



Release Notes for Cisco IOS XRv

The Cisco IOS XRv Router is a Virtual Machine (VM) based platform running 32-bit Cisco IOS XR software with the QNX microkernel. This VM contains a single Route Processor (RP) with control plane functionality and Line Card (LC) network interfaces with their associated functionality.

The Cisco IOS XRv Router provides these benefits of virtualization in the cloud environment.

- **Hardware independence**—The Cisco IOS XRv Router runs on a virtual machine, therefore, can be supported on any x86 hardware supported by the virtualization platform.
- **Sharing of resources**—The resources used by the Cisco IOS XRv Router are managed by the hypervisor, and can be shared among VMs. The amount of hardware resources that the VM server allocates to a specific VM, can be reallocated to another VM on the server.
- **Flexibility in deployment**—You can easily move a VM from one server to another. Thus, you can move the Cisco IOS XRv Router from a server in one physical location to a server in another physical location without moving any hardware resources.

The Cisco IOS XR Software running on the Cisco IOS XRv Router provides the following features:

- **IP features**—This supports a wide range of IPv4 and IPv6 services and routing protocols such as IPv4 unicast services, IPv6 unicast services, IPv4 Multicast services, IPv4 and IPv6 equal-cost multipathing (ECMP), IPv4 and IPv6 load balancing, Cisco Discovery Protocol, IPv4 and IPv6 addressing, and Internet Control Message Protocol (ICM).
 - **Layer 3 routing protocols**—This supports routing protocols such as Border Gateway Protocol Version 4 (BGPv4), Open Shortest Path First Version 2 (OSPFv2) and Version 3 (OSPFv3), and Intermediate System-to-Intermediate System (IS-IS) Protocol.
 - **Multiprotocol Label Switching (MPLS) Features**—Supports MPLS features such as MPLS Label Distribution Protocol (LDP), Resource Reservation Protocol (RSVP), Diffserv Aware Traffic Engineering (TE), MPLS Traffic Engineering control plane (RFCs 2702 and 2430), MPLS forwarding and MPLS load balancing.
 - **Network Management**—This supports features like Enhanced CLI, XML interface and Simple Network Management Protocol (SNMP) support.
 - **Software Maintenance Update (SMU)**—Support for applying fixes for software defects between releases.
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Cisco IOS XRv Packages

This table lists the software feature set matrix (packages, also called *software images*) and associated filenames available for the Cisco IOS XRv router.

Package	Description
Demo Image	<p>A portable, downloadable virtual machine that is hamstrung to limit its usefulness, but enables a number of internal and external use cases including IOS XR training and familiarization, demonstrations, sales tool, and early field trial (EFT) for control plane features.</p> <ul style="list-style-type: none"> • Available free for users. • AAA hardcoded users. • Rate limit of 2 Mbps.
Simulation Image	<p>Provides large-scale, high-fidelity control-plane network simulations.</p> <ul style="list-style-type: none"> • No hardcoded users. • Rate limit of 50 Mbps.
Production Image	<p>Provides a platform for a Cisco IOS XR based virtual Route Reflector. The virtual Route Reflector supported configuration is limited to a single CPU and the VMWare ESXi hypervisor.</p> <ul style="list-style-type: none"> • No hardcoded users. • No rate limit.

Caveats

Caveats describe unexpected behavior in Cisco IOS XR Software releases. Severity-1 caveats are the most serious caveats; severity-2 caveats are less serious.

Release 5.1.1

Bug ID	Severity	Headline
CSCuh44312	2	IOS XRv crashes when run with more than one CPU.
CSCui75114	3	Packet drops seen periodically with the virtio driver interface.

Cisco Bug Search Tool

Use the Bug Search Tool (BST) to view the list of outstanding and resolved bugs in a release.

BST, the online successor to Bug Toolkit, is designed to improve the effectiveness in network risk management and device troubleshooting. The tool allows partners and customers to search for software bugs based on product, release, and keyword, and aggregates key data such as bug details, product, and version. The tool has provision to filter bugs based on credentials to provide external and internal bug views for the search input.

The BST is available at [Bug Search](#). To search for a specific bug, go to <https://tools.cisco.com/bugsearch/bug/bugid>. For more information on BST, see [Bug Search Help](#).

Search Bugs in BST

Follow the instructions below to search bugs specific to Cisco IOS XR Software Release 5.1.1 in BST.

Procedure

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- Step 1** Go to <https://tools.cisco.com/bugsearch/>.
Log in to the tool using your Cisco.com user name and password. After successful login, the Bug Search Tool page opens.
- Step 2** To search for Release 5.1.1 bugs, enter the following parameters in the page:
- Product—Select **Series**, enter Cisco IOS XRv Software in the text box. You can alternately navigate to the product name from the **Select from list** link.
 - Releases—Enter 5.1.1.
 - Show Bugs—Select **Affecting or Fixed in these Releases**.
- Step 3** Press **Enter**.
- Note**
- By default, the search results include bugs with all severity levels and statuses, and bugs that were modified during the life cycle of the bug. After you perform a search, you can filter your search results to meet your search requirements.
 - An initial set of 25 search results is shown in the bottom pane. Drag the scroll bar to display the next set of 25 results. Pagination of search results is not supported.

The show version Command

To determine the version of Cisco IOS XR Software running on your Cisco IOS XRv router, log in to the router and enter the **show version** command:

Procedure

Step 1 Establish a Telnet session with the router.

Step 2 Enter **show version** command from EXEC mode.

```
RP/0//CPU0:router# show version
Cisco IOS XR Software, Version 5.1.1.18C[Default]
Copyright (c) 2014 by Cisco Systems, Inc.
```

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System Requirements

Hypervisors

The Cisco IOS XRv Router is hypervisor agnostic. The demo image, which is provided without support, is suitable for use on a laptop or on a server which meets the requirements outlined below. For simulation, the supported hypervisors are VMWare ESXi 5.0 or later or QEMU 1.0. For production, VMWare ESXi 5.0 or later is the only supported hypervisor. See below for more information on VMWare ESXi and QEMU:

- VMWare ESXi 5.0 and higher—VMware ESX and VMware ESXi are bare-metal embedded hypervisors from VMware's enterprise software for guest virtual servers that run directly on host server hardware without requiring an additional underlying operating system.
- QEMU 1.0—Quick EMUlator (QEMU) is a free and open-source software product that performs hardware virtualization. QEMU is a hosted virtual machine monitor. It emulates central processing units through dynamic binary translation and provides a set of device models, enabling it to run a variety of unmodified guest operating systems. It also provides an accelerated mode for supporting a mixture of binary translation (for kernel code) and native execution (for user code), in the same fashion VMware Workstation and VirtualBox do. QEMU can also be used mainly for CPU emulation for user-level processes, allowing applications compiled for one architecture to be run on another. Kernel-based Virtual Machine (KVM) is virtualization infrastructure for the Linux kernel that QEMU can use to improve performance. KVM requires a processor with hardware virtualization extension.

Servers

The Cisco IOS XRv Router can run on Cisco Unified Computing System (UCS) server or servers from third party vendors that support VMWare ESXi 5.0 or the combination of Ubuntu Linux 12.04LTS and QEMU/KVM 1.0. The server must support the following:

- Intel Nehalem CPU with clock frequency 2.0 GHz or higher.
- Gigabit Ethernet interfaces.

Virtual Machines

The Cisco IOS XRv Router virtual machines must meet the following requirements:

Component	Minimum	Maximum
Memory (RAM)	3 GB	8 GB
Hard Disk	1 disk, 2 GB	Primary disk must be 2 GB, secondary disk of arbitrary size can be added.
CPUs	1 CPU	8 CPUs Note The production use case (Virtual Route Reflector) is currently limited to 1 CPU maximum)
Serial Ports	1 serial port (IOS XR console)	4 serial ports (IOS XR console, IOS XR aux port, 2 debugging ports)
NICs	1 NIC	128 (depending on hypervisor's capabilities)

Related Documentation

The most current Cisco IOS XRv software documentation is located at this URL:

http://www.cisco.com/en/US/partner/products/ps13347/tsd_products_support_general_information.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*, at: <http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>.

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