

Junos Class of Service (JCOS)

Engineering Simplicity

COURSE LEVEL

Junos Class of Service (JCOS) is an advanced level course.

AUDIENCE

This course benefits individuals responsible for configuring and monitoring devices running the Junos OS, especially those in a service provider environment. It also benefits individuals responsible for designing networks containing devices running the Junos OS.

PREREQUISITES

Students should attend the Introduction to the Junos Operating System (IJOS) course and the Junos Intermediate Routing (JIR) course, or have equivalent experience prior to attending this class. General knowledge of CoS concepts is also helpful.

COURSE OVERVIEW

This two-day 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 a case study. Through demonstrations and hands-on labs, students will gain experience in configuring and verifying Junos CoS features. This course is based on the Junos operating system Release 16.2R1.6.

OBJECTIVES

- Understand the history and evolution of CoS.
- Identify the CoS fields in various packet headers.
- List the CoS processing stages on devices running the Junos OS.
- Identify the default CoS settings on devices running the Junos OS.
- Configure and verify behavior aggregate (BA) and multifield (MF) classification.
- Configure and verify two-color and tricolor marking policers.
- Configure and verify schedulers and their components.
- Configure and verify the multiple levels of hierarchical schedulers.
- Configure and verify packet header rewriting.
- Configure and verify class-based forwarding.
- Create a CoS configuration based on a set of design requirements.

ASSOCIATED CERTIFICATION

[JNCIP-SP](#)

RELEVANT JUNIPER PRODUCT

- Junos OS
- M Series
- MX Series
- PTX Series
- SRX Series
- T Series
- Service Provider Routing and Switching Track

RECOMMENDED NEXT COURSE

Advanced Junos Service Provider Routing (AJSPR)

Junos Layer 2 VPNs (JL2V)

Junos Layer 3 VPNs (JL3V)

Junos Multicast Routing (JMR)

JNCIE-SP Bootcamp

CONTACT INFORMATION

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COURSE CONTENT

Day 1

1	COURSE INTRODUCTION
2	CoS Overview <ul style="list-style-type: none"> • CoS History and Evolution • CoS and DiffServ • CoS Fields in Packet Headers • CoS Processing
3	Packet Classification <ul style="list-style-type: none"> • Classification Overview • Forwarding Classes and Packet Loss Priority • Fixed Classification • Multifield Classification • Behavior Aggregate Classification LAB 1: Configuring Packet Classification

4	Policing <ul style="list-style-type: none"> • Policing Overview • Single-Rate Two-Color Policer • Tricolor Marking Policers • Hierarchical Policers • Application—Directly on an Interface • Application—Within a Firewall Filter LAB 2: Configuring Policers
5	Scheduling <ul style="list-style-type: none"> • Scheduling Overview • Transmission Rate • Queue Priority • Delay Buffers • Drop Profiles and Drop Profile Maps • Scheduling Configuration LAB 3: Configuring Schedulers

Day 2

6	Hierarchical Scheduling <ul style="list-style-type: none"> • Hierarchical Scheduling Overview • Scheduler Modes • Hierarchical Scheduling Levels • Throughput Example • Remaining Traffic • Queue Properties in a Hierarchical Scheduling Context • Putting It All Together LAB 4: Configuring Hierarchical Schedulers
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7	Rewrite Rules <ul style="list-style-type: none"> • Packet Header Rewrite Overview • Rewrite Rules and Tables • Rewrite Combinations LAB 5: Configuring Rewrite Rules
8	CoS-Based Forwarding <ul style="list-style-type: none"> • CBF Overview • CBF Configuration LAB 6: Configuring CBF

9	Appendix A: CoS Processing on M Series, T Series, and MX Series Devices <ul style="list-style-type: none"> • M Series and T Series Architecture • M Series and T Series CoS Packet Handling • IQ2 PIC CoS Packet Handling • MX Series (DPC and MPC/MIC) Architecture and CoS Packet Handling
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9	Case Study <ul style="list-style-type: none"> • VoIP Case Study Overview • VoIP Case Study: Ingress Node • VoIP Case Study: Transit and Egress Nodes LAB 7: Case Study
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