

# Cisco CCNP Automating and Programming Service Provider Solutions (300-535 SPAUTO)

This intermediate Cisco CCNP 300-535 SPAUTO training prepares network admins to provide advanced configuration for service provider-sized networks and network devices with Cisco tools, technologies, and advanced protocols. Use the course to prepare for SPAUTO, an optional certification exam that can help advanced IT professionals earn either the CCNP Service Provider or the Cisco Certified DevNet Professional.

[CBT Nuggets course material](#) →

## WEEK 1

### Utilize Git for Version Control

159 min.

Introduction to SPAUTO	8
Tools and Resources	11
Git Fundamentals	16
Logs and Branches	8
Merging and Conflicts	10

### Understand APIs

Overview	1
API Basics	11
REST APIs	10
Verbs and Status Codes	19
Remote Procedure Calls	4
Synchronous and Asynchronous APIs	9

### Understand Python Fundamentals

Overview	1
Python Virtual Environments	10
Variables	12
Python Data Types	9
Working with Data Types	18

## WEEK 2

### Understand Conditions and Loops in Python

151 min.

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Boolean Logic	19
For Loops	16
Working with While Loops	8

Adding Conditions to Loops 5

### Understand Python Functions and Classes

Overview 1

Introduction to Functions 11

Custom Functions 18

Introduction to Classes 7

Creating Classes 14

### Automate Networks with Ansible and Puppet

Overview 1

Introduction to Configuration Management 9

Ansible Basics 10

Ansible Configuration Files 11

Retrieving State with Ansible 8

Configuring Devices with Ansible 9

## WEEK 3

158 min.

Puppet Basics 8

### Understand YANG Data Models

Overview 1

YANG Basics 10

Working with Data Programmatically 9

Node Types in YANG 5

Retrieving the Models 5

Transforming Data with Pyang 10

YANG Model Differences 9

### Describe common HTTP authentication mechanisms

Overview 1

Introduction 5

Basic Authentication 6

Working with Basic Authentication 9

Understanding Tokens 7

Working with Tokens 7

Using Tokens with Python 9

OAuth 7

### Compare Common Data Types

Overview 1

Plain Text Data 9

YAML 9

Working with YAML 9

JSON 9

XML 10

## WEEK 4

### Identify JSON, XML and YANG Data

151 min.

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Introduction 6

Examining IETF Models 10

Adding More Data 6

Examining OpenConfig Models 9

Examining Native Models 7

YANG Data with JSON 7

YANG Data with XML 7

## Implement Network Management with RESTCONF

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URI Construction	6
Sending GET Requests	7
Walking the YANG Tree	8
Separating Config and State	5
Generating Configurations	8
Sending Configurations	7

## Implement Network Management with NETCONF

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Enabling NETCONF	4
Server Capabilities	7
Getting Data	9
Getting Configurable Data	6
XML Subtree Filtering	6
Merge Operations	8
Replace Operations	4

### WEEK 5

#### Understand NETCONF Datastores

155 min.

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Enabling the Candidate Datastore	4
Committing to the Running Datastore	8
Deleting Configuration Datastores	5

Locking Datastores	7
Configuration Validation	6
Additional Operations	6

#### Automate Networks with YDK and NETCONF

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Adding YDK Modules	5
YDK and IOSXR Devices	5
YDK and IETF Models	10
Creating and Deleting with YDK	6
Pushing Network Wide Transactions	14

#### Deploy and Validate Device Configuration with Netmiko

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Sending Multiple Show Commands	4
Pulling Structured Data	8
Sending Configurations	9
Configuration Templates	13
Connecting to Multiple Devices	7

#### Validate Operational State using Ansible

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### WEEK 6

156 min.

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Using the Genie Library	9
Using NAPALM with Ansible	10
Using NETCONF with Ansible	7
Using RESTCONF with Ansible	8

### Deploy Device Configuration with Ansible

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Ansible Configuration Changes	9
Feature Specific Modules	7
Ansible NETCONF Configuration	11
PUT Requests with Ansible	8
POST Requests with Ansible	11

### Manage Networks with gNMI

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Getting Data with gNMIc	11
Sending Set Requests with gNMIc	8
Subscribe Requests with gNMIc	7
Capabilities with Pygnmi	5
Get Requests with Pygnmi	6
Set Requests with Pygnmi	6

### Construct Xpath Expressions

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Xpath Filtering with Scrapli	9

## WEEK 7

156 min.

Xpath with YANG Suite	12
Advanced Xpath Filtering	8
Gathering XML Subtrees	5
LXML Etree	10

### Understand gRPC Telemetry Streams

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Introduction	7
On Change vs On Interval	8
Dialling In vs Dialling Out	10
Introduction to gRPC	4
gRPC Encodings	6
Configure Dial Out Telemetry	11

### Configure Cisco NSO

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Getting the NSO Executable	4
Installing the NSO Program	10
Creating Groups and Devices	9
Understanding NSO Synchronisation	7
Managing Network State with NSO	10

### Automate Networks with Cisco's NSO

Overview	1
Introduction	2
Preparing the YANG Model	11
Modifying the Template	8

## WEEK 8

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**79 min.**

Testing the Service	7
NSO GUI	7
NCS Python Modules	8
NSO REST API	6

### **Understand Automation and Orchestration Platforms**

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Cisco ESC	10
Cisco WAE Overview	9
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