Junosphere Release Notes

Release 3.0
July 2015
Revision 14

Contents

Release Overview

If the information in your current release notes differs from the information found in the other documentation sources, follow the *Junosphere Release Notes*.

Before You Begin

Before you use your new software, read these release notes in their entirety, especially the section "Known Problems and Limitations" on page 9. You need the following documentation to fully understand all the features available in Release 3.0:

- These *Junosphere Release Notes*
- The *Junosphere Guide for Users* and *Junosphere Guide for Bank Administrators*, which provide detailed information about features available in Release 3.0

The entire documentation set, including the release notes, is available in PDF format on the Juniper Networks Web site on the Junosphere Technical Documentation page.

Junosphere Release Highlights

Junosphere provides a virtual network environment in which you can configure network devices in the same manner as on a physical network.

In addition, this release supports topology copy, topology auto-save, and rich tool tips for all of the icons in the toolbar of the Topology Wizard. A similar tool tip is also available after the icon has been dragged onto the canvas.

New Junosphere Features

This release provides the following new features:

- A new streamlined and more user-friendly interface.
- An advanced architecture that is more robust, flexible, and automated that provides improved performance.
- The following new images: VJX1000 11.4, VJX1000 12.3, VSRX 12.1X47-D20, Junos Space 14.1R3.4, Junos Space 14.1R3 (with applications), VRR 14.2, and Analyzer appliance.
- An expanded set of public topologies covering basic and advanced routing.

Supported Browsers

Junosphere is best viewed with Mozilla Firefox 35.0 or later and Internet Explorer 11.0 or later. In Internet Explorer 11.0, Compatibility View must be turned off in order to view the user interface. If it is turned on, the user interface does not display correctly.

All browsers must have at least SSL TLS 1.0 enabled. We recommend that TLS 1.1 and TLS 1.2 be enabled as well. SSL 2.0 and SSL 3.0 connections are not accepted.

Junosphere Connector Hardware Requirements

The PC requirements to support the Junosphere Connector software are:

- 2 GB RAM
- 1 GB free disk space
- Two Ethernet cards or one Ethernet card and one wireless connection
- VMware Player

Junosphere Java Requirement

Java Runtime Environment Version 8 Update 31

Connectivity Software Requirement

You need to have a connectivity application, such as a telnet or ssh client or a remote access client such as Virtual Network Computing (VNC).

Images

Junosphere provides a range of virtual machine image files, depending on the services you purchased. Current virtual image files for this release are listed in Table 1 on page 4. See the virtual machine image descriptions in the online help for information about using and installing the images.

Table 1: Current Virtual Machine Images

Image Name	Description	Technical Support Provider
VJX1000_LATEST	Latest qualified VJX1000 image using Junos OS Release 12.3	Juniper Technical Assistance Center (JTAC)
VJX1000_12_1	Junos OS Release 12.1 for VJX1000	Not supported by JTAC
VJX1000_11_4	Junos OS Release 11.4 for VJX1000	Not supported by JTAC
VJX1000_10_3R2_3	Junos OS Release 10_3R2_3 for VJX1000	Not supported by JTAC
VJX1000_10_3R2_2	Junos OS Release 10_3R2_2 for VJX1000	Not supported by JTAC
VJX1000_10_3R2_1	Junos OS Release 10_3R2_1 for VJX1000	Not supported by JTAC
VJX1000_10_3R2_0	Junos OS release 10_3R2_0 for VJX 1000	Not supported by JTAC
BGP_SERVICE	Latest qualified BGP Service image. This is a special configuration of VJX that is used for BGP Service, based on the latest Junos OS release.	JTAC

Table 1: Current Virtual Machine Images *(continued)*

Image Name	Description	Technical Support Provider
SPACE_LATEST	Latest qualified Junos Space 14.1R3.4 image.	JTAC
SPACE_APPS	Junos Space 14.1 installed with Network Director, Security Director, Service Automation, Services Activation, Virtual Director.	JTAC
CENTOS_5_3	CentOS 32-bit image	NA
CENTOS64_5_4	CentOS 64-bit image	NA
MU_STUDIO_LATEST MU_TESTENGINE_LATEST	Latest qualified Mu Studio and Test Engine images. This currently maps to Mu Studio 6.1	Mu Dynamics
VPTX_LATEST	Latest qualified VPTX image.	NA
VRR_LATEST	Latest qualified VRR release 14.2.	JTAC
VSRX_LATEST	Latest qualified VSRX release 12.1X47.	JTAC
ANALYZER	Latest qualified Analyzer appliance image.	Community
WANDL_LATEST	Latest qualified WANDL release 6.0.2 image.	Wide Area Network Design Laboratory

Table 2: Unqualified Junos Releases

Image Name	Description	Technical Support Provider
VMX_14_1	Latest unqualified VMX 14.1 image.	NA
VMX_MRT	Latest unqualified VMX image with Maximally Redundant Trees implementation to handle failure protection and restoration in networks.	NA

VJX1000 Image

By default, the VJX image is configured with a root and non-root user account. The root username is **root** and the password is **Clouds**. The non-root username is **juniper** and the password is **Clouds**. Each VJX image has 2 GB of memory.

Customers running VJX1000 virtual machines based on Release 12.1 of Junos OS for J Series routers will see new messages during boot up and during commit. The messages will be of the form:

/config/license/JNX_LICENSE_TMP.lic:1:(0) JNX_LICENSE_TMP: serial number too large

These messages are benign and can be safely ignored.

VJX1000 Image Network Interfaces

For Junos OS Release 12.3, the VJX1000 image supports Gigabit Ethernet as a physical interface.

VJX Image for Junos OS Release 12.3

The VJX1000_LATEST image is based on Junos OS Release 12.3.

VJX1000 Image Features

For Junos OS Release 12.3, the VJX1000 image supports the features found in the VJX1000 Release Notes.

For Junos OS Release 12.3, the VJX1000 image supports the following software services:

- IPv4
- IPv6
- OSPF
- BGP
- IS-IS
- MPLS
- L3VPN
- L2VPN
- MPLS-TE
- RSVP
- Multicast
- L2Circuit (PWE3)
- BGP-labeled unicast
- XML
- ISISv6
- OSPFv3
- Ethernet CCC
- The Layer 2 services and CoS support is the same as for J Series routers
- Only forwarding in packet mode has been qualified

BGP Services Image

This release has support for the BGP_SERVICES image.

Please note that the IPv6 BGP feed is not supported for the current release in Junosphere.

CentOS Image

This release supports two CentOS Linux versions:

- CENTOS_5_3 for 32 bits
- CENTOS64_5_4 for 64 bits

The CentOS virtual machine images contain iperf, mgen, and wireshark applications.

iperf is a network testing tool that can create TCP and UDP data streams and measure the throughput of a network that is carrying them.

mgen is open source software that provides the ability to perform IP network performance tests and measurements using TCP and UDP/IP traffic.

wireshark is an open source network protocol analyzer.

Junos Space Image

This release supports the following versions of Junos Space:

- 14.1 with pre-installed applications (Network Director, Security Director, Service Automation, Services Activation, Virtual Director)
- 14.1 (platform only)

To use Junos Space in your network topology, refer to the online help file located on the Junosphere.net welcome page.

Mu Studio and Mu Test Engine Images

This release has support for Mu Studio and Mu Test Engine from Mu Dynamics (version 6.1 for both). These tools enable you to quickly and accurately recreate thousands of different applications to determine how they impact the network infrastructure from a performance and security perspective.

VPTX

This release includes support for the VPTX latest image.

VSRX

This release includes support for the VSRX release 12.1x47 image.

VMX

This release includes support for the VMX_14_1 and VMX_MRT experimental images.

VRR

This release includes support for the VRR release 14.2 image.

Analyzer Appliance

This release includes support for the Analyzer appliance image.

WANDL

This release includes support for the WANDL release 6.0.2 image.

Network Topology Release Highlights

This section covers the network topology release highlights.

VJX1000 Network Management

All relevant platform manageability components of Junos OS Release 12.3 for J Series routers are supported (such as CLI, SNMP, traps, and logs). The only difference compared to current physical routers is that the virtual routers have virtual interface adapters.

VJX1000 Junos OS Documentation

For Junos OS Release 12.3, the VJX1000 image is documented in the VJX1000 Release Notes.

For help on supported features on the network devices, including the CLI features, you can use the documentation for Junos OS Release 12.3 for J Series routers found on the Junos OS for J Series, Release 12.3 Technical Documentation page.

VJX1000 Hostnames and IP Addresses

While you are able to use your existing hostnames and IP addresses in the Junosphere topology models, and while Junosphere is architected based on secure VPN paradigms, we recommend for additional security that you use alternative names and addresses in your topology files.

A VNC server is enabled on both virtual servers (vnc: *management_Ethernet_address*:1).

Topology Fileset Size Constraints

The full topology fileset must be less than 10 MB, and each individual file in the fileset can be no larger than 6 MB.

Features Not Fully Qualified

The Junosphere Release 3.0 documentation set describes a feature that is present, but has not yet been fully qualified by Juniper Networks. This feature will be fully tested and supported in a future release:

- Packet forwarding in flow mode; this enables all the stateful security features, such as a stateful firewall, in the release.

Known Problems and Limitations

This section identifies known problems and limitations in this release.

User Interface

- Committed VJX configuration changes may take longer than expected to show up in the downloaded configuration files immediately following Save and Save As commands. Check the changes in the configuration files after the Save/Save As (you will have to download the topology to your host environment to check). If the changes are not there, wait 30 seconds and repeat (PR/731033).
- Occasionally, even though the message in the Messages tab of the Details section of the Access Active Topologies window may inform you that the topology started successfully, not all virtual machines started successfully. If you cannot Telnet to one or more virtual machines, stop and restart the topology. If the problem persists, contact Juniper Networks Technical Assistance Center (JTAC).
- Junosphere is best viewed with Mozilla Firefox 19.0 or greater and IE 9.0 or greater. In IE 9.0, Compatibility View must be turned off in order to view the user interface. If it is turned on, the user interface does not display correctly.
- When a user tries to execute an operation in Junosphere, a message might appear that says that the connection is lost or a link is broken. The user needs to click the Refresh icon. The browser defaults to the Welcome page and the user must navigate back to the page he or she was on when the Refresh icon was clicked.
- The maximum transmission unit (MTU) in the VJX interface must be set to less than 1500 (default). Otherwise, it cannot route BGP packets. The MTU should be set to 1200.
- Junosphere has been tested on Windows and Linux platforms.

Virtual Images

- The Packet Design Route Explorer virtual image was removed from the current Junosphere release.
- The Spirent TestCenter virtual image was removed from the current Junosphere release. It is no longer supported and you should remove existing VMs from your topology.
- The Junos Space 13.1 virtual machine image with pre-installed applications takes at least 15 minutes after a topology is active to get web service. The Junos Space 13.1 platform virtual machine image takes 10 to 12 minutes after a topology is active to get web service.
- The Cariden MATE virtual image was removed from the current Junosphere release.
- The Puppet Labs virtual image was removed from the current Junosphere release.

- For VMX images, Junosphere currently supports only the Juniper Networks **VMX_13_3** and **VMX_MRT** images. Any other VMX image versions do not work in Junosphere. If you start a topology that contains an old VMX image, you will receive an error message and the topology will fail to start. In order to start a topology that includes an old VMX image, you must replace the image with the **VMX_13_3** image or **VMX_MRT** image. You can do this using the topology wizard.

  To replace an old VMX image in Junosphere:

  1. From the navigation tree, select **Topologies > Manage Topologies**.
  2. In the **Topologies** section, select the check box next to the topology in which you need to replace the VMX image and then click the **Edit Topology** pencil icon that appears in the top left corner of the screen.
  3. You may receive an error message. Click **Ok** to close the error message. The topology wizard canvas appears.
  4. You must first delete the old VMX image from the topology wizard canvas. To delete the image, right click on the image and select **Delete** from the menu.
  5. Next, delete any associated bridges for the image. To delete a bridge, right click on the bridge and select **Delete** from the menu.
  6. To replace the image, drag and drop the new VMX image that is located in the **Juniper - Experimental** section of the images tool bar.
  7. Next, replace the bridges that you deleted. To replace a bridge, hover the cursor over the center of the virtual machine that you want to connect until a hand icon appears and the selected element is surrounded by a green box. Then click and drag your cursor until it connects to the new VMX image.

     Repeat this step for all bridges that you need to replace.
  8. Click the **Save** button that appears in the lower right corner of the topology wizard canvas.

     Your topology now contains the updated image.

- The Junos Space 12.2 image with applications (SPACE_12_2R1_3_APPS) is not available due to a possible defect.
- If you are using a VJX virtual machine image version prior to version 12.3, which is the VJX_LATEST macro, you may experience a licensing issue with the virtual machine image. When this happens, the VJX image needs to be restarted. If you still experience a licensing issue after restarting the VJX image, the license file needs to be patched manually during run time.

Joining an Active Topology

- If you are using Java Version 8 Update 31 when you try to join topologies, you must configure the Java security settings to use TLS 1.0. We recommend that you also set the options to use TLS 1.1 and TLS 1.2.

To change the security settings:

1. Open the **Java Control Panel**.
2. Select the **Advanced** tab.
3. On the **Advanced** tab, select the Use TLS 1.0, Use TLS 1.1, and Use TLS 1.2 options.
4. Click the **OK** button at the bottom of the Java control panel window.
5. Return to Junosphere and click the **Join** button again to join your topology.

- Mac users sometimes cannot join an active topology because Secure Access is not automatically downloaded from the browser to install the Network Connect software.

  To enable Mac users to join a topology in this situation:

  1. Download the appropriate version of Pulse and install it on the Mac with the help of the Juniper Networks Technical Assistance Center (JTAC). JTAC can assist you with the installation, create a new connection entry, and ensure that the Join operation completes.

     

     NOTE: **When you install any software on a Mac, you must always enter the admin password even though the user is an admin by default.**

  2. After you click **Join**, note the URL on the active tab or frame of the browser. It is in the format **https://sa*X*.junosphere.net**, where *X* is an integer.
  3. Open the Pulse application, create a new connection with this URL, and click **Connect**.

     

     NOTE: **When you restart a topology, the URL might change. You must have a connection with this new URL to complete the Join operation.**

  4. Once the connection is established, enter your Junosphere credentials to complete the Join operation.

Topologies

- In the Topology Wizard, there is a limit of 32 connections to a bridge domain.
- If you download a topology and upload it into another library, you can no longer preview it or edit it using the topology wizard. However, you can copy a topology from one library to another and the copied topology can be previewed and edited using the topology wizard as long as the source topology was created using the topology wizard.

  To copy a topology, go to **Topologies > Manage Topologies**, select the topology that you want to copy, and click the **Copy** icon located in the top left corner of the screen. A new window appears where you can specify a new name for the topology and select one or more destination libraries for the topology. Then, you can edit the topology in

the topology wizard by clicking the **Edit topology** icon located in the top left corner of the **Manage Topologies** window.

- Occasionally, you might be presented with a dialog box stating that you are no longer connected to a topology, but your topology's Network Connect session cannot be terminated. For security purposes, you must manually disconnect from the Network Connect session on your host. This might happen in the following situations:
  - If you leave a topology, but the Network Connect session is still showing as connected and you never receive a session time-out message.
  - You stop the topology, but the Network Connect session is still showing as connected.
  - You join a topology, then try to join another topology. If the Network Connect session did not end before you try to log in to the Junosphere Access Portal for the second topology, then you must sign out manually from the first Network Connect session.
- To install the Network Connect software, you must have administrative rights on your computer.
- Users should assign the hostnames for virtual machines when the topology is created or edited in the Topology Wizard. It is important to create unique hostnames within the topology.
- In the Topology Wizard, when you rename a Virtual Machine (VM), it changes the hostname in the .vmm file. However, the hostname is not changed in the configuration files that are associated with it. You must manually change the hostnames in configuration files.
- Junosphere does not recommend changing the host name of virtual routers through the CLI because this prevents Junosphere from saving configuration changes to the correct .config files.
- Auto logout does not work when you are in the **Administration > Access Active Topology** window. For security purposes, we recommend that you log out if you are not using Junosphere.

Parsing Capabilities

- Parsing capabilities prevent user mistakes by limiting the use of free-form nomenclatures, such as custom bridge names, in a topology file. Currently, only bridge names in the range of private0 to private123 are allowed.

Junosphere Connector

- To configure 802.1q VLAN tagging pass-through when using Junosphere Connector with the VMWare ESXi server, you must set the VLAN ID of the port group of the vSwitch to 4095. This will put the port into VGT mode which allows VLAN tags to be preserved across the vSwitch.
- Junosphere Connector works on:
  - Linux:
    - CentOS release 5.5 (Final)

  - CentOS release 6.4 (Final)
  - Fedora release 14 (Laughlin)
- Windows

Virtual Routers

- The IPv6 BGP feed is currently not supported on Junosphere (PR/691145).
- The auto-negotiation status always shows the status as Incomplete (PR/582791).
- Web browser access to virtual routers via the Juniper Web Device Manager does not work.
- When using a Web browser to access virtual routers, the Authentication button keeps spinning with a “loading data” message.

Configuration File

- Junos OS configuration files *must* have a **.conf** extension because the VJX virtual machine saves configuration changes to the filename with a .conf extension. If you name a Junos OS configuration file <*host-name*>.config, zip it up, and load it to Junosphere, Junosphere will use the configuration files as is. It preserves the file name as is with the .config extension. The virtual machines are booted with these files and the virtual machines do not care about the extension either. But after you make changes to the virtual machine and commit the changes, the virtual machine saves the changes using the same file name but with a .conf extension. As a result, when you issue Save/Save As, the operation causes Junosphere to look for files with the original **.config** extension. Since the changes were written to files with a .conf extension, the changes never make it back to Junosphere. When you download the configuration file sets, you will not see the changes.
- An interface ge-0/0/0 configuration is added to the **topology.vmm** topology file at the time of starting the topology. Remove the interface ge-0/0/0 configuration to avoid having duplicate IP addresses. First, commit your configuration changes. Download the zipped configuration fileset from the topology to your local PC and unzip it. Edit each **.conf** file, removing the interface ge-0/0/0 configuration. Save the **.conf** files and zip the configuration file set. The next time you upload the zipped topology fileset and start the topology, the new configuration will be implemented.
- In the **topology.vmm** file, interfaces must be sequential; i.e., em0, em1, em2, and so on. Also, words that appear in all capital letters in script examples must be entered exactly as they appear in the examples. For example, EXTERNAL instead of external.

Secure Access

Secure Access is the technology behind the Junosphere Access Portal page. You can find information relating to it in the Secure Access Release Notes. Click the 7.1R1 version on the following page:

http://www.juniper.net/techpubs/en_US/sa7.1/information-products/pathway-pages/sa-series/index71.html
.

Operational Notes

- Reservations can be cancelled up to one hour before the start time.
- Set your browser to allow pop-ups from junosphere.net. The Network Connect function requires them.
- The time zones displayed in Junosphere for reservation start time and end time are always in the time zone in which the browser is running. To make a reservation for another time zone, either convert the reservation time to your time zone or temporarily change your operating system time zone.
- To change your own password, click the Settings icon in the upper right corner of the screen. The **Change Password** dialog box appears. Type your old password and new password (twice). Click the **Change** button.
- The Junos Space image in Junosphere cannot display the device list or back-up configuration files properly. When backing up a configuration file from Junos Space, Junos Space sees all devices as a single device, so multiple configurations are saved under the first device name.
- Navigating to the Active Topology tab with a large topology may cause a "JSPR-000 : Internal error occurred" message to be displayed (PR/813913). Refresh the browser.
- The user may see a "Connection Timeout" message in the browser. This could be caused by slow internet connection, bursty traffic, and load on intermediary servers. Refresh the browser.
- In the Virtual Machines tab, one or more of the VJX states my remain in "UNKNOWN" state. This could be caused by a bad or corrupted configuration file or a bad VJX license file. To fix this problem:
  1. Select the VJX.
  2. Click the **Reset** button and immediately telnet to the VJX and observe the boot process.
  3. Once the login prompt is visible, log in to the VJX
  4. Go to the CLI and verify the configurations with the appropriate CLI commands.
- VJX12.3 has the following PR:
  - 846146 SNMPD_SET_FAILED: Snmp set failed: unable to connect to mgd.
- VJX, VSRX, VPTX and VMX currently do not support In-Service Software Upgrade (ISSU).
- Users must use **root/Cloud** credentials to access the VMX image. Otherwise, the credentials are deleted each time the topology is restarted or the VM goes through the bind and start process.

Resolved Known Problems

- For VJX12.3: page fault in check_llc2_ifd. (PR841355)

Documentation and Release Notes

For disclosure information on Junosphere Connector, refer to the files located at http://www.juniper.net/support/products/junosphereconnector.

To obtain the most current version of all Juniper Networks® technical documentation, see the product documentation page on the Juniper Networks website at http://www.juniper.net/techpubs/.

If the information in the latest release notes differs from the information in the documentation, follow the product Release Notes.

Juniper Networks Books publishes books by Juniper Networks engineers and subject matter experts. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration. The current list can be viewed at http://www.juniper.net/books.

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract, or are covered under warranty, and need post-sales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the *JTAC User Guide* located at http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf .
- Product warranties—For product warranty information, visit http://www.juniper.net/support/warranty/ .
- JTAC hours of operation—The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: http://www.juniper.net/customers/support/
- Search for known bugs: http://www2.juniper.net/kb/
- Find product documentation: http://www.juniper.net/techpubs/
- Find solutions and answer questions using our Knowledge Base: http://kb.juniper.net/

- Download the latest versions of software and review release notes: http://www.juniper.net/customers/csc/software/
- Search technical bulletins for relevant hardware and software notifications: https://www.juniper.net/alerts/
- Join and participate in the Juniper Networks Community Forum: http://www.juniper.net/company/communities/
- Open a case online in the CSC Case Management tool: http://www.juniper.net/cm/

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: https://tools.juniper.net/SerialNumberEntitlementSearch/

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at http://www.juniper.net/cm/ .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, see http://www.juniper.net/support/requesting-support.html .

In order to open a case with JTAC for Junosphere, you must provide the bank serial number, which is located on in the Banks section of the View Banks/Sandboxes/Libraries screen in the Serial Number column.

Revision History

01 August 2013—Revision 1, Junosphere 3.0

29 August 2013—Revision 2, Junosphere 3.0

02 October 2013—Revision 3, Junosphere 3.0

04 November 2013—Revision 4, Junosphere 3.0

06 December 2013—Revision 5, Junosphere 3.0

19 December 2013—Revision 6, Junosphere 3.0

07 January 2014—Revision 7, Junosphere 3.0

13 January 2014—Revision 8, Junosphere 3.0

16 January 2014—Revision 9, Junosphere 3.0

27 January 2014—Revision 10, Junosphere 3.0

17 July 2014—Revision 11, Junosphere 3.0

11 February 2015—Revision 12, Junosphere 3.0

15 June 2015—Revision 13, Junosphere 3.0

21 July 2015—Revision 14, Junosphere 3.0