SGI InfiniteStorage System

Quick Install Guide

for the CE7900 Controller Tray

1 Before you begin

For warnings, refer to the printed *Safety Notices* document.

For detailed installation instructions, refer to the *CE7900 Controller Tray Installation Guide*.

For more information, refer to the *Initial Configuration and Software Installation Guide for SANtricity™ ES Storage Manager.*

1.1 What you need for assembly:

CE7900 controller tray:

- One four-unit (4U) -high CE7900 controller tray
- Two DVDs:
  - Firmware DVD
  - SANtricity ES Storage Manager Installation DVD, which contains all of the documents referred to in this guide, except for the quick install guides.
- Two power cords
- Eight Small Form-factor Pluggable (SFP) transceivers, one for each of the host channel ports on the controllers
- Two SFP transceivers for each f ber-optic cable to the drive tray(s)
- One cabinet-mounting hardware kit, including:
  - Two mounting rails (right and left assemblies)
  - Eight 10 x 32 .500 Phillips pan-head screws
  - Use six screws to secure the mounting rails and two screws to secure the front of the tray to the cabinet.

Options:

- Drives (two minimum for each drive tray)
- Ethernet cables, one per controller (for out-of-band management) and one 1-Gb/s iSCSI connection.
- Two host interface cables for each host connection (direct topology) or two host interface cables for each redundant switch connection (fabric or switch topology) (cables are f ber-optic cables for Fibre Channel connections or copper Ethernet cables for 1-Gb iSCSI connections)

Options (continued):

- Two 8-Gb/s SFP transceivers for each f ber-optic Fibre Channel cable if you have 8-Gb/s host connections or 10-Gb/s iSCSI connections
- Two f iber-optic cables or two copper cables for each drive tray connection
- Two host bus adapters (HBAs) for each host (HBAs for Fibre Channel or Ethernet adapters for iSCSI)
- Two installed Fibre Channel switches and two installed iSCSI switches (switch topology only)
- One rail-mounting hardware kit

If you have any questions about the firmware or your configuration, contact your Customer and Technical Support representative.

Tools:

- A cart to hold the controller tray and its components
- Labels for the cable connections
- A medium fl at-blade screwdriver
- A No. 2 Phillips screwdriver
- Anti-static protection
- A fl ashlight

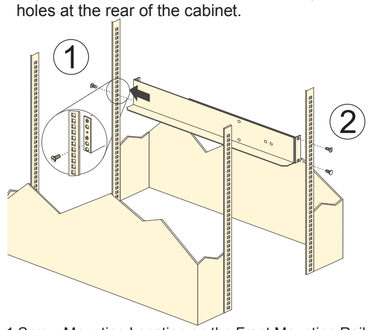
2 Install the mounting rails

You can install the controller tray into an industry-standard cabinet.

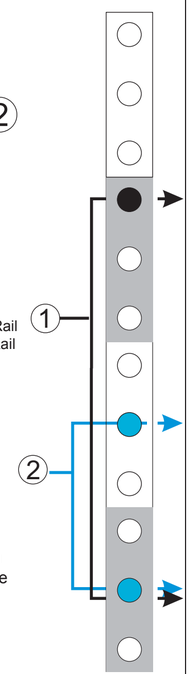
- For proper weight distribution, install the mounting rails from the CE7900 controller tray ship group in the lower portion of the cabinet.
- Allow room above and below the CE7900 controller tray for the drive trays, as required. Any DE6900 drive trays must be installed below the CE7900 controller tray.
- Use the 4U tray guide (the cabinet-mounting template in this section) to locate the correct holes for the mounting rails.

2.1 Starting with the left mounting rail, use a f lat-blade screwdriver to loosen the two f lat-head rail adjustment screws.

2.2 Hold the front of the left mounting rail against the inside of the front cabinet-mounting fl ange, and then extend the rear of the mounting rail until it makes contact with the rear cabinet-mounting fl ange. The alignment pins at the rear of the mounting rail should slide into the holes at the rear of the cabinet.



1 Screw Mounting Location on the Front Mounting Rail
2 Screw Mounting Location on the Rear Mounting Rail



2.3 From the front of the cabinet, with the mounting-rail f langes inside of the cabinet's mounting rail assemblies, use the Phillips screwdriver to loosely tighten only the lower screw.

2.4 From the rear of the cabinet, use the Phillips screwdriver to loosely tighten the two screws. Do not completely tighten the screws until you have installed the CE7900 controller tray in the cabinet.

2.5 Repeat step 2.1 through step 2.4 for the right mounting rail.

2.6 Tighten the f lat-head rail adjustment screws on both mounting rails.

3 Install the controller tray

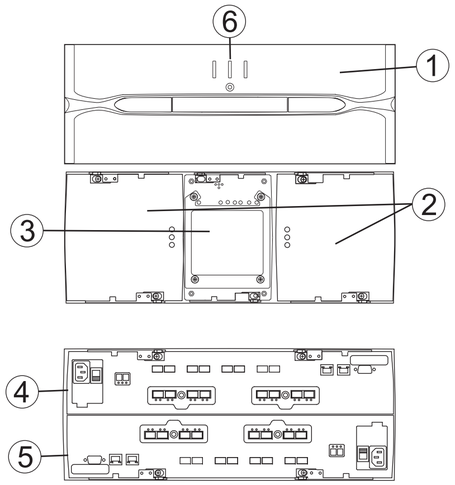
WARNING (W09) Risk of bodily injury

>35 kg (77 lbs)

Three persons are required to safely lift the component.

3.1 With the help of two other persons, remove the CE7900 controller tray from the shipping box.

CE7900 Controller Tray – Front View and Rear View



1 Front Bezel
2 Power-Fan Canisters
3 Interconnect-Battery Canister
4. Controller A (Inverted)
5. Controller B
6. Locate LED

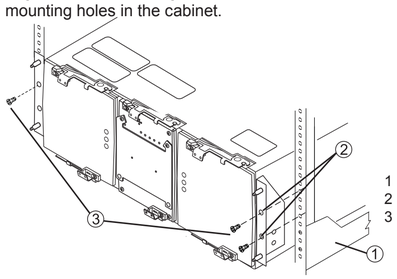
3.2 Remove the front bezel by grasping the sides and pulling the bezel toward you. Set it aside.

3.3 With the help of two other persons, place the rear of the CE7900 controller tray on the mounting rails. Slide the CE7900 controller tray into the cabinet, and verify that the rear of the CE7900 controller tray is secured by the hold-down clips at the rear of each mounting rail.

4 Secure the controller tray

WARNING (W18) Risk of bodily injury – Do not use equipment in the cabinet as a shelf or workspace.

4.1 Align the front mounting holes on the CE7900 controller tray with the mounting holes in the cabinet.



1 Mounting Rail
2 Mounting Hole
3 Screws

4.2 Insert one screw into the hole on each cabinet-mounting f lange, and use the Phillips screwdriver to tighten the screws completely to secure the front of the CE7900 controller tray to the cabinet.

4.3 At the front and the rear of the cabinet, use the Phillips screwdriver to f inish tightening the other three screws for each mounting rail.

4.4 Attach the front bezel by aligning the pins on the CE7900 controller tray with the retainers on the front bezel, and press the front bezel until the pins snap into place.

Install the drive trays below and above the CE7900 controller tray, keeping the weight in the lower portion of the cabinet. Any DE6900 drive trays must be installed below the CE7900 controller tray. For drive tray installation instructions, refer to the *CE7900 Controller Tray Installation Guide*.

NOTE The maximum number of drives in a conf iguration is 448 if FC4600 drive trays are used. If only DE6900 drive trays are used, the maximum number of drives is 480.

5 Connect the cables

WARNING (W03) Risk of exposure to laser radiation – Do not disassemble or remove any part of a Small Form-factor Pluggable (SFP) transceiver because you might be exposed to laser radiation.

In this step, you will connect the CE7900 controller tray to the host or hosts, and then you will connect either the FC4600 drive tray or the DE6900 drive tray to either a CE7900 controller tray (which contains the controllers), or to another drive tray in the storage array (step 5.7). For more information about cabling options, refer to these documents: the *FC4600 Drive Tray Quick Install Guide,* the *DE6900 Drive Tray Quick Install Guide,* the *CE7900 Controller Tray Installation Guide,* and the *Hardware Cabling Guide.*

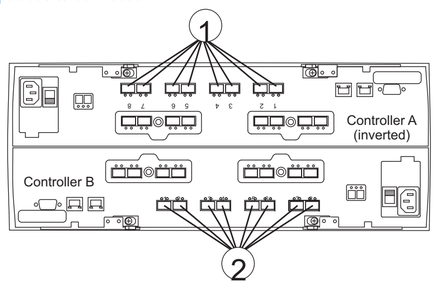
5.1 For each host port on either controller that will be used for a Fibre Channel connection or a 10-Gb/s iSCSI connection, install the appropriate SFP transceiver (4-Gb/s, 8-Gb/s, or 10-Gb/s) if one is not already installed.

5.2 Choose the host connection conf iguration. For examples of each topology, refer to the *CE7900 Controller Tray Installation Guide.*

- **Direct topology** – Connect the appropriate cable from the host port on the controller to the host adapter on the host.
- **Switch or fabric topology** – Connect the appropriate cable from the host port on the controller to the switch, and make sure that the controller connection and the host connection are in the same zone on the switch.
- **Mixed topology** – Use a combination of direct topology and fabric topology.

5.3 Repeat step 5.1 through step 5.2 for each controller's host channel that you intend to use.

5.4 When you are f inished, label each end of the cable with information about its connection.



1 Drive Ports 8 through 1 on Controller A
2 Drive Ports 1 through 8 on Controller B

NOTES

- If not already installed, insert SFP transceivers into the required drive ports on the CE7900 controller tray and the drive ports on the drive trays. Remove any extra SFP transceivers from the drive ports that will not be used.
- Install a minimum of two drives in each FC4600 drive tray and four drives in each drawer of the DE6900 drive tray.
- The FC4600 drive tray has the ESM A canister inverted.
- The DE6900 drive tray has both ESMs right-side up, with ESM A directly above ESM B.

NOTES (continued)

- When you install a cable, label each end. Include any of the following information that applies: host name, host adapter port, controller ID, and host channel ID.

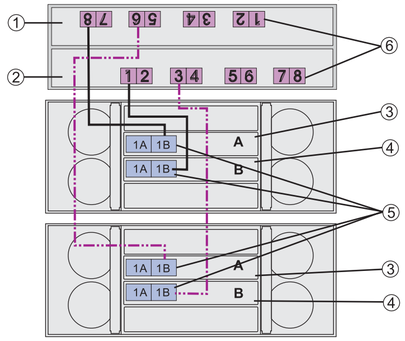
Steps to Connect Two DE6900 Drive Trays:

5.5 Starting with the CE7900 controller tray, connect the f ber-optic cable or the copper cable from drive port 8 of controller A to port 1B on the upper ESM (ESM A) of the f rst DE6900 drive tray.

5.6 On the CE7900 controller tray, connect the f ber-optic cable or the copper cable from drive port 1 of controller B to port 1B on the lower ESM (ESM B) of the f rst DE6900 drive tray.

5.7 On the CE7900 controller tray, connect the f ber-optic cable or the copper cable from drive port 6 of controller A to port 1B on the upper ESM (ESM A) of the second DE6900 drive tray.

5.8 On the CE7900 controller tray, connect the f ber-optic cable or the copper cable from drive port 3 of controller B to port 1B on the lower ESM (ESM B) of the second DE6900 drive tray.



1 Controller A (Inverted)
2 Controller B
3 Top ESMs on the Drive Tray
4 Bottom ESMs on the Drive Tray
5 ESM Port 1B (Two per Drive Tray)
6 Drive Ports on Controller A and Controller B

For information about other standard basic cabling conf gurations, refer to either the *CE7900 Controller Tray Installation* or *Hardware Cabling*.

For information about all drive-side trunking conf gurations, refer to the *Hardware Cabling Guide*.

Steps to Connect One FC4600 Drive Tray

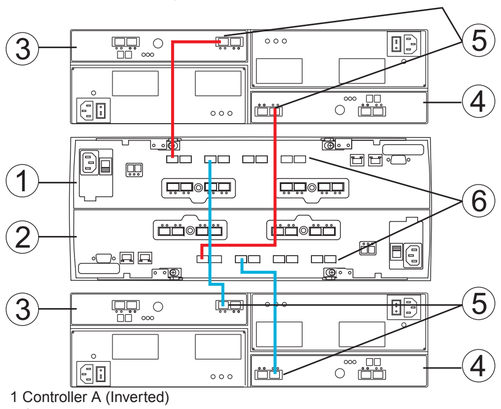
5.9 Starting with the CE7900 controller tray, connect the f ber-optic cable or the copper cable from drive port 8 of controller A to port 1B on the left ESM of the f rst drive tray.

5.10 On the CE7900 controller tray, connect the f ber-optic cable or the copper cable from drive port 1 of controller B to port 1B on the right ESM of the f rst drive tray.

Steps to Connect a Second FC4600 Drive Tray

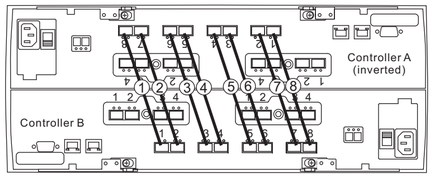
5.11 Starting with the CE7900 controller tray, connect the f ber-optic cable or the copper cable from drive port 8 of controller A to port 1B on the left ESM of the top drive tray.

5.12 On the CE7900 controller tray, connect the f ber-optic cable or the copper cable from drive port 1 of controller B to port 1B on the right ESM of the lower drive port.



1 Controller A (Inverted)
2 Controller B
3 Left ESMs on the FC4600 Drive Tray
4 Right ESMs on the FC4600 Drive Tray
5 ESM Port 1B (Two per Drive Tray, ESM A is Inverted)
6 Drive Ports on Controller A and Controller B

Adding a drive tray continues with the preceding pattern, with controller A using drive port 6 and controller B using drive port 3.



Paths 5, 7, 2, 4, 6, and 8 are used (in that order) to connect drive trays 3 through 8. You can connect up to 28 FC4600 drive trays, but the pattern changes after you connect eight drive trays. For detailed information, refer to the *Hardware Cabling Guide*.

Steps to Connect Ethernet Cables for Out-of-Band Management Only:

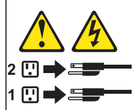
5.13 Connect one end of the Ethernet cable to the Ethernet port 1 connector on controller A.

5.14 Connect the other end of the Ethernet cable to the appropriate Ethernet network connection or directly to your Ethernet ports on your management station.

5.15 Repeat step 5.13 through step 5.14 for controller B.

6 Turn on the power

You must follow the power sequence in the order shown. To establish power redundancy for trays with two power supplies, use at least two different power distribution units (PDUs) in the cabinet. Split the power connections from each tray into the separate PDUs. Then connect the PDUs to external power receptacles that are on different circuits.



WARNING (W17) Risk of bodily injury – Each tray has more than one power cord. To remove all electrical current from the devices, make sure that all of the power cords are disconnected from the power source.

IMPORTANT You must turn on the power to all connected drive trays before you turn on the power to the CE7900 controller tray. Performing this action makes sure that the controllers recognize each attached drive tray.

6.1 Turn off all of the Power switches from the rear of the storage array, and make sure that all of the power cords are connected.

6.2 If the main AC circuit breaker switches in the cabinet are not already turned on, turn on the circuit breaker switches.

6.3 Turn on the Power switch on each power-fan canister in all of the newly installed drive trays.

6.4 Turn on the Power switch on each power-fan canister in the CE7900 controller tray.

NOTE When turning off the power to the storage array, perform the procedure in the reverse order. Turn off the power f irst to the controller tray, and then turn off the power to the drive trays.

7 Determining the management method

Both management methods are specif ic to the installation steps in Section 9. This section and those that follow concern confi guration of the entire storage array.

- **In-band management** – Managing a storage array by using a storage management station to send commands through the host input/output (I/O) connection to the controller.
- **Out-of-band management** – Managing a storage array by using a storage management station to send commands through the Ethernet connections on each controller.

For more information, refer to the "Deciding on the Management Method" step in the *Initial Configuration and Software Installation Guide for SANtricity ES Storage Manager.*

For Out-of-band management, use one of the methods below to conf igure the controllers for network connectivity:

Without a DHCP server

7.a1 Connect separate Ethernet cables to each controller.

7.a2 Manually conf igure the network settings on the controllers, using the guidelines and procedures from the "Manually Conf iguring the Controllers" step in the *Initial Configuration and Software Installation Guide for SANtricity ES Storage Manager.*

With a DHCP server

7.b1 Connect separate Ethernet cables to each controller.

7.b2 Assign static IP addresses to the controllers.

NOTE This method applies only to IPv4 networks.

Stateless Address Autoconfiguration

7.c1 Connect separate Ethernet cables to each controller.

NOTE This method applies only to IPv6 networks and does not require either a DHCP server or a router.

8 Install the software

Two types of computers are associated with the storage array.

- *Hosts* send I/O to the storage array.
- *Management stations* manage the storage array.

The type of operating system that the management station runs is the directory that you need to locate on the DVD.

8.1 At this time, check your current Fibre Channel host bus adapters' (HBAs') BIOS, and device driver versions, and, if necessary, update them before proceeding. For HBAs, obtain the BIOS and device drivers directly from the vendor.

For Microsoft Windows installations,

- Install the StorPort device driver.
- Install the MPIO multi-path driver on the host.

8.2 On the SANtricity ES Storage Manager Installation DVD, locate the appropriate operating system (OS) directory.

- Review the appropriate operating system and device driver `readme` f les included on the SANtricity ES Storage Manager Installation DVD for additional information.

8.3 Launch the SMIA executable f ile. Follow the instructions in the wizard, and select one of these installation methods:

- For the Management Station designated as a monitor (for monitoring and sending alert notif cations), select **Management Station (full installation)**, and, when prompted, click **Automatically Start Monitor**.
- For the Management Station that you will use to manage the storage array, select **Management Station**, and, when prompted, select **Do Not Automatically Start the Monitor.**
- For all I/O hosts attached to the storage array, select **Host**.

9 Discover the storage array

Before performing this step, make sure that you have correctly conf gured the storage array IP addresses as described in the *Initial Configuration and Software Installation Guide for SANtricity ES Storage Manager.*

9.1 Start the SANtricity ES Storage Manager software from your management station either by typing `SMclient` and pressing **Enter** (UNIX OSs), or by navigating to the directory that contains the `SMclient.exe` f le, typing `SMclient` and pressing **Enter** (Windows OSs). The client software starts and shows the Enterprise Management Window (EMW).

9.2 Select **Tools >> Automatic Discovery** from the EMW to discover the storage array.

9.3 In the conf guration dialog, click **OK** to start the automatic discovery.

9.4 Click the **Devices** tab of the EMW to see the storage arrays.

9.5 Double-click the storage array that you want to manage. The associated Array Management Window (AMW) is launched.

NOTE To add a storage array from outside the local subnetwork, use the manual discovery method. From the EMW, click the **Add Storage Arrays** link, and follow the instructions.

10 Perform a basic setup

10.1 In the AMW, select the **Setup** tab, and select the **Rename Storage Array** link to name the storage array. You can use up to 30 alphanumeric characters, hyphens (-), pound signs (#), and underscores (_).

10.2 Also on the **Setup** tab, click the **Locate Storage Array** link to f nd the storage array in the cabinet. A white LED blinks on the front of the selected storage array. Physically label the storage array with its name.

10.3 Click the **Storage & Copy Services** tab to see the storage array's conf guration.

If the storage array is not in the Optimal state, click the **Needs Attention** link. Follow the steps in the Recovery Guru.

10.4 Select the **Summary** tab, and select **Storage Array Profile**.

By clicking the tabs, f nd the controller f rmware, NVSRAM, ESM f rmware, drive product ID, and f rmware version, and record them.

10.5 Close the storage array prof le.

11 Configure the storage array

In the AMW, select the **Setup** tab. If the storage array is in the Optimal state, perform these tasks:

11.1 Conf gure the storage array.

11.2 Def ne the hosts.

11.3 Create new storage partitions.

11.4 Select the **Support** tab, and click the **Gather Support Information** link.

11.5 To set or change a password, in the AMW, select either the **Set a Storage Array Password** link under the **Setup** tab, or select **Storage Array >> Security >> Set Password**.

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