



Programmable Reports

- [Catalog, on page 1](#)

Catalog

The Catalog allows you to view all the applications that you have installed or enabled on the Cisco DCNM. Few applications are installed and are operational by default, when you install the Cisco DCNM.

The following applications appears based on the Cisco DCNM Deployments:

- Health Monitor (2.1)
- PTP Monitoring (1.1)
- Kibana (2.0)
- Programmable report (1.1.0)
- Elastic Service (1.1)
- Compliance (4.0.0)
- Debug Tools (2.1)
- IPAM Integrator (1.0)
- Endpoint Locator (2.1)
- Kubernetes Visualizer (1.1)
- vmmplugin (4.1)



Note The applications started by default, or also installed on the DCNM utilizes infrastructure services are operational, by default.

You can install more applications from the App Center, via the Web UI.

For instructions about downloading, adding, starting, stopping, and deleting applications from the Cisco DCNM Web UI, see [Installing and Deploying Applications](#).

Programmable Report

The Programmable Report application enables the generation of reports using Python 2.7 scripts. Report jobs are run to generate reports. Each report job can generate multiple reports. You can schedule the 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 Report feature. This template has two template subtypes- UPGRADE and GENERIC. For more information on the REPORT template, refer [Report Template](#). A python SDK is provided to simplify report generation. This SDK is bundled with DCNM and provides APIs to generate reports. For more information on APIs, refer [Report APIs](#).

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.
- An admin cannot edit any report created by other user, including network operator, due to fabric and device association.



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

To launch the Programmable Report app, on the Cisco DCNM Web UI, choose **Applications**. On the **Catalog** tab, click **Programmable report** to launch the application. The Report window is displayed. This window has two tabs, **User Defined** and **Internal**. The **User Defined** tab displays the report jobs which are created by a user. For information on creating a report job, refer [Creating a Report Job](#). On any window, click the **Home** icon at the top left of the screen to return to this **Report** window. All operations such as creating, deleting, editing, re-running, displaying history, and downloading of report job information, are supported for the jobs displayed in this tab.

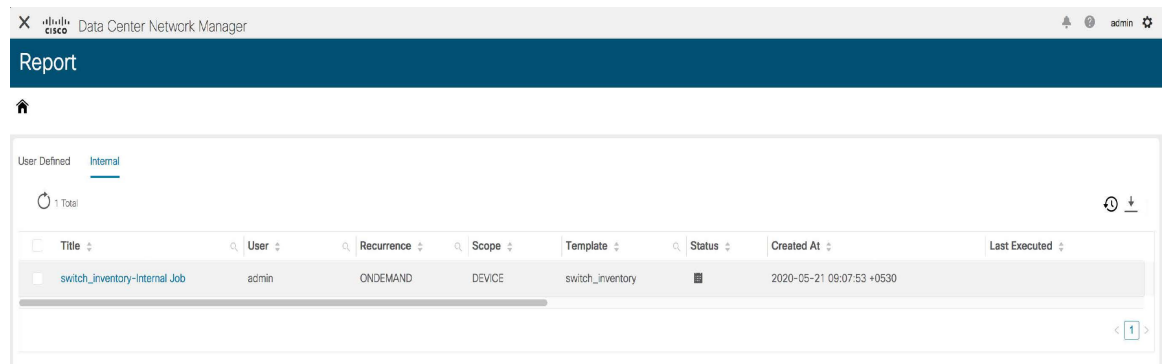
The screenshot shows the 'Report' window in the Cisco Data Center Network Manager. It features a 'User Defined' tab with a table listing 17 total report jobs. The table columns include Title, User, Recurrence, Scope, Template, Status, Created At, and Last Executed. The jobs are categorized by template type (sfp_report and switch_inventory) and scope (FABRIC and DEVICE).

Title	User	Recurrence	Scope	Template	Status	Created At	Last Executed
sfp_test	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:43:53 +0530	2020-05-21 09:43:55 +0530
sfp_report-test_reRunFabricScope	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:29:11 +0530	2020-05-21 09:31:12 +0530
sfp_report-test_checkSummaryFabricScope	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:27:11 +0530	2020-05-21 09:27:12 +0530
sfp_report-test_checkReportByIdFabricScope	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:25:10 +0530	2020-05-21 09:25:12 +0530
sfp_report-test_addReportJobFabricScope	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:25:08 +0530	2020-05-21 09:25:10 +0530
switch_inventory-test_reRun	admin	NOW	DEVICE	switch_inventory	■	2020-05-21 09:10:02 +0530	2020-05-21 09:11:07 +0530
switch_inventory-test_checkSummary	admin	NOW	DEVICE	switch_inventory	■	2020-05-21 09:09:02 +0530	2020-05-21 09:09:07 +0530
switch_inventory-test_checkReportById	admin	NOW	DEVICE	switch_inventory	■	2020-05-21 09:08:01 +0530	2020-05-21 09:08:07 +0530
switch_inventory-test_addReportJob	admin	NOW	DEVICE	switch_inventory	■	2020-05-21 09:07:59 +0530	2020-05-21 09:08:05 +0530

Field	Description
Title	Specifies the title of the report job.

Field	Description
User	Specifies the user who has initiated the report generation.
Recurrence	Specifies the frequency at which the reports are generated.
Scope	Specifies the scope of the report. The report can be generated for a device or a fabric.
Template	Specifies the name of the template.
Status	Specifies the status of the report. The status messages are as follows- *Success - Report is generated successfully. *Scheduled - A report generating schedule is set. *Running - A report job is running. *Failed - Report execution failed for one or more selected switches/fabrics or an issue occurred during running of the report job. *Unknown - Job state could not be identified.
Created At	Specifies the time at which the report was created.
Last Executed	Specifies the time at which the report was last generated.
Start Date	Specifies the date at which the report generation is scheduled to start from.
End Date	Specifies the date at which the report generation is scheduled to end at.

The **Internal** tab displays the report jobs that have been created by DCNM. For example, Pre and Post-ISSU report jobs that are created by the ISSU wizard are considered as internal jobs. However, you can only view report job information and history for the report jobs in this tab. You cannot delete a report job displayed under this tab as any deletion may affect the working of a DCNM feature that depends on this report.



You can also watch the video that demonstrates how to use the Programmable Report application in Cisco DCNM. See [Programmable Report](#).

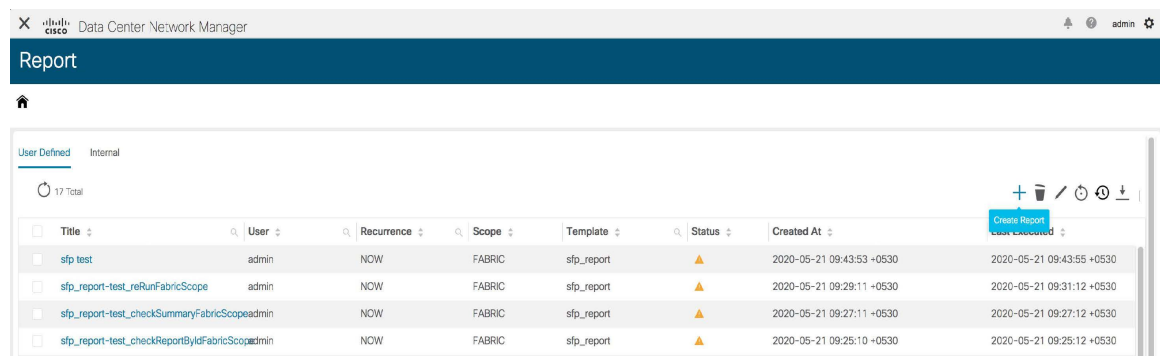
Creating a Report Job

To create a report job, perform the following steps:

Procedure

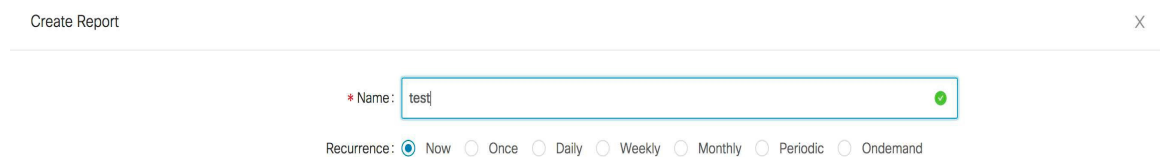
Step 1 Click **Create Report** icon.

The Create Report window is displayed.



Step 2 Enter a name for the report job in the **Name** field.

Step 3 Specify the frequency at which the report job should be run by selecting the required button next to Recurrence. For this use-case, select



The Recurrence options are as given below:

*Now - The report is generated now.

*Once - The report is generated once at the specified time.

*Daily - The report is generated daily at a specified time between the Start Date and End Date.

*Weekly - The report is generated once a week at a specified time between the Start Date and End Date.

*Monthly - The report is generated once a month at a specified time between the Start Date and End Date.

*Periodic - The report is generated periodically in a time period between the specified Start Date and End Date. The interval of time between the reports can be specified in minutes or hour(s).

Note When you are creating a **Periodic NVE VNI Counters** report, the report generation frequency has to be set to 60 minutes or more. If the frequency is less than 60 minutes, an error message is displayed.

*Ondemand - The report is generated on demand. This report can only be generated by clicking the **Rerun** icon in the Report window.

Note The **Start Date and Time** and **End Date and Time** are displayed in a 24-hour format.

Step 4 Specify the devices or fabrics on which the report job should be run to generate the

Step 5 Click **Next**. Select a template from the **Template** drop-down list in the **Create Report** window. Each report template has a device or fabric tag associated with it.

The following pre-defined templates are available:

Device scope-

*switch_inventory

Fabric scope-

*fabric_nve_vni_counter

*fabric_resources

*sfp_report

In addition to the templates listed above, any other templates that have been created by you will also be listed here. For more information on default templates and creating customized templates, refer [Template Library](#).

Templates are listed based on the associated tags. If you select the **Device** scope, the templates with the device tag are listed in the drop-down list. If you select the **Fabric** scope, the templates with the fabric tag are listed in the drop-down list.

Step 6 Click **Create Job**. A pop-up comes up stating that the Job report has been created successfully. Click the **Refresh** icon in case the newly created job report is not displayed in the list. When you hover over the Status column for the new report, the status is **Running** which indicates that a report is currently being generated. The status will change to a green tick indicating **Success** after the report has been successfully generated.

Viewing a Report Job

Click a report title from the list of displayed report jobs to view the required information.

Title	User	Recurrence	Scope	Template	Status	Created At	Last Executed
sfp_test	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:43:53 +0530	2020-05-21 09:43:55 +0530
sfp_report-test_reRunFabricScope	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:29:11 +0530	2020-05-21 09:31:12 +0530
sfp_report-test_checkSummaryFabricScopeadmin	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:27:11 +0530	2020-05-21 09:27:12 +0530
sfp_report-test_checkReportByIdFabricScopeadmin	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:26:10 +0530	2020-05-21 09:25:12 +0530
sfp_report-test_addReportJobFabricScope	admin	NOW	FABRIC	sfp_report	▲	2020-05-21 09:25:08 +0530	2020-05-21 09:25:10 +0530
switch_inventory-test_reRun	admin	NOW	DEVICE	switch_inventory	✓	2020-05-21 09:10:02 +0530	2020-05-21 09:11:07 +0530
switch_inventory-test_checkSummary	admin	NOW	DEVICE	switch_inventory	✓	2020-05-21 09:09:02 +0530	2020-05-21 09:09:07 +0530
switch_inventory-test_checkReportById	admin	NOW	DEVICE	switch_inventory	✓	2020-05-21 09:08:01 +0530	2020-05-21 09:08:07 +0530
switch_inventory-test_addReportJob	admin	NOW	DEVICE	switch_inventory	✓	2020-05-21 09:07:59 +0530	2020-05-21 09:08:05 +0530
switch_inventory-test_addDailyReportJobWithIntervalDate	admin	DAILY	DEVICE	switch_inventory	✓	2020-05-21 09:07:56 +0530	2020-05-21 09:15:02 +0530

The **Report** window is displayed. The number of errors, warnings, info, and success messages that are color coded and displayed in this window depends on the report details. Errors are displayed in red, Warnings in yellow, Info in blue and Success in green. The summary is not considered for the generation of these numbers.

Summary

Total 1

- Device Name : N9K_41
- Chassis ID : FDO222425SE
- Model : Nexus9000 93180YC-EX chassis
- NXOS version : 9.3(2)
- UpTime : 5 day(s), 12 hour(s), 15 minute(s), 32 second(s)

Timeline:

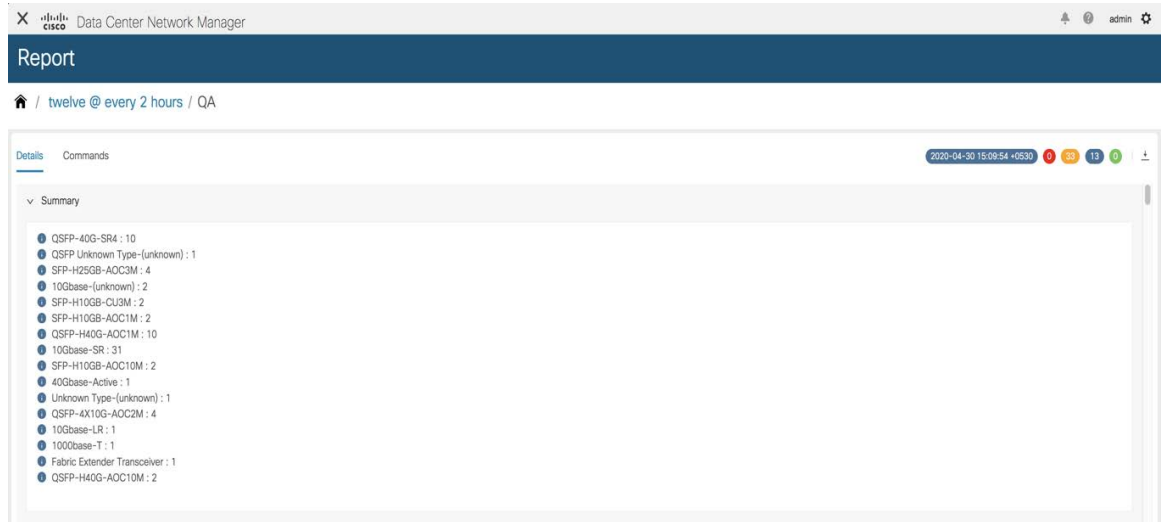
- 2020-05-24 09:14:08 +0530: scheduled run (Success)
- 2020-05-23 09:14:08 +0530: scheduled run (Success)
- 2020-05-22 09:14:08 +0530: scheduled run (Success)
- 2020-05-21 09:14:56 +0530: scheduled run (Success)

Reports can be generated for multiple devices. You can also see a timeline on the left of the window indicating the time at which a report was generated. You can click an item in this timeline to display the report that was generated at that moment. You can also display the reports that are generated in a specific time-frame by selecting a **Start date** and **End date**.

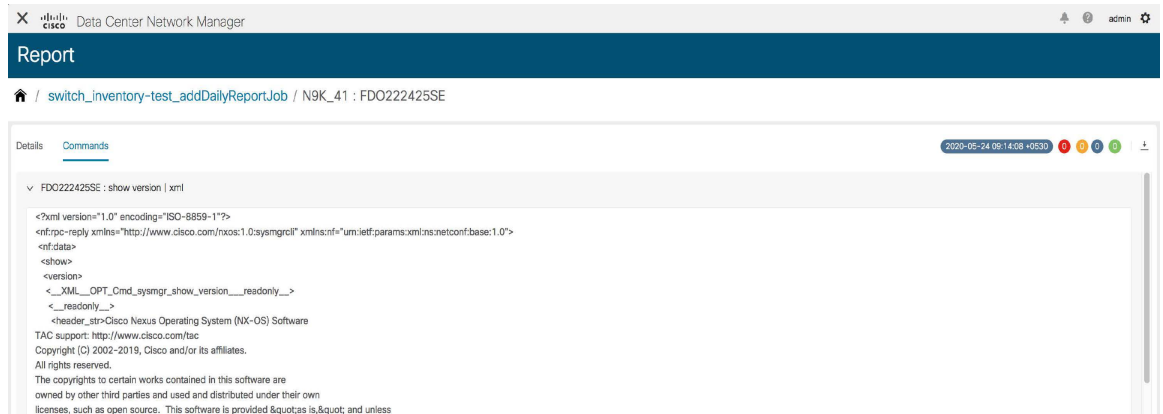
Click **View Details** to display detailed information.

The **Details** tab displays a report summary along with other relevant information based on the type of report template.

The report detail is logically grouped into sections. Each section is displayed separately with a collapsible widget. The number of errors, warnings, info, and success messages generated in the report is color-coded and is displayed on the top right part of the window.

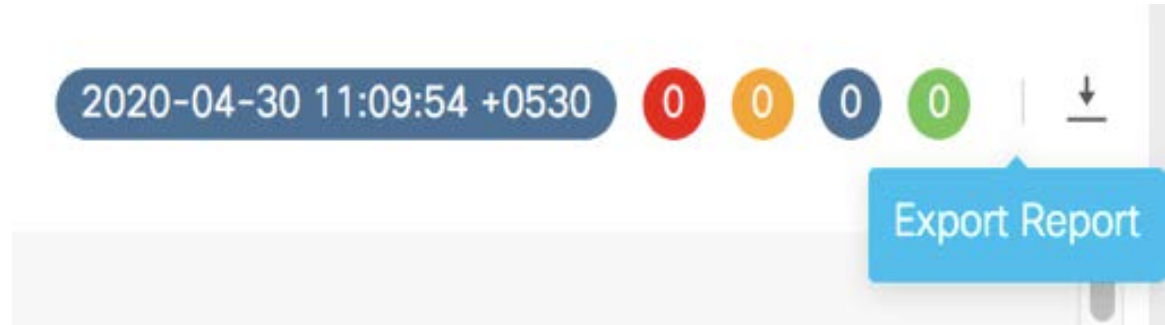


Click the **Commands** tab to display the commands that have been executed to generate the report. The commands are displayed based on the templates and the API that is used to run the commands on the device. For example, in the switch_inventory template, the **show version**, **show inventory** and **show license usage** commands are run to retrieve information. Note that the commands are displayed only if the **show_and_store** API is used to run the commands on the device.



Downloading Report Information

To download report information, click the **Export Report** icon in the Details tab. To download the commands along with the outputs, click the **Export Report** icon in the **Commands** tab.



Detailed information about the report is then displayed in a separate window.

SFP Report

Summary

ERRORS	0
WARNINGS	0
SUCCESS	0
INFO	0

10Gbase-(unknown)	10
SFP-H10GB-CU3M	2
10Gbase-SR	12

Device-Level SFP count

warnings	0
title	"Device-Level SFP count"
success	1
errors	0
info	0

SFP count per device

Device	Device level SFP Count
N5648-38	13
N5596-37	11


Device Level: N5648-38

warnings	0
title	"Device Level: N5648-38"
success	1
errors	0
info	0

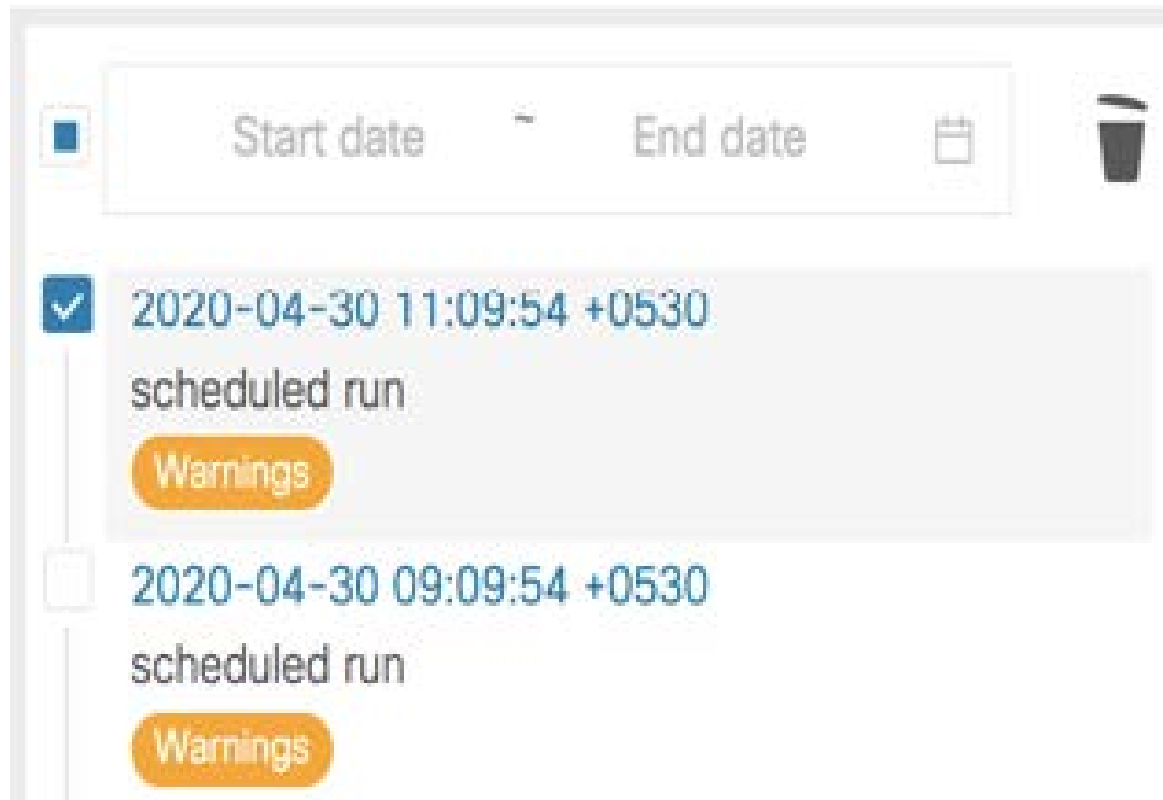
Interface SFP type

lencu	part	serial_number	interface	type	speed	cdp	device_name	name	model
2	AFBR-7IER02Z-CS1	SSI15470HJ5	Eth1/10	10Gbase-(unknown)	1000,10000	N/A	N5648-38	CISCO-AVAGO	N5K-C5548UP-SUP
N/A	SFBR-7702SDZ-CS5	SSI15470HJ5	Eth1/11	10Gbase-SR	1000,10000	N5596-37(FOX1816G0S9)@Ethernet1/11	N5648-38	CISCO-AVAGO	N5K-C5548UP-SUP
N/A	FTLX8571D3BCL-CZ	SSI15470HJ5	Eth1/13	10Gbase-SR	1000,10000	N/A	N5648-38	CISCO-FINISAR	N5K-C5548UP-SUP
N/A	FTLX8571D3BCL-CS	SSI15470HJ5	Eth1/15	10Gbase-SR	1000,10000	N/A	N5648-38	CISCO-FINISAR	N5K-C5548UP-SUP
N/A	FTLX8571D3BCL-CZ	SSI15470HJ5	Eth1/17	10Gbase-SR	1000,10000	N/A	N5648-38	CISCO-FINISAR	N5K-C5548UP-SUP
3	74752-9520	SSI15470HJ5	Eth1/21	SFP-H10GB-CU3M	1000,10000	N5596-37(FOX1816G0S9)@Ethernet1/21	N5648-38	CISCO-MOLEX	N5K-C5548UP-SUP

Deleting a Report

To delete a report, select a report on the report timeline that has to be deleted and click the **Delete**  icon.

 / twelve @ every 2 hours



A pop-up window is displayed asking for confirmation to delete the report. Click **Yes** to delete the report.

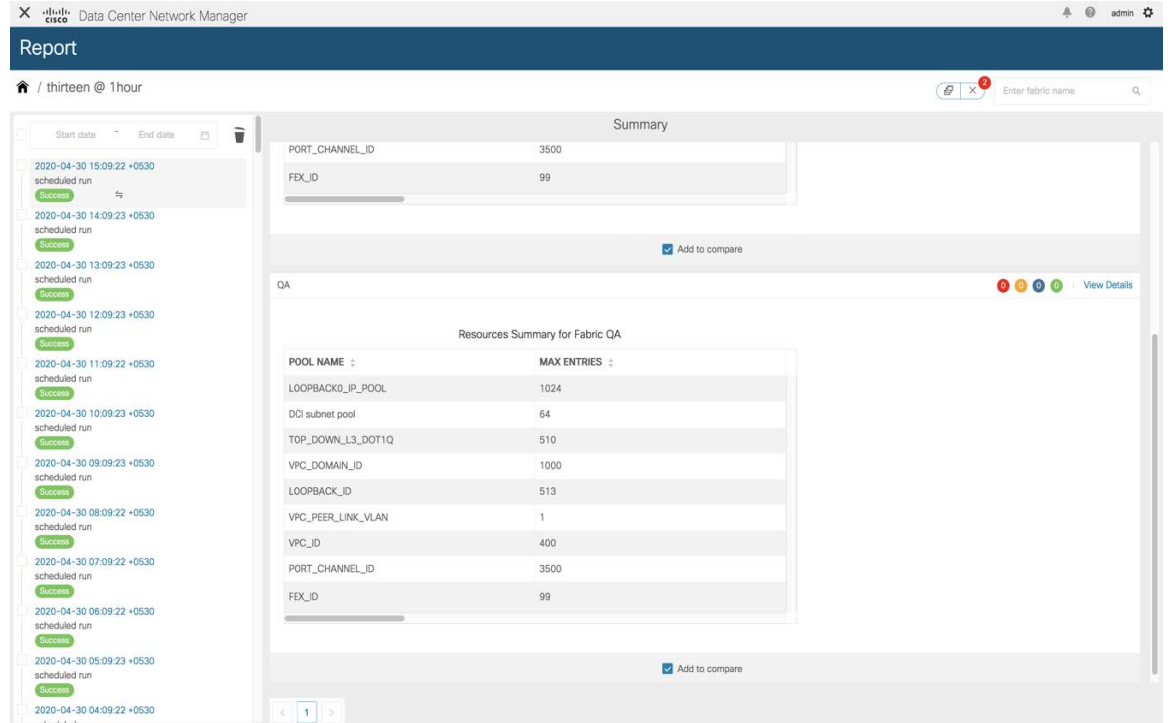
Comparing Reports

You can compare any two reports that have been generated from the same report job.

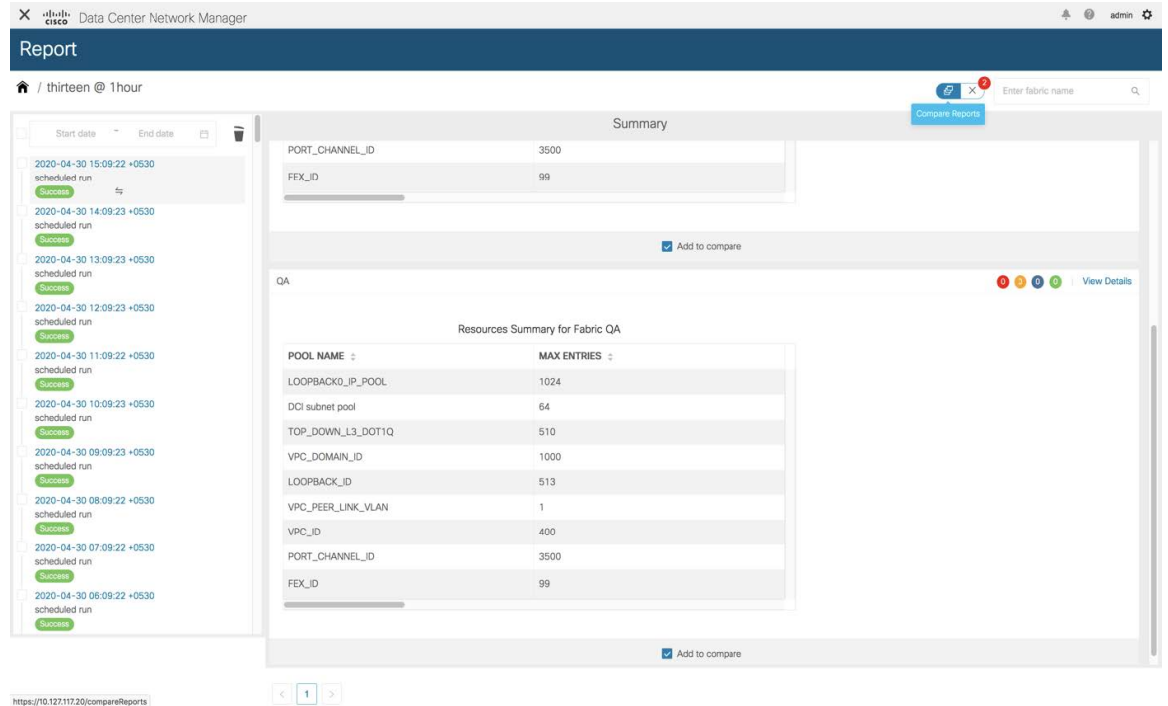
To compare reports, perform the following steps:

Procedure

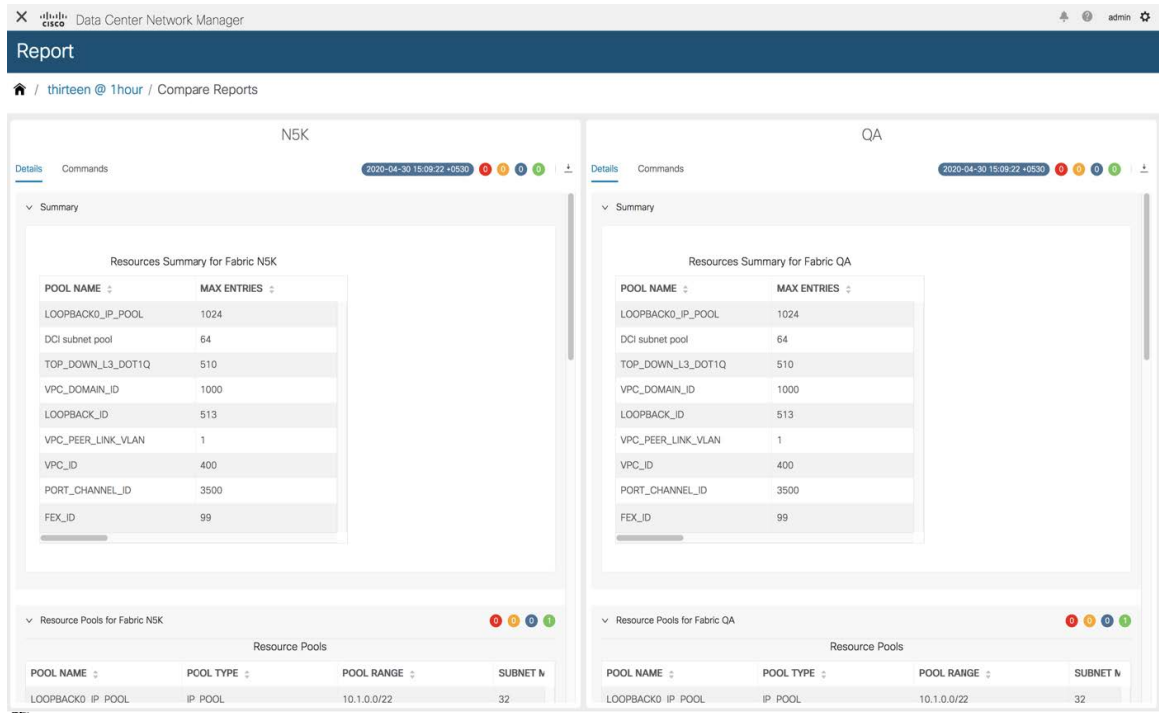
Step 1 Select the **Add to compare** checkboxes in a **Report** window. The number of reports that have been selected for comparison is indicated by the red colored number icon next to the X at the top right of the



Step 2 Click **Compare Reports** icon at the top right of the

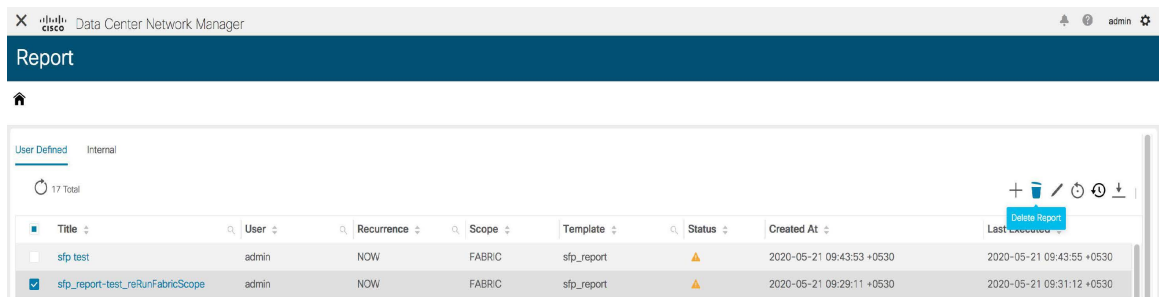


Step 3 The **Compare Reports** window is displayed with a side-by-side



Deleting a Report Job

To delete a report job, select the checkbox next to the report job that has to be deleted and click the **Delete Report** icon.



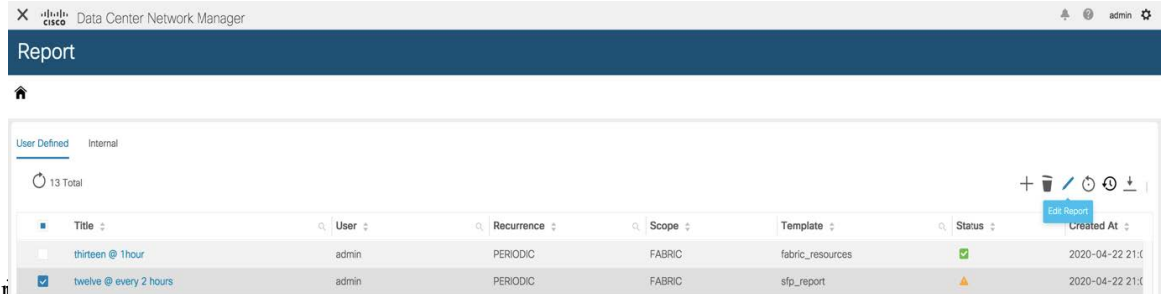
Deleting a report job also deletes all the reports that have been generated by that report job.

Editing a Report Job

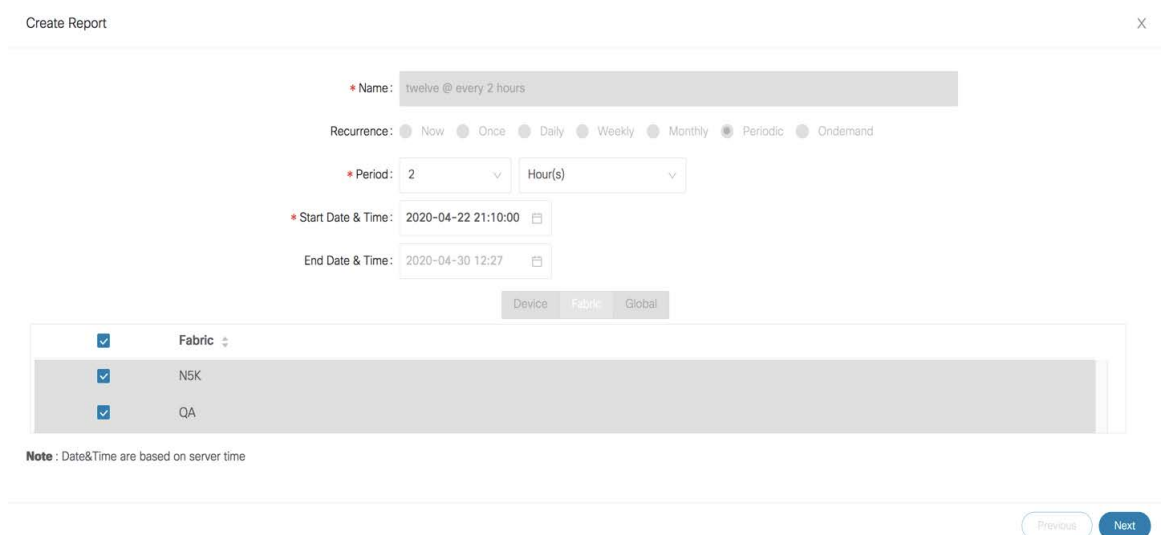
To edit a report job, perform the following steps:

Procedure

Step 1 Select the checkbox next to the report that has to be edited and click the **Edit Report** icon. Note that only one job can be edited at a



Step 2 The **Create Report** window is displayed. You can edit the Start Date & Time, End Date & Time, Period, and Device or Fabric selected. After editing the required parameters, click



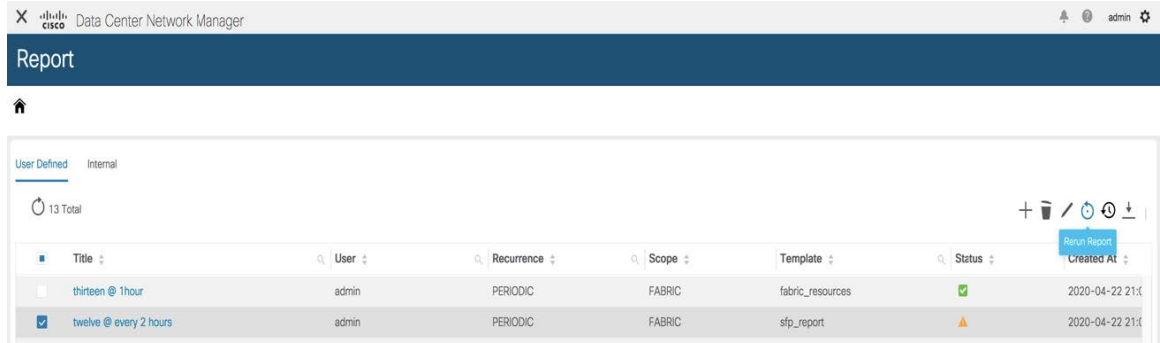
Step 3 Click **Update**



A pop-up window is displayed indicating that the report job has been updated successfully.

Rerunning a Report Job

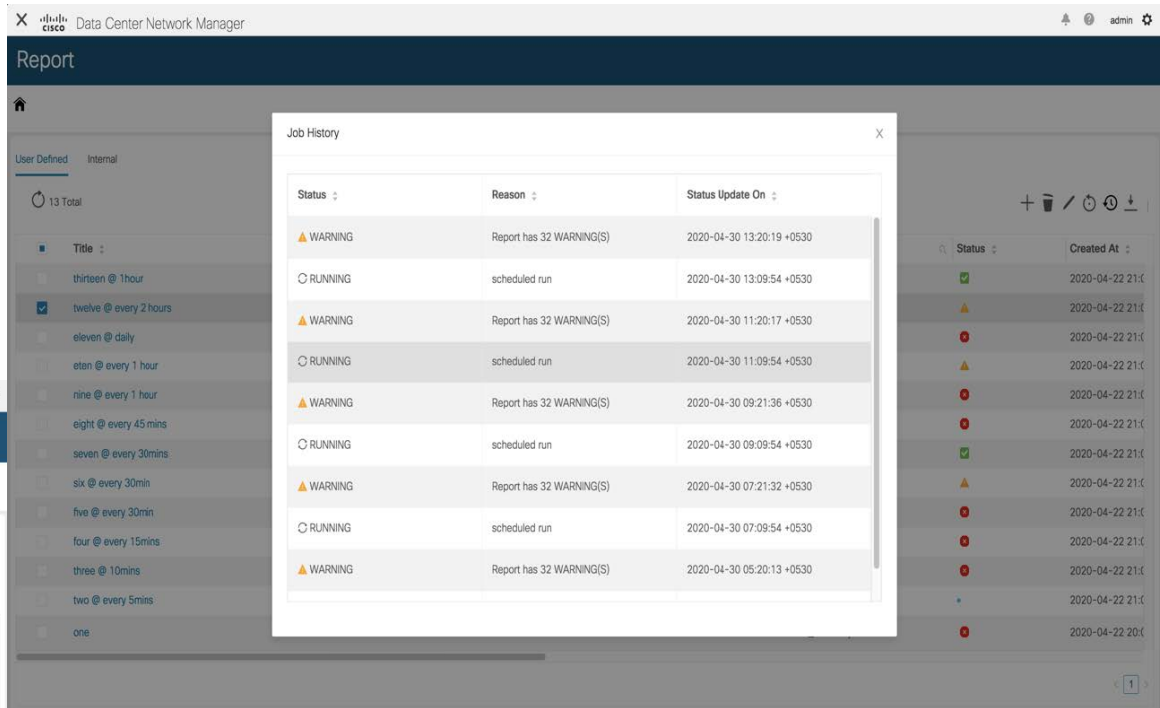
On the **Report** window, select the checkbox next to the report that has to be generated again and click the **Rerun Report** icon to run a report job again. A pop-up window is displayed indicating that the report job has been run again



You can use the re-run option to generate a report before the scheduled execution time. In case of an **Ondemand** job, you need to click the **Rerun Report** icon to generate the report.

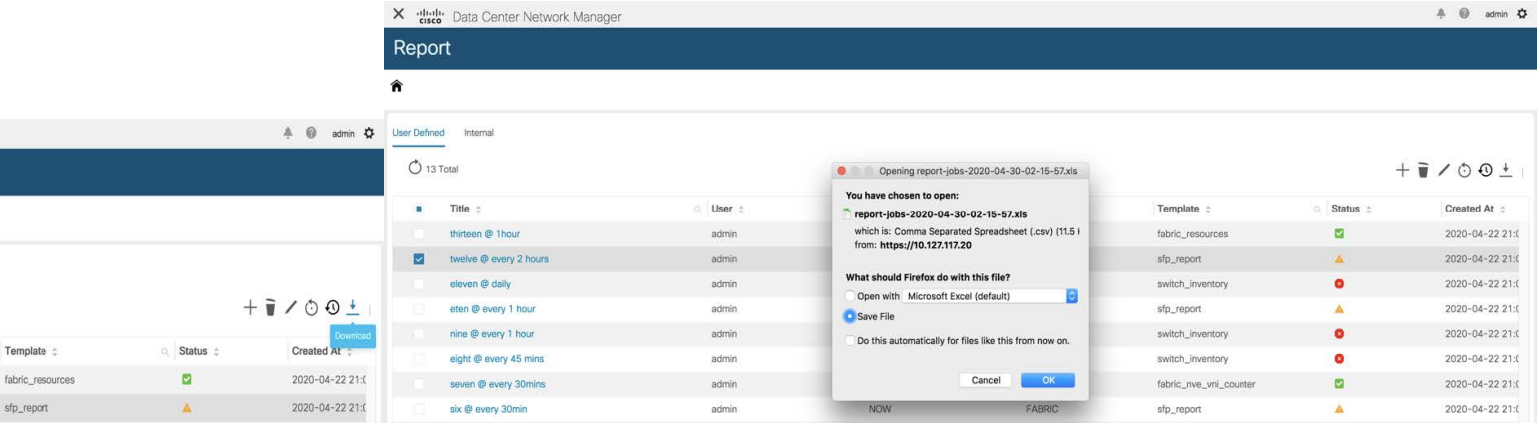
Displaying Report Job History

To display report job history, select the checkbox next to the report job for which the history has to be displayed, and click the **History** icon. The **Job History** window is displayed. You can view the last 100 entries per report



Downloading Report Job Information

To download report job information as a CSV file, click the **Download** icon, select the location to which the CSV file should be downloaded to, and click **OK**. A CSV file with information about the report job is



Report Purging

Purging reports leads to creation of space for new reports. A separate report index is created for each report job as each report job can have a different recurrence interval. So, the number of reports that are generated in a given period of time may be different for different report jobs. Separate report indexes help in purging the reports easily. Each report index has a maximum size limit of 100MB and a maximum report count of 500. If the limits are exceeded, the older reports are deleted to make space for new reports.

At any instant, only 70% of the maximum threshold value is retained. For example, consider a scenario in which the maximum report index size is 100MB. On purging, only reports that take up to 70MB space on an average are retained. This provides space for new reports that are generated. The maximum report count of 500 also has a threshold value of 70%.

- To modify the limits and the threshold percentage values, use the following REST API:

URL: *appcenter/Cisco/report/integrated/admin/reportconfig*

METHOD: POST

You can configure one or more threshold attributes and values.

```
{
<threshold attributes>: <value>
}
```

The <threshold attributes> are given below-

MAX_REPORT_SIZE: Maximum size of the report index in KB

MAX_USAGE_PERCENTAGE: Maximum percentage of “MAX_REPORT_SIZE” to retain

MAX_NUMBER_OF_REPORTS: Maximum number of reports

MAX_NUMBER_OF_REPORTS_PERCENTAGE: Maximum percentage of “MAX_NUMBER_OF_REPORTS” to retain

MAX_HISTORY_SIZE: Maximum size of history in KB

MAX_HISTORY_PERCENTAGE: Maximum Percentage of “MAX_HISTORY_SIZE” to retain

MAX_NUMBER_OF_HISTORY: Maximum number of historical reports to retain

MAX_NUMBER_OF_HISTORY_PERCENTAGE: Maximum percentage of

“MAX_NUMBER_OF_HISTORY” to retain

Enter integers for the <value> attribute.

- *To retrieve the currently configured limits, use the following API:

URL: *appcenter/Cisco/preport/integrated/admin/reportconfig*

METHOD: GET

- To retrieve current utilization statistics, use the following API:

URL: *appcenter/Cisco/preport/integrated/admin/index/stats*

METHOD: GET

- Reports are purged once a day at 12 AM. You can also initiate a purge. To initiate a purge, use the following-

REST API:

URL: *appcenter/Cisco/preport/integrated/admin/purge/report*

METHOD: POST

- Report execution history is stored in a single index for all the jobs and purged at even hours. The maximum index limit for report execution history is 1000 and the maximum size allowed is 500MB. To change these limits, use the following REST API:

URL: *appcenter/Cisco/preport/integrated/admin/reportconfig*

METHOD: POST

- To initiate a purge of the report execution history, use the following REST API:

URL: *appcenter/Cisco/preport/integrated/admin/purge/history*

METHOD: POST

- To initiate a purge of both reports and report execution history, use the following REST API:

URL: *appcenter/Cisco/preport/integrated/admin/purge*

METHOD: POST