

Release Notes for NorthStar Controller

Release 4.2.2
20 June 2019

These release notes accompany Juniper Networks NorthStar Controller Release 4.2.2.

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Introduction

The Juniper Networks NorthStar Controller is an SDN controller that enables granular visibility and control of IP/MPLS flows in large service provider and enterprise networks. Network operators can use the NorthStar Controller to optimize their network infrastructure through proactive monitoring, planning, and explicit routing of large traffic loads dynamically based on user-defined constraints.

The NorthStar Controller 4.2.2 release is fully supported with Junos OS Release 17.2R1 and later.

NorthStar Controller 4.2.2 can be deployed with Junos OS Releases 15.1F6, 16.1R1, and 17.1R1, but the segment routing (SPRING) feature would not be available.

The NorthStar Controller Analytics features require specific Junos OS Releases to be able to obtain LSP and interface statistics. This is a Junos Telemetry Interface (JTI) dependency. We recommend Junos OS Release 15.1F6 or later if you plan to use Analytics.

The NorthStar Controller 4.2.2 release can be deployed with Junos OS Releases 14.2R6, 15.1F4, and 15.1R4, but the following features would not be available:

- MD5 authentication for PCEP
- P2MP support
- Admin group support

For PCEP client to support binding SID, Junos OS Release 18.3 or 18.4 (or later) is required.

By default, the NorthStar Controller Release 3.0.0 and later requires that the external Junos VM be Release 17.2 or later. If you are using an older version of Junos OS, you can change the NorthStar configuration to support it, but segment routing support will not be available. See the *NorthStar Controller Getting Started Guide* for the configuration steps.

Other Junos OS releases are not supported.



NOTE: The Path Computation Element Protocol (PCEP) configuration on the PCC routers does not persist across upgrades when the SDN package is not part of the installation binary. Before upgrading the Junos OS image to this release, save the existing configuration to a file by using the `save` command. After you upgrade the Junos OS image on each PCC router, use the `load override` command to restore the PCEP configuration.

The NorthStar Controller is supported on the following Juniper platforms: M Series, T Series, MX Series, PTX Series, and QFX10008. Please contact JTAC for more information.

As of Junos OS Release 17.4R1, NorthStar Controller is also supported on QFX5110, QFX5100, and QFX5200.

Junos OS supports Internet draft draft-crabbe-pce-pce-initiated-lsp-03 for the stateful PCE-initiated LSP implementation (M Series, MX Series, PTX Series, T Series, and QFX Series).

Contents of this Release

NorthStar Release 4.2.2 is a maintenance release that includes a number of bug fixes and one new feature as described in this release notes document.

Table 1 on page 3 describes the downloadable files.

Table 1: NorthStar Controller 4.2.2 Downloadable Files

File	Description
NorthStar Application	Northstar_Bundle_4_2_2.tar.gz
NOTE: E-signature also available.	
NorthStar JunosVM	northstar_junosvm_4_2_2.tar.gz
NOTE: E-signature also available.	



NOTE: VMDK installation is also supported, but the files needed for this type of installation are not available on the NorthStar software download page. Please request the files from your account team or NorthStar Product Line Manager.

New Features

The following new feature is introduced in NorthStar Release 4.2.2:

- **With a single web UI action, create multiple LSPs with identical design parameters.**
 - In the Provision LSP window of the NorthStar Controller web UI, **Count** and **Delimiter** fields have been added to the Advanced tab to enable creation of multiple parallel LSPs between two endpoints. These LSPs share the same design parameters as specified in the Provision LSP window Design tab. Figure 1 on page 4 shows the new fields on the Advanced tab.

Figure 1: Count and Delimiter Fields on the Advanced Tab

Provision LSP

Properties Path **Advanced** Design Scheduling User Properties

Count: * 6

Delimiter: * _

Bandwidth Sizing: yes

Adjustment Threshold (%): * 10

Minimum Bandwidth: * 0

Maximum Bandwidth:

Coloring Include All:

Coloring Include Any:

Coloring Exclude:

Symmetric Pair Group:

☐ Create Symmetric Pair

Diversity Group:

Diversity Level: default

☐ Route on Protected IP Link

Preview Path Cancel Submit

- When you create multiple LSPs using this feature, NorthStar names the LSPs using the Name you entered in the Properties tab and appends the delimiter value plus a unique numerical value beginning with 1 (myLSP_1, myLSP_2, for example).



NOTE: The Delimiter field only appears when the count value is greater than one.

- This is different from using Provision Multiple LSPs where the Design parameters are configured separately for each LSP created.

Changes in Behavior

The following changes in behavior are introduced with NorthStar Controller Release 4.2.2:

- We recommend the following Red Hat Enterprise Linux (RHEL) and CentOS Linux versions:
 - RHEL 6.10 or 7.5
 - CentOS 6.10, 7.5, or 7.6



NOTE: If you are using CentOS 7.2, we strongly recommend that you upgrade to CentOS 7.6 before you install NorthStar Controller. However, if you must use CentOS 7.2, you can make it work with NorthStar by running `yum install java-1.8.0-openjdk-headless.x86_64` to install openjdk. This installs all the required openjdk dependencies for CentOS 7.2.

- AS demand report generation has been disabled for NorthStar Controller Release 4.2. Customers requiring these reports should upgrade to Release 4.3.
- Demand report modifications now include a specified range.

Known Behavior

The following behaviors are known to occur in NorthStar Controller Release 4.2.2:

- Only the bandwidth of PCE-initiated and PCC-delegated LSPs can be sized by applying bandwidth sizing attributes, but there is nothing to prevent you from applying attributes to PCC-controlled LSPs and no warning that they will not take effect.
- NorthStar REST API does not always return the selected routing method in the REST response:
 - Currently, if a REST API body has `routingMethod=Default`, the corresponding REST response does not include the `routingMethod` keyword.
 - NorthStar still computes the ERO properly.
 - In a future NorthStar release, the REST response will properly indicate the selected `routingMethod`.
- Re-provision LSPs issue:
 - For a NETCONF-provisioned P2MP tree, re-provisioning individual sub-LSPs to go around a failed link can fail under the following conditions:
 - The user re-provisions sub-LSPs separately.
 - The user has a mixture of sub-LSPs with a user-specified strict path and paths computed by NorthStar.
 - The workflow is to re-provision all sub-LSPs of a tree together; NorthStar computes sub-LSPs of a tree as a whole, not individually.
- Behaviors and limitations related to NETCONF Provisioning of LSPs and Binding SID Support:
 - Binding SID SR support requires Junos OS Releases 18.3R2 /18.4R2 or later.

- Automatic rerouting of NETCONF-provisioned LSPs (including NETCONF-provisioned SR LSPs) due to a failure in the network is not supported.
- The Preview Path button in the Provision LSP window may return a “Cannot find a path!” error message when in fact a path was found and the SR LSP was successfully provisioned. The error message occurs for certain scenarios such as when an SR LSP makes use of a binding SID SR LSP (privateForwardingAdjacency).
- During PCE-initiated LSP provisioning, some third party routers can return an error code for an unknown reason. Currently, the NorthStar Application only reports “NS_ERR_GENERIC” when this occurs. It is planned to improve this behavior and report the exact error code (e.g. PCEP Error Type = 24 error value = 2) in future releases.
- Behaviors related to Netflow Collector:
 - It can happen that during a NorthStar upgrade from NorthStar 4.x, netflowd cannot be started. If netflowd fails to start, run the following command on the system hosting the netflow collector:

```
sudo -u pcs /opt/northstar/thirdparty/python/bin/pip -q install --upgrade
--no-deps --force-reinstall /opt/pcs/lib/python/*.whl
```

- The telemetry REST API assumes that LSPs on different routers have different names.
- In rare cases, you might get an empty result in the network information table Service tab for both summary and detailed information, for example, after a system upgrade. If this happens, you can resolve it by restarting the web process:

```
supervisorctl restart infra:web
```

Known Issues

[Table 2 on page 6](#) lists known issues in NorthStar Controller Release 4.2.2. The identifier associated with each entry is the tracking number in the Juniper Networks Problem Report (PR) tracking system.

Table 2: Known Issues in NorthStar Controller 4.2.2

Identifier	Description
NA	When learning P2MP LSPs from network devices, NorthStar will create the P2MP group associated with the P2MP LSP. The bandwidth and priority of the P2MP group, however, do not reflect the bandwidth and priority on the P2MP LSP.

Table 2: Known Issues in NorthStar Controller 4.2.2 (continued)

Identifier	Description
NA	<p>When a user modifies device interface IP addresses resulting in ISIS adjacency or OSPF neighbor migration, there could be additional links created in NorthStar due to transient states being advertised into NorthStar.</p> <p>For example, suppose an ISIS adjacency is formed between interface IP address of 10.11.11.1 and 10.11.11.2, and the user modifies the device interface IP addresses to 10.11.11.5 and 10.11.11.6. In NorthStar, there might be three links displayed, each representing the ISIS adjacency:</p> <ul style="list-style-type: none"> • The original adjacency of 10.11.11.1 and 10.11.11.2 in DOWN state • The transient adjacency of 10.11.11.5 and 10.11.11.2 in DOWN state • The new adjacency of 10.11.11.5 and 10.11.11.6 in UP state <p>The original and transient adjacencies are harmless to NorthStar path computation, as they are in DOWN state. The user can manually delete them to clean up the topology view.</p>
1358245	<p>Junos OS Release 18.2 and 18.3 PCEP reporting limitation: In Junos OS Releases prior to 18.4R2, Junos reports the SR LSP name only. The segment list path names (for multiple primary paths or secondary path) are not reported via PCEP. The implications for NorthStar Controller Release 4.2.1 are:</p> <ul style="list-style-type: none"> • Only one primary path is supported. Since Junos OS still requires a path name to be specified, when NorthStar sends a provisioning order for NETCONF-based SR LSPs, the primary path name is set to be the same as the SR LSP name. • The length of the LSP name provisioned via NorthStar 4.2.1 should be 32 characters or less because the combined LSP name and path name length should be less than 64 characters. This 32 character constraint is not enforced by the NorthStar web UI or the REST API.

Resolved Issues

Table 3 on page 7 lists resolved issues in NorthStar Controller Release 4.2.2. The identifier associated with each entry is the tracking number in the Juniper Networks Problem Report (PR) tracking system.

Table 3: Resolved Issues in NorthStar Controller 4.2.2

Identifier	Description
NA	User configuration and path preference for NETCONF- provisioned and delegated RSVP LSPs was not retained.
NA	LSPs affected by link down were down some moments when available paths existed.
NA	Filter settings were clearing as moving between tabs in network information table.
NA	Cluster VIP address was not released when processes were manually stopped.
NA	Some Analytics data might not be present in some high availability node failure scenarios.
NA	Traffic stats on third-party LSPs were not displaying in graph.
NA	Duplicate IP addresses in network were causing model inconsistencies.

Table 3: Resolved Issues in NorthStar Controller 4.2.2 (continued)

Identifier	Description
NA	Node type did not always agree with profile for third party system.
NA	Device collection would fail if management IP was empty.
NA	Planner processes could not be closed from Web UI.
NA	Test Connectivity could leave some NETCONF sessions active.
NA	Netflow process could not restart when error was encountered.

Documentation Updates

For accessing the NorthStar Controller web UI, we recommend Google Chrome and Mozilla Firefox browsers on Windows 10 or Mac OS. We also recommend that you keep your browser updated to a recent version.

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.

Revision History

20 June 2019—NorthStar Controller Release 4.2.2.

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