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

# Table of Contents

New and Changed Information . . . 2
Explore . . . 3
About Explore . . . 3
Use Cases . . . 4
Guidelines and Limitations . . . 4
Creating a 'What' Query . . . 6
Supported Queries . . . 6
Copyright . . . 9

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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 of the new features up to this release.

*Table 1. New Features and Changed Behavior in the Cisco Nexus Dashboard Insights*

| Feature | Description | Release | Where Documented |
|---|---|---|---|
| No updates | There were no major changes from the previous release. | 6.4.1 | |

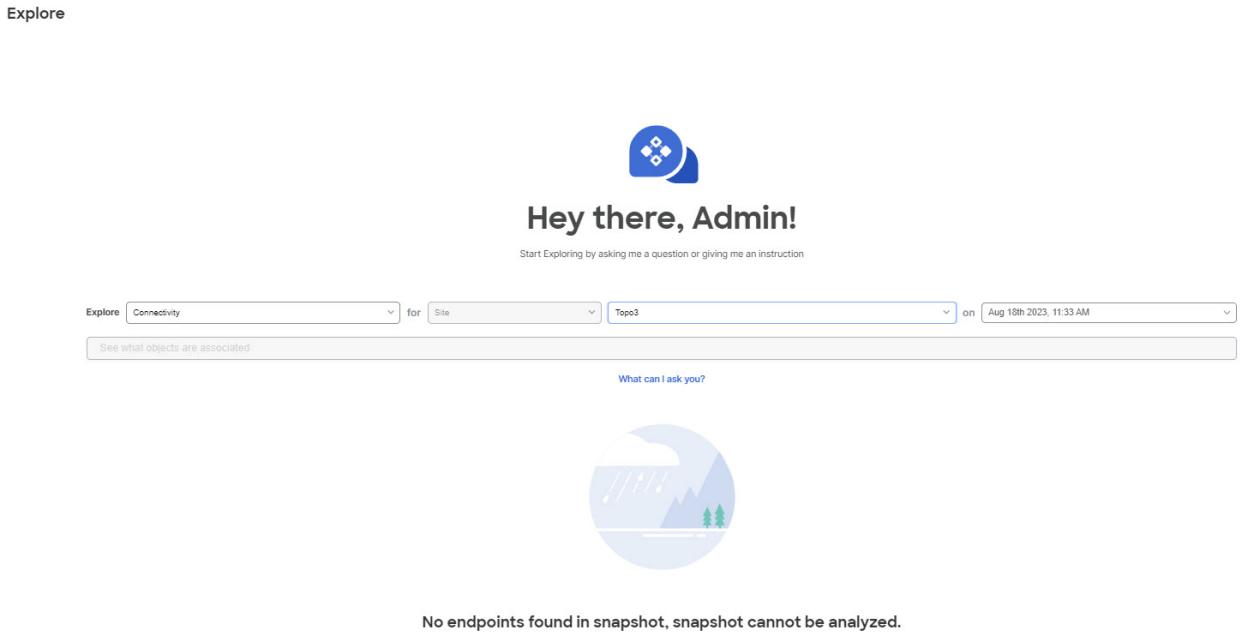
This document is available from your Nexus Dashboard Insights GUI as well as online at www.cisco.com. For the latest version of this document, visit Cisco Nexus Dashboard Insights Documentation.

# Explore

## About Explore

**Explore** feature analyzes a configuration snapshot from Cisco NX-OS to enable data center operators and architects to:

- Explore the NX-OS networking assets
- Verify connectivity and segmentation between network assets




It allows network operators to discover assets and their object associations in an easy-to-consume natural language query format. Operators can quickly get visibility into their infrastructure and connectivity or segmentation between assets.

**Explore** also allows you to select **Connectivity** or **Flow (Beta)** on *any selected site* on a *timeline* which could be a snapshot of the mode, **Latest**, **Last**, **Date range**, or **Time Window**.

**Flow (Beta)** allows you to view the flow path summary between two IP addresses and aggregated flow records.

**Explore** allows operators to easily discover associations between traditional networking constructs such as VRFs, endpoints, and VLANs with Cisco NX-OS.

The Explore feature is based on a natural language query interface. The types of queries supported by the feature include:

Currently, to explore NX-OS networking assets that are available through a NDFC site, the **What Query** is supported. The **Can Query** and the **How Query** are not supported.

- **Simple word search** - You type plain text in the search bar for which the results are provided.

- **What Query**: Answers how the different networking entities are related to each other.

  Examples for NX-OS managed by NDFC:

  - What VLANs are associated with VRF: secure
  - What EPs are associated with INF: eth1/3 | leaf-1 or VRF: vrf_1 | leaf-1
  - What VLANs are associated with EP:100.x.x.x | vrf_secure

You can also click **What Can I ask you?** to view the entire list of the pre defined queries. When you click any one of the queries and click Enter, it displays the corresponding details page for that search.

- **View Interfaces Query** - You start a query with View Interfaces. This displays a list of pre-defined queries that can be called and searched.

The **View Interfaces Query** is available only for **Interfaces**.

### What Can I Ask You?

Click **What can I ask you?** , to display where all possible explore queries are listed. Use this page to determine the list of queries you can explore. Click **Get Started** button to go back to the explore page.

**Ask for Associations** - An example of such a query would be *Can X talk to Y*.

## Use Cases

- **Design verification**: Ad-hoc query model enables operators to quickly understand and reason about their infrastructure. The natural language query model returns search results and associations in an easy to understand tabular format. In a single concise view, operators are able to answer design verification questions or discover deviations from organizational best practices.
- **Lightweight book-keeping**: Administration and maintenance teams can provide on demand visibility into the current state of their policy and networking infrastructure allowing inventory, book-keeping, and asset tracking procedures to be lightweight.

## Guidelines and Limitations

- You can explore for endpoints using the MAC or IP addresses as well.
- If your searched query falls into a broad category, Explore will show a list of all the items matching that criteria.
- Explore treats input as prefix.
- Explore is case sensitive.
- In **Explore**, four active snapshots to explore across all Sites is supported. The snapshots can be used for exploration by either the same user or by multiple users. To explore additional snapshots, you must offload an existing snapshot before exploring. In the **Offload Snapshot From Explore** page you can select the snapshots to offload. This dialog box displays automatically when you load 4 snapshots in memory.

- The Explore feature is supported only for IPv4 prefixes.
- All queries created using the Explore feature are unidirectional.
- In **Explorer**, if the analysis fails, the error message *Analysis has failed* is displayed. Download the tech support logs for **Explore** and contact Cisco TAC to resolve the issue.
    a. In Cisco Nexus Dashboard, choose **Operations** > **Tech Support** and choose **Actions** > **Collect Tech Support** > and choose the appropriate service for Cisco Nexus Dashboard Insights to download the tech support logs.
    b. Navigate to */data/services/app_logs/cisco-nir-logger/nae/nae/explorerService/* directory to locate the logs for the Explore feature. If there are multiple Explore instances running, the logs for each instance is located in a separate directory.

```
nae-policyexplorer-0/explorer.log
nae-policyexplorer-1/explorer.lo
nae-policyexplorer-2/explorer.log
nae-policyexplorer-3/explorer.log
```

- For NX-OS fabric, the **Explore** feature provides a switch-wide view of VRFs, VLANs, interfaces, endpoints and leaf switch resources in the fabric. It also provides Layer 2 VNI and Layer 3 VNI as resources.
- Resource aggregation is supported for VLAN and VRF resources. With resource aggregation, resources like VRF and VLAN are discovered for the entire fabric and all the leaf switches are aggregated by these resources. If you query **What VLANs are associated with any?** in the **Query Results** area, you will see a list of all the VLANs available across the fabric. EP and LEAF counts will be aggregated by VLAN and you can find all the EPs and LEAFs associated to a single VLAN by clicking the aggregated resource counts.

Additionally, as the VLAN and VRF queries are fabric wide, if you want to explore resources for a VLAN on a specific leaf switch, you must use the **AND** operator in your query. For example, **What EPs are associated with VRF:vrf-vrf_51020 and LEAF:CANDID-SYS-S1-L1**.

- A networking asset, such as interfaces on a leaf switch, must be associated with an endpoint in the leaf switch for you to be able to explore it in **Explore**.
- When a VRF is not operational, **Explore** discovers the endpoints as a Layer 2 endpoint.
- Endpoints are discovered as Layer 3 or Layer 2 endpoints. All endpoints present in a VLAN are discovered, and other endpoints are ignored.
- In **Explore** if you do not see endpoints or other network assets, look for system anomalies in the associated snapshot. Verify that the collection has succeeded in all the leaf switches. If the collection failed, it may result in endpoints not being discovered.
- For NX-OS with NDFC site, only IPv4 endpoints support in **Explore** is available. IPv6 endpoints support in **Explore** is currently not available.
- **Explore** has the following scale limits:
    - On virtual Nexus Dashboard we support snapshots with 100,000 logical rules and 350,000 (Vertices + Edges).
    - On physical Nexus Dashboard we support snapshots with 300,000 logical rules and 1000,000 (Vertices + Edges).

- The Explore feature for NDFC based fabric must have endpoints available in VNI or VRF for certain **WHAT** queries to work, since the Explore feature is based on the endpoints learnt on VNI and/or VRF. If the endpoints is not available, the **What** query for VRF or L3 VNI will not display accurate results.

# Creating a 'What' Query

This query helps answer the question, "**What entities are associated with each other?**"

1. In the Navigation, click **Explore**.
2. In the **Timeline** select a snapshot for analysis. When you select a snapshot, the data to explore is loaded on demand.
3. Generate a model and when there is enough data, you will be able to type in a query in the input field.
4. In the query selector field, enter a **What** query. The query must include two groups of one or more entities available in the **Search** bar. See Supported Queries. By default, **What** endpoints are associated with the **Any** query view.

RESULTS

The Query results are displayed on the page and you can drill further to see the associated entities. You can add to the source and destination list. For example, **Can source talk to destination?**

In the **What entities can talk?** area, the radial is displayed with **View Controls** for additional filtering. Click inside the radial to get more information as required. Click an entity in the **Query Results** table to view details. Click a number in the results table to view details about the entity in the NX-OS networking assets.

# Supported Queries

The following table lists the queries supported by the **Explore** feature for NX-OS managed by NDFC.

## Supported What Queries

*Table 2. Supported What Queries*

| Query | Entity | Operator | Entity |
|---|---|---|---|
| What EPs are associated with | ▪ ?<br>▪ Any<br>▪ EP<br>▪ INF<br>▪ LEAF<br>▪ VLAN<br>▪ VRF<br>▪ L2VNI<br>▪ L3VNI | ▪ And<br>▪ Or | ▪ Any<br>▪ EP<br>▪ INF<br>▪ LEAF<br>▪ VLAN<br>▪ VRF<br>▪ L2VNI<br>▪ L3VNI |

| Query | Entity | Operator | Entity |
| --- | --- | --- | --- |
| What INFs are associated with | ? Any EP INF LEAF VLAN VRF L2VNI L3VNI | And Or | Any EP INF LEAF VLAN VRF L2VNI L3VNI |
| What LEAFs are associated with | ? Any EP INF LEAF VLAN VRF L2VNI L3VNI | And Or | Any EP INF LEAF VLAN VRF L2VNI L3VNI |
| What VLANs are associated with | ? Any EP INF LEAF VLAN VRF L2VNI L3VNI | And Or | Any EP INF LEAF VLAN VRF L2VNI L3VNI |

| Query | Entity | Operator | Entity |
| --- | --- | --- | --- |
| What VRFs are associated with | ▪ ?<br>▪ Any<br>▪ EP<br>▪ INF<br>▪ LEAF<br>▪ VLAN<br>▪ VRF<br>▪ L2VNI<br>▪ L3VNI | ▪ And<br>▪ Or | ▪ Any<br>▪ EP<br>▪ INF<br>▪ LEAF<br>▪ VLAN<br>▪ VRF<br>▪ L2VNI<br>▪ L3VNI |
| What L2VNIs are associated with | ▪ ?<br>▪ Any<br>▪ EP<br>▪ INF<br>▪ LEAF<br>▪ VLAN<br>▪ VRF<br>▪ L2VNI<br>▪ L3VNI | ▪ And<br>▪ Or | ▪ Any<br>▪ EP<br>▪ INF<br>▪ LEAF<br>▪ VLAN<br>▪ VRF<br>▪ L2VNI<br>▪ L3VNI |
| What L3VNIs are associated with | ▪ ?<br>▪ Any<br>▪ EP<br>▪ INF<br>▪ LEAF<br>▪ VLAN<br>▪ VRF<br>▪ L2VNI<br>▪ L3VNI | ▪ And<br>▪ Or | ▪ Any<br>▪ EP<br>▪ INF<br>▪ LEAF<br>▪ VLAN<br>▪ VRF<br>▪ L2VNI<br>▪ L3VNI |

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