Working with Reports for SAN Fabrics, 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 reports navigation and workflow	Beginning with Nexus Dashboard 4.1.1, the navigation and workflow when creating reports in Nexus Dashboard SAN fabrics have been enhanced.

Understanding performance monitoring using programmable reports for SAN fabrics

The **Reports** area in Nexus Dashboard allows you to generate reports using Python 2.7 scripts. Report jobs are run to generate reports. Each report job can generate multiple reports. You can schedule a report to run for a specific device or fabric. These reports are analyzed to obtain detailed information about the devices.

The report template type is used to support the programmable reports feature. This template has two template subtypes: **UPGRADE** and **GENERIC**. For more information on the report template, see the "Report Template" section in the *Managing Your Template Library* article. A python SDK is provided to simplify report generation. This SDK is bundled with Nexus Dashboard Fabric Controller.

RBAC Support

- An admin or a network operator can create a report.
- A network operator can view reports created by other admins and operators.
- A network operator cannot delete/edit/rerun any reports created by an admin and other network operators.
- An admin can view and delete any report irrespective of the user creating them.
- Due to fabric and device association, an admin cannot edit any report created by another user, including the network operator.

A Jython template supports a maximum file size of 100k bytes. In case any report template exceeds this size, Jython execution may fail.

Understanding programmable reports for performance monitoring

Support is available for several programmable reports, such as switch inventory, ISSU pre-upgrade, post-upgrade checks, fabric resources, and so on. For example, a switch performance monitoring programmable report is available to monitor CPU, memory, traffic, and interface utilization. Programmable reports for switch performance monitoring can be enabled for a specific switch (at the device level).

You can also use email as an out-of-band notification method to receive the programmable reports externally using the periodic programmable report generation. This allows you to receive periodic information about your data center fabric health, utilization, and performance state, and the statistics.

Navigate to **Analyze > Reports** to display the latest reports across all report definitions, at both the fabric level and the device level.

Prerequisites

Complete the following prerequisites before enabling performance monitoring using programmable reports:

- Enable the Performance Monitoring option at the SAN fabric level.
  1. Navigate to **Manage > Fabrics**.

     The **Fabrics** page is displayed, with all of your configured fabrics listed.
  2. Click the check box next to the fabric you want to configure performance collections.
  3. Choose **Action > Configure Performance**.

     The **Performance Data Collection Settings** window appears.

     - If you are managing your switches with the performance manager, you must set up an initial set of flows and collections on the switch. You can use Nexus Dashboard to add and remove performance collections.
     - License the switch and keep it in the **managedContinuously** state before creating a collection for the switch.
     - Only licensed fabrics appear in **Performance Data Collection settings** window.
  4. Click the check box for **Enable SAN Sensor Discovery** to enable this feature.

     The **Collect Temperature for SAN Switches** option becomes configurable.
  5. Click the check box for **Collect Temperature for SAN Switches** to enable this option, if necessary.
  6. Click the check box for **Performance Collection** to enable the other check boxes.
  7. Click the appropriate check box to enable performance collection for any of these data types:
     - **ISL/NPV Links**
     - **Hosts**
     - **Storage**
     - **FC Ethernet**

     Or click **Select All** to enable performance collection for all of these data types.
  8. Click **Apply** to save the configuration.
  9. In the confirmation dialog box, click **Yes** to restart the performance collector.
- If you want to enable email notifications, update the SMTP host information in **Admin > System Settings > General > Email**.

Guidelines and limitations

Following are the guidelines and limitations for performance monitoring using programmable reports in Nexus Dashboard:

- Only NX-OS switches are supported for switch performance monitoring using programmable reports in Nexus Dashboard.

Configure programmable reports

Before you begin:

Complete all the tasks described in Prerequisites before proceeding with these procedures.

1. Navigate to **Analyze > Reports**.

   The **Reports** page appears, with any configured report definitions displayed.

2. Click **Create Report**.

   The **Create Report** page is displayed.

3. Enter a name for the report in the **Report Name** field.
4. Choose the report template that you want to use.

   You have the following report templates to choose from:

   - Common_Performance
   - Common_Switch
   - Health_Fabric
   - Health_HostToStorage_Connectivity
   - Health_Port
   - Health_StorageToHost_Connectivity
   - Health_Summary
   - Inactive_Paths
   - Storage_Enclosure_Port_Capacity
   - Storage_System_Capacity_Trend
   - Switch_Health
   - Traffic_By_VSAN
   - User_Defined
   - Zone_and_Alias_Discrepancy
5. Click **Next** to move to the **Recurrence** step.

   

   If you chose the User_Defined report template in the previous step, then make the appropriate configurations under the **Inventory**, **Performance**, and **Health** tabs for your user-defined report, then click **Next** to move to the **Recurrence** step.

6. Enter the necessary information in the **Recurrence** page.
   a. If you have email notifications enabled, in the **Email Report To** field, enter an email ID or mailer ID if you want the report in an email.

      Note that the title of the report that you receive in your email will include the time in a different format than the format that is shown under the Reports tab.

As described in Prerequisites, you must configure the SMTP settings in **Admin > System Settings > General > Email**. If the data service IP address is in a private subnet, the static management route for the SMTP server must be added in the Nexus Dashboard cluster configuration.

b. Choose the frequency at which the report job should be run.

The following table shows the options available and their description.

Available Option	Description
Now	The report is generated now.
Daily	The report is generated daily at a specified time between the Start Date and End Date that you provide.
Weekly	The report is generated once a week at a specified time between the Start Date and End Date that you provide.
Monthly	The report is generated once a month at a specified time between the Start Date and End Date that you provide.
Periodically	The report is generated periodically in a time period between the specified Start Date and End Date that you provide. The interval of time between the reports can be specified in minutes or hours.

7. Click the check box next to the fabrics where you want the performance reports to run.
8. Click **Save**.

You are returned to the main **Reports** page. A new report and report definitions are created and appear on the **Reports** and **Report Definitions** tabs, and the report that you just created begins to run in the background.

9. Review the information provided in the **Report Definitions** tab.

The status for the new report shows as RUNNING in the Status column at first. Click the refresh icon or wait for a moment, then the status will change to SUCCESS.

You can also view other information on the new report in the **Report Definitions** tab, such as the report template used for each report, the user who generated the report, and the recurrence setting for each report.

10. Click the **Reports** tab.

Information is provided for each programmable report that you configured, including the type of template used for each report, who created the report, and what the recurrence is for each report.

- To download a report, click the box next to the report, then click **Actions > Download**.
- To compare two reports, click the boxes next to the reports that you want to compare, then click **Actions > Compare (2 Reports)**.

11. In the **Reports** tab, double-click on the report that you just created.

    The overview information for the report is displayed, with additional information provided under these two tabs:

    - **Details**: Provides detailed information on this programmable report, with additional details available in expandable areas that are specific to each type of programmable report.
    - **Commands**: Provides information on executed commands, if available.

12. If you enabled email notifications in Step 6, open the email that contains detailed information from the programmable report.

The total report size is limited to 12 GB. If the report size exceeds this limit, reports will get purged based on the count of reports set in **Settings** tab. For example, if the reports count is set to 7, maximum 7 records will be retained, others will get purged.

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