% Practical, 40% Theoretical. Training materials distributed in digital format to all participants.

Organization

The course alternates between theoretical input from the instructor—supported by examples and reflection sessions—and group work.

Assessment

At the end of the session, a multiple-choice quiz is administered to verify that participants have successfully acquired

of the skills.

Certification

A certificate will be issued to each trainee who has completed the entire training program.