

Dell EMC Unisphere 360

Version 9.0.1

Online Help (PDF version)

Copyright © 2016-2018 Dell Inc. or its subsidiaries. All rights reserved.

Published September 2018

Dell believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED "AS-IS." DELL MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. USE, COPYING, AND DISTRIBUTION OF ANY DELL SOFTWARE DESCRIBED IN THIS PUBLICATION REQUIRES AN APPLICABLE SOFTWARE LICENSE.

Dell, EMC, and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be the property of their respective owners.
Published in the USA.

Dell EMC
Hopkinton, Massachusetts 01748-9103
1-508-435-1000 In North America 1-866-464-7381
www.DellEMC.com

CONTENTS

Chapter 1	Unisphere 360	5
	Introduction.....	6
	Logging in to Unisphere 360.....	7
	Viewing list of enrolled Unisphere instances.....	8
	Enrolling a Unisphere instance.....	8
	Importing a security certificate to the server.....	10
	Unenrolling a Unisphere instance.....	10
	Re-enrolling a Unisphere instance.....	11
	Viewing the Secure Remote Services (SRS) gateway status.....	11
	Registering with the SRS gateway.....	12
	Editing an existing SRS connection.....	12
	Viewing CloudIQ data collection status.....	13
	Enabling CloudIQ data collection.....	13
	Disabling CloudIQ data collection.....	14
	Viewing Data Center view.....	14
	System Performance Health.....	14
	Capacity Trend.....	15
	Alerts.....	15
	Capacity.....	15
	Viewing the Systems level view.....	16
	Viewing the Systems details view.....	18
	Viewing serviceability information.....	19
	Filtering systems.....	19
	Launching Unisphere.....	20
	System tagging.....	22
	Tagging a single array.....	22
	Group tagging of arrays.....	25
	Unisphere system tagging.....	27
	Unisphere group tagging.....	30
	Filtering systems using tags.....	32
	Viewing list of users.....	32
	Creating a user.....	33
	Deleting a user.....	33
	Modifying a user's role.....	34
	Modifying user preferences.....	34
	Modifying user profile.....	35
	Viewing the version number.....	35
	Logging out of Unisphere 360.....	35

CONTENTS

CHAPTER 1

Unisphere 360

• Introduction.....	6
• Logging in to Unisphere 360.....	7
• Viewing list of enrolled Unisphere instances.....	8
• Enrolling a Unisphere instance.....	8
• Importing a security certificate to the server.....	10
• Unenrolling a Unisphere instance.....	10
• Re-enrolling a Unisphere instance.....	11
• Viewing the Secure Remote Services (SRS) gateway status.....	11
• Viewing CloudIQ data collection status.....	13
• Viewing Data Center view.....	14
• Viewing the Systems level view.....	16
• Viewing the Systems details view.....	18
• Viewing serviceability information.....	19
• Filtering systems.....	19
• Launching Unisphere.....	20
• System tagging.....	22
• Viewing list of users.....	32
• Creating a user.....	33
• Deleting a user.....	33
• Modifying a user's role.....	34
• Modifying user preferences.....	34
• Modifying user profile.....	35
• Viewing the version number.....	35
• Logging out of Unisphere 360.....	35

Introduction

Unisphere 360 is an on-premises management solution that provides a single management view across Unisphere systems.

Unisphere is a HTML5 web-based application that allows you to configure and manage PowerMax, VMAX All Flash, and VMAX storage systems. The term Unisphere incorporates "Unisphere for PowerMax" for the management of PowerMax and All Flash storage systems using PowerMaxOS 5978, and "Unisphere for VMAX" for the management of VMAX All Flash and VMAX storage systems using HYPERMAX OS 5977 and Enginuity 5876.

Unisphere 360 supports the following functionality:

- Enrollment - Provides functionality to add one or more Unisphere instances running 8.0 or higher to Unisphere 360 to allow for data collection and reporting of Unisphere management storage system data. A view to display a list of enrolled Unisphere instances and the storage systems they manage is provided. Unisphere instances can be enrolled and unenrolled from this view.

Note

An upgrade from version 8.2 will require a re-enrollment of all Unisphere instances currently enrolled.

- Data Center View - This view allows you to view the system performance health, capacity, alerts and capacity trends for your Data Center. The metrics are an aggregated value of all storage systems in the Data Center.
- System View - The storage system level view displays all storage systems from all enrolled Unisphere instances in the one place. The overall health score is based on the lowest health score out of the following five high level metrics: System Utilization, Configuration, Capacity, storage group (SG) Response Time, and Service Level Compliance. These five categories are for storage systems running HYPERMAX OS 5977 or higher. For storage systems running Enginuity OS 5876, the health score is based on four categories: Configuration, System Utilization, Capacity and SG Response Time. The health score is calculated every five minutes. The overall value is always calculated from all metric values. If the score is zero, it is shown as grey. That means there is no health score. The view panels can be sorted by any of these metrics. Unisphere 360 displays compliance scores for all enrolled storage systems.
 There is a different value used for the calculation of the Usable Capacity (previously Virtual Capacity) for storage systems running HYPERMAX OS 5977 or higher managed by a 9.0 Unisphere than what was used in previous versions.
 There is a different metric used for retrieving the values used for the Capacity Trend chart for storage systems running HYPERMAX OS 5977 or higher managed by a 9.0 Unisphere than what was used in previous versions.
- Systems Details View - The systems details view consists of two tabs - Performance and Capacity.
 The health panel within the Performance tab contains a chart for the overall health score as well as scores for overall health, hardware, SG response time and service level compliance. Each score has a chart showing the trend over the last 30 days.
 The metrics panel within the Performance tab contains two charts - one for IOPS and one for throughput. Each metric also has a value displaying the increase or decrease in values over the last month.

The capacity tab consists of a trend chart and a table displaying capacity information.

- Active Management - Link and launch to Unisphere instances running 8.2 or higher is supported from Unisphere 360.
- User Management - allows the display, creation, deletion and modification of Unisphere 360 users.
- Authentication support - There are three methods of authentication: Local user DB, X.509 (CAC/PIV) and LDAP/AD. The authentication authority used is determined by the system at runtime based on the system configuration and the details of the given user.
- Role-based authorization - This sets the behavior of the application depending on the role of the user that logs into the system. Users with monitor level access do not see the Settings menu option. These users are able to update their password using the profile menu on the top right of the application. Users with administrator access can see the **Settings** menu option and have full access to the Enrollment and User Management features. The user data displayed on the table can be filtered by either of the two roles types: Administrator or Monitor, and sorted alphabetically on the user name. Users with administrator access also have access to the profile menu.
- Serviceability view - This view displays details of the systems visible to Unisphere 360 and displays the current and target storage system operating system (OS) levels.

Information on the installation of Unisphere 360 can be found in the *Unisphere 360 Installation Guide* located at the [Dell EMC support website](#) or the [technical documentation page](#).

Unisphere 360 release-related information can be found in the *Unisphere 360 Release Notes* located at the [Dell EMC support website](#) or the [technical documentation page](#).

Email any feedback on this help content to [content feedback](#).

Logging in to Unisphere 360

Unisphere 360 supports three means of authentication: Local user database, X.509 (CAC/PIV) and LDAP/AD. The authentication authority used is determined by the system at runtime based on the system configuration and the details of the given user.

When the system is configured (by the installer) to use X.509 certificates authentication, the checkbox appears in the login dialog and when clicked, the system uses the browser's certificate for authentication.

When the system is configured to use regular (non-X.509) authentication, users marked as Local are authenticated using the username/password from the local database and users marked as External are authenticated using an enrolled Unisphere instance. If any Unisphere instances authenticate the user as either LDAP or AD user, the user is considered authenticated by Unisphere360 (Unisphere Local Users are not accepted).

Note that a user has to exist in the local Unisphere 360 database with roles assigned in order to be authenticated successfully. The roles from the user record in the database determine the user's permissions.

To log into Unisphere 360:

Procedure

1. Log on using one of the following:

- Standard Login
 - Enter your user name.
 - AD users sign in specifying "domain\name".
 - LDAP and local users sign in specifying "name".
 - Enter your password.
 - X.509 Login

The **Use X.509 Client Certificate** checkbox is selected.
2. Click **Login**.

Viewing list of enrolled Unisphere instances

Before you begin

To perform this operation, you must be an Administrator.

This view displays a list of enrolled Unisphere instances and the storage systems that they manage. Limited data is shown for systems managed by legacy instances of Unisphere.

Unisphere instances that above V8.0 but below the target version of V8.2.0.2 along with the systems they manage are shown with this icon:



Clicking on the row displays a message explaining that the version is below the target version.

Unsupported versions are shown with this icon:



Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Select a Unisphere instance to view its managed storage systems and their model types.

Enrolling a Unisphere instance

Before you begin

To perform this operation, you must be an Administrator.

Enrollment of Unisphere instances running 8.0 or higher is supported from Unisphere 360.

This procedure shows how to add (enroll) a Unisphere instance to Unisphere 360 in order to allow for data collection and reporting of Unisphere management storage system data.

Procedure

1. Log into Unisphere 360 and click **Settings**.

2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click  to open the enrollment wizard.
4. On page one of the wizard, select one of the following:
 - Enter the **Unisphere for PowerMax IP Address** instance.
 - Click **Add another** to add another Unisphere instance.
 - Click **Import URLs** to import Unisphere for PowerMax and/or Unisphere for VMAX instances from a .csv file.
5. Click **Continue**.
6. The certificate verification status for the endpoint you added on page one is either **Verified** or **Not Verified**. Click **Continue** to move to the next page of the wizard or click the  icon to review the certificate.
7. To achieve a verified status for the certificate you can choose to add a security exception for this endpoint. To do this, check the checkbox next to the Unisphere instance and then click **Add Security Exception**.
8. Click **OK**.
The connections are tested again and the certificate status is verified.
9. If you want to add a certificate into the Trust Store, click on the  icon to open the **View Certificate** dialog.
10. Click on a certificate to view its details.
11. To import a certificate from your server to the Trust Store, click the  icon next to the Common Name of the certificate subject, navigate to the certificate and click **Open**.
12. To download a certificate from the Unisphere 360 server to your server before importing it to the Trust Store, click the  icon next to the Common Name of the certificate subject.
13. Click **Close** to close the **View Certificate** dialog.
14. Click **OK**.
15. Click **Continue**.
16. Enter your username.
 - AD users sign in specifying "domain\name".
 - LDAP and local users sign in specifying "name".

For X.509 (CAC/PIV) users, the username field is not visible.

The username entered is for an administrator of at least one array in the enrolled Unisphere instance. This is a safety measure to ensure the enrolling user has authority over that Unisphere instance.
17. Enter your password.

For X.509 (CAC/PIV) users, the password field is not visible.

The username entered is for an administrator of at least one array in the enrolled Unisphere instance. This is a safety measure to ensure the enrolling user has authority over that Unisphere instance.

18. To add tags to this Unisphere instance, click **Apply Tags**.
The tagging dialog opens.
19. To use an existing tag, check the check-box next to the tag name and click **Apply**.
20. To create a new tag, add text in the **New Tag** field and press Enter.
The new tag is added to the list of tags and can now be associated with a Unisphere instance.
21. Click **Save** to complete the enrollment.
Progress of the enrollment is displayed - enrollment successful, enrollment failure, or in progress.
The following enrollment errors are displayed in the event of a failure:
 - Unisphere instance already enrolled
 - Failure to authenticate Unisphere instance
 - Connection failure to Unisphere instance

Importing a security certificate to the server

Before you begin

To perform this operation, you must be an Administrator.

This procedure shows how to import certificate information to the server from a locally saved .cer file using the **Import Certificate** icon. Alternatively, you can import a certificate when using the enrollment wizard.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click the **Import Certificate** icon.
4. Click **OK** to the confirmation dialog.
5. Navigate to the .cer file and click **Open**.

A dialog confirms that the certificate was successfully uploaded.

Unenrolling a Unisphere instance

Before you begin

To perform this operation, you must be an Administrator.

This procedure shows how to unenroll a Unisphere instance from Unisphere 360.

Note

Any security exceptions added on enrollment are removed after the unenroll process completes.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Select a Unisphere instance and click  to unenroll the Unisphere instance.
4. Click **OK** to confirm.

A success dialog is displayed when unenrollment completes.

Re-enrolling a Unisphere instance

Before you begin

To perform this operation, you must be an Administrator.

Re-enrollment allows users to fix an enrollment that is broken. Also, after an upgrade from version 8.2 all enrolled Unisphere instances need to be re-enrolled to re-establish trust.

Instances of Unisphere that are in a Not Trusted or Legacy State do not refresh automatically. You can manually re-enroll these endpoints.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Select a row to expand it and click the re-enroll button .
4. In the enrollment wizard that appears, follow the steps in [Enrolling a Unisphere instance](#) on page 8.

Viewing the Secure Remote Services (SRS) gateway status

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Hover over a Unisphere instance and hover over the info icon.

The **SRS** property has one the following values:

Configured

The Unisphere instance is registered with an SRS gateway.

Unconfigured

The Unisphere instance is not registered with an SRS gateway.

Registering with the SRS gateway

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Hover over an instance and the enrollment status icon becomes a checkbox. Select the checkbox.
4. Click **Configure SRS**.

The **Configure SRS** dialog box displays.

5. Type the following information:

- **SRS Gateway**

Configure the SRS gateway in the following format:

```
https://gateway:port
```

where *gateway* is the IP address or host name of the SRS gateway, and *port* is the port number. The default port number is 9443.

- **Account Login**
- **Account Password**

6. Click **OK**.

A message displays confirming the registration of the SRS gateway.

Editing an existing SRS connection

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Hover over an instance and the enrollment status icon becomes a checkbox. Select the checkbox.
4. Click **Configure SRS**.

The **Configure SRS** dialog box displays.

5. Do one of the following:

- To change the SRS gateway address, edit **SRS Gateway**.
- To change the Dell EMC Online Account details, edit one or both of the following fields:
 - **Account Login**
 - **Account Password**

- To remove the SRS connection, click **Remove SRS connection**.
6. Click **OK**.
- A message displays confirming the registration of the SRS gateway.

Viewing CloudIQ data collection status

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Hover over a Unisphere instance and hover over the info icon.

The **Send CloudIQ Data** property has one the following values:

Enabled

Collected data is being sent to CloudIQ.

Disabled

Collected data is not being sent to CloudIQ.

4. Expand a Unisphere instance to show the storage systems that are managed by the instance.
5. Hover over a storage system and hover over the info icon.

The **Collect CloudIQ Data** property has one the following values:

Enabled

Collection of CloudIQ data collection is enabled for the storage system.

Disabled

Collection of CloudIQ data collection is disabled for the storage system.

Enabling CloudIQ data collection

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Select an instance to expand it to show all of the storage systems that are managed by that instance.
4. Hover over an instance and the enrollment status icon of the instance becomes a checkbox. Select one or more checkboxes. To select all of the storage systems that are managed by an instance, select the checkbox for the instance.
5. Do one of the following:
 - To enable CloudIQ for all of the storage systems that are managed by an instance select the instance.

- Enable Cloud IQ for some of the storage systems that are managed by an instance:
6. Click **Configure CloudIQ**.
The **CloudIQ** dialog box displays.
 7. Click **Enable**.
A message displays confirming the enabling of CloudIQ data collection.

Disabling CloudIQ data collection

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading to view the list of enrolled Unisphere instances.
3. Hover over an instance and the enrollment status icon becomes a checkbox. Select one or more checkboxes.
4. Click **Configure CloudIQ**.
The **CloudIQ** dialog box displays.
5. Click **Disable**.
A message displays confirming the disabling of CloudIQ data collection.

Viewing Data Center view

Before you begin

One or more Unisphere instances must be enrolled in Unisphere 360.

To perform this task, you need a minimum of the Monitor permission.

The Data Center view gives an overall view of the status of the data center. You can view the system performance health, capacity, alerts and capacity trend for the Data Center. The metrics are an aggregated value of all storage systems in the Data Center.

Procedure

1. From the main menu, select **Data Center**.

System Performance Health

On the **System Performance Health** panel of the Data Center view:

- The number of systems with a performance health score value that is in the **Critical** range is displayed in a red circle.
- The number of systems with a performance health score value that is in the **Warning** range is displayed in a yellow circle.
- The number of systems with a performance health score value that is in the **OK** range is displayed in a green circle.
- The total number of systems being monitored is displayed above the **Total Systems** title.

Note

The **Total Systems** figure includes storage arrays managed by legacy instances of Unisphere (pre-version 8.0).

- Information about the current OS version status is displayed. The number of available OS upgrades, if any, is displayed. Clicking  results in the display of serviceability information as described in [Viewing serviceability information](#) on page 19.

Capacity Trend

Capacity trends are calculated using a minimum of ten days data, but six months of data can be used if available. Data is collected every fifteen minutes.

The **Capacity Trend** panel on the Data Center view contains the following elements:

- A graph displaying the used capacity of the data center over the last month. You can hover over a data point to view the capacity at a specific date. Each point on the graph represents the sum of all of the allocated capacities of each storage system on that day. If a storage system has not been collecting performance statistics during the last month, it is not included in the calculation.
- The percentage of average increase or decrease in capacity per month.
- A warning message if any storage systems are due to reach maximum capacity within the next 6 months. Clicking  opens the Systems view, filtered to show only the storage systems that are reaching capacity within the next month.

Alerts

The **Alerts** panel on the Data Center view contains the following elements:

- A historical graph displaying the total number of acknowledged and unacknowledged alerts at one hour intervals over the last 48 hours. Unacknowledged alert totals are listed in blue and acknowledged alert totals are listed in gray.
- A total count of unacknowledged alerts of all severity.
- A list of unacknowledged alert totals, categorized by Unisphere 360 severity:

Fatal

Indicated by a circular black icon. Displays the total number of Unisphere fatal alerts. Totals for Unisphere minor alerts are not displayed.

Critical

Indicated by a circular red icon. Displays the total number of Unisphere critical alerts.

Warning

Indicated by a circular yellow icon. Displays the total number of Unisphere warning alerts.

Capacity

The **Capacity** panel on the Data Center view contains the following elements:

- A chart displaying the used and available capacity of the data center. Used capacity displays in blue, and available capacity displays in gray. The percentage of used capacity displays in the center of the chart.
- A table displaying the Used, Available, and Total capacity, in TB, of the data center.
- A drop-down menu to select whether Virtual or Physical capacity is displayed on the chart and table.

Viewing the Systems level view

Before you begin

One or more Unisphere instances must be enrolled in Unisphere 360 and registered for statistic collections for at least one storage system.

To perform this task you need a minimum of the Monitor permission.

The storage system level view displays all storage systems from all enrolled Unisphere instances in the one place. Storage system values are displayed for the following five high level metrics: System Utilization, Configuration, Capacity, SG Response Time and Service Level Compliance.

You can sort the panels by any of these metrics by using the drop-down in the top right of the screen.

Panels are ordered with the most critical (according to selected metric) listed first.

Procedure

1. Click **Systems**.
2. View the following parameters displayed in each storage system panel.

Depending on the metric selected, some of the following items are displayed:

- Storage system ID - The serial number of the storage system.
- Storage system model - The model number of the storage system.
- The version of microcode on the storage system.
- Data chart - The information displayed in the chart depends on the selected metric.
- Capacity - Percentage of currently allocated capacity for the storage system.
- Compliance - Service level compliance data in the form of Storage group counts for each compliance state (Critical, Marginal, Stable) as well as total Storage Group count and number of Storage groups with no service level assigned.
- Performance - Current performance health score.
- Throughput - Current throughput for the system, in MB/second.
- IOPS - Current IOPS for the system.
- Efficiency - The overall efficiency ratio for the array. It represents the ratio of the sum of all TDEVs plus Snapshot sizes (calculated based on the 128K track size) and the Physical Used Storage (calculated based on the compressed pool track size).
- Connection Status - connection status to the Unisphere instance managing the storage system. The connection state in the systems view is indicated in both panel and list views by greying out the information for the system to

which the connection has been lost. In addition to this, the lost connection state is further highlighted by displaying "No connection" in the panel view in the place of the system model and the uCode version labels. The alert icon in the panel view is no longer visible and all the pop-ups for the alerts and compliance are disabled for the systems with the lost connection. In the case of sorting, the systems with the lost connection are displayed at the end of the result list. In case of filtering, the systems with the lost connection state are only included in the filter results for the system ID. An additional filter has been added to the System section of the view filter to filter systems by connection state.

Note

Although you can enroll pre-8.2 Unisphere versions (up to and including 8.0), the information shown will be limited to the storage system ID, the model and the microcode version. Clicking the array ID will not navigate the user to a details view of that system. To view more details on a system you need to upgrade to the latest version of Unisphere.

3. (Optional) To view the Unisphere alerts view, click  on any system panel and click **VIEW ALERTS**.

The  color reflects the highest severity alert for the associated storage system.

A new browser tab opens on the Alerts View of Unisphere.

Note: you can view alerts for remote storage systems and storage systems that are not registered to collect performance data.

4. (Optional) Click  to view the system view in tabular format.
-

Note

In the tabular format, pre-8.2 versions of Unisphere will be shown with grey text and a dash will indicate where information is not available.

5. (Optional) From a panel view or tabular view, click the storage system identity of the system you want to view in more detail.

Note that you cannot click the storage system ID for remote storage systems or systems that have not been registered to collect performance data.

6. (Optional) To launch Unisphere from a panel view or tabular view, click  (see [Launching Unisphere](#) on page 20).
-

Note

If the Unisphere instance that is managing the selected system is older than version 8.2, clicking the link and launch icon will direct the user to the login page of that instance.

7. (Optional) To view the Unisphere alerts view, click  on any tabular view and click **VIEW ALERTS**.

The  color reflects the highest severity alert for the associated storage system.

A new browser tab opens on the Alerts View of Unisphere.

8. (Optional) Click  to filter the panel or tabular view.

Viewing the Systems details view

Before you begin

One or more Unisphere instances must be enrolled in Unisphere 360 and registered for statistic collections for at least one storage system.

The user requires a minimum of Monitor permissions to perform this task.

Procedure

1. Click **Systems**.
2. (Optional) From a panel view or tabular view, click the storage system identity of the system you want to view in more detail.

Note that you cannot click the storage system ID for remote storage systems or systems that have not been registered to collect performance data.

3. View the information contained in the following panels in the **Performance** tab:

Health

The health panel contains the following elements:

- A chart showing the overall health score. The chart is colored red if the score value is critical, yellow if the score value is marginal, and green if the score value is stable. The overall health score is displayed in the center of the chart.
- A table displaying the current score and 30-day trend chart for the Overall, Hardware, SG Response time and Compliance health scores. The current score values are colored red, yellow or green depending on the value.

Hovering over the Compliance score shows a tool tip displaying the number of storage groups on the system and the number of storage groups that are critical, marginal, stable, and have no service level.

Metrics

The metrics panel contains the following elements:

- A chart displaying IOPS.
- A chart displaying throughput. Each metric has a value showing the increase or decrease in values over the last month.

4. View the information contained in the following panels in the **Capacity** tab:

The capacity tab consists of a trend chart and a table displaying capacity information using a bar chart.

Note

The bar chart requires at least two data points, that is, two days of data because it plots daily points) before it graphs anything. The chart components needs at least 2 points to draw the graph.

For a storage system running HYPERMAX OS 5977 or higher, the capacity tab displays SRP capacity information for the selected storage system. For all other storage systems, the capacity tab displays the storage system capacity information.

Viewing serviceability information

The serviceability view list the systems visible to the application and displays the current and target storage system operating system levels.

All columns in the serviceability view can be sorted, with the default being Target Code Level. This results in non-compliant storage system being listed at the top.

Procedure

1. Do one of the following:
 - Click **Settings** and click on the arrow in the **Serviceability** section.
 - Click **Data Center** and on the **System Performance Health** panel, hover over the  icon.
2. View the serviceability information.

The serviceability view displays a count of the number of systems available, the system model of each system, the number of systems at their target code level and the number of systems not at their target code level.

Note

Storage arrays managed by legacy instances of Unisphere (pre-version 8.0) will be displayed with **N/A** in the **Target Code Level** column.

Filtering systems

Before you begin

To perform this operation, you must be an Administrator or a Monitor.

Follow this procedure to filter systems under these categories:

- System
- Tags
- Compliance
- Capacity
- Performance
- Alerts
- Efficiency Ratio

Procedure

1. Click **Systems**.
2. Click .
3. Click the category you want to filter under.
4. Check a checkbox or checkboxes to filter based on that criteria.
5. Under **System**, you can also filter based on the array ID or name, the model or the version of HYPERMAX OS.
6. Under **Capacity** and **Efficiency Ratio**, drag the slider to choose the value you want or type the value in the text box.
7. To clear your selection, click **Clear current filter**.
8. To save your selection as the default filter, click **Save as default**.

Launching Unisphere

Before you begin

One or more Unisphere instances must be enrolled in Unisphere 360 and registered for statistic collections for at least one storage system.

The user requires a minimum of Monitor permissions to perform this task.

Link and launch to Unisphere instances running 8.2 or higher is supported from Unisphere 360.

If the Unisphere instance that is managing the selected system is older than version 8.2, link and launch will direct the user to the login page of that instance.

Note

When a new user is created, that user is then logged into Unisphere 360, and enrollment of Unisphere takes place. Note that the user must log out of Unisphere 360 and back in before attempting Link and Launch. The reason for this is that during login, Unisphere 360 checks the user against all enrollments and saves a token that is to be used for future communication with the Unisphere instance. If this token hasn't been saved for the Unisphere and Link and Launch is attempted, Link and Launch fails because of authorization errors.

To launch Unisphere, choose one or more of the following:

Procedure

1. Select System, select Compliance or Capacity, and click  from the System panel view.

A new browser tab opens on Unisphere. If the selected storage system is a storage system running HYPERMAX OS 5977 or higher, the Storage Dashboard opens. If the selected storage system is running Enginuity 5876 or higher, the Storage Groups View opens.

2. Select System, select Performance, IOPS or Throughput, and click  from the System panel view.

A new browser tab opens on the Performance View of Unisphere.

3. Select System and click  from the System tabular view.
A new browser tab opens on Unisphere. If the selected storage system is a storage system running HYPERMAX OS 5977 or higher, the Storage Dashboard opens. If the selected storage system is running Enginuity 5876 or higher, the Storage Groups View opens.
4. Select System, select a storage system, select Capacity tab, and click  .
A new browser tab opens on Unisphere. If the selected storage system is a storage system running HYPERMAX OS 5977 or higher, the Storage Dashboard opens. If the selected storage system is running Enginuity 5876 or higher, the Storage Groups View opens.
5. Select System, select a storage system, select Performance tab, and click  .
A new browser tab opens on the Performance View of Unisphere.
6. Select System, select an unregistered storage system, and click **REGISTER**.
A new browser tab opens on the Unisphere page where you can register the storage system for performance statistics.
7. Select System, select a remote storage system, and click  .
A new browser tab opens on Unisphere. If the selected storage system is a storage system running HYPERMAX OS 5977 or higher, the Storage Dashboard opens. If the selected storage system is running Enginuity 5876 or higher, the Storage Groups View opens.

Results

The following launch errors are displayed in the event of a failure:

- Failure to authenticate Unisphere instance
- Connection failure to Unisphere instance
- Link and launch communication to server failure
- Failure to find Unisphere managing this selected storage system
- Unisphere not enrolled
- Error building security environment
- Failure to build HTTP Request
- Failure sending HTTP Request to Unisphere
- HTTP Response from Unisphere is null
- User is not authenticated for this Unisphere
 - If the error is not related to enrollment, you see this message in Unisphere 360 and a new tab is opened in the browser directing you to the Unisphere login screen. You must be logged into Unisphere 360 as a user that is authenticated in Unisphere. You may need to login to Unisphere and create a valid user or have an administrator do this.
 - After enrollment, you cannot do any link and launch on the storage systems attached to this enrollment unless you log out and back in again.

System tagging

Unisphere 360 now offers the ability to identify and group storage systems by custom defined tags. Users can filter the system's view by the tags and perform all tagging operations, not only on a single system level, but also for many systems at once.

Tags are visible to all the users of the Unisphere 360 instance. However, only users with administrative privileges are allowed to manage tags (creating, deleting and renaming them). Both Administrator and Monitor users can associate or disassociate tags with selected system(s).

System tagging is available from the **Systems** view and the **Enrollment** view and also during enrollment from the **Add Endpoint** dialog.

As well as tagging on a single system level, group tagging is also available. This option is available through the **Systems List View** after selecting one or more systems in the list view and through the **Enrollment** view on the Unisphere level. It can also be achieved using the **Re-enrollment** wizard.

Tagging a single array

This section explains tagging procedures for a single array.

Creating a tag

Before you begin

To perform this operation, you must be an Administrator.

Follow this procedure to create a tag from the **System Grid View**.

Note

This procedure can also be carried out from the **System List View** by clicking the



icon.

Procedure

1. Click **Systems**.
2. Select the array you want to tag and click the  icon.
3. In the pop-up window, type a name for the new tag in the **New tag** entry field and click the **Enter** key on your keyboard.
The new tag will be listed in the tag list shown above the **New Tag** entry field.
4. Click **Apply** or **Cancel** to exit the pop-up window.

Creating and associating tags on enrollment

Before you begin

To perform this operation, you must be an Administrator.

You can create and associate tags for the systems of the Unisphere instance being enrolled using the **Enrollment** dialog.

As an alternative to the procedure below, the **Enrollment** dialog can also be opened by selecting **Settings** from the main menu, followed by the arrow next to the **Unisphere for PowerMax Instances** section. Then select the + symbol to open the dialog.

Procedure

1. Log into Unisphere 360 and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click  to open the **Enrollment** wizard.
4. On the first page of the wizard, enter the hostname you want to enroll and click .
5. Enter the username and password for that hostname.
6. Click the **Apply Tags** icon.
The Tagging dialog displays.
7. To create a new tag, add text in the **New Tag** field and hit the Enter key on your keyboard.
The new tag appears in the list of tags.
8. To associate a tag with all the systems of the Unisphere instance being enrolled, select the checkbox next to the tag name.
9. Click **Apply** to save the selections made or click **Cancel** to discard them.
10. Click **Save** to close the **Enrollment** dialog.

Applying a tag

Before you begin

To perform this operation, you must be an Administrator or a Monitor.

Follow this procedure to apply a tag from the **System Grid View**.

Note

This procedure can also be carried out from the **System List View** by clicking the



Procedure

1. Click **Systems**.
2. Select the array you want to tag and click .
3. In the pop-up window, check the checkbox(es) next to the tag(s) you want to apply to the system and click **Apply**.
The tag(s) is/are now associated with the system.

Filtering the tag list

Before you begin

To perform this operation, you must be an Administrator or a Monitor.

Follow this procedure to filter a tag from the **System Grid View**. This procedure is only applicable when the list of tags is longer than the window capacity.

Note

This procedure can also be carried out from the **System List View** by clicking the



icon.

Procedure

1. Click **Systems**.
2. Select an array and click .
3. In the pop-up window, type all or part of the tag name you're looking for in the **Find tag** input field.

The tag list will be filtered as you type.

Renaming a tag

Before you begin

To perform this operation, you must be an Administrator.

Follow this procedure to rename a tag from the **System Grid View**.

Note

This procedure can also be carried out from the **System List View** by clicking the



icon.

Procedure

1. Click **Systems**.
2. Select the array you want to tag and click .
3. In the pop-up window, click on the label of the tag you want to rename.
The tag label will change to an editable input field.
4. Rename the tag and hit the **Enter** key on your keyboard.
The new tag name will now be listed.
5. Click **Apply** or **Cancel** to exit the tagging window.

Removing a tag from a system

Before you begin

To perform this operation, you must be an Administrator or a Monitor.

Follow this procedure to remove a tag from a system using the **System Grid View**.

Note

This procedure can also be carried out from the **System List View** by clicking the



icon.

Procedure

1. Click **Systems**.
2. Select the array you want to tag and click .
3. In the pop-up window, uncheck the checkbox next to the tag you want to remove from the system and click **Apply**.

The tag is now removed from the system.

Deleting a tag**Before you begin**

To perform this operation, you must be an Administrator.

Follow this procedure to delete a tag from the **System Grid View**. This procedure can also be carried out from the **System List View** by clicking the  icon.

Note

Deleting a tag will remove that tag from all systems.

Procedure

1. Click **Systems**.
2. Select an array and click .
3. In the pop-up window, hover over the tag you want to delete and click the  icon.

A confirmation dialog will display.

4. Click **Delete** to confirm that you want to delete the tag.
The tag will be removed from the list of tags.
5. Click **Apply** or **Cancel** to exit the pop-up window.

Group tagging of arrays

This section explains the procedures for group tagging of arrays.

Creating a tag**Before you begin**

To perform this operation, you must be an Administrator.

Follow this procedure to create a tag from the **System List View**:

Procedure

1. Click **Systems**.
2. Hover over any row representing a storage array and tick the checkbox next to the system name.

The group tagging icon appears in the system's toolbar.

3. Click .
4. In the pop-up window, type a name for the new tag in the **New tag** entry field and click the **Enter** key on your keyboard.
The new tag will be listed in the tag list shown above the **New Tag** entry field.
5. Click **Apply** or **Cancel** to close the tagging window.

Applying tags

Before you begin

To perform this operation, you must be an Administrator.

Follow this procedure to apply a tag from the **System List View**:

Procedure

1. Click **Systems**.
2. Hover over any row representing a storage array(s) and tick the checkbox(es) next to the array(s) name.
The group tagging icon appears in the system's toolbar.
3. Click .
4. In the pop-up window, check the checkbox(es) next to the tag(s) you want to apply to the system(s) and click **Apply**.
The tag(s) is/are now associated with the system(s).

Filtering tags

Before you begin

To perform this operation, you must be an Administrator.

Follow this procedure to filter a tag in the **System List View**:

Procedure

1. Click **Systems**.
2. Hover over any row representing a storage array(s) and tick the checkbox(es) next to the array(s) name.
The group tagging icon appears in the system's toolbar.
3. Click .
4. In the pop-up window, type all or part of the tag name you're looking for in the **Find tag** input field.
The tag list will be filtered as you type.

Renaming tags

Before you begin

To perform this operation, you must be an Administrator.

Follow this procedure to rename a tag from the **System List View**:

Procedure

1. Click **Systems**.
2. Hover over any row representing a storage array and tick the checkbox next to the system name.

The group tagging icon appears in the system's toolbar.

3. Click 
 - 4. In the pop-up window, click on the label of the tag you want to rename.
- The tag label will change to an editable input field.
5. Rename the tag and hit the **Enter** key on your keyboard.
- The new tag name will now be listed.
6. Click **Apply** or **Cancel** to close the tagging window.

Deleting tags**Before you begin**

To perform this operation, you must be an Administrator.

Follow this procedure to delete a tag from the **System List View**:

Procedure

1. Click **Systems**.
2. Hover over any row representing a storage array and tick the checkbox next to the system name.

The group tagging icon appears in the system's toolbar.

3. Click 
 - 4. In the pop-up window, hover over the tag you want to delete and click the  icon.

A confirmation dialog will display.

5. Click **OK** to confirm that you want to delete the tag.
- The tag will be removed from the list of tags.
6. Click **Apply** to apply the change and close the pop-up window. Click **Cancel** to discard the change.

Unisphere system tagging

This section explains how to tag a Unisphere instance.

Creating a tag for a Unisphere instance**Before you begin**

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.

2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Hover over any row representing a storage array and click .
5. In the pop-up window, type a name for the new tag in the **New tag** entry field and click the **Enter** key on your keyboard.
The new tag will be listed in the tag list shown above the **New Tag** entry field.
6. Click **Apply** or **Cancel** to close the tagging window.

Renaming a tag for a Unisphere instance

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Hover over any row representing a storage array and click .
5. In the pop-up window, click on the label of the tag you want to rename.
The tag label will change to an editable input field.
6. Rename the tag and hit the **Enter** key on your keyboard.
The new tag name will now be listed.
7. Click **Apply** or **Cancel** to close the tagging window.

Deleting a tag for a Unisphere instance

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Hover over any row representing a storage array and click .
5. In the pop-up window, hover over the tag you want to delete and click the  icon.
A confirmation dialog will display.
6. Click **Delete** to confirm that you want to delete the tag.
The tag will be removed from the list of tags.
7. Click **Apply** or **Cancel** to close the tagging window.

Applying a tag for a Unisphere instance

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Hover over any row representing a storage array and click .
5. In the pop-up window, check the checkbox(es) next to the tag(s) you want to apply to the system and click **Apply**.

The tag(s) is/are now associated with the system.

Removing a tag for a Unisphere instance

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Hover over any row representing a storage array and click .
5. In the pop-up window, uncheck the checkbox(es) next to the tag(s) you want to remove from the system and click **Apply**.

The tag(s) is/are now removed from the system.

Filtering the tag list for a Unisphere instance

Before you begin

To perform this operation, you must be an Administrator or a Monitor.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Hover over any row representing a storage array and click .
5. In the pop-up window, type all or part of the tag name you're looking for in the **Find tag** input field.

The tag list will be filtered as you type.

Unisphere group tagging

This section explains Unisphere group tagging.

Creating Unisphere group tags

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Click  on the Unisphere instance row to group tag all systems associated with that instance.
5. In the pop-up window, type a name for the new tag in the **New tag** entry field and click the **Enter** key on your keyboard.
The new tag will be listed in the tag list shown above the **New Tag** entry field.
6. Click **Apply** to save the change or click **Cancel** to discard it.

Renaming Unisphere group tags

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Click  on the Unisphere instance row to group tag all systems associated with that instance.
5. In the pop-up window, click on the label of the tag you want to rename.
The tag label will change to an editable input field.
6. Rename the tag and hit the **Enter** key on your keyboard.
The new tag name will now be listed.
7. Click **Apply** or **Cancel** to close the tagging window.

Deleting Unisphere group tags

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.

3. Click on any row that represents a Unisphere instance.
4.  Click  on the Unisphere instance row to see the tags associated with that instance.
5. In the pop-up window, hover over the tag you want to delete and click the  icon.
A confirmation dialog will display.
6. Click **Delete** to confirm that you want to delete the tag.
The tag will be removed from the list of tags.
7. Click **Apply** or **Cancel** to close the tagging window.

Applying Unisphere group tags

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4.  Click  on the Unisphere instance row to group tag all systems associated with that instance.
5. In the pop-up window, check the checkbox next to the tag you want to apply to the system and click **Apply**.
The tag is now associated with the system.

Removing Unisphere group tags

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4.  Click  on the Unisphere instance row to see the tags associated with that instance.
5. In the pop-up window, uncheck the checkbox next to the tag you want to remove from the system and click **Apply**.
The tag is now removed from the system.

Filtering Unisphere group tags

Before you begin

To perform this operation, you must be an Administrator.

Procedure

1. Log into **Unisphere 360** and click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click on any row that represents a Unisphere instance.
4. Click  on the Unisphere instance row to see the tags associated with that instance.
5. In the pop-up window, type all or part of the tag name you're looking for in the **Find tag** input field.

The tag list will be filtered as you type.

Filtering systems using tags

Before you begin

To perform this operation, you must be an Administrator or a Monitor.

Follow this procedure to filter systems using the tags applied to them.

Procedure

1. Click **Systems**.
2. Click .
The filter sections will be displayed.
3. Select the **Tags** section.
4. Check the checkbox next to a tag to filter systems based on that tag. To remove the filter, uncheck the checkbox.
5. Check the **All Tags** checkbox to view all systems that have a tag applied.
6. To clear your selection, click **Clear current filter**.
7. To save your selection as the default filter, click **Save as default**.

Viewing list of users

Before you begin

To perform this operation, you must be an Administrator.

The user list view displays a list of all users in the system as well as their role and type (local or remote). Users can have two roles: Administrator and Monitor.

To view a list of users:

Procedure

1. Click **Settings**.
2. Click the arrow next to the **Users and Roles** heading.
3. View the list of users, their role and their type.
4. Optional: Hover over the user to modify the user role(s).
5. Optional: Filter the list based on the following criteria: All Users, Administrator, or Monitor.
6. Optional: Click  to sort user names or roles in alphabetical order.

7. Optional: Click  again to sort user names or roles in reverse alphabetical order.

Creating a user

Before you begin

Unisphere 360, similarly to Unisphere, requires an Initial Setup User (ISU) to bootstrap the application usage. Upon installation, the system creates a user (by default, this user has the credentials of admin/admin). The created ISU has an Administrator role assigned to it. After logging in for the first time, it's recommended that the user changes the default credentials (or creates another Admin user and deletes the ISU altogether).

In the case of X.509 authentication, the user is prompted by the installer to enter the ISU name (to match the one on their smart card). There is no password in this case.

To perform this operation, you must be an Administrator.

To create a user:

Procedure

1. Click **Settings**.
2. Click the arrow next to the **Users and Roles** heading.
3. Click .
4. Enter the following:
 - **Type** - Local or External. Local users are authenticated using the local database. External users are authenticated from an instance of Unisphere.
 - **Name** - User name. For external users, the name of the user must be entered as it appears when logging into Unisphere. When creating external users, the names should adhere to the following standard: "domain.com \name" for LDAP and AD users, and "name" for local or X509 users. AD external users log on as "domain \name" and LDAP users log on as "name". Local or X509 users log on as "name".

Note

If the user is created that does not follow this standard, the user will not be able to authenticate.

 - Local user: **Description** - Description of user.
 - Local user: **Password** - User password.
 - Local user: **Confirm Password** - User password confirmation.
5. Select the appropriate role(s).
At least one role has to be selected.
6. Click **SAVE**.

Deleting a user

Before you begin

To perform this operation, you must be an Administrator.

The system prevents the last administrator from being deleted.

To delete a user:

Procedure

1. Click **Settings**.
2. Click the arrow next to the **Users and Roles** heading.
3. View the list of users and their roles.
4. Hover on a user from the list.
5. Click .
6. Optional: Click **UNDO** immediately to undo the delete operation.

Modifying a user's role

Before you begin

To perform this operation, you must be an Administrator.

After modifying user roles, at least one user needs to be an Administrator.

To modify a user's role:

Procedure

1. Click **Settings**.
2. Click the arrow next to the **Users and Roles** heading.
3. View the list of users and their roles.
4. Hover and click on a user from the list.
5. Select the appropriate role(s).
At least one role has to be selected.
6. Click **SAVE**.

Modifying user preferences

Users can configure timeout settings for their session under user preferences. They can also save a default view which will be loaded on startup. The current view can also be set as the default view by clicking the star icon on the main toolbar.

Procedure

1. To configure your timeout settings and/or set a default view, click  on the navigation bar.
2. Click **Preferences**.
3. In the **Modify User Preferences** dialog, choose your preferred timeout settings from the **Current Session Timeout** drop-down menu.
4. In the same dialog, choose your preferred default view from the **Default View** drop-down menu.
5. Click **Save**.

Modifying user profile

Users can modify their passwords:

Procedure

1. Click  on the navigation bar.
2. Click **User Profile**.
3. Enter your new password.
4. Confirm your new password.
5. Click **SAVE**.

Viewing the version number

To view the version number of the product:

Procedure

1. Click  on the navigation bar.
2. Click **About**.

The product version number is displayed.

Logging out of Unisphere 360

To log out of Unisphere 360:

Procedure

1. Click  on the navigation bar.
2. Click .
3. Click **OK** to confirm logout.
4. Close the browser to complete the logout.

