

IBM TotalStorage SAN Starter Kit Step-by-step Installation Guide

This document provides instructions for the installation of the IBM TotalStorage® Storage Switch 2006 Model L10 and the IBM TotalStorage DS400. Before using this information and the products it supports, read the “IBM Statement of Limited Warranty” in the IBM TotalStorage DS300 and DS400 Hardware Installation and User’s Guide and the Safety Information document on the IBM Documentation CD. Important safety, electromagnetic compatibility, and regulatory information is contained in the Safety Information document. The installation and use of these products must be in accordance with the information provided in that document.

1. Components list

Your SAN Starter Kit step-by-step guide will include installation instructions for:

- a. TotalStorage DS400 System
- b. TotalStorage L10 SAN switch
- c. HBAs (Host Bus Adapters)
- d. Connections (SFPs (Small Form-factor Pluggable transceivers) and cables)
- e. Configuration software for DS400 and L10
- f. ServeRAID™ management software

2. Before you begin

- *Do not immediately install software after download. Some software will be installed later in the process*
- *If you have difficulties during this installation, please contact your IT professional or contact IBM at ibm.com/support. In the U.S. at Toll Free: 1-800-IBM-SERV (1-800-426-7378). Some assistance may be fee-based.*
- *Different versions of Windows will cause the screens to appear slightly different than the screen-shots*
 - a. The TotalStorage SAN Starter Kit comes ready to connect to two servers. Locate your network switch that connects the servers. This switch will be used in the SAN installation.

Note: Your network switch will henceforth be referred to as Network Switch, and the L10 SAN Switch will henceforth be referred to as L10 SAN Switch.

- b. Have IP addresses ready to assign to the L10 and DS400 controllers (three IPs in total)
- c. Have three Ethernet cables ready to integrate the SAN with your Network Switch
- d. Know the servers' hostname, (defined during server installation) and be ready to assign a name to your SAN, (for example; MyFirstSAN)
- e. Download an unzip utility such as PKZIP or WinZip

3. Unpack the box

The SAN Starter Kit will arrive in multiple shipments. In addition to power cords, a complete kit will include the following:

DS400 Express Model box containing:

- a. DS400 system with four HDDs installed
- b. Four 2GB SFPs
- c. Four FC HBAs
- d. Four 5 meter FC cables

L10 SAN Switch box containing:

- a. L10 SAN Switch
- b. Serial cable
- c. Four 2GB SFPs
- d. Rack assembly kit

Other shipments containing:

- a. Four 2GB SFPs
- b. Four 5 meter FC cables

4. Rack the L10 and DS400 system

If installing the DS400 and L10 in a rack, follow the guide titled, 'Rack Installation Instructions' for the DS400 system, and '2006 Model L10 Fixed Rack-Mount Kit Instructions' for the L10 SAN Switch. The instructions will accompany the DS400 system, and the L10 SAN Switch.

Note: Remove the HDDs that are installed in the DS400 system. Reinsert the HDDs after the system is racked. Do not turn on the power.

5. Install HBAs

Note: The SAN Starter Kit is designed to work with two servers. If you are also installing servers at this time, make sure they are configured and loaded with the operating system, and connected to your lab via the Network Switch. Follow the instructions included with the servers and operating system.

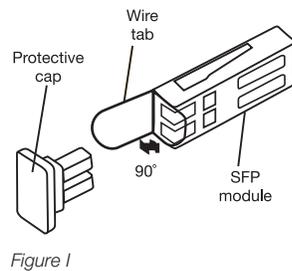
Installation of the HBAs will vary by server type, however, the following steps will summarize the process:

1. Power-down the server, and remove the power cable
2. Remove the server's outer cover
3. Remove the blank cover (if required) from the PCI bus slots
4. Press the HBA board until it is seated in the slot
5. Repeat steps 3 & 4 for the second HBA
6. If applicable, fix the HBAs to the server(s) chassis
7. Replace the server's outer cover
8. Repeat the steps for second server

Note: Do not power on servers at this point.

6. Install SFPs and FC cables

Remove the protective cap from the SFP modules (as shown in figure 1), and make the following connections:



- a. Eight (8) SFPs into the back of the L10 SAN Switch (as shown in figure II). Follow the numbering on the ports. Begin from the port marked '1' and follow in sequence
- b. Eight (8) ends of Fibre Channel cables into L10 SAN Switch via SFPs
- c. Four (4) SFPs into the back of the DS400 system, (as shown in figure III)
- d. Four (4) ends of Fibre Channel cables from the L10 SAN Switch into DS400 system via SFPs in any sequence
- e. Four (4) ends of Fibre Channel cables from the L10 SAN Switch into the two servers in any sequence
- f. One (1) Ethernet cable from the back of L10 SAN Switch to your Network Switch
- g. Two (2) Ethernet cables from the back of DS400 system to your Network Switch in any sequence

7. Switch on the SAN

Note: A complete troubleshooting section is provided in the install guides that accompany the DS400 system and the L10 SAN Switch.

Follow the steps below to switch on SAN components:

- a. Connect the power cable of the L10 SAN Switch. Confirm that the power is on by the Power LED located at the back of the L10 SAN Switch (as shown in figure II)

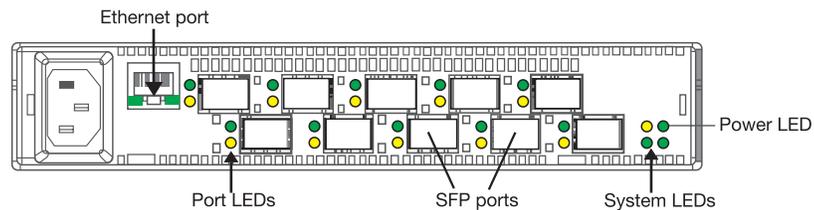


Figure II (L10 SAN Switch)

- b. Connect the power cables of the DS400 system. Turn on the power switch located on each controller (as shown in Figure III), one-by-one. When the controllers are booted-up and ready, the indicator light (top left LED shown in Figure III) will illuminate.
- c. Connect and power-up the servers.

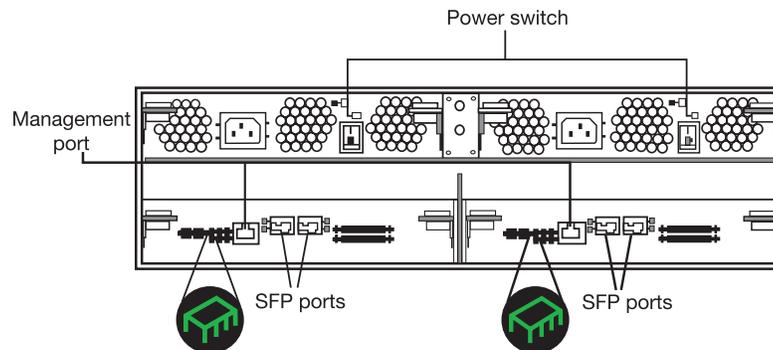


Figure III (DS400 System)

Note: When the servers switch on, they will both launch the 'Found New Hardware Wizard' application. Cancel out of this wizard. We will cover the installation of the HBAs in the sections below.

8. Download and install the software

This section will walk you through the downloading and installation of the software needed for the SAN to work in a true multipath configuration. The software consists of:

- a. Latest controller firmware on DS400 system
- b. IBM Diagnostic and Configuration Utility FASTT MSJ
- c. HBA drivers
- d. Windows® Multipath MPIO
- e. ServeRAID Manager

Note: Before you begin to download, designate one server to be the management server for the storage. All software should be downloaded and installed on the management server, except the HBA drivers, which will be installed on both servers.

The IBM TotalStorage SAN Starter Kit support website contains all the required software. The website is located at: **ibm.com/storage/support/san/starterkit/**

Please bookmark this website. Follow the steps below to download and install the required software:

a. Latest controller firmware on DS400 system

IBM updates the DS400 controller firmware periodically for peak performance of your storage. Obtain the updated controller firmware by following the steps below:

Note: To obtain the firmware, you will have to fill out a short, export control.

1. From the SAN Starter Kit support website, click the link titled 'DS400 Dual Controller Firmware'
2. You will be notified that you are leaving the IBM Storage website, click 'Continue'
3. Click on the appropriate link and follow the instructions to download the file
4. Once the file is downloaded, unzip using any unzip utility and store in a temporary folder

Note: Do not install the firmware yet. You will require ServeRAID software to update the firmware, which is covered in a later section of this guide.

b. IBM Diagnostic and Configuration Utility FAStT MSJ

IBM FAStT MSJ utility enables a user to quickly run diagnostics and basic functions through an easy to use GUI. To download and install FAStT MSJ, follow the instructions below:

1. From the SAN Starter Kit support website, click on 'IBM Configuration and Diagnostics Utility FAStT MSJ'
2. Follow the instructions to download and install the software.

Note: The software will download via IBM Download Director, which will ask you to define a proxy for your network. If you do not use a proxy, then cancel out of this window to start the download. Once the download is complete, close IBM Download Director application, and install FAStT MSJ using the default settings.

c. HBA drivers

Note: Install the HBA drivers on both servers. Instructions are provided for a single server and should be repeated on the second server.

After powering on, the server will recognize the HBAs and open the 'New Hardware Found' wizard. Cancel out of this process. Follow the instructions below to install the HBA drivers:

1. From the SAN Starter Kit support Web site click on 'HBA drivers'
2. You will be notified that you are leaving the IBM Storage website, click 'Continue'
3. Follow the instructions to download and unzip the file into a temporary directory
4. Run the 'Install.exe' file. The HBA drivers will automatically install

Note: Repeat the process on the other server.

d. Windows Multipath MPIO

IBM Windows Multipath works behind the scenes with IBM ServeRAID. In a true multipath environment, MPIO works with the operating system to define redundant paths to your data. If a path malfunctions, MPIO enables the operating system to switch to a redundant path, thus eliminating downtime. Follow the instructions below to install Windows Multipath MPIO:

1. From the SAN Starter Kit support website, click on 'Windows Multipath MPIO'
2. You will be notified that you are leaving the IBM Storage website, click 'Continue'
3. Follow the instructions to download and unzip the file into a temporary directory
4. Install the MPIO software

e. ServeRAID installation

Note: We will install ServeRAID from the CD included with the DS400 at a later part in the installation

9. Configure the L10 SAN Switch

Follow the instructions below to configure the L10 SAN Switch.

1. Change the subnet of the management server temporarily to 192.168.1.xxx

Note: If your server has multiple adapters, change the IP for the adapter which is connected to the Network Switch. The last digits of the IP can be any number between 1 and 254 EXCEPT 129.

2. Open a terminal session through a terminal emulation program (such as HyperTerminal®)
3. Select an appropriate name for the connection, then click the 'OK' button
4. On the following screen, (see image), make selections as shown in the image



5. Click the 'OK' button
6. At the prompt, type 'password' and press enter. 'password' is the default password for a new L10. The Root Menu will display
7. Change the IP parameters of the L10 SAN Switch. Type 'config network ip' and press 'Enter'
8. Enter your designated IP address for the switch
9. Type 'mask' to change the netmask for your network
10. Disconnect and exit out of HyperTerminal

10. Configure DS400 controllers

Follow the instructions below to configure the DS400:

1. Change the IP address of the management server temporarily to 192.168.70.xxx

Note: If your server has multiple adapters, change the IP for the adapter which is connected to the Network Switch. Last digits of the IP can be any number between 1 and 254 EXCEPT 123 and 124.

2. Confirm that the DS400 is turned on
3. Open a command prompt
4. Type 'telnet 192.168.70.123' Press 'Enter'
5. Type 'ad' and press 'Enter' to change to administrator mode
6. Type 'passwd', (note the zero, not O, in passwd) and press 'Enter'
7. Type 'setup'. The Setup wizard automatically starts if the system is configured with the factory default settings when the command-line interface is started. The Setup wizard prompts you to enter the values for the parameters that are required to configure the system to connect to a local network. You can also use the three commands that are described in the following table:

Command	Function
Abort	Quit setup, no changes saved
Back	Go to the previous parameter
Help	Describes the current parameter

Note: If a parameter has a default value, the value appears in square brackets ([]). Some parameters require an arbitrary string, in which case the commands 'back' and 'abort' cannot be used. In these cases, enclose the value that you type in double-quotation marks ("") so that the value is accepted, even if it is the same word as a command.

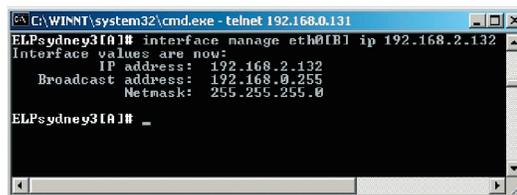
Complete the setup with your network settings. When asked 'Finished?' press 'Y' to accept the settings.

Note: If you changed the management IP for the controller, then the cmd window will appear to be frozen. Use 'Ctrl-C' to exit and establish a new Telnet session to the new IP or type 'telnet 192.168.70.124' and press 'Enter.'
If you did not change the management IP address, then a screen similar to the picture below will appear.



Complete configuring Controller B by typing 'interface manage eth0[B] ip' (type IP for Controller B)

Press 'Enter'. A sample screen is provided below;



Type quit to exit the telnet session. Close the cmd window.

Reset the management server's IP address to the original IP for your network.

10. Install ServeRAID

Complete the following steps to install the IBM ServeRAID Manager program and add a ServeRAID agent for the storage subsystem:

- A. Install the ServeRAID Manager program on the management station using the ServeRAID Application CD that comes with the DS400 system (see the Software Installation Guide on the IBM Documentation CD for additional information on installing ServeRAID Manager)
 1. Insert the installation CD and wait for the Autorun executable to start the installation. If this does not occur, browse the CD and click 'Autorun'
 2. In the Autorun window, click 'Install'
 3. When the installation wizard opens, click 'Next'
 4. Read and accept the terms of the license agreement, then click 'Next'
 5. Click 'Next' to accept the default installation setup **Alternatively**, use the dropdown boxes to select the ServeRAID components that you want to install, then click 'Next'
 6. Create a user name and a password for the ServeRAID Management Station. This is the user name and password that you will use to log onto your Management Station
 7. Click 'Add User' then click 'Next'
 8. Click 'Install'. The installation wizard installs the software. This may take a few minutes to complete
 9. When the installation is complete, click 'Finish'
 10. Reboot the management server
- B. Start the ServeRAID Manager program; then, complete the following steps to add a management station object and a ServeRAID agent for the storage subsystem
 1. To add a management station object, right-click Networked Storage in the ServeRAID Manager interface, then select Add Management Station. Fill out the pop-up box and click 'OK'

Note: See "Adding a remote system object" in the ServeRAID Manager online help for more information about adding a management station.

2. To add a ServeRAID agent, right-click the management station object in the interface and select 'Add agent.' Use the IP address that you assigned to the DS400 system's controller A.

Note: See "Adding a Management Station Agent Object" in the ServeRAID Manager online help for more information about adding an agent.

11. Updating controller firmware

Complete the following steps to update the firmware image on the controller using the ServeRAID Manager program:

- a. In the left-bar 'Enterprise' view, expand the ServeRAID agent
- b. Right-click the enclosure, and click on 'Update Controller Image'. The Software Update wizard opens
- c. When prompted, browse to the folder containing the firmware (downloaded and unzipped in earlier section)
- d. Follow the instructions to update the controller firmware
- e. Once the firmware is updated, you will restart the enclosure
- f. In the left-bar 'Enterprise' view, right click the enclosure and select 'Restart Enclosure'

Note: Restarting the enclosure may take several minutes.

Once the enclosure reboots, your SAN is installed and configured.

Congratulations, you have just completed the installation and configuration of the IBM TotalStorage SAN Starter Kit.



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