



Cisco Nexus Dashboard Insights
Inventory, Release 6.4.1 - For Cisco
NDFC or Standalone NX-OS

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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
Navigation Update	Inventory is now accessible from Manage > Inventory	6.4.1	Entire document
Support of LACP/PIM/IGMP/IGMP Snooping protocols	LACP, PIM, IGMP, and IGMP Snooping protocols are supported for switches.	6.4.1	Multicast
Real Time Visualization	Real Time Visualization (RTEV) feature facilitates real-time event rendering within a user interface (UI) environment.	6.4.1	Overview
Endpoint support in Layer 2 ToR	Layer 2 ToR is now a supported topology.	6.4.1	Overview
ToR role for hardware telemetry support	ToR role is available in Nexus Dashboard Insights for flow telemetry support.	6.4.1	About Switches

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](#).

Inventory

About Inventory

Inventory provides information on switches in Nexus Dashboard Insights.

Click **Manage > Inventory** to access Inventory.

At the top of Inventory, choose whether you want to view the inventory from **Online Sites** or **Snapshot Sites**.

Click **Switches** to see high-level information on the switches.



If a switch or hostname is modified, it takes around 2 hours for the updated switch or hostname to be reflect in Inventory.

Switches

About Switches

Switches provides the following high-level information on the switches. The gear icon allows you to customize the table by hiding some of the columns. By default, all columns are visible. The table can also be filtered based on the columns available. Click on the site name to be redirected to all the site details. See [Sites](#) for more information.

To get additional information on any single switch, click that switch under **Name**.

Manage > Inventory

Inventory

Refresh

Online Sites

Controllers Switches

Switches

Filter by attributes

Name	Anomaly Level	Advisory Level	Site	Model	Switch Role	Connectivity to Insights	Serial Number	Software Version	Site Type
leaf-101	Major	Major	ACL_Prod	N9K-C93180YC-FX	leaf	OK	FDO21162MZ G	16.0(3e)	ACI
leaf-102	Major	Critical	ACL_Prod	N9K-C93180YC-FX	leaf	OK	FDO21112E21	16.0(3e)	ACI
spine-203-gx	Healthy	Healthy	ACL_Prod	N9K-C93600CD-GX	spine	OK	FDO26460030	16.0(3e)	ACI
leaf-2101	Healthy	Major	ACI2	N9K-C93180YC-FX	leaf	OK	FDO21162N06	16.0(3e)	ACI
leaf-2102	Healthy	Major	ACI2	N9K-C93180YC-FX	leaf	OK	FDO21162N1 X	16.0(3e)	ACI
spine-220 4gx	Healthy	Healthy	ACI2	N9K-C93600CD-GX	spine	OK	FDO2646014B	16.0(3e)	ACI

Field	Description
Name	The name of each switch
Anomaly Level	The anomaly levels experienced by each switch
Advisory Level	The advisory levels experienced by each switch
Site	The site where each switch resides
Model	The model type for each switch
Switch Role	Displays the role of switch.
Connectivity to Insights	The connectivity of the switches
Serial Number	The serial number for the specific switch
Software Version	The software version in which the switch is available

Field	Description
Site Type	Displays the type of switch: <ul style="list-style-type: none"> ▪ ACI ▪ NDFC ▪ NX-OS

You'll see **Overview**, **Connectivity**, **Anomalies**, and **Advisories** that will provide more information on the switch, with **Overview** shown first by default.

Overview

The **Overview** tab shown first by default when you view switch details. The following appear below **Overview**.

- **Anomaly level :**

Hover over the Anomaly Level to see what category the anomalies belong to. Click the Anomaly Level to get more specific information on the anomalies present for this controller. A slide-in appears, showing all the anomalies that occurred for this controller. See [Anomalies](#) to understand how to navigate across the anomalies.

- **Advisory level :**

Hover over the Advisory Level to see what category the advisories belong to. Click the Advisory Level to get more specific information on the advisories present for this switch. A slide-in appears, showing all the advisories that occurred for this switch. See [Advisories](#) to understand how to navigate across the advisories tab.

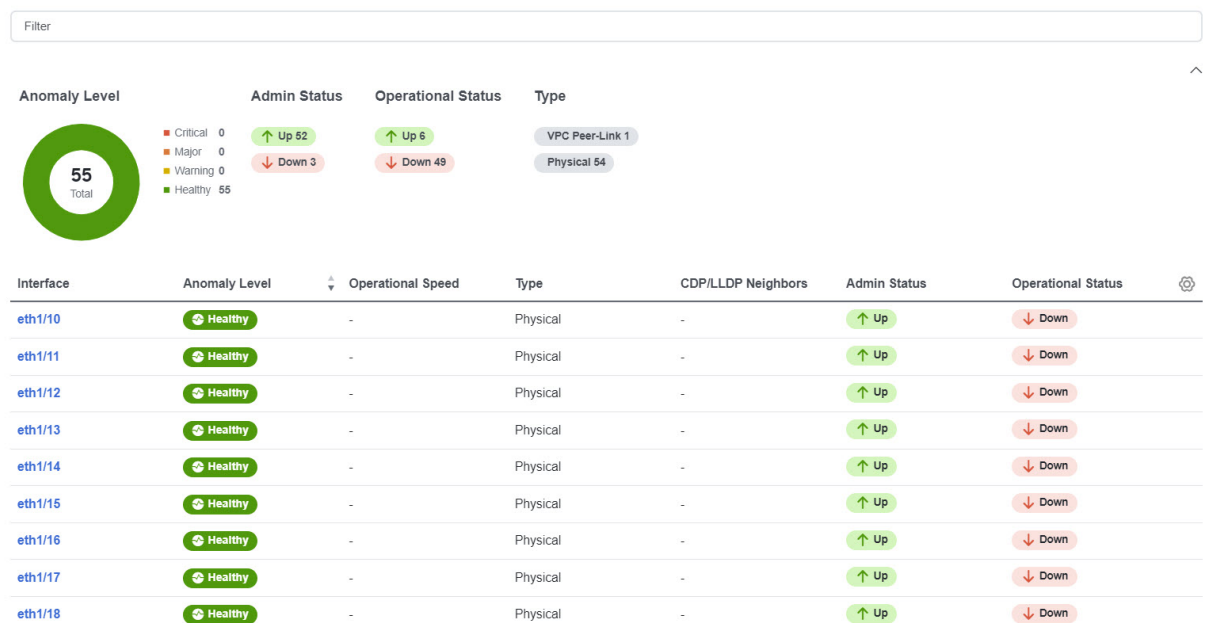
- **Interfaces :**

Interfaces provides the following information:

- The total number of interfaces in this switch
- The number of physical interfaces
- The overall status of the interfaces in the switch (the number of interfaces that are up, down, or physical not in use)

Click on the number above the **Total** text to get additional information on the interfaces in this switch.

Interfaces for leaf1



You can filter the list of interfaces based on Anomaly Level, Interface, Type, Operational status and Admin status. Click on a specific interface listed under the Interface column to get additional information on that particular interface. See [Interfaces](#) for more information.

• Switch View :

Within the **Switch View**, you can see the status of the interfaces, where the state could be Up (green), Down (red), or Not in Use (gray).

If the switch has multiple modules installed, you can switch the views between the different modules.

Real Time Visualization (RTEV) feature facilitates real-time event rendering within a user interface (UI) environment. This feature allows for the smooth integration of real-time events directly into the UI, ultimately enhancing the user experience and delivering the most up-to-date information in real-time. RTEV supported features provide the current data in 10 seconds when the change happens which otherwise takes 5 minutes to get updated via the regular pipeline.

Real-time values are shown to the right of the vertical bar. Historical values (past 2 hours) are shown to the left of the bar and may have larger gaps between data points.



Controller events are not real time and RTEV is limited to switches only. Only 10 sessions per pod can have real-time data for physical and virtual deployment profiles. If there are more than 10 sessions then the data will be sent via regular pipeline. All other deployment profiles support 20 sessions.

Click **View All** to see the switch view for all modules installed. Click these links in the Switch View to get additional information:

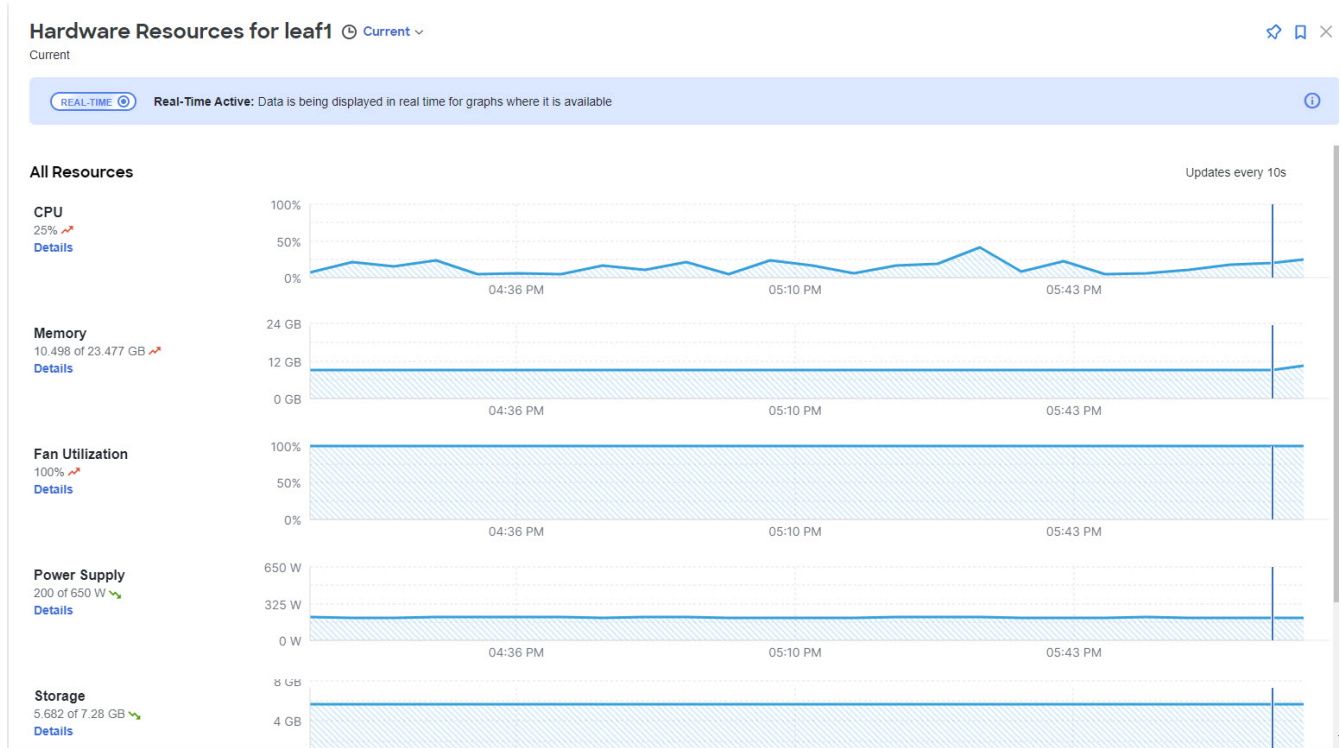
View Hardware Resources :

Click **View Hardware Resources** to view a slide-in which appears with information on the hardware resources for this switch in real time. Real Time Visualization helps view up to date information about the resources. Hardware resources shows the variations in the hardware resources over the time

range selected. The hardware resources displayed with the percentage utilized per component are CPU, Fan Utilization, Memory, Power Supply, Storage, and Temperature. Click any resource to view further details about it.



For hardware resources all parameters are updated in real-time based on the cadence from the switch when it sends the data.



View Capacity :

Click **View Capacity** to view a slide-in appears with capacity information for the switch. Capacity details shows the variations in operational, configuration and interface resources over the time range selected.

Type of Resource	List of resources
<i>Operational Resources</i>	<ul style="list-style-type: none"> ▪ Egress Routed ACL ▪ IPV4 Host Routes ▪ IPV4 Prefix Routes ▪ IPV6 Host Routes ▪ IPV6 Prefix Routes ▪ Ingress Routed ACL ▪ L2 QoS TCAM ▪ L3 QoS TCAM ▪ MAC ▪ Multicast Routes

Type of Resource	List of resources
<i>Configuration Resources</i>	<ul style="list-style-type: none"> ▪ L2 VNI ▪ L3 VNI ▪ VLAN ▪ VRF
<i>Interface Resources</i>	<ul style="list-style-type: none"> ▪ Egress Port Bandwidth ▪ Ingress Port Bandwidth ▪ Port Usage

The port diagram key helps understand the switch view. Click any interface in the switch view to get more details about the interface. See [Interfaces](#) for more information.

• **General :**

General provides the following information:

Field	Description
Site	The site where each switch resides
Role	The role defines what the device is
Type	<p>Displays what type of switch this is:</p> <ul style="list-style-type: none"> ▪ Access ▪ Aggregation ▪ Border ▪ Leaf ▪ Spine ▪ ToR <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="margin-right: 10px;"></div> <p>Nexus Dashboard Insights will now onboard ToR switches to provide complete visibility into the fabric. This requires creating an Layer 3 interface (SVI) in the ToR switch prior to onboarding.</p> </div> <div style="display: flex; align-items: flex-start; margin-top: 10px;"> <div style="margin-right: 10px;"></div> <p>Layer 2 ToR is a supported topology for headless and monitored mode fabrics. You need to push PTP configuration to the TOR. For NDFC managed mode fabrics this isn't supported.</p> </div>
Connectivity to Insights	Connectivity status for switch

Field	Description
Telemetry Collection Status	<p>Telemetry collection status provides insights into the health and performance of the switches and devices in your network. The different telemetry collection statuses at the site level include:</p> <ul style="list-style-type: none"> • OK - This status indicates that the telemetry data streaming from a switch to Nexus Dashboard Insights is functioning correctly. This is the desired state, as it ensures comprehensive monitoring and visibility into the network's performance. • Not OK - This status indicates the telemetry data streaming from a switch to Nexus Dashboard Insights is not functioning correctly. This could be as a result of various problems, such as network outages, misconfigurations, or hardware failures.
Software Version	The version of the software on the switch
Last Software Update	The date when the software was last updated on this switch
Uptime	The amount of time that this switch has been up. You will also see when the switch was last rebooted
Model	The model type for this switch
Serial Number	The serial number for this switch
Out-of-Band IPv4 Address	The IPv4 address for the out-of-band management of this switch
Out-of-Band IPv6 Address	The IPv6 address for the out-of-band management of this switch
In-Band IPv4 Address	The IPv4 address for the in-band management of this switch
Switch ID	The ID of the switch
Created At	The date and time the switch was created

• **Connectivity :**

Connectivity provides the following information:

Field	Description
Endpoints	The number of endpoints associated with this switch

Field	Description
L3 Neighbors	The number of Layer 3 neighbors associated with this switch

Click on the number shown in either of these areas to get additional information on the endpoints or the Layer 3 neighbors.

- **Analytics Summary :**

Analytics summary displays the congestion level of the switch.

Connectivity

Click **Connectivity** to view connectivity information for this switch. The following appear below **Connectivity**, with **Interfaces** shown first by default.

Click any of these to view additional connectivity information for this switch:

- **Interfaces :**

Click Interfaces to view the Interfaces for this switch. The following information is available in Interfaces:

- Anomaly level (Only Interface down anomaly is in Realtime)
- Admin Status (Real time visualization)
- Operational status (Real time visualization)
- Type

The Interfaces are listed in a tabular form. The following data is available for the interfaces in the table:

- Anomaly level
- Operational speed
- Type
- CDP/LLDP
- Admin Status
- Operational Status

There are various other columns that are optional and can be added to the table by clicking on the gear icon using the toggle to show or hide. See [Interfaces](#) for more information.

- **L3 Neighbors :**

Click the L3 Neighbors to view L3 Neighbors for this switch. You can filter the results based on Neighbor, Local Switch, VRF and Operational Status. Click the IP address in the Neighbor column to view details on this neighbor.

- **Endpoints :**

Click **Endpoints** to view the Endpoints for this switch. You can filter the results based on Anomaly

Level, MAC Address, IP Addresses, host names, Connected To, Interface, Time, Status, Tenant, VRF, BD, EPG/L3out, Search Deleted IPs, VM Name, Hypervisor.

Click a MAC address, IP address or a hostname to get the following additional information on that endpoint. You can view **Overview**, **Endpoint History** and **Anomalies** for the selected endpoint.

• **Routes :**

Click **Routes** to view the route details for this switch. You can choose from the drop-down list to view the details for either IPv4 or IPv6 routes. **Download** allows you to download the details. The following details are available for the routes. The **View History** button allows you view the route history for the switch. The table has the following information available:

- Route
- Protocol
- VRF
- Next Hop
- Local Interface
- Route History

• **vPC Domains :**

Click **vPC Domains** to view the vPC Domain for this switch. You can filter the results based on Domain ID. Click a domain in the **Domain ID** column to view vPC domain details on that domain. Click an interface in the Interface column to view additional information on that interface.

• **Multicast :**

The Multicast card lists the IGMP, IGMP snooping and the PIM details for the switch. The Instances table shows the following information:

Protocol Type	Fields for Instances Table
IGMP DETAILS	<ul style="list-style-type: none">▪ Interface▪ Admin State▪ Operational Status▪ Tenant▪ VRF▪ IP Address▪ Querier Address▪ Membership Count▪ Querier Version▪ Errors▪ View Stats

Protocol Type	Fields for Instances Table
IGMP SNOOPING DETAILS	<ul style="list-style-type: none"> ▪ VLAN ▪ Admin State ▪ Querier Address ▪ Querier Version ▪ Multicast Routing State ▪ Switch Querier State ▪ Errors ▪ View Stats
PIM DOMAINS DETAILS	<ul style="list-style-type: none"> ▪ VRF ▪ Rendezvous Point Addresses

Interfaces

Supported Interface Types (Real time visualization)


- **Physical Interface:** To view the interface details of the node such as, node name, physical interface name, operational status, and admin state. The page also displays protocols, QoS, and DOM properties of the physical interface.
- **Port Channel Interface:** The port channel is an aggregate of physical interfaces and they can be statistically channeled or can be dynamic using LACP protocols. The statistical data that collects the counters for packets, bytes and various errors are similar to that of physical interface. The 150 *sourcename* differentiates the physical interface from port-channel (aggregated interfaces). The operational data is obtained by looking at an additional set of objects that gives the admin-status, oper-status and list of member interfaces for both PC and vPC.
- **vPC Interface:** The vPC is a logical interface that spans across two physical switches for fault tolerance. For a vPC interface type, the Logical Neighbors information is also displayed. The categories that are supported are L3Out, IPN, ISN, L4-L7.
- **SVI Interface:** An SVI is a virtual routed interface that connects a VLAN on the device to the Layer 3 router engine on the same device. Specific information such as Member Interfaces over which the SVI is deployed, VLAN ID, VLAN Type, Encap VLAN are displayed for the SVI interface.

Click an interface to view more details about it.

Overview


The Anomaly level is available at the top. The fields for overview change depending on the type of interface supported.

▪ INTERFACE TYPE : PHYSICAL

Section	
General	<ul style="list-style-type: none">▪ Interface▪ Type (Access Port, Trunk Port, L3 Port)▪ IP Address▪ Admin Status▪ Operational Status▪ CDP/LLDP neighbors▪ Total Endpoints▪ SFP Diagnostics (You can click on 'View SFP Diagnostics' to view further details) <div data-bbox="518 1899 582 1960"></div> <p data-bbox="662 1877 1428 1989">If LLDP is disabled, the tag will show 'LLDP disabled', otherwise it will show the count. This is applicable for CDP neighbors as well.</p>

Section	
VLANs Allowed on Interface (This is available for Access Single Port and Trunk Multiple Ports)	<ul style="list-style-type: none"> ▪ VLAN ID ▪ VNI
Sub interfaces (This is available for Access Single Port and Trunk Multiple Ports)	<ul style="list-style-type: none"> ▪ Sub interface ▪ IP Address
Associated Routing Protocols (For L3 Port)	<ul style="list-style-type: none"> ▪ Protocol ▪ Type

• INTERFACE TYPE : PORT CHANNEL

Section	
General	<ul style="list-style-type: none"> ▪ Interface ▪ Description ▪ Type (Access Port, Trunk Port, L3 Port, vPC Peer link for vPC Domain) ▪ Aggregation Type ▪ Bandwidth ▪ IP Address ▪ Admin Status ▪ Operational Status ▪ CDP/LLDP neighbors ▪ Total Endpoints ▪ SFP Diagnostics (You can click on 'View SFP Diagnostics' to view further details) <div style="display: flex; align-items: center; margin-top: 10px;">  <p>If LLDP is disabled, the tag will show 'LLDP disabled', otherwise it will show the count. This is applicable for CDP neighbors as well.</p> </div>
LACP Details	<ul style="list-style-type: none"> ▪ Interface ▪ Admin Status ▪ Operational Status ▪ LACP Packets received ▪ LACP Packets transmitted ▪ Errors

Section	
VLANs Allowed on Interface (This is available for Access Single Port and Trunk Multiple Ports)	<ul style="list-style-type: none"> ▪ VLAN ID ▪ VNI
SFP Diagnostics (DOM)	<ul style="list-style-type: none"> ▪ Lane ▪ Voltage ▪ Temperature ▪ Current ▪ Transmit Power Value ▪ Receive Power Value

• **INTERFACE TYPE : vPC**



If a VPC has virtual peer-link mode enabled, the CDP/LLDP for virtual interface is blank as endpoint will not show for vMCT.

Section	
General	<ul style="list-style-type: none"> ▪ Interface ▪ Description ▪ Type ▪ vPC Domain ▪ Bandwidth ▪ IP Address ▪ Admin Status ▪ Operational Status ▪ CDP/LLDP neighbors ▪ Total Endpoints ▪ SFP Diagnostics (You can click on 'View SFP Diagnostics' to view further details) <div style="margin-top: 20px;"> <p style="margin-left: 20px;">If LLDP is disabled, the tag will show 'LLDP disabled', otherwise it will show the count. This is applicable for CDP neighbors as well.</p> </div>
Members	<ul style="list-style-type: none"> ▪ Switch ▪ Port Channel ▪ Aggregation Type ▪ Interface ▪ Operational Status

Section	
VLANs Allowed on Interface (This is available for Access Single Port and Trunk Multiple Ports)	<ul style="list-style-type: none"> ▪ VLAN ID ▪ VNI
SFP Diagnostics (DOM)	<ul style="list-style-type: none"> ▪ Lane ▪ Voltage ▪ Temperature ▪ Current ▪ Transmit Power Value ▪ Receive Power Value

• INTERFACE TYPE : SUB-INTERFACE

Section	
General	<ul style="list-style-type: none"> ▪ Interface ▪ Description ▪ Type (L3 Port) ▪ Parent Interface ▪ VRF ▪ Encap ▪ IP Address ▪ Admin Status ▪ Operational Status ▪ CDP/LLDP neighbors ▪ Total Endpoints ▪ SFP Transceiver (You can click on 'View SFP Diagnostics' to view further details) <div style="display: flex; align-items: center; margin-top: 10px;">  <p>If LLDP is disabled, the tag will show 'LLDP disabled', otherwise it will show the count. This is applicable for CDP neighbors as well.</p> </div>
Associated Routing Protocols (For L3 Port)	<ul style="list-style-type: none"> ▪ Protocol ▪ Type

• INTERFACE TYPE : NVE

Section	
General	<ul style="list-style-type: none"> ▪ Interface ▪ Description ▪ Type (L2/L3 Port) ▪ Encapsulation ▪ Mode ▪ Admin Status ▪ Operational Status ▪ Peers
VNIs	<ul style="list-style-type: none"> ▪ VNID ▪ Multicast Group ▪ Type ▪ VLAN/VRF

▪ **INTERFACE TYPE : SVI**

Section	
General	<ul style="list-style-type: none"> ▪ Interface ▪ Description ▪ Type ▪ IP address ▪ Encap ▪ Admin Status ▪ Operational Status ▪ SFP Transceiver (You can click on 'View SFP Diagnostics' to view further details)
Associated Routing Protocols (This is available only if the routing protocol is configured) (Real Time Visualization)	<ul style="list-style-type: none"> ▪ Protocol ▪ Type

Multicast

Click Multicast to bring up details for multicast routes on this interface.

Section	
General	<ul style="list-style-type: none"> ▪ IP Address ▪ IGMP Version ▪ IGMP Querier ▪ IGMP Last Reporter ▪ Admin State ▪ Oper State ▪ VRF ▪ Tenant ▪ Designated Router Address ▪ Designated Router Priority ▪ Neighbor Address
Multicast Groups	<ul style="list-style-type: none"> ▪ Source ▪ Multicast Group ▪ VRF ▪ Last Reporter

For any interface, you can choose to view either the **IGMP** details or the **PIM** details.

IGMP DETAILS -

- General Information
 - Fast-leave
 - Allow V3 ASM
 - Report Link-local Groups
- Statistics
 - V2 Leave Received
 - V2 Leave Sent
 - V2 Query Received
 - V2 Query Sent
 - V2 Report Received
 - V2 Report Sent
 - V3 Query Received
 - V3 Query Sent
 - V3 Report Received
 - V3 Report Sent

PIM DETAILS -

- Neighbor Details
 - Neighbor
 - BFD Config
 - Bi-Dir Config
- Statistics
 - Authentication failed
 - Bad Version Packet
 - Checksum Errors
 - Invalid Packet Received
 - Invalid Packet Sent
 - Join No RP
 - Join Wrong RP
 - Packet from Self
 - Packet Length Error
 - Packet on Passive Interface

Trends and Statistics

Click Trends and Statistics to view trends and statistics information on this specific interface in this switch. You see information about the traffic that is flowing over the interface, the usage and various statistics for Microbursts and errors. All of the information is now available in real time. Real Time Visualization helps view up-to-date information.

NX-OS switches support the new subscription service and will send notifications to all interested clients for every sample (every 10 seconds). In the event of any issues with the dial-in connection, it will automatically fall back to the regular update cadence, which is at 1-minute intervals.

- Admin Status (Real time visualization)
- Operational Status (Real time visualization)
- Errors (Real time visualization)
- Traffic (by bytes or by packets) (Real time visualization)
 - Flood
 - Multicast
 - Unicast
 - Total
- Bandwidth (Real time visualization)
 - Utilization
 - Rate

- Congestion
 - Congestion score
 - PFC
 - ECN
 - Drops
 - RED/WRED/AFD
 - Errors

The congestion statistics show the ECN and PFC counters for the traffic received and transmitted. This is used to display where the congestion occurs. Click on any of the counter graphs displayed to view the per queue counters. This displays the list of the counters in the queue along with the number of packets in the respective queue.

Anomalies

Click to view anomaly information on this specific interface in this switch. See [Anomalies](#) for more information.

The Anomaly level shows the total number of anomalies that have occurred and the number of anomalies that have occurred in the last week.

Hover over the Anomaly Level to view the category of the anomalies occurred. Click the Anomaly Level to get specific information on the anomalies present for the specific controller or switch.

The **View all anomalies** takes you to the Anomalies tab. See [Anomalies](#) to understand how to navigate across the anomalies.

Filtering Information

In some cases, you might be able to filter results to find information more easily.

For example, you might have a situation where there a large number of endpoints under a single leaf switch, but you are only interested in endpoints that have a certain VLAN value.

You could filter the information to show only those specific endpoints in this situation.

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.
!contains	With the initial filter type, this operator, and a subsequent value, returns all that do not contain the value.
<	With the initial filter type, this operator, and a subsequent value, returns a match less than the value.
< =	With the initial filter type, this operator, and a subsequent value, returns a match less than or equal to the value.
>	With the initial filter type, this operator, and a subsequent value, returns a match greater than the value.
> =	With the initial filter type, this operator, and a subsequent value, returns a match greater than or equal to the value.

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