

Cisco® Introducing Automation for Cisco® Solutions v1.1 (CSAU)

Overview

The Introducing Automation for Cisco Solutions (CSAU) v1.1 course gives you a broad overview of network automation skills. Through a combination of lecture and hands-on labs, you will learn the fundamentals of automation such as working on model-driven programmability solutions with Representational State Transfer Configuration Protocol (RESTCONF) and Network Configuration Protocol (NETCONF) protocols. The course also covers data formats and types, including Extensible Markup Language (XML), JavaScript Object Notation (JSON), Yaml Ain't Markup Language (YAML), and Yet Another Next Generation (YANG), and their value in network automation, along with DevOps tools such as Ansible and Git.

Prerequisite Comments

Before taking this course, you should have the following knowledge and skills:

- Routing and switching including Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), and basic configuration features such as interfaces, Simple Network Management Protocol (SNMP), and static routes
- Fundamentals of Python data structures and programming constructs such as loops, conditionals, and classes, or the equivalent of 3–6 months of experience writing Python scripts
- Basic Linux commands for navigating the file system and executing scripts
- Knowledge of working with text editors

Target Audience

This course is designed primarily for customer engineers and systems engineers in the following job roles:

- Automation architect
- Automation engineer
- Consulting systems engineer
- DevOps engineer
- Network administrator
- Network architect
- Network consulting engineer
- Network design engineer
- Network engineer
- Network operator
- Network reliability engineer
- Sales engineer
- Site reliability engineer
- Systems engineer
- Technical solutions architect

[Register Online](#)**Schedule**

Class Length: 2 Days

G2R = "Guaranteed to Run" | OLL = "Online LIVE"
ILT = "Instructor-Led-Training"

This course is not currently available on the public schedule. Please contact us using the information in the footer below to inquire about future dates or to schedule a private class.

Course Objectives

After taking this course, you should be able to:

Articulate the role network automation and programmability play in the context of end-to-end network management and operations

Define and differentiate between waterfall and agile software development methodologies

Interpret and troubleshoot Python scripts with fundamental programming constructs built for network automation use cases

Describe how DevOps principles, tools, and pipelines can be applied to network operations

Understand the role of network automation development environments and associated technologies such as Python virtual environments, Vagrant, and Docker

Understand and construct HTTP-based API calls to network devices

Articulate the differences among and common use cases for XML, JSON, YAML, and protobuf

Construct and interpret Python scripts using the Python requests module to automate devices that have HTTP-based APIs

Understand the role YANG plays in network automation

Understand that a number of tools exist to simplify working with YANG models

Describe the functionality of RESTCONF and NETCONF and the differences between them

Construct Ansible playbooks to configure network devices and retrieve operational state data from them

Build Jinja2 templates and YAML data structures to generate desired state configurations

Course Outline

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Examining Network Management and Operations

Exploring Software Development Methodologies

Using Python for Network Automation

Describing NetDevOps: DevOps for Networking

Managing Automation Development Environments

Introducing HTTP Network APIs

Reviewing Data Formats and Data Encoding

Using Python Requests to Automate HTTP-Based APIs

Exploring YANG

Using YANG Tools

Automating Model-Driven APIs with Python

Introducing Ansible for Network Automation

Templating Configurations with Jinja2