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# Cisco DevNet Associate™ Training: Certification Preparation

ALL-IN-ONE: EXAMINATION INCLUDED IN PRICE

5 days (35 hours)

## Presentation

Opt for Cisco DevNet Associate™ certification and demonstrate your mastery of Cisco technologies and your ability to create innovative solutions for modern network environments.

The exam is made up of [several modules](#) including software development and design, use of APIs, Cisco platforms and application development, application security, infrastructure automation and network fundamentals.

During our exam preparation course, we'll cover all the relevant points and give you tips on the latest DevNet program updates to prepare you for the exam.

This program offers constantly updated training in line with the latest versions of the Cisco DevNet Associate™ exam. You'll benefit from the latest technological advances and industry best practices to prepare you optimally for the exam.

## Objectives

- Understand and apply the principles of test-driven development
- Efficient use of REST APIs and common authentication mechanisms
- Acquire the skills needed to deploy applications in a variety of environments
- Learn how to automate your network infrastructure

## Target audience

- Software developers
- Application developers
- Network engineers

## Prerequisites

- Basic computer and network skills
- Basic programming skills (particularly in Python)
- An understanding of basic API concepts is important
- Practical experience in application development or network administration is a plus

*Note: Ambient IT does not own Cisco Certifications™, this certification belongs to Cisco, Inc.*

## Cisco Devnet Associate™ training program

### Software development and design

- Comparison of data formats (XML, JSON and YAML)
- Parsing of common data formats (XML, JSON and YAML) to Python data structures
- Test-driven development concepts
- Comparison of software development methods
  - Agile
  - Lean
  - Waterfall
- Advantages of organizing code into methods
  - Functions
  - Classes
  - Modules
- Advantages of common design patterns (MVC and Observer)
- Benefits of version control
- Using common version control operations with Git

### Using APIs

- Build a REST API request (refer to API documentation)
- Description of common webhook usage patterns
- Identifying constraints when consuming APIs
- Common HTTP response codes for REST APIs
- Troubleshooting
  - HTTP response code
  - Request
  - API documentation

- Use of common API authentication mechanisms
  - Basic
  - Personalized token
  - API keys
- Comparison of common API styles (REST, RPC, synchronous and asynchronous)
- Building a Python script calling a REST API using the requests library

## Cisco platforms and development

- Building a Python script using a Cisco SDK
- Capabilities of Cisco network management platforms and APIs
  - Meraki
  - Cisco DNA Center
  - ACI
  - Cisco SD-WAN
  - NSO
- Capabilities of Cisco compute management platforms and APIs
  - UCS Manager
  - Intersight
- Capabilities of Cisco collaboration platforms and APIs
  - Webex and Webex devices
  - Cisco Unified Communication Manager (including AXL and UDS interfaces)
- Capabilities of Cisco security platforms and APIs
  - XDR
  - Firepower
  - Umbrella
  - Secure Endpoint
  - ISE
  - Secure Malware Analytics
- Device-level APIs and dynamic interfaces for IOS XE and NX-OS
- Identification of appropriate DevNet resources for a given scenario (Sandbox, Code Exchange, support, forums, Learning Labs and API documentation)
- Application of model-driven programmability concepts (YANG, RESTCONF and NETCONF) in a Cisco environment

## Application deployment and security

- Advantages of edge computing
- Attributes of different application deployment models
  - Private cloud
  - Public cloud
  - Hybrid cloud
- Attributes for application deployment types (virtual machines, bare metal and containers)
- CI/CD pipeline components in application deployments
- Building a unit test in Python
- Interpreting the contents of a Dockerfile
- Using Docker images in a local development environment
- Identification of related application security issues
  - Protecting secrets
  - Encryption (storage and transport)
  - Data manipulation

- Explanation of firewall, DNS, load balancing and reverse proxy in application deployment
- Description of the main OWASP threats (such as XSS, SQL injections and CSRF)
- Use of Bash commands (file management, directory navigation and environment variables)
- Identifying the principles of DevOps practices

## Infrastructure

- Pilot programmability value
- Comparison of controller-level and device-level management
- Use and roles of network simulation and test tools
- Components and benefits of the CI/CD pipeline in infrastructure automation
- Infrastructure as Code (IaC) principles

## Automation

- Capabilities in automation tools such as Ansible, Terraform and Cisco NSO
- Identification of automated workflow by Python script using Cisco APIs
  - ACI, Meraki
  - Cisco DNA Center
  - RESTCONF
- Identifying automated workflows with an Ansible playbook
  - Package management
  - Service-related user management
  - Basic service configuration and start/stop
- Identifying automated workflows with a bash script
  - File management
  - Application installation
  - User management
  - Directory navigation
- Interpreting the results of a RESTCONF or NETCONF request
- Interpretation of basic YANG patterns
- Interpreting a unified diff
- Description of the principles and benefits of a code review process
- Interpreting a sequence diagram including API calls

## Strategy and methods for exam success Mock

exam

## Companies concerned

This course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

## Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

## Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

## Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

## Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

## Sanction

A certificate will be issued to each trainee who completes the course.