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Server License Setup

Preface

The *ASTOS* software can be used within a floating and concurrent license infrastructure. This requires the setup of a license server and of client computers on which the software shall be used. This book provides instructions and explanations of how to set up a license server environment.

PREFACE

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1 Introduction

In order to set up a floating license infrastructure a dedicated license server package shall be installed on one server computer. All computers on which *ASTOS* will be used (clients) shall have access to the server computer via a network. On each of the client computers the *ASTOS* software shall be installed.

Note: Generally the *ASTOS* software has to be installed on each client computer (Software Installation in the Installation Guide for Windows book) on which the software shall be available and need not be installed on the server computer.

It is not required to activate any license on the client computers. Moreover the server license must not be activated using the *ASTOS* software but only using the license server package *FLEXlm* which is available for download from the `Downloads` area on `www.astos.de`. The package shall be installed on the server computer and the floating *ASTOS* license shall be activated only there. The server package contains detailed documentation about the installation and administration of the license server *lmadmin*. In case of problems during the installation of the server and the activation of the license, please refer to Chapter 6 or to the *FlexNet* manual `fnp_LicAdmin.pdf` which is part of the license server package.

Note: *lmadmin* shall be started again after a system restart. Since this can be automated in different ways depending on the particular server operating system configuration, a qualified system administrator shall set up the license server to be started again upon restart of the system.

If additional assistance is required, please contact service@astos.de.

2   Server License Setup for Windows

In this chapter step-by-step instructions are provided on how to install the *lmadmin* license server and how to activate the server license in a *Windows* environment.

2.1   System Requirements

In order to run *lmadmin* on *Windows* the following resources are required:

- The following platforms are supported:

Table 2.1: Supported Windows platforms and hardware

Platform Type	Hardware Type	Operating System
Microsoft Windows 32-bit	x86	- Windows 10 - Windows 8.1 - Windows 7 SP1
Microsoft Windows 32-bit	x64	- Windows Server 2016 - Windows Server 2012 and 2012 R2
Microsoft Windows 64-bit	x64	- Windows 10 - Windows 8.1 - Windows 7 SP1

Platform Type	Hardware Type	Operating System
		- Windows Server 2016 - Windows Server 2012 and 2012 R2

■ The relevant Microsoft Visual C++ 2010 SP1 Redistributable Package must be installed. The installer can be found in the `lmadmin` root folder and is called `vcredist_x64.exe` or `vcredist_x86.exe`.

It is a best practice to run license servers on a server-based OS. The *ASTOS* license activation procedure cannot be performed on a virtual machine.

2.2 Server and License Setup

Server setup

The following basic step-by-step guide provides instructions how to install *lmadmin* and to activate the server license:

1. Go to `http://www.astos.de/downloads` and log in with your user name and password.

2. Download `FLEXlm_XXXX_Windows.zip` or `FLEXlm_XXXX_Windows_x64.zip` depending on your platform.

3. Extract all the files from the zip file in a directory of your choice (e.g. `C:\ProgramData\Astos_Solutions\flexlm`). This folder will be referred to as `#flexlm_folder#` throughout this guide.

4. On the **Administrator** *command prompt* navigate to the `#flexlm_folder#\Anchor_Service_Installer` folder and run `installanchorservice.exe astoslic ASTOS`

5. There are two possible license types supported by the software. The user can request one of them and the license set up in this step shall be performed accordingly. The first license type is based on the *FlexNet Trusted Storage* (TS) technology, which requires a license activation using an *Entitlement-ID* and *Access code.* The second license type is dongle-based. In the following the set up procedure for each of these license types is explained.

   ■ **License activation using Entitlement-ID and Access code**

On the *command prompt* navigate to the `#flexlm_folder#\svractutil` folder and launch `svractutil.exe -a` to start the activation process.

In case an error message appears after starting `svractutil.exe -a` which is similar to

```
        "The program can't start because MSVCR____.dll or
VCRUNTIME____.dll
     is missing from your computer.
     Try reinstalling the program to fix this problem."
```

where "____" is a version number, then most probably the *Visual C++ Redistributable Packages for Visual Studio* are not installed on the system. Please refer to the explanations in the next step to solve this issue.

The process of activating a license on the server is identical to the activation process of a node-locked license with the only difference being that textual input on the command line is used instead of a wizard:

- *License activation using an Internet connection*
  The following input is required:

  - *Entitlement ID*: has been provided via email which contains the license data or can be retrieved from the web portal (licenses.astos.de). Please note that the *Entitlement ID* is not the *User ID*.

  - *Access code*: has been provided via email together with the *User ID*. It is also required to access the web portal.

  After entering the license data and starting the activation process a notification is displayed if the process was successful.

- *Offline license activation*
  For an offline activation please follow these steps:

1. ***Providing the Entitlement ID* and *Access code***
   The following input is required:

   - *Entitlement ID*: has been provided via email which contains the license data or can be retrieved from the web portal (licenses.astos.de). Please note that the *Entitlement ID* is not the *User ID*.

   - *Access code*: has been provided via email together with the *User ID*. It is also required to access the web portal.

2. **Activation Request**
   A textual activation request content is generated by the license activation tool. This content shall be inserted into a text file (request file) which is used to request a response file on the web portal. If asked to provide a name for the request file, please provide a full path and file name.

3. **Computer with Internet connection**
The generated request file needs to be copied to a computer with an Internet connection. On this computer please log in to the web portal (licenses.astos.de). Click on the **Manage** button to open the next page and then click on the **Activate license** button. Please follow the instructions and upload the request file and download the response file. Copy the response file to the computer with no Internet connection on which the *ASTOS* license activation is in progress.

> **Note:** In case when trying to download the response file a message similar to `"Your current security settings do not allow this file to be downloaded."` please try a different browser, e.g. *Chrome*. This most often happens with *Internet Explorer*. In case the problem persists, please download the response file on a computer, whose security policy is less restrictive.

4. **Activation Response**
Continue the license activation process by providing the generated response file.

5. **Activation Process**
The result of the license activation process is show on the command line. In case the activation fails, please refer to the **Unsuccessfull license activation** sub-section in Chapter 6 for troubleshooting suggestions.

■ **Dongle license**

■ **License file setup**
Please modify the astoslic.lic file you have received by email according to the instructions in the email (set the proper server hostname/IP and the FLEXID) and overwrite the astoslic.lic file in the *#flexlm_folder#\lmadmin\astoslic* folder with this file.

■ **Dongle drivers setup**

Please attach the USB dongle to the computer/virtual machine accommodating the license server and install the required drivers from the `FlexNet` dongle driver package in order that the USB dongle be recognized by the operating system. The driver package will be provided to you via File Exchange download area of your account.

The package with a name FLEXID10* for the corresponding platform has to be installed.

> During the installation of the "WkRuntime.exe", please activate "Install as NT service with autostart".

6.

- Change the access rights of the `#flexlm_folder#\lmadmin\logs` folder as follows: right mouse click -> Properties -> Security tab -> Edit button -> Add... button -> add `LOCAL SERVICE` in the "Enter the object names to select"and click "Check Names" -> OK button -> add with full privileges to the new group.

- While it is possible to manually start and stop the *lmadmin* license server manager, it is recommended that you install it as a service on the operating system so that it will automatically start whenever the operating system restarts.

  The service installation is done as follows (requires Administrator rights): `lmadmin -installService "FlexNet License Server Manager 64"`. In the *Windows Computer Management -> Services* start the newly created service "FlexNet License Server Manager 64".

  For a detailed description on how to install *lmadmin* as a a service, see chapter *Installing lmadmin License Server Manager as an Operating System Service* in `#flexlm_folder#\fnp_LicAdmin.pdf`

- On the **Administrator** *command prompt* navigate to the `#flexlm_folder#\lmadmin` folder and run `lmadmin.exe -allowRemoteStopServer yes`. This will configure and launch the license server.

  The default port of the license server web front-end is `8090`. A detailed explanation of the command line usage of *lmadmin* is provided in the `#flexlm_folder#\fnp_LicAdmin.pdf` file.

  In case an error message appears after starting `lmadmin.exe` which is similar to

  ```
          "The program can't start because MSVCR____.dll or
  VCRUNTIME____.dll
      is missing from your computer.
      Try reinstalling the program to fix this problem."
  ```
  where "___" is a version number, then most probably the *Visual C++ Redistributable Packages for Visual Studio* in the required version are not installed on the system. The required version of the packages is derived from the version of the `MSVCR____.dll`. For example:

- `MSVCR090.dll` or `VCRUNTIME090.dll` require a at least *Visual C++ Redistributable Packages for Visual Studio 2010*. The latter can be downloaded from the Microsoft web page:
  `https://www.microsoft.com/en-US/download/details.aspx?id=5555`

- `MSVCR120.dll` or `VCRUNTIME120.dll` require a at least *Visual C++ Redistributable Packages for Visual Studio 2013*. The latter can be downloaded from the Microsoft web page:
  `https://www.microsoft.com/en-us/download/details.aspx?id=40784`

- `MSVCR140.dll` or `VCRUNTIME140.dll` require a at least *Visual C++ Redistributable Packages for Visual Studio 2015*. The latter can be downloaded from the Microsoft web page:
  `https://www.microsoft.com/en-us/download/details.aspx?id=48145`

The use of *lmgrd* is not officially supported by *ASTOS* but it should also work if set up properly as described in the *FLEXlm* documentation.

7. Insert `http://#server_address#:8090` (e.g. `http://192.168.5.25:8090`) in the address field of the web browser and press *Enter* to open the **FlexNet Publisher** web front end. The web front end is used to configure the *FLEXlm* license server.

8. On the displayed web page click on the **Administration** link in the top right corner. It opens the administration web page.

9. Enter the user name and password and click on the **Submit** button to log in. Both the default user name and password are `admin`. When logging in for the first time the user is asked to change the password, which is advisable.

10. Click on the link **Vendor Daemon Configuration** in the lower left corner of the **Administration** page. The **Vendor Daemons** page is displayed.

11. If *astoslic* is available in the **Vendor Daemons** list and its status is **Up**, the license server is running and ready to be used. No further actions are required.
    If *astoslic* is not available in the list, click on the **Import License** button. Select the `astoslic.lic` license file, which is located in the `#flexlm_folder#\lmadmin\astoslic` folder and select the check box in order to overwrite the license file on the license server.
    Now *astoslic* should be available in the **Vendor Daemons** list. If the status is not **Up**, select *astoslic* from the list. On the new page, click on the **Start** button. After a few seconds the status of *astoslic* should change to **Up** and the license server is ready for use.

Now the license server is installed and the license set up. In case of problems please refer to Chapter 6, to the *FLEXlm* manual `fnp_LicAdmin.pdf` or contact service@astos.de.

2.3 License Deactivation

An *ASTOS* license which is based on FlexNet Trusted Storage (no dongle) can be deactivated as follows. On the command line, please execute the following command:

`svractutil.exe -d -f <Fulfillment_ID>`

where `<Fulfillment_ID>` is the fulfillment ID belonging to the license which should be deactivated. The `<Fulfillment_ID>` of the licenses present on a server can be displayed by executing the following command:

`svractutil.exe -ts`

Note: Please note that the `<Fulfillment_ID>` is different from the `<Entitlement_ID>`. Each license has one of these IDs but they are different and are used in different ways. Please take care to choose the correct `<Fulfillment_ID>` in case there are more than one active licenses present.

3   Server License Setup for Linux

In this chapter step-by-step instructions are provided on how to install the *lmadmin* license server and how to activate the server license in a *Linux* environment.

3.1   System Requirements

In order to run *lmadmin* on *Linux* the following resources are required:

■   The following platforms are supported:

Table 3.1: Supported Linux platforms and hardware

Platform Type	Hardware Type	Operating System
Linux 32-bit	x86	■ Debian 8 "jessie" ■ RHEL 6
Linux 32-bit	x64	■ Debian 8 "jessie" ■ RHEL 7 ■ SLES 11 SP4 and 12 SP3
Linux 64-bit	x64	■ Debian 8 "jessie" ■ RHEL 6 and 7 ■ SLES 11 SP4 and 12 SP3

Platform Type	Hardware Type	Operating System
		▪ Ubuntu 16.04 and 18.0.4

- At least the following packages must be installed. The names listed below are the package names applicable for Debian. The names might differ on other distributions.

  - lsb-core
  - fuse

The *ASTOS* license activation procedure cannot be performed on a virtual machine.

3.2 Server and License Setup

Server setup

The following basic step-by-step guide provides instructions how to install *lmadmin* and to activate the server license:

1. Go to `http://www.astos.de/downloads` and log in with your user name and password.

2. Download `FLEXlm_XXXX_Linux.tar.gz` or `FLEXlm_XXXX_Linux_x64.tar.gz` depending on your platform.

3. Extract all the files from the tar.gz file in a directory of your choice (e.g. `/usr/Astos_Solutions/flexlm`). This folder will be referred to as `#flexlm_folder#` throughout this guide.

4. On the administrator *console* navigate to the `#flexlm_folder#/Anchor_Service_Installer` folder and run the `install_fnp.sh` script without parameters.

5. There are two possible license types supported by the software. The user can request one of them and the license set up in this step shall be performed accordingly. The first license type is based on the *FlexNet Trusted Storage* (TS) technology, which requires a license activation using an *Entitlement-ID* and *Access code*. The second license type is dongle-based. In the following the set up procedure for each of these license types is explained.

  - **License activation using Entitlement-ID and Access code**

On the *console* navigate to the `#flexlm_folder#/svractutil` folder and launch `svractutil -a` to start the activation process. The process of activating a license on the server is identical to the activation process of a node-locked license with the only difference being that textual input on the command line is used instead of a wizard:

■ *License activation using an Internet connection*
The following input is required:

- *Entitlement ID*: has been provided via email which contains the license data or can be retrieved from the web portal (licenses.astos.de). Please note that the *Entitlement ID* is not the *User ID*.

- *Access code*: has been provided via email together with the *User ID*. It is also required to access the web portal.

After entering the license data and starting the activation process a notification is displayed if the process was successful.

■ *Offline license activation*
For an offline activation please follow these steps:

1. ***Providing the Entitlement ID* and *Access code***
The following input is required:

- *Entitlement ID*: has been provided via email which contains the license data or can be retrieved from the web portal (licenses.astos.de). Please note that the *Entitlement ID* is not the *User ID*.

- *Access code*: has been provided via email together with the *User ID*. It is also required to access the web portal.

2. **Activation Request**
A textual activation request content is generated by the license activation tool. This content shall be inserted into a text file (request file) which is used to request a response file on the web portal. If asked to provide a name for the request file, please provide a full path and file name.

3. **Computer with Internet connection**
The generated request file needs to be copied to a computer with an Internet connection. On this computer please log in to the web portal (licenses.astos.de). Click on the **Manage** button to open the next page and then click on the **Activate license** button. Please follow the instructions and upload the request file and download the response file. Copy the response file to the computer with no Internet connection on which the *ASTOS* license activation is in progress.

> **Note:** In case when trying to download the response file a message similar to `"Your current security settings do not allow this file to be downloaded."` please try a different browser, e.g. *Chrome*. This most often happens with *Internet Explorer*. In case the problem persists, please download the response file on a computer, whose security policy is less restrictive.

4. **Activation Response**
   Continue the license activation process by providing the generated response file.

5. **Activation Process**
   The result of the license activation process is show on the command line. In case the activation fails, please refer to the **Unsuccessfull license activation** sub-section in Chapter 6 for troubleshooting suggestions.

■ **Dongle license**

   ▪ **License file setup**
   Please modify the astoslic.lic file you have received by email according to the instructions in the email (set the proper server hostname/IP and the FLEXID) and overwrite the astoslic.lic file in the *#flexlm_folder#\lmadmin\astoslic* folder with this file.

   ▪ **Dongle drivers setup**

   Please attach the USB dongle to the computer/virtual machine accommodating the license server and install the required drivers from the `FlexNet` dongle driver package in order that the USB dongle be recognized by the operating system. The driver package will be provided to you via File Exchange download area of your account.

   The package with a name FLEXID10* for the corresponding platform has to be installed.

6. Navigate to the `#flexlm_folder#/lmadmin` folder and run `lmadmin -allowRemoteStopServer yes`. This will launch the license server. The default port of the web front-end is `8090`. A detailed explanation of the command line usage of *lmadmin* is provided in the `#flexlm_folder#/fnp_LicAdmin.pdf` file. It should be taken care that *lmadmin* is started automatically after a restart of the operating system. For a detailed description on how to set up *lmadmin* for automatic restarts, see chapter *Installing lmadmin License Server Manager as an Operating System Service* in `#flexlm_folder#\fnp_LicAdmin.pdf`

The use of *lmgrd* is not officially supported by *ASTOS* but it should also work if set up properly as described in the *FLEXlm* documentation.

7. Insert `http://#server_address#:8090` (e.g. `http://192.168.5.25:8090`) in the address field of the web browser and press *Enter* to open the **FlexNet Publisher** web front end. The web front end is used to configure the *FLEXlm* license server.

8. On the displayed web page click on the **Administration** link in the top right corner. It opens the administration web page.

9. Enter the user name and password and click on the **Submit** button to log in. Both the default user name and password are `admin`. When logging in for the first time the user is asked to change the password, which is advisable.

10. Click on the link **Vendor Daemon Configuration** in the lower left corner of the **Administration** page. The **Vendor Daemons** page is displayed.

11. If *astoslic* is available in the **Vendor Daemons** list and its status is **Up**, the license server is running and ready to be used. No further actions are required.

    If *astoslic* is not available in the list, click on the **Import License** button. Select the `astoslic.lic` license file, which is located in the `#flexlm_folder#/lmadmin/astoslic` folder and select the check box in order to overwrite the license file on the license server.

    Now *astoslic* should be available in the **Vendor Daemons** list. If the status is not **Up**, select *astoslic* from the list. On the new page, click on the **Start** button. After a few seconds the status of *astoslic* should change to **Up** and the license server is ready for use.

Now the license server is installed and the license set up. In case of problems please refer to Chapter 6, to the *FLEXlm* manual `fnp_LicAdmin.pdf` or contact service@astos.de.

3.3 License Deactivation

An *ASTOS* license which is based on FlexNet Trusted Storage (no dongle) can be deactivated as follows. On the command line, please execute the following command:

`svractutil -d -f <Fulfillment_ID>`

where `<Fulfillment_ID>` is the fulfillment ID belonging to the license which should be deactivated. The `<Fulfillment_ID>` of the licenses present on a server can be displayed by executing the following command:

`svractutil -ts`

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Note: Please note that the `<Fulfillment_ID>` is different from the `<Entitlement_ID>`. Each license has one of these IDs but they are different and are used in different ways. Please take care to choose the correct `<Fulfillment_ID>` in case there are more than one active licenses present.

4 License Server Upgrade

In order to install a newer version of the server license package, it is required to first stop (no uninstall necessary) the process of the old license server. The newer license server package shall be unpacked and set up as described in Chapter 2 (*Windows*) or Chapter 3 (*Linux*). Once the new server has been started and configured correctly, i.e. the `astoslic.lic` file has been successfully imported, it will detect the currently active license automatically. In case new licensing features have been added to the license, the license shall be re-activated in order that these features become available on the license server.

A new version of the license server package is backward compatible with older *ASTOS* versions so that these software versions can be run without any changes on the client computers.

The settings applied in order to start the license service automatically upon a restart of the server computer shall be adapted to start the new license server and not the old one anymore.

5   Client Setup

Connection setup

On the client side it is necessary to specify the `IP address` of the license server and the `port number` on which it shall be contacted by the *ASTOS* software. In order that the client can check out license features from the license server the `license.dat` file located in the `.\license` folder of the *ASTOS* installation needs to be edited accordingly. This can be done either by manually editing the file or by using the **License File** button in the *License Manager* window (*Info→ License Manager→ License Management*).

> **Note:**   On *Windows* editing the `license.dat` requires Administrator rights in case the file is in the default *ASTOS* installation directory (e.g. `C:\Program Files\Astos Solutions\ASTOS X.Y\license\`). Also the use of the **License File** button in the *License Manager* in order to modify the `license.dat` content requires that *ASTOS* is started with Administrator rights.

In the following the two approaches to specify the `IP address` and the `port number` are explained in more detail.

- The **License File** button opens an *Update License File* window, where the license server `IP address` and `port number` can be specified. The values for the `IP address` (127.0.0.1) and the `port number` (27000) displayed in the input fields are only default values and are not the values which are currently present in the `license.dat` file.
  OR

- The content of the `license.dat` license file located in the `.\license` folder is as follows:

```
SERVER #server_address# FLEXID=9-a6300155 #optional_server_port#
USE_SERVER
```

Please substitute *#server_address#* and *#optional_server_port#* with the desired server address and port number. Here is an example:

```
SERVER 192.168.5.25 FLEXID=9-a6300155        USE_SERVER
```

The optional port is needed in case the license server is not using the default port 27000.

> **Note:** In case of a dongle based license also the FLEXID value has to be set up correctly by editing the `license.dat` file directly. The FLEXID value is written on the dongle itself and is also provided with the license information to the user via email.

Connection test

In order to check if the client-server connection can be established correctly, in the *License Manager* window, *Features* tab (*Info→ License Manager→ Features*) click on the **Refresh** button. After a short delay the license features of the license features provided by the license server shall be displayed in the *License Overview* table. Please check that the license serial number, all its expected features in the expected version are visible in the list. If the license features are not visible, then the connection to the server is not successful.

Possible causes for the unsuccessful connection to the license server are wrong `IP address` and `port number` or a firewall blocking the connection (either on the client or on the server).

> **Note:** If multiple license servers using both trusted storage and a license file are present on one server computer, the overlapping license features will be visible to the client in the version of the license using a license file.

6   Troubleshooting

This chapter contains explanations on troubleshooting problems which users sometimes experience during the set up of the *ASTOS* software or the licensesing server or during license activation. If you encounter problems which are not explained below, please first check if there is any explanation thereof (e.g. error code) in the *FLEXlm* manual `fnp_LicAdmin.pdf`. If no explanation can be found in the document, please contact service@astos.de.

Unsuccessfull license activation

In case the **Activation Process** is not successful, please check the following possible causes:

- Make sure to insert the proper license activation data in the proper place and not to mix up the following pieces of license activation data: **"Entitlement ID"**, **"User ID"**, **"Access Code"** and **"License SN"**. For the license activation using either an *Internet connection* or an *Offline Activation*, an **Entitlement ID** and an **Access Code** are required to start the activation process. To complete an **Offline Activation** process also the **User ID** is required.

- Make sure that when copying and pasting the license activation data, no additional white spaces (empty space, tabs, etc.) or other characters are entered in the input fields of the license activation wizard or on the command line. If the license activation process fails and you are sure not to have mixed up the items of license activation data, then try to enter the data by hand. In this case make sure not to mix up **"0"** and **"O"** as well as upper and lower case.

Note: The *ASTOS* license activation procedure cannot be performed in a virtual machine.

Common error codes during license activation

- **1000**: the cause is one of the following:

  - The Access code does not match the Entitlement ID or one of them or both contain incorrect data. Very often incorrect data is used as an Access code or the correct data contains additional empty spaces.

- The license is already activated on another computer and has to be deactivated there first in order to be activated on another computer.

- The activation counter on the license server has reached its limit. Please contact service@astos.de for assistance.

- **10102**: Insufficient rights to connect to the licensing service.

- **50006**: Generate activation request failed. Check parameters used for activation request.

- **50018**: Failure to send request or receive a response for an unspecified reason. Check parameters used for the request.

- **50019**: Failure to process response for an unspecified reason. This error may be returned when a valid failure response is received, for example when the activation server denies a request. Check parameters used for the request.

- **50032**: The connection to the license server or Operations server timed out. Check connection and deactivate temporary any firewalls.

- **50038**: Return request rejected because maximum count will be exceeded. Please contact service@astos.de for assistance.

- **50041**: Failed to connect to the license server or Operations server. Check connection and deactivate temporarily any firewalls.

In case of an unsuccessful license activation it is recommended to inspect the license activation events log in the web portal (licenses.astos.de) at the bottom of the web page of the corresponding license. The log provides additional information regarding the reason for the unsuccessful license activation.