

Cisco 300-435 Automating Cisco Enterprise Solutions (2026)

Automate Cisco networks with Python, APIs, NETCONF, RESTCONF, Ansible, and Terraform. For the 300-435 ENAUTO exam.

IT Certifications Instructor: Brian Mitchell • 5 sections • 42 lessons • 13.50h total

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About this course

The Cisco 300-435 exam focuses on modern automation skills, but translating those objectives into real tasks can be a challenge. This course connects the exam topics to practical tools and techniques you will use to automate Cisco enterprise solutions, with a hands-on approach that mirrors the exam and your daily work.

You will learn how to build Python scripts for Cisco IOS XE, work with NETCONF and RESTCONF APIs, and manage network configurations with Ansible and Terraform. We include step-by-step labs, real case study analysis from enterprise environments, and problem-solving sessions to reinforce your understanding of automation workflows.

Course curriculum

Foundations and Lab Setup

- **Setting Up Your ENAUTO Lab Environment (22m)**
Step-by-step guide to building a flexible lab with Cisco Modeling Labs, VIRL, or DevNet Sandboxes for hands-on practice.
- **Understanding Cisco IOS XE Programmability (15m)**
Learn the key components of IOS XE for automation, including YANG models and the running configuration data store.
- **Python Fundamentals for Network Engineers (32m)**
A practical refresher on Python data structures, functions, and libraries essential for network scripting (no prior coding needed).
- **Virtualizing Your Network with Cisco CML (18m)**
How to launch and manage virtual instances of Cisco devices to test automation scripts safely.
- **Working with Git for Configuration Management (12m)**
A beginner-friendly guide to using Git for tracking changes to your automation playbooks and scripts.
- **Connecting to Devices: SSH and Paramiko (25m)**
Real case study analysis: Use Python's Paramiko library to establish secure SSH connections and execute commands.
- **Exploring the Cisco DevNet Resources (8m)**
How to navigate DevNet code exchanges, learning labs, and sandboxes to accelerate your automation journey.

APIs and Data Models

- **Working with JSON and XML Data Formats (14m)**
Problem-solving session on parsing and manipulating JSON/XML responses from network device APIs.
- **Getting Started with NETCONF (28m)**
Learn how to use the ncclient Python library to connect to devices and manage configurations via NETCONF.
- **Understanding YANG Data Models (20m)**
Practical explanation of how YANG models define device capabilities and how to browse them on a Cisco device.
- **Using RESTCONF for Configuration Changes (23m)**
Step-by-step guide to making GET, POST, and PATCH requests to modify device configs using RESTCONF.
- **Automating DNA Center APIs (30m)**
Downloadable template and script to pull device inventory and health information from Cisco DNA Center.
- **Navigating Cisco SD-WAN vManage APIs (26m)**
Real-world script to automate SD-WAN policy changes and monitor device status via the vManage API.

- **Authentication Methods: OAuth 2.0 and API Keys (11m)**
Learn how to securely authenticate your scripts with Cisco platforms like DNA Center and Meraki.
- **Parsing API Responses with Python (19m)**
Problem-solving session: Use the Requests library to handle API responses and extract specific data points.
- **Error Handling in API Scripts (13m)**
A practical look at building resilient scripts that can handle connection errors and unexpected API responses.

Configuration Management with Ansible

- **Ansible Architecture for Network Engineers (16m)**
Understand the core concepts of Ansible: inventory, playbooks, modules, and roles in a network context.
- **Writing Your First Ansible Playbook (24m)**
Step-by-step guide to creating a playbook that retrieves 'show version' output from multiple Cisco devices.
- **Using Ansible Jinja2 Templates for Configs (21m)**
Learn how to generate device configurations dynamically using Jinja2 templates and Ansible variables.
- **Automating Cisco IOS with Ansible (27m)**
Real case study: Use the `ios_config` module to push a standard baseline configuration to your lab switches.
- **Automating Cisco IOS XE with Ansible (19m)**
Explore advanced `ios_xe` modules for managing features and state on modern Cisco enterprise hardware.
- **Ansible for Cisco SD-WAN Automation (29m)**
Downloadable playbook to automate the creation of site device templates in an SD-WAN fabric.
- **Managing Secrets with Ansible Vault (10m)**
A practical guide to encrypting sensitive data like passwords and API keys within your Ansible projects.
- **Problem-Solving: Troubleshooting Ansible Jobs (17m)**
Common errors and how to fix them, with a focus on connectivity, authentication, and module-specific issues.

Infrastructure as Code with Terraform

- **Terraform Basics: Providers and Resources (15m)**
Learn the core Terraform workflow: 'init,' 'plan,' and 'apply' for network infrastructure.
- **Automating Cisco SD-WAN with Terraform (26m)**
Step-by-step guide to provisioning a new site policy and device feature template using the Terraform provider.
- **Managing DNA Center with Terraform (22m)**
Real case study: Use Terraform to onboard a new device and assign it to a network profile in DNA Center.

- **State Management and Remote Backends (12m)**
Best practices for storing your Terraform state file securely and collaborating with a team.
- **Variables, Outputs, and Modules (18m)**
How to write reusable and scalable Terraform code for complex network deployments.
- **Terraform for Meraki Dashboard (20m)**
Downloadable templates to configure Meraki SSIDs and VLANs using Terraform provider for Meraki.
- **Validating Terraform Configurations (9m)**
Problem-solving session: Using 'terraform validate' and 'fmt' to catch errors before deployment.
- **Comparing Ansible vs. Terraform for Networks (13m)**
A practical discussion on when to use a declarative tool like Terraform versus an imperative one like Ansible.

Advanced Automation & Exam Prep

- **Building End-to-End Automation Workflows (35m)**
Integrate Python, Ansible, and APIs to create a full workflow for network provisioning and validation.
- **Orchestration with Python and nornir (28m)**
Introduction to the nornir framework for concurrent task execution across your network devices.
- **Using Postman for API Discovery (16m)**
Learn how to use Postman collections to test API endpoints before writing your Python or Ansible scripts.
- **GitLab CI/CD for Network Automation (23m)**
Real case study: Set up a pipeline to automatically test and deploy Ansible playbooks when you push to Git.
- **Parsing Show Commands with TextFSM (20m)**
Step-by-step guide to using TextFSM templates to turn raw CLI output into structured data.
- **Advanced SD-WAN Policy Automation (29m)**
Problem-solving session: Automate complex traffic engineering policies using the vManage API.
- **Automating Wireless with Python and MSE APIs (18m)**
Downloadable script to pull wireless client location data and analytics from Cisco CMX/MSE.
- **Reviewing Key ENAUTO Exam Topics (14m)**
A focused review of the exam blueprint, highlighting the most critical APIs and tools you need to know.
- **Final Exam Strategy and Study Plan (11m)**
Actionable tips for scheduling your exam, managing time, and focusing your final study sessions.
- **Course Wrap-Up and Next Steps (6m)**
Where to go from here: contributing to the community, building your portfolio, and continuing your learning.

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