# Automating Cisco Enterprise Solutions v1.1 (300-435)

**Exam Description:** Automating Cisco Enterprise Solutions v1.1 (ENAUTO 300-435) is a 90-minute exam associated with the CCNP Enterprise Certification and DevNet Professional Certification. This exam certifies a candidate's knowledge of implementing Enterprise automated solutions, including programming concepts, Python programming, APIs, controllers and automation tools. The course, Implementing Cisco Enterprise Automation Solutions, helps candidates to prepare for this exam.

The following topics are general guidelines for the content likely to be included on the exam. However, other related topics may also appear on any specific delivery of the exam. To better reflect the contents of the exam and for clarity purposes, the guidelines below may change at any time without notice.

**10% 1.0 Network Programmability Foundation**

- 1.1 Utilize common version control operations with git (add, clone, push, commit, diff, branching, merging conflict)
- 1.2 Describe characteristics of API styles (REST and RPC)
- 1.3 Describe the challenges encountered and patterns used when consuming APIs synchronously and asynchronously
- 1.4 Interpret Python scripts containing data types, functions, classes, conditions, and looping
- 1.5 Describe the benefits of Python virtual environments
- 1.6 Explain the benefits of using network configuration tools such as Ansible and Terraform for automating IOS XE platforms

**10% 2.0 Automate APIs and Protocols**

- 2.1 Identify the JSON instance based on a YANG model (including YANG Suite)
- 2.2 Identify the XML instance based on a YANG model (including YANG Suite)
- 2.3 Interpret a YANG module tree generated per RFC8340
- 2.4 Compare functionality, benefits, and uses of OpenConfig, IETF, and native YANG models
- 2.5 Compare functionality, benefits, and uses of NETCONF and RESTCONF

**20% 3.0 Network Device Programmability**

- 3.1 Implement device management and monitoring using Netmiko
- 3.2 Construct a Python script using ncclient that uses NETCONF to manage and monitor an IOS XE device
- 3.3 Configure device using RESTCONF API utilizing Python requests library
- 3.4 Utilize Ansible to configure an IOS XE device
- 3.5 Configure a subscription for model driven telemetry on an IOS XE device (CLI, NETCONF, and RESTCONF)
- 3.6 Compare publication and subscription telemetry models
  - 3.6.a Periodic / cadence
  - 3.6.b On-change

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3.7 Describe the benefits and usage of telemetry data in troubleshooting the network

3.8 Describe Day 0 provisioning methods
- 3.8.a iPXE
- 3.8.b PnP
- 3.8.c ZTP

**20% 4.0 Cisco Catalyst Center** (formerly Cisco DNA Center)

4.1 Compare traditional versus software-defined networks

4.2 Describe the features and capabilities of Cisco Catalyst Center
- 4.2.a Network assurance APIs
- 4.2.b Intent APIs
- 4.2.c Events and notifications
- 4.2.d SDA

4.3 Implement Cisco Catalyst Center event outbound webhooks

4.4 Implement API requests for Cisco Catalyst Center to accomplish network management tasks
- 4.4.a Intent APIs
- 4.4.b Command Runner APIs
- 4.4.c Site APIs
- 4.4.d SDA APIs

4.5 Implement API requests for Cisco Catalyst Center to accomplish network management tasks using these APIs
- 4.5.a Network discovery and device APIs
- 4.5.b Template APIs (Apply a template)

4.6 Troubleshoot Cisco Catalyst Center automation process using Intent APIs

**20% 5.0 Cisco Catalyst SD-WAN**

5.1 Describe features and capabilities of Cisco Catalyst SD-WAN Manager APIs

5.2 Implement a Python script to perform API requests for Cisco Catalyst SD-WAN Manager Device Inventory APIs to retrieve and display data

5.3 Construct API requests for Cisco Catalyst SD-WAN Manager Administration APIs

5.4 Implement a Python script to perform API requests for Cisco Catalyst SD-WAN Manager Configuration APIs to modify Cisco Catalyst SD-WAN fabric configuration

5.5 Construct API requests for Cisco Catalyst SD-WAN Manager Monitoring APIs (including real-time)

5.6 Troubleshoot a Cisco Catalyst SD-WAN deployment using Manager APIs

**20% 6.0 Cisco Meraki**

6.1 Describe features and capabilities of Cisco Meraki
- 6.1.a Location Scanning APIs
- 6.1.b MV Sense APIs
- 6.1.c External Captive Portal APIs

6.1.d Webhook Alert APIs

6.2 Create a network using Cisco Meraki APIs

6.3 Configure a network using Cisco Meraki APIs

6.4 Implement a Python script for Cisco Meraki Alert Webhooks