Understanding Switch Overview for SAN Fabrics, Release 4.1.1

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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 to the **Switch Overview** page for SAN fabrics	Beginning with Nexus Dashboard 4.1.1, the navigation and workflow to the **Switch Overview** page for SAN fabrics in Nexus Dashboard have been enhanced.

Navigate to Switch Overview for SAN fabrics

To navigate to the **Switch Overview** window for SAN fabrics:

1. Navigate to the **Switches** window using either of the following paths:

   - To see switch overview information for all of the switches in a specific fabric, click **Manage > Fabrics**, double-click on a SAN fabric, then click the **Switches** tab , or

   - To see switch overview information for all of the switches in all SAN fabrics in the Nexus Dashboard, click **Manage > Inventory**, then click the **Switches** tab.

     Any switches in the SAN fabrics that have already been configured is displayed.

2. Double-click on the appropriate switch.

   The **Switch Overview** window for that switch is displayed, with the Summary tab selected by default.

The **Switch Overview** window contains tabs that allows you view and perform certain operations on the fabric:

- View summary information
- View module information
- View and configure interfaces on switches
- View switch licenses
- View and configure event analytics
- Back up and restore switch configurations
- View port usage information
- View bootflash information
- View CPU, memory, traffic, temperature, and power metrics
- View Device Manager information
- View switch limit information
- Monitor zone/FCNS/FLOGI limitations
- View blades information

View summary information

To navigate to the **Summary** window:

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Summary** tab.

   The following areas appear in the **Switch Overview > Summary** window:

Area	Description
Switch Information	Displays the details of the switch such as the name, health status, IP address, fabric, model, including version information, and other switch details.
Event Analytics	Displays events with a **Critical**, a **Major**, a **Minor**, or a **Warning** severity. In this area, click an event to navigate to the **Switch Overview > Event Analytics** tab to view the alarms for the event.
Resources	Displays the resource utilization of the switch in graphical form.
Modules	Displays the switches on which the modules are discovered, the status of the modules, and the module count.
Interfaces	Displays the operational and administrative status of the switches.
Port Usage	Displays the available and in-use port summary information.

View module information

To view the inventory information for modules in SAN fabrics:

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Modules** tab.

   The **Modules** tab displays a list of all the switches and its details for a selected scope.

Field	Description
Module Name	Displays the module name.
Model	Displays the model name.
Serial Number	Displays the serial number.
Type	Displays the type of the module.
Oper. Status	Displays the operation status of the module.
Slot	Displays the slot number.
HW Revision	Displays the hardware version of the module.
Software Revision	Displays the software version of the module.
Asset ID	Displays the asset id of the module.

View and configure interfaces on switches

To view information on interfaces in SAN fabrics:

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Interfaces** tab.

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

Field	Description
Switch Name	Specifies the name of the switch the interface belongs to.
Interface Name	Specifies the name of the interface. The **Show 24hr chart** icon to the left of the interface name opens the **Interface Details and Performance Chart** dialog box for the selected interface. It displays details about the interface and a performance chart that depicts the traffic details through the interface. This chart is available only for interfaces that are connected to another interface.
Admin. Status	Specifies the administration status of the interface.
Oper. Status	Specifies the operational status of the interface.
Reason	Specifies the reason for failure.
Admin. Speed	Specifies the configured speed of the interface in Gbs.
Oper. Speed	Specifies the current operational speed of the interface in Gbs.
Mode	Specifies the mode of the interface.
VSAN	Specifies the name of the connected VSAN.
Connected To	Specifies the connection details.
Connected To Type	Specifies the type of connection.
Description	Specifies the description that you have added about the interface.
Owner	Specifies the name of the port owner.
Port Group	Specifies the port group number to which the interface belongs to.

You can also filter the performance data that is shown using the following options:

- **Real time**: Gathers performance data every 10 seconds

- **Custom**: Gathers performance data based on the calendar begin and end dates that you select

You can make these configurations for switch interfaces in a SAN fabric:

- Perform a No Shutdown for an interface

- Perform a Shutdown for an interface

- Assign a port owner for an interface

Perform a No Shutdown for an interface

1. Check the check box for the required interface and choose **No Shutdown** from the **Actions** drop-down list.

2. Click **Confirm** in the warning dialog box that appears.

Perform a Shutdown for an interface

1. Check the check box for the required interface and choose **Shutdown** from the **Actions** drop-down list.

2. Click **Confirm** in the warning dialog box that appears.

Assign a port owner for an interface

1. Check the check box for the required interface and choose **Owner** from the **Actions** drop-down list.

   You can select multiple interfaces while assigning the port owner, if required.

2. Enter the required name in the **Set Port Owner** dialog box.

3. Click **Apply**.

Add a description for an interface

1. Check the check box for the required interface and choose **Description** from the **Actions** drop-down list.

   > You can add a description for multiple interfaces, simultaneously.

2. Enter the description in the **Set Port Description** dialog box.

3. Click **Apply**.

Set up diagnostics for an interface

1. Check the check box for the required interface.

2. Choose **Link Diagnostics** from the **Actions** drop-down list.

Edit port VSAN membership

1. Check the check box for the required interface.

2. Choose **Edit Port VSAN Membership** from the **Actions** drop-down list.

   The **Edit Port Vsan Membership** dialog box appears.

   You can select multiple interfaces for editing VSAN port membership if the interfaces are in the same VSAN.

3. Choose the **Trunk**, **No Trunk**, or **Auto** option for **New Admin Trunk Mode** and populate the **New Trunking VSAN Allowed List** with a comma-separated or a dash-separated list of the allowed VSANs.

   The following table describes the fields that appear on the **Edit Port Vsan Membership** dialog box.

Field	Description
Switch	Specifies the name of the switch the interface belongs to.
Interface	Specifies the name of the interface.
Status	Specifies the operational status of the interface.
VSAN	Specifies the configured VSAN ID.
Admin Mode	Specifies the administrative mode of the interface.
Oper Mode	Specifies the operational mode of the interface.

4. Choose the new port number for the VSAN.

5. Click **Apply**.

   You should receive a success message.

6. Choose the same interface and verify that the new port number is assigned to the VSAN.

Edit port trunking VSAN membership

1. Check the check box for the required interface and choose **Edit Port VSAN Membership** from the **Actions** drop-down list.

   The **Edit Port Trunking Mode and Vsan Allowed List** dialog box appears.

   You can select multiple interfaces for editing VSAN membership with port trunking if the interfaces have the same **Port Trunking Allowed VSAN** list.

2. Choose the **Trunk**, **No Trunk**, or **Auto** option for **New Admin Trunk Mode** and populate the **New Trunking VSAN Allowed List** with a comma-separated or a dash-separated list of the allowed VSANs.

   The following table describes the fields that appear on the **Edit Port Trunking Mode and Vsan Allowed List** dialog box.

Field	Description
Switch	Specifies the name of the switch the interface belongs to.
Interface	Specifies the name of the interface.
Status	Specifies the operational status of the interface.
Oper Mode	Specifies the operational mode of the interface.
oper Trunk	Specifies the operational trunk mode.
admin Trunk	Specifies the administrative trunk mode.
Up VSAN List	Specifies the list of the VSANs where the interface is up.
Allowed Vsan List	Specifies the list of the VSANs where the interface is configured.

3. Click **Apply**.

   You should receive a success message.

4. Choose the same interface and verify that the **Allowed VSAN List** is updated with the allowed VSANs.

Clear FICON RNID Old value

1. Filter for the value of **old** in the **Connected To** column.

2. Check the check box for the switch or switches that display **old** in the **Connected To** column.

3. Choose **Clear FICON RNID Old Value** from the **Actions** drop-down list.

4. Click **OK** in the confirmation dialog box.

   Nexus Dashboard displays a success message indicating that the FICON (fiber connectivity) Request Node Identifier (RNID) status changed from **old** to **invalid**. The switch clears out the old RNID information, and Nexus Dashboard fetches the updated RNID information in the next discovery cycle.

5. Refresh the page to verify that the **Connected To** column no longer displays the value of **old**.

View switch licenses

You can view the following information on the **Licenses** tab.

Field	Description
Feature	Displays the feature names of the selected switch.
Status	Displays the status of licenses. Status will be either **In Use** or **Unused**.
Type	Displays the type of the licenses.
Warnings	Displays the grace period of licenses and its expiry date.

You can use **Filter by attribute** to view required information.

Click **Refresh** icon to refresh the table.

View and configure event analytics

The information shown in the **Event Analytics** tab is described in greater detail in these areas:

- **Alarms**: See the "Alarms" section in Event Analytics
- **Events**: See the "Events" section in Event Analytics
- **Accounting**: See the "Accounting" section in Event Analytics

Back up and restore switch configurations

This table describes the columns that appears on the **Backup** tab.

Fields	Descriptions
Switch	Specifies the name of switch.
Backup Date	Specifies the backup date.
Backup Tag	Specifies the backup name.
Backup Type	Specifies the backup type, whether it is a golden backup.
Configuration Files	Specifies the configuration files details.

The following table describes the fields and descriptions that appears on **Action** tab.

Actions	Descriptions
Copy to bootflash	Choose **Copy to bootflash**. A confirmation window appears, click **OK**. For more information on bootflash, see Copy to bootflash.
Compare	Choose required switch names to compare configuration of switches, choose **Compare**. You can select only two switches at an instance. **Compare Config** window appears, displaying the difference between the two configuration files. The Source and Target configuration files content is displayed in two columns. The differences in the configuration file are show in the table, with legends. · **Red**: Deleted configuration details. · **Green**: New added configuration. · **Blue**: Modified configuration details.
Export	Click **Export**. The files are downloaded in your local system. You can use the third-party file transfer tools to transfer these files to an external server.
Edit tag	Click **Edit tag** to change the backup tag name.
Mark as golden	To mark existing backup as golden backup, choose **Mark as golden**, a confirmation window appears, click **Confirm**.
Remove as golden	To remove existing backup from golden backup, choose **Remove as golden**, a confirmation window appears, click **Confirm**.

Actions	Descriptions
Delete	To delete existing backups, choose **Delete** a confirmation window appears, click **Confirm**. ⓘ If you have marked backup as golden backup. make sure that the golden backup is removed, else error appears you can't delete existing backup. You can delete one backup at a time.

Copy to bootflash

To copy a backup to bootflash:

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Backup** tab.

3. Click the checkbox next to the backup that you want to copy to bootflash.

4. Click **Actions> Copy to bootflash**.

   After several moments, a **Success** window appears.

5. Click **Ok**.

Compare configuration files

This feature allows you to compare two different configuration files.

To compare configuration files:

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Backup** tab.

3. Click the check boxes next to two different configuration files to select those files to compare.

   The first file that you select is designated as the Source file and the second configuration file is designated as the Target file.

4. Click **Actions > Compare**.

   The **View Config Diff** page appears, displaying the difference between the two configuration files.

   The content in the Source and Target configuration files is displayed in two columns. From the drop-down list in the right-top corner, choose **All** to view the entire configuration. You can also choose **Changed** to view the configuration differences of the configuration files.

   The differences in the configuration file are shown in the table, with these legends:

   - **Red**: Diff configuration details.
   - **Green**: New added configuration.
   - **Blue**: Modified configuration details.

5. Click **Copy to Target** to copy the source configuration to the target configuration file, or click **Cancel** to revert to the configuration details page.

   The **Copy Configuration** window displays the source configuration preview and the target device of the destination configuration. The selected devices area shows the following fields:

   - **Device Name**: Specifies the target device name to which the source configuration is copied.

   - **IP Address**: Specifies the IP Address of the destination device.

   - **Group**: Specifies the group to which the device belongs.

   - **Golden Config**: Specifies the version of the destination configuration.

   - **Status**: Specifies the status of the device.

6. Click **Yes** to copy the configuration to the destination device configuration.

Export a configuration file

You can export a configuration file from Nexus Dashboard. Perform the following task to export a configuration file.

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Backup** tab.

3. Select a configuration to export.

4. Click **Export**.

   The files are downloaded in your local system. You can use the third-party file transfer tools to transfer these files to an external server.

View port usage information

To view port usage information:

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Port Usage** tab.

   You can view the following information on the **Port Usage** tab.

   - **Port Speed** column displays the speed of the port.

   - **Used Ports** column displays the total ports with the mentioned port speed.

   - **Available Ports** column displays the available ports for the port speed.

   - **Total Ports** column displays the total ports with the mentioned speed.

   - **Estimated Day Left** column displays the estimated days left for the ports.

You can use **Filter by attribute** to view required information.

Click **Refresh** icon to refresh the table.

Used ports displays the total used ports for the selected switch. **Total ports** displays the total available ports for the selected switch.

View bootflash information

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Bootflash** tab to view the following areas:

   - **Primary Bootflash Summary** area displays the total, used, and available space.

   - **Secondary Bootflash Summary** area displays the total, used, and available space.

   - **Directory Listing** area displays a check box for the **Primary Bootflash** and **Secondary Bootflash**.

     This area shows the filename, the size, the last modified date, and the size in bytes for all of the files and directories on the switch bootflash.

3. Choose the **Delete files** option from the **Actions** drop-down list to delete files to increase the available space on the switch.

View CPU, memory, traffic, temperature, and power metrics

To view CPU and memory utilization, traffic, temperature, and power utilization for your fabric and the connected switches:

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Metrics** tab.

> ℹ️ If you do not see the **Metrics** tab, click on the three dots (. . .) to access the **Metrics** tab.

The tabs and their fields on the page are explained in the following sections.

- CPU and Memory
- Temperature
- Power

CPU and Memory

The following table describes the columns that appear on the **CPU** and the **Memory** tabs.

Field	Description
Switch Name	Specifies the name of the switch. Click the name of a switch to access a **Switch** slide-in pane with the switch details. Click on the graph icon to view the CPU or memory performance chart.
IP Address	Specifies the switch IP address.
Low Value (%)	Specifies the lowest CPU utilization value on the switch.
Avg. Value (%)	Specifies the average CPU utilization value on the switch.
High Value (%)	Specifies the high CPU utilization value on the switch.
Low to High Value Range (Preview)	Specifies the linear range preview.

Click the drop-down list to view CPU or memory data for the selected **Day**, **Week**, **Month**, or **Year**.

> ℹ️ The label for the drop-down list changes based on your selection. For example, if you clicked **Day**, the label changes to **Show last day**.

Temperature

The following table describes the columns that appear on the **Temperature** tab.

Field	Description
Switch Name	Specifies the name of switch. Click the name of a switch to access a **Switch** slide-in pane with the switch details. Click the graph icon to view the temperature chart.
IP Address	Specifies the switch IP address.
Temperature Module	Specifies the module of temperature.
Low Value (°C)	Specifies the lowest temperature value in degrees.
Avg. Value (°C)	Specifies the average temperature value in degrees.
High Value (°C)	Specifies the high temperature value in degrees.

Click the drop-down list to view temperature data for the selected **Hour**, **Day**, **Week**, or **Month**.

> ⓘ The label for the drop-down list changes based on your selection. For example, if you clicked **Day**, the label changes to **Show last day**.

Power

The following table describes the columns that appear on the **Power** tab.

Field	Description
Switch Name	Specifies the name of the switch. Click the name of a switch to access a **Switch** slide-in pane with the switch details.
IP Address	Specifies the switch IP address.
Power Module	Specifies the power module. Click the graph icon to view the power usage chart.
Power Usage (%)	Specifies the power usage as a percentage with subcategories based on the selected switch.
Avg	Specifies the average power usage.
Min	Specifies the minimum power usage.
Max	Specifies the maximum power usage.
Capacity (AMPs)	Specifies the capacity in (amps) amperes.
Draw (AMPs)	Specifies the power usage draw with subcategories based on the selected switch.
Avg	Specifies the average power usage draw.
Min	Specifies the minimum power usage draw.
Max	Specifies the maximum power usage based.
Capacity (WATTs)	Specifies the power capacity in watts.

Draw (WATTs)	Specifies the power usage draw in watts with subcategories based on the selected switch.
Avg	Specifies the average power usage draw in watts.
Min	Specifies the minimum power usage draw in watts.
Max	Specifies the maximum power usage draw in watts.

Power Module	Click on the graph icon under the **Power Module** column to filter the power usage based on the chosen data type.
	
	Options include:
	
	   · **Usage (%)**
	
	   · **Draw (AMPs)**
	
	   · **Draw (WATTs)**
	
	Click on **Day**, **Week**, or **Month** to filter the data based on time increments.
	
	If you click on the **Day** increment, the graph displays one line for the selected data type. If you click on the **Week** or **Month** option, the graph displays the average, minimum, or maximum power usage values depending on the chosen data type.

Click the drop-down list to view power data for the selected **Hour**, **Day**, **Week**, or **Month**.

> ℹ️ The label for the drop-down list changes based on your selection. For example, if you clicked **Hour**, the label changes to **Show last hour**.

View switch limit information

View and monitor the zone, Fibre Channel Name Server (FCNS), and Fabric login (Flogi) limitations in the **Switch Limit**.

Follow these steps to view switch limits.

1. Navigate to Switch Overview for SAN fabrics.
2. Click **Switch Limits**.

   The following metrics with the maximum limit are displayed.

Metric	Max Limit	Current Value
Global Zones	16000	
Global Zone Unique Members	32000	
Global Zonesets	1000	
Global Zone Database Size (Bytes)	4000000	
Global Zone EEM Limit	16000	
Global Zone Unique Member EEM Limit	32000	
Global Zoneset EEM Limit	1000	
Global Zone Database Size EEM Limit(Bytes)	4000000	
Switch Flogi	8000	
Module Flogi	2000	
Interface Flogi	256	

> Use the **Rows per page** drop down at the bottom of the **Switch Limits** table to choose the number of rows you want to display in the **Switch Limits** table. The row count range is 5–100 rows.

You can also click the **Show Raw CLI Output** to view the switch limit data in a CLI format.

- **show zone internal global-info | inc Limit**: This command is used to display the zone global information, with only the limitations information included in the output.
- **show flogi internal info | inc EEM**: This command is used to display details about FLOGI scale optimization, with only the Embedded Event Manager (EEM) information included in the output.
- **show fcns internal debug-info | inc EEM**: This command is used to display the name server database and statistical information for a specified VSAN or for all VSANs, with only the EEM information included in the output.
- **show flogi database vsan 1-4093 | include "Total number of flogi"** This command is used to display flogi based on the vsan.

View Device Manager information

See Device Manager for descriptions and instructions for using the Cisco MDS 9000 Device Manager.

> A Device Manager session is terminated when you navigate to another tab on the **Switch Overview** screen.

Monitor zone/FCNS/FLOGI limitations

Support is available to monitor zone, Fibre Channel Name Server (FCNS), and Fabric login (FLOGI) limitations.

To monitor the zone, Fibre Channel Name Server (FCNS), and Fabric login (FLOGI) limitations:

1. Navigate to Switch Overview for SAN fabrics.

2. Click the **Max. Values** tab in the **Switch Overview** page.

3. View the zone, FCNS, and FLOGI limitations information in the **Max. Values** page.

   The **Max. Values** page shows the output from these CLI commands:

   - **show zone internal global-info | inc Limit**: This command is used to display the zone global information, with only the limitations information included in the output.

   - **show flogi internal info | inc EEM**: This command is used to display details about FLOGI scale optimization, with only the Embedded Event Manager (EEM) information included in the output.

   - **show fcns internal debug-info | inc EEM**: This command is used to to display the name server database and statistical information for a specified VSAN or for all VSANs, with only the EEM information included in the output.

View blades information

You can view the interfaces of the UCS switches in the **Switch Overview** window.

> ℹ️ Ensure that the UCS switches are listed on Nexus Dashboard and the status of these switches are correct. You can view these tabs only for UCS switches.

Blades tab displays information of all server blades attached to the UCS FI.

The UCS has three tabs:

- Blades
- vNICs
- vHBAs

The blades tab displays all blade information as cards. Click **More Details** icon on each blade area to view details on the side panel of the selected blade.

You can click the **Collapse All** or **Expand All** icon to collapse all or expand all blade areas respectively.

Blades tab displays information of all server blades attached to the UCS FI. Primary UCS FI only in redundancy setup or standalone UCS FI are displayed.

vNICs

vNICs tab displays the list of vNIC for that UCS FI. Click the chart icon to show the 24 hour traffic for the vNIC.

vHBAs

vHBAs tab displays the list of vHBA for that particular UCS FI. Click the chart icon to view 24 hour traffic for the vHBA.