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Welcome to the DS License Server 3DEXPERIENCE R2016x Installation and Configuration Guide, designed to answer all your questions about installing and configuring the DS License Server.
What's New?

This section describes the new and enhanced functionality in the DS License Server.

New Functionality

**New command line options for installation on UNIX**
- startInstLicServ command on UNIX: new -licensingPort nnn and -enroll filename options.

**New license server initialization command line options**
- DSLicSrv -initServer command: new -licensingPort nnn and -enroll filename options.

**License usage tracing**
- The new USGTRACING category provides detailed license usage tracing in the license server logs.

**Protocol and Cipher Suite Selection**
- You can now control the list of SSL protocols and cipher suites the license server is allowed to use.
- New options added to DSLicSrv -startServer command:
  - -disableSSLProtocol protocol
  - -cipherSuitesPath filename

Enhanced Functionality

**Installation enhancements**
- all input data is concentrated in only one dialog box panel for license server installation on Windows
- ability to enroll a license file at installation time
- ability to set administration and licensing ports at installation time.

**Allow/Deny authorization rule for offline license extraction**
- It is now possible to set allow and deny authorization rules for further restricting the offline extraction. The -rule option has been added correspondingly to the createOfflineRestrictions command, the listOfflineRestrictions command now lists the new rules, in addition to keywords and maximum durations, and the already existing <authorizationlist> block can now appear in the <offlinerestrictions> block within an XML file containing authorization rules.

Removed Functionality

Customizing Preferences

User Assistance
Installing the DS License Server

This section explains how to install the DS License Server.

Before Starting the Installation

This section briefly presents what a typical license server and license client setup looks like, and highlights certain points you must keep in mind before performing the installation.

Operating System Prerequisites

The following operating systems are supported:

- Windows 7 SP1 64-bit x86 (not for failover)
- Windows 8.1 64-bit x86 (not for failover)
- Windows Server 2008 R2 SP1 64-bit x86
- Windows Server 2012 R2 64-bit x86
- Red Hat Enterprise Linux 6.n 64-bit x86 (where "n" is greater than or equal to 5)
- SUSE Linux Enterprise Server 11 SPn 64-bit x86 (where "n" is greater than or equal to 3)
- SUSE Linux Enterprise Server 12
- AIX 7.1 TL2 SP3 64-bit Power

A minimum of 2GB of RAM is required, 4GB of RAM are recommended for a standalone server, 8GB for failover.

For more detailed information about prerequisites, see the Program Directory.

License Server and Client Typical Setup

A license server helps the administrator to guarantee the license control is implemented in compliance with purchased licensed products embedding the license client.

A typical license server and client setup looks like this:
The DS License Server is installed on a server machine on your network. The license administrator enrolls the product licenses on the server. The applications embedding license clients communicate with the license server over the network and retrieve the licenses from the license server.

**Preliminary Remarks**

Before you start the installation, keep the following points in mind.

Virtual machines, such as VMWare, are not supported. It is not possible to either run or install the DS License Server on a virtual machine. Furthermore, extracting an offline license and using a nodelock license in a virtual machine are not supported.

Only one DS License Server can be installed and configured on a given computer, either as a standalone or as a failover member.

License servers and license client must be synchronized. An absolute time difference of one hour maximum is tolerated.

**Upgrading Your License Server**

Keep in mind the following when you install a new version of the DS License Server:

- each version of (or hot fix for) the DS License Server is complete, in other words, it is installed in place of the existing version, so the existing version must be uninstalled beforehand
- uninstalling the DS License Server does NOT remove license keys, settings or log files
- failover members can communicate with each other only if they are at the same license server code level.

Be aware that upgrading failover cluster members from a given license server code level to a higher code level will prevent the failover cluster from functioning while you are upgrading the second member. Once the second cluster member has been upgraded, normal failover operation resumes.

To upgrade your license servers in a failover cluster, refer to *Upgrading Your License Servers in a Failover Cluster*. 
Installing the DS License Server on Windows

This task explains how to unload the DS License Server on a single computer running a supported Windows operating system.

Installation and de-installation rely on Windows-compliant tools enabling anyone familiar with Windows procedures and concepts to install the software without assistance.

1. Log on as an administrator.
   You must belong to the Administrators group, or have the privileges assigned to the Administrators group. Otherwise, you will not be able to start the installation.

2. Insert the media into the drive.
   A dialog box appears informing you that the installation is about to commence, followed by the dialog box welcoming you to the DS License Server setup wizard:

   ![Welcome to the DS License Server Setup Wizard](image)

   Click the **Next** button to move to the next step.

3. Specify the installation folder and installation type.
   The Installing DS License Server dialog box appears:

   ![Installing DS License Server dialog box](image)
The default destination folder is:
C:\Program Files\Dassault Systemes\DS License Server

If the default destination folder is not suitable, click the **Browse...** button and navigate to select another folder and click **OK**. The folder you choose must be empty. You can also specify a new folder: if the folder does not exist, you will be prompted to specify that you want the folder to be created, in which case you must click the **Yes** button to create the folder.

Then select the installation type. You have two choices:

- **Install only Administration Tool**
  - Allows you to install only the **License Administration Tool**. See *Installing Only the License Administration Tool on Windows* for more details.

- **Install License Server and Administration Tool**
  - Default.
  - In our example, we are going to install both the License Server and the License Administration Tool, so use the default **Install License Server and Administration Tool** option.

4. Decide whether to install from scratch or not.

Installing from scratch means that you are installing the DS License Server and also deleting all previous licenses in the license repository. This may be necessary, for example, if your licenses have been corrupted.
To do so, check the **Install Server from scratch** check button. The warning is displayed again, informing that all licenses will be deleted if you continue:

You can of course install the license server and use the existing licenses, for example when you are upgrading the license server. In this case, the options enabling you to enroll a license and specify ports are not displayed.  

Click **OK** to clear the warning, then decide whether to continue installing from scratch, or uncheck the check box if you want to keep your existing licenses.  

If you decide NOT to install from scratch, you will be ready to launch the installation. Note that you will need to configure and activate the license server later.  

If you DO decide to install from scratch, additional options become available, enabling you to enroll a license file and configure and activate the license server at installation time:  

**Enroll a License File**  
Check this option and browse to select a license file to quickly enroll your licenses at installation time.  

**Administration Port**  
The port number you set is used to listen to DS License Server administration tool requests. The default is 4084.  

**Licensing port:**  
The port number you set is used to listen to licensing client requests. The default is 4085.

If you do not specify different ports now, the default port numbers will be used.
Click the Next button to move to the next step.

5. Install the DS License Server.

The Ready to install DS License Server dialog box appears:

Click the Install button to install the DS License Server. If prompted by UAC to confirm, click the Yes button.

A progress bar is displayed while the DS License Server files are installed and the corresponding Windows service is started. Once the installation has been completed, the following dialog box appears:
informing you that the installation has been completed, and the License Administration Tool is launched automatically.

6. Click the Finish button to exit the setup wizard.

The Server Definitions tab now looks like this:
Note: The License Administration Tool may communicate with forward and reverse proxies. For more information, refer to Communicating through Forward and Reverse Proxies.

7. Connect to the license server.

You must connect to the server to be able to use it. If you point to the icon in the status column, next to the computer name, a message like this will be displayed:
server xxx not connected

To connect to the server:
- Select the Servers - Connect command and select the server name from the list.
- Or, point to the icon, right click and select the Connect command.
- Or, you can also click the icon to connect all servers at the same time.

If you did not enroll a license during the installation, the icon appears over the computer icon like this:

Pointing to the icon displays the following message:
licensing port not configured; check server properties

The Server Definitions tab contains the following fields:

- **Status**: Status of the license server.
- **Computer Name**: Name of the machine hosting the license server.
- **Computer ID**: Computer id of the machine hosting the license server.
- **Version**: Software version number.
- **Build Date**: Software version build date.
- **Operating System**: Operating system on which the license server is running.
Comment

Contains an optional comment enabling you, for example, to distinguish one license server from another when several server definitions are displayed in the list.

To edit a comment, point to a line containing a server definition line, under the Comment column, and double-click: an editable field with a cursor is displayed. Enter the text, then click ENTER to validate.

The comment field supports NLS characters, including DBCS. A comment can be added and modified even if the connection to the license server is not established or is established in restricted mode. Editing comments does not modify the license server itself, but only the license administration tool user settings.

In the case of a failover cluster, each member has its own comment field.

When several lines are present in the Server Definitions tab, you can select multiple lines (using Shift or Control keys and left-clicking) to connect several servers at the same time, for example.

When selecting a failover, then connecting, the connection is made to the three members at once. If a password has been set, it has to be entered only once. To connect to only one member, do not select (left-click) but just display the contextual menu (right-click) then connect.

When you select then copy (using Ctrl-C) one or more lines, the fields copied can be pasted together in any other text processing program (for example, Excel). You can also simply drag lines from the License Administration Tool and drop them into another program, without the need to copy then paste.

You can also sort the lines in ascending or descending order, by clicking on the appropriate column title.

Note: Both techniques work also in any tab containing table-formatted data, such as the Administration tab, License Usage tab, Detailed License Usage dialog box, and Recycling tab.

When the Server Definitions tab contains several lines, by default, the lines are displayed in the order according to the time at which the lines were added. The first line contains the first license server added. You can change this default order by dragging and dropping a line:

- click anywhere on the line you want to move to select it
- click the line again, and hold then move the line to the appropriate location
- release to drop the line at its new location: the next time you start the License Administration Tool, the line will be displayed by default at its new location.

Note: You can only move one line at a time.

When you add a new server in the Server Definitions tab, by selecting the Servers > New... command or right-clicking in the tab and selecting the Add new server command, it is added to the server list bar and automatically pre-selected. This bar is displayed at the top of the following tabs: Administration, License Usage, Recycling, Statistics and Geolocation.

You must configure the firewall on the machine hosting the license server to enable license clients to access the license server, using the port numbers specified in Port Management. For example, you can configure the Microsoft firewall on Windows server machines by creating a new rule for the license server using the Server Manager application as illustrated below:
You must now configure the server as a standalone server or a member of a cluster in failover mode and activate it before being able to use it, as explained in Configuring and Activating a Standalone License Server and Configuring and Activating a Cluster in Failover Mode respectively.

The installation results in the following:

- a DS License Server is installed on the local machine
- the service DS License Server is added to the list of Windows services, and is started automatically in the Network Service account
- an installation log file is created in:
  
  %TEMP%\DSLSmsi.log

- in the Start -> All Programs menu, the entry DS License Server is added, containing the commands License Server Administration and License Server Documentation.

Installing Only the License Administration Tool on Windows

This task explains how to unload only the License Administration Tool (without the DS License Server) on a single computer running a supported Windows operating system.
Several License Administration Tool instances can be connected simultaneously to the same license server. Only one License Administration Tool instance has complete administration access to the license server: either the local License Administration Tool or the first one that connects to the license server remotely. The remote License Administration Tool will have the complete administration access only if the option full is set for the Remote administration authorization option on the license server: if the option restricted is set, the remote tool can connect to the license server but only in restricted mode, even if no other administration tool is connected to this license server.

The other License Administration Tool instances operate in restricted mode with the following limitations:

- no modifications are allowed in the Server Configuration dialog box
- no licenses can be deleted using the License Administration tab
- no licenses can be released using the License Release tab
- creation and/or modification operations in the Authorizations tab are not allowed.

1. Log on as an administrator.
   You must belong to the Administrators group, or have the privileges assigned to the Administrators group. Otherwise, you will not be able to start the installation.

2. Insert the media into the drive.
   A dialog box appears informing you that the installation is about to commence, followed by the dialog box welcoming you to the DS License Server setup wizard:

   ![Welcome to the DS License Server Setup Wizard](image)

   Click the Next button to move to the next step.

3. Specify the installation folder and installation type.
   The Installing DS License Server dialog box appears:
The default destination folder is:

C:\Program Files\Dassault Systemes\DS License Server

If the default destination folder is not suitable, click the **Browse...** button and navigate to select another folder and click OK. The folder you choose must be empty. You can also specify a new folder: if the folder does not exist, you will be prompted to specify that you want the folder to be created, in which case you must click the **Yes** button to create the folder.

Then select the installation type. You have two choices:

**Install only Administration Tool**  
Allows you to install only the License Administration Tool.  
See *Installing Only the License Administration Tool on Windows* for more details.

**Install License Server and Administration Tool**  
Default.

In our example, we are going to install only the License Administration Tool.

4. Check the **Install only Administration Tool** check button.
Click the **Next** button to move to the next step.

5. Install the Administration Tool.

The **Ready to install DS License Server** dialog box appears:
Click the **Install** button to install the **License Administration Tool**:

A progress bar is displayed while the **License Administration Tool** files are installed. Once the installation has been completed, the following dialog box appears:
informing you that the installation has been completed, and the License Administration Tool is launched automatically.

6. Click the Finish button to exit the setup wizard.

The Server Definitions tab now looks like this:
**Note:** The License Administration Tool may communicate with forward and reverse proxies. For more information, refer to *Communicating through Forward and Reverse Proxies*.

7. Click the **Finish** button to exit the setup wizard.

The License Administration Tool remains open. You now have to create a server definition for the license server to which you want to connect using the **License Server Connection Parameters** dialog box:

8. Enter the name of the license server (the name of the machine hosting the server, typically), set the listening port number for the License Administration Tool, then click **OK**.

You will only be able to administer a remote license server if you checked the **Enable remote administration** check button when configuring the license server.

**Note:** The License Administration Tool may communicate with forward and reverse proxies. For more information, refer to *Communicating through Forward and Reverse Proxies*.

The License Administration Tool now looks like this:
9. Connect to the license server.

You must connect to the server to be able to use it. If you point to the icon in the status column, next to the computer name, a message like this will be displayed:
server xxx not connected

To connect to the server:

• Select the Servers - Connect command and select the server name from the list.
• Or, point to the icon, right click and select the Connect command.
• Or, you can also click the icon to connect all servers at the same time.

The icon appears over the computer icon like this:

The installation results in the following:
• a **License Administration Tool** is installed on the local machine
• an installation log file is created in:
  \%TEMP\%\DSLSmsi.log
• in the Start -> All Programs menu, the entry **DS License Server** is added, containing the commands **License Server Administration** and **License Server Documentation**.

## Installing the DS License Server on UNIX

This task explains how to unload the DS License Server from scratch on a single computer running a supported UNIX operating system.

1. Log on as root.
2. Change directory to the media mount point.
3. Change directory to the appropriate sub-directory for your UNIX platform, for example on AIX:
   AIX
4. Check that the DISPLAY variable is exported appropriately before continuing (or perform the installation using the -noUI option).
5. Run the command:
   
   ./startInstLicServ

The command can be run with the following options:

<table>
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<th>Option</th>
<th>Description</th>
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<tr>
<td>-p</td>
<td>Set the installation path. The default value is: /usr/DassaultSystemes/DSLicenseServer</td>
</tr>
<tr>
<td>-n</td>
<td>Set the administration port number. The default value is: 4084</td>
</tr>
<tr>
<td>-licensingPort</td>
<td>Set the licensing port at installation time (avoids having to set it later).</td>
</tr>
<tr>
<td>-enroll filename</td>
<td>Enroll a .LICZ license file at installation time (avoids having to enroll it later). If enrollment fails, the installation succeeds. Only a warning is added in the license server logs. This can happen, for example, if the license file does not exist.</td>
</tr>
<tr>
<td>-x</td>
<td>Prevent system file update managing automatic startup when rebooting your machine</td>
</tr>
<tr>
<td>-onlyAdminTool</td>
<td>Installs only the <strong>License Administration Tool</strong> (without the license server)</td>
</tr>
<tr>
<td>-f</td>
<td>Installing from scratch means that you are installing the DS License Server and also deleting all previous licenses in the license repository. This may be necessary if your licenses have been corrupted.</td>
</tr>
<tr>
<td>-noUI</td>
<td>Do not launch the <strong>License Administration Tool</strong> GUI. Useful when no display is available.</td>
</tr>
<tr>
<td>-noStart</td>
<td>Do not start the license server after having installed it.</td>
</tr>
<tr>
<td>-h</td>
<td>Display help</td>
</tr>
</tbody>
</table>

The installation starts and the system outputs the following:

```
/tmp/DSLS/AIX64
Check free port
Chosen port 4084

Installing server in /usr/DassaultSystemes/DSLicenseServer
Creating directory /usr/DassaultSystemes/DSLicenseServer
mkdir -p -m 755 /usr/DassaultSystemes/DSLicenseServer
Directory /usr/DassaultSystemes/DSLicenseServer was successfully created
```
Installation directory: /usr/DassaultSystemes/DSLicenseServer

TarCmd: tar -xf /tmp/DSLS/AIX64/DSLS.tar
Untar DSLS.tar was successful
Server initialization:
/usr/DassaultSystemes/DSLicenseServer/aix_a64/code/bin/DSLicSrv -initServer -adminPort 4084
args [-adminPort, 4084]
2015/07/25 16:13:13:044 I REPOSITORY LicenseDB.dat written to disk
2015/07/25 16:13:13:044 I REPOSITORY LicenseRT.dat written to disk
Jun 30, 2015 1:04:39 PM
Server was successfully initialized

Server start:
Server was successfully started

Sending nohup output to nohup.out.
Admin Console start:
/usr/DassaultSystemes/DSLicenseServer/aix_a64/code/bin/DSLicSrv -adminUI

The License Administration Tool dialog box is displayed. The License Administration Tool has the same graphic user interface and works the same way as on Windows.

Note: If you intend to install the DS License Server on a UNIX machine which does not use a display, to avoid automatically displaying the License Administration Tool, perform the installation by running the following command:

```
startInstLicServ -noUI
```

To access administration functions, launch the License Administration Tool in command line mode as follows:

```
/usr/DassaultSystemes/DSLicenseServer/OS/code/bin/DSLicSrv -admin
```

You must configure the firewall on the machine hosting the license server to enable license clients to access the license server, using the port numbers specified in Port Management.

When installing the DS License Server on SuSE, some messages related to insserv may be displayed. They can be safely ignored.

---

Upgrading Your License Servers in a Failover Cluster

This section explains one possible method for upgrading your license servers in a failover cluster.

1. From a License Administration Tool tool on a fourth machine outside the cluster (to find out how to install just the License Administration Tool without the license server, see Installing Only the License Administration Tool on Windows):
   
   a. Connect to the three failover members, and check that the failover cluster is green.
   b. Stop one of the failover members using the Servers - Stop command.
   c. Check that the failover cluster status goes from green to yellow (meaning the cluster is still running).

2. On the failover member that you stopped:
Uninstalling the DS License Server

This section explains how to uninstall the DS License Server on both Windows and UNIX.

Uninstall on Windows

Uninstalling relies on Windows-compliant tools enabling anyone familiar with Windows procedures and concepts to uninstall the software without assistance.

Before you begin: Before uninstalling a DS License Server version on Windows OS, be sure to close:

- all browser applications, such as Internet Explorer or Firefox
- all DS License Administration Tools.

1. Log on as an administrator.
   You must belong to the Administrators group, or have the privileges assigned to the Administrators group. Otherwise, you will not be able to uninstall the software.

2. On the Windows desktop, select the Start > Control Panel, then double-click the Programs and Features control.
A dialog box is displayed containing the list of programs and features installed on your computer.

3. Double-click the item **DS License Server** from the list.

   The list looks something like this (depending on the software installed on your computer):

   ![List of programs](image)

4. When prompted to confirm, click the **Yes** button each time to confirm.

   The program removes:
   - the installation folder
   - the Windows service named **DS License Server**
   - all entries in the **Start > All Programs** menu
   - all registry entries.

   Note that the following are NOT removed:
   - license keys
   - settings
   - logs.

### Uninstall on UNIX

This section explains how to uninstall the DS License Server on UNIX.

1. Log on as root.

2. Stop the license server by running the following command:

   ```bash
   /usr/DassaultSystemes/DSLicenseServer/OS/code/bin/DSLicSrv -stopServer
   ```

   or by using the `Servers - Stop` command provided by a local or remote License Administration Tool.

   If you are using a local administration tool, exit this tool.

3. Delete the installation directory as follows:

   ```bash
   rm -rf /usr/DassaultSystemes/DSLicenseServer
   ```

4. If you did not use the `-x` option with the `.startInstLicServ` command when you installed the license server, delete the remaining system files created at this moment by running the following commands, depending on the UNIX platform:
On AIX:
```
rmitab DSIlicSrv
```

On Linux:
```
/usr/lib/lsb/remove_initd /etc/init.d/dsls
rm /etc/init.d/dsls
rm /etc/sysconfig/dsls
```
Configuring the DS License Server and Clients

This section explains how to configure the DS License Server and clients.

Starting the License Administration Tool

This section explains how to launch the tool if it is not running, and obtain the computer id required for ordering licenses.

1. Select Start - All Programs - DS License Server - License Server Administration.

On UNIX, start the License Administration Tool by running the following command, for example on AIX:
/usr/DassaultSystemes/DSLicenseServer/aix_a64/code/bin/DSLicSrv -adminUI

The License Administration Tool is displayed.

The tool has a menu bar and several tabs. The View menu contains a list of tabs with check marks. Click the check marks to hide or display tabs as required.

Optionally, you may wish to select another display scheme by selecting the View > Look and Feel command.

2. Connect to the license server, then locate the Computer id column in the dialog box.

The computer id will be required when you order your licenses.

Note: An alternative method of obtaining the computer id is to go to the following installation directory:
C:\Program Files\Dassault Systemes\DS License Server\win_b64\code\bin

and run the following command:

DSLicTarget -t

The DSLicTarget tool is also available in the appropriate operating system folders on your media.

On Windows and Linux, the computer ID is based on the network card. Link aggregation (implemented in various ways and with wording such as teaming/bridging/bonding/trunking/bundling) of network cards is not supported.

A possible workaround is to add another network card which does not need to be connected to the network, but needs to be powered on.

Multiple network cards

On Windows and Linux, if your machine hosts several network cards and the computerID managed by the license server is not from the network card you wish, you can change it. Be aware that, if license keys are already enrolled in the license server, they will become invalid. So you will need license keys generated for the desired computerID.

When installing the first time, the license server retrieves the computerID and stores it in its database. If the computerID is changed later by using the DSLicTarget -s command, the license server will not take it into account.
In order to reset the computer ID in the license server database, you can follow these steps:

1. Run the command `DSLicTarget -l` to list the IDs available on the machine.
2. Run the command `DSLicTarget -s` (in an elevated command prompt) to set the desired ID in the Windows registry or Linux file.
3. Uninstall the license server.
4. Remove the License Administration Tool settings file:
   - C:\Users\userid\AppData\Roaming\DassaultSystemes\LicenseAdminUI (Windows)
   - $HOME/LicenseAdminUI (UNIX)
5. Reinstall the license server and check the Install Server from scratch check button to force the license server to read the ID value stored in the registry or Linux file, instead of the value in the license server database.

**Configuring and Activating a Standalone License Server**

This section explains how to configure and activate your license server in standalone mode.

The installation created a license server on your machine. But you must first configure and activate the license server before a client process can be served.

You must choose to configure the server:

- as a standalone server
- or in failover mode as a member of a cluster.

These choices are mutually exclusive. Once you have configured the server in either standalone or failover mode, you cannot modify your configuration. In particular, license keys are different.

1. Select Start - All Programs - DS License Server - License Server Administration to launch the License Administration Tool if it is not already launched:

   ![License Administration Tool](image)

2. Connect the License Administration Tool to the server.
You must connect to the server to be able to use it. If you point to the icon in the status column, next to the computer name, a message like this will be displayed:

server xxx not connected

To connect to the server:

- Select the Servers - Connect command and select the server name from the list.
- Or, point to the icon, right click and select the Connect command.
- Or, you can also click the icon to connect all defined servers at the same time (only one in the current scenario).

Note that you can connect the tool to several license servers simultaneously. To disconnect from one license server, select the Disconnect command. To disconnect all license servers, click the icon.

If you did not enroll a license during the installation, the icon appears over the computer icon like this:

If you did not enroll a license during the installation, pointing to the icon displays the following message: licensing port not configured; check server properties

The columns available in the Server Definitions tab are:

<table>
<thead>
<tr>
<th>Status</th>
<th>Status of the license server.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Name</td>
<td>Name of the machine hosting the license server.</td>
</tr>
<tr>
<td>Computer ID</td>
<td>Computer id of the machine hosting the license server.</td>
</tr>
<tr>
<td>Version</td>
<td>Software version number.</td>
</tr>
<tr>
<td>Build Date</td>
<td>Software version build date.</td>
</tr>
<tr>
<td>Operating System</td>
<td>Operating system on which the license server is running.</td>
</tr>
</tbody>
</table>
Comment

Contains an optional comment enabling you, for example, to distinguish one license server from another when several server definitions are displayed in the list.

To edit a comment, point to a line containing a server definition line, under the Comment column, and double-click: an editable field with a cursor is displayed. Enter the text, then click ENTER to validate.

The comment field supports NLS characters, including DBCS. A comment can be added and modified even if the connection to the license server is not established or is established in restricted mode. Editing comments does not modify the license server itself, but only the license administration tool user settings.

When several lines are present in the **Server Definitions** tab, you can select multiple lines (using Shift or Control keys and left-clicking) to connect several servers at the same time, for example.

When you select then copy (using Ctrl-C) one or more lines, the fields copied can be pasted together in any other text processing program (for example, Excel). You can also simply drag lines from the **License Administration Tool** and drop them into another program, without the need to copy then paste.

You can also sort the lines in ascending or descending order, by clicking on the appropriate column title.

![Note:](image)

Both techniques work also in any tab containing table-formatted data, such as the **License Administration** tab, **License Usage** tab, **Detailed License Usage** dialog box, and **License Recycling** tab.

When the **Server Definitions** tab contains several lines, by default, the lines are displayed in the order according to the time at which the lines were added. The first line contains the first license server added. You can change this default order by dragging and dropping a line:

- click anywhere on the line you want to move to select it
- click the line again, and hold then move the line to the appropriate location
- release to drop the line at its new location: the next time you start the **License Administration Tool**, the line will be displayed by default at its new location.

![Note:](image)

You can only move one line at a time.

When you add a new server in the **Server Definitions** tab, by selecting the **Servers > New...** command or right-clicking in the tab and selecting the **Add new server** command, it is added to the server list bar and automatically pre-selected. This bar is displayed at the top of the following tabs: **License Administration**, **License Usage**, **License Recycling**, **Statistics** and **Geolocation**.

3. Configure the license server.

- Select the **Servers - Properties** command and select the server name from the list.
- Or, point to the icon, right-click and select the **Display properties** command.
- Or, double-click the line containing the computer name.

The **Server Configuration** dialog box appears:
You do not have to set any other options for the moment, but for information purposes here is a list of the information and options in the dialog box:

- **Name**: Name of the machine hosting the license server.
- **Computer id**: Computer id of the machine hosting the license server.
- **Software version**: Internal software version number.
- **Build date**: Internal software version build date.
- **Administration port**: Listening port for the License Administration Tool.
- **Licensing port**:
For the **Licensing port**, you can either accept the default port number (4085) or set another port number.

**Set password...**

Clicking this button opens the **Administrative Credentials** dialog box which lets you set passwords required to administer your server using the **License Administration Tool**. When the passwords are already present, the button name is **Change passwords...**.

If needed, you must set the password by clicking the **Set password...** button and typing the new password for full access mode:

![Administrative Credentials dialog box](image)

Warning: if the password has been lost, the only possibility to recover administrator access is to re-install the license server from scratch.

Once you have set the password, an additional field appears in the upper area allowing you to enter the current password for full access mode before modifying it. The field for entering the password for restricted access mode is also activated, allowing you to set or modify the password for restricted access mode, as illustrated:
Allows you to deny access, or grant restricted or full access to a license server from a remote License Administration Tool installed on a remote computer.

Several License Administration Tool instances can be connected simultaneously to the same license server. Only one License Administration Tool instance can have full administration access to the license server: either the local License Administration Tool or the first one that connects to the license server remotely.

Furthermore, a local License Administration Tool takes priority over one started on a remote computer. When a local License Administration Tool connects to a local license server, if another administration tool is already connected in full mode, it is disconnected. This happens even if the License Administration Tool already connected is also a local one, irrespective of whether the tool is running in GUI or CLI mode.

- **full**: a remote License Administration Tool can connect to the license server and act with the same privileges as if it was running locally. This mode allows you complete control of the license server. Even if you have the right to fully administrate the license server, you may decide to connect to the server in restricted mode if you do not intend to make any modifications to the server. You connect to the server in this way using the Servers - Connect restricted command.

- **restricted**: This mode enables a remote License Administration Tool to connect to the license server but only in restricted mode, even if no other administration tool is connected to this license server.

You can only set the password for restricted access mode if the password for full access mode has already been set.

Restricted mode features the following limitations:

- no modifications are allowed in the Server Configuration dialog box
- no licenses can be deleted using the License Administration tab
- no licenses can be recycled using the License Recycling tab
- creation and/or modification operations in the **Authorizations** tab are not allowed
- the dump buttons in the **Monitoring** tab are disabled.

- **none**: remote administration is denied.

The following table summarizes which passwords are requested at connection time when administering a local server or a remote server, and remote administration is fully authorized:

<table>
<thead>
<tr>
<th>Connect Command</th>
<th>Connect restricted Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>No password set</td>
<td>No password requested</td>
</tr>
<tr>
<td>Only password for Full mode set</td>
<td>Password for Full mode must be entered</td>
</tr>
<tr>
<td>Both Full and Restricted mode passwords set</td>
<td>Password for Full mode must be entered If password for Restricted mode is entered, connection is forced in Restricted mode</td>
</tr>
</tbody>
</table>

The following table summarizes which passwords are requested at connection time when administering a remote server, and remote administration is restricted:

<table>
<thead>
<tr>
<th>Connection from remote tool using Connect Command</th>
<th>Connection from remote tool using Connect restricted Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>No password set</td>
<td>No password requested Connection is forced in Restricted mode</td>
</tr>
<tr>
<td>Only password for Full mode set</td>
<td>No password requested Connection is forced in Restricted mode</td>
</tr>
<tr>
<td>Both Full and Restricted mode passwords set</td>
<td>Password for Full or Restricted mode must be entered Connection is forced in Restricted mode</td>
</tr>
</tbody>
</table>

The following table summarizes which passwords are requested at connection time when administering a remote server, and remote administration is denied:

<table>
<thead>
<tr>
<th>Connection from remote tool using Connect Command</th>
<th>Connection from remote tool using Connect restricted Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>No password set</td>
<td>Connection denied</td>
</tr>
<tr>
<td>Only password for Full mode set</td>
<td>Connection denied</td>
</tr>
<tr>
<td>Both Full and Restricted mode passwords set</td>
<td>Connection denied</td>
</tr>
</tbody>
</table>

Mode is only taken into account at connection time. For example, if the mode is changed from **restricted** to **none**, the remote tools already connected in restricted mode will stay connected.
Checkbox status is only taken into account once the license server has been activated. Before activation, remote administration is allowed.

The **License Administration Tool** level must be higher than or equal to the license server level.

![Note: There's no connection timeout between a License Administration Tool remotely connected to a license server and this license server. However, if a network problem occurs or if the License Administration Tool runs from a laptop which disconnects, the connection between both processes is broken and the status in the Server Definitions tab returns to \( \text{\_\_\_} \). Once disconnected, the License Administration Tool doesn't automatically reconnect to the license server(s).](image)

<table>
<thead>
<tr>
<th>Enable offline license extraction</th>
<th>Check this box to enable offline license extraction when configuring the license server. This box is checked by default. Uncheck it to forbid offline license extraction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable license usage statistics</td>
<td>Enables license usage statistics using the Statistics tab. If you check this checkbox, the license server collects statistical data. If you uncheck it, the license server will NOT collect statistical data, and data already collected will not be deleted.</td>
</tr>
<tr>
<td>Enable Automatic Recycling</td>
<td>Enables automatic recycling of all named user licenses which have not been used for at least 30 days. Using the License Recycling tab, you can manually recycle a named user license tied to a named user if this license has been used by this user for more than 30 days, and if the terms of the license contract (user retirement, etc.) allow you to do so. Enabling automatic recycling avoids manual license recycling. Irrespective of whether this option is activated, the license server stores and displays the last usage date of a given named user license in the Last used at field when detailed license usage information is requested:</td>
</tr>
</tbody>
</table>

As soon as it is granted to a named user, the last usage value is set. The value is updated every time the named user logs in or logs out (and also when internal heartbeats occur). If you manually recycle a license, the last usage value is emptied. The license server initiates automatic recycling every day at 00h00 UTC. A license cannot be recycled if a given process is still using the license. Casual usage named user licenses are not managed by this process: casual licenses are already automatically recycled at the beginning of every month.
The last usage value of offline named user licenses is initially set to the date of the extraction. The date is updated:

- at the exact time when the end of offline duration occurs
- at the exact time the user extends the offline license
- at the exact time the user manually returns the offline license.

If you install on top of a V6R2013x version or lower, the last usage value of all tied named user licenses is initialized with the new installation date, and the last usage value of all non-tied named user licenses is initialized to an empty value.

When a License Administration Tool manages a V6R2013x or lower license server, the Last used at field normally displayed when detailed license usage information is requested will not be displayed.

Note: Note the following limitation: if the license server is not running at 00h00 UTC, automatic recycling of named user licenses is not postponed until the license server restart, but to the next 00h00 UTC.

License usage tracing... Displays the License Usage Tracing dialog box allowing you to select the licenses for usage tracing:

![License Usage Tracing dialog box](image)

This dialog box is only useful after importing licenses.

You have to select at least one license to activate usage tracing. You can select individual licenses by checking the box next to the license(s), or select and unselect all the licenses using the Select all licenses and Un-select all licenses buttons respectively.

If activated, license usage tracing events are logged and can be viewed using the Server Logs tab.

If the Select all licenses button is checked, then you enroll licenses for new features, the new features and checkboxes will be added automatically, and the boxes will be checked,
which avoids having to access this dialog box again and click the **Select all licenses** button again.

If another **License Administration Tool** is already connected, the dialog box is in read-only mode and the contents are grayed out.

**Mail configuration...**

Displays the **Mail Configuration** dialog box allowing you to send license server event notifications to specified mail addresses:

![Mail Configuration dialog box](image)

The fields are as follows:

- **SMTP server name**: specify the name of the mail server to which the license server will send notifications. By default, the SMTP port number is 25. But the port number can be set to a different value, separated from the name by a colon (:). For example: `MySMTPserver:26`. Note that SMTP servers requiring authentication and/or SSL are not supported.

- **Recipients**: specify the e-mail addresses to which to the notifications will be sent. You can specify several e-mail addresses, each separated by commas (,).

- **Events**: Mail notifications are available for the following types of events:
  - **when server starts**: a notification is sent when the license server starts
  - **when server stops**: a notification is sent when the license server stops
  - **when partition usage exceeds**: the license server needs to regularly write data in its data folder (`C:\ProgramData\DassaultSystemes` on Windows, or `/var/DassaultSystemes` on UNIX). When there is no more space in the data folder, the license server stops. Even if disk space may typically already be monitored by other tools, you can configure your e-mail server to send an e-mail to the license server administrator when the disk space is below a given percentage. By default, this event is not triggered. The administrator has to activate it, with an appropriate percentage value. The default is 80%. An event is sent once this percentage has been reached, and every time an incremented or decremented percentage exceeding the limit has been reached (for example, at 81%, 82% etc...).
  - **when licenses will expire**: a notification is sent when a license is about to expire. When several licenses are about to expire, only one notification is sent. Notifications are sent at 1:00H AM server local time, each day the condition is still valid. You can set the number of days prior to license expiration by adjusting the slider to set a value between one and thirty days.
Every time a notification is sent, the information is also added to the server log.

The subject, content and footer in the notification of each event type can be customized by clicking the ... button which displays the Mail Template dialog box, for example:

Click the Test button to send a mail notification to validate the SMTP server name and e-mail addresses.

**Server log directory**

Point to this option to display the path of the directory containing license server logs. The full pathname is displayed in a tooltip, and can also be selected when clicking on it (or double-clicking or triple-clicking). The path may be located either on the local machine or on a remote machine. The server log directory path can only be set in command line mode (using the -logDir option of the DSLicSrv batch command).

**Standalone server**

This option is checked by default and signifies that you are configuring a standalone server, not a server belonging to a failover cluster.

**Failover cluster**

Refer to Configuring and Activating a Cluster in Failover Mode.

4. Set the licensing port number, then click the Apply button, then click OK.

Pointing to the 🔄 icon now displays the following message:

no license enrolled

For the moment, the license server is configured but not activated. You cannot use the license server until it has been activated. To activate the license server, you must enroll a special license: the Activation license. However, this license is typically embedded in the .LICZ file containing the product licenses, so you don't have to manage it in a special way. If you have licenses for several editors, you will need several activation licenses.

5. Enroll the license as follows:

   a. Select the License - Enroll command or click the 🔄 icon.
The **Open** dialog box is displayed.

**b.** Select the appropriate `.LICZ` file containing your licenses, then click the **Open** button.

License keys and their activation key are provided in the form of archive files named something like this (with the `.LICZ` suffix):

DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1

The **License Enrollment** dialog box opens, containing messages confirming that the licenses have been enrolled on your server:

```
License enroll starting
lw5ses1dsy : License enroll starting
Sending files to server lw5ses1dsy
E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-1-of-8.LIC
E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-2-of-8.LIC
E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-3-of-8.LIC
E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-4-of-8.LIC
E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-5-of-8.LIC
E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-6-of-8.LIC
E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-7-of-8.LIC
E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-8-of-8.LIC
lw5ses1dsy : 8 licenses received
```

c. **Click OK.**

The ![icon](image) icon confirms that your server has been activated:
If you point to the icon, a tooltip like this will be displayed:
server lw5ses1dsy (10.232.49.82) connected
confirming that your license server is up and running.

Note: Once you have configured and activated your server as a standalone server, you can no longer change your mind and configure it as part of a failover cluster. That is why the corresponding options are grayed out.

Warning: the Activation license included in .LICZ files with the product licenses is valid for only 30 days. You must activate the license server within 30 days after having received the license file. If you need to activate the server a second time, after the first 30 days, the original activation license included in the original .LICZ file will no longer be valid, in which case another activation license included in another .LICZ file is required. You only have to activate the license server once. The 30 days apply to the life of the activation license, not to how long the license server remains active.

Configuring and Activating a Cluster in Failover Mode

This section explains how to configure and activate your license servers in failover mode.

When configuring the license server, you can configure the server:

• as a standalone server
• or in failover mode as a member of a cluster.

In the preceding section of this guide, you learned how to configure a license server in standalone mode.

These choices are mutually exclusive. Once you have configured the server in either standalone or failover mode, you cannot modify your configuration. In particular, license keys are different.

Before you begin:

Before commencing this task, keep the following points in mind:

• The objective of a failover configuration is to increase reliability, not capacity.
You must install and start a license server on three different machines. A failover cluster of license servers is composed of exactly 3 computers. The three machines can be any supported Windows or UNIX machines: they do not have to be all Windows or all UNIX machines.

In order to maximize quality of service, we recommend that the three machines be on the same subnetwork.

At least two machines must be up and running and connected to each other in order to have a working failover cluster.

The three machines have the same role: there is no master/slave concept.

The three machines exchange messages every time license data is modified (for example, in case of new license enrolled or license granted to a client). Only the modifications are transmitted and not all license data.

Each machine has its own log file management: the logs are not synchronized between failover members.

In our scenario, you will start the License Administration Tool on a license server on Windows, then build the cluster using three existing UNIX machines.

1. On any machine on which a license server has been installed, launch the License Administration Tool if it is not already launched.

   In our scenario, this tool is launched from a computer which will not be part of the cluster, but it can also be run from a future member of the cluster.

2. Create a connection to one of the license servers to be part of the cluster using the Servers > New... command.

3. Connect the License Administration Tool to the server.

   You must connect to the server to be able to use it. If you point to the icon in the status column, next to the computer name, a message like this will be displayed:

   server xxx not connected

   To connect to the server:

   • Select the Servers - Connect command and select the server name from the list.

   • Or, point to the icon, right click and select the Connect command.

   • Or, you can also click the icon to connect all servers at the same time.

   The status now looks like this:

   ![Status Table]

   Pointing to the icon displays the following message:

   licensing port not configured; check server properties

   The columns available in the Server Definitions tab are:

   **Status** Status of the license server.

   **Computer Name** Name of the machine hosting the license server.

   **Computer ID** Computer id of the machine hosting the license server.

   **Version** Software version number.

   **Build Date** Software version build date.

   **Operating System** Operating system on which the license server is running.
Contains an optional comment enabling you, for example, to distinguish one license server from another when several server definitions are displayed in the list.

To edit a comment, point to a line containing a server definition line, under the Comment column, and double-click: an editable field with a cursor is displayed. Enter the text, then click ENTER to validate.

The comment field supports NLS characters, including DBCS. A comment can be added and modified even if the connection to the license server is not established or is established in restricted mode. Editing comments does not modify the license server itself, but only the license administration tool user settings.

In the case of a failover cluster, each member has its own comment field.

When several lines are present in the Server Definitions tab, you can select multiple lines (using Shift or Control keys and left-clicking) to connect several servers at the same time, for example.

When selecting a failover, then connecting, the connection is made to the three members at once. If a password has been set, it has to be entered only once. To connect to only one member, do not select (left-click) but just display the contextual menu (right-click) then connect.

When you select then copy (using Ctrl-C) one or more lines, the fields copied can be pasted together in any other text processing program (for example, Excel). You can also simply drag lines from the License Administration Tool and drop them into another program, without the need to copy then paste.

You can also sort the lines in ascending or descending order, by clicking on the appropriate column title.

Note: Both techniques work also in any tab containing table-formatted data, such as the License Administration tab, License Usage tab, Detailed License Usage dialog box, and License Recycling tab.

When the Server Definitions tab contains several lines, by default, the lines are displayed in the order according to the time at which the lines were added. The first line contains the first license server added. You can change this default order by dragging and dropping a line:

• click anywhere on the line you want to move to select it
• click the line again, and hold then move the line to the appropriate location
• release to drop the line at its new location: the next time you start the License Administration Tool, the line will be displayed by default at its new location.

Note: You can only move one line at a time.

When you add a new server in the Server Definitions tab, by selecting the Servers > New... command or right-clicking in the tab and selecting the Add new server command, it is added to the server list bar and automatically pre-selected. This bar is displayed at the top of the following tabs: License Administration, License Usage, License Recycling, Statistics and Geolocation.

4. Configure the license server.

• Select the Servers - Property command and select the server name from the list.
• Or, point to the icon, right click and select the Property command.
• Or, double-click the line containing the computer name.

The Server Configuration dialog box appears:
You do not have to set any other options for the moment, but for information purposes here is a list of the information and options in the dialog box:

**Server name:** Name of the machine hosting the license server.

**Server id:** Computer id of the machine hosting the license server.

**Software version:** Internal DS License Server software version number.

**Build date:** Internal software version build date.

**Administration port:** Listening port for the License Administration Tool.

You can also configure the following options:

- **Remote administration authorization:**
  - None
  - Restricted
  - Full

- **License usage tracing**

- **Mail configuration**

- **Server log directory:** C:\ProgramData\DassaultSystemes\LicenseS

- **Standalone server**
- **Failover cluster**
The **Licensing port** field is displayed in yellow, informing you that you can either accept the default port number (4085) or set another port number.

Clicking this button opens the **Administrative Credentials** dialog box which lets you set passwords required to administer your server using the **License Administration Tool**. When the passwords are already present, the button name is **Change passwords...**.

If needed, you must set the password by clicking the **Set password...** button and typing the new password for full access mode:

![Administrative Credentials dialog box](image)

Warning: if the password has been lost, the only possibility to recover administrator access is to re-install the license server from scratch.

Once you have set the password, an additional field appears in the upper area allowing you to enter the current password for full access mode before modifying it. The field for entering the password for restricted access mode is also activated, allowing you to set or modify the password for restricted access mode, as illustrated:
Remote administration authorization

Allows you to deny access, or grant restricted or full access to a cluster in failover mode from a remote License Administration Tool installed on a remote computer.

Furthermore, a local License Administration Tool takes priority over one started on a remote computer. When a local License Administration Tool connects to a local cluster, if another administration tool is already connected in full mode, it is disconnected. This happens even if the License Administration Tool already connected is also a local one, irrespective of whether the tool is running in GUI or CLI mode.

The three modes are:

- **full**: a remote License Administration Tool can connect to the cluster and act with the same privileges as if it was running locally. This mode allows you complete control of the cluster.

A failover cluster is considered as a single logical server. Consequently, only one License Administration Tool can be connected in full mode to the failover. In other words, only one License Administration Tool gets full access to the three failover members at a given time.

When a remote License Administration Tool is connected in full mode to one of failover members:

- no other tool can connect to this member
- no other tool can connect to both other members
- only the remote tool connected in full mode to one member (or a local tool) can connect to both other members.

When a local License Administration Tool connects to one failover member, it disconnects:

- the remote tool connected in full mode to this member (if any)
- the other local tool connected to this member (if any)
- the remote tools connected in full mode to both other members (if any)
- the local tools connected to both other members (if any).
Even if you have the right to fully administrate the cluster, you may decide to connect to the cluster in restricted mode if you do not intend to make any modifications to the cluster. You connect to the cluster in this way using the `Servers - Connect restricted` command.

The `Servers - Connect all` command connects to all the members of a cluster and only prompts you once to enter the cluster password.

- **restricted:**

  This mode enables a remote License Administration Tool to connect to the cluster but only in restricted mode, even if no other administration tool is connected to this cluster.

  You can only set the password for restricted access mode if the password for full access mode has already been set.

  Restricted mode features the following limitations:
  - no modifications are allowed in the Server Configuration dialog box
  - no licenses can be deleted using the License Administration tab
  - no licenses can be recycled using the License Recycling tab
  - creation and/or modification operations in the Authorizations tab are not allowed
  - the dump buttons in the Monitoring tab are disabled.

- **none:** remote administration is denied, except from both other members, for which full access is always granted.

The following table summarizes which passwords are requested at connection time when administering a local cluster or a remote cluster, and remote administration is fully authorized:

<table>
<thead>
<tr>
<th></th>
<th>Connect Command</th>
<th>Connect restricted Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>No password set</td>
<td>No password requested</td>
<td>No password requested</td>
</tr>
<tr>
<td>Only password for Full mode set</td>
<td>Password for Full mode must be entered</td>
<td>No password requested</td>
</tr>
<tr>
<td>Both Full and Restricted mode passwords set</td>
<td>Password for Full mode must be entered</td>
<td>Password for Full or Restricted mode must be entered</td>
</tr>
<tr>
<td></td>
<td>If password for Restricted mode is entered, connection is forced in Restricted mode</td>
<td></td>
</tr>
</tbody>
</table>

The following table summarizes which passwords are requested at connection time when administering a remote cluster, and remote administration is restricted:

<table>
<thead>
<tr>
<th></th>
<th>Connection from remote tool using Connect Command</th>
<th>Connection from remote tool using Connect restricted Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>No password set</td>
<td>No password requested</td>
<td>No password requested</td>
</tr>
<tr>
<td></td>
<td>Connection is in Restricted mode</td>
<td></td>
</tr>
<tr>
<td>Only password for Full mode set</td>
<td>No password requested</td>
<td>No password requested</td>
</tr>
<tr>
<td></td>
<td>Connection is in Restricted mode</td>
<td></td>
</tr>
</tbody>
</table>
Connection from remote tool using Connect Command

<table>
<thead>
<tr>
<th>Connection from remote tool using Connect restricted Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both Full and Restricted mode passwords set</td>
</tr>
<tr>
<td>Password for Full or Restricted mode must be entered</td>
</tr>
<tr>
<td>Connection is forced in Restricted mode</td>
</tr>
<tr>
<td>Password for Full or Restricted mode must be entered</td>
</tr>
</tbody>
</table>

The following table summarizes which passwords are requested at connection time when administering a remote cluster, and remote administration is denied:

<table>
<thead>
<tr>
<th>Connection from remote tool using Connect Command</th>
<th>Connection from remote tool using Connect restricted Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>No password set</td>
<td>Connection denied</td>
</tr>
<tr>
<td>Only password for Full mode set</td>
<td>Connection denied</td>
</tr>
<tr>
<td>Both Full and Restricted mode passwords set</td>
<td>Connection denied</td>
</tr>
</tbody>
</table>

Mode is only taken into account at connection time. For example, if the mode is changed from **restricted** to **none**, the remote tools already connected in restricted mode will stay connected.

Checkbox status is only taken into account once the license server has been activated. Before activation, remote administration is allowed.

The **License Administration Tool** level must be higher than or equal to the license server level.

**Note:** There’s no connection timeout between a **License Administration Tool** remotely connected to a license server and this license server. However, if a network problem occurs or if the **License Administration Tool** runs from a laptop which disconnects, the connection between both processes is broken and the status in the **Server Definitions** tab returns to **X**. Once disconnected, the **License Administration Tool** doesn’t automatically reconnect to the license server(s).

**Enable license usage statistics**

Enables license usage statistics using the **Statistics** tab.

If you check this checkbox, the license server collects statistical data. If you uncheck it, the license server will NOT collect statistical data, and data already collected will not be deleted.

**Enable Automatic Recycling**

Enables automatic recycling of all named user licenses which have not been used for at least 30 days.

Using the **License Recycling** tab, you can manually recycle a named user license tied to a named user if this license has been used by this user for more than 30 days, and if the terms of the license contract (user retirement, etc.) allow you to do so. Enabling automatic recycling avoids manual license recycling.

Irrespective of whether this option is activated, the license server stores and displays the last usage date of a given named user license in the **Last used at** field when detailed license usage information is requested:
As soon as it is granted to a named user, the last usage value is set. The value is updated every time the named user logs in or logs out (and also when internal heartbeats occur).

If you manually recycle a license, the last usage value is emptied.

The license server initiates automatic recycling every day at 00h00 UTC. In the context of a failover cluster, the action is triggered on each member, and is not propagated to the others. If a member is down at 00h00 UTC, the action cannot be triggered on this member. But when this member restarts, it will get appropriate data from the other members during startup synchronization in the usual way.

A license cannot be recycled if a given process is still using the license.

Casual usage named user licenses are not managed by this process: casual licenses are already automatically recycled at the beginning of every month.

The last usage value of offline named user licenses is initially set to the date of the extraction. The date is updated:

- at the exact time when the end of offline duration occurs
- at the exact time the user extends the offline license
- at the exact time the user manually restitutes the offline license.

If you install on top of V6R2013x or a lower version, the last usage value of all tied named user licenses is initialized with the new installation date, and the last usage value of all non-tied named user licenses is initialized to an empty value.

When a License Administration Tool manages a V6R2013 or lower license server, the Last used at field normally displayed when detailed license usage information is requested will not be displayed.

**Note:** Note the following limitation: if the license server is not running at 00h00 UTC, automatic recycling of named user licenses is not postponed until the license server restart, but to the next 00h00 UTC.

**License usage tracing...** Displays the License Usage Tracing dialog box allowing you to select the licenses for usage tracing:
This dialog box is only useful after importing licenses.

You have to select at least one license to activate usage tracing. You can select individual licenses by checking the box next to the license(s), or select and unselect all the licenses using the Select all licenses and Un-select all licenses buttons respectively.

If activated, license usage tracing events are logged and can be viewed using the Server Logs tab.

If the Select all licenses button is checked, then you enroll licenses for new features, the new features and checkboxes will be added automatically, and the boxes will be checked, which avoids having to access this dialog box again and click the Select all licenses button again.

If another License Administration Tool is already connected, the dialog box is in read-only mode and the contents are grayed out.

Mail configuration... Displays the Mail Configuration dialog box allowing you to send license server event notifications to specified mail addresses:
The fields are as follows:

- **SMTP server name**: specify the name of the mail server to which the license server will send notifications. By default, the SMTP port number is 25. But the port number can be set to a different value, separated from the name by a colon (:). For example: `MySMTPserver:26`. Note that SMTP servers requiring authentication and/or SSL are not supported.

- **Recipients**: specify the e-mail addresses to which the notifications will be sent. You can specify several e-mail addresses, each separated by commas (,).

- **Events**: Mail notifications are available for the following types of events:
  - when server starts: a notification is sent when the license server starts
  - when server stops: a notification is sent when the license server stops
  - when partition usage exceeds: the license server needs to regularly write data in its data folder (`C:\ProgramData\DassaultSystemes` on Windows, or `/var/DassaultSystemes` on UNIX). When there's no more space in the data folder, the license server stops. Even if disk space may typically already be monitored by other tools, you can configure your e-mail server to send an e-mail to the license server administrator when the disk space is below a given percentage. By default, this event is not triggered. The administrator has to activate it, with an appropriate percentage value. The default is 80%. An event is sent once this percentage has been reached, and every time an incremented or decremented percentage exceeding the limit has been reached (for example, at 81%, 82% etc...). In the context of a failover, each member is monitored individually.
  - when failover member is isolated: in a failover configuration, a notification can optionally be sent when a member cannot connect to both other members for a given number of minutes. The default value is 5 mins. and can be set from 1 min. to 60 mins, in 1 min. increments. The notification is sent by the isolated member, not by the other two members. If the issue is related to the network itself, the notification might not be received by the SMTP server. The notification is sent only once while the member is isolated, no matter how long the member remains isolated.
  - when licenses will expire: a notification is sent when a license is about to expire. When several licenses are about to expire, only one notification is sent. Notifications are sent at 1:00H AM server local time, each day the condition is still valid. You can set the number of days prior to license expiration by adjusting the slider to set a value between one and thirty days. In a failover configuration, one notification is sent by each member, so three notifications will be received for the same event.

Every time a notification is sent, the information is also added to the server log.

The subject, content and footer in the notification of each event type can be customized by clicking the ... button which displays the **Mail Template** dialog box, for example:
Click the Test button to send a mail notification to validate the SMTP server and e-mail addresses.

**Server log directory**  
Point to this option to display the path of the directory containing license server logs. The path may be located either on the local machine or on a remote machine. The server log directory path can only be set in command line mode (using the -logDir option of the DSLicSrv batch command).

**Standalone server**  
This option is checked by default and signifies that you are configuring a standalone server, not a server belonging to a failover cluster.

**Failover cluster**  
Check this option to configure the server as member of a cluster in failover mode.

5. Set the **Failover port**: number.  
The default is 4086.

6. Check the **Failover cluster** option.  
The lower section of the **Server Configuration** dialog box now looks like this:

7. Specify the remaining server names.
A failover cluster comprises three server names. Note that your server name and its server id are already declared. As you type in the names of the other two servers, the names appear in red while the software checks that the server machines exist. The letters are then displayed normally once the existence of the server machine has been checked.

Once you have defined three valid members, a … button is displayed after each server id.

8. Click the Apply button.

The Server Configuration dialog box now looks like this (note the presence of the … button after each server id):

![Server Configuration Dialog Box]

Click one of the … buttons. The Modify Cluster Member dialog box appears:

![Modify Cluster Member Dialog Box]

For more information about modifying your cluster, refer to Maintaining Continuous Failover Cluster Operation.

9. Click the OK button.

The License Administration Tool now contains the following:

![License Administration Tool]

The cluster is represented as a single connection comprising three machines. The first machine (in bold) is connected, the others (not in bold) are not connected.

10. Enroll the license for the cluster.
Pointing to the icon now displays the following message:
No license enrolled

For the moment, the failover cluster has been created and configured but not activated. You cannot use the failover cluster until it has been activated. To activate it, you must enroll your product license .LICZ file which contains the Activation license.

Note: Note that this is a special failover cluster license. When ordering the failover cluster license, you must provide the computer id of each of the three machines.

a. Select the License - Enroll command or click the icon.
   The Open dialog box is displayed.

b. Select the appropriate .LICZ file containing your licenses, then click the Open button.
   License keys and their activation key are provided in the form of archive files named something like this (with the .LICZ suffix):
   DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ
   The License Enrollment dialog box opens, confirming that the server has been activated and cluster licenses have been enrolled on your server.

c. Click the OK button.
   The green background confirms that your failover cluster has been activated and is now up and running:

<table>
<thead>
<tr>
<th>Status</th>
<th>Computer name</th>
<th>Computer id</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>riffisy</td>
<td>JFJ-0370ED18200EEA01</td>
</tr>
<tr>
<td></td>
<td>oms2rsy</td>
<td>EN-0370E01834DDDED1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SAF-32181000929BE71</td>
</tr>
</tbody>
</table>

   If you point to the green background, a message like this will be displayed: cluster is up confirming that your failover cluster is up and running.

Note: Once you have configured and activated your cluster, you can no longer change your mind and try to configure one of the three machines as a standalone server. This is why the corresponding options are grayed out when you display the cluster properties:

    | Server log directory: /var/assaultSystems/... |
    | Standalone server |
    | Failover cluster |
    | Failover port: 4096 |

   Enrolling the licenses on one cluster member also enrolls them automatically on the other cluster members.

11. Consult the Status column to evaluate cluster status.
   The first server name is in bold because you connected to it when building the failover cluster. The other server names are not in bold: they are members of the cluster but you have not connected to them.
Note that the presence of a server in a cluster does not stop you from being able to connect to it to benefit from the other services provided by the License Administration Tool not directly involved in cluster license management, for example logging and monitoring.

A symbol like this:

![Symbol](image)

displayed in certain tabs indicates that a cluster is present. Servers to which you are connected are in bold. Check the option button to use the relevant function with the cluster.

Furthermore, in certain tabs, the servers can be chosen from a pull-down list. The list contains servers to which you are connected.

The meaning of colors and symbols is described in the following table:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>The cluster member is connected to the License Administration Tool.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>The cluster member is connected to the License Administration Tool in read-only mode.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>The cluster member is NOT connected to the License Administration Tool.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>A communications link has been established between two members of the cluster.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>No information is available about the communication status between both members. Connect to at least one of both members to determine the status of this particular link.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>A green background indicates that the cluster is up and running. At least two links exist.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>A yellow background indicates that the cluster is up and running, but indicate that there is a problem: only one link exists. For example, one of the three servers may be unreachable for a variety of reasons, but the cluster remains up and running as long as at least two servers can exchange information between them.</td>
</tr>
<tr>
<td><img src="image" alt="Icon" /></td>
<td>Red icons indicate IN ALL CASES that the cluster is down. No links exist.</td>
</tr>
</tbody>
</table>

The following table illustrates some typical examples of cluster status symbols that may be displayed during cluster operation:
<table>
<thead>
<tr>
<th>This symbol...</th>
<th>means that...</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Symbol 1]</td>
<td>You have not connected to a cluster member: cluster status is undetermined.</td>
</tr>
<tr>
<td>![Symbol 2]</td>
<td>The cluster is up and running. One of the servers is connected to the other two, but we don't know if these two servers are inter-connected or not. Not enough information exists about the link between the non-connected servers.</td>
</tr>
<tr>
<td>![Symbol 3]</td>
<td>The cluster is still up and running but one of the servers is not linked to any other (maybe it was shut down or is unreachable over the network for some reason or other). Even though two up and running servers are enough to keep the cluster up, if another server goes down, the cluster will go down also.</td>
</tr>
<tr>
<td>![Symbol 4]</td>
<td>The cluster is down: no links exist.</td>
</tr>
</tbody>
</table>

**Maintaining Continuous Failover Cluster Operation**

This section describes the different operations you can perform following failure of one of the members of a DS License Server cluster, without having to stop the cluster.

In the event of a hardware failure involving a member of a DS License Server failover cluster, the cluster remains active, and it is not necessary to stop the cluster in order to replace the failed member by a new one.

Remember that, if one of the three members of a failover cluster goes down, the failover itself remains active and can continue to serve licensing clients without interruption. The status of the failover is yellow in the License Administration Tool.

Even if the replacement can be planned, the fact that the failover cluster is down even only for a few minutes can impact operations. You can perform the following actions for the failed member, to restore the failover status to green, without stopping the failover cluster:

- replace a failover member
- change the hostname of a failover member
- replace the network card hosting the computerID of a failover member
- repair a corrupted license server database of a failover member.

**Note:** Once a computer has been excluded from a failover cluster, it has to be re-initialized in order to be re-used as a standalone server or as a member of a failover (even if it is the same as before).

**Replace a Failover Member**

**Before you begin:** In the following scenario, let's assume you have a failover cluster with the following three cluster members, M1, M2 and M3:

- M1: iclin1plp
- M2: icaix1plp
- M3: iclin3plp

Let's assume member M1 is broken and must be replaced with member M4.

1. Install a DS License Server from scratch on member M4.
2. Do not configure M4.
3. Obtain replacement failover license keys for the computer IDs M2, M3 and M4.
4. From failover member M2, start the **License Administration Tool**.
5. In the **Server Configuration** dialog box for your cluster, click the ... button after member M1:

![Server Configuration dialog box](image)

The **Modify Cluster Member** dialog box appears.

6. Check the option **Replace computer with** and enter the name of M4, for example `nuq32plp`, which will replace computer `iclin1plp`, as illustrated below:

![Modify Cluster Member dialog box](image)

Then, click the **OK** button.

The following warning is displayed:

Warning: Enrolled licenses will be invalidated within 24 hours. You should be ready after this operation to enroll a full set of licenses. Do you want to proceed? 

Click the **Yes** button.

Your modified cluster now contains the following members:

- M4: `nuq32plp`
- M2: `icaix1plp`
- M3: `iclin3plp`

7. Enroll new licenses generated for the cluster `nuq32plp-icaix1plp-iclin3plp`.

New cluster licenses are needed because one of the three computerIDs in the failover cluster has changed. For practical reasons, we strongly recommend that you obtain the new licenses BEFORE changing the computerID of a cluster member.
**Note:** Keep in mind that as long as two members are active, the failover cluster remains operational. As soon as one computerID of the failover is changed, the cluster remains up but the old licenses are considered still valid for a maximum duration of 24 hours only. The new licenses containing the replacement computerID must be enrolled during this 24-hour period. Obtaining the new licenses before is critical.

After enrolling the new licenses, your new cluster licenses are **Active**:

![License Administration Tool](image)

Right-click the old licenses and select **Delete** to delete them.

At any time during these steps, licensing clients were able to receive licenses.

**Rename a Member**

*Before you begin:* In the following scenario, let's assume you have a failover cluster with the following three cluster members, M1, M2 and M3:

- M1: icwvc1plp
- M2: icaix1plp
- M3: icw8s4plp

Let's assume you need to rename M1 from icwvc1plp to icw7c1plp.

1. Stop failover cluster member M1 icwvc1plp.
2. Rename M1 and restart the computer.
3. Install a DS License Server from scratch on member M1.
4. Do not configure M1.
5. From failover member M2, start the **License Administration Tool**.
6. In the **Server Configuration** dialog box for your cluster, click the ... button after member M1:

![License Administration Tool](image)

The **Modify Cluster Member** dialog box appears.

7. Check the option **Change computer name** and enter the name of computer icw7c1plp as illustrated below:
Replace the Network Card of a Failover Member

**Before you begin:** In the following scenario, let's assume you have a failover cluster with the following three cluster members, M1, M2 and M3:

- M1: icwvc1plp
- M2: icaix1plp
- M3: icw8s4plp

1. Stop failover member M1 and replace the network card of M1 with a new network card.
2. Install a DS License Server from scratch on member M1.
3. Do not configure M1.
4. Obtain replacement failover license keys for the computer IDs M1, M2 and M3.
5. From failover member M2, start the **License Administration Tool**.
6. In the **Server Configuration** dialog box for your cluster, click the ... button after member M1:
The Modify Cluster Member dialog box appears.

7. Check the option Update computer id as illustrated below:

Then, click the OK button.

The following warning is displayed:

Warning: Enrolled licenses will be invalidated within 24 hours. You should be ready after this operation to enroll a full set of licenses. Do you want to proceed?

Click the Yes button.

Your cluster will be updated with a new computer id for member M1.

8. Enroll new licenses generated for the cluster.

New cluster licenses are needed because one of the three computerIDs in the failover cluster has changed. For practical reasons, we strongly recommend that you obtain the new licenses BEFORE changing the computerID of a cluster member.

**Note:** Keep in mind that as long as two members are active, the failover cluster remains operational. As soon as one computerID of the failover is changed, the cluster remains up but the old licenses are considered still valid for a maximum duration of 24 hours only. The new licenses containing the replacement computerID must be enrolled during this 24-hour period. Obtaining the new licenses before is critical.

After enrolling the new licenses, your new cluster licenses are Active:
Right-click the old licenses and select **Delete** to delete them.

At any time during these steps, licensing clients were able to receive licenses.

### Repair Corrupted Data of a Member

**Before you begin:** In the following scenario, let's assume you have a failover cluster with the following three cluster members, M1, M2 and M3:

- M1: nuq32plp
- M2: icaix1plp
- M3: iclin3plp

Let's also assume that license data on cluster member M2 is corrupted.

1. Stop failover cluster member M2.
2. Install a DS License Server from scratch on member M2.
3. Do not configure M2.
4. From failover member M1, start the **License Administration Tool**.
5. In the **Server Configuration** dialog box for your cluster, click the ... button after member M2:

   ![Server Configuration Dialog Box](image)

   The **Modify Cluster Member** dialog box appears.

6. Check the option **Repair computer** as illustrated below:
Click the **OK** button to repair the corrupted data.

**Note:** You do not need new license keys because the three computer IDs remain the same.

### Starting and Stopping the DS License Server

Tools are provided to start and stop the DS License Server.

1. The first and simplest way is to use the standard Windows Services management tool and stop the **DS License Server** Windows service.

   When you installed the DS License Server, a Windows service named **DS License Server** was created and configured automatically to start the license server. The service guarantees that the DS License Server is always started automatically when you log on:

   Since the DS License Server complies with Windows Service standards, you can also start and stop the **DS License Server** service using the following commands in an elevated command prompt:

   ```
   net start "DS License Server"
   net stop "DS License Server"
   ```
Information and errors related to the **DS License Server** service are logged in the Windows event log and can be viewed using the Event Viewer, under License Server in the Source column in the Application section, as illustrated below:

2. Additionally, particularly when you are administering a remote license server, to stop the license server, you can also select Start - All Programs - DS License Server - License Server Administration to launch the **License Administration Tool** if it is not already launched.

3. Connect to the license server by pointing to the icon, right-clicking and selecting the Connect command.

4. Select the **Servers - Stop** command and select the server name.

A dialog box appears prompting you to confirm that you want to stop the server:
5. Click **OK**.

You are immediately disconnected from the server:

If you try to connect to the server, the following dialog box appears:

prompting you to check the server hostname and port number, and to check if the server is running, which is not the case, because it has just been stopped. Click **OK** to access the license server configuration parameters enabling you to check the server hostname and port number. Click **Cancel** to exit.

If you access the Windows services and refresh the list, you will notice that the **DS License Server** service has been stopped.
The License Administration Tool remains active because you can use it to connect to a remote server even if your local license server has been stopped.

6. To start the license server again, restart the DS License Server using the Windows Services GUI tool.

Note: On UNIX, start the license server by running the following command, for example on AIX:

```
/usr/DassaultSystemes/DSLicenseServer/aix_a64/code/bin/DSLicSrv -startServer
```

and stop the license server using the command:

```
/usr/DassaultSystemes/DSLicenseServer/aix_a64/code/bin/DSLicSrv -stopServer
```

or the Servers - Stop command using the License Administration Tool.

Configuring Clients

Once your license server is up and running, and your licenses have been enrolled, you must configure the license clients.

1. On Windows, on each client computer, create the following directory:

   C:\ProgramData\DassaultSystemes\Licenses

   On UNIX, create the following directory:

   /var/DassaultSystemes/Licenses

2. Go to the directory and create an ANSI file (multi-bytes such as UNICODE are not supported) named:

   DSLicSrv.txt

3. Edit the file to declare the license server to which the client can connect.

   The syntax of the declaration is as follows:

   `servername:portnumber`

   The server name can be declared as:

   - a simple hostname, for example: lw5ses1dsy:4085
   - a full qualified domain name, for example: lw5ses1dsy.dsy.com:4085
   - an IPV4 address, for example: 10.232.70.1:4085
   - an IPV6 address, for example: [2a00:4b00:220:172::103]:4085

   The port number is the license server listening port, not the administration port.

   Note that if the license server is on the same computer as the client computer, you must use the special keyword localhost instead of the computer name, for example:

   `localhost:4085`

   Note: The syntax for failover servers is different. The three failover servers must all be referenced on the same line as follows:

   `server1:4085,server2:4085,server3:4085`
By default, load balancing of the three failover members is performed automatically by the licensing client code. At startup, the licensing client process selects randomly the failover member to contact from the three members declared. If the first selected member is down, the second member is randomly selected, and so forth. This ensures that the three members are statistically contacted by the same number of clients and results in automatic load balancing on the three members.

However, it is also possible to specify the order of priority in which failover members are contacted by the licensing client, replacing randomization by an explicit order defined by the administrator. This can be useful in the following cases, for example if:

- one member is more (or less) powerful than the others
- one member is located much closer to (or further from) the licensing clients than the others
- one member cannot be reached due to proxy constraints
- one member is temporarily down.

Note that you cannot mix both automatic and manual configurations: in other words, the three failover members are either randomly accessed or are accessed through the specified order. So you cannot, for example, declare the first member then set random access to the remaining two members.

To explicitly specify an order of priority order between the failover members, use the following separator:

> instead of:

, which is reserved for automatic load balancing.

The following declaration is valid, for example:

licmbr1:4085>licmbr2:4085>licmbr3:4085

4. If several logical (i.e. standalone or failover) license servers need to be accessed, add a new line for each logical license server.

In this context, when a client requests a license and this license is not already granted by one of the declared logical servers, then the order in which the logical license servers is declared is observed: if a license is available on the first declared logical server, this one is taken; if not, if a license is available on the second declared logical server, then this one is taken, and so forth.

5. Optionally, check that the file is correctly configured.

The license client-side DSCheckLS command parses the DSLicSrv.txt file to check license server availability, and reports errors if, for example, the file is incorrectly configured. For more information, see the documentation of your license client product.

Communicating through Forward and Reverse Proxies

The machine hosting the License Administration Tool can communicate with a license server located behind a forward proxy, and the license client and the License Administration Tool can communicate with a license server located behind a reverse proxy, as explained in the following sections.

Implement a Forward Proxy for the License Administration Tool

The machine hosting the License Administration Tool can communicate with a license server located behind a forward proxy.
1. Configure the forward proxy in HTTPS mode.

**Note:** All of the following configuration examples reflect the configuration of an Apache 2.2 forward proxy, purely for illustration purposes, and are in no way intended to reflect other proxy configurations.

Add the following lines to the `httpd.conf` file:

- `ProxyRequests On`
- `ProxyVia On`
- `<Proxy *>`
- `Order deny,allow`
- `Allow from all`
- `</Proxy>`
- `AllowCONNECT 4084 4085`

where the `AllowCONNECT` command references the licensing and administration tool ports.

2. Start the **License Administration Tool**.
3. Select the **Servers - New** command.

   The **License Server Connection Parameters** dialog box appears:

   ![License Server Connection Parameters dialog box](image)

4. Enter the name of the license server (the name of the machine hosting the server, typically), set the listening port number (default is 4084), then check the option **Use a proxy server** and enter the proxy name and proxy port number, then click OK.
The **License Administration Tool** can now communicate with a license server located behind a forward proxy.

**Implement a Reverse Proxy for the DS License Server**

The license client and the **License Administration Tool** can also communicate with a license server located behind a reverse proxy.

1. Configure the reverse proxy in HTTPS mode and map the communications between the reverse proxy and the license server.
   
   The maps are:
   

   where `myreverseproxynamename` is the reverse proxy hostname and `mylicenseserver` is the license server hostname.

   **Note:** All of the following configuration examples reflect the configuration of an Apache 2.2 reverse proxy, purely for illustration purposes, and are in no way intended to reflect other reverse proxy configurations.

   Uncomment the following lines in the reverse proxy configuration file (`httpd.conf`):

   ```
   #LoadModule proxy_module modules/mod_proxy.so
   #LoadModule proxy_http_module modules/mod_proxy_http.so
   #LoadModule ssl_module modules/mod_ssl.so
   #Include conf/extra/httpd-ssl.conf
   #Include conf/extra/httpd-default.conf
   ```

   then edit the `httpd-default.conf` file and reset the value of the `KeepAliveTimeout` parameter:

   ```
   KeepAliveTimeout 5
   ```

   to a more appropriate value, for example:

   ```
   KeepAliveTimeout 60
   ```
Add the following lines in the SSL configuration file for the reverse proxy (httpd-ssl.conf), before the \(<\!/VirtualHost>\) tag:

```
SSLProxyEngine on
ProxyPass /DSLS/client        https://mylicenseserver:4085/DSLS/client
ProxyPass /DSLS/admin         https://mylicenseserver:4084/DSLS/admin
ProxyPassReverse /DSLS/admin  https://mylicenseserver:4084/DSLS/admin
```

where mylicenseserver is the name of your license server.

Install your own certificate or a self-signed certificate you can generate by following the instructions on this site:

http://httpd.apache.org/docs/2.0/ssl/ssl_faq.html#selfcert

This certificate will be presented by the reverse proxy to the license client and the **License Administration Tool**.

2. Configure all licensing client computers to point to the reverse proxy.
   To do so, add the following declaration to the DSLicSrv.txt file on each licensing client:
   
   ```
   myreverseproxyname:443
   ```
   
   where myreverseproxyname is the reverse proxy name and 443 is the proxy port number (443 by default).

3. If you also want the **License Administration Tool** to be able to cross the reverse proxy, configure the **License Administration Tool** to point to the reverse proxy.
   To do so, start the **License Administration Tool**, and select the **Servers - New** command. When the **License Server Connection Parameters** dialog box appears:

   ![License Server Connection Parameters](image)

   specify the reverse proxy hostname (rever1dsy in our example) in the **License server name** field (instead of the license server name), and set the SSL port number (443 by default) in the **Administration port** field, for example like this:
Only check the Use a proxy server option if you are also using a forward proxy.

Note: If you are using a failover cluster, you need to set up three ports on the reverse proxy, corresponding to the three license servers. For example, the DSLicSrv.txt file on each licensing client may contain in this case:

myreverseproxy:443, myreverseproxy:444, myreverseproxy:445

Once the reverse proxy has been implemented, there are two different names for the servers displayed in the License Administration and License Recycle tabs and in the detailed view in the License Usage tab. The name of the reverse proxy is displayed at the top, and the real license server name is displayed below, for example:

<table>
<thead>
<tr>
<th>Status</th>
<th>Server</th>
<th>Model</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active</td>
<td>icx3s36pl</td>
<td>NamedUser</td>
<td>CPF</td>
</tr>
<tr>
<td>Active</td>
<td>icx3s36pl</td>
<td>NamedUser</td>
<td>CPF</td>
</tr>
<tr>
<td>Active</td>
<td>icx3s36pl</td>
<td>NamedUser</td>
<td>ENG</td>
</tr>
<tr>
<td>Active</td>
<td>icx3s36pl</td>
<td>NamedUser</td>
<td>ENG</td>
</tr>
</tbody>
</table>

The licensing clients and the License Administration Tool can now communicate with a license server located behind a reverse proxy.
Managing Licenses

This section explains how to manage licenses.

Enrolling Licenses

Once your license server has been configured and activated, you can enroll your licenses.

1. Select Start - All Programs - DS License Server - License Server Administration to launch the License Administration Tool if it is not already launched:

![License Administration Tool](image)

2. Connect to the server.

To connect to the server:

- Select the Servers - Connect command and select the server name from the list.
- Or, point to the icon, right click and select the Connect command.
- Or, you can also click the icon to connect all servers at the same time.

The icon confirms that your server is operational:
3. Enroll your licenses as follows:

   a. Select the License - Enroll command or click the icon.

      The Open dialog box is displayed.

   b. Go to the directory containing your licenses and select the appropriate licenses, then click the Open button.

      Note that you may receive either individual license keys (which are in files with the obsolete .LIC extension), or license keys grouped in a single file (which has the .LICZ extension). With a .LICZ group of license keys, you enroll all the licenses at the same time.

      A .LICZ file will be named something like this (with the .LICZ suffix):

      DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ

      The License Enrollment dialog box opens, informing you that license enrollment has been started, followed by confirmation that your licenses have been successfully enrolled on your server:

      License enroll starting
      1w5ses1dsy : License enroll starting
      Sending files to server lw5ses1dsy

      E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-1-of-8.LIC
      E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-2-of-8.LIC
      E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-3-of-8.LIC
      E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-4-of-8.LIC
      E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-5-of-8.LIC
      E:\Licenses418\DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ/FEAT-6-of-8.LIC
4. Click **OK** to return to the **License Administration Tool**.

The ![icon] icon confirms that your server has been activated:

![License Administration Tool](image)

If you point to the ![icon] icon, a tooltip like this will be displayed:

server lw5ses1dsy (10.232.49.82) connected

confirming that your license server is up and running.

Note: Once you have configured and activated your server as a standalone server, you can no longer change your mind and configure it as part of a failover cluster. That is why the corresponding options are grayed out.

## Administering Licenses

You can perform simple license administration tasks on licenses after enrolling them.

1. Click the **Administration** tab:
2. Check the check box next to the desired server name (there may be several server names) to view the licenses enrolled on that server.

The licenses you enrolled are listed:

A tool tip is displayed on the vertical scrollbar to display the total number of lines and the range of lines displayed.

Time values displayed in UTC.

3. Right-click a license and select the **Save** command to save a single license. If the license belongs to a replacement group, all lines corresponding to this group are automatically selected, and all lines selected will be saved as a whole.
Note: Note that in the vast majority of cases, your licenses will be shipped as license groups.

4. Right-click a license and select the Delete command to delete the license. If the license belongs to a replacement group, all lines corresponding to this group are automatically selected, and all lines selected will be deleted as a whole.

5. Click the Display superseded licenses button if you wish to list licenses belonging to a replacement group which is not the highest. Click again to revert back to the default (Hide superseded licenses).

This button is grayed out if no superseded licenses exist.

If you want to delete these superseded licenses, select all the lines with Superseded status, then right-click and select the Delete command.

6. Click the Save all licenses... button to save all licenses to a separate directory of your choice.

7. The next button to the right displays one of three choices, depending on the context:

- if any licenses have expired, and can be removed, the Remove expired licenses button will be displayed. Click this button to remove any licenses from the list which have expired. This option is grayed out in read-only mode (when another License Administration Tool is connected).
- click the Hide expired licenses button to hide from the GUI the expired licenses belonging to a replacement group containing non-expired licenses and which cannot be removed. Expired licenses belonging to a replacement group can be removed only if all licenses in this group have expired, since a replacement group can only be removed as a whole.
- click the Display expired licenses button to display the expired licenses belonging to replacement groups also containing non-expired licenses.

When the button remains grayed out, no licenses have expired.

8. Click the Select columns... button to choose which columns to display in the tab.

The Select Columns dialog box is displayed:
The columns you can display are:

**Status**

The license status can be:

- **Active**: the license has been enrolled and is valid
- **Expired**: the license validity date has expired. The line appears in red.
- **Not yet available**: the license has been enrolled, but its validity date has not yet been reached. The line appears in blue.
- **Invalid**: replacement group has been partially enrolled. You have to remove it and re-enroll it properly. The line appears in red.
- **Superseded**: the license is no longer available, because a replacement group with the same License ID and a higher Group Index has been enrolled. Expired and Not yet available status are not valued for Superseded licenses. If desired, superseded licenses can be safely deleted by right-clicking on them. By default, line is not displayed.

**Server**

Name of the license server.

**Editor**

The editor can be, for example:

- Dassault Systemes
- Dassault Systemes V5
- Dassault Systemes V4.

**Model**
Licensing model with which the license complies:
- NamedUser
- ConcurrentUser
- Token.

**Feature**
Feature name, such as product trigram (for example, MD2) or custom configuration.

**Quantity**
Number of licenses enrolled.

**StartDate**
Date from which the license is valid.

**EndDate**
Date after which the license is no longer valid.

**Duration**
License validity duration (in hours).

**Max Release Number**
Feature release level authorized by the license. Only licensing clients having a release level lower or equal to this number are allowed. The Max Release Number can be equal to 0. In this case, the license server does not perform any check related to release number; the license can be granted whatever the release level of the licensing client.

**Max Release Date**
Client release date authorized by the license. Only licensing clients having a release date lower or equal to this number are allowed.

**Max Usage Duration**
Displays one of two values:
- the value is "0" for a full named user license
- the value is "40" for a casual usage named user license. The value corresponds to the number of hours the license can be used by a given named user during a given month.

**Max Usage Period**
Displays one of two values:
- the value is "0" for a full named user license
- the value is "2" for a casual usage named user license.

**License Type**
Type of license enrolled on the license server, depending on how your license server is configured:
- Floating (for standalone license servers)
- Failover (for failover clusters).

**Commercial Type**
Commercial types are:
- STD (for standard commercial licenses)
- DEMO (for demonstration licenses)
- EDU (for educational licenses).

**License ID**
This character string is the license identifier. A license ID can exist either for a single feature or a group of features.

**Group Index**
License replacement group index. For a given License ID, the highest number is active and the other numbers are superseded (if they have not been removed).
**File Index**  
Number of a particular feature in the replacement group.

**File Quantity**  
Number of individual features included in the replacement group.

**Computer ID**  
Computer ID of the machine hosting the license server.

**Computer Name**  
Name of the computer hosting the license server (when available).

**Customer Site**  
License owner.

**Customer Country**  
Country of license owner (3-letter international code).

**Customer ID**  
License owner ID.

**Generation Date**  
Date on which the license was generated.

**Generator**  
Company which generated the license.

**Generator ID**  
ID of the company which generated the license.

**Editor ID**  
Editor ID.

**Additional Info**  
Optionally used for specific needs.

---

**What are License Replacement Groups?**

The **Group Index** column displays the *license replacement group* index. A given license id can exist either for a single feature or a group of features.

When you enroll the feature licenses for a given license ID and for the first time, the number in the **Group Index** column is set to "0", and the Status is Active. When your licensing needs evolve, you may need to replace an existing feature or group of features referenced by the same license ID. This is referred to as a *license replacement group*. When you enroll the new license replacement group for the same license ID:

- the Status of the previous license changes to Superseded and is no longer displayed. If you wish to display superseded replacement groups, click on the **Display superseded licenses** button. To gain useful space, after a given period of validation, we recommend that you remove superseded licenses.
- a new line containing the same license ID is added, the number in the **Group Index** column is incremented, and the status of the license is **Active**.

---

**Getting Information About License Usage**

The **License Usage** tab allows you to monitor license usage.

1. **Select** Start - (All) Programs - DS License Server - License Server Administration to launch the **License Administration Tool** if it is not already launched.
2. **Connect** to the server.
3. **Click** the **License Usage** tab.

Based on the licenses previously enrolled, the **License Usage** tab looks like this:
You can sort columns by clicking on the column headers. If you want to sub-sort several columns, press the Ctrl key while clicking.

A tool tip is displayed on the vertical scrollbar to display the total number of lines and the range of lines displayed.

- **Editor**: Dassault Systemes, for example.
- **Feature**: Trigram of the product or custom configuration license. Keep in mind that the license can be a named user license, a concurrent user license or a token license.
- **In use**: The number of licenses currently being used for a particular feature.
- **Count**: Total number of licenses enrolled for a particular feature.

4. Start a process (from the client or elsewhere) requiring a particular license.

In the rest of this section, the product license trigrams used are totally fictitious and do not exist, and are used for illustration purposes only.

When the license server grants the license, for example, to a license client, the **License Usage** tab looks something like this:
The number in the **In use** column for the corresponding license is incremented by 1. Each time a license is consumed, the number is incremented.

5. To find out details about the license (who is using the license, what type of license it is, etc.), double-click the line containing the corresponding license (which is a named user license).

The **Detailed License Usage** box appears:

![Detailed License Usage Box]

Time values displayed are formatted according to the local time (time zone) of the computer on which the License Administration Tool is running.

- **Server**
  - Name of license server computer.

- **License type**
  - Type of license: NamedUser or Concurrent.

- **User**
  - Named user or concurrent user to whom the license is granted.

- **Host**
  - Name of the client computer on which the licensed process is running.

- **Granted since**
  - Time and date at which the license was originally granted to the user.

- **Last used at**
  - Time and date at which the license was last used.

- **Active process**
  - Name of the active client process to which the license is granted. The prefix Offline is used to identify extracted offline licenses. Note that in the case of an application server process, the process name may not be displayed permanently.

Set the following variable:

```plaintext
MX_NUL_FULL_USAGE_REPORT=true
```

in the `enovia.ini` file (Windows) or `mxEnv.sh` (UNIX) to ensure that the process name is displayed. For more information about this variable, see the Live Collaboration server documentation.
**Granted at**

Time and date at which the license was granted to the current process(es).

**Max Release Number**

Feature release level authorized by the license. Only licensing clients having a release level lower or equal to this number are allowed. The Max Release Number can be equal to 0. In this case, the license server does not perform any check related to release number: the license can be granted whatever the release level of the licensing client.

**Expiration Date**

Date on which the granted license will expire. If expiring during a session, another license will be automatically granted (if possible). This field is empty for license server levels lower than R2015x.

**Max Release Date**

Client release date authorized by the license. Only licensing clients having a release date lower or equal to this number are allowed.

**Internal ID**

Reserved for internal use.

**Customer ID**

Customer id.

**Casual usage (mn)**

This field is only displayed once a casual license has been granted. It indicates, for the current month, the cumulative casual usage for a given casual license, measured by the license server in minutes, as illustrated:

![Detailed License Usage](image)

N/A is displayed in the field for full named user licenses, indicating that this field is not applicable to full named user licenses. The value in minutes is highlighted in red if the maximum allowed usage duration is exceeded.

**Role of the License Server**

When the license server receives a named user license request, it checks if it is for a full license or a casual license. In the case of casual license, the license server then:

- measures the monthly usage of casual usage named user licenses by named users
- compares the monthly usages with maximum usage duration
- generates monthly reports pointing the over-use (if any).

The license server measures usage only for casual usage named user licenses. It does not measure usage of full named user licenses, concurrent user licenses or token licenses.

In the event of license over-use, the following message is displayed in the casual usage log file:

Usage of XXX (Dassault Systèmes) by YYY in excess of ZZZ mn

and also in the **Server Logs** tab.

**Note:** The month is managed as a calendar month between the 1st of month 00:00 UTC and the last day of month 24:00 UTC. The usage measurement is the same if the calendar month comprises 28, 29, 30 or 31 days or if it contains holidays.

**Monthly Usage Reporting**
At the beginning of every calendar month, the license server generates a usage report. This monthly report file is generated only if at least one active casual usage named user license is enrolled in the license server. It is generated even if no over-use occurred during the calendar month.

All casual usage values in Detailed License Usage dialog boxes on the license server are reset to "0" the following month.

The report is generated at 00h00 UTC. If the license server is not running at this particular moment, the report is generated the next time the license server is restarted.

In case of failover, each member generates the same report. The report files on each of the three members are the same.

Please see File Locations, Settings and Registry Entries for a description of the report's location and contents.

6. This time, start another application (for illustration purposes, LIV) and connect to a data source different from the 3DSpace server (you are not connected to the 3DSpace server), for example by opening a 3DXML file.

You will be prompted to choose the appropriate license using the License Manager tab.

The License Administration Tool box now looks like this:

![License Administration Tool](image)

A license for the product is consumed, so the number in the In use column is incremented by 1.

7. To find out details about the license (who is using the license, what type license it is, etc.) double-click the line containing the appropriate license.

The Detailed License Usage box appears and looks like this (divided into three parts in the following screenshots):

This is the left section showing the user:
and this section shows the active process:

![Detailed License Usage](image)

You will find the same type of information (the license type is NamedUser), except that the user is not a named user (because you are not connected to the 3DSpace Server) but the operating system user. When you exit the session, therefore releasing the license, the number in the **In use** column becomes "0".

8. Then, start the LIV-MDEVPM configuration and log on as DemoReviewer (this time, you are connected to the 3DSpace server as a named user).

The **License Administration Tool** box now looks like this:

![License Administration Tool](image)

The LIV-MDEVPM license is a named user license. The number of LIV-MDEVPM licenses in use is now "1", and the number of CPF licenses in use is now "2" because when DemoReviewer consumes a LIV-MDEVPM license, a CPF license is also consumed.

**Note:** It may occur for a given feature that the numbers in the **In use** and the **Count** columns are identical. This means that no more license are available. When this is the case, the corresponding line is highlighted in bold.
9. Double-click the line containing the LIV-MDEVPM license.

The Detailed License Usage box appears and looks like this:

Which License is Served to a Client When Several Licenses Can Satisfy the Client Request?

A license key contains several fields. When a licensing client requests a license, it passes several parameters to the license server, such as the feature name for example.

When several licenses with different fields can satisfy the request, the license server must decide which license will be granted.

First, the license server performs filtering based on the following criteria:

- the license must be active:
  - Start Date < current date < End Date
  - the highest valid Group Index is taken into consideration.
- the remaining available quantity must be higher than 0
- the Editor ("Dassault Systemes V5" for example) must match the client request
- the Feature (MD2 for example) must match the client request
- the Model ( ConcurrentUser for example) must match the client request
- the Max Release Number must be 0 or must be higher than or equal to the Release Number passed by the client
- the Max Release Date must be higher than or equal to the Release Date passed by the client
- the Commercial Type must match the client request (if passed)
- the Customer ID must match the client request (if passed)
- authorization rules (if any) must be satisfied.

Then, the license server performs sorting based on the following criteria:

1. Commercial Type: STD, then EDU, then DEMO
2. then, Max Release Number: from the lowest to the highest (0 is considered as infinite)
3. then, Max Release Date: from the lowest (the more distant in the past) to the highest (the more distant in the future)
4. then, Additional Info:
   - from the lowest number of fields to the highest number of fields
   - then, from the lowest string to the highest string (locale alphanumeric order).
5. then, End Date: from the highest (the more distant in the future) to the lowest (the nearest in the future)
6. then, File Index: from the lowest to the highest (for a given License ID)
7. then, Generation Date: from the highest (the less distant in the past) to the lowest (the more distant in the past).
The license granted is the one on top of the filtered sorted list. When an in-use license expires or belongs to a Group Index which becomes superseded, the license server tries to silently grant another license, using the same algorithm. If no license can be granted, the client will be informed at its next heartbeat.

**Recycling Named User Licenses**

This section describes how named user licenses are consumed and the steps you must take to recycle them when you need to reassign them to other users.

If you do not have any named user licenses, you may want to hide this tab by going to the View menu and unchecking License Recycling.

Named user licenses are consumed immediately when a user starts a session, remain consumed after the user logs out, and continue to be consumed until the license expiration date.

The need occasionally arises, under exceptional circumstances (for example, when employees leave the company), to unassign licenses to sever the tie between these employees and licenses assigned to them, and reassign the licenses to another user.

When a named user license is recycled, the license server removes the link between a given named user license and a given named user. After recycling, the named user license is no longer tied to a specific user but is available for any user (including the previous user).

The Live Collaboration Server-side Assign Licensing by Product tool (discussed in the Dassault Systemes Licensing Essentials Guide) is used to assign licenses to and unassign licenses from users, but this may not be sufficient in some cases (if the 3DSpace server cannot contact the license server, for example).

The licenses can also be recycled on the license server. This is the role of the Recycling tab which allows you to recycle named user licenses only.

1. Select the Recycling tab.

   **In the rest of this section, the product license trigrams used are totally fictitious and do not exist, and are used for illustration purposes only.**

   In this example, several named user licenses have been granted:

   ![Image of a screen showing named user licenses]

   A tool tip is displayed on the vertical scrollbar to display the total number of lines and the range of lines displayed.

   **Note:** Since they cannot be manually recycled, casual usage named user licenses do not appear. At the beginning of every month, the license server automatically recycles all casual usage named user
licenses. If a casual usage named user license is in use at that moment, recycling of that license is
cancelled for this month for this user.

2. To recycle a license, double-click the line containing the license for user DemoReviewer, or right-click
the line and select the recycle licenses command.

You are prompted to confirm:
Do you really want to recycle named user licenses granted to DemoReviewer on server lw5sesdsy?

Click Yes or No. If you click Yes, another dialog box informs you that all the licenses for the selected user
on the selected server will be recycled.

\textbf{Note:} It is not possible to recycle simultaneously licences for several users.

3. Click OK.

The license may or may not be recycled. If it cannot be recycled, another dialog box appears with a message
like this:
Licenses granted to DemoReviewer on server lw5sesdsy were not recycled: CPF is locked until 8/4/13 7:24
PM LIV-MDEVPM is locked until 8/4/13 7:24 PM

If the user did not close the session, you will be informed that the user's licenses are locked by a running
process.

4. Click OK to exit.

\textbf{Note:} You can configure your license server to automatically recycle named user licenses which have
not been used for at least 30 days. For more information, see the \textit{Enable Automatic Recycling} option.

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\section*{Setting License Authorization Rules}

This section describes how to set up license authorization rules for concurrent user licenses, token licenses and
named user licenses for users or machines.

Concurrent user licenses can be shared among users and are not tied to specific users. Certain licences can be
sold as shareable, which can be granted and released, for example, during a session using the \textit{Shareable Products}
tab. Shareable licenses comply with the Concurrent User Licensing model and are network licenses served by
the DS License Server. By default, concurrent user licenses can be used without prior authorization by the DS
License Server.

Token licenses are similar to concurrent user licenses. The main differences are that a token cannot be shared
by several client processes (even running on the same computer), and that several tokens can be granted to a
given client process.

Named user licenses are typically granted to users managed by the 3DSpace-side Platform Management
or \textit{Manage My P&O and Content} tools, or by the \textit{Assign Licensing by Product} command.
However, in certain cases, you may need to enforce an additional stricter level of license control of named user
licenses on the DS License Server. To do so, you can optionally set authorization rules for named user licenses.

\textbf{Note:} A license authorization rule for a specific named user license takes precedence over license
assignments made on the 3DSpace server. This mechanism is particularly useful when you have several
instances of a 3DSpace server and a single DS License Server. In this case, for example, the number of
potential named users declared on the 3DSpace server instances (and to whom licenses are assigned) may
exceed the number of licenses available. Centralizing named user license rules on the single DS License Server will enable you to enforce exactly the number of licenses granted to your company.

However, when managing authorization rules for a pre-V6R2012x license server, a License Administration Tool cannot manage named user licenses. When upgrading the DS License Server, existing authorization rules are automatically set to the concurrent user model.

The role of the Authorizations tab is to set authorization rules for licenses. There are four types of rules:

- **Allow**: authorize users or groups of users, computers or groups of computers, IP ranges and IP range groups to use licenses
- **Deny**: deny authorization to the above
- **Reserve**: reserve a given quantity of licenses for a list of users, computers or IP ranges
- **Limit**: limit a list of users, computers or IP ranges to a given quantity of licenses.

Only one rule type can be applied to a given license.

1. Select the Authorizations tab.
   
The license servers available are listed to the left (highlighted in red). The list to the right contains the enrolled licenses classified first by editor, then by license model (Concurrent User, Token, Named User), followed by license feature then license id.

   Our example illustrates separate sections for both concurrent and named user licenses you can authorize or deny for the selected license server. For example, the concurrent licenses enrolled on the server for M3D for the editor Dassault Systemes are visible, along with a number of named user licenses:

2. Right-click in the space below Users/Hosts/IP Ranges and select the Add command to create a User, Host or IP Range.

   The New User/Host/IP Range dialog box appears:
When the licensing client you are using is connected to the 3DSpace, the user name is the P&O login name. When the client is not connected, the user name is the operating system login name.

3. Enter the name and check the appropriate option for what you are creating: user or host name, then click OK.

   **User or Host**  
   Enter the user name or host name.

User and host names are case-insensitive, whatever the input method (by the GUI, command line mode or XML file). For example, "Bob" and "BOB" are considered to be the same user. When entering user names and host names, all characters are converted to lowercase.

If upgrading from an existing DS License Server, user names and host names are migrated to lowercase. Whenever migration leads to a collision (for example, "BOB" and "Bob" are both migrated to "bob"), only one set of rules is kept, randomly. Behavior was unpredictable anyway.

Note that group names can still contain uppercase characters.

A host name cannot contain the "." character. For FQDN host names, the comparison is performed with the very first part of the hostname. Note that:

- you cannot enter a "." using the GUI
- a name truncated at the first "." in command line mode, when using an an XML file, or when migrating from a previous DS License Server level.

In our example, the **User/Host Definition** field contains two users (administrator and demodesigner):
Enter the IP range name. This is slightly different from the user/host names because for IP range the name and the value are different.

Then click the **IPRange** button to display the following:
Declare the IP ranges by clicking either the Classless Inter-Domain Routing button or the IPv4 or IPv6 range button:

- Classless Inter-Domain Routing (CIDR)
  Example: 127.0.0.1/32 is an individual IPv4 address in CIDR notation
  fd00::/10 is a range of IPv6 addresses in CIDR notation.

- IPv4 or IPv6 range (classful network)
  Example: 10.232.0.0-10.232.255.255 is a range of IPv4 addresses in classical notation.

4. Click on the symbol next to the M3D license. Do not select the individual license id if the imported license is a license group (which is nearly always the case). Then, right-click and select the Add new rule - Allow command.

Click Yes when asked to confirm.

The Rule properties dialog box appears:
Note that you can select multiple lines for creating the same authorization rule for several licenses in one shot.

**Select the type:** Select the type: User, Host, IPRange, User Group, Host Group, or IPRange Group.

**Choose the name:** Click and choose the User, Host, IPRange, User Group, Host Group or IPRange Group name.

5. To authorize the user we created to use the M3D license, select the type, choose the name, click the **Add** button then click **OK**.

The **Authorizations** tab now looks like this:

![M3D - Rule properties](image)

The M3D license is now highlighted in green, signifying that a rule has been created allowing the user to use the license.

If a user other than the authorized user attempts to log in, the following message is displayed:

No license available at this time for this product.
Click OK and a second message appears confirming that the license is not authorized, for example:
Failed to request license for M3D version: 10 or higher) Error: License not authorized for this user License server configuration file path: C:\ProgramData\DassaultSystemes\Licenses\DSLicSrv.txt (default path) List of license servers: [01/01] lw5ses1dsy:4085 OK: License server is running

6. To cancel the rule, click the M3D license and select the Remove rule command.
   When prompted, confirm that you want to remove the rule by clicking OK. The M3D license is no longer highlighted in green.
   You can multi-select several rules for deletion.

7. To deny authorization, click the M3D license and select the Add new rule - Deny command. Select the type, choose the name, click the Add button then click OK.
   The Authorizations tab now looks like this:

   ![Authorizations tab example](image)

   The M3D license is now highlighted in red, signifying that a "deny" rule has been created.
   Click the user name and select the Properties command to display the user properties:

   ![User properties example](image)

   If the user then selects the Shareable Products tab in a client session and tries to reserve the license for M3D, a popup message appears:
   No license available at this time for this product
   Click OK and a second popup message appears confirming that the license is not authorized:
   Failed to request license for M3D (version: 10 or higher) Error: License not authorized for this user License server configuration file path: C:\ProgramData\DassaultSystemes\Licenses\DSLicSrv.txt (default path) List of license servers: [01/01] lw5ses1dsy:4085 OK: License server is running
   If you click the Server Logs tab and scroll the log, you will see a message like this:
2014/08/07 18:04:40:402 W LICENSESERV M3D not granted, user administrator not authorized (from client LW5SES1DSY (42721022FAFE292A-0ae84648.0):administrator:administrator:C:\Program Files\Dassault Systemes\B418\win_b64\code\bin\3DEXPERIENCE.exe)

Note:
You can also set Allow and Deny authorization rules directly on the Editor name: Dassault Systemes, Dassault Systemes V5 or Dassault Systemes V4. This type of rule acts as a preliminary filter: the other rules set on the feature name or LicenseID are also taken into account, but only after the rule on the Editor has been processed. These rules are also applied to offline extraction. However, you cannot activate offline controls: keyword and maximum extraction duration cannot be set at the Editor name level.

When an Allow rule is set, the Editor name icon appears with a green background:

![Dassault Systemes ConcurrentUser]

When an Deny rule is set, the Editor name icon appears with a red background:

![Dassault Systemes ConcurrentUser]

8. To create a group, right-click in the space below Group definition and select the Add command.

The Create new group dialog box appears:
**Note:** Note that operating system user groups are not supported.

a. Enter a name for the group.

b. Check the **User, Host or IPRange** option.

c. Select the user or host name or IP range, then click the **Add>>** button and click **OK**.

The group is created. Click the group name and select the **Properties** command to display the group's properties:
9. You can also copy user, host and group definitions and rules to another license server by clicking the appropriate item and selecting the Copy to server command.

10. Click on a user, host, user group or host group and right-click to select the Remove command to delete the object.

Contrary to V6R2014 and previous levels, you can delete a user, host, IPRange, user group, host group or IP range group even if it is referenced by a rule or belongs to a group. This behavior avoids modifying all rules tied to a user/host/group/IP range before deleting this user/host/group/IP range. When deleting the latter, the rules and groups which become empty (if any) are also deleted.

11. To reserve a quantity of licenses, click the M3D feature and right-click to select the Add new rule - Reserve command.

   The Define a rule on the feature dialog box appears:
Select the type: Select the type: User, Host, IPRange, User Group, Host Group, or IPRange Group.

Choose the name: Click and choose the User, Host, IPRange, User Group, Host Group, or IPRange Group name.

Quantity of licenses: Specify the number of licenses to reserve.

Select the type, choose the name, specify the quantity of licenses then click the Add button then OK.

The Authorizations tab now looks like this:

The M3D license is now highlighted in blue, signifying that a "reserve" rule has been created.

12. Right-click a license feature in the tree on the right to access the Control offline command.

Select the command to display the Extract offline license configuration dialog box:
which allows you to set the maximum extraction duration, keyword protection and additional rules.

Licenses can be extracted for a maximum duration of 30 days in all cases. You can decide to reduce the maximum duration for offline extraction of a given license feature, from 30 days (default) to 0 day, by 1-day increments. When set to 0, offline extraction is prevented for this license feature.

End users then attempting to extract the offline license from the licensing client side for a license feature controlled by a rule will only be able to extract the offline license for the duration specified in the rule.

When an offline restriction is set, the following icon is displayed: 

When both an authorization rule and an offline restriction are set, the previous icon is displayed with the colored background matching the rule type. For example, in the case of an ALLOW rule:
You can also associate a keyword to each license feature using the **Extraction keyword** field. When a license is protected by a keyword, the end user has to enter the keyword on the licensing client side.

Keywords are not passwords: they are not encrypted. They appear unscrambled in several places, for example in the XML file containing the authorization rules.

You can also set standard allow and deny authorization rules for fine-tuning offline extraction restriction. In the dialog box, the choices are:

- **None**: by default, there are no restrictions.
- **Allow**: offline extractions are granted only to the selected User, Host, IPRange, User Group, Host Group or IPRange Group. Click the **Define rule** button to define the rule using the standard method.
- **Deny**: offline extractions are denied only to the selected User, Host, IPRange, User Group, Host Group or IPRange Group. Click the **Define rule** button to define the rule using the standard method.

The Allow/Deny authorization rule for restricting the offline extraction is the third level filter:

- if a rule is set on the EditorID, then it must be satisfied
- if so, if a rule is set on the Feature or the LicenseID, then it must be satisfied
- if so, the rule on the offline extraction is checked at this step
- If this new check is successful, then the user has to enter the keyword if one has been set by the license server administrator.

When a license has expired or has been deleted, the above controls are kept (if they had been set) by the license server and appear as ghost controls, as for ghost authorization rules.

As for rules, ghost offline restrictions can appear at the bottom of the tab:

![Ghost rule(s): PRG X LIV-MDEVP1](image)

![Ghost offline(s): ABC X LAL X](image)

**13.** To ensure that either a list of users or a list of hosts cannot consume more than a limited quantity of licenses, proceed in the same way, this time by selecting the **Add new rule - Limit** command.

**Note:**

Mixing users and computers or users and IPRanges is not allowed for RESERVE and LIMIT rules. It is only allowed for ALLOW and DENY rules. In this case, if both users and hosts are declared, then both are checked when granting a license. For example:

- **ALLOW** USER1 and HOST1: only USER1 on HOST1 will obtain the license
- **DENY** USER2 and HOST2: USER2 cannot obtain the license whatever the computer. No user can obtain the license if logged onto HOST2.

The **Authorizations** tab now looks like this:

![Authorizations tab](image)
The M3D license is now highlighted in brown, signifying that a "limit" rule has been created.

Here is an example to illustrate RESERVE and LIMIT rules:

Let's assume there are 100 licenses of ABC enrolled in a license server, and that you create a group of users composed of 25 members:

- If you reserve 12 ABC licenses for this group, then you guarantee that at least 12 members of the group can obtain an ABC license. The remaining 25-12=13 members can obtain or not a license depending on the consumption of the 100-12=88 non-controlled licenses. With this rule, a maximum of 88 users not belonging to the group can obtain a license, even if no group member consumes any license.
- If you limit to 12 ABC, then only 12 members of the group can obtain a license. The remaining 25-12=13 members cannot obtain one of the 100-12=88 other licenses, even if some of them are not consumed. With this rule, 100 users not belonging to the group can obtain a license, if they are not consumed by any member group.

**How to prevent users or hosts not declared in a license authorization rule from acquiring licenses**

A situation may arise in which all the licenses you have acquired have not yet been assigned to existing users/hosts by existing authorization rules. As long as this situation continues, you may consider that there is a risk that users/hosts not referenced by a license authorization rule may acquire licenses.

Consequently, you may wish to be able to partition both existing licenses and licenses purchased in the future in an authorization rule. Using this technique, each declared user/host group will only be granted a specific number of licenses which cannot be used by any other users/hosts.

To illustrate this mechanism in a concurrent user license context, let's assume you have the following users: A,B,C,D,E,F,G,H,I,J,K,L. You want to partition the users into 3 groups: A,B,C in Group1 sharing only one license, D,E,F in Group2 sharing two licenses, G,H,I in Group3 also sharing two licenses. You want to deny access to users J,K,L. The license name is XXX, and you have purchased 10 licenses.

The solution is as follows:

1. create a RESERVE rule for Group1, quantity=1
2. create a RESERVE rule for Group2, quantity=2
3. create a RESERVE rule for Group3, quantity=2
4. create dummy group DummyGroup and create a RESERVE rule linked to DummyGroup, quantity=5.
As a result, the remaining 5 licenses are assigned to the dummy group containing no users, so users J,K,L will be denied access to any licenses since they are not referenced by any license authorization rule.

The authorization rules you just set up will be sufficient until you purchase and enroll additional licenses. So yet again there will be a risk that they can be granted to anyone not referenced in the rule. The solution is to reset, once and for all, the quantity of licenses assigned to the dummy group to an exceedingly high number which by far exceeds the number of licenses that you will ever purchase (for example, 1000). Using this technique, even the new licenses will be denied to users/hosts not referenced by the rule, and you will not have to edit the rule each time you add additional licenses.

The fourth RESERVE rule in this context would then be, for example: create a RESERVE rule for DummyGroup, quantity=1000.

To illustrate this mechanism in a named user license context, let's assume that 70 licenses for ABC have been enrolled. You could create the following RESERVE rules:

- reserve 30 ABC licenses for HostA: HostA users are granted access to 30 ABC licenses
- reserve 30 ABC licenses for HostB: HostB users are granted access to 30 ABC licenses
- reserve 1000 ABC licenses for a non-existing dummy host, for example named "NonExistingHostName": nobody (including HostA/B) can use the remaining 10 ABC licenses (70-30-30=10), because firstly the number of licenses reserved is greater than the number of currently enrolled ABC licenses, and secondly because in any case nobody can log onto host "NonExistingHostName" which of course does not exist.

The rule must be modified to enable anybody else to use the 10 ABC licenses and any future licenses.

Note: The number of reserved licenses can be greater than the number of enrolled licenses not only when a RESERVE rule has been configured this way, but also for example when some licenses expire after the RESERVE rule has been configured.

14. To set a rule for a named user license, proceed in the same manner.

When you assign a rule to a named user license, this rule takes precedence over all assignments for the same license made on the Live Collaboration Server.

Let's take the following example.

User1 is granted access (on the Live Collaboration Server) to the named user license for the feature LIV-MDEVPM (this feature is just an example and does not exist).

You then set an ALLOW authorization rule (on the DS License Server) granting User2 (who must previously have been declared as a named user in the P&O database on the Live Collaboration Server) access to the named user license for the feature LIV-MDEVPM.

The result is as follows:

- User2 can use the feature LIV-MDEVPM
- User1 CAN NO LONGER use the feature LIV-MDEVPM: the reason is that an ALLOW-type authorization rule has now been set for this feature on the DS License Server side. This rule grants the feature license to ONLY User2. And even though User1 was previously granted access via an Live Collaboration Server-side tool, the authorization rule takes precedence. If User1 attempts to log on, the following message will be displayed: No license assigned to this user


**Note:**

If a license is removed or expires, and a rule had been assigned to that license, the rule is not deleted. It becomes a *ghost rule* and is displayed in the lower right-hand corner:

![Ghost Rule](image)

This allows the administrator to avoid having to create the rule again if a new license is added. To display the properties of the ghost rule, click on its name. To remove the ghost rule, click the red icon.

**Note:**

In the case of named user licenses, if you add a rule after some licenses have already been granted to named users, then you may have to manually recycle them.

In example 1, let's assume that named user ABC license is granted to Steve:

1. Add a rule DENY Steve on ABC.
2. Steve can no longer use ABC, but the ABC license cannot be used by someone else.
3. You have to recycle Steve's licenses.

In example 2, let's assume that there are 10 named user XYZ licenses and that 2 of them are granted to Alan and Barbara:

1. Add a rule RESERVE 9 XYZ to UserGroup1. (Alan and Barbara don't belong to UserGroup1).
2. Alan and Barbara can still use XYZ and only 8 users of UserGroup1 can use XYZ.
3. You have to recycle either Alan's or Barbara's licenses.

15. Edit an authorization rule to monitor the number of licenses consumed by the user, user group, host, host group, IP range or IP range group linked to the rule.

In this simple example, we created an ALLOW rule for the user plmadm on the LIV-MDEVPM feature. To edit the rule, click on the rule and right-click to select the *Edit rule* command. The *Currently consumed* column specifies that one LIV-MDEVPM license has been consumed by user plmadm:
Note: The term "currently consumed" means that the license has been granted to the user and the licensed process has been effectively executed at least once, in particular for named user licenses: it does not mean that the licensed process is being executed at the same time as you edit the rule. The Currently consumed column is not displayed when setting a rule, only when editing a rule.

In the following example, we created a user group named MyGroup (containing the users demoreviewer and administrator), and created a rule reserving five licenses for the group. The Currently consumed column specifies that one LIV-MDEVPM license has been consumed by a member of the group:
The list may also contain several lines. For each line (corresponding to a user, a host machine, a group of users or a group of host machines), the number of licenses currently consumed is displayed.

The number displayed is the number of licenses, even if the rule is declared for host machines. For example, this number can be very high for only one host machine declared in the rule, if the host machine is an application server hosting a 3DSpace server.

When the number is red, it means that the rule is not enforced. This can happen when the rule has been applied after a named user license has been previously granted to a named user.

For example, in the following LIMIT rule related to the IFW license, the following rules have been set: 100 IFW maximum for GroupA and 2 IFW maximum for GroupB. 2 IFW are consumed by GroupA and 4 IFW are consumed by GroupB:
“4” appears in red, because it is a case of over-use: the rule limiting to 2 has been set after the 4 named user IFW licenses have been granted to 4 named users.

For a DENY rule, usually the number is equal to 0. However, if it is not the case it is displayed in red.

When a name is present in a rule as an individual item and also as a member of one or several groups, then only the individual declaration is taken into account by the rule.

For example, if Oliver belongs to UserGroup1 and a RESERVE rule is defined as 1 license for Oliver and 4 licenses for UserGroup1, we consider that Oliver was not a member of UserGroup1: when a license is granted to Oliver, 4 licenses are still reserved for other members of UserGroup1.

When a name is present in several groups (and not as an individual item), only the group having the lowest alphabetical name is taken into account by the rule.

For example, if Oliver belongs to UserGroup1 and UserGroup2, and a RESERVE rule is defined as 10 licenses for UserGroup1 and 15 licenses for UserGroup2, we consider that Oliver was not a member of UserGroup2: when a license is granted to Oliver, only 9 licenses are now reserved for other members of UserGroup1, but 15 licenses are still reserved for other members of UserGroup2.

When a user uses the same license from several computers, only the last grant is taken into account by the rule. This can happen when a named user uses IFW from several application servers: the last computer will be used in the rule.

For example, if a LIMIT rule is defined as 10 licenses for Computer1 and 15 licenses for Computer2, and Oliver logs on to Computer1 then on to Computer2 while staying logged on to Computer1, the same IFW license is granted to Oliver but it is first counted among the 10 licenses for Computer1 then, when Oliver logs on to Computer2, counted among the 15 licenses for Computer2 (and no longer among the 10 licenses for Computer1).

You can also monitor license usage by connecting to the license server in command-line mode then running the `getLicenseUsage` command. For each license currently consumed, if the license has been granted by an authorization rule, the individual name or group name will be displayed in the authorization item field.

In our example in which we created the group MyGroup, the `getLicenseUsage` command returns the following information:

```
Dassault Systemes (5E756A80-1C80-478D-B83A-1DS913677621)
.....
IFW maxReleaseNumber: 17 type: NamedUser count: 11 inuse: 2 customerId: DSFRA123
internal Id: PLMADM granted since: Jul 5, 2014 6:45:30 PM last used at: Jul 5, 2014 7:29:58 PM by user: PLMADM on host: WIN-KNKSL07ILFV (FFFFFFFFFFFFFFF-c0a81f80.0)
internal Id: demoreviewer granted since: Jul 5, 2013 7:24:02 PM last used at: Jul 10, 2014 10:32:50 AM by user: demoreviewer on host: WIN-KNKSL07ILFV (FFFFFFFFFFFFFFF-c0a81f80.0)
...
internal Id: demoreviewer granted since: Jul 5, 2014 7:24:15 PM last used at: Jul 10, 2014 10:02:50 AM by user: demoreviewer on host: WIN-KNKSL07ILFV (FFFFFFFFFFFFFFF-c0a81f80.1)
authorization item: MyGroup
...
```

16. Display or edit the properties of a user/host/IPrange, a group or a rule by either double-clicking on it or right-clicking then selecting Properties or Edit.
Note: When a licensing client requests a license, the license server checks the authorization rules before granting the license. Later, the client can check that the previously granted license is still granted by the license server. At this moment, the license server checks only the ALLOW and DENY rules, but not the RESERVE and LIMIT rules. Consequently:

- if the license server administrator added, changed or removed an ALLOW or DENY rule during the client session, then the client can receive a KO, but
- if the license server administrator added, changed or removed a RESERVE or LIMIT rule during the client session, then the client cannot receive a KO for this reason.

Importing and Exporting License Authorization Rules

This section explains how to back up license authorization rules and corresponding data (users, hosts, groups) by exporting the data to an XML file, and how to import an XML file containing previously backed up authorization data.

Export Authorization Rules

1. Select the Authorizations tab.

A toolbar is located in the top right corner of the tab:

![Toolbar Image]

The toolbar looks like this:

![Toolbar Image]
The first two buttons, from left to right (Export and Reset) are grayed out because at this stage you do not have any authorization data to export. However, the Import button is activated since you can at least import authorization data backed up in an existing XML file.

2. Create some users, hosts, IP ranges and/or groups, and create some authorization rules linked to the data you created (as explained in Setting License Authorization Rules).

Once you have created all the data and rules, all the icons are activated like this:

3. Click the Export button and specify a file name in the dialog box displayed to save the file to XML format.

The XML file is structured as follows, for example:

```xml
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
  <users>
    <user id="1">anna</user>
    <user id="2">bob</user>
    <user id="3">chuck</user>
  </users>
  <usergroups>
    <usergroup id="1">
      <name>UsrGroup1</name>
      <user id="1"/> <!-- anna -->
      <user id="2"/> <!-- bob -->
    </usergroup>
  </usergroups>
  <hosts>
    <host id="1">computera</host>
    <host id="2">computerb</host>
  </hosts>
  <hostgroups>
    <hostgroup id="1">
      <name>ComputerGroup</name>
      <host id="1"/> <!-- computera -->
      <host id="2"/> <!-- computerb -->
    </hostgroup>
  </hostgroups>
  <ipranges>
    <iprange id="1" cidr="10.232.0.0/16">local10232</iprange>
    <iprange id="2" range="192.168.0.1-192.168.0.255">local1921680</iprange>
    <iprange id="3" cidr="127.0.0.1/32">localcomputer</iprange>
    <iprange id="4" cidr="fd00::/10">localipv6</iprange>
  </ipranges>
  <iprangegroups>
    <iprangegroup id="1">
      <name>localgroupipv4</name>
      <iprange id="1"/> <!-- local10232 -->
      <iprange id="2"/> <!-- local1921680 -->
      <iprange id="3"/> <!-- localcomputer -->
    </iprangegroup>
  </iprangegroups>
</authorizations>
```

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Note: The <authorizationlist> tag can appear directly under the <editor name> tag and not only under the <feature name> tag.

Import Authorization Rules

1. Before importing authorization data, decide whether or not to remove the existing authorization data on your license server.

Removing existing authorization data guarantees that the result will be exactly the content of the imported file. If you do not remove it, you will be prompted to merge manually the imported data with the existing data.

Click the Reset button and click OK when prompted to remove existing data if required.
2. To import authorization data, click the Import button and use the dialog box to select an XML file to import.

If you removed existing authorization data from your license server, the imported data simply replaces it. For example, importing the example XML file above creates the following rules illustrated below:

![Diagram showing rules created by importing XML file](image)

3. If required, edit the original XML file you imported.
   For example, declare new user Chuck, and remove the rule linked to the ENG license.

   Use your favorite XML tool to reference the following XSD file:
   `DSLS_installpath\OS\resources\xsd\DSLSAuthorizations.xsd`
   to parse the XML file and validate its structure and syntax.

5. Re-import the file.
   This time, because you did not remove the existing authorization data from your license server, a dialog box will be displayed prompting you to merge the existing and imported data:
Expand each highlighted node to see the full details:

6. Resolve the merge.
The role of each column is as follows:

**Structure Compare**

The Structure Compare column provides a synthetic view resulting from the comparison of the existing and imported data, in the following order:

- user definitions
- host definitions
- IPRange definitions
- user group definitions
- host group definitions
- IPRange group definitions.

Note that:

- a red item with a warning symbol indicates that something is different
- a red item with a "+" symbol indicates that something has been added
- a red item with a "-" symbol indicates that something has been removed.

**Server Authorizations**

The Server Authorizations column lists the existing server authorizations for each category.

**Imported Authorizations**

The Imported Authorizations column highlights in blue the imported authorizations.

Navigate to the next or previous difference using the up and down arrows. Click the left arrow to accept the highlighted difference.

In our example, the line "chuck" is highlighted in blue. It is highlighted because it is the first difference. Click the down arrow to navigate then, for example, to the rule linked to the ENG license (which has been removed), then to the other rules.

In our example, user "chuck" is highlighted in the Structure Compare and Imported Authorizations column because it is the first difference detected. The "+" symbol on the rule chuck in the Structure Compare indicates that the definition has been added.

To accept this first difference, click the left arrow; in this case, the user "chuck" is added to the Server Authorizations column, and the "+" symbol is removed.

Click the down arrow to navigate to the next difference detected, and click the left arrow each time if you accept the new rule.

All text in red becomes black once you accept the difference.

7. Click **Apply** or **OK** to accept the changes.

The updated data is then displayed in the Authorizations tab.

In our example, the user "chuck" has been added, and the rule has been removed from ENG:
Getting Information About the Authorized Country of Use for Licenses

The Geolocation tab identifies for a given license server the country in which the licenses enrolled on the server are authorized, not the country in which the licenses are really being used.

1. Select Start - (All) Programs - DS License Server - License Server Administration to launch the License Administration Tool if it is not already launched.
2. Connect to the server.
3. Click the Geolocation tab, then select if necessary the desired server.

The Geolocation tab looks, for example, like this:
4. Zoom in on the world map by left-clicking and dragging a box around the region you are interested in.

The symbol identifies a country for which licenses are authorized:
The country is the one indicated in the **Customer Country** column in the **License Administration** tab. Zooming on France displays the following:
5. Point to the symbol to obtain additional information:
This displays:

- the authorized country
- the name of the license server on which the licenses are enrolled
- the number of licenses.

6. Click the symbol to the right to reframe the map.

7. Click the symbol to toggle to be able to move the map by dragging it.

8. To return to zoom mode, click the symbol.
Tracking License Server Operation

This section presents the tools and techniques used for tracking license server operation.

Tracking License Statistics

Different types of license statistics are available using the Statistics tab.

1. In the Server Configuration dialog box, accessible when viewing your license server properties, check the Enable license usage statistics option.
2. Select the Statistics tab.

3. Check the check box for the name of the license server:
   This displays the statistics tools for the selected server:
4. Use the **Sort by:** pull-down list to select how the license statistics are presented in the chart:
   - **Name** License statistics are presented according to the feature name (this is the default and is illustrated above).
   - **Number of In Use Licenses** The features for which the highest number of licenses is currently being used are presented at the top of the list.
   - **Number of Available Licenses** The features for which the highest number of licenses are available are presented at the top of the list.
   - **Percentage of In Use Licenses** The features for which the highest percentage of licenses are currently being used are presented at the top of the list.

5. Use the **Model:** pull-down list to specify the models of licenses for which you want to view statistics:
   - **Any** No filter is applied: all licence models are displayed.
   - **Named user** Only named user license statistics are displayed.
   - **Concurrent** Only concurrent user license statistics are displayed.
   - **Token** Only token license statistics are displayed.

6. Use the **From:** pull-down and navigate to specify the month when license usage statistics logging is started.
   - By default, the starting month is the current month of the preceding year.
   - You can extend (but not shrink) this one-year period by specifying the starting month of the statistics to be logged.
   - Use the << and >> symbols to select the year. Use the < and > symbols to select the month.

7. Check the **Display all** checkbox if required.
This checkbox will help you avoid losing statistical information about expired licenses which are not renewed. By default, only features with licenses which are still valid are displayed in this tab.

However, checking this check button displays features whose licenses have expired or have been deleted. Activating this option is CPU-intensive since it consumes a lot of resources on the server side, and consequently has to be used with caution.

You can use this possibility with the From: pull-down, keeping in mind that the further back logging begins, the more resources are consumed on the server.

The minimum duration is 12 months.

8. Use the Editor: pull-down list to specify the editor of licenses for which you want to view statistics:

   - **Dassault Systemes**
     Only Dassault Systemes 3DEXperience license statistics are displayed.

   - **Dassault Systemes V5**
     Only Dassault Systemes V5 license statistics are displayed.

   - **Dassault Systemes V4**
     Only Dassault Systemes V4 license statistics are displayed.

9. Analyze the statistics.

   Whichever way you filter the results, named user licenses are represented by a solid light grey chartbar, and concurrent user licenses by a light grey chartbar with stripes. A three-letter code for the license is displayed, alongside figures specifying the number of licenses used/total originally available, for example: IFW : 1/11

   When licenses are currently being used, a section of the chartbar proportional to the percentage of total licenses being used for a given feature is displayed in green.

   An increasing percentage of license usage will change the color of the chartbar. Here is a list of the colors used and the percentages:

   - Green: less than or equal to 75%
   - Orange: between 75% and 90%
   - Red: greater than or equal to 90%.

10. Point to the chartbar to display a magnifying glass which in turn displays information about the licenses.

    Three numbers are displayed for each feature:

    - the number of currently used licenses (1 in the example below)
    - the total number of currently valid licenses (11 in the example below)
    - the percentage of licenses currently used (9% in the example below).

11. Click the chartbar.

    Another dialog box opens displaying month-by-month statistics.

    The dialog box displays license usage statistics over the past 12 months or more, depending on the From: value you set. Click the chartbar for the desired month for daily information about license usage for a specific license. Click again for hourly information.

    A tooltip containing detailed data is displayed when mousing over the vertical chartbar, for example:
July 2014: 21 licenses used, 4600 total

The green section represents the maximum usage rate for the given period, and not the maximum used. For example, the following two statistics imply different maximum usage rates:

July 2014: 21 licenses used, 4600 total
July 2014: 23 licenses used, 5200 total

The maximum usage rate is the ratio of licenses used over the total number of licenses: the highest value is always used (the first line in the above example).

The results may be unpredictable for the periods during which the server was stopped.

Note: The main section of the Statistics tab reports the licenses currently in use, at the present moment. So the numbers displayed in this panel can go up and down, depending on instantaneous usage. When you click on a specific license (using the chartbar), you enter the historical mode, with vertical chartbars for monthly, daily or hourly usages. This provides access to the maximum usage for the given period.

Tracking Server Logs

You can consult license server logs using the Server Logs tab.

1. Select the Server Logs tab.

The tab looks like this:

![Server Logs Tab Example]
Ctrl-F allows searching in the log.

Clicking at the top of the column headers allows you to sort the lines by timestamp, severity, type or message.

2. Specify the dates from when and until when you want to view log information, and select the server:

The exact moment corresponding to the From : date is at 00H01 local time (time zone) of the computer on which the License Administration Tool is running.

The exact moment corresponding to the To : date is at 23H59 local time (time zone) of the computer on which the License Administration Tool is running.

However, time values displayed are formatted according to the local time (time zone) of the computer on which the license server is running.

The From : date value (respectively To :) is automatically set to the To : date value (respectively From :) if the To : date value (respectively From :) is manually set to a value lower (respectively higher) than the current From : (To :) date value.

Every event is time-stamped.

The log contains:

• information (identified by the letter I) about license server events such as starting and stopping the server, enrolling licenses, etc.
• warning messages (identified by the letter W) displayed in blue
• error messages (identified by the letter E) displayed in red

organized into categories, each describing a specific area being monitored. For a full list of categories, see Error, Information and Warning Messages

In the case of a failover cluster, each member has its own log files.

If you activated the License usage tracing... option in the Server Configuration dialog box, detailed traces of license request and detach operations and timeouts will be logged.

Detailed monitoring of license usage is available with the USGTRACING category. The messages comprise 13 fields separated by the character "!":

• Field 1: Action; The possible values are:
  - Grant: the license server has received a license request from a client, and the license server has granted a license
  - Detachment: the license server has received an end-of-use event from a client, and the license server has then detached the license.
  - TimeOut: the license server has not received a still-alive (heartbeat) event during the expected period, and the license server has then detached the license.

Note: Detaching of licenses granted to the 3DSpace server is not traced by default. Instead, timeouts appear for these licenses unless you set the following variable:

```
MX_NUL_FULL_USAGE_REPORT=true
```

in the enovia.ini file (Windows) or mxEnv.sh (UNIX). For more information about this variable, see the 3DSpace server documentation.
- **Extraction**: the license server has received a license offline extraction request from a client, and the license server has granted an offline license
- **Return**: the client has returned an offline license
- **Recovery**: the offline extraction duration has ended.

- **Field 2**: Offline extraction duration (in days), or empty if field 1 is different from Extraction
- **Field 3**: Feature.
- **Field 4**: ID.

Every time a session is opened by a client, the license server allocates it an ID. Several different licenses granted to a given session share the same ID (but not the same feature). Several different sessions do not share the same ID, even if run by the same user on the same client computer.

For example, if a user launches simultaneously two CATIA V5 sessions requesting an HD2 license, only one HD2 license is granted, but two grants are logged with two different IDs. This allows very precise matching between grants and detachments, for example.

The format of this ID is slightly different between offline licenses and non-offline licenses.

- **Field 5**: Editor Name
- **Field 6**: Model: refers to the type of license (such as named user or concurrent user)
- **Field 7**: Quantity: 1, or N in the case of tokens
- **Field 8**: Commercial Type
- **Field 9**: Client Hostname.

FQDN appears if the following environment variable is set on the Windows client process environment and if the Windows client process takes it into account:

```
DSY_SendFQDNtoDSLS=TRUE
```

- **Field 10**: Client IPv4/IPv6 address
- **Field 11**: Client Username
- **Field 12**: Client InternalID
- **Field 13**: Client exe name for non-offline licenses, or Client ComputerID for offline licenses. Note that client exe name may be blank for some UNIX clients.

Examples: `3DEXPERIENCE.exe`, `CATAsyncProcess.exe`, `CATBatchStarter.exe`, `CATUTIL.exe`.

The following example illustrates log information for offline extraction of an MDG V6 license:

```
Extraction!20!MDG!2DA0Q-ZO8S2-YC5ST-874ZO-JJVXI!
Dassault Systemes!NamedUser!1!STD!COMPUTER2 (426814856456C759-0a32103f.1)
!10.50.16.63!V6USER!V6USER!CSR-426814856456C759
```

In the case of an offline extension, two lines are logged:

- the first one is a **Return**, with the same ID as the one tagged in the previous matching **Extraction**
- The second one is an **Extraction**, with a new different ID.

When the license server is stopped, it cannot receive end-of-use and still-alive (heartbeat) events from clients. When the server is restarted, if the expected period has passed, a **TimeOut** is logged.

### Monitoring the Server

You can monitor license server performance using the **Monitoring** tab. Monitoring data is reset every time the license server is restarted, so prior data is not displayed. Monitoring is particularly useful in comparison tasks:
different loads between servers, different loads depending on time, why is there a peak or null activity a particular moment, etc.

1. Select the **Monitoring** tab.
2. Select a standalone server to monitor.
   The tab looks like this by default when you are monitoring a standalone license server:

   ![Monitoring Tab](image)

   Activity over the last 24 hours is displayed in green bar graphs. The monitoring interval is one minute.
   Time values displayed are formatted according to the local time (time zone) of the computer on which the **License Administration Tool** is running.
3. Use the zoom slidebar to zoom on a particular period over the last 24 hours.
   You can zoom down to display a period in intervals of 5 minutes:

   ![Zoomed Display](image)

   The upper part of the display monitors the average duration of processing, by the license server, of client messages which the license server receives.
   The lower part of the display monitors the average number of client messages per minute processed by the license server.
   The different graphs are displayed on a logarithmic scale to be able to show both very high and very low traffic. With a non-overloaded server, the average message processing duration should be a few milliseconds.
4. Set the **Show longest durations** check button to display the longest message processing durations.
The red bar graph represents the longest duration of a client message for each minute of the displayed activity period:

5. Point anywhere over the window to move a vertical line over the specific minute of interest and display additional information.

For example:

This displays, for the specified minute, the average processing duration, the longest processing duration and the number of client messages received.

6. In standalone server mode, choose **Client traffic** or **Admin traffic**.

   **Client traffic**
   Monitors messages sent by the license clients to the license server. The license clients are the processes which request licenses to the license server.

   **Admin traffic**
   Monitors messages sent by the **License Administration Tools** to the license server.

7. If you select a failover server, similar tools become available:
The following modes are available in the pulldown menu:

**Client traffic/Admin traffic**

These perform the same monitoring functions as for a standalone server.

**Failover traffic**

Because the selected server is configured as a member of a failover cluster:

- the upper part of the display monitors the average duration of processing, by the failover member, of messages sent to the two other members
- the lower part of the display monitors the number of messages per minute sent to the two other members

as illustrated below:

8. In case of suspected server performance problems or if the server hangs, and if requested, you can dump server performance information using the dump buttons:

**Dump heap**

The server memory is dumped in a file named `HeapDumpxxxxxxxx.hprof` in the same folder as the ordinary server logs.

*Note:* On AIX, the file extension is `.phd`. 
Dump threads

The state of all threads of the license server is written to a file named ThreadDumpxxxxxxx.txt. This information could be requested from you in exceptional cases where the server no longer replies to clients (in the case of deadlocks) and no explanation can be found in server machine system reports.

It is now no longer possible to run such actions when connected in restricted mode from the GUI of the license administration tool, and the dump buttons in the Monitoring tab are greyed out:

This ensures that no potentially very large files can be created by someone having only restricted access to the license server.

This is not the case when connecting in restricted mode from the command line using the monitor -dumpHeap command which does not create files on the license server machine. There is, however, one exception where this remains possible, when you are connected to localhost only, in which case files are created on the license server machine.
Reference

This section contains reference information about batch commands and file locations. Command parameters are case-sensitive.

DSLicSrv Command

The `DSLicSrv` command initializes and starts the license server and its associated administration tool.

Command Location and Syntax

On Windows, the `DSLicSrv` command is located by default in:

```
C:\Program Files\Dassault Systemes\DS License Server\win_b64\code\bin
```

On UNIX, the `DSLicSrv` command is located by default in:

```
/usr/DassaultSystemes/DSLlicenseServer/OS/code/bin
```

This is the syntax:

```
DSLicSrv
- initServer [-adminPort nnnn] [-licensingPort nnn] [-enroll filename] [-force]
- startServer [-echo] [-logDir path_to_log] [-logFileSize number] [-compressLog]
- disableSSLProtocol protocol [-cipherSuitesPath filename]
- stopServer
- adminUI [-resetSettings] [-locale en_US]
- admin [-i input_file] [-o output_file] [-t output_file] [-ks [keystore_file]]
```

Initialize the Server

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>

- **-adminPort nnnn**: administration listening port number; mandatory only if `-force` is also used; if `-force` is not used, then `-adminPort nnn` is ignored if passed
- **-licensingPort nnn**: set the licensing port at installation time (avoids having to set it later)
- **-enroll filename**: enroll a `.LICZ` license file at installation time (avoids having to enroll it later). If enrollment fails, the installation succeeds. Only a warning is added in the license server logs. This can happen, for example, if the license file does not exist.
- **- force**: licenses must be re-enrolled (including the activation license)

Example:

```
DSLicSrv -initServer -adminPort 4084
```
**Note:** You must run this command as root on UNIX, and in an elevated command prompt on Windows.

### Start the Server

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>• -echo: display messages in addition to logging them</td>
<td></td>
</tr>
<tr>
<td>• -logDir path: specify a different log directory; if you specify a remote directory, the license server may hang if the remote directory can no longer be accessed</td>
<td></td>
</tr>
<tr>
<td>• -logFileSize number: specify the maximum size of each server log file. The number is in MB: the default is 1MB. As soon as this size is reached, a new log file is created by the license server.</td>
<td></td>
</tr>
<tr>
<td>• -compressLog: compress server log files, in .gz format. Compression is performed by the license server every time the uncompressed size of the current log file reaches the logFileSize value (1MB by default), and every time the license server is stopped. Note that an uncompressed log file is created every time the license server is initialized (typically at installation time).</td>
<td></td>
</tr>
<tr>
<td>• -disableSSLProtocol: specify the protocol to disable. For example:</td>
<td></td>
</tr>
<tr>
<td>• -cipherSuitesPath filename: specify cipher suite path.</td>
<td></td>
</tr>
</tbody>
</table>

**Example**

DSLicSrv -startServer

**Note:** You must run this command as root on UNIX, and in an elevated command prompt on Windows.

On Windows, you may prefer to use the following command in an elevated command prompt to start the server as a Windows service:

```sql
net start "DS License Server"
```

### Setting options in the DSLS Windows service

You can configure the DSLS Windows service to use the start options as follows:

1. Open an elevated command prompt.
2. Check the current properties of the license server service by running the following Windows command:

   ```sql
   sc.exe qc "DS License Server"
   ```

   The displayed BINARY_PATH_NAME line should match something like this:

   ```sql
   "C:\Program Files\Dassault Systemes\DS License Server\win_b64\code\bin\DSLicSrv.exe" -startServer
   ```

3. Modify the BINARY_PATH_NAME by running a command like the following one:

   ```sql
   sc.exe config "DS License Server" binpath= ""C:\Program Files\Dassault Systemes\DS License Server\win_b64\code\bin\DSLicSrv.exe" -startServer -logFileSize 20 -compressLog"
   ```
4. Check the new properties of the license server service:
   
   \texttt{sc.exe qc "DS License Server"}

5. Stop and restart the service to take the changes into account.

6. Repeat this configuration after every installation, because an installation resets license server service properties.

On Linux, the start options can be set in /etc/init.d/dls.

On AIX, the start options can be set in /etc/inittab.

\textbf{Stop the Server}

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-stopServer</td>
<td>Stops the license server</td>
</tr>
</tbody>
</table>

\textbf{Example:}

\texttt{DSLicSrv -stopServer}

\textbf{Note:} You must run this command as root on UNIX, and in an elevated command prompt on Windows.

\textbf{Start the License Administration Tool GUI}

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| -adminUI [-resetSettings] [-locale en_US] | Starts the License Administration Tool GUI:  
  - -resetSettings: resets License Administration Tool GUI settings  
  - -locale en_US: forces the License Administration Tool to be displayed in English. |

\textbf{Example}

\texttt{DSLicSrv -adminUI}

starts the License Administration Tool user interface.

\textbf{Start the License Administration Tool in Command Line Mode}

The majority of the tasks explained in this guide involve the use of the GUI version of the \textit{License Administration Tool}. However, you can perform the same tasks in command line mode.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
</table>
| -admin [-i input_file] [-o output_file] [-t output_file] [-run "list of commands"] [-ks [keystore_file]] | Starts the License Administration Tool in command line mode  
  - -i input_file: input file containing list of commands  
  - -o output_file: redirects output to an output file  
  - -t output_file: redirects output both to an output file and to the command line window  
  For more information, see \textit{Redirecting Output}. |
The following command prompt appears:

```
License Administration Tool Version 6.418.0 Built on Jun 27, 2015 1:01:10 PM.
admin >
```

As you can see, when the prompt is:

```
admin >
```

you are inside the command line administration tool.

You have to connect to a license server after having launched the command line administration tool.

To list the commands available, enter one of the following commands:

```
admin > ?
admin > help
```

Most commands have both a long and abbreviated format, as indicated by the "|" separator which means "or", for example: `getConfig|gc`. Running either the `getConfig` or `gc` command displays the same result.

To get help about a specific command, use the `help|h` command, for example:

```
help getConfig
help gc
```

Here is the list of available commands:

<table>
<thead>
<tr>
<th>Operation</th>
<th>Command Syntax</th>
<th>Options</th>
</tr>
</thead>
</table>
| Connect to a license server   | `connect c server port [ -proxy | server: license server host name  
|                               |  | port: administration port number  
|                               |   | -p proxyHost proxyPort]        | -proxy|-p proxyHost proxyPort: proxy host  
|                               |   | [-restricted | -r]                      | name and proxy port number  
|                               |                                | -restricted|-r: forces connection in restricted  
|                               |                                | mode (replaces -readOnly which remains valid  
|                               |                                | for backward compatibility reasons)  
| Get current license server    | `getServerInfo gsi`            |                                                                        |
| information                   |                                |                                                                        |
| Disconnect from connected     | `disconnect disc d`            |                                                                        |
| license server                |                                |                                                                        |
| Get license server configuration | `getConfig gc`                |                                                                        |
| Get license information       | `getLicenseInfo gli [-superseded]` | This command no longer displays by default  
|                               |                                | the superseded licenses. To display the  
<p>|                               |                                | superseded licenses, use -superseded option. |</p>
<table>
<thead>
<tr>
<th>Operation</th>
<th>Command Syntax</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrieve license data (save license keys in a directory)</td>
<td>getLicenseData</td>
<td>gld [-editorID editor] [-release release] [-licenseID license] [-groupId index] [-fileIndex index] -out directory</td>
</tr>
<tr>
<td>Show current license usage</td>
<td>getLicenseUsage</td>
<td>glu [-feature feat] [-all</td>
</tr>
<tr>
<td>Get license usage tracing flags</td>
<td>getLicenseUsageTraces</td>
<td>dut</td>
</tr>
<tr>
<td>Activate/Deactivate license usage trace</td>
<td>setLicenseUsageTraces</td>
<td>sut [-all][-license1 license2 ... -trace</td>
</tr>
<tr>
<td>Display logged server messages</td>
<td>showLog</td>
<td>sl [-from fromDate] [-to toDate]</td>
</tr>
<tr>
<td>Modify server configuration</td>
<td>setConfig</td>
<td>sc [-licensingPort</td>
</tr>
<tr>
<td>Operation</td>
<td>Command Syntax</td>
<td>Options</td>
</tr>
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<td>-------------------------------</td>
<td>-----------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
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<tr>
<td></td>
<td>yes</td>
<td>no] [-remoteAdmin: disable administration from a</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>-failoverMode: change standalone/failover mode</td>
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<td>-clusterName1: host name of the first machine of the failover</td>
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<td></td>
<td>-clusterName2: host name of the second machine of the failover</td>
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<tr>
<td></td>
<td></td>
<td>-clusterName3: host name of the third machine of the failover</td>
</tr>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>-enableLicenseStats: activates statistics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-automaticRecycling: activates automatic license recycling.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-enableOffline: enable offline license extraction.</td>
</tr>
<tr>
<td>Modify cluster</td>
<td>modifyCluster</td>
<td>mc [-repair</td>
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<tr>
<td>Enroll licence files</td>
<td>enrollLicense</td>
<td>e -dir inputDir</td>
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<tr>
<td>Erase licence data</td>
<td>deleteLicense</td>
<td>dl -licenseID uid [-group index]</td>
</tr>
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<tr>
<td>Delete expired licenses</td>
<td>deleteExpiredLicenses</td>
<td>dxl</td>
</tr>
<tr>
<td>Delete superseded licenses</td>
<td>deleteSupersededLicenses</td>
<td>dsl</td>
</tr>
<tr>
<td>Create group of users to</td>
<td>createUserGroup</td>
<td>cug groupName</td>
</tr>
<tr>
<td>manage authorization lists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Create group of hosts to</td>
<td>createHostGroup</td>
<td>chg groupName</td>
</tr>
<tr>
<td>manage authorization lists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td>Command Syntax</td>
<td>Options</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Create an authorization list      | `createAuthorizationList|cal name -type t -editorId ID [-product prd [-model ConcurrentUser|Token|NamedUser] [-licenseId id]] [-users user1[,number] ...] [-hosts host1[,number] ...] [-ipranges ipr1[,number] ...] [-iprangegroups iprgrp1[,number] ...] [-usergroups usrgrp1[,number] ...] [-hostgroups hostgrp1[,number] ...] [-replace]` | -type: type of authorization list (ALLOW|DENY|RESERVE|LIMIT)  
-`editorId`: unique editor identifier  
-`product`: feature name to manage (optional); when not used, the rule is applied at the Editor level.  
-`model`: ConcurrentUser|Token|NamedUser  
-`licenseId`: licenseID number (optional)  
-`users`: list of individual users with optional number of licenses  
-`hosts`: list of individual hosts with optional number of licenses  
-`ipranges`: list of IPRanges with optional number of licenses  
-`iprangegroups`: list of groups of IPRanges with optional number of licenses  
-`usergroups`: list of groups of users with optional number of licenses  
-`hostgroups`: list of groups of hosts with optional number of licenses  
-`replace`: replace existing list if any |
| Create offline extraction restrictions | `createOfflineRestrictions|cor name -editorId id -product prd -model m [-licenseId id] [-keyword kw] [-maxDuration n] [-replace] [-rule ALLOW|DENY [-users user1 ...] [-usergroups usrgrp1 ...] [-hosts host1 ...] [-hostgroups hostgrp1 ...] [-ipranges ipr1 ...] [-iprangegroups iprgrp1 ...]]` | -`editorId`: editor unique identifier  
-`product`: product name to manage  
-`model`: model of product to manage (NamedUser|ConcurrentUser|Token)  
-`licenseId`: license product number  
-`keyword`: keyword to be provided to extract offline license.  
-`maxDuration`: maximum duration of extraction validity, between 0 and 30 days  
-`replace`: replace existing restriction name if any  
At least option `-keyword` or `-maxDuration` must be passed.  
-`rule`: specifies allow/deny restriction rules for User, Host, IPRange, User Group, Host Group or IPRange Group. |
| Delete user                       | `deleteUser|du userName`                                                                 | -editorId: editor unique identifier  
-`product`: product name to manage  
-`model`: model of product to manage (NamedUser|ConcurrentUser|Token)  
-`licenseId`: license product number  
-`keyword`: keyword to be provided to extract offline license.  
-`maxDuration`: maximum duration of extraction validity, between 0 and 30 days  
-`replace`: replace existing restriction name if any  
At least option `-keyword` or `-maxDuration` must be passed.  
-`rule`: specifies allow/deny restriction rules for User, Host, IPRange, User Group, Host Group or IPRange Group. |
| Delete host                       | `deleteHost|dh hostName`                                                                 | -editorId: editor unique identifier  
-`product`: product name to manage  
-`model`: model of product to manage (NamedUser|ConcurrentUser|Token)  
-`licenseId`: license product number  
-`keyword`: keyword to be provided to extract offline license.  
-`maxDuration`: maximum duration of extraction validity, between 0 and 30 days  
-`replace`: replace existing restriction name if any  
At least option `-keyword` or `-maxDuration` must be passed.  
-`rule`: specifies allow/deny restriction rules for User, Host, IPRange, User Group, Host Group or IPRange Group. |
| Delete group of users             | `deleteUserGroup|dug groupName`                                                                 | -editorId: editor unique identifier  
-`product`: product name to manage  
-`model`: model of product to manage (NamedUser|ConcurrentUser|Token)  
-`licenseId`: license product number  
-`keyword`: keyword to be provided to extract offline license.  
-`maxDuration`: maximum duration of extraction validity, between 0 and 30 days  
-`replace`: replace existing restriction name if any  
At least option `-keyword` or `-maxDuration` must be passed.  
-`rule`: specifies allow/deny restriction rules for User, Host, IPRange, User Group, Host Group or IPRange Group. |
<table>
<thead>
<tr>
<th>Operation</th>
<th>Command Syntax</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delete group of hosts</td>
<td>deleteHostGroup</td>
<td>dhg  groupName</td>
</tr>
<tr>
<td>Delete an authorization list</td>
<td>deleteAuthorizationList</td>
<td>dal listname</td>
</tr>
<tr>
<td>Delete offline restrictions</td>
<td>deleteOfflineRestrictions</td>
<td>dor listname</td>
</tr>
<tr>
<td>List users</td>
<td>listUsers</td>
<td>lu</td>
</tr>
<tr>
<td>List hosts</td>
<td>listHosts</td>
<td>lh</td>
</tr>
<tr>
<td>List groups of users</td>
<td>listUserGroups</td>
<td>lug</td>
</tr>
<tr>
<td>List groups of hosts</td>
<td>listHostGroups</td>
<td>lhg</td>
</tr>
<tr>
<td>Rename user group</td>
<td>renameUserGroupName</td>
<td>rug currentName newName</td>
</tr>
<tr>
<td>Rename host group</td>
<td>renameHostGroupName</td>
<td>rhg currentName newName</td>
</tr>
<tr>
<td>Rename authorization list</td>
<td>renameAuthorizationList</td>
<td>ral currentName newName</td>
</tr>
<tr>
<td>Rename offline restrictions</td>
<td>renameOfflineRestrictions</td>
<td>ror currentListName newListName</td>
</tr>
<tr>
<td>List all authorization lists</td>
<td>listAuthorizationLists</td>
<td>lal</td>
</tr>
<tr>
<td>List all offline restrictions (keywords, maximum durations and rules)</td>
<td>listOfflineRestrictions</td>
<td>lor</td>
</tr>
</tbody>
</table>
| Create IP range            | createIPRange|cipr name -ip iprange [-replace] | -ip: internet address range, (firstIP-lastIP or CIDR notation)  
-replace: replace existing item if any  
Examples:  
  • cipr local1921680 -ip 192.168.0.1/24 -replace  
  • cipr localcomputer -ip 127.0.0.1/32 -replace  
  • cipr local10232 -ip 10.232.0.0-10.232.255.255 -replace  
  • cipr localipv6 -ip fd00::/10 -replace  
| Create IP range group      | createIPRangeGroup|ciprg name -ip iprange1 iprange2 ... [-replace] | -ip: IPRanges  
-replace: replace existing item if any  
Example: |
<table>
<thead>
<tr>
<th>Operation</th>
<th>Command Syntax</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>List all IPRanges</td>
<td>listIPRange</td>
<td>lipr</td>
</tr>
<tr>
<td>List all IPRange groups</td>
<td>listIPRangeGroup</td>
<td>liprg</td>
</tr>
<tr>
<td>Rename IRange</td>
<td>renameIPRange</td>
<td>ripr currentName newName</td>
</tr>
<tr>
<td>Rename IRange group</td>
<td>renameIPRangeGroup</td>
<td>riprg currentName newName</td>
</tr>
<tr>
<td>Delete IRange</td>
<td>deleteIPRange</td>
<td>dipr name</td>
</tr>
<tr>
<td>Delete IRange group</td>
<td>deleteIPRangeGroup</td>
<td>diprg name</td>
</tr>
<tr>
<td>Export authorizations to file in XML format</td>
<td>exportAuthorizations</td>
<td>ea -o file</td>
</tr>
<tr>
<td>Import authorizations from file in XML format</td>
<td>importAuthorizations</td>
<td>ia -f file</td>
</tr>
</tbody>
</table>
<pre><code>                    |                                                   | -dumpThreads|-dt: obtain server threads status                          |
</code></pre>
<p>|                           |                                                   | -outDir|-o dir: directory storing result of command (mandatory for -dumpHeap option) |
| Display mail configuration | getMailConfig|gmc                              |                                                                         |</p>
| Set mail configuration     | setMailConfig|smc [-test|-t] [-smtp servername] [-from sender] [-to email1,email2,...] [-activate|-a event yes|no] [-parameter|-p event param value] [-subject|-s event "..."] [-body|-b event "..."] [-mailBodyFooter|-footer "..."] | -test|-t: test mail configuration
<pre><code>                    |                                                   | -smtp servername: SMTP server name                                   |
</code></pre>
<p>|                           |                                                   | -from sender: sets the sender of the e-mails. It can be useful when certain security rules set on the smtp server prevent the default sender name value. The default value is %host%@noreply, %host% is a placeholder matching the hostname of the license server. %host% is very useful in failover mode, to clearly identify which member sends an e-mail. Note that this value cannot be set nor even displayed using the GUI.                                   |
|                           |                                                   | -to email1,email2,...: names of recipients separated by comma (,)      |
|                           |                                                   | -activate|-a event yes|no: activate or deactivate the event, where event can be:                |
|                           |                                                   | • OnServerStart: when server starts                                   |</p>
<table>
<thead>
<tr>
<th>Operation</th>
<th>Command Syntax</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>• OnServerStop: when server stops</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• OnDiskShortage: with parameter Threshold in range 1 - 99</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• OnLicenseSoonExpiring: when licenses expire, with parameter Threshold in range 1 - 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• OnMemberIsolated: with parameter Threshold in range 1 - 60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-parameter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-subject</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-body</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-mailBodyFooter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>For example, to send mail notifications 25 days before license expiration, run the command:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>smc -activate OnLicenseSoonExpiring yes -parameter OnLicenseSoonExpiring Threshold 25</td>
</tr>
<tr>
<td>Manage SSL certificate</td>
<td>manageSSLCertificate</td>
<td>msc [-install -crt file_path_to_server.crt -key file_path_to_server.key]</td>
</tr>
<tr>
<td></td>
<td>[-uninstall] [-nofailover]</td>
<td>-install: installs the certificate on the license server and stores it in the repository folder.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-crt: file path to certificate file (server.crt)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-key: file path to RSA key (server.key)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-uninstall: uninstalls certificate previously installed (and use the default self-signed one)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-nofailover: do not propagate to other failover members. This option is useful when installing a certificate on a failover member and the certificate is not a domain certificate. By default, the certificate is sent to the three failover members.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This command can be useful when security rules prevent access to HTTPS servers with a self-signed SSL certificate or a certificate whose duration is too long. It is your responsibility to periodically renew the certificate installed on the license server. If this SSL certificate expires, licensing clients</td>
</tr>
</tbody>
</table>
## Redirecting Output

By default, the `DSLicSrv -admin` command does not redirect output. The following table sums up the different redirection possibilities available:

<table>
<thead>
<tr>
<th>To perform this operation...</th>
<th>Run this command...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start the License Administration Tool in command line mode and direct output to a newly created output file only</td>
<td><code>DSLicSrv -admin -o outputfile</code> or <code>DSLicSrv -admin &gt; outputfile</code> where <code>outputfile</code> is the name of the output file.</td>
</tr>
<tr>
<td>Start the License Administration Tool in command line mode and append output to an existing output file only</td>
<td><code>DSLicSrv -admin &gt;&gt; outputfile</code> where <code>outputfile</code> is the name of the output file.</td>
</tr>
<tr>
<td>Start the License Administration Tool in command line mode and redirect output both to an output file and to the command line window</td>
<td><code>DSLicSrv -admin -t outputfile</code> where <code>outputfile</code> is the name of the output file.</td>
</tr>
<tr>
<td>After starting the License Administration Tool in command line mode, redirect output from individual commands to a newly created output file</td>
<td>Use the <code>&gt;</code> sign to redirect command output, for example: <code>glu -admin &gt; outputfile</code> where <code>outputfile</code> is the name of the output file. These new redirections take precedence over previous global redirections.</td>
</tr>
<tr>
<td>After starting the License Administration Tool in command line mode, redirect output from individual commands to an existing output file</td>
<td>Use the <code>&gt;&gt;</code> sign to redirect command output, for example: <code>glu -admin &gt;&gt; outputfile</code> where <code>outputfile</code> is the name of the output file. These new redirections take precedence over previous global redirections.</td>
</tr>
</tbody>
</table>
Managing Passwords

You may not want to enter passwords each time you run DSLicSrv -admin, particularly if full and restricted passwords are set, or if passwords are different between license servers. Furthermore, writing passwords in batch files is not secure.

You can store passwords in an encrypted file and reference this file when connecting to license servers. Adding the option -keyStore [file.ks] (or -ks [file.ks]) instructs the License Administration Tool to work with the encrypted file containing the passwords.

The default pathname of the .ks file is:

- C: \Users\userid\AppData\Roaming\DassaultSystemes\LicenseAdmin.ks (Windows)
- $HOME\.LicenseAdmin.ks (UNIX).

but any pathname can be used.

The .ks file is encrypted with the OS username and the pathname in lowercase. This partially prevents different users from using the same .ks file, or from moving a .ks file from one folder to another.

The .ks file can contain full and restricted passwords for several license servers. When the -keyStore option is used and the .ks file does not exist or does not contain the valid password for the license server, you will be prompted to enter a password. If you enter the correct password, it will be stored in the .ks file.

When the -keyStore option is used and the .ks file contains a valid password for the license server, no password prompt is displayed and the access will be granted.
License servers are identified by their names in a .ks file. Consequently, connecting a license server with an IP address whereas the name has been stored in the .ks file will lead to a password prompt. The behavior is the same if a license server is accessed both via localhost and its name, for example.

At the beginning of the following example, the -keyStore option has not been used already, therefore a .ks file does not already exist, and you are trying to connect to a password-protected license server:

```
---DSLicSrv -admin -keyStore
License Administration Tool Version 6.216.0 Built on May 10, 2013 11:52:00 AM.
admin >connect localhost 4084
Enter password >
   Software version: 6.216.0
   Build date: May 10, 2013 11:52:00 AM
   Standalone mode
   Ready: yes
   Server name: comp5dsy Server id: ABC-43EE21EF02891F94
admin >quit
---DSLicSrv -admin -keyStore
License Administration Tool Version 6.216.0 Built on May 10, 2013 11:52:00 AM.
admin >connect localhost 4084
   Software version: 6.216.0
   Build date: May 10, 2013 11:52:00 AM
   Standalone mode
   Ready: yes
   Server name: comp5dsy Server id: ABC-43EE21EF02891F94
admin >quit
---DSLicSrv -admin
License Administration Tool Version 6.216.0 Built on May 10, 2013 11:52:00 AM.
admin >connect localhost 4084
Enter password >
   Software version: 6.216.0
   Build date: May 10, 2013 11:52:00 AM
   Standalone mode
   Ready: yes
   Server name: comp5dsy Server id: ABC-43EE21EF02891F94
admin >quit
```

In the case of the command highlighted in yellow, you are prompted to enter a password because there is no existing .ks file yet, so it will be created once you enter the password.

In the case of the command highlighted in blue, you are NOT prompted to enter a password because it can be found in the .ks file which has just been created in the previous step.

In the case of the command highlighted in pink, you are prompted to enter a password because you started the License Administration Tool without the -keyStore option.

Running Several Commands at the Same Time

You can run several commands at a time:

- using a batch file as input file containing the commands: in the input file, several commands can be entered as if they were entered interactively
- or by concatenating the commands from the command line, eliminating the need for a batch file.
This is done using the `-run "list of commands"` option. Each command in the list of commands is separated by a semicolon `;`. The first command in the list must be the `connect` command (or `help` command). Note that `disconnect` and `quit` commands are not mandatory at the end of the list.

If the server is protected by a full or restricted password, the password can be either entered interactively or using a `.ks` file. You cannot enter the password in the list of commands after the `-run` option.

For commands requiring a confirmation, you must place the "yes" string immediately after the ";" without a space between ";" and "yes".

Only one `-run` option can be passed.

The following table illustrates how to use both methods.

<table>
<thead>
<tr>
<th>To perform this operation...</th>
<th>Run this command...</th>
</tr>
</thead>
</table>
| Start the License Administration Tool in command line mode and execute a command parameter file | **DSLicSrv -admin -i input file**  
The input file contains commands executed in command line mode. |
| Start the License Administration Tool in command line mode and run a list of commands | **DSLicSrv -admin -run "list of commands"**  
Examples:  
DSLicSrv -admin -run "c localhost 4084; glu"  
displays license usage.  
DSLicSrv -admin -run "c localhost 4084; gc; gli > C:\temp\gli.txt; glu >> C:\temp\glu.txt"  
displays the license server configuration, redirects the license information to a new file, then appends license usage information to an existing file.  
DSLicSrv -admin -run "c protcomp 4084 -r; glu -all" -ks  
displays the detailed license usage of a password-protected license server accessed in restricted mode. |

---

**DSLicTarget Command Syntax**

The **DSLicTarget** command returns the computer id.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>-t</code></td>
<td>Display the computer id</td>
</tr>
<tr>
<td><code>-l</code></td>
<td>List available network adapters</td>
</tr>
<tr>
<td><code>-c</code></td>
<td>Clear data containing the reference to the current ComputerID: Windows registry key or Linux file (not available on AIX). You must run this command in an elevated command prompt.</td>
</tr>
</tbody>
</table>
| `-s {...}` | Windows and Linux only. Use a specific device identifier (provided by the `-l` parameter) to generate the computer id, for example:  
**DSLicTarget -s {558CBA02-9E12-33F7-49A9-1154BED416A6}**  
You must run this command in an elevated command prompt. |
| `-h` | Display help |
Protocol and Cipher Suite Control

This section discusses protocol and cipher suite control.

Overview

The DS License Server uses https for communications. https is based on http and adds a security layer. This security is implemented by various protocols and cipher suites. From time to time, certain weaknesses may be found on a given protocol or a given cipher suite. Depending on the type of the security exposure discovered, the consequences can be unpleasant when communicating on the Internet.

DS license servers are not on the Internet, but on the LAN of the company. So they are not vulnerable to attacks exploiting the security issues. However, some companies use tools for reporting security vulnerabilities on all computers of their network. These tools can then identify the computer hosting a DS License Server as unsecure, even if this is not the case.

To obtain a clean report for these tools, a dynamic solution allows you to remove the protocols and cipher suites considered as unsecure, by providing the ability to restrict the list of protocols and to set the list of cipher suites that can be used in DS License Server communications.

When running a failover cluster, each member can start with its own protocols and cipher suites. To ensure that the three members use the same protocols and cipher suites, the same modifications must be applied on the three members.

If an administrator removes a protocol and/or a cipher suite, it is possible that an older licensing client may be unable to communicate with the license server. This can happen if none of the allowed protocols and cipher suites are enabled on the licensing client.

Supported Protocols

The DS License Server currently supports the following protocols:

- SSLv3
- TLSv1
- TLSv1.1
- TLSv1.2

You can remove the support for one or several protocols by adding a parameter when starting the license server: -disableSSLProtocol.

Cipher Suites

The DS License Server supports a lot of cipher suites. This list can be found in the following file under the license server installation path:

install_path/startup/DSLSJRE/CipherSuites.txt

The file is different for Windows/Linux and AIX.

Each line not beginning with a # character is an allowed cipher suite. Each line beginning with a # character is a supported cipher suite, but not allowed.

If the content of this file is not appropriate in the company context, it can be copied in any folder and modified to match what is desired.

Adding a leading # character removes the cipher suite from the list of allowed suites. Removing a leading # character adds the cipher suite to the allowed list.
If an unsupported cipher suite (in other words, not already present in the delivered file) is added to the file, it will be ignored.

When starting the DS License Server, the path of this customized file can be specified by using the -cipherSuitesPath parameter. In this case, the original file will not be taken into account.

The delivered cipher suites file is installed every time the license server is installed. It is the responsibility of the license server administrator to check whether the customized file needs to be updated or not.

Unlimited Strength Cipher Suites

We recommend that you do not use an "unlimited strength" cipher suite: they decrease performance and do not provide more security in the context of the DS License Server.

An example of such a cipher suite is a cipher suite based on AES 256 bits. They require additional steps to be activated:

- Download a Java Cryptography Extension Policy zip file from:
- Unzip the file, to extract local_policy.jar and US_export_policy.jar files.
- Overwrite both delivered files already installed in .../startup/DSLSJRE/lib/security with the unzipped ones.

File Locations, Settings and Registry Entries

This section specifies where the different files, settings and registry entries are created when you install and administer the DS License Server.

Entries marked (*) indicate items that are intentionally left in place after uninstallation.

### Reference Table

<table>
<thead>
<tr>
<th>File Type</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>License Repository (*)</td>
<td>The license repository containing enrolled licenses is located in:</td>
</tr>
<tr>
<td></td>
<td>On Windows:</td>
</tr>
<tr>
<td></td>
<td>C:\ProgramData\DassaultSystems\LicenseServer\Repository</td>
</tr>
<tr>
<td></td>
<td>On UNIX:</td>
</tr>
<tr>
<td></td>
<td>/var/DassaultSystems/LicenseServer/Repository</td>
</tr>
</tbody>
</table>

⚠️ **Warning:** THIS FOLDER AND THE FILES INCLUDED IN IT MUST NOT BE CHANGED NOR EVEN MOVED, RENAMED NOR ACCESS RIGHTS MODIFIED WHEN THE DS LICENSE SERVER IS NOT RUNNING. CERTAIN BACKUP OR SECURITY SOFTWARE PRODUCTS PERFORM SUCH FORBIDDEN CHANGES. CONFIGURE YOUR BACKUP SOFTWARE TO NOT BACKUP THIS FOLDER. CONFIGURE YOUR SECURITY SOFTWARE TO NOT SCAN FILES WITH THE .DAT EXTENSION IN THIS FOLDER. IF THESE RULES ARE NOT FOLLOWED, THE NEED FOR REFRESHED LICENSE KEYS AND FOR RE-ENROLLING THE LICENSE KEYS WILL BE MANDATORY. ONE OF THE BEST WAYS TO AVOID THIS INCONVENIENCE IS TO STOP THE DS LICENSE SERVER FOR ONLY THE FEW MINUTES NECESSARY TO UPGRADE IT.
<table>
<thead>
<tr>
<th>File Type</th>
<th>Location</th>
</tr>
</thead>
</table>
| Log Files (*)                           | On Windows, an installation log file is created in:  
\%TEMP\%\DSLsmi.log  
This file is not created if the installation was performed by double-clicking the .msi file. Furthermore, server statistics files (if enabled) and log files are stored by default in:  
On Windows:  
C:\ProgramData\DassaultSystemes\LicenseServer\LogFiles  
On UNIX:  
/var/DassaultSystemes/LicenseServer/LogFiles  
A new log file is created each time the license server is started, and also once the size of the active log file exceeds 1MB. Old files can be freely removed or archived. |
| Casual usage named user license monthly report (*) | On Windows:  
C:\ProgramData\DassaultSystemes\LicenseServer\LogFiles  
On UNIX:  
/var/DassaultSystemes/LicenseServer/LogFiles  
Its name is CasualUsage.YearMonth.txt and it contains the following information in plain text:  
• Generation date  
• License server name  
• License server computerID  
• List of CustomerSite value(s) present in the license keys  
• List of overuses (if any) comprising lines with:  
  - Product name  
  - User name  
  - Measured usage duration  
  - Max allowed usage duration  
  - LicenseID  
• Signature. |
| Settings (*)                             | The License Administration Tool user interface settings file (LicenseAdminUI) is located in:  
On Windows:  
C:\Users\userid\AppData\Roaming\DassaultSystemes  
On UNIX:  
$HOME  
| Password keystore (*)                    | On Windows:  
C:\Users\userid\AppData\Roaming\DassaultSystemes\LicenseAdmin.ks  
On UNIX:  
$HOME/.LicenseAdmin.ks  
| License Client Configuration (*)        | Nodelock licenses, extracted offline licenses and the licensing client configuration file (DSLicSrv.txt) are located in:  
On Windows:  
C:\ProgramData\DassaultSystemes\Licenses  
On UNIX:  
/var/DassaultSystemes/Licenses  

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CERTAIN BACKUP OR SECURITY SOFTWARE PRODUCTS PERFORM SUCH
FORBIDDEN CHANGES. CONFIGURE YOUR BACKUP SOFTWARE TO NOT
BACKUP THIS FOLDER. CONFIGURE YOUR SECURITY SOFTWARE TO NOT
SCAN FILES WITH THE .LIC EXTENSION IN THIS FOLDER. IF THESE RULES
ARE NOT FOLLOWED, THE EXTRACTED OFFLINE LICENSES WILL NO LONGER
BE AVAILABLE ON THE CLIENT COMPUTER, AND WILL BECOME AVAILABLE
ON THE LICENSE SERVER ONLY AFTER THE EXTRACTION DURATION HAS
EXPIRED.

Note: You can change the default value for the path of the client configuration
file (but not the path of the license files) by setting the environment variable
DSLS_CONFIG to the full pathname of the file, for example on Windows:

```bash
set DSSL_CONFIG=C:\SpecialProject\DSLicSrv.txt
```

<table>
<thead>
<tr>
<th>File Type</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows Registry Entries</td>
<td>Standard Windows entries for managing the DSLS service. Standard Windows entries for managing the DSLS installation. The key: <strong>HKEY_LOCAL_MACHINE\SOFTWARE\Dassault Systemes\Admin (</strong><em>) manages ComputerID related info. The key: <strong>HKEY_CURRENT_USER\SOFTWARE\Dassault Systemes\LClient (</strong></em>) may be present on the licensing client computer side.</td>
</tr>
<tr>
<td>Windows Shortcuts</td>
<td><strong>Start &gt; Programs &gt; DS License Server</strong></td>
</tr>
</tbody>
</table>
| UNIX system files  | The following system files are modified if you do not perform the installation using the -x option. On AIX:
The file /etc/innitab is updated On Red Hat:
/var/DassaultSystemes/Licenses/.Identifier contains a reference to the ComputerID The file /etc/init.d/ds1s is created The file /etc/sysconfig/ds1s is created The symbolic link /etc/rc.d/rc0.d/K02ds1s is created The symbolic link /etc/rc.d/rc1.d/K02ds1s is created The symbolic link /etc/rc.d/rc2.d/K02ds1s is created The symbolic link /etc/rc.d/rc3.d/S98ds1s is created The symbolic link /etc/rc.d/rc4.d/K02ds1s is created The symbolic link /etc/rc.d/rc5.d/S98ds1s is created The symbolic link /etc/rc.d/rc6.d/K02ds1s is created On SuSE:
/var/DassaultSystemes/Licenses/.Identifier contains a reference to the ComputerID The file /etc/init.d/ds1s is created The file /etc/sysconfig/ds1s is created The symbolic link /etc/init.d/rc3.d/Kxxds1s is created The symbolic link /etc/init.d/rc3.d/Syyds1s is created The symbolic link /etc/init.d/rc5.d/Sxxds1s is created The symbolic link /etc/init.d/rc5.d/Kyyds1s is created |
Port Management

This section describes port management.

**DS License Server Ports**

There are three ports involved when managing the DS License Server:

- Administration port (https protocol): default 4084, used by the License Administration Tool to connect to the server
- Licensing Port (https protocol): default 4085, used by license clients to request licenses
- Failover port (https sockets): default 4086, used by intercommunication between cluster members.

**Note:**

- The https protocol is of the tcp type.
- The license administration tool and licensing clients can communicate with a license server through a VPN if this VPN is properly configured to support https.

Troubleshooting

This section contains license server troubleshooting information.

**Client cannot communicate with server**

If this problem occurs:

- On the client, run the DSCheckLS tool to get the result of some automatic checks.
- Check that client and server have an absolute time difference lower than one hour (whatever the time zones, which are ignored). A warning message *Incompatible clock setting* can be found in the server log in such a case.
- Check that the .txt extension is not duplicated for the DSLicSrv.txt file on a Windows client:
This type of issue can occur when your Windows explorer is configured to hide extensions for known file types.

- Check that the DSLicSrv.txt file is at least in read access for everyone on the client.
- Check that the server is declared in the DSLicSrv.txt file with a full qualified domain name if your network settings require it.
- Check that the DSLS_CONFIG environment variable has not been set on the client, or has been set to an appropriate value.
- Check that the C:\Windows\System32\drivers\etc\hosts file on a Windows client, or /etc/hosts file on a UNIX client, does not contain a configuration preventing server access.
- Check that the license server version is able to serve the client application version. A simple rule is that the latest server version should be always installed, because it's compatible with all existing client application versions. The latest license server version can be downloaded from here:

  http://www.3ds.com/support/download-documentation/dassault-systemes-license-server

- Check that the proxy settings declared in the Windows Internet Options of the Windows client do not prevent server access.
- Check that the client firewall, server firewall, network equipment and security software are properly configured. The TCP (HTTPS) protocol must be allowed from client to server typically on port 4085, or another port number if your server is configured to listen to a non-default port number.

**Poor communication performance between a Windows client and any server**

The DS License Server communication protocol is based on HTTPS. By default, the license client on Windows uses the Microsoft implementation of this protocol, WinInet, which is part of the Microsoft Internet Explorer browser.

By default, the Microsoft implementation of the HTTPS protocol needs to contact Microsoft servers to check SSL certificate revocation. These servers are the same as the ones accessed by Windows Update.

When the Windows client computer cannot access the Microsoft servers, a typical 15s timeout occurs before the communication between the license client and license server takes place.

In this type of case, the server log contains Duration of message exceeds threshold messages with the IP address of the client.

There are several workarounds to this issue:
• Either, allow the Windows client to access the Microsoft servers used by Windows Update
• Or, switch from the Microsoft implementation of HTTPS protocol to the OpenSSL implementation. This can be done by setting the following environment variable in the Windows client environment:
  `DSY_DISABLE_WININET=True`. However a drawback exists when this variable is set: forward proxies (declared in Windows Internet Options) are not taken into account.
• Or, turn off Automatic Root Certificates Update on the client. To do so:
  1. Run the Local Group Policy Editor on client (if you don't know what Windows group policy is, it's better not to follow this workaround).
  3. Set Turn off Automatic Root Certificates Update to Enabled.

  WARNING: SETTING THIS PARAMETER TO ENABLED IS A SECURITY RISK IF THE CLIENT COMPUTER IS OR WILL BE CONNECTED TO THE INTERNET

Poor client performance at startup
• Reduce the number of lines declared in the `DSLicSrv.txt` file. All logical servers declared are contacted at startup, not only the first one. This ensures that an already granted license is shared.

Nodelock or extracted offline license cannot be granted to the client application
• Check that the process does not run in remote mode, such as Remote Desktop on Windows or by exporting DISPLAY on UNIX. When running in remote mode, nodelock and offline licenses are not taken into account.
• Check that the process does not run in a virtual machine. When running in a virtual machine, nodelock and offline licenses are not taken into account.
• Check that your backup software is configured to not backup `.LIC` files located in `C:\Program Files\DassaultSystemes\Licenses`, and that your security software is configured to not scan the same files.

Reducing launch duration
If starting the DS License Server or the License Administration Tool takes a long time, check that the number of files in your temporary directory is reasonable (less than 10,000).

Here are typical temporary directories to check:
• `C:\Windows\Temp`
• `%USERPROFILE%\AppData\Local\Temp`
• `/tmp`
• `/var/tmp`

Reducing timeout when a failover member is down
When one of the three members of a DS License Server failover is down, it may occur that logon takes longer than usual. This may be due to an inappropriate configuration of TCP parameters on the UNIX computer hosting the Live Collaboration Server:
• On Linux, check that the `tcp_syn_retries` parameter value is not too high.
• On AIX, check that the `tcp_keepinit` parameter value is not too high.
These parameters are managed at operating system level. This means that all running processes will benefit from the changes and not only the Live Collaboration Server. Decreasing their value will not only reduce the logon time when a DS License Server failover member is down, but also will potentially not leave enough time to another server for responding. For example, a bad consequence could be that the Live Collaboration Server is no longer able to contact a database server or that a third party application is no longer able to contact another server.

Ask your system administrator and your network administrator before modifying such parameters.

## Error, Information and Warning Messages

This section contains a list of informational, warning and error messages displayed in the license server logs and classified into different categories.

Message types are identified by a one-letter prefix:

- **E** (error)
- **I** (information)
- **W** (warning)

and are organized into the following categories, each describing a specific area being monitored:

- **INITSERVER**: server initialization
- **STARTSERVER**: server startup
- **STOPSERVER**: server shutdown
- **USGTRACING**: license usage tracing
- **REPOSITORY**: license repository management
- **RUNTIMEDATA**: license server runtime management
- **ADMINSERVER**: server administration
- **ENROLL**: license enrollment
- **LICENSEDATA**: license data management
- **MONITORING**: server monitoring
- **STATISTICS**: server statistics
- **LICENSESERV**: license server
- **FAILOVERSRV**: failover server management.

<table>
<thead>
<tr>
<th>Type</th>
<th>Category</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>INITSERVER</td>
<td>Server version 6.218.0 built on <strong>ymmdhhmmss</strong></td>
</tr>
<tr>
<td>I</td>
<td>INITSERVER</td>
<td>Initializing license server on <strong>pathName</strong> args [...]</td>
</tr>
<tr>
<td>I</td>
<td>INITSERVER</td>
<td>ComputerId XXX-XXXXXXXXXXXXXXXXXXXXXXXX</td>
</tr>
<tr>
<td>I</td>
<td>INITSERVER</td>
<td>Server successfully initialized.</td>
</tr>
<tr>
<td>I</td>
<td>INITSERVER</td>
<td>License server already initialized on <strong>pathName</strong></td>
</tr>
<tr>
<td>I</td>
<td>INITSERVER</td>
<td>Use <strong>-force</strong> option for reinitialization.</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td><strong>-adminPort</strong> option invalid : <strong>pppp</strong></td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td><strong>-adminPort</strong> option missing</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot create <strong>pathName</strong></td>
</tr>
<tr>
<td>Type</td>
<td>Category</td>
<td>Message</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot create lock file fileName</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot initialize repository</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot initialize server on pathName</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot obtain a valid computer ID</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot retrieve computer name (...)</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot retrieve data from hostname on port pppp(...)</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot retrieve data from hostname. Authentication is required</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot retrieve data from hostname. Remote administration is not allowed</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Cannot retrieve data from hostname. Unknown host</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Existing license data has been created by a license server with a higher level than the one being installed. Either install a higher level license server or install license server from scratch.</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Network adapter or motherboard previously used for generating Computer ID is no longer available. Either re-install this piece of hardware or install license server from scratch for changing Computer ID.</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Check integrity of license data has failed. License server must be re-installed from scratch.</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Data received from hostname cannot be used by this computer</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>File version ver cannot be read by current software version ver</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Invalid computerId. XXX-XXXXXXXXXXXXXXXXXX cannot be used</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Invalid folder pathName</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Invalid port specified pppp for option -adminPort</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Unknown option(s) : -option</td>
</tr>
<tr>
<td>E</td>
<td>INITSERVER</td>
<td>Write time : yymmddhhmmss. Change time : yymmddhhmmss</td>
</tr>
<tr>
<td>I</td>
<td>STARTSERVER</td>
<td>Server version 6.209.0 built on Jan 17, 2010 5:28:47 PM started</td>
</tr>
<tr>
<td>I</td>
<td>STARTSERVER</td>
<td>java version &quot;1.6.0_18&quot;</td>
</tr>
<tr>
<td>I</td>
<td>STARTSERVER</td>
<td>Java(TM) SE Runtime Environment (build 1.6.0_18-b07)</td>
</tr>
<tr>
<td>I</td>
<td>STARTSERVER</td>
<td>Java HotSpot(TM) Client VM (build 16.0-b13, mixed mode)</td>
</tr>
<tr>
<td>I</td>
<td>STARTSERVER</td>
<td>ComputerId XXX-XXXXXXXXXXXXXXXXXX (based on device ...)</td>
</tr>
<tr>
<td>I</td>
<td>STARTSERVER</td>
<td>Ready : administration port pppp, licensing port pppp</td>
</tr>
<tr>
<td>I</td>
<td>STOPSERVER</td>
<td>Stopping license server...</td>
</tr>
<tr>
<td>I</td>
<td>STOPSERVER</td>
<td>License server stopped</td>
</tr>
<tr>
<td>E</td>
<td>REPOSITORY</td>
<td>IOException writing file fileName</td>
</tr>
<tr>
<td>E</td>
<td>REPOSITORY</td>
<td>Invalid repository directory pathName</td>
</tr>
<tr>
<td>E</td>
<td>REPOSITORY</td>
<td>cannot delete file (fileName)</td>
</tr>
<tr>
<td>Type</td>
<td>Category</td>
<td>Message</td>
</tr>
<tr>
<td>------</td>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>E</td>
<td>REPOSITORY</td>
<td>cannot rename file (fileName -&gt; fileName)</td>
</tr>
<tr>
<td>I</td>
<td>REPOSITORY</td>
<td>fileName written to disk</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Check integrity of license data has failed. License server must be re-installed from scratch.</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Clock has been changed</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Clock has been moved to the future (nnn ms)</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Clock has been moved to the past (nnn ms)</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Computer ID XXX-XXXXXXXXXXXXXXXXXXXXXXXXX no more available.</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>ComputerId XXX-XXXXXXXXXXXXXXXXXXXXXXXXX is not compatible with the cluster configuration</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>ComputerId XXX-XXXXXXXXXXXXXXXXXXXXXXXXX is not compatible with the server configuration</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Existing license data has been created by a license server with a higher level than the current one. Either install a higher level license server or install license server from scratch.</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>File version v1 cannot be read by current software version v2</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>License data cannot be read: invalid format. License server must be re-installed from scratch.</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Network adapter or motherboard previously used for generating Computer ID is no longer available. Either re-install this piece of hardware or install license server from scratch for changing Computer ID.</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Serialization error on runtime data</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>Write time : yymmddhhmmss, Change time : yymmddhhmmss</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>writeRuntime error :...</td>
</tr>
<tr>
<td>E</td>
<td>RUNTIMEDATA</td>
<td>XXX-XXXXXXXXXXXXXXXXXXXXXXXX cannot be used</td>
</tr>
<tr>
<td>W</td>
<td>RUNTIMEDATA</td>
<td>Error : AAA has no runtime</td>
</tr>
<tr>
<td>W</td>
<td>RUNTIMEDATA</td>
<td>Error : feature “AAA” refers to “SSSSSSS” which is not owned by a client</td>
</tr>
<tr>
<td>W</td>
<td>RUNTIMEDATA</td>
<td>Error : inconsistent feature AAA expected count = nnn registered nnn</td>
</tr>
<tr>
<td>W</td>
<td>RUNTIMEDATA</td>
<td>Error : inconsistent feature AAA no license</td>
</tr>
<tr>
<td>I</td>
<td>RUNTIMEDATA</td>
<td>System has been resumed</td>
</tr>
<tr>
<td>I</td>
<td>RUNTIMEDATA</td>
<td>System has been resumed</td>
</tr>
<tr>
<td>W</td>
<td>ADMINSERVER</td>
<td>Administration request denied from hostName(IP address) : invalid credentials</td>
</tr>
<tr>
<td>W</td>
<td>ADMINSERVER</td>
<td>Connection from hostName(IP address) terminated : a local administration console is connecting</td>
</tr>
<tr>
<td>W</td>
<td>ADMINSERVER</td>
<td>Remote administration not allowed : refuse connection from hostName(IP address)</td>
</tr>
<tr>
<td>I</td>
<td>ADMINSERVER</td>
<td>Administration connection ended with hostName(IP address)</td>
</tr>
<tr>
<td>I</td>
<td>ADMINSERVER</td>
<td>Administration connection started with hostName(IP address)</td>
</tr>
<tr>
<td>Type</td>
<td>Category</td>
<td>Message</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>I</td>
<td>ADMINSERVER</td>
<td>Administration port changed to pppp</td>
</tr>
<tr>
<td>I</td>
<td>ADMINSERVER</td>
<td>Failover port changed to pppp</td>
</tr>
<tr>
<td>I</td>
<td>ADMINSERVER</td>
<td>Licensing port changed to pppp</td>
</tr>
<tr>
<td>I</td>
<td>ADMINSERVER</td>
<td>adminCommand command issued</td>
</tr>
<tr>
<td>I</td>
<td>ADMINSERVER</td>
<td>License usage trace turned on for AAA</td>
</tr>
<tr>
<td>I</td>
<td>ADMINSERVER</td>
<td>License usage trace turned off for AAA</td>
</tr>
<tr>
<td>W</td>
<td>ENROLL</td>
<td>Enrollment authorization license has expired for editor Dassault Systems</td>
</tr>
<tr>
<td>W</td>
<td>ENROLL</td>
<td>License XXXXX-XXXXX-XXXXX-XXXXX-XXXXX is not valid</td>
</tr>
<tr>
<td>I</td>
<td>ENROLL</td>
<td>Enrollment authorized for editor Dassault Systems</td>
</tr>
<tr>
<td>E</td>
<td>LICENSEDATA</td>
<td>Cryptographic error: . . .</td>
</tr>
<tr>
<td>E</td>
<td>LICENSEDATA</td>
<td>Error in signature key extraction . . .</td>
</tr>
<tr>
<td>W</td>
<td>LICENSEDATA</td>
<td>RepGroupIndex of license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX has been invalid</td>
</tr>
<tr>
<td>W</td>
<td>LICENSEDATA</td>
<td>incomplete data for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX, RepGroupIndex missing RepFileIndex</td>
</tr>
<tr>
<td>I</td>
<td>LICENSEDATA</td>
<td>Activating group n for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</td>
</tr>
<tr>
<td>I</td>
<td>LICENSEDATA</td>
<td>Adding data for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX RepGroupIndex RepFileIndex Features AAA Quantity</td>
</tr>
<tr>
<td>I</td>
<td>LICENSEDATA</td>
<td>Deactivating group n for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</td>
</tr>
<tr>
<td>I</td>
<td>LICENSEDATA</td>
<td>Deleting data for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX RepGroupIndex</td>
</tr>
<tr>
<td>W</td>
<td>MONITORING</td>
<td>dumpAllThreads not available on this platform</td>
</tr>
<tr>
<td>W</td>
<td>MONITORING</td>
<td>dumpHeap not available on this platform</td>
</tr>
<tr>
<td>E</td>
<td>STATISTICS</td>
<td>Exception occurred; license usage no more logged</td>
</tr>
<tr>
<td>E</td>
<td>STATISTICS</td>
<td>Exception occurred; license usage not logged</td>
</tr>
<tr>
<td>E</td>
<td>STATISTICS</td>
<td>pathName specified is invalid; license usage not logged</td>
</tr>
<tr>
<td>E</td>
<td>LICENSESERV</td>
<td>Cannot listen on port pppp</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>Waiting for failover server(s)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>Invalid or expired client token nnnnnnnnnnnnnnnnn (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>No license for editor XXXXXXXXXX-XXXX-XXXX-XXXX-XXXXX-XXXXX (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, host hostName not authorized (from client ...)</td>
</tr>
<tr>
<td>Type</td>
<td>Category</td>
<td>Message</td>
</tr>
<tr>
<td>------</td>
<td>----------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, host not authorized (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, internal failover error (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, license already used by user userName on host userName (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, license used on another host (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no ConcurrentUser license available (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no NamedUser license available (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no NamedUser nor ConcurrentUser license available (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no license enrolled (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no license enrolled for tenant tenantId (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no license for editor XXXXXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXXXXX (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no license of type TYPE can be granted (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no more available license (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no suitable release date yymmddhhmmss (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, no suitable release number n (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA not granted, user userName not authorized (from client ...)</td>
</tr>
<tr>
<td>W</td>
<td>LICENSESERV</td>
<td>AAA queued request suppressed , no more available license (from client ...)</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>Editor editorName not registered</td>
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<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>Invalid or expired session nnnnnnnnnnnnnnnn</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>Licensing service started</td>
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<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>AAA granted to client ...</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>AAA detached from client ...</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>AAA detached by timeout from client ...</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>n tokens of AAA granted to client ...</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>n tokens of AAA detached from client ...</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>n tokens of AAA detached by timeout from client ...</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>AAA granted; offline license XXXXXXX-XXXXX-XXXXX-XXXXX-XXXXXX has been generated for host hostName XXX-XXXXXXXXXXXXXXXXXXXXX</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>AAA detached; offline license XXXXXXX-XXXXX-XXXXX-XXXXX-XXXXXX restituted (generated for host hostName XXX-XXXXXXXXXXXXXXXXXXXXX)</td>
</tr>
<tr>
<td>I</td>
<td>LICENSESERV</td>
<td>AAA detached; offline license XXXXXXX-XXXXX-XXXXX-XXXXX-XXXXXX expired (generated for host hostName XXX-XXXXXXXXXXXXXXXXXXXXX)</td>
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<tr>
<td>E</td>
<td>FAILOVERSRV</td>
<td>Cannot listen on port pppp</td>
</tr>
<tr>
<td>E</td>
<td>FAILOVERSRV</td>
<td>Cannot retrieve member of cluster</td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td>Cluster host hostName : computer id changed to XXX - XXXXXXXXXXXXXXXXXXXXXXXXXXX</td>
</tr>
<tr>
<td>Type</td>
<td>Category</td>
<td>Message</td>
</tr>
<tr>
<td>------</td>
<td>--------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td>Cluster host <code>hostName</code> changed to <code>hostName</code></td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td>Cluster host <code>hostName</code> repaired</td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td>Cluster host <code>hostName</code> replaced with <code>hostName</code> (XXX-XXXXXXXXXXXXXXXX)</td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td>Connection lost with <code>hostName</code></td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td>Unsuccessful handshake with <code>hostName</code></td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td><code>hostName</code> does not run a compatible runtime version (version: nnn, release: n, servicePack: n)</td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td><code>hostName</code>’s computerId XXX-XXXXXXXXXXXXXXXXXXXX does not match expected XXX-XXXXXXXXXXXXXXXXXXXX</td>
</tr>
<tr>
<td>W</td>
<td>FAILOVERSRV</td>
<td><code>hostName</code> is not synchronized</td>
</tr>
<tr>
<td>I</td>
<td>FAILOVERSRV</td>
<td>Connection established with <code>hostName</code></td>
</tr>
</tbody>
</table>