# Designing, Deploying and Managing Network Automation Systems

**Duration: 5 Days** **Course Code: AUTOCOR** **Version: 2.0**

## Overview:

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.**

*Updated November 2026*

## Target Audience:

This class is intended for the following participants: Individuals seeking the CCNP Automation certification Network Automation EngineersNetwork Engineers with coding experienceDevOps Engineers working with network infrastructureSystem EngineersNetwork Site Reliability Engineers (SREs)

## Objectives:

- After this course participants should be able to:
- 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

## Prerequisites:

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

## Testing and Certification

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## Content:

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 for Secure Communication
- 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
- Automate the Device Configuration with RESTCONF
- Create a Network Automation Solution with Ansible
- Automate Network Infrastructure with Terraform
- Manage Router Interfaces as Code
- Start Tracking Your Network State with GitLab
- Build a GitLab CI Pipeline for Network Configuration
- Create a Testing Network Environment with Cisco Modeling Labs
- Build a Python Script to Launch Test Topologies in Cisco Modeling Labs
- Integrate Cisco Modeling Labs Topologies into CI Pipeline
- Create a Configuration Validation Tool with pyATS
- Integrate pyATS Testing into Automated Pipelines
- Set Up MDT on a Cisco Router Using YANG Suite
- Troubleshoot an Automation Script
- Harden an Automation Script
- Containerize Automation Components
- Set Up Local LLM with Ollama
- Build a Network Automation Tool with Python and Ollama
- Build and Launch a FastMCP Server

## Further Information:

For More information, or to book your course, please call us on 00 20 (0) 2 2269 1982 or 16142

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