

Cisco 300-835 Automating Cisco Solutions

Automate Cisco solutions with Python, Ansible, and Cisco APIs. Practical labs and real enterprise case studies.

IT Certifications Instructor: Jason Miller • 5 sections • 47 lessons • 18.25h total

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About this course

This course tackles the real challenge of managing complex Cisco environments manually. We move beyond theory to focus on practical automation strategies that save time and reduce errors in your daily network operations.

You will learn how to use Python, Ansible, and Cisco APIs to automate common tasks. The course includes hands-on labs, downloadable templates, and real case studies from enterprise networks.

Course curriculum

Foundations of Cisco Automation

- **Understanding the Cisco 300-835 Exam Objectives (12m)**
Get a clear breakdown of the exam topics and how this course maps to them, so you know exactly what to focus on.
- **Setting Up Your Cisco Lab Environment (18m)**
A step-by-step guide to configuring a virtual lab using Cisco Modeling Labs or Packet Tracer for hands-on practice.
- **Introduction to Python for Network Engineers (25m)**
Learn the Python basics you need for automation, including data types and writing your first script to connect to a device.
- **Working with Cisco IOS-XE and NX-OS APIs (32m)**
Discover how to access and use RESTCONF and NETCONF APIs on Cisco platforms with practical examples.
- **Ansible Fundamentals for Network Automation (22m)**
A beginner-friendly introduction to Ansible, focusing on inventory management and running simple playbooks.
- **Using Git for Version Control in Automation Projects (15m)**
Learn how to set up a Git repository for your automation scripts and collaborate with your team.
- **Security Considerations for Automation (10m)**
Understand best practices for securing API keys and managing credentials in your automation workflows.

Core Automation Techniques

- **Automating Device Configuration with Python (28m)**
Use Python and Paramiko to push configuration changes to multiple Cisco devices efficiently.
- **Building Ansible Playbooks for Common Tasks (20m)**
Create playbooks to automate firmware upgrades and configuration backups across your network.
- **Interacting with Cisco DNA Center API (35m)**
Learn to retrieve network health data and automate policy changes using Cisco DNA Center APIs.
- **Automating UCCX and UCCE Deployments (30m)**
Step-by-step guide to using Python to automate the setup of Cisco Unified Contact Center Express and Enterprise.
- **Data Collection and Reporting with Python (22m)**
Write scripts to gather inventory, performance metrics, and generate automated reports from Cisco devices.
- **Error Handling and Logging in Automation Scripts (18m)**
Implement robust error handling and logging to make your automation scripts reliable and debuggable.

- **Testing Your Automation with PyATS (25m)**
Use Cisco's PyATS framework to validate network states before and after automation changes.
- **Integrating Ansible with Cisco IOS (16m)**
Configure Ansible to work seamlessly with Cisco IOS devices using the correct connection types and modules.
- **Managing Secrets with Ansible Vault (14m)**
A practical session on encrypting sensitive data in your Ansible playbooks for secure automation.

Deep Dive into Cisco Platforms

- **Automating Cisco Meraki Dashboard (26m)**
Use the Meraki API to configure networks, manage devices, and pull location analytics data.
- **Programmable Infrastructure with Cisco ACI (38m)**
A deep dive into automating policy and fabric management in Cisco Application Centric Infrastructure.
- **Automating Cisco Webex Meetings and Devices (24m)**
Learn to automate meeting scheduling, device management, and reporting using the Webex API.
- **Using Cisco IOS-XE Programmability (30m)**
Explore YANG models and gRPC for streaming telemetry and dynamic configuration on IOS-XE devices.
- **Case Study: Automating a Branch Office Rollout (32m)**
Analyze a real case study where Python and Ansible were used to deploy a new branch office network.
- **Troubleshooting Automation Failures (19m)**
A problem-solving session on common issues in network automation and how to resolve them.
- **Scaling Automation with Cisco NSO (27m)**
Introduction to Cisco Network Services Orchestrator for large-scale, service-driven automation.
- **Downloadable Template: Network Health Check Script (12m)**
Get a ready-to-use Python script template for performing automated network health checks.

Advanced Application & Integration

- **Building a CI/CD Pipeline for Network Automation (35m)**
Integrate your Ansible playbooks with GitLab CI to automate testing and deployment of network changes.
- **Automating Cisco SD-WAN Deployments (40m)**
Use Python and the SD-WAN API to automate the provisioning of new sites and policy updates.
- **Real-Time Monitoring with SNMP and Streaming Telemetry (28m)**
Combine SNMP polling with gNMI streaming telemetry for comprehensive network monitoring automation.
- **Integrating with Third-Party Tools: Splunk and ELK (22m)**
Send network data from Cisco devices to Splunk or ELK Stack for advanced analytics and alerting.
- **Advanced Python: Using Async for Concurrent Tasks (32m)**
Speed up your automation by running tasks concurrently with Python's asyncio library.
- **Ansible Roles for Reusable Automation (20m)**
Structure your Ansible projects with roles to create reusable, modular automation components.

- **Case Study: Automating a Data Center Migration (38m)**
Walk through a complex project where automation was key to migrating services between data centers.
- **Securing Automation with Cisco ISE Integration (25m)**
Automate policy enforcement and device profiling using Cisco Identity Services Engine APIs.
- **Custom Module Development for Ansible (30m)**
Create your own Ansible modules for specific Cisco tasks not covered by standard modules.
- **Using Postman for API Testing and Documentation (16m)**
Learn to use Postman to test Cisco APIs and generate documentation for your automation projects.
- **Problem-Solving: Debugging Complex Automation Flows (24m)**
A hands-on session using logs and debugging tools to solve multi-step automation failures.

Implementation & Next Steps

- **Creating Your Automation Project Plan (18m)**
A step-by-step guide to planning your first automation project, from scoping to execution.
- **Deploying Automation in a Production Environment (26m)**
Best practices for moving your scripts from lab to production, including rollback strategies.
- **Monitoring and Maintaining Your Automation (22m)**
Set up alerts and health checks to ensure your automation systems run smoothly over time.
- **Team Collaboration and Code Reviews (15m)**
How to establish processes for peer review and knowledge sharing in automation teams.
- **Preparing for the Cisco 300-835 Exam (20m)**
Final review of key exam topics with tips on how to approach the exam questions.
- **Downloadable Template: Automation Project Checklist (10m)**
A comprehensive checklist to guide you through the planning and execution of any automation project.
- **Real Case Study: Enterprise-Wide Automation Rollout (35m)**
An in-depth look at how a large organization scaled automation across multiple Cisco platforms.
- **Career Paths for Cisco Automation Engineers (12m)**
Explore job roles and certifications that build on the skills you've learned in this course.
- **Setting Up a Home Lab for Continued Practice (14m)**
Recommendations for affordable lab setups to keep honing your automation skills after the course.
- **Where to Find Community Support and Resources (10m)**
A guide to Cisco DevNet, forums, and other communities for ongoing learning and troubleshooting.
- **Final Project: Build Your Own Automation Tool (40m)**
A capstone project where you'll design and implement a custom automation tool for a given scenario.
- **Course Wrap-Up and Next Steps (8m)**
A summary of everything you've learned and a clear path for applying these skills in your job.

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