

# Cisco DevNet Associate (200-901 DEVASC)

This DEVNET Associate (200-901 DEVASC) training course covers how to build network utilities that target the desktop, the web, servers, and databases. The 200-901 DEVASC exam is the one required exam to earn the DevNet Associate certification. Start this DevNet Associate exam prep and gain valuable routing and switching skills for your DevOps career.

[CBT Nuggets course material](#) →

## WEEK 1

### Welcome to Cisco Certified DevNet Associate (200-901) 152 min.

Welcome to Cisco Certified DevNet Associate (200-901) 4

### Software Development Practices for all IT Professionals

Overview 1

Software Development Practices for all IT Professionals 3

### Network Automation — Where Network and Software Come Together

Overview 1

Network Automation — Where Network and Software Come Together 3

### Prepare a VS Code Development Environment

Overview 1

Choosing Visual Studio Code as Your IDE 7

Picking a Theme and Font 9

Configuring the Interface 5

Using the Extensions Gallery 5

Understanding Files, Folders, and Workspaces 9

Using the Debugger 5

Reviewing Visual Studio Code 2

### Basic Programming Control Flow

Overview 1

Supplemental Files 1

Why we Use Code Organizing Structures 3

Control Flow Statements	5
Conditionals Statements	4
Loops and Iterators	4
Functions and Methods	5
Why use Object-Oriented Programming?	5
Class State and Behavior	8
Basic Programming Control Flow Summary	1

### Determine When to Use Design Patterns

Overview	1
Supplemental File	1
Understanding Design Patterns	2
Singleton Design Pattern	5
Observer Design Pattern	5
Model View Controller	7
Design Patterns Summary	2

### Getting Started with Git

Overview	1
Supplemental File	1
Understanding Version Control Systems and Git	6
Installing Git	5
Creating your First Repository	8
Staging and Committing Files	10

Viewing Repository History	8
Comparing Changes with Git Diff	6

Checking Out Previous Commits	9
Git Reset and Revert to Undo Changes	10
Untracking and Unstaging Files	5

### Collaborate with Git

Overview	1
Supplemental File	1
Using Git for Collaboration	3
Initializing a Repository with Clone	6
Synchronizing with Remote Repositories	6
Working With Branches	7
Merging Branches and Resolving Conflicts	11
Git Collaboration Summary	1

### XML, JSON, and YAML Data Formats

Supplemental Files	1
Why Use Plain Text Data Formats?	7
XML, JSON, and YAML Data Formats	5
XML Syntax	4
XML Elements, Tags, and Attributes	5
XML Document Object Model (DOM)	4
JSON Syntax	6
JSON Strings, Numbers, and Booleans	5
JSON Objects and Arrays	6
YAML Syntax	5
YAML Strings, Numbers, Floats, and Booleans	6
Data Formats Summary	1
Supplemental Files	1

## WEEK 2

151 min.

## Parse Data Formats into Python Structures

Overview	1
Supplemental Files	1
Parsing Data Formats with Python	1
Parsing XML with Python	8
XML Libraries in Action	8

## WEEK 3

160 min.

Parsing JSON with Python	5
Parsing YAML with Python	5
Parsing Data Formats in Summary	1
Supplemental Files	1

## REST API Fundamentals

Overview	1
Introducing RESTful APIs	5
RESTful API Constraints	4
REST vs. SOAP	5
REST Tools	6
RESTful API Summary	1

## REST API Requests and Responses

Overview	1
Introducing REST API Requests and Responses	1
Request and Response	6
HTTP Request Method	4
HTTP Response Codes	5
HTTP Headers	4
HTTP Requests and Responses Summary	1

## Parameters and Payloads for REST APIs

Overview	1
Introduction to HTTP Parameters and Payloads	1
HTTP Query Strings	7
HTTP Payloads	3
Query Strings and Payloads in Action	5
HTTP Parameters and Payloads Summary	1

## Authentication with HTTP and REST

Overview	1
Introduction to REST Authentication	3
Base64 Encoding vs. Encryption	6
HTTP Basic Authentication	6
API Key Authentication	4
Token Authentication	6
HTTP Authentication Summary	1

## Use Postman for REST API Interaction

Overview	1
Introduction to Postman	2
Postman Requests and Responses	9
HTTP Auth with Postman	4
Postman Collections and Folders	3
Postman Scripts	4
Postman Environments	5
Postman Summary	1

## Network Programmability and Automation Foundations

Overview	1
Saying Goodbye to the CLI	1

Why Network Automation?	10
What Can You Automate?	13

## WEEK 4

159 min.

The Evolution of Network APIs	13
Network Programmability vs. Network Automation	10
Devices and Controllers in the Era of SDN	6
Outro	2

### Prepare Your Development Environment

Introduction	1
Planning the Linux Environment	12
Deploying Ubuntu Linux in a VM	12
Deploying Ubuntu Linux with WSL	14
Configuring Python	7
DevNet Resources	18
Knowledge Check	6

### Data Models and YANG

Overview	1
Introducing Data Models and YANG	1
What is a Data Model?	8
How YANG Works	12
YANG in Action	6
YANG Tools to Make Your Life Easier, Win Friends, and Influence People	10
This Nugget is Important	3

## Develop NETCONF Scripts for Cisco IOS-XE Devices

Overview	1
Network Device Development the Modern Way	1
NETCONF circa 2006	13

## WEEK 5

151 min.

Enabling NETCONF on an IOS-XE Device	9
Getting NETCONF Data with NCCLIENT	13
Automation with NETCONF and NCCLIENT	4
NETCONF Summary	1

### Develop RESTCONF Scripts for Cisco IOS-XE

Overview	1
Introducing RESTCONF — the New Kid on the Block	1
RESTCONF circa 2017	9
Enabling RESTCONF on IOS-XE Devices	2
Exploring Device APIs and Models with Postman	7
Developing RESTCONF in Python with Requests	4
RESTCONF Summary	1

### Nexus Programmability with NX-API CLI

Overview	1
Data Center Scenario	1
Introducing NX-OS and NX-API CLI	10
Enabling NX-API on a Nexus Device	3
NX-API CLI Sandbox	7
NX-API CLI from Postman	3
Scripting NX-API CLI Requests in Python	4
Summarizing NX-API CLI	1

## Nexus Programmability with NX-API REST

Overview	1
Introducing NX-API	1
NX-API REST Object Model	12
Exploring Objects with Visore	9
Setting Up Postman Requests	6
Scripting Python Requests	6
Summarizing NX-API REST	1

## Real-World Nexus Automation for Real-World Network Engineers

Overview	1
Supplemental Files	1
Real-World Automation with NX-API	1
Show CDP Neighbors	3
Getting the Data	3
Creating The Token	4
Handling the Data	7
Setting the Configuration	7
Script Summary	1

## WEEK 6

## Automate Cisco Meraki Networks

154 min.

Overview	1
Introducing Cisco Meraki Automation	1
Cloud Networking, Controllers, and APIs	9
Dashboard API	5
Setting Up Postman for Meraki	6
Python Automation with Meraki	3
Summarizing Cisco Meraki Automation	1

## Automation with the Meraki Python SDK

Overview	1
Scripting Made Easier with SDKs	1
Exploring the Meraki SDK	5
Getting Started with Scripting	4
Diving Deeper with the Meraki SDK	4
Updating Configs with the Meraki SDK	6
Summarizing the Meraki SDK	1

## Automate the Data Center with ACI

Overview	1
Code in the Data Center	1
ACI Architecture	12
ACI Object Model	8
ACI Programmability	6
API Inspector	3
ACI REST API with Postman	6
ACI REST API with Python	5
Summarizing ACI	1

## Easier ACI Automation with the Toolkit

Overview	1
Toolkits and SDKs for ACI	1
Getting Started with the Python ACI Toolkit	3
Creating a Full Tenant with the ACI Toolkit	11
Running Sample Code from the ACI Toolkit	4
ACI Toolkit Applications	3
Summarizing ACI Automation	1

## Automate the Campus with DNA Center Platform

Overview	1
Code in the Enterprise	1
DNA Center Platform Capabilities	9
Exploring the Platform's API	6
Setting up the Platform API Requests in Postman	6
DNA Center Platform Assurance Calls in Python	12

## WEEK 7

153 min.

Summarizing DNA Center Platform Automation	1
--	---

## Easier DNA Center Automation with the SDK

Overview	1
Using the DNA Center SDK	1
Getting and Exploring the DNA Center SDK	2
Authentication and Networks	7
Devices	3
Clients	4
Summarizing the DNA Center SDK	1

## Automate Cisco Collaboration Platforms

Overview	1
It's Not Just About Phones Anymore	1
Cisco Collaboration Platform in the Modern Era	9
CUCM: Getting Started with AXL and SoapUI	11
CUCM: Getting Started with UDS	5
Scripting for UDS	2
Summarizing the Collaboration Platform	1

## Automate Your Teamwork with Webex Teams

Overview	1
Automating Webex Teams	1
Getting Started with Webex Teams for Free	8
Creating a Team	5
Creating a Room	3
Posting Messages to the Room	2
There's an SDK for That	6
Summarizing Webex Teams	1

## Automate WAN Workloads with SD-WAN

Overview	1
Controllers and WAN	1
Cisco SD-WAN Platform	6
Exploring the vManage API	3
Setting Up SD-WAN in Postman	4
Scripting SD-WAN	4
Summarizing SD-WAN	1

## Automate the Cisco Security Platform

Overview	1
Introducing SD-Security	1
Cisco Security Platform	5
Exploring the FirePower Management Center API	6
FirePower Authentication in Postman	3
FirePower Authentication in Python	4
Summarizing Cisco Security	1

## Create Access Policies in FMC with Python

Overview	1
----------	---

Threat Targeting in FirePower Automatically	1
Access Control Policy Overview	5
Creating the Policy	4
Creating the Rules and Cleaning Up our Policy	5
Summarizing Threat-Centric Policy Creation	1

### **Automate Cisco ASA Firewalls**

Overview	1
Introducing the Cisco ASA REST API	1
Installing the REST API Package	6
Exploring with On-Box Documentation	3

## **WEEK 8**

**159 min.**

Configuring a Postman Environment	3
Scripting Your ASA with Python	2
Summarizing ASA Automation	1

### **Automate Cisco Compute and More with UCS**

Overview	1
Cisco Compute and Storage	1
Introducing the Cisco UCS Platform	6
UCS Manager: PowerTool	7
UCS Manager: Python UCSM SDK	5
UCS Director: Exploration and Postman	10
Summarizing Cisco Compute	1

### **Automate Everything with NSO**

Overview	1
----------	---

Network Services Orchestrator (NSO)	1
Understanding the NSO Architecture	8
Installing and Configuring NSO	7
Deeper Exploration of NSO Components	6
Python Scripting for NSO	5
Summarizing NSO	1

### **Automate Cisco Platforms with PowerShell**

Overview	1
Why PowerShell?	1
Getting PowerShell Core v7	2
RESTCONF	7
Meraki	5
ACI	4
DNA Center Platform	3
SD-WAN	2
Summarizing PowerShell Network Automation	1

### **Computing and Application Deployment Models**

Overview	1
Introduction to Computing and Application Deployment Models	1
Virtual Machines and Containers	8
Edge Computing	8
Cloud Computing	5
Deployment Models	7
Computing and Application Deployment Summary	1

### **Understand the Basics of Docker**

Overview	1
----------	---

Introducing Containers	1
Introducing Containers and Docker	5
Installing Docker	6
Containerize Your App with a Dockerfile	9
Working with Docker Commands	9

## WEEK 9

153 min.

Pushing and Pulling with Docker Hub	5
Summarizing Docker	1

### Describe the Components for a CI/CD Pipeline

Overview	1
Introduction to CI/CD	2
What is CI/CD?	7
Integrating, Building, and Testing	5
Delivering and Deploying	5
CI/CD Summary	1

### Secure Data in Your Applications

Overview	1
Securing Data is a Big Deal	1
Resting or Moving	4
Secure Data in Transit	5
Environment Variables	5
Encrypting Data at Rest	5
Summarizing Data Security	1

### Identify OWASP Standard Threats

Overview	1
Threat Assessments of your Code	1
What is OWASP?	5
Cross-Site Scripting (XSS) Attacks	5
SQL Injection Attacks	4
Cross-Site Request Forgery (XSRF) Attacks	4
Summarizing OWASP Common Threats	1

### Understanding the Basics of Linux and Bash

Overview	1
Welcome to Open Source OSs	1
Linux Distros	8
Filesystem	8
Creating, Editing, Moving, and Deleting Files	6
File Permissions	5
Working with Packages	4
Summarizing Linux	1

### Identify the Principles of DevOps Practices

Overview	1
Introducing DevOps	2
Iterative and Incremental	5
Continuous and Automated	4
End-To-End Responsibility	4
DevOps Principles Summary	1

### Unit Tests and Test-Driven Development (TDD)

Overview	1
Introduction to Unit Testing and Test-Driven Development	1

Unit Testing	7
Using the Python unittest Module	7
Unit Testing with Postman	6
Test-Driven Development (TDD)	4

## WEEK 10

**158 min.**

Unit Testing and TDD Summary	1
------------------------------	---

### Install and Configure Ansible

Overview	1
Automation and Orchestration Foundations	1
Infrastructure as Code	7
CICD Pipeline	5
Installing Ansible	4
Configuring Remote Devices	6
Inventory File	3
Modules	6
Playbook File	7
Variables and Facts	8
Conditionals	5
Loops	2
Summarizing Ansible Foundations	1

### Automate Your Entire Network with Ansible

Overview	1
Using Ansible for Network Automation	1
host_vars and group_vars	8
Network Modules	8

Creating Loopbacks on Nexus Devices	9
Gather Facts and Issue CLI Commands to IOS-XE Devices	1
RESTCONF and Connection Variables	4
RESTCONF GET Playbooks	3
Jinja Templates	5
RESTCONF Config Playbooks	8
Summarizing Ansible Network Automation	1

### Describe How a Switch Performs Layer 2 Forwarding

Overview	1
Introducing Layer 2 Switches	1
Benefits of Network Layers	4
Ethernet L2 MAC Addresses	6
How an Ethernet Switch Works	7
Using VLANs	7
Using 802.1Q Trunks	6
Reviewing Layer 2 Switches	1

### Describe How a Router Performs Layer 3 Forwarding

Overview	1
Introducing Layer 3 Forwarding	1
Network Layer – Layer 3	4
IPv4 Basics	9

## WEEK 11

**151 min.**

Training an L3 Router	13
Default Routes	6
Router Review	1

## Describe Transport Layer Functions and Protocols

Overview	1
Introducing Layer 4 of the TCP/IP Protocol Suite	1
Transport Layer – Layer 4	4
Transmission Control Protocol (TCP)	8
User Datagram Protocol (UDP)	6
Layer 4 Review	1

## Describe Application Layer Functions and Protocols

Overview	1
Introducing the Application Layer	1
Common Application Layer Services	6
Ports Overview	10
Common IP Services	6
End-To-End IP Communications	6
Multilayer Switches	7
Application Layer Review	1

## Interpret and Describe a Basic Network Topology

Overview	1
Introduction to Interpret and Describe a Basic Network Topology	1
Topology Overview and Lab	12
Firewalls in the Network	6
IDS and IPS Devices	4
Network Redundancy	7
Network Address Translation (NAT)	8
Review of Interpret and Describe a Basic Network Topology	1

## Explain the Management, Control, and Data Planes

Overview	1
Introducing the Management, Control, and Data Planes	1
Overview of the Planes	6
Control, Data, and Management Plane Examples with Dynamic Routing	11
Control, Data, and Management Plane Examples with Spanning Tree	5
Reviewing the Data, Control, and Management Planes	1

## Describe Network Elements that Impact Applications

Overview	1
Introducing Network Elements that Impact Applications	1

## WEEK 12

166 min.

Basic Routing and Switching	5
Firewalls, IPS, and ACLs	9
Insecure Protocols	6
Reviewing Network Elements that Impact Applications	1

## Understand Ansible Automation

Introduction	1
The Push and Pull Models	8
How Ansible Operates	9
Ansible's Inventory and Configuration Files	8
Variables in Ansible	5
Automating Networks with Playbooks	12
Render Configurations with Templates	9

Validation 4

### **Automate Cisco Webex**

Introduction 1

What is Webex? 5

Creating Teams with Python 11

Creating Rooms with Python 9

Sending Messages with Python 6

Managing Meetings with Python 12

Testing Interfaces 9

Validation 5

### **Automate and Test Networks with pyATS**

Introduction 1

Creating a Testbed 13

Parsing and Learning Data 16

## **WEEK 13**

**135 min.**

Using Genie 9

Genie Integration 4

Validation 7

### **Understand Network Simulation, NSO & Terraform**

Introduction 1

Cisco Modeling Labs 5

Understand and Install Cisco's NSO 16

NSO in Action 15

Terraform 15

Validation 5

### **Understand Cisco Compute & Security Solutions**

Cisco's Compute Solutions 6

Cisco's Security Solutions 8

Exploring Firepower Device Manager's REST API 17

Deleting Network Objects with FDM's REST API 11

Intersight's API 8

Identity Services Engine's (ISE) REST API 7

Validation 1