Release Notes

Junos ® OS Evolved Release 22.1R1

SUPPORTED PLATFORMS

- ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700

KEY FEATURES

- Refer to Key Features in Junos OS Evolved Release 22.1R1 to quickly learn about the most important Junos OS Evolved features and how you can deploy them in your network.

SOFTWARE HIGHLIGHTS

- Support for 400G ZR+ DWDM optics (PTX10001-36MR)

- Packet Forwarding Engine pipeline sensors (PTX10001-36MR, PTX10008, and PTX10016)

- Support for SDN-based network interconnects (PTX10004, PTX10008, and PTX10016)

- Synchronous Ethernet with ESMC support (PTX10001-36MR)

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Table of Contents

Introduction

Use these release notes to find new and updated features, software limitations, and open issues for Junos OS Evolved Release 22.1R1.

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

For more information on this release of Junos OS Evolved, see Introducing Junos OS Evolved.

Key Features in Junos OS Evolved Release 22.1

Start here to learn about the key features in Junos OS Evolved Release 22.1. For more information about a feature, click the link in the feature description.

- **Packet Forwarding Engine pipeline sensors (PTX10001-36MR, PTX10008, and PTX10016)**—Junos OS Evolved Release 22.1R1 introduces support for pipeline sensors with JTI. The pipeline sensors provide telemetry device monitoring by delivering NPU and ASIC counters from a device to an outside collector. The four packet and drop counter categories are interface, lookup, queueing, and host interface. Subscribe to the resource path **/components/component/integrated-circuit/pipeline-counters** to export all pipeline counters, or use **/components/component/integrated-circuit/pipeline-counters/packet/** or **/components/component/integrated-circuit/pipeline-counters/drop/** to provide packet-only or drop-only counters.

  The pipeline sensors support both zero-suppression and initial sync. The zero-suppression feature streams only non-zero values. The initial sync (init-sync) feature streams all values once after the initial subscription. This one-time-only bucket of values includes zero values even if zero-suppression is enabled.

  You can use native (UDP) and Juniper proprietary gRPC and gNMI to stream counters.

  [See Telemetry Sensor Explorer and sensor (Junos Telemetry Interface).]

- **Synchronous Ethernet with ESMC support** (PTX10001-36MR)

  [See Synchronous Ethernet Overview and Ethernet Synchronization Message Channel (ESMC).]

- **Support for 400G ZR-M DWDM optics (PTX10001-36MR)—**

  Starting in Junos OS Evolved Release 22.1R1, we support 400G ZR-M DWDM optics. 400G ZR-M is a new variant optics that functions similar to the existing 400G ZR. 400G ZR-M enables flat architecture, simple, and Point to Point (PtP) DWDM system. We support the following features as part of 400G ZR-M:

- Support for 6.25, 75, 100 grid spacing.

- Support for optical loopbacks. To enable optics loopback, use the existing `loopback` statement at the `[edit interfaces optics-options]` hierarchy level.

- Support for performance monitoring and TCA. TCAs provide the management system an early indication of the deteriorating health of an optical network connection when the performance parameter that you monitor crosses a certain threshold. You can view the current and historical performance monitoring metrics which are accumulated into 15-minute and 1-day interval bins by using the show interfaces transport pm command. You can thus manage optical transport link efficiently.

  [See optics-options, show chassis hardware, show interfaces, show interfaces diagnostics optics, show chassis pic, and show interfaces transport pm .]

- **Support for SDN-based network interconnects (PTX10004, PTX10008, PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, you can configure certain PTX device interfaces to pass traffic towards an SDN controller. You do this using firewall filters to match and redirect packets defined at the **[edit services inline-monitoring instance *name* controller]** hierarchy level. Supported match criteria includes IPv4, IPv6, and family **any** (destination), VLAN ID, and certain traceroute redirect packets.

  [See Controller.]

Junos OS Evolved Release Notes for ACX7100-32C, ACX7100-48L, and ACX7509 Devices

IN THIS SECTION

These release notes accompany Junos OS Evolved Release 22.1R1 for ACX7100-32C, ACX7100-48L, and ACX7509 routers. They describe new features, limitations, and known problems in the hardware and software.

What's New

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Learn about new features introduced in this release for ACX Series routers.

What's New in 22.1R1

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To view features supported on the ACX platforms, view the Feature Explorer using the following links. To see which features were added in Junos OS Evolved Release 22.1R1, click the Group by Release link. You can collapse and expand the list as needed.

- ACX7100-32C

- [ACX7100-48L](#)

- [ACX7509](#)

The following sections highlight the key features in this release.

Class of Service

- **DSCP propagation and default CoS support for EVPN VXLAN (ACX7100-32C and ACX7100-48L)**—
Starting in Junos OS Evolved release 22.1R1, use our new command `set system packet-forwarding-options no-ip-tos-rewrite` to allow DSCP propagation for VXLAN traffic. When you configure or delete DSCP propagation, the `evo-pfemand` process restarts.

  [See [Configuring CoS on ACX Series Routers](#) and [Applying DSCP and DSCP IPv6 Classifiers on ACX Series Routers](#).]

EVPN

- **Enhanced platform, routing, and switching support for EVPN-VPWS flexible cross-connect (FXC) forwarding (ACX7509)**—Starting in Junos OS Evolved Release 22.1R1, forwarding support for EVPN-VPWS/FXC leverages the existing platform-dependent infrastructure of the EVO routing engine and the Environment Abstraction Layer (EAL), as well as all EVO-PFEMAN infra process layers. Forwarding features are enabled on ACX7509 routers using infrastructure and kernel services provided by EVO.
The following forwarding feature categories are supported:

  - Layer 2 Bridging

  - Layer 3 Routing (IPv4 | IPv6)

  - MPLS VPNs

  - VPLS

  - QoS

  - Firewall

  - OAM (CFM, BFD)

  - DHCP/Services

  - Statistics

  - Multicast support

  - VRRP

[See Overview of Flexible Cross-Connect Support on VPWS with EVPN.]

- **EVPN E-LAN Active-Active Multihoming with EVPN Aliasing Support for ESI LAG (ACX7100-32C and ACX7100-48L)**—Starting in Junos OS Evolved Release 22.1, BGP-signalled EVPN services are supported over a MPLS WAN network with active-active multihoming redundancy and EVPN aliasing support for Ethernet segment interface (ESI) link aggregation group (LAG) implementations.

  Configure EVPN for multihomed CE devices in the active-active redundancy mode, so the Layer 2 unicast traffic is load-balanced (aliased) across all multihomed links on and toward the CE device. Type 1 AD/ESI and AD/EVI routes are supported where the designated forwarder (DF) PE is responsible for forwarding BUM traffic towards multihomed CE devices. In general, Unicast traffic is received on any multihoming PEs because the CE is connected via LAG, and Unicast traffic also flows from the core to the multihomed CE IFL logical interfaces. BUM traffic flows from the multihomed CE to the core. If a packet is flooded in one of the multihoming PEs, regular BUM forwarding will happen with outgoing packets carrying IM labels. Note that the ESI value must always be unique across all IFDs and IFLs.

  EVPN aliasing provides the ability of a remote device to load balance Layer 2 Unicast traffic. It allows a device to quickly recover when a link to a multihomed PE device fails. EVPN aliasing enables load balancing that depends on a Hash key configuration using:

  ```
  set forwarding-options hash-key <hash key parameters>
  ```

  Both overlay and underlay load balancing is supported.

  [See

  - EVPN Multihoming Overview.

  - Example: Configuring EVPN Active-Active Multihoming.

  - Using the evpn-aliasing-optimize command.

  - EVPN Features in EVPNs using EVPN LAG.]

- **EVPN E-LAN Single homing support (ACX7509)**—Starting in Junos OS Evolved Release 22.1R1, forwarding features are supported for EVPN-MPLS vlan-based and bundle-based services on single-homing Ethernet - Local Area Networks (E-LANs).

  [See Single-Homed EVPN Example.]

- **Support for EVPN-MPLS service (ACX7100-32C, ACX7100-48L, and ACX7509)**—Starting in Junos OS Evolved Release 22.1R1, you can configure EVPN-MPLS services using MAC-VRF routing instance provisioning. No new CLI are introduced with this release.

  [See EVPN Overview.]

- **Support for EVPN-VPWS MultiHoming All-Active for Segment Routing over MPLS (ACX7100-32C and ACX7100-48L)**—Starting in Junos OS Evolved Release 22.1R1, EVPN-VPWS multihoming for segment routing over MPLS consists of two variants: all-active and single-active models. All-active instances share traffic to each multihomed provider edge (PE). The single-active instances are cold-standby acting as single-homed models where the routing protocol daemon (RPD) is aware of the backup path. If the primary goes down, RPD performs a global repair and updates the packet forwarding engine (PFE) with the new path. Multiple multihomed neighbors are supported, up to 512 instances. Note that asynchronous notification is not supported in this release.

  [See Overview of VPWS with EVPN Signaling Mechanisms.]

- **Support for all-active multihoming redundancy in both Ethernet VPN–virtual private wire service (EVPN-VPWS) and EVPN-VPWS with flexible cross-connect (ACX7100-32C and ACX7100-48L)**— Starting in Junos OS Evolved Release 22.1R1, you can configure ACX7100-32C and ACX7100-48L devices in both EVPN-VPWS networks with flexible cross-connect (FXC) or legacy EVPN-VPWS (non-FXC) networks to support all-active multihoming redundancy.
  [See Overview of Flexible Cross-Connect Support on VPWS with EVPN.]

Interfaces

- **Multichassis link aggregation groups (MC-LAGs) (ACX7100-32C and ACX7100-48L)**—Starting in Junos OS Evolved Release 22.1R1, the following features are available on MC-LAGs:

  - Layer 2 bridging for active-active and active-standby modes

  - Layer 2 unicast without IGMP snooping

  - Layer 3 unicast without IGMP snooping

  [See Understanding Multichassis Link Aggregation Groups.]

Junos Telemetry Interface

- **Forwarding Information Base (FIB) sensor streaming support (ACX7100-32C, ACX7100-48L, and ACX7509)**—Junos OS Evolved Release 22.1R1 supports FIB statistics using Junos telemetry interface (JTI) and Juniper proprietary gRPC. The FIB on the Packet Forwarding Engine, also referred to as a forwarding table, maintains the complete set of active IPv4 (inet) and IPv6 (inet6) routes. Streaming statistics are sent to an outside collector.

  This feature supports the OpenConfig model oc-aft-yang model.

  [See Telemetry Sensor Explorer.]

- **Layer 3 routing and protocol statistics (ACX7100-32C, ACX7100-48L, and ACX7509)**—Starting in Junos OS Evolved Release 22.1R1, JTI provides Layer 3 support using Juniper proprietary gRPC. Statistics are streamed for IPv4, IPv6, BGP, IS-IS, and ARP protocols.

Starting in Junos OS Evolved Release 22.1R1, JTI provides Layer 3 support using gRPC services. It also provides routing protocol IPv4, IPv6, BGP, IS-IS support and ARP streaming sensor support using gRPC services.

[See Telemetry Sensor Explorer.]

- **Packet Forwarding Engine firewall filter statistics (ACX7100-32C and ACX7100-48L)**—Starting in Junos OS Evolved Release 22.1R1, JTI provides firewall filter stats. To generate periodic streaming of statistics, use the resource path **/junos/system/linecard/firewall/** in a Juniper proprietary gRPC and gNMI subscription.

  [See Guidelines for gRPC and gNMI Sensors (Junos Telemetry Interface).]

- **System, CPU, and memory statistics (ACX7100-32C, PTX10001-36MR, PTX10003, PTX10004, PTX10008 and PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, JTI provides periodic streaming of system statistics, CPU statistics, and memory-related parameters. Statistics support the health-monitoring application. This feature supports the data model openconfig-system.yang version 0.10.0. It is supported using Juniper proprietary gRPC and gNMI supported.

  [See Telemetry Sensor Explorer.]

MPLS

- **Supports MD5 authentication algorithm for subnet level configuration (ACX Series, PTX Series, and QFX Series)**—Starting from Junos OS Evolved 22.1R1 Release, MD5 authentication algorithm for subnet level key configuration is supported for all Junos OS Evolved platforms. Whereas, aes-128-cmac-96 and hmac-sha-1-96 algorithms are not supported for subnet level key configuration in Junos OS Evolved Releases.

  [See session-group and Configuring the TCP MD5 Signature for LDP Sessions.]

Multicast

- **IGMP, MLD snooping, and IRB stitching with make-before-break (MBB) (QFX5130-32CD)**—Starting in Junos OS Evolved Release 22.1R1, MBB is extended to aggregated Ethernet (AE) member link changes for all Level 2 snooping-based nexthop changes. MBB ensures that all Packet Forwarding Engines (PFE) have a consistent view thereby avoiding traffic loss or duplication.

  MBB for IGMP, MLD snooping, and IRB Stitching supports:

  - Aggregated Ethernet member link addition/deletion
  - Aggregated Ethernet member link enable/disable

  [See IGMP Snooping Overview and Understanding MLD Snooping.]

- **Support for BGP MVPN (ACX7100-32C and ACX7100-48L)**—Starting in Junos OS Evolved Release 22.1R1, certain ACX series routers support BGP/MPLS MVPN (also known as "next generation," or "NG," MVPN) running on multipoint LDP (MLDP P2MP) provider tunnels, where BGP MVPN is the intra-AS and PIM-SM/SSM is the data plane. The ACX can act as the Rendezvous Point (RP) and First-Hop Router (FHR). The implementation does not include BUD node (where the ACX functions as both an egress and transit device). IPv6 traffic on the CE side is supported.

  [See ACX Support for BGP MVPN.]

Routing Policy and Firewall Filters

- **Support for firewall filters on EVPN interfaces (ACX7509)**—Starting in Junos OS Evolved Release 22.1R1, you can configure firewall filters for packets traversing the Ethernet EVPN interface for ACX7509 devices.

  [See Guidelines for Applying Standard Firewall Filters.]

Source Packet Routing in Networking (SPRING) or Segment Routing

- **Support for FEC 128 and FEC 129 VPLS with source packet routing (ACX7100-32C, ACX7100-48L, and ACX7509)**—Starting in Junos OS Evolve Release 22.1R1, Junos OS supports forwarding equivalence class (FEC) 128 and FEC 129 VPLS with Source Packet Routing in Networking (SPRING) with IS-IS, OSPF, and non-colored segment routing–traffic-engineering (SR-TE). Source packet routing or segment routing is applied in an MPLS network. You can use FEC 128 and FEC 129 VPLS with SPRING over MPLS as an alternative to LDP VPLS over MPLS.

  [See Understanding Source Packet Routing in Networking (SPRING) ,Example: Configuring a Multihomed VPLS (FEC 128), and Example: Configuring VPLS Multihoming (FEC 129) .]

Software Installation and Upgrade

- **Base operating system upgrade (ACX Series, PTX Series, and QFX Series)**—Starting in Junos OS Evolved Release 22.1R1, Junos OS Evolved uses the Wind River Linux LTS 19 base operating system. This upgrade provides improved security and better performance. Prior to this release, Junos OS Evolved used the Wind River Linux 9 base operating system.

- **OpenSSL version upgrade (ACX Series, PTX Series, and QFX Series)**—Starting in Junos OS Evolved 22.1R1, we've upgraded the OpenSSL version 1.1.1 to OpenSSL version 3.0.0 with Transport Layer Security (TLS) version 1.3 protocols. The upgraded OpenSSL version 3.0.0 with TLS protocol version 1.3 provides improved security and better performance.

Additional Features

- **Configure the ephemeral database using the NETCONF and Junos XML protocols** (ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, and QFX5220)

  [See Understanding the Ephemeral Configuration Database.]

- **EVPN-VXLAN additional features support** (ACX7100)

  - VLAN-based and VLAN bundle MAC-VRF service types (only VLAN-aware bundle service type was supported previously). (See MAC-VRF Routing Instance Type Overview.)

  - Spine role with CRB overlays.

    > ⓘ **NOTE**: We don't support overlapping VLANs between different virtual routing and forwarding (VRF) instances.

  - BPDU protection in EVPN-VXLAN. (See Understanding BPDU Protection for EVPN-VXLAN.)

  - Preference based DF election. (See Designated Forwarder Election.)

  - EVPN BGP policy options support for control plane.

  - Service provider style interface configuration with VXLAN, including:

    - Encapsulation types `ethernet-bridge`, `extended-vlan-bridge`, and `flexible-ethernet-services`. (See encapsulation.)

    - Flexible VLAN tagging for single- and dual-tagged logical interfaces on the same port.

    - Q-in-Q. (See Examples: Tunneling Q-in-Q Traffic in an EVPN-VXLAN Overlay Network.)

    (See Understanding Flexible Ethernet Services Support With EVPN-VXLAN.)

  - Extensions to enterprise style interface configuration support with VXLAN, including:

    - Trunk interfaces with flexible Ethernet services and flexible VLAN tagging.

    - Multiple trunk interfaces on the same port.

    (See Understanding Flexible Ethernet Services Support with EVPN-VXLAN.)

  - Layer 2 (L2) and Layer 3 (L3) logical interfaces on the same port, with L2 logical interfaces as part of the VXLAN VLAN or tenant VLANs.

  [See EVPN User Guide.]

- **Firewall filter actions** (ACX7100-32C, ACX7100-48L, and ACX7509)—Supports `next-ip` and `next-ip6` to configure filter-based forwarding or policy-based forwarding.

  [See Filter-Based Forwarding Overview.]

- **IEEE Standard 802.3ah and 802.1ag for OAM CFM DOWN and UP maintenance association end points (MEPs) over VPLS** (ACX7100-32C, ACX7100-48L, and ACX7509)

  [See IEEE 802.3ah OAM Link-Fault Management Overview and IEEE 802.1ag OAM Connectivity Fault Management Overview.]

- **IEEE Standard 802.3ah and 802.1ag for OAM CFM UP maintenance association end points (MEPs) over EVPN** (ACX7100-32C, ACX7100-48L, and ACX7509)

  [See IEEE 802.3ah OAM Link-Fault Management Overview and IEEE 802.1ag OAM Connectivity Fault Management Overview.]

- **PCEP session over IPv6** (ACX7100-32C, ACX7100-48L, PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX10016)

  [See destination-ipv6-address and local-ipv6-address.]

- **Persistent storage of DHCP relay agent bindings in EVPN-VXLAN fabrics** (ACX7100-32C and ACX7100-48L)

  [See Maintaining DHCP Subscribers During Interface Delete Events.]

- **Port mirroring with analyzer** (ACX7100-32C, ACX7100-48L, and ACX7509)—Supports port mirroring on both ingress and egress ports to mirror a copy of a packet to a configured destination with analyzers.

  [See Port Mirroring and Analyzers.]

- **Resiliency support for RCB, FEB, and line card JNP-FPC-20Y** (ACX7509)

  [See ACX Hardware Components (upcoming link) and Port Speed.]

- **SPRING support for SR-TE** (ACX7100-32C and ACX7100-48L):

  - Segment routing policy to steer labeled or IP traffic at ingress routers.

  - Segment routing paths for a non-colored static label-switched path (LSP).

  - Color-based traffic steering of Layer 2 and Layer 3 VPN services.

  - SR policy-based dynamic tunnel module triggered SR-TE.

  - Indirect next hop and composite next hop modes.

  [See Segment Routing Traffic Engineering at BGP Ingress Peer Overview.]

- **Support for classification and rewrites for EVPN interfaces** (ACX7509)

  [See EVPN Overview.]

- **Support for flexible algorithm in OSPF and IS-IS for segment routing traffic engineering** (ACX7100-32C and ACX7100-48L)

  [See Understanding OSPF Flexible Algorithm for Segment Routing and How to Configure Flexible Algorithms in IS-IS for Segment Routing Traffic Engineering.]

- **Support for Real-time Performance Monitoring (RPM) and Two-Way Active Measurement Protocol (TWAMP)** (ACX7509)

  [See Understand Two-Way Active Measurement Protocol and Understanding Using Probes for Real-Time Performance Monitoring.]

- **Support for redundant pseudowire Layer 2 circuits** (ACX7100-32C and ACX7100-48L)—Multichassis Link Aggregation Group (MC-LAG) is not supported with redundant pseudowire Layer 2 circuits.

  [See Redundant Pseudowires for Layer 2 Circuits and VPLS.]

- **Support for redundant pseudowires for virtual private LAN service** (ACX7100-32C, ACX7100-48L, and ACX7509)—Supports VPLS with LDP in hot-standby mode, cold-standby mode, and without BFD or CFM triggers.

  [See Redundant Pseudowires for Layer 2 Circuits and VPLS.]

- **Supported transceivers, optical interfaces, and DAC cables** (ACX Series and QFX Series).—Select your product in the Hardware Compatibility Tool to view supported transceivers, optical interfaces, and DAC cables for your platform or interface module. We update the HCT and provide the first supported release information when the optic becomes available.

- **Zero-touch provisioning (ZTP) with IPv6 support on management ports** (ACX7100-32C and ACX7100-48L)

  [See Zero Touch Provisioning Overview.]

What's Changed

IN THIS SECTION

Learn about what changed in these releases for ACX Series routers.

What's Changed in Release 22.1R1-S2

Learn about what changed in this release for QFX Series routers.

Network Management and Monitoring

- sFlow configuration is allowed only on et, xe, and ge interfaces in Junos OS Evolved based platforms. All other interfaces are blocked for configuring sFlow on Junos OS Evolved platforms. A cli error is thrown if sFlow is configured on any other interface other than et, xe or ge interface.

What's Changed in Release 22.1R1

General Routing

- Stateful port configuration for PTP over Ethernet and default profile is supported only on boundary clock mode and not on ordinary clock mode.

- **Instance type change is not permitted from default to L3VRF in open configuration (ACX Series and QFX Series)**—DEFAULT_INSTANCE is the primary instance that runs when there is no specific instance type configured in the route `set routing-options?`. Any instance you explicitly configure is translated into `set routing-instance r1 routing-options?`. The issue appears in translation, when you change instance type DEFAULT_INSTANCE (any instance to DEFAULT_INSTANCE) to L3VRF or L3VRF to DEFAULT_INSTANCE. As a result, such changes are not permitted. Additionally, DEFAULT_INSTANCE can only be named DEFAULT, and DEFAULT is reserved for DEFAULT_INSTANCE, therefore allowing no such changes.

Interfaces and Chassis

- **Display the donor details of the IPv6 borrower interface**—The output for the `show interfaces` command now displays the donor details of the IPv6 borrower interface.

  [See show interfaces].

Junos OS API and Scripting

- **Deprecated functions in the `libpyvrf` Python module (ACX Series, PTX Series, and QFX Series)**—The `libpyvrf` Python module no longer supports the `get_task_vrf()` and `set_task_vrf()` functions.

  [See How to Specify the Routing Instance in Python 3 Applications on Devices Running Junos OS Evolved.]

MPLS

- When defining a constrained path LSP using more than one strict hop belonging to the egress node, the first strict hop must be set to match the IP address assigned to the egress node on the interface that receives the RSVP Path message. If the incoming RSVP Path message arrives on an interface with a different IP address the LSP is rejected.

Network Management and Monitoring

- **Junos XML protocol Perl modules deprecated (ACX Series, PTX Series, and QFX Series)**—We no longer provide the Junos XML protocol Perl client for download. To use Perl to manage Junos devices, use the NETCONF Perl library instead.

  [See Understanding the NETCONF Perl Client and Sample Scripts.]

- **Limits increased for the `max-datasize` statement (ACX Series, PTX Series, and QFX Series)**—The `max-datasize` statement's minimum configurable value is increased from 23,068,672 bytes (22 MB) to 268,435,456 bytes (256 MB), and the maximum configurable value is increased from 1,073,741,824 (1 GB) to 2,147,483,648 (2 GB) for all script types. Furthermore, if you do not configure the `max-datasize` statement for a given script type, the default maximum memory allocated to the data segment portion of a script is increased to 1024 MB. Higher limits ensure that the device allocates a sufficient amount of memory to run the affected scripts.

  [See max-datasize.]

Routing Protocols

- When the krt-nexthop-ack statement is configured, the RPD will wait for the next hop to get acknowledged by PFE before using it for a route. Currently, only BGP-labeled routes and RSVP routes support this statement. All other routes will ignore this statement.

- The RPD_OSPF_LDP_SYNC message not logged?On all Junos OS and Junos OS Evolved devices, when an LDP session goes down there is a loss of synchronization between LDP and OSPF. After the loss of synchronization, when an interface has been in the holddown state for more than three minutes, the system log message with a warning level is sent. This message appears in both the messages file and the trace file. However, the system log message does not get logged if you explicitly configure the `hold-time` for `ldp-synchronization` at the **edit protocols ospf area area id interface interface name** hierarchy level less than three minutes. The message is printed after three minutes.

- To achieve consistency among resource paths, the resource path /mpls/signalling-protocols/segment-routing/aggregate-sid-counters/aggregate-sid-counter ip-addr='address'/state/countersname='name'/out-pkts/ is changed to /mpls/signaling-protocols/segment-routing/aggregate-sid-counters/aggregate-sid-counterip-addr='address'/state/counters name='name'/. The leaf "out-pkts" is removed from the end of the path, and "signalling" is changed to "signaling" (with one "l").

User Interface and Configuration

- **Load JSON configuration data with unordered list entries (ACX Series, PTX Series, and QFX Series)**—The Junos schema requires that list keys precede any other siblings within a list entry and appear in the order specified by the schema. Junos devices provide two options to load JSON configuration data that contains unordered list entries:

  - Use the `request system convert-json-configuration` operational mode command to produce JSON configuration data with ordered list entries before loading the data on the device.

  - Configure the `reorder-list-keys` statement at the `[edit system configuration input format json]` hierarchy level. After you configure the statement, you can load JSON configuration data with

unordered list entries, and the device reorders the list keys as required by the Junos schema during the load operation.

When you configure the `reorder-list-keys` statement, the load operation can take significantly longer to parse the configuration, depending on the size of the configuration and number of lists. Therefore, for large configurations or configurations with many lists, we recommend using the `request system convert-json-configuration` command instead of the `reorder-list-keys` statement.

[See json and request system convert-json-configuration.]

VPNs

- **Changes to** `show mvpn c-multicast` **and** `show mvpn instance` **outputs**—The FwdNh output field displays the multicast tunnel (mt) interface in the case of Protocol Independent Multicast (PIM) tunnels.

  [See show mvpn c-multicast.]

Known Limitations

IN THIS SECTION

Learn about known limitations in Junos OS Evolved Release 22.1R1 for ACX Series routers.

For the most complete and latest information about known Junos OS Evolved defects, use the Juniper Networks online Junos Problem Report Search application.

General Routing

- When you enable PTP, port 31 of the ACX7100-32C router gets configured to 1G. The Packet Forwarding Engine chip from the vendor supports only 10G. Hence, the speed gets converted from 10G to 1G on the external PHY. However, there is one limitation. It supports only frame size to 2000 bytes and jumbo frame cannot be supported on port 31 when you enable the PTP mode. PR1593015

- syncE to PTP and syncE to 1pps noise transfer tests fails for frequencies 1. 0.00781 HZ, 2. 0.01563 HZ, 3. 0.03125 HZ, 4. 0.06156 HZ, and 5. 0.12313 HZ. PR1608866

- In some corner cases, traffic does not get scheduled equally between the strict priority queues. Priority queue gets configured, completely utilizes the bandwidth, remaining queues are starved, and the traffic completely drops on those queues. In this state, if we configure a second strict high priority queue traffic does not get scheduled equally between the strict priority queues. This is hardware specific Q2C issue. PR1577035

- Ping and traceroute works with reply mode as ip-udp (applicable to other Junos OS Evolved ACX series). Other reply mode (application-level-control-channel) works when we support BFD over VCCV. For ping, the default mode for MSPW Echo reply is application-level-control-channel. Hence, MSPW L2VPN ping needs reply-mode as ip-udp for the ping to work, as BFD over VCCV is not supported. For traceroute, the default mode is application-level-control-channel. Hence, MSPW L2VPN traceroute needs reply-mode as ip-udp for the traceroute to work, as BFD over VCCV is not supported. PR1642026

- CCM transmission keeps occurring (for the Up MEP aggregated Ethernet interface case) during FPC restart, as the aggregated Ethernet interface does not get deleted during the FPC restart. The session information already programmed in the hardware does not get deleted. During the FPC restart case, the CCM transmission keeps occurring. Due to this reason, sessions are up on the peer. Whereas in case of physical interface, the sessions get deleted and added back during FPC restart. As a result, the behavior remains different in the physical interface compared to the aggregated Ethernet interface for UP MEP case. PR1627369

- The ACX platform performs hardware time stamping but the peer device (in this case MX routers) performs software time stamping, which takes more time resulting into high delays. This issue occurs on all the cases where the peer setup performs software time stamping. PR1599777

- The `clear mpls lsp` operation is a destructive operation where it wipes off all the existing routes and nexthops in the system, and does a fresh reinstallation. The 10 seconds delay in the traffic restoration for 16,000 Layer 3 VPN routes might be attributed to programming delay in the hardware units combined with software model and the CPU capacity. PR1614413

Open Issues

IN THIS SECTION

- Interfaces and Chassis | **20**
- Routing Protocols | **20**
- User Interface and Configuration | **20**

Learn about open issues in Junos OS Release 22.1R1 for ACX Series routers.

For the most complete and latest information about known Junos OS Evolved defects, use the Juniper Networks online Junos Problem Report Search application.

EVPN

- Back port issue due to different size. PR1633344

General Routing

- The timingd application cannot be successfully restarted on ACX7100-48L:ACX7100-32C with G.8275.1 profile configuration. If there are PTP streams configured and there is a timingd restart due to timingd core file or requested application restart, the PTP streams might not be restored correctly, and/or changes to the PTP stream configuration after the restart might result in PTP streams that do not forward data packets correctly. It is very likely that a restart always affect the streams.

  PR1597120

- With IGMPv3 reports received at a higher rate more than 1600 pps, packets drop due to control plane rate limit. Hence, it is not possible to form 256,000 IGMP groups. You must change the DDoS configuration to reach 256,000 IGMP groups. PR1599998

- Given the higher number of internal ports, two vendor's Q2C ASICs and eight FPCs supporting 20 ports (maximum), the statistics thread is expected to consume system resources. The current statistics collection, which is done in the evo-pfemand application needs to be refactored, so that the statistics thread does not end up consuming the system. PR1603899

- PTP to PTP noise transfer fails for frequencies 1. 0.03125 HZ and 2. 0.123125 HZ. PR1608786

- syncE to PTP and syncE to 1pps transient response marginally fails. This happens when the servo gets the initial 100ns jump in one measurement window and the next 100ns in the next measurement window adjusting less initially. PR1608934

- PTP to PTP noise transfer fails for frequency 0.03125 HZ. PR1611838

- syncE to PTP and syncE to 1pps noise transfer tests fails for frequencies 1. 0.00781 HZ, 2. 0.01563 HZ, 3. 0.03125 HZ, 4. 0.06156 HZ, and 5. 0.12313 HZ. PR1611911

- MAC statistics for lacp on lag interfaces do not display the multicast packets. As a workaround, instead of querying the MAC statistics under the aggregated Ethernet interface, query for the actual physical interface created under the aggregated Ethernet interface. PR1612105

- Journalctl logs do not print for evo-pfemand and packetio-brcm. You must use journalctl -t appname instead of journalctl -u appname. PR1621009

- No details of auto negotiation settings are available on 1GE interfaces. PR1621991

- DHCP transit unicast packets get dropped if you do not configure the interface in the DHCP relay stanza. PR1626759

- On ACX7100-32C router, the 400G-ZR optic transceiver firmware upgrade failure occurs. This is a generic issue faced across all single RU platforms supporting QDD-400G-ZR. PR1626882

- After the picd or rpdagent application restarts multiple object-info anomalies for the evo-pfemand process, the following anomalies get generated:

  ```
  Type : net::juniper::rtnh::Route Type : net::juniper::rtnh::NHOpaqueTlv Type :
  net::juniper::rtnh::Nexthop Type : net::juniper::rtnh::Unilist Type :
  net::juniper::rtnh::BfdSessionId
  ```

  PR1628843

- While sending traffic from both cores/units, all (16) VOQs/connectors are asking credits from same port. As a result credits are distributed as per weight ratio and flows asking for higher credits get higher bandwidth than others. PR1611028

- In certain segment routing topologies having routers with varying CPU capabilities/load, higher convergence time might occur for a switchover event due to micro-loops. This is a known behavior when the one node converges faster than the neighboring node. The best solution for this is to fine tune the network topology using the `micro-loop avoidance` statement. PR1621263

- With combination of triggers like restart rpd and fpc, route object leaks in the Packet Forwarding Engine. PR1641947

- On ACX7509, PCI device misses alarm raises for all FPCs from the backup Routing Engine. There are no functional impact. PR1627348

- If the system gets fully scaled across features and firewall also gets scaled. The CPU consumptionmight be more for a small window of around 5 seconds after every 18 seconds. The

evo-pfemand process might become busy collecting the scaled firewall stats for that 5 seconds window and any other applications like `pfe-cli` might fail to execute commands. PR1629342

- On ACX7100-32C and ACX7509 routers, 4x100g channels do not come up after multiple iterations Tx lase disabled alarm on. PR1631193

- In a working and non-working logs, l2d index is different for vrrp group number 187. This is the same group for which packet gets dropped out of 400 groups. Other groups works as expected. There is some fix which went between working and NKWR related to l2dId which has exposed VRRP issue. Both VRRP MAC and interface MAC gets stored in SLU my_mac_hash table. For finding hash index for vrrp MAC, use l2dId, protocol type and vrrp group number as a key. In a non-working scenario, there is a collision between interface MAC and vrrp MAC on same hash index. Ideally hash movement should have happened to address collision but somehow it is not properly done. PR1633986

- On ACX7509 routers and in a scaled setup, if you restart FPC, FPC becomes nonresponsive in the `Online` after ungraceful FPC OIR. PR1633117

- On ACX7100 and ACX7509 routers, few control packets gets forwarded on ERPS discarding port and causes traffic loop. You must avoid the port blocking on local node. PR1641454

- On ACX7100 and ACX7509 routers, OAM link fault management (LFM) Discovery state is not correct for some interfaces and discovery state is either Active Send Local or Fault. PR1651580

- On ACX7100-48L devices, the G.8275.1- G.8273.2 1PPS cTE performance test might be marginally outside class-C for PTP BC, especially for the mixed speed port testing with combinations of 10G or 25G channelized ports and 100G ports. On each reboot, the 1PPS cTE measurement might be within the class-C measurement threshold or randomly be out of threshold by a few nanoseconds. PR1607381

- On ACX7100-48 and ACX7024 devices, enabling or disabling of PTP TC or BC causes all interfaces to flap one time. PR1609927

- PTP performance might randomly get wrose for around 30 minutes. The IDT DPLL firmware must be updated to version 4.8.15 to solve the issue. PR1614309

- On ACX7509 devices, after multiple FPC online/offline, FPCs goes in to the `Fault` state. PR1616227

- On ACX7100-32C devices, the G.8275.1- G.8273.2 1PPS cTE performance test might be outside class-C when using channelized 10G ports for PTP BC . On each reboot, the 1PPS cTE measurement might be within the class-C measurement threshold or randomly be out of it by a few nanoseconds. PR1629819

- On ACX7509 devices, during ungraceful removal of FEB, the RCB crash or vmcore might occur. RCB comes back up after reboot. PR1636780

Interfaces and Chassis

- Due to software design limitation, support is available for only 64 member links in one aggregated Ethernet interface. From ASIC, there is no limitation. PR1627951

Routing Protocols

- On ACX7509 routers, IS-IS, LPD, and BFD protocols flaps during graceful switchover while testing ldp oam. PR1638882

User Interface and Configuration

- On ACX7100-32C routers, traffic does not flow after deleting or adding the VLAN configuration with load override. PR1647853

Resolved Issues: 22.1R1

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- General Routing | **20**
- Infrastructure | **21**
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General Routing

- Filter with forwarding-class and destination-class combined might not work. PR1595788

- Traffic loss might occur when you restart the evo-pfemand process. PR1608004

- On ACX7100-32C and ACX7100-48L, the `show system firmware` command sometimes might display the value of the `show Current Firmware version` output for FPC 0 as blank. PR1618949

- You must use the Linux command to remove the PCIe device that causes connection to become non-responsive. PR1619368

- When the fan tray X fails, an alarm gets created and the cleared while rebooting. PR1633353

- On ACX7509 routers, the picd process generates core file when you restart FPC with 700,000 scaled MAC. PR1602352

- On ACX7509 devices, the picd process generates core file (0x00007f3d44b115da) when you restart FPC with 32,000 ECMP groups scale. PR1609389

Infrastructure

- In certain circumstances, the journalctl process might be flooded with the `No TTP_TLV_VRF` message in the log. PR1610313

- The `lookups` command might not work. PR1608401

User Interface and Configuration

- The core files can not be deleted using the `file delete /var/core/*/vmcore` command. PR1624562

Junos OS Evolved Release Notes for PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX10016 Devices

IN THIS SECTION

These release notes accompany Junos OS Evolved Release 22.1R1 for PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX10016 Packet Transport Routers. They describe new and changed features, limitations, and known and resolved problems in the hardware and software.

What's New

IN THIS SECTION

Learn about new features introduced in this release for PTX Series routers.

What's New in 22.1R1

IN THIS SECTION

To view features supported on the PTX platforms, view the Feature Explorer using the following links. To see which features were added in Junos OS Evolved Release 22.1R1, click the Group by Release link. You can collapse and expand the list as needed.

- PTX10001-36MR

- PTX10003

- PTX10004

- PTX10008

- PTX10016

The following sections highlight the key features in this release.

Authentication and Access Control

- **Support for Keychain Mechanism for BGP and LDP Routing Protocols (PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, the PTX Series routers support non-stop routing (NSR) for TCP keychain authenticated sessions with faster initial keychain scale commit and subsequent keychain config changes.This allows for a smooth transition during switchover from backup routing engine (RE).

  [See Authentication for Routing Protocols.]

EVPN

- **EVPN-MPLS support (PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, full support for EVPN-MPLS is now available on PTX 10016.
  [See EVPN-MPLS Overview.]

- **Flood policer support for EVPN VXLAN (PTX10001-36MR, PTX10004, PTX10008, and PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, you can configure flood policers on supported PTX devices to prevent broadcast, unknown unicast, and multicast (BUM) traffic from flooding the network.

  [See Configuring Policers to Control Traffic Rates.]

High Availability

- **Support for runtime fabric OAM (PTX10004, PTX10008, and PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, the runtime fabric Operation, Administration, and Maintenance (OAM) periodically checks fabric connectivity and helps detect and report failures in fabric planes during system runtime.

  [See Error Handling by Fabric OAM.]

Interfaces

- **Support for 400G ZR-M DWDM optics (PTX10001-36MR)—**

  Starting in Junos OS Evolved Release 22.1R1, we support 400G ZR-M DWDM optics. 400G ZR-M is a new variant optics that functions similar to the existing 400G ZR. 400G ZR-M enables flat architecture, simple, and Point to Point (PtP) DWDM system. We support the following features as part of 400G ZR-M:

  - Support for 6.25, 75, 100 grid spacing.

  - Support for optical loopbacks. To enable optics loopback, use the existing `loopback` statement at the `[edit interfaces optics-options]` hierarchy level.

  - Support for performance monitoring and TCA. TCAs provide the management system an early indication of the deteriorating health of an optical network connection when the performance parameter that you monitor crosses a certain threshold. You can view the current and historical performance monitoring metrics which are accumulated into 15-minute and 1-day interval bins by using the show interfaces transport pm command. You can thus manage optical transport link efficiently.

  [See optics-options, show chassis hardware, show interfaces, show interfaces diagnostics optics, show chassis pic, and show interfaces transport pm .]

Junos Telemetry Interface

- **Consolidated (atomic) statistics delivery for next-hop groups and conditional next-hop groups in JTI (PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, Junos telemetry interface (JTI) supports consolidated (atomic) data. Statistics for next-hop groups and conditional next-hop groups will be delivered in a single "atomic" protocol data unit (PDU) instead of across multiple PDUs.

  [See Telemetry Sensor Explorer and gRPC Services for Junos Telemetry Interface.]

- **Enhanced chassis statistics for JTI (PTX10001-36MR, PTX10003, PTX10004, and PTX10008)**—Starting in Junos OS Evolved Release 22.1R1, JTI supports streaming and ON_CHANGE platform statistics per OpenConfig module openconfig-platform.yang version 0.12.1. Use Juniper proprietary

remote procedure call (gRPC) and gRPC Network Management Interface (gNMI) to export statistics to an outside collector.

[See Telemetry Sensor Explorer.]

- **INITIAL_SYNC support for optics and transceiver telemetry statistics (PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, JTI supports INITiAL_SYNC for leaf nodes under resource paths **/junos/system/linecard/optics/** and **/components/component/transceivers/**.

  [See Telemetry Sensor Explorer and Guidelines for gRPC and gNMI Sensors (Junos Telemetry Interface).]

- **MACsec statistics (PTX10008)**—Starting in Junos OS Evolved Release 22.1R1, JTI provides ON_CHANGE and periodic streaming of Media Access Control Security (MACsec) statistics by means of Juniper proprietary gRPC and gNMI from a device to an outside collector. This feature supports the data model openconfig-macsec.yang. Additional leaves outside the scope of the data model are augmented.

  To stream MACsec statistics, include the resource path **/macsec/** in a subscription.

  [See Telemetry Sensor Explorer.]

- **Packet Forwarding Engine pipeline sensors (PTX10001-36MR, PTX10008, and PTX10016)**—Junos OS Evolved Release 22.1R1 introduces support for pipeline sensors with JTI. The pipeline sensors provide telemetry device monitoring by delivering NPU and ASIC counters from a device to an outside collector. The four packet and drop counter categories are interface, lookup, queueing, and host interface. Subscribe to the resource path **/components/component/integrated-circuit/pipeline-counters** to export all pipeline counters, or use **/components/component/integrated-circuit/pipeline-counters/packet/** or **/components/component/integrated-circuit/pipeline-counters/drop/** to provide packet-only or drop-only counters.

  The pipeline sensors support both zero-suppression and initial sync. The zero-suppression feature streams only non-zero values. The initial sync (init-sync) feature streams all values once after the initial subscription. This one-time-only bucket of values includes zero values even if zero-suppression is enabled.

  You can use native (UDP) and Juniper proprietary gRPC and gNMI to stream counters.

  [See Telemetry Sensor Explorer and sensor (Junos Telemetry Interface).]

- **System, CPU, and memory statistics (ACX7100-32C, PTX10001-36MR, PTX10003, PTX10004, PTX10008 and PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, JTI provides periodic streaming of system statistics, CPU statistics, and memory-related parameters. Statistics support the health-monitoring application. This feature supports the data model openconfig-system.yang version 0.10.0. It is supported using Juniper proprietary gRPC and gNMI supported.

[See Telemetry Sensor Explorer.]

Licensing

- **Juniper Agile Licensing (PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX10016)**—
  Starting in Junos OS Evolved Release 22.1R1, the VRF (VXLAN) and VRF (MPLS) scale licensing are
  soft enforced. This enhancement add additional enforcement on VRF scale license already in-place.

  Juniper Agile Licensing provides simplified and centralized license administration and deployment.
  You can use Juniper Agile Licensing to install and manage licenses for software features.

  The VRF (VXLAN) and VRF (MPLS) features are soft enforced. With soft enforcement, if you
  configure a feature without a license, Junos OS displays a warning when you commit the
  configuration. However, the feature is operational. You must revoke and re-activate the entitlements
  to create a new license key to use the new VRF (VXLAN) and VRF (MPLS) scale features in Junos OS
  Release 22.1 to Junos OS Release 22.4.

  In addition, Junos os generated periodic alarms indicating that you need the license to use the
  feature. You can see the list of alarms at System Log Explorer.

  [See Flex Software License for PTX Series Routers and Juniper Agile Licensing Guide.]

MPLS

- **RSVP signaling over IS-IS nonforwarding adjacency (PTX10008)**—Starting in Junos OS Evolved
  Release 22.1R1, you can configure any Level 1-Level 2 (L1-L2) routers that have been configured as a
  flood-reflector client to expand the flood-reflector hops in the Explicit Route Objects (EROs) carried
  in the `Path` messages. This feature enables the L1-L2 routers to signal RSVP over IS-IS nonforwarding
  adjacency by expanding the flood-reflector hops in the EROs instead of propagating the `Path`
  messages over the UDP tunnels.

  To know how to configure the flood-reflector interfaces, see How to Configure Flood-Reflector
  Interfaces in IS-IS Networks.

  To expand the flood-reflector hops in EROs, use the `rsvp expand-flood-reflector-hop` configuration
  statement at the `[edit protocols]` hierarchy level.

  Using the `traceoptions (Protocols RSVP)` command with the `flag event` option, you can view the new
  trace messages in the file that is created.

  The `show ted database` and `show rsvp session` command outputs introduce the following additional
  information:

Command	New Output Field	Description
`show ted database`	`Flood reflector client, cluster-id` `<number>`	Displays flood-reflector related information on the TE links and the cluster ID that the you have connected at the client side.
	`Flood reflector, cluster-id` `<number>`	Displays flood-reflector related information on the TE links and the cluster ID that you have connected in the flood reflector.
`show rsvp session`	`Explct hop <ip-address> expanded`	Displays the specific hop in the EROs that has been expanded by the router.

[See How to Configure Flood-Reflector Interfaces in IS-IS Networks, show ted database, show rsvp session, and traceoptions (Protocols RSVP).]

- MPLS TTL propagation flexibility for LDP-signaled LSPs (PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016)—Starting in Junos OS Evolved Release 22.1R1, we support disabling time-to-live (TTL) propagation at a more granular level. You can disable it specifically for LDP-signaled label-switched paths (LSPs). When a route is very long, disable TTL propagation to ensure the TTL doesn't expire while the packet is traversing the path. This feature also gives you more flexibility in hiding your network topology.

  To disable TTL propagation for LDP-signaled LSPs, use the no-propagate-ttl statement at the [edit protocol ldp] hierarchy.

  Note: If the TTL value of the top label is less than the TTL value of the bottom label at an egress node, Junos OS copies the TTL value from the top label to the bottom label. In this case, the TTL value can still propagate down even when no-propagate-ttl is configured.

  [See no-propagate-ttl.]

- **Supports MD5 authentication algorithm for subnet level configuration (ACX Series, PTX Series, and QFX Series)**—Starting from Junos OS Evolved 22.1R1 Release, MD5 authentication algorithm for subnet level key configuration is supported for all Junos OS Evolved platforms. Whereas, aes-128-cmac-96 and hmac-sha-1-96 algorithms are not supported for subnet level key configuration in Junos OS Evolved Releases.

  [See session-group and Configuring the TCP MD5 Signature for LDP Sessions.]

OpenConfig

- **OpenConfig interface configuration support (PTX10008 and PTX10016)**—Junos OS Evolved Release 22.1R1 introduces interface OpenConfig configuration support based on OpenConfig data model openconfig-interfaces.yang.

  [See Mapping OpenConfig Interface Commands to Junos Configuration.]

- **OpenConfig MACsec configuration support (PTX10008 and PTX10016)**—Junos OS Evolved Release 22.1R1 introduces Media Access Control Security (MACsec) OpenConfig configuration support. Port-level configuration is supported.

  [See OpenConfig User Guide.]

- **OpenConfig port mirroring configuration support (PTX10001-36MR,PTX10004, PTX10008, and PTX10016)**—Junos OS Evolved Release 22.1R1 introduces local and remote port mirroring OpenConfig configuration support.

  [See OpenConfig User Guide.]

- **OpenConfig QoS configuration support (PTX10001-36MR,PTX10003, PTX10004, PTX10008, and PTX10016)**—Junos OS Evolved Release 22.1R1 introduces quality of service (QoS) OpenConfig configuration support for forwarding classes, classifiers and rewrites, classifiers and rewrite bindings, schedulers, drop profiles, and scheduler maps.

  [See OpenConfig User Guide.]

- **P4 runtime support for packet I/O (PTX10008 and PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, you can configure a P4 runtime agent to support packet I/O. The router supports delivery of redirected packets to the controller, and packets injected by the controller are also sent out from the designated egress interface. The P4 runtime agent runs as a Junos OS Evolved application called p4-switch on the Routing Engine and implements a P4 runtime service over a gRPC channel. The P4 runtime agent registers with the Juniper Extension Toolkit (JET) services daemon (jsd) and opens the gRPC connections by using JSD to listen for P4 requests from clients.

  You configure the JSD port with the command `set services extension-service request-response grpc clear-text port `*`port-number`*` max-connections `*`number`*`. You use OpenConfig to configure that port as a p4rt port. Finally, you configure firewall filters to match packets requiring a redirect action—that firewall filter configuration is described in "Support for SDN-based network interconnects" on page 0 .

  [See OpenConfig User Guide.]

Routing Policy and Firewall Filters

- **Support for firewall filters on discard interfaces (PTX10001-36MR, PTX10004, PTX10008, PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, you can apply firewall filters on a discard

interface. The action specified by the filter (log or count) is executed before the traffic is discarded. Firewall filters are supported only for IPv4 and IPv6 traffic in the egress direction of the interface.

[See Configuring Firewall Filters.]

- **Support for SDN-based network interconnects (PTX10004, PTX10008, PTX10016)**—Starting in Junos OS Evolved Release 22.1R1, you can configure certain PTX device interfaces to pass traffic towards an SDN controller. You do this using firewall filters to match and redirect packets defined at the **[edit services inline-monitoring instance *name* controller]** hierarchy level. Supported match criteria includes IPv4, IPv6, and family **any** (destination), VLAN ID, and certain traceroute redirect packets.

[See Controller.]

Routing Protocols

- **OSPF link delay measurement and advertising (PTX10001-36MR, PTX10004, and PTX10008)**—Starting in Junos OS Evolved Release 22.1R1, you can measure and advertise various performance metrics in IP networks with scalability through probe messages that are sent by Two-Way Active Measurement Protocol (TWAMP) Light. OSPF receives probe messages and the measured values from TWAMP Light. OSPF advertises these messages as TLVs in packets. You can use these metrics to make path-selection decisions based on the network performance.

[See How to Enable Link Delay Measurement and Advertising in OSPF.]

- **Support for DDoS IS-IS Classification and Higher DDoS Bandwidth for Layer 2 and Layer 3 protocols (PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX100016)**—Starting in Junos OS EVO Release 22.1R1, Junos OS EVO classifies IS-IS hello packets and IS-IS data packets separately and provides support for higher DDoS bandwidth for Layer 2 and Layer 3 protocols.

[See show ddos-protection protocols isis and protocols (DDoS) (ACX Series, PTX Series, and QFX Series).]

- **BMP with BGP Sharding and Update IO (PTX10004, PTX10008, and PTX10016)**— Starting in Junos OS Evolved Release 22.1R1, we support AdjOutRIBs (pre and post policy tables) through BGP Monitoring Protocol (BMP).

[See BGP Monitoring Protocol.]

Source Packet Routing in Networking (SPRING) or Segment Routing

- **Avoid microloops in OSPFv2 segment routing networks (PTX10001-36MR, PTX10004, and PTX10008)** —Starting in Junos OS Evolved Release 22.1R1, you can enable post-convergence path calculation on a device to avoid microloops if a link or metric changes in an OSPFv2 segment routing network. Note that microloop avoidance is not a replacement for local repair mechanisms such as

topology-independent loop-free alternate (TI-LFA), which detects local failure very fast and activates a precomputed loop-free alternative path.

To configure microloop avoidance in an OSPFv2 segment routing network, include the `maximum-labels` and `delay` *milliseconds* statements at the `[edit protocols ospf spf-options microloop avoidance post-convergence-path]` hierarchy level.

[See How to Configure Microloop Avoidance for OSPFv2 SR Networks.]

Software Installation and Upgrade

- **Base operating system upgrade (ACX Series, PTX Series, and QFX Series)**—Starting in Junos OS Evolved Release 22.1R1, Junos OS Evolved uses the Wind River Linux LTS 19 base operating system. This upgrade provides improved security and better performance. Prior to this release, Junos OS Evolved used the Wind River Linux 9 base operating system.

- **OpenSSL version upgrade (ACX Series, PTX Series, and QFX Series)**—Starting in Junos OS Evolved 22.1R1, we've upgraded the OpenSSL version 1.1.1 to OpenSSL version 3.0.0 with Transport Layer Security (TLS) version 1.3 protocols. The upgraded OpenSSL version 3.0.0 with TLS protocol version 1.3 provides improved security and better performance.

Additional Features

- **Check for AS matches in BGP policy AS paths without regular expressions** (PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, and QFX5200)

  [See Improve the Performance of AS Path Lookup in BGP Policy.]

- **Configure the ephemeral database using the NETCONF and Junos XML protocols** (ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, and QFX5220)

  [See Understanding the Ephemeral Configuration Database.]

- **DHCP stateless relay over EVPN-VXLAN** (PTX10001-36MR, PTX10004, PTX10008, PTX10016)

  Support for DHCP relay includes DHCPv4 and DHCPv6.

  [See DHCP Relay Agent over EVPN-VXLAN.]

- **Extend the configuration database size (PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016)**—You can now increase the configuration database size up to 1305.99 MB. Use the `extend-size` configuration statement at the `[edit system configuration-database]` hierarchy level to extend the database size.

  [See configuration-database.]

- **Hybrid Mode (Synchronous Ethernet and PTP) over LAG with PTP over Ethernet** (PTX10008 with LC1201-36CD)

  [See Hybrid Mode.]

- **Multicast support for Next-Generation MVPN** (PTX10001-36MR, PTX10004, PTX10008, and PTX10016)

  Support includes:

  - IR, RSVP-P2MP, and LDP-P2MP provider tunnel

  - Inclusive and Selective PMSI tunnel.

  [See Multiprotocol BGP MVPNs Overview and Understanding Next-Generation MVPN Concepts and Terminology.]

- **PCEP session over IPv6** (ACX7100-32C, ACX7100-48L, PTX10001-36MR, PTX10003, PTX10004, PTX10008, and PTX10016)

  [See destination-ipv6-address and local-ipv6-address.]

- **Per-PFE Restart Support** (PTX10003)

  Support for disable, offline and restart of individual PFEs with error log and action, using `request chassis pfe` and `set chassis fpc`commands.

  [See No Link Title and No Link Title.]

- **SNMP support for interface-attached policers** (PTX10001-36MR, PTX10003, PTX10004, and PTX10008)

  [See Enterprise-Specific MIBs for Junos OS Evolved.]

- **Support for configuring GRE tunnel encapsulation on FTIs** (PTX10003)—You can configure encapsulation by using the `tunnel encapsulation gre source` *address* `destination` *address* command at the `edit interfaces fti unit` *unit* hierarchy level.

  Keep the following in mind when configuring this feature:

  - Adding `tunnel-termination` makes the tunnel a de-encapsulation-only tunnel, and encapsulation is disabled.

  - Specifying both the source and destination address is mandatory when you do not configure the `tunnel-termination`.

  - Configuring a variable prefix mask on the source address is not allowed.

  [See encapsulation.]

- **Support for configuring UDP tunnel encapsulation on FTIs** (PTX10003)—You can configure encapsulation by using the `tunnel encapsulation udp source` *address* `destination` *address* command at the `edit interfaces fti unit` *unit* hierarchy level.

  Keep the following in mind when configuring this feature:

  - Adding `tunnel-termination` makes the tunnel a de-encapsulation-only tunnel, and encapsulation is disabled.

  - Specifying both the source and destination address is mandatory when you do not configure the `tunnel-termination`.

  - Configuring a variable prefix mask on the source address is not allowed.

  [See encapsulation.]

- **Support for FTI-based encapsulation and decapsulation of IPv4 and IPv6 packets** (PTX10003)—You can configure IP-IP encapsulation and decapsulation on a flexible tunnel interface. The default mode is loopback encap mode.

  Use `bypass-loopback` statement at the `[edit interfaces fti number unit logical-unit-number tunnel encapsulation ipip]` hierarchy level to change into flattened encap mode to achieve line rate performance.

  [See encapsulation.]

- **Support for G.8275.1 Telecom profile** (PTX10008 with PTX10K-LC1202-36MR line card)

  [See G.8275.1 Telecom Profile.]

- **Support for IEEE 802.1ag and ITU-T Y.1731 standard for Ethernet service OAM on PTX10001-36MR**

  [See Introduction to OAM Connectivity Fault Management (CFM).]

- **Synchronous Ethernet over LAG with ESMC** (PTX10008 with PTX10K-LC1201-36CD line card)

  [See Synchronous Ethernet and Ethernet Synchronization Message Channel (ESMC).]

- **Synchronous Ethernet with ESMC support** (PTX10001-36MR)

  [See Synchronous Ethernet Overview and Ethernet Synchronization Message Channel (ESMC).]

What's Changed

Learn about what changed in these releases for PTX Series routers.

What's Changed in Release 22.1R1-S2

Learn about what changed in this release for PTX Series routers.

Class of Service (CoS)

- For PTX Series devices running Junos OS Evolved, software priority "medium-low" maps to hardware priority "medium" for normal scheduling mode and "low" for strict priority scheduling mode.

Network Management and Monitoring

- sFlow configuration is allowed only on et, xe, and ge interfaces in Junos OS Evolved based platforms. All other interfaces are blocked for configuring sFlow on Junos OS Evolved platforms. A cli error is thrown if sFlow is configured on any other interface other than et, xe or ge interface.

What's Changed in Release 22.1R1

General Routing

- **Enhancement to snmp mib command behavior (PTX10008)**—Starting in Junos OS Evolved, when you execute show snmp mib walk decimal command, the output parameter jnxRedundancySwitchoverReason is not working as expected, which always show the value 0 instead of expected values. Now, jnxRedundancySwitchoverReason output parameter is corrected to expected behavior with the following expected values.

```
jnxRedundancySwitchoverReason OBJECT-TYPE
SYNTAX INTEGER {
other(1), -- others
neverSwitched(2), -- never switched
userSwitched(3), -- user-initiated switchover
autoSwitched(4) -- automatic switchover
}
```

[See show snmp mib.]

- **JNP10K-PWR-DC2 power supply does not support 5500 W or 2750 W if the power supply temperature increases above 60 degrees Celsius (PTX10008 and PTX10016)**—If the power supply temperature increases above 60 degrees Celsius, the maximum power capacity of JNP10K-PWR-DC2 power supply installed in PTX10008 or PTX10016 routers reduces from 5500 W to 5000 W if four feeds are connected and from 2750 W to 2500 W if two feeds are connected. If there is no redundant power supply installed in the router, the router would shut down.

- Stateful port configuration for PTP over Ethernet and default profile is supported only on boundary clock mode and not on ordinary clock mode.

Interfaces and Chassis

- **Display the donor details of the IPv6 borrower interface**—The output for the `show interfaces` command now displays the donor details of the IPv6 borrower interface.

  [See show interfaces].

Junos OS API and Scripting

- **Deprecated functions in the `libpyvrf` Python module (ACX Series, PTX Series, and QFX Series)**—The `libpyvrf`Python module no longer supports the `get_task_vrf()` and `set_task_vrf()` functions.

  [See How to Specify the Routing Instance in Python 3 Applications on Devices Running Junos OS Evolved.]

MPLS

- When defining a constrained path LSP using more than one strict hop belonging to the egress node, the first strict hop must be set to match the IP address assigned to the egress node on the interface that receives the RSVP Path message. If the incoming RSVP Path message arrives on an interface with a different IP address the LSP is rejected.

Network Management and Monitoring

- **Chef and Puppet support removed (PTX Series and QFX Series)**—Starting in Junos OS Evolved Release 22.1R1, Junos OS Evolved does not support using Chef or Puppet to configure devices.

- **Junos XML protocol Perl modules deprecated (ACX Series, PTX Series, and QFX Series)**—We no longer provide the Junos XML protocol Perl client for download. To use Perl to manage Junos devices, use the NETCONF Perl library instead.

  [See Understanding the NETCONF Perl Client and Sample Scripts.]

- **Limits increased for the `max-datasize` statement (ACX Series, PTX Series, and QFX Series)**—The `max-datasize` statement's minimum configurable value is increased from 23,068,672 bytes (22 MB) to 268,435,456 bytes (256 MB), and the maximum configurable value is increased from 1,073,741,824 (1 GB) to 2,147,483,648 (2 GB) for all script types. Furthermore, if you do not configure the `max-datasize` statement for a given script type, the default maximum memory allocated to the data segment portion of a script is increased to 1024 MB. Higher limits ensure that the device allocates a sufficient amount of memory to run the affected scripts.

[See max-datasize.]

Routing Protocols

- When the krt-nexthop-ack statement is configured, the RPD will wait for the next hop to get acknowledged by PFE before using it for a route. Currently, only BGP-labeled routes and RSVP routes support this statement. All other routes will ignore this statement.

- The RPD_OSPF_LDP_SYNC message not logged?On all Junos OS and Junos OS Evolved devices, when an LDP session goes down there is a loss of synchronization between LDP and OSPF. After the loss of synchronization, when an interface has been in the holddown state for more than three minutes, the system log message with a warning level is sent. This message appears in both the messages file and the trace file. However, the system log message does not get logged if you explicitly configure the `hold-time` for `ldp-synchronization` at the **edit protocols ospf area area id interface interface name** hierarchy level less than three minutes. The message is printed after three minutes.

- To achieve consistency among resource paths, the resource path /mpls/signalling-protocols/segment-routing/aggregate-sid-counters/aggregate-sid-counter ip-addr='address'/state/countersname='name'/out-pkts/ is changed to /mpls/signaling-protocols/segment-routing/aggregate-sid-counters/aggregate-sid-counterip-addr='address'/state/counters name='name'/. The leaf "out-pkts" is removed from the end of the path, and "signalling" is changed to "signaling" (with one "l").

User Interface and Configuration

- **Load JSON configuration data with unordered list entries (ACX Series, PTX Series, and QFX Series)**—The Junos schema requires that list keys precede any other siblings within a list entry and appear in the order specified by the schema. Junos devices provide two options to load JSON configuration data that contains unordered list entries:

  - Use the `request system convert-json-configuration` operational mode command to produce JSON configuration data with ordered list entries before loading the data on the device.

  - Configure the `reorder-list-keys` statement at the `[edit system configuration input format json]` hierarchy level. After you configure the statement, you can load JSON configuration data with unordered list entries, and the device reorders the list keys as required by the Junos schema during the load operation.

  When you configure the `reorder-list-keys` statement, the load operation can take significantly longer to parse the configuration, depending on the size of the configuration and number of lists. Therefore, for large configurations or configurations with many lists, we recommend using the `request system convert-json-configuration` command instead of the `reorder-list-keys` statement.

  [See json and request system convert-json-configuration.]

- A new field `rollback pending` is added to the output of `show system commit` that identifies whether `commit confirmed` is issued. It is removed once `commit` or `commit check` is issued or `commit confirmed` is rolled back after rollback timeout.

- When you configure `max-cli-sessions` at the `[edit system]` hierarchy level, it restricts the maximum number of cli sessions that can coexist at any time. Once the `max-cli-sessions` number is reached, new CLI access is denied. The users who are configured to get the CLI upon login, are also denied new login.

VPNs

- **Changes to `show mvpn c-multicast` and `show mvpn instance` outputs**—The FwdNh output field displays the multicast tunnel (mt) interface in the case of Protocol Independent Multicast (PIM) tunnels.

    [See show mvpn c-multicast.]

Known Limitations

IN THIS SECTION

Learn about known limitations in Junos OS Evolved Release 22.1R1 for PTX Series routers.

For the most complete and latest information about known Junos OS Evolved defects, use the Juniper Networks online Junos Problem Report Search application.

General Routing

- If we offline multiple SIBs and halt the primary Routing Engine, the SIBs can be stuck in the offline state for 15 minutes, before it goes to offline state. PR1584712

- PTX10001-36MR PTP TC over IPv6 feature does not meet T1/T4 error for 4x25G mode when connected between two retimer ports (retimer-----retimer) that is, port 4 to port 7 in each PIC. PR1609110

- PTX10008: On a 10g port, CoS output queue schedulers transmit-rate when applied with shapers (rate-limit, exact) over an output queue, drops slightly more traffic than the configured shaping rate. PR1620538

- Powering up and configuring data path of 400G-ZR and 400G-ZR-M optics is not instant and takes more time comparatively with other optics. You must wait before switching to a new speed configuration. PR1635443

Network Management and Monitoring

- Junos OS Evolved has a feature to block or deny all hidden commands. To obtain this feature, configure the `set system no-hidden-commands` command. However, when you configure the command and commit, Junos OS blocks or denies the new netconf or junoscript XML sessions. As a workaround, delete the `system no-hidden-commands` configuration statement and start the new netconf/junoscript sessions. PR1590350

- When you edit an ephemeral instance and if the `show ephemeral-configuration merge` command runs from another terminal, then the uncommitted changes in the ephemeral instance being edited appears in the output of the `show ephemeral-configuration merge` command. PR1629013

Open Issues

IN THIS SECTION

Learn about open issues in Junos OS Evolved Release 22.1R1 for PTX Series routers.

For the most complete and latest information about known Junos OS Evolved defects, use the Juniper Networks online Junos Problem Report Search application.

Class of Service (CoS)

- Protocol-specific rewrite rules are not yet supported in Junos OS Evolved based products. PR1632134

General Routing

- During boot up PTP FPGA link resets which toggles the link, Hence the message **Error: severity=Uncorrected (Fatal), type=Transaction Layer** is observed in the console. PR1572061

- Removal or addition of the nested firewall filter in lo0 sets or clear, displays the following error message:

```
Performing action log for error /fpc/0/evo-cda-bt/0/cm/0/btchip/0/
filter_action_0_intr_pmv_eq_zero (0x4514e4) in module: btchip with scope: pfe category:
functional level: minor
```

PR1589296

- Sflow ingress sampling reports incorrect OIF and NH with MPLS traffic (MPLS-IPV4/MPLS-IPV6 with ECMP and Ultimate Hop Pop(UHP)) on the egress node. PR1602448

- When the multicast traffic is sent from the Juniper Networks Session and Resource Control (SRC) to the receivers with egress sampling enabled then Jflow records report incorrect source IP and destination IP. PR1609008

- 10,000 term interface-specific-filter (with or without the `fast-lookup filter` statement) with a set of add or delete interface-specific-filter events leads to the evo-aftmand process generating a core file. This is not an FFT crash as the filter is programed in FLT (hence a baseline issue). PR1610506

- The memory usage of the rpd process on the backup Routing Engine might increase indefinitely due to leak in krt_as_path_t. PR1614763

- This is for 400G or 4x100G interfaces using 400G-ZR optics. After the data path of the optics is powered up and Tx laser enabled, sometimes the actual transmitting power might appear very low. Inside 400G-ZR software driver, a check-and-recovery mechanism has been implemented. If the actual Tx power appears very low after powered-up and Tx laser enabled, a data path powering-

down and re-init sequence is exercised. The Tx power level recovers back to normal. The user-visible side effect is that, if such a hardware bug is hit, the actual link up time is longer than expected. Because the workaround is built in the software, no further user-intervention is needed. PR1616445

- Traffic loss occurs on the BGP-LU paths after restoring primary paths in setup with IGP or LDP RLFA enabled. PR1619229

- On all Junos OS Evolved platforms with NSR turned on, the cosd (Class-of-Service process) might generate a core file after multiple Routing Engine switchovers. PR1620758

- Layer 3 VPN (L3VPN) license warning message is generated with `commit check`, even though L3VPN license is installed. `commit` completes without errors.

    PR1624592

- On PTX10008 routers, license installation succeeds with the `request system license add terminal` command but installing the same license fails with the `validation hook evaluation failed` error message while performing commit. PR1628733

- In some reload scenarios the `config-sync` service might fail due to xinetd limiting the SSH service, leading to the alarm status `Major Application config-sync fail on node Re1`. This might cause configuration difference between the primary and backup Routing Engines. As a workaround, restart the service from CLI using the `restart config-sync` command. PR1629952

- In a working and non-working logs, l2d index is different for vrrp group number 187. This is the same group for which the packet gets dropped out of 400 groups, other groups are working as expected. So there is some fix which goes between working and NKWR related to l2dId which exposed the VRRP issue. Both VRRP MAC and interface MAC get stored in SLU my_mac_hash table. For finding hash index for vrrp mac we use l2dId, protocol type and vrrp group number as a key. In a non-working scenario there is a collision between interface mac and vrrp mac on same hash index. Ideally hash movement should happen to address collision but somehow it is not properly done. PR1633986

- System reboot or boot up with traffic might result in init time fabric link crc errors and small percentage of traffic drops. PR1635178

- The issue is 400G-ZR/400G-ZR-M optic transceiver firmware upgrade failure. It is a generic issue faced across all single RU platforms supporting QDD-400G-ZR/QDD-400G-ZR-M.PR1638284

- NPU utilization properties and backpressure sensors are included to indicate the FLT utilization for the ZX and BT based PTX Series devices. The CLI used is `show npu utilization stats filter pfe <>`

    PR1638487

- When there is a transient drop in syncE clock quality, the line card incurs a variation in time error for a few additional seconds. Time error recovers to the expected value when syncE clock quality gets restored. PR1640332

- On Junos OS Evolved PTX Series platforms, next-header match in IPv6 firewall filter does not work as expected. Next-header matches the payload-protocol (last-header) on Junos OS Evolved PTX Series platform. PR1645401

- PTX10003: Unsupported bit-op-type message seen for tcp flag match **(syn & ack) & !(syn & ack & rst)**. PR1649253

- PTX10003: Firewall counters might not increment upto 4 minutes, on adding new term to the existing filter using multiple commits. PR1649324

- On PTX10008, SyncE clock `hold-off-time` configuration does not work due to incorrectly computed timer value. Only default hold-off 1000 ms works correctly. PR1649358

- When a fully loaded PTX10016 setup with line rate traffic is rebooted, sometimes few interfaces might experience traffic loss (reduced throughput). PR1649979

- Classifcation override configuration statement does not work for queue 0 to 3 for both IPv4 and IPv6 release.

  ```
  set class-of-service forwarding-policy class to_bronze classification-override forwarding-class bronze

  set class-of-service forwarding-policy class to_platinum_v6 classification-override forwarding-class
  platinum
  ```
  PR1650622

- DCF8: PTX10008: EVPN-VXLAN intra-VLAN known unicast traffic flooded due to MAC installation failure on Packet Forwarding Engine. PR1652876

- Multiple rewrite rules aggregated Ethernet: `mpls-any` and `mpls-inet-both-non-vpn` are not supported on PTX running BT ASIC. The order of applying the rewrite rules is not correct. The non-VPN rewrite rule gets into effect for the VPN traffic - See Rewriting MPLS and IPv4 Packet Headers.] PR1655653

Infrastructure

- On all Junos OS Evolved platforms, near-end port is not within RFC/IANA standards as the ephemeral or dynamic port range has been modified. PR1602717

Juniper Extension Toolkit (JET)

- On all Junos OS Evolved platforms, there are two different gRPC Python files for each JAPI file. The names of the files are `*pb2_grpc.py` and `*pb2.py`. The stub creation functions are present in the `*pb2_grpc.py` file. PR1580789

Network Management and Monitoring

- The mgd process might crash when you configure an invalid value for identityref type leafs or leaf-lists while configuring Openconfig or any other third-party YANG. The issue occurs with JSON and XML loads. PR1615773

Routing Policy and Firewall Filters

- On all Junos OS Evolved platforms, the unsupported configuration of BGP flow spec `interface-group exclude` might lead to some errors and Packet Forwarding Engine corruption, which does not permit filter bind. PR1639391

User Interface and Configuration

- GrpcBundle anomalies in EDO are caused by addition and deletion of Grpc related configuration. These anomalies do not cause any functional issue. PR1619974

- The issue with patch creation is when we unprotect the configuration of type `setof`. During `commit synchronize` MGD creates the patch for backup Routing Engine and commit fails because of the wrong patch. PR1636385

- For an OpenConfig interface, if you configure a matching interface-range, then the deletion of that OpenConfig interface does not take effect. As a workaround, do not use the interface-range configuration for OpenConfig interfaces. PR1637381

- If after any configuration commit an anomaly occurs for configd in the output of the `show platform object-info anomalies app configd` command, the APP configd does not release the shared pointer after deleting the published object. This has no functional impact and the anomaly can be cleared by restarting the application. PR1643192

Resolved Issues

Learn about the issues fixed in this release for PTX Series routers.

For the most complete and latest information about known Junos OS Evolved defects, use the Juniper Networks online Junos Problem Report Search application.

Resolved Issues: 22.1R1

Class of Service (CoS)

- MPLS fixed classifiers might not work. PR1616492

Flow-based and Packet-based Processing

- The msvcsd process might crash when you enable the `nexthop-learning` statement with the JFlow service. PR1620569

- Unable to execute **/usr/sbin/picinfo:** due to bad file descriptor while issuing the `clear services inline-monitoring statistics` command. PR1624094

General Routing

- The lacpd application time out message appears when you add the deleted lacpd application back. PR1555106

- On PTX10008 routers, CB 1 goes in to the `Fault Standby` state after issuing the `request node power-off re1` command. PR1581476

- In Junos OS Evolved platforms, `show interfaces` with regex might yield incomplete output or cause ifstatsd to generate a core file. PR1584847

- Multicast traffic drop might be observed after the Routing Engine switchovers or rpd restarts. PR1593810

- Filter with forwarding-class and destination-class combined might not work. PR1595788

- When you configure multicast on the device, traffic might be silently discarded and the interface flaps, or FPC restarts. PR1600642

- MVRP enabled trunk ports might go in to the `Blocked` or `Designated` state on the PTX Junos OS Evolved platforms. PR1601915

- The `show system errors fru detail` command does not display `reset-pfe` as the cmerror configured action. PR1602726

- Remote aggregated Ethernet member failures (through disable or laser-off) might cause high tail drop that results in high traffic loss. PR1604823

- MACsec session might be dropped due to one way congestion. PR1611091

- Some of the fabric links might go in to the `Faulty` state after swapping FPC LC1201 with LC1202. PR1612624

- The rpd agent might get crashed during NSR switchover. PR1612725

- On PTX10008 and PTX10016 routers, FPCs might become nonresponsive in the `Onlining` state after the software release upgrade. PR1614489

- The cda-bt process generates core file when FPC becomes offline. PR1615343

- On PTX10008 and PTX10004 routers, VCCV for LDP signaled PW goes down periodically. PR1615419

- Observed 27 percent of traffic loss at 221B packet size in Junos OS Evolved 21.4 release as compared to Junos OS Evolved 21.2R1. PR1615524

- Device does not respond for traceroute while checking traceroute over VPN. PR1615677

- Primary Routing Engine0 gets reloaded unexpectedly and new-primary Routing Engine1 does not bring up IS-IS or LDP adjacencies. PR1616114

- After FPC becomes offline, minor cm-errors might occur for ZFI block on other FPCs. PR1616179

- The Strict-Priority-Scheduler (SPS) might not work accurately across port queues. PR1616772

- Limitation appears with fast-lookup-filter (FFT) usage in the ISF mode. PR1616804

- Hit with the aftmand process generates core file `RtIfaHandler::notifyCommand,EalIfaHandler::registryClientCommand ,EalIfaHandler::OnAdd (this=0x7f2ffe40e9a0 EalIfaHandler::instance()::handler>, ifah=...)` at **../../src/EalIfaHandler.cpp:222**. PR1616909

- Unexpected Routing Engine switchover might be occur. PR1617720

- Multicast traffic to mixed high-and low-priority OQs of a busy port might drop higher-priority multicast traffic. PR1618026

- Match on IPv6-prefix for prefix lengths 64 bits do not work. Prefix-lengths of [128-65] works fine. PR1618211

- On PTX10008 routers, the `Output bytes` and `Output packets` counter values under the transit statistics on the `show interfaces ifl extensive` command decreases along with sending protocol control packets. PR1618587

- On PTX10001-36MR routers, while issuing `request system snapshot` command, the snapshot message does not get captured in the **/etc/motd** file. PR1618946

- InputIntf gets reported incorrectly for MPLS-IPv4 and MPLS-IPv6 ingress sampling in the case of Layer 3 VPN. PR1619052

- The hardware process might crash when you pull an FPC out or some power failure or fault occurs for FPC. PR1619102

- On 10g incorrect TX rate for queues configured with `mix of high-low tx rates without excess bandwidth`, 100GE works properly. PR1620284

- The firewall counter does not get hit with a specific configuration sequence [Commit the FFT + ISF flag before FW spec]. PR1620410

- Incorrect sensor modeling or mapping occurs in the Telemetry streaming scenario. PR1621037

- SNMP get for MIB value for jnxRedundancyConfig does not work as expected. PR1621101

- SNMP get for MID id for jnxRedundancySwitchoverReason does not work as expected. PR1621103

- PIC becomes nonresponsive in the `Offlining` state when you issue the `OFFLINE` command right after the transceiver plugin. PR1621694

- ZTP does not work properly on the PTX Series Evolved platforms if you use an EX device as a DHCP server. PR1621987

- Interface becomes down while performing the Custom Optics Profile validation for low power mode in a non-channelized mode. PR1624228

- On PTX10008 routers, the following continuous information level syslog messages gets generated:

```
evo-aftmand-bt:Pfe:controller add for fru :controller modify for fru:fru power-on (block
mode) for fryu:initiating online (block mode) for fru
```

PR1624375

- The `show pfe route ip` command times out when the table size of the route is large. PR1624629

- BUM traffic might be dropped on ESI peer in a VLAN aware service. PR1624677

- The hwdfpc process might crash on all Junos OS Evolved platforms. PR1624841

- JNP10008-SF3, SIB-JNP10004 and JNP10016-SF3 memory errors handling improvement. PR1625305

- The mastership transfer might not be triggered on each rpd crashes if you configure switchover-on-routing-crash. PR1625834

- The primary kernel might crash if you enable NSR. PR1626040

- Add the `show cda pipestats` cli-pfe command to more releases for serviceability. PR1626687

- S-PTX10K-144C license SKUs do not get loaded but 400G SKUs do get loaded. PR1627459

- IP not-ECN-capable traffic does not get RED-dropped in an ECN-enabled congested queue. PR1627496

- The hwdre application might crash once gRPC/gNMI is started. PR1627709

- The DDoS filter does not classify the OSPF packets as OSPF-Hello and OSPF-Data packet. PR1628889

- The DDoS-protection protocols group arp counters do not show correct values. PR1629097

- Config-Sync failure alarm. PR1629952

- Indirect next-hop (INH) version ID higher than 255 might cause INH NH FRR session to move in to the Down state and drop the transit traffic. PR1630215

- The **inet6.0** routing table lookup might result in **NULL**. PR1630235

- BFD session might flap continuously with multicast enabled. PR1630797

- PCIe Bus Error associate to PTP FPGA device during scapa16 chassis reboots. PR1631300

- The rpd process generates core file on the Routing Engine1 at krt_inh.c,krt_nexthop.c,krt_remnant.c. PR1631871

- On PTX10008 routers, the Transit Loopback(LB) ping or LinkTrace(LT) PDUs do not get forwarded transparently. PR1632255

- P2MP LSP ping from bud-node fails when the branch is on another Packet Forwarding Engine. PR1632385

- The evo-cda-bt process generates core file if you use the show cda qpoll command or get-state while a Packet Forwarding Engine is offlined or faulted. The Packet Forwarding Engine also restarts. PR1633850

- OSPF adjacency might take longer to converge when the neighbor restarts non-gracefully. PR1634162

- Traffic impact might be seen when you configure a firewall filter-based policer for MPLS address family on the device. PR1634644

- BGP multipath computation for the prefix may cause the rpd to crash. PR1635339

- On PTX10008 routers, the following frequent syslog message gets generated:

```
zephyr_clock_get_tod_ext_sync_sample(xxx): READ BT-X tod_sec: xxxxxxxxxx, tod_ns: xxxxxxxxx
```

  PR1635771

- BGP multipath computation for the prefix might cause the rpd to crash. PR1635339

- The request node halt node statement might cause cm-errors. PR1636271

- Ingress PE device does not insert Sh label for BUM traffic received on the local EP ESI interface, causing packet duplication on the egress PE device. PR1637703

- The rpd-agent crash might be observed once routing processes exit. PR1637391

- JTI UDP export support for **/junos/system/cmerror/configuration** and **/junos/system/cmerror/counters** do not work on the supported chassis-based systems like the PTX10008 and PTX10016 routers. PR1638262

- There is a mismatch between the user-configured wavelength and actually transmitted wavelength on the 400G-ZR wavelength setting with 75GHz spacing. PR1638603

- On PTX10008 routers, SNMP mib get on jnxLEDxxx generates general error with core file. PR1638768

- Multicast packet drop might be seen when the outgoing interface flap. PR1640294

- FPC start time is incorrectly displayed under the `show chassis fpc details` command. PR1641515

- Junos OS Evolved: In an MPLS scenario upon receipt of a specific IPv6 packet an FPC crashes. (CVE-2022-22214). PR1642721

- Traffic Loss might be observed when you deactivate or activate the firewall filter. PR1643187

- The jnxOperatingDRAMSize and jnxOperatingMemory OID values are incorrect on Junos OS Evolved platforms. PR1643910

- The process **aftmand** might reset with heap-use-after-free and DEADLYSIGNAL.PR1644675

- The Routing Engine primary role might not transfer on each rpd crash. PR1645611

- ECN bits on PTX Series platforms is never set. PR1651830

- UEFI BIOS Key synchronization tool - efitools.service fails after optics diagnostics test. PR1655537

Infrastructure

- Malformed packets might be sent out on egress interfaces in Junos OS Evolved platforms. PR1603783

- ICMP tunneling might not work. PR1605465

- Junos OS Evolved: Specific packets reaching the Routing Engine lead to a counter overflow and eventually a crash (CVE-2022-22195). PR1614171

- The `default-address-selection` statement might not work on all Junos Evolved platforms. PR1608877

- In certain circumstances, the journalctl process might be flooded with the `No TTP_TLV_VRF` related log messages. PR1610313

- Egress TCP RST might not have correctly populated the DSCP field. PR1612208

- The backup path is not found in the ASBR6 FIB table. PR1618916

- IPv6 default route might not take an effect in the global instance. PR1642576

Interfaces and Chassis

- Traffic loss occurs after restarting the SIB. PR1560111

- On PTX10003 routers, snmp walk on jnxLEDTable fails. PR1620398

Junos XML API and Scripting

- Downloading a file using the `request system download` command might fail. PR1604622

MPLS

- The rpd process might generate core file for few value configurations of signaling bandwidth on the container LSP. PR1614248

Network Management and Monitoring

- Incorrect IF-MIB::ifHCInUcastPkts and ifHCInBroadcastPkts statistics appears. PR1621606

- SNMP traps get generated for the second trap group. PR1623201

- False traffic spikes appear in the SNMP graphs when you use ifHCOutOctets or ifHCInOctets. PR1635958

- Junos OS Evolved: A remote attacker might cause a CPU Denial of Service by sending genuine traffic to a device on a specific IPv4 port. (CVE-2022-22183). PR636338

Routing Policy and Firewall Filters

- Filters in openconfig acl executes terms in the order of their definition and not based on sequence-ids. PR1621620

- Services might not work after committing the firewall filter counter configuration with similar name of two terms. PR1625168

Routing Protocols

- Kernel crash might be observed on platforms having BGP configured with family Layer 2 VPN. PR1600599

- Delay occurs while adding or removing static routes from the router. PR1612173

- The memory leak on rpd might be observed after running `show route`CLI command. PR1615162

- Slow memory leak (32 bytes each time) of rpd might be seen. PR1616065

- The rpd core file is observed during IS-IS (Intermediate System to Intermediate System) instance deletion when SRMS (Segment Routing Mapping Server) server is configured with domain wide flooding. PR1617527

- The rpd process might crash and restart when you enable NSR. PR1620463

- The rpd process might crash after clearing IS-IS database. PR1631738

- The rpd process might go into an infinite loop while clearing the IS-IS database. PR1632122

User Interface and Configuration

- The mgd process generates core file while running any RPC post and running copy-config rpc with the unreachable host in the URL on the same netconf session. PR1590625

- Junos OS Evolved expects the key as a first element under a list in a JSON configuration payload. PR1616216

- On PTX10001-36MR routers, configd publish deleted anomalies while running p2mp rsvp eoam test. PR1617667

- The core files might not get deleted using CLI `file delete /var/core/*/vmcore*`PR1624562

Junos OS Evolved Release Notes for QFX5130-32CD, QFX5220, and QFX5700 Devices

IN THIS SECTION

These release notes accompany Junos OS Evolved Release 22.1R1 for QFX5130-32CD, QFX5220-32CD, QFX5220-128C, and QFX5700 switches. They describe new and changed features, limitations, and known and resolved problems in the hardware and software.

What's New

IN THIS SECTION

- What's New in 22.1R1 | **51**

Learn about new features introduced in this release for QFX Series switches.

What's New in 22.1R1

IN THIS SECTION

- EVPN | **51**
- High Availability | **52**
- Interfaces | **53**
- Multicast | **53**
- Routing Protocols | **53**
- Software Installation and Upgrade | **53**
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EVPN

- **Optimized intersubnet multicast in an EVPN-VXLAN fabric (QFX5130-32CD, and QFX5700)—** Starting in Junos OS Evolved Release 22.1R1, you can configure these platforms as optimized intersubnet multicast (OISM) server leaf and border leaf devices in an EVPN-VXLAN ERB overlay fabric.

  To support OISM on these platforms, you must configure:

- EVPN instances of type `mac-vrf` with `vlan-aware` or `vlan-based` service types. (See MAC-VRF Routing Instance Type Overview.)

- Tenant L3 routing instances with `instance-type vrf`.

- A supplemental bridge domain (SBD) and all tenant VLANs on all OISM devices in the fabric.

- IGMP snooping on all OISM devices in the fabric.

If you need to route multicast traffic from or to devices outside of the fabric, you can't use an OISM multicast VLAN (M-VLAN) for external multicast routing on these platforms. You can configure one of the following methods with PIM for external multicast on the border leaf devices:

- Classic L3 interfaces to the external multicast rendezvous point (RP).

- Non-EVPN VLANs and corresponding IRB interfaces to the external multicast RP.

You can use OISM on these platforms with IGMPv2 or IGMPv3, and IGMP snooping. (See Overview of Multicast Forwarding with IGMP Snooping or MLD Snooping in an EVPN-VXLAN Environment.)

[See Optimized Intersubnet Multicast in EVPN Networks.]

- **Overlapping VLAN support in EVPN-VXLAN fabrics on edge-routed bridging (ERB) overlay leaf devices (QFX5130-32CD and QFX5700)**—Starting in Junos OS Evolved Release 22.1R1, we support overlapping host VLANs with access-side enterprise style interfaces on leaf devices. To enable a leaf device to process an overlapping host VLAN tag, configure the `vlan-rewrite translate` statement on an interface. Use this statement to map the host VLAN to a VLAN configured on the leaf device (which we refer to as the *mapped VLAN value*). The device processes incoming tagged packets using the mapped VLAN value instead of the host VLAN tag. On egress, the device translates the mapped VLAN value back into the host VLAN tag.

  [See Overlapping VLAN Support Using VLAN Translation in EVPN-VXLAN Networks and vlan-rewrite.]

High Availability

- **Unified ISSU support (QFX5220-32CD)**—Starting in Junos OS Evolved Release 22.1R1, you can use unified in-service software upgrade (unified ISSU) to upgrade between two different Junos OS Evolved releases with minimal disruption on the control plane and with minimal disruption of traffic.

  Use the `request system software add` *package-name*`.tgz restart` command to use unified ISSU. Use the `request system software validate-restart` *package-name*`.tgz` command to verify that your device is ready for unified ISSU.

  [See request system software add restart and request system software validate-restart.]

Interfaces

- **Support for SFP56+ QFX5K-FPC-20Y FPC (QFX5700)**—Starting in Junos OS Evolved Release 22.1R1, you can configure 10 and 25-Gbps speed with the new QFX5K-FPC-20Y FPC card. The line card contains a total of 20 SFP56 ports that supports 10-Gbps and 25-Gbps speeds. You can use all the 20 ports by plugging the FPC on the 0, 2, 4, and 6 slots and use the first 16 ports by plugging the FPC on the 1, 3, 5, and 7 slots. To view the hardware compatibility matrix for optical interfaces, transceivers, and DACs supported on QFX5700, see the Hardware Compatibility Tool (HCT).

  [See Channelizing Interfaces on QFX5700 Switches and Hardware Compatibility Tool.]

Multicast

- **IGMP, MLD snooping, and IRB stitching with make-before-break (MBB) (QFX5130-32CD)**—Starting in Junos OS Evolved Release 22.1R1, MBB is extended to aggregated Ethernet (AE) member link changes for all Level 2 snooping-based nexthop changes. MBB ensures that all Packet Forwarding Engines (PFE) have a consistent view thereby avoiding traffic loss or duplication.

  MBB for IGMP, MLD snooping, and IRB Stitching supports:

  - Aggregated Ethernet member link addition/deletion

  - Aggregated Ethernet member link enable/disable

  [See IGMP Snooping Overview and Understanding MLD Snooping.]

Routing Protocols

- **Support for BGP route advertisement based on Packet Forwarding Engine acknowledgement (QFX5130-32CD and QFX5700)**—Starting in Junos OS Evolved Release 22.1R1, you can enable BGP to advertise routes only if the route version installed in the Routing Engine matches the route version installed in the Packet Forwarding Engine. If a mismatch occurs, then BGP withdraws the route from the forwarding path and stops advertising the route. You can enable this feature by including the `request-long-lived-ack` and the `send-withdrawal-on-route-change` configuration statements at the [`edit policy-options policy-statement` *policy-name* `then`] hierarchy level.

  [See Advertising BGP Routes Based on Packet Forwarding Engine.]

Software Installation and Upgrade

- **Base operating system upgrade (ACX Series, PTX Series, and QFX Series)**—Starting in Junos OS Evolved Release 22.1R1, Junos OS Evolved uses the Wind River Linux LTS 19 base operating system. This upgrade provides improved security and better performance. Prior to this release, Junos OS Evolved used the Wind River Linux 9 base operating system.

- **OpenSSL version upgrade (ACX Series, PTX Series, and QFX Series)**—Starting in Junos OS Evolved 22.1R1, we've upgraded the OpenSSL version 1.1.1 to OpenSSL version 3.0.0 with Transport Layer Security (TLS) version 1.3 protocols. The upgraded OpenSSL version 3.0.0 with TLS protocol version 1.3 provides improved security and better performance.

- **Zero touch provisioning on WAN interfaces (QFX5700)**—

  Starting in Junos OS Evolved 22.1R1, Zero Touch Provisioning (ZTP) dynamically detects the port speed of WAN interfaces and uses this information to create ZTP client ports with the same speed. ZTP automatically cycles through the WAN ports until it receives Dynamic Host Control Protocol (DHCP) options from the DHCP server. The device uses the DHCP options to perform the bootstrap process.

  [See Zero Touch Provisioning.]

Additional Features

- **Check for AS matches in BGP policy AS paths without regular expressions** (PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, and QFX5200)

  [See Improve the Performance of AS Path Lookup in BGP Policy.]

- **Configure the ephemeral database using the NETCONF and Junos XML protocols** (ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, and QFX5220)

  [See Understanding the Ephemeral Configuration Database.]

- **Disable LLDP TLV messages** (QFX5220)

  [See Device Discovery Using LLDP and LLDP-MED on Switches.]

- **LLDP on management interfaces** (QFX5220)

  [See Device Discovery Using LLDP and LLDP-MED on Switches.]

- **Precision Time Protocol (PTP) primary boundary clock over IRB for media and enterprise profiles** (QFX5220-32CD and QFX5220-128CD)

  [See PTP Media Profile, PTP Enterprise Profile, and PTP over IRB for Broadcast Profiles.]

- **Resiliency support for line card JNP-FPC-20Y** (QFX5700)

  [See QFX5700 Switch Hardware Guide.]

- **Service provider style interface configuration on EVPN-VXLAN Layer 3 gateways** (QFX5130-32CD, QFX5700)

  Supported with:

- ERB or CRB overlay designs

- EVPN MAC-VRF routing instances with `vlan-based` or `vlan-aware` service types

- IRB configuration with `vlan-id` *value* or `vlan-id none` settings

- Virtual gateway address (VGA) configuration

Support doesn't include:

- EVPN MAC-VRF routing instances with `vlan-bundle` service type (both `vlan-id` *value* and `vlan-id-list` logical interface configurations)

- Flexible Ethernet services with service provider (SP) style and enterprise (EP) style logical interfaces on the same physical interface

- SP style and EP style interfaces in the same VXLAN VLAN

- Multiple logical interfaces on a physical interface in the same VXLAN VLAN

- IRB interfaces with `vlan-id-list` configuration

- Q-in-Q and inner VLAN tag preserved on encapsulation

[See Using a Default Layer 3 Gateway to Route Traffic in an EVPN-VXLAN Overlay Network.]

- **Supported transceivers, optical interfaces, and DAC cables** (ACX Series and QFX Series).—Select your product in the Hardware Compatibility Tool to view supported transceivers, optical interfaces, and DAC cables for your platform or interface module. We update the HCT and provide the first supported release information when the optic becomes available.

What's Changed

IN THIS SECTION

Learn about what changed in these release for QFX Series switches.

What's Changed in Release 22.1R1-S2

Learn about what changed in this release for QFX Series routers.

Network Management and Monitoring

- sFlow configuration is allowed only on et, xe, and ge interfaces in Junos OS Evolved based platforms. All other interfaces are blocked for configuring sFlow on Junos OS Evolved platforms. A cli error is thrown if sFlow is configured on any other interface other than et, xe or ge interface.

What's Changed in Release 22.1R1

General Routing

- Stateful port configuration for PTP over Ethernet and default profile is supported only on boundary clock mode and not on ordinary clock mode.

- **DSCP rewrite on EVPN VXLAN NNI ports (QFX5130 and QFX5700)**— QFX5130 and QFX5700 platforms support DSCP rewrite on EVPN VXLAN NNI ports with limitations.

[See Implementing CoS on VXLAN Interfaces (Junos OS Evolved.]

Interfaces and Chassis

- **Display the donor details of the IPv6 borrower interface**—The output for the `show interfaces` command now displays the donor details of the IPv6 borrower interface.

  [See show interfaces].

- **JNP10K-PWR-DC2 power supply does not support 5500 W or 2750 W if the power supply temperature increases above 60 degrees Celsius (PTX10008 and PTX10016)**—If the power supply temperature increases above 60 degrees Celsius, the maximum power capacity of JNP10K-PWR-DC2 power supply installed in PTX10008 or PTX10016 routers reduces from 5500 W to 5000 W if four feeds are connected and from 2750 W to 2500 W if two feeds are connected. If there is no redundant power supply installed in the router, the router would shut down.

Junos OS API and Scripting

- **Deprecated functions in the `libpyvrf` Python module (ACX Series, PTX Series, and QFX Series)**—The `libpyvrf` Python module no longer supports the `get_task_vrf()` and `set_task_vrf()` functions.

  [See How to Specify the Routing Instance in Python 3 Applications on Devices Running Junos OS Evolved.]

MPLS

- When defining a constrained path LSP using more than one strict hop belonging to the egress node, the first strict hop must be set to match the IP address assigned to the egress node on the interface that receives the RSVP Path message. If the incoming RSVP Path message arrives on an interface with a different IP address the LSP is rejected.

Network Management and Monitoring

- **Chef and Puppet support removed (PTX Series and QFX Series)**—Starting in Junos OS Evolved Release 22.1R1, Junos OS Evolved does not support using Chef or Puppet to configure devices.

- **Junos XML protocol Perl modules deprecated (ACX Series, PTX Series, and QFX Series)**—We no longer provide the Junos XML protocol Perl client for download. To use Perl to manage Junos devices, use the NETCONF Perl library instead.

  [See Understanding the NETCONF Perl Client and Sample Scripts.]

- **Limits increased for the `max-datasize` statement (ACX Series, PTX Series, and QFX Series)**—The `max-datasize` statement's minimum configurable value is increased from 23,068,672 bytes (22 MB) to

268,435,456 bytes (256 MB), and the maximum configurable value is increased from 1,073,741,824 (1 GB) to 2,147,483,648 (2 GB) for all script types. Furthermore, if you do not configure the `max-datasize` statement for a given script type, the default maximum memory allocated to the data segment portion of a script is increased to 1024 MB. Higher limits ensure that the device allocates a sufficient amount of memory to run the affected scripts.

[See max-datasize.]

- **Enhanced system log messages (QFX5130, QFX5200, QFX5220, and QFX5700)**— We've added multiple events inside the event tag using the **UI_LOGIN_EVENT|UI_LOGOUT_EVENT** format, which has an option (|) to separate the events, to generate system log messages.

  Earlier to this release, the event tag used the **UI_LOGIN_EVENT UI_LOGOUT_EVENT** format and for various combinations of rpc filters was not getting logged.

  [See Overview of System Logging https://www.juniper.net/documentation/us/en/software/junos/network-mgmt/topics/topic-map/system-logging.html#id-overview-of-junos-os-system-log-messages.]

Routing Protocols

- When the krt-nexthop-ack statement is configured, the RPD will wait for the next hop to get acknowledged by PFE before using it for a route. Currently, only BGP-labeled routes and RSVP routes support this statement. All other routes will ignore this statement.

- The RPD_OSPF_LDP_SYNC message not logged?On all Junos OS and Junos OS Evolved devices, when an LDP session goes down there is a loss of synchronization between LDP and OSPF. After the loss of synchronization, when an interface has been in the holddown state for more than three minutes, the system log message with a warning level is sent. This message appears in both the messages file and the trace file. However, the system log message does not get logged if you explicitly configure the `hold-time` for `ldp-synchronization` at the **edit protocols ospf area area id interface interface name** hierarchy level less than three minutes. The message is printed after three minutes.

- To achieve consistency among resource paths, the resource path /mpls/signalling-protocols/segment-routing/aggregate-sid-counters/aggregate-sid-counter ip-addr='address'/state/countersname='name'/out-pkts/ is changed to /mpls/signaling-protocols/segment-routing/aggregate-sid-counters/aggregate-sid-counterip-addr='address'/state/counters name='name'/. The leaf "out-pkts" is removed from the end of the path, and "signalling" is changed to "signaling" (with one "l").

User Interface and Configuration

- **Load JSON configuration data with unordered list entries (ACX Series, PTX Series, and QFX Series)**— The Junos schema requires that list keys precede any other siblings within a list entry and appear in

the order specified by the schema. Junos devices provide two options to load JSON configuration data that contains unordered list entries:

- Use the `request system convert-json-configuration` operational mode command to produce JSON configuration data with ordered list entries before loading the data on the device.

- Configure the `reorder-list-keys` statement at the `[edit system configuration input format json]` hierarchy level. After you configure the statement, you can load JSON configuration data with unordered list entries, and the device reorders the list keys as required by the Junos schema during the load operation.

When you configure the `reorder-list-keys` statement, the load operation can take significantly longer to parse the configuration, depending on the size of the configuration and number of lists. Therefore, for large configurations or configurations with many lists, we recommend using the `request system convert-json-configuration` command instead of the `reorder-list-keys` statement.

[See json and request system convert-json-configuration.]

- A new field `rollback pending` is added to the output of `show system commit` that identifies whether `commit confirmed` is issued. It is removed once `commit` or `commit check` is issued or `commit confirmed` is rolled back after rollback timeout.

- When you configure `max-cli-sessions` at the `[edit system]` hierarchy level, it restricts the maximum number of cli sessions that can coexist at any time. Once the `max-cli-sessions` number is reached, new CLI access is denied. The users who are configured to get the CLI upon login, are also denied new login.

VPNs

- **Changes to `show mvpn c-multicast` and `show mvpn instance` outputs**—The FwdNh output field displays the multicast tunnel (mt) interface in the case of Protocol Independent Multicast (PIM) tunnels.

[See show mvpn c-multicast.]

Known Limitations

IN THIS SECTION

Learn about known limitations in Junos OS Evolved Release 22.1R1 for QFX Series switches.

For the most complete and latest information about known Junos OS Evolved defects, use the Juniper Networks online Junos Problem Report Search application.

General Routing

- On QFX5700 when the FEB card has a power failure the `show system alarms` CLI command displays the following error `PCI Uncorrected error on dev 0000:00:03.2` along with FEB alarm. PR1578066

Open Issues

Learn about open issues in Junos OS Release 22.1R1 for QFX Series switches.

For the most complete and latest information about known Junos OS Evolved defects, use the Juniper Networks online Junos Problem Report Search application.

General Routing

- On the QFX5130-32CD platform running Junos OS Evolved, you cannot clear or reset the disk option specified in the scheduled `request node reboot` command. The node reboots with the disk option last specified. PR1517596

- On QFX5700 platforms few interfaces do not come up after removing channelization through single commit, that is by using `delete interfaces` command. PR1592238

- ON QFX5700, 400G DAC flap might be seen after OIR, FPC restart, device reboot enabling or disabling interface. PR1618488

- On QFX5700 ungraceful removal (OIR) of FPC or an FPC fault might result in a PCIE MAJOR alarm "PCI Uncorrected error on dev 0000:00:03.0" which does not get cleared. The only way to clear this alarm is reboot of the device. There are 2 situations in which this alarm can be seen:

  1. FPC is faulty: In rare FPC fault cases, the PCI Uncorrected error alarm might be seen along with FPC going to a fault state as indicated by the `show chassis fpc` command. This is accompanied by other FPC major alarms. Once the faulty FPC is replaced with a good one, the alarm is still seen, and a reboot is required to clear this alarm. Post identification of the fault and FPC replacement, this alarm is harmless, and FPC state can be confirmed through the `show chassis fpc` command.

  2. Ungraceful OIR: The ungraceful removal of FPCs is not recommended on QFX5700. This operation might result in PCI Uncorrected Error alarm. Please use one of the following methods to do a graceful FPC OIR removal:

  - Execute the `request chassis fpc slot <slot #> offline` command from the CLI.

  - Press the Offline Button for 1 second on the FPC to offline the FPC. Once the FPC is gracefully offlined both LEDs - PWR and STS go off. The FPC can be removed at this point.

  PR1620197

- 400G LR4-10 link does not come up after deleting `disable interface` configuration statement when the port is disabled followed by system reboot. PR1625494

- Interface convergence time for QFX5220-128C is one min more than earlier. PR1636181

- The output of `show chassis led` does not match the LED behavior. PR1637860

- If FEC errors are present on the interface and the errors are cleared using the `clear statistics` CLI command and subsequently unified ISSU is performed, then the FEC error counters show up negative or huge value. Subsequently if the FEC errors surpass the previous value, then the counters appear non-negative (smaller value). PR1641583

- Unexpected carrier transitions are seen on JNP-100G-2X50G-xM after cable plug out and plug in on QFX5130-32CD and QFX5220-32CD. It is observed that the Carrier Transitions counter increments by 1 on cable plug out and by 3 on cable plug in. It must increment by 1 in both cases. PR1642744

- Chef agent support on Junos OS Evolved is EOLed. PR1648066

- For Junos OS Evolved Release 22.1R1 only- if routes are installed on an interface and the interface flaps, the summary count for the given routes does not update from the 'ifdn' or 'iddn' states and the `show route forwarding-table summary` command reports stale summary count data. There is no routing or route state functional impact, only the summary display is impacted by this issue.

Infrastructure

- For Junos OS Evolved Release 22.1R1 - if routes are installed on an interface and the interface flaps, the summary count for the given routes does not update from the 'ifdn' or 'iddn' states and the `show route forwarding-table summary` command reports stale summary count data. There is no routing or route state functional impact, only the summary display is impacted by this issue. PR1653182

Resolved Issues

IN THIS SECTION

- Resolved Issues: 22.1R1 | **62**

Learn about the issues fixed in this release for QFX Series switches.

For the most complete and latest information about known Junos OS Evolved defects, use the Juniper Networks online Junos Problem Report Search application.

Resolved Issues: 22.1R1

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- Network Management and Monitoring | **63**
- User Interface and Configuration | **63**

General Routing

- Filter with forwarding-class and destination-class combined might not work. PR1595788

- Traffic loss might be observed when evo-pfemand is restarted. PR1608004

- The egress traffic drops due to the egress queue buffer stuck on 400G interfaces. PR1618147

- The native-vlan-id configured on service provider style UNI interface might not work on QFX5130 or QFX5700. PR1618731

- On performing `request system snapshot`, the snapshot message is not captured in /etc/motd file. PR1618946

- The anomalies or leaks might be seen for some of the DDX objects upon switchover. PR1629823

- After sigkill or app crash, jstatsd app does not come up. PR1641229

- A forced reboot might be observed when SSD is not detected during a script or daemon call. PR1648117

Infrastructure

- In certain circumstances journalctl might be flooded with **No TTP_TLV_VRF** related log messages. PR1610313

- Tunnel interface might fail to come up if configured at the same time as its routing instance. PR1616920

Network Management and Monitoring

- False traffic spikes are seen in SNMP graphs when ifHCOutOctets or ifHCInOctets are used. PR1635958

- Junos OS Evolved: A remote attacker might cause a CPU Denial of Service by sending genuine traffic to a device on a specific IPv4 port. (CVE-2022-22183).

User Interface and Configuration

- QFX5700: Not able to delete linux core files using CLI file **delete /var/core/*/vmcore***. PR1624562

Upgrade Your Junos OS Evolved Software

Products impacted: ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220-32CD, QFX5220-128C, and QFX5700.

Follow these steps to upgrade your Junos OS Evolved software:

1. Using a Web browser, navigate to the All Junos Platforms software download URL on the Juniper Networks webpage: https://www.juniper.net/support/downloads/

2. In the Find a Product box, enter the Junos OS platform for the software that you want to download.

3. Select Junos OS Evolved from the OS drop-down list.

4. Select the relevant release number from the Version drop-down list.

5. In the **Install Package** section, select the software package for the release.

6. Log in to the Juniper Networks authentication system using the username (generally your e-mail address) and password supplied by a Juniper Networks representative.

7. Review and accept the End User License Agreement.

8. Download the software to a local host.

9. Copy the software to the device or to your internal software distribution site.

10. Install the new package on the device.

> (i) **NOTE**: We recommend that you upgrade all software packages out of band using the console because in-band connections are lost during the upgrade process.

For more information about software installation and upgrade, see Software Installation and Upgrade Overview (Junos OS Evolved). For more information about EOL releases and to review a list of EOL releases, see https://support.juniper.net/support/eol/software/junosevo/.

Licensing

In 2020, Juniper Networks introduced a new software licensing model. The Juniper Flex Program comprises a framework, a set of policies, and various tools that help unify and thereby simplify the multiple product-driven licensing and packaging approaches that Juniper Networks has developed over the past several years.

The major components of the framework are:

- A focus on customer segments (enterprise, service provider, and cloud) and use cases for Juniper Networks hardware and software products.

- The introduction of a common three-tiered model (standard, advanced, and premium) for all Juniper Networks software products.

- The introduction of subscription licenses and subscription portability for all Juniper Networks products, including Junos OS and Contrail.

For information about the list of supported products, see Juniper Flex Program.

Finding More Information

- **Feature Explorer**—Juniper Networks Feature Explorer helps you to explore software feature information to find the right software release and product for your network.

  https://apps.juniper.net/feature-explorer/

- **PR Search Tool**—Keep track of the latest and additional information about Junos OS open defects and issues resolved.

  https://prsearch.juniper.net/InfoCenter/index?page=prsearch

- **Hardware Compatibility Tool**—Determine optical interfaces and transceivers supported across all platforms.

  https://apps.juniper.net/hct/home

  > (i) **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.

  https://pathfinder.juniper.net/compliance/

Requesting Technical Support

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- Creating a Service Request with JTAC | 67

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active Juniper Care or Partner Support Services support contract, or are

covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at https://www.juniper.net/content/dam/www/assets/resource-guides/us/en/jtac-user-guide.pdf.

- Product warranties—For product warranty information, visit https://support.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.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: https://support.juniper.net/support/

- Search for known bugs: https://prsearch.juniper.net/

- Find product documentation: https://www.juniper.net/documentation/

- Find solutions and answer questions using our Knowledge Base: https://supportportal.juniper.net/s/knowledge

- Download the latest versions of software and review release notes: https://support.juniper.net/support/downloads/

- Search technical bulletins for relevant hardware and software notifications: https://supportportal.juniper.net/s/knowledge

- Join and participate in the Juniper Networks Community Forum: https://www.juniper.net/company/communities/

- Create a service request online: https://supportportal.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

You can create a service request with JTAC on the Web or by telephone.

- Visit https://support.juniper.net/support/requesting-support/

- 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

16 September 2025—Revision 15, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

9 December 2024—Revision 14, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

10 August 2023—Revision 13, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

20 July 2023—Revision 12, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

1 June 2022—Revision 11, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

24 November 2022—Revision 10, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

22 September 2022—Revision 9, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

4 August 2022—Revision 8, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

29 July 2022—Revision 7, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

14 July 2022—Revision 6, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

26 May 2022—Revision 5, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

28 April 2022—Revision 4, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

April 2022—Revision 3, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

5 April 2022—Revision 3, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

1 April 2022—Revision 2, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.

25 March 2022—Revision 1, Junos OS Release 22.1R1 for the ACX7100-32C, ACX7100-48L, ACX7509, PTX10001-36MR, PTX10003, PTX10004, PTX10008, PTX10016, QFX5130-32CD, QFX5220, and QFX5700 Devices.