Introduction to Junos Platform Automation and DevOps (IJAUT)

COURSE LEVEL

Introductory

AUDIENCE

Individuals responsible for configuring and monitoring devices running the Junos OS

PREREQUISITES

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

ASSOCIATED CERTIFICATION

JNCIA-DevOps

RELEVANT JUNIPER PRODUCT

Automation

RECOMMENDED NEXT COURSE

Junos Automation and DevOps (JAUT)

CONTACT INFORMATION

Americas region: training-AMER@juniper.net

Asia-Pacific region: training-APAC@juniper.net

Europe, Middle East, Africa: training-EMEA@juniper.net

OBJECTIVES

- Describe DevOps principles and practices.
- Explain how DevOps benefits an IT organization.
- Discuss Network Reliability Engineering.
- List and describe the various APIs Junos provides for automation.
- Discuss the frameworks, libraries and tools used to automate Junos devices.
- Describe XML document format.
- Explain how the Junos OS uses XML.
- Use XPath to navigate a Junos XML document.
- Describe the NETCONF protocol.
- Use NETCONF and the XML API to issue Junos RPCs.
- List available XML API programming languages.
- Configure Junos device using NETCONF.
- Describe JSON syntax.
- Explain how JSON is used in Junos.
- Describe YAML syntax.
- Explain how Junos automation tools use YAML.
- Use JSON and YAML documents.
- Verify an Ansible installation.
- Retrieve information from Junos devices using Ansible.
- Use Ansible to configure Junos devices.
- Explain fundamental Python concepts.
- Use the Python 3 interactive interpreter.
- Modify and run Python scripts.
- Install Junos PyEZ.
- Use Junos PyEZ to connect to Junos devices and retrieve facts.
- Use Junos PyEZ to execute Junos RPCs.
- Use Junos PyEZ to modify Junos device configuration.
- Describe Python exception handling with PyEZ.
- Describe the capabilities of the Junos OS REST API.
- Generate REST API RPC queries.
- Use the REST API Explorer.
- Describe the Junos operating system and its basic design architecture.
- Explain transit and exception traffic processing.
- Describe the Junos CLI and its features.
- List and perform initial configuration tasks.
- Describe interface types and perform basic interface configuration tasks.

COURSE CONTENT

DAY 1

1 Course Introduction

2 Introduction to DevOps

- Why DevOps?
- The Benefits of DevOps

3 Junos Automation

- The Junos Automation Stack
- Junos XML API Overview
- Junos REST API Overview
- Junos JET API Overview
- Overview of Junos Automation Tools

4 XML and XPath

- Basic XML Syntax
- XML in the Junos OS
- Navigating XML using XPath

Lab 1: XML and XPath

DAY 2

5 XML and NETCONF

- NETCONF
- Junos XML API
- Junos XML API Programming Languages

Lab 2: XML and NETCONF

6 Python Fundamentals

- Python Basics
- Data Types and Variables
- Lists, Dictionaries, Sets, and Tuples
- Python Libraries
- Python Script Examples

Lab 3: Python Fundamentals

7 Junos PyEZ Operations

- Junos PyEZ
- Execute Junos RPCs
- Perform Device Operations

Lab 4: Junos PyEZ Operations

Continued on the next column.

DAY 3

8 Junos PyEZ Configuration

- Junos PyEZ Configuration
- Junos PyEZ Exception Handling
- Junos PyEZ and Jinja2

Lab 5: Junos PyEZ Configuration

9 JSON and YAML

- Data Formatting
- JSON Basics
- JSON Support in Junos
- YAML Basics
- Junos Automation and YAML

Lab 6: JSON and YAML

10 Junos REST API

- REST API Overview
- Configuring the REST API
- Using the REST API
- REST API Explorer

Lab 7: Junos REST API

A Appendix: Introduction to Junos

- Junos OS Basic Design Architecture
- Traffic Processing
- CLI Modes and Features
- Initial Configuration Tasks
- Interface Types and Configuration

Lab 8: Introduction to Junos

B Appendix: Introduction to Ansible

- Ansible Architecture and Capabilities
- Ansible Playbook Basics
- Using Ansible to Retrieve Junos Status Information
- Using Ansible to Retrieve and Modify Configuration Information

Lab 9: Ansible

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