



Quick Start Guide

Quick reference for the DS5100 and DS5300, and for the EXP5000



(P) IBM PN: 46C8858

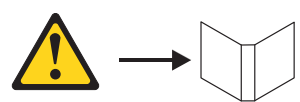


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Color Key:

This Quick Start Guide includes tasks for IBM customers and tasks for IBM Service Support Representatives. Customer tasks are documented in the sections with the **purple** headings (1.1, 1.2, 1.3, 7, and 9). Service Support Representative tasks are documented in the sections with the **blue** headings (2, 3, 4, 5, 6, and 8).

1.1 Before you begin



Safety Information

Management methods are specific to the installation steps found in Sections 5 and 7.

Learn about management methods:

In-band management – Management using the I/O connections between the host and the storage subsystem. Note that the host must still have network capabilities.

Out-of-band management – Management directly through the Ethernet connections on each controller, using one of the network configurations from the list below:

- DHCP Server
- Default Ethernet port 1 IP address:
 - Controller A: 192.168.128.101
 - Controller B: 192.168.128.102
 - Subnet Mask: 255.255.255.0
- Static IP: Detailed setup information for this setting can be found in the *IBM System Storage DS5100/DS5300 Storage Subsystems Installation, User's, and Maintenance Guide*.

1.2 Install the software

At this time, check your current Fibre-Channel Host Bus Adapters (HBAs), BIOS, and device driver versions; and if necessary, update before proceeding. For IBM HBAs, the BIOS and device drivers are located in the HostAdapter directory on the DS Storage Manager software DVD. For the latest IBM HBA BIOS and drivers follow the steps under **Accessing the IBM Support/Download Web site**. Refer to the HBA READMEs for installation instructions.

Note: For Windows installations, install the StorPort device driver.

On the DS Storage Manager software DVD, locate the appropriate operating system directory (Win32, WS03_x86_32bit, WS03_IA64, WS03_x64, Linux, Linux_IA64, AIX, Solaris, HP-UX, or LoP). Before launching the SMIA executable file in the folder, verify that it is the latest DS Storage Manager available.

Access the IBM Support/Download Web site:

Go to <http://www-03.ibm.com/systems/storage/disk/>.

Choose a storage subsystem under **DS5000** to access the correct support page, then click **Product Support**.

Click on the **Download** tab, then click on **Storage Manager**. Choose the Storage Manager product specific to your version and host operating system.

On the subsequent browser page, choose the Storage Manager file (including the README) you wish to download, and click on that File link.

Download and unzip the packages into a directory that you can point to later.

Note: For detailed information about driver and firmware versions, make sure you consult the README files that are posted with each package.

Which Computer?

- Every attached I/O host - All computers that are attached to the storage subsystem and will be sending I/O.
- Management Work Station - Computer(s) that you will use to manage the storage subsystem.

Notes:

- For Windows installations, select the MPIO multipath driver.
- Review the appropriate OS and Device Driver READMEs included on the Storage Manager CD, and refer to the **IBM System Storage DS Storage Manager Installation and Host Support Guide** on the documentation CD for more detailed instructions.

Launch the SMIA executable file. Follow the wizard, and select the following installation methods:

- For one I/O host designated as a Monitor (for monitoring and sending alert notifications):
 - Choose Typical (full installation), and when prompted, click **Automatically Start Monitor**.
- For all other I/O hosts attached to the storage subsystem:
 - Choose Host.
- For the computers you will use to manage the storage subsystem:
 - Choose Management Station, and when prompted, click **Do Not Automatically Start the Monitor**.

1.3 What you need for assembly

DS5100/DS5300 ship group:

One 4-U DS5100 Storage Subsystem (1818-51A)
One 4-U DS5300 Storage Subsystem (1818-53A)

Two CDs:

- DS Storage Manager Software/Firmware/Drivers/BIOS
- DS5100/DS5300 User's Guide

Two power cord jumpers

One rack-mounting hardware kit, including:

- Two rails (right and left assemblies) and eight (8) M5 black hex-head screws with wide flanges

EXP5000 ship group:

- Two SFP modules (eight included with the DS5100/DS5300)
- 3-U EXP5000 Drive Expansion Enclosure (1818-D1A)
- One rack mounting hardware kit, with twelve (12) M5 black hex-head slotted screws and eight (8) washers

Options:

- Disk Drive Modules (DDMs) (two minimum for each EXP5000 Drive Expansion Enclosure)
- Two SFP modules for each fiber optic cable, (only one SFP required for direct attachment to host HBA.)
- Two fibre-optic cables for each host connection (direct connection) or two fibre-optic cables for each redundant switch connection (fabric connection)
- Two fibre-optic cables for each EXP5000 connection
- Two host bus adapters (HBAs) installed in each host
- Two installed switches (fabric connection only)
- Two Ethernet cables, one per controller (out-of-band management only)

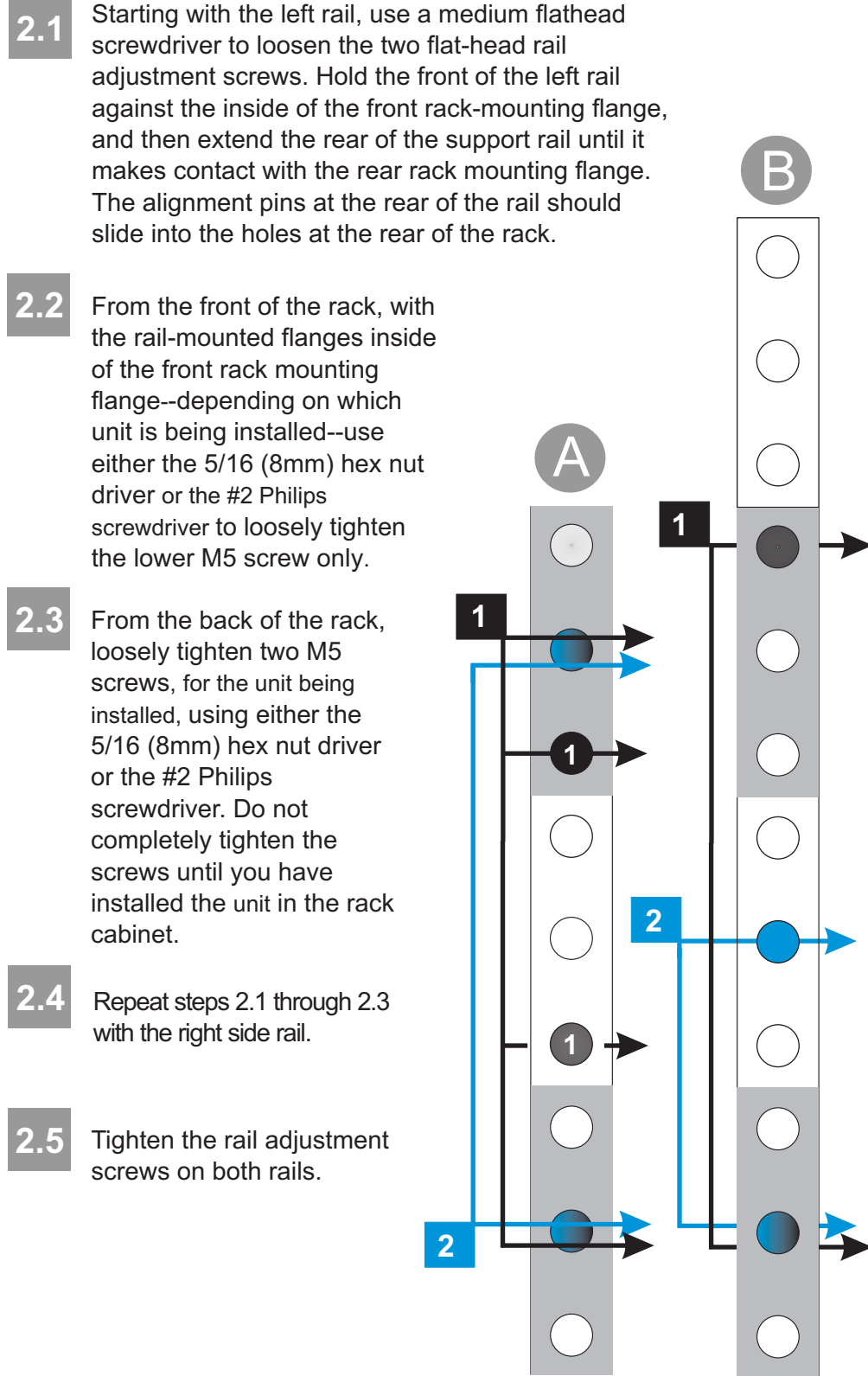
Tools:

- Internet connection
- Medium flathead screwdriver, #2 Philips screwdriver, and 5/16 hex nut driver

2 Install the support rails

- For proper weight distribution, install the rails from the DS5100/DS5300 in the lower portion of the rack cabinet.
- Allow room above and below the DS5100/DS5300 for drive expansion enclosures, as required.
- Use rack mounting template **A**, to locate the correct rail mounting holes for EXP5000 expansion enclosure units.
- Use rack mounting template **B**, to locate the correct rail mounting holes for the DS5100 or the DS5300 storage subsystem units.

Note: For the DS5100 or DS5300, use the M5 black broad flange hex-head screws and template **B**. For the EXP5000, use the M5 black hex-head slotted screws and template **A**. For both templates, rack mounting holes labeled **1** should be used first, followed by rack mounting holes labeled **2**.



3 Install the enclosure



Statement 4

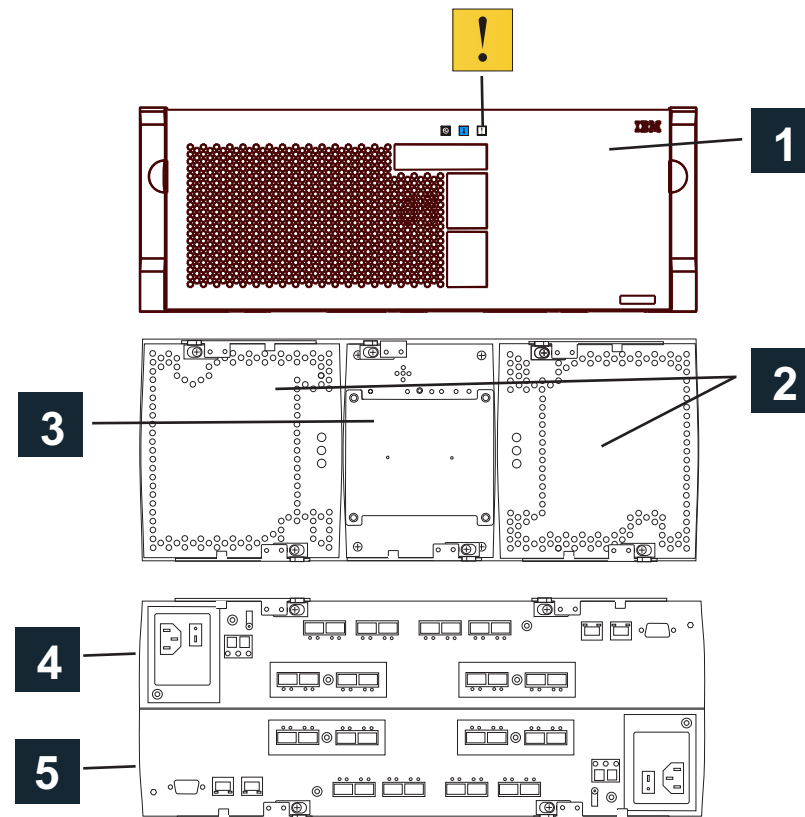
CAUTION:

Use safe practices when lifting.

≥ 18 kg (39.7 lb)	≥ 32 kg (70.5 lb)	≥ 55 kg (121.2 lb)

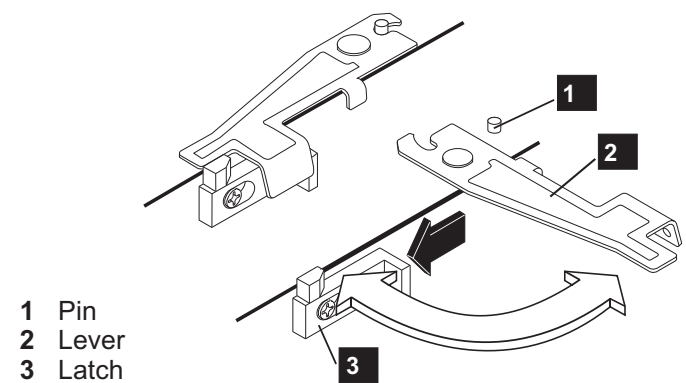
Unit	Weight		
DS5100/DS5300	Empty 11.1 kg (24.5 lb)	Maximum 36.52 kg (80.7 lb)	Shipping 53.8 kg (118.4 lb)
EXP5000	Empty 16.4 kg (36.1 lb)	Maximum 38.1 kg (84 lb)	Shipping 50.5 kg (111 lb)

- 3.1 Remove the front bezel by grasping the sides and pulling the bezel toward you.



- 1 Front bezel, off the unit
- 2 Power supply-fan, front view of unit
- 3 Interconnect-battery, front view of unit
- 4 Controller A, rear view of unit
- 5 Controller B, rear view of unit
- Attention LED

- 3.2 Remove the components. Each component of the DS5100/DS5300, including power supplies, interconnect-battery unit, and controllers, is held in place by two locking levers.



To release both latches:

- Push the latches to the side until the latches release the levers.
- Rotate both levers out simultaneously. When the levers are completely free, use the levers to pull the component from the DS5100/DS5300. Label each controller. Controller A is in the upper slot and controller B is in the lower slot.

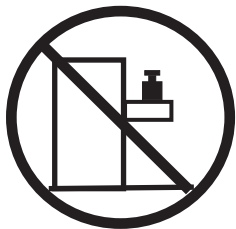
- 3.3 Remove the empty DS5100/DS5300 from the shipping box. With the help of another person, place the back of the subsystem on the support rails. Slide the subsystem into the cabinet, and verify that the back of it is secured by the hold down clips at the back of each rail.

Note: If you remove the components before installation, you can lift the enclosure into the rack with the help of one other person. If you do not remove the components, you should have at least two other people available to help you lift the enclosure into the rack.

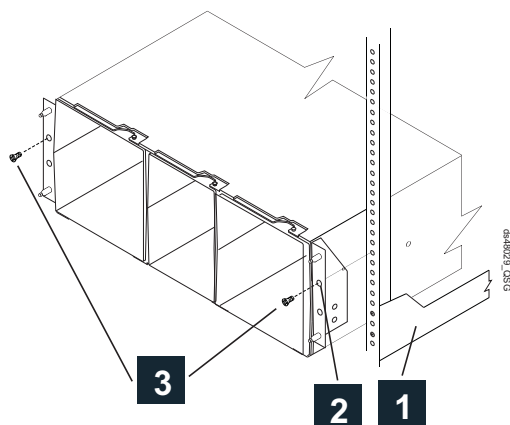
4 Secure the enclosure

Statement 26

CAUTION:
Do not place any object on top of rack-mounted devices.



- 4.1** Align the front mounting holes on the DS5100, DS5300, or the EXP5000 with the mounting holes on the cabinet.



- 1 Support rail
2 Mounting hole
3 Screws

- 4.2** Using the 5/16 (8mm) hex nut driver, insert one M5 screw into the hole on each flange, and tighten the screws completely to secure the front of the DS5100/DS5300 or EXP5000 to the cabinet.

- 4.3** At the front and the rear of the rack cabinet, use the 5/16 (8mm) hex nut driver to finish tightening the other three M5 screws for each rail.

- 4.4** Replace the power supplies, the interconnect-battery unit, and the controllers. Ensure that controller A is in the upper slot and controller B is in the lower slot. Controller B is installed in the opposite orientation to controller A.

- 4.5** Attach the DS5100/DS5300 front bezel by aligning the pins on the DS5100/DS5300 with the retainers on the cover, and press the cover until the pins snap into place.

Note: For complete instructions to install EXP5000 enclosures, reference the *IBM System Storage DS5000 EXP5000 Storage Expansion Enclosure Installation, User's, and Maintenance Guide*.

5 Install the cables

Statement 3

CAUTION:

When laser products (such as CD-ROMs, DVD drives, fiber optic devices, or transmitters) are installed, note the following:

- Do not remove the covers. Removing the covers of the laser product could result in exposure to hazardous laser radiation. There are no serviceable parts inside the device.
- Use of controls or adjustments or performance of procedures other than those specified herein might result in hazardous radiation exposure.

DANGER

Some laser products contain an embedded Class 3A or Class 3B laser diode. Note the following:

- Laser radiation when open. Do not stare into the beam, do not view directly with optical instruments, and avoid direct exposure to the beam.

CAUTION:

Do not bend or loop the cables to a diameter of less than 76 mm (3 in.) or a radius of less than 38 mm (1.5 in.).

Host Cables

- 5.1** If not already installed, insert an SFP module into the required host ports on both controllers. Remove any extra SFPs from host ports that won't be used.

- 5.2** Choose the host connection configuration.

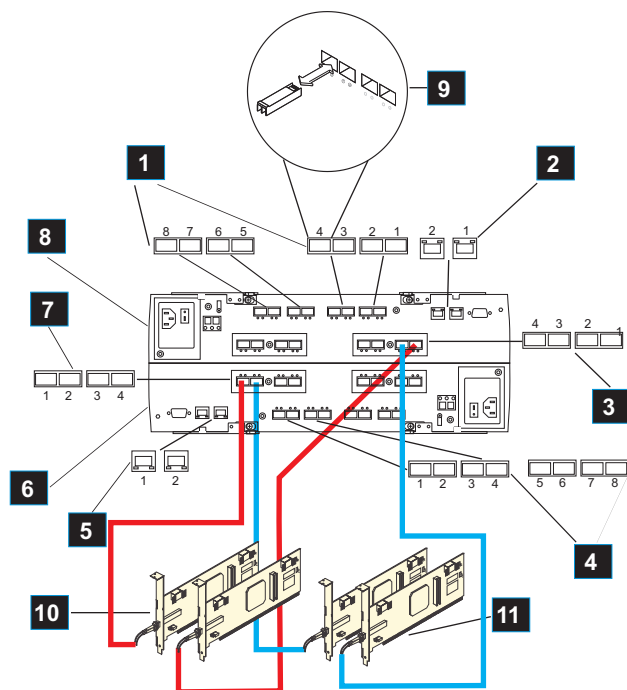
Direct Connection: Connect the fiber optic cable from the host port on the controller to an HBA port on the host.

Fabric Connection: Connect the fiber optic cable from the host port on the controller to a port on the switch and ensure that the HBA and the controller are in the same zone at the fabric switch.

- 5.3** Repeat for each controller-to-host connection.

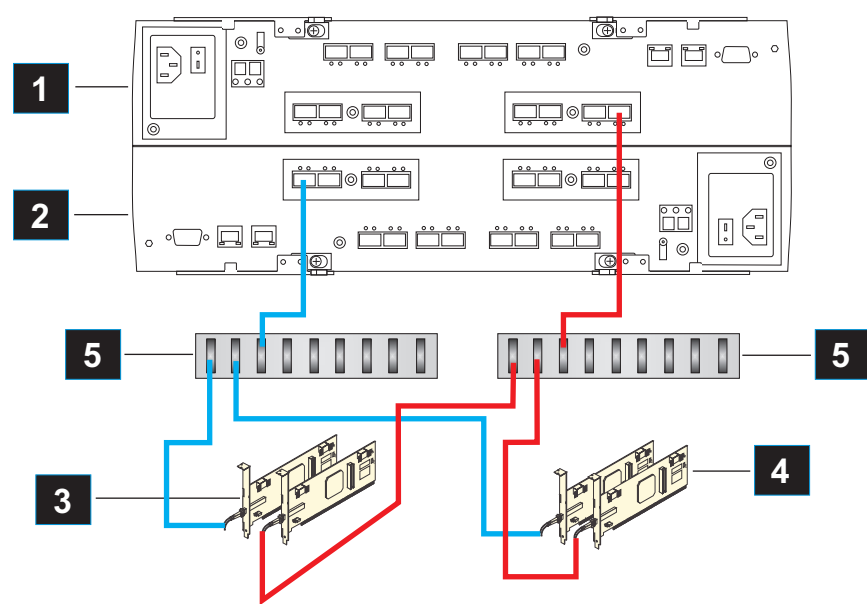
- 5.4** When finished, label each cable with to/from information.

Direct connection



- 1 and 4 Drive ports
2 and 5 Ethernet ports
3 and 7 Host ports
6 Controller B
8 Controller A
9 SFP
10 Host 1, host adapters 1 and 2
11 Host 2, host adapters 1 and 2

Fabric connection



- 1 Controller A
2 Controller B
3 Host 1, host adapters 1 and 2
4 Host 2, host adapters 1 and 2
5 Zoned fabric switches

DS5100/DS5300 EXP5000 Drive Expansion Cabling

Steps to connect one EXP5000 storage expansion enclosure:

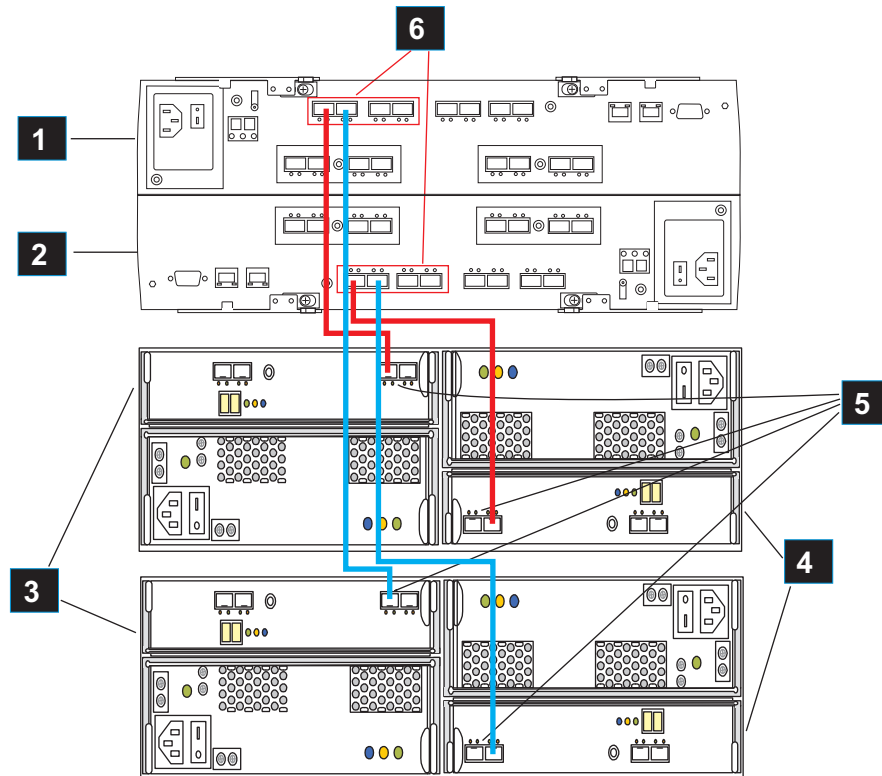
- 5.5** Starting on the DS5100/DS5300, connect the fibre optic cable from drive port 8 (drive channel 1) of controller A to the 1B port on the left ESM board of the first storage expansion enclosure.

- 5.6** From the DS5100/DS5300, connect the fibre optic cable from drive port 1 (drive channel 5) of controller B to the 1B port on the right ESM board of the first storage expansion enclosure.

Steps to connect a second EXP5000 storage expansion enclosure:

- 5.7** Starting on the DS5100/DS5300, connect the fibre optic cable from drive port 7 (drive channel 1) of controller A to the 1B port on the left ESM board of the second storage expansion enclosure.

- 5.8** From the DS5100/DS5300, connect the fibre optic cable from drive port 2 (drive channel 5) of controller B to the 1B port on the right ESM board of the second storage expansion enclosure.



- 1 Controller A
2 Controller B
3 EXP5000 left ESMs
4 EXP5000 right ESMs
5 ESM 1B ports
6 Controller drive ports

Ethernet Cables - Out-of-Band Management Only

Steps to connect:

- 5.9** Connect one end of the Ethernet cable to the Ethernet port 1 connector on Controller A.
- 5.10** Connect the other end of the Ethernet cable to the appropriate network connection.
- 5.11** Repeat for controller B.

Notes:

- If not already installed, insert SFP modules into the required DS5100/DS5300 and EXP5000 drive ports. Remove any extra SFPs from drive ports that won't be used.
- Install a minimum of two drives per EXP5000. Start with the left hand slot.

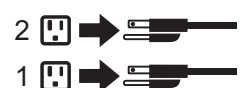
6 Turn on the storage subsystem



Statement 5

CAUTION:

The power control button on the device and the power switch on the power supply do not turn off the electrical current supplied to the device. The device also might have more than one power cord. To remove all electrical current from the device, ensure that all power cords are disconnected from the power source.



IMPORTANT:

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

- 6.1** Connect a power cable to each power supply in the storage subsystem, and then connect the other end to the rack cabinet power receptacle.
- 6.2** Turn on the power to fabric devices, if applicable.
- 6.3** Turn on both power switches of all attached EXP5000s, and wait 60 seconds.
- 6.4** Turn on both power switches of the DS5100/DS5300.
- 6.5** If amber lights are visible, see the *DS5100/DS5300 Storage Subsystems Installation, Maintenance, and User's Guide* to diagnose potential issues.

Note: When powering down the storage subsystem, power down in the reverse order; first the DS5100 and then the drive enclosures.

7 Discover the storage subsystem

- 7.1** Start the Storage Manager software from your management workstation. The client software starts and displays the Enterprise Management window and the Confirm Initial Automatic Discovery window.
- 7.2** Select **Automatic Discovery** to discover the storage subsystem. After the initial automatic discovery is complete the Enterprise Management window displays all hosts and storage subsystem attached to the local sub network. (**Note:** To add storage subsystems outside the local subnet, use the Manual Discovery method. From the Enterprise Management window, select **View > Task Assistant > Add Storage Subsystems**.)
- 7.3** Click **Name/Rename the Storage Subsystem**. (Use the DS5100/DS5300 serial number, separated by a space, as the first part of the subsystem name.)
- 7.4** Click **Locate the Storage Subsystem**. A blue LED will blink on the front of the selected storage subsystem. Then physically label each enclosure with its associated name. (If the storage subsystem is not discovered by automatic discovery, input the IP address by manually adding the storage subsystem.) When finished, close the window.
- 7.5** Highlight the storage subsystem, and select **Tools > Manage Storage Subsystem** to display the Subsystem Management window and the Task Assistant.
- 7.6** If the subsystem is not in Optimal state, click the **Recover from Failure** icon in the Task Assistant. Follow the steps in the Recovery Guru. If the subsystem is Optimal, close the Task Assistant.
- 7.7** From the Subsystem Management window, select **Storage Subsystem > View > Profile**. By clicking the tabs, find the controller firmware, NVSRAM, ESM firmware, drive Product ID and firmware versions and record them. Close the Profile.

8 Update the storage subsystem firmware

Note: The Storage Manager host code and HBA BIOS/driver should be up-to-date, if you completed all the steps in Section 1.2.

From the Subsystem Management Window, select **Advanced > Maintenance > Download**. Select the following options in the order listed:

- > **Controller NVSRAM**
- > **Controller firmware**
- > **ESM firmware**

9 Configure the storage subsystem

From the Subsystem Management Window, select **View > Task Assistant**. If the storage subsystem is Optimal, complete the following tasks in the order listed:

- Configure storage subsystem
- Define hosts
- Create new storage partitions
- Save configuration
- Set/change password



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