

TotalStorage DS300 and DS400



Dual Controller Software Installation Guide

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Chapter 1. Installing and running ServeRAID Manager

This chapter provides installation instructions for the IBM® ServeRAID™ Manager program, and provides an overview of the software features and navigation tools. For detailed instructions about how to use the ServeRAID Manager program to manage the storage subsystem, see the online help.

System Requirements

This section lists the system requirements for the management station and the client computer.

Management station system requirements

To successfully install and run the ServeRAID Manager program on a management station, you need:

- A computer with an Intel™-compatible 500 MHz processor (IA-32, AMD-32, or AMD-64)
- 256 MB RAM
- 35 MB hard disk drive space
- Microsoft® Windows® Advanced Server 2003, Windows XP, or Windows 2000

Client computer system requirements

To successfully install and run the ServeRAID Manager program on a client computer, you need:

- A computer with an Intel-compatible 500 MHz processor (IA32, AMD32, or AMD64)
- 256 MB RAM
- 35 MB hard disk drive space
- 256 color video mode

On client computers, the ServeRAID Manager program is supported on operating systems, including Microsoft Windows, Linux, Novell Netware, UnixWare, or OpenServer.

Note: When installing the ServeRAID Manager program on client computers, see the operating-system-specific readme files on the IBM *ServeRAID Manager Application* CD for a list of supported operating systems and other operating-system-specific information.

Updating the registry information for the host computer

If the DS300 storage subsystem configuration supports dual controllers, you must perform the following procedure on each host computer if the host computer is connected to one of the DS300 data ports, and is running Microsoft Windows 2000 or Microsoft Windows 2003. You must perform this procedure *after* each time you load or update the Microsoft iSCSI software initiator onto a host computer.

To update the registry information, complete the following steps:

1. Create an Emergency Repair diskette for the system using the instructions in the operating system online help.
2. Click **Start → Run**.
3. In the Run window, type `regedt32` and click **OK**.
4. In the Registry Editor window, double-click **HKEY_LOCAL_MACHINE** to expand the tree.
5. Expand the **SYSTEM** tree.
6. Expand the **ControlSet001** tree.
7. Expand the **Control** tree.
8. Expand the **Class** tree.
9. Double-click the Globally Unique Identifier (GUID) that contains the legacy information option of SCSI. GUIDs are in the form {4D36E97B-E325-11CE-BFC1-08002BE10318}.
10. Click the Parameters key **0000**.
11. Change the value for the MAXRequestHoldTime from 60 to 120:
 - a. In the right pane, double-click **MaxRequestHoldTime**.
 - b. In the String Editor window, change the value from 3c in hex to 78 in hex.
 - c. Click **OK**.
12. Close the Registry Editor window.

Installing the ServeRAID Manager program

This section provides instructions for installing the ServeRAID Manager program on systems running a Microsoft Windows operating system. To install the ServeRAID Manager program on client computers running operating systems other than Windows, see the operating-system-specific readme files on the *IBM ServeRAID Manager Application* CD for installation instructions.

Note: You need administrator privileges to install the ServeRAID Manager program.

To install the ServeRAID Manager program, complete the following steps:

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. When the installation wizard opens, click **Next**.
3. Read and accept the terms of the license agreement; then, click **Next**.
4. Click **Next** to accept the default installation setup. Alternatively, use the menus to select the ServeRAID components that you want to install, then click **Next**.
5. Create a user name and a password for the management station.

This is the user name and password that you will use to log into the management station.
6. Click **Add User**; then, click **Next**.

7. Click **Install**.

The installation wizard installs the software. This might take a few minutes to complete.

8. When the installation is complete, click **Finish**.

Getting started

This section explains how to begin using the ServeRAID Manager program.

Running ServeRAID Manager

Note: You need administrator privileges to run ServeRAID Manager.

To run ServeRAID Manager as a standalone application, click **Start** → **Programs** → **ServeRAID Manager** → **ServeRAID Manager**.

For an introduction to ServeRAID Manager features, see “Navigating ServeRAID Manager” on page 4.

Adding a management station agent

When you log in for the first time, you must add the management station before you can begin to set up your network storage.

The management station agent is a monitoring agent for network storage. After you add an agent to a management station, you can monitor and configure the attached storage enclosures from a ServeRAID Manager console.

To add a management station agent, complete the following steps:

1. In the Enterprise view, right-click the icon for the Networked storage and select **Add management station**, as shown in the following illustration.

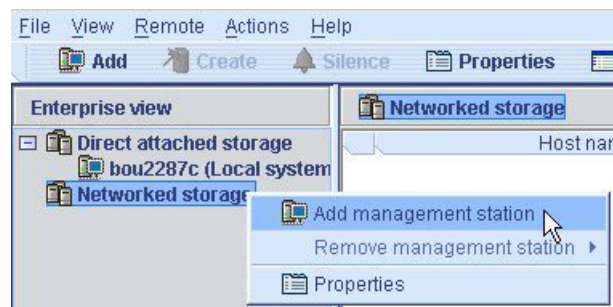


Figure 1. Adding a management station

The Add management station window opens.

2. In the **Type** field, select **Management station**.
3. Enter the host name or TCP/IP address of the management station computer.
4. Enter the management station user name and password, as they were defined during the ServeRAID Manager installation. (In “Installing the ServeRAID Manager program” on page 2, see step 5 on page 2.)
5. Select **Save user name/password**.
6. Click **Connect**.

The management station agent is added.

Removing a management station agent

To remove a management station agent, complete the following steps:

1. In the Enterprise view, right-click **Networked storage**, select **Remove management station**; then, select the management station to be removed.
2. Click **Yes**.

The management station agent is removed.

Adding the storage subsystem to the management station

To add the storage subsystem to the management station, complete the following steps:

1. In the Enterprise view, right-click the management station in the Networked storage tree and select **Add agent**.
2. Type the host name or TCP/IP address for one of the storage subsystem management ports.
3. Enter the administrator password for the storage subsystem.

Note: The administrator password is created when the storage subsystem is installed on the network. It is not the same as the management station password.

4. Click **Add**.

The storage subsystem is added to the management station in the Enterprise view Networked storage tree.

For more information about configuring the storage subsystem and building the network storage, see the ServeRAID Manager help.

Navigating ServeRAID Manager

ServeRAID Manager provides an expandable tree view, or Enterprise view (shown in Figure 2) that shows the systems and controllers you are managing. The Networked storage section of the tree is for management stations with network-attached storage enclosures.

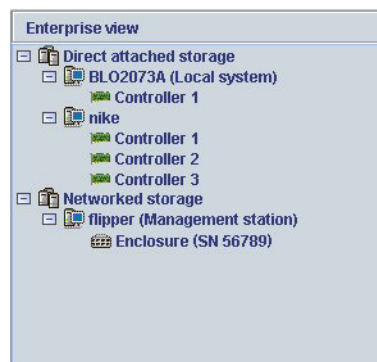


Figure 2. Enterprise view

You can perform most configuration and management tasks by selecting a controller or enclosure from the tree and working with related objects in the Physical and Logical device views (shown in Figure 3 on page 5).

Figure 3 shows how ServeRAID Manager displays the Physical and Logical device views, which show the physical devices and logical devices that are connected to the controller or enclosure.

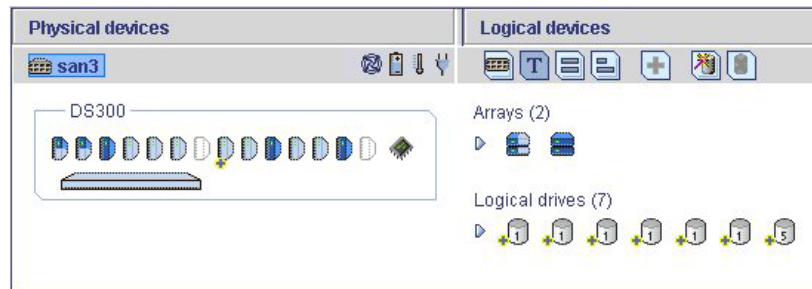


Figure 3. Physical and logical devices view

The Physical devices view (on the left in Figure 3) displays information about the drives, enclosures, and other devices attached to the controller. The devices are shown organized by the channel or port they are connected to and shown in numerical order. The information for each channel or port includes the maximum speed capability, the number of the channel on the controller, and the number of devices attached to the controller.

The Logical devices view (on the right in Figure 3) displays information about the arrays and logical drives created using the physical devices. This information includes the number of arrays and logical drives, the RAID level of each device, and whether a logical drive is protected by a hot spare drive.

In the Physical devices and Logical devices views, you can:

- Collapse or expand a view to see more information about arrays, logical devices, and physical devices.
- Change how drives are displayed (see “Changing how drives are displayed” on page 6).
- Identify components of a logical device (see “Viewing related components” on page 6).

Physical devices view

The Physical Devices view displays physical device information in enclosure view format, as shown in Figure 4. Drives in the enclosure are shown in the physical slots they occupy with the proper vertical or horizontal orientation. Empty slots are shown as drive outlines.

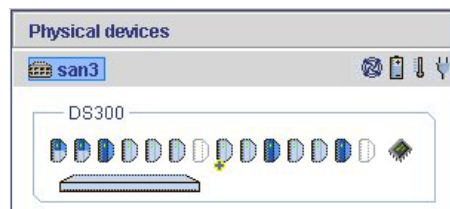





Figure 4. Physical devices view

The indicator icons (  ) report the status of the fan and temperature modules on SAF-TE (enclosure management) devices and other devices that monitor these conditions.

The indicator colors are:

- **Blue**—Normal
- **Yellow**—Warning
- **Red**—Error
- **Gray**—Not applicable to the devices.

For example, the fan indicator changes to yellow when one fan fails; it changes to red when a second fan fails and cooling is no longer adequate.

Logical devices view

The Logical devices view displays information about the logical devices created using the physical devices, including the number of arrays and logical devices, the RAID level of each device, and whether a logical device is protected by a hot spare drive.

You can create and delete logical devices in the Logical devices view by selecting the **Create** option and using the Create wizard.

Changing how drives are displayed

You can choose how information is displayed in the Physical devices view by clicking one of the following icons in the Logical devices view.



Displays the enclosure view. This is the default view.



Displays physical device information in text format.



Displays physical device information in full size capacity format. A full-length bar is displayed for each drive, regardless of capacity. A small segment on each drive is reserved for the RAID signature; this area is indicated by a gray cap at the end of each bar.

Note: A drive shaded in light blue is not part of any disk group.



Displays physical device information in relative size capacity format. A full-length bar is displayed for the largest drive; proportionally shorter bars are displayed for other drives.

Viewing related components

When you click a physical or logical device in the device views, the related components are highlighted.

For example, when you click an array, the associated logical drives are highlighted in the Logical devices view and the physical drives that are members of the array are highlighted in the Physical devices view, as shown in Figure 5 on page 7 and Figure 6 on page 7.

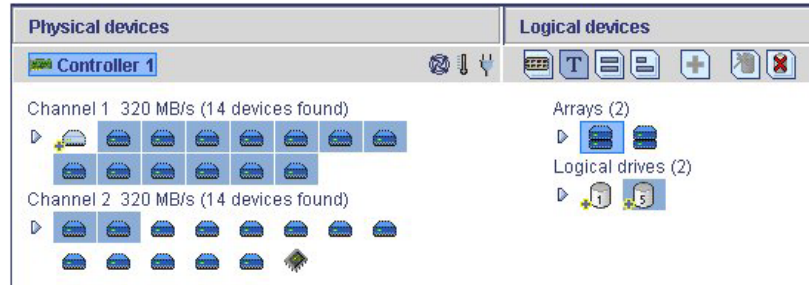


Figure 5. Displaying the logical and physical drives of an array (single controller)

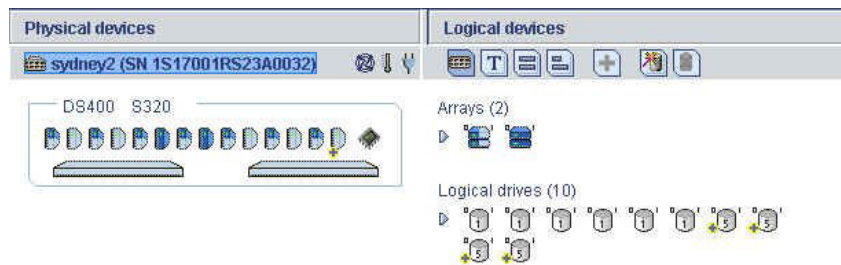


Figure 6. Displaying the logical and physical drives of an array (dual controllers)

For another example, when you click a hot spare, the logical devices protected by that spare are highlighted, as shown in Figure 7.

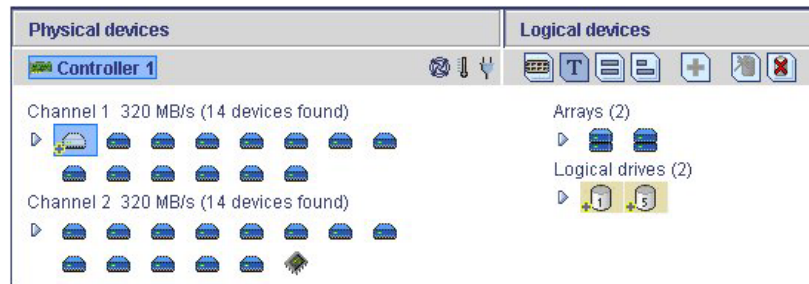


Figure 7. Displaying logical devices protected by a spare

Finding more information

For detailed instructions about how to use the ServeRAID Manager program to manage the storage subsystem, see the ServeRAID Manager help.

Chapter 2. Installing firmware

This chapter provides instructions for downloading and installing firmware on the storage subsystem.

Downloading firmware

To download a new firmware image, go to <http://www.ibm.com/pc/support/>; then, go to the page for your storage subsystem model and configuration. Follow the online instructions to download the file.

Keep the default file name, and save the file to a system that is accessible by IBM ServeRAID Manager.

Updating the firmware

To update the firmware, complete the following steps:

1. In the Enterprise view, click the enclosure that you want to update.
2. Right-click **Update controller images**. The Software Update wizard opens.
3. Click **Next**.
The "Select a software image" window opens.
4. Click **Browse**, select the firmware file; then, click **Next**.
The "Update summary" window opens.
5. Review the update summary, then click **Apply**.
ServeRAID Manager applies the firmware update. The progress meter shows the update status. When the update is complete, the progress meter automatically closes.
6. Restart the controller. (See "Restarting the controller.")

Restarting the controller

To restart a controller, complete the following steps:

1. In the Physical devices view, right-click the controller and select **Restart enclosure**.
2. Click **Yes** to confirm that you want to restart the controller.

Note: Restarting the controller can take several minutes. Data on the controller is unavailable during that time.

Chapter 3. Configuring a new controller

This chapter provides detailed instructions for configuring a new or replacement controller as part of the storage subsystem.

Note: For detailed instructions about installing a RAID controller, see the *IBM TotalStorage DS300 and DS400 Dual Controller Hardware Installation and User's Guide* on the IBM Documentation CD or on the IBM Support Web site.

Getting started

If you are installing a replacement controller, remove (or un-cam but leave in place) the hard disk drives until you are told to replace them later in "Completing the controller configuration" on page 13.

Turn on the storage subsystem and connect to controller A through a Telnet session, using the default IP address 192.168.70.123.

Use the setup command in the Command Line Interface (CLI) to open the Setup Wizard.

Note: After you connect to the storage subsystem for the first time, the Setup wizard opens automatically.

The Setup wizard helps you enter the information required to connect the storage subsystem to a local network.

Using the Setup wizard, change the default settings on the storage subsystem (listed below) as required for your network, following the instructions provided in "Using the Setup wizard" on page 12.

Controller A setup

Hostname	DS300/DS400
Domain Name	ibm.com
Timezone [GMT]	GMT-5
New Administrator Password	passw0rd (All lowercase letters with a zero, not O, in passw0rd)
Default Gateway	0.0.0.0
DNS Servers	NO
User DHCP	NO
Management i/f IP Address	192.168.70.123
Management i/f IP Netmask	255.255.0.0
Management i/f Broadcast Address	192.168.255.255

Controller B setup

Hostname	DS300/DS400
Domain Name	ibm.com
Management i/f IP Address	192.168.70.124
Management i/f IP Netmask	255.255.0.0
Management i/f Broadcast Address	192.168.255.255

Using the Setup wizard

The Setup wizard steps you through a set of questions. You can type the answers to the questions and use the three commands that are shown in the following table.

Command	Function
Abort	Quit the Setup wizard without making changes
Back	Go to the previous question
Help	Describe the current options

If a question has a predefined or default answer, the answer is displayed in square brackets []. Some options take an arbitrary string, in which case the commands **back** and **abort** cannot be used. In those cases, enclose the answer in double-quotation marks ("xx") so that the answer will be accepted, even if it is the same as a command.

hostname

Type the name for which the system is to be known.

Use the special **back** command to repeat this prompt.

domain name

Type the domain in which the system belongs.

SAN name

Type the Storage Area Network in which the system belongs.

timezone

Type the system time zone.

system Date

Type the system date.

define administrator password

Define whether an administrator password is required. If a password is required, you are prompted for that password, which must be typed twice.

Press Ctrl to leave the password unchanged.

Press Enter twice to require no administrator password.

define operator password

Define whether an operator password is required. (See **define administrator password** for more information.)

dhcp Type yes or no to determine whether to use DHCP to discover the system network values.

If you type yes, the wizard takes you to the Save new configuration question (see page 13). If you type no, the wizard continues with questions about the system main Ethernet interface.

IP address

Type the IP address, for example, 192.193.194.195

netmask

Define the size of the netmask.

A netmask can be represented in several ways. The examples shown here all refer to the same netmask.

/23

The number of bits set in the network part

255.255.254.0

The set bits displayed in the same way as an IP address

0xffffe00

The mask shown as a hex number

broadcast address

Type the address to be used for broadcasts. You can use any of the formats described for the **interface manage interface broadcast** command.

default gateway

Type the name or IP address of a router to which packets, for destinations that do not have routes defined for them in the system, are sent. Type no to clear the default gateway.

DNS servers

Type the IP addresses of up to three systems that will act as DNS servers. Type no to clear the list of DNS servers.

save new configuration

After the Setup wizard is finished, the system is configured but the new configuration is not saved immediately in nonvolatile memory. Type yes to save the configuration immediately, or no to defer saving the configuration.

The **save** command saves the configuration.

finish?

Type yes to apply the values you have entered, or no to return to the first question and change the values you have entered.

Note: If you changed the IP address, you must Telnet to the new IP address to reestablish the Telnet session.

Completing the controller configuration

To finish the controller configuration using ServeRAID Manager, complete the following steps:

1. Start ServeRAID Manager. (See “Running ServeRAID Manager” on page 3.)
2. Add the management station agent. (See “Adding a management station agent” on page 3.)
3. Add the enclosure to the management station. (See “Adding the storage subsystem to the management station” on page 4.)
4. For a single controller, if you have installed a replacement RAID controller, reinsert the hard disk drives. Wait approximately two minutes, then use ServeRAID Manager to scan for new or removed RDY drives. (See the ServeRAID Manager help for detailed instructions.)
5. For a dual controller, see the Technical Update about replacing a controller that comes with the replacement controller and is available on the IBM Support Web site.
6. Configure the storage subsystem using the Configuration wizard. (See the ServeRAID Manager help for detailed instructions.)

Note: After the storage subsystem is configured, logical drives are displayed as physical drives to the initiator operating system. See the initiator documentation to set up the initiators.

7. If existing arrays were associated with the old RAID controller, they will now appear as foreign arrays and can be imported. (See the ServeRAID Manager help for detailed instructions.)

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