

Advanced Junos Enterprise Routing (AJER)

Duration: 5 Days **Course Code:** JUN_AJER

Overview:

This five-day course is designed to provide students with the tools and methods required for implementing, monitoring, and troubleshooting Layer 3 components in an enterprise network.

This course covers OSPF, BGP, multicast, enterprise architecture, and Ethernet VPN-Virtual Extensible LAN (EVPN-VXLAN) is covered in depth.

The course also exposes students to common troubleshooting commands and tools used to diagnose various intermediate to advanced issues. Through demonstrations and hands-on labs, students will gain experience with features of each of these devices, vSRX virtual firewalls and vQFX virtual switches.

This course is based on Junos OS Release 22.1R1.10.

Course Level

Advanced Junos Enterprise Routing (AJER) is an advanced-level course.

Relevant Juniper Product

• Junos OS • M Series • MX Series • SRX Series

Target Audience:

Individuals responsible for configuring and monitoring devices running the Junos OS

Objectives:

- • Describe OSPFv2 concepts.
- • Describe OSPF operations.
- • Describe and configure OSPF area types and operations.
- • Configure OSPF areas through summarization and restrictions.
- • Utilize commands to troubleshoot and verify OSPF operations.
- • Analyze different OSPF issues.
- • Describe BGP operations.
- • Describe and configure the BGP route selection process.
- • Explain the use of routing policies in BGP.
- • Describe BGP attributes and their usages.
- • Describe and configure BGP communities.
- • Describe BGP troubleshooting.
- • Explain how routing policies are used in an enterprise network.
- • Reduce problems related to routing policy structure and configuration.
- • Identify commands for troubleshooting routing policy.
- • Explain the fundamentals of multicast routing.
- • Describe and configure Internet Group Management Protocol (IGMP).
- • Describe Protocol Independent Multicast (PIM).
- • Configure PIM.
- • Describe and configure route reflection.
- • Explain enterprise networking.
- • Describe the key concepts of Evolved core and Layer 3 based campus designs.
- • Explain the benefits of VXLAN.
- • Explain why you would use EVPN-VXLAN in a campus network.
- • Describe and configure an Evolved Campus Core (ECC) network.
- • Describe and configure a distribution and access network.
- • Describe Ethernet Virtual Private Network (EVPN) route types.
- • Describe EVPN troubleshooting.

Prerequisites:

Testing and Certification

- Familiarity with the Junos Operating System (OS)
- Basic understanding of the Open Systems Interconnection model
- Knowledge of basic routing and switching principles
- Experience configuring and monitoring the TCP/IP protocol suite
- Basic understanding of firewall filters

JNCIP-ENT exam topics are based on the content of the recommended instructor-led training courses, as well as the additional resources.

- Exam code: JN0-649
- Written exam
- Administered by Pearson VUE
- Exam length: 120 minutes
- Exam type: 65 multiple-choice questions
- Pass/fail status is available immediately
- Junos OS 21.2

The JNCIP-ENT certification is valid for three years.

Exams can be purchased and scheduled at
<https://home.pearsonvue.com/junipernetworks/>

Follow-on-Courses:

JNCIE-ENT Bootcamp

Content:

Day 1	BGP Attributes and Policy	• Describe PIM sparse mode operation
Course Introduction	• Explain BGP route processing	Lab: Implementing PIM-SM
OSPF–Part 1	• Describe BGP Attributes	Multicast Operations–Part 2
• Describe OSPFv2 operations	Common BGP Attributes	• Configure and monitor PIM sparse mode
• Differentiate link-state advertisements	• Describe and configure common BGP attributes	• Configure and monitor RP discovery mechanisms
OSPF–Part 2	BGP Communities	Lab: Implementing SSM
• Distinguish protocol operations	• Configure BGP communities	BGP Route Reflection
• Explain OSPF authentication	• Explain how to use regular expressions with BGP communities	• Describe the operation of BGP route reflection
• Apply OSPFv3	• Examine a BGP community use case	• Configure a route reflector
Lab: Configuring and Monitoring OSPF	Lab: BGP Attributes	Lab: BGP Route Reflection
OSPF Areas–Part 1	Troubleshooting BGP	Enterprise Architectures–Part 1
• Identify OSPF areas	• Examine IBGP and EBGP troubleshooting	• Describe traditional enterprise networks
• Describe stub area operations	BGP Troubleshooting Case Study	• Examine new enterprise networking methods
• Add a stub area configuration	• Examine troubleshooting BGP neighbor issues	Enterprise Architectures–Part 2
OSPF Areas–Part 2	Lab: Troubleshooting BGP	• Examine EVPN-VXLAN enterprise networks
• Explain NSSA operation	Day 3	• Examine new enterprise networking methods
• Add an NSSA configuration	Enterprise Routing Policies–Part 1	VXLAN Overview
• Explain route summarization	• Review an enterprise routing policy use case	• Describe Layer 2 tunneling
Lab: OSPF Route Summarization	Enterprise Routing Policies–Part 2	• Explain VXLAN functionality
Advanced OSPF Options	• Examine enterprise external network deployment	• Describe VXLAN gateways
• Explain NSSA operation		

<ul style="list-style-type: none"> • Generate a NSSA configuration 	Lab: Implementing Enterprise Routing Policies	Day 5
<ul style="list-style-type: none"> • Explain route summarization 		VPN-VXLAN Architecture
Advanced OSPF Case Studies	Troubleshooting Policies–Part 1	
<ul style="list-style-type: none"> • Interpret external reachability case studies 	<ul style="list-style-type: none"> • Examine routing policy structure 	<ul style="list-style-type: none"> • Describe EVPN features
Lab: Configuring Advanced OSPF Options	<ul style="list-style-type: none"> • Describe regular expression matching with routing policies 	<ul style="list-style-type: none"> • Describe EVPN operations
Day 2	<ul style="list-style-type: none"> • Examine routing policy troubleshooting methods 	<ul style="list-style-type: none"> • Describe EVPN with VXLAN for data plane encapsulation
Troubleshooting OSPF	Troubleshooting Policies–Part 2	Configuring EVPN-VXLAN Networks–Part 1
<ul style="list-style-type: none"> • Perform troubleshooting and verification of OSPF adjacencies 	<ul style="list-style-type: none"> • Examine the routing policy troubleshooting command usage 	<ul style="list-style-type: none"> • Examine a case study
<ul style="list-style-type: none"> • Perform troubleshooting and verification of OSPF consistencies 	<ul style="list-style-type: none"> • Review a routing policy use case 	<ul style="list-style-type: none"> • Configure an underlay network
Troubleshooting OSPF Routing Issues	Lab: Troubleshooting Routing Policy	<ul style="list-style-type: none"> • Configure an overlay network
<ul style="list-style-type: none"> • Conduct troubleshooting and verification of OSPF routing 	Introduction to Multicast–Part 1	<ul style="list-style-type: none"> • Verify an ECC network
Lab: Troubleshooting OSPF	<ul style="list-style-type: none"> • Describe IP multicast traffic flow and multicast components 	Configuring EVPN-VXLAN Networks–Part 2
BGP–Part 1	<ul style="list-style-type: none"> • Describe multicast addressing 	<ul style="list-style-type: none"> • Add leaf nodes to an ECC network
<ul style="list-style-type: none"> • Explain BGP concepts 	<ul style="list-style-type: none"> • Describe the need for RPF check in multicast networks 	<ul style="list-style-type: none"> • Build a full fabric EVPN-VXLAN network
<ul style="list-style-type: none"> • Describe BGP configuration options 	<ul style="list-style-type: none"> • Describe multicast routing tables 	Lab: Configuring an EVPN-VXLAN Network
BGP–Part 2	Introduction to Multicast–Part 2	Verifying and Troubleshooting EVPN-VXLAN Architecture–Part 1
<ul style="list-style-type: none"> • Explain BGP route options 	<ul style="list-style-type: none"> • Explain the role of IGMP 	<ul style="list-style-type: none"> • Explain EVPN route identification
<ul style="list-style-type: none"> • Describe BGP path selection 	<ul style="list-style-type: none"> • Describe the different versions of IGMP 	Verifying and Troubleshooting EVPN-VXLAN Architecture–Part 2
Lab: Implementing BGP	<ul style="list-style-type: none"> • Configure and monitor IGMP 	<ul style="list-style-type: none"> • Explain EVPN troubleshooting commands
	Day 4	
	Multicast Operations–Part 1	

Additional Information:

Delegates will receive an official set of e-kit courseware approximately 1 week prior to the start of the course.

Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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