Cisco Nexus Dashboard Insights
Integrations, Release 6.5.1 - For Cisco
ACI

Table of Contents

First Published: 2024-06-28

New and Changed Information

The following table provides an overview of the significant changes up to the current release. The table does not provide an exhaustive list of all changes or the new features up to this release.

New Features and Changed Behavior in the Cisco Nexus Dashboard Insights

Feature	Description	Release	Where Documented
Terminology change	The term "sites" is renamed to "fabrics".	6.5.1	Entire document

This document is available from your Cisco Nexus Dashboard Insights GUI as well as online at www.cisco.com. For the latest version of this document, visit Cisco Nexus Dashboard Insights Documentation.

Integrations

About Integrations

Navigate to **Admin** > **Integrations**.

Integrations							
Integrations							Add Integration
Name	Connectivity Status	Type	IP	Last Active	Associations		
sjc18_vc	● Active	vCenter		Feb 02 2024 09:51:08.892 AM	DC-NDI-A04	...	
appd	● Active	AppDynamics		Feb 02 2024 09:51:08.663 AM	DC-NDI-A04	...	

All the integrations are listed in a tabular form with the following fields:

- Name
- Connectivity Status
- Type
- IP
- Last Active
- Associations

The connected status indicates that the controller is active to fetch data. The down status indicates that the Nexus Dashboard Insights will not fetch data from the controller. Use the filter bar to search for a specific integration. You can filter based on the name and type of integration.

- Click **Add Integration** to add a new integration.
- Click the ellipsis icon to perform to edit or delete an integration.
- Click the integration names to view further details about the integration.

> **ⓘ** DNS Integrations are not clickable and do not have any further information to display apart from the data available in the table.

Guidelines and Limitations for Integrations

- In Nexus Dashboard Insights, integrations are supported on both Management and Data networks.
- By default, Nexus Dashboard Insights will use Data network to connect to the integrations such as vCenter server, DNS, AppDynamics, or Nexus Dashboard Orchestrator. If you want to use Management network, you can add a specific route in Nexus Dashboard's Admin Console from **Admin** > **System Settings** > **General** > **Routes**. The route can be a /32 pointing to Integrations or a larger subnet that includes it.

AppDynamics Integration

About AppDynamics Integration

Cisco Nexus Dashboard Insights provides the ability to monitor the most common and complex challenges in the maintenance of infrastructure operations, which involves monitoring, troubleshooting, identification and resolving the network issues.

AppDynamics provides application performance management (APM) and IT operations analytics that helps manage the performance and availability of applications in the data center. It also provides the required metrics for monitoring, identifying, and analyzing the applications that are instrumented with AppDynamics agents.

> AppDynamics is associated only at the Fabric level. Onboarding of the AppDynamics controller is only at the Fabric level.

AppDynamics hierarchy consists of the following components:

- Network Link—Provides the functional means to transfer data between network entities.
- Node—A working entity of an application and is a process running on a virtual machine.
- Tier—Grouping of nodes into a logical entity. Each tier can have one or more nodes.
- Application—A set of tiers make up an application.
- Controller—A controller consists of a set of accounts with each account comprising a list of applications. Each account in the controller is an instance.

Integrating AppDynamics allows Nexus Dashboard Insights to collect operational data and metrics of the applications monitored by AppDynamics, and then correlate the collected information with the data collected from the Cisco ACI fabric.

In a scenario where an application communicates through the Cisco ACI fabric, AppDynamics provides various metrics about the application and the network, which can be used to isolate the cause of the anomaly. The anomaly can be in the application or the underlying network. This in turn allows network operators to monitor the network activity and detect anomalies.

The AppDynamics agents are plug-ins or extensions, hosted on the application. They monitor the health, and performance of the network nodes and tiers with minimal overhead, which in turn report to the AppDynamics controller. The controller receives real-time metrics from thousands of agents and helps troubleshoot and analyze the flows.

Nexus Dashboard Insights connects to the AppDynamics controller and pulls the data periodically. This data from AppDynamics controller, rich in application specific information is fed to Nexus Dashboard Insights, thereby providing Cisco Nexus Dashboard Insights for the traffic flowing through the Cisco ACI fabric.

From AppDynamics, you can create your own health rule on the available metrics, which contributes to the overall anomaly score of the entity.

The integration of Nexus Dashboard Insights with AppDynamics enables the following:

- Monitoring and presenting AppDynamics hierarchy in Nexus Dashboard Insights.

- Gathering and importing network related metrics into the Nexus Dashboard Insights.

- Presenting statistics analytics, flow analytics, and topology view on the data collected from AppDynamics controller.

- Detecting anomaly trends on metrics collected from AppDynamics controller and raising anomalies on detection of such events.

- The AppDynamics integration uses API server and multiple instances of Telegraph data collecting container to support load balancing of the onboarded controllers.

- Fabric flow impact calculation for AppDynamics anomalies.

Onboarding for SaaS or Cloud Deployments

Starting from Nexus Dashboard Insights release 6.0.2, you can connect to an AppDynamics controller using a proxy for SaaS or cloud deployments. For onboarding an AppDynamics Controller running on a cloud, Nexus Dashboard Insights uses a proxy configured in Cisco Nexus Dashboard's Admin Console to connect to the AppDynamics Controller.

Guidelines and Limitations

- After Nexus Dashboard Insights upgrade, AppDynamics takes about 5 minutes to report the information in AppDynamics GUI.

- The health and count of AppDynamics business transactions displayed in the application details do not match the flow count in Nexus Dashboard Insights.

- Nexus Dashboard Insights does not support fabric topologies as a transit-leaf switch does not have the VRF instance deployed and the flow table in the transit-leaf switch will not export the flow record to Nexus Dashboard Insights. Hence, Nexus Dashboard Insights will not stitch the path fully and will not display complete path summary with all the information.

- To connect an HTTPS AppDynamics controller using an HTTP proxy you must configure HTTPS proxy in Nexus Dashboard's Admin Console with the HTTP proxy server URL address.

- To connect an HTTP AppDynamics controller using an HTTP proxy you must configure HTTP proxy in the Admin Console with the HTTP proxy server URL address.

- Configuration import and export are not supported for AppDynamics integrations.

- Scale limits for AppDynamics integration:

  - Number of apps: 5

  - Number of tiers: 50

  - Number of nodes: 250

  - Number of net links: 300

  - Number of flow group: 1000

Installing AppDynamics

Before you begin using Nexus Dashboard Insights **Integrations**, you must install AppDynamics Application Performance Management and Controller. See Getting Started for details.

Onboard AppDynamics Controller

Use this procedure to onboard a AppDynamics Controller on to Nexus Dashboard Insights using GUI. For Cisco Nexus Dashboard Insights and AppDynamics integration, the Cisco Nexus Dashboard's data network must provide IP reachability to the AppDynamics controller. See the Cisco Nexus Dashboard Deployment Guide.

Before you begin

- You must have installed AppDynamics application and controller.
- You must have administrator credentials for Nexus Dashboard Insights.
- You must have user credentials for AppDynamics controller.
- You must have configured proxy in Nexus Dashboard's Admin Console to connect to AppDynamics controller using a proxy. See section **Cluster Configuration** in the Cisco Nexus Dashboard User Guide

Procedure

1. Click **Admin** > **Integrations** > **Add Integration**.

2. Select **App Dynamics** for **Integration Type**.

3. AUTHENTICATION

   - Enter the Controller Name, Controller IP or Hostname, Controller Protocol, and Controller Port. The Controller Name can be alphanumeric, but spaces are not allowed.

     > 🛈 The AppDynamics Controller Name cannot be the same name as the Nexus Dashboard fabric name.

   - Put a check in the **Enable** box to connect to the AppDynamics controller using a proxy. The proxy must be configured in the Admin Console.

   - Enter the AppDynamics Account Name, User Name, and Password.

4. ASSOCIATIONS

   - Select a fabric or multiple fabrics. You can view the number of anomalies for each severity level, SW Analytics, Flow Collection, and the Anomaly Trend for each fabric before selecting it.

   - Click **Select**

5. The Summary displays an overview of the Integration created.

6. Click Submit to add the integration. The post completion success screen allows you to **Add Another Integration** or **View Integrations**. When the **Status** is Connected, the onboarding for the controller is complete.

> Each controller supports multiple account names for the same host name. Each account name supports multiple applications monitored by the controller. Therefore, a controller can support multiple applications monitored by AppDynamics.

Nexus Dashboard Insights and AppDynamics Integration Dashboard

The AppDynamics Dashboard allows you to onboard controllers and presents a view of the **Top 5 Applications by Anomaly Score** along with various metrics. Once a controller is onboarded, data related to applications monitored by that controller is pulled by Nexus Dashboard Insights. It can take up to 5 minutes for the first set of data to appear on the GUI. The AppDynamics health state information provided for each entity is aggregated and reported by Nexus Dashboard Insights on the dashboard.

The AppDynamics dashboard displays the overview of the applications monitored by the AppDynamics controller.

- **Controller Connectivity** – represents the number of integrations that are **Up** or **Down**.
- **Anomalies by Severity** – The Nexus Dashboard Insights runs statistical analytics on the metrics received from the AppDynamics controller.
- **Top 5 Applications by Anomaly Score** – displays top five out of all the applications based on the anomaly score.
- **Anomalies by Severity** – to see the Anomalies page.
- **Application Widget** – displays the top application by anomaly score. This includes the anomaly score of the application as computed in Nexus Dashboard Insights, health state of tiers and nodes as reported by AppDynamics. Click the widget for additional details about the monitored application.

AppDynamics Integration Application

Detailed information including operational, statistics, and metrics, for each tier or application is also presented.

- **Summary** lists the anomaly score, controller name, account, application name, number of tiers, number of nodes, throughput, TCP loss, and errors.
- **Analyze Anomaly** details displays estimated impact application, recommendations, mutual occurrences, and other details affected by the anomaly. Click an anomaly in the summary to display additional details.
- **View Report** displays the flow groups affected where each flow group can correspond to multiple fabric flows. View reports also display the proxy/entity IP address, node source, and node destination IP address.
- **Number of Tiers** to list the available tiers. Click each tier from the list to display health score, number of nodes, and usage statistics.
- **Number of Nodes** to list the available nodes. Click each node from the list to display statistics about the node.
- **Application Name** to display additional details such as general information of the application, controller name, controller IP, account name, health of the tier, health of the node, business transaction health, and usage analytics.
- icon to open **AppDynamics Application** details. This displays application statistics details such as anomaly score, application tiers summary, application nodes summary, network charts for the node communication, and summary table of anomalies.

- **Application Network Links** table shows how the different components of AppDynamics application network flow map are communicating among each other. Detailed information about a network link, including flow counts and anomalies are used for further analysis.
- **AppDynamics Application View** shows the summary for the particular AppDynamics monitored application to display page.

AppDynamics Application View

The AppDynamics Application View presents an overview of the application health state including tier health, node health, and business transaction health.

- **Application Statistics** displays the graphical representation of the flow properties and a timeline graph representing the properties.
- **Tiers** displays the health state of the tiers in the application. Click each row in the tier section for the side panel to display additional tier usage details.
- **Nodes** displays the health state of the nodes in the application. Click each row in the node section for the side panel to display additional node usage details.
- **Application Network Links** displays the link summary for the nodes.
- **Network Connection** displays additional flow connection details.
- **Browse Network Flows** to navigate to **Browse Flows Records** with the flow properties set in the filter.
- **Anomalies** summarizes the anomalies with severity and other essential details of the anomaly. Click each row in the **Anomalies** section to see additional details of the anomaly.
- **Analyze** for in-depth analysis, mutual occurrences, estimated impact, lifespan, and recommendations on the anomaly.

Topology View

The topology view represents the stitching between nodes where these nodes are connected to the Cisco ACI fabric.

The topology view includes application nodes and leaf nodes. Toggle between show or not show to view/hide the nodes with anomaly score. The anomaly score is represented by the dot in the topology.

The topology view represents a hierarchical view of **Application > Node > Cisco ACI Leaf** and the links between them with a logical or network view of how various objects are related.

AppDynamics Anomalies

From AppDynamics application, you can create your own health rule on the available metrics, which contributes to the overall anomaly score of the entity. If the health rules are violated and a violation is generated by the AppDynamics controller, then Nexus Dashboard Insights pulls these health violations and generates anomalies on these violations.

The anomalies in the summary table include the following:

- Anomalies raised on the metrics from the AppDynamics controller.

- Health violation on the network metrics that the AppDynamics controller raised.

- Anomalies at the application level and node level.

If there is an anomaly on the interface of application(s) impacted by the interface, then an anomaly is identified and shown.

Depending on the anomaly score and the level at which the anomaly occurs, the corresponding flows impacted are identified. Information related to the flow metrics with the Cisco ACI leaf information enable statistics analytics, pin point the source of the anomaly, whether it is the application or network, and the impacted entities.

The fabric flow impact calculation for AppDynamics anomalies calls flow APIs to fetch the fabric flows corresponding to the AppDynamics flow groups that were affected by the anomaly. Nexus Dashboard Insights app displays the top 100 fabric flows ordered by the anomaly score for AppDynamics anomalies.

vCenter Integration

About VMware vCenter Server Integration

Integrating VMware vCenter server allows Nexus Dashboard Insights to collect data and metrics of the virtual machines and hosts monitored by VMware vCenter, and then correlate the collected information with the data collected from the Cisco ACI or Cisco NDFC fabric.

Data collected from vCenter includes

- Virtual machine data
- Network data
- Virtual machine NIC data
- Host data
- Datastore data
- Standard switch information
- DVS information
- vCenter Alarms

Nexus Dashboard Insights collects data from vCenter every 15 minutes. A system anomaly is raised if Nexus Dashboard Insights is unable to reach vCenter.

vCenter Anomalies

In Nexus Dashboard Insights, the alarms from vCenter are displayed as anomalies. The following types for anomalies are generated for vCenter Integration in the category **vCenter**.

- Host, VM, and Datastore alarms from vCenter
- Baseline anomalies for checks such as CPU, memory, storage
- Threshold anomalies

Prerequisites

- You have installed VMware vCenter 6.5 and later.
- You have read-only privileges for VMware vCenter.

Guidelines and Limitations

- Number of VMs supported for VMware vCenter integration is 1000.
- Number of vNIC hosts supported for VMware vCenter integration is 10,000.
- In Nexus Dashboard Insights release 6.3.1.44 and later multiple vCenters per fabric are supported.

Add vCenter Server Integration

1. Click **Admin** > **Integrations** > **Add Integration**.

2. Select **vCenter Server** for the **Integration Type**.

3. AUTHENTICATION

   o Enter Controller Name, Controller IP or Hostname, and Controller Port. Controller Name can be alphanumeric and spaces are not allowed.

   o Enter vCenter Username and Password.

4. ASSOCIATIONS

   o Select a fabric. You can view the number of anomalies for each severity level, SW Analytics, Flow Collection, and the Anomaly Trend for each fabric before selecting it.

   o Click **Select**.

5. The Summary displays an overview of the Integration created.

6. Click **Submit** to add the integration. The post completion success screen allows you to **Add Another Integration** or **View**.

vCenter Virtual Machine Dashboard

Select **Virtual Machines**. Select the timeline.

The dashboard presents the **Top Virtual Machines** by CPU plotted on a timeline. From the drop-down list, select CPU, memory, storage, or network usage to view the graphical representation of the top virtual machines based on drop-down list selection.

Use the filter bar to filter by vCenter IP, vCenter Controller, VM, Host, State, Status, Guest OS, DNS Name, Datacenter, Network Adapters, Network Usage, CPU, Memory, and Storage.

Use the following operators for the filter refinement:

Operator	Description
==	With the initial filter type, this operator, and a subsequent value, returns an exact match.
!=	With the initial filter type, this operator, and a subsequent value, returns all that do not have the same value.
contains	With the initial filter type, this operator, and a subsequent value, returns all that contain the value.

Virtual Machines also displays the virtual machines in a tabular format.

The **Virtual Machines** table displays the following information:

- Anomaly Score

- vCenter IP address

- Virtual machine IP address

- State

- Network Adapters

- IP address

- Network Usage

- CPU

- Memory

- Storage

The **Gear** icon to customize the columns to be displayed in the table.

Select any entry in the table to display the additional details:

- **Anomaly score** categorized by Critical, Major, Minor and Warning.
- **General Information** like State, Status, Guest OS, DNS Name, Host, IP Addresses, VCenter, Datacenter, and Network Adapters.
- **Usage graphs** for CPU, Memory, Storage and Network.
- **Storage** which displays the number of Datastores.

Virtual Machine Details

Virtual machine details can be navigated to in two ways:

Click any VM name in the table to view details

OR

Click the ⧉ icon (Expand Icon) after clicking any row in the table to view details.

> ⓘ   The details mentioned below consist of all the data available in both the views of Virtual Machine Details.

Overview

The overview section displays the following information:

- Host IP address to view details for the selected host.

See vCenter Hosts Dashboard for more information.

- The " + " under IP addresses to view all the addresses for the virtual machine.
- The usage graph can be viewed as separate graphs for each type of virtual machine or as a cumulative graph of all virtual machines.

Datastore

Click the datastore name to view the Status, Type, Cluster, Hosts, Virtual Machines and the Usage

graph for the datastore selected.

Adapter State

The adapter state shows details for network adapters.

Port Group

Click the number for port groups to view the entire list of port groups available. Select any of the port groups to view details.

> ℹ️ The information available for the port group listed is the same as the information available from Overview.

Alerts

Alerts displays the alarms from vCenter. In Nexus Dashboard Insights, the alarms from vCenter are displayed as anomalies. From the **Actions** drop-down menu, select an action to configure properties on an anomaly. The alerts can be filtered based on the following:

- Acknowledgement
- Anomaly ID
- Assignee
- Category
- Check Code
- Comment
- Description
- Detection Time
- Entity Name
- Last Seen Time
- Nodes
- Severity
- Status
- Sub-category
- Tags
- Title
- Verification Status
- IP Address
- MAC Address
- Interface
- VPC
- EPG
- VRF

- BG

Topology

Topology represents a hierarchical view of **virtual machine** > **host** > **leaf switch** in the fabric and the links between them with a logical or network view of how various objects are related.

> When there is an intermediate switch between the host and the leaf switch, the leaf switch in the host topology view is displayed as detached. Nexus Dashboard Insights is unable to determine the attached leaf switch port in such topologies. This will affect Cisco UCS B Series Blade Servers that have fabric switches between host blades and leaf switches, and it will also affect any other topologies with intermediate switches.

Topology can be filtered for the following different objects:

- Host
- Datastore
- DVS
- Network
- VM Network
- VSS
- Leaf
- Application

Click any of the nodes to view more information about it.
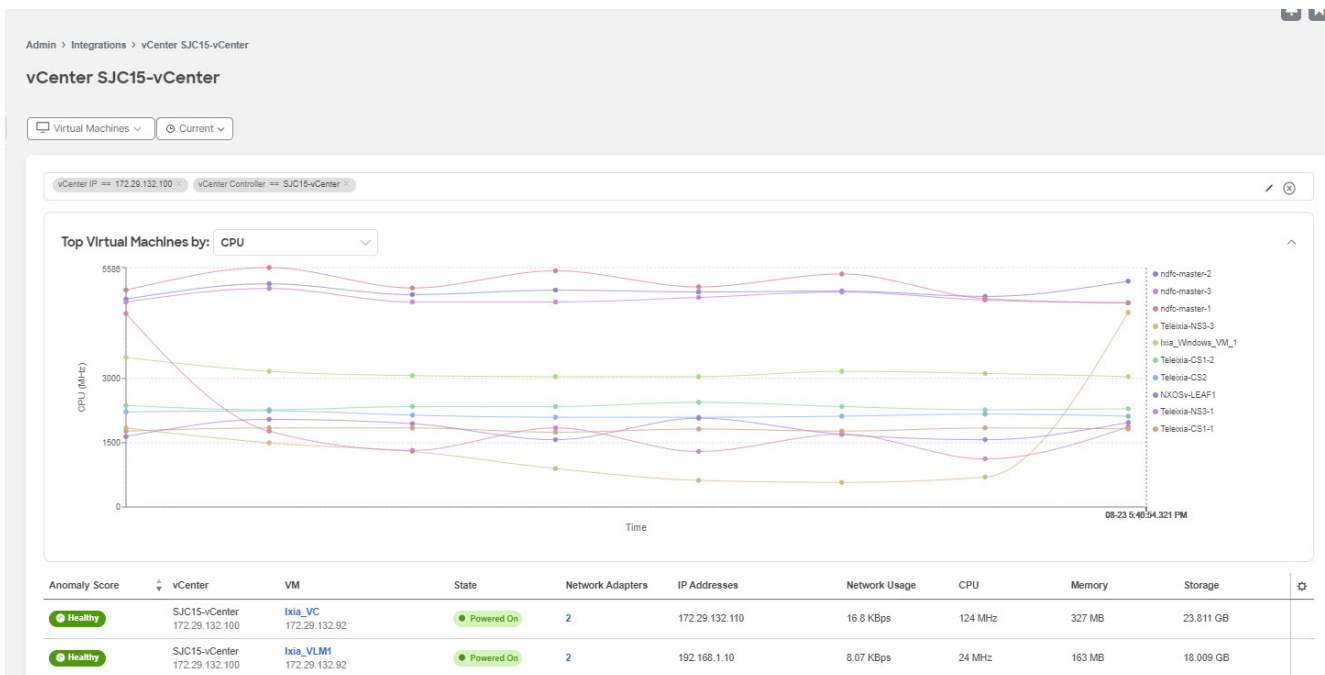
Trends and Statistics

Trends and Statistics displays the usage graphs for CPU, Memory, Storage and Network. It can be viewed as separate graphs for each type of virtual machine or as a cumulative graph for all.

Anomalies

See Anomalies and Advisories for more information.

vCenter Hosts Dashboard

Select **Hosts**. Select the timeline.

The dashboard presents the **Top Hosts** by CPU plotted on a timeline. From the drop-down list, select CPU, memory, storage, or network usage to view the graphical representation of the top virtual machines based on drop-down list selection.

Use the filter bar to filter by vCenter IP, vCenter Controller, VM, Host, State, Status, Guest OS, DNS Name, Datacenter, Network Adapters, Network Usage, CPU, Memory, and Storage.

Use the following operators for the filter refinement:

Operator	Description
==	With the initial filter type, this operator, and a subsequent value, returns an exact match.
!=	With the initial filter type, this operator, and a subsequent value, returns all that do not have the same value.
contains	With the initial filter type, this operator, and a subsequent value, returns all that contain the value.

Hosts also displays the hosts in a tabular format.

The **Hosts** table displays the following information:

- Anomaly Score
- vCenter IP address
- Host IP address
- State
- NVirtual Machines

- Cluster

- Network Usage

- CPU

- Memory

- Storage

The **Gear** icon can be used to customize the columns to be displayed in the table.

Select any entry in the table to display the additional details:

- **Anomaly score** categorized by Critical, Major, Minor and Warning.
- **General Information** like State, Status, Guest OS, DNS Name, Host, IP Addresses, VCenter, Datacenter, and Network Adapters.
- **Usage graphs** for CPU, Memory, Storage and Network.
- **Storage** which displays the number of Datastores.

Hosts Details

Host details can be navigated to in two ways:

Click any host name in the table to view details

OR

Click the 🔗 icon (Expand Icon) after clicking any row in the table to view details

> ℹ️ The details mentioned below consist of all the data available in both the views of Host Details.
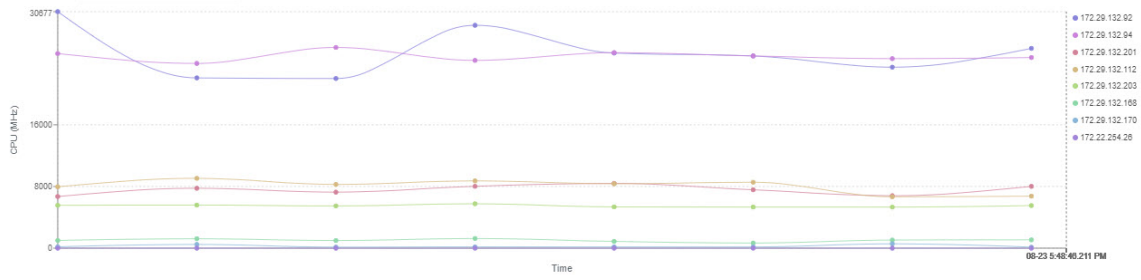
Overview

Overview displays the general information for the host along with the Anomaly Score, and tables listing the Virtual Machines, Datastores, Standard Switches, and Distributed Switches.

vCenter SJC15-vCenter

[🖥 Host ˅] [🕐 Current ˅]

[vCenter IP == 172.29.132.100 ✕] [vCenter Controller == SJC15-vCenter ✕]   ✎ ⊗

Top Hosts by: CPU ˅   ∧

Legend:
- 172.29.132.92
- 172.29.132.94
- 172.29.132.201
- 172.29.132.112
- 172.29.132.203
- 172.29.132.168
- 172.29.132.170
- 172.22.254.26

Anomaly Score	vCenter	Host	State	Virtual Machines	Cluster	Network Usage	CPU	Memory	Storage	⚙
● Healthy	SJC15-vCenter 172.29.132.100	172.29.132.92 NXOS_NAE_SYSTEST	● Connected	11	-	1.73 MBps	▬ 25.91 of 139.66 GHz	▬ 490.22 of 523.93 GB	▬ 2.95 of 3.12 TB	
● Healthy	SJC15-vCenter 172.29.132.100	172.29.132.203 NDFC	● Connected	1	-	3.92 MBps	▬	▬	▬	

Host 172.29.132.92   📌 🔖

Overview   Anomalies   Topology   Trends and Statistics

Anomaly Score

🔄	**No anomalies found**

No anomalies found

General Information

Name	State	Status	Cluster	Up Time	Physical Adapters	Datacenter	Hypervisor	Model	Processor Type
172.29.132.92	● Connected	● Warning	-	134 Days	10	NXOS_NAE_SYSTEST	VMware ESXi 6.7.0 build-20497097	UCSC-C240-M5SX	Intel(R) Xeon(R) Platinum 8180M CPU @ 2.50GHz

Logical Processors
112

VMs

[Filter   ✎]

Anomaly Score	vCenter	VM	State	Status	Network Adapters	IP Addresses	Network Usage	CPU	Memory	Storage
● Healthy	SJC15-vCenter 172.29.132.100	Ixia_VC	● Powered On	● Normal	2	172.29.132.110	16.8 KBps	124 MHz	327 MB	23.811 GB
● Healthy	SJC15-vCenter 172.29.132.100	Ixia_VLM1	● Powered On	● Normal	2	192.168.1.10	8.07 KBps	24 MHz	163 MB	18.009 GB
● Healthy	SJC15-vCenter 172.29.132.100	Teleixia-NS3-1	● Powered On	● Normal	1	172.29.132.212	149.8 KBps	1.87 GHz	6.39 GB	248.086 GB
● Healthy	SJC15-vCenter 172.29.132.100	Teleixia-NS3	● Powered On	● Normal	1	172.29.132.211	149.8 KBps	897 MHz	4.92 GB	248.086 GB
● Healthy	SJC15-vCenter 172.29.132.100	Teleixia-NS3-2	● Powered On	● Normal	1	172.29.132.213	105.13 KBps	1.47 GHz	6.39 GB	248.085 GB

Host 172.29.132.92

Datastores

Name	Status	Type	VMs	Hosts
datastore1 (1)	● Critical	VMFS	11	1

10 ∨ Rows	Page 1 of 1 《 ‹ 1-1 of 1 › 》

Distributed Switch

No data

Standard Switch

Physical Adapters

Click the number for Physical Adapters to view the entire list of adapters available. Select any of the adapters to view details like:

- Link Status
- Protocol
- Interface
- Node
- Chassis ID
- Management Address
- Usage graphs for Network, Network Broadcast and Network Multicast

Physical Adapters - 172.29.132.92

Search

- vmnic3
- vmnic0
- vmnic1
- vmnic2
- vmnic4
- vmnic5
- vmnic6
- vmnic7
- vmnic8
- vmnic9

Physical Adapter
vmnic3

General Information

Link Status
● 10 Gbps, Full

Neighbor

Protocol
cdp

Interface
eth1/10

Node
CANDID-SYS-S3-L1

Chassis ID
-

Management Address
172.29.132.175

Usage

Network Usage
0 KBps   →

l Adapters   Datacenter
              NXOS_NAE_SYSTI

Status	Netwo
● Normal	2
● Normal	2
● Normal	1
● Normal	1
● Normal	1

Network Adapters

Click the number for Network Adapters to view the entire list of adapters available. Select any of the adapters to view details like Endpoint address, Port Group, Type, Virtual Switch, VLAN, Adapter State, Physical Adapters, IP Addresses. Click on the Expand icon to view more details.

VMs

Click the number for VMs to view the entire list of virtual machines available. Select any of the virtual machines to view details.

Virtual Machines - datastore1 (1)   ✕

Q Search

DCNM_11.5
NXOS_NAE_SYSTEST

DCNM_11.5_Compute_Standby
NXOS_NAE_SYSTEST

Ixia_VC
NXOS_NAE_SYSTEST

Ixia_VLM1
NXOS_NAE_SYSTEST

Ixia_Windows_VM_1
NXOS_NAE_SYSTEST

Ixia_Windows_VM_3
NXOS_NAE_SYSTEST

NXOS-ISE
NXOS_NAE_SYSTEST

Teleixia-NS3
NXOS_NAE_SYSTEST

Teleixia-NS3-1
NXOS_NAE_SYSTEST

Teleixia-NS3-2
NXOS_NAE_SYSTEST

Teleixia-NS3-3
NXOS_NAE_SYSTEST

Virtual Machine
DCNM_11.5

0 Critical	**0** Major	**0** Minor	**0** Warning

General Information

State
● Powered On

Status
● Normal

Guest OS
CentOS 4/5/6/7 (64-bit)

DNS Name
candid-sys-nxos-dcnm-11-5.cisco.com

Host
172.29.132.92

IP Addresses
6

VCenter
172.29.132.100

Datacenter
NXOS_NAE_SYSTEST

Network Adapters
3

Hosts

Click the number for hosts to view the entire list of hosts available. Select any of the hosts to view details.

> The information available for the host listed is the same as the information available from the Host Details screen.

Anomalies

Anomalies displays the list of anomalies. The anomalies can be viewed as grouped or ungrouped and can be viewed for a selected timeline.

See Anomalies and Advisories for more information.

Topology

Topology represents a hierarchical view of **virtual machine** > **host** and the links between them with a logical or network view of how various objects are related.
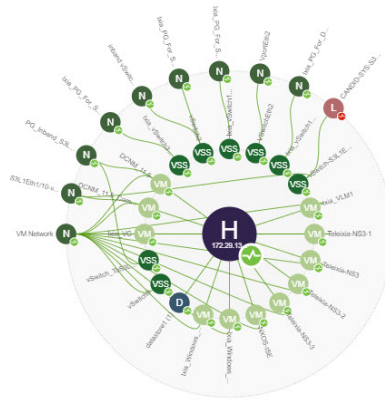
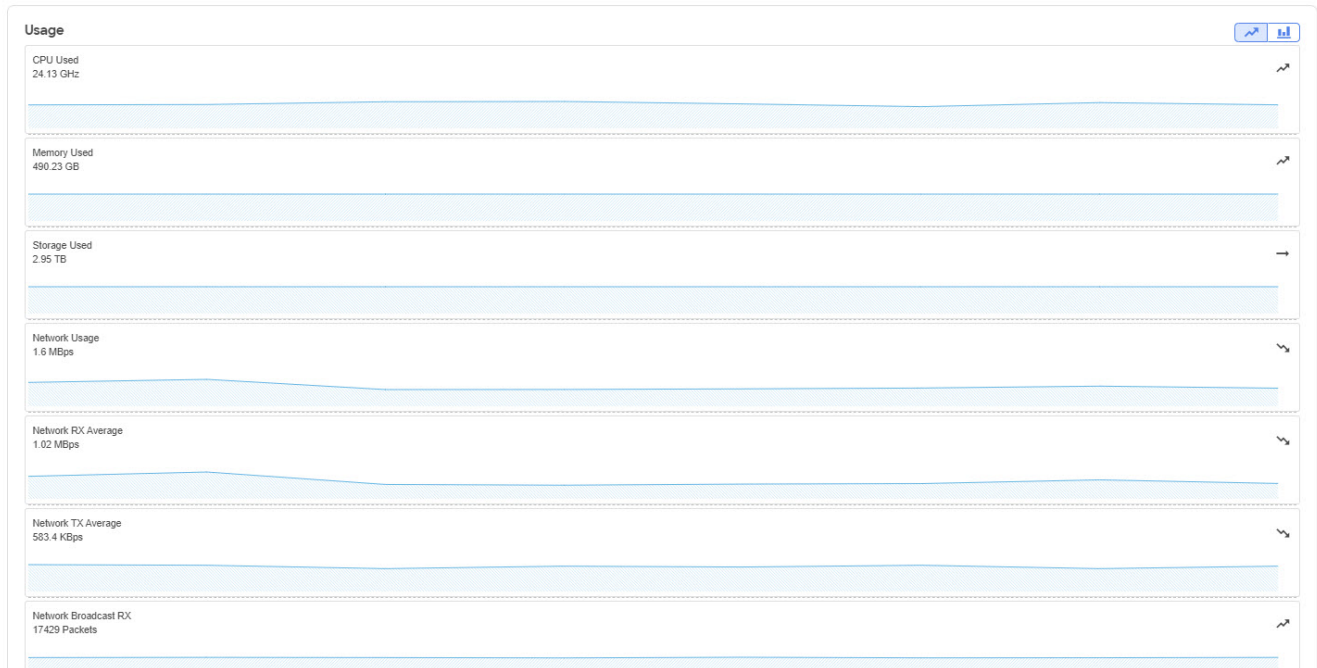**Trends and Statistics**

Trends and Statistics displays the usage graphs for Network, Network Broadcast and Network Multicast and can be viewed as separate graphs for each type of network or as a cumulative graph of all networks.

Alerts

Alerts displays the alarms from vCenter. In Nexus Dashboard Insights, the alarms from vCenter are displayed as anomalies. From the **Actions** drop-down menu, select an action to configure properties on an anomaly. The alerts can be filtered based on the following:

- Acknowledgement
- Anomaly ID

- Assignee
- Category
- Check Code
- Comment
- Description
- Detection Time
- Entity Name
- Last Seen Time
- Nodes
- Severity
- Status
- Sub-category
- Tags
- Title
- Verification Status
- IP Address
- MAC Address
- Interface
- VPC
- EPG
- VRF
- BG

DNS Integration

About DNS Integration

The Cisco Nexus Dashboard Insights Domain Name System (DNS) integration feature enables the name resolution feature to telemetry data. DNS integration can be associated at the Fabric level.

For DNS integration you can use any of the following 3 data source methods:

DNS File Upload

This method is simple because mappings do not change often. In the GUI, you can upload a file containing mappings. Use one of the supported formats (.csv and .json). Cisco Nexus Dashboard Insights verifies the integrity of the file.

If no VRF, or Fabric name, or Tenant information is specified, DNS will be applied to the fabrics for which the DNS server is configured based on the selections in **Add Integrations** and **Associations** section. If the DNS server is configured for a fabric, then DNS will be applied to all the fabrics in the group.

The DNS file upload size is limited to 1.8 MB.

Example CSV file

This section provides an example of a CSV file's contents.

```
recordType  fqdn           ips        siteName   tenant      vrf
dnsEntry    WebSrv1.foo.com 10.101.11.1 ACI-Fab1  prod        vrf_prod
dnsEntry    WebSrv2.foo.com 10.101.11.2 ACI-Fab1  prod        vrf_prod
dnsEntry    WebSrv3.foo.com 10.101.11.3 ACI-Fab1  prod        vrf_prod
dnsEntry    WebSrv4.foo.com 10.101.11.4 ACI-Fab1  prod        vrf_prod
```

Example JSON file

This section provides an example of a JSON file's contents.

```
[
  {
    "recordType" : "dnsEntry" ,
    "fqdn" : "WebSrv1.foo.com" ,
    "ips" : [
      "10.101.11.1"
    ]
  },
  {
    "recordType" : "dnsEntry" ,
    "fqdn" : "WebSrv2.foo.com" ,
```

```
    "ips" : [
       "10.101.11.2" ,
       "52::2"
    ]
  },
  {
    "recordType" : "dnsEntry" ,
    "fqdn" : "WebSrv3.foo.com" ,
    "ips" : [
       "10.101.11.3" ,
       "52::3"
    ]
  },   {
    "recordType" : "dnsEntry" ,
    "fqdn" : "WebSrv4.foo.com" ,
    "ips" : [
       "10.101.11.4" ,
       "10::101:0:4"
    ]
  }
]
```

DNS Query

Use this method one query at a time to retrieve data from the DNS server using reverse lookup. Reverse lookup zone(s) must be configured on the DNS server.

Cisco Nexus Dashboard Insights queries the DNS server at regular intervals and resolves IP addresses that are learned using endpoints.

Cisco Nexus Dashboard Insights allows one primary and multiple secondary DNS servers, the primary DNS server will be polled first. If the resolution does not succeed, the secondary servers will be polled thereafter.

DNS Zone Transfer

DNS Zone Transfer is also known as AXFR downloads. Nexus Dashboard Insights can retrieve zone data in bulk from the DNS server using AXFR downloads. This method is convenient for large quantities of data as you no longer have to work on one query at a time.

A zone transfer requires at least one DNS zone. If you configure a forward mapping zone, then all the A and AAAA records will be fetched from a DNS server if you configure a reverse mapping zone, then PTR records will be fetched. When onboarding the DNS server, you must provide a list of zones from which to fetch the data. Cisco Nexus Dashboard Insights will fetch the data from each zone configured from the DNS server.

TSIG (transaction signature) is a computer-networking protocol defined in RFC 2845. Primarily it enables the DNS to authenticate updates to a DNS database. For a secure transfer, Cisco Nexus

Dashboard Insights allows you to configure the TSIG key for a zone to initiate the transaction. Configure the zone with the TSIG key, and an associated algorithm. In the Cisco Nexus Dashboard Insights GUI, the supported algorithms are displayed in a drop-down list.

When you delete an onboarded DNS server, all the zones will be un-configured automatically. A zone can be a forward mapping or a reverse mapping zone.

> When information is changed on the DNS server it may take up to 3 hours to update corresponding name mappings on Cisco Nexus Dashboard Insights. During that interval, the old name will be displayed for endpoints until the sync is completed.

Guidelines and Limitations

- DNS onboarding can be done at a fabric level.
- Only one type of DNS integration method is supported in one fabric. For example, in a fabric, you cannot configure using DNS file uploads as well as DNS Zone Transfer methods.
- Multiple DNS integration onboarding of the same type is allowed in a fabric. For example, multiple files can be onboarded, to a fabric using the DNS file uploads method.
- If you perform DNS integration onboarding for multiple fabrics, you cannot also onboard a fabric in that group.
- When a corrupted or malformed .CSV of .JSON file is uploaded to the DNS server, Cisco Nexus Dashboard Insights raises system anomalies. However, the connectivity status of the third-party onboarding server, remains in the initialized state and does not change to display a failed state. If the third-party onboarding server remains in the initialized state, check the system anomalies for any anomalies related to the specific integration.
- The supported scale for DNS integration is 40,000 DNS entries. For vND application profiles, the supported scale for DNS integration is 10,000 DNS entries.
- Data from DNS servers will be polled or refreshed every 3 hours. So, any changes in the mapping on the DNS server will reflect after the next polling cycle.

Configure DNS

> The .json or .csv file used in this task must be uploaded in a specific schema. See the following section for the formats to use.

1. Click **Admin** > **Integrations** > **Add Integration**.

2. Select **DNS** for the **Integration Type**.

3. In the **Authentication** section, select one of the following DNS types to view the corresponding fields:

   a. Zone Transfer - Enter the **Name**, **DNS Server IP**, **DNS Server Port**, and **Zones**. In the **Zones** area, enter the value for Zone Name. Optional values that can be entered are TSIG Key Name, TSIG Key Value, TSIG Algorithm. The **TSIG Algorithm** dropdown menu selections are hmac-sha1, hmac-sha256, hmac-sha512, hmac-md5.

   b. Query Server - Enter the **Name**, **DNS Server IP**, **DNS Server Port**, and **Secondary Servers**.

c. Mapping File – Enter the **Name**, **Description**, and **Upload a JSON or CSV file**.

4. In the **Associations** area, click **Add Associations** to associate a fabric or multiple fabrics. The Summary displays an overview of the Integration created.

5. Click Save to add the integration. The post completion success screen allows you to **Add Another Integration** or **View Integrations**.

Edit or Delete DNS Configuration

To edit your DNS configuration, click the Actions icon and click **Edit**. When you have completed editing, click **Add**.

To delete your DNS configuration, click the Actions icon and click **Delete**.

Formats for Files Used in DNS File Uploads

When configuring the DNS file uploads, .json and .csv formats are supported. Use the formats provided below for the files that you upload.

The fields in a DNS file upload can have optional VRF, or Fabric name, or Tenant information. If you specify details for one of these options you must specify all of them. If you have a file that contains the fabric name, you must specify the VRF and Tenant also.

Format .json

```
[
  {
      "recordType" : "dnsEntry",
      "fqdn" : "host1.cisco.com",
      "ips" : ["1.1.0.0"],
      "vrf" : "vrf-1",
      "siteName" : "swmp3",
      "tenant" : "tenant-1"
  },
  {
      "recordType" : "dnsEntry",
      "fqdn" : "host2.cisco.com",
      "ips" : ["1.1.0.1"],
      "vrf" : "vrf-1",
      "siteName" : "swmp3",
      "tenant" : "tenant-1"
  }
  {
      "recordType" : "dnsEntry",
      "fqdn" : "host3.cisco.com",
      "ips" : ["1.1.0.2"],
  },
```

```
]
```

Format .csv

```
recordType,fqdn,ips,siteName,tenant,vrf
dnsEntry,swmp3-leaf1.cisco.com," 101.22.33.44" ,swmp3,tenant-1,vrf-1
dnsEntry,swmp5-leaf1.cisco.com," 10.2.3.4,10.4.5.6,1.2.3.4" ,fabric2,tenant-2,vrf-2
dnsEntry,swmp4-leaf1.cisco.com, " 1.1.1.1" ,,,
```

Nexus Dashboard Orchestrator Integration

About Nexus Dashboard Orchestrator Integration

Click the NDO integration type to view a slide in with the following information:

- Name
- Connectivity status
- Type
- IP
- Last Update
- Associations
- Managed Fabrics

With Nexus Dashboard Orchestrator assurance, you have the following features available:

- Explore fabric-to-fabric connectivity
- See anomalies specific to Nexus Dashboard Orchestrator
- Raise anomalies for inconsistencies across fabrics
- See the aggregated anomalies for single or multiple fabrics
- See anomalies for individual fabrics

For details about Nexus Dashboard Orchestrator Assurance for Explore Workflows, see Explore for Nexus Dashboard Orchestrator Assurance.

Guidelines and Limitations

- You must have at least one fabric added in Nexus Dashboard Insights before you integrate Nexus Dashboard Orchestrator with Nexus Dashboard Insights.
- If, at a later time, you add additional fabrics that are managed by Nexus Dashboard Orchestrator, Nexus Dashboard Insights will automatically incorporate assuring the added fabrics.
- If a fabric is Nexus Dashboard Orchestrator assured, then for each fabric you must associate a unique Nexus Dashboard Orchestrator instance. You cannot add multiple Nexus Dashboard Orchestrators to one fabric. Neither can you add multiple fabrics to one Nexus Dashboard Orchestrator.
- A Fabric must contain at least one of the fabrics that will be assured by Nexus Dashboard Orchestrator before you associate the Nexus Dashboard Orchestrator.
- After you create an Nexus Dashboard Orchestrator integration with a live setup, you cannot edit the integration.
- After you upload a file with an Nexus Dashboard Orchestrator integration and run assurance on it, you can swap the already uploaded file for a new file if desired. However, when you run Nexus Dashboard Orchestrator assurance analysis on an uploaded file, it looks for the latest snapshots of the uploaded file/s in the fabric.

- For uploaded files, to run snapshot analysis for Inter-Fabric Assurance after you have run the analysis once, you must first **Run Snapshot Analysis** on the individual fabrics, and then you will be able to click **Run Snapshot Analysis** for Inter-Fabric Assurance.

- When onboarding Nexus Dashboard Orchestrator integration in a co-hosted environment where Nexus Dashboard Insights and Nexus Dashboard Orchestrator are deployed on the same Nexus Dashboard cluster, you must use Nexus Dashboard data IP addresses for onboarding Nexus Dashboard Orchestrator.

Add a Nexus Dashboard Orchestrator Live Setup

Before you begin

You must have at least one fabric added in Nexus Dashboard Insights before you integrate Nexus Dashboard Orchestrator with Nexus Dashboard Insights. This is required because when you integrate Nexus Dashboard Orchestrator, you must associate a fabric.

Procedure

1. Click **Admin** > **Integrations** > **Add Integration**.
2. Select **Nexus Dashboard Orchestrator** for the **Integration Type**.
3. In the **Authentication** area, perform the following actions:
   a. In the **Orchestrator Data Collection Type** field, choose **Live Setup**.
   b. In the **Orchestrator Name** field, enter the name.
   c. In the **Orchestrator IP or Hostname** field, enter the Orchestrator IP address or the hostname.
   d. In the **User** and **Password** fields, enter the Orchestrator username and password credentials.
4. Click Save to add the integration. The post completion success screen allows you to **Add Another Integration** or **View Integrations**.

   > The admin account must be used to perform these actions. Enter your Nexus Dashboard Orchestrator username and password values.

5. In the **Associations** area, click **Add Associations** to associate the appropriate Fabric.

   > The fabrics may be a subset of all the fabrics that are managed by Nexus Dashboard Orchestrator. It is not necessary that all the fabrics that belong to a group are managed by Nexus Dashboard Orchestrator.There may be fabrics in this list that are part of the group but are not managed by Nexus Dashboard Orchestrator.

6. The Summary displays an overview of the Integration created.

   To configure assurance analysis for a Nexus Dashboard Orchestrator, navigate to **Fabrics** > **Integrations**> **Analyze Now** > **Assurance**.

Add a Nexus Dashboard Orchestrator Using Uploaded File Method

You upload the file in the **Add New Fabric** step.

Before you begin

For Orchestrator Data Collection Type, you must have at least one fabric with an uploaded file added in Nexus Dashboard Insights before you integrate Nexus Dashboard Orchestrator with Nexus Dashboard Insights. This is required because when you integrate Nexus Dashboard Orchestrator, you must associate a fabric.

Procedure

1. Navigate to **Admin** > **Integrations** > **Add Integration**.

2. Select **Nexus Dashboard Orchestrator** for the **Integration Type**.

3. AUTHENTICATION

   - In the **Orchestrator Data Collection Type** field, choose **Upload file**.

     > ℹ️ Make sure to upload only those files that are part of your fabrics and that are managed by Nexus Dashboard Orchestrator.

   - In the **Integration Name** field, enter the name of the orchestrator.

   - Upload the required JSON or CSV file.

4. In the **Associations** area, click **Add Associations** to associate the appropriate Fabric.

   > ℹ️ There may be fabrics in this list that are part of the group but are not managed by Nexus Dashboard Orchestrator.

5. The Summary displays an overview of the Integration created. Click Save to add the integration. The post completion success screen allows you to **Add Another Integration** or **View Integrations**.

Panduit PDU Integration

Panduit PDU Integration

Panduit Power Distribution Unit (PDU) Integration in Nexus Dashboard Insights enables you to monitor energy usage and unlock sustainability insights for fabrics and individual devices connected to a Panduit PDU. Monitoring energy consumption gives you insight into how much electricity your devices and/or Panduit PDUs are using.

The workflow for integration of Panduit PDU consists of the following steps:

1. Install Panduit PDU collector and PDUs.

2. Add PDU collector to Nexus Dashboard Insights. The PDU collector collects telemetry from PDUs in your environment.

3. Associate PDUs to the PDU collector. The associated PDUs sends telemetry to the Panduit PDU collector, and Nexus Dashboard Insights displays PDU statistics in the Sustainability Report. See Sustainability Report.

Prerequisites

- You have installed Panduit Collector and PDUs. See Panduit Data Collector for Cisco Nexus Dashboard.

- You have associated the PDUs to the collector.

- You have configured a persistent IP address for PDU collector to stream telemetry information for one or multiple PDUs in your fabric in Nexus Dashboard's Admin Console. In Nexus Dashboard's Admin Console, navigate to **Admin** > **System Settings** > **General** > **External Service Pools** > **Add Data Service IP Address** to configure the persistent IP address.

- You have configured the SNMP protocol in the PDU. See Simple Network Management Protocol.

Guidelines and Limitations

- After you onboard the PDU collector in Nexus Dashboard Insights, it will take at least 15 minutes for the number of number of devices powered by the PDU collector to be displayed in the Nexus Dashboard Insights GUI.

- Once the number of number of devices powered by the PDU collector to be displayed in the Nexus Dashboard Insights GUI, the PDU data is updated every 15 minutes in Nexus Dashboard Insights.

- Scale limits for Panduit PDU integration:

  - Maximum number of PDUs supported per Nexus Dashboard cluster – 1000

  - Maximum number of PDUs supported per fabric – 500

- If you have not configured the PDU name in the Panduit PDU GUI, the PDU name is not displayed in the PDU table in Nexus Dashboard Insights.

SJC02_1222

Refresh   Actions ⌄

candid-scale2

Overview   **PDUs**

ℹ Some information for the PDU may not be available until at least 15 minutes after onboarding.   ✕

Collection Status   ⌄

3
Total
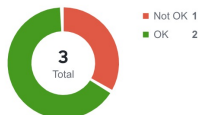
■ Not OK 1
■ OK   2

Filter by attributes   **Add PDU**

PDU Name	Serial Number	Model	Type	Collection Status	IP Address(es)	Outlets	Total Power	⚙
	IN229N6026	346-415V, 24A, 17.3k VA, 50/60Hz Panduit	ThreePhase-Wye	⚠ Not OK		36	853 Watts	...
SJC02-R16	IN235E6042	200-240V, 24A, 5.0kV A, 50/60Hz Panduit	Single	✓ OK		36	4077 Watts	...
SJC02-R15 Daisy-chained PDU	IN235E6054	200-240V, 24A, 5.0kV A, 50/60Hz Panduit	Single	✓ OK	🔗 SJC02-R16	36	2803 Watts	

Add PDU Integration

1. Navigate to **Admin** > **Integrations** > **Add Integration**.

2. Select Integration Type **Panduit PDU**.

3. Complete the following fields for **PDU Collector**.

   a. Enter the name of the PDU Collector.

   b. Enter the IP address of the PDU Collector.

   c. Enter the username and password to authenticate the PDU Collector.

   d. Select an online fabric to associate with the PDU Collector. A PDU Collector is associated with single fabric.

   > ℹ Snapshot fabric is not supported.

   e. Click **Next**.

4. Complete the following fields for **Add PDUs** to add PDUs to the PDU collector.

   a. The PDU collector version and status is displayed in the summary. Once the PDU collector is added successfully, you can add the PDUs to the collector.

   b. Enter the IP address of the PDU.

   c. Click **Add to Collector**.

5. Complete the following fields for PDU credentials.

   > ℹ Ensure that you have configured the SNMP protocol in the PDU.

   a. Select the SNMP protocol version.

   b. For SNMP protocol version 2, enter the community string and click **Submit**.

    c. For SNMP protocol version 3, enter the user name.

    d. Select the Authentication Type and Protocol.

    e. Enter the Authentication password.

    f. Select the Privacy Protocol and enter the password.

    g. Click **Submit**.

    h. After the PDU credentials are verified, the PDU is added to the collector and the PDU status is displayed in the table. In the table you can view details such as PDU status, PDU name, IP address of primary and secondary PDU, model, and serial number. For secondary PDU or Daisy-chained PDUs, you can view all the PDUs linked to the primary PDU.

    i. Click **Next**.

6. Review the PDU information in the PDU Summary and click **Done**.

    a. To add another PDU Collector click **Add Another PDU Collector**.

    b. To view PDU Collector details, click **View PDU Collector**.

View PDU Integration

1. Navigate to **Admin** > **Integrations**. In the Integrations Dashboard you can view the list of Panduit PDUs associated with a fabric. For each PDU integration you can view the Name, Connectivity Status, Type, IP address, Last Active, and Associations.

2. Click PDU collector name to view additional details.

3. Click **Overview** to view information such as collector IP address, connectivity to Nexus Dashboard, number of PDUs associated with the PDU collector, and number of devices powered by the PDU collector.

4. Click **PDUs** to view the onboarding status of the PDUs associated with the PDU collector as a doughnut chart.

5. Use the search bar to filter the PDUs by name, serial number, model, type, collection status, IP addresses, outlets, and total power.

6. The PDUs table displays the filtered PDUs. The PDU table displays the PDU name name, serial number, model, type (single or three phase), collection status, IP addresses, outlets, and total power.

7. Click the column heading to sort the PDUs in the table.

8. Click the gear icon to configure the columns in the PDUs table.

9. Click the ellipsis icon and click **Remove from this Collector** to remove the PDU.

10. Click PDU name to view additional details such as general information, phases, and circuits. For Three Way type PDUs, you can the view the different phases.

PDU IN229N6026

SJC02_1222

General

Serial Number	Vendor	Model	Type	IP address(es)	Total Power
IN229N6026	**Ⓟ Panduit**	346-415V, 24A, 17.3kVA, 50/60Hz	ThreePhase-Wye		851 Watts

Phases

L1-N   L2-N   L3-N

Total Power
685 Watts

Circuits

Circuit 1

Output Power   Connected Outlets
421   **3/6**

- Outlet 1 0 Watts
- Outlet 2 0 Watts
- Outlet 3 139 Watts
- Outlet 4 139 Watts
- Outlet 5 142 Watts
- Outlet 6 0 Watts

Circuit 4

Output Power   Connected Outlets
263   **1/6**

- Outlet 19 263 Watts
- Outlet 20 0 Watts
- Outlet 21 0 Watts
- Outlet 22 0 Watts
- Outlet 23 0 Watts
- Outlet 24 0 Watts

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