AUTOCOR

Designing, Deploying and Managing Network Automation Systems

40 horas | Profissional | Cisco

Cisco Continuing Education Credits

32 CE Credits

INTRODUÇÃO

The Designing, Deploying and Managing Network Automation Systems (AUTOCOR) training prepares you for a professional role as a network automation engineer. It focuses on designing and implementing automation systems, from writing Python scripts and Ansible playbooks, and applying Terraform for network automation, to building complex CI/CD pipelines that integrate multiple tools. The training also shows how to leverage AI for network automation by building Large Language Model (LLM)-powered network agents and by using MCP servers. Additionally, the training focuses on operational aspects of managing a modern, automated network and explores secure coding practices, collecting logs, containerization, and model-driven telemetry. Overall, the training focuses on practical implementation that directly prepares you to design, deploy, and operate automated networks.

This training prepares you for the 350-901 AUTOCOR v2.0 exam. If passed, you earn the Cisco Certified Specialist - Automation Core certification and satisfy the core exam requirement for the Cisco Certified Network Professional (CCNP) Automation and Cisco Certified Internetwork Expert (CCIE) Automation certifications. This training also earns you 32 Continuing Education (CE) credits toward recertification.

How You'll Benefit

This training will help you:

• Explore industry-standard automation tools, including Python, Ansible, and Terraform, to design and implement robust Infrastructure as Code (IaC) solutions

• Integrate Generative AI and LLMs into network workflows by building intelligent agents and utilizing MCP servers for advanced automation

• Construct automated CI/CD pipelines using GitLab, Cisco Modeling Labs (CML), and pyATS to streamline network testing, validation, and deployment

• Enhance network operations and security through the application of model-driven telemetry, secure coding practices, and containerized environments using Docker Compose

• Prepare for the 350-901 AUTOCOR v2.0 exam

• Earn 32 CE credits toward recertification

OBJETIVO DO CURSO

• Evaluate various network automation tools and approaches
• Use Python for CLI-based network automation
• Integrate REST APIs in network automation workflows
• Automate device configuration using RESTCONF requests based on YANG data models
• Create network automation solutions with Ansible
• Create network automation solutions with Terraform
• Implement the Infrastructure as Code approach for network management
• Use Git to track network changes
• Design and build GitLab CI pipelines for network automation
• Integrate CML topologies in automated workflows
• Create network validation tools with pyATS and include them in automated workflows
• Configure model-driven telemetry streams to collect real-time operational data from Cisco devices
• Diagnose common automation failures using well-structured logs from Python, Ansible, and RESTCONF integrations
• Harden network automation code by validating inputs, protecting credentials, and sanitizing outputs
• Build and run multi-service Docker Compose environments for network automation
• Generate, sign, and install certificates to secure web interfaces and APIs used by network automation tools
• Describe the role, value, and risks of generative AI in network automation script creation
• Create AI agents for network automation
• Integrate LLMs with external capabilities using MCP servers

PÚBLICO-ALVO

Network Automation Engineers, Network Engineers with coding experience, DevOps Engineers, System Engineers, Network SREs

PRÉ-REQUISITOS

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

• Hands-on experience with a programming language (specifically Python)
• Experience with common network designs and configurations
• Understanding of the utilization of APIs
• Awareness of network device APIs such as NETCONF and RESTCONF
• Understanding of the basics of version control with Git
• Familiarity with platforms like GitLab and GitHub
• Comfort with the Linux shell, SSH, files, and virtual environments
• Exposure to Docker/containerization
• Basic knowledge of AI and LLMs

These skills can be found in the following Cisco Learning Offerings:

• Automating Networks Using Cisco Platforms (CCNAAUTO)
• Intermediate Python for Network Engineers (IPYNE)

CONTEÚDO PROGRAMÁTICO

Course Outline

Network Automation Toolkits

Network Task Automation with Python

REST APIs in Network Automation

Network Automation with Ansible

Network Automation with Terraform

Infrastructure as Code Implementation

Network Change Tracking with Git

Configuration Change Deployment with CI Pipelines

Cisco Modeling Labs Integration for Test Network Environments

Network State Validation with pyATS

Model-Driven Telemetry for Network Monitoring

Network Automation Solution Troubleshooting

Secure Coding Practices for Network Automation

Network Automation Environment Containerization with Docker Compose

Trusted TLS Certificates Deployment

Generative AI for Network Automation

AI Agents for Network Automation

LLM and MCP Server Integration

Lab Outline

Use Python to Automate Common Network Tasks

Explore REST API Documentation

Automate API Calls with Python Requests

Construct and Send RESTCONF Requests

Create a Network Automation Solution with Ansible

Automate Network Infrastructure with Terraform

Build a GitLab CI Pipeline for Network Configuration

Create a Testing Network Environment with Cisco Modeling Labs

Create a Configuration Validation Tool with pyATS

Set Up MDT on a Cisco Router Using YANG Suite

Build a Network Automation Tool with Python and Ollama

Build and Launch a FastMCP Server