

## COURSE OVERVIEW

This one-day course covers the basics of the traffic engineering database as it relates to DiffServ-Aware TE. The DiffServ-Aware TE course covers the purpose and use of DiffServ-Aware TE, how to set up and configure DiffServ-Aware TE LSPs, and how to troubleshoot issues with DiffServ-Aware TE LSPs.

### COURSE LEVEL

Intermediate

### AUDIENCE

Individuals responsible for configuring and troubleshooting issues with DiffServ-Aware TE LSPs

### PREREQUISITES

- Intermediate-level networking knowledge
- Understanding of the Open Systems Interconnection (OSI) model and the TCP/IP protocol suite

### RELATED JUNIPER PRODUCTS

- Junos OS
- MX Series
- PTX Series
- T Series

### CONTACT YOUR REGIONAL EDUCATION SERVICES TEAM:

Americas: [training-amer@juniper.net](mailto:training-amer@juniper.net)

EMEA: [training-emea@juniper.net](mailto:training-emea@juniper.net)

APAC: [training-apac@juniper.net](mailto:training-apac@juniper.net)

### OBJECTIVES

- Describe the path selection process of RSVP LSPs signaled without the use of Constrained Shortest Path First (CSPF).
- Describe the IGP extensions needed to build and maintain the Traffic Engineering Database (TED).
- Explain how the CSPF algorithm selects the best path based on provided constraints.
- Explain how administrative groups can be used to influence path selection.
- Explain the behavior of inter-area traffic engineered LSPs.
- Describe the purpose, features, and operations of DiffServ-Aware TE.
- Explain the differences between DiffServ-Aware TE LSPs and standard LSPs.
- Explain the purpose of class types and TE classes.
- Describe the MAM and Russian doll bandwidth constraint models.
- Explain the purpose of multiclass DiffServ-Aware TE LSPs.
- Explain DiffServ-Aware TE LSP oversubscription.
- Describe how to configure DiffServ-Aware TE LSPs.
- Explain how to forward traffic into DiffServ-Aware TE LSPs.
- Explain how to provide traffic protection for DiffServ-Aware TE LSPs.
- Describe how to configure automatic bandwidth adjustments for DiffServ-Aware TE LSPs.
- Explain how to verify and monitor DiffServ-Aware TE LSPs.
- Describe DiffServ-Aware LSP troubleshooting.
- Explain how to troubleshoot CSFP issues.
- Explain how to troubleshoot DiffServ-Aware TE issues.
- Explain how to troubleshoot CoS for existing DiffServ-Aware LSPs.

## COURSE CONTENTS

### DAY 1

1	<b>Course Introduction</b>
2	<b>Basic Operations of MPLS Traffic Engineering</b> <ul style="list-style-type: none"><li>• RSVP Behavior Without CSPF</li><li>• CSPF Algorithm</li><li>• CSPF Tie Breaking</li><li>• Administrative Groups</li><li>• Inter-Area Traffic Engineered LSPs</li><li>• Path Computation Element Protocol</li><li>• Corouted Bidirectional LSPs</li><li>• Proactive Loss and Delay Measurements over Associated Bidirectional LSPs</li></ul> <b>Lab 1: MPLS Traffic Engineering</b>
3	<b>DiffServ-Aware TE Theory</b> <ul style="list-style-type: none"><li>• DiffServ-Aware TE Overview</li><li>• Class Types and TE Classes</li><li>• Bandwidth Constraints</li><li>• P2MP LSPs and DiffServ-Aware TE</li><li>• Traffic Protection and DiffServ-Aware TE</li></ul>
4	<b>DiffServ-Aware TE Implementation</b> <ul style="list-style-type: none"><li>• Configuring DiffServ-Aware TE</li><li>• Verifying and Monitoring DiffServ-Aware TE LSPs</li><li>• Multiclass DiffServ-Aware TE LSPs</li><li>• DiffServ-Aware TE Case Study</li></ul> <b>Lab 2: Implementing DiffServ-Aware TE LSPs</b>
5	<b>Troubleshooting DiffServ-Aware LSPs</b> <ul style="list-style-type: none"><li>• DiffServ-Aware LSP Troubleshooting Overview</li><li>• Troubleshooting CSPF-based LSPs</li><li>• Troubleshooting DiffServ-Aware LSP Setup</li><li>• Troubleshooting CoS for Existing DiffServ-Aware LSPs</li></ul> <b>Lab 3: Troubleshooting DiffServ-Aware LSPs</b>

DSTE16112023