JUNIPER TRAINING
Enterprise Networking Certification Training Camp (JNCIA and JNCIS)

Our Learning Exclusive

- Custom exam prep software and materials
- Exam delivery in classroom with 98% success
- Course specific thinQtank® Learning publications to promote fun exciting learning
- Extended hours of training including immersive hands-on exercises
- WE DO NOT "TEACH THE TEST" We always deliver valuable hands-on experience
- Receive all reading material and study guides when you register
- All courses taught by certified expert instructors

Course Duration

- Five days of instructor-led training
- 40% lecture, 60% hands-on labs

Prerequisites

- Students should have basic networking knowledge and an understanding of the Open Systems Interconnection (OSI) reference model and the TCP/IP protocol suite

Target Audience

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

Exam Information

- JN0-102 – Juniper Networks Certified Associate (JNCIA-Junos) RECOMMENDED EXAM
- JN0-347 – Enterprise Routing and Switching, Specialist (JNCIS-ENT)

Delivery Methods

- Instructor-Led Training
- Immersive Live-Online Training
- On-Site and Custom Delivery

Exclusive Tools and Learning Package

- Additional hours of remote lab access
- Custom video recordings with even more in-depth learning of course topics
- Digital courseware
- Retake any or all portions of the course as many times as you like in person or live on-line for 24 months
- Six months mentoring access to expert engineers after completing the course

Course Overview

thinQtank® Learning is offering a unique five-day training camp in which students will learn how to design, implement, operate and optimize enterprise networks running the Juniper Junos OS. As with all of our Juniper Training Experiences – exams can be delivered in the classroom. Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos OS and monitoring basic device operations.

This 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 Junos device families and discusses key architectural components of the 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. Then students move into foundational routing knowledge and configuration examples including general routing concepts, routing policy, and firewall filters. This course also provides students with intermediate routing knowledge and configuration examples. The course includes an overview of protocol-independent routing features, load balancing and filter-based forwarding, OSPF, BGP, IP tunneling, and high availability (HA) features.

JP-JRE: This course provides students with foundational routing knowledge and configuration examples, and includes an overview of 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.

JUNOS Enterprise Switching (JEX): This course provides students with intermediate switching knowledge and configuration examples and includes an overview of switching concepts and operations, virtual LANs (VLANs), the Spanning Tree Protocol (STP), port and device security features, and high availability (HA) features. Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos operating system and in monitoring device operations.

JUNOS Intermediate Routing (JIR): This course provides you with intermediate routing knowledge and configuration examples. The course includes an overview of protocol-independent routing features, load balancing and filter-based forwarding, OSPF, BGP, IP tunneling, and high availability (HA) features. Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring the Junos OS and monitoring device operations.

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Course Objectives

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

Introduction to the Junos Operating System (IJOS) Objectives

- Describe the basic design architecture of the Juniper Networks Junos OS
- Identify and provide a brief overview of Junos devices
- Navigate within the Junos CLI
- Perform tasks within the CLI operational and configuration modes
- Restore a Junos device to its factory-default state
- Perform initial configuration tasks
- Configure and monitor network interfaces
- Describe user configuration and authentication options
- Perform secondary configuration tasks for features and services such as system logging (syslog) and tracing, Network Time Protocol (NTP), configuration archival, and SNMP
- Monitor basic operation for the Junos OS and devices
- Identify and use network utilities
- Upgrade the Junos OS
- Perform file system maintenance/password recovery on a Junos device
- Navigate within the Junos J-Web interface
- Explain basic routing operations and concepts
- View and describe routing and forwarding tables
- Configure and monitor static routing
- Configure and monitor OSPF
- Describe the framework for routing policy and firewall filters
- Explain the evaluation of routing policy and firewall filters
- Identify instances where you might use routing policy
- Write and apply a routing policy
- Identify instances where you might use firewall filters
- Write and apply a firewall filter
- Describe the operation and configuration for unicast reverse path forwarding (RPF)

JUNOS Enterprise Switching (JEX) Objectives

- List the benefits of implementing switched LANs
- Describe transparent bridging concepts and operations
- Describe terms and design considerations for switched LANs
- List enterprise platforms that support Layer 2 switching
- Configure interfaces for Layer 2 switching operations
- Display and interpret the Ethernet switching table
- Explain the concept of a VLAN
- Describe access and trunk port modes
- Configure and monitor VLANs
- Describe voice VLAN and native VLAN

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Course Objectives Continued

JUNOS Enterprise Switching (JEX) Objectives Continued

- Explain inter-VLAN routing operations
- Configure and monitor inter-VLAN routing
- Explain when a spanning tree is required
- Describe STP and Rapid Spanning Tree Protocol (RSTP) operations
- List some advantages of using RSTP over STP
- Configure and monitor RSTP
- Describe the bridge protocol data unit (BPDU), Loop and Root protection features
- Configure and monitor the BPDU, Loop, and Root protection features
- List and describe various port security features
- Configure and monitor port security features
- Describe the storm control feature
- Configure and monitor storm control
- Describe firewall filter support for EX Series Ethernet Switches
- Implement and monitor the effects of a firewall filter
- Describe the basic concepts and operational details of a virtual chassis
- Implement a virtual chassis with multiple EX4200 switches
- List and describe some features that promote high availability
- Configure and monitor high availability features

JUNOS Intermediate Routing (JIR) Objectives

- Describe typical uses of static, aggregate, and generated routes
- Configure and monitor static, aggregate, and generated routes
- Explain the purpose of Martian routes and add new entries to the default list
- Describe typical uses of routing instances
- Configure and share routes between routing instances
- Describe load-balancing concepts and operations
- Implement and monitor Layer 3 load balancing
- Illustrate benefits of filter-based forwarding
- Configure and monitor filter-based forwarding
- Explain the operations of OSPF and describe the role of the designated router
- List and describe OSPF area types
- Configure, monitor, and troubleshoot OSPF
- Describe BGP and its basic operations
- Name and describe common BGP attributes
- List the steps in the BGP route selection algorithm
- Describe BGP peering options and the default route advertisement rules and configure and monitor BGP
- Describe IP tunneling concepts and applications
- Explain the basic operations of generic routing encapsulation (GRE) and IP over IP (IP-IP) tunnels
- Configure and monitor GRE and IP-IP tunnels
- Describe various high availability features supported by the Junos OS
- Configure and monitor some of the highlighted high availability features

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Introduction to the Junos Operating System (IJOS) Course Modules

1 Junos Operating System Fundamentals
- The Junos OS
- Traffic Processing
- Platforms Running the Junos OS

2 User Interface Options
- User Interface Options
- The Junos CLI: CLI Basics
- The Junos CLI: Operational Mode
- The Junos CLI: Configuration Mode
- Lab 1: The Junos CLI

3 Initial Configuration
- Factory-Default Configuration
- Initial Configuration
- Interface Configuration
- Lab 2: Initial System Configuration

4 Secondary System Configuration
- User Configuration and Authentication
- System Logging and Tracing
- Network Time Protocol
- Archiving Configurations
- SNMP
- Lab 3: Secondary System Configuration

5 Operational Monitoring and Maintenance
- Monitoring Platform and Interface Operation
- Network Utilities
- Maintaining the Junos OS
- Password Recovery
- System Clean-up
- Lab 4: Operational Monitoring and Maintenance

6 Interface Configuration Examples
- Review of the Interface Configuration Hierarchy
- Interface Configuration Examples
- Using Configuration Groups

7 The J-Web Interface
- The J-Web GUI
- Configuration
- Lab 5: The J-Web Interface

8 Routing Fundamentals
- Routing Concepts: Overview of Routing
- Routing Concepts: The Routing Table
- Routing Concepts: Routing Instances
- Static Routing
- Dynamic Routing
- Lab 6: Routing Fundamentals

9 Routing Policy
- Routing Policy Overview
- Case Study: Routing Policy
- Lab 7: Routing Policy

10 Firewall Filters
- Firewall Filters Overview
- Case Study: Firewall Filters
- Unicast Reverse-Path-Forwarding Checks
- Lab 8: Firewall Filters

11 Class of Service
- CoS Overview
- Traffic Classification
- Traffic Queueing
- Traffic Scheduling
- Case Study: CoS
- Lab 9: Class of Service (Optional)

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JUNOS Enterprise Switching (JEX) Course Modules

1 Layer 2 Switching
- Ethernet Bridging Basics
- Terminology and Design Considerations
- Overview of Enterprise Switching Platforms
- Enabling and Monitoring Layer 2 Switching Operations
- Lab 1: Implementing Layer 2 Switching

2 Virtual Networks
- Overview of VLANs
- Configuring and Monitoring VLANs
- Voice VLAN
- Native VLAN
- Routed VLAN Interfaces
- Lab 2: Implementing Virtual Networks

3 Spanning Tree
- Spanning Tree Protocol
- Rapid Spanning Tree Protocol
- Configuring and Monitoring STP and RSTP
- Protection Features: BPDU Protection
- Protection Features: Loop Protection
- Protection Features: Root Protection
- Lab 3: Implementing Spanning Tree

4 Port Security
- MAC Limiting
- DHCP Snooping
- Dynamic ARP Inspection (DAI)
- IP Source Guard
- Lab 4: Implementing Port Security

5 Device Security and Firewall Filters
- Storm Control
- Firewall Filters
- Lab 5: Implementing Storm Control and Firewall Filters

6 Virtual Chassis
- Overview of Virtual Chassis
- Configuring and Monitoring a Virtual Chassis
- Lab 6: Implementing Virtual Chassis Systems

7 High Availability Features
- Overview of High Availability Networks
- Link Aggregation Groups
- Redundant Trunk Groups
- Lab 7: Implementing High Availability Features

JUNOS Intermediate Routing (JIR) Course Modules

1 Protocol-Independent Routing
- Static Routes
- Aggregated Routes
- Generated Routes
- Martian Addresses
- Routing Instances
- Lab 1: Protocol-Independent Routing

2 Load Balancing and Filter-Based Forwarding
- Overview of Load Balancing
- Configuring and Monitoring Load Balancing
- Overview of Filter-Based Forwarding
- Configuring and Monitoring Filter-Based Forwarding
- Lab 2: Load Balancing and Filter-Based Forwarding

3 Open Shortest Path First
- Overview of OSPF
- Adjacency Formation and the Designated Router Election
- OSPF Scalability
- Configuring and Monitoring OSPF
- Basic OSPF Troubleshooting
- Lab 3: Open Shortest Path First

4 Border Gateway Protocol
- Overview of BGP
- BGP Attributes
- IBGP Versus EBGP
- Configuring and Monitoring BGP
- Lab 4: Border Gateway Protocol

5 IP Tunneling (Optional Topic)
- Overview of IP Tunneling
- GRE and IP-IP Tunnels
- Implementing GRE and IP-IP Tunnels
- Lab 5: IP Tunneling

6 High Availability (Optional Topic)
- Overview of High Availability Networks
- GR
- Graceful RE Switchover
- Nonstop Active Routing
- BFD
- VRRP
- Lab 6: High Availability

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