



Intelligent Storage™

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# Scalar® Distributed Library Controller™ 2.6 Installation Guide

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ADVANCED DIGITAL INFORMATION CORPORATION

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# 1

## About This Guide and Your Product

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This manual contains reference information and instructions for setting up, installing, and upgrading the Scalar Distributed Library Controller (Scalar DLC) software. This guide is intended for customers, customer engineers, and administrators who use the Scalar DLC software.

### Explanation of Symbols and Notes

---

The following symbols appear throughout this document to highlight important information.



**WARNING**

**INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR BODILY INJURY.**



**CAUTION**

**Indicates a situation that may cause possible damage to equipment, loss of data, or interference with other equipment.**



**Note**

Indicates important information that helps you make better use of your system.

### Other Documents You Might Need

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The following documents are also available for this product. These documents can be found on the product CD or at [www.adic.com/manuals](http://www.adic.com/manuals):

- *Scalar DLC Installation Guide*
- *Scalar DLC Release Notes (6-00335-xx)*
- *DAS Administration Guide (6-00345-xx)*
- *DAS/ACI Interfacing Guide (6-00346-xx)*
- *Scalar 10K SCSI Reference Guide*
- *Scalar 1000 SCSI Reference Guide*

- *SCSI Primary Commands 2 (SPC-2)*
- *SCSI Primary Commands 3 (SPC-3)*
- *ROBAR Interfacing Guide*
- *Scalar 10K Operator Guide*
- *Scalar 1000 Operator Guide*
- *RMU Reference Guide*

## Getting More Information or Help

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More information about this product is available on the Customer Service Center website at [www.adic.com/csc](http://www.adic.com/csc). The Customer Service Center contains a collection of information, including answers to frequently asked questions (FAQs). You can also access software, firmware, and drivers through this site.

For further assistance, or if training is desired, contact ADIC:

ADIC Technical assistance center (ATAC) in the USA:

800-827-3822

ADIC Technical assistance center (ATAC) in Europe and Japan:

00-800-9999-3822

For additional contact information:

[www.adic.com/contact](http://www.adic.com/contact)

To open a Service Request:

[www.adic.com/techsup](http://www.adic.com/techsup)

# 2

## System Description

The Scalar DLC software runs as a service under Windows 2000 / 2003. 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 Web.

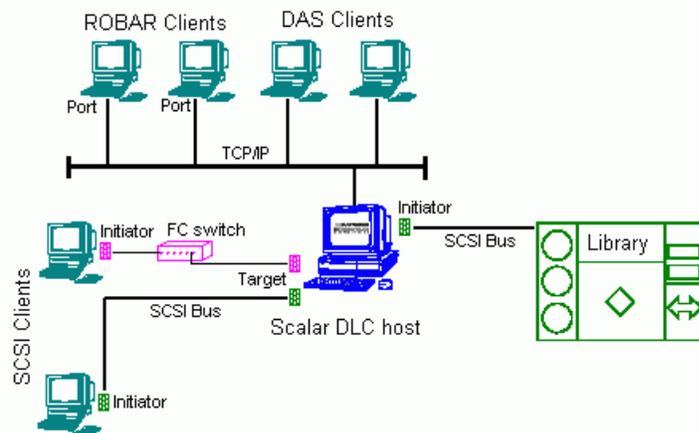
 **Note** If a firewall is being used, outside access by Web browsers might be denied.

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.

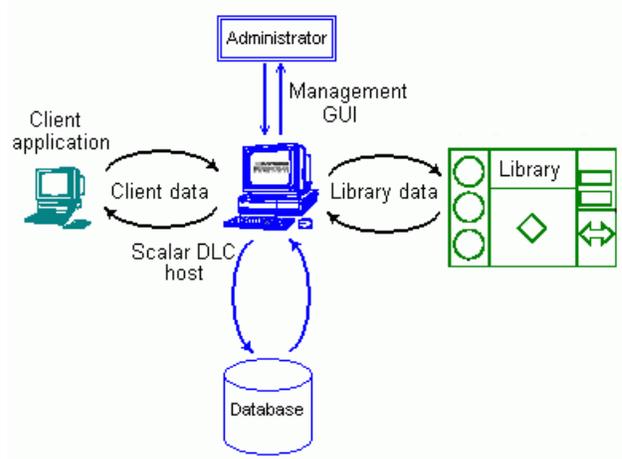
[Figure 1](#) illustrates the structure of a typical Scalar DLC system.

**Figure 1** Scalar DLC Structure



[Figure 2](#) on page 4 illustrated the data flow and the Scalar DLC components.

**Figure 2** Scalar DLC Components



As shown on [Figure 2](#), the *client* (user/backup application) sends the request/command to the *Scalar DLC host* (server) via the client interface; several interfaces are used (SCSI/FC, DAS, and ROBAR).

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*.

## Platforms

The Scalar DLC software can be installed on the operating systems (platforms) listed in [Table 1](#).

**Table 1** Scalar DLC platforms

| OS/Platform                                   | Service Pack | Referred as                  |
|---|--------------|------------------------------|
| 32-bit Windows Server 2003 Enterprise Edition | SP1          | Windows 2003 Server          |
| 32-bit Windows Server 2003 Standard Edition   | SP1          | Windows 2003                 |
| Windows 2000 Advanced Server                  | SP4          | Windows 2000 Advanced Server |
| Windows 2000 Server                           | SP4          | Windows 2000                 |
| Windows 2000 Professional                     | SP4          | Windows 2000                 |

The OS update with the required hot fixes and/or service packs is performed on regular basis, see [Securing the Scalar DLC](#) on page 135.

# Solutions

According to the customer requirements, the Scalar DLC introduce a basic (standard) solution or a failover (redundant, cluster) solution. The latter can be provided in plain version and in self-domain version, also called the *self-domain* solution. See [Standard Solution](#) on page 5, [Failover Solution](#) on page 5, and [Self-Domain Solution](#) on page 6.

Depending on the library used by the customer, the solution and system configuration should be selected, as shown in [Table 2](#).

**Table 2** Libraries, Solutions, and OS

| Library                    | Scalar DLC Solution             | OS/Platform  |
|----------------------------|---------------------------------|--|
| Scalar 1000                | Failover / Self-domain          | Windows 2000 Advanced Server<br>Windows 2003 Server          |
|                            | Standard                        | Windows 2000 (all platforms)<br>Windows 2003 (all platforms) |
| Scalar 10K                 | Failover / Self-domain          | Windows 2000 Advanced Server<br>Windows 2003 Server          |
|                            | Standard                        | Windows 2000 (all platforms)<br>Windows 2003 (all platforms) |
| Scalar 10K dual-aisle (DA) | Failover / Self-domain          | Windows 2000 Advanced Server<br>Windows 2003 Server          |
|                            | Standard (only as an exception) | Windows 2000 (all platforms)<br>Windows 2003 (all platforms) |

## Standard Solution

The Scalar DLC standard (basic) solution keeps all Scalar DLC components (server, database) on a single host / PC that is connected to both the library and 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. Additional cabling may be required to provide the client connections (SCSI/FC) and using SNC.

For the requirements and installation instructions see [Setting Up the Standard Solution](#) on page 7.

## Failover Solution

The Scalar DLC Failover (redundant, cluster) 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 is immediately 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. Additional cabling may be required to provide the client connections (SCSI/FC) and using SNC.

For the requirements and installation instructions see [Setting Up the Failover Solution](#) on page 13.

## Self-Domain Solution

Up from version 2.5, Scalar DLC offers also so-called self-domain solution. This configuration of the Scalar DLC acts the same way as plain Failover solution and has the same hardware requirements, however it is installed without an external domain controller, so its setup does not exactly duplicate the failover solution instructions.

In terms of the network security, the self-domain solution is the most reliable method that Scalar DLC currently can provide.

For the details see [Setting Up the Self-Domain Solution](#) on page 33.

## Compatibility Matrix

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The Scalar DLC compatibility with other hardware and third-party applications is described in [Table 3](#).

**Table 3** Scalar DLC Compatibility Matrix

| Software/Hardware                               | SW/FW Level    |
|---|----------------|
| Scalar 10K (both single- and dual-aisle models) | 310A           |
| Scalar 1000                                     | 641A           |
| SNC 5100  | 4.45.18        |
| Scalar DLC                                      | 2.6            |
| RMU   | 210            |
| AMC   | 4.4            |
| SNMS (StorNext Management System)               | 2.7            |
| LTO-1   | 5AU1 (SCSI/FC) |
| LTO-2   | 5AT0 (SCSI/FC) |
| LTO-3   | 64D0 (FC)      |
| AIT-2   | 0200_CY10      |
| AIT-3   | 0209_0001      |
| DLT8000   | V80            |
| SDLT 220  | V87            |
| SDLT 320  | V87            |
| 3590  | D0IF_26E       |
| 3592  | D310_825       |
| TS1120  | D3I1_6E1       |

# 3

## Setting Up the Scalar DLC

Depending on the configuration used, follow the setup instructions:

- [Setting Up the Standard Solution](#) on page 7.
- [Setting Up the Failover Solution](#) on page 13.
- [Setting Up the Self-Domain Solution](#) on page 33.

Review also [Common Setup Notes](#) on page 44. Some instructions are for Failover and Self-domain solutions only, the other are for all solutions.

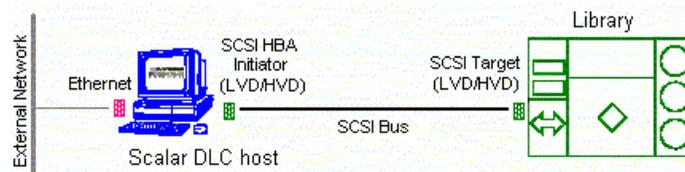
### Setting Up the Standard Solution

The Scalar DLC standard solution can be installed on any Windows 2000 or Windows 2003-based system.

- Check the system requirements. Depending on the tape device used with the Scalar DLC, [Single-aisle Requirements](#) on page 7 is for the single-aisle library, and [Dual-aisle Requirements](#) on page 8 is for the dual-aisle library.
- Follow the [Setup Roadmap](#) on page 9 to set up the Scalar DLC.

### Single-aisle Requirements

**Figure 3** Scalar DLC Basic Solution: Single-aisle



The minimum PC system hardware requirements are summarized in following list.

- A single PC:
  - 1G MHZ or faster Intel Xeon or equivalent CPU
  - 512 MB RAM
  - Dual 18Gb SCSI Hard Drives
  - Single On-Board NICS (build-in Ethernet)
  - CD-RW

- 3.5" inch Diskette Drive
- Redundant AC Power
- 15" or greater SVGA Display
- Standard keyboard & mouse
- NT/2000 compliant LVD/HVD SCSI initiator adapter, library connection



**CAUTION**

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



**CAUTION**

**Adaptec 39160 is an LVD/SE adapter, so note [Table 16](#) on page 71 when choosing SCSI adapter for the library.**

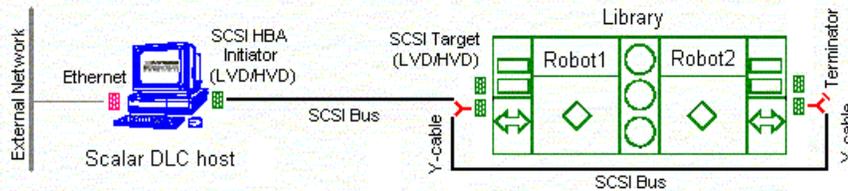
- 1 middle length (2-3 m) SCSI cable (68 pins) for the library connection.
- Recovery CD (Windows 2000 or 2003)

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

**Figure 4** Scalar DLC Basic Solution: Dual-aisle



**Note**

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

The minimum PC system hardware requirements are summarized in following list.

- A single PC:
  - 1G MHZ or faster Intel Xeon or equivalent CPU
  - 512 MB RAM
  - Dual 18Gb SCSI Hard Drives
  - Single On-Board NICS (build-in Ethernet)
  - CD-RW
  - 3.5" inch Diskette Drive

- Redundant AC Power
- 15" or greater SVGA Display
- Standard keyboard & mouse
- NT/2000 compliant LVD/HVD SCSI initiator adapter, library connection



**CAUTION**

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



**CAUTION**

**Adaptec 39160 is an LVD/SE adapter, so note [Table 16](#) on page 71 when choosing SCSI adapter for the library.**

- 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 [Figure 4](#) on page 8) 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 on library.
- 1 SCSI Terminator, LVD/HVD for the library connection.
- Recovery CD (Windows 2000 or 2003)

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 [Collecting Setup Data](#) on page 9.
- 2 [Setting Up the Host](#) on page 10.
- 3 [Installing the Scalar DLC Software](#) on page 12.
- 4 [Configuring the Logical Library](#) on page 12.

For the optional additional activity, see [Setting Up the Library](#) on page 123, [Building Client Connections](#) on page 131, and [Host/Library Communication using Fibre Channel and SNC](#) on page 127. See also [Upgrade, Remove, Repair](#) on page 81.

## Collecting Setup Data

Collect the following information before starting setup.

- Computer
  - computer name (max 14 symbols)
  - public IP address

- public Subnet mask
- public default Gateway
- public preferred DNS
- public Alternate DNS
- public Primary WINS
- public Secondary WINS
- private IP address
- private subnet mask
- Local administrator login name and password
- Scalar DLC serial number
- Domain
  - domain name
  - domain admin login name and password

**Table 4** Standard Solution: Installation Time

| Installation procedure                  | Time   |
|---|--------|
| Provide cabling and setup for PC system | 10 min |
| Set IP address and computer name        | 10 min |
| Install Scalar DLC on PC                | 50 min |

## Setting Up the Host

**Step 1** Set up the host hardware (network adapters, SCSI and FC adapters if required). Note [Table 18](#) on page 72.

**Step 2** Connect the PC to a local network. Install Windows 2000 / 2003. Resolve the network name and TCP/IP. Join the PC to the domain, if required (domain admin password is required).



**Note** Enter BIOS. Go to Chipset section. *Hyper threading* parameter should be disabled.

**Step 3** 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 and SP1 for Windows 2003 is required).

**Step 4** When the operation system is installed successfully, reboot and ensure all services work correctly.



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

## Configuring SCSI for Library

**Step 1** Configure the SCSI ID's for the LVD/HVD adapter connected to the library.

- Set *termination* mode to *automatic*
- Set *Reset SCSI Bus* parameter to *disabled*
- Set the SCSI ID of this board to 5



### Note

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

Adapter ID must not overlap with the either 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 2** Log on. Update drivers (Adaptec, QLA, etc.) as described in [Updating Drivers](#) on page 110.

**Step 3** Reboot host PC.

## Setting Up IP Address, Host Name, and Joining Domain

**Step 1** Log in host PC as administrator.

**Step 2** Set up Public network.

- <pause> Right click “My Network Places” and select “Properties”.
- Right click “Local Area Connection” and rename in to ‘Public’. Select “Properties”.
- Select “Show Icon in the Task Bar when Connected”.
- Select “Internet Protocol (TCP/IP)” and select “Properties”.
- Select “Use the Following IP Address”
  - Set *IP Address* (208.230.5.100 in lab)
  - Set *Subnet Mask* to 255.255.255.0
  - Set *Preferred DNS Server* to 208.230.5.4 (in lab)



### Note

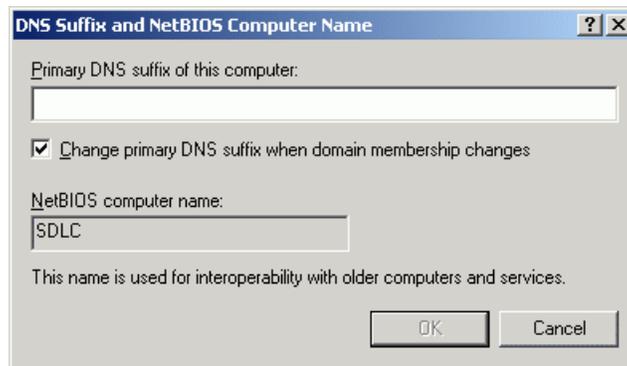
Also enter any additional customer networking information (additional DNS, WINS etc.).

- Press “OK” and “OK”.

**Step 3** Join computer to the domain

- Right click “My Computer” and select “Properties”.
  - (on Windows 2000) Open “Network Identification” and select “Properties”.
  - (on Windows 2003) Open Computer Name > Change > More. Ensure that the checkbox ‘Change primary DNS suffix when domain membership changes’ is *enabled* (see [Figure 5](#) on page 12). Press OK.

**Figure 5** Windows 2003: DNS suffix enabled



- Set “Computer name” (SDLC)



**CAUTION**

**Computer name must not be longer than 14 symbols.**

- Select “Domain” and enter <domain name without postfix> and OK (“domain” for lab)
- Enter domain admin name and password and OK (“adicuser” and “pa\$\$w0rd”)
- Wait for *Welcome to domain*.
- Press “OK” and “OK” to reboot and “OK” and “Yes”.

**Step 4** ‘Yes’ to reboot now. Wait until reboot.

## Installing the Scalar DLC Software

**Step 1** Log in as administrator or as a domain user with the local administration rights.

**Step 2** Set up the library media changer unless it has been already done. See [Setting Up the Library](#) on page 123.

**Step 3** Install the Scalar DLC software with all required components (see [Installing the Scalar DLC](#) on page 45).

## Configuring 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 3** The 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.

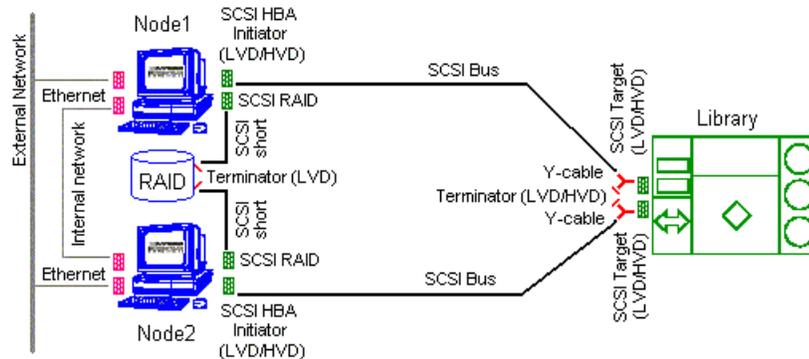
# Setting Up the Failover Solution

The Scalar DLC Failover (Redundant, Cluster) solution can be installed only on a Windows 2000 Advanced Server or Windows 2003 Server because it uses the Microsoft Cluster Service that is not available under Windows 2000 Professional, Windows 2000 Server, and Windows 2003.

- Check the system requirements. Depending on the tape device used with the Scalar DLC, [Single-aisle Requirements](#) on page 13 is for the single-aisle library, and [Dual-aisle Requirements](#) on page 14 is for the dual-aisle library.
- Follow the [Setup Roadmap](#) on page 15 to set up the Scalar DLC.

## Single-aisle Requirements

**Figure 6** Scalar DLC Failover Solution: Single-aisle



The minimum PC system hardware requirements are summarized in following list.

- Two PCs with identical hardware and software:
  - 1G MHZ or faster Intel Xeon or equivalent CPU
  - 512 MB RAM
  - Dual 18Gb SCSI Hard Drives
  - PERC3-DI, 128MB Battery Backed Cache, two Internal Channel - Embedded RAID Controller (1, 2 Drives connected to on-board RAID)
  - Dual On-Board NICS (build-in Ethernet)
  - CD-RW
  - 3.5" inch Diskette Drive
  - Redundant AC Power
  - 15" or greater SVGA Display
  - Standard keyboard & mouse
  - NT/2000 compliant LVD SCSI initiator adapter, RAID connection
  - NT/2000 compliant LVD/HVD SCSI initiator adapter, library connection



### CAUTION

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



**CAUTION**

**Adaptec 39160 is an LVD/SE adapter, so note [Table 16](#) on page 71 when choosing SCSI adapter for the library.**

- 1 ArrayMasStor P-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 to terminate the SCSI Bus on library.
- 2 LVD SCSI Terminators for the RAID connections.
- 2 LVD/HVD SCSI Terminators for the library connections.
- Recovery CD (Windows 2000 Advanced Server or 2003 Server)



**CAUTION**

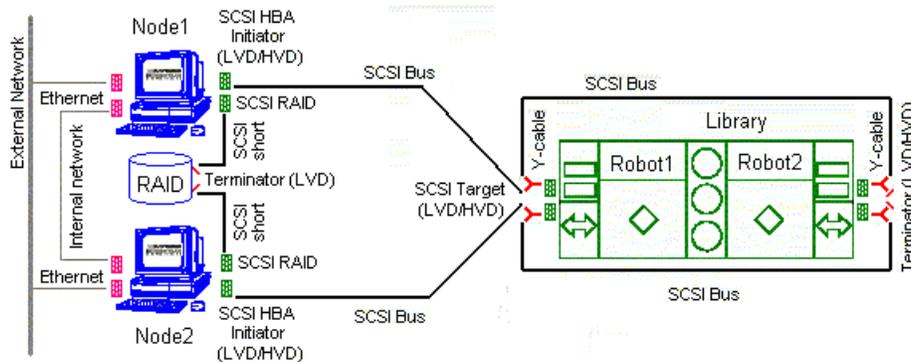
**The hardware configuration of both cluster nodes must be identical, and they must remain identical. For example, all cards/adapters must be identical and need to be placed in identical slots.**

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

**Figure 7** Scalar DLC Failover Solution: Dual-aisle



The minimum PC system hardware requirements are summarized in following list.

- Two PCs with identical hardware and software:
  - 1G MHZ or faster Intel Xeon or equivalent CPU
  - 512 MB RAM
  - Dual 18Gb SCSI Hard Drives
  - PERC3-DI, 128MB Battery Backed Cache, two Internal Channel - Embedded RAID Controller (1, 2 Drives connected to on-board RAID)

- Dual On-Board NICS (build-in Ethernet)
- CD-RW
- 3.5" inch Diskette Drive
- Redundant AC Power
- 15" or greater SVGA Display
- Standard keyboard & mouse
- NT/2000 compliant LVD SCSI initiator adapter, RAID connection
- NT/2000 compliant LVD/HVD SCSI initiator adapter, library connection



**CAUTION**

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



**CAUTION**

**Adaptec 39160 is an LVD/SE adapter, so note [Table 16](#) on page 71 when choosing SCSI adapter for the library.**

- 1 ArrayMasStor P 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 [Figure 7](#) on page 14) must not exceed 12 m for LVD adapters and 25 m for HVD adapters.
- 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.
- Recovery CD (Windows 2000 Advanced Server or 2003 Server)



**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

## Setup Roadmap

Complete the following steps to set up the Failover solution.

- 1 [Collecting Setup Data](#) on page 16.

- 2 [Installing the Nodes](#) on page 17.
- 3 [Installing ADTX RAID](#) on page 18.
- 4 [Configuring SCSI for RAID and Library](#) on page 20.
- 5 [Setting Up IP Address, Node Name, and Joining Domain](#) on page 22.
- 6 [Setting Up the RAID](#) on page 24.
- 7 [Configuring Cluster Service](#) on page 26
- 8 [Installing Scalar DLC Software](#) on page 28.
- 9 [Configuring the Logical Library](#) on page 31.

For the optional additional activity, see [Setting Up the Library](#) on page 123, [Building Client Connections](#) on page 131, [Installing SCSI/FC Target Adapters on a Live Machine](#) on page 134, and [Host/Library Communication using Fibre Channel and SNC](#) on page 127. See also [Upgrade, Remove, Repair](#) on page 81.

## Collecting Setup Data

Collect the following information before starting setup.

- Nodes
  - Node1 computer name (14 symbols max)
  - Node1 public IP address
  - Node2 computer name (14 symbols max)
  - Node2 public IP address
  - public Subnet mask
  - public default Gateway
  - public preferred DNS
  - public alternate DNS (optional)
  - public primary WINS (optional)
  - public secondary WINS (optional)
  - Node1 private IP address
  - Node2 private IP address
  - private subnet mask
  - Local administrator login name and password (same on both nodes)
  - Scalar DLC serial number (same on both nodes)
- Cluster
  - name (14 symbols max)
  - IP address
  - Subnet mask = public subnet mask
- Domain
  - name
  - domain admin name and password
  - directory services restore mode password

**Table 5** Failover Solution: Installation Time

| Installation procedure                                | Time    |
|---|---------|
| Provide cabling and setup for dual PC failover system | 30 min  |
| SCSI configuration for RAID and library               | 20 min  |
| Set IP addresses and computer names                   | 30 min  |
| Configure primary and secondary domain controllers    | 45 min  |
| Setup RAID  | 10 min  |
| Configure cluster service                             | 20 min  |
| Install Scalar DLC on both PC                         | 120 min |

### Active Directory Account Information

Contact the local network administrator and ensure that the following settings are performed.

- User account created with domain admin rights and the following options:
  - User must not change password under next logon.
  - User cannot change password.
  - Password never expires.
  - All other options are disabled.
- Logon hours for this user are set to 24/7.
- Log on rights are set either to all computers or to all Scalar DLC nodes.

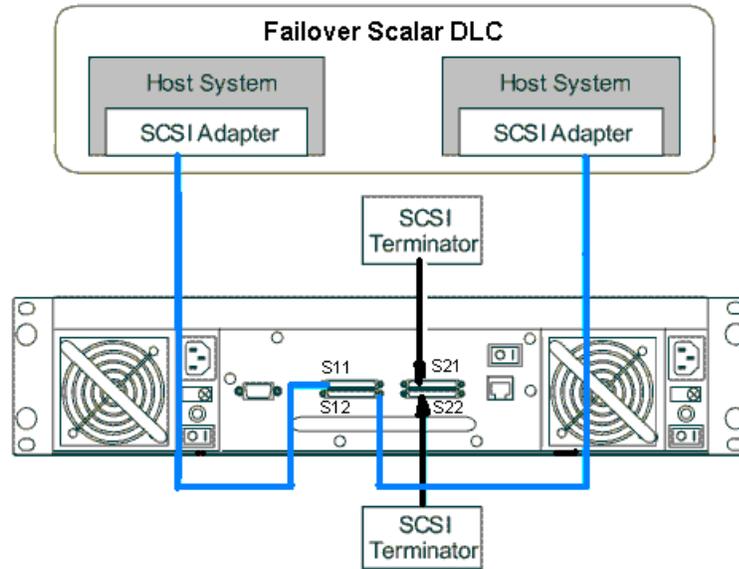
## Installing the Nodes

**Step 1** Turn off external RAID.

**Step 2** Insert the RAID SCSI HBA into the PCI slot of Node1 according to [Table 18](#) on page 72. Connect it and RAID SCSI channel (S11) with the short SCSI cable. Terminate the second RAID SCSI channel (S21) with the SCSI terminator (see [Figure 8](#) on page 18).

**Step 3** Insert the RAID SCSI HBA into the PCI slot of Node2 according to [Table 18](#) on page 72. Connect it and RAID SCSI channel (S12) with the short SCSI cable. Terminate the second RAID SCSI channel (S22) with the SCSI terminator (see [Figure 8](#) on page 18).

**Figure 8** RAID SCSI cabling



**Step 4** Connect the monitor, keyboard, mouse, and KVM.

**Step 5** Boot Node1. Log on (administrator / password).

 **Note** Enter BIOS. Go to Chipset section. *Hyper threading* parameter should be disabled.

**Step 6** <pause> select "I will configure the server later" and press **Next**. Unselect "Show This Screen on Startup" and close window.

**Step 7** Shutdown Node1.

**Step 8** Repeat steps 4 to 7 for Node2.

**Step 9** Connect ethernet cables LAN 1 (public network) and LAN 2 (private network).

## Installing ADTX RAID

**Step 1** Power on RAID.

**Step 2** Set SCSI ID.

- The default setting is SCSI ID 0 for both channels. In order to verify the SCSI ID for both channels use the Operator Panel on the RAID.  
RAID SUBSYSTEM
  - MAIN MENU
  - [MAIN MENU]
    - SYSTEM INFO
  - [MAIN MENU]
    - VIEW CONFIG

- [VIEW CONFIG]
  - SCSI
- [SCSI]
  - CHANNEL 1
  - SCSI ID
  - 0
    - The same steps for channel 2.
- In order to change the SCSI ID for both channels use the following steps.
  - RAID SUBSYSTEM
    - MAIN MENU
    - [MAIN MENU]
      - SYSTEM INFO
    - [MAIN MENU]
      - CHANGE CONFIG
    - ENTER PASSWORD 1234
    - [CHANGE CONFIG]
      - SCSI
    - [SCSI]
      - CHANNEL 1
      - SCSI ID
      - SET 0
        - The same steps for channel 2.

**Step 3** Change the RAID 'WRITE CACHE' setting.

- In order to change the RAID 'WRITE CACHE' setting via Operator Panel use the following steps.
  - RAID SUBSYSTEM
    - MAIN MENU
    - [MAIN MENU]
      - SYSTEM INFO
    - [MAIN MENU]
      - CHANGE CONFIG
    - ENTER PASSWORD 1234
    - [CHANGE CONFIG]
      - OPTION SETTING
    - [OPTION SETTING]
      - CACHE SETTING
    - [CACHE SETTING]
      - WRITE CACHE
    - [WRITE CACHE]
      - SET 'DISABLE'

**Step 4**      Reset RAID by turning it off.

## Configuring SCSI for RAID and Library

**Step 1**      Plug the SCSI cable directly in to the RAID vhdci connector.

**Step 2**      Power on RAID, then power on Node1.

**Step 3**      <Ctrl>+A to enter Bios for Adaptec SCSI card at Bios 3.10.0 (see [Figure 9](#)).

**Figure 9**      Adaptec SCSI Bios

```
Adaptec I20 BIOS v001.62 (2002/11/06)
(c) Copyright Adaptec Inc. 1996-2002 All Rights Reserved

Controller : 0xFE800000 IRQ10      2015S      FW3B05  cyls ° hds ° secs ↵
Drive   :   (0,0,0) ADAPTEC RAID-1  3B05  4462 ° 255 ° 63 34.1
Proc    :   (0,6,0) SUPER  GEM318      0

Adaptec SCSI BIOS v3.10.0
(c) 2001 Adaptec, Inc. All Rights Reserved.

<<< Press <Ctrl><A> for SCSISelect(TM) Utility! >>>

Slot Ch  ID  LUN  Vendor      Product          Size  Sync  Bus
-----
 02  A   6   0   ADIC        Scalar 1000      ASYN  8
 02  B   0   0   ADTX        AXRS-G0000      40.0  16
_02  B   7   0
```

- Select B for RAID configuration.
  - Select *SCSI disk utilities* to scan for RAID device.
  - Press “Esc”.
- Select “Configure / view SCSI settings”.
  - Set SCSI controller ID (14 for Node1 and 15 for Node2).
  - Set SCSI termination to *Automatic*.
  - Go to *Advanced configuration*.
    - Set “Reset SCSI bus at IC Initialization” to *Disabled*.
    - Set “SCSI controller Int 13 Support” to *Disabled: NOT scan*.
    - Press “Esc”.
  - Go to “SCSI device configuration” (see [Figure 10](#) on page 21).

**Figure 10** Adaptec SCSI Bios: SCSI Device Configuration

| Adaptec ◀ SCSISelect(TM) ▶ Utility v3.10.0                        |      |     |     |     |     |     |     |     |
|---|------|-----|-----|-----|-----|-----|-----|-----|
| SCSI Device Configuration   |      |     |     |     |     |     |     |     |
| SCSI Device ID  | #0   | #1  | #2  | #3  | #4  | #5  | #6  | #7  |
| Sync Transfer Rate (MB/Sec).....                                  | 40.0 | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Initiate Wide Negotiation.....                                    | Yes  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Enable Disconnection.....   | Yes  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Send Start Unit Command.....                                      | No   | No  | No  | No  | No  | No  | No  | No  |
| Options Listed Below Have NO EFFECT if Int 13 Support is Disabled |      |     |     |     |     |     |     |     |
| Enable Write Back Cache.....                                      | N/C  | N/C | N/C | N/C | N/C | N/C | N/C | N/C |
| BIOS Multiple LUN Support.....                                    | No   | No  | No  | No  | No  | No  | No  | No  |
| Include in BIOS Scan.....   | Yes  | No  |
| SCSI Device ID  | #8   | #9  | #10 | #11 | #12 | #13 | #14 | #15 |
| Sync Transfer Rate (MB/Sec).....                                  | 160  | 160 | 160 | 160 | 160 | 160 | 160 | 160 |
| Initiate Wide Negotiation.....                                    | Yes  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Enable Disconnection.....   | Yes  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Send Start Unit Command.....                                      | Yes  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Options Listed Below Have NO EFFECT if Int 13 Support is Disabled |      |     |     |     |     |     |     |     |
| Enable Write Back Cache.....                                      | N/C  | N/C | N/C | N/C | N/C | N/C | N/C | N/C |
| BIOS Multiple LUN Support.....                                    | No   | No  | No  | No  | No  | No  | No  | No  |
| Include in BIOS Scan.....   | Yes  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

Arrow keys to move cursor, <Enter> to select option, <Esc> to exit (\*=default)

- Set "Sync Transfer Rate" to 40

 **Note** Rate is 160 for L and P series RAID5

- Set "Start unit command" to *No* for #0.
- Set "Include in Bios scan" to *Yes* for Node1 and *No* for Node2 for #0.
- Press "Esc", and "Esc", and "Save changes".
- Press "Esc".
- Select A for library configuration
  - Select "Configure / view SCSI settings"
    - Set termination to *Automatic*
    - Go to *Advanced configuration*
      - Set "Reset SCSI bus at IC Initialization" to *Disabled*
      - Press "Esc", and "Esc", and "Save changes".
  - Press "Esc", and "Esc", and exit utility.

**Step 4** Configure the SCSI ID's for the LVD/HVD adapters (connected to the library) on the cluster nodes.

- Enter the LVD/HVD SCSI BIOS Setup on Node1 for the adapter connected to the library:
  - Set *termination* mode to *automatic*

- Set *Reset SCSI Bus* parameter to *disabled*
- Set the SCSI ID of this board to 5
- Enter the LVD/HVD SCSI BIOS Setup on Node2 for the adapter connected to the library.
  - Set *termination* mode to *automatic*
  - Set *Reset SCSI Bus* parameter to *disabled*
  - Set the SCSI ID of this board to 6



#### 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 either 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** Log on. Update drivers (Adaptec, QLA, etc.) as described in [Updating Drivers](#) on page 110.

**Step 6** Shutdown Node1.

**Step 7** Repeat steps 2 - 5 using Node2 instead of Node1.

## Setting Up IP Address, Node Name, and Joining Domain

**Step 1** Power on Node1 and log in.



#### Note

“HDD changed” message may appear. F1 to enter setup and esc and ok.

During logging in ignore duplicate name message if it appears.

**Step 2** Set up Public network.

- <pause> Right click “My Network Places” and select “Properties”.
- Right click “Local Area Connection” and rename in to ‘Public’. Select “Properties”.
- Select “Show Icon in the Task Bar when Connected”.
- Select “Internet Protocol (TCP/IP)” and select “Properties”.
- Select “Use the Following IP Address”
  - Set *IP Address* (208.230.5.100 for Node1 and 208.230.5.200 for Node2 in lab)
  - Set *Subnet Mask* to 255.255.255.0
  - Set *Preferred DNS Server* to 208.230.5.4 (in lab)
  - Set *Public default Gateway* to 208.230.5.4 (in lab)



#### Note

Also enter any additional customer networking information (additional DNS, WINS etc.).

- Press “OK” and “OK”.

**Step 3** (This step is for Windows 2000 system only. On Windows 2003 follow the Step 4) Right click “Public” and “Disable” then right click and “Enable”. A new item “Local Area Connection 2” will appear.

**Step 4** Set up Private network

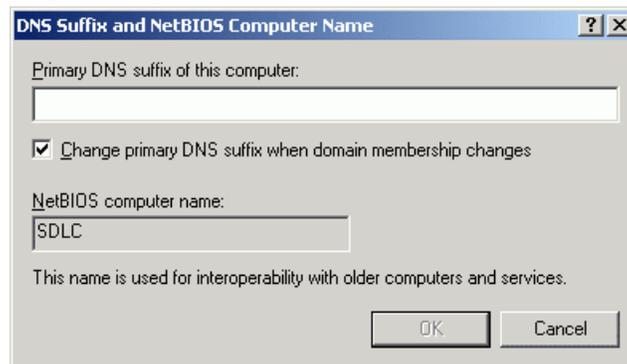
- Right click “Local Area Connection 2” and rename it to ‘Private’. Select “Properties”
- Select “Show Icon in the Task Bar when Connected”
- Select “Internet Protocol (TCP/IP)” and select “Properties”
- Select “Use the Following IP Address”
  - Set IP Address to (10.10.10.1 and 10.10.10.2 in lab) (use here a completely different IP than for “Local Area Connection”).
  - Set Subnet Mask to 255.0.0.0.
  - Press “OK” and “OK”.

**Step 5** (This step is for Windows 2000 system only. On Windows 2003 follow the Step 6) Right click “Local Area Connection 2” and “Disable” then right click and “Enable”.

**Step 6** Join node to the domain

- Right click “My Computer” and select “Properties”.
- (on Windows 2000) Open “Network Identification” and select “Properties”.
- (on Windows 2003) Open Computer Name > Change > More. Ensure that the checkbox ‘Change primary DNS suffix when domain membership changes’ is *enabled* (see [Figure 11](#)). Press OK.

**Figure 11** Windows 2003: DNS suffix enabled



- Set “Computer name” (sdlc1 for Node1 and sdlc2 for Node2)



**CAUTION**

**Both Node1 and Node2 names must not be longer than 14 symbols.**

- Select “Domain” and enter <domain name without postfix> and OK (“domain” for the computers in lab)
- Enter domain user name and password and OK (“adlcuser” and “pa\$\$w0rd”)
- Wait for *Welcome to domain*.
- Press “OK” and “OK” to reboot and “OK” and “Yes”.

**Step 7** 'Yes' to reboot now. Wait until reboot.

**Step 8** Repeat steps 1 to 6 for Node2. 'No' to reboot now.



**CAUTION**

**Using Start > Run do the following:**

**From Node2 run: ping <Node1 public IP address>**

**From Node2 run: ping <Node1 private IP address>**

**From Node1 run: ping <Node2 public IP address>**

**From Node1 run: ping <Node2 private IP address>**

**From Node1 or Node2 run: ping <Domain name>**

**If any of these commands returns "Request timed out" response, that means the network settings are configured incorrectly, for example, the network connection that has been configured as 'public', is in fact internal cluster (private) network connection.**

**Step 9** Shutdown both nodes.

## Setting Up the RAID

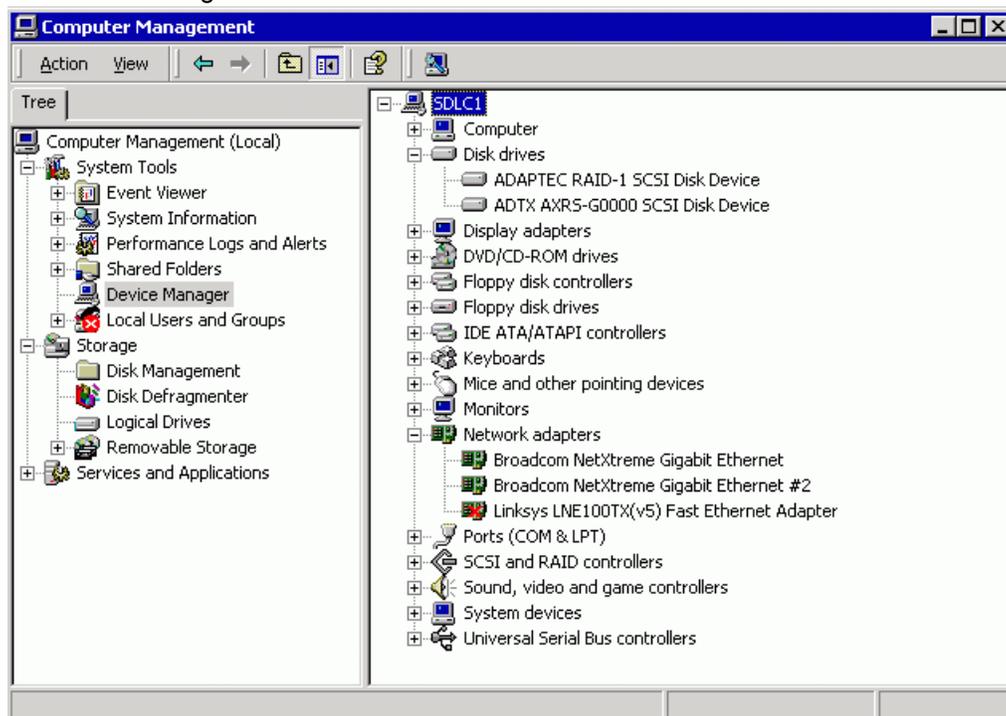
Same on both Windows 2000 and Windows 2003 unless the other specified.

**Step 1** Power up Node1 and log in as Administrator for SDLC1 (this computer)

**Step 2** Prepare to Format RAID disk

- Right click "My Computer" and select "Manage".
- Select Device Manager and open Disk Drives. Scan for new devices (see [Figure 12](#)).

**Figure 12** Device Manager: Disk Drives



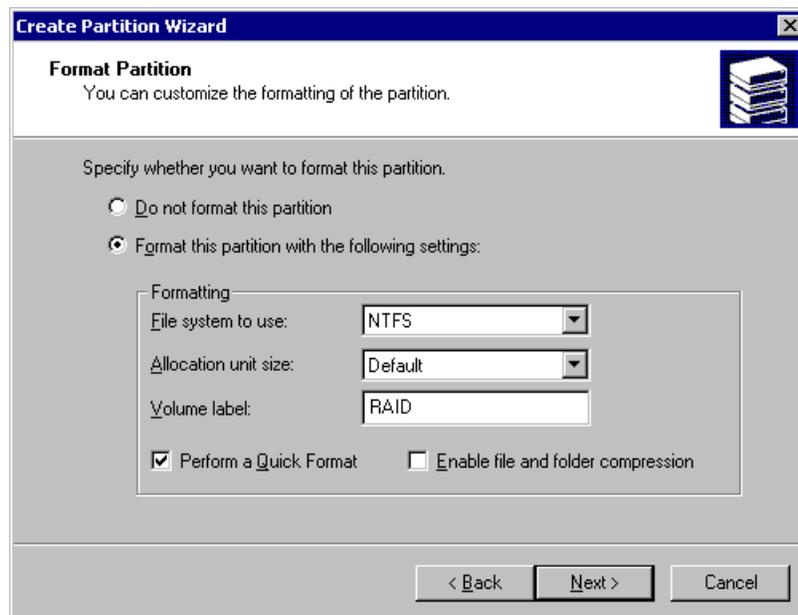
- Verify that the ADTX RAID is present.

- Select “Disk Management”. *Write Signature Wizard* should start. Press “Next”.
- Select “Disk 1” to write a Signature and press “Next”.
- Unselect “Disk 1” to *Upgrade (Convert on Windows 2003)*, press “Next” and then “Finish”.

### Step 3 Format RAID

- Right click unallocated space and select “Create Partition”. Create Partition Wizard starts. Click Next.
- Select “Primary Partition” and press “Next”.
- Set maximum value in “Amount of Disk Space to Use” and press “Next”.
- Select “Assign a Drive Letter” and select “R:” and press “Next”.
- Select “Format this Partition with the Following Settings”
  - Set “File System” to “NTFS”
  - Set “Allocation Unit Size” to “Default”
  - Set “Volume Label” to “RAID”
- Select “Perform A Quick Format” (see [Figure 13](#))

**Figure 13** Format RAID Partition



- Press “Next” and “Finish” and let format complete.
- Shutdown Node1, turn RAID off.

### Step 4 Power up Node2 and log in as Administrator for SDLC2 (this computer). Turn RAID on and wait for it to come ready.

### Step 5 Join RAID disk

- Right click “My Computer” and select “Manage”.
- Select Device Manager and open Disk Drives. Scan for new devices.
- Verify that the ADTX RAID is present.
- Select “Disk Management”. Right click “RAID”. Select “Change Drive Letter and Path”.

- Select “Edit” and “Assign Drive Letter” to “R”. Press OK. Press “Yes” to confirm.
- Shutdown Node2.

## Configuring Cluster Service

Under Windows 2000 and Windows 2003 the cluster is installed differently.

### Windows 2000

**Step 1** Power up Node1 and log in as Administrator to SDLC1 (this computer)

**Step 2** Configure Cluster Service on Node1.

- Select **Start > Settings > Control panel > Add/Remove Programs > Add/Remove Windows Components >> Cluster Service**. Press **Next**.
- Insert Windows 2000 Advanced Server SP4 CD and press OK. Cluster Service Configuration Wizard will start. Press “Next”.
  - Click “I Understand” and “Next”.
  - Select “The First Node in the Cluster” and “Next”.
  - Set cluster name to SDLC-CLUSTER and “Next”.



#### CAUTION

**The cluster name must not be longer than 14 symbols.**

- Set User Name to “adicuser” and Password to “pa\$\$w0rd”. Set Domain to <domain> and “Next”.
- Click “Yes” to adding account to the Administrators Group.
- Ensure that “R: Raid” is in managed disks and “Next”.
- Select “R: Raid” and “Next” and “Next”.
- Set up Cluster Network,
  - For Network Name “Public” select “Enable this Network for Cluster Use”.
  - Select “All Communications (mixed network)” and “Next”.
  - For Network Name “Private” select “Enable this network for cluster use”.
  - Select “Internal Cluster Communications Only (Private Network)” and “Next”.
  - Ensure that “Private” is at the top of Networks list and “Next”
    - Set “Cluster IP address” to <ip address> (208.230.5.3 in lab)
    - Set “Subnet Mask” to 255.255.255.0
    - Set “Network” to “Public” and “Next”.
- “Finish” and “OK” to Cluster Service Started Successfully.
- Finish and eject CD and close all windows.

**Step 3** Power up Node2 and log in as Administrator for SDLC2 (this computer)

**Step 4** Configure Cluster Service on Node2.

- Select **Start > Settings > Control panel > Add/Remove Programs > Add/Remove Windows Components >> Cluster Service**. Press **Next**.
- Insert Windows 2000 Advanced Server SP4 CD and press OK.
- Cluster Service Configuration Wizard will start and Next
  - Click “I Understand” and “Next”.
  - Select “Second or Next Node in the Cluster” and “Next”.
  - Set cluster name as SDLC-CLUSTER
  - Select “Connect to Cluster As”.
  - Set User Name to “adicuser” and Password to “pa\$\$w0rd”.
  - Set Domain to <domain> and “Next”.
  - Set password as “pa\$\$w0rd” and “Next”.
  - “Yes” to Specified Account not a Member
  - “Finish” and “OK” and “Finish”.

**Step 5** Remove CD and close all windows.

**Step 6** Verify Cluster service.

- On Node2 select Start > Settings > Control Panel > Administrative Tools > Cluster Administrator.
- Select Groups > Cluster Group
- Select File > Move Group to verify the cluster is working properly
- Move group again and return ownership to Node1

## Windows 2003

**Step 1** Power on Node1. Log on as Administrator.

**Step 2** Create Cluster on Node1.

- Start > Administrative Tools > Cluster Administrator
- Choose 'Create new cluster' and OK. Next. Enter cluster name (SDLCCLUSTER2003) and Next.



### CAUTION

**The cluster name must not be longer than 14 symbols.**

- Review Node1 name and Next. The wizard will analyze an existing configuration.
- Next. Enter cluster IP (static, unique) and Next.
- Enter domain user account & password. Next.
- Review cluster summary and Next. Wizard creates a cluster.
- Next and Finish.

**Step 3** Join Node2 to Cluster

- Power on Node2 and wait till it comes up. Wait circa 5 min until the virtual cluster name will be available from Node2. Switch to Node2.
- Start > Administrative Tools > Cluster Administrator. Choose 'Open Connection to cluster' and enter the cluster name (SDLCCLUSTER2003).
- OK. Then Fine > New > Node. Add new Node wizard starts.
- Next. Add, then Next. The wizard will analyze an existing configuration.
- Enter domain user account & password. Next.
- Review cluster summary and Next. Wizard adds node to a cluster.
- Next and Finish. The cluster is ready.

**Step 4** Ensure the cluster works.

- Select Start > Administrative Tools > Cluster Administrator
- Select Groups > Cluster Group
- Select File > Move Group to verify the cluster is working properly
- Move group again and return ownership to Node1.

## Installing Scalar DLC Software

Same on both Windows 2000 and Windows 2003 unless the other specified.

**Step 1** Set up the library media changer unless it has been already done. See [Setting Up the Library](#) on page 123.

**Step 2** Install Scalar DLC on Node1.

- Log in as the domain admin.
- Insert Scalar DLC 2.6 CD. Select Scalar DLC Install to install the Scalar DLC with all required components (see [Installing the Scalar DLC](#) on page 45).
- Set SQL Destination to "R:".
- Specify Scalar DLC settings, as required for [Scalar DLC Software](#) on page 50.
  - Set SDLC User Name to <SDLC user name>. Set password to <SDLC user password>. Select domain account and "Check". Wait (~5 min) and Submit.



**Note**

As the SDLC user is a domain account, the user name and password should match the local network security policy. Contact the local network administrator for the details.

- Set Database Name as "SDLC". Select Compact Database Weekly, Backup Database None.
- Unselect "Turn On Email Notifications".
- Select "Complete".
- Select "Install immediately" for Target Drivers (if required).
- Install.
  - Java 2 install: "I accept" and "Next" and "Typical" and "Next" and "Finish".
  - Apache install: "Next" and "I accept" and "Next" and "Next".

- MSDE2000 install: “No”, then “Yes”.
- Set Network Domain as <domain name>. Set Server name as <computer name>.<domain name>. Set Administrators Email as “admin@<domain name>”. Set “Run as a service for all Users” and “Next”.
- Select “Complete” and “Next” and “Next” and “Install” and “Finish”. “OK” to “the system being restarted now” and restart (15 min for SQL).
- OK to restart and wait for <ctrl><alt><del>. Remove Scalar DLC Install disk from Node1.

### Step 3 Install Scalar DLC on Node2.

- Power on Node2. Log in as the domain admin.
- Insert Scalar DLC 2.6 CD. Select Scalar DLC Install to install the Scalar DLC with all required components (see [Installing the Scalar DLC](#) on page 45).
- Set SQL Destination to “R:”.
- Specify Scalar DLC settings, as required for [Scalar DLC Software](#) on page 50.
  - Set SDLC User Name to <SDLC user name>. Set password to <SDLC user password>. Select domain account and “Check”. Wait (~5 min) and Submit.



#### Note

As the SDLC user is a domain account, the user name and password should match the local network security policy. Contact the local network administrator for the details.

- Set Database Name as “SDLC”. Select Compact Database Weekly, Backup Database None.
- Unselect “Turn On Email Notifications”.
- Select “Complete”.
- Select “Install immediately” for Target Drivers (if required).
- Install.
  - Java 2 install: “I accept” and “Next” and “Typical” and “Next” and “Finish”.
  - Apache install: “Next” and “I accept” and “Next” and “Next”.
  - MSDE2000 install: “No”, then “Yes”.
  - Set Network Domain as <domain name>. Set Server name as <computer name>.<domain name>. Set Administrators Email as “admin@<domain name>”. Set “Run as a service for all Users” and “Next”.
  - Select “Complete” and “Next” and “Next” and “Install” and “Finish”. “Ok” to “the system being restarted now” and restart (15 min for SQL).
- Remove Scalar DLC Install disk from Node2.

### Step 4 Finish installing Scalar DLC on Node1

- Load Scalar DLC Install disk on Node1. Log in as the domain admin; installation should continue. Cancel immediately.
- Open Cluster Administrator and go to Groups > Cluster Group. Verify that Node1 has ownership now.
- Manually run <CD>:\autorun. Select Scalar DLC Install. Next and I Accept and Next and Next.
- Specify Scalar DLC settings

- Set user name to ADIC User and organization to ADIC. Enter serial number. Select Anyone (all Users) and “Next”
- Set SDLC User Name to <SDLC user name>. Set password to <SDLC user password>. Select domain account and “Check”. Wait (~5 min) and Submit.



**Note**

As the SDLC user is a domain account, the user name and password should match the local network security policy. Contact the local network administrator for the details.

- Look for successful component registration and “Next”.
- Set Database Name as “SDLC”. Select Compact Database Monthly, Backup Database Weekly, set backup file “SDLC\_backup” in folder “R:\MSSQL\Backup” and Next



**Note**

The Backup directory is to be created manually.

- Unselect “Turn On Email Notifications” and “Next”.
- Select “Complete” and “Next”.
- Select “Do not Install” for Target Drivers and “Next”. Install.
- Install Scalar DLC.
- Enter Registration Information and Next
- Unselect Send License request to ADIC Now and Next. Unselect Read Installation Summary Now and Finish.
- Remove Scalar DLC Installation CD. “Yes” to restart Node1. Wait for <ctrl><alt><del> screen.

**Step 5** Finish installing Scalar DLC on Node2

- Load Scalar DLC Install disk on Node2. Log in as the domain admin; install should continue. Cancel immediately.
- Open Cluster Administrator and go to Groups > Cluster Group. Verify that Node2 has ownership now.
- Manually run <CD>:\autorun. Select Scalar DLC Install. Next and I Accept and Next and Next.
- Specify Scalar DLC settings
  - Set user name to ADIC User and organization to ADIC. Enter serial number. Select Anyone (all Users) and “Next”.
  - Set SDLC User Name to <SDLC user name>. Set password to <SDLC user password>. Select domain account and “Check”. Wait (~5 min) and Submit.



**Note**

As the SDLC user is a domain account, the user name and password should match the local network security policy. Contact the local network administrator for the details.

- Look for successful component registration and “Next”.
- Set Database Name as “SDLC”. Select Compact Database Monthly, Backup Database Weekly, set backup file “SDLC\_backup” in folder “R:\MSSQL\Backup” and Next



**Note** The Backup directory is to be the same one as for Node1.

- Select “Use Existing Database” and Next. Do not choose “Create new database” or the Scalar DLC will not function.
- Select “Do not Install” for Target Drivers and “Next”. Install.
- Install. Cancel License wizard.
- Unselect “Read Installation Summary Now” and “Finish”.
- Remove Scalar DLC Install CD. “Yes” to restart Node2. Wait for <ctrl><alt><del> screen

**Step 6** Install Target Drivers (optional, only for SCSI/FC clients with Scalar DLC. If no SCSI/FC Client will be used with the Scalar DLC software, proceed to Step 7)

- Insert Scalar DLC install CD in Node1. Autorun will start.
- Follow the installation sequence for [Installing the SCSI/FC Target Drivers](#) on page 74.
- Remove CD and reboot Node1.
- Insert Scalar DLC install CD in Node2. Autorun will start.
- Follow the installation sequence for [Installing the SCSI/FC Target Drivers](#) on page 74.
- Remove CD and reboot Node2.
- On Node1 enable Target mode for the adapter, see [Activating Target Mode](#) on page 77. Then reboot Node1.
- On Node2 enable Target mode for the adapter, see [Activating Target Mode](#) on page 77. Then reboot Node2.

**Step 7** Set Scalar DLC to Failover (cluster) mode

- Log in as the domain user with local admin rights.
- Insert Scalar DLC Install CD. Close Autorun. Run  
`<CD>:\Scalar_DLC\Cluster\SDLC_ClusterConfig.exe`
- Verify that both nodes show as up in the SDLC Cluster Configurator.
- Click Make SDLC Cluster Configuration.
- “OK” when complete and close all windows.
- Reboot Node1 and Node2.

## Configuring 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 3** The first start of the Scalar DLC Management GUI launches the configuration engine. Select either the Automatic or Manual option to configure the logical library automatically, or Advanced option in case of more than 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. See [Renaming and Repair](#) on page 97.



**Note** Never turn the RAID shared disk off. Otherwise, the Scalar DLC will not work.  
Never load off the SCSI terminators from RAID or library. This will put the Scalar DLC to malfunction.

## Post-install checklist

- Nodes
  - Node1 computer name (14 symbols max)
  - Node1 public IP address
  - Node2 computer name (14 symbols max)
  - Node2 public IP address
  - public Subnet mask
  - public default Gateway
  - public preferred DNS
  - public Alternate DNS (optional)
  - public Primary WINS (optional)
  - public Secondary WINS (optional)
  - Node1 private IP address
  - Node2 private IP address
  - private subnet mask
  - Local administrator login name and password (same on both nodes)
  - Scalar DLC serial number (same on both nodes)
- Cluster
  - name (14 symbols max)

- IP address
- Subnet mask = public subnet mask
- Domain
  - name
  - domain admin name and password
  - directory services restore mode password
- Configuration
  - library SN
  - backup to RAID
  - backup to floppy
  - clients configured and tested
  - hardware configured and tested
  - email address settings
  - contact information
  - client type(s)
  - target card model
- License
  - Node1 SID
  - Node1 license string
  - Node2 SID
  - Node2 license string

## Setting Up the Self-Domain Solution

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Installing the Failover solution as Self-domain system, without an external domain controller, means that the Scalar DLC will be installed on both the Primary Domain Controller and the Backup Domain Controller. This configuration is possible but requires the extended setup, not the same as for the plain Failover solution that described in details in [Setting Up the Failover Solution](#) on page 13.

## Setup Roadmap

- 1 [Collecting Setup Data](#) on page 34.
- 2 [Installing the Nodes](#) on page 34.
- 3 [Installing ADTX RAID](#) on page 35.
- 4 [Configuring SCSI for RAID and Library](#) on page 35.
- 5 [Setting Up Network, IP Address and Computer Names](#) on page 35.
- 6 [Configuring Domain Controllers](#) on page 36.
- 7 [Setting Up the RAID disk](#) on page 40.
- 8 [Configuring Cluster Service](#) on page 40.
- 9 [Installing Scalar DLC Software](#) on page 43.

For the optional additional activity, see [Setting Up the Library](#) on page 123, [Building Client Connections](#) on page 131, [Installing SCSI/FC Target Adapters on a Live Machine](#) on page 134, and [Host/Library Communication using Fibre Channel and SNC](#) on page 127. See also [Upgrade, Remove, Repair](#) on page 81.

## Collecting Setup Data

- Nodes
  - Node1 computer name (14 symbols max)
  - Node1 public IP address
  - Node2 computer name (14 symbols max)
  - Node2 public IP address
  - public Subnet mask
  - public default Gateway = Node1 public IP
  - public preferred DNS = Node1 public IP
  - public alternate DNS = Node2 public IP
  - Node1 private IP address
  - Node2 private IP address
  - private subnet mask
  - private preferred DNS = Node1 private IP
  - private alternate DNS = Node2 private IP
  - Local administrator login name and password (same on both nodes)
  - Scalar DLC serial number (same on both nodes)
- Cluster
  - name (14 symbols max)
  - IP address
  - Subnet mask = public Subnet mask
- Domain
  - name (14 symbols max; a compound name must be used, for example, SDLCDOMAIN.INT; the 14-symbol-length limit does not include postfix .INT)
  - domain admin name and password
  - directory services restore mode password
- Contact information of IT person for connection questions

## Installing the Nodes

First all the same as in plain Failover solution. See [Installing the Nodes](#) on page 17.

Then copy NewSID

- Copy newsid program into a directory on the C: drive.
- Run newsid /a
- Node1 will reboot. Shutdown Node2

## Installing ADTX RAID

Same as in plain Failover solution. See [Installing ADTX RAID](#) on page 18.

## Configuring SCSI for RAID and Library

Same as in plain Failover solution. See [Configuring SCSI for RAID and Library](#) on page 20.

## Setting Up Network, IP Address and Computer Names

The procedure is more or less the same on both Win2000 and Win2003.

**Step 1** Power on Node1 and log in (ignore duplicate name message).

**Step 2** Set up Public network.

- On Windows 2000, right click “My Network Places” and select “Properties”.  
On Windows 2003, use Start > Control Panel > Network Connections (right-click) > Open.
- Right click “Local Area Connection”. Rename it to ‘Public’. Right-click and select “Properties”.
- Select “Show Icon in the Task Bar/Notification Area when Connected”. Select “Internet Protocol (TCP/IP)” and select “Properties”.
- Select “Use the Following IP Address”
  - Set *IP Address* (192.168.0.220 for Node1 and 192.168.0.221 for Node2 in lab)
  - Set *Subnet Mask* to 255.255.255.0
  - Set *Default gateway* to same as static IP of Node1 (192.168.0.220)
  - Set *Preferred DNS* to same as static IP for Node1 (192.168.0.220)
  - Set *Alternate DNS* to static IP of Node2 (192.168.0.221)
  - Press “OK” and “OK”. (OK and Close on Windows 2003).

**Step 3** (This step is for Windows 2000 system only. On Windows 2003 follow the Step 4)  
Right click “Public” and “Disable” then right click and “Enable”. A new item “Local Area Connection 2” will appear.

**Step 4** Set up Private (cluster) network.

- Rename Local Area Connection 2 to ‘private’.
- Right click “Private” and select “Properties”.
- Select “Show Icon in the Task Bar when Connected”. Select “Internet Protocol (TCP/IP)” and select “Properties”
- Select “Use the Following IP Address”
  - Set IP Address to (10.0.0.1 for Node1 and 10.0.0.2 for Node2 in lab) (use a completely different IP than Local Area Connection that is on a higher subnet)
  - Set Subnet Mask to 255.0.0.0
  - Set preferred DNS to static IP of Node1 (10.0.0.1)
  - Set alternate DNS to static IP of Node2 (10.0.0.2)
  - Press “OK” and “OK” (OK and Close on Windows 2003).

**Step 5** Set computer name.

- Right click “My Computer” and select “Properties”.
  - (on Windows 2000) Open “Network Identification” and select “Properties”.
  - (on Windows 2003) Open Computer Name > Change > More. Ensure that the checkbox ‘Change primary DNS suffix when domain membership changes’ is *enabled* (see [Figure 11](#) on page 23). Press OK.
- Set “Computer name” (sdlc1 for Node1 and sdlc2 for Node2)



**CAUTION**

**Both Node1 and Node2 names must not be longer than 14 symbols.**

- Press “OK” and “OK” to reboot and “OK” and “No” to reboot server.

**Step 6** Shutdown Node1.

**Step 7** Repeat steps 1 to 6 for Node2.



**CAUTION**

**Using Start > Run do the following:**

**From Node2 run: ping <Node1 public IP address>**

**From Node2 run: ping <Node1 private IP address>**

**From Node1 run: ping <Node2 public IP address>**

**From Node1 run: ping <Node2 private IP address>**

**If any of these commands returns “Request timed out” response, that means the network settings are configured incorrectly, for example, the network connection that has been configured as ‘public’, is in fact internal cluster (private) network connection.**

## Configuring Domain Controllers

Under Windows 2000 Advanced Server and Windows 2003 Server, this procedure is not quite the same.

### Windows 2000

**Step 1** Configure Primary domain controller (Node1)

- Power on Node1 and log in. In “Configure your server” window select “Active Directory”.
- Select “Start the Active Directory Wizard” and “Next”.
  - Select “new domain” and “next”.
  - Select “create new domain tree” and “next”.
  - Select “create new forest of domain trees” and “next”.
  - Enter domain name (sdldomain.int) and next.
  - Accept short NetBIOS name and next
  - Accept default locations and next.
  - Accept default folder location and next
  - OK to unable to find DNS server

- Yes to install DNS and next
- Select permissions “compatible only with windows 2000 servers” and “Next”. Set directory services restore mode password. Confirm and Next and Next
- Insert Windows 2000 Advanced Server CD and OK and Finish.
- Unselect show this screen at startup in Configure your server window.
- Remove CD.
- Restart Node1.

 **Note** Make changes to domain user account information on Node1 at this time.

**Step 2** Bring Node2 to the domain

- Power on Node2 and log in
- Right click My Computer and select Properties.
- Open Network Identification and Properties
- Select Domain and enter <domain name> and OK (sdlcdomain)
- Enter user name and password and OK (administrator and password)
- Wait for Welcome to domain and OK and OK to reboot and OK and Yes.
- Log on to domain as administrator.

**Step 3** Set up Backup Domain Controller (Node2)

- In the Configure your server window select Active Directory.
- Select Start the Active Directory Wizard and Next
  - Select “additional domain controller” and next
  - Enter user name and password (administrator and password) and Next
  - Accept domain name and next
  - Accept default locations and next
  - Accept default folder location and next
  - Set “directory services restore mode password” (password). Confirm and Next.
- Finish and unselect Show this Screen at startup in Configure your server window. Restart.
- After restart, launch Start > Settings > Control panel > Add/Remove Programs > Add/Remove Windows Components > Networking Services > Details
- Select Domain Name System and OK and next
- Insert Windows 2000 Advanced Server SP4 CD and OK and Finish.
- Remove CD.
- Restart Node2.

**Step 4** Review network settings on both nodes (Public and Private). Restore DNS to the values described in [Step 2](#) on page 35 and [Step 4](#) on page 35.

**Step 5** Review the Domain Operations mode, it should be ‘Native’. Change if required.

- On Node1 open **Start > Programs > Administrative Tools > Active Directory Domains and Trusts**.
- Right-click <Domain name> > Properties > General.
- If **Domain operation mode** is *Native*, just close the dialog pane, otherwise press **Change mode** button and then **Yes** to confirm changing mode.

## Windows 2003

### Step 1 Configure Primary domain controller (Node1)

- Power Up Node1. Insert Windows 2003 Server CD. Start > Manage Your Server
  - Add or remove a role
  - Next. The wizard will detect network settings.
  - Typical configuration for first server and Next
  - Enter full DNS name for new domain (SDLCDOMAIN.INT) and Next. Next to confirm
  - Select 'No, it should not forward queries' and Next.
  - Review summary and Next.
  - Press OK to confirm restart when needed.
  - Choose 'Public' network.
  - Unselect "Enable security on the selected interface". Next.
  - (for the PC with three and more network interfaces) Select 'Private' and Next.
  - Finish.
  - When the 'ready-to-shutdown' window appears remove Windows 2003 Server CD. Node1 will auto-restart and continue the setup.
  - Next. Finish, Close 'Manage Your Server'.
- Correct Network Settings for Node1, as described in [Step 4](#) on page 37.

### Step 2 Join Node2 to domain.

- Power up Node2. Start > My Computer (right-click) > Properties > Computer name.
- Add description (optional) and press Change.
- Choose domain and enter domain name (SDLCDOMAIN). OK. The domain admin login is required.
- OK. wait till the Node2 joins to domain.
- OK. 'You must restart' and OK.
- OK, OK, and Yes for restart Node2.

### Step 3 Configure Backup Domain Controller on Node2

- After Node2 is power up log on into SDLCDOMAIN domain (Options button, change Node2 name SDLCCLUST2 to domain name SDLCDOMAIN) as domain admin.
- Start > Manage Your Server > Add or remove a role
  - Next. The wizard will detect network settings.
  - Choose Domain Controller (Active Directory) and Next.

- Summary and Next and Next and Next.
- Choose 'Additional domain controller' and Next.
- Enter domain admin name/password and Next. Next.
- Review the active directory DB and log folders (do NOT change unless necessary). Next.
- Review the System Volume folder (do NOT change unless necessary). Next.
- Enter domain admin password and confirm. Next.



**CAUTION**

**Windows2003 contains advanced security that strictly declines plain passwords like 'password', 'qwerty123', etc. The password must contain both letters and numbers or other symbols like '+' or '\_' and its length must be at least 8 symbols.**

- Review summary and Next. The wizard will install Active Directory service. Finish. Restart Now to complete.
- Finish configure Backup Domain Controller. Node2 is restarted. Log on as domain admin, then Finish.
- Insert Windows 2003 Server CD. Start > Manage Your Server > Add or remove a role.
  - Next. The wizard will detect network settings.
  - Choose DNS Server and Next.
  - Summary and Next and Next.
  - Select 'Create forward lookup zone for small networks' and Next
  - Select 'An ISP maintains the zone...', as the Node2 is the secondary DNS, and Next.
  - Enter the zone name (any user-friendly, for example, SDLCZONE2) and Next.
  - Enter Master DNS (Node1 IP - 192.168.0.201), press Add, then Next.
  - Select 'No, it should not forward queries' and Next.
  - Finish, and Finish.



**CAUTION**

**An error window appears: 'No it should not forward queries'; Error name: DNS, the configure a DNS server wizard could not configure root hints'. Press OK.**

- Remove Windows 2003 CD and restart Node2.

**Step 4**

Review the Domain functional level, it should be 'Windows 2000 native'. Change if required.

- On Node1 open **Start > Programs > Administrative Tools > Active Directory Domains and Trusts**.
- Right-click <Domain name> > Raise Domain Functional Level.
- If **Current domain functional level** is *Windows 2000 native*, just close the dialog pane, otherwise select 'Windows 2000 native' level and then **OK** and **OK** to confirm changing level.
- Restart Node1.

## Setting Up the RAID disk

Same on both Windows 2000 and Windows 2003.

**Step 1** Power up Node1 and log in as Administrator for SDLCCLUSTER (cluster)

**Step 2** Prepare to Format RAID disk

- Right click "My Computer" and select "Manage"
- Select "Disk Management". *Write Signature Wizard* should start. Press "Next".
- Select "Disk 0" to write a Signature and press "Next".
- Unselect "Disk 0" to Upgrade, press "Next" and then "Finish".

**Step 3** Format RAID

- Right click unallocated space and select "Create Partition". Create Partition Wizard starts. Click Next.
- Select "Primary Partition" and press "Next".
- Set maximum value in "Amount of Disk Space to Use" and press "Next".
- Select "Assign a Drive Letter" and select "R:" and press "Next".
- Select "Format this Partition with the Following Settings"
  - Set "File System" to "NTFS"
  - Set "Allocation Unit Size" to "Default"
  - Set "Volume Label" to "Cluster Raid"
- Select "Perform A Quick Format"
- Press "Next" and "Finish" and let format complete.

**Step 4** Shutdown Node1 after the RAID is formatted. Power up Node2 and log in as Administrator for SDLCCLUSTER (cluster).

**Step 5** Join RAID disk

- Right click "My Computer" and select "Manage"
- Select "Disk Management".
- Right click "Cluster Raid". Select "Change Drive Letter and Path".
- Select "Edit" and "Assign Drive Letter" to "R".
- Press OK. Press "Yes" to confirm.

**Step 6** Shutdown Node2. The RAID is on.

## Configuring Cluster Service

Windows 2000 Advanced Server and Windows 2003 Server require completely different procedures.

### Windows 2000

**Step 1** Power up Node1 and log in as Administrator to SDLC1 (this computer)

## Step 2 Configure Cluster Service on Node1

- Select **Start > Settings > Control panel > Add/Remove Programs > Add/Remove Windows Components >> Cluster Service**. Press **Next**.
- Insert Windows 2000 Advanced Server SP4 CD and press OK. Cluster Service Configuration Wizard will start. Press “Next”.
  - Click “I Understand” and “Next”.
  - Select “The First Node in the Cluster” and “Next”.
  - Set cluster name to SDLCCLUSTER and “Next”.



### CAUTION

**The cluster name must not be longer than 14 symbols.**

- Set User Name and Password (“administrator” and “password”). Set Domain to “sdlcdomain” and “Next”.
- Ensure that “R: Cluster Raid” is in managed disks and “Next”
- Select “R: Cluster Raid” and “Next” and “Next”.
- Set up Cluster Network
  - For Network Name “public” select “Enable this Network for Cluster Use”.
  - Select “All Communications (mixed network)” and “Next”.
  - For Network Name “private” select “Enable this network for cluster use”.
  - Select “Internal Cluster Communications Only (Private Network)” and “Next”.
  - Ensure that “private is at the top of Networks list and “Next”
  - Set “Cluster IP address” to <ip address> (192.168.0.222 in lab)
  - Set “Subnet Mask” to 255.255.255.0
  - Set “Network” to “public” and “Next”.
- “Finish” and “OK” to Cluster Service Started Successfully.
- Finish and eject CD and close all windows and shutdown Node1

## Step 3 Power up Node2 and log in as Administrator for SDLC2 (this computer)

## Step 4 Configure Cluster Service on Node2.

- Select **Start > Settings > Control panel > Add/Remove Programs > Add/Remove Windows Components >> Cluster Service**. Press **Next**.
- Insert Windows 2000 Advanced Server SP4 CD and press OK.
- Power on Node1 and wait for <ctrl><alt><del> (log in) screen.
- On Node2 Cluster Service Configuration Wizard will start and Next
  - Click “I Understand” and “Next”.
  - Select “Second or Next Node in the Cluster” and “Next”.
  - Set cluster name as SDLCCLUSTER
  - Select “Connect to Cluster As”.

- Set User Name and Password (“administrator” and “password”). Set Domain to “sdlcdomain” and “Next”.
- Set password as “password” and “Next”.
- “Finish” and “OK” and “Finish”.

**Step 5** Remove CD and close all windows.

**Step 6** Ensure the cluster works.

- Select Start > Programs > Administrative Tools > Cluster Administrator
- Select Groups > Cluster Group
- Select File > Move Group to verify the cluster is working properly
- Move group again and return ownership to Node1.

**Step 7** Shutdown Node2

## Windows 2003

**Step 1** Power on Node1. Log on as self-domain admin.

**Step 2** Create Cluster on Node1.

- Start > Administrative Tools > Cluster Administrator
- Choose 'Create new cluster' and OK. Next. Enter cluster name (SDLCCLUSTER2003) and Next.



### CAUTION

**The cluster name must not be longer than 14 symbols.**

- Review Node1 name and Next. The wizard will analyze an existing configuration.
- Next. Enter cluster IP (static, unique) and Next.
- Enter domain admin account & Password. Next.
- Review cluster summary and Next. Wizard creates a cluster.
- Next and Finish.

**Step 3** Join Node2 to Cluster

- Power on Node2 and wait till it comes up. Wait circa 5 min until the virtual cluster name will be available from Node2. Switch to Node2.
- Start > Administrative Tools > Cluster Administrator. Choose 'Open Connection to cluster' and enter the cluster name (SDLCCLUSTER2003).
- OK. Then File > New > Node. Add new Node wizard starts.
- Next. Add, then Next. The wizard will analyze an existing configuration.
- Enter domain user account & password. Next.
- Review cluster summary and Next. Wizard adds node to a cluster.
- Next and Finish. The cluster is ready.

**Step 4** Ensure the cluster works.

- Select Start > Administrative Tools > Cluster Administrator
- Select Groups > Cluster Group
- Select File > Move Group to verify the cluster is working properly
- Move group again and return ownership to Node1.

## Installing Scalar DLC Software

Same as in plain Failover solution. See [Installing Scalar DLC Software](#) on page 28.



**Note**

If required the user security policy can be modified on Primary domain controller (Node1) via **Start > Administrative Rules > Domain security policy**; choose **Account policies > Password policies**.

## Post-install Checklist

- Nodes
  - Node1 computer name (14 symbols max)
  - Node1 public IP address
  - Node2 computer name (14 symbols max)
  - Node2 public IP address
  - public Subnet mask
  - public default Gateway = Node1 public IP
  - public preferred DNS = Node1 public IP
  - public alternate DNS = Node2 public IP
  - Node1 private IP address
  - Node2 private IP address
  - private subnet mask
  - private preferred DNS = Node1 private IP
  - private alternate DNS = Node2 private IP
  - Local administrator login name and password (same on both nodes)
  - Scalar DLC serial number (same on both nodes)
- Cluster
  - name (14 symbols max)
  - IP address
  - Subnet mask = public Subnet mask
- Domain
  - name
  - domain admin name and password
  - directory services restore mode password

- Configuration
  - library SN
  - DB backup to RAID
  - DB backup to floppy
  - clients configured and tested
  - hardware configured and tested
  - email address settings
  - contact information
  - client type(s)
  - target card model
- License
  - Node1 SID
  - Node1 license string
  - Node2 SID
  - Node2 license string

## Common Setup Notes

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- If changes are made to the RAID or it is powered off/on a Hard Disk Changed message may appear during reboot.
  - F1 to enter bios
  - Esc without making changes
  - OK
- The above will also happen when using a Jump Drive.
- If a Jump Drive is in the USB during boot up an invalid disk error may happen
- Reset the time when finished with the installation.
- If the RAID is not new initialize it before starting it. The whole procedure takes approximately 6 hours.
- WinZip needs to be installed and is not by default
- Leave RAID off for a minimum of 20 seconds before powering back on
- Hang on boot up at ATI Rage SDRAM Bios is not an uncommon condition
- Immediately after the install is finished, if the cluster groups do not move from Node1 to Node2, shutdown Node1 and restart Node2. Make sure that Scalar DLC goes online for Node2, then restart Node1.
- Set the event logs to overwrite when necessary. They will fill up often otherwise.
- If the Ethernet card is installed with Wake on Lan Feature, disable it.
- Typical user account security policy requires the password more than 6 symbols long and contained both numbers and letters in both small and capital.

# 4

## Installing the Scalar DLC

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The Scalar DLC software must be installed on a PC running Windows 2000 / 2003. 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.



### Note

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

The cluster solutions (both failover and self-domain) require the domain user with either local or domain administrator rights.

During the *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 [Solution Checkup](#) on page 45.
- Using the Scalar DLC setup engine install the required [Software Components](#) on page 45.
- After this is finished, install [Scalar DLC Software](#) on page 50.

## Solution Checkup

---

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

See [Setting Up the Standard Solution](#) on page 7, [Setting Up the Failover Solution](#) on page 13, and [Setting Up the Self-Domain Solution](#) on page 33.

## Software Components

---

[Figure 14](#) on page 46 shows the components that are to be installed during the Scalar DLC setup process. The required components that are currently not installed are marked automatically for the installation.

**Figure 14** Scalar DLC Setup Components



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

- Microsoft Windows 2000 Service Pack 4 (only for Windows 2000)
- Microsoft Internet Explorer ver. 6.0 or newer (only for Windows 2000)
- Java™ 2 Runtime Environment (Java 2) 1.4.2\_09
- Apache Web Server ver.1.3.27
- Secure Socket layer (SSL), optional
- Microsoft SQL Server 2000 Desktop Engine (MSDE 2000)
- MSDE 2000 Service Pack 4

## Silent Mode

When a customer selects silent mode, all information that is required for the selected installation must be entered before the install process starts.

The install process continues until everything is complete, including automatically restarting the computer and logging on.

Note that the complete installation of both the required components and Scalar DLC software will take some time (circa 15-30 minutes).



**Note**

ADIC does not recommend using silent mode when installing Scalar DLC failover / self-domain solution.

## Windows Service Pack

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



### Note

ADIC supports the Win2000 SP4 developed by the Microsoft. This service pack can be used with all versions of Windows 2000 (Professional, Server, Advanced Server, etc.).

The SP1 for Windows 2003 is required for the Scalar DLC but not included onto the Scalar DLC Install CD. It must be installed with Windows 2003.

## 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.



### Note

The installation of MS IE 6.0 under Windows 2003 is 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\j2re1.4.2_09\` directory. An advanced user can install the Java2 to any directory desired, but ADIC recommends against this action.



### Note

The Java2 installation may ask for a restart. ADIC recommends rebooting the PC.

## Remove

Removing Java is performed via standard Windows Add/Remove Programs engine. A restart may be required afterwards.



### Note

It is recommended also to check `<%SystemDrive%>\Program Files\` afterwards. If Java folder is not removed, remove it manually.

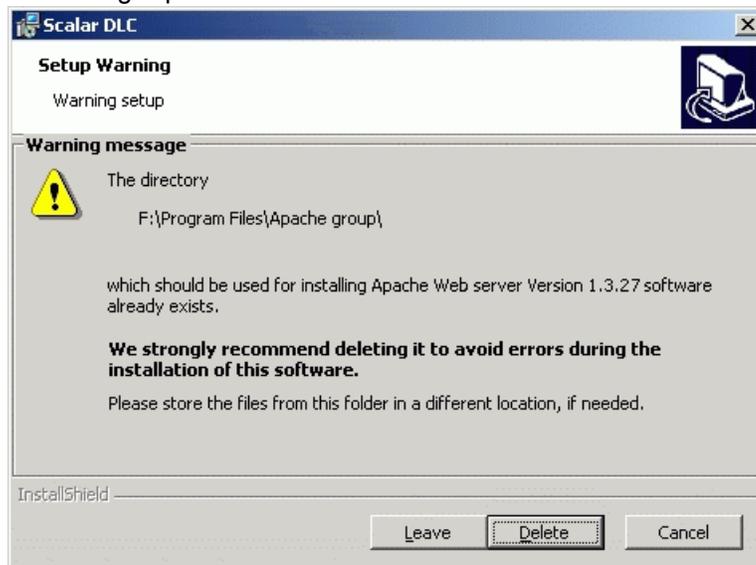
## Apache HTTP Server

ADIC does not recommend installing the Scalar DLC software on a machine with a previously installed copy of Apache Server. During installation, the configuration file overwrites any configuration file present on the hard drive without providing a warning. By default, the Apache HTTP Server is installed in the

`<%SystemDrive%>\Program Files\Apache Group\Apache\` directory. An advanced user can install the Apache HTTP Server in any desired directory.

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

Figure 15 Warning: Apache



## Secure Socket Layer

The Secure Socket Layer (SSL) protocol encrypts the data that has been sent/received via the web. The SSL family of protocols includes also Transport Layer Security (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 *Scalar DLC 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

## Remove

Removing Apache is performed via standard Windows Add/Remove Programs engine. It is recommended to Stop the Apache service before (**Start > Programs > Apache HTTP Server > Control Apache Server > Stop**) and then remove the Apache itself.



Note

It is recommended also to check `<%SystemDrive%>\Program Files\` afterwards. If Apache folder is not removed, remove it manually.

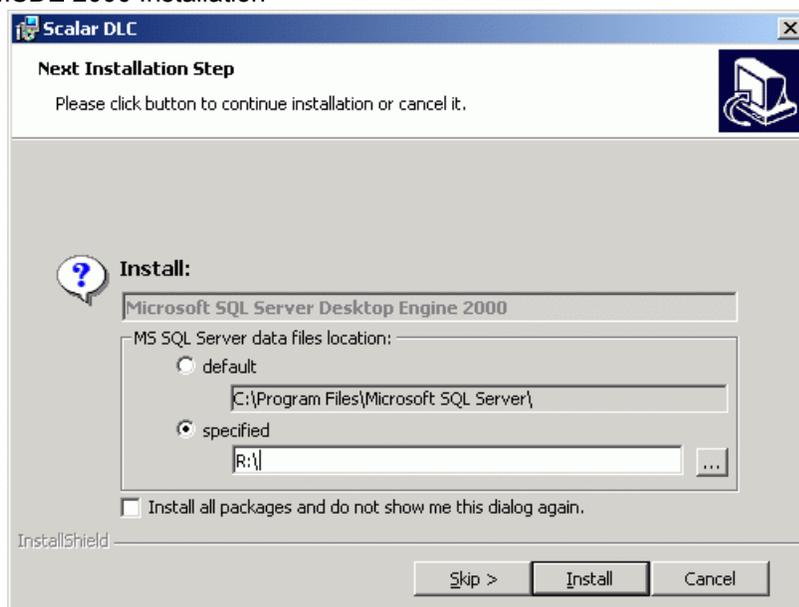
# Microsoft SQL Server Desktop Engine 2000

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 Failover solution, the MS SQL 2000 should be installed on a shared disk (RAID - R:) to the 'specified' folder that must be shared, too.

**Figure 16** MSDE 2000 Installation



## MSDE 2000 Service Pack 4

The SP4 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 not install this service pack. Go to the <http://www.microsoft.com> instead, download the Service Pack 4 for MS SQL 2000, and install it manually



**CAUTION**

**ADIC recommends installing Service Pack 4 for MSDE 2000. Otherwise a security hole in MSDE 2000 remains open and could be used by internet viruses or worms (for example, Slammer).**

## Remove

Removing MSDE with the service pack is performed via standard Windows Add/Remove Programs engine. The MSDE SP4 separately cannot be removed. Restart is not required.

# Scalar DLC Software

All Setup windows contain the following buttons:

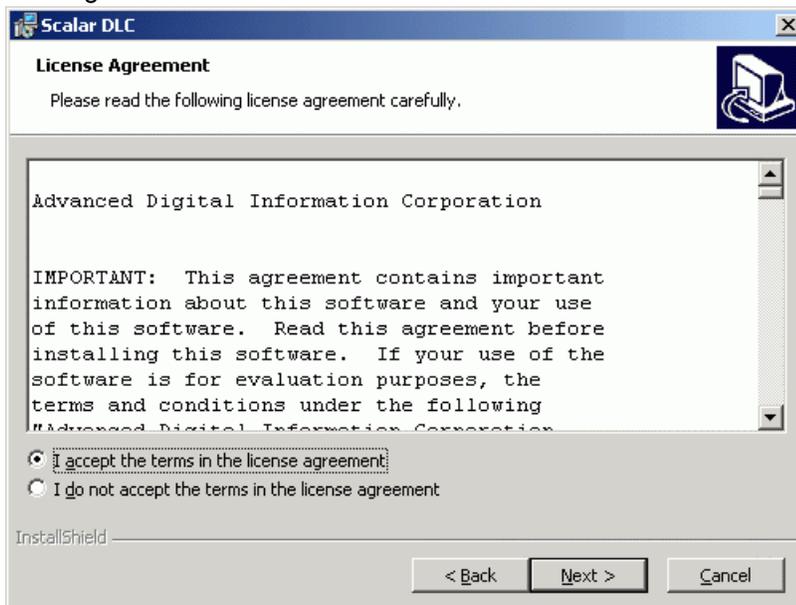
- Back
- Next
- Cancel

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

**Figure 17** Start Setup



**Figure 18** Licensing

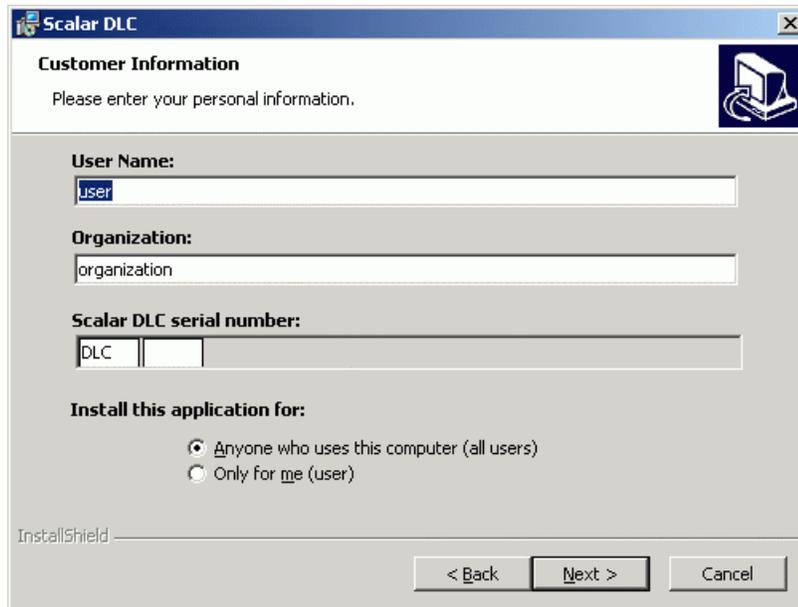


To continue the Scalar DLC Installation, accept the ADIC License Agreement. Click **Next** to proceed to the next screen (a copy of [Figure 14](#) on page 46).

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

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

**Figure 19** Personal Information

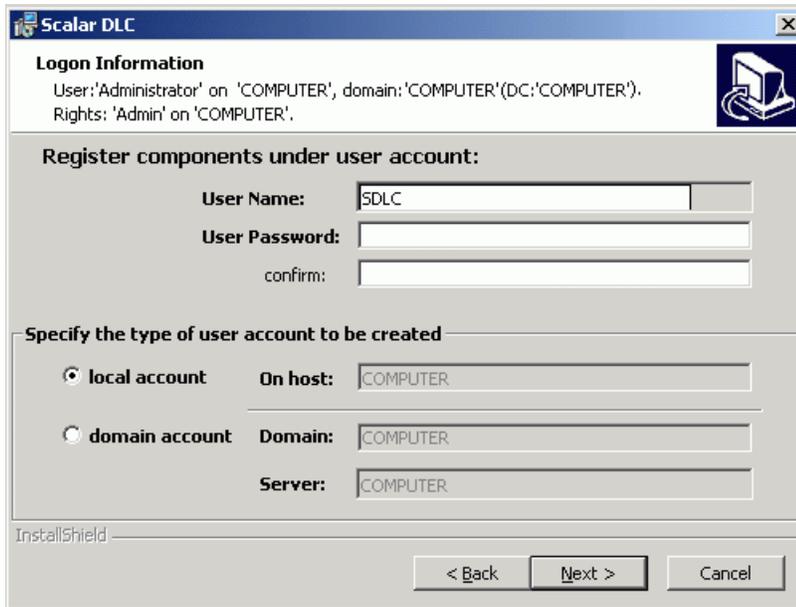


**Table 6** Personal Information

| Name                     | Operation | Description  |
|--------------------------|-----------|--|
| User name                | Enter     | The user name (PC owner, by default).  |
| Organization             | Enter     | The organization name (PC owner organization, by default)  |
| 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 [Figure 20](#) for the local account, see [Figure 21](#) on page 53 for the domain account, and see [Figure 23](#) on page 54 for the registration.

**Figure 20** Create Local User Account



Enter the user account settings.

**Table 7** Create User Account

| Name                            | Operation | Description  |
|---------------------------------|-----------|--|
| User name                       | Enter     | User account name, 'SDLC' by default   |
| User password                   | Enter     | User account password.   |
| Confirm                         | Enter     | Password must be confirmed.  |
| User account to be created      | Select    | <i>Local</i> specifies the account type as local (default).  |
|                                 |           | <i>Domain</i> 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.  |
| Check (for domain account only) | Click     | Check the rights on the domain. For a domain admin, the <b>Next</b> button appears; otherwise, domain account installation is not available. |

**Figure 21** Create Domain User Account



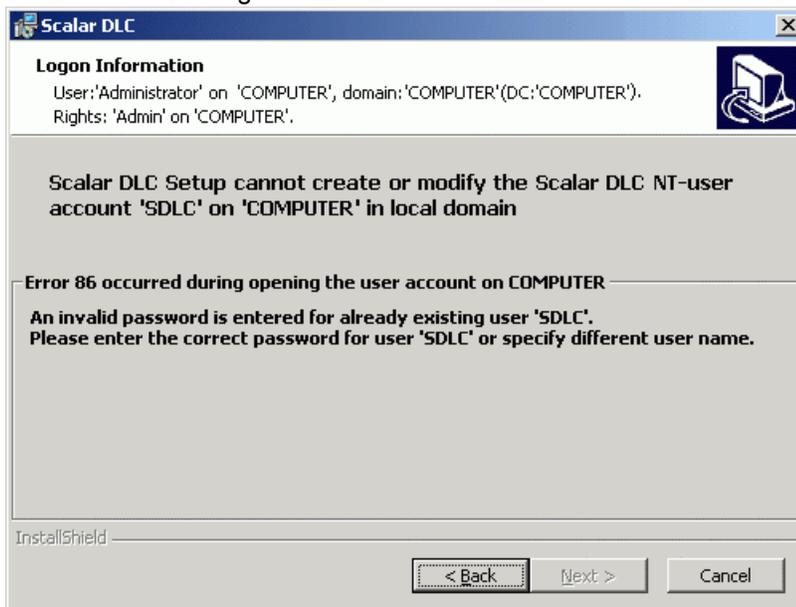
The screenshot shows the 'Scalar DLC' installation window. At the top, it displays 'Logon Information' for the Administrator user on the local computer. Below this, there is a section titled 'Register components under user account:' with input fields for 'User Name' (containing 'SDLC'), 'User Password', and a 'confirm:' field. A third section, 'Specify the type of user account to be created', has two radio buttons: 'local account' and 'domain account'. The 'domain account' option is selected. Below the radio buttons are input fields for 'On host:' (containing 'COMPUTER'), 'Domain:' (containing 'COMPUTER'), and 'Server:' (containing 'COMPUTER'). At the bottom, there are three buttons: '< Back', 'Check', and 'Cancel'. The 'InstallShield' logo is visible in the bottom left corner.

The user account should be entered in this window. Refer to [Table 7](#) 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 [Figure 22](#) on page 53. Otherwise, if the user account is created successfully, the Component Registration window appears. See [Figure 23](#) on page 54.

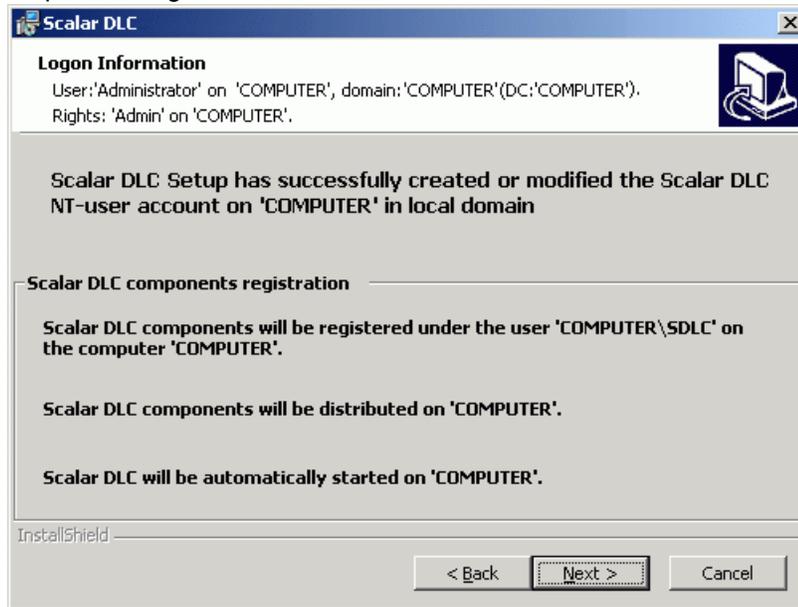
**Figure 22** User Account Warning



The screenshot shows the 'Scalar DLC' installation window displaying an error message. The 'Logon Information' section at the top shows the Administrator user with 'Rights: Admin' on the local computer. The main message reads: 'Scalar DLC Setup cannot create or modify the Scalar DLC NT-user account 'SDLC' on 'COMPUTER' in local domain'. Below this, a section titled 'Error 86 occurred during opening the user account on COMPUTER' contains the text: 'An invalid password is entered for already existing user 'SDLC'. Please enter the correct password for user 'SDLC' or specify different user name.' At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'InstallShield' logo is visible in the bottom left corner.

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

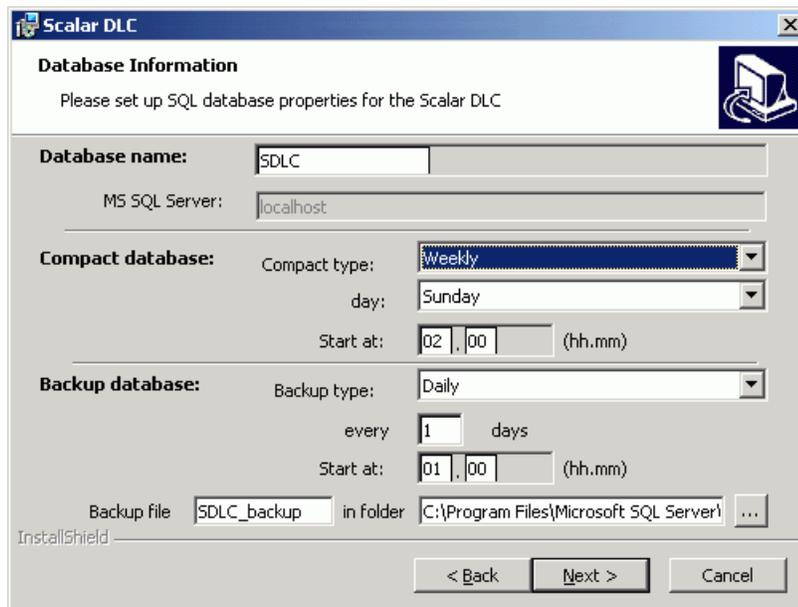
**Figure 23** Component Registration



**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 24** Database Information



See [Table 8](#) for the additional information.

**Table 8** 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.  |

**Table 8** Database Information (Continued)

| Name        | Operation | Description   |
|-------------|-----------|---|
| Compact     | Select    | The Compact Database schedule can be set here.  |
| Backup      | Select    | The Backup Database schedule can be set here.   |
| Backup file | Enter     | Default database backup file, 'SDLC_backup' by default.   |
| In folder   | Select    | Default database backup folder. The default is %SystemDrive%\Program Files\Microsoft SQL Server\ (for standard solution) and %RAIDDdrive%\Program Files\Microsoft SQL Server\ (for failover or self-domain solution). |



**Note**

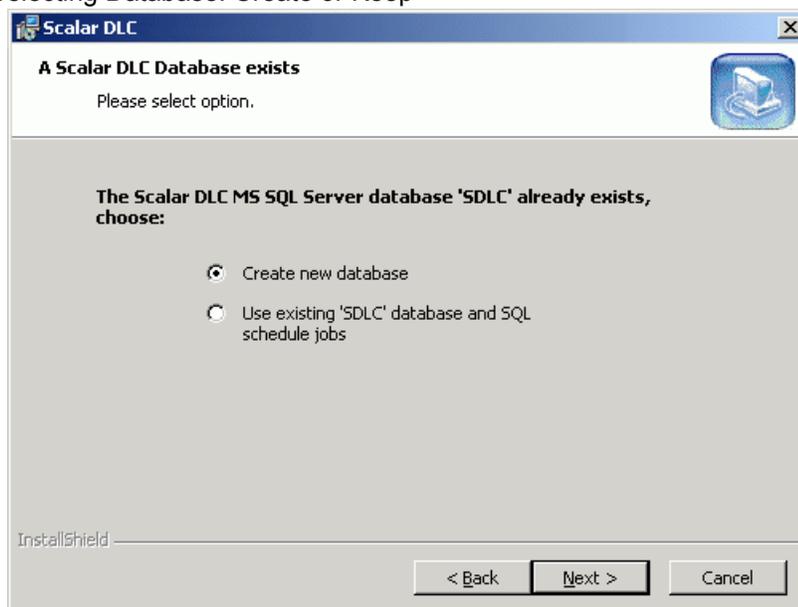
The schedules for Backup and Compact jobs are described in more detail in the *Database Utility* section of the *Scalar DLC Reference Guide*. The backup and compact schedules can be changed later, as the database backup folder and filename, though the database name itself cannot be changed.

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 [Figure 25](#) on page 55. If the database was created by an older version of Scalar DLC software, either update it or create a new, clean database. See [Figure 26](#) on page 56.

If a new database is installed, the next window, Email Notifications settings, appears. See [Figure 27](#) on page 57.

**Figure 25** Selecting Database: Create or Keep

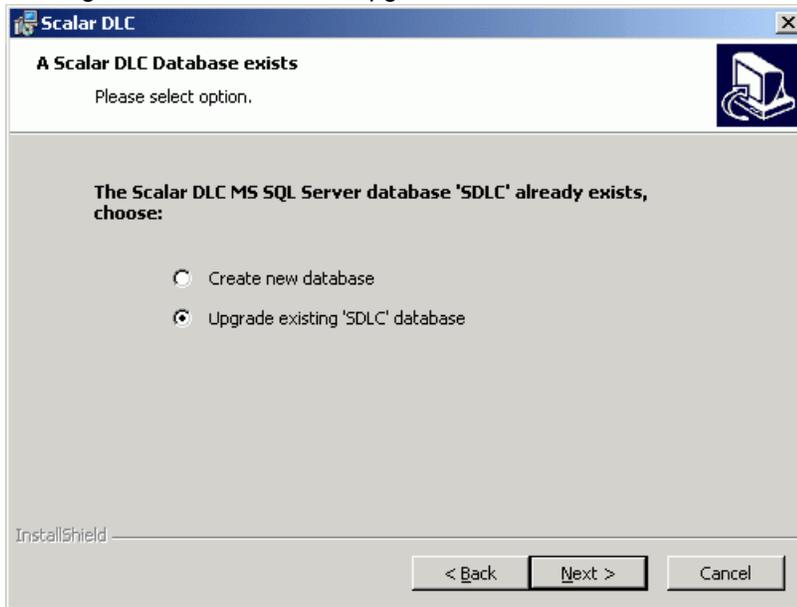


**Note**

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 27](#) on page 57; otherwise, proceed to the final screen.

**Figure 26** Selecting Database: Create or Upgrade



See [Table 9](#) for the additional information.

**Table 9** Database Upgrade

| Old Scalar DLC Version         | Additional activity   |
|--------------------------------|---|
| 2.1                            | Reconfigure SCSI Target manually after the database upgrade. See <a href="#">Upgrading the Scalar DLC</a> on page 86. |
| 2.2, 2.2 SP1, 2.2 SP2, 2.2 SP3 | Upgrade database.   |
| 2.3, 2.3 SP1, 2.3 SP2          | Upgrade database.   |
| 2.4                            | Upgrade database.   |
| 2.5, 2.5 SP1, 2.5 SP2          | Upgrade database.   |
| 2.6                            | Use existing database.  |

If a new database is created, click **Next** to proceed to [Figure 27](#) on page 57; otherwise, proceed to the final screen.

**Figure 27** Email Notification Settings

Enter the email settings. See [Table 10](#) for details.

**Table 10** 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 <b>From:</b> field of emails.                                  |
| Outgoing mail server: Name          | Enter     | The SMTP mail server name.  |
| Outgoing mail server: Port          | Enter     | The SMTP mail server port.  |
| Turn on email notifications         | Check     | Turn the email notifications on if the box is checked.  |

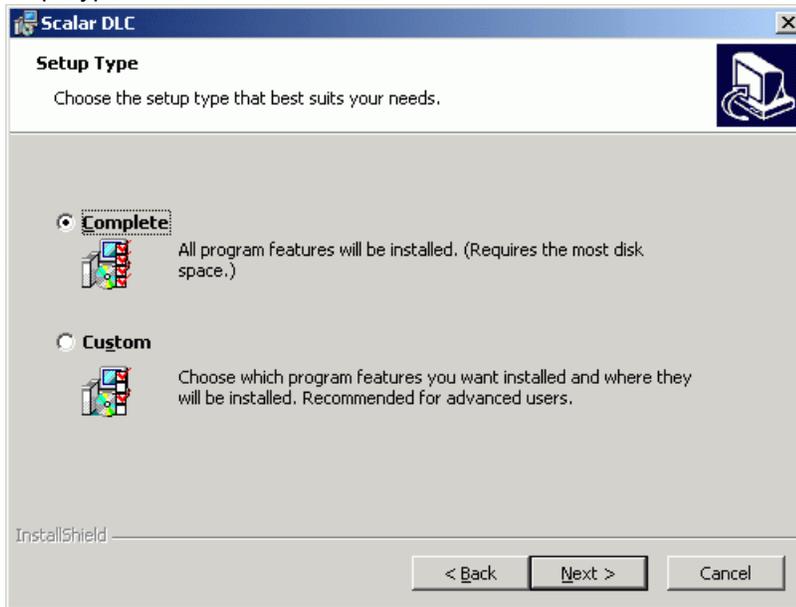


**Note**

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. Sending of email notification itself (on/off) can be changed later in Management GUI (*Main Menu > Extended Service > Registration Information*)

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

**Figure 28** Setup Type



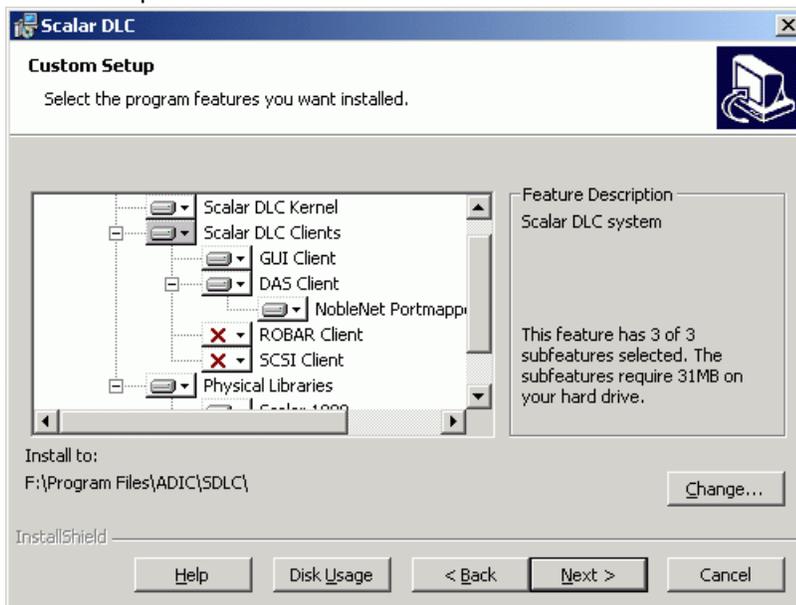
There are two types of Scalar DLC software installations: *Complete* and *Custom*.

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 29](#) for details.

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

**Figure 29** Custom Setup



**Table 11** Custom Setup

| Name                  | Operation | Description   |   |
|-----------------------|-----------|---|---|
| Scalar DLC Components | Supplied  | Mark/unmark the component for installation.   |   |
| Kernel                | Supplied  | The kernel of Scalar 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 library. Installed always.         |
|                       | Supplied  | Scalar 10K DA   | The support of Scalar 10K dual-aisle library. Installed always.           |
|                       | Supplied  | Scalar 1000   | The support of Scalar 1000 library. Installed always.                     |
| Feature Description   | Supplied  | The component name and disk space requirements.   |   |
| Install to            | Supplied  | The current destination folder where the Scalar DLC should be installed. The default is<br>%SystemDrive%\Program Files\ADIC\SDLC\ |   |
| Change                | Click     | Change the destination folder.  |   |

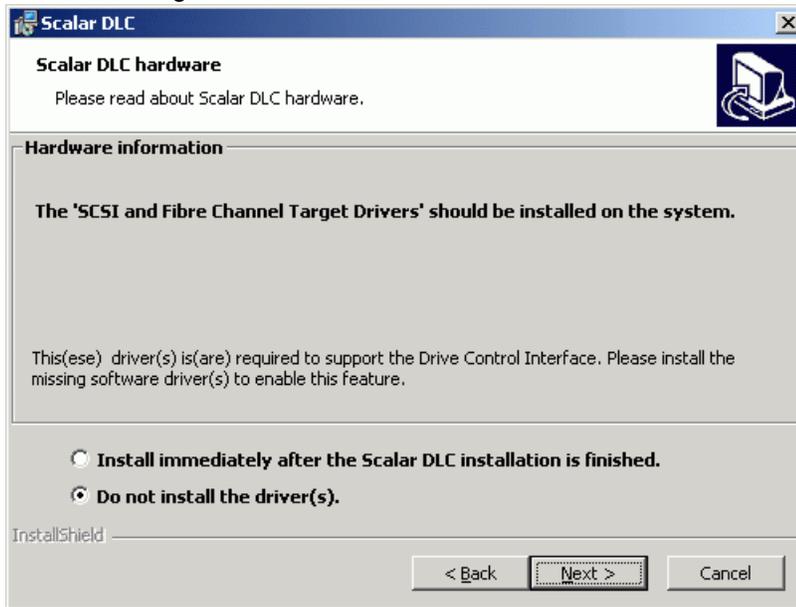


**CAUTION**

**If the Scalar DLC destination folder already exists ensure that it is empty. Never put any files in this folder because they will be removed with the Scalar DLC when the software is to be removed. See [Add/Remove Scalar DLC Software](#) on page 81.**

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

**Figure 30** Install SCSI Target Driver



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, see [Installing the SCSI/FC Target Drivers](#) on page 74.

After the Scalar DLC components are installed, enter the registration information. See [Figure 31](#) on page 61.

**Figure 31** Registration Form

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

**Table 12** Registration Form

| 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) |



**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.

**Figure 32** Review Registration Form

The request form can be printed out and/or send via email to ADIC customer support to obtain a license. See [Table 13](#) for additional information.

**Table 13** Review Registration Form

| 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 <a href="#">Figure 33</a> ). |

**Figure 33** Email Registration Form

The email can be sent to any number of recipients. See [Table 14](#) on page 63 for details.

**Table 14** Email Registration Form

| <b>Name</b> | <b>Operation</b> | <b>Description</b>                                   |
|-------------|------------------|--|
| 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.

All activity concerning removing Scalar DLC software is described in [Add/Remove Scalar DLC Software](#) on page 81



# 5

## DAS Client

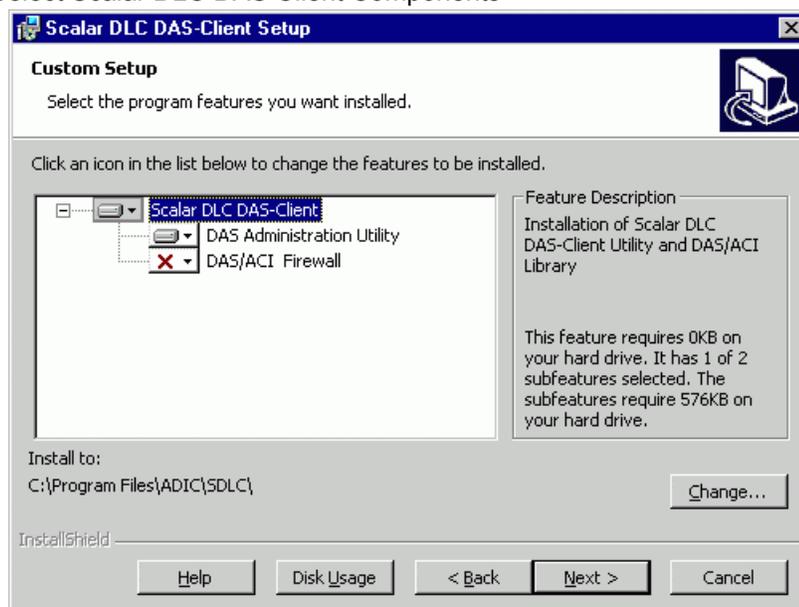
The DAS Client software allows the customer to use DAS interface with the Scalar DLC.

### Installing DAS Client

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

- Step 1** Install the Scalar DLC software with the DAS support on the server PC. See [Scalar DLC Software](#) on page 50. 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.
- [Figure 34](#) shows the DAS Client components selection during the installation of Scalar DLC DAS Client software.

**Figure 34** Select Scalar DLC DAS Client Components

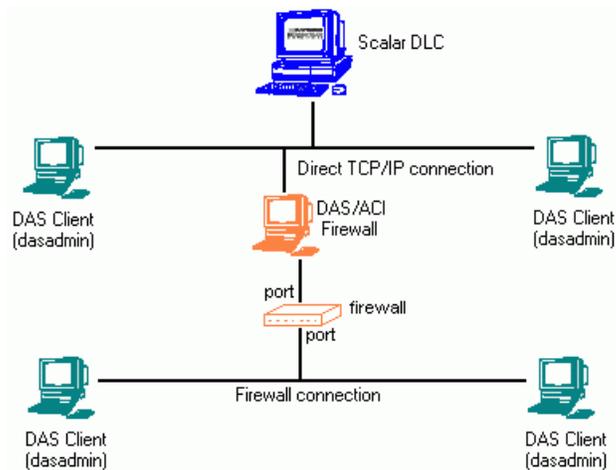


- The installation will place the selected components in the <%SystemDrive%>\Program Files\ADIC\SDLC\ directory. Change the destination folder if it is required.
- The DAS Administration Utility should be installed on a PC that will run the DAS Client software. See [Installing the DAS Administration Utility](#) on page 67.
- 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. See [Installing the DAS/ACI Firewall](#) on page 68.

 **Note** The DAS/ACI firewall software can be installed directly on Scalar DLC host. In case of the Redundant solution, it should be installed on both cluster nodes.

- [Figure 35](#) illustrates the typical network structure.

**Figure 35** Scalar DLC DAS Client Network



- The installation configures appropriate server, client, and media type values (see [Table 15](#)).

**Table 15** DAS Variables

| 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.<br>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. See <i>DAS Administration Guide</i> for the details.  |

 **Note** These variables can be also set manually. This is very useful when several DAS Clients have to share one client host.

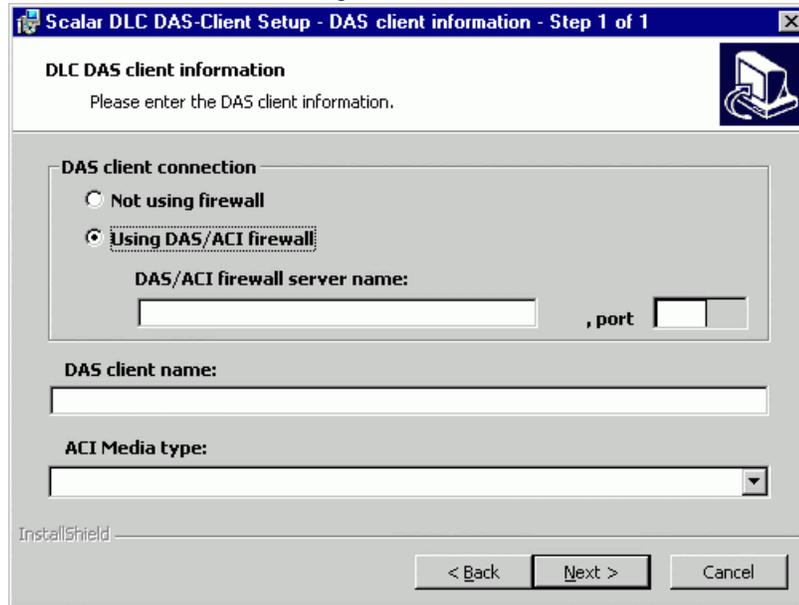
- Once the variables are set, the restart is requested. ADIC recommends accepting the restart so that the Scalar DLC DAS-Client software works properly.

**Step 4** After the configuration is complete, the Scalar DLC software is ready to accept commands from a DAS client.

## Installing the DAS Administration Utility

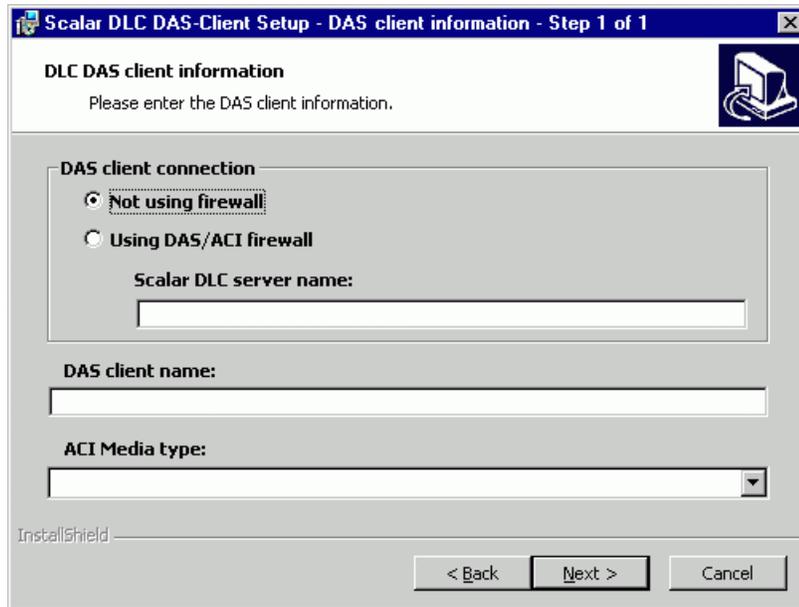
The connection settings must be entered during the installation of the *dasadmin* software. See [Figure 36](#) for a firewall-based connection and see [Figure 37 on page 68](#) for a direct (firewall-free) connection.

**Figure 36** DAS Client Connections Using Firewall



| 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.<br><br><i>Using DAS/ACI firewall</i> 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 <a href="#">Table 15</a> on page 66.  |
| ACI Media type               | Select    | The default ACI media type. Refer to <a href="#">Table 15</a> on page 66.   |

**Figure 37** DAS Client Connection without Firewall



 **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.

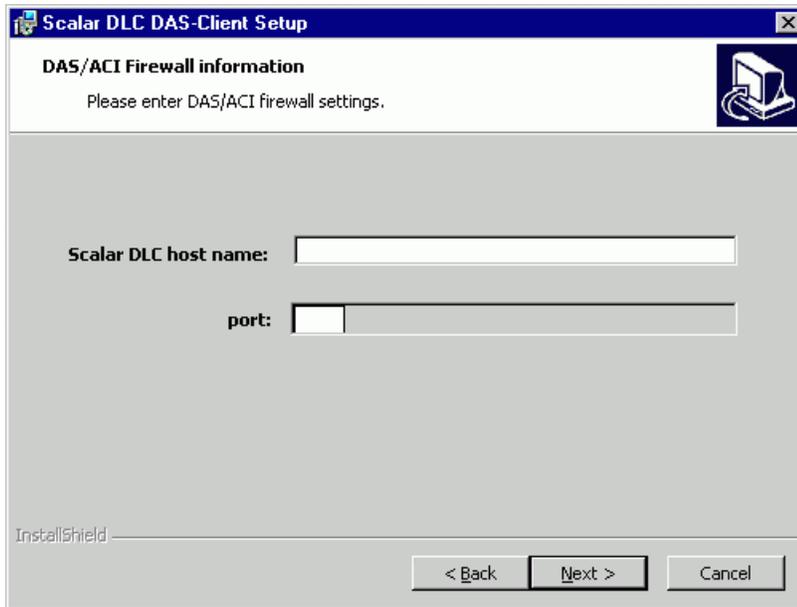
## Installing the DAS/ACI Firewall

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 35](#) on page 66.

 **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 [Figure 34](#) on page 65), select a DAS/ACI Firewall component. See [Figure 38](#) on page 69 for a DAS/ACI Firewall settings screen.

**Figure 38** DAS/ACI Firewall



| 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.

## Removing DAS Client

Using Add-Remove Software, launch Scalar DLC DAS Client and remove the software.



# 6

## SCSI/FC Target Drivers

The Scalar DLC software uses some SCSI and/or Fibre Channel adapters in Target mode to provide the customer access to the Scalar DLC via the SCSI.

### SCSI and Fibre Channel Hardware

The SCSI and/or Fibre Channel adapters must be installed into the PCI-type slots as shown in [Table 18](#) on page 72.



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

Before connecting SCSI Initiator (Scalar DLC / client host) and Target (Medium changer / Scalar DLC host) adapters with the SCSI cable, be sure that they match each other. See [Table 16](#) for a description of adapters that are currently supported and see [Table 17](#) on page 72 for a match description.

**Table 16** SCSI and Fibre Channel Adapters

| Adapter                                      | Type          | Connection (external)                    | Max cable length, m |
|--|---------------|--|---------------------|
| LSI 20860                                    | SCSI          | 50-pin high density SE                   | 5                   |
| LSI 8751D                                    | SCSI          | 68-pin high density HVD                  | 25                  |
| LSI 8951U<br>LSIU80LVD                       | SCSI          | 68-pin very high density<br>LVD/SE       | 12(LVD)<br>5(SE)    |
| QLA 2200                                     | Fibre Channel | SC duplex multi-mode                     | -                   |
| QLA 2300<br>QLA 2310<br>QLA 2340<br>QLA 2342 | Fibre Channel | Small form factor multi-mode<br>optic LC | -                   |
| Local SCSI <sup>a</sup>                      | SCSI          | -  | -                   |

a. 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, so 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. Local SCSI Target only emulates the adapter port and sure cannot operate in Initiator mode.

**Table 17** 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.

**Table 18** SCSI/FC Adapters and PCI slots

| Controller PN          | Slot 1                     | Slot 2   | Slot 3   |
|------------------------|----------------------------|--|--|
| Standard<br>3-01632-01 |                            | Adaptec 39160<br>(library)                       | Any target adapter (see <a href="#">Table 16</a> on page 71) |
| Dual<br>3-01632-02     |                            | Adaptec 39160<br>(RAID and library) <sup>a</sup> | Any target adapter (see <a href="#">Table 16</a> on page 71) |
| Standard<br>3-01632-03 | Adaptec 39160<br>(library) | QLA 2340 / 42                                    | Any target adapter (see <a href="#">Table 16</a> on page 71) |
| Dual<br>3-01632-04     | Adaptec 39160<br>(RAID)    | QLA 2342 (library)                               | Any target adapter (see <a href="#">Table 16</a> on page 71) |

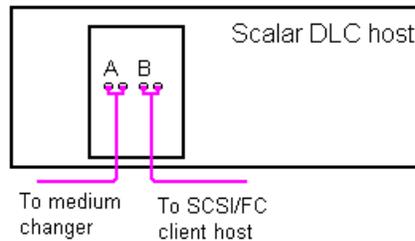
a. Adaptec 39160 is a two-channel SCSI adapter (see [Two-channel Adapters](#) on page 72) that is not used in Target mode.

## Two-channel Adapters

Some adapters are designed as two-channel model so they are recognized by OS as two single-channel adapters. Device Manager shows two adapters, their Properties are, for example, PCI slot 2, Bus 1, Function 0 and PCI slot 2, Bus 1, Function 1 (note that the only difference is Function value).

For the Scalar DLC it means that it is technically possible to use single two-channel SCSI/FC adapter in both Initiator mode (Channel A / Port 1 - Function 0) to connect to the library medium changer, and in Target mode (Channel B / Port 2 - Function 1) to connect to the SCSI Client host (see [Figure 39](#) on page 73). And of course, such two-channel adapters can be used for two different SCSI Clients, as if these clients were connected to the two different SCSI/FC target adapters, or as two single-channel initiator adapters if required.

**Figure 39** Two-channel Adapter used for both library and client



The following adapters that Scalar DLC supports in Target mode are two-channel:

- QLA 2342

Using FC adapters as Initiators to connect to the library medium changer requires additional setup which is described in [Host/Library Communication using Fibre Channel and SNC](#) on page 127.

## Initiator Driver

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The Initiator driver can be installed before installing Scalar DLC software or after this operation as well. However, it should be done before 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 all the required drivers at the <%Scalar DLC Install\_CD%>\Drivers\Initiator folder.
- Step 2** *During* setup/startup, the Windows 2000 / 2003 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* Windows 2000 / 2003 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 Fibre Channel 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 74.

# 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. See [Add/Remove SCSI Target Drivers](#) on page 78.

 **CAUTION** 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**.

 **Note** There should be the Initiator driver(s) activated in the system before the Target driver(s) are installed. See [Initiator Driver](#) on page 73 for the details.

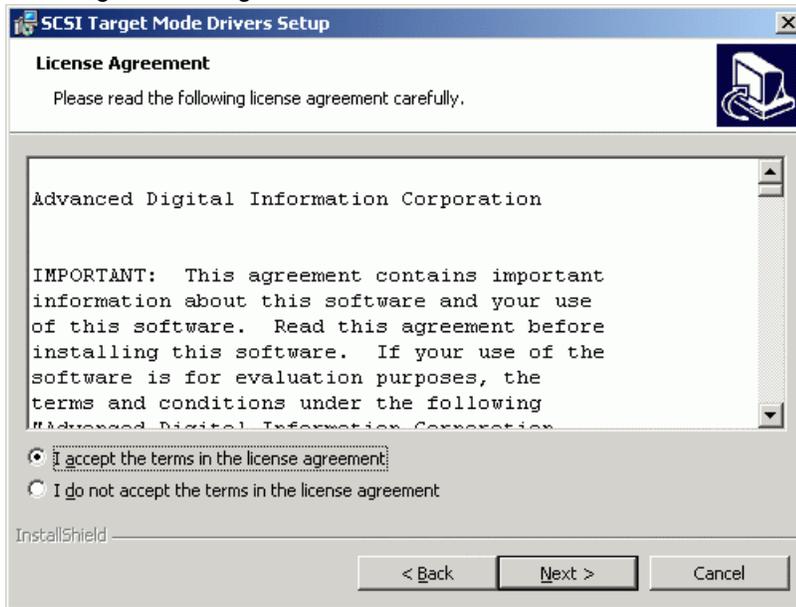
Figure below shows the Setup Start window of the SCSI Target software.

**Figure 40** SCSI Target Start Setup



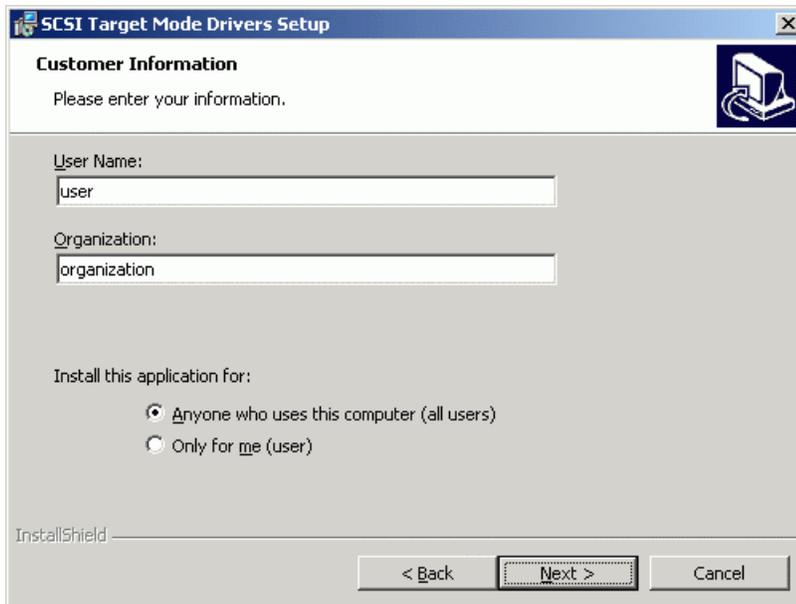
Click **Next** to proceed.

**Figure 41** SCSI Target Licensing



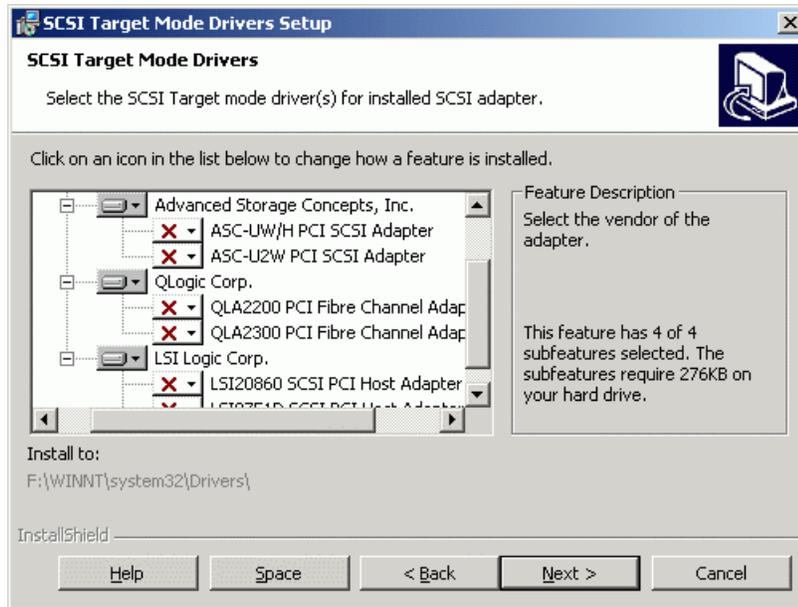
Accept the ADIC License Agreement and click **Next** to proceed.

**Figure 42** Personal Information



Enter the customer's personal information. See [Table 6](#) on page 51 for the meaning and required operation of the fields. Click **Next** to proceed.

**Figure 43** Driver Selection



Click the driver to select it. See [Table 19](#) for driver selection details and [Table 16](#) on page 71 for SCSI and Fibre Channel adapters.

**Table 19** Driver Selection

| Name                | Operation | Description   |
|---------------------|-----------|---|
| Drivers             | Check     | Mark/unmark the driver for installation. See <a href="#">Table 16</a> on page 71 for a description of SCSI and Fibre Channel adapters that could be used in the system. |
| Feature Description | Supplied  | Driver name and disk requirements.  |

When the Local SCSI Target driver is installed, the following warning screen appears.

**Figure 44** Local SCSI Target: No Signature



Press Yes and continue the installation: ADIC Local SCSI Target driver is not certified by Microsoft, no other failures in it are known currently.

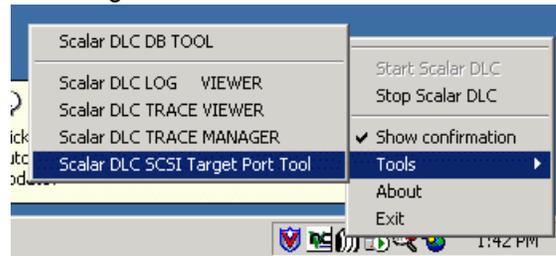
After the successful installation, if no additional configuration steps are required, the computer must be restarted.

 **Note** After rebooting, the adapters that should operate in Target mode are disabled. To enable them, use the SCSI Target Port Tool. See [Activating Target Mode](#) on page 77.

## Activating Target Mode

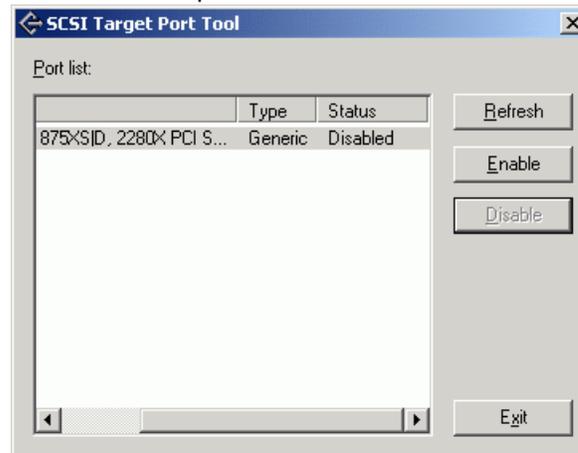
On the toolbar there will be a small three-penguin icon. Right click this icon and select **Tools > Scalar DLC SCSI Target Port Tool**.

**Figure 45** Access to SCSI Target Port Tool



The SCSI Target Port tool opens.

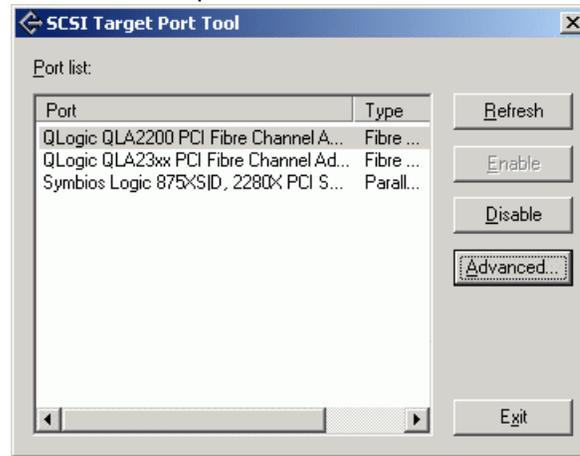
**Figure 46** SCSI Target Port Tool: adapter disabled



Click **Enable** to enable the required SCSI Adapter(s) (as in the figure below).

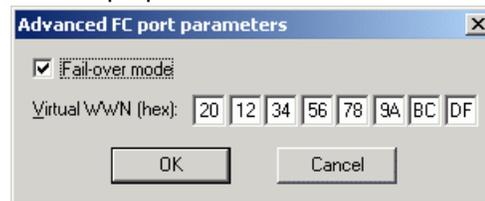
 **Note** The two-channel adapters are shown in the SCSI Target Port Tool as two different single-channel adapters. See [Two-channel Adapters](#) on page 72.

**Figure 47** SCSI Target Port Tool: adapter enabled



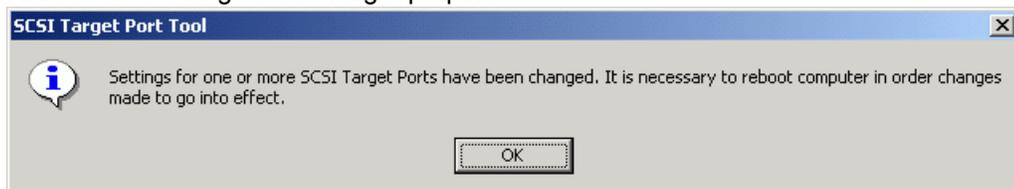
(only for the Fibre Channel) Click **Advanced** to resolve the virtual World-Wide Name (WWN) and make the adapter available for the Failover (cluster) mode work if it is required.

**Figure 48** FC Adapter Advanced properties



After enabling the adapter(s) and exiting the SCSI Target Port Tool, reboot if it is prompted.

**Figure 49** Reboot after change SCSI Target properties



## 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**).

 **Note** *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 *Scalar DLC 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.

**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 (see [Scalar DLC Software](#) on page 50) 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 (see [Installing the SCSI/FC Target Drivers](#) on page 74).



# 7

## Upgrade, Remove, Repair

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- [Add/Remove Scalar DLC Software](#) on page 81 holds the basic instructions on Update, Remove, or Repair the Scalar DLC software.
- [Upgrading the Scalar DLC](#) on page 86 contains the detailed Upgrade instructions.
- [Renaming and Repair](#) on page 97 contains the detailed Repair instructions.

### Add/Remove Scalar DLC Software

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



#### CAUTION

**For the Failover and Self-domain solution make sure that the Add/Remove is launched on the active node. If not, cancel the operation, move Cluster group ownership to the current node, and start Add/Remove engine again.**



#### Note

Before removing Scalar DLC software from any cluster node, launch SDLC Cluster Configurator and remove cluster configuration from the Scalar DLC resources (**Remove** button).



#### Note

Local administrator rights are required to execute this procedure. Domain administrator rights are required if the Scalar DLC is installed under domain account and/or as the failover or self-domain solution.



#### Note

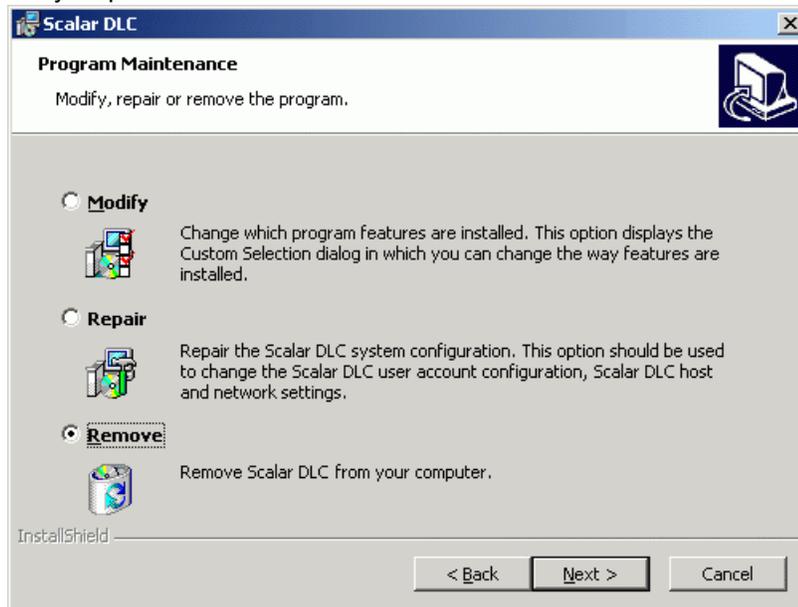
The additional Repair instructions can be found at [Renaming and Repair](#) on page 97.

**Figure 50** Starting the Scalar DLC Add/Remove



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

**Figure 51** Modify/Repair/Remove



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

## Remove

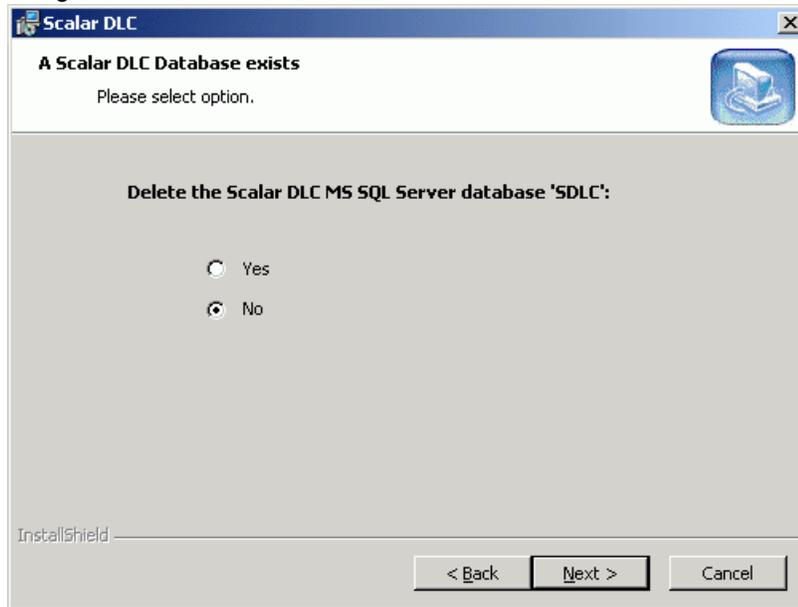


**CAUTION**

After removing the Scalar DLC software, always remove its SCSI Target drivers, too. See [Add/Remove SCSI Target Drivers](#) on page 78.

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.

**Figure 52** Saving the Database



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.



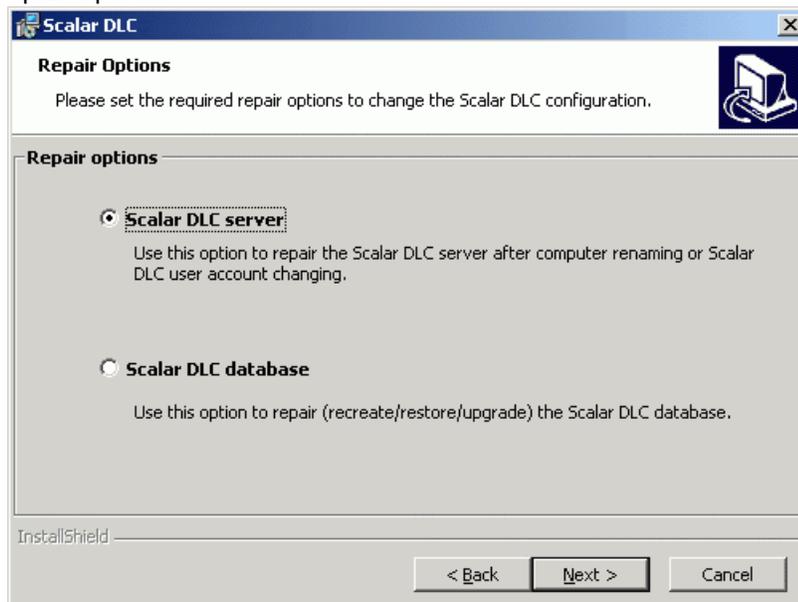
Note

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 re-installing the software.

**Figure 53** Repair Options

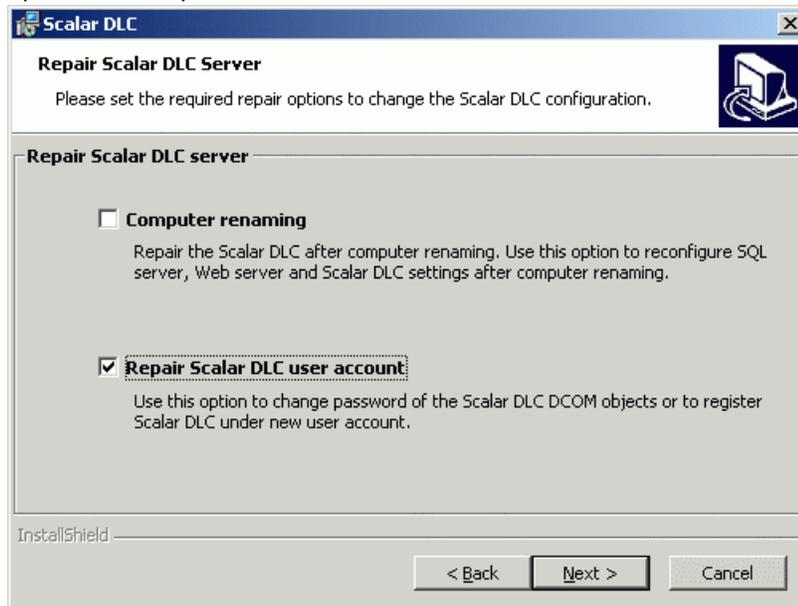


Choose either the Server option to repair damaged Scalar DLC software components (see [Server](#) on page 84), or Database option to repair the damaged Scalar DLC database (see [Database](#) on page 85). Click **Next** to proceed.

## 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.

**Figure 54** Repair Server Options



Select the repair options and click **Next** to proceed. See [Table 20](#) for details.

**Table 20** Repair Options

| 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. See <a href="#">User Account</a> on page 84.                          |

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. See [User Account](#) on page 84.

## User Account

The repair user account screens look exactly the same as the user account creation screens appear during the Scalar DLC installation. See [Figure 20](#) on page 52 for the local account, and [Figure 21](#) on page 53 for the domain account.

See [Table 7](#) on page 52 for the user account settings.



## Note

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

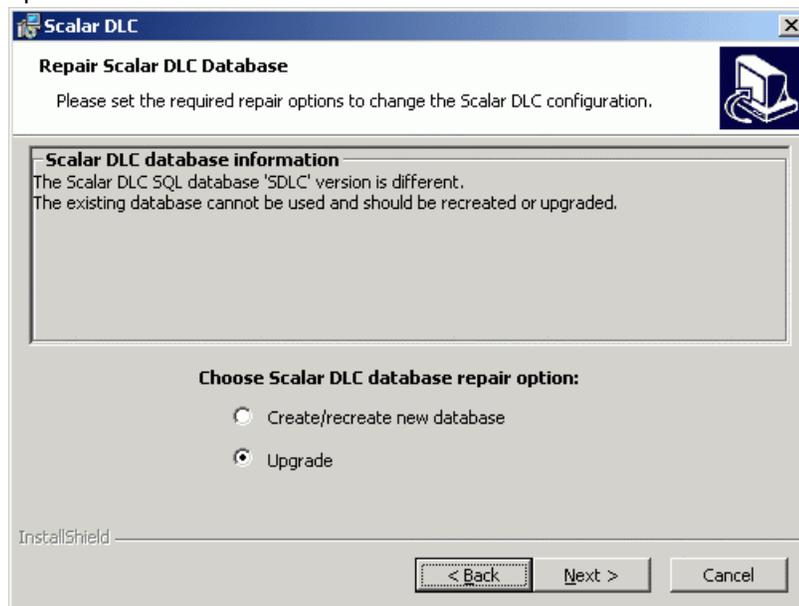
If the account name already exists and the password does not match the existing account's password, the User Account warning appears. See [Figure 22](#) on page 53. Go back and specify correct password, or another user account.

If the account is repaired successfully, the Component Registration window appears. See [Figure 23](#) on page 54.

## 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.

**Figure 55** Repair Database

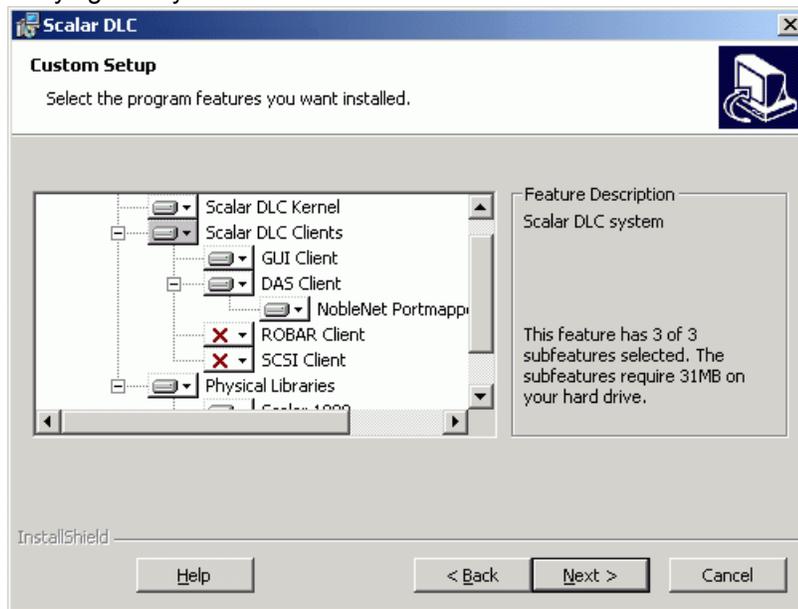


Choose either the “recreate database” option to acquire the new, clean database, or “upgrade” option to update existing database according to current standards (the upgrade details are described at [Table 9](#) on page 56). Click **Next** to proceed to the upgrade and the final screen.

## 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.

**Figure 56** Modifying the System



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.



**Note**

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

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

## Upgrading the Scalar DLC

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Although the upgrade engine is a part of Scalar DLC installation, some additional actions may be required. Depending on the configuration used, see [Simple Upgrade](#) on page 88 or [Advanced Upgrade](#) on page 92. The instructions on which upgrade type is more preferable are located in [Using Database from a Previous Version](#) on page 86 and [Upgrading from 2000 to 2003](#) on page 87. Note also the [Upgrade Issues](#) on page 96.

## Using Database from a Previous Version

If the customer has worked before with the older version of the Scalar DLC software, an upgrade must be performed in order to import the old database content to the new version. Use [Table 21](#) to select the correct upgrade method.



**Note**

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

**Table 21** Database Upgrade Methods

| Old Database Version           | Old Solution | New Solution | Preferable Upgrade Method                    |
|--------------------------------|--------------|--------------|--|
| 2.1                            | Standard     | Standard     | <a href="#">Advanced Upgrade</a> on page 92. |
|                                |              | Failover     | <a href="#">Advanced Upgrade</a> on page 92. |
| 2.2, 2.2 SP1, 2.2 SP2, 2.2 SP3 | Standard     | Standard     | <a href="#">Advanced Upgrade</a> on page 92. |
|                                |              | Failover     | <a href="#">Advanced Upgrade</a> on page 92. |
| 2.3, 2.3 SP1, 2.3 SP2          | Standard     | Standard     | <a href="#">Advanced Upgrade</a> on page 92. |
|                                |              | Failover     | <a href="#">Advanced Upgrade</a> on page 92. |
|                                | Failover     | Standard     | <a href="#">Advanced Upgrade</a> on page 92. |
|                                |              | Failover     | <a href="#">Advanced Upgrade</a> on page 92. |
| 2.4                            | Standard     | Standard     | <a href="#">Simple Upgrade</a> on page 88.   |
|                                |              | Failover     | <a href="#">Advanced Upgrade</a> on page 92. |
|                                | Failover     | Standard     | <a href="#">Advanced Upgrade</a> on page 92. |
|                                |              | Failover     | <a href="#">Simple Upgrade</a> on page 88.   |
| 2.5, 2.5 SP1, 2.5 SP2          | Standard     | Standard     | <a href="#">Simple Upgrade</a> on page 88.   |
|                                |              | Failover     | <a href="#">Advanced Upgrade</a> on page 92  |
|                                | Failover     | Standard     | <a href="#">Advanced Upgrade</a> on page 92  |
|                                |              | Failover     | <a href="#">Simple Upgrade</a> on page 88.   |
| 2.6                            | Standard     | Standard     | <a href="#">Simple Upgrade</a> on page 88.   |
|                                |              | Failover     | <a href="#">Advanced Upgrade</a> on page 92  |
|                                | Failover     | Standard     | <a href="#">Advanced Upgrade</a> on page 92  |
|                                |              | Failover     | <a href="#">Simple Upgrade</a> on page 88.   |

## Upgrading from 2000 to 2003

Plain upgrading the Scalar DLC from 2000 to 2003 platform is not supported, so if the customer wants to perform such operation, the setup order should be following:

- Step 1** Backup the database to RAID disk, network resource or floppy (see [Back up Scalar DLC Database](#)).
- Step 2** Install the Scalar DLC 2.6 from scratch on Windows 2003 platform (see [Setting Up the Scalar DLC](#) on page 7). Note that RAID needs no initialization in this case.
- Step 3** Perform [Recover database from old backup](#) on page 115.

# Simple Upgrade

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



## CAUTION

It is strongly recommended to backup the Scalar DLC database to a file on a network resource or a floppy disk before launching Scalar DLC removing. If the Simple upgrade procedure fails, this backup file can be later used for the Advanced upgrade, as described in [Advanced Upgrade](#) on page 92.



## Note

The instruction below is applied for both Standard and Failover solutions. Unless the other is specified, each operation is assumed to be executed on Node1.

**Step 1** (For Scalar DLC ver. 2.1 only; for other versions, skip this step.)  
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.

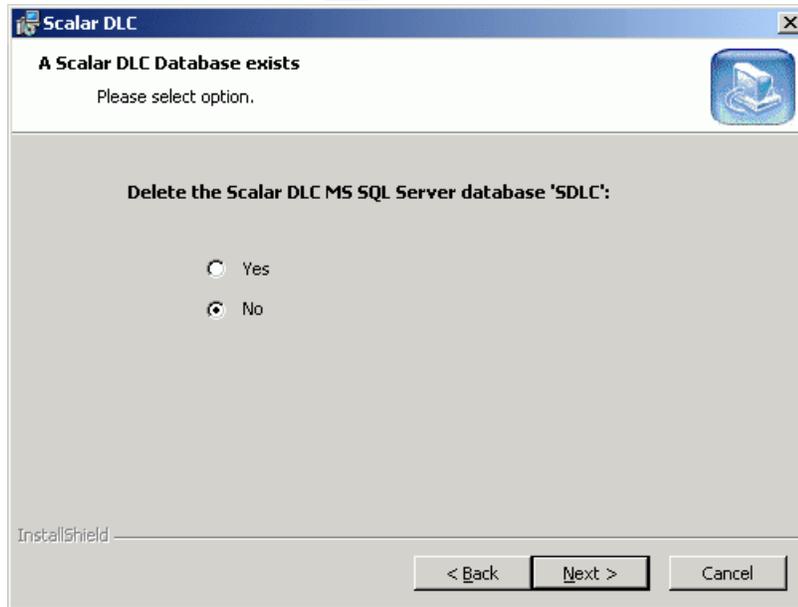
**Step 2** (For Failover solution only; for Standard solution, skip this step.)  
Remove Scalar DLC Cluster configuration.

- Insert Scalar DLC Install CD. Close Autorun. Run  
<CD>:\Scalar\_DLC\Cluster\SDLC\_ClusterConfig.exe.
- Click **Remove SDLC Cluster Configuration** button. “OK” when complete

**Step 3** Using Add-Remove Programs remove all following components.

- Remove all Scalar DLC Hot Fixes (mentioned separately from Scalar DLC itself) in descending order. Do not reboot now.
- Remove DAS Client software (if installed), as described in [Removing DAS Client](#) on page 69, and SCSI Target Drivers, as described in [Add/Remove SCSI Target Drivers](#) on page 78. Do not reboot now.
- 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 57](#)). 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. Do not reboot.

**Figure 57** Remove old Scalar DLC: do not delete the database



- (optional) Remove Apache and Java. The newer/latest versions will be installed with the Scalar DLC 2.6.



**Note**

It is recommended also to check <%SystemDrive%>\Program Files\ afterwards. If Java and Apache folders are not removed, remove them manually.

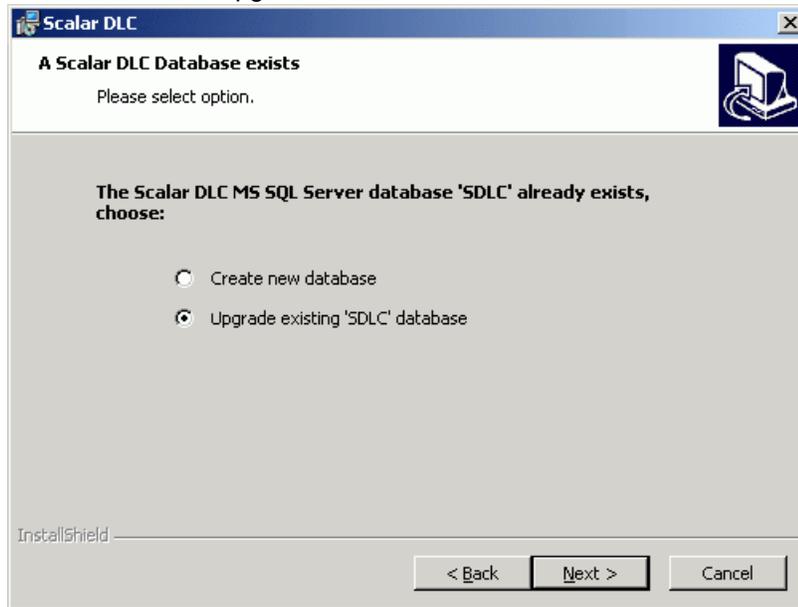
- Reboot.

**Step 4** (For Failover solution only; for Standard solution skip this step.)  
Repeat [Step 3](#) on page 88 for the Node2.

**Step 5** Insert Scalar DLC 2.6 Install CD. Install the Scalar DLC and all required components, as described in [Installing the Scalar DLC](#) on page 45.

- Follow the Scalar DLC installation sequence.
- During the installation of latest release the system informs that a database exists and requests whether the existing 'SDLC' database should be upgraded. Select "Upgrade" (see [Figure 58](#)) and proceed.
- (For Failover solution only; for Standard solution skip this substep.)  
When the Scalar DLC is installed on Node2, select "Use existing database" and proceed.

**Figure 58** Install Scalar DLC: Upgrade database



- (optional) Install the required SCSI Target drivers (see [Installing the SCSI/FC Target Drivers](#) on page 74). Then configure/activate the SCSI/FC Target adapter(s) via SCSI Target Port Tool, as described in [Activating Target Mode](#) on page 77.
- (optional) Install DAS Client software if required (see [Installing DAS Client](#) on page 65).
- Reboot the PC.

**Step 6** (For Failover solution only; for Standard solution skip this step.)  
Repeat [Step 5](#) on page 89 for the Node2.

**Step 7** (For Failover solution only; for Standard solution skip this step.)  
Restore Scalar DLC Cluster configuration.

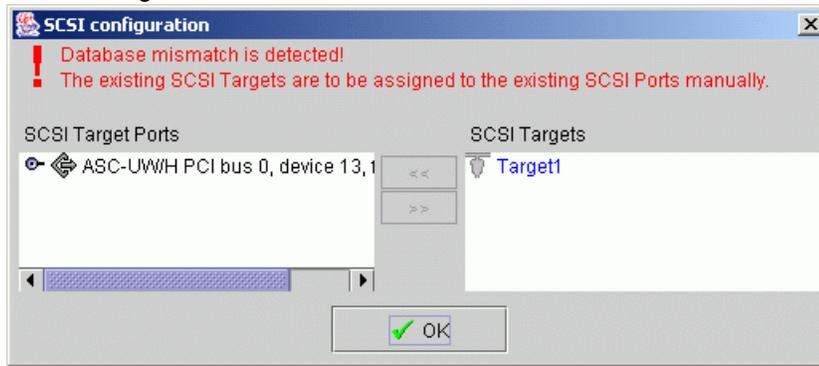
- Insert Scalar DLC Install CD. Close Autorun. Run  
<CD>:\Scalar\_DLC\Cluster\SDLC\_ClusterConfig.exe
- Click **Make SDLC Cluster Configuration** button. “OK” when complete.

**Step 8** Launch the Scalar DLC Manager (**Start > Programs > ADIC Distributed Library Controller > Scalar DLC Manager**).

**Step 9** (For upgrade from Scalar DLC ver. 2.1 only, otherwise skip this step.)  
Resolve Port-Target assignment.

- Log on as ‘admin’. Above the main Management GUI the SCSI configuration pop-up screen appears.

**Figure 59** SCSI Configuration Screen

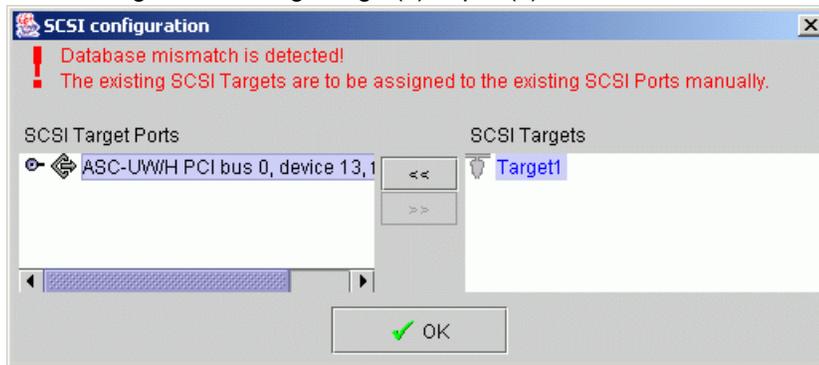


- Set the associations between Targets and Ports. Use the << button to associate Target with Target port. Remember that the customer may have multiple SCSI Targets. Each Target will have LUN 0; in case when a SCSI client exist for the target, the LUN 0 will be *active* with a client assigned to it.



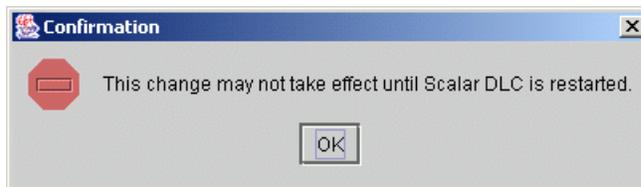
**Note** The two-port adapters are shown in the Management GUI as two different single-port adapters.

**Figure 60** SCSI configuration: assign target(s) to port(s)



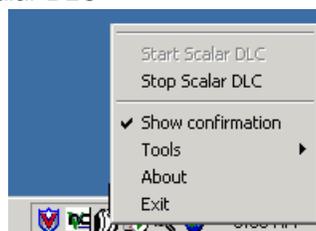
- After this is completed, click **OK**. A pop-up confirmation window opens.

**Figure 61** Confirmation to Restart Scalar DLC



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

**Figure 62** Access to Stop Scalar DLC



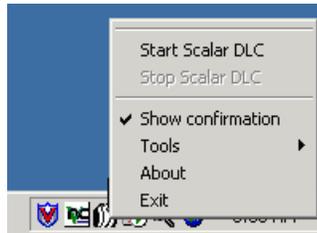
- The Scalar DLC software service will be stopped.

**Figure 63** Scalar DLC is successfully stopped



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

**Figure 64** Access to Start Scalar DLC



- After a successful start an appropriate message displays.

**Figure 65** Scalar DLC is successfully started



**Step 10** 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.

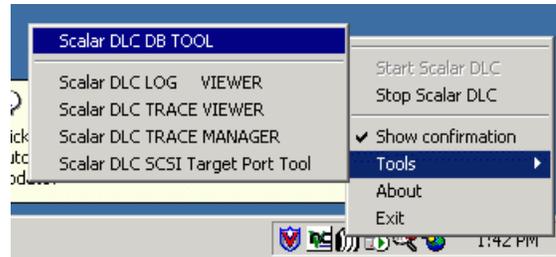
 **Note** Only the Advanced upgrade procedure can restore the Scalar DLC configuration from standard (basic) to failover (redundant) solution, or vica verse.

 **Note** The instruction below is applied for both Standard and Failover solution. Unless the other is specified, each operation is assumed to be executed on Node1.

**Step 1** Before removing the old release: backup an old database and keep it.

- On the toolbar there will be a small Three Penguin Icon. Right click this icon and select **Tools > Scalar DLC DB Tool**.

**Figure 66** Access to DB Tool



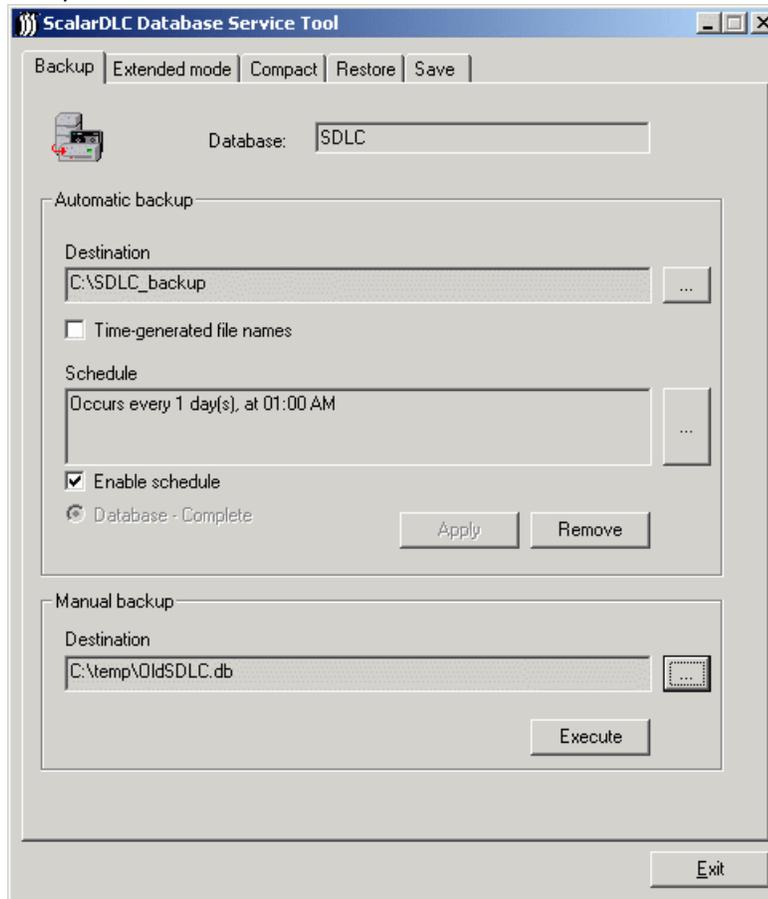
- Launch Scalar DLC DB Tool and log on (see [Figure 67](#)). If the Scalar DLC database has been installed under Trusted connection, only the local admin rights are required. If the Scalar DLC database has been installed under user account, either the SQL administrator logon name/password, or the Scalar DLC SQL user name/password are required.

**Figure 67** DB Tool Log On



- Backup the database to file (for example, "OldSDLC.db"). Keep this file in any temporary folder or at floppy disk.

**Figure 68** Backup Database



**Step 2** (For Failover solution only; for Standard solution skip this step.)  
Remove Scalar DLC Cluster configuration.

- Insert Scalar DLC Install CD. Close Autorun. Run  
<CD>:\Scalar\_DLC\Cluster\SDLC\_ClusterConfig.exe
- Click **Remove SDLC Cluster Configuration** button. “OK” when complete

**Step 3** Using Add-Remove Programs remove all following components.

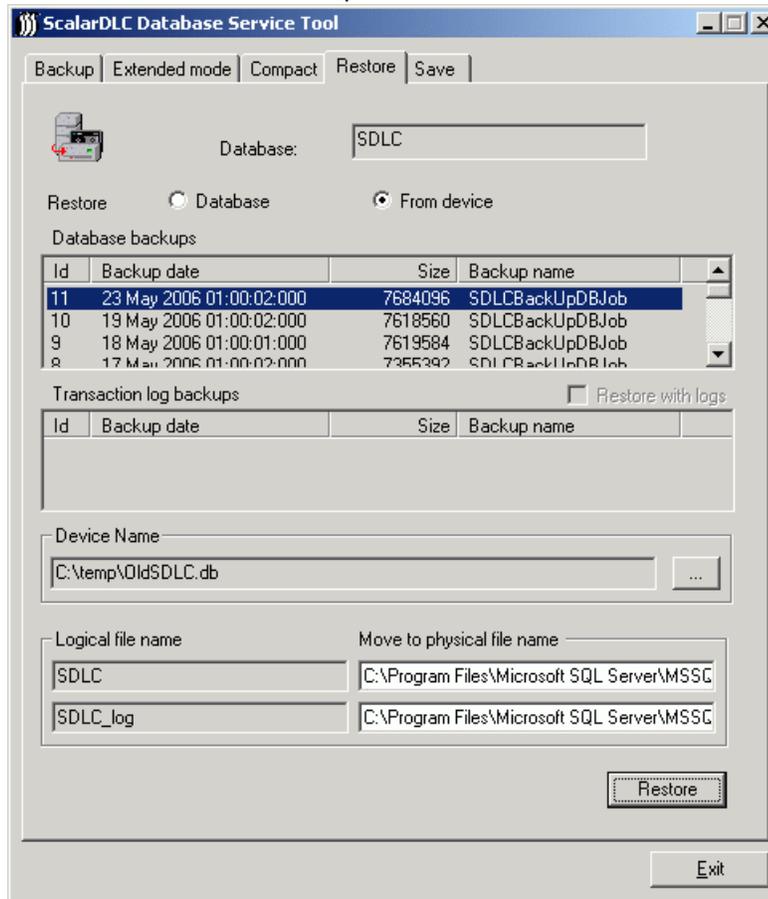
- Remove all Scalar DLC Hot Fixes (mentioned separately from Scalar DLC itself) in descending order. Do not reboot now.
- Remove DAS Client software (if installed), as described in [Removing DAS Client](#) on page 69, and SCSI Target Drivers, as described in [Add/Remove SCSI Target Drivers](#) on page 78. Do not reboot now.
- Remove the old release of Scalar DLC with the database. Do not reboot now.
- Remove Apache, Java, and MS SQL 7.0. The newer/latest versions will be installed with the Scalar DLC 2.6.

 **Note** It is recommended also to check <%SystemDrive%>\Program Files\ afterwards. If Java and Apache folders are not removed, remove them manually.

- Reboot the PC.

- Step 4** (For Failover solution only; for Standard solution skip this step.)  
Repeat [Step 3](#) on page 94 for the Node2.
- Step 5** Insert Scalar DLC 2.6 Install CD. Install the Scalar DLC and all required components, as described in [Installing the Scalar DLC](#) on page 45.
- Install Java and Apache. Install MSDE 2000 if required (note that MSDE must be installed on RAID disk for the failover solution, use 'specified' and 'R:').
  - Follow the Scalar DLC installation sequence till the Scalar DLC is installed with a new, clean database.
  - (For Failover solution only; for Standard solution skip this substep.)  
When the Scalar DLC is installed on Node2, select "Use existing database" and proceed.
  - (optional) Install the required SCSI Target drivers (see [Installing the SCSI/FC Target Drivers](#) on page 74). Then configure/activate the SCSI/FC Target adapter(s) via SCSI Target Port Tool, as described in [Activating Target Mode](#) on page 77.
  - (optional) Install DAS Client software if required (see [Installing DAS Client](#) on page 65).
  - Reboot the PC.
- Step 6** (For Failover solution only; for Standard solution skip this step.)  
Repeat [Step 5](#) on page 95 for the Node2.
- Step 7** (For Failover solution only; for Standard solution skip this step.)  
Restore Scalar DLC Cluster configuration.
- Insert Scalar DLC Install CD. Close Autorun. Run  
<CD>:\Scalar\_DLC\Cluster\SDLC\_ClusterConfig.exe
  - Click **Make SDLC Cluster Configuration** button. "OK" when complete.
- Step 8** Restore the Database from Backup.
- Stop Scalar DLC supervisor (see [Figure 62](#) on page 91). Launch Scalar DLC DB Tool (see [Figure 66](#) on page 93).
  - Log on the DB Tool (see [Figure 67](#) on page 93). Open *Restore* tab and restore database from device (that is, from backup file "OldSDLC.db"), as shown in [Figure 69](#) on page 96.

**Figure 69** Restore Database from Backup file



 **Note** Do not start Scalar DLC software at this time. It will not be functional.

- Launch **Add/Remove Scalar DLC > Repair > Repair database** mode (see [Figure 55](#) on page 85). Select "Upgrade".
- When upgrade is finished, restart PC.

**Step 9** Launch Scalar DLC Management GUI. If required, re-configure SCSI targets and LUNs (see [Figure 59](#) on page 91 and [Figure 60](#) on page 91).

## 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.

## Installing Scalar DLC Service Packs

The Scalar DLC service pack usually comes on its own CD with its own build-in autorun.

Note that the service pack may contain fixes with features not documented in the Scalar DLC Reference Guide, so always check the readme and release notes that can be found on the Scalar DLC Service Pack CD.

**CAUTION**

**Install only the latest Service Pack, as it includes the previous, too.**

**Note**

The data in this section is valid for all latest Service Pack that will come after the released version of Scalar DLC. The latest version is 2.6.

**CAUTION**

**After the Scalar DLC Database is restored from a backup file created before the service pack installation, always re-install the service pack again. Otherwise the Scalar DLC will not be functional.**

## Standard Solution

- Step 1** Close Management GUI and Event log. Stop Scalar DLC.
- Step 2** Select **Start > Programs > Apache HTTP Server > Control Apache server >> Stop**.
- Step 3** Insert CD for Scalar DLC Service Pack. Select Install and Next and Next
- Step 4** Select Yes to restart and Finish.
- Step 5** Remove Scalar DLC SP CD. Restart.

## Failover and Self-Domain Solution

- Step 1** Shutdown Node2. Close Management GUI and Event log on Node1. Take Scalar DLC offline.
- Step 2** Select **Start > Programs > Apache HTTP Server> Control Apache server >> Stop**.
- Step 3** Insert CD for Scalar DLC Service Pack. Select Install and Next and Next. Select Yes to restart and Finish.
- Step 4** Remove Scalar DLC SP CD. Shutdown Node1.
- Step 5** Start Node2. Repeat steps 2 - 4 for Node2.
- Step 6** Start up Node1 then start up Node2.

## Renaming and Repair

---

ADIC strongly recommend against renaming the PC or rebuilding the PC network configuration after the Scalar DLC is successfully 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 Standard solution is installed, after the PC is renamed and/or the network configuration is changed, launch the Scalar DLC Repair engine. See [Add/Remove Scalar DLC Software](#) on page 81 and [Repair](#) on page 83.

For the Scalar DLC Failover and Self-domain solution the following additional procedures are required:

- [Change Cluster IP Address and Domain Name](#) on page 98.

- [Change Scalar DLC Node Names](#) on page 100.
- [Change Cluster Name](#) on page 102.

Note also the following

- [Startup and Shutdown](#) on page 108.
- [Back up Scalar DLC Database](#) on page 109.
- [Restore Scalar DLC Database](#) on page 109.
- [Updating Drivers](#) on page 110.
- [Failure Recovery](#) on page 112.



**CAUTION**

**After either the DNS, or the name of cluster, or the names of cluster nodes are changed, and after the Scalar DLC software is successfully 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 IP Address and Domain Name

**Step 1**      Shutdown both nodes then power on Node1 and log in as Administrator for SDLC1 (this computer)

**Step 2**      Set public (mixed network) properties on Node1.

- Right click My Network Places and select Properties. Right click “public” and select properties. Select Internet Protocol (TCP/IP) and select Properties.
  - Set IP Address to <new ip address> (208.230.5.1 in lab).
  - Set Subnet mask.
  - Set Preferred DNS Server to <new DNS ip address> (208.230.5.4 in lab)
- OK and OK.
- (For Windows 2000 only; for Windows 2003 skip this substep.) Right click “public” and “Disable” then right click and “Enable”. Rename “public” if necessary.
- Right click My Computer and select Properties. Select Network Identification tab and Properties. Select “More Box” and Remove the “Primary DNS” suffix and “OK”.
  - Enter Domain Name without postfix and OK (customerdomain)
  - Enter name and Password for Domain user Account and OK (customeracct and customerpass)
  - OK when welcome to domain appears
- OK to reboot computer to take affect.
- OK in System Properties and Yes to restart computer

**Step 3**      Manage New Account on Node1.

- Log on Node1 as Administrator for SDLC1 (this computer)
- Right click My Computer and select Manage.

- Select “Local Users and Groups” and “Groups”. Right click Administrators and select Add to Group and Add.
- Look in <domain name.com>.
- Connect as <UserName> and <Password> and OK (customeracct in lab)
- Select <username [username@domainname.com]> (customeracct [customeracct@customerdomain.com]). Add and OK.
- Apply and Close and Shutdown Node1

**Step 4** Power on Node2 and log in as Administrator for SDLC2 (this computer)

**Step 5** Set ‘public’ (mixed network) properties on Node2.

- Right click My Network Places and select Properties. Right click “public” and select properties. Select Internet Protocol (TCP/IP) and select Properties.
  - Set IP Address to <new ip address> (208.230.5.2 in lab).
  - Set Subnet mask.
  - Set Preferred DNS Server to <new DNS ip address> (208.230.5.4 in lab)
- OK and OK.
- (For Windows 2000 only; for Windows 2003 skip this substep.) Right click “public” and “Disable” then right click and “Enable”.
- Right click My Computer and select Properties. Select Network Identification tab and Properties. Select “More Box” and Remove the “Primary DNS” suffix and “OK”.
  - Enter Domain Name without postfix and OK (customerdomain)
  - Enter name and Password for Domain user Account and OK (customeracct and customerpass)
  - OK when welcome to domain appears
- OK to reboot computer to take affect.
- OK in System Properties and Yes to restart computer

**Step 6** Manage New Account on Node2.

- Log on Node2 as Administrator for SDLC2 (this computer)
- Right click My Computer and select Manage.
- Select “Local Users and Groups” and “Groups”. Right click Administrators and select Add to Group and Add.
- Look in <domain name.com>.
- Connect as <UserName> and <Password> and OK (customeracct in lab)
- Select <username [username@domainname.com]> (customeracct [customeracct@customerdomain.com]). Add and OK.
- Apply and Close and Shutdown

**Step 7** Set Cluster Account on Node1.

- Power on Node1 and log in as Administrator for SDLC1 (this computer)
- Open My computer > Control Panel > Administrative tools > Services. Right click Cluster Service and select Properties and select Log On tab

- Set This Account to customerdomain\customeracct. Set Password and Apply
- OK to granted rights to log on and OK
- Right click cluster service and Select Start.

**Step 8** Set Cluster Account on Node2.

- Power on Node2 and log in as Administrator for SDLC2 (this computer)
- Open My computer > Control Panel > Administrative tools > Services. Right click Cluster Service and select Properties and select Log On tab
- Set This Account to customerdomain\customeracct. Set Password and Apply
- OK to granted rights to log on and OK
- Right click cluster service and Select Start.

**Step 9** Set Cluster IP Address

- On Node1 select Start > Programs > Administrative tools > Cluster administrator
- Select groups and cluster group. Right click Cluster IP Address and Properties and Parameters tab
  - Set IP to <cluster IP address> (208.230.5.3 in lab)
  - Set subnet mask
  - Set Network to “public” and Apply
- Yes to validate subnet mask and OK
- Right click Cluster IP address and Bring Online
- Right click Cluster Name and Bring Online

## Change Scalar DLC Node Names

**Step 1** Have both Scalar DLC computers powered up. Use the Passive node (SDLC2).

**Step 2** Rename Node2

- Right click My Computer and select Properties. Select Network Identification tab and Properties.
- Enter New computer name and OK (SDLC22). Enter name and password for User account (customeracct/customerpass)
- OK and OK to reboot OK to System Properties and Yes to restart now
- On Active Node1 select Start > Programs > Administrative Tools > Cluster Administrator. Open Cluster. Right click Node2 and “Evict node”. Yes to Evict.
- Shutdown Node1. Log on Node2 as Administrator for SDLC2 (this computer)
- Open My Computer > Control panel > Add/Remove Programs > Add/Remove Windows Components. Unselect Cluster Services and Next and Finish and Yes to restart

**Step 3** Join Renamed Host to Cluster

- Log on Node2 as Administrator for SDLC22 (this computer). Right click My Computer and select Manage > Disk Management. Verify that R: Cluster Raid is available.
- Open **My Computer > Control Panel > Add/Remove Programs > Add/Remove Windows Components > Cluster Service** and Next.

- Insert Windows 2000 Advanced Server / Windows 2003 Server CD and OK and Next and I Understand and Next. Select The Second Node and "Next".
- Power on Node1 and log on as Administrator for SDLC1 (this computer). Select Start > Programs > Administrative Tools> Cluster Administrator. Verify that Cluster Service is started on Node1
- On Node2 enter cluster name to join.
  - Select Connect to Cluster as:
  - Set User name and password (customeracct/customerpass)
  - Set Domain name and Next
  - Reenter password and Next and Finish
- When gathering required hangs press <ctrl><alt><del> and select task manager and select applications. Select Microsoft SQL Server Desktop Engine and End Task. End Now and close Task Manager and finish
- Select Add/Remove windows components and next and finish. Close add/remove programs and reopen add/remove programs. Select Add/remove windows components.
- Select configure for cluster service and next and I understand and Next Select second node and Next. Enter cluster name and select Connect to cluster as:. Set user name and password (customeracct/customerpass). Set domain name and Next.
- On Node1 right click Node2 and "Evict" from cluster administrator. Yes to evict node
- On Node2 reenter password and Next. Finish and OK ---pause---

#### **Step 4**      Rename Node1

- On Node1 right click My Computer and select Properties > Network Identification tab > Properties. Enter New computer name (SDLC 11) and OK. Enter name and password for domain User account (customeracct\customerpass).
- OK and OK to reboot OK to System Properties and Yes to restart now
- Restart Node2 and log on as Administrator for SDLC22 (this computer)
- Select Start Button > Programs > Administrative Tools > Cluster Administrator. Open cluster. Right click Node1 and Evict node. Yes to Evict.
- Eject CD. Shutdown Node2
- Log on Node1 as Administrator for SDLC11 (this computer). Open My Computer > Control panel > Add/Remove Programs > Add/Remove Windows Components. Unselect Cluster Services and Next and Finish and Yes to restart.

#### **Step 5**      Join Renamed Node1 to Cluster

- Log on Node1 as Administrator for SDLC11 (this computer). Right click My Computer > Manage > Disk Management. Verify that R: Cluster Raid is available.
- Open My Computer > Control Panel > Add/Remove Programs > Add/Remove Windows components > Cluster Service. Press Next.
- Insert Windows 2000 Advanced CD and OK and Next. Select I Understand and Next. Select The Second Node and Next
- Power on Node2, log on as Administrator for SDLC22 (this computer). Select Start > Programs > Administrative Tools > Cluster Administrator. Verify that Cluster Service is started on Node2.
- On Node1 enter cluster name to join.
- Select Connect to Cluster as:

- Set User name and password (customeracct/customerpass)
- Set Domain name and Next
- Reenter password and Next and Finish
- When gathering required information hangs press <ctrl><alt><del> and select task manager and select applications. Select Microsoft SQL Server Desktop Engine and End Task.End Now and close Task Manager and finish.
- Close add/remove programs and reopen add/remove programs. Select Add/Remove windows components > Configure Cluster Service. Next and I understand and Next. Select The Second Node and Next. Enter cluster name to join. Select Connect to Cluster as: Set domain user account and password (customeracct\customerpass). Set domain and Next
- On Node2 right click Node1 and Evict from cluster administrator. Yes to evict node
- On Node1 reenter password and Next and Finish ---pause---
- Ok to cluster service started successfully

**Step 6** Repair Scalar DLC on both nodes.

- On Node2 open My computer > Control panel > Add/Remove programs > Scalar DLC > Change. Press Next.
- Select Repair and Next. Select Scalar DLC Server and Next. Select Computer Renaming and Next
- Leave entries alone and Check and Next. Verify successful component registration and Next and Install and Finish.
- OK to Fatal Error and Close
- In Cluster administrator select groups > cluster group. Right click SDLC Supervisor and bring Online.
- Shutdown Node2 and restart Node1.
- On Node1 open My computer > Control panel > Add/Remove programs > Scalar DLC > Change. Press Next.
- Select Repair and Next. Select Scalar DLC Server and Next. Select Computer Renaming and Next
- Leave entries alone and Check and Next. Verify successful component registration and Next and Install and Finish.
- OK to Fatal Error and Close
- In Cluster administrator select groups > cluster group. Right click SDLC Supervisor and bring Online.
- Eject CD. Start Node2. Restart Node1.

## Change Cluster Name

**Step 1** Open Cluster administrator > Groups > Cluster group.

**Step 2** Right click cluster name and select Properties > Parameters > Rename.

**Step 3** Set Cluster Name to <cluster name> and OK

**Step 4** Apply and Ok to changes stored and OK.

**Step 5** Cycle cluster name offline then online.

# Replacing Old RAID

The following instruction is to be used in order to replace old ADTX RAID (J-series) with the new (P-series) hardware without removing Scalar DLC system.

**Table 22** Swapping RAID Time Schedule

| Procedure   | Time   |
|---|--------|
| <a href="#">Initializing RAID</a> on page 103                         | 6 hr   |
| <a href="#">Preparing RAID for Installation</a> on page 103           | 15 min |
| <a href="#">Preparing Scalar DLC for RAID Replacement</a> on page 104 | 15 min |
| <a href="#">Swapping Hardware</a> on page 105                         | 30 min |
| <a href="#">Configuring New External RAID</a> on page 106             | 1 hr   |
| <a href="#">Verify Correct RAID Changeover</a> on page 108            | 10 min |

## Initializing RAID



### CAUTION

**The step is to be performed only for the hardware than is NOT fresh-from-factory. Not required when the RAID is clean and never used before.**

- Start from Main Menu and Press O
- Down arrow to Change Config and Press O
- Password is 1234
- Down arrow to Raid Config and Press O
- Down arrow to LU and Press O
- Down arrow to Initialize LU and Press O
- Select LU0 and Press O
- “Data will be lost” message shows and Press O
- Down arrow to Yes and Press O, press O
- Press X five times to show progress

## Preparing RAID for Installation

- Power on RAID and wait for ready light.
- Press O to enter Main Menu
  - Down arrow to Change Config and press O
  - Password is 1234
  - Down arrow to SCSI and Press O
    - Channel 1 and Press O
    - Set to 0 and Press O
    - Answer Yes and Press O

- Press O three times
- Down arrow to Channel 2
- Press O
- Set to 0 and Press O
- Answer Yes and Press O three times
- Down arrow to Option Settings and Press O
- Down arrow to Cache Settings and Press O
- Down arrow to Write Cache and Press O
  - Change to Disabled and Press O
  - Answer Yes and Press O two times
- Press X four times until back at Main Menu
- Down arrow to Shutdown
  - Press O
- Turn off RAID

## Preparing Scalar DLC for RAID Replacement

### Prerequisites

- Windows 2000 Advanced Server CD / Windows 2003 Server CD
- Scalar DLC 2.6 CD (it also contains latest Adaptec drivers for Windows)
- Domain User account and password. Domain Administrator account is NOT needed.
- Terminate Backup application access to Scalar DLC or disconnect Scalar DLC from the library.
- Cluster data (Cluster name, Cluster IP Address, Subnet mask) - use Cluster Administrator to obtain.

### Instructions

- Make Node1 active. Switch to that console if needed. Close Scalar DLC management GUI and Log Viewer. Take Scalar DLC offline.
- Remove Cluster Configuration
  - Insert the Scalar DLC 2.6 CD into active node's CD-ROM drive.
  - Close the installation pop-up window by clicking OK.
  - Run <cd-drive>:\Scalar\_DLC\Cluster\SDLC\_ClusterConfig.exe (The <cd-drive> is typically d:).
  - Click on the button "Remove SDLC Cluster Configuration" that is contained in the "SDLC Cluster Configurator" window popup.
  - Close the "SDLC Cluster Configuration" window.
  - Remove Scalar DLC CD from the CD-Drive.
- Verify that the Scalar DLC is not in Cluster mode
  - Open (start) cluster administrator.
  - Click on Groups > Cluster Group
  - Verify that only the following three items appear
    - Cluster IP Address
    - Cluster Name

- Disk <Raid Disk> (This is typically R:)
- Create copy of RAID data
  - Create RAID directory on C: drive.
  - Copy MSSQL and Program Files folders from R:\ (RAID) to C:\RAID (on Node1).
  - Use Cluster Administrator to make Node2 active
    - Right Click on Cluster Group
    - Select move cluster
  - Switch to Node2
  - Create RAID directory on C: drive.
  - Copy MSSQL and Program Files folders from R:\ (RAID) to C:\RAID (on Node2).
- Remove Cluster Service
  - On Node2 launch Start > Settings > Control panel > Add/remove programs > Add / remove windows components.
  - Remove check mark to unselect Cluster Service.
  - Click on the Next button.
  - Click on the Finish button. When prompted, select "NO" to restarting the computer.
  - Power off Node2
    - Click on the "Start" menu on the tool bar
    - Select "Shutdown"
    - On the popup window, select "Shutdown"
    - Click on "OK"
    - Turn off the power switch.
  - Switch to Node1 console. Launch Start > Settings > Control panel > Add/remove programs > Add / remove windows components.
  - Remove check mark to unselect Cluster Service.
  - Click on the Next button.
  - Click on the Finish button. When prompted, select "NO" to restarting the computer.
  - Power off Node1
    - Click on the "Start" menu on the tool bar
    - Select "Shutdown"
    - On the popup window, select "Shutdown"
    - Click on "OK"
    - Turn off the power switch.

## Swapping Hardware

- Turn off existing external RAID.
- Remove SCSI cables from each node to the old external RAID. These cables will not be used in the new RAID.
- Replace the old RAID with the new P-series RAID.

- Use the new vhdci cables to connect each node to new RAID.
  - Connect Node1 to SCSI channel 1.
  - Connect Node2 to SCSI channel 2.
  - Add terminators to each SCSI channel.



**CAUTION** Do NOT power on the external RAID now.

## Configuring New External RAID

**Step 1** Power on Node1. Prepare to set up RAID.

IGNORE the BIOS messages until the Adaptec Bios message appear.



**CAUTION**

**IGNORE this message.**

**On NEI PC's, the following Adaptec message will appear:**

```
Adaptec I20 Bios
© Copyright Adaptec Inc,
Hit <Ctrl-A> for Adaptec Setup, waiting for Devices
```

**Then it will change to something like the following:**

```
Adaptec I20 Bios
© Copyright Adaptec Inc,
Controller: 0xFE700000   IRQ11   2015S FW 3B05
Cyls.hds.sec
      Drive: (0,0,0) Adaptec   RAID-1
      Proc: (0,6.0) Super     GEM318   0
Hit <Ctrl-A> for Adaptec Setup
```

Almost immediately, another Adaptec message for the 39160 SCSI HBA is displayed. Enter the Bios for the Adaptec 39160 using <Ctrl-A>.



**Note**

Be careful at this point NOT to enter the configuration for the on-board NEI SCSI RAID controller. This does not apply to Dell Server PC's.

- At the "Channel Select" menu, select B bus and press <Enter>. The external RAID is typically on the B bus.
- From the "Options" menu, select "Configure / View SCSI controller settings" and press <Enter>
  - From this menu, scroll down to "SCSI Controller Termination". If this is NOT set to Automatic, change it as follows:
    - Press <Enter> to bring up a changes menu.
    - Scroll up to "Automatic"
    - Press <Enter> to save the changes. This should return back to the "Configuration Menu"
  - Scroll down to SCSI device configuration and press <Enter>.

- Set sync transfer rate to 160 for ALL table entries.
  - Press <Enter> on any "SYNC Transfer Rate" not at 160 to bring up a menu.
  - Select 160 from menu using arrow keys.
  - Press <Enter> when done.
- Repeat as needed to change any/all sync transfer rates.
- Exit this menu using the <Esc> key
- Press <Esc> to exit the Configuration Menu.
- In the "Save Changes Made" popup, select "Yes" and press <Enter> to continue.
- Press <Esc> to exit the "Options" menu".
- Press <Esc> to exit the "Channel Select" menu.
- On the "Exit Utility" popup menu, select "Yes" and press <Enter> to exit.

On NEI PC's, the HDD change message will appear. Clear this by:

- Pressing <F1> to enter the NEI System Bios
- Press <Esc> then OK.

Let the PC boot to Windows and Log in to Node1. Install the latest Adaptec SCSI HBA drivers (see [Updating Drivers](#) on page 110).

- Step 2** Format RAID disk, as described in [Setting Up the RAID](#) on page 24 section from [Step 2](#) on page 24 to [Step 3](#) on page 25.
- Step 3** From the "Start" button on the tool bar, shutdown the Node1 PC. Turn the RAID off. Power on Node2. Repeat [Step 1](#) on page 106 for Node2.
- Step 4** Turn on the RAID and wait for the ready light. Join RAID to Node2, as described in [Step 5](#) on page 25.
- Step 5** Shutdown Node2. Power up Node1 go to it and log on. Configure Cluster service, as described in [Step 2](#) on page 26.



**CAUTION**

**Right after setting up the Cluster Network settings, the system starts Cluster service, recognizes that the SQL server is already set up, and requests to upgrade the MS SQL to Cluster MS SQL.**

- **Cancel the SQL Install while still at the "Preparing to Install" stage.**
- **Cancel the SQL install two MORE times QUICKLY.**

- Step 6** After Cluster service starts successfully press Finish, eject CD, power up Node2 and log in. Configure Cluster service, as described in [Step 4](#) on page 26.



**CAUTION**

**Right after connecting to the Cluster as domain user, the system starts Cluster service, recognizes that the SQL server is already set up, and requests to upgrade the MS SQL to Cluster MS SQL.**

- **Cancel the SQL Install while still at the "Preparing to Install" stage.**
- **Cancel the SQL install two MORE times QUICKLY.**

**Step 7** After Cluster service starts successfully Finish, remove CD, and Verify the Cluster service, as described in [Step 6](#) on page 27.

**Step 8** Finish RAID Swapping

- Restore RAID data.
  - copy MSSQL and Program Files folders from C:\RAID to R:\ (RAID)
- Restore Scalar DLC Cluster Configuration
  - Insert Scalar DLC 2.6 CD.
  - Close the autorun popup install window.
  - Run <CD:>\Scalar\_DLC\Cluster\SDLC\_ClusterConfig.exe
  - Click Make SDLC Cluster Configuration
  - OK when complete
  - Close SDLC Cluster Configurator and remove Scalar DLC CD.
- Restart both nodes.

### Verify Correct RAID Changeover

- Start Cluster Administrator program
- From the menu, select Groups -> Cluster Group
- Verify that the following resources are shown.
  - Cluster IP Address
  - Cluster Name
  - Disk R:
  - MSSQLSERVER
  - Noblenet Portmap
  - SDLC Supervisor
  - SQLSERVERAGENT
- Start Scalar DLC Manager
- Verify that the library configuration is correct.

## Startup and Shutdown

The starting up and shutting down the Redundant Scalar DLC must be executed as follows.

### Startup

**Step 1** Power on RAID and wait for 30 seconds

**Step 2** Power on Node1 and wait for windows starting message

**Step 3** Power on Node2

### Shutdown

**Step 1** On passive node (Node2) launch **Start > Shutdown > Shutdown > OK**

- Step 2** On active node (Node1) launch **Start > Shutdown > Shutdown > OK**
- Step 3** Wait for both nodes to power down completely
- Step 4** Turn off RAID.

## Back up Scalar DLC Database

There are two almost equivalent methods, use either one. See *Scalar DLC Reference Guide, Tools and Utilities, Database Tool* for more details.

### Backup to a local file

- Step 1** On active node right click the penguins in the toolbar. Select **Tools > Scalar DLC DB tool**, then **OK**.
- Step 2** Select *Backup* tab, *Manual backup*, and “...” in the *Destination* area.
- Step 3** Specify a temp location on the C: drive. Enter file name and select **Save**.
- Step 4** **Execute** and **OK** to successful completion and **Exit** the DB Tool.
- Step 5** Go to temp location and zip the newly created file.
- Step 6** Copy and paste zipped file either onto floppy disk or folder on RAID disk or network resource.

### Save to archive file

- Step 1** On active node right click the penguins in the toolbar. Select **Tools > Scalar DLC DB tool**, then **OK**.
- Step 2** Select *Save* tab and “...” in the *Destination* area.
- Step 3** Specify a destination location (both local and network resources are allowed). Enter file name and select **Save**.
- Step 4** **Save** and **OK** to successful completion and **Exit** the DB Tool.

The zipped database file is stored on the location specified. Move or copy it anywhere if required.

## Restore Scalar DLC Database

- Step 1** Copy and paste archive file from either floppy disk or folder on RAID disk or network resource to the temp location (both local and network resources are allowed, using “C:\temp” is preferable).
- Step 2** On the active node right click the penguins in the toolbar. Take Offline (or Stop) Scalar DLC and **OK**.
- Step 3** Right click the penguins in the toolbar. Select **Tools > Scalar DLC DB tool**.
- Step 4** Select *Restore* tab and select *From Device*.

- Step 5** Select “...” in *Device Name* section. Select the <temp location> \ <database file> to use and **Open**.
- Step 6** Set the *Move to physical file names* to “R:\Program Files\...” (if not set by default).
- Step 7** Select **Restore** and **Restore** and **OK** and **Exit**.



**Note** If the backup is performed from the previous version of Scalar DLC, follow the [Recover database from old backup](#) on page 115.

- Step 8** Right click the penguins in the toolbar. Bring Online (or Start) Scalar DLC and OK.

## Updating Drivers

The following drivers may require an update during installing or upgrading the Scalar DLC and/or installing the new hardware.



**Note** Check the version of the existing driver(s). Update only when the current version is lower than required, or when the driver is not installed at all.

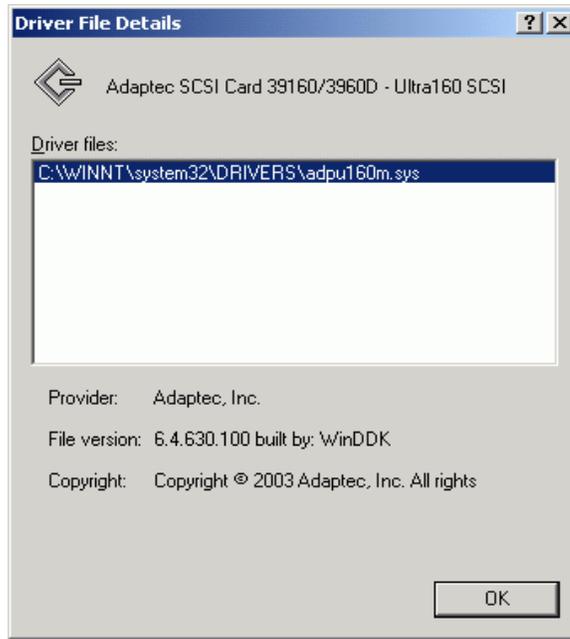
**Table 23** Drivers to Update

| Hardware                             | Required version |
|--------------------------------------|------------------|
| Adaptec 39160 (SCSI for RAID)        | 6.4.630.100      |
| QLA 2340 (Fibre Channel for library) | 9.1.0.11         |
| QLA 2342 (Fibre Channel for library) | 9.1.0.11         |

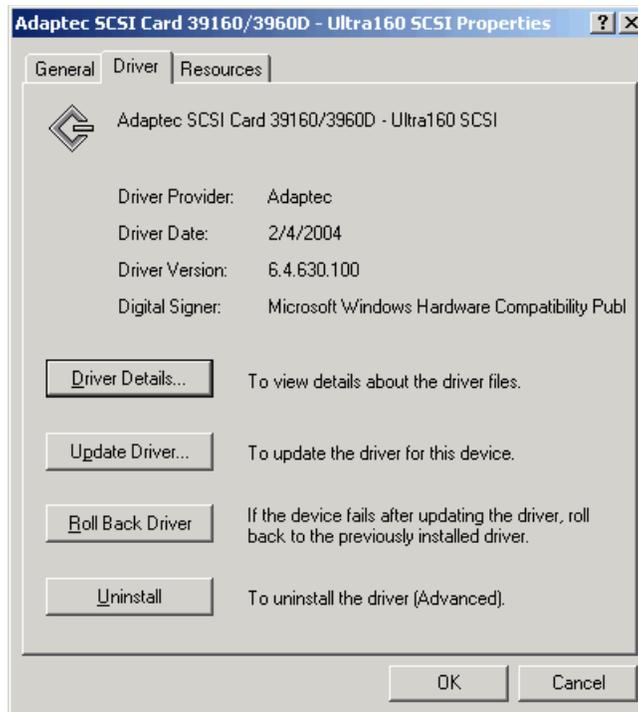
- Step 1** Download the latest driver(s). They can be found on Scalar DLC Install CD in the directory `Scalar_DLC\Drivers\Adaptec` and `Scalar_DLC\Drivers\Initiator\QLA234x`.
- Step 2** Update drivers using: **My Computer > (right click) > Manage > Device Manager > SCSI and RAID controllers > (select adapter and right click) > Properties > Driver > Update Driver**. (on Windows 2000 also “Driver Details“ button)

Note that for Adaptec and QLA 2342 there are two channels, both are to be updated.

**Figure 70** RAID Adaptec 39160 Driver: Win2000



**Figure 71** RAID Adaptec 39160 Driver: Win2003



**Figure 72** Update Adaptec Driver



Next. Insert Scalar DLC 2.6 CD. Select “Install driver from a list or specific location”.

The 2003 wizard shall find the driver on CD, the 2000 needs to be updated manually (**Display a list of known drivers > Have disk > (browse for a folder) > select driver**).

**Step 3** Reboot if required.

## Failure Recovery

The following steps are user in case of disk failure on Scalar DLC server.

### One disk fails on server

On both Standard and Failover solution:

**Step 1** Remove failed disk

**Step 2** Insert new disk.

**Step 3** Rebuild begins.

No failover or downtime. Approximate rebuild time is 20 minutes

### Two disks fail in a server: standard solution

The computer is not operating and must be replaced.

**Step 1** Install new disks on host.

**Step 2** Boot up and insert windows recovery CD. Perform clean-install-from-scratch, as described in [Setting Up the Standard Solution](#) on page 7.

**Note**

On Windows 2000 use the same DNS name and IP address as has been used at the failed node.  
On Windows 2003 use the same IP address as has been used at the failed node, but the other DNS name.

**Step 3** Restore the Scalar DLC database from backup made on floppy or network resource, as described in [Restore Scalar DLC Database](#) on page 109.

## Two disks fail in a server: failover and self-domain solution

The node is not operating and must be replaced. The working node is supposed NodeA, the old (failed) node that should be replaced is supposed NodeO, the new node that replaces NodeO is supposed NodeB.

NodeA online, RAID on, NodeO power off.

**Note**

Backup the database to RAID or local resource, as described in [Back up Scalar DLC Database](#) on page 109, just to be sure that the database will not be lost during repair. Would the database be damaged, after the install is finished do [Restore Scalar DLC Database](#) on page 109.

**Step 1** On active node (NodeA) evict the damaged node (NodeO) from the cluster. Then run SDLC cluster configuration tool (from Scalar DLC CD) and remove cluster configuration.

**Step 2** (For Self-domain solution only; for Failover solution skip this step.)  
Detect whether NodeB should be installed as Backup or Primary domain controller.

- On NodeA launch **Start > Programs > Administrative Tools > Active Directory users and computers**.
- **Domain name (right-click) > Operations Masters**. Wait ~30 sec till the dialog opens.
- Select *PDC* tab and check *Operations Master* field.  
If Operations master is <NodeA>, then NodeA is a Primary domain controller, and NodeB should be installed as a Backup domain controller.  
If Operations master is <NodeO>, then NodeA is a Backup domain controller, and NodeB should be installed as a Primary domain controller.

**Step 3** (For Self-domain solution on Win2003 only. For both Failover solution and Self-domain solution on Win2000 skip this step.)  
On NodeA launch **Start > Programs > Administrative Tools > Active Directory users and computers**, select **Domain Controllers > <NodeO>, right-click and Delete** and **Yes** to confirm. Select 'This domain controller is permanently offline and can no longer be demoted...' and **Delete** and **Yes**. This will remove NodeO from the list of domain nodes.

**Step 4** Shutdown NodeA, switch off RAID. Unplug all cables from old NodeO (power, network, SCSI, KVM). Remove NodeO (old, failed) from a rack. Remove SCSI cards from old NodeO and place them to a new NodeB.

**Step 5** Insert new NodeB into a rack and connect all cables (power, network, SCSI, KVM).

**Step 6** Start up NodeA. Install and configure Scalar DLC on NodeB as for the second node (Node2).

- For NodeB do [Configuring SCSI for RAID and Library](#) on page 20.
- (For Failover solution only; for Self-domain solution skip this substep.)  
For NodeB do [Setting Up IP Address, Node Name, and Joining Domain](#) on page 22.

- (For Self-domain solution only; for Failover solution skip this substep.)  
For NodeB do [Setting Up Network, IP Address and Computer Names](#) on page 35.



#### Note

On Windows 2000 use the same DNS name and IP address as has been used at the failed node.

On Windows 2003 use the same IP address as has been used at the failed node, but the other DNS name.

- (For Self-domain solution only; for Failover solution skip this substep.)  
Set Backup domain controller on NodeB as described in [Configuring Domain Controllers](#) on page 36 from [Step 2](#) on page 37 for Windows 2000, or from [Step 2](#) on page 38 for Windows 2003.  
If NodeB is to be set as Primary domain controller, do the following then.
  - On NodeB run **Start > Run > CMD** and type **ntdsutil**.
  - At the **ntdsutil** prompt type **roles**.
  - At the **fsmo maintenance** prompt, type **connections**.
  - At the **server connections** prompt, type **connect to server <NodeB name.Domain>**.
  - At the **server connections** prompt, type **quit**.
  - At the **fsmo maintenance** prompt, type **seize PDC**. Then click **Yes** to confirm.
  - At the **fsmo maintenance** prompt, type **seize RID master**. Then click **Yes** and **Yes** to confirm.
  - At the **fsmo maintenance** prompt, type **quit**.
  - At the **ntdsutil** prompt, type **quit**.
  - Restart NodeB.
- For NodeB do [Setting Up the RAID](#) on page 24 from [Step 4](#) on page 25.
- Start up NodeA. For NodeB do [Configuring Cluster Service](#) on page 26 from [Step 4](#) on page 26 (on Windows 2000) or from [Step 3](#) on page 27 (on Windows 2003).
- On NodeA take Scalar DLC offline. On NodeB do [Installing Scalar DLC Software](#) on page 28, steps 3, 5 - 7.
- (optional) On NodeB do [Building Client Connections](#) on page 131.
- Take Scalar DLC online and proceed.

### Scalar DLC chassis bad

- Step 1** Power off failed node.
- Step 2** Disconnect all cabling.
- Step 3** Move all disk, SCSI cards and fibre cards to the new node.
- Step 4** Reconnect cabling and power on new node.

### One disk fails in the external RAID

- Step 1** Remove the cover and unlock the disk.
- Step 2** Remove failed disk and insert new disk

- Step 3** Reconstruction will begin. Approximate reconstruction time is 6 hours
- Step 4** Hit the up arrow until buzzer stop shows on display.
- Step 5** Hit the yellow button twice

### **Two disk fail in the external RAID**

- Step 1** Replace both failed disks.
- Step 2** Initialize the RAID. Initialization takes approximately 2 hours.
- Step 3** Reinstall the Scalar DLC from scratch
- Step 4** Restore database from the back up.

### **RAID controller fails**

- Step 1** Power down RAID
- Step 2** Disconnect all cabling from RAID
- Step 3** Remove all disk from failed RAID
- Step 4** Insert disk into new RAID chassis
- Step 5** Reconnect cabling and power on
- Step 6** Run the Installation for ADTX RAID procedure
- Step 7** Boot up servers
- Step 8** Reboot after new devices are installed

### **Recover database from old backup**

When the Scalar DLC database is lost and there is only the backup from previous version of Scalar DLC (for example, 2.4), the recovery is possible.

- Step 1** Restore the Scalar DLC database from a backup, as described in [Restore Scalar DLC Database](#) on page 109.



**CAUTION** Do NOT start the Scalar DLC now! It will not function.

- Step 2** Launch **Start > Settings > Control Panel > Administrative Tools > Add-Remove Programs > Scalar DLC** and press Change. The Scalar DLC Add/Remove engine starts, as described in [Add/Remove Scalar DLC Software](#) on page 81.
- Step 3** Select Repair, then Scalar DLC database, then Upgrade (see [Figure 55](#) on page 85). The database will be upgraded. Restart is required thereafter.

- Step 4** After the restart, log on the Management GUI and review the existing configuration. It is possible that manual improvement is needed. See *Scalar DLC Reference Guide, Advanced Configuration* section for more details.
- Step 5** After the configuration is performed, backup the new database to a archive file on RAID or floppy (see [Back up Scalar DLC Database](#) on page 109) and proceed the work.

## Downgrading the Scalar DLC

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In case of any serious inconvenience after upgrading Scalar DLC, it is possible to downgrade the Scalar DLC back to previous level (database backup from this 'previous/original level' is required).

Do the following.

- Step 1** Using Add/Remove programs remove the Scalar DLC 2.6 software (see [Remove](#) on page 82) removing the database, too.
- Step 2** From the same Add/Remove window, remove Apache and Java software packages.
- Step 3** Review <%System disk%\Program Files folder and remove 'SDLC' and 'Apache Group' folders manually if they are not removed.
- Step 4** Install the original Scalar DLC. Apply all necessary Service packs and hot fixes (see [Installing Scalar DLC Service Packs](#) on page 96).
- Step 5** Restore the database as described in [Recover database from old backup](#) on page 115.
- Step 6** After restarting the Scalar DLC launch the complete inventory for a library.

# 8

## Troubleshooting

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This section contains useful general troubleshooting information if a customer encounters problems during installation or normal usage.

See [Troubleshooting Applications](#) on page 117 for information about third party applications.

See [Force Restart](#) on page 122 for the instructions on force restart the Scalar DLC PC after the installation.

See [Scalar DLC Force Removing](#) on page 122 for the instructions on force remove of the Scalar DLC software.

### Troubleshooting Applications

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The following topic describes some general troubleshooting notes.

- [Scalar DLC Installation](#) on page 117.
- [Scalar DLC Database Utility](#) on page 118
- [Scalar DLC Online Help](#) on page 119.
- [SCSI and Fibre Channel Target Mode Driver](#) on page 119.
- [SQL Server](#) on page 119.
- [Client Applications](#) on page 120.

### Scalar DLC Installation

**Issue:** Blue screen after installing drivers for RAID or network adapter.

**Solution:** Drivers are installed wrong and conflict with the Windows hardware scan engine. Unplug RAID or network adapter, reboot, reinstall the driver, and then plug RAID/network on again.

**Issue:** Scalar DLC installation is launched but either not starts or shows Finish window without installing anything.

**Solution:** The registration of Install components may be broken. Launch the install fix script (<Scalar DLC CD:>\Scalar\_DLC\Tools\installfix.cmd) and then start the Scalar DLC installation again.

**Issue:** Scalar DLC installation has been failed partially installing some components.

**Solution:** Remove all currently installed Scalar DLC components (see [Software Components](#) on page 45), restart the PC (restart both nodes for the failover solution), and start the installation again. On failover and self-domain solution ensure that the active node is used.

**Issue:** "Cannot get SQL server version" or "Cannot create or access database" error during Scalar DLC installation.

**Solution:** Ensure that the network is operating (**Start > Run > ping <domain name>**, or try to find any network resource), network adapter drivers are installed (**My computer (right-click) > Manage > Device Manager > Network adapters**), and the DHCP client service is up (**My computer (right-click) > Manage > Services and Applications > Services > DHCP**).

**Issue:** SCSI Target Driver installation started immediately after installing Scalar DLC software is failed for installing ADIC Local SCSI Target driver.

**Solution:** Restart the computer and launch the Target Driver installation from Autorun separately.

**Issue:** "JSDK service has not been stopped" error during Scalar DLC removing.

**Solution:** Open Services. Change JSDK Service and SDLC Supervisor service from "automatic" to "manual". Reboot. Remove Java2. Reboot if required. Then install Java manually (<Scalar DLC CD:>\Scalar\_DLC\jre\j2re-1\_4\_2\_09-windows-i586.msi). Then launch Scalar DLC remove.

**Issue:** "Error 1325: APACHEDIR is not valid short file name" error during Scalar DLC removing.

 **Note** This issue appears only for the Failover solution.

**Solution:** The current node does not own the cluster group. Open Cluster Administrator, execute Move Group, and launch Scalar DLC removing again.

## Scalar DLC Database Utility

**Issue:** "COM exception: 0x80040E14; cannot add, delete, or modify a job..." error when trying to modify the existing backup/compact SDLC database schedule.

 **Note** This issue appears only for the Failover solution.

**Solution:** This is the MS SQL bug: the configured schedule can be changed only from the same node where it has been created. Change the active node and try to change the schedule again.

**Alternative Solution (when changing active node is either not possible or not desirable):** Launch the MS SQL job fix script (<Scalar DLC CD:>\Scalar\_DLC\Tools\ChangeJobsOwnership.cmd). Then start the DB Tool again and change the schedule.

**Issue:** Backup is scheduled to a local folder but does not executed as configured.

 **Note** This issue appears only for the Failover solution.

**Solution:** MS SQL installed on a cluster system requires the backup folder placed on a shared resource (RAID), so it could be accessed from either node. Ensure that the local resource is on RAID, otherwise reconfigure the backup settings.

**Issue:** "COM exception: 0x80040E14; cannot open backup device" error during back up or restore Scalar DLC database on network resource.

**Solution:** Sometimes network backup / restore operations are not allowed because of local network security restrictions. Back up to floppy or local disk is recommended in this case, and then copy the backup to network resource manually.

When the error happens during restoring from a network resource, copy the backup file to floppy or local disk manually, and then restore it via DB tool from local/floppy resource.

## Scalar DLC Online Help

**Issue:** Launched from a remote host, Scalar DLC Management GUI works fine but the html-based online help works with errors or does not work at all.

**Solution:** the issue may appear when the system default browser is not IE or Netscape. The current version of Scalar DLC has not intended to support browsers other than IE or Netscape, so make either of them the default browser on your system. Otherwise ADIC does not guarantee that all functions will work.

## SCSI and Fibre Channel Target Mode Driver

The basic driver installation order is described in [Installing the SCSI/FC Target Drivers](#) on page 74.

### PCI Slot Issues

**Issue:** 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, etc.)

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.

**Solution:** Swap 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

**Issue:** When 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.

**Solution:** either execute the 'ScsiRescan' issue from client side or reboot the SNC. When the Scalar DLC is up, the targets will be re-mapped.

**Issue:** SNC is used between the library (target) and Scalar DLC server (initiator). The Scalar DLC cannot see the library and receives 'Not connected' error.

**Solution:** Reboot the SNC each time the library or one of its robots is restarted. See [Host/Library Communication using Fibre Channel and SNC](#) on page 127 for the details.

## SQL Server

**Issue:** The Scalar DLC supervisor does not start automatically because SQL Server Agent does not start.

**Solution:** Start SQL Server Agent service manually.

**Step 1** Launch **Start > Settings > Control Panel > Administrative Tools > Services**.

**Step 2** Find the **SQLSERVERAGENT** service and start it manually.

**Step 3** Start Scalar DLC supervisor service either manually (from the same Services window) or via the Scalar DLC state icon (gray penguins) on the tool bar.

## Client Applications

Mostly the settings of DAS/ACI applications and SCSI are covered here.

### Legato Networker

If Legato Networker is executed from a Solaris, follow the steps here:

- Add the following four lines to the `/etc/rc2.d/S95` file:
  - `DAS_CLIENT=clientname; export DAS_CLIENT` (*clientname* is a name of DAS client (for example, *Client1*) representing the client application).
  - `DAS_SERVER=servername; export DAS_SERVER` (*servername* is a name of Scalar DLC PC (for example, *computer*).
  - `ACI_MEDIA_TYPE=mediatype; export ACI_MEDIA_TYPE` (*mediatype* is an ACI media type (for example, *ACI\_DECDDL*) used by client application; use the value that corresponds the media present in the logical library configured by Scalar DLC; refer to *DAS/ACI Interfacing Guide*).
  - `DAS_MEDIUM=mediatype; export DAS_MEDIUM` (*mediatype* is the a DAS media type (for example, *DECDDL*) used by client application; use the value that corresponds the media present in the logical library configured by Scalar DLC).

### HP Omniback

When using Omniback, follow the step here:

- Add the following entries to the `omnirc` file.
  - `DAS_CLIENT=OMNIBACK_C1`
  - `DAS_SERVER=host` where the *host* is the host name of the machine executing Scalar DLC (shown in the Management GUI in a broad black line)

### DASADMIN

**Issue:** DAS Client cannot connect to the Scalar DLC server host.

**Solution:** Ensure the DAS client is configured to work from client host with server host. Refer to [Installing the DAS Administration Utility](#) on page 67. Also ensure there is no firewall between the client and server host, and if there is, make sure the DAS client connection is firewall-based and the DAS/ACI Firewall software is installed and configured. Refer to [Installing the DAS/ACI Firewall](#) on page 68.

**Issue:** Configuring a drive to a client/logical library does not allocate the drive.

**Solution:** ALLOCD command must be executed from the client side before the client can access the drive. Refer to *DAS Administration Guide*.

**Example:** `$dasadmin allocd DRIVE UP dasclnt`

### SCSI

**Issue:** MOVE command fails.

**Solution:** Moving cartridge to the home position of any other cartridge is not allowed when there is a client other than SCSI assigned to either the same logical library, or to the other logical library that has one or more shared partitions with the first one.

When there are only SCSI clients, the **Move** command that should place the cartridge to other cartridge home position will be accepted.

 **Note** The Management GUI will warn the admin if there will be an attempt to assign two different clients (for example, DAS and SCSI) either to one logical library, or to different logical libraries that has shared partitions. This assignment is not restricted, however.

- Check whether there should be a DAS or ROBAR client for the logical library used by the SCSI client. If not, remove the unnecessary clients.
- If the DAS or ROBAR clients are not to be removed, use only the slots that are empty, but not the home positions for the SCSI commands.

**Issue:** Executed on SCSI/FC client host the **Test Unit Ready** command returns *Adapter status 1 <Failure>*, although the adapter and connection with the Scalar DLC server are good.

 **Note** This issue typically appears only when the Scalar DLC client host operates under Windows 2000 or 2003.

**Solution:** Ensure that the library medium changer on the client host is *disabled*. See [Disabling Library Medium Changer](#) on page 133.

**Issue:** After upgrade, only one Target based on Fibre Channel adapter is active. The SCSI clients assigned to the not active Targets cannot access the Scalar DLC.

**Solution:** There has been wrong Target-LUN mapping in older versions of Scalar DLC. The newest FC target drivers allows only one target with 255 LUNs to be active on FC adapter operating in Target mode.

 **Note** This issue can appear after upgrading the Scalar DLC database from 2.3 or 2.4. In 2.5 the Target-LUN mapping is the same as in 2.6.

To make the SCSI Clients assigned to the non-active SCSI targets active again, do the following:

- Step 1** Using the Management GUI > Configuration > SCSI Target tab, locate all FC adapters that contain more than one Target.
- Step 2** For each such FC adapter (for example, Adapter 1), locate the Target with minimal SCSI ID (for example, Target 0). This will be the only active Target of the FC adapter.
- Step 3** Under this active Target, create as many LUNs as there are non-active Targets at the Adapter 1.
- Step 4** Using Configuration > Clients tab, create SCSI clients based on the LUNs of active Target 0. Assign the logical library and check the Mode settings the same as they were for the non-active clients. That means, for each client based on non-active target must be created the duplicated SCSI client with same settings but based on the active Target (Target 0).
- Step 5** Repeat Steps 1-4 for each FC adapter with multiple targets.
- Step 6** After all SCSI clients are re-created, remove all SCSI clients based on non-active Targets and non-active Targets with their LUNs.

Now the SCSI/FC clients can access their resources.

## Force Restart

---

**Issue:** The installation of Scalar DLC or another software package is finished, the dialog like “Your system is to be restarted now, press “yes’ to restart PC“ appears. But after pressing “yes” button the dialog vanished and the restart is not initiated.

**Solution:** *lkernel.exe* object hangs. Stop it manually via Windows Task Manager (Processes > lkernel.exe (right-click) > End Process). After the lKernel is stopped, restart the PC manually via **Start > Shutdown > Restart**.

## Scalar DLC Force Removing

---

Sometimes removing the Scalar DLC by its standard way, as described in [Add/Remove Scalar DLC Software](#) on page 81, is not possible.

**Issue:** SQL server is stopped, Scalar DLC repair/update/remove fails.

**Solution:** Start the SQL Server Agent manually and then repeat the repair/update/remove operation.

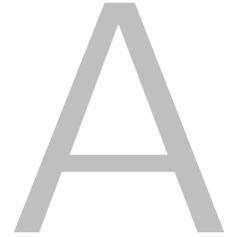
**Issue:** RAID permanently goes to unplugged mode, MS SQL server cannot be started, Scalar DLC database cannot be accessed, Scalar DLC cannot be removed.



**Note** This issue appears only for the Failover solution.

**Solution:** First remove SQL server, then remove Scalar DLC.

- Step 1** Remove SQL server from Node 1 (**Start > Settings > Control Panel > Administrative Tools > Add/Remove Programs**).
- Step 2** Remove Scalar DLC software from Node 1 (now the standard operation must work). Accept the restart.
- Step 3** Repeat Steps 1 - 2 for Node 2.



## Advanced Setup Instructions

---

This section contains the topic on extended setup not covered in previous chapters.

- [Setting Up the Library](#) on page 123.
- [Host/Library Communication using Fibre Channel and SNC](#) on page 127.
- [Building Client Connections](#) on page 131.
- [Installing SCSI/FC Target Adapters on a Live Machine](#) on page 134.
- [Securing the Scalar DLC](#) on page 135.

### Setting Up the Library

---

The following instructions applies to setting up the library media changer. The procedure can be done in any time when setting up the Scalar DLC, but before installing the Scalar DLC software itself.

**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 scanner 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.



**CAUTION**

**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** Resolve the library SCSI IDs:

- Single-aisle (Scalar 1000, Scalar 10K):
  - On the library Operator panel, do the following: *Main > Setup > Library > SCSI > Target ID*.
  - Set the SCSI IDs on both buses to 3.
  - Restart the library so that the SCSI IDs take effect.
- Dual-aisle (Scalar 10K DA):
  - On the Operator panel for Robot 1 do the following: *Main > Setup > Library > SCSI > Target ID*.
  - Set the SCSI ID on both buses to 3.
  - On the Operator panel for Robot 2 do the following: *Main > Setup > Library > SCSI > Target ID*.
  - Set the SCSI ID on both buses to 4.
  - Restart the library so that the SCSI IDs take effect.

**Step 3** Connect the library to the host

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



**CAUTION**

**Make sure to install the proper voltage SCSI connections (see [Table 16](#) on page 71).**

- On the PC, launch *My Computer > Manage > Device Manager* to verify that the Windows 2000/2003 machine can see the Library "Medium Changer".
- Failover and Self-domain solution:
  - Connect the SCSI cable to the respective LVD/HVD controller 1 of the library and to the Scalar DLC Node1 SCSI HBA card.
  - Connect the SCSI cable to the respective LVD/HVD controller 2 of the library and to the Scalar DLC Node2 SCSI HBA card.



**CAUTION**

**Make sure to install the proper voltage SCSI connections (see [Table 16](#) on page 71).**

- On both nodes, launch *My Computer > Manage > Device Manager* to verify that the Windows 2000/2003 machine can see the "Medium Changer" device.
- Dual-aisle (Scalar 10K DA):
  - Standard solution:
    - Plug Y-block connector with LVD/HVD-terminator to LVD/HVD controller 1 of the Robot 2.
    - Plug the Y-block connector to LVD/HVD controller 1 of the Robot 1.
    - Connect two Y-block connectors of Robot 1 and Robot 2 with the SCSI cable.
    - Connect the free connector of Y-block connector at Robot 1 and the Scalar DLC SCSI HBA card with the SCSI cable.



**CAUTION**

**Make sure to install the proper voltage SCSI connections (see [Table 16](#) on page 71).**

- On the PC, launch *My Computer > Manage > Device Manager* to verify that the Windows 2000/2003 machine can see two "Medium Changer" devices.
- Failover and Self-domain solution:
  - Plug Y-block connector with LVD/HVD-terminator to LVD/HVD controller 1 of the Robot 2.
  - Plug the Y-block connector to LVD/HVD controller 1 of the Robot 1.
  - Connect two Y-block connectors of Robot 1 and Robot 2 with the SCSI cable.
  - Connect the SCSI cable to the respective LVD/HVD controller 1 of the library and to the Scalar DLC Node1 SCSI HBA card.
  - Plug Y-block connector with LVD/HVD-terminator to LVD/HVD controller 2 of the Robot 2.
  - Plug the Y-block connector to LVD/HVD controller 2 of the Robot 1.
  - Connect two Y-block connectors of Robot 1 and Robot 2 with the SCSI cable.
  - Connect the SCSI cable to the respective LVD/HVD controller 2 of the library and to the Scalar DLC Node2 SCSI HBA card.



**CAUTION**

**Make sure to install the proper voltage SCSI connections (see [Table 16](#) on page 71).**

- On both nodes, launch *My Computer > Manage > Device Manager* to verify that the Windows 2000/2003 machine can see two "Medium Changer" devices.

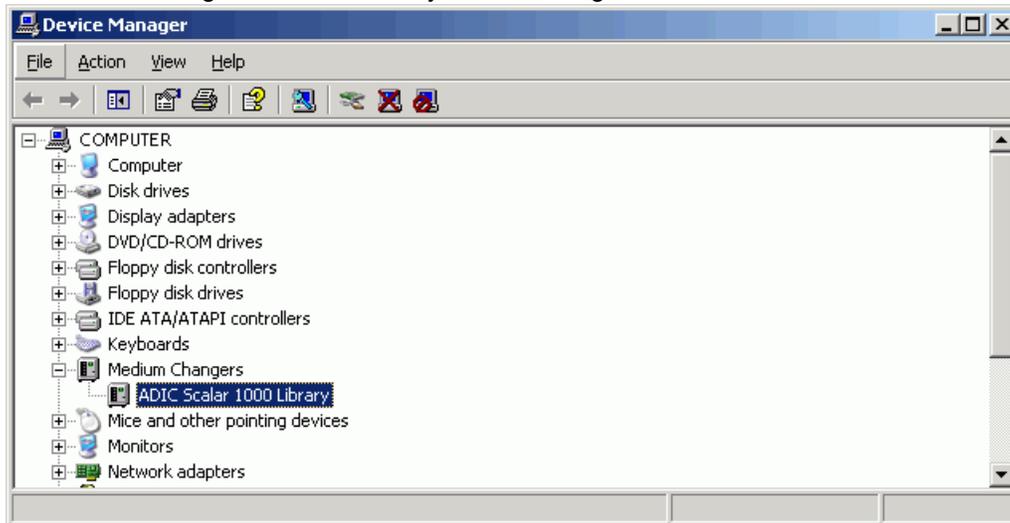
**Step 4** Make sure that the created scheme matches the example.

| Library      | Solution                 | Example                             |
|--------------|--------------------------|-------------------------------------|
| Single-aisle | Standard                 | <a href="#">Figure 3</a> on page 7  |
| Dual-aisle   | Standard                 | <a href="#">Figure 4</a> on page 8  |
| Single-aisle | Failover and Self-domain | <a href="#">Figure 6</a> on page 13 |
| Dual-aisle   | Failover and Self-domain | <a href="#">Figure 7</a> on page 14 |

**Step 5** (This step is for Windows 2003 system only. On Windows 2000 skip this step)  
Disable library Medium Changer (on both Nodes for failover and self-domain solution).

- Launch *My Computer > Manager > Device Manager > Medium Changers*. The list of medium changers will appear.

**Figure 73** Device Manager: Enabled Library Media Changer



- Select the media changer that represents the library device (ADIC Scalar 1000, Scalar 10K, or Scalar 100). By default it is *enabled*.

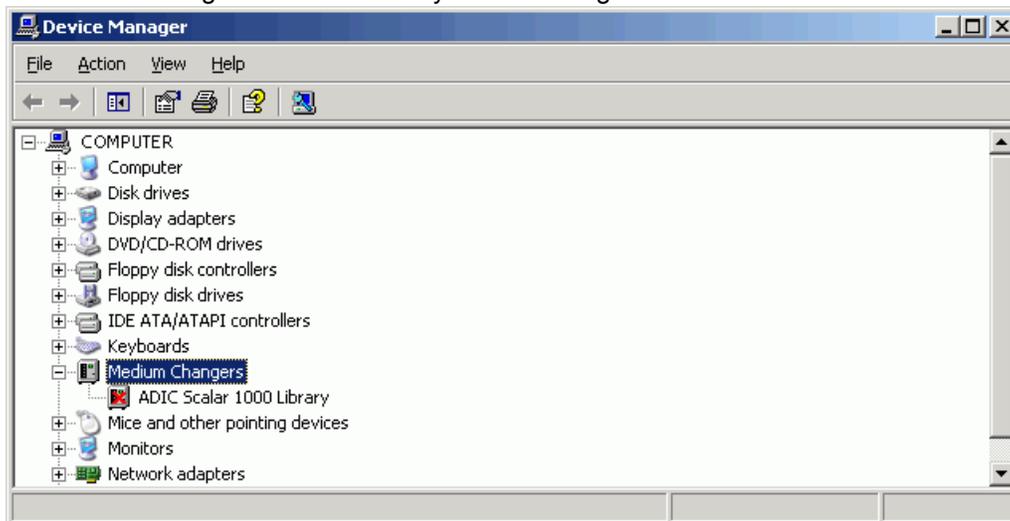


**CAUTION**

**Never disable the media changers that are not mentioned in the list above.**

- Right-click and select *Disable* (or execute *Menu > Action > Disable*) to disable the library.

**Figure 74** Device Manager: Disabled Library Media Changer



- Ensure that the library device is *disabled*. The Scalar DLC cannot be installed with the enabled media changer.
- Close Device Manager. No restart is required here.

# Host/Library Communication using Fibre Channel and SNC

---

Usually the library use a SCSI to connect to the Scalar DLC host. However the SCSI cable length cannot exceed the sensibility limit (see [Table 16](#) on page 71).

The Fibre Channel connection uses the same SCSI protocol and does not have length limitations, but most libraries have only SCSI adapters installed, no Fibre Channel. That is why the intermediate hardware between SCSI and FC is used in this case.

The Storage networking controller (SNC) can be used for both the dual-aisle and single-aisle libraries. Thus the distance between the Scalar DLC server and the SNC connected to the library can be far enough for the customer to place the hardware anywhere it would be useful.

See [Table 3](#) on page 6 for a requirements for library, SNC, and AMC, and [Table 18](#) on page 72 for the FC adapters used.

## Installation and Configuration

Depending on the Scalar DLC Solution used see [Standard Solution](#) on page 129, or [Failover and Self-Domain Solution](#) on page 130. Then see [SNC Setup](#) on page 127 for setting up the SNC.

## SNC Setup

After the host(s), library and its drives are *on*, and all cables are properly connected, configure the SNC. Use ADIC Management Console (AMC) to set up the SNC, and resolve ports, IP, connection type, zoning, and WWN. For more details see *SNC User's Guide* and *AMC User Guide*.

## Channel Zoning

The SNC target ports (SCSI connected to the library) and initiator ports (FC connected to the Scalar DLC host) must be configured to use the same Channel Zoning. Otherwise the connection cannot be established.

## Channel Topology

*Point-to-point*, *Fabric*, or *Arbitrated loop* topology can be used as Host-SNC connection.

## World Wide Name

The SNC World Wide Name (WWN) must be set before it can be used for the library connection.

Failover and self-domain solution scheme with two SNC devices requires that both SNC have the same WWN (note that SNC messages are against such setup).

The WWN setup order is as follows.

- Step 1**      Connect a service terminal to the service port. Alternatively, connect a service computer to the network that the SNC is on or to the Ethernet port of the SNC.  
For the location of these ports and instructions for connecting a service terminal, see *SNC User's Guide*.
- Step 2**      Issue the `wwnGlobalSet` command to establish a new base WWN.  
Using the `wwnGlobalSet` command will update both the node name and port names.  
The following messages are displayed:

This command will change the WWN for Fibre Channel Ports.  
This should only be done when replacing a failed SNC. You should never operate 2 FC devices that are set to the same WWN. This may destabilize your SAN.  
The unit will be rebooted after the WWN change.  
Do you want to proceed (enter "yes" to continue) :

- Step 3** Type the word `yes` and press **Enter**.  
The following message is printed:

Enter the new WWN (or q to quit):

- Step 4** Enter all eight bytes of the new WWN. Each byte of the entry should be delimited by colons. For example, enter:

00:00:00:30:8C:02:70:21



**CAUTION**

The `wwnGlobalSet` command requires that the first byte be entered as "00" even if `fcShowNames` displays "10" in that position.



**CAUTION**

When entering the WWN, the firmware will confirm that the node ID and OUI match the existing values. This prevents a user from accidentally making the SNC appear as another vendor's device.

- Step 5** The first five bytes of the entry are checked. If the entry is valid, you are prompted for a password. Type the password `OverrideWWN` and press **Enter**.  
This causes the SNC to reboot.

- Step 6** When the SNC has rebooted, issue the `fcShowNames` command to verify the change. Verify that the output in the **Node Name** column is correct.

If only a single FC port is to be changed, use the `wwnPortSet` command to set the WWPN and WWNN for a single FC port.



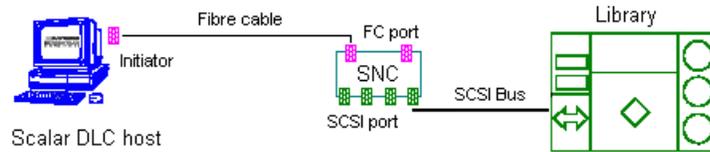
**Note**

If one of the WWN fails to change, run the `wwnPortSet` command again.

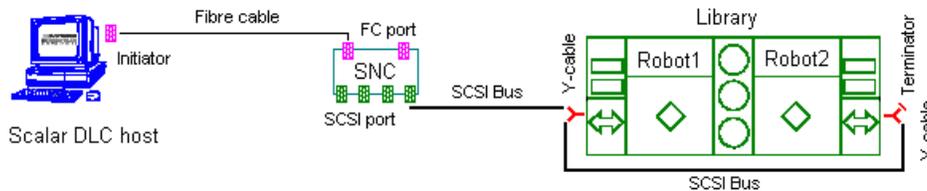
Also, AMC can be used to verify that the WWNs are detected correctly following the change. For the failover or self-domain solution, AMC will issue a warning message indicating duplicate WWNs have been detected. This means the setup is performed correct.

# Standard Solution

**Figure 75** Standard: SNC with the single-aisle



**Figure 76** Standard: SNC with dual-aisle



## Requirements

- Single Scalar DLC server (host) with (at least one) FC Initiator adapter
- SNC
- Single- or dual-aisle library.
- SCSI cables and terminators, FC cables
- Fibre Channel switch (optional)

## Pre-Setup

Library is set up, the host is set up, all required services and drivers are installed. Before installing the Scalar SLC software. See [Setting Up the Standard Solution](#) on page 7.

## Setup Roadmap

**Step 1** Resolve the cabling, switch, etc. ([Figure 75](#) and [Figure 76](#) are examples of the whole structure). Note also [Two-channel Adapters](#) on page 72.



### CAUTION

The FC Switch *zoning* feature needs to be properly set up too. Ports for Host and SNC must be in the same zone.

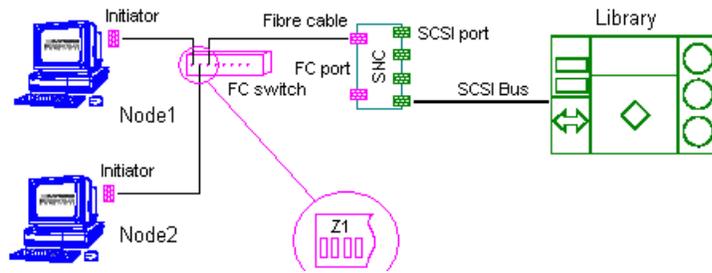
**Step 2** Using AMC, set up the SNC. See [SNC Setup](#) on page 127.

**Step 3** Launch *My Computer > Manage > Device Manager* to verify that the Windows 2000/2003 machine can see the Library "Medium Changer"(two medium changers must be present for a dual-aisle library).

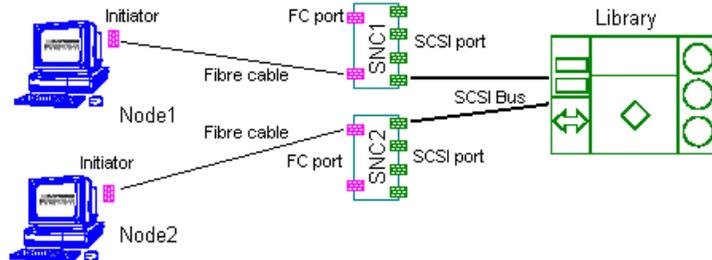
**Step 4** Install Scalar DLC software and proceed the work. See [Scalar DLC Software](#) on page 50.

# Failover and Self-Domain Solution

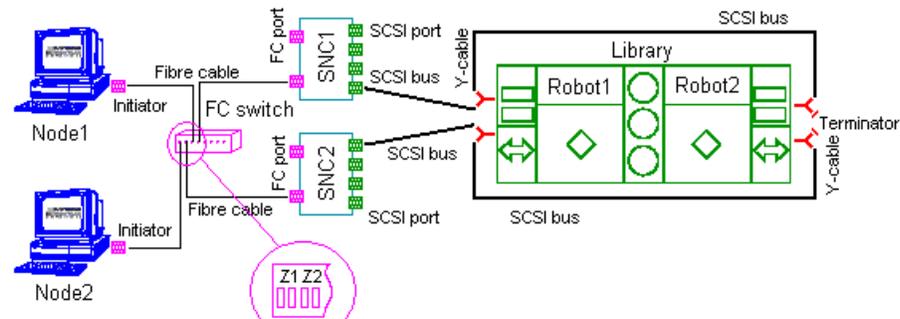
**Figure 77** Failover: SNC with the single-aisle, switch scheme



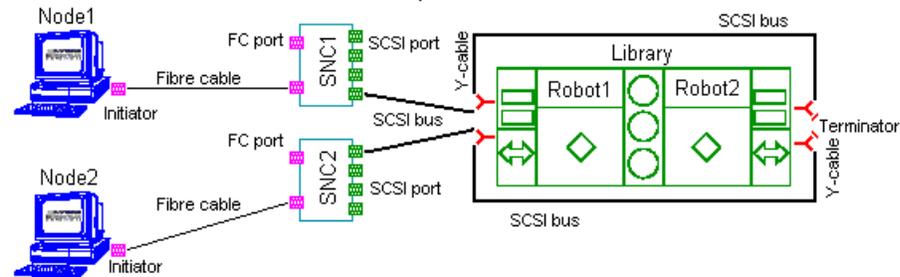
**Figure 78** Failover: SNC with the single-aisle, two-port-scheme



**Figure 79** Failover: SNC with the dual-aisle, switch scheme



**Figure 80** Failover: SNC with the dual-aisle, two-port-scheme



## Requirements

- Two Scalar DLC servers (hosts), Node 1 and Node 2. Each host has (at least one) FC Initiator adapter
- Either two SNC devices or single SNC and FC Switch
- Single- or dual-aisle library
- SCSI cables and terminators, FC cables
- Fibre Channel switch (optional)

## Pre-Setup

Library is set up, both nodes are set up, all required services and drivers are installed. Before installing the Scalar SLC software. See [Setting Up the Failover Solution](#) on page 13 or [Setting Up the Self-Domain Solution](#) on page 33.

## Setup Roadmap

**Step 1** Resolve the cabling, switch, etc. ([Figure 77](#) on page 130, [Figure 78](#) on page 130, [Figure 79](#) on page 130 and [Figure 80](#) on page 130 are examples of the whole structure). Note also [Two-channel Adapters](#) on page 72.



### CAUTION

**The FC Switch zoning feature needs to be properly set up too. On [Figure 77](#) on page 130, all three ports must be in the same zone. On [Figure 79](#) on page 130, ports for Node 1 and SNC1 must be in Zone1, and ports for Node 2 and SNC2 must be in Zone2.**

**Step 2** Using AMC, set up all SNC devices. See [SNC Setup](#) on page 127.

**Step 3** On both nodes, launch *My Computer > Manage > Device Manager* to verify that the Windows 2000/2003 machine can see the Library "Medium Changer"(two medium changers must be present for a dual-aisle library).

**Step 4** Install Scalar DLC software and proceed the work. See [Scalar DLC Software](#) on page 50.

## Notes

Each time the library or one of its robots is restarted, the SNC must be restarted too. Otherwise even after the library/robot is up, the SNC does not see it, and the Scalar DLC reacts to the library/robot as 'not ready'.

## Building Client Connections

---

Additional activity may be required for the clients to connect to the Scalar DLC software.

## DAS

Install the DAS Client software on the client PC. See [Installing DAS Client](#) on page 65. Ensure that there is valid TCP/IP connection between client and server, and proceed the work.

### Standard Solution

Use the common Scalar DLC host name as DAS\_SERVER value on the client host.

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.

### Failover and Self-domain Solution

Use the common Cluster name (for example, SDLC-CLUSTER) as DAS\_SERVER value on the client host.

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

Additional hardware requirements exist for the SCSI Clients based on either SCSI or Fibre Channel connection.

## Standard Solution

**Figure 81** Standard solution: SCSI Client Connection



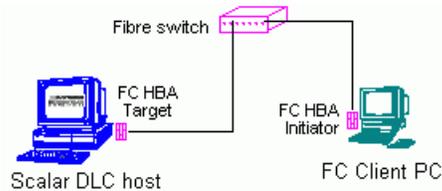
SCSI Requirements:

- 1 SCSI Target Adapter, as described in [Table 16](#) on page 71.
- 1 middle length (2-3 m) SCSI cable (68 pins) (client connection)

Be sure that the client connection scheme matches the example (see [Figure 81](#)). The SCSI target adapter(s) on the Scalar DLC host must work in Target mode (see [Activating Target Mode](#) on page 77).

Note [Two-channel Adapters](#) on page 72 and [Disabling Library Medium Changer](#) on page 133.

**Figure 82** Standard solution: Fibre Channel Client Connection



FC Requirements:

- 1 FC Target Adapter, as described in [Table 16](#) on page 71.
- FC switch
- 1 FC cable (client connection)

Be sure that the client connection scheme matches the example (see [Figure 82](#)). The FC target adapter(s) on the Scalar DLC host must work in Target mode, but not failover (see [Activating Target Mode](#) on page 77).

Note [Two-channel Adapters](#) on page 72 and [Disabling Library Medium Changer](#) on page 133.

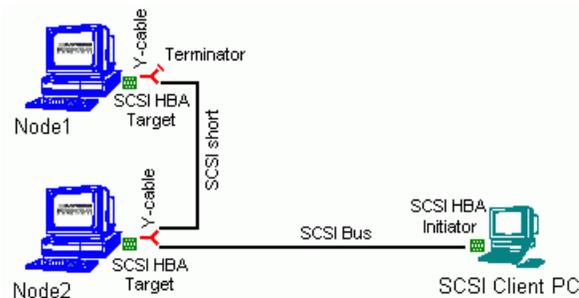


**Note**

If two or more SCSI/FC Target Adapters are used, additional cables are required. All adapters used in Target mode must match [Table 16](#) on page 71 and also must be activated as Targets, as described in [Activating Target Mode](#) on page 77.

## Failover and Self-domain Solution

**Figure 83** Failover solution: SCSI Client Connection



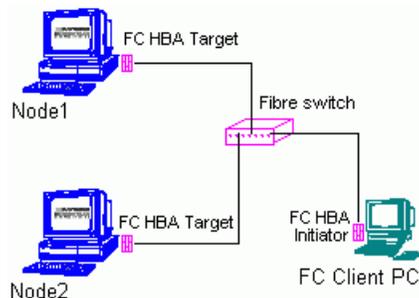
SCSI Requirements:

- 2 SCSI Target HBA, as described in [Table 16](#) on page 71.
- 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 83](#)). Both SCSI target adapters on the Scalar DLC hosts must work in Target mode (see [Activating Target Mode](#) on page 77).

Note [Two-channel Adapters](#) on page 72 and [Disabling Library Medium Changer](#) on page 133.

**Figure 84** Failover solution: Fibre Channel Client Connection



FC Requirements:

- 2 FC Target Adapters, as described in [Table 16](#) on page 71.
- FC switch
- 2 FC cables (client connection)

Be sure that the client connection scheme matches the example (see [Figure 84](#)). The FC target adapter(s) on the Scalar DLC hosts must work in Target mode, and failover (see [Activating Target Mode](#) on page 77).

Note [Two-channel Adapters](#) on page 72 and [Disabling Library Medium Changer](#) on page 133.

## Disabling Library Medium Changer

After configuring the Scalar DLC and creating logical library and appropriate SCSI client (see *Scalar DLC Reference Guide*) the client machine will detect the Scalar DLC server as the real library Medium Changer. Disable it before starting the work with SCSI/FC client interface.

- Launch *My Computer > Manager > Device Manager > Medium Changers*. The list of medium changers will appear.

- Select the media changer that represents the library device (ADIC Scalar 1000, Scalar 10K, or Scalar 100). By default it is *enabled*.



#### CAUTION

Never disable the media changers that are not mentioned in the list above.

- Right-click and select *Disable* (or execute *Menu > Action > Disable*) to disable the library.
- Ensure that the library device is *disabled*. The Scalar DLC SCSI Client can not access the enabled media changer.
- Close Device Manager. No restart is required.

## 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 a valid ROBAR port is specified. The details are described in *Reference Guide, GUI Tabs* chapter, *ROBAR* and *ROBAR Client* sections.

### Standard Solution

Set the HOST parameter to the Scalar DLC host name.

### Failover and Self-domain Solution

Set the HOST parameter to the Cluster name (for example, SDLC-CLUSTER).

## Installing SCSI/FC Target Adapters on a Live Machine

---



#### Note

The following instruction is valid only for Failover and Self-domain solution.

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** Node1 *passive*, Node2 *active*. The Scalar DLC operates on Node2.
- Step 2** Shutdown Node1. Install the new SCSI/FC card into a free PCI slot (note what slot it is).
- Step 3** Start Node1. 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). See [Initiator Driver](#) on page 73.
- Step 4** Restart Node1. Install Target driver for a new adapter. See [Installing the SCSI/FC Target Drivers](#) on page 74.
- Step 5** Restart Node1. Launch Scalar DLC SCSI Target Port Tool and enable the new SCSI card as Target. For the FC card, resolve the WWN (see [Activating Target Mode](#) on page 77).
- Step 6** Restart Node1. Make Node1 *active*, Node2 *passive*. The Scalar DLC will operate on Node1.

- Step 7** Repeat steps 2- 6 for Node2. The SCSI/FC adapters 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 passive node.

## Securing the Scalar DLC

---

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

- For the information on securing the Windows 2003 operating system refer to [http://www.nsa.gov/snac/downloads\\_win2003.cfm?MenuID=scg10.3.1.1](http://www.nsa.gov/snac/downloads_win2003.cfm?MenuID=scg10.3.1.1)
- For the information on securing the Windows 2000 operating system refer to [http://www.nsa.gov/snac/downloads\\_win2000.cfm?MenuID=scg10.3.1.1](http://www.nsa.gov/snac/downloads_win2000.cfm?MenuID=scg10.3.1.1)
- For the information on securing the Apache Web server refer to <http://www.securityfocus.com/infocus/1694>
- 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:

- Step 1** Install the latest Windows Hot Fixes and service pack. The current version is Service Pack 4 for Windows 2000 (SP1 for Windows 2003 Server). Both the Hot Fixes and service packs can be downloaded on <http://www.microsoft.com>.
- Step 2** Install the Apache with SSL encryption.
- Step 3** Install the SP4 for MSDE 2000.
- Step 4** When installing the Scalar DLC, provide the user name and password according to the corporative security standards.
- Step 5** Set up the web browser(s) 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 not automatically opened, etc.). Contact the local network administrator for the details.



### Note

If the firewall is used to secure the Scalar DLC host, the DAS client software must be installed with the firewall support. Refer to [Installing DAS Client](#) on page 65.

## Antivirus Strategy

To ensure the Scalar DLC system remains virus-proof and worm-proof, perform the following security actions.

- After the Scalar DLC is successfully installed, install the antivirus software that matches the local corporative standard. ADIC typically uses the following products with the Scalar DLC:

- McAfee® VirusScan® Enterprise 8.0i (refer to: <http://www.mcafee.com/us/products/mcafee/antivirus/desktop/vs.htm>)
- McAfee® ePolicy Orchestrator® Anti-Virus Management system (refer to: <http://isservices.tcd.ie/security/epol.php>)



**Note**

Contact the local network administrator for the details on how to install and set up the antivirus software.

- After the antivirus software is successfully installed, provide the regular antivirus database update (either by periodical basis or automatically) to be sure the Scalar DLC system remains virus-proof. Install the appropriate patches and service packs when it is required.



**Note**

On the Scalar DLC Failover or Self-Domain solution it is recommended to launch the antivirus update on the *passive* node.

The same actions are to be performed on the client PC (the client side of Scalar DLC software, as shown in [Figure 1](#) on page 3).

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