

# Release Notes

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## Juniper Cloud-Native Router 22.2 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 container network interface (JCNR-CNI). The JCNR-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, virtual machines, and physical devices. Together, these elements provide flexibility, programability, and scalability for the coming generations of 5G installations.

### SUPPORTED ON

- RHEL 8.4, 8.5, or 8.6

You can install the cloud-native router on virtual machines or bare metal servers that run the operating systems shown above. Each server must have one or more Intel E810 NICs installed for proper operation.

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# New Features

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This section describes the new features in the Juniper Cloud-Native Router 22.2 release.

## New Features in Juniper Cloud-Native Router Release 22.2

- **Juniper Cloud-Native Router Controller (cRPD or JCNR-Controller)**–The JCNR-controller is based on our tried-and-tested containerized routing protocol daemon, cRPD. We use cRPD in the cloud-native router to provide the control plane functions and interface with the JCNR-vRouter component. See [Juniper Cloud Native Router Controller](#).
- **JCNR-vRouter**–JCNR-vRouter is a dataplane development kit (DPDK)-based forwarding plane. JCNR-vRouter is able to provide high-speed L2 forwarding using DPDK and enforce L2 access control lists (ACLs). See JCNR-vRouter.

JCNR-vrouter uses a component known as the vRouter-agent to receive communication from the cRPD.

See [JCNR-vRouter](#).

- **JCNR-CNI**–Juniper Cloud-Native Router uses the container network interface application, JCNR-CNI to provide container network and Kubernetes Pod interfaces. See [JCNR-CNI](#).
- **Software Licensing**–Juniper Cloud-Native Router release 22.2 introduces the Juniper agile software license model. In the 22.2 Release, we do not enforce license compliance, we only report out-of-compliance status. See [Juniper Cloud-Native Router Licensing](#)
- **Configuration by Helm Chart**–Juniper Cloud-Native Router supports deployment-time configuration with the use of Helm charts.

See [Juniper Cloud-Native Router Deployment Guide](#)

- **NETCONF**–You can configure the Juniper Cloud-Native Router control plane using the NETCONF protocol.
- **Networking Features**
  - **L2 Mode DPDK Forwarding Plane**–Juniper Cloud-Native Router supports L2 mode in the DPDK forwarding plane for fabric and workload interfaces
  - **Ethernet Packet Switching**–Juniper Cloud-Native Router operated in L2 mode activates ethernet switching capabilities in the forwarding plane.
  - **MAC Address Handling**–Juniper Cloud-Native Router Release 22.2 operated in L2 mode allows the forwarding plane to handle MAC addresses without involving the control plane (MAC learning and aging)
  - **Bridge Domain Support**–Juniper Cloud-Native Router supports bridge domains
  - **VLAN Tagging**–Juniper Cloud-Native Router supports VLAN tagging on logical interfaces
  - **Trunk Port Support**–Juniper Cloud-Native Router operated in L2 mode allows for the creation of trunk ports which allow multiple VLANs to transit the port.
- **Support for Multiple Interface Types**–Juniper Cloud-Native Router operated in L2 mode allows fabric and pod interfaces of the following types:
  - Kernel mode access interfaces that are used to bypass the DPDK forwarding plane in favor of the kernel-based forwarding plane
  - Virtio trunk interfaces that can pass traffic from multiple VLANs
  - Multiple Virtio sub interfaces that can each pass VLAN-tagged traffic

#### [Juniper Cloud-Native Router Interface Types.](#)

- **Fabric Interface Functions Support**–Juniper Cloud-Native Router fabric interfaces can be based of Virtual Functions or Physical Functions of a NIC
- **IP Address Allocation for Application Pods**–Juniper Cloud-Native Router Release 22.2 supports allocation of IP addresses for Kubernetes application pods by the JCNR-CNI.

See [JCNR-CNI](#).

- **L2 Access Control Lists (ACL)**–Juniper Cloud-Native Router Release 22.2 running in L2 mode supports the creation and enforcement of L2 access control lists (ACL) based on MAC address or ethertypes

See [L2 ACL](#)

- **Traffic Rate Limiting**–Juniper Cloud-Native Router Release 22.2 allows for the rate limiting of L2 broadcast and multicast traffic
- **NIC Support**–Juniper Cloud-Native Router Release 22.2 supports special features such as VLAN offload and Dynamic Device Personalization (DDP) on the following NICs:

- Intel 810

See [System Resource Requirements](#)

- **Event Notification Support**–Juniper Cloud-Native Router uses syslog-ng to convert event logs from various Pods and containers into JSON-encoded notifications.

See [Logging and Notifications](#).

- **Automatic Generation of Bridge Domains and JCNR-Controller Configuration**–Juniper Cloud-Native Router automatically generates bridge domain and JCNR-Controller configuration during deployment through the use of Helm charts.[Juniper Cloud-Native Router Deployment Guide](#).
- **Kubernetes (K8s) Liveness Probes for JCNR-Controller and JCNR-vRouter**–Juniper Cloud-Native Router supports Kubernetes liveness probes for JCNR-Controller and JCNR-vRouter containers.

See [Logging and Notifications](#).

## Known-Limitations

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Learn about known limitations in the JCNR 22.2 Beta release.

## cRPD and JCNR-vRouter

- **JCNR-2276: MBUF memory pool leak**–When packetgen pods are deleted and re-created repeatedly soon after traffic is applied, an mbuf mempool leak is observed.

- **JCNR-2205: L2 rate limiting does not work when configured for more than 1000000 Bps**–If rate limiting is configured for more than 1000000 Bps, JCNR-vRouter will only rate limit at 1000000 Bps.
- **JCNR-2043: DPDK bond interface can fail to come up**–If the physical interface (PF) link is down, a VF interface based on that PF interface does not come up.
- **JCNR-2400: Misleading Lic notification seen : LICENSE\_TOKEN\_REFRESH\_FAILURE - License token refresh of feature 243 and quantity 1 has failed due to license deletion**–This notification can appear when adding or deleting pods. It is safe to ignore this notification.
- **JCNR-2340: All cloud-native router Pods use a UTC timestamp when recording syslog entries**–This is a known issue. Manual conversion of timestamps from UTC to system local time is required at this time.
- **JCNR-2428: Default VLAN list (1-4094) is applied to the interface if vlanIdList is specified in the network attachment definition (NAD) file**–The effect of this issue is that the interface may get traffic from unintended VLANs. You can apply the vlanIdList in the Pod YAML file rather than the NAD file to avoid this behavior.
- **JCNR-2423: vRouter Pod crashes when traffic loop is present due to misconfiguration**–The traffic loop causes continuous MAC move events between bond and switch interface.
- **JCNR-2404: Workload Pod stuck in ContainerCreating state**–In some rare instances, the cRPD mgd-api daemon fails to accept connection requests. Restart the mgd-api daemon manually to resolve the issue.
- **JCNR-2291: contrail-k8s-deployer Pod stuck in error state**–If changes are made to the vRouter section of the `values.yaml` file, and then the `helm upgrade jcnr` command is run, the Pod enters error state. Helm upgrade command is not currently supported.
- **JCNR-1413: All interfaces on host shown in cRPD**–If you use the cRPD CLI and run a `show interfaces` command like `show interfaces routing`, the system displays all interfaces known to the host, even those that do not belong to Juniper Cloud-Native Router.