Cisco DevNet Automation Bootcamp for ACI

Cisco Training Bootcamps for individuals and small teams

What you'll learn in this course

Through a combination of lectures and hands-on labs, you will learn the fundamentals of automation with Cisco Application Centric Infrastructure (Cisco ACI®), such as data formats and types, as well as their value in network automation, and how to use DevOps tools, including Ansible and Git. You will then learn how to integrate programmability and automation with Cisco ACI. You will study software development toolkits, industry-standard workflows, tools, and Application Programming Interfaces (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).

The Cisco DevNet Automation Bootcamp for ACI 5-Day ILT course gives you a broad overview of network automation skills and an introduction to DevOps Practices and Principles. After the 5-day course, you will apply your new knowledge to explore the Cisco ACI APIs and integration options.

The Cisco DevNet Automation Bootcamp for ACI 4-day deep-dive labs continue to build upon the 5-day training. The 4-day deep-dive Labs emphasize hands-on labs that map practical skills to real-world scenarios. Leading the 4-day deep-dive lab are two Cisco Developer Advocates skilled in automation development, APIs, and ACI. These two subject-matter experts will answer questions, clarify lab instructions, and guide you through the immersive experience. You will learn how to use the Cisco REST APIs using Postman and Python scripts. You'll also experience the way to use the Cisco ACI API Inspector to create REST API calls. To reinforce the importance of using good, scalable practices when developing your scripts, you will also learn how to use Git for version control, test your scripts using pyATS, and deploy CI/CD pipelines. Finally, you will learn how to plan and execute a minimal viable product (MVP) with the help of examples from the MVP workshop.

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Prerequisites

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

- Routing and switching, including OSPF, BGP, and basic configuration features, such as Interfaces, SNMP, and static routes

- Basic Linux commands for navigating the file system and executing scripts

- Knowledge of working with text editors

- Foundational understanding of Cisco ACI

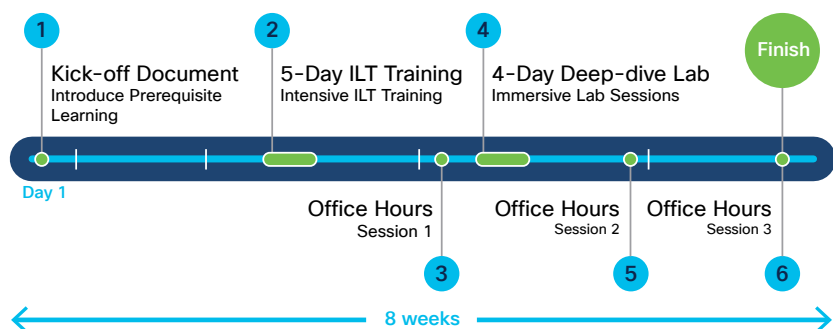- Familiarity with virtualization fundamentals

Benefits of attending Bootcamp:

This course will help you:

- Gain an overview of the skills you need to become a next-generation engineer
- Prepare to accelerate network automation in your organization
- Increase collaboration across internal and external teams using version control systems
- Gain high-demand knowledge and skills in modern programming languages to create powerful APIs that enhance network functioning
- Acquire the skills and knowledge to use APIs to automate Cisco ACI
- Learn how to use Python and Ansible to automate your Cisco ACI network
- Understand the importance of NetDevOps and how you can use different tools, such as version control and testing, to scale and improve your automation practices

Bootcamp components

- Kick-off document
  Self-study pre-requisite materials provided to help you get a head start and prepare for the training

- 5-day instructor-led training
  In-depth Cisco training, including hands-on labs that focus on the foundational concepts you need to know

- Self-study materials
  To help reinforce the knowledge from the 5-day training and help you prepare for the deep-dive lab

- 4-day instructor-led, deep-dive lab
  Dynamic, hands-on training using end-to-end, deep-dive labs to build your confidence and skills

- Office hours support
  Three 2-hour support sessions conducted using a Webex space

1 Kick-off Document
Introduce Prerequisite Learning
Day 1

2 5-Day ILT Training
Intensive ILT Training

4 4-Day Deep-dive Lab
Immersive Lab Sessions

Finish

3 Office Hours
Session 1

5 Office Hours
Session 2

6 Office Hours
Session 3

8 weeks

Continuing Education credits

Your team can earn Cisco Continuing Education Credits **with any Cisco Training Bootcamp and use Cisco Learning Credits toward recertification. The Cisco DevNet Automation Bootcamp for ACI is worth 40 Continuing Education credits.**

Technology areas

- Data Center
- Network Automation

5-day ILT: Outline

Day 1

- Section 1: Examining Network Management and Operations
  - Lab: Use Network Automation Scripts
- Section 2: Exploring Software Development Methodologies
- Section 3: Using Python for Network Automation
  - Lab: Enforce Python Fundamentals on the Interactive Interpreter
  - Lab: Automate Networks with Netmiko
- Section 4: Describing NetDevOps: DevOps for Networking
  - Lab: Use the Git Version-Control System and Collaborate on an Internal Project

Day 2

- Section 5: Managing Automation Development Environments
  - Lab: Build Reproduceable Automation Environments
- Section 6: Introducing HTTP Network APIs
  - Lab: Use HTTP-Based APIs with Postman
- Section 7: Reviewing Data Formats and Data Encoding
  - Lab: Explore YAML and JSON Data

Day 3

- Section 8: Using Python Requests to Automate HTTP-Based APIs
  - Lab: Consume HTTP-Based APIs with Python Requests
- Section 9: Exploring YANG
- Section 10: Using YANG Tools
  - Lab: Explore YANG Tools
- Section 11: Automating Model-Driven APIs with Python
  - Lab: Explore RESTCONF with Python
  - Lab: Explore NETCONF with Python
- Section 12: Introducing Ansible for Network Automation
  - Lab: Configure Network Devices with Ansible
  - Lab: Collect Network Data with Ansible
- Section 13: Templating Configurations with Jinja2
  - Lab: Build and Deploy Configurations with Ansible

Cancellation Policy

Cancellation of enrollment within 30 days of the course start date will result in a charge of 100% of the listed class price.

Day 4

- Section 14: Describing the Cisco ACI Policy Model
  - Lab: Use Cisco APIC Web GUI

- Section 15: Describing the Cisco APIC REST API
  - Lab: Discover the Cisco APIC REST API
  - Lab: Use Postman with the APIC REST API

Day 5

- Section 16: Using Python to Interact with the Cisco ACI REST API
  - Lab: Use Python with Cisco APIC REST API
  - Lab: Configure and Verify Cisco ACI Using ACI Toolkit
  - Lab: Use Cobra and Arya to Recreate a Tenant

- Section 17: Using Ansible to Automate Cisco ACI
  - Lab: Manage Configuration Using Ansible
  - Lab: Set Up a New Tenant the NetDevOps Way
  - Lab: Create an Infrastructure Health Report

4-day deep-dive lab: Outline

Day 1

- Welcome and Intro

- Section 1: Introducing NetDevOps

- Section 2: Using Version Control with Git
  - Lab: Managing your version control with Git

- Section 3: Calling REST APIs from Postman

- Section 4: Examining Cisco Object Models
  - Lab: Working with ACI Object Model and Postman

- Section 5: Exploring the Cisco ACI API Inspector
  - Lab: Using Cisco ACI API Inspector to Create REST API Calls

Day 2

- Section 6: Calling REST APIs from Python
  - Lab: Automating ACI with Python Requests Library

- Section 7: Automating Network Testing with pyATS
  - Lab: Using pyATS with ACI

- Section 8: Exploring the Cisco ACI SDK
  - Lab: Automating ACI with Cobra

Order Bootcamps

To order your team the Cisco DevNet Automation Bootcamp for ACI, contact your BDM at learning-bdm@cisco.com.

Day 3

- Section 9: Configuring Ansible for Automation Tasks
  - Lab: Configuring Ansible for Automation Tasks
- Section 10: Configuring Cisco ACI with Ansible
  - Lab: Configuring Cisco ACI with Ansible
- Section 11: Introduction to CI/CD Pipelines
- Section 12: CI/CD Pipelines with GitLab and Jenkins
  - Lab: CI/CD Pipelines with GitLab and Jenkins

Day 4

- Section 13: Prototyping Workshop
  - Lab: Creating your MVP
- Summary and next steps