Juniper Platform Automation and NetDevOps

Category: Software Development & Programming | **Vendor:** Juniper

Duration: 40.00 hours (5 days) **32.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

This five-day course provides students with Junos platform automation knowledge through hands-on development. Students receive hands-on experience with tools and languages relevant to the Junos OS platform. The course includes an introduction to the
Junos XML API, YANG and NETCONF. The course focuses on using Python and the PyEZ library to create commit scripts, operation (op) scripts, and event scripts. It also covers an introduction to automation/DevOps tools using Ansible. Finally the course
discuses the use of Autoinstallation and JSNAPy automation tools. Through demonstrations and hands-on labs, students will gain experience in automating the Junos operating system and device operations.

This course is based on the Junos OS Release 16.2R1.

About This Course

- Course Introduction
- Junos Automation Overview
- NETCONF and the XML API
- YANG
- Jason and YAML
- Python in Junos
- Junos Automation Scripting Using Python
- Jinja2 Templating Language
- PyEZ
- OpenConfig and Custom YANG Modules
- The Junos OS REST API
- Junos Extension Toolkit
- Using Ansible to Automate Junos
- Junos Automation with JSNAP and JSNAPy
- Zero Touch Provisioning

Who Should Attend

This course benefits individuals responsible for configuring and monitoring devices running the Junos OS.

Prerequisites & Entry Requirements

General Prerequisites:

Students should have intermediate-level networking knowledge and an understanding of the Open Systems Interconnection (OSI) model and the TCP/IP protocol suite. Students should also have familiarity XML basics and have introductory knowledge of a programming language such as C, C++, Perl, Python, Ruby, or Java. Students should also attend the Introduction to the Junos Operating System (IJOS) courses prior to attending this class. Lastly, a high-level understanding of object-oriented programming is a plus but not a requirement.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

After successfully completing this course, you should be able to:

- Describe the NETCONF protocol.
- Explain the capabilities of the Junos OS XML API.
- Describe the use of XSLT, SLAX, and XPath in the XML API.
- Describe the Junos Automation UI and explain the role of gRPC, NETCONF, and REST in Junos Automation.
- Identify the languages, frameworks, management suites, and tools used in automating Junos.
- Describe the YANG Protocol and explain the capabilities of YANG.
- Use the YANG model to issue Junos commands and to configure Junos.
- Explain the benefits of using JSON and YAML.
- List where JSON and YAML are used in Junos Automation.
- Convert between JSON, YAML, and XML.
- Describe the features and benefits of using Python in Junos automation.
- Configure Junos devices to use Python and create simple Python scripts.
- Describe the function of Junos operation, commit, event, and SNMP scripts.
- Implement Junos operation, commit, event, and SNMP scripts using Python.
- Identify how Junos automation uses Jinja2 and create Python scripts that use Jinja2.
- Explain how PyEZ makes Junos automation easier and the Junos OS support for PyEZ.
- Use PyEZ to gather facts from Junos, perform configuration tasks, and use PyEZ to manipulate the file system and perform system upgrades to Junos.
- Implement OpenConfig in the Junos OS.
- Describe the process of implementing custom YANG modules.
- Implement a translation script for a custom YANG module.
- Explain the use of the Junos REST API in automation.
- Use the Junos REST API to get information from Junos.
- Describe what JET is and what it includes.
- Create a project in the JET IDE.
- Execute scripts using on-box and off-box automation.
- Explain the four JET application development workflows.
- Describe how Ansible is used in Junos automation and install Ansible.

- Create Ansible playbooks to automate Junos.
- Describe how JSNAPy can help automate Junos devices.
- Implement JSNAPy into a Junos environment.
- Describe how ZTP works.
- Configure in-band ZTP and out-of-band ZTP.

Detailed Course Outline

Day 1

Chapter 1: Course Introduction

Chapter 2: Junos Automation Overview

- Why Automate
- Junos MGD Based Automation
- Junos JSD Based Automation
- Automation Languages, Libraries and Frameworks
- Automation Management Systems
- Other Junos Automation Tools

Chapter 3: NETCONF and the XML API

- NETCONF
- XML API
- XML API programming languages
- XML API tools
- Lab 1:Exploring the XML API

Chapter 4: YANG

- YANG Overview

- YANG Modules

- YANG Syntax

- Junos YANG Case Studies

- Creating and Using Non-Native YANG Modules

- Lab 2: Using YANG

Chapter 5: Jason and YAML

- Origins of JSON and YAML

- Features and benefits

- JSON and YAML uses in Junos automation

- Creating well-formed JSON and YAML documents

- Conversion to and from XML

- Lab 3: Using JSON and YAML

Day 2

Chapter 6: Python in Junos

- Python features and benefits

- Junos support of Python

- Python requirements and installation

- Pip and the Python Interactive interface

- Python modules for Junos

- Using jxmlease

- Review of Python syntax

- Lab 4: Implementing Python in Junos

Chapter 7: Junos Automation Scripting Using Python

- Overview of Junos operation, commit, event, and SNMP scripts

- Junos processing of operation, commit, event, and SNMP scripts

- Use Case - Operation scripts

- Use Case - Commit scripts

- Use Case - Event scripts

- Use Case - SNMP scripts

- Lab 5: Python Automation Scripts

Chapter 8: Jinja2 Templating Language

- Overview of Features and benefits of Jinja2

- Junos support of Jinja2

- Jinja2 syntax

- Jinja2 examples in Python

- Use Case - creating a Jinja2 template

- Lab 6: Using Jinja2

Day 3

Chapter 9: PyEZ

- Overview - PyEZ

- Installing PyEZ

- Authenticating PyEZ users

- Use Case - Retrieving facts from devices

- Use Case - Configuration management

- Use Case - File system and software upgrades

- Lab 7: Junos Automation with PyEZ

Chapter 10: OpenConfig and Custom YANG Modules

- Introduction to OpenConfig and custom YANG modules

- OpenConfig Implementation

- Custom YANG Module Implementation

- Translation Scripts

- Lab 8: Custom YANG Models

Day 4

Chapter 11: The Junos OS REST API

- REST Overview

- The Junos Implementation of REST

- Tools for working with REST

- cURL

- REST API Explorer

- Use Case - Using the Junos REST API

- Lab 9: Implementing the Junos REST API

Chapter 12: Junos Extension Toolkit

- Jet overview and components

- Ephemeral database

- Platform independent - JET APIs

- gPRPC

- JET application development workflows

- JET IDE overview

- Installing the JET IDE and creating projects

- The JET store

- Lab 10: JET IDE gRPC, and JET APIs

Day 5

Chapter 13: Using Ansible to Automate Junos

- Ansible Overview

- Installing Ansible

- Creating and executing Ansible playbooks to manage devices running Junos OS

- Use Case - Using Ansible to configure devices running Junos OS

- Use Case - Using Ansible to install software on devices running Junos OS

- Use Case - Using Ansible to reboot or shut down devices running Junos OS

- Use Case - Using Ansible to revert a device running Junos OS to a factory default configuration

- Lab 11: Automating Junos with Ansible

Chapter 14: Junos Automation with JSNAP and JSNAPy

- JSNAPy Overview

- Installation

- Integration into Ansible

- JSNAPy d.Snapcheck, Snapshot, and Diff functions

- Lab 12: Configuring JSNAPy

Chapter 15: Zero Touch Provisioning

- ZTP Overview

- In-band using DHCP, Python

- Out-of-band, Ansible, Netconify

Appendix A: XSLT

- Introduction to XSLT

- Templates

- Flow Control

- XSLT Script Structure

- Additional References

Skills You Will Learn:

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Frequently Asked Questions

Q: What delivery options are available for Juniper Platform Automation and NetDevOps?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 5-day Juniper Platform Automation and NetDevOps course provides up to 32.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Juniper Platform Automation and NetDevOps training?

The training takes place over 5 day(s), with each day lasting approximately 40.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Juniper Platform Automation and NetDevOps?

Yes, we provide corporate training, dedicated training, and closed classes for Juniper Platform Automation and NetDevOps. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Juniper Platform Automation and NetDevOps, Automation and DevOps, JAUT

Q: Why choose Nexus Human for Juniper Platform Automation and NetDevOps?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Juniper Platform Automation and NetDevOps training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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