

LightLink Middleware Installation Guide

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1. Installation Conditions

1.1. Operating Systems and Prerequisites

Refer to the online [Knowledge Base](#) for the most current information about supported operating systems and prerequisites for installation:

<https://docs.geomant.com/wallboard/lightlink/index.html>

2. Quick Start Instructions

This section is a quick reference guide; refer to subsequent sections for detailed steps. Refer to LightLink knowledge base (referenced in Section 1) for information about prerequisites for Middleware installation.

2.1. Over-Installation Procedure

1. [Run the Middleware Installer](#), accepting the settings from the prior install and changing the license key if desired
2. Run Administrator to verify proper installation.

2.2. Clean Installation Procedure with Remote Database

1. [Set up a Windows Domain Account](#) to run the LightLink services and to access the remote database.
2. [Install and configure the remote database in accordance with customer policies.](#)
3. [Run the Middleware Installer.](#)
4. [Run the LightLink Database Connection Manager](#) to set up database authentication for Middleware to connect to the custom database, and to create the LightLink database tables.
5. Run Administrator to verify proper installation.

2.3. Clean Installation Procedure with Default Local Database

1. [Set up a Windows Domain Account](#) to run the LightLink services and to access the local database.
2. [Run the Inova Solutions Instance Installer.](#)
3. [Run the Middleware Installer.](#)
4. [Run the LightLink Database Connection Manager](#) to set up database authentication for Middleware to connect to the local database, and to create the LightLink database tables.
5. Run Administrator to verify proper installation.

3. Over-Installation Procedure

ATTENTION LIGHTLINK PRE-5.7

Upgrading from versions 5.5 and 5.6 requires first upgrading to version 5.7; refer to the *LightLink 5.7 Middleware Installation Guide*. Upgrading from versions prior to 5.5 is not automated; the *Inova LightLink Migration Process Solution Guide* discusses options for migrating configurations from versions prior to 5.5.

To perform an over-install of LightLink Middleware, you will:

1. Run the LightLink Middleware Installer in interactive or silent mode, accepting the settings from the prior install and changing the license key if desired. See further installation instructions:
 - Prerequisites: LightLink knowledge base (referenced in Section 1)
 - Interactive Install Instructions: Appendix A
 - Silent Install Instructions: Appendix B
2. Run LightLink Administrator to verify proper installation.

When upgrading LightLink Middleware to version 5.8 you do not need to run the LightLink Database Connection Manager; the LightLink Middleware Installer will run it in the background.

Any LightLink Supervisor Applications installed on the same server must also be upgraded to version 5.8 or newer.

Note that an over-installation does not change the SQL Server version or authentication method.

4. Clean Installation Procedure

This scenario covers installing LightLink Middleware onto a server that does not have any previously installed LightLink products installed.

4.1. Set up a Windows Domain Account

Set up a Windows Domain Account to run the LightLink Services and to access the database.

Note the following details regarding the Windows Domain Account, the database, and LightLink Services:

- If the database is the local default, the installation software handles configuration as long as the Windows Domain Account is used to run the Inova Solutions Instance Installer and the LightLink Database Connection Manager in the steps in Section 4.4.
- If the database is remote, you will be directed to configure the remote database for this Windows Domain Account.
- In either case, you will need to use this Windows Domain Account to run the LightLink Database Connection Manager, LightLink Administrator, and Security Manager applications.

4.2. Configure Database

4.2.1. Remote Database (Customer Provided)

The customer must provide remote database configured to meet minimum specifications; for more information refer to the *Inova LightLink Middleware Remote Database Solution Guide*.

4.2.2. Default Local Database (with Inova Solutions Instance Installer)

The Inova Solutions Instance Installer installs and configures the Microsoft SQL Server 2012 Express edition for use with the Inova Display Connector Service and/or LightLink Middleware. This installer invokes the Microsoft SQL Server Express 2012 setup program with parameters that configure the instance for both the InovaMessaging and LightLink databases.

ATTENTION

The Inova Solutions Instance Installer will require User Account Control (UAC) permissions, and can be launched either from an Administrator Command Prompt or by double-clicking the installer file in Windows Explorer. Make sure you are logged in with the Windows Domain Account for running LightLink services before running the installer.

Complete the following steps to run the Inova Solutions Instance Installer:

1. Copy the Inova Solutions Instance Installer to the target server. Verify that you have also downloaded the SQL Server subdirectory containing a Microsoft SQL Server 2012 Express Edition installer that will be called automatically as part of the process.
2. Run the Inova Solutions Instance Installer and click on the button labeled *Create Database Instance*. The installer will prompt for the install location.
3. In a successful installation, you will receive notification that the Install and Configuration was successfully completed. If the installation fails, review the log files in the following two locations:

The Inova Solutions Instance Installer log files in the following location:

```
%cd%\logs
```

Inova Installer log files can be found in the log folder from which it was run. Note that %cd% means the current directory.

The SQL Server install logs in the following location:

```
%Program Files%\Microsoft SQL Server\110\Setup Bootstrap\Log
```

4.3. Run the Middleware Installer

When installing LightLink Middleware, one must choose the role as Primary or Secondary; only one Primary middleware server is designated as primary, and that server must be the first one on which the LightLink Database Connection Manager is run.

The Inova Solutions LightLink license key is required to install LightLink Middleware on the Primary server.

Refer to the following sources for more detailed instructions:

- Prerequisites: LightLink knowledge base (referenced in Section 1)
- Interactive Install Instructions: Appendix A
- Silent Install Instructions: Appendix B

For a remote database set up with Windows Authentication, the middleware applications must run as the user account set up in section 4.1, or as any other user account with commensurate privileges. This applies any secondary server to which access to the database must be through Windows Authentication, as well as to a primary server accessing a remote database with Windows Authentication. To do so, the log on information for the Inova Application Launcher service must be set to use that user account.

1. In the Windows Services Administrative Tool, open the properties dialog for the Inova Application Launcher service.
2. In the Log On tab, specify the credentials for the user account set up in section 4.1, and click *OK*.
3. The Database Connection Manager tool will restart the LightLink middleware applications, but if not being run, then run the `clean_restart` batch command script from the `Inova Solutions/core/bin` folder.

4.4. Run the LightLink Database Connection Manager

The LightLink Database Connection Manager specifies for LightLink Middleware the connection properties to access the LightLink database. This tool also creates the database tables used by LightLink Middleware, updates the database if needed during an upgrade, and provides a means for emptying the database.

Note that the Primary Middleware server must be the first Middleware server on which the LightLink Database Connection Manager is run.

Complete the following steps to run the LightLink Database Connection Manager:

Note that that the tool has a command line version described in Appendix C if required for silent installations.

1. Verify that you are logged in with the Windows Domain Account for running LightLink services before starting the Database Connection Manager.
2. Start the Database Connection Manager from the Start menu under:

```
Inova Solutions\LightLink Middleware\LightLink Database  
Connection Manager
```

3. For a local default database installation, accept the default settings.

For a remote database installation, enter the connection details for the remote database.

4. Click the *Test* button to verify that the parameters specified are sufficient to access the database.

The results of the test are provided in the Connection Status Information panel of the tool.

5. Click the *Apply* button to set the parameters for LightLink Middleware.

Confirm that you want to restart LightLink. At this point the tool will set the connection parameters, create the database tables, and restart the LightLink Middleware server applications.

For a new install, it is important to note that LightLink Middleware will not be operational until the LightLink Database Connection Manager has been run.

4.5. Verify Proper Installation

Once you have completed the installation process, you should run LightLink Administrator to verify proper installation.

1. Ensure that you are logged in with the Windows Domain Account for running LightLink services.
2. Run LightLink Administrator to verify proper installation.

Appendix A – LightLink Middleware Interactive Install

1. *Note: For an upgrade install, some settings will be disabled because they cannot be changed on upgrade.* Run the LightLink Middleware Installer, `lightlink_server_setup.exe`.
2. Click through the Welcome page and License Agreement screens, choosing the appropriate options.
3. Select the type of server: Primary or Secondary. Primary Server is the default choice; click the button for Secondary Server if desired. (This choice is not selectable for an upgrade installation, but it will show the current setting.)
4. Click the “Change...” button to select the desired folder into which the Middleware files will be installed. Click *Next*.
5. If you selected Primary Server, enter the Organization and Customer Location as well as the LightLink System ID and License Key
 - a. The Customer Information screen appears, with the Organization and Customer Location pre-populated from the Windows registry or from prior installs. If desired, change the Organization and Customer Location. Select *Next*.
 - b. The License Key screen appears. Enter the LightLink System ID and License Key. The license keys for version 5.8 are compatible with version 5.5 through 5.7 license keys. Select *Next*.
6. Click *Install* to run the installer. It may take a few minutes to complete the installation process. If the installation fails, review the log files in the following location:

```
%install_dir%\Inova Solutions\core\logs
```
7. Click the *Finish* button to exit.

Appendix B – LightLink Middleware Silent Install

Additional Prerequisites for Silent Installation

- The Inova License Key must exist on the target host prior to invoking a silent install. The License Key must be specified in a file named InovaLicenseKey.ini, located in the folder:

```
%PROGRAM_FILES%\Inova Solutions\msi\
```

- The license key file is in "INI" file format and has the following contents

```
[Key]
ServerID={Server ID}
License={License Key}
```

Description

The LightLink Middleware installer can be run in silent mode to facilitate "push" mechanisms of installing the LightLink Middleware. Silent mode can only be invoked via the command line and requires two parameters: the "/S" qualifier to tell the setup program to run silently, and the "/qn" as a parameter passed to the installation program (the Microsoft Installer, MSI) to tell it to run quietly with no feedback.

When run in silent mode there is no feedback except for an exit value returned to the invoking application. Currently the only values that the MSI should return are 0 for successful install, and 1603 for fatal error during installation. Please refer to Appendix E to learn how to investigate installation errors.

Please refer to the LightLink knowledge base (referenced in Section 1) for detailed information about prerequisites. Notes that all prerequisites except C++ Visual Studio 2005 should already be on most systems; the C++ redistributable cannot be provided by the installer when it is running in silent mode.

LightLink Middleware Installer Properties

The LightLink Middleware installer properties for both the primary and the secondary installation options and the values that can be specified on the command line, are:

- **ROLE** – specifies the role of the server. For this required property, the options are PrimaryServer or SecondaryServer.
- **INSTALLDIR** – allows installer to override the default "C:\Program Files\Inova Solutions" location on disk. Note that this optional property cannot be overridden on upgrades. To include space characters in the location (e.g., "Program files\my DIR") the location must be specified with quotes. Because the property is part of the /v qualifier, which is already within

quotes, the "escape" sequence (\") is required so the /v qualifier does not terminate prematurely. This example shows the proper syntax:

```
lightlink_server_setup.exe /S /v"/qn  
ROLE=PrimaryServer NAME=Inova LOCATION=USA  
INSTALLDIR="C:\Program Files\MyDir\""
```

For the primary server role, the following properties and values apply:

- **NAME** - sets the customer's company name, which is used as the name of the root node for the LightLink device and data field listings and also appears in the "About" dialog of the LightLink client applications. This property is required for an initial install. If this is not specified for an upgrade install, then the name is retrieved from the prior install.
- **LOCATION** - sets the customer's location, a string that appears in the "About" dialog of the LightLink client applications. This property is required for an initial install; if this is not specified for an upgrade install, then the location is retrieved from the prior install.

For the secondary server role, no additional properties are required.

Format

Use the following format to install LightLink Middleware from the command prompt:

```
lightlink_server_setup.exe /S /v"/qn Property=Value Property2=value2"
```

Note that there is no space after the /v and the double-quote in the above format.

1. Example 1: The command below performs a Primary Server silent install of LightLink Middleware, accepting defaults for parameters not specified on the command line. It shows how to specify multiple parameters (separated by spaces, all within the same set of quotation marks after the /v option):

```
lightlink_server_setup.exe /s /v"/qn Role=PrimaryServer  
Name=Inova Location=USA"
```

2. Example 2: The command below installs a Secondary Server at a custom installation directory:

```
lightlink_server_setup.exe /s /v"/qn  
Role=SecondaryServer INSTALLDIR="C:\Program Files\MyDir\""
```

When specifying an install folder path whose name includes spaces, special escaped double-quote handling is required.

Appendix C – Inova Solutions Instance Silent Install

1. Launch the Windows Command Prompt (CMD) using right click and select Run as administrator. Change to the directory that contains the Inova Solutions Instance Installer and the SQL Server setup program, and type the following command:

```
InovasolutionsInstanceInstaller.exe -s
```

The installer also accepts an alternate installation location via the command line.

```
InovasolutionsInstanceInstaller.exe -installdir c:\my_dir
```

2. To see all command line parameters, run the Inova Solutions Instance Installer on the command line with the “--help” argument. The installer log file will list all the command line options. The installer log files will be in the following two locations:

The Inova Solutions Instance Installer log files: %cd%\logs

The SQL Server install logs: %Program Files%\Microsoft SQL Server\110\Setup Bootstrap\Log

3. When invoked without the -s command line parameter, the installer will display progress in your original CMD window, and at some point will open up a second CMD window. Entries into these windows will show the installation progress. The second CMD window will close when the SQL Server install is complete. Do not close this window manually or your installation will abort.

Appendix D – LightLink Database Connection Manager Silent Configuration

LightLink Database Connection Manager is located in the Inova Solutions\Server folder within the install location specified during the Middleware installation. Set your working directory to the location of the tool and run it using this command:

```
LLDatabaseConfig.exe -host=my-db-host -inst=MyInstance -db=my_db_name -user=DBUser -pass=MyPass4@
```

The command line mode of the LightLink Database Connection Manager allows for the following command line parameters:

Command	Description
-host	The hostname where the database instance resides
-inst	The name of the database instance
-db	The name of the database
-user	The username of the SQL Server account
-pass	The password for authenticating the SQL server account
-deny	The default access rights mode is set to “grant” when this parameter is not specified

Note: In command line mode, you must provide the `-host` and `-inst` and `-db` parameters. The `-user` and `-pass` parameters are used to specify SQL authentication; when these parameters are not provided, the database connection is set up for Windows Authentication.

When the `-deny` parameter is not provided, the default access rights mode is set to *grant*; when it is provided, the default access rights mode is set to *deny*. The default access rights mode determines whether LightLink users can see configured output channels, display groups, and devices by default or cannot see them by default.

Appendix E – Troubleshooting

Investigating Installation Errors

There are some instances where you may encounter issues while installing the LightLink Middleware applications. In interactive mode, message dialogs will appear when the following conditions occur, in addition to log file entries. However, during silent installs (commonly also known as *push* installs), these conditions can only be logged to a file.

When a Silent installs fails, it may leave a non-working installation, but because it is silent, it displays no dialogs or evident condition codes. A software distribution application/method ("push" programs like Altiris and Tivoli, or SMS) usually displays the "return code" from the MSI during an install, but limitations of MSI packages prevent Inova from making those condition codes more descriptive.

Currently, a 0 indicates a successful install. The only other known result is a 1603, "Fatal Error during Installation", which should prompt investigation of the following files for the specific cause of the failed install.

1. Search the server_install.log file in the <INSTALLDIR>\core\logs folder, where <INSTALLDIR> indicates the user-specified install directory (which defaults to "C:\Program Files(x86)\Inova Solutions") for the following condition codes:
 - **35:** There is a newer version of the product already installed.
 - **Other:** Other failures of the core and configuration scripts are reported in this log file.
2. Search the file <INSTALLDIR>\core\logs\winvisilaunch.log for the following condition codes:
 - **13:** An uninstall of a LightLink product detected that there were other LightLink products existing. The LightLink core will not be uninstalled.
 - **30:** There is an Invalid Client Manager Location; this is not applicable to a Middleware install, but rather for any of the other installers. This can result either from the Client Manager not running at the specified location, a network outage, or from the location not having a Client Manager installed at all.

If the location needs to be corrected for the Desktop Clients, you can "repair" the installation by selecting "Change" and then "Repair" from the Add/Remove Programs dialog for the Inova Desktop Clients application. Then enter the correct location in the Client Manager Location dialog.

If the location is correct, investigate the lack of client manager response at that location (e.g., start with a "ping" of the client manager host from the Desktop Clients install host).

- **128:** There is an unspecified error in a bash script. Take all of the lines grouped together from this error and email them to Inova Solutions Client Services
 - **Other:** See if any lines in this log file say that success was not returned. Take all of the lines grouped together from an unspecified error and email them to Inova Solutions Client Services.
3. If the condition occurs before the installer's specific configuration is loaded and it is the only Inova product installed on this host, search the server_install.log file in the default install location (%ProgramFiles (x86)%\Inova Solutions\core\logs), regardless of where you are attempting to install the product.
 - Prerequisite Error 1: If Windows Installer 3.1 is not installed, this file will note that.
 - Prerequisite Error 2: If .NET 2 Framework is not installed, this file will note that.
 4. Examine the <INSTALLDIR>\core\logs\installation_report.log file. This log file is produced during installation of the LightLink Core. If the condition occurred during the Core install portion of installation, then this file might provide valuable information about the specific problem that was encountered.