SGI InfiniteStorage 5000 (E2660) 60-Bay Controller Drive Tray Quick Install Guide

1 Before you begin

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

For detailed installation instructions, refer to *E2600 Controller-Drive Tray and Related Drive Trays Installation Guide*, and review these instructions before beginning the installation.

1.1 **E2660 controller-drive tray -- What you need for assembly:**

- One four-unit (4U) -high E2660 controller-drive tray
- Four Small Form-factor Pluggable (SFP) transceivers, one for each of the host channel ports on the controllers (for Fibre Channel setup only)
- One cabinet mounting hardware kit, including:
  - Two mounting rails (right and left assemblies)
  - Eight M5 x 8 mm screws – Use six screws to secure the mounting rails and two screws to secure the front of the controller-drive tray to the cabinet.
  - Two M4 x 8 mm screws – Use the screws to secure the rear of the controller-drive tray to the mounting rails.

Options:

- Drives (four minimum for each drive drawer or 20 minimum for the entire controller-drive tray)
- Two host bus adapters (HBAs), two host channel adapters (HCAs), or Ethernet adapters installed in each host
- Two two copper cables for each drive tray connection
- One rail-mounting hardware kit

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

Tools:

- An Internet connection
- A cart to hold the controller-drive tray and its components
- Labels for the cable connections
- A medium flat-blade screwdriver
- A No. 2 Phillips screwdriver
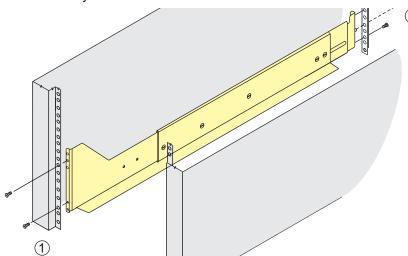- Anti-static protection
- A flashlight

2 Install the mounting rails

You can install the E2660 controller-drive tray into an industry-standard cabinet.
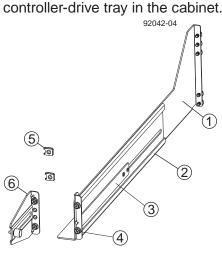
There must be a minimum depth of 76 cm (30 in.) between the front EIA support rails and the rear EIA support rails.
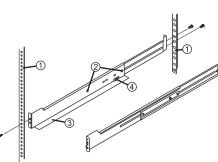
2.1 Position the mounting rails in the cabinet.

- If you are installing the mounting rails above an existing tray, position the mounting rails directly above the tray.
- If you are installing the mounting rails below an existing tray, allow 17.8-cm (7-in.) vertical clearance for the E2660 controller-drive tray.
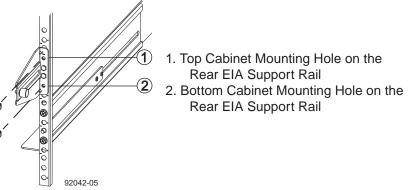

1. Two M5 Screws for the Front EIA Support Rail
2. Two M4 Screws for the Rear EIA Support Rail

2.2 Make sure that the adjustment screws on the mounting rail are loose so that the mounting rail can extend or contract as needed. Do not completely tighten the screws until you have installed the E2660 controller-drive tray in the cabinet.

1. Front of the Mounting Rail
2. Rear of the Mounting Rail
3. Rail Fix Bar
4. Two M5 Screws for the Front EIA Support Rail
5. Two Clips for the Front EIA Support
6. Rear Bracket

1. Cabinet Mounting Holes
2. Adjustment Screws
3. Support Rails
4. Two M5 Screws for the Front EIA Support Rail

2.3 Insert one M5 screw through the front of the cabinet, and screw it into the top captured nut in the mounting rail.

2.4 Insert two M4 screws through the rear of the cabinet, and screw them into the captured nuts in the rear flange in the mounting rail.

1. Top Cabinet Mounting Hole on the Rear EIA Support Rail
2. Bottom Cabinet Mounting Hole on the Rear EIA Support Rail

2.5 Counting up from the bottom of the mounting rail, place the bottom screw of the rear bracket in the 8th hole of the cabinet rail so that the top screw of the rear bracket is in the 11th hole. The distance between the two holes should be 1U or 4.45 cm (1.75 in.).

The screw fits into the hole on each side at the back of the E2660 controller-drive tray when the tray is secured to the cabinet in step 3.5.

2.6 Tighten the adjustment screws on the mounting rail.

2.7 Repeat step 2.2 through Step 2.5 to install the second mounting rail.

3 Install the controller-drive tray

⚠️ **WARNING (W09) Risk of bodily injury –**

>35 kg (77 lbs)
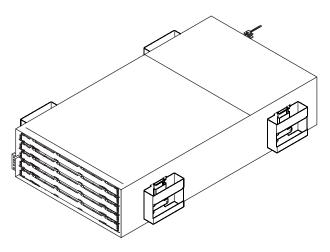Three persons are required to safely lift the component.

⚠️ **WARNING (W15) Risk of bodily injury –** An empty tray weighs approximately 56.7 kg (125 lb). Three persons are required to safely move an empty tray. If the tray is populated with components, a mechanized lift is required to safely move the tray.
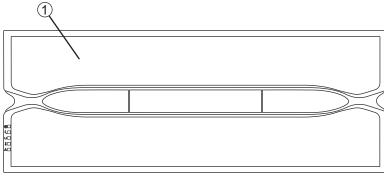
NOTE Make sure you do not install the drives in the controller-drive tray until you have moved it into the cabinet.

3.1 With the help of at least two other persons, remove the E2660 controller-drive tray and all of the contents from the shipping carton, using the four handles as shown.
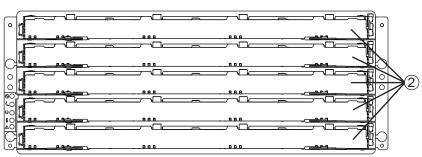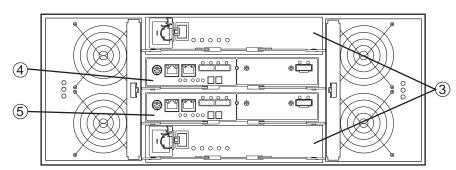
E2660 Controller-Drive Tray with Handles

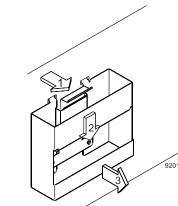**E2660 Controller-Drive Tray – Front and Rear View**

1. Front Bezel

2. Drive Drawers (Front Bezel Removed)

3. Power Supplies
4. ESM A
5. ESM B

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 a mechanized lift or at least two other persons, place the rear of the E2660 controller-drive tray on the mounting rails.

3.4 After the E2660 controller-drive tray is correctly aligned, use your thumb to unlatch the four handles (two to a side), and remove the handles from the E2660 controller-drive tray, from the rear to the front (refer to the image at the top of the next column).

Substeps for Removing the Handles

1. Pull the thumb latch away from the drive tray to detach the hook.
2. Shift the drive tray handle down to release the other four hooks.
3. Move the drive tray handle away from the drive tray.

3.5 After removing the handles, slide the E2660 controller-drive tray into the cabinet, and verify that the rear of the E2660 controller-drive tray is secured by the hold-down clips at the rear of each mounting rail.

3.6 Secure the side of the E2660 controller-drive tray to the cabinet. Use the four 10-32 screws to attach the flange on each side of the E2660 controller-drive tray to the mounting rails.

NOTE Make sure that each drive drawer in the E2660 controller-drive tray is securely fastened to ensure correct air flow to the drives.

3.7 Attach the bezel onto the front of the E2660 controller-drive tray.

4 Install the drives in the controller-drive tray

ATTENTION Risk of bodily injury – Do not use equipment in the cabinet as a shelf or work space.
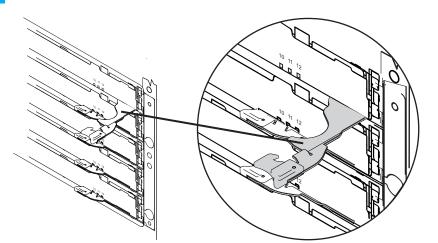

IMPORTANT Install the drives in each drawer from left-to-right in each row. You must install a drive in slots 1, 4, 7, and 10 so that the four drives in each row are adjacent to each other. The long edge of each drive should touch the drive next to it. To maintain a uniform airflow across all drawers, the controller-drive tray must be configured with a minimum of four drives in the front of each row in the drive drawer.
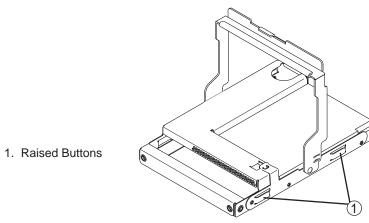
NOTE The drive drawers ship installed in the E2660 controller-drive tray, but the drives ship separately from the drive drawers.

For the maximum number of drives supported in a particular configuration, consult the *E2600 Controller-Drive Tray and Related Drive Trays* hardware installation manual.

4.1 In the top drive drawer in the controller-drive tray, release the levers on each side of the drive drawer by pulling both towards the center.

4.2 Pull on the extended levers to pull the drive drawer out to its full extension without removing it from the controller-drive tray.

4.3 Starting with the first drive, raise the drive handle to the vertical position, and align the raised button on each side over the matching gap in the drive channel on the drive drawer.

1. Raised Buttons

4.4 Lower the drive straight down, and rotate the drive handle down until the drive snaps into place under the drive release lever.

1. Drive Release Lever
2. Drive Handle

4.5 Install the other drives in rows from left-to-right, front-to-back, until the drive drawer is fully populated.

4.6 Push the drive drawer all the way back into the controller-drive tray, and close the levers on each side of the drive drawer.

4.7 Continue with the next drive drawer, by repeating step 4.1 through step 4.6 for each drive drawer in the configuration.

5 Connect the cables

1. SAS IN Connectors on Controller A
2. SAS IN Connectors on Controller B

⚠ **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.

Host-to-Controller Cabling

5.1 Attach the appropriate cables and components for the relevant protocol (Fibre Channel, SAS, or iSCSI).

For specific examples of a switch or fabric topology or of a mixed topology, refer to the *E2600 Controller-Drive Tray and Related Drive Trays* hardware installation guide.

Choose the host connection configuration.
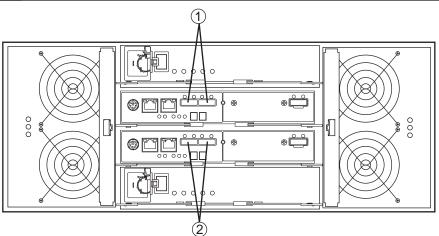
5.2
- **Direct topology** – Connect the cable from the host port on the controller to either an HBA port (for Fibre Channel), a SAS port, or an Ethernet adapter (iSCSI) on the host. The figure in step 5.13 shows the HBA port option on the host.

- **Switch or fabric topology** – Connect the cable from the host port on the controller to a port on the switch, and make sure that the HBA and the controller 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 once more for the each controller and host channel that you intend to use.

5.4 When you are finished, label each end of the cable with information about its connection for when you need to replace cables or move the physical storage array.

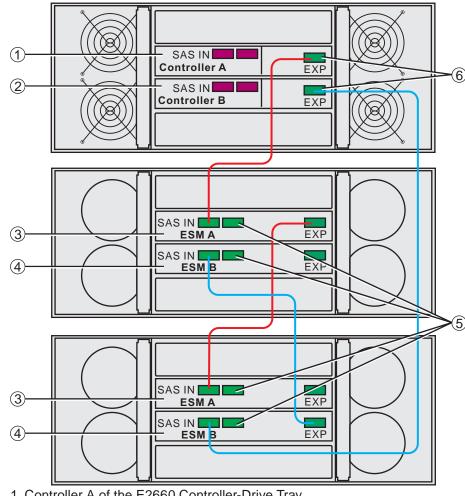### Steps to connect Ethernet cables for out-of-band management only:

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

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

5.7 Repeat step 5.5 through step 5.6 for controller B.

Steps to connect one DE6600 drive tray to an E2660 controller-drive tray:

5.8 Starting with the E2660 controller-drive tray, connect the SAS expansion connector of controller A to one of the SAS IN connectors on ESM A of the first DE6600 drive tray.

5.9 On the E2660 controller-drive tray, connect the SAS expansion connector of controller B to one of the SAS IN connectors on ESM B of the first DE6600 drive tray.

Steps to connect a second DE6600 drive tray to an E2660 controller-drive tray:

5.10 Starting with the E2660 controller-drive tray, connect the SAS expansion connector of controller A to one of the SAS IN connectors on ESM A of the first DE6600 drive tray.

5.11 On the E2660 controller-drive tray, connect the SAS expansion connector of controller B to one of the SAS IN connectors on ESM B of the second DE6600 drive tray.

5.12 On the first DE6600 drive tray, connect the SAS expansion connector of ESM A to one of the SAS IN connectors on ESM A of the second DE6600 drive tray.

5.13 On the second DE6600 drive tray, connect the SAS expansion connector of ESM B to one of the SAS IN connectors on ESM B of the first DE6600 drive tray.

1. Controller A of the E2660 Controller-Drive Tray
2. Controller B of the E2660 Controller-Drive Tray
3. ESM A on the DE6600 Drive Trays
4. ESM B on the DE6600 Drive Trays
5. ESM SAS IN Connector, Two per DE6600 Drive Trays
6. SAS Expansion Connectors on Controller A and Controller B

For more information about cabling configurations, refer to either the *E2600 Controller-Drive Tray and Related Drive Trays* hardware installation guide or the *Hardware Cabling Guide*.

6 Turn on the power

You must follow the power sequence in the order shown for turning on AC power to controller-drive trays and drive trays that use AC power. 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 for the E2660 controller-drive 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 installed drive trays.

6.4 Turn on both Power switches on each power-fan canister in the E2660 controller-drive tray.

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

7 Determine the management method

Both management methods are specific to the installation steps in Section 9. This section and those that follow concern configuration 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 following methods to configure the controllers for network connectivity:

Without a DHCP server

7.a1 Connect separate Ethernet cables to each controller.

7.a2 Manually configure the network settings on the controllers, using the guidelines and procedures from the "Manually Configuring 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 defines which SANtricity ES Storage Manager installation package you should install.

8.1 Refer to your storage vendor to find the appropriate operating system (OS) version of the SANtricity ES Storage Manager for your management station and attached hosts.

- Review the appropriate operating system and device driver `readme` files included with SANtricity ES Storage Manager for additional information.

- For detailed information, consult the *Initial Configuration and Software Installation for SANtricity ES Storage Manager*.

8.2 Launch the SMIA executable file. 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 notifications), 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**, and, when prompted, select **Do Not Automatically Start the Monitor.** For Microsoft Windows and Linux operating systems, the *Initial Configuration and Software Installation for SANtricity ES Storage Manager* instructs you on installing failover software.

8.3 Check the BIOS and device driver versions for your current Fibre Channel HBA, SAS HBA, or iSCSI channel management adapter (CMA). If necessary, update them before proceeding. For HBAs, obtain the BIOS and device drivers directly from the vendor.

9 Discover the storage array

Before performing this step, make sure that you have correctly configured 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` file, 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 configuration 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 find 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 configuration.

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, find the controller firmware, NVSRAM, ESM firmware, and firmware version, and record them.

10.5 Close the storage array profile.

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 Configure the storage array.

11.2 Define the hosts.

11.3 Create new storage partitions.

11.4 Select **Monitor >> Health >> Collect Support Data**. Then name and specify a location on your system where you want to store the support bundle.

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**.