

COURSE OVERVIEW

This two-day intermediate level course provides students with advanced class-of-service (CoS) knowledge and configuration examples. The course begins with an overview of CoS before going into classification, policing, scheduling, and rewriting. The course then covers class-based forwarding and finishes with two case studies. Through demonstrations and hands-on labs, students will gain experience in configuring and verifying Junos CoS features. This course is based on Junos OS Release 23.2R2.21.

COURSE LEVEL

Intermediate

AUDIENCE

Individuals responsible for network administration who configure and administer class-of-service features on Juniper Networks® MX Series Universal Routers running Junos OS

PREREQUISITES

- Basic networking knowledge
- Experience and familiarity with Junos OS
- Familiarity with the Junos CLI
- Completion of [Introduction to the Junos Operating System](#) course
- Completion of the [Junos Intermediate Routing](#) course

RELATED JUNIPER PRODUCTS

- Junos OS
- MX Series

RELATED CERTIFICATION

[JNCIP-SP JNCIS-SP](#)

CONTACT EDUCATION SERVICES

Americas: training-amer@juniper.net

EMEA: training-emea@juniper.net

APAC: training-apac@juniper.net

OBJECTIVES

- Identify the fundamentals of CoS.
- Identify and configure packet classification.
- Describe and configure policers.
- Configure firewall applications.
- Identify and configure scheduling components.
- Identify and configure the components of hierarchical scheduling.
- Identify and configure rewrite rules.
- Describe and configure CoS-based forwarding.
- Discuss and configure an end-to-end VoIP case study.
- Explain the high-level design for backend and compute networks.

COURSE CONTENTS

DAY 1

1	Class-of-Service Overview <ul style="list-style-type: none">• Discuss the history and evolution of CoS• Define the characteristics of CoS and Differentiated Services• Identify the CoS fields in packet headers• Discuss the processing of CoS on Junos platforms
2	Packet Classification <ul style="list-style-type: none">• Discuss classification overview• Identify forwarding classes and packet loss priority• Configure fixed classification• Configure multifield classification• Configure behavior aggregate classification Lab 1: Configuring Packet Classification
3	Policing <ul style="list-style-type: none">• Review policing• Configure a single-rate two-color-policer• Configure tricolor marking policers• Configure hierarchical policers
4	Interface and Firewall Applications <ul style="list-style-type: none">• Configure an interface application• Configure a firewall application Lab 2: Configuring Policers
5	Scheduling <ul style="list-style-type: none">• Describe scheduling components• Describe transmission rate• Describe queue priority• Describe delay buffers• Describe drop profiles• Configure scheduling components Lab 3: Configuring Schedulers

DAY 2

6	Hierarchical Scheduling <ul style="list-style-type: none">• Describe the components of hierarchical scheduling• Configure hierarchical scheduling Lab 4: Configuring Hierarchical Schedulers
7	Rewrite Rules <ul style="list-style-type: none">• Identify the purpose of rewriting packet headers• Configure and apply default and custom rewrite rules Lab 5: Configuring rewrite rules
8	CoS-Based Forwarding <ul style="list-style-type: none">• Identify the purpose of CoS-based forwarding• Configure CoS-based forwarding Lab 6: Configuring Class Based Forwarding
9	CoS VoIP Case Study <ul style="list-style-type: none">• Review the case study• Configure the ingress node• Configure the transit and egress nodes
10	Congestion Control in Machine Learning Networks <ul style="list-style-type: none">• Describe IP services for congestion avoidance• Configure a lossless IP fabric for RoCEv2 traffic• Validate congestion avoidance parameters

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