Junos Troubleshooting

JUNIPER NETWORKS | Education Services

COURSE OVERVIEW

This two-day course provides foundational troubleshooting skills. In this course, students will learn to use common Junos troubleshooting commands and tools. This course will help students to acquire the skills needed to perform basic troubleshooting on Juniper devices. Students will learn to troubleshoot the control plane, the forwarding plane, and the secure the connection between the two planes from DDoS attacks. Students will also learn to troubleshoot common network services such as DHCP, DNS, and authentication services.
The course is based on Junos OS Release 22.3R1. Students will get hands-on practice using vMX, vSRX, and vQFX devices in the lab.

Note: For those who have previously taken the *Juniper Troubleshooting in the NOC* course, we recommend moving to the next course in the learning path, *Advanced Junos Troubleshooting*.

COURSE LEVEL

Intermediate-level

INTENDED AUDIENCE

The course content is for people who troubleshoot Juniper devices running the Junos OS, which includes network operators, engineers, administrators, support personnel, and reseller support personnel.

PREREQUISITES

The following courses, or equivalent knowledge are prerequisites for this course:

- *Juniper Technical Support Fundamentals* course
- *Introduction to the Junos Operating System* course

RELATED JUNIPER PRODUCTS

- Junos OS
- vSRX
- vMX
- vQFX

CONTACT EDUCATION SERVICES

Americas: training-amer@juniper.net
Europe, Middle East, Africa: training-emea@juniper.net
Asia-Pacific: training-apac@juniper.net

OBJECTIVES

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

- Describe Junos products and related information and recovery options.
- Explain various tools that can be used to troubleshoot Junos devices.
- Explain Junos CLI commands used in troubleshooting.
- Identify and isolate hardware issues.
- Troubleshoot problems with the control plane.
- Describe control plane protection features.
- Troubleshoot problems with interfaces and other data plane components.
- Describe the staging and acceptance methodology.
- Troubleshoot networking services.
- Troubleshoot high availability features.
- Describe how to monitor your network with SNMP, RMON, Junos Telemetry Interface, Junos Traffic Vision (formerly known as JFlow), and port mirroring.

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COURSE CONTENTS

DAY 1

1 Course Introduction

2 Junos Product Families

- Describe the architectural philosophy of devices that run the Junos OS and how this relates to troubleshooting
- Describe traffic processing for transit and exception traffic
- Describe the function and components of the RE and PFE within a device running the Junos OS
- Describe FRUs
- Describe current Junos product families and understand where to go for detailed information about your hardware

Lab 1: Identifying Hardware Components

3 Troubleshooting Toolkit

- Describe various tools that can be used to troubleshoot devices that run the Junos operating system
- Explain JTAC recommendations for current best-practices that facilitate troubleshooting

Lab 2: Using Monitoring Tools and Establishing a Baseline

4 Hardware and Environmental Conditions

- Describe the key commands and features used to monitor storage and memory issues
- Describe the key commands and features that you can use to monitor software installations
- Determine how to find potential hardware problems using system logs
- Describe the key commands that you can use to monitor hardware and environmental issues

Lab 3: Monitoring Hardware and Environmental Conditions

5 Control Plane

- Monitor and troubleshoot control plane processes
- Utilize a logical approach to troubleshooting routing issues that reside in the control plane
- Monitor and troubleshoot basic bridging and ARP functionalities

Lab 4: Control Plane Monitoring and Troubleshooting

6 Control Plane Protection

- Describe DDoS attacks
- Explain and configure the DDoS protection feature
- Outline using firewall filters to protect the control plane

Lab 5: Protecting the Control Plane

DAY 2

7 Data Plane: Interfaces

- Describe physical and logical interface properties
- Deactivate and disable interfaces
- Perform loopback testing
- Use operational mode commands to monitor and troubleshoot Ethernet interfaces

Lab 6: Monitoring and Troubleshooting Ethernet Interfaces

8 Data Plane: Other Components

- Recognize data plane problems and components
- Monitor and troubleshoot data plane forwarding
- Monitor load balancing
- Troubleshoot firewall filter and policer issues

Lab 7: Isolating and Troubleshooting PFE Issues

9 Staging and Acceptance Testing

- Perform the initial inspection and power-on of a Junos device
- Perform general system checks recommended for a newly deployed Junos device
- Determine the status of new interface connections by performing loopback testing and monitoring

10 Troubleshooting Network Services

- Discuss DNS, DHCP, NTP, SSH, SNMP, and telemetry
- Explain authentication issues
- Discuss MACsec issues
- Discuss LLDP issues

Lab 8: Troubleshooting Network Services

11 Troubleshooting High Availability Features

- Discuss LACP issues
- Discuss BFD issues
- Discuss NSR issues
- Discuss NSB issues
- Explain graceful routing engine switchover
- Explain graceful restart
- Discuss Aggregated Ethernet issues
- Discuss MC-LAG issues
- Discuss VRRP issues

Continued on the next page.

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COURSE CONTENTS

DAY 2 (continued)

12 Network Monitoring

- Explain how to configure and monitor SNMP
- Discuss how to configure and monitor RMON
- Describe how to use the Junos telemetry interface
- Describe how to use flow monitoring

Lab 9: Monitoring the Network

SELF-STUDY MODULES

13 Junos RPM

- Explain the purpose of the Junos RPM
- Describe the components of the Junos RPM
- Implement Junos RPM Probes
- Use Junos CLI to monitor the deployed Probes

14 Introduction to Juniper Support Insights

- Describe the need for the Juniper Support Insights platform
- Describe the architecture and features of Juniper Support Insights
- Describe the availability of Juniper Support Insights
- Describe the value proposition of Juniper Support Insights

15 Selecting an Appropriate Collection Method

- Describe the Juniper Support Insights platform architecture
- Describe the physical lightweight collector
- Describe the virtual lightweight collector
- Describe the lightweight collector captive portal

16 Juniper Support Insights on the Juniper Support Portal

- Describe the Juniper Support Portal data collection process
- Describe the insights reports available on the Juniper Support Portal

17 Juniper Support Insights on Juniper Cloud

- Provide an overview of Juniper Support Insights on Juniper Cloud

18 Juniper Support Insights on Juniper Mist Cloud

- Provide an overview of Juniper Support Insights on Juniper Mist Cloud