

Release Notes for Cisco IOS XRd, IOS XR Release 24.2.21

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XRd is a powerful IOS XR virtual platform that supports a wide variety of technology roles such as virtual route reflector (vRR), virtual cell-site router (vCSR), and virtual provider-edge (vPE). It is available in a containerized form-factor enabling both standalone and Kubernetes-based containerized network deployments.

Cisco IOS XRd Overview

XRd is the latest virtual platform from Cisco that brings the highly scalable, feature-rich, and reliable IOS-XR operating system to containerized network deployments. With XR control plane pedigree shared with the likes of Cisco 8000 and data plane capabilities that are derived from the powerful XRv9000, XRd brings the best of both worlds - enabling high scale control plane use cases such as virtual route-reflector (vRR) and high throughput requirements in virtual provider edge (vPE).

XRd is available in two formats:

- XRd Control Plane
- XRd vRouter

Licensing

Starting with Cisco IOS XR Release 24.1.1, Smart Licensing Using Policy (SLP) is the default Licensing model. When you upgrade to the Cisco IOS XR Release 24.1.1 release or later, the Smart Licensing Using Policy is enabled by default.

You can migrate your devices to Smart Licensing with Policy model, see *Migrating from Smart Licensing to Smart Licensing Using Policy*, Smart Licensing Using Policy on Cisco IOS XR Routers.

We recommend that you update to the latest version of SSM On-Prem or Cisco Smart Licensing Utility.



Note SSM On-Prem and CSSM both support SLP devices and SL devices. SLP devices and SL devices can coexist in a network. The Smart Licensing (SL) model is available in releases Cisco IOS XR Release 7.11.1 and earlier.

Cisco IOS XRd Licensing Model

The Cisco IOS XRd platform offers two types of licensing schemes. This table lists details of Cisco IOS XRd Router's software licenses or entitlements, arranged according to licensing PIDs.

The Cisco IOS XRd instances are pre-loaded with an evaluation license valid for 90 days. For licenses post the evaluation period, you can purchase the XRd licenses using Cisco Smart Licensing.

Table 1: Cisco IOS XRd Licensing PIDs

PIDs	Description
XRD-VR-CP	XRd Control Plane
• XRD-VR-CP-DP-ESS • XRD-VR-CP-DP-ADN	XRd vRouter

What's New in Cisco IOS XR Release 24.2.21

Cisco IOS XR Release 24.2.21 is a service pack release for Cisco IOS XRd routers. There are no new software features introduced in this release.

For the complete list of features supported on Cisco IOS XRd until Cisco IOS XR Release 24.2.21, see:

- Release Notes for Cisco IOS XRd, IOS XR Release 24.2.2
- Release Notes for Cisco IOS XRd, IOS XR Release 24.2.11
- Release Notes for Cisco IOS XRd, IOS XR Release 24.1.2
- Release Notes for Cisco IOS XRd, IOS XR Release 24.1.1
- Release Notes for Cisco IOS XRd, IOS XR Release 7.11.2
- Release Notes for Cisco IOS XRd, IOS XR Release 7.11.1
- Release Notes for Cisco IOS XRd, IOS XR Release 7.10.2
- Release Notes for Cisco IOS XRd, IOS XR Release 7.10.1
- Release Notes for Cisco IOS XRd, IOS XR Release 7.9.2
- Release Notes for Cisco IOS XRd, IOS XR Release 7.9.1
- Release Notes for Cisco IOS XRd, IOS XR Release 7.8.2
- Release Notes for Cisco IOS XRd, IOS XR Release 7.8.1
- Release Notes for Cisco IOS XRd, IOS XR Release 7.7.1

For more details on the Cisco IOS XR release model and associated support, see Software Lifecycle Support Statement - IOS XR.

Host Requirements

This section details the host requirements for both XRd Control Plane and XRd vRouter:

Table 2: XRd Control Plane

Parameter	Requirement
XRd Control Plane Host	
CPU	x86-64 CPU with at least 2 cores
RAM	4 GB
Linux kernel	Version 4.6 and above **Note** The Linux kernel must install the *dummy* and *nf_tables* modules.

Parameter	Requirement
Linux cgroups	Version 1 **Note** Support for unified hierarchy cgroups is not available.
XRd Control Plane instance on the host	
CPU	1 core minimum
RAM	2 GB minimum
Inotify user instances and watches	4000
XRd Control Plane on AWS EC2 instance	
Instance Type	m5.2xlarge
Number of threads per processor core	1
Minimum Disk Size	8 GB **Note** A XRd instance requires the minimum disk size of 8 GB, but there may be demand for additional disk space depending on how the node handles core files.
Operating System	Amazon Linux 2 with EKS Optimizations
Kernel Settings	4000 inotify user instances and watches per XRd instance

Table 3: XRd vRouter

Parameter	Requirement
XRd vRouter Host	
CPU	x86-64 CPU with at least 4 cores
CPU instruction set	• ssse3 • sse4.1 • sse4.2
Linux kernel	Version 4.6 and above **Note** The Linux kernel must install the *dummy*, *vfio-pci or igb_uio*, and *nf_tables* modules.
Linux cgroups	version 1 **Note** Support for unified hierarchy cgroups is not available.

Parameter	Requirement
XRd vRouter instance on the host	
CPU	2 minimum, 1 isolated for the dataplane use
RAM	5 GB minimum
Hugepages	3 GB minimum **Note** The XRd vRouter instance must enable Hugepage support with 1GB hugepage size.
Inotify user instances and watches	4000
XRd vRouter on Amazon EC2 Instance	
Instance Types	• m5.24xlarge • m5n.24xlarge
Number of threads per processor core	1
Minimum Disk Size	8 GB **Note** A XRd instance requires the minimum disk size of 8 GB, but there may be demand for additional disk space depending on how the node handles core files.
Operating System	Amazon Linux 2 with EKS Optimizations
Kernel Settings	• 4000 inotify user instances and watches per XRd instance • CPU isolation settings for the required XRd deployments
Additional Kernel Modules	• uio (from Amazon Linux 2) • igb_uio from dpdk-mods package with write combine mode enabled
Hugepages	6 GB **Note** The XRd vRouter instance must enable Hugepage support with 1GB hugepage size.



Note For using Docker to run the containers, you need Docker version 18 or above with permission to run Docker containers.



Note Cisco IOS XRd is not supported for production networks on Linux, including Ubuntu or any other distribution. Carefully consider this restriction when planning deployments to avoid potential issues.

Caveats

There are no caveats in this release.

Other Important Information

Upgrading Cisco IOS XRd Software

Cisco IOS XRd software is a containerized form-factor deployment that follows the container pattern regarding software upgrades and does not support standard IOS-XR install or upgrade operations. To use the latest XRd software, you can create a new XRd instance with the latest software in place of the previous XRd instance and attach the necessary persistent state to the new XRd instance. The new XRd software may be a different version of IOS-XR or the existing version of IOS-XR with new or bugfix RPMs applied (or a combination of the two). An XRd container image containing new or bugfix RPMs is created from an existing XRd container image using standard container build tools (such as **docker build** or **buildah**) to install the new software packages to the existing **base** image. The **apply-bugfixes** script within the **xrd-tools** repository (https://github.com/ios-xr/xrd-tools) is available to achieve this using **docker build**, and you can use it as a template for other container build tools.

Related Documentation

The most current Cisco IOS XRd documentation is located at the following URL:

https://www.cisco.com/c/en/us/support/routers/ios-xrd/series.html

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