

DS License Server 3DEXPERIENCE R2026x Installation Guide

Contents

DS License Server.....	3
What's New.....	4
Installing the DS License Server.....	6
Before Starting the Installation.....	7
Operating System Prerequisites.....	8
License Server and Client Typical Setup.....	8
Preliminary Remarks.....	8
Upgrading Your License Server.....	8
Installing the DS License Server on Windows.....	9
Installing Only the License Administration Tool on Windows.....	16
Installing the DS License Server on Linux.....	24
Setting Up a Virtualized DS License Server Using Hyper-V on Windows Server.....	26
Prepare the Hardware.....	28
Add the Hyper-V Role and Create the Virtual Machines.....	28
Operate the VMs.....	28
Upgrading Your License Servers in a Failover Cluster.....	29
Uninstalling the DS License Server.....	30
Uninstall on Windows.....	31
Uninstall on Linux.....	31
Configuring the DS License Server and Clients.....	31
Starting the License Administration Tool.....	32
Configuring and Activating a Standalone License Server.....	34
Configuring and Activating a Cluster in Failover Mode.....	45
Maintaining Continuous Failover Cluster Operation.....	59
Replace a Failover Member.....	65
Rename a Member.....	65
Replace the Network Card of a Failover Member.....	65
Repair Corrupted Data of a Member.....	65
Starting and Stopping the DS License Server.....	66
Configuring Clients.....	70
Communicating through Forward and Reverse Proxies.....	72
Implement a Forward Proxy for the License Administration Tool.....	75
Implement a Reverse Proxy for the DS License Server.....	75
Managing Licenses.....	76
Enrolling Licenses.....	77
Administering Licenses.....	80
Getting Information About Licensed Feature Usage.....	85
Getting Information About Licensed Feature Usage per User.....	91
Trace Usage per User.....	95
Recycle named user licenses.....	95
Setting License Authorization Rules.....	96
Manage standard authorization rules.....	120
Manage composite authorization rules.....	120

Importing and Exporting License Authorization Rules.....	121
Export Authorization Rules.....	127
Import Authorization Rules.....	127
Getting Information About the Authorized Country of Use for Licenses.....	128
Tracking License Server Operation.....	131
Tracking License Statistics.....	132
Tracking Server Logs.....	137
Monitoring the Server.....	140
Using the Managed Licensing Service.....	144
What Is the Managed Licensing Service?.....	145
The License Server is an Online Service.....	146
What Is An Authentication File?.....	146
Setup Operations.....	147
Using the Licensing Service Administration Web User Interface.....	148
Reference.....	154
DSLicSrv Command.....	155
DSLicTarget Command.....	169
Protocol and Cipher Suite Control.....	170
File Locations, Settings and Registry Entries.....	172
Port Management.....	175
Troubleshooting.....	176
Client cannot communicate with server.....	178
Poor communication performance between a Windows client and any server.....	178
Poor client performance at startup.....	178
Nodelock or extracted offline license cannot be granted to the client application.....	178
Reducing launch duration.....	178
Changing license server timeout.....	178
Reducing timeout when a failover member is down.....	178
Error, Information and Warning Messages.....	179

DS License Server

Welcome to the DS License Server Installation Guide, designed to answer all your questions about installing and configuring the DS License Server.

What's New

This section describes new enhancements in DS License Server installation.

R2025x FD03

Supporting Standalone DS License Server in Hyper-V

A DS License Server can now work in stand-alone and failover cluster mode in Hyper-V.

Benefits: With this enhancement the dependency of running DS License Server in a cluster mode with three virtual machines is removed.



For more information, see [Setting Up a Virtualized DS License Server Using Hyper-V on Windows Server](#).

R2024x FD01

New Option for ./startInstLicServ (Linux)

A new option at Linux installation is available to support automatic secure configuration.

Benefits: You can disable SSL protocols and set cipher suit file path.

For more information, see [Installing the DS License Server on Linux](#).

Check SSL Certificate in Licensing Client When not self-signed (Windows)

You can disable self-signed certificates

Benefits: You can block communication with a DSLS server using a self-signed SSL certificate.

For more information, see [Configuring Clients](#).

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

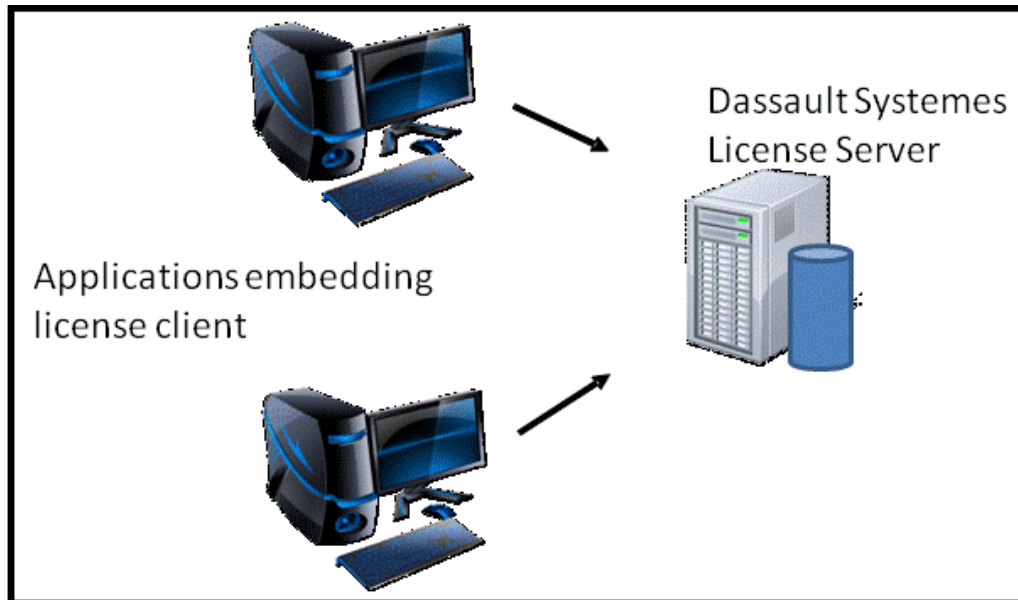
A minimum of 2GB of RAM is required, 4GB of RAM are recommended for a standalone server, 8GB for each failover member.

For detailed information about prerequisites, see the [Program Directory](#) for the related release.

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. However the license administration tool alone can be installed on a virtual machine. Furthermore, extracting an offline license and using a nodelock license in a virtual machine are not supported.



Note: However, there is one exception: Hyper-V virtual machine is 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 clients must be time-synchronized.

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.

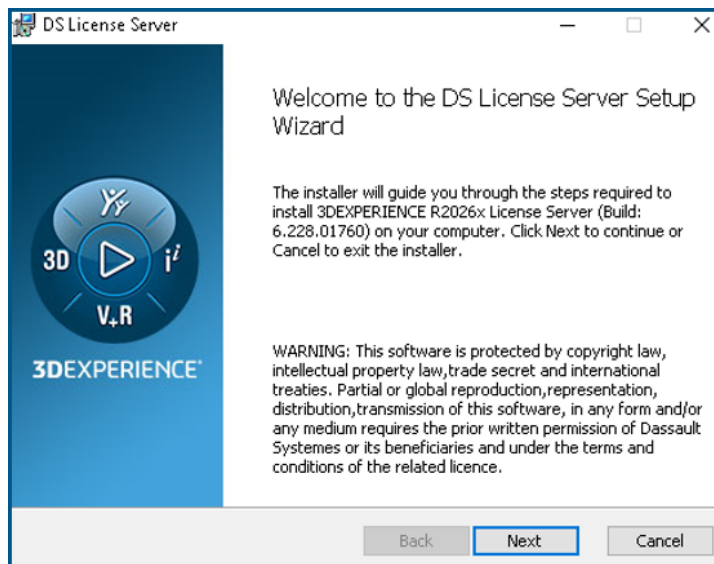
Installation and de-installation rely on Windows-compliant tools enabling anyone familiar with Windows procedures and concepts to install the software without assistance.

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.

1. Log on as an administrator.
2. Insert the media into the drive.

If the DS License Server is distributed on an assembly media, go to the directory containing the DS License Server software, locate the `SetupDSLsmsi.exe` file and double-click it to start the installation.

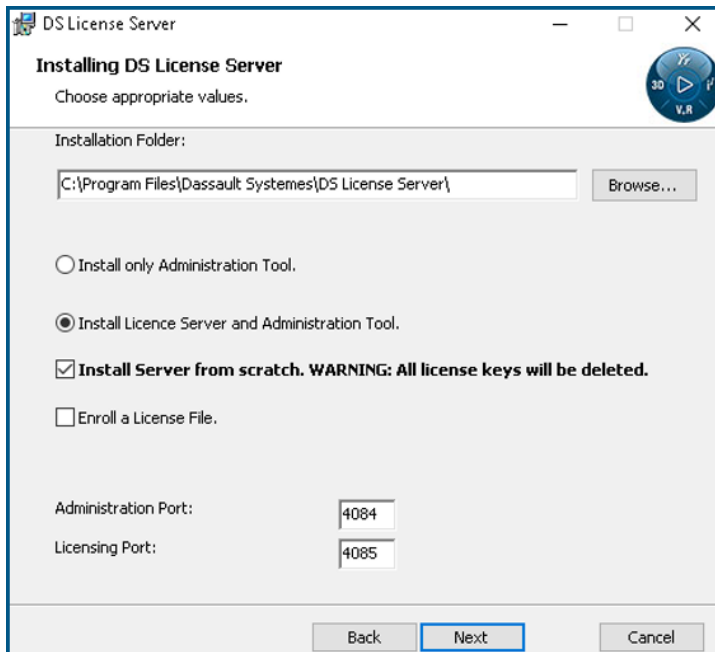
In either case, a dialog box appears informing you that the installation is about to start, followed by the **DS License Server** setup wizard:



Click **Next**.

3. Specify the installation folder and installation type.

The **Installing DS License Server** dialog box appears:



The default destination folder is: C:\Program Files\DassaultSystemes\DS License Server
If you want to change the destination folder, click **Browse...** 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 **Yes** to create the folder.

Then select the installation type. You have two choices:

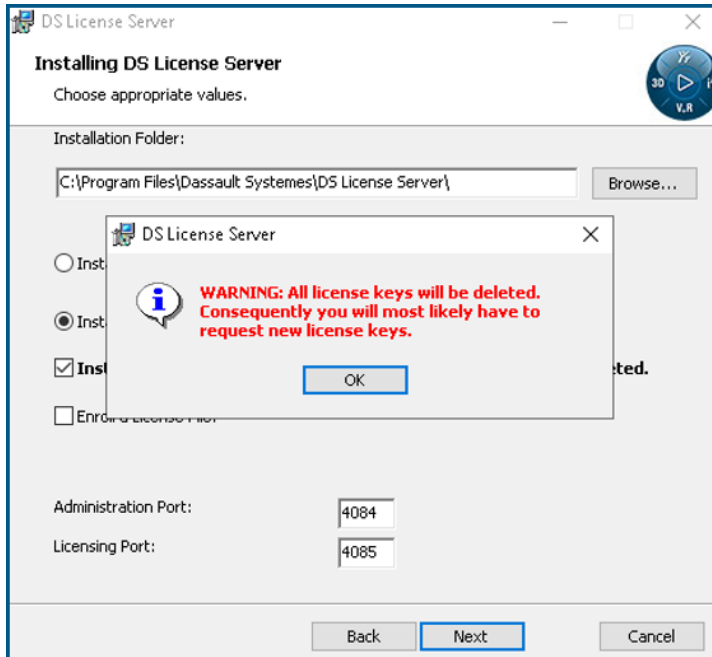
Install only Administration Tool Allows you to install only the **License Administration Tool**.
See [Installing Only the License Administration Tool on Windows](#) for more details.

Install License Server and Administration Tool Default option.

In our example, we are going to install both the License Server and the License Administration Tool, which is the default option : **Install License Server and Administration Tool**.

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, select the **Install Server from scratch** option. The warning is displayed again, informing that all licenses will be deleted if you continue:



You can 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 choose whether to continue installing from scratch, or unselect 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 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:

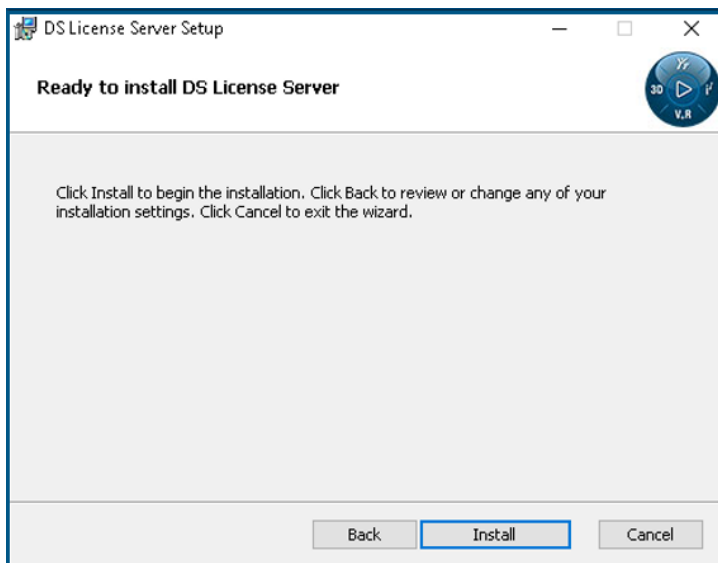
Administration Port	The port number you set is used to listen to DS License Server administration tool requests. The default is 4084.
Licensing port	The port number you set is used to listen to licensing client requests. The default is 4085.
Enroll a License File	Check this option and browse to select a license file to quickly enroll your licenses at installation time. This option will be displayed at this point in the installation if no existing licenses are detected on your machine.

If you do not specify different ports now, the default port numbers will be used.

Click **Next**.

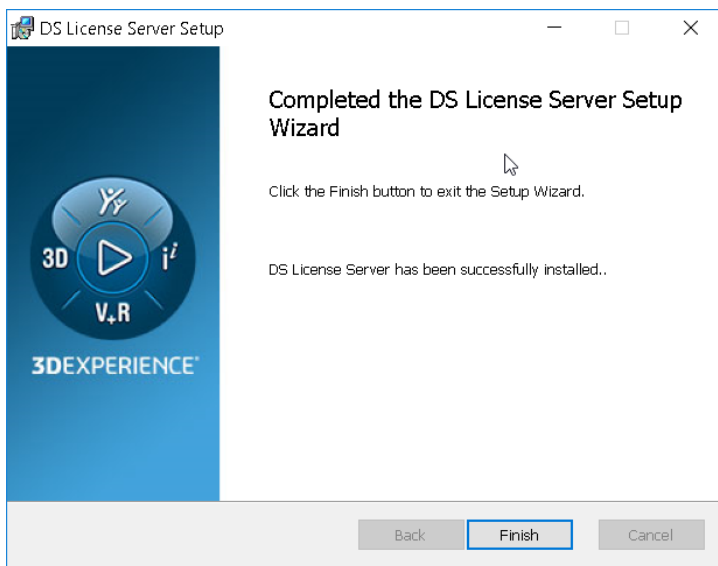
5. Install the DS License Server.

The **Ready to install DS License Server** dialog box appears:



Click **Install** to install the DS License Server. If the UAC prompts you to confirm, click **Yes**.

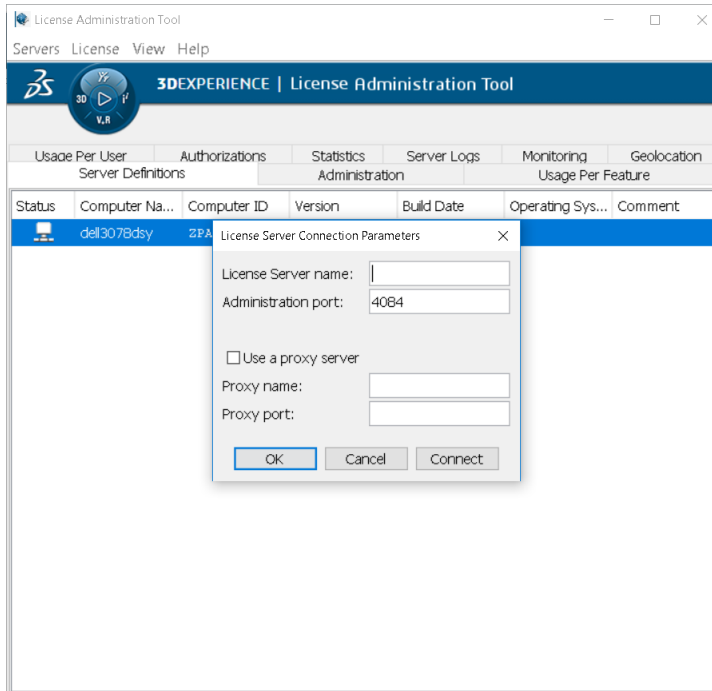
A progress bar is displayed while the DS License Server files are installed and the corresponding Windows service is started. Once the installation has been completed, the following dialog box appears:



The **License Administration Tool** is launched automatically.

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

If you are installing the DS License Server for the first time (in which case, no previously configured **License Administration Tool** settings are present), the **Server Definitions** tab is displayed with the **License Server Connection Parameters** dialog box in the foreground:



The license sever name field contains the name `localhost` by default, but you can of course specify another name.

7. Specify the license server by typing its name in the **License Server Name** field, specify the listening port number for the **Administration tool**.

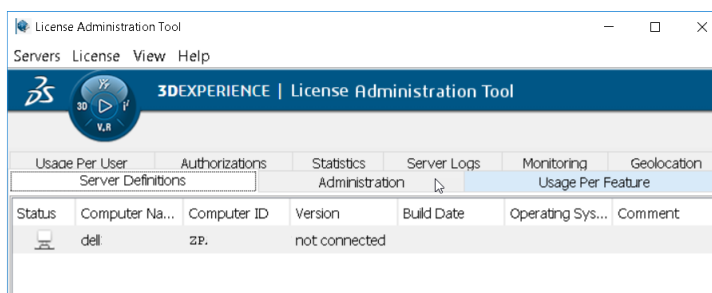
As you type the name, the name will be displayed in red characters until the full name you specify has been detected, in which case the name is displayed in black.



Note: The **Administration tool** may communicate with forward and reverse proxies. For more information, see [Communicating through Forward and Reverse Proxies](#).

Click **OK** to confirm.

The **Server Definitions** tab now looks like this:



The server name has been specified, but the server is not yet connected.


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
```

where xxx is the name of the computer on which the server is being installed.

8. Connect to the license server.

To do so:

- Select the **Servers - Connect** command and select the server name from the list.
- Or, select the **Servers - Connect all** command.
- Or, point to the  icon, right click and select the **Connect** command.
- Or, double-click on the icon.

If you did not enroll a license during the installation, the  icon appears over the  computer icon .

Pointing to the  icon displays the following message:

```
no license enrolled
```

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	<p>Contains an optional comment enabling you, for example, to distinguish one license server from another when several server definitions are displayed in the list.</p> <p>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.</p> <p>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.</p> <p>In the case of a failover cluster, each member has its own comment field.</p>

When several lines are displayed 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 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, **Usage Per Feature**, **Usage Per User** tab, or the **Detailed License Usage** dialog box.

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** or right-clicking in the tab and selecting **Add new server**, it is added to the server list bar and automatically pre-selected. This bar is displayed at the top of the following tabs: **Administration**, **Usage Per Feature**, **Usage Per User**, **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](#).

You must then 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 actions from the contextual menu can be performed in the **Usage Per User** tab
- creation and/or modification operations in the **Authorizations** tab are not allowed
- the dump buttons in the **Monitoring** tab are disabled.

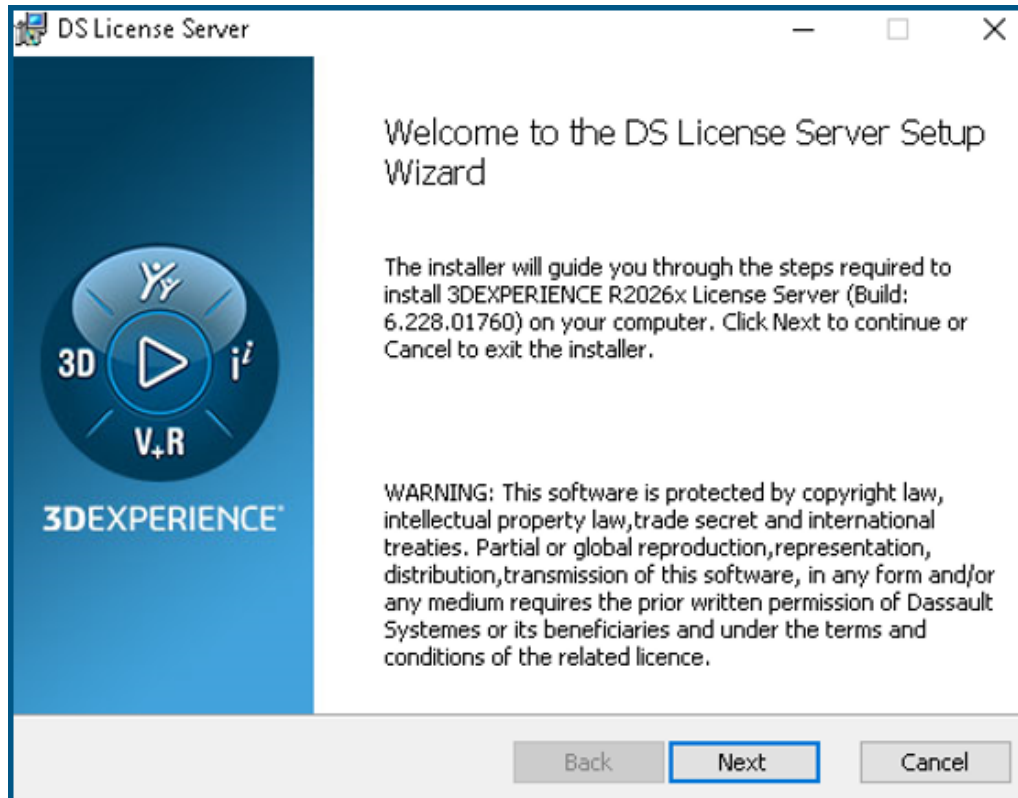
1. Log on as an administrator.

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.

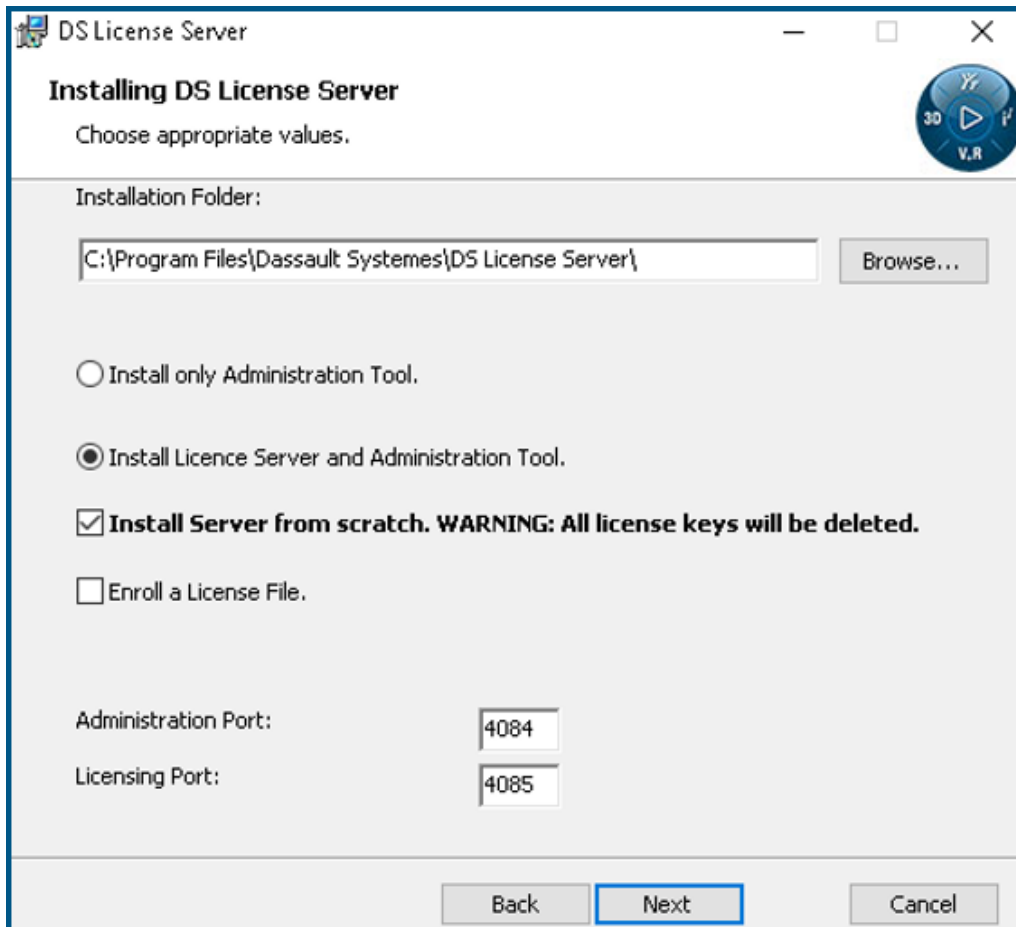
If the DS License Server is distributed on an assembly media, go to the directory containing the DS License Server software, locate the `SetupDSLMSi.exe` file and double-click it to start the installation.

In either case, 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:



Click **Next**.

3. Specify the installation folder and installation type.



The default destination folder is: C:\Program Files\DassaultSystemes\DS License Server

If you want to change the destination folder click **Browse...** 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 **Yes** to create the folder.

Then select the installation type. You have two choices:

Install only Administration Tool

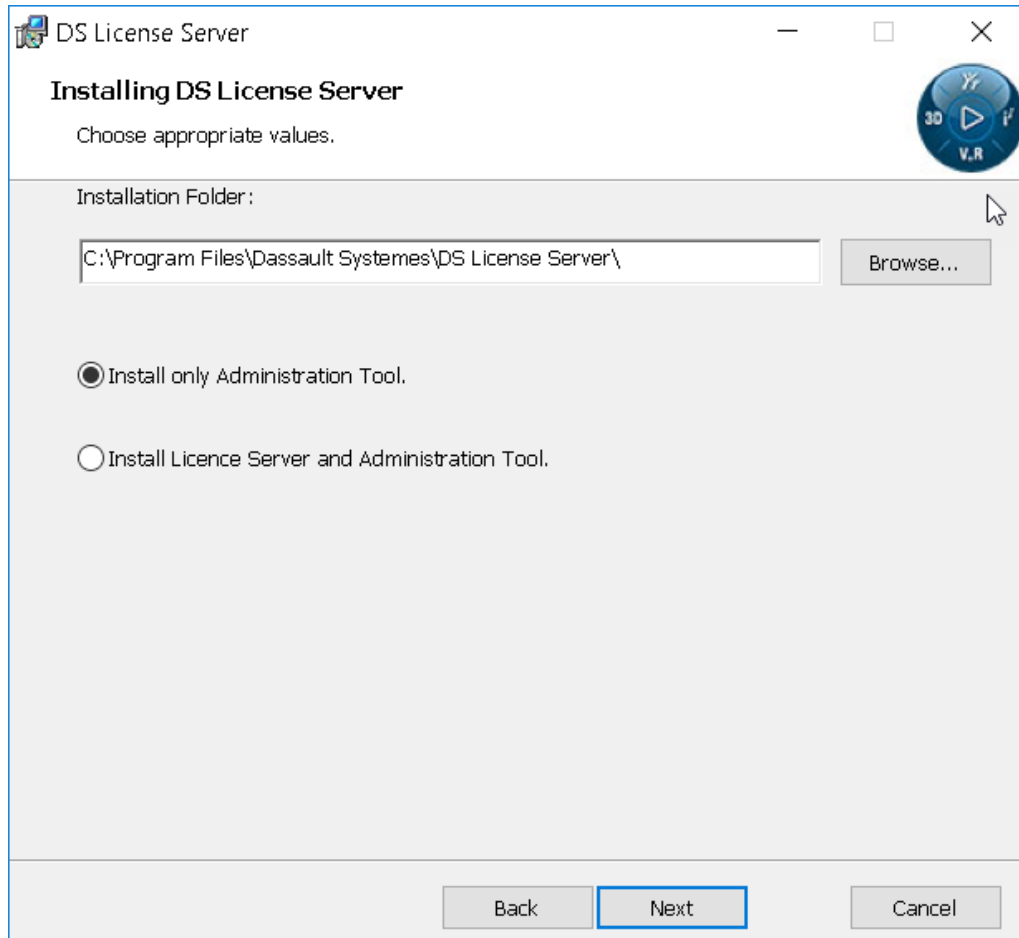
Allows you to install only the **License Administration Tool**.

Install License Server and Administration Tool

Default option.

In our example, we are going to install only the License Administration Tool, so use the **Install only Administration Tool** option.

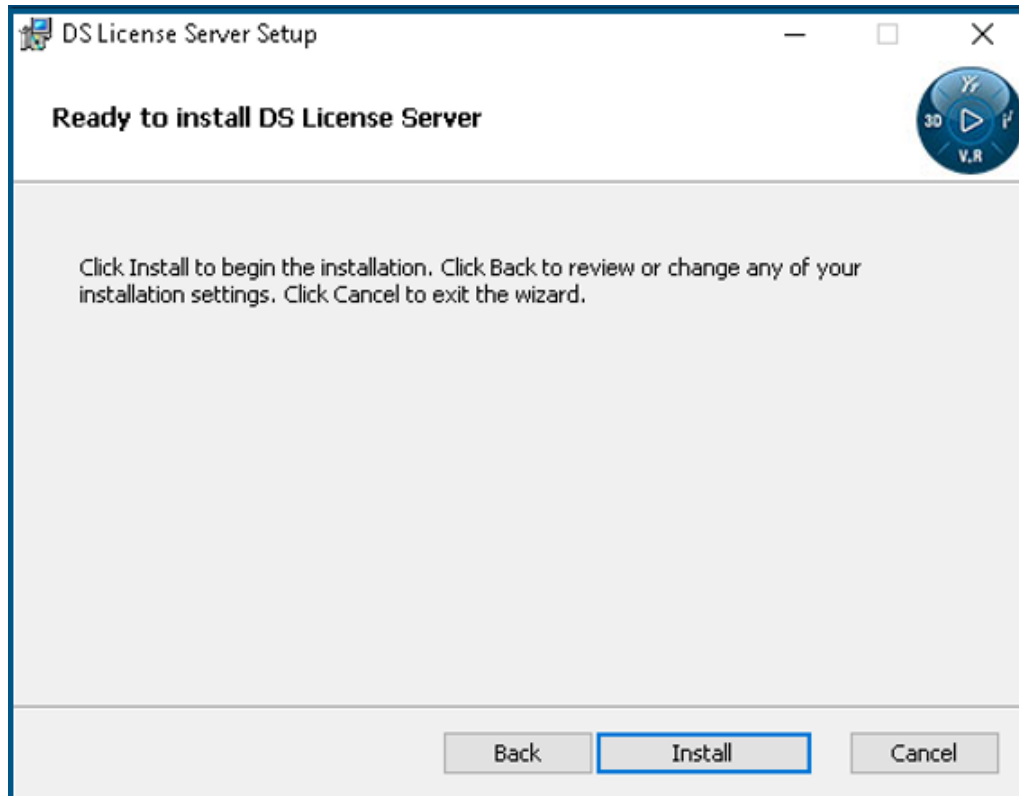
4. Select the **Install only Administration Tool** check box.



Click **Next**.

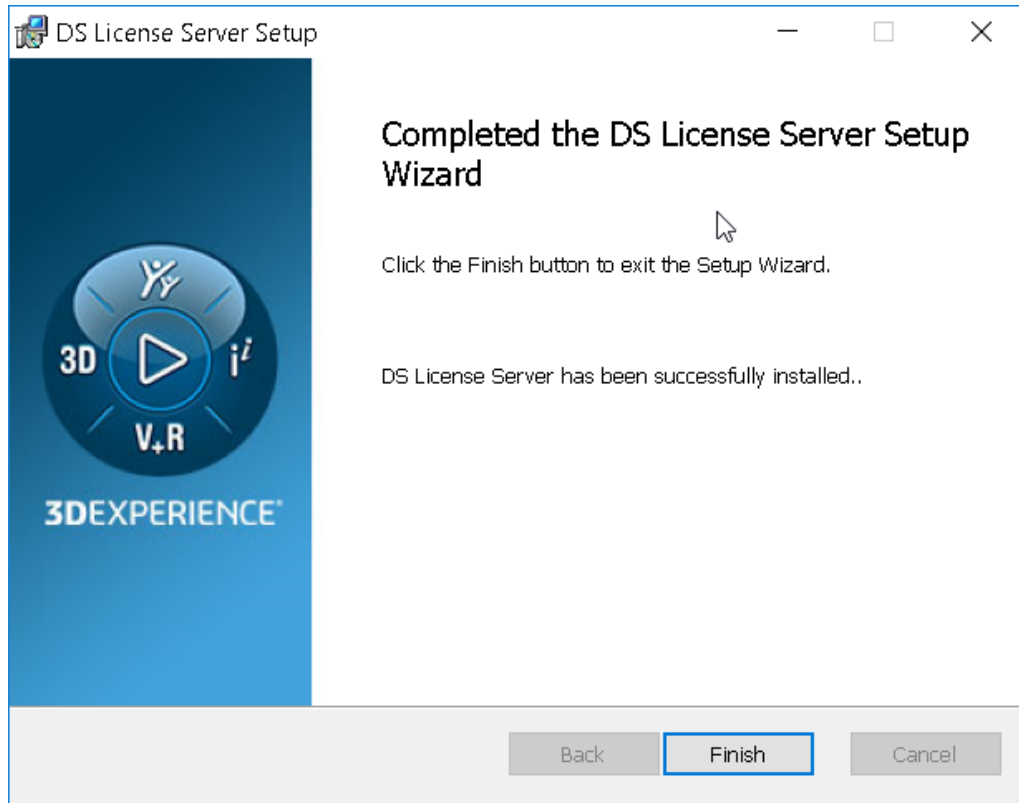
5. Install the Administration Tool.

The **Ready to install DS License Server** dialog box appears:



Click **Install** to install the **License Administration Tool**.

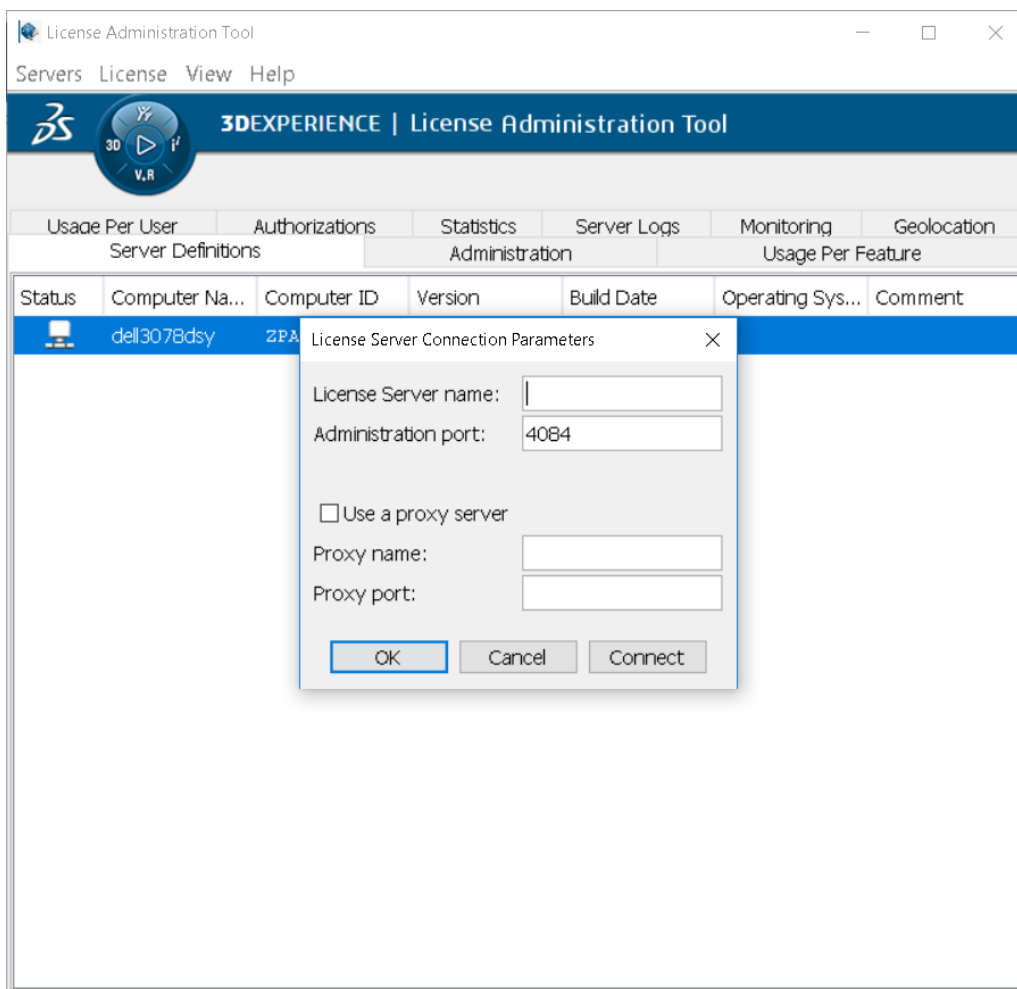
A progress bar is displayed while the **License Administration Tool** files are installed. Once the installation has been completed, the following dialog box appears:



The **License Administration Tool** is launched automatically.

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

If you are installing the DS License Server for the first time (in which case, no previously configured **License Administration Tool** settings are present), the **Server Definitions** tab is displayed with the **License Server Connection Parameters** dialog box:



The license sever name field contains the name `localhost` by default, but you can of course specify another name.

7. Specify the license server by typing its name in the License Server Name field.

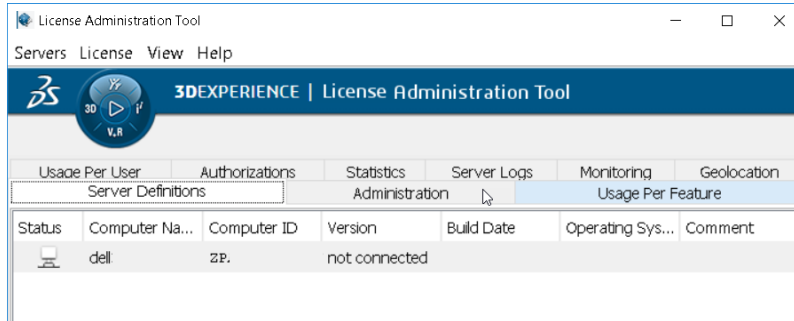
As you type the name, the name will be displayed in red characters until the full name you specify has been detected, in which case the name is displayed in black.




Note: The **License Administration Tool** may communicate with forward and reverse proxies. For more information, see [Communicating through Forward and Reverse Proxies](#).

Click **OK** to confirm the name.

The **Server Definitions** tab now looks like this:



The server name has been specified, but the server is not yet connected.

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
```

where xxx is the name of the computer on which the license server is being installed.

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, see [Communicating through Forward and Reverse Proxies](#).

9. Connect to the license server.

To connect to the server:

- Select the **Servers - Connect** command and select the server name from the list.
- Or, select the **Servers - Connect all** command.
- Or, point to the , right click and select the **Connect** command.
- Or, double-click on the icon.

If you did not enroll a license during the installation, 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 Linux

This task explains how to unload the DS License Server from scratch on a single computer running a supported Linux 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 Linux platform.
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:

Option	Description
-p	Set the installation path. The default value is: <code>/usr/DassaultSystemes/DSLicenseServer</code>
-n	Set the administration port number. The default value is: 4084
-licensingPort	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.
-x	Prevent system file update managing automatic startup when rebooting your machine
-onlyAdminTool	Installs only the License Administration Tool (without the license server)
-f	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.
-noUI	Do not launch the License Administration Tool GUI. Useful when no display is available.
-noStart	Do not start the license server after having installed it.
-h	Display help
-disableSSLProtocol protocol	Disable SSL protocols For example: -disableSSLProtocol SSLv3,TLSv1 Known protocols are: TLSv1.3, TLSv1.2, TLSv1.1, TLSv1, SSLv3.
-cipherSuitesPath filename	Set cipher suite file path

The installation starts and the system outputs the following:

```
/tmp/DSLS/LINUX64
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/LINUX64/DSLS.tar
```

```

Untar DSLS.tar was successful
Server initialization:
/usr/DassaultSystemes/DSLICENSEServer/linux_a64/code/bin/DSLicSrv
-initServer -adminPort 4084
2018/08/25 16:13:13:044 I INITSERVER    Initializing license server on /var
args [-adminPort, 4084]
2018/08/25 16:13:13:044 I REPOSITORY   LicenseDB.dat written to disk
2018/08/25 16:13:13:044 I REPOSITORY   LicenseRT.dat written to disk
2018/08/25 16:13:13:044 I INITSERVER   Server version 6.421.0 built on
Jul 11, 2018 1:04:39 PM
2018/08/25 16:13:13:044 I INITSERVER   ComputerId HRE-425A10DEF1780905
Server was successfully initialized

Server start:

Server was successfully started

Sending nohup output to nohup.out.
Admin Console start:
/usr/DassaultSystemes/DSLICENSEServer/linux_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 Linux 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/linux_a64/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.

Setting Up a Virtualized DS License Server Using Hyper-V on Windows Server

The Hyper-V role in Windows Server lets you create a virtualized computing environment where you can create and manage virtual machines. It can be used to create and run a virtualized DS License Server.

Before you begin: Note the following prerequisites:

- A DS License Server can work in standalone and cluster mode. It is recommended that the server runs in a virtual environment as a failover cluster. In the failover cluster mode, there must be three virtual machines (VMs) on three different physical machines to be able to communicate with each other.
- the only supported operating system for generating the virtual machine is Windows Server, on which the Hyper-V role has to be added and a TPM 2.0 activated
- the only supported operating system for running the VM is also Windows Server, on which there must be a Virtual Trusted Platform Module; the VM must be Generation 2.



Note: The Computer ID format generated for VMs is longer than the one generated in physical environments, which is shorter. For more details about both formats, see [DSLicTarget Command](#). However, when using the client-side Local Key Manager, the Nodelock Key Manager (DSLicMgt) or **Tools > Options > Licensing** tools, only the short format is displayed, even if running in a VM.

Prepare the Hardware

On a physical machine running Windows Server, ensure that there is a Trusted Platform Module (TPM) 2.0, then activate the TPM in the UEFI.

1. Activate the TPM by running the Trusted Platform Module (TPM) Management tool using the `tpm.msc` command in a command prompt. Select the **Action > Initialize the TPM...** command. If the TPM status is not ready in the Trusted Platform Module (TPM) Management tool, prepare the TPM by selecting the **Action > Prepare the TPM...** command.
2. Run the Device Manager and click Security Devices to check that the TPM level is correct. It should display: Trusted Platform Module 2.0.

Add the Hyper-V Role and Create the Virtual Machines

Configure the physical machine running Windows Server by adding the Hyper-V role which lets you create a virtualized computing environment where you can create and manage virtual machines. The only supported operating system for the VM is Windows Server.

1. Configure the physical machine running Windows Server by adding the Hyper-V role.

You add the role using the Server Manager tool in Windows Server.

2. On the physical machine, create a VM using the Hyper-V Manager.

When creating the VM, in the Hyper-V Manager tool, from the New Virtual Machine Wizard, click **Specify Generation** and click **Generation 2**.

3. Still using the Hyper-V Manager, after creating the VM, enable TPM mode.

In the **Hardware - Security** section, click **Enable Trusted Platform Module**.

4. Disable checkpoints the VM by clearing the **Enable checkpoints** check box.
5. If you are using failover cluster approach, create two more VMs the same way.

You can now install a DS License Server in each VM and configure the failover cluster as explained in [Configuring and Activating a Cluster in Failover Mode](#).

When installing the license server on Windows, run the `SetupDSLsmsi.exe` file: do not double-click the `DSLs.msi` file.



Note: Each VM can optionally be shielded, and managed by a Host Guardian Server.

Operate the VMs

Certain operations can safely be performed on each VM using the Hyper-V Manager, but others are not supported because they change the `ComputerID`, which in turn invalidates the license keys. Like for physical machines, backup/restore are not supported.

1. You can perform the following operation (which do not change the `ComputerID`):

- Turn Off (then Start) VM
- Shutdown (then Start) VM
- Save (then Start) VM
- Pause (then Resume) VM
- Reset VM
- Move VM, including Live Migration
- Rename VM.



Note: Export VM is supported, but is not useful since Import VM is not supported.

2. Do not perform the following operations (which do change the `ComputerID`):

- Import
- Replication
- Checkpoint (ensure checkpoints have been disabled).

Offline Licensing Restrictions

Generally, any V5/V6/3DEXPERIENCE DSLS licensing client works the same way when connected to a DS License Server running in a VM, but there are restrictions concerning offline licensing.

In particular, when running a licensing client in a virtual machine, it is still not possible to extract an offline license. There is no difference if the license server itself is running in a virtual machine or a physical machine.

And it is still not possible to get nodelock licenses to work in a VM.

The following table summarizes the different cases (green = supported; red = not supported):

	Nodelock license	Offline extracted from a physical or a virtual server	License on a physical or a virtual server
Client on a physical machine			
Client on a virtual machine			

Limitations

The following list summarizes limitations:

- When the DS License Server runs as a service in a physical machine, the account used is `Network Service`. However, when running in a VM, the account used by the Windows service is `Local System`.
- Nodelock licenses are not supported
- Windows versions lower than Windows Server 2016 are not supported
- Linux is not supported
- VMWare and other hypervisors are not supported
- Microsoft Azure is not supported. This is because the Hyper-V implementation in Azure is different from its implementation on physical computers.
- Nested VMs are not supported: the VM in which the license server runs must be hosted by a physical machine, and not by another VM.

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:
 - On Windows:
 - Check that there is no local **License Administration Tool** running.
 - Uninstall the DS License Server.
 - Install the new DS License Server version.
 - On Linux:
 - Check that there are no `DSLicSrv` processes running on the member using the command:


```
ps -ef | grep DSLicSrv
```
 - Delete the installation directory as follows:


```
rm -rf/usr/DassaultSystemes/DSLICENSEServer
```
 - Install the new DS License Server version as follows: `startInstLicSrv -noUI`
3. Return to the fourth machine:
 - a. Reconnect to the upgraded failover member, and check that the member is running a different license server version from the two other members.
 - b. Stop the server on the second member. The failover cluster status is now red.
4. On the second member, repeat the same steps performed on the first member.
5. Return to the fourth machine:
 - a. Reconnect to the second upgraded failover member, then check the license server version and that the failover cluster status is now yellow.
 - b. Stop the server on the third member.
6. On the third member, repeat the same steps performed on the other two members.
7. Return to the fourth machine:
 - a. Reconnect to the third upgraded failover member.
 - b. Check the license server version and that the failover cluster status is now green.

Uninstalling the DS License Server

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

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, make sure you close all browser applications, such as Internet Explorer or Firefox, and 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.
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 Linux

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

1. Log on as root.
2. Stop the license server by running the following command:

```
systemctl stop dsls
```

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:

```
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:

```
rm /usr/lib/systemd/system/dsls.service
systemctl daemon-reload
```


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. On windows, Select **Start > All Programs > DS License Server > License Server Administration**.

On Linux, start the **License Administration Tool** by running the following command, for example:

```
/usr/DassaultSystemes/DSLICENSEServer/linux_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 available.

- Click the check marks to hide or display tabs as required.
- Click **Look and Feel** and select a look to change the appearance of the dialog
- Click **Font size...** to change the size of the texts



Note: The DSLS can inherit font size parameters of Windows **Make text bigger** option available in **Display** settings. If the two features are combined, the **License Administration Tool** Font size has priority.

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

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 computerID 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 (Linux)`

5. Reinstall the license server and select the **Install Server from scratch** check box 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.
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, select the **Servers - Connect all** command.
- Or, point to the  icon, right click and select the **Connect** command.
- Or, double-click on the icon.

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

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, the  icon displays the following message:

```
no license enrolled
```

.

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.

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: Both techniques work also in any tab containing table-formatted data, such as the **Administration** tab, **Usage Per Feature** tab, **Usage Per User** tab, or **Detailed License Usage** dialog box.

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**, **Usage Per Feature**, **Usage Per User**, **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:

Server Configuration

License server not yet enabled. Please enroll licenses.

Name: _____

Computer ID: _____

Software version: _____

Build date: _____

Administration port:

Licensing port:

Remote administration authorization:

☒ None

☐ Restricted

☐ Full

☒ Enable offline license extraction

☐ Enable license usage statistics

☐ Enable automatic recycling

Server log directory: C:\ProgramData\DassaultSystemes\License\

☒ Standalone server

☐ Failover cluster

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.

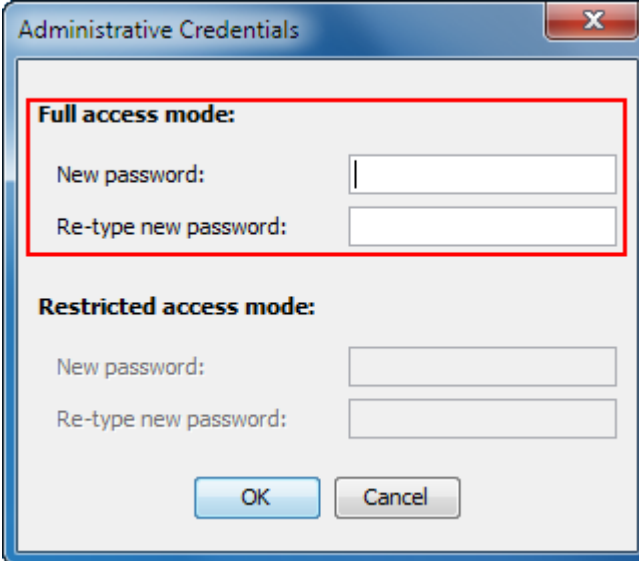
Administration port: Listening port for the **License Administration Tool**.

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....**

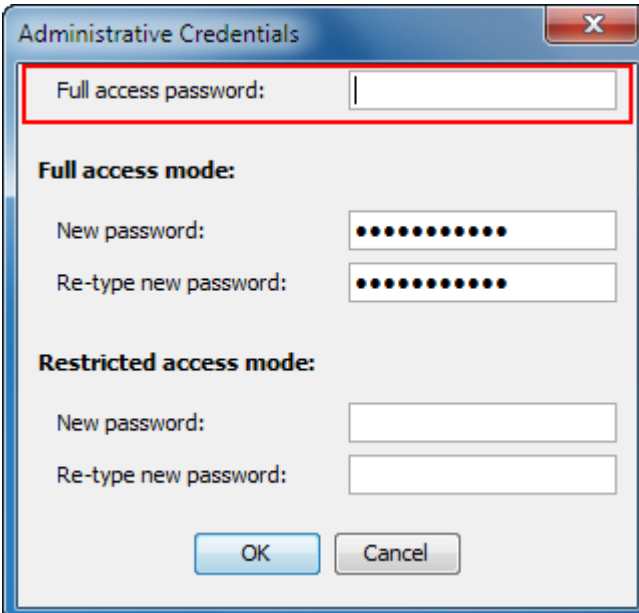
If needed, you must set the password by clicking the **Set password...** button and typing the new password for full access mode:



The image shows the 'Administrative Credentials' dialog box. It has a title bar with a close button (X). The dialog is divided into two main sections: 'Full access mode:' and 'Restricted access mode:'. The 'Full access mode:' section is highlighted with a red rectangular box. It contains two text input fields: 'New password:' and 'Re-type new password:'. The 'Restricted access mode:' section is located below the first section and also contains two text input fields: 'New password:' and 'Re-type new password:'. At the bottom of the dialog are two buttons: 'OK' and 'Cancel'.

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:



The image shows the 'Administrative Credentials' dialog box in a different state. It now includes a new text input field at the top, labeled 'Full access password:', which is highlighted with a red rectangular box. Below this field, the 'Full access mode:' section is visible, containing 'New password:' and 'Re-type new password:' fields, both of which are filled with black dots, indicating that passwords have been entered. Below the 'Full access mode' section is the 'Restricted access mode:' section, which also contains 'New password:' and 'Re-type new password:' fields. At the bottom are the 'OK' and 'Cancel' buttons.

Remote administration authorization

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 actions from the contextual menu can be performed in the **Usage Per User** 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:

	Connect Command	Connect restricted Command
No password set	No password requested	No password requested
Only password for Full mode set	Password for Full mode must be entered	No password requested
Both Full and Restricted mode passwords set	Password for Full mode must be entered If password for Restricted mode is entered, connection is forced in Restricted mode	Password for Full or Restricted mode must be entered

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

	Connection from remote tool using Connect Command	Connection from remote tool using Connect restricted Command
No password set	No password requested Connection is forced in Restricted mode	No password requested
Only password for Full mode set	No password requested Connection is forced in Restricted mode	No password requested
Both Full and Restricted mode passwords set	Password for Full or Restricted mode must be entered Connection is forced in Restricted mode	Password for Full or Restricted mode must be entered

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


	Connection from remote tool using Connect Command	Connection from remote tool using Connect restricted Command
No password set	Connection denied	Connection denied
Only password for Full mode set	Connection denied	Connection denied
Both Full and Restricted mode passwords set	Connection denied	Connection denied

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: If a network problem occurs or if the **License Administration Tool** runs from a laptop which disconnects, or if no action is performed from the **License Administration Tool** for 30 mins, the connection between both processes is broken and the status in the **Server Definitions** tab returns to . Once disconnected, the **License Administration Tool** doesn't automatically reconnect to the license server(s).

Enable offline license extraction 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.

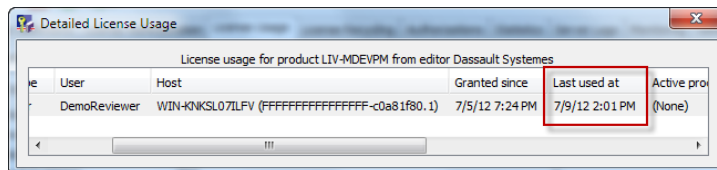
Enable license usage statistics Enables license usage statistics using the **Statistics** tab.
If you check this checkbox, the license server collects statistical data. If you uncheck it, the license server will NOT collect statistical data, and data already collected will not be deleted.

Enable automatic recycling

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

Using the **Usage Per User** 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.

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.

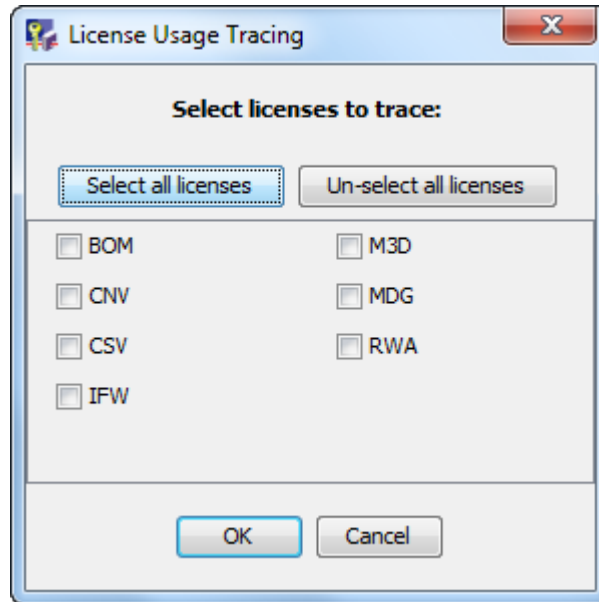
When a **License Administration Tool** manages a V6R2013x or lower license server, the `Last used at` field normally displayed when detailed license usage information is requested will not be displayed.



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:



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.

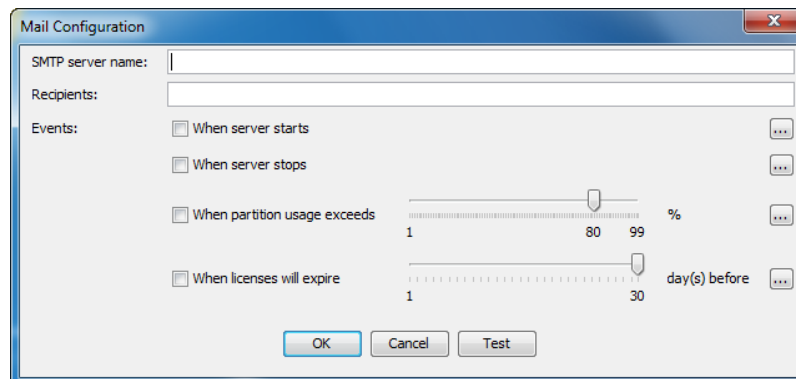
If activated, license usage tracing events are logged and can be viewed using the **Server Logs** tab.

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 restricted 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:

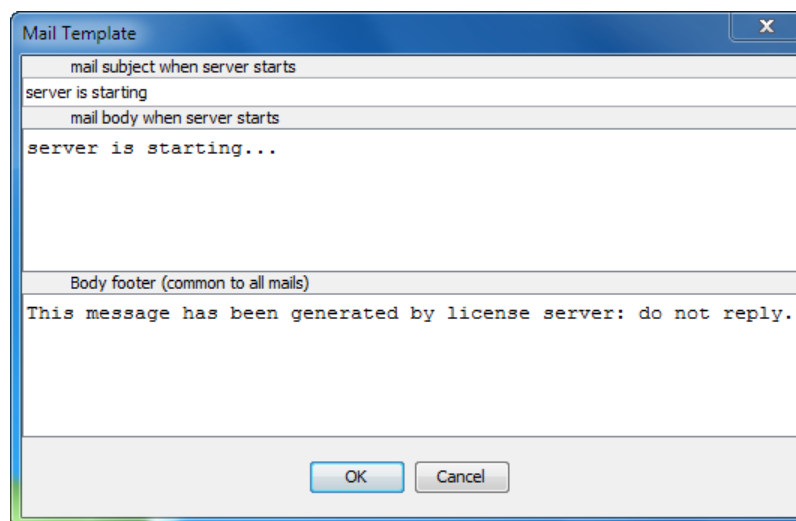


The fields are as follows:

- **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. You might use an SMTP relay in this case.
- **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 Linux). 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 <code>-logDir</code> option of the <code>DSLicSrv</code> 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.

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 LP5-SES-DSY : License enroll starting Sending
files to server LP5-SES-DSY E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-1-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-10-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-11-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-12-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-13-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-2-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-3-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-4-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-5-of-13.LIC E:\Licenses421\
```

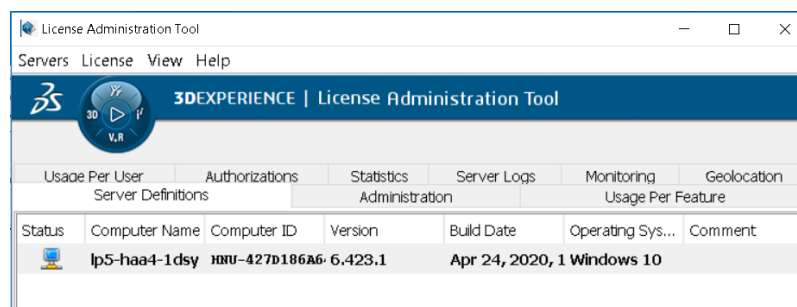
```

DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-6-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-7-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-8-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-9-of-13.LIC LP5-SES-DSY : 13 licenses received

```

c. Click **OK**.

The  icon confirms that your server has been activated:



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

server LP5-SES-DSY (10.237.169.69) 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.

Furthermore, after activation, if the license server is stopped more than 60 days, then another activation license included in another .LICZ file is required.

Configuring and Activating a Cluster in Failover Mode

You can 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.

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.

The objective of a failover configuration is to increase reliability, not capacity.

Before you begin:


- Install and start a license server on three different machines. A failover cluster of license servers comprises exactly 3 computers. The three computers can be any supported Windows Server or Linux computers: they do not have to be all Windows Server or all Linux machines.
- To maximize quality of service, we recommend the three machines to be on the same subnetwork.
- Having the 3 machines at the same time is mandatory, whatever their time zones, whatever their network location. An absolute time difference of 1 hour maximum is tolerated between each machine, but can lead to license grant failure in case some licenses don't expire at the same moment on the 3 members.
- Each failover member sends an empty message every second to both other members. A failover member considers that another member is down if it does not reply within 5 seconds.
- At least two machines must be up and running and connected to each other to have a working failover cluster.
- The three machines have the same role.
- 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 start the **License Administration Tool** on a license server on Windows, then build the cluster using three existing Linux machines.

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


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

2. Create a connection to one of the license servers to be part of the cluster: click **Servers > New...**
3. Connect the **License Administration Tool** to the server.

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 appears:

```
server xxx not connected
```

To connect to the server:

- Click **Servers > Connect** command and select the server name from the list.
- Or, click **Servers > Connect > all**.
- Or, point to the  icon, right-click, and select **Connect**.
- Or, double-click the icon.

The status now looks like this:

Status	Computer name	Computer id
	riffdsy	JFN-0370E018200EEA01

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 computer hosting the license server.
Computer ID	Computer id of the computer 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	<p>Contains an optional comment enabling you, for example, to distinguish one license server from another when several server definitions are displayed in the list.</p> <p>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. Type the text, then click ENTER to validate.</p> <p>The comment field supports NLS characters, including DBCS. You can add and modify a comment 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.</p>

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

If the **Server Definitions** tab contains several lines, you can select multiple lines (using Shift or Control keys and left-clicking) to connect several servers at the same time.

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

When you select then copy (using Ctrl-C) one or more lines, you can paste the copied fields together in any other text processing program (for example, Excel). You can also 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 the appropriate column title.



Note: Both techniques work also in any tab containing table-formatted data.

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 the line that 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 appears by default at its new location.



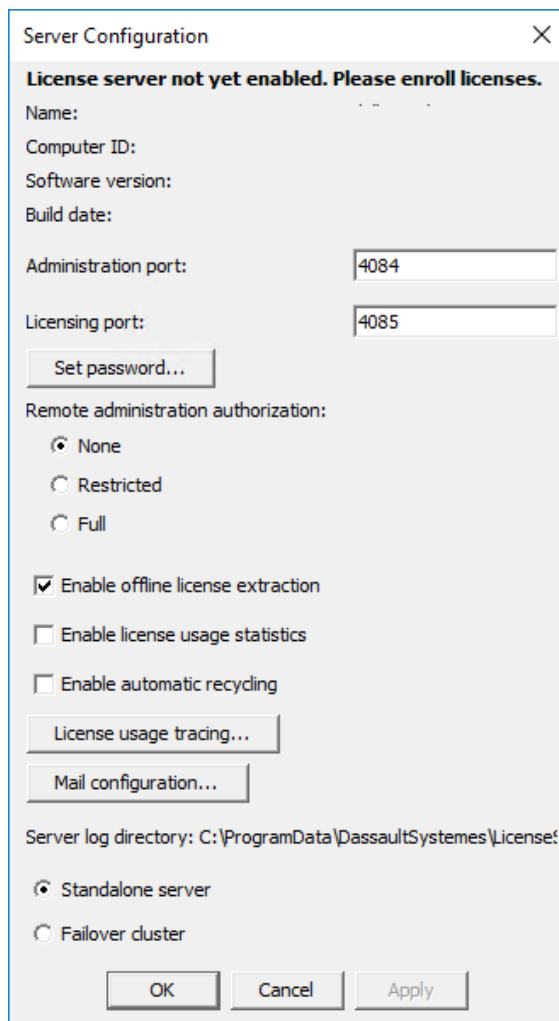
Note: You can only move one line at a time.

When you add a new server in the **Server Definitions** tab, by selecting **Servers > New** or right-clicking in the tab and selecting **Add new server**, it is added to the server list bar and automatically preselected. This bar belongs to the following tabs: **Administration**, **Usage Per Feature**, **Usage Per User**, **Statistics**, and **Geolocation**.

4. Configure the license server.

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

The **Server Configuration** dialog box appears:

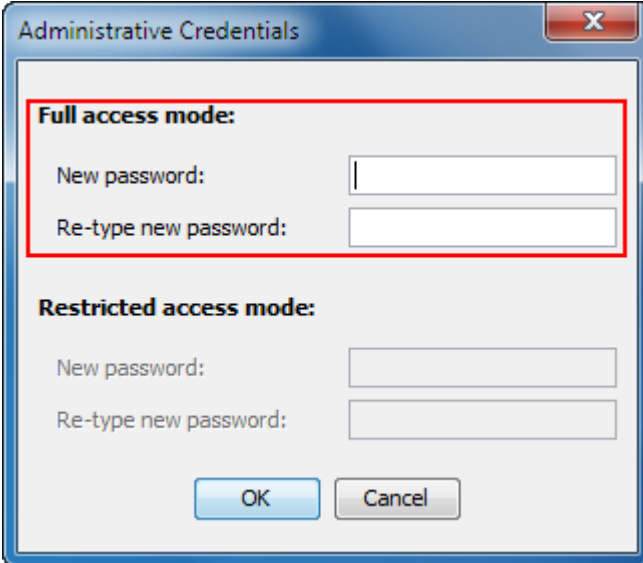



Here is a list of the information and options in the dialog box:

Server name: Name of the computer hosting the license server.

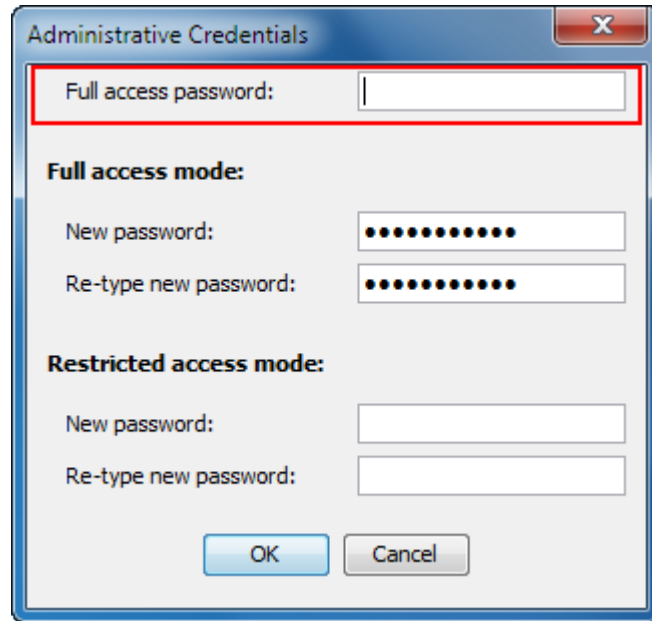
Server id: Computer id of the computer hosting the license server.

- 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**.
- Licensing port:** 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.
- Set password...** Opens the **Administrative Credentials** dialog box that lets you define passwords required to administer your server using the **License Administration Tool**. When the passwords are already specified, the **Change passwords...** option appears.
- When needed, you must set the password by clicking **Set password...** and entering the new password for full access mode:

The image shows a Windows-style dialog box titled "Administrative Credentials". It has a blue title bar with a close button (X) in the top right corner. The dialog is divided into two sections. The first section, "Full access mode:", is highlighted with a red rectangular border. It contains two text input fields: "New password:" and "Re-type new password:". The second section, "Restricted access mode:", is below the first and contains two text input fields: "New password:" and "Re-type new password:". At the bottom of the dialog are two buttons: "OK" and "Cancel".

 **Warning:** If you lose the password, the only possibility to recover Administrator access is to reinstall the license server from scratch.

Once you have set the password, an additional field appears in the upper area. Enter the current **Full access password** 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:



The image shows a Windows-style dialog box titled "Administrative Credentials". It has a red border around the top and a close button (X) in the top right corner. The dialog contains the following fields and sections:

- Full access password:** A text input field with a red border.
- Full access mode:** A section header.
- New password:** A password input field (masked with dots).
- Re-type new password:** A password input field (masked with dots).
- Restricted access mode:** A section header.
- New password:** A text input field.
- Re-type new password:** A text input field.
- Buttons:** "OK" and "Cancel" buttons at the bottom.

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.

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 actions from the context menu can be performed in the **Usage Per User** tab
 - creation and/or modification operations in the **Authorizations** tab are not allowed
 - the dump options 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:

	Connect Command	Connect restricted Command
No password set	No password requested	No password requested
Only password for Full mode set	Enter Password for Full mode	No password requested
Both Full and Restricted mode passwords set	Enter Password for Full mode If password for Restricted mode is entered, connection is forced in Restricted mode	Password for Full or Restricted mode must be entered

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

	Connection from remote tool using Connect Command	Connection from remote tool using Connect restricted Command
No password set	No password requested Connection is forced in Restricted mode	No password requested
Only password for Full mode set	No password requested Connection is forced in Restricted mode	No password requested

	Connection from remote tool using Connect Command	Connection from remote tool using Connect restricted Command
Both Full and Restricted mode passwords set	Password for Full or Restricted mode must be entered Connection is forced in Restricted mode	Password for Full or Restricted mode must be entered

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


	Connection from remote tool using Connect Command	Connection from remote tool using Connect restricted Command
No password set	Connection denied	Connection denied
Only password for Full mode set	Connection denied	Connection denied
Both Full and Restricted mode passwords set	Connection denied	Connection denied

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.

Check box 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: If a network problem occurs or if the **License Administration Tool** runs from a laptop that disconnects, or if no action is performed from the **License Administration Tool** for 30 mins, the connection between both processes is broken and the status in the **Server Definitions** tab returns to . Once disconnected, the **License Administration Tool** does not automatically reconnect to the license servers.

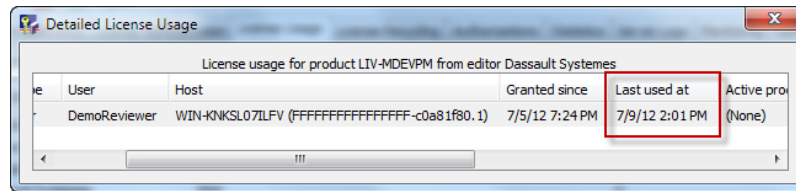
Enable license usage statistics Enables license usage statistics using the **Statistics** tab.

If you select this check box, the license server collects statistical data. If you clear 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 that have not been used for at least 30 days.

Using the **Usage Per User** 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 obtains the 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.

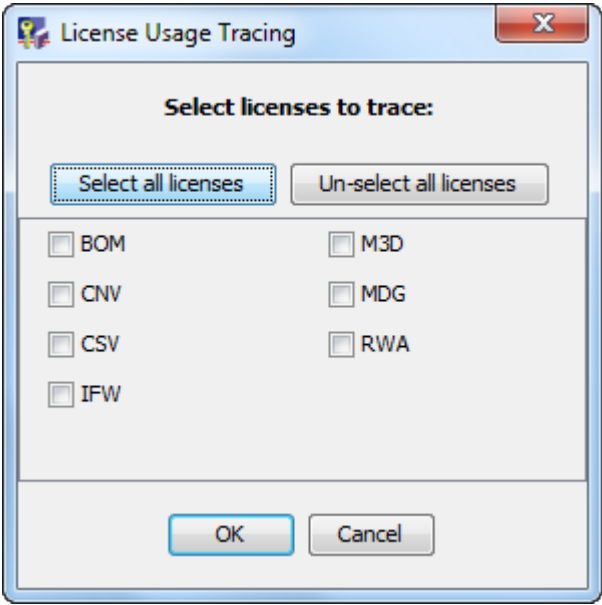
If you install on top of V6R2013x or a lower version, the last usage value of all tied named user licenses is initialized with the new installation date, and the last usage value of all non-tied named user licenses is initialized to an empty value.

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 licenses, or select and clear all the licenses using the **Select all licenses** and **Un-select all licenses** options.

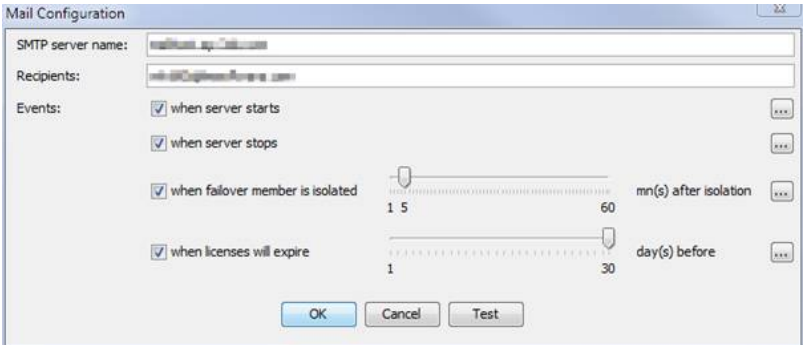
If activated, license usage tracing events are logged and can be viewed using the **Server Logs** tab.

If the **Select all licenses** option is checked, then you enroll licenses for new features, the new features and check boxes appear automatically, and the boxes are selected, which avoids having to access this dialog box again and click the **Select all licenses** option again.

If another **License Administration Tool** is already connected, the dialog box is in restricted 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: SMTP servers requiring authentication and/or SSL are not supported.

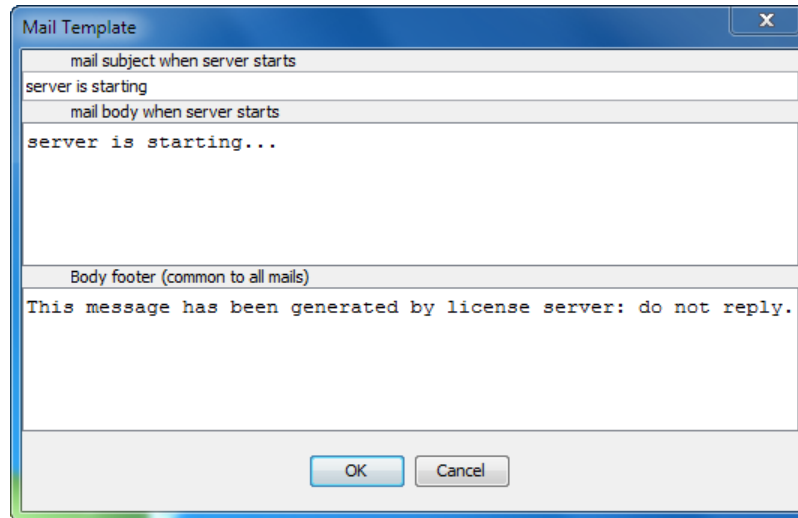
- **Recipients:** specify the email addresses to which the notifications will be sent. You can specify several email addresses, each separated by commas (,).
- **Events:** Mail notifications are available for the following types of events:
 - `when server starts`: a notification is sent when the license 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 Linux). When there is no more space in the data folder, the license server stops. Even if disk space may already be monitored by other tools, you can configure your email server to send an email 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 is 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 5mins. and can be set from 1min. to 60mins, in 1min. 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 before 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 ... which displays the **Mail Template** dialog box:



Click **Test** to send a mail notification to validate the SMTP server and email addresses.

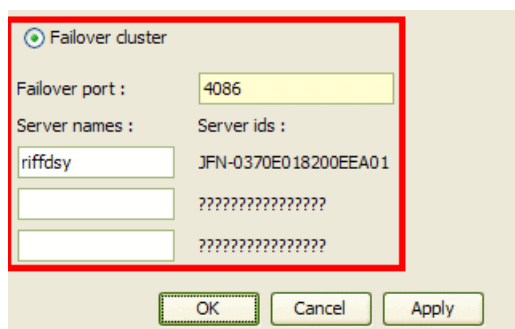
Server log directory Point to this option to display the path of the directory containing license server logs. The path may be located either on the local computer or on a remote computer. The server log directory path can only be set in command-line mode (using the `-logDir` option of the `DSLicSrv` 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 Select this option to configure the server as member of a cluster in failover mode.

5. Select the **Failover cluster** option.
6. Set the **Failover port:** number.

The default is 4086. 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. Your server name and its server id are already declared. As you enter the names of the other two servers, the names appear in red while the software verifies that the server machines exist. The letters are then displayed normally once the existence of the server computer has been checked.

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


8. Click **OK**.

The **License Administration Tool** now contains the following:

Status	Computer name	Computer id
	rifdsy aldo3dsy anas2dsy	JFN-0370E018200EEA01 EHT-0370E01834BDDE01 SAF-3218100083928E71

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

9. 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 that contains the Activation license.



Note: 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, click **Open**.

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 **OK**

The green background confirms that your failover cluster has been activated and is now up and running:

Status	Computer name	Computer id
	rifdsy aldo3dsy anas2dsy	JFN-0370E018200EEA01 EHT-0370E01834BDDE01 SAF-3218100083928E71

If you point to the green background, a message appears:

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/DassaultSystemes/...

☐ Standalone server
☒ Failover cluster

Failover port : 4086

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

10. 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.

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:





appears in certain tabs indicates that a cluster is present. Servers to which you are connected are in bold. Select this option to use the relevant function with the cluster.





In certain tabs, the servers can be chosen from a list. The list contains servers to which you are connected.

Meaning of the symbols and colors:

Symbol	Meaning
	The cluster member is connected to the License Administration Tool .
	The cluster member is connected to the License Administration Tool in restricted mode.
	The cluster member is NOT connected to the License Administration Tool .
	A communications link has been established between two members of the cluster.
?	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.
	A green background indicates that the cluster is up and running. At least two links exist. Green status appears as "operational" when you run the admin tool in command-line mode

Symbol	Meaning
	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 if at least two servers can exchange information between them. Yellow status appears as "partially operational" when you run the admin tool in command-line mode
	Red icons indicate in all cases that the cluster is down. No links exist. Red status appears as "not operational" when you run the admin tool in command-line mode.

The following table illustrates some typical examples of cluster status symbols that may appear during cluster operation:

This symbol...	means that...
	You have not connected to a cluster member: cluster status is undetermined.
	The cluster is up and running. One of the servers is connected to the other two, but we do not know if these two servers are inter-connected or not. Not enough information exists about the link between the non-connected servers.
	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 also goes down .
	The cluster is down: no links exist.

Maintaining Continuous Failover Cluster Operation

You can perform different operations after a failure of one of the members of a DS License Server cluster, without having to stop the cluster.

During a hardware failure involving a member of a DS License Server failover cluster, the cluster remains active. You do not need to stop the cluster to replace the failed member by a new one.



Note: 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 is planned, the failover cluster being 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 is excluded from a failover cluster, it has to be reinitialized 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 us assume you have a failover cluster with the following three cluster members, M1, M2 and M3:

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

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



1. Install a DS License Server from scratch on member M4.

In case an administration port different from the default one (4084) has been set for the cluster, do specify this particular number when installing from scratch.

2. Do not configure M4.

In particular, do not set passwords and do not set failover mode. Any passwords, the failover mode and the other settings will be automatically transferred in the next steps.

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 ... after member M1:

Server names:	Server ids:
iclin1plp	ZJH-5191101E4F42AD2F 
icaix1plp	WWP-8000169294C00001 
iclin3plp	DHV-51BA162564389852 


OK Cancel Apply

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

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

Modify Cluster Member

Server name: iclin1plp
 Server id: ZJH-5191101E4F42AD2F

☐ Change computer name:
☐ Update computer id
☒ Replace computer with: nuq32plp 
☐ Repair computer

OK Cancel

Then, click **OK**.

The following warning appears:

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 **Yes**.

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.

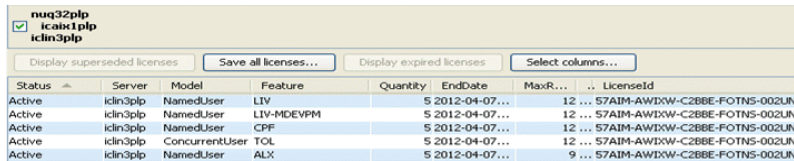
New cluster licenses are required because one of the three computerIDs in the failover cluster has changed. For practical reasons, we strongly recommend that you obtain the new licenses BEFORE changing the computerID of a cluster member.



Note: If two members are active, the failover cluster remains operational. When 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** and users-licenses associations are kept the same as before:



Status	Server	Model	Feature	Quantity	EndDate	MaxR...	LicenseId
Active	iclin3plp	NamedUser	LIV	5	2012-04-07...	12 ...	57A1M-AWD4W-C2BBE-FOTNS-002UN
Active	iclin3plp	NamedUser	LIV-MDEVPM	5	2012-04-07...	12 ...	57A1M-AWD4W-C2BBE-FOTNS-002UN
Active	iclin3plp	NamedUser	CPF	5	2012-04-07...	12 ...	57A1M-AWD4W-C2BBE-FOTNS-002UN
Active	iclin3plp	ConcurrentUser	TOL	5	2012-04-07...	12 ...	57A1M-AWD4W-C2BBE-FOTNS-002UN
Active	iclin3plp	NamedUser	ALX	5	2012-04-07...	9 ...	57A1M-AWD4W-C2BBE-FOTNS-002UN

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

Rename a Member

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

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

Let us assume you need to rename M1 from icwvc1plp to icw7c1plp.

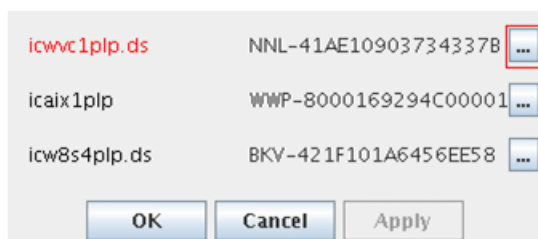
1. Stop failover cluster member M1 icwvc1plp.
2. Rename M1 and restart the computer.
3. Install a DS License Server from scratch on member M1.

In case an administration port different from the default one (4084) has been set for the cluster, do specify this particular number when installing from scratch.

4. Do not configure M1.

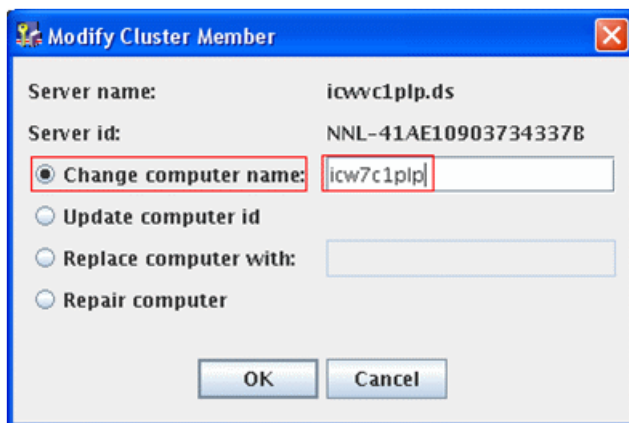
In particular, do not set passwords and do not set failover mode. Any passwords, the failover mode and the other settings will be automatically transferred in the next steps.

5. From failover member M2, start the **License Administration Tool**.
6. In the **Server Configuration** dialog box for your cluster, click the ... after member M1:



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

7. Select the option **Change computer name** and enter the name of computer icw7c1plp as illustrated below:



Then, click the **OK**.

Your modified cluster now contains the following members:

- M1: icw7c1plp
- M2: icaix1plp
- M3: icw8s4plp



Note: This scenario can also be useful if you want to change hardware but keep the network card on the replaced computer.



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

Replace the Network Card of a Failover Member

Before you begin: In the following scenario, let us 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.

In case an administration port different from the default one (4084) has been set for the cluster, do specify this particular number when installing from scratch.

3. Do not configure M1.

In particular, do not set passwords and do not set failover mode. Any passwords, the failover mode and the other settings will be automatically transferred in the next steps.

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 ... after member M1:

Server names:	Server ids:
icwvc1plp.ds	QTR-421410145E64F346 ...
icaix1plp	WWP-8000169294C00001 ...
icw8s4plp.ds	BKV-421F101A6456EE58 ...

OK Cancel Apply

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

7. Select the **Update computer id** option.

Then, click **OK**.

The following warning appears:

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 **Yes**.

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

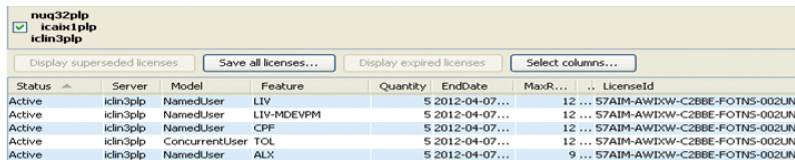
8. Enroll new licenses generated for the cluster.

New cluster licenses are required 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: If two members are active, the failover cluster remains operational. When 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** and users-licenses associations are kept the same as before:



Status	Server	Model	Feature	Quantity	EndDate	MaxR...	LicenseId
Active	iclin3plp	NamedUser	LTV	5	2012-04-07...	12 ...	57AIM-AWD&W-C2BBE-FOTNS-002UN
Active	iclin3plp	NamedUser	LTV-MDEVPM	5	2012-04-07...	12 ...	57AIM-AWD&W-C2BBE-FOTNS-002UN
Active	iclin3plp	NamedUser	CPF	5	2012-04-07...	12 ...	57AIM-AWD&W-C2BBE-FOTNS-002UN
Active	iclin3plp	ConcurrentUser	TOL	5	2012-04-07...	12 ...	57AIM-AWD&W-C2BBE-FOTNS-002UN
Active	iclin3plp	NamedUser	ALX	5	2012-04-07...	9 ...	57AIM-AWD&W-C2BBE-FOTNS-002UN

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 us assume you have a failover cluster with the following three cluster members, M1, M2 and M3:

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

Let us also assume that license data on cluster member M2 is corrupted by an operating system reinstallation, for example, but that M1 and M3 are both up and running.

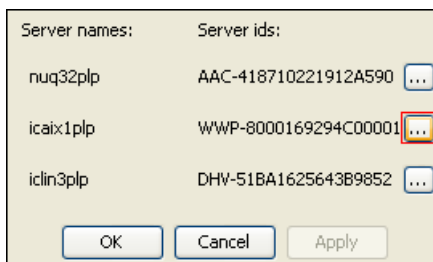
1. Stop failover cluster member M2.
2. Install a DS License Server from scratch on member M2.

In case an administration port different from the default one (4084) has been set for the cluster, do specify this particular number when installing from scratch.

3. Do not configure M2.

In particular, do not set passwords and do not set failover mode. Any passwords, the failover mode and the other settings will be automatically transferred in the next steps.

4. From failover member M1, start the **License Administration Tool**.
5. In the **Server Configuration** dialog box for your cluster, click the ... after member M2:

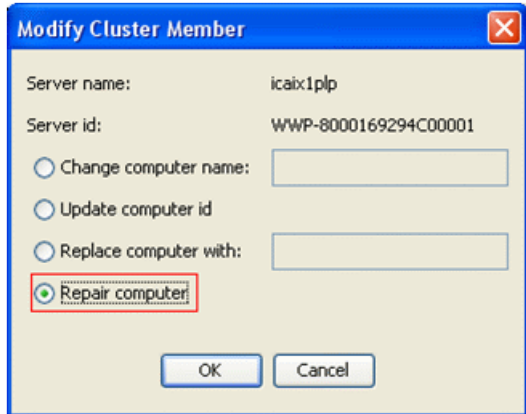


Server names:	Server ids:
nuq32plp	AAC-418710221912A590 ...
icaix1plp	WWP-8000169294C00001 ...
iclin3plp	DHV-51BA1625643B9852 ...

OK Cancel Apply

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

6. Select the **Repair computer** option.



Click **OK** to repair the corrupted data.



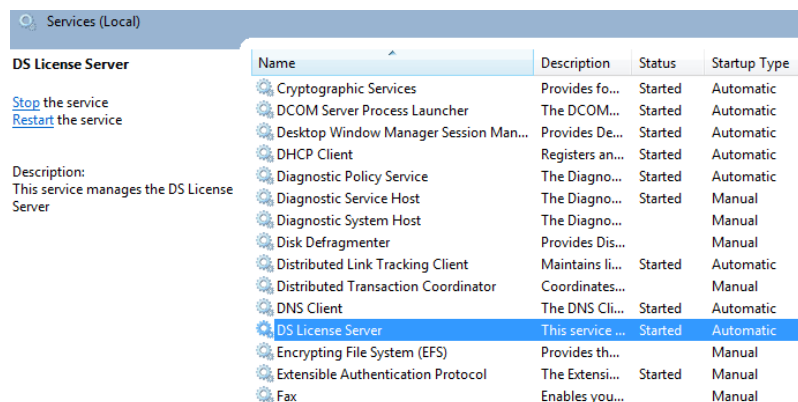
Note: You do not need new license keys because the three computer IDs remain the same.

Starting and Stopping the DS License Server

You can use the tools described below 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 install the DS License Server, a Windows service named **DS License Server** is 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:

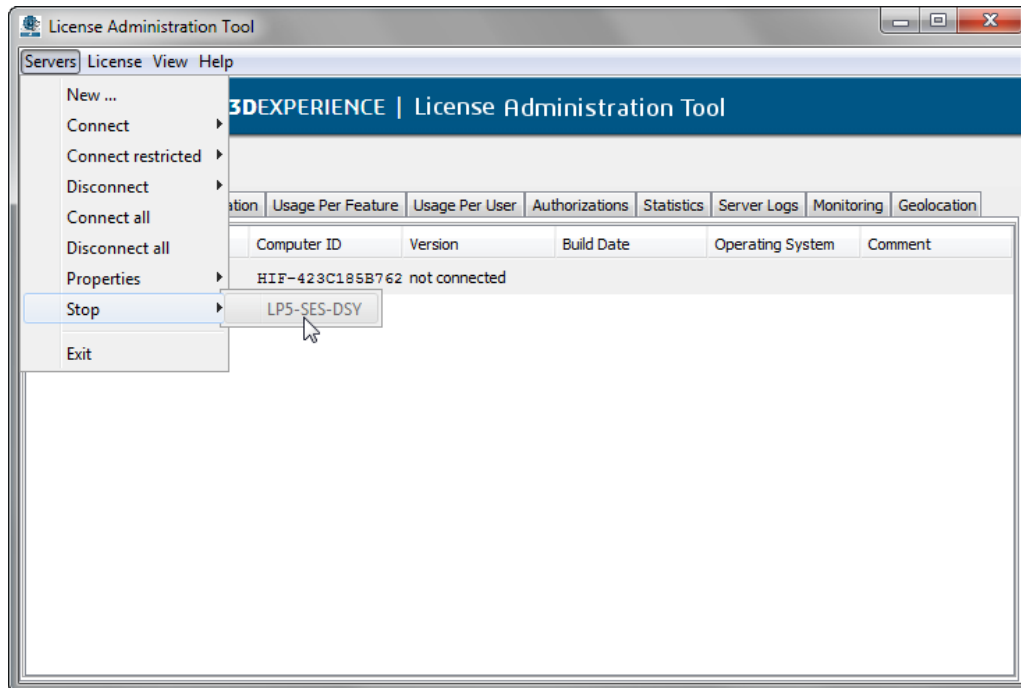


Since the DS License Server complies with Windows Service standards, you can also start and stop the **DS License Server** service using the following commands in an elevated command prompt:

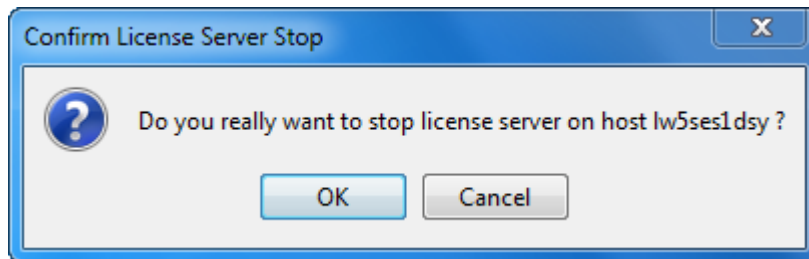
```
net start "DS License Server"
net stop "DS License Server"
```

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.

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 **Connect**.
4. Click **Servers > Stop** command and select the server name.

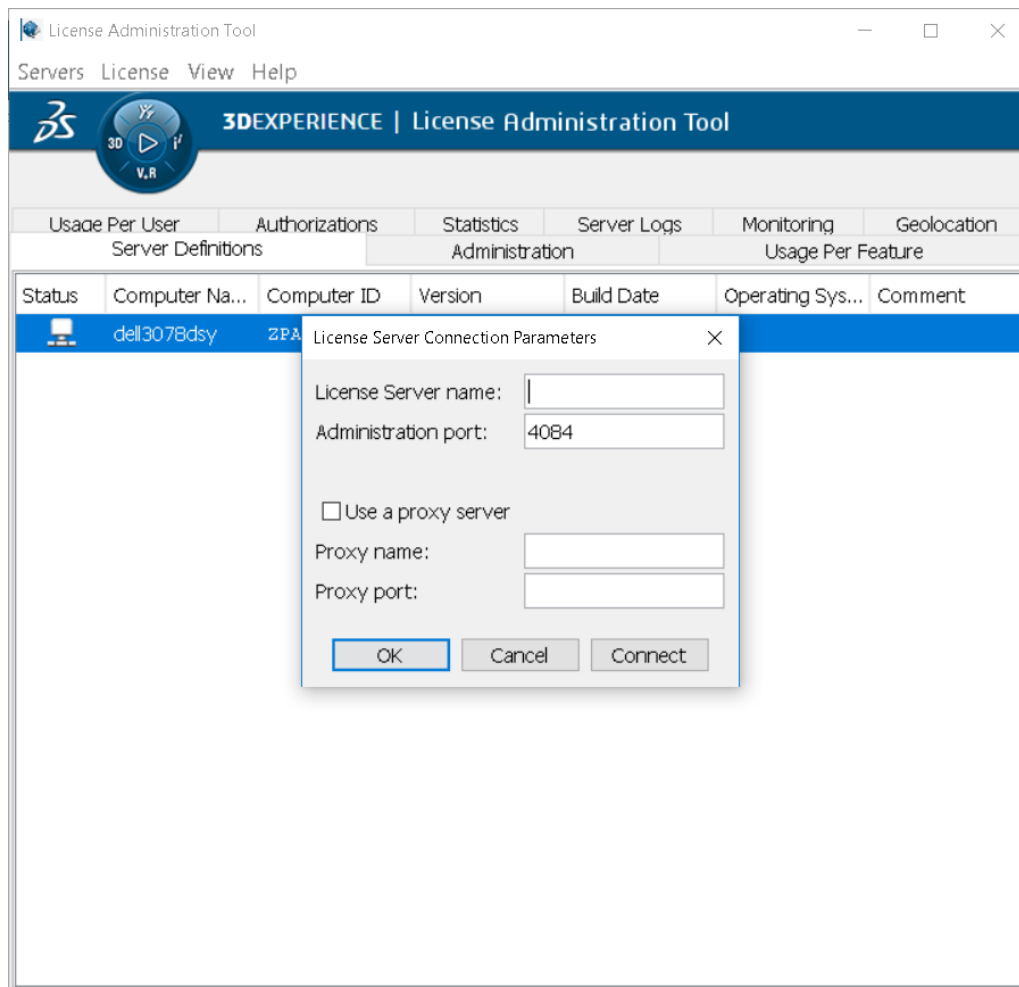


A dialog box appears prompting you to confirm that you want to stop the server:

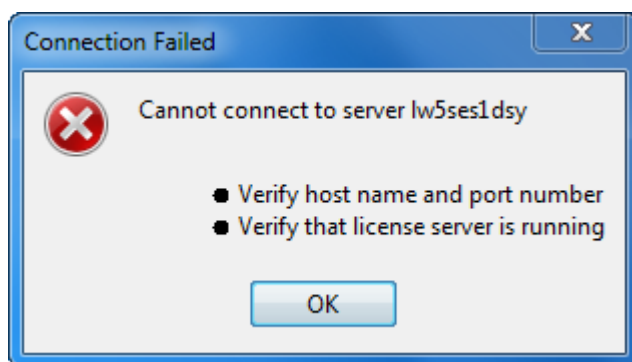


5. Click OK.

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.



Note: 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 Linux, start the license server by running the following command, for example:

```
/usr/DassaultSystemes/DSLICENSEServer/linux_a64/code/bin/DSLicSrv  
-startServer
```

and stop the license server using the command:

```
/usr/DassaultSystemes/DSLICENSEServer/linux_a64/code/bin/DSLicSrv  
-stopServer
```

or Click **Servers > Stop** command using the **License Administration Tool**, or the service `dslics start|stop|restart` command to start, stop, or restart.

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 Linux, 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.

To add a comment to this file, begin the line with a #.

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.

To replace a computer hosting a standalone license server or a member of a failover server and to avoid updating the DSLicSrv.txt file of all your licensing client computers, you can store this file in a network file system and set DSLS_CONFIG (see [Reference Table](#))

You can also use a hostname alias. DSLicSrv.txt then contains the alias name and is never changed. You must point the alias name to the proper real hostname. The alias can be repointed to another hostname when needed and the licensing client will take into account the appropriate hostname as soon as the alias is propagated by the network infrastructure.

6. To disable self-signed certificates use the following variable:

```
DSLS_DISABLE_SELF_SIGNED_SSL_CERTIFICATE=TRUE
```

This option is only available for Windows and if the following environment variable is not set in client environment DS_DISABLE_WININET=TRUE .

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 2.4 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. Click **Servers > New**.

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

License Server Connection Parameters

License Server name: lw5ses1dsy

Administration port: 4084

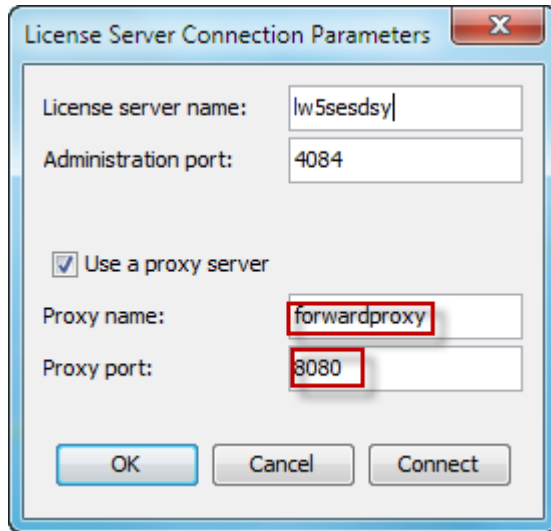
☐ Use a proxy server

Proxy name:

Proxy port:

OK Cancel

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 select the **Use a proxy server** option 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:

```
https://myreverseproxyname:443/DSLS/client
https://mylicenseserver:4085/DSLS/client
```

```
https://myreverseproxyname:443/DSLS/admin
https://mylicenseserver:4084/DSLS/admin
```

where `myreverseproxyname` 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 2.4 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` `SSLProxyVerify none`

```
SSLProxyCheckPeerCN off SSLProxyCheckPeerName off ProxyPass /DSLS/client
https://mylicenseserver:4085/DSLS/client ProxyPassReverse /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**.

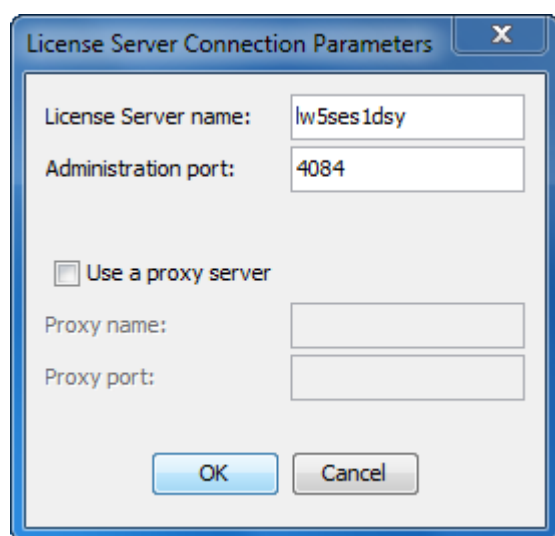
2. Configure all licensing client computers to point to the reverse proxy.

To do so, add the following declaration to the DSLicSrv.txt file on each licensing client: myreverseproxyname:443

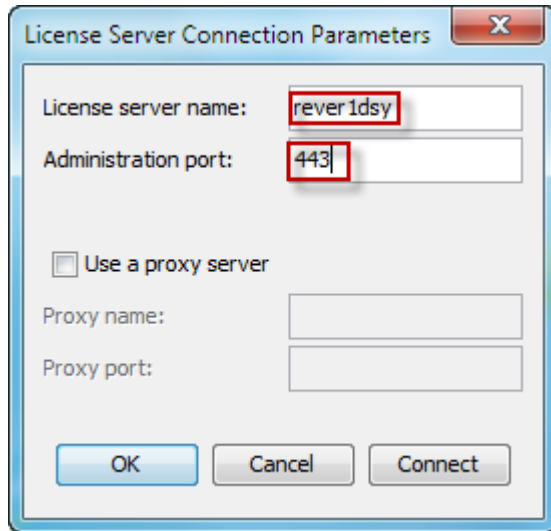
where myreverseproxyname is the reverse proxy name and 443 is the proxy port number (443 by default).

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 click **Servers > New**. When the **License Server Connection Parameters** dialog box appears:



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 select 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, the reverse proxy name appears in the **Administration** tab, the **Usage Per User** tab and in its detailed view.

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

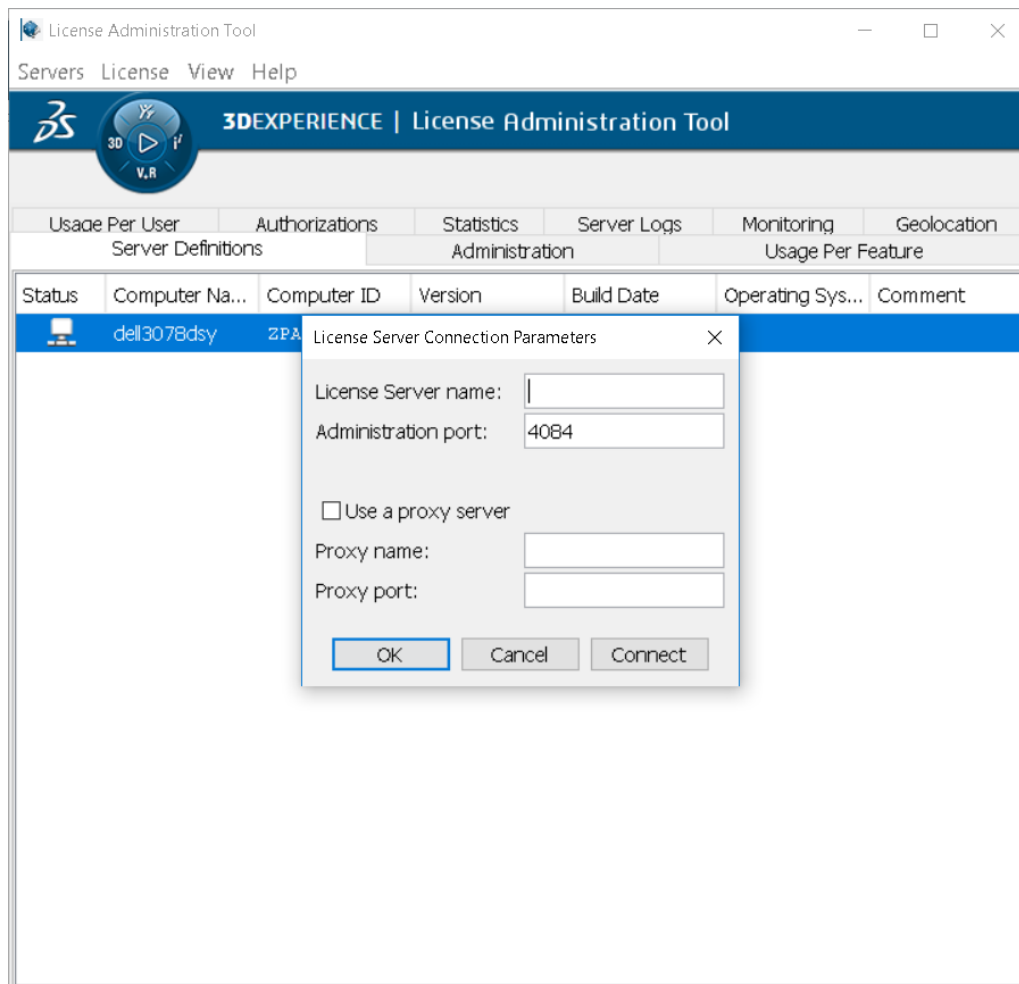
Managing Licenses

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:



2. Connect to the server.

To connect to the server:

- Select **Servers > Connect** and select the server name from the list.
- Or, select **Servers > Connect all** command.
- Or, point to the  icon, right click and click **Connect** command.
- Or, double-click on the icon.

The  icon confirms that your server is operational.

3. Enroll your licenses as follows:

- a. Click **License > Enroll** command.

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):

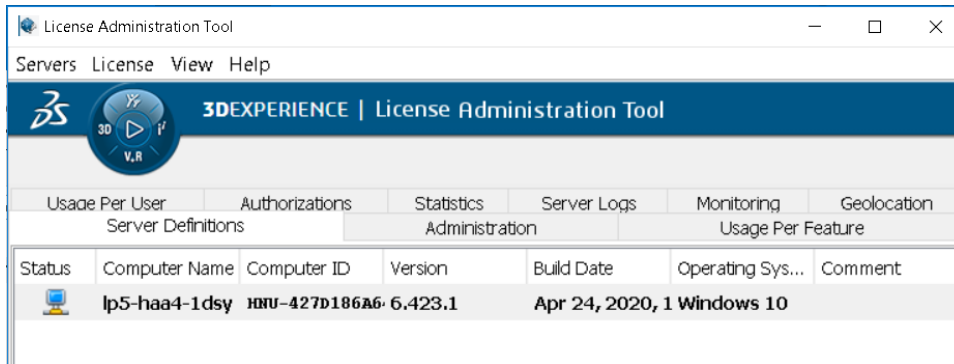
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ


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 LP5-SES-DSY : License enroll starting Sending
files to server LP5-SES-DSY E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-1-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-10-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-11-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-12-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-13-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-2-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-3-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-4-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-5-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-6-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-7-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-8-of-13.LIC E:\Licenses421\
DLD-430814856494DBA7_7KLXM-UVSBG-8VFDL-GPMGS-V1ED3_0001_1.LICZ\
FEAT-9-of-13.LIC LP5-SES-DSY : 13 licenses received
```

4. Click **OK** to return to the **License Administration Tool**.

The  icon confirms that your server has been activated:



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

server LP5-SES-DSY (10.237.169.69) connected

confirming that your license server is up and running.

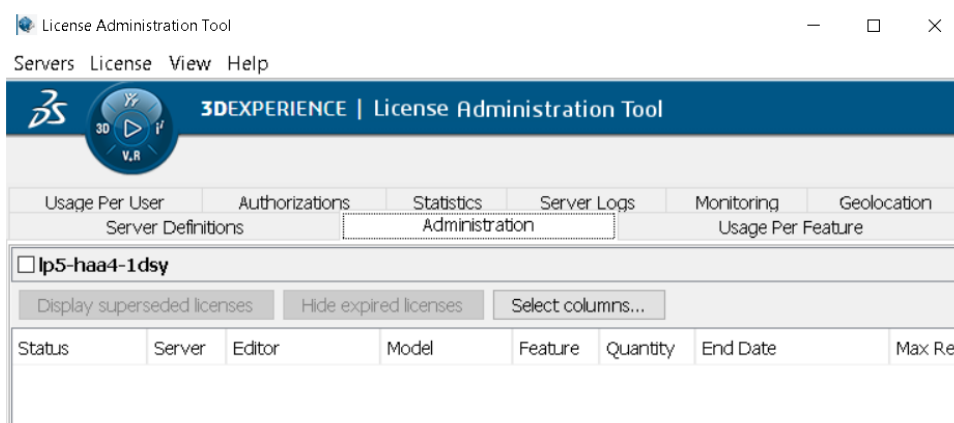


Note: Once you have configured and activated your server as a standalone server, you can no longer change your mind and configure it as part of a failover cluster. That is why the corresponding options are grayed out.

Administering Licenses

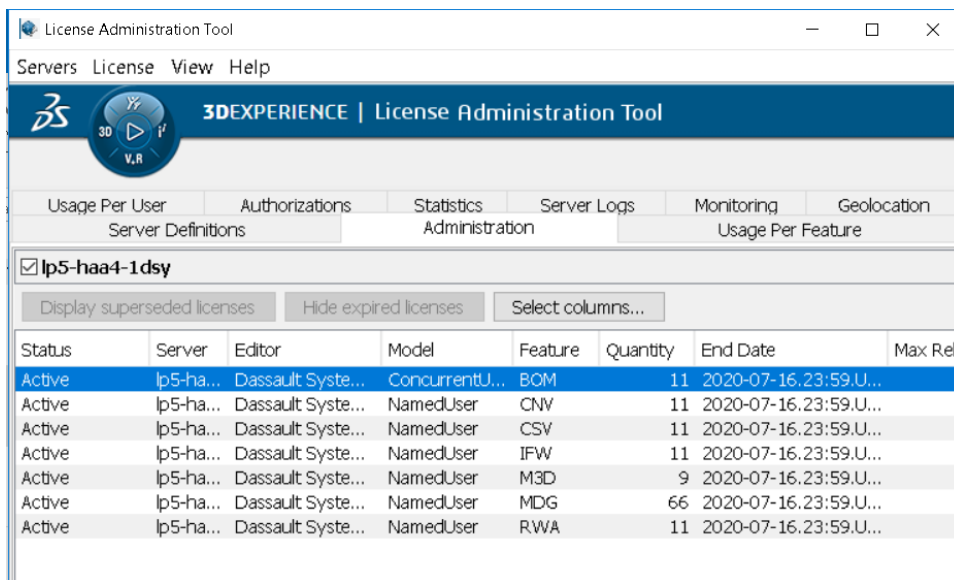
You can perform simple license administration tasks on licenses after enrolling them.

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.

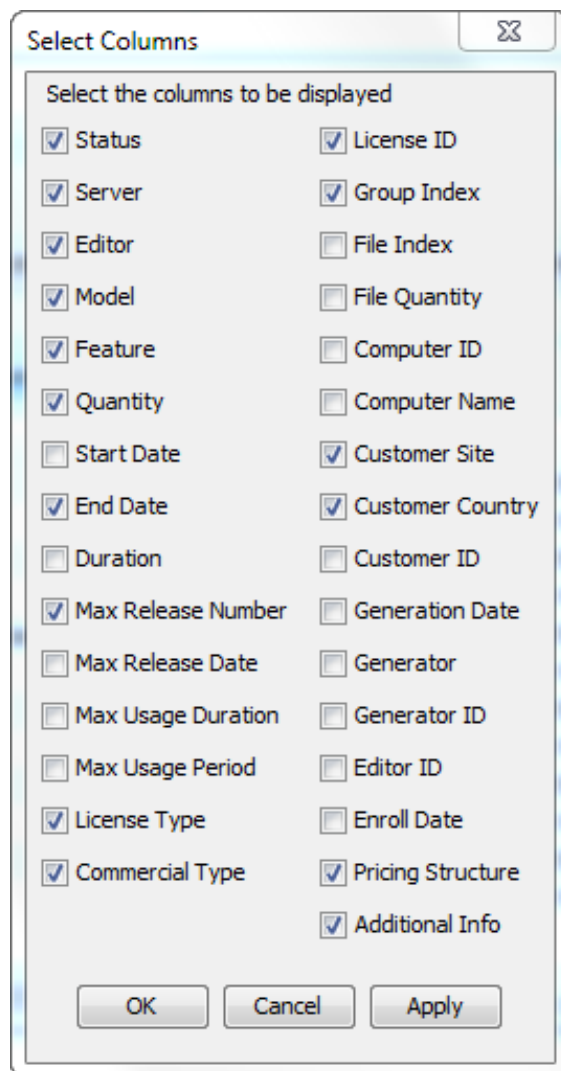
3. Click the **Display superseded licenses** button if you wish to list licenses belonging to a replacement group which is not the highest. Click again to revert back to the default (**Hide superseded licenses**).

This button is grayed out if no superseded licenses exist. This is always the case when connected to a license server on a level higher than or equal to R2016x.

4. 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 not available in restricted mode.
 - 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.

5. 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	<p>The license status can be:</p> <ul style="list-style-type: none">• 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 <code>License ID</code> and a higher <code>Group Index</code> has been enrolled. Expired and Not yet available status are not valued for Superseded licenses.
Server	Name of the license server.
Editor	<p>The editor can be, for example:</p> <ul style="list-style-type: none">• Dassault Systemes• Dassault Systemes V5• Dassault Systemes V4.
Model	<p>Licensing model with which the license complies:</p> <ul style="list-style-type: none">• <code>NamedUser</code>• <code>ConcurrentUser</code>• <code>Token</code>• <code>Credit</code>.
Feature	Feature name.
Quantity	Number of licenses enrolled.
Start Date	Date from which the license is valid.
End Date	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 <code>Max Release Number</code> 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	<p>Displays one of two values:</p> <ul style="list-style-type: none">• 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	<p>Displays one of two values:</p> <ul style="list-style-type: none"> the value is "0" for a full named user license the value is "2" for a casual usage named user license.
License Type	<p>Type of license enrolled on the license server, depending on how your license server is configured:</p> <ul style="list-style-type: none"> Floating (for standalone license servers) Failover (for failover clusters).
Commercial Type	<p>Commercial types are:</p> <ul style="list-style-type: none"> STD (for standard commercial licenses) DEMO (for demonstration licenses) EDU (for educational licenses).
License ID	<p>This character string is the license identifier. A license ID can exist either for a single feature or a group of features.</p>
Group Index	<p>License replacement group index. For a given <code>License ID</code>, the highest number is active and the other numbers are superseded (if they have not been removed).</p>
File Index	<p>Number of a particular feature in the replacement group.</p>
File Quantity	<p>Number of individual features included in the replacement group.</p>
Computer ID	<p>Computer ID of the machine hosting the license server.</p>
Computer Name	<p>Name of the computer hosting the license server (when available).</p>
Customer Site	<p>License owner.</p>
Customer Country	<p>Country of license owner (3-letter international code).</p>
Customer ID	<p>License owner ID.</p>
Generation Date	<p>Date on which the license was generated.</p>
Generator	<p>Company which generated the license.</p>
Generator ID	<p>ID of the company which generated the license.</p>
Editor ID	<p>Editor ID.</p>
Enroll date	<p>License enrollment date.</p>
Pricing Structure	<p>The Pricing Structure defines the license (not the license key) duration and support conditions, specified in the license contract. Examples of pricing structures are:</p> <ul style="list-style-type: none"> PLC: Primary License Charge TBL: Term-Based License charge ALC: Annual License Charge YLC: Yearly License Charge QLC: Quarterly License Charge <p>You may have different licenses with different pricing structures for different usages.</p>

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. This is automatically performed by license servers on a level higher than or equal to R2016x.
- 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 Licensed Feature Usage

You can configure the **Usage Per Feature** tab to monitor licensed feature 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 **Usage Per Feature** tab.

Based on the licenses previously enrolled, the **Usage Per Feature** tab looks like this:

Editor	Feature	Commercial Type	In Use	Count
Dassault Systemes	CNV	STD	0	11
Dassault Systemes	CSV	STD	0	11
Dassault Systemes	IFW	STD	0	11
Dassault Systemes	M3D	STD	0	9
Dassault Systemes	MDG	STD	0	66
Dassault Systemes	RWA	STD	0	11
Dassault Systemes V5	BOM	STD	0	11

Click the column headers to sort them. 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

Name of the app or custom configuration license. Keep in mind that the license can be a named user license, a concurrent user license, a token license or a credit license.

Commercial Type

Commercial types are:

- STD (for standard commercial licenses)
- DEMO (for demonstration licenses)
- EDU (for educational licenses).

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 remaining part of this section, the app license names are used for illustration purposes only.

When the license server grants the license, for example, to a license client, the **In Use** column of a license displays the number of license used in the **Usage Per Feature** tab:

Server Definitions Administration Usage Per Feature Usage Per User Authorizations Statistics Server Logs Monitoring Geolocation				
lw5ses1dsy				
Editor	Feature	In Use	Count	
Dassault Systemes	BOM	0	11	
Dassault Systemes	CNV	0	11	
Dassault Systemes	CSV	0	11	
Dassault Systemes	IFW	0	11	
Dassault Systemes	M3D	0	9	
Dassault Systemes	MDG	1	11	
Dassault Systemes	RWA	0	11	

5. To find out details about the license consumed, double-click the line containing the corresponding license.

The **Detailed License Usage** box appears:

License Usage for Feature MDG from Editor Dassault Systemes									
Server	License Type	User	Host	Granted Since	Last Used At	Active Process	Granted At	Max Release Date	Expiration Date
lw5se...	NamedUser	ses	LW5...	8/25/16 12:1...	8/25/16 12:53:3...	(None)		7/14/17 1:59:00 AM	7/14/17 1:59:0...

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, ConcurrentUser, Token or Credit.

User

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:

```
MX_NUL_FULL_USAGE_REPORT=true
```

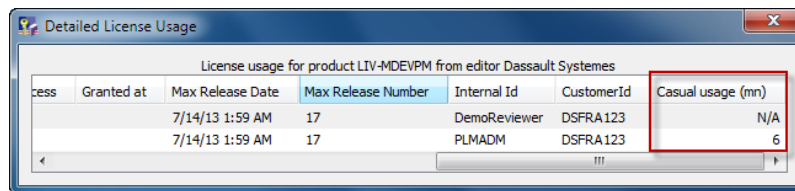
in the `enovia.ini` file (Windows) or `mxEnv.sh` (Linux) to ensure that the process name is displayed. For more information about this variable, see the 3DSpace server documentation.

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 <code>Max Release Number</code> 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.
Pricing Structure	<p>The Pricing Structure defines the license (not the license key) duration and support conditions, specified in the license contract. Examples of pricing structures are:</p> <ul style="list-style-type: none"> • PLC: Primary License Charge • TBL: Term-Based License charge • ALC: Annual License Charge • YLC: Yearly License Charge • QLC: Quarterly License Charge <p>You may have different licenses with different pricing structures for different usages.</p>
Process Code Release	If there is an active process currently consuming a license, this column displaying the client code process release level will be displayed as follows:

License Usage for Feature ME1 from Editor Dassault Systemes V5									
Active Process	...	...	...	...	...	...	...	...	Process Code Release
C:\Program Files\Dassault Systemes\B28D30\win_b64\code\bin\CNEXT.exe	...	...	...	...	...	...	...	...	5,28

The value begins with "5" for V5 licensing client processes, and with "6" for V6 and 3DEXPERIENCE licensing client processes.

Active Session ID	If there is an active process currently consuming a license, this column displays the ID described in field 4 of Usage Tracing from the server logs section.
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:



Process	Granted at	Max Release Date	Max Release Number	Internal Id	CustomerId	Casual usage (mn)
	7/14/13 1:59 AM	17		DemoReviewer	DSFRA123	N/A
	7/14/13 1:59 AM	17		PLMADM	DSFRA123	6

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, token licenses or credit 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 app (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.

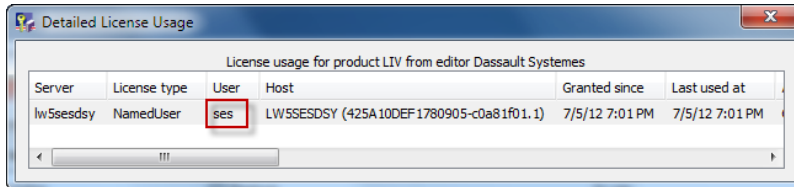
You will be prompted to choose the appropriate license using the **Usage Per Feature** tab.

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

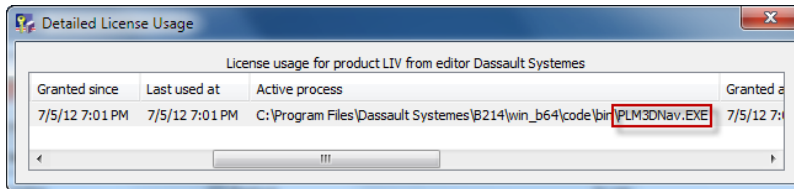
7. To find out details about the license (who is using the license, what type license it is, etc.) double-click the line containing the appropriate license.

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:



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 LIV-MDEVPM (for illustration purposes) and log on as DemoReviewer (this time, you are connected to the as a named user).

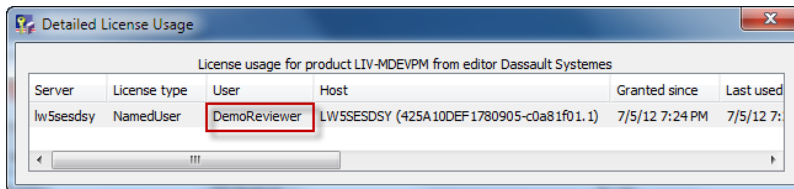
The LIV-MDEVPM license is a named user license. The number of LIV-MDEVPM licenses in use is now "1", and the number of IFW/CSV licenses in use is now "2" because when DemoReviewer consumes a LIV-MDEVPM license, an IFW/CSV license is also consumed.



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 match the client request?	<p>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.</p> <p>When several licenses with different fields can satisfy the request, the license server must decide which license will be granted.</p> <p>First, the license server performs filtering based on the following criteria:</p> <ul style="list-style-type: none">• the license must be active:<ul style="list-style-type: none">- 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)• the Pricing Structure must match the client request (if passed)• authorization rules (if any) must be satisfied. <p>Then, the license server performs sorting based on the following criteria:</p> <ol style="list-style-type: none">1. Commercial Type: STD, then EDU, then DEMO2. 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:<ul style="list-style-type: none">• 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). <p>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.</p>
--	---

Getting Information About Licensed Feature Usage per User

This section describes how to obtain information about license usage per user, and how to recycle named user licenses.

Trace Usage per User

You can list all licenses (named user, concurrent, token or credit) granted to each user, and in the same place, even if the licenses are V5, V6 or **3DEXPERIENCE** platform licenses.

1. Start a native app session.
2. Click the **Usage Per User** tab.

In our example, the following native app licenses are granted (along with the prerequisite IFW/CSV licenses on the server, but not illustrated in our example):

M3C - 3DMaster Conceptual Designer
MDG - Mechanical Designer

The tab looks like this, and lists all licenses consumed by all users:

Server Definitions Administration Usage Per Feature Usage Per User Authorizations Statistics Server Logs Monitoring Geolocation							
lw5ses1dsy							
User	2 license(s) currently granted to user ses						
ses	Server	Editor	Feature	License Type	Host	Granted Since	Last Used At
	lw5ses1dsy	Dass...	MDG	NamedUser	LW5...	8/25/16 12:19:18 PM	8/25/16 3:20:06 PM
	lw5ses1dsy	Dass...	M3D	ConcurrentUser	LW5...	8/25/16 3:20:06 PM	8/25/16 3:20:06 PM

The tab displays the list of all users to whom at least one license has been granted at the moment the tab is displayed. For the user selected in the list, it displays the licenses currently granted, with all the related details, which are the same as those displayed in the **Detailed License Usage** dialog box.

The advantage of using the **Usage Per User** is that all information about all license types granted to all users is listed in the same view for easy reference.

The names of all the users are listed in the left-hand column. The licenses granted to the users are listed in the right-hand column, and can be sorted and re-ordered.

The user list is sorted as follows: first, users having tracing enabled and/or disabled, then users for whom tracing has not been enabled. You can also sort by usernames, ignoring the tracing value, by clicking on the column name.

If the list is very long, it may be convenient to use the following technique: type one or more characters to automatically search for and highlight them in the list. Type F3 to go to the next match. Wait for a few

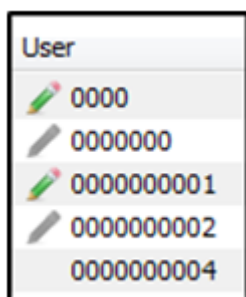
seconds to reset the entered characters. This type of search is also available in the **Administration** tab and the **Detailed License Usage** dialog box.

3. Activate usage tracing for the desired user.

The **License Usage Tracing** capability used when configuring the license server already allows you to select the license features for usage tracing, and the corresponding information is displayed in the server log tab. In addition, you can also activate usage tracing for a given user.

To do so, right-click the user name and select the `Enable tracing` command. License usage tracing will be activated when at least one condition is set. For example, if an MDG license is granted to user Anna, tracing will be logged either if MDG tracing is enabled (via the `License usage tracing...` option), or if tracing is enabled for the user Anna (via the `Enable tracing` command).

Regarding tracing, pencil symbols describing tracing status are displayed before the username like this:



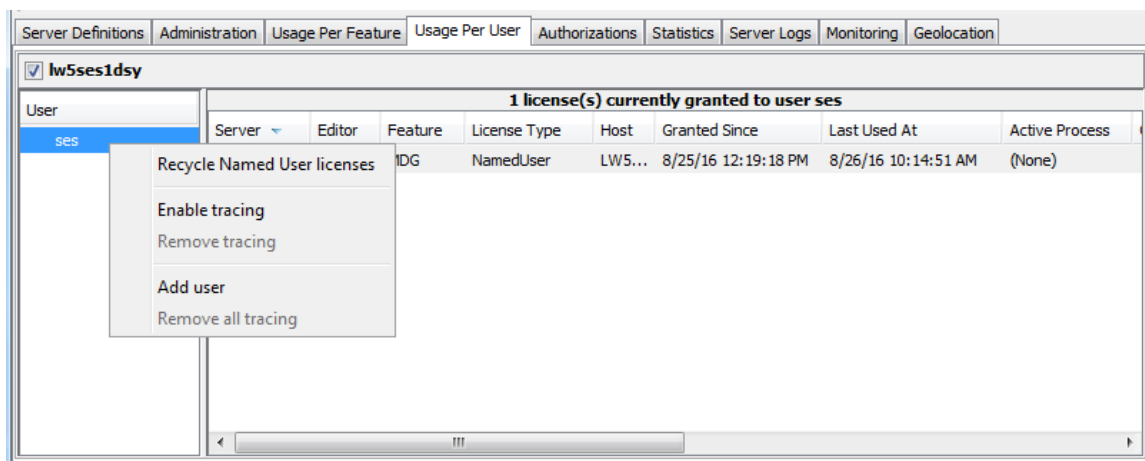
When tracing:

- has been enabled, a green pencil is displayed
- has been disabled, a gray pencil is displayed
- has not yet been enabled, no pencil is displayed.

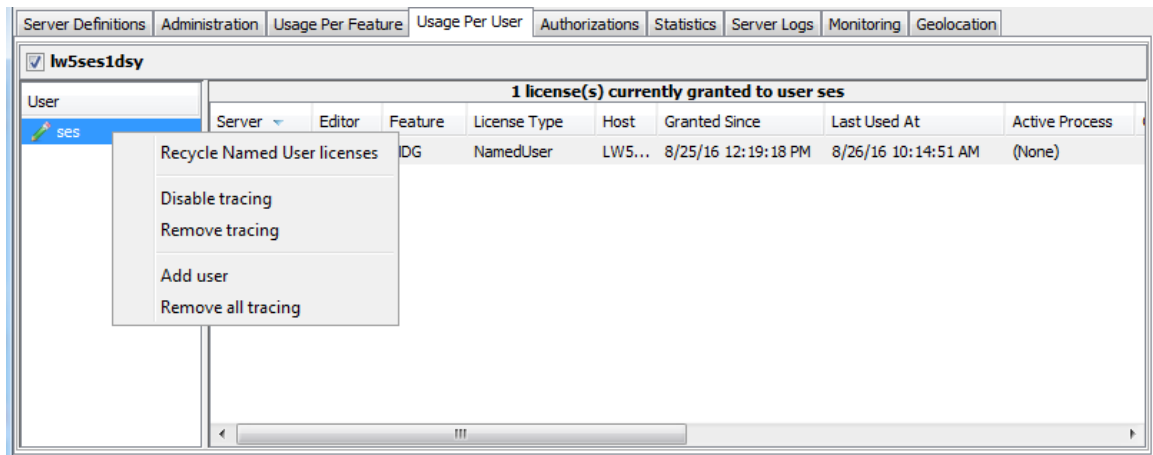
Right-clicking a user displays a contextual menu. The commands active on the menu depend on:

- tracing status
- if at least one license is currently granted to the user or not
- if at least one named user license is currently granted to the user or not.

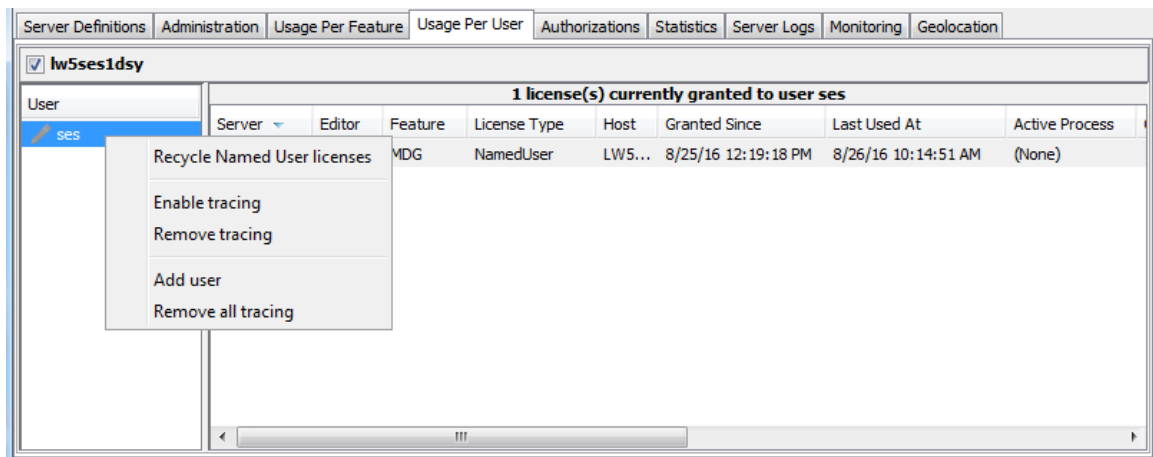
For a user to whom a license is currently granted, and when tracing is not enabled, the menu looks like this:



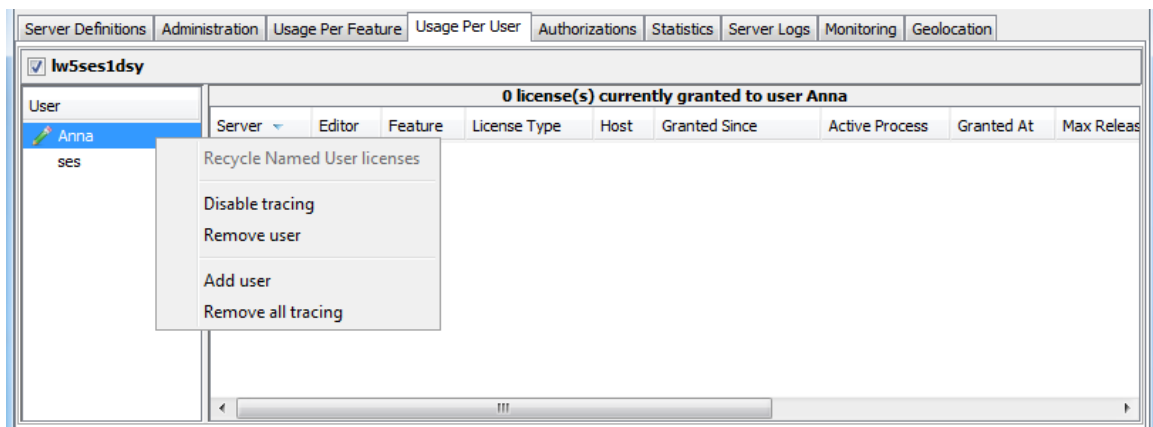
For a user to whom a license is currently granted, and when tracing is enabled, the menu looks like this:



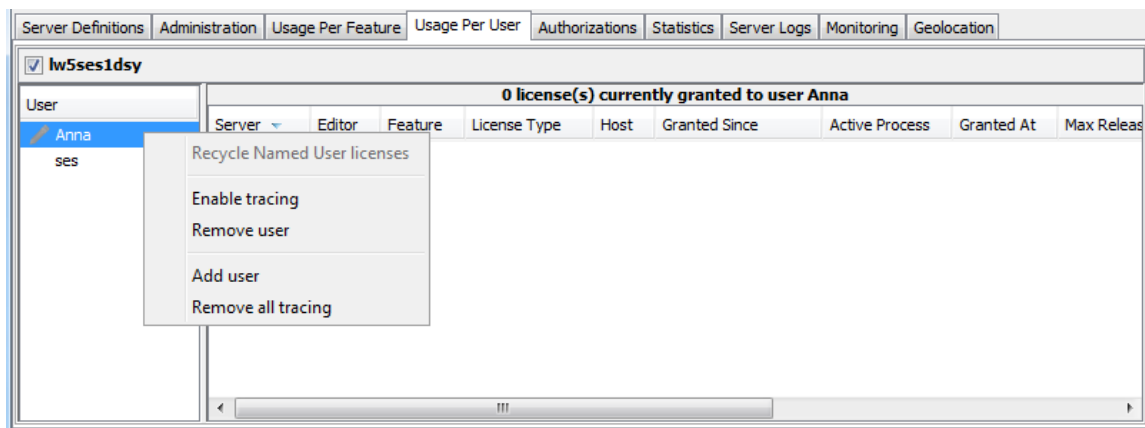
For a user to whom a license is currently granted, and when tracing is disabled, the menu looks like this:



For a user to whom no licenses have been granted, and when tracing is enabled, the menu looks like this:



For a user to whom no licenses have been granted, and when tracing is disabled, the menu looks like this:



4. Right-click the `Disable tracing` command to disable tracing for the selected user.

You can remove tracing for this user by right-clicking and selecting the `Remove tracing` command. To automatically remove the user from the list when no licenses are granted to the user later, you can remove tracing, which is different from disabling tracing.

5. To activate the usage tracing for users who have no currently granted licenses, right-click and select the `Add User` command and type the user name.

This capability is particularly useful for displaying users to whom concurrent user, token and credit licenses have been granted. For example, while a concurrent user license is being used, it will be displayed in the list. When it is no longer used, it will no longer be displayed. However, if you enabled usage tracing once for this user, the user will continue to be displayed in the tab, even if no license is currently granted to the user and even if tracing has been disabled later. However, you can remove the user from the list when no license is currently granted.

6. Right-click the `Remove all tracing` command to remove all tracing for all users.

When the license administration tool is connected in restricted mode:

- recycling is not possible
- tracing modification is not possible.

When the license administration tool is connected to a pre-R2017x level server:

- recycling is still possible
- tracing is not possible.

When the license administration tool is connected to several license servers:

- recycling is possible: an individual confirmation is displayed for each server connected in full mode.
- tracing modification is possible only if connected in full mode to all servers.
- if tracing is different on the servers for a given user, the status `Enabled` has precedence over the status `Disabled`, which has precedence over the status `Unset`.

Recycle 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.

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 3DSpace 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 `Recycle Named User Licenses` command which allows you to recycle named user licenses only.

1. Click the **Usage Per User** tab.
2. Right-click a user name and select the `Recycle Named User Licenses` command.

You are prompted to confirm:

```
Do you really want to recycle named user licenses granted to SES (DSFRA123)
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.



Note: It is not possible to recycle simultaneously licenses for several users.



Note: Casual usage named user licenses cannot be manually recycled. 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.

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 SES (DSFRA123) on server lw5sesdsy were not recycled:
MDG is locked until 8/4/16 7:24 PM
M3D is locked until 8/4/16 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.



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 [Enable Automatic Recycling](#) option.

In case of automatic recycling, the 30-day starting point is the "last used at" value. In case of manual recycling, the 30-day starting point is the "granted since" value.

Setting License Authorization Rules

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

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.

These rules are referred to as **standard rules**, to distinguish them from **composite rules**. A composite rule is a set of standard rules which allow you to manage combinations of rules types.

Whether you use standard or composite rules, only one rule type can be applied to a given licensed feature at a time.

Concurrent user licenses can be shared among users and are not tied to specific users. Certain licenses can be sold as shareable, which can be granted and released, for example, during a session using the **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 license 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.

Credit licenses are consumable token licenses: their quantity decreases when they are granted (consumed).

Named user licenses are typically granted to users managed by the 3DSpace-side Platform Management or Manage My P&O and Content3DSpace tools, or by the 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.



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.

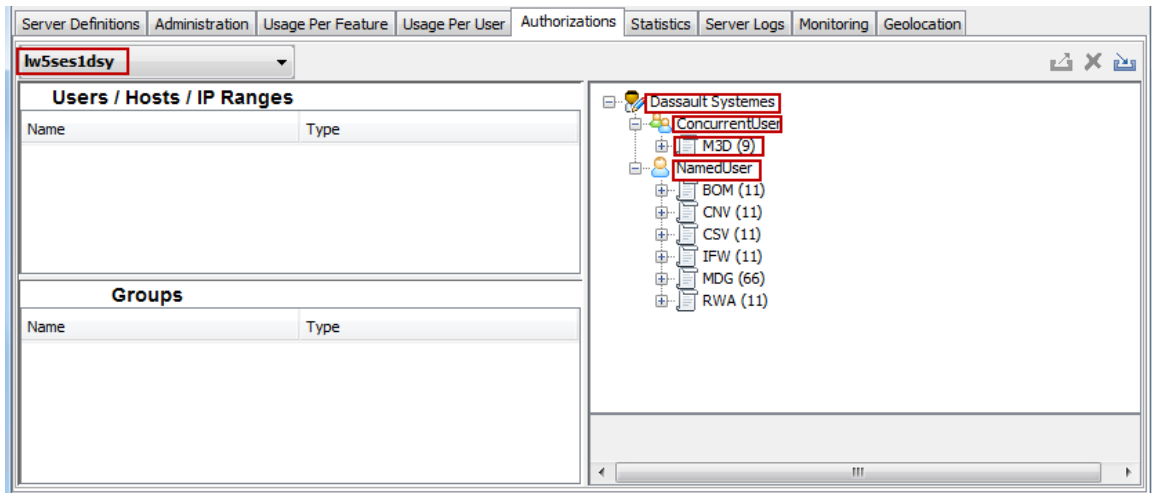
However, when managing authorization rules for a pre-V6R2012x license server, a **License Administration Tool** cannot manage named user licenses. When upgrading the DS License Server, existing authorization rules are automatically set to the concurrent user model.

Manage standard authorization rules

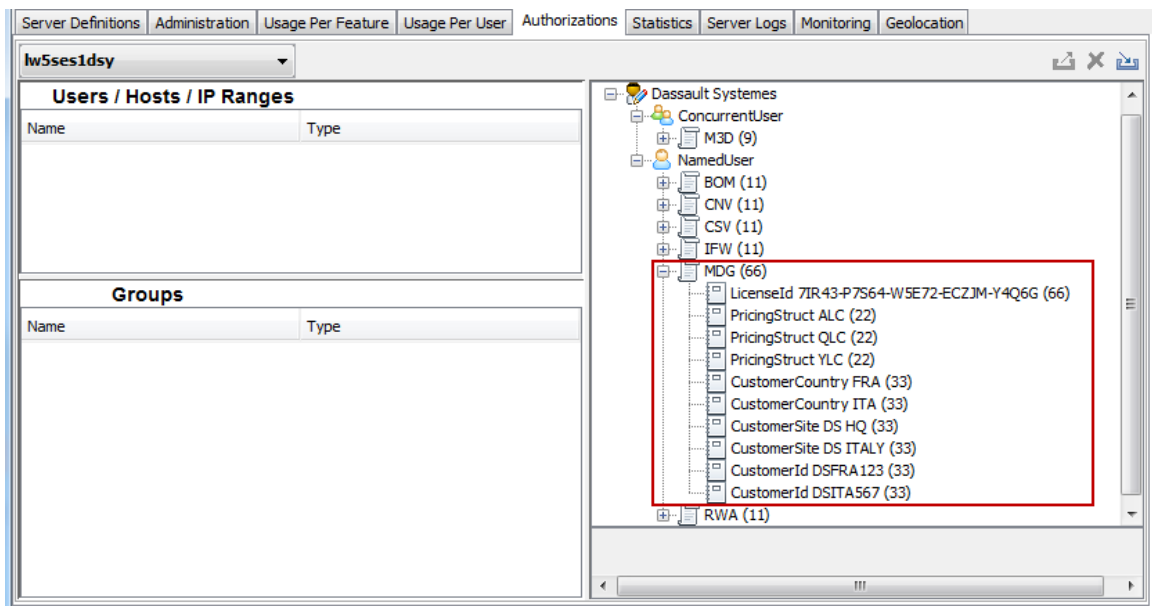
1. Select the **Authorizations** tab.

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, Named User, Token, Credit) followed by the license feature.

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 for other roles:



Expand a licensed feature node, for example MDG:



where some or all of the following items may be visible:

- **LicenseId:** license ID
- **PricingStruct:** specifies the license duration and support conditions specified in the license contract: for example, ALC, QLC, YLC
- **CustomerCountry:** your company may be present in several countries
- **CustomerSite:** your company may have several sites
- **CustomerId:** your customer ID.

The number of licenses for each is displayed in parentheses.

In our example, 66 licenses have been enrolled for the feature MDG:

- the licenses all have the same license ID
- 22 are ALC (Annual License Charge), 22 are YLC (Yearly License Charge) and 22 are QLC (Quarterly License Charge)
- 33 of the 66 licenses are authorized for use in country France (FRA), or specifically on site DS HQ, or specifically by country ID DSFRA123, and 33 are authorized for use in country Italy (ITA), or specifically on site DS Italy, or specifically by country ID DSITA567

For a given feature, you can set an Allow/Deny/Reserve/Limit authorization rule:

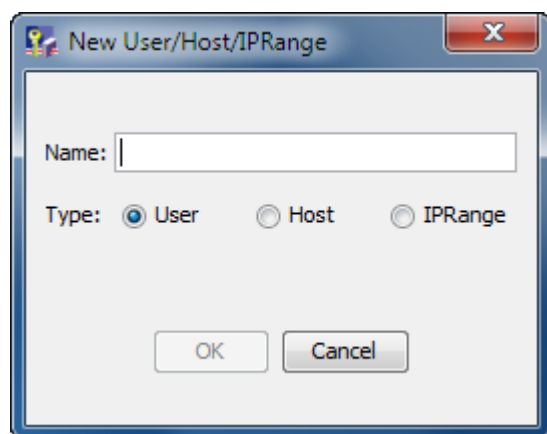
- either directly on the feature (recommended if you do not have specific needs)
- or on the PricingStruct, CustomerCountry, CustomerSite or CustomerId.

This provides the capability to fine-tune license access even further. For example, you may want to make sure that sub-contractors only have access to QLC-type licenses.

To limit and display only useful data, by default, a licensed feature will only be expanded if one of its LicenseId, PricingStruct, CustomerCountry, CustomerSite or CustomerId hosts an authorization rule or an offline control.

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:



Note: When the licensing client you are using is connected to the 3DSpace server, 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 Enter the user name or host name.

Host 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.

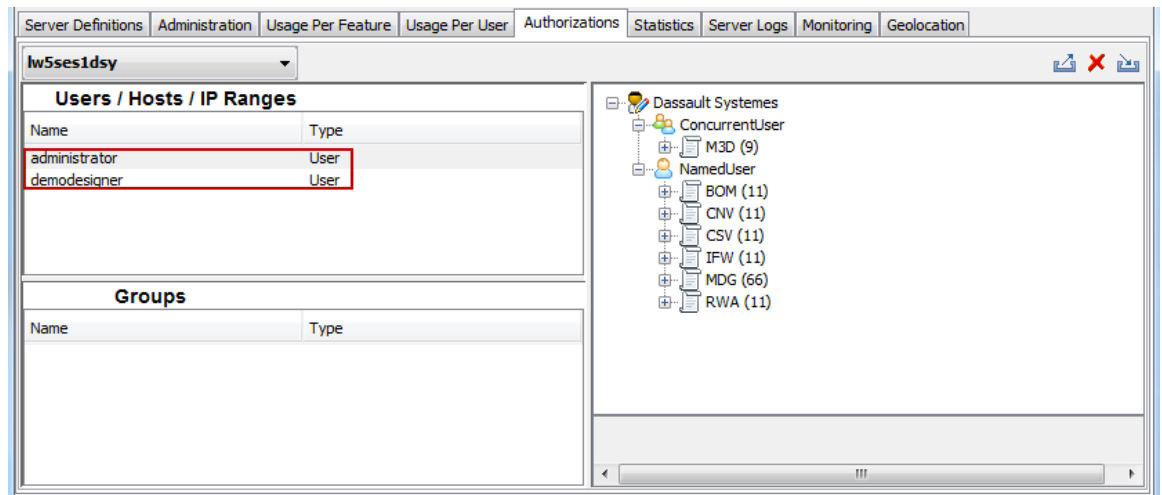
If upgrading from a DS License Server level lower than or equal to R2013x, user names and host names are migrated to lowercase. Whenever migration leads to a collision (for example, "BOB" and "Bob" are both migrated to "bob"), only one set of rules is kept, randomly. Behavior was unpredictable anyway.

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 XML file, or when migrating from a previous DS License Server level.

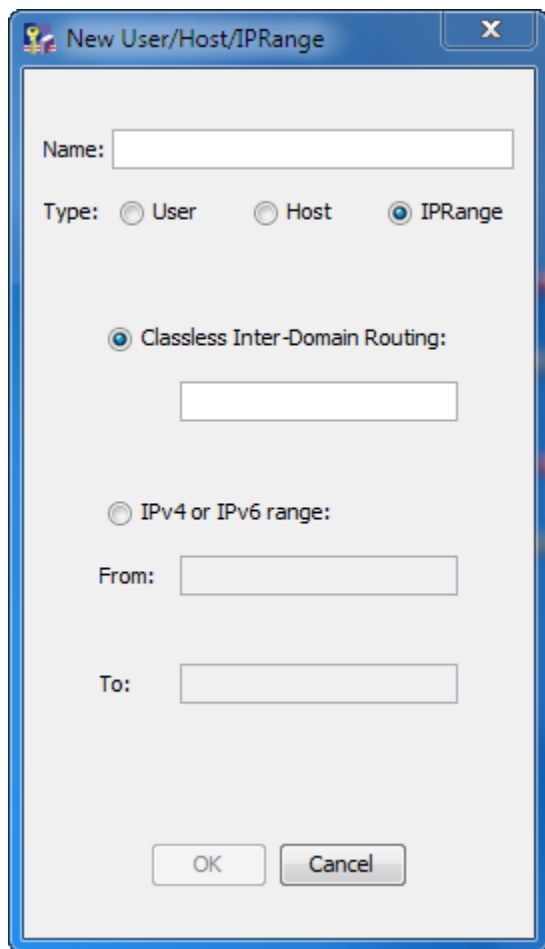
In our example, the User/Host Definition field contains two users (administrator and demodesigner):



IP Range

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:



The dialog box is titled "New User/Host/IPRange" and has a close button (X) in the top right corner. It contains the following fields and options:

- Name:** A text input field.
- Type:** Three radio buttons: ☐ User, ☐ Host, and ☒ IPRange.
- Classless Inter-Domain Routing:** A radio button that is selected (☒) with a text input field below it.
- IPv4 or IPv6 range:** A radio button that is not selected (☐) with two text input fields below it labeled "From:" and "To:".
- Buttons:** "OK" and "Cancel" buttons at the bottom.

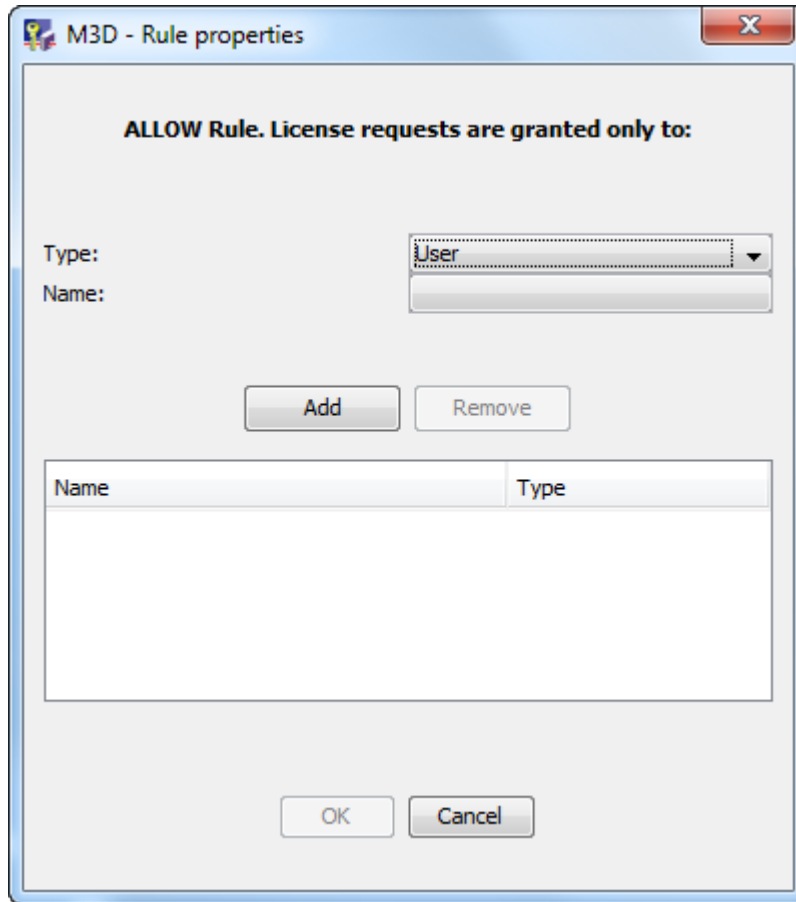
Declare the IP ranges by clicking either the `Classless Inter-Domain Routing` button or the `IPv4 or IPv6 range:` button:

- **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 to create a standard ALLOW rule.

Click **Yes** when asked to confirm.

The **Rule properties** dialog box appears:



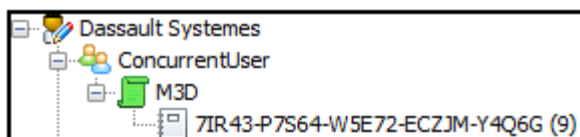
Note that you can select multiple lines for creating the same authorization rule for several licenses in one shot.

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:



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] lw5sesldsy:4085 OK: License server is running
```

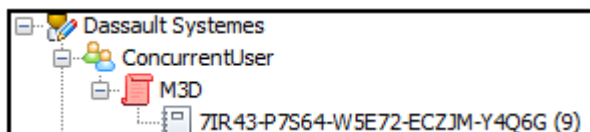
6. To cancel the rule, click the M3D license and select the Remove rule command.

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.

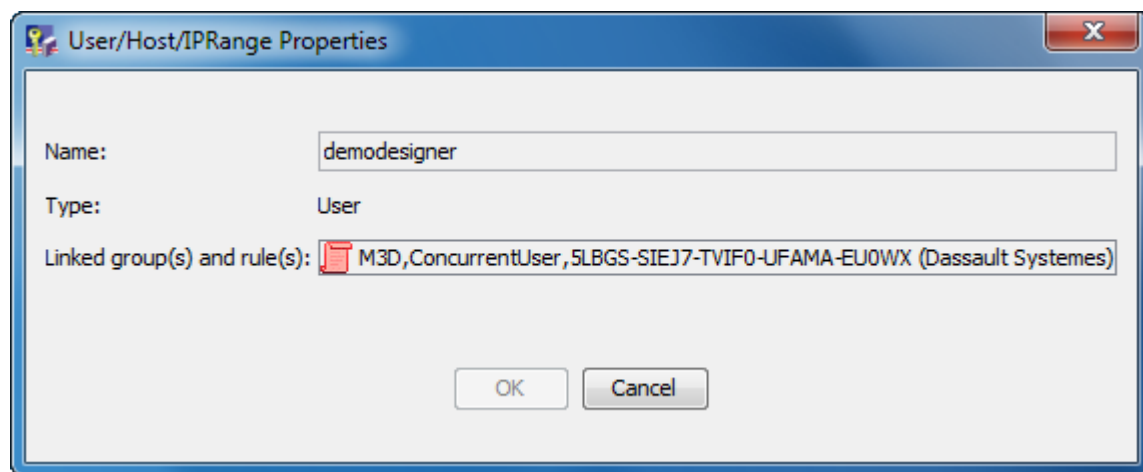
7. To deny authorization, click the M3D license and select the Add new rule - Deny command. Select the type, choose the name, click the **Add** button then click **OK**.

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



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:



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] lw5sesldsy:4085 OK: License server is running
```

If you click the **Server Logs** tab and scroll the log, you will see a message like this:

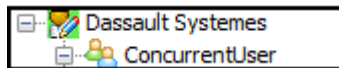
```
2016/08/07 18:04:40:402 W LICENSESERV M3D not granted, user administrator
not authorized (from client LW5SES1DSY
(42721022FAFE292A-0ae84648.0):administrator:administrator:C:\Program
Files\Dassault Systemes\B419\win_b64\code\bin\3DEXPERIENCE.exe)
```



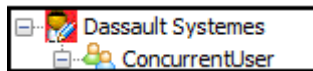
Note:

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:

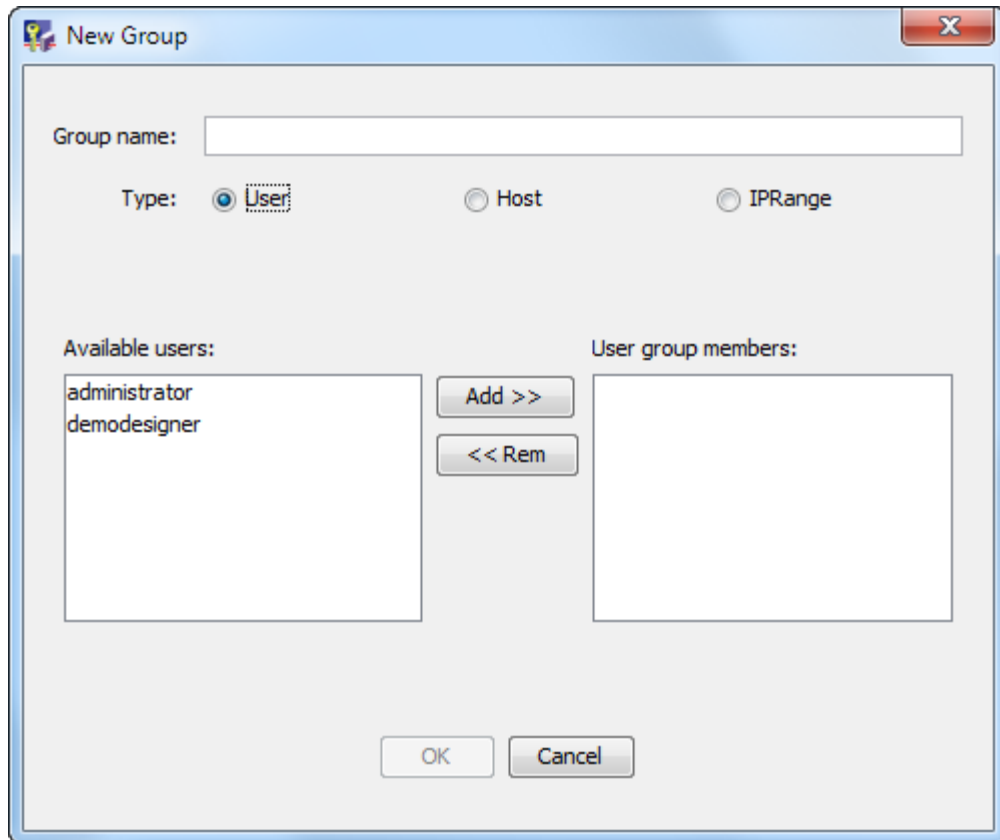


When an Deny rule is set, the Editor name icon appears with a red background:



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

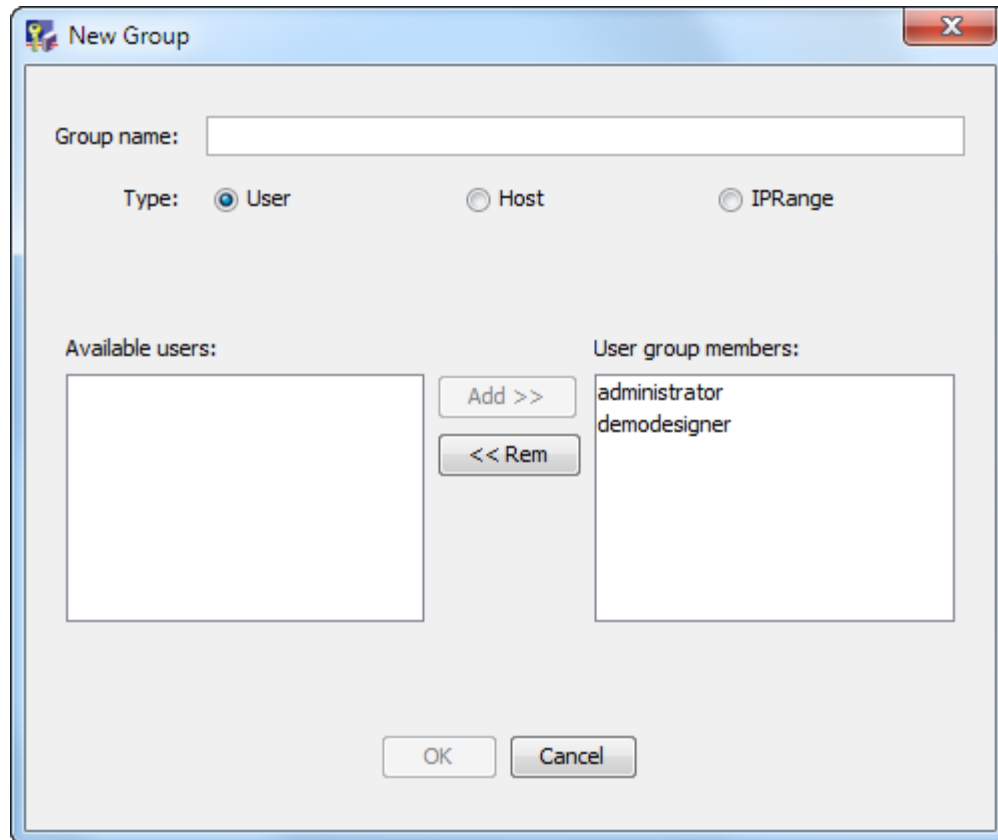
The **Create new group** dialog box appears:



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:



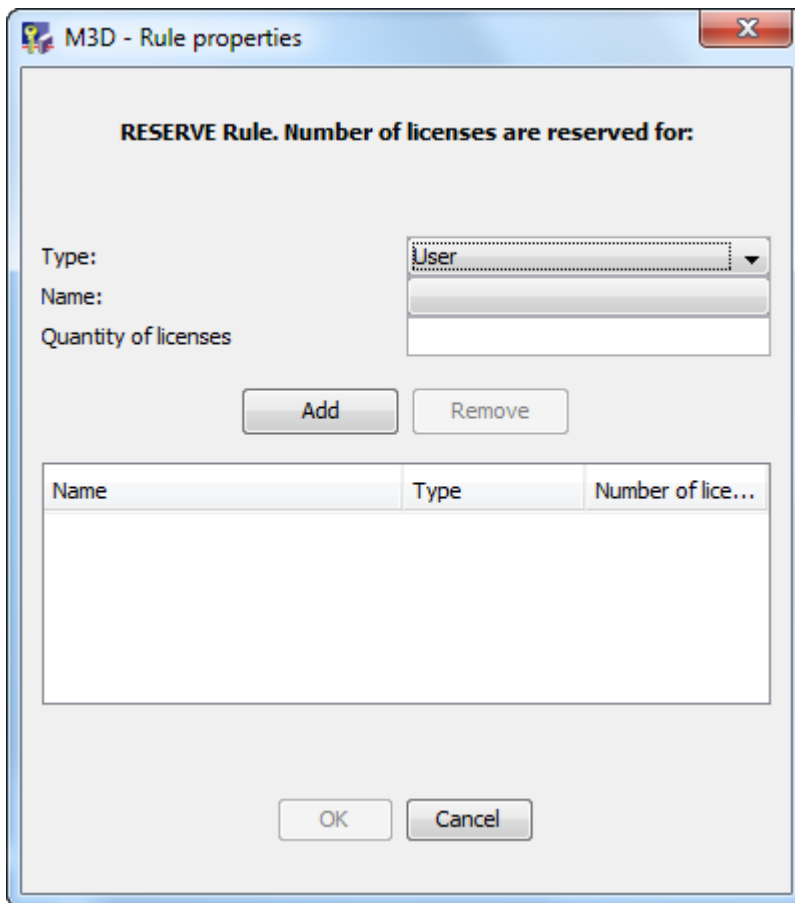
Note: When you display the properties of a group, the Group name field can be modified.

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 to create a standard RESERVE rule.

The **Define a rule on the feature** dialog box appears:



M3D - Rule properties

RESERVE Rule. Number of licenses are reserved for:

Type:

Name:

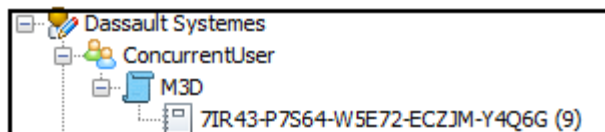
Quantity of licenses:

Name	Type	Number of lice...
------	------	-------------------

- 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.

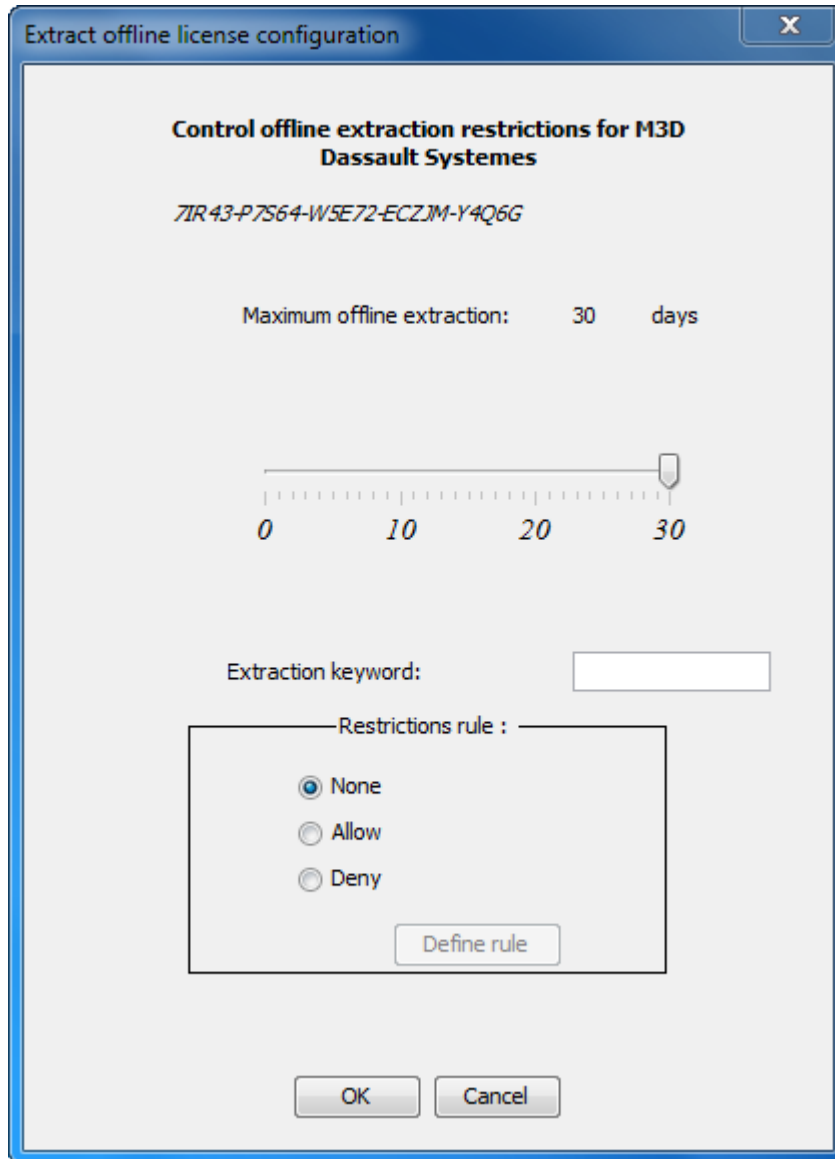
Select the type, choose the name, specify the quantity of licenses then click the **Add** button then **OK**.

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:

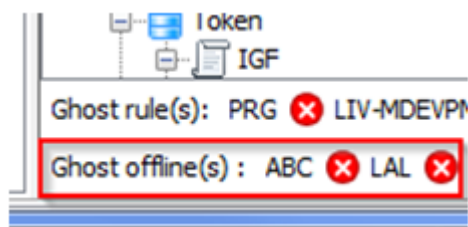
- **None:** by default, there are no restrictions.
- **Allow:** offline extractions are granted only to the selected User, Host, IPRange, User Group, Host Group or IPRange Group. Click the `Define rule` button to define the rule using the standard method.
- **Deny:** offline extractions are denied only 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 observed
- if so, if a rule is set on the feature, the `LicenseID`, `PricingStruct`, `CustomerCountry`, `CustomerSite` or `CustomerId`, then it must be observed
- 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 a keyword 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:



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.

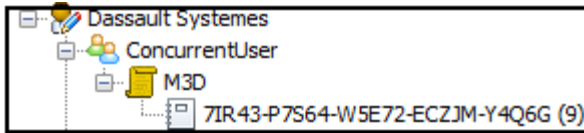


Note:

Mixing users, computers 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:



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

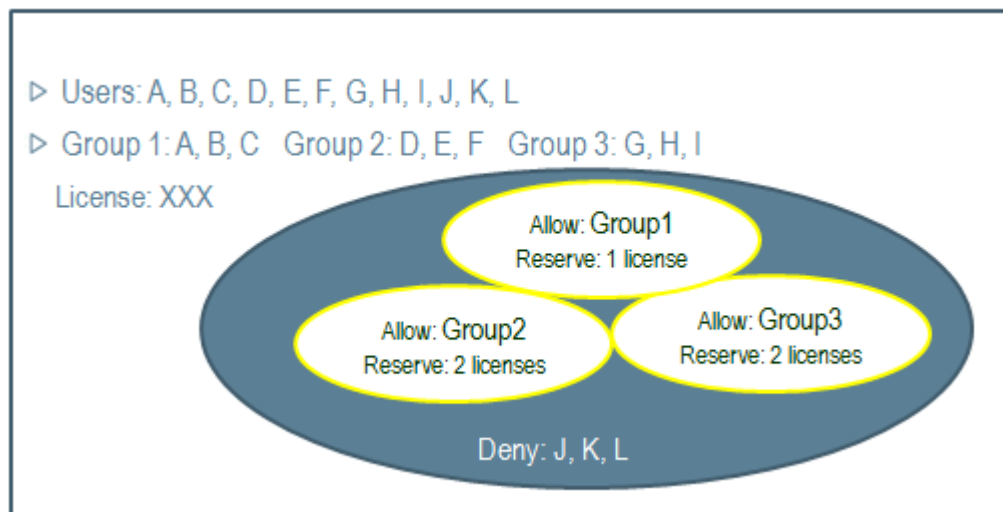
A situation may arise in which all the licenses you have acquired have not yet been assigned to existing users/hosts by existing authorization rules. As long as this situation continues, you may consider that there is a risk that users/hosts not referenced by a license authorization rule may acquire 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 3DSpace Service.

Let's take the following example.

User1 is granted access (on the 3DSpace Service) 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 3DSpace Service) access to the named user license for the feature LIV-MDEVPM.

The result is as follows:

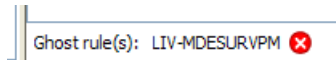
- User2 can use the feature LIV-MDEVPM
- User1 CAN NO LONGER use the feature LIV-MDEVPM: the reason is that an ALLOW-type authorization rule has now been set for this feature on the DS License Server side. This rule grants the feature license to ONLY User2. And even though User1 was previously granted access via an 3DSpace Service-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:



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:

ALLOW Rule. License requests are granted only to:

Type: User

Name:

Name	Type	Currently consumed
plmadm	User	1



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:

Select the type : User

Choose the name :

Quantity of licenses :

Name	Type	Number of licenses	Currently consumed
MyGroup	User group	5	1

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:

Limit user(s) and group(s) of users or host(s) and group(s) of hosts to use a defined quantity of licenses

Select the type : Host group

Choose the name :

Quantity of licenses :

Name	Type	Number of licenses	Currently consumed
GroupA	Host group	100	2
GroupB	Host group	2	4

“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 standard 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-1D5913677621)
.....
IFW maxReleaseNumber: 17 type: NamedUser count: 11 inuse: 2 customerId:
DSFRA123
internal Id: PLMADM granted since: Jul 5, 2016 6:45:30 PM last used at:
Jul 5, 2016
7:29:58 PM by user: PLMADM on host: WIN-KNKSL07ILFV
(FFFFFFFFFFFFFFFF-c0a81f80.0)
internal Id: demoreviewer granted since: Jul 5, 2016 7:24:02 PM last used
at: Jul 10, 2016
10:32:50 AM by user: demoreviewer on host: WIN-KNKSL07ILFV
(FFFFFFFFFFFFFFFF-c0a81f80.0)
...
internal Id: demoreviewer granted since: Jul 5, 2016 7:24:15 PM last used
at: Jul 10, 2016
10:02:50 AM by user: demoreviewer on host: WIN-KNKSL07ILFV
(FFFFFFFFFFFFFFFF-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.

Manage composite authorization rules

A composite rule is a set of ALLOW, DENY, RESERVE and LIMIT declarations, each on a single line, that can be managed like a standard rule.

1. Select the **Authorizations** tab.
2. Click either directly on the feature or on the PricingStruct, CustomerCountry, CustomerSite or CustomerId type, then right-click and select Add new rule - Composite.

A rule properties dialog box like this is displayed:

The dialog box is titled "MDG - Rule properties" and contains a section for configuring a "COMPOSITE Rule".

Fields and controls:

- Type: User (dropdown menu)
- Name: (text input field)
- Quantity of licenses: (text input field)
- Type of rule : RESERVE (dropdown menu)
- Buttons: Add, Remove
- Table with columns: Name, Type, Number of licenses, Rule
- Buttons: OK, Cancel

Name	Type	Number of licenses	Rule
------	------	--------------------	------

A composite rule enables you to combine and enforce a potentially large number of authorization rules of different types (within the restrictions specified below). The rule may look like this (note the different rule types):

MDG - Rule properties

COMPOSITE Rule.

Type: IPRange group
 Name:
 Quantity of licenses: 3
 Type of rule : ALLOW

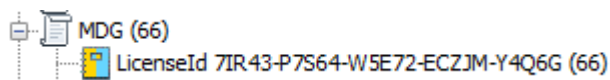
Add Remove

Name	Type	Number ...	Currentl...	Rule
france	IPRange	2	0	RESERVE
india	IPRange	5		LIMIT
France and India	IPRange ...			ALLOW

OK Cancel

Note that the composite rule contains several declaration lines.

A composite rule is symbolized in the **Authorizations** tab like this:



The following rules determine to what extent you can mix and combine different declaration types:

- a composite rule can contain any number of lines
- when you declare RESERVE lines in a composite rule, the RESERVE lines can only apply to: either users and user groups, or host and host groups, or IPRanges and IPRange groups
- when you declare ALLOW, DENY and LIMIT lines in a composite rule, the lines can apply to all of the following: users, user Groups, Hosts, Host Groups, IPRanges and IPRange Groups.

It is possible to create declarations applied to a combination of user/host/IPRange types in certain contexts, and not others.

Declarations applied to a combination of users, hosts and IPRanges ARE allowed in:	Standard ALLOW rules
	Standard DENY rules
	ALLOW lines in composite rules
	DENY lines in composite rules
	LIMIT lines in composite rules
Declarations applied to a combination of users, hosts and IPRanges ARE NOT allowed in:	Standard LIMIT rules
	Standard RESERVE rules
	RESERVE lines in composite rules

Furthermore, the license server behaves differently depending on whether standard rules or composite rules are deployed.

Declaration	Behavior
ALLOW	<p>In <i>standard</i> rules, all declarations must be validated: for example, a license will be granted to user BOB on HOST1 only if both an ALLOW declaration for user BOB AND an ALLOW declaration for HOST1 have been validated.</p> <p>In <i>composite</i> rules, at least one of the declarations must be validated: using the same example, if user BOB is authorized, OR HOST1 is authorized, the license will be granted.</p>
DENY	All declarations must be validated.
LIMIT	You cannot combine user/host/IPRange types in <i>standard</i> rules, but combining types is authorized in <i>composite</i> rules.
RESERVE	<p>In <i>standard</i> rules, if an individual item is also part of a group, only individual types are taken into account.</p> <p>In <i>composite</i> rules, if an individual item is also part of a group, as a priority, individual types are always taken into account first, then group types.</p>

Examples

The following example illustrates how to use ALLOW declarations in a composite rule. Create:

- an IPRange for a protected building (IPrange1)
- an IPRange for a non-protected building (IPrange2)
- a user group containing privileged users (Group1)
- a user group containing non-privileged users (Group2).

Let's assume you want to enforce the following licensing rules:

	IPrange1	IPrange2
Group1	Granted	Granted
Group2	Denied	Granted

To enforce the above rules, create a composite rule containing an ALLOW declaration for the privileged user group, and an ALLOW declaration for the non-protected IPRange. For illustration purposes, it looks like this:

```
Group1 ... ALLOW
IPrange2 ... ALLOW
```

In this case:

- privileged users in Group1 can consume licenses from both buildings (IPrange1 and IPrange2), because the composite rule Group1 ... ALLOW is sufficient to allow the user to consume a license from both buildings

- but non-privileged users in Group2 can consume licenses only from the non-protected building.

The following example illustrates how to use RESERVE declarations in a composite rule. Let's assume your company has offices in three countries: India, France and the USA, and you have purchased 10 licenses for feature MDG. You can create a single composite rule to enforce the following rules:

- reserve the usage of two licenses to an IPRange named `france` for French computers
- reserve the usage of five licenses to an IPRange named `india` for Indian computers
- reserve the usage of the three remaining licenses to an IPRange group named `France and India` containing only Indian and French computers
- restrict license usage in the USA (there are no licenses available since they are all reserved).

The rule will look like this:

The screenshot shows a dialog box titled "MDG - Rule properties" with a close button (X) in the top right corner. The main content area is titled "COMPOSITE Rule." and contains the following fields:

- Type: IPRange group (dropdown menu)
- Name: (empty text field)
- Quantity of licenses: 3 (text field)
- Type of rule : RESERVE (dropdown menu)

Below these fields are two buttons: "Add" and "Remove".

At the bottom of the dialog is a table with the following data:

Name	Type	Number of licenses	Rule
france	IPRange	2	RESERVE
india	IPRange	5	RESERVE
France and India	IPRange group	3	RESERVE

At the bottom of the dialog are two buttons: "OK" and "Cancel".

and for illustration purposes:

```
france IPRange 2 RESERVE
india IPRange 5 RESERVE
France and India IPRange group 3 RESERVE
```

When this rule is enforced, the behavior is as follows (and in the order specified):

- when Indian users log on, as a priority they will first consume licenses from IPrange india, because RESERVE declaration lines with individual items (IPrange india) are taken into account before group items (IPrange group France and India)
- once the first five licenses have been consumed, Indian users will then consume the remaining three licenses from IPrange group France and India
- when French users log on, they will consume the remaining two licenses from IPrange france.



Note: The total number of counts indicated in the `Currently consumed` column for a composite license can be higher than the total number of licenses. This can be the case, for example, when an item is present in a LIMIT and a RESERVE declaration, and when a client session triggers a match on a user, a host and an IPrange.

Limitations

Avoid erroneous and incoherent declarations, since the license server processes them along with the rest and does not reject them. For example, if you reserve eight licenses for host1, then limit host1 to five licenses, three licenses cannot be consumed.

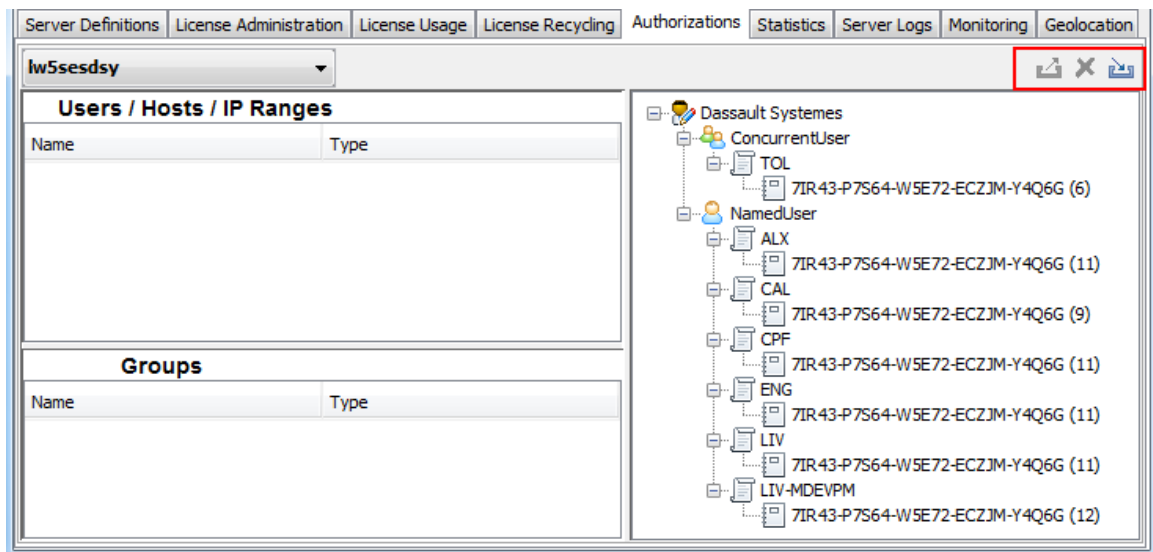
Importing and Exporting License Authorization Rules

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:



The toolbar looks like this :




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 version="1.0" encoding="UTF-8" standalone="yes"?>
<authorizations xsi:schemaLocation="http://www.3DS.com/DSLS
DSLSAuthorizations.xsd" xmlns="http://www.3DS.com/DSLS"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<users>
  <user id="1">anna</user>
  <user id="2">bob</user>
  <user id="3">chuck</user>
</users>
<usergroups>
  <usergroup id="1">
    <name>Usgroup1</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>
<editor name="Dassault Systemes">
  <model type="NamedUser">
    <feature name="CPF">
      <basicauthorizationlist ruletype="Deny">
        <name>CPF</name>
        <user id="2"/> <!-- bob -->
      </basicauthorizationlist>
    </feature>
    <feature name="ENG">
      <basicauthorizationlist ruletype="Allow">
        <name>ENG</name>
        <host id="1"/> <!-- computera -->
      </basicauthorizationlist>
    </feature>
    <feature name="LIB">
      <basicauthorizationlist ruletype="Reserve">
        <name>LIB</name>

```

```

        <usergroup quantity="2" id="1"/> <!-- Usgroup1 -->
    </basicauthorizationlist>
</feature>
<feature name="PRG">
    <basicauthorizationlist ruletype="Limit">
        <name>PRG</name>
        <hostgroup quantity="1" id="1"/> <!-- ComputerGroup -->
    </basicauthorizationlist>
</feature>
<feature name="IFW">
    <offlinerestrictions>
        <name>IFW</name>
        <keyword>secret</keyword>
        <maxduration>21</maxduration>
    </offlinerestrictions>
</feature>
</model>
</editor>
</authorizations>

```



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

For composite rules, the tag is `<compositeauthorizationlist>` instead of `<basicauthorizationlist>` for standard rules. For example:

```


<compositeauthorizationlist>
    <name>MDG,5LBGS-SIEJ7-TVIF0-UFAMA-EU0WX,NamedUser</name>
    <user rule="Deny" id="1"/> <!-- anna -->
    <usergroup rule="Reserve" quantity="5" id="1"/> <!-- ugl -->
    <usergroup rule="Reserve" quantity="10" id="2"/> <!-- ug2 -->
    <host rule="Limit" quantity="5" id="1"/> <!-- host1 -->
    <host rule="Limit" quantity="25" id="2"/> <!-- host2 -->
    <iprange rule="limit" quantity="50" id="1"/> <!-- ipr1 -->
</compositeauthorizationlist>
...
<basicauthorizationlist ruletype="Allow">
    <name>EDT,Token,5LBGS-SIEJ7-TVIF0-UFAMA-EU0WX</name>
    <user id="2"/> <!-- bob -->
</basicauthorizationlist>

```

Import Authorization Rules

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

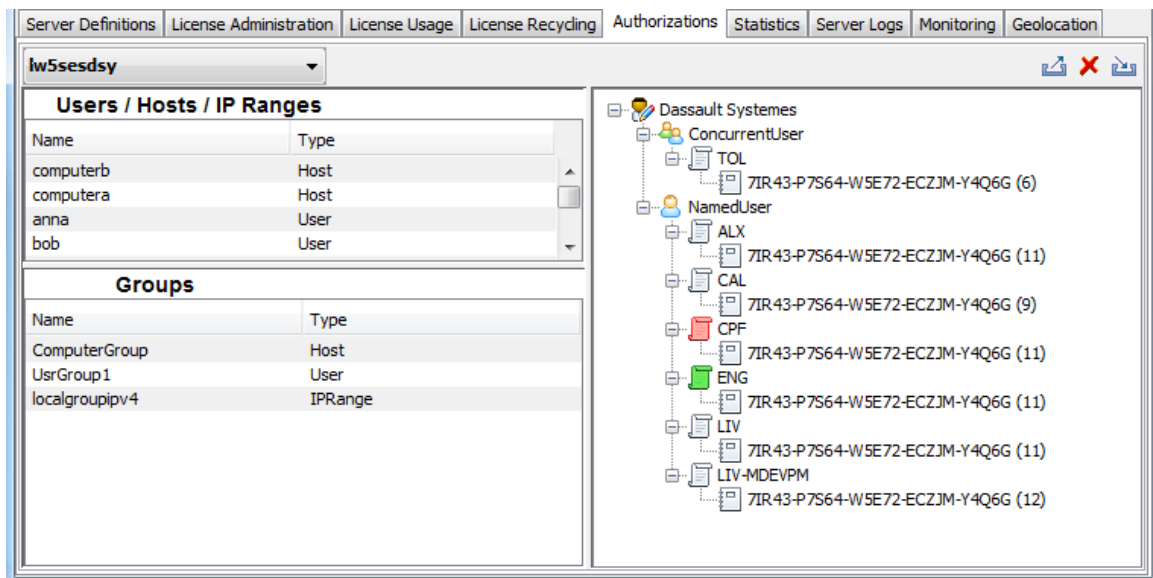
Removing existing authorization data guarantees that the result will be exactly the content of the imported file. If you do not remove it, you will be prompted to merge manually the imported data with the existing data.

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:



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.

4. Validate your XML file.

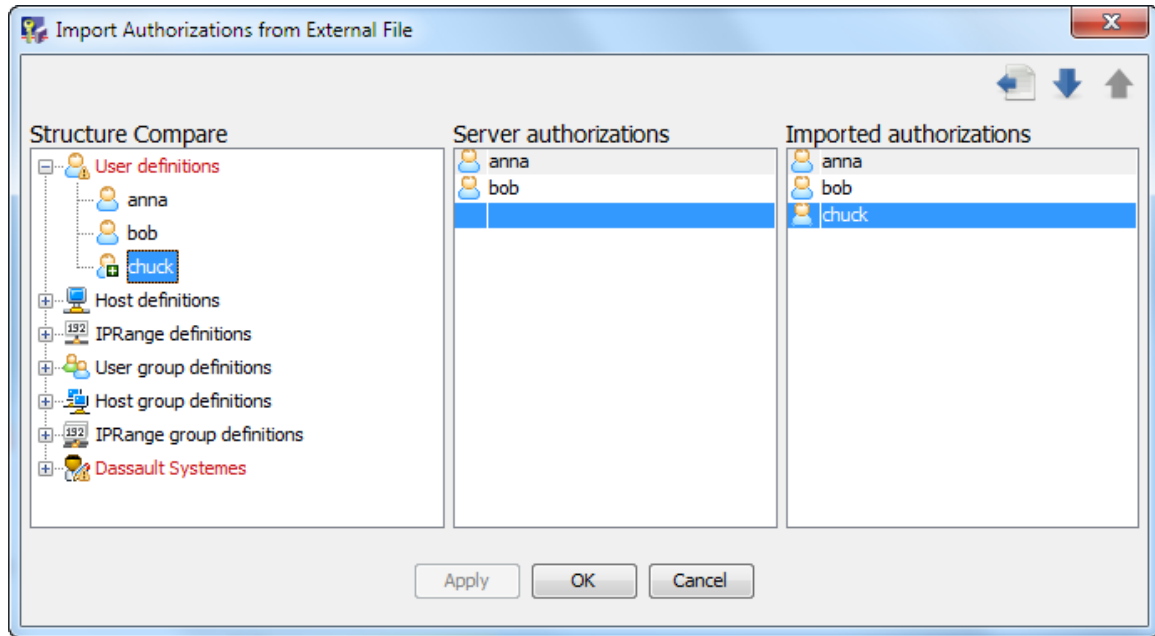
Use your favorite XML tool to reference the following XSD file:

`DSLS_installpath\OS\resources\xsd\DSLSAuthorizations.xsd`

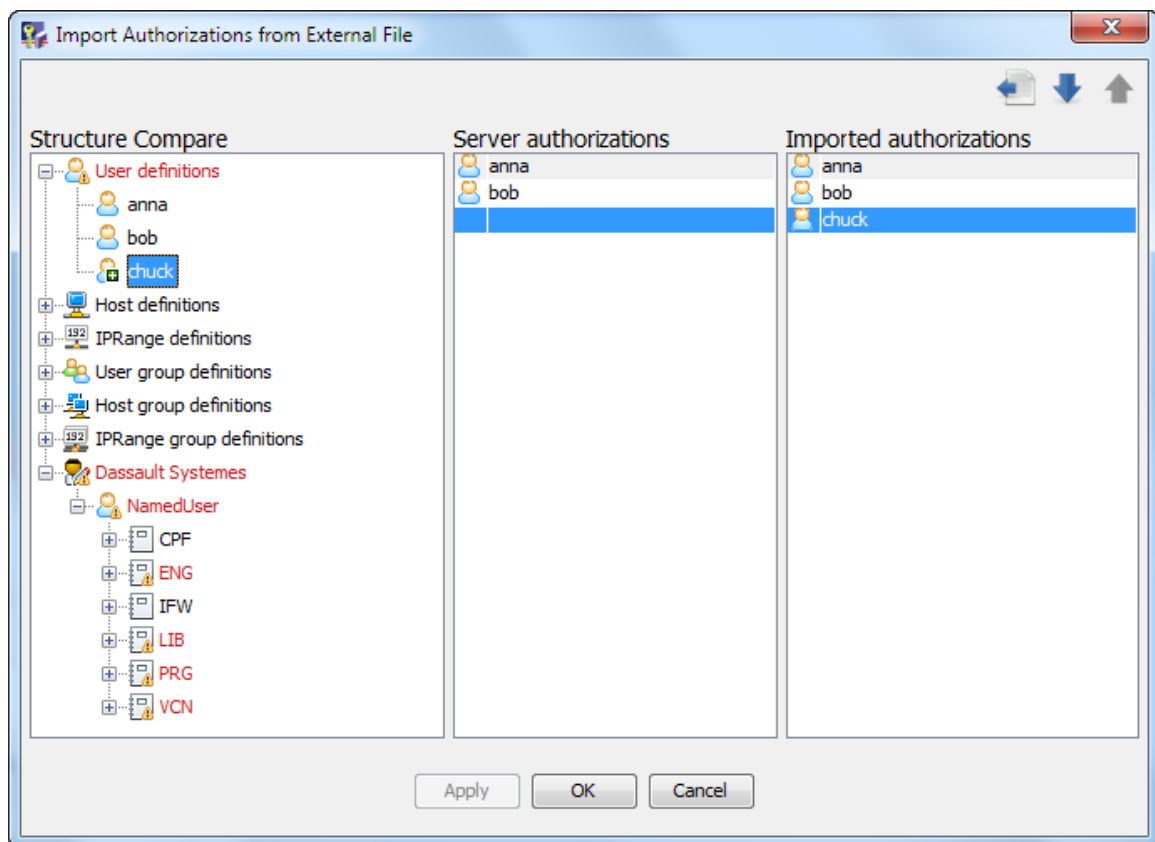
to parse the XML file and validate its structure and syntax.

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:

The screenshot displays the 'lw5sesdsy' console window with the following sections:

Users / Hosts / IP Ranges

Name	Type
computerb	Host
computera	Host
anna	User
bob	User
chuck	User
local1921680	IPRange
localipv6	IPRange
localcomputer	IPRange
local10232	IPRange

Groups

Name	Type
ComputerGroup	Host
UsrGroup1	User
localgroupipv4	IPRange

License Rules Tree View:

- Dassault Systems
 - ConcurrentUser
 - TOL
 - 7IR43-P7S64-W5E72-ECZJM-Y4Q6G (6)
 - NamedUser
 - ALX
 - 7IR43-P7S64-W5E72-ECZJM-Y4Q6G (11)
 - CAL
 - 7IR43-P7S64-W5E72-ECZJM-Y4Q6G (9)
 - CPF
 - 7IR43-P7S64-W5E72-ECZJM-Y4Q6G (11)
 - ENG
 - 7IR43-P7S64-W5E72-ECZJM-Y4Q6G (11)
 - LIV
 - 7IR43-P7S64-W5E72-ECZJM-Y4Q6G (11)
 - LIV-MDEVPM
 - 7IR43-P7S64-W5E72-ECZJM-Y4Q6G (12)

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:



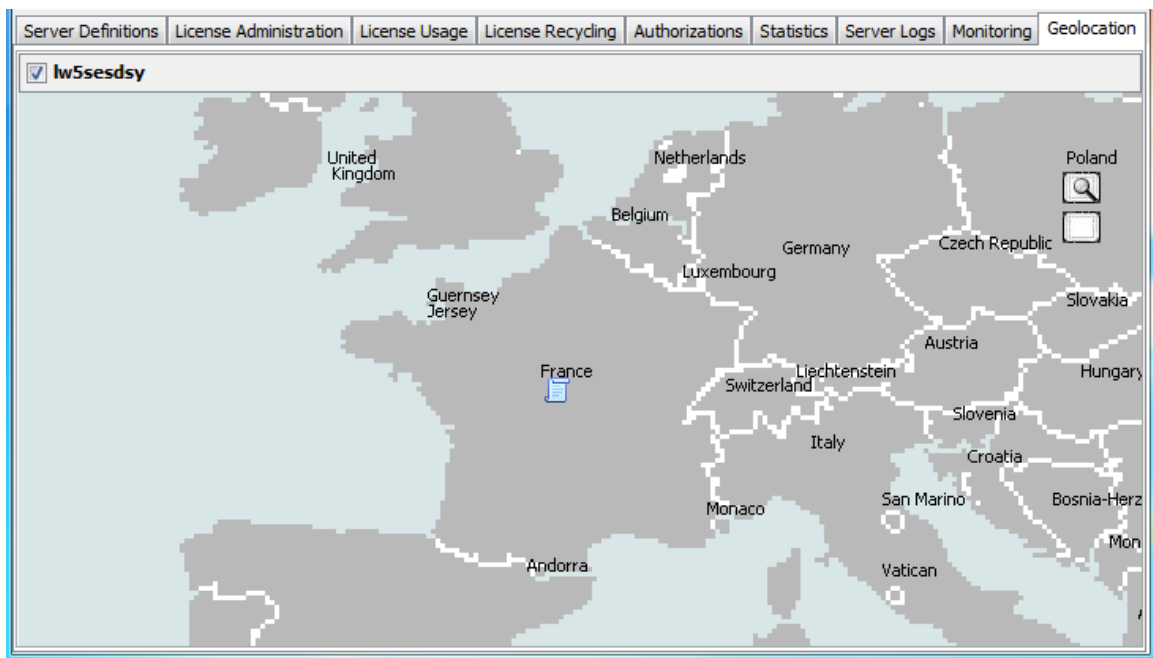
4. Zoom in on the world map by left-clicking and dragging a box around the region you are interested in.


The  symbol identifies a country for which licenses are authorized:

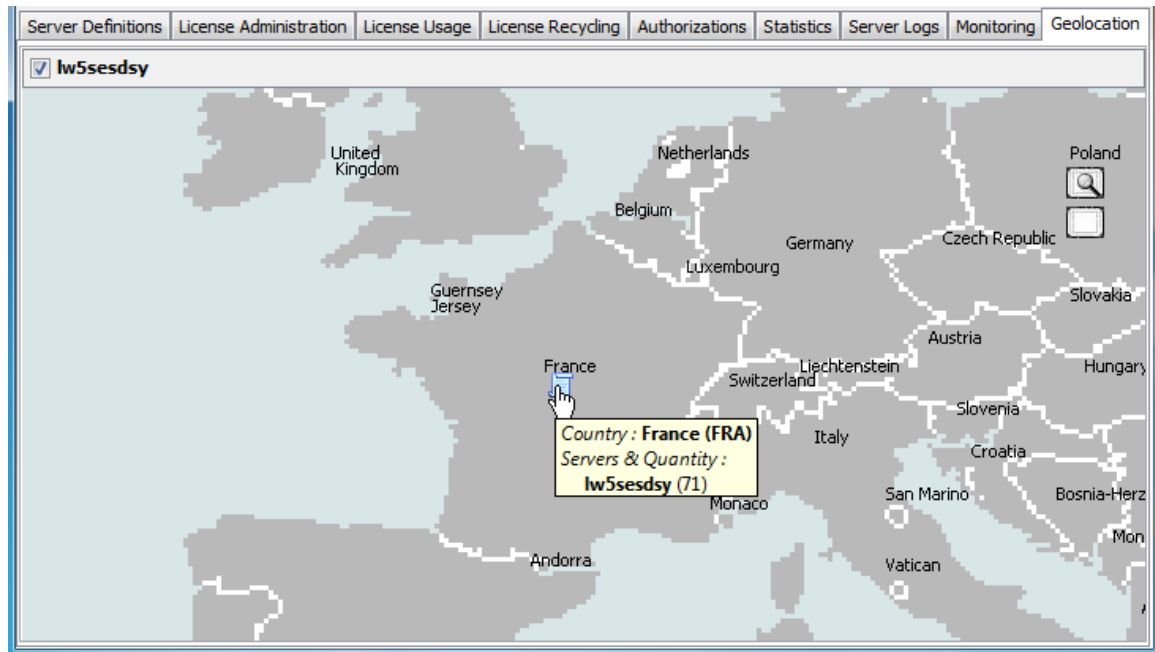


The country is the one indicated in the **Customer Country** column in the **Administration** tab.

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.

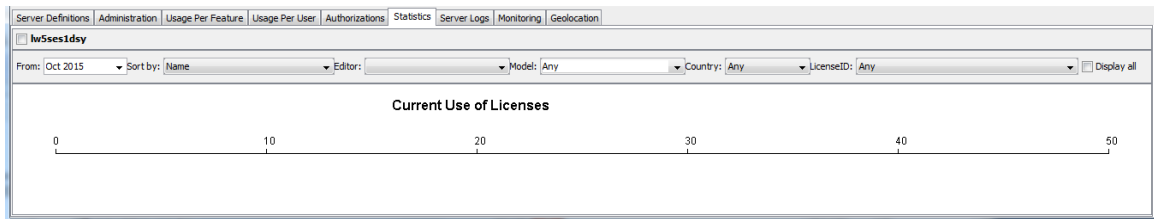
Tracking License Server Operation

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

Tracking License Statistics

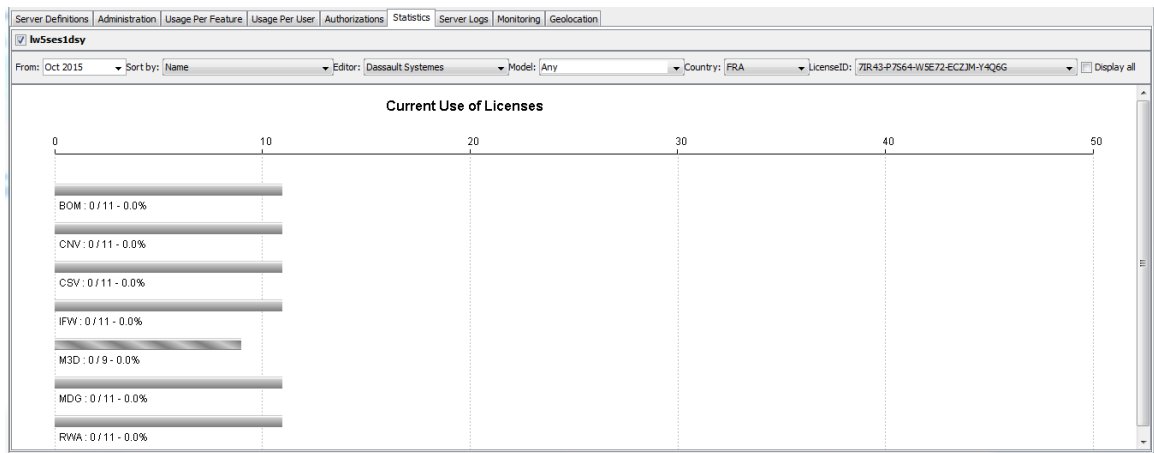
Different types of license statistics are available using the **Statistics** tab.

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.

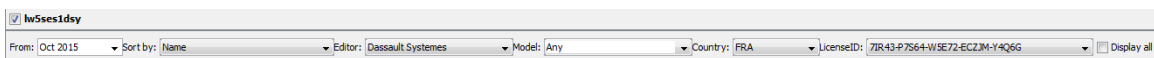


3. Check the check box for the name of the license server:

This displays the statistics tools for the selected server:



with the following options:



4. 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.
5. 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.
Total Number of 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.

6. 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.

7. 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 license 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.
Credit	Only credit license statistics are displayed.

8. Use the **Country** pull-down list to specify the country.

A company can have several sites in one or several countries. Every site receives a different .LICZ file. A company can enroll, on a given license server, several .LICZ files for several countries. If you have license keys for several sites, this makes it easier to measure the license usage for each site.

9. Use the **LicenseID** pull-down list to specify the license ID.

A .LICZ file is a set of several license keys sharing in particular the same unique LicenseID. A company can enroll, on a given license server, several .LICZ files for several license IDs.

Keep in mind also that license authorization rules allow you to segregate license key usage based on the LicenseID.

By default, countries and license IDs are not filtered: Any is displayed. If there is only one country or only one license ID in the license keys enrolled on the license server, the corresponding values are displayed instead of Any.

Filtering fields operates from left to right, in this order: Editor > Model > Country > LicenseID. Filtering on the left filters by reducing lists on the right, but not from right to left.



Note: Pre-R2017x statistics data does not contain information related to Country and LicenseID. As a consequence, the filtering on Country and LicenseID is effective only once an R2017x license server or higher has been installed. Unknown for country and 00000 for license ID are displayed.

When connected to an R2016x server or lower, neither the Country filter nor the LicenseID filter is displayed.

10. 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.

11. 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%.

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

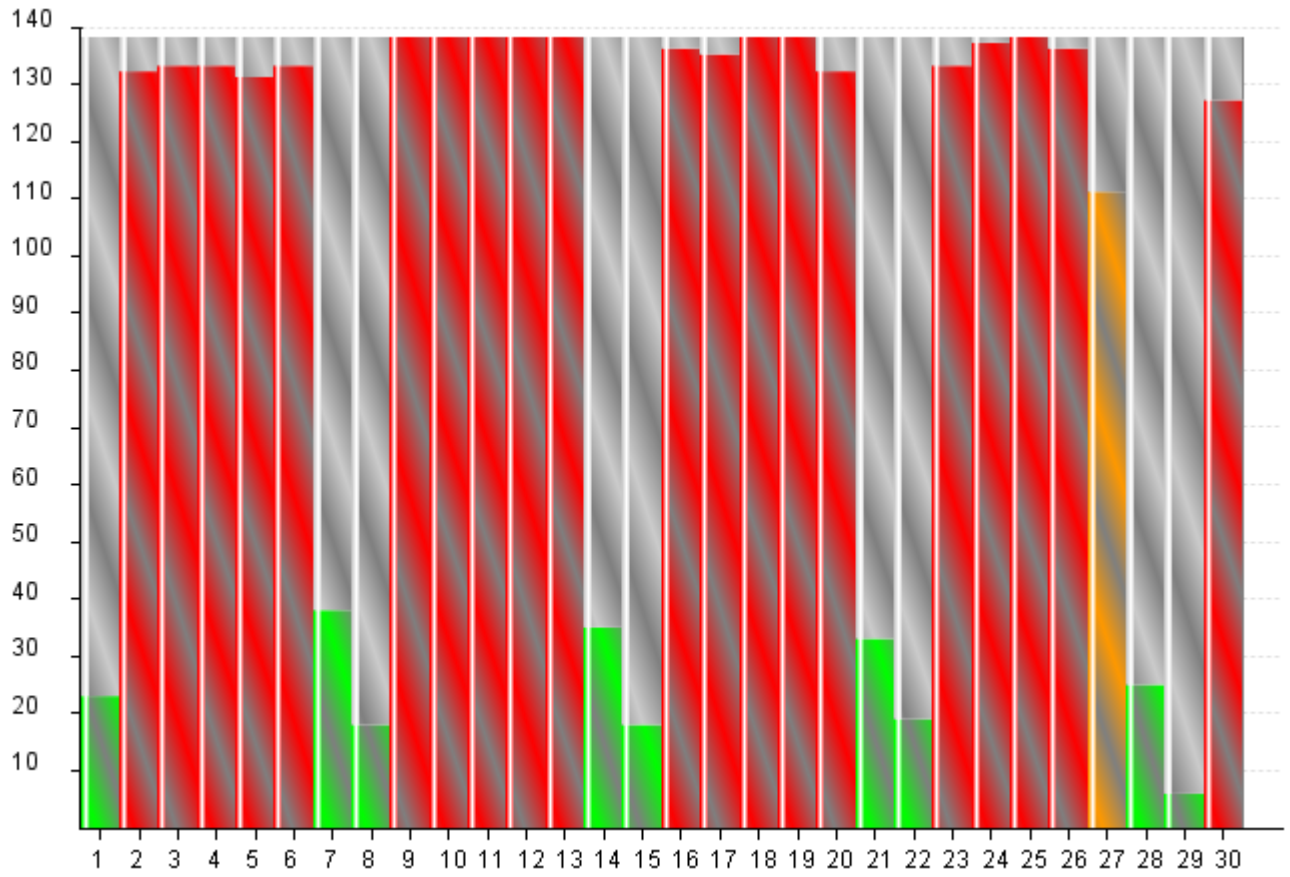
Three numbers are displayed for each feature:

- 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).

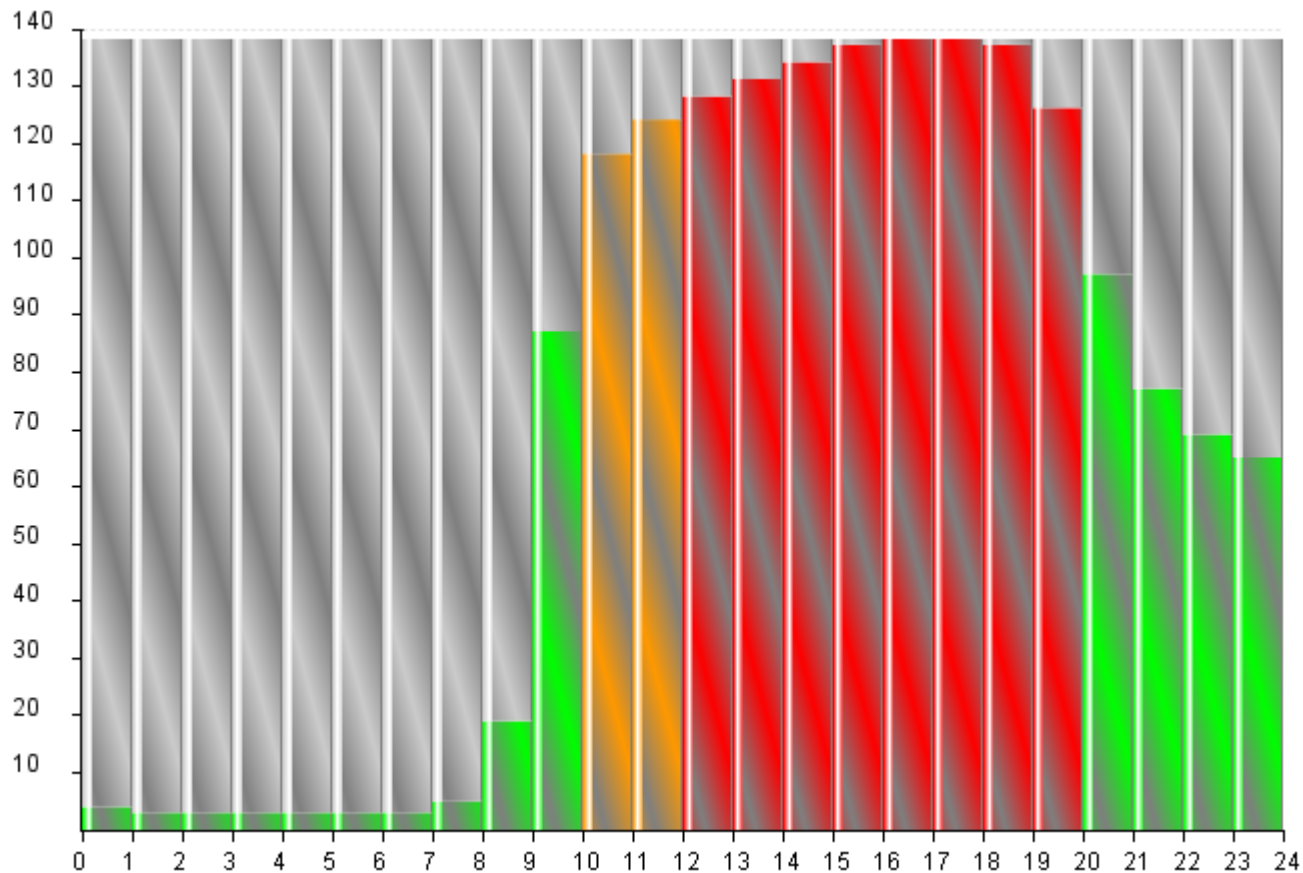
**13. Click the chartbar.**

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 the chartbar again for hourly information:



A tooltip containing detailed data is displayed when mousing over the vertical chartbar, for example:

July 2016 : 21 licenses used, 46 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 2016 : 21 licenses used, 46 total

July 2016 : 23 licenses used, 52 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.

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.



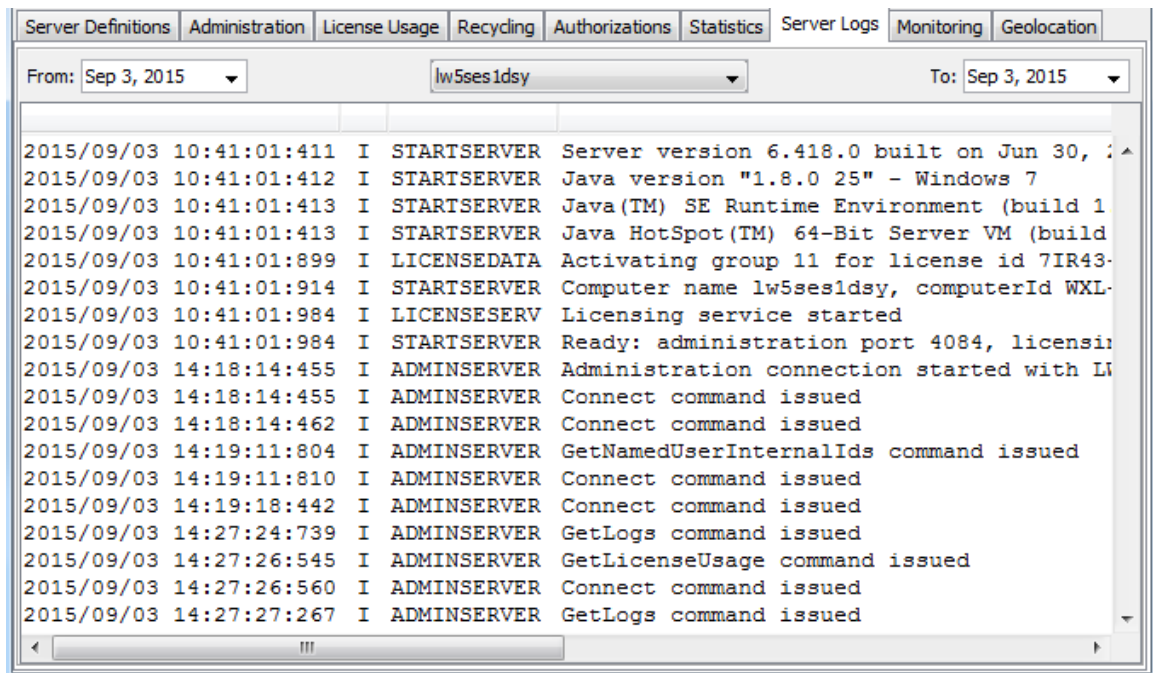
Note: When statistics data collection is enabled, the files containing statistics data, with the extension `.stat`, are generated in the log files folder. There can be numerous files, occupying a lot of disk space, leading to increased time needed for displaying statistics in the administration tool. These `.stat` files are compacted to `.mstat` files. New monthly files are generated for the months before the current month. The license server continues to generate `.stat` files for the current month. The old `.stat` files are moved to the `StatBackup` folder which you can remove.

Tracking Server Logs

You can consult license server logs using the **Server Logs** tab. A maximum of 1GB of logs is transferred from the license server to the license admin tool: above truncated.

1. Select the **Server Logs** tab.

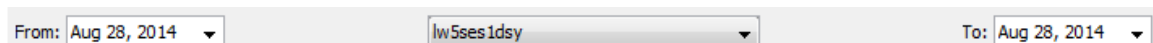
The tab looks like this:



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` (Linux). 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 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 or credits
- 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
```

In addition to the hostname, this field contains in parenthesis the ComputerID, the IP address in hexadecimal notation and the Windows session number or Linux display number.

- 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.

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

- Field 14: Client process level. The value begins with "5" for V5 licensing client processes, and with "6" for V6 and 3DEXPERIENCE licensing client processes.
- Field 15: Pricing structure value.

If the Managed Licensing Service is used, an additional field containing the CustomerID is inserted between fields 3 and 4.

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!3DExperience!
```

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

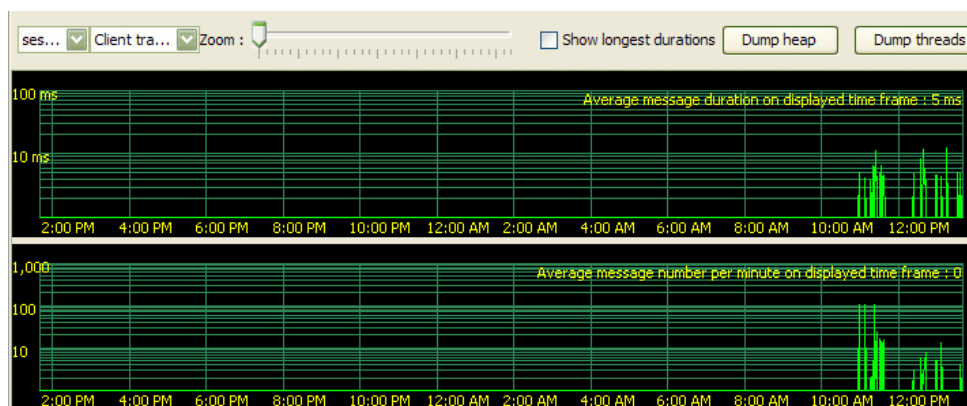
You can monitor license server performance using the **Monitoring** tab. Monitoring data is reset every time the license server is restarted, so prior data is not displayed. Monitoring is particularly useful in comparison tasks: different loads between servers, different loads depending on time, why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



Note: If monitored by 3DEXPERIENCE Monitoring Agent, the DS License Server monitoring probe requires the license server to be installed with the default admin port: 4084.

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:

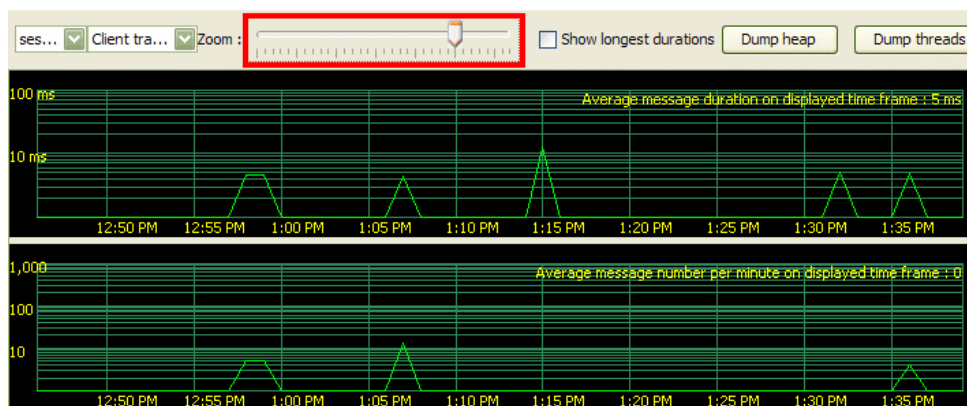


Activity over the last 24 hours is displayed in green bar graphs. The monitoring interval is 1 minute.

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 slider to zoom on a particular period over the last 24 hours.

You can zoom down to display a period in intervals of 5 minutes:



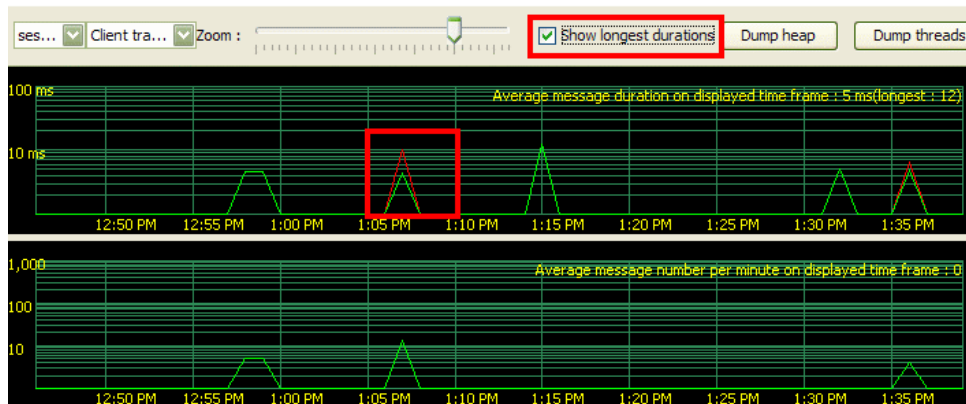
The upper part of the display monitors the average duration of processing, by the license server, of client messages that the license server receives.

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.

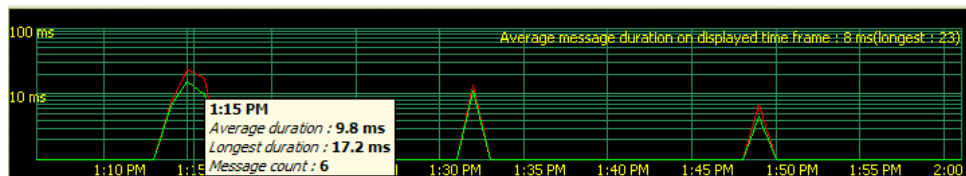
4. Select the **Show longest durations** check box to display the longest message processing durations.

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**.

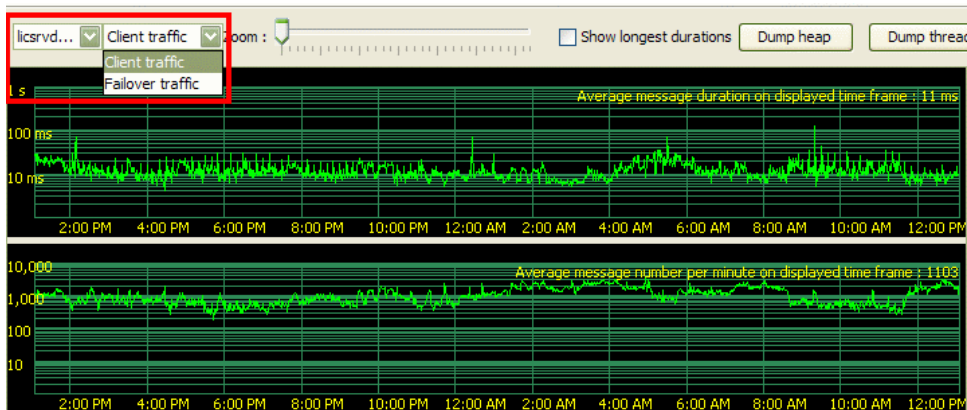
Client traffic

Monitors messages sent by the license clients to the license server. The license clients are the processes that 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 list:

Client traffic/Admin traffic

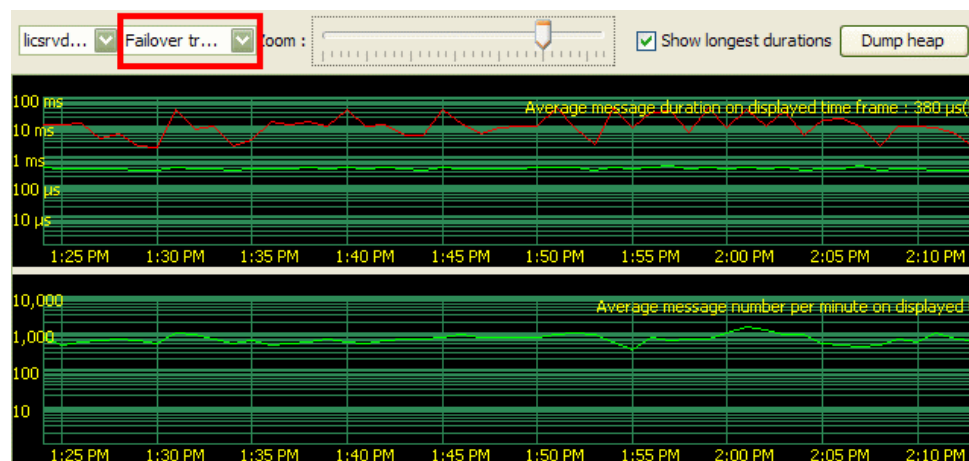
These perform the same monitoring functions as for a standalone server.

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 stops responding, and if requested, you can dump server performance information using the dump buttons:

Dump heap

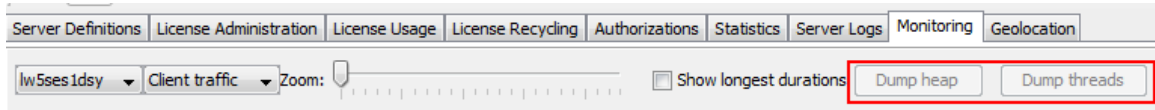
The server memory is dumped in a file named `HeapDumpxxxxxxxx.hprof` in the same folder as the ordinary server logs.

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 not 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 grayed 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 that 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.

Using the Managed Licensing Service

This section explains how to use the managed licensing service.

What Is the Managed Licensing Service?

The managed licensing service provides you with the ability to run certain levels (essentially, Version 5 and **3DEXPERIENCE**) of on-premises DSLS-enabled apps. Using this mode, the specific apps which are enabled to support this mode obtain their license keys from a highly available license server managed by Dassault Systèmes, which is not installed on your premises.

The License Server is an Online Service

You no longer need a physical machine on which you install the DS License Server. The license server is managed by Dassault Systèmes and is a highly available and scalable online service.

The service may be interrupted for planned maintenance for approximately fifteen minutes. You can be informed about impending managed licensing service upgrades by subscribing to an RSS feed provided by Dassault Systèmes. This action can be done from the following URL:

```
https://www.3ds.com/support/news/?woc=%7B%22support%20category%22%3A%5B%22support%20category%2Fmanaged%20dls%20maintenance%22%5D%7D
```

Routine license administration operations (for example, license enrollment) are handled by Dassault Systèmes. Nevertheless, you can still perform certain advanced administration tasks yourself (for example, setting authorization rules) by using the **3DEXPERIENCE** Licensing Service Administration web user interface, which does not require you to install any additional software, via an URL provided by Dassault Systèmes.

For security reasons, the URL provided for web administration needs a first connection to Dassault Systèmes servers through a secured mechanism, the 3DPassport. Initially, if you do not already have one, you need to create an account and use it later. After logging in using the 3DPassport, a second login provides access to the **3DEXPERIENCE** Licensing Service Administration web user interface. The browsers supported are the same as those supported by the **3DEXPERIENCE** platform.

When ordering license keys, you must specify first of all that you want to operate in managed licensing service mode.

You will then receive an e-mail from Dassault Systèmes containing:

- an authentication file (described in [What Is An Authentication File?](#))
- one administration URL for connecting directly to the Licensing Service Administration Web User Interface, for example:

```
https://customerID-eul-licensing-3.3dexperience.3ds.com
```

- three service connection hostnames for accessing the license server failover:

```
customerID-eul-licensing.3dexperience.3ds.com
customerID-eul-licensing-1.3dexperience.3ds.com
customerID-eul-licensing-2.3dexperience.3ds.com
```

where customerID is your customer identifier provided by Dassault Systèmes.

What Is An Authentication File?

To ensure that only the licenses belonging to you are granted to the licensing client, licensing clients require authentication. Consequently, you have to deploy a new authentication file.

The authentication file has a .LIC extension, and is generated once for your site. Licensing clients (and optionally the license administration web interface) authenticate themselves against the managed licensing service thanks to this file. The authentication file must be deployed on all your licensing client machines.

Unlike license keys, the authentication file is not tied to a `ComputerID`, enabling you to deploy it on several computers, including virtual machines. It is common to Version 5 and **3DEXPERIENCE** licensing clients, has no expiration date, and you can deploy it only once.

Nevertheless, in the event of theft, you can of course request a new authentication file. The new file invalidates and supersedes the previous file, thereby preventing unauthorized usage of the previous file. You will then have to redeploy the new file on all your licensing clients.

Setup Operations

This section describes setup operations for the licensing clients.

1. Copy the authentication file to all the licensing clients in the following default location:

- C:\ProgramData\DassaultSystemes\Licenses (Windows)
- /var/DassaultSystemes/Licenses (Linux).

2. **Optional:** Set the `DSL_S_AUTH_PATHNAME` environment variable.

You can also set the following environment variable `DSL_S_AUTH_PATHNAME` using a full pathname (UNC supported), if you decide to store the file in a different directory from the default one. For example:

```
DSL_S_AUTH_PATHNAME=G:\Shared\MyAuth.LIC
```

If you do not set the `DSL_S_AUTH_PATHNAME` variable, only the most recent file (among several authentication files in the default location) is used.

: Make sure you only have one authentication file in the default location.

3. Retrieve the service connection hostnames from the email that you received and declare them in the `DSLicSrv.txt` file located in the above directory.

The port number is 443.

When a licensing client contacts the managed licensing service, it looks for an authentication file and sends it to the license server. The license server grants one or more licenses and the session continues as normal.

4. Check your network configuration (firewalls and proxies) to allow `https` access to the three hostnames on port 443.

You can run the `DSCheckLS` command to check the configuration of your installation.

You can then run the required apps.



Note: You can work on a laptop with offline license keys, assuming the laptop is not a virtual machine. The status of the license server appears in the `DSLicMgt` tool with a black bullet if a valid authentication file is not found.



Note:

A Windows service running as a generic account, such as `Local System`, may not access the Internet and in particular cannot access the managed licensing service. By default, your Dassault Systèmes code running in a Windows service and which needs a license key provided by the Managed Licensing Service may not work. A typical case is the **3DEXPERIENCE3DSpace** service hosted in a TomEE+ application server started as a Windows service.

To solve this constraint:

- either disable the Windows service and start the process manually, in a `.bat` file for example
- or replace the `Local System` account used to start the service with a user account.

Using the Licensing Service Administration Web User Interface

This section describes how to access and use the **3DEXPERIENCE** Licensing Service Administration Web User Interface for managed licensing service mode.

You can only manage the Managed Licensing Service with the web administration interface. You cannot use a command line interface.

In basic scenarios, you do not need to manage your license keys: they are automatically enrolled and renewed on the license server by Dassault Systèmes. If needed, you can still perform the operations described below.

1. Click on the administration URL in the email, or open your browser and enter the URL to connect to the web user interface:



Note: To know the supported browsers versions, see the *Deployment / Strategic Platform Requirements / Browser Client Hardware & Software* section of the Program Directory.

```
https://customerID-eul-licensing-3.3dexperience.3ds.com
```

where customerID is your customer identifier provided by Dassault Systèmes.


The 3DPassport login page appears.

Enter your username and password, or create an account and log in using your account.

The **License Server Connection Parameters** page appears:

License Server Connection Parameters

Administration password:	<input type="password"/>
Connection mode :	<div>Restricted (Read Only) ▼</div>
Customer Authentication Certificate:	<div>Choose file...</div>
	<div>Connect</div>



2. Decide and enter the license server administration password.

For the moment, you have not set this password.

To access license server administration, a password is mandatory. The first time you use the license administration, you must define passwords for both full and restricted accesses.

The screenshot shows a web interface titled "License Server Connection Parameters". It contains two main sections for password configuration:

- Full access mode:**
 - New password: [password field with 4 dots] ✓
 - Confirm new password: [password field with 4 dots] ✓
- Restricted access mode:**
 - New password: [password field with 2 dots] ✓
 - Confirm new password: [password field with 2 dots] ✓

At the bottom of the form are two buttons: "Set passwords" and "Cancel".

If you lose the password, you must ask Dassault Systèmes to reset it. This action resets all the settings, such as passwords, email configuration and authorization rules.



Note: To reduce the risk of license authentication file theft, and mitigate the consequences of any theft, do not keep the passwords and the authentication file in the same place, and configure authorizations allowing only your Internet output IP (and not LAN IPs).

3. Specify the connection mode.

The connection mode can be:

- Restricted (Read Only)
- Full (Read/Write)

which are the same modes available when configuring the license server as described in [Configuring and Activating a Standalone License Server](#).

When you set the password for the first time, you can use both connection modes.

4. Click **Choose file...** to select the customer authentication certificate.

The customer authentication certificate is the authentication file sent to you in the email.

5. Click **Connect**.

The **3DEXPERIENCE Licensing Service Administration** page (resembling the local administration tool) appears:

Status	Editor	Model	Feature	Quantity	End Date	Customer Site	Customer Country	Customer ID	Enroll Date	Pricing
Active	Dassault Systemes V5	ConcurrentUser	AL2	5	9/10/2021	QA test managed DSL	FRA	QAManaged1	6/15/2020	TBD
Active	Dassault Systemes V5	ConcurrentUser	AL3	5	9/10/2021	QA test managed DSL	FRA	QAManaged1	6/15/2020	TBD
Active	Dassault Systemes V5	ConcurrentUser	DER	5	9/10/2021	QA test managed DSL	FRA	QAManaged1	6/15/2020	TBD
Active	Dassault Systemes V5	ConcurrentUser	DES	5	9/10/2021	QA test managed DSL	FRA	QAManaged1	6/15/2020	TBD
Active	Dassault Systemes V5	ConcurrentUser	DP2	1	9/10/2021	QA test managed DSL	FRA	QAManaged1	6/15/2020	TBD
Active	Dassault Systemes V5	ConcurrentUser	FSS	1	9/10/2021	QA test managed DSL	FRA	QAManaged1	6/15/2020	TBD
Active	Dassault Systemes V5	ConcurrentUser	LCM	5	9/10/2021	QA test managed DSL	FRA	QAManaged1	6/15/2020	TBD
Active	Dassault Systemes V5	ConcurrentUser	LCP	5	9/10/2021	QA test managed DSL	FRA	QAManaged1	6/15/2020	TBD

You can drag and drop columns to reorganize them (except in the **Authorizations** tab and on Firefox). Click the column names to sort them, use the Ctrl key for multi-sorting.

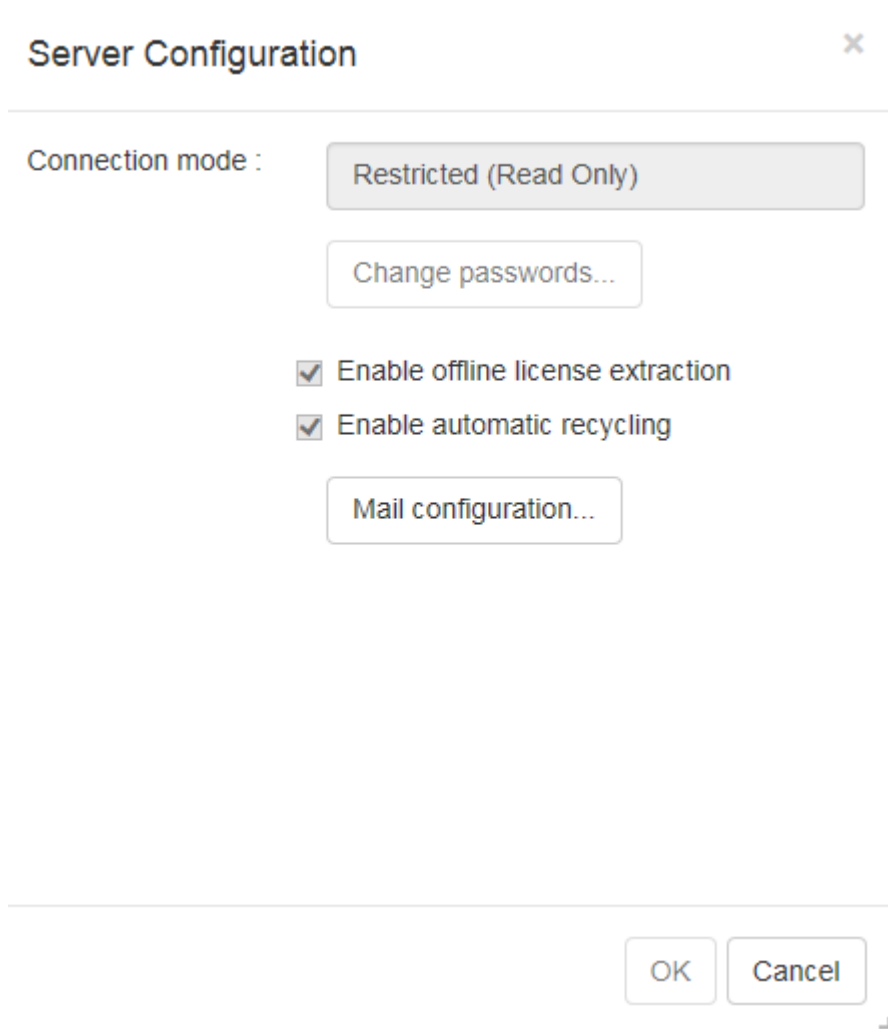
The Search in the top bar is only active in the **Server Logs** tab. The Find function is delegated to the browser, typically by using Ctrl-F.

The icon on a line indicates that details are available by clicking the icon. You can also access details by double-clicking the line.

Click in the tab to export data in that tab to a .csv file. In the **Authorizations** tab, however, data are exported and imported in a more appropriate XML format.

6. Perform any authorized operations.

Minimal server configuration tools are available by clicking **Preferences**:



Server Configuration

Connection mode : **Restricted (Read Only)**

[Change passwords...](#)

☒ Enable offline license extraction

☒ Enable automatic recycling

[Mail configuration...](#)

OK **Cancel**


The operations you can perform are the following:

- add authorization rules
- configure license expiration alerts
- get license usage information
- change passwords
- consult logs stored on the license server

but you cannot:

- stop the license server
- change the license server configuration: port numbers, member names..
- enroll and delete license keys
- stop usage tracing
- enable statistics
- access monitoring data
- declare certain email alert types.

As is the case for on-premises failover license servers, you receive three emails when licenses are about to expire and email alerts are activated.

7. Click  in the top bar, then **Disconnect**.

Reference

This section contains reference information about batch commands and file locations. Note that all parameters and commands are case-sensitive.

DSLicSrv Command

The DSLicSrv command initializes and starts the license server and its associated administration tool.

Note that all command parameters are case-sensitive.

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 Linux, the DSLicSrv command is located by default in:

```
/usr/DassaultSystemes/DSLICENSEServer/linux_a64/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

Option	Description
-initServer [-adminPort nnnn] [-licensingPort nnn] [-enroll filename] [-force]	Initializes the license server. <ul style="list-style-type: none"> -adminPort nnnn: administration listening port number; mandatory only if never previously installed or if -force is also used; in other cases, -adminPort nnn is ignored if passed -licensingPort nnnn: 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 Linux, and in an elevated command prompt on Windows.

Start the Server

Option	Description
<pre>-startServer [-echo] [-logDir path_to_log] [-logFileSize number] [-compressLog] [-disableSSLProtocol protocol] [-cipherSuitesPath filename] [-tokenLogsUploader None]</pre>	<p>Start the license server:</p> <ul style="list-style-type: none"> -echo: display messages in addition to logging them -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 -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. -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). -disableSSLProtocol: specify the protocol(s) to disable. For example: <code>-disableSSLProtocol SSLv3,TLSv1</code> -cipherSuitesPath filename: specify cipher suite path. -tokenLogsUploader None: Token/Credit logs are not automatically sent to Dassault Systèmes.

Example

```
DSLicSrv -startServer
```



Note: You must run this command as root on Linux, 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:

```
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:

```
sc.exe qc "DS License Server"
```

The displayed BINARY_PATH_NAME line should match something like this:

```
"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, for example:

```
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"
```



Note: note the space character after " binpath= ".

4. Check the new properties of the license server service:

```
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/dsls`.

Stop the Server

Option	Description
<code>-stopServer</code>	Stops the license server

Example:

```
DSLicSrv -stopServer
```



Note: You must run this command as root on Linux, and in an elevated command prompt on Windows.

Start the License Administration Tool GUI

Option	Description
<code>-adminUI [-resetSettings]</code> <code>[-locale en_US]</code>	Starts the License Administration Tool GUI: <ul style="list-style-type: none"> <code>-resetSettings</code>: resets License Administration Tool GUI settings <code>-locale en_US</code>: forces the License Administration Tool to be displayed in English.

Example

```
DSLicSrv -adminUI
```

starts the License Administration Tool user interface.

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 **License Administration Tool**. However, you can perform the same tasks in command line mode.

Option	Description
<code>-admin [-i input_file] [-o output_file] [-t output_file]</code> <code>[-run "list of commands"] [-ks keystore_file]</code>	Starts the License Administration Tool in command line mode <ul style="list-style-type: none"> <code>-i input_file</code>: input file containing list of commands <code>-o output_file</code>: redirects output to an output file <code>-t output_file</code>: redirects output both to an output file and to the command line window <p>For more information, see Redirecting Output.</p> <ul style="list-style-type: none"> <code>-run "list of commands"</code>: runs a concatenated list of commands, as explained in Running Several Commands at the Same Time <code>-ks keystore_file</code>: creates or uses an existing encrypted password file, as explained in Managing Passwords.

The following command prompt appears:

```
License Administration Tool Version 6.419.0 Built on Jun 27, 2016 1:01:10 PM.
admin >
```

As you can see, when the prompt is:

```
admin >
```

you are inside the command line administration tool.

You must 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
```

(*): functionalities that are not supported by the managed licensing service administration web user interface.

Operation	Command Syntax	Options
Connect to a license server	<code>connect|c server port [-proxy | -p proxyHost proxyPort] [-restricted | -r]</code>	server: license server host name port: administration port number -proxy|-p proxyHost proxyPort: proxy host 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 information	<code>getServerInfo|gsi</code>	
Disconnect from connected license server	<code>disconnect|disc|d</code>	
Get license server configuration (*)	<code>getConfig|gc</code>	
Get license information	<code>getLicenseInfo|gli [-superseded] [-csv]</code>	-superseded: display superseded licenses. -csv: format output as a .csv file.
Show current license usage	<code>getLicenseUsage|glu [-feature feat] [-all|-short] [-csv] [-usedOnly|-uo]</code>	-feature: display usage on specified feature -all: display detailed client usage (including casual license usage in minutes, last used date for automatic recycling purposes, etc.) and running processes -short: display global usage only

Operation	Command Syntax	Options
		<p>-csv: format output as a .csv file.</p> <p>-usedOnly: lists only consumed licenses.</p> <p>Expiration Date is only displayed when connected to a R2015x license server or a higher level.</p> <p>The client process level (5 for V5 licensing client processes, and 6 for V6 and 3DEXPERIENCE) is also displayed.</p>
Get license usage tracing flags (*)	getLicenseUsageTraces | dut	Get license usage tracing flags
Activate/Deactivate license usage trace (*)	setLicenseUsageTraces | sut all | license1 license2 ... -trace | -t yes | no [-editorId | -e editor]	<p>license1 license2 ...: licenses to manage usage tracing, or all to manage all licenses</p> <p>-trace yes|no: to activate or deactivate trace</p> <p>-editorID: editor</p>
Display logged server messages	showLog | sl [-from fromDate] [-to toDate]	<p>-from: lower limit (default midnight)</p> <p>-to: upper limit (default now)</p> <p>Date format: YYYY / MM / DD [HH : MM : SS]</p>
Modify server configuration (*)	setConfig | sc [-licensingPort | -lp port] [-adminPort | -ap port] [-failoverPort | -fp port] [-password | -pwd] [-restrictedPassword | -rpwd] [-remoteAdmin | -ra none | restricted | full] [-failoverMode | -fm yes | no] [-clusterName1 | -cn1 name] [-clusterName2 | -cn2 name] [-clusterName3 | -cn3 name] [-enableLicenseStats | -els yes | no] [-automaticRecycling | -ar yes | no] [-enableOffline | -eo yes | no]	<p>-licensingPort: listening port for license client access</p> <p>-adminPort: listening port for administration usage</p> <p>-failoverPort: listening port for intra cluster communications</p> <p>-password: ask to be prompted to enable/disable password protection administration</p> <p>-restrictedPassword: ask to be prompted to enable/disable restricted mode password protection administration</p> <p>-remoteAdmin: disable administration from a remote machine or enable in full or restricted mode</p> <p>-failoverMode: change standalone/failover mode</p> <p>-clusterName1: host name of the first machine of the failover configuration</p> <p>-clusterName2: host name of the second machine of the failover configuration</p> <p>-clusterName3: host name of the third machine of the failover configuration</p>

Operation	Command Syntax	Options
		-enableLicenseStats: activates statistics -automaticRecycling: activates automatic license recycling. -enableOffline: enable offline license extraction.
Modify cluster (*)	modifyCluster|mc [-repair|-r host] [-update|-u host] [-changeName|-cn host newHost] [-changeMachine|-cm host newHost]	-repair: repair server when license database is corrupted -update: update cluster when host computer id has changed -changeName: modify cluster when a host name has changed, computer id still the same -changeMachine: modify cluster when a machine has been replaced (computer id no longer available)
Enroll license files (*)	enrollLicense|e -dir inputDir [-file file1 file2...]	-dir: input directory -file: input files or regular expression
Delete expired licenses (*)	deleteExpiredLicenses|dxl	
Delete superseded licenses (*)	deleteSupersededLicenses|dsl	Useless when connected to a license server on a level higher than or equal to R2016x.
Create group of users to manage authorization lists	createUserGroup|cug groupName -users user1 user2 ... [-replace]	-users: list of users contained in that group -replace: replace existing group of users if any
Create group of hosts to manage authorization lists	createHostGroup|chg groupName -hosts host1 host2 ... [-replace]	-hosts: list of hosts contained in that group -replace: replace existing group of hosts if any
Create an authorization list	createAuthorizationList|cal name -type t -editorId id [-product prd -model m [-licenseId id | -pricingStruct s | -customerCountry c | -customerSite c | -customerId i]] [-users user1[,number,[rule]] ...] [-hosts host1[,number,[rule]] ...] [-usergroups usrgrp1[,number,[rule]] ...] [-hostgroups hostgrp1[,number,[rule]] ...] [-ipranges ipr1[,number,[rule]] ...] [-iprangelists iprngl1[,number,[rule]] ...]	-type: type of authorization list (ALLOW, DENY, RESERVE, LIMIT or COMPOSITE) -editorId: unique editor identifier -product: feature name to manage (optional); when not used, the rule is applied at the Editor level. -model: model of the feature to manage (NamedUser, ConcurrentUser, Token, Credit or Site) -licenseId: licenseID number (optional) -pricingStruct: pricing structure (optional) -customerCountry: customer country (optional) -customerSite: customer site (optional) -customerId: customer ID number (optional)

Operation	Command Syntax	Options
	<pre>iprgrp1[,number,[rule]] ...] [-replace]</pre>	<p>-users: list of individual users with optional number of licenses and rule if type is COMPOSITE</p> <p>-hosts: list of individual hosts with optional number of licenses and rule if type is COMPOSITE</p> <p>-ipranges: list of IPRanges with optional number of licenses and rule if type is COMPOSITE</p> <p>-usergroups: list of groups of users with optional number of licenses and rule if type is COMPOSITE</p> <p>-hostgroups: list of groups of hosts with optional number of licenses and rule if type is COMPOSITE</p> <p>-iprangelists: list of groups of IPRanges with optional number of licenses and rule if type is COMPOSITE</p> <p>-replace: replace existing list if any</p>
Create offline extraction restrictions	<pre>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 ...] [-iprangelists iprgrp1 ...]]</pre>	<p>-editorId: editor unique identifier</p> <p>-product: product name to manage</p> <p>-model: model of product to manage (NamedUser|ConcurrentUser|Token|Credit)</p> <p>-licenseId: license product number</p> <p>-keyword: keyword to be provided to extract offline license.</p> <p>-maxDuration: maximum duration of extraction validity, between 0 and 30 days</p> <p>-replace: replace existing restriction name if any</p> <p>At least option -keyword or -maxDuration must be passed.</p> <p>-rule: specifies allow/deny restriction rules for User, Host, IPRange, User Group, Host Group or IPRange Group.</p>
Delete user	deleteUser|du userName	
Delete host	deleteHost|dh hostName	
Delete group of users	deleteUserGroup|dug groupName	
Delete group of hosts	deleteHostGroup|dhg groupName	
Delete an authorization list	deleteAuthorizationList|dal listname	listname: name of list

Operation	Command Syntax	Options
Delete offline restrictions	<code>deleteOfflineRestrictions | dor listname</code>	listname: name of list
List users	<code>listUsers | lu</code>	
List hosts	<code>listHosts | lh</code>	
List groups of users	<code>listUserGroups | lug</code>	
List groups of hosts	<code>listHostGroups | lhg</code>	
Rename user group	<code>renameUserGroupName | rug currentName newName</code>	
Rename host group	<code>renameHostGroupName | rhg currentName newName</code>	
Rename authorization list	<code>renameAuthorizationList | ral currentName newName</code>	
Rename offline restrictions	<code>renameOfflineRestrictions | ror currentListName newListName</code>	
List all authorization lists	<code>listAuthorizationLists | lal</code>	
List all offline restrictions (keywords, maximum durations and rules)	<code>listOfflineRestrictions | lor</code>	
Create IP range	<code>createIPRange | cipr name -ip iprange [-replace]</code>	<p>-ip: internet address range, (firstIP-lastIP or CIDR notation)</p> <p>-replace: replace existing item if any</p> <p>Examples:</p> <ul style="list-style-type: none"> <code>cipr local1921680 -ip 192.168.0.1/24 -replace</code> <code>cipr localcomputer -ip 127.0.0.1/32 -replace</code> <code>cipr local10232 -ip 10.232.0.0-10.232.255.255 -replace</code> <code>cipr localipv6 -ip fd00::/10 -replace</code>
Create IP range group	<code>createIPRangeGroup | ciprg name -ip iprange1 iprange2 ... [-replace]</code>	<p>-ip: IPRanges</p> <p>-replace: replace existing item if any</p> <p>Example:</p> <pre>ciprg localgroup -ip localcomputer</pre>

Operation	Command Syntax	Options
		local1921680 local10232 localipv6 -replace
List all IPRanges	listIPRange|lipr	
List all IPRange groups	listIPRangeGroup|liprg	
Rename IPRange	renameIPRange|ripr currentName newName	
Rename IPRange group	renameIPRangeGroup|riprg currentName newName	
Delete IPRange	deleteIPRange|dipr name	
Delete IPRange group	deleteIPRange|diprg name	
Export authorizations to file in XML format	exportAuthorizations|ea -o file	-o file: path of XML file to generate
Import authorizations from file in XML format	importAuthorizations|ia -f file [-clear]	-f file: path of XML file to read -clear: remove all existing authorizations. Note that all differences are automatically accepted: existing data is removed and the new data is added.
Monitor license server (*)	monitor|mon [-dumpHeap|-dh] [-dumpThreads|-dt] [-outDir|-o dir]	-dumpHeap|-dh: obtain server heap dump -dumpThreads|-dt: obtain server threads status -outDir|-o dir: directory storing result of command (mandatory for -dumpHeap option)
Display mail configuration	getMailConfig|gmc	
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 -smtp servername (*): SMTP server name -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: <ul style="list-style-type: none"> OnServerStart: when server starts OnServerStop: when server stops

Operation	Command Syntax	Options
		<ul style="list-style-type: none"> OnDiskShortage: with parameter Threshold in range 1 - 99 OnMemberIsolated: with parameter Threshold in range 1 - 60 OnLicenseSoonExpiring: when licenses expire, with parameter Threshold in range 1 - 30 <p>-parameter|-p event param value: value of the event parameter</p> <p>-subject|-s event "...": subject of the mail for the event</p> <p>-body|-b event "...": set the body header of the mail for the event</p> <p>-mailBodyFooter|-footer "...": body footer of all mails.</p> <p>For example, to send mail notifications 25 days before license expiration, run the command:</p> <pre>smc -activate OnLicenseSoonExpiring yes -parameter OnLicenseSoonExpiring Threshold 25</pre>
Manage SSL certificate (*)	<pre>manageSSLCertificate | msc [-install -crt file_path_to_server.crt -key file_path_to_server.key] | [-uninstall] [-nofailover]</pre>	<p>Replaces the default self-signed SSL certificate embedded in the license server by another one you provided.</p> <p>-install: installs the certificate on the license server and stores it in the repository folder.</p> <p>-crt: file path to certificate file (server.crt)</p> <p>-key: file path to RSA key (server.key)</p> <p>-uninstall: uninstall certificate previously installed (and use the default self-signed one)</p> <p>-nofailover: do not propagate to both 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.</p> <p>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</p>

Operation	Command Syntax	Options
		<p>will refuse to connect to the license server and licenses will not be granted.</p> <p>To revert back to the default behavior (for example, use the default self-signed certificate), you must delete the previously imported certificate using the <code>-uninstall</code> option.</p>
Manage license usage tracing related to users (*)	<code>userTraceSetting|uts</code> <code>[-enable|-e user] [-disable|-d user] [-remove|-r user]</code> <code>[-clear|-c]</code>	<p><code>-enable|-e user</code>: activate usage tracing for user</p> <p><code>-disable|-d user</code>: disable usage tracing for the specified user</p> <p><code>-remove|-r user</code>: remove tracing for the specified user</p> <p><code>-clear|-c user</code>: remove all tracing for all users</p> <p>If no parameter is passed to the command, the list of user tracing settings is displayed.</p>
Stop license server (*)	<code>stopServer|ss</code>	
Exit the license administration tool	<code>quit|q|exit|x|bye</code>	
Display help information	<code>help|h|? [command]</code>	command: (optional) display help information relative to this command

Redirecting Output

By default, the `DSLicSrv -admin` command does not redirect output. The following table sums up the different redirection possibilities available:

To perform this operation...	Run this command...
Start the License Administration Tool in command line mode and direct output to a newly created output file only	<code>DSLicSrv -admin -o outputfile</code> or <code>DSLicSrv -admin > outputfile</code> where <code>outputfile</code> is the name of the output file.
Start the License Administration Tool in command line mode and append output to an existing output file only	<code>DSLicSrv -admin >> outputfile</code> where <code>outputfile</code> is the name of the output file.
Start the License Administration Tool in command line mode and redirect output both to an output file and to the command line window	<code>DSLicSrv -admin -t outputfile</code> where <code>outputfile</code> is the name of the output file.
After starting the License Administration Tool in command line mode, redirect output from individual commands to a newly created output file	<p>Use the <code>></code> sign to redirect command output, for example:</p> <code>glu -admin > outputfile</code> where <code>outputfile</code> is the name of the output file. These new redirections take precedence over previous global redirections.

To perform this operation...	Run this command...
After starting the License Administration Tool in command line mode, redirect output from individual commands to an existing output file	<p>Use the >> sign to redirect command output, for example:</p> <pre>glu -admin >> outputfile</pre> <p>where <i>outputfile</i> is the name of the output file.</p> <p>These new redirections take precedence over previous global redirections.</p>

Here is a more elaborate example of how to use the different redirection possibilities:

```

---DSLicSrv -admin
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 >getConfig
    Server configuration
    Standalone mode
    Computer name:          comp5dsy   Computer ID:      ABC-43EE21EF02891F94
    Licensing port:        4085       Administration port: 4084
    Password protected:    no         Remote administration: restricted
    Automatic recycling enabled: no    License usage statistics enabled: no
admin >getLicenseUsage >> C:\temp\usage.txt
admin >getLicenseInfo > C:\temp\info.txt
admin >getServerInfo
    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

```

Output from the commands highlighted in yellow is not redirected.

Output from the command highlighted in blue is appended to the existing file `C:\temp\usage.txt`.

Output from the pink command is redirected to the newly created file `C:\temp\info.txt`.

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` (Linux).

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.

To perform this operation...	Run this command...
Start the License Administration Tool in command line mode and execute a command parameter file	<pre>DSLicSrv -admin -i input file</pre> <p>The input file contains commands executed in command line mode.</p>
Start the License Administration Tool in command line mode and run a list of commands	<pre>DSLicSrv -admin -run "list of commands"</pre> <p>Examples:</p> <pre>DSLicSrv -admin -run "c localhost 4084; glu"</pre> <p>displays license usage.</p> <pre>DSLicSrv -admin -run "c localhost 4084; gc; gli > C:\temp\gli.txt; glu >> C:\temp\glu.txt"</pre> <p>displays the license server configuration, redirects the license information to a new file, then appends license usage information to an existing file.</p> <pre>DSLicSrv -admin -run "c protcomp 4084 -r; glu -all" -ks</pre> <p>displays the detailed license usage of a password-protected license server accessed in restricted mode.</p>

DSLicTarget Command

The DSLicTarget command returns the computer id.

Option	Description
-t	<p>Display the computer id.</p> <p>The ComputerID generated for a physical machine comprises: 3 characters + 1 dash + 16 characters. For example:</p> <pre>ABC-1234567890ABCDEF</pre> <p>The ComputerID generated for VMs is longer than the one generated in physical environments. It comprises: 3 characters + 1 dash + 42 characters. For example:</p> <pre>ABC-1234567890ABCDEF1234567890ABCDEF1234567890</pre> <p>DSLicTarget must be run with admin privileges, in an admin command prompt. It can then display the ComputerID with the format for virtual machines. For example:</p> <pre>> DSLicTarget.exe -t DSLicTarget (version 1.16) Computer Id: TIY-001AF10B481636DA575F86C8E3E9FAED07F4B5C018 (based on: TPM- Version:2.0 -Level:0-Revision:1.15-VendorID:'MSFT'-Firmware:538247443.1394722)</pre>
-l	List available network adapters
-c	Clear data containing the reference to the current ComputerID: Windows registry key or Linux file. You must run this command in an elevated command prompt.
-s {...}	<p>Use a specific device identifier (provided by the -l parameter) to generate the computer id, for example:</p> <pre>DSLicTarget -s {558CBA02-9E12-33F7-49A9-1154BED416A6}</pre> <p>You must run this command in an elevated command prompt.</p>
-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 insecure, 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 insecure, 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
- TLSv1.3

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/DSL$JRE/CipherSuites.txt`

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.

If this the cipher suite file does not exist in the specified path, the DS License Server will fail to start.

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.

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

File Type	Location
License Repository (*)	<p>The license repository containing enrolled licenses is located in:</p> <p>On Windows:</p> <pre>C:\ProgramData\DassaultSystemes\LicenseServer\Repository</pre> <p>On Linux:</p> <pre>/var/DassaultSystemes/LicenseServer/Repository</pre> <p> 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.</p>
Log Files (*)	<p>On Windows, an installation log file is created in:</p> <pre>%TEMP%\DSLsmsi.log</pre> <p>This file is not created if the installation was performed by double-clicking the .msi file.</p> <p>Furthermore, server statistics files (if enabled) and log files are stored by default in:</p> <p>On Windows:</p> <pre>C:\ProgramData\DassaultSystemes\LicenseServer\LogFiles</pre> <p> Warning:</p> <p>If you wish to create a share of this folder and go to the Sharing tab, do not use the <i>Share...</i> button, but use the <i>Advanced Sharing...</i> button. If not, the log files may be corrupted.</p> <p>On Linux:</p> <pre>/var/DassaultSystemes/LicenseServer/LogFiles</pre> <p>They can be redirected using the <code>-logDir</code> option.</p> <p>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 (or the size specified when using the <code>-logFileSize</code> parameter of the <code>DSLicSrv -startServer</code> command). Old files can be freely removed or archived.</p>

File Type	Location
Casual usage named user license monthly report (*)	<p>On Windows:</p> <p><code>C:\ProgramData\DassaultSystemes\LicenseServer\LogFiles</code></p> <p>On Linux:</p> <p><code>/var/DassaultSystemes/LicenseServer/LogFiles</code></p> <p>Its name is <code>CasualUsage.YearMonth.txt</code> and it contains the following information in plain text:</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> - Product name - User name - Measured usage duration - Max allowed usage duration - LicenseID • Signature.
Token and Credit usage logs (*)	<p>On Windows:</p> <p><code>C:\ProgramData\DassaultSystemes\LicenseServer\LogFiles</code></p> <p>On Linux:</p> <p><code>/var/DassaultSystemes/LicenseServer/LogFiles</code></p> <p>Its name is <code>TokenUsageTimestamp.log</code> and it contains the same data as the one documented in the Server Logs usage tracing, with the following differences:</p> <ul style="list-style-type: none"> • Username and Hostname fields are anonymized • Additional field containing an applicative payload, at the end of the "Grant" lines • Signature at the end of the file <p>Once uploaded to Dassault Systèmes <code>dslsupload.extranet.3ds.com</code> server, the file is moved to the subfolder <code>SentLogs</code>.</p>
Settings (*)	<p>The License Administration Tool user interface settings file (<code>LicenseAdminUI</code>) is located in:</p> <p>On Windows:</p> <p><code>C:\Users\userid\AppData\Roaming\DassaultSystemes</code></p> <p>On Linux:</p> <p><code>\$HOME</code></p>
Password keystore (*)	<p>On Windows:</p> <p><code>C:\Users\userid\AppData\Roaming\DassaultSystemes\LicenseAdmin.ks</code></p> <p>On Linux:</p> <p><code>\$HOME/.LicenseAdmin.ks</code></p>

File Type	Location
License Client Configuration (*)	<p>Nodelock licenses, extracted offline licenses and the licensing client configuration file (DSLicSrv.txt) are located in:</p> <p>On Windows:</p> <pre>C:\ProgramData\DassaultSystemes\Licenses</pre> <p>On Linux:</p> <pre>/var/DassaultSystemes/Licenses</pre> <p> Warning: THIS FOLDER AND THE FILES INCLUDED IN IT (except DSLicSrv.txt) MUST NOT BE CHANGED NOR EVEN MOVED, RENAMED NOR ACCESS RIGHTS MODIFIED. 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.</p> <p> 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 (UNC supported), for example:</p> <pre>set DSLS_CONFIG=C:\SpecialProject\DSLicSrv.txt</pre>
Windows Registry Entries	<p>Standard Windows entries for managing the DSLS service.</p> <p>Standard Windows entries for managing the DSLS installation.</p> <p>The key:</p> <pre>HKEY_LOCAL_MACHINE\SOFTWARE\Dassault Systemes\Admin (*)</pre> <p>manages ComputerID related info.</p> <p>The key:</p> <pre>HKEY_CURRENT_USER\SOFTWARE\Dassault Systemes\LClient (*)</pre> <p>may be present on the licensing client computer side.</p>
Windows Shortcuts	Start > Programs > DS License Server
Linux system files	<p>The following system files are modified if you do not perform the installation using the -x option.</p> <pre>/var/DassaultSystemes/Licenses/.Identifier</pre> <p>contains a reference to the ComputerID.</p> <p>The file /usr/lib/systemd/system/dsls.service is created</p> <p>The symbolic link /etc/systemd/system/multi-user.target.wants/dsls.service is created</p>

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: Note that:

- 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.
- If a port number is changed while the license server is running, the change is taken into account immediately without the need to restart the license server.

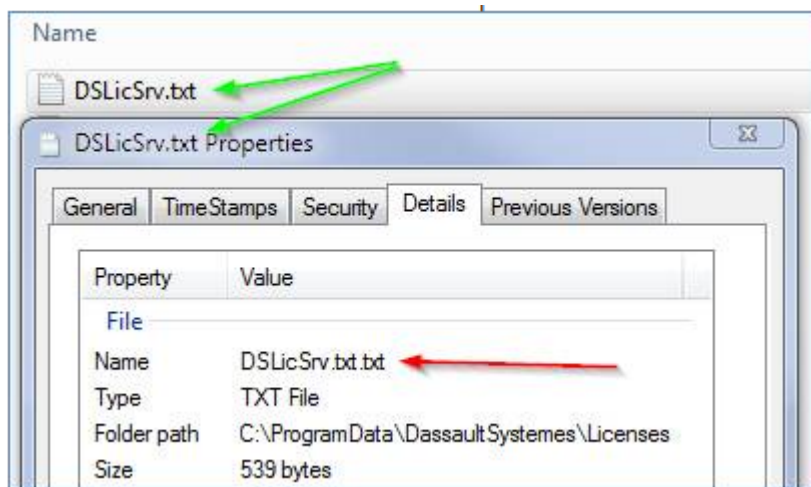
Troubleshooting

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 results of certain 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 Linux 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 supported client application versions. The latest license server version can be downloaded from here:

<https://www.3ds.com/support/documentation/resource-library/single/dassault-systemes-license-server-and-license-keys>

- 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.

- If you use the Managed DSLS service, the 3DEXPERIENCE services need access to the Secure Sockets Layer certificate revocation servers. The Dassault Systèmes Secure Sockets Layer certificate is issued by Sectigo. Therefore, Certificate Revocation List services supported by Sectigo must be accessible via your Firewall and Proxy. Refer to *Sectigo documentation* and search the *Sectigo SSL Certificate Revocation List (CRL) FQDN and IP Addresses* for more information.

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).
 2. Go to `Computer Configuration - Administrative Templates - System - Internet Communication Management - Internet Communication Settings`.
 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. To ensure that an already granted license can be granted to and shared by a new session, all logical servers declared are contacted at startup, not only the first one. So less lines means less time spent to contact license servers.

If your DNS server takes a long time to respond, declare the license server(s) in the `DSLicSrv.txt` file by using IP addresses instead of hostnames.

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 Linux. 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

Changing license server timeout

By default, a licensing client waits 12 seconds before considering a license server is down or unreachable. You can decrease or increase this value by setting the following environment variable on the licensing client side:

DSL_CONNECT_TIMEOUT

For example, setting:

```
DSL_CONNECT_TIMEOUT=3
```

means the licensing client waits three seconds for the license server reply.

This variable is taken into account only if the DSLS host name and port are valid. Otherwise, DSL_CONNECT_TIMEOUT variable is ignored.

Reducing timeout when a failover member is down

When one of the three members of a DS License Server failover is down, logon may take longer than usual. This may be due to an inappropriate configuration of TCP parameters on the Linux computer hosting the 3DSpace Service.

On Linux, check that the `tcp_syn_retries` 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 3DSpace Service. 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 3DSpace Service 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.

Type	Category	Message
I	INITSERVER	Server version 6.218.0 built on yymmddhhmmss
I	INITSERVER	Initializing license server on pathName args [...]
I	INITSERVER	ComputerId XXX-XXXXXXXXXXXXXXXXXX
I	INITSERVER	Server successfully initialized.
I	INITSERVER	License server already initialized on pathName
I	INITSERVER	Use -force option for reinitialization.
E	INITSERVER	-adminPort option invalid : pppp
E	INITSERVER	-adminPort option missing
E	INITSERVER	Cannot create pathName
E	INITSERVER	Cannot create lock file fileName
E	INITSERVER	Cannot initialize repository
E	INITSERVER	Cannot initialize server on pathName
E	INITSERVER	Cannot obtain a valid computer ID
E	INITSERVER	Cannot retrieve computer name (...)
E	INITSERVER	Cannot retrieve data from hostName on port pppp (. . .)

Type	Category	Message
E	INITSERVER	Cannot retrieve data from <code>hostName</code> . Authentication is required
E	INITSERVER	Cannot retrieve data from <code>hostName</code> . Remote administration is not allowed
E	INITSERVER	Cannot retrieve data from <code>hostName</code> . Unknown host
E	INITSERVER	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.
E	INITSERVER	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.
E	INITSERVER	Check integrity of license data has failed. License server must be re-installed from scratch.
E	INITSERVER	Data received from <code>hostName</code> cannot be used by this computer
E	INITSERVER	File version <code>ver</code> cannot be read by current software version <code>ver</code>
E	INITSERVER	Invalid computerId; XXX-XXXXXXXXXXXXXXXXXX cannot be used
E	INITSERVER	Invalid folder <code>pathName</code>
E	INITSERVER	Invalid port specified <code>pppp</code> for option <code>-adminPort</code>
E	INITSERVER	Unknown option(s) : <code>-option</code>
E	INITSERVER	Write time : <code>yymmddhhmmss</code> , Change time : <code>yymmddhhmmss</code>
I	STARTSERVER	Server version 6.209.0 built on Jan 17, 2010 5:28:47 PM started
I	STARTSERVER	java version "1.6.0_18"
I	STARTSERVER	Java(TM) SE Runtime Environment (build 1.6.0_18-b07)
I	STARTSERVER	Java HotSpot(TM) Client VM (build 16.0-b13, mixed mode)
I	STARTSERVER	ComputerId XXX-XXXXXXXXXXXXXXXXXX (based on device ...)
I	STARTSERVER	Ready : administration port <code>pppp</code> , licensing port <code>pppp</code>
I	STOPSERVER	Stopping license server...
I	STOPSERVER	License server stopped
E	REPOSITORY	IOException writing file <code>fileName</code>
E	REPOSITORY	Invalid repository directory <code>pathName</code>
E	REPOSITORY	cannot delete file (<code>fileName</code>)
E	REPOSITORY	cannot rename file (<code>fileName</code> -> <code>fileName</code>)
I	REPOSITORY	<code>fileName</code> written to disk
E	RUNTIMEDATA	Check integrity of license data has failed. License server must be re-installed from scratch.
E	RUNTIMEDATA	Clock has been changed
E	RUNTIMEDATA	Clock has been moved to the future (<code>nnn ms</code>)

Type	Category	Message
E	RUNTIMEDATA	Clock has been moved to the past (nnn ms)
E	RUNTIMEDATA	Computer ID XXX-XXXXXXXXXXXXXXXXXX no more available.
E	RUNTIMEDATA	ComputerId XXX-XXXXXXXXXXXXXXXXXX is not compatible with the cluster configuration
E	RUNTIMEDATA	ComputerId XXX-XXXXXXXXXXXXXXXXXX is not compatible with the server configuration
E	RUNTIMEDATA	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.
E	RUNTIMEDATA	File version ver cannot be read by current software version ver
E	RUNTIMEDATA	License data cannot be read: invalid format. License server must be re-installed from scratch.
E	RUNTIMEDATA	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.
E	RUNTIMEDATA	Serialization error on runtime data
E	RUNTIMEDATA	Write time : yymmddhhmmss, Change time : yymmddhhmmss
E	RUNTIMEDATA	writeRuntime error :...
E	RUNTIMEDATA	XXX-XXXXXXXXXXXXXXXXXX cannot be used
W	RUNTIMEDATA	Error : AAA has no runtime
W	RUNTIMEDATA	Error : feature "AAA" refers to "SSSSSS" which is not owned by a client
W	RUNTIMEDATA	Error : inconsistent feature AAA expected count = nnn registered nnn
W	RUNTIMEDATA	Error : inconsistent feature AAA no license
I	RUNTIMEDATA	System has been suspended
I	RUNTIMEDATA	System has been resumed
W	ADMINSERVER	Administration request denied from hostName (IP address) : invalid credentials
W	ADMINSERVER	Connection from hostName (IP address) terminated : a local administration console is connecting
W	ADMINSERVER	Remote administration not allowed : refuse connection from hostName (IP address)
I	ADMINSERVER	Administration connection ended with hostName (IP address)
I	ADMINSERVER	Administration connection started with hostName (IP address)
I	ADMINSERVER	Administration port changed to pppp
I	ADMINSERVER	Failover port changed to pppp
I	ADMINSERVER	Licensing port changed to pppp
I	ADMINSERVER	adminCommand command issued
I	ADMINSERVER	License usage trace turned on for AAA

Type	Category	Message
I	ADMINSERVER	License usage trace turned off for AAA
W	ENROLL	Enrollment authorization license has expired for editor Dassault Systemes
W	ENROLL	License XXXXX-XXXXX-XXXXX-XXXXX-XXXXX is not valid
I	ENROLL	Enrollment authorized for editor Dassault Systemes
E	LICENSEDATA	Cryptographic error : . . .
E	LICENSEDATA	Error in signature key extraction . . .
W	LICENSEDATA	RepGroupIndex n of license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX has been invalidated
W	LICENSEDATA	incomplete data for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX, RepGroupIndex n missing RepFileIndex n
I	LICENSEDATA	Activating group n for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
I	LICENSEDATA	Adding data for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX RepGroupIndex n RepFileIndex n Features AAA Quantity nnn
I	LICENSEDATA	Deactivating group n for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX
I	LICENSEDATA	Deleting data for license id XXXXX-XXXXX-XXXXX-XXXXX-XXXXX RepGroupIndex n
W	MONITORING	dumpAllThreads not available on this platform
W	MONITORING	dumpHeap not available on this platform
E	STATISTICS	Exception occurred; license usage no more logged
E	STATISTICS	Exception occurred; license usage not logged
E	STATISTICS	pathName specified is invalid; license usage not logged
E	LICENSESERV	Cannot listen on port pppp
W	LICENSESERV	Waiting for failover server(s)
W	LICENSESERV	Invalid or expired client token nnnnnnnnnnnnnnnnn (from client ...)
W	LICENSESERV	No license for editor XXXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXXX (from client ...)
W	LICENSESERV	AAA not granted, host hostName not authorized (from client ...)
W	LICENSESERV	AAA not granted, host not authorized (from client ...)
W	LICENSESERV	AAA not granted, internal failover error (from client ...)
W	LICENSESERV	AAA not granted, license already used by user userName on host userName (from client ...)
W	LICENSESERV	AAA not granted, license used on another host (from client ...)
W	LICENSESERV	AAA not granted, no ConcurrentUser license available (from client ...)

Type	Category	Message
W	LICENSESERV	AAA not granted, no NamedUser license available (from client ...)
W	LICENSESERV	AAA not granted, no NamedUser nor ConcurrentUser license available (from client ...)
W	LICENSESERV	AAA not granted, no license enrolled (from client ...)
W	LICENSESERV	AAA not granted, no license enrolled for tenant <code>tenantId</code> (from client ...)
W	LICENSESERV	AAA not granted, no license for editor <code>XXXXXXXX-XXXX-XXXX-XXXX-XXXXXXXXXXXX</code> (from client ...)
W	LICENSESERV	AAA not granted, no license of type <code>TYPE</code> can be granted (from client ...)
W	LICENSESERV	AAA not granted, no more available license (from client ...)
W	LICENSESERV	AAA not granted, no suitable release date <code>yymddhhmmss</code> (from client ...)
W	LICENSESERV	AAA not granted, no suitable release number <code>n</code> (from client ...)
W	LICENSESERV	AAA not granted, user <code>userName</code> not authorized (from client ...)
W	LICENSESERV	AAA queued request suppressed , no more available license (from client ...)
I	LICENSESERV	Editor <code>editorName</code> not registered
I	LICENSESERV	Invalid or expired session <code>nnnnnnnnnnnnnnnnnn</code>
I	LICENSESERV	Licensing service started
I	LICENSESERV	AAA granted to client ...
I	LICENSESERV	AAA detached from client ...
I	LICENSESERV	AAA detached by timeout from client ...
I	LICENSESERV	<code>n</code> tokens of AAA granted to client ...
I	LICENSESERV	<code>n</code> tokens of AAA detached from client ...
I	LICENSESERV	<code>n</code> tokens of AAA detached by timeout from client ...
I	LICENSESERV	AAA granted; offline license <code>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</code> has been generated for host <code>hostName XXX-XXXXXXXXXXXXXXXXXX</code>
I	LICENSESERV	AAA detached; offline license <code>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</code> restituted (generated for host <code>hostName XXX-XXXXXXXXXXXXXXXXXX</code>)
I	LICENSESERV	AAA detached; offline license <code>XXXXX-XXXXX-XXXXX-XXXXX-XXXXX</code> expired (generated for host <code>hostName XXX-XXXXXXXXXXXXXXXXXX</code>)
E	FAILOVERSRV	Cannot listen on port <code>pppp</code>
E	FAILOVERSRV	Cannot retrieve member of cluster
W	FAILOVERSRV	Failover connection timed out
W	FAILOVERSRV	Cluster host <code>hostName</code> : computer id changed to <code>XXX-XXXXXXXXXXXXXXXXXX</code>
W	FAILOVERSRV	Cluster host <code>hostName</code> changed to <code>hostName</code>
W	FAILOVERSRV	Cluster host <code>hostName</code> repaired
W	FAILOVERSRV	Cluster host <code>hostName</code> replaced with <code>hostName</code> (<code>XXX-XXXXXXXXXXXXXXXXXX</code>)

Type	Category	Message
W	FAILOVERSRV	Connection lost with <code>hostName</code>
W	FAILOVERSRV	Unsuccessful handshake with <code>hostName</code>
W	FAILOVERSRV	<code>hostName</code> does not run a compatible runtime version (version : <code>nnn</code> , release : <code>n</code> , servicePack : <code>n</code>
W	FAILOVERSRV	<code>hostName</code> 's computerId <code>XXX-XXXXXXXXXXXXXXXXXXXX</code> does not match expected <code>XXX-XXXXXXXXXXXXXXXXXXXX</code>
W	FAILOVERSRV	<code>hostName</code> is not synchronized
I	FAILOVERSRV	Connection established with <code>hostName</code>