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Enterprise Computing Solutions - Education Services

TRAINING OFFERING

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Advanced Junos Service Provider Routing (AJSPR)

CODE:	LENGTH:	PRICE:
JUN_AJSPR	40 Hours (5 days)	£3,995.00

Description

This five-day course is designed to provide students with detailed coverage of OSPF, IS-IS, BGP, and routing policy. Through examples,
demonstrations, and hands-on labs, students will gain experience in configuring, monitoring, and troubleshooting the Junos operating system an
in monitoring device and protocol operations.
This course uses Juniper Networks vMX Series Routers 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 23.2.
COURSE LEVEL
Advanced
RELEVANT JUNIPER PRODUCT
• Junos OS
• JSA Series
• EX Series
• MX Series
• Network Design

Objectives

• Explain the flooding of LSAs in an OSPF network.
• Describe the shortest-path-first (SPF) algorithm.
• Explain OSPF link metrics.
• Describe the various OSPF authentication methods.
• Explain the key differences between OSPFv2 and OSPFv3.
• Describe OSPF area types and operations.
• Configure various OSPF area types.
• Summarize and restrict routes.
• Configure OSPF virtual links.
• Configure OSPF multiarea adjacencies.
• Explain OSPF external reachability.
• List useful commands that are used to troubleshoot and verify OSPF.
• Isolate different OSPF issues.
• Evaluate the OSPFv3 database and routers.
• Explain the concepts and operation of IS-IS.
• Describe various IS-IS link-state protocol data unit (LSP) types.
• List IS-IS adjacency rules and troubleshoot common adjacency issues.
• Configure and monitor IS-IS.
• Display and interpret the link-state database (LSDB).
• Perform advanced IS-IS configuration options.
• Implement IS-IS routing policies.
• Explain the default operation in multilevel IS-IS.
• Describe address summarization methods used in IS-IS.
• Configure and monitor a multilevel IS-IS network.
• List useful commands to troubleshoot and verify IS-IS problems.
• Troubleshoot and isolate different IS-IS issues.
• Describe basic BGP operations.
• List common BGP attributes.
• Explain the route selection process for BGP.
• Describe how to alter the route selection process.
• Configure advanced options for BGP peers.

• Explain how policies function in BGP.
• Describe BGP attributes and explain how these attributes can be used to manipulate traffic.
• Describe the BGP attributes origin, multiple exit discriminator (MED), and communities, and explain the operation of those attributes.
• Manipulate BGP attributes using routing policy.
• Describe the operation of BGP route reflection.
• Configure a route reflector.
• Describe the BGP virtual route reflector.
• Explain the operation of optimal route reflection.
• Describe the workings of a BGP confederation.
• Configure confederations.
• Describe peering relationships in a confederation.
• Identify what is route flap and route damping.
• Describe distributed denial of service (DDoS) mitigation techniques using damping parameters.
• Explain the default behavior of damping on links.
• Control damping using routing policy.
• Review common BGP troubleshooting procedures.
• List common BGP troubleshooting commands.
• Identify issues with BGP peering.
• Isolate problems on routing policy structure and configuration.
• Identify common commands for troubleshooting routing policy.
• Explain the causes for route instability.

Audience

Individuals responsible for implementing, monitoring, and troubleshooting Layer 3 components of a service provider's network.

Prerequisites

• Intermediate-level networking knowledge
• Understanding of the Open Systems Interconnection(OSI) model
• Understanding of TCP/IP protocol suite
• Introduction to the Junos Operating System andJunos Intermediate Routing courses, or equivalent knowledge

Programme

DAY 1
1 Course Introduction
2 OSPF
• Review the basics of OSPFv2
• Explain how link-state advertisements work
• Describe the different protocol operations
• Explain how OSPF authentication works
Lab 1: OSPF Multiarea Networks
3 OSPF Areas
• Review OSPF areas
• Explain how stub areas operate
• Review stub area configuration
• Explain how NSSA operates
• Review NSSA configuration
• Describe route summarization
Lab 2: OSPF Route Summarization
4 OSPF Case Studies and Solutions
• Configure OSPF virtual links
• Configure OSPF multiarea adjacencies
• Explain OSPF external reachability
Lab 3:Advanced OSPF Options and Routing Policy
DAY 2
5 OSPF Troubleshooting
• Identify OSPF neighbors and routing issues
• Examine the OSPFv3 database and routers
Lab 4: Troubleshooting OSPF
6 IS-IS
• Explain the concepts and operation of IS-IS
• Describe various IS-IS link-state PDU types
• List IS-IS adjacency rules and troubleshoot common

adjacency issues
• Configure and monitor IS-IS
Lab 5: IS-IS Configuration and Monitoring
7 Advanced IS-IS Operations and Configuration Options
• Present and interpret the IS-IS LSDB
• Identify advanced IS-IS configurations
• Implement IS-IS routing policies
Lab 6: Advanced IS-IS Configuration Options and Routing
Policies
DAY 3
8 Multilevel IS-IS Networks
• Explain the default operation in a multilevel IS-IS network
• Describe address summarization methods used in IS-IS
• Review a route leaking and summarization case study
Lab 7: Configuring a Multilevel IS-IS Network
9 Troubleshooting IS-IS
• Verify and isolate IS-IS problems
• Analyze IS-IS issues by means of a case study
Lab 8: Troubleshooting IS-IS
10 Border Gateway Protocol
• Provide an overview of BGP
• Identify how BGP operates
• Explain BGP path selection and options
• Describe BGP configuration options
Lab 9: BGP and BGP Attributes
DAY 4
11 BGP Attributes and Policy—Part 1
• Describe BGP policy
• Explain how the BGP next hop works
• Evaluate the basics of origin and MED
• Review BGP AS path
Lab 10: BGP Attributes—Next Hop, Origin, MED, and AS Path
12 BGP Attributes and Policy—Part 2
• Describe the BGP attributes local preference
• Manipulate BGP attributes using routing policy
Lab 11: BGP Attributes – Local Preference and Communities
13 Route Reflection and Confederations
• Describe the BGP route reflection operation
• Examine route reflection configuration
• Configure BGP confederations
Lab 12: Scaling BGP
DAY 5
14 BGP Route Damping
• Explain the purpose of route flap and damping
• Identify damping parameters
• Configure and monitor route damping
Lab 13: BGP Route Damping
15 BGP Troubleshooting
• Identify IBGP troubleshooting tasks
• Recognize different EBGP and BGP issues
Lab 14: Troubleshooting BGP
16 Policy Troubleshooting
• Assess the basics of routing policy
• Review policy structure
• Evaluate the use of regular expressions
• Identify useful troubleshooting commands
• Review various case studies
Lab 15: Troubleshooting Routing Policy

Follow on courses

Junos Layer 3 VPNs (JL3VZ)

Session Dates

Date	Location	Time Zone	Language	Type	Guaranteed	PRICE
16 Feb 2026	Virtual Training Class - TP	GMT	English	Instructor Led Online		£3,995.00
25 May 2026	Virtual Training Class - TP	BST	English	Instructor Led Online		£3,995.00

Additional Information

This training is also available as onsite training. Please contact us to find out more.