

Scalar® Distributed Library Controller

Installation Guide

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Version 2.5

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About This Guide

This document cover the install and upgrade instructions for the release of Scalar Distributed Library Controller¹, Version 2.5.

The topics are:

- Scalar DLC CD-ROM Contents on page 2 shows the Scalar DLC CD.
- Scalar DLC System Overview on page 4 shortly describes the Scalar DLC system.
- <u>Setting Up the Basic Solution on page 7</u> and <u>Setting Up the Cluster Solution on page</u> <u>14</u> describes the Scalar DLC hardware and software setup order.
- Installing the Scalar DLC on page 47 contains the instructions about the Scalar DLC software installation.
- Installing DAS Client on page 66 contains the instructions about the DAS Client (dasadmin) software installation.
- Installing the SCSI/FC Target Drivers on page 71 contains the instructions about the SCSI and Fibre Channel Target Mode Drivers installation.
- <u>Add/Remove Scalar DLC Software on page 77</u> contains the instructions about modify and remove the Scalar DLC software.
- Upgrading the Scalar DLC on page 83 describes the Scalar DLC upgrade process.
- **Renaming and Repair on page 91** contains the detailed instructions on repair the Scalar DLC after the host/cluster is renamed and/or reconfigured.
- <u>Securing the Scalar DLC on page 96</u> holds the information on existing methods of securing the Scalar DLC.

^{1.} Scalar Distributed Library Controller is a trademark of ADIC. Throughout the remainder of this document, we refer to the Scalar Distributed Library Controller software as Scalar DLC.



Scalar DLC CD-ROM Contents

To launch the autostart program, load the CD-ROM in the CD-ROM drive. If the autostart program does not launch, use the *Run* option from the **Start** button on the task bar to execute the *autorun.exe* program.



If autostart does not run, locate *autorun.exe* on the CD-ROM and execute the program.

See the figure below for the autostart screen.



Table 1	Autorun Selection
---------	-------------------

Link	Action	Explanation
Install software packages	Supplied	Launch the installation of appropriate software package.
Scalar DLC	Click-to-install	Start Installing the Scalar DLC on page 47.
DAS Client	Click-to-install	Start installation of DAS Client (dasadmin) software. Refer to Installing DAS Client on page 66.
Install Drivers	Supplied	Launch the installation of appropriate drivers.



Link	Action	Explanation
SCSI and Fibre Channel Target drivers	Click-to-install	Start the installation of Target drivers for SCSI and Fibre Channel adapters. Refer to Installing the SCSI/FC Target Drivers on page 71.
View product documentation	Supplied	Open the product documentation.
Readme.1st	Click-to-open (txt)	The last-minute-information about current release of Scalar DLC software.
Release Notes	Click-to-open (PDF)	The notes on current Scalar DLC release. Refer to <i>Release Notes</i> .
Installation Guide	Click-to-open (PDF)	The manual on install and upgrade the Scalar DLC.
Reference Guide	Click-to-open (PDF)	The main Scalar DLC document. Refer to <i>Reference Guide.</i>
View License Agreement	Click-to-open (htm)	The ADIC Scalar DLC license agreement.

Table 1Autorun Selection

The Adobe Acrobat Reader ver. 4.0 or higher is required to view the documentation in PDF form. The most recent version of the required software can be downloaded from the Adobe web site at <u>http://www.adobe.com</u>.

Scalar DLC System Overview

The Scalar DLC software runs as a service under Windows 2000. It serves as a centralized library management tool that simplifies and automates the tracking and management of all system resources for optimal performance and maximum availability. The Scalar DLC software provides network and Systems Administrators with a Java-based interface that allows library monitoring from anywhere on the Web¹. It also allows administrators to select parameters that define which library events provide notifications to customers and ADIC Technical Assistance Center (ATAC) via email and Simple Network Management Protocol (SNMP) alerts.

The main working tool of the Scalar DLC software is the Management GUI. All the actions of management and configuration are executed via this tool. Refer to the *Scalar DLC Reference Guide* for the details.

Figure 2 and Figure 3 on page 5 illustrate the structure of Scalar DLC system.



Figure 2Scalar DLC Structure

^{1.} If a firewall is being used, outside access by Web browsers might be denied.



Figure 3 Scalar DLC Components



The *client* (user/backup application) sends the request/command to the *Scalar DLC host* (server) via the client interface. Depending on the request, the Scalar DLC either should search the information in the *database* and send the response back to the client, or transfer the command to the *library* via the library interface. After the library has executed the requested operation, the response is sent back to the Scalar DLC indicating that the operation was executed. The Scalar DLC server updates the database according to the information received from the library and transfers the response (operation executed) back to the client. The *Management GUI* serves as the configuration tool to create a working configuration for clients, and also as the monitoring tool for the *Administrator* when it is necessary to watch the system activity.

The details for using Management GUI and other tools of the Scalar DLC software are described in the *Scalar DLC Reference Guide*.

Scalar DLC Solutions

According to the customer requirements, the Scalar DLC can provide a basic (standard) solution or a cluster (failover) solution. Depending on the library used by the customer, the solution and system configuration should be selected, as shown in <u>Table 2</u>.

Library	Scalar DLC Solution
Scalar 1000	Basic, Cluster
Scalar 10K	Basic, Cluster
Scalar 10K DA	Cluster (Basic is possible only as an exception)

Table 2Libraries and Solutions

Basic Solution

The Scalar DLC Basic (standard) solution keeps all Scalar DLC components (server, database) on a single PC that is connected to the library and both client(s). The client can work with the library when the Scalar DLC software is started and the library is online.



The Scalar DLC standard solution requires a single PC, the library, and the interface cables to provide the connection between PC (Scalar DLC host) and library.

For the requirements and installation instructions, refer to <u>Setting Up the Basic Solution on page</u> <u>7</u>.

Cluster Solution

The Scalar DLC Cluster (failover) solution is provided for the clients using the Microsoft Cluster service. This solution allows the user to have a shared disk with the Scalar DLC database and two hosts containing the installed components of Scalar DLC software; for the redundancy reasons, one host is online and the other is offline. If an error occurs and the online Scalar DLC host turns offline, the other host should immediately go online, so the user may not even notice there has been a problem with the host, and the customer engineer can work under the problem host without stopping the work of Scalar DLC software.

The Scalar DLC failover solution requires two identical PCs, a RAID system, the library, and the interface cables to provide the connections between PCs (Scalar DLC hosts), RAID (shared database), and library.

For the requirements and installation instructions, refer to <u>Setting Up the Cluster Solution on</u> page 14.



Setting Up the Basic Solution

The Scalar DLC standard solution can be installed on any Windows 2000-based system.

- Check the system requirements. Depending on the tape device used with the Scalar DLC, <u>Single-aisle Requirements on page 7</u> is for the single-aisle library, and <u>Dual-aisle</u> <u>Requirements on page 8</u> is for the dual-aisle library.
- Follow the Setup Roadmap on page 9 to set up the Scalar DLC.

Single-aisle Requirements

The following is a list of hardware requirements.

- A single PC described in the Microsoft PC 2000 System Design Guide Specifications:
 - 800 MHZ or faster Inter Pentium TM or equivalent CPU (minimum 4 free PC slots in chassis).
 - 256K L2 Cache.
 - 256 MB RAM.
 - Dual matched Hard Drives (10 Gb or more).
 - CD RW.
 - 3.5" Diskette Drive.
 - 15" or greater SVGA Display.
 - Standard keyboard & mouse.
 - 1 Ethernet 100 Mb adapter (network connection).
 - NT/2000 compliant LVD/HVD SCSI initiator adapter (library connection).



Do not use anteries (brand) SCSI adapters that do not allow setting reset on startup.

- 1 middle length (2-3 m) SCSI cable (68 pins) for the library connection.
- TCP/IP subnet mask and network name. Contact the local network administrator for the details.

Figure 4

Scalar DLC Basic Solution: Single-aisle

1						Library	
Network	Ethernet	SCSI HBA Initiator (LVD/HVD)		SCSI Target (LVD/HVD)			00
dernal	188 		SCSI Bus		\Leftrightarrow	\diamond	ŏ
ŵ	Scala	r DLC nost			Cline.	1214 2.29	1997

The following hardware (not shown on the scheme) is optional.

SCSI/FC target adapter(s)



- Appropriate SCSI/FC cable(s)
- Fibre Channel switch
- SNC

Dual-aisle Requirements

NOTE: Although it is not recommended to use DA libraries in a Scalar DLC standard solution, this configuration is possible.

The following is a list of hardware requirements.

- A single PC described in the Microsoft PC 2000 System Design Guide Specifications:
 - 800 MHZ or faster Inter Pentium TM or equivalent CPU (minimum 4 free PC slots in chassis).
 - 256K L2 Cache.
 - 256 MB RAM.
 - Dual matched Hard Drives (10 Gb or more).
 - CD RW.
 - 3.5" Diskette Drive.
 - 15" or greater SVGA Display.
 - Standard keyboard & mouse.
 - 1 Ethernet 100 Mb adapter (network connection).
 - NT/2000 compliant LVD/HVD SCSI initiator adapter (library connection).

Do not use anteries (brand) SCSI adapters that do not allow setting reset on startup.

- 1 middle length (2-3 m) SCSI cable (68 pins) for the library connection.
- 1 middle length (4-5 m) SCSI cable (68 pins) for the aisle connection. The total length of two SCSI cables required for the dual-aisle library connection (see <u>Figure 5</u>) must not exceed 12 m for LVD adapters and 25 m for HVD adapters.
- 2 SCSI Y-block connectors (Y-cable) to terminate the SCSI Bus.
- 1 SCSI Terminator, LVD/HVD for the library connection.
- TCP/IP subnet mask and network name. Contact the local network administrator for the details.

AUTION:



Figure 5 Scalar DLC Basic Solution: Dual-aisle

z Constant	SCSI HBA	SCSI Target	le se la seconda de la seconda d	ibrary	
Ethernet	Initiator (LVD/HVD)		Robot1	O Robot2	
	SCSI			80	
Scalar DLC	- host				
T Could Die			SC SC	SI Bus	

The following hardware (not shown on the scheme) is optional.

- SCSI/FC target adapter(s)
- Appropriate SCSI/FC cable(s)
- Fibre Channel switch
- SNC

Setup Roadmap

Complete the following steps to set up the basic solution.

- 1. Set Up the PC on page 9.
- 2. Set Up the Library on page 9.
- 3. Install the Scalar DLC Software on page 11.
- 4. Configure the Logical Library on page 11.

For the optional additional activity, refer also to <u>Use Old Database on page 11</u>, <u>Build Client</u> <u>Connections on page 12</u>, and <u>SNC Usage on page 13</u>.

Set Up the PC

- **Step 1** Connect the PC to a local network. Install Windows 2000. Resolve the network name and TCP/IP. Join the PC to the domain, if required.
- Step 2 Install all required software services (for example, antivirus packages and firewall). Install all required device drivers (for example, initiator SCSI and RAID). Install the latest Microsoft Service Pack (SP4 for Win2000 is required).
- **Step 3** When the operation system is installed successfully, reboot and be sure all services work correctly.
- NOTE: Unplug the target card SCSI cable if the server has trouble booting (may be a termination problem).

Set Up the Library

Step 1 Set up the library according to the media that will be used.

adic

• For the 6-symbols barcode, set the Media ID to *disabled*. The library cannot determine different media of a single domain (for example, DLT IV or SDLT), so the media type-default-by-domain will be assigned (for example, all DLT media will be recognized as DLT IV). Refer to the library *Operator Guide* for the details.



Do not use different media of a single domain in this type of library. A hardware crash is otherwise possible. A hardware crash is also possible if the default media type is not properly resolved (for example, DLT media resolved as DLT IV, but the real cartridges are DLT III).

- For the 7-symbols barcode, set the Media ID to *enabled*. The library scanner will read the media type directly from barcode. Use the library Operator panel, *Main > Setup > Library > Media*, then set:
 - Volser: MEDIA ID
 - Add ID: N
 - Mixed: Y
 - Extend: N
 - ASCQ: N

Step 2 Connect the library and resolve the SCSI ID

- For single-aisle (Scalar 1000, Scalar 10K):
 - 1. Connect the SCSI cable to the respective LVD/HVD controller 1 of the library and to the Scalar DLC SCSI HBA card.



Make sure to install the proper voltage SCSI connections (refer to Table 18 on page 73).

- Set the SCSI ID: On the library Operator panel, Main > Setup > Library > SCSI > Target ID, then set the SCSI ID. The adapter SCSI ID must not overlap with library SCSI ID.
- 3. On the PC, launch *My Computer > Manager> Device Manager* to verify that the Windows 2000 machine can see the Library "Media Changer".
- For Dual-aisle (Scalar 10K DA):
 - Plug Y-block connector with LVD/HVD-terminator to LVD/HVD controller 1 of the Robot 2.
 - 2. Plug the Y-block connector to LVD/HVD controller 1 of the Robot 1.
 - 3. Connect two Y-block connectors of Robot 1 and Robot 2 with the SCSI cable.
 - 4. Connect the free connector of Y-block connector at Robot 1 and the Scalar DLC SCSI HBA card with the SCSI cable.





Make sure to install the proper voltage SCSI connections (refer to Table 18 on page 73).

- 5. Set the SCSI ID for Robot 1 using the Operator panel on Robot 1 (*Main* > *Setup* > *Library* > *SCSI* > *Target ID*, then set the SCSI ID).
- Set the SCSI ID for Robot 2 using the Operator panel on Robot 2 (*Main > Setup > Library > SCSI > Target ID*, then set the SCSI ID). The adapter SCSI ID must not overlap with library SCSI IDs.
- 7. On the PC, launch *My Computer > Manager > Device Manager* to verify that the Windows 2000 machine can see two Library "Media Changers".
- **Step 3** Make sure that the created scheme matches the example (Figure 4 on page 7 for a single-aisle library, and Figure 5 on page 9 for a dual-aisle library).

Install the Scalar DLC Software

- **Step 1** Log in as administrator or as a domain user with the local administration rights.
- Step 2 Install the Scalar DLC software with all required components (refer to <u>Installing the</u> <u>Scalar DLC on page 47</u>).

Configure the Logical Library

- **Step 1** Log in as administrator or as a domain user with the local administration rights and start the Scalar DLC software if it is not started automatically.
- Step 2 Double click the Scalar DLC Manager icon to start the Scalar DLC Management GUI from a local computer. From a remote computer, use http://ScalarDLC-machine-name in current browser.
- Step 3The first start of the Scalar DLC Management GUI launches the configuration engine.
Select either the Automatic or Manual configuration option to configure the logical
library automatically, or Advanced configuration option in case of more then one logical
library should be created. Refer to the *Configuration* chapter of the *Scalar DLC*
Reference Guide for the instructions.

Use Old Database

If the customer has worked with the older version of the Scalar DLC software and he wants to import the database content to the new version, an upgrade must be performed. The table below should be used to select the correct upgrade method.

Old Database Version	Old Scalar DLC Solution	Preferable Upgrade Method
2.1	Basic	Advanced Upgrade on page 88.
2.2	Basic	Advanced Upgrade on page 88.
23	Basic	Advanced Upgrade on page 88.
2.5	Cluster	Advanced Upgrade on page 88.

 Table 3
 Basic Mode: Database Upgrade Methods

Old Database Version Old Scalar DLC Solution		Preferable Upgrade Method		
24	Basic	Simple Upgrade on page 83.		
2.4	Cluster	Advanced Upgrade on page 88.		
2.5	Basic	Simple Upgrade on page 83.		
2.5	Cluster	Advanced Upgrade on page 88.		

Table 3	Basic Mode:	Database	Upgrade	Methods
---------	-------------	----------	---------	---------

The *Advanced Upgrade* can be used always, however sometimes it is possible to use the *Simple Upgrade* method.

Build Client Connections

The following activity is required for the clients to connect to the Scalar DLC software installed as the basic solution.

DAS

Install the DAS Client software on the client PC. Use the common Scalar DLC host name as DAS_SERVER value on the client host. Refer to **Installing DAS Client on page 66**.

If a firewall exist between client and Scalar DLC host, the DAS/ACI Firewall should be installed either on PC in a Scalar DLC host domain or directly on the Scalar DLC PC.

Ensure that there is valid TCP/IP connection between client and server, and proceed the work.

SCSI

In the Basic configuration, additional hardware requirements exist for the SCSI clients based on SCSI connection:

- 1 SCSI Target Adapter, as described in Table 18 on page 73.
- 1 middle length (2-3 m) SCSI cable (68 pins) (client connection)

Be sure that the client connection scheme matches the example (see Figure 6).

Figure 6 Basic: SCSI Client Connection



In the Basic configuration, additional hardware requirements exist for the SCSI clients based on Fibre Channel connection:

- 1 FC Target Adapter, as described in <u>Table 18 on page 73</u>.
- FC switch
- 1 FC cable (client connection)

Be sure that the client connection scheme matches the example (see <u>Figure 7 on page 13</u>). The fibre channel target adapter(s) should operate in the basic mode; this option is set up via the SCSI Target Port tool.

[👿] NOTE:



Figure 7 Basic: Fibre Channel Client Connection



ROBAR

Install the ROBAR Client software on the client PC. If the HCC/MVS software is used, configure it, too, and set the appropriate ROBAR Client parameters in the Management GUI. Be sure that a valid ROBAR port is specified. The details are described in *Reference Guide, GUI Tabs* chapter, *ROBAR* and *ROBAR Client* sections

SNC Usage

Usually the library use SCSI to connect to the Scalar DLC host. However this interface has the distance limitations: depending on the SCSI adapter used the SCSI cable length cannot exceed the sencebility limit (refer to <u>Table 18 on page 73</u>). That limitation may cause problems.

The additional SNC hardware can be used in order to remove the distance limitations. Build the connections as it is shown on one of the pictures below, configure the SNC ports, and the Scalar DLC PC (working via the Fibre Channel HBA initiator) can be placed as far from the library as it is required.



. CAUTION:

The SNC configuration instructions are described in the SNC User Manual.



Wheh the Scalar DLC host PC is restarted the SNC must be restarted, too. Refer to <u>SNC Issues on page 76</u>.

Setting Up the Cluster Solution

The Scalar DLC cluster solution can be installed only on a Windows 2000 Advanced Server because it uses the Microsoft Cluster Service that is not available under Windows 2000 Professional or Windows 2000 Server.

- Check the system requirements. Depending on the tape device used with the Scalar DLC, <u>Single-aisle Requirements on page 14</u> is for the single-aisle library, and <u>Dual-aisle</u> <u>Requirements on page 15</u> is for the dual-aisle library.
- Follow the Setup Roadmap on page 17 to set up the Scalar DLC.

Single-aisle Requirements

The minimum PC system hardware requirements are based on Microsoft PC 2000 System Design Guide Specifications.

- Two PC with identical hardware and software:
 - 800 MHZ or faster Inter Pentium TM or equivalent CPU (minimum 4 free PC slots in chassis).
 - 256K L2 Cache.
 - 256 MB RAM.
 - Dual matched Hard Drives (10 Gb or more).
 - CD RW.
 - 3.5" Diskette Drive.
 - 15" or greater SVGA Display.
 - Standard keyboard & mouse.
 - 2 Ethernet 100 Mb adapters (network connections).
 - NT/2000 compliant LVD SCSI initiator adapter, RAID connection
 - NT/2000 compliant LVD/HVD SCSI initiator adapter, library connection.



Do not use anteries (brand) SCSI adapters that do not allow setting reset on startup.

- 1 ArrayMasStor J or G Series ADTX RAID System.
- 1 Network cross cable (twisted-pair) (~1 m), for the internal cluster network.
- 2 short (~1 m) SCSI cables (68 pins), for the RAID connections.
- 2 middle length (2-3 m) SCSI cable (68 pins), for the library connections.
- 2 Y-Block connectors (Y-cables) to terminate the SCSI Bus on RAID.
- 2 Y-Block connectors to terminate the SCSI Bus on library.
- 2 LVD SCSI Terminators for the RAID connections.



- 2 LVD/HVD SCSI Terminators for the library connections.
- TCP/IP subnet masks and network names for both cluster nodes and the cluster itself. Only the *static* IP can be used for the cluster. Contact the local network administrator for the details.

CAUTION: The hardware configuration of both cluster nodes must be identical, and they must remain identical. For example, all cards/adapters must be identical and need to be placed in identical slots.



The following hardware (not shown on the scheme) is optional.

- SCSI/FC target adapter(s)
- Appropriate SCSI/FC cable(s)
- Fibre Channel switch
- SNC

Dual-aisle Requirements

The minimum PC system hardware requirements are based on Microsoft PC 2000 System Design Guide Specifications.

- Two PCs with identical hardware and software:
 - 800 MHZ or faster Inter Pentium TM or equivalent CPU (minimum 4 free PC slots in chassis).
 - 256K L2 Cache.
 - 256 MB RAM.
 - Dual matched Hard Drives (10 Gb or more).
 - CD RW.
 - 3.5" Diskette Drive.
 - 15" or greater SVGA Display.



- Standard keyboard & mouse.
- 2 Ethernet 100 Mb adapters (network connections).
- NT/2000 compliant LVD SCSI initiator adapter, RAID connection.
- NT/2000 compliant LVD/HVD SCSI initiator adapter, library connection.



Do not use anteries (brand) SCSI adapters that do not allow setting reset on startup.

- 1 ArrayMasStor J or G Series ADTX RAID System.
- 1 Network cross cable (twisted-pair) (~1 m), for the internal cluster network.
- 2 short (~1 m) SCSI cables (68 pins), for the RAID connections.
- 2 middle length (2-3 m) SCSI cable (68 pins), for the library connections.
- 2 middle length (4-5 m) SCSI cable (68 pins), for the aisle connections. The total length of two SCSI cables required for the dual-aisle library connection (see <u>Figure 11 on page 16</u>) must not exceed 12 m for LVD adapters and 25 m for HVD adapters.
- 2 Y-Block connectors (Y-cables) to terminate the SCSI Bus on RAID.
- 4 Y-Block connectors to terminate the SCSI Bus on library.
- 2 LVD SCSI Terminators for the RAID connections.
- 2 LVD/HVD SCSI Terminators for the library connections.
- TCP/IP subnet masks and network names for both cluster nodes and the cluster itself. Only the *static* IP can be used for the cluster. Contact the local network administrator for the details.

AUTION:

The hardware configuration of both cluster nodes must be identical, and they must remain identical. For example, all cards/adapters must be identical and need to be placed in identical slots.



The following hardware (not shown on the scheme) is optional.



- SCSI/FC target adapter(s)
- Appropriate SCSI/FC cable(s)
- Fibre Channel switch
- SNC

Setup Roadmap

Complete the following steps to set up the cluster solution.

- 1. Set Up the PCs on page 17.
- 2. Set Up the Library on page 18.
- 3. Install OS and Configure RAID on page 20.
- 4. Configure the Cluster on page 30.
- 5. Install the Scalar DLC Software on page 39.
- 6. <u>Configure the Logical Library on page 42</u>.

For the optional additional activity, refer also to <u>Use Old Database on page 42</u>, <u>Build Client</u> <u>Connections on page 43</u>, <u>Install SCSI/FC Target Cards on a Live Machine on page 44</u>, and <u>SNC Usage on page 45</u>.

Set Up the PCs

Step 1 Build the RAID SCSI connection.

- a. Plug Y-cable with LVD-terminator to the LVD adapter of Node 1.
- b. Link the free connector of the Y-cable and the SCSI connector of the RAID disk with the short SCSI cable.
- c. Plug the Y-cable with the LVD-terminator to the LVD adapter of Node 2.
- d. Link the free connector of the Y-cable and the remaining SCSI connector of the RAID disk with the short SCSI cable.



Make sure to install the proper voltage SCSI connections (refer to Table 18 on page 73).

Step 2 Resolve the RAID SCSI IDs.

- a. Determine the RAID adapter SCSI ID by using the operation buttons (up/down) on the RAID front panel (this is typically SCSI ID 0). If it is NOT zero, set the ID to zero.
- b. Enter the LVD SCSI BIOS Setup on Node 1 for the adapter connected to the RAID.
 - Set *termination* mode to *disable*
 - Set Reset SCSI Bus parameter off
 - Set "Start Unit" command to off
 - Set the "Include in BIOS Scan" to YES or ON



- Set the SCSI ID of this board to 1
- c. Enter the LVD SCSI BIOS Setup on Node 2 for the adapter connected to the RAID.
 - Set termination mode to disable
 - Set Reset SCSI Bus parameter off
 - Set "Start Unit" command to off
 - Set the "Include in BIOS Scan" to NO or OFF
 - Set the SCSI ID of this board to 2

NOTE: Both adapters must have different SCSI IDs.

Adapter IDs must not overlap with the RAID SCSI ID.

The Adapter ID numbers used above assume that the RAID SCSI ID is ZERO. Any number can be used as long as it follows rules described above

Step 3 Connect both PCs (Node 1 and Node 2) to a local network.

- a. For Internal (cluster) network connect the Ethernet network adapters (for internal network) of Node 1 and Node 2 with the network cross-cable (twisted pair).
- b. External network connect the remaining network adapters to the external network. Both Cluster nodes must be connected to a domain server.

Set Up the Library

Complete the following steps to connect both PCs (Node 1 and Node 2) to the library.

Step 1 Set up the library according to the media that will be used.

• For the 6-symbols barcode, set the Media ID to *disabled*. The library cannot determine different media of a single domain (for example, DLT III or SDLT) and the media type-default-by-domain will be set (for example, all DLT media will be recognized as DLT III). Refer to the library *Operator Guide* for the details.



Do not use different media of a single domain in this type of library. A hardware crash is otherwise possible. A hardware crash is also possible if the default media type is not properly resolved (for example, DLT media resolved as DLT IV, but the real cartridges are DLT III).

- For the 7-symbols barcode, set the Media ID to *enabled*. The library scanner will read the media type directly from barcode. Use the library Operator panel, *Main* > *Setup* > *Library* > *Media*, then set:
 - Volser: MEDIA ID
 - Add ID: N
 - Mixed: Y
 - Extend: N



ASCQ: N

Step 2 Build the SCSI connection

- For single-aisle (Scalar 1000, Scalar 10K)
 - 1. Plug the Y-block connector with the LVD/HVD-terminator to the LVD/HVD controller 1 of the library.
 - 2. Link the free end of the Y-block connector and the LVD/HVD adapter of Node 1 with the SCSI cable.
 - 3. Plug the Y-block connector with the LVD/HVD-terminator to the LVD/HVD controller 2 of the library.
 - 4. Link the free end of the Y-block connector and the LVD/HVD adapter of Node 2 with the SCSI cable.



Make sure to install the proper voltage SCSI connections (refer to <u>Table 18 on page 73</u>).

- For dual-aisle (Scalar 10K DA)
 - Plug the Y-block connector with the LVD/HVD-terminator to the LVD/HVD controller 1 of the Robot 2.
 - 2. Plug the Y-block connector to the LVD/HVD controller 1 of the Robot 1.
 - 3. Link the two Y-block connectors of Robot 1 and Robot 2 with the SCSI cable.
 - 4. Link the free end of the Y-block connector at Robot 1 and the LVD/HVD adapter of Node 1 with the SCSI cable.
 - 5. Plug the Y-block connector with the LVD/HVD-terminator to the LVD/HVD controller 2 of the Robot 2.
 - 6. Plug the Y-block connector to the LVD/HVD controller 2 of the Robot 1.
 - 7. Link the two Y-block connectors of Robot 1 and Robot 2 with the SCSI cable.
 - 8. Link the free end of the Y-block connector at Robot 1 and the LVD/HVD adapter of Node 1 with the SCSI cable.



Make sure to install the proper voltage SCSI connections (refer to <u>Table 18 on page 73</u>).

Step 3 Resolve the library SCSI IDs:

- Setting the single-aisle SCSI ID:
 - 1. On the library Operator panel, do the following: *Main > Setup > Library > SCSI > Target ID*.
 - 2. Set the SCSI IDs on both buses to 3.
 - 3. Restart the library so that the SCSI IDs take effect.
- Setting the dual-aisle SCSI IDs:



- 1. On the Operator panel for Robot 1 do the following: *Main > Setup > Library > SCSI > Target ID*.
- 2. Set the SCSI ID on both buses to 3.
- 3. On the Operator panel for Robot 2 do the following: *Main > Setup > Library > SCSI > Target ID*.
- 4. Set the SCSI ID on both buses to 4.
- 5. Restart the library so that the SCSI IDs take effect.
- **Step 4** Configure the SCSI ID's for the LVD/HVD adapters (connected to the library) on the cluster nodes.
 - a. Enter the LVD/HVD SCSI BIOS Setup on Node 1 for the adapter connected to the library:
 - Set termination mode to automatic
 - Set Reset SCSI Bus parameter off
 - Set the SCSI ID of this board to 5
 - b. Enter the LVD/HVD SCSI BIOS Setup on Node 1 for the adapter connected to the library
 - Set *termination* mode to *automatic*
 - Set Reset SCSI Bus parameter off
 - Set the SCSI ID of this board to 6
 - V NOTE:

Both adapters must have different SCSI IDs.

Adapter IDs must not overlap with the single aisle LIBRARY SCSI ID.

Adapter IDs must not overlap with the <u>either</u> of the LIBRARY SCSI IDs for the dual-aisle libraries.

Any number could be used as SCSI IDs as long as it follows the rules above.

- **Step 5** On any cluster node, launch *My Computer > Manager> Device Manager* to verify that the Windows 2000 machine can see the Library "Media Changer". Two "Media Changer" must be visible for dual-aisle library.
- **Step 6** Make sure that the created scheme matches the example (see <u>Figure 10 on page 15</u> for a single-aisle library, and <u>Figure 11 on page 16</u> for dual-aisle library).

Install OS and Configure RAID

Follow the steps below to install the Operating System and configure RAID disk for both PCs (Node 1 and Node 2).

- **Step 1** Install the Operating System on Node 2.
 - a. Power Node 1 off. Power Node 2 on.
 - b. Install the Windows 2000 Advanced Server.



- c. Resolve the network name and TCP/IP. Join the PC to the domain.
- d. Install all required software services (for example, antivirus packages and firewall). Install all required device drivers (for example, initiator SCSI and RAID). Install the latest Microsoft Service Pack (SP4 for Win2000 is required).
- e. When the operation system is installed successfully, reboot and be sure all services work satisfactorily.

Step 2 Configure the RAID Disk.

- a. Log on under the domain account.
- b. Disable the write cache for the RAID.

Use Start > Settings > Control Panel > Administrative Tools > Computer Management> Disk Management (see the figure below)

Figure 12Disk Managementt

🖵 Computer Management 📃 🗌 🗙						
Action View ← → € 📧 😤 🗗 🗙 📽 🚔 🔍 😡						
Tree	Volume	Layout	Туре	File System		
Tree Computer Management (Local) System Tools System Tools System Information Shared Folders Shared Folders Cocal Users and Groups Storage Storage	Volume Dell Server (C:) SDLC_RAID (E:) UTILITY VITILITY VITILITY VITILITY VITILITY VITILITY	Layout Partition Partition Partition SDLC_RAID (E:) 114.48 GB NTFS Healthy	Type Basic Basic Basic	File System NTF5 NTF5 FAT		
	Colore Primary Partition	UTILITY 31 MB FA Healthy (I Health	erver (C:) GB NTFS y (System)			

Right-click on the external RAID disk and select properties (in the above figure, the disk is called "SDLC_RAID").

NOTE: Unplug the target card SCSI cable if the server has trouble booting (may be a termination problem).





Open Hardware tab to view the list of all disk drives.



SDLC_RAID (F:) Properties	ļ	<u>? ×</u>		
General Tools Hardware Sharing Security	Quota			
All disk <u>d</u> rives:				
Name	Туре	- 11		
ADTX AXRS-G0000 SCSI Disk Device	Disk drives			
DELL Container SCSI Disk Device	Disk drives			
Eloppy disk drive	Floppy disk			
A HL-DT-ST RW/DVD GCC-4240N	DVD/CD-R			
		_ []		
- Device Properties		_		
Menu (actions (Chandred Selections)				
Manuracturer: (Standard disk drives)				
Hardware Revision: Not available				
Location: Bus Number 0, Target ID 0, LUN 0				
Device Status: This device is working properly	<i>.</i>			
Troubleshoot	Properties			
OK Cance	el <u>A</u> pply	,		

Select ATDX RAID drive and press **Properties** button. See the figure below.

Figure 16



Figure 15	RAID Disk: General	
	ADTX AXRS-G0000 SCSI Disk Device Properties	×
	General Disk Properties SCSI Properties Driver	
	ADTX AXRS-G0000 SCSI Disk Device	
	Device type: Disk drives	
	Manufacturer: (Standard disk drives)	
	Location: Bus Number 0, Target ID 0, LUN 0	
	Device status	
	This device is working properly.	
	If you are having problems with this device, click Troubleshooter to start the troubleshooter.	
	[]	
	Device usage:	
	Use this device (enable)	
	OK Cancel	

Select Disk Properties tab to obtain the following window.

RAID Disk: Properties
ADTX AXRS-G0000 SCSI Disk Device Properties
General Disk Properties SCSI Properties Driver
OK Cancel

Uncheck the *Write cache enabled* box and then press **OK** to disable write caching.

c. Upgrade the RAID disk.



Select disk management for write signature and upgrade disk wizard. The wizard will auto start (see the figure below).

Figure 17	Write Signature and Upgrade Disk Wizard: Start



Click Next and proceed to the figure below.

Figure 18	B Disk to Write Signature
	Write Signature and Upgrade Disk Wizard
	Select Disk to Write Signature Choose the disks on which you want to write a signature.
	Select the disks on which you want to write a signature:
	Disk 1
	< <u>B</u> ack <u>N</u> ext > Cancel

Leave the field blank and click **Next** to proceed to the following figure.



Figure 19 Write Signature and Upgrade Disk Wizard: Finish

Write Signature and Upgrade Disk Wizard		
	Completing the Write Signature and Upgrade Disk Wizard You have successfully completed the Write Signature and Upgrade Disk Wizard. You have selected these settings: Write a signature on the following disks: None Upgrade the following disks: None	
	To close this wizard, click Finish.	
	< <u>B</u> ack Finish Cance	.

Click **Finish** to complete the Disk Upgrade.

d. Format the RAID disk (for Node 2) or connect the formatted disk (for Node 1).

Open Disk Management (see the figure below).



📮 Computer Management						_ 8 >
Action View $4 \Leftrightarrow \Rightarrow 1$	2 🖸 📽 😼	ļ				
Tree	Volume	Layout	Туре	File System	Status	Capacity
Computer Management (Local)	e	Partition	Basic	FAT	Healthy (EISA	54 MB
🔄 🚯 System Tools	🖃 (C:)	Partition	Basic	NTFS	Healthy (System)	4.01 GB
🗄 💼 Event Viewer	💷 (D:)	Partition	Basic	NTFS	Healthy (Boot)	12.81 GB
🕀 📆 System Information						
🖅 🎆 Performance Logs and Alerts						
😟 幔 Shared Folders						
Device Manager						
Element						
Storage						
Logical Drives	@Disk ()					
🕀 🥵 Removable Storage	Basic		(C:)	(D:)		
🗄 🎲 Services and Applications	16.87 GB	55 MB FAT 4	01 GB NTFS	12.81 GB NTFS		
	Unline	Healthy (EI	ealthy (System)	Healthy (Boot)		
	CDisk 1					
	Unknown					
	171.77 GB	171.77 GB				
	Online					
	ACDRom 0					
	CDRom (E:)					
	Online					
			_	_		
	Unallocated	Primary Partition	Extended Partition	n 🗧 Logical Drive		

Right-click RAID (in the example Disk 1) and change it to *Basic* (see the figure below).



Figure 21	Disk Management:	Basic Disk
0	9	

📙 Computer Management						_ 8 ×
Action ⊻iew	2 🖸 🖆 😼					
Tree	Volume	Layout	Туре	File System	Status	Capacity
Computer Management (Local) System Tools System Tools System Information System Information Shared Folders Cocal Users and Groups Storage Disk Defragment Disk Defragmenter	(C:) (D:)	Partition Partition Partition	Basic Basic Basic	FAT NTFS NTFS	Healthy (EISA Healthy (System) Healthy (Boot)	54 MB 4.01 GB 12.81 GB
Bac Dar aginet action Dar Dar aginet action	CPDisk 0 Basic 16.87 GB Online	55 MB FAT Healthy (EI Healt) GB NTFS .hy (System)	(D:) 12.81 GB NTF5 Healthy (Boot)		
	CPDisk 1 Basic 171.77 GB Online	171.77 GB Unallocated	Create Partition			
	CDRom 0 CDRom (E:) Online	_	Properties Help			
	Unallocated	Primary Partition 📕 I	Extended Partition	Logical Drive		

Right-click "Unallocated space". Select "Create Partition" (see figure below).

Figure 22Create Partition Wizard: Start

Create Partition Wizard	×
	Welcome to the Create Partition Wizard This wizard helps you create a partition on a basic disk.
	A basic disk is a physical disk that contains primary partitions, extended partitions, and logical drives. A basic disk may also contain volumes created with Windows NT 4.0 and earlier. You can also use MS-DOS to gain access to partitions on basic disks. To continue, click Next.
	< Back Next > Cancel

Click **Next** and proceed to the figure below.



Figure 23 Select Partition Type

Create Partition Wizard	×
Select Partition Type You can specify what type of partition to create.	
Select the type of partition you want to create:	
Primary partition	
Extended partition	
O Logical drive	
Description	
A primary partition is a volume you create using fr Windows 2000 and other operating systems can You can create up to four primary partitions on a three primary partitions and an extended partition	ree space on a basic disk. start from a primary partition. basic disk, or you can make
<u> < B</u>	lack <u>N</u> ext> Cancel

Select "Primary partition" and click **Next** to proceed to the following figure.

Figure 24 Specify Partition Size

Create Partition Wizard	×
Specify Partition Size How big do you want the partition	to be?
Choose a partition size that is small	er than the maximum disk space.
Maximum disk space:	175891 MB
Minimum disk space:	7 MB
Amount of disk space to use:	175891 • MB
	< <u>B</u> ack <u>N</u> ext > Cancel

Select Max disk space as amount of space to use and click **Next** to proceed to the following figure.



Figure 25 Assign a Drive Letter

Create Partition Wizard
Assign Drive Letter or Path You can assign a drive letter or drive path to a partition.
Assign a drive letter; F: Mount this volume at an empty folder that supports drive paths: Browse Do not assign a drive letter or drive path
< <u>B</u> ack <u>N</u> ext > Cancel

Specify a drive letter that will identify the RAID disk. This letter must be <u>identical</u> on both cluster nodes. Then click **Next** to proceed to the figure below.

Figure 26 Format Partition

Type the use o use. This a	name and password for the do ccount is given special security	main account you want the C privileges on each cluster no	luster service de.
jser name:	Clusteruser		
Password:			
<u>D</u> omain:	ADIC		-

- (Node 2) Select "Format Partition". Specify "Cluster Raid" as a volume label. The file system should be NTFS. Click **Next** to proceed to the following figure.
- (Node 1) Select "Do not format the partition", as it is already formatted. Click **Next** to proceed to the following figure.



Figure 27	Create Partition Wizard: Finish
-----------	---------------------------------



Click **Finish** to start the disk format (see <u>Figure 28</u> for Node 2) or just finish the partition wizard (see <u>Figure 29 on page 30</u> for Node 1).

Figure 28 Format in Progress

📙 Computer Management						_ 8 ×
Action ⊻iew	2 🖸 📽 😼					
Tree	Volume	Layout	Туре	File System	Status	Capacity
Computer Management (Local) System Tools Event Viewer System Information Performance Logs and Alerts Shared Folders Device Manager Storage Disk Management Disk Defragmenter Disk Defragmenter Disk Defragmenter Disk Defragmenter Sorage Services and Applications	(C:) (D:) (F:)	Partition Partition Partition Partition	Basic Basic Basic Basic	FAT NTF5 NTF5	Healthy (EISA Healthy (System) Healthy (Boot) Formatting : (7%)	54 MB 4.01 GB 12.81 GB 171.77 GB
	Cisk 0 Basic 16.87 GB Online	55 MB FAT Healthy (EI Heal) GB NTF5 thy (System)	(D:) 12.81 GB NTFS Healthy (Boot)		
	CPDisk 1 Basic 171.77 GB Online	(F:) 171.77 GB Formatting : (7%)				
	CDRom 0 CDRom (E:)					
	Primary Partition	n 📕 Extended Partitio	on 📕 Logical Drive			

• Node 2: Wait for format to complete (see Figure 29 on page 30).



Figure 29 Format Complete

📮 Computer Management						_ 8 ×
Action ⊻iew	😫 🛛 😫 📓					Minimize
Tree	Volume	Layout	Туре	File System	Status	Capacity
Computer Management (Local) System Tools Event Viewer System Information Performance Logs and Alerts Softed Folders Device Manager Softed Users and Groups Sorage Disk Management Disk Defragmenter Logical Drives Removable Storage Services and Applications	 (C:) (C:) (D:) Cluster Raid (Cluster Raid (Partition Partition Partition Partition Partition Partition S5 MB FAT Healthy (EI Cluster Raid (F:) 171.77 GB NTF5 Healthy Extended Partitic	Basic Basic Basic Basic Basic Basic	FAT NTFS NTFS NTFS 12.81 GB NTFS Healthy (Boot)	Healthy (EISA Healthy (System) Healthy (Boot) Healthy	54 MB 4.01 GB 12.81 GB 171.77 GB

Step 3 Install the Operating System on Node 1.

- a. Power Node 2 off. Power Node 1 on.
- b. Install the Windows 2000 Advanced Server.
- c. Resolve the network name and TCP/IP. Join the PC to the domain.
- d. Install all required software services (for example, antivirus packages and firewall). Install all required device drivers (for example, initiator SCSI and RAID). Install the latest Microsoft Service Pack (SP3 for Win2000 is required).
- e. When the operation system is installed successfully, reboot and be sure all services work satisfactorily.
- NOTE: Unplug the target card SCSI cable if the server has trouble booting (may be a termination problem).
- **Step 4** Plug the RAID disk for the Node 1.
 - a. Power Node 2 on. Power Node 1 on.
 - b. Repeat Step 2 on page 21 for Node 1.
- **Step 5** Ensure that the RAID disk is now completely accessible from both nodes.

Configure the Cluster

- **Step 1** Configure the Cluster service on Node 1.
 - a. Start Windows 2000 Advanced Server on the Node 1. Log on as a domain user with the rights of local admin.



b. Configure the Cluster Service.

Open Control Panel. See the figure below.

Figure 30 **Control Panel** 🗟 Control Panel _ 🗆 × <u>File E</u>dit <u>View</u> F<u>a</u>vorites <u>T</u>ools <u>H</u>elp 🗢 Back 🔹 🔿 🔹 😧 Search 🔂 Folders 🔇 History 🛛 🖺 🔯 🗶 🖄 📰 🔹 Address 🐼 Control Panel H 3 -Ġ. 78 33 Add/Removel Administrative Automatic Progr Progr Installs and removes programs and Windows components Add/Remove Hardware Accessibility Options **Control Panel** ł Ņ **A** ন্ধ A Add/Remove Programs Installs and removes programs and Windows components Folder Options Game Controllers Internet Options Fonts Keyboard Display Windows Update Windows 2000 Support Ó ų ٩ Network and Dial-up Co... Phone and Modem ... Licensing Mail Mouse Power Options 0 ų 3 Regional Options Scanners and Cameras Scheduled Tasks Sounds and Multimedia Printers System Installs and removes programs and Windows components 🖳 My Computer Open Add/Remove Programs. See the figure below.

Figure 31Add/Remove Programs

🖬 Add/Remov	re Programs		
R	Currently installed programs:	Sort by: Name	e 🔽
Change or Remove Programs	 Microsoft Office 2000 Premium Click here for <u>support information</u>. To change this program or remove it from your computer, click Change or Remove. 	Size Last Used On <u>C</u> hange	187MB 10/24/2002 <u>R</u> emove
Add New Programs Add/Remove Windows Components	Windows 2000 Hotfix (Pre-SP4) [See Q320877 for more information] Windows 2000 Service Pack 3 WinVNC 3.3.3	Size	840KB
			Cl <u>o</u> se

Click Add/Remove Windows Components. See the following figure.



Figure 32 Add/Remove Windows Components

🖬 Add/Remov	e Programs	
Change or Remove Programs	Add or remove Windows components To add or remove a Windows component, such as Internet Information Services (IIS), click Components. Set up services:	Components
Add New Programs Add/Remove Windows Components	Circk Configure Cluster service Click Configure to complete Setup for this component. It cannot run until you have supplied all the necessary information.	Configure
		Cl <u>o</u> se

Select "Configure Cluster service" and click **Configure**. See the figure below.

Figure 33 Cluster Configuration Wizard: Start

Cluster Service Configuration	Wizard	×
	 Welcome to the Cluster Service Configuration Wizard This wizard helps you create and configure a cluster. A cluster is a group of servers that work together to provide high reliability. If a program fails on one server it is moved to another one. Before you continue, close any open programs. To continue, click Next. 	
	< <u>₿</u> ack. <mark>Next</mark> > Cancel	

Click **Next** to proceed to the following figure.


×

Figure 34 **Test Hardware**

Cluster Service Configuration Wizard	×	
Hardware Configuration		
Your hardware configuration must be tested for compatability with the Cluster service.		
Microsoft does not support hardware configurations other than those listed in the Cluster category of the Hardware Compatibility List (HCL) located at		
http://www.microsoft.com/hwtest/hcl		
that are not listed in the Cluster category of the HCL, click I Understand.		
< <u>B</u> ack <u>M</u> ext> Cancel		

• P

• Pre	ess I Understand, and click Next to proceed to the figure below.
Figure 35	Create/Join a Cluster
	Cluster Service Configuration Wizard
	Create or Join a Cluster
	You can create a new cluster, or you can join an existing one.
	This server is:
	The first node in the cluster. If this server is the first node in a cluster, you are creating a new cluster.
	The second or next node in the cluster. If at least one other node already exists, you are joining an existing cluster.
	<u> < B</u> ack <u>N</u> ext > Cancel

Specify the Create/Join operation type.

- (Node 1) Specify the server is the <u>first</u> cluster node and click **Next** to proceed to Figure 36.
- (Node 2) specify the server is the second/next cluster node and proceed to Figure 38 on • <u>page 35</u>



Figure 36 Create a Cluster

Cluster Service Configuration Wizard		×
Cluster Name You must name the new cluster.		
Lype a name for the new cluster: SDLC-CLUSTER		
	< <u>B</u> ack <u>1</u>	Next > Cancel

• (Node 1) Specify a cluster network name and click **Next** to proceed to the figure below.

Figure 37 Cluster Service Account: Create

ister Service Cor	lfiguration Wizard	
For security p	unc urposes, the Cluster service must use a domain account.	
Type the user to use. This a	name and password for the domain account you want the Cluster service ccount is given special security privileges on each cluster node.	
<u>U</u> ser name:	Clusteruser	
<u>P</u> assword:		
<u>D</u> omain:	ADIC	
	< <u>B</u> ack <u>N</u> ext> Can	cel

(Node 1) Specify domain user name and password for the cluster account. Click Next to
proceed to the Figure 40 on page 35.



Figure 38 Join a Cluster

Cluster Name To join a clust	er, you must provide the cluster name.
Type a name SDLC-CLUST	of the cluster you want to join: ER
Connect to	i cluster as:
<u>U</u> ser name:	Clusteruser
<u>P</u> assword:	
<u>D</u> omain:	ADIC
	< <u>B</u> ack <u>N</u> ext> Cancel

 (Node 2) Enter the cluster name. Check "connect to cluster as" and specify user name/ password/domain. Click Next to proceed to the following screen.

Figure 39Cluster Service Account: Confirm

Cluster Service Cor	nfiguration Wizard	×
Select an Acco For security p	ount urposes, the Cluster service must use a domain account.	
Type the user to use. This a	name and password for the domain account you want the Cluster service count is given special security privileges on each cluster node.	
∐ser name:	Clusteruser	
<u>P</u> assword:		
<u>D</u> omain:	ADIC	
	< <u>B</u> ack <u>N</u> ext> Can	cel

• (Node 2) Confirm cluster account password. Proceed to the following screen.

Figure 40	Add a	n Account to the Administrators Group	
	Cluster Se	ervice Configuration Wizard	
	⚠	The specified account is not a member of the administrators group on this comput Cluster service must be run by an account with administrative privileges. Do you v make the specified account a member of the Administrators group?	er. vant b
		<u>Yes</u>	

×



Click Yes to proceed.

- (Node 1) See Figure 41 on page 36.
- (Node 2) See Figure 46 on page 38

Figure 41 Select Cluster Disk

Add or Remove Managed Disks The disks that Cluster service controls access to are known as managed disks. Add the disks that you want the cluster to manage. Remove those disks that you do not				
want the cluster to manage.	Managed disks:			
	Add → Disk 1 (ADTX AXRSJ614			
Caution: The likelihood of corruption of unmanaged NTFS disks on a shared bus is very high. It is recommended that you use Cluster service to manage these disks.				
	< <u>B</u> ack <u>N</u> ext> Cancel			

• (Node 1) Select the cluster disk (RAID) as the cluster file storage, press **Add** and click **Next** to proceed to the following figure.

Figure 42Cluster File Storage

Cluster Ser	vice Configuration Wizard		
Cluster	File Storage		
You clust	store cluster checkpoint and log files on a cluster disk. These files help manage the ter		
Sele	ect a disk on which to store cluster checkpoint and log files.		
Sele also parti	Select a disk or partition with at least 5 MB of free space (100 MB recommended). It is also recommended that you keep the cluster checkpoint and log files on a separate partition from user applications.		
<u>D</u> isk	8.		
FIL	Cluster Raid)		
	< <u>B</u> ack <u>N</u> ext > Cancel		

• (Node 1) Click **Next** to proceed to the following figure.



Figure 43Cluster Network Connection

Cluster Service Configu	ration Wizard	×
Network Connection Type the network r private or mixed net	ons name, and specify whether this network will perform as a public, twork.	
Net <u>w</u> ork name: Device:	Local Area Connection	
IP address:	172.16.51.232	
Enable this n	etwork for cluster use	
C	storms the following role in the cluster: s only (public network) ter communications only (private network)	
 All communi 	cations (mixed network)	
	< <u>B</u> ack <u>N</u> ext> Ca	incel

(Node 1) Set the cluster network type and click Next to proceed to Figure 44.
 Public network (LAN) is a common network that is used by all system services. A private (internal) cluster network is used only by cluster services. The signals are moving faster via the private network, so it is preferable to use it in order to decrease the cluster down time.

Figure 44	Cluster TCP/IP
-----------	----------------

Cluster Service Configu	ration Wizard	×
Cluster IP Address The IP address ide	ntifies the cluster to the network.	
Type the IP addres automatically.	s for management of the cluster. The subnet i	mask may be supplied
<u>I</u> P address:		
<u>S</u> ubnet mask:	· · ·	
Select the public n	etwork from which clients gain access to the o	cluster.
N <u>e</u> twork:	Local Area Connection	•
	< <u>B</u> ack	<u>N</u> ext > Cancel

(Node 1) Configure TCP/IP subnet mask for the Cluster and click Next to proceed to Figure 45 on page 38.

👿 NOTE:

Only *static* IP can be used for the cluster. Contact the local network administrator for the details.



Figure 45	Verify Cluster Subnet Mask			
	Cluster S	ervice Configuration Wizard	×	
		The subnet mask that you have entered cannot be validated. Please verify that value is correct before continuing.	t the	
		Is the subnet mask value correct?		
		<u>Y</u> es		

• (Node 1) Click **Yes**. See the following figure.



Click **Finish** to complete the cluster service configuration.

c. When the service is installed, restart PC. The Cluster service should start now. See Figure 47.

х

Cluster	service is started successfully
Cluster S	ervice Configuration Wizard
٩	Cluster service has started successfully. To manage the cluster, use Clust Administrator. You can locate this tool by opening Control Panel and clickin Administrative Tools.
	(Cockens)

Step 2 Configure the Cluster service on Node 2.

- a. Shut down Node 1 to release the shared disk and allow Node 2 access to the RAID.
- b. Turn Node 2 on. Start Windows 2000 Advanced Server. Log on as a domain user with the local admin rights.
- c. Start Node 1.
- d. Repeat Step 1 b. on page 31 to configure the Cluster service on the Node 2 using the appropriate notes.

Figure 47



Step 3 Ensure that the Cluster service is successfully started on both nodes.

Install the Scalar DLC Software

- **Step 1** Install the Scalar DLC required components at Node 1.
 - a. Do NOT install the Scalar DLC software now. Uncheck the box next to "Scalar DLC Version 2.5". See <u>Figure 59 on page 48</u>.
 - b. Do NOT select *silent* mode.
 - c. Launch Scalar DLC installation on Node 1. Refer to <u>Installing the Scalar DLC on</u> page 47.
 - d. Install MSDE 2000 on the external (RAID) disk. The path should be: <External Raid Drive>:\Program Files\Microsoft SQL Server\.

Example:

F:\Program Files\Microsoft SQL Server\

- NOTE: The <External Raid Drive> should be replaced with the letter designation of the external RAID drive. Typically, this would be the F drive but could be any letter.
- The installation of MSDE2000 may take several minutes to complete.
 - e. When the installation of the MSDE 2000 Service Pack 3 (SP3) is completed, power on Node 2.
 - f. After logging into Node 2, stop the cluster service on Node 1. Use **Control Panel >** Administrative Tools > Cluster Administrator.
- **Step 2** Install the Scalar DLC required components at Node 2.
 - a. Do NOT install the Scalar DLC software now. Uncheck the box next to "Scalar DLC Version 2.5". See Figure 59 on page 48.
 - b. Do NOT select *silent* mode.
 - c. Launch Scalar DLC installation on Node 2. Refer to <u>Installing the Scalar DLC on</u> page 47.
 - d. Install MSDE 2000 on the SAME folder as has been selected for Node 1 (for example, F:\Program Files\Microsoft SQL Server\).
 - NOTE: The path must EXACTLY match that selected for Node 1.



The installation of MSDE2000 may take several minutes to complete.



- e. When the installation of the MSDE 2000 Service Pack 3 (SP3) on Node 2 is completed, start the cluster service on Node 1. Use **Control Panel > Administrative Tools > Cluster Administrator**.
- f. Reboot Node 2.
- Step 3 Install the Scalar DLC software at Node 1. Refer to Install the Scalar DLC Software on page 51.
 - a. Restart the Node 1 when the installation is finished.
 - b. The Scalar DLC service is NOT started now because the node is passive and the cluster resources are not available yet. Do NOT start the Scalar DLC service right now.
- Step 4 Install the Scalar DLC software at Node 2. Refer to Install the Scalar DLC Software on page 51
 - a. Specify "Use existing database" during the installation of Scalar DLC software.
 - b. When the installation of Scalar DLC is finished, restart Node 2.
 - c. The Scalar DLC service is NOT started now because the node is passive and the cluster resources are not available yet. Do NOT start the Scalar DLC service right now.
- **Step 5** Configure the Scalar DLC software for the Cluster mode.
 - a. Make sure that cluster services are running on both cluster nodes.
 - b. Using any node, launch the cluster utility for automatically configuration of all necessary common resources. It can be found at Scalar DLC Installation CD by the following path: Scalar_DLC\Cluster\SDLC_ClusterConfig.exe (see the figure below).

Figure 48 Start SDLC Cluster Configuration



c. Launch the cluster configurator tool. See the following figure.



Figure 49 SDLC Cluster Configuration: no configuration



d. Click **Make SDLC Cluster Configuration**. When the configuration completes, the popup window opens. See the figure below.

Figure 50 SDLC Cluster Configured



e. Click OK to return to the SDLC Cluster Configurator (see the figure below).

 Figure 51
 SDLC Cluster Configurator: configuration complete

🚳 SDLC Cluster Configurator	×
Cluster Information:	
Cluster Name: SDLC-CLUSTER	
Windows Version: 5.0	
Windows build number: 2195	
Vendor identifier for the Cluster Service: Microsoft(R) Cluster service	
Version of Service Pack: Service Pack 3	
Cluster Node 1: STUDY STATE: The node is Up	
Cluster Node 2: LIBRARY STATE: The node is Up	
SDLC Cluster Resources configured Active NODE: STUDY STATE: The resource is operational and functioning normally	
Remove SDLC Cluster Configuration	

- f. Close the Scalar DLC Cluster configurator tool (X-button).
- g. Open Start > Settings > Control Panel > Administrative Tools > Cluster Administration (see the following figure) and make sure that the SDLC Supervisor service is a part of a Cluster group.



Gluster Administrator - [SDLCCLUST (.)]							_ 🗆 🗙
S Ele View Window Help							_ 8 ×
⊡-∰ SDLCCLUST	Name	State	Owner	Group	Resource Type	Description	
Groups	Disk G: H:	Online	SDLCCLUST11	Cluster Group	Physical Disk		
Cluster Group	Cluster IP Address	Online	SDLCCLUST11	Cluster Group	IP Address		
Resources	迎 Cluster Name	Online	SDLCCLUST11	Cluster Group	Network Name		
Cluster Configuration	MSSQLSERVER	Online	SDLCCLUST11	Cluster Group	Generic Service		
Networks	C SQLSERVERAGENT	Online	SDLCCLUST11	Cluster Group	Generic Service		
Network Interfaces	DLC Supervisor	Online	SDLCCLUST11	Cluster Group	Generic Service		
E a SDLCCLUST11	NobleNet Portmapper for TCP	Online	SDLCCLUST11	Cluster Group	Generic Service		
Active Groups							
Active Resources							
	1						
E SDLCCLUST22	1						
	1						
Active Resources	1						
Network Interfaces							
For Help, press F1							

Configure the Logical Library

- **Step 1** Using any node, log in as administrator or as a domain user with the local administration rights and start the Scalar DLC software if it is not started automatically.
- Step 2 Double click the Scalar DLC Manager icon to start the Scalar DLC Management GUI from a local computer. From a remote computer, use http://ScalarDLC-machine-name in current browser.
- NOTE: It is strongly recommended to use the virtual Cluster name here (for example, SDLC-CLUSTER).
- Step 3The first start of the Scalar DLC Management GUI launches the configuration engine.
Select either the Automatic or Manual configuration option to configure the logical
library automatically, or Advanced configuration option in case of more then one logical
library should be created. Refer to the *Configuration* chapter of the *Scalar DLC*
Reference Guide for further instructions.

CAUTION: The operating system and its service packs on both cluster nodes must be identical and they must remain identical. Otherwise it may cause cluster service malfunctions.

NOTE: If the network parameters are changed, the cluster service will not function and should be repaired or re-configured manually.

Never turn the RAID shared disk off. Otherwise, the Scalar DLC will not work.

Use Old Database

If the customer has worked with the older version of the Scalar DLC software and he wants to import the database content to the new version, an upgrade must be performed. The table below should be used to select the correct upgrade method.



Old Database Version	Old Scalar DLC Solution	Preferable Upgrade Method
2.1	Basic	Advanced Upgrade on page 88.
2.2	Basic	Advanced Upgrade on page 88.
2.2	Basic	Advanced Upgrade on page 88.
2.3	Cluster	Advanced Upgrade on page 88.
24	Basic	Advanced Upgrade on page 88.
2.4	Cluster	Simple Upgrade on page 83.
2.5	Basic	Advanced Upgrade on page 88.
2.5	Cluster	Simple Upgrade on page 83.

Table 4	Cluster Mode:	Database	Upgrade Methods
	Oldotter Mode.	Database	opgrade methods



The *Advanced Upgrade* can be used always, however sometimes it is possible to use the *Simple Upgrade* method.

Build Client Connections

Additional activity may be required for the clients to connect to the Scalar DLC software installed as the cluster solution.

DAS

Use the common Cluster name (for example, SDLC-CLUSTER) as DAS_SERVER value on the client host. Refer to **Installing DAS Client on page 66**.

If a firewall exist between client and Cluster, the DAS/ACI Firewall should be installed either on PC in cluster domain or on both cluster nodes; in the second case, the DAS-ACI Firewall server name must be specified as common Cluster name (for example, SDLC-CLUSTER), too.

SCSI

In the Cluster configuration, additional hardware requirements exist for the SCSI clients based on SCSI connection:

- 2 SCSI Target HBA, as described in Table 18 on page 73.
- 2 SCSI Y-Block connectors (Y-cables) to terminate the SCSI Bus.
- 1 SCSI Terminator.
- 1short (~1 m) SCSI cable (68 pins) (in-cluster connection)
- 1middle length (2-3 m) SCSI cable (68 pins) (client connection)

Be sure that the client connection scheme matches the example (see figure below).



Figure 53 Cluster: SCSI Client Connection

SCSI HBA SCSI Bus Initiator SCSI HBA SCSI HBA SCSI Client PC

In the Cluster configuration, additional hardware requirements exist for the SCSI clients based on Fibre Channel connection:

- 2 FC Target Adapters, as described in Table 18 on page 73.
- FC switch
- 2 FC cables (client connection)

Be sure that the client connection scheme matches the example (see figure below). The fibre channel target adapters on both cluster nodes should operate in the failover (cluster) mode; this option is set up via the SCSI Target Port tool.

Figure 54Cluster: Fiber Channel Client Connection



ROBAR

Install the ROBAR Client software on the client PC. Set the HOST parameter to the Cluster name (for example, SDLC-CLUSTER). If the HCC/MVS software is used, configure it, too, and set the appropriate ROBAR Client parameters in the Management GUI. Be sure a valid ROBAR port is specified. The details are described in *Reference Guide, GUI Tabs* chapter, *ROBAR* and *ROBAR Client* sections

Install SCSI/FC Target Cards on a Live Machine

Although ADIC recommends to install and set up all required hardware before starting the work, it is possible to make some changes later, too.

- **Step 1** Make Node 1 *passive*, Node 2 *active*. The Scalar DLC will operate on Node 2.
- **Step 2** Shutdown Node 1. Install the new SCSI/FC card into a free PCI slot (note what slot it is).



Step 3	Start Node 1. The Windows Device Manager will find a new device and install the SCSI/ FC initiator driver (or request the user to install it from a manufacturer disk). Refer to Initiator Driver on page 74.
Step 4	Restart Node 1. Install Target driver for a new card. Refer to Installing the SCSI/FC Target Drivers on page 71.
Step 5	Restart Node 1. Launch Scalar DLC SCSI Target Port Tool and enable the new SCSI card as Target. For the FC card, resolve the WWN.
Step 6	Restart Node 1. Make Node 1 <i>active</i> , Node 2 <i>passive</i> . The Scalar DLC will operate on Node 1.
Step 7	Repeat steps 2 - 6 for Node 2. The SCSI/FC cards should be identical, and they should be installed in the identical PCI slots.
Step 8	Now launch Scalar DLC Management GUI at any node and configure the SCSI targets for the client.

The down time for the Scalar DLC software is only during changing the cluster nodes. All startup/ shutdown operations are executed on the un-active node.

SNC Usage

Usually the library use SCSI to connect to the Scalar DLC hosts. However this interface has the distance limitations: depending on the SCSI adapter used the SCSI cable length cannot exceed the sencibility limit (refer to <u>Table 18 on page 73</u>). That limitation may cause problems.

The additional SNC hardware can be used in order to remove the distance limitations. Build the connections as it is shown on one of the the pictures below, configure the SNC, and the Scalar DLC PCs (working via the Fibre Channel HBA Initiator) can be placed as far from the library as it is required.

🕅 NOTE:

The SNC configuration instructions are described in the SNC User Manual.



Cluster: SNC with the single-aisle, switch scheme











Cluster: SNC with the dual-aisle, switch scheme









When the Scalar DLC host PC is restarted the SNC must be restarted, too. Refer to <u>SNC Issues on page 76</u>.



Installing the Scalar DLC

The Scalar DLC software must be installed on a PC running Windows 2000. The Management GUI is installed as a part of the Scalar DLC software. After the software is installed, a remote user can connect to the Scalar DLC host.



To install the Scalar DLC software and all required components, local administrator rights are required.

During the *typical installation* process, all required components are installed. System restart may be necessary after the installation of certain components. The system will warn the user that the restart is required, and the installation process will continue until all files have been installed.

- Before installing the Scalar DLC perform the <u>Solution Checkup on page 47</u>.
- Using the Scalar DLC setup engine install the required <u>Software Components on page</u> <u>47</u>.
- After this is finished, Install the Scalar DLC Software on page 51.

Solution Checkup

Make sure the appropriate solution is set up before installing the Scalar DLC.

Refer to <u>Setting Up the Basic Solution on page 7</u> or <u>Setting Up the Cluster Solution on page</u> <u>14</u>.

Software Components

The following figure shows the components that are to be installed during the Scalar DLC setup process. The required components that are currently <u>not</u> installed are marked automatically for the installation.



Figure 59

Scalar DLC Setup Components

🙀 ScalarDLC Setup		×	
Install Components Scalar DLC Version 2.5 Setup will install the marked components on your PC.			
 Microsoft Internet Explorer 6 Java(TM) 2 Runtime Environm Apache Web server Version 1 Secure socket layer Microsoft SQL Server Desktop Service Pack 3 for MSDE 2000 Scalar DLC Version 2.5 (Build 2) 	ent SE 1.4.2 .3.27 Engine 2000		
Run installation in sile	nt(quiet) mode.		
	< Back Next >	Cancel	

The following components must be installed and configured for the proper performance of the Scalar DLC software service:

- Microsoft Windows 2000 Service Pack 4
- Microsoft Internet Explorer ver. 6.0 or newer, optional
- Java[™] 2 Runtime Environment (Java 2) 1.4.1_03
- Apache Web Server ver.1.3.27
- Secure Socket layer (SSL), optional
- Microsoft SQL Server 2000 Desktop Engine (MSDE 2000)
- MSDE 2000 Service Pack 3

Silent Mode

When a customer selects silent mode, all information that is required to the installation of the selected software components must be entered before the actual installation process starts. Note that the complene installation of both the required components and Scalar DLC software will take some time. The installation engine performs automatic restart of the PC, automatic logon after restart, and continue the setup process until everything will be done.

Windows 2000 Service Pack 4

The SP4 for Windows 2000 operating system must be used with the Scalar DLC software. After the SP4 is installed, a restart is required. Then the system will configure the installed tools and services.

👿 NOTE:

ADIC supports the SP4 developed by the Microsoft. This service pack can be used with all versions of Windows 2000 OS (Professional, Server, Advanced Server, etc.).



Microsoft Internet Explorer

The Scalar DLC software is compatible with the MS IE browser 6.0 or newer version. ADIC offers the MS IE 6.0 installation kit. After the MS IE is installed, a restart is required. After rebooting, the system continues to configure the installed Internet Explorer tools and services.



The installation of MS IE 6.0 under Windows 2000 is recommended but not required.

Java 2 Runtime Environment

The Java2 component installs over an existing Java runtime environment without producing a warning message. By default, the Java2 is installed in the

<%SystemDrive%>\Program Files\Java\j2re1.4.1_03\ directory. An advanced user can install the Java2 to any directory desired, but ADIC recommends against this action.



If the installation proceeds on a clean PC, the Java2 installation asks for a restart. ADIC recommends rebooting the PC.

Apache Web Server

ADIC does not recommend installing the Scalar DLC software on a machine with a previously installed copy of Apache Web Server. During installation, the configuration file overwrites any configuration file present on the hard drive without providing a warning. By default, the Apache Web Server is installed in the <%SystemDrive%>\Program Files\Apache Group\Apache\ directory. An advanced user can install the Apache Web Server in any desired directory.

If the default Apache directory exists, the installation provides a warning message. See figure below.

Figure 60 Warning: Apache

🖥 Scalar DLC
Setup Warning Warning setup
Warning message
The directory
F:\Program Files\Apache group\
which should be used for installing Apache Web server Version 1.3.27 software already exists. We strongly recommend deleting it to avoid errors during the installation of this software.
Please store the files from this folder in a different location, if needed.
nstallShield
Leave Delete Cancel



Secure Socket Layer

The Secure Socket Layer (SSL) protocol encrypt the data sent/received via the web. The SSL family of protocols includes also Transport Layer Securyty (TLS).

The SSL is built into all major browsers (Internet Explorer, Netscape), so implementing the SSL component into the Scalar DLC activates this feature when a customer launches the Scalar DLC Management GUI as the browser applet. Also the SSL encryption feature is activated when a customer launches the Java-based application Scalar DLC Manager which represents the same Management GUI. The details on Management GUI are described in the *Reference Guide, Configuration* chapter.

The following are characteristics of SSL/TLS:

- · Generic enough to be incorporated into many applications
- Provides security between the transport (TCP protocol) and upper application layer protocol such as HTTP, FTP, or TELNET.
- · Supports encryption, authentication, and key exchange
 - · Encrypts data so that anyone who intercepts is unable to read it.
 - Assures clients that they are dealing with the server they intend to connect to.
 - Prevents any unauthorized clients from connecting to the server.
 - Prevents anyone from meddling with data going to or coming from the server.
- Three protocol capabilities: authentication, encryption, and key exchange

Microsoft SQL Server Desktop Engine 2000

If the Microsoft SQL Server 2000 is installed already, it is not required to install the MSDE 2000. If there is either MSDE 7.0, or MS SQL Server 7.0 installed on the PC, the installation upgrades it for the MS SQL system service remains workable.

By default, the MSDE 2000 is installed in the

<%SystemDrive%>\Program Files\Microsoft SQL Server\ directory. An advanced user can install the MSDE 2000 in any desired directory. After the MSDE 2000 installation is completed, re-start the system if required.

If the Scalar DLC should be installed as a Cluster solution, the MS SQL 2000 should be installed on a shared disk to the specified folder that must be shared, too. See figure below.



Figure 61 MS

MSDE 2000 Installation

🔁 Scalar DLC 📉 🗶					
Next Installation Step					
Please click button to continue installation or cancel it.					
🥐 Install:					
Microsoft SQL Server Desktop En	igine 2000				
MS SQL Server data files location: —					
🔿 default					
C:\Program Files\Microso	oft SQL Server				
• specified					
F:\					
Install all packages and do not show	v me this dialog	again.			
InstallShield					
	<u>S</u> kip >	Install	Cancel		

MSDE 2000 Service Pack 3

The SP3 for MSDE 2000 was designed to fix bugs and security holes found in the basic version of the software (MSDE 2000). Because the Scalar DLC uses the SQL database to store all system information this service pack is required for the correct performance of the Scalar DLC software.

NOTE: If there is no MSDE 2000 but complete MS SQL 2000 installed, do <u>not</u> install this service pack. Go to the <u>http://www.microsoft.com</u> instead, download the Service Pack 3 for MS SQL 2000, and install it manually.

AUTION:

ADIC recommends installing Service Pack 3 for MSDE 2000. Otherwise a security hole in MSDE 2000 remains open and could be used by internet viruses or worms (for example, Slammer).

Install the Scalar DLC Software

Follow the directions on the Setup Start window to install the Scalar DLC software.







All Setup windows contain the following buttons:

- Back
- Next
- Cancel



Licensing	
🚰 Scalar DLC	×
License Agreement Please read the following license agreement carefully.	
Advanced Digital Information Corporation	
IMPORTANT: This agreement contains important information about this software and your use of this software. Read this agreement before installing this software. If your use of the software is for evaluation purposes, the terms and conditions under the following	T
I gccept the terms in the license agreement I go not accept the terms in the license agreement	
< <u>B</u> ack <u>N</u> ext >	<u>C</u> ancel

To continue the Scalar DLC Installation, accept the ADIC License Agreement. Click **Next** to proceed to the next screen.

Figure 65



Figure 64 Required Components

Require	d'components	
🞼 Scalar Di	LC	
Installed Components Information Please make sure that all required components are installed on your PC.		
	Apache Web Server version 1.3.27 will be installed	
	Microsoft SQL Server Desktop Engine 2000 will be installed Service Pack 3 for MSDE 2000 will be installed	
□ 5	ilent mode(All required components will be installed without additional dialogs)	
InstallShield -	< <u>Back</u> <u>N</u> ext >	

Proceed only after all of the required components are installed. Otherwise, the Scalar DLC Installation must be cancelled and launched again after the missing software is installed.

Click **Next** to proceed to the following screen.

Personal Information
🚰 Scalar DLC 🔀 🔀
Customer Information Please enter your personal information.
User Name:
Organization:
organization Scalar DLC serial number:
DLC IIII Install this application for:
 Anyone who uses this computer (all users) Only for me (user)
InstallShield

Enter the customer's personal information. Refer to <u>Table 5 on page 54</u> for the meaning and required operation of the fields.

Name	Operation	Description
User name	Enter	The user name. By default, it is the person registered as the PC owner.
Organization	Enter	The organization name. By default, it is the organization registered as the PC owner
Scalar DLC serial number	Enter	The Scalar DLC serial number (5 digits). This number is shown on the back of the Scalar DLC Installation CD.

Next, the installation process creates an account and registers the Scalar DLC internal components. See <u>Figure 66</u> for the local account, see <u>Figure 67 on page 55</u> for the domain account, and see <u>Figure 69 on page 56</u> for the registration.

Figure 66

Create Local User Account

🞼 Scalar DLC			X	
Logon Information User:'Administrator' on '(Rights: 'Admin' on 'COMP	COMPUTER', (UTER',	domain: 'COMPUTER' (DC: 'COMPUTER').		
Register components under user account:				
User	Name:	SDLC		
User	Password:			
	confirm:			
Specify the type of user	account to	be created		
Iocal account	On host:	COMPUTER		
C domain account	Domain:	COMPUTER		
	Server:	COMPUTER		
InstallShield				
		< <u>B</u> ack <u>N</u> ext >	Cancel	

Enter the user account settings.

Name	Operation	Description
User name	Enter	User account name, 'SDLC' by default
User Enter User account password.		User account password.
Confirm	Enter	Password must be confirmed.
User account	Select	Local specifies the account type as local (default).
to be created		Domain specifies the account type as domain.
On host	Supplied	Local host name.
Domain	Supplied	The domain name (not editable for the local account).
	Enter	The domain name (editable for the domain account).
Server	Supplied	The domain server name, not editable.

Table 6Create User Account



Name	Operation		Description	
Check (for domain account only)	Click	Check the rights on the domain. For a domain admin, the Next button appears; otherwise, domain account installation is not available.		
Figure 67	Create Domain L	Jser Accou	nt	
	🐻 Scalar DLC		X	
	Logon Information User:'Administrator' o Please check your rigi	n 'COMPUTER', (hts on specified s	domain: 'COMPUTER'(DC:'COMPUTER').	
	Register compon	ents under u	ser account:	
	U	ser Name:	SDLC	
	U	ser Password:		
		confirm:		
	Specify the type of us	er account to	be created	
	🔿 local account	On host:	COMPUTER	
	🖲 domain accour	Domain:		
		Server:	COMPUTER	
	InstallShield			
			< Back Check Cancel	

 Table 6
 Create User Account

The user account should be entered in this window. Refer to <u>Table 6 on page 54</u> for the details. Click **Next** to proceed.

👿 NOTE:

Domain administrator rights are required to install Scalar DLC under a domain account.

If the account name already exists and the password does not match the existing account's password, the User Account warning appears. See <u>Figure 68 on page 56</u>. Otherwise, if the user account is created successfully, the Component Registration window appears. See <u>Figure 69 on page 56</u>.



Figure 68

User Account Warning

🞼 Scalar DLC 🔀 🕺
Logon Information User:'Administrator' on 'COMPUTER', domain:'COMPUTER'(DC:'COMPUTER'). Rights: 'Admin' on 'COMPUTER'.
Scalar DLC Setup cannot create or modify the Scalar DLC NT-user account 'SDLC' on 'COMPUTER' in local domain
Error 86 occurred during opening the user account on COMPUTER An invalid password is entered for already existing user 'SDLC'. Please enter the correct password for user 'SDLC' or specify different user name.
InstallShield

Go back and specify another user account or enter the correct password.

Figure 69

Component Registration

🖟 Scalar DLC	×
Logon Information User:'Administrator' on 'COMPUTER', domain:'COMPUTER'(DC:'COMPUTER'). Rights: 'Admin' on 'COMPUTER'.	
Scalar DLC Setup has successfully created or modified th NT-user account on 'COMPUTER' in local domain	e Scalar DLC
Scalar DLC components registration	
Scalar DLC components will be registered under the user 'COMPUTE the computer 'COMPUTER'.	R\SDLC' on
Scalar DLC components will be distributed on 'COMPUTER'.	
Scalar DLC will be automatically started on 'COMPUTER'.	
InstallShield	· · · · · · · · · · · · · · · · · · ·
< <u>B</u> ack <u>Next</u> >	Cancel

😻 NOTE:

Do not use system tools to change the Scalar DLC user account created during installation. If a change is made, the Scalar DLC system will not start. To correct this situation, launch the Scalar DLC Add/Remove engine in the *Repair* mode.



Figure 70 Database Information

)atabase name:	SDLC		
MS SQL Server:	localhost		
Compact database:	Compact type:	Weekly	
	day:	Sunday	-
	Start at:	02,00 (hh.mm)	
ackup database:	Backup type:	None	•

Refer to **Table 7** for the additional information.

Table 7	Database	Information
---------	----------	-------------

Name	Operation	Description
SDLC Database name	Enter	The default Scalar DLC database name, 'SDLC', will be used unless the user specifies another name.
MS SQL Server	Supplied	The default host name where the database should be created.
Compact	Select	The Compact Database schedule can be set here.
Backup	Select	The Backup Database schedule can be set here.

NOTE: The schedules for Backup and Compact jobs are described in more detail in the *Database Utility* section of the *Scalar DLC Reference Guide*. The backup and compact schedules can be changed later, the database name cannot be changed.

Specify the database name and backup/compact schedules, and press Next to proceed.

If the specified Scalar DLC database already exists, either keep it or create a new, clean database. See <u>Figure 71 on page 58</u>7. If the database was created by an older version of Scalar DLC software, either update it or create a new, clean database. See <u>Figure 72 on page 58</u>. If a new database is installed, the next window, Email Notifications settings, appears. See <u>Figure 73 on page 59</u>.





Figure 71 Selecting Database: Create or Keep

🖟 Scalar DLC	×
A Scalar DLC Database exists Please select option.	
The Scalar DLC MS SQL Server database 'SDLC' already exists, choose:	
Create new database	
O Use existing 'SDLC' database and SQL schedule jobs	
ToctallShield	
< <u>Back</u> <u>N</u> ext >	Cancel



The old database may be used only with the same version of the Scalar DLC.

If a new database is created, click **Next** to proceed to the **Figure 73 on page 59**; otherwise, proceed to the final screen.

Figure 72	Selecting Database: Create or Upgrade	
	🙀 Scalar DLC	×
	A Scalar DLC Database exists	
	Please select option.	Č.
	The Scalar DLC MS SQL Server database 'SDLC' already exists, choose:	
	C Create new database	
	 Upgrade existing 'SDLC' database 	
	To the Ultrational	
	< Back Next >	Cancel

Refer to <u>Table 8 on page 59</u> for the additional information.



Old Scalar DLC Version	Additional activity	
2.1	Reconfigure SCSI Target manually after the database upgrade. Refer to <u>Upgrading the Scalar DLC on page 83</u> .	
2.2	Upgrade database.	
2.3	Upgrade database.	
2.4	Upgrade database.	
2.5	Use existing database.	

Tahlo 8	Database	Ingrade
	Dalabase	opyraue

If a new database is created, click **Next** to proceed to <u>Figure 73</u>; otherwise, proceed to the final screen.

Figure 73Email Notification Settings

Email Notification	Settings	
In the event of tech Please enter the em	nical problems the Scalar DLC can send email messages. nail information.	ð
Support service em	ail address (To:):	
watchman@	Padic.com	
Specify local email a	address for Scalar DLC Version 2.5 (From:):	
		*
Outgoing n Name	nail server:	*
Port:		
Port:	I25 ↓ · ·	
Port:	I I I I I I I I I I I I I I I I I I I	

Enter the email settings. Refer to **Table 9** for details.

	Table 9	Email Notification Settings
--	---------	-----------------------------

Name	Operation	Description
Support service email address (To:)	Supplied	The email address for ADIC Scalar DLC technical support: 'watchman@adic.com'. Not changeable.
Local email address (From:)	Enter	The email address shown in the From: field of emails.
Outgoing mail server: Name	Enter	The SMTP mail server name.
Outgoing mail server: Port	Enter	The SMTP mail server port.



Table 9	Email Notification Settings
	Email Houndation Counge

Name	Operation	Description
Turn on email notifications	Check	Turn the email notifications on if the box is checked. This can be changed later via the Management GUI (<i>Main Menu > Extended service > Registration</i> <i>information</i>).

[👿] NOTE:

Figure 74

If the email settings are not properly configured, notifications will not be sent via email. The email parameters cannot be changed after the Scalar DLC is installed.

Click **Next** to proceed to the figure below.

Scalar Dec		
Setup Type		
Choose the set	up type that best suits your needs.	C
• Complete	All and an a fact way will be to be light (Back the sub-the sub-the light)	
12	space.)	
C Cu <u>s</u> tom		
- P	Choose which program features you want installed and where they	
₩	will be installed. Recommended for advanced users.	
setallChield		
iscalionneid		

There are two types of Scalar DLC software installations: Complete and Custom.

The Complete Setup requires more disk space than various types of custom installs and places all Scalar DLC software components in the default directory: <%SystemDrive%>\Program Files\ADIC\SDLC\.

The *Custom Setup* allows to choose both the destination directory and the internal Scalar DLC software features that will be installed (if some features are not required, for example, Scalar DLC SCSI Client support). See Figure 75 on page 61 for details.

Specify the installation type and click **Next** to proceed.



Figure 75 Custo

🞼 Scalar DLC	×
Custom Setup Select the program features you want installed.	
Scalar DLC Kernel Scalar DLC Clients GUI Client DAS Client NobleNet Portmapp K NobleNet Portmapp SCSI Client Physical Libraries Install to: F:\Program Files\ADIC\SDLC\	Feature Description Scalar DLC system This feature has 3 of 3 subfeatures selected. The subfeatures require 31MB on your hard drive. hange
Help Disk Usage < Back	Next > Cancel

Table 10Custom Setup

Name	Operation	Description	
Scalar DLC Components	Supplied	Mark/unmark the component for installation.	
Kernel	Supplied	The kernel of S	calar DLC software. Installed always.
Clients	Supplied	GUI	The Scalar DLC Management GUI, main administrator tool. Installed always.
	Check	SCSI	The SCSI Client support. Installed optionally.
	Check	DAS and NobleNet	The DAS Client support. Installed optionally.
	Check	ROBAR	The ROBAR Client support. Installed optionally.
Physical Libraries	Supplied	Scalar 10K	The support of Scalar 10K single-aisle. Installed always.
	Supplied	Scalar 10K DA	The support of Scalar 10K dual-aisle. Installed always.
	Supplied	Scalar 1000	The support of Scalar 1000. Installed always.
Feature Description	Supplied	The componen	t name and disk space requirements.
Install to	Supplied	The current des	stination folder where the Scalar DLC should be
		installed. The d	
		SystemDriv	e%\Program Files\ADIC\SDLC\.
Change	Click	Change the des	stination folder.

Specify the components to install and the destination folder, and click **Next** to proceed.



Figure 76 Insta





When the SCSI Client component is selected for installation in either the *Complete* or *Custom Setup*, the installation process requests to install the SCSI and Fibre Channel Target driver. If this option is accepted, the SCSI Target Mode Driver installation proceeds after the Scalar DLC software is installed successfully. Otherwise the Scalar DLC software installation proceeds but the SCSI Target software features remain not operable if no SCSI Target driver is present in the system (for example, from a previous installation).

NOTE: The SCSI/Fibre Channel Target drivers are needed to operate additional hardware (the SCSI card or FC card) required for using the Scalar DLC SCSI Target features. If this card is physically absent, the driver can be installed, but the Scalar DLC SCSI Target features will not work.

This request is shown every time the Scalar DLC SCSI Client component is selected for the installation. ADIC recommends accepting the option and installing the drivers. If the drivers are installed already, decline this option. The drivers may be installed later manually as well.

For the details on SCSI Target Mode Driver installation and configuration process, refer to **Installing the SCSI/FC Target Drivers on page 71**.

After the Scalar DLC components are installed, enter the registration information. See Figure 77 on page 63.



Figure 77 Registration Form

/// Scalar DLC		×
Registration Inform Please complete this	registration form.	B
-Customer informatio	n	_
Company name:	organization	
Company address:	address	
Contact name:	user	
Contact e-mail:	contact email	*
SMTP server:	smtp server * port: 25	1*
Contact telephone:	phone Fax: fax	
Service contract:	✓ site ID: site id	
-Scalar DLC informatio	on	
Serial number:	DLC 12345	
Location:	location	
Dial-in number:	dial-in number	
ATAC contact:	• North America	
	C Europe	
InstallShield		
Note: '*' indicates requir	red field	

For licensing purposes, enter the registration information. Fields marked with the asterisk must contain valid information.

	•	
Name	Operation	Description
Company name	Enter	The company's name.
Company address	Enter	The company's mailing address.
Contact name	Enter	The contact person's name.
Contact email *	Enter	The contact email address.
SMTP Server *	Enter	The SMTP server name.
Port *	Enter	The SMTP server port.
Contact telephone	Enter	The contact phone number.
Contact fax	Enter	The contact fax number.
Service contract	Check	Marks the service contract feature as 'signed' if checked.
Site ID	Enter	The site ID (for the signed service contract).
Scalar DLC S/N	Supplied	The Scalar DLC serial number.
Scalar DLC location	Enter	The Scalar DLC location.
Scalar DLC dial-in number	Enter	The Scalar DLC dial-in number.
ATAC contact	Select	The Scalar DLC ATAC contact region (North America or Europe)

Table 11Registration Form



Figure 78

NOTE: The registration information can be changed later via the Management GUI (*Main Menu > Extended service > Registration information*).

After entering the data, click **Next** to proceed. Review the information and make changes if necessary. See the following figure.

Review Registration Form 🞼 Scalar DLC **Registration Information** Please check your registration data. Scalar DLC registration data **Customer information** Company name: organization Company address: address Contact name: user Contact email: contact email SMTP server: smtp server port:25 Contact telephone: fax phone Fax: Service contract: Yes site ID: site id Scalar DLC information DLC12345 Serial number: Location: location Dial-in number: dial-in number ATAC contact: North America Send license request to ADIC now. Print <u>S</u>end email InstallShield - $\underline{N}ext >$ < <u>B</u>ack

The request form can be printed out and/or send via email to ADIC customer support to obtain a license. Refer to **Table 12** for additional information.

Name	Operation	Description
Send license request	Check	If checked, sends license request to ADIC.
Print now	Click	Print the registration form for mail or fax delivery.
Send email	Click	Send the registration form via email (see Figure 79 on page 65).



Figure 79 Email Registration Form

🐻 Scalar DLC				×
Email Header Please check you	ur email header.			æ
From:				
To (ad1;ad2;):	watchman@adic.com			
Subject:	Scalar DLC registration da	ata.		
InstallShield	SMTP server:	smtp server	port:	25
Instantini d			<u>S</u> end	Exit

The email can be sent to any number of recipients. Refer to Table 13 for details.

Table 13	Email Registration Form
----------	-------------------------

Name	Operation	Description
From:	Enter	'From' email address
To:	Enter	'To' email address (list of addresses)
Subject	Supplied	Not changeable. Email 'Subject'.
SMTP Server	Enter	The SMTP server name must be set here
Port	Enter	The SMTP server port must be set here.
Send	Click	Send email.
Exit	Click	Return to the previous dialog without sending email.

The Scalar DLC software is installed successfully. If no additional configuration steps are required, re-start the computer.

Installing DAS Client

The DAS Client software will be completely functional after the following configuration steps.

- Step 1Install the Scalar DLC software with the DAS support on the server PC. Refer to Install
the Scalar DLC Software on page 51. The server PC requires a restart.
- **Step 2** Start the Management GUI. Create the library configuration that the client requires. Create the required mailboxes and clean/scratch pools. Create a DAS client and assign it to the created library. Refer to the *Scalar DLC Reference Guide*, *Configuration* chapter.
- **Step 3** Install the client application on the client PC.
 - 1. <u>Figure 80 on page 66</u> shows the DAS Client components selection during the installation of Scalar DLC DAS Client software.

Figure 80 Select S

Select Scalar DLC DAS Client Components

🗑 Scalar DLC DAS-Client Setup	×
Custom Setup Select the program features you want installed.	
Click an icon in the list below to change the features to be inst	Feature Description Feature Description Installation of Scalar DLC DAS-Client Utility and DAS/ACI
	Library This feature requires 0KB on your hard drive. It has 1 of 2 subfeatures selected. The subfeatures require 576KB on your hard drive.
Install to: C:\Program Files\ADIC\SDLC\	<u>C</u> hange
Help Disk Usage < Back	Cancel

- 2. The installation will place the selected components in the <%SystemDrive%>\Program Files\ADIC\SDLC\ directory. Change the destination folder if it is required.
- 3. The DAS Administration Utility should be installed on a PC that will run the DAS Client software. Refer to **Install the DAS Administration Utility on page 68**.
- 4. If there is a firewall between the Scalar DLC (server) host and the client host, the DAS/ ACI firewall software should be installed on a PC *inside* the firewall. Refer to <u>Install the</u> <u>DAS/ACI Firewall on page 69</u>.
- NOTE: The DAS/ACI firewall software can be installed directly on Scalar DLC host. In case of the cluster solution, it should be installed on both cluster nodes.
 - 5. Figure 81 on page 67 illustrates the typical network structure.





6. The installation configures appropriate server, client, and media type values (refer to Table 14).

Table 14Enviro	onment Variables for DAS
Variable	Explanation
DAS_SERVER	Network names (TCP/IP) of the server which are accessed by the <i>dasadmin</i> program. Both names are entered separated by a comma, only when installing dual DAS. The names must be resolvable on the computer into TCP/IP addresses. For the firewall connection, the DAS/ACI Firewall PC name is used here
DAS_PORT	A port being used to send DAS commands (for the firewall connection only).
DAS_CLIENT	Name of the client under which the DAS PC is to access the server. The name must be defined in the Scalar DLC database.
ACI_MEDIA_TYPE	Default media type selected when using <i>dasadmin</i> if the parameter <i>-t</i> is omitted from the command.

. .

- These variables can be also set manually. This is very useful when several DAS V NOTE: Clients have to share one client host.
 - 7. Once the variables are set, the restart is requested. ADIC recommends accepting the restart so that the Scalar DLC DAS-Client software works properly.
- Step 4 After the configuration is complete, the Scalar DLC software is ready to accept commands from a DAS client.

Install the DAS Administration Utility

The connection settings must be entered during the installation of the *dasadmin* software. See **Figure 82** for a firewall-based connection and see **Figure 83 on page 69** for a direct (firewall-free) connection.

Figure 82	DAS Client Connections Using Firewall
	👹 Scalar DLC DAS-Client Setup - DAS client information - Step 1 of 1 🛛 🔀
	DLC DAS client information Image: Client information. Please enter the DAS client information. Image: Client information.
	DAS client connection
	Using DA5/ACI firewall
	DAS/ACI firewall server name:
	DAS client name:
	ACI Media type:
	InstaliShield



Table 15 DAS Client Connection Parameter
--

Property	Operation	Description	
DAS Client connection	Select	<i>Not using firewall</i> should be selected if there is no firewall between the client host and the Scalar DLC host.	
		Using DAS/ACI firewall should be selected if a firewall exists between the client host and the Scalar DLC host.	
DAS/ACI firewall server name	Enter	Name of the PC where the DAS/ACI Firewall software is installed (shown for <i>Using DAS/ACI firewall</i> selection only).	
Port	Enter	The firewall port (shown for <i>Using DAS/ACI firewall</i> selection only).	
Scalar DLC server name	Enter	The Scalar DLC server name (shown for <i>Not using firewall</i> selection only).	
DAS Client name	Enter	The default DAS Client name. Refer to Table 14 on page 67.	
ACI Media type	Select	The default ACI media type. Refer to Table 14 on page 67.	
Sca	lar	DL	.C
-----	-----	----	----



Figure 83 DAS Client Connection	without Firewall
---------------------------------	------------------

🙀 Scalar DLC DAS-Client Setup - DAS client information - Step 1 of 1	×
DLC DAS client information Please enter the DAS client information.	
DAS client connection	
O Using DAS/ACI firewall	
Scalar DLC server name:	
DAS client name:	
ACI Media type:	
TostallShield	•
< <u>B</u> ack <u>N</u> ext >	Cancel

😻 NOTE:

If the connection type is specified incorrectly, the DAS Client software will install successfully but the connection with the Scalar DLC host cannot be established.

Install the DAS/ACI Firewall

If there is a firewall between the Scalar DLC host and the client host, the DAS/ACI firewall software should be installed on the PC *inside* the firewall; this PC can be the Scalar DLC host itself. See Figure 81 on page 67.

V NOTE:

The DAS/ACI firewall software can be launched only under Windows or OS/2 platforms.

Launch the DAS Client installation and when the component selection screen appears (see <u>Figure</u> <u>80 on page 66</u>), select a DAS/ACI Firewall component. See <u>Figure 84</u> for a DAS/ACI Firewall settings screen.



Refer to **Table 16** for details.

Table 16	DAS/ACI Firewall	Parameters

Property	Operation	Description
Scalar DLC host name	Enter	The Scalar DLC server name.
Port	Enter	The firewall port to receive client commands.

After the DAS/ACI firewall is installed, the restart is requested. A new software service **DAS-ACI Firewall** appears in system services list.



Installing the SCSI/FC Target Drivers

The SCSI Target Mode Driver installation installs the Target driver for the SCSI/Fibre Channel Adapter(s) present on PC.

NOTE: If the SCSI Target Mode Driver installation is launched on a PC with the installed target drivers from a previous version (for example, 2.4), the install engine will remove the old drivers. Refer to <u>Add/Remove SCSI Target Drivers</u> on page 76.



If there is a Virtual SCSI Target Mode Driver installed, it should be removed before the SCSI Target Mode Driver installation. This can be done from **Control Panel > Add-Remove Programs.**

\chi NOTE:

Figure 85

There should be the Initiator driver(s) activated in the system before the Target driver(s) are installed. Refer to **Initiator Driver on page 74** for the details.

Figure below shows the Setup Start window of the SCSI Target software.



Click **Next** to proceed.





Figure 86 SCSI Target Licensing

记 SCSI Target Mode Drivers Setup		×
License Agreement Please read the following license agreement	: carefully.	
Advanced Digital Information	Corporation	4
IMPORTANT: This agreement c information about this softw of this software. Read this installing this software. I software is for evaluation p terms and conditions under t	ontains important are and your use agreement before f your use of the urposes, the he following	-
I accept the terms in the license agreement		
O I do not accept the terms in the license agree	eement	
InstallShield		
	< <u>B</u> ack <u>N</u> ext >	Cancel

Accept the ADIC License Agreement and click Next to proceed.

Figure 87

Personal Information

🞼 SCSI Target Mode Drivers Setup			×
Customer Information			
Please enter your information.			Č.
User Name:			
user			
Organization:			
organization			
Install this application for:			
Anyone who uses this co	mputer (all users	5)	
C Only for <u>m</u> e (user)			
InstallShield			
	< <u>B</u> ack	Next >	Cancel

Enter the customer's personal information. Refer to <u>Table 5 on page 54</u> for the meaning and required operation of the fields. Click **Next** to proceed.



Figure 88 Driver Selection

🞼 SCSI Target Mode Drivers Setup	×		
SCSI Target Mode Drivers Select the SCSI Target mode driver(s) for installed SCSI adapter.			
Click on an icon in the list below to change how a feature is inst	alled.		
Advanced Storage Concepts, Inc. X ASC-UW/H PCI SCSI Adapter ASC-U2W PCI SCSI Adapter QLogic Corp. X QLA2200 PCI Fibre Channel Adap QLA2300 PCI Fibre Channel Adap LSI Logic Corp. X LSI20860 SCSI PCI Host Adapter LSI20860 SCSI PCI Host Adapter	Feature Description Select the vendor of the adapter. This feature has 4 of 4 subfeatures selected. The subfeatures require 276KB on your hard drive.		
Install to: F:\WINNT\system32\Drivers\			
InstallShield			
Help Space < Back	Next > Cancel		

Click the driver to select it. Refer to <u>Table 17</u> for driver selection details and <u>Table 18</u> for SCSI and Fibre Channel adapters.

Table 17 Drive	er Selection
----------------	--------------

Name	Operation	Description
Drivers	Check	Mark/unmark the driver for installation. Refer to <u>Table 18</u> for a description of SCSI and Fibre Channel adapters that could be used in the system.
Feature Description	Supplied	Shows the driver name and disk requirements.

 Table 18
 SCSI and Fibre Channel Adapters

Adapter	Туре	Connection (external)	Max targets	Max SCSI ID	Max cable length, m
LSI 20860	SCSI	50-pin high density SE	7	7	5
LSI 8751D	SCSI	68-pin high density HVD	15	15	25
LSI 8951U	SCSI	68-pin very high density LVD/ SE	15	15	12(LVD) 5(SE)
LSIU80LVD	SCSI	68-pin very high density LVD/ SE	15	15	12(LVD) 5(SE)
QLA 2200	Fibre Channel	SC duplex multi-mode	31	127	-
QLA 23xx ^a	Fibre Channel	Small form factor multi-mode optic LC	31	127	-
Local ^b	SCSI	-	127	127	-

a. 'xx' means 00, 10, 40, and 42. No other models are currently supported.

b. The driver is designed by ADIC to execute the SCSI backup applications right on the PC where the Scalar DLC software is installed. No SCSI/FC hardware is required in this case

NOTE: The Local SCSI Target driver (powered by ADIC) is added for emulation the SCSI Target features on a PC without appropriate SCSI adapter. In the Management GUI, under the SCSI Target tab, the Local SCSI Target port appears, the Target objects can be created and assigned to the SCSI Clients. However, this port is not reflected in the SCSI Target Port Tool because this utility shows only adapters that could operate either as Initiators or as Targets.

After the successful installation, if no additional configuration steps are required, the computer must be restarted.



After rebooting, the adapters that should operate in Target mode are disabled. To enable them, use the SCSI Target Port Tool.

SCSI and Fibre Channel Hardware

The SCSI and/or Fibre Channel adapters must be installed into the PCI-type slots.



Connecting two adapters that do not match will cause hardware damage.

Before connecting SCSI Initiator (client host) and Target (Scalar DLC host) adapters with the SCSI cable, be sure that they match each other. Refer to <u>Table 18 on page 73</u> for a description of adapters that are currently supported and refer to <u>Table 19</u> for a match description.

Table 19 Parallel SCSI Match

Adapter Class	Matched
Single-ended (SE)	SE, SE/LVD
Low voltage differential (LVD)	LVD, SE/LVD
SE/LVD	SE, LVD, SE/LVD
High voltage differential (HVD)	HVD

The supported Fibre Channel adapters do match each other.

Initiator Driver

The Initiator driver can be installed before installing Scalar DLC software of after this operation as well. However, it should be done <u>before</u> installing SCSI Target drivers.

For each SCSI adapter found during the Windows setup and/or startup, the operating system usually installs the Initiator mode driver. However, for the newest adapter models, there can be trouble finding an appropriate driver because they are not present in a standard driver library. If such a problem encountered, follow the steps below.



- NOTE: Follow the instructions only if there is no proper Initiator mode driver(s) present in the system. When everything works, there is no need to re-install the drivers manually.
- **Step 1** Be sure that you have a manufacturer disk with the appropriate software driver for your adapter, or you have downloaded this driver from the manufacturer's web-site to the temporary folder. ADIC also offers the required drivers at the <%Scalar DLC Install CD%>\Drivers\Initiator folder.
- **Step 2** *During* setup/startup, the Win2000 system opens Found New Hardware wizard. Follow the wizard steps. Specify a driver location (disk or temporary folder) so that the system can install it.
- Step 3 After Win2000 startup, right-click on My Computer desktop icon, select Manage and launch Device Manager system tool. Locate the Other Devices group and the SCSI adapter. Open the properties for the required device, select Driver tab and click Update Driver. Follow the Upgrade Device Driver Wizard steps. Specify a driver location (disk or temporary folder) so that the system can update it.
- **Step 4** Repeat the steps above for each SCSI and FibreChannel adapter that is not properly configured by the system.
- Step 5 Re-start the PC if it is required.

The Target mode drivers now can be installed. Refer to **Installing the SCSI/FC Target Drivers on** page 71.

PCI Slot Troubles

In some cases, the SCSI Adapter installed in the PCI slot operates improperly or does not operate at all. The main symptoms are:

- Windows hangs on starting or works slowly.
- the installed SCSI Target driver does not start
- the driver is installed but the Management GUI does not recognize the Target port
- the logical library visible from the initiator side is unstable (bus errors, target disappears, and so forth)

This situation is sometimes encountered when the PC has more than one active PCI slot, and the SCSI card that should operate in Target mode is installed in this slot.

The problem can be solved by swapping the SCSI Target Adapter with another PCI card in an occupied slot, or temporarily remove any unused PCI devices to avoid possible problems with the system interrupts.



SNC Issues

If the SCSI Clients use SNC as an interface between Initiator (client) and Target (Scalar DLC) host, and the command is send when the Scalar DLC is down, the Target objects mapped on SNC will disappear so the client cannot send the commands later even after the Scalar DLC software is up again.

This results the SNC mapping problem. To fix the situation, either execute the 'ScsiRescan' issue from client side or reboot the SNC. If the Scalar DLC is up, the targets will be re-mapped.

Add/Remove SCSI Target Drivers

To remove, modify, or repair the installed Target drivers, use the Add/Remove build-in system engine (**Control Panel > Add/Remove Programs > SCSI Target Mode Drivers**).



Before removing Target drivers, return the appropriate SCSI adapters to the Initiator mode, that is, disable them as Targets via the SCSI Target Port Tool. Refer to SCSI Target Port Tool section in the *Utilities* chapter of the *Reference Guide*.

The same engine should be used in order to perform an upgrade of the SCSI Target Mode Drivers from a previous version.

- Step 1 Load the Scalar DLC Install CD. The autostart screen will appear (see Figure 1 on page 2).
- **Step 2** Launch the SCSI Target driver installation. The Add/Remove SCSI Target wizard will appear.
- **Step 3** Select *Remove* to delete old target drivers installed on PC. Proceed until the remove engine will request to restart PC.
- Step 4
 After reboot, open the autostart screen again. Launch the Scalar DLC installation (refer to Install the Scalar DLC Software on page 51) to install both the Scalar DLC software and appropriate SCSI Target drivers.

 If the Scalar DLC is installed already, launch only the SCSI Target driver installation (refer to Installing the SCSI/FC Target Drivers on page 71).



Add/Remove Scalar DLC Software

NOTE: <u>Before</u> removing Scalar DLC software from any cluster node, launch SDLC Cluster Configurator (see <u>Figure 51 on page 41</u>) and remove cluster configuration from the Scalar DLC resources (**Remove** button).

To add/remove the Scalar DLC software components launch: **Control panel > Add-Remove Programs > Scalar DLC**. This will run the Scalar DLC Add/Remove engine used to repair, modify, or remove the Scalar DLC software components installed on the PC. See the figure below.

NOTE: Local administrator rights are required to execute this procedure. Domain administrator rights are required if the Scalar DLC is installed under domain account.



Click Next to proceed to the following screen.



Scalar DLC

Specify the activity type and click Next to proceed.

3

Remove

The *Remove* process deletes all of the Scalar DLC software features except for the Scalar DLC account name and password that were set up during installation. See the figure below.

 $\underline{N}ext >$

Cancel

Figure 91	Saving the Database	
	🐻 Scalar DLC	×
	A Scalar DLC Database exists	
	Please select option.	
	Delete the Scalar DLC MS SQL Server database 'SDLC':	
	O Yes	
	⊙ No	
	InstallShield	
	< <u>B</u> ack <u>N</u> ext >	Cancel

The Scalar DLC database can be either removed, or saved for future use. Click **Next** to proceed to the remove and the final screen.



Software programs such as Java2, Apache, MS IE, MSDE 2000, and so forth, are not removed and should continue to function normally. The *Remove* process also restores the old web server configuration software.

😻 NOTE:

To remove the software packages that are required by the Scalar DLC, use **Control panel > Add-Remove Programs**.

Repair

The Repair process allows the user to repair the damaged Scalar DLC configuration without reinstalling the software. See figure below for the repair options.

Figure 92	Repair Options
	🖟 Scalar DLC 🔀 🕺
	Repair Options
	Please set the required repair options to change the scalar DLC configuration.
	Repair options
	C Scalar DLC server
	Use this option to repair the Scalar DLC server after computer renaming or Scalar DLC user account changing.
	🔿 Scalar DLC database
	Use this option to repair (recreate/restore/upgrade) the Scalar DLC database.
	InstallShield
	< <u>B</u> ack <u>N</u> ext > Cancel

Choose either the Server option to repair damaged Scalar DLC software components (refer to *Server*), or Database option to repair the damaged Scalar DLC database (refer to <u>Database on page 81</u>). Click **Next** to proceed.

Server

The *Repair Scalar DLC Server* process allows to re-register the Scalar DLC software components under new user account without re-installing them. This section has been added to avoid problems concerning the changes of user account name/password. This section also allows to repair the installed Scalar DLC software after the PC is renamed. See the following figure.



Figure 93 Repair Server Options

🖟 Scalar DLC
Repair Scalar DLC Server Please set the required repair options to change the Scalar DLC configuration.
Repair Scalar DLC server
Computer renaming
Repair the Scalar DLC after computer renaming. Use this option to reconfigure SQL server, Web server and Scalar DLC settings after computer renaming.
I✓ Repair Scalar DLC user account
Use this option to change password of the Scalar DLC DCOM objects or to register Scalar DLC under new user account.
InstallShield
< <u>B</u> ack <u>N</u> ext > Cancel

Select the repair options and click **Next** to proceed. Refer to **Table 20** for details.

Name	Operation	Description
Computer renaming	Check	Repair the Scalar DLC software after the computer has been renamed. The Scalar DLC user account is also repaired.
Repair user account	Check	Repair the damaged Scalar DLC user account. Refer to User Account on page 80.

If the *Computer renaming* mode is selected, the *Repair* checks all needed software components. If no software upgrade needed, the *Repair* process proceeds to the user account section. Refer to <u>User Account on page 80</u>.

User Account

The repair user account screens look exactly the same as the user account creation screens appear during the Scalar DLC installation. See <u>Figure 66 on page 54</u> for the local account, and <u>Figure 67</u> on page 55 for the domain account.

Refer to **Table 6 on page 54** for the user account settings.

😻 NOTE:

To repair the Scalar DLC installed under a domain account, the domain administrator rights are required.

If the account name already exists and the password does not match the existing account's password, the User Account warning appears. See <u>Figure 68 on page 56</u>. Go back and specify correct password, or another user account.

If the account is repaired successfully, the Component Registration window appears. See <u>Figure</u> 69 on page 56.



Database

The *Repair Scalar DLC Database* process allows the user to repair the damaged Scalar DLC database. It contains the same database upgrade engine as the Scalar DLC installation and offers the same functionality. See the figure below.

Figure 94	Repair Database		
	🞼 Scalar DLC 💦 🕹 🕺		
	Repair Scalar DLC Database		
	Please set the required repair options to change the Scalar DLC configuration.		
	Scalar DLC database information The Scalar DLC SQL database 'SDLC' version is different. The existing database cannot be used and should be recreated or upgraded.		
	Choose Scalar DLC database repair option:		
	C Create/recreate new database		
	Upgrade		
	InstaliShield		

Choose either the "recreate database" option to acquire the new, clean database, or "upgrade" option to update existing database according to current standards (the upgrade details are described at <u>Table 8 on page 59</u>). Click **Next** to proceed to the upgrade and the final screen.

Modify

The *Modify* process allows to add or remove a number of Scalar DLC software features and to install the necessary software drivers. All changes will be applied only after system restart. See the figure below.



Figure 95

V NOTE:

Modifying the System

🖟 Scalar DLC	×
Custom Setup Select the program features you want installed.	
Scalar DLC Kernel Scalar DLC Clients GUI Client DAS Client NobleNet Portmapp ROBAR Client SCSI Client Physical Libraries	Feature Description Scalar DLC system This feature has 3 of 3 subfeatures selected. The subfeatures require 31MB on your hard drive.
<u>H</u> elp < <u>B</u> ack	. <u>N</u> ext > Cancel

During the installation process, all files are written to the hard drive but do not appear at startup on the configuration list. All of these files can be accessed and activated in the *Modify* process mode. It is allowed to add, register, or un-register the Scalar DLC software features that are the parts of the SCSI, or ROBAR, or DAS-interface. The un-register procedure leaves the software written on the hard drive but makes it inaccessible to the user.

The SCSI Client software feature cannot be installed completely without SCSI hardware (the SCSI/FC card) being present on the PC.

After Add/Remove process is finished, ADIC recommends restarting the PC.



Upgrading the Scalar DLC

Although the upgrade engine is a part of Scalar DLC installation, some additional actions may be required. Depending on the configuration used, refer to <u>Simple Upgrade on page 83</u> or <u>Advanced</u> <u>Upgrade on page 88</u>. The instructions on which upgrade type is more preferable are located in the appropriate sections of this manual (refer to <u>Table 3 on page 11</u> or <u>Table 4 on page 43</u>). Note also the <u>Upgrade Issues on page 90</u>.

Simple Upgrade

Follow these sequence to install the Scalar DLC on the PC where the older version of the Scalar DLC software is working.

- Step 1
 (only for the Scalar DLC ver. 2.1). Verify the current SCSI Target assignment. Log into the Scalar DLC Manager GUI (Start >Programs >ADIC Distributed Library Controller > Scalar DLC Manager) and look under SCSI Target > SCSI Management. Note which SCSI target cards are assigned to SCSI target IDs.
- Step 2 Initiate the install process for Scalar DLC. This will start by removing old release. During this process the system prompts, "Delete the Scalar DLC MS SQL Server database 'SDLC'." Select "No." (see Figure 96). This will preserve the configuration currently running on the Scalar DLC machine. Be sure to save the database so that it can be applied to the new release.

 Figure 96
 Remove old Scalar DLC: do not delete the database

🖥 Scalar DLC		×
A Scalar DLC Database exists Please select option.		
Delete the Scalar DLC MS SQL S	ierver database 'SDLC':	
C Yes		
No		
, the control of the		
nstallishiela	< <u>B</u> ack <u>N</u> ext > Ca	incel

Step 3 During the installation of Release 2.5 the system informs that a database exists and asks whether the existing 'SDLC' database should be upgraded. Select "Upgrade" (see Figure 97 on page 84) and proceed.





🖥 Scalar DLC			×
A Scalar DLC Database exists Please select option.			
The Scalar DLC MS SQL Server data choose:	base 'SDLC' a	lready exists,	
C Create new database			
 Upgrade existing 'SDLC' data 	atabase		
InstallShield	e De els		Creat 1
	< <u>B</u> ack	Next >	Cancel

- **Step 4** Follow the Scalar DLC installation sequence. Install the required SCSI Target drivers (refer to <u>Installing the SCSI/FC Target Drivers on page 71</u>). After the new release installation is complete reboot the machine. Then activate the SCSI cards by enabling the Target ports (if this is already done, skip step 5)
- **Step 5** Configure/activate the SCSI/FC Target cards via SCSI Target Port Tool.
 - a. On the toolbar there will be a small three-penguin icon. Right click this icon and select **Tools > Scalar DLC SCSI Target Port Tool**.
- Figure 98 Access to SCSI Target Port Tool



b. The SCSI Target Port tool opens.

contranget i off fool. The port to discussed				
<	🗧 SCSI Target Port Tool	×		
	Port list:			
	Type Status	<u>R</u> efresh		
	875XSID, 2280X PCI S Generic Disabled			
		<u>E</u> nable		
		<u>D</u> isable		
		E <u>x</u> it		

Figure 99 SCSI Target Port Tool: the port is disabled

- c. Click Enable to enable the required SCSI port(s) (as in the figure below).
- 👿 NOTE:

The two-port adapters are shown in the SCSI Target Port Tool as two different single-port adapters.

Figure 100 SCSI Target Port Tool: the port is enabled

SCSI Target Port Tool		>
Port list:		
Port	Туре	<u>R</u> efresh
QLogic QLA2200 PCI Fibre Channel A	Fibre	
QLogic QLA23xx PCI Fibre Channel Ad Symbios Logic 875XSID, 2280X PCI S	Fibre Parall	<u>E</u> nable
		<u>D</u> isable
		(Advanced)
•	Þ	E <u>x</u> it
	SCSI Target Port Tool Cott list: Port QLogic QLA2200 PCI Fibre Channel A QLogic QLA23xx PCI Fibre Channel Ad Symbios Logic 875XSID, 2280X PCI S	SCSI Target Port Tool Cort list: Port QLogic QLA2200 PCI Fibre Channel A GLogic QLA23xx PCI Fibre Channel Ad Fibre Symbios Logic 875XSID, 2280X PCI S Parall

d. (only for the Fibre Channel) Click **Advanced** to resolve the virtual World-Wide Name (WWN) and make the adapter available for the Cluster (failover) mode work if it is required.

Figure 101 FC Adapter Advanced properties

Advanced FC port p	oarameters 🛛 🗶
Fail-over mode	
⊻irtual WWN (hex):	20 12 34 56 78 9A BC DF
ОК	Cancel

e. After enabling the cards (ports) and exiting the SCSI Target Port Tool, reboot if it is prompted.



Figure 102 Reboot after change SCSI Target properties



- Step 6
 After a successful reboot launch the Scalar DLC Manager (Start > Programs > ADIC Distributed Library Controller > Scalar DLC Manager).
- Step 7 (only for the upgrade from Scalar DLC ver. 2.1) Resolve Port-Target assignment.
 - a. Log on as 'admin'. Above the main Management GUI the SCSI configuration pop-up screen appears.

Figure 103 SCSI Configuration Screen

🌺 SCSI configuration	×
Database mismatch is detected! The existing SCSI Targets are to be assigned	to the existing SCSI Ports manually.
SCSI Target Ports	SCSI Targets
ASC-UW/H PCI bus 0, device 13, 1 <	Target1
✓ ок	

- b. Set the associations between Targets and Ports. Use the << button to associate Target with Target port. Remember that the customer may have multiple SCSI Targets.
 Each Target will have LUN 0; in case when a SCSI client exist for the target, the LUN 0 will be *active* with a client assigned to it.
- NOTE: The two-port adapters are shown in the Management GUI as two different single-port adapters.

Figure 104 SCSI configuration: assign target(s) to port(s)

SCSI configuration	×
Database mismatch is detected! The existing SCSI Targets are to be assigned	to the existing SCSI Ports manually.
SCSI Target Ports	SCSI Targets
ASC-UW/H PCI bus 0, device 13, 1	Target1
🗸 ок	

c. After this is completed, click **OK**. A pop-up confirmation window opens.



Figure 105 Confirmation to Restart Scalar DLC



d. Close the Scalar DLC Manager. Right-click on the three-penguin icon on the toolbar and select 'Stop Scalar DLC'.





e. The Scalar DLC software service will be stopped.

Figure 107 Scalar DLC is successfully stopped



f. Re-start Scalar DLC using the Scalar DLC icon on the toolbar.

Figure 108Access to Start Scalar DLC



g. After a successful start an appropriate message displays.

Figure 109Scalar DLC is successfully started



Step 8 When the upgrade is complete verify that all target cards are correctly assigned and work ok.



Advanced Upgrade

Follow these steps to perform the upgrade of the Scalar DLC software on any PC and/or to restore the Scalar DLC configuration from an old version of the software.

- NOTE: Only the Advanced upgrade procedure can restore the Scalar DLC configuration from standard (basic) to failover (cluster) solution, or vica verse.
- Step 1 <u>Before</u> removing the old release: backup an old database and keep it.
 - a. On the toolbar there will be a small Three Penguin Icon. Right click this icon and select **Tools > Scalar DLC DB Tool**.
- Figure 110 Access to DB Tool



b. Launch Scalar DLC DB Tool and log on (see Figure 111). If the Scalar DLC database has been installed under Trusted connection, only the local admin rights are required. If the Scalar DLC database has been installed under user account, either the SQL administrator logon name/password, or the Scalar DLC SQL user name/password are required.

Figure 111	DB Tool Log On
------------	----------------

Scalar DLC DB Logo	n	×
SQL Server:	localhost]
Database:	SDLC	
	Integrated security	
User:	sa]
Password:		
	1	,
OK	Cancel	

c. Backup the database to file (for example, "OldSDLC.db"). Keep this file in any temporary folder.



Figure 112 Backup Database

🔰 ScalarDLC	Database Ser	vice Tool		_ _ ×
Backup Cor	mpact Restore]		
	Database: Name: Description:	SDLC SDLCBackUp disk, backup o	Dev device	_
Backup	🖲 Database -	Complete		
Destinatio	n			
	Backup to:	C Tape	🖸 Disk	
F:\Temp	VOIdSDLC.db			
			Add	Remove
Command	I			
BACKUP DATABASE [SDLC] TO [SDLCBackUpDev] WITH INIT,NOUNLOAD,NAME=N'SDLCBackUpDBJob',NOSKIP,STATS=10,NOFORM				
				Execute
Schedule				
🔽 Sch	edule	every 1 day(s), a	t 12:00 AM	
			Apply	Cancel
				<u>E</u> xit

- **Step 2** Remove the old release of Scalar DLC with the database. Remove SCSI/FC Target drivers. Remove MS SQL 7.0 if it is installed. Restart the PC.
- **Step 3** Launch Scalar DLC installation. Install MSDE 2000 and Service Pack 3 for MSDE2000. Install Scalar DLC with new, clean database. Restart the PC. Enable the SCSI/FC Target cards if required.
- Step 4 Stop Scalar DLC supervisor (see Figure 106 on page 87). Launch Scalar DLC DB Tool (see Figure 110 on page 887).
- Step 5 Log on the DB Tool (see <u>Figure 111 on page 88</u>). Open *Restore* tab and restore database from backup file "OldSDLC.db", as shown in <u>Figure 113 on page 90</u>.



Figure 113	Restore Da	atabase from B	ackup file		
	所 ScalarDLC D	atabase Service To	ol		_ 🗆 🗙
	Backup Comp	oact Restore			
	Database:	SDLC]	
	Restore	C Database	From de	evice	
	ld Backu	p date	Size	Backup name	
	Device Nam	e Files\Microsoft SQL Se	rver\MSSQL\Bac	kup\SDLC_InstalledBackt	
	Logical file n	ame	Move to phys	sical file name Files\Microsoft SQL Server	MSSC
	SDLC_log		C:\Program	Files\Microsoft SQL Server	MSSC
				Re	estore
					<u>E</u> xit

NOTE: Do not start Scalar DLC software at this time. It will not be functional.

- Step 6 Launch Add/Remove Scalar DLC > Repair > Repair database mode. Select "Upgrade". When upgrade is finished, restart PC.
- Step 7 Launch Scalar DLC Management GUI. If required, re-configure SCSI targets and LUNs (see Figure 103 on page 86 and Figure 104 on page 86).

Upgrade Issues

When the upgrade is performed always check whether all names are correctly mapped and all SCSI adapter models used in previous versions of the Scalar DLC software are still supported. Remove old SCSI client(s) and create new client assigned to an old library if it is required. Executing the complete **inventory** is strongly recommended afterwards to maintain the database integrity.



Renaming and Repair

ADIC strongly recommend against renaming the PC or rebuilding the PC network configuration after the Scalar DLC is succesfully installed and configured. Such actions, however, may be necessary, and require the update of most software installed on the appropriate hosts.

When the Scalar DLC Basic solution is installed, after the PC is renamed and/or the network is reconfigured launch the Scalar DLC Repair engine. Refer to <u>Add/Remove Scalar DLC Software</u> on page 77 and <u>Repair on page 79</u>.

For the Scalar DLC Cluster solution the additional procedures are required. Refer to <u>Change</u> <u>Cluster Domain Name on page 91</u> and <u>Change Cluster Node Names on page 94</u>.



After the DNS, and/or the name of cluster, and/or the names of cluster nodes are changed, and after the Scalar DLC software is succesfully started, inform the customers who use the client interfaces (DAS or ROBAR) to work with the Scalar DLC as a server. The client environment variables (for example, DAS_SERVER) may require an update.

The SCSI-based clients do not require update and can start the work as soon as the Scalar DLC configuration is complete.

Change Cluster Domain Name

After the domain host is renamed/reconfigured, the cluster service on both cluster nodes (Node 1 and Node 2) is non-operable. The dependable software services, for example, Scalar DLC, will be non-operational, too. To fix the issue do the following:

Step 1 Prepare the system for configuration.

- Create the temporary user account (for example, id: 'TEMPUSER', password: 'admin') in the domain (for example, DOMAIN) with the rights of domain admin. Contact the local network administrator for the details.
- Create the user account (for example, id: 'SDLCUSER', password: 'password') that will be used as the Scalar DLC software account. Contact the local network administrator for the details.
- Ensure that all hardware is correctly connected.
- **Step 2** Include Node 1 into the DOMAIN.
 - a. Switch on the Node 1 and log on as a local admin.
 - b. Use My Computer > Properties > Network Identification > Properties > Domain.



Figure 114 Network ID Changes	s
-------------------------------	---

Identification Changes		? ×
You can change the name an computer. Changes may affec	d the membership t access to netwo	o of this ork resources.
Computer name: node1		
Full computer name: node1.domain.		
		More
Member of		
O Domain:		
domain		
O <u>W</u> orkgroup:		
	OK.	Cancel

- c. Specify new domain name (DOMAIN), click **OK**. Provide the name and password of domain admin (id: 'TEMPUSER', password: 'admin') to validate the domain assignment.
- d. Restart the Node 1.
- e. After restart log on as local admin and add the account issued for the Scalar DLC (SDLCUSER) to the administrators group.
- f. Log off as local admin and log on as domain user (SDLCUSER).
- **Step 3** Include Node 2 into the DOMAIN.
 - a. Switch on the Node 2 and log on as a local admin.
 - b. Use My Computer > Properties > Network Identification > Properties > Domain.
 - c. Specify new domain name (DOMAIN), click **OK**. Provide the name and password of domain admin (id: 'TEMPUSER', password: 'admin') to validate the domain assignment.
 - d. Restart the Node 2.
 - e. After restart log on as local admin and add the account issued for the Scalar DLC (SDLCUSER) to the administrators group.
 - f. Log off as local admin and log on as domain user (SDLCUSER).

Now both nodes can be powered up simultaneously because they still operate as standalone conputers.

- **Step 4** Reconfigure cluster service on Node 1.
 - a. Switch to the Node 1.
 - b. Open Control Panel > Administrative Tools > Services > Cluster Service > Properties > Log On.



Figure 115 Cluster Service: Log On

Cluster Service Proper	ties (Local Computer)	<u>? ×</u>
General Log On Re	covery Dependencies	,
Log on as:		
C Local System acco	punt 9 interact with desktop	
This account	DOMAIN\SDLCUSER	<u>B</u> rowse
Password:	*****	
Confirm password:	*****	
You can enable or dis	able this service for the hardware p	rofiles listed below:
Hardware Profile		Service
		Enabled
	Enable	<u>D</u> isable
	OK Canc	el <u>Apply</u>

- c. Enter domain user name by the pattern: 'domainname\domain user name' (for example, DOMAIN\SDLCUSER). Specify the password (for example, 'password') and confirm.
- d. Click Apply and Start Service. The cluster service will start on Node 1.
- **Step 5** Reconfigure cluster service on Node 2.
 - a. Switch to the Node 2.
 - b. Open Control Panel > Administrative Tools > Services > Cluster Service > Properties > Log On.
 - c. Enter domain user name by the pattern: 'domainname\domain user name' (for example, DOMAIN\SDLCUSER). Specify the password (for example, 'password') and confirm.
 - d. Click Apply and Start Service. The cluster service will start on Node 1.
- Step 6 Start Cluster Administrator on any of the nodes.
- **Step 7** Connect to the cluster and make sure that cluster system operates properly.
- NOTE: If there is no need to change the node names, then the work is finished. Launch the Scalar DLC Management GUI and proceed the work.
- NOTE: The names of cluster domain, nodes, users, and passwords are shown just as an example. Any values can be used as long as they are valid.

Change Cluster Node Names

The Windows 2000 Advanced Server CD is required in order to change the name of the PC that is a Cluster node. Make sure that the cluster nodes are running and follow the steps.

Step 1 Change Node 1 name.

- a. Log on as a domain user with the local admin rights (for example, SDLCUSER). Make Node 1 *passive*, Node 2 *active*. Switch to the Node 1 (passive).
- b. Open My Computer > Properties > Network Identification > Properties > Computer Name.
- c. Change the name (for example, to SDLCCLUST1), click **OK**. Restart the node.
- d. Log on as local admin. Open **Cluster Administrator** and run command *Evict this node from cluster*.
- e. Open Add/Remove Programs > Windows Components. Remove Cluster Service from installed components. Restart the node again.
- f. Log on as local admin. Open Add/Remove Programs > Windows Components and install Cluster Service component again.
- g. Usind **Cluster Service Configuration Wizard** add the new node (SDLCCLUST1) to the existing cluster. Refer to <u>Configure the Cluster on page 30</u>.
- h. Restart when the cluster is configured.
- Step 2 Change Node 2 name.
 - a. Log on as a domain user with the local admin rights (for example, SDLCUSER). Make SDLCCLUST1 *active*, Node 2 *passive*. Switch to the Node 2 (passive).
 - b. Open My Computer > Properties > Network Identification > Properties > Computer Name.
 - c. Change the name (for example, to SDLCCLUST2), click **OK**. Restart the node.
 - d. Log on as local admin. Open **Cluster Administrator** and run command *Evict this node from cluster*.
 - e. Open Add/Remove Programs > Windows Components. Remove Cluster Service from installed components. Restart the node again.
 - f. Log on as local admin. Open Add/Remove Programs > Windows Components and install Cluster Service component again.
 - g. Usind **Cluster Service Configuration Wizard** add the new node (SDLCCLUST2) to the existing cluster. Refer to <u>Configure the Cluster on page 30</u>.
 - h. Restart when the cluster is configured.
- **Step 3** Repair the Scalar DLC on the SDLCCLUST2.
 - a. Make SDLCCLUST1 *active*, SDLCCLUST2 *passive*. Switch to the SDLCCLUST2 (passive).
 - b. Stop Cluster Service.



- c. Open Add/Remove Programs > Scalar DLC and launch Repair > Server. Refer to Server on page 79.
- d. Reboot the SDLCCLUST2 and log on.
- e. Start **Cluster Service** on SDLCCLUST2. The Scalar DLC service must work on this node.
- **Step 4** Repair the Scalar DLC on the SDLCCLUST1.
 - a. Make SDLCCLUST2 *active*, SDLCCLUST1 *passive*. Switch to the SDLCCLUST1 (passive).
 - b. Stop Cluster Service.
 - c. Open Add/Remove Programs > Scalar DLC and launch Repair > Server. Refer to Server on page 79.
 - d. Reboot the SDLCCLUST1 and log on.
 - e. Start **Cluster Service** on SDLCCLUST1. The Scalar DLC service must work on this node.

Now the cluster functionality is restored. Use Scalar DLC Management GUI to configure the libraries if necessary.



The names of cluster domain, nodes, users, and passwords are shown just as an example. Any values can be used as long as they are valid.

Securing the Scalar DLC

Follow the linked instructions to make the Scalar DLC system secure.

- For the information on securing the Windows 2000 operating system refer to <u>http://nsa2.www.conxion.com/win2k/download.htm</u>
- For the information on securing the Apache Web server refer to <u>http://www.securityfocus.com/infocus/1694</u>
- For the information on securing the MSDE 2000 (MS SQL) refer to http://www.microsoft.com/sql/techinfo/administration/2000/security/securingsqlserver.asp

The Scalar DLC itself requires the following security actions to be performed:

- Install the latest Windows hotfixes and service pack. The current version is Service Pack 4. Both the hotfixes and service packs can be downloaded on <u>http://www.microsoft.com</u>.
- 2. Install the Apache with SSL encryption.
- 3. Install the SP3 for MSDE 2000.
- 4. When installing the Scalar DLC, provide the user name and password according to the corporative security standards.
- 5. Set up the web browser according to the corporative security standards. If the email client will be used on the same PC where the Scalar DLC is installed, ensure it is secured too (for example, binary files are <u>not</u> automatically opened, etc.). Contact the local network administrator for the details.



If the firewall is used to secure the Scalar DLC host, the DAS client software must be installed with the firewall support.