

# Release Notes

Published  
2023-09-19

## Juniper Cloud-Native Router 22.4 Release Notes

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### INTRODUCTION

Juniper Cloud-Native Router (cloud-native router) is a containerized implementation of Juniper control and forwarding planes. The cloud-native router runs on "white-box" Linux servers. It consists of modular components including a control plane (JCNR-Controller), forwarding plane (JCNR-vRouter), and JCNR-CNI. The control plane provides a Junos-based management framework; while the JCNR-vRouter, a DPDK-based forwarding plane, decouples forwarding from the Linux kernel, thus allowing faster forwarding and more scalability. JCNR-CNI provides the network interfaces in software that allow JCNR to network with other containers, VMs, and physical devices. Together, these elements provide flexibility, programmability, and scalability for the coming generations of 5G installations.

### SUPPORTED ON

- RHEL 8.4, 8.5, or 8.6
- Rocky Linux 8.6

You can install the cloud-native router on VMs or BMS that run the operating systems shown above. Each server must have one or more Intel Columbiaville (E810) or Intel Fortville (XL710) NICs installed for proper operation.

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# New and Updated Features

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This section describes the new features in the Juniper Cloud-Native Router 22.4 release.

## New Features in Juniper Cloud-Native Router Release 22.4

- **Support for L2 or L3 Operation**—Juniper Cloud-Native Router now supports deployment in either L2 or L3 mode. In L2 mode, cloud-native router operates as a switch while in L3 mode, cloud-native router operates as a router. The deployment mode is a one or the other choice. Cloud-native router does not support simultaneous operation in both L2 and L3 modes.
- **Dual Stack Pod Network (IPv4/IPv6)**—In L3 mode, the pod network in Juniper Cloud-Native Router is divided into an IPv6 underlay network and an IPv4/IPv6 overlay network. The IPv6 underlay network is used for control plane traffic such as BGP, OSPF, and IS-IS.

The IPv4/IPv6 overlay network is used for traffic sent and received by the user pods created in the compute nodes connected to the JCNR-vRouter.

- **Support for BGP, OSPF, and IS-IS Routing Protocols**—In L3 mode, the cloud-native router control-plane (cRPD) uses an IPv6 underlay network supported, in turn, by the JCNR-vRouter data plane. Control plane traffic such as BGP, OSPF, and IS-IS protocols are routed over this IPv6 underlay network.
- **Support for SR-MPLS**—In L3 mode, Juniper Cloud-Native Router supports control-plane allocated SR-MPLS (over IPv4 and IPv6) tunnels that the JCNR-vRouter uses to route overlay traffic from user pods.
- **L2 Support for QoS Enforcement**—In L2 mode, Juniper Cloud-Native Router supports scheduling for near-real time and non-real time CoS using pBits classification, and marking and re-marking for pBits.

- **Enhancements to MPLS over UDP Support**—In L3 mode, Juniper Cloud-Native Router supports MPLS over the UDP protocol (MPLSoUDP). In this release the we have enhanced MPLSoUDP support for to allow:
  - MPLS LSP over a single UDP tunnel
  - Multiple UDP tunnels
  - MPLSoUDP on VLAN tagged and untagged Ethernet interfaces
  - Service L3 VPN
- **BUM Traffic Limiting Enhancements**—In addition to existing support for rate-limiting of broadcast and multicast traffic in L2 mode, Juniper Cloud-Native router now supports rate limiting of unknown unicast packets. You control rate limits within the system using storm control profiles. The vroutel2 cli (purel2 CLI) now shows rate limiting configuration per VLAN or bridge domain.
- **L2 API to Force Bond Link Switchover**—For bond interface connections on cascaded nodes in L2 mode, cloud-native router now allows you to switch traffic from the active to the standby interface using an API call.

## Resolved Issues

### IN THIS SECTION

- [Resolved Issues in Juniper Cloud-Native Router Release 22.4 | 2](#)

This section provides information about issues that we resolved between release 22.3 and 22.4

## Resolved Issues in Juniper Cloud-Native Router Release 22.4

- **JCNR-3136: Docker Services Restart Causes Pods That Use Cloud-Native Router Kernel Interfaces to Enter Error State**—Previously, if you restarted the Docker services on the host server, any pod that

were using cloud-native router kernel interfaces would enter the error state and would not recover. This issue has been resolved.

- **JCNR-3044: vRouter Incorrectly Programs the Scheduler Map After the User Changes Scheduler Priority**—When the agent sent the update to the vRouter about the change in scheduler priority, the number of rules were not reset prior to applying the update. This issue has been resolved.
- **JCNR-2989: JCNR-vRouter Randomly Drops Packets Even when Firewall Rule (ACL) Action is Forward**—I can document this, but it appears to have been internally found and never reported to customers. I don't think we should document something that was found and fixed within a single development cycle.
- **JCNR-2903: The vRouter Logs Do Not Use the ISO Timestamp Format**—The vRouter log's timestamp format does not conform to the ISO timestamp format. This issue has been resolved.
- **JCNR-2814: In L2 Mode, the Host Server's Kernel Core Pattern is Overwritten By Cloud-Native Router Pods**—Cloud-native router pods would overwrite the previously-established kernel core pattern definition of the host server. This issue has been resolved.

## Known Limitations

### IN THIS SECTION

- [Known Issues and Limitations in Juniper Cloud-Native Router Release 22.4 | 3](#)

This section describes issues and limitations present in Juniper Cloud-Native Router release 22.4

## Known Issues and Limitations in Juniper Cloud-Native Router Release 22.4

- **JCNR-3173: After Refresh Deployment of JCNR in L3 Mode, the Pod Virtual Interface (VIF) Has an Invalid Virtual Routing and Forwarding (VRF) Reference**—As a workaround, you can restart the routing process in the cRPD pod (restart routing immediately) or you can restart the vRouter pod.

- **JCNR-3171: L2 Firewall Filter May Not Get Applied in Certain Scenarios**—We have found two scenarios in which firewall filters (ACL) may not get applied:
  - If you install cloud-native router with ACL configured in the template
  - If you run cloud-native router with configured ACL and the vRouter crashes
- **JCNR-3170: In L2 Mode, Cloud-Native Router Cannot Be Deployed if Kubernetes cpumanager is Installed**—This configuration is not supported.
- **JCNR-3060: cRPD Randomly Disables MPLS Family on Interfaces**—cRPD randomly disables the MPLS family hierarchy in interface configurations. The disabled configuration affects SR-MPLS LSPs. As a workaround, you can issue the `restart routing immediately` command.
- **JCNR-2917**—In certain circumstances, you might witness BGP flaps and cRPD pod restart if BGP routes are withdrawn while traffic passes through them. To avoid this issue, adjust the BFD liveness-detection as shown in the following two commands:

```
set protocols bgp group <group-name> bfd-liveness-detection minimum-receive-interval 320
```

```
set protocols bgp group <group-name> bfd-liveness-detection transmit-interval minimum-interval 300
```

## Upgrade or Downgrade Options

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- [Upgrade from a Previous Version | 4](#)
- [Downgrade to a Previous Version | 5](#)

This section provides high-level information about the available upgrade and downgrade options.

## Upgrade from a Previous Version

As of the 22.4 Release of Juniper Cloud-Native Router, there is no procedure for upgrading from a previous version. To upgrade from your current version to a newer version, you must perform a new deployment of the new version.

# Downgrade to a Previous Version

As of the 22.4 Release of Juniper Cloud-Native Router, there is no procedure for downgrading to a previous version. To change from a current version to a previous version, you must perform a complete redeploy of the previous version.

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