

Release Notes for Cisco IOS XRd, IOS XR Release 7.11.1

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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

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 |
| <ul style="list-style-type: none">• XRD-VR-CP-DP-ESS• XRD-VR-CP-DP-ADN• XRD-VR-CP-DP-ADV | XRd vRouter |

What's New in Cisco IOS XR Release 7.11.1

For the complete list of features supported on Cisco IOS XRd until Cisco IOS XR Release 7.11.1, see:

- [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](#).

Software Features Enhanced and Introduced

| Feature | Description |
|--|---|
| High-availability for XRd vRouter in the AWS environment | You can make use of XRd vRouter as a Cloud Router on Amazon Elastic Kubernetes Service (Amazon EKS), which now supports running as a highly available redundant pair. This incorporates VRRP monitoring to actively manage the session state, along with 'high-availability automation logic' running in peer containers configured to update the AWS APIs. |

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 and above Note The Linux kernel must install the <i>dummy</i> and <i>nf_tables</i> modules. |
| Linux cgroups | Version 1 Note Support for unified hierarchy cgroups is not available. |
| XRd Control Plane instance on the host | |
| CPU | 1 core |
| RAM | 2 GB |
| Inotify user instances and watches | 4000 |
| XRd Control Plane on AWS EC2 instance | |
| Instance Type | m5.2xlarge |

| Parameter | Requirement |
|--------------------------------------|--|
| 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 | <ul style="list-style-type: none"> • ssse3 • sse4.1 • sse4.2 |
| Linux kernel | Version 4 and above Note The Linux kernel must install the <i>dummy</i> , <i>vfio-pci</i> or <i>igb_uio</i> , and <i>nf_tables</i> modules. |
| Linux cgroups | version 1 Note Support for unified hierarchy cgroups is not available. |
| XRD vRouter instance on the host | |
| CPU | 2 isolated |
| RAM | 5 GB |
| Hugepages | 3 GB 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 | <ul style="list-style-type: none"> • m5.24xlarge • m5n.24xlarge |

| Parameter | Requirement |
|--------------------------------------|---|
| 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 | <ul style="list-style-type: none"> • 4000 inotify user instances and watches per XRd instance • CPU isolation settings for the required XRd deployments |
| Additional Kernel Modules | <ul style="list-style-type: none"> • uio (from Amazon Linux 2) • igb_uio from DPDK 19.11.12, with write combine mode enabled |
| Hugepages | 3 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.

Caveats

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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