Cisco Network Insights for Resources Application for Cisco DCNM Release Notes, Release 2.2.2

Cisco Network Insights for Resources (NIR) application consist of a pair of monitoring utilities that can be added to the Cisco Data Center Network Manager (DCNM).

This document describes the features, issues, and limitations for Cisco NIR on the Cisco DCNM.

For more information, see Related Content.

Date	Description
Oct 15, 2020	Usage guidelines and limitations. HA mode of deployment.
Sep 4, 2020	Usage guidelines and limitations. Installing Cisco NIR on Cisco DCNM.
Aug 27, 2020	Usage guidelines and limitations. Removed upgrade not available.
Aug 24, 2020	Hardware requirements for compute nodes.
Aug 18, 2020	Native HA deployment for Cisco DCNM in hardware requirements.
Aug 3, 2020	Usage guidelines and limitations.
July 28, 2020	Scalability limits.
July 26, 2020	Release 2.2.2 became available.

Contents

■ **Legal Information**

New Software Features

Feature	Description
Flow Analytics UI enhancements	Flow analytics records multiple entries for a flow that are captured at individual record times. A time series plot for flow analytics properties represents the node flows that are recorded in the entire site. The Network Insights setup page provides access to the onboarded sites with additional switch status summary, which displays the monitored and managed sites, health state of the nodes, and software telemetry and flow telemetry configurations.
GUI enhancements	The GUI enhancements include improved dashboard design, custom dashboards with pinning, and bookmark support for detail view.
Telemetry Manager REST API for Software Telemetry and Flow Telemetry	REST based APIs to configure software telemetry and flow telemetry on the switches.
Multicast protocols PIM, IGMP, and IGMP Snoop	Support for PIM, IGMP, and IGMP Snoop IPv4 multicast operational and statistical data in the Protocol Statistics tab. This feature is supported on Cisco Nexus 9000 platform switches.
Micro-Burst support	The Interface Statistics tab displays the anomalies that are raised based on the number of micro-bursts on the interface for Cisco Nexus 9000 platform switches.
Topology Dashboard (Beta)	The topology view represents the stitching between the nodes connected to the Cisco DCNM site. The Early Access Mode in the Network Insights Setup page lets you enable beta Network Insights features and enhancements. Once the beta features are enabled they cannot be disabled.
Dashboard Devices	The detailed view of the nodes with a graphical representation of top nodes and top resources.
Endpoint Analytics	The Endpoint Analytics provides detailed analytics of endpoints learnt in the fabric. The anomalies detected as part of endpoint analytics include duplicate IP address, rapid endpoint moves across nodes, interface, and endpoint groups, and endpoints that do not get learnt back after a reboot. This feature is supported on Cisco Nexus 9000 platform switches.
Anomaly score and anomaly precedence	The Top Nodes by Anomalies page summarizes anomalies based on the anomaly score and the severity of the anomaly.

Anomaly Analytics enhancements	Analyze resource utilization and create custom comparison charts for statistical, environmental, flows, and resources. The graphical representation of anomalies and time zones are displayed on the Site Dashboard.
Support for Cisco Nexus 7000 series switches, Cisco Nexus 3000 series switches, Cisco Nexus 9504 and 9508 with -R and -RX lines cards, and Cisco Nexus 3600 platform switches	In this release Cisco Nexus 7000 series switches, Cisco Nexus 3000 series switches, Cisco Nexus 9504 and 9508 with -R and -RX lines cards, and Cisco Nexus 3600 platform switches is supported.

Note: For Cisco NIR Release 2.2.2, you must install the latest software maintainence update on Cisco DCNM Release 11.4(1). See Installing Software Maintenance Update on Cisco DCNM 11.4(1) for more information.

Open Issues

Bug ID	Description	Exists In
CSCvs28382	Flow path may not be able to display all the drops when there is continuous link flaps causing packet loss at more than one node. But the Anomalies section will capture the errors.	2.2.2
CSCvu89501	EP anomalies are not generated after reloading a switch.	2.2.2
CSCvt36748	BD information for VXLAN setup is not displayed in the Resources page for Cisco Nexus 7000 series switches.	2.2.2
CSCvt41835	Mac move between vPC peer to non vPC peer is not displayed correctly.	2.2.2
CSCvu74237	Under scale condition, when some of the flow records are either dropped in the switch or dropped in processing, partial paths will be displayed.	2.2.2
CSCvu97710	The exported ID in the switch is not retained after the new intent for analytics using the NIR app is added.	2.2.2
CSCvu50319	For Multicast protocols such as PIM, IGMP Snoop, and IGMP - the *,G and S,G, remains in the entries even after the groups have been cleared or aged out.	2.2.2
CSCvu92352	Empty BD and EPG chart are displayed for anomalies on a node from DCNM fabric for IPv4 or IPv6 host routes and Longest Prefix Match (LPM) threshold anomalies.	2.2.2
CSCvu15103	IPv4 host route and IPv6 host route graphs show empty data in Diagnostics Report.	2.2.2
CSCvu03953	Flow Collection Configuration page displays incorrect measage **"Please add switches"** when a new switch is added and software Telemetry is not enabled.	2.2.2
CSCvu60874	After a switch is upgraded or downgraded, configuration for unsupported switch is displayed.	2.2.2
CSCvu76228	After adding a switch to the fabric in Monitored mode, the status may not be updated to Enabling in the GUI.	2.2.2

Resolved Issues

There are no resolved issues in this release.

Hardware Requirements

The Cisco NIR application supports Cisco DCNM 11.4(1) release. It is recommended to use the latest Cisco DCNM release. It is recommended to have a native HA (DCNM primary/secondary) + 3 Compute node deployment for Cisco DCNM when you want to run Cisco NIR but not mandatory.

Hardware Requirements for Deployments up to 80 Switches and 2000 Flows

Node	Deployment Mode	Logical CPU*	Memory	Storage	Network
Cisco DCNM	OVA/ISO	16 vCPUs	32G	500G HDD	3xNIC
Computes (x3)	OVA/ISO	32 vCPUs	64G	500G HDD	3xNIC

Hardware Requirements for Deployments from 81 to 350 Switches and 12000 Flows

Node	Deployment Mode	Logical CPU*	Memory	Storage	Network
Cisco DCNM	OVA/ISO	16 vCPUs	32G	500G HDD	3xNIC
Computes (SE-CL-L3 3 SE Nodes)	ISO	NA	NA	NA	NA

* A logical CPU is a Virtual CPU in a virtual hypervisor based environment and is a hyperthread in a baremetal environment.

Network card: Quad-port 10/25G

Compatibility Information

For Cisco NIR on Cisco DCNM compatibility with Day-2 Operations apps, see the Cisco Day-2 Operations Apps Support Matrix.

Software/Hardware	Release
Minimum Cisco NXOS version required for Software Telemetry	7.0(3)I7(6), 7.0(3)I7(7), 8.4(2)
Minimum Cisco NXOS version required for Software and Hardware Telemetry	9.3(2), 9.3(3), 9.3(4), 9.3(5), 7.0(3)I7(8)

Minimum Cisco NXOS version required for Micro-Burst, Endpoint Analytics and Multicast Protocols	9.3(4)
Minimum Cisco NXOS version required for Modular Hardware Telemetry	9.3(4)
Cisco Device supported for Flow Telemetry	Cisco Nexus 9300-EX, -FX, and -FX2 platform switches and 9500-EX and FX
Cisco Device supported for Software Telemetry	■ Cisco Cloud Scale ASIC devices ■ Cisco Nexus 7000 series switches: N77-C7710 or N77XX, N7K-C7009, N7K-C7010 or 70XX ■ Cisco Nexus 3000 series switches: Nexus 3100-XL series, Nexus 3100-V series, Nexus 3200 series, Nexus 3400 series, Nexus 3500-XL series ■ Cisco Nexus 9504 and 9508 with -R and -RX lines cards: N9K-X96136YC-R, N9K-C9508-FM-R, N9K-C9504-FM-R, N9K-X9636C-R, N9K-X9636C-RX ■ Cisco Nexus 3600 platorm switches: N3K-C3636C-R, N3K-C36480LD-R2, N3K-C36180YC-R
Cisco Device not supported for Software Telemetry	■ Cisco Nexus 9300-GX, 9300-FX3, 9700-GX, and 9700-FX3 platform switches ■ Cisco N3K-C3408-S, N3K-C3432D-S, N3K-C34200YC-SM, N3K-34180YC, and N3K-3464C switches ■ Cisco N3K-C3464C, N3K-C34180YC, N3K-C3408-S, N3K-C34200YC-SM, N3K-C3432D-I ■ Cisco N9K-C93180YC-FX3, N9K-C93108TC-FX3, N9K-C93360YC-FX3, N9K-C9316D-GX, N9K-C93600CD-GX, N9K-C9364C-GX
Micro-Burst support	See Supported Platforms for details.
Arista EOS	4.21
Arista Device Supported	Arista 7050SX and 7280SR platform switches

Note: Flow Telemetry data will consume 6MB for 10K IPv4 flows per node.

Note: Flow Telemetry data will consume 12MB for 10K IPv6 flows per node.

Verified Scalability Limits

Software/Hardware	Number
Number of flows supported for Hardware Telemetry	12000
Maximum number of nodes supported in a fabric in managed mode	150
Maximum number of nodes supported across all fabrics	350

Note: For fabrics greater than 150 nodes, monitored mode is recommended.

Usage Guidelines and Limitations

This section lists the usage guidelines and limitations for Cisco NIR:

- The Cisco NIR application requires that physical servers hosting Cisco DCNM computes as VMs are atleast Cisco C220-M4 category. It is also required that a compute be hosted on a data store with a dedicated hard disk of atleast 500GB. See Hardware Requirements.

- The Cisco NIR application supports Cisco DCNM 11.4(1) release. It is recommended to use the latest Cisco DCNM release. It is recommended to have a native HA (DCNM primary/secondary) + 3 Compute node deployment for Cisco DCNM when you want to run Cisco NIR but not mandatory. The native HA mode for Cisco DCNM is optional.

- The Cisco NIR application installation on Cisco DCNM requires that the DNS server is valid and reachable.

- The vPC domain ID for different vPC pair can not be the same across a fabric, when the Cisco NIR app is in managed or monitored mode on Cisco DCNM.

- Telemetry for hardware TCAM utilization, such as forwarding TCAM and ACL TCAM are not supported on Cisco Nexus C9504, C9508, and C9516 paltform switches.

- Cisco NIR app does not support software telemetry and flow telemetry data from switches to the flow collector running on Cisco DCNM compute nodes over IPv6.

- The Hardware Resources tab in System Resource Utilization Dashboard is not supported for Cisco Nexus 7000 series switches. The hardware resources do not have a direct mapping to the objects that show in Cisco NIR app. The command that shows hardware details does not provide the percentage of entries used and the maximum number of entries allocated for a particular feature. The Cisco NIR application does not raise the anomalies and details page for any resource in Hardware Resources tab for Cisco Nexus 7000 series switches.

- The features supported on Cisco Nexus 7000 series switches includes Enviromental, Statistics, and Resources.

- The features not supported on Cisco Nexus 7000 series switches includes Endpoint Analytics, Multicast, Microburst, CDP statistics protocol, and harware resource statistics such as COPP, HRT, LPM, QoS, and ACL.

- The features supported on Cisco Nexus 3000 series switches includes Enviromental, Statistics, and Resources.

- The features not supported on Cisco Nexus 3000 series includes Endpoint Analytics, Multicast, and Microburst.

- The IGMP and IGMP Snoop multicast statistics protocols are supported only on Cisco Nexus 9000 series switches.

- The IGMP and IGMP Snoop multicast statistics protocols are not supported for the following:

    - Cisco Nexus 3000 and 7000 series switches.

    - Cisco N9K-X9636C-R, N9K-X9636Q-R, N9K-X96136YC-R, and N3K-C3636C-R line cards.

- Cisco NIR app does not support BGP PrefixSaved statistics on the following:

    - Cisco Nexus 3000, 7000, and 9000 platform switches.

    - Cisco N9K-X96136YC-R, N9K-X9636C-R, N9K-X9636Q-R, and N3K-C3636C-R line cards.

- In Flow Telemetry the L3-VNI flows show as L2-VNI flows when the VXLAN flow is dropped in the ingress node. When VXLAN packets are dropped in the first-hop, the exported VXLAN flow telemetry records will indicate the drop. However, they don't carry the VNI information in it. The Ingress interface from the flow telemetry export along with the VRF associated with the interface, does not deduce if the flow is L2-VNI or L3-VNI. In this case Cisco NIR app associates the L2-VNI for the flow.

- The number of anomalies in the site dashboard will not match with the number of anomalies in the flow browse page. The site dashboard contains the total anomaly count for the time range you selected. The flow records are not aggregated in the flow browse view, where multiple flow records can point to the same anomaly entry.

- When there are 29 million anomalies in the indices, Elasticsearch writes are too slow, which causes KAFKA lag on 350 nodes supported for Software and Hardware Telemetry. The KAFKA lag results in partial data in Cisco NIR app UI.

- Flow Analytics information is retained for 7 days or until flow database reaches 80%, which ever happens first, then older flow analytics information is deleted from the database.

- Cisco DCNM allows network-admin and network-operator roles to assign read or write access for fabrics. Cisco NIR app displays all the fabrics even though you do not have permission to modify. Any operation on a fabric fails without read or write access to the fabric. Cisco NIR app does not enforce the RBAC roles configured in Cisco DCNM, the operations that telemetry manager generates are filtered/enforced by Cisco DCNM according to the RBAC rules configured.

- Cisco NIR 2.2.2 app is supported only on Cisco DCNM 11.4(1). Cisco NIR 2.2.2 app is not supported on Cisco DCNM 11.2(1) and 11.3(1).

- In switch add cases, the software or the hardware fabric state might show the final state as Enable-failed. Under this condition the GUI might not refresh the Configuration setup page. Even though the fabric has reached a final state, the failed switch retry might be happening. In order to view the correct fabric and switch states, exit the Configuration Setup page and return back to the Setup page. Click the pending or failed switches to determine if the status has been updated from "Processing" to "Failure" or "Success" states.

- After enabling Cisco NIR on a fabric and adding a group of switches together to the fabric, DCNM sends notification for the newly added switches. When NIR tries to program the newly added switches, DCNM can be potentially finishing the switch discovery for these switches. In this case, the NIR operation fails on the switches. The failed NIR operations should be retried with retry facility in Cisco NIR.

Related Content

The Cisco NIR documentation can be accessed from the following website:

https://www.cisco.com/c/en/us/support/data-center-analytics/network-insights-resources/model.html

The documentation includes installation, upgrade, configuration, programming, and troubleshooting guides, technical references, and release notes, as well as other documentation.

Document	Description
Cisco NIR Application for the Cisco DCNM Release Notes	This document.
Cisco NIR Application for the Cisco DCNM User Guide	Describes how to download, install, and set up Cisco NIR in Cisco DCNM.

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, send your comments to cisconetworkinsights-docfeedback@cisco.com.

Legal Information

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.