Managing reports

Active IQ Unified Manager 9.8

NetApp
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Managing reports

Active IQ Unified Manager enables you to create and manage reports directly from the Unified Manager user interface so that you can view information about the health, capacity, performance, and protection relationships of storage objects in your clusters. Reviewing this information can help you to identify potential problems before they occur.

You can download reports as comma-separated values (.csv), Microsoft Excel (.xlsx), or PDF files. You can also schedule a report to be sent using email to a group of recipients. The reports are sent as email attachments.

In addition to generating reports from the user interface, you can extract health and performance data from Unified Manager using these additional methods:

- Using Open Database Connectivity (ODBC) and ODBC tools to directly access the database for cluster information
- Executing Unified Manager REST APIs to return the information you are interested in reviewing

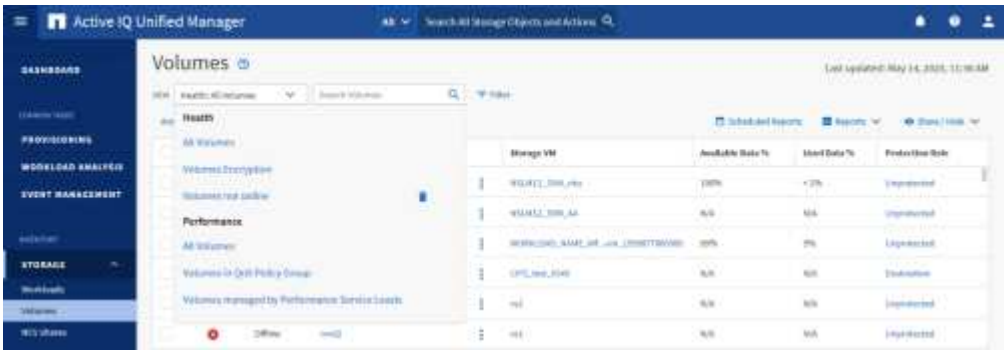
Understanding the view and report relationship

Views and inventory pages become reports when you download or schedule them.

You can customize and save views and inventory pages for reuse. Almost everything you can view in Unified Manager can be saved, reused, customized, scheduled, and shared as a report.

In the view drop down, items with the delete icon are existing custom views that you or another user have created. Items without an icon are default views provided with Unified Manager. Default views cannot be modified or deleted.

- If you delete a custom view from the list, it also deletes any Excel files or scheduled reports that use that view.
- If you change a custom view, reports that use that view will reflect the change the next time the report is generated and sent by email according to the report schedule. When changing views, make sure your changes work with any associated Excel customizations used for the reports. If needed, you can update the Excel file by downloading it, making the required changes, and uploading it as a new Excel customization for the view.



Only users with the Application Administrator or Storage Administrator role can see the delete icon, change or delete a view, or change or delete a scheduled report.

Types of reports

This table provides a comprehensive list of the views and inventory pages that are available as reports that you can customize, download, and schedule.

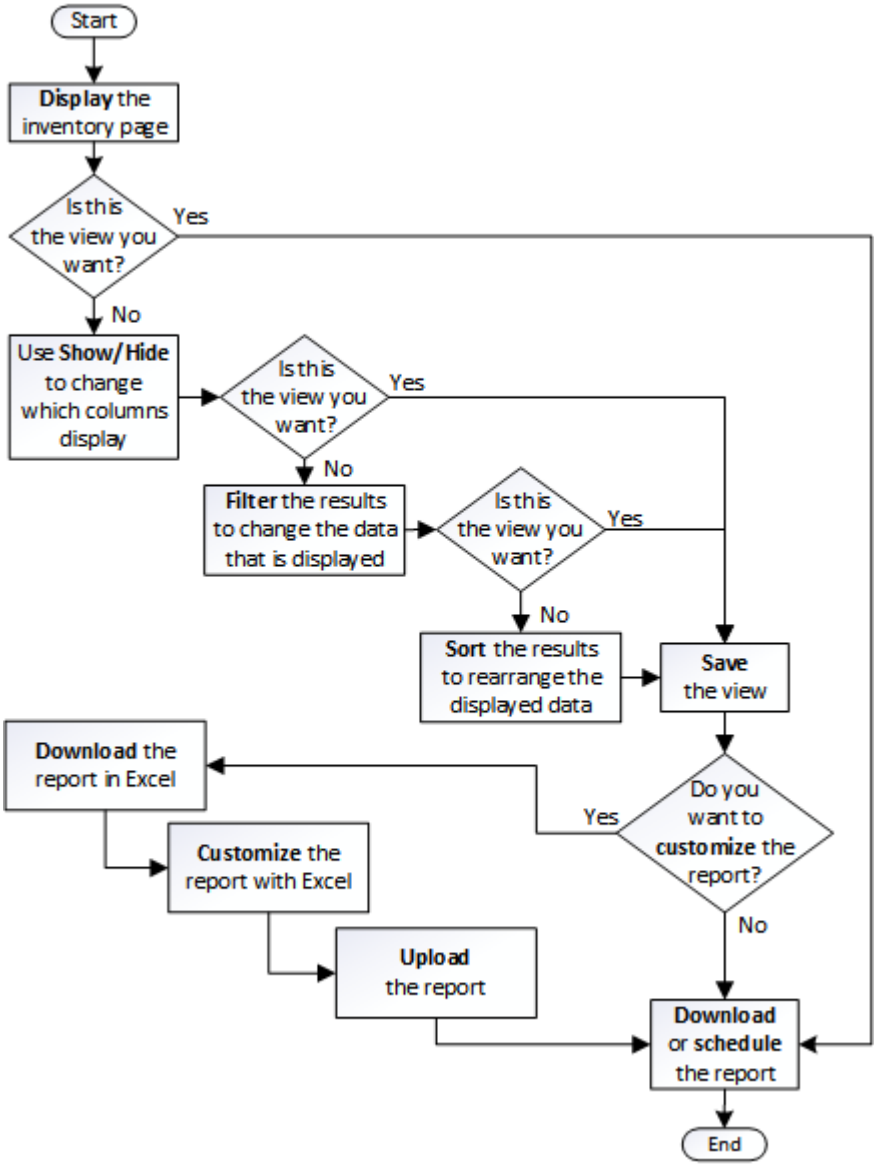
Active IQ Unified Manager reports

Type	Storage or network object
Capacity	Clusters Aggregates Volumes Qtrees
Health	Clusters Nodes Aggregates Storage VMs Volumes SMB/CIFS shares NFS shares
Performance	Clusters Nodes Aggregates Storage VMs Volumes LUNs NVMe namespaces Network Interfaces (LIFs) Ports

Type	Storage or network object
Quality of Service	Traditional QoS policy groups Adaptive QoS policy groups Performance Service Level policy groups
Volume protection relationships (available from the Volumes page)	All relationships Last 1 month transfer status Last 1 month transfer rate

Report workflow

Decision tree that describes the report workflow.



Reporting quick start

Create a sample custom report to experience exploring views and scheduling reports. This quick start report finds a list of volumes that you might want to move to the cloud tier because there is a fair amount of inactive (cold) data. You will open the Performance: All Volumes view, customize the view using filters and columns, save the custom view as a report, and schedule the report to share once a week.

Before you begin

- You must have the Application Administrator or Storage Administrator role.
- You must have configured FabricPool aggregates and have volumes on those aggregates.

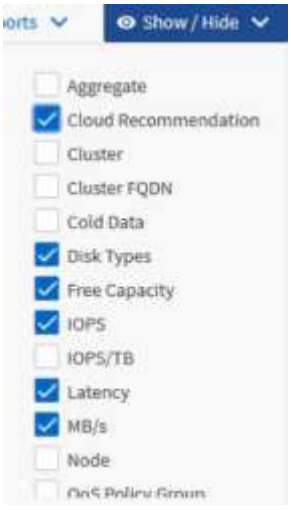
About this task

Follow the steps below to:

- Open the default view
- Customize the columns by filtering and sorting the data
- Save the view
- Schedule a report to be generated for the custom view

Steps

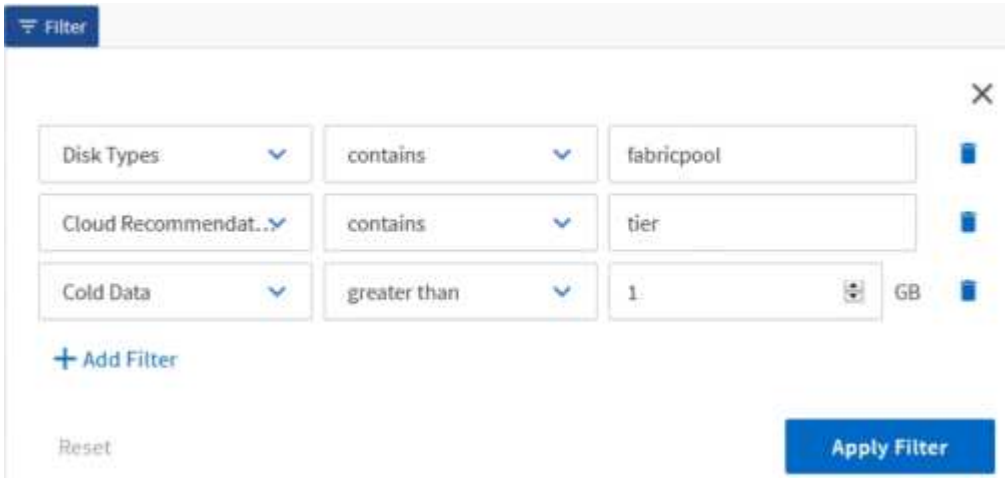
1. In the left navigation pane, click **Storage** > **Volumes**.
2. In the View menu, select **Performance** > **All Volumes**.
3. Click **Show/Hide** to make sure the “Disk Types” column appears in the view.



   Add or remove other columns to create a view that contains the fields that are important for your report.

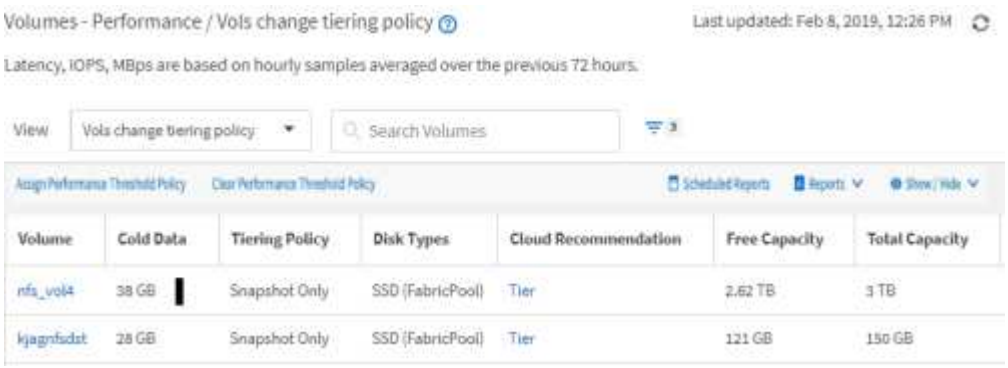
4. Drag the “Disk Types” column next to the “Cloud Recommendation” column.
5. Click the filter icon to add the following three filters, and then click **Apply Filter**:

- Disk Types contains fabricpool
- Cloud Recommendation contains tier
- Cold Data greater than 10 GB



Note that each filter is joined with a logical AND so that all volumes returned must meet all the criteria. You can add a maximum of five filters.

6. Click the top of the **Cold Data** column to sort the results so that the volumes with the most cold data appear at the top of the view.
7. When the view is customized, the view name is **Unsaved View**. Name the view to reflect what the view is showing, for example “Vols change tiering policy”. When done, click the check mark or press **Enter** to save the view with the new name.



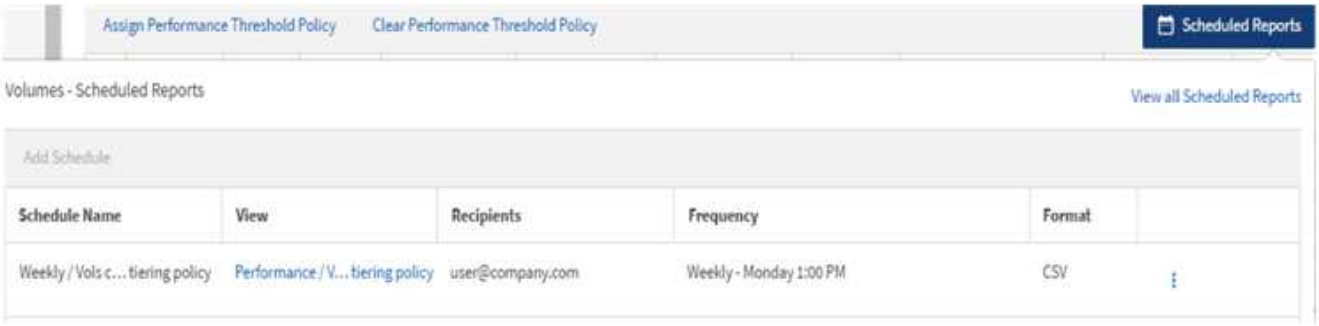
8. Download the report as a **CSV**, **Excel**, or **PDF** file to see the output before you schedule or share it.

   Open the file with an installed application, such as Microsoft Excel (CSV or Excel) or Adobe Acrobat (PDF), or save the file.

   > You can further customize your report using complex filters, sorts, pivot tables, or charts by downloading the view as an Excel file. After you open the file in Excel, use the advanced features to customize your report. When satisfied, upload the Excel file. This file, with its customizations, is applied to the view when the report is run.

   For more information on customizing reports using Excel, see *Sample Microsoft Excel reports*.

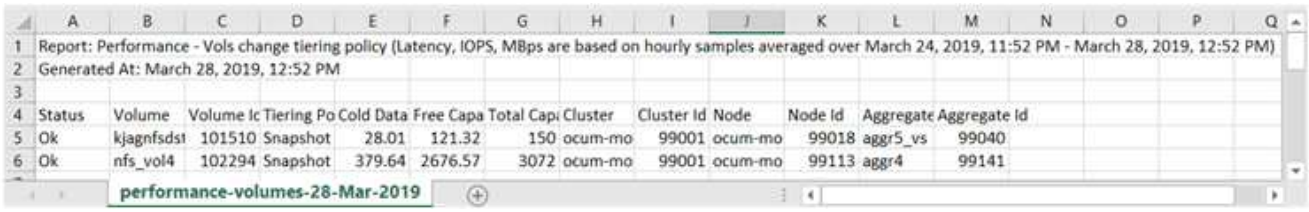
9. Click the **Scheduled Reports** button on the inventory page. All scheduled reports relating to the object, in this case volumes, appear in the list.



10. Click **Add Schedule** to add a new row to the **Report Schedules** page so you can define the schedule characteristics for the new report.
11. Enter a name for the report and complete the other report fields, then click the check mark (✓) at the end of the row.

    The report is sent immediately as a test. After that, the report generates and is sent by email to the recipients listed using the specified frequency.

    The following sample report is in CSV format:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Report: Performance - Vols change tiering policy (Latency, IOPS, MBps are based on hourly samples averaged over March 24, 2019, 11:52 PM - March 28, 2019, 12:52 PM)																
2	Generated At: March 28, 2019, 12:52 PM																
3																	
4	Status	Volume	Volume Ic	Tiering Po	Cold Data	Free Capa	Total Capi	Cluster	Cluster Id	Node	Node Id	Aggregate	Aggregate Id				
5	Ok	kjagnfsdst	101510	Snapshot	28.01	121.32	150	ocum-mo	99001	ocum-mo	99018	aggr5_vs	99040				
6	Ok	nfs_vol4	102294	Snapshot	379.64	2676.57	3072	ocum-mo	99001	ocum-mo	99113	aggr4	99141				

performance-volumes-28-Mar-2019

    The following sample report is in PDF format:

Report: Performance - Vols change tiering policy (Latency, IOPS, MBps are based on hourly samples averaged over March 24, 2019, 11:51 PM - March 28, 2019, 12:51 PM)
Generated At: March 28, 2019, 12:51 PM

Status	Volume	Tiering Policy	Cold Data (GB)	Free Capacity (GB)	Total Capacity (GB)	Cluster	Node	Aggregate
Ok								
Ok								

After you finish

Based on the results shown in the report, you might want to use ONTAP System Manager or the ONTAP CLI to change the tiering policy to “auto” or “all” for certain volumes to offload more cold data to the cloud tier.

Using Excel to customize your report

After you have saved the view, you can download it in Excel Workbook format (.xlsx). When you open the Excel file, you can use advanced Excel features to customize your report.

Before you begin

You can only upload an Excel Workbook file with the `.xlsx` extension.

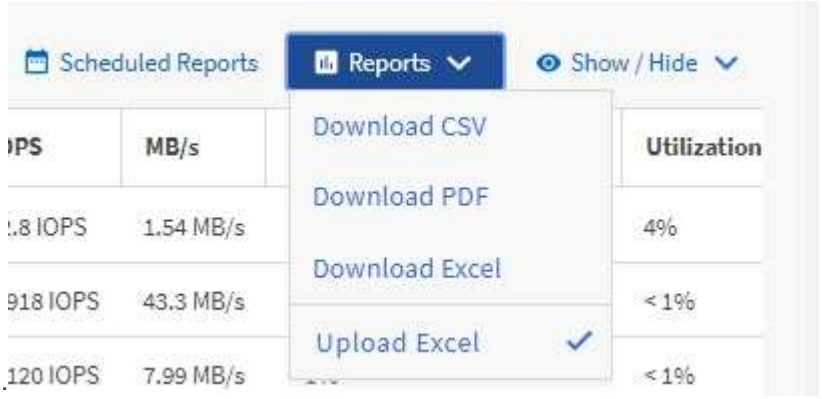
About this task

For example, some advanced Excel features you can use in your report include:

- Multi-column sort
- Complex filtering
- Pivot tables
- Charts

- The downloaded Excel file uses the default file name for the view, not your saved name.
  - The format is `<View Area>-<Day>-<Month>-<Year>-<Hour>-<Minute>-<Second>.xlsx`.
  - For example, a custom saved view named `Volumes-not online` has a file name of `health-volumes-05-May-2020-19-18-00.xlsx` if saved at that day and time.
- You can add sheets to the Excel file, but do not change existing sheets.
  - Do not change the existing sheets, `data` and `info`. Instead, copy the data to a new page that you create.
  - One exception to the above rule is that you can create formulas on the “data” page. Use the data page formulas to create charts on new pages.

  - Do not name a new sheet `data` or `info`.
- If a customized Excel file exists, there is a check mark beside the **Reports** > **Upload Excel** menu item. When you download the Excel file, the version with the customizations is used.



Steps

1. Open the default, custom, or saved view that you want to use as the basis of your report.
2. Select **Reports** > **Download Excel**.
3. Save the file.

   The file is saved to your downloads folder.

4. Open the saved file in Excel.

   Do not move the file to a new location, or if you do your work in another location, save the file back to the original location using the original file name before uploading the file.

5. Customize the file using Excel features, such as complex sorts, layered filters, pivot tables, or charts. For more information, see the Microsoft® Excel documentation.
6. Select **Reports** > **Upload Excel** and select the file that you modified.

The most recently downloaded file is uploaded from the same file location.

7. Send yourself a test report using the **Scheduled Reports** feature.

Searching for a scheduled report

You can search for scheduled reports by name, view name, object type, or recipients.

Steps

1. In the left navigation pane, click **Storage Management** > **Report Schedules**.
2. Use the **Search Scheduled Reports** text field.

To find reports by …	Try …
Schedule name	Type part of the report schedule name.
View name	Type part of the report view name. Default views and custom views appear in the view list.
Recipient	Type part of the email address.
File type	Type "PDF", "CSV", or "XLSX".

3. You can click a column heading to sort reports in ascending or descending order by that column, such as schedule name or format.

Downloading reports

You can download reports and save the data to a local or network drive as a comma-separated values (CSV) file, a Microsoft Excel (.XLSX) file, or a PDF file. You can open CSV and XLSX files with spreadsheet applications, such as Microsoft Excel, and PDF files with readers such as Adobe Acrobat.

Steps

1. Click the **Reports** button to download the report as one of the following:

Choose	To…
Download CSV	Save the report as a comma-separated values (CSV) file.
Download PDF	Save the report as a .pdf file.
Download Excel	Save the report as a Microsoft Excel (XLSX) file.

Scheduling a report

After you have a view or Excel file that you want to schedule for regular generation and distribution, you can schedule the report.

Before you begin

- You must have the Application Administrator or Storage Administrator role.
- You must have configured the SMTP server settings in the **General** > **Notifications** page so that the reporting engine can send reports as email attachments to the list of recipients from the Unified Manager server.
- The email server must be configured to allow attachments to be sent with the generated emails.

About this task

Use the following steps to test and schedule a report to be generated for a view. Select or customize the view you want to use. The following procedure uses a network view that shows the performance of your network interfaces, but you can use any view you want.

Steps

1. Open your view. This example uses the default network view that shows LIF performance. In the left navigation pane, click**Network** > **Network Interfaces**.
2. Customize the view as needed using the built-in Unified Manager features.
3. After you customized the view, you can provide a unique name in the **View** field and click the check mark to save it.

4. You can use the advanced features of Microsoft® Excel to customize your report. For details, see Using Excel to customize your report.
5. To see the output before you schedule or share it:

If you used Excel to customize the report
View the existing downloaded Excel file.
If you did not use Excel to customize the report
Download the report as a **CSV**, **PDF** or **XLSX** file.

   Open the file with an installed application, such as Microsoft Excel (CSV/XSLX) or Adobe Acrobat (PDF).

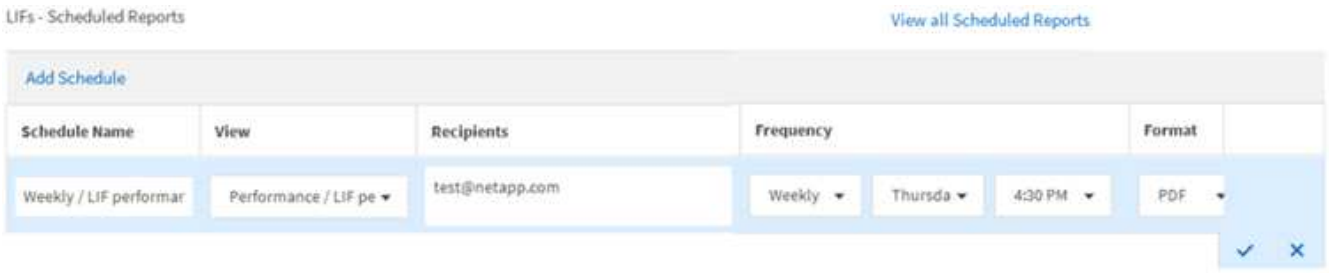
6. If you are satisfied with the report, click **Scheduled Reports**.
7. In the **Report Schedules** page, click **Add Schedule**.
8. Accept the default name, which is a combination of the view name and the frequency, or customize the

schedule name.

9. To test the scheduled report the first time, only add yourself as the **recipient**. When satisfied, add the email addresses for all report recipients.
10. Specify how frequently the report will be generated and sent to the recipients. You can choose **Daily**, **Weekly**, or **Monthly**.
11. Select the format, either **PDF**, **CSV**, or **XSLX**.

    For reports where you used Excel to customize the content, always select **XSLX**.

12. Click the checkmark (✓) to save the report schedule.



The report is sent immediately as a test. After that, the report generates and is sent by email to the recipients listed using the scheduled frequency.

Managing report schedules

You can manage your report schedules from the Report Schedules page. You can view, modify, or delete existing schedules.

Before you begin

You cannot schedule new reports from the Report Schedules page. You can only add scheduled reports from the object inventory pages.

- You must have the Application Administrator or Storage Administrator role.

Steps

1. In the left navigation pane, click **Storage Management** > **Report Schedules**.
2. On the **Report Schedules** page:

If you want to…	Then…
View an existing schedule	Scroll through the list of existing reports using the scroll bars and page controls.

If you want to…	Then…
Edit an existing schedule	a. Click the more icon for the schedule you want to use. b. Click **Edit**. c. Make the necessary changes. d. Click the check mark to save your changes.
Delete an existing schedule	a. Click the more icon for the schedule you want to use. b. Click **Delete**. c. Confirm your decision.

Unified Manager databases accessible for custom reporting

Unified Manager uses a MySQL database to store data from the clusters that it is monitoring. Data is persisted into various schemas in the MySQL database.

All table data from the following databases are available:

Database	Description
netapp_model	Data about the objects on ONTAP controllers.
netapp_model_view	Data about the objects on ONTAP controllers, suitable for report tool consumption.
netapp_performance	Cluster specific performance counters.
ocum	Unified Manager application data and information to support UI filtering, sorting, and the calculation of some derived fields.
ocum_report	Data for inventory configuration and capacity-related information.
ocum_report_birt	Views for inventory configuration and capacity-related data, suitable for report tool consumption.
opm	Performance configuration settings and threshold information.
scalemonitor	Data about the Unified Manager application health and performance issues.

Database	Description
vmware_model	VMware object data for datastores hosted on NetApp storage.
vmware_model_view	Views for VMware object data for datastores hosted on NetApp storage, suitable for report tool consumption.
vmware_performance	VMware performance counter data for datastores hosted on NetApp storage.

A reporting user — a Database user with the Report Schema role — is able to access the data in these tables. This user has read-only access to reporting and other database views directly from the Unified Manager database. Note that this user does not have permission to access any tables that contain user data or cluster credential information.

See the Technical Report for Unified Manager Reporting (TR-4565) for more details.

Report Schedules page

The Report Schedules page enables you to view detailed information about the reports that you have created and the schedule at which they are generated. You can search for a specific report, modify certain attributes of a report schedule, and delete a report schedule.

The Report Schedules page displays the list of reports that have been created on the system.

- **Schedule Name**

  The name of the scheduled report. Initially this name includes the View name and the frequency. You can change this name to better reflect the report contents.

- **View**

  The View that was used to create the report.

- **Recipients**

  The email addresses of users who will receive the generated report. Each email address must be separated by a comma.

- **Frequency**

  How frequently the report is generated and sent to the recipients.

- **Format**

  Whether the report is generated as a PDF file or in XLSX or CSV format.

- **Action button**

Options available to edit or delete the report schedule.

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