SAN Devices, Release 4.1.1

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 4.1.1	Improved navigation and workflow when working with SAN devices	Beginning with Nexus Dashboard 4.1.1, the navigation and workflow when working with devices in Nexus Dashboard SAN fabrics have been enhanced.

Storage Devices

1. In Nexus Dashboard, navigate to **Manage > Inventory > Storage Devices**.

   The **Storage Devices** page displays information about storage devices.

2. To view all the storage devices or only the devices with failed links, toggle the setting between **Show All Storages** and **Show Only Storage Devices with Down Paths**.

   Additionally, you can filter the enclosures based on a search criterion that you specify in the **Filter by attributes** field.

   The following table describes the fields that appear on the **Storage Devices** page.

Field	Description
Enclosure Name	Specifies the storage name. The icon suffixed to the host name indicates the type of discovery. It displays a brown icon with fcD if the enclosure is discovered using FC discovery, or a green icon with SD if discovered using SMI-S discovery. Click on the enclosure name to view the Storage Enclosure details.
Up/Total Paths	Displays the total available paths versus the used paths for all the devices in the enclosure.
Type	Indicates if the storage device is discovered through FC discovery or SMI-S discovery.
Peak Tx(%)	Displays the transmitting speed in percentage.
Peak Rx(%)	Displays the receiving speed in percentage.
CRC	Displays the Cyclic Redundancy Check (CRC) errors.
Corrected FEC	Displays the number of corrected Forward Error Correction (FEC) errors.
Uncorrected FEC	Displays the number of FEC errors that are not corrected.
ITW	Displays the number of Invalid Transmission Words (ITW) detected by the device.
Last Update Time	Specifies the date and time at which the storage device was last updated.
IP Address	Displays the IP address of the storage device.
Protocol	Specifies if the storage device is streaming SCSI protocol traffic or NVMe protocol traffic. This column displays data only for the devices for which data is streamed to Nexus Dashboard using SAN Insights.

Storage Overview

1. In Cisco Nexus Dashboard, go to **Manage > Inventory > Storage Devices**.
2. On the **Storage Devices** tab, double-click on any **Enclosure Name** item to open the **Storage Overview** page which provides detailed information about each storage device.

The details of a storage device depend on the type of device discovered, and the provider's adherence to the SMI-S standards.

The tabs and their fields in the **Storage Overview** screen are explained in the following sections.

- Summary
- SAN Insights
- Event Analytics
- Congestion Analysis
- Zoning
- Optics
- DIRL
- FDMI
- RDP
- Device

Summary

The **Summary** tab of the **Storage Overview** page displays information about the selected storage device, its status and path information between various storage enclosures.

Storage Information	
Name	Name of the storage device.
MAC Address	Displays the MAC address of the storage device.
WWNs	Specifies the number of WorldWideNames (WWNs).
IP Address	Displays the IP address of the storage device.
Protocol	Specifies if the transmission protocol is SCSI or NVMe.
OS Version	Specifies the operating system of the storage device.
FCIDs	Specifies the associated FCID.
Storage Status	
Up/Total Paths	Displays the total available paths versus the used path details for all the devices in the enclosure.
Paths	
Device Alias	Specifies the device alias for the storage device. Check one or more items under **Device Alias** and click **Show Charts** tab to view multiple performance charts. The Nexus Dashboard Web UI displays multiple performance charts on a single screen if you selected multiple items. The **Show Charts** tab displays 4 charts at a time. If you choose more than 4 items, the Nexus Dashboard will not display any performance charts.

Status	Specifies the status of the storage device.
Fabric	Displays the name of the fabric associated with the storage device.
Switch Interface	Specifies the interface on the switch that is connected with the storage device.
Rx (Mbps)	Displays the average and the maximum speed in bytes/seconds while receiving data.
Tx (Mbps)	Displays the average and the maximum speed while transmitting data.
PWWN	Specifies the assigned port WWN for the storage device.
Updated Time	Specifies the date and time at which the storage device was last updated.
Topology	Provides an end-to-end topology layout and path information between host enclosures and storage enclosures. You can hover on the device icons to see a tool tip that displays details about the device. Click on the green circle icon on the sides of the switch to display the **Interface Details** for the interface. It displays details about the interface. You can view performance data for the Inter-Switch Links (ISLs) and the connected storage enclosures by navigating to the **Storage Overview > Summary** page and clicking on the **Perf. Graph** button within the **Topology** view at the bottom of the page. When you click on the **Perf. Graph** button, you can see colors and percentages in the legend based on the latest record of Receive (Rx) and Transmit (Tx) usage. You can visualize performance data displayed with moving dotted lines between the connected storage enclosures. Nexus Dashboard displays the performance data in the legend of the **Topology** view with a color based on the latest Rx and Tx utilization percentages. If no data is available, the links display in gray. You can view a **Health Graph** button that displays the default topology. The **Table** button displays the data flow path from the host to the storage device. The **Table** button displays a tabular view of what is shown in the topology diagram.  The **Health Graph** and the **Table Graph** buttons do not display for SAN Insights.

Custom Graphing	Displays metrics on ECT/DAL/read/write times, active I/Os, aborts, failures etc. You can view the metrics based on two protocols, SCSI and NVMe. By default, the SCSI protocol is selected. The data is displayed for a maximum of 7 days. The refresh interval for **Custom Graphing** page is 5 minutes. Click on the **Play** icon to refresh every 5 minutes automatically. The Custom Graphing area has two tabs - **Graph** and **Table**. This is a freestyle dashboard where you can select multiple metrics and real-time data for the selected metrics is displayed in a multiline graph format and the data table displays the corresponding raw data. The data is configured to refresh every 5 minutes. You can also add multiple graphs for comparison by clicking on the **Add Graph** the top right. You can add a maximum of 3 graphs at a time. The **Auto Refresh** option is disabled by default. You must click the **Play** icon to enable the auto refresh. Click the **Download** button to download the table in .csv format. The download option is enabled only if the selected device has SAN insights feature enabled. Hover the mouse on the information (i)icon on the **Initiator** column. Click the icon that displays **Show Flow VMs** to open the **Flow VMs** window. You can view the VM names and IP addresses for the selected device.

SAN Insights

The **SAN Insights** tab of the **Storage Overview** page displays the Initiator-Target (IT) pairs, topology, average and total ECT/DAL/IOPS/throughput/read/write times, VM details and the switch interface for the selected host. You can view total read/write IOPS/throughput value for the selected enclosure.

Field	Description
Initiator Target Pairs	This table lists all the initiator-target pairs for the selected storage device. The flow table displays details of all the metrics on ECT/DAL/ IOPS/ Throughput/read/write times, Source Alias, SID, Destination Alias, DID, and the fabric along with their 1-hour average and baseline information.

Field	Description
Topology	Provides an end-to-end topology layout and path information between the host enclosures. You can view performance data for the Inter-Switch Links (ISLs) and the connected storage enclosures by clicking on the **Perf. Graph** button within the **Topology** view. When you click on the **Perf. Graph** button, you can see colors and percentages in the legend based on the latest record of Receive (Rx) and Transmit (Tx) usage. You can also visualize performance data displayed with moving dotted lines between the connected storage enclosures. Nexus Dashboard displays the performance data in the legend of the **Topology** view with a color based on the latest Rx and Tx utilization percentages. If no data is available, the links display in gray. On the **View** card, from the **Select Layout** drop-down list, you can choose one of the following layouts: · **Hierarchical** · **Hierarchical Left-Right** (default view) · **Circular** · **Random**
FROM: TO:	Displays details of all the metrics on ECT/DAL/read/write times, active I/Os, IOPs and throughput along with their 1-hour average and baseline information.
-	The middle table in the bottom row displays VM name and IP address for the IT pair selected in the **Initiator Target Pairs** table.
Switch Interface	Click on the topology to view the associated switch interface and the 1-hour average information.

Event Analytics

The **Event Analytics** tab displays all the alarms that are raised and cleared and also the events that are generated for the host devices. For more information, see Event Analytics.

Congestion Analysis

Congestion Analysis enables you to view slow drain statistics for the storage devices. You can monitor the slow drain issue within any duration. You can view the data in a chart format and export the data for analysis. You can also view the topology that provides a high-level view of Tx wait, drops, credit loss recovery, over utilization, and port monitoring events.

Zoning

Displays the zones under which the storage device is present. Use the Show Topology icon to the left of the zone name to view the zone topology. It displays hosts and storage devices pertaining to the zone and connected to a switch.

Optics

Displays temperature, current, receiving/transmitting power and voltage data for the optics connected to the storage device.

DIRL

Displays the data collected from Dynamic Ingress Rate Limiting (DIRL) analysis for all the interfaces in the current fabric. You can view the latest DIRL data for all the configured fabrics. To get the latest DIRL data for a given fabric, select the fabric from the **Fabric** drop-down list and click **Get latest DIRL data**.

FDMI

Fabric-Device Management Interface (FDMI) retrieves management information about the attached Fiber Channel Host Bus Adapters (HBAs) and host operating systems. The FDMI table displays details about the link status, vendor, serial number, model, firmware version, and driver version of the storage device.

RDP

Read Diagnostics Parameters (RDP) displays diagnostic data from the storage devices which can be used in analyzing and troubleshooting link issues. This page displays data from the ***show rdp fcid [fcid_id] vsan [vsan_id]*** command. To view sensor related information for a particular enclosure, click the link available under the **Sensors** column in the table.

Not all switches support the RDP command. The switch can poll for diagnostic information from the end devices using a polling interval.

Device

This tab is available only for storage devices discovered through SMI-S discovery.

The following tabs on the **Device** tab provides information about the selected device.

Summary	Provides information about the storage provider. Storage array serial number, storage type and number of physical disks in the array are also displayed.
Components	Lists all the components in the storage device. Click on the component Name to view total storage capacity, usage details, and physical disks details.
Pools	Lists all the pools, their status and Raw capacity. Double-click the **POOL Name** to view the pool details.

LUNs	Lists all the Logical Unit Numbers (LUN) in the storage array. It provides LUN ID, WWN, Status, and Capacity details for each LUN. Click on LUN Name to view further details about each LUN. Double-click a **LUN Name** to access the **LUN Detail** page. **Host Interface**, **Zoning**, and **Storage Interface** values in **Host LUN Access** table is displayed only if the host accessing this LUN is part of the Nexus Dashboard discovered fabric.
Host	Lists all the hosts in the selected storage. It provides the **Host Name**, **Node WWN**, and **WWN** details for each host in the Storage array. Click on a **Host Name** to view details about the host. You can view the relevant details on the **LUNs** tab and **Ports** tab within the **Host Detail** view. **Fabric** and **Host Interface** values in **Host Ports** table is displayed only if **Host Port WWN** is part of the Nexus Dashboard discovered fabric.
Processors	Lists all the processors and their status. It also displays the number of adapters for each processor. Double-click a **Processor Name** to open the **Processor Detail** page.
Ports	Lists all the ports in the storage device. Click the **Port Name** to view details about a port.

Storage Providers

The **Storage Providers** page displays the status of the Storage Management Initiative Specification (SMI-S) storage providers. An SMI-S provider can manage more than one array. Each array appears as a separate storage enclosure in the **Storage Providers** tab. These enclosure names are suffixed with a green icon with a Secure Digital (SD) label indicating that the device is discovered using SMI-S discovery.

In Cisco Nexus Dashboard, go to the **Admin > Integrations > Storage Providers** tab.

The following table describes the fields that appear on the **Storage Providers** tab.

Field	Description
Vendor	Specifies the vendor. Cisco Nexus Dashboard supports the following vendors: - EMC - NetApp - IBM - HDS - PureStorage - HP - Other
Provider URL	Specifies the SMI-S provider URL.
Name Space	Specifies the name space.

Interop Name Space	Specifies the interop name space.
Port	Specifies the port.
Status	Specifies the status.
Secure	Specifies if it is a secure connection.
Discovery Status	Specifies the discovery status.
Last Updated Time	Specifies the last updated time.

The following table describes the action items, in the **Actions** drop-down list, that appear on the **Admin > Integrations > Storage Providers** page.

Action	Description
Add Provider	Adds an SMI-S provider. For instructions, refer to Adding SMI-S Provider.
Edit Provider	Allows you to edit an SMI-S provider. To edit, select a provider from the table and choose **Edit Provider**.
Delete Provider	Allows you to delete a provider from the list. To delete, select a provider from the table and choose **Delete Provider**.
Rediscover Provider	Allows you to rediscover a provider. Select a provider from the table and choose **Rediscover Provider** to scan for any changes. This triggers the discovery cycle outside its normal periodic polling.
Purge Provider	Allows you to purge the provider information. To purge, select a provider from the table and choose **Purge Provider**. This removes elements that are no longer available through discovery.

Adding SMI-S Provider

To add an SMI-S provider from the Cisco Nexus Dashboard, perform the following steps:

1. Choose the **Admin > Integrations > Storage Providers** tab.
2. Choose **Actions > Add Provider**.

   The **Add SMI-S** page displays.
3. In the **Vendor** drop-down list, choose a vendor name.

   All the supported vendors are available in the drop-down list. More SMI-S storage vendors are discovered through a 'best effort' handler using the **Other** vendor option in the drop-down list.

   

   A minimum of one valid Nexus Dashboard license must be provisioned before adding the data sources for SMI-S storage discovery.
4. Specify the **SMI-S Server IP**, **User Name**, and **Password**.
5. Specify the **Name Space** and **Interop Name Space**.
6. By default, the **Port** number is prepopulated.

If you select the **Secure** check box, then the default secure port number is populated.

When using the **Secure** mode with EMC, the default setting is mutual authentication. For more information, see the EMC documentation about adding an SSL certificate to their trust store. Also, you can set the **SSLClientAuthentication** value to **None** in the **Security_Settings.xml** configuration file and restart the ECOM service.

7. Click **Add**.

   The credentials are validated and the storage discovery starts if the credential is valid. If the credentials check fails, you will be prompted to enter valid credentials.

Hosts

To view a list of SAN hosts and their relevant details from the Nexus Dashboard Web UI, perform the following steps:

1. In Nexus Dashboard, navigate to **Manage > Inventory > Hosts**.

   The **Hosts** page displays a list of available host devices, their network attributes and the associated Virtual Machines (VMs).

   To view all the hosts or only the hosts with failed links, toggle the setting between **Show All Hosts** and **Show Only Hosts with Down Paths**. Additionally, you can filter the enclosures based on a search criteria that you specify in the **Filter by attributes** field.

   The following table describes the fields that appear on the **Hosts** page.

Field	Description
Enclosure Name	Displays the name of the host device. The icon next to the host name displays the type of discovery. It displays if the enclosure is from a vCenter or storage or FC discovery.
Up/Total Paths	Displays the total available paths versus the used path details for all the devices in the selected enclosure.
Type	Indicates if a host or storage is discovered through fabric discovery or vCenter discovery.
Total VMs	Displays the total number of VMs.
Peak Tx(%)	Displays the maximum transmitting speed in percentage.
Peak Rx(%)	Displays the maximum receiving speed in percentage.
CRC	Specifies Cyclic Redundancy Check (CRC) errors.
Corrected FEC	Displays the number of corrected Forward Error Correction (FEC) errors.
Uncorrected FEC	Displays the number of FEC errors that are not corrected.
ITW	Displays the number of Invalid Transmission Words (ITW) detected by the port.
Last Update Time	Specifies the date and time at which the host device was last updated.
IP Address	Displays the IP address of the device.
Protocol	Specifies if the host is streaming SCSI protocol traffic or NVMe protocol traffic. This column displays data only for the Hosts for which data is streamed to Nexus Dashboard using SAN Insights.

2. Click on a host name displayed under the **Enclosure Name** column.

   The Host enclosure slide-out pane appears.

3. Click the **Launch** icon to view detailed information related to that particular host.

   The **Host Overview** page appears. The tabs and their fields in the screen are explained in the following sections.

Summary

The **Summary** tab of the **Host Overview** page displays information about the selected host device, its status and path information between various hosts enclosures.

Host Information	
Name	Name of the host device.
MAC Address	Displays the MAC address of the host device.
WWNs	Specifies the number of WorldWideNames (WWNs).
IP Address	Displays the IP address of the host device.
Protocol	Specifies if the transmission protocol is SCSI or NVMe.
OS Version	Specifies the operating system of the host device.
FCIDs	Specifies the associated FCID.
Host Status	
Up/Total Paths	Displays the total number of paths available versus the number of paths used by the host devices.
Alarms	Displays the number of alarms generated, if any.
VM Usage	Displays the number of VMs in use.
Events	Displays the number of events that are generated for the host device.
Paths	
Device Alias	Specifies the device alias for the host device. Check one or more items under **Device Alias** and click **Show Charts** tab to view multiple performance charts. The Nexus Dashboard Web UI displays multiple performance charts on a single screen if you selected multiple items.  The **Show Charts** tab displays 4 charts at a time. If you choose more than 4 items, the Nexus Dashboard will not display any performance charts.
Status	Specifies the status of the host device.

Fabric	Displays the name of the SAN fabric.
Switch Interface	Specifies the interface on the switch that is connected with the end device.
Rx (Mbps)	Displays the average and the maximum speed in bytes/sec while receiving data.
Tx (Mbps)	Displays the average and the maximum speed while transmitting data/
PWWN	Specifies the assigned port WWN for the host.
Updated Time	Specifies the date and time at which the host device was last updated.
Topology	Provides an end-to-end topology layout and path information between host enclosures and storage enclosures. You can hover on the device icons to see a tool tip that displays details about the device. Click on the green circle icon on the sides of the switch to display the **Interface Details** for the interface. It displays details about the interface. You can view performance data for the Inter-Switch Links (ISLs) and the connected host enclosures by navigating to the **Host Overview > Summary** page and clicking on the **Perf. Graph** button within the **Topology** view at the bottom of the page. When you click on the **Perf. Graph** button, you can see colors and percentages in the legend based on the latest record of Receive (Rx) and Transmit (Tx) usage. You can also visualize performance data displayed with moving dotted lines between the connected host enclosures. Nexus Dashboard displays the performance data in the legend of the **Topology** view with a color based on the latest Rx and Tx utilization percentages. If no data is available, the links display in gray. You can view a **Health Graph** button that displays the default topology. The **Table** button displays the data flow path from the host to the storage device. The **Table** button displays a tabular view of what is shown in the topology diagram.  The **Health Graph** and the **Table Graph** buttons do not display for SAN Insights.

Custom Graphing	Displays metrics on ECT/DAL/read/write times, active I/Os, aborts, failures etc. You can view the metrics based on two protocols, SCSI and NVMe. By default, the SCSI protocol is selected. The data is displayed for a maximum of 7 days. The refresh interval for the **Custom Graphing** page is 5 minutes. Click on the **Play** icon to refresh every 5 minutes automatically. The **Custom Graphing** area has two tabs - **Graph** and **Table**. This is a freestyle dashboard where you can select multiple metrics and real-time data for the selected metrics is displayed in a multiline graph format and the data table displays the corresponding raw data. The data is configured to refresh every 5 minutes. You can also add multiple graphs for comparison by clicking on **Add Graph** on the top right. You can add up to 3 graphs at a time. The **Auto Refresh** option is disabled by default. You must click the **Play** icon to enable the auto refresh. Click the **Download** button to download the table in .csv format. The download option is enabled only if the selected host has SAN insights feature enabled. Hover the mouse on the information (i)icon on the **Initiator** column. Click the icon that displays **Show Flow VMs** to open the **Flow VMs** window. You can view the VM names and IP addresses for the selected host.

SAN Insights

The **SAN Insights** tab of the **Host Overview** page displays the Initiator-Target (IT) pairs, topology, average and total ECT/DAL/IOPS/throughput/read/write times, VM details and the switch interface for the selected host. You can view total read/write IOPS/throughput value for the selected host enclosure.

Field	Description
Initiator Target Pairs	This table lists all the initiator-target pairs for the selected host. The flow table shows the details of all the metrics on ECT/DAL/ IOPS/ Throughput/read/write times, Source Alias, SID, Destination Alias, DID, and the fabric along with their 1-hour average and baseline information.

Field	Description
Topology	Provides an end-to-end topology layout and path information between the host enclosures. You can view performance data for the Inter-Switch Links (ISLs) and the connected storage enclosures by clicking on the **Perf. Graph** button within the **Topology** view. When you click on the **Perf. Graph** button, you can see colors and percentages in the legend based on the latest record of Receive (Rx) and Transmit (Tx) usage. You can also visualize performance data displayed with moving dotted lines between the connected host enclosures. Nexus Dashboard displays the performance data in the legend of the **Topology** view with a color based on the latest Rx and Tx utilization percentages. If no data is available, the links display in gray. On the **View** card, from the **Select Layout** drop-down list, you can choose one of the following layouts: · **Hierarchical** · **Hierarchical Left-Right** (default view) · **Circular** · **Random**
FROM: TO:	Displays details of all the metrics on ECT/DAL/read/write times, active I/Os, IOPs and throughput along with their 1-hour average and baseline information.
-	The middle table in the bottom row displays VM name and IP address for the IT pair selected in the **Initiator Target Pairs** table.
Switch Interface	Click on the interface icon (green circle) on the topology view to view details for the selected interface on the host device.

Event Analytics

The **Event Analytics** tab displays all the alarms that are raised and cleared and also the events that are generated for the host devices.

Congestion Analysis

Congestion Analysis enables you to view slow drain statistics for the hosts. You can monitor the slow drain issue within any duration. You can view the data in a chart format and export the data for analysis. You can also view the topology that provides a high-level view of Tx wait, drops, credit loss recovery, over utilization, and port monitoring events.

Zoning

Displays the zones under which the host device is present. Use the Show Topology icon to the left of the zone name to view the zone topology. It displays hosts and storage devices pertaining to the zone

and connected to a switch.

Optics

Displays temperature, current, receiving/transmitting power and voltage data for the optics connected to the switch.

DIRL

Displays the data collected from Dynamic Ingress Rate Limiting (DIRL) analysis for all the interfaces in the current fabric. You can view the latest DIRL data for all the configured fabrics. To get the latest DIRL data for a given fabric, select the fabric from the **Fabric** drop-down list and click **Get latest DIRL data**.

FDMI

Fabric-Device Management Interface (FDMI) retrieves management information about the attached Fibre Channel Host Bus Adapters (HBAs) and host operating systems. The FDMI table displays details about the link status, vendor, serial number, model, firmware version, and driver version.

RDP

Read Diagnostics Parameters (RDP) displays diagnostic data from the switch and the connected end devices which can be used in analyzing and troubleshooting link issues. Displays data from the show rdp fcid [fcid_id] vsan [vsan_id] command. To view sensor related information for a particular enclosure, click the link available under the **Sensors** column in the table.

Not all switches support the RDP command. The switch can poll for diagnostic information from the end devices using a polling interval.

VMs

Displays details about the virtual machines that are configured on the host device.

The following table describes the information available in the **VMs** tab.

Name	Displays the name of the VM.
OS	Displays the version of the OS that the VM is running on.
IP	Displays the IP address for the VM.
MAC Address(es)	Displays the MAC addresses for the VMs.
#CPU	Displays the number of CPUs associated with the VM.
Memory	Displays the amount of memory associated with the VM.

Rx Utilization %	Displays the Receive (Rx) and Transmit (Tx) Utilization percentage of the bandwidth of the links for the host: • **Green**: 0-40% • **Yellow**: 40-60% • **Orange**: 60-80% • **Red**: Above 80%
Tx Utilization %	
Read	Displays the read information for the VM.
Write	Displays the write information for the VM.
Status	Displays the status information for the VM.
Data Store	Displays the data store information for the VM.

Select a VM from the table, and beneath the table, graphs are available that display VM charts for CPU & Memory, Disk I/O, and VM Flows for the selected virtual machine.

Devices

Choose **Manage > Inventory > End Devices > Devices** tab to display the list of host and storage devices.

Use the **Show last day** menu drop-down list to filter the view by **Day**, **Week**, **Month**, and **Year**.

Use the **Show Host Ports** menu drop-down list to filter the view by **Host Ports** and **Storage Ports**.

Use the **Show Charts** tab to view the performance charts for one or more fabrics. You must choose an item or multiple items listed in the **Fabric** column under the **Devices** tab before you click the **Show Charts** tab to view the performance chart. The Nexus Dashboard Web UI now displays multiple performance charts on a single screen if you selected multiple items.

The **Show Charts** tab displays 4 charts at a time. If you choose more than 4 items, the Nexus Dashboard will not display any performance charts.

The following table describes the fields that appear on **Manage > Inventory > End Devices > Devices**.

Field	Description
Fabric	Specifies the fabric name. Click the fabric name to display the fabric status on the right-side of the page. Click the Launch icon on the top-right side of the pane to see Fabric Overview. For information on the **Fabric Overview**, see the section "Fabric Overview" in Understanding Fabric Overview for SAN Fabrics.
Enclosure Name	Specifies the enclosure name.
Device Alias	Specifies the device alias. Click the chart icon in the **Device Alias** column to view a graph of the traffic on that device according to the selected timeline. You can filter the data using the **Day**, **Week**, **Month**, and **Year** options.
FCID	Specifies the associated Fabric Channel ID (FCID).
Switch interface	Specifies the switch interface.
Rx/Tx	
Avg	Specifies the average receiving or transmitting speed.
Avg %	Specifies the average percentage of receiving or transmitting speed.
Peak	Specifies the peak utilization of the receiving or transmitting speed.
Peak %	Specifies the peak utilization percentage of the receiving or transmitting speed.

Errors/Discards	
In Avg	Specifies the average of incoming errors or discards.
Out Avg	Specifies the average of outgoing errors or discards.
In Peak	Specifies the peak of incoming errors or discards.
Out Peak	Specifies the peak of outgoing errors or discards.

Enclosures

Choose **Manage > Inventory > End Devices > Enclosures** tab to display the host and storage enclosures.

Cisco Nexus Dashboard extends the fabric visibility up to the server and allows you to discover and search the end devices, SAN Storage Enclosures, and Storage Systems that are attached to the network.

Click an enclosure name in the table to view more information about the enclosure.

Inventory

Choose **Manage > Inventory > End Devices > Enclosures> Inventory > Host Enclosures** tab to display the host and storage inventory enclosures.

Inventory - Host Enclosures

The following table describes the fields that appear on **Manage > Inventory > End Devices > Enclosures> Inventory > Host Enclosures**.

Field	Description
Enclosure	Specifies the enclosure name. Click the enclosure name for more information.
OS	Specifies the OS details.
IP Address	Specifies the IP address of the switch.
WWNs	Specifies the number of World Wide Names (WWNs).

The following table describes the action items, in the **Actions** menu drop-down list, that appear on **Manage > Inventory > End Devices > Enclosures> Inventory > Host Enclosures**.

Action Item	Description
Edit	Select an enclosure from the table and choose **Edit** to update the enclosure information.
Change to Storage Enclosure	Select an enclosure from the table and choose **Change to Storage Enclosure** to change the selected enclosure to storage enclosure.
Import	Allows you to import enclosures data.
Export	Allows you to export host and storage enclosures data in your inventory to your local directory in **.txt** file format.

Importing or Exporting Inventory Enclosures Data

You can import and export enclosures data to a .txt file. This feature allows you to edit the exported file, and import the data to Nexus Dashboard. You can either choose to export **All** or **Only Host**

Enclosures or **Only Storage Enclosures** data. You can also choose one Fabric or All fabrics' data while exporting.

To export Inventory Enclosures data, perform the following steps:

1. On either **Host Enclosures** or **Storage Enclosures** tab, from the Actions drop-down list, select **Export**.
2. Select the enclosures to export data. You can choose **All** or **Only Host Enclosures** or **Only Storage Enclosures**.
3. In the Exported File Name field, provide the name of the exported file.

   

   The export file is of **.txt** format only.

4. From **Fabric scope** drop-down list, choose **All Fabrics** or specific Fabric from which you must export enclosures data.
5. Click **Export** to download the enclosures data.

   Save the exported file to a local directory.

To import Inventory Enclosures data, perform the following steps:

1. On either **Host Enclosures** or **Storage Enclosures** tab, from the Actions drop-down list, select **Import**.
2. Upload the data file from your local directory. You can either drag and drop the file, or browse to upload the data file.

   

   You can import data from **.txt** file format only.

   The uploaded file appears in the Import Enclosures area.

3. Click **OK** to import the enclosures data. Click **Cancel** the discard.

Inventory - Storage Enclosures

The following table describes the fields that appear on **Manage > Inventory > End Devices > Enclosures> Inventory > Storage Enclosures**.

Field	Description
Enclosure	Specifies the enclosure name. Click the enclosure name for more information.
IP Address	Specifies the IP address of the switch.
WWNs	Specifies the number of World Wide Names (WWNs).

The following table describes the action items, in the **Actions** menu drop-down list, that appear on **Manage > Inventory > End Devices > Enclosures> Inventory > Storage Enclosures**.

Action Item	Description

Edit	Select an enclosure from the table and choose **Edit** to update the enclosure information.
Change to Host Enclosure	Select an enclosure from the table and choose **Change to Host Enclosure** to change the selected enclosure to host enclosure.
Import	Allows you to import enclosures data.
Export	Allows you to export host and storage enclosures data in your inventory to your local directory in **.txt** file format.

Importing or Exporting Inventory Enclosures data

You can import and export enclosures data to a .txt file. This feature allows you to edit the exported file, and import the data to Nexus Dashboard. You can either choose to export **All** or **Only Host Enclosures** or **Only Storage Enclosures** data. You can also choose one Fabric or All fabrics' data while exporting.

To export Inventory Enclosures data, perform the following steps:

1. On either **Host Enclosures** or **Storage Enclosures** tab, from the Actions drop-down list, select **Export**.
2. Select the enclosures to export data. You can choose **All** or **Only Host Enclosures** or **Only Storage Enclosures**.
3. In the Exported File Name field, provide the name of the exported file.

   The export file is of **.txt** format only.
4. From **Fabric scope** drop-down list, choose **All Fabrics** or specific Fabric from which you must export enclosures data.
5. Click **Export** to download the enclosures data.

   Save the exported file to a local directory.

To import Inventory Enclosures data, perform the following steps:

1. On either **Host Enclosures** or **Storage Enclosures** tab, from the Actions drop-down list, select **Import**.
2. Upload the data file from your local directory. You can either drag and drop the file, or browse to upload the data file.

   You can import data from **.txt** file format only.

   The uploaded file appears in the Import Enclosures area.
3. Click **OK** to import the enclosures data. Click **Cancel** the discard.

Performance

Choose **Manage > Inventory > End Devices > Enclosures> Performance > Host Enclosures** tab to display the host and storage performance enclosures.

Performance - Host Enclosures

Choose **Manage > Inventory > End Devices > Enclosures > Performance > Host Enclosures** tab to display the list of host enclosures.

Use the **Show last day** menu drop-down list to filter the view by **Day**, **Week**, **Month**, and **Year**.

Use the **Show Charts** tab to view the performance charts for one or more enclosures. You must choose an item or multiple items listed in the **Enclosure Name** column under the **Host Enclosures** tab before you click the **Show Charts** tab to view the performance chart. The Nexus Dashboard Web UI now displays multiple performance charts on a single screen if you selected multiple items.

The **Show Charts** tab displays 4 charts at a time. If you choose more than 4 items, the Nexus Dashboard will not display any performance charts.

The following table describes the fields that appear on **Manage > Inventory > End Devices > Enclosures > Performance > Host Enclosures**.

Field	Description
Enclosure Name	Specifies the enclosure name. Click the enclosure name to view more information. Click the chart icon to view a graph of the traffic on that device according to the selected timeline. You can filter the data using the **Day**, **Week**, **Month**, and **Year** options.
Rx/Tx/Errors/Discards	
Avg	Specifies the average receiving, transmitting, errors, or discards speed.
Peak	Specifies the peak utilization of the receiving, transmitting, errors, or discards speed.
Rx + Tx	Specifies the sum of receiving and transmitting speeds.
Last Updated	Specifies the last updated time.

Performance - Storage Enclosures

Choose **Manage > Inventory > End Devices > Enclosures> Inventory > Storage Enclosures** tab to display the storage enclosures.

Use the **Show last day** menu drop-down list to filter the view by Day, Week, Month, and Year.

Use the **Show Charts** tab to view the performance charts for one or more enclosures. You must choose an item or multiple items listed in the **Enclosure Name** column under the **Storage Enclosure** tab before you click the **Show Charts** tab to view the performance chart. The Nexus Dashboard Web

UI now displays multiple performance charts on a single screen if you selected multiple items.

The **Show Charts** tab displays 4 charts at a time. If you choose more than 4 items, the Nexus Dashboard will not display any performance charts.

The following table describes the fields that appear on **Manage > Inventory > End Devices > Enclosures> Inventory > Storage Enclosures**.

Field	Description
Enclosure Name	Specifies the enclosure name.
Rx/Tx/Errors/Discards	
Avg	Specifies the average receiving, transmitting, errors, or discards speed.
Peak	Specifies the peak utilization of the receiving, transmitting, errors, or discards speed.
Last Updated	Specifies the last updated time.

Enclosure Members

The following table describes the fields that appear on **Manage > Inventory > End Devices > Enclosures > Performance**. Enclosure members can be viewed for Host and Storage performance enclosures. Use the **Show last day** menu drop-down list to filter the view by **Day**, **Week**, **Month**, and **Year**.

Field	Description
Fabric	Specifies the fabric name. Click the name to view information about fabric health on the right-side of the page.
Device	Specifies the device name.
Speed	Specifies the device speed.
Rx/Tx	
Avg	Specifies the average receiving or transmitting speed.
Avg %	Specifies the average percentage of receiving or transmitting speed.
Peak	Specifies the peak utilization of the receiving, or transmitting speed.
Peak %	Specifies the peak utilization percentage of the receiving or transmitting speed.
Errors/Discards	
Avg	Specifies the average errors or discards speed.
Peak	Specifies the peak utilization of the errors or discards speed.

Last Updated	Specifies the last updated time.

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