Junos® Space Network Director Release Notes

Release 3.0R1
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Junos Space Network Director enables unified management of EX Series Ethernet Switches, EX Series switches with ELS, QFX Series switches, QFX Series switches with ELS, MX Series routers, Data Center fabrics (QFabrics, Virtual Chassis Fabrics, and Layer 3 Fabrics), cloud-based and bare-metal-based data centers, and Juniper Networks WLC Series Wireless LAN Controllers (WLCs) in your network.

Contents

Network Director Release Notes, Release 3.0R1

Overview

Junos Space Network Director enables unified management of QFX Series switches, QFX Series switches with ELS, Datacenter Fabrics, EX Series Ethernet Switches, Junos Fusion Enterprise Fabric, EX Series switches with ELS, MX Series routers with ELS, Juniper Networks WLC Series Wireless LAN Controllers (WLCs), and VMware vCenter devices in your network. It provides for full network life cycle management by simplifying the discovery, configuration, visualization, monitoring, and administration of large networks containing physical and virtual devices. You can download the software images for Network Director, Junos Space Management Platform, management packs, and the release notes for Network Director Release 3.0 by using the appropriate links on the Junos Space—Software Download page.

New and Modified Features for Network Director

- **Junos Fusion Enterprise**—Junos Fusion technology, based on the IEEE 802.1BR standard, is a rich, open framework that makes networks more versatile, extensible, and responsive in multivendor environments improving network agility and reducing costs. Junos Fusion Enterprise provides automated network configuration and simplifies scalability for medium to large enterprise networks with the Juniper Networks EX9200 line of Ethernet switches and EX4300 switches.

  You can now plan, deploy, manage, and monitor Junos Fusion Enterprise fabrics using the Network Builder task in Network Director.

  

  NOTE: **For aggregation devices, port monitoring is supported on Junos Fusion Enterprise 16.1R3-S(1.x) release.**

  For more information about this feature, see Understanding Junos Fusion Enterprise.

- **EVPN VXLAN support**—Network Director supports Ethernet VPN (EVPN) - Virtual Extensible LAN (VXLAN) overlay solution configuration over Layer 3 Fabric(s). Data center and cloud operators can deploy much larger networks with underlay Layer 3 Fabric(s)—coupled with EVPN-VXLAN overlay solution — than with traditional Layer 2 Ethernet-based architectures. Network Director uses bare-metal servers or virtual servers, or both, and uses OpenClos for EVPN-VXLAN solution management.

  Network Director enables you to create, manage, and monitor EVPN—VXLAN overlay networks and tenants on a Layer 3 Fabric based data center using the Overlay Networks Builder task in the Datacenter view.

  Network Director Release 3.0 supports setting up EVPN—VXLAN overlay networks across the following device types:

  - Bare-metal servers to bare-metal servers (same VLAN/VNI)
  - Bare-metal servers to ESXi (same VLAN/VNI)
  - ESX to ESX (same VLAN/VNI)

  For more information about this feature, see VXLAN—EVPN Overlay Overview.

- **New hardware support**—Network Director now supports the discovery and management of QFX10008 and QFX5200-32C switches. QFX10008 is a modular, 8-slot switch supporting up to 240 100-Gigabit Ethernet interfaces, 288 40-Gigabit Ethernet ports or 1,152 10-Gigabit Ethernet ports in a single chassis. The QFX5200 Ethernet Switches deliver line-rate, low-latency, and high-density platforms for building large spine-and-leaf IP-fabric data center networks.

  For more information, see Understanding Build Mode in Network Director.

- **Auto assignments**—Auto assignments automatically assign port profiles to various switch ports on supported devices. When any of the device ports that you specified in an auto assignment are connected to a device, Network Director initiates a job to update the port profile configuration on the connected ports. A new sub-task, Manage Auto Assignment, is included under the Wired task to create auto assignments.

NOTE: Auto assignment is applicable to Campus ELS and EX Series switches only.

For more information about this feature, see Managing Auto Assignment Policies.

- **Easy Config Setup**—Easy Config Setup enables you to perform configurations by directly selecting the device and the port in a device, instead of creating a new profile, and assigning the profile to a device or a port on the device. You can directly deploy the configuration to the device.

  For more information about this feature, see Configuring Easy Config Setup.

- **Organizationally unique identifier (OUI) data support for network printers**—OUI is unique to a vendor or manufacturer and can be used to identify network printers globally. The OUI is formed using the first three octets of the device MAC address. You can build a database of OUIs using the Manage OUI task in Network Director and use it to identify the device type. During the topology discovery, if the LLDP-based discovery does not identify a device type, Network Director looks up in the OUI database to check whether there is a match. If Network Director finds a matching entry, the device is notated as a printer in the network topology.

  For more information about this feature, see Adding and Managing OUI Data in Network Director.

- **Enhancements to the Connectivity task**—The Connectivity task is enhanced with the following features:

  - You can now view the device connectivity details (in graphical and grid view) for the aggregation and satellite devices of Junos Fusion Enterprise (under View Device Connectivity).
  - A new sub-task, Manage OUI, is included in the Connectivity task of Network Director. This task enables you to detect the printers in the network using the OUI data.
  - The View VC/VCF Connectivity task shows inactive members. The inactive members are shown as grey icons in the topology to identify the member's state.
  - Color coded port utilization is shown in the Links tab.

  For more information about this feature, see Viewing Device Connectivity.

- **Enhancements to the monitor mode settings**—A new option Device Settings is added to enable or disable collection for one or more devices.

  For more information about this feature, see *Changing Monitor Mode Settings*.

For information about these features, see the product documentation that is available from the Network Director user interface or see the Junos Space Network Director Documentation page.

Junos Space Network Management Platform Requirements

Network Director Release 3.0 is supported on the Junos Space Network Management Platform Release 16.1R1. You must download this release of Network Director and Junos

Space Network Management Platform from Junos Space Network Management Platform - Download Software page.

Network Director is supported on a Junos Space JA2500 appliance or a Junos Space Virtual Appliance that meets the hardware requirements specified in the Junos Space documentation. Network Director is not supported on a Junos Space instance running on a Juniper Networks NSM3000 appliance.

Supported Platforms for Network Director in Release 3.0

Table 1 on page 5 lists the supported platforms for Network Director Release 3.0 and the corresponding qualified Junos OS releases, Mobility System Software (MSS) releases, or VMware ESXi releases.

Table 1: Supported Platforms and the Software Versions for Network Director

Supported Platforms	Qualified Junos OS, MSS, or ESXi Releases
QFX Series Switches and Datacenter Fabrics	
QFX10008	Junos OS Releases 15.1X53-D30.19, 15.1X53-D33, and 15.1X53-D60.4.
QFX10002-36Q QFX10002-72Q	Junos OS Release 15.1X53-D61
QFX5200-32C QFX5200-32Q	Junos OS Release 15.1X53-D30.5
QFX5100 switches with the following product SKUs: QFX5100-48S-3AFI QFX5100-24Q-3AFI QFX5100-24Q-3AFO QFX5100-24Q-D-3AFI QFX5100-24Q-D-3AFO	Junos OS Release 14.1X53-D35.3
QFX10002 as Layer 3 Fabric spine device QFX5100 as Layer 3 Fabric spine or leaf device EX4300 as Layer 3 Fabric leaf device	Junos OS Release 15.1X53-D60 for QFX10002 Junos OS Release 14.1X53-D35.3 for QFX5100 Junos OS Release 14.1X53-D27 for EX4300
QFX10002 as Layer 3 Fabric spine device (in an EVPN-VXLAN configuration) QFX5100 as Layer 3 Fabric (in an EVPN-VXLAN configuration)leaf device EX4300 as Layer 3 Fabric leaf device (in an EVPN-VXLAN configuration)	Junos OS Release 15.1X53-D60 for QFX10002 Junos OS Release 14.1X53-D35.3 for QFX5100 Junos OS Release 14.1X53-D27 for EX4300
QFX5100 switches with the following product SKUs: QFX5100-48T-AFI QFX5100-48T-AFO QFX5100-48T-DC-AFI QFX5100-48T-DC-AFO	Junos OS Release 14.1X53-D35.3

Table 1: Supported Platforms and the Software Versions for Network Director (continued)

Supported Platforms	Qualified Junos OS, MSS, or ESXi Releases
QFX3500 (non-ELS) QFX3600 (non-ELS)	Junos OS Releases 12.3X50-D35 and 12.3X50-D40
QFX3500 with ELS (standalone and Virtual Chassis) QFX3600 with ELS (standalone and Virtual Chassis) QFX5100-48S with ELS (standalone and Virtual Chassis) QFX5100-24Q with ELS (standalone and Virtual Chassis) QFX5100-96S with ELS (standalone and Virtual Chassis)	Junos OS Releases 14.1X53-D35.3
Virtual Chassis Fabric	Junos OS Release 14.1X53-D35.3
QFabric systems (QFX3000-G and QFX3000-M)	Junos OS Releases 14.1X53-D15, 14.1X53-D17, and 13.2X52-D20
EX Series Switches	
EX2200 and EX2200-C (standalone and Virtual Chassis) and EX3200 EX3300 (standalone and Virtual Chassis) EX4200 (standalone and Virtual Chassis) EX4500 (standalone and Virtual Chassis) EX4550 (standalone and Virtual Chassis) Mixed EX4200, EX4500, and EX4550 Virtual Chassis EX6200 EX8200 (standalone and Virtual Chassis)	Junos OS Releases 13.2X50-D10, 13.2X50-D15, 13.2X51-D15, 13.2X51-D20, 13.2X51-D30, 14.1X53-D15, 14.1X53-D25, and 15.1R1 (For all the EX Series switches) Junos Release 14.1X53-D40 (EX4200 standalone and EX4200 Virtual Chassis and EX4300)
EX Series Switches with ELS	
EX2300 and EX3400	Junos Release 15.1X53-D50, 15.1X53-D51, and 15.1X53-D52
EX4600 (standalone and Virtual Chassis)	Junos OS Releases 14.1X53-D10, 14.1X53-D16, 14.1X53-D25, and 14.1X53-D35
EX4300 (standalone)	Junos OS Release 14.1X53-D40.8
EX4300 Virtual Chassis	Junos OS Release 14.1X53-D40.8 NOTE: The master switch in EX4300 Virtual Chassis must be running Junos OS Release 13.2X51-D20 or later for auto Virtual Chassis Resync to work. If this is not the case, the role changes and the addition or deletion of members will not reflect in Network Director.
EX9200 (standalone and Virtual Chassis)	Junos OS Releases 16.1R1
Mixed EX4600 and EX4300 Virtual Chassis	Junos OS Releases 14.1X53-D25 and 14.1X53-D35.3 (For all the EX Series switches)
MX Series Routers	
MX 240, 480, 960 (ELS)	Junos OS Release 15.1R1
MX 80, 104, 240, 480, 960, 2010, and 2020 (non-ELS)	Junos OS Release 15.1R1

Table 1: Supported Platforms and the Software Versions for Network Director (continued)

Supported Platforms	Qualified Junos OS, MSS, or ESXi Releases
Cloud Analytics Engine	
CentOS	CentOS Release 6.6
Ubuntu	Ubuntu Release 14.04
Cloud Infrastructure Providers	
VMware vCenter Server VMware Host	VMware ESXi versions 5.0, 5.1, 5.5, 6.0, and 6.2
OpenStack	Supported Releases—Icehouse and Junos Ensure that the APIs listed in Table 2 on page 8 are running.
VMware NSX	Versions 4.1 and 4.2
NSX-V	Version 6.1
Juniper Networks Management Pack	
VMware vRealize Operations (vROps) Management Pack Release 1.1	VROps Versions 6.0 and 6.0.1
VMware vRealize Operations (vROps) Management Pack Release 2.0	VROps Versions 6.2
DHCP and File Server (FTP and TFTP)	
CentOS	CentOS Release 6.6
Ubuntu	Ubuntu Release 14.04
WLC Series Wireless LAN Controllers	
WLC8 WLC800 WLC880 WLC2800 WLC200	MSS Releases 7.7, 8.0, 9.0, and 9.1
WLC2	MSS Releases 7.7 and 8.0
JunosV Wireless LAN Controller WLC100	MSS Releases 9.0 and 9.1
WLA Series Wireless LAN Access Points	

Table 1: Supported Platforms and the Software Versions for Network Director (continued)

Supported Platforms	Qualified Junos OS, MSS, or ESXi Releases
WLA321 WLA322 WLA422 WLA432 WLA522 WLA532 WLA620 WLA622 WLA632	MSS Releases 7.7, 8.0, 9.0, and 9.1
Aruba Devices Running Aruba Airwave	
Aruba Airwave	Version 8.0.7

Table 2: API Requirements for OpenStack

Name of the API	OpenStack Based Data center	OpenStack + NSX Based data center
Keystone API v2	Yes	Yes
Nova API v2	Yes	Yes
Neutron API v2	No	Yes
Ceilometer API v2	Yes, if you want to run the VM stats monitoring feature	Yes, if you want to run the VM stats monitoring feature

Installation Instructions for Network Director, Release 3.0

Before you begin to install Network Director Release 3.0, ensure that the Network Management Platform is at the required release with the latest patch release installed. See Junos Space Network Management Platform Requirements on page 4 for requirements information.

NOTE: If you have installed Network Director Release 3.0 Beta on the same Junos Space appliance, then you must uninstall it before installing Network Director Release 3.0.

A prescribed order is always required for the installation or upgrade of Network Director. Use the following table to determine the prescribed order of tasks for your installation or upgrade.

Upgrade or Installation	Steps to be Performed
New installation—Network Director	1. Install or upgrade to a supported release of Network Management Platform. See Junos Space Network Management Platform Requirements on page 4 to know the supported Network Management Platform version. 2. Install Network Director Release 3.0. For detailed steps, see Installing Network Director. Once the installation is complete, the system lists Network Director in the list of installed applications.
Upgrade from earlier releases of Network Director—Network Director Release 3.0	1. Upgrade to a supported release of Network Management Platform. See Junos Space Network Management Platform Requirements on page 4 to know the supported Network Management Platform version. 2. Ensure that you have Network Director Release 2.0, 2.5R1, or 2.5R2 running. You can perform an upgrade to Release 3.0 only from one of these releases. NOTE: • If you are running an older release of Network Director, upgrade to Network Director Release 2.0R1, 2.5R1, or 2.5R2 before you proceed with the upgrade. For detailed steps, see *Network Director Release 2.5 Quick Start Guide* or *Network Director Release 2.0 Quick Start Guide*. • If you are running Network Director Release 2.0, you must upgrade to Junos Space Network Management Platform Release 15.2 before you proceed with the upgrade. For detailed steps on upgrading to Network Management Platform Release 15.2, see Upgrading Junos Space Network Management Platform. 3. Download and install the Junos Space Platform 15.2R2 patch from the Download Software page. 4. Back up the Junos Space Platform and Junos Space Application data from the Junos Space nodes by executing the backup script that is part of the Junos Space Platform 15.2R2 patch. 5. Install Junos Space Platform Release 16.1R1 on a standalone node or the first node of the fabric and restore backed up data. 6. Configure device communication to ensure that discovered devices can communicate with the Junos Space server. 7. Install Network Director Release 3.0. For detailed instructions on installing Network Director, see *Network Director Quick Start Guide*.

Junos Space DMI Schema Requirements for Network Director

In most installations, Junos Space automatically matches DMI schemas to device families. But there might be certain situations where your network uses a device for which Junos Space does not have the latest or supported schema available. In such instances, you must obtain and upload the requisite schema and set it as the default DMI schema for each device family. Set a default DMI schema for each device family to enable Junos Space to apply an appropriate schema to a device family.

If you cannot find the schema equivalent, use the latest schema from the main release or contact the Juniper Support. For example, for an EX4500 switch running Junos OS Release 13.2X51-D20, you must use the Junos OS Release 13.2X51-D20 schema. If this is not available, you can use the latest schema available from the Junos OS Release 13.2X51 releases. Use Table 3 on page 10 as a guideline for the fallback schema that you can obtain and upload in Junos Space before you start working on Network Director Release 3.0.

Table 3 on page 10 lists the latest DMI schema that you must obtain and upload in Junos Space before you start working on Network Director Release 3.0.

Table 3: DMI Schemas

Device	Name of the DMI Schema	Device Family
QFX10008	Junos OS Release 15.1X53-D30.19 Junos OS Release 15.1X53-D32.2 Junos OS Release 15.1X53-D60.4	junos-qfx
QFX10002	Junos OS Release 15.1X53-D32.2 Junos OS Release 15.1X53-D60.4	junos-qfx
QFX5200	Junos OS Release 15.1X53-D30.19	junos-qfx
QFX5100-48S with ELS (standalone and Virtual Chassis) QFX5100-24Q with ELS (standalone and Virtual Chassis) QFX5100-96S with ELS (standalone and Virtual Chassis)	Junos OS Release 14.1X53-D35.3	junos-qfx
QFX5100 switches with the following product SKUs: QFX5100-48S-3AFI QFX5100-24Q-3AFI QFX5100-24Q-3AFO QFX5100-24Q-D-3AFI QFX5100-24Q-D-3AFO	Junos OS Release 14.1X53-D35.3	junos-qfx

Table 3: DMI Schemas (continued)

Device	Name of the DMI Schema	Device Family
QFX5100 switches with the following product SKUs: QFX5100-48T-AFI QFX5100-48T-AFO QFX5100-48T-DC-AFI QFX5100-48T-DC-AFO	Junos OS Release 14.1X53-D35.3	junos-qfx
QFabric devices	Junos OS Release 14.1X53-D15 Junos OS Release 14.1X53-D17	junos-qfx
QFX3500 (non-ELS) QFX3600 (non-ELS)	Junos OS Release 12.3X50-D35	junos-qfx
QFX3500 with ELS (standalone and Virtual Chassis) QFX3600 with ELS (standalone and Virtual Chassis)	Junos OS Release 14.1X53-D35.3	junos-qfx
EX4300	Junos OS Release 14.1X53-D40	junos
EX9200	Junos OS Releases 16.1R1.11 and 16.1R3S1	junos
EX4600	Junos OS Release 14.1X53-D35.3	junos-qfx
EX2200 and EX2200-C (standalone and Virtual Chassis) and EX3200 EX3300 (standalone and Virtual Chassis) EX4200 (standalone and Virtual Chassis) EX4500 (standalone and Virtual Chassis) EX4550 (standalone and Virtual Chassis) Mixed EX4200, EX4500, and EX4550 Virtual Chassis EX6200 EX8200 (standalone and Virtual Chassis)	Junos OS Releases 13.2X50-D10, 13.2X50-D15, 13.2X51-D15, 13.2X51-D20, 13.2X51-D30, 14.1X53-D15, 14.1X53-D25, and 15.1R1 (For all the EX Series switches) Junos OS Release 14.1X53-D40 (For EX4200 standalone and EX4200 Virtual Chassis and EX4300)	junos-ex
MX Series Routers MX80 MX104 MX240 MX480 MX960 MX2010 MX2020 Series routers	Junos OS Release 15.1R1.9	junos

See Setting a Default DMI Schema for detailed steps for setting a default schema.

Operational Notes on General Interface Use

- The minimum supported screen resolution is 1280 x 1024. If your screen resolution is less than the supported resolution, the Network Director UI might not be displayed properly. For example, icons might not be displayed on the Network Director banner, pages might appear truncated, or scroll bars might not work correctly.
- The supported Web browsers are Google Chrome version 17 and later, Mozilla Firefox version 14.0 and later, and Microsoft Internet Explorer versions 9.0, 10.0, and 11.0.
- Network Director does not support cold migration of virtual machines. Cold migration is the migration of a virtual machine that is powered off.
- You can log in directly to Network Director without logging in to the Network Management Platform first. To do so, use the URL:

  https://*junos-space-host*/networkdirector

  For example: **https://1.2.3.4/networkdirector**

  The default username and password are **super** and **juniper123**.
- If you have logged in to Network Director for a long period of time, the connection to the server might time out. Monitoring screens might go blank or you might not be able to access tasks. To resolve this, log out of Network Director and then log in again.
- If you receive Java exception error message when you perform an operation, retry the operation. The error condition is usually temporary and harmless.
- In large-scale environments, it might take some time for the network tree in the View pane to reflect changes such as newly discovered devices or newly created locations.
- Deployment of configurations to QFX5100 switches from Network Director is possible only after you run the following commands by using the CLI of the QFX5100 switch:

```
[edit]
user@switch# set system extensions providers juniper license-type juniper deployment-scope commercial
user@switch# set system extensions providers chef license-type juniper deployment-scope commercial
```

Operational Notes on Device Discovery and Management

- The administrator username that you specify for discovering the OpenStack server must have admin privileges and must belong to an admin tenant in the OpenStack server.
- In a data center network, changes that you make to a vCenter network are dynamically updated in Network Director. However, changes that are made on an OpenStack network require you to wait for the periodic synchronization job to run or you must perform a manual resynchronization for the changes to be updated in Network Director.
- While discovering a CPE switch for a QFabric system, we recommend that you use the root user credentials.

- You must run the following command on all the switches that are connected to a vCenter server for LLDP discovery to work.

  ```
  user@switch# set protocols lldp port-id-subtype interface-name
  ```

- For Network Director to be able to discover and manage devices, the following protocol ports must be open between the Junos Space Network Management Platform server and the devices:
  - Port 22 for SSH connections. If you have changed the SSH port to a port other than port 22 on your Network Management Platform, you must change the SSH ports on your managed devices to the port that the Network Management Platform uses.
  - Port 443 for virtualization and RingMaster import support. Use port 443 for outbound traffic to vCenter servers.

    NOTE: If your RingMaster server uses any port other than port 443, then you must open that port from the Junos Space Network Management Platform server.

  - Port 10162 for SNMP traps. Network Director receives traps from managed devices on this port. (After you install Network Director, use Network Director to configure SNMP on your devices to send traps to Network Director on this port.)
  - Port 8889 for the management of wireless LAN controllers.
  - Port 21 (TCP) and port 69 (UDP) for uploading the software image and configuration file to the FTP server.
  - Port 8282 for connecting to the DLE.
  - Ports 8774, 9696, 9292, 8777, 35357, and 8776 for accessing OpenStack and VMware NSX APIs.

  You can verify that the ports are open to the devices by logging in to the Network Management Platform CLI and executing the **nmap** command. For example, to verify that port 8889 is open to a controller, enter:

  ```
  root@space# nmap <controller-ip-address> -p 8889
  ```

- When the port statistics counters on a device are reset either manually or during an image upgrade, the traffic widgets might show incorrect values for some time. If this happens, wait for 2 to 3 poll intervals. This issue resolves itself after a few poll intervals.
- For wired devices, you might not be able to specify the SNMP community string from Network Director. However, the Refresh Discovery task from Topology View requires the SNMP community string to be configured on the device to proceed with the refresh discovery task. As a workaround, use the CLI to configure the required community string on the device before you use the Refresh Discovery task.

Third-Party Integration

- **Juniper Networks Data Center Switching Management Pack for vROps**—VMware vRealize Operations (vROps) is a component of VMware's vRealize suite of products. vROps provides an integrated, single pane of glass view into the performance, capacity, and configuration management capabilities of VMware vSphere, physical and cloud environments.

  Juniper Networks Data Center Switching Management Pack for vROps is a plugin from Juniper Networks that you can install and integrate with vROps. Once installed, the management pack obtains all the necessary monitoring data from Juniper Networks devices and displays the data in vROps.

- **Juniper Networks plugin for VMware vCenter**—You can discover and manage VMware vCenter servers by using Network Director. Network Director enables you to visualize and perform certain management tasks on the vCenter severs. If you primarily use the VMware vSphere to manage your virtual network and want to view details about the Juniper Networks devices that are connected to your virtual network, you can do so by installing the Juniper Networks plugin for VMware vCenter. After you install and configure this plugin on the vCenter server, you can start viewing data about the connected Juniper Networks devices by using the following widgets:

  - Physical Networking widget—To open this widget, select a **Host** in the vSphere user interface and select **Summary**. This widget displays the virtual NIC that the host connects to, the physical switch and the port number that the virtual switch uses to connect to the physical network, and the VLAN that is configured on the physical switch port.

  - vMotion History widget—To open this widget, select a virtual machine in the vSphere user interface and select **Summary**. This widget displays the vMotion history of the selected virtual machine along with details of the Juniper Networks switches that were involved in the vMotion.

You can download the Juniper Networks Data Center Switching Management Pack for vROps and the Juniper Networks plugin for VMware vCenter from the Download Software page. See the Juniper Networks Data Center Switching Management Pack for vROps documentation and README file that is included in the Juniper Networks plugin for VMware vCenter zip file for detailed steps on installing the plugin.

Known Behavior

This section lists the known limitations in Network Director:

- Network Director only supports SNMP V1 and V2C traps.
- For EX4300 satellite devices to be part of a Junos Fusion Enterprise, ensure that you use *U-Boot 2011.12-00062-gf837a99 (Jul 11 2014 - 13:47:59)* and *FreeBSD/PowerPC U-Boot bootstrap loader 2.4* as the boot loader, with PoE firmware version *2.6.3.92.1*, and *10G PIC-2 ports* as cluster ports.
- Juniper Networks Data Center Switching Management Pack for vROps does not display the following:

  - Layer 3 Fabric devices under Fabric option in the Juniper Infrastructure Overview Dashboard.
  - Data in the Health, Risk and Efficiency badges for Layer 3 Fabric devices.

- When defining your network configuration in quick templates by using a particular command, ensure that you define the subcommands individually. Stating subcommands as a single command causes errors. For example, the commands **set snmp location sunnyvale** and **set snmp contact admin@example.com** are valid when defined individually. However, if you combine these commands into the single command **set snmp location sunnyvale contact admin@example.com**, schema validation treats the last command **contact** as an extra entry and causes an error.
- If you have an OpenStack+NSX based data center, then for virtual machines that are part of more than one network or VNI, the flow analysis feature is not supported.
- Network Director does not support Junos Space domains and subdomains. Do not assign devices to domains and subdomains in Junos Space.
- EX4300 switch running Junos OS Release 14.1X53-D10 or 14.1X53-D15 cannot be managed using Network Director.
- If you are using Microsoft Internet Explorer version 9.0 or 10.0, the View Connectivity task in the Datacenter View and the Flow Analysis > View Details subtask in the Dashboard View might not work as expected. Use a supported version of Google Chrome or Mozilla Firefox to perform these tasks.
- EX4600 switches are grouped under Campus Switching ELS platform in Network Director even though the device family for EX4600 displays as JUNOS-QFX in the Inventory page. All Campus Switching ELS profiles can be associated with these switches.

  You *must* use the QFX schema to manage this device instead of the EX ELS schema.
- In Location View, if you assign all the members of a Virtual Chassis, Virtual Chassis Fabric, or QFabric system to buildings or floors, then none of the Device level tasks are available. We recommend that you assign the entire logical device—the QFabric system, Virtual Chassis, or the Virtual Chassis Fabric—to any given location.
- For Data Center switching ELS Port Profile, profile assignment might fail for single and multiple devices after you specify the port range of channelized interfaces even if the range you specified is within the range available on the device (or devices).
- When an EX4300 switch is used as a member switch in a QFX5100 mixed mode Virtual Chassis or Virtual Chassis Fabric, Network Director does not consider the configurations that you make on DCBX and Device Count fields, and configuration commits fail.
- If QFX3500, QFX3600, or EX4300 Virtual Chassis are running releases earlier than Junos OS Release 13.2X51-D20, any changes made to the Virtual Chassis, such as adding or deleting members or changing the role of members, might not reflect in Network Director.
- Deploying a Fabric profile that has the same name as an already deployed Fabric profile, but a different Fabric ID, removes the interface association of the first Fabric

profile from the device. Therefore, do not deploy Fabric profiles with the same name on a device.

- With QFabric systems that are running Junos OS releases earlier than Release 13.1X50-D20, the Control Plane Topology does not work if the CPE switches are used in Virtual Chassis mode. If you need assistance with an earlier release, contact Juniper Networks support.
- Network Director does not support access points that are directly connected to a controller.
- Nonstop software upgrade (NSSU) for EX8200 Virtual Chassis might not work as expected.
- The Access profile configuration and the port security configuration that are part of the Port profile configuration might not work on EX9200 switches running Junos OS Release 12.3R2.5.
- Alarms generated on individual QFabric nodes do not display in Topology View. Bandwidth utilization value for VCP and aex interfaces might not be displayed in the Topology View.
- Network Director might not display:
  - Unprovisioned members added to a Virtual Chassis or a Virtual Chassis Fabric.
  - The *Not Present* status for members removed from a Virtual Chassis or a Virtual Chassis Fabric.
- For Data Center Switching ELS Port Profile, a profile assignment might fail for channelized interfaces in a port range even when the channelized interfaces in that port range are available on the devices.
- The Validate Pending Configuration task does not validate the unsupported configurations on data center devices.
- In the manual mode, when out-of-band changes are resynchronized, the conflicting CR might not be listed for quick templates.
- In the Edit Layer 3 Fabric workflow, the deployment status might display as Failed for replaced or deleted QFX5100 or EX4300 switches (running Junos OS Release 13.2X51-D*nn*) even if the configuration is successfully deployed on the device. Also, it might take more than 10 minutes for the device status to be updated in the Edit Layer 3 Fabric job.
- During a cluster switchover, if a backup configuration job or a device discovery job is running in Network Director, the switchover status might display as In progress even after the switchover is complete.
- In a Junos Fusion setup, you might need to assign two aggregation devices for an auto-profile policy. For example, if a satellite device has 65 ports, then you might need to add two aggregation devices as
  AD1: ge-65/0/1- ge-65/0/10 and AD2 : ge-65/0/1 - ge-65/0/10. To assign both the aggregation devices, select the aggregation devices at the group level and do not select the satellite device.

Known Issues in Network Director Release 3.0

The following are known issues in Network Director Release 3.0.

PR Number	Problem Description
1232254	After you upgrade Network Director from Release 2.5 to Release 3.0, the VMware vRealize Operations (vROps) stops receiving data from Network Director. Workaround: After upgrading to Network Director Release 3.0, open the vROps user interface and delete the ND adapter, add the ND adapter afresh, and try again.
978137	If you open Network Director in multiple tabs of the same browser window, autorefresh works only for the latest tab. Workaround: For autorefresh to work on all sessions, use different browsers.
1120850	Network Director promotes duplicate VLAN profiles to VLAN with VRRP profiles when you make out-of-band changes to a device. Workaround: Delete the unassigned profile from Network Director.
1098365	With Microsoft Internet Explorer 11, the View Virtual Network Connectivity page in the Datacenter View might not display the Zoom In, Zoom Out, and Refresh icons. Workaround: Scroll to the left of the screen to use the Zoom In, Zoom Out, and Refresh icons.

1103325	When you create a Zero Touch Provisioning (ZTP) profile, you are unable to add a default route or gateway address.
	
	Workaround:
	
	1. Open the *dhcpd.conf* file on the DHCP server.
	2. Add an entry for **option routers**, between the **subnet** and **option subnet-mask** entries of the appropriate subnet, and specify the gateway IP address as shown in the example below:
	
	An example code snippet:
	
	`subnet 10.222.210.0 netmask 255.255.254.0{`
	`option routers 10.222.210.1;`
	`option subnet-mask 255.255.254.0;`
	
	3. Restart the dhcpd service from the Junos Space console by issuing the **service dhcpd restart** command.

1100717	After you make out-of-band changes on authentication details that are part of a VRRP profile, refreshing the configuration does not create a new profile. Workaround: Make the out-of-band changes as part of the VRRP profile, deploy the VRRP profile, and resynchronize the configuration from Network Director.
1109046	All changes on the Manage IP Connectivity page that are saved, but not deployed to the devices are lost after a new device is added to the data center. Workaround: Before adding a new device to the data center, deploy all the changes that you made in the Manage IP Connectivity page.

PR Number	Problem Description
1109827	After you deploy a policy from Network Director, if you clear the policy options and remove the corresponding Route Filters, only the association of the policy with BGP is deleted. The policy as such is not deleted from the device. Workaround: None available at present.
1118766	If you have VRRP version 3, after you edit an already deployed Device Common Settings profile and deploy the changes, the deployment fails. This occurs because Network Director appends the VRRP version 3 configuration also to the changed configuration, whereas only the changed configuration must be deployed. Workaround: Disable VRRP version 3 or make VRRP configuration compatible with version 3.
1119978	In the Manage IP Connectivity workflow, if you opted not to resynchronize devices that are Out of Sync, then all new Save or Deploy operations might fail with a message that **Manage IP Connectivity Fails**. Workaround: Synchronize the devices once prompted
1107121	Deleting configuration files in Junos Space for devices also removes the baseline for the devices. Workaround: None available at present.
1109072	If an image upgrade job and a cluster fail job runs simultaneously, the image upgrade job status might show as Success, but the image might not have been upgraded. Workaround: Retry the image upgrade after cluster fail over is complete.
1111410	Device might continue to remain in the *Synchronising* state after some deployments. Workaround: Initiate a manual resynchronization for the devices using the Resynchronize Device Configuration task.
1114186	During ZTP, device autodiscovery might fail if the device takes some extra time to reboot after upgrading to the new image. Workaround: Discover the device manually if autodiscovery failed after ZTP.
1200371	Conversion of two standalone satellite devices to a three member cluster might fail causing the status of one member to be displayed as provision down. Workaround: Execute the following command using the CLI of the aggregation device: **run request chassis satellite reboot fpc-slot *fpc-slot-number***
1186656	The EX4900 device is not identified as a aggregation device in Junos Fusion setup and the link up job is not triggered. Workaround: Configure SNMP on EX9200 devices to identify it as an aggregation device.
1116833	If two MC-LAG peer devices are brown fielded with different device models and if the IP address of any one of MC-LAG devices matches that of the IP address of a Peer device of another MC-LAG device, then the Manage MC-LAG page might display MC-LAG pairing with a different model. Workaround: Ensure that MC-LAG peer device has a unique ICCP local IP address in the network.

PR Number	Problem Description
1058767	In the Dashboard View, the data for the last one hour is displayed in grey color after the filter criteria is applied for one hour. Workaround: None available at present.
1204972	Network Director does not support IPv6 topology discovery. Workaround: None available at present.
1186865	Network Director might not be able to discover virtual machine tags for *vCenter Version 6.0*, if there is no description for tags or categories. Workaround: Upgrade to *vCenter Version 6.0 Update 1* or later and try again.
1200994	In a Junos Fusion setup, Network Director does not automatically convert the Virtual Chassis to a cluster device as part of the Apply Configuration Template workflow. Workaround: Use Telnet to log in to to the console of the satellite device, zeroize the device, and try again.
1125950	Brownfield fails if both the **apply-groups** and the interface description CLI are present under the **interface-range** stanza. This type of configuration mostly seen for QFabric CPE. Workaround: Delete the **apply-groups** configuration under the **interface-range** stanza and specify the groups configuration directly under the **interface-range** stanza. For example in the QFabric CPE configuration, do the following: 1. Delete the **apply-groups** configuration under the interface ranges **Node_Device_Interfaces** and **Interconnect_Device_Interfaces**: `user@device#`**delete interfaces interface-range Node_Device_Interfaces apply-groups qfabric-int** `user@device#`**delete interfaces interface-range Interconnect_Device_Interfaces apply-groups qfabric-int** 2. Specify the configuration under the groups qfabric-int directly within the **interface-range** stanza: `user@device#`**set interfaces interface-range Node_Device_Interfaces mtu 9216** `user@device#`**set interfaces interface-range Node_Device_Interfaces unit 0 family ethernet-switching port-mode access vlan members qfabric** `user@device#`**set interfaces interface-range Interconnect_Device_Interfaces mtu 9216** `user@device#`**set interfaces interface-range Interconnect_Device_Interfaces unit 0 family ethernet-switching port-mode access vlan members qfabric** 3. Commit the changes: `user@device#`**commit**
1100350	In the Datacenter Connectivity View, the zoom pane that appears at the bottom right might not highlight the area that is zoomed. Workaround: None available at present.

PR Number	Problem Description
1098910	If you physically connect a new Virtual Chassis leaf member before adding the leaf member from Network Director, the leaf member might not be mapped to Layer 3 Fabrics as expected. Workaround: Plug and play is not supported for Virtual Chassis leaf members. Therefore, before you physically connect the Virtual Chassis members, make sure that you add the Virtual Chassis leaf members by using the Layer 3 Fabric wizard.
1058811	While editing Layer 3 Fabric profiles (Port, VLAN, and Device profiles) users are not warned by any notification that changing Layer 3 Fabric profile configurations might impact the Layer 3 Fabric functionality. Workaround: After the profiles are modified, you can discard the changes from the Deploy task.
1058827	For Layer 3 Fabrics, if a plug-and-play leaf device is added and mapped to the Fabric, the Cabling page in the Edit Layer 3 Fabric workflow might not update the cabling plan for that leaf in the graph and grid views. Workaround: When you edit the Layer 3 Fabric, modify the description in the Fabric Requirements page and then navigate to the Cabling page. The Cabling page updates the proper cabling plan for the plug-and-play leaf device.
1046833	In the manual mode, when out-of-band changes are resynchronized, the conflicting CR might not be listed for quick templates. Workaround: None available at present.
1061773	In the Edit Layer 3 Fabric workflow, the deployment status might display as Failed for replaced or deleted QFX5100 or EX4300 switches (running Junos OS Release 13.2X51-D*xx*) even if the configuration is successfully deployed on the device. Also, it might take more than 10 minutes for the device status to be updated in the Edit Layer 3 Fabric job. Workaround: None available at present.
1061337	When you create the first data center in Network Director, the View pane might not be updated dynamically with the data center components and devices. Workaround: Navigate to any other View and then back to the Datacenter View.
1027051	Discovery of a QFabric device that has some system log messages in the **default-log-messages** file might trigger multiple resynchronization jobs. Workaround: Clear the system log messages in the **default-log-messages** file before discovery. The CLI command for clearing default log messages is **clear log default-log-messages**.
1001626	Network Director does not perform Virtual Chassis resynchronization for standalone devices when the device status changes from DOWN to UP or when Network Director restarts. Workaround: Delete and rediscover the devices from Network Director.
967224	In Topology View, Network Director does not display LAG details between QFabric and other devices. Workaround: None available at present.

PR Number	Problem Description
1014926	For wired devices, you are unable to specify the SNMP community string from Network Director. However, the Refresh Discovery task from Topology View requires the SNMP community string to be configured on the device to proceed with the refresh discovery task. Workaround: Use the CLI to configure the required community string on the device before you use the Refresh Discovery task.
1017364	If you associate a hierarchical Data Center switching or Campus switching ELS CoS Profile that has Priority Flow Control configuration with an interface of an EX4300 switch that is part of an EX4600 Virtual Chassis, QFX Virtual Chassis, or Virtual Chassis Fabric, the deployment fails. Workaround: Clone the CoS profile, remove the PFC settings from the cloned profile, and associate the cloned profile with the EX4300 interfaces.
970798	When a device is removed from one Virtual Chassis or Virtual Chassis Fabric and added to another Virtual Chassis or Virtual Chassis Fabric respectively, the **show virtual-chassis status output** command from Network Director might not display the expected information for that member in either, the Virtual Chassis or the Virtual Chassis Fabric. Workaround: Before you discover that member from Network Director, recycle that member in the Virtual Chassis or Virtual Chassis Fabric in which the member device information is not displayed.
1062066	If the IP address of space nodes change after installing Network Director, the Layer 3 Fabric configuration might still retain the old IP address of space nodes as the SNMP trap target. Workaround: Log in to Junos Space console and select the (Debug) run shell option. Run the following commands at the shell prompt: • **python2.7 /opt/configure_for_ND.py -ndvip <VIP> -nodeip <node management ip> -restport 20080 -traptgt <node management ip> -dbuser <DB user> -dbpass <DB password> -ndtrapport 10162** • If there is a device management interface configured, run the same command using device management ip option as follows: **python2.7 /opt/configure_for_ND.py -ndvip <VIP> -nodeip <device management ip> -restport 20080 -traptgt <device management ip> -dbuser <DB user> -dbpass <DB password> -ndtrapport 10162** • If it is a cluster environment, the command needs to be run on each node. The argument **-traptgt** must be repeated the same number of times as the number of nodes present. Assuming there are four nodes, run the following command on each of the four nodes: **python2.7 /opt/configure_for_ND.py -ndvip <VIP> -nodeip <node management ip> -restport 20080 -traptgt <node1 management ip> -traptgt <node2 management ip> -traptgt <node3 management ip> -traptgt <node4 management ip> -dbuser <DB user> -dbpass <DB password> -ndtrapport 10162** • If it is a cluster environment and each node has a device management interface configured, the command needs to be run on each node. The argument **-traptgt** must be repeated the same number of times as the number of nodes present. Assuming there are four nodes, run the following command on each of the four nodes. **python2.7 /opt/configure_for_ND.py -ndvip <VIP> -nodeip <device management ip> -restport 20080 -traptgt <node1 device management ip> -traptgt <node2 device management ip> -traptgt <node3 device management ip> -traptgt <node4 device management ip> -dbuser <DB user> -dbpass <DB password> -ndtrapport 10162**
1117428	Unable to close Details window under Monitor mode. Workaround: Press Esc to close the Details window.

PR Number	Problem Description
1122181	Monitor widgets such as Status, Resource Utilization, Power, and Fan details display no data when a few devices are deleted and re-discovered from Network Director. Workaround: None available at present.
1012400	The Client Sessions and Session Trend widgets might not show any data when a Virtual Chassis member is assigned under Location View or Custom Group View. Workaround: Assign the Virtual Chassis logical device as a whole under Location View or Custom Group View.
1062477	Running a VM to VM flow analysis might fail or show latency values as 0/0/0 if there are other flows on the VMs being analyzed. Workaround: None available at present.
926912	When a QFabric node device alias is changed, Historical Monitoring data will be lost and port entries might be duplicated. Workaround: Delete QFabric from Network Director and rediscover the node devices.
991298	Network Director does not display alarms at the member or node level for a Virtual Chassis or a Virtual Chassis Fabric. Workaround: Select the Virtual Chassis or the Virtual Chassis Fabric device in Logical View to view the alarms.
1235922	After you upgrade Network Director from Release 2.5 to Release 3.0, you might not be able to add QFX-5200 and QFX5100-24Q switches as leaf devices under Layer 3 Fabrics. Workaround: None available at present.
1234853	100-Gigabit Ethernet ports are shown as 40-Gigabit Ethernet ports in the Convert Ports page unless explicitly set in device. Workaround: Set the ports with 100-Gigabit transceivers in the device by using the command: **set chassis fpc 0 pic 0 port 8 speed 100G** and commit the configuration. Wait for the device to be in sync. The Convert Ports page now shows the port correctly as a 100-Gigabit Ethernet port.
1228275	Network Director deletes the configuration for ports for which auto-speed detection is disabled in Port Conversion. Workaround: None available at present.
1227932	The Deploy Configuration page lists all devices for Port Conversion. Workaround: Use the Device Selection page to only those devices for which you want to convert ports.
1227497	Port Conversion pushes the configuration to incorrect FPCs if the **renumbering member ID** command is used in the configuration for devices that support VC and VCF configurations. Workaround: None available at present.

PR Number	Problem Description
1228276	Network Director might not validate port groups in Port Conversion for QFX10002 and QFX10008 switches. Workaround: None available at present.
1231329	After you upgrade Network Director from Release 2.5 to Release 3.0, incorrect roles are displayed for some of the users. Workaround: Roles and tasks are not deleted after the upgrade and only additional tasks are added. Delete these additional tasks after the upgrade.
1235928	Unable to create Layer 3 fabrics as Zero Touch Provisioning (ZTP) is not supported on Centos 7.2.1511 and DHCP 4.2.5. Workaround: Use the following versions for ZTP support: • Ubuntu 14.04 • Centos 6.6
1237441	VLANs that are not configured with Layer 3 interfaces are mapped to spine devices. Workaround: None available at present.
1236498	Device LAG ports configuration is not supported in EVPN-VXLAN. Workaround: Use the multi-home LAG option to configure device LAG ports.
1233532	For IP Fabrics you cannot configure network address as start address. Workaround: Use a valid network IP address in the subnet.
1232167	Editing a tenant and assigning ports to a new leaf device, results in failed deployment. Workaround: Create a new IP fabric device and assign ports to the device before you edit a tenant and deploy it.
1202439	The Auto assigned option is not deleted if you remove a port profile association that is assigned by auto policy and manually assign the same option. Workaround: None available at present.
1223305	After you delete a port association from Port profile, the LLDP does not show which device is connected when you issue the command **delete interface***interface-name*. Workaround: Assign a port profile to a port manually or by using quick template, to configure unit 0 on the interface.

PR Number	Problem Description
1228613	After adding a cascade port, the satellite cluster is not added to the aggregation devices when the link up event is triggered. Workaround: 1. Connect the device directly to a cascade port on the aggregation device. 2. Configure the port as a cascade port. 3. Refresh the topology and verify the configuration generated on the device. 4. After the resync fusion inventory job is triggered, check the tree to see whether the cluster is added to the Enterprise Fusion setup.
1237763	If you add more than one port to a Port profile that is associated to the extended Port profiles, the deployment fails. Workaround: After the deployment fails, edit the prompted Port profile and deploy the changes again.
1225525	The tree view is not correctly displayed when there is more than one cluster with the same name in the tree view. Workaround: 1. Make sure only ICCP and ICL devices are connected, and refresh the topology. The link up event is triggered only for redundancy satellite devices, and not for FPC satellite devices. 2. Connect single-home satellite device or a cluster devices to one of the aggregation device in a multi-host setup and refresh the topology. The link up event generates the configuration for different FPC devices.
1213805	Monitoring cannot be disabled for aggregation devices at the group level. Workaround: None available at present.
1235223	The configuration for orchestration for ELS devices fails if you select the interface mode as access or if you do not configure an interface mode. Workaround: Log in to the device and set interface mode as trunk for the interface and then configure orchestration for that interface.
1226676	The Port Conversion page displays for EX4600 switches even though the port conversion is not supported for these devices. Workaround: Do not select EX4600 devices for port conversion.

PR Number	Problem Description
1206683	Adding leaf to an existing multihome LAG, editing the multihome ae inetrface, or deleting an existing leaf from the LAG are not supported in an overlay network. Workaround: None available at present.
1229453	After an upgrade to Network Director 3.0, earlier versions of APIs are listed. Workaround: Right-click on the APIs and select Uninstall to remove the earlier versions.
1239050	The quick template functionality is not supported in Junos Fusion Enterprise devices. Workaround: None available at present.
1239748	In a medium-scale Junos Fusion setup where five Junos Fusion systems each with 100 Satellite Devices are managed, incorrect monitoring data is displayed. Workaround: In a Junos Fusion setup where 5 Junos Fusion systems each with 100 Satellite Devices are managed, change the number of parallel requests by setting a system property to 5 from default value 25. To change the parallel requests value: 1. Open a debug (command) prompt by using the Junos Space Settings Menu. 2. Navigate to **/usr/local/jboss/domain/configuration/host.xml** 3. Under **<jvm-options>**, change the option value **<option value="-Dmonitoring.simultaneous.request=5"/>** 4. Restart the jboss process. **service jboss restart**
1207914	When large number of devices are discovered in Network Director some of the device status is shown as Down in Network Director even though their status is shown as UP in Junos Space. Workaround: Delete Devices that are incorrectly shown as Down in Network director and re-discover the devices in Network Director.

PR Number	Problem Description
1165010	In large-scale environments, some of the devices cannot be monitored after the device discovery. Workaround: Restart the JBoss server for the monitoring features to work properly in standalone and cluster setups: To restart the JBoss server in a standalone setup: 1. Stop the watchdog, domain controller, and JBoss services on the standalone node. **service jmp-watchdog stop** **service jboss-dc stop** **service jboss stop** 2. Start the watchdog service. **service jmp-watchdog start** NOTE: Starting the watchdog service restarts the JBoss and domain controller services as well. To restart the JBoss server in a cluster setup: 1. Stop the services on the secondary node. **service jmp-watchdog stop** **service jboss stop** 2. Stop the services on the master node (You can find the VIP hosted node Space > Fabric) **service jmp-watchdog** **stop service jboss-dc** **stop service jboss stop** 3. Start the services on the master node. **service jmp-watchdog start** 4. Start the service on the secondary node. **service jmp-watchdog start**
1223602	The Port status and the power supply status is not shown in a cluster setup when two satellite devices are configured as member nodes. Workaround: None available at present.
1234916	The overlay fabric configuration does not get deleted when you remove an IP fabric from the Selected section of the Edit Overlay Fabric page. However, the overlay fabric configuration gets deleted if the overlay is deleted from the from the Manage Overlay Fabric page. Workaround: None available at present.

PR Number	Problem Description
1240167	While creating an overlay fabric by using the Tenants page, if you preview and deploy the configuration and click on cancel button after which if you edit the overlay network an error message is shown. Workaround: Cancel the current workflow and use the Edit workflow to make the necessary changes.
1234899	ESXi server does not work on ports that have only one VLAN configured. When a tenant overlay fabric is configured such that one of the ports is configured with only one VLAN, native VLAN ID is set to the ID of the only VLAN configured on the interface. This allows Bare Metal Servers (BMS) to use untagged packets. For an ESXi server to work on such ports, the native VLAN ID needs to be removed. Workaround: Deploy a template by using the command **delete interface native-vlan-id** for those interfaces where one VLAN is configured and tagged packets are sent. NOTE: ESXi server uses tagged packets by default.

Documentation Errata

Network Director Release 3.0 online Help has the following documentation errata:

- Context-sensitive help for the Manage Software Upgrade Groups window is not available. You can access the documentation for this feature from the Network Director 3.0 documentation site or by clicking the online Help button in the Network Director home page.

Related Documentation

- Network Director

Junos Space Documentation and Release Notes

For a list of related Junos Space documentation, see http://www.juniper.net/techpubs/.

If the information in the latest release notes differs from the information in the documentation, follow the *Junos Space Release Notes*.

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

Juniper Networks supports a technical book program to publish books by Juniper Networks engineers and subject matter experts with book publishers around the world. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration using the Junos operating system (Junos OS) and Juniper Networks devices. In addition, the Juniper Networks Technical Library, published in conjunction with O'Reilly Media, explores improving network security, reliability, and availability using Junos OS configuration techniques. All the books are for sale at technical bookstores and book outlets around the world. The current list can be viewed at https://www.juniper.net/books.

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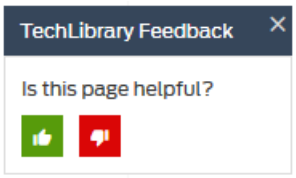
We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can provide feedback by using either of the following methods:

- Online feedback system—Click TechLibrary Feedback, on the lower right of any page on the Juniper Networks TechLibrary site, and do one of the following:



  - Click the thumbs-up icon if the information on the page was helpful to you.
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- E-mail—Send your comments to **techpubs-comments@juniper.net**. Include the document or topic name, URL or page number, and software version (if applicable).

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 Partner Support Service 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 https://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.

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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: https://www.juniper.net/customers/support/
- Search for known bugs: https://prsearch.juniper.net/

- Find product documentation: https://www.juniper.net/documentation/
- Find solutions and answer questions using our Knowledge Base: https://kb.juniper.net/
- Download the latest versions of software and review release notes: https://www.juniper.net/customers/csc/software/
- Search technical bulletins for relevant hardware and software notifications: https://kb.juniper.net/InfoCenter/
- Join and participate in the Juniper Networks Community Forum: https://www.juniper.net/company/communities/
- Create a service request online: https://myjuniper.juniper.net

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

Creating a Service Request with JTAC

You can create a service request with JTAC on the Web or by telephone.

- Visit https://myjuniper.juniper.net.
- 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 https://support.juniper.net/support/requesting-support/.

Revision History

19 Dec 2016—Revision 1, Junos Space Network Director Release 3.0R1

6 Jan 2017—Revision 2

13 Jan 2017—Revision 3

24 Jan 2017—Revision 4