
Automating Cisco Data Center Networking Solutions (DCNAUTO)

***WHERE GREAT TRAINING
HAPPENS EVERYDAY!***

Automating Cisco Data Center Networking Solutions (DCNAUTO)

Course Duration
5 Days

Course Price
\$4,395.00
44 CLCs

Methods of Delivery
In-Person ILT
Virtual ILT
Onsite ILT

About this Class

The Automating Cisco Data Center Networking Solutions (DCNAUTO) training teaches you how to implement and optimize automation in Cisco data center environments. You will gain hands-on experience with Cisco Nexus platforms, programmability features, and modern automation tools used to streamline operations across switching, compute, and fabric controllers. The training covers foundational concepts in network programmability, then advances into day-zero provisioning, on-box automation using Bash, Python, and Guest Shell, and off-box automation with Cisco NX-API, NETCONF/RESTCONF, and YANG models. You will also explore Infrastructure as Code (IaC) workflows with Cisco Nexus Dashboard Fabric Controller (NDFC), Ansible, and Terraform, as well as network validation and testing with Cisco pyATS. Finally, you will learn how AI-driven operations enhance network automation and simplify lifecycle management.

This training prepares you for the 300-635 DCNAUTO v2.0 exam. If passed, you earn the Cisco Certified Specialist - Data Center Networking Automation certification and satisfy the concentration exam requirements for the Cisco Certified Network Professional (CCNP) Data Center and Automation certifications. This training also earns you 43 Continuing Education (CE) credits toward recertification.

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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:

- Network Designers
- Systems Engineers
- Wireless Engineers
- Consulting Systems Engineers
- Technical Solutions Architects
- Network Administrators
- Wireless Design Engineers
- Network Managers
- Site Reliability Engineers
- Deployment Engineers
- Sales Engineers
- Account Managers
- Program Managers
- Project Managers

Prerequisites

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

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

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Objectives

After taking this course, you should be able to:

- Explain the role of programmability and automation in Cisco data center networks
- Explain the benefits of programmability compared to manual CLI workflows
- Identify data models and data formats (XML, JSON, YAML) used in Cisco automation frameworks
- Use version control systems such as Git for storing and managing configuration files
- Perform day-zero provisioning on Cisco Nexus devices using Power-On Auto Provisioning (POAP)
- Enable and use the Bash shell and Guest Shell on Cisco Nexus devices
- Run Linux commands inside Guest Shell to interact with NX-OS and external services
- Write Python scripts on-box to parse CLI output and enhance operational workflows
- Describe and configure Cisco NX-API CLI and REST interfaces
- Send JSON/XML payloads to NX-API using Python scripts and verify device responses
- Use Cisco NX-API Developer Sandbox for testing and validation
- Implement model-driven programmability using NETCONF/RESTCONF and YANG data models
- Construct and validate Python scripts to configure and verify protocols with NX-OS APIs
- Implement off-box automation with Cisco NX-API CLI/REST, NETCONF/RESTCONF, and YANG models
- Describe Cisco NDFC architecture and automation capabilities
- Use NDFC REST APIs for fabric automation tasks

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Objectives

After taking this course, you should be able to:

- Automate fabric provisioning and configuration with Ansible playbooks
- Build and apply Terraform plans for managing data center fabrics with NDFC
- Describe Cisco pyATS and Genie frameworks for network validation
- Build and run pyATS test cases to verify device state before and after automation
- Interpret test results and integrate them into automation workflows
- Describe how AI and ML capabilities are applied in Cisco Data Center automation
- Explain AI-driven monitoring and anomaly detection workflows
- Correlate AI insights with automated remediation actions

How You'll Benefit

This training will help you:

- Gain practical, hands-on experience with Cisco Nexus platforms and automation tools used in modern data centers
- Acquire skills in network programmability, including scripting with Python and using APIs for automating network operations
- Learn to implement IaC workflows using tools like Ansible and Terraform for efficient configuration management
- Develop troubleshooting expertise in both infrastructure automation and AI-driven operations, enhancing job readiness for advanced network roles
- Prepare for the 300-635 DCNAUTO v2.0 exam
- Earn 43 CE credits toward recertification

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Course Outline

- Module 1: Day-Zero Provisioning
- Module 2: On-Box Automation with Cisco NX-OS
- Module 3: Cisco Nexus Automation with NX-API CLI
- Module 4: Cisco Nexus Programmability with NX-API REST
- Module 5: Model-Driven Programmability on NX-OS
- Module 6: IaC Tools
- Module 7: Lifecycle
- Module 8: Cisco NX-OS Automation with IaC Tools
- Module 9: Cisco ACI Automation with IaC Tools
- Module 10: Cisco Nexus Dashboard Automation with IaC Tools
- Module 11: Simulation of Data Center Topologies
- Module 12: Network Change Validation with pyATS
- Module 13: Model-Driven Telemetry Implementation
- Module 14: Troubleshoot Infrastructure Automation
- Module 15: Troubleshoot Container Workloads Connectivity
- Module 16: AI-Assisted Coding
- Module 17: AI Security Considerations
- Module 18: AI Agent Integration

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Lab Outline

- Lab 1: Set Up PowerOn Auto Provisioning on the Cisco Nexus 9000
- Lab 2: Use Bash and Guest Shell on Cisco NX-OS
- Lab 3: Use Python to Enhance CLI Commands
- Lab 4: Make NX-API Calls with NX-API Sandbox
- Lab 5: Configure and Verify NX-OS Using Python
- Lab 6: Set Up API Calls with Bruno
- Lab 7: Use NX-API REST with Python
- Lab 8: Configure and Verify Using NETCONF, RESTCONF, and YANG
- Lab 9: Construct gRPC Payload
- Lab 10: Track Changes with Git and GitHub
- Lab 11: Use Ansible with Cisco NX-OS
- Lab 12: Use Terraform with Cisco NX-OS
- Lab 13: Generate Configuration Using Jinja2 Templates
- Lab 14: Manage ACI Configuration Using Ansible
- Lab 15: Set Up a New Tenant the NetDevOps Way
- Lab 16: Automate ACI with Terraform
- Lab 17: Automate NDFC with REST API and Python
- Lab 18: Retrieve NX-OS Health Data Using Cisco Nexus Dashboard

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Lab Outline

- Lab 19: Create NDFC Fabric with Ansible
- Lab 20: Automate NDFC with Terraform
- Lab 21: Explore Cisco Modeling Labs Basics
- Lab 22: Simulate Data Center Network with Cisco Modeling Labs
- Lab 23: Cisco ACI Simulator Installation and Initialization Simulation
- Lab 24: Capture and Compare Network State with pyATS CLI
- Lab 25: Run Network Tests Using pyATS and Python
- Lab 26: Configure a Subscription for Model-Driven Telemetry
- Lab 27: Troubleshoot Infrastructure as Code
- Lab 28: Troubleshoot Linux Container Connectivity
- Lab 29: AI Toolset—Jupyter Notebook
- Lab 30: AI-Driven Monitoring Using Nexus Dashboard Simulation