



# **Navigating performance workflows in the Unified Manager GUI**

**OnCommand Unified Manager 9.5**

NetApp  
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# Navigating performance workflows in the Unified Manager GUI

The Unified Manager interface provides many pages for the collection and display of performance information. You use the left navigation panel to navigate to pages in the GUI, and you use tabs and links on the pages to view and configure information.

You use all of the following pages to monitor and troubleshoot cluster performance information:

- dashboard pages
- storage object inventory pages
- storage object landing pages (including the performance explorer)
- configuration and setup pages
- events pages



A page in Unified Manager might display a large amount of information. To see all of the available information, always scroll to the bottom of the page.

## Logging in to the UI

You can log in to the Unified Manager UI using a supported web browser.

### Before you begin

- The web browser must meet minimum requirements.

See the Interoperability Matrix at [mysupport.netapp.com/matrix](https://mysupport.netapp.com/matrix) for the complete list of supported browser versions.

- You must have the IP address or URL of the Unified Manager server.

### About this task

You are automatically logged out of the session after 24 hours of inactivity.

### Steps

1. Enter the URL in your web browser, where URL is the IP address or fully qualified domain name (FQDN) of the Unified Manager server:
  - For IPv4: `https://URL/`
  - For IPv6: `https://[URL]/` If the server uses a self-signed digital certificate, the browser might display a warning indicating that the certificate is not trusted. You can either acknowledge the risk to continue the access or install a Certificate Authority (CA) signed digital certificate for server authentication.
2. At the login screen, enter your user name and password.

If login to the Unified Manager user interface is protected using SAML authentication you will enter your

credentials in the identity provider (IdP) login page instead of the Unified Manager login page.

The Dashboards/Overview page is displayed.



If the Unified Manager server is not initialized, a new browser window displays the first experience wizard. You must enter an initial email recipient to which email alerts will be sent, the SMTP server that will handle email communications, and whether AutoSupport is enabled to send information about your Unified Manager installation to technical support. The Unified Manager UI appears after you complete this information.

## Graphical interface and navigational paths

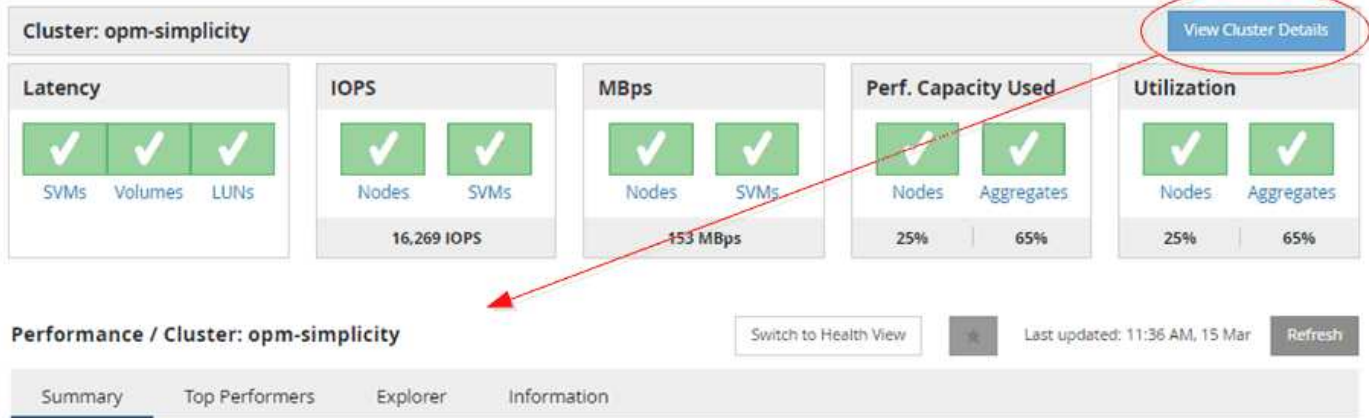
Unified Manager has great flexibility and enables you to accomplish multiple tasks in various ways. There are many navigation paths you will discover as you work in Unified Manager. While not all of the possible combinations of navigations can be shown, you should be familiar with a few of the more common scenarios.

### Monitor cluster object navigation

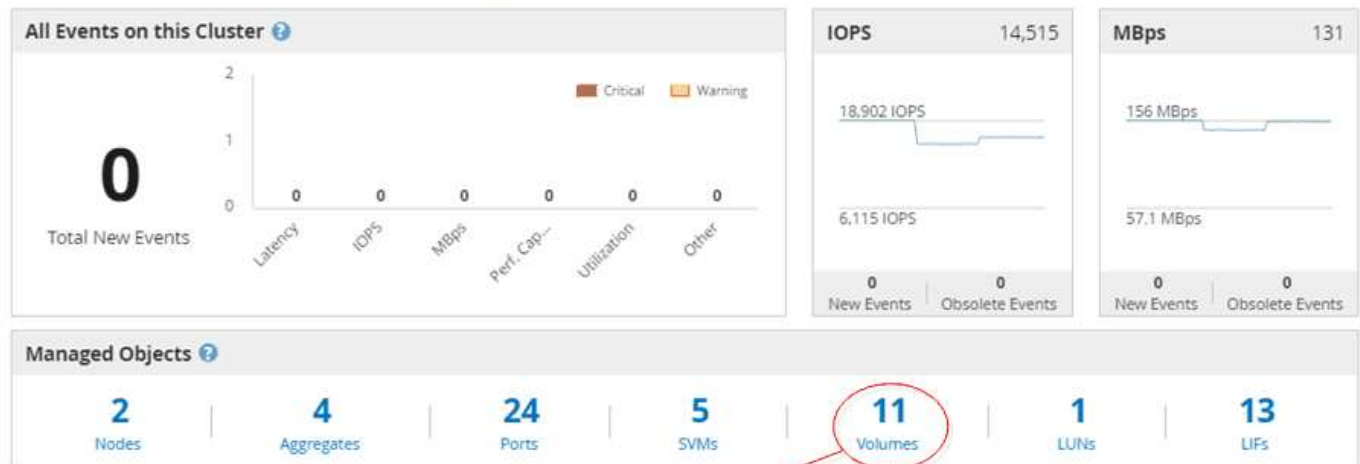
Unified Manager enables you to monitor the performance of all objects in any cluster managed by Unified Manager. Monitoring your storage objects provides you with an overview of cluster and object performance, and includes performance event monitoring. You can view performance and events at a high level, or you can further investigate any details of object performance and performance events.

This is one example of many possible cluster object navigations:

1. From the Dashboards/Performance page, identify a cluster you want to investigate and navigate to the selected cluster's landing page.
2. From the Performance/Cluster Summary page, identify the cluster object you want to investigate and navigate to that object's inventory page. In this example, **Volumes** is selected to display the Performance/Volumes inventory page.



IOPS, MBps are averaged over the previous 72 hours ?



## Performance / Volumes on cluster opm-simplicity ?

Last updated: 11:43 AM, 15 Mar

Refresh

Latency, IOPS, MBps are based on hourly samples averaged over the previous 83 hours

Search Volume data

Filtering

Export

Assign Performance Threshold Policy Clear Performance Threshold Policy

	Status	Volume	Style	Latency	IOPS	MBps	Free Capac	Total Capa	Cluster	Node	SVM	Aggregate	Tiering Polic	Threshold
<input type="checkbox"/>	✓	vol2	FlexVol	13.8 ms/op	3,000 IOPS	23.4 MBps	474 GB	475 GB	opm-...ity	opm-...02	vs2	aggr4		
<input type="checkbox"/>	✓	vol4	FlexVol	0.503 ms/o	5,902 IOPS	46.1 MBps	474 GB	475 GB	opm-...ity	opm-...02	vs2	aggr4		
<input type="checkbox"/>	✓	fg_vol1	FlexVol	N/A	N/A	N/A	4.75 GB	4.75 GB	opm-...ity	opm-...01	vs3	aggr3		
<input type="checkbox"/>	✓	fg_julia1	FlexGroup	N/A	N/A	N/A	47.1 GB	47.5 GB	opm-...ity	2 Nodes	vs3	2 Ag...tes		
<input type="checkbox"/>	✓	test_vol	FlexVol	0.132 ms/o	< 1 IOPS	0 MBps	475 GB	475 GB	opm-...ity	opm-...01	vs1	aggr1	Snapsh...Only	
<input type="checkbox"/>	✓	vol3	FlexVol	0.244 ms/o	6,280 IOPS	49.1 MBps	461 GB	475 GB	opm-...ity	opm-...01	vs1	aggr3		

## Monitor cluster performance navigation

Unified Manager enables you to monitor the performance of all clusters managed by Unified Manager. Monitoring your clusters provides you with an overview of cluster and object performance and includes performance event monitoring. You can view performance and events at a high level, or you can further investigate any details of

cluster and object performance and performance events.

This is one example of many possible cluster performance navigational paths:

1. In the Dashboards/Performance page, identify a cluster you want to investigate and click **View Cluster Details** to navigate to the selected cluster's landing page.
2. From the Performance/Cluster Summary page, identify the object type you want to investigate and click it to view the object inventory page.

In this example, **Aggregates** is selected, displaying the Performance/Aggregates inventory page.

3. In the Performance/Aggregates page, identify the aggregate you want to investigate and click that aggregate name to navigate to the Performance/Aggregate Explorer page.
4. Optionally, select other objects to compare with this aggregate in the View and Compare menu, and then add one of the objects to the comparing pane.

Statistics for both objects will appear in the counter charts for comparison.

5. In the Comparing pane at the right on the Explorer page, click **Zoom View** in one of the counter charts to view details about the performance history for that aggregate.

Latency, IOPS, MBps, Utilization are based on hourly samples averaged over the previous 72 hours

Search Aggregate data

Filtering

Export

Assign Performance Threshold Policy

Clear Performance Threshold Policy

<input type="checkbox"/>	Status	Aggregate	Aggregate Ty	Latency	IOPS	MBps	Perf. Capacit	Utilization	Free Capacit	Total Capacit	Cluster	Node	Threshold Pc
<input type="checkbox"/>	✓	aggr2	SSD	0.649 ms/op	1,103 IOPS	38.9 MBps	1%	1%	3,991 GB	4,023 GB	opm-s...city	opm-s...02	
<input type="checkbox"/>	✓	aggr4	HDD	6.06 ms/op	2.23 IOPS	< 1 MBps	< 1%	< 1%	6,023 GB	6,024 GB	opm-s...city	opm-s...02	
<input type="checkbox"/>	✓	aggr1	SSD	0.525 ms/op	77.1 IOPS	< 1 MBps	< 1%	< 1%	4,016 GB	4,023 GB	opm-s...city	opm-s...01	
<input type="checkbox"/>	✓	aggr3	HDD	6.36 ms/op	411 IOPS	14.7 MBps	19%	17%	4,015 GB	4,518 GB	opm-s...city	opm-s...01	

Performance / Aggregate: **aggr4**

Switch to Health View

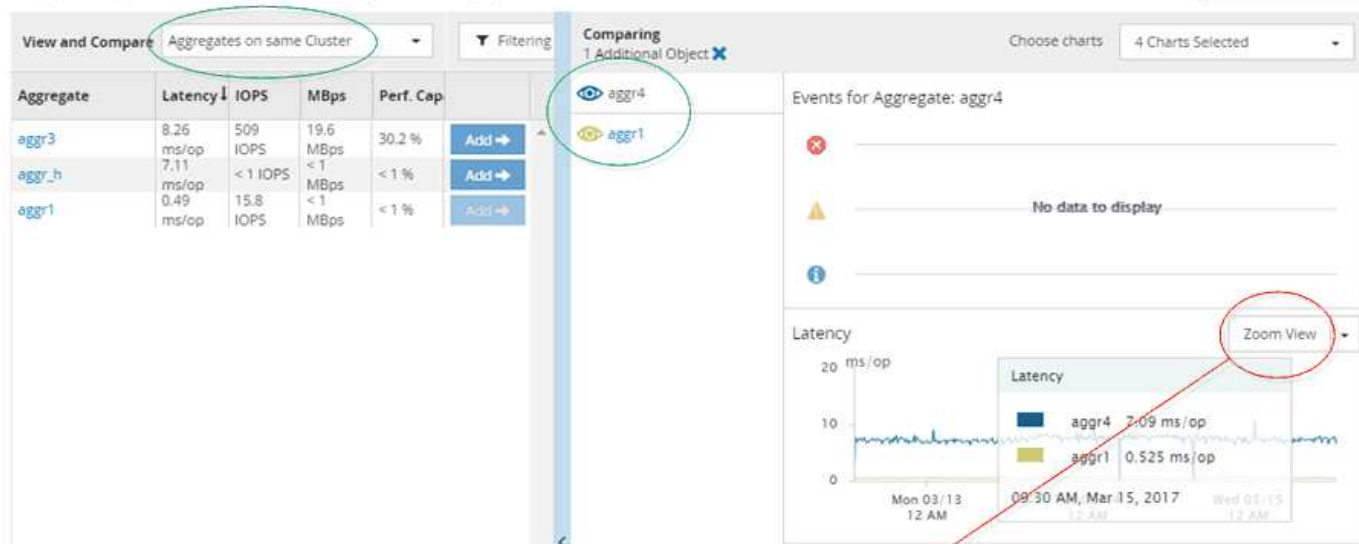
Last updated: 01:18 PM, 15 Mar

Refresh

Summary Explorer Information

Compare the performance of associated objects and display detailed charts ?

Time Range Last 72 Hours

Latency for Aggregate: **aggr4** ?

Time Range Last 72 Hours



## Event investigation navigation

The Unified Manager event detail pages provide you with an in-depth look at any performance event. This is beneficial when investigating performance events, when troubleshooting, and when fine-tuning system performance.

Depending on the type of performance event, you might see one of two types of event detail pages:

- Event details page for user-defined and system-defined threshold policy events
- Event details page for dynamic threshold policy events

This is one example of an event investigation navigation.

1. In the left navigation pane, click **Events**.
2. In the Events inventory page, click the filter button and select **Performance** in the Impact Area to filter the list of events.
3. Click the name of the event that you want to investigate and the Event details page is displayed.
4. Expand any of the areas, such as Suggested Actions, to view more details about the event that may help you resolve the issue.

The screenshot shows the 'Events' page in Unified Manager. At the top, there's a header with 'Last updated: Jan 22, 2018, 11:52 AM' and a 'Refresh' button. Below the header, there's a search bar and a filter button. A filter dialog is open, showing 'Impact Area' as 'Performance'. The dialog has 'Availability', 'Capacity', and 'Performance' checkboxes, with 'Performance' checked. There are 'Add Filter', 'Reset', 'Cancel', and 'Apply Filter' buttons. Below the dialog, a table lists events. The event 'QoS Volume Max IOPS/...Threshold Breached' is highlighted with a red circle. Below the table, the event details are shown, including a description and suggested actions. A red arrow points from the highlighted event in the table to the event title in the details section.

**Events** ⓘ Last updated: Jan 22, 2018, 11:52 AM Refresh

View: \*Custom Search event data Filter Triggered time: Last 72 Hours

Assign To Acknowledge Mark as Resolved Add A

Impact Area is Availability Capacity Performance

+ Add Filter Reset Cancel Apply Filter

Triggered Time	Severity	State	Impact Level	Impact Area	Name
Jan 22, 2018, 11:34...	⊗	New	Incident	Performance	Volume Latency Critical Threshold Breached
Jan 22, 2018, 11:09...	⊗	Obsolete	Incident	Performance	Volume Latency Critical Threshold Breached
Jan 22, 2018, 10:54...	⊗	Obsolete	Incident	Performance	Volume Latency Critical Threshold Breached
Jan 22, 2018, 10:34...	⊗	Obsolete	Incident	Performance	Volume Latency Critical Threshold Breached
Jan 22, 2018, 10:29...	⚠	New	Risk	Performance	Volume Latency Critical Threshold Breached
Jan 22, 2018, 10:29...	⊗	New	Incident	Performance	Volume Latency Critical Threshold Breached
Jan 22, 2018, 10:29...	⚠	New	Risk	Performance	QoS Volume Max IOPS/...Threshold Breached
Jan 22, 2018, 10:14...	⊗	Obsolete	Incident	Performance	Volume Latency Critical Threshold Breached

**Event: QoS Volume Max IOPS/TB Warning Threshold Breached (Last Seen: Jan 22, 2018, 11:54 AM)** ⓘ View all events Actions

Description: IOPS value of 600 IOPS on policy group aQoS\_vol8 has triggered a WARNING event to identify performance problems for the workloads in this policy group.

[Diagnose this event to understand the root cause](#)

[View suggested actions to fix the problem](#)

**Event Information** ⓘ

[View detailed information for this event](#)

**System Diagnosis (Jan 12, 2018, 1:29 PM - Jan 22, 2018, 11:57 AM)** ⓘ

[Explore graphic charts to correlate key metrics along the timeline](#)

**Suggested Actions** ⓘ

[View suggested actions to fix the problem](#)

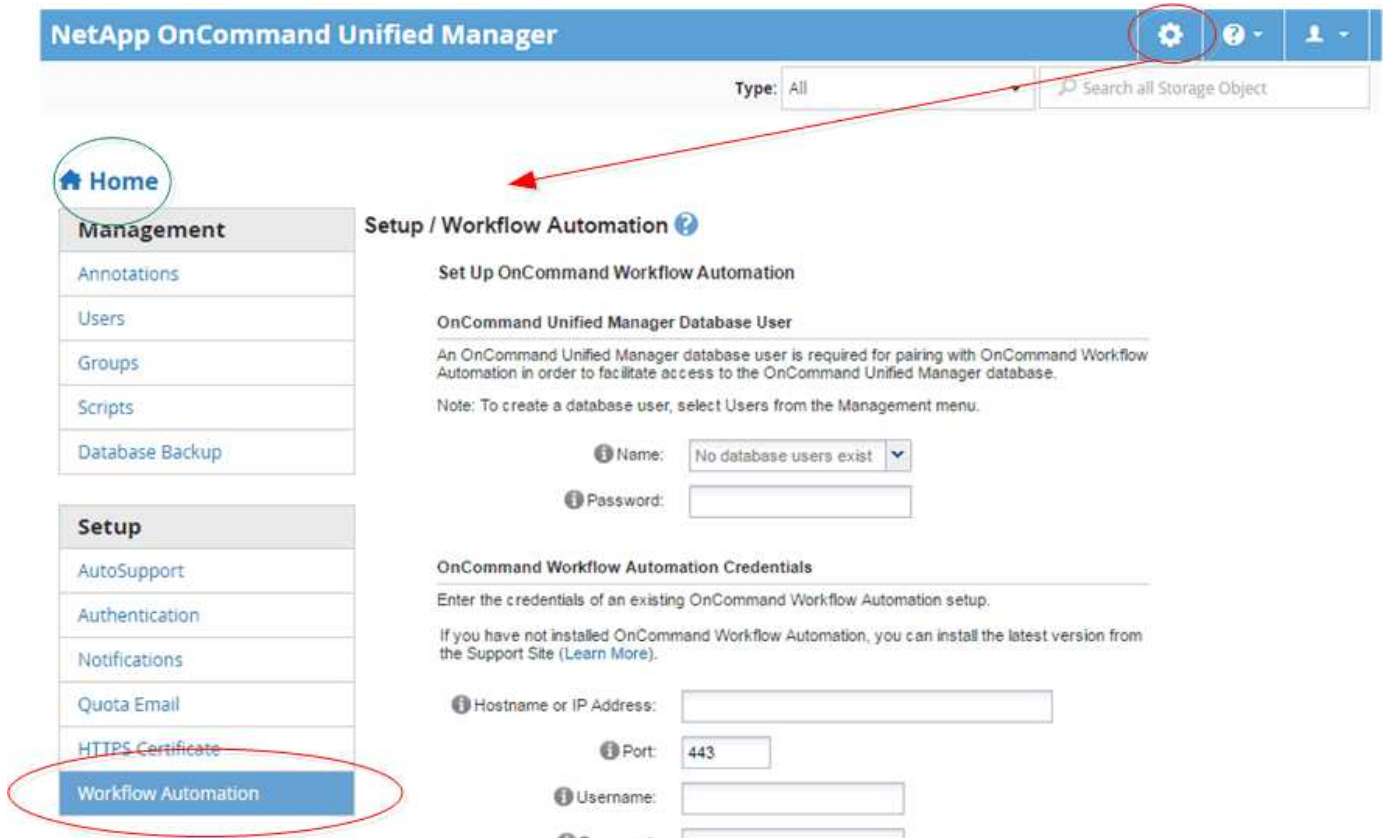
## Unified Manager administration navigation

Unified Manager administration functionality enables you to manage users and data sources. You can also accomplish setup tasks such as authentication, AutoSupport,



email, HTTPS certificates, networks, and NTP servers using the Unified Manager Administration page.

This is one example of many possible administration navigational paths. To add or remove a connection to a Workflow Automation server, follow this navigation example:



Click the **Home** icon to return to the main Unified Manager navigation page.

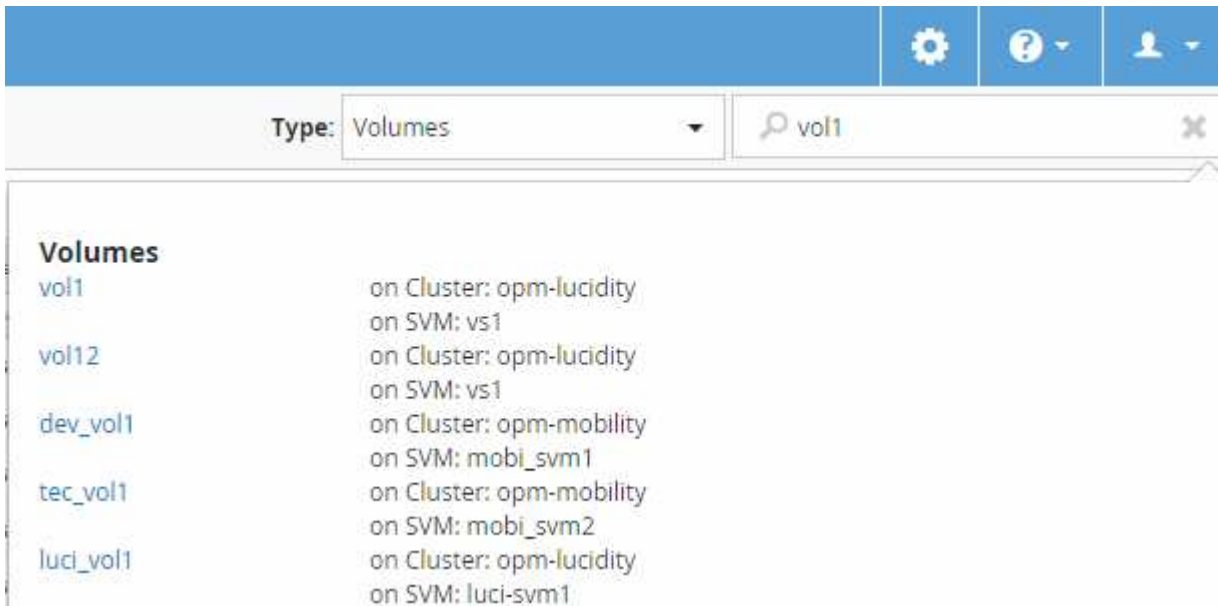
## Searching for storage objects

To quickly access a specific object, you can use the **Search all Storage Objects** field at the top-right of the interface. This method of global search across all objects enables you to quickly locate specific objects by type. Search results are sorted by storage object type and you can filter them using the **Type** drop-down menu. A valid search must contain at least three characters.

The global search displays the total number of results, but only the top 20 search results are accessible. Because of this, the global search functionality can be thought of as a shortcut tool for finding specific items if you know the items you want to quickly locate. For complete search results, you can use the search in the object inventory pages and its associated filtering functionality.

You can click the **Type** drop-down box and select **All** to simultaneously search across all objects and events. Alternatively, you can click the **Type** drop-down box to specify the object type. Type any number of characters of the object or event name into the **Search all Storage Objects** field, and then press **Enter** or click **Search All** to display the search results, such as:

- Events: performance event IDs
- Clusters: cluster names
- Nodes: node names
- Aggregates: aggregate names
- SVMs: SVM names
- Volumes: volume names
- LUNs: LUN paths



LIFs and ports are not searchable in the global search bar.

In this example, the **Type** drop-down box has the Volume object type selected. Typing “vol” into the **Search all Storage Objects** field displays a list of all volumes whose names contain these characters. For object searches, you can click any search result to navigate to that object’s Performance Explorer page. For event searches, clicking an item in the search result navigates to the Event Details page.



If the search results display several volumes with the same name, the name of the associated clusters and SVMs are not displayed.

## Filtering performance inventory page content

You can filter performance inventory data in Unified Manager to quickly locate data based on specific criteria. You can use filtering to narrow the contents of the Unified Manager pages to show only the results in which you are interested. This provides a very efficient method of displaying only the performance data in which you are interested.

### About this task

Use **Filtering** to customize the grid view based on your preferences. Available filter options are based on the object type being viewed in the grid. If filters are currently applied, an asterisk (\*) displays at the left of the Filtering control.

Four types of filter parameters are supported.

Parameter	Validation
String (text)	The operators are <b>contains</b> and <b>starts with</b> .
Number	The operators are <b>greater than</b> and <b>less than</b> .
Resource	The operators are <b>name contains</b> and <b>name starts with</b> .
Status	The operators are <b>is</b> and <b>is not</b> .

All three fields are required for each filter; the available filters reflect the filterable columns on the current page. The maximum number of filters you can apply is four. Filtered results are based on combined filter parameters. Filtered results apply to all pages in your filtered search, not just the page currently displayed.

You can add filters using the Filtering panel.

1. At the top of the page, click **Filtering**. The Filtering panel displays.
2. In the Filtering panel, click the left drop-down list, and select an object name: for example, *Cluster*, or a performance counter.
3. Click the center drop-down list, and select the boolean operator **name contains** or **name starts with** if the first selection was an object name. If the first selection was a performance counter, select **greater than** or **less than**. If the first selection was **Status**, select **is** or **is not**.
4. If your search criteria requires a numeric value, up and down arrow buttons display in the field at the right. You can click the up and down arrow buttons to display your desired numeric value.
5. If required, type your non-numeric search criteria in the text field at the right.
6. To add filters, click **Add Filter**. An additional filter field displays. Complete this filter using the process described in the preceding steps. Note that upon adding your fourth filter, the **Add Filter** button no longer displays.
7. Click **Apply Filter**. The filter options are applied to the grid and an asterisk (\*) is displayed in the Filtering button.
8. Use the Filtering panel to remove individual filters by clicking the trash icon at the right of the filter to be removed.
9. To remove all filters, click **Reset** at the bottom of the filtering panel.

## Filtering example

The illustration shows the Filtering panel with three filters. The **Add Filter** button displays when you have fewer than the maximum of four filters.

The image shows a filtering panel with three rows of filter criteria. Each row consists of a field dropdown, an operator dropdown, a value input field, and a unit dropdown. The first row has 'MBps' as the field, 'greater than' as the operator, '5' as the value, and 'MBps' as the unit. The second row has 'Node' as the field, 'name starts with' as the operator, 'test' as the value, and no unit. The third row has 'Type' as the field, 'is' as the operator, 'FCP Port' as the value, and no unit. To the right of each row is a trash icon. Below the filter rows is a '+ Add Filter' button. At the bottom right are 'Cancel' and 'Apply Filter' buttons.

MBps	greater than	5	MBps	
Node	name starts with	test		
Type	is	FCP Port		

+ Add Filter

Cancel Apply Filter

After clicking **Apply Filter**, the Filtering panel closes and applies your filters.

## Accessing OnCommand System Manager from the Unified Manager interface

When troubleshooting requires that you make configuration changes to a cluster, you can use the System Manager graphical interface instead of the ONTAP command-line interface. System Manager is included with ONTAP as a web service, it is enabled by default, and it is accessible by using a browser.

### Before you begin

You must have a cluster user account configured with the `admin` role and the `http`, `ontapi`, and `console` application types.

### Steps

1. In the left navigation pane, click **Dashboards > Cluster View**.
2. In the **Dashboards/Cluster View** page, select the cluster that you want to manage.

An overview of the monitoring status, capacity, and performance for that cluster is displayed.

3. Click the **System Manager** icon.

If the cluster uses a self-signed digital certificate, the browser might display a warning indicating that the certificate is not trusted. You can either acknowledge the risk to continue the access or install a Certificate Authority (CA) signed digital certificate on the cluster for server authentication.

4. Log in to System Manager by using your cluster administrator credentials.

If login to the System Manager user interface is protected using SAML authentication you will enter your credentials in the identity provider (IdP) login page instead of the System Manager login page.

## Adding to, and removing storage objects from, the Favorites list


You can add storage objects to a Favorites list so you can monitor the objects for health, capacity, and performance. You can use object status in the Favorites list to determine

issues and fix them before they become critical. The Favorites list also provides the most recent monitoring status of a storage object. You can remove storage objects from the Favorites list when you no longer require them to be marked as favorite.


## About this task

You can add up to 20 clusters, nodes, aggregates, or volumes to the Favorites list. When you add a node to the Favorites list, it is displayed as a cluster.


## Steps

1. Go to the **Details** page of the storage object that you want to mark as a favorite.
2. Click the star icon () to add the storage object to the Favorites list.

## Adding an aggregate to the Favorites list

1. In the left navigation pane, click **Health > Aggregates**.
2. In the Health/Aggregates inventory page, click the aggregate that you want to add to the Favorites list.
3. In the Health/Aggregate details page, click the star icon ()

## After you finish

To remove a storage object from the Favorites list, go to the Favorites list page, click the star icon () on the object card you want to remove, and then select the **Remove from Favorites** option.

## Bookmarking frequently viewed product pages

You can bookmark frequently accessed product pages from the Unified Manager UI. This enables you to quickly return to these pages. When you view the page later, it displays the latest data.

## About this task

You can also copy the link (URL) to the current product page so that you can paste it into an email, or another application, to share it with other people.

## Steps

1. Create a bookmark using whatever step is required to bookmark a page in your browser.

The link for the page is saved with details about the page, but you might want to customize the bookmark text to identify the page: for example, “Unified Manager | Node: node-01” or “Unified Manager | User-defined Threshold Event: IOPS volume1”.

## Bookmarking your favorite Help topics

In the Help Favorites tab, you can bookmark Help topics that you use frequently. Help bookmarks provide fast access to your favorite topics.

### Steps

1. Navigate to the Help topic that you want to add as a favorite.
2. Click **Favorites**, and then click **Add**.

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