Infor Solution License Manager Installation and Configuration Guide

Release 10.7

Contents

About this Guide

This document is an Installation and Configuration Guide that describes how to install and configure Solution License Manager (SLM). This document is intended for system administrators.

Intended Audience

This document is an installation guide that is intended for system administrators who will install and manage SLM on their network.

To perform the installation, you require knowledge of your operating system and network configuration.

In addition, you must have the basic skills to install software on server and client.

Related Documents

You can find the documents in the product documentation section of the Infor Support Portal, as described in "Contacting Infor".

* *Infor Solution License Manager - Administration Guide*

Contacting Infor

If you have questions about Infor products, go to Infor Concierge at https://concierge.infor.com/ and create a support incident.

If we update this document after the product release, we will post the new version on the Infor Support Portal. To access documentation, select **Search > Browse Documentation**. We recommend that you check this portal periodically for updated documentation.

If you have comments about Infor documentation, contact documentation@infor.com.

Chapter 1: Introduction

The Solution License Manager (SLM) is the license manager for the majority of the Infor LN and Infor Baan products. SLM installation is mandatory.

Definitions, acronyms, and abbreviations

This table lists the terms with their description, which are used in this document:

Term	Definition
API	Application Programming Interface.
BAANHOME	Replaced by `SLMHOME`. Supported for upgrade situations of SLM 2.5 and earlier: Environment variable for SLM installation directory, which is %BAANHOME% for Windows and `$BAANHOME` for Linux and UNIX
BCLM	The former name of the SLM.
Concurrent User License	A user license for use by a pool of users.
DNS	Domain Name Service
HAS	High Availability Support
Heavy User License	A named user license for users in the heavy user role. The adopting application specifies what this role implies.
License file	The XML data file that contains all license information of the license agreement with Infor, such as the version number, the activation key, the customer, the host IDs, and the various application licenses
Light User License	A named user license for users in the light user role. Still available for historical reasons. Use Heavy user license instead.
Maintenance Mode	Status of an SLM Server when it's running but active to validate license requests.
MMC	Microsoft Management Console

Term	Definition
Named User License	A license type in which a product license is linked to specific users.
Server License	A license type in which a product license is linked to specific servers
Servers File	The XML data file with all the servers of a Server License, including the name and identification number of the server machine.
SLM	Solution License Manager:
SLMHOME	Environment variable for SLM installation directory, which is `%SLMHOME%` for Windows and `$SLMHOME` for Linux and UNIX.
SLM_RUNTIME	Windows only environment variable for SLM program data (license files, log files etc). Available from Windows Vista and later. Default location is `%PROGRAMDATA%\infor\slm`
SLM Cluster	A SLM cluster consists of one to four SLM servers and acts to the applications that require licensing as one license server, validating license requests against one license file and license key. The SLM cluster contains one master SLM server and zero or more slave SLM servers. Having multiple SLM servers in an SLM cluster enables high-availability and load-balancing. For this reason, Infor strongly advises you to spread the SLM servers across several systems.
SLM MMC snap-in	The graphical user interface that runs as a snap-in in Microsoft Management Console, in MMC and Windows only, to manage the SLM.
SLM product-id	A number for a particular Infor product by which SLM can identify the product. SLM product-ids are the link between an Infor product and the License Type applied for that product.
SLM server	The SLM engine that handles license requests and management requests.
SLA	Software License Agreement: The contract between the customer and Infor in which is stated, among other things, the applications, the type of licensing, and the amount of licenses. Usually, you can find that information in Schedule A of the SLA.
UI	User Interface
Users File	The XML data file with all the users of a Named User License for a particular product, including the user name, the user type, and the number of licenses a user is permitted to use.
XML	Extensible Markup Language

Prerequisites

Before you install SLM, you must check some prerequisites.

The list of prerequisites:

- The installation software for SLM 7.4. This software can be shipped together with the adopting application but is also available as a separate download through the Infor Support Portal, solution 22881484.
- To perform the installation you must have a Microsoft Windows computer. From that machine, you can install the SLM software remotely on Linux and UNIX or locally on Windows.
- Before you perform a remote installation, you must set up the user account on the remote machine. You can install the SLM under any account, not longer than 16 characters. For security reasons, it is recommended to create a separate account, for instance SLM.
- For remote installations, the SFTP and SSH daemon must be up and running on either the destination server, UNIX, or Linux and have access authorization for the installation account configured.
- Notes:
  - Modify the firewall in such a way that SFTP and SSH connection can take place. Otherwise, the firewall will prevent the port access for the SFTP transfer.
  - If for some reason SFTP and/or SSH protocols are not permitted, you can also perform a manual installation. See details later in this document.
- The platform on which you want to install SLM must be a supported platform. Check the Platform support matrix that is available in solution 1183466.
- The SLM MMC snap-in requires Microsoft Management Console version 1.2 or later.

In addition, you must specify whether one SLM server is sufficient or if you must set up more than one SLM servers. We recommend that you install more than one SLM server in at least these situations:

- More than one Infor application is licensed based on SLM.
- The SLM server resides on a platform other than the application the server serves.

We strongly recommend that you spread the SLM servers in an SLM Cluster across several systems.

Chapter 2: Installation

How to install the SLM server, SLM clients, and SLM MMC snap-in in your environment to retrieve a working SLM licensing solution.

Installing an SLM cluster

An SLM Cluster consists of one to four SLM Servers.

To install an SLM cluster:

1 Use the Installation Wizard to install the SLM servers. For an SLM Cluster you can install up to four SLM servers on various hosts. Note: You must start one of these servers in Master mode, and start the others in Slave mode, by default the first installed server will become the master.

2 Install the SLM MMC snap-in.

3 Configure the licensing with the SLM snap-in. Ensure all relevant SLM servers are registered in the "License Manager Hosts" part, configure the license information. If required, change the SLM Server identification method. See Active SLM Server on page 35.

You can change the identification method by removing the existing SLM Server registration and adding the new registration. See "License Manager Hosts (SLM Servers)" in Configuring the licenses on page 19

.

After you save the license data to the SLM server, the SLM server that runs in Master mode stores the license data locally and will distribute the information to the other SLM Servers.

4 Request an activation key via Infor Validation and patch the received key.

All new licensing data that is added to the MMC Snap-in and send to the SLM server, which runs in Master mode, is distributed among all SLM servers in the SLM Cluster configuration automatically.

If, for some reason, the SLM server running in Master mode must be stopped for a longer period, you can restart one of the SLM servers that run in Slave mode in Master mode to take over the management tasks. The remaining SLM servers are notified of this change and adapt to the change.

5 Install and configure the SLM clients.

6 Test the SLM installation.

Using the Installation Wizard

Use the Installation Wizard to install the SLM servers. If more than one SLM server must be set up, use this procedure for each SLM server.

The Installation Wizard can install the SLM software on either a local or a remote machine.

- A local install is used for Microsoft Windows systems.
- A remote install is used for the other platforms.

Using the Installation Wizard is the preferred method of installing SLM, but you can also install the SLM manually, as described in the SLM Administrators guide.

To start the Installation Wizard, you must navigate to the setup of SLM, by means of the installation process of the adopting application, or by starting `setup.exe` in the setup folder of the SLM directory on the media.

Prerequisite: the Installation Wizard can identify during its processing that you do not have installed the appropriate C-runtime libraries. In that case a warning is displayed informing you where the required distribution for these libraries can be found.

The Installation Wizard has online Help that provides information required to complete the wizard successfully.

Information required to perform an SLM Server installation

To perform an SLM Server installation it is required to have this information prepared:

System Information

- Hostname
- User and password to use during installation
- Installation directory

SLM Server configuration

- **SLM cluster name**: the name of the SLM Cluster this SLM Server will be part of. The installation wizard provides the option to create the name for a new SLM cluster if it is not yet defined.
- If the SLM Server must be added to an existing SLM Cluster you require the host and port for an existing SLM Server of that SLM Cluster.
- **SLM server port**: the TCP/IP port the SLM Server opens for communication. Default 6005

- **Automatic Client Update [yes/no]**. If set to `yes` the SLM Clients using this cluster automatically update the SLM Server configuration they have based on the SLM Servers defined for this Cluster. The default and recommended value is `yes`.

Post-installation tasks

Some platforms require several minor steps before the SLM solution can configure licenses.

Microsoft Windows post-installation

On a Microsoft Windows machine, start the MMC snap-in, to start the configuration of the licenses immediately.

Note:

If the SLM directories are not shown in your Explorer of your Windows environment, restart your Explorer.

On Windows, `SLMHOME` is automatically set during the installation as an environment variable.

UNIX post-installation

Create a global environment variable `SLMHOME`, which directs to the installation directory of SLM. On AIX, use the `/etc/environment` file to add the `SLMHOME` setting. On other platforms, use `/etc/profile` file or any other file that permits to set a system-wide environment variable.

Ensure the variable is exported.

Starting the SLM servers

If the SLM server is not already started during the installation, you can start the SLM server service manually

Starting the SLM server on Windows

You can start the SLM server service by means of the Windows Services control panel.

Starting the SLM server on UNIX

To start the SLM server at boot time, create an `rc` file that is read and carried out by the init process. This file is platform-specific.

For example, on AIX, you can use the extra run level a:

```
/etc/inittab:
...
slm:a:once:/usr/bin/su - SLM - c
export SLMHOME=/usr/slm
/usr/slm/bin/SlmServer [-p portnumber] [-s] > /dev/console
    2>&1
/etc/rc:
...
dspmsg rc.cat 5 'Multi-user initialization
    completed\n'
/usr/sbin/telinit a
exit 0
```

Ensure that your `SLMHOME` variable is pointing to the SLM installation directory.

Ensure to use the -p option if another port then 6005 is used, unless you use a slmconfig file (`etc/servercfg.xml`) to define startup parameters.

Ensure to provide the -s option if this SLM server must run in slave mode, unless you use a slmconfig file (`etc/servercfg.xml`) to define startup parameters.

Installing the SLM MMC snap-in

This step is only required if the SLM MMC snap-in is installed on a system other than any of the SLM servers. During the installation, you must stop all applications on the system that use SLM.

Start the SLM Installation Wizard on the Windows machine where you want to install the SLM MMC snap-in. Select these choices:

1 Local Installation.
2 Client, Snap-in as the component to install.
3 Specify the installation directory.

If no server configuration file is available, the installer asks to provide the SLM Cluster. You can manage one SLM Cluster at the time.

Configuring the licensing by means of SLM snap-in

After the initial installation, the SLM Servers in the SLM Cluster run in maintenance mode. Technically, the SLM Cluster is up and running, but is not yet prepared to provide licenses.

The status Maintenance Mode will be logged by the SLM Servers as a warning in the event viewer for Windows and in the `<installdir >/log/log.SlmServer` for UNIX.

Configure SLM as described in

The SLM server environment is now ready.

SLM clients

Applications that are licensed through SLM must have the SLM client installed and configured on the system on which the application resides. For many Infor applications, the installation of the SLM client is part of the installation procedure. In some cases, you must perform the installation manually.

Installing the SLM client

You can install the SLM clients by means of the Installation Wizard. The installation steps are comparable to the installation of the SLM server and, therefore, not extensively explained. Start the Wizard and make these choices:

For a Windows installation, select **Local**.

For a UNIX installation, select **Remote**. In that case, provide the host name and logon information and select the platform type.

1   Specify the destination directory.
2   Select a Client installation.
3   Check the parameters and start the installation.
4   Select the SLM Cluster to connect to.
5   Finish the installation.

Post-installation steps for the SLM clients (UNIX only)

Ensure to complete these steps for each system on which an SLM server and/or SLM client is installed.

Specifying libraries and classpaths for SLM client on UNIX

You must take these additional steps to configure the SLM client:

1   Shared library path. The shared libraries of SLM client are in `$SLMHOME/shlib`. You must add that directory to the shared library search path:
    *   LIBPATH: AIX
    *   LD_LIBRARY_PATH: Solaris, IA64/HPUX, RedHat, SUSE
    Ensure this environment variable is exported to all processes.

2 Classpath Java programs can also use SLM. For Java programs the environment variable `CLASS PATH` must be extended with the `com_baan_bclm.jar` file in the korn shell:

`export CLASSPATH=${CLASSPATH:+${CLASSPATH}:}$SLMHOME/java/com_baan_bclm.jar`

3 Ensure the `CLASSPATH` variable is exported to all Java programs that use SLM.

Testing the SLM installation

After you complete the installation and configuration, specify this command to test the SLM environment:

On the UNIX command line:

`$SLMHOME/bin/SlmClientTest`

On the Windows command line:

`SlmClientTest`

The `SlmClientTest` utility generates a report. The last lines of that report show the result of the installation process, for example, " Everything tested, SLM client installed and configured okay!"

Note:
You must still perform the full configuration, see SLM configuration on page 16.

SLM uninstall leaves some files on the system

A full uninstall of the SLM will leave some files on the system, which must be removed manually. These files will not harm the system, but can cause problems on any following attempt to install the SLM. You can remove all files and folders that remain in the installation folder. For example: `C:\Program Files\SLM\)`.

Chapter 3: SLM configuration

The SLM server, SLM clients, and SLM MMC snap-in are already installed, as described in Installation on page 10.

Single point of maintenance

Using the SLM MMC snap-in, you can change your SLM configuration using a graphical user interface. The snap-in uses the Microsoft Management Console (MMC) framework and, therefore, only runs on Microsoft Windows systems.

> **Caution:** If you change this SLM configuration from various locations at the same time, the underlying XML data files in which the configuration is stored, can become corrupt. Therefore, only one person at a time can run the SLM MMC snap-in on the same SLM Cluster.
>
> The SLM MMC snap-in must have the same version as the SLM server.

To start the SLM MMC snap-in

To start the SLM MMC snap-in:

1 On the Microsoft Windows Start menu, click **Run**. The **Run** dialog box is displayed.
2 Specify `slm.msc` in the **Open** field of this dialog box and click **OK**. The SLM MMC snap-in starts.

Overview of the snap-in

SLM Using the SLM MMC snap-in. You can configure your customer details and the application details. The SLM MMC snap-in has two main areas:

- The Navigation Area on the left side.
- The Content Area on the right side.

Navigation Area

The left area is used for navigation and selection. The navigation tree has several entries, which is a reflection of the SLM' s data files in which all information about the SLM settings and licenses is kept. The entries are:

- License Data (F0)

  Here, you find all data on the license contract with Infor. This entry includes the bought Infor application licenses, the customer data, and a list of the hosts, in other words, the computers that can run an SLM Server and are part of this SLM Cluster.

  From here, you create a License file, which you must send to Infor Validation to receive an SLM Activation key.

- Desktops (F1)

  Currently not used by Infor

- Named Users (F2)

  This entry relates to Named User Licenses (L2) in the License Data (F0) entry. For each product ID listed in Named User Licenses (L2), you find here a list of users that can use that product.

  The data you enter here is saved in Users files. For every product ID, a separate user file exists.

- Servers (F3)

  This entry relates to Server and Instance Licenses (L4) in the License Data (F0) entry. For each product ID listed in Server Licenses (L4), you find here a list of servers or Instances on which this application can run.

  The data you enter here is saved in Servers files of the SLM server. For every product ID, a separate server file exists.

- Unassigned Products (F4)

  Under this entry, you will find SLM adopted Infor products that are not assigned yet to one of the license types. Product-ids are added here automatically in these ways:

  - During installation of a new SLM adopted Infor product
  - During the first license request of an SLM adopted Infor product which is not yet registered in the SLM Cluster configuration.

Content Area

The right area displays the content of is selected in the Navigation Area.

Product IDs and license types

Based on the pricing of an Infor product, you can assign a restricted set of license types to an application. Therefore, you must know the license type for your application before you can configure SLM.

The documentation of the Infor product you are installing will tell you which SLM product-id' s you need to register against which license type to get the product activated.

Another way is to check the Infor Support Portal:

1 Open your Internet browser and navigate to the Infor Support Portal.
2 Click **Request a Software Key** in the Support Sources section at the right bottom corner. The Software Keys page is displayed.
3 Select **Infor License Management (SLM)**. The Request Form for Licensing using the Infor License Manager page is displayed.
4 Click **More information…**
5 The Infor License Manager (SLM) page displays, which contains general information about SLM. Select, at the bottom of the page, one of the Infor product groups for which you want to know the product IDs, such as Infor LN or Talent Management.
6 Click **Information**. A table is displayed that lists the product IDs and license types for each product of the selected product group that is licensed through SLM.

Automatically registered products

Automatically registered SLM adopted products are visible in the Unassigned Product list. See in the Navigation Area the title Unassigned Products. Those products must be assigned to a license type and the missing product properties must be entered.

Assigning registered product to a license type:

1 Select Unassigned Products (F4) in the Navigation Area. The unassigned products appear in the Content Area.
2 Right-click an unassigned product in the Content Area and, on the shortcut menu,
3 Click **All Tasks** > **Assign Product to License Type**. A dialog box is displayed, in which you can select the license type for the product.

You must choose the license type according to the actual contract, the SLSA. After the assignment, the product moves from the Unassigned Products to the chosen license type (F1 – F4) in the Navigation Area.
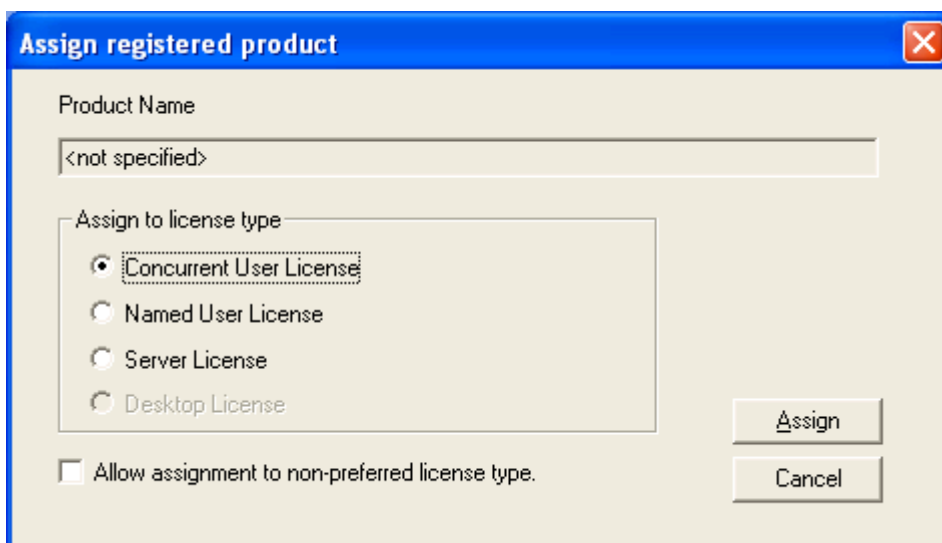
You can only chose a preferred license type, as provided by the registered product together with the product ID and possibly the product name.

You can choose a non-preferred license type if the Allow Assignment to Non-Preferred License Type check box is selected. However, the chosen license type must always be according to the contract.

To define an Instance license, select Server License.

Depending on the license type you choose, you must configure the licenses as described later.

Configuring the licenses

Use the License Data (F0) entry to configure the licenses. To specify the licenses specify this information:

- Customer data
- License Manager Hosts (SLM Servers)

And, if applicable:

- Concurrent user licenses
- Server and Instance licenses
- Named user licenses
- Desktop license and products
- Options data

Customer data

This information is required to validate the licenses with the actual contract, the SLA. This information consists of the customer name, customer code, and the license number of the agreement as a unique identifier for Infor.

To set the customer data:

1 Select License Data (F0) in the Navigation Area.
2 Right-click Customer Data (L5) in the Content Area and click Properties.
3 Specify the properties.

Customer Data	
Property	**Description**
Customer Name	The name of the customer; in most cases, the name of your company.
Customer Code*	The unique identification number of the customer supplied by Infor (protected).
Customer (License) Number*	The unique identification number of the license agreement supplied by Infor (protected).
All of these properties are mandatory.	

Customer Data	
Property	**Description**
* Infor provides the customer code and license number. If you do not know these properties, you can leave these values initially blank and specify the values later.	
Note that you receive this information from Infor along with the activation key.	

You can no longer change the properties indicated with "(protected)" after Infor submits the SLM Activation key. Changes to this property require a new validation key, submitted by Infor.

License Manager Hosts (SLM Servers)

Part of the configuration is a list of SLM Servers.

To check which SLM Servers are part of your configuration, select the License Manager Hosts (L0) item in the Navigation Area. You can have a maximum of four hosts for each SLM Cluster.

The SLM Servers are normally added during the installation of such an SLM Server.

To add a host manually:

1 Right-click License Data (F0) > License Manager Hosts (L0) and, on the shortcut menu that is displayed, click **New** > **New License Host**.
2 Specify the host ID and the port number and click **Create**. A properties sheet for the new host appears, called the License Host Data.
3 Specify the host name in the License Host Data properties sheet.
4 Click **OK**.

This table shows the properties you must specify for a license host. You can use the `slmid` command `%SLMHOME%\bin` to obtain the appropriate settings for your system.

License Host	
Property	**Description**
Host name	The (DNS) name of the computer that runs the SLM server. Ensure to specify the full qualified host name, including the domain, if you use FQHN identification (see FQHN identifier).
Host ID	The hardware machine identification of the server, generated by the SlmID utility (protected). If you use a hardware identifier, specify the SLM ID returned by SLMID. If you use FQHN identification, fill in the Host – ID returned by SLMID.
Port Number	The port number the SLM server listens on (protected). The default number is 6005. (protected)
All of these properties are mandatory.	

If you add a host, you see Add in the State column if you check the hosts of this configuration. The host receives the Active status after validation of the license file when you submit the activation key.

Concurrent user licenses

You must configure the Concurrent User Licenses (L3) if your contract (SLA) with Infor includes applications with concurrent user licensing.

To add a concurrent user license:

1 Right-click License Data (F0) > Concurrent User Licenses (L3) and, on the shortcut menu, click **New**> **New Concurrent User License**.
2 Specify the product ID of the product for which you want to create a concurrent user license and click **Create**. A properties sheet for the concurrent user license is displayed, called **Specify Concurrent User License Data**.
3 Define the concurrent user license properties on the various tabs In the Specify Concurrent User License Data properties sheet.
4 Click **OK**.

This table shows the concurrent user license properties:

Concurrent User License		
Tab	**Property**	**Description**
Product Data	Product name	The commercial name of the product.
	Product ID	The unique identification number of the product (protected).
Limits	Allowed number of users	The maximum number of users that can run the product (protected).
Start & End Date	Start Date	The start date of the license (protected). The default start date is today.
	End Date	The end date of the license (protected).
Mandatory properties are underlined.		

The new concurrent user license receives the Add status in the State column. After you submit an activation key, the new concurrent user license receives the Active status.

Server and Instance licenses

You only must configure the Server or Instance Licenses (L4) item if your contract (SLSA) with Infor includes applications with server or instance licensing.

To add a server or Instance license:

1 Right-click License Data (F0) > Server Licenses (L4) and, on the shortcut menu, click **New** > **New Server License**.
2 Specify the product ID of the product for which you want to create a server or instance license and click **Create**. A properties sheet for the server license appears called Specify Server License Data.

   Define the server or instance license properties on the various tabs in the Specify Server License Data properties sheet.
3 Click **OK**.

This table shows the server and instance license properties:

Server or Instance License		
Tab	**Property**	**Description**
Product Data	Product name	The commercial name of the product.
	Product ID	The unique identification number of the product (protected).
Limits	Allowed number of servers	The maximum number of servers that can run the product (protected).
Start & End Date	Start Date	The start date of the license (protected). The default start date is today.
	End Date	The end date of the license (protected).
Mandatory properties are underlined.		

Repeat these steps for all server and instance licensed applications that are in the contract and that are licensed through this particular logical SLM server.

After you submit an activation key, the new product-ids receives the Active status.

Note: To enable the SLM server to know which servers or Instances can run a particular application, you must configure the names of these servers or Instances. For each of the products, you must specify a list of servers or Instances as described in:

- [Specifying servers](#) on page 28.
- [Specifying instances](#) on page 29.

Named User Licenses

You only must configure the Named User Licenses (L2) item if your contract (SLSA) with Infor includes applications with named user licensing.

A named user license is a license that couples the use of a specific Infor application to one or more named users who have access to the product. These named users are listed by product ID.

To add a named user license:

1 Right-click License Data (F0) > named User Licenses (L2) and, on the shortcut menu, click **New**> **New Named User License**.
2 Specify the product ID of the product for which you want to create a named user license and click **Create**. A properties sheet for the concurrent user license appears, called Specify Named User License Data.
3 Define the named user license properties on the various tabs on the Specify Named User License Data properties sheet.
4 Click **OK**.

This table shows the named user license properties:

Named User License		
Tab	**Property**	**Description**
Product Data	Product name	The commercial name of the product.
	Product ID	The unique identification number of the product (protected).
Limits	Allowed number of Servers	The maximum number of servers that can run the product (protected).
Start & End Date	Start Date	The start date of the license (protected). The default start date is today.
	End Date	The end date of the license (protected).
Mandatory properties are underlined.		

Repeat these steps for all named-user-licensed applications that are in the contract and that are licensed through this particular logical SLM server.

After you submit an activation key, the new product-ids receives the Active status.

To enable the SLM server to know which named users can run a particular application, you must configure the names of these users. For each of the products you must enter a list of named users as described in .

Note:

We recommend that you specify `heavy` named users.

Desktop license and products

Currently not in use.

Options data

To set optional data for your SLM configuration:

1 Select License Data (F0).
2 Right-click Options Data (L6) in the right area and, on the shortcut menu select **Properties**.
3 Set the properties:

Options Data		
Tab	**Property**	**Description**
Options Data	Confirm Time	The time, in seconds, in which a license request must be confirmed. The default confirm time is set to 900 seconds, or 15 minutes.
	High Availability Service (HAS)	Indicates whether High Availability Support is present or not (protected). By default, this option is cleared.

Options Data		
Tab	**Property**	**Description**
Cluster set-tings	Cluster name	The name by which this SLM Cluster is known.
	Automatic Client Update	If Yes the SLM Clients will regularly check if their registration of SLM Servers matches with the SLM Servers defined for this SLM Cluster; if not, update the client configuration data. This parameter can be overruled per SLM Client installation.
All properties are mandatory.		

For more details on the concepts of the confirm time and the impact this can have on your configuration, see "Confirmation and releasing of licenses" in SLM license types on page 41.

High availability support is described in "Fail over" and "High-availability support" in SLM Cluster on page 37.

Saving configuration to the SLM server

After you specified all the SLM configuration information through the SLM MMC snap-in, the configuration must be sent to the SLM server for storage.

To submit the license data to the server, right-click License Data (F0) in the Navigation Area.

On the shortcut menu, select **All Tasks** > **Save license data to License Server**. This command saves all License data to the SLM server.

Checking changed data

Whenever you make changes to data in the snap-in, a message appears to inform you that something has changed in the Named User File. You must save these changes to the license server.

Click **No** to prevent this message from re-appearing.

Refreshing the license data

In the snap-in at the SLM server the license data, such as user, server, or desktop data is shown. Use the refresh option to refresh the list. If changes are made to the license data that are not yet saved to the server yet, a message appears to inform you to save the changes to the server.

Click **Yes** to save your data first or click **No** to refresh the snap-in with the latest data from the license server.

Obtaining an activation key

In [Configuring the licenses](#) on page 19 is described how you can specify all the necessary data in the SLM server configuration to enable Infor Validation.

In case of a valid match, Infor Validation can provide you with the activation key. This activation key activates the specified configuration you sent to Infor.

This section describes the required steps to request an Activation key. First, you must be certain that your SLM server configuration is saved to the SLM server and to a file that you can upload to Infor.

To request for an Activation key:

1 Right-click License Data (F0) in the Navigation Area and on the shortcut menu, select All Tasks > Save License Data to License server. This command saves all license data to the SLM server.
2 Select **All Tasks** > **Save License Data to File…**

   This command opens a **Save As** dialog box, in which you must indicate in which folder and under what name the license data must be saved. The data is saved as an XML file. By default, this file is called `license.xml`.

   Upload this file to Infor Validation to retrieve an Activation key for that specific configuration.
3 Open your Internet browser and navigate to the Infor Support Portal.
4 Click **Request a Software license Key** in the left bar. The Software Keys page appears.
5 Select **Infor License Management (SLM) Key Request Form**. The request form for licensing using the License Manager is displayed.
6 Specify the required details and attach your license file, `license.xml`, to the select license information file. To retrieve `license.xml`, click **Browse** and select the file in the **Choose File** dialog box.
7 Click **Submit**. All specified details and the license file are sent to Infor Validation and your request for an activation key is processed.

   Infor provides you the validated Activation Key or can send a temporary activation key that activates the applications for a limited period.

Submitting the activation key

Before you enter the permanent activation key, you must first check whether the SLM configuration contains your license number and customer code. If this information was unavailable when you requested the activation key, the information is sent to you together with the permanent key by Infor Validation. Add this data to your configuration before you activate the key, as described in " Customer data," in this chapter.

Right-click License Data (F0) and, on the shortcut menu, select **All Tasks** > **Save License Data to License server…**to save the data to the SLM server.

Note:

The License file must be complete. If you received additional data from Infor Validation with the key, for example a license number or the customer code, specify and save this data first in the license file before you can submit the key.

To activate the activation key for your configuration, take these steps:

1 Right-click License Data (F0) on the Navigation Area
2 On the shortcut menu, click **All Tasks** > **Supply New Activation Key…**
3 Specify the new key. Use a copy and paste procedure to enter the Activation Key information in this dialog box.
4 Click **Activate** to send the key to the Software License Manager.

  Your SLM configuration is active. All State columns in the Content Area have the status Active.

  Note 1: The Activation key uses some hardware characteristics, such as CPU, main-board, and network card, of the machine on which SLM server runs. If you change the hardware configuration, the activation key becomes invalid and you must revalidate your configuration.

  Note 2: If you provide your configuration with an incorrect activation key, the Solution License Manager responds with an SLM Activate message.

5 Click **Retry** to supply the correct activation key.
6 Before activation, SLM checks whether any changes are made to the license data. If so, a message appears to inform you about unsaved changes.

  Click **Yes** to save these changes. The existing activation key is only overwritten if the new activation key is a valid key.

Specifying named users

If named user licenses, server licenses, instance, or desktop licenses are present in the license contract, you must specify:

- Which named users are linked to which product.
- Which named servers are linked to which product.
- Which instance names are linked to which product.

This information is not part of the license agreement with Infor. Infor only counts the type and number of licenses, and not the actual names of users, servers, instances, or desktops. Changing this information does not impact the activation key.

The following sections describe how to specify the named users, servers, and instances.

Several Infor applications support uploading of named users to SLM. If this is not the case you can use the manual adjustment of named users:

1 Open the Named Users (F2) item in the Navigation Area. All product-ids of the applications you configured to use named user licenses are shown. Select the application for which you want to specify named users.
2 Right-click the application for which you want to specify the named users and, on the shortcut menu, click **New** > **New Named User**. A dialog box is displayed in which you can specify the name of the named user.
3 Click **Create** after you specify the name of the user to create an entry for the named user. A properties sheet called Specify Named User Data appears. In this sheet you can specify the properties for the new user.

This table shows the properties for a named user:

Named User Properties		
Tab	**Property**	**Description**
User Data	User name	The name of the user as used by the adopting application.
	Rank	An optional ranking number. The rank specifies the sequence of the users in the list of users for a specific product.
	User Type	An attribute to indicate whether a user is a light user or a heavy user.
	User Count	An optional attribute to define how many licenses this particular user can allocate. The default value is 1, which signifies that this user can work with the licensed application on one desktop concurrently.

Mandatory properties are underlined.

SLM uses the rank sequence when granting licenses to users. Because you can specify more users for an application than you can use in your license configuration, only the first n ranks are checked for licenses, in which n signifies the number of named user licenses in your SLM configuration.

For every application, you must add all named users for that application to your SLM server configuration.

Modifying named users

To modify the named users' information for a product:

1 Select the Named Users (F2) in the Navigation Area.
2 Select the specific application from which you want to see the details.

In the Content Area, the named users' details are shown. The **Accumulated Count** field shows the accumulative sum of all the used licenses.

Before the specified named users become active, you must save these named users to your SLM server.

3 Select the Named Users (F2) in the Navigation Area.
4 Right-click the specific application that you want to save
5 On the shortcut menu, select **All Tasks** > **Save Named Users to License server**.

Alternatively, you can save all specified named users for all applications simultaneously.

6 Right-click the Named Users (F2) in the Navigation Area.
7 On the shortcut menu, select **All Tasks** > **Save All Named User Lists to License Server**.

Specifying servers

For every application that uses the Server Licensing type, you must specify the corresponding servers. First you must add the servers and than save the configuration file.

Adding servers

Complete these steps:

1 Open the Servers (F3) item in the Navigation Area. You see all the applications you configured to use server licenses.
2 Select the application for which you want to specify servers that can run that application.

   The servers that are already assigned to the application are shown in the Content Area.

3 Right-click the application for which you want to specify the servers.
4 On the shortcut menu, click **New** > **New Server/Instance**.
5 Specify in the **Create a New Server** dialog box, the server ID of the server, which is hardware-specific machine identification.
6 Click **Create** to create an entry for the server. The properties sheet called the **Specify Server Data** is displayed.
7 Specify the properties of the server, such as the name of the server, in the **Specify Server Data properties** sheet.

   This table shows the properties for the servers:

Servers		
Tab	**Property**	**Description**
Server Data	Server name	The DNS name of the server (the system name)
	Rank	An optional ranking number.
	Server ID	The (hardware) machine identification of the server.
Mandatory properties are underlined.		

The rank specifies the sequence of the servers in the list of servers for a specific product. SLM uses this sequence to grant licenses to servers.

Because you can specify more servers for an application than you can use in your license configuration, only the first n ranks are checked for licenses, where n stands for the number of server licenses in your SLM configuration.

The server must be identified with a server ID. To obtain that server ID, you can run the `BclmID` program on that server. You can find the program in the SLM directory.

Add for every application all servers that can run that application to your SLM server configuration.

Note that some applications can synchronize their servers in their user management console with your SLM server configuration automatically. In that case, you are not required to maintain the servers manually in your SLM configuration.

To modify the server information for a product:

1   Select the Servers (F3) in the Navigation Area.
2   Select the specific application from which you want to see the details.

You can now see the server details in the Content Area.

Saving configuration files

Before the specified servers become active, you must save these servers to your SLM server.

Complete these steps:

1   Select the Servers (F3) in the Navigation Area.
2   Right-click the application you want to save.
3   On the shortcut menu, select **All Tasks > Save Servers to License Server**.

    Alternatively, you can save all specified servers for all applications simultaneously.

4   Right-click the servers (F3) in the Navigation Area and, on the shortcut menu, select **All Tasks > Save All Server Lists to License Server**.

Specifying instances

For every product that uses the Instance Licensing type, you must specify the corresponding servers. First you must add the servers and than save the configuration file.

Adding instances

1   Open the Servers (F3) item in the Navigation Area.

    A list of all the applications you configured to use Server and Instance licenses is shown.

2   Select the product for which you want to specify instances. The instances that are assigned to the product appear in the Content Area.
3   Right-click the application for which you want to specify the instances.
4   On the shortcut menu, click **New** > **New Server/Instance**.
5   Select in the **Create a New Instance** dialog box, the carrier and instance. Consult the documentation of the product to identify what you must specify here.
6   Click **Create** to create an entry for the instance. The properties sheet which is called the specify server/instance data for the instance appears.

This table shows the Rank properties for the instance:

Instance		
Tab	**Property**	**Description**
Server Data	Server name	Read only field.
	Rank	An optional ranking number.
	Server ID	The identification of the instance. An automatically generated, read-only, field.
Mandatory properties are underlined.		

The rank specifies the sequence of the instances in the list of instances for a specific product. SLM uses this sequence to grant licenses to instances.

Because you can specify more instances for an application than you can use in your license configuration, only the first n ranks are checked for licenses, where n stands for the number of instance licenses in your SLM configuration.

The instance is identified based on the ID. This ID is generated automatically, based on the carrier and instance name.

For every application, you must add all instances that can run that application to your SLM server configuration.

Modifying an instance

To modify the ranking of an instance, you can select the instance, right-click and, on the shortcut menu, click **Properties**. You can now change the ranking.

To modify the carrier or the instance name, you must delete the current instance and create a new instance.

Saving configuration files

Before the specified servers become active, you must save these servers to your SLM server.

Complete these steps:

1 Select the Servers (F3) in the Navigation Area.
2 Right-click the application you want to save.
3 On the shortcut menu, select **All Tasks** > **Save Servers to License Server**.

Alternatively, you can save all specified servers for all applications simultaneously.

4 Right-click the servers (F3) in the Navigation Area and, on the shortcut menu, select **All Tasks** > **Save All Server Lists to License Server**.

Specifying Desktops

Not in use.

Chapter 4: Upgrading to SLM 7.4

SLM 7.4 can upgrade your current environment to the newest version with low impact. You can upgrade your SLM environment from any 2.x version or later.

What has changed

SLM 7.4 does not contain the `Bclm1.x` components anymore.

SLM 7.4 is 64-bit only. For compatibility, the 32-bit client components are still delivered, but these will be removed in the future. SLM requires a 64-bit Operating System and does not run on 32-bit Operating Systems.

Upgrading process

If one SLM server is running in your SLM Cluster environment, updating to SLM 7.4 or later requires downtime for your licensed applications.

You can upgrade individual SLM Server in an SLM Cluster while the SLM Cluster continues to function. Sequentially update all the SLM Servers within the cluster as described in the "Upgrade procedure sequence".

Note:

With SLM 7.0 the environment variable to locate the SLM software has become `SLMHOME`.

Older Infor applications build against older SLM versions require the `BAANHOME` environment variable. In those cases - ensure the `BAANHOME` environment variable is pointing to the same directory as the `SLMHOME` environment variable.

Prerequisites

Follow these rules:

- Ensure the environment variable `SLM_API_SL` is pointing to this file: `<SLM_install>/shlib/SLMClient.so`

  Dependent of platform the suffix must be `.a .so` or `.sl`

- Read-only files in the install directory will block the installation. Ensure to remove the read-only property of these files.

- Whenever possible, the Installation Wizard retrieves information about the previously configured SLM server. If these details are available, the Installation Wizard stops a running SLM server.
- When an `SlmServer` was not running before upgrade, it is not automatically started after upgrade. When an `SlmServer` is running before upgrade, it is started automatically after upgrade.

New parameters

With SLM 7.0 new parameters are introduced. These parameters can be adjusted after the installation through the MMC Snapin.

Cluster Name a string to uniquely identify this cluster. The default name is 'SLMcluster'. In case you deploy one SLM Cluster, use the default name. When more SLM Clusters are deployed in your environment we recommend that you specify a more logical name, for example 'Test' or 'Company X'. A name reflecting the area it services.

Automatic client update [yes/no] when automatic client update is activated the SLM clients will regularly check if the SLM servers they know are indeed part of the SLM Cluster. If not, they will try to update the information. The default is ' yes' and recommended for default installations.

Upgrading a stand-alone SLM server

To upgrade a stand-alone SLM server, you must stop your running SLM server. Note that this will impact the availability of the licenses applications. Start the Installation Wizard, and upgrade the SLM server and the SLM MMC snap-in.

Upgrading an SLM Cluster

The concept of upgrading an SLM Cluster is to upgrade one-by-one each SLM server in the group. Do not make changes to the SLM configuration of the group during this operation; all SLM servers must operate on the same SLM version before configuration can take place (again). The complete upgrade of the SLM server group must take place within the time of the grace period, as described in " Fail over " SLM Concepts" If the upgrade takes longer, the total number of licenses decreases.

During the upgrade, you can be forced to stop an SLM server that has allocated licenses to particular applications. The other SLM servers, which are still running, will redistribution the licenses automatically, as described in "Fail over", in <u>SLM Cluster</u> on page 37.

Upgrade procedure sequence

- First upgrade the SLM Server with the 'master' role.
- Upgrade the SLM Servers with the 'slave' role.
- Ensure an SLM Server is up and running before upgrading the next porting set. To check this, run `SLMClientTest`.

Chapter 5: SLM Concepts

For technical details on how to configure your SLM, see

Licensing solution

SLM is the central license manager for many of the Infor products.

To establish a licensing solution, you require these components:

- The Infor product that has adopted SLM licensing.
- The SLM product itself for handling the licenses. The License Manager checks the license requests from the adopting applications, according to the information stored and validated with Infor.
- The Activation key that enables the Solution License Manager. Submission of the Activation key enables the licenses that your adopting applications require to work.

SLM components

SLM is a central application that checks whether users are licensed to start one of the Infor applications. SLM provides a common licensing solution for these applications, and ensures a consistent and reliable license validation mechanism.

SLM consists of these components:

- SLM Cluster

  The center of SLM that handles the requests for licenses coming from adopting applications. An SLM Cluster consists of one to four SLM Servers, and acts as one center for providing licenses and the SLM License file that contains the entitlement for Infor products.

- SLM License file

  The SLM license represents the entitlement for Infor products. After verification by the Infor Validation department, the entitlement is activated through an activation key. The license file can be deployed `SLM MMC snap-in`. This snap-in can be used to configure the license information used by the SLM Cluster to validate license requests. You can manage SLM Clusters both local and remote.

  For details, see,

  The SLM MMC snap-in runs on Windows on the SLM servers that are listed in the file.

- SLM client

  All systems with Infor applications validated through SLM must have the SLM client installed. The SLM client is the interface layer between adopting applications and the central SLM Cluster.

Active SLM Server

An SLM Cluster, or an SLM Server of that cluster, will act as a license server only if the license file deployed is activated with a valid activation key and the SLM server is listed as a valid (active) SLM server in the license file.

An SLM server is identified by a host-identifier and the TCP/IP port assigned to the service.

There are two methods used by SLM to identify a host:

- Through a hardware identifier
- Through a Full Qualified Host Name (FQHN)

The identification method used depends on the customer scenario. The identification based on FQHN is introduced with SLM 7.2.

Hardware identifier

When a hardware identifier is used, SLM uses a unique identifier for a hardware component of the system where it' s deployed to identify the system. The hardware component used varies per operating system, for example, it can be CPU or a network card. Based on that hardware component, SLM will generate an SLM host-id for the identification. This id is used to register the SLM Server in the license file.

SLM Servers that are identified via a hardware identifier cannot be deployed in virtual environments.

FQHN identifier

The full qualified host name (FQHN) of the host where the SLM Server is deployed will be used to identify the system. Based on the FQHN, SLM will generate an SLM host-id for the identification. This id is used to register the SLM Server in the license file.

The full qualified host name consists of a host name and a domain name part. SLM Servers that are deployed on a VM will handle license requests from only SLM clients that are deployed on systems in the same domain. In a SLM cluster with multiple SLM Servers it is possible to deploy the SLM servers on VM systems that belong to different domains. In that case the SLM cluster will handle requests for all the domains where an SLM Server is deployed.

Note:

It is strongly advised that you deploy the SLM Servers that belong to the same SLM Cluster all on the same host type, so all on a Windows systems or all on a UNIX system and all in a virtual environment or in a physical environment.

SLM uses these rules to identify a hostname as a FQHN:

• Must be 2 labels or more
• Labels cannot contain more than 63 characters
• Labels cannot contain special characters
• Hostname must be reverse resolvable (hostfile, DNS, etc must be correctly configured for this)

For SLM to work in a VM environment all (servers and clients) must follow these rules, to use FQHN licensing on a Non-VM these rules only apply for the server(s) SLM is running on. We recommend that you not to run VM and non-VM in the same SLM cluster setup, if this cannot be avoided ensure that all (servers, client) follow the VM rules.
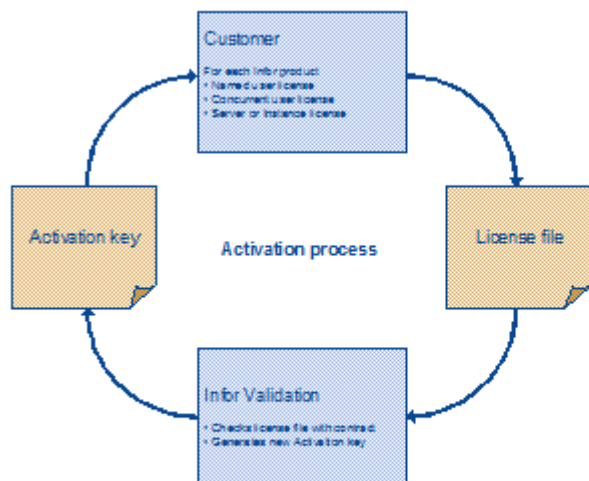
Licensing the application

To license an application, these conditions must be met:

• SLM client must be installed on the same system as the application to license.
• SLM client must be configured to be aware of the location of the SLM Servers in the SLM Cluster.
• The product license handle (SLM product-id) must be registered in the license file and activated with an SLM activation key.
• In case of named user, server or instance licensing, the user name, server name or instance must be registered.

The Infor application requests a valid license through the SLM client. Therefore, the SLM client must be aware of the SLM server(s) in the SLM Cluster that holds and manages the valid licenses. A Client can only be connected to one SLM cluster. For more information, see "SLM Cluster on page 37".

Before a license request can be approved by the SLM Cluster, the SLM Cluster must know the license information for that adopting application, and must check whether that license is valid. The SLM server must, therefore, be aware of the applications and which licenses these applications can request. For that purpose, the Server uses product IDs (license handles) and license types. You must specify these product IDs and license types in the MMC snap-in configuration tool. This configuration must next be checked and validated by Infor. After validation, Infor provides you with a valid activation key. With this key, the SLM server can grant licenses on request. This activation key is stored at the same place as the license information. This diagram shows the activation procedure:

This configuration is usually a one-time effort for an adopting application and is only required if the contract (SLA) is renewed or if you change the license server, the applications, in other words the product IDs, or the details in the license types.

The SLM configuration also keeps track of the named users, named servers, or named desktops that are permitted to use the Infor application in case of named user, server, or instance licensing. The moment you make changes in your users, servers, or instances, you must maintain your SLM configuration. These latter modifications, however, do not require validation by Infor and, therefore, do not require a new activation key.

SLM Cluster

As described previously, the SLM Cluster can keep track of the licenses of several Infor applications. You can install the SLM server of an SLM Cluster on the same host as the adopting application or install this SLM server on a central host if multiple applications spread over several machines are licensed.

If you have multiple applications using SLM for license validation it is recommended to install at least two SLM Servers on different hosts. These two will together make one SLM Cluster.

Installing multiple SLM servers which are configured to form one SLM Cluster is mainly used for high availability of the SLM service.

The license information of the SLM Cluster is managed through the SLM MMC snap-in. When you manage an SLM Cluster, the MMC snap-in automatically identifies the master server within that cluster responsible for maintaining the license configuration data.

SLM Cluster Concept

This section describes the concept of SLM Clusters and the installation of multiple SLM servers.

An SLM Cluster is a group of one to four SLM servers that act as one license manager. Having more than one SLM Server in an SLM Cluster is intended to handle fail-over situations and to support large quantities of license requests. If one SLM server stops, the other servers of the group can take over.

Always one and only one SLM Server in an SLM Cluster has to run in master mode. You must mark one of the SLM servers in a cluster in Master mode, and the other SLM Servers as slaves. By default the first SLM Server installed will act as master server the additional servers added later as slaves.

All servers in an SLM Cluster will handle license requests; the additional role for the master server is to be the owner of the license configuration. The slaves retrieve their configuration data from the Master SLM server.

The SLM clients spread their license requests over the various SLM servers.

Fail over

If one or more SLM servers in a group fail to operate, the other servers in the group will take over. The following example illustrates just how the SLM servers backup each other:

Suppose your adopting application is licensed with 100 concurrent user licenses and you are working with an SLM Cluster of four SLM servers: SLM servers A, B, C, and D.

The license distribution for that application at a particular moment when all SLM servers are available can be as follows:

Server	Claimed licenses
A	30
B	30
C	20
D	20
Total	100

Suppose SLM server A fails to operate because the server is stopped or the machine on which this server operates is decoupled from the network. The other SLM servers in the group will notice the failure of SLM server A and distribute the current 30 claimed licenses among each other, depending on the requests from the SLM clients. The total amount of concurrent licenses remains 100 concurrent licenses.

The total of 100 remains for a limited period of time, called the grace period. That grace period is specified as 72 hours.

This table shows the distribution of claimed licenses during this grace period:

SLM server	Claimed licenses
A	Failed
B	40

SLM server	Claimed licenses
C	25
D	35
Total	100

If the failing SLM server is not running again after that grace period, the total number of licenses decreases in proportion to the percentage of the failed servers in the group. In this example, this implies that the total number of licenses will be lowered by 25 percent to 75 percent, because SLM server A represents 25 percent of the group.

This table shows the distribution of claimed licenses after the grace period:

SLM server	Claimed licenses
A	Failed, grace period elapsed
B	30
C	25
D	20
Total	75

To return to the total number of 100 licenses, you can perform one of these actions:

- Bring SLM server A to life again.
- Delete the SLM server A from the group and revalidate the group with Infor Validation. You will now have one SLM Server less.
- Delete the SLM Server A from the group and add another SLM server E in this group and revalidate that group with Infor Validation.

High availability support

In some instances, Infor can grant customers high availability support. To prevent a particular percentage of your licenses from being lowered after the grace period, you must select the High Availability Support (HAS) option in your SLM server configuration.

Multiple SLM Clusters

In some instances, you want to install and configure multiple SLM Clusters because of technical reasons or if your release strategy requires various versions of SLM.

A possible technical reason is if you want to license two different Infor applications that are installed in different network zones, for example, one application on your intranet and the other in your demilitarized zone (DMZ). The preferred method to deal with this situation is to install an SLM Cluster in every network zone.

Another valid reason to install and configure multiple SLM Clusters can be your geographical distribution and the related latency in your network. You then install an SLM Cluster on each geographical location.

You must request an activation key for each SLM Cluster. Note that Infor Validation does not count the amount of logical SLM servers. Infor Validation only validates the total amount of licenses the customer requests.

SLM client

The SLM client is responsible for the communication between the adopting application and the SLM Cluster. You must install the SLM client on each host that has an Infor application interacting with the SLM Server.

An SLM client can only be configured to connect to one SLM Cluster. The cluster name, cluster identifier, and SLM Servers part of the cluster is stored in the client configuration. The configuration program `slmconfig` can be used to configure the client configuration. The client configuration data is available in the `servers.xml` file that is located in the folder:

`%ProgramData%/Infor/SLM/etc`

In an SLM Cluster with multiple SLM Servers, the SLM clients decide to which server they will send a license request based on a round-robin schedule. The first license request is sent to the first server listed in the client configuration; a second request to the next etcetera.

Note that additional requests related to an earlier license request, such as a confirm request or a release request is send to the same server as the original request.

When to upgrade SLM Client software

You are not required to upgrade all the SLM clients if a new version of the SLM server is installed, because the SLM server is backwards compatible with previous versions of the SLM client.

You are only required to update an SLM client if one of the adopting applications requires functionality of the new SLM server, because the SLM client must become aware of that functionality.

You can update an SLM client with a newer version in any case, because Infor assures backward compatibility of the SLM client, which means that all applications that work with a previous version of the SLM client also work with the newer versions. If in the future a compatibility break is unavoidable, Infor defines a deprecation period. Note: the SLM Server must always be at least the same version as the SLM clients.

When to adjust SLM client configuration

If the SLM server is moved to another machine, the configuration of the SLM clients must be updated with the new machine name of the SLM server. When there are multiple SLM Servers in an SLM Cluster, the SLM Clients will automatically update their configuration only if they can contact at least one of the SLM servers in the cluster.

SLM license types

The license deals vary, but the license types remain the same. Therefore, the SLM does not license according to a license deal, but according to the various license types.

Infor applications can be licensed in various ways. To see how your application must be licensed, see the Software License Agreement (SLA). Depending on the Infor pricing strategy, a restricted set of license types can be assigned to a specific application. For example, some applications can be licensed through any license type, while others can only be licensed through a server license.

In general, the license types are distinguished in node locking and user locking. With a node-locking license, the adopting application can only work on a specific node in your network. A network node can be a server but also a desktop or a particular instance of an application. With a user-locking license, the adopting application can only work with specific named users or with a limited amount of concurrent users.

SLM supports these license types:

License types	Description
Concurrent User license	A user-locking license in which a pool of concurrent users can use the adopting application.
Named User license	A user-locking license in which a pool of specific named users can use the adopting application.
Server license	A node-locking license in which a pool of specific named server or desktop computers can use the adopting application.
Instance license	An instance-locking license in which a pool of specific named instances can be used for the adopting application. Note that with SLM 7.2, instance licensing is registered by means of server licensing.
Desktop license	Desktop licensing is not 2.5 and used at the moment

When a license request is made, the SLM server checks the license configuration (License file) to see how many users, servers, or instances can use the application, and then, according to the license type, checks the specific named user, server, or instance.

Some adopting application can be licensed with all the various license types, while others can handle only a selection of licenses.

Concurrent user license

With the concurrent user license, the SLM server is not interested in the specific name of a user. The SLM server only counts the number of concurrent users at a particular time. If the number of users exceeds the amount of concurrent users, specified in the SLA for which the Activation Key is valid , the SLM server rejects the license request from the adopting application.

Named User license

If an adopting application uses Named User licensing, the SLA states the number of named users that can use that application. The SLM server keeps track of a list of all specific users that are permitted to use that application. The server will reject a license request from an adopting application if the SLM server does not know the specific user name.

To be able to work with some role-based licensing mechanism, the named user licenses are distinguished into light and heavy users. The adopting application can specify some rights to a specific role.

Note:

Note: If the documentation of the adopting application does not explicitly specify the use of light or heavy named users, Infor advises that you specify `heavy` named users.

Infor only validates the amount of named users. Infor will not know the specific names of these users.

Some applications automatically synchronize the user names of their authorization module with the SLM server.

The SLM server checks for a specific user name in combination with the desktop name where the application is running. You can specify that a specific user can run the application concurrently from multiple desktops. Each desktop on which this user runs the application decreases the number of licenses by one.

Server license

If an adopting application uses Server licensing, the SLA states the number of servers that can run that application. The SLM server keeps track of a list of servers that can be used for an application.

Note 1: For some applications, manually configuring the servers on which the product can run is unnecessary. Through the SLM API, the application itself can upload the server IDs to the SLM server.

Note 2: For the license validation, Infor only registers the amount of named servers. Infor will not know the specific names of these servers.

Instance license

If an Infor application uses Instance licensing, the SLSA states the number of instances that can be run with that application within the boundaries of the contract. The SLM server keeps track of a list of instances that can use be used in the context of the application.

Note 1: For the license validation, Infor only registers the amount of instances per instance licensed product. Infor does not know the specific instances names.

Note 2: With SLM 2.5 and 7.x both instance and server licenses are kept under the server licenses in the license data.

Desktop license

Not in use

Confirmation and releasing of licenses

If an application claims a license, the application must frequently confirm this claimed license within a specified time interval, which is called the confirm time. If the confirm time has passed, the SLM server will release the license, assuming that the adopting application no longer runs correctly. If the application can provide a confirmation afterwards, the SLM server first tries to reestablish the license that was released previously. If unsuccessful, the server tries to provide a new license.

With this confirmation mechanism, requested licenses will always be released within a specified time, even if the adopting application has crashed or can no longer be reached.

SLM Configuration

The SLM configuration is, in fact, the representation of the Software License and Support Agreement (SLA) between the customer and Infor. The SLM server uses the SLM configuration to validate the license requests. SLM configuration is carried out through the SLM MMC snap-in.

The SLM configuration is specific for an SLM Cluster. The Activation key created by Infor Validation for that SLM configuration can only work on that specific SLM Cluster. The SLM configuration contains data about the customer, for example, customer code and license number, and data about the licensed applications, for example, license type or maximum number of users as well as identifiers for the hosts the SLM Servers are running on.

Customer specific entries

The customer-specific entries keep track of, for example, the SLM server ID for which this SLM configuration is created, the number under which the Customer is registered with Infor and whether High Availability Support (HAS) is enabled.

Application specific entries

The SLM configuration contains all the licensing details by licensed application. Every licensed application can have one or more product IDs. /baanerp/baan.fullversion has, for example, a product ID for the runtime environment and one for the development environment. A product ID can have only one entry in the SLM configuration, which means that you can link only one license type to a product ID. Together with that license type, you must specify in the SLM configuration the amount of licenses and the start and end date of the licensing period.

The SLM server keeps track of what is already validated in the SLM configuration, in other words, for which entries a validated Activation key is available, and which entries have been changed. Changed entries only become active if a new SLM activation key is requested and provided by Infor, and this new key was submitted to the SLM server.

SLM Activation key

To receive a validated SLM configuration, you must send the SLM configuration to Infor Validation. Infor verifies the SLM configuration against the signed contract, your SLA, to see if the SLM configuration is a correct representation of the agreement. If so, Infor provides one SLM activation key for each license file.

Note:

Note: Each SLM configuration will be approved with only a single SLM activation key, independent of the total number of product IDs in the SLM license file.

Temporary activation key

Although Infor provides you with a valid activation key as quickly as possible, the process can still take some time. Infor 's policy is to provide you with the key within five working days.

To bypass this five-day maximum, Infor can provide you with a temporary activation key that provides access to your applications for a limited period of two weeks. The moment you receive the actual activation key, you must activate that key in your SLM server configuration to avoid a situation in which you can longer use your applications after the temporary license expires.

Note: This temporary activation key is only applicable for those applications in your SLM configuration that were never licensed with a validated activation key, and usually works only on the changes in your SLM configuration.

SLM product registration

You can use the SLM MMC snap-in to add an SLM-adopted Infor product manually to the SLM configuration before you install the product itself. In this case, you must supply the product ID, the product name, and the license type applicable to this product.

Unregistered products

If the SLM Cluster receives requests for product-ids which are not registered, it will store these product-ids in the 'unregistered products'. This is an indication for a customer that there are Infor products installed for which (partially) no licensing is available. You can find automatically registered products in the SLM snap-in in the Navigation Area under the entry Unassigned Products. For these products, you must supply the missing product properties, such as the product name, the license type, the amount of licenses, and the start and end date of the license. Finally, you must validate the SLM configuration.

See the *Infor Enterprise Server Platform Support Matrix* guide. Especially the sections Support matrix and Virtualization support. The last version of this document can be found in KB 1183466 on the Infor Support Portal.

Appendix A: Troubleshooting

During the installation and configuration of SLM issues can occur.

SLM Installation Wizard

This section discusses issues that can occur with the Installation Wizard.

The Installation Wizard shows an error message and stops the installation. The log file is empty.

Set the environment variable `BSI_DEBUG` to 0xFFFFFFFF and rerun the installation. Note that for a remote installation, the password is also logged. In that case, delete the log file afterwards!

The Installation Wizard writes logging to `BCLMClient.log` in your personal temp directory, for example:

`C:\Documents and Settings\<your name >\Local Settings\Temp`

The Installation Wizard cannot start the SLM server: Failed to bind UDP port 6005.

The `SLMHOME/log/log.BclmServer` or the Windows Event Viewer displays the message "`Failed to bind UDP port 6005.`"

In that case, an SLM server is already running on that system, or another application is bound to that UDP port. By default, an SLM server uses UDP port 6005 to listen to broadcast messages. The Installation Wizard always starts a BclmServer with – uport 6005.

If an SLM server is running, you must stop that server, and restart the Installation Wizard.

If another application is bound to UDP port 6005 you can try to reconfigure that application to use another port or start SLM server to use another UDP port.

Not all running SLM servers are listed in the SLM server Configuration dialog box

The Installation Wizard uses UDP port 6005 to send a broadcast message over the network. That broadcast is carried out on the machine on which the Installation Wizard runs, and not on the machine on which the SLM server is installed.

Usually, all SLM servers that are running reply with a message to the wizard.

SLM servers do not respond, if:

- During startup of the SLM server a non-default UDP port is passed by using the - uport option.
- The SLM server is in a different segment and broadcast messages cannot pass segments, which is usually how the network is configured.
- The network contains routers and/or switches that block the broadcast message.

For information on how to manually add SLM servers to your configuration, See

The installer reports an error when reinstalling server or client package.

One of the shared libraries that are reinstalled is in use and cannot be overwritten. Stop all client and server programs that can be locking the shared library and retry. Check the log file because the file that can show processes that lock SLM files that prevents the upgrade process.

Locked file(s) detected installation cannot proceed.

Locked file(s) detected: Possible files:

- `SLMHOME/bin/BclmServer.exe`
- `SLMHOME/bin/BclmMsg.dll`
- `SLMHOME/shlib/com_baan_bclm_Bclmlmpl.dll`

This error occurs if you attempt to install SLM on a location where SLM is already installed and the SLM server is still running and/or a Java client is still active.

To resolve the problem, first retry the Install button. In most cases the installer will have stopped the involved program already. If unsuccessful, finish the installer and stop the SLM server and/or the SLM adopted application. Restart the SLM installer.

Some SLM shared library or DLL is still locked by an adopting application during upgrading Client or Server

Before you start to upgrade, you must stop all running adopting applications. In this way, you free the file locks.

SLM server

These issues can occur on the SLM Server.

SlmServer –start reports that the SLM server is started, but the Windows Service Manager shows that the server is not started.

An error occurred during License Server startup.

Check the application log in the Windows Event Viewer for errors from the source: SLM and Category: SlmServer to find out what went wrong.

License server does not run anymore. Message in the logging "System time tampered, restore to the original system time to restart the license service."

The license server has detected that the system time of the server is set to an earlier date.

Restore the original system date and restart the license server.

If this fails to resolve the problem contact Infor support and provide this information of the failing server.

- license.xml file
- host name
- bclm ID

On UNIX SLM server logs error: "Errno 24 (Too many open files)" and "SockAccept failed"

Most UNIX variants, for example, HPUX11, have a soft limit of 60 and a hard limit of 1024 file descriptors. If you place a high load on the license server, the soft limit is insufficient.

To resolve this issue, you can try to tune the UNIX kernel, or run the command: ulimit –n 1024 to set the user limit to the maximum of 1024.

SLM MMC snap-in

This section discusses issues that can occur with the SLM MMC snap-in

When starting the SLM MMC snap-in, a message appears that states that the license data layout is incorrect.

The MMC snap-in of SLM 2.3 and later versions is not compatible with earlier version of SLM. The SLM MMC snap-in must always be of the same version as the SLM server.

When saving license file, a message appears stating an invalid file layout or a file does not exist.

Often, the cause of this problem is that a product ID is registered under more than one license type. For example, product ID 10056 is registered under both Concurrent User Licenses and Named User Licenses.

Remove one of the two entries and retry the save action.

When saving license file, a message appears stating an invalid file layout or a file does not exist.

After you send the license data to the server, the snap-in checks the file version of the submitted file against the version initially retrieved from the license server. If a version conflict is detected, a message is displayed.

You must now decide whether you want to save the changes from the snap-in, and overwrite the changes made at the server, or leave the changes at the server untouched.

Note:

A version mismatch can only arise if more than one person configures SLM at the same time.