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JUNOS INTERMEDIATE ROUTING (JIR)

Course Code: 7211

This three-day course provides students with intermediate routing knowledge and configuration examples.

The course includes an overview of protocol-independent routing features, OSPF, IS-IS, BGP, routing policy, IP tunneling, load balancing, high availability (HA) features, VRRP, and IPv6.

Through demonstrations and hands-on labs, students will gain experience in configuring and monitoring Junos OS and monitoring device operations. This course uses Juniper Networks vSRX Series Services Gateways for the hands-on component, but the lab environment does not preclude the course from being applicable to other Juniper hardware platforms running Junos OS. This course is based on Junos OS Release 23.4R1.

What You'll Learn

Students will learn to,

- Describe how routes enter a routing table, and how routers choose the best routes for forwarding traffic.
- Implement static routing within Junos OS.
- Describe OSPF within Junos OS.
- Describe how routing policies control what prefixes can enter the routing table and what prefixes can be advertised by protocols.
- Deploy OSPF within Junos OS.
- Implement IS-IS within Junos OS.
- Implement BGP within Junos OS.
- Deploy BGP within Junos OS.
- Describe some important advanced routing policy features and behaviors.
- Implement routing instances within Junos OS.
- Implement load balancing within Junos OS.
- Implement VRRP within Junos OS.
- Implement graceful routing and Bidirectional Forwarding Detection (BFD) within Junos OS.
- Implement high availability features—GRES, NSR, and unified ISSU— within Junos OS.
- Implement IP tunneling within Junos OS.

- Describe IPv6 within Junos OS.
- Implement filter-based forwarding (FBF) within Junos OS

Who Needs to Attend

Individuals responsible for configuring and monitoring devices running Junos OS

Prerequisites

- Basic networking knowledge and an understanding of the OSI model and the TCP/IP protocol suite
- Completion of the Introduction to the Junos Operating System course prior to attending this class

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JUNOS INTERMEDIATE ROUTING (JIR)

Course Code: 7211

CLASSROOM LIVE	$1,595 USD	3 Day

Classroom Live Outline

Day 1

Chapter 1 - Routing Fundamentals

- Explain the role of a router in a network
- Define the difference between directly connected, static, and dynamic routes
- Explain how route preference selects the best route to a destination
- Explain the process of longest prefix match lookups
- Demonstrate how to view and verify the inet.0 and inet6.0 routing tables

Chapter 2 - Protocol Independent Routing

- Configure static routes
- Configure aggregate routes
- Configure generated routes
- Manage martian routes

Chapter 3 - Fundamentals of OSPF

- Describe OSPF
- Explain adjacency formation and the designated router election
- Explain OSPF scalability

Chapter 4 - Routing Policy

- Explain how import and export policies can re-advertise prefixes between protocols
- Describe the CLI syntax of a routing policy
- Demonstrate how a routing policy can export static routes into OSPF

Chapter 5 - Deploying OSPF

- Configure and monitor OSPF
- Troubleshoot OSPF

Day 2

Chapter 6 - IS-IS

- Explain IS-IS
- Describe IS-IS PDUs
- Define adjacency formation and DIS election
- Configure and monitor IS-IS
- Troubleshoot IS-IS

Chapter 7 - Fundamentals of BGP

- Explain BGP
- Describe BGP attributes

Chapter 8 - Deploying BGP

- Explain IBGP and EBGP
- Configure and monitor BGP
- Describe the BGP route reflection operation
- Examine the route reflection configuration

Chapter 9 - Advanced Routing Policy Features

- Describe advanced route-filter options
- Describe how to refer to a prefix list in a routing policy
- Explain route filters with mixed prefix lengths

Chapter 10 - Routing Instances

- Describe routing instances
- Configure and share routes between routing instances

Chapter 11 - Load Balancing

- Describe the load-balancing concepts and operations
- Implement and monitor Layer 3 load balancing

Day 3

Chapter 12 - VRRP

- Describe, configure, and monitor VRRP

Chapter 13 - Graceful Restart and Bidirectional Forwarding Detection

- Describe high availability
- Explain graceful restart
- Explain Bidirectional Forwarding Detection

Chapter 14 - GRES, NSR, and Unified ISSU

- Explain graceful Routing Engine switchover
- Explain nonstop active routing
- Explain unified ISSU

Chapter 15 - IP Tunneling

- Describe IP tunneling
- Describe GRE and IP-IP tunnels
- Deploy GRE and IP-IP tunnels

Chapter 16 - IPv6

- Explain IPv6 addressing
- Explain routing protocol configuration examples
- Describe tunneling IPv6 over IPv4

SELF- STUDY MODULE

Chapter 17 - Filter-Based Forwarding

- Illustrate benefits of filter-based forwarding
- Configure and monitor filter-based forwarding

Classroom Live Labs

- Lab 1: Protocol Independent Routing
- Lab 2: OSPF
- Lab 3: IS-IS
- Lab 4: BGP
- Lab 5: Routing Instances
- Lab 6: Load Balancing
- Lab 7: High Availability
- Lab 8: IP Tunneling
- Lab 9: IPv6
- Lab 10: Filter-Based Forwarding

JUNOS INTERMEDIATE ROUTING (JIR)

Course Code: 7211

VIRTUAL CLASSROOM LIVE	$2,850 USD	3 Day

Virtual Classroom Live Outline

Day 1

Chapter 1 - Routing Fundamentals

- Explain the role of a router in a network
- Define the difference between directly connected, static, and dynamic routes
- Explain how route preference selects the best route to a destination
- Explain the process of longest prefix match lookups
- Demonstrate how to view and verify the inet.0 and inet6.0 routing tables

Chapter 2 - Protocol Independent Routing

- Configure static routes
- Configure aggregate routes
- Configure generated routes
- Manage martian routes

Chapter 3 - Fundamentals of OSPF

- Describe OSPF
- Explain adjacency formation and the designated router election
- Explain OSPF scalability

Chapter 4 - Routing Policy

- Explain how import and export policies can re-advertise prefixes between protocols
- Describe the CLI syntax of a routing policy
- Demonstrate how a routing policy can export static routes into OSPF

Chapter 5 - Deploying OSPF

- Configure and monitor OSPF
- Troubleshoot OSPF

Day 2

Chapter 6 - IS-IS

- Explain IS-IS
- Describe IS-IS PDUs
- Define adjacency formation and DIS election
- Configure and monitor IS-IS
- Troubleshoot IS-IS

Chapter 7 - Fundamentals of BGP

- Explain BGP
- Describe BGP attributes

Chapter 8 - Deploying BGP

- Explain IBGP and EBGP
- Configure and monitor BGP
- Describe the BGP route reflection operation
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- Configure and share routes between routing instances

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- Implement and monitor Layer 3 load balancing

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- Describe high availability
- Explain graceful restart
- Explain Bidirectional Forwarding Detection

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- Describe IP tunneling
- Describe GRE and IP-IP tunnels
- Deploy GRE and IP-IP tunnels

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- Explain IPv6 addressing
- Explain routing protocol configuration examples
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- Illustrate benefits of filter-based forwarding
- Configure and monitor filter-based forwarding

Virtual Classroom Live Labs

- Lab 1: Protocol Independent Routing
- Lab 2: OSPF
- Lab 3: IS-IS
- Lab 4: BGP
- Lab 5: Routing Instances
- Lab 6: Load Balancing
- Lab 7: High Availability
- Lab 8: IP Tunneling
- Lab 9: IPv6
- Lab 10: Filter-Based Forwarding

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PRIVATE GROUP TRAINING	3 Day

Visit us at www.globalknowledge.com or call us at 1-866-716-6688.

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