Understanding NDB Fabrics and Switches, Release 4.2.1

Table of Contents

New and changed information

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

Release Version	Feature	Description
Nexus Dashboard 4.2.1	Nexus Data Broker integration	Beginning with release 4.2.1, Nexus Dashboard supports a new fabric type dedicated to Data Broker networks. You can also configure and manage SPAN settings for Data Broker switches directly within Nexus Dashboard, which enhances connectivity and monitoring capabilities.

The **Fabrics** page provides a centralized view of Nexus Data Broker (NDB) operations, inventory health, connectivity metrics, configuration, and operational status of the network monitoring infrastructure.

The **Fabrics** page includes the following tabs.

- Overview
- Inventory
- Connectivity
- Configuration policies
- Anomalies
- History

Overview

The **Overview** tab provides a summary of the health and status of the NDB fabric. You can also view the anomaly level, general fabric details (such as software versions and license tier), inventory summaries, and real-time status of input ports, monitoring tools, and packet filters. It also tracks data throughput and recent administrative activity.

Follow these steps to navigate to the **Overview** tab.
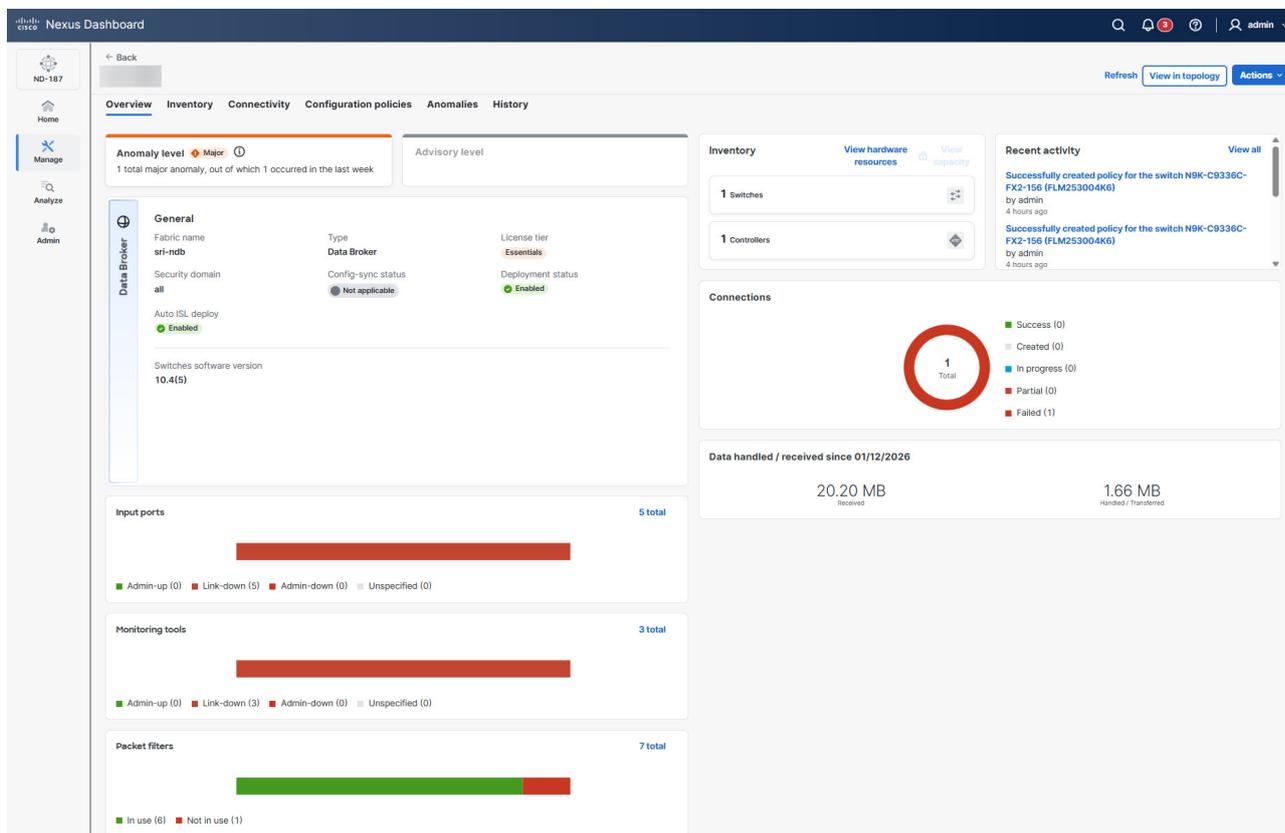
1. Navigate to the **Fabrics** page .

   Go to **Manage > Fabrics**.

2. From the **Fabrics** table, click an NDB fabric.

   The **Fabrics** page displays.

3. Click the **Overview** tab.

Inventory

The **Inventory** tab lists all hardware assets managed within the NDB fabric including switches and controllers. It allows you to monitor hardware resources, view capacity, and verify the operational status of each device in the network.

Follow these steps to navigate to the **Inventory** tab.

1. Navigate to the **Fabrics** page .

   Go to **Manage > Fabrics**.

2. From the **Fabrics** table, click an NDB fabric.

   The **Fabrics** page displays.

3. In the **Fabrics** page, click the **Inventory** tab.
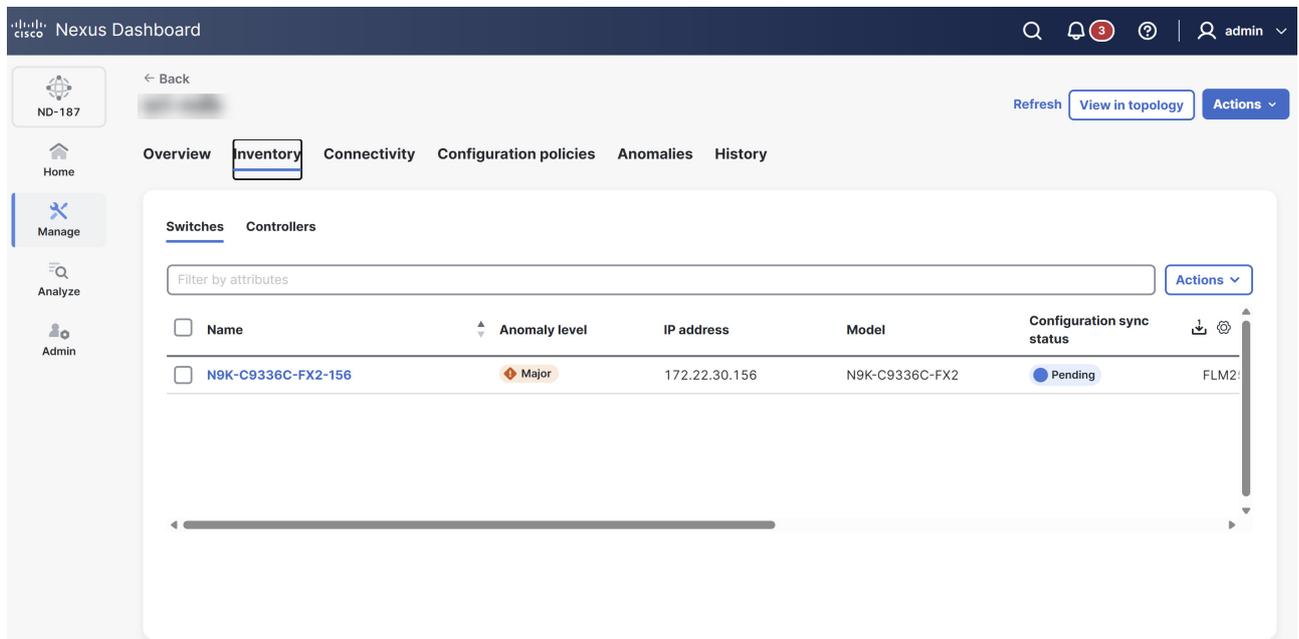
The **Inventory** tab displays the following tabs.

- **Switches**
- **Controllers**

Switches

Cisco Nexus series devices act as programmable packet brokers within the network monitoring infrastructure in the NDB fabric. These switches aggregate, filter, replicate, and forward copies of production traffic from TAP or SPAN sources to monitoring and security tools. Switches enable scalable TAP and SPAN aggregation, redirect inline traffic, and provide advanced traffic management features such as packet truncation, time stamping, and tag stripping.

The **Switches** table provides the following information.

Field	Description
Name	Specifies the name of the switch.
Anomaly level	Displays the anomaly level of the switch, classified as **Critical**, **Major**, or **Warning** based on operational issues.
IP address	Specifies the IP address of the switch.
Model	Specifies the switch model.
Configuration sync status	Indicates whether the switch configuration is **In-Sync** or **Out of sync**.
Serial number	Specifies the serial number of the switch.
Discovery status	Indicates the discovery status of the switch, such as **Discovering**, **Ok**, **Rediscovering**, **Unreachable**, or **Paused**. The status is set to **Paused** when you enable **Pause** mode (Go to **Actions > Pause**).
Mode	Specifies whether the switch is in **Normal**, **Migration**, or **Maintenance** mode.
Software version	Specifies the software version running on the switch.

Field	Description
Uptime	Specifies the time the switch has been operational since last reboot.

Configure switches

Follow these steps to configure the switches.

1. Navigate to the **Fabrics** page.

   Go to **Manage > Fabrics**.

2. From the **Fabrics** table, click an NDB fabric.

   The **Fabrics** page displays.

3. In the **Fabrics** page, click the **Inventory** tab.

4. Click the **Switches** tab.

5. Choose a switch.

6. From the **Actions** drop-down list, choose one of the following options.

   ○ **Add switches**—allows you to add switches to the fabric. For more information, see Add switches.

   ○ **Configuration**—allows you to preview generated configurations or deploy configurations to the switch.

   ○ **Discovery**—allows you to trigger discovery processes for the chosen device.

   ○ **Maintenance**—provides options for operational tasks such as reboots or firmware management.

   ○ **Pause/Resume**—temporarily stops or restarts management/monitoring of the switch.

   ○ **Delete switch(s)**—removes the device from the fabric inventory.

For more information, see .

Add switches

The **Add switches** option allows you to add switches to the NDB fabric using a discovery mechanism. Ensure that you have the management IP addresses and the necessary administrative credentials (username and password) for the switches you intend to add. You can add multiple switches simultaneously.

Follow these steps to add switches to the NDB fabrics.

1. Navigate to the **Fabrics** page.

   Go to **Manage > Fabrics**.

2. From the **Fabrics** table, click an NDB fabric.

   The **Fabrics** page displays.

3. In the **Fabrics** page, click the **Inventory** tab.

4. Click the **Switches** tab.

5. From the **Actions** drop-down list, choose **Add switches**.

   The **Add switches** page displays.

> You can also access the **Add switches** page from the **Inventory** page. Go to **Manage > Inventory** and choose **Add switches** from the **Actions** drop-down list.

6. The **Switch addition mechanism** defaults to **Discover**.

7. Under **Seed switch details**, provide the following information.

   ○ **IP** — provide the management IP address of the switch. You can provide multiple IP addresses separated by commas.

- ○ **Authentication / Privacy** – choose the authentication protocol from the drop-down list.

- ○ **Username** – enter the administrative username for the switch.

- ○ **Password** – enter the password for the specified username.

- ○ **Set as individual device write credential** – check this option if you want to use these credentials specifically for write operations on these devices.

8. Click **Discover switches** to initiate the process.

Nexus Dashboard attempts to communicate with the switches. After Nexus Dashboard discovers the switches, they appear in the **Switches** table with a **Discovering** or **Ok** status.

> By default, Nexus Dashboard sets the device TCAM (specialized hardware memory used for high-speed traffic matching) scale to 2048 entries. This memory allows the switch to store and process your traffic filtering and forwarding rules.

Controllers

The **Controllers** tab is used to manage and monitor the controller instances associated with a specific NDB fabric.

The **Controllers** table provides the following information.

Field	Description
Active IP	Displays the IP address Nexus Dashboard currently uses to communicate with the controller.
Username	Specifies the username.
Name	Identifies the unique name assigned to the controller.
Fabric name	Identifies the specific NDB fabric associated with the controller.
Device type	Specifies the model or software version assigned to the controller.
Primary IP address	Specifies the main IP address assigned to the controller.
Secondary IP address	Specifies the backup IP address for high-availability configurations
Tertiary IP address	Specifies a third IP address for additional redundancy, if applicable.
Status description	Provides real-time details regarding the operational state or connection health.

Configure controllers

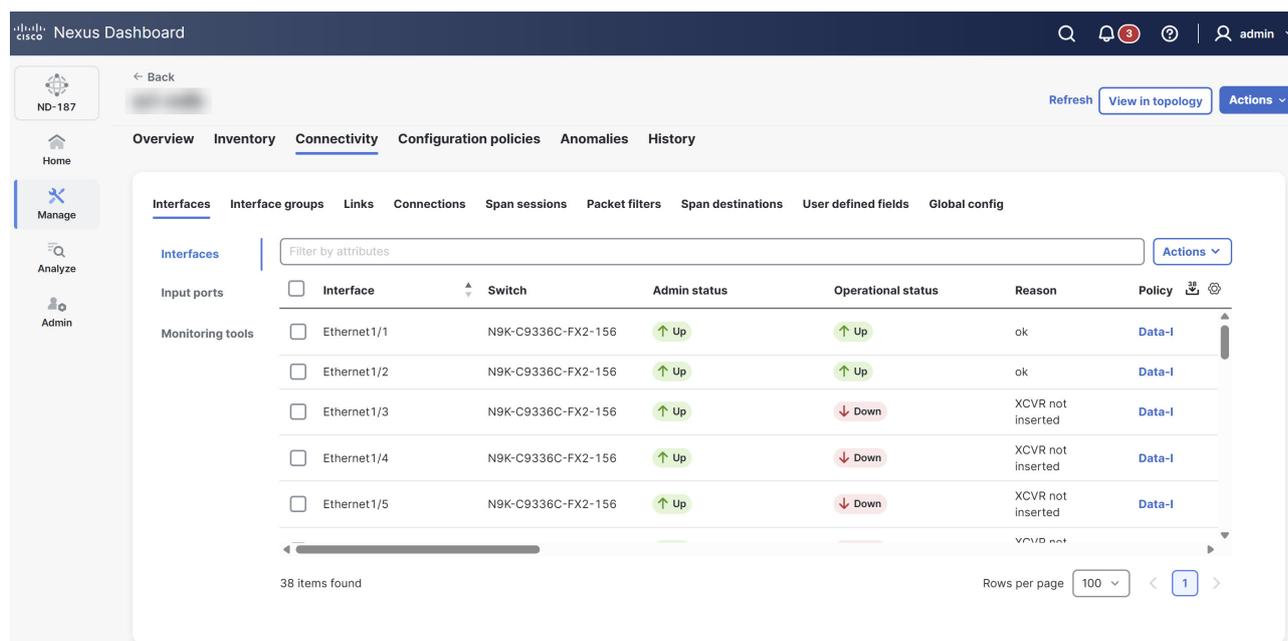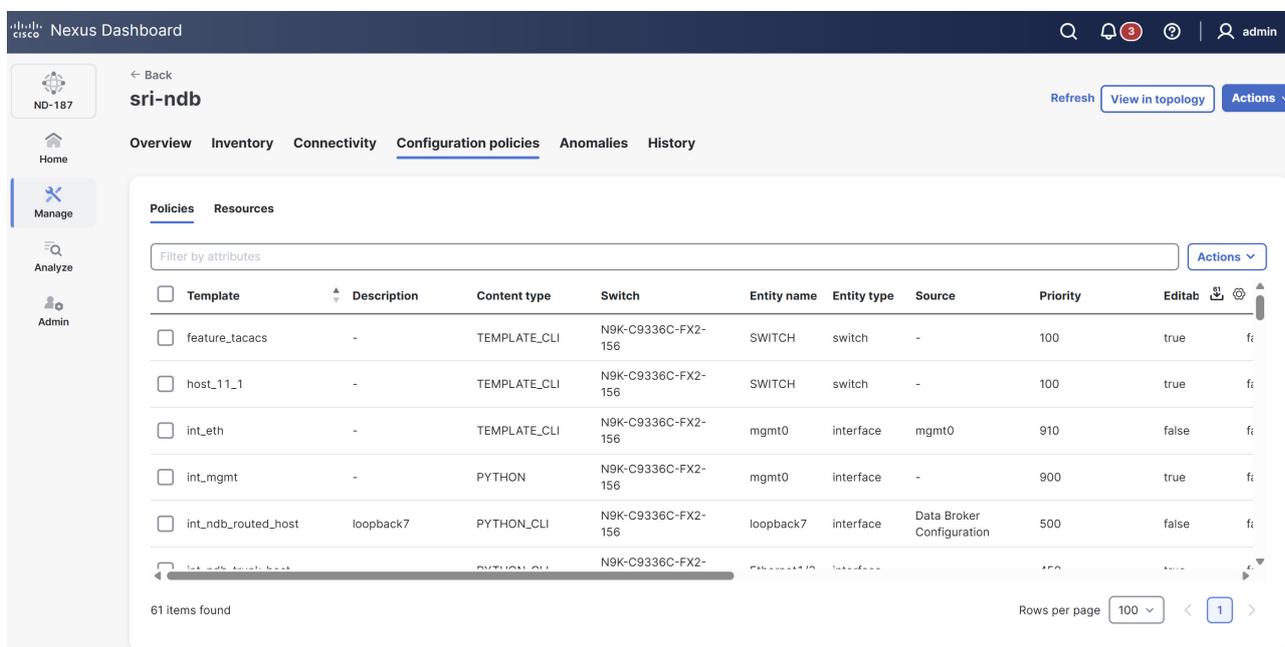Follow these steps to configure the switches.

1. Navigate to the **Fabrics** page .

   Go to **Manage > Fabrics**.

2. From the **Fabrics** table, click an NDB fabric.

The **Fabrics** page displays.

3. In the **Fabrics** page, click the **Inventory** tab.

4. Click the **Controllers** tab.

5. Choose a switch.

6. From the **Actions** drop-down list, choose one of the following options.

   ○ **Onboard controller**-- allows you to add a new controller.

   ○ **Reconnect controller**—allows you to restore communication between NDB and a controller that is offline or lost its connection.

   ○ **Delete controller**—allows you to remove a controller from the inventory.

Connectivity

The **Connectivity** tab provides a centralized location to manage and monitor the physical and logical connections within your NDB fabric. It allows you to verify that interfaces function correctly and traffic follows your defined policies.

Follow these steps to navigate to the **Connectivity** tab.
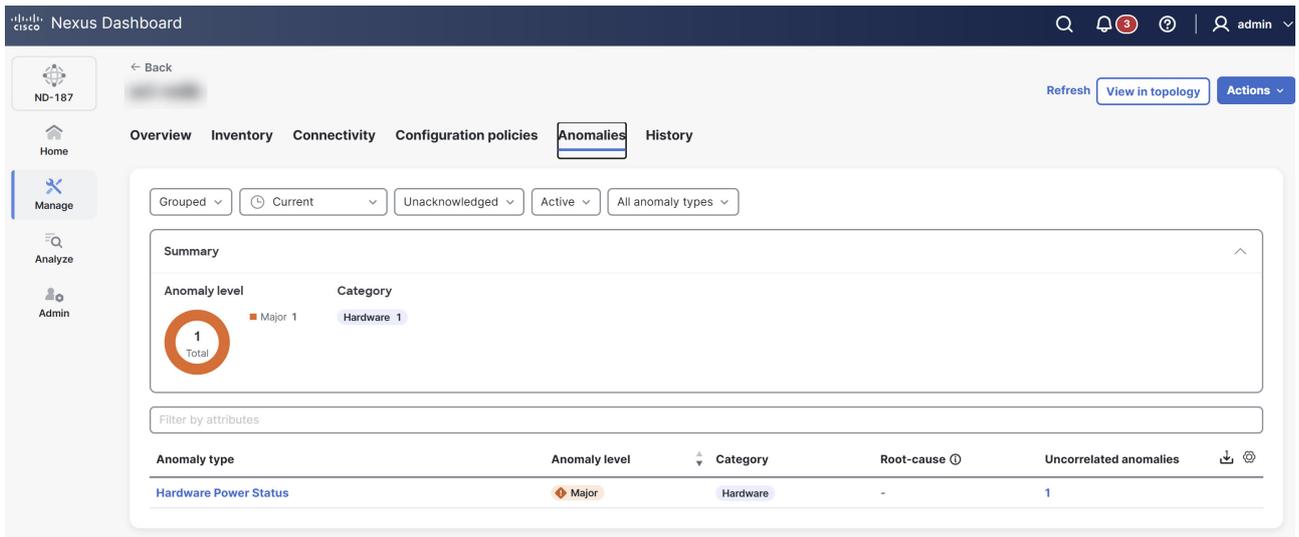
1. Navigate to the **Fabrics** page .

   Go to **Manage > Fabrics**.

2. From the **Fabrics** table, click an NDB fabric.

   The **Fabrics** page displays.

3. Click the **Connectivity** tab.

For more information, see Working with Connectivity in Your Nexus Dashboard NDB fabrics.

Configuration policies

The **Configuration policies** tab allows you to manage and deploy CLI-based configuration templates to the switches within the NDB fabric. It applies settings such as interface breakouts and system features directly to the hardware.

Follow these steps to navigate to the **Configuration policies** tab.

1. Navigate to the **Fabrics** page .

   Go to **Manage > Fabrics**.

2. From the Fabrics table, click an NDB fabric.

   The **Fabrics** page displays.

3. Click the **Configuration policies** tab.

For more information, see Working with Configuration Policies.

Anomalies

The **Anomalies** tab displays all detected anomalies within the NDB fabric. It organizes the anomalies by severity level and category, allowing you to filter and group events to identify and troubleshoot specific problems like hardware health issues.

Follow these steps to navigate to the **Anomalies** tab.

1. Navigate to the **Fabrics** page .

   Go to **Manage > Fabrics**.

2. From the **Fabrics** table, click an NDB fabric.

   The **Fabrics** page displays.

3. Click the **Anomalies** tab.

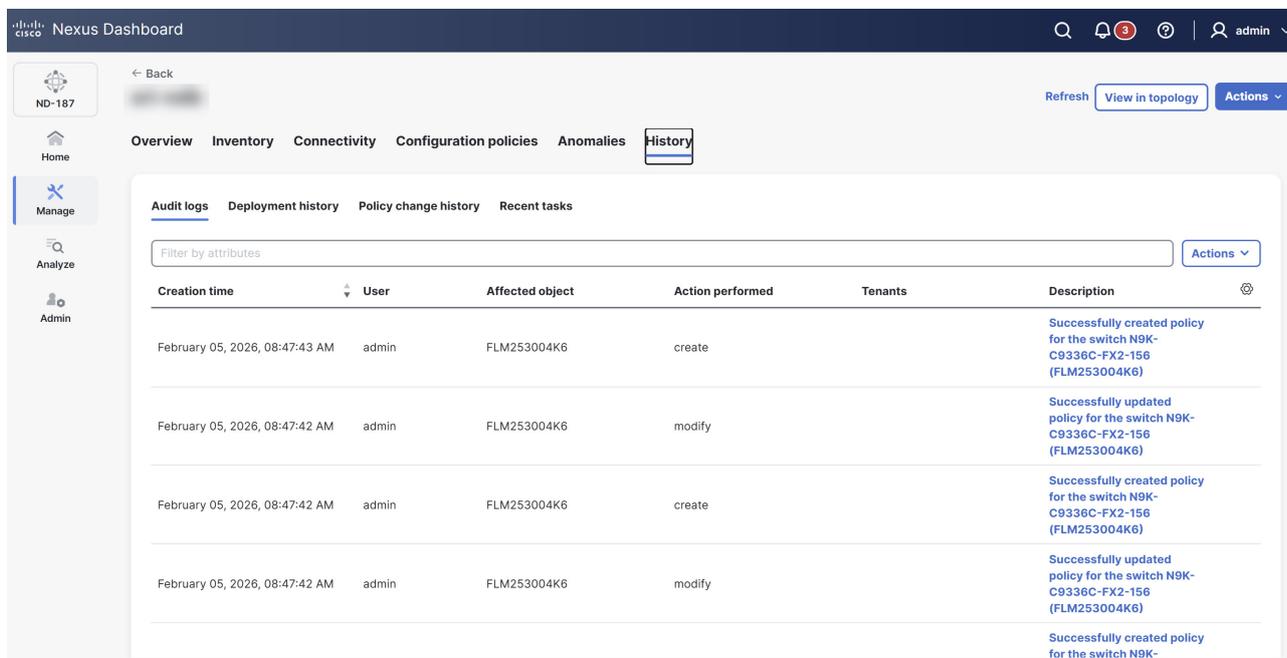For more information, see Anomalies.

History

The **History** tab provides a comprehensive activity log of all actions taken within the NDB fabric. It provides details about audit logs, deployment history, policy change history, and system events in chronological order, which is essential for compliance, auditing, and tracking the root cause of configuration changes.

Follow these steps to navigate to the **History** tab.

1. Navigate to the **Fabrics** page .

   Go to **Manage > Fabrics**.

2. From the **Fabrics** table, click an NDB fabric.

3. The **Fabrics** page displays.

4. Click the **History** tab.

For more information, see Reviewing History and Logs in Your Nexus Dashboard.

Monitor individual switches

The **Switch overview** page provides detailed visibility into the health, traffic flows, and hardware components of an individual switch.

Follow these steps to navigate to the **Switch overview** page of an NDB fabric.

1. Navigate to the **Inventory** page.

   Go to **Manage > Inventory**.

2. Click an NDB switch

   The **Switch overview** page displays.

The **Switch overview** page includes the following tabs.

- Overview
- Hardware
- Connectivity
- Statistics
- Configuration policies
- Anomalies
- History

For more information on each tab, see View information on a single switch.

Statistics

The **Statistics** tab provides real-time traffic telemetry and performance data for the chosen switch.

The **Statistics** tab is specific to NDB fabrics and allows you to monitor how traffic moves through the hardware to ensure your monitoring policies are active.

Follow these steps to navigate to the **Statistics** page.

1. Navigate to the **Inventory** page.

   Go to **Manage > Inventory**.

2. Click an NDB switch

   The **Switch overview** page displays.

3. Click the **Statistics** tab.

   The **Statistics** page displays the following subtabs.

   ○ **Flows**
   ○ **Ports**

Flows

The **Flows** tab shows device flows for NDB devices.
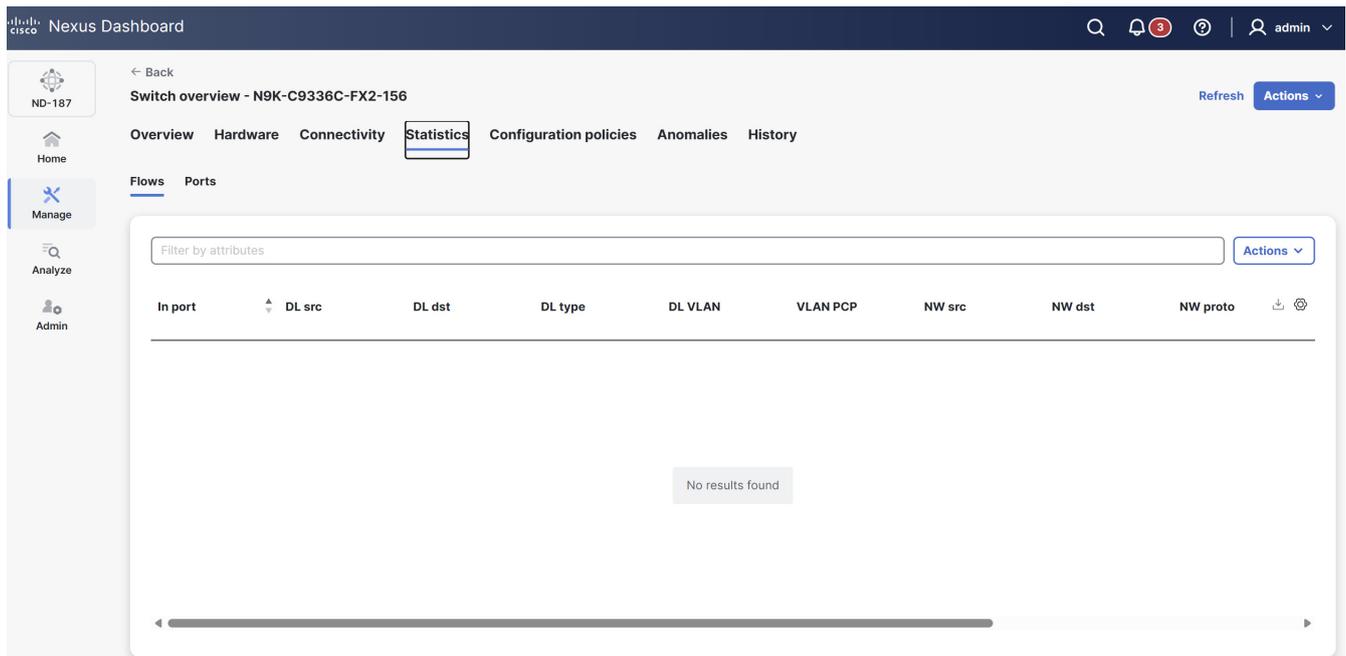
The **Flows** table provides the following information.

Field	Description
In port	Indicates the input port(s) that match the traffic.
DL src	Shows the source MAC address that matches the incoming traffic.
DL dst	Shows the destination MAC address that matches the incoming traffic.
DL type	Displays the Ethertype that matches the incoming traffic. For example, IPv4 or IPv6.

Field	Description
DL VLAN	Displays the VLAN ID that matches the incoming traffic.
VLAN PCP	Shows the VLAN priority that matches the incoming traffic.
NW src	Displays the IPv4 or IPv6 source address for the incoming traffic.
NW dst	Displays the IPv4 or IPv6 destination address for the incoming traffic.
NW proto	Shows the network protocol that matches the incoming traffic, such as " 6" for TCP.
TP src	Indicates the source port associated with the network protocol for the incoming traffic.
TP dst	Indicates the destination port associated with the network protocol for the incoming traffic.
Packet count	Shows the aggregate traffic volume, in packets, that match the specified flow connection.

Ports

The **Ports** tab shows statistics for the ports of an NDB device.

The **Ports** table provides the following information.

Field	Description
Port	Shows the device interface for which statistics appear.
RX pkts	Shows the number of packets the port received.
TX pkts	Shows the number of packets the port transmitted.
RX bytes	Shows the number of bytes the port received.
TX bytes	Shows the number of bytes the port transmitted.

Field	Description
RX pkts (Kbps)	Displays the rate at which the port receives packets.
TX pkts (Kbps)	Displays the rate at which the port transmits packets.
RX drops	Shows the rate at which the port drops packets while receiving.
TX drops	Shows the rate at which the port drops packets while transmitting.
RX errs	Indicates errors that occur while the port receives packets.
TX errs	Indicates errors that occur while the port transmits packets.
RX frame errs	Shows frame errors that occur while the port receives packets.
RX overRu	Shows overrun errors that occur while the port receives packets.

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