

Introduction to the Junos Operating System

COURSE OVERVIEW

This three-day course provides students with the foundational knowledge required to work with the Junos operating system and to configure Junos devices. The course provides a brief overview of the Juniper products and discusses the key architectural components of the Junos software. Key topics include user interface options with a heavy focus on the command-line interface (CLI), configuration tasks typically associated with the initial setup of devices, interface configuration basics with configuration examples, secondary system configuration, and the basics of operational monitoring and maintenance of Junos devices. The course then delves into foundational routing knowledge and configuration examples including general routing concepts, routing policy, and firewall filters.

Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos OS and monitoring basic device operations. This course is based on Junos OS Release 21.1R1.11.

COURSE LEVEL

Foundational

AUDIENCE

Individuals responsible for configuring and monitoring devices running the Junos OS

PREREQUISITES

- Basic networking knowledge
- Understanding of the Open Systems Interconnection (OSI) reference model
- Understanding of the TCP/IP protocol suite
- [Introduction to the Junos Operating System](#) and [Getting Started with Networking eLearning](#) course, or equivalent knowledge

RELATED CERTIFICATION

[JNCIA-Junos](#)

RECOMMENDED NEXT COURSE

[Junos Intermediate Routing \(JIR\)](#)

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OBJECTIVES

- Describe the Junos operating system and provide a brief overview of Juniper products.
- Describe the Junos operating system and its basic design architecture.
- Identify and provide a brief overview of Juniper products.
- Use the Junos CLI and its operational mode to monitor and control Juniper devices.
- Enter operational mode.
- Locate various help options within the Junos CLI.
- Execute monitoring and troubleshooting commands.
- Configure a device using the CLI.
- Enter configuration mode.
- Navigate through the Junos configuration hierarchy.
- Modify the configuration on a Juniper device.
- Use common configuration mode commands.
- Use the J-Web interface to make configuration changes, monitor and maintain Junos devices.
- Configure basic system settings and interfaces.
- Perform device administration.
- Perform initial system configuration using Junos OS.
- Load factory-default configuration.
- List and perform initial system configuration tasks.
- Describe interface types and perform basic interface configuration tasks.
- Configure user authentication and device backups.
- Describe and configure user authentication.
- Archive configurations.
- Configure System Logging, Tracing, NTP, and SNMP in Junos OS.
- Configure and analyze system logging and tracing.
- Configure and monitor NTP.
- Configure and monitor SNMP.
- Monitor and maintain Junos OS.
- Monitor platform and interface operations.
- Describe and use the available network utilities.
- Perform password recovery.
- Upgrade the Junos OS.
- Perform storage and system cleanup tasks.
- Perform the Junos upgrade.
- Describe the interfaces configuration hierarchy.

OBJECTIVES (continued)

- Describe the functionality of routing and routing instances.
- Explain the basic routing concepts.
- Describe the routing table and the forwarding table.
- Describe the functionality of routing instances.
- Configure and monitor a routing instance.
- Implement static routes and dynamic routes using OSPF.
- Configure and monitor static routes.
- Describe the functionality of dynamic routing.
- Configure and monitor OSPF.
- Describe how routing works using IPv6.
- Implement routing policy within Junos.
- Describe the routing policy and explain the default Junos import and export routing policies.
- Identify various options in the match criteria and action blocks of a routing policy.
- Implement a routing policy for a given use case.
- Implement firewall filters within Junos.
- Describe the functionality and the framework of firewall filters.
- Implement firewall filters for a given use case.
- Implement a policer within Junos.
- Describe the operation and configuration of unicast RPF.
- Implement CoS within Junos.
- Describe the purpose and benefits of CoS.
- Implement traffic classification within Junos.
- Describe the traffic queuing within Junos.
- Configure traffic scheduling within Junos.
- Implement CoS for a given use case.
- Access and use Juniper support resources to manage Juniper Products.
- Follow recommended procedures to open a JTAC support case.
- Access Juniper online tools to manage Juniper products.
- Use FTP to transfer large files to JTAC.
- Describe the Juniper Connected Security components.
- Identify high-level security challenges in today's networks.
- Describe the Juniper Connected Security components.
- Implement IPv6 within Junos.
- Describe the differences between IPv4 and IPv6.
- Explain the IPv6 address format and the different address types.
- Explain how IPv6 stateless and stateful autoconfigurations work.
- Configure and monitor IPv6 routing.
- Implement IPv6-over-IPv4 tunnels.

COURSE CONTENTS

DAY 1

1	Course Introduction
2	Junos Operating System Fundamentals <ul style="list-style-type: none">• Describe the Junos operating system and its basic design architecture• Identify and provide a brief overview of Juniper products
3	Junos CLI Operational Mode <ul style="list-style-type: none">• Enter operational mode• Locate various help options within the Junos CLI• Execute monitoring and troubleshooting commands
4	Junos CLI Configuration Mode <ul style="list-style-type: none">• Enter configuration mode• Navigate through the Junos configuration hierarchy• Modify the configuration on a Juniper device• Use common configuration mode commands
5	J-Web Interface <ul style="list-style-type: none">• Configure basic system settings and interfaces• Perform device administration Lab 1: User Interface Options
6	Initial System Configuration <ul style="list-style-type: none">• Load factory-default configuration• List and perform initial system configuration tasks Lab 2: Initial System Configuration

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COURSE CONTENTS

DAY 2

7	User Authentication Archiving <ul style="list-style-type: none">Describe and configure user authenticationArchive configurations Lab 3: User Authentication and Archiving
8	System Logging, Tracing, NTP, and SNMP <ul style="list-style-type: none">Configure and analyze system logging and tracingConfigure and monitor NTPConfigure and monitor SNMP Lab 4: System Logging, Tracing, NTP, and SNMP
9	Operational Monitoring and Maintenance <ul style="list-style-type: none">Monitor platform and interface operationsDescribe and use the available network utilitiesPerform password recovery Lab 5: Operational Monitoring and Maintenance
10	Upgrading the Junos OS <ul style="list-style-type: none">Perform storage and system cleanup tasksPerform the Junos upgrade Lab 6: Upgrading the Junos OS
11	Interface Configuration Examples <ul style="list-style-type: none">Configure various interface typesUse configuration groups to configure interfaces
12	Routing Fundamentals <ul style="list-style-type: none">Explain the basic routing conceptsDescribe the routing table and the forwarding tableDescribe the functionality of routing instancesConfigure and monitor a routing instance Lab 7: Routing Fundamentals
13	Static and Dynamic Routing <ul style="list-style-type: none">Configure and monitor static routesDescribe the functionality of dynamic routingConfigure and monitor OSPFDescribe how routing works using IPv6 Lab 8: Static and Dynamic Routing

DAY 3

14	Routing Policy <ul style="list-style-type: none">Describe the routing policy and explain the default Junos import and export routing policiesIdentify various options in the match criteria and action blocks of a routing policyImplement a routing policy for a given use case Lab 9: Routing Policy
15	Firewall Filters <ul style="list-style-type: none">Describe the functionality and the framework of firewall filtersImplement firewall filters for a given use caseImplement a policer within JunosDescribe the operation and configuration of unicast RPF Lab 10: Firewall Filters
16	Class of Service <ul style="list-style-type: none">Describe the purpose and benefits of CoSImplement traffic classification within JunosDescribe the traffic queuing within JunosConfigure traffic scheduling within JunosImplement CoS for a given use case Lab 9: Class of Service
17	JTC Procedures <ul style="list-style-type: none">Follow recommended procedures to open a JTAC support caseAccess Juniper online tools to manage Juniper productsUse FTP to transfer large files to JTAC
18	Juniper Security Concepts <ul style="list-style-type: none">Identify high-level security challenges in today's networksDescribe the Juniper Connected Security components
A	Appendix: IPv6 Fundamentals <ul style="list-style-type: none">Describe the differences between IPv4 and IPv6Explain the IPv6 address format and the different address typesExplain how IPv6 stateless and stateful autoconfigurations workConfigure and monitor IPv6 routingImplement IPv6-over-IPv4 tunnels

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