

Introduction to Juniper Platform Automation and NetDevOps

COURSE OVERVIEW

This three-day introductory level course provides students with the foundational knowledge required to automate Junos using NetDevOps automation tools, protocols, and technologies. Students receive hands-on experience with tools and languages relevant to automating the Junos OS platform in a NetDevOps environment. The course includes an introduction to the basic NetDevOps practices, Junos APIs, and Network Configuration Protocol (NETCONF). It also focuses on using Python, Junos PyEZ, Representational State Transfer (REST) API methods, and the Junos REST API to automate Junos. This course introduces XML, JavaScript Object Notation (JSON), and YAML, as these languages facilitate Junos automation. This course also introduces Juniper platform automation using REST API. Through demonstrations and hands-on labs, students will gain experience with automating the Junos operating system. This course uses Junos OS Release 24.2R1, Junos PyEZ 2.6.3, and Python 3.8.10.

COURSE LEVEL

Introductory

AUDIENCE

Individuals responsible for configuring and monitoring devices running Junos OS

PREREQUISITES

- Basic understanding of the OSI model and the TCP/IP protocol suite
- Basic understanding of computer networking concepts
- Basic understanding of programming knowledge

RELATED JUNIPER PRODUCTS

- Junos OS
- EX Series
- MX Series
- SRX Series

RELATED CERTIFICATION

[JNCIA-DevOps](#)

RECOMMENDED NEXT COURSE

[Juniper Platform Automation and DevOps](#)

CONTACT EDUCATION SERVICES

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OBJECTIVES

- Describe the principles, practices, and benefits of NetDevOps.
- Explain the interfaces, libraries, and tools used to automate Junos devices.
- Describe and automate Junos devices using XML.
- Describe and demonstrate Junos device automation using XML and NETCONF.
- Describe the fundamental Python concepts.
- Describe Python operations and control flow tools.
- Describe Python modules, packages, and libraries.
- Perform Junos device operations using Junos PyEZ.
- Explain and demonstrate how to automate Junos device configurations using Junos PyEZ.
- Explain the fundamentals of JSON and YAML.
- Explain and demonstrate the REST API methods.
- Demonstrate the Junos REST API.
- Describe the automation of Juniper management platforms using REST API.

Introduction to Juniper Platform Automation and NetDevOps

COURSE CONTENTS

DAY 1

1	Introduction to NetDevOps <ul style="list-style-type: none">Describe traditional and modern network operationsExplain NetDevOps principles, practices, and benefits
2	Junos Automation <ul style="list-style-type: none">List and describe Junos automation APIsDiscuss the frameworks, libraries, and tools used to automate Junos devicesDiscuss the ways to automate Juniper management platforms
3	XML and XPath <ul style="list-style-type: none">Explain XML document formattingExplain how Junos uses XMLUse XPath to navigate a Junos XML document Lab 1: XML and XPath
4	XML and NETCONF <ul style="list-style-type: none">Explain NETCONFExecute Junos RPCs using NETCONF and the Junos XML APIList the Junos XML API programming languages Lab 2: XML and NETCONF
5	Python Fundamentals <ul style="list-style-type: none">Explain Python basicsDescribe Python variables and data types with examplesExplain Python data structures

DAY 2

6	Python Operations and Flow Control Tools <ul style="list-style-type: none">Describe Python input and output operationsDescribe the Python control flow tools Lab 3: Python Fundamentals
7	Python Modules, Packages, and Libraries <ul style="list-style-type: none">Explain Python modules, packages, and librariesDescribe Python libraries with examplesDescribe the Netmiko moduleDemonstrate the installation of the Junos PyEZ library and create a Python script Lab 4: Python Modules, Packages, and Libraries
8	Querying Junos Devices Using Junos PyEZ <ul style="list-style-type: none">Connect Junos devices using Junos PyEZDemonstrate Junos device operations using Junos PyEZAutomate Junos device operations using PyEZ RPCs Lab 5: Querying Junos Devices Using Junos PyEZ
9	Configuring Junos Devices Using Junos PyEZ <ul style="list-style-type: none">Demonstrate how to use Junos PyEZ to automate device configurationsConfigure Junos PyEZ exception handlingIntegrate Junos PyEZ with Jinja2 templatesExplain and demonstrate the Python Junos XML API automation Lab 6: Configuring Junos Devices Using Junos PyEZ

DAY 3

10	Data Serialization—JSON and YAML <ul style="list-style-type: none">Explain JSON and YAML data structuresExplain how JSON and YAML are used to automate Junos devices Lab 7: JSON and YAML
11	REST API <ul style="list-style-type: none">Explain the REST API architectureDescribe the REST HTTP methodsExplain and demonstrate the REST HTTP request and response methods using SwaggerExplain and demonstrate the REST HTTP request and response methods using Hoppscotch Lab 8: Performing the REST API HTTP Methods

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COURSE CONTENTS (continued)

DAY 3 (continued)

- 12 Automating Junos Devices Using REST API**
- Describe the Junos REST API functionality
 - Demonstrate how to query the Junos REST API
 - Illustrate the Junos REST API explorer
 - Create a Python script that uses the Junos REST API to automate Junos devices

Lab 9: Junos REST API

- 13 Automating Juniper Management Platforms Using REST API**
- Describe Juniper management platforms
 - Describe Juniper Mist automation using the REST APIs Python script

Lab 10: Automating Juniper Management Platform Using REST API

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