



Implementing Automation for Cisco Enterprise Solutions (ENAU1)

Cisco

- **Nível:** Avançado
 - **Duração:** 21h
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Sobre o curso

The **Implementing Automation for Cisco Enterprise Solutions (ENAU1)** v1.0 course teaches you how to integrate programmability and automation in the Cisco®-powered Enterprise Campus and Wide Area Network (WAN) using programming concepts, orchestration, telemetry, and automation tools to create more efficient workflows and more agile networks.

Through a combination of lessons and hands-on labs, you will gain knowledge and skills for using Cisco Internetworking Operating System (Cisco IOS®-XE) for device-centric automation, Cisco Digital Network Architecture (Cisco DNA™) Center for the intent-based enterprise network, Cisco Software-Defined (SD) WAN, and Cisco Meraki™. You will study software development toolkits, industry-standard workflows, tools, and Application Programming Interface (APIs), such as Python, Ansible, Git, JavaScript Object Notation (JSON), YAML Ain't Markup Language (YAML), Network Configuration Protocol (NETCONF), Representational State Configuration Protocol (RESTCONF), and Yet Another Generation (YANG).

This course will help you:

- Gain high-demand skills using modern programming languages, APIs, and systems such as Python, Ansible, and Git to automate, streamline, and enhance business operations
- Acquire the skills and knowledge to customize tools, methods, and processes that improve network performance and agility
- Prepare for the **300-435 ENAUTO** exam

After completing this course you should be able to:

- Describe the various models and APIs of the Cisco IOS-XE platform to perform Day 0 operations, improve troubleshooting methodologies with custom tools, augment the command-line interface (CLI) using scripts, and integrate various workflows using Ansible and Python
- Explain the paradigm shift of model-driven telemetry and the building blocks of a working solution

- Control the tools and APIs to automate Cisco DNA infrastructure managed by Cisco DNA Center™
 - Demonstrate workflows (configuration, verification, health checking, and monitoring) using Python, Ansible, and Postman
 - Explain Cisco SD-WAN solution components, implement a Python library that works with the Cisco SD-WAN APIs to perform configuration, inventory management, and monitoring tasks, and implement reusable Ansible roles to automate provisioning new branch sites on an existing Cisco SD-WAN infrastructure
 - Manage the tools and APIs to automate Cisco Meraki managed infrastructure and demonstrate workflows (configuration, verification, health checking, monitoring) using Python, Ansible, and Postman.
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Destinatários

Network engineers who need to use modern programming, automation and orchestration tools such as Python, Ansible and Git to automate, streamline and enhance their Cisco enterprise network.

Pré-requisitos

Attendees should meet the following prerequisites:

- Basic programming language concepts
 - Basic understanding of virtualization
 - Ability to use Linux and CLI tools, such as Secure Shell (SSH) and bash
 - Networking knowledge equivalent to the CCNP level
 - Foundational understanding of Cisco DNA, Meraki, and Cisco SD-WAN
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Programa

- Introducing Cisco SD-WAN Programmability
- Building Cisco SD-WAN Automation with Python
- Building Cisco SD-WAN Automation with Ansible
- Managing Configuration with Ansible and Network Automation and Programmability Abstraction Layer with Multivendor support (NAPALM)

- Implementing On-Box Programmability and Automation with Cisco IOS XE Software
- Implementing Model-Driven Telemetry
- Day 0 Provisioning with Cisco IOS-XE
- Automating Cisco Meraki
- Implementing Meraki Integration APIs
- Implementing Automation in Enterprise Networks
- Building Cisco DNA Center Automation with Python
- Automating Operations using Cisco DNA Center

Introducing Cisco SD-WAN Programmability

- Enterprise Network Automation Overview
- Cisco SD-WAN Architecture
- Cisco SD-WAN REST API Overview

Building Cisco SD-WAN Automation with Python

- Python Workflows for Cisco SD-WAN

Building Cisco SD-WAN Automation with Ansible

- Use Ansible with Cisco SD-WAN APIs
- Explore SD-WAN resources on Cisco DevNet

Managing Configuration with Ansible and Network Automation and Programmability Abstraction Layer with Multivendor support (NAPALM)

- NAPALM Automation Framework

Implementing On-Box Programmability and Automation with Cisco IOS XE Software

- Introduction to Edge Computing

Implementing Model-Driven Telemetry

- Data Models on Cisco IOS XE Software
- Streaming Telemetry
- Streaming Telemetry Models
- Streaming Telemetry Transport Protocols

Day 0 Provisioning with Cisco IOS-XE

- Day 0 Operations
- iPXE Overview

- Cisco Network Plug and Play Overview

Automating Cisco Meraki

- Cisco Meraki Architecture and Automation Capabilities
- Cisco Meraki REST API Overview

Implementing Meraki Integration APIs

- Cisco Meraki Integrations Overview
- Location Scanning APIs
- Cisco Meraki Camera APIs
- Cisco Meraki Captive Portals
- Cisco Meraki Wireless Health
- Explore Cisco Meraki Webhook Alerts

Implementing Automation in Enterprise Networks

- Cisco Intent-Based Network Overview
- Cisco DNA Center APIs

Building Cisco DNA Center Automation with Python

- Explore Cisco DNA Center Libraries

Automating Operations using Cisco DNA Center

- Introduction to Cisco DNA Center Assurance Workflows
- Cisco DNA Center Event Webhooks

Labs

- Perform Administrative Task Using the Cisco SD-WAN API
- Build, Manage and Operate Cisco SD-WAN Programmatically
- Consume SD-WAN APIs Using the uri Module
- Build Reports Using Ansible-Viptela Roles
- Manage Feature Templates with Ansible
- Use NAPALM to Configure and Verify Device Configuration
- Implement On-Box Programmability and Automation with Cisco IOS XE Software
- Use Python on Cisco IOS XE Software
- Implement Streaming Telemetry with Cisco IOS XE
- Implement ZTP on Cisco IOS-XE with a Custom Python Script
- Implement Cisco Meraki API Automation
- Explore Cisco Meraki Integration APIs

- Explore Cisco Meraki Webhook Alerts
- Explore Cisco DNA Center APIs
- Build Python Scripts with Cisco DNA Center Intent APIs
- Troubleshoot End-to-End Connectivity and Health-Check the Network via the Cisco DNA Center API
- Build Python Scripts with Cisco DNA Center Assurance APIs