![euresys - Empowering Computer Vision]

Open eVision

Contents

PART I
OPEN EVISION BASICS

1. Solving a Vision Problem

A typical vision-based application follows these steps:

1. Acquire images

External images must be stored in a host PC memory buffer with a known address. They must be linked to the Open eVision image object with parameters containing the address and pitch (32 bytes default) of the buffer, and the width and height of the image.
For details see Image Construction and Memory Allocation.

- To optimize resolution and repeatability, the area of interest should occupy most of the field of view, and the targeted inspection equipment should be simulated as accurately as possible, with realistic lighting.

- You should create two series of images:
  - □ *Objects without defects* (accepted by the inspection process) in all situations (such as unstable lighting conditions and movement freedom).
  - □ *Objects with unacceptable defects* (to be rejected by the inspection process).

Use Open eVision Libraries to process the images:

2. Pre-process images

- Reduce defects or enhance properties (such as contrast between the object of interest and background).
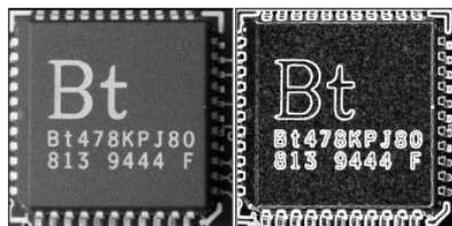
3. Locate objects of interest

- Locate the area of interest using techniques such as segmentation, edge detection or pattern matching.
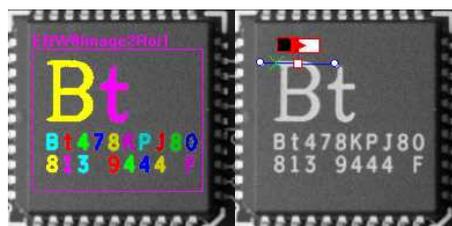
4. Analyze your findings

- Use a measurement tool:
  - □ EasyObject measures unknown shapes.
  - □ EasyGauge returns accurate measurements of known objects.
  - □ EasyImage provides statistical parameters.

- Measurements are performed locally so quantify the shape of objects geometrically, defects can be related to abnormal gray-level values.

| Area	Limit Center Y	Limit Width
252	29.00	31.00
242	60.00	31.00
535	48.00	34.00
654	44.00	54.00
246	101.00	15.00
140	101.50	11.00
180	101.00	15.00
158	101.00	14.00
235	101.50	16.00
214	101.00	15.00
197	101.00	14.00
157	101.50	13.00
226	101.50	15.00

5. Optimize your application

- Your solution must reliably separate good images from bad images by comparing ROI features to assess quality, detect defects, and recognize and sort objects.

- If it can't, repeat steps 2 and 3 to improve your set of features.

Develop thread safe applications

- Open eVision supports simultaneous execution by multiple (unlimited) threads on the same CPU, but data can only be accessed by one thread at a time
So independent tasks can execute simultaneously in your application, but each bit of shared data must be controlled by a separate task.

- Follow the rules about thread-safe classes listed in Multicore Processing to avoid data corruption, crashes and misbehaving programs.

Report errors

- When an Open eVision function fails, an exception is thrown which contains an error code and a description. To catch a potential exception, the function call is included in a try-catch block.

Measure execution times

- Timing a particular piece of code is achieved simply with start and stop operations:
  - □ Start timing: `Easy::.StartTiming`
  - □ Stop timing: `Easy::.StopTiming`
  - □ Clock resolution: `Easy::.TrueTimingResolution`

Help is available

- Open eVision Studio

- Speeds up and automates the creation of a solution. You can test the functions to find appropriate parameter values, and generate code of your operations to copy and paste into prototype applications.

● Open eVision examples:

Euresys download area contains:
- *sample projects*: how to use Open eVision libraries with a particular IDE.
- *sample application programs*: how to combine Open eVision functions and libraries in a variety of combinations and applications.

2. Discovering Open eVision Libraries

Open eVision is a set of powerful image processing tools developed for computer vision applications. They cover most state-of-the-art techniques in digital image processing, from classical algorithms to advanced solutions ready-made for specific tasks.

Many of the available tools are designed to be self-consistent and easy to use. Nevertheless, for more advanced uses, you should find everything you need to build you own workflow by combining the numerous building blocks provided.

Open eVision is made of a set of C++ and .NET classes ready for integration in your application. The tools are in no way a closed solution and do require to be integrated in your own application, leaving you all the freedom to deal with all other aspects of the automation not related to image processing.

- □ Basic Types and Operations contains the definition of fundamental objects, types, classes and functions used in all Open eVision components.

General Purpose Libraries

- □ EasyImage offers gray-level image processing functions that improve image quality and contrast between background and objects of interest as well as linear and non-linear filtering and geometric transformations. It also offers tools for quantifying image focus, sliding window statistics and histogram analysis.
- □ EasyColor contains color image processing functions that efficiently convert images between several color systems.

Matching and Measurement Tools

- □ EasyObject obtains information about distinct objects (blob analysis), identifies them using connected component labeling, then sorts and selects them according to their geometric features. EasyObject 2 contains advanced blob detection and analysis tools.
- □ EasyGauge assesses dimensions of objects to sub-pixel precision, detects edges, locates points and fits geometric models. If the field of view is calibrated, it also measures in physical units (mm, inch...) instead of pixels.
- □ EasyFind locates patterns in an image based on a geometrical model from a reference pattern or template. Compared to EasyMatch, it is computationally fast, robust against noise, occlusion, blurring and illumination variations.
- □ EasyMatch locates patterns in an image based on a pixel-by-pixel comparison with a reference pattern or template. It can be used for image registration or component placement inspection.
- □ EChecker2 creates a golden template and inspects images.

Text and Code Reading Tools

- □ EasyBarCode reads bar codes.
- □ EasyMatrixCode and EasyMatrixCode2 read data matrix codes.
- □ EasyQRCode detects and decodes QR codes.
- □ EasyOCR performs optical character recognition. You can use it for reading serial numbers or printed labels.
- □ EasyOCR2 offers advanced and improved optical character recognition functions.

Deep Learning Inspection Tools

□ Deep Learning Tools inspects images with deep learning technology.
□ EasyClassify classifies images.
□ EasySegment, supervised or unsupervised, detects and segments images.

3D Processing Tools

□ Easy3D offers a set of tools for solving computer vision problems using 3D acquisition and processing.
□ Easy3DLaserLine retrieves, extracts and calibrates the laser line in images.
□ Easy3DObject extracts 3D objects in images.

3. Dealing with Pixel Containers and Files

3.1. Pixel Container Definition

Images

Open eVision image objects contain image data that represents rectangular images.

Each image object has a data buffer, accessible via a pointer, where pixel values are stored contiguously, row by row.
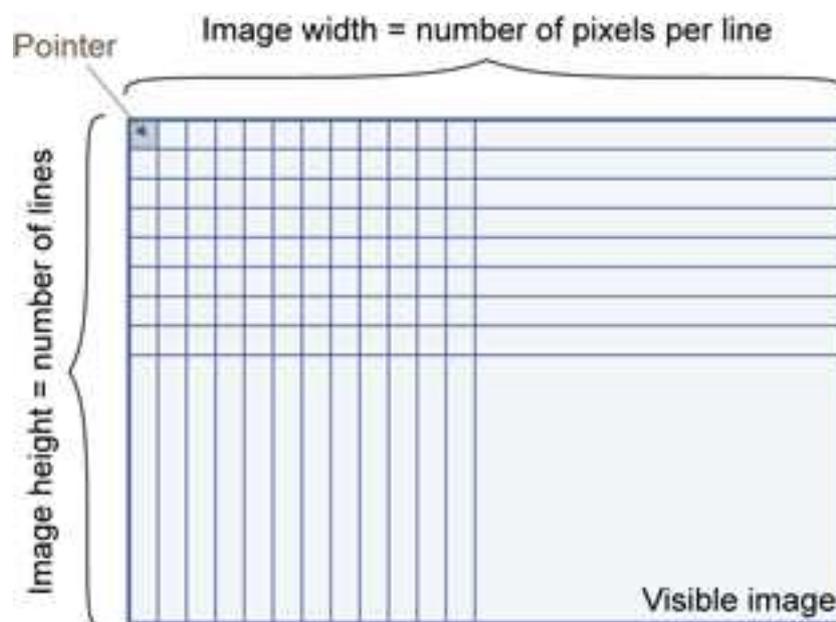
Image main parameters

An Open eVision image object has a rectangular array of pixels characterized by `EBaseROI` parameters .

- `Width` is the number of columns (pixels) per row of the image.
- `Height` is the number of rows of the image. (Maximum width / height is 32,767 (2^{15}-1) in Open eVision 32-bit, and 2,147,483,647 (2^{31}-1) in Open eVision 64-bit.)
- `Size` is the width and height.

The `Plane` parameter contains the number of color components. Gray-level images = 1. Color images = 3.

Classes

Image and ROI classes derive from abstract class `EBaseROI` and inherit all its properties.
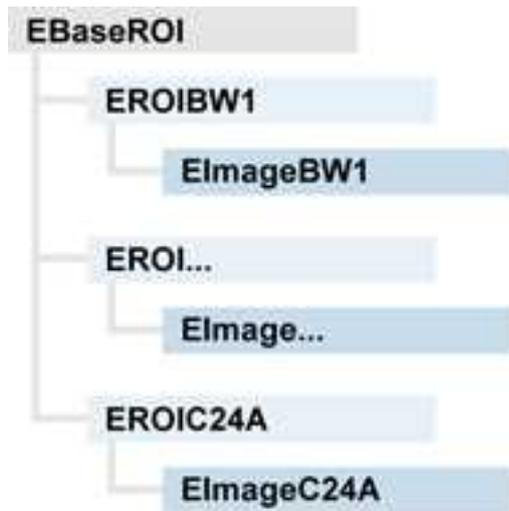
Depth maps

A depth map is a way to represent a 3D object using a 2D grayscale image where each pixel in the image represents a 3D point.

The pixel coordinates are the representation of the X and Y coordinates of the point while the grayscale value of the pixel is a representation of the Z coordinate of the point.

Point clouds

A point cloud (https://en.wikipedia.org/wiki/Point_cloud) is an unstructured set of 3D points representing discrete positions on the surface of an object.
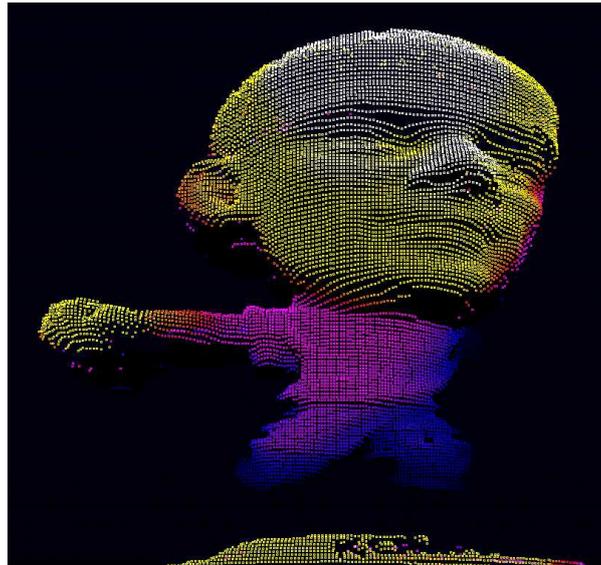
3D point clouds are produced by various 3D scanning techniques, such as Laser Triangulation, Time of Flight or Structured Lighting.

3.2. Pixel Container Types

Reference

Images

Several image types are supported according to their pixel types: black and white, gray levels, color, etc.

Easy.GetBestMatchingImageType returns the best matching image type for a given file on disk.

BW1	1-bit black and white images (8 pixels are stored in 1 byte)	EImageBW⬑
BW8	8-bit grayscale images (each pixel is stored in 1 byte)	EImageBW8
BW16	16-bit grayscale images (each pixel is stored in 2 bytes)	EImageBW⬑6
BW32	32-bit grayscale images (each pixel is stored in 4 bytes)	EImageBW32
C15	15-bit color images (each pixel is stored in 2 bytes). Compatible with Microsoft® Windows RGB15 color images and MultiCam RGB15 format.	EImageC⬑5

C16	16-bit color images (each pixel is stored in 2 bytes). Compatible with Microsoft® Windows RGB16 color images and MultiCam RGB16 format.	EImageC16
C24	C24 images store 24-bit color images (each pixel is stored in 3 bytes). Compatible with Microsoft® Windows RGB24 color images and MultiCam RGB24 format.	EImageC24
C24A	C24A images store 32-bit color images (each pixel is stored in 4 bytes). Compatible with Microsoft® Windows RGB32 color images and MultiCam RGB32 format.	EImageC24A

Depth Maps

8 and 16-bit depth map values are stored in buffers compatible with the 2D Open eVision images.

EDepth8	8-bit depth map (each pixel is stored in 1 byte as an integer)	EDepthMap8
EDepth16	16-bit depth map (each pixel is stored in 2 bytes as a fixed point)	EDepthMap16
EDepth32f	32-bit depth map (each pixel is stored in 4 bytes as a float)	EDepthMap32f

Point Clouds

Point Cloud	Set of points coordinates (stored as float)	EPointCloud

3.3. Supported Image File Types

Reference

Type	Description
BMP	Uncompressed image data format (Windows Bitmap Format)
JPEG	Lossy data compression standard issued by the Joint Photographic Expert Group registered as ISO/IEC 10918-1. Compression irretrievably loses quality.
JFIF	JPEG File Interchange Format
JPEG-2000	Data compression standard issued by the Joint Photographic Expert Group registered as ISO/IEC 15444-1 and ISO/IEC 15444-2. Open eVision supports only lossy compression format, file format and code stream variants.

Type	Description
	- **code stream** describes the image samples. - **file format** includes meta-information such as image resolution and color space.
PNG	Lossless data compression method (Portable Network Graphics).
Serialized	Euresys proprietary image file format obtained from the **serialization** of Open eVision image objects.
TIFF	Tag Image File Format is currently controlled by Adobe Systems and uses the LibTIFF third-party library to process images written for 5.0 or 6.0 TIFF specification. File **save** operations are lossless and use CCITT 1D compression for 1-bit binary pixel types and LZW compression for all others. File **load** operations support all TIFF variants listed in the LibTIFF specification.

3.4. Pixel and File Types Compatibility

Depth map to image conversion

For 8- and 16-bit depth maps, the `AsImage()` method returns a compatible image object (respectively `EImageBW8` and `EImageBW16`) that can be used with Open eVision's 2D processing features.

Pixel and file types compatibility

Pixel access

The recommended method to access pixels is to use `SetImagePtr` and `GetImagePtr` to embed the image buffer access in your own code. See also Image Construction and Memory Allocation and Retrieving Pixel Values.

Use of the following methods should be limited because of the overhead incurred by each function call:

Direct access

`EROIBW8::.GetPixel` and `SetPixel` methods are implemented in all images and ROI classes to read and write a pixel value at given coordinates. To scan all pixels of an image, you could run a double loop on the X and Y coordinates and use `GetPixel` or `SetPixel` each iteration, but this is not recommended.

> ✅ **TIP**
> For performance reasons, these accessors should not be used when a significant number of pixels needs to be processed. When that is the case, retrieving the internal buffer pointer using `GetBufferPtr()` and iterating on the pointer is recommended.

Quick Access to BW8 Pixels

In BW8 images, a call to `EBW8PixelAccessor::.GetPixel` or `SetPixel` will be faster than a direct `EROIBW8::.GetPixel` or `SetPixel`.

Supported structures

- `EBW►`, `EBW8`, `EBW32`
- `EC►5` (*), `EC►6` (*), `EC24` (*)
- `EC24A`
- `EDepth8`, `EDepth►6`, `EDepth32f`,

(*) These formats support RGB15 (5-5-5 bit packing), RGB16 (5-6-5 bit packing) and RGB32 (RGB + alpha channel) but they must be converted to/from EC24 using `EasyImage::.Convert` before any processing.

> 🗒 **NOTE**
> Transition with versions prior to eVision 6.5 should be seamless: image pixel types were defined using typedef of integral types, pixel values were treated as unsigned numbers and implicit conversion to/from previous types is provided.

Pixel and File Type compatibility during Load or Save operations

Type	BMP	JPEG	JPEG2000	PNG	TIFF	Serialized
BW1	Ok	N/A	N/A	Ok	Ok	Ok
BW8	Ok	Ok	Ok	Ok	Ok	Ok
BW16	N/A	N/A	Ok	Ok	Ok (***)	Ok
BW32	N/A	N/A	N/A	N/A	Ok (***)	Ok
C15	Ok	Ok (**)	Ok (**)	Ok (**)	Ok (**)	Ok
C16	Ok	Ok (**)	Ok (**)	Ok (**)	Ok (**)	Ok
C24	Ok	Ok	Ok	Ok	Ok (**)	Ok
C24A	Ok	N/A	N/A	Ok	N/A	Ok
Depth8	Ok	Ok	Ok	Ok	Ok	Ok

Type	BMP	JPEG	JPEG2000	PNG	TIFF	Serialized
Depth16	N/A	N/A	Ok	Ok	Ok (***)	Ok
Depth32f	N/A	N/A	N/A	N/A	N/A	Ok

N/A: Not supported. An exception occurs if you use the combination.

Ok: Image integrity is preserved with no data loss (apart from JPEG and JPEG2000, lossy compression).

(**) C15 and C16 formats are automatically converted into C24 during the save operation.

(***) BW16 and BW32 are not supported by Baseline TIFF readers.

3.5. Color Types

EISH: Intensity, Saturation, Hue color system.

ELAB: CIE Lightness, a*, b* color system.

ELCH: Lightness, Chroma, Hue color system.

ELSH: Lightness, Saturation, Hue color system.

ELUV: CIE Lightness, u*, v* color system.

ERGB: NTSC/PAL/SMPTE Red, Green, Blue color system.

EVSH: Value, Saturation, Hue color system.

EXYZ: CIE XYZ color system.

EYIQ: CCIR Luma, Inphase, Quadrature color system.

EYSH: CCIR Luma, Saturation, Hue color system.

EYUV: CCIR Luma, U Chroma, V Chroma color system.

PART II

OPEN EVISION STUDIO FOR LIBRARY EVALUATION

1. Selecting your Programming Language

When you start Open eVision Studio for the first time, the following welcome screen is displayed:
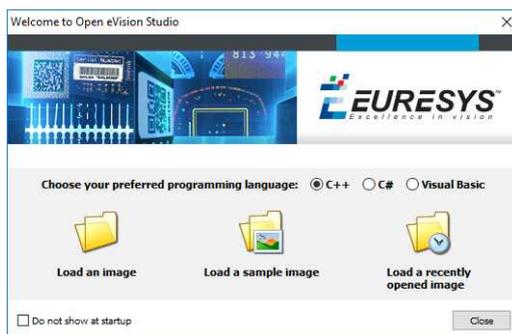
1. Select your programming language.

> ✓ **TIP**
> Your selection is saved and your programming language will be automatically selected next time you start Open eVision Studio.

> 📝 **NOTE**
> When you change your programming language, any script present in the scripting window is automatically deleted and the window content is reset.

2. Click on one of the `Load` buttons to already load one or several images for later processing.

3. Check the `Do not show at startup` box to hide this welcome screen next time you start Open eVision Studio.

> ✓ **TIP**
> To access this welcome screen at any time, and change this setting, go to the `Help` > `Welcome Screen` menu.

2. Navigating the Interface
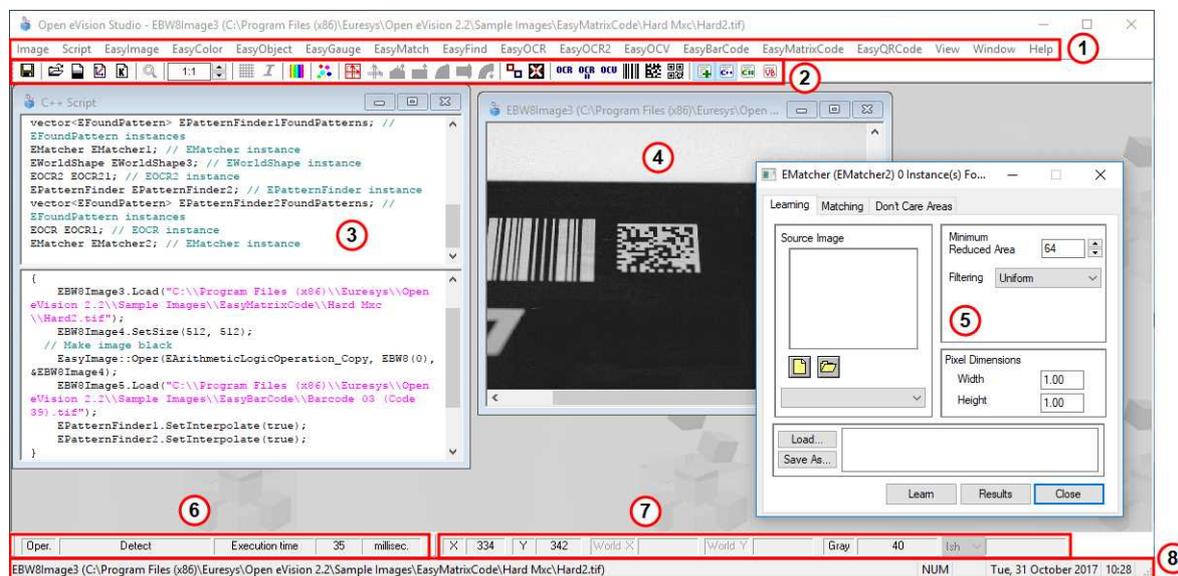
Open eVision Studio graphical user interface (GUI) is organized as follows:

1. The *main menu bar* gives you access to the functions and tools of all libraries.

> ✅ **TIP**
> Open eVision Studio does not require any license and allows you to test all libraries. Of course, if you copy code from Open eVision Studio in your own application but you do not have the required license, you will receive a "missing license" error at run-time.

2. The *main toolbar* gives you quick access to main Open eVision objects such as images, shapes, gauges, bar codes, matrix codes...

3. The *script window* displays the code, in the programming language you selected, corresponding to the actions you perform in Open eVision Studio. You can save or copy this code in your own application at any time.

4. The *image windows* display the open images that you can process using the libraries and tools.

5. The *tool windows* enable you to easily configure all the available tools. The corresponding settings are automatically added in the script window for easy reuse.

> ✅ **TIP**
> Most tool windows are floating and you can easily move them outside the Open eVision Studio main window to make better use of your screen size.

19

6. The *execution time bar* displays the precise time taken for the execution of the selected functions (measured in milliseconds or microseconds) on your computer. This accurate measurement helps you to evaluate the performance of your application.

7. The *color toolbar* displays current information such as the X and Y coordinates of the cursor on an image and the corresponding pixel value.

8. The *status bar* displays general information about the application such as the active image file path...

3. Running Tools on Images

3.1. Step 1: Selecting a Tool

When you use Open eVision Studio, the first step is to select the library and the tool you want to use on your image.

To do so:

1. In the main menu bar, click on the library you want to use.

2. Click on the tool you want to use.

> ✓ **TIP**
> All libraries (except EasyImage, EasyColor and EasyGauge) expose only one tool named `New Xxx Tool`. Some of these libraries also expose additional functions.

3. In the dialog box, enter a `Variable name` for the variable that is automatically created and that will contain the result of the processing.
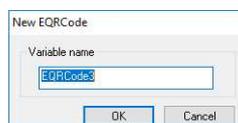
Example of variable creation dialog box for EasyQRCode

4. Click `OK`.

The selected tool dialog box opens.
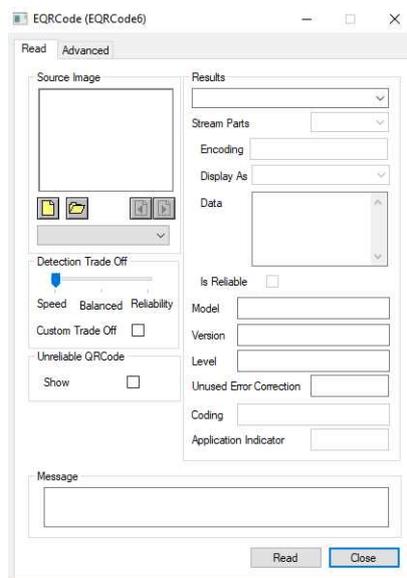
Example of variable creation dialog box for EasyQRCode

The next step is .

3.2. Step 2: Opening an Image

Once you have selected your library and your tool, you need to open an image to apply this tool.

In the `Source Image` area of the selected tool dialog box:

1. Open an image:

- ☐ Click on the `Open an Image` button and select one or several (using SHIFT and CTRL) images on your computer.
- ☐ Or select one of the images (or one of the ROIs, if any) already open in the drop-down list.

> **NOTE**
> You can select only images with an appropriate file format (JPG, PNG, TIFF or BMP) and in 8- and/or 24-bit depending on the library.

2. If you selected several images, activate one with the `Load Previous` or `Load Next` buttons.

The tool is automatically applied on any loaded image and, at this stage, the result is displayed based on the tool default settings.

The next step is .

3.3. Step 3: Managing ROIs

In some cases, most often to decrease the processing time or to single-out the object you want to read, you do not want to process the whole image but only one or several well defined rectangular parts of this image, or ROIs (Regions Of Interest).

> ✅ **TIP**
> In Open eVision, ROIs are attached to an image and exist only as long as the parent image is available.

Creating a ROI

1. Open the image:
   - ☐ If the image is already open, activate the corresponding image window.
   - ☐ If the image is not open yet, go to the main menu: `Image` > `Open...` to open one.

2. To create an ROI, go to the main menu: `Image` > `ROI Management...`.

The `ROI Management` window is displayed as illustrated below.
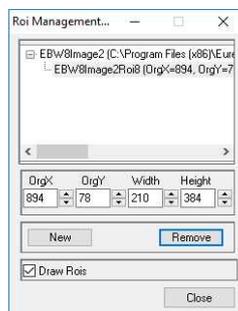
3. Select the image in the tree.

4. Click on the `New` button.

5. In the dialog box, enter a `Variable name` for the new ROI.

The ROI is represented as a color rectangle on your image as illustrated below.
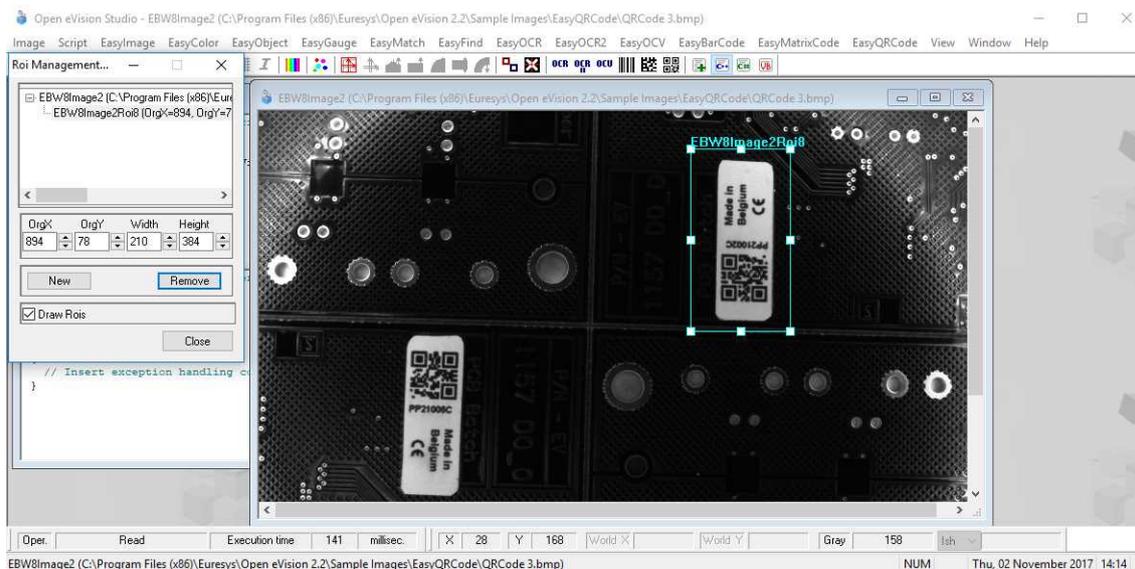
6. Drag the ROI corner and side handles to move it to the required position.

7. Click on the `Close` button to close the `ROI Management` window .

The next step is "Step 4: Configuring the Tool" on page 25.

## Managing ROIs

You can add, change and remove ROIs.

> ✅ **TIP**
> An image can have several ROIs. Each ROI can be attached directly to the image (meaning that its position is relative to the image) or to another ROI (meaning that its position is relative to this 'parent' ROI).

1. To manage ROIs, go to the main menu: `Image` > `ROI Management....`

The `ROI Management` window is displayed with the ROI relation tree as illustrated below.

If the `Draw Rois` box is checked, all ROIs are displayed on the image with a different color.
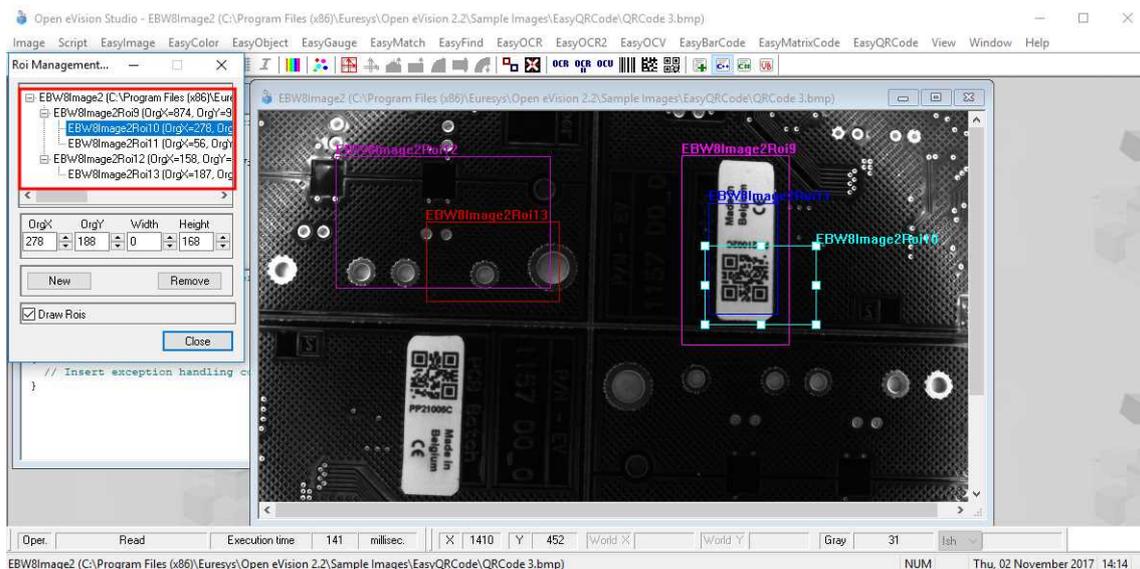
2. Select an ROI in the ROI relation tree.

3. Drag the ROI corner and side handles to change the position and size of the selected ROI (as well as the position of all ROIs attached to it if any).

4. Click on the `New` button to add a new ROI attached to the selected ROI.

> ✅ **TIP**
> Select the image at the top of the ROI relation tree to attach the ROI directly to the image.

5. Click on the `Remove` button to delete the selected ROI (and all ROIs attached to it if any).

6. Click on the `Close` button to close the `ROI Management` window.

3.4. Step 4: Configuring the Tool

Once your image, including its ROIs if you created some, is ready, you need to configure your tool.

In the tool window:

1. Open the various tabs.

> ✅ **TIP**
> When you create a new tool, all parameters are set with their default value.
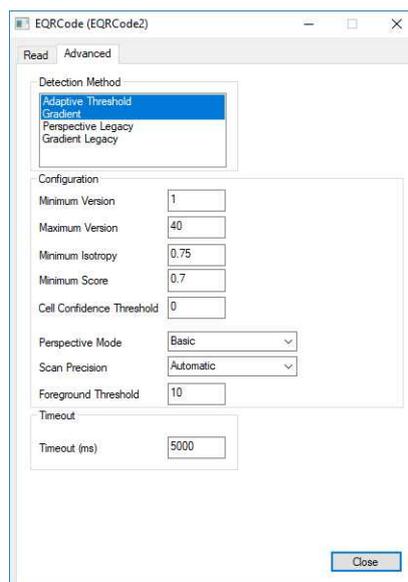
Example of the parameter tab of an EasyQRCode tool

2. In each tab, set the value of the parameters as desired.

Please refer to the "Functional Guide" and to the "Reference Manual" for detailed information about the parameters, their function and their default value.

For specific actions such as learning or using gauges, please refer to the "Functional Guide".

3. Run the tool and analyze the results as described in the next step "Step 5: Running the Tool and Checking Execution Time" on page 26.

3.5. Step 5: Running the Tool and Checking Execution Time

Once your tool parameters are set, run your tool and, if desired, check the execution time on your computer.

In the tool window:

1. Click on the Read, Detect, Results or Execute button (depending on the library function), to run the tool on the selected image.

2. Check the results on the image and in the Results field or area as illustrated below.
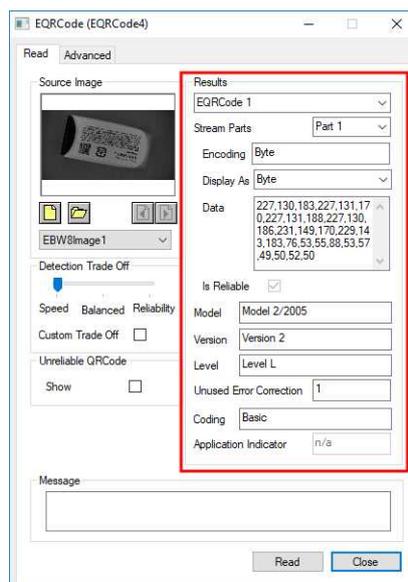
Example of results after reading a QRCode

3. If you do not have the expected results:
   □ Try to change your parameters (start with default values then change one parameter at a time).
   □ If your image is not good enough, try to enhance it as described in .

4. Check the execution time in the execution time bar at the bottom left of the main Open eVision Studio window.
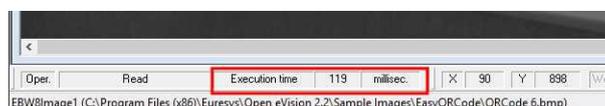
The execution time

✅ **TIP**

The execution time is the actual time that the processing took as measured on your computer. It depends your computer processor, memory, operating system... and, of course, on the processor load at the time of execution. Thus this execution time slightly varies from execution to execution.

5. To get a more representative execution time, click on the Read, Detect, Results or Execute button several times and calculate the mean execution time.

6. If your application requires that you reduce the execution time, try:
   □ To change the tool parameters,
   □ To add one or several ROIs on your image,
   □ To enhance your image.

The next step is "Step 6: Using the Generated Code" on page 28.

3.6. Step 6: Using the Generated Code

By default, Open eVision Studio translates all the operations you perform in the interface into code in the language you selected as illustrated below.

```
C++ Script

// This section contains the variable declarations

#include "Open_eVision_2_2.h"
using namespace Euresys::Open_eVision_2_2;

using namespace std;
EQRCodeReader EQRCode1; // EQRCodeReader instance
vector<EQRCode> EQRCode1Result; // EQRCode instances
EImageBW8 EBW8Image1; // EImageBW8 instance
EROIBW8 EBW8Image1Roi1; // EROIBW8 instance

// This section contains the operations code

try
{
    EBW8Image1.Load("C:\\Program Files (x86)\\Euresys\\Open
eVision 2.2\\Sample Images\\EasyQRCode\\QRCode 6.bmp");
    EQRCode1.SetTimeOut(5000);
    EQRCode1.SetSearchField(EBW8Image1);
    EQRCode1Result = EQRCode1.Read();
    // Attach the roi to its parent
    EBW8Image1Roi1.Attach(&EBW8Image1);
    EQRCode1.SetSearchField(EBW8Image1);
    EQRCode1Result = EQRCode1.Read();
}
catch(const EException&)
{
    // Insert exception handling code here
}
```

Once your tool results suit you, you can save or copy this generated code to use it in your own application.

Copy and paste the code in your application

In the script window:

1. Select the code section you want to copy.

2. Right click on this code and click `Copy` in the menu.

3. Go to your development environment tool and paste the code in place.

Save the code

1. Go to the **Script** menu.

2. Click on `Save Script As....`

3. Enter a file name and path to save the code as a text file.

Manage the generated code

In the **Script** menu, you can:

☐ Select the programming language (please note that if you change the language, the script window content is automatically deleted).

☐ Activate or deactivate the `Script Code Generation`. Deactivate this option if you want to perform some operations without saving them as code.

4. Pre-Processing and Saving Images

When should you pre-process your images?

Of course, the best situation is to set up your image acquisition system to have good and easy to process images so the Open eVision tools run smoothly and efficiently.

If this is not possible or easy to achieve, you can pre-process your images or your ROIs to enhance and prepare them for the Open eVision tool you want to run.

Using the various available functions, you can adjust the gain and offset of your image, apply a convolution, threshold, scale, rotate and white balance your image, enhance contours... using EasyImage and EasyColor functions.

Pre-processing images

The difference between pre-processing an image and running tools is that the pre-processing generates a new image while the tools mainly extract and retrieve information from the image without changing it.

To pre-process an image or an ROI:

1. In the main menu bar, click on the library you want to use (EasyImage or EasyColor).

2. Click on the function you want to use.

Most function dialog boxes are similar to the one illustrated below with 2 image selection areas and a parameter setting area.
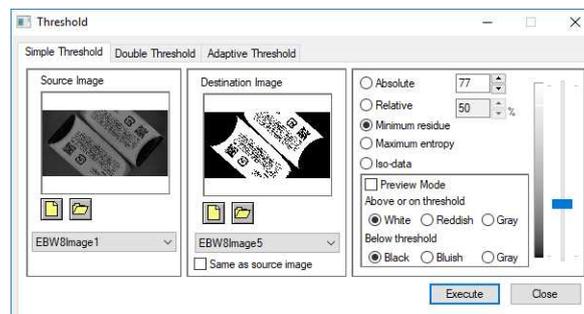
Example of a pre-processing dialog box (Threshold with EasyImage)

3. If there are multiple versions for your selected function, open the corresponding tab.

4. In the `Source Image` area, open the source image (as described in "Step 2: Opening an Image" on page 22).

5. In the `Destination Image` area, open or create a new destination image.

6. Set your parameters.

7. Click on the `Execute` button.

The pre-processed image is available in the destination image as illustrated below.
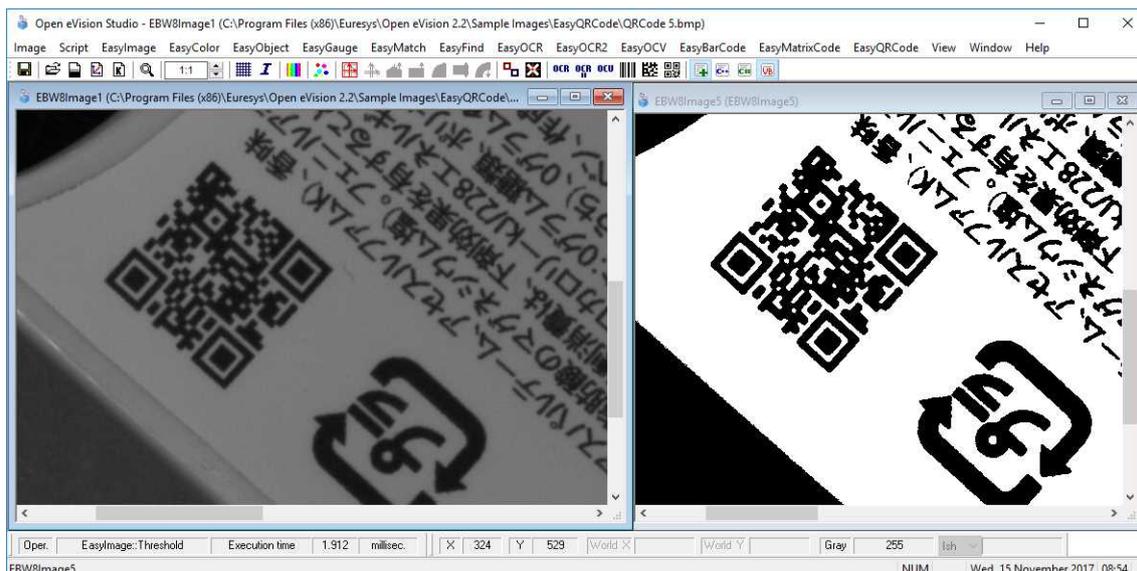
Source and destinations images (Threshold with EasyImage)

8. If you want to use the destination image outside of Open eVision Studio, save it as described
below.

Saving an image

1. Click on the image you want to save to makes its window active.

2. To open the save menu either:
   □ Right-click in the image
   □ Or open the main menu > Image

3. Click on Save as....

4. Select the file format (JPEG, JPEG2000, PNG, TIFF or Bitmap).

5. Enter a name and select a path.

6. Click on the Save button.

PART III

EASY 3D STUDIO FOR 3D EVALUATION

<div style="background:#1ca0d8;color:white;">

1. Start the Application and Open a Project

</div>

1. Launch Easy3D Studio.

The following screen is displayed:
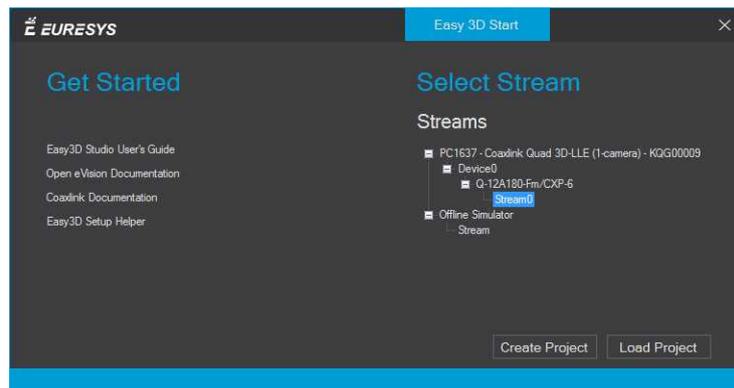
2. Select your stream in the list of the available streams displayed in the `Select Stream` area.

3. Open your project (`.json` file):
   - □ Click on `Create Project` to create a new project.
   - □ Click on `Load Project` to open an existing project.

The main screen is displayed as illustrated:
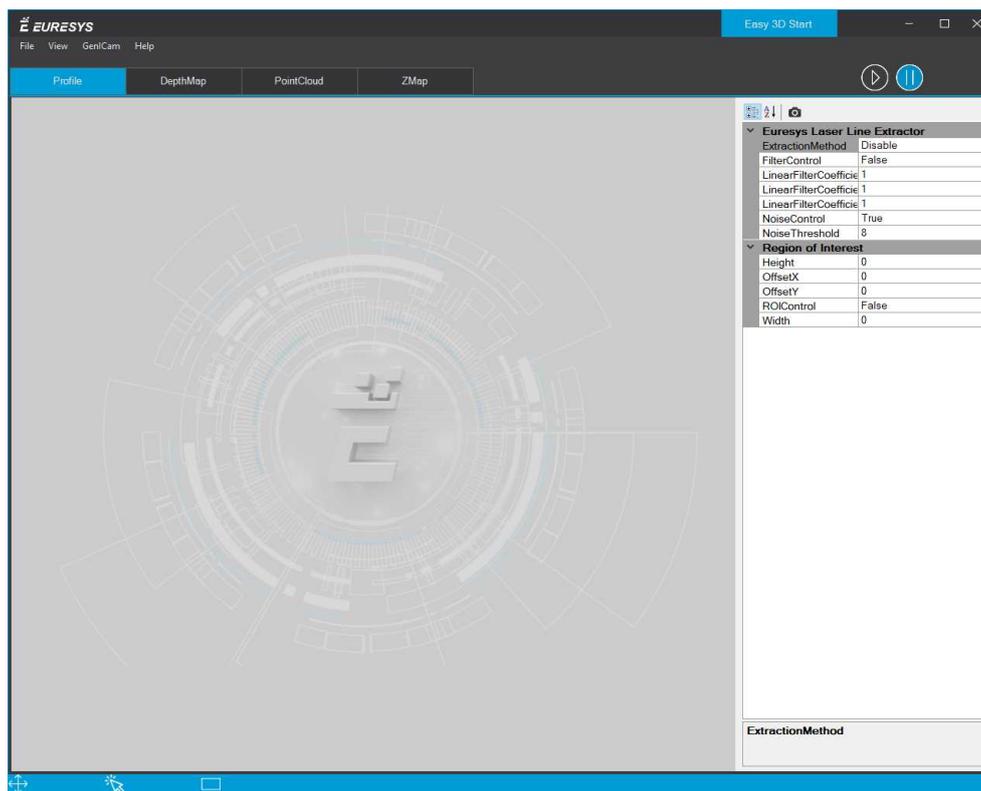
2. Configure the Acquisition ROI

1. Open the `Profile` tab.

2. Click on the ▷ run button to start free-running acquisition.

3. Place your caliber or your object under the laser line.

> ✓ **TIP**
> To optimize the computation time, make sure the laser line illuminates the lowest as well as the highest areas of the object.
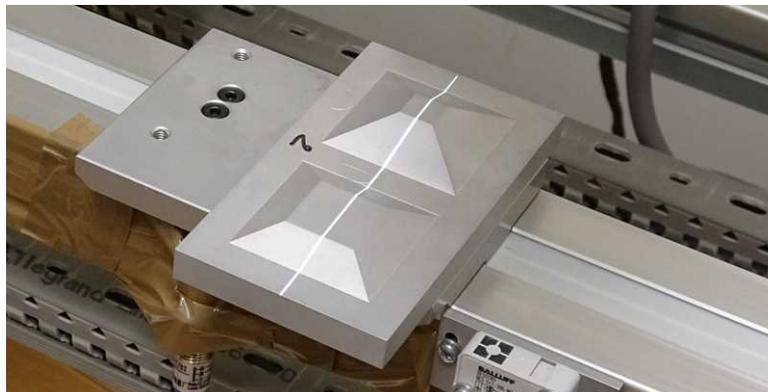
4. In the Profile window, move and resize the ROI (the green rectangle) to fit and enclose the laser line image.

> ✓ **TIP**
>
> With a smaller the ROI, the extraction computation is faster and the resolution is better.
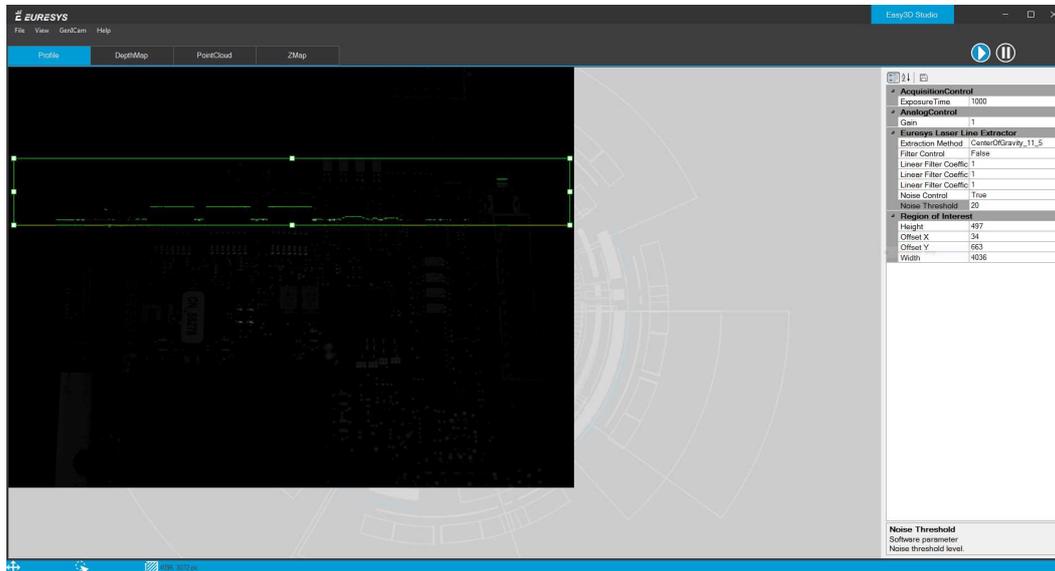
5. In the parameter list, select the `ExtractionMethod` to use to compute the laser line extraction.

> ✓ **TIP**
>
> Do not use `MaxDetection_8` if your ROI height is larger than 256 as this would introduce a saturation effect in the extraction result.

6. Once the setup is complete, click on the ⏸ pause button to stop the acquisition.

3. Calibrate the Setup

1. Open the `DepthMap` tab.

2. Place your caliber on your system.

3. Click on the ▷ run button to start an acquisition.

4. Move the caliber under the camera and wait for the image acquisition to complete.

5. Once the acquisition is displayed, click on the ⏸ pause button to stop the acquisition.
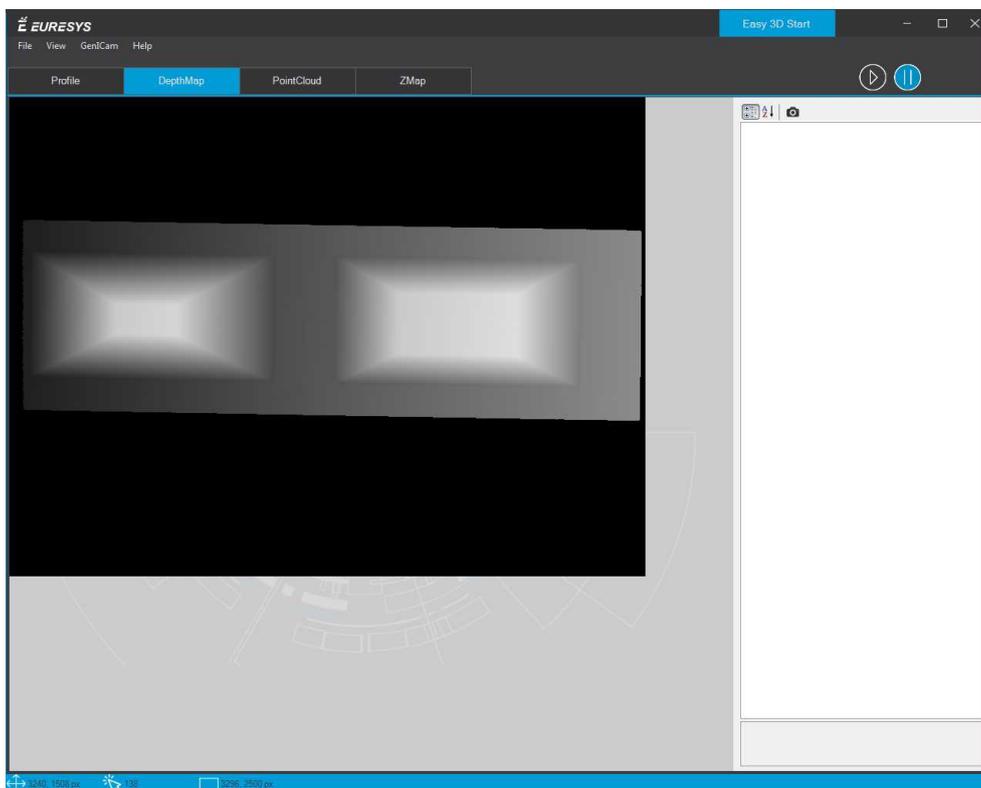
6. Open the `PointCloud` tab.
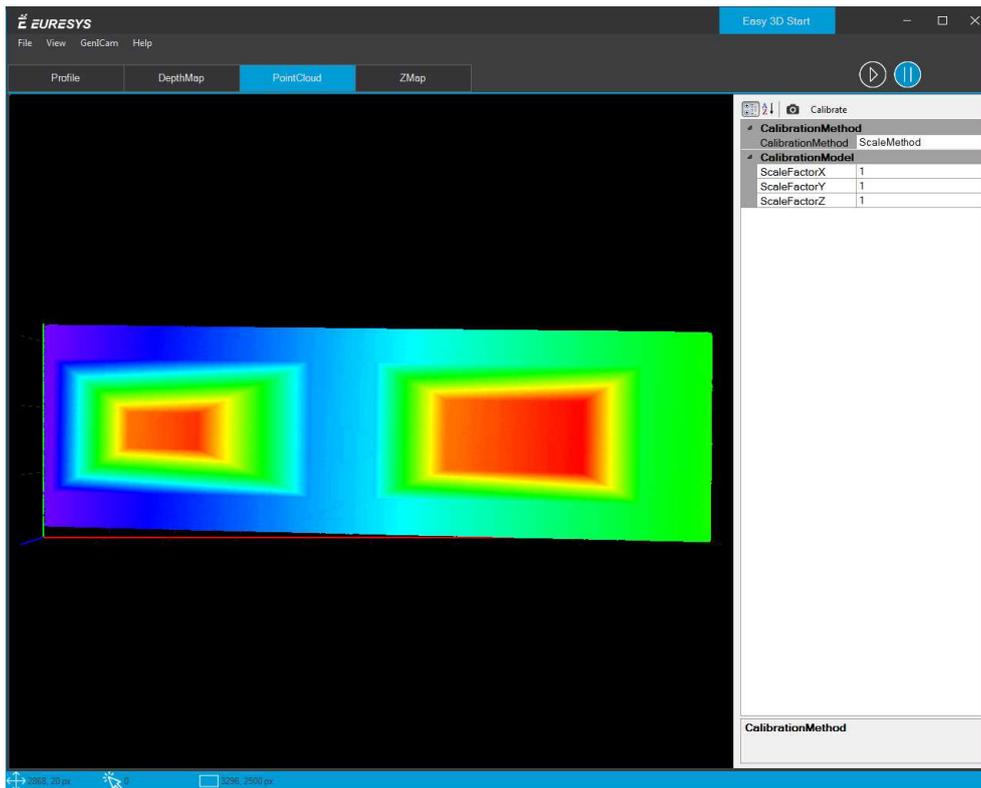
7. Use the mouse on the image to freely move it around in 3D.
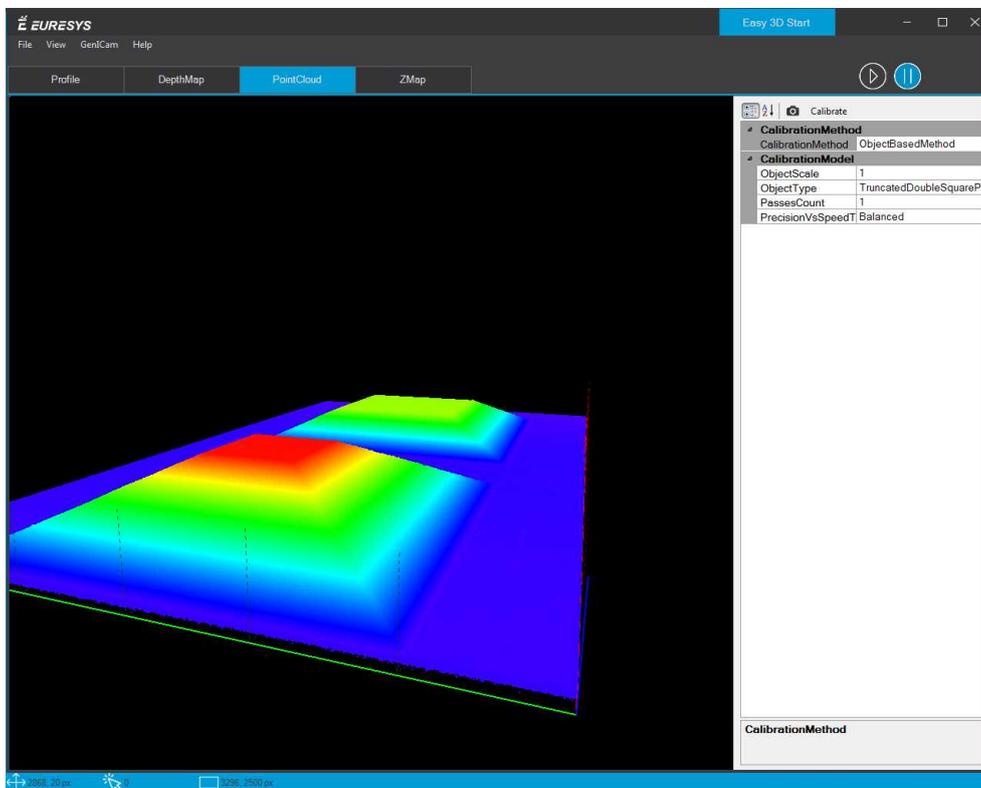
8. In the parameter list:
   - Set `CalibrationMethod` to `ObjectBasedMethod`.
   - Select the `Objecttype` corresponding to your caliber.

9. Click on the `Calibrate` button.

After some processing, the calibrated image point cloud is displayed.
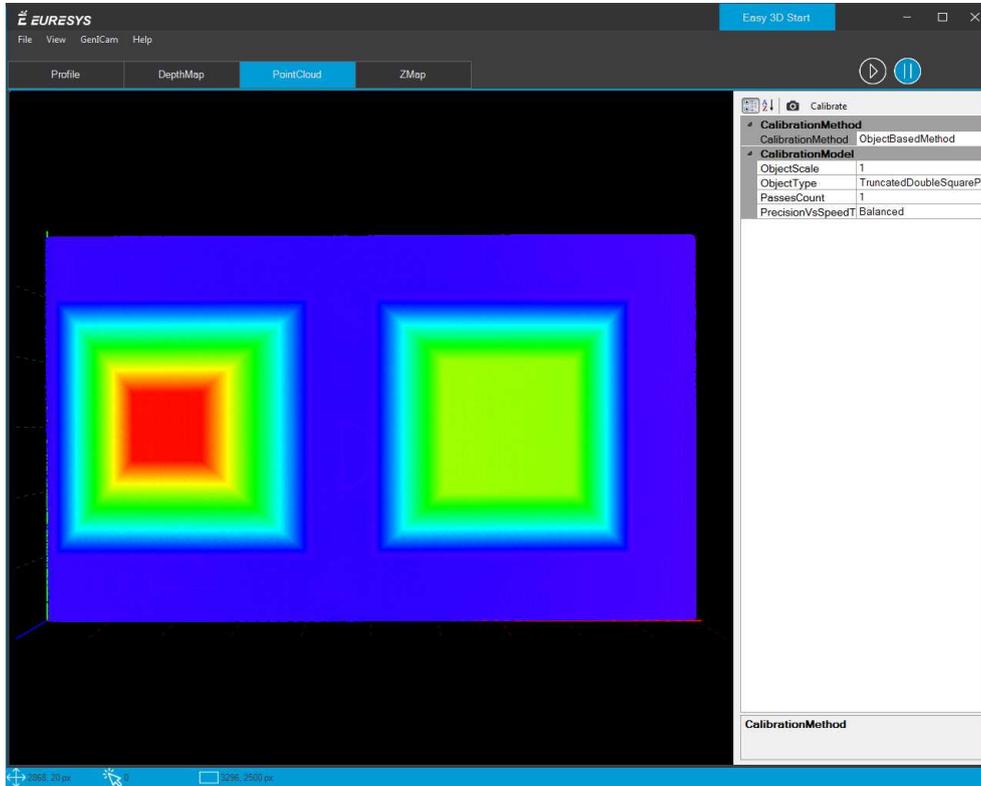
4. Acquire a Depth Map

1. Open the DepthMap tab.

2. Place your object on your system.

3. Click on the ▷ run button to start an acquisition.

4. Move the object under the camera and wait for the image acquisition to complete.

**5.** Once the acquisition is displayed, click on the ⏸ pause button to stop the acquisition. The "raw" image of your object is displayed.
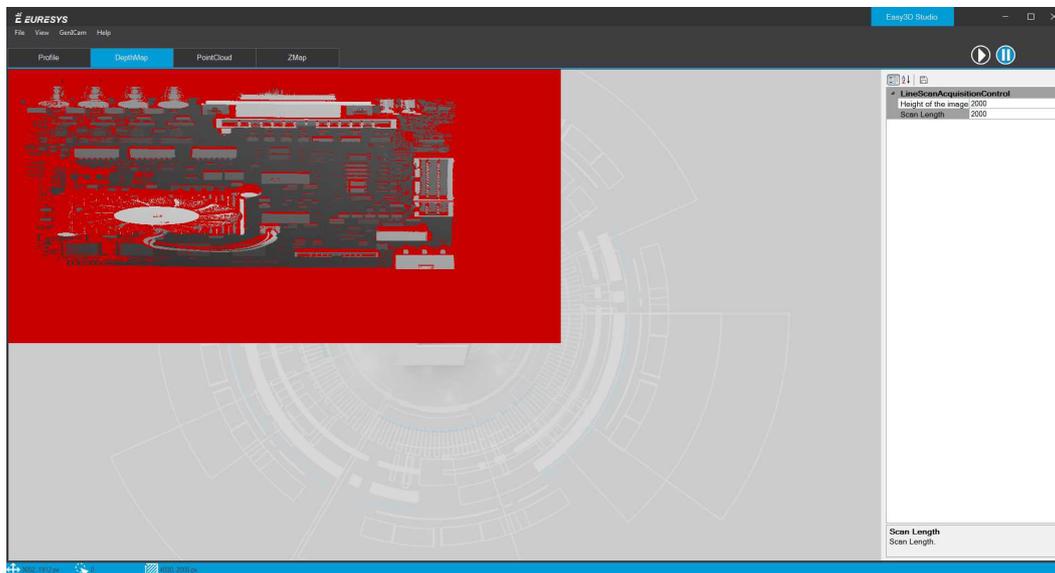
6. Open the `PointCloud` tab.

The calibration correction is applied to the image before display.
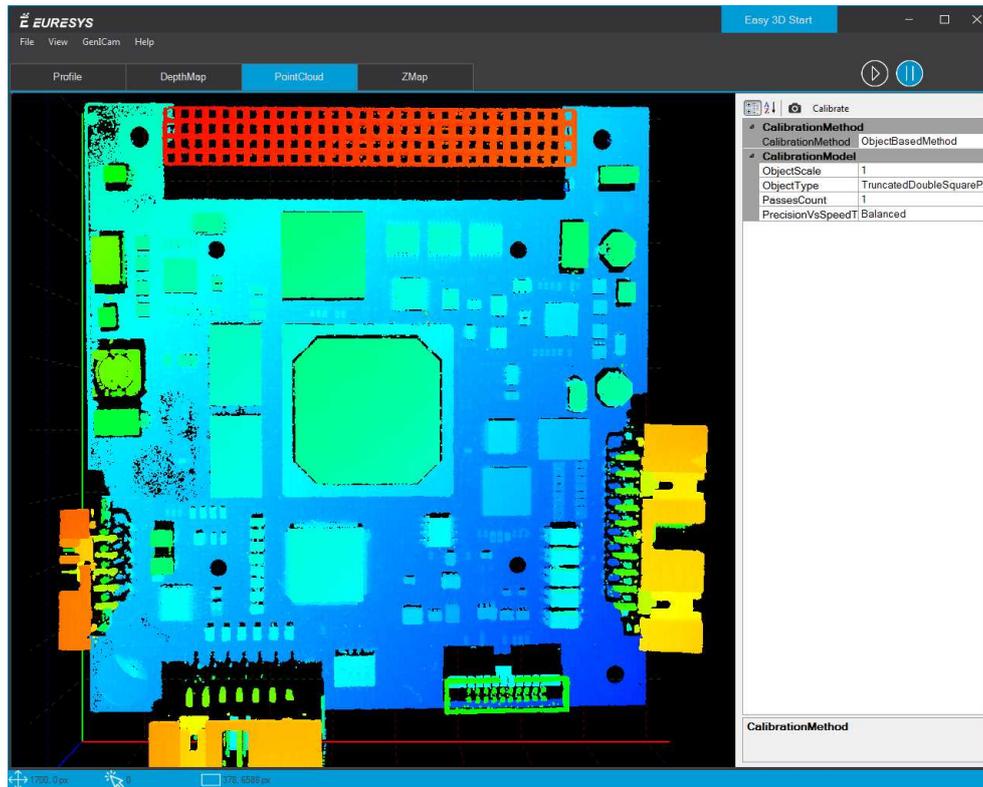
7. Use the mouse on the image to freely move it around in 3D.
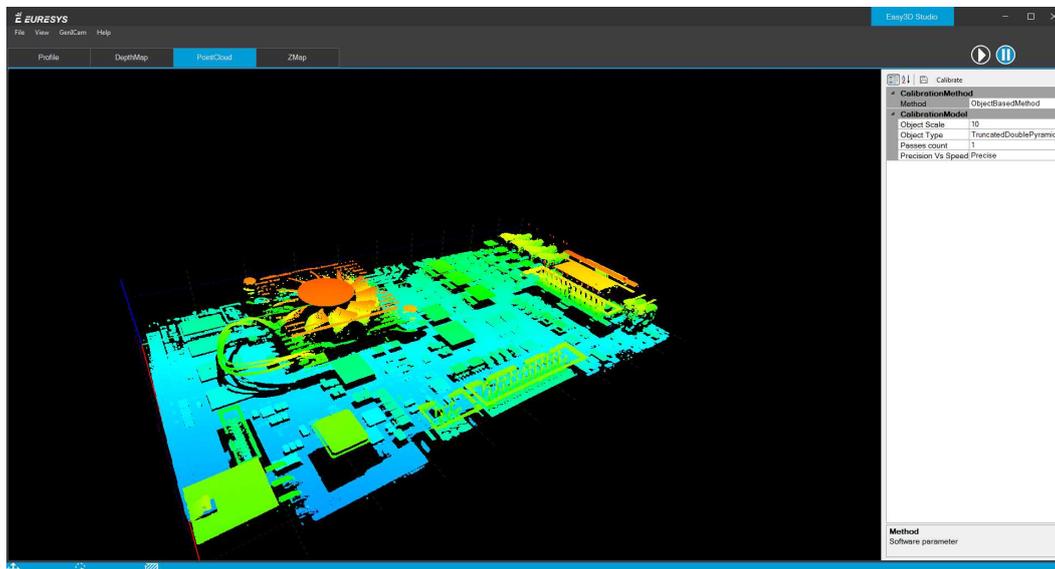
8. Open the ZMap tab.

The corresponding ZMap is generated and displayed.
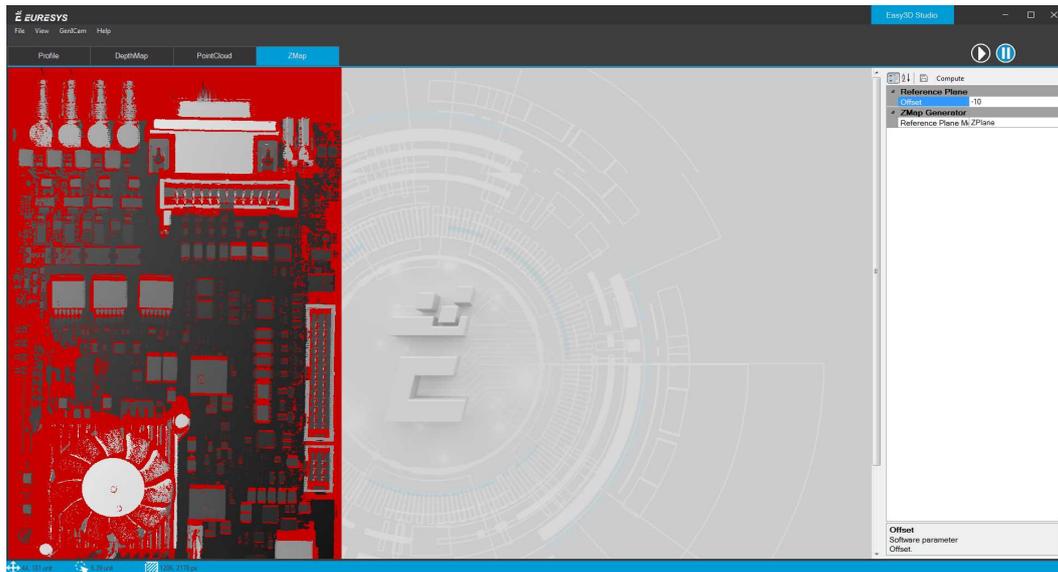
9. Configure the ZMap view:
   □ Select the projection axis of the image: set the ReferencePlaneMode as X, Y or Z-plane.
   □ Along the selected axis, set the offset of the displayed image.

10. Click on the Compute button to apply your changes and display the new image.

5. Export a ZMap

1. Open the `File` menu.

2. Click on `Export ZMap`.

3. Select the type of file you want to create:
   - □ PNG
   - □ TIFF
   - □ BMP (Bitmap)

4. Enter the file name.

5. Click on the Save button.

You can also save a profile, a depth map or a point cloud the same way.

The available file formats are:
   - □ Profile: PNG, TIFF, Bitmap
   - □ Depth map: PNG, TIFF, Bitmap
   - □ Point cloud: PCD

6. Add or Remove Parameters

The parameters listed in the different tabs are the basic software parameters that you need to control and adjust to use Easy3D Studio.

In the Profile and in the DepthMap tabs, you can add some hardware parameters (related to the frame grabber or to the camera) that you want to quickly and easily display or control:

1. Open the GenICam menu.

2. Click on GenICam.

The GenICam window opens as illustrated.
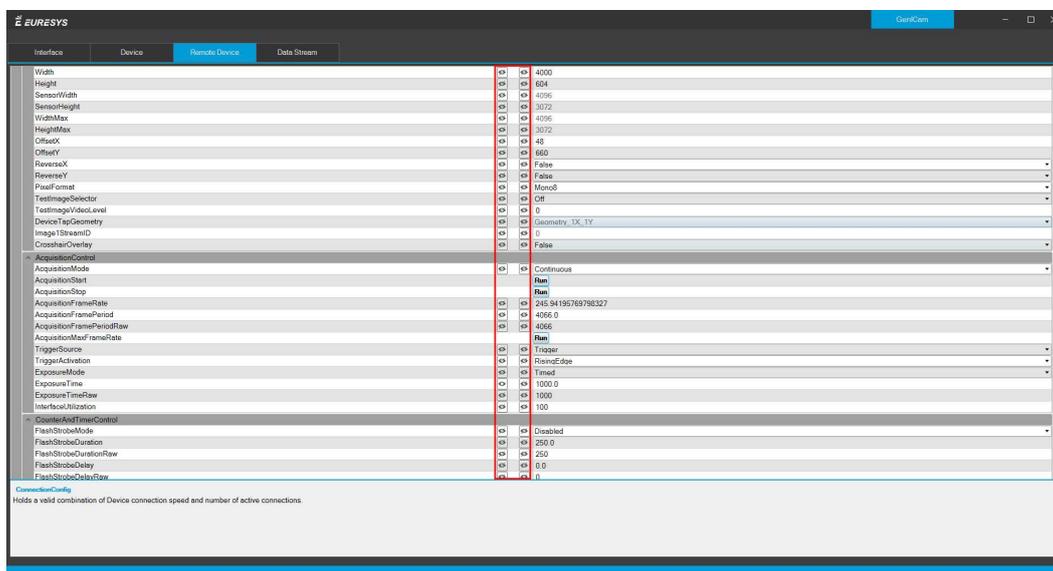
3. To show or hide a parameter, click on the 'eye' icon:
   - □ Left 👁 : the parameter is hidden in the Profile tab.
   - □ Right 👁: the parameter is hidden in the DepthMap tab.
   - □ Left 👁: the parameter is displayed in the Profile tab.
   - □ Right 👁: the parameter is displayed in the Profile tab.

> ✅ **TIP**
> The changes are automatically and immediately applied in the Easy3D Studio main window.

4. Close the GenICam window .

5. To save your changes, open the File menu and click Save Project.

PART IV
NEO LICENSING SYSTEM

1. What is the Neo Licensing System?

What is the Neo Licensing System?

- Neo is the name of the new licensing system of Euresys. It will progressively protect the software products from Euresys.

- The Neo Licensing System is used for Open eVision, where it is supported in addition to the already existing licensing systems. In the future, il will also protect some features in the eGrabber software tool and other products.

Why the Neo Licensing System?

- The Neo Licensing System brings reliable, up-to-date IP protection to Euresys products as well as more flexibility for the users.

- In the future, it will also enable useful licensing options such as network licenses compatibility.

How does the Neo Licensing System work?

To use a product protected by the Neo Licensing System:

1. Buy the corresponding license from Euresys or one of its distributors.

2. You receive a Ticket ID corresponding to that license.
   - This Ticket ID is used to get the license.
   - This Ticket ID is necessary to communicate with your seller in case of an issue.
   - So, keep it safe and archived for any future use.

3. Use the Ticket ID to activate the license on your computer.

   You can activate your license either directly on the computer, as a software license, or on a Neo USB Dongle, that you can buy from Euresys.
   - Until you decide on which container (computer or dongle) you want to put your license, this license is not linked to anything.

> ✓ **TIP**
> You can activate a Neo License directly on a computer. Nevertheless, we recommended to use a Neo USB Dongle to have a more secure and an easily portable license storage solution.

4. Use your Euresys product.

The Neo License Manager tool

- A new license management tool, the Neo License Manager, is available to activate, check and debug problems that might arise with Neo Licenses.

   It comes in 2 versions:
   - As an *application with a user interface*, complete and easy-to-use.

□   As a *command-line utility* to automate your processes such as the product installations.

2. Selecting the Licensing Model

Starting with Open eVision 2.13, you can select the Open eVision licensing model(s) that you use with your application.

> **TIP**
> This avoids the delays that are sometimes added by the initialization of licensing models you do not use.

The `SelectLicensingModel` function

- To select the licensing models to enable with Open eVision, call the following function:
  `Preconfiguration::SelectLicensingModels(ELicensingModel model)`

- Always call it before any other Open eVision function as calling it after the first call to Open eVision has no effect.

- The `SelectLicensingModels` function takes a single argument:
  □ The licensing models to enable, as described by the `ELicensingModel` enumeration.

The `ELicensingModel` enumeration

- The `ELicensingModel` enumeration contains the different licensing models you can enable within Open eVision:
  □ `Neo`: the new licensing model introduced with Open eVision 2.13.
  □ `LegacyDongle`: the licensing model associated to the dongles used before 2.13.
  □ `LegacySoftware`: the licensing model associated to the software-based licenses used before 2.13
  □ `Legacy`: this licensing model mirrors the licensing as it operated in Open eVision before 2.13 (`LegacyDongle` + `LegacySoftware`).
  □ `All` (default): this licensing model enables all the others (`Neo` + `LegacyDongle` + `LegacySoftware`).

- To use another combination of licensing models, use the `|(OR)` operator as follows:
  `Preconfiguration::SelectLicensingModels(ELicensingModel_LegacyDongle | ELicensingModel_Neo)`

3. Using the User Interface

The Neo License Manager user interface

The Neo License Manager is organized in 5 zones:

1. A list of the license containers and the licenses they contain.

2. The interface language configuration.

3. The online Neo License activation.

4. The offline Neo License activation.

5. The troubleshooting.
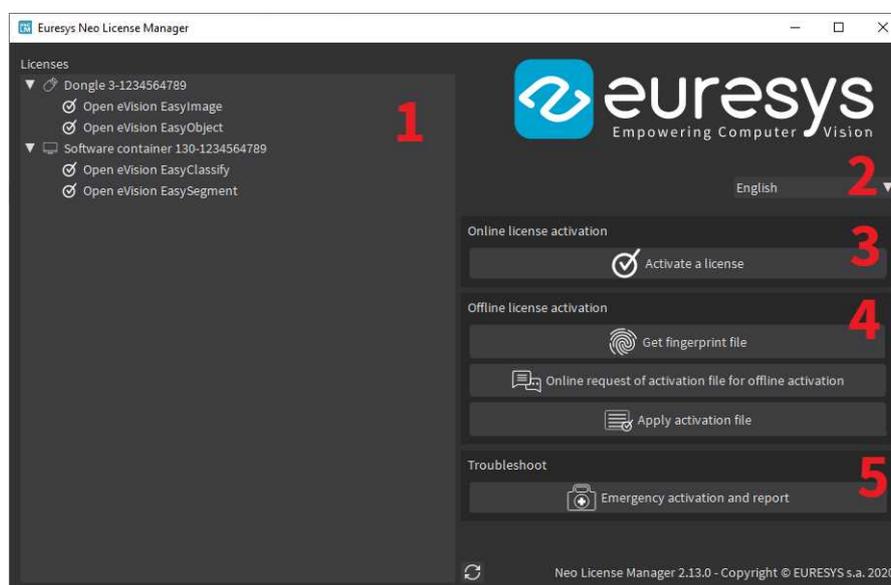
Activate an online license

1. Click on the `Activate a license` button to open the `License activation` dialog.
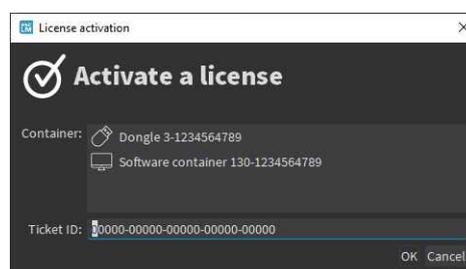
2. Enter the required information:
   - The `container` on which you want to activate the license.
   - The Ticket ID (5 groups of 5 alphanumeric characters separated by a dash).

If there is no software license container yet, the dialog proposes you to create a new one.
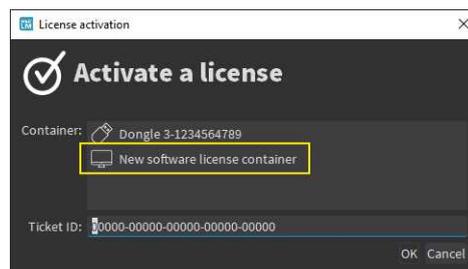
System reinstallation

If you have to reinstall the system and lost your licenses:

1. Activate the license with the old Ticket ID to try to recover all the licenses associated to the container where you first activated this Ticket ID.

This only works if:
- □ It is done in a new, empty container.
- □ The system is recognizable (the hardware is more or less the same).

2. If this does not work or if you lost your licenses and the system has changed significantly (for instance after the failure and replacement of a hardware component), you need to request a reactivation:
- □ Contact the support to obtain a reactivation authorization for the corresponding Ticket ID.
- □ Once the reactivation is authorized, perform the license activation procedure as usual.
- □ The Neo License Manager asks for the confirmation of the reactivation.
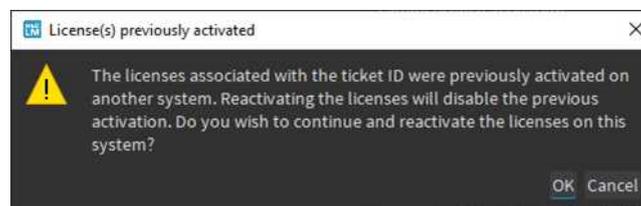
> **NOTE**
> The reactivation disables the previous activation on the other system.

Activate an offline license

The offline license activation allows you to activate licenses on a *machine A* that is not connected to the Internet through a *machine B* that is connected to the Internet.

The offline license activation is a 3 steps procedure:

1. On *machine A*:

   a. Click on the `Get fingerprint file` button to open the `Get a fingerprint file` dialog.
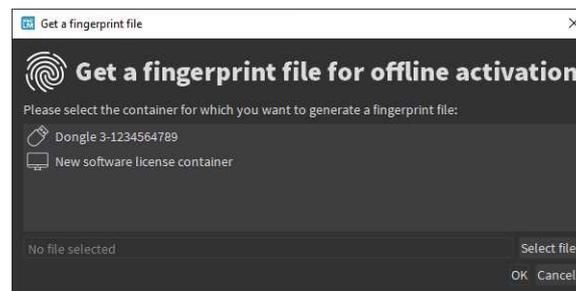
   b. Enter the required information:
- The license container on which you want to activate the license.
- The path to save the fingerprint file.

2. On *machine B*:

   a. Click on the `Online request of license file for offline activation` button to request the corresponding license file.
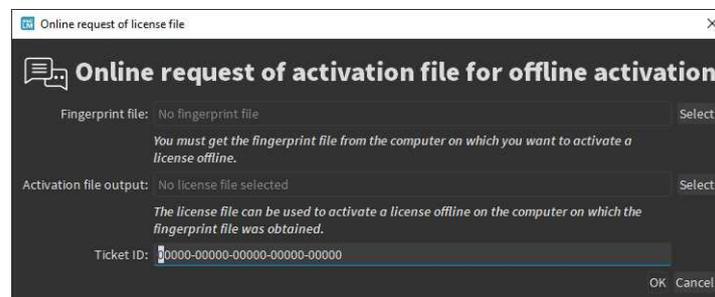
   b. Enter the required information:
- The `Fingerprint file` from *machine A*.
- The `License file output` path to save the license file.
- The Ticket ID (5 groups of 5 alphanumeric characters separated by a dash) for the license.

3. On *machine A*:

   a. Click on the `Apply license file` button.

   b. Select the license file generated in step 2.

Preparing a dongle to use the OEM key functionality

- You can use the Neo USB Dongles with the OEM Key functionality provided by `Easy::SetOEMKey` and `Easy::CheckOEMKey`.

- When a preparation is required, a warning text appears in the list of the dongle licenses.
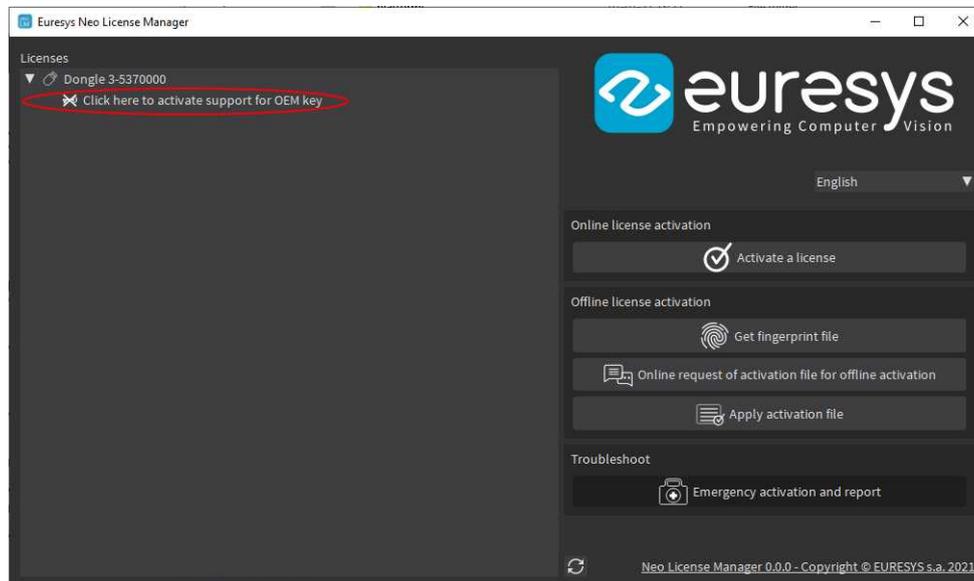
- Click on that text and follow the instructions.
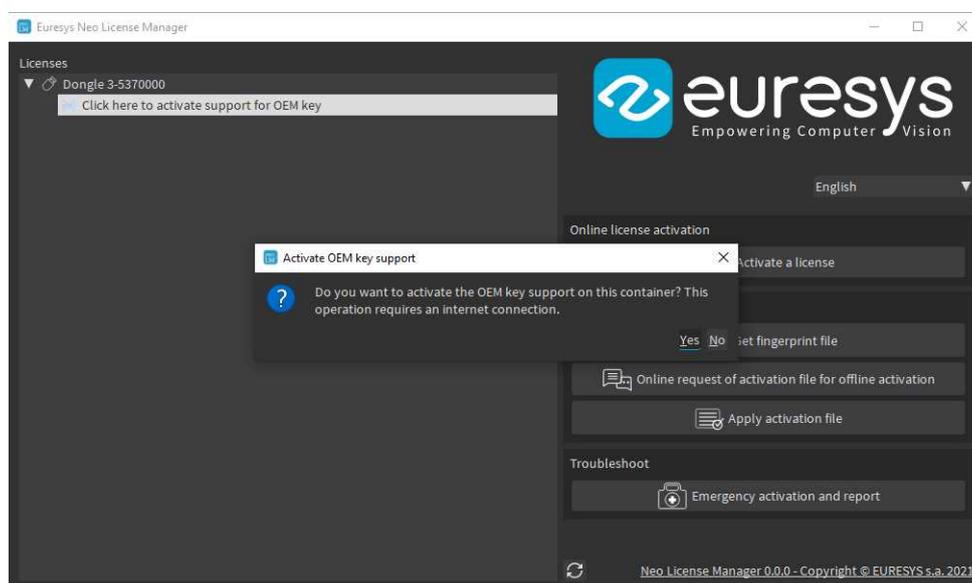
Troubleshooting

1. Click on the `Emergency activation and report` button to open the `Troubleshooting` dialog.
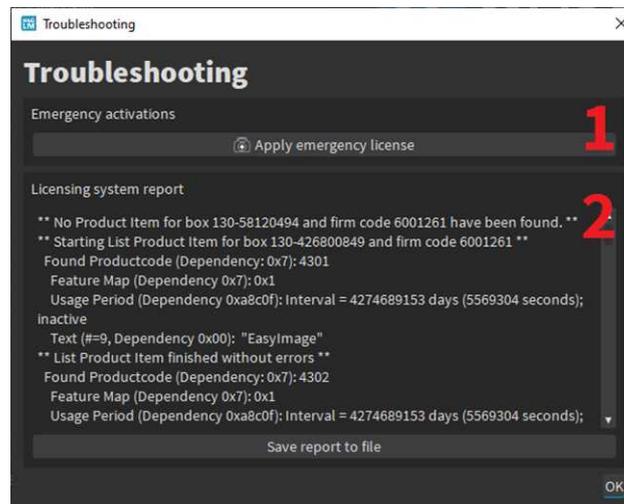
2. Click on the `Apply emergency license` button to temporarily activate licenses:
- These licenses activate all Euresys products.
- They are valid for 8 days.
- You can repeat this a maximum of 3 times.
- For security reasons, you cannot activate emergency licenses on virtual machines.

3. Click on the `Save report to file` button to generate a licensing system report and save it to a file.
- The support team may require this report when you have a licensing issue.

4. Using the Online Command Line

- When you order a Neo License, Euresys sends you a Ticket ID required to activate the license on your system.
  - ☐ A Ticket ID is made of 5 groups of 5 alphanumeric characters separated by a dash.
    For example: `TT5YY-HYAGN-Q2PBU-U7K7J-DKJJQ`
  - ☐ You can activate your license either directly on the computer, as a software license, or on a Neo USB Dongle, that you can buy from Euresys.

- In the case of the software container, the license is strongly linked to a single computer system, while with a dongle you can move it easily from computer to computer.

Select a container

1. To select a license container, use the `ListContainers` command of the Neo License Manager.

   All the containers compatible with Euresys licenses are listed:

```
> NeoLicenseManagerCL.exe ListContainers
Container list:
    ▶30-36▶3949292 (software)
```

  - ☐ A *software container* appears in the list with a serial number starting with `▶30-`.
  - ☐ A *dongle* appears in the list with a serial number starting with `3-`. This serial number is also written on the dongle itself.

2. To create a software container, use the `CreateSoftwareContainer` command of the Neo License Manager.

```
> NeoLicenseManagerCL.exe CreateSoftwareContainer
Software container ▶30-3245488904 has been created.
```

   If you already have a software container on your system:
   - ☐ We highly recommended you to use that one.
   - ☐ Create a new software container only if the old one is broken for any reason. The old license container unavailable for activation purposes.

3. Copy the serial number of the container you want to use for the next step.

Activate the license

1. To activate the license, use the `ActivateLicense` command of the Neo License Manager with the serial number of the container.

```
> NeoLicenseManagerCL.exe Activate -t TT5YY-HYAGN-Q2PBU-U7K7J-DKJJQ -sn ▶30-3245488904
Activation of ticket TT5YY-HYAGN-Q2PBU-U7K7J-DKJJQ has been done succesfully.
```

The command associates the Ticket ID to the container and activates the license.

Check the Neo License presence

1. To check the presence of the license, use the `ListLicenses` command of the Neo License
Manager.

The new license appears under the serial number of the license container.

```
> NeoLicenseManagerCL.exe ListLicenses
Licenses on container ▸30-36▸3949292 (software):
    Open eVision EasyOCR
```

Activating the OEM key feature

By default, the dongles come with the OEM key feature activated. Nevertheless, older dongles
may have to be activated.

● To check if this feature is activated use the `CheckOEMKeyReadiness` command:

```
> NeoLicenseManagerCL.exe CheckOEMKeyReadiness –sn 3-36▸3949292
```

● If the feature is not activated on the dongle, use the `PrepareForOEMKey` command to activate it:

```
> NeoLicenseManagerCL.exe PrepareForOEMKey –sn 3-36▸3949292
```

Forcing more than one copy of the same license

● By default, the license manager protects you against multiple activations of the same license
in a container, refusing the subsequent activations:

● If you want to bypass that protection, use the `–force` flag:

```
> NeoLicenseManagerCL.exe Activate –force -t TT5YY-HYAGN-Q2PBU-U7K7J-DKJJQ -sn ▸30-3245488904
```

Troubleshooting

Command line help

● To get help about the syntax and the usage of the command line, use the `Help` command:

```
> NeoLicenseManagerCL.exe Help
Here are the available commands and their arguments:
ListContainers [-filter (dongle|software)]
ListLicenses [-sn SERIAL]
ApplyLicense -path PATH
CreateSoftwareContainer
GetFingerprint -sn SERIAL -path PATH
CheckStatus
Report -path PATH
Activate -t NEO_TICKET_ID -sn SERIAL
Reactivate -t NEO_TICKET_ID -sn SERIAL
RequestActivationFile -fingerprintPath PATH -outPath PATH -t NEO_TICKET_ID
RequestReactivationFile -fingerprintPath PATH -outPath PATH -t NEO_TICKET_ID
RequestEmergencyActivation
```

Emergency licenses

If you need a license for a limited time (for instance while waiting for some support), use an emergency license.

1. To activate an emergency license , use the `RequestEmergencyActivation` command:
   - □ These licenses activate all Euresys products.
   - □ They are valid for 8 days.
   - □ You can repeat this a maximum of 3 times.
   - □ For security reasons, you cannot activate emergency licenses on virtual machines.

```
> NeoLicenseManagerCL.exe RequestEmergencyActivation
```

License recovery with a software container

If you have to reinstall the system and lost your licenses:

1. Create a software container.

2. Activate the license with the old Ticket ID to try to recover all the licenses associated to the container where you first activated this Ticket ID.

   This only works if:
   - □ It is done in a new, empty container.
   - □ The system is recognizable (the hardware is more or less the same).

3. If this does not work, perform a reactivation.

Reactivation

If the recovery does not work or if you lost your licenses and the system has changed significantly (for instance after the failure and replacement of a hardware component), you need to perform a reactivation.
   - □ This transfers your lost license on a container on the new system.
   - □ By default, the reactivation is disabled.

1. Contact the support to obtain a reactivation authorization for the corresponding Ticket ID.

2. Once the reactivation is authorized, follow the license activation procedure described above but use the `Reactivate` command instead of `Activate`.

> **NOTE**
> Make sure that you reactivate only a license from a lost or broken container, as that container will be blacklisted and you cannot use it again for licensing procedures.

Error reporting

If anything fails, the Neo License Manager returns an error and information about it in `stderr`.

1. To recover the `stderr` log in the command line, you can use `2>` redirection, as follows:

```
NeoLicenseManagerCL.exe Activate -t TT5YY-HYAGN-Q2PBU-U7K7J-DKJJQ -sn ↵30-3245488904 2>c:\tmp\error.log
```

2. If you need more information, use the Memento tool from Euresys.

3. To check the status of the licensing system on your computer at any time, use the `CheckStatus` command of the Neo License Manager.

```
> NeoLicenseManagerCL.exe CheckStatus
** Starting List Product Item for box ⊢30-36⊢3949292 and firm code 600⊢26⊢ **
  Found Productcode (Dependency: 0x7): 4305
    Text (#=20, Dependency 0x00):  "Open eVision EasyOCR"
    Extended Protected Data (#=⊢6, Type ⊢36, Dependency 0x07): 6c 63 64 63 00 0⊢
 9b 05 00 00 00 00 00 00 0⊢ 00
** List Product Item finished without errors **
```

5. Using the Offline Command Line

- When you order a Neo License, Euresys sends you a Ticket ID required to activate the license on your system.
    - A Ticket ID is made of 5 groups of 5 alphanumeric characters separated by a dash.
      For example: `TT5YY-HYAGN-Q2PBU-U7K7J-DKJJQ`
    - You can activate your license either directly on the computer, as a software license, or on a Neo USB Dongle, that you can buy from Euresys.

- In the case of the software container, the license is strongly linked to a single computer system, while with a dongle you can move it easily from computer to computer.

When to use the offline activation

Use the offline activation when the system on which you want to activate the license is not connected to the Internet. Nevertheless, to activate the license, you must have access to another computer that is connected to the Internet.
- The system that needs a license and is not connected is called the *target system*.
- The connected system is the *online system*.
- Both systems need to have the Neo License Manager installed.

> ✓ **TIP**
> Neo USB Dongle activation
> This procedure works for activating both dongles and software containers.
> However, it is much easier to connect a dongle directly to the *online system* and use the online procedure.

Select a container

1. To select a license container, use the `ListContainers` command of the Neo License Manager.

All the containers compatible with Euresys licenses are listed:

```
> NeoLicenseManagerCL.exe ListContainers
Container list:
    ▸30-36▸3949292 (software)
```

- A *software container* appears in the list with a serial number starting with `▸30-`.
- A *dongle* appears in the list with a serial number starting with `3-`. This serial number is also written on the dongle itself.

2. To create a software container, use the `CreateSoftwareContainer` command of the Neo License Manager.

```
> NeoLicenseManagerCL.exe CreateSoftwareContainer
Software container ⯈30-3245488904 has been created.
```

If you already have a software container on your system:
- ☐ We highly recommended you to use that one.
- ☐ Create a new software container only if the old one is broken for any reason. The old license container unavailable for activation purposes.

3. Copy the serial number of the container you want to use for the next step.

Activate a license

The offline license activation is a 3 steps procedure:

1. On the *target system*, retrieve the fingerprint:

    a. To retrieve the identification information, also called the fingerprint, use the `GetFingerprint` command of the Neo License Manager.

```
> NeoLicenseManagerCL.exe GetFingerprint -sn ⯈30-3245488904 -path "myfingerprintfile.fgp"
```

This command generates a fingerprint file.

    b. Copy this file to the *online system*.

2. On the *online system*, request a license activation file:

    a. To generate the license activation file, use the `RequestLicenseFile` command of the Neo License Manager.

    b. Use this command with the Ticket ID and the fingerprint file of the *target system*.

```
> NeoLicenseManagerCL.exe RequestActivationFile  -fingerprintPath "myfingerprintfile.fgp" -t TT5YY-HYAGN-Q2PBU-
U7K7J-DKJJQ -outPath "mylicensefile.lif"
```

    c. Copy this file to the *target system*.

3. On the *target system*, apply the license.

    a. To activate the license in the chosen container use the `ApplyLicense` command of the Neo License Manager.

    b. Use this command with the license activation file.

```
> NeoLicenseManagerCL.exe ApplyLicense -path "mylicensefile.lif"
```

Check the Neo License presence

1. To check the presence of the license, use the `ListLicenses` command of the Neo License Manager.

The new license appears under the serial number of the license container.

```
> NeoLicenseManagerCL.exe ListLicenses
Licenses on container ⯈30-36⯈3949292 (software):
    Open eVision EasyOCR
```

Troubleshooting

Command line help

- To get help about the syntax and the usage of the command line, use the `Help` command:

```
> NeoLicenseManagerCL.exe Help
Here are the available commands and their arguments:
ListContainers [-filter (dongle|software)]
ListLicenses [-sn SERIAL]
ApplyLicense -path PATH
CreateSoftwareContainer
GetFingerprint -sn SERIAL -path PATH
CheckStatus
Report -path PATH
Activate -t NEO_TICKET_ID -sn SERIAL
Reactivate -t NEO_TICKET_ID -sn SERIAL
RequestActivationFile -fingerprintPath PATH -outPath PATH -t NEO_TICKET_ID
RequestReactivationFile -fingerprintPath PATH -outPath PATH -t NEO_TICKET_ID
RequestEmergencyActivation
```

Emergency licenses

If you need a license for a limited time (for instance while waiting for some support), use an emergency license.

1. To activate an emergency license , use the `RequestEmergencyActivation` command:
   - ☐ These licenses activate all Euresys products.
   - ☐ They are valid for 8 days.
   - ☐ You can repeat this a maximum of 3 times.
   - ☐ For security reasons, you cannot activate emergency licenses on virtual machines.

```
> NeoLicenseManagerCL.exe RequestEmergencyActivation
```

License recovery with a software container

If you have to reinstall the system and lost your licenses:

1. Create a software container.

2. Activate the license with the old Ticket ID to try to recover all the licenses associated to the container where you first activated this Ticket ID.

   This only works if:
   - ☐ It is done in a new, empty container.
   - ☐ The system is recognizable (the hardware is more or less the same).

3. If this does not work, perform a reactivation.

Reactivation

If the recovery does not work or if you lost your licenses and the system has changed significantly (for instance after the failure and replacement of a hardware component), you need to perform a reactivation.

- ☐ This transfers your lost license on a container on the new system.
- ☐ By default, the reactivation is disabled.

1. Contact the support to obtain a reactivation authorization for the corresponding Ticket ID.

2. Once the reactivation is authorized, follow the license activation procedure described above but use the `Reactivate` command instead of `Activate`.

> **NOTE**
> Make sure that you reactivate only a license from a lost or broken container, as that container will be blacklisted and you cannot use it again for licensing procedures.

Error reporting

If anything fails, the Neo License Manager returns an error and information about it in `stderr`.

1. To recover the `stderr` log in the command line, you can use `2>` redirection, as follows:

```
NeoLicenseManagerCL.exe Activate -t TT5YY-HYAGN-Q2PBU-U7K7J-DKJJQ -sn ►30-3245488904 2>c:\tmp\error.log
```

2. If you need more information, use the Memento tool from Euresys.

3. To check the status of the licensing system on your computer at any time, use the `CheckStatus` command of the Neo License Manager.

```
> NeoLicenseManagerCL.exe CheckStatus
** Starting List Product Item for box ►30-36►3949292 and firm code 600►26► **
  Found Productcode (Dependency: 0x7): 4305
    Text (#=20, Dependency 0x00):  "Open eVision EasyOCR"
    Extended Protected Data (#=►6, Type ►36, Dependency 0x07): 6c 63 64 63 00 0►
 9b 05 00 00 00 00 00 00 0► 00
** List Product Item finished without errors **
```

6. Neo Licensing System FAQ

Why the new Neo Licensing System?

- The old (legacy) licensing system of Open eVision was introduced about 15 years ago. Since then, licensing technologies have evolved significantly.

- We now introduce the Neo Licensing System to take advantage of this evolution and provide numerous improvements in this release and in future versions of Open eVision.

How do I use a Neo License?

- After ordering a Neo License, you will receive a document (typically a shipping note) containing a unique Ticket ID.

- With this Ticket ID, use the new Neo License Manager to activate your Neo License in the container of your choice (a Neo USB Dongle (PC6514) or a Neo Software Container).

- Once the Neo License is activated, you are able to use Open eVision.

What should I do with my Ticket ID after activation?

- Very carefully store your Ticket IDs where you can retrieve them easily. In addition, we recommend that you keep track of which Ticket ID is activated on each dongle, system or machine.

- If you ever experience a licensing issue, this Ticket ID is required when you contact your distributor or Euresys support.

On which device can I activate my Neo License?

- You can activate your Neo License either on a Neo USB Dongle (PC6514) or on the hard drive of a compatible computer system via Neo Software Container.

Do I have to choose where I want to activate my Neo License when I order it?

- No, you just have to order a Neo License for the product you want to use.
  - □ Neo Licenses of Open eVision libraries have product codes starting with 43.
  - □ These licenses are valid for activation on a Neo USB Dongle (PC6514) or on a Neo Software Container.

Can I use a Neo License with an older legacy Euresys dongle?

- No, Neo Licenses can only be activated on a Neo USB Dongle (PC6514).

- The old USB Dongle (PC6512) and the PAR Dongle (PC6513) cannot be used with Neo Licenses.

Can I use a Neo License with a dongle from another company?

- No, you can only activate a Neo License on the Neo USB Dongle (PC6514) purchased from Euresys or from a Euresys distributor.

When should I use a Neo Software Container instead of a dongle?

- We recommend that you only use a Neo Software Container if your system cannot handle a USB dongle.

- Neo Software Containers are locked to a computer system and computers are more fragile than USB dongles. USB dongles can easily be moved to a replacement computer in case of a failure of the computer or in case of an upgrade.

I have activated a Neo License on a Neo Software Container on my computer. Can I move it to a new computer?

- No, once you have activated a Neo License on a Neo Software Container on a computer, it is locked to that computer and it cannot be moved to another computer or to a Neo USB Dongle.

I have activated a Neo License on a Neo Software Container on my computer. My computer no longer worked and had to be repaired. What can I do?

- If your computer has been repaired by replacing the defective parts, try to reactivate your license(s) from the Neo License Manager using the same Ticket IDs as originally used on this computer. If your computer is still recognized by the Neo License Manager, the license(s) will be restored.

- If this process fails, or if your computer cannot be repaired and you wish to use a new computer, please contact your distributor or Euresys support to request the reactivation of the license(s). You will have to provide the original Ticket IDs used for that computer. When that reactivation is granted, you can activate the corresponding license(s) again on a new Neo Software Container.

Where can I find the new Neo License Manager?

- The Neo License Manager application is available both as a stand-alone installer and within the Open eVision installation package (starting with release 2.13).

Can I use the Neo License Manager via command line?

- Yes, the Neo License Manager is available both as a Graphical User Interface application and as a command line executable.

- The command line executable is less user friendly, but allows to automate the management of Neo Licenses.

Can I use a legacy activation key with the Neo Licensing System?

- No, legacy activation keys only work with the legacy licensing system.

- The legacy licensing system, both dongles and software, however will still be supported for the foreseeable future.

Can the new Neo License Manager activate legacy licenses?

- No, the Neo License Manager application only manages Neo Licenses.

- The previous (legacy) License Manager, however, remains available in the Open eVision package to manage legacy licenses.

I have (legacy) non-Neo USB Dongles or software licenses, can I still use them with Open eVision 2.13 and higher?

- Yes, the licensing systems used before Open eVision 2.13 are still active and supported. They will remain active and supported for the foreseeable future.

- However, for new projects, we highly recommend using the Neo Licensing System.

Can I restrict the choice of licensing system (Neo Licensing System or legacy) in my application?

- Yes. A new `Preconfiguration` object is available in Open eVision (as of Open eVision 2.13) to allow users to restrict the use to a particular licensing system.

- Note that using this feature is optional.

Are emergency licenses available with the Neo Licensing System? Are the emergency licenses of the Neo Licensing System and the legacy licensing system independent?

- Yes, emergency licenses are available with the Neo Licensing System, they are independent of the legacy emergency licenses.

- Each of these licensing systems provides three time-limited emergency licenses.

Are all Open eVision libraries and bundles available with the new Neo Licensing System?

- All current Open eVision libraries and bundles are available with the new Neo Licensing System.

- However, some old legacy bundles may not be available with the new Neo Licensing System. They remain available with the old licensing systems only.

What can I do if I have lost a Ticket ID?

- The Ticket ID is the unique identifier of a license. It is very important and must be securely stored. If you ever experience a licensing issue, this Ticket ID is required when contacting your distributor or Euresys support.

- Ticket IDs that have been activated on a Neo USB Dongle can be retrieved by Euresys technical support from the dongle serial number.

- However, support for licenses stored in a Neo Software Container will not be possible if the Ticket ID has been lost.

Is an Internet connection required to activate a Neo License?

- Yes, an Internet connection is required to activate a Neo License on a Neo USB Dongle or on a Neo Software Container.

- However, an Internet connection is not required to run Open eVision after the Neo License has been activated.

Do I have to provide the serial number of a Neo USB Dongle when ordering a Neo License?

- No, you do not have to provide the serial number of a Neo USB Dongle when ordering a Neo License.

- You can activate a Neo License either on a Neo USB Dongle (PC6514) or on the hard drive of a compatible computer system via a Neo Software Container.

- The link between the Neo License and the Neo USB Dongle is recorded during the activation.

Is it possible to add licenses for additional Open eVision libraries to Neo USB Dongles that are already in the field?

- Yes. Just order the additional Neo Licenses and activate the new Ticket IDs on the existing Neo USB Dongle as usual.

- The activation process is additive. It will add the new licenses to the licenses already activated on the dongle. The existing licenses will not be lost.

- Please note that this operation requires an Internet connection.

Can I use a Neo License with older versions of Open eVision?

- No, the Neo Licensing System is only available as of Open eVision 2.13.

- However, the existing licensing systems remain available with the earlier releases of eVision and Open eVision.

Is the 30-day evaluation license available with the Neo Licensing System?

- Yes. The Product Code is 4300.

- The time-limited 30-day evaluation license can be activated a single time either on a Neo USB Dongle (PC6514) or on a Neo Software Container.