Junos MPLS Fundamentals

Category: Networking & Security | **Vendor:** Juniper

Duration: 24.00 hours (3 days) **19.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

This two-day course is designed to provide students with a solid foundation on Multiprotocol Label Switching (MPLS).

After introducing concepts such as MPLS forwarding and the structure of the MPLS header, the course will delve into the configuration and operation of the two main label distribution protocols, RSVP and LDP. Special emphasis is given to the central topics of traffic engineering and MPLS traffic protection, including fast reroute, link/node protection, and LDP Loop-Free Alternate.

The concepts are put into practice with a series of in-depth hands-on labs, which will allow participants to gain experience in configuring and monitoring MPLS on Junos OS devices.

This course is based on the Junos OS Release 15.1R2.9.

About This Course

Day 1

Chapter 1: Course Introduction

Chapter 2: MPLS Fundamentals

- MPLS Foundation
- Terminology
- MPLS Configuration
- MPLS Packet Forwarding
- Lab: MPLS Fundamentals

Chapter 3: Label Distribution Protocols

- Label Distribution Protocols
- RSVP
- LDP
- Lab: Label Distribution Protocols

Chapter 4: Routing Table Integration

- Mapping Next-Hops to LSPs
- Route Resolution Example
- Route Resolution Summary
- IGP Passive Versus Next-Hop Self for BGP Destinations

Day 2

Chapter 5: Constrained Shortest Path First

- RSVP Behavior Without CSPF
- CSPF Algorithm
- CSPF Tie Breaking
- Administrative Groups

- Inter-area Traffic Engineered LSPs
- Lab: CSPF

Chapter 6: Traffic Protection and LSP Optimization

- Default Traffic Protection Behavior
- Primary and Secondary LSPs
- Fast Reroute
- RSVP Link Protection
- LDP LFA and Link Protection
- LSP Optimization
- Lab: Traffic Protection

Chapter 7: Fate Sharing

- Junos OS Fate Sharing
- SRLG
- Extended Admin Groups
- Lab: Fate Sharing

Chapter 8: Miscellaneous MPLS Features

- Forwarding Adjacencies
- Policy Control over LSP Selection
- LSP Metrics
- Automatic Bandwidth
- Container LSPs
- TTL Handling
- Explicit Null Configuration
- MPLS Pings
- Lab: Miscellaneous MPLS Features

Who Should Attend

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

Prerequisites & Entry Requirements

General Prerequisites:

Students should have intermediate-level networking knowledge and should be familiar with the Junos OS command-line interface (CLI). Students should also attend the Introduction to the Junos Operating System (IJOS), Junos Routing Essentials (JRE), and Junos Intermediate Routing (JIR) courses prior to attending this class.

Learning Outcomes

Upon successful completion of this course, participants will be able to:

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

- Describe the history and rationale for MPLS, as well as its basic terminology.
- Explain the MPLS label operations (push, pop, swap) and the concept of label-switched path (LSP).
- Describe the configuration and verification of MPLS forwarding.
- Describe the functionalities and operation of RSVP and LDP.
- Configure and verify RSVP-signaled and LDP-signaled LSPs.
- Select and configure the appropriate label distribution protocol for a given set of requirements.
- Describe the default Junos OS MPLS traffic engineering behavior.
- Explain the Interior Gateway Protocol (IGP) extensions used to build the Traffic Engineering Database (TED).
- Describe the Constrained Shortest Path First (CSPF) algorithm, its uses, and its path selection process.
- Describe administrative groups and how they can be used to influence path selection.
- Describe the default traffic protection behavior of RSVP-signaled LSPs.
- Explain the use of primary and secondary LSPs.
- Describe the operation and configuration of fast reroute.
- Describe the operation and configuration of link and node protection.
- Describe the operation and configuration of LDP loop-free alternate.
- Describe the LSP optimization options.
- Explain LSP priority and preemption.
- Describe the behavior of fate sharing.
- Describe how SRLG changes the CSPF algorithm when computing the path of a secondary LSP.
- Explain how extended admin groups can be used to influence path selection.
- Explain the purpose of several miscellaneous MPLS features.

Skills You Will Learn:

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

- Describe the history and rationale for MPLS, as well as its basic terminology.
- Explain the MPLS label operations (push, pop, swap) and the concept of label-switched path (LSP).
- Describe the configuration and verification of MPLS forwarding.
- Describe the functionalities and operation of RSVP and LDP.
- Configure and verify RSVP-signaled and LDP-signaled LSPs.
- Select and configure the appropriate label distribution protocol for a given set of requirements.
- Describe the default Junos OS MPLS traffic engineering behavior.
- Explain the Interior Gateway Protocol (IGP) extensions used to build the Traffic Engineering Database (TED).
- Describe the Constrained Shortest Path First (CSPF) algorithm, its uses, and its path selection process.
- Describe administrative groups and how they can be used to influence path selection.
- Describe the default traffic protection behavior of RSVP-signaled LSPs.
- Explain the use of primary and secondary LSPs.
- Describe the operation and configuration of fast reroute.
- Describe the operation and configuration of link and node protection.
- Describe the operation and configuration of LDP loop-free alternate.
- Describe the LSP optimization options.
- Explain LSP priority and preemption.
- Describe the behavior of fate sharing.
- Describe how SRLG changes the CSPF algorithm when computing the path of a secondary LSP.
- Explain how extended admin groups can be used to influence path selection.
- Explain the purpose of several miscellaneous MPLS features.

Frequently Asked Questions

Q: What delivery options are available for Junos MPLS Fundamentals?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 3-day Junos MPLS Fundamentals course provides up to 19.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Junos MPLS Fundamentals training?

The training takes place over 3 day(s), with each day lasting approximately 24.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Junos MPLS Fundamentals?

Yes, we provide corporate training, dedicated training, and closed classes for Junos MPLS Fundamentals. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Junos MPLS Fundamentals, Service Provider Routing and Switching, JMF

Q: Why choose Nexus Human for Junos MPLS Fundamentals?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Junos MPLS Fundamentals training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

Nexus Human

Professional Training & Development

Email: info@nexushuman.com

Website: www.nexushuman.com

Phone: +353 1 889 8700 (Ireland) | +44 20 8142 8961 (UK)

© 2026 Nexus Human. All rights reserved. This brochure was generated on 14/11/2026.