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# Here is Your Customized Document

## Your Configuration is:

Action to Perform - Install storage system
Storage-System Model - CX4-120
Storage Arrived In Cabinet - Yes
Initialization Host OS - Windows Server 2003
Management Tool - EMC Navisphere Manager

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Content Creation Date 2010/9/27

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# CX4 Series
# Installing CX4-120 Storage-System Hardware

If you want to install a new CX4-120 storage system, this document is for you. A new storage system is one that is *not* connected to a server or configured for storage. It is just as it was shipped to you.

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If you want to add an additional disk-array enclosure (DAE3P) to the storage system, use the **Add or replace hardware** link on the CX4 support website (**http://emc.com/cx4support**). If you want to attach a server to a storage system that is already initialized, use the **Attach server** link on the CX4 support website.

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The main topics are:

## Terminology

This document uses the following terms:

| | |
|---|---|
| SPE | A storage processor enclosure that contains two storage processors (SPs) with I/O modules. |
| DAE | A disk-array enclosure that provides storage for a DAE. Each DAE supports a maximum of 15 disks. |
| storage processor (SP) | A printed-circuit board with processors, memory modules, and control logic that manages the I/O between the server and the disk modules. |
| initialization host | A computer from which you will initialize the storage system. This host must be connected to the storage-system management ports. This computer may also be an EMC® Navisphere® *client* or *management station* (formerly known as the Navisphere off-array management station). |
| Windows server | A Windows host that is connected a storage-system's front-end data ports. |
| Navisphere® client | A host from which you manage EMC CLARiiON® storage systems. It must be on the same network as the storage-system management ports. A management host may also be a server. |

## Before you start

- ❑ For background information on the storage system, read the *Hardware and Operational Overview* and *Technical Specifications* for the storage system. You can generate a customized version of these documents using the **Plan configuration** link on the storage-system support website.
- ❑ Read the release notes for your storage system, which are available in the Technical Documentation and Advisories section on the **Powerlink**® website.
- ❑ Complete the configuration planning worksheets in the storage-system configuration planning guide or planning worksheets document. You can generate a customized version of this guide using the **Plan configuration** link on the storage-system support website.
- ❑ If you ordered a rackmount cabinet for your storage system – Review the *40U-C Cabinet Site Preparation Guide*, which shipped with the cabinet, to ensure that the site where you will install the storage system meets the site requirements. This guide is on the Interactive Installation Guide (IIG) CD that shipped with the system and is available in the Technical Documentation and Advisories section on the **Powerlink** website. Especially important is confirming that your facility has appropriate electrical wiring in place to accommodate your cabinet's power cables.
- ❑ Verify that your facility has:
  - Electrical wiring in place to accommodate your installation's power cables. To support all of the storage system's high-availability features, the cabinet must receive power from at least two separate circuits.
  - Adequate network wiring to provide each storage-system storage processor (SP) management port with a discrete Ethernet connection and IP address. The storage-system management ports can connect to either a 10/100/1000 or 1-gigabit Ethernet LAN. EMC recommends a 1-gigabit Ethernet LAN for best performance.
- ❑ Obtain the following network information from the person responsible for your network:
  - Static IP address for each SP in the storage system.

- The IPv6 global prefix and gateway for each SP if your network supports the IPv6 Internet Protocol and you want to manually configure IPv6 for the management ports.
- Subnet mask for the LAN to which you will connect the storage-system management ports.
- Default gateway for the LAN to which you will connect the storage-system management ports.

❑ Be sure you have the following:

- CAT 5 or later Ethernet network cables for storage-system management port connections (one per SP).
- A host from which you initialize the storage system. This host must be connected to the same subnet as the storage-system management ports.

## Unpacking a factory-configured storage system

1. Move the shipping carton containing the storage system to the location where you want to install it.
2. Remove the shipping material from the cabinet (Figure 1).

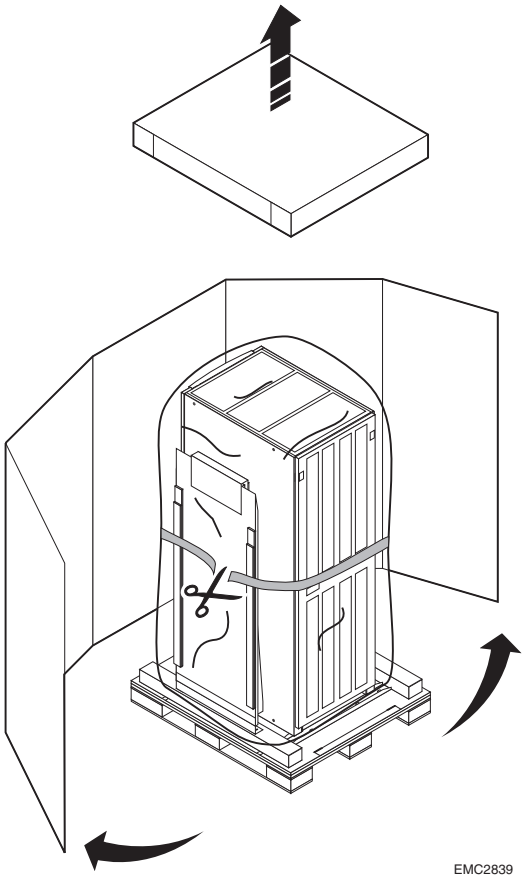


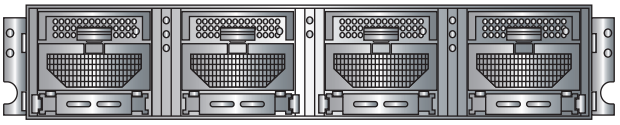
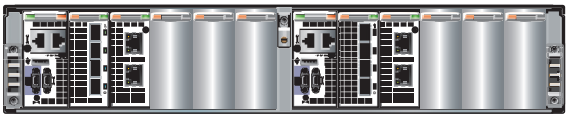
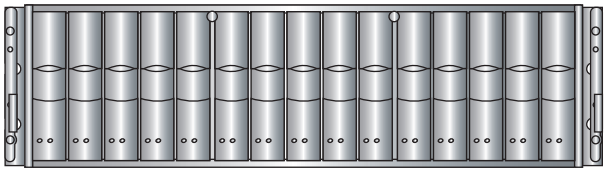
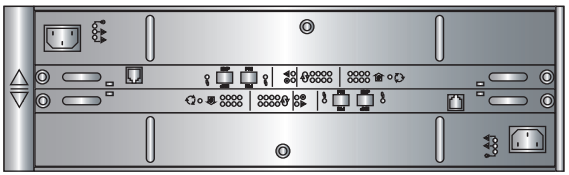
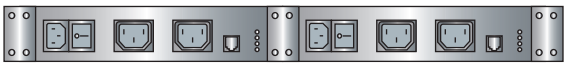

**Figure 1 Unpacking the storage-system**

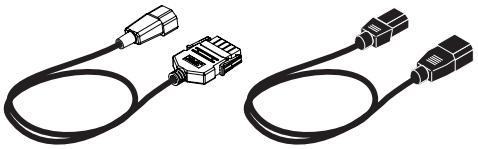
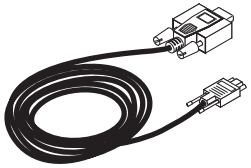
3. Locate the *40U-C Cabinet Setup Guide* on the top of the cabinet.
4. Follow the instructions in this setup guide to remove the cabinet from the ramp and set it up.

## Verifying the storage-system components

Using the information in Table 1, verify that your storage system has the basic components, which shipped in a cabinet.

**Table 1 Storage-system hardware components**

| Component | Description |
|---|---|
|  | SPE (front view) |
|  | SPE (rear view) |
|  | DAE (front view) |
|  | DAE (rear view) |
|  | One or two standby power supplies (SPS) |

| Component | Description |
|---|---|
|  | Power cord (see note)<br>1 per SPS<br>2 per SPE<br>2 per DAE |
|  | Service cable (save for troubleshooting) |

# Installing the storage-system cabinets

## Power requirements

Power distribution must support the number of outlets required for the device and the device power rating. For example, each pair of power distribution panels (PDP) in the EMC standard 40U-C cabinet can support a maximum of 24 A AC current draw from devices connected to its power distribution units (PDU). Most cabinet configurations draw less than 24 A AC power, and require only two discrete 240 V AC power sources. If the total AC current draw of all the devices in a single cabinet exceeds 24 A, the cabinet requires two additional 240 V power sources to support a second pair of PDPs. Use the published technical specifications and device rating labels to determine the current draw of each device in your cabinet and calculate the total.

For high availability, the left and right sides of any rack or cabinet must receive power from separate branch feed circuits.

## Connecting cables between cabinets

If your storage system arrived installed in more than one cabinet/rack, make any necessary cabinet-to-cabinet connections. Match the labels on disconnected cables from expansion (EXP) to empty disk enclosure PRI ports in the next cabinet and connect the cables to the PRI ports (Figure 2).

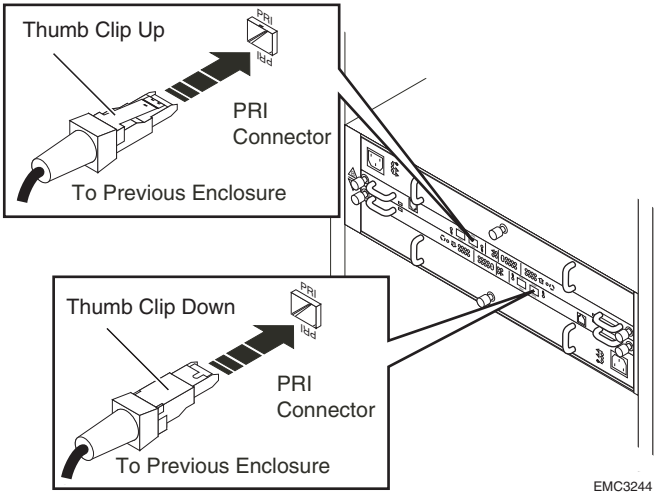



**Figure 2 Connecting the HSSDC2 cables**

## Connecting the cabinet to a power source

In general, EMC cabinets use two 240-volt AC cables. You should connect power cables on either side of the cabinet to different branch circuits. Connecting to only one branch circuit will degrade the system's high availability. Some cabinet configurations may exceed the 24A derating supported by a single pair of power sources/branch circuits. These configurations use a second pair of PDPs (the upper two in your cabinet). Since each active PDP requires a separate power source, a fully configured cabinet uses a total of four 240V branch circuit source connections. Consult with your service provider if you are unsure of your storage system's power requirements.

Connect the cabinet to the AC power sources (Figure 3).

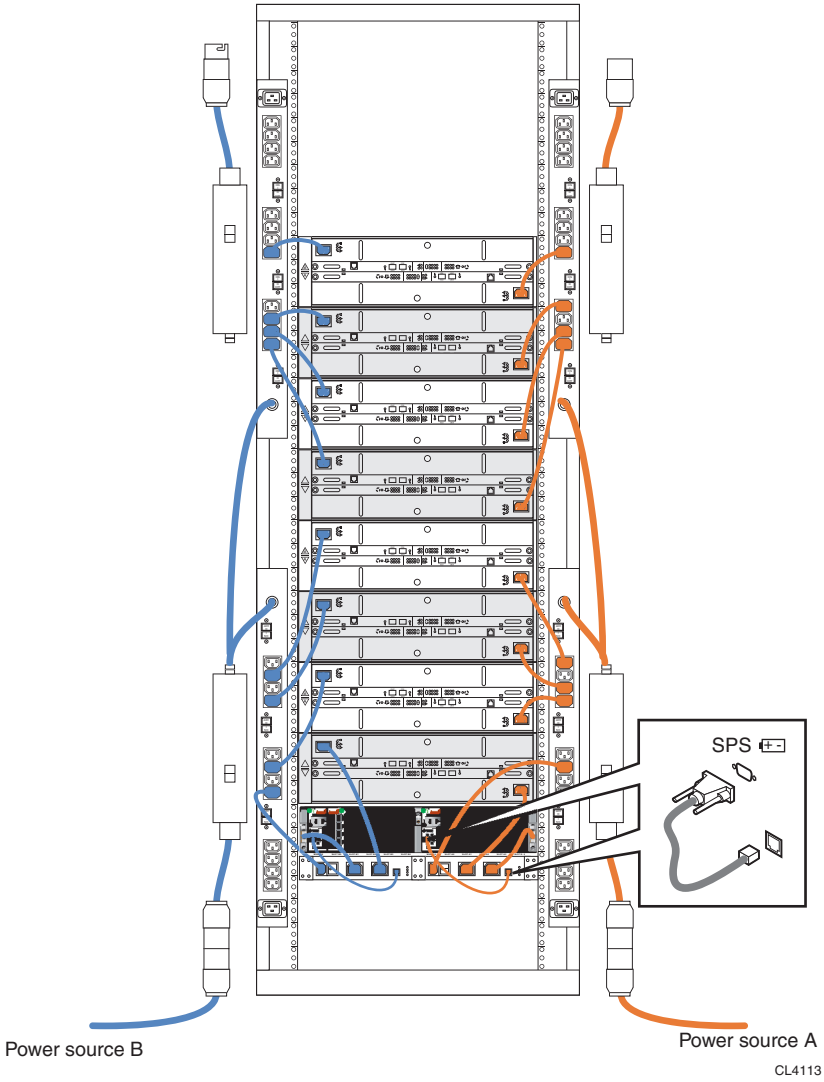



**Figure 3 Cabinet configuration requiring two 240V branch circuit source connections (two SPSs shown)**

## Powering up the storage system

The SPE does not have power switches.

1. Turn on the power switch for each SPS (Figure 4).

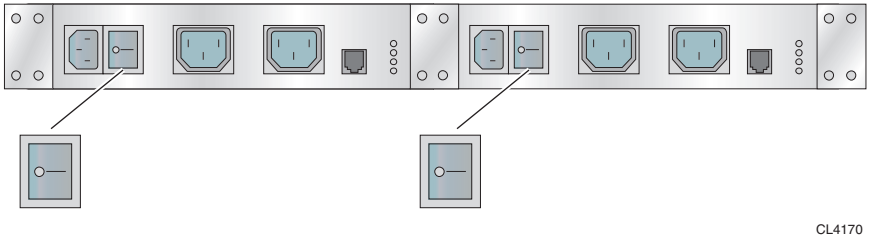



**Figure 4 SPS power switch (two SPSs shown)**

2. Be sure any other devices in the cabinet are correctly installed and ready for powerup, then turn on the master switch/circuit breakers for each cabinet/rack power strip.

   In standard EMC cabinets, master switches are on the power distribution panels (Figure 5).

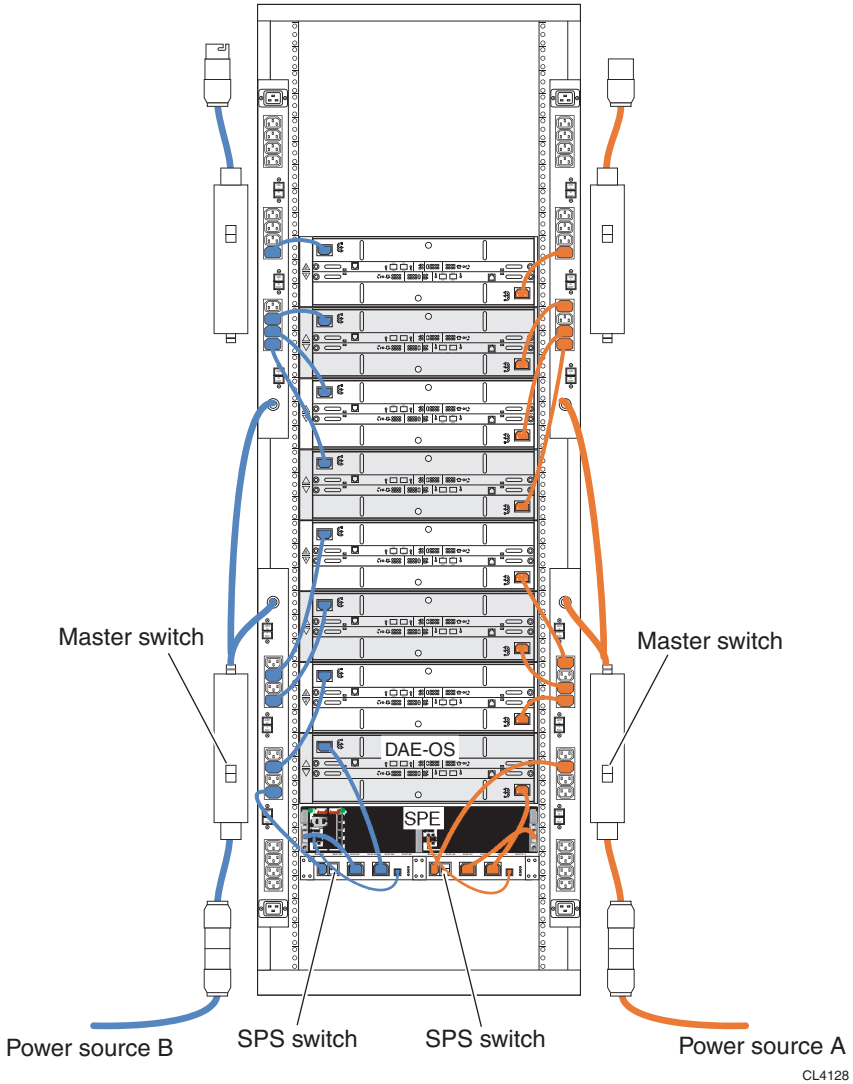



**Figure 5** **PDP master switches and power sources in the 40U-C cabinet with two PDPs used (two SPSs shown)**

The power and fault light for each storage processor blink during powerup testing (Figure 6). The storage system can take 8 to 10 minutes to complete its first powerup. When powerup is complete, the fault light goes off and the power light remains steady green.

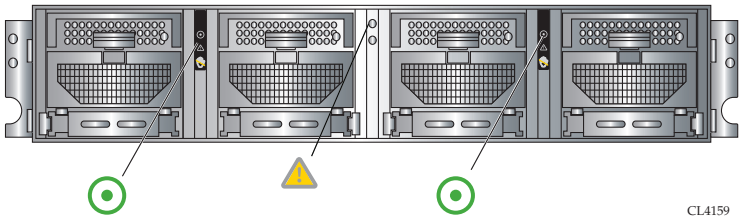



**Figure 6 SP power and fault lights (front bezel removed)**

The system fault light on the front of the SPE and the SPS recharge light on the rear of the SPS commonly stay on for several minutes while the SPS units fully charge (Figure 7).

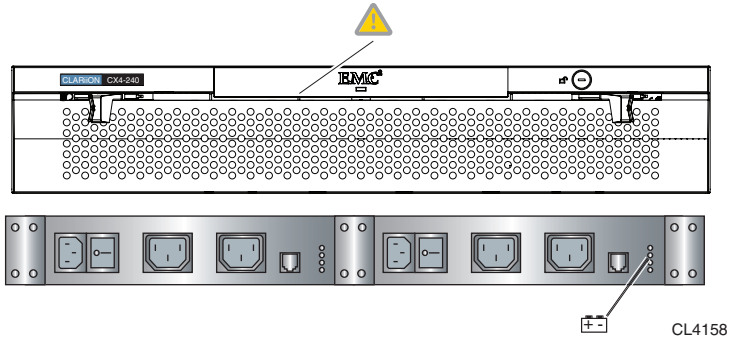



**Figure 7 SPE system fault light and SPS recharge lights (two SPSs shown)**

If any amber lights *not related to the SPS recharge* remain on for more than 10 minutes, make sure the storage system is correctly cabled. (Most amber lights indicate problems that you can solve later, once Navisphere® Manager software is available to help you troubleshoot the system.)

If the SP power lights do *not* remain solid steady green, contact your authorized service provider. Once the SP power lights are solid steady green, replace the front bezel and continue to the next section to connect the storage-system management ports to the network.

**CAUTION**

**Never unplug the power supplies to shut down an SPE. Bypassing the SPS in that manner prevents the storage system from saving write cache data to the vault drives, and results in data loss. You will lose access to data, and the storage processor log displays an error message similar to the following:**

```
Enclosure 0 Disk 5 0x90a (Can't Assign - Cache Dirty)
0 0xafb40 0x14362c
```

**Contact your service provider if this situation occurs.**

# Connecting the storage-system management ports to the network

You manage the storage system from a Navisphere client, which can be a host or server (connected to the storage-system front-end data ports) that is *not* running the ESX Server operating system, or a Navisphere *management station* (formerly known as the Navisphere off-array management station). This host, server, or Navisphere management station must have network access to the storage-system management ports. In addition, when you first set up the storage system, you initialize it from a host, server or Navisphere management station connected to the *same subnet* as the storage-system management ports. The management ports are located on management module in the rear of the chassis and are labeled with a LAN symbol.

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You cannot manage the storage system from the iSCSI front-end data ports.

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## Cabling the storage-system management ports to the network

You need a standard CAT 5 or better Ethernet network cable for the management port on each storage-system SP.

On each SP connect one end of an Ethernet network cable to the management port on the SP and the other end to the network from which you will manage the storage system (Figure 8 or Figure 9).

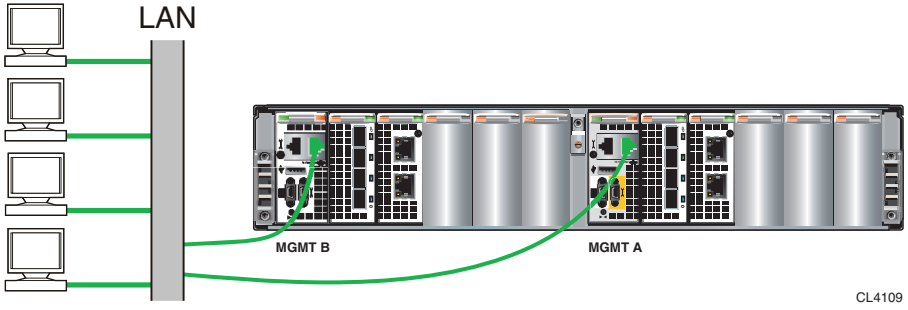


**Figure 8 Cabling to a shared management network**

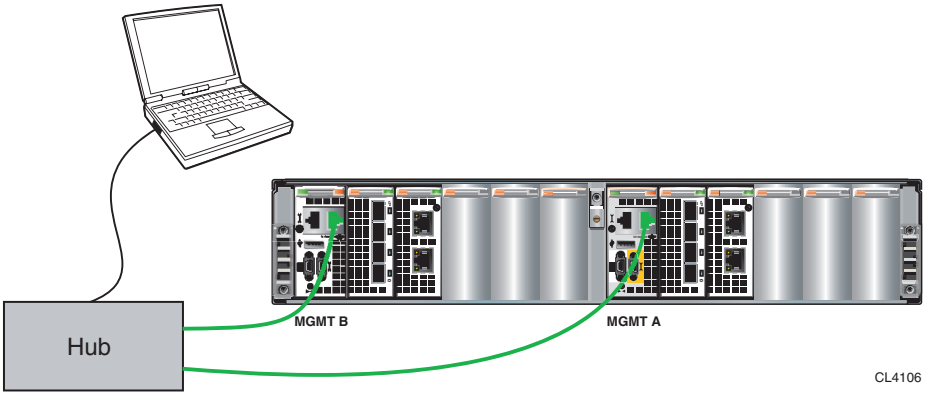


**Figure 9 Cabling to a dedicated management client**

## Enrolling for software downloads

Before you can access updated software for the storage system, you must enroll the storage system for software downloads. We recommend that you do this registration now.

You will need the same storage-system hardware serial number (TLA S/N) that you used to initialize the storage system.

If you purchased the storage system directly from EMC Corporation, register it on the EMC Powerlink® website:

1. Log in to Powerlink at **http://Powerlink.EMC.com**.
2. From the home page, select **CLARiiON Tools** from the Navigator drop-down menu in the upper right corner.
3. On the CLARiiON Tools page in the navigator pane, select the option for registering your CLARiiON® storage system.
4. Enter the required information and click **Submit**.

If you did not purchase your storage system directly from EMC Corporation, please contact your vendor for instructions on how to enroll the storage system for software downloads.

# Initializing the storage system

After the storage system is fully powered up for the first time, use the Unisphere Storage System Initialization Utility to initialize the storage system. Initialization sets the network parameters for storage-system management and creates a management user account for the storage system so you can manage it over the LAN.

## Before you start

To complete this procedure, you will need:

- ❑ The management port and login information in the *Plan network connections* section of the storage-system setup guide that shipped with your storage system. This information includes:
  - A static IP address for each storage processor in the storage system (for example, http://123.45.6.7).
  - The IPv6 global prefix and gateway for each SP if your network supports the IPv6 Internet Protocol and you want to manually configure IPv6 for the management ports.
  - The subnet mask of the LAN to which the storage system is connected.
  - The default gateway address of the LAN to which the storage system is connected.
- ❑ The storage-system hardware serial number (TLA S/N) on the tag that is hanging from the back middle of the storage processor enclosure (Figure 10).

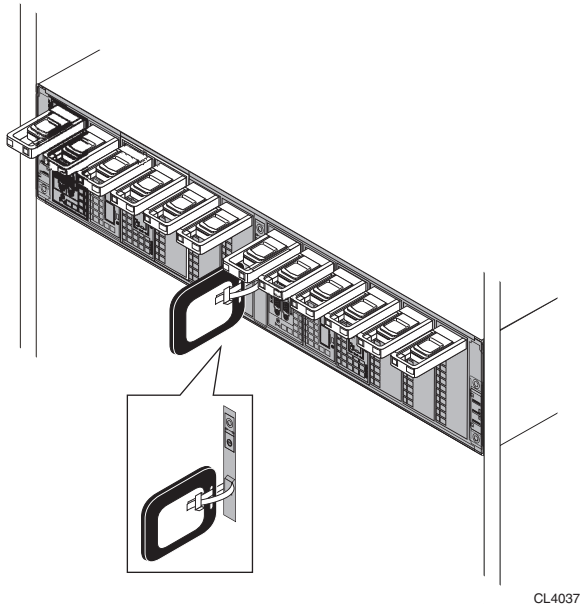


**Figure 10 Location of the storage-system serial number on the SPE**

- A Windows host on the *same subnet* as the storage-system management ports. This requirement is for initialization only. The host should support a minimum screen resolution of 1024 x 768 and 256 colors with small fonts. If the host is behind a firewall, the TCP/IP port 2162 (outgoing) and 2163 (incoming), which the initialization utility uses, must be open for the utility to function properly.

## Installing the Unisphere Initialization Utility

The Unisphere Initialization Utility replaces the Navisphere Initialization Utility.

### Installation prerequisites

To initialize a storage system using the initialization utility, the server must meet the following requirements:

- Run a supported version of the operating system.

- Be connected to the same subnet as the 10/100 management ports of the storage system that you want to initialize. This server may also have Fibre Channel connections to the storage system.

If you have an earlier version of the initialization utility installed, you must uninstall it before installing an updated version.

### Installing the Unisphere Initialization Utility on a Windows host or a Windows virtual machine

We recommend that you download and install the most recent version of the Unisphere Initialization Utility software from the software downloads page on the **Powerlink** website.

1. Log in as the administrator (or someone who has administrative privileges) to the Windows hostor a Windows virtual machine that is on the same subnet as the storage system.
2. Download the software:
   a. From the **Powerlink** website, select **Support > Software Downloads and Licensing > Downloads T-Z > Unisphere Server Software**.
   b. Select the initialization utility, and then select the option to save the zip file to your host.
   c. Double-click the following executable file to start the installation wizard:

      **UnisphereInitTool-Win-32-x86-***language***-***version***-***build***.exe**

      where:

      *language* is either **en_US**, when only the English version is available, or **loc**, when the localized versions are available (including English).

      *version* and *build* are the version number and the build number of the software.
3. Follow the instructions on the installation screens to install the initialization utility.

   A user interface (UI) and a text-based version and a command line version of the utility are installed.

4. When the installation is complete, click **Done** to exit the wizard.
5. If your hostor a virtual machine is behind a firewall, open the TCP/IP port 2162 (outgoing) and port 2163 (incoming). These ports are used by the initialization utility. If these ports are not opened, the initialization utility will not function properly.

## Running the Unisphere Initialization Utility

You can start the initialization utility from the server on which it is installed. The initialization utility has three methods for executing commands — a user interface (UI) version, a command line interface that can be scripted, or a text-based utility that cannot be scripted. Before continuing, make sure that the storage system is powered up completely.

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For storage-system initialization, connect the server from which you are running the utility and the storage system to the same network subnet. Once you have assigned an IP address to the storage system, the server and storage system can be on different subnets.

---

### Starting the initialization utility UI on a Windows server or a Windows virtual machine

To start the initialization utility, select **Start > Programs > EMC > Unisphere > Unisphere Storage System Initialization**.

### Using the UI version of the initialization utility on a Windows host or a Windows virtual machine

After you start the utility, it automatically scans the subnet for supported storage systems. When this storage-system discovery operation is complete, the utility lists, by hardware serial number, all uninitialized and initialized storage systems it found. The hardware serial number is on a hanging tag at the rear of the storage system.

If the discovery operation did not find the storage system you are installing, verify that the storage system's management ports are properly cabled to the LAN on which the host resides. The management ports and the host must both reside on the *same physical subnet*.

Proceed through the wizard screens, providing information where required. For more information about completing the wizard, click **Help** in the wizard's menu bar.

If you entered an SP IP address for the first time or changed an SP IP address, the utility reboots the storage system, and the SP fault light on the back of each SP starts blinking. The reboot takes several minutes to complete. When it has completed, the SP fault light (LED) on each SP stops blinking and remains off.

### Starting the text-based or command line initialization utility on a Windows server or a Windows virtual machine

To start the text-based version, at a command prompt enter **cd C:\Program Files\EMC\InitTool** or **cd C:\Program Files (x86)\EMC\InitTool**; then enter **ToolCLI.exe**.

To start the command line version, at a command prompt enter **cd C:\Program Files\EMC\InitTool** or **cd C:\Program Files (x86)\EMC\InitTool**; then enter **./inittoolcli** *and* any of the command line switches listed for the initialization utility in the *Navisphere Command Line Interface (CLI) Reference Guide* (P/N 300-003-628).

## Verifying the storage-system initialization

Verify that the storage system was initialized successfully by starting Navisphere Manager.

### Starting Navisphere Manager

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To manage a CX4 storage system running FLARE OE version 04.28.000.5.5xx or later, you must use Navisphere Manager UI version 6.28.10 or later.

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1. Log in to a host (which can be a server) that is connected through a network to the storage system's management ports and that has an Internet browser: Microsoft Internet Explorer, Netscape, or Mozilla.
2. Start the browser.
3. In the browser window, enter the IP address of one of the following that is in the same domain as the storage systems that you want to manage:
   - A storage-system SP with the most recent version of the FLARE Operating Environment (OE) installed

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     This SP can be in one of the storage systems that you want to manage.

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- A Unisphere management station (formerly known as the Navisphere off-array management station) with the most recent Unisphere Server (replaces the Navisphere management server) and UIs installed

A dialog box opens that requests your username and password.

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If you do not have a supported version of the JRE installed, you will be directed to the Sun website where you can select a supported version to download. For information on the supported JRE versions for your version of Navisphere Manager, refer to "Environment and System Requirements" in the Navisphere Manager release notes on the **Powerlink** website.

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4. Enter the username and password for the account you want to use, and leave the scope unchanged (set to global).
5. If you are prompted to add the storage system to a domain, add it now.

   The first time that you log in to a storage system, you are prompted to add the storage system to a Unisphere domain. If the storage system is the first one, create a domain for it. If you already have storage systems in a domain, you can either add the new storage system to the existing domain or create a new domain for it. For details on adding the storage system to a domain, use the Navisphere Manager help.

The Navisphere Manager main window opens with a navigation pane on the left that contains the Unisphere Service Manager and an Enterprise Storage window on the right. The Navisphere taskbar consists of the following tabs: Storage Management, Monitoring, Replication, Reporting, Service. When you select a tab, it displays one or more icons for starting the wizards. The Enterprise Storage window contains tabs for the following trees:

- Storage tree – Displays a storage-system icon for every storage system in this domain.
- Hosts tree – Displays a host icon for each server connected to any storage system in this domain.
- Monitors tree – Displays a monitor icon for:
  - Every monitored storage system in the domain.

- Storage systems that do not belong to the domain, but are physically connected to a storage system that does belong. An example is a SAN Copy destination storage system.

The Navisphere Manager user interface (UI) version 6.28.10 introduces the following new storage concepts – storage pool, traditional LUN, thin pool, and thin LUN – to support the Virtual Provisioning feature. For more information on these concepts, refer to the Navisphere Manager Help.

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Thin pools and thin LUNs are part of the Virtual Provisioning feature, which is available only on storage systems with FLARE OE version 04.28.5.00.5xx or later and the Virtual Provisioning enabler installed.

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## Setting up event notification

Event Monitor observes the state of all storage systems you specify and notifies you when selected events occur. It is a built-in feature of the host agent and SP agent. You can configure Event Monitor using the either the Navisphere taskbar Monitor wizard or the Monitor tree options of Navisphere Manager. Once configured, Event Monitor runs continuously as a web service or daemon. You can configure Event Monitor to perform two types of monitoring - centralized or distributed.

**Centralized monitoring** – A single Windows host (known as the centralized monitoring station) running the host agent monitors the storage systems. This monitoring station stores events from the storage systems in its event log, and notifies you with a page or e-mail when an event occurs. Figure 11 shows a sample centralized monitoring configuration.

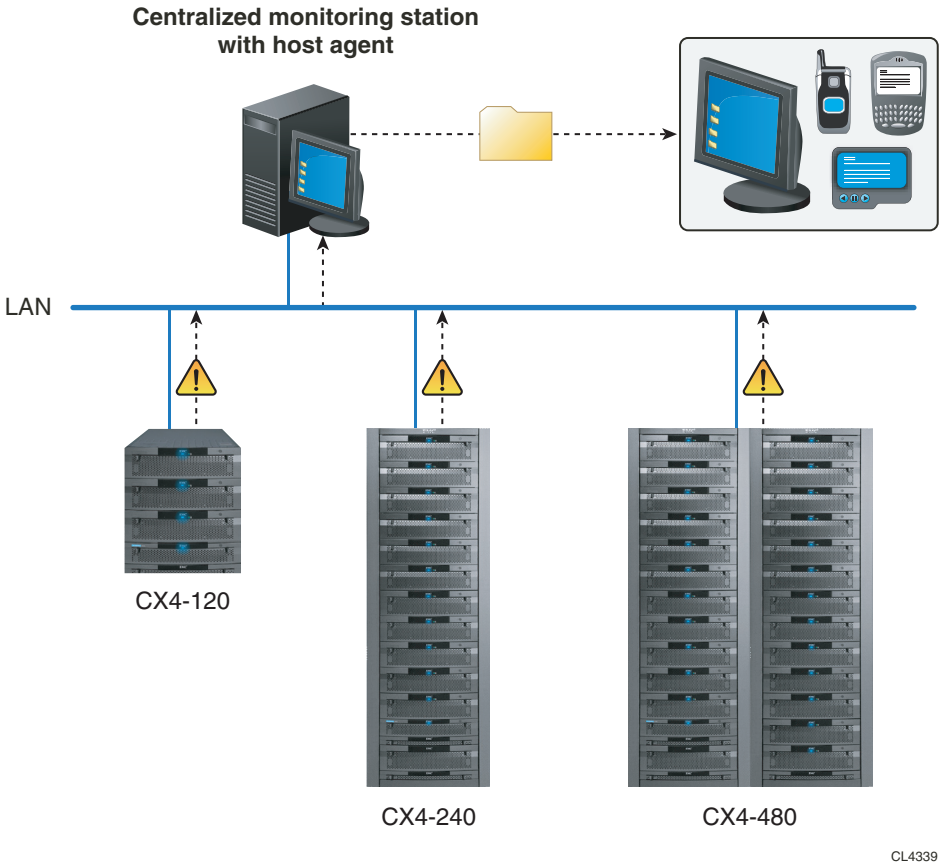


**Figure 11 Centralized monitoring configuration**

**Distributed monitoring** – The SP agent within the storage system monitors itself and notifies you with a page or e-mail when an event occurs. Events are not saved to an event log, so you can view only a single event per storage system. A Windows monitoring station and host agent are not required. Figure 12 shows a sample distributed monitoring configuration.

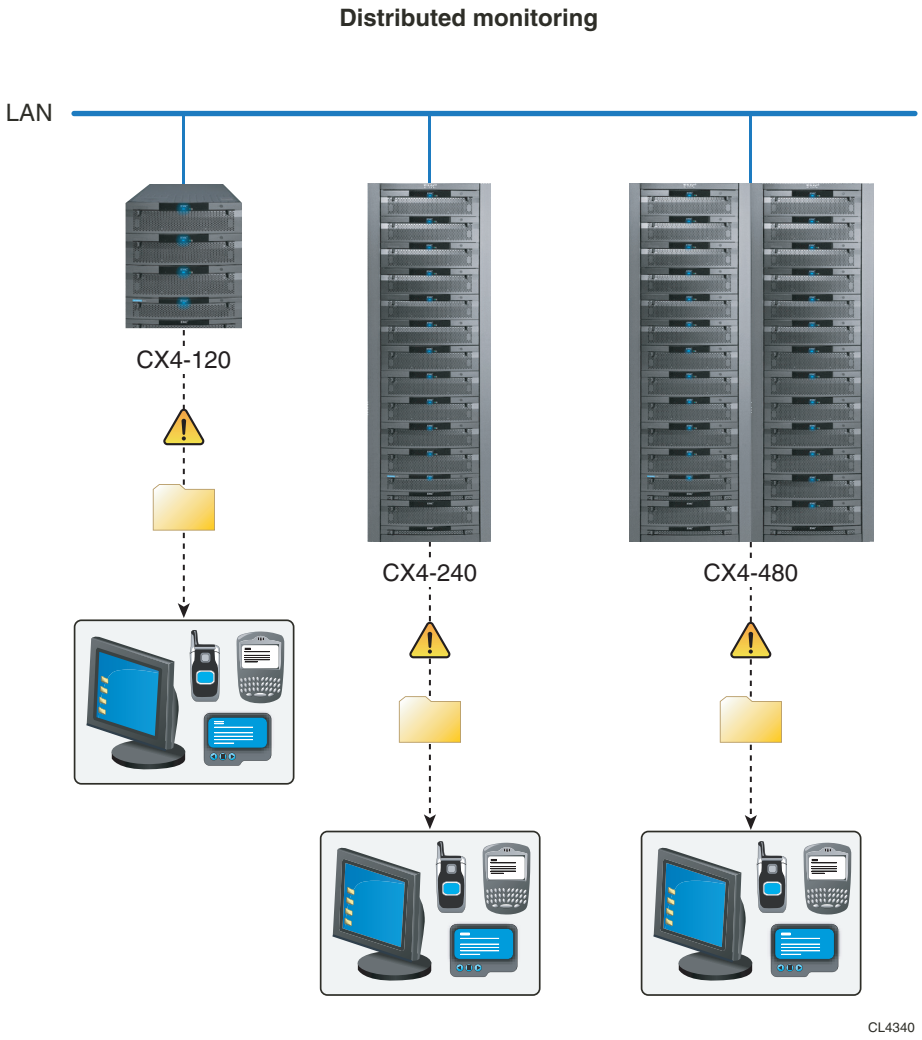


**Figure 12 Distributed monitoring configuration**

## Configuring event notification for a storage system using Navisphere Manager

To configure event notification for a storage system use either the Configure Monitoring wizard or the Monitor tree options of Navisphere Manager.

### To configure Event Monitor for the storage system using the Configure Monitoring wizard

In the Navisphere Manager taskbar, click the **Monitoring** tab, and use the **Configure Monitoring** wizard under this tab to configure centralized or distributed monitoring. For details on how to configure monitoring and how to configure the storage system to send event notification, use the Navisphere Manager help.

### To configure Event Monitor for a storage system with the Navisphere Monitor tree

In the Navisphere Manager **Enterprise Storage** window, click the **Monitors** tab and configure centralized or distributed monitoring. For details on configuring monitoring and configuring the storage system to send event notification, use the Navisphere Manager help.

# Installing EMC Secure Remote Support IP Client for CLARiiON

EMC Secure Remote Support (ESRS) IP Client for CLARiiON software monitors your storage system's operation for error events and automatically notifies your service provider of error events.

## About ESRS IP Client for CLARiiON Installation

You can use the ESRS IP Client for CLARiiON installation wizard for a new ESRS IP Client for CLARiiON installation or to upgrade an existing environment that is running EMC CLARalert® software version 6.22 or later.Authorized EMC service personnel must perform upgrades to an existing environment that is running a CLARalert version earlier than 6.22.

For a new ESRS IP Client for CLARiiON installation, the wizard automatically installs a communication infrastructure that supports secure inbound and/or outbound communication (SSL) as the primary communication method with your service provider. This communication infrastructure is used for heartbeat polling, to notify your service provider of events (Call Home feature, see Figure 13), and to provide your service provider with remote access to your monitored CLARiiON systems (see Figure 14).

During the installation, you can choose to use e-mail as your backup communication method for the Call Home feature and to use e-mail to notify you when events are sent from your monitored storage systems to your service provider.

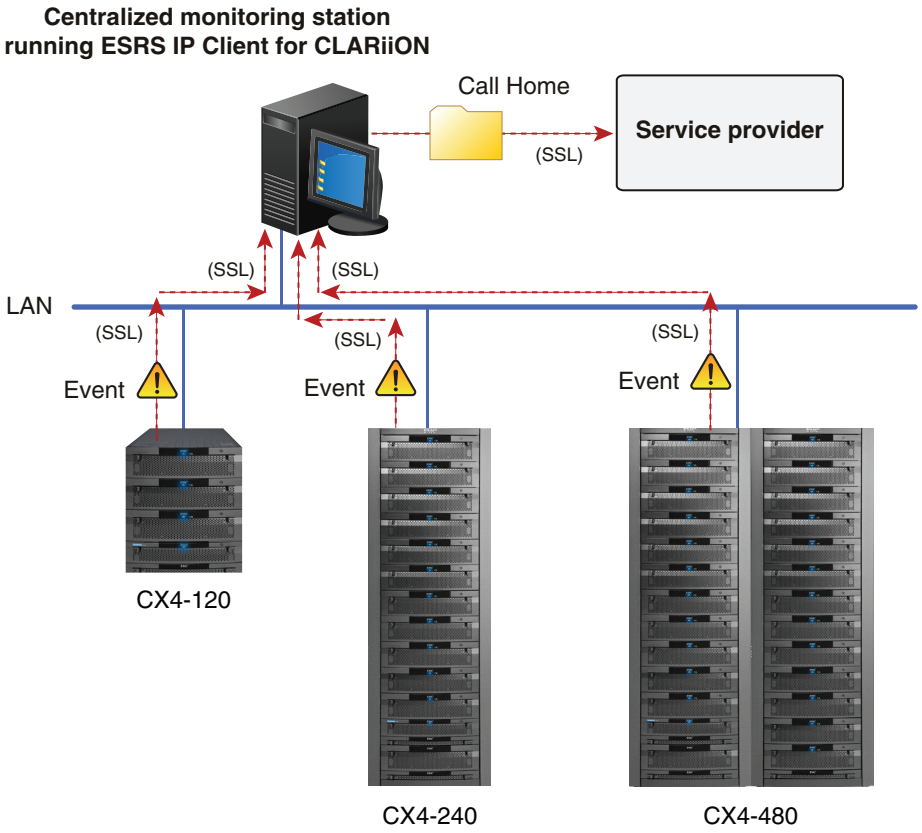


**Figure 13** **ESRS IP Client for CLARiiON communications infrastructure – Call Home example**

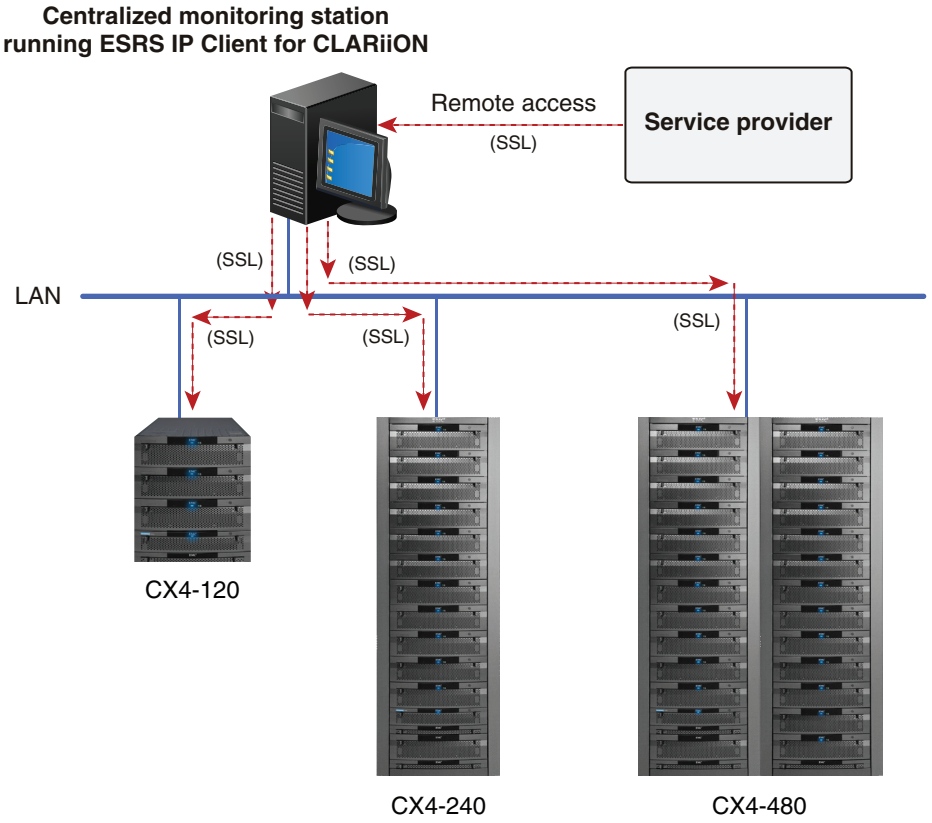


**Figure 14 ESRS IP Client for CLARiiON communications infrastructure – remote access example**

The default authorization permission for your service provider for remote access for monitored storage systems is set to `always allow`. If you require more control over remote access to your monitored storage systems, you can use a Policy Manager to set authorization permissions. The Policy Manager software component is installed on a customer-supplied server, and is configured to control remote access to your devices, maintain an audit log of remote connections, and support file transfer operations. With the Policy Manager you are able to control who, what, and when, and even why. For additional information on Policy Manager, go to the **EMC Powerlink website**. After logging in to Powerlink, click **Support**, and locate the link for the specific product technical documentation required.

For upgrades from CLARalert software (version 6.22 or later) to ESRS IP Client for CLARiiON software, you can choose whether to keep your existing configuration (such as dialup or e-mail) as the communication method for the Call Home feature.

If you keep your existing configuration, then during the upgrade all your central monitoring software is upgraded; however, the ESRS IP Client for CLARiiON communication infrastructure is not installed.

If you do not keep your existing configuration, the upgrade is treated as a new ESRS IP Client for CLARiiON installation. The option to keep your existing configuration is not available when the ESRS IP Client for CLARiiON software is already installed. It is available only when you are upgrading from CLARalert software.

**CAUTION**

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**The customer installation mode does not support the installation of the ESRS IP Client for CLARiiON to a system with a distributed (noncentralized) monitoring environment. If you have an existing CLARalert configuration that uses a distributed monitoring environment, the upgrade creates a centralized monitoring environment (see** Figure 13**). The existing distributed monitoring environment and newly created centralized monitoring environment may result in duplicate notifications to your service provider. Your existing distributed monitoring environment will not be upgraded. You or EMC authorized service personnel should turn off distributed monitoring on all storage systems that will be included in your centralized monitoring environment before installing ESRS IP Client for CLARiiON software.**

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The customer installation mode requires a centralized monitoring environment. In a centralized monitoring environment you designate a monitor station to generate Call Home notifications for the storage systems that it monitors for events. The centralized monitoring environment is an option of the Navisphere Manager application.

During ESRS IP Client for CLARiiON installation, you designate the monitor station and portal system to configure as your centralized

monitoring environment. The storage system that you designate as a portal system is automatically added to the list of monitored systems.

## ESRS IP Client for CLARiiON requirements

The version of the ESRS IP Client for CLARiiON must be the same or later than the version of the management software bundled with the FLARE Operating Environment (OE) running on each storage system being monitored. The ESRS IP Client for CLARiiON requires:

- **A monitor station** – A host or virtual machine, on which you will install the ESRS IP Client for CLARiiON software. This host must have:
  - A 1.8 GHz CPU and 2 GB of memory and run a supported Windows operating system. For supported versions, refer to the *EMC ESRS IP Client for CLARiiON Release Notes*.
  - A fixed or static IP address. If DHCP is used, you must configure a reserved IP address. The installation wizard automatically detects and supplies the IP address for the monitor station, which is required for ESRS IP Client for CLARiiON installation.
  - Open TCP ports:
    - Port 80 (HTTP)
    - Port 443 (HTTP)
    - Port 25 (SMTP server)
    - Port 6398 (Unisphere Host Agent)
    - Port 5414 (EMCRemote Client)
    - Port 9519 (Remotely Anywhere for CX4 systems with FLARE® software version 04.29 or later)
    - Port 60020 (Remote Diagnostic Agent

  The monitor station *cannot* be a server (host connected to storage-system data ports) and must be on the same network as your storage-system management ports.

  If you do *not* have an existing monitor station, you can create a monitor station by installing ESRS IP Client for CLARiiON on a Windows host.

  If you have an existing monitor station running CLARalert, you can upgrade to ESRS IP Client for CLARiiON on the monitor station. When you perform an upgrade, the installation wizard asks if you

want to preserve your existing e-mail configuration or if you want to reconfigure it.

If you have an existing monitor station running event monitor, you can install ESRS IP Client for CLARiiON on the monitor station.

- **Proxy server network information** – If the monitor station connects to the Internet through a proxy server, this information consists of the IP address, port, and protocol (HTTPS or SOCKS), and login credentials (if required) for the proxy server. The SOCKS protocol requires authentication.
- **Portal system** – A storage system running the latest FLARE Operating Environment (OE) version that is running on the systems it is monitoring. You will need the IP address for one SP on the portal system and global administrator login credentials for the portal system.
- **Powerlink® account** –You must have an existing valid Powerlink account. You are required to log in to Powerlink and supply your valid storage-system serial number before you can download and install ESRS IP Client for CLARiiON software.
- **Registered monitoring site** – The monitoring site must be registered on Powerlink account. During ESRS IP Client for CLARiiON installation, you must specify the contact information for a person at the site, including the person's name, e-mail address, and phone number.

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If you want your ESRS IP Client for CLARiiON installation to use the optional e-mail notification, for example, as a backup communication method for the Call Home feature, you need connectivity to an outgoing SMTP server. During ESRS IP Client for CLARiiON installation, you must provide the IP address for the SMTP server, your service provider e-mail address (to), and your local e-mail address (from) for e-mail notification.

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## Downloading and installing ESRS IP Client for CLARiiON software

You can download and install the ESRS IP Client for CLARiiON software from the Powerlink website, which always has the most recent version of the software, or from the *Interactive Installation Guide* (IIG) CD that shipped with your storage system.

### Downloading and installing ESRS IP Client for CLARiiON software (Powerlink)

On the monitor station:

1. Go to the Powerlink website, and select the **Search Powerlink** tab.
2. Replace the "Search Powerlink" text with "esrs ip client" and in **Filter by content type**, select **Support: Downloads** and click **Search**.
3. In the results page, select **Download ESRS IP Client for CLARiiON** and save the software to your monitor station.
4. In the folder where you saved ESRS IP Client for CLARiiON, double-click the **ESRS IP Client for CLARiiON** executable (**.exe**) file or, if necessary, right-click the file and select **Run as** to run the installation wizard using a different user's credentials.
5. Follow the steps in the wizard to complete the installation.

For a storage system running FLARE version 04.29, you must add the monitor station IP address to the storage-system Remotely Anywhere filter tables as described in *Adding the monitor station to RemotelyAnywhere IP address filter tables*, page 37.

### Downloading and installing ESRS IP Client for CLARiiON software (IIG CD)

If the browser on the monitor station is running pop-up blocking software, you must disable it before using the software on the IIG CD.

On the monitor station:

1. Insert the IIG CD.
2. After reading the License Agreement, click the **Accept** button and then the **Submit** button to continue.
3. Select the storage-system series for your storage system.
4. On the right side of the **Home** page for the selected storage-system series, click the **Software** button.
5. On the page showing the available software that you can run, click the **ESRS IP Client for CLARiiON** button.
6. In the **File Download** dialog box, either select **Run** to run the **ESRS IP Client for CLARiiON** executable (**.exe**) file from the IIG CD or select **Save** and save the software to a folder on your monitor station.

If you saved the **ESRS IP Client for CLARiiON** executable (**.exe**) file to a folder, in that folder double-click the **ESRS IP Client for CLARiiON** executable (**.exe**) file or, if necessary, right-click the file and select **Run as** to run the installation wizard using a different user's credentials.

7. Follow the steps in the wizard to complete the installation.

   For a storage system running FLARE version 04.29, you must add the monitor station IP address to the storage-system Remotely Anywhere filter tables as described in *Adding the monitor station to RemotelyAnywhere IP address filter tables*, page 37.

## Adding the monitor station to RemotelyAnywhere IP address filter tables

Perform this procedure for CX4 storage systems that are running FLARE version 04.29 or later in your ESRS IP Client for CLARiiON configuration.

By default, the RemotelyAnywhere IP address filter tables add an always-on, additional layer of security that restricts the use of remote service tools to the storage system's service ports. Administrators and security administrators can extend remote service tool access to a storage system's management ports by entering the IP addresses of attached, trusted service clients. For IPv6 configurations, temporary private addresses are disabled on the storage system by default. We strongly recommend that you also disable them on the client system.

1. In the address field of a supported browser, enter the IP address or hostname of one of the storage system's SPs and append the setup page path to the IP address or hostname.

   For example: **http://*ip_address*/setup** or**http://*hostname*/setup**

2. On the SP setup login page, enter the storage system's Navisphere Manager administrator username and password.
3. On the SP setup page, scroll down to **Set RemotelyAnywhere Access Restriction**, and click the name panel.

   Storage-system security must be enabled and configured before you can access the Set RemotelyAnywhere Access Restriction IP address filter table.

4. On the **IP Filter Configuration for Remotely Anywhere** page, verify that the monitor station IP address is in the IP address filter tables.
5. In the **Filters that apply to all storage systems in the domain** table, enter the monitor station IP address.

   You can enter up to 16 RemoteAnywhere (RA) client addresses into the tables. At this time you cannot enter address ranges or complete subnets in the tables. Entering RA clients into the **Connected storage system only** table does not propagate the RA clients address to CX4 storage systems running FLARE version 04.29 or later in the domain. Use the **Connected storage system only** table if you do not want to propagate the data to other storage systems in the domain.
6. Click the **Apply Setting** button.

   Updating the IP filter tables resets any existing RA connections.
7. In the **RemotelyAnywhere IP Filter Configuration - Confirmation** page, click the **Apply Settings** button.

   You should see the text message:

   ```
   RemotelyAnywhere IP filter request was successful.
   ```
8. In the **RemotelyAnywhere IP Filter Configuration - Apply** page, click the **Back** button.
9. On the SP setup page, click the **Logout** button and close the browser.
10. If you entered the monitor station IP address in the **Connected storage system only** table, repeat the above steps for all other CX4 storage systems running FLARE version 04.29 or later in your ESRS IP Client for CLARiiON configuration.

## Changing the ESRS IP Client for CLARiiON configuration

After you have completed the installation or upgrade of the ESRS IP Client for CLARiiON software, you can use Navisphere Manager to make changes to and view properties of your centralized monitoring environment. These tasks include:

- Adding storage systems to or removing storage systems from your centralized monitoring environment

- Viewing properties of Call Home templates and assigning additional Call Home templates to storage systems.
- Viewing events for a monitored storage system

For more information, see the Navisphere Manager help, which is in the Navisphere Manager UI or the **Technical Documentation and Advisories** section on the Powerlink website. The **Technical Documentation and Advisories** section on the Powerlink website has the most recent version.

## Upgrade FLARE

The storage system comes pre-installed with the latest version of the FLARE® Operating Environment (OE) software available at the time of shipment. To see if any FLARE patches or newer releases have been made available since shipment or to install any enabler software that you ordered with your system (e.g. FAST, FAST Cache, Thin Provisioning™, SnapView™, or MirrorView™), install Unisphere Service Manager (USM) and use the wizards in the **System Software** section of the Unisphere Service Manager (USM) to update storage-system software.

# Updating storage-system software

This section describes how to use the wizards in the **System Software** section of the Unisphere Service Manager (USM) to update storage-system software.

USM replaces the Navisphere® Service Taskbar (NST).

You can update the software on the storage system in one of the following ways:

- Update the FLARE® operating environment (OE) to a later version.
- Patch the existing FLARE OE version.
- Apply a hot fix to the existing FLARE OE version.

  A hot fix is a self-contained rebootless non-disruptive upgrade package that fixes a critical issue with the storage system. Since a hot fix update is rebootless, it does *not* require a storage processor reboot as the updates of patches to FLARE OE do.
- Install enablers for optional Virtual Provisioning™, SnapView™, MirrorView™, SAN Copy™, Navisphere Analyzer, or Navisphere Quality of Service Manager software.

## Before you start

To upgrade the FLARE OE on a storage system, you need:

❑ A Windows host or Windows virtual machine that is:

- Running a supported operating system version. For supported versions, refer to the *EMC Unisphere Service Manager Release Notes*, which is available on the **Powerlink®** website. The EMC Unisphere Service Manager (USM) replaces the EMC Navisphere® Service Taskbar (NST). We recommend that you install the latest version of the USM.
- Connected to the Internet if you need to install the USM and/or download software updates.
- Running Java Runtime Environment (JRE). For supported JRE versions, refer to the *EMC Unisphere Service Manager Release Notes*.

- ❑ An account on the EMC Powerlink® website: **http://Powerlink.EMC.com**.

## Updating or patching FLARE OE

Use the wizards in the **System Software** section of the Unisphere Service Manager (USM) to upgrade or patch FLARE OE. USM replaces the Navisphere® Service Taskbar (NST). If you are not running the latest version of USM, we recommend that you download and install the latest version.

**CAUTION**

**During the software installation procedure:**

- **The storage system must *not* have any faulted or transitioning components.**

  **With Navisphere Manager you can view the current state of storage-system components on the Storage tab by expanding the icon for the storage system.**

- **You must *not* power down or reboot the storage system, power down an SP, or remove any components. By doing so you may put the storage system in a state from which you cannot restart it.**

- **After the software installation is complete, the storage system reboots automatically. One SP reboots, and when it has finished, the other SP reboots. This causes any connected servers that are not configured for high availability to lose access to the storage system until the operation is completed.**

### Installing storage-system software

To install storage-system software (a new FLARE OE version, software enablers, and/or language packs) using the USM's System Software wizards, you need to:

- Copy any enablers or language packs that you are installing to the software repository.
- Run the System Software wizards (the Prepare for Installation wizard and the Install Software wizard).

This section describes how to perform each of these tasks.

### Validating the server environment and installing the USM

You must install the USM on a Windows host that is connected to the Internet and on the same LAN as the management ports on the storage system.

1. On the **Powerlink** website, navigate to the **CLARiiON Tools** page and select your CLARiiON system.

   ---

   To access the **CLARiiON Tools** page, use the **Navigator** drop-down menu at the top right of the **Powerlink** home page.

   ---

2. In the navigation pane, click **CLARiiON Software Update tools** and then **CLARiiON Software Update (Standard)**.
3. On the **CLARiiON Software Update (Standard)** page:
   a. Complete step 1 to determine if you can use the update process.
   b. If the storage system has one or more servers connected to its data ports, complete step 2 to validate the server environment; otherwise, skip this step.
   c. Complete step 3 to install the Unisphere Service Manager (USM) on the Windows server or host you will use to install the storage-system software.

      After you accept the USM license agreement, the installation wizard verifies that the server is running the supported Java Runtime Environment (JRE) version.

      - If the server is running an *earlier* version of the JRE, select **Yes** when asked if you want to continue with the installation.

        The installation wizard prompts you to download and install the most recent version of the JRE from the **Sun** website.

      - If the server is running a *later* version of the JRE, the installation wizard asks if you want to continue with the installation.

        Select **Yes** to continue or **No** to cancel the installation.

**Important**: If you select **Yes**, the USM may not work properly with a later JRE version. If you select **No**, and manually remove the later version of the JRE, other applications that require this version may not work properly.

### Copying enablers and/or Navisphere language packs into the storage-system software repository

Read this section if you have enablers and/or Navisphere language packs to install on the storage system.

To copy enablers and/or language packs into the software repository:

1. For each enabler that you want to install on the storage system:
   a. Locate the enabler CD that shipped in the software or upgrade kit, and insert it into the CD drive on the Windows server or host you will use to install the software.

      This Windows server or host must be on the same network as the storage-system management ports.

   b. Copy the enabler (**.ena**) file from the CD into the **c:\emc\repository\Downloads** folder on the Windows server or host on which you installed USM.

      The USM installation process creates a **c:\emc\repository\Downloads** folder as the default repository for the USM's system software to use. If this folder does not exist, create it.

   c. Remove the CD from the CD drive.
2. For each Navisphere language pack that you want to install, download the language pack from the "Downloads and Licensing" section of the **Powerlink** website into the **c:\emc\repository\Downloads** folder.

### Running the System Software wizards

1. Start the Unisphere Service Manager (USM) by doing either one of the following:

- Click the Unisphere Service Manager icon on your desktop, or
- Select **Start > All Programs** or **Start > Programs**, then select **EMC > Unisphere > Unisphere Service Manager > Unisphere Service Manager**

2. Log in to your system.
3. From the **System** screen, select **Software > System Software > Prepare for Installation**.
4. Follow the recommended steps in the Prepare for Installation wizard.
5. When the Prepare for Installation wizard is finished, start the Install Software wizard.
6. Follow the instructions to install the desired software packages.
7. When the installation is complete, select **Notify your service provider with updated storage system configuration information**, and click **Finish**.
8. Close the USM.

After the software installation is complete, the storage system reboots automatically. One SP reboots, and a short time after the reboot is finished, the other SP reboots. You cannot start Navisphere Manager on the storage system until the reboot is complete, which could take up to about 45 minutes for each SP. The reboot is complete when the SP status lights on each SP are on steadily. The SP status lights on a CX4-120, CX4-240, or CX4-480 storage system are behind the front bezel. Wait until both reboots are complete before continuing.

## Applying a FLARE OE hot fix

Use the USM's System Software wizards to apply a FLARE OE hot fix.

1. Start the Unisphere Service Manager (USM) by doing either one of the following:
   - Click the Unisphere Service Manager icon on your desktop, or
   - Select **Start > All Programs** or **Start > Programs**, then select **EMC > Unisphere > Unisphere Service Manager > Unisphere Service Manager**
2. Log in to your system.

3. From the **System** screen, select **Software > System Software > Download and Install Hot Fix**.
4. Follow the recommended steps in the Download and Install Hot Fix wizard.
5. When the installation is complete, select **Notify your service provider with updated storage system configuration information**, and click **Finish**.
6. Close the USM.

## Installing a software enabler

Use the Unisphere Service Manager's System Software wizards to install software enablers. The Unisphere Server Manager (USM) replaces the Navisphere® Service Taskbar (NST). If you are not running the latest version of USM, we recommend you download and install the latest version.

**CAUTION**

**During the software installation procedure:**

- **The storage system must *not* have any faulted or transitioning components.**

  **With Navisphere Manager you can view the current state of storage-system components on the Storage tab by expanding the icon for the storage system.**

- **You must *not* power down or reboot the storage system, power down an SP, or remove any components. By doing so you may put the storage system in a state from which you cannot restart it.**
- **After the software installation is complete, the storage system reboots automatically. One SP reboots, and when it has finished, the other SP reboots. This causes any connected servers that are not configured for high availability to lose access to the storage system until the operation is completed.**

### Installing storage-system software

To install storage-system software (a new FLARE OE version, software enablers, and/or language packs) using the USM's System Software wizards, you need to:

- Copy any enablers or language packs that you are installing to the software repository.
- Run the System Software wizards (the Prepare for Installation wizard and the Install Software wizard).

This section describes how to perform each of these tasks.

### Validating the server environment and installing the USM

You must install the USM on a Windows host that is connected to the Internet and on the same LAN as the management ports on the storage system.

1. On the **Powerlink** website, navigate to the **CLARiiON Tools** page and select your CLARiiON system.

   ---

   To access the **CLARiiON Tools** page, use the **Navigator** drop-down menu at the top right of the **Powerlink** home page.

   ---

2. In the navigation pane, click **CLARiiON Software Update tools** and then **CLARiiON Software Update (Standard)**.
3. On the **CLARiiON Software Update (Standard)** page:
   a. Complete step 1 to determine if you can use the update process.
   b. If the storage system has one or more servers connected to its data ports, complete step 2 to validate the server environment; otherwise, skip this step.
   c. Complete step 3 to install the Unisphere Service Manager (USM) on the Windows server or host you will use to install the storage-system software.

      After you accept the USM license agreement, the installation wizard verifies that the server is running the supported Java Runtime Environment (JRE) version.

      - If the server is running an *earlier* version of the JRE, select **Yes** when asked if you want to continue with the installation.

The installation wizard prompts you to download and install the most recent version of the JRE from the **Sun** website.

- If the server is running a *later* version of the JRE, the installation wizard asks if you want to continue with the installation.

  Select **Yes** to continue or **No** to cancel the installation.

---

**Important**: If you select **Yes**, the USM may not work properly with a later JRE version. If you select **No**, and manually remove the later version of the JRE, other applications that require this version may not work properly.

---

### Copying enablers and/or Navisphere language packs into the storage-system software repository

Read this section if you have enablers and/or Navisphere language packs to install on the storage system.

To copy enablers and/or language packs into the software repository:

1. For each enabler that you want to install on the storage system:
   a. Locate the enabler CD that shipped in the software or upgrade kit, and insert it into the CD drive on the Windows server or host you will use to install the software.

      ---

      This Windows server or host must be on the same network as the storage-system management ports.

      ---

   b. Copy the enabler (**.ena**) file from the CD into the **c:\emc\repository\Downloads** folder on the Windows server or host on which you installed USM.

      ---

      The USM installation process creates a **c:\emc\repository\Downloads** folder as the default repository for the USM's system software to use. If this folder does not exist, create it.

      ---

   c. Remove the CD from the CD drive.
2. For each Navisphere language pack that you want to install, download the language pack from the "Downloads

and Licensing" section of the **Powerlink** website into the **c:\emc\repository\Downloads** folder.

### Running the System Software wizards

1. Start the Unisphere Service Manager (USM) by doing either one of the following:
   - Click the Unisphere Service Manager icon on your desktop, or
   - Select **Start > All Programs** or **Start > Programs**, then select **EMC > Unisphere > Unisphere Service Manager > Unisphere Service Manager**
2. Log in to your system.
3. From the **System** screen, select **Software > System Software > Prepare for Installation**.
4. Follow the recommended steps in the Prepare for Installation wizard.
5. When the Prepare for Installation wizard is finished, start the Install Software wizard.
6. Follow the instructions to install the desired software packages.
7. When the installation is complete, select **Notify your service provider with updated storage system configuration information**, and click **Finish**.
8. Close the USM.

After the software installation is complete, the storage system reboots automatically. One SP reboots, and a short time after the reboot is finished, the other SP reboots. You cannot start Navisphere Manager on the storage system until the reboot is complete, which could take up to about 45 minutes for each SP. The reboot is complete when the SP status lights on each SP are on steadily. The SP status lights on a CX4-120, CX4-240, or CX4-480 storage system are behind the front bezel. Wait until both reboots are complete before continuing.

## Verifying the software installation with Navisphere Manager

1. Start Navisphere Manager for the storage system, if it is not already running.

2. In the Navisphere Manager Storage tree, right-click the icon for the storage system on which you installed software and select **Properties**.
3. In the **Storage System** dialog box, click the **Software** tab.
4. Verify that the list of software contains an entry for each software package that you installed and that its status is Active and does not require a commit.

   If an entry for a software package, which you installed, requires a commit, select the entry and click **Commit**.

# Registering the storage-system configuration with your service provider

We strongly recommend that you use the Storage System Registration wizard to send site and storage-system configuration information to your provider. Your provider uses this information to supply proactive and timely support. The registration wizard is part of the Unisphere® Service Manager (USM), which runs on a Windows client that is connected to the storage-system management ports.

The Storage System Registration wizard asks you several questions about the site where the storage system is installed and your support provider contact. It sends this information and basic storage-system configuration details to your service provider either directly over the Internet or using e-mail. If you do not have an Internet connection, the wizard lets you save the registration information to a file, which you can send to your service provider.

If you decide not to register your storage system at this time or you do not have Internet access and e-mail, you can still run the wizard to collect the data and send it to your service provider at a later time. If you do not register now, you may spend significantly more time registering it later.

## Downloading and installing the Unisphere Service Manager

The Unisphere Service Manager (USM) replaces the Navisphere Service Taskbar (NST). If you are not running the latest version of USM, we recommend you download and install the latest version as described below.

1. From the **Powerlink** website, select **Support > Product and Diagnostic Tools > CLARiiON Tools > About Unisphere Service Manager**
2. On the **About Unisphere Service Manager** page, select the Unisphere Service Manager link and select the option to save the software to your host or management station.
3. In the folder where you saved the USM, double-click the executable (**.exe**) file, and if necessary, click **Run** to start the installation wizard.
4. Follow the instructions that appear.

After you accept the license agreement, the wizard verifies that the server is running the supported Java Runtime Environment (JRE) version.

- If the server is running an *earlier* version of the JRE, select **Yes** when asked if you want to continue with the installation.

  The installation wizard prompts you to download and install the later version of the JRE from the **Sun** website.

- If the server is running a *later* version of the JRE, the installation wizard asks if you want to continue with the installation.

  Select **Yes** to continue or **No** to quit the installation.

---

**Important**: If you select **Yes**, the USM may not work properly with a later JRE version. If you select **No**, and manually remove the later version of the JRE, other applications that require this version may not work properly.

---

5. When the installation is complete, click **Done**.

## Running the storage system registration wizard

1. Start the Unisphere Service Manager (USM) by doing either one of the following:
   - Click the Unisphere Service Manager icon on your desktop, or
   - Select **Start > All Programs** or **Start > Programs**, then select **EMC > Unisphere > Unisphere Service Manager > Unisphere Service Manager**
2. In the taskbar's navigation pane, select the **Hardware Registration** tab.
3. In the tab's navigation pane, select the **Register Storage System** to start the Storage System Registration wizard.
4. Follow the steps in the wizard to provide contact and storage-system information to your service provider.

## What next?

Now you are ready to attach one or more servers to the storage system. Use the **Attach server** link under **Server tasks** on the support website to generate step-by-step instructions for attaching a server to a storage system in your environment.

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