

Dell EMC Unisphere 360

Version 9.1.0

Online Help (PDF version)

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Unisphere 360

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Introduction

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

Unisphere is an 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, or higher, requires 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 six high level metrics: Compliance, Capacity, Health Score, Throughput, IOPS, and Efficiency.. These five categories are for storage systems running PowerMaxOS or HYPERMAX OS. For storage systems running Enginuity 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 gray. 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.

- 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 value 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 system determines the most appropriate authentication authority at runtime, based on the system configuration and the details of the given user.
- Role-based authorization - Sets the behavior of the application depending on the role of the user that logs in to 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. You can filter the user data that is displayed on the table 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 - Displays details of the systems visible to Unisphere 360 and displays the current and target storage system OS levels.

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

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Logging in to Unisphere 360

About this task

Unisphere 360 supports three means of authentication: Local user database, X.509 (CAC/PIV), and LDAP/AD. The system determines the most appropriate authentication authority 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 who are marked as Local are authenticated using the username/password from the local database and users who are marked as External are authenticated using an enrolled Unisphere instance. If any Unisphere instances authenticate the user as either an 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 that are assigned in order to be authenticated successfully. The roles from the user record in the database determine the user's permissions.

Procedure

1. Log in 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 complete this task, you must be an Administrator.

About this task

This view displays a list of enrolled Unisphere instances and the storage systems that they manage. Limited data is shown for systems that are managed by legacy instances of Unisphere. Unisphere instances that are above V8.0 but below the target version, along with the systems they manage, are shown with this icon:



Selecting 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 complete this task, you must be an Administrator.

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

About this task

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


Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. To open the enrollment wizard, click .
4. On page one of the wizard, select one of the following:
 - Enter the **Unisphere for PowerMax IP Address** instance.
 - To add another Unisphere instance, click **Add another**.
 - To import Unisphere for PowerMax and/or Unisphere for VMAX instances from a .csv file, click **Import URLs**.
5. Click **Continue**.
6. The certificate verification status for the endpoint you added on page one is either **Verified** or **Not Verified**. To move to the next page of the wizard, click **Continue** or to review the certificate, click .
7. To achieve a verified status for the certificate you can choose to add a security exception for this endpoint. To complete this task, 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  .

The **View Certificate** dialog opens.

10. To view the details of a certificate, click it.

11. To import a certificate from your server to the Trust Store, click  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  next to the Common Name of the certificate subject.

13. Click **Close**.

The **View Certificate** dialog closes.

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 that is entered is for an administrator of at least one array in the enrolled Unisphere instance. This behavior is a safety measure to ensure that 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 that is entered is for an administrator of at least one array in the enrolled Unisphere instance. This behavior is a safety measure to ensure that 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 checkbox next to the tag name and click **Apply**.

20. To create a 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. To complete the enrollment, click **Save**.

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 complete this task, you must be an Administrator.

About this task

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 complete this task, you must be an Administrator.

About this task

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 to the right of 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 complete this task, you must be an Administrator.


About this task

Re-enrollment allows users to fix an enrollment that is broken.

After an upgrade from version 8.2 all enrolled Unisphere instances must 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 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 complete this task, you must be an Administrator.

About this task

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 complete this task, you must be an Administrator.

About this task

Procedure

1. Click **Unisphere for PowerMax Instances > Settings**.
2. Click **Configure SRS**.

The **Configure SRS** dialog box appears.

3. In the **SRS Gateway Registered Endpoints** list, select the checkbox for the appropriate Unisphere instance.

The list of Unisphere instances is filtered to display only those running supported versions of Unisphere.

4. 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**
5. Click **OK**.

Editing an existing SRS connection

Before you begin

To complete this task, you must be an Administrator.

About this task

Procedure

1. Click **Settings > Unisphere for PowerMax Instances**.
2. Click **Configure SRS**.
The **Configure SRS** dialog box displays.
3. 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, in the **SRS Gateway Registered Endpoints** list, clear the checkbox beside the Unisphere instance.
4. Click **Save**.

Viewing CloudIQ data collection status

Before you begin

To complete this task, you must be an Administrator.

About this task

Procedure

1. Click **Settings > Unisphere for PowerMax Instances**.
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 complete this task, you must be an Administrator.

About this task**Procedure**

1. Click **Settings > Unisphere for PowerMax Instances**.
2. Click **Configure CloudIQ**.

The **Configure CloudIQ** dialog box displays.

3. In the **CloudIQ Enabled Arrays** list, click the arrow beside the Unisphere instance to view the storage system managed by that Unisphere. Select one or more Unisphere instances, one or more storage systems, or a combination of both.

The list of Unisphere instances is filtered to display only those running supported versions of Unisphere.

4. Select the **Send collected data to CloudIQ** checkbox.
5. Click **Save**.

Disabling CloudIQ data collection

Before you begin

To complete this task, you must be an Administrator.

About this task**Procedure**

1. Click **Settings > Unisphere for PowerMax Instances**.
2. Click **Configure CloudIQ**.

The **Configure CloudIQ** dialog box displays.

3. In the **CloudIQ Enabled Arrays** list, clear the checkbox beside any Unisphere instances, or individual storage systems for which you want to disable CloudIQ data collection.
4. Click **Save**.

Retrieving and applying settings files

You can retrieve (export) a system settings file (in ZIP file format) from a storage array and then apply (import) this file, or another settings file, into one or more storage arrays managed by Unisphere.

For retrieving and applying setting files, the Unisphere instances that are involved must be V9.1, or higher. When you select the instance from which to retrieve or apply a settings file, any enrolled instances running a Unisphere version lower than V9.1 are disabled and cannot be selected.

Retrieving a settings file

Before you begin

To complete this task, you must be an Administrator.

About this task

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
The list of enrolled Unisphere instances is displayed.
3. Click **Transfer Settings > Retrieve**.
4. In the **Retrieve Settings** dialog box, select a storage array.
The list of storage arrays is filtered to show only those running Unisphere V9.1, or higher.
5. Select one or more settings to export.
6. Type and confirm a password for the secure settings file.
7. Click **OK**.

A settings ZIP file that is secured with the password is downloaded in the browser.

Applying a settings file

Before you begin

To complete this task, you must be an Administrator.

About this task

Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
The list of enrolled Unisphere instances is displayed.
3. Click **Transfer Settings > Apply**.
4. In the **Apply Settings** dialog, select the storage arrays to which you want to apply the settings.
The list of storage arrays is filtered to show only those running Unisphere V9.1, or higher.
5. Click **Choose file**.
6. In the **Open** dialog box, browse to the settings ZIP file that you want to import. Click **Open**.
7. In the **Password** field, type the password that was used to secure the settings ZIP file when it was exported.

The settings ZIP file is checked to ensure that it is valid.

8. (Optional) Clear the checkbox beside individual settings if you do not want to import them.
9. Click **OK**.

Viewing Data Center view

Before you begin

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

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

About this task



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 that are 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, which is 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 complete this task you need a minimum of the Monitor permission.

About this task

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 that are 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 that is 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 - The 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 dimming the information for the system to which the connection has been lost. In addition, 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 that is shown is limited to the storage system ID, the model, and the microcode version. Clicking the array ID does not display a details view of that system. To view more details on a system, 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) To view the system view in tabular format, click .


 **Note:** In the tabular format, pre-8.2 versions of Unisphere appear in gray text and a dash indicates that information is not available.


- (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.


- (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 displays the login page of that instance.

- (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.

- (Optional) To filter the panel or tabular view, click .

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.

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

About this task

Procedure

- Click **Systems**.
- (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.

- View the information that is 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:

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

4. View the information that is 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 need at least 2 points to draw the graph.

For a storage system running PowerMaxOS or HYPERMAX OS, 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

About this task


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 behavior results in non-compliant storage systems being listed at the top.

Procedure

1. Do one of the following:
 - Click **Settings** and click 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 that are managed by legacy instances of Unisphere (pre-version 8.0) show **N/A** in the **Target Code Level** column.

Filtering systems

Before you begin


To complete this task, you must be an Administrator or a Monitor.

About this task

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 that you want to apply the filter.
4. Select one or more 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 PowerMaxOS or 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.

To complete this task, you need a minimum of Monitor permissions.


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 displays the login page of that instance.


 **Note:** When a user is created, that user is then logged in to 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 has not been saved for the Unisphere, and Link and Launch is attempted, then, Link and Launch fails because of authorization errors.

About this task


You can launch Unisphere in any of the following ways:

- 1. Select **System**.
- 2. Select **Compliance** or **Capacity**.
- 3. Click  from the **System** panel view.


A new browser tab opens on Unisphere. If the selected storage system is a storage system running PowerMaxOS or HYPERMAX OS, the **Storage** dashboard opens. If the selected storage system is running Enginuity 5876 or higher, the **Storage Groups** view opens.

- 1. Select **System**.
- 2. Select **Performance**, **IOPS**, or **Throughput**.
- 3. Click  from the **System** panel view.


A new browser tab opens on the **Performance** view of Unisphere.

- 1. Select **System**.
- 2. Click  from the System tabular view.

A new browser tab opens on Unisphere. If the selected storage system is a storage system running PowerMaxOS or HYPERMAX OS, the **Storage** dashboard opens. If the selected storage system is running Enginuity 5876 or higher, the **Storage Groups** view opens.

- 1. Select **System**.
- 2. Select a storage system.
- 3. Select the **Capacity** tab.
- 4. Click .


A new browser tab opens on Unisphere. If the selected storage system is a storage system running PowerMaxOS or HYPERMAX OS, the **Storage** dashboard opens. If the selected storage system is running Enginuity 5876 or higher, the **Storage Groups** view opens.

- 1. Select **System**.
- 2. Select a storage system.
- 3. Select the **Performance** tab.
- 4. Click .

A new browser tab opens on the **Performance** view of Unisphere.

- 1. Select **System**.
- 2. Select an unregistered storage system.
- 3. Click **Register**.

A new browser tab opens on the Unisphere page where you can register the storage system for performance statistics.

- 1. Select **System**.
- 2. Select a remote storage system.
- 3. Click .

A new browser tab opens on Unisphere. If the selected storage system is a storage system running PowerMaxOS or HYPERMAX OS, 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 in to 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 create the user.
 - After enrollment, you cannot do any link and launch on the storage systems that are attached to this enrollment until you log out and back in again.

System tagging

In Unisphere 360, you can identify and group storage systems by custom defined tags. You can filter the system view by the tags and perform all tagging operations on a single system level or for many systems at once.

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

System tagging is available in the following places:

- In the **Systems** view.
- In the **Enrollment** view.
- In the **Add Endpoint** dialog during enrollment.

Group tagging is available in the following places:

- In the **Systems List View** when one or more systems are selected in the list view.
- In the **Enrollment** view at the Unisphere level.
- Using the **Re-enrollment** wizard.

Tagging a single array


This section describes tagging procedures for a single array.

Creating a tag

Before you begin

To complete this task, you must be an Administrator.

Procedure

1. Click **Systems**.
2. Select the array that you want to tag in either the grid or list view, and click the  icon.

3. In the pop-up window, type a name for the new tag in the **New Tag** entry field and press Enter.

The new tag appears in the tag list that is shown above the **New Tag** entry field.

4. To exit, click **Apply** or **Cancel**.

Creating and associating tags on enrollment

Before you begin

To complete this task, you must be an Administrator.


About this task

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 click  to open the dialog.

Procedure


1. 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 that you want to enroll and click **Next**.
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 press Enter.
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. To save the selections made, click **Apply**.
10. To close the **Enrollment** dialog, click **Save**.

Applying a tag

Before you begin

To complete this task, you must be an Administrator or a Monitor.

Procedure

1. Click **Systems**.
2. In either the System Grid View or the System List View, select the array that you want to tag and click .
3. In the pop-up window, set the checkbox for each tag that you want to apply to the system and click **Apply**.



The selected tags are now associated with the system.

Filtering the tag list

Before you begin

To complete this task, you must be an Administrator or a Monitor.

Procedure



1. In either the System Grid View or the System List View, click **Systems**.
2.  Select an array and click .
3. In the pop-up window, type all or part of the tag name that you are looking for in the **Find tag** input field.
The tag list is filtered as you type.

Renaming a tag

Before you begin

To complete this task, you must be an Administrator.

Procedure



1. In either the System Grid View or System List view, click **Systems**.
2.  Select the array that you want to tag and click .
3. In the pop-up window, click on the label of the tag that you want to rename.
The tag label becomes an editable input field.
4. Rename the tag and press **Enter**.
The new tag name appears on the list.
5. Click **Apply** or **Cancel**.

Removing a tag from a system

Before you begin

To complete this task, you must be an Administrator or a Monitor.

Procedure


1. From the either the System Grid View or the System List View, click **Systems**.
2.  Select the array you want to tag and click .
3. In the pop-up window, clear the checkbox next to the tag you want to remove from the system and click **Apply**.

Deleting a tag



Before you begin

To complete this task, you must be an Administrator.

About this task

 **Note:** Deleting a tag removes that tag from all systems.

Procedure

1. Click **Systems**.
2. In either the **System Grid** view or the **System List** view, select an array and click .
3. In the pop-up window, hover over the tag you want to delete and click . A confirmation dialog appears.
4. To confirm that you want to delete the tag, click **Delete**.
5. To exit the pop-up window, click **Apply** or **Cancel**.


Group tagging of arrays

This section describes procedures for the group tagging of arrays.

Creating a tag**Before you begin**

To complete this task, you must be an Administrator.


Procedure

1. Click **Systems**.
2. Hover over any row representing a storage array and select the checkbox next to the system name.
The group tagging icon appears in the toolbar.
3. Click .
4. In the pop-up window, type a name for the new tag in the **New Tag** field and press Enter.
5. To close the tagging window click **Apply** or **Cancel**.

Applying tags**Before you begin**

To complete this task, you must be an Administrator.

Procedure

1. Click **Systems**.
2. Hover over any row representing a storage array and select the checkbox next to the array name.
The group tagging icon appears in the toolbar.
3. Click .
4. In the pop-up window, select the checkbox for each tag that you want to apply to the selected systems and click **Apply**.


Filtering tags**Before you begin**

To complete this task, you must be an Administrator.

Procedure

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

The group tagging icon appears in the toolbar.

3. Click .
4. In the pop-up window, type all or part of the tag name that you are looking for in the **Find tag** field.

The tag list is filtered as you type.


Renaming tags**Before you begin**

To complete this task, you must be an Administrator.

Procedure

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

The group tagging icon appears in the toolbar.

3. Click .
4. In the pop-up window, click on the label of the tag that you want to rename.
5. Rename the tag and press Enter.
6. To close the tagging window, click **Apply** or **Cancel**.



Deleting tags**Before you begin**

To complete this task, you must be an Administrator.

Procedure

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

The group tagging icon appears in the toolbar.

3. Click .
4. In the pop-up window, hover over the tag that you want to delete and click .
5. To confirm that you want to delete the tag, click **OK**.
6. To apply the change and close the pop-up window, click **Apply**.

Unisphere system tagging


This section describes how to tag a Unisphere instance.

Creating a tag for a Unisphere instance

Before you begin

To complete this task, you must be an Administrator.

Procedure


1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Select any row that represents a Unisphere instance.
4. Hover over any row that represents a storage array and click .
5. In the pop-up window, type a name for the new tag in the **New tag** field and press Enter.
6. To close the tagging window, click **Apply** or **Cancel**.

Renaming a tag for a Unisphere instance

Before you begin

To complete this task, you must be an Administrator.

Procedure



1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click any row that represents a Unisphere instance.
4. Hover over any row that represents a storage array and click .
5. In the pop-up window, click on the label of the tag that you want to rename.
6. Rename the tag and press **Enter**.
7. To close the tagging window, click **Apply** or **Cancel**.

Deleting a tag for a Unisphere instance

Before you begin

To complete this task, you must be an Administrator.

Procedure


1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Click any row that represents a Unisphere instance.
4. Hover over any row that represents a storage array and click .
5. In the pop-up window, hover over the tag you want to delete and click .
6. To confirm that you want to delete the tag, click **Delete**.
7. To close the tagging window, click **Apply** or **Cancel**.

Applying a tag for a Unisphere instance

Before you begin

To complete this task, you must be an Administrator.

Procedure


1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Select any row that represents a Unisphere instance.
4. Hover over any row that represents a storage array and click  .
5. In the pop-up window, select the checkbox next to each tag that you want to apply to the system and click **Apply**.

Removing a tag for a Unisphere instance

Before you begin

To complete this task, you must be an Administrator.

Procedure


1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Select any row that represents a Unisphere instance.
4. Hover over any row that represents a storage array and click  .
5. In the pop-up window, clear the checkboxes next to the tags that you want to remove from the system and click **Apply**.

Filtering the tag list for a Unisphere instance

Before you begin

To complete this task, you must be an Administrator or a Monitor.

Procedure

1. 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 that represents a storage array and click  .
5. In the pop-up window, type all or part of the tag name that you are looking for in the **Find tag** input field.

Unisphere group tagging


This section describes Unisphere group tagging.

Creating Unisphere group tags

Before you begin

To complete this task, you must be an Administrator.

Procedure


1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Select 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** field and press Enter.
6. To save the change, click **Apply**.

Renaming Unisphere group tags

Before you begin

To complete this task, you must be an Administrator.

Procedure



1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Select 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 the label of the tag you want to rename.
6. Rename the tag and press Enter.
7. To close the tagging window, click **Apply** or **Cancel**.

Deleting Unisphere group tags

Before you begin

To complete this task, you must be an Administrator.

Procedure


1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Select any row that represents a Unisphere instance.
4. Click  on the Unisphere instance row to see the tags that are associated with that instance.
5. In the pop-up window, hover over the tag you want to delete and click  .
6. To confirm that you want to delete the tag, click **Delete**.
7. To close the tagging window, click **Apply** or **Cancel**.

Applying Unisphere group tags

Before you begin

To complete this task, you must be an Administrator.


Procedure

1. Click **Settings**.
2. Click the arrow near the **Unisphere for PowerMax Instances** heading.
3. Select 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, select the checkbox next to the tag you want to apply to the system and click **Apply**.

Removing Unisphere group tags**Before you begin**

To complete this task, you must be an Administrator.


Procedure

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

Filtering Unisphere group tags**Before you begin**

To complete this task, you must be an Administrator.


Procedure

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

Filtering systems using tags**Before you begin**

To complete this task, you must be an Administrator or a Monitor.

Procedure

1. Click **Systems**.
2. Click .

The filter sections appear.

3. Select the **Tags** section.
4. Select the checkbox next to a tag to filter systems based on that tag. To remove the filter, clear the checkbox.
5. To view all systems that have a tag applied, select the **All Tags** checkbox.
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 complete this task, you must be an Administrator.

About this task

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.

Procedure

1. Click **Settings**.
2. Click the arrow next to the **Users and Roles** heading.
3. View the list of users, their roles, and types.
4. Optional: To modify the user roles, hover over the user.
5. Optional: Filter the list based on the following criteria: All Users, Administrator, or Monitor.
6. Optional: To sort user names or roles in alphabetical order, click .
7. Optional: To sort user names or roles in reverse alphabetical order, click  again.

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 the Administrator role assigned to it. After logging in for the first time, change the default credentials (or create another admin user and delete the ISU).


In the case of X.509 authentication, the installation program prompts for the ISU name (to match the one on the smart card). There is no password in this case.

To complete this task, you must be an Administrator.

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 in to 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 in as `domain \name` and LDAP users log in as `name`. Local or X509 users log in as `name`.

 **Note:** If the user is created that does not follow this standard, the user cannot authenticate.

- Local user: **Description** - Description of user.
 - Local user: **Password** - User password.
 - Local user: **Confirm Password** - User password confirmation.
5. Select one or more roles.
 6. Click **Save**.

Deleting a user

Before you begin


To complete this task, you must be an Administrator.

The system prevents the last administrator from being deleted.

About this task

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 over a user in the list.
5. Click .
6. Optional: To undo the delete operation click **Undo** immediately.

Modifying a user's role

Before you begin

To complete this task, you must be an Administrator.

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

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 over and click a user from the list.
5. Select one or more roles.
6. Click **Save**.

Modifying user preferences

About this task


Each user can configure timeout settings for their session in the **Preferences**. You can save a default view that is loaded on startup. The current view can 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. Choose your preferred default view from the **Default View** drop-down menu.
5. Click **Save**.


Modifying the user password

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

Procedure

1. Click  on the navigation bar.
2. Click **About**.
The product version number is displayed.

Logging out of Unisphere 360

Procedure

1. Click  on the navigation bar.
2. Click .
3. To confirm logout, click **OK**.
4. To complete the logout, close the browser.

