

# Installation Guide

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Trimble eCognition Suite  
for Windows operating system

Version 10.4.0  
Revision 1.0  
February 2024

# Trimble Documentation

## eCognition 10.4 for Windows

### Installation and Administration Guide

#### Imprint and Version

Document Version 10.4.0

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[eCognition.com](https://www.ecognition.com)

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# Quick Installation Guide

## 1.1 Quick Installation

This quick start installation guides you through the installation of a single license of eCognition Developer and the according license server.

Detailed information is contained in the **Installation & Licensing and System Requirements Guides** that can be found in the installation directory.

You can also find more helpful links concerning installation on our website:

- [Videos - license server installation, activation and eCognition Developer installation](#)
- [eCognition support](#)

### 1.1.1 Install eCognition License Server

If you have an outdated eCognition license server software installation please uninstall the license server at first - see also chapter Update License Server software and License Return, page 2.

1. In the folder eCognition License Server run **eCognition-setup-x64.exe** to start the installation of the eCognition license server and follow the installation wizard until you are prompted to enter the **Entitlement ID** of your license.

**NOTE** – The eCognition license server controls your license or several licenses based on a **windows service**. After installation the eCognition license service can be found in Control Panel/System and Security/Administrative Tools/Services (or search for **Services** in Start > Search programs and files). The license service has to be installed also in case you want to use only one stand alone eCognition product. It then simply controls one license based on this service.

**NOTE** – If the license server is running on a different machine than eCognition software, make sure license server ports (default: 27000-27009) and vendor daemon ports (random by default) are open. Set those ports via license server admin console using :  
`http://[LicenseServerIPaddress]:8090` or from within license server machine `http://localhost:8090`  
In web admin console navigate to **Administration** tab and find the settings in sections "**Vendor Daemon Configuration**" and "**Server Configuration**".

### 1.1.2 License Activation

In order to activate your license online please make sure your external firewall is configured to allow Port TCP 8888 in order to communicate with our license activation web-service.

1. During installation of the eCognition License Server (see chapter above) the dialog **License Activation Start** comes up. Please insert your **Entitlement ID** that you received via email and select **Next**.
2. Based on your **Entitlement ID** the following dialog shows the total number of licenses that can be activated (**Total Licenses**), already activated licenses, the licenses you want to activate on your machine can be set manually (**Licenses to Activate**) and the expiration date of all licenses is show for each product ordered. Select **Activate** to start the activation.
3. The **eCognition License Manager** dialog then lists all licenses that were activated successfully.
4. Finalize the installation by following the installation wizard again.

**NOTE** – If you just updated licenses or added some licenses to an existing eCognition license server installation please do not forget to stop & start eCognition license service as prompted by the according dialog. To do so the eCognition license service can be found in Control Panel/System and Security/Administrative Tools/Services or search for **Services** in Start > Search programs and file.

### 1.1.3 Update License Server software and License Return

In order to update your License Server to the current version you have to uninstall the outdated eCognition License Server version and in the course of this return the licenses:

1. Go to Start > All programs > Trimble > eCognition License Server > **Uninstall Cognition License Server**
2. In the uninstaller wizard the **License Manager** tool opens to **Return** all your licenses. This is necessary to update your licenses and license server software in the following installation steps.
3. After the outdated License Server is uninstalled you can proceed with the **installation** of the License Server ([Install eCognition License Server](#)) and update your licenses.

Important - Before performing Hardware or Operating System updates you have to return your license(s) to Trimble using eCogLM.exe. If you do not return the license(s) they can be unrecoverable on the machine. For details please see License Return - Hardware or Operating System updates, page 17.

### 1.1.4 Installation and start of eCognition Developer Software

If you have no eCognition software installed:

1. In the folder eCognition Developer run **eCognition-setup-x64.exe** to start the installation and follow the installation wizard up to the licensing options dialog.

2. In the **Licensing Information** window select the licensing option:
  1. **Set licensing later** - to select the licensing after the installation of eCognition Developer
  2. **Localhost** - if you have a locally installed license server service on the current machine (as described in chapter [Install eCognition License Server](#))
  3. **Network** - if you have the eCognition license server running on a different machine in your network. Browse the network for the license server. Alternatively you can type a computer name or an IP address.

In our quick installation example we select **Localhost** and continue the installation by selecting the **Next** button.

3. Finalize the installation by following the installation wizard again.
4. Select Start > **eCognition Developer** to start the application or go to Start > All Programs > Trimble > eCognition Developer to access to the software, documentation and more functionality.

See the following videos for more information:

[Download and Installation of eCognition Developer](#)

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[Install License Manager and activate Licenses](#)

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[Online activation](#)

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[Check License Administrator](#)

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[Online return](#)

---

[Offline activation](#)

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[Offline return](#)

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[License borrowing](#)

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# Installation Guide Windows

## 2.1 eCognition Developer 10.4

Trimble eCognition is a comprehensive image analysis platform for multi-dimensional image analysis. It contains all the client and server software needed to extract intelligence from any digital image in a fully or semi-automated way.

The client software is role-based and supports the needs and skills of different users in an organization. The server software, known as the eCognition Server, is a processing environment that allows the batch processing of jobs and is hugely scalable, capable of handling tens, hundreds or many thousands of images in a single job.

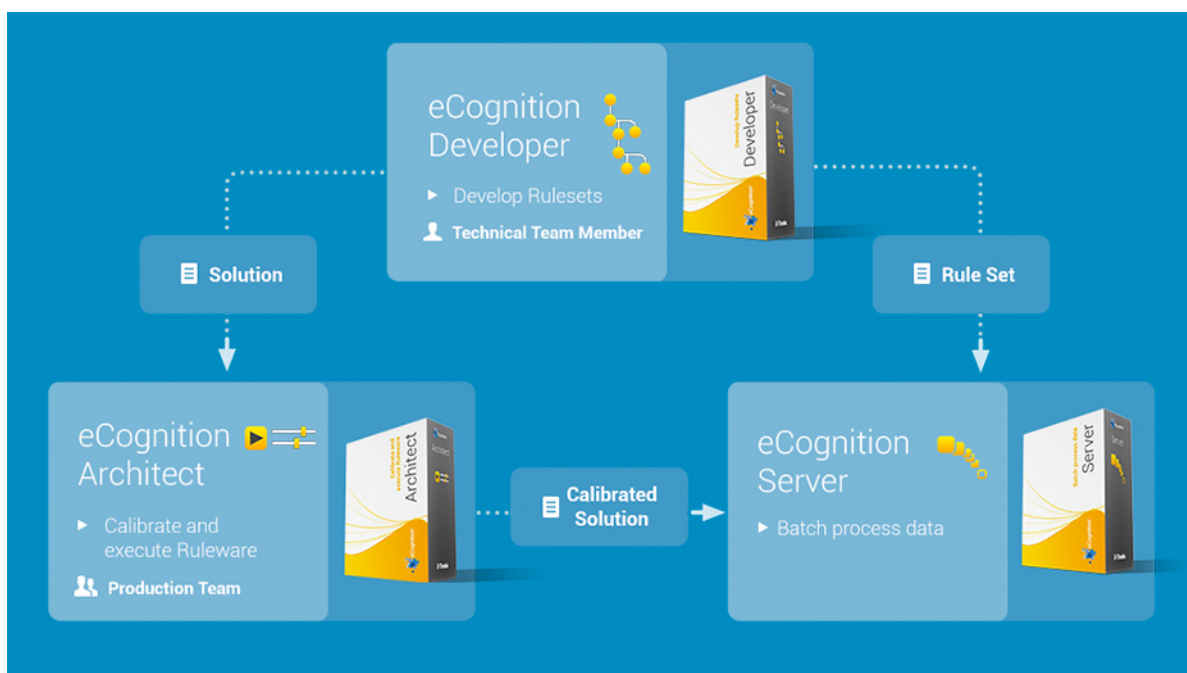


Figure 2.1. eCognition multi-dimensional image analysis software

## 2.2 Client Software

### 2.2.1 eCognition Developer 10.4

eCognition Developer 10.4 is a powerful and completely integrated environment designed for image analysis specialists to develop, test and package new image analysis applications. eCognition Developer 10.4 can be used as a standalone tool or in combination with the eCognition Server.

eCognition Developer 10.4 incorporates the latest generation of Cognition Network Technology<sup>®</sup>, enabling the creation of new solutions for multidimensional image analysis applications. It incorporates a new programming paradigm, high-performance analysis for complex multidimensional data and sophisticated viewing, visualization and registration capabilities.

### 2.2.2 eCognition Architect 10.4

eCognition Architect 10.4 is an intuitive end-user tool used to configure and execute image analysis applications. It provides support for fully automated or semi-automated workflows and guides users through the application they are running. eCognition Architect 10.4 incorporates all the required tools for users to import, view and visualize multidimensional images and results.

## 2.3 Server Software

### 2.3.1 eCognition Server

eCognition Server provides a processing environment for the batch execution of image analysis using a high-performance computing environment. The eCognition Server includes specific components designed to meet the needs of the multidimensional image analysis required for image analysis.

Supported connectors and drivers are described in the Reference Book > Supported Formats.

### 2.3.2 Data Management

eCognition Data Management offers an open, enterprise-ready and cost-effective solution for managing the huge volume of data generated by image analysis projects. The data is managed using standard relational database technologies and can be used with all eCognition products.

## 2.4 License Administration Software

### 2.4.1 eCognition License Manager

Tool to control license management between Trimble and customer:

- Activate licenses (using Entitlement ID)
- Update licenses (return and activate using new Entitlement ID)
- Check expiry dates (move mouse over software product)

See also eCognition License Manager eCogLM , page 17.

## 2.4.2 eCognition License Borrowing

Tool to check out and return licenses from the network for local usage up to one month.

See also eCognition License Borrowing eCogLB, page 18

## 2.5 Integration Software

### 2.5.1 Software Development Kit (SDK)

The Software Development Kit (SDK) enables the integration of the eCognition products within any business process using any data source or target, and allows the core analysis capabilities of the eCognition Server to be extended.

# Setting up an eCognition System

## 3.1 Overview of the eCognition System

The eCognition Server is a scalable computing infrastructure that may be installed on one or more machines in your network.

### Control Service

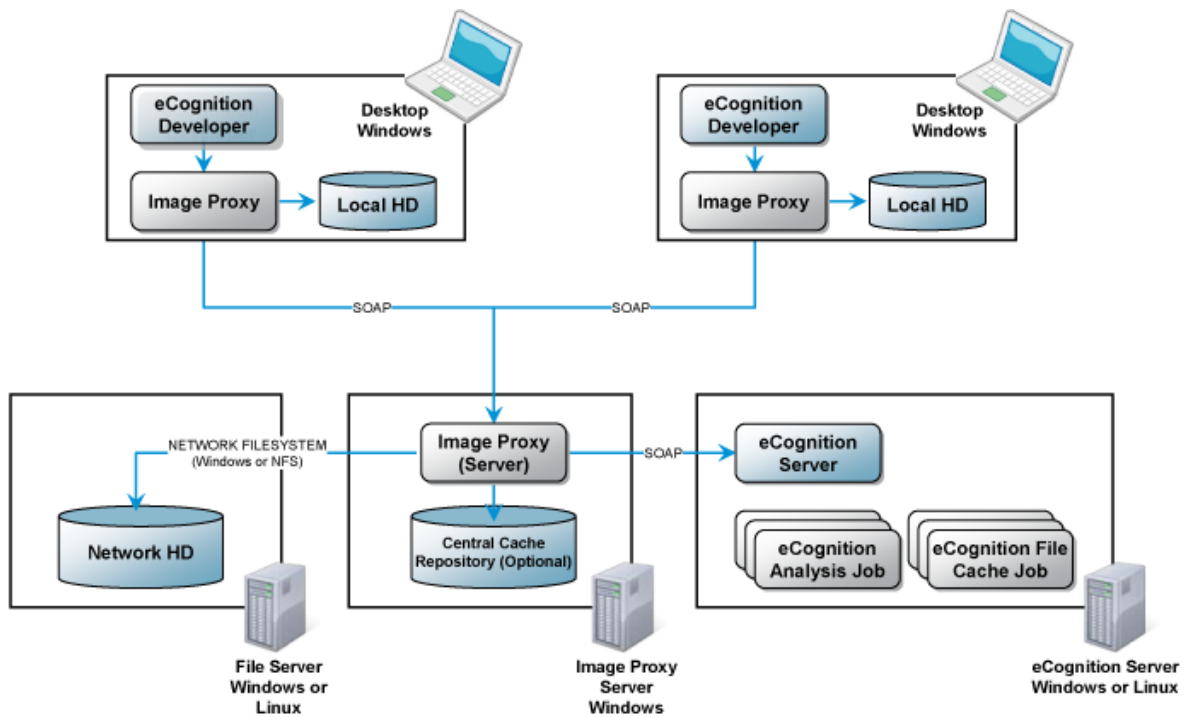
The Control Service is a small component that runs on each node of the eCognition Server. It starts and monitors the other eCognition components of the respective node.

#### 3.1.1 Image File and Results Access

To process images, Analysis Engines require access to image data files. This access can be direct, using network shares, or can be via the Image Proxy Server. We recommend you install the Image Proxy Server to improve the performance and reliability of image access.

### The Image Proxy Server

The Image Proxy Server (IPS) is a Windows software component that provides high-performance image access and caching. A local IPS is installed automatically with each eCognition client.



**Figure 3.1. Recommended Client-Server Configuration**

The key functionality provided by the IPS includes.

- Delivering Windows-only file formats to Linux eCognition Server (requires one Windows server)
- Creating and delivering zoom pyramids for large images
- Creating and delivering thumbnail caches for workspaces
- Creating and delivering an image statistics cache
- Creating and delivering cached zoom pyramids for thematic layers
- Creating and delivering cached raster representations of vector files.

### Data Storage and Cache Management

The Image Proxy Server creates and manages cache data, which can be stored in a sub folder with the original data or in a centralized repository connected to the Image Proxy Server (local disk or NAS). This cache can be sized appropriately for your environment. It uses a combination of maximum size, FIFO and minimum and maximum retention times. This caching can also be turned off by updating the default configuration.

### File Server

A file server is required to store source images, working files (workspaces and projects) and exported results.

### Client Access to the File Server

All clients should have read/write access to the file server.

### Server Access to the File Server

A file server is required to store analysis results and to provide access to the source image data (either via the Image Proxy Server or by direct file access). All processing nodes and the Image Proxy Server should have read/write access to the file server. This can be achieved using file sharing in Windows environments and NFS mount points for Linux operating systems.

### Image Proxy Server Access to the File Server (optional)

If the file server is a high-performance NAS/SAN then it may also be used to store the centralized cache from the Image Proxy Server. In this case, read/write access is required from the Image Proxy Server to the file server.

### Interprocess Communication

The communication protocol for the components of the eCognition Developer software suite is SOAP-based. All ports used by the system must be available and properly configured with respect to virus scanners and firewalls.

### License Server

The eCognition License Server software provides software licenses for eCognition products. It can be installed on any machine that is reliably available within the network domain used to operate eCognition software.

## 3.2 Installation Workflow

To set up a full client-server eCognition system from scratch:

1. Install the License Server software. It can be installed on any machine that is reliably available within the network domain used to operate the eCognition software.
2. Install eCognition software on the host machine for the primary node of the eCognition Server. By default, one processing unit will be installed on the primary node. This ensures that the server can be used to process image analysis jobs directly after installation.
3. Install the Image Proxy Server on the designated host machine and configure the primary nodes to communicate with it (optional).
4. Install eCognition clients on user's desktop PCs.
5. Test your installation.

### 3.2.1 Configuring the eCognition Server for Distributed Processing

If you want to extend your processing capacity you can install and configure additional processing nodes for the eCognition Server. To do this, deploy more processing node containers using docker.

### 3.2.2 Setting up Data Management (optional)

To set up eCognition Data Management you must prepare a database, and set up and configure open database connectivity (ODBC).

## 3.3 Things You Need for the Installation

### 3.3.1 Installation Files

Installation files can be downloaded from the customer support download center. Link and login information is included in the license entitlement email. All files are contained within .zip archives and must be extracted before use.

- License Server eCognition-setup-x64.exe file for the installation of the eCognition License Server Software (for example: License Server > eCognition-setup-x64.exe).
- eCognition-setup-x64.exe file for the installation of Image Proxy Server software.
- One eCognition-setup-x64.exe file for each copy of the eCognition client.
- [Docker - eCognition Command-line engine for windows](#) (optional)

### 3.3.2 License Entitlement ID

An entitlement ID is included in an entitlement certificate, which is emailed to customers. The entitlement certificate lists all activation IDs for the ordered products. According to the number of ordered products, each activation ID provides equivalent activation units.

### 3.3.3 Network User Accounts and User Rights

The installation requires a working network connection. Make sure you have a valid user account with the appropriate user rights as listed below.

#### License Server Software

- Local administrator rights
- Service installation rights

## eCognition Server

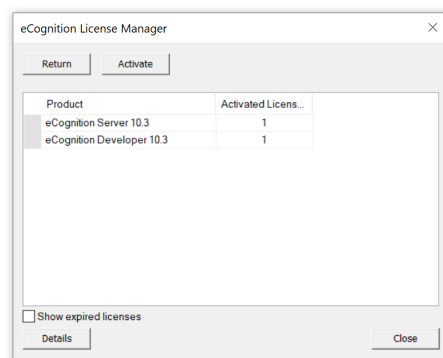
- Local administrator rights:
  - Read/write access to the hidden shares (c\$, d\$,...) including the installation path of the engine
  - Service installation rights
  - User administration rights
- User rights needed by the control service on every machine:
  - Access to file storage for image data, results, workspaces, projects and rule sets
  - Login rights as service right on all processing node machines. This right is assigned during the installation process
  - Read/write access to the logs directory. This right is assigned during the installation process
  - Read access to the installation directory of the software
  - Read/write access to the temp directory

## eCognition Developer 10.4 Clients

- Software installation rights

## 3.4 Installation of the License Server Software

This section describes the steps for installing License Server Software.



**Figure 3.2. License Management Dialog**

1. After downloading and extracting the .zip file containing the License Server **eCognition-setup-x64.exe** installation file, start the installation by double-clicking the file. This launches the setup wizard where you have to press **Next** to proceed.
2. Select **I accept the terms in the License Agreement** to proceed to the next screen.



3. In the Activation Options dialog enter your Entitlement ID you obtained in your Entitlement-email.
4. In the next dialog please select the licenses you want to activate and click on **Activate**.

If not all eCognition products are listed in your license dialog please make sure you have downloaded and opened the latest version of the eCognition License Manager.

In case of problems concerning online activation (blocked port or no internet connection) please contact eCognition support ([support@ecognition.com](mailto:support@ecognition.com)).

## 3.5 Installing the eCognition Client

The steps for installing the eCognition client is essentially the same as installing the license server. There are two differences:

The Licensing Information dialog box offers three options:

1. Select 'set licensing later' if currently there is no license available (this can be installed at a later stage).
2. Select 'localhost' if the License Server software has been installed on the current machine.
3. Select 'network' to access the License Server software on a network. Browse the network for the license server.

Alternatively you can type a computer name or an IP address – if you use a computer name, ensure it can be resolved to an IP address.

- Selecting **eCognition Developer** installs the client software
- Selecting **SDK** installs the software development kit for eCognition 10.4
- Activate the checkbox **NVIDIA GPU-accelerated TensorFlow Library** if you have an NVIDIA graphics cards with CUDA compute capability for a performance benefit during convolutional neural network processing.  
Details see System Requirements > Overview > Graphics Cards /GPU > Graphics Cards / GPU forTensorFlow Convolutional Neural Networks / Deep learning
- **License Borrowing** installs a tool for license check out and return from the network for local usage up to one month (see also eCognition License Borrowing eCogLB, page 18)
- Copies of the User Documents and Release Notes are installed in the installation directory.

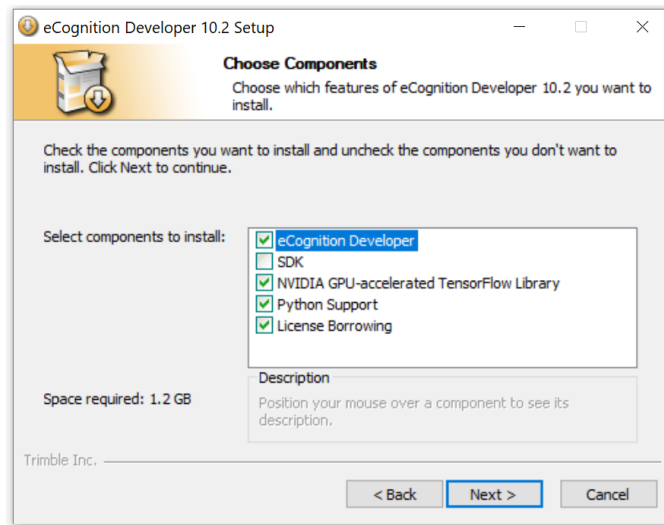







Figure 3.3. The Choose Components dialog box for customized installation

### 3.5.1 Configuring a Central Image Proxy Server

If you have decided to install a centralized Image Proxy Server you will need to update the client’s configuration settings to point to the central server rather than the default local server. To do this, go to Tools > Manage Local Servers in the client to bring up the Manage Local Servers dialog. In the Central IPS Location field, enter the Image Proxy Server name and port (for example `pe1855n011:8386`)

Display	Colors	Status	Solution
	Green-Red	Control service running. But the image server is not reachable.	Go to Tools > Manage Local Servers > Restart. This will stop and restart the control service and the image proxy. Make sure the Use Image Proxy checkbox is ticked. If the server still fails to start, check the Central IPS Location in the Manage Local Servers dialog box (Tools > Manage Local Servers). You can use the Start IPS Monitor button to start the Image Proxy Server Monitor from the client.
	Green-Green	Control service running and current project or workspace created using the image server	Nothing, everything is normal.

(which is contactable).			
	Green-Yellow	Control Service is running but project or workspace was created without the Image Proxy Server.	Select Workspace or Select Project(s). Go to Tools > Image Proxy Project Conversion Warning: If you are unsure do not convert the project or workspace as this is a one way operation and these workspaces cannot be opened in previous versions of the software.
	Red-Green	Control service is not running but image proxy service is.	Go to Tools > Remove Image Proxy Conversion. This will stop and restart both the control service and the image proxy. Make sure the Use Image Proxy Server checkbox is ticked.
	Red-Red	Neither the local server or the Image Proxy Server has been started.	Go to Tools > Manage Local Servers > Start. This will start the control service and the Image Proxy Server. Make sure the Use Image Proxy Server checkbox is ticked.

## 3.6 Installing the eCognition Server

Please see steps for installing the eCognition Grid Server Software using the docker environment here:

[Engine Server](#)

[Job Scheduler Docker](#)

## 3.7 Image Proxy Server

The Image Proxy Server (IPS) is a Windows software component that provides high-performance image access and caching. An IPS is Windows-based and automatically deployed with eCognition Developer. The Image Proxy Server provides the following functionality:

- Delivering Windows-only file formats to eCognition Linux servers
- Creating and delivering zoom pyramids for large images

- Creating and delivering thumbnail caches for workspaces
- Creating and delivering an image statistics cache
- Creating and delivering cached zoom pyramids for thematic layers
- Creating and delivering cached raster representations of vector files

The Image Proxy Server (IPS) is a set of client-server components to address a variety of issues around image access. The general purpose is to introduce a unified component to provide all services around performing image access in a centralized fashion and a scalable deployment architecture. The following use case describes the concrete requirements that will be addressed by the Image Proxy Server

## Changing Image Proxy Server Default Settings

After Installing the Image Proxy Server you may wish to change the default settings.

- Locate the eCognition.cfg file in the bin/config folder where you installed the Image Proxy Server.
- Create a backup of the default file
- Edit the file using a text editor such as Notepad
- Restart the eCognition Image Proxy Server 10.4
- Access the Image Proxy Service from an eCognition Developer to ensure it is operating correctly.

The following table describes the configuration parameters for the Image Proxy Server.

Name	Description	Default Value
Mode	Do not change this value as this is a central IPS.	Central
Caching	True = Image Proxy Server creates cache files. Normally this would not be changed. Cache Processing None = No Caching Local = Use the local processors to create cache files (Default) Cluster = Use the eCognition Server to create cache files.(Advanced)	True Local
Caching package	The version of the Image Proxy Server to be used. Do not change this.	ImageCache.1.2.last
Central storage	When false any image cache data is stored	False

with the associated images. If the Image Proxy Server does not have access to the central location then the image proxy cache will be created in the central location.

Max caching processes	The number of concurrent threads that may be started for caching. By default set to 1 for desktop and 4 for centralized server usage.	4
Cache buffer	Memory (MB) used by caching process for buffering.	256
Central storage location	The location of the cache data. Please note that if the Caching value is set to cluster this should be a network share (UNC Path) that is also accessible to all engines.	C:\Documents and Settings\All Users\Application Data\eCognition Node\Img ProxyServerCache
Max cache size	The maximum storage size of the cache (GB)	10
Delete cache older	After this number of hours the cached item will become eligible for deletion.	720
Keep cache younger	The number of minutes that items should always be kept in the cache.	60
Preferred compression	The default image compression technique. Can also be zlib.	jpeg
Jpeg quality	The quality. 100% equals lossless. Set range 30–99%.	100

## Telling Clients and eCognition Servers About Your New IPS

It will be necessary to tell the rest of the software in your environment about the new Image Proxy Server.

### Client Configuration

For eCognition Developer you will need to update the Manage Local Servers dialog box (Tools > Manage Local Servers). In the Central IPS Location field, enter the Image Proxy Server name and port.

# 4

## License Administration

### 4.1 eCognition License Manager eCogLM

The eCognition License Server 10.4 provides a license administration tool called eCogLM to manage your licenses.

It can be found in C:\Users\[User]\AppData\Local\Trimble\eCognition License Server 10.4\bin\eCogLM.exe.

This tool is using **port 8888** to validate licenses. Make sure your firewall does not block **port 8888** through the internet. eCogLM allows you to:

- Activate additional Entitlements
- Activate single product licenses (Developer, Architect, Server)
- Return single product licenses / Entitlements
- Show and hide expired licenses

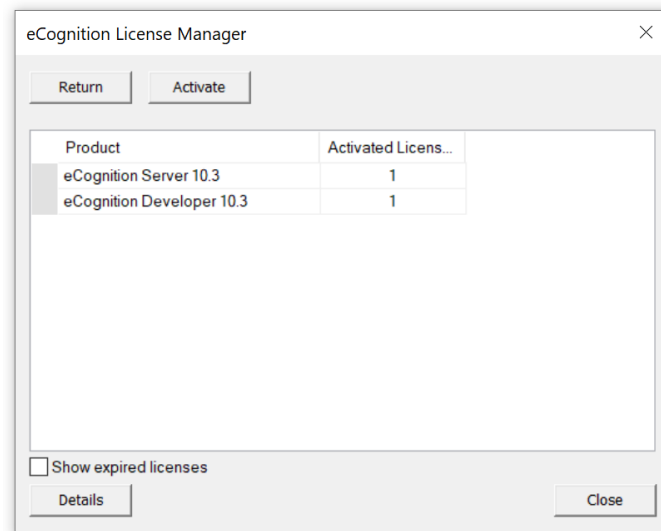


Figure 4.1. eCognition License Manager - Activated licenses

### 4.2 License Return - Hardware or Operating System updates

Important - When a machine is to be replaced or re-formatted or before you reinstall or update the Operating System, you have to return your license(s) to Trimble's web-based

eCognition license pool using the eCognition License Manager eCogLM , page 17. If you do not return the license(s) they can be unrecoverable on the machine.

To activate the license again on another machine or re-activate after formatting of a machine, please install the eCognition license server and follow the steps mentioned in the chapter above.

## 4.3 eCognition License Borrowing eCogLB

The **eCognition License Borrowing** tool (eCogLB.exe) allows you to check out and return licenses from the network for local usage up to one month. It is included in the installation of the eCognition client software packages.

eCogLB allows you to:

- Insert a license server address (or localhost) to obtain information on available software products and number of licenses
- Select a product and date individually for each license until you want to borrow the according license (up to one month possible)
- Select a borrowed license and return it to the according license server

### 4.3.1 Installation of eCogLB

In order to make use of the eCognition License Borrowing tools you must:

- Install the **eCognition License Server** and **activate** an eCognition License on a **host machine** (i.e. centralized license server).
- Install the **eCognition client software** (i.e. Developer, Architect, Essentials) on the **user machine (s)**.

During the installation of the client software, the user will be prompted to select the **components to install**. The installation comprises four components: eCognition Developer, SDK, NVIDIA GPU-accelerated TensorFlow Library and License Borrowing. By default the **License Borrowing** component will be installed.

If the License Borrowing tool was not selected during the installation, please run the installation of the client software again with the License Borrowing component activated.

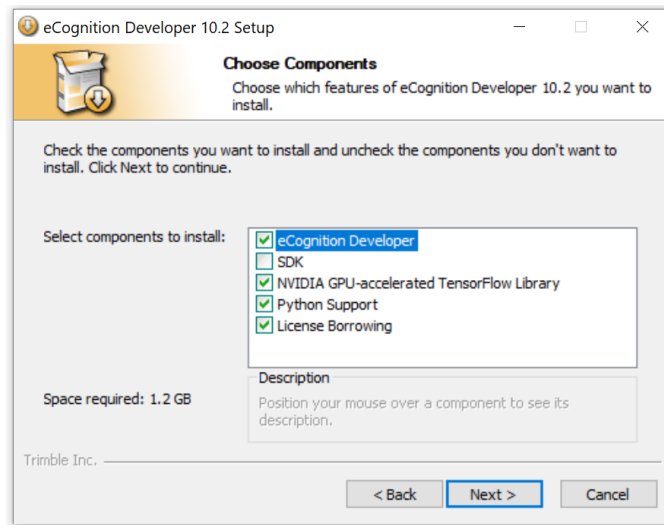


Figure 4.2. eCognition client software installation with default components selected for installation.

Once the installation of the client software is complete on the user machine(s), the selected components will be available from the **Windows Start Menu**. The **eCognition License Borrowing** tool is available e.g. here within the **Trimble > Developer** folder.

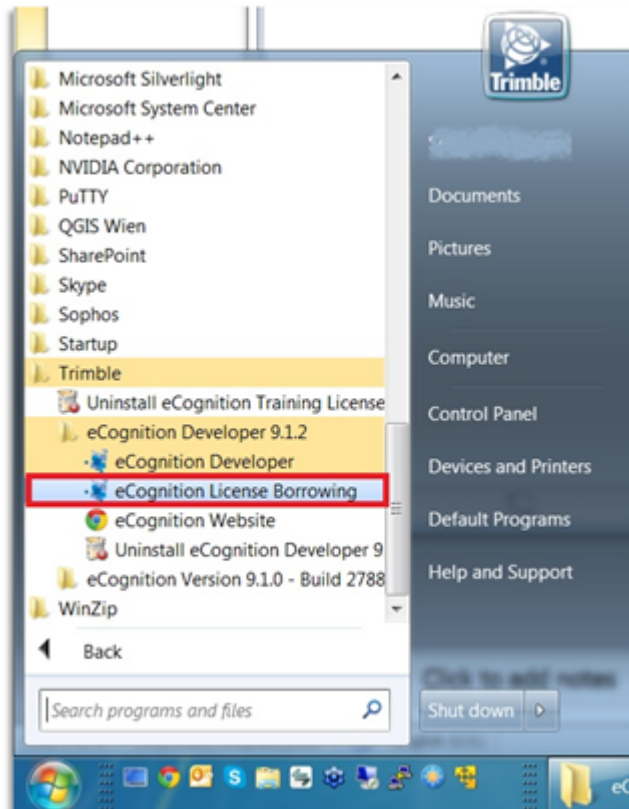


Figure 4.3. eCognition License Borrowing within Windows Start Menu.



### 4.3.2 How to Borrow a License

To borrow an eCognition License both the License Server host machine and the user machine that needs to borrow the license must be in the same network.

- Open the **eCognition License Borrowing** tool on the **user machine**.
- Enter the **hostname** of the central License Server & click the **Refresh** button. In some cases it is necessary to add "@" before the license server hostname (e.g. @licensehost). After a few seconds, all available products (i.e. products currently active on the host machine) will be listed in the **Available** window. If any products are currently being borrowed by other users, they will appear in the **Borrowed** window.

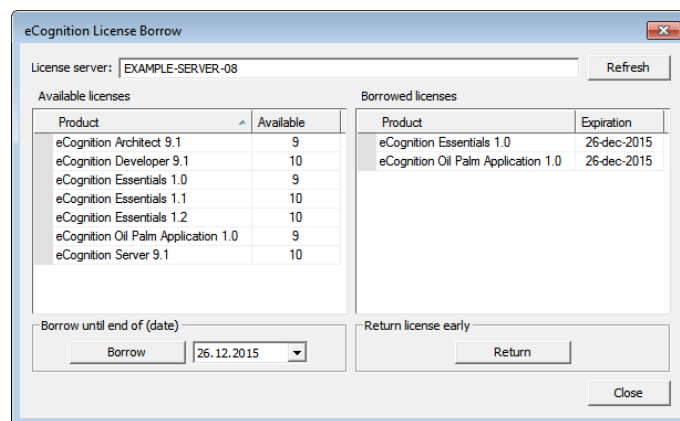


Figure 4.4. eCognition License Borrowing dialog

- Select the **product** to be borrowed and define the license **expiration** date (i.e. the date it will be returned).
  - The **maximum** borrowing period is **30 days**.
  - After 30 days, the license will be returned **automatically**.
  - The license can be returned before the define expiration date if required.

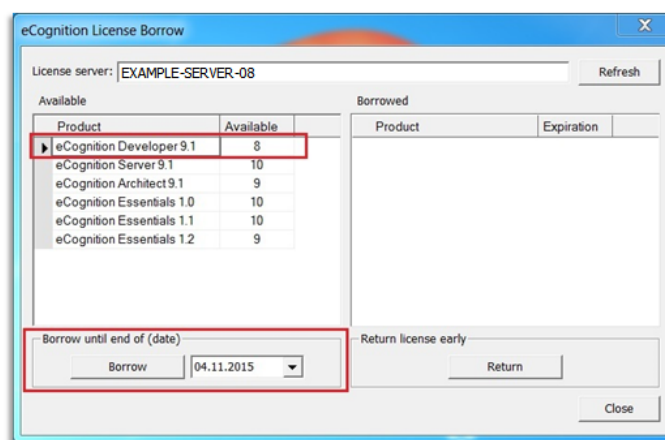


Figure 4.5. eCognition License selected and expiration date defined

- Click **Borrow** to complete the process. A successfully borrowed license is displayed in the **Borrowed** window with the corresponding expiration date.

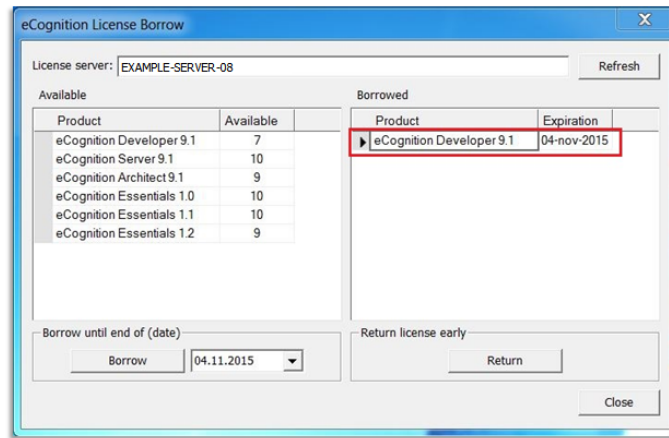


Figure 4.6. Borrowed license listed in the 'Borrowed' window

Now the license is ready for use on the new machine.

### 4.3.3 How to Return a Borrowed License

To return a borrowed license before the defined borrowing period expires take the following steps:

- **Open** the eCognition **License Borrowing** tool.
- **Select** the product(s) in the **Borrowed** window and click the **Return** button.
- After a few seconds, the product(s) will be displayed in the **Available** window again.

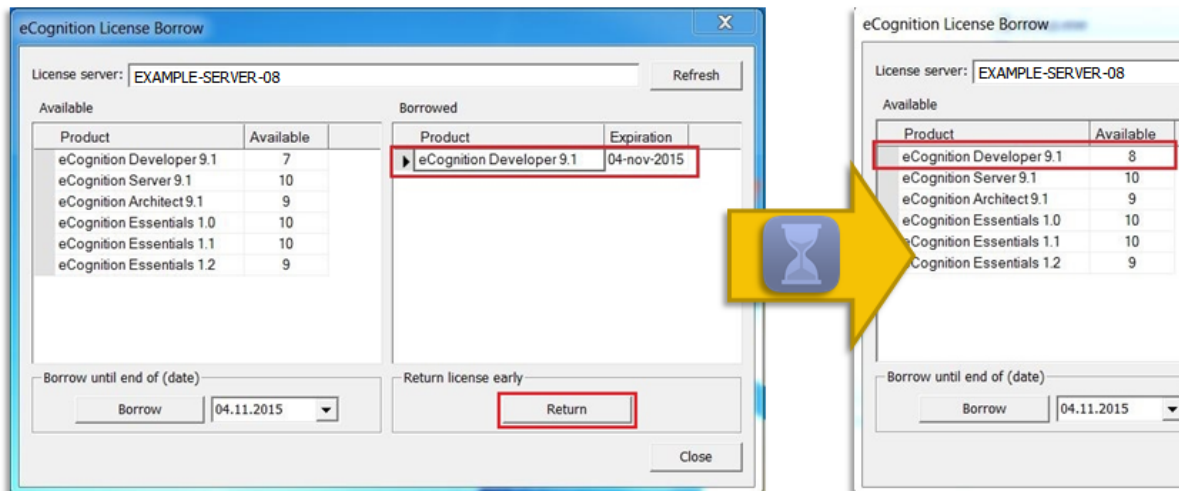


Figure 4.7. Returning the borrowed license early.

## 4.4 License Server Administration ImAdmin

Imadmin is a graphical user interface for your license server administration. Open <http://localhost:8090> with a web-browser. It is splitted in a *Dashboard* and an *Administration* panel.

### 4.4.1 Dashboard panel

The Dashboard panel provides a license overview and shows license server alerts.

The screenshot displays the FlexNet Publisher ImAdmin Dashboard. The top navigation bar includes the Flexera Software logo and 'FlexNet Publisher' text, along with 'Help' and 'Sign Out' links. The main content area is divided into two panels. The 'Alerts' panel on the left shows 4 critical alerts, including 'Out of licenses for eCognitionDeveloper 9.0' and 'Vendor daemon down: trimble'. The 'Licenses' panel on the right shows 'Vendor Daemon: trimble' and two license modes: 'Activatable' and 'Concurrent'. A table lists licenses for 'eCognition Architect', 'eCognition Developer', and 'eCognition Server', all version 9.0, with columns for Product, Version, Detached (Total), Overdraft, and Expiration (31-MAR-2014).

Product	Version	Detached (Total)	Overdraft	Expiration
▼ NAME=eCognition Architect;VERSION=9.0				
NAME=eCognition Architect;VERSION=9.0		0 (1)	0 (0)	31-MAR-2014
▼ NAME=eCognition Developer;VERSION=9.0				
NAME=eCognition Developer;VERSION=9.0		0 (1)	0 (0)	31-MAR-2014
▼ NAME=eCognition Server;VERSION=9.0				
NAME=eCognition Server;VERSION=9.0		0 (1)	0 (0)	31-MAR-2014

**Figure 4.8. Dashboard - Activatable and Critical selected**

The *Concurrent* mode gives information on which licenses are in use or available and when the respective licenses will expire.



Figure 4.9. Dashboard - Concurrent and Important selected

In the *Concurrent* mode you can select *Host* to get an overview on the users and display names of licenses in use.

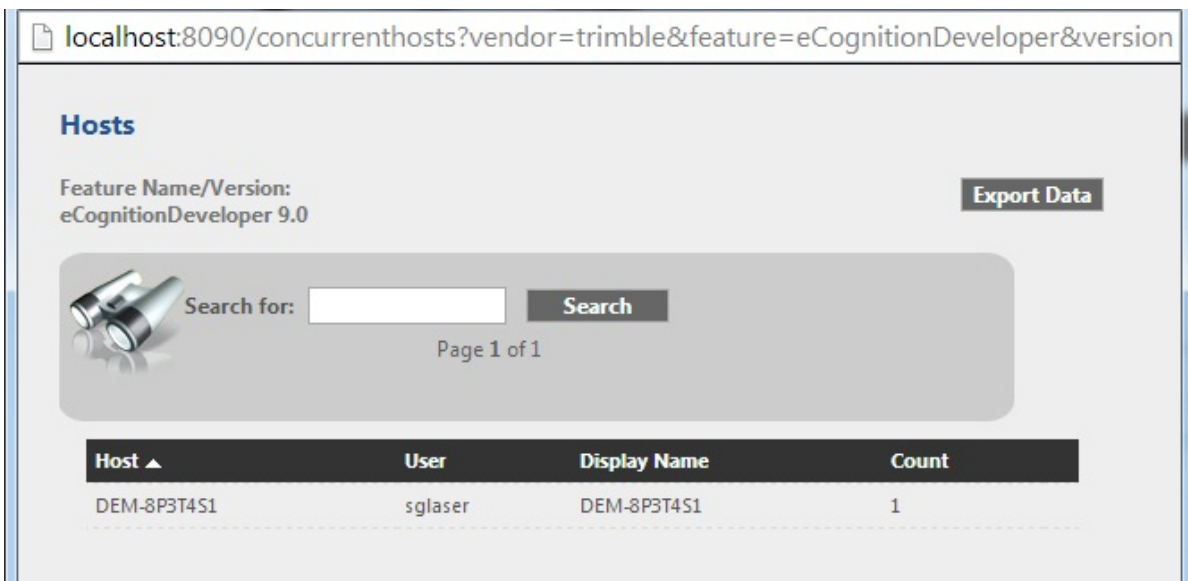


Figure 4.10. Host - License Overview, User Names and Export functionality

## 4.4.2 Administration panel

The Administration panel of ImAdmin provides system information and allows you to configure ImAdmin users. You obtain information on license server alerts and the vendor daemon. The Administration panel login information is per default:

- User: **admin**
- Password: **admin**

The most important settings for the server port can be found in the Server configuration tab. The default port for the license server manager port is 27000. If necessary you can change the port here.

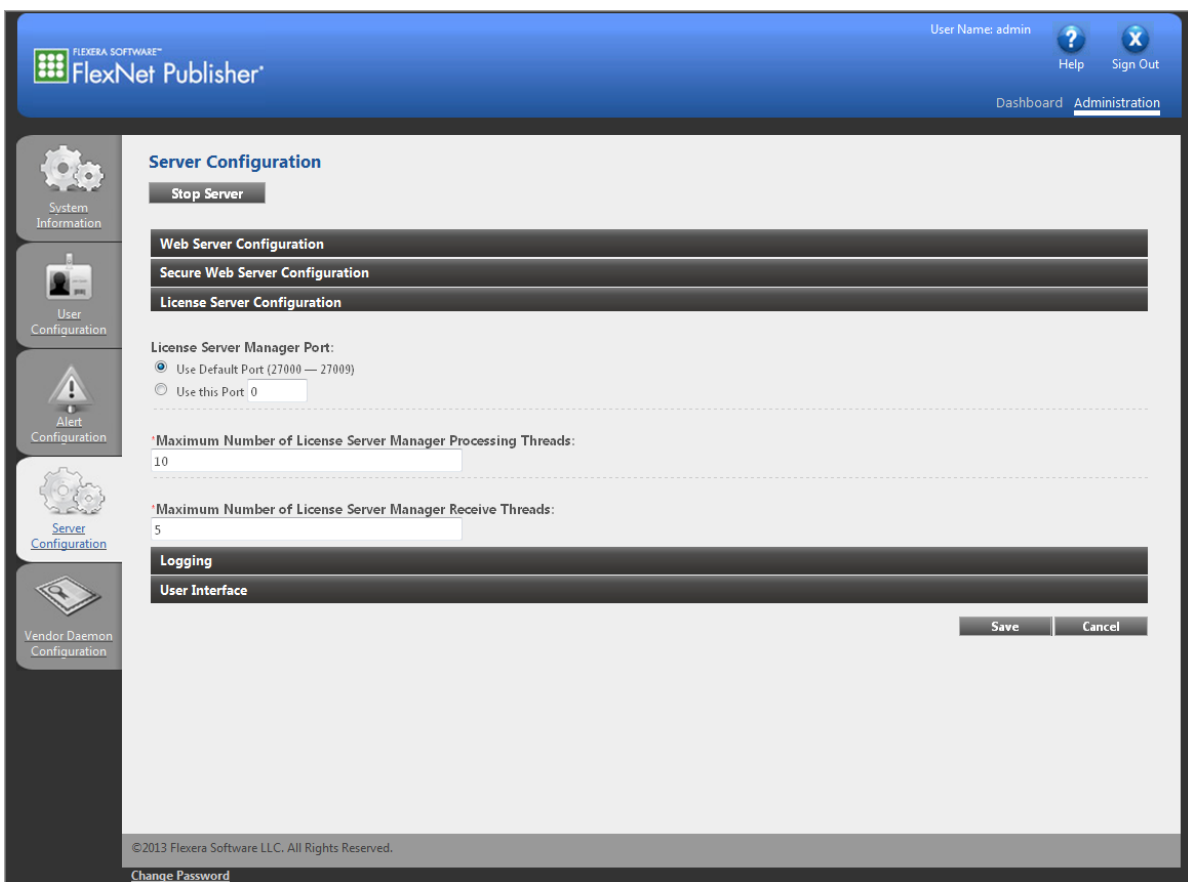


Figure 4.11. Administration Server Configuration Tab

### 4.4.3 Change License Server Port

To change the license server TCP port please open <http://localhost:8090> with a web-browser on the license server machine and log in to the *administration* area (the default user/password is admin/admin):

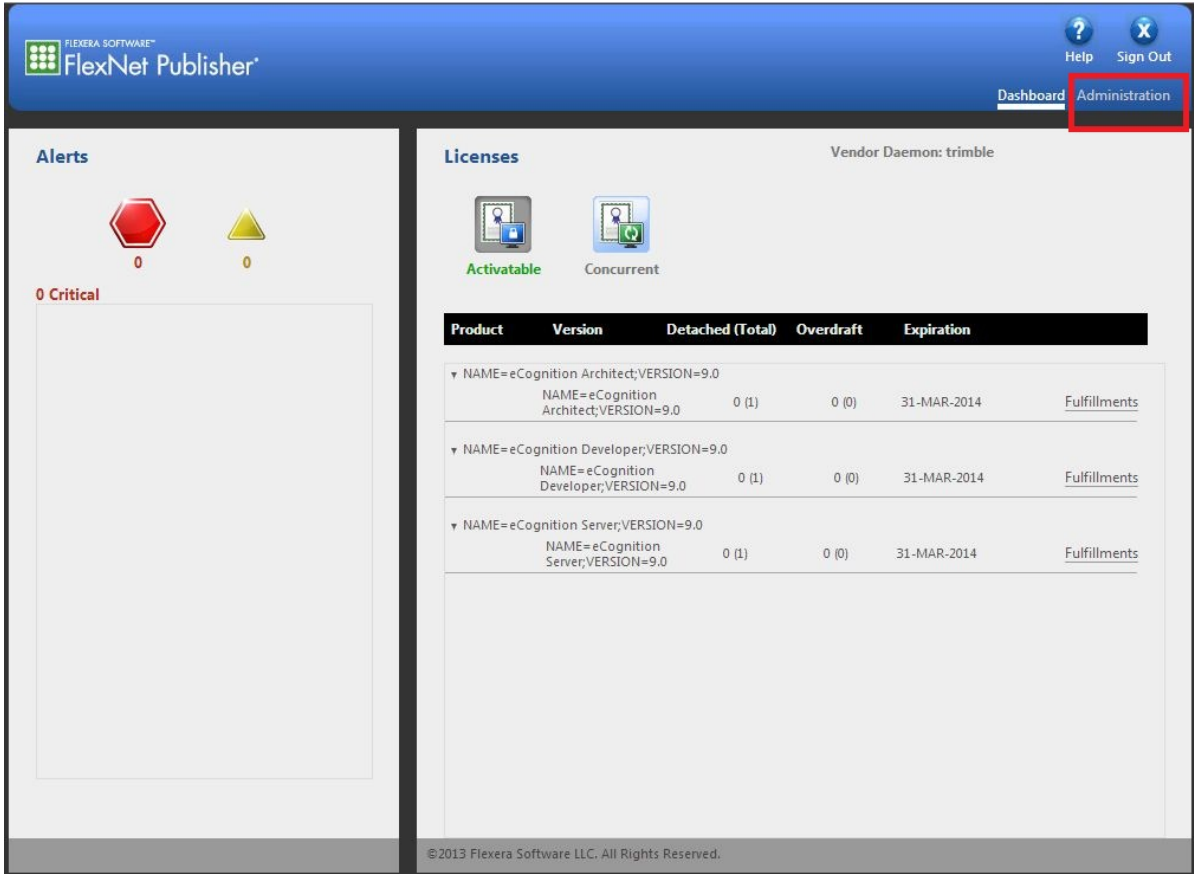


Figure 4.12. Select Administration Tab

Open the *Server Configuration* tab and click on *License Server Configuration*. Choose a port number between 27000-27009 and confirm with 'save'.

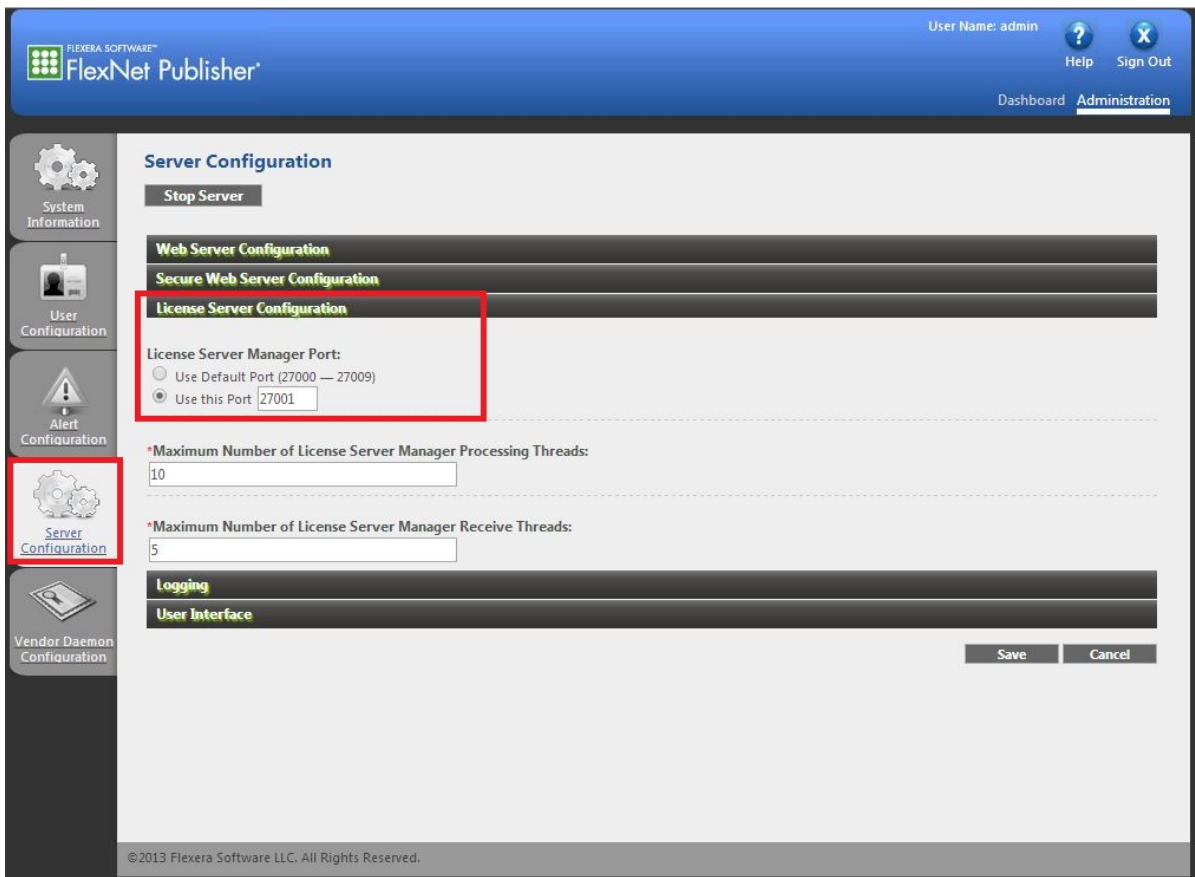


Figure 4.13. Select Sever Configuration - License Server Configuration

You will need to restart the *eCognition License Server service* under the Windows services to finish your changes:

#### 4 License Administration

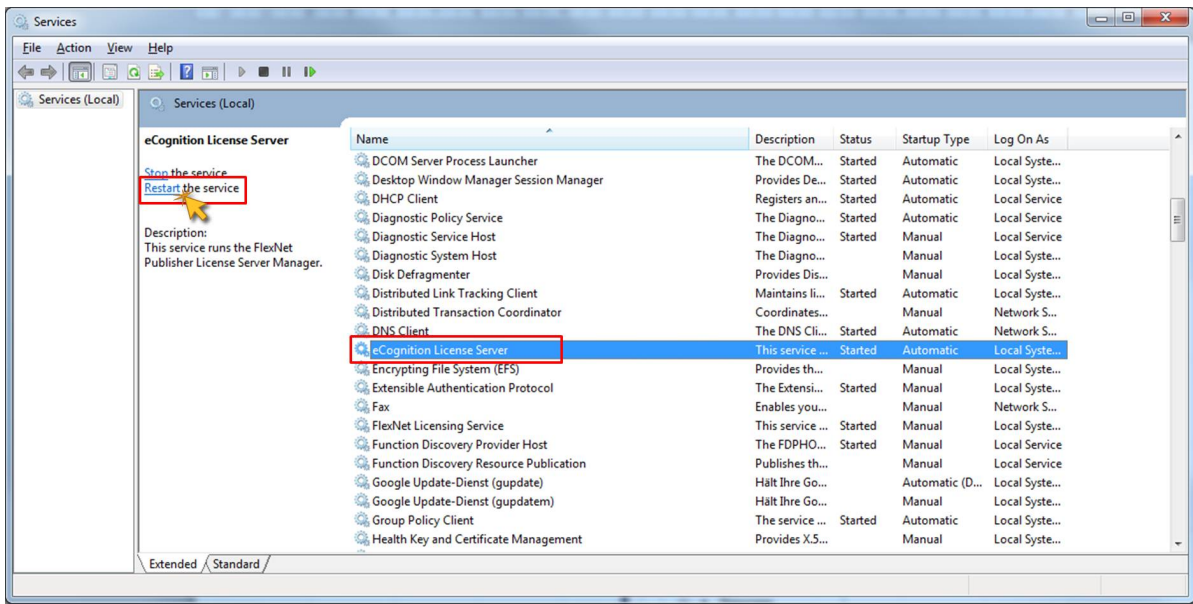


Figure 4.14. Restart eCognition License Service



# eCognition System Administration

The Job Scheduler controls the services for batch processing and allows distributed job processing.

## 5.1 Monitoring Processing in a Web Browser

If you use eCognition Server for processing, you can control the status of jobs submitted for processing via a web browser.

1. You can enter a web address that is identical to the entry in the Job Scheduler entry of the Start Analysis Job dialog. If a local Job Scheduler is used, you can enter `http://localhost:8184`
2. The HTML page is split into four parts, where you can resize the panes by clicking on the dividers and dragging them:
  - User Jobs lists all jobs on schedule.
  - Job Number Overview lists all projects of a selected user job
  - Engines lists the Analysis Engine software instances of participating processing nodes. Engine Usage displays the capacity utilization of all Analysis Engine Software instances of participating processing nodes.

### 5.1.1 Review User Jobs

Look in the User Jobs pane to see all jobs on the scheduler. There are four options you can use to filter this list; any filter in use is surrounded by asterisks:

- All is the default.
- Active Jobs are those currently being processed.
- Inactive Jobs lists successfully completed jobs and those that failed or were cancelled.
- Failed lists only those that did not successfully finish.

Look at some of the available data in this pane:

1. Gray text means that the job has been closed because the workspace has been updated and the job will soon be deleted from the database.
2. Click Active, to display only jobs currently running.
3. Push the Refresh button to reload the site.

4. Click Log to see additional information about how the job was processed. The log lists the dates of events, followed by machine and Analysis Engine Software number and the type of event, which are either connecting or shutting down of an instance of Analysis Engine Software.
5. Click on the index number of a job in the User Jobs pane to view its details in the Job Number Overview pane.

### 5.1.2 Review Job Overview

In the User Jobs pane, click on the job number in front of a job to switch to the Job Number Overview pane and review processing details. Click "1" to view the processing status of each project sent for processing, which is one of the following:

- Failed
- Waiting
- Canceled
- Processing-done
- Unauthorized
- Timeout
- Crashed
- Licensing<sup>2</sup>

If you wish to stop the current job displayed, click Cancel in the upper-right corner.

### 5.1.3 View Job Details

In the Job Number Overview pane, you can review processed jobs by monitoring the status of each project sent for processing. You can click on the item number of a project to switch to the Job Details pane.

**Job Details:** [Link to results](#)

analyse - failed (07:55): 196495180

Started: 14.03.2007 13:00  
Finished: 14.03.2007 13:15

**Remarks:**  
Can't create path 'J:\Workspace\InputRoot\results\Statistics.csv'. Access error (errorcode 2,3) Process: "export project statistics" Process: "statistics" Process: "export results" Process: "Mapping Impervious Surface" / PE18669015 / 338052 / 6.0.3 Build 750

**Ruleset** (client's path): [J:\Ag1\workspace\land\solution\Earth\demof\mapa\\_ku\Deliverables\\_Draft\\_T0\work\06axis\\_07.a.dog](#)

**Input:**  
red = [J:\Ag1\workspace\land\solution\Earth\demof\mapa\\_ku\Deliverables\\_Draft\\_T0\data\image\\_Dataset\\_196495180.tif](#)  
green = [J:\Ag1\workspace\land\solution\Earth\demof\mapa\\_ku\Deliverables\\_Draft\\_T0\data\image\\_Dataset\\_196495180.tif](#)  
blue = [J:\Ag1\workspace\land\solution\Earth\demof\mapa\\_ku\Deliverables\\_Draft\\_T0\data\image\\_Dataset\\_196495180.tif](#)  
parcel = [J:\Ag1\workspace\land\solution\Earth\demof\mapa\\_ku\Deliverables\\_Draft\\_T0\data\Thematic\\_Dataset\Parcels.shp](#)

**Output:**  
ProjectFile = [J:\Workspace\InputRoot\results\196495180\\_x10.dog](#)  
Statistics = [J:\Workspace\InputRoot\results\Statistics.csv](#)  
Impervious\_Category\_Parcels = [J:\Workspace\InputRoot\results\Impervious\\_Category\\_Parcels\196495180\\_x10.shp](#)

**Figure 5.1. Job Details section of the Job Scheduler page displayed in a web browser**

If processing failed, look in the Remarks section for further information. Other information displayed includes the start and end times, the local path of the utilized rule set, a list of the image layers submitted for processing and the path of all the output files you specified in the Configure Exported Results dialog box, and the used configuration of the Analysis Engine Software.

#### 5.1.4 Show Log

Click the Show Log link at the bottom of this page to display configuration information for the current job.

#### 5.1.5 Monitor Analysis Engine Software Status

In the Engines pane, the participating Analysis Engine Software instances of participating processing nodes are listed. Filter them by selecting either only the “active” or “inactive” instances. The status of an active instance is idle. The status of instances whose analysis could not be completed is set to timeout. Click on the item number to display details. If an error occurred during processing, check the Remarks pane.

#### 5.1.6 Review Analysis Engine Software Usage

The Engine Usage pane displays two graphs representing capacity utilization of all Analysis Engine Software instances of participating processing nodes. The left-hand graph represents the workload of the last 60 seconds while the right one displays data for the last 24 hours.

### 5.1.7 Reopen a Job

If the text for a job in the User Jobs pane is gray, the processing states and result references have been updated in the workspace. Processing states and the result references will eventually be deleted.

If you close a workspace before processing is complete, the relevant entry will not turn gray until the workspace is reopened and updated. Once a workspace has been updated, and the line is therefore gray, the job will be deleted from the database.

1. If you need to reopen a job, double-click the job number to open the job in the Job Number Overview pane.
2. Click Reopen to reopen the job.
3. The line in the User Jobs pane will turn black again.

## 5.2 Manual Configuration Settings and Default Values

### 5.2.1 General

- **Temp path** is used for eCognition cache files. During image analysis, the temp folder is used to store working files that may consume large amounts of disk space. Examples are:
  - d:\temp
  - /tmpEnsure the user who runs the Analysis Engine Software has access rights to this temp folder.
- **License Check Timeout:** In case the license is not available at application startup, the license check is retried for twice. Set the time in seconds before the license will be requested again.
- **Enable File Mapping:** In cases of low system memory conditions you can activate file mapping to use memory-mapped files for allocating huge processing memory blocks. The default value is false.

### 5.2.2 Logging

- **Log Path:** Path of log files, for example .\Logs
- **Max. File Size:** Integer value specifying the maximum size in bytes for the log file. The default value is 10485760. After a file size is reached, the file is deleted and recreated. A zero value means no size limit; bear in mind that this can result in extremely large files.
- **Trace Level:** Level of detail in log files. Select 1 to increase the level of detail. Available values are 0 and 1

### 5.2.3 File Management

- Samba shares prefix, for example /mnt.  
Samba shares are assumed to have computer name denoted in lower case. For example, for Abcd1 the samba share should look like /mnt/abcd1 not /mnt/Abcd2.

### 5.2.4 ODBC

- **Oracle DSN:** ODBC data source name used for connecting to any storage of type Oracle ODBC, for example "My Oracle"

### 5.2.5 ArcSDE Settings

- **Connection File Location:** The value of a variable defining the path of the folder containing files with ArcSDE Connections, for example .\Connections

### 5.2.6 CSV Settings

- **Decimal separator:** A separator of decimal numbers used for export as comma-separated value files, such as a period (.)
- **Column delimiter:** A delimiter used for export as comma-separated value files, such as a semicolon (;)

### 5.2.7 DIAGRID

- **Numbers of Engines:** The number of instances of Analysis Engine software available for processing on this processing node. To change the number of engines, we recommend using the Properties of Node, which avoids having to restart the Control Service afterwards. Use -1 to start as many threads as the number of CPUs installed on the machine. This is also true for hyper-threading CPUs. Example values are 1, 4 and -1. A hyper-threading CPU is not a regular CPU. If one thread is started on the regular CPU and another is started on the hyper-threading CPU, the hyper-threading CPU is significantly slower than the regular CPU. However, you need a license for each thread.
- **Job Scheduler:** The port the Job Scheduler monitors. Examples are `http://localhost:8148` and `http://T41pn015:8148`. Take care when changing the port. Do not change this value if there is no special need.
- **Config Service:** Port of the Configuration Services of all nodes of the eCognition. It is used for communication among Configuration Service and other components. Examples are `http://localhost:8148` and `http://T41pn015:8148`. Again, do not change this value if there is no special need.
- **Use Config Service:** The Configuration Service enables you to work with different software configurations. You can disable (false) the Configuration Service to only use Analysis Engine software and Job Scheduler for processing data. Values are true and false

- **Start Image Cache Manager:** Selected image drivers require the activation of the Image Cache Manager. Values: true or false (default)
- **Start Data Spooler:** For each storage that you want to use, you must start a separate Data Management Spooler Service. Enter all names of storages to be started separated by commas, for example `development,qa,production`

### 5.2.8 DIA Control Service

Configuration parameters for the Control Service:

- **Install directory:** Path to the Job Scheduler and the Analysis Engine Software executable files. Do not change this path if there is no special need.
- **Restart time:** Time in seconds at which the Control Service restarts a crashed instance of Analysis Engine Software or Job Scheduler.

### 5.2.9 DIA Config Service

Configuration parameters concerning the Configuration Service:

- **Configuration folder:** Path to the configuration files. Do not change this path unless there is a special need.
- **Storage folder:** Path to the storage files. Do not change this path unless there is a special need.
- **Local service:** The primary node provides a processing unit by default (true). To disable it, enter false.

### 5.2.10 DIA Job Scheduler

Configuration parameters for the Job Scheduler:

- **Database File:** The database of the Job Scheduler is stored by default below the ProgramData folders. The default path is `C:\ProgramData\eCognition\AdminConsoleData\JobScheduler64.dat`. In some cases the size of the database can exceed 2GB.

### Settings

- **Engine status timeout:** Time in seconds before the Analysis Engine Software status is set to timeout. If the Analysis Engine Software answers after the preset timeout the status is set back to the current status.
- **Engine idle timeout:** If an instance of the Analysis Engine Software did not receive any job during a specified time, the engine idle timeout, it will be canceled.
- **Orphan job timeout:** When a job is assigned to an instance of the Analysis Engine Software, the Job Scheduler takes it out of the job queue and waits until the Analysis

Engine Software comes and takes the job. If that does not occur during a specified time, the orphan job timeout, the job will be again added to the job queue.

- **Days to keep history:** Time in days the processing states and result references are kept in the history. Afterwards they will be deleted.

# Configuration and Components

This chapter provides reference information about software components and specific configurations, for example using the software with firewalls.

## 6.1 Firewall Settings

If you use firewalls, communication problems might occur after installation. This section describes how to adapt your firewall settings if there is a firewall between eCognition software components such as:

- eCognition clients
- eCognition Server
- A file server used as image data and results repository
- A related database
- eCognition License Server Software

eCognition software uses the following default network communication channels:

- Microsoft file share network for data in and output: Ports 445, 437, 438
- Software internal communications on TCP 8184 (Job Scheduler) and TCP 8284 (Configuration Server)
- License communication

### 6.1.1 Firewalls Between Clients and File Servers or Databases

There may be a firewall between eCognition clients and a file server (used as an image data and results repository) or a related database. In that case, open the ports for the Microsoft file sharing network.

### 6.1.2 Firewalls Between Clients and Primary Nodes

If there is a firewall between eCognition client machines and the primary node of the eCognition Server hosting the Job Scheduler open the port TCP 8184, TCP 8284, and TCP 4002 bidirectionally.



### 6.1.3 Firewalls Between Primary Nodes and Processing Nodes

Use the same method described in the previous section on firewalls between client and primary nodes.

## 6.2 About Configuration Settings

To meet specifics of your system environment, you can modify the default configuration settings of your eCognition setup. They are stored in the following configuration files:

- `eCognition.cfg`
- `JobSchedulerUsers.xml`

### 6.2.1 eCognition.cfg

The configuration settings stored in the `eCognition.cfg` file are related to:

- eCognition services
- eCognition clients
- Image Proxy Server

### 6.2.2 Advanced Settings

You may edit the following parameters manually in the `eCognition.cfg` file; however we recommend you contact [support@ecognition.com](mailto:support@ecognition.com) before making changes. Changing any of these settings requires restarting your client or control service.

#### Memory Management

The following advanced options are available for configuring memory management of your eCognition environment. As these are advanced settings we recommended you consult eCognition support before changing them. Changing any of these settings requires restarting your client or control service.

##### [enable file mapping](#)

File mapping will use virtual memory mapped to file system rather than RAM. This way memory becomes limited to storage space size rather than available RAM on the system. This may cause significant performance loss, however will increase number of objects that can be created.

##### [max cache size](#)

`max cache size MB` determines the maximum amount of RAM that will be used to hold image data.

The default value is 8 GB (the actual value in `eCognition.cfg` is 8192 MB).

### minimal free RAM threshold

Determines the maximum amount of memory to be allocated on a machine. This is used to protect the operating system by attempting to allocate all of the system memory to processing. The default is 200 MB.

## Image Proxy Server Configuration

It is normally not necessary to modify the configuration of the Image Proxy Server after installation. In case you need to do so, you would need to manually edit the .cfg on the primary node and manually copy it to the processing nodes ([Image Proxy Server Configuration](#)). Since this is an advanced option, we would recommend speaking with Trimble support before doing this.

## Logging Settings

The <logging> section of the eCognition.cfg file defines logging settings. Again, please modify the settings for troubleshooting and support purposes only. Important warnings and error messages are always shown to the user interactively.

- <key name="log path" ..> defines the path to the log file
- <key name="max file size" ..> defines the maximum size of the log file before it gets overwritten
- <key name="trace level" ...> defines how detailed are debugging entries, there are 4 options available:
  - "Nothing" - means that no debug events are logged, however important error and warning messages which are also shown to the user interactively, will be written to the log file.
  - "Basic" - means that only most important debug events are logged
  - "Detailed" - means that detailed debug events are logged, this is usually enough to spot most of the problems.
  - "Everything" - means that all debug events are logged to the files with no exceptions. This could result in very huge log file.
- <key name="trace area" ... /> defines extra prefix for log messages

### 6.2.3 JobSchedulerUsers.xml

The configuration settings stored in the JobSchedulerUsers.xml configuration file are related to the DIAJobScheduler and support the user management.

To modify these configuration settings, edit JobSchedulerUsers.xml with a text editor – this file is stored in the installation directory. The default path is C:\Program Files\Trimble\eCognition [Version number]\bin\config.

If you change the configuration on a *running system* you must restart the Control Service. Any changes you make to `JobSchedulerUsers.xml` are applied immediately – it is not necessary to reboot or restart any services.

- `user name=""`: Set the Windows user name. When a client sends a job to the Job Scheduler, the Windows user name of the client user is transmitted as well.
- `priority=""`: Set the initial priority for analysis. The priority is an integer value. A high value means high priority. Unknown users are set to 0 priority as default. If a user is currently running projects on the cluster, the number of the current projects in progress are subtracted from this priority:

$priority = priority - [Number\ of\ projects\ that\ are\ in\ progress]$

### Example for Both Parameters

```
<user name="User1" priority="10"/> <user name="User2" priority="1"/>
<user name="User3" priority="100"/>
```

Name	Value	Description
Mode	desktop	Desktop Central
Caching	cluster	None Local Cluster
Caching package	ImageCache.1.2.last	The version of the image server
Central storage	False	Image cache is stored on the Image Proxy Server cache when false.
Max caching processes	4	The number of concurrent threads that may be started for caching. 1 for desktop and 4 for central mode.
Cache buffer	256	Memory (MB) used by caching process for buffering
Central storage location	C:\Documents and Settings\All Users\Application Data\Cognition Img ProxyServerCache	The location of the cache data.
Max cache size	10	The maximum storage size of the cache (GB)

Delete cache older	720	After this number of hours the cached item will become eligible for deletion.
Keep cache younger	60	The number of minutes that items should always be kept in the cache.
Preferred compression	jpeg	The default image compression technique. Can also be zlib.
Jpeg quality	100	The quality. 100% equals lossless. Set range 30–99%.

User1 sends 20 projects into a cluster of 10 instances of Analysis Engine Software, occupying all instances of Analysis Engine Software. User1's current priority will go down to zero.

Meanwhile another user, User2, sends 20 projects into the same cluster. All instances of Analysis Engine Software are still occupied by User1. User2 is on idle until one project of User1 is finished. When the project is finished one project of User2 will be processed. The priority of User2 will fall back to zero. The priority of User1 becomes 1.

Now, a third user, User3, sends 20 projects into this cluster. If an instance of Analysis Engine Software finishes processing the current project it will then start processing projects from User3 due to this user's high priority. The lowest priority User3 can reach is 90. In this case, User3 will always have the highest priority in comparison to other users, whose projects will remain in an idle mode until all projects from User3 are completed.

## 6.3 eCognition Executable Files

In the following sections, the available eCognition executable files are discussed in more detail.

### 6.3.1 DIAClient.exe

The eCognition client provides the different user interfaces of eCognition software. The executable file DIAClient.exe is located in the installation path\bin folder. Products based on DIAClient.exe are:

- eCognition Architect 10.4
- eCognition Developer 10.4

You can select a specific client product by invoking DIAClient.exe with the command line switch /product "client name". Starting a specific client product requires an appropriate license.

### 6.3.2 Job Scheduler

The Job Scheduler controls the services for batch processing and allows distributed job processing.

The Job Scheduler is installed together with eCognition Developer and is implemented as a lightweight HTTP server. By default it listens to the port 8184. You can check the status of the Job Scheduler by connecting your HTML browser to `http://hostmachine:8184`.

The executable file is called `DIAJobScheduler.exe` and is located in the installation path\bin folder.

### 6.3.3 Control Service

The Control Service is a component of the eCognition Node software used as overseer for the processing. For processing it starts—from within Windows Service Manager – the Job Scheduler and the Configuration Service. The executable file is called `DIAControlService.exe` and is located in the installation path\bin folder.

This `DIAControlService.exe` will be installed as a service on a Windows-based server machine to control the Analysis Engine Software instances on this machine.

The Control Service starts the Job Scheduler and the Configuration Service; therefore the user who started the Control Service needs to have the same access rights for the Analysis Engine Software as for the Control Service due to heritage of access rights. In addition, the user needs to have the appropriate access rights for the file storage.

### 6.3.4 Configuration Service

The Configuration Service is a component of the eCognition Developer used as provider of the configurations. It provides the processing nodes with the appropriate software for processing data.

The executable file is called `DIAConfigService.exe` and is located in the installation path\bin folder.

### 6.3.5 File Storage

The file storage is the repository for image data, results, workspaces, projects, and rule sets. It is accessed by shared folders via network.

The file storage must provide simultaneous access for all instances of the Analysis Engine Software. This is usually not possible when using Microsoft Windows workstation as it provides only a restricted access to their file system over the network. We strongly recommend using a file server as image repository.

If you are using Data Management, the following will apply, and users can also use a file system when disconnected from a database, if desired.

- Images and the associated image results must be stored outside the database.
- Image analysis statistics are stored inside the database.
- Workspaces are stored inside the database.
- Rule sets may be located either inside or outside the database.

# Docker - command-line engine

## 7.1 Concept

Cloud processing has been made easier to manage with the support of Docker containers. A new Docker container based Server GRID setup can be easily managed within various cloud systems.

Docker is a platform for developers and administrators to build, run, and share applications based on containers. A *container* is mainly a running process, with some added encapsulation features applied to it in order to keep it isolated from the host and from other containers. One of the most important aspects of container isolation is that each container interacts with its own private filesystem. This filesystem is provided by a *Docker image*. An image includes everything needed to run the application - the code or binary, runtimes, dependencies, and any other filesystem objects required.

For eCognition's Windows command-line engine such a docker image is used. This image is based on windows server 2016 OS image (mcr.microsoft.com/windows/servercore:ltsc2016-amd64).

All following contents can be found here up-to-date (together with the repository and more information on docker):

[Docker - eCognition Command-line engine for windows](#)

[All eCognition related docker container images](#)

## 7.2 Prerequisite

To use the eCognition command-line engine requires a valid eCognition Server license and the latest eCognition License Server.

**NOTE** - *If the License Server is running on a different machine than the container, you will need to make sure that the license server ports (default: 27000-27009) and the vendor daemon (random by default) are open. You can set those ports via the license server admin console using your favorite browser:*

*http://[LicenseServer IP address]:8090 (or http://localhost:8090 from within License Server machine).*

*In the Administration tab you can set those in "Vendor Daemon Configuration" and "Server Configuration" sections.*

## 7.3 Run

To use the container you can run it interactively and explore DIACmdEngine.exe:

```
docker pull ecognition/win_cle:nightly

docker run -it -e "LM_LICENSE_FILE=@mylicenseIPaddress" -v
C:\path\to\mydata:c:\mnt ecognition/win_cle:nightly
```

Once inside terminal session you can access DIACmdEngine.exe directly and invoke it.

To run the container and the job in it, you can combine 2 command-lines together:

```
docker run -e "LM_LICENSE_FILE=@mylicenseIPaddress" -v
C:\path\to\mydata:c:\mnt ecognition/win_cle:nightly DIACmdEngine.exe
image-dir=c:\mnt\data import-connector=myimportconnector import-
connector-file=c:\mnt\myimportconnector.xml ruleset=c:\mnt\myruleset.dcp
output-dir=c:\mnt
```

**NOTE** - It is also recommended to give at least 4GB of RAM for container as it might be resource intensive (docker -m 4GB will be sufficient)

## 7.4 Configuration via environment

While running container any configuration setting (found in config/eCognition.cfg) can be set via the environment variable use the following notation: ECOG\_CONFIG\_{config-group}="key1=value1;key2=value2;.."

For example, to set log file location and trace level (this overwrites appropriate <logging> values in eCognition.cfg):

```
docker run -it -e ECOG_CONFIG_logging="log path=C:\mnt\logs;trace
level=Detailed" ...
```

Option for eCognition.cfg:

<storage>

```
{{ <key name="temporary vector format" string="GPKG" description="available options:
SQLite,GPKG,SHP,GEOJSON"> </key>}}
```

```
{{ </storage>}}
```

For docker container to pass this option add the following parameter to docker run command:

```
-e ECOG_CONFIG_storage="temporary vector format=SHP"
```

For example:

```
{{ docker run --rm -e "LM_LICENSE_FILE=@my.license.server" -v C:\test:/mnt/test -e ECOG_
CONFIG_storage="temporary vector format=SHP"}}
```

```
{{}}
```



NOTE: Default format switched back to GPKG (GeoPackage), since SQLite makes all attribute names lower case while storing, this can cause issues.

## 7.5 Command-line engine

Docker container includes DIACmdEngine.exe which is an eCognition engine command-line interface. It has following command-line parameters:

- analyze image file:

```
DIACmdEngine image=path1 [image=pathN..] [thematic=pathN] ruleset=path
[options]
```

- analyze image imported using connector:

```
DIACmdEngine image-dir=path import-connector=name [import-connector-
file=path] ruleset=path [options]
```

- options:

param:nameN=valueN - parameter to the rule set, where nameN is name of rule set variable and valueN is the value of the parameter. There can be arbitrary amount of params.

array-param:nameN=value1,value2,..,valueN - array parameter to the rule set, where nameN is name of a rule set array and valueN is the comma-separated value list, for example: array-param:myArray=0,90,180,270. There can be arbitrary amount of array-params.

output-dir=path - output directory for export files

--save-dpr - save project file

--pause - pause application after done

**Return value:** DIACmdEngine.exe returns 0 on success, -1 otherwise. This can be used by scripts invoking executable to check job success.

The command-line engine can be run in 2 different ways depending on the set up of the Trimble eCognition Workspace:

**Example 1-** simple analysis on a single image:

```
DIACmdEngine.exe image=c:\mnt\data\myimage.tif
thematic=c:\mnt\myvector.shp ruleset=c:\mnt\myruleset.dcp output-
dir=c:\mnt\results
```

**Example 2 -** to run analysis on image(s) imported via predefined import connector:

```
DIACmdEngine.exe image-dir=c:\mnt\data import-
connector="myimportconnector" import-connector-
```

```
file=c:\mnt\myimportconnector.xml ruleset=c:\mnt\myruleset.dcp output-  
dir=c:\mnt\results
```

If "import-connector" parameter defers to predefined import connector (like "Generic raster - one file per scene"), then "import-connector-file" parameter can be omitted.

# Python Installation Windows

This chapter provides installation information on eCognition's *embedded* API and the *external* Python package.

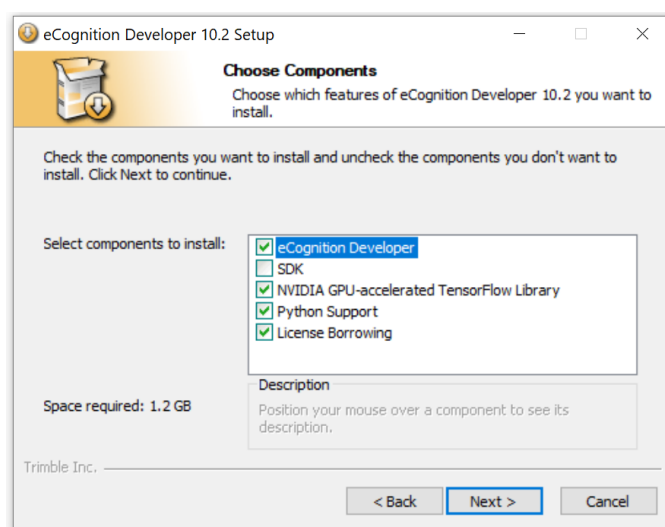
## 8.1 Concept - Embedded Python API

eCognition provides support for the execution of Python programs. The implementation is based on Python Version 3.10.11 (Python Software Foundation, <https://www.python.org/>) and offers the ability to perform image analysis, data management and more tasks using Python scripts.

### 8.1.1 Prerequisite

To use Python scripts in eCognition you need a valid eCognition Developer license and the latest eCognition License Server.

During setup of eCognition activate the check box **Python Support** so that the programming language Python is installed:



**Figure 8.1. eCognition setup - Python Support**

The eCognition installation comprises the following python libraries/packages:

- **Numpy** - used for rasters and regions
- **Pandas** - support of vector data, attributes and geometries

- **Shapely** - holds geometry for vectors
- **Debugpy** - implementation of the debug adapter protocol for Python
- **SciPy** - supports special functions, integration, ordinary differential equation (ODE) solvers, and gradient optimization

Available packages can be listed and new packages added using eCognition's Environment manager accessible via *Tools > Manage Python Environments*.

**NOTE** – eCognition uses **venv** for virtual environment management, that creates isolated Python environments for Python libraries/packages. Each environment can contain different packages. eCognition's Python installation is separate and independent from your local or main system installation (see <https://docs.python.org/3.9/library/venv.html>).

See also:

Reference Book > Algorithms and Processes > Miscellaneous > Execute Python Script - description algorithm and its parameters

Reference Book > Algorithms and Processes > Miscellaneous > Embedded Python API Reference - reference for each class, properties and methods

User Guide > Python Integration - description of environment manager and application examples for python scripts

Installation Guide > Linux > Python Installation - installation and setup

## 8.2 Concept - External Python package

**Installation files** for external Python API - [eCognition wheel packages](#)

**NOTE** – Python versions supported for the *ecognitionapi* are versions 3.8 to 3.12.

**Commands for installation** of wheel packages:

- `python -m pip install ecognitionapi --extra-index-url https://ecognition-wheels.trimblegeospatial.com/`
- `pip install ecognitionapi --extra-index-url https://ecognition-wheels.trimblegeospatial.com/`

To control eCognition's configuration:

### 1. **LM\_LICENSE\_FILE**

This file sets the license file location (\*.lic) or the license server name of the IP address based on "port@myServerIP".

The port can be skipped using "@myServerIP" - in this case the default port 27000 is used.

**Example:** `os.environ["LM_LICENSE_FILE"] = "@myServerName"`

## 2. eCognition.cfg

All configuration options from the default eCognition.cfg file can be overridden with environment variables, by following this syntax:

```
ECOG_CONFIG_{config-group}="key1=value1;key2=value2;.."
```

**Example:** `os.environ["ECOG_CONFIG_logging"]="trace level=Detailed"`

(set log file location and trace level - this overrides appropriate <logging> values in eCognition.cfg)

See also:

User Guide > Python Package Documentation - External Python API

# Frequently Asked Questions

## Windows

Answers to commonly encountered installation problems.

### 9.1 System Communication Problems

**Q:** After setting up an eCognition system on multiple machines, there are problems with the system communication.

**A:** You need to adapt your firewall settings if there is a firewall between eCognition software components such as:

- eCognition clients
- eCognition Server
- A file server used as image data and results repository
- A related database
- eCognition License Server Software

### 9.2 Removing eCognition Control Services Manually

**Q:** Can I remove the eCognition Control Service from the Windows service control manager manually?

**A:** You need to have the service installation right on the machine you are accessing.

- Local: Use the following commands in the command prompt window:
  - `sc stop [eCognition Control Service Version number]`
  - `sc delete [eCognition Control Service Version number]`
- Network server: Use the following commands in the command prompt window:
  - `sc \\server name stop [eCognition Control Service Version number]`
  - `sc \\server name delete [eCognition Control Service Version number]`

## 9.3 Using a Dual Processor

**Q:** I use a dual processor machine. Why is the load of the processor only around 50% during the analysis?

**A:** A single project can be only processed on a single CPU. However, Windows switches the load between both CPUs; this is the reason for the reduced processor load. If you start a second analysis instance on a second project, then the load of both processors will be 100%.

## 9.4 How Can I Observe the Status of the eCognition Server?

**Q:** How can I monitor the status of processing and waiting jobs?

**A:** A status page provides information about attached analysis engine and waiting jobs. To access the status page of the Job Scheduler go to `http://[Name of the Processing Network Node]:8184`

## 9.5 Rounding of Floating Point Numbers

The rounding of floating point numbers depends on the operating system and runtime libraries. Therefore the results of statistical calculations between Linux and Windows may be slightly different.

## 9.6 Downsampling of Images

When images are downsampled to a value other than the power of two, there may be very small pixel differences when comparing 32- and 64-bit results. This difference is very small and is not known to affect any calculations.

## 9.7 More FAQ's (Support)

More answers of Frequently Asked Questions you find at the [eCognition Help Center](#).