

HP StorageWorks

EVA Web-based Operator Control Panel 2.2

user guide

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1 About this documentation

Intended audience

This document is intended for use by authorized Hewlett-Packard service engineers and customers involved in the installation, operation, and management of HP EVA4400 storage systems.

What's new

WOCP version 2.2 includes the following new or updated features.

- **HP Command View EVA access filter.** New. Specify the IP addresses of computers that are allowed to access array-based HP Command View EVA. See [Configuring access to HP Command View EVA](#).

Related documentation

To find related documents, browse to the Manuals page of the HP Business Support Center web site:

<http://www.hp.com/support/manuals>. In the Storage section, select **Disk Storage Systems > EVA Disk Arrays > HP StorageWorks 4400 Enterprise Virtual Array**.

Document conventions and symbols

Table 1 Document conventions

Convention	Element
Blue text: Table 1	Cross-reference links and e-mail addresses
Blue, underlined text: http://www.hp.com	Website addresses
Bold text	<ul style="list-style-type: none">• Keys that are pressed• Text typed into a GUI element, such as a box• GUI elements that are clicked or selected, such as menu and list items, buttons, tabs, and check boxes
<i>Italic</i> text	Text emphasis
Monospace text	<ul style="list-style-type: none">• File and directory names• System output• Code• Commands, their arguments, and argument values

Convention	Element
<i>Monospace, italic text</i>	<ul style="list-style-type: none">• Code variables• Command variables
Monospace, bold text	Emphasized monospace text

△ **CAUTION:**

Indicates that failure to follow directions could result in damage to equipment or data.

! **IMPORTANT:**

Provides clarifying information or specific instructions.

HP technical support

For worldwide technical support information, see the HP support website:

<http://www.hp.com/support>

Before contacting HP, collect the following information:

- Product model names and numbers
- Technical support registration number (if applicable)
- Product serial numbers
- Error messages
- Operating system type and revision level
- Detailed questions

Customer self repair

HP customer self repair (CSR) programs allow you to repair your StorageWorks product. If a CSR part needs replacing, HP ships the part directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your HP-authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider. For North America, see the CSR website:

<http://www.hp.com/go/selfrepair>

The WOCP contains no customer replaceable components but can be used in conjunction with the replacement of components in HP EVA4400 storage systems.

Subscription service

HP recommends that you register your product at the Subscriber's Choice for Business website:

<http://www.hp.com/go/wwalerts>

After registering, you will receive e-mail notification of product enhancements, new driver versions, firmware updates, and other product resources.

HP websites

For additional information, see the following HP websites:

- <http://www.hp.com>
- <http://www.hp.com/go/storage>
- <http://www.hp.com/support/manuals>
- <http://www.hp.com/support/downloads>

Documentation feedback

HP welcomes your feedback.

To make comments and suggestions about product documentation, please send a message to storedocsFeedback@hp.com. All submissions become the property of HP.

2 Working with the WOCP

WOCP features

The HP EVA web-based operator control panel (WOCP) is primarily intended for use by system administrators and service personnel. When you log in as an administrator, the Administrator options, Service options, and User options are available. When you log in as a user, only the User options are available.

The following menu options are available in the WOCP.

Administrator options

These options allow administrators to view and change storage system settings.

- Configure Administrator login options
- Configure controller device ports
- Configure controller host ports
- Configure network options
- Power down or restart system
- Uninitialize system
- Update management module firmware
- View detailed system information

Service options

These options allow administrators and service personnel to view detailed service logs.

- View last controller fault
- View message logs

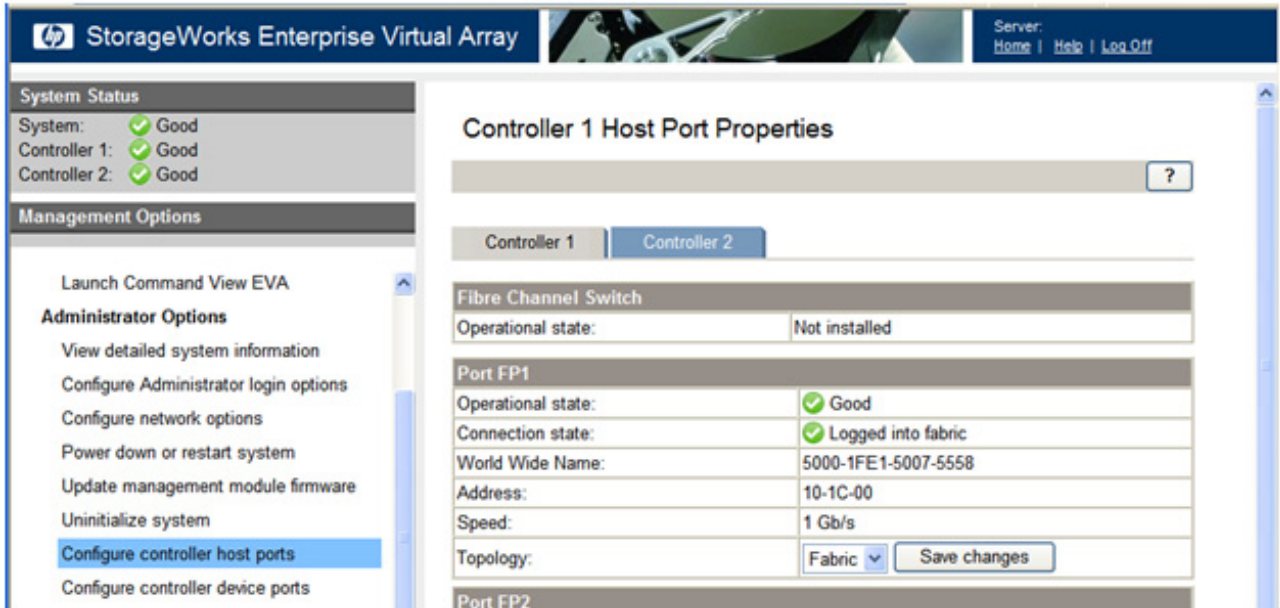
User options

The options allow users to view storage system settings and change the user login password.

- Configure User login options
- Launch Command View EVA
- View network information
- View system information

WOCP GUI

The WOCP GUI includes a persistent display of overall system status, an options selection pane, content pane, and server information.



Accessing a WOCP

Every HP EVA4400 storage system includes WOCP functionality. To access the WOCP for a given storage system, you must know the IP address of the system.

Procedure

1. Open a browser.
2. Browse to **https://HP EVA storage system IP address:2373**. The WOCP login window appears.
Example: `https://21.44.63.101:2373`
3. Log in as an HP EVA user or HP EVA administrator. (User name **user** or **admin** and [password](#). The WOCP GUI appears.)

Capturing WOCP data

You can capture data from a WOCP window and paste it into other applications.

Considerations

- You must be logged in as an HP EVA administrator.

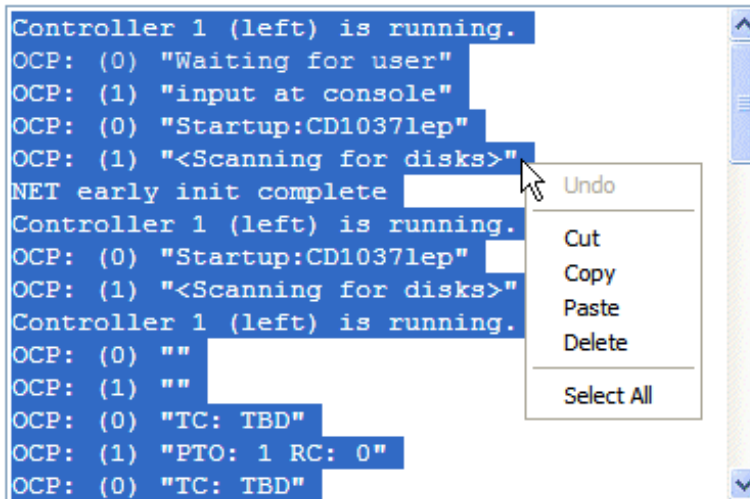
Procedure

1. Navigate to the desired window.
2. Right-click anywhere within a data text box. A menu appears.
3. Choose **Select All**. The data in the text box is highlighted.
4. Right-click again and select **Copy**. The data is copied.
5. Open a text file and paste the data.

Example

Selecting text on the View Message Logs page.

Controller 1 message log:



Configuring access to HP Command View EVA (filter list)

You can control which servers are allowed to access the array-based instance of HP Command View EVA on this storage system. This is done by creating and enabling a filter list of allowed HP Command View EVA client IP addresses.

Considerations

- You must be logged in as an HP EVA administrator.
- The HP Command View EVA client filter list can be enabled and disabled from the WOCP.
- Proxy server configuration. If the client computer is using a proxy server to access array-based HP Command View EVA, the proxy server settings in the WOCP must be configured correctly. Otherwise, the detected client IP address may not match the IP address in the list.
- DNS resolution. If the DNS server settings are not configured correctly in the WOCP, a host name that is added to the client filter list may not be resolved to the correct IP address.
- If access to the WOCP is not possible, the HP Command View EVA client filter list can be disabled by using the reset button on the management module. See [management module](#).
- Restrictions apply. See [IP address restrictions](#).

To view or change the access list:

1. Select **Administrator Options > Configure Network Options**. The Detailed Network Options page appears.
2. Click **Configure client filter**.
3. Follow the instructions on the page.

Confirming system alerts

In rare cases when a storage system is not in a normal state and requires intervention, an alert message can appear in the WOCP. Review the message and select an action.

Considerations

- You must be logged in as an administrator to see and act on the alert messages.

Procedure

1. Review the message and alternative actions.
2. Click **Yes** or **No** as appropriate.

Example

Confirm System Action

Confirm the system action described in the details below.

Details

A normal storage system has multiple quorum drives containing identical metadata that defines the structure and identity of the system. Your system has detected quorum disks with multiple, *different* system structures. You must choose one structure to continue using your system.

Click No to cease system operation, and to allow you to replace quorum drives with consistent system structures.

Click Yes to select a single structure from the multiple system structures detected, and to continue operation with degraded quorum metadata.

Yes

No

Connecting to the management module (initial setup)

This topic addresses initially setting the EVA4400 storage system IP address and connecting to the storage system [management module](#). Once set up and connected, you can browse to the WOCP. See also [Reestablishing the storage system IP address](#).

Considerations

- You cannot save changes in the management module configuration if the EVA4400 storage system is not running or has not been initialized. See [Initialization and uninitialization](#).

- You can connect to the management module through a private or public network. See [Private and public networks](#).

❗ **IMPORTANT:**

HP recommends that you connect the management module through a private network, or configure it behind a firewall or proxy server.

- You will need to access the back of the storage system. The LAN cable to the management module and the reset button are on the back of the controller enclosure. The LAN connection on the management module is MDI-X compliant and supports straight-through or crossover Ethernet cables (Cat 5e or better).
- You must be logged in as an HP EVA administrator to complete the procedure.
- Restrictions apply. See [IP address restrictions](#).

The following procedures assume that the EVA4400 storage system has already been initialized using HP SmartStart EVA Storage or HP Command View EVA.

Procedure when on a public network (initial setup)

Use this procedure when the management module is connected through a public network.

❗ **IMPORTANT:**

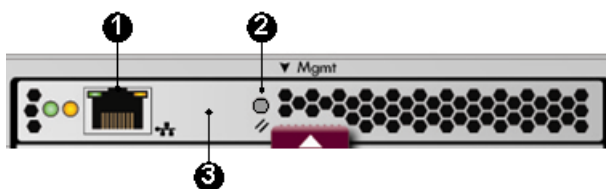
When your LAN is part of a public network, HP recommends that you temporarily disconnect from the public network while performing this procedure.

1. If currently connected, disconnect the public network LAN cable from the back of the management module in the controller enclosure.
2. Press and hold the recessed **Reset** button for 4 to 5 seconds. This sets an IP address of 192.168.0.1 in private address space. The amber indicator on the top right corner of the LAN connector (Ethernet jack) will flash momentarily when the reset operation is completed.

❗ **IMPORTANT:**

At initial setup, you cannot browse to the WOCP until you perform this step.

1. LAN connector 2. Reset button 3. Management module



3. Do one of the following:
 - Temporarily connect a LAN cable from a private network to the management module.
 - Temporarily connect a laptop computer directly to the management module using a LAN patch cable.

4. Browse to **https://192.168.0.1:2373** and log in as an HP EVA administrator. The default user name is **admin**. No **password** is required during the initial setup. The WOCP GUI appears.

❗ **IMPORTANT:**

If you change the password for the administrator or user account for the WOCP, be sure to record the new passwords since they cannot be cleared without resetting the management module.

HP recommends that you change the default passwords.

5. Select **Administrator Options > Configure Network Options**.
6. Enter a new IP address and other network settings that apply.

❗ **IMPORTANT:**

Restrictions apply. See [IP address restrictions](#).

7. Click **Save Changes**. The IP address changes immediately, causing you to lose connectivity to the WOCP.

The new IP address is stored and remains in effect, even when the storage system is later shut down or restarted.

❗ **IMPORTANT:**

The new IP address will be lost if the storage system is later uninitialized or the management module is reset.

8. Remove the LAN cable to the private network or laptop and reconnect the cable to the public network.
9. From a computer on the public network, browse to **https://new IP address:2373** and log in. The WOCP GUI appears.

Procedure when on a private network (initial setup)

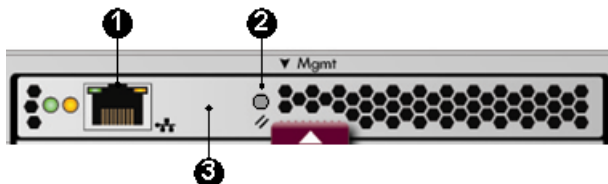
Use this procedure when the management module is connected through a private network.

1. Press and hold the recessed **Reset** button for 4–5 seconds. This sets an IP address of 192.168.0.1 in private address space. The amber indicator on the top right corner of the LAN connector (Ethernet jack) will flash momentarily when the reset operation is completed.

❗ **IMPORTANT:**

At initial setup, you cannot browse to the WOCP until you perform this step.

1. LAN connector 2. Reset button 3. Management module



2. Browse to **https://192.168.0.1:2373** and log in as an HP EVA administrator. The default user name is **admin**. No **password** is required during the initial setup. The WOCP GUI appears.

❗ **IMPORTANT:**

If you change the password for the administrator or user account for the WOCP, be sure to record the new passwords since they cannot be cleared without resetting the management module.

HP recommends that you change the default passwords.

3. Select **Administrator Options > Configure Network Options**.
4. Enter a new IP address and other network settings that apply.

❗ **IMPORTANT:**

Restrictions apply. See [IP address restrictions](#).

5. Click **Save Changes**. The IP address changes immediately, causing you to lose connectivity to the WOCP.

The new IP address is stored and remains in effect, even when the storage system is later shut down or restarted.

❗ **IMPORTANT:**

The new IP address will be lost if the storage system is later uninitialized or the management module is reset.

6. From a computer on the private network, browse to **https://new IP address:2373** and log in. The WOCP GUI appears.

Enabling disk device ports

When the storage system detects certain device errors on a [loop pair](#), the device ports are automatically disabled and the [operational state](#) is changed.

Considerations

- You must be logged in as an HP EVA administrator.

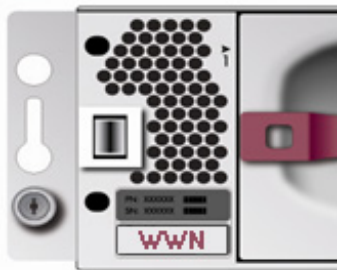
Procedure

To locate disabled ports and enable them:

1. Select **Administrator Options > Configure Controller Device Ports**
2. Select a controller and review the operational state of each loop pair.
3. If the Enable Port Pair button is displayed, correct the problem (outside of this application).
4. Return to this application and click the **Enable Port Pair** button.

Locating the storage system WWN label

1. Open the storage system door and remove the bezel from the controller enclosure.
2. The WWN label is below the serial number label on the left side.



3. Replace the bezel.

Reestablishing the storage system IP address

This topic addresses the rare cases, such as following an [uninitialization](#) or the replacement of certain components, when the WOCP may become unavailable. If browsing to the WOCP fails after these events, you may have to reestablish the IP address. See also [Connecting to the management module \(initial setup\)](#).

Considerations

- You cannot save changes in the management module configuration if the EVA4400 storage system is not running or has not been initialized. See [Initialization and uninitialization](#).
- You can connect to the management module through a private or public network. See [Private and public networks](#).

❗ **IMPORTANT:**

HP recommends that you connect the management module through a private network, or configure it behind a firewall or proxy server.

- You will need to access the back of the storage system. The LAN cable to the management module and the reset button are on the back of the controller enclosure. The LAN connection on the management module is MDI-X compliant and supports straight-through or crossover Ethernet cables (Cat 5e or better).
- You must be logged in as an HP EVA administrator to complete the procedure.

The following procedures assume that the EVA4400 storage system has already been initialized using HP SmartStart EVA Storage or HP Command View EVA.

Procedure when on a public network (reestablishing the IP address)

Use this procedure when the management module is connected through a public network.

❗ **IMPORTANT:**

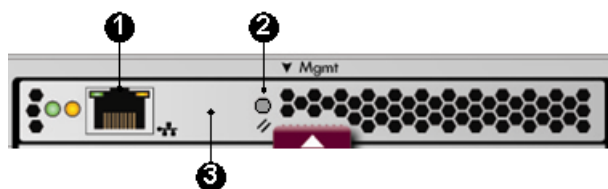
When your LAN is part of a public network, HP recommends that you temporarily disconnect from the public network while performing this procedure.

1. If currently connected, disconnect the public network LAN cable from the back of the management module in the controller enclosure.
2. Press and hold the recessed **Reset** button for 4 to 5 seconds then release it. This sets an IP address of 192.168.0.1 in private address space. The amber indicator on the top right corner of the LAN connector (Ethernet jack) will flash momentarily when the reset operation is completed.

❗ **IMPORTANT:**

If the IP address saved in memory has been lost, you cannot browse to the WOCP until you perform this step.

1. LAN connector 2. Reset button 3. Management module



3. Do one of the following:

- Temporarily connect a LAN cable from a private network to the management module.
- Temporarily connect a laptop computer directly to the management module using a LAN patch cable.

4. Browse to **https://192.168.0.1:2373** and log in as an HP EVA administrator. The default user name is **admin** and **password**. The WOCP GUI appears.

❗ **IMPORTANT:**

If you change the password for the administrator or user account for the WOCP, be sure to record the new passwords since they cannot be cleared without resetting the management module.

HP recommends that you change the default passwords.

5. Select **Administrator Options > Configure Network Options**.
6. Enter a new IP address and other network settings that apply.

❗ **IMPORTANT:**

Restrictions apply. See [IP address restrictions](#).

7. Click **Save Changes**. The IP address changes immediately, causing you to lose connectivity to the WOCP.
The new IP address is stored and remains in effect, even when the storage system is shut down or restarted.

❗ **IMPORTANT:**

The new IP address will be lost if the storage system is uninitialized or the management module is reset.

8. Remove the LAN cable to the private network or laptop and reconnect the cable to the public network.
9. From a computer on the public network, browse to **https://new IP address:2373** and log in. The WOCP GUI appears.

Procedure when on a private network (reestablishing the IP address)

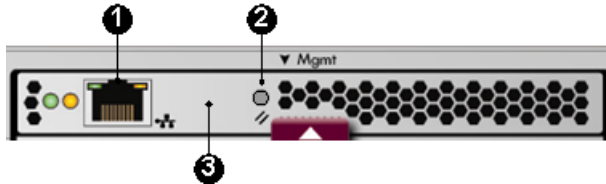
Use this procedure when the management module is connected through a private network.

1. Press and hold the recessed **Reset** button for 4 – 5 seconds, then release it. This sets an IP address of 192.168.0.1 in private address space.

❗ **IMPORTANT:**

If the IP address saved in memory has been lost, you cannot browse to the WOCP until you perform this step.

1. LAN connector 2. Reset button 3. Management module



2. Browse to **https://192.168.0.1:2373** and log in as an HP EVA administrator. The user name is **admin** and **password**. The WOCP GUI appears.
3. Select **Administrator Options > Configure Network Options**.
4. Enter a new IP address and other network settings that apply.

❗ **IMPORTANT:**

Restrictions apply. See [IP address restrictions](#).

5. Click **Save Changes**. The IP address changes immediately, causing you to lose connectivity to the WOCP.
The new IP address is stored and remains in effect, even when the storage system is shut down or restarted.

❗ **IMPORTANT:**

The new IP address will be lost if the storage system is later uninitialized or the management module is reset.

6. From a computer on the private network, browse to **https://new IP address:2373** and log in. The WOCP GUI appears.

Service option pages

WOCP service option pages include:

- View last controller fault. Review the events associated with a controller's last fault.
- View message logs. Review the log of WOCP events.

△ **CAUTION:**

These WOCP pages provide service information for storage system administrators and HP service engineers only. Performing service actions without fully understanding the information on these pages can lead to data loss or corruption.

Resetting the storage system World Wide Name

Each HP EVA storage system is assigned a unique WWN when it is manufactured. In rare cases, such as after [uninitialization](#) or replacement of certain components, you may need to reenter its WWN and checksum.

Considerations

- You must be logged in as an HP EVA administrator.
- To perform the procedure, you will need to locate the WWN label on the front of the storage system. See [Locating the WWN label](#).
- Licenses for storage system features are tied to the storage system WWN.

△ **CAUTION:**

Failure to enter the correct WWN can result in a loss of licensed features.

Procedure

To reset the World Wide Name:

1. Locate and record the WWN and checksum.
2. Select **Administrator Options > View Detailed System Information > Set WWN**
3. Follow the instructions on the page.

Searching online help

Procedure

1. In online help, select **Search**. The search pane appears.
2. Enter a term to search for and click **List Topics**. (Do not press the Enter key.) A list of topics that contain the term is displayed.
3. Click any topic in the list to display it.

Tips

Tips for using search:

- **Capitalization** (case sensitivity). Search is case sensitive. Example: searching for **cat** finds topics that contain **cat** but not **Cat** or **CAT**.

- **Word variations.** Search finds exact matches and variations. Example: searching for **cat** finds topics that contain **cat**, **cats**, and **location**.
- **Wild cards.** Search does not support wild card characters. Example: searching for **cat*** does not find topics that contain **cats** or **category**.
- **Phrases.** Search supports phrases. Example: searching for **dogs chase cats** finds topics that contain the exact phrase. Do not enclose phrases in quotes.
- **Pasting search entries.** Search supports pasting of terms. For example, to enter a complex term you can copy it from another window, right-click the search text box and select **Paste**.
- **Repeating searches.** Search maintains a search term history list. To repeat a search without retyping, double-click the search text box and select the term.

Setting the automatic loop recovery policy

A policy controls whether the storage system automatically attempts to recover from **loop pair** errors. The policy can be enabled or disabled.

Considerations

- You must be logged in as an HP EVA administrator.

Procedure

To set or view the policy:

1. Select **Administrator Options > Configure Controller Device Ports**.
2. Select a controller. The policy appears in the Automatic Loop Recovery box.
3. If necessary, change the policy and click the **Save Changes** button.

Setting host ports topology

The topology for the storage system's host ports can be set to Fabric or Direct. Fabric refers to topologies in which hosts are connected to the HP EVA storage system via t switches. Direct refers to topologies in which hosts are directly connected to the HP EVA storage system without switches. The protocol used with each topology can be Fibre Channel or iSCSI.

Considerations

- You must be logged in as an HP EVA administrator.
- Avoid an incorrect topology setting.

△ CAUTION:

An incorrect topology setting causes the HP EVA storage system to lose communication with the storage area network.

Procedure

To view or change the setting:

1. Select **Administrator Options > Configure Controller Host Ports**.

2. Select the controller. The setting appears in the Topology box.
3. If necessary, change the topology and click **Save Changes**.

Setting the storage system password

Considerations

- You must be logged in as an HP EVA administrator.
- Storage system passwords must comply with format guidelines. See [Passwords](#).

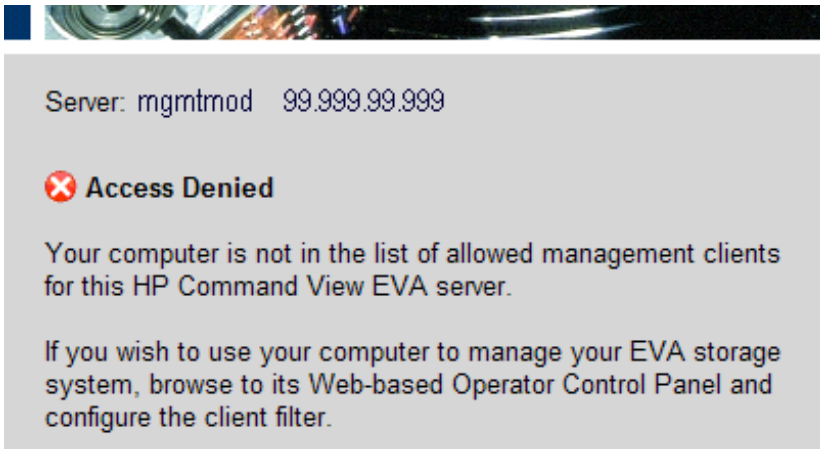
Procedure

1. Select **Administrator Options > Configure Administrator login options**. The Administrator Login Options page opens.
2. Follow the instructions on the page.

Troubleshooting access to array-based HP Command View EVA

Problem

The logon to array-based HP Command View EVA indicates *Access Denied*.



Explanation / resolution

The HP Command View EVA client filter in the WOCP is enabled and access has been denied.

1. Review the client filter list and do one of the following:
 - If the denied computer is not on the client list and you want to allow access, add the client computer's IP address to the list.
 - If you want to allow access for all computers, disable the client filter.See [Configuring access to HP Command View EVA \(filter list\)](#).
2. If the denied computer is on the list, review the following:

- a. Proxy server configuration. If the client computer is using a proxy server to access array-based HP Command View EVA, the proxy server settings must be configured correctly. Otherwise, the detected client IP address may not match the IP address in the list.
- b. DNS resolution issue. If the DNS server settings are not configured correctly in the WOCP, a host name that is added to the client filter list may not be resolved to the correct IP address.

Updating HP EVA management module firmware

HP provides updates to management module firmware, which includes WOCP functionality.

Considerations

- You must first obtain the new management module firmware file from HP.
- You must be logged in as an HP EVA administrator.
- HP recommends that you read any notes on page 2 of the installation wizard before you confirm the installation.

Procedure

1. Select **Administrator Options > Update Management Module Firmware**. The Update Management Module Firmware page opens.
2. Follow the instructions on the page.

Unbypassing disk drives

When the storage system detects certain errors, a physical disk's ports on a [loop pair](#) are disabled for I/O (*bypassed*).

Considerations

- You must be logged in as an HP EVA administrator.

Procedure

1. Select **Administrator Options > Configure Controller Device Ports**.
2. Select a controller.
3. Click **Unbypass All**.

Uninitializing a storage system

The WOCP allows storage administrators to uninitialize HP EVA storage systems. Storage administrators can also use HP Command View EVA. See also [Initialization and uninitialization](#).

Considerations

- You must be logged in as an HP EVA administrator.

△ CAUTION:

Uninitialization deletes all user data and configuration information on the storage system. If you uninitialize a storage system, you must re-initialize it before it can be used for storage again.

Procedure

1. Select **Administrator Options > Uninitialize Storage System**.
2. Follow the instructions on the page.

3 EVA storage system concepts

Controllers

A storage system contains a redundant pair of disk array controllers that manage storage system operation and serve as the physical interface to the SAN. All host I/O and management commands from HP Command View EVA are processed by the controller pair. More information on controllers is in *HP StorageWorks 4400 Enterprise Virtual Array user guide*. See [related documentation](#).

Controller type identification

HP EVA controller identification format is **HSVxxx**. The following table shows the relationship between controller types and storage system models.

Controller Hardware Type	Controller Software Type	HP EVA Models
HSV100	VCS	EVA3000
HSV110	VCS	EVA5000
HSV200	XCS	EVA4000, EVA4100, EVA6000 and EVA6100
HSV210	XCS	EVA8000 and EVA8100
HSV300	XCS	EVA4400
HSV300-S	XCS	EVA4400 with embedded Fibre Channel switch
HSV400	XCS	EVA6400
HSV450	XCS	EVA8400

Disk device ports

Disk *device ports* are the storage system ports that logically and physically connect the internal controllers with the physical disk enclosures. Device port connectors and cables are located on the back of each controller. More information is in the *HP StorageWorks 4400 Enterprise Virtual Array user guide*. See [related documentation](#).

Disk device loop pairs

Disk device port connections include two loops, *loop A* and *loop B*. Every physical disk that is inserted into a drive enclosure is automatically connected to both loops. The loops operate independently during normal operation, but provide redundant connections in case one fails. More information is in the *HP StorageWorks 4400 Enterprise Virtual Array user guide*. See [related documentation](#).

Host ports

Host ports are the storage system ports that logically and physically connect the storage system with external hosts (servers). Host port connectors and cables are located on the back of each controller. More information is in the *HP StorageWorks 4400 Enterprise Virtual Array user guide*. See [related documentation](#).

HP Command View EVA

The HP Command View EVA software suite includes the following products.

- **HP Command View EVA.** HP Command View EVA is the primary storage management software for HP EVA storage systems. The following versions are available:
 - Array-based. The array-based version of HP Command View EVA comes factory-installed on EVA4400 storage systems and manages the storage system on which it is installed. The array-based version eliminates the need for a separate management server in the SAN when only EVA4400 systems are being managed and remote replication is not required.
 - Server-based. The server-based version of HP Command View EVA is customer installed on a server in the SAN. The server-based version provides management of multiple HP EVA storage systems, regardless of model types, and when remote replication between EVA4400 systems is required.
- **HP Storage System Scripting Utility (SSSU).** This software provides comprehensive command line support, server-to-storage system communication, and tools for automating storage related tasks.
- **HP Command View EVAPerf.** This software monitors and displays HP EVA storage system performance metrics graphically in the Windows PerfMon utility, or in tabular form in a command prompt window.

Initialization and uninitialization

Initialization

Initialization makes a new storage system ready to use with your hosts. The WOCP does not include an initialization feature. Storage administrators can initialize a new storage system by using HP Command View EVA or HP SmartStart EVA Storage.

Initialization can include one or more of the following actions:

- Establishes the storage system name.
- Creates one or two default disk groups.
- Sets a disk-failure protection level (disk spares).
- Sets the storage system date and time.

Uninitialization

The WOCP allows storage administrators to uninitialize HP EVA storage systems. Storage administrators can also use HP Command View EVA.

△ **CAUTION:**

Uninitialization deletes all user data and configuration information on the storage system. If you uninitialize a storage system, you must re-initialize it before it can be used for storage again.

When a storage system is uninitialized, certain logical structures are removed and all user data is irretrievably deleted.

- All application data on the storage system is deleted and cannot be recovered.
- All presentation to hosts ends and I/O with the hosts stops.
- All source virtual disks and snapclones are deleted.
- All local replication is stopped. Snapshot and mirrorclone virtual disks are deleted.
- All remote replication is stopped. All DR groups on the storage system are deleted. All virtual disks in the DR groups are deleted. (Remote copies of the virtual disks are not deleted.)

Uninitialization followed by power down

① **IMPORTANT:**

If a storage system is uninitialized and then powered down before it is re-initialized, the management module IP address and network configuration information will be lost.

To restore this information, see [Reestablishing the storage system IP address](#).

More information on initialization and uninitialization is in the *HP StorageWorks Command View EVA user guide*. See [related documentation](#).

Internet Protocol configurations

The WOCP is designed for use with IPv4 networks.

- IP addresses on the Detailed Network Options page are specified using standard IPv4 formats.
- IP addresses on the Configure Client Filter for HP Command View EVA page can be specified using standard IPv4 and IPv6 formats and CIDR formats.

IP address formats

Format and Example	Remarks
IPv4 192.168.1.1	IPv4 IP address are generally shown in decimal notation, separated by dots (periods).
IPv4 with CIDR notation 192.168.1.1/24	
IPv6 2001:0DB8:0000:0000:0000:0000:1428:57AB	IPv6 IP addresses are generally shown in eight groups of four hexadecimal digits, separated by colons.

Format and Example	Remarks
IPv6 with compressed notation 2001:DB8::1428:57AB	
IPv6 with CIDR notation 2001:DB8::1428:57AB/9	

Classless Inter-Domain Routing (CIDR) specifies an IP address range using a combination of an IP address and a value indicating the number of 1-bits that start a mask (similar to a subnet mask), for example xxx.xxx.xxx.xxx/n (IPv4) or xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx/n (IPv6). For an IP address to be included in a CIDR notated address range, the leftmost n 1-bits in the given IP address must match the leftmost n 1-bits in the IP Address portion of the CIDR notated address.

IP address restrictions

- IP addresses 10.0.0.0 to 10.255.255.255 are not supported by the EVA4400.
- Do not use 10.0.0.1, 10.0.0.2, or 10.0.0.3 as the IP address for the [management module](#) or any device connected to the management module. These IP addresses are used by the management module.

Management module

HP EVA4400 storage systems contain a hardware component called the *management module*. The module includes an RJ45 jack for connecting the storage system to your LAN (Ethernet network). It also includes the firmware that runs the WOCP.

The management module provides access to service data via the WOCP and is always active, even when the controller enclosure is in standby mode.

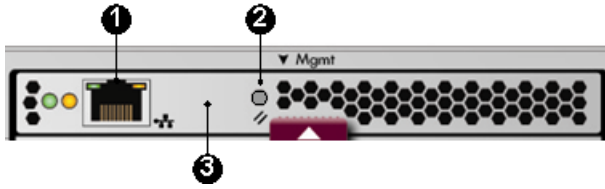
Management module reset button

The *Reset* button on the management module performs the following functions:

- Sets an IP address of 192.168.0.1 in private address space for the storage system. See [Reestablishing the storage system IP address](#).
- Sets the logon credentials (user name, [password](#)) for *both* the WOCP and array-based HP Command View EVA to their default values:
admin, blank (no password)
user, blank (no password)
- Disables the HP Command View EVA client filter list. See [Configuring access to HP Command View EVA](#).

The amber indicator on the top right corner of the LAN connector (Ethernet jack) will flash momentarily when the reset operation is completed.

1. LAN connector
2. Reset button
3. Management module



Management module firmware

Management module firmware can be updated using the WOCP. See [Updating management module firmware](#). After the files are uploaded, the firmware is automatically loaded to nonvolatile memory.

Operational states

Icon	Description
	Good. The device is operating normally.
	Attention. The device is not operating normally and may fail. Or, the device is in a transitional state that is not one of its steady states.
	Failed. The device has failed.
	Unknown. The operational state of the device is unknown.

Passwords

! IMPORTANT:

When an EVA4400 is first installed, the WOCP and storage system passwords are blank. For security purposes, HP recommends that you immediately create passwords.

Storage system password

The *storage system password* is the password that other HP management software, such as a server-based instance of HP Command View EVA, must send to be granted administrator access to the EVA4400 storage system. In the WOCP this password is also called a *management server password*.

Storage system password requirements:

- Must be 8-16 characters
- Can include the letters A to Z, in upper or lower case
- Can include the numbers 0 to 9
- Can include the special characters: ! " # \$ % & ' () * + , - . / : ; < = > ? @ [] ^ _ ' { | }
- Cannot include the special characters: ~ \
- Cannot include spaces

WOCP passwords

The *Administrator password* is the password that must be entered when logging in to the WOCP as an administrator. Administrators can view information, change settings and perform actions.

The *User password* is the password that must be entered when logging in to the WOCP as a user. Users can only view information and change the user login password.

ⓘ IMPORTANT:

If you change the password for the WOCP administrator or user accounts, be sure to record the new passwords since they cannot be cleared without resetting the management module.

Private and public networks

Because HP EVA4400 storage systems are connected to your local area network, it is important that you configure the connection properly to ensure that your HP EVA system is secure. HP recommends that you connect to a private network, or configure it behind a firewall or proxy server.

The Internet Assigned Numbers Authority (IANA) reserves the following IP address ranges for private internets:

10.0.0.0 - 10.255.255.255
172.16.0.0 - 172.31.255.255
192.168.0.0 - 192.168.255.255

See also [IP address restrictions](#).

World Wide Name (WWN)

A World Wide Node Name (WWN) is a globally unique 64-bit identifier assigned to each device in a Fibre Channel storage area network. WWNs are typically displayed as four-character hexadecimal groups. Example: 3600-5B64-C92E-2EC1.

4 Page help

Administrator options (page help)

Administrator login options

Change the password for WOCP administrator login or storage system access.

Considerations

- Storage system passwords must comply with format guidelines. See [Passwords](#).

Procedure for changing the administrator login password

Use this procedure to change the password for logging into the WOCP GUI as an administrator.

ⓘ IMPORTANT:

- If you change the password for the administrator account for the WOCP, be sure to record the new password since it cannot be cleared without resetting the management module.
- If you change the user name or password for the administrator account for the WOCP, the user name or password to logon to the administrator account for array-based HP Command View on the storage system is also changed .

-
1. Under **Administrator Login**, enter and confirm the new password.
 2. Click **Set Password**.

Procedure for changing the storage system password

Use this procedure to change the storage system's password. This is the password that other HP management software, such as a server-based instance of HP Command View EVA on a management server must send to be granted access to the EVA4400 storage system.

1. Under **Management Server Password**, enter and confirm the new password.
2. Click **Set Password**.

Configure client filter for HP Command View EVA

You can control which servers are allowed to access the array-based instance of HP Command View EVA on this storage system.

Considerations

- When the filter is enabled, only the servers in the list are allowed access.

- You can specify servers by:
 - Fully qualified domain names. Example: `server6.dogs.pets.net`.
 - IP addresses. See [IP address configurations](#).

Procedure

- Use the Add, Edit or Remove buttons to change the list.
- Enable or disable the **Enable client filter** setting as desired.
- Click **Save changes**. A confirmation window opens. Click **Yes** to save the changes.

Controller device port properties

Review the controllers [disk device port](#) properties and perform administrative procedures.

- Device ports (Loops A and B)** (enabled/disabled). If the Operational State includes an Enable Port Pair button, the storage system detected a device port error and automatically disabled the port.
- System - automatic loop recovery**. A policy controls whether the storage system automatically attempts to recover from [loop pair](#) errors.
- System • bypassed ports**. If the storage system detects certain errors, a physical disk's ports on a [loop pair](#) are disabled for I/O (*bypassed*).

Procedures

Enable port pair

- Check and fix the disk device connection (outside of this application).
- Return to this application and click **Enable Port Pair**. The state should change to good.

Disk drive loop ports - unbyypass all

- Fix or replace the bypassed physical disks (outside of this application).
- Return to this application and click **Unbypass All**. The bypasses are removed.

Automatic loop recovery • enable/disable

- Review the Automatic Loop Recovery property (enabled or disabled).
- If necessary, change the policy and click **Save changes**. The policy is immediately changed.

Properties

Device port property	Description/comments
World Wide Name	The device port World Wide Name .
Loop ID	The ID of the controller on this loop, in hexadecimal format. Example: 7C.
Operational state	If the disk device port Operational State is failed, an Enable Port Pair button appears. After you fix the port problem, click the button to re-enable the port. See operational states .

Device port property	Description/comments
ALPA	Arbitrated Loop Physical Address, in hexadecimal format. The lower the ALPA number, the higher the arbitration priority. Example: 02.
Loop position	The sequential physical position of the port within the arbitrated loop cabling.

Storage system property	Description/comments
Automatic loop recovery	The setting of the policy for automatic loop pair recovery. You can change the setting <i>enabled</i> or <i>disabled</i> and click the Save Changes button.
Disk drive loop ports	After fixing or replacing bypassed physical disks, click the Unbypass All button.

Controller host port properties

Review the controller [host port](#) properties.

- **Fibre Channel switch.** Shows whether or not an internal Fibre Channel switch is present in the controller and its state.
- **Internal host ports.** When an embedded Fibre Channel switch is present, shows the status of the internal ports to the switch.
- **Host ports (external).** When no embedded Fibre Channel switch is present, shows the port status and allows selection of topology.

Considerations

- When no embedded switch is present, ensure that you use the correct topology setting (*fabric* or *direct*).

△ CAUTION:

An incorrect topology setting causes the HP EVA storage system to lose communication with the storage area network.

Procedures

Port topology - change.

When no embedded switch is present:

1. Review the Topology property, *fabric* or *direct*.
2. If necessary, change the setting and click **Save changes**. The topology setting is immediately changed.

Properties

Fibre Channel switch property	Description/comments
Operational state	Whether an internal Fibre Channel switch is present or not and its state. See operational states .

Internal host ports property	Description/comments
These properties are displayed when an internal Fibre Channel switch is present.	
Operational state	State of the internal port (to switch). See operational states
Connection state	Whether connected or not and its state. See operational states .

Host ports property	Description/comments
These properties are displayed when no internal Fibre Channel switch is present.	
Operational state	State of the external port. See operational states .
Connection state	Whether connected or not and its state. See operational states .
World Wide Name	The host port World Wide Name .
Address	Host port address, in hexadecimal format.
Speed	Host port connection speed, in gigabytes (GB) per second.
Topology	The topology connection setting. You can change the setting <i>fabric</i> (via switch) or <i>direct</i> (no switch) and click the Save changes button.

Detailed network options

View the network settings for the management module and perform administrative procedures.

Procedure to change settings

1. Select a network property and change its value.
2. When finished, click **Save changes**.

Procedure to view or change the HP Command View EVA access list

1. Click **Configure client filter**. The page opens.
2. Follow the instructions on the page.

Properties

Hardware identification property	Description/comments
MAC address	The Media Access Control (MAC) address of the management module within the HP EVA storage system.

Management server network setting properties	Description/comments
Network node name	Computer network name of the management module within the HP EVA storage system.
IP address	Internet Protocol (IP) address of the management module, expressed in IPv4 dotted-decimal notation. Example: 12.113.42.101.
Gateway server	IP address of the subnetwork gateway server (if any), expressed in IPv4 dotted-decimal notation.
Subnet mask	Subnetwork IP address range (if any), expressed in IPv4 dotted-decimal notation.
DNS servers	IP address of domain name servers (if any), expressed in IPv4 dotted-decimal notation.
HP Command View EVA client filter	Whether the IP address filter for accessing array-based HP Command View EVA is enabled or disabled.

Detailed system information

Review the EVA storage system properties and perform administrative procedures.

Considerations

- **World Wide Name.** Each HP EVA storage system is assigned a unique WWN when it is manufactured. In rare cases, such as replacement of certain components, you may need to reenter its WWN and checksum.

Procedure

1. Click **Set WWN**. The Enter World Wide Name page appears.
2. Follow the instructions on the page.

Properties

Storage system configuration properties	Description/comments
Name	Name of the HP EVA storage system.
Initialization	Whether the storage system has been initialized or not.

Storage system configuration properties	Description/comments
World Wide Name	The device port World Wide Name .
Controller model	The storage system controller hardware type. See controllers .
RoHS compliance	A notice of compliance with Restriction of Hazardous Substances (RoHS) directives.

Operational state properties	Description/comments
Storage system	Overall operation state of the storage system. See operational states .
Controller 1 and 2	Operation state of the storage system controllers.
Management module	Operation state of the storage system management module.
Controller 1 and 2 management link	Operation state of the communication links with the storage system controllers.

Controller configuration properties	Description/comments
UUID unique half	The unique half of a controller's Universal Unique Identifier (UUID). A full UUID is a unique 128-bit identifier for devices in a network, expressed in four-character hexadecimal groups. Example: 6005-08B4-0001-4976-0001-9000-0013-000
Mastership	Whether a controller is operating as the master, or not.
Controller hardware	Controller hardware version.
Glue	Identifier for a field programmable gate array chip and firmware that interconnects (<i>glues</i>) various controller components.
PIC	Programmable Interface Controller (PIC) firmware version.
XCS version	Controller software version.
XCS build	Controller software build identifier.
Management firmware	Management module firmware version.

Enter World Wide Name

The WWN and its checksum appear on a label. See [Locating the storage system WWN label](#).

Considerations

- Licenses for storage system features are tied to the storage system WWN.

△ **CAUTION:**

Failure to enter the correct WWN can result in a loss of licensed features.

Procedure

1. Enter the World Wide Name and checksum.
2. Click **Save changes**.

Incorrect system configuration

The storage system is initialized, but is incorrectly configured.

Considerations

- **Restarting.** This action stops and restarts the storage system. This can take 4–5 minutes.

△ **CAUTION:**

The storage system will be temporarily inoperable. All I/O with hosts will stop and your data will be unavailable until the storage system is started again.

- **Uninitializing.** This action stops the storage system and uninitializes it. See [Initialization and uninitialization](#).

△ **CAUTION:**

If you uninitialize the storage system, it remains unavailable for use until you manually initialize it again using other applications.

Procedures

△ **CAUTION:**

HP recommends that you first restart the storage system. Do not uninitialize the storage system unless the restart does not correct the configuration.

Restart

- Click **Restart**.

Uninitialize

1. Click **Uninitialize**. Confirmation pages appear.
2. Confirm the action. The uninitialization begins.
3. After uninitialization is complete, use HP Command View EVA or HP SmartStart EVA Storage to re-initialize the storage system.

Shut down/power down controllers

Perform various shutdown and restart actions.

- **Restart a controller.** Stop and restart controller 1 or controller 2.

ⓘ **IMPORTANT:**

When a controller is stopped and restarted, storage system performance may be temporarily reduced.

-
- **Power off the whole system off.** Stop both storage system controllers and all physical disks, then power them down. Turn off power to the physical disks cache-backup batteries.

⚠ **CAUTION:**

When a storage system is powered off, the system becomes completely inoperable. Your data will be unavailable until the storage system is started again.

ⓘ **IMPORTANT:**

After the storage system is uninitialized, you must use HP Command View EVA or HP SmartStart EVA Storage to re-initialize it before it can be used for storage again.

-
- **Restart the management module.** Stop then automatically restart the storage system's management module operating system software. Power to the management module remains on but management of the storage system is temporarily stopped.
 - **Stop the WOCP application.** Stop running the storage system's Web-based Operator Control Panel (WOCP) software. Management of the storage system through the WOCP is stopped.

Procedures

Restart a controller

1. Select the controller to shut down and restart.
2. Click **Restart**.

Power the whole system off

1. In the **Delay** box, enter the number of minutes to delay before starting the power-off.
2. Click the **Power OFF** button. Confirmation pages appear.
3. Confirm the action. The power off sequence begins.

Restart the management module.

- Click **Restart**.

Stop the WOCP application.

- Click **Stop WOCP**.

Update management module firmware, page 1

Upload a new version of management module firmware.

Procedure

1. Enter the full path or browse to the location where the new management module firmware file is located.
2. Click **Next Step**.
 - The management module firmware file is uploaded but is not automatically installed.
 - Page 2 appears and displays important notes about the management module firmware file.

Update management module firmware, page 2

Review notes about the management module firmware file and begin installation.

Updating the management module causes the management module to stop and restart. During this process, the storage system is unavailable for management but host I/O is not affected. When the management module is stopped, this WOCP browser session will end. After the restart, the browser automatically redirects you back to the login page for the WOCP.

Considerations

- You can capture the management module firmware notes. See [capturing data](#).

Procedure

1. Review the notes.
2. If you decide not to proceed, click **Cancel**. Otherwise, click **Finish**. A notification page appears.
3. The page shows the time remaining until the storage system can be managed again. Once the installation is complete, the management module restarts.
4. If the logon page does not reappear after several minutes, re-browse to the WOCP to log in.

Service options (page help)

Controller last fault

Review the events associated with a controller's last fault. See also [capturing service data](#).

View message logs

Review the log of WOCP events. See also [capturing service data](#).

User options (page help)

Launch HP Command View EVA

Run HP Command View EVA in a separate window.

Considerations

- The default is to run the array-based version of HP Command View EVA that resides on the EVA4400 storage system.
- The remote management server option applies only if a separate management server is present in the SAN.

Procedure

1. Do one of the following:
 - Click **Use management module server**.
 - Click **Use remote management server** and enter the IP address or computer network name.
2. Click **Launch Command View EVA**. The logon window appears.
3. Enter the security credentials for accessing HP Command View EVA.

Network options

View the internet protocol settings for accessing the WOCP.

Properties

Management server network settings property	Description/comments
Network node name	Computer network name of the management module within the HP EVA storage system.
IP address	Internet Protocol (IP) address of the management module, expressed in IPv4 dotted-decimal notation. Example: 12.113.42.101.
Gateway server	IP address of the subnetwork gateway server (if any), expressed in IPv4 dotted-decimal notation.
Subnet mask	Subnetwork IP address range (if any), expressed in IPv4 dotted-decimal notation.
DNS servers	IP address of domain name servers (if any), expressed in IPv4 dotted-decimal notation.
HP Command View EVA client filter	Whether the IP address filter for accessing array-based HP Command View EVA is enabled or disabled.

System information

View the HP EVA storage system properties.

Properties

Property	Description/comments
Name	Name of the HP EVA storage system.
World Wide Name	The HP EVA storage system World Wide Name .
Controller hardware	The storage system controller hardware type. See controllers .
XCS version	The storage system controller software type and version. See controllers .
XCS build	The storage system controller software build identifier.
Management firmware	The storage system controller management module software version.

Operational state property	Description/comments
Storage system	Overall operational state of the storage system. See operational states .
Controller 1 and 2	Operational state of the respective storage system controller.
Management module	Operational state of the storage system management module.

User login options

Change the user login password. This is the password that must be entered when logging in to the WOCP as a user. See [passwords](#).

Considerations

❗ **IMPORTANT:**

- If you change the password for the user account for the WOCP, be sure to record the new password since it cannot be cleared without resetting the management module.
 - If you change the user name or password for the user account for the WOCP, the user name or password to logon to the user account for array-based HP Command View on the storage system is also changed .
-

Procedure

1. Enter the new password in the **Password** box.
2. Enter the password again in the **Confirm Password** box.

3. Click **Set Password**.

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