Junos Troubleshooting

COURSE OVERVIEW

This two-day, intermediate-level, instructor-led course equips network professionals with the skills needed to effectively troubleshoot and monitor devices running Junos OS. Through a combination of theoretical instruction and hands-on labs, participants will explore Junos architecture, control and data plane operations, network services, high availability features, and performance monitoring tools.
The course is based on Junos OS Release 25.2R1. Students will get hands-on practice using Juniper Networks® vMX Virtual Router (vMX), Juniper Networks® vSRX Virtual Firewall (vSRX), and vEX devices in the lab.

COURSE LEVEL

Junos Troubleshooting is an intermediate-level course.

AUDIENCE

This course benefits people involved in troubleshooting Juniper devices running Junos OS, including network operators, engineers, administrators, support personnel, and reseller support personnel.

PREREQUISITES

- Basic networking knowledge and an understanding of the OSI reference model and the TCP/IP protocol suite.
- General understanding of Junos OS.
- Completion of the ***Introduction to the Junos Operating System*** course.

RELATED JUNIPER PRODUCTS

Junos OS, Virtual SRX Series Firewalls, EX Series Switches, MX Series Routers

RECOMMENDED NEXT COURSE

Advanced Junos Troubleshooting

OBJECTIVES

- Describe the Junos OS architecture and product families.
- Describe the Junos commands used in monitoring hardware and software.
- Use fundamental troubleshooting utilities and commands to support the Junos OS.
- Utilize a logical approach to troubleshooting routing issues that reside in the control plane.
- Describe distributed denial of service (DDoS) attacks.
- Use operational mode commands to monitor and troubleshoot network interfaces.
- Recognize data plane problems and troubleshoot data plane components.
- Troubleshoot common network services.
- Troubleshoot high availability features.
- Troubleshoot high availability features.
- Monitor the network using SNMP, remote monitoring, and flow monitoring.
- Monitor the network using Junos telemetry interface and Juniper Support Insights.
- Describe Linux administration fundamentals.
- Describe Linux networking concepts.
- Describe and implement Junos real-time performance monitoring (RPM).
- Describe Juniper Support Insights and its benefits.
- Describe the data collection methods of Juniper Support Insights.
- Describe the features of Juniper Support Insights available on the Juniper Support Portal.
- Provide an overview of Juniper Support Insights on the Juniper cloud.
- Provide an overview of Juniper Support Insights on the Juniper Mist™ cloud.

COURSE CONTENTS

DAY 1

Module 01: Understanding Junos Product Families

- Describe the architecture of Junos OS
- Describe the functions and components of the Routing Engine and the Packet Forwarding Engine
- Describe the Junos product families

Lab 01: Getting Familiar with the Lab Topology

Module 02: Monitoring Junos Hardware and Software

- Describe FRUs
- Describe the key commands used to monitor device chassis
- Describe the key commands and features used to monitor storage and memory issues
- Describe the key commands and features used to monitor software installations

Lab 02: Monitoring Junos Hardware and Software

Module 03: Using Junos Troubleshooting Tools

- Troubleshoot devices using the basic Junos commands and utilities
- Explain JTAC recommendations for current best practices that facilitate troubleshooting

Lab 03: Using Monitoring Tools and Establishing a Baseline

Module 04: Monitoring and Troubleshooting the Control Plane

- Describe the control plane
- Use Junos CLI to manage system and user processes
- Use the Junos CLI to troubleshoot routing tables and protocols
- Describe the Junos operational mode commands used to manage bridging
- Describe the Junos operational mode commands used to troubleshoot ARP

Lab 04: Monitoring and Troubleshooting the Control Plane

Module 05: Protecting the Control Plane

- Describe the need for protecting the control plane
- Explain and configure the DDoS protection feature
- Outline the use of firewall filters to protect the control plane

Lab 05: Protecting the Control Plane

DAY 2

Module 06: Monitoring and Troubleshooting the Data Plane

- Describe physical and logical interface properties
- Perform general interface troubleshooting
- Troubleshoot Ethernet interfaces

Lab 06: Monitoring and Troubleshooting Ethernet Interfaces

Module 07: Isolating and Troubleshooting Data Plane Issues

- Define a data plane problem
- Describe data plane components
- Use the Junos CLI to manage forwarding table entries
- Use the Junos CLI to monitor load balancing
- Troubleshoot firewall filter and policer issues

Lab 07: Isolating and Troubleshooting PFE Issues

Module 08: Troubleshooting Network Services

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

- Discuss MACsec issues
- Discuss LLDP issues

Lab 08: Troubleshooting Network Services

Module 09: Troubleshooting Link Aggregation, BFD, and Graceful Restart

- Discuss link aggregation issues
- Discuss BFD issues
- Explain graceful restart

Module 10: Troubleshooting GRES, NSR, NSB, and VRRP

- Explain graceful Routing Engine switchover
- Discuss NSR issues
- Discuss NSB issues
- Discuss VRRP issues

Module 11: Network Monitoring Using SNMP, Remote Monitoring, and Flow Monitoring

- Explain how to configure and monitor SNMP
- Explain how to configure remote monitoring
- Describe how to use flow monitoring

Lab 09: Monitoring the Network

Module 12: Network Monitoring Using Junos Telemetry and Juniper Support Insights

- Describe how to use the Junos telemetry interface
- Explain how to use Juniper Support Insights to capture Junos device insights and health

SELF-STUDY MODULES

Module 13: Linux System Administration Fundamentals

- Identify the components of an OS
- Manage users and permissions
- Explain the Linux file system and file permissions
- Manage Linux processes
- Manage software packages

Module 14: Linux Networking Fundamentals

- Configure IP addresses
- Describe the basics of Linux networking—bridging, routing, and security
- Describe name resolution (DNS)

Module 15: Junos RPM

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

Module 16: 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

Module 17: 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

Module 18: 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

Module 19: Juniper Support Insights on Juniper Cloud

- Provide an overview of Juniper Support Insights on Juniper Cloud

Module 20: Juniper Support Insights on Juniper Mist

- Provide an overview of Juniper Support Insights on the Juniper Mist cloud

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