Release Notes

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Junos ® OS Evolved 18.3R1 Release Notes

HARDWARE HIGHLIGHTS

- Support for Junos OS Evolved on the QFX5200-32C-L switch

SOFTWARE HIGHLIGHTS

- Linux-native Junos OS with Linux ecosystem tools
- Common model-based state store in user space
- High visibility and streaming of system-level state
- Faster bootup and system traffic restoration time

Release Notes: Junos® OS Evolved Release 18.3R1 for the QFX5200 Switch

30 July 2020

Contents

Introduction

Junos OS Evolved is the next-generation Junos OS. It has the same CLI, the same features, even the same processes in some cases, as previous versions of Junos OS. But its infrastructure is entirely modernized.

Use these release notes to find new and updated features, software limitations, and open issues for Junos OS Evolved Release 18.3R1 supported on the QFX5200-32C-L switches.

> **NOTE:** The QFX5200-32C-L switch is a single-node system. FPC and PIC are built-in and cannot be removed or made offline. Only CLI commands applicable to single-node systems are relevant.

These release notes are cumulative and are updated for later releases.

For more information on Junos OS Evolved and other Juniper Networks products, see "Finding More Information" on page 26.

Junos OS Evolved Release Notes for QFX5200-32C-L Switches

IN THIS SECTION

What's New

IN THIS SECTION

Learn about new features introduced in this release of Junos OS Evolved for the QFX5200-32C-L switches.

General Routing

- **Support for routing features (Junos OS Evolved)**—The following routing features are supported:
  - Aggregated Ethernet
  - BFD
  - BGP
  - Class of service (scheduling, drop profiles, and physical interface shaping rate)

- DNS (limited support; only on management interface)
- Graceful restart (NSF)
- IP MIB
- IS-IS (authentication is not supported in IS-IS)
- IS-IS: export policy
- IS-IS: ldp-synchronization
- IS-IS: link-state PDU throttling (lsp-interval)
- IS-IS: node-link-protection (LFA)
- IS-IS: wide-metrics
- LLDP
- NETCONF (limited support; limitation due to SSH)
- NTP (limited support; only on management interface)
- OPSF
- Policies
- Prefix-list
- Protect Routing Engine filter (IPv4)
- RADIUS
- Rewrite-rules
- Schedulers and drop profiles (limited support)
- SNMPv1
- SNMPv2
- SNMPv3
- SSHv2 (limited support; only on management interface)
- System logging
- TACACS

- Telnet (limited support; only on management interface)
- ZTP

Network Management and Monitoring

- **Standard and enterprise-specific MIBs (Junos OS Evolved)**—The standard MIBs and enterprise-specific MIBs are supported. For information about standard and enterprise-specific SNMP MIB objects, see the SNMP MIB Explorer.

  [See "Appendix A: Standard MIBs for Junos OS Evolved on QFX5200-32C-L Switches" on page 17 and "Appendix B: Enterprise-Specific MIBs for Junos OS Evolved on QFX5200-32C-L Switches" on page 22.]

Platform and Infrastructure

- **Linux-native Junos OS with Linux ecosystem tools**—Junos OS Evolved runs natively on Linux, giving it direct access to all the Linux utilities and operations. Linux is a proven OS base that is widely used and familiar to programmers and operators alike. For more information on the benefits and architecture of Junos OS Evolved, see Why Use Junos OS Evolved.
- **Common model-based state store in user space**—A central database called the Data Distribution Service (DDS) holds all state information. State is the retained information or status about each component that is preserved, shared across the system, and supplied during restarts. State includes both operational and configuration state, including committed configuration, and interface, routes, and hardware state. For more information on the DDS, see Why Use Junos OS Evolved.
- **High visibility and streaming of system-level state**—In Junos OS Evolved, modeled state is uniformly accessible, providing deeper visibility into network operations. Telemetry is streamed from devices to management systems automatically and continuously, and operators can subscribe in real time to the specific data they need using common data models. Such data is ready to be analyzed to identify trends and patterns and help with network automation, traffic optimization, and preventive troubleshooting.
- **Root password recovery support added (Junos OS Evolved)**—There is a procedure for resetting the root password. See Recovering the Root Password for Junos OS Evolved.
- **USB bootup procedure (Junos OS Evolved)**—You use USB boot for disaster recovery. Booting from the USB device reformats the disk and reinstalls the software without prompting you. After the installation is done, the RCB waits for the device to be removed from the USB port and then reboots into the newly installed version.

  [See Booting Junos OS Evolved by Using a Bootable USB Drive.]

User Interface and Configuration

- **Determining which Junos OS architecture is running on the device (Junos OS Evolved)**—You can determine which Junos OS architecture is running by using the **show version** command. This is particularly relevant if the same hardware supports two or more Junos OS architectures. To decode which Junos OS architecture is running, look up the Junos Package field in Table 1 on page 7.

  Table 1: Junos OS Package Prefixes

jinstall-*	Junos OS for M Series, MX Series, T Series, TX Matrix, and TX Matrix Plus routers
junos-install-*	Junos OS based on an upgraded FreeBSD kernel instead of older versions of FreeBSD
junos-vmhost-install-*	Junos OS with upgraded FreeBSD on a VM Host
junos-evo-install-*	Junos OS Evolved

What's Changed

IN THIS SECTION

Learn about what is different from Junos OS in this release of Junos OS Evolved for QFX5200-32C-L switches.

Changes in CLI Commands and Statements

- Junos OS Evolved leverages the same CLI used in all Junos OS releases. But because the underlying infrastructure of Junos OS Evolved differs from that of classic Junos OS, some changes to the CLI are necessary. For example, some new commands and statements are introduced in Junos OS Evolved and others have a modified set of options, or output that has changed. For a listing of these changes, see How Junos OS Evolved Differs from Junos OS in the *Introducing Junos OS Evolved Guide*.

General Routing

- **Introduced next-hop type software: show route forwarding-table family of commands (Junos OS Evolved)**—The **show route forwarding-table** family of commands display an introduced next-hop type called **software** that gets added to the Routing Engine forwarding table for remote IP addresses with the prefix /32.

  [See show route detail.]

- For op scripts run with the **max-datasize** statement configured for the minimum, an error is thrown. In classic Junos OS, the error is **Memory allocation failed**. In Junos OS Evolved, the error is **Out of memory**.
- A regular expression returning empty pattern matches is not considered an error. One such use case is jcs: grep that uses regex functionality beneath.

Interfaces and Chassis

- **Alarm added to alert the customer that the box is running out of resources (Junos OS Evolved)**—Indexes are viewed as resources in the system. An alarm associated with indexes, called IndexAlarm, is added to the system. IndexAlarms are raised when the number of available indexes falls below a certain threshold.
- **Change in management interfaces naming (Junos OS Evolved)**—The em0 Ethernet management interface is deprecated. Use re0:mgmt-* for Routing Engine 0 management interfaces. (On platforms that have Routing Engine 1, the corresponding em1 name will change to re1:mgmt-*.) In Junos OS Evolved, the management interfaces do not support VLAN tagging.
- **Deprecated interfaces: show interfaces (ixgbe0 | ixgbe1) (Junos OS Evolved)**—The ixgbe0 and ixgbe1 internal interfaces are deprecated.
- **Modified command behavior (Junos OS Evolved)**—The following commands have some behavior change for Junos OS Evolved:
  - **disable interfaces *aex* unit *logical-unit-number***—If you use the **disable interfaces *aex* unit *logical-unit-number*** statement to disable an aggregated Ethernet logical unit number, the corresponding physical interface also goes down.
  - **disable interfaces *interface-name***—If you use the **disable interfaces *interface-name*** statement to disable an interface, the IPv6 neighbors of the interface are deleted.

Junos OS XML API and Scripting

- **Archive sites for system logging must be used without a password (Junos OS Evolved)**—You must specify the system logging archive site to use with FTP or SCP without a password. This requirement includes the **archive-sites** statement at the following hierarchy levels:
  - **[edit event-options destinations *dest-name*]**
  - **[edit system syslog file *filename* archive]**

Network Management and Monitoring

- **Use the routing-instance mgmt_junos attribute to telnet through the management interface (Junos OS Evolved)**—Use the **telnet routing-instance mgmt_junos** command to access a remote system through the management interface.

  [See telnet and Management Interface in a Non-Default Instance.]

- **Configuration requirement: SNMP traps over a management interface (Junos OS Evolved)**—To send SNMP v3 traps over a management interface, you need to specify a **target-address** within the **mgmt_junos** routing instance. An example follows:

  ```
  user@host# set snmp v3 target-address target-address-name address ip-address target- parameters target-params
    routing-instance mgmt_junos
  ```

  Confirm your configuration by running the following commands:

  ```
  user@host# show routing-instances
  mgmt_junos {
       instance-type virtual-router; }
  user@host# show snmp v3 target-address
  mgmt-trap {
       targets {
           192.0.2.159;     }
       routing-instance mgmt_junos;
  }
  ```

- **Modified location for core dump files (Junos OS Evolved)**—The core dump files generated on the Routing Engine and the FPC files are stored in the **/var/core/** directory.

  [See show system core-dumps.]

Platform and Infrastructure

- **Modified command behavior for request system software rollback (Junos OS Evolved)**—In order for the rollback to take effect and have the system go through a cold boot, the **reboot** option must be specified.

  [See request system software rollback.]

Routing Policy and Firewall Filters

- **Modified firewall and policy term statement flow control action: next term (Junos OS Evolved)**—The firewall filter and policy **term** statement flow control action **next term** cannot appear as the last term of the action. A filter term where **next term** is specified as an action but without any match conditions configured is not supported.
- **Modified firewall filter match conditions (Junos OS Evolved)**—The following match conditions at the **[edit firewall family (inet | inet6) term *term-name* from]** hierarchy level are modified: **destination-port**, **icmp-type**, **port**, and **source-port**. These match conditions require specification of the **protocol** or in the case of **source-port** for inet6, the **next-header udp** or **next-header tcp** match condition, in the same term.

User Interface and Configuration

- **Modified command: request system storage cleanup (Junos OS Evolved)**—The **request system storage cleanup** command has the following operational differences:
  - The command prompts users before the cleanup occurs. The user is prompted to specify one of the options: **dry-run** or **no-confirm**.
  - The command cleans up any ISO files on the system, rotates syslogs, and clears the trace files.
  - No user-created files are removed or prompted for cleanup unless the **force-deep** option is used.
  - Available space is computed and displayed on the console for reference.
  - Displayed information is categorized by node and version.

  [See request system storage cleanup.]
- **Modified configuration of special groups re0 (Junos OS Evolved)**—The configuration of special groups re0 with the **groups** statement is deprecated.

Known Limitations

IN THIS SECTION

Learn about known limitations in this release of Junos OS Evolved for QFX5200-32C-L switches.

Authentication, Authorization, and Accounting

- The **authentication-key-chains** statement and the associated **protocol keychain authentication** statements are not supported.
- Authentication is not supported in routing protocols (LDP and IS-IS).

General Routing

- In Junos OS, eventd throws commit time warning messages if there are duplicate policies, which happens if event-script and user-configured event policies from the CLI have the same name. In Junos OS Evolved, eventd will not throw any warning message in the above case. It will accept the policy on the first-come, first-serve basis.

High Availability

- Nonstop active routing (NSR) is not supported.
- Cos does not support ISSU.

Interfaces and Chassis

- Junos OS Evolved for QFX5200-32C-L switches have the following support limitations for firewall filters:
  - They support only the following match conditions: source-prefix-list, destination-prefix-list, protocol, destination-port, source-port, icmp-type, source-address, destination-address, next-header fragment.
  - They support only the following actions: accept, policer, discard, count, routing-instance.
  - They do not support any egress filters.

  The configuration CLI lists an extensive number of match conditions and actions, including those that are not supported. You can still install unsupported filters, and, if installed, the unsupported filters still count if traffic passes through them. Therefore, if you install or have installed any unsupported filters, expect discrepancies in the filter statistics. If you install an unsupported filter, the following warning is displayed in the CLI.

  ```
  ## ## Warning: configuration block ignored: unsupported platform (qfx5200-32c-32q)
  ##
  ```

- LACP link protection is not supported. If one of the AE links goes down, the AE interface goes down. Ideally the AE interface should not go down when one of the links is disabled.
- When a new interface is added as a member to an aggregated Ethernet (AE) bundle, a link flap event is generated. The physical interface is deleted as a regular interface and then added back as a member. During this time, the details of the physical interface are lost.
- If multiple management TLV (type, length, or value) elements are present in the received LLDP protocol data unit (PDU), only validation is performed on further TLVs, and if found invalid, the PDU is dropped.
- When multiple IP addresses are configured on the management interface (rex:mgmt-*), all IP addresses are advertised by LLDP using one or more management TLVs at the **[edit protocols lldp]** hierarchy level.
- Traffic from physical interfaces is not supported for the commands **evo_tcpdump** and **monitor traffic**. Use of physical interfaces is blocked, and only logical interface traffic is accepted.
- In untagged aggregated Ethernet (AE) interfaces with no logical interface configuration, the ae interface will not be shown as "down" and the speed will not be shown as "unspecified." The speed will be the aggregate speed of all the child member interfaces that are "up." In Junos OS, the speed is shown as "unspecified" in this case.
- The **show interfaces media** command for rex:mgmt-* does not contain interface statistics in the output as this feature is not yet supported.
- The **show system alarms** command does not display the error number.
- You must physically power off the router after running the **request system shutdown halt** command to complete the shutdown.

- When you deactivate interfaces using the **deactivate interfaces** command, the interface statistics are cleared.
- The following behavior applies to the LLDP configuration: It can take up to 60 seconds for a hostname change to update in LLDP.
- For interface IP address configurations on the rex:mgmt-* interface to reach the gateway, you must configure static routes that correspond to the interface IP address. You must configure a predefined routing instance, mgmt_junos, and then configure all static routes under this routing instance. See Management Interface in a Non-Default Instance.
- If you delete an IPv6 address and configure a new IPv6 address that results in the same resolved route, and you do not issue a commit after deletion, then the IPv6 neighbors learned on the interface might not get deleted. As a workaround, issue a commit between the interface address **delete** and interface address **add** commands.

Junos OS XML, API, and Scripting

- The behavior for the **ignore** option for events is different than it is in Junos OS. In Junos OS Evolved, even if one of the policies for an event has the ignore action, all the policies associated with that event are ignored, irrespective of the order in which the policies are created. In Junos OS, only the policies subsequent to the one with the ignore action are not executed.

Network Management and Monitoring

- To learn which SNMP MIB objects are not supported, see the Exceptions column in tables in the "Appendix A: Standard MIBs for Junos OS Evolved on QFX5200-32C-L Switches" on page 17 and "Appendix B: Enterprise-Specific MIBs for Junos OS Evolved on QFX5200-32C-L Switches" on page 22.
- On Junos OS Evolved, when error messages are defined but not called in any code, there is no **Message:** field in the output when you issue the **help syslog *errmsg*** CLI command. For example, the error message AUDITD_RADIUS_MSG_DROPPED is defined for both Junos OS and Junos OS Evolved, but the error message is not called in any code. Notice the lack of a **Message:** field in the following Junos OS Evolved output:

```
user@host> help syslog AUDITD_RADIUS_MSG_DROPPED

Name:          AUDITD_RADIUS_MSG_DROPPED
Help:         auditd dropped radius acounting message since queue exceeded limit
Description:   The audit process (auditd) dropped accounting message since radius
 messages queue reached maximum limit.
Type:          Error: An error occurred
Severity:      unknown
Facility:      LOG_DAEMON
```

In contrast, if you issue the same command using Junos OS, nothing (no field information) is displayed as output.

- Older trace files are deleted from **/var/log/traces** when disk quota exceeds the limit (about 5.7 GB).
- The self-ping for an IPv6 address will fail if the configured MTU is less than 1280, which is the minimum MTU for IPv6.
- Not all available system log message descriptions are present. In the case of cosd, no error messages are available in the **help syslog** command output.

```
user@host> help syslog | match COSD

RPD_MC_COSD_WRITE_ERROR          rpd could not write message on pipe to COS
process
```

Routing Policies and Firewall Filters

- Firewall filtering on management ports is not supported.

User Interface and Configuration

- When cmdd is stopped or restarted using the **request system application** command, existing CLI sessions become unusable and the following error message is flashed if any commands are executed in those sessions:

```
user@host> show system applications app cmdd detail | no-more

error: the command-handler subsystem is not responding to management requests

error: the command-handler subsystem is not responding to management requests
```

Because the ISSU upgrade of the application cmdd involves the stopping and starting of the application, this behavior happens in CLI sessions when ISSU of cmdd is being performed and continues until cmdd is back to **online ready** state. Once cmdd is upgraded, the CLI session is expected to continue to function normally. While the CLI is unusable, the systemctl command can be used to check status of the application from the shell:

```
$ systemctl status cmdd
```

```
* cmdd.service - "Command Daemon" Loaded: loaded (/etc/systemd/system/cmdd.service;
 static; vendor preset: enabled) Active: inactive (dead)
```

And systemctl can be used to start cmdd back up again:

$ **systemctl start cmdd**

$ **systemctl status cmdd**

```
* cmdd.service - "Command Daemon"
   Loaded: loaded (/etc/systemd/system/cmdd.service; static; vendor preset: enab

   Active: active (running) since Mon 2018-10-08 14:21:14 PDT; 12min ago
 Main PID: 1872 (cmdd)
   Memory: 209.9M (limit: 1.0G)
   CGroup: /system.slice/cmdd.service
           `-1872 /usr/sbin/cmdd --app-name cmdd -I object_select --shared-objec
```

- After an invalid MTU is configured and you enter the **commit** command at the **[edit]** hierarchy level, you can receive one of these error messages:

  ```
  [edit interfaces et-0/0/0 unit 0 family inet mtu]
    'mtu'
      Family MTU is too large relative to device MTU
  ```

  ```
  [edit interfaces et-0/0/0 mtu]
    'mtu'
      Family MTU at [edit interfaces et-0/0/0 unit 0 family inet] is too large
  relative to device MTU
  ```

  ```
  [edit interfaces et-0/0/0 mtu]
    'mtu'
      Family MTU at [edit interfaces et-0/0/0 unit 0 family iso] is too large
  relative to device MTU
  ```

- Whereas Junos OS allows you to clean up the system configuration by issuing the **delete** configuration command at the top level (**[edit]** hierarchy level), the result when using Junos OS Evolved is a commit error because Junos OS Evolved does not allow you to commit an empty configuration. At a minimum, you must configure the root authentication password.
- After a restart, if the routing configuration cannot be verified, the **commit** configuration command generates the following error:

```
user@host# commit
mgd: error: rpd not reachable to check configuration.  Please try again.
```

As a workaround, wait a few minutes for rpd to become active and retry.

Open Issues

IN THIS SECTION

Learn about open issues in this release of Junos OS Evolved for QFX5200-32C-L switches.

Chassis and Interfaces

- Fan tray type is not shown, in the fan details. PR1386694
- In a scaled configuration of 128 Layer3 ports the **bcm_port_untagged_vlan_set failed << , ret = -14** error will be seen at initialization. PR1390700
- The **Module temperature high alarm threshold** field is missing in output for the **show interfaces diagnostics optics** command. PR1393476
- The 40G Ethernet ACU interfaces display information in the output for the **show optics diagnostics** command. PR1402476

Class of Service (CoS)

- Class of service **show class-of-service rewrite-rule / classifier** command outputs have incorrect details for the default rewrite-rule and classifier. PR1405435

General Routing

- LLDP uses tracing. Sample usage - At#15. PR1368965
- LLDP-MED is not supported. PR1369369

Infrastructure

- StrictHostKeyChecking is disabled by default for SSH logins originating from the device. PR1391260

Network Management and Monitoring

- The 802.3ad and LLDP MIB are not supported.PR1369371
- The ICMP MIB table is not implemented. Therefore, the SNMP walk/get on this table does not yield any values. PR1378659
- Entries aremissing in the DOM MIB walk. PR1380693

User Interface and Configuration

- The **set date/time** commands does not invoke ntpdate to set the system time. PR1397699

Appendix A: Standard MIBs for Junos OS Evolved on QFX5200-32C-L Switches

Support for Standard MIBs for Junos OS Evolved on QFX5200-32C-L switches—Starting in Junos OS Evolved Release 18.3R1, the Standard MIBs listed in Table 2 on page 17 are supported. For information about Standard MIB objects, see the SNMP MIB Explorer.

Table 2: Standard MIBs Supported by Junos OS Evolved

Standard MIB	Exceptions
RFC 1155, *Structure and Identification of Management Information for TCP/IP-Based Internets*	No exceptions

Table 2: Standard MIBs Supported by Junos OS Evolved *(continued)*

Standard MIB	Exceptions
RFC 1157, *A Simple Network Management Protocol (SNMP)*	No exceptions
RFC 1212, *Concise MIB Definitions*	No exceptions
RFC 1213, *Management Information Base for Network Management of TCP/IP-Based Internets: MIB-II*	Unsupported tables and objects: • ICMP group
RFC 1215, *A Convention for Defining Traps for Use with the SNMP*	No exceptions
RFC 1850, *OSPF Version 2 Management Information Base*	No exceptions
RFC 1901, *Introduction to Community-Based SNMPv2*	No exceptions
RFC 2011, *SNMPv2 Management Information Base for the Internet Protocol Using SMIv2*	No exceptions
RFC 2096, *IP Forwarding Table MIB*	No exceptions
RFC 2465, *Management Information Base for IP Version 6: Textual Conventions and General Group*	Supported tables and objects: • ipv6AddrTable • ipv6NetToMediaTable • ipv6IfTable • ipv6IfStatsTable • ipv6AddrPrefixTable • ipv6IfTableLastChange • ipv6Interfaces • ipv6Forwarding • ipv6DefaultHopLimit
RFC 2576, *Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework*	No exceptions
RFC 2578, *Structure of Management Information Version 2 (SMIv2)*	No exceptions
RFC 2579, *Textual Conventions for SMIv2*	No exceptions

Table 2: Standard MIBs Supported by Junos OS Evolved *(continued)*

Standard MIB	Exceptions
RFC 2580, *Conformance Statements for SMIv2*	No exceptions
RFC 2665, *Definitions of Managed Objects for the Ethernet-like Interface Types*	Unsupported tables and objects: • dot3
RFC 2790, *Host Resources MIB*	Unsupported tables and objects: • hrDeviceTable • hrSWRunTable • hrSWRunPerfTable
RFC 2863, *The Interfaces Group MIB*	No exceptions
RFC 2864, *The Inverted Stack Table Extension to the Interfaces Group MIB*	No exceptions
RFC 2925, *Definitions of Managed Objects for Remote Ping, Traceroute, and Lookup Operations*	No exceptions
RFC 2932, *IPv4 Multicast Routing MIB*	No exceptions
RFC 2934, *Protocol Independent Multicast MIB for IPv4*	No exceptions
RFC 2981, *Event MIB*	No exceptions
RFC 3014, *Notification Log MIB*	No exceptions
RFC 3019, *IP Version 6 Management Information Base for the Multicast Listener Discovery Protocol*	No exceptions
RFC 3410, *Introduction and Applicability Statements for Internet-Standard Management Framework*	No exceptions
RFC 3411, *An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks*	No exceptions
RFC 3412, *Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)*	No exceptions
RFC 3413, *Simple Network Management Protocol (SNMP) Applications*	No exceptions

Table 2: Standard MIBs Supported by Junos OS Evolved *(continued)*

Standard MIB	Exceptions
RFC 3414, *User-Based Security Model (USM) for Version 3 of the Simple Network Management Protocol (SNMPv3)*	No exceptions
RFC 3415, *View-Based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)*	No exceptions
RFC 3416, *Version 2 of the Protocol Operations for the Simple Network Management Protocol (SNMP)*	No exceptions
RFC 3417, *Transport Mappings for the Simple Network Management Protocol (SNMP)*	No exceptions
RFC 3418, *Management Information Base (MIB) for the Simple Network Management Protocol (SNMP)*	No exceptions
RFC 3584, *Coexistence between Version 1, Version 2, and Version 3 of the Internet-standard Network Management Framework*	No exceptions
RFC 3637, *Definitions of Managed Objects for the Ethernet WAN Interface Sublayer*	No exceptions
RFC 3811, *Definitions of Textual Conventions (TCs) for Multiprotocol Label Switching (MPLS) Management*	No exceptions
RFC 3812, *Multiprotocol Label Switching (MPLS) Traffic Engineering (TE) Management Information Base (MIB)* (read-only access)	No exceptions
RFC 3813, *Multiprotocol Label Switching (MPLS) Label Switching Router (LSR) Management Information Base (MIB)*	Unsupported tables and objects (read only access): • mplsInterfacePerfTable • mplsInSegmentPerfTable • mplsOutSegmentPerfTable • mplsInSegmentMapTable • mplsXCUp • mplsXCDown
RFC 3826, *The Advanced Encryption Standard (AES) Cipher Algorithm in the SNMP User-Based Security Model*	No exceptions

Table 2: Standard MIBs Supported by Junos OS Evolved *(continued)*

Standard MIB	Exceptions
RFC 3877, *Alarm Management Information Base*	No exceptions
RFC 4133, Entity MIB	Supported table: • entPhysicalTable
RFC 4292, *IP Forwarding MIB*	No exceptions
RFC 4293, Management Information Base for the Internet Protocol (IP)	Supported tables: • ipAddressTable • ipAddrTable • ipNetToPhysicalTable • ipNetToMediaTable • ipSystemStatsTable Unsupported objects: • icmpMsgStatsIPVersion • icmpMsgStatsType • icmpMsgStatsInPkts • icmpMsgStatsOutPkts • icmpStatsIPVersion • icmpStatsInMsgs • icmpStatsInErrors • icmpStatsOutMsgs • icmpStatsOutErrors
RFC 4444, *IS-IS MIB*	No exceptions
RFC 5643, *Management Information Base for OSPFv3* (read-only access)	No exceptions
Internet Assigned Numbers Authority, *IANAiftype Textual Convention MIB*	No exceptions
Internet draft draft-ietf-idmr-igmp-mib-13.txt, *Internet Group Management Protocol (IGMP) MIB*	No exceptions
Internet draft draft-reeder-snmpv3-usm-3desede-00.txt, *Extension to the User-Based Security Model (USM) to Support Triple-DES EDE in 'Outside' CBC Mode*	No exceptions

Table 2: Standard MIBs Supported by Junos OS Evolved *(continued)*

Standard MIB	Exceptions
Internet draft draft-ietf-isis-wg-mib-07.txt, *Management Information Base for IS-IS*	No exceptions
Internet draft draft-ietf-ospf-ospfv3-mib-11.txt, *Management Information Base for OSPFv3*	No exceptions
Internet draft draft-ietf-idmr-pim-mib-09.txt, *Protocol Independent Multicast (PIM) MIB*	No exceptions
Internet Draft P2MP MPLS-TE MIB (draft-ietf-mpls-p2mp-te-mib-09.txt) (read-only access)	No exceptions

Appendix B: Enterprise-Specific MIBs for Junos OS Evolved on QFX5200-32C-L Switches

Support for enterprise-specific MIBs for Junos OS Evolved—Starting in Junos OS Evolved Release 18.3R1, the enterprise-specific MIBs listed in Table 3 on page 22 are supported. For information about enterprise-specific SNMP MIB objects, see the SNMP MIB Explorer.

Table 3: Enterprise-Specific MIBs Supported by Junos OS Evolved

Enterprise-Specific MIB	Description	Exceptions
BGP4 V2 MIB	Provides support for monitoring BGP peer-received prefix counters. It is based upon similar objects in the MIB documented in Internet draft draft-ietf-idr-bgp4-mibv2-03.txt, *Definitions of Managed Objects for the Fourth Version of BGP (BGP-4), Second Version*.	No exceptions

Table 3: Enterprise-Specific MIBs Supported by Junos OS Evolved *(continued)*

Enterprise-Specific MIB	Description	Exceptions
Chassis MIBs	Provides support for environmental monitoring (power supply state, board voltages, fans, temperatures, and air flow) and inventory support for the chassis, System Control Board (SCB), System and Switch Board (SSB), Switching and Forwarding Module (SFM), Switch Fabric Board (SFB), Flexible PIC Concentrators (FPCs), and PICs.	Supported traps: • jnxFruInsertion • jnxFruRemoval • jnxFruPowerOn • jnxFruPowerOff • jnxFruOnline • jnxFruOffline • jnxFruFailed • jnxFruOK • jnxPowerSupplyFailure • jnxPowerSupplyOK • jnxPowerSupplyInputFailure • jnxPowerSupplyInputOK • jnxFanFailure • jnxFanOK • jnxOverTemperature • jnxTemperatureOK Supported tables and objects: • jnxBoxClass • jnxBoxDescr • jnxBoxSerialNo • jnxBoxRevision • jnxBoxInstalled • jnxContentsLastChange • jnxContainersTable • jnxOperatingTable • jnxRedundancyTable • jnxContentsTable • jnxFilledTable • jnxFruTable
Class-of-Service MIB	Provides support for monitoring interface output queue statistics per interface and per forwarding class.	No exceptions

Table 3: Enterprise-Specific MIBs Supported by Junos OS Evolved *(continued)*

Enterprise-Specific MIB	Description	Exceptions
Host Resources MIB	Extends the hrStorageTable object, providing a measure of the usage of each file system on the router in percentage format. Previously, the objects in the hrStorageTable measured the usage in allocation units—hrStorageUsed and hrStorageAllocationUnits—only. Using the percentage measurement, you can more easily monitor and apply thresholds on usage.	Supported tables and objects: • hrStorageTable • jnxHrStorage • hrSWInstalledTable • hrSystemUptime • hrSystemDate • hrSystemInitialLoadDevice • hrSystemInitialLoadParameters • hrSystemNumUsers • hrSystemProcesses • hrSystemMaxProcesses • hrMemorySize • hrSWInstalledLastChange • hrSWInstalledLastUpdateTime
Interface MIB	Extends the standard ifTable (RFC 2863) with additional statistics and Juniper Networks enterprise-specific chassis information.	No exceptions
IPv4 MIB	Provides additional IPv4 address information, supporting the assignment of identical IPv4 addresses to separate interfaces.	No exceptions
IPv6 and ICMPv6 MIB	Provides IPv6 and Internet Control Message Protocol version 6 (ICMPv6) statistics.	Unsupported objects • jnxIcmpv6GlobalStats branch and the objects under it
LDP MIB	Provides LDP statistics and defines LDP label-switched path (LSP) notifications. LDP traps support only IPv4 standards.	No exceptions
MPLS LDP MIB	Contains object definitions as described in RFC 3815, *Definitions of Managed Objects for the Multiprotocol Label Switching (MPLS), Label Distribution Protocol (LDP)*.	No exceptions

Table 3: Enterprise-Specific MIBs Supported by Junos OS Evolved *(continued)*

Enterprise-Specific MIB	Description	Exceptions
MPLS MIB	Provides MPLS information and defines MPLS notifications.	No exceptions
RSVP MIB	Provides information about RSVP-traffic engineering sessions that correspond to MPLS LSPs on transit routers in the service provider core network.	No exceptions
SFF Digital Optical Monitor MIB	Defines objects used for Digital Optical Monitor on interfaces of Juniper products.	Supported tables: • jnxDomCurrentTable • jnxDomModuleLaneTable
VPN MIB	Provides monitoring for Layer 3 VPNs, Layer 2 VPNs, and virtual private LAN service (VPLS).	Unsupported objects • jnxVpnActiveVpns • jnxVpnConfiguredVpns

Finding More Information

Learn about more information on Junos OS Evolved and other Juniper products.

- Feature Explorer—Determine the features supported on QFX5200-32C-L switches. The Juniper Networks Feature Explorer is a Web-based app that helps you to explore and compare Junos OS and Junos OS Evolved feature information to find the right software release and hardware platform for your network. **https://pathfinder.juniper.net/feature-explorer/**
- PR Search Tool—Keep track of the latest and additional information about Junos OS Evolved open defects and issues resolved. **prsearch.juniper.net**
- Hardware Compatibility Tool—Determine optical interfaces and transceivers supported across all platforms. **apps.juniper.net/hct/home**

  > **NOTE:** To obtain information about the components that are supported on the devices, and the special compatibility guidelines with the release, see the Hardware Guide for the product.

- Juniper Networks Compliance Advisor—Review regulatory compliance information about Common Criteria, FIPS, Homologation, RoHS2, and USGv6 for Juniper Networks products. **apps.juniper.net/compliance/**

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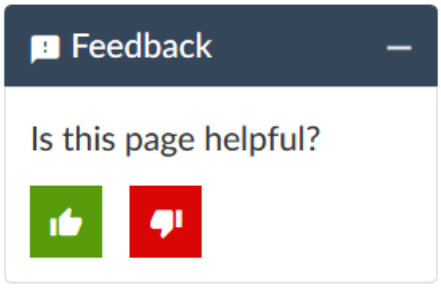

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- Product warranties—For product warranty information, visit http://www.juniper.net/support/warranty/.
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

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- Find product documentation: https://www.juniper.net/documentation/
- Find solutions and answer questions using our Knowledge Base: https://kb.juniper.net/
- Download the latest versions of software and review release notes: https://www.juniper.net/customers/csc/software/
- Search technical bulletins for relevant hardware and software notifications: https://kb.juniper.net/InfoCenter/
- Join and participate in the Juniper Networks Community Forum: https://www.juniper.net/company/communities/
- Create a service request online: https://myjuniper.juniper.net

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: https://entitlementsearch.juniper.net/entitlementsearch/

Creating a Service Request with JTAC

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- Visit https://myjuniper.juniper.net.
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see https://support.juniper.net/support/requesting-support/.

Revision History

30 July 2020—Revision 3, Junos OS Evolved Release 18.3R1 for the QFX5200 Switch.

30 April 2020—Revision 2, Junos OS Evolved Release 18.3R1 for the QFX5200 Switch.

29 January 2019—Revision 1, Junos OS Evolved Release 18.3R1 for the QFX5200 Switch.