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Preface

This preface provides information about the organization of this manual, related documentation, and an overview of installing and configuring Lotus Enterprise Integrator (LEI).

Organization of this Manual

This manual contains the sections described in the following table.

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Note: LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.
This appendix explains how to handle problems resulting from a Notes or Domino upgrade after LEI has been installed.

### Related Documentation

This section lists documentation that you may find useful as you learn about and use LEI.

**LEI Documentation**

Documentation for LEI is supplied online in PDF and NSF form on the LEI application CD-ROM and at www.notes.net. For more information about LEI, refer to the following documents:

- *Lotus Enterprise Integrator Activities and User Guide* — This provides information and instructions for using LEI and its Activities (leidoc.nsf).
- *Lotus Enterprise Integrator Release Notes* — The release notes (readme.txt) contain information about the current release of LEI that may not be included in the supplied documentation set.
- *Lotus Connectors and Connectivity Guide* — This provides information on how to set up and use the supplied Lotus Connectors, including information about required software and instructions for testing connectivity (lccon.nsf).
- Additional information about LEI can be found at the following Web site:
  
  www.lotus.com/ei

**Other Documentation**

For more information about related tools, refer to the following documents:

- *Lotus Connector LotusScript Extensions Guide* — This manual describes the LotusScript Extensions for Domino Connectors, which can be used in writing scripted sessions for accessing enterprise data (lsxlc.nsf).
• **Lotus Enterprise Integrator Domino Connector Java Class Library Reference Guide** — The LC Java classes and remote console are not included with this distribution, however they are available for download. You can locate them by choosing the “Lotus Connector Classes for Java” link from the www.lotus.com/ei main page.

• **Domino Administrator’s Guide** — Provides information for configuring and administering a Domino installation.

• **LotusScript Language Reference** — Provides information about writing LotusScript programs. This is useful when using the LSX to write customized Activities.

• **Additional Domino Connector Documentation** — Lotus Development Corporation sells additional Lotus connectors for enterprise systems including Enterprise Resource Planning (ERP) and Transaction Processing Systems. Specific documentation about these connectors is included with the connector software and package. You may need documentation for the specific databases, ERP and transaction processing systems that you are using.

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### Contact and Support Information

Lotus provides extensive support for its products. The following sections describe the different ways in which you can get help on using your Lotus Connector, LEI, or DECS, as well as information on how to contact Lotus with suggestions and recommendations.

**Lotus Domino Enterprise Integrator Web Site and Developers Forum**

To obtain the latest information about LEI, visit the Web site listed below:

- [http://www.lotus.com/ei](http://www.lotus.com/ei)

**Note** To obtain Domino-related product updates, including PFTs for AS/400, visit the Web site listed below:

- [http://www.as400.ibm.com/domino/support/qmu.htm](http://www.as400.ibm.com/domino/support/qmu.htm)

**Lotus Technical Support**

You can reach Lotus Domino Enterprise Integration Technical Support at 1-800-346-6388.
Getting Started with Lotus Enterprise Integrator

Listed below are the basic steps involved in getting started with Lotus Enterprise Integrator (LEI).

1. Verify that a Domino server or Notes client (Release 4.6.7 or 5.0.7a) exists on the local machine.
2. Verify connectivity to a Domino server (local or remote).
3. Run the LEI setup program to install LEI.
4. Test connectivity to data sources you intend to access with LEI. You may need to install appropriate database communications software. This connectivity must be present on the machine to which you are installing the LEI server.
5. Build Connections using the LEI Administrator.
6. Build Activities using the LEI Administrator.
7. Start the LEI server.
Chapter 1
Introduction to Installing and Configuring LEI

This chapter provides a general introduction to installing and configuring LEI. Specific platform installation instructions are presented in separate chapters.

Supported Platforms and Configurations

This section lists certified platforms and configurations.

**Note** LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.

Certified Operating System Platforms

LEI Release 3.2 is certified on the following platforms:

- Windows NT 4.0
- Windows 2000

Certified Lotus Enterprise Integration Products

LEI Release 3.2 is certified for use with the following configurations:

- Domino Server and Notes Release 4.6.7 or 5.0.7a
- Lotus Connector LotusScript Extensions (LSX)
  
  The LSX enables programmatic, native access and manipulation of Lotus Connector source data, allowing full programmatic control over data transfer. All supported Lotus Connectors use the same Lotus Connector API object model, exposed in LotusScript classes, to syntactically access a wide variety of enterprise data sources. Lotus Connector LotusScript Extensions are supplied with LEI.

- Lotus Connector Java Classes (LC Java) available at the following Web site:
  
  [http://www.lotus.com/ei](http://www.lotus.com/ei)

**Note** The AS/400 platform does not currently support LC Java classes.
Hardware Requirements

- 40MB of disk space on Windows platforms; 70MB of disk space on UNIX platforms
- 64MB of RAM; For S/390 platform see Domino for S/390 5.0x Installation Guide

Software Requirements

- This version of LEI requires a Domino 4.6.7 or 5.0.7a server to manage the LEI Administrator database.
- The client libraries of the enterprise systems to be accessed must be installed on the LEI server machine.

Installing LEI

The procedure for installing LEI is described in a platform-specific chapter later in this manual.

Installation Overview

There are three primary LEI components that can be installed by the setup installation program.

- LEI server
- LEI Administrator (a Notes application)
- LEI development client

You either install a server or a development client, not both.

Setup provides you with the three options for installing LEI:

- Create an LEI cluster and install the first LEI server
  The LEI server and an Administrator are created on Domino server.

- Install the development client only to an existing cluster
  The Administrator is created, which has limited functionality.

- Install the LEI server only to an existing cluster
  A new LEI server is installed to an existing Administrator hosted on an accessible Domino server.

You can install a development client on a local machine. When installing an LEI server, if an LEI Administrator database does not already exist, one will be created as part of the installation. After the first LEI server is installed and the Administrator database is created, subsequent server or client installations can share the existing Administrator.
If a previous version of LEI exists on your machine, or you have a trial version downloaded from the Lotus Web site, setup will detect it and you will be prompted to upgrade. If this is what you wish to do, simply follow the screen instructions. Alternatively, you may remove the existing server and then proceed with a normal installation. See the chapter entitled, “Uninstalling LEI” for more information.

**Note** If the current version of the LEI on your machine is the same version as the release you are installing, you must first uninstall the existing installation. See the chapter entitled, “Uninstalling LEI” for more information.

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**Special Note to Beta Testers**

If you have a beta version of LEI already installed, you cannot upgrade it using setup. You must first uninstall your Beta-version LEI.

For Windows users, uninstall LEI using Add/Remove programs in the Control Panel.

For UNIX users, use the setup program that came with the beta version to uninstall LEI.

You can optionally cut and paste documents from the beta LEI Administrator to the released LEI Administrator database.

You do not need to remove an existing NotesPump installation. LEI can coexist with NotesPump on the same machine.

**The LEI Server**

The LEI server must be installed on a machine where native Notes program modules are already installed. This may be a Notes client or a Domino server. Only one LEI server can be installed on any single machine. In addition, appropriate database communications software (Oracle SQL*NET, ODBC, etc.) must be installed on that same machine to enable communications with the desired data sources. See the *Lotus Connectors and Connectivity Guide* manual for specific database software requirements.

LEI server operations require access to the notes.ini file located on that system.

**Note** LEI is not supported on partitioned servers.

If setup cannot find a local Notes client or Domino installation, as required by LEI, it will issue an error message.
The LEI Administrator
The LEI Administrator is a Notes application, requiring a Notes client release 4.6 or later. It can be accessed by one or more LEI servers and clients, as well as authorized Notes users, and is a required component of all LEI installations. Setup requires that the LEI Administrator be hosted on a Domino server. The Domino server hosting the Administrator must be accessible to the local machine.

Setup provides the option to create a new Administrator or use an existing Administrator when installing a new LEI server or client. This is termed a “cluster” in LEI.

- If you are creating a new Administrator database, you must have the appropriate access to create databases on the target Domino server. The setup option is “Create New Cluster.”
- If you are installing to an existing Administrator database, you must have appropriate access privileges to create documents in that database. The setup option is “Install into an Existing Cluster.”
- For more information, see “How to Configure Administrator Security,” later in this chapter.

The LEI Development Client
The LEI Development client provides a subset of the functionality provided by the server. It must be installed on a machine with a Notes client Release 4.6 or greater. It allows you to use the database browsing capabilities found within the LEI Administrator. This gives you the ability to develop activity and connection documents in the Administrator database that can then be executed by an LEI server. A development client also provides the needed support files to enable LEI LotusScript development on a Notes client. Please note that appropriate database client software must also be installed for the data sources you plan to access (Oracle SQL *NET, ODBC, and so on).

An LEI development client must be installed using an existing Administrator database. See your licensing agreement for the number of development clients that you are licensed to install.

Note Installation of the LEI Development client is not supported for UNIX hosts.
The LEI Cluster

“LEI cluster” is a common term used throughout the LEI documentation and during setup. It simply describes one or more LEI servers and clients sharing a single Administrator database. A single Administrator database can have many servers and clients, but a server or client can only use, or be installed into, a single Administrator database. A cluster also includes the LEI log database. The optional script vault database and documentation databases are also considered to be part of the cluster.

Setup handles all aspects of cluster installation when creating an Administrator database and installing an LEI server. See the Lotus Enterprise Integrator Activities and User Guide for more information about the LEI Administrator and the other databases in the cluster.

Configuring Administrator Security

The LEI Administrator uses security features available with Lotus Notes, such as encryption and true ACL author access. Since several types of users can use LEI, it is important to take some time to plan the security implementation. Lotus recommends that one person, or group of people, be designated as the LEI Administrator manager.

This person or group will be responsible for installing LEI and editing configuration documents. Using the security features of Lotus Notes (such as ACL author-level privileges), these documents can be made inaccessible to other users.

Encryption of database passwords is an important part of LEI’s security features. All password fields are encryption enabled. Encryption keys for each form must be made and added to each LEI server’s ID as well as to anyone’s ID who may need to see or make changes to the encrypted fields or to the document itself. Those users who do not have the encryption key may still view the document but will not see any data in the encrypted field. The encrypted field remains blank. Additionally, users without the encryption key will not be able to edit the document. Configuring LEI password encryption is described in the Lotus Connectors and Connectivity Guide.

The LEI Administrator provides author privileges at the document level. Each LEI document has an action button in the action toolbar that accesses the author privileges list.

Another part of security is reader access. When the encryption button is pressed from within a document in the LEI Administrator, the first part of the dialog displayed is the reader access list. Disabling the option “Who can read this document: All readers and above” and picking names from the list...
below will only allow those people whose names have been chosen to see the document. No one else will be able to view the document, including the document’s author, if their name has not been chosen as part of the list.

Please see the Administrator’s Guide for Lotus Notes and the Database Manager’s Guide for more detailed information on Lotus Notes security features.

Setting Up Notes IDs to Run LEI

Before the LEI Administrator and server can be used, you must set up proper Notes User IDs and Access Control Lists.

- The LEI Notes User ID must have access to all data that LEI will be accessing on Domino servers. For these reasons, any LEI server accessing sensitive Notes data should observe the same physical access restrictions as Domino servers.

- On R5 systems, LEI will initially be set up to use the server ID. If only the Notes client is installed, it will use the Notes user ID. If you do not want LEI to use the server ID, see the next section, “Running LEI and Domino on the Same Machine.”

- Because the LEI Administrator and log databases are created on a Domino server, the Notes user on the machine where LEI is being installed must have Create Database and Delete Database authorization on the Domino server before installation is started. With R5 systems, setup will be using the server ID, so this ID must have the appropriate privileges. If the cluster databases are being created on the local Domino server, this won’t be an issue.

- When creating an LEI cluster, setup automatically sets the Administrator and log database ACLs to include the Notes ID used by setup with Manager Access. Other managers can be optionally added during setup. After setup is complete, the default access to the Administrator and log databases will be set to Manager. It’s important to open the Administrator and log database and configure the ACL to meet your security needs.

- Users who create Connector and Activity Documents should be given Author access to the LEI Administrator databases. Editor access to an Activity Document is necessary for running activities and using agents or actions on the document — such as the agent executed by the Run ASAP button in the Action toolbar.
If the copy of Notes installed on the LEI server has a password-protected ID, the Administrator will need to supply that password each time the LEI server is started or performs a data transfer activity. It’s not necessary to remove this protection, however, if the Notes option “Share password with Notes add-ins” is enabled.

To enable shared passwords, complete the following steps:

1. From the Notes client menu, choose File — Tools — Userid.
2. Enter your password when prompted.
   A dialog box appears.
3. Enable the option “Share passwords with Notes add-ins.”
4. Click Done.

**Note** You must grant permission to Lotus Notes Template Development to execute unrestricted LotusScript agents. Also “Default” must have Editor access to the LEI Administration database with permission to delete documents.

### Running LEI and Domino on the Same Machine

To run LEI and a Domino server on the same machine while using different IDs for the Notes client (LEI) and the Domino server, make the following changes in the notes.ini file.

1. Add the following line to the notes.ini file:
   ```ini
   ServerKeyFileName = SERVER.ID
   ```
   where SERVER.ID is the name of the Domino server ID.

2. Edit the existing line (which will probably be pointing to the server ID) as below:
   ```ini
   KeyFileName = USER.ID
   ```
   where USER.ID is the name of the ID you want to use for LEI and the Notes client.

This will cause the Notes client to prompt for the USER.ID each time you invoke Notes and the Domino server to use the SERVER.ID.

**Note** For more information about using the Notes client on a server, and how the last ID used by the client is registered and then uses the notes.ini file, access the following chapters and search for the term “add-in”:

- Chapter entitled, “Installing and Configuring LEI on Windows Platforms”
- Chapter entitled, “Installing and Configuring LEI on UNIX Platforms”
LEI.INI Settings

This file provides important initialization information to LEI and is created by setup in the same directory where the program files are copied. With the exception of the keys noted below, this file should not be altered or moved. The NativeText and CenturyBoundary keys can be added manually to the initialization file for users who have need of them.

Note The LOTUS_CONNECTOR_INIT variable should NEVER be set in the environment of a machine that is running LEI.

The section heading in the lei.ini file is [Configuration].

The entries are the following:

<table>
<thead>
<tr>
<th>Version</th>
<th>LEI build number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enterprise Integrator</td>
<td>LEI server name</td>
</tr>
<tr>
<td>AdminServer</td>
<td>LEI Administrator Domino server</td>
</tr>
<tr>
<td>AdminDatabase</td>
<td>LEI Administrator Notes database file path and name</td>
</tr>
<tr>
<td>Directory</td>
<td>LEI working directory</td>
</tr>
<tr>
<td>LEIDirectory</td>
<td>LEI program directory (same as Directory on non-UNIX platforms).</td>
</tr>
</tbody>
</table>
| KitType          | 1 = Client  
                  | 2 = Server |
| Translation      | 0 = Disabled  
                  | 1 = LMBCS only  
                  | 2 = Enabled |
| RemoteConsole    | 0 = Remote Console applet connections are refused.  
                  | 1 = Remote Console applet can only monitor LEI activity and status.  
                  | 2 = Remote Console applet can fully control an LEI server, including closing Activities and server shutdown. |
| NativeText       | Set to the suffix of an LEI text stream format. For example, LCSTREAMFMT IBMCP932 indicates code page 932. Add the following “NativeText=IBMCP932” to force LEI to use that character set as native. The Lotus Enterprise Integrator Activities and User Guide describes all native text functions. |
| CenturyBoundary  | If the year is less than the boundary number, then the century 2000 will be used. If greater than or equal to the boundary, the century is 1900. If the boundary number is 101, then LEI uses the current century. The default boundary is 50. Zero always means 1900 and 100 always means 2000. |

Translation and RemoteConsole are reset to the value in the server configuration document by the Reconfigure option or server periodic broadcast.
Example LEI.INI

A typical lei.ini file is shown below. Much of the lei.ini file is derived from the choices you make when installing LEI using the supplied setup program.

```
[Configuration]
Version=55.40
LEI=LEIServer
KitType=2
AdminServer=NotesServer
AdminDatabase=leiadm.nsf
Directory=C:\NOTES\LEIDirectory=C:\NOTES\Translation=1
RemoteConsole=1
CenturyBoundary=65
```

**Note**  The CenturyBoundary entry is not created by setup. It can be manually added. See the *Lotus Enterprise Integrator Activities and User Guide* for more information.

---

**Using Non-Eng based Character Sets**

If you use a non-Eng based character set, you may need to change the font that setup uses. This only applies to you if you are using the graphical version of the setup program on UNIX. By default, setup uses the following helvetica-medium-r-normal font when installing LEI on the UNIX platform.

You can override the default font by setting the environment variable LCSETUPFONT equal to the new font name using the command:

```
set LCSETUPFONT=FontName
```

In a Korn shell, you can use the following statement:

```
export LCSETUPFONT=font-name
```

After identifying the font, run the setup program, which will then use that font.
Chapter 2
Installing and Configuring LEI on Windows

This chapter provides information and instructions for installing LEI on Windows platforms.

System Requirements
Windows platform requirements are described below.

**Note** LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.

**Hardware Requirements**
- Processor: Intel systems 486 or higher
- Memory: Minimum 48MB RAM; 64MB or more recommended
- Disk Space: 30MB of disk space

**Software Requirements**

**LEI Administrator:**
- Notes Release 4.6.7 or 5.0.7a

**LEI Server and Development Client:**
- Windows NT version 4.0 with service pack 5
- Windows 2000
- Notes Release 4.6.7 or 5.0.7a

Installing LEI on Windows
This section provides an example of installing the LEI server with a new Administrator database on the Windows platform. This installation process creates a new Administrator and its associated databases and also “installs” the server into the new Administrator. This creates the cluster. Subsequent Enterprise server or client installations can share the same cluster.
If a previous version of LEI exists on your machine, or you have a time limited version downloaded from our Web site, the installation program will detect it and you will be prompted to upgrade. If you choose to proceed with an upgrade, the LEI program files and cluster databases will be upgraded to the new version. Alternatively, you may uninstall the existing server and then proceed with a standard installation as described in this chapter.

If you reinstall or upgrade Domino with DECS after installing LEI, you must reinstall or restore LEI.

For more information, see the following Web site:
www.lotus.com/ei

LEI Installation Procedure

1. Run Setup from the LEI CD-ROM.
2. The IBM software license agreement appears. Read and then accept the terms to continue with the installation process or decline the terms and exit installation.
3. The following welcome screen appears. Click Next to proceed or Cancel to exit.

4. Click Next to continue with the installation. The installation options screen appears, as shown below.
This example uses the option “Create an LEI Cluster and install the first LEI Server.” The cluster databases, which include the LEI Administrator database, will be installed on the Domino server chosen later in the setup process. If you select another installation option, a brief summary of that option appears in the Description box. You can go back and change your selections at any time.

**Note** If you have an existing LEI cluster and want this server to use the same Administrator, select “Install LEI server using an existing cluster.”

5. Click the “Create a new LEI cluster and install the first LEI server” option. The following screen appears when you select this option.

![Server Information](image)

6. Enter a name for the LEI server you are installing. The default name is the name of your computer if it is detected, but you can change it to whatever name you wish.

7. Enter the name of the Domino server that will host the LEI Administrator. If the server is located remotely, it must be accessible and running. If the server is located on your local machine, Domino should not be running.

**Note** In some instances, you may wish to perform a “local” database installation for the cluster databases. If you choose this option, the LEI databases will be installed on the local Domino server. You may specify “local” as the server name if you are installing to a Domino server on the local machine. Local install to a Notes client is not supported.
8. If you are installing to an existing cluster, enter the name of the Domino server hosting the LEI Administrator you wish to use.

9. If you entered any name except “local” for the Domino server, the following screen will appear. If the Domino server you specified is on the local machine, click Yes, otherwise click No.

10. The following screen appears. Optionally specify an alternative default name or data directory as described below the image.

- On this screen you may change the default file names for the Administrator and log databases. These databases are always installed as part of creating a LEI cluster. By default, all databases are created in the standard data directory.
• You can specify an alternate data directory by providing the relative path from the standard data directory. This directory cannot be on another drive. For example, if your Notes data directory is c:\notes\data and you want to place the LEI databases in c:\notes\data\LEI\32, you would specify LEI\32 in the Alternate Data Directory field. Leave it blank to specify the standard data directory.

Note  These databases should not be moved after installation.

• If you are installing the LEI server to an existing cluster, specify the name of the existing Administrator database. Use the Alternate Data Directory option to specify the relative path to the Administrator if it is not located in the standard data directory. You can use a Notes client to access the database and open the database properties to verify the file name and location of the Administrator database.

For the installation to succeed, you need sufficient access privileges to be able to create documents in the Administrator database.

11. When you are ready to proceed, click Next. The following screen appears.

12. The Notes ID that you use while running setup is entered in the ACL for all the LEI databases created by setup. The default access given is Manager. If there are any other users or groups you wish to grant Manager access to at this time, you may do so here. Enter valid semicolon-delimited Notes IDs here. You can also add additional
users after setup is complete by manually editing the ACLs. For more information, see the section entitled, “Configuring Administrator Security” in Chapter 1.

**Note** If the Notes ID you use to access the databases after Setup is complete is NOT the same one you use during Setup, add that Notes ID to the Additional LEI Database Managers box now.

13. Click Next. The following screen appears.
This option allows you to perform a migration of an old NotesPump Administrator database as part of this LEI server Installation. The new LEI Administrator will be populated with the contents of the NotesPump Administrator after it is created. This will allow you to access and use Connections (formerly Links) and Activities you have already defined. See Chapter 4, “Upgrading NotesPump to LEI,” for more information concerning NotesPump Administrator migration.

14. If you chose Yes in step 13, the following screen appears.
15. Enter the name of the Domino server hosting the NotesPump Administrator database. If it is on the local machine, you must enter “local.” If the Domino server is located remotely, it must be running and accessible.

16. Enter the name of the NotesPump Administrator database. If it is in a directory other than the standard data directory, specify the RELATIVE path to that directory. For example, if it is in c:\notes\data\lei, you would enter lei\lnpadmin.nsf. You must have sufficient access to this database to be able to open and read documents.

   Note  If migration does not succeed, a warning will be issued but it will not prevent this LEI installation from succeeding.

17. Click Next to continue; the following screen appears. Installation of the script vault and documentation databases is optional.

   - The script vault may be used as a general repository for scripts that you use with LEI Scripted Activities.
   - The documentation databases are listed below:
     - *Lotus Connectors and Connectivity Guide* (lccon.nsf)
     - *Lotus Enterprise Integrator Installation Guide* (leiig.nsf)
18. Make your selections and click Next to continue. The Setup RealTime screen appears.

RealTime functionality can be manually configured at a later time if desired. See the *Lotus Enterprise Integrator Activities and User Guide* for more information about RealTime.


**Note** If you enable RealTime in step 18, the following warning appears. Click OK to continue.

**Note** Do not enable LEI to run as an Add-in Task if your local system only has a Notes client. Enabling LEI as an Add-in Task allows the LEI server to load and start automatically when the host Domino server is started. You can configure the Add-in Task option later if desired.
Note When LEI is installed as an add-in task, it uses the KeyFileName entry from the notes.ini file to obtain the ID file, regardless of whether the server itself uses the ServerKeyFile or KeyFileName parameter. As a result, LEI uses the ID last used by the Notes client on the server. As a workaround, each time you use the Notes client on the server, switch back to the LEI ID before closing the client.

20. Make a selection from the LEI Add-in Task screen and click Next to continue. The International Text Translation screen appears. Choose the level of text translation for this LEI server.
There are three choices for International Text Translation.

- If data is going from a source in one language to a destination in another language, click the Enabled option.
- If data is always going to a Notes database on one end, click LMBCS to cause less overhead.
- If source and destination are in the same language and Notes data format is not an issue, click the Disabled option for optimum performance. This setting can be changed at a later time through the server configuration document in the Administrator.

For more information on Text Translation, see the *Lotus Enterprise Integrator Activities and User Guide*. 

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21. Click Next to continue. The Select Program Folder screen appears. Enter a name for the LEI program folder. Select an existing folder or accept the default.

22. Click Next. The following screen appears, showing a summary of the installation options and selections that you have made. To change any options, click Back to return to a previous screen and make changes. If the selections are correct, click Next to install LEI.
Setup now copies all LEI program files and creates the lei.ini file in the Notes program directory. The Administrator database and other cluster databases are created on the Domino server you specified. If you are installing into an existing cluster, the Administrator database is opened and an LEI configuration document is created for the new server.

- When setup is complete it may prompt you to reboot your computer. This MUST be done before attempting to use LEI in any capacity.
- If you configured the LEI server to run as an add-in task, it will start when you restart the Domino server.
- If a local Domino server is hosting the LEI cluster databases, you must restart Domino (it should have been shut down prior to running setup) before starting the LEI server.

**Note for R5 Installations**

By default, Domino R5 installation creates separate directories for the Notes client and Domino server. It is also possible for Domino 4.6.x installations to be installed this way. If you are installing to a system with this type of configuration, the LEI files and lei.ini will be placed in the server directory. The PATH should be properly configured to include the server directory prior to running setup.
If Setup Is Not Successful
If setup does not complete successfully, it will display an error message.

1. Examine the error message to help determine what went wrong.
2. If the error is easily correctable, such as a misspelled Domino server name, you can click Yes and then click Back to step back through the setup screens to where the error occurred.
   
   Note: If the error cannot be resolved at this time, click No. Setup will remove any components it successfully installed and terminate.

3. Correct the error using the appropriate setup screen.
4. Keep clicking Next to repeat the setup process.

Running LEI as a Windows NT Service
This section provides information on configuring LEI to run under Windows NT. Some of these configuration items are optional.

Installing LEI as a Windows NT Service
After installing and verifying that LEI runs, you may want to configure LEI to run as a Windows NT service. This is useful if you want LEI to start automatically whenever the machine is started, or if you want to configure LEI to run continuously even if you log out of Windows NT.

LEI can be added and removed as an NT service. As an NT service, LEI will automatically start up when the NT server is started. To do this after LEI has been installed, execute nlcservc.exe from a command window in the Domino program directory.

Follow the prompts after entering one of the following commands:

nlcservc install
nlcservc remove

This should be done by a user with NT Administrator privileges.

Note: If the Domino server starts as an NT service, to avoid sequencing problems LEI should be added as a Domino Server Addin Task. This will ensure that Domino will start before there is an attempt to start LEI.

To configure LEI as a Windows NT service, complete the following steps:

1. Start a Command Prompt window.
2. At the command prompt, change to the LEI directory (usually the Domino or Notes directory).
   
   cd \Domino

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3. Execute the command NLCSERVC with the install parameter:
   \texttt{nlcservc install}

4. You will be prompted as follows. To configure the service to start automatically, respond Yes to both prompts.
   
   Do you want to make LEI a service dependent on the Lotus Domino Server (lotusdominodata) service?
   
   Do you want to make LEI start automatically at system boot?
   
   \textbf{Note} If you respond Yes to these prompts to configure the LEI service to start automatically, then the Domino server (lotusdominodata) service must also be configured to start automatically.

   LEI is now configured to automatically start when Windows NT and Domino start.

\textbf{Configuring LEI for Autostarting at Windows NT System Start}

If you had chosen No to the second prompt above, the LEI service will be configured as a manual start. You can optionally respesify that the LEI service start automatically at system start by doing the following:

1. Select Start - Settings - Control Panel.
2. Double-click the Services icon.
3. Select the “LEI” service and then click Startup.
4. Select “Automatic” as the startup type. Verify that “System Account” and “Allow Service to Interact with Desktop” are selected.
5. Click OK.
   
   LEI is now configured to automatically start when Windows NT starts.
6. Click Start to start LEI or click Close to exit.

Once LEI is configured to run as a service, you cannot run it from the command line. You must start it as a service from either the Control Panel - Services or with the “net start” command (“net start LEI”). LEI will make entries in the Windows NT event log upon startup and shutdown.

\textbf{Removing LEI as a Windows NT Service}

You can remove the LEI service using the following procedure:

1. Start a Command Prompt window.
2. At the command prompt, change to the Notes or Domino directory.
   \texttt{cd \Domino}
3. Execute the command NLCSERVC with the remove parameter.

   nlcservc remove

   **Note**  This procedure does not uninstall LEI, it only removes the LEI service from Windows NT. After removing it as a service, you must then start LEI from the command prompt in order to run it.

**Connectivity Tests with User or System Accounts**

When running the connectivity tests described in the *Lotus Connectors and Connectivity Guide*, be aware of the following considerations:

- If LEI is set to log on as a specific user account, log on to NT with that account to perform your connectivity tests. If LEI is set to log on as a system account, all required DBMS client software must be accessible through the system path.

- Since the local system account does not have access to network drives, anything following the first network path in the system path will be ignored. The DBMS client directories must be listed in the system path before any network drives. In order to perform your connectivity tests through the system account, you can perform a start cmd.exe through an LEI Command Activity. Doing so creates a command prompt with the same path and environment as the LEI service.

**Considerations When a Notes/Domino Server is Started as an NT Service**

The following considerations should be understood when running LEI as a Windows NT service.

- If LEI is installed on the same machine as the Domino server and the leiadm.nsf is also on that Domino server, LEI should only be run as an NT service if Domino is run as an NT service. Also, the LEI service must designate the Domino service as a dependency. Otherwise, LEI will fail to initialize.

- When a Notes/Domino server is started as an NT service, Notes/Domino users cannot access database or directory links that are at locations other than the local NT server. Applications that are set up as a service begin execution before you are prompted to log in at the NT server.
• If Notes/Domino is set up as a service, mapped drives that the NT server may have set up are not reconnected when the Notes/Domino server is started. The Notes/Domino server only recognizes drives that are available when it is first started. Any drives that are mapped after the Notes/Domino server is started are not recognized. Directory/database links that point to mapped drives on other computers will not function properly if the Notes/Domino server is started as a service. The solution is to not install Notes/Domino as a service.

• When Notes/Domino is not installed as a service, but is launched from the Start menu or from a desktop shortcut, you must be physically logged in at the NT server. Because you must log in at the server, all network drive mappings will have been established when the Notes/Domino server was launched. Directory/database links that are beyond the local server function correctly.
Chapter 3
Upgrading NotesPump to LEI

This section provides instructions for upgrading a NotesPump installation to LEI on all platforms.

Overview of Upgrading NotesPump to LEI

If you have NotesPump installed, the LEI setup program detects it and prompts you to either upgrade the NotesPump installation or perform a fresh LEI install.

Note All the requirements and considerations in performing a normal installation apply to performing a NotesPump upgrade. A NotesPump upgrade is an LEI installation that preserves some of your NotesPump settings and also migrates the NotesPump Administrator database to an LEI Administrator database.

Note For more information, see the section on installation in Chapter 2 for Windows platforms or Chapter 4 for UNIX platforms.

Note LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.

If you choose to upgrade NotesPump, the new LEI server or client will use several of the NotesPump settings. For example, if the Text Translation setting for your NotesPump server installation was set to “LMBCS only” and the Poll Interval was set to 15 seconds, these settings will be preserved in your new LEI server.

Note The new LEI server or client will use the same name in the new LEI Administrator as the NotesPump Administrator. It cannot be changed.

Because a successful migration of the NotesPump Administrator is an integral part of the upgrade procedure, setup will display an error message if the migration cannot complete successfully. Examine any reported errors or warnings carefully. If the error can be easily resolved, such as a misspelled Domino server name, setup will allow you to step back to the screen where you can fix the error and try again.
Note  The steps involved in upgrading NotesPump are very similar to a
normal LEI install. See the chapters on installing LEI for your particular
platforms for a description of each setup screen. Because upgrading
preserves some of the NotesPump settings, some screens are skipped.
If you wish to migrate your existing NotesPump Administrator, select to
migrate your NotesPump Administrator when the setup program prompts
you. When upgrade is complete, your LEI Administrator will contain all the
Activity documents, connection (formerly Link) documents, and server
configuration documents which existed in the NotesPump Administrator.
The server configuration documented for the upgraded server is marked as
enabled. All the other server configuration documents migrated to the new
LEI Administrator are initially marked as disabled. They will be enabled if
and when those servers are upgraded.

You cannot continue to use the NotesPump Administrator for the new
server.

The following considerations apply to the upgrade process:

• The upgrade process is nondestructive. Your NotesPump server and
Administrator database are left completely intact and should work as
before.

• The time required to migrate depends on the size of the NotesPump
Administrator database and whether it is local or remote. It may take
several minutes to an hour or more.

• If you are upgrading multiple NotesPump servers, each server upgrade
will need to be done individually by running the installation program
and selecting the upgrade option.

• Be aware that after an Administrator migration, you will have
essentially two copies of every activity: the one in the NotesPump
Administrator and the new copy in the LEI Administrator. If you still
have an active NotesPump server running NotesPump Activities, it is
possible that an active LEI server could rerun the same Activity from
the LEI administrator after the Administrator migration. For this
reason, if activities were previously scheduled in the NotesPump
Administrator, they are initially disabled in the LEI Administrator. To
re-enable activities when you are ready to run them with LEI, click
“Enable Activities” from the Actions menu.

• Activities that were previously set to “Restrict to Schedule” will now be
set to “Enabled.”
Migrating NotesPump to LEI on Windows Platform

This section describes how to properly upgrade an existing NotesPump installation to an LEI installation. The example assumes that this is the first, or only, NotesPump server to upgrade in a particular cluster. The steps to perform the Windows-based upgrade are functionally equivalent with those for UNIX, although the screens may differ in appearance.

1. After the initial Welcome and license screens, you will see the following screen if Setup detects an active NotesPump server or client installation.

You can either proceed with the upgrade or install a new LEI server or client. If you choose to install a new LEI server or client, see the chapter on installing LEI for your particular platform. Otherwise, continue on to step 2.
2. Select “Proceed with an Upgrade to LEI” and the following screen appears if you are upgrading a server. If you are upgrading a client, the following screen is skipped.

If you have not yet created a new LEI cluster, you must do so now as part of this upgrade. However, if you have already created an LEI cluster, either as part of a previous server installation or upgrade, you may select to use the existing cluster.

If you have not yet created a new LEI cluster, you must do so now as part of this upgrade. However, if you have already created an LEI cluster, either as part of a previous server installation or upgrade, you may select to use the existing cluster.
3. Choose “Upgrade Server into a New LEI Cluster.” The following screen appears.

   ![Server Information Screen]

The LEI server name provided is the same as the existing NotesPump server name. Do not change this name. The Domino server name given is the same as the server hosting the existing NotesPump cluster. Change the name if you will be creating the LEI cluster on a different Domino server.

**Note** In some instances, you may wish to perform a “local” database installation for the cluster databases. If you choose this option, the LEI databases will be installed on the local Domino server. You may specify “local” as the server name if you are installing to a Domino server on the local machine. Local install to a Notes client is not supported.

If you are installing to an existing cluster, enter the name of the Domino server hosting the LEI Administrator.

4. If you entered any name except “local” for the Domino server, the following screen will appear when you click Next. If the Domino server you specified is on the local machine, click Yes; otherwise click No.
5. The following screen now appears. Optionally specify a new data directory or default file name.

- You can change the default file names for the Administrator and log databases. These databases are always installed as part of creating a LEI cluster. By default, all databases are created in the standard data directory.

- You can specify an alternate data directory by providing the relative path from the standard data directory. This directory cannot be on another drive. For example, if your Notes data directory is c:\notes\data and you want to place the LEI databases in c:\notes\data\LEI\32, you would specify LEI\32 in the Alternate Data Directory field. Leave it blank to specify the standard data directory. Please note that these databases should not be moved after installation.

- If you are upgrading to an existing cluster, specify the name of the existing LEI Administrator database. Use the alternate data directory option to specify the relative path to the database if it is not located in the standard data directory. You can use a Notes client to access the database and open the database properties to verify the file name and location of the Administrator database.

For successful installation, you need sufficient access privileges to be able to create documents in the Administrator database.
6. Click Next and the following screen appears.

The Notes ID that you use while running setup is entered in the ACL for all the LEI databases that setup creates. The default access given is Manager. If there are any other users or groups you wish to grant Manager access to at this time, you may do so here. Enter valid, semicolon-delimited Notes IDs here. You can also add additional users after setup is complete by manually editing the ACLs. For more information, see the section entitled, "Configuring Administrator Security" in Chapter 1.

**Note** If the Notes ID you use to access the databases after setup is complete is NOT the same one you used during setup, add that Notes ID to the Additional LEI Database Managers box now.
7. Click Next and the following screen appears.

![Administrator Database Migration](image)

For the upgrade procedure to be successful, you must migrate the contents of your existing NotesPump Administrator database to the new LEI Administrator you are creating.

8. Enter the name of the Domino server hosting the NotesPump Administrator. The default given is what setup has detected and will be correct unless you have moved the database elsewhere. However, if the Domino server is located on the local machine, you MUST change the entry to "local."

9. Enter the name of the NotesPump Administrator database to migrate to the LEI Administrator. The default given will be correct unless you have renamed it.
10. Click Next to continue. The following screen appears. Installation of the script vault and documentation databases is optional.

- The script vault may be used as a general repository for scripts that you use with LEI Scripted Activities.
- The documentation databases are listed below:
  - *Lotus Connectors and Connectivity Guide* (lccon.nsf)
  - *Lotus Enterprise Integrator Installation Guide* (leiig.nsf)
11. Click Next. The Setup RealTime screen appears. The upgrade procedure does not automatically use the RealTime setting currently used by the NotesPump server. You must re-specify it here.

RealTime functionality can be manually configured at a later time if desired. See the *Lotus Enterprise Integrator Activities and User Guide* for more information.

![Setup RealTime Screen](image_url)
12. Click Next to continue. The LEI Add-in Task screen appears. The upgrade procedure does not automatically use the add-in setting currently used by the NotesPump server. You must re-specify it here.
Do not enable LEI to run as an add-in task if your local system only has a Notes client. Enabling LEI as an add-in task will allow the LEI server to load and start automatically when the Domino server is started. The add-in task configuration can be done at a later time if desired.
13. Click Next to continue. The Select Program Folder screen appears. Enter a name for the LEI program folder, select an existing folder, or accept the default.

![Select Program Folder](image)

14. Click Next. The following screen appears, showing a summary of the installation options and selections that you have made. To change any options, click Back in order to page back and make changes. If the selections are correct, click Next to finish the Upgrade process.

![Start Copying Files](image)
15. Setup will now copy all LEI program files and create the lei.ini file in the Notes program directory. The Administrator database and other cluster databases will be created on the Domino server you specified. If you are installing into an existing cluster, the Administrator database will be opened and a LEI configuration document will be created for the new server. Setup will provide status information throughout this process.

After Setup creates the cluster databases, it will open the NotesPump Administrator database and begin transferring all server configuration documents, Link documents (now called Connector documents), and Activity documents to the LEI Administrator. Please note that this process can be very time-consuming if the database is large and network load is high. Setup will provide an error message if a problem occurs.

- When Setup is complete it may prompt you to reboot your computer. This MUST be done before attempting to use LEI in any capacity.
- If you configured the LEI server to run as an add-in task, it will start when you restart the Domino server.
- If a local Domino server is hosting the LEI cluster databases, you must restart Domino (it should have been shut down prior to running Setup) before starting the LEI server.

Special Note for R5 Installations

By default, Domino R5 installation creates separate directories for the Domino client and server. Domino 4.6.n installations can also be installed this way. If you are installing to a system with this type of configuration, the LEI files and lei.ini will be placed in the server directory.

If Setup is Not Successful

If setup does not complete successfully, it will display an error message.

1. Examine the error message to help determine what went wrong.
2. If the error is easily correctable, such as a misspelled Domino server name, you can click Yes and then click Back to step back through the setup screens to where the error occurred.
   
   Note If the error cannot be resolved at this time, click No. Setup will remove any components it successfully installed and terminate.
3. Correct the error using the appropriate setup screen.
4. Keep clicking Next to repeat the setup process.

If an error occurs during the NotesPump Administrator migration process, an error message will be displayed. Click OK to get more information on the nature of the problem and correct it if possible as described in the preceding paragraph. You cannot successfully perform a NotesPump upgrade without a successful migration of the NotesPump Administrator. If a migration problem cannot be resolved, you must perform a fresh LEI install (not a NotesPump migration) when prompted at the beginning of the upgrade process.

UNIX Only

You may also perform a NotesPump migration by invoking the command line setup utility. From the command line, enter the following:

setup MIGRATENPADMIN ADMINSERVER=mydeptserver
ADMINDATABASE=leiadm.nsf NPADMINSERVER=mydeptserver
NPADMINDATABASE=lnpadm.nsf

To install LEI from the command line, see the chapter entitled, “Command Line Installation for UNIX.”
Chapter 4
Installing and Configuring LEI on UNIX

This chapter provides information about system requirements and how to install LEI on UNIX (AIX and Solaris) platforms. LEI installation on AS/400 and S/390 is described in later chapters.

AIX System Requirements

This section describes AIX system requirements.

Note LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.

Hardware Requirements

- Processor: PowerPC
- Memory: Minimum 64MB RAM; 96MB or more recommended
- Disk Space: 35MB of disk space

Software Requirements

This version of LEI has been certified with the following software:

- AIX 4.3.2
- Notes Release 4.6.7 with required patches
- Domino Release 5.0.7a with required patches

Note Read all documentation for Domino (including online) regarding the specific AIX patch-level Domino requires for its server. The patch level required by Domino is a prerequisite for a successful LEI installation. The patch requirements are updated periodically. See www.lotus.com/ei and the Domino documentation.
Solaris SPARC System Requirements

This section describes Solaris system requirements.

**Hardware Requirements**

- Processor: SPARC or UltraSPARC
- Memory: Minimum 64MB RAM; 96MB or more recommended
- Disk Space: 35MB of disk space

**Software Requirements**

This version of LEI has been certified with the following software:

- Solaris 2.7 and 2.8
- Notes Release 4.6.7 with required patches
- Domino Release 5.0.7a with required patches

**Note**  Read all documentation for Domino (including online) regarding the specific Solaris patch-level Domino requires for its server. The patch level required by Domino is a prerequisite for a successful LEI installation. The patch requirements are updated periodically. See www.lotus.com/ei and the Domino documentation.

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**Installing LEI on UNIX**

If you are installing LEI on a UNIX platform, you must use a command line installation procedure. There is no graphical user interface for installation on the UNIX platform.

**Note**  Installation of the LEI Development client is not supported for UNIX hosts.

**Note**  If you reinstall or upgrade Domino with DECS after installing LEI, you must reinstall or restore LEI. For more information, see the www.lotus.com/ei Web site.

**UNIX Domino R4 Installation Comments**

On UNIX, the system login ID of the user performing the install must be the owner of the Notes program directory.

The install program must be able to establish symbolic links and possibly copy files to this directory. It will check the users IDs at initialization and will not continue if this requirement is not met.
UNIX Domino R5 Installation Comments

On UNIX, you must be the owner of the Domino server to run Setup (typically ‘notes’). The owner of the Domino server will have the Domino server program directory on the path and be able to launch the Domino server.

During Setup you will be prompted for the root password of your machine. This must be provided in order for LEI install to successfully complete.

General Installation Comments

• If the Domino server on the system that you are installing LEI onto is running Domino Enterprise Connection Services (DECS), shut down the DECS service. From the Domino console, type “tell DECS quit.” To restart DECS, type “load DECS” from the Domino console. See Appendix B for more information regarding LEI and DECS.

• LEI installation copies all LEI program files and creates the lei.ini file. The Administrator database and other cluster databases are created on the specified Domino server. If you are installing into an existing cluster, the Administrator database is opened and a LEI configuration document is created for the new server.

• If you configure the LEI server to run as an add-in task, it will start when you restart the Domino server.

• If LEI installation does not complete successfully it will display an error message screen.

Environment Variables

Once you have created the UNIX user ID for LEI, all environment settings should be entered into the .profile (Korn shell) or .login (C shell) to ensure the same environment settings are used each time you work with LEI. Before installing LEI, configure these environment variables for the appropriate platform you are working with.

AIX Environment Variables

1. Set the environment variable LANG to your proper locale. If this is not set, the default “C” is used.

   LANG=C

   Note  For more information about locale and character set specification, see the Lotus Enterprise Integrator Activities and User Guide.
2. Set the environment variable Notes_ISOLATION to true. This variable allows you to run a Domino server and Notes client on the same machine. This only needs to be set if you are running the Domino server on the same machine.

   \texttt{Notes\_ISOLATION=true}

3. Set the environment variable LOTUS to the directory where all your Lotus software is installed.

   \texttt{LOTUS=/opt/lotus}

4. Set the environment variable Notes_ExecDirectory to specify the Notes/Domino executable directory.

   \texttt{Notes\_ExecDirectory=/opt/lotus/notes/latest/ibmpow}

5. Set the environment variable PATH to include the following directories:
   - Notes Resource directory: $LOTUS/notes/latest/ibmpow/res/$LANG
   - Lotus executable directory: $Notes_ExecDirectory
   - LEI directory (such as /opt/lotus/lei)
   - Notes data directory (locates notes.ini file; for example /home/user/lnpump/notesr4)

   For example:
   \texttt{PATH=$PATH:/opt/lotus/notes/latest/ibmpow/res/$LANG:/opt/lotus/notes/latest/ibmpow:/opt/lotus/lei:/home/user/lnpump/notesr4}

6. Set the environment variable LIBPATH, which is used to locate shared libraries, to include the following directories:
   - LEI directory (such as /opt/lotus/lei)
   - Notes executable directory: $Notes_ExecDirectory
   - Any other product library directories you may require (such as, $ORACLE/lib, $SYBASE/lib, $ODBC_HOME/dlls)

   For example:
   \texttt{LIBPATH=/opt/lotus/lei:/opt/lotus/notes/latest/ibmpow:$ORACLE/lib}

**Solaris Environment Variables**

1. Set the environment variable LANG to your proper locale. If this is not set, the default “C” is used.

   \texttt{LANG=C}
2. Set the environment variable Notes_ISOLATION to true. This allows you to run a Domino server and Notes client on the same machine.

   Notes_ISOLATION=true

3. Set the environment variable LOTUS to the canonical Lotus directory /opt/lotus. The canonical Lotus directory is the directory where all Lotus software is installed.

   LOTUS=/opt/lotus

4. Set the environment variable Notes_ExecDirectory to specify the Notes/Domino executable directory.

   Notes_ExecDirectory=/opt/lotus/notes/latest/sunspa

5. Set the environment variable PATH to include the following directories:
   - Notes Resource directory:
     $LOTUS/notes/latest/sunspa/res/$LANG
   - Lotus executable directory: $Notes_ExecDirectory
   - LEI directory (such as /home/user/lnpump)
   - Notes data directory (to locate notes.ini file, for example /home/user/lnpump/notesr4)

   For example:

   PATH=$PATH:/opt/lotus/notes/latest/sunspa/res/$LANG:/opt/lotus/notes
   /latest/sunspa:/opt/lotus/lei:/home/user/lnpump/notesr4

6. Set the environment variable LD_LIBRARY_PATH which is used to locate shared libraries to include the following directories:
   - LEI directory (such as /opt/lotus/lei)
   - Notes executable directory: $Notes_ExecDirectory
   - Any other product library directories you may require (such as, $ORACLE/lib, $SYBASE/lib, $ODBC_HOME/dlls)

   For example:

   LD_LIBRARY_PATH=/opt/lotus/lei:/opt/lotus/notes/latest/sunspa:$ORACLE/lib
Using a Command File with Setup

To simplify installation, you can create and use a command file. A command file enables you to house several action and option combinations in a file that can be used repeatedly. The syntax for installing LEI in conjunction with a command file is shown below.

```
setup @COMMAND_FILE
```

The variable COMMAND_FILE is the exact name of your text file containing an ACTION and the OPTIONS for setup to execute.

Command File Considerations

- The actions in the command file can be specified using uppercase, lowercase, or both. The entries are converted to upper case when the file is read.
- The command file cannot contain any blank lines.
- Because the UNIX operating system is case-specific, the command file name that you specify must match the name that follows the @ symbol exactly.

Example

This example shows how to install a new LEI cluster with the following settings:

- Enterprise Integrator Server Name: Enterprise Integrator Server 1
- Domino Server Name: Rolm
- Administrator Database Name: leiadm.nsf
- Log Database Name: leilog.nsf
- LotusScript Vault: leivlt.nsf
- Documentation Database: Yes
- Text Translation=LMBCS
- Enterprise Integrator Installation Directory=/opt/lotus/lei

1. Add the group LEI to the list of database managers by creating a text file called installei.txt whose contents are:

   ```
   INSTALLCLUSTER
   LEI="Enterprise Integrator Server 1"
   ADMINSERVER=ROLM
   ```

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ADMINDATABASE=leiadm.nsf
ADMINLOGDATABASE=leilog.nsf
VAULTDATABASE=leivlt.nsf
TRANSLATION=LMBCS
DIRECTORY=/opt/lotus/lei
DOC=YES

2. At the UNIX command line, issue the setup command and specify the
command file name after the @ symbol. In this example, the exact
command line syntax would be as follows:
   setup @installlei.txt

---

**Using an Action and Option Specification with Setup**

Rather than use a command file, you can specify an action and option at the
command line itself. In that case, ACTION and OPTIONS are the parameters
for setup to execute directly from the command line. An example is
shown below:

   setup DIRECTORY=/home/notes/lotus/lei

**Action Descriptions**

Specify one of the following ACTIONs.

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INSTALLCLIENT</td>
<td>Install an LEI development client.</td>
</tr>
<tr>
<td>INSTALLSERVER</td>
<td>Install an LEI server.</td>
</tr>
<tr>
<td>INSTALLCLUSTER</td>
<td>Install an LEI server and associated databases.</td>
</tr>
<tr>
<td>REMOVECLIENT</td>
<td>Remove the installed development client.</td>
</tr>
<tr>
<td>REMOVESEVER</td>
<td>Remove the installed server only.</td>
</tr>
<tr>
<td>REMOVECLUSTER</td>
<td>Remove the entire cluster, including the Administrator.</td>
</tr>
<tr>
<td>WARNING: This permanently deletes the entire cluster.</td>
<td></td>
</tr>
<tr>
<td>UPGRADE</td>
<td>Upgrade the LEI installation with a new version.</td>
</tr>
<tr>
<td>MIGRATENADMIN</td>
<td>Migrate a NotesPump installation to LEI.</td>
</tr>
<tr>
<td>RESTORELEI</td>
<td>Restore the symbolic links needed by LEI after the Domino server or Notes client is upgraded on the machine where LEI is installed.</td>
</tr>
</tbody>
</table>

---

Chapter 4: Installing and Configuring LEI on UNIX  53
**Option Descriptions**

OPTIONS are comprised of the following parameter keywords and values. The OPTION pairs must be concatenated with an equal sign (=) and must NOT contain spaces. If the value itself contains a space or a slash (/) it must be enclosed with quotation marks. All OPTIONS are set to the default value as noted if they are omitted.

OPTIONS used with all Installs: [ ] indicates the default.

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEI</td>
<td>LEI server or client name - this is mandatory, there is no default</td>
</tr>
<tr>
<td>ADMINSERVER</td>
<td>Domino server name [local]</td>
</tr>
<tr>
<td>ADMINDATABASE</td>
<td>LEI Admin database name [leiadm.nsf]</td>
</tr>
<tr>
<td>DATADIRECTORY</td>
<td>Relative path from default Domino data directory to install/locate LEI cluster databases [standard data directory]</td>
</tr>
<tr>
<td>DIRECTORY</td>
<td>(UNIX only) directory path to install LEI files ([or example, opt/lotus/lei])</td>
</tr>
</tbody>
</table>

OPTIONS used with INSTALLSERVER and INSTALLCLUSTER: [ ] indicates the default.

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRANSLATION</td>
<td>DISABLED/LMBCS/ENABLED [DISABLED]</td>
</tr>
<tr>
<td>REALTIME</td>
<td>YES/NO [NO]</td>
</tr>
<tr>
<td>SERVERTASK</td>
<td>YES/NO [NO]</td>
</tr>
</tbody>
</table>

OPTIONS used with INSTALLCLUSTER: [ ] indicates the default.

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMINLOGDATABASE</td>
<td>LEI Log database name [leilog.nsf]</td>
</tr>
<tr>
<td>VAULTDATABASE</td>
<td>Script vault database name [not installed]</td>
</tr>
<tr>
<td>ADDITIONALMGR</td>
<td>Notes user IDs to be added as Manager [NONE]</td>
</tr>
<tr>
<td>DOC</td>
<td>NO/YES [NO]</td>
</tr>
</tbody>
</table>

OPTIONS used for MIGRATENPADMIN: [ ] indicates the default.

<table>
<thead>
<tr>
<th>OPTION</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMINSERVER</td>
<td>Domino server name [local machine]</td>
</tr>
<tr>
<td>ADMINDATABASE</td>
<td>LEI Admin database name [leiadm.nsf]</td>
</tr>
<tr>
<td>NPADMINSERVER</td>
<td>Domino server hosting old NotesPump Admin [local machine]</td>
</tr>
<tr>
<td>NPADMINDATABASE</td>
<td>NotesPump Admin database [lnpadm.nsf]</td>
</tr>
</tbody>
</table>
LEI Installation Procedure

Install LEI on Solaris or AIX using the following procedure.

1. Extract the LEI files from the CD-ROM tar file `<platformname>.tar` (where “platformname” = aix or sparc) into a temporary directory. For example, create a temporary LEI directory in `/tmp/lei` and then extract the files to that temporary directory.
   
a. mkdir `/tmp/lei`
b. cd `/tmp/lei`
c. tar -xvf `/cdrom/<platformname>/<platformname>.tar`

   **Note** The setup installation file will be found in the platform (for example, aix) directory.

2. Change into the directory in which the setup file resides.

3. From the command line, issue the setup command in conjunction with either an existing command file or command line options.

   ```
   setup @COMMAND_FILE
   ```
   or
   ```
   setup ACTION [OPTIONS]
   ```

   **Note** Online help is available by issuing the following command.

   ```
   setup HELP
   ```

For an example of installing LEI using a command file of user-specified actions, see the section entitled, “Using a Command File with Setup” earlier in this chapter.

General Installation Considerations

A sample installation scenario is provided below.

1. Create a New Cluster and Install the First LEI Server

   The cluster databases, which include the Administrator database, will be installed on the Domino server chosen later in the setup process. If you have already created an LEI cluster as part of a previous LEI server installation and wish this server to share the same Administrator, select “Install Additional LEI server in an existing cluster.”

   - In the LEI server name box, you must enter a name.
In the Domino server name box, enter the name of the Domino server which will host the LEI Administrator Database. This server must be accessible and running. You also need sufficient privileges to create databases on the Domino server.

Note: In some instances, you may wish to perform a local database installation for the cluster databases. If you choose this option, the LEI databases will be installed on the local Domino server. You may specify “local” as the server name if you are installing to a Domino server on the local machine. Local install to a Notes client is not supported.

Normally, all databases are created in the default, or standard, data directory. However, in the “Alternate data directory” box, you can specify an alternate directory for data by providing the relative path from the standard directory. For example, if your Notes data directory is /usr/notes/data and you want to place the LEI databases in /usr/notes/data/LEI/32, you would specify LEI/32 in the Alternate Data Directory box. Leave it blank to specify the standard directory. These databases cannot be moved after installation.

In the Administrator Database Filename and the Log Database Filename boxes, you may change the default file names for the Administrator and Log databases. These databases are always installed as part of creating an LEI cluster.

The LotusScript Vault database may be used as a general repository for LotusScripts you will use with Scripted Activities. Installation of this database is optional.

Installation of the LEI Documentation databases is optional. If you do not install the documentation databases, online Help in the Administrator database will not be available. Documentation databases in .nsf format are listed below:

- Lotus Enterprise Integrator Activities and User Guide (leidoc.nsf)
- Lotus Connector LotusScript Extensions Guide (lsxlc.nsf)
- Lotus Connectors and Connectivity Guide (lccon.nsf)
- Lotus Enterprise Integrator Installation Guide (leiig.nsf)

The Notes ID that you use while running installing LEI is entered in the ACL for all the LEI databases created by the installation procedure. The default Access given is Manager. If there are any other users or groups you wish to grant Manager access to at this time use the Additional Database Managers box. Enter valid semicolon-delimited Notes IDs here. After Setup is complete, you can open the databases and manually edit the ACLs. See “How to Set Up Administrator Security” in Chapter 1.
Note If the Notes ID you use to access the databases after installation is complete is not the same one you are using during installation, add that Notes ID at this time to the Additional Database Managers box. If you chose to install to an existing LEI cluster, several of the above fields will not apply and will be unavailable.

2. Migrate a NotesPump Administrator Database

The new LEI Administrator will be populated with the contents of the NotesPump Administrator after it is created. This will allow you access to Connections (formerly Links) and Activities you have already defined. See the chapter entitled, “Upgrading NotesPump to LEI” for more information about NotesPump Administrator migration.

1. Make a RealTime selection.

Note For information about RealTime activities, see the RealTime Activities chapter of the Lotus Enterprise Integrator Activities and User Guide.

Choose whether to configure the LEI server as a Domino add-in task. Enabling this option will cause LEI to start automatically when the Domino server is started.

Note When LEI is installed as an add-in task, it uses the KeyFileName entry from the notes.ini file to obtain the ID file, regardless of whether the server itself uses the ServerKeyFile or KeyFileName parameter. As a result, LEI uses the ID last used by the Notes client on the server. As a workaround, each time you use the Notes client on the server, switch back to the LEI ID before closing the client.

2. Choose the level of text translation for this LEI server.

3. Specify the Directory where LEI Program Files will Reside

After the files are copied to the program directory, symbolic links are created to many of these files in the Notes program directory. Files that are shared with Domino Enterprise Connection Services (DECS) may be copied into the Notes program directory if they are more recent than the DECS files in that directory.

4. Result

The LEI installation process copies all LEI program files and creates the lei.ini file. The Administrator database and other cluster databases are created on the specified Domino server. If you are installing into an existing cluster, the Administrator database is opened and an LEI configuration document is created for the new server. The installation program provides status information throughout this process.
• If you configured the LEI server to run as an add-in task, it will start when you restart the Domino server.

• If setup does not complete successfully it will display an error message screen. You may need to use the scroll bar in the dialog screen to see all the information.

• If the error cannot be resolved at this time, press Quit. Setup will remove any components it successfully installed and terminate.

---

**Autostarting LEI at OS Startup**

Autostart scripts for AIX and Solaris are placed in the installation directory during LEI installation. The scripts contain information on how they should be installed. If you want to use the autostart script, you must modify it to match your environment and then copy it to a system location.

Once started by the autostart script, you can shut down LEI using LEI server administration commands available in the LEI server Administrator database.

**General Instructions**

The autostart script assumes the UNIX user ID of “lei” for running LEI. You should edit the script and change the userid to match your installation. Additionally, output from LEI is piped into a file named lei.log. If you do not want the log, you should replace the occurrence of lei.log with /dev/null.

**Autostarting on AIX**

1. Check to see if /etc/inittab has an entry to execute /etc/rc.local. You can check this by running:
   ```
   grep rc.local /etc/inittab
   ```

2. If there is no entry for rc.local, add one with the following command:
   ```
   mkitab "rclocal:2:wait:/etc/rc.local >/dev/console 2>&1"
   ```

3. Copy the autostart file to /etc/rc.local and then set the privileges with the following command:
   ```
   chmod 744 /etc/rc.local
   ```

   If there is an entry in inittab to execute rc.local, then edit rc.local and append the body of the LEI autostart file to the end of rc.local (include everything but the first line from the autostart file).
Autostarting on Solaris

1. Copy the autostart file to /etc/init.d/lei and then set the privileges with the following command:
   chmod 744 /etc/init.d/lei

2. Create the necessary symbolic link with the command:
   ln -s /etc/init.d/lei /etc/rc3.d/S50lei
Chapter 5
Installing and Configuring LEI on AS/400

This chapter provides instructions for installing LEI on the AS/400.

AS/400 System Requirements
This section describes the AS/400 system requirements.

Note LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.

Hardware Requirements
- AS/400 RISC machines only

Software Requirements
- V4R4 of OS/400 or later version
- 5769-LNT - Domino for AS/400
- *BASE is minimally required to run LEI.

To check, use DSPSFWRSC. Other options may also be installed.

<table>
<thead>
<tr>
<th>Resource</th>
<th>Option</th>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>--5769LNT</td>
<td>*BASE</td>
<td>5,050</td>
<td>Lotus Domino for AS/400</td>
</tr>
<tr>
<td>--5769LNT</td>
<td>*BASE</td>
<td>2,924</td>
<td>Lotus Domino for AS/400</td>
</tr>
<tr>
<td>5769LNT</td>
<td>1</td>
<td>5,050</td>
<td>AS/400 Integration</td>
</tr>
<tr>
<td>5769LNT</td>
<td>1</td>
<td>2,924</td>
<td>AS/400 Integration</td>
</tr>
<tr>
<td>5769LNT</td>
<td>3</td>
<td>5,050</td>
<td>C API</td>
</tr>
<tr>
<td>5769LNT</td>
<td>4</td>
<td>5,050</td>
<td>C++ API</td>
</tr>
<tr>
<td>5769LNT</td>
<td>5</td>
<td>5,050</td>
<td>LotusScript Extension ToolKit</td>
</tr>
<tr>
<td>5769LNT</td>
<td>6</td>
<td>5,050</td>
<td>HiTest C API</td>
</tr>
<tr>
<td>5769LNT</td>
<td>7</td>
<td>5,050</td>
<td>Advanced Services</td>
</tr>
</tbody>
</table>

Note HiTest is not an installation requirement.
Any identified AS/400 software fixes (PTFs) required by 5769-LNT and 5769-LNP and specified in the release notes for the two products must be applied. You can find the PTFs, as well as other information regarding Lotus Domino products on the AS/400 platform, at the following IBM Web site:

http://www.as400.ibm.com/domino/support/qmu.htm

**Note** LEI running native on the AS/400 does not require any additional DB2 connection software beyond what is already provided with the integrated DB2/400. You can do Distributed Relational Database Connectivity to other DB2 platforms in your network with what is native on your AS/400. You must make sure that all DB2 database targets are registered in the Relational Database Directory (see WRKRDBDIRE) in order to connect to them. This includes the local DB2/400.

For more information about DB2 and the AS/400 platform, see the chapter entitled, “Introduction to Installing and Configuring LEI.”

**Note** AS/400 currently supports the DB2, File, Notes, Text, Collapse/Expand, Meter, and Order base connectors and the SAP and JDE premium connectors.

For additional information, please see the Redbook, *Lotus Domino for AS/400: Integration with Enterprise Applications*, SG24-5345-00, available at the following Web site:

www.redbooks.ibm.com/abstracts/sg245345.html

The Redbook contains a chapter regarding LEI usage on the AS/400.

---

**Loading LEI on AS/400 from CD**

If you have any NotesPump 2.5A extension managers (LNPEXT or LNPDEXT) registered in the notes.ini, you will need to manually remove them.

If you have the NotesPump installed on your AS/400, you must do a DLTLCPGM 5769LNP prior to doing the following installation. This delete licensed program request will only remove the licensed program product code; it will not affect your NotesPump Administration database needed for migration.

**Note** Prior to initiating the LODRUN sequence below, you must shut down any locally running Domino servers on your AS/400 (see WRKDOMSVR for active servers or ENDDOMSVR command). This is required because some service programs common to Domino and LEI will be replaced.
You use the LODRUN command to load LEI code on to the AS/400.

1. Insert the LEI CD into the CD-ROM drive.

2. Enter the following command:

   ```
   LODRUN DEV(*OPT) DIR('/OS400')
   ```

   **Note** After completion of the load, the product 5769LNP will be installed on your system. All locally running Domino Servers on your AS/400 must be terminated prior to LODRUN.

3. To verify installation, use the Display Software Resources (DSPSFWRSC) command and look for:

<table>
<thead>
<tr>
<th>Resource</th>
<th>Option</th>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5769LNP</td>
<td>*BASE</td>
<td>5,050</td>
<td>Lotus Enterprise Integrator</td>
</tr>
</tbody>
</table>

You are now ready to configure the LEI server using the add LEI server (ADDLEISVR) command.

The following table lists common error messages from LODRUN and their possible solutions:

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPF3717 File not selected</td>
<td>Did not find right file on CD.</td>
<td>Make sure using parameter DIR('/OS400') on LODRUN command.</td>
</tr>
<tr>
<td>CPD3DCB - Library QNOTESLEI for product 5769LNP option *BASE release *FIRST cannot be used.</td>
<td>Did not do a DLTLICPGM of 5769LNP (NotesPump Version 2.5A) prior to doing a LODRUN of the new LEI Version 3.1.</td>
<td>LEI 3.1 is placed in a new product library QNOTESLEI. As a note to NotesPump users, the old product library was QNOTESPUMP. To correctly restore the new licensed program, you must delete the old licensed program prior to install. Note that this delete will affect the product code only, not any existing NotesPump Administration databases.</td>
</tr>
</tbody>
</table>
Adding LEI Server to AS/400 Domino Server

After LEI is loaded on the AS/400, you configure an LEI server to run under an existing Domino server by using the add LEI server (ADDLEISVR) command.

To configure an LEI server, issue the ADDLEISVR CL command. Prior to running this command, you must start the local Domino server. The ADDLEISVR command creates or adds to an existing LEI cluster. Additional information is provided in the Install Guide and in the command help text.

**Note**  LEI only runs as an add-in server on Domino for AS/400. LEI cannot run as a stand-alone product on the AS/400.

**Note**  On this platform, you cannot upgrade a previous NotesPump configuration and code to LEI. Instead, you must delete the licensed program (DLTLICPGM 5769LNP) of the NotesPump product prior to installing LEI and then reestablish your new LEI servers using the ADDLEISVR command. You can, however, migrate your existing NotesPump 2.5A Administrator database to the new LEI Administration database using the MIGRATE(*YES) option when configuring your new LEI server (see ADDLEISVR CL command).

**Note**  Additional explanation and parameter details are available by prompting the command (F4) and pressing help (F1).

- Ensure that the Domino server is started prior to running the add LEI server (ADDLEISVR) command.
- Only one LEI server is allowed to be configured per AS/400. Even if there are partitioned Domino servers on AS/400, only one can have an LEI server configured.
- Adding an LEI server to your AS/400 is considered an administrative function (ADDLEISVR command). The user profile requesting the add needs *ALLOBJ, *SECADM, *IOSYSCFG and *JOBCTL special authorities.
- To add (configure) an LEI server, use the ADDLEISVR command.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SERVER</td>
<td>Name of LEI server</td>
<td>You specify the specific server name here.</td>
</tr>
<tr>
<td>LCLDOMSVR</td>
<td>Name of Domino server where LEI will run</td>
<td>This must be a Domino server configured and started on local AS/400.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The maximum length allowed is 127.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOMSVRDB</td>
<td>Name of Domino server where LEI Administrator Database will reside</td>
<td>This must be a Domino server configured somewhere in your network. This can be the same or a different server then the LCLDOMSVR. The LEI Admin database may reside on Domino server running on another AS/400 or Domino on another platform. The Domino server must be active. The maximum length allowed is 127.</td>
</tr>
<tr>
<td>CRTDB</td>
<td>Create Administrator Database (*YES or *NO)</td>
<td>If *NO, then the LEI databases must already exist on the DOMSVRDB, and must be the correct version. This option would be used if adding an additional LEI server to an existing LEI administrator database.</td>
</tr>
<tr>
<td>AUTOADD</td>
<td>Autostart Lotus LEI (*YES or *NO)</td>
<td>If *YES, then the notes.ini file of the specified LCLDOMSVR will be modified to add LEI to ServerTasks list. Then, when ever the Domino server is started, the LEI server will also start. If *NO, then the notes.ini is not modified. To start LEI server, you must issue the load of command from Domino console.</td>
</tr>
<tr>
<td>AUTORT</td>
<td>Automatic setup of RealTime extension manager</td>
<td>If *YES, then the RealTime extension manager will be enabled. If *NO, then the notes.ini file will not automatically be set up to enable the RealTime extension manager.</td>
</tr>
<tr>
<td>MIGRATE</td>
<td>Migrate from NotesPump</td>
<td>The default is *NO. Specifying *YES will migrate links, link options, and activities from a specified NotesPump Administration database to the LEI Administration database.</td>
</tr>
<tr>
<td>MIGDOMSVR</td>
<td>Migration Domino server</td>
<td>Specify the name of the Lotus Domino server on which the NotesPump Administration database to be migrated resides. *DOMSVRDB default means that the NotesPump Administration database resides on the same Domino server as specified in the DOMSVRDB parameter.</td>
</tr>
</tbody>
</table>

Chapter 5: Installing and Configuring LEI on AS/400  65
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIGADMDB</td>
<td>Migration administration database</td>
<td>Specify the name of the NotesPump Administration database to be migrated. Lnpadm.nsf is the default create name on the ADDLNPSVR command.</td>
</tr>
<tr>
<td>ALTDBPATH</td>
<td>Alternate database path (directory)</td>
<td>*DEFAULT means that the databases will be created in the default notes data directory. A supplied path means that the databases will be created in the absolute path, example <code>/notes/data/lei</code>, or in the relative path, just <code>lei</code>.</td>
</tr>
<tr>
<td>ADMDB</td>
<td>LEI Administrator Database</td>
<td>The default is leiadm.nsf. This will be created in the Domino server’s data directory, (normally notes/data).</td>
</tr>
<tr>
<td>DBMGR</td>
<td>Database Manager’s Name</td>
<td>Name, (Last, First, Middle initial) This name will be placed in ACL for the Admin, Script Vault and Log database with authority of Manager. The default access for the databases is none, so the name must match exactly the name of a Notes user. If it does not match, then the database will be created but will not be accessible by anyone on a connecting Notes client.</td>
</tr>
<tr>
<td>LOGDB</td>
<td>LEI Log Database</td>
<td>The default is leilog.nsf. It will be located in the Domino server’s data directory (normally notes/data).</td>
</tr>
<tr>
<td>INSDOC</td>
<td>Install the LEI documentation databases</td>
<td>The default is *NO. This means the installation of documentation databases is optional and will not be moved to the specified or default data directory. If *YES, this will move the LEI documentation databases to the specified or default data directory.</td>
</tr>
<tr>
<td>VLTDB</td>
<td>Install the LEI script vault database</td>
<td>The default is leivlt.nsf. This will be located in the Domino server’s data directory (normally notes/data).</td>
</tr>
</tbody>
</table>

66 LEI 3.2 Installation Guide
Example

The following CL command will create an LEI server called BashirLEI on Domino server Bashir.

The LEI Administrator Databases will also be placed on the same Domino server (Bashir). The LEI databases will be created and the manager in the ACL will be Tom T Dilbert. The DBMGR must match an authorized Notes user ID exactly or you will not be authorized to open the LEI Administration databases after the configuration.

```
ADDLEISVR SERVER(BashirLEI) LCLDOMSVR(Bashir)
DOMSVRDB(Bashir) DBMGR(Dilbert Tom T)
```

After the LEI server is added to the Domino server, you can start the LEI server.

You can then create and schedule LEI Activities using the LEI Administrator database from a Notes client workstation.

**Note** LEI on AS/400 does not support configuration and execution under CCSID 5026.

Common ADDLEISVR Error Messages

The following table shows some common error messages from ADDLEISVR command and possible solutions.

**Note** Stand-alone application requests (like ADDLEISVR) may be affected by sophisticated proxy network settings in the server document in the names.nsf. Although the connection to the Domino server may appear straight forward externally (via ping, show ports, host table entries, etc), this may still not be the case. If you receive the following message, check the PROXY attributes in your Domino server document.

Unable to find path to server

**Note** Settings in the Notes RPC proxy and the Socks proxy can generate the above error message.
A list of other error messages and their possible causes is shown below.

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can not add configuration document to an existing LEI Administrator database.</td>
<td>Target LEI Administration database is not of the current release.</td>
<td>This checks the release level of the target LEI Administrator database.</td>
</tr>
<tr>
<td>HiTest message stating that 'You are not authorized to perform operation'.</td>
<td>May be related to multiple server configurations or something not getting cleanup when server is removed.</td>
<td>Set the KeyFileName to a valid user ID other than the server ID in the notes.ini. When you execute the request, you will then get prompted for the password (if the user ID is password protected). When you are done, you can change the notes.ini back to the server ID if you like.</td>
</tr>
<tr>
<td>Get a HiTest message stating that the requesting client ID and the server ID are the same. Implication being that you cannot use the same ID for the client and the server side.</td>
<td>Problem appears to occur when the KeyFileName is set to the same ID as the running Domino server (server.id) but it is not consistent.</td>
<td>Update the notes.ini and specify a valid and accessible user ID in the KeyFileName. Don’t specify the default of server.id. When you execute the request, you will then get prompted for the password. When you are done, you can optionally change the notes.ini back to server.id.</td>
</tr>
</tbody>
</table>

*continued*
As long as ADDLEISVR thinks there is an existing configuration, it will not let you add another, use RMVLEISVR or delete the lei.ini manually. Note that only one LEI server is allowed per AS/400.

<table>
<thead>
<tr>
<th>Error Message</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get a HiTest message stating that it cannot find a path to the server.</td>
<td>Possible problems could be one of the following items: The Domino server (name) is not in the TCPIP host table entries. You do not have a KeyFileName specified in your notes.ini. QNOTES is not authorized to the ID file specified in the KeyFileName.</td>
<td>If your Domino server name is not the name of your AS/400 server, you may need to add an alias entry to the TCP/IP host table entry. The ADDLEISVR process is acting as a client to the Domino server and needs to know how to find the IP address of the Listening Domino server. Use the command CFGTCP and (via option 10) add an entry containing the name of your Domino server and the IP address of your server or ALTERNATIVELY, add the Domino server and IP address to your Domino name server (DNS). If KeyFileName is not specified, add one with a user ID available in the Domino data directory. Also, if you copy a user ID to the Domino data directory, make sure that QNOTES is authorized to it. Your Domino server must also be active.</td>
</tr>
<tr>
<td>‘LEI is already configured’.</td>
<td>This means there is an existing lei.ini file in the following directory: /qibm/userdata/lotus/lei</td>
<td>As long as ADDLEISVR thinks there is an existing configuration, it will not let you add another, use RMVLEISVR or delete the lei.ini manually. Note that only one LEI server is allowed per AS/400.</td>
</tr>
</tbody>
</table>

Chapter 5: Installing and Configuring LEI on AS/400  69
Removing LEI Server from AS/400 Domino Server

The remove LEI server (RMVLEISVR) command removes the configuration of a LEI server from your AS/400. It does not remove the LEI product (5769LNP) from the AS/400. After running RMVLEISVR, you can configure a new LEI server by using the ADDLEISVR command.

**Note** A delete licensed program product (DLTLICPGM 5769LNP) will remove the product from the AS/400. This does not affect existing LEI configurations. To remove an LEI configuration, use the RMVLEISVR CL command.

Removing a LEI server (RMVLEISVR) is considered an administrative function. In order to run the command successfully, you need *ALLOBJ, *SECADM, *IOSYSCFG and *JOBCTL special authorities.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLTDB</td>
<td>Delete Admin Databases</td>
<td>If *NO (default), the program will not delete the LEI database created during ADDLEISVR. If *YES, the program will delete the LEI database created during ADDLEISVR (admin, log, doc, script vault). It does not delete any backup database.</td>
</tr>
</tbody>
</table>

**Example**

The following example will remove the LEI server configuration from the Domino server and also delete the LEI Administration databases. Any Connection or Activity work defined in the LEI Administrator database would be lost. It does not delete any backup copies of the LEI Administrator created using the Admin-Backup activity.

```
RMVLEISVR DLTDB(*YES)
```
Removing LEI from the AS/400

You can remove the LEI Licensed Program Product from the AS/400 by issuing the following command:

```
DLTLICPGM  LICPGM(5769LNP)
```

Respond with “i” for ignore on any delete journal receiver messages.

Note that the DLTLICPGM will delete all code and corresponding symbolic links associated with LEI. However, it does not delete the administration databases that may exist in your Notes data directory, nor does it delete the lei.ini configuration file which is in /qibm/userdata/lotus/lei.

Notes.INI KeyFileName

The LEI server on the AS/400 runs as an add-in task to the Domino server. This means it runs under the ServerKeyFileName=server.id. All activities launched by the LEI server also run under server.id.

If you launch activities outside of the LEI server, for example, through a call to LEIACT or LEICGI, you may need to set KeyFileName to a valid user ID other than that of the server. If the CGI invocation of a LEI activity is made (LEICGI), the KeyFileName user ID should not be password protected. If a password is required and the requesting process is not interactive, a prompt for password will occur on the Domino console. Knowing to look on the Domino console is not obvious nor is it that usable in the LEICGI scenario.

Also, as already noted, you may need to change KeyFileName from server.id to a valid user ID in order to issue the ADDLEISVR command. This will only be necessary if you get any of the connection errors listed in the ADDLEISVR error table.
Chapter 6
Installing and Configuring LEI on S/390

This chapter provides instructions for installing LEI on the S/390.

S/390 System Requirements

This section describes the S/390 system requirements.

Note LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.

Hardware Requirements

See your Lotus Domino for S/390 Release 5.0.5 Install Guide or later for a list of supported processors.

Software Requirements

LEI on the S/390 platform requires that Lotus Domino for S/390 Release 5.0.5 or later be already installed. See your Lotus Domino for S/390 Release 5.0.5 Install Guide or later for more specific information. This version of LEI is certified on Domino and Notes Release 4.6.7 and 5.0.7a.

Considerations

If you have a Domino R5 server installed, LEI will install to the Domino server program directory, otherwise it will install to the Notes client directory.

LEI on the S/390 platform currently supports the DB2, File, Notes, Text, Collapse/Expand, Meter, Connection Broker and Order Lotus Connectors.

LEI on the S/390 platform does not support LEI in stand-alone mode. You must start the Domino server before starting LEI.

To take full advantage of DB2 metadata, IBM DB2 Connect Enterprise Edition is required to be installed on the client. OS/390 DB2 should be started with the Distributed Processing Facility.

You must start the Domino server before running the setup script and starting LEI.
LEI on the S/390 platform uses OS390 UNIX System Services and should be considered a UNIX platform. In general, the documentation for UNIX platforms can be followed. Specific instructions are provided for installing LEI on S/390 from CD-ROM, setting environment variables, and running setup using the command line.

For more information about Lotus Domino products and the S/390 platform, see the following IBM Web site:


You must install LEI using command line options. There is no graphical user interface for installation.

---

**Loading LEI from CD-ROM**

Use this procedure to transfer the LEI program files into the S/390 UNIX System Services file system from the LEI distribution CD-ROM.

1. Create a temporary directory on the target S/390 system, with a minimum of 50MB of free space. Example command syntax is shown below:

   ```
   mkdir /tmp/lei
   ```

2. Transfer the tar file from the CD-ROM to the S/390 system. Use local procedures to transfer the file from a workstation with a CD-ROM and a connection to the S/390 where Domino is installed, into the temporary directory. Use the binary mode of the ftp program to transfer the file.

3. Change to the location of the temporary directory. Example command syntax is shown below:

   ```
   cd /tmp/lei
   ```

4. Extract the LEI files from the tar file. Use the following command example to extract the files.

   ```
   tar -xvf OS39031a.tar
   ```
Preparing the Domino Server Environment on S/390

Make sure that the datasets DSNxxx.SDSNEXIT and DSNxxx.SDSNLOAD are APF authorized and are part of the LNKLST. This can be done by adding these datasets to your SYS1.PARMLIB, IEAAPFx, and LNKLSTx parmlib members or PROGxx parmlib members.

**Note**  The user ID used to start the Domino server must set the following environment variables in the user ID’s .profile before starting the Domino server in order to access DB2.

```bash
export DSNAOINI=USER1.DB2CLI.CLIINI
```

The USER1.DB2CLI.CLIINI is the DB2 CLI initialization file that must be defined as an FB(80) dataset.

**Note**  If running multiple DB2 releases, you must include a steplib for the DB2 release you are running in the user ID .profile above.

```bash
export STEPLIB=DSNxxx.SDSNEXIT:DSNxxx.SDSNLOAD
export DSNAOINI=USER1.DB2CLI.CLIINI
```

The DSNxxx.SDSNEXIT and the DSNxxx.SDSNLOAD are the APF authorized DB2 runtime libraries.

Refer to *DB2 for OS/390 Call Level Interface Guide and Reference* (SC26-8959-02), Chapter 4 - Configuring CLI and Running Sample Applications for more details. Contact your local DB2 Administrator for information on DB2 CLI initialization file, DB2 runtime libraries, and the actual names of the datasets.

If the DB2 CCSID is not the same as the Domino locale, you must specify DEC5_DB2_CODEPAGE in notes.ini. For example, if you start Domino with LANG=Ja_JP.IBM-939 and your DB2’s CCSID is Ja_JP.IBM-930, you must specify DEC5_DB2_CODEPAGE=IBMCP930 to obtain the proper translation.

Preparing the Environment for LEI Installation on S/390

Before you install LEI on your S/390 Domino server, you must have a Domino server installed.

If the Domino server on the system that you are installing LEI onto is running DECS, shut down the DECS service. From the Domino console, type “tell DECS quit.” To restart DECS, type “load DECS” from the Domino console. See Appendix B for more information regarding LEI and DECS.
To run the LEI setup program, you must be logged in as the owner of the R5 Domino server notesdata directory. This is the same user ID used to start the Domino server. This ID must also have write access to the directory in which LEI will be installed.

Once you have created the user ID for LEI, all environment settings should be entered into the .profile to ensure the same environment settings are used each time you work with LEI. Configure these environment variables before installing LEI.

**Note** The environment variable settings below are required to run the setup and leisetr5 programs. These environment variables are to be set only when running the setup or leisetr5 programs and should not be set during normal server operation.

- The ID installing LEI must have write access to the directory in which LEI will be installed.
- The ID installing LEI must have write access to the directory in which the notes.ini file resides.
- You should use the Domino server ID for LEI installation.

Set the following environment variables:

1. Set the environment variable LANG to your proper locale. The environment variable LANG=C must be set when running both setup and leisetr5 programs.
   ```
   export LANG=C
   
   **Note** For more information about locale and character set specification, see the *Lotus Enterprise Integrator Activities and User Guide*.
   ```

2. Set the environment variable LEI_DIR to represent the full path of the LEI installation directory. This is where the LEI software will be installed. To install the LEI files to /u/leiowner/lei, use the following example:
   ```
   export LEI_DIR="/notesdata/leidir"
   ```

3. Set the environment variable Notes_ExecDirectory to represent the full path to the libnotes dynamic load library. An example is shown below:
   ```
   export Notes_ExecDirectory="/usr/lpp/lotus/notes/latest/os390"
   ```

4. Verify that the Notes_ExecDirectory has at least 45MB of free space.

5. Set the environment variable PATH to include the following directories:
   - LEI directory: $LEI_DIR
   - Lotus executable directory: $Notes_ExecDirectory
• Notes data directory (location of the notes.ini file; for example /notesdata)
  An example is shown below:
  export PATH=/notesdata:$LEI_DIR:$Notes_ExecDirectory:$PATH

6. Set the environment variable LIBPATH, which is used to locate shared libraries, to include the following directories:
   • LEI directory: $LEI_DIR
   • Notes executable directory: $Notes_ExecDirectory
   • Any other product library directories you may require
  An example is shown below:
  export
  LIBPATH=/notesdata:$LEI_DIR:$Notes_ExecDirectory:$LIBPATH

---

**Installing LEI on S/390**

Before installing LEI on your S/390 Domino server, you must have a Domino server running and the DECS and LEI application must not be running.

LEI installation on the S/390 platform is performed by running setup, with required parameters. Parameters are passed to setup in the form of a command file that houses several parameters or by listing the parameters on the command line when setup is invoked.

The default value for translation is ‘ENABLED’ on the S/390 platform.

LEI installation on the S/390 platform is performed from the command line. This section provides an example of installing an LEI server into a new Administrator database. This installation process creates a new Administrator and installs the server into the Administrator. This creates an LEI cluster. Subsequent server or client installations can share the same cluster.

**Note** Installation of the LEI stand-alone server and LEI development client is not supported.

The following command displays installation help.

```
setup help
```

1. Gather the information that you will use for parameters when invoking the setup program. An example command file (named command.file) is provided with the install package. Use the command syntax shown below to create or modify a command file.

```
viascii command.file
```

Chapter 6: Installing and Configuring LEI on S/390  77
Note Set the DIRECTORY in the command file to the same value specified above for environment variable LEI_DIR.

Note Blank lines and spaces between the variable name, the = character, and the variable value are not allowed.

The command file should minimally contain the following information:

- INSTALLCLUSTER (or INSTALLSERVER if installing to an existing cluster)
- LEI=leiservername (Do not include domain.)
- ADMINSERVER=ExistingDominoServerName
- DIRECTORY= This should specify the full path in which the LEI executable files will reside and should be identical to the value defined for the environment variable $LEI_DIR.

2. Assure that the Domino server is started. If the Domino server on the system that you are installing LEI onto is running DECS or LEI, shut down the DECS and LEI services. From the Domino console, type "tell DECS quit" or "tell LEI quit" and wait for the proper completion message.

3. While logged on as the same user ID used to start the Domino server, change directory to the temporary directory where the files were extracted from the tar file, and issue the following command:

setup @command.file (if using a command file named command.file)

or

setup ACTION [Options] (if a command file was not used)

The LEI setup program displays progress indicators and user prompts.

4. When prompted, login as the owner of the $Notes_ExecDirectory and run ‘leisetr5’ to complete the installation. The UID 0 user ID, used to install the Domino server, should be the owner of the $Notes_ExecDirectory.

To login as the owner, you can issue the following command:

su ownerid (where ownerid is the id that owns the correct directory)

5. Exit or logoff from the ownerid when the ‘leisetr5’ program is complete.

6. Stop the Domino server.

7. Change directory to the $LEI_DIR. Example command syntax is shown below:

cd $LEI_DIR

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8. Start the Domino server. If the ServerTask option was used during setup, when the Domino server is started, the LEI server will start automatically. If not, issue the command ‘load lei’ from the Domino server console to start the LEI server.
Chapter 7
Uninstalling LEI

This chapter provides instructions for uninstalling LEI on all platforms.

Overview

You can uninstall LEI for the purposes of installing a later release or if you have upgraded your Domino or Notes application. It is recommended that you reinstall LEI after upgrading Domino.

When you remove an LEI cluster, the LEI server and LEI Administrator databases are removed. All information in the Administrator database is lost, including all configuration, connectors, activities, and logs. This means all servers and clients using this Administrator will be disabled.

If an LEI server is removed from an Administrator database (but the cluster is not removed), the Administrator database still exists and new LEI servers may be installed to it. The lei.ini configuration file is deleted.

Note  LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.

Uninstalling on Windows

Use Add/Remove Programs from the Windows Control Panel to uninstall LEI. You will be given the option to uninstall just the server or client or to remove the entire cluster.

If you are prompted during the uninstall to remove shared files, it is strongly recommended that you respond “No to All” in order to avoid the risk of removing files that may be in use by other programs.

Past versions of LEI shared files with DECS. Even though Windows may believe these files are not in use, you should not delete them.
Uninstalling LEI on AIX or Solaris

To uninstall LEI from AIX or Solaris, use the setup program to remove an LEI server, client, or cluster.

1. Open a UNIX shell and cd to the directory in which LEI is installed.
2. Issue one of the following setup commands from the command line.

   `setup REMOVESERVER`
   Specifies the option to remove just the server (or client).

   `setup REMOVECLUSTER`
   Specifies the option to remove the entire cluster.

This removes the LEI files from the data directory, the LEI directory, and the Notes/Domino directory.

Uninstalling LEI on AS/400

To uninstall LEI on AS/400, use RMVLEISVR and DLTLICPGM.

LEI Release 3.2 is not supported on the AS/400 platform.

Uninstalling LEI on S/390

To uninstall LEI on S/390, first assure that the Domino server is started. If the Domino server on the system that you are installing LEI onto is running DECS or LEI, shut down the DECS and LEI services. From the Domino console, type the follow command and wait for the proper completion message.

```
tell DECS quit
```

or

```
tell LEI quit
```

With the Domino server running, use the setup program to remove an LEI server or cluster. You must use the ID that has write access to the $Notes_ExecDirectory in order for LEI to be successfully removed. The UID 0 user ID, used to install the Domino server, should have write access to the $Notes_ExecDirectory.
Removing an LEI Server on S/390
Run setup from the LEI directory using the ‘removeserver’ command line option. Example command syntax is shown below:

```
setup removeserver
```

This removes the LEI files from the LEI directory and the Notes/Domino directory. It disables the server in the LEI Administration database and leaves the LEI Administrator installed.

Removing an LEI Cluster on S/390
Run setup from the LEI directory using the ‘removecluster’ command line option. Example command syntax is shown below:

```
setup removecluster
```

This removes the LEI files from the data directory, the LEI directory, and the Notes/Domino directory. It removes the entire cluster, including the LEI Administrator.
Appendix A
Troubleshooting

This appendix provides information for troubleshooting your LEI installation.

Troubleshooting the LEI Installation

This section provides information about problems that may occur during installation of LEI.

**Note** LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.

**UNIX Installations**

The LEI setup program uses the Notes API and the shared library, liblchtapi, which is shipped with LEI. Additionally, the GUI setup uses the Motif shared library. If setup is unable to locate any of these shared libraries, it will terminate with an error message indicating the problem. You should be able to correct the problem by modifying the shared library search path in the user’s environment. You may have to add the location of the Motif or Notes library. If liblchtapi cannot be loaded, find it manually and add its location to the user’s environment.

**Note** If your installation does not have Motif installed or if you are not using an X-terminal, you can pass all the parameters necessary to perform the installation to the setup program by using the command line installation. See the chapter pertaining to LEI command line installation for UNIX for details.

**AIX**

(ksh)

```bash
export LIBPATH=$LIBPATH:.//additional/path/for/motif/library
```

(csh)

```bash
setenv LIBPATH $LIBPATH:.//additional/path/for/motif/library
```
Using LEI with Domino 4.x on Solaris Platforms

If you are using Domino 4.x on a Solaris platform, remove the setuid bit from the Domino server executable. Additionally, to ensure proper performance of the Domino server, the system configuration file /etc/system needs to be updated to allow a larger than default amount of file descriptors per process. Please follow the steps below as the root user only after verifying that you have installed all the required Solaris OS patches as described in the Domino release notes.

1. Remove the setuid bit.
   (Solaris SPARC)
   ```bash
   chmod u-s /opt/lotus/notes/latest/sunspa/server
   ```

2. Back up the system configuration file.
   ```bash
   cp /etc/system /etc/system.bck
   ```

3. Update the system configuration file.
   Method A: Using an editor such as vi, edit /etc/system and add the following line:
   ```bash
   set rlim_fd_max=8192
   ```
   Method B: Execute the following command to update the file:
   ```bash
   echo set rlim_fd_max=8192 >> /etc/system
   ```

4. Reboot the system for the configuration change to take effect.

   **Note** Failure to remove the setuid bit will result in the Domino server sending out the following message:

   "Addin: Agent error message: Error loading USE or USELSX module: *lsxlc"
Appendix B
Restoring LEI after Upgrading Domino or Notes

This appendix describes the process of restoring LEI after you have upgraded Notes or Domino.

Process Overview

If you reinstall or upgrade Domino with DECS after installing LEI, you must reinstall or restore LEI. For more information, see the following Web site:

[www.lotus.com/ei](http://www.lotus.com/ei)

On UNIX, you can run ‘setup restorelei’ from the LEI program directory to restore the LEI installation after a Domino upgrade or reinstallation. This option is not available for Windows. On Windows, you must reinstall LEI. Note that the existing LEI Administrator should still be present, and you can reinstall into that same Administrator. The command ‘setup restorelei’ will automatically restore LEI into the same Administrator. For related information, see the section entitled, “UNIX Platform” later in this appendix.

If Domino or Notes is upgraded to a version prior to 5.05 or uninstalled then reinstalled on a machine where LEI is also installed, this may temporarily disable LEI. If you reinstall or upgrade Domino after installing LEI, you must reinstall LEI.

**Note** If you are writing scripts in LEI using both the LEI LSX and the LC LSX prior to the next release of Domino (and DECS 5.0.5), you must reinstall LEI after reinstalling or upgrading Domino. The LEI LSX must be loaded after the DECS API in order for all aspects of LEI LSX and LC LSX to function properly with LEI. This specifically affects named sessions, certain types of logging, and communication with the Notes Connector.

**Note** LEI Release 3.2 is certified for Windows NT and 2000 only. Subsequent releases should support the additional platforms.
**Windows Platform**

If the Domino or Notes upgrade or reinstallation is done in the original directory, LEI should function as before and no further action should be needed.

If the original Domino or Notes directory is deleted in this process, or if the Notes or Domino directory is changed, you must reinstall LEI. If you need to reinstall, you must first uninstall LEI and then perform a fresh installation.

When uninstalling be sure to keep the existing LEI cluster. Do not remove the cluster unless you really want to start with a brand new empty Administrator database.

When reinstalling your LEI server or client, choose to install it into the existing cluster (Administrator database).

You can use Add/Remove programs from the desktop Control Panel to uninstall LEI.

---

**UNIX Platform**

It should not be necessary to reinstall LEI on a UNIX platform. However the following action must be taken:

1. Change directory to the LEI program directory.
2. Issue the following command from the command line:

   `setup RESTORESYMLINKS`

   This will restore needed symbolic links in the new Domino or Notes directory to the LEI directory. The setup command requires that the user ID of the person running setup be the owner of the Domino or Notes directory.

**Optional Parameters**

The following command can also accept two optional parameters.

`setup RESTORELEI`

For example, to restore the add-in task and RealTime settings, enter the following command:

`setup RESTORELEI REALTIME=YES SERVERTASK=YES`
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