

OUR LEARNING EXCLUSIVE

- Custom exam prep software and materials
- Exam delivery in the classroom, with a **98% success rate**
- Course-specific thinQtank® Learning publications to make the learning fun and engaging
- Extended hours of training, including immersive hands-on exercises
- **We do not teach the test.** We always deliver valuable hands-on experience
- All reading material and study guides sent to you when you register
- Every course taught by expert, certified instructors

TRAINING CAMP FORMAT

thinQtank® Learning delivers this course as an intensive, **extended-hours instructor-led boot camp**, with the exam sat in the classroom as part of the camp. The extended days are **entirely instructor-led** and cover the self-study content as well as the standard delivery — you are not sent away to work through it alone. That self-study material also arrives as part of the digital courseware on day one and should form part of your exam preparation. Camps are scheduled by cohort rather than to a fixed calendar, and the balance of lecture and practical lab work is set to suit the group and the delivery method. Contact us for the schedule covering your dates.

PREREQUISITES

- Basic familiarity with networking and the TCP/IP protocol suite
- Basic programming or scripting experience (Python recommended)
- Basic Linux command-line navigation
- CCNA-level networking knowledge recommended (no formal prerequisite)

COURSE OBJECTIVES

On completing this course you will be able to:

- Use Python data types, functions, and modules to build simple applications
- Parse and construct JSON, XML, and YAML data
- Use Git for version control and collaborative workflows
- Apply software development and design practices, including test-driven development
- Consume REST APIs using HTTP methods and status codes
- Authenticate to APIs with keys, tokens, and OAuth
- Use the Python requests library to build and troubleshoot API calls
- Automate Cisco platforms (Catalyst Center, Meraki, ACI, Webex) through their APIs
- Deploy applications using containers and CI/CD pipelines
- Apply application security, secrets management, and OAuth concepts
- Use model-driven programmability with NETCONF, RESTCONF, and YANG
- Automate infrastructure with Ansible and Terraform
- Interpret automation workflows and results
- Apply networking fundamentals to automation and troubleshooting

COURSE OVERVIEW

thinQtank® Learning offers an industry-unique training camp in which students earn the **CCNA Automation certification** — formerly the Cisco Certified DevNet Associate. As with all our Cisco training experiences, the exam is delivered in the classroom.

Developing Applications and Automating Workflows using Cisco Platforms prepares you for an **associate-level network automation and software development role**. You will learn to build applications on Cisco platforms and to automate workflows across network, security, collaboration, and compute infrastructure.

The course gives you hands-on experience solving real-world problems with Cisco Application Programming Interfaces (APIs) and modern development tools — Python, Git, REST, NETCONF/RESTCONF, YANG, Ansible, and Terraform.

CCNA Automation is the associate-level foundation for a career in network automation and NetDevOps, and the single exam — 200-901 — is where that track begins.

EXAM

200-901 CCNAAUTO — Developing Applications and Automating Workflows using Cisco Platforms

This outline follows blueprint version 1.1.

One exam earns the **CCNA Automation certification** — the associate-level foundation for network automation and software development roles.

Cisco does not publish a fixed question count or passing score for this exam.

TARGET AUDIENCE

- Anyone looking to earn their CCNA Automation certification
- Network engineers moving into automation and NetDevOps
- Software developers working with network infrastructure
- Automation engineers and DevOps practitioners
- IT staff building API-driven and infrastructure-as-code workflows

DELIVERY METHODS

- Instructor-led training
- Immersive live-online training
- On-site and custom delivery

EXCLUSIVE LEARNING PACKAGE

- Comprehensive video training package
- Hundreds of pre-built labs for continued practice and learning
- Custom Linux builds for hands-on development and automation
- After-course instructor coaching benefits
- Exam voucher included, and the exam delivered in the classroom

COURSE OUTLINE

01 Practicing Network Automation

- Benefits of Network Automation
- Automation vs Manual Configuration
- Programmability and Controllers
- Automation Tools Overview

02 Exploring Software Development and Design

- Software Development Lifecycle
- Development Methodologies and Agile
- Design Patterns and Modularity
- Test-Driven Development

03 Introducing Python

- Python Data Types and Variables
- Functions, Classes and Modules
- Control Flow and Loops
- Python Virtual Environments

04 Working with Data Formats

- JSON and Python Dictionaries
- XML Parsing
- YAML Structures
- Converting Between Formats

05 Using Version Control with Git

- Git Workflow and Repositories
- Branching and Merging
- Resolving Merge Conflicts
- Collaborative Development

06 Understanding APIs

- API Types and REST Principles
- HTTP Methods and CRUD
- API Documentation
- Synchronous vs Asynchronous

07 Consuming REST APIs

- HTTP Status Codes
- Constructing Requests
- Troubleshooting API Calls
- Pagination and Rate Limiting

08 API Authentication and Security

- API Keys and Basic Auth
- Bearer Tokens
- OAuth 2.0 Concepts
- Webhooks

09 Using the Python requests Library

- Building Requests
- Headers and Authentication
- Parsing Responses
- Error Handling

10 Automating Cisco Catalyst Center

- Intent APIs
- Authentication Tokens
- Device and Site Queries
- Task Handling

COURSE OUTLINE CONTINUED

11 Automating Cisco Meraki

- Dashboard API
- Organizations, Networks and Devices
- API Keys
- Action Batches

12 Working with Cisco ACI and Webex

- ACI Programmable Fabric
- APIC Object Model
- Webex Collaboration APIs
- Bots and Webhooks

13 Application Deployment

- Containers and Docker
- Deployment Models
- Cloud and Edge
- CI/CD Pipelines

14 Application Security

- Managing Secrets and Environment Variables
- Certificates and TLS
- Authentication and Authorization
- OAuth in Applications

15 Model-Driven Programmability

- NETCONF and RESTCONF
- Datastores
- RESTCONF HTTP Verbs
- Programmatic Configuration

16 Working with YANG Data Models

- YANG Structure
- Config vs State Data
- Interpreting a Model
- Model-Driven Telemetry

17 Automating with Ansible

- Playbooks, Plays and Tasks
- Inventory and Modules
- Agentless Automation
- Idempotency

18 Automating with Terraform and NSO

- Terraform Plan and Apply
- State Management
- Cisco NSO Service Models
- Declarative Infrastructure

19 Applying Networking Fundamentals

- MAC, VLANs and IP Addressing
- Routing and Switching
- DHCP, DNS and NAT
- Management, Control and Data Planes

20 Diagnosing Connectivity and Ports

- Common Ports and Protocols
- NAT and Proxies
- VPNs
- Troubleshooting API Connectivity

LABS OUTLINE

- | | |
|--|---|
| 01 Set Up a Python Development Environment | 13 Build and Run a Docker Container |
| 02 Parse JSON, XML and YAML with Python | 14 Deploy an Application with a CI/CD Pipeline |
| 03 Manage Code with Git Branching and Merging | 15 Manage Secrets and Environment Variables |
| 04 Build a Simple Python Application | 16 Configure a Device with RESTCONF |
| 05 Explore a REST API with Postman and curl | 17 Retrieve Configuration with NETCONF |
| 06 Consume a REST API with Python requests | 18 Interpret a YANG Data Model |
| 07 Authenticate to an API with a Bearer Token | 19 Automate Configuration with an Ansible Playbook |
| 08 Handle API Pagination and Rate Limits | 20 Provision Infrastructure with Terraform |
| 09 Automate Cisco Catalyst Center with APIs | 21 Model a Service in Cisco NSO |
| 10 Automate the Cisco Meraki Dashboard | 22 Diagnose API Connectivity Through a Proxy |
| 11 Query the Cisco ACI APIC Object Model | 23 Verify Networking Fundamentals for Automation |
| 12 Post a Message with the Webex API | 24 Build an End-to-End Automation Workflow |

T E R M S

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