GEUTEBRÜCK

G-Core
User Manual

Version: 8.1

07.12.2023

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About This Documentation

Current software version: G-Core 8.1.

The latest features and changes of the current software version are listed in the Release Notes.

Note that the illustrations in this documentation may not match those of your software version.

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Getting Started

The G-Core software consists of several individual tools, each with its own graphical user interface (GUI).

For basic use and configuration of the G-Core software, use the tools G-Set, G-View and the PLC Simulator:

G-Set

G-View

PLC Simulator

In addition, the following tools can be installed:

G-Streamer

Cam Check

G-Mail

G-Finder

Vehicle Access Manager (VAM)

VCA Setup Editor

Geutebrück systems can be further enhanced with options, that extend their functionality and adapt to individual needs, as achieved with the server-based video content analysis G-Tect.

Software Installation

When you receive your Geutebrück G-Core device, the newest version of the software is already installed. It is recommended to install the latest updates of your software to take advantage of improved and new features as well as bug fixes.

Installation

Note that after the installation you may need to restart the device. Therefore, perform the installation only at non-critical times.

1. Open the installer by double clicking on the `G-Core_installer.exe` file.
2. The **Setup - G-Core** window with the **License Agreement** will pop up.
3. Read the license agreement and accept the terms of it by clicking on the **I accept the agreement** button.
4. To continue with the installation click **Next**.
5. The dialog window **Select Components** opens.

6. Select the Components you would like to install.

   All components can be installed, but for some components you will need a separate license to use them later. More about licenses can be found in the chapter Software Licensing.

7. Click **Next** to continue.

8. In the following dialog window you can select whether desktop icons should be created by G-Core. To create desktop icons add a check mark at **Create a desktop icon**.

9. Click **Next** to continue.

10. The dialog window **Ready to install** opens, where all components selected before will be shown.

11. Check the selected components and click **Install** to start the installation.

12. The installation program will now install the G-Core software. At the end of the installation a message will appear, indicating the following last step.
13. To complete the installation a restart of the computer is necessary. To do this now, select **Yes, restart the computer now** on the appearing window. Alternatively select **No, I will restart the computer later** to perform the restart later.
14. Afterwards click **Finish**.
15. After the restart the installation is completed.

Reinstallation

A Reinstallation of the G-Core software can be done to add several components that have not been installed yet. To do a reinstallation follow these steps:

1. Open the `G-Core_installer.exe` file by double clicking.
2. Select **Reinstall** on the upcoming window to do a reinstallation.
3. The dialog window **Select Components** opens.
4. Select the Components you would like to install. Components of the previous installation are preselected. Already installed components that were deselected during the reinstallation will be uninstalled.
5. Now follow the steps 4 to 7 of **Installation**.

Updating

To update your G-Core Version fullfill the `G-Core_installer.exe` of the newest version and follow the installation steps as in **Installation**.

Change Default Username and Password

G-Core uses a default username and password.

> ⚠ **IMPORTANT:** We strongly recommend changing your username and password during the setup. In addition, we recommend storing your login data in a suitable system (e.g. a password manager) instead of writing it down in a notebook or forwarding it via email.

What Does a Secure Password Look Like?

There are no limits to your creativity when choosing a password. It is important that you remember the password well. For that, there are a few different strategies:

- Remember a sentence and only use the first letter (or only the second or last letter) of each word. Subsequently, you can convert certain letters into numbers or special characters.
- Use a whole sentence as a password or string different words together using special characters.
- Randomly select five to six words from the dictionary and separate them with spaces.

These techniques result in a password that is easy to remember, to type and difficult to decrypt.

Basically, the longer the password, the better. A good password should be at least twelve characters long.

Inadequate Passwords

Inadequate passwords are any dates of birth or names of family members, pets, best friends, favorite stars and so on. The complete password should preferably not be found in dictionaries. It should also not consist of common variants and repetition or keyboard patterns such as "asdfgh" or "1234abcd".

Adding simple numbers to the end of the password or using one of the usual special characters $! ? # at the beginning or end of a normally simple password is not recommended.

Recommendations

For the different criticality of the accounts, there are different recommendations:

- Category 1: At least 16 characters (admin accounts).
- Category 2: At least 12 characters (user/ viewer accounts).

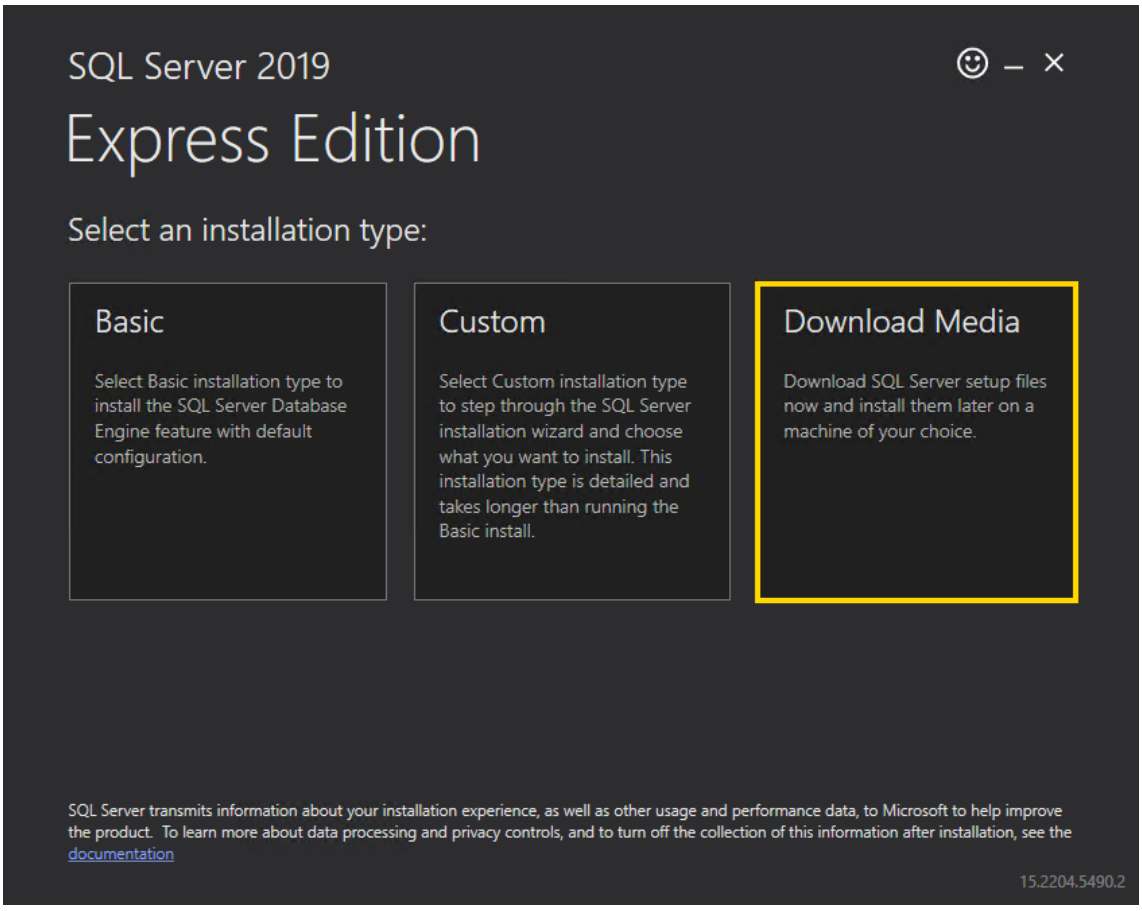
SQL Server

Upgrade SQL Server 2014 to 2019

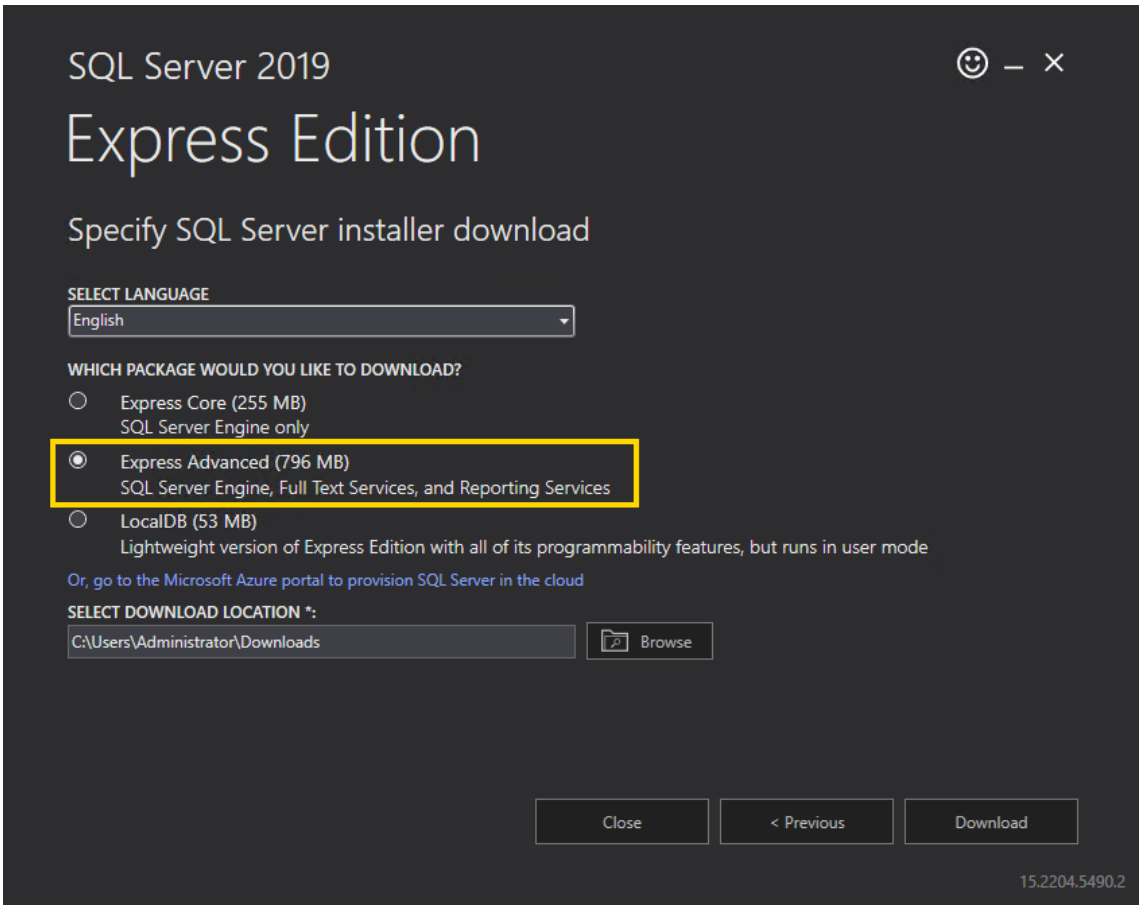
SQL Server 2019 is supported from G-Core version 7.0.

How to upgrade the SQL Server 2014 to 2019:

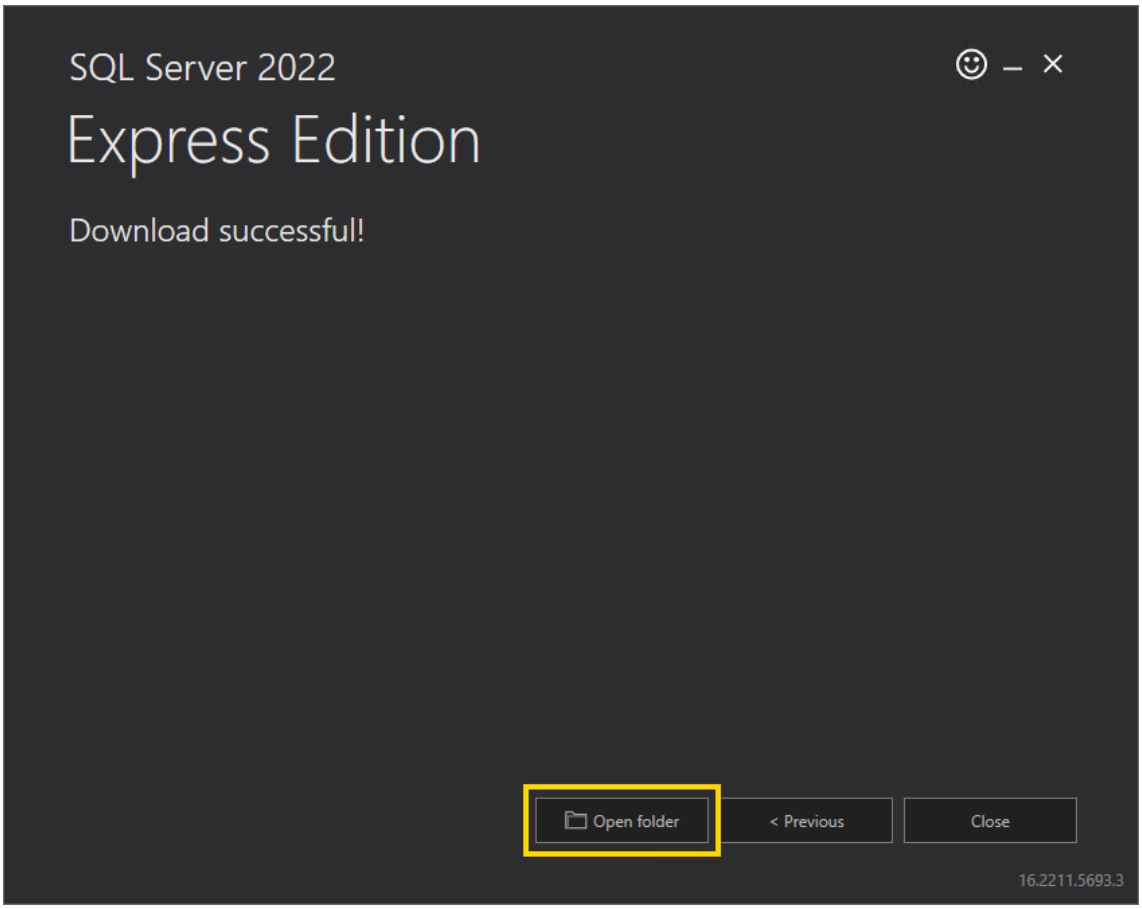
1. Download the **SQL Server 2019 Express** from the Microsoft website (see **here**).
2. Run the downloaded file **SQL2019-SSEI-Expr.exe**.
3. In the **Select an installation type** dialog window, select **Download Media**.



4. In the **Specify SQL Server installer download** dialog window, select the **Express Advanced** option for the download package and specify the language and the download location for the installer. Click **Download**.

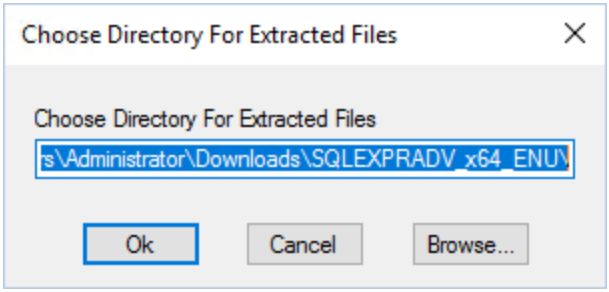


5. In the **Download successful!** dialog window, click **Open folder**.

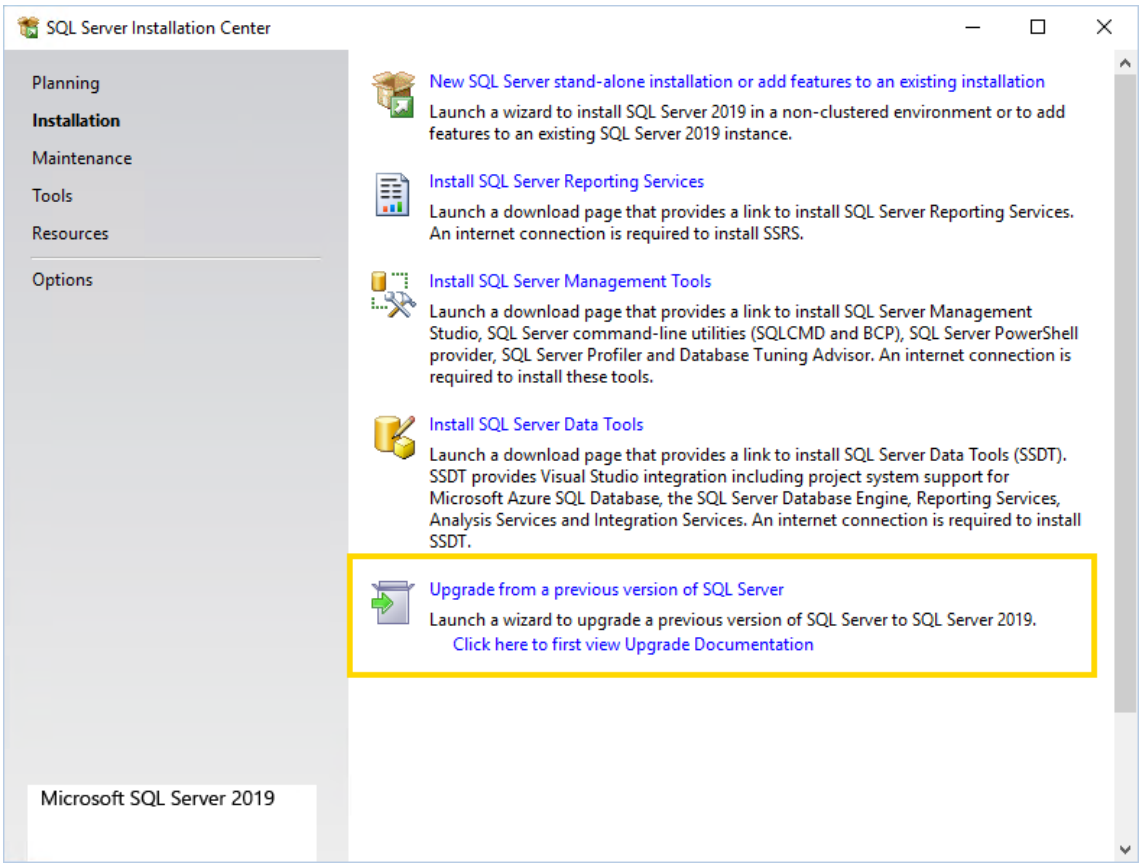


6. Run the downloaded file **SQLEXPRADV_x64_ENU.exe**.

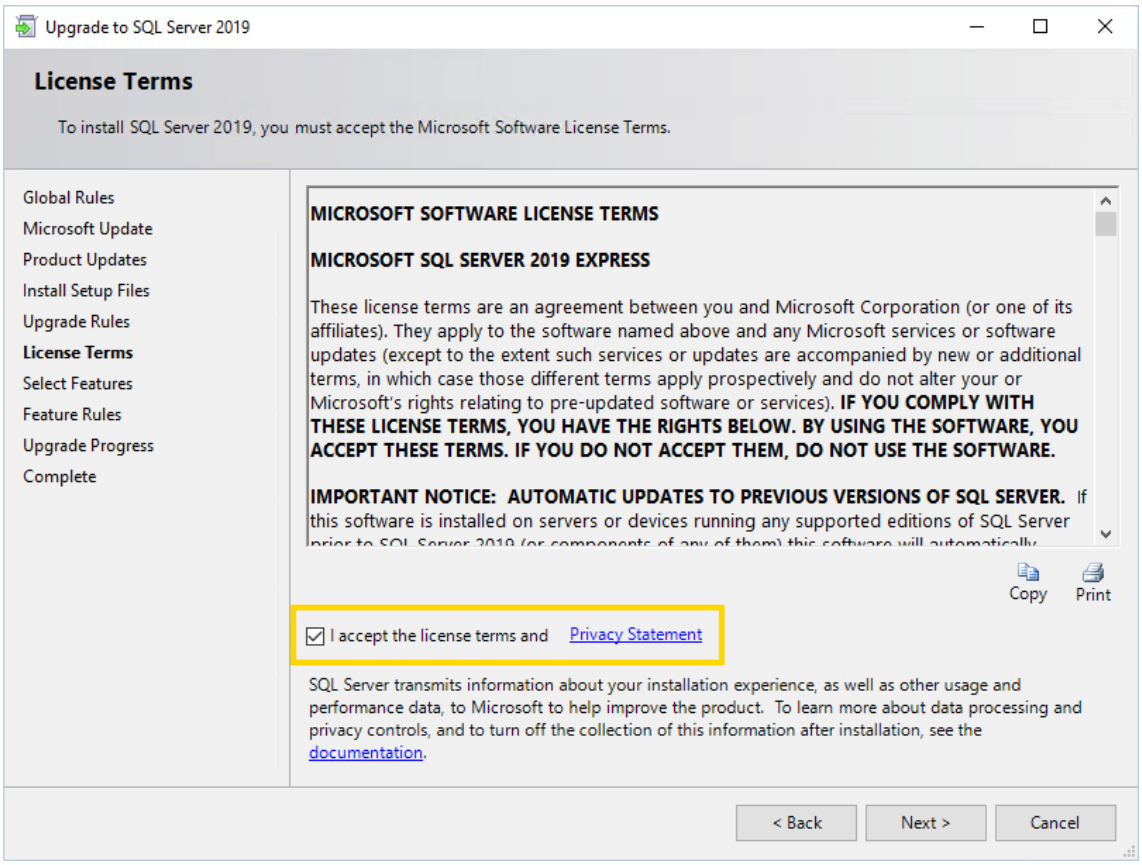
7. In the **Choose Directory For Extracted Files** dialog window, select the directory in which the installation files are to be extracted. Click **Ok**.



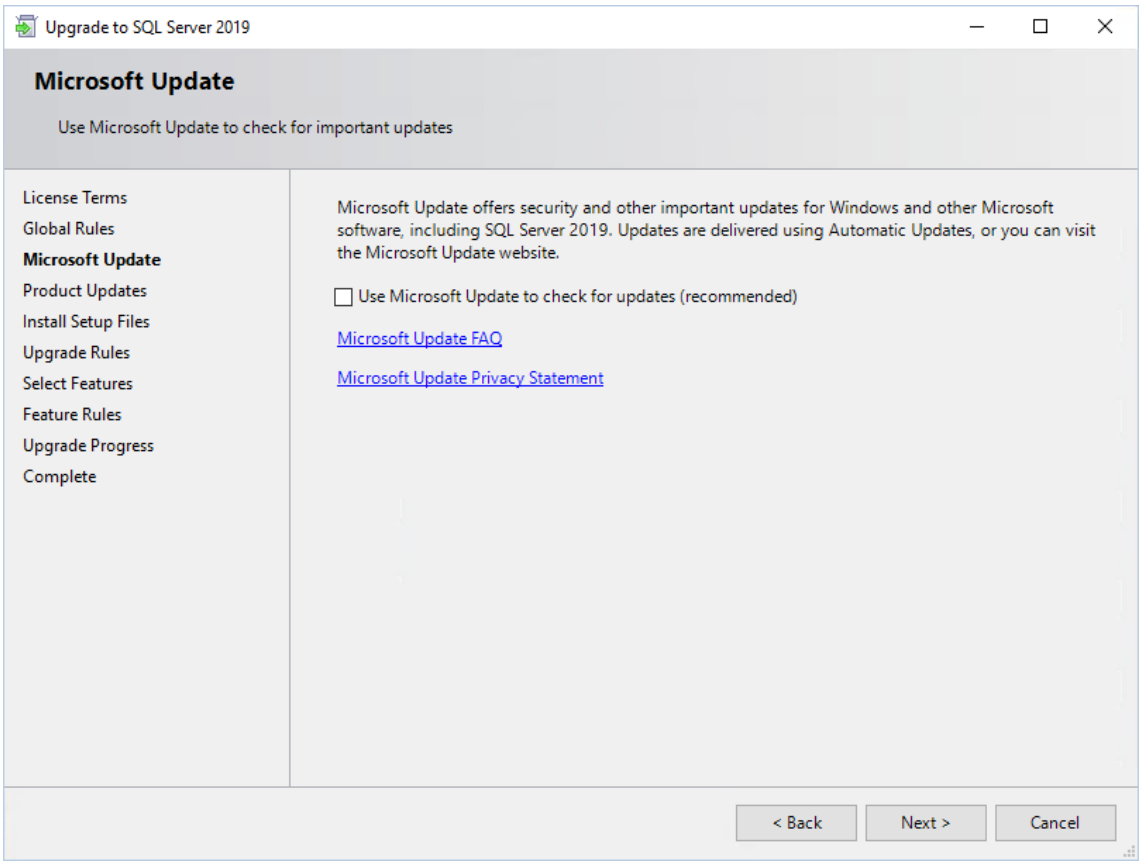
8. In the **SQL Server Installation Center** dialog window, select **Upgrade from a previous version of SQL Server**. If the Installation Center does not start automatically, run the **setup.exe** file from the extracted files.



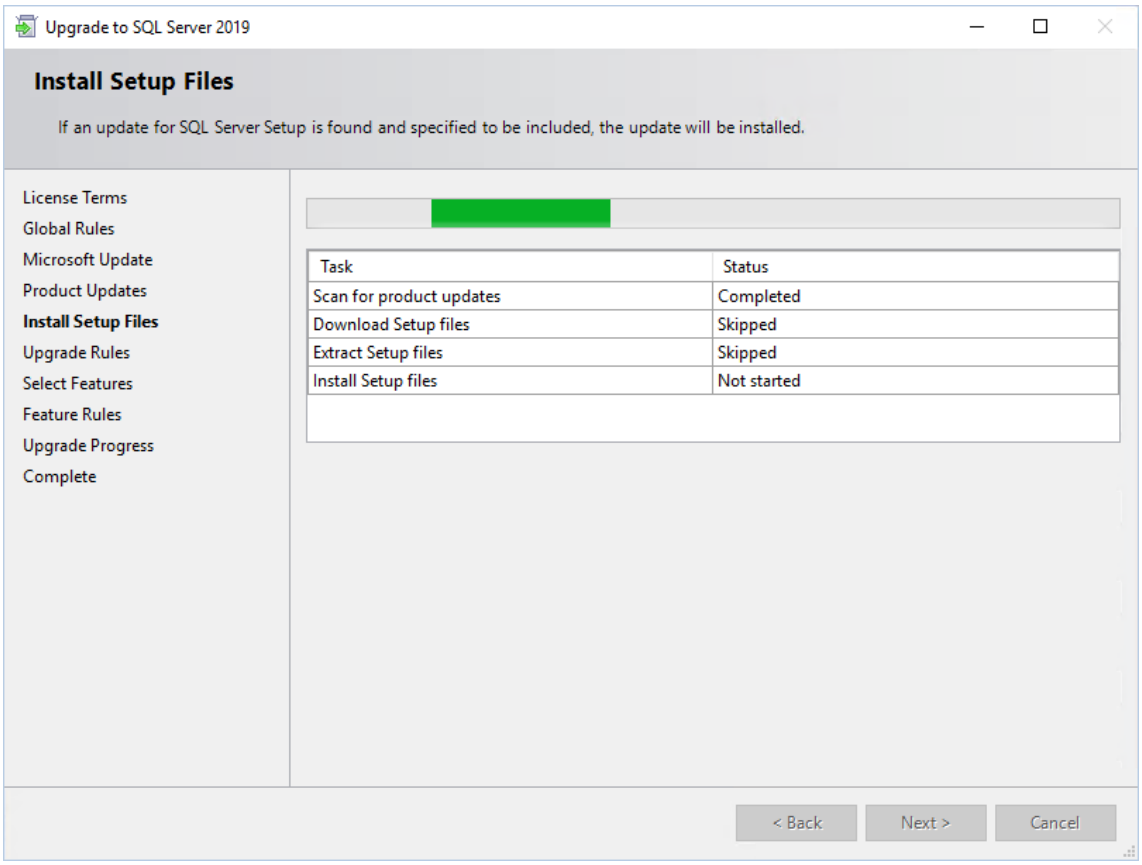
9. In the **License Terms** dialog window, select the **I accept the license terms and Privacy Statement** check box and click **Next**.



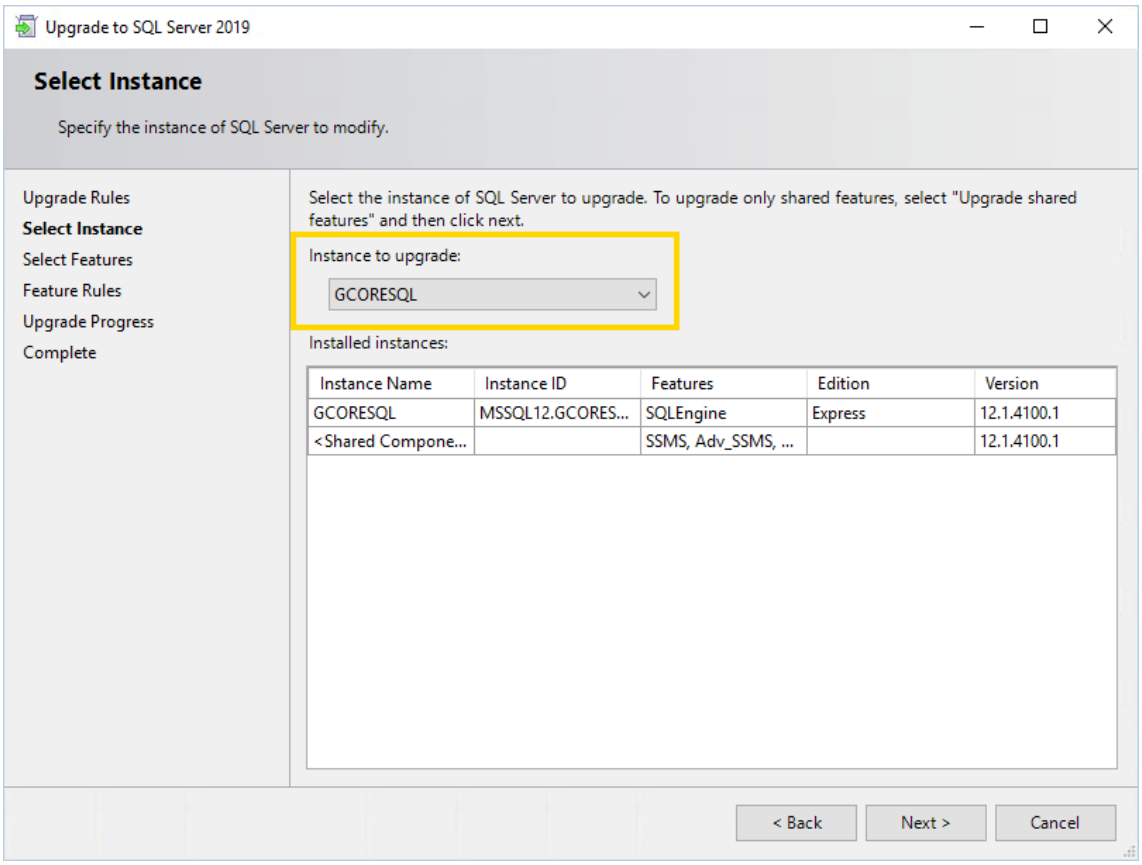
10. In the **Microsoft Update** dialog window, you do not have to select the check box. Click **Next**.



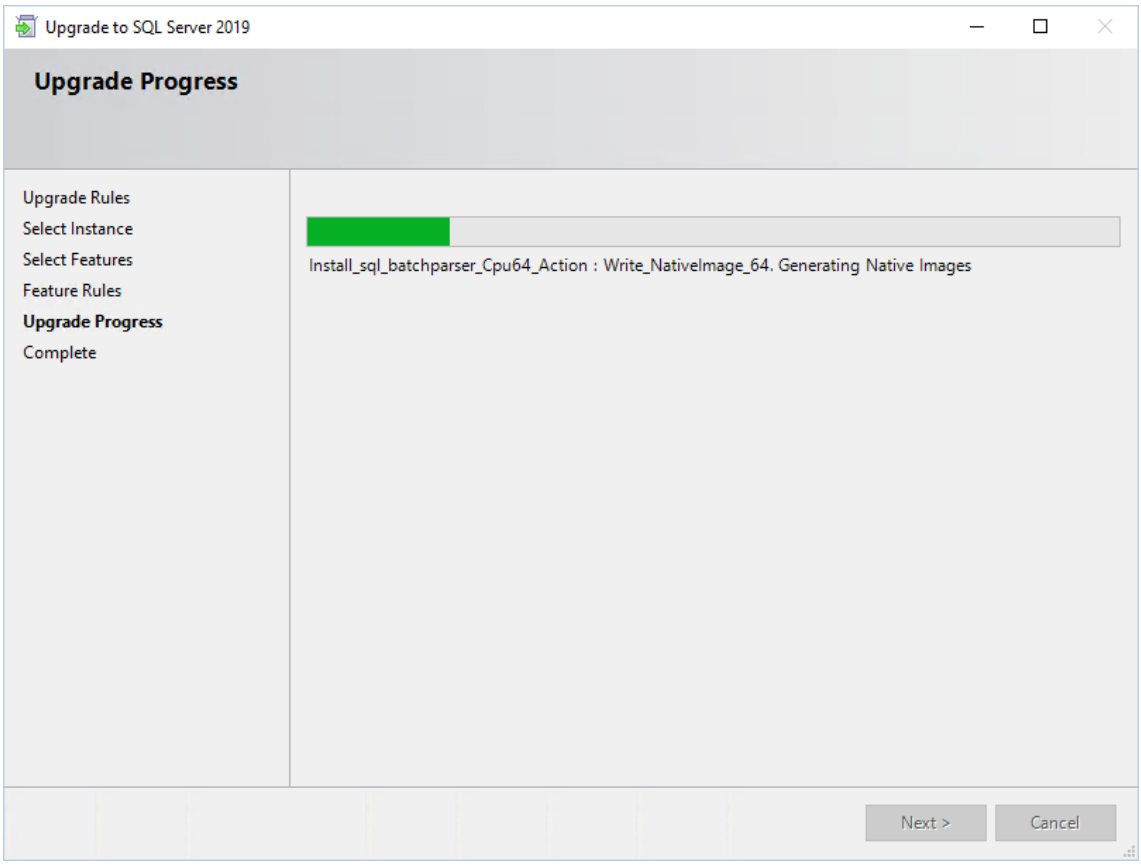
11. In the **Install Setup Files** dialog window, click **Next** when the installation is completed.



12. In the **Select Instance** dialog window, select the instance to upgrade and click **Next**.

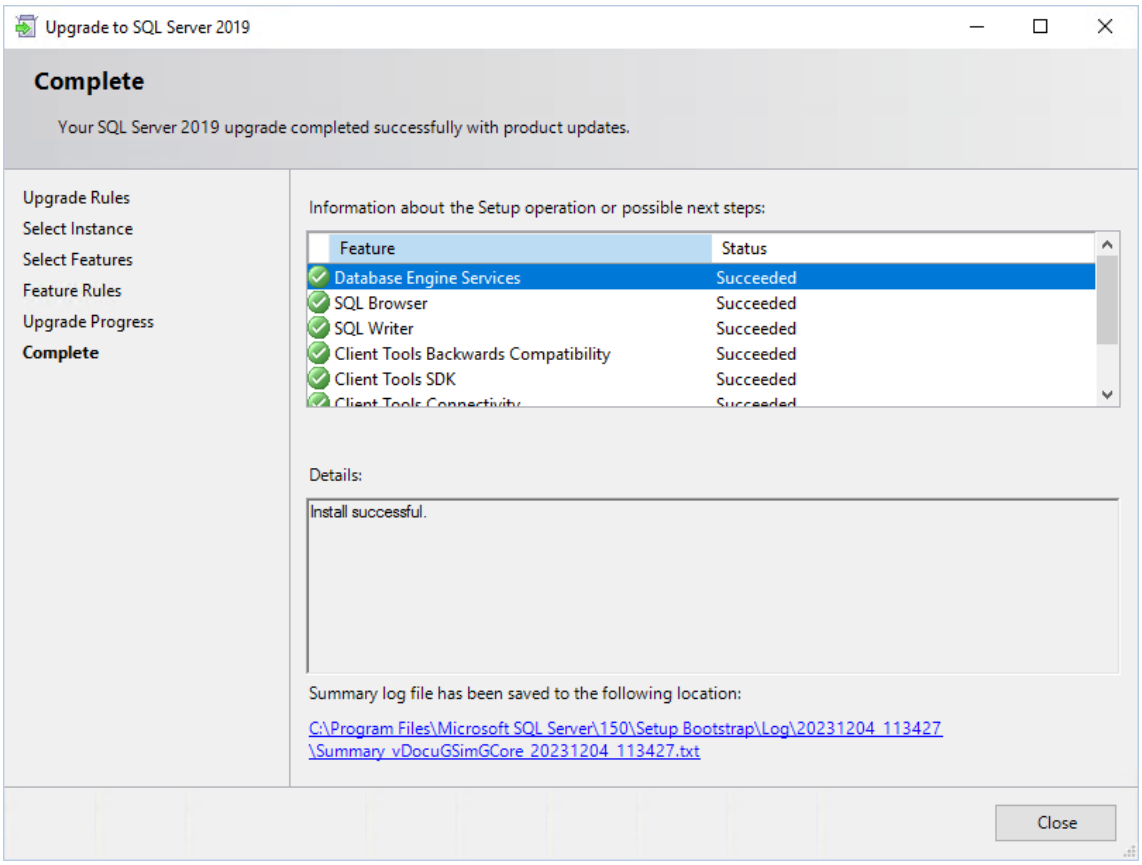


13. In the **Upgrade Progress** dialog window, click **Next** when the upgrade progress is completed.



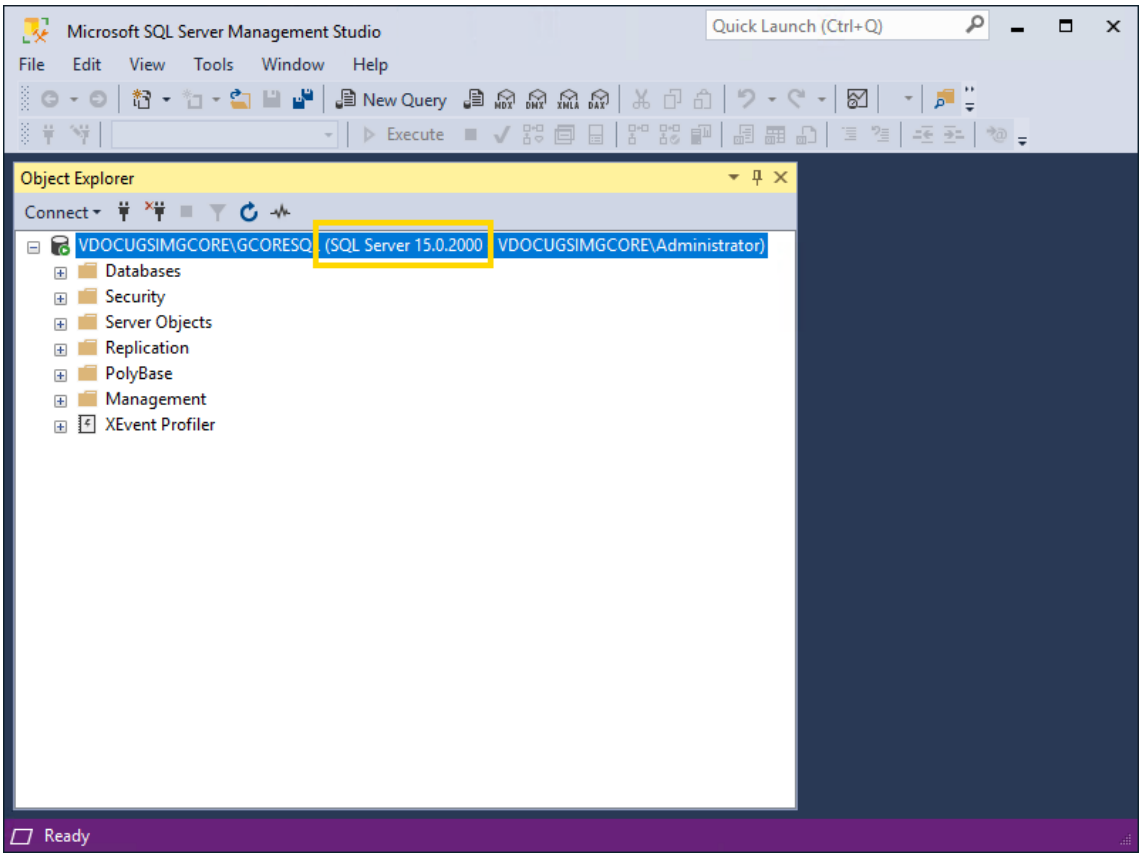
14. Confirm the message **Computer restart required** with **OK**.

15. In the **Complete** dialog window, click **Close**. The upgrade completed successfully.



16. Restart your computer.

17. You can check the version of your SQL Server in the **Microsoft SQL Server Management Studio**. Version 15.x is SQL Server 2019. You may need to install the tool manually, you can find the download file on the Microsoft website.



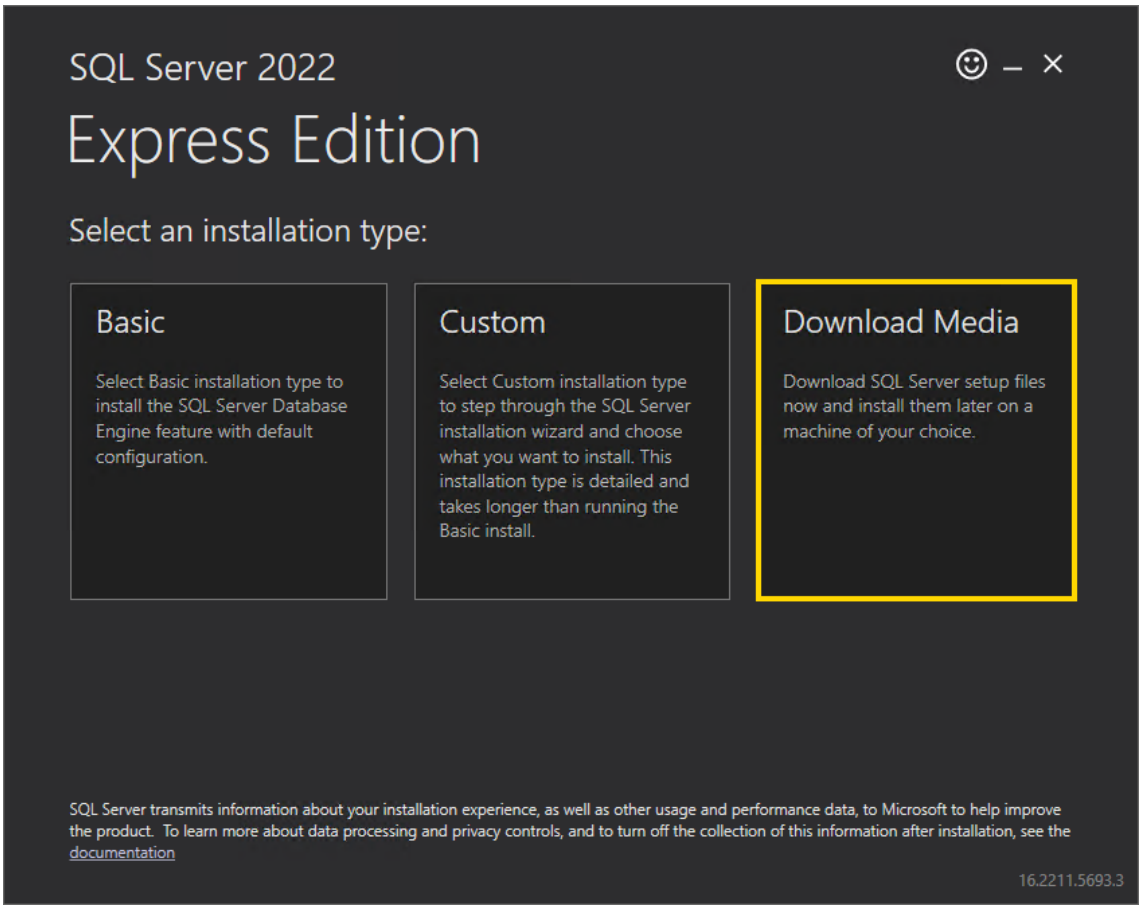
Next, install the latest cumulative security update for SQL Server 2019 to bring your server up to date and close possible security gaps (see Cumulative Update for SQL Server).

Upgrade SQL Server 2019 to 2022

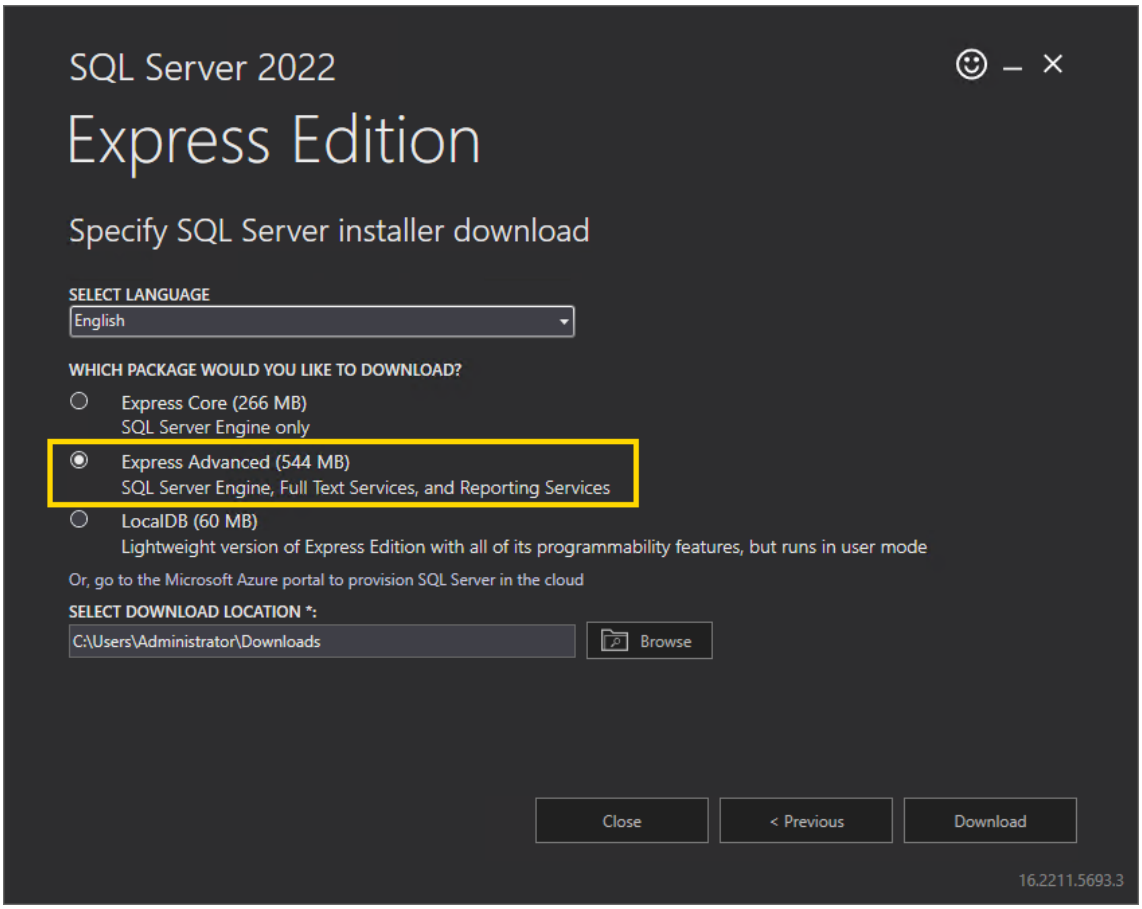
SQL Server 2022 is supported from G-Core version 8.0.

How to upgrade the SQL Server 2019 to 2022:

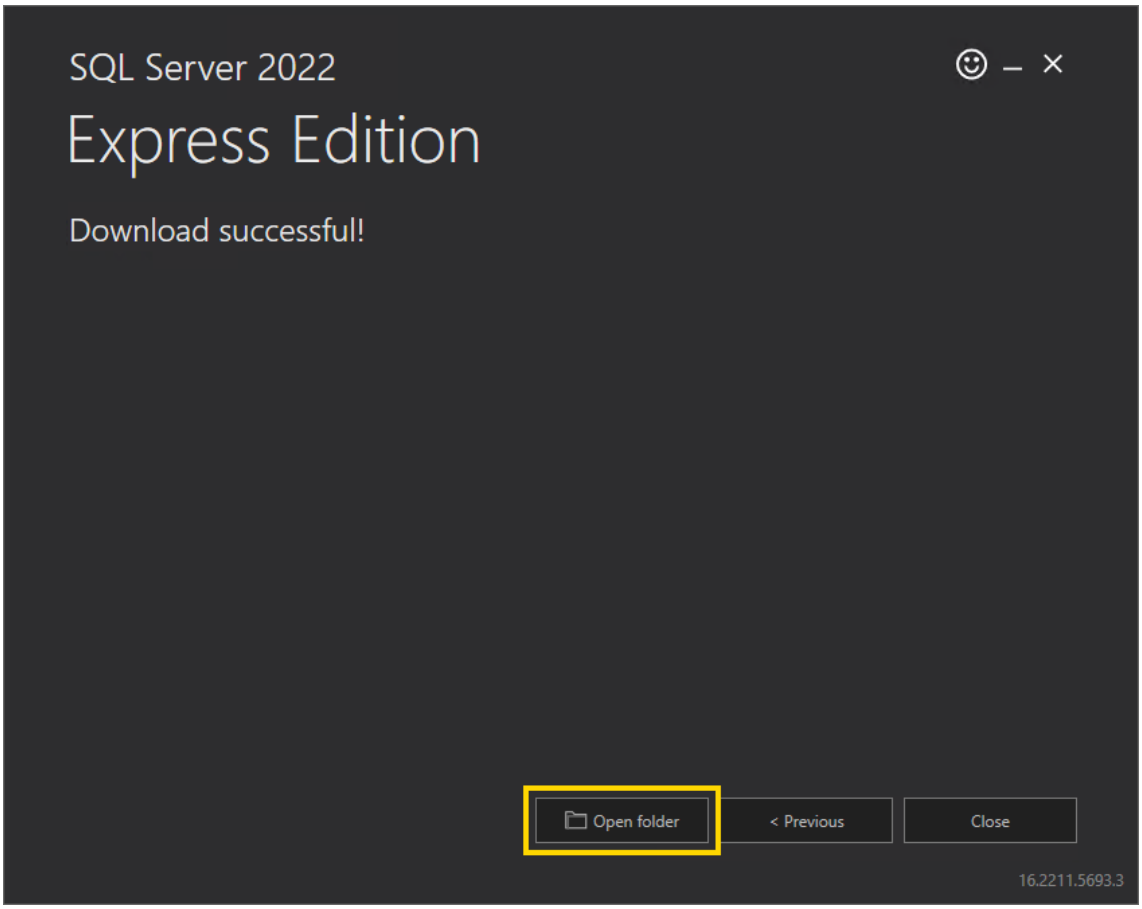
1. Download the **SQL Server 2022 Express** from the Microsoft website (see **here**).
2. Run the downloaded file **SQL2022-SSEI-Expr.exe**.
3. In the **Select an installation type** dialog window, select **Download Media**.



4. In the **Specify SQL Server installer download** dialog window, select the **Express Advanced** option for the download package and specify the language and the download location for the installer. Click **Download**.

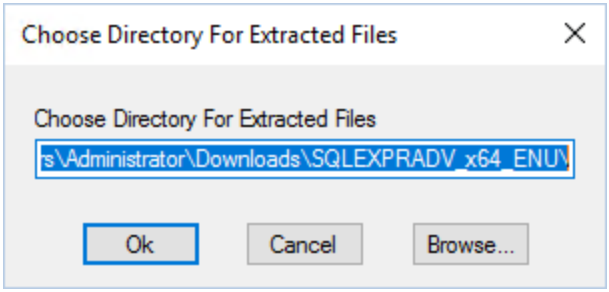


5. In the **Download successful!** dialog window, click **Open folder**.

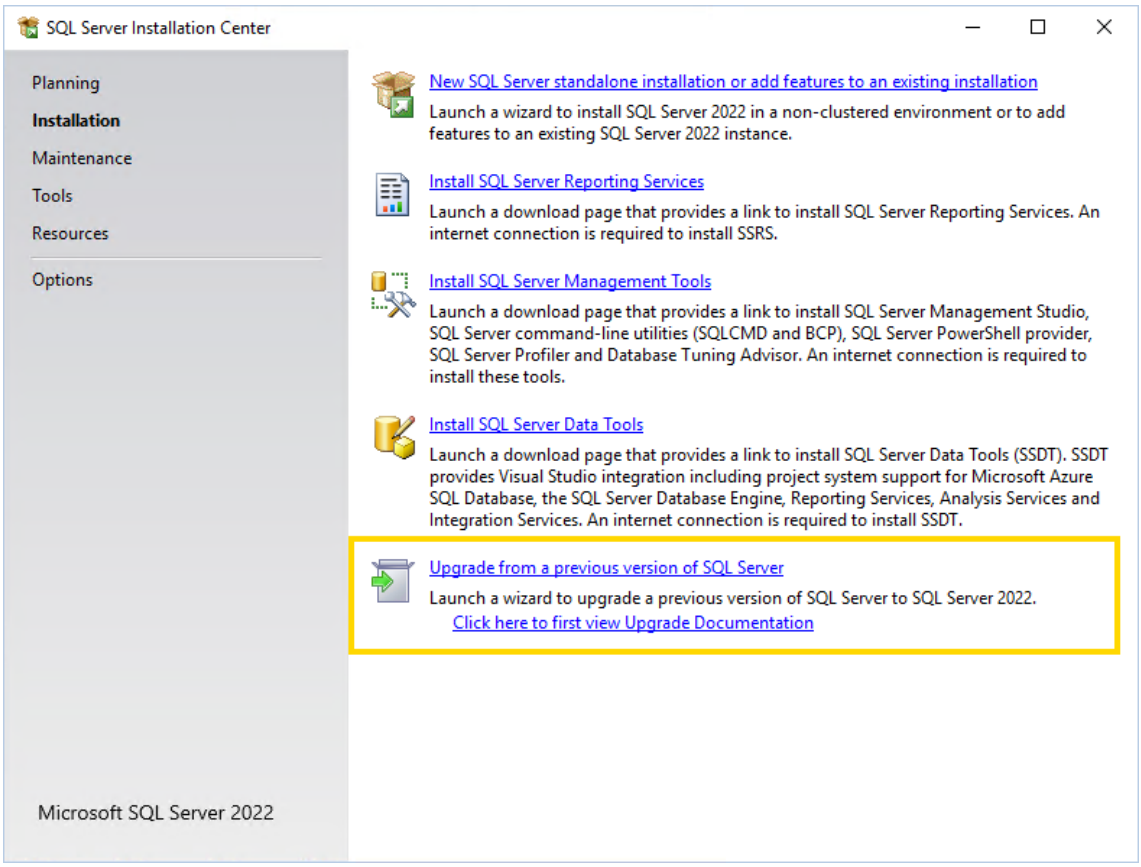


6. Run the downloaded file **SQLEXPRADV_x64_ENU.exe**.

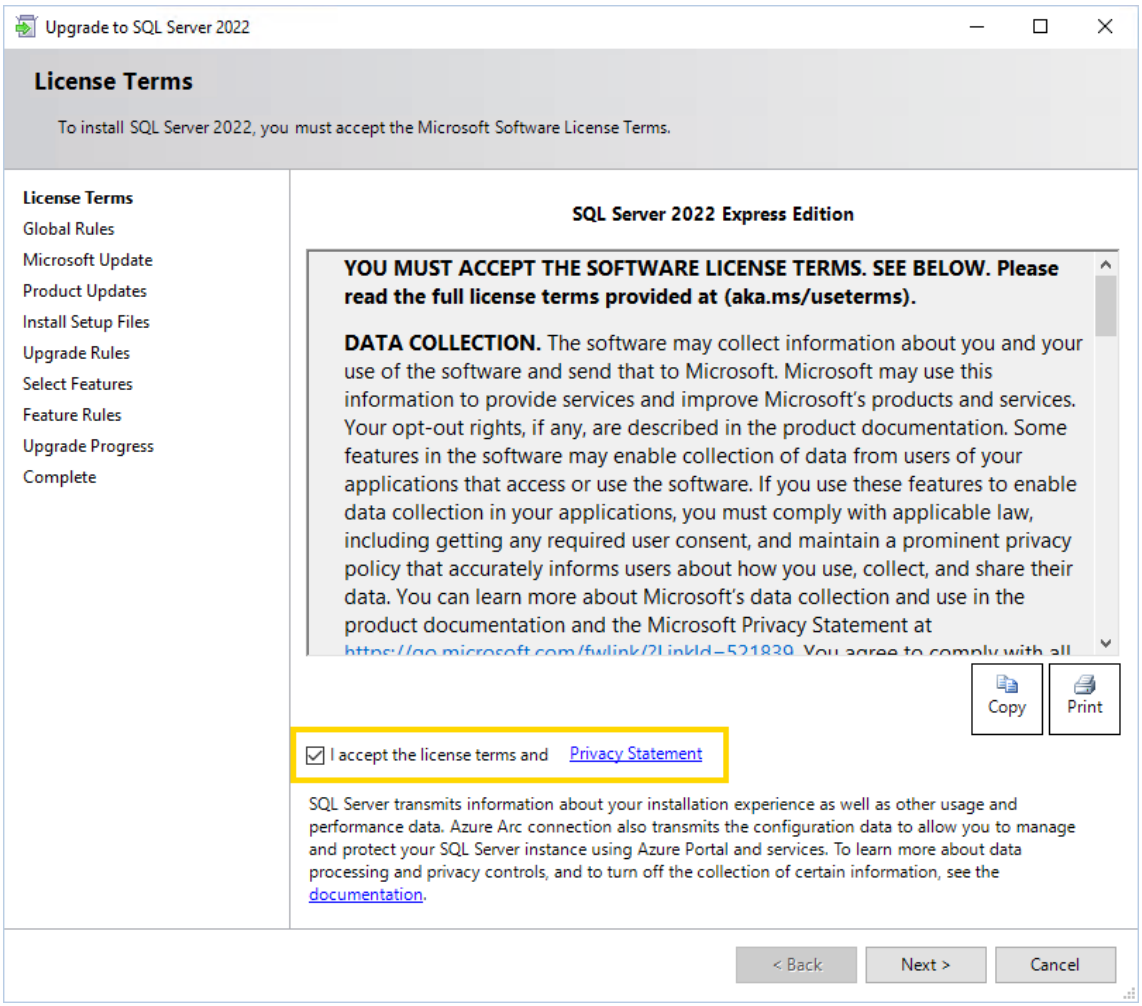
7. In the **Choose Directory For Extracted Files** dialog window, select the directory in which the installation files are to be extracted. Click **Ok**.



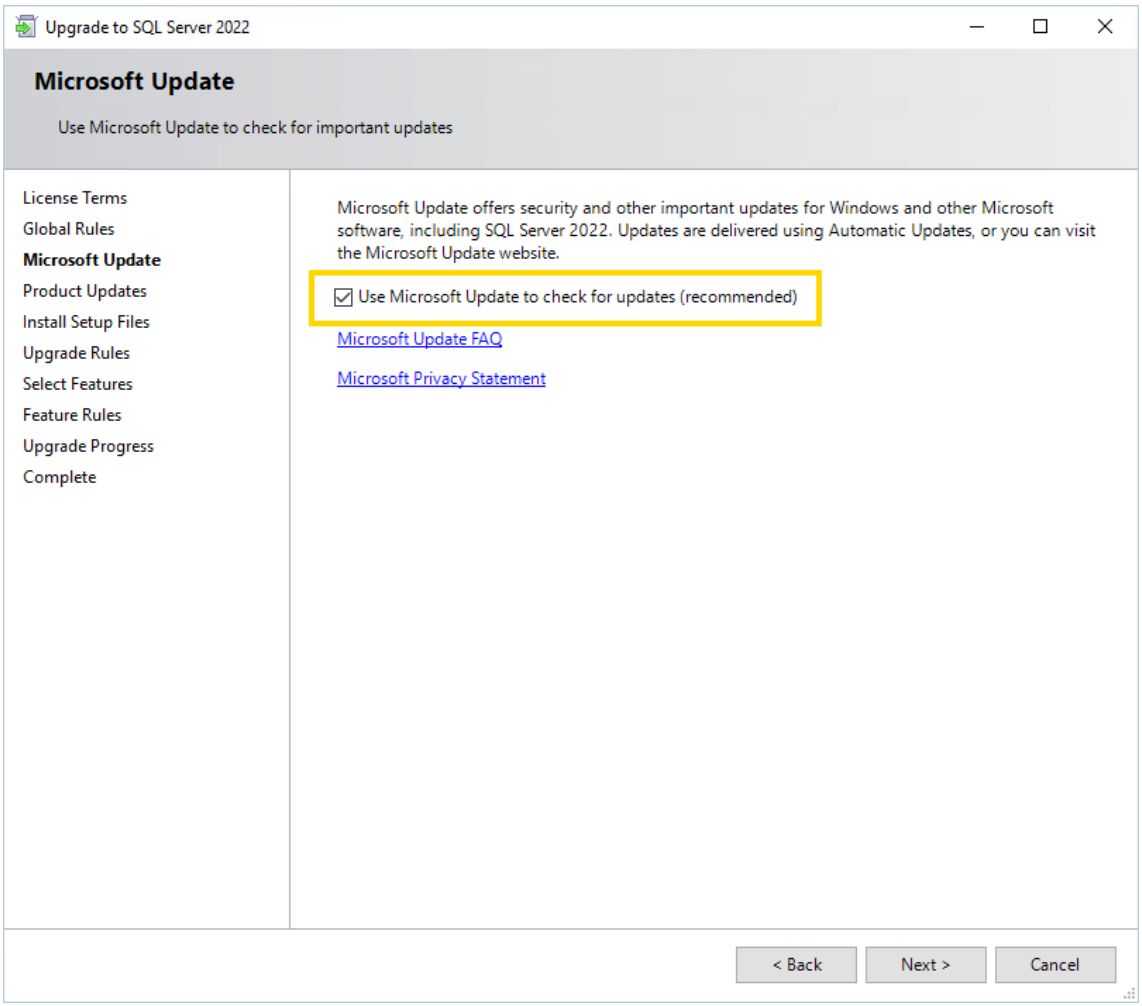
8. In the **SQL Server Installation Center** dialog window, select **Upgrade from a previous version of SQL Server**. If the Installation Center does not start automatically, run the **setup.exe** file from the extracted files.



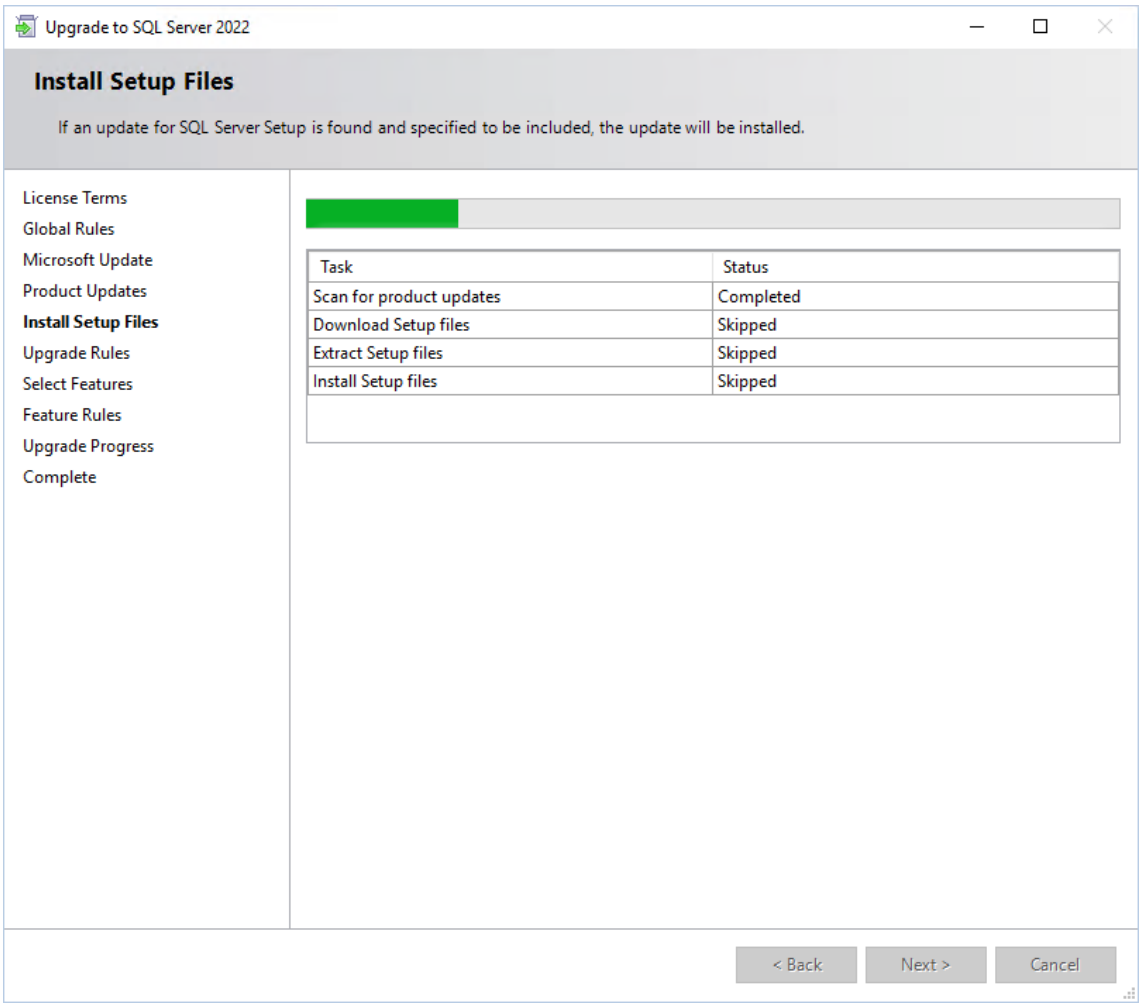
9. In the **License Terms** dialog window, select the **I accept the license terms and Privacy Statement** check box and click **Next**.



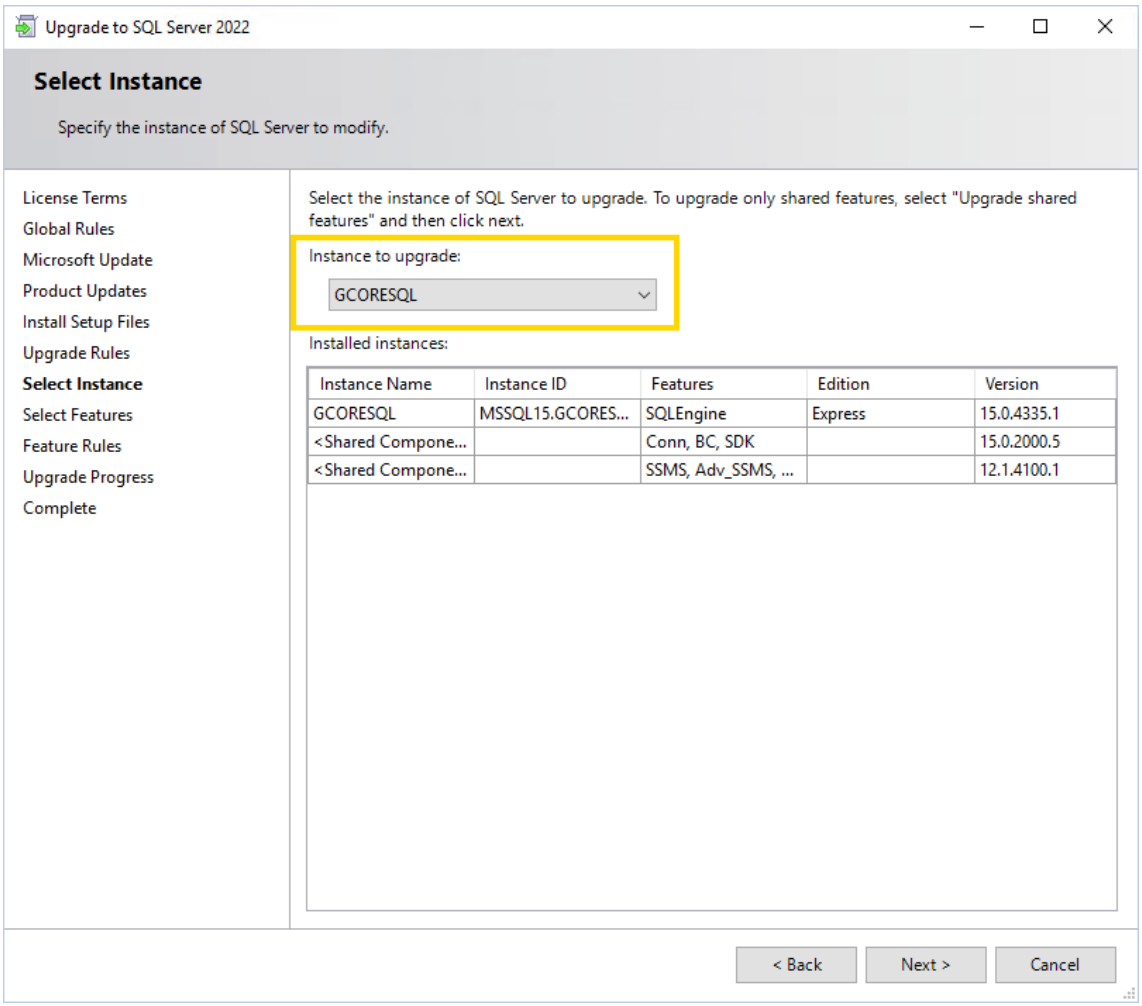
10. In the **Microsoft Update** dialog window, select the **Use Microsoft Update to check for updates** check box and click **Next**.



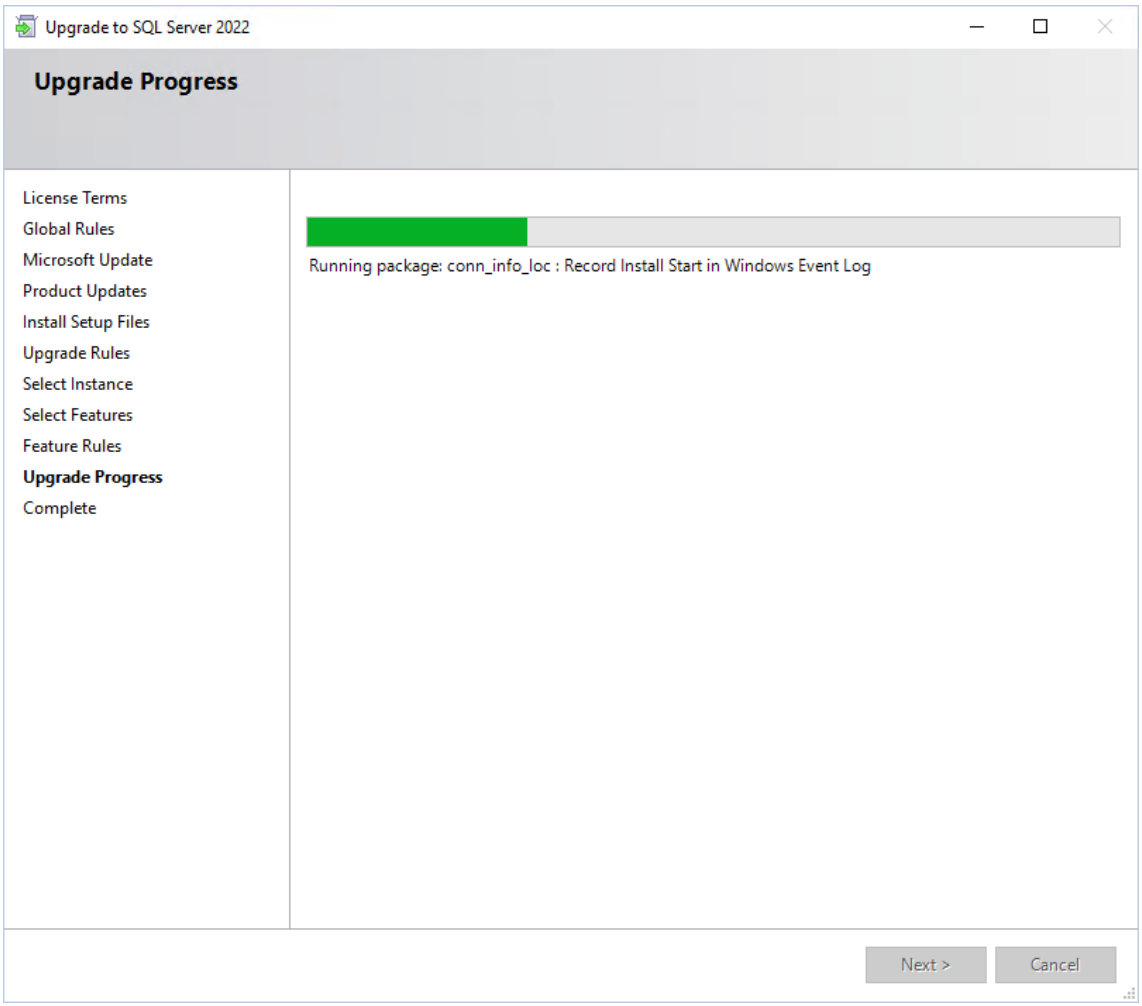
11. In the **Install Setup Files** dialog window, click **Next** when the installation is completed.



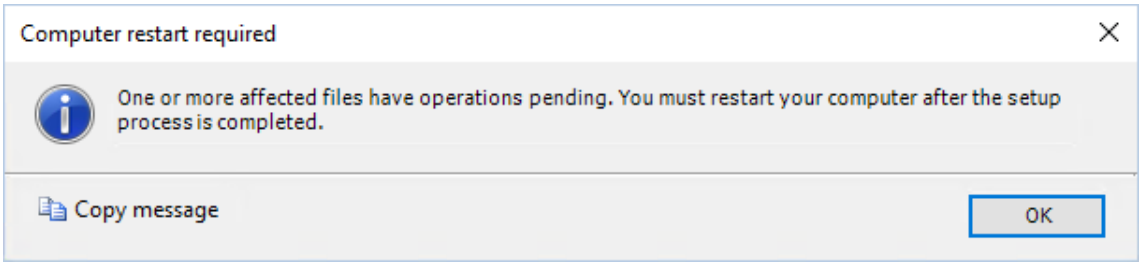
12. In the **Select Instance** dialog window, select the instance to upgrade and click **Next**.



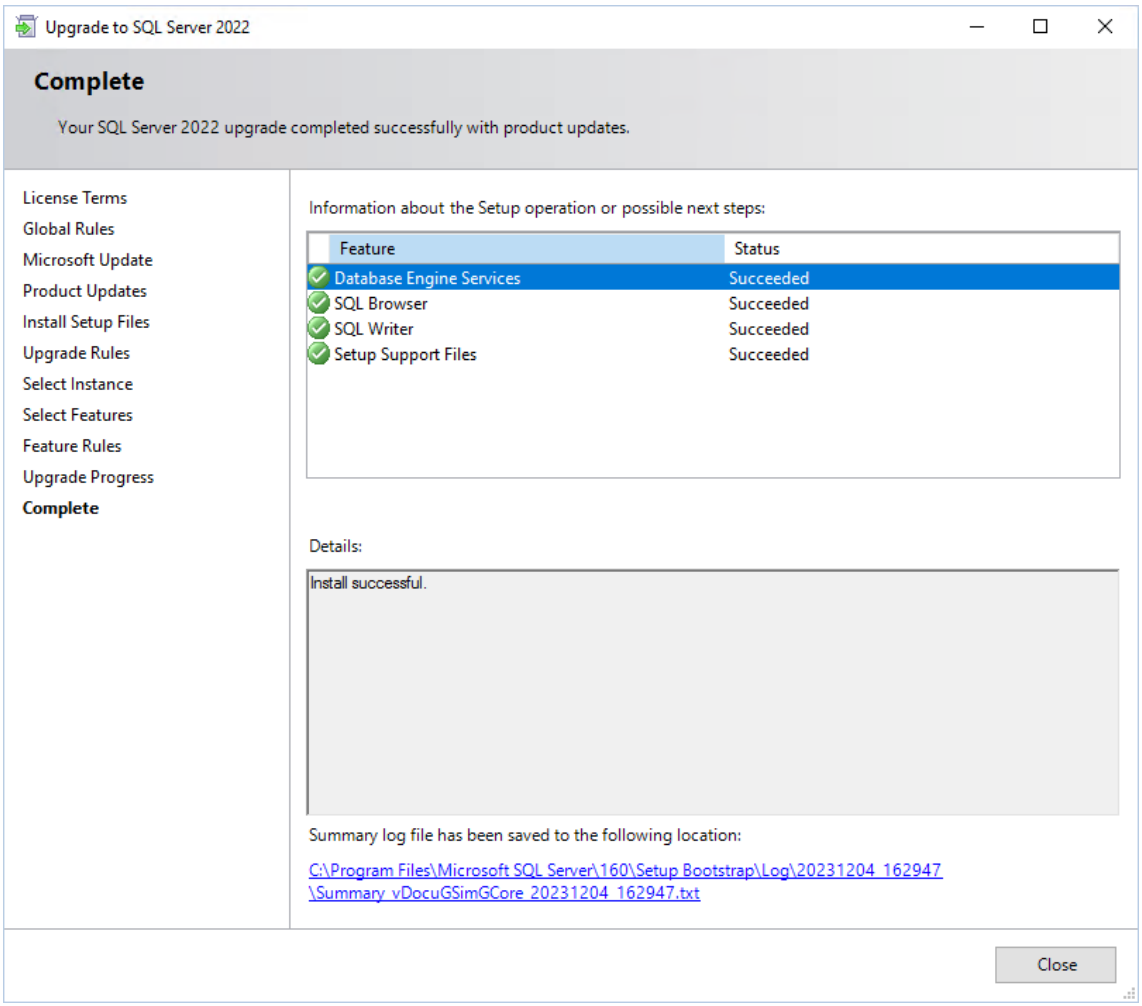
13. In the **Upgrade Progress** dialog window, click **Next** when the upgrade progress is completed.



14. Confirm the message **Computer restart required** with **OK**.

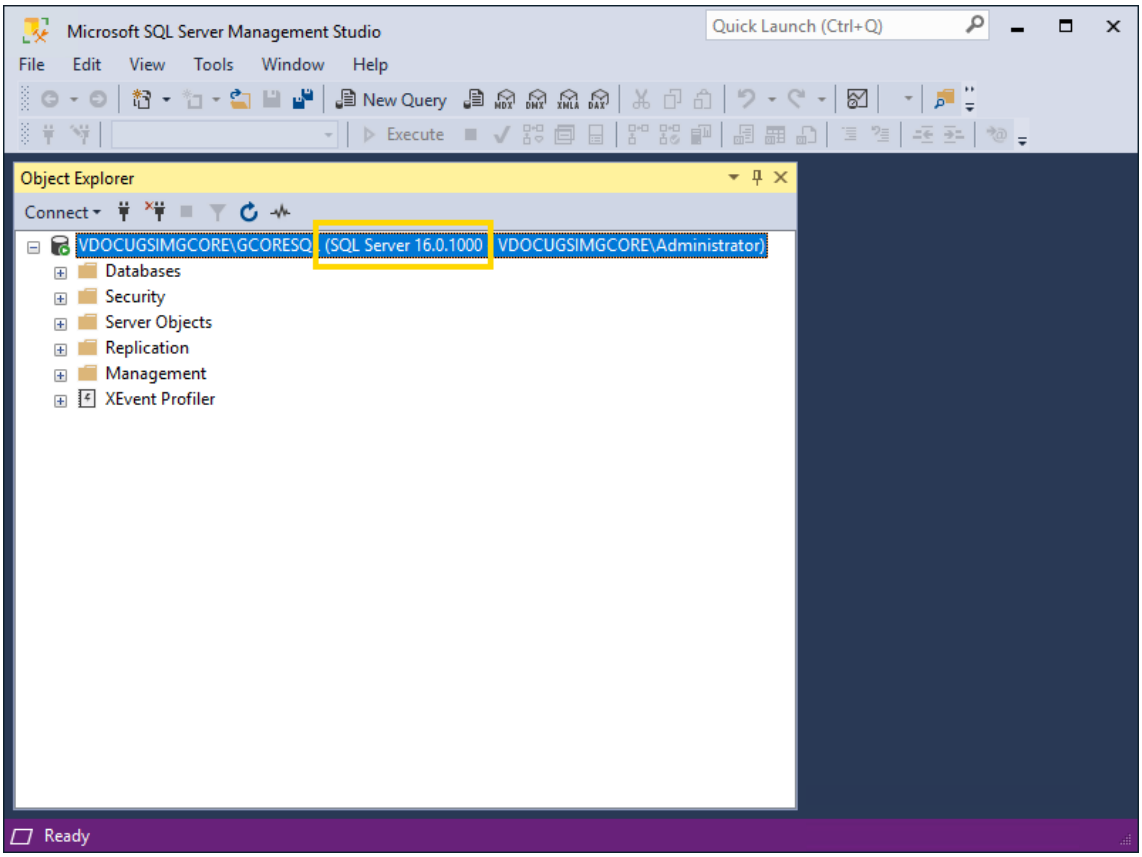


15. In the **Complete** dialog window, click **Close**. The upgrade completed successfully.



16. Restart your computer.

17. You can check the version of your SQL Server in the **Microsoft SQL Server Management Studio**. Version 16.x is SQL Server 2022. You may need to install the tool manually, you can find the download file on the Microsoft website.



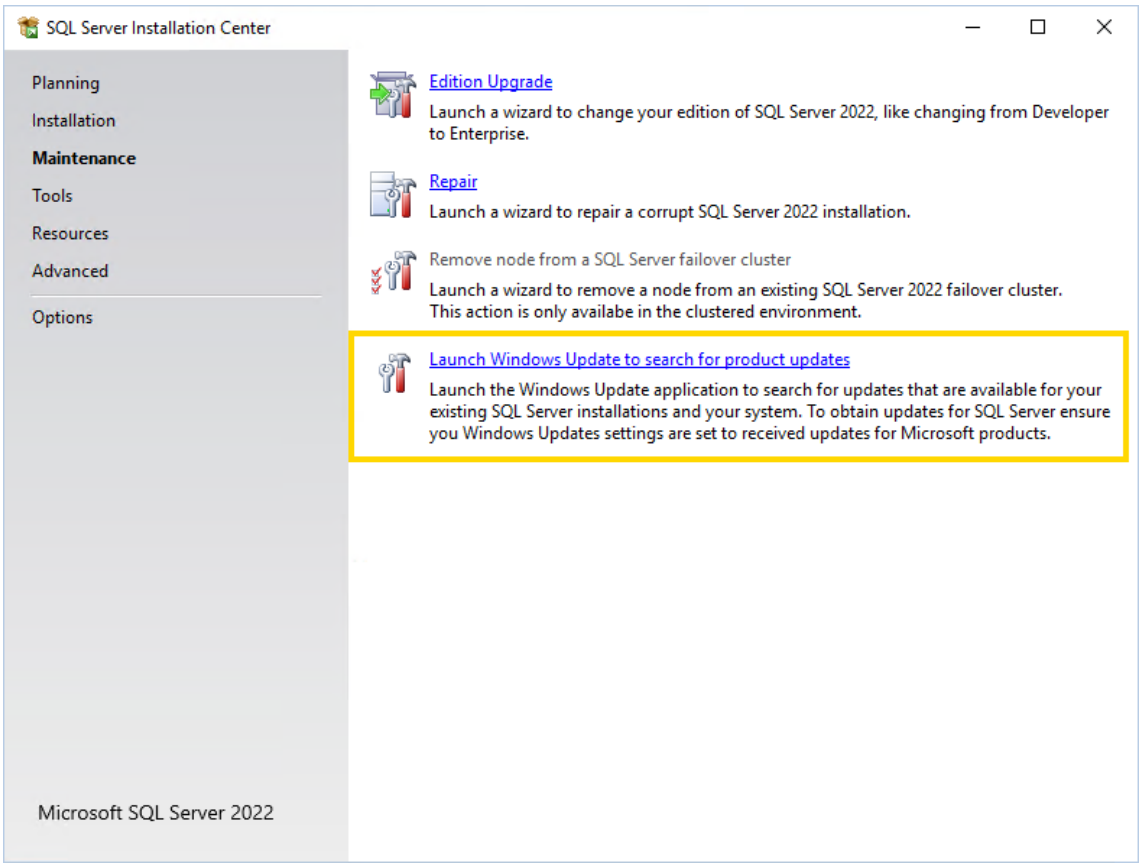
Next, install the latest cumulative security update for SQL Server 2019 to bring your server up to date and close possible security gaps (see Cumulative Update for SQL Server).

Cumulative Update for SQL Server

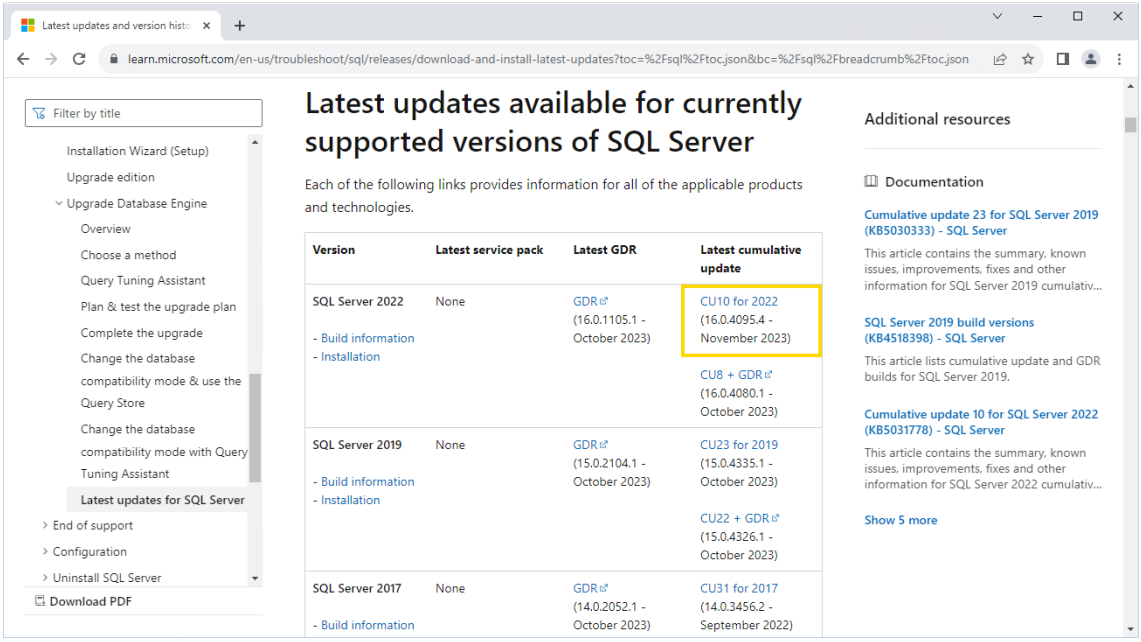
Install the latest cumulative security update for your SQL Server version to bring your server up to date and close possible security gaps.

How to install the latest cumulative update for your SQL Server:

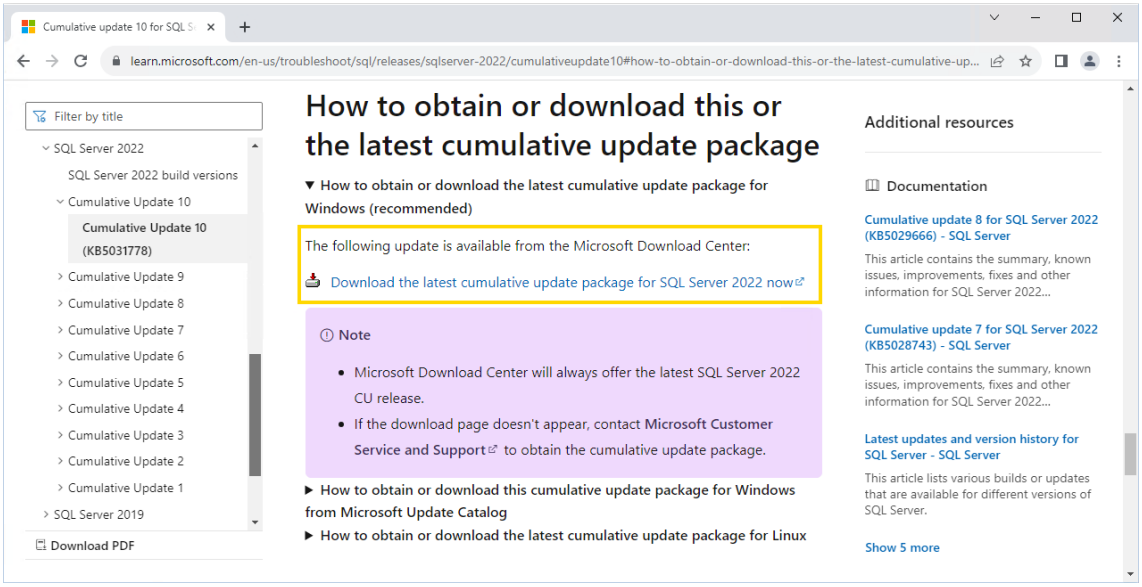
1. Open the **SQL Server Installation Center**.
2. Open the **Maintenance** tab and select **Launch Windows Update to search for product updates**. An internet connection is required.



3. The Microsoft website opens. Select the latest cumulative update for the your SQL Server from the table in the **Latest updates available for currently supported versions of SQL Server** section.

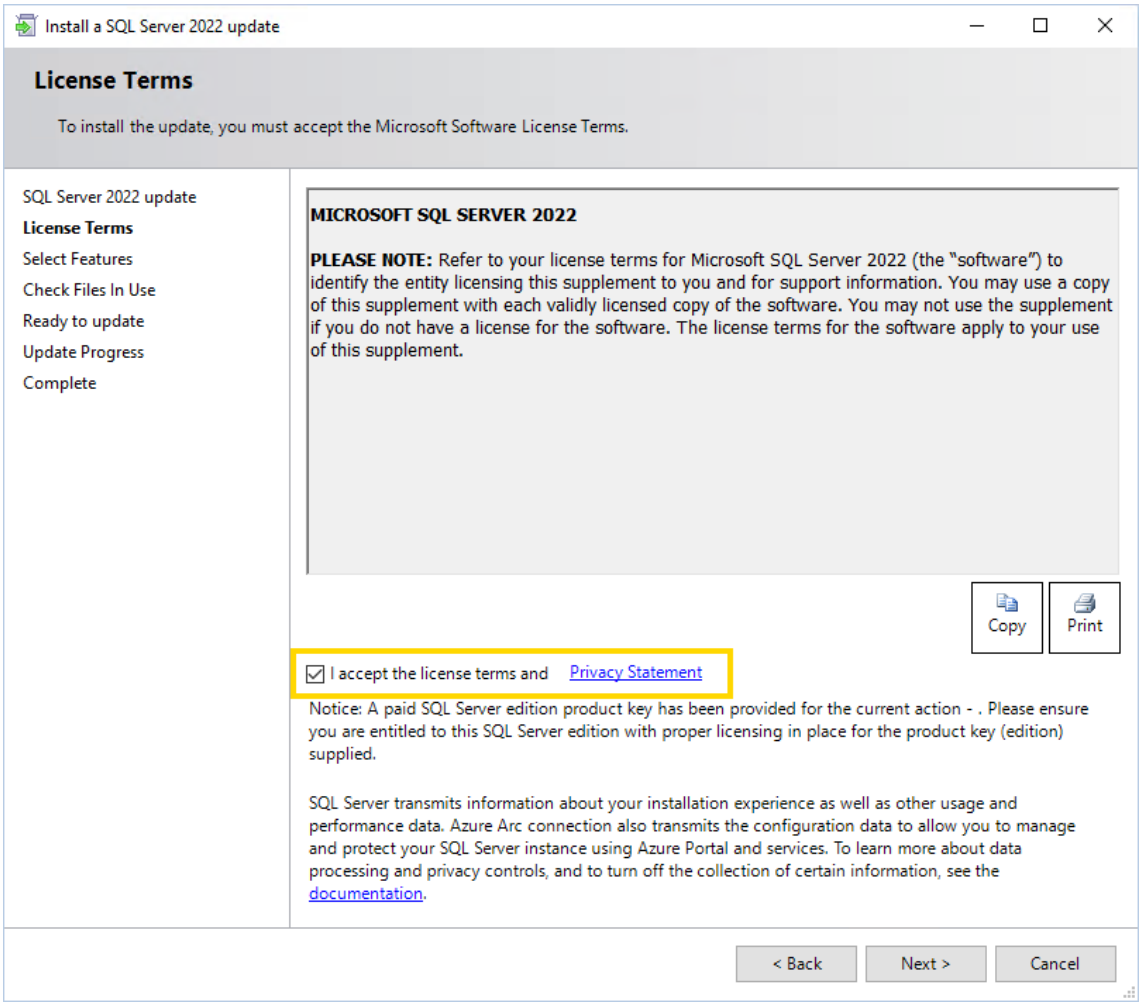


4. The website of the selected update opens. Click the download link in the **How to obtain or download this or the latest cumulative update package** section.

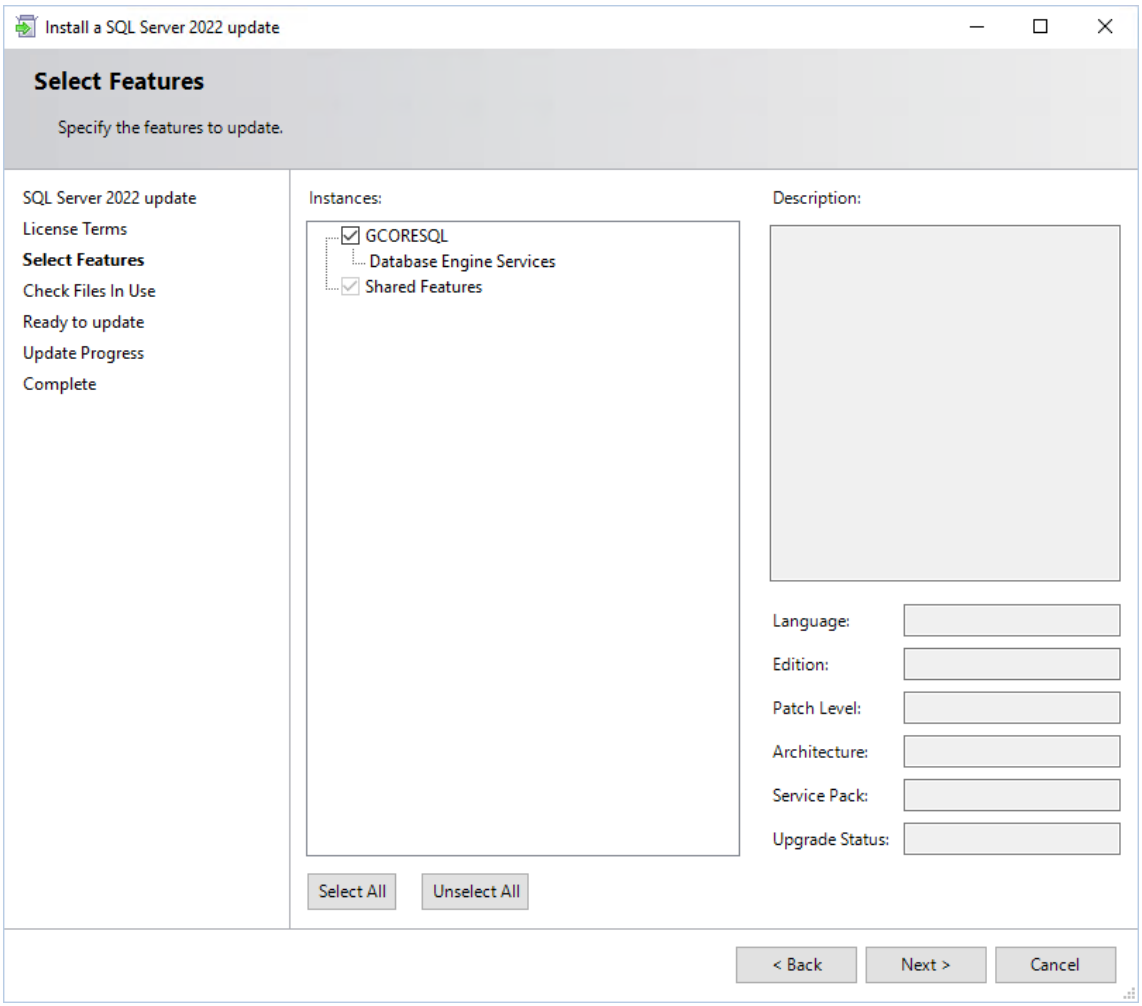


5. The website for downloading the update package opens. Select the language and click on **Download**.
6. Run the downloaded file.

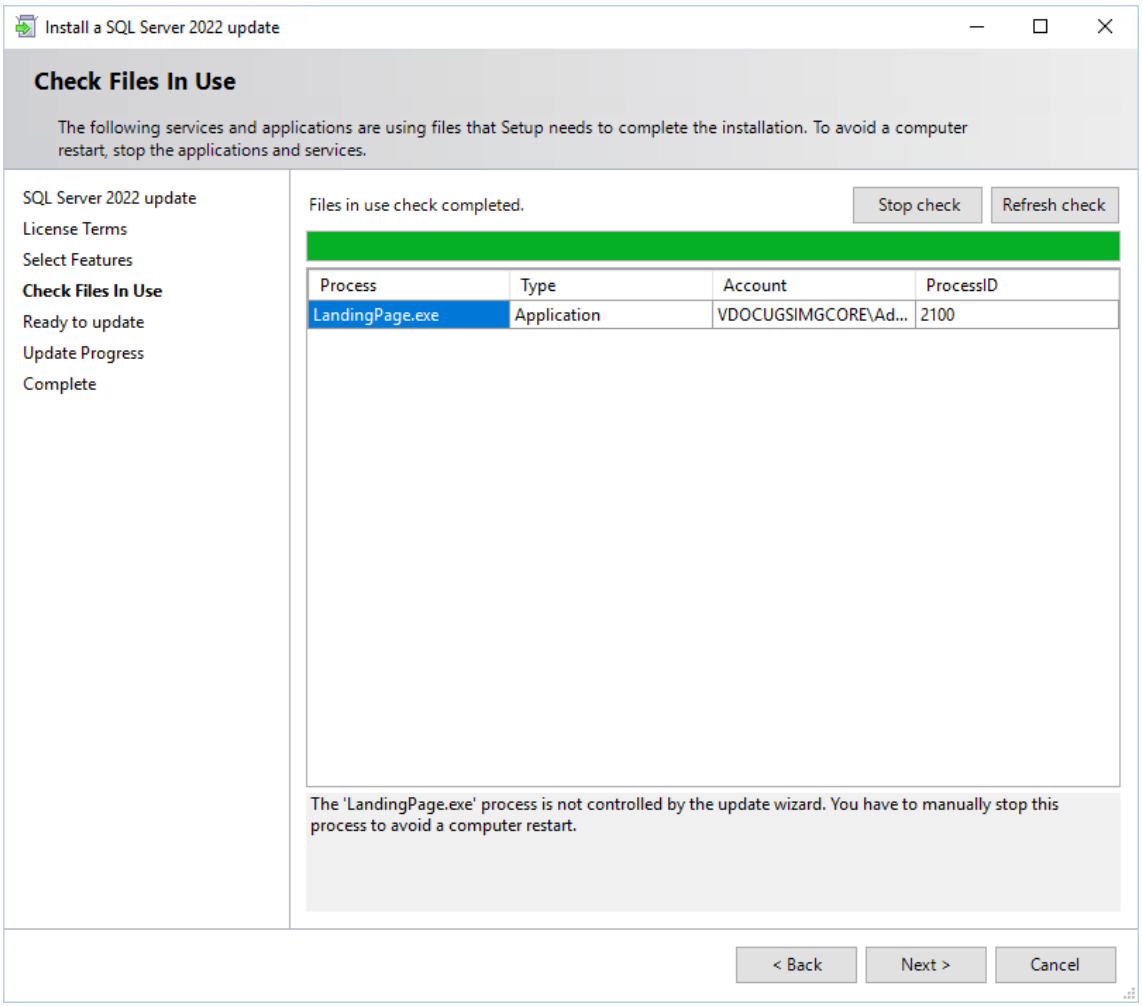
7. In the **License Terms** dialog window, select the **I accept the license terms and Privacy Statement** check box and click **Next**.



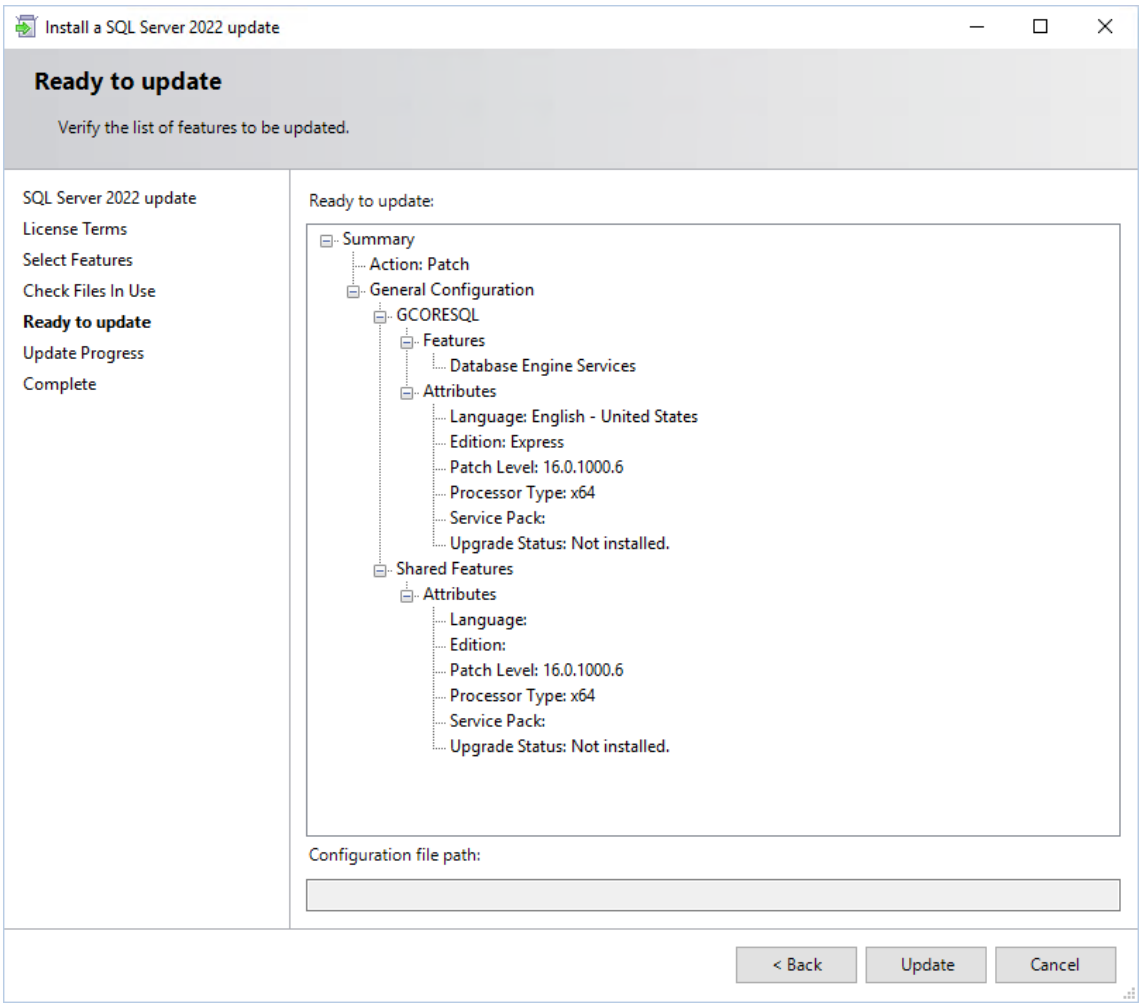
8. In the **Select Features** dialog window, click **Next**.



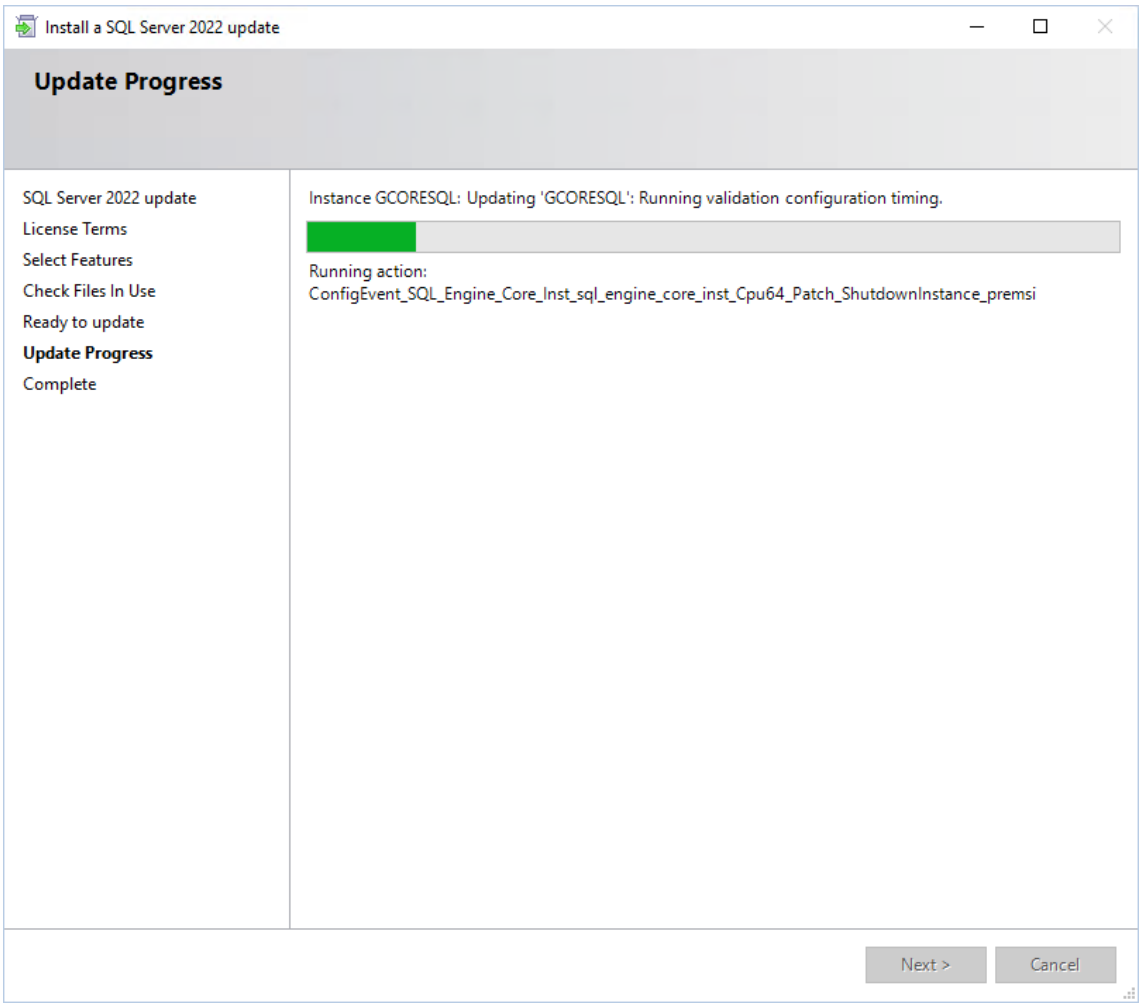
9. In the **Check Files In Use** dialog window, click **Next** when the check is completed.



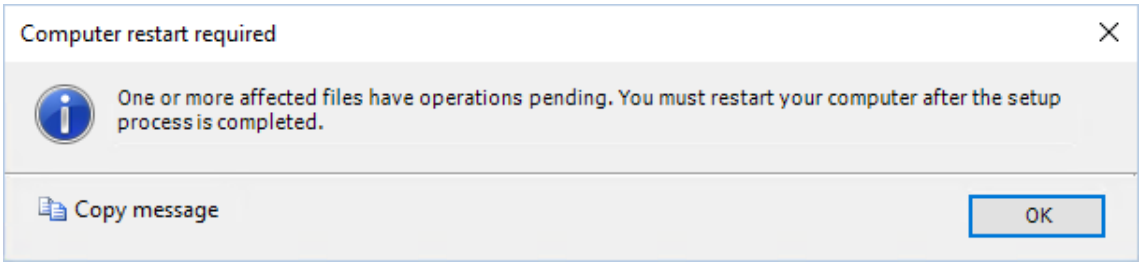
10. In the **Ready to update** dialog window click **Update**.



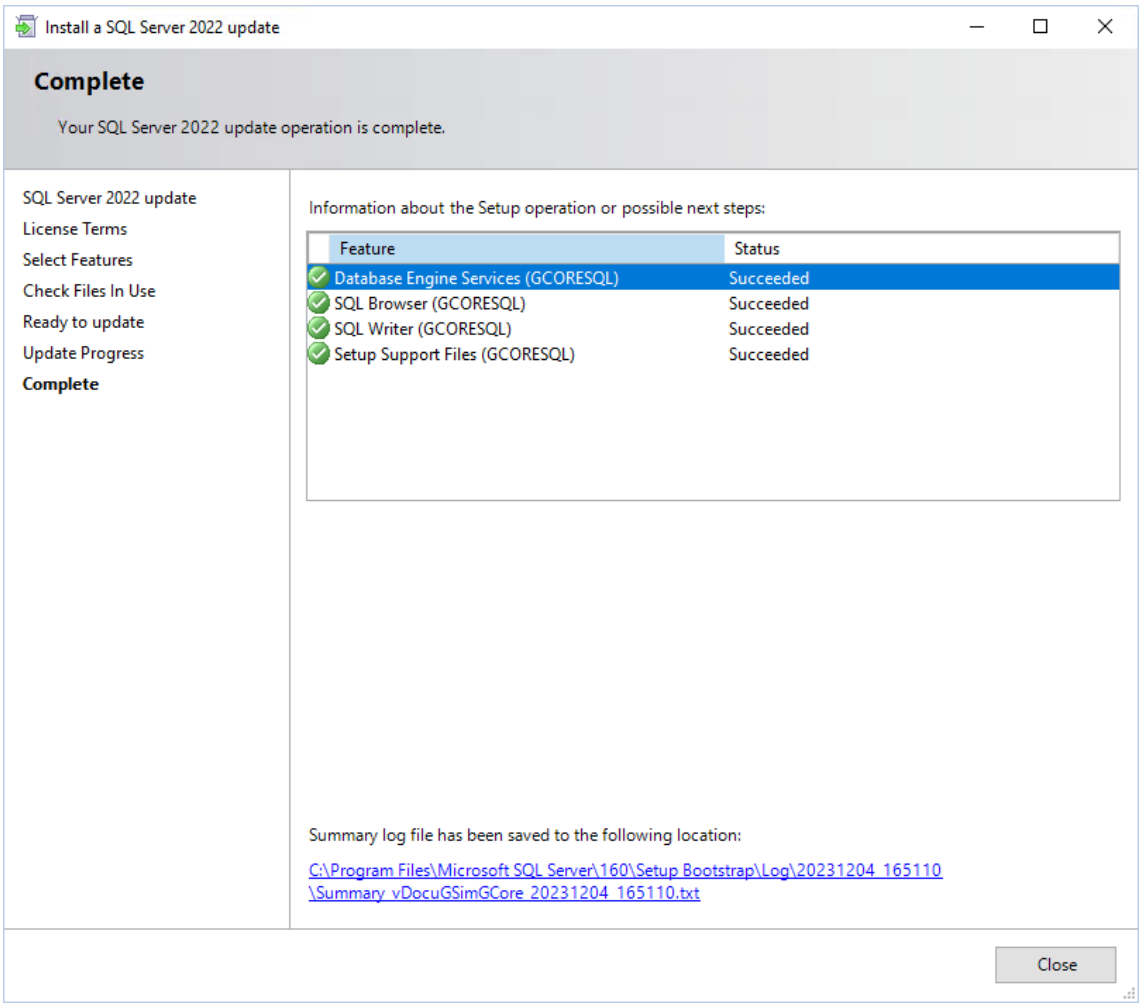
11. In the **Update Progress** dialog window, click **Next** when the update progress is completed.



12. Confirm the message **Computer restart required** with **OK**.

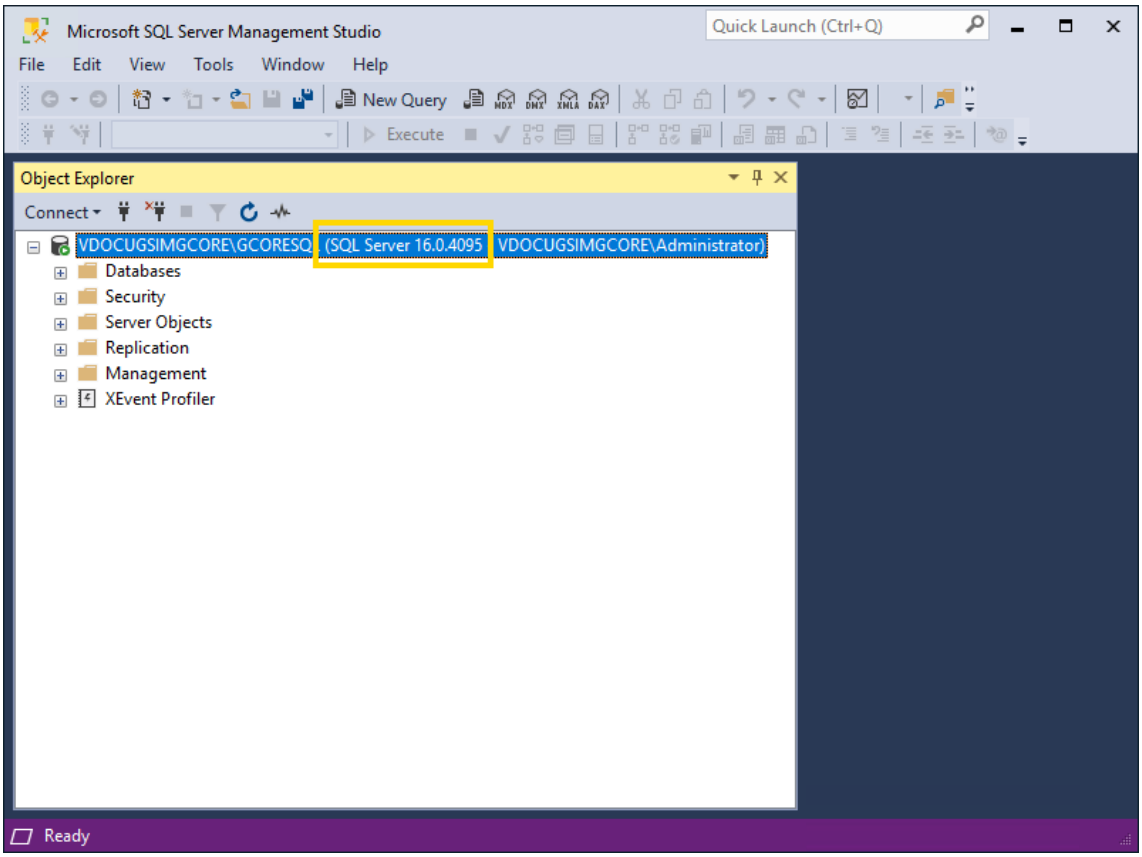


13. In the **Complete** dialog window, click **Close**. The update completed successfully.



14. Restart your computer.

15. You can check the version of your SQL Server in the **Microsoft SQL Management Studio**.



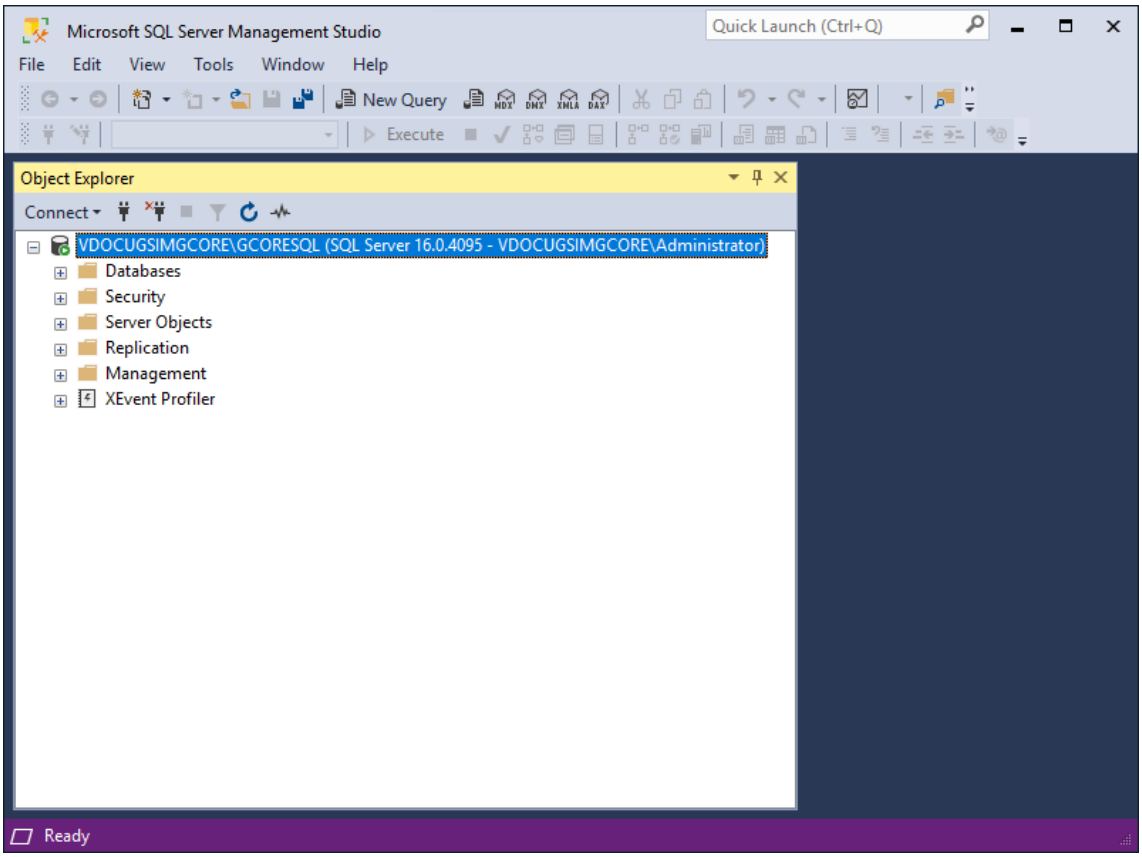
Change SQL Database Directory

The SQL databases are saved by default in the directory `C:\Program Files\Microsoft SQL Server\...`. However, you can change this default directory.

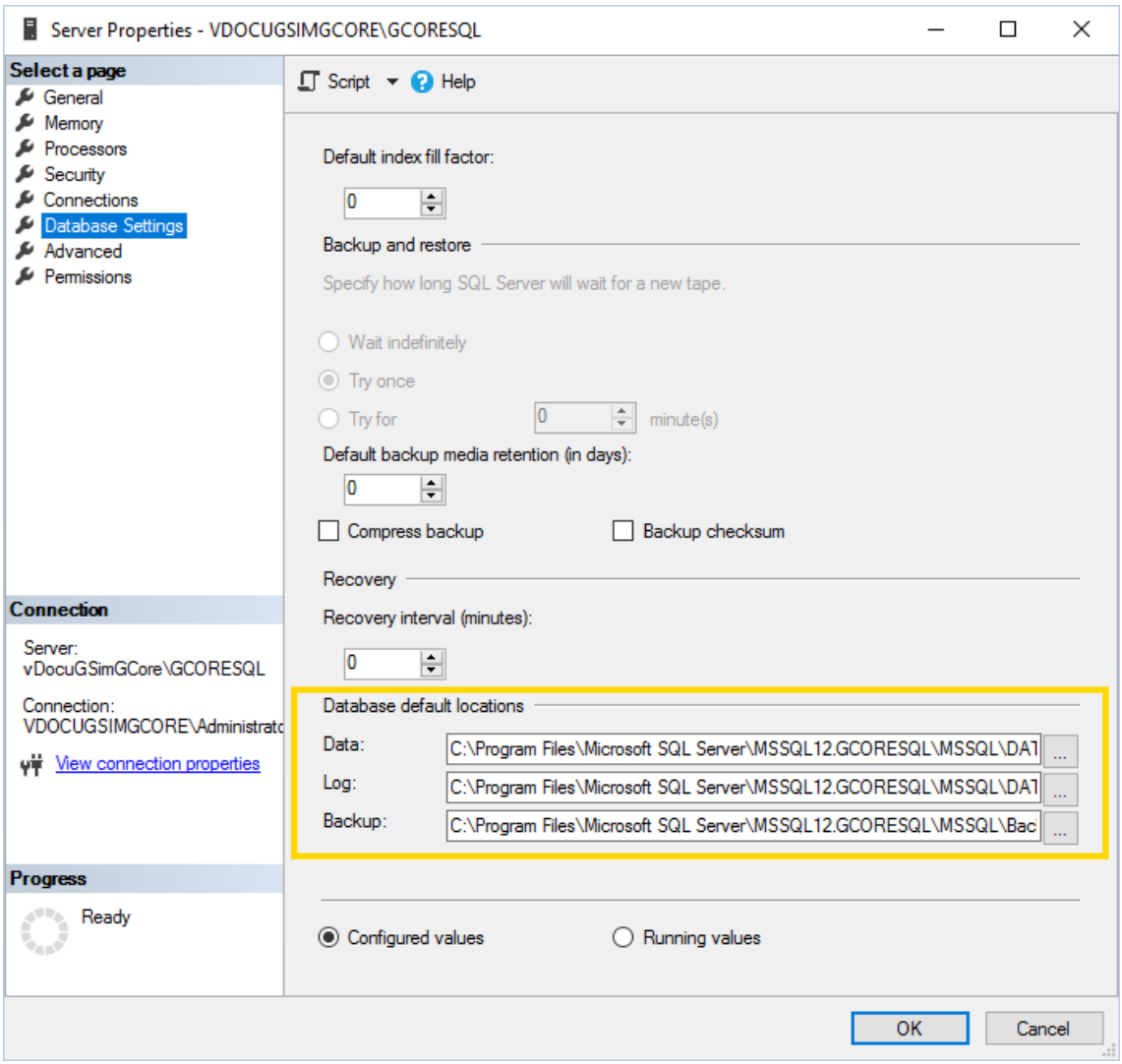
> **Configure the change of the default directory before creating the databases. Otherwise, this change must be performed for each database.**

How to change the SQL database directory:

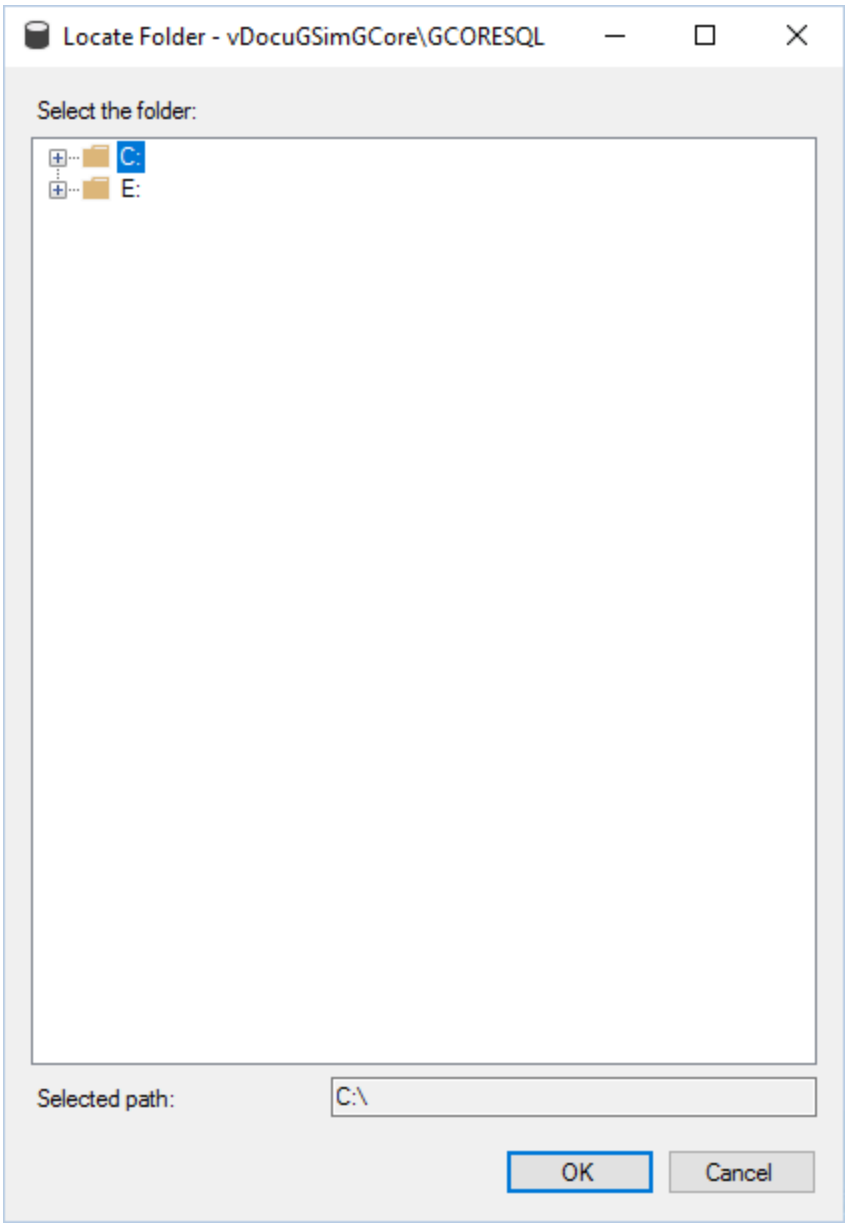
1. Open the **Microsoft SQL Server Management Studio**. The tool is installed with the G-Core SQL installer. If not, you must install it manually. You can find the download file on the Microsoft website.



2. Right-click on the SQL database server and select **Server Properties** from the pop-up menu.
3. In the **Server Properties** dialog window, select the **Database Settings** page.
4. In the **Database default locations** section, you can change the directory for the **Data**, for the **Log** and for the **Backup** of the selected database.



5. Click on the ••• button of the respective directory. The **Locate Folder** dialog window opens.



6. Select the required directory and click **OK**.

Alternatively, it is possible to change a registry key that defines the default directory. Note that an incorrect setting in the registry can damage the system.

Software Licensing

Geutebrück software is subject to licensing and can only be used after installing a license.

License Overview

There are different types of licensing. Depending on the software, there are different license models and license types. Refer to the respective documentation of your products.

Traditional Licensing

With Traditional Licensing, the licenses and options are always bound to a dongle ID (hard or soft dongle).

Up to G-Core version 7.x, all Geutebrück systems use traditional licensing.

Smart Licensing

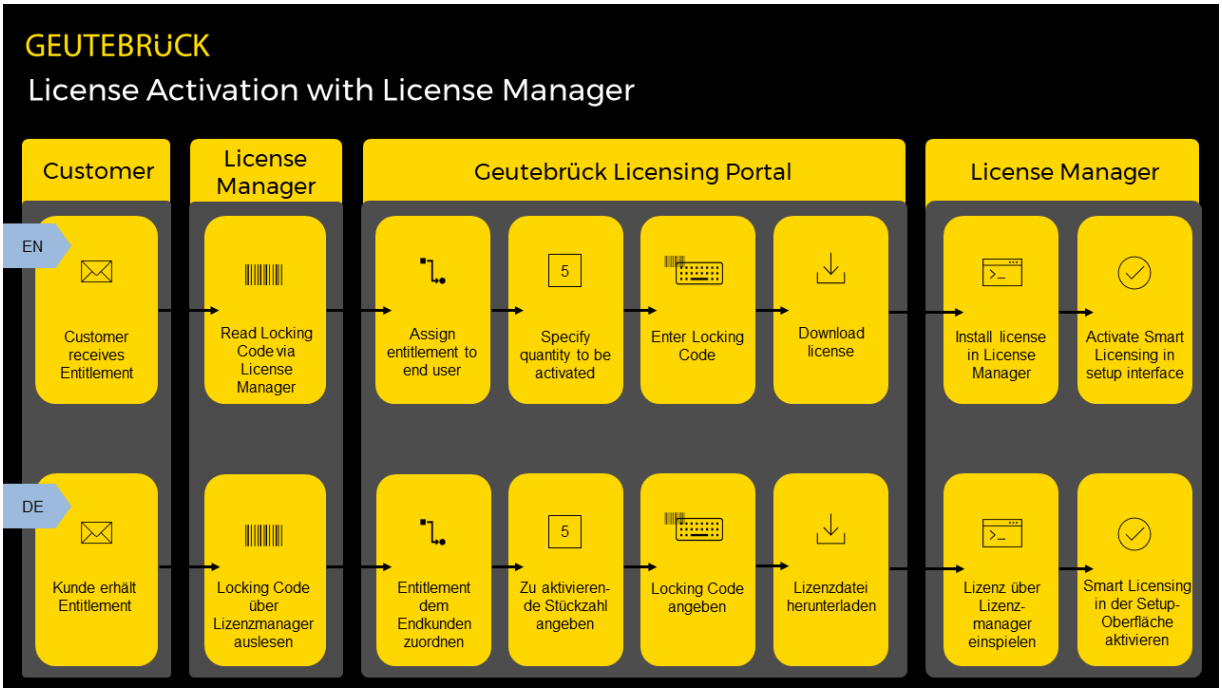
Smart Licensing allows you to purchase software packages and options without knowing where and when they need to be activated. There is no need to assign them to a device before purchase. In addition, Smart Licensing also allows you to independently deactivate software options on a device and activate them on a new device.

Smart Licensing is available from G-Core version 8.0. No new hardware dongles or software dongles are issued with the switch to Smart Licensing.

License Activation

With Smart Licensing, the purchased entitlements are not directly activated, i.e. they are not assigned to a system. You or your Geutebrück partner activate them yourself in the Geutebrück license portal.

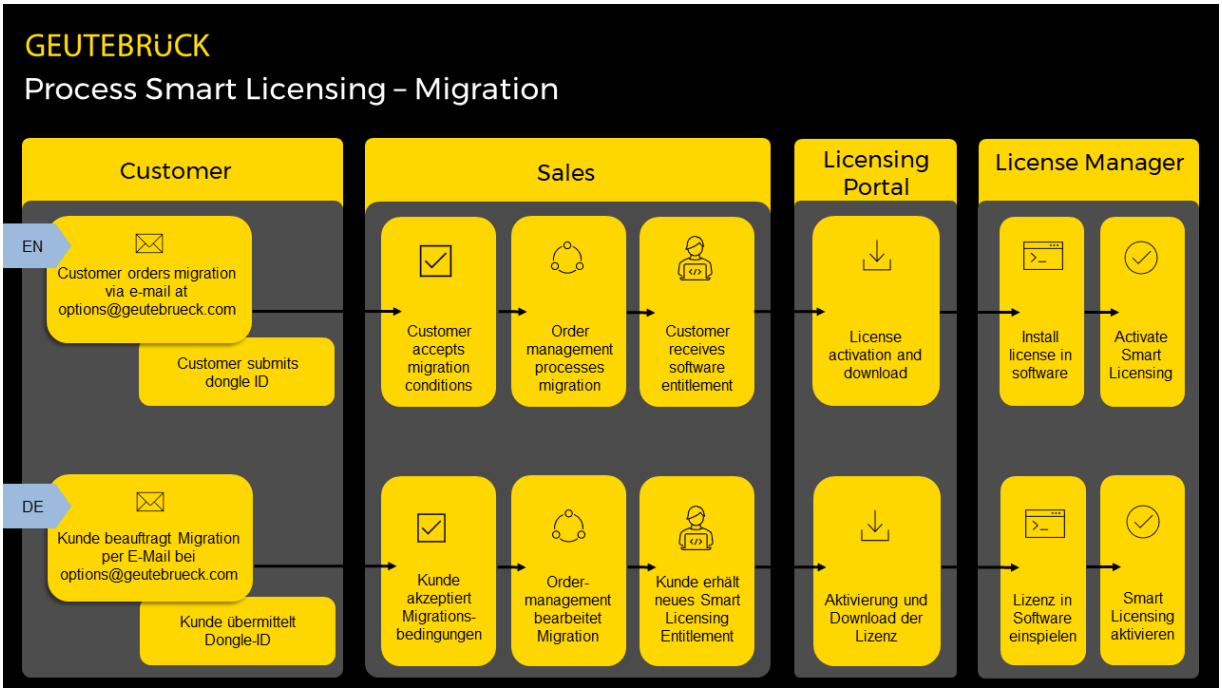
If you do not yet have access to the license portal, contact our sales department.



License Migration

You can migrate your existing licenses to Smart Licensing and enjoy all the new benefits.

To migrate existing dongles to Smart Licensing, contact our sales department.

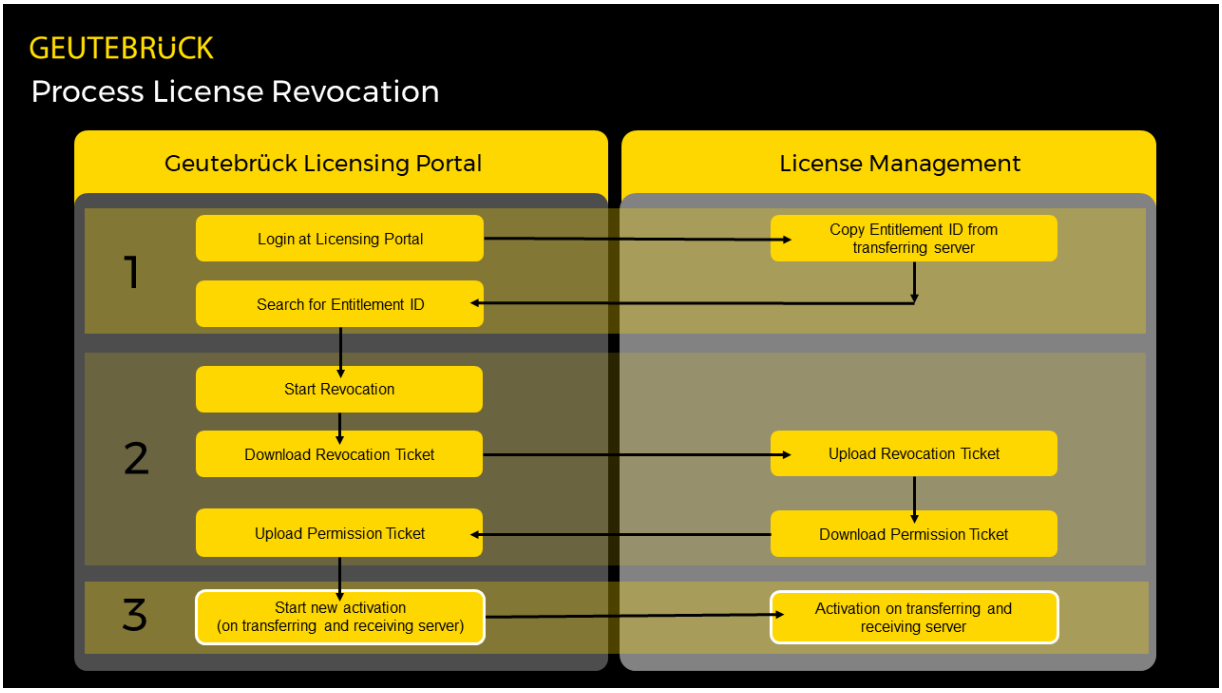


License Revocation

With Smart Licensing, you can independently deactivate software options on a device and activate them on a new device.

To start the revocation process, go to the Geutebrück license portal. There you can select the activation you want to revoke and download the permission ticket. You must then upload this ticket in the license manager (see **Revoke License**).

Only fully activated license packages can be deactivated and reactivated. Deactivated licenses remain executable on the original device for 30 days.



Upgrade Expiration Date

Each software product has an individual upgrade expiration date. When you purchase the software, you automatically receive one year of upgrade entitlement from the date of activation. With the appropriate upgrade packages you can extend the upgrade entitlement for one year. This is possible at the earliest 60 days before the current upgrade entitlement expires.

Note that prematurely activated upgrade packages cannot be installed. This is only possible 60 days before the upgrade expiration date.

Upgrade licenses cannot be migrated.

Installation

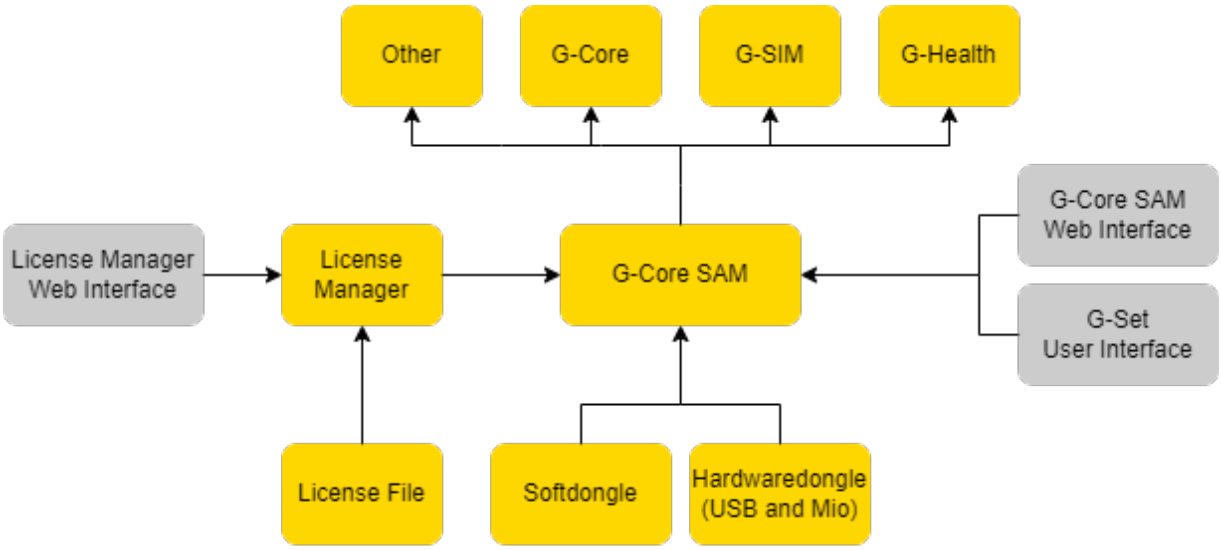
To use Smart Licensing, the new license manager is required. You can install this with the G-Core or G-Core SAM Installer. For information on installing and using the License Manager, see **here**.

Legacy

For older software there are legacy license models. These are not described here, if you have questions about them, contact the sales department.

Architecture and Configuration Interfaces

The following overview shows the architecture and configuration interfaces:



G-Core SAM manages licenses internally and provides them to the software products.

It is possible to operate with the Smart Licensing or Traditional Licensing license model (see **License Overview**).

- With Smart Licensing, G-Core SAM receives the license files via the license manager. You manage the licenses via the web interface of the license manager (see **License Manager**).
- With Traditional Licensing, G-Core SAM receives the license files via a software or hardware dongle. You manage the licenses via the G-Core SAM web interface (see **G-Core SAM**) or the G-Set user interface (see **Options Menu**).

License Manager

The license manager is a server system that makes its available options or licenses available to remote systems.

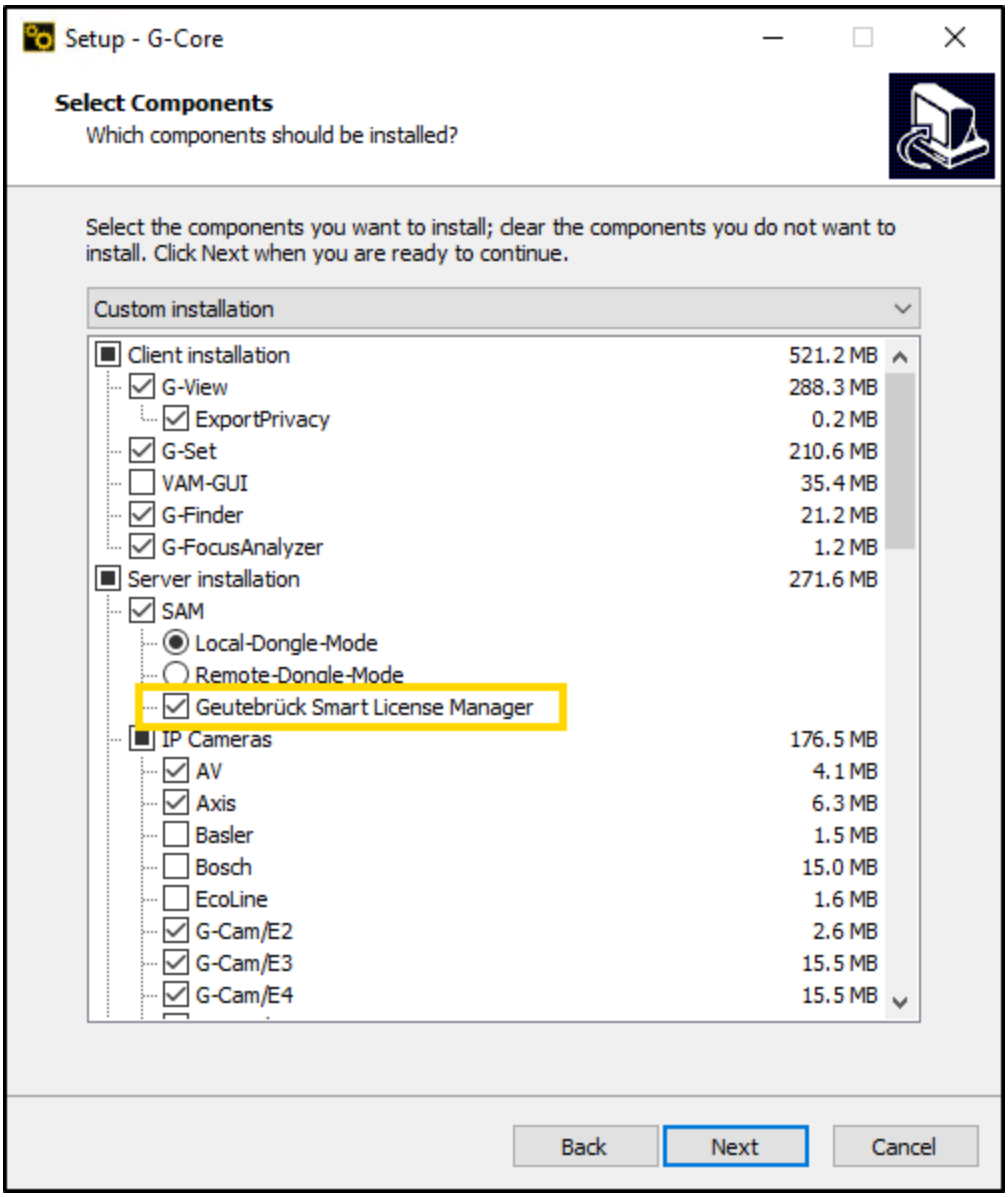
This license management is accessible via a web interface.

Installation

Server Installation

Install the License Manager on the G-Core server using the G-Core installer.

1. Run the `G-Core_installer.exe` file.
2. Accept the **License Agreement** and click **Next**.
3. In the **Select Components** dialog window, select the **Geutebrück Smart License Manager**.



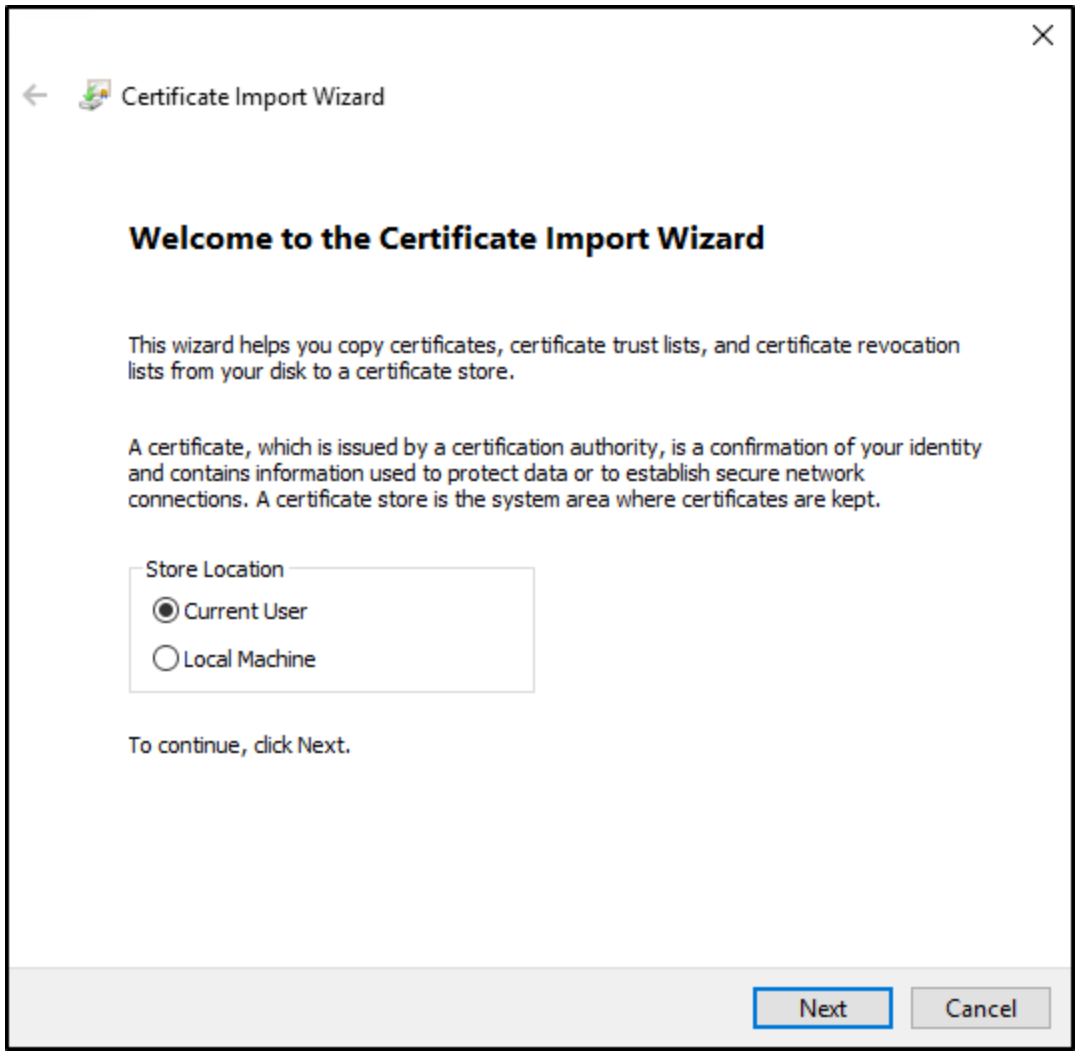
4. Click **Next** an follow the further installation steps (see **Software Installation**).
5. In the **Ready to Install** dialog window click **Install**.
6. G-Core and the License Manager are installed.
7. To complete the installation, the computer must be restarted.

> **Make sure that both the installation of the license manager and the G-Core installation are completed before performing the restart.**

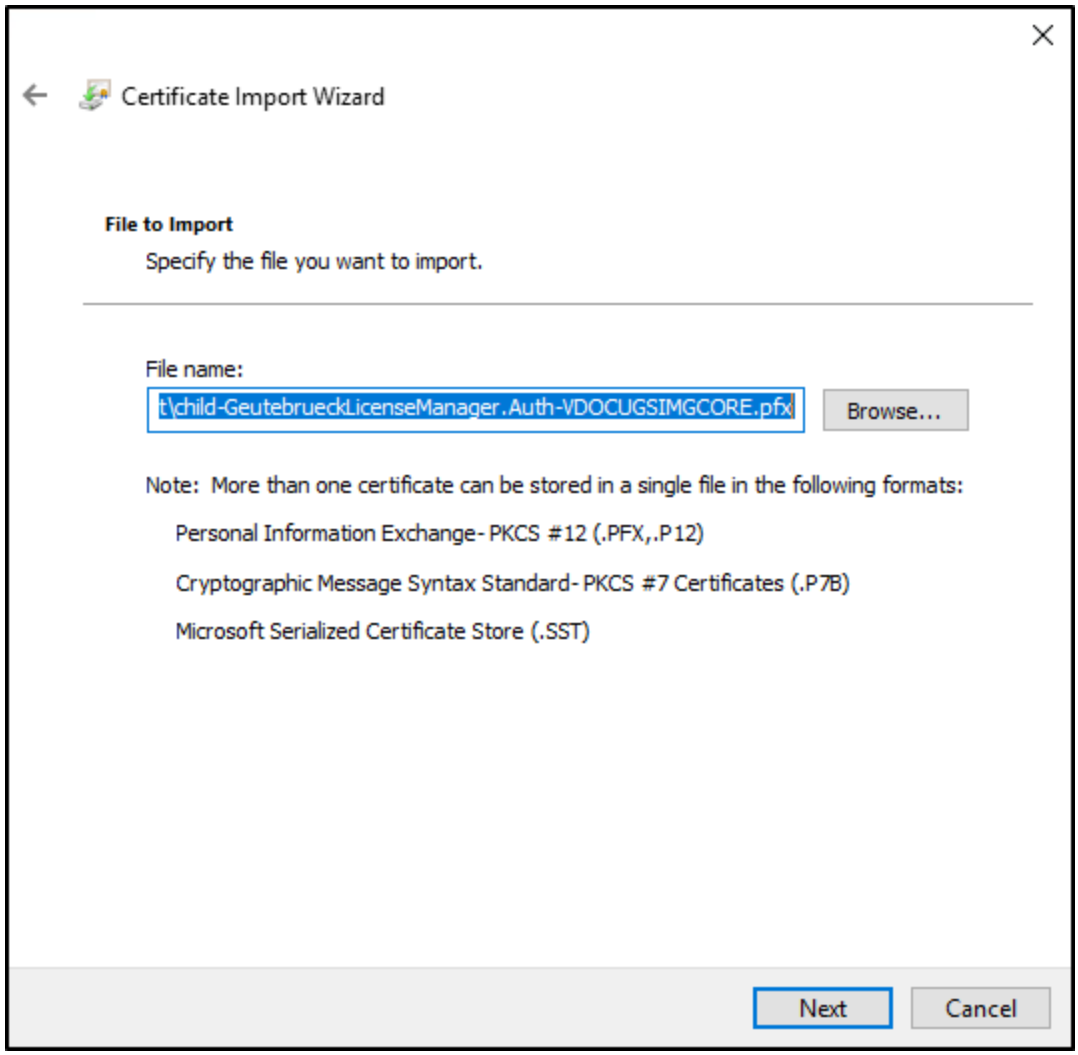
Client Installation

The authentication certificate for the License Manager web interface is automatically installed for the server and stored for the Microsoft Edge and Google Chrome browsers. To access the License Manager web interface from another client, install the authentication certificate on the respective client.

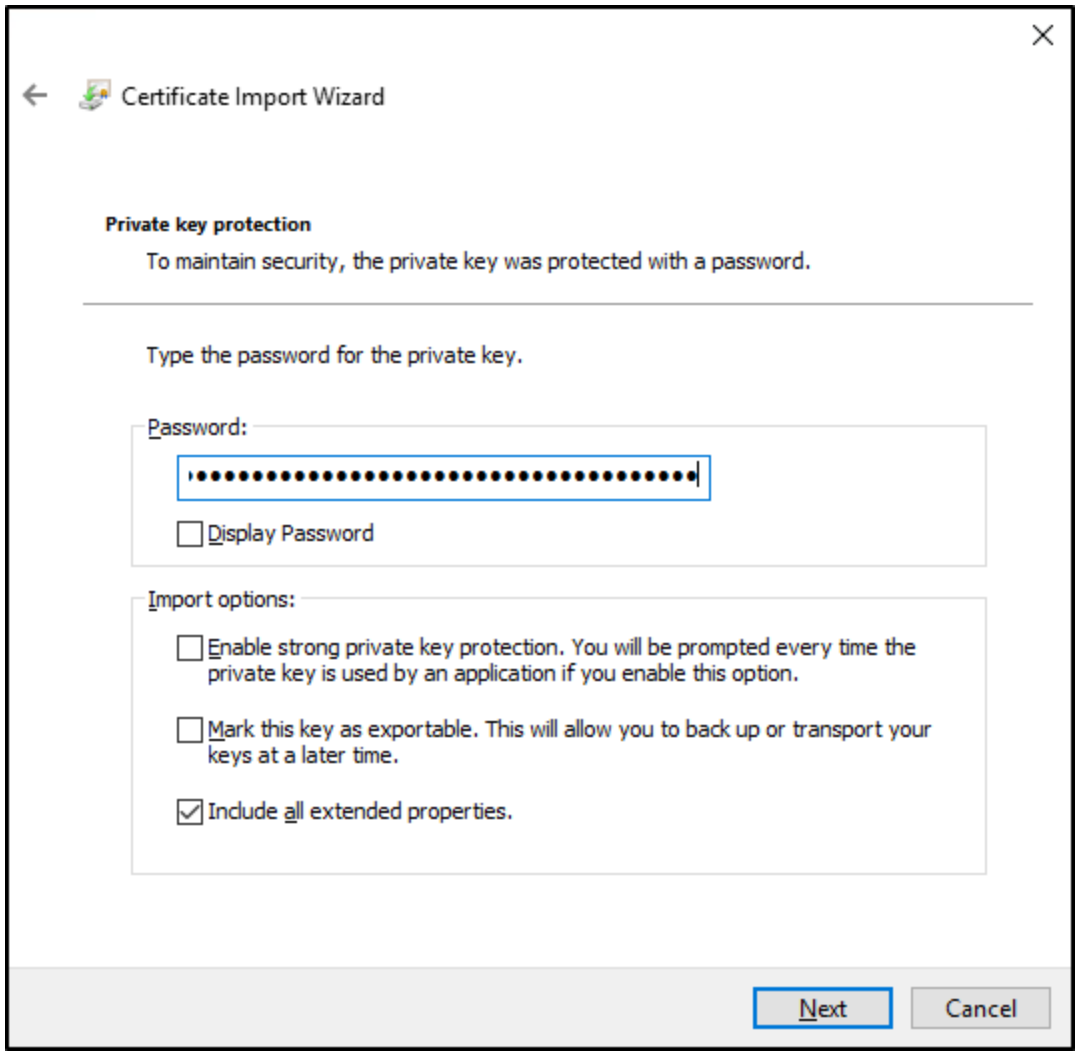
1. After installing the License Manager, find the certificate to be used for the License Manager authentication in the folder `C:\Program Files\Geutebrueck\Licensing\child-root`.
2. Run the certificate file `child-GeutebrueckLicenseManager.Auth-xxx.pfx`.
3. The **Certificate Import Wizard** opens.
4. Select **Current User** as **Store Location** and click **Next**.



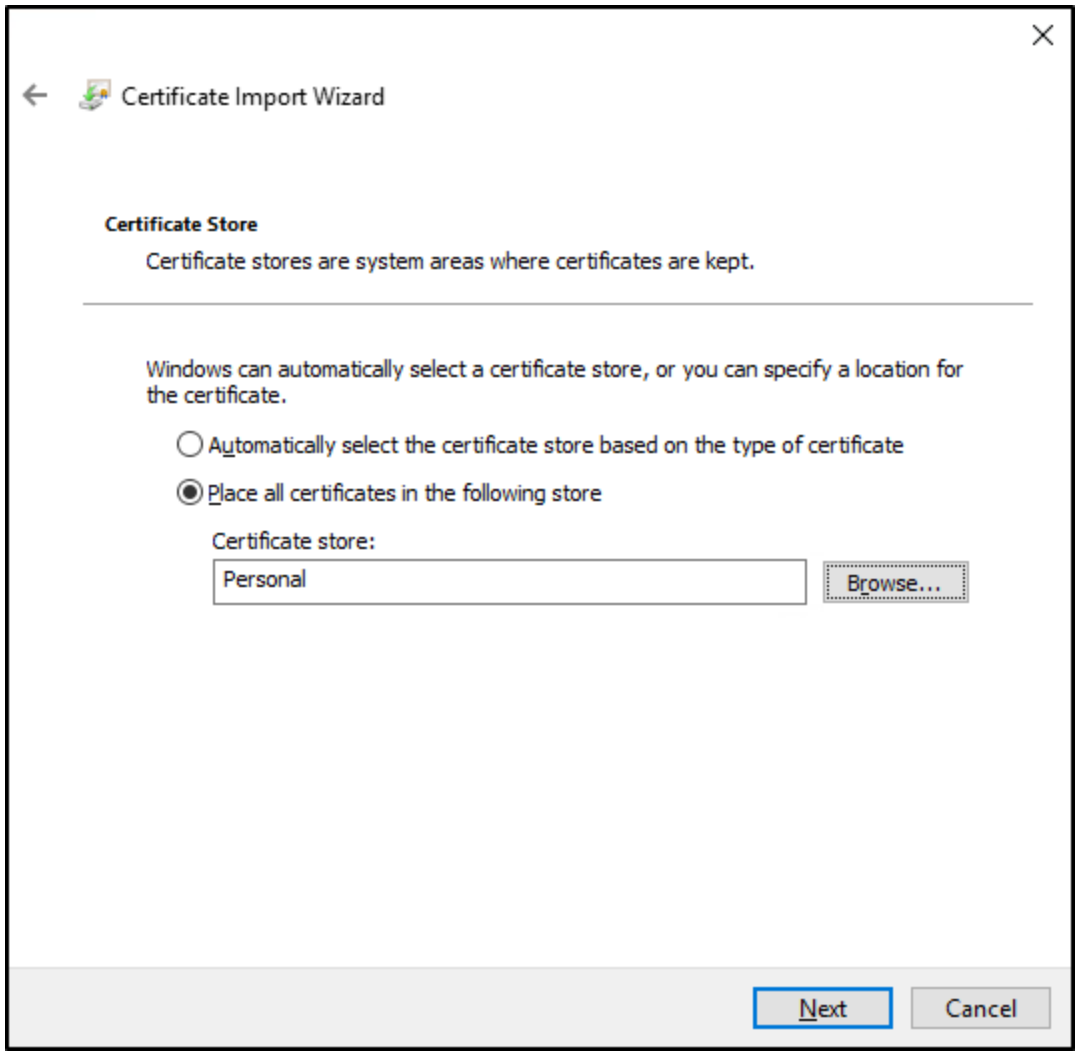
5. The **File to Import** can remain the default value already specified. Click **Next**.



6. Type the password for the private key. This password is noted in the file `child-GeutebrueckLicenseManager.Auth-xxx.pfx.$password.txt` in the folder `C:\Program Files\Geutebrueck\Licensing\child-root`.

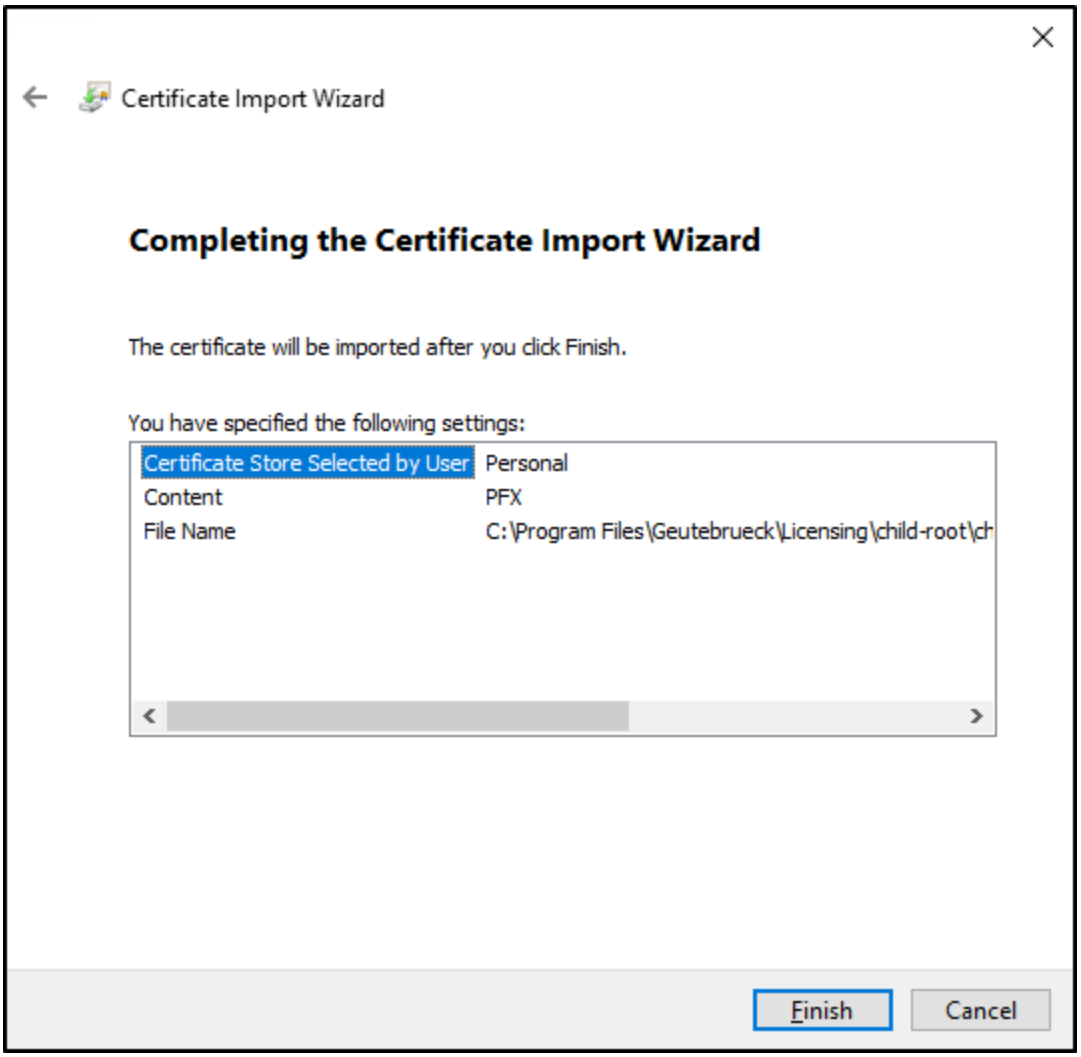


7. Click **Next**.
8. Select the option **Place all certificates in the following store** for the certificate store.
9. Select **Personal** as **Certificate store**.

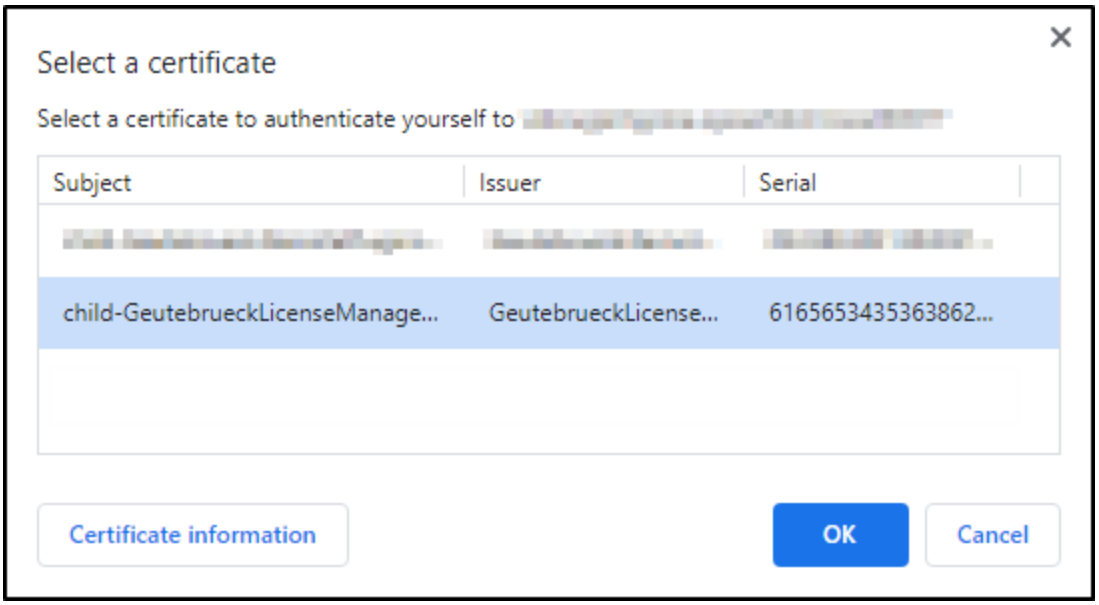


10. Click **Next**.

11. The dialog window **Completing the Certificate Import Wizard** lists your specified settings. Click **Finish**, to complete the installation.



12. When you open the License Manager web interface in the browser for the first time on the respective client, a pop-up window now appears asking you to select a certificate for authentication. Select the installed certificate and confirm with **OK**.



→ The License Manager web interface opens.

Open the Web Interface

The web interface requires the latest version of Microsoft Edge or Chrome browser.

How to open the License Manager web interface:

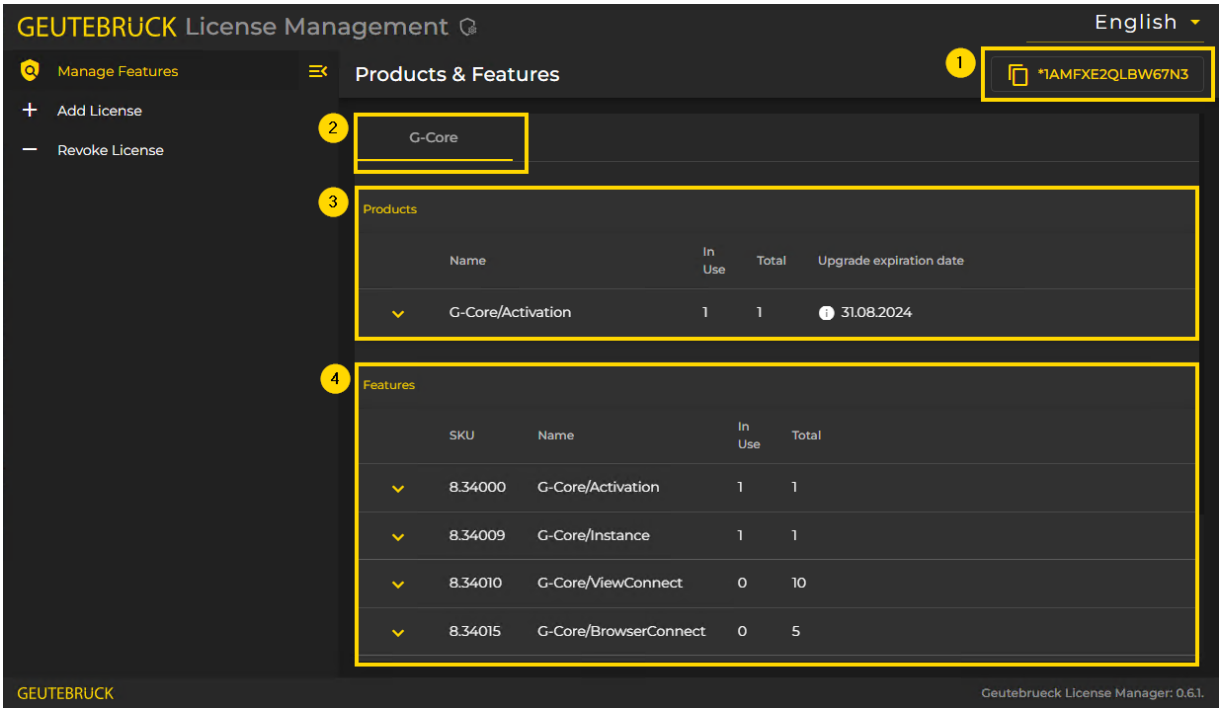
- On the server: Open the web interface with the URL `https://localhost:30317/administration/features` or the desktop icon.
- On the client: Open the web interface with the URL `https://<hostname or host-ip>:30317/administration/feature`.

When you open the License Manager web interface in the browser for the first time, the error message Your connection isn't private appears. Click the Advanced button and then Continue to localhost (unsafe).

The default page of the License Manager web interface is empty and does not show any licenses.

Manage Features

In the Products & Features view, you can manage the licenses. The view provides an overview of the available licenses and options.



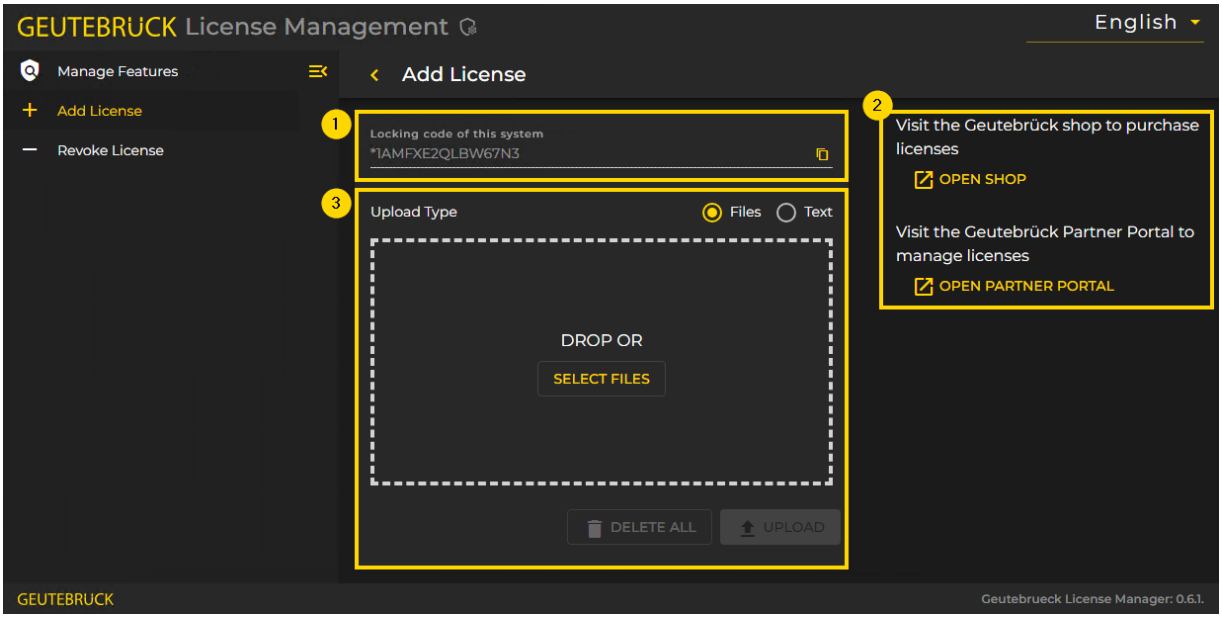
The user interface consist of the following elements:

	Element	Description
1	Locking Code	The locking code is required to activate licenses for this system (see **License Activation**). Click the icon to copy it to the clipboard.
2	Category	The product category.
3	Products List	In the product list all ordered products are listed. Each entry consists of the following information: • **Name**: Name of the product. • **In Use**: Number of licenses in use. • **Total**: Total number of available licenses. • **Upgrade expiration date**: Expiration date of the upgrade. Only activation options (e.g. G-Core Activation) have an upgrade expiration date.

	Element	Description
		If you click on an entry, a detailed view opens, which contains more information about the product: • **Quantity**: Quantity of available licenses. • **Entitlement ID**: Entitlement ID of the license. Click on the entitlement ID to copy it to the clip-board. • **Activation Date**: Activation date of the license. • **Customer Name**: Customer of the license. • **Upgrade permission**: Time until and expiration date of the upgrade.
4	Features List	In the features list all related features are listed. Each entry consists of the following information: • **SKU**: SKU (Stock Keeping Unit) of the feature. • **Name**: Name of the feature. • **In Use**: Number of licenses in use. • **Total**: Total number of available licenses. If you click on an entry, a detailed view opens, which contains more information about the product: • **Quantity**: Quantity of available licenses. • **Entitlement ID**: Entitlement ID of the license. Click on the entitlement ID to copy it to the clip-board. • **Activation Date**: Activation date of the license. • **Customer Name**: Customer of the license.

Add License

In the Add License view, you can upload your licenses to the system.

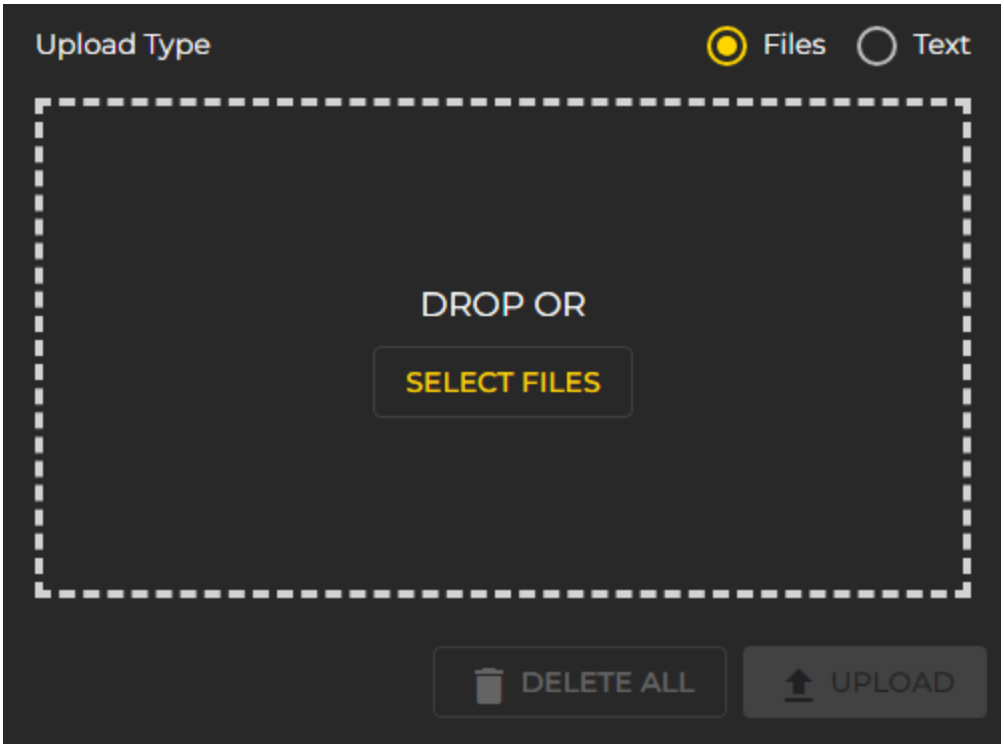


The **Add License** view consists of the following elements:

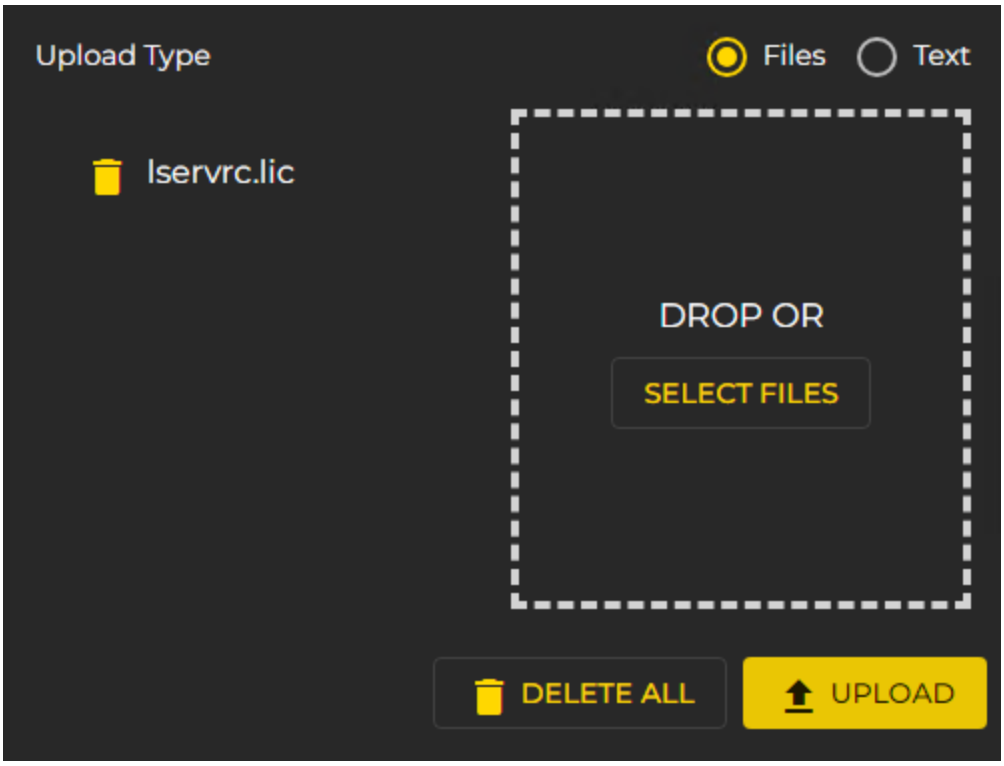
	Element	Description
1	Locking Code	The locking code is required to activate the license for this system (see **License Activation**). Click the icon to copy it to the clipboard.
2	Links to Geutebrück Pages	Click **Open Shop** to open the Geutebrück shop to purchase licenses. Click **Open Partner Portal** to open the Geutebrück Partner Portal to manage licenses.
3	License Upload	In this field you can upload the retrieved license to the system as a file or as text.

How to add a license as a file:

1. Select the **Files** option as **Upload Type**.



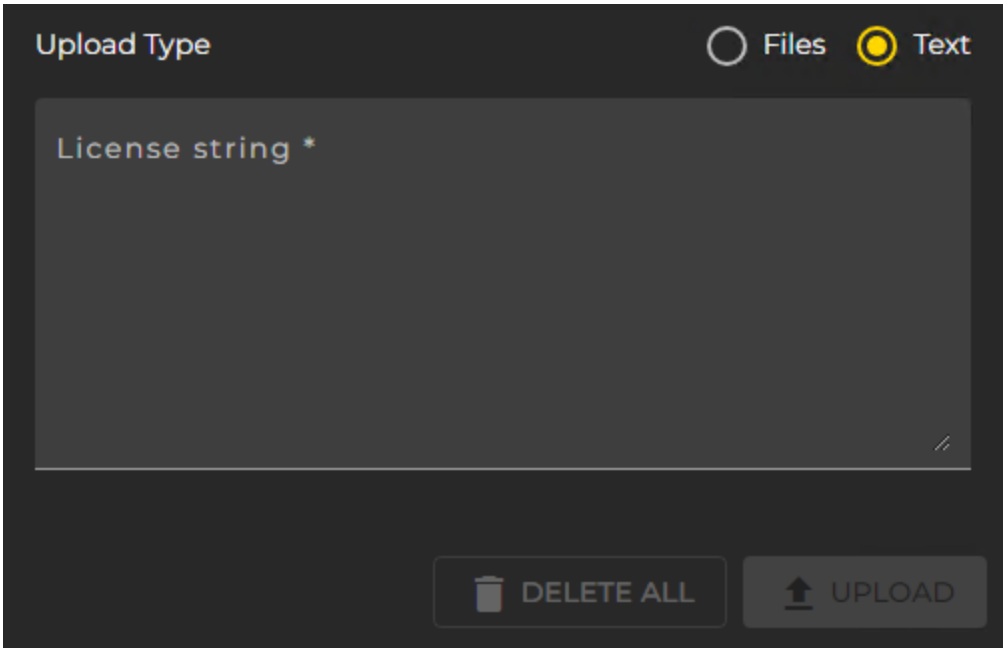
2. Drag and drop the license file (.lic) into the upload field or click the **Select Files** button.
3. The file is displayed in the upload field and the **Upload** button is enabled. You can select further files.



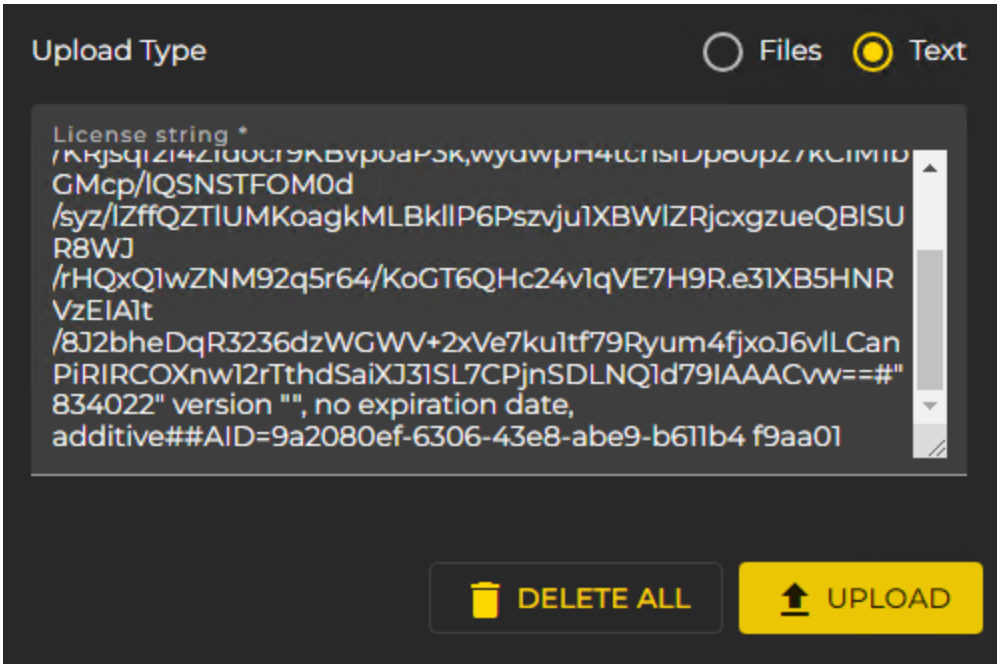
4. Click the **Upload** button to add the license.
5. After uploading a valid license, you will be automatically redirected to the feature list (see **Manage Features**).

How to add a license as text:

1. Select the **Text** option as **Upload Type**.



2. Paste the license text into the text field. The **Upload** button is enabled.



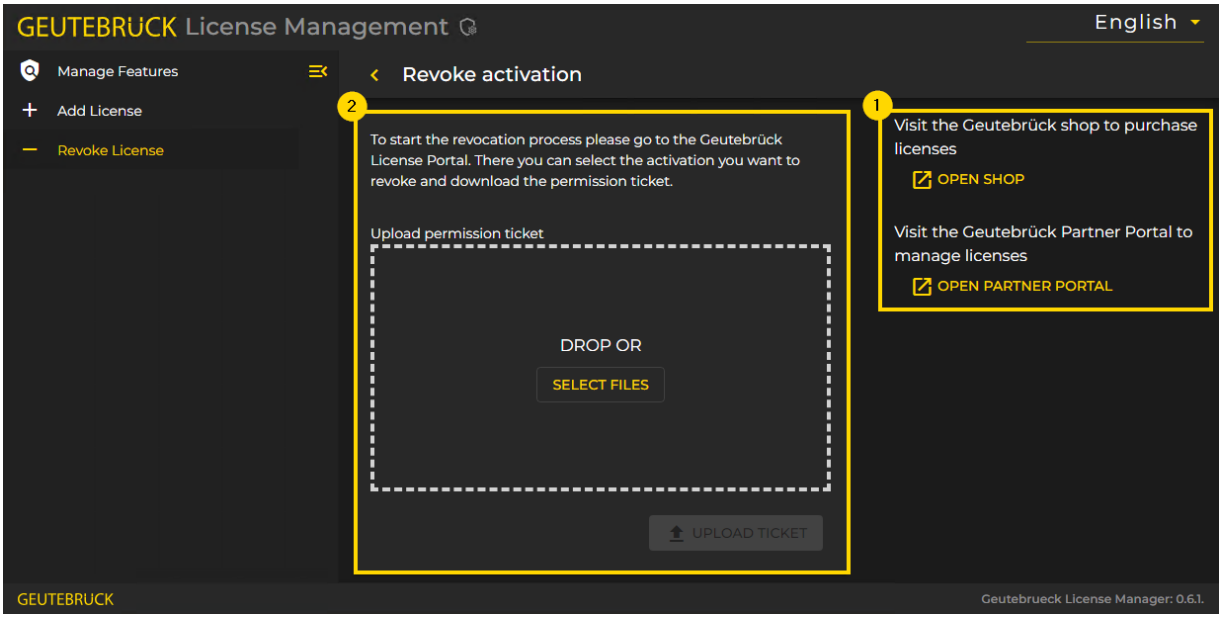
3. Click the **Upload** button to add the license.

4. After uploading a valid license, you will be automatically redirected to the feature list (see **Manage Features**).

Revoke License

In the **Revoke Activation** view, you can revoke your licenses.

> **Only fully activated license packages can be deactivated and reactivated. Deactivated licenses remain executable on the original device for 30 days.**



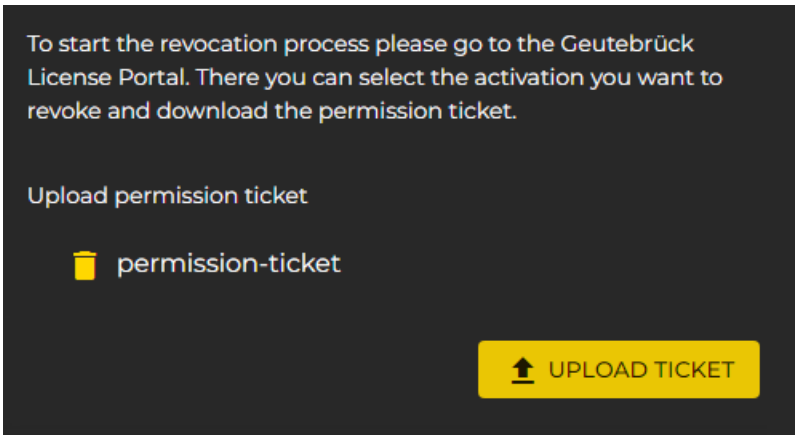
The **Revoke License** view consists of the following elements:

	Element	Description
1	Links to Geutebrück Pages	Click **Open Shop** to open the Geutebrück shop to purchase licenses. Click **Open Partner Portal** to open the Geutebrück Partner Portal to manage licenses.
2	Upload Permission Ticket	In this field you can upload the retrieved permission ticket to the system.

How to Revoke a License:

1. In the Geutebrück License Portal, select the activation you want to revoke and download the permission ticket (see **License Revocation**).

2. Drag and drop the permission ticket file into the upload field or click the **Select Files** button.
3. The file is displayed in the upload field and the **Upload** button is enabled.



4. Click the **Upload Ticket** button to upload the permission ticket.
5. After uploading a valid permission ticket, you will be automatically redirected to the feature list (see **Manage Features**).

G-Set

In the **Options** menu of G-Set you have an overview of your available licenses.

You can choose between operation with the Traditional or Smart Licensing license model. For Traditional Licensing, you can also request and import a softdongle.

Options Menu

In the **Options** dialog window you can manage your licenses or options and import new licenses.

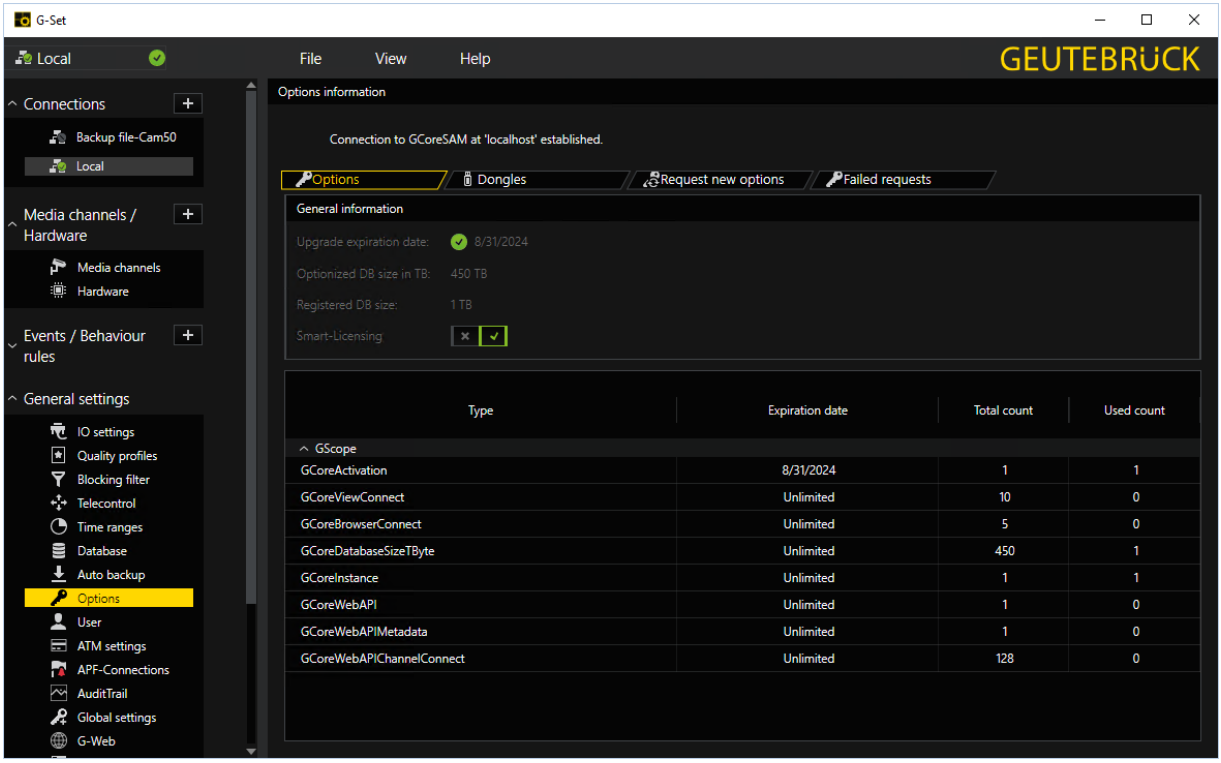
The dialog consists of the following tabs:

- **Options**
- **Dongles**
- **Request New Options**
- **Failed Requests**
- **SoftDongle**

Options

This tab provides an overview of the available licenses. It contains information about the options in the database and displays all available options. Right-click on an entry to expand the list with more information.

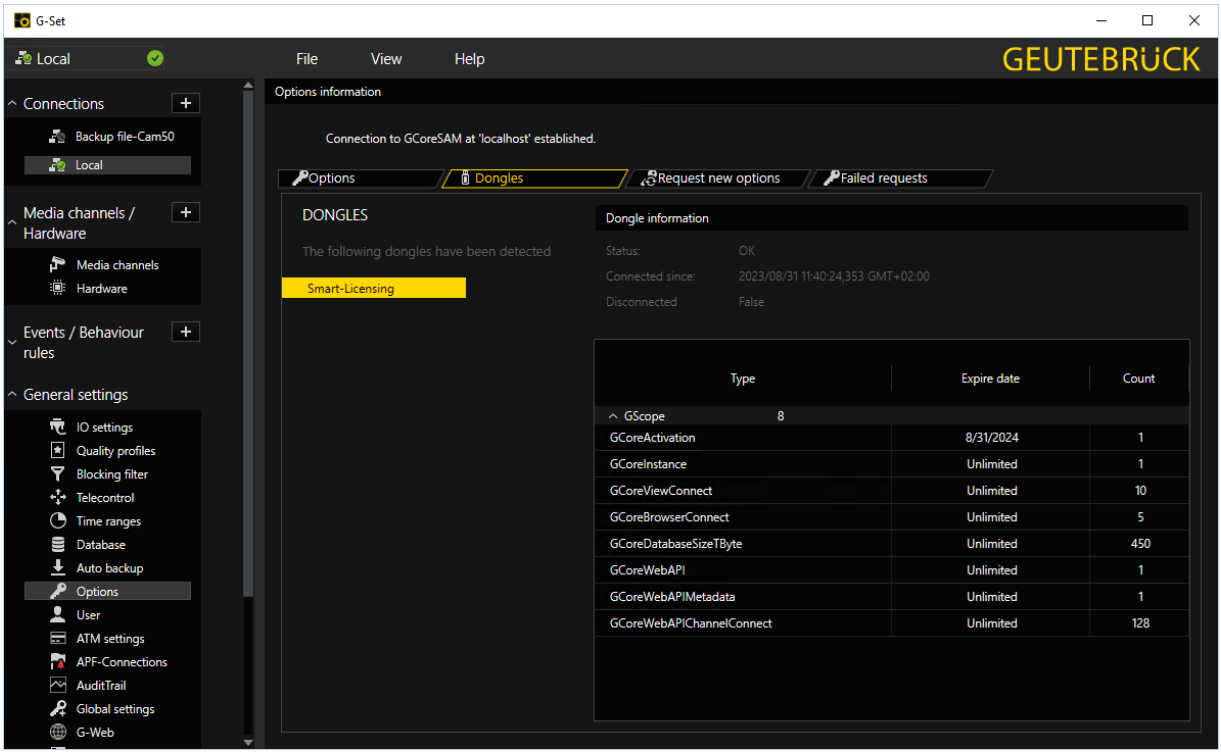
You can choose between operating with the Traditional or Smart Licensing license model by enabling or disabling the Smart Licensing option. For more information see **Activate Smart Licensing**.



Dongles

All identified dongles are displayed on this tab. In our case, a Smart Licensing dongle was found. If a dongle is clicked on, all information about this dongle is read out.

With Smart Licensing, one Smart Licensing dongle is available for all licenses and options. With Traditional Licensing, you can import multiple dongles.

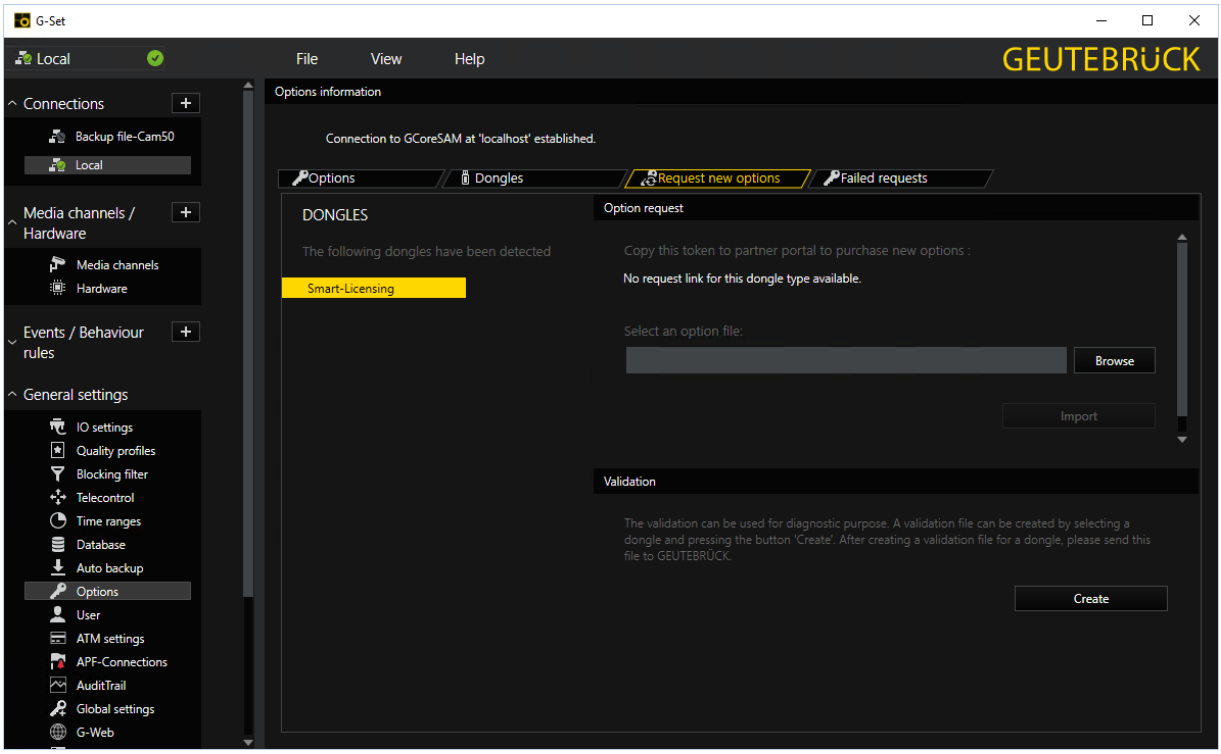


Request New Options

This tab is only for requesting Traditional Licensing options (see License Overview).

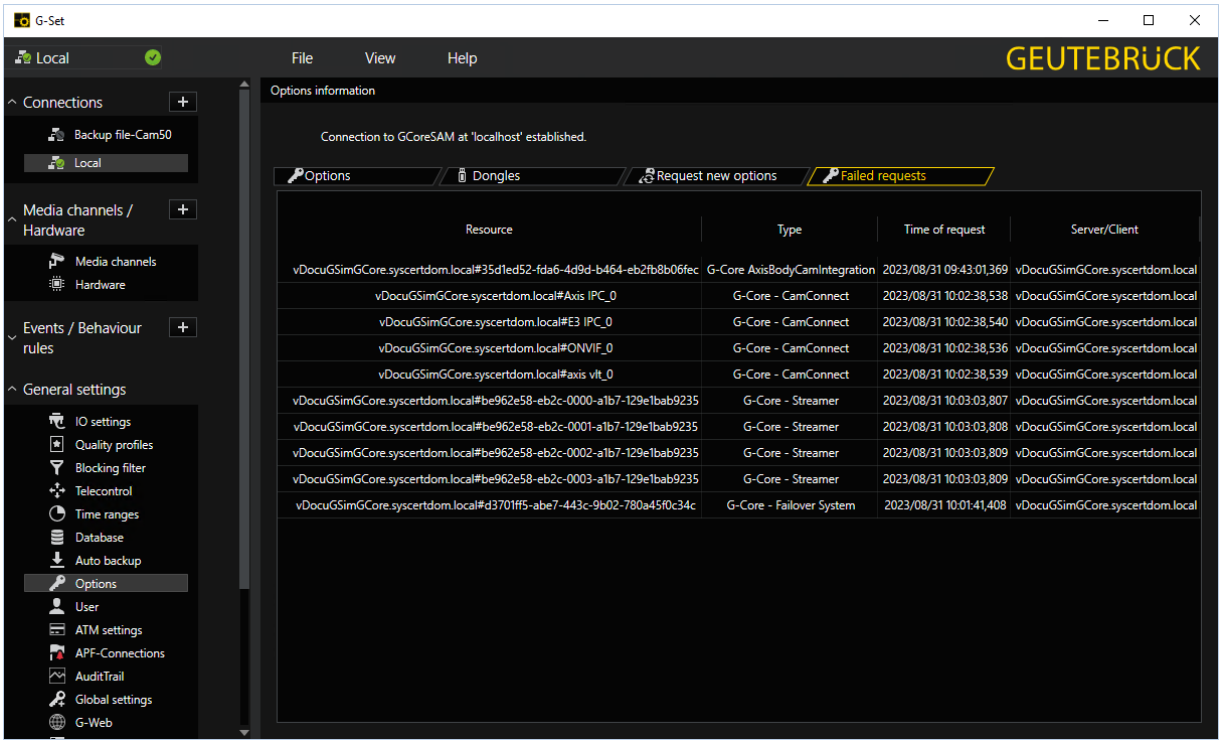
New options for Traditional Licensing can be requested via this dialog. When you click on the dongle to which the new options are to be assigned, a URL appears in the Follow this link to purchase new licenses field. Right-clicking on this URL opens a menu where the URL can be copied, saved or opened in the default browser.

After you pass the URL to a browser, follow the instructions on the website.



Failed Requests

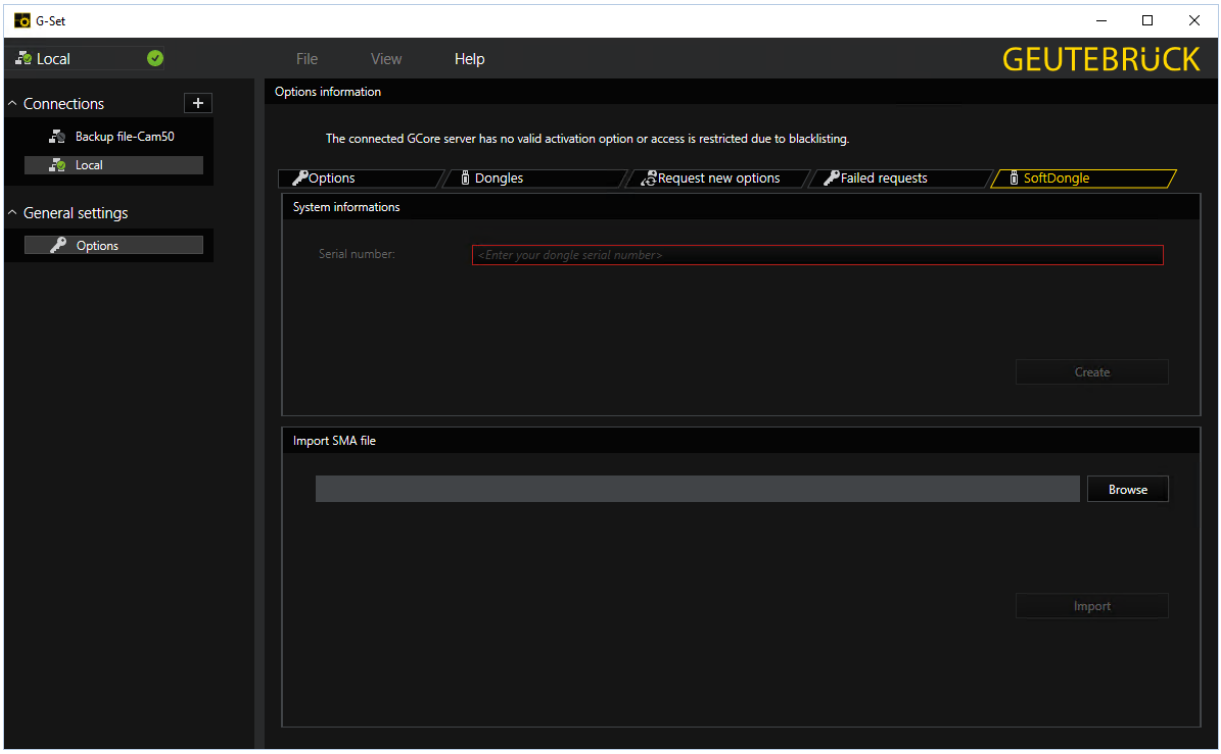
All failed requests of the software where no license is available are listed on this tab.



SoftDongle

In this tab you can request and import a softdongle. For information on how to activate a softdongle, see **Activate Softdongle**.

This tab is available only if you use the Traditional Licensing license model (see License Overview).



Activate Smart Licensing

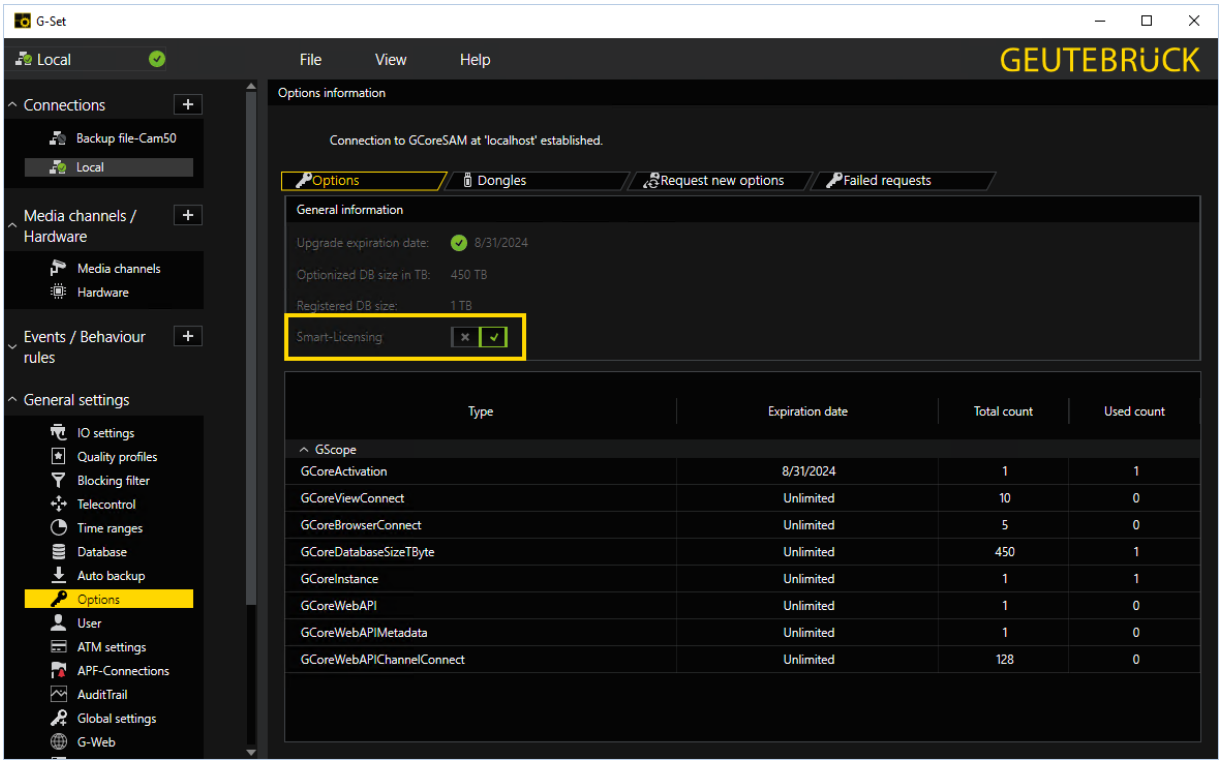
> **G-Core 8 is required to use Smart Licensing. Make sure you have installed the appropriate Smart Licensing licenses in advance.**

You can activate Smart Licensing in G-Set by enabling the **Smart-Licensing** option in the **Options** menu. Confirm the dialog **Are you sure you want to switch to Smart Licensing?** with **OK**. The new licensing model is activated and the Smart Licensing licenses are used. The G-Core server is restarted to complete the switch.

Deactivate the **Smart-Licensing** option to use the Traditional Licensing licenses.

It is possible to switch the licensing model at any time. Parallel operation of both licensing models is not possible. G-Core uses Smart Licensing as the default license model starting with version 8.0. For information on Geutebrück Software Licensing, see **here**.

For detailed information about the **Options** menu, see **Options Menu**.



Activate Softdongle

Using a soft dongle for your system environment requires a few steps.

If it is a virtual machine, it must be in a domain.

You also need a serial number. This serial number will be sent to you with the order confirmation if you have ordered a soft dongle from your service partner by phone or in writing.

On the options page of G-Set, G-SIM or via the website of our SAM service, you can generate an SMI file containing all the necessary information about your system.

G-Set

Hinzufügen der Softdongle-ID in G-Set (vorher im Lizenzportal aktiviert)

1. Open G-Set / Options Dialog and Click on the Soft Dongle tab.
2. Enter the received serial number. Enter the received serial number and make sure that it is correct, otherwise the request will be rejected and you will have to repeat the process. Softdongle-ID aus Zwischenspeicher in das

Feld Serial number kopieren.

3. Then click **Create**.
4. Es wird eine SMI File generiert. Wählen Sie den Ordner aus, in dem Sie ihn ablegen möchten. Klicken Sie auf **Save**.
5. Die SMI FIle wurde erfolgreich erstellt (Creation of SMI successfully). If the system requirements are met, you can download the dongle request file and send it to your service partner to create the soft-dongle file.
6. IM LIZENZPORTAL: Upload der Lizenzdatei im Lizenzportal. Aktivierung der Lizenz und Download der SMA-Datei (Download License Certificate).
7. In G-Set: Lizenzdatei auf Server kopieren oder von Partner erhalten. If you have received the dongle activation file (.SMA) from your service partner, you must import it under **Options -> SoftDongle** in GSet (also GSIM or the SAM service website).
8. Click **Browse** to select the SMA file you want to import.
9. Wählen Sie die SMA-Datei aus und klicken Sie auf Open.
10. and then **Import** to import it.
11. Der Softdongle ist nun erfolgreich importiert.
12. Aktualisierung des Bestands im System. If the import and creation of the soft dongle was successful, the connection will be disconnected, and after reconnecting to the server, the new dongle with the license will be in the **Options** tab.
13. Gehen Sie auf den Reiter Dongles.
14. Melden Sie sich vom System ab und wieder an.
15. Klicken Sie auf Options.
16. In der Liste erscheint nun der aktivierte Softdongle. Hier sehen Sie das Aktivierungsdatum und die Anzahl der Lizenzen, sowie alle weiteren Lizenzen, die auf dem Softdongle enthalten sind.

Web Page

The website is accessible via **Internet Explorer** or **Google Chrome**. The URL is: http://localhost:13008/config

Edge is currently not supported due to security issues that are required to connect to the SAM service.

Click **Generate SMI file**.

Enter the received serial number and make sure that it is correct, otherwise the request will be rejected and you will have to repeat the process.

Click **Create**.

If the system requirements are met, you can download the dongle request file and send it to your service partner to create the soft-dongle file.

If you have received the dongle activation file (.SMA) from your service partner, you must import it under **Import SMA file**. Click **Browse** to select the SMA file and then **Import** to import it.

A successful import is confirmed.

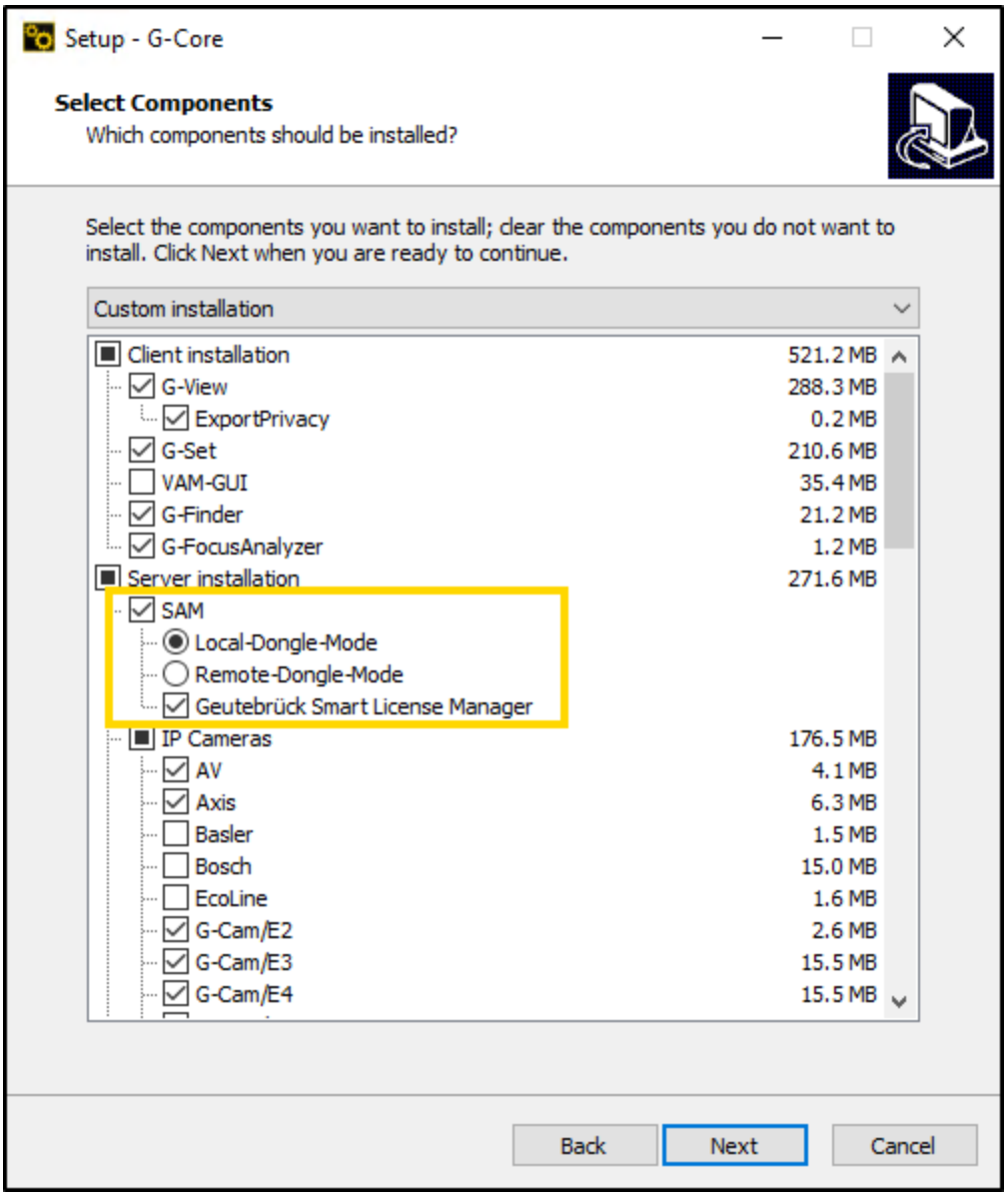
G-Core SAM

G-Core SAM is the central Software Asset Manager (SAM) that manages the licensing of all software packages of a distributed overall system with any number of VMS instances and software options. Depending on the operating mode, it manages all local dongles or remote connections to other G-Core SAM services.

Installation

Install G-Core SAM using the G-Core installer. For the central options server, a standalone G-Core SAM installer is available.

1. Run the `G-Core_installer.exe` file.
2. Accept the **License Agreement** and click **Next**.
3. In the **Select Components** dialog window, select **SAM** and the required operation mode **Local-Dongle-Mode** or **Remote-Dongle-Mode** (see **Operation Modes**).



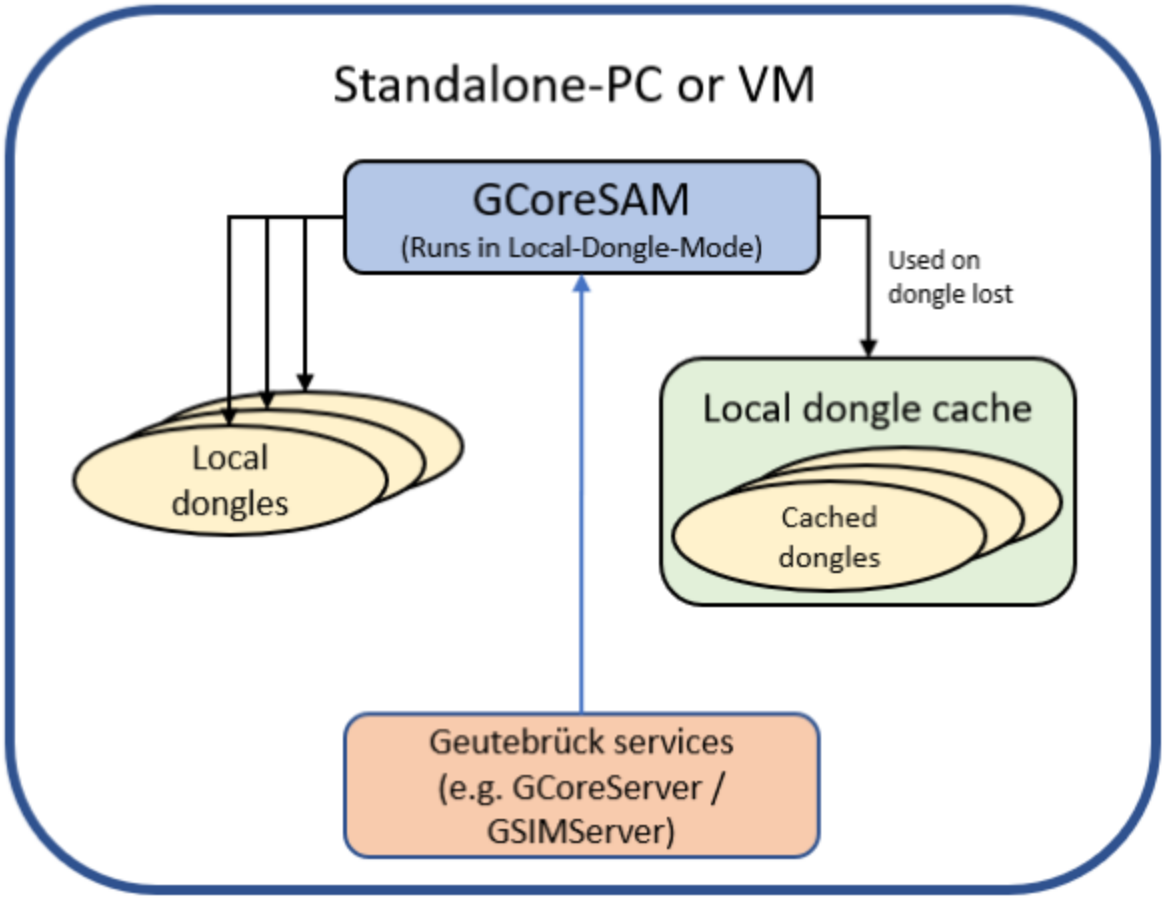
4. Click **Next** and follow the further installation steps (see **Software Installation**).
5. In the **Ready to Install** dialog window click **Install**.

6. G-Core and G-Core SAM are installed.
7. To complete the installation, the computer must be restarted.

Operation Modes

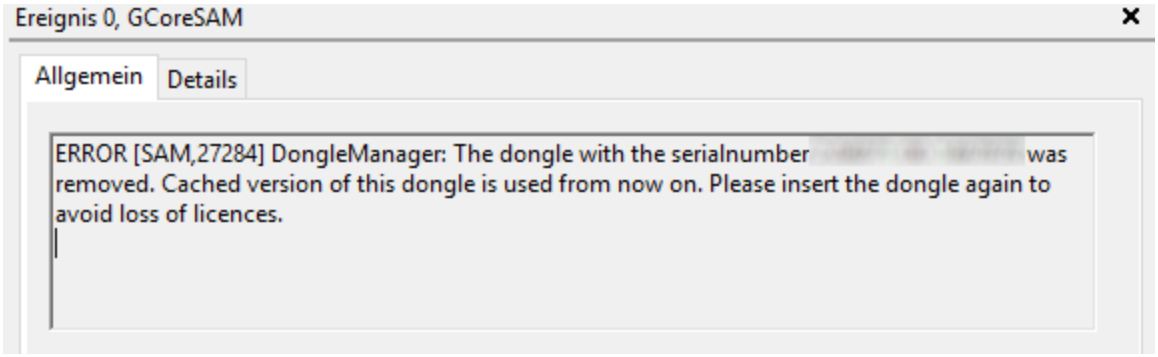
Local-Dongle-Mode

In the Local-Dongle-Mode, the G-Core SAM service connects to all local dongles, reads their information and processes all requests. Select this mode for a server installation with locally connected dongles or for a central option server installation.



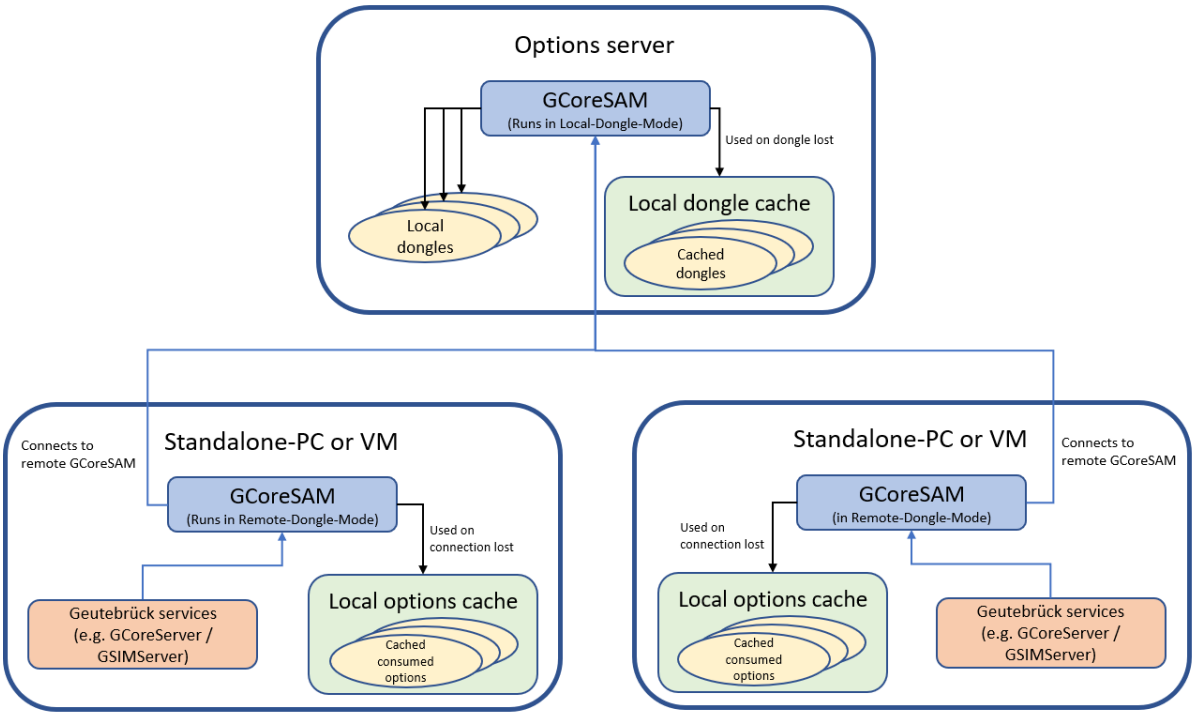
Local Dongle Cache:

The local dongle cache is a backup mechanism that saves all local dongle information on the system and makes it available for up to 30 days in case a dongle fails. In case of an error, a windows event log entry is created.



Remote-Dongle-Mode

In the Remote-Dongle-Mode, the G-Core SAM service is connected to a remote SAM and forwards all requests and responses. Use this mode if you have a central option server. You must then select this mode for all remote systems connected to the central option server.



Local Options Cache:

The local options cache is a backup mechanism that saves all requested options of this system on the system and makes them available for up to 30 days if the connection to the remote SAM is lost.

Two different actions are generated in the G-Core system depending on the current state of the system:

- SystemError: This action is triggered repeatedly when the connection to the remote SAM is lost and contains the last time the connection was established.

- SystemInfo: This action is triggered when the connection to the remote SAM is established or reestablished.

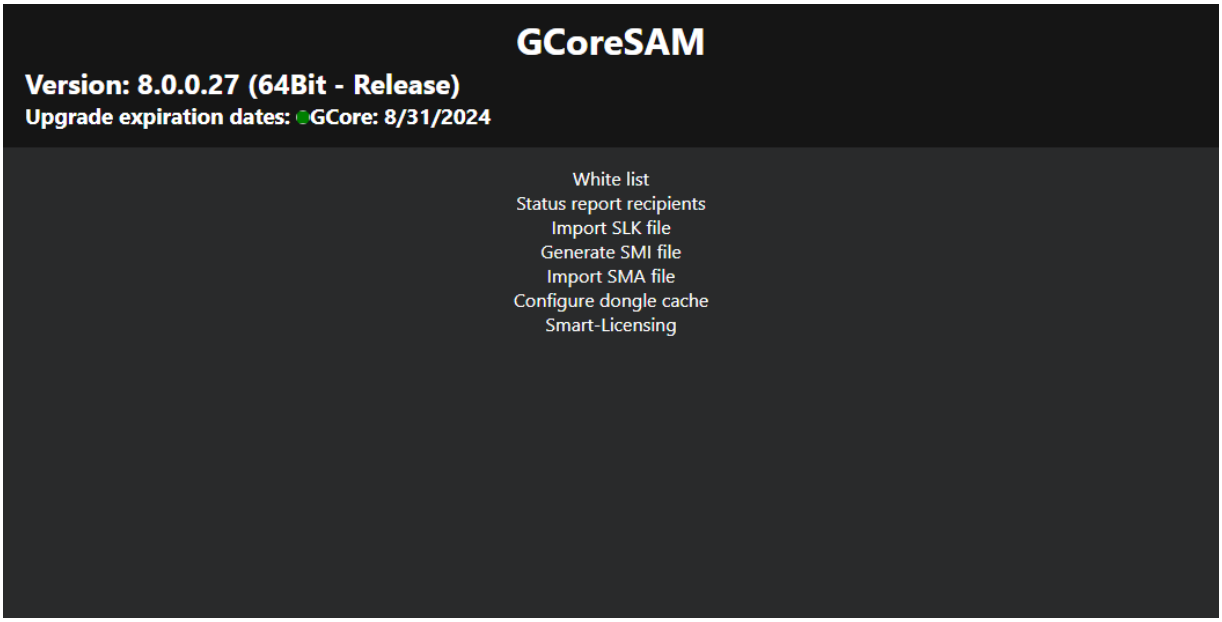
Configuration

Some configurations are made via the G-Core SAM web interface. All other configurations must be made in the configuration software of the installed software package. You can open the web interface via the URL: `http://-localhost:13008/config`.

Access to this URL requires authentication via NTLM (NT LAN Manager), which is performed automatically in the background. The logged-in user must have administration rights, i.e. the user must be a member of the administration group of the server on which the central SAM service is running.

The web interface consists of the following menu items:

- **White List**
- **Status Report Recipients**
- **Import SLK File**
- **Generate SMI File**
- **Import SMA File**
- **Configure Dongle Cache**
- **Smart Licensing**



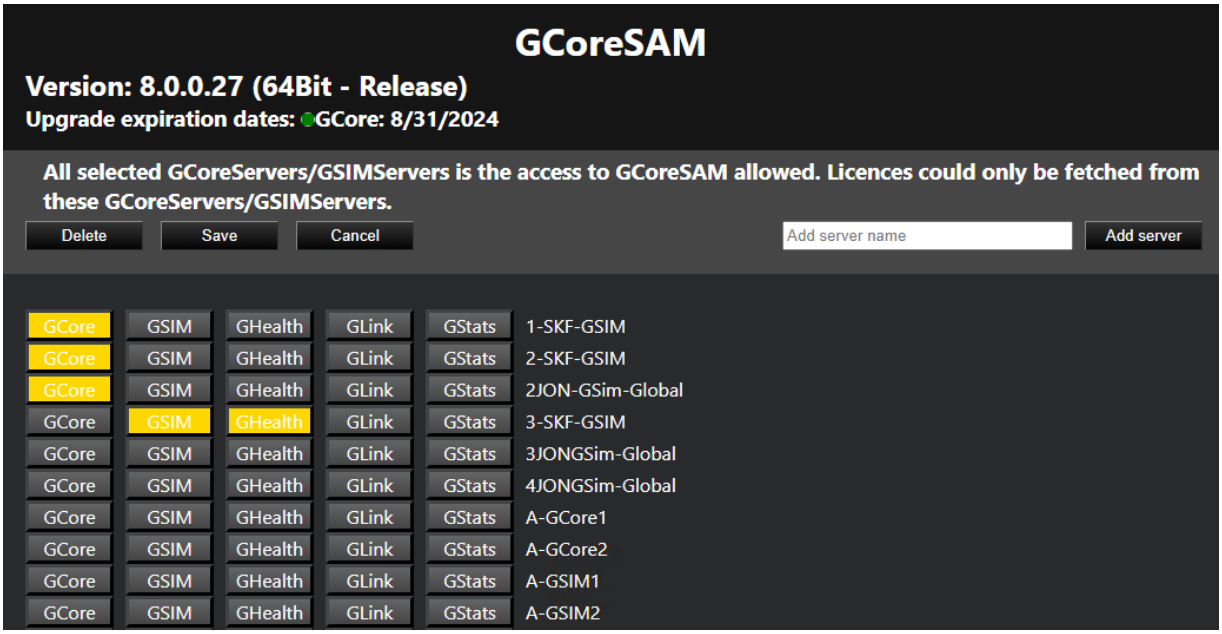
White List

The SAM service is equipped with a blocking filter that only allows localhost connections in its default configuration. Thus, it is not possible to connect to the SAM service from a remote computer without configuring the blocking filter.

> **If you use the Local-Dongle-Mode (see Operation Modes), i.e. a single system with a local dongle connected, you do not have to make any configurations.**

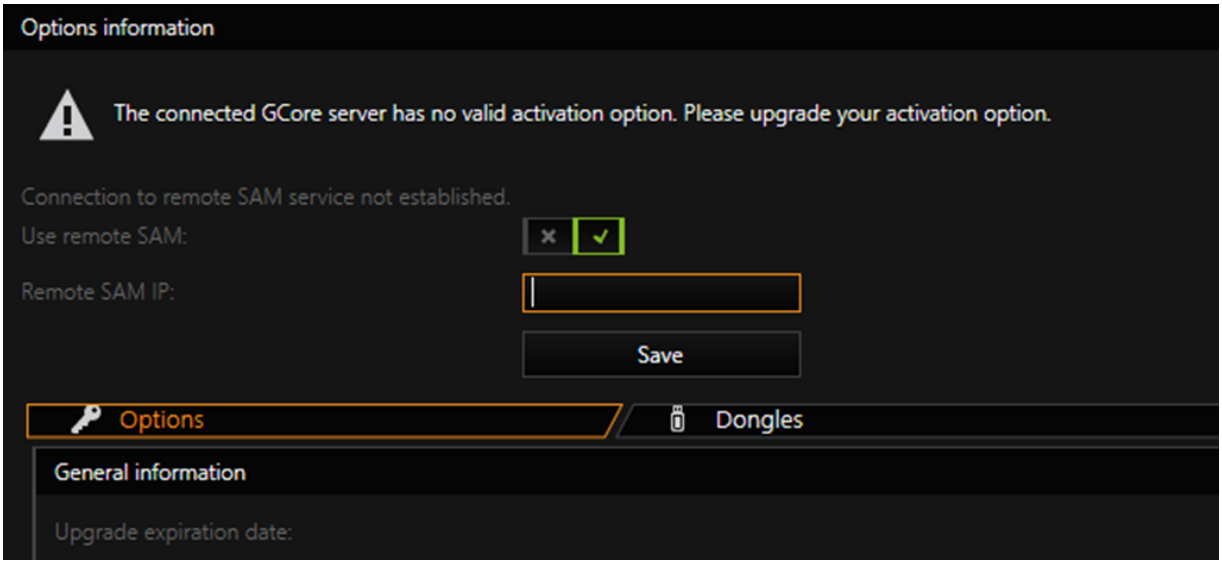
In the White list menu, you can configure the blocking filters. The list contains all G-Core, G-SIM, G-Health, G-Stats and G-Link servers that are currently running on the network (and all that are included in the current blocking filter settings). The access to the individual SAM servers and software types (e.g. G-SIM or G-Core) can be disabled by clicking the corresponding buttons. The servers highlighted in orange are currently disabled.

If the desired server does not appear in the list, it you can add it by clicking the Add Server button. To do this, enter the network name of the associated computer in the text field.



If you use the Remote-Dongle-Mode (see **Operation Modes**), you have to configure the connection to the central SAM service in G-Set in the **Options Menu** menu after installing the software package.

Enable the Use remote SAM option to activate the use of the central SAM service and specify the IP address of the central SAM server in the Remote SAM IP text box. Then click the Save button.



Status Report Recipients

The SAM service sends status messages to the connected G-Core client. These status reports provide notifications, for example, about newly detected or removed dongles, expired activation options, or other important events.

In the **Status report recipients** menu, you can select the computers to receive these reports. All clients on the selected computer will receive a status report.

The connected G-Core server converts the status reports into actions. The following actions are sent:

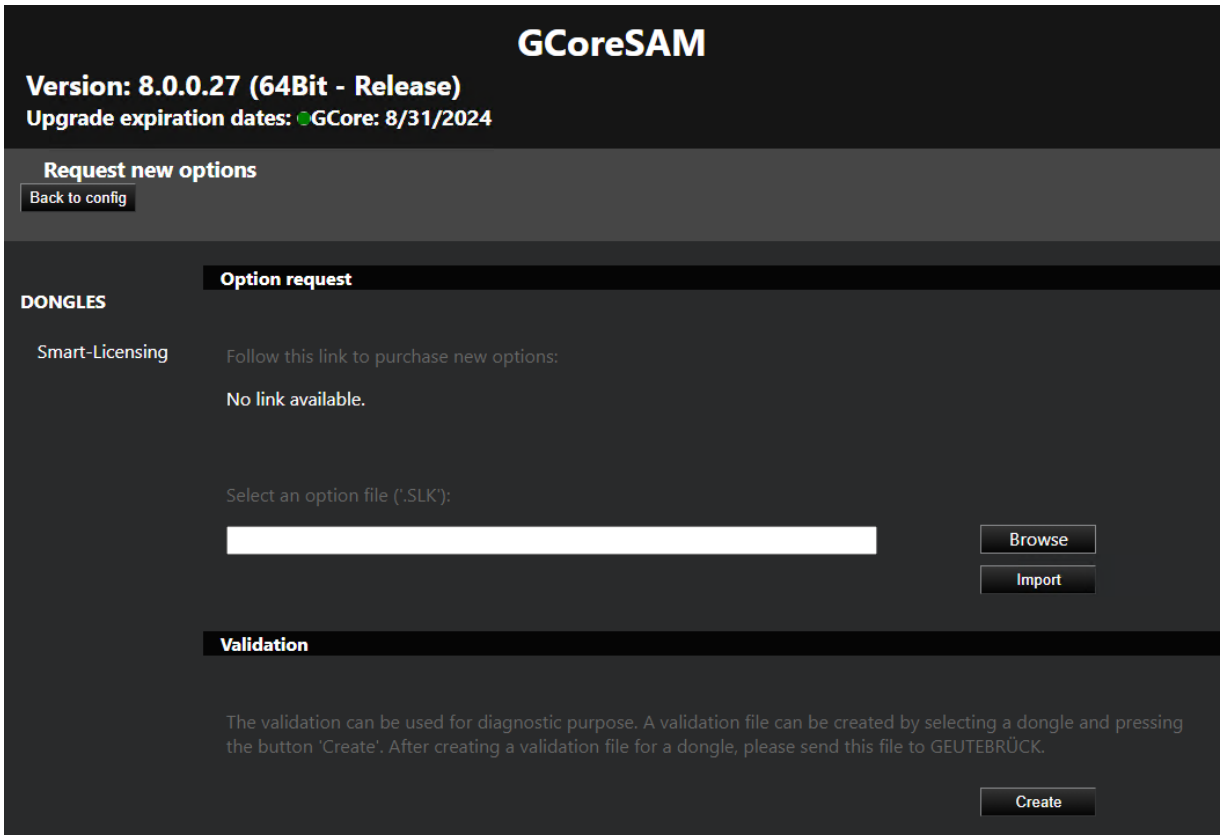
Event	Action	Parameter
Dongle removed	System Error	"source subsystem" = "dongle" "message code"= "Dongle missing"
Dongle added/recognized	SystemInfo	"source subsystem" = "dongle" "message code"="Dongle found"
Activation option lost	SystemError	"source subsystem"="dongle" "message code"="unlicensed" "description"="... activation has been expired."
New activation option	SystemInfo	"source subsystem"="dongle"

Event	Action	Parameter
recognized		"message code"="unlicensed" "description"="... activation expired at..."
Activation option expired	SystemInfo	"source subsytem"="dongle" "message code"="unlicensed"

Import SLK File

In the **Import SLK File** menu, you can import SLK files, export requested links and create GDV files.

This web interface for importing SLK files uses the same layout and functionality as the options dialog in G-Set (see **Options Menu**).

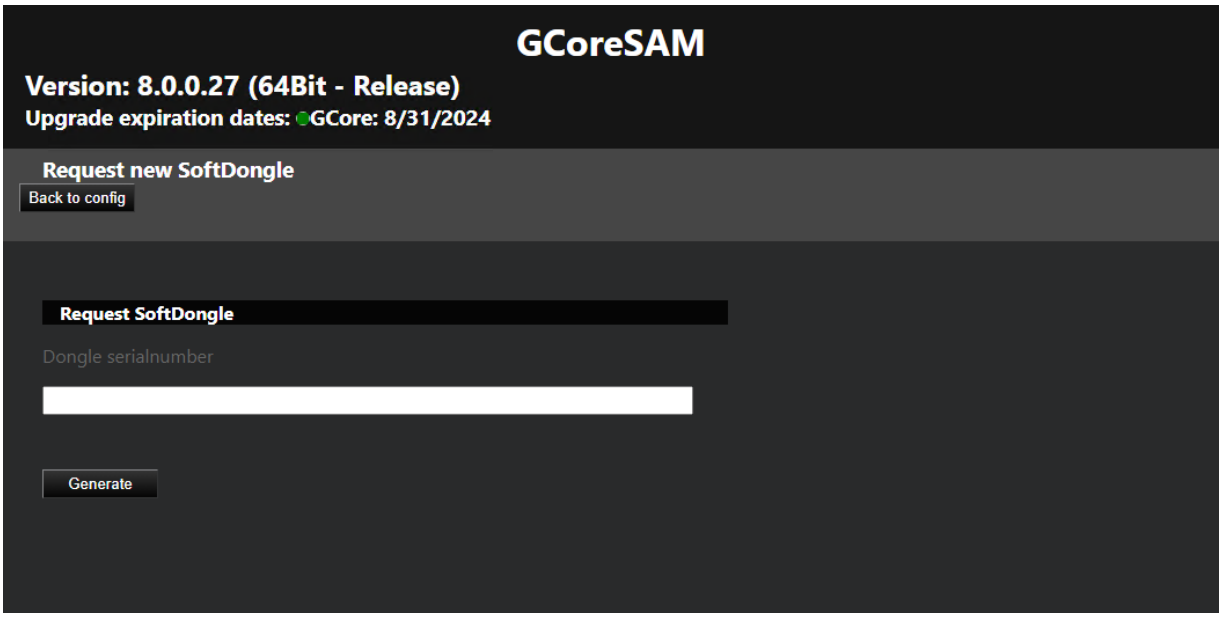


Generate SMI File

In the **Generate SMI file** menu, you can generate SMI files for soft dongle request files. The SMI file contains information about the system and is required when asking for a soft dongle for the system.

> **For virtual systems, it is required that the system is part of a domain to be able to generate an SMI file.**

To generate an SMI file, enter the dongle serial number of the requested soft dongle and generate the file by clicking the **Generate** button. Download the generated SMI file to proceed with the soft dongle request.

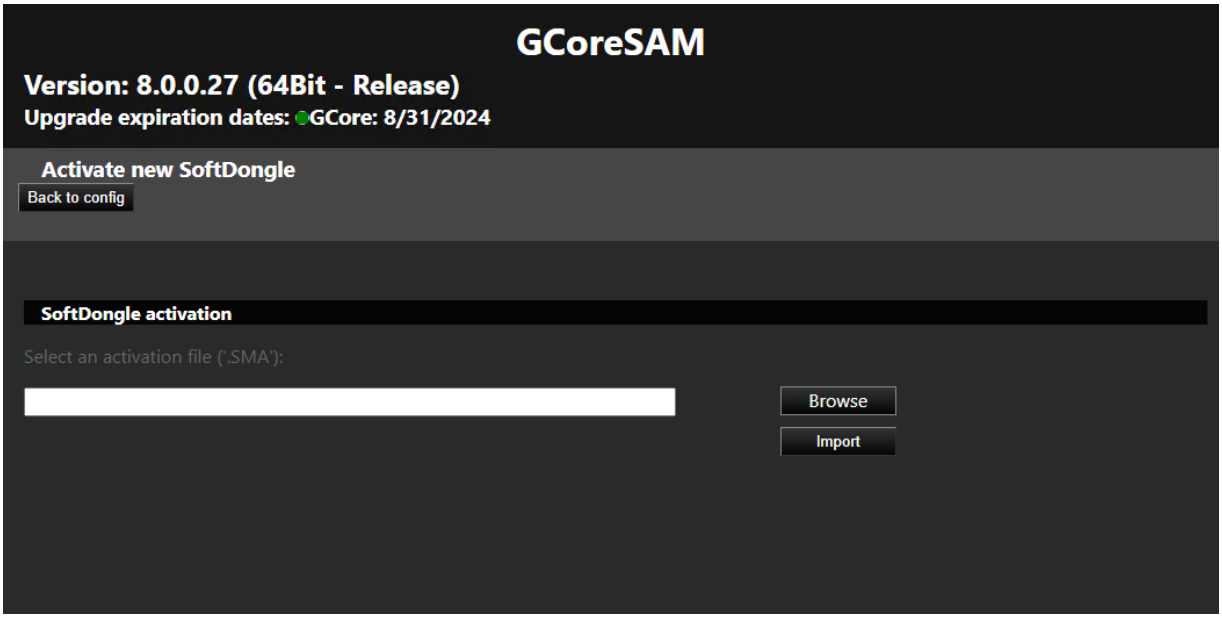


Import SMA File

In the **Import SMA file** menu, you can import the SMA soft dongle files and activate the received soft dongle in the system.

> **A soft dongle can only be activated on the system on which the request (SMI) was generated.**

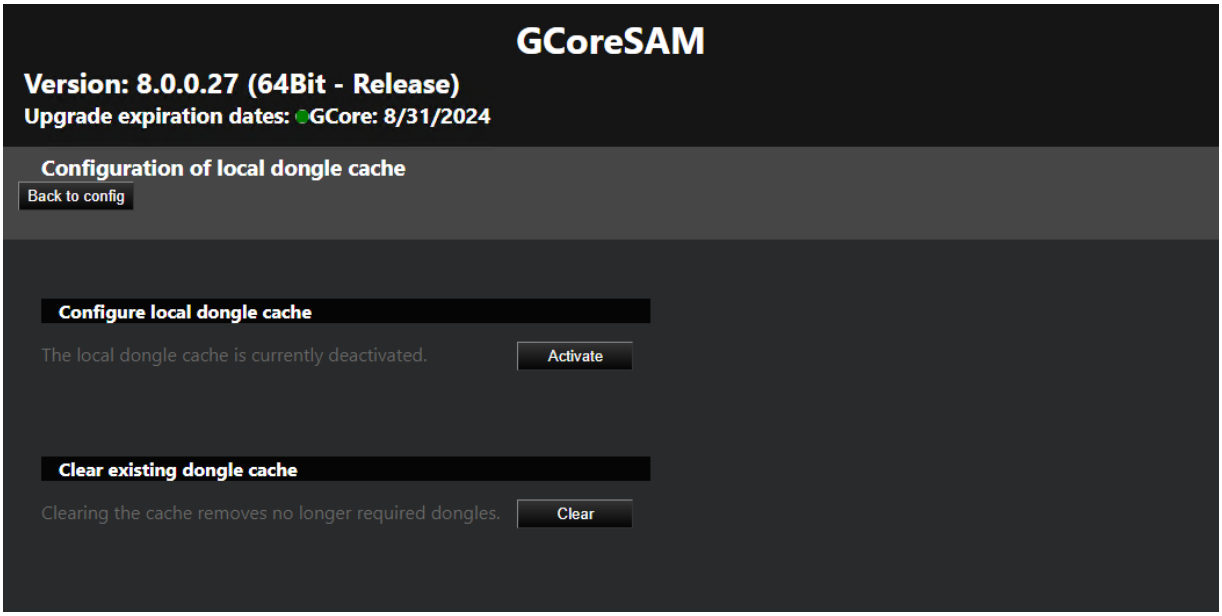
To activate a soft dongle, click **Browse** to select the SMA activation file and import the SMA activation file by clicking **Import**.



Configure Dongle Cache

In the Configure local cache menu, you can activate or deactivate the local dongle cache for your system. To do this, click Activate or Deactivate button.

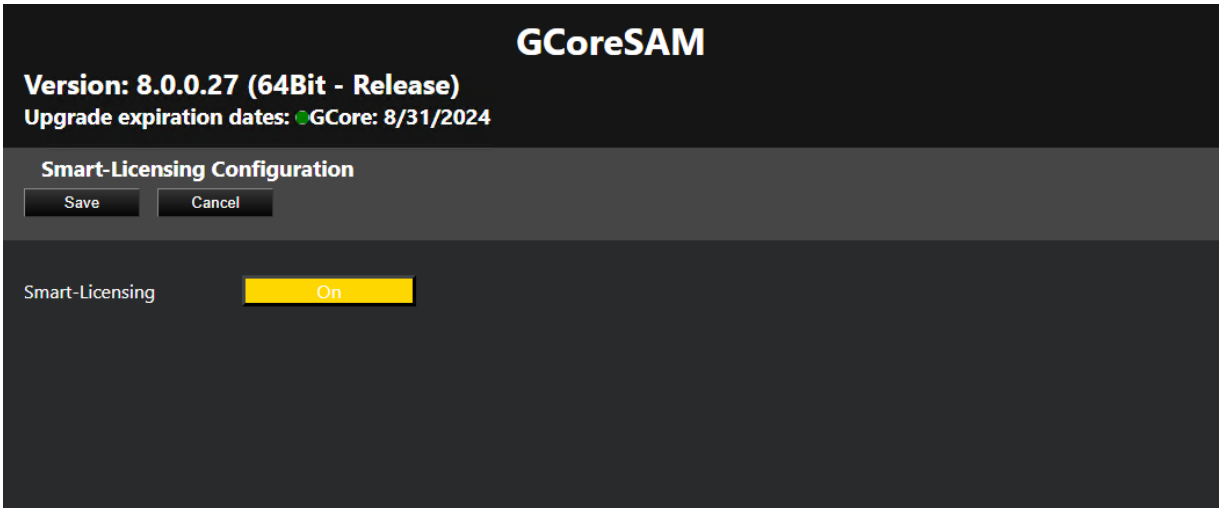
The dongle cache is used for all currently connected dongles (physical and soft dongles). If one or more local dongles need to be changed and both the old dongle and its cache are obsolete, the dongle cache must be cleared. To do this, click the Clear button.



Smart Licensing

In the **Smart Licensing** menu, you can activate Smart Licensing. To do this, set the Smart Licensing button to **On** and click **Save**. The new licensing model is activated and the Smart Licensing licenses are used. The G-Core SAM server is restarted to complete the switch.

Deactivate the **Smart-Licensing** option to use the Traditional Licensing licenses. It is possible to switch the licensing model at any time. Parallel operation of both licensing models is not possible.



Activate Softdongle

A soft dongle is only required if you use the traditional licensing model (see License Overview).

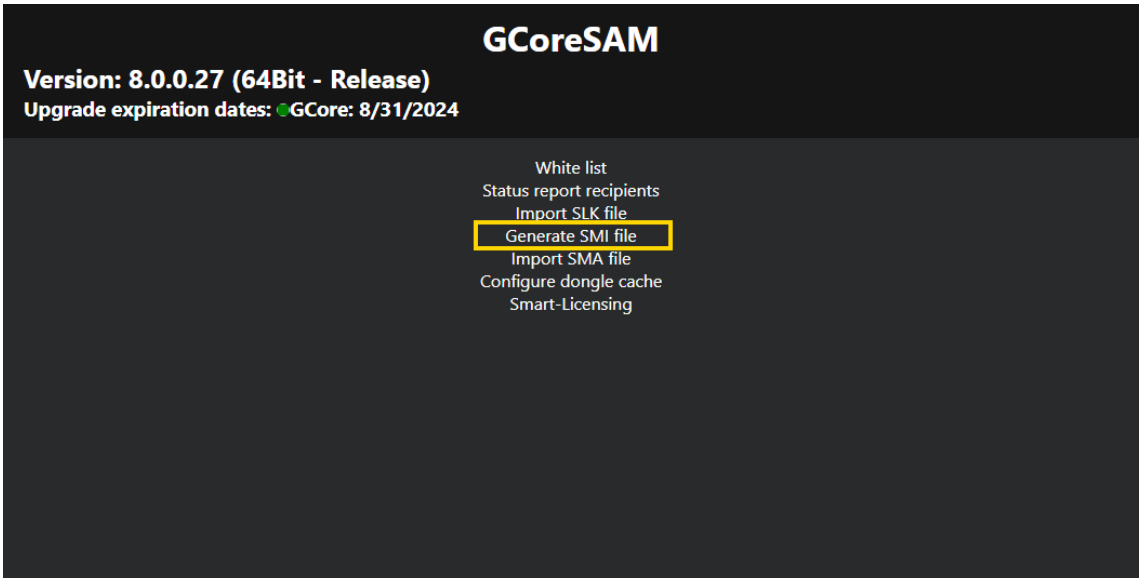
Using a softdongle for your system environment requires a few steps. If it is a virtual machine, it must be in a domain. You also need a serial number. This serial number will be sent to you with the order confirmation if you have ordered a softdongle from your service partner.

You can also activate your soft dongle in G-Set (see **Activate Softdongle**).

How to activate a Softdongle in G-Core SAM:

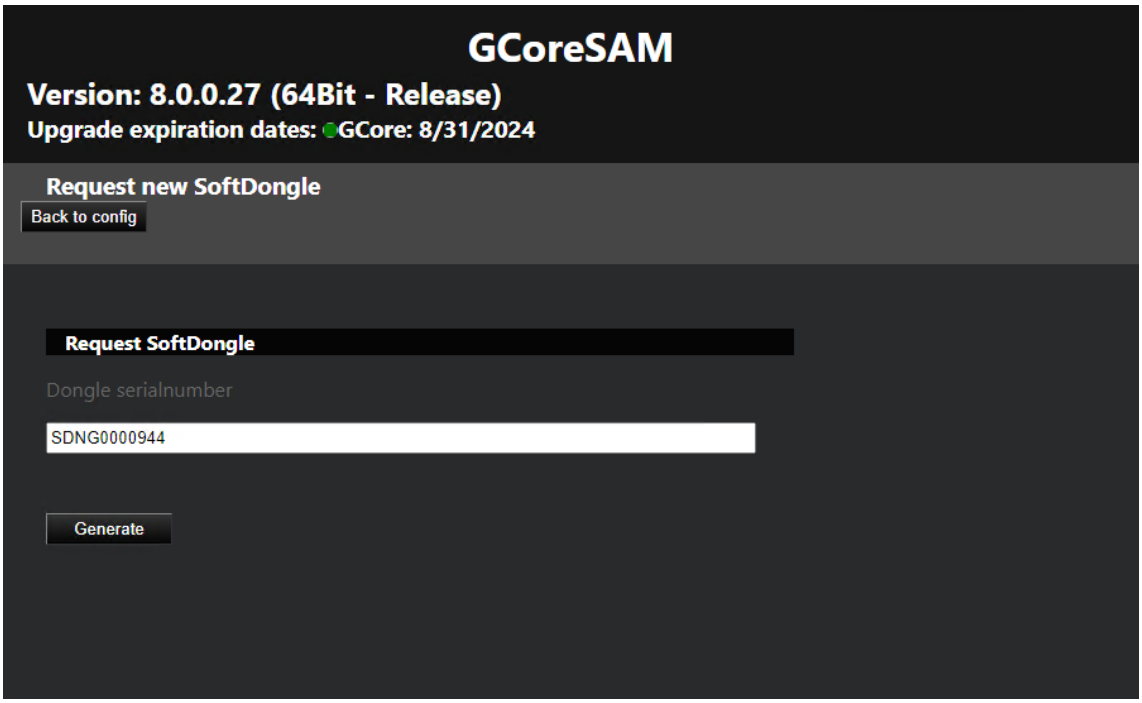
In the G-Core SAM, you can generate an SMI file containing all the necessary information about your system.

1. Open the **Generate SMI file** menu.

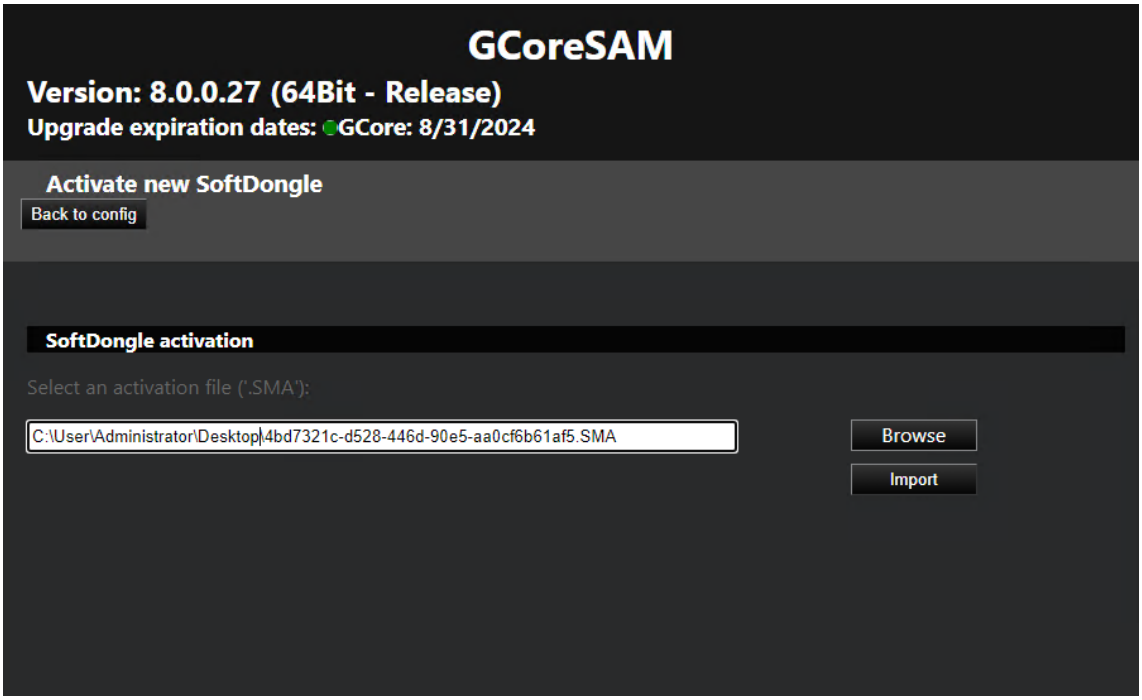


2. Enter the received serial number. Then click **Generate**.

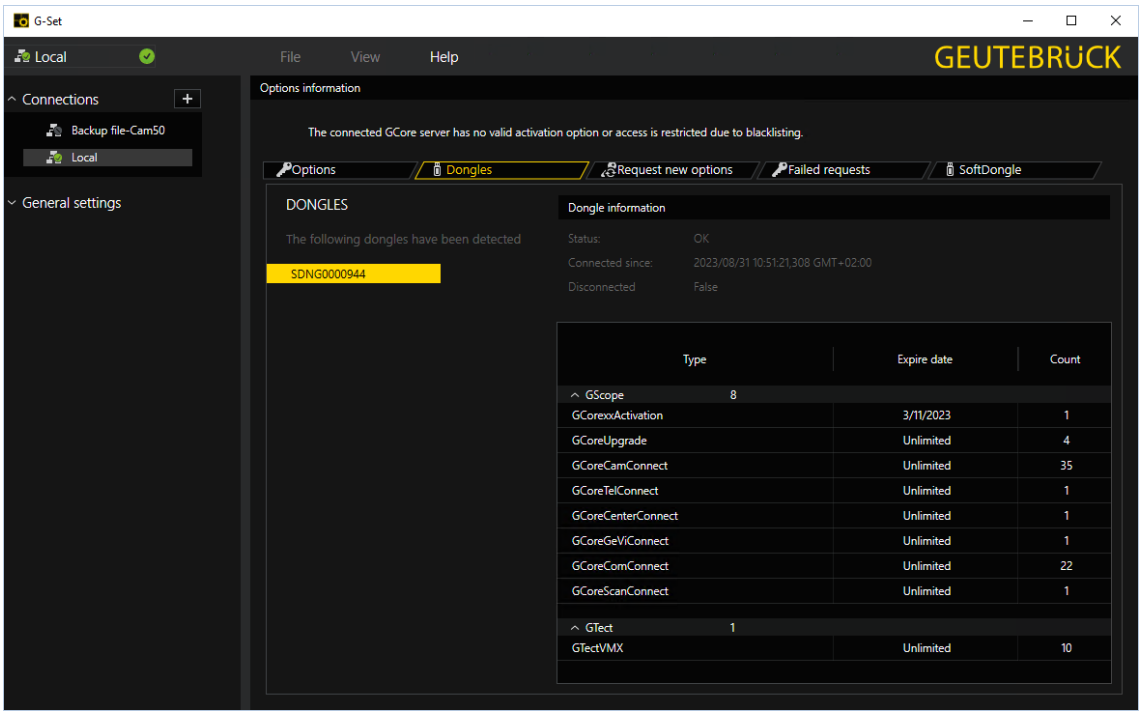
> **Enter the received serial number and make sure that it is correct, otherwise the request will be rejected and you will have to repeat the process.**



3. If the system requirements are met, you can download the dongle request file (.SMI) and send it to your service partner to create the softdongle file.
4. If you have received the dongle activation file (.SMA) from your service partner, you must import it. Open the **Import SMA file** menu and click **Browse** to select the SMA file.



5. Click **Import** to import it.
6. If the import and creation of the soft dongle was successful, the connection will be disconnected. After reconnecting to the server, the new dongle with the license will be in the **Dongles** tab in G-Set (see **Options Menu**).



Glossary

Term	Description
Product Package	A product package contains basic functionalities plus a number of features.
Feature	A feature is a distinguishing feature within our software. A feature can activate one or more functionalities within the software. There are features which have a quantity specification (e.g. number of channels) and thus activate a certain number of functionalities.
Entitlement	With Smart Licensing, you receive an entitlement when you purchase your software. The Entitlement entitles you to use the software to the defined extent. The Entitlement ID is the identification number of the Entitlement.
License	Through the "Activation" process, you connect the Entitlement to a specific end device or server. During activation you will receive a license file that you can install in the software.
Activation	The date on which you activated the entitlement in the

Term	Description
Date	Geutebrück license portal. Your upgrade entitlement period starts with the activation date of a product package.
Option	Option or also license option (see Feature).
Locking Code	The locking code uniquely identifies your end device or server. The locking code links the entitlement to your server. Fingerprint is used synonymously here.
G-Core SAM	The central option service that manages all local dongles or remote connections to other G-Core SAM services, depending on the operating mode.
Physical Dongle	Either an internal MIO device or an externally connected USB G-Dongle.
Soft Dongle	A local file-based dongle container that is bound to the computer.
Local Dongle	A dongle (physical or soft) that is connected to the local computer.
Remote Dongle	A dongle (physical or soft) that is connected to a remote computer.
Smart Licensing Dongle	When Smart Licensing is activated, the G-Core SAM uses the Smart Licensing dongle internally.
Local Dongle Mode	The G-Core SAM service connects to all local dongles, reads their information and processes all requests.
Remote Dongle Mode	The G-Core SAM service connects to a remote SAM and forwards all requests and responses. This is used when you have a central option server.
Local Dongle Cache	A 30-day cache for all local dongles to prevent system failures if a local dongle is lost or defective.
Local Options Cache	A 30-day cache for all consumed G-Core options when a G-Core SAM is running in remote dongle mode to prevent system failure when the connection to the remote SAM is lost.
Central	A server system that provides its available options or licenses to remote systems.

Term	Description
License Server	
Geutebrück License Portal	Through the License Portal, your purchased software products and options are delivered in the form of "Entitlements". You can manage your purchased software products and options by activating them and assigning them to customers. In addition, the portal provides a complete overview and management capabilities during the life cycle of the software products and options.
File extensions	There are following file extensions: • ***.lic**: License file (Smart Licensing license) • ***slk**: License file (Traditional Licensing license) • ***.smi**: Softdongle request file • ***.sma**: Softdongle activation file

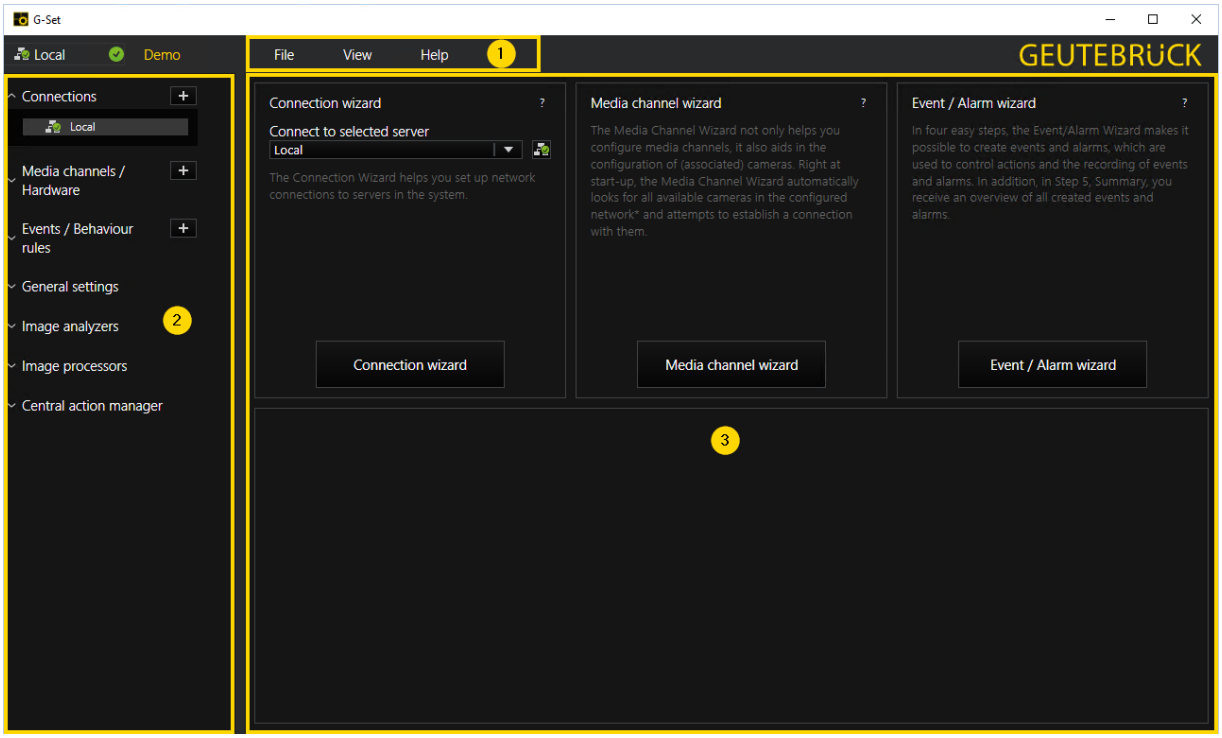
G-Set

G-Set is the tool with which the video management system can be configured. All central settings can be made there.

The settings that determine the daily work in G-View are made in G-Set. Changes in G-Set have a direct effect on G-View. Adjustments that are detected in G-View must be made in G-Set.

User Interface

By opening G-Set the following user interface appears. It is divided into three areas:



	Area	Description
1	**Menu Bar**	The **Menu bar** provides quick access to commands.
2	**Sidebar**	The **Sidebar** contains a selection area consisting of various topics with which specific settings can be made.
3	**Wizards**	The **Wizards** area includes three wizards that supports you during the (initial) configuration.

Menu Bar

This section provides an overview of the functionality of the **Menu bar** shown in 1. The **Menu bar** contains the three menu items **File**, **View** and **Help**.

File

Icon	Description	Function
	Send setup to server	Sends the settings to the server. **Changes in the settings must be sent to the server. The settings are thus stored.**
	Create default setup	Creates a default setup.
	Import setup from file...	Loads settings from a file.
	Export setup to file...	Exports all settings and saves them into a file. **Use this function to archive settings.**
	Export configuration report...	Exports a configuration report. The configuration report will open as repot.html file in a web browser. It lists all configured media channels, including their ID, Global number, Name, Description, their activity, latitude and longitude. In addition, a link is displayed for each media channel showing the location of the associated camera on a map using OpenStreetMap.
	Exit	Closes G-Set. **Do not forget to send the settings to the server before exiting the program.**

View

Icon	Description	Function
	Start screen	Leads to the start screen.
	PTZ control	Remote control.
	Viewer properties	Viewer properties.
	Refresh	Refresh.

Help

Icon	Description	Function
	Visit homepage...	Leads to the Geutebrück homepage.
	Help...	Leads to the Geutebrück online help.
	Info...	Information about G-Set.

Sidebar

This section provides an overview of the functionality of the **Side bar** shown in 2. The sidebar consists of several sidebar items. Every sidebar item includes a drop-down menu, which can be opened or closed by using the adjacent keys.

Connections

The **Connections** sidebar items drop-down menu displays the servers available on the network for G-Core. Click the server you want to connect to and enter the user name and password in the dialog box that appears to establish a connection.

Media Channels/Hardware

In the drop-down menu of the Media channels/Hardware sidebar item, configurations of the **Media Channels** such as names, descriptions, sources, etc. and configurations of the **Hardware Settings** modules can be done.

Events/Behavior Rules

In the Event/Behavior rules sidebar items drop-down menu configurations of the event and alarm settings as well as configurations of the behavior rules can be done.

General Settings

The General settings are the central instrument for configuring G-Core. This includes the

- **I/O Settings**
- **Quality Profiles**
- **Blocking Filters**
- **Telecontrol**
- **Time Ranges**
- **Database**
- **Autobackup**
- **Options (Licensing)**
- **User**
- **ATM Settings**
- **APF Connections**
- **AuditTrail**
- **Global Settings**
- **G-Web**

- **Remote Server**
- **Axis Bodycam Integration**

G-Web: G-Web is configured directly in the G-Web interface.

Image Analyzers

In the drop-down menu of **Image analyzers** the settings for the G-Tect Tools like **Activity Detection (AD)**, the **Video Motion Detection (VMD)**, the movement detection **Video Motion Extended (VMX)**, the **Scene Validation (SV)**, the **AI-Connect**, the **Analytic Host** , the **Number Plate Recognition (ANPR)** and the **License Plate Recognition (LPR)** can be opened.

Image Processors

The sidebar item **Image processors** consists of the drop-down items **Client Privacy Masking (CPM)** and **Source Privacy Masking (SPM)**. With which persons or moving objects can be pixelated and areas can be blacked out.

Central Action Manager

In the **Central action manager** you will find the **Action Center**, the **Action Filter** and the dialogs for the configuration of **Tour**, **Cycles** and **Timer**.

Wizards

The Wizards area shown in 3 consists of three different wizards which will guide you through the (initial) configuration of G-Core.

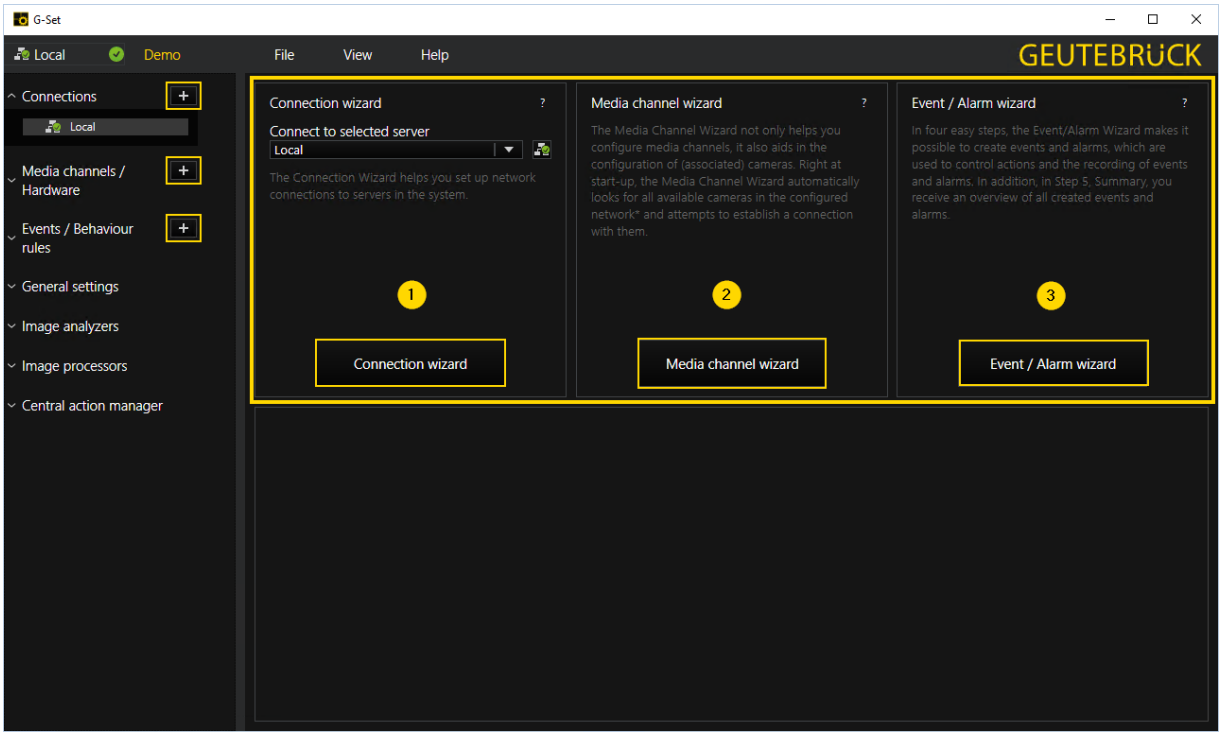
Read more about the different **Wizards**.

Wizards

G-Set helps you with the (initial) configuration through the use of three wizards, which can be found on the G-Set home page. This includes the **Connection wizard** 1, the **Media channel wizard** 2 and the **Event/Alarm wizard** 3.

These wizards quickly guide you through the process of configuring the key settings in G-Set. This makes it possible to quickly put your system into operation, in particular for the initial installation process.

To open a wizards configuration menu click the button of the specific wizard on the G-Set home page or use the + button next to the items**Connection**, **Media channels/Hardware** and **Events/Behavior rules** in the left sidebar.



Connection Wizard

The **Connection wizard** helps you set up network connections to servers in the Geutebrück system.

For more information using the wizard see **Connection Wizard**.

Media Channel Wizard

The **Media channel wizard** not only helps you configure media channels, it also aids in the configuration of (associated) cameras. Right at start-up, the Media channel wizard automatically looks for all available cameras in the configured network and attempts to establish a connection with them. All identified cameras are listed and if a connection was possible, a current image from the selected camera is also displayed.

For more information using the wizard see **Media Channel Wizard**.

Event/Alarm Wizard

With the **Event/Alarm wizard**, events and alarms, as well as their start and stop functions can be created by means of actions and the recording of the events / alarms. Furthermore, a list of all created events and alarms is displayed to give an overview.

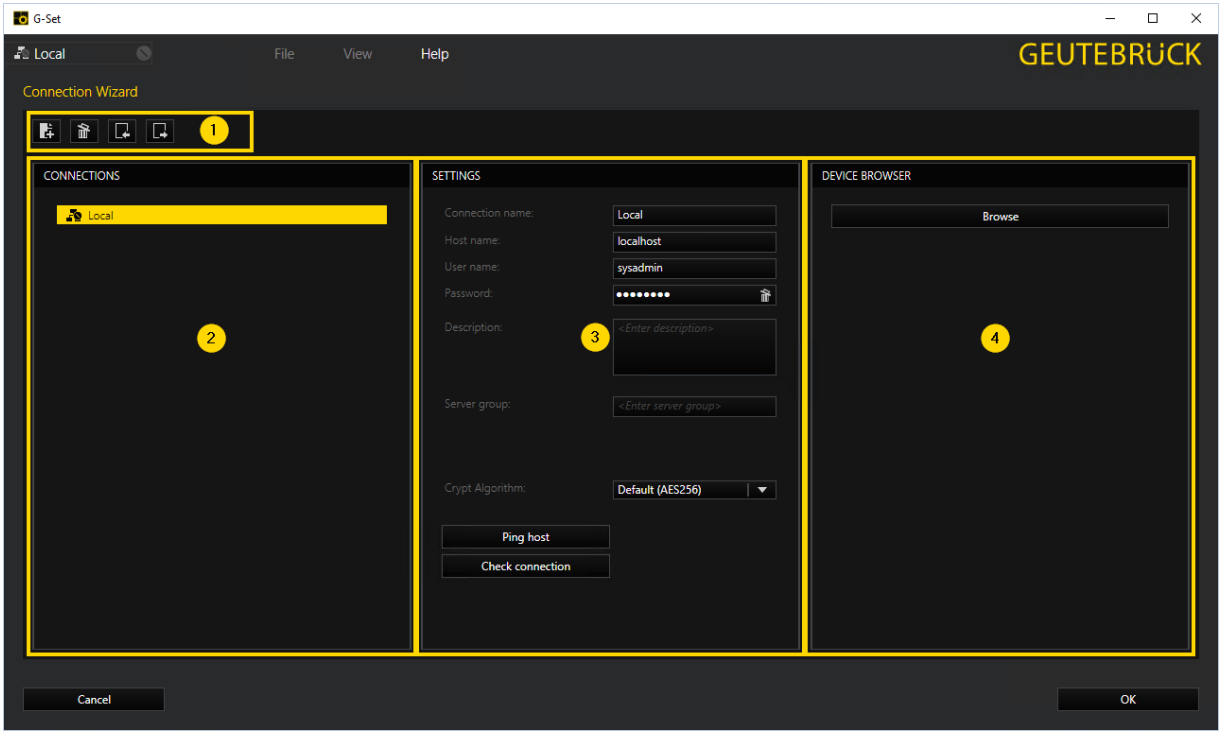
For more information using the wizard see **Event/Alarm Wizard**.

Connection Wizard

The Connection wizard helps you set up network connections to servers in the Geutebrück system. To open the Connection wizard menu click on the **Connection wizard** button on the G-Set home page or use the ✚ button next to the sidebar item **Connection**.

> **You can only open the Connection Wizard if you there is no running connection to a server.**

The Connection wizard menu is divided into four areas:



	Area	Description
	Toolbar	The **Toolbar** consists of commands for editing connections.
2	**Connections**	The **Connections** area shows a list of all configured servers.

	Area	Description
3	**Settings**	In the **Settings** area, settings for the server selected sever in **Connections** can be made.
4	**Device Browser**	With the **Device Browser** you can browse for servers.

Toolbar

The Toolbar 1 contains four buttons for editing connections.

Icon	Description	Function
	New	Creates a new connection to add a new server to the list of configured servers in **Connections**. **The new server is entered in the list of configured servers with an alias name.**
	Delete	Deletes the server selected in the list of configured servers in **Connections** .
	Export	Exports the current list of configured servers, shown in **Connections**.
	Import	Imports a saved server list. **As long as there is a existing connection to a server, the import of a server list is not possible.**

Connections

In the Connections area 2 all servers are shown to which connections are configured. Click on a server to edit the connection information or to add descriptions.

Use the toolbar buttons to create new server connections or delete existing server connections.

Settings

Servers selected in the **Connections** area can be edited in the **Settings** area 3.

Settings can only be made as long as there is no existing connection to the selected server.

Crypt Algorithm

For exchange of data with the selected server, you can select the type of encryption:

Encryption	Description
None	(Unencrypted)
AES256	The Advanced Encryption Standard (AES) is a block cipher, which was published in 2000 as a standard. The algorithm has a very high level of security, so that AES-192 and AES-256 are approved in the U.S. for documents with the highest top secret classification.
Salsa	Salsa20 is an encryption developed in 2005. Salsa20 is based on a small number of operations and thus provides good, consistent software performance.

Crypt algorithm default value is AES256.

Ping Host and Check Connection

Using the **Ping host** and the **Check connection** buttons, you can check the reachability and connection of the in **Connection** selected server.

Button	Description
Ping host	The **Ping host** button can be used to test if the specified host is reachable in the network. Clicking the button will send a ping. If the host is reachable a will appear next to the **Ping host** button. Otherwise an will appear.
Check connection	If you click the **Check connection**button, the system will check whether a connection to the selected server can be established with the specified data. If the connection is successful a will

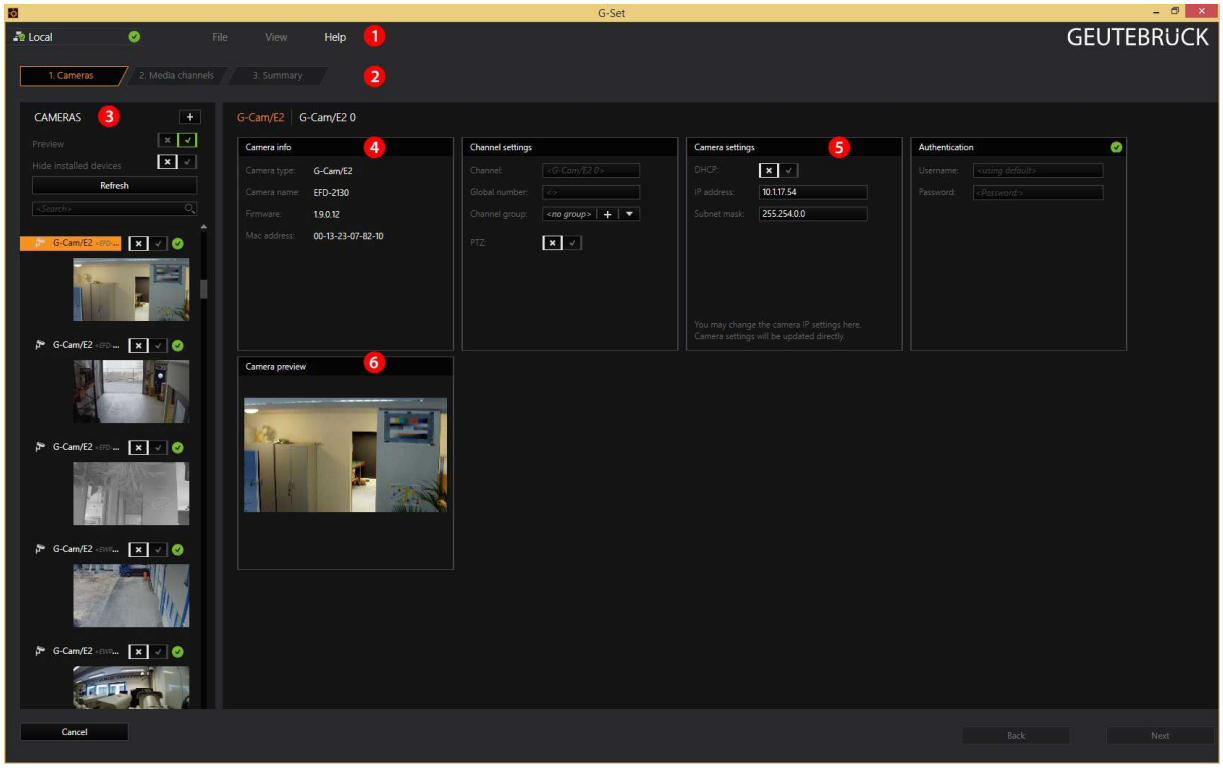
Button	Description
	appear next to the **Check connection** button. Otherwise an will appear.

Device Browser

The Device browser area shows, after you click on the Browse button, all servers available in the network. If you double-click a server in the Device browser list, it will be added to the list of configured servers in Connections.

Media Channel Wizard

After opening the Media Channel Wizard, you will see the following 6 areas:



	Area	Description
1	The command bar	The command bar contains buttons for basic editing.

	Area	Description
2	The steps for the configuration of the media channels	The wizard guides you through the configuration in three steps: Setting up the cameras, configuring the media channels, checking the overview of the settings.
3	A list of available cameras on the network	List of detected network cameras and the ability to add cameras manually. **Hide installed devices**: Cameras that have already been configured are displayed as standard. They can be hidden in the list using the button.
4	A dialog for general information	Settings for channel name, global number and channel-group assignment.
5	A dialog for camera settings	Here you set the connection information to the camera.
6	A preview image	Displays a preview image of the selected camera.

In the **Cameras** area 3 you will find a number of buttons:

Button	Description
Preview	Here you can specify whether a preview of the found cameras will be shown.
Refresh	Clicking on this button initiates another search from cameras in the server
Search	Search supports filtering the camera list. Among other criteria, you can search according to Mac address (example: *ff-ff-ff-ff-ff-ff*] , IP address (example: *127.0.0.1*), camera type, camera name, firmware

In addition a green checkmark indicates that the username and password of the camera are known. Otherwise a red cross is displayed.

Cameras

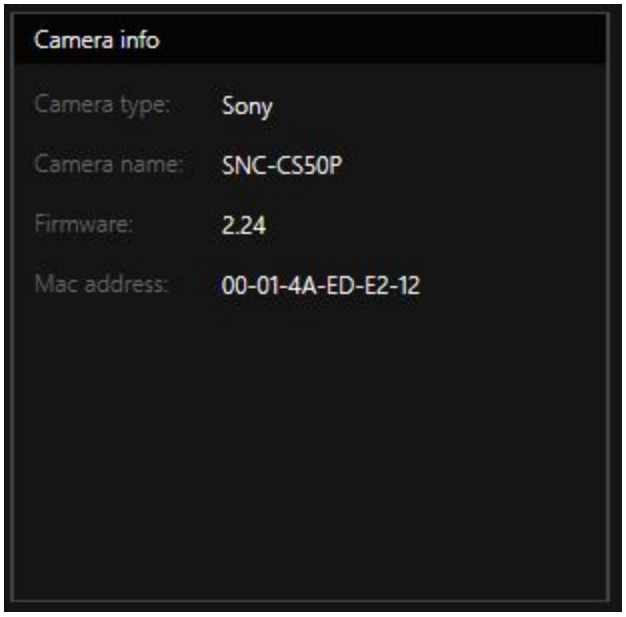
The Media Channel Wizard automatically searches for existing network cameras and displays them in the first column (3). Cameras for which access rights are available are also displayed with a small camera image.

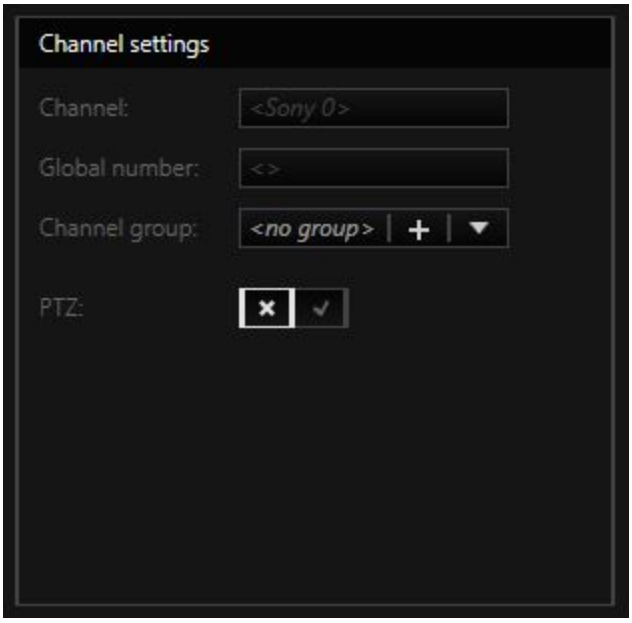
You can now select the desired camera and edit the general information and the camera-specific data edit ((4) and (5)).

If your camera cannot be found or if you want to add a camera manually, you can open the **Manually add camera** menu. Select the camera manufacturer and follow the instructions.

The menu to manually cameras is opened by clicking [+] (right next to **CAMERAS**).

Camera Info and Channel Settings





In addition to the firmware version of the selected camera, the **Camera info** dialog also displays its MAC address. In addition, the **Camera name** also appears for a configured camera.

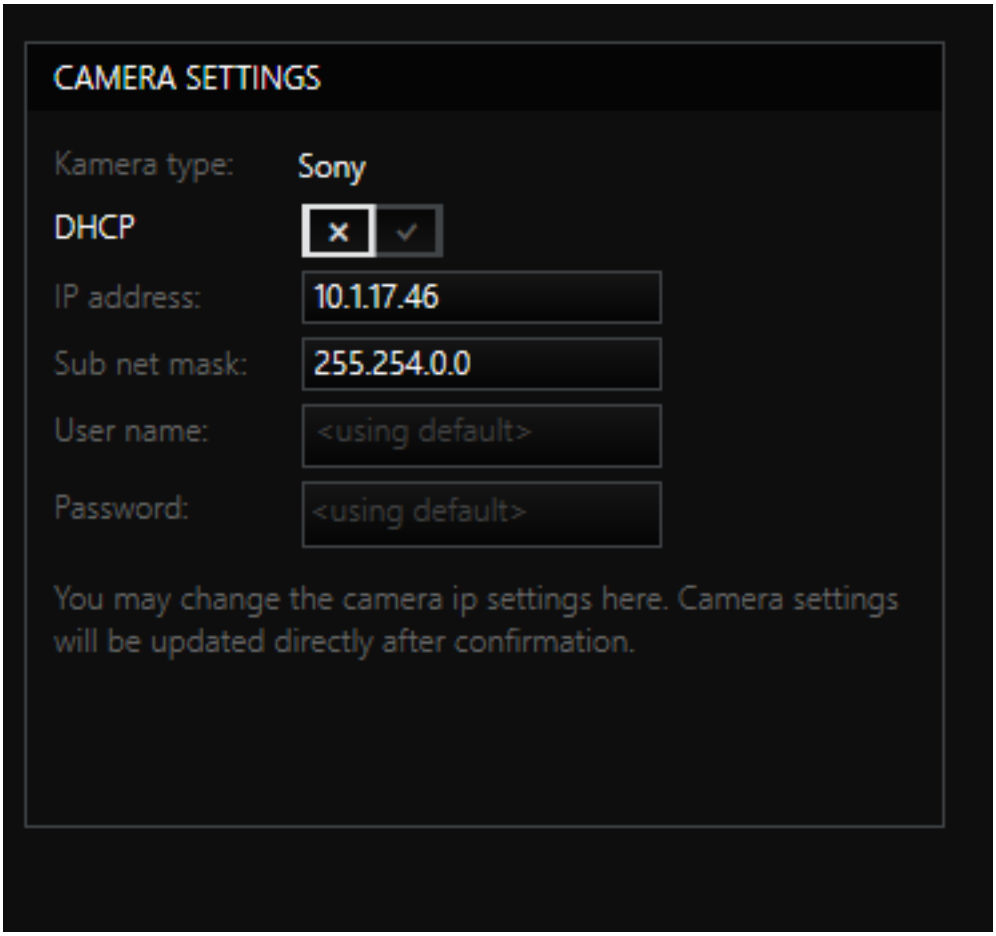
You can give the media channel of the camera an easy-to-remember name (**Channel**) and assign the channel to a **Channel group**.

> **Channel groups are used to make it easier to allocate cameras. Especially for larger projects, it can be useful to create these groups in order to control multiple, associated cameras (and their channels).**

An example of a group could be all the cameras in a main entrance area (for example, the group could be called MainEntrance) or all the cameras around the north parking lot (ParkingN).

If there is no compelling reason to do so, you should not change the automatically assigned global number. It is used for system-(network-)wide identification and it is also used in numerous locations in Geutebrück system.

Camera Settings



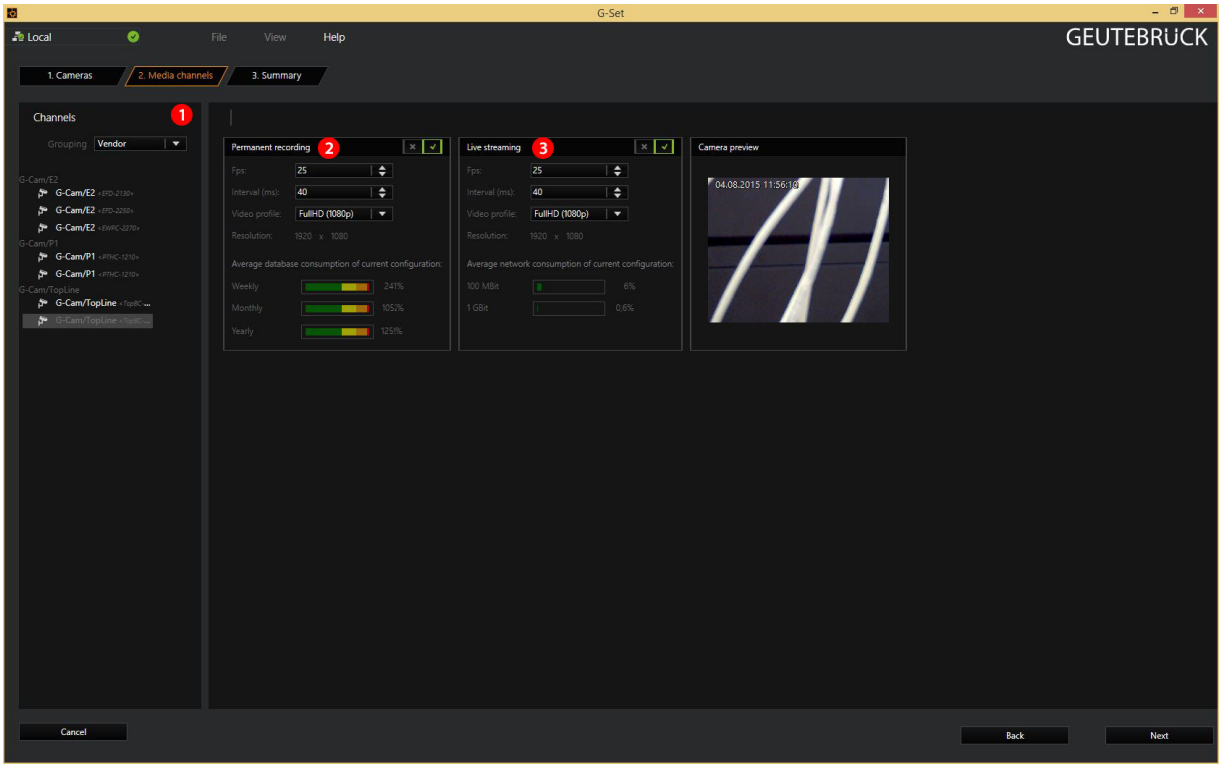
The Camera Settings dialog shows you the camera type and lets you decide whether you want to use DHCP. DHCP status (activated/not activated) is shown.

The setting can be adjusted here. If the DHCP button is grayed out, changing the DHCP settings is not supported for this camera or the username/password are not known to the camera.

If you are not using DHCP, enter the IP address of the camera and the subnet mask in this dialog.

The settings for the camera are completed once you enter the username and password. Without this information, you can not access the camera.

Media Channels



In the second step of the configuration, in the **Media channels** dialog, we will run into a number of objects that we saw in the first step: The command bar, the selection of the configuration steps and the camera preview.

Continue the configuration by selecting a camera 1, and then configure the settings for **permanent recording** and for **live streaming**.

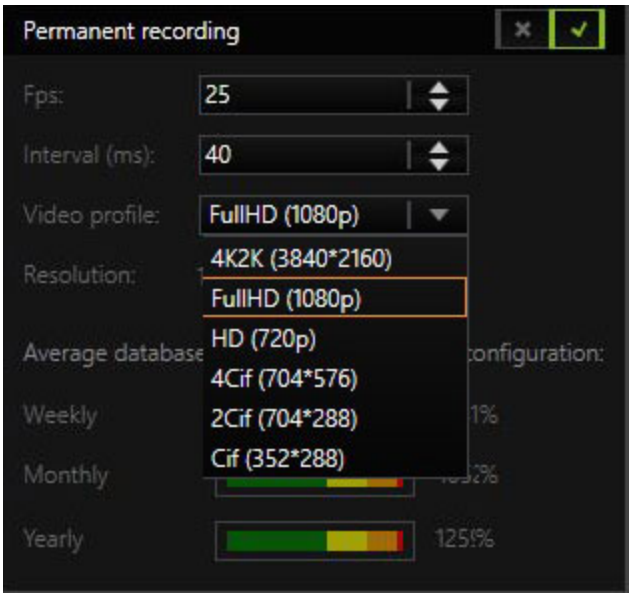
Under Grouping, you can select how the list will be sorted. Multiple selection is possible!

Permanent Recording

Permanent recording requires a few settings:

Parameter	Description
FPS	Recording rate in FPS (frames per second)
Interval (ms)	Interval: A frame every X ms
Video profile	Selection of a preset profile (see table below)
Resolution	Resolution of the image in pixels

Permanent recording is enabled by default. However, please note that you will only be able to find the recorded images if you have created a database. Without a database, the images from permanent recording will be deleted. For more information on the database, click here.



Under Video Profile a profile configured under G-Set can be selected for the camera.

The video profiles only describe reference values. The resolution can vary for specific cameras. The resolution of the camera that corresponds most closely to the reference value will be used.

Live Streaming

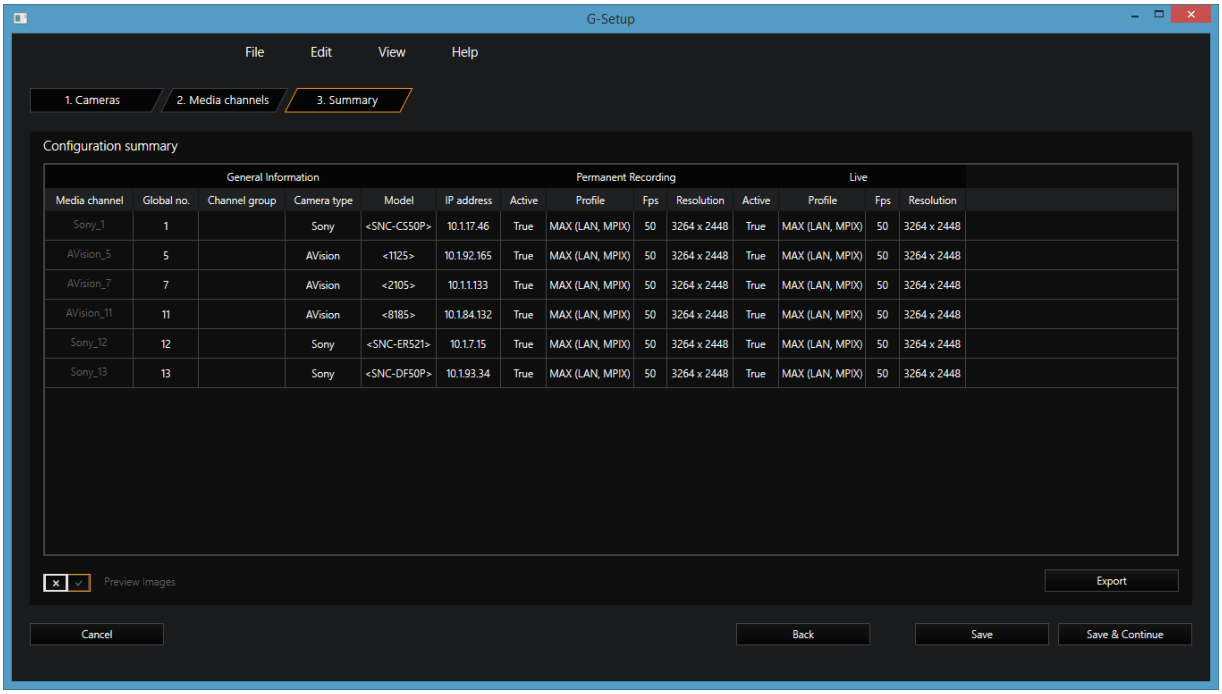
Live Streaming is enabled by default, but it requires a few additional settings to be made:

Parameter	Description
FPS	Recording rate in FPS (frames per second)
Interval (ms)	Interval: A frame every X ms
Video profile	Selection of a profile (see table below)
Resolution	Resolution of the image in pixels

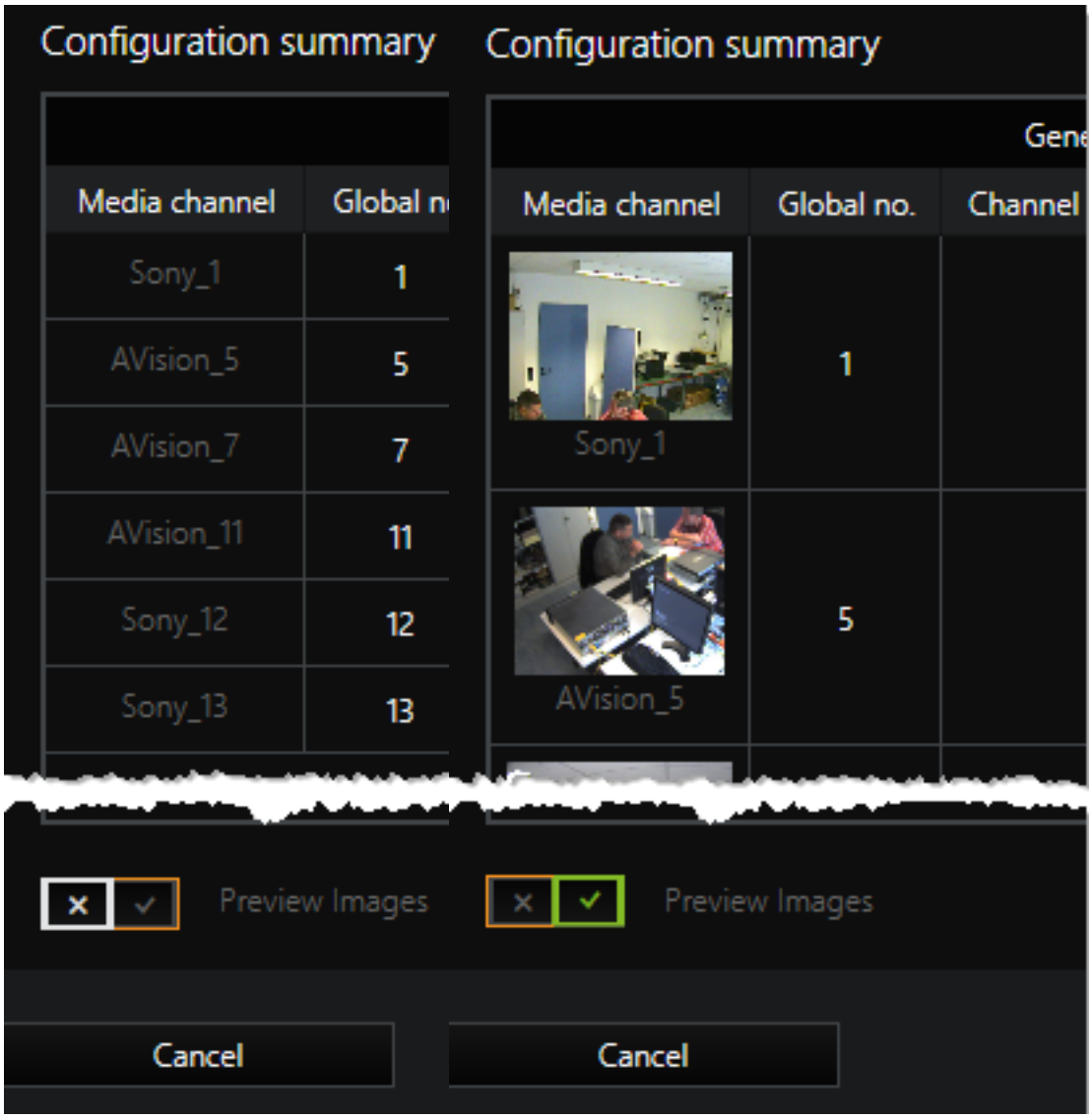
Click 3. Summary 2 to show the configurations of the cameras and media channels. Alternatively, you can first configure additional media channels.

The values shown below for database memory and network load are only "estimate" values and can deviate!

Summary



The summary provides you with an overview of all the settings that have been defined. For cameras, you can select from two views. To do so, use the **Preview Images** switch:



Default view *Preview*

Clicking on **Export** opens a dialog with which you can save the summary table as an Excel file (*.xlsx).

In the **Summary** you cannot make any changes to the configuration! Changes can only be made in the **Camera** and **Media Channels** tabs.

When you click **Finish** the settings are written to the **Local Setup** and the wizard is closed. The event configuration is now available in G-set for further processing.

The configuration is immediately sent to the server by clicking on the icon !

Event/Alarm Wizard

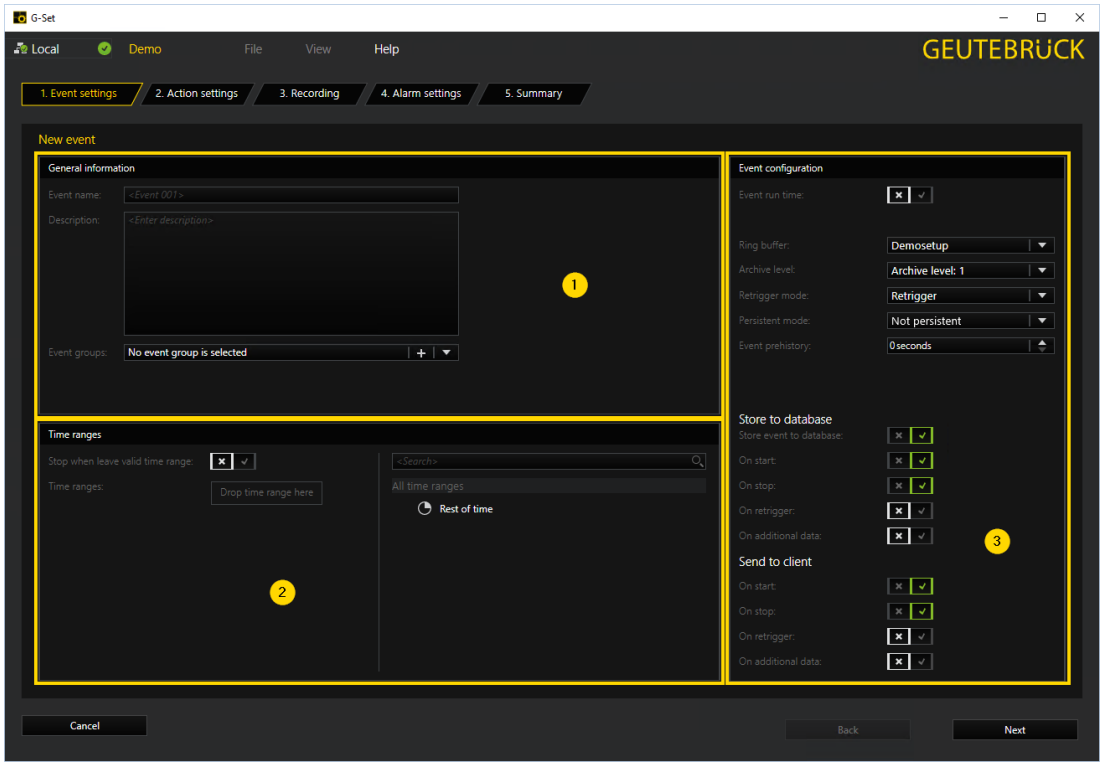
The Event/Alarm wizards guides you in 5 steps through the creation of alarms and events, which are used to control actions and the recording of events and alarms. A feature of the wizard allows you to create multiple events/alarms simultaneously and assign them corresponding actions.

You can also create, edit and delete events and alarms using the Events dialog. General information about the configuration of events and alarms can be found in the help pages for the Event dialog.

To open the Event/Alarm wizard click either on the **Event/Alarm wizard** button on the G-Set home page or use the **+** button next to the sidebar topic **Events/ Behavior rules**. A network connection to a server is needed for opening. See how to build a server connection with the **Connection Wizard**.

1. Event Settings

After opening the **Event/Alarm wizard**, the first step **Event settings** will open. You will see three areas:



	Area	Description
	General Information	In the **General Information** area, you can create a new event by assigning it a name and optionally a description.
2	Times Ranges	In the **Time ranges**, you can configure the time range of the event.
3	Event Configuration	In the **Event configuration** area, you can configure the event.

General Information

In the General Information area, a new event can be created by assigning it a name and optionally a description.

In addition events can be combined to form event groups. To assign the created event to an event group select an event group under Event groups or create a new event group by clicking the + button.

Times Ranges

The Time ranges area allows you to configure the time range of your event. If the event should be stopped, if the configured time range is passed, activate the slider under Stop when leave valid time range.

Choose the time range for your event by selecting one of the time ranges in the list off All time ranges on the left side of the Time ranges area and use drag and drop to add a time range to the Times ranges box.

If you have not yet defined any time ranges, the default value Rest of Time is available. Rest of Time is a special time range that is only used when no time ranges have been defined or when no other time range is valid. Because Rest of Time represents different time ranges depending on the configuration, this time range is not configured, it is a "virtual" time range.

> **More information about time ranges and how to define and configure them can be found under** Time Ranges.

Event Configuration

With the Event configuration area the newly created event can be configured.

At first you can specify the Event run time of the event, by activating the **Event run time** slider. If the slider is activated you can set the event run time in seconds below using the arrow keys.

Afterwards choose a **Ring buffer** and an **Archive level** for recording. You can use one of the default archive levels or may specify your own archive levels for each ring.

Default archive level	Recording time
Level 1	15 Days
Level 2	30 Days
Level 3	45 Days

After you have selected a ring buffer and an archive level, use **Retrigger** to define how your event should react when it is retriggered during an existing activation. The four trigger modes are available:

Trigger mode	Function
Start new instance	Starts a new instance.
Ignore action	All set actions are ignored.
Retrigger	The event is retriggered. This means that the event configuration runs again.
Order dependent	The event settings run in the order of configuration.

More on ring storage, archive levels and dynamic management of the database can be found here.

If recording of the events prehistory is needed, the time range of the prehistory in seconds can be configured under **Event history**. When activating the prehistory by specifying a time range, the **Link prehistory range to event** slider appears. Activating the slider the events prehistory can be bind to the event.

Now, only the settings for distributing the event are missing.

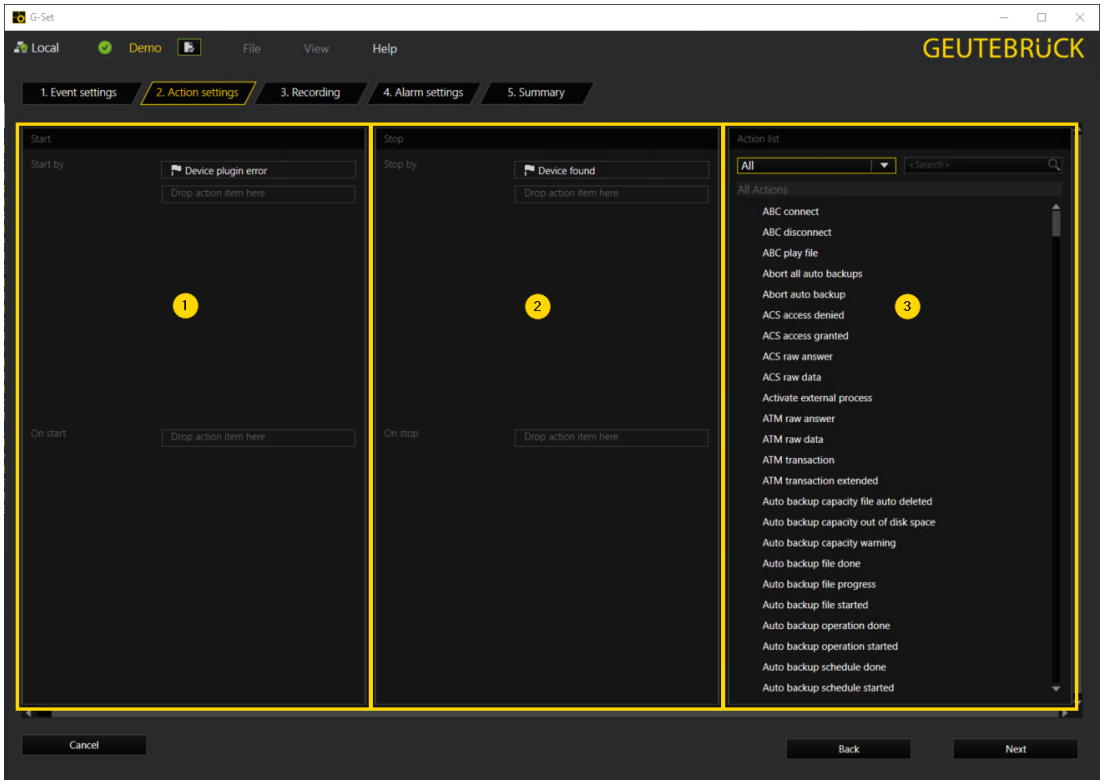
To store the event to the database activate the slider **Store event to database** and choose in witch case the event should be stored. If the

Slider	Function	
	Store event to database	**Send to client**
Store event to database	Saves the event in the database.	
On start	At the beginning of the event.	At the start
On stop	At the end of the event.	At the stop
On retrigger	When retriggering	When triggering
On additional data		

When all settings have been made go to the next step by clicking on **Next**.

2. Action Settings

In the second step, you specify through which action the event is to be started or stopped . On the right there is a list of all actions 3 to use for this purpose.



By default, all actions are displayed in the actions list 3. By clicking the small down arrow in the action list area and choosing one of the displayed action groups all actions of the action group will be displayed in the action list. Alternatively, you can enter an action name, or part of an action name, in the search box. Matching actions will then be displayed.

Once you found the desired action, drag it with the left mouse button onto one of the **drop item here** fields in the Start 1 or Stop 2 area. You can highlight multiple actions simultaneously. To do so, hold down the Control key and select the desired actions with the mouse.

3. Recording

The next setting step is the Recording.

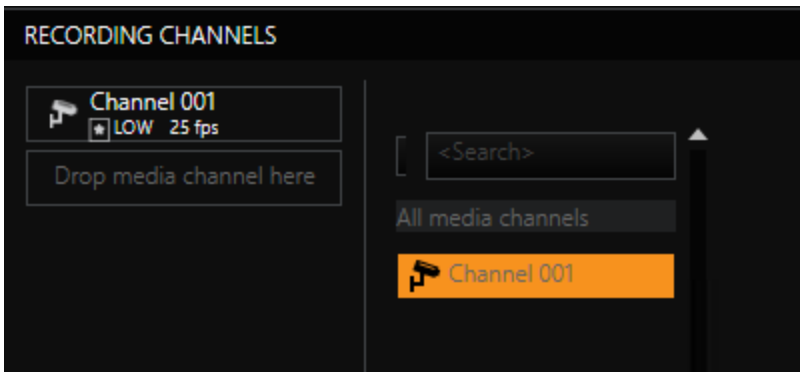
Recording Settings

In the **Recording settings** dialog you can configure the desired run-time settings for the event. Choose between:

- Don't change event run time (Default value)
- Override event run time
- Disable event run time

Recording Channels

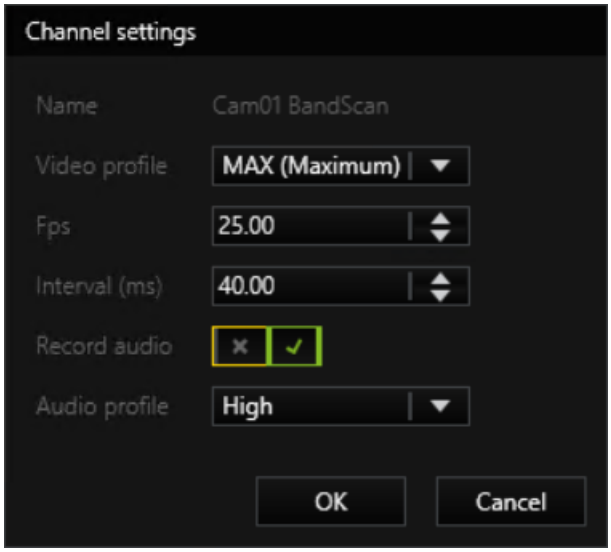
Under **Recording channels** you assign the associated media channel(s) to the event. To do so, select one or more channels from the list of channels (similar to above for the actions) and drag them onto the **drop item here field**.



The selected recording channels are displayed with values of the quality setting and the frame rate.

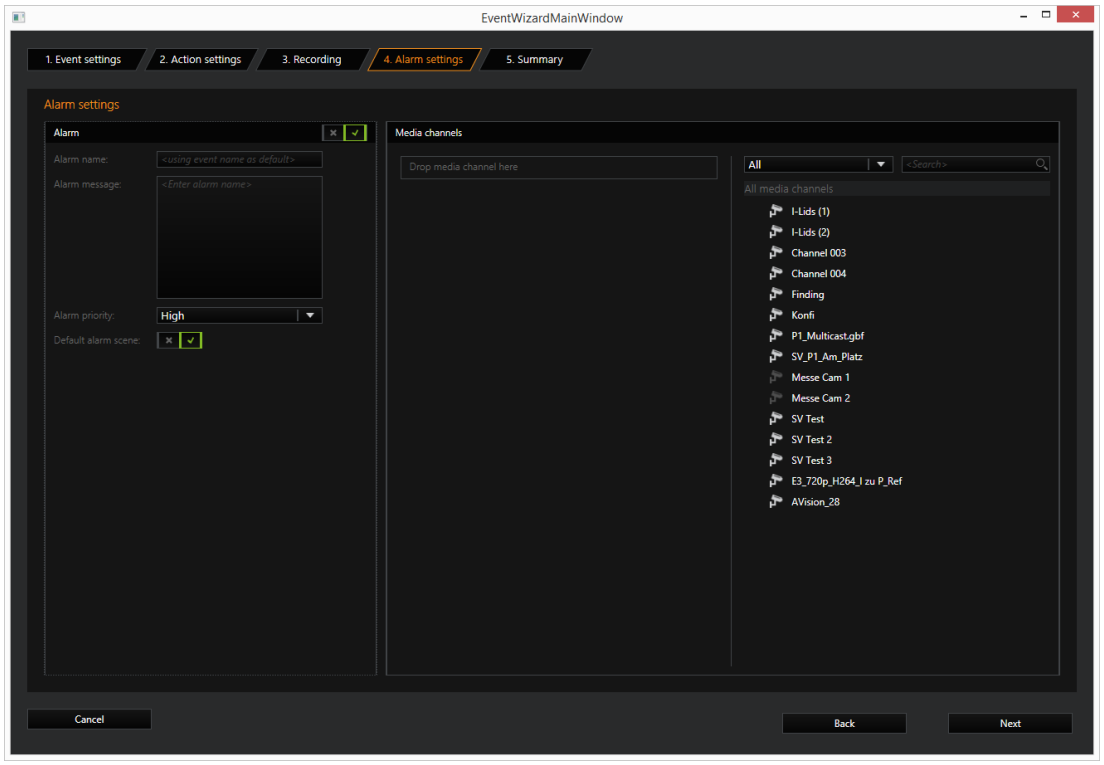
If you right click the recording channel, a small selection menu opens, allowing you to delete the channel by clicking on the icon or to edit the channel settings by clicking on the icon.

The edit icon will open the following channel settings pop up window.



Click **OK** to accept the changes and close the pop up window.

4. Alarm Settings



In the Alarm settings step you can set and configure alarms. Activate alarm settings by using the slider next to Alarm. The following areas will appear:

On the left side the **Alarm** area where Alarms, including their names, message and priority can be configured and on the right side the **Media channels** area where media channels can be added to the alarm.

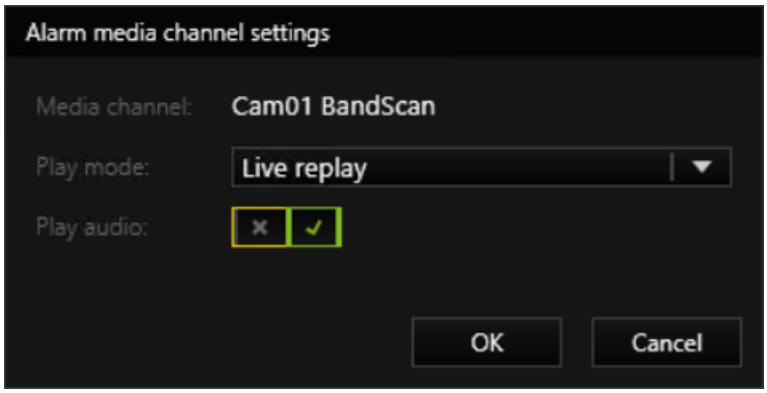
Alarm

Configure an alarm by giving it a name. Enter a text that should be used in case of an alarm, in the **Alarm message** box.

Under **Alarm priority** the desired priority can be assigned to the alarm and by activating the slider next to **Default alarm scene** you assign the default alarm scene to the alarm. Alternatively disable the slider and enter a alarm scene under **Alarm scene**.

Media Channels

Under **Media channels**, you add one (or more) media channel(s) to the alarm in the same manner as for the recording settings. The settings of the selected channel are displayed and can be edited by right clicking on the media channel.



To accept your setting changes, click **OK**.

5. Summary

The **Summary** shows all the configurations that were added with the Event/Alarm wizard.

Below the summary tabular list you will find the two buttons: **Parameter view** and **Export**.

The **Parameter view** default setting is **Restricted**. In this mode, only the most important settings are displayed in the summary. You can display all taken settings by setting the **Parameter view** to **All**.

The **Export** button opens a dialog with which you can export and save the summary table according to the setting in **Parameter view** as an Excel file (*.xlsx).

In the Summary you cannot make any changes to the configuration!

If you click one row in the table, the selected row is highlighted. This makes it easier to read related settings for the selected event in particular when the **Parameter view** is set to **All**.

You can simply specify which columns are displayed in the table view. To do this, right-click anywhere in the table. A pop-up window opens in which you can specify which columns will be shown.

When you click **Save & Finish** the settings are written to the local setup and the wizard is closed. The event configuration is now available in G-Set for further processing.

The configuration is immediately sent to the server by clicking on .

Connections

Connection to a Server

To connect G-Core with a (local or remote) server, double-click on a connection available in the drop down menu of the sidebar item **Connections** or select a server from the server list in the **Connection wizard** dialog and click on the button.

If required, enter your user name and password in the Connection dialog. Confirm with **OK**.

An existing connection to a server is indicated by green check marks . The server whose settings are currently being edited is displayed at the top left in the **Connections** menu.

Creating a New Connection

New server connections can be configured by using the Connection wizard. To open the Connection wizard menu click on the **Connection wizard** button on the G-Set home page or use the **+** button next to the sidebar item **Connections**. Further information can be found under **Connection wizard**.

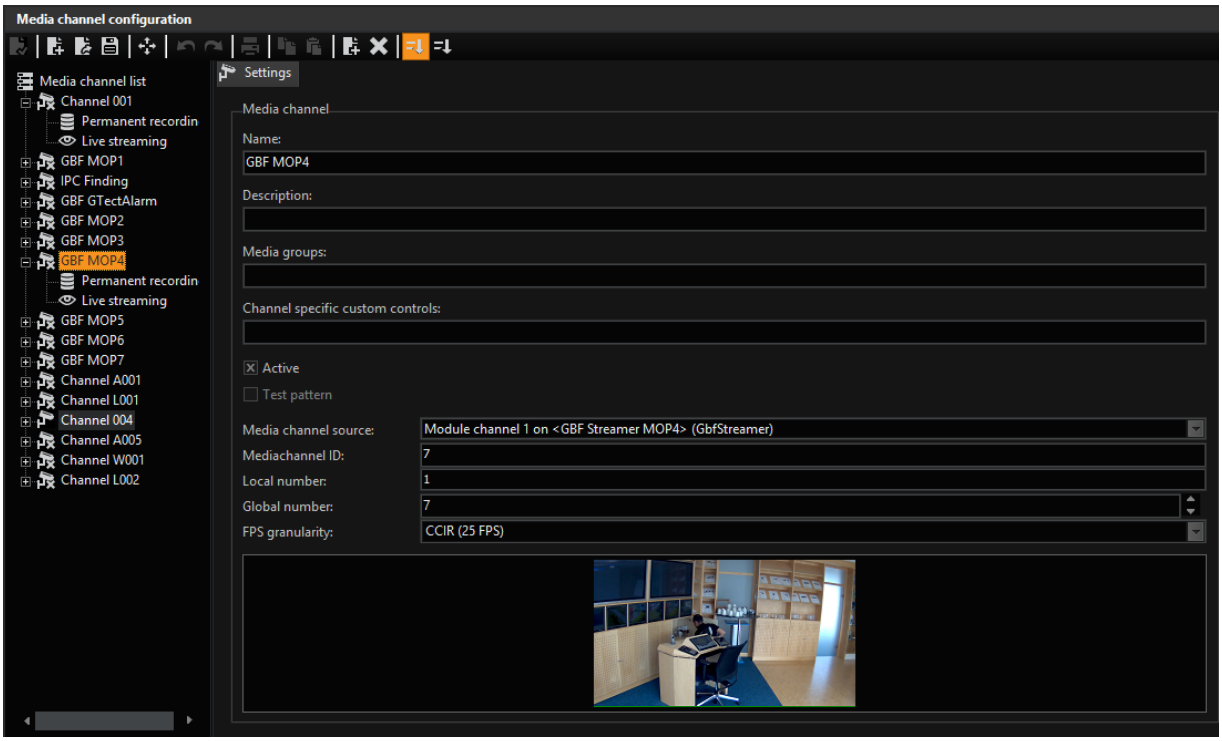
New created server connections appear in the list of connections in the **Connections** menu automatically.

Media Channels/Hardware

Media Channels

Settings

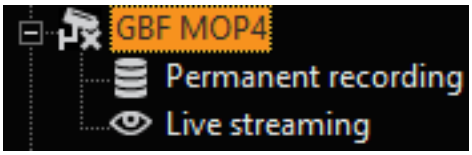
If you click on a channel in the **Media Channel List**, the settings will be displayed.



These general settings affect:

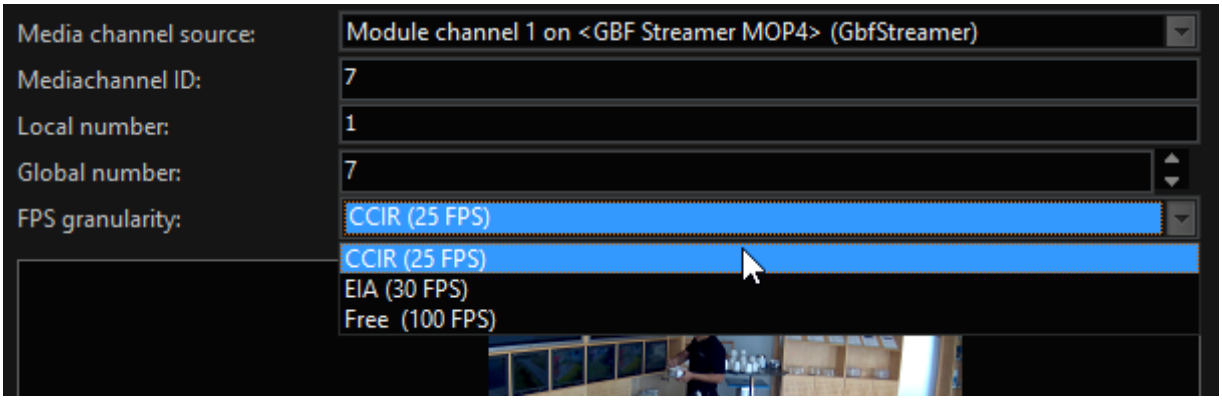
Setting	Function
Name	You can give the media channel a useful name
Description	Possibility for an explanation, for instance regarding the function of the media channel
Membership to a media group	
The associated adapted channel-specific custom controls from the profile manager of G-View	More on the custom controls can be found under G-View – Profile Manager
Media channel source	Selecting the source
Media channel ID	The ID of the media channel
Local number	The local number of the media channel
Global number	Settings of the global number
FPS granularity	See below, under **FPS Granularity**

If you click on the **x** in front of the media channel, you can also change the settings for **Permanent Recording**and **Live Streaming**



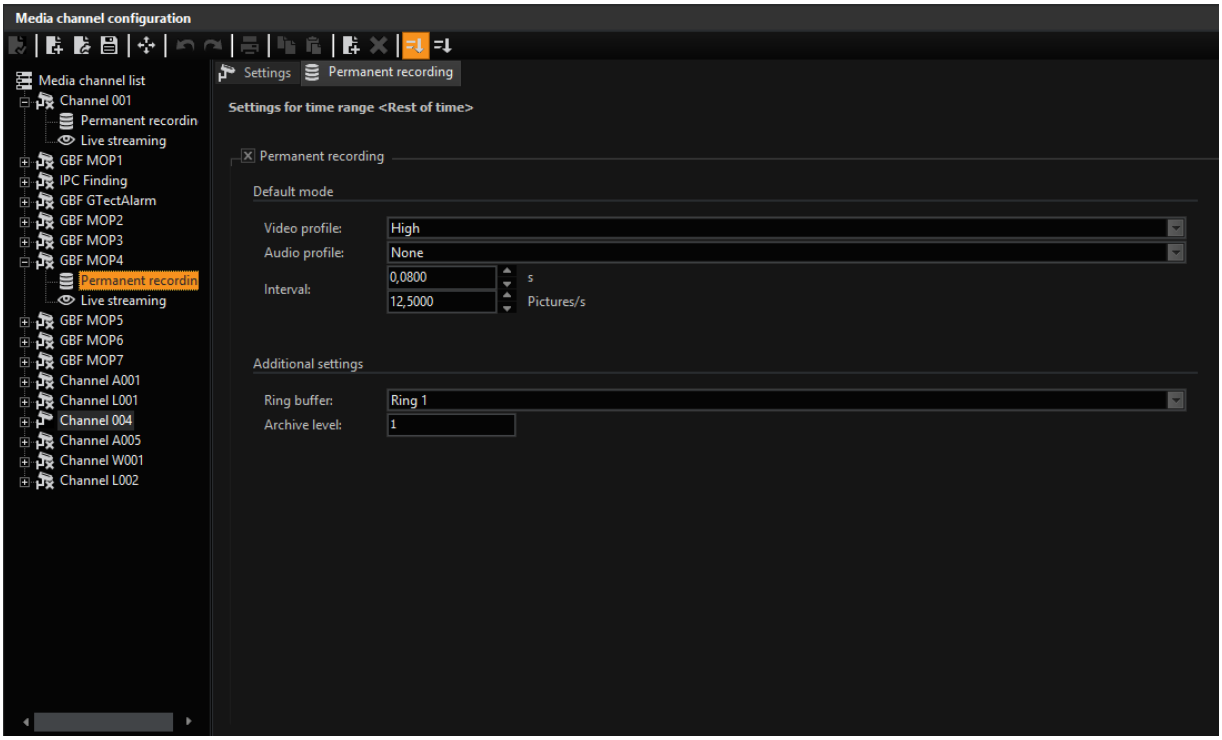
FPS Granularity

Select the video standard you want to work with here by opening the option field with a click. It is set to CCIR at the factory.



Permanent Recording

Click **Permanent Recording** to activate recording and the specify the desired settings.



The settings are made for the time period "Rest of Time", which is the default setting.
If you wish to set the permanent recording for a different time period, right click on Permanent Recording and select Add from the context menu. Select a time frame in the menu that opens. The desired time frame appears in a channel list.
This also applies for live streaming.

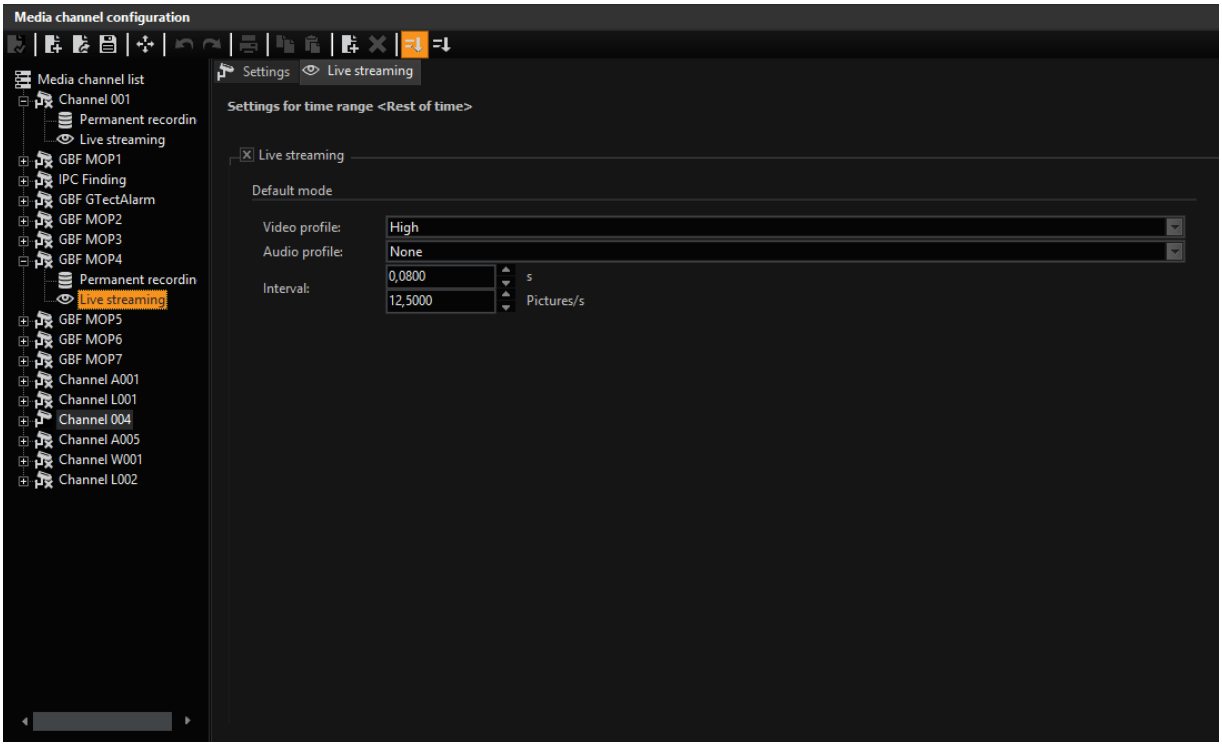
The settings for the video and audio profile are the settings made in the selection menu **Quality Profiles**.

Interval indicates the recording rate, which you can set either in seconds or as frames/seconds.

Under **Additional Settings** you specify the recording ring buffer and the archive level.

Live Streaming

Click **Live Streaming** to perform the desired modifications.

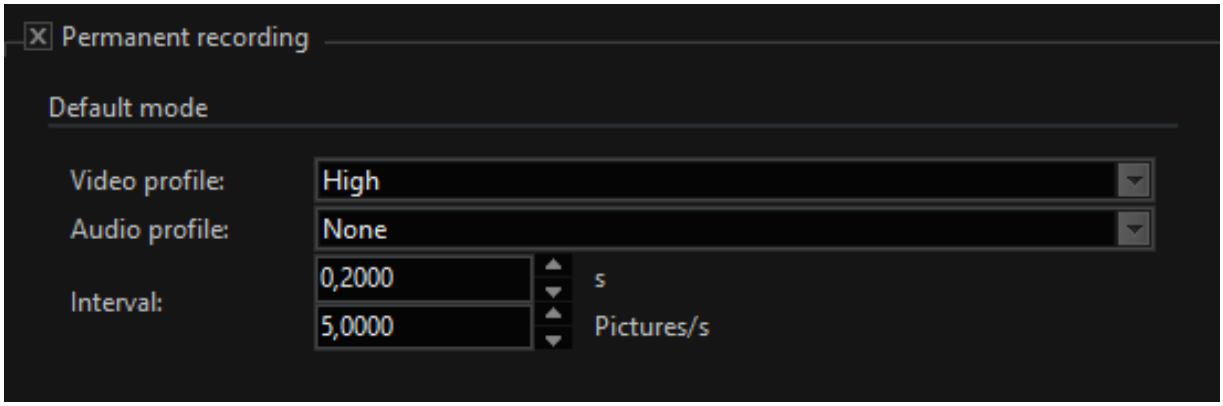


The settings correspond to those for the permanent recording (see above)

Activity Mode

The section Activity Mode ONLY refers to devices with DVSP8!

Let's take another look at the setting for the permanent recording:

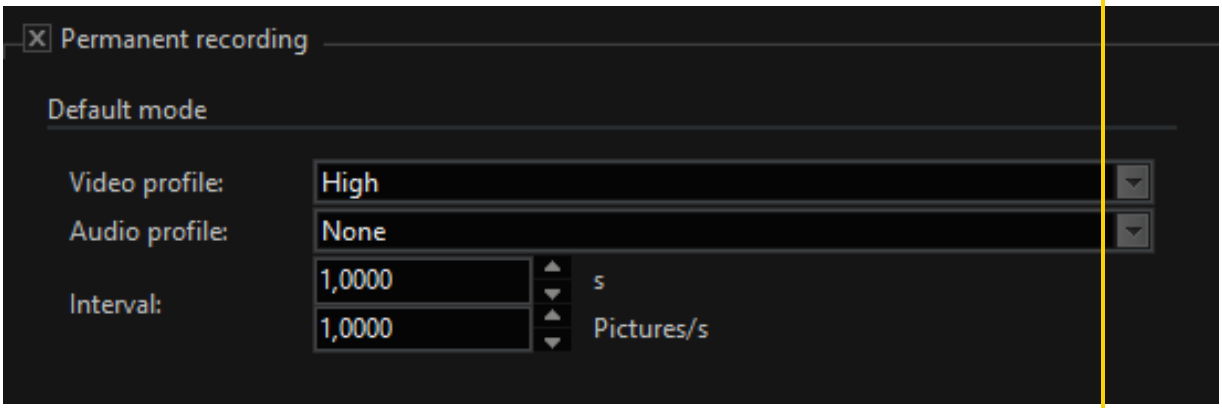


In the above setting, 5 frames/second are permanently recorded at high quality. This recording will take place regardless of whether there is activity in the monitored area.

Example In an office wing, the hall is monitored by a camera. Because no time range is configured, 24-hour recording takes place at 5 frames/second.

This form of recording has the disadvantage that over time, substantial disk space is required for the database.

As an alternative display for the time ranges in which NO movement is detected, the following setting is an option:

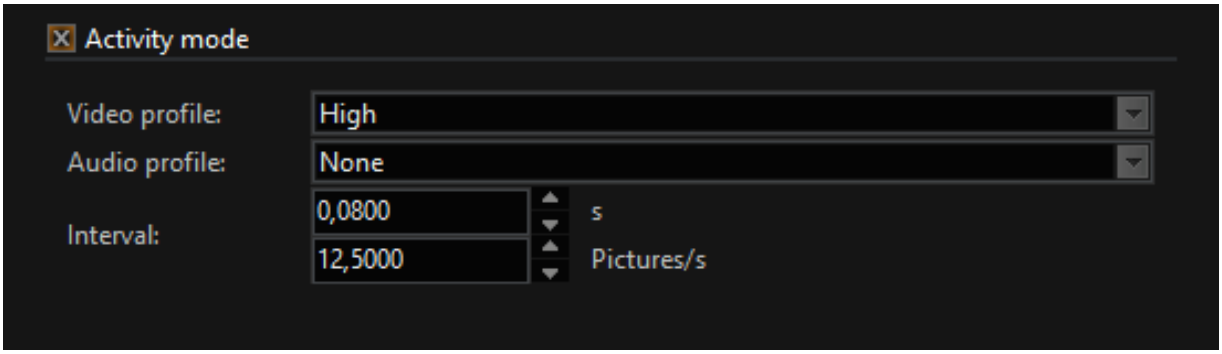


At only 1 frame/second, 80% less disk space is required. If we also lower the quality profile, the disk space savings would be even greater.

Activity Mode

But what happens when motion or a change in contrast is detected? This is where **Activity Mode** comes into play.

In case of a trigger via AD/VMD/audio, a switch is made to activity mode and for the set duration (see AD/VMD or event configuration), the recording rate selected here is used.



The joint configuration of permanent recording and activity mode saves disk space and delivers high picture and sound quality in case of detection.

Transcoding

Video transmission over IP networks is standard on current video security systems. In video security systems, however, multiple cameras are almost always used and transmitted, to be able to better judge critical situations from different angles. When transferring images from multiple cameras, bandwidth limitations are a critical factor. At display operator stations several live streams must also be processed simultaneously.

The Geutebrück systems limit the bandwidth and processing power requirements for the live images to a minimum. This is achieved by restricting the image transfer to the actual needs and by transmission of image data in the correct display resolution.

With this method, known as a dynamic live streaming (DLS), by eliminating the transmission of redundant data, the data volume can be reduced by 50 percent and more, without a noticeable loss in image quality. This reduction in data quantity means that the bandwidth and processing capability requirements are also lowered.

You have the option of transcoding JPEG to H.264CCTV using the **transcoder settings**. Thus DLS is also available for cameras that do not usually support it.

The quality profile for transcoding JPEG to H.264CCTV is set in the JPEG profile. The rule is simple: A higher quality JPEG also leads to a higher quality of the transcoded images.

If you activate transcoding, which is an option both for permanent recording and for live streaming, JPEG images are transcoded to H.264CCTV, which not only allows greater compression rates. For live streaming, the compression is also modified to the current viewer size.

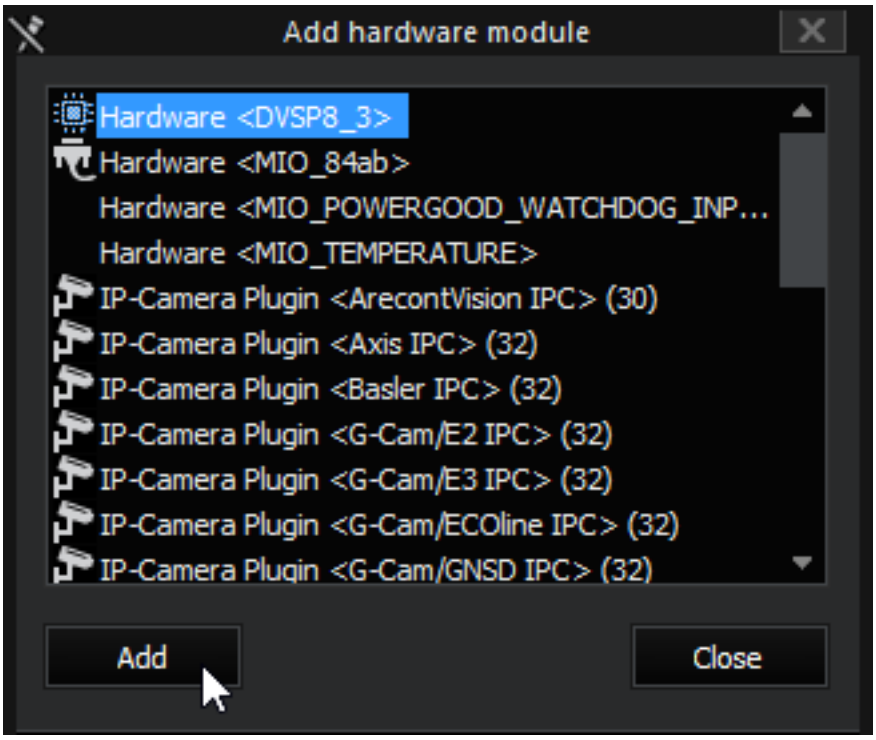
Quality Settings and Image Size

Both in the live stream and for permanent recording, with transcoding activated you can also control the quality settings. To do so, select the desired value at **Quality Level**.

It is also possible to set the image size for special applications. To do so, select the **Fixed Max. Resolution** field and enter the desired value.

Hardware Settings

Adding hardware modules is simple: Click in the selection menu **Media Channels / Hardware** on **Hardware** and right click in the **Hardware Module List.** In the list that appears, mark all desired modules and click **Add**. The modules can now be found in the hardware list.



Then click on a module in the list to configure it. Here DVSP8 as an example:

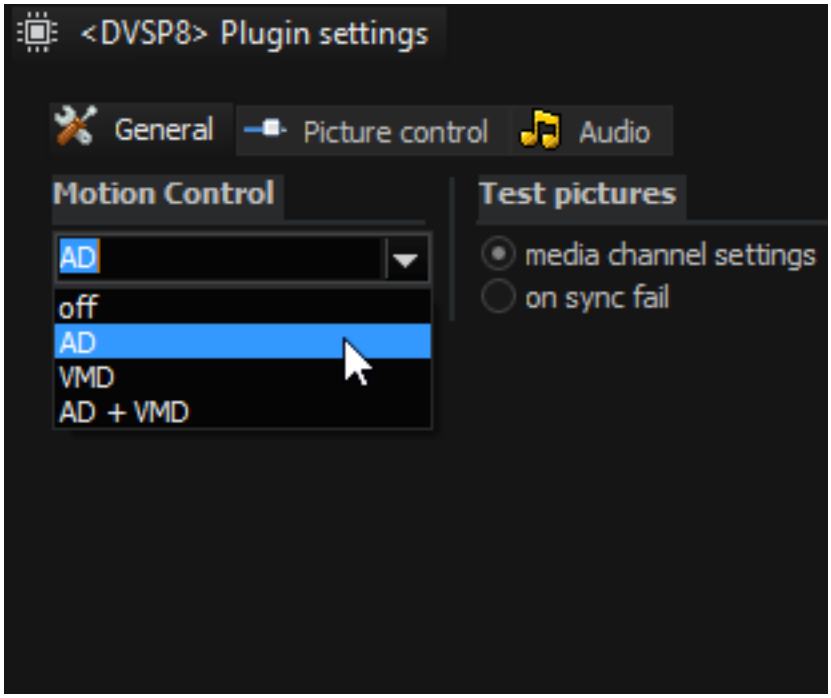
DVSP8

The DVSP8 dialogs are (practically) self-explanatory and therefore only need a few words of description.

For each channel there are three tabs for configuration in the plug-in dialog:

- General
- Picture control
- Audio

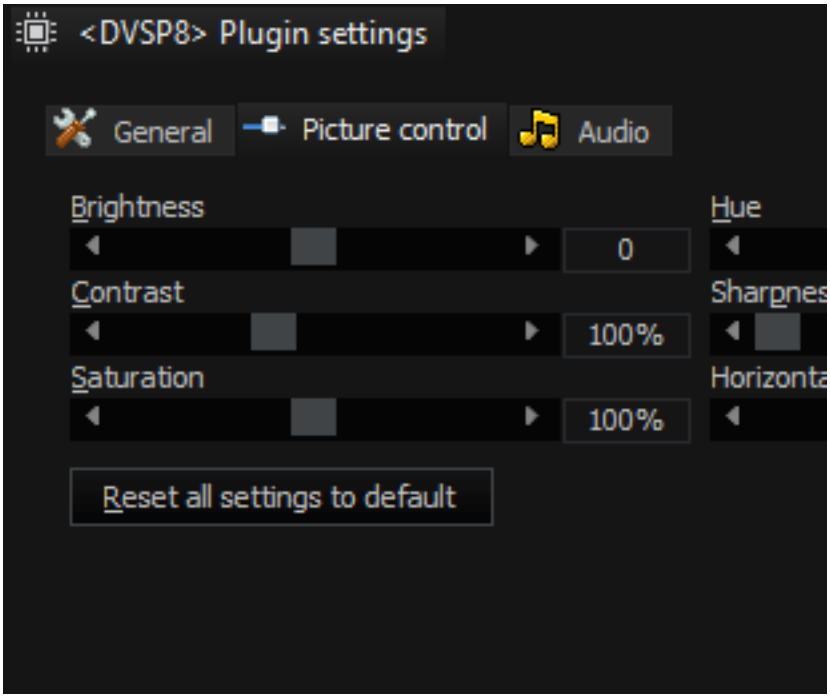
General Tab



Motion control	
Off	The motion control is switched off for this channel
AD	Switch the AD on/off for this channel
VMD	Switch the VMD on/off for this channel
AD + VMD	Switch the AD and VMD on/off for this channel
	Note: By default, AD is activated, as well as Activity mode.
Test pictures	
media channel settings	corresponds to the setting of the media channel
on sync fail	On for sync fail
Expert	

4-CIF-Blending	Reduces picket-fence effects in 4-CIF images by averaging/blending the two half-pictures. The images become less clear, but the picket-fence effects disappear
Max. bitrate	Ensures that an (internal) maximum bitrate is not exceeded. For this purpose, the images are limited to approx. 80-100 kByte. (DVSP4 limits images (half-pictures) to 60 kByte, CAM2IP to 50 kByte.)

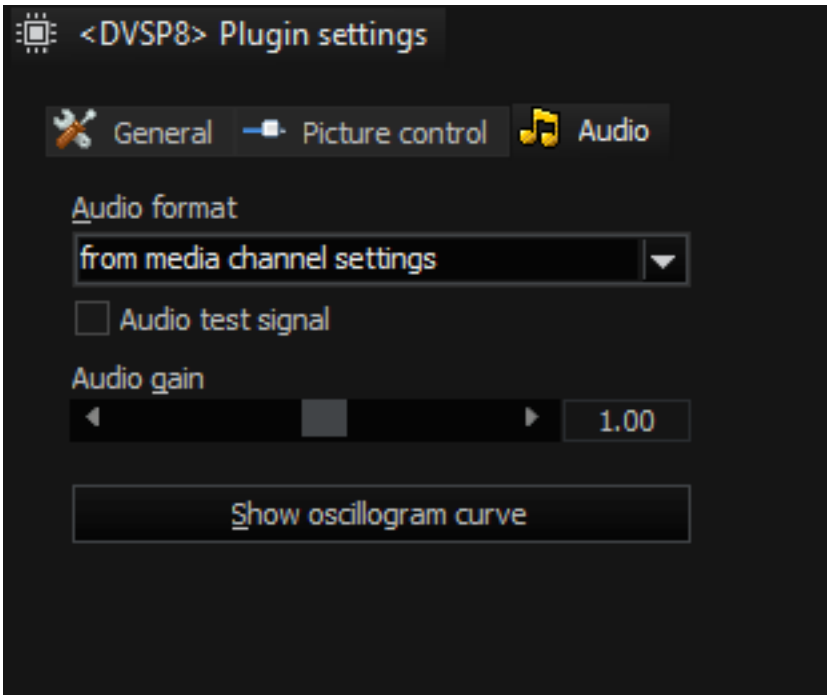
Picture Control Tab



Button	Function
Brightness	Brightness
Contrast	Contrast
Saturation	Saturation
Hue	Color
Sharpness	Sharpness
Horizontal Position	Using **Horizontal Position** the image can be aligned horizontally by a few pixels (+8/-8)

By clicking **Reset All Settings to Default**, all picture control settings are reset to the default values.

Audio Tab

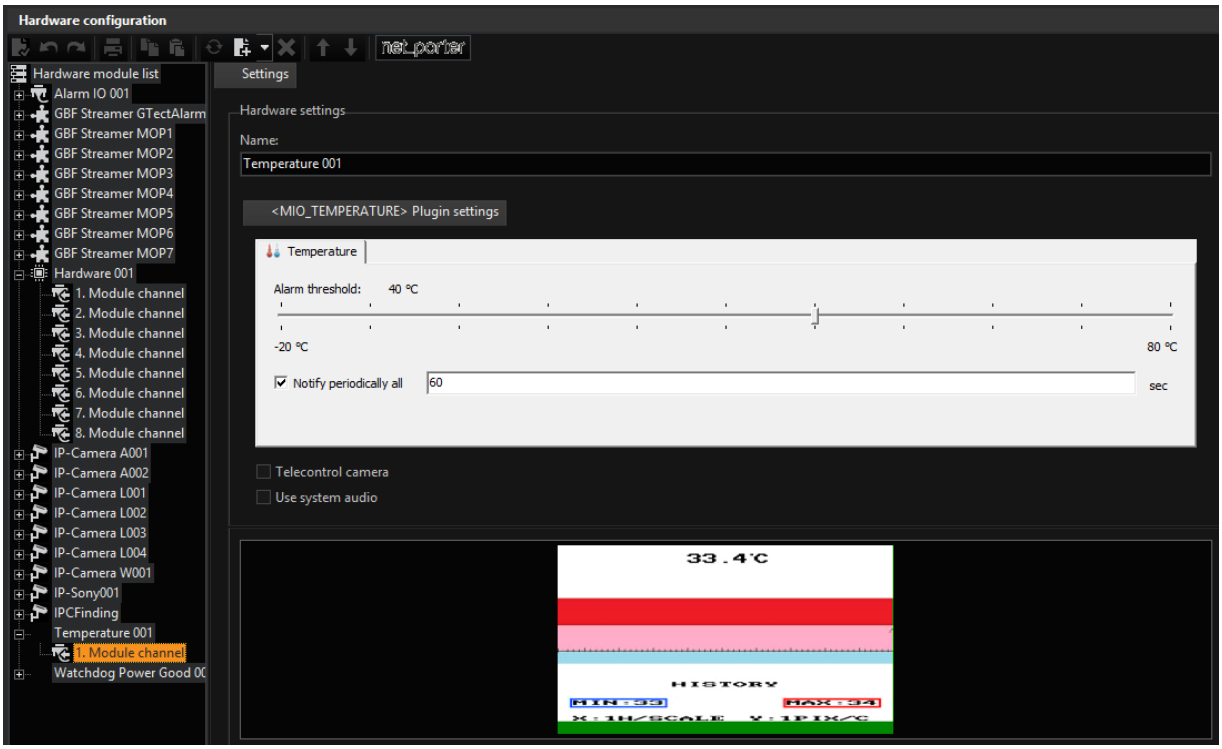


Button	Function
Audio Format	Format in which audio will be recorded. The settings under **Audio Format** overwrite the audio profile setting, as here more formats can be selected.
Audio gain	Amplification of the audio signal

The audio oscilloscope mode is only activated by pressing the **Show Oscillogram Curve** button.

This mode is automatically deactivated after 1 minute, but it can be turned back on by pressing the button again. The mode is deactivated immediately when the dialog is exited.

Temperature Monitoring



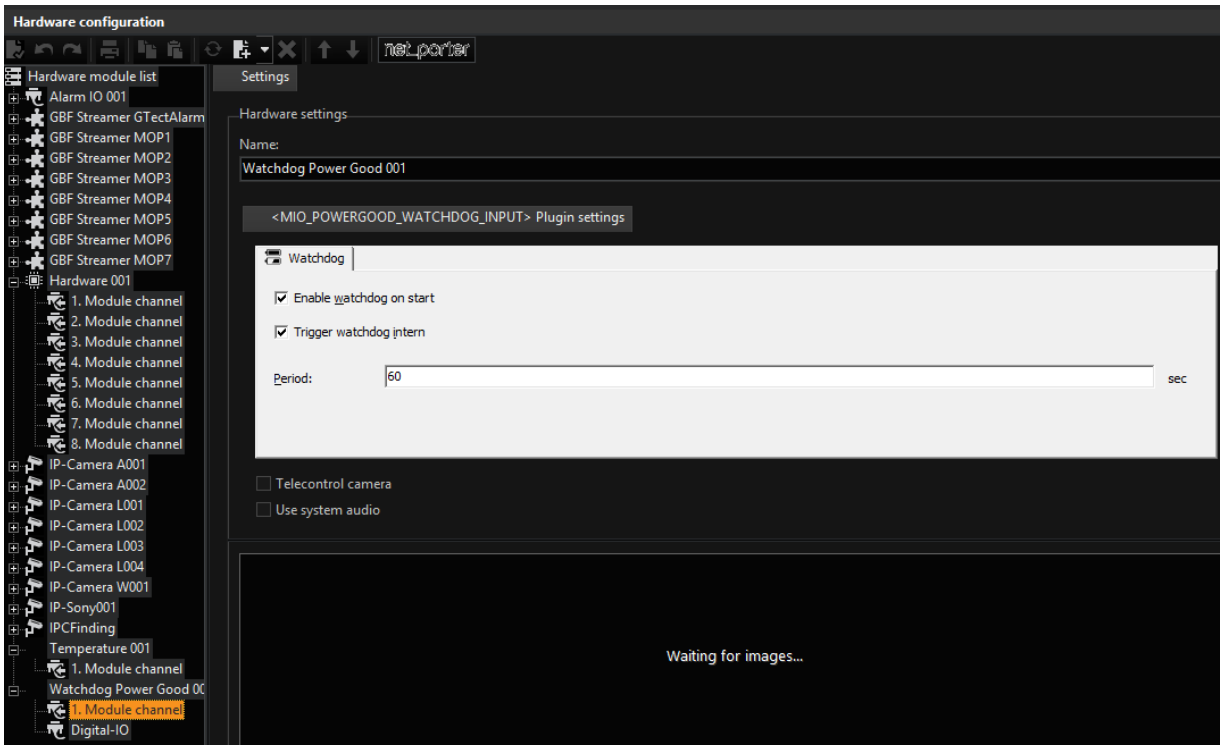
Clicking on **Temperature XXX** will open the associated dialog.

There, where you would normally see a camera image, you will see the current temperature.

Using a slider, you can set the **Alarm Threshold**. When the set temperature is reached an action is issued as a warning.

If you want, you can also specify the interval for messages (**Notify Periodically Every ... Seconds**).

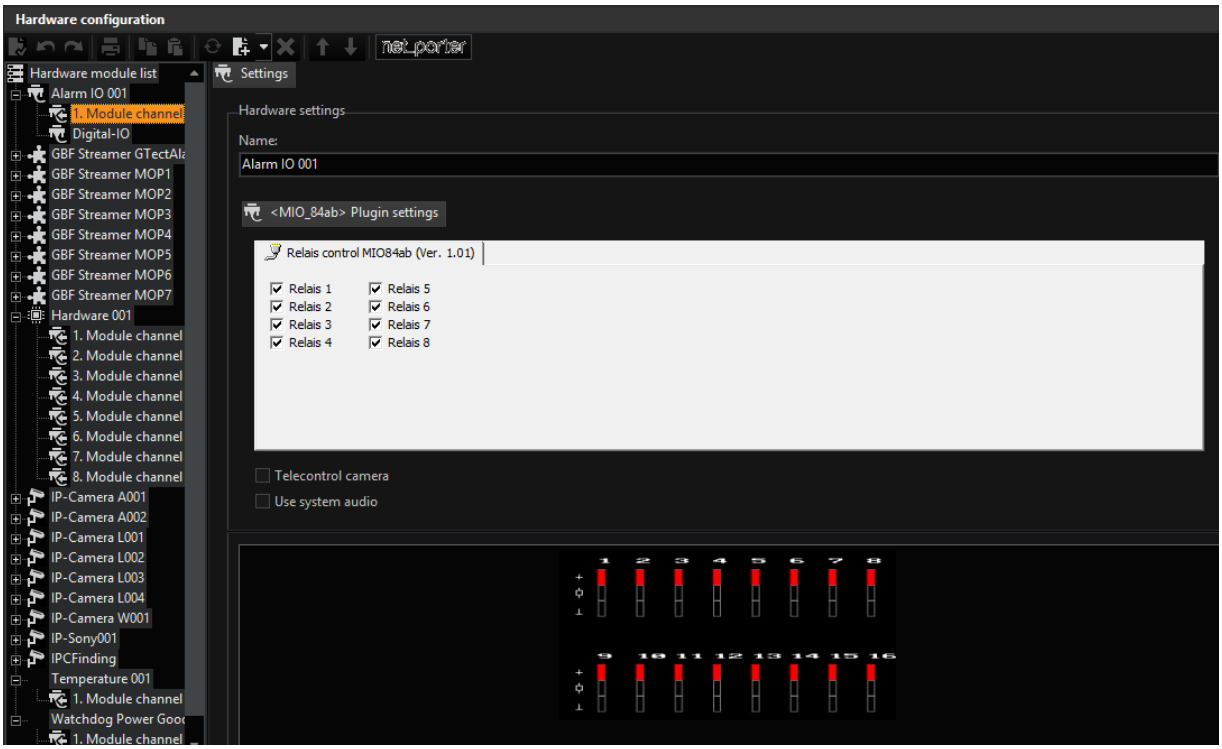
Watchdog



Watchdog Power Good supports you with problems with redundant power supplies. Normally, you would not notice when one of the redundant power supplies fails, as the machine continues to run. In the worst case, both power supplies could fail.

Watchdog Power Good issues an action as notification once one of the redundant power supplies fails.

Alarm IO Display

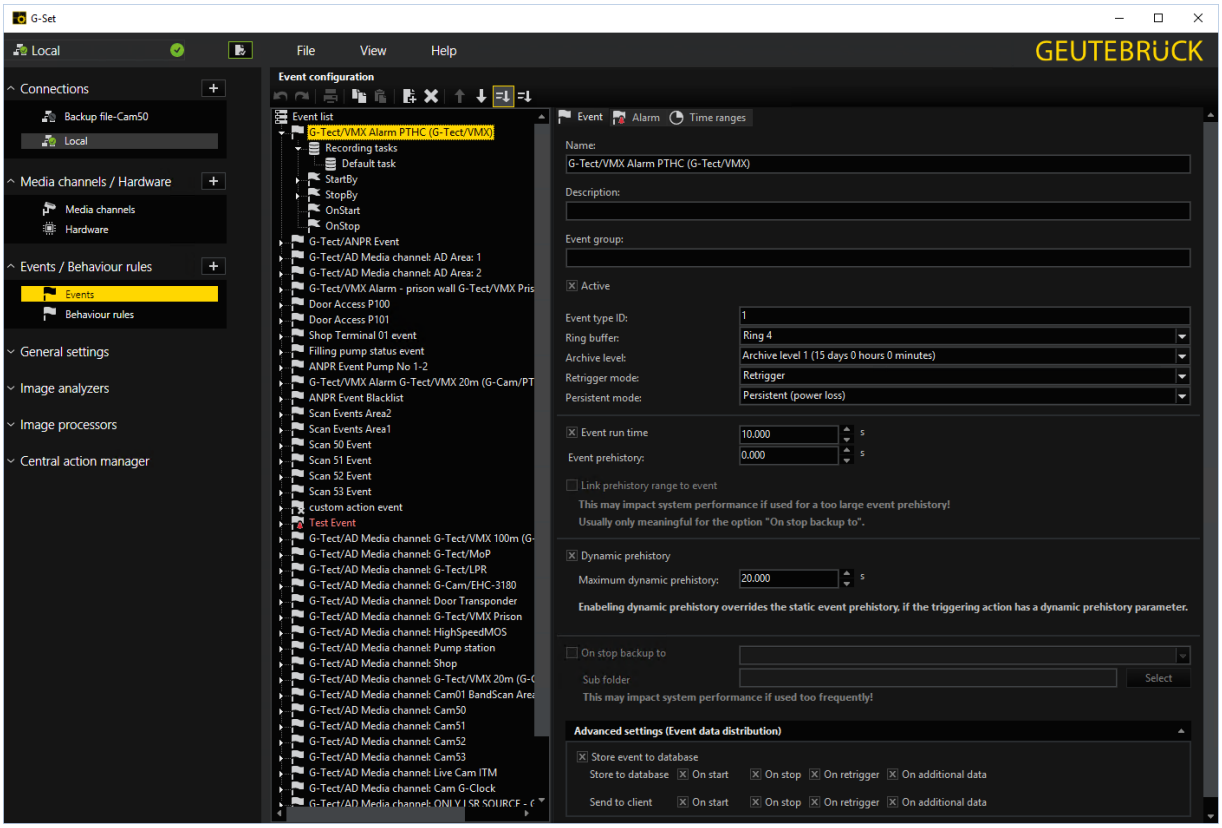


In the alarm IO display, the current status of the digital IO contacts is presented.

Event Behaviour Rules

Event/Alarm

If you click on **Event/Alarm settings** in the selection menu, the settings dialog is opened on the left-hand edge and the registers on the right-hand side of the setting area.



Tabs

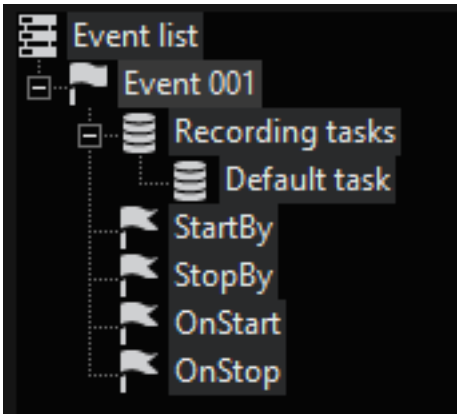
Button	Function
	Event
	Alarm
	Time Ranges
	Recording Task **Appears when you click on Recording Task – Default Task.**

Event List

At the start of the events, the event list is empty.

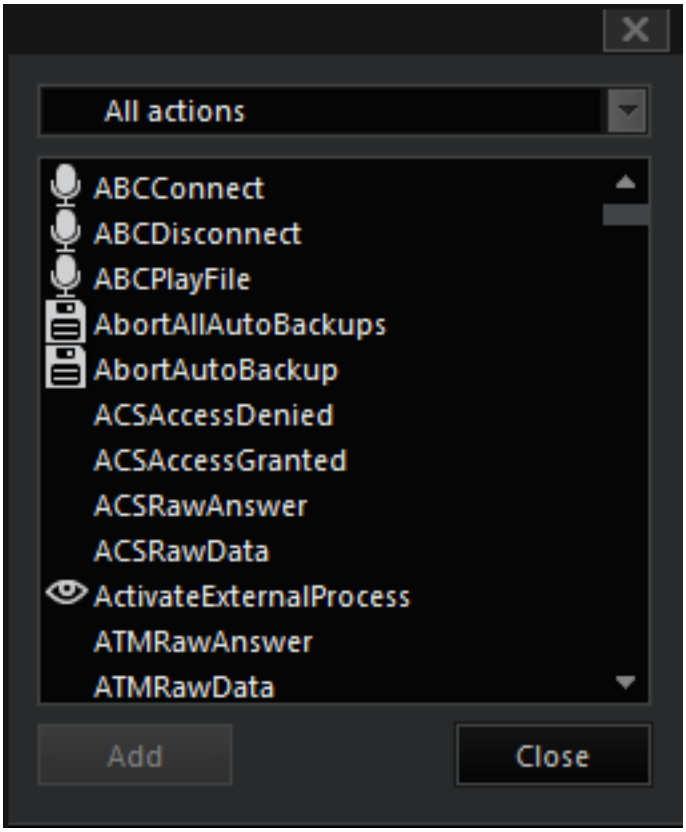
Right click the event list and then click **Add** to create an event or click the icon in the toolbar.

The added event has 5 entries that you can edit.



Parameter	Function
Recording tasks Default task	Default setting for recording when event occurs
StartBy	Event is started by ...
StopBy	Event is stopped by ...
OnStart	At the start of the event ... is executed
OnStop	At the stop of the event ... is executed

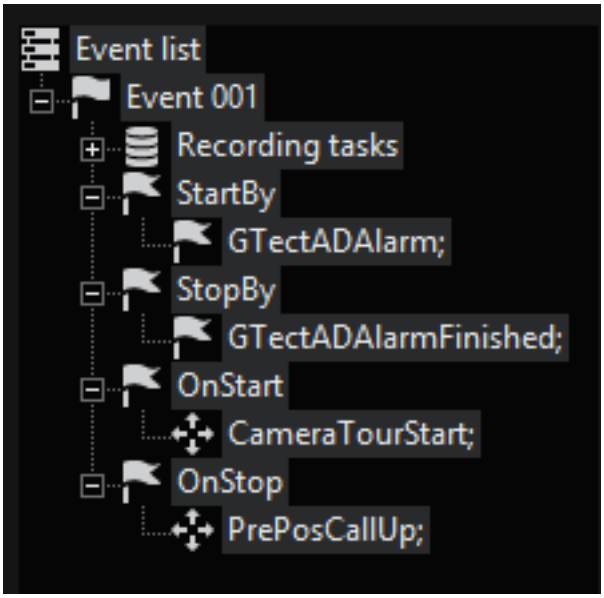
Right clicking on one of the entries opens the Actions popup. Click on the desired action to add it to the selected entry.



You can view all actions (default setting) or select the desired thematic group from the list.

If you click an action, it is added to the selected entry and in the setup area the configurable parameters of the action appear.

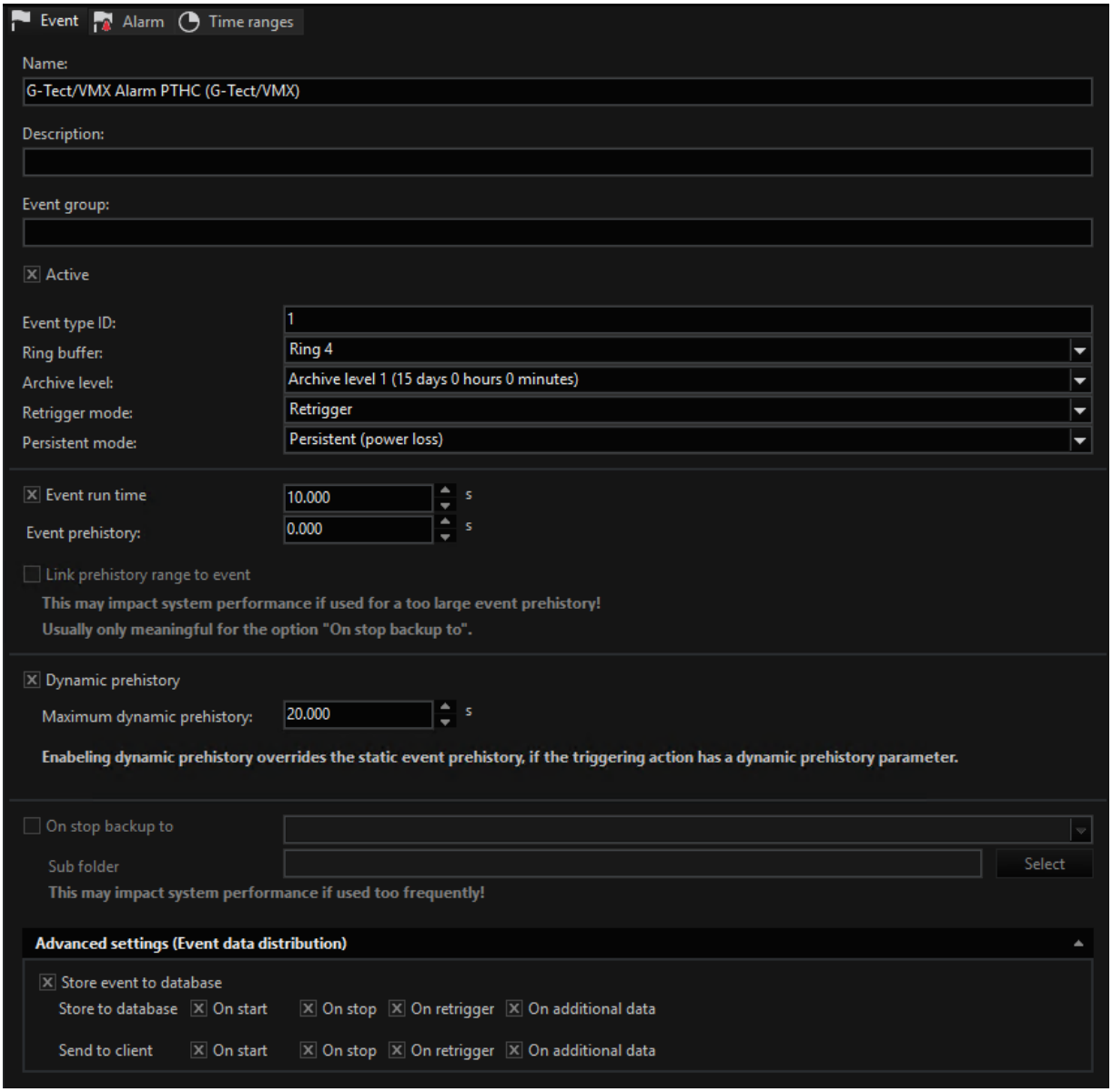
Your list might then look like this.



In the above example, settings were defined for Event 001, however when an event takes place, images are only recorded if settings were defined in the Media Channels tab. In the section Understanding and using G-Core you can find a detailed description on the topic of events, which you should read carefully.

Event

When you select the event, the **Event** tab opens.



You can assign a name and a description to any event.

Assigning a name makes it easier for you to find the desired event again when parameterizing G-Core. Names like "Event 01" quickly become confusing when you have defined more than half a dozen configured events.

The event you created is only activated when you check Active. In this way, you can also predefine events that you only activate when necessary.

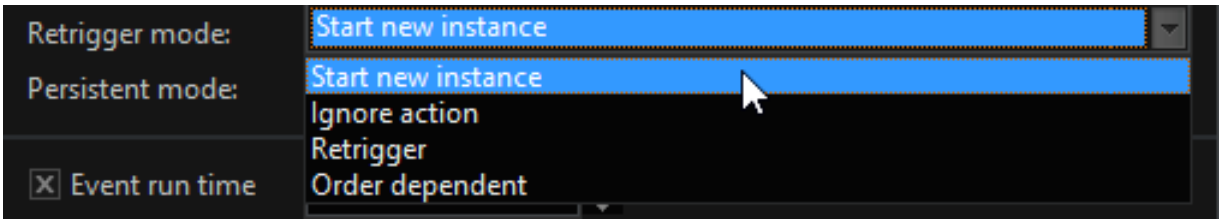
Archive Level

Select the desired **archive level**. The first archive level applies for the permanent record. You can use the default archive levels or may specify your own archive levels for each ring.

More on archive levels and dynamic management of the database can be found in the chapter Database.

A check in the **Persistent** selection field ensures that the recordings in the rings are kept as long as possible.

Retrigger Mode

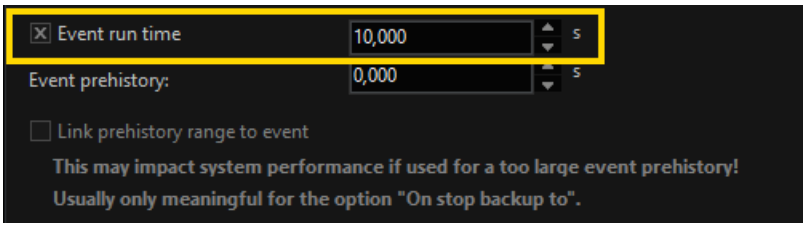


After selecting the ring, set the trigger, i.e. specify how the event should react when it is triggered again while it is still activated. There are four choices.

Parameter	Description	Function
Start new instance	Start a new instance	
Ignore action	Ignore the action	All set actions are ignored
Retrigger	Trigger again	The event is retriggered. This means that the event configuration runs again.
Order dependent	Dependent on the order	The event settings run in the order of configuration.

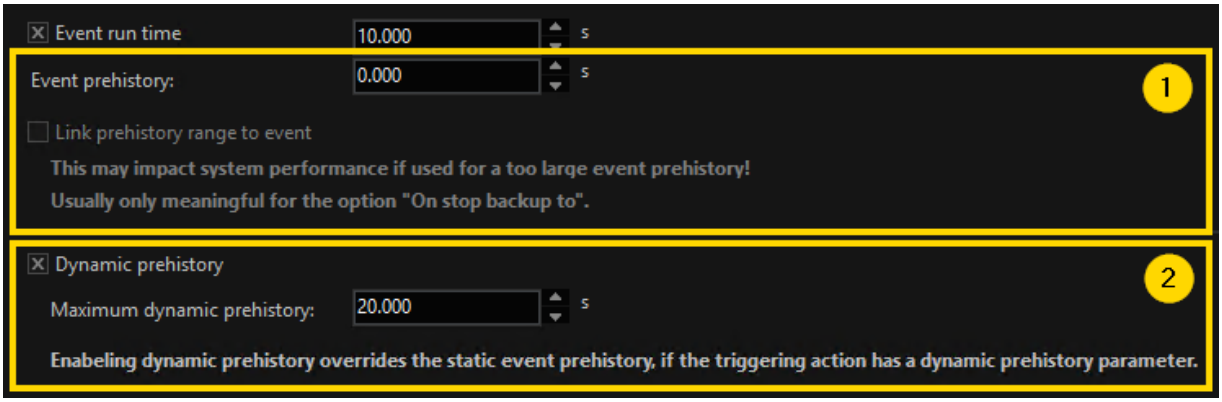
Event Run Time

When you enable **Event run time**, you can set the entire run time of the event in seconds.



Prehistory

The prehistory is the video footage before the start of an event that is associated with the event. There is the static **Event prehistory** 1 and the **Dynamic prehistory** 2.



Static Event Prehistory

The event history is static. It is not triggered by a specific parameter, but always corresponds to the specified duration.

Specify the duration of the **Event prehistory** in seconds. When an event prehistory is set, the **Link prehistory range to event** option is enabled with which you have the possibility to link the prehistory to an event.

Dynamic Prehistory

The dynamic prehistory is triggered by an action that has a generic prehistory parameter with it. If the **Dynamic prehistory** option is enabled, the parameters are used to calculate the dynamic prehistory. If the option is disabled, the parameters are ignored.

Specify the duration of the **maximum dynamic prehistory**. If the calculated prehistory is longer than the specified duration, the prehistory is truncated to the maximum dynamic prehistory.

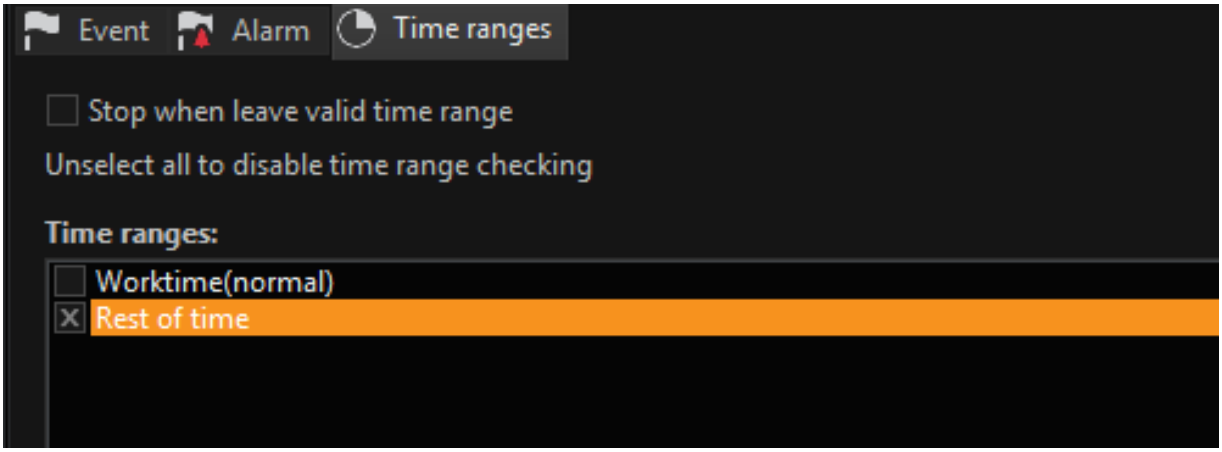
> **The static prehistory and the dynamic prehistory can be active at the same time. In this case, the dynamic prehistory overrides the static event prehistory, if the triggering action has a dynamic prehistory parameter.**

This dynamic prehistory of an event enables the correct temporal linking of video material with metadata from external systems, regardless of when the data is received by G-Core due to a time offset.

For example, when a package is scanned by a static barcode scanner, there is sometimes a delay between the time of scanning and the G-Core event, so the camera image of the event does not show the scanned package. However, if the event is started by an action that has a dynamic prehistory parameter, the prehistory is dynamically calculated so that the time of scanning is used as the prehistory and is displayed in the camera image of the event.

Time Ranges

By including time ranges in the control scheme, events can be switched on and off. Multiple designations are possible. If none of the time ranges set under **time ranges** are selected, they are not taken into account.



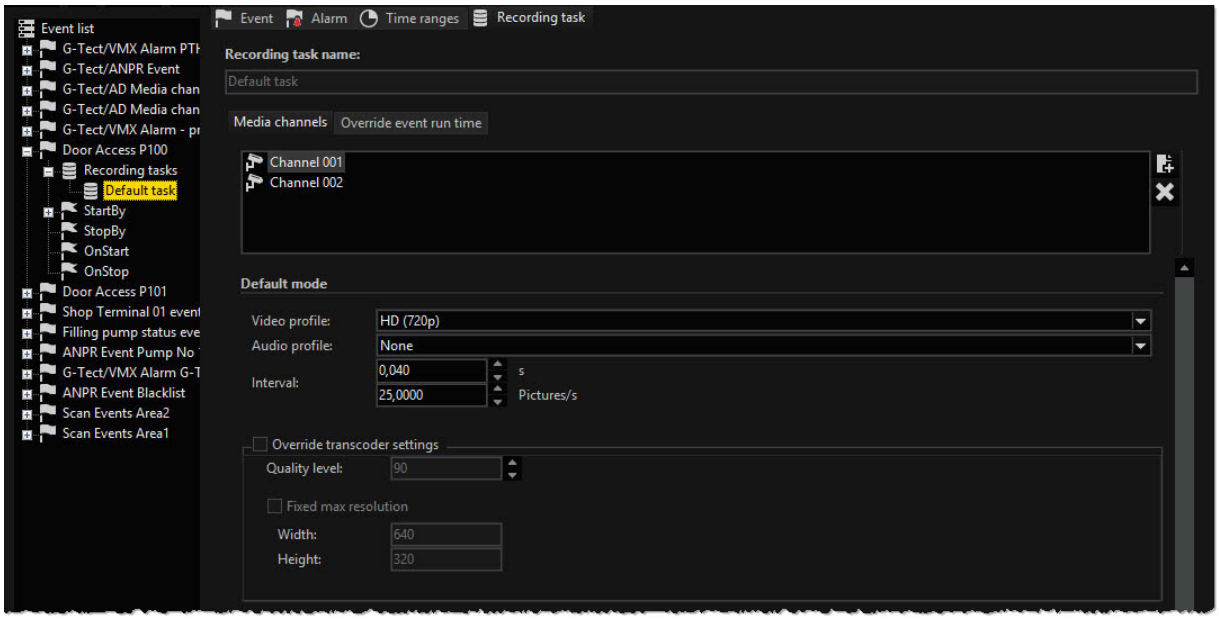
When **Stop on leave valid time range** is selected, when the time range expires, the event is stopped.

> Example The time range **Week** goes until 7:30:00 pm. After that, the time range **Rest of Time** applies. If the event occurs at 7:29:55 pm and the duration is longer than the remaining 5 seconds of the time range, it is stopped with the change to **Rest of Time** if **Stop on Leave Valid Time Range** is selected.

Recording Task

Clicking on **Recording Task – Default Task** opens the settings. This recording task is the default setting for the event [**Default Task**]. The name for the recording task can therefore not be changed.

You can only assign a name for the recording tasks when you add one or more new **recording tasks** to the recording task of the event in the event list.



Event Transcoder Settings

The transcoding settings in the area Event -> Recording tasks make it possible to overwrite the transcoding settings of the permanent recording for the event recording when the transcoding is activated in permanent recording.

> ⚠ **IMPORTANT:** Transcoding cannot be activated for event recording; this is only an option for permanent recording.

The options are:

Option	Function
Override transcoder settings	When this option is activated, the permanent transcoder settings for the recording are ignored and the event transcoding settings for this channel are used.
Quality level	Defines the new quality level of the channel after transcoding.
Fixed max resolution	When this setting is activated, the channel is transcoded in the defined resolution; otherwise the channel retains the resolution defined by the video profile.
Width/Height	Defines the output resolution of the channel after transcoding.

Media Channels Tab

Every **Recording Task** can be assigned media channels. The **record mode** and the **recording time** can be assigned for each of the assigned media channels.

In addition, the **default mode** can be set for recording and the settings for the activity mode can be specified. You can activate the **privacy zones** and **regions of non-interest** as desired.

The default mode settings do not show the values set under Media Channels for the selected channel, instead they show the default settings of the media channel for recording when an event occurs. The profiles configured under QUALITY PROFILES are available.
if activities continue to be registered when an event has occurred (AD), these activities are recorded as specified under Activity Mode. The profiles configured under QUALITY PROFILES are available.
After the recording time expires, all triggered actions are stopped! Exception: You change the settings in the Override Event Run Time tab.

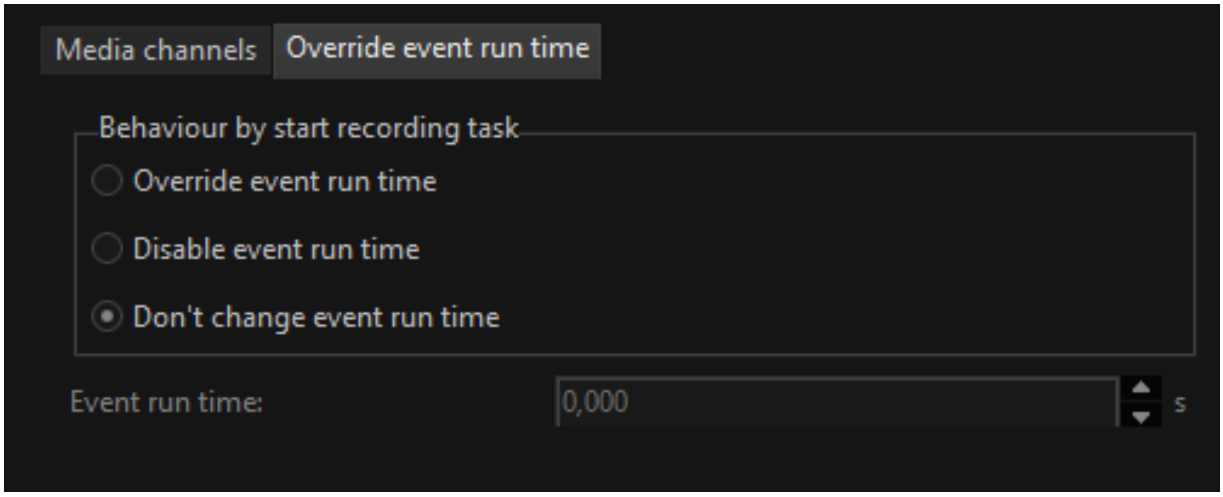
Under Advanced settings, you have three options to control the Record mode for the added :media channel:

Option	Function
Record channel	Record media channel.
Do not record channel	Do not record media channel.
Leave channel in its current	Leave the media channel in its current state.

Option	Function
state	
In addition:	
Recording time	Setting for the duration of the event in seconds

Note that these settings, as previously described above with respect to the default mode settings, only apply in case of an event and also only for the event for which you use advanced settings. Other events and the default settings of the media channels are not affected by this.
In addition, the settings only make sense when you have created additional Recording Tasks in addition to the Default Task. You can then control the corresponding media channels using the advanced settings.

Override Event Run Time Tab



In this tab you specify the behavior the event triggers at the start of recording:

- Override event run time
- Disable event run time
- Do not change event run time

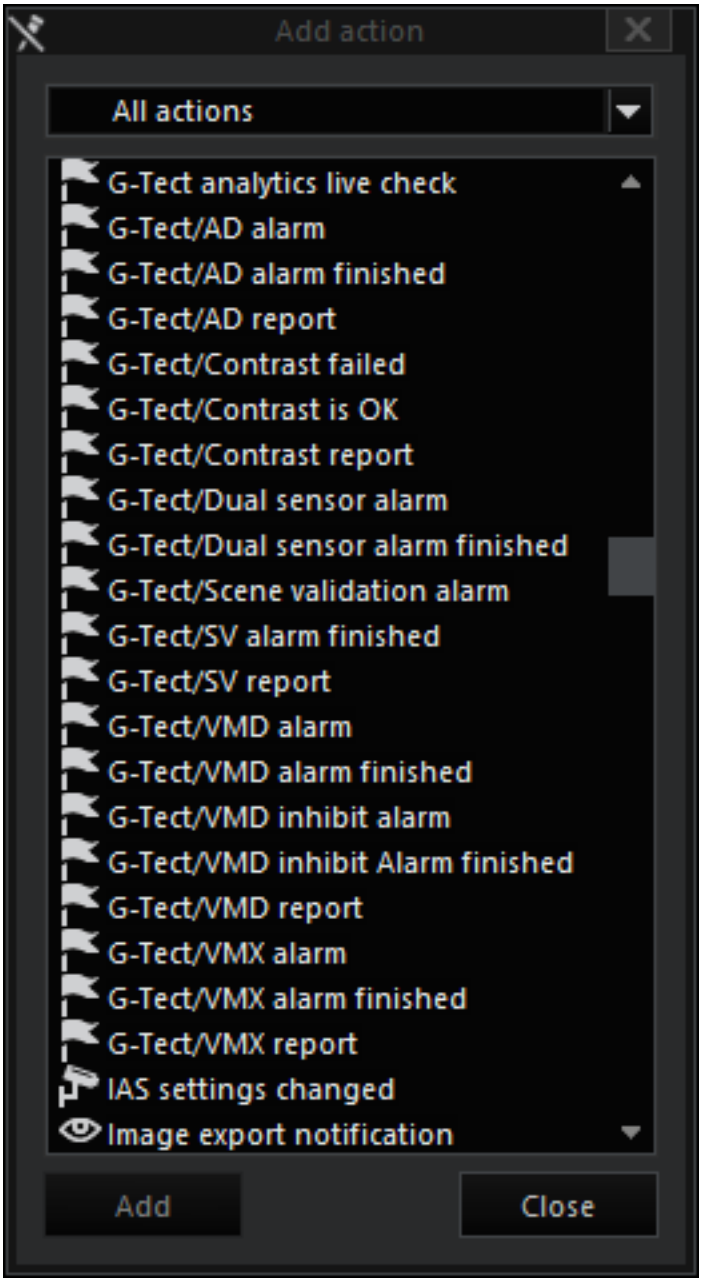
Events and Sensors

General

The sensors are given special attention when configuring the sensors. Anyone who has worked with other software from Geutebrück should read the following note. The configuration of AD and VMD events and alarms has been considerably simplified.

If AD is used on a media channel with DVSP8 hardware, Sensor Video Alarm (with the sensor type AD) is no longer used, instead the action G-Tect/AD Alarm is used! Accordingly, for the stopping action, Sensor Alarm finished (with the sensor type AD) is longer used, but rather G-Tect/AD Alarm finished is used. The same applies for VMD. In addition, it is not necessary to activate AD in the VCAEditor for this channel, or even to use the G-Tect service! The analysis of the image changes is performed within the DVSP8 card.
The action Sensor Video Alarm with the sensor type AD and IP-AD, are now only required by IP camera plugins for triggering events by the camera-internal sensors.

In the action list, we find the sensors in the group of actions in video alarms and settings:

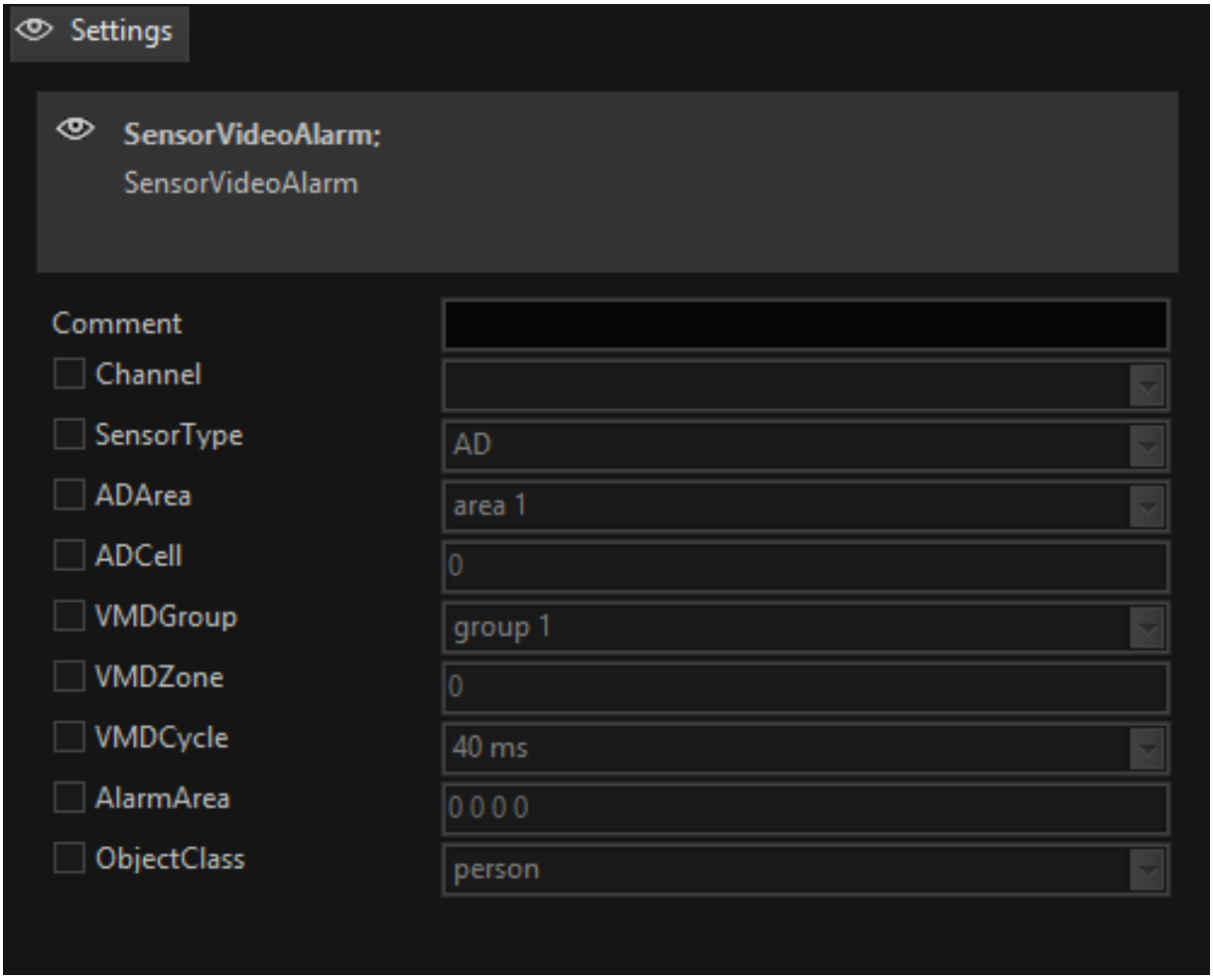


There a large number of sensors are available: AD, VMD, VMX, SV and others.

Video Sensor

If you have selected a sensor alarm (in the figure of **G-Tect/AD alarm**), open the shown configuration dialog by clicking on the sensor alarm.

The dialog provides all sensor messages until "Sensor Alarm Finished". To evaluate the end of a sensor alarm, select (in our example) the action **G-Tect/AD alarm finished**.



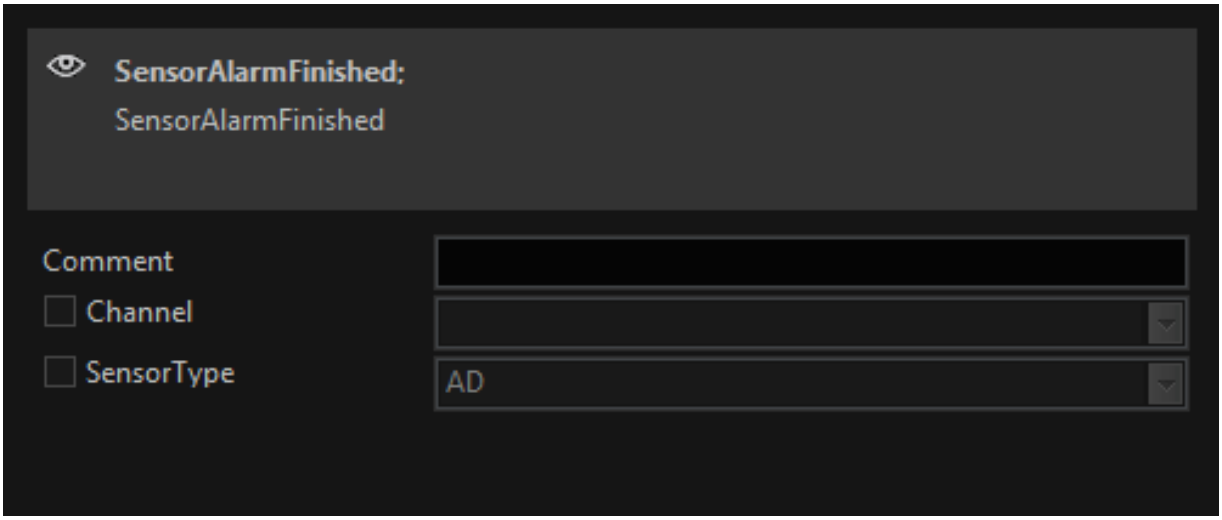
Parameter	Function
Channel	If you select Channel, you can select the media channel for which you want to evaluate the assigned sensors
AD ID	Selection of AD ID
Object direction	Selection of configured direction of movement
Alarm area	Selection of the alarm area

Refer to the settings under **Activity Detection (AD)** for information on the meaning of the individual configuration options.

Sensor alarm finished

This action is started when a sensor alarm has ended.

If no sensor type is selected, this action evaluates each finished sensor alarm (video or audio/AD or VMD). If no media channel is specified, this applies for all sensors across all channels.



Audio Sensor

If you have selected **Sensor Audio Alarm**, open the configuration dialog by clicking on Sensor Audio Alarm. Here you can select the media channel whose audio transmission will be evaluated.

If no channel type is selected, this action evaluates each audio sensor alarm (AD or VMD).

To evaluate the end of an audio sensor alarm, use the action **Sensor Alarm Finished**. See above and under Configuration.

Configuration

You may have already read some about the philosophy of the G-Core events (Understanding events ...). Then it will not surprise you that by simply adding a sensor alarm action, an event configuration has been performed.

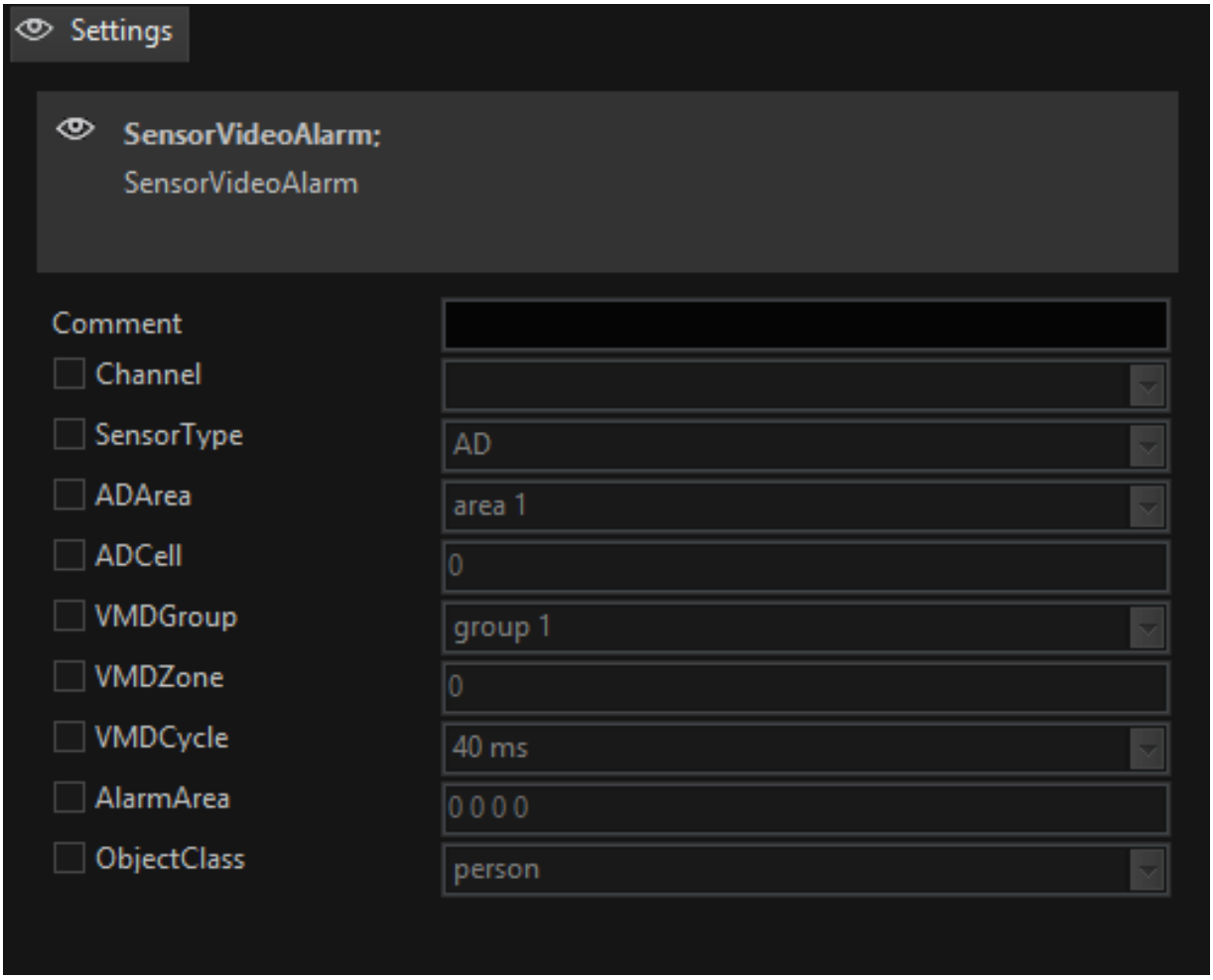
How Does This Work?

If sensor systems (AD, VMD and/or VMX) were configured, then sensor alarm messages are also sent when an alarm occurs.

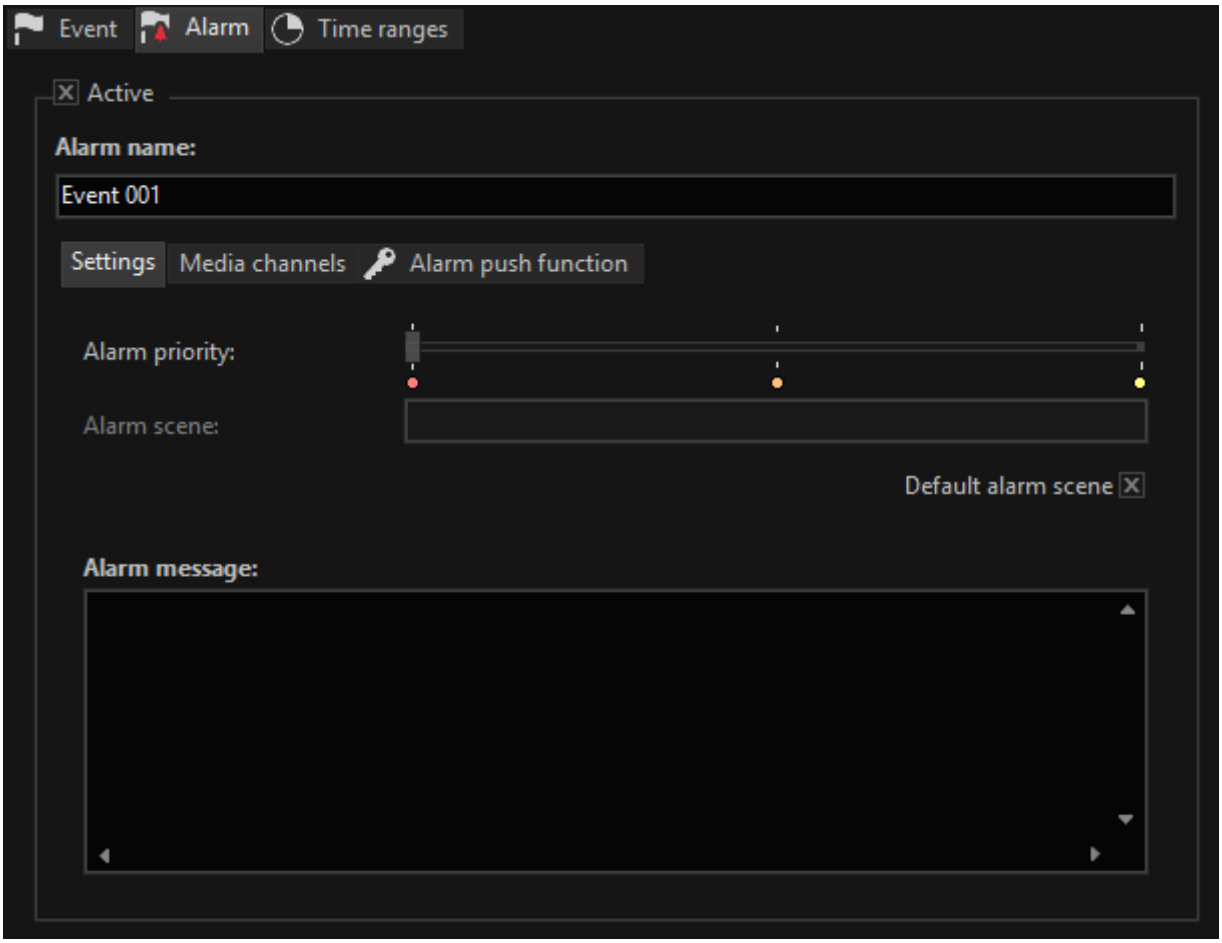
If no specific media channel is selected, **all** channels are evaluated for the event, and similarly if no sensor type is selected, **all** sensor types are used for the event.

This means that when an action is added to the event configuration, the widest possible scope is used for the evaluation of the sensor alarms: That is: the evaluation of **all** (video) sensor messages! (The same applies for audio).

In the following configuration, only AD alarms are used for the event, but this applies for **all** media channels!



Alarm



In the Alarm tab you can assign a name to the alarm and activate the alarm (**Active** checkmark).

Settings Tab

Below you will see a slider which allows you to assign the alarm one of three priorities:

Red	= highest priority
Orange	= medium priority
Yellow	= low priority

In G-View under **Options** you can configure the display and the behavior of the three alarm priorities.

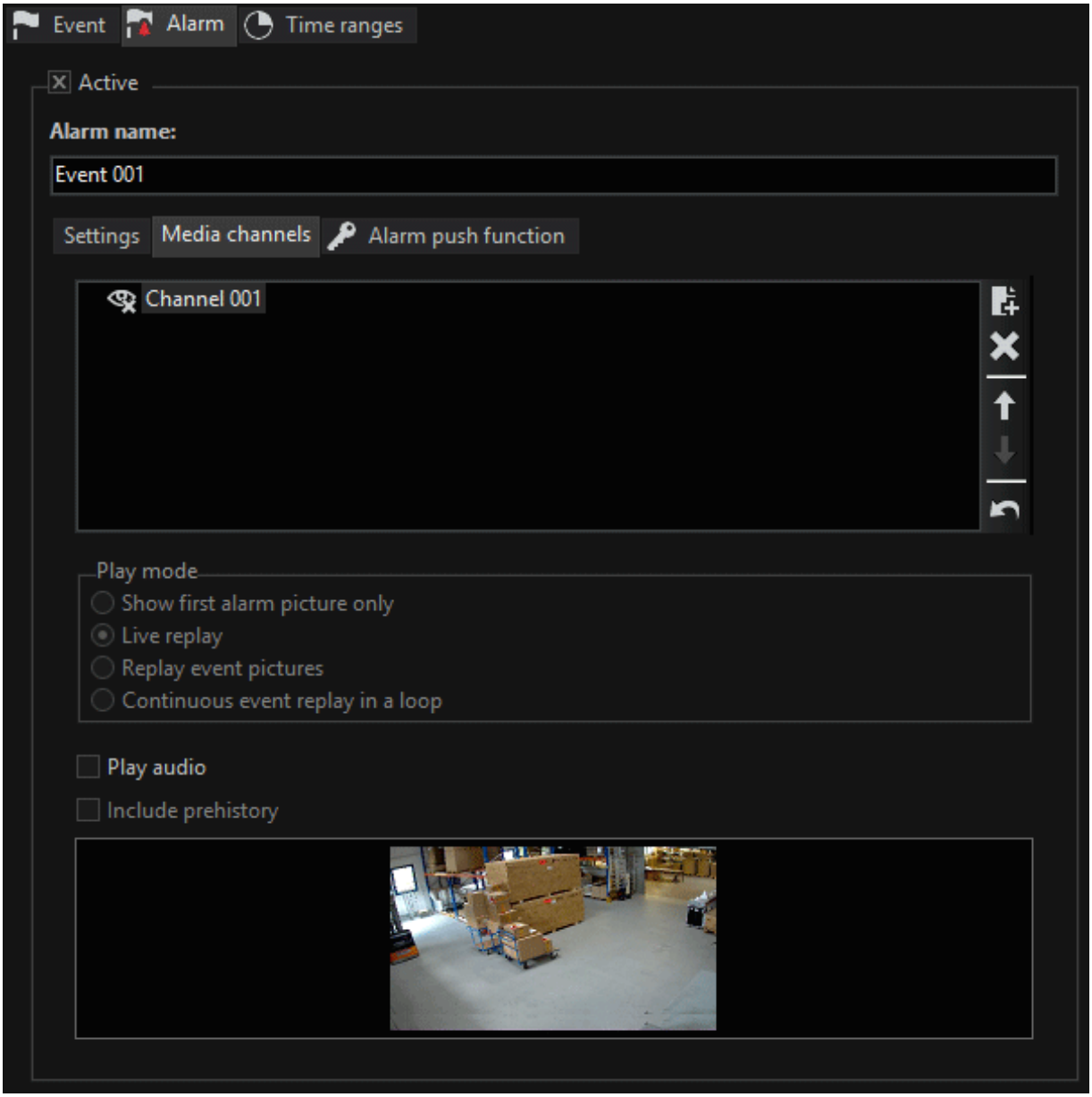
If you have also configured alarm scenes there, instead of the default setting (Default Alarm Scene is activated), you can also select a different display configuration.

Now assign the triggering event to the alarm by selecting the event from the list of configured events.

And if you want an alarm text, which will be displayed when the alarm occurs, enter this text under Alarm Message.

If you activate the alarm for a configured event, the event is provided with the background color of the alarm priority and the icon changes from event to alarm.

Media Channels Tab



If you enter one or more media channels in the **Media Channels** tab, you can specify the **Play Mode** for the media channel.

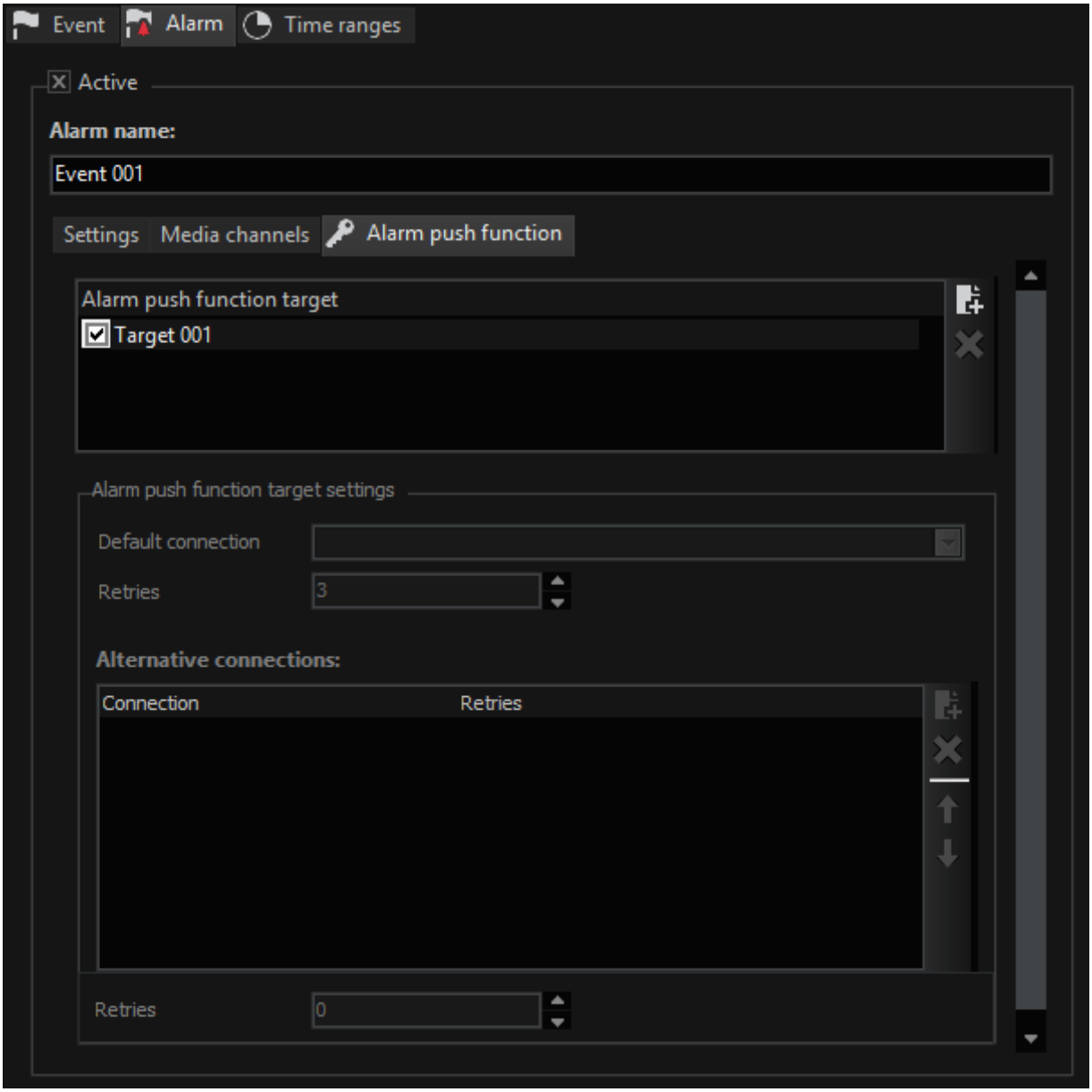
Play Mode	Function
Show first alarm picture only	Only the first alarm picture (still image) is shown in the configured alarm viewer

Play Mode	Function
Live replay	The live video is activated in the configured alarm viewer
Replay event pictures	The configured images of the event video recording are shown once in the alarm viewer
Continuous event replay in a loop	The configured images of the event video recording are shown in a loop in the alarm viewer

If you tick **Play Audio**, the associated sound will be transmitted.

Include Prehistory ensures that the additional prehistory is included.

Alarm Push Function Tab



Make settings in the **Alarm Push Function** tab when you want to forward the alarm to one or more G-View workstations in the network.

To do so, under **Alarm Push Function Target** click on the add icon to create a new target. Then apply the settings you configured in the selection menu under **APF Connections**. You can also create alternative connections.

Behavior Rules

You can find the behavior rules in the selection menu. A behavior rule consists of two components: the trigger and the reaction. If you add a rule to the behavior list (using the icon in the toolbar or by right clicking), two sub-entries are automatically added with the name New Rule: Trigger List and Reaction List.

To generate an entry in the trigger list, select Trigger List and click on the icon in the toolbar or right click on Trigger List. In the selection menu that now opens you can view all actions/triggers (default) or select a specific list in the selection box: System, Video, Audio, Camera Control, Digital Contacts and Devices.

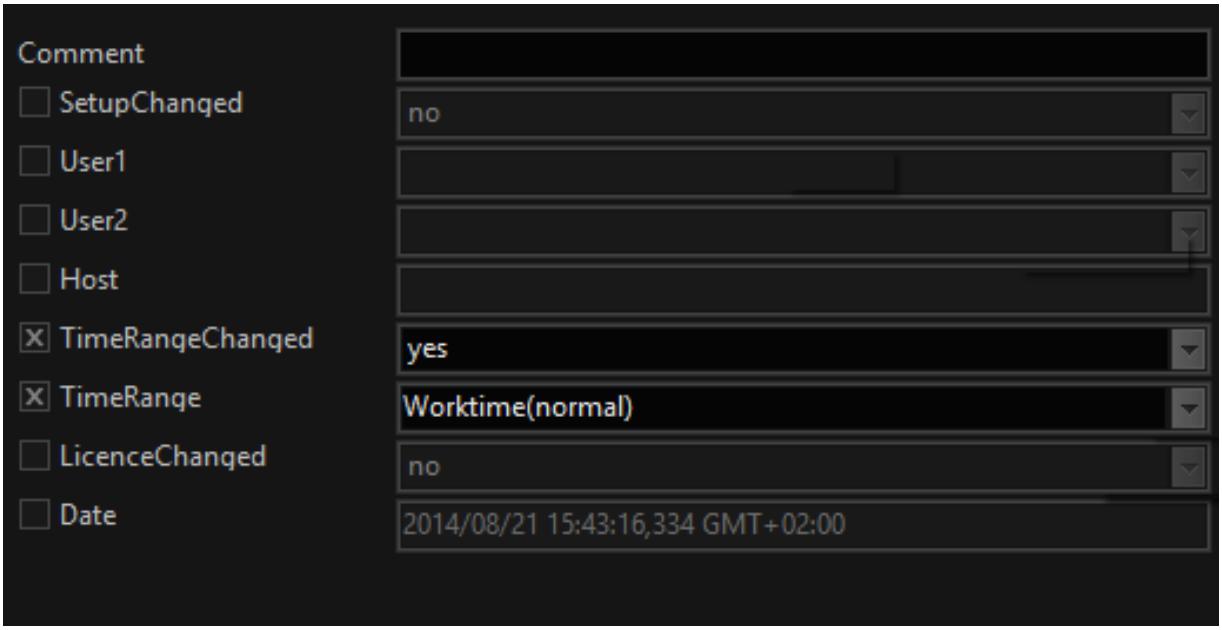
> Example When a specific user logs on, a tour should be started for a specific camera. In the Actions dialog, the user logon is selected as the trigger from the action list system and the username is entered there. Select Start Tour as reaction and enter the information for the camera.

Behavior Rules and Parameter Sets

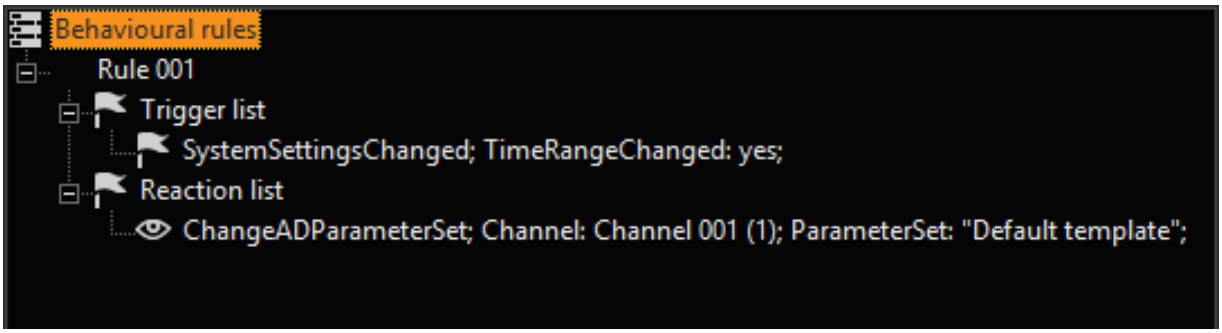
One of the most important applications of behavioral rules is controlling parameter sets of AD or VMD: If you have saved parameter sets for media channels, you can load them using behavior rules, e.g. when changing the time range.

Procedure

Enter a new rule for this purpose first. Right-click on the **Trigger List** and click on **Add** in the pop-up menu. An action dialogue is opened: Let us take the action **System Settings Changed** as our example. We can then access the time ranges from the settings area.



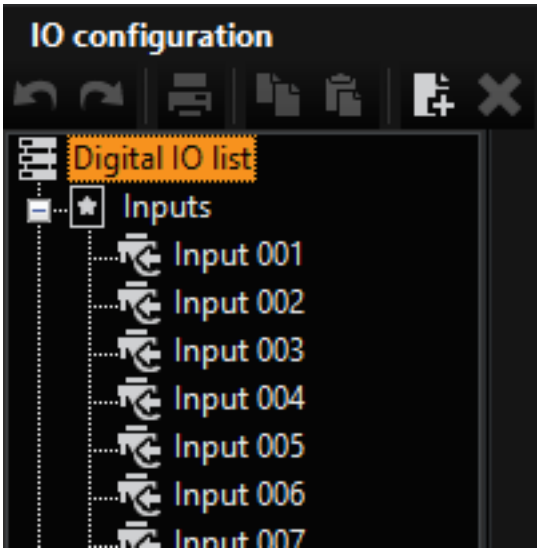
Following this, we select **Change AD Parameter Set** as reaction in the Action dialog and enter the channel and the desired parameter set in the settings area.



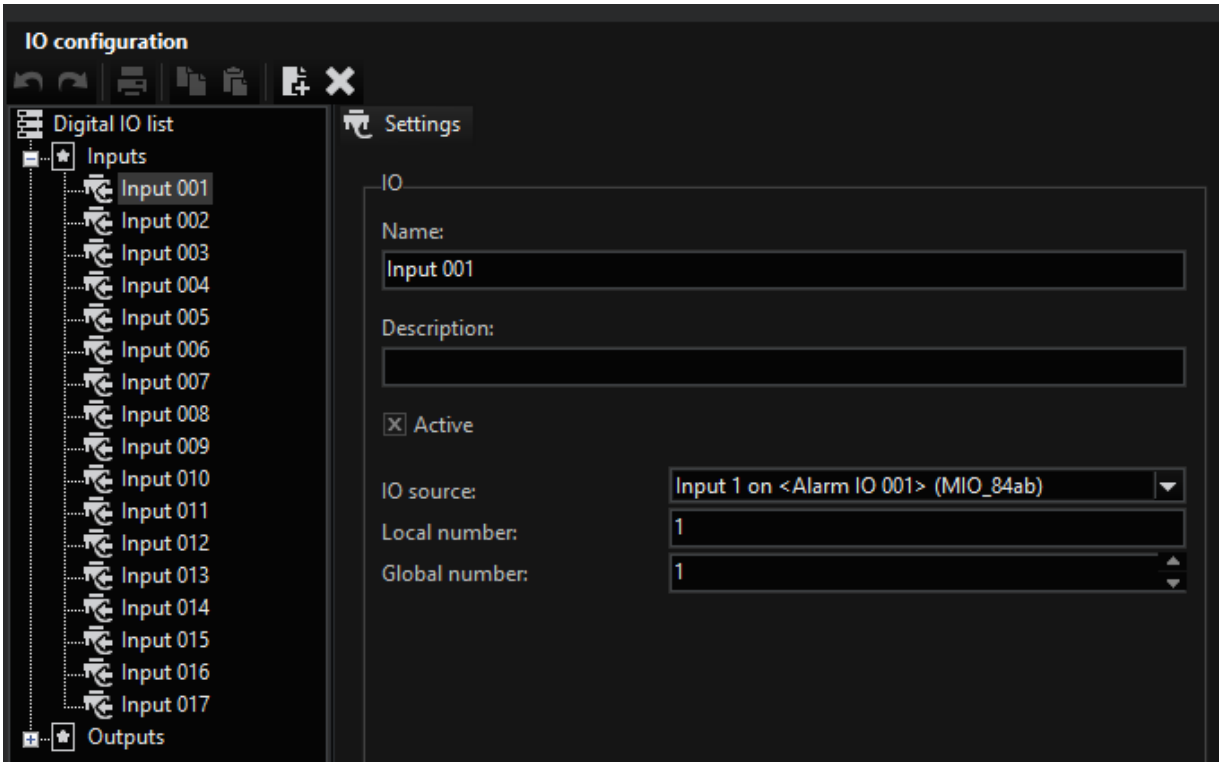
General Settings

I/O Settings

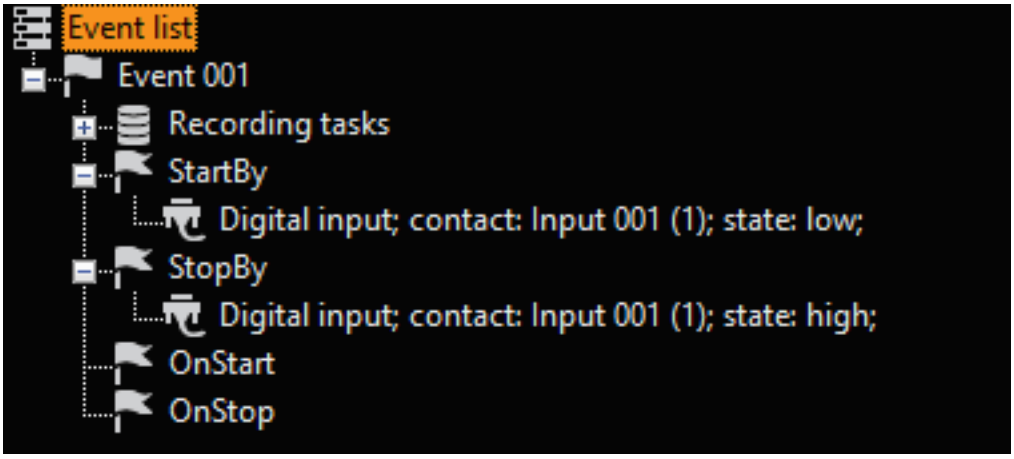
The inputs and outputs are configured in the I/O menu. All the available inputs and outputs are displayed on the digital input/output list (an extract from the list is shown in the illustration).



The Settings dialog appears if you click one of the inputs or outputs. You change the name of the digital input or output here, supply it with an additional description, and activate it by placing the tick.



One use of the global number is for configuring events that are to be started by digital contacts (see illustration).

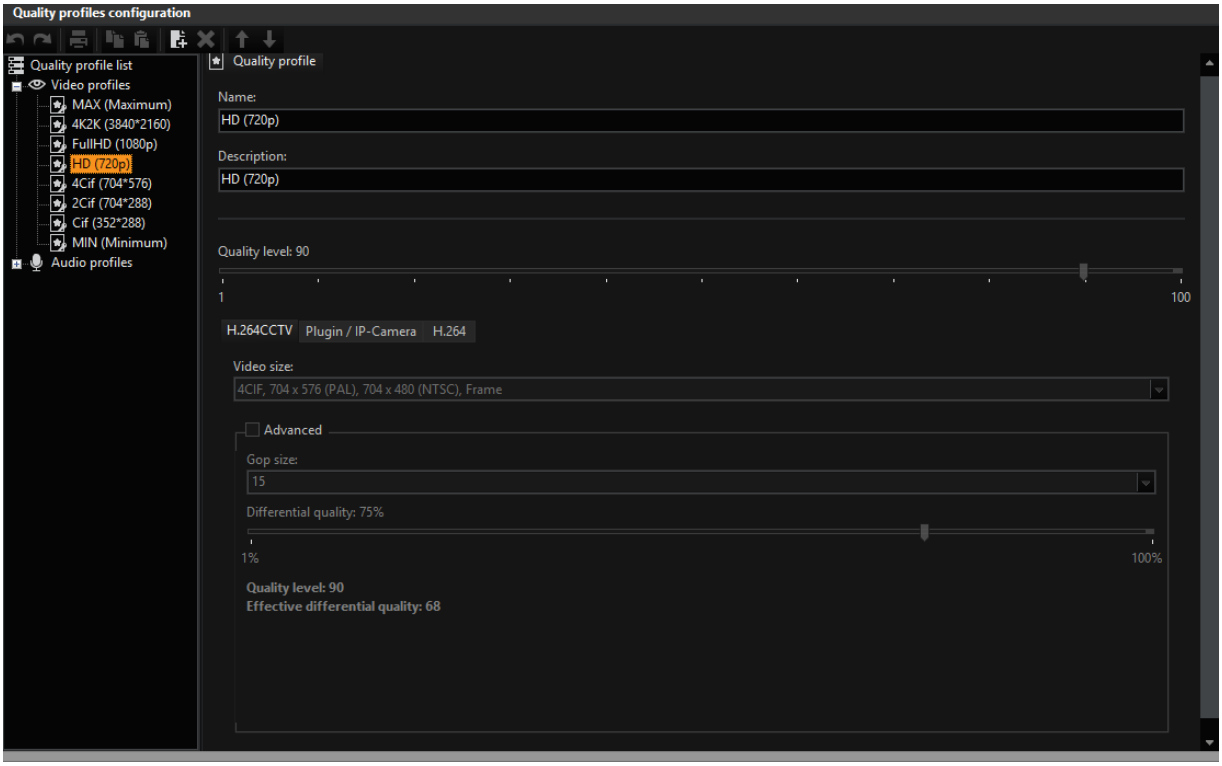


Quality Profiles

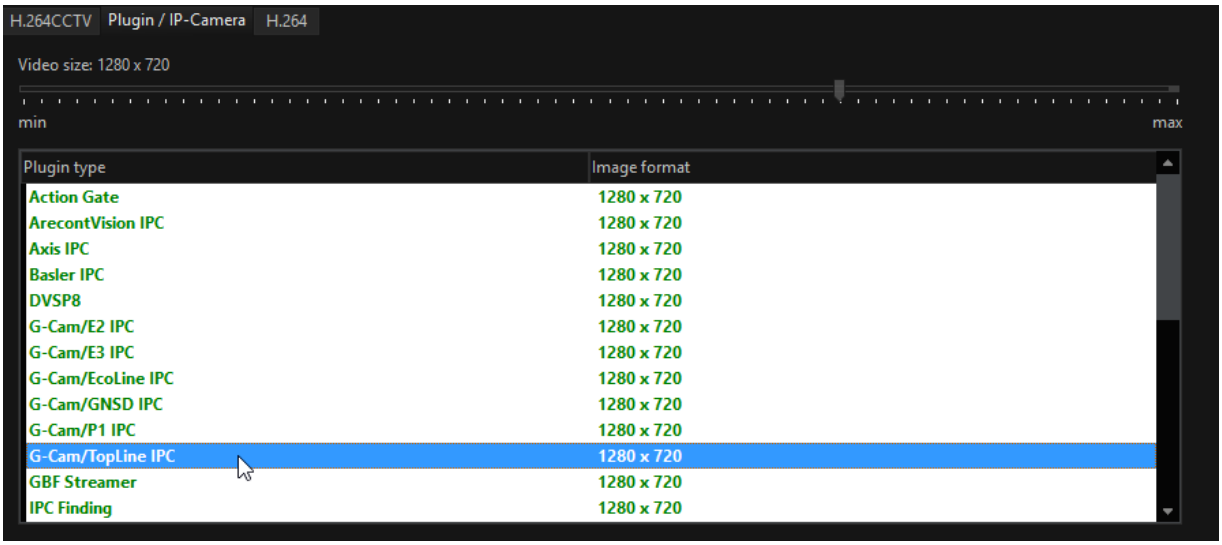
The Quality profiles function makes it possible for you to change GeVi-Scope's default settings, and to create profiles tailored to your own needs.

To change the default settings, click **Quality profiles** in the menu. Select the profile you want to change in the settings area. In order, for instance, to change the settings for video HD, select the HD profile under video in the **Quality profiles list**, and specify the video image size. The quality can also be accurately adjusted by the slider.

Proceed in the same way with the other standard settings and with the audio.

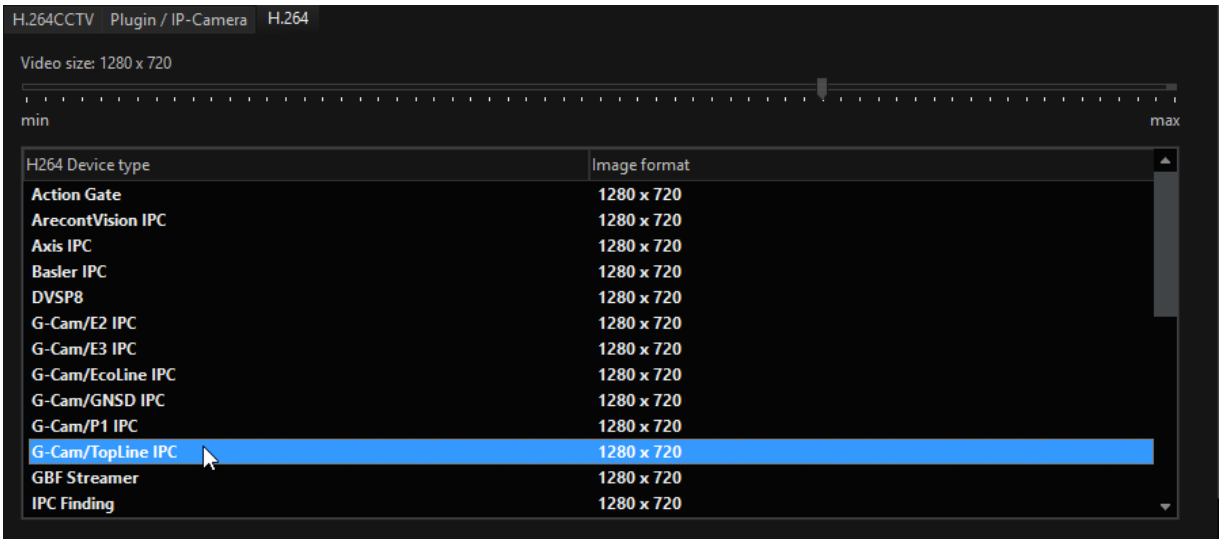


IP Cameras



After IP camera selection or IP video server selection, the dialog provides a setting for resolution and compression = quality. IP cameras which are depicted in GREEN meet the condition which is set via the dialog. When selecting a different IP camera, a suitable setting is made.

If you set the Video Size value to MIN, all connected IP cameras that use this quality setting select the respective lowest resolution. If other, additional IP cameras are connected this also applies for them.
The same applies for the MAX setting, only here the the best resolution is selected by default.If, for example, the resolution capability of an IP camera changes as a result of a firmware update, both the MIN and MAX values are correspondingly updated.



Create a Quality Profile

To create a Quality profile, right-click with the mouse on the Video or Audio. We want to create a new video profile in the example: clicking with the right mouse button on Video opens a context menu. Select **Add**: a new profile, with the name **Video profile 001**, is inserted into the video list. Under **Name,** give the profile a new name. You may also want to enter a description. Now set the image size and quality.

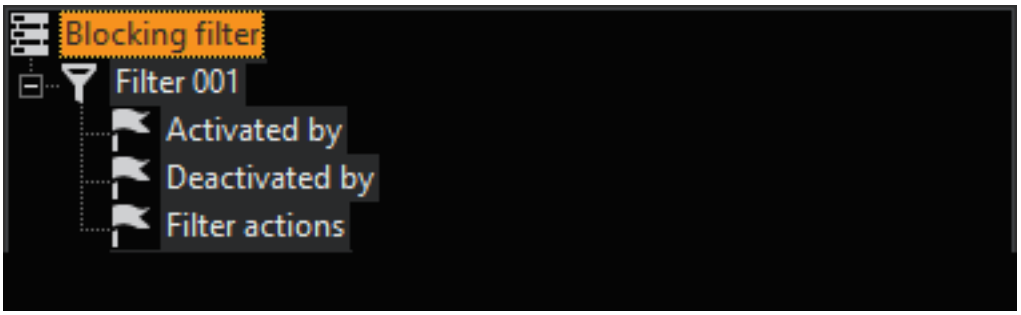
If you click with the right mouse button on the new entry, you can move it to a new place in the list with the **Up** function.

Blocking Filters

There are situations in real life which we would prefer, in the context of video security, to configure as events or even as alarms. Equally, there are situations in which we would like to disable precisely these events or alarm configurations, at least for certain periods of time. Blocking filters are suitable for just this purpose.

Before we describe the possible value of such blocking filters with the aid of two examples, we first want to create such a filter:

Click the symbol to add a blocking filter. A filter, with the default name of Filter xxx, is inserted into the list of blocking filters. Each filter has three configurations: Activate by, Deactivate by, and Filter actions.



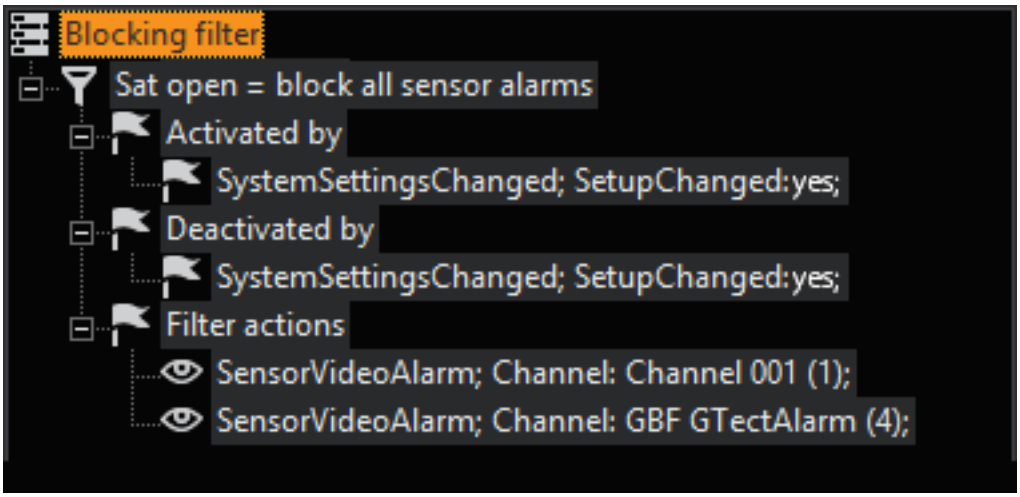
Example The connecting corridor in an office building is monitored at night by AD. The night watchman also makes an hourly round. Either these rounds will be reported by the AD as alarms, or it will be necessary to temporarily disable the AD each time. Neither of these is in fact reasonable.

The problem can quickly and easily be solved with the aid of two keyswitches (digital contacts) and the configuration of a blocking filter. The watchman operates the first keyswitch before he enters the corridor, and the second after he leaves the corridor. The configuration of the blocking filter is as follows:

The blocking filter is given a meaningful name, and is triggered by operation of the first digital contact (keyswitch). This blocks the sensor alarm

in Area 3. The block is cancelled by operating keyswitch 2 at the other end of the corridor.
The relevant actions are loaded by a right mouse-click on the configuration facilities, and then on Add.

Example In our second example, all the video sensor alarms of the AD (in Area 3) and the VMD (Chain 3) are blocked on a Saturday during business hours. The block depends on a change in the time range.



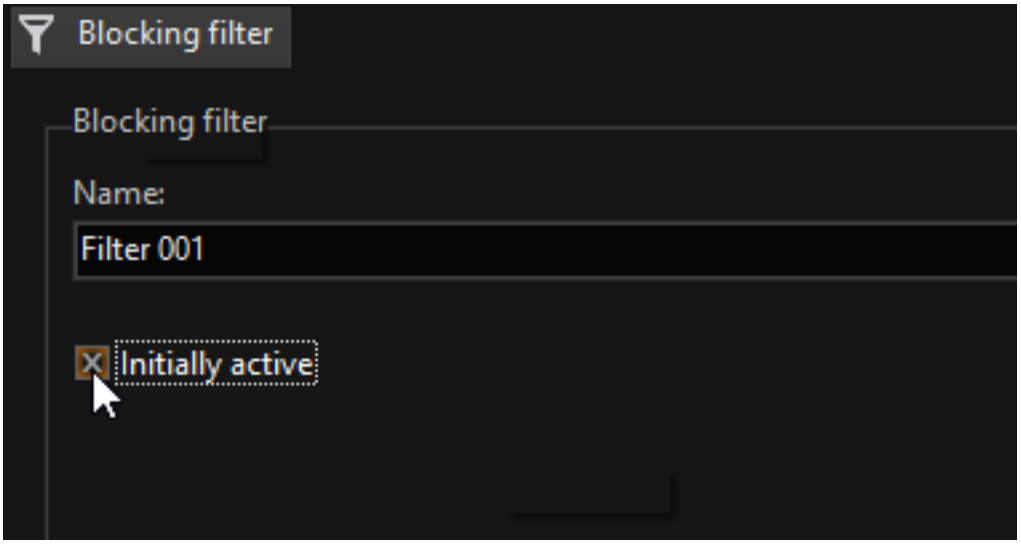
The blocking of all the AD and VMD alarms is activated by the change in time range: In this case, from **Rest of Time** to the **Weekend 001** time range. The block is cleared when the time range changes from **Weekend 001** to another time range.

Initially Active

There is a special feature in the configuration of blocking filters: Initially active. If this field is marked, the blocking filter is activated when

- the filter has just been created and the configuration sent to the server.
- the GSCServer is started.

Do not confuse this property with the normal activation or deactivation of the filter!



Telecontrol

G-Core Telecontrol is a software module that translates GeViSoft and/or G-Core remote-control commands into dome control commands for various types of dome and pan/tilt heads. It is able to communicate simultaneously with GeViSoft and G-Core.

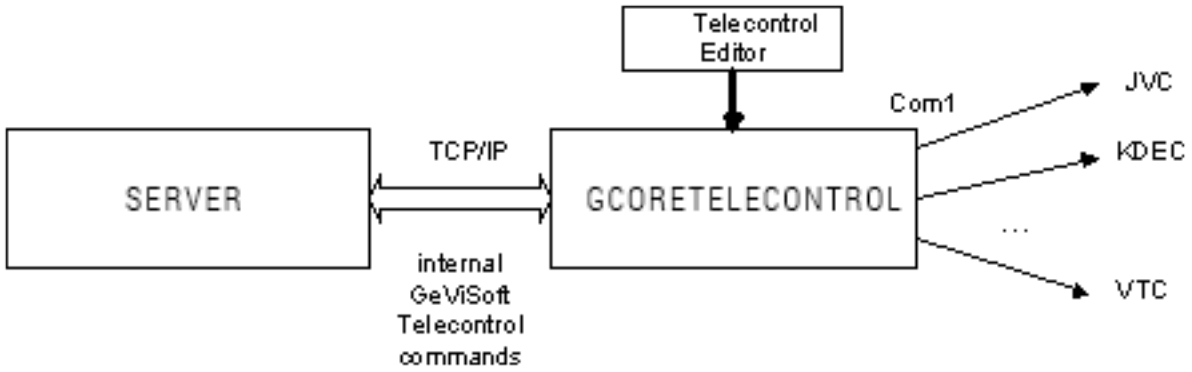
G-Core Telecontrol is a Windows service, and therefore runs in the background. The connection to GeViSoft and/or G-Core is implemented via TCP/IP. It is therefore of no importance whether it is installed on a GeViSoft/G-Core computer or on another PC in the network that can establish an IP connection to a GeViSoft/G-Core station.

A G-Core Telecontrol client can manage a user-defined number of serial ports that are connected to domes or to pan/tilt heads. Each port can operate with a different protocol, which permits domes requiring different protocols to be controlled from a single master PC. It is also possible to install multiple G-Core Telecontrol clients in the network connected to the same GeViSoft/G-Core, in order to distribute control commands within the existing network structure.

If G-Core Telecontrol is connected to G-Core it can be parameterised within G-Set.

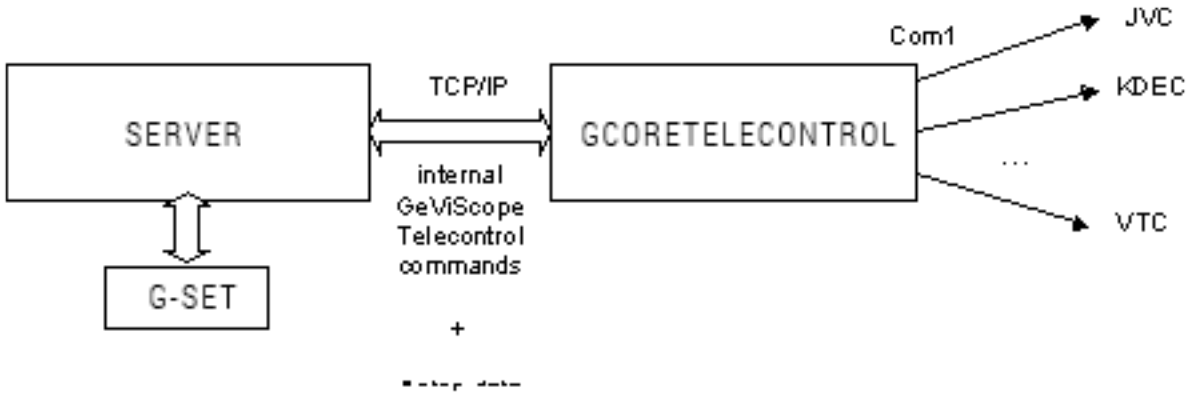
Scenario 1

G-Core Telecontrol is only connected to the GeViSoft server. The parameters come from the local Windows registry entries; these are set with the G-Core Telecontrol Setup Editor.



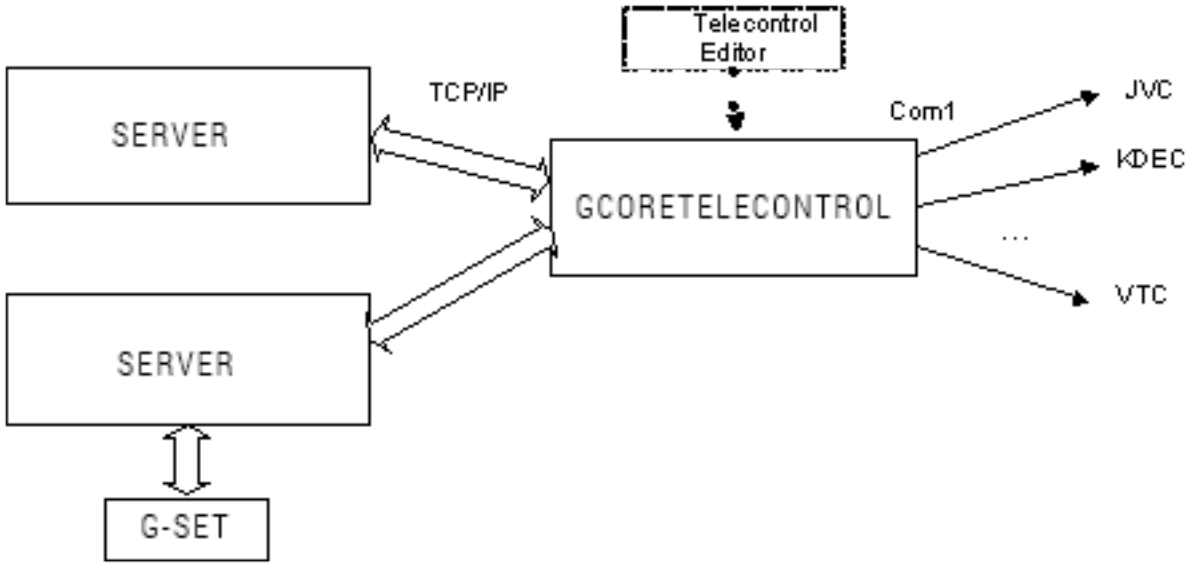
Scenario 2

G-Core Telecontrol is connected to a G-Core server. The parameters are part of the G-Core setup (which is edited by G-Set).



Scenario 3

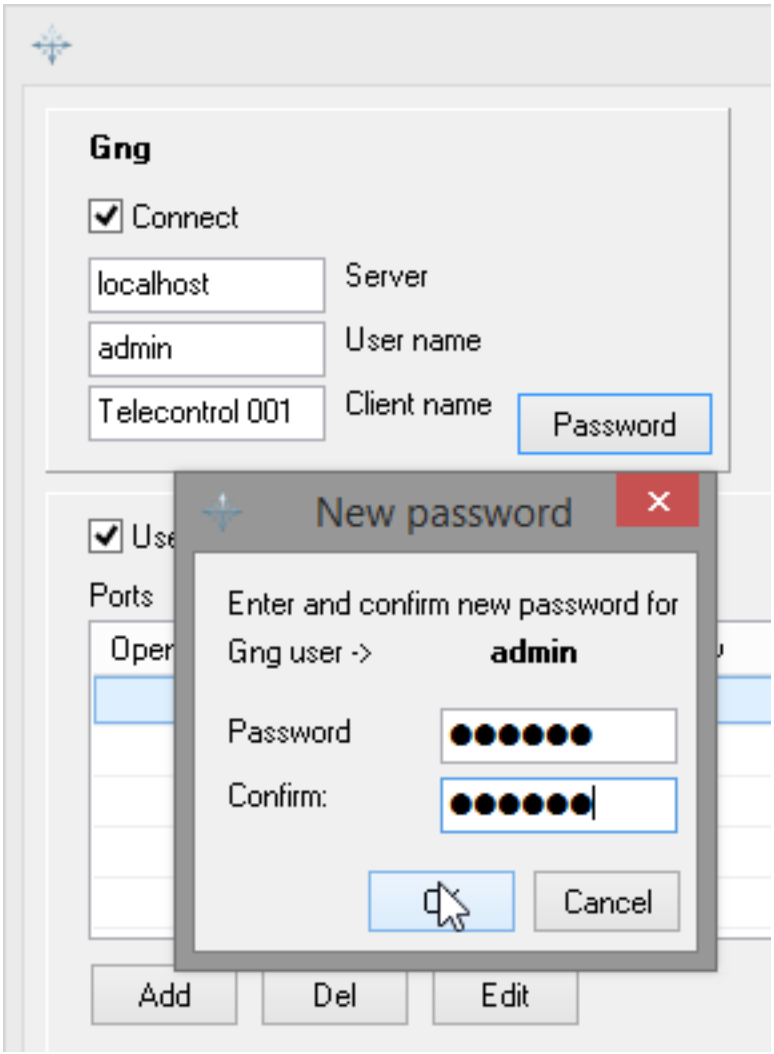
G-Core Telecontrol is connected to both servers (GeViSoft / G-Core). The parameters are normally part of the G-Core setup. Alternatively, G-Core Telecontrol can read the local Windows registry parameters.



Parameterisation with G-Setup

If G-Core Telecontrol is connected to the Server, it normally obtains the data directly from the G-Core Server. The **Telecontrol** (Remote control) selection menu in G-Set is used in order to set the parameters.

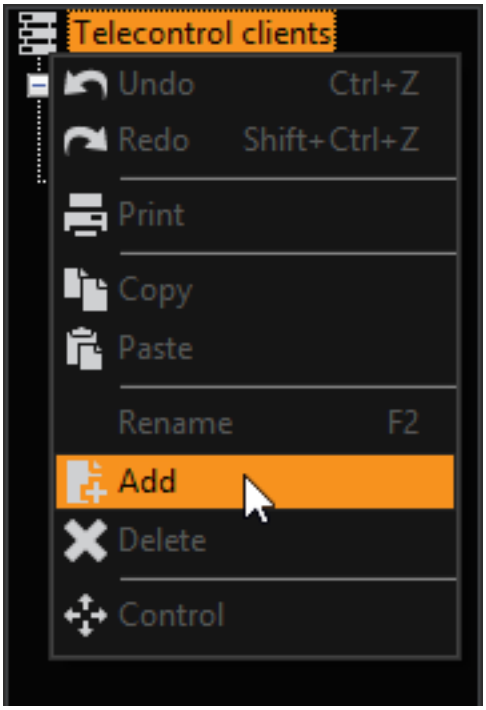
The connection parameters for the G-Core Telecontrol clients must be set beforehand with the G-Core Telecontrol Setup Editor program (to be found in the G-Core directory).



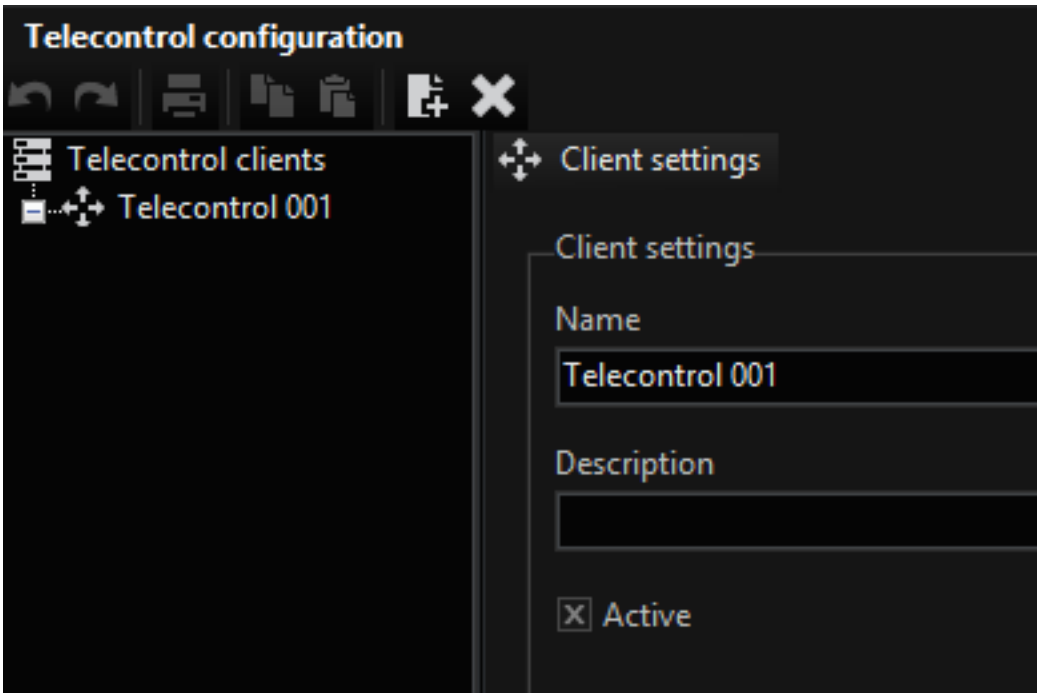
Once you have set the connection parameters, you can change to G-Set.

Establish a connection to the Server with which G-Core Telecontrol is also connected (this is the local server in our example).

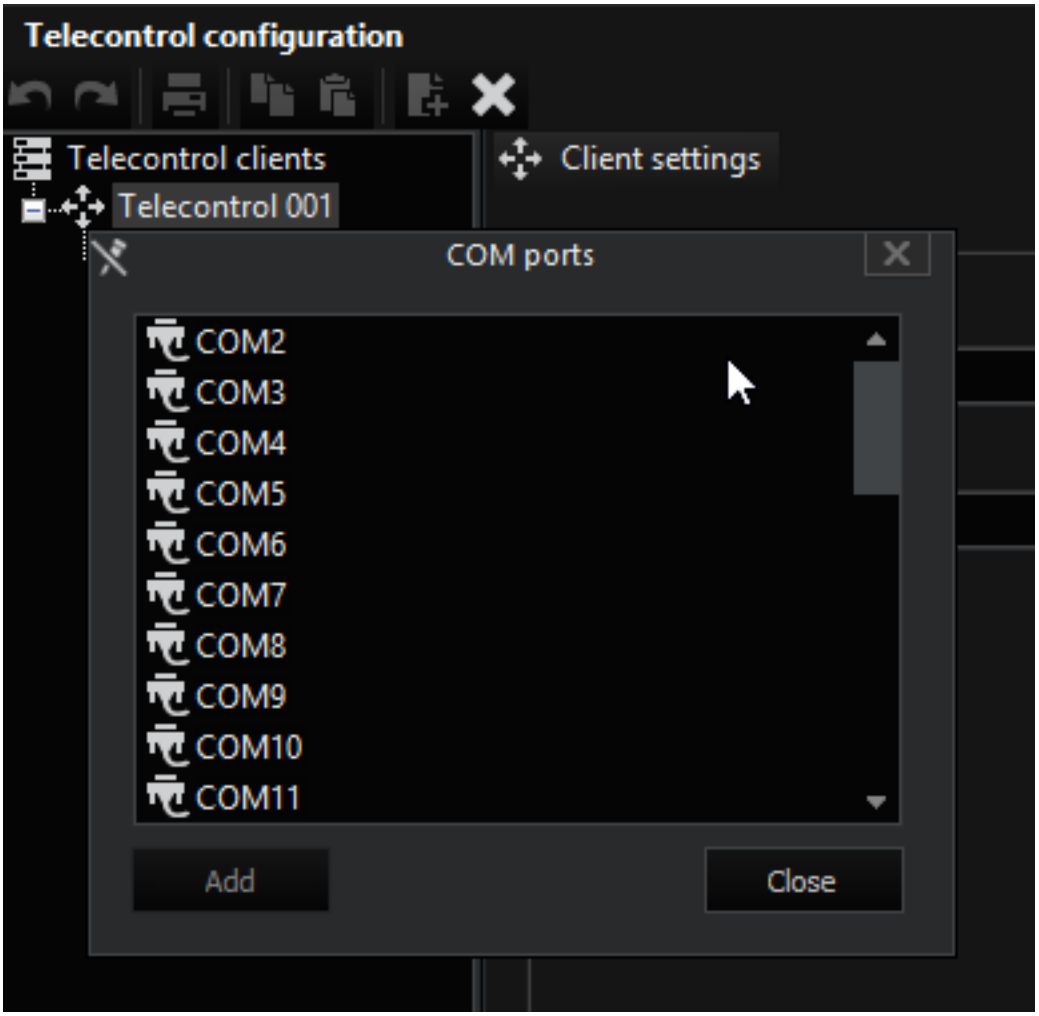
Click with the right mouse button on the (empty) list of remote control clients, and select **Add** from the pop-up menu in order to add a remote control client.



You can give the client and name, and can add a description in the settings area.

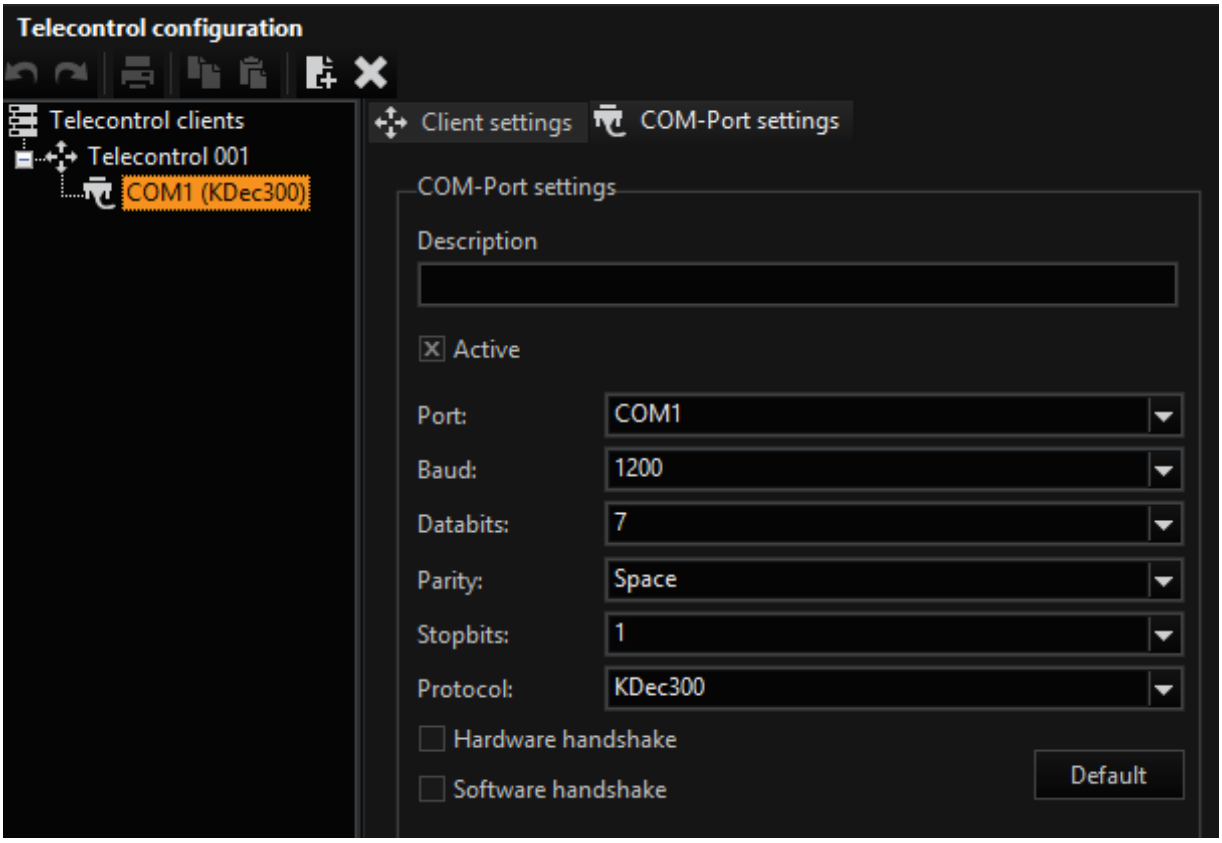


You then assign COM ports to the clients. Right-click the clients for this purpose. Select the desired COM port(s) from the pop up menu. Confirm the selection by clicking **Add**.

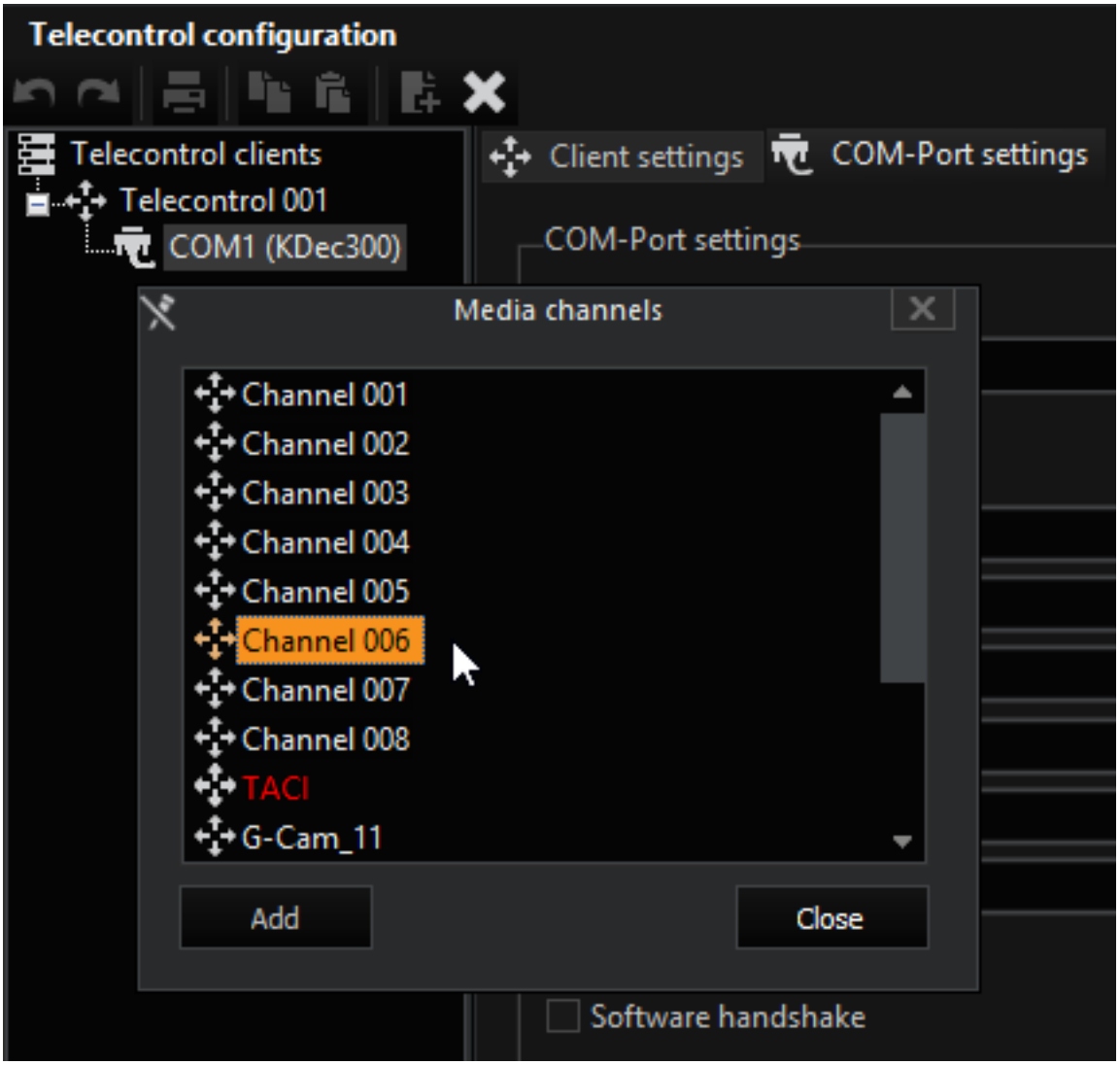


The COM ports are associated by default with the KDec300 protocol.

You can set the protocol and the connection parameters in the settings area.



Once the parameters for the COM port and the protocol have been set, you can assign the media channels to the COM port(s) with the right mouse button.



Clicking the media channel will open the remote control for this channel, and the selected protocol, in the settings area.

Time Ranges

The Time ranges menu makes it possible to specify rules for how the recording will handle days off, holidays and weekends. Customised time ranges can be created at the same time.

By using time management, the available memory space is exploited optimally, since time management can control the permanent recording. Time ranges are also important in configuring events and alarms related to activity detection, AD, and video motion detection, VMD.

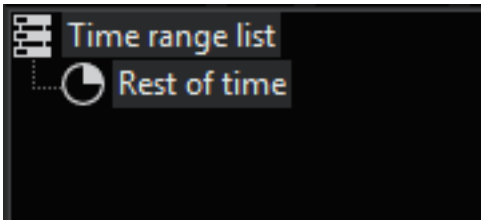
Time management includes recording control based on the calendar.

When configuring for permanent recording, you decide if a camera is also subject to time management, and to which time range the camera belongs.

The time ranges can also be used by events.

A "Virtual" Time Range

The "Rest of time entry" is to be found in the list of time ranges. This time range is greyed, and cannot be configured. It ensures that even if time ranges are missing, recordings will take place, and is the standard setting for event configuration.



Rest of time is a special time range, only used if

- no time range has been configured, or if
- no other time range is valid.

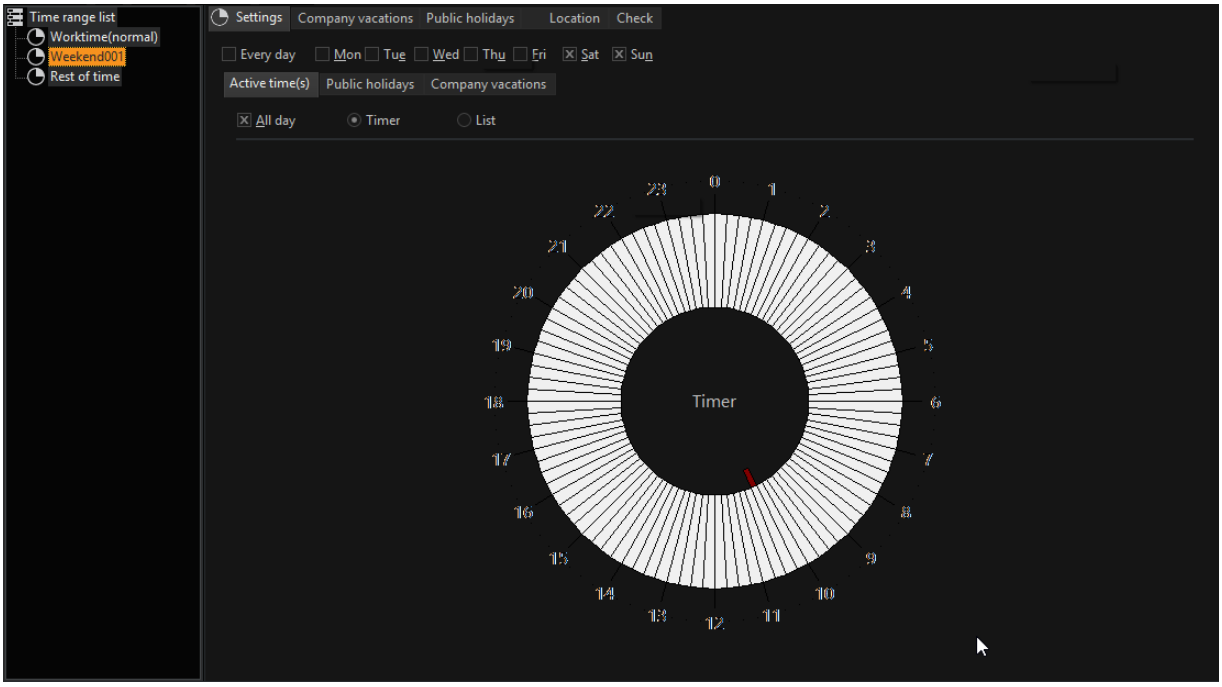
Because, depending on the configuration, Rest of time represents different time ranges, it cannot be configured: it is a "virtual" time range.

You will only really notice the existence of this virtual time range at one point, which is when you must decide, in the event configuration under Recording tasks, whether or not the event should be stopped when the valid time range has elapsed. You can include the "Rest of time" time range here.

Creating a Time Range

You can create different time ranges by right-clicking Time Range List and then Add in the pop-up menu. You have now created a time range named **Time range 001**.

The time ranges are automatically named **Time range** plus a sequentially assigned number. You can change the name if you wish. To do this, right-click on the time range, and then on **Rename**. Enter the name.



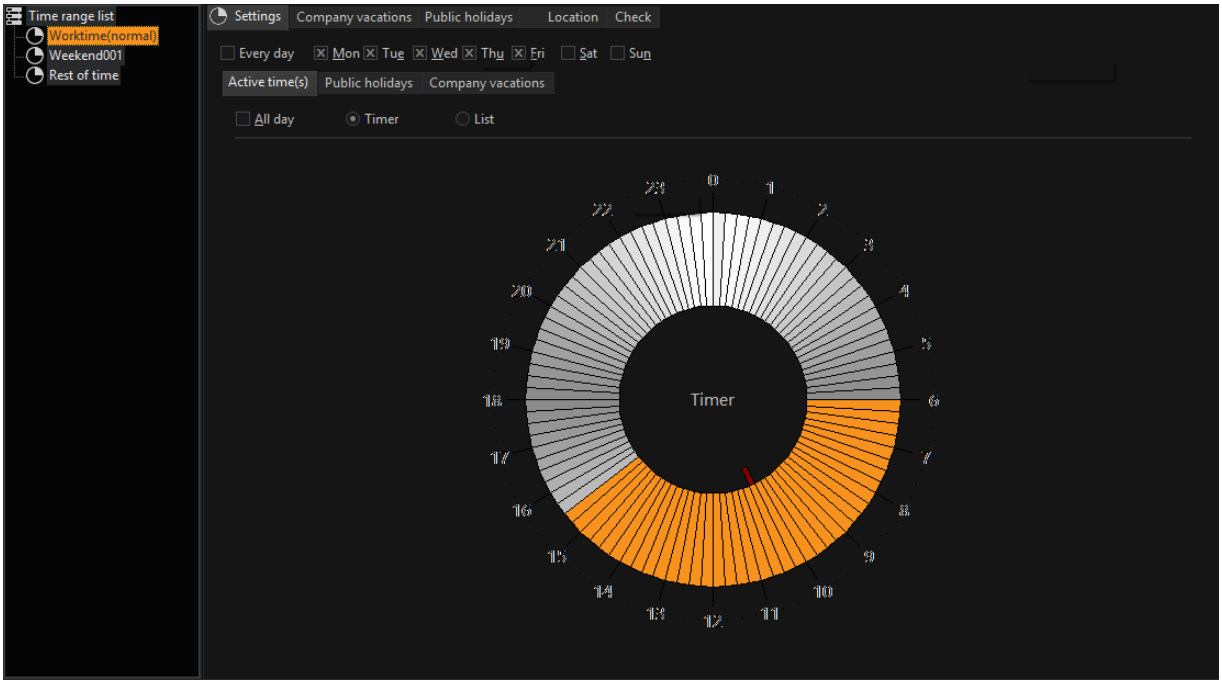
Settings

On the Settings tab, you can configure the time range. First, specify the day for which the time range should apply.

The default setting is **Every Day**. If you wish to specify certain days, then remove checkmark at Every Day and click on the days for which the time range will apply.

Active Time(s)

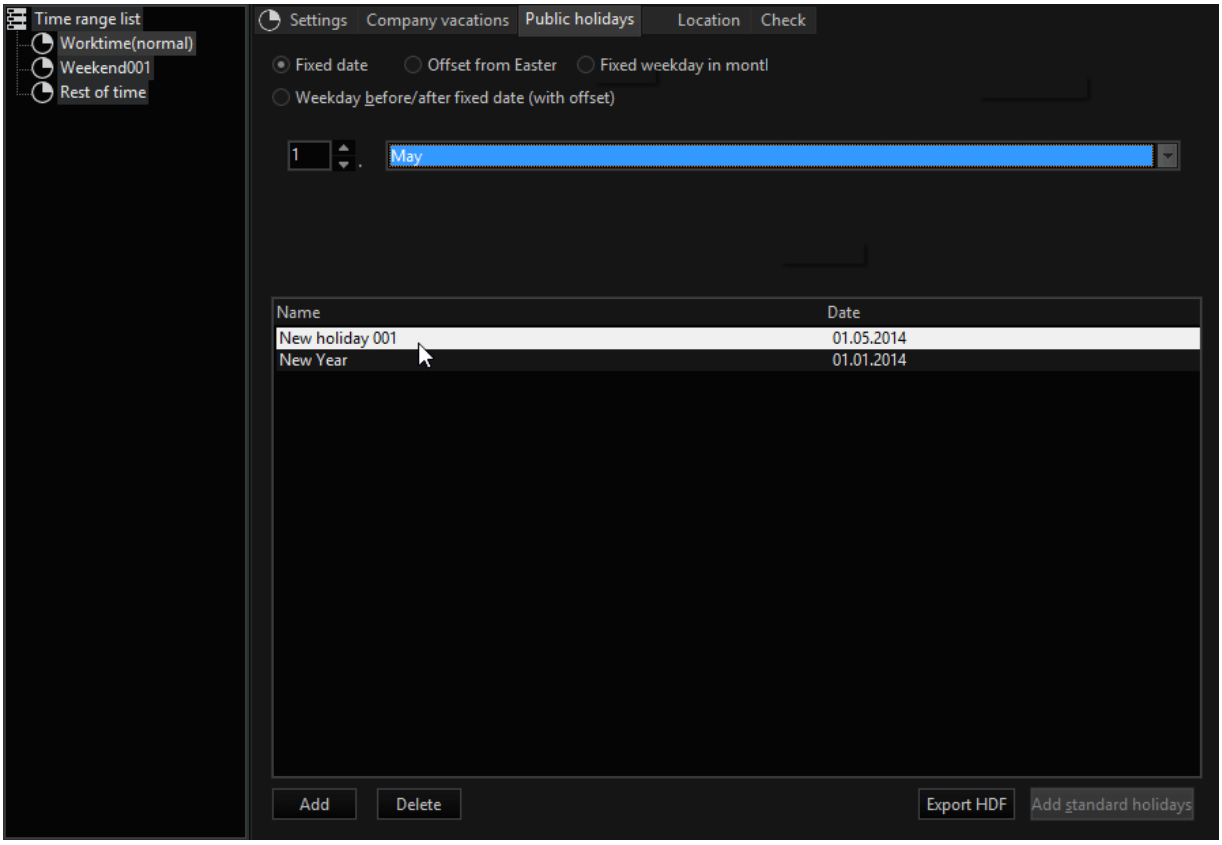
In a second step, you determine whether the whole day (default All Day = 24 hours on the tab) or just a specific time period belongs to the new time range. When you select Timer, with the left mouse button you can select the range for which to apply the time range. In our example, the range is 6:00 am to 3:30 pm.



If the timer is not precise enough for your needs and, in particular, if you need to use alternating times, select List. There you can specify a number of different times to the minute (it is even possible to take sunrise and sunset into account).

Company Vacations and Public Holidays

You specify business closings and vacations on the **Company Vacations** and **Public Holidays** tabs. To do so, click on the corresponding **Add** button and enter the times.



The timer and list settings can also be combined with the specified vacations and holidays. To do so, use the tabs Company Vacations and Public Holidays next to the Active time(s) tab.

Location

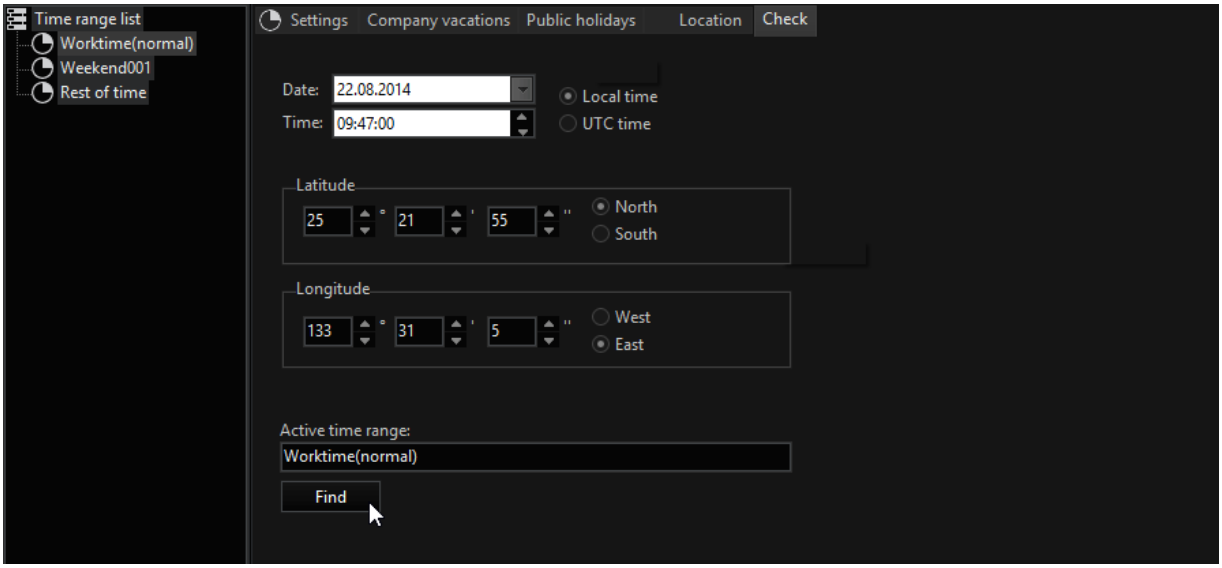
On the Location tab you can enter your location in latitude and longitude.

It is also possible to move the red mark on the globe to the (approximate) location and set it there. Longitude and latitude are adjusted to the setting.

Check

On the Check tab you can check the corresponding settings of the time zone in which you currently are (would be).

Enter the data and click on Find. The (then) active time zone is displayed.



Database

You must create a database if you want permanent recording in addition to live streaming.

1. Click **Database** on the General settings menu.
2. A list of all the installed hard disks appears if you click Database volumes. Mark the drive on which you want to set up a database using the right mouse button.
3. Enter the desired size on the settings menu. Confirm your input.
4. After this you can set the ring buffer.

Considerations Governing Database Management

Before creating a database, you should have some idea of the three factors that affect the necessary database size:

- the total required capacity in the light of the recording format, image sizes and image rates
- cameras and camera groups, and their recording depths
- events associated with the individual cameras, and their desired residency time in the database

Estimating the Total Required Capacity

Estimate, as best you can, the total required capacity for the database (the relevant parameters are the average image size, the image rates, event frequencies and archiving periods).

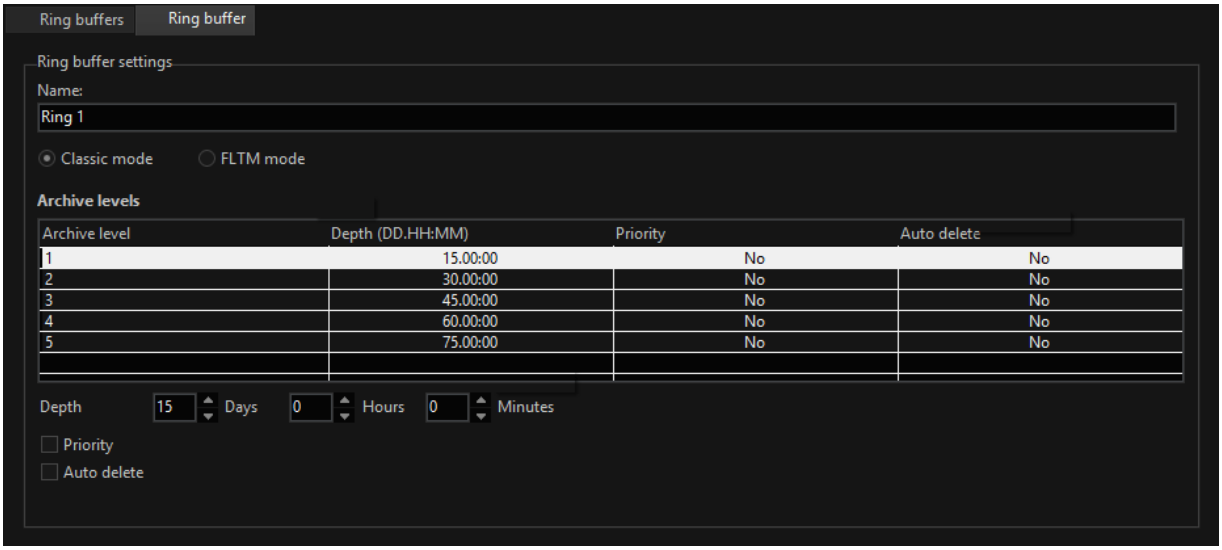
This estimate can be very approximate. If the calculation is too tight, additional capacity can be added to the database at any time.

Cameras and Camera Groups

Register all the cameras, and group them according to the recording depth that each permanently recording camera will require. Assign these groups to rings. The time depth of the permanent recording is adjusted on the first archiving level (Archive level 1).

Events Associated with the Individual Cameras

Give some thought to the events associated with the individual cameras. Events that are to be retained in the database for longer than the depth configured for permanent recording are assigned to higher archiving levels. There are four additional archiving levels for this purpose.

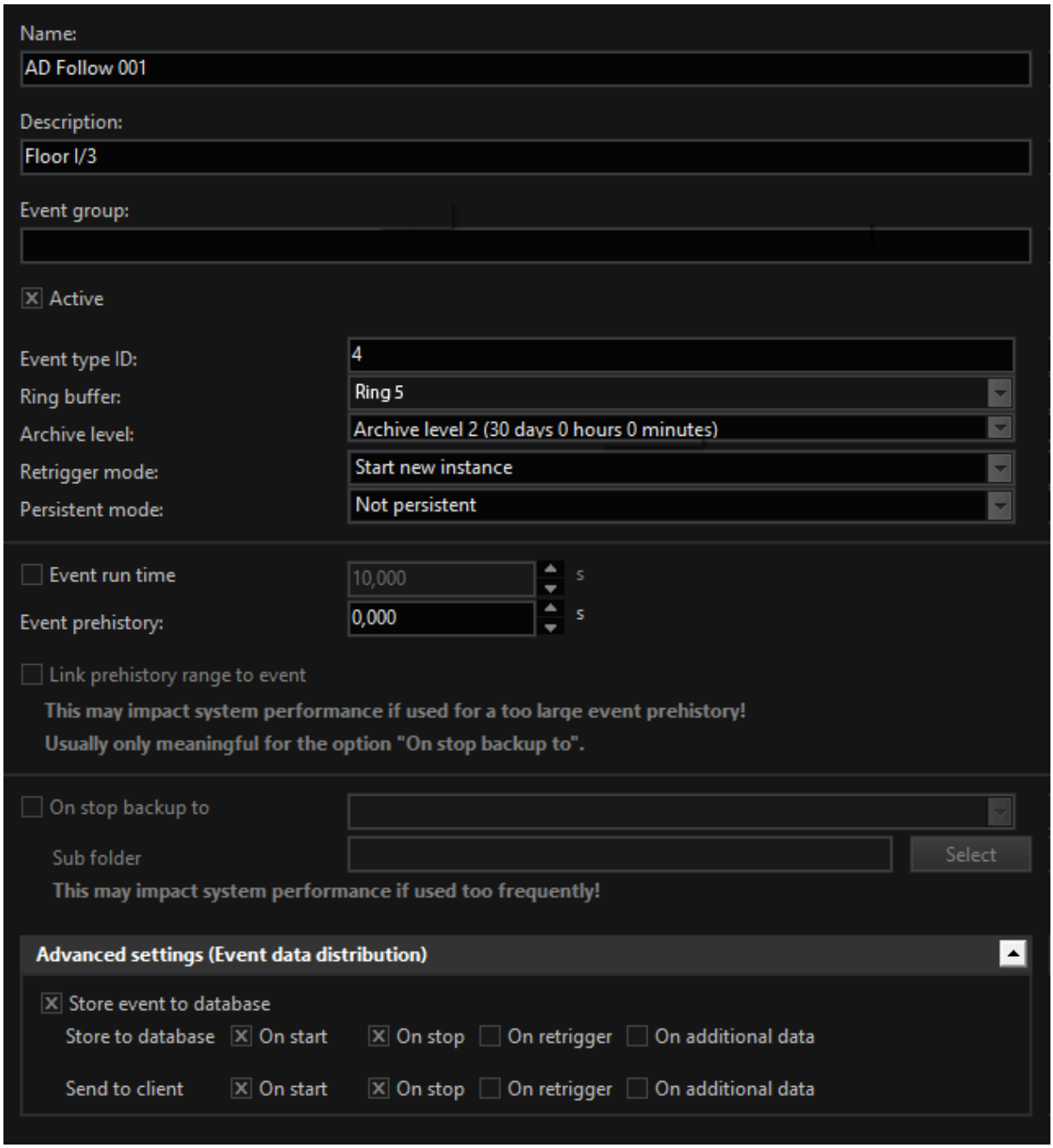


As has already been mentioned in the previous section, it is not necessary to calculate the capacity: simply set the required storage times

- on the rings' archive level 1 for permanent recordings and (if necessary)
- the duration of events that are to be stored for a longer period on archive levels 2 to 5.

The system automatically ensures that the total available database capacity is optimally distributed over all the configured recording processes.

An example or event configuration using archiving levels:



Dynamic Database Management

The previous section already referred briefly to dynamic database management. The variable adjustment of the ring buffers and archiving levels becomes particularly important when the total storage capacity

1. corresponds exactly to requirements
2. is too large
3. is too small.

The calculated database capacity corresponds exactly to the capacity required in real operation:

In this case, the dynamic management of the GSC automatically ensures that enough capacity is made available to each recording process to match the configured duration.

The total calculated capacity exceeds the capacity required in real operation:

The dynamic management of the GSC database then automatically distributes the excess capacity proportionately across all the configured recording processes.

If, for instance, two recording processes at different archiving levels have been configured for 10 and 20 days, and if the database has an excess capacity of 5 days, then this is distributed across Level 1 and Level 2 in such a way that both levels are given the same proportion of additional time. Level 1 will thus be able to store data for about 11.6 days, and level 20 for about 23.3 days; i.e. both levels are extended by around 16%.

The total calculated capacity falls short of the capacity required in real operation:

The dynamic management of the GSC database proportionately reduces the storage depth of all recording processes.

Referring again to the above example, if the total capacity is 5 days short, then Level 1 will record for about 8.3 days instead of 10 days, while Level 2 will store for about 16.6 days instead of 20 days. Both levels therefore become about 16% shorter.

In this case, the database can be expanded at any time, without any loss of images, in order to provide the required storage depth.

Dynamic management of the GSE database:

- avoids "dead wood" images and events in the database, since blocked events will sooner or later be overwritten when memory is required, depending on

the settings of the archiving periods, without requiring manual release. This also applies to rings.

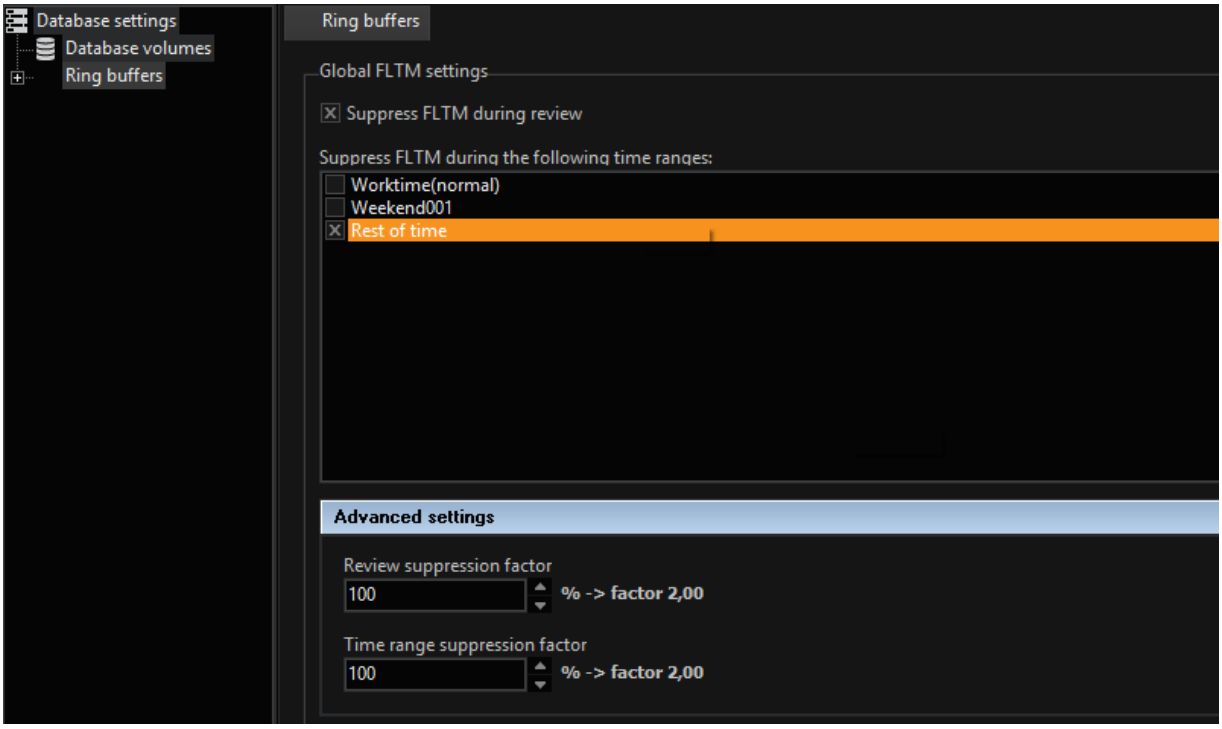
- configuration becomes much easier: instead of estimating capacities to high accuracy, the required storage times are specified.
- the database can be extended at any time, without even losing images, if the total capacity was wrongly estimated.
- the existing hard disk space is optimally exploited.

There are situations in which a configuration of the database will have to be considered in more detail. These include
- the frequent occurrence of events of short duration
- the occasional occurrence of events of long duration
- the need to permanently protect events from being overwritten
- events that require a pre-history with the same archiving level.

Note: such events must be recorded in the same ring as the one in which the permanent recording of the relevant camera is made.

Ring Buffer

Click on the entry Ring buffers to open the setting dialog of the global FLTM settings.

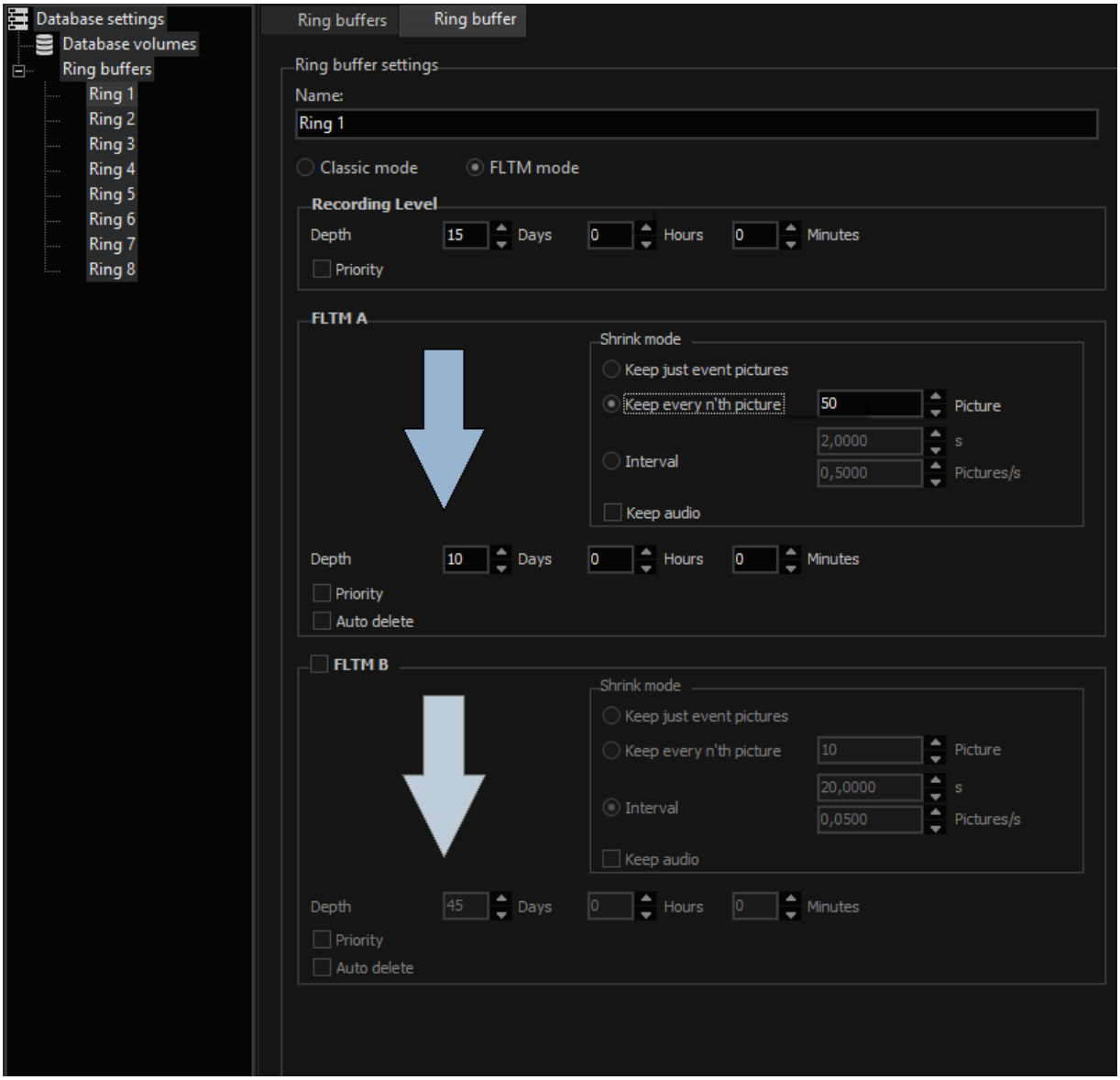


Read more about FLTM here, if you are not familiar with this function.

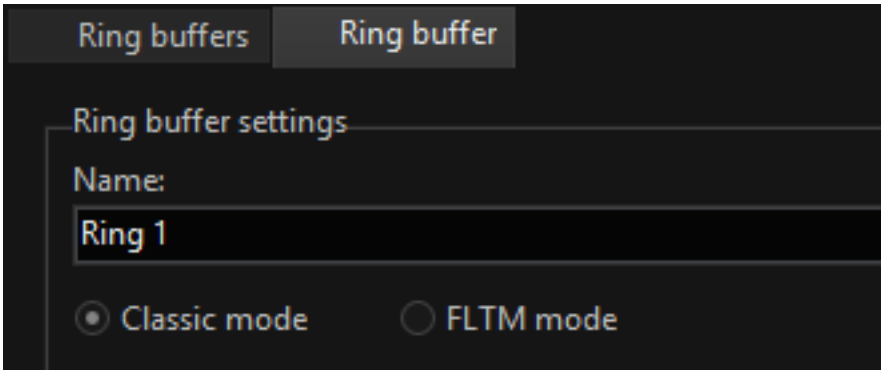
Select the option field Suppress FLTM during review and the corresponding times if you do not wish FLTM actions to be performed during these times.

Under **Advanced settings** you can set the suppression more precisely.

When you have made your settings, click on the cross before the entry Ring buffer to make the settings for the ring buffer. Click on the ring that you wish to configure and open the newly appeared tab Ring buffer.



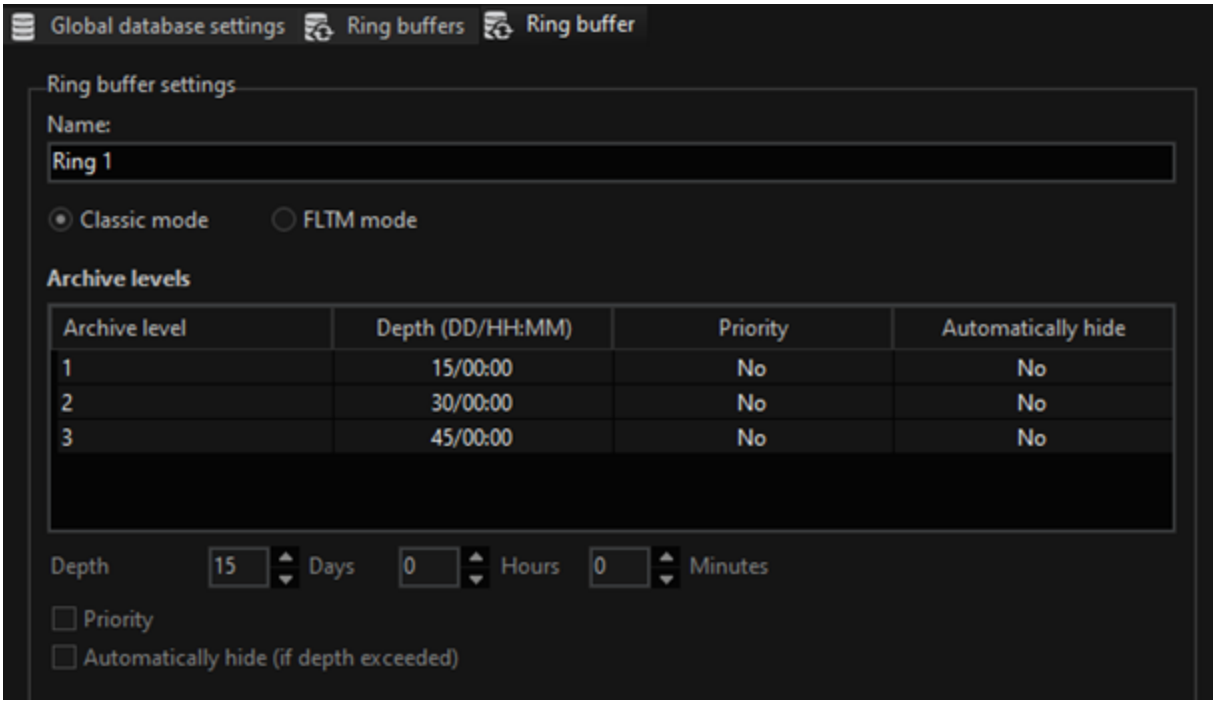
You can give the ring buffer a name and must decide whether you would like to set the ring buffers to Classic mode or Fading Long Term Memory (FLTM) mode.



Classic Mode

The eight recording rings will appear to the left of the settings dialog, while the setting for the ring buffer depth is shown on the right.

To set the recording depth, click on the ring whose settings you wish to change. The settings dialog is displayed.



The depth of the ring buffer is given in days, hours and minutes, each of which is divided into 5 archive levels; the first level represents permanent recording.

Moreover, there are two selection fields:

Field	Description
Priority	Mark this selection field if the pictures at this archive level should remain kept for a very long period. Dependent on the database space requirements, the retention period is extended to several hundred days. However, the pictures are overwritten at some stage. **This setting is roughly equivalent to the "blocked event" setting in MSCIII**.
Auto hide (if depth exceed)	If you mark this selection field, the images of this archive level will be hidden for the operator after the set time has expired.

What Does Ring Buffer Depth Mean?

To imagine that your database is simply divided by 8, and that each eighth part corresponds to one ring, is close but, unfortunately, wrong. On the one hand, space would be wasted if rings were not adequately supplied with images, and on the other hand rings could quickly overflow and image material be prematurely released for overwriting.

Rings involve dynamic management of the database space. In other words, if, due to the quantity and/or size of the images, a ring "overflows" the space that has been reserved, the system checks the location of the images that are furthest from the set ring buffer depth. These images are then released for overwriting. This makes optimum use of the available database space, and ensures that the configured ring buffer depth is maintained.

What Does Archive Level Mean?

The archive level permits the memory size for each event to be adjusted in accordance with the available hard disk space and with the desired archiving time. You make use of these levels, specified in days, hours and minutes, when, for instance, configuring events, in order to control the way in which recorded events are overwritten.

The eight rings, each with its five archive levels, can be thought of as one G-Core with 40 rings. These archive levels are not a substitute for recording in the rings, as it is only in the eight rings that it is possible to record simultaneously with any desired archive level. The first archive level contains the setting for permanent recording.

It is not necessary to calculate the capacity. It is simply a matter of setting the required recording times for permanent recordings and, if relevant, events that are to be stored for a longer period. The system automatically ensures that the total available database capacity is optimally distributed over all the configured recording processes.

See also the chapter Considerations Governing Database Management.

FLTM Mode

General

The FLTM feature is an extension of the functionality of the database. The core target is to increase the database recording depth by automatically reducing the picture rates for older recordings. This originates from the thoughts that older pictures, dependent on the application, are less significant than newer pictures. At the same time, the FLTM feature at least secures the availability of a reduced stock of picture information with older recordings.

The FLTM feature can be optionally activated. So far the standard has been the previous deletion of the respective oldest images in an archive level, if memory is required for recording.

The following approach is followed for technical realization:

- If the DBE requires recording capacity in a source archive level recording capacity, not only simple memory blocks are overwritten if FLTM is active, but several source archive level memory blocks are merged in accordance with the FLTM pack parameters.
- The blocks merged by FLTM are then available for recording in the source archive level.
- The block created by FLTM is recorded in a special target archive level especially for this purpose. This target archive level is set at a higher time depth than the source archive level in order to ensure a higher retention period of the packed picture data in the database than in the source archive level.

- This procedure ensures that beyond the achieved source level time depth only picture data with a reduced picture rate in accordance with the FLTM settings is available.

FLTM is hence equivalent to a database-internal packing / copying process from an archive level with a low recording depth (but a high picture rate) to a different archive level with a considerable recording depth (but a low picture rate).

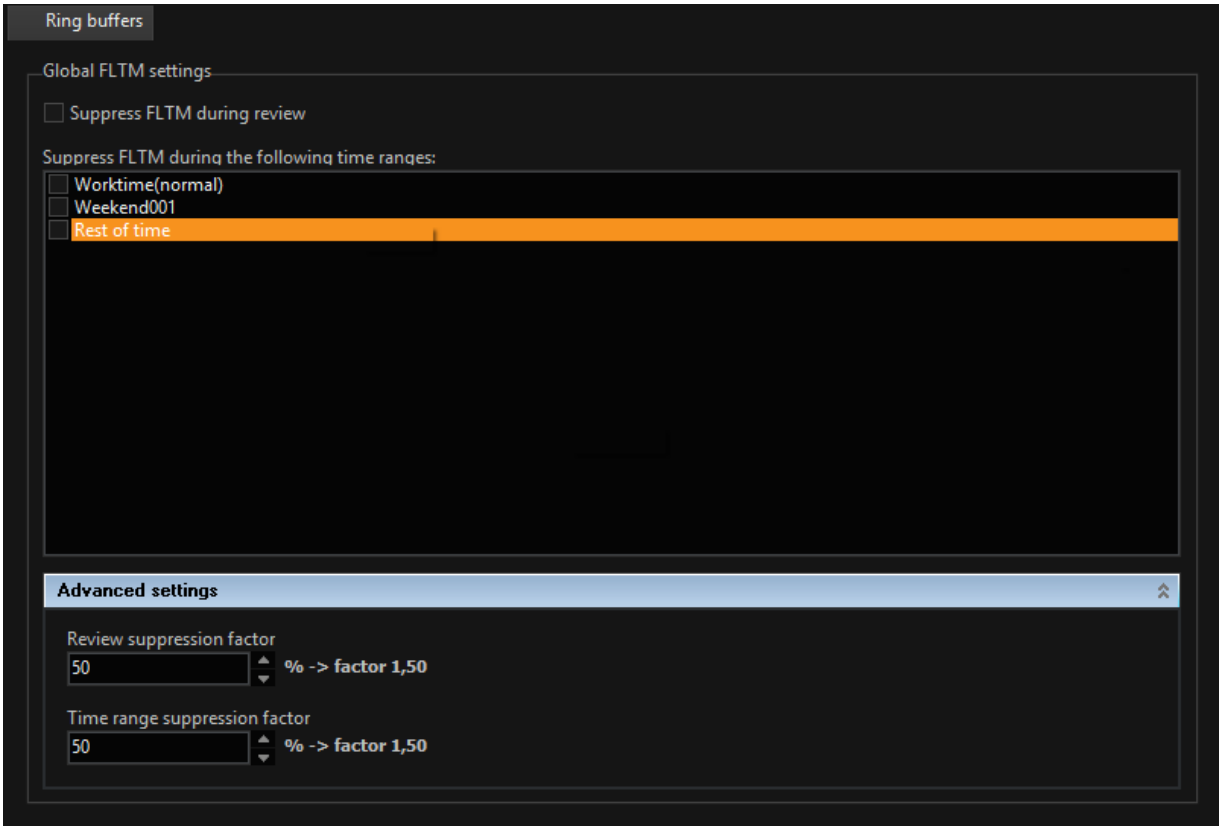
FLTM works independent of the time depth of the source archive level set in setup if capacity has to be created in the source archive level due to recording requirements.

If the total capacity of the database is not sufficient to achieve the time depth set in the archive levels, this also leads to the packing process already being started before the archive depth set is reached. If, on the other hand, database capacity is higher than required, FLTM also starts later. Inevitably, the approach means that it is not exactly possible to forecast the time recording depth at which the packing (and with it the "fading") of the picture data starts.

The definition of the FLTM function at archive level can also cause different behavior, depending on the meaning of the recordings. Thus, for example, packing older event recordings can run differently to packing less important permanent recordings.

The packing process maintains the event data available belonging to the pictures after packing.

The procedures described affect the disc performance as a result of simultaneous read and write procedures. This is normal and cannot be avoided when, in addition to saving new pictures, old pictures are retrieved from the database, processed in memory and then (having been reduced) written back. FLTM A alone thus requires in general roughly 60% of the disc drive performance for execution. For this reason (and to avoid shaky pictures during this time when viewing database recordings), there are two settings on the Ring buffer tab that counteract this problem.



When you activate the field "Suppress FLTM during review", the FLTM function is then suppressed. Viewing pictures and picture sequences from the database thus is given priority. The type of the suppression is set under "Advanced settings" under "Review suppression factor". An entry of 50% (corresponds to spread of the FLTM activity to one and a half days) has proved to be a reliable setting in real-world applications.

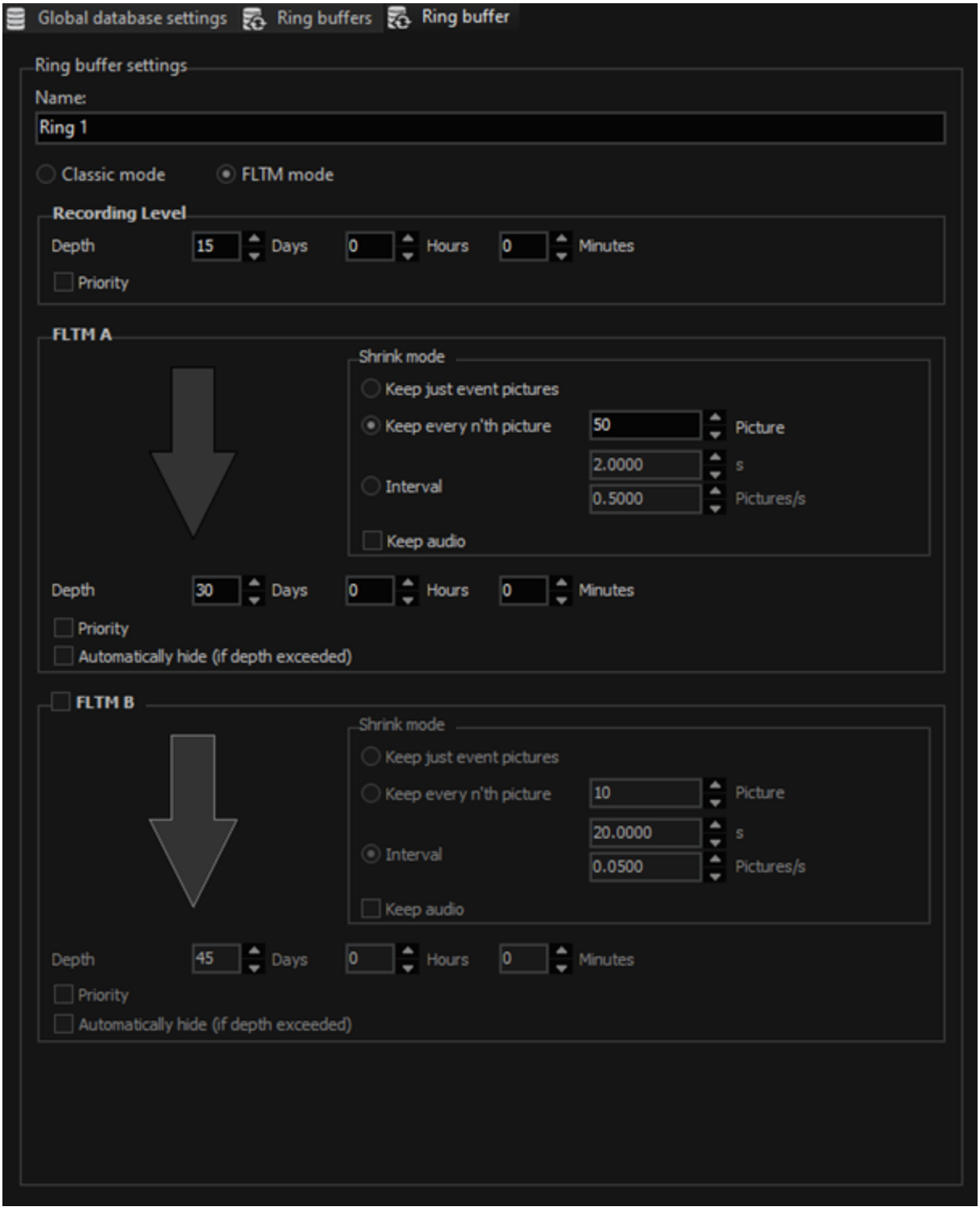
Another possibility for suppressing the FLTM activity, instead of using the "Suppress FLTM during review" field, is to select a defined time period in which the FLTM activity is to be suppressed. Some examples: Let us assume that the time range Week 001 applies to daytime and Week 002 applies to the night. In such a case it is possible to enable activity during the night (Week 02) and suppress it during the daytime (Week 001). If we have a relationship of 16 hours of daytime and 8 hours of night, then it is possible, however, that FLTM cannot finish its work in this time. This would make FLTM pointless. The first option for setting the suppression may thus be preferable.

For H.264 in conjunction with FLTM, you should know that I-frame based pictures (entire GOPs) will be lost!

Click **here** to jump to the start of the chapter Ring buffer. Otherwise, continue reading.

Settings

If you select the FLTM mode, you extend the setting options for the ring selected. In addition to the settings for the permanent recording archive level (Archive level 1), you have two configurations for deleting the pictures: FLTM A and FLTM B. As a standard, only FLTM A is active.


Global database settings
Ring buffers
Ring buffer
Ring buffer settings
Name:
Ring 1
Classic mode
FLTM mode
Recording Level
Depth
15
Days
0
Hours
0
Minutes
Priority
FLTM A
Shrink mode
Keep just event pictures
Keep every n'th picture
50
Picture
Interval
2.0000
s
0.5000
Pictures/s
Keep audio
Depth
30
Days
0
Hours
0
Minutes
Priority
Automatically hide (if depth exceeded)
FLTM B
Shrink mode
Keep just event pictures
Keep every n'th picture
10
Picture
Interval
20.0000
s
0.0500
Pictures/s
Keep audio
Depth
45
Days
0
Hours
0
Minutes
Priority
Automatically hide (if depth exceeded)

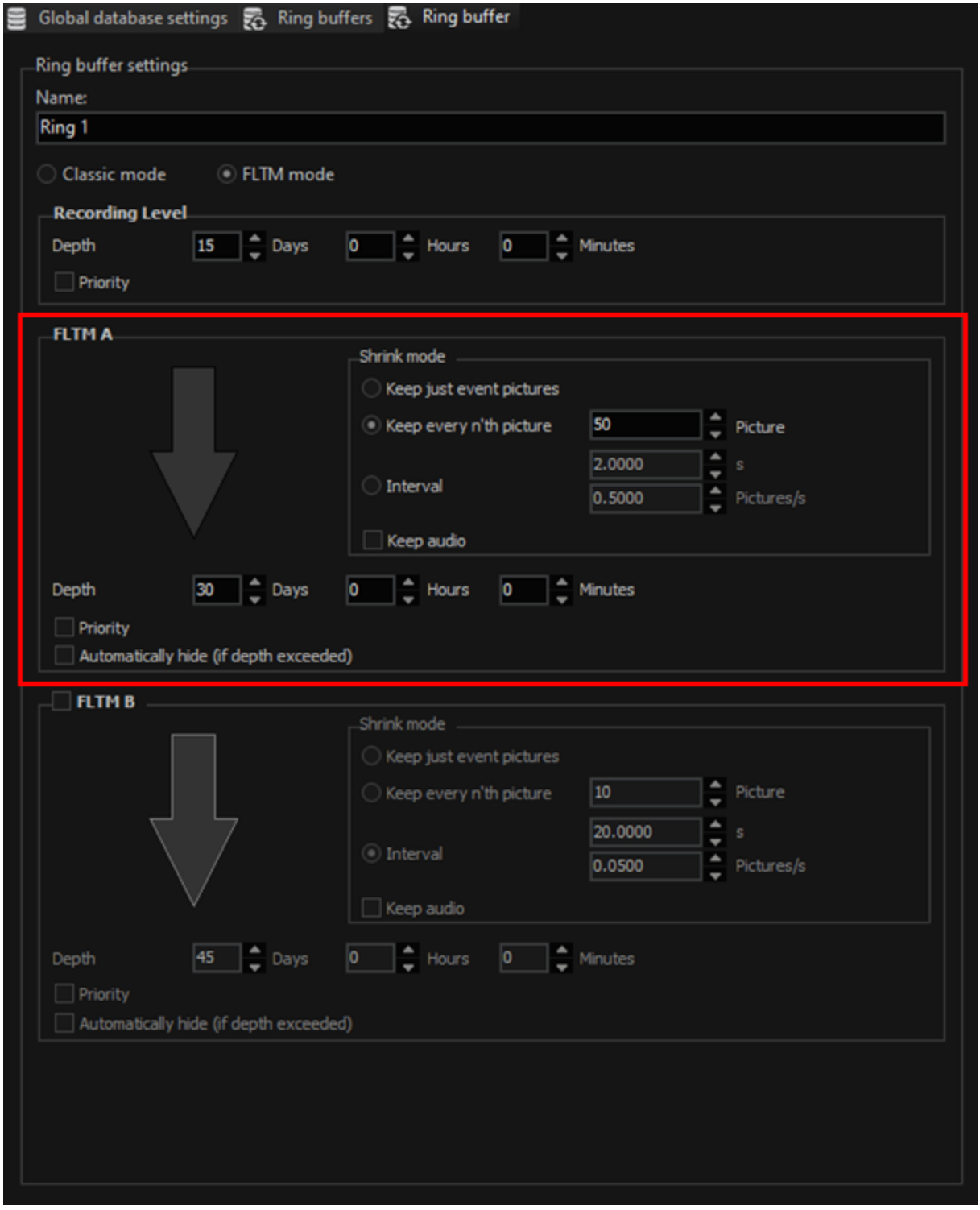
FLTM A

In the FLTM mode, the first FLTM setting (FLTM A) is automatically activated.

Set the time (as a "Desired value") according to which the database should be thinned out.

> **As in the classical mode, the database is already thinned-out earlier if disk space is needed. However, if sufficient disk space is available, the process can also take effect later then specified.**

Moreover, the selection fields **Priority**and **Auto hide (if depth exceed)**are also available and have the same meaning as in classical mode. The selection field **Keep audio**is new: Mark this selection field if you wish to retain existing audio data during the packaging process.


Global database settings
Ring buffers
Ring buffer
Ring buffer settings
Name:
Ring 1
Classic mode
FLTM mode
Recording Level
Depth
15
Days
0
Hours
0
Minutes
Priority
FLTM A
Shrink mode
Keep just event pictures
Keep every n'th picture
50
Picture
2.0000
s
Interval
0.5000
Pictures/s
Keep audio
Depth
30
Days
0
Hours
0
Minutes
Priority
Automatically hide (if depth exceeded)
FLTM B
Shrink mode
Keep just event pictures
Keep every n'th picture
10
Picture
20.0000
s
Interval
0.0500
Pictures/s
Keep audio
Depth
45
Days
0
Hours
0
Minutes
Priority
Automatically hide (if depth exceeded)

Shrink Mode

Shrink mode has three different settings:

Settings	Description
Keep just event pictures	Only event pictures are kept, all other pictures are deleted.
Keep every n'th picture	The default setting is 50. In this case, every 50th picture is kept.
Interval	Set the interval here at which pictures should be deleted. The default setting is **one picture every 2 seconds.**

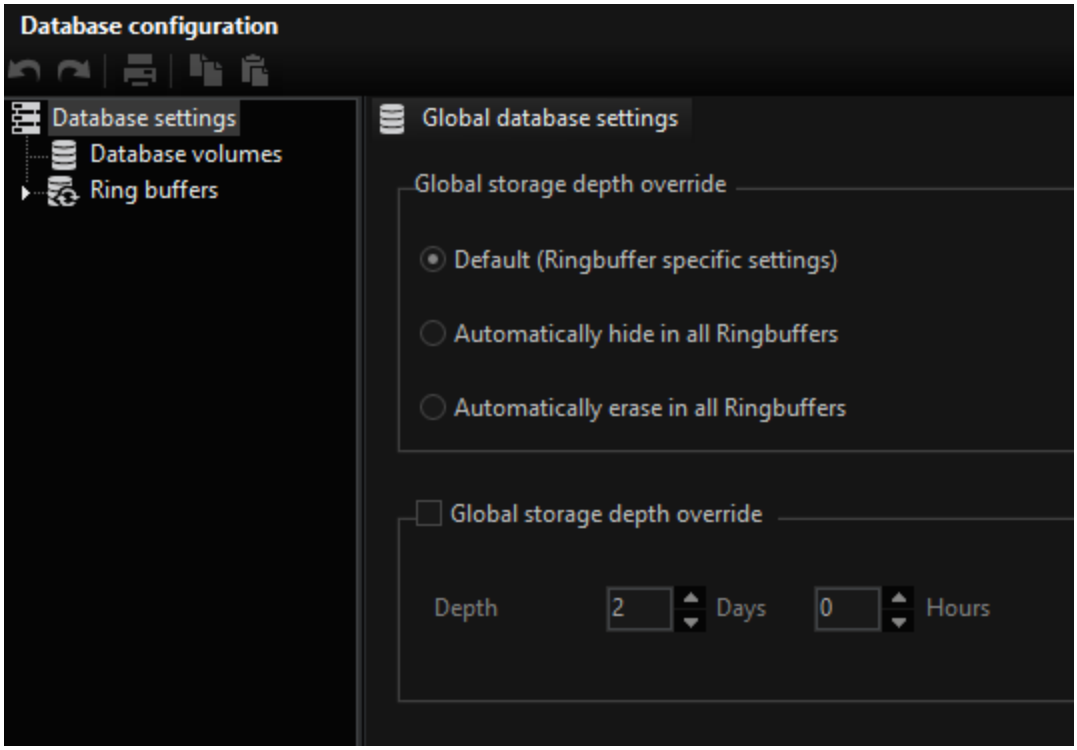
FLTM B

Also activate the FLTM B function. Then, after the set period (also only a "Desired value") the part already thinned-out by FLTM A is thinned-out further in accordance with your settings.

Otherwise, the settings match the FLTM A settings.

Global Database Settings

In the Global database settings area, you can centrally limit the storage depth for all ring buffers. Depending on the settings and storage depth, all video and event data is hidden or deleted after the specified time in the system. These settings support you in the data protection-compliant setup of your G-Core system.



The following global database settings are available:

Settings	Description
Default (Ringbuffer specific settings)	The settings of the individual ring buffers apply.
Automatically hide in all Ringbuffers	The video and event data are no longer visible to the operator after the specified time.
Automatically erase in all Ringbuffers	The video and event data are deleted from the database after the specified time and cannot be recovered. **The automatic deletion can take some time with an existing database until the storage depth is limited and the video data has been deleted.** **The automatic deletion can only be set in the global database settings for all ring buffers. The automatic deletion can be set individually per**

Settings	Description
	ring buffer or globally.
Global storage depth override	Here you can specify a central storage depth for all ring buffers. **Note that this will overwrite individual specifications in the ring buffers.**

Autobackup

Introduction

Auto-backup is automatic backup version of the G-Core. As the module has been implemented as part of the GSCServer, it performs far better compared to a commercially sold TCP/IP client solution.

Autobackup works with so-called 'Backup Transactions'. 'Backup Transactions'. A 'Backup Transaction' is defined by:

1. The start criterion (Clock time or actions)
2. The source criterion (Definition of data that needs to be secured)
3. The destination criterion (Definition of the destination drive and where applicable an access account on network drives)

With every backup transaction, a new GBF file is created. After starting the transaction, all data is secured in conformation to the source criterion. After that, the backup module returns to stand-by until the transaction must be renewed or (another) started.

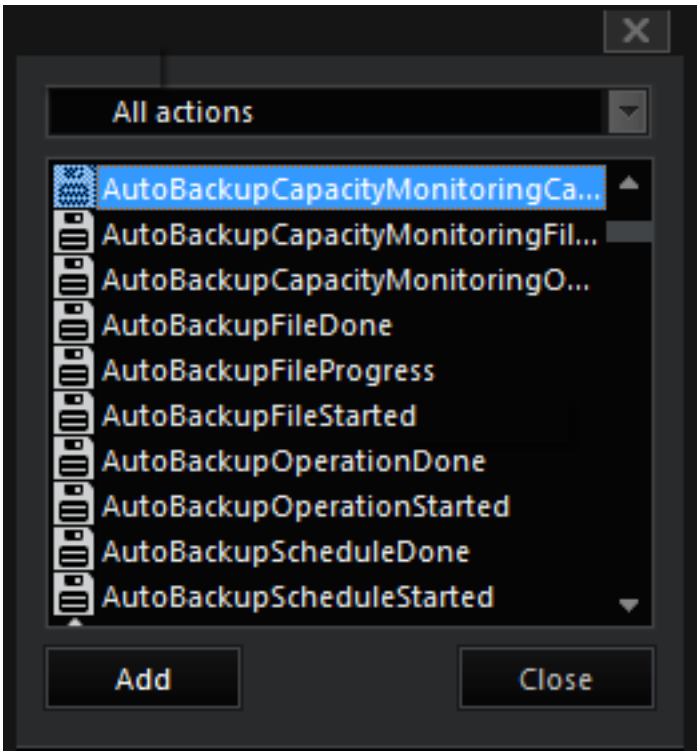
A user account as required by the network drive can be specified on the configuration of a new backup translation. GNGBackup then uses this account to report to destination processors during the securing of the backup in order to gain access to the specified drive.

The backup module also makes a function available for the operation of the destination drives: in this way the behavior of the backup can be set in case of lack of capacity (e.g. transmission of the oldest backup data or stopping).

Backup transactions can be started based on the clock time or actions. This way a chosen procedure can be used for the triggering of a backup.

The Auto-Backup-Client can also generate an action on achieving a pre-defined level in the destination medium. With corresponding parameterisation this action can be used for the notification of operating personnel.

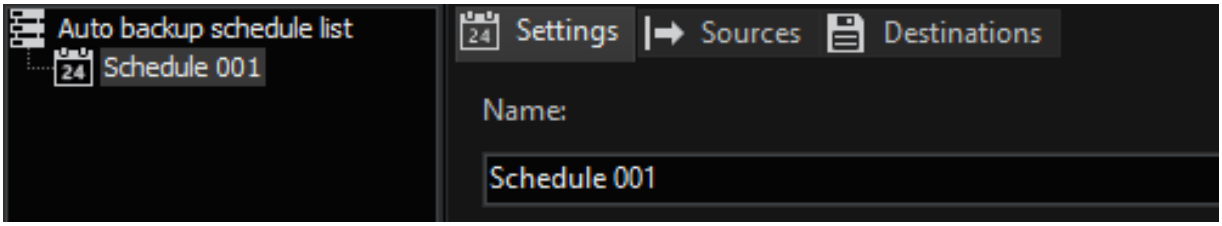
As you read in the chapter Events/alarm, you can automate processes on the system using the commands Start By/Stop By, On Start/On Stop. For backups, there are a number of actions available for use.



The Surface

The surface of the Auto-Backup consists of a tree diagram for giving an overview of the backup transactions created, thereby ensuring quick access to these configurations.

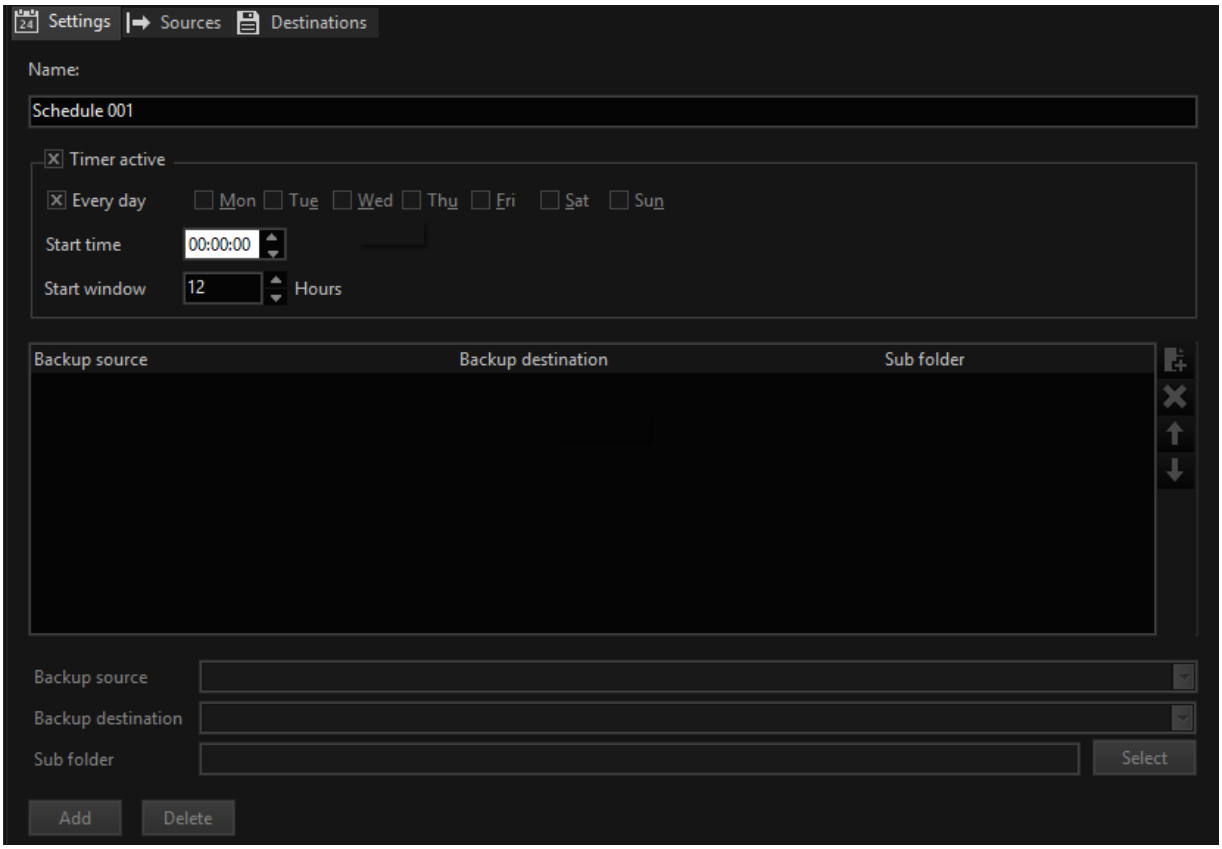
To the right of the tree diagram, there is a page with information on the current selected backup transaction and also the register for settings, sources and destinations.



Settings

The register for settings offers the typical configuration options for a backup: day and clock time of the backup start and duration of the backup.

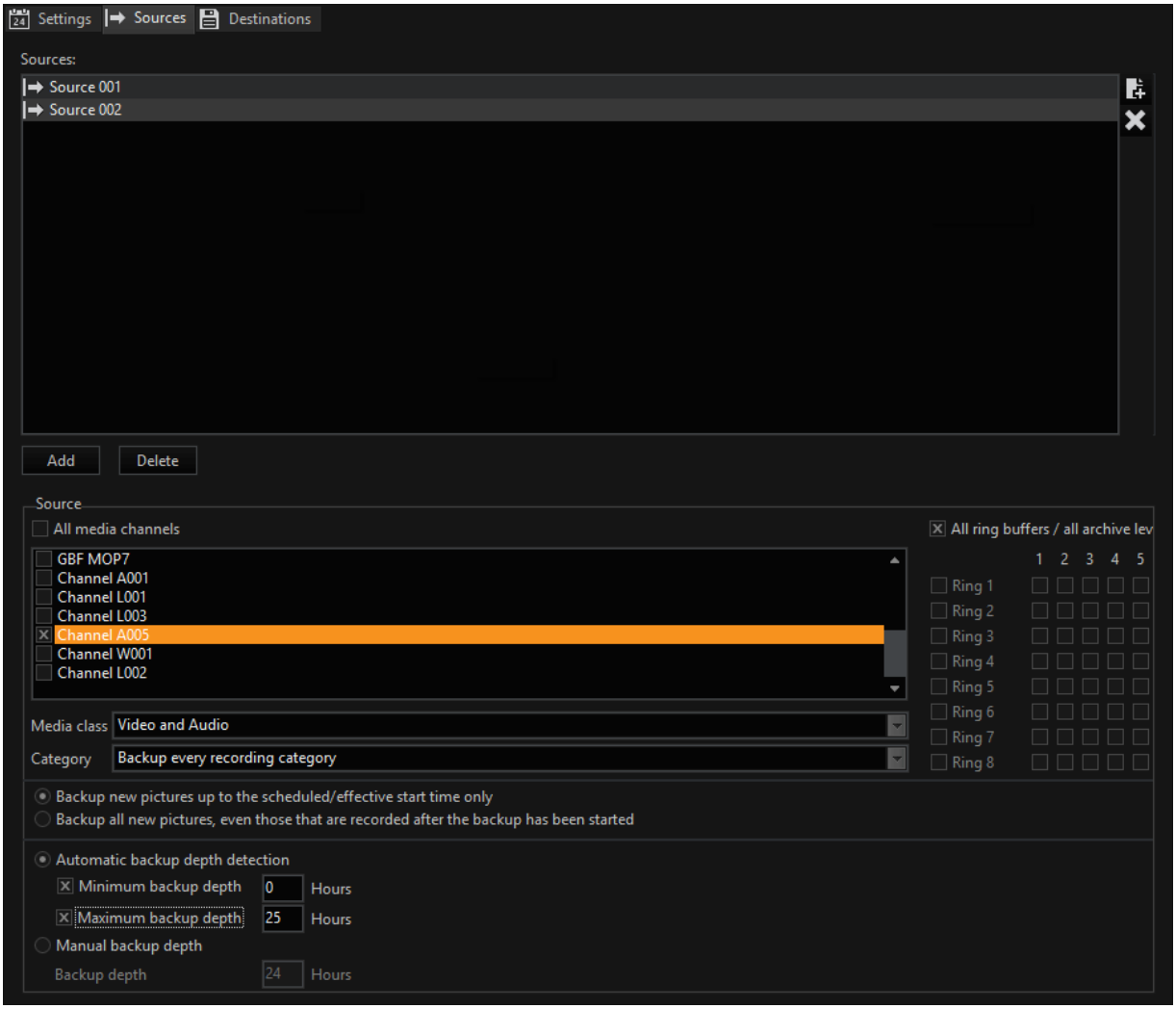
Furthermore, various sources and destinations, including network drives, can be assigned to the procedure previously registered on the registers for sources and destinations.



Sources

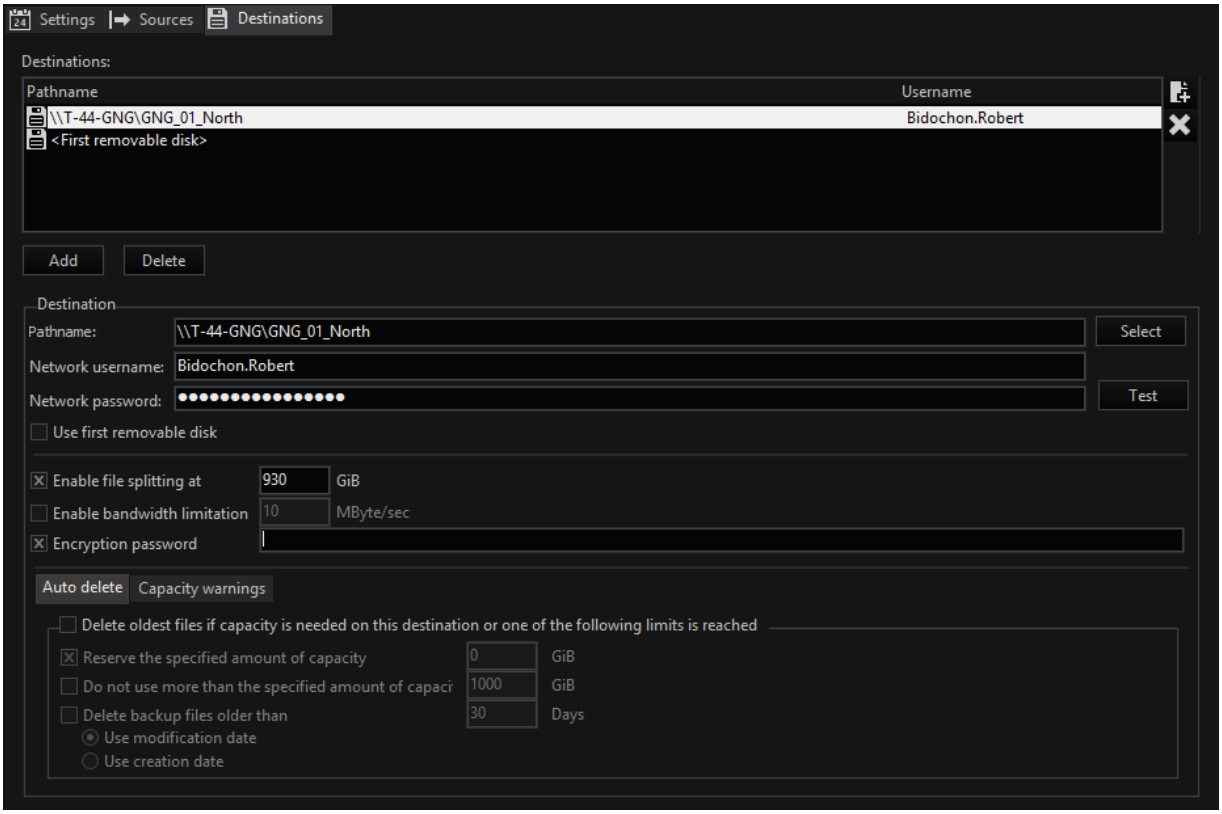
Also the configuration of the sources of the backup offers many possibilities various channels, rings and archive levels can be combined; video and audio or only one of the two can be recorded in the backup. In addition, this is where the desired backup depth is defined.

For more on rings and archive levels, please see Chapter Databank under section .



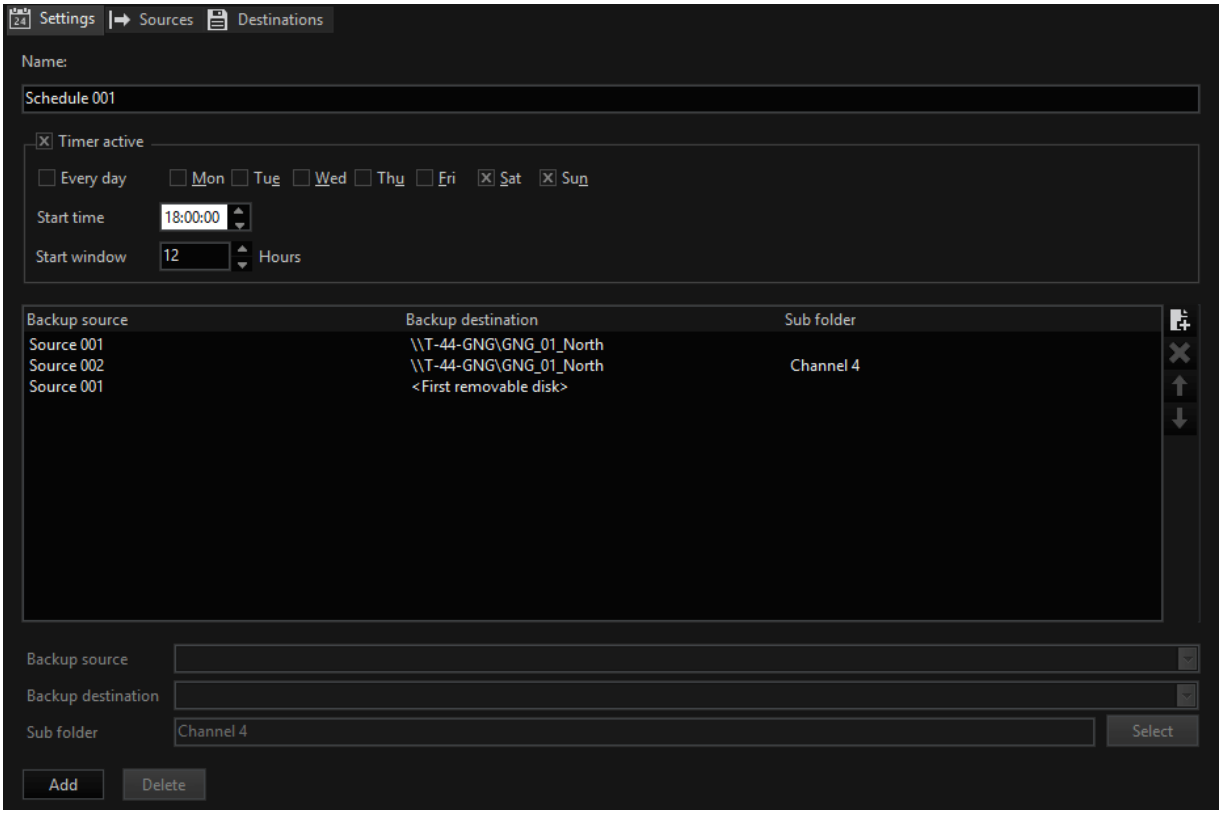
Destinations

The register of destinations records the various drives for the backup and the access rights to these backup drives. Furthermore, this is where the warning messages and delete procedures are configured.



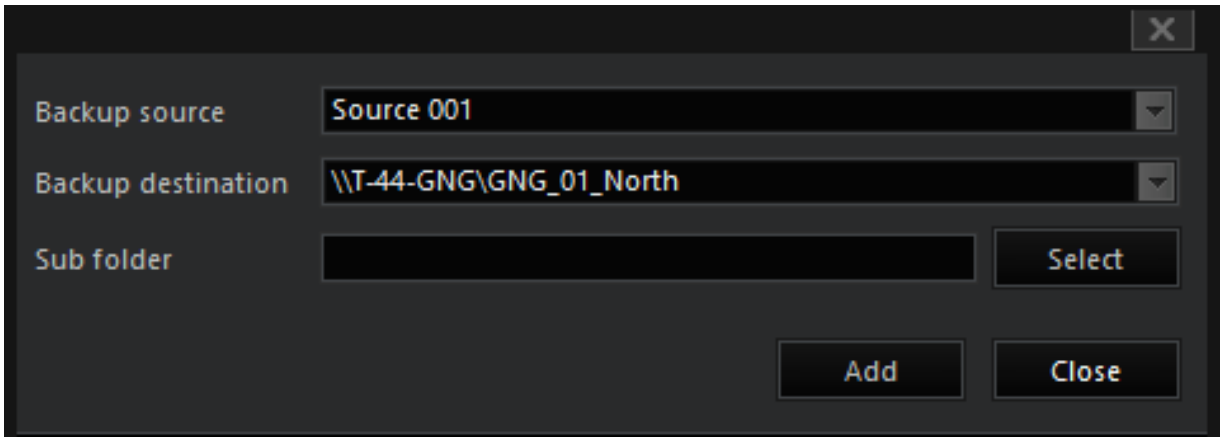
Settings

Before being able to find your settings for timed backups on this register card, you need to at least have specified a source and a destination. If you have not done this yet, click on the **Sources** register (or **Destinations**) to find your settings and to read more about it.

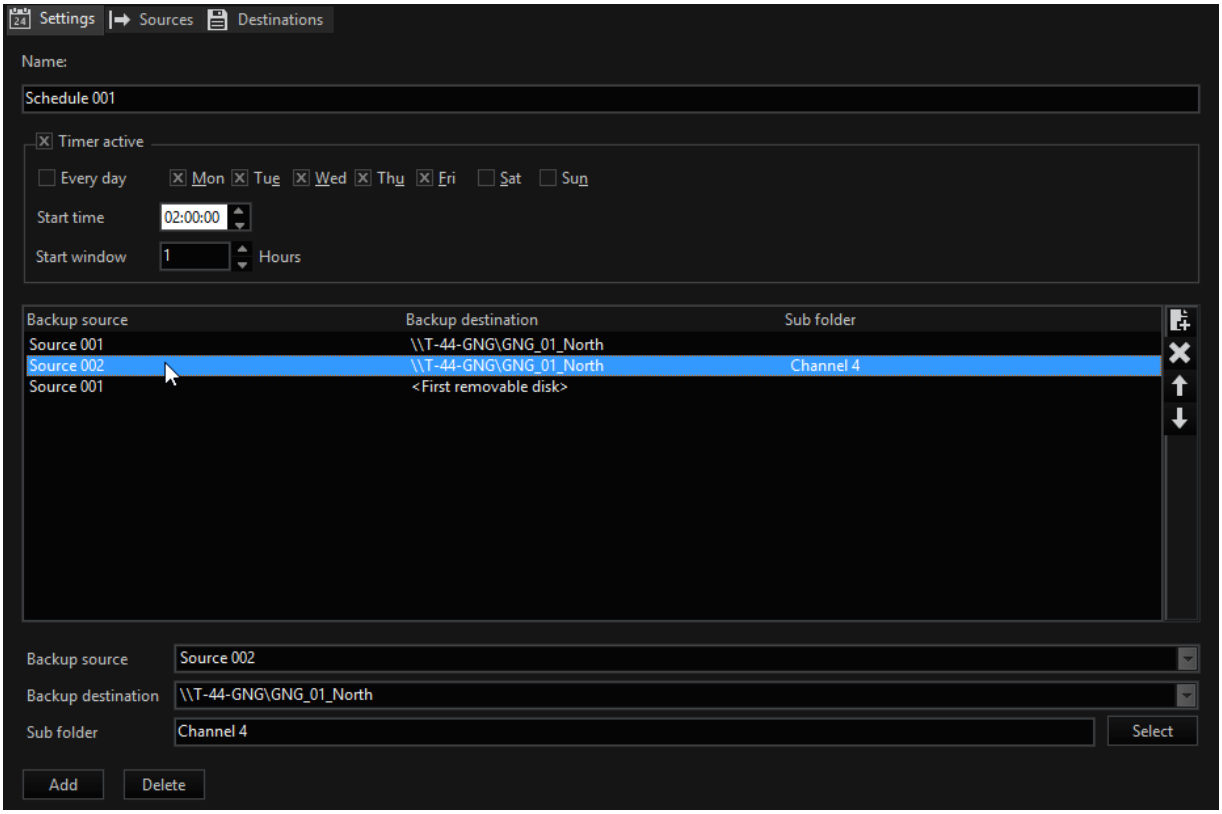


If you have already specified sources and destinations, click on **Add** to define a backup transaction.

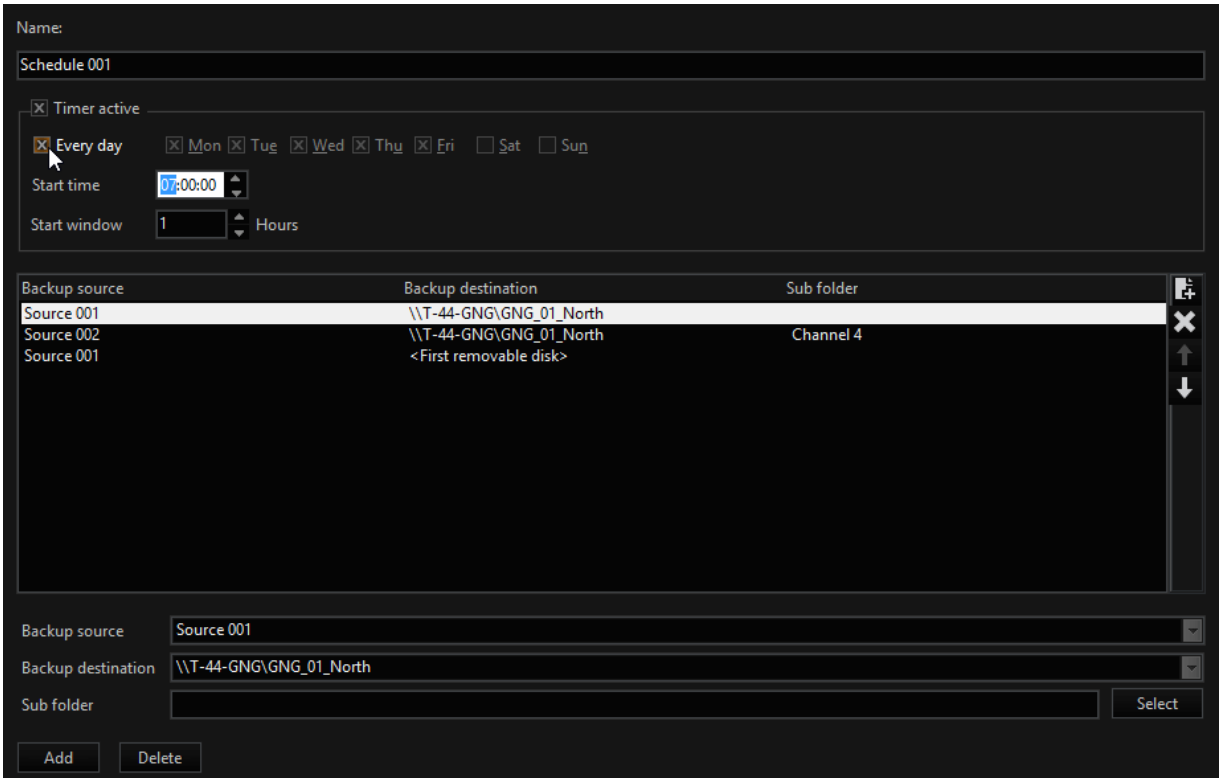
After clicking on **Add**, a dialogue is opened in which the backup source and backup destination can be selected.



Next, mark a source in the overview and choose between **Every day** and specific weekdays for the backup.



Indicate the start time; in our example this is 2:00 a.m.

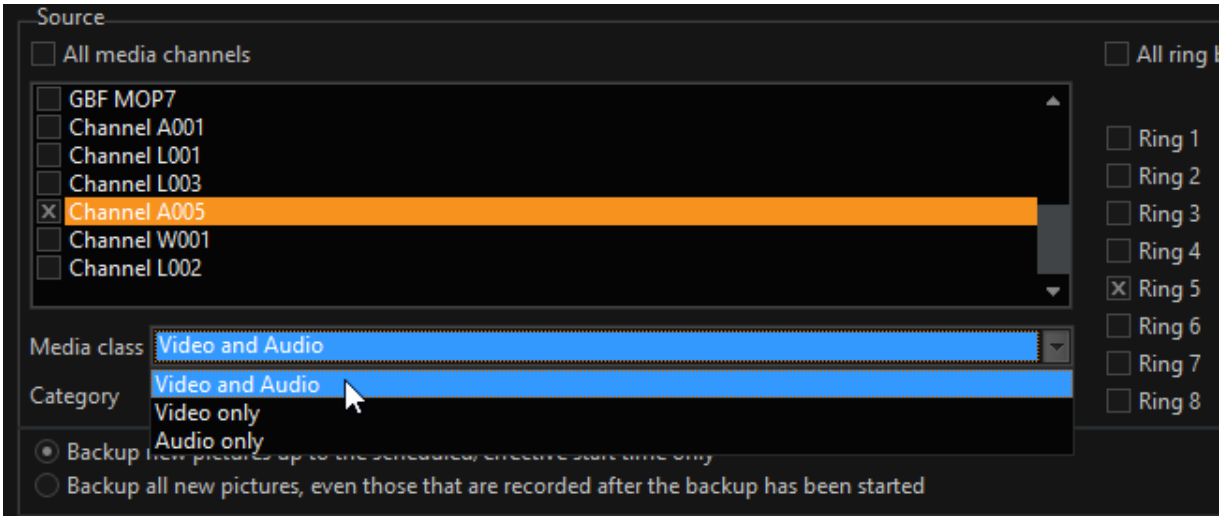


Sources

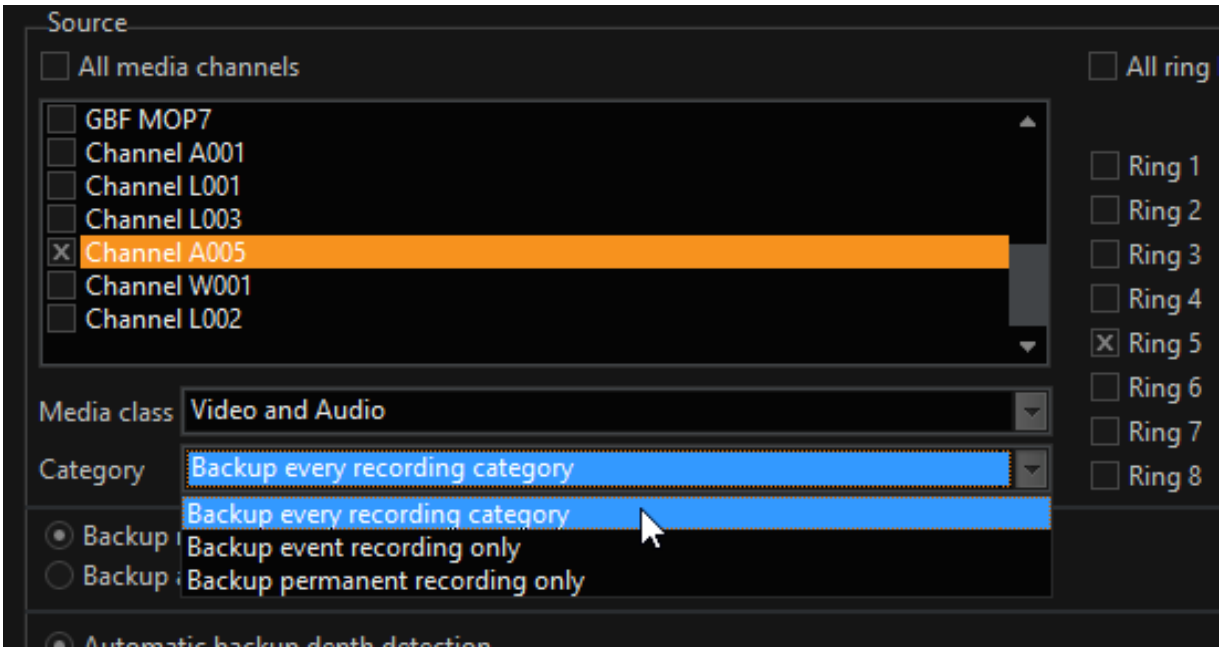
In order to specify a source for the backup, click on **Add**. You can give an expressive name.

Next mark the desired channel, ring and archive levels.

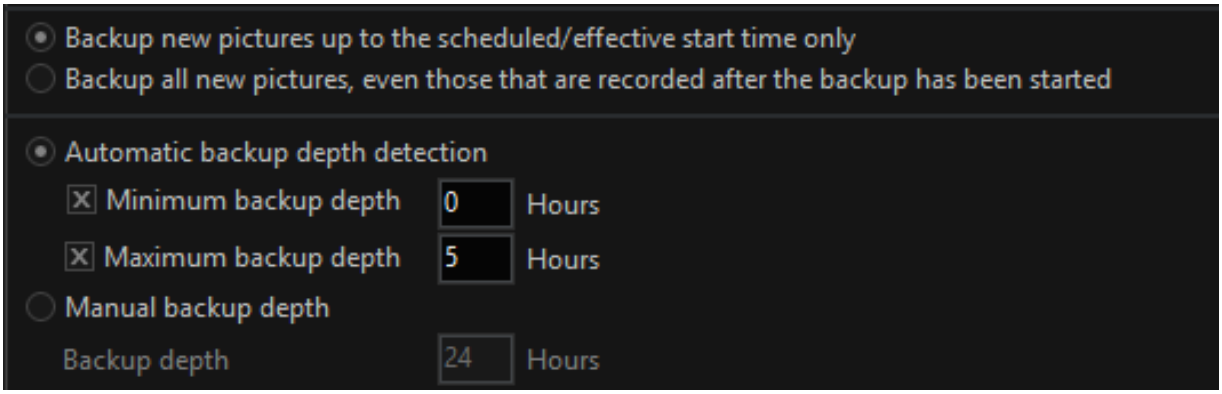
The previously encountered settings can be further refined. Under **Media class** you can select whether both video and audio are included in the backup or whether you would only like to secure video or only audio for the given media channels.



Category provides the possibility to include all categories or only the event records in the backup for the current marked source.



Before completing the source configuration, there are still a few decisions to be made:



Parameter	Description
Backup new pictures up to the schedule / effective start time only	Activate this option if you only want to include images that were recorded up to the time of the planned/effective start of the backup.
Backup all new pictures, even those that are recorded after the backup has been started	Activate this option and all new images - including those recorded after starting the backup - will be included in the backup.

Automatic Backup Depth

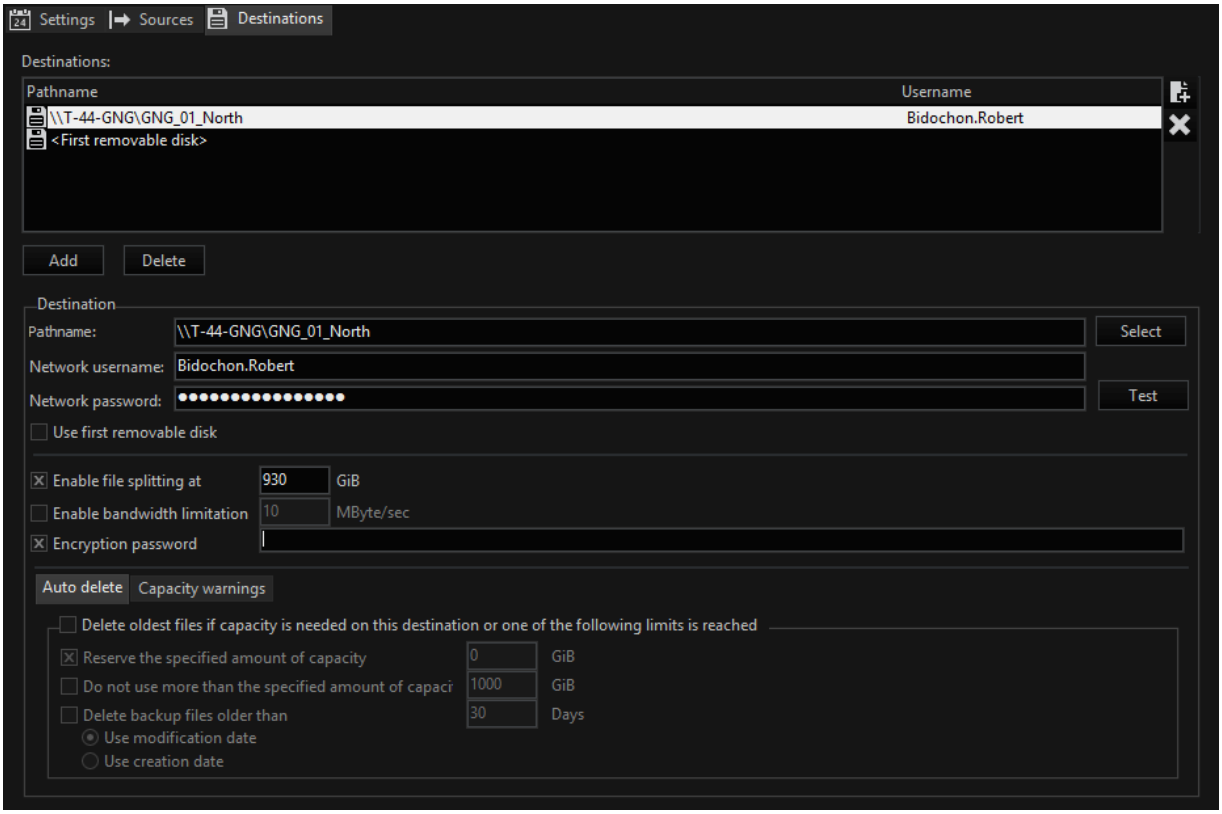
Parameter		Description
Automatic backup depth detection	Minimum backup depth	Entering of the minimum backup depth in hours
	Maximum backup depth	Entering of the maximum backup depth in hours
Manual backup depth	Backup depth	Entry of the backup depth in hours.

Destinations

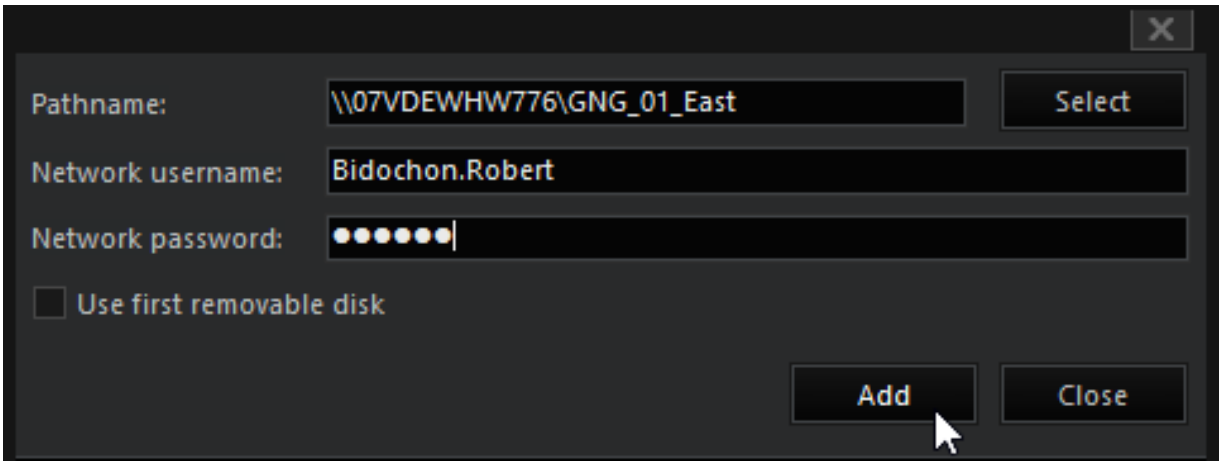
The backup files can be saved both locally and on a network drive.

In both cases it should be ensured that the path provided for saving does exist.

Also, do specify the desired directories and paths ahead of time, and ensure too that you have the necessary authorisation for access to network drives, know the user name and have the password.



In order to specify a backup destination, click on **Add**. A destination dialogue is opened:



Enter the requested data:

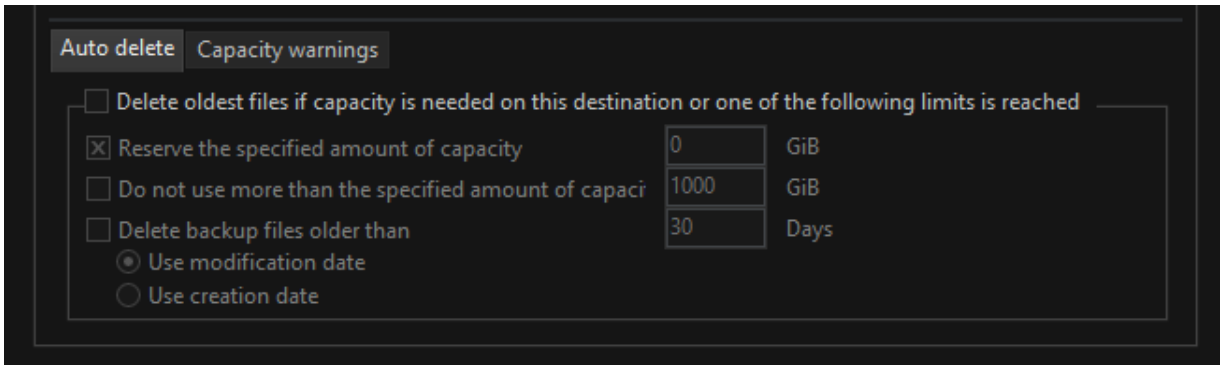
Data	Description
Pathname	Path to backup directory
Network username	Entry of username for the above-mentioned backup directory
Network password	Entry of the password for the above-mentioned backup directory.
Use first removable disk	If you click on this option, the first removable disk will be automatically selected as the target medium.

Once the necessary information has been entered, click on **Close**.

The following settings regarding the destination can be encountered now:

Parameter	Description
Enable file size limit	Enter the maximum size in GB for the backup file.
Enable bandwidth limitation	Enter the maximum bandwidth in megabytes per second (Mbps).
Encryption password	If you would like to encrypt the backup data, enter a password here.

Auto Delete

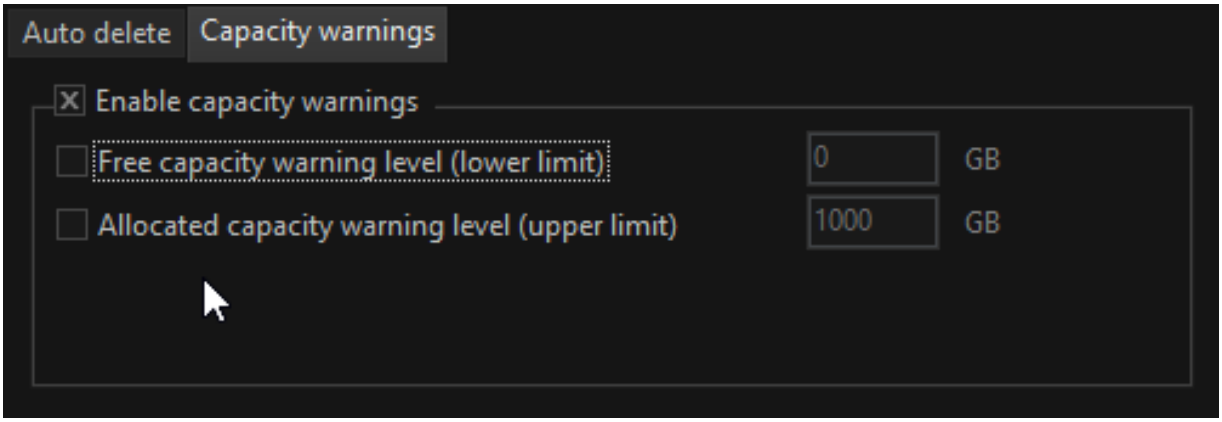


If you would like to make use of the auto delete function, you need to activate **Delete oldest files if one of the following limits is reached**.

After that you can set the auto delete functions:

Parameter	Description	
Reserve the specified amount of capacity	Reserves the given capacity in GB	
Don't use more than the specified amount of capacity	Do not use more than the specified amount of disk space.	
Delete backup files older than	Backup files that are older than the number of days specified here are deleted.	
	Use modification date	Refers to the date on which the modification was made.
	Use modification date	Refers to the date of creation

Capacity Warnings



If you would like to make use of capacity warnings, you need to click on **Enable capacity warnings**.

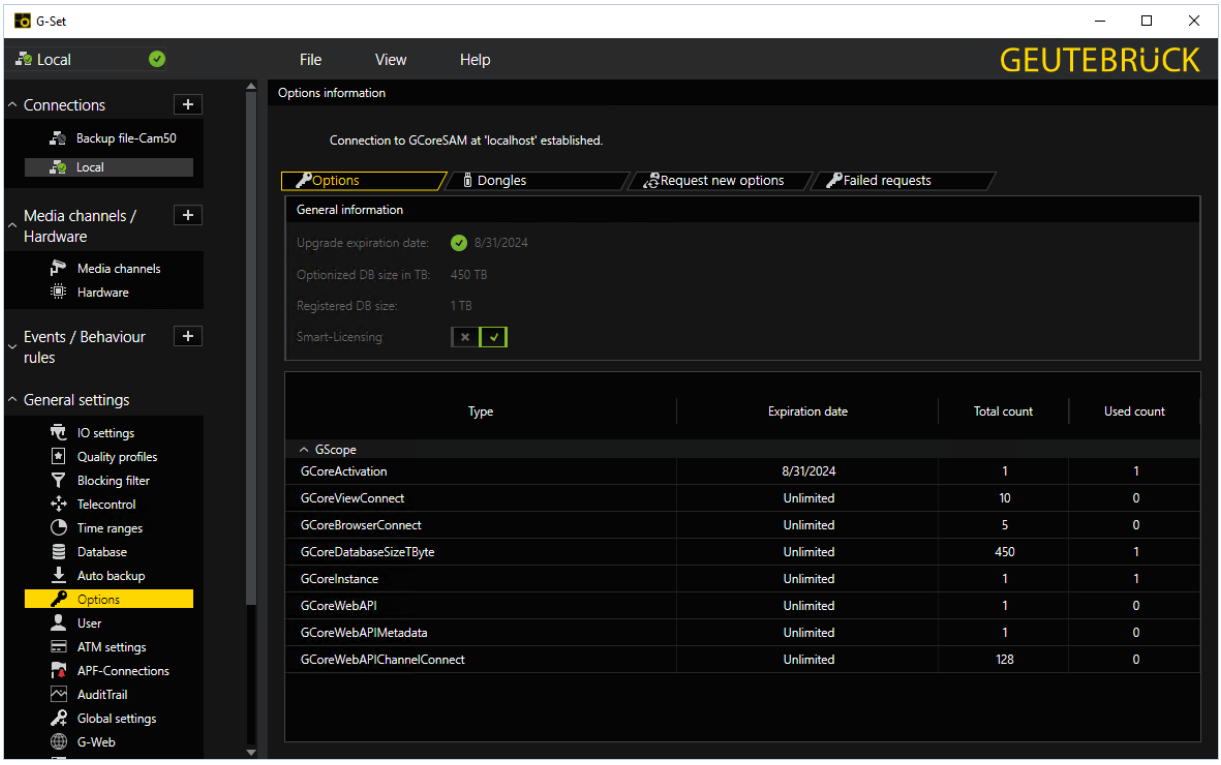
You can then choose under what circumstances you would like to be warned:

Parameter	Description
Free capacity level (lower limit)	Minimum hard disk space in GB that should be kept free
Allocated capacity warning level (upper limit)	Maximum hard disk space in GB that may be used

Options (Licensing)

In the **Options** dialog window you can manage your licenses or options and import new licenses. It provides an overview of the available licenses and contains information about the options in the database.

For detailed information about the Options dialog window, see Options Menu and for information on Geutebrück Software Licensing, see Software Licensing.



User

Create a New User

G-Core users are created under User management, where the appropriate rights are also assigned.

To create a user, click **Users** on the **General settings** menu.

A right-click on the list of users opens the users dialog. Enter the user name, then the password, and confirm the password by entering it again. Press the **Enter** key. The new user appears on the list.

In G-Core, passwords have a minimum length of 8 characters.

Additionally, the password must contain at least one uppercase letter, one lower-case letter and a number or a special character.

You may consider our recommendations on a secure password at Change Default Username and Password.

Define User Rights

You can assign rights to the users. Mark the user name, then click the **User rights** tab.

Click the rights that you want to assign to the user, then click the arrow symbol to add or withdraw the selected rights.

7 permissions are predefined:

Permission	Description
Admin	All rights
Login alone	Only allows log in. Otherwise a second user is required for log in
Read setup	Can read settings Note: This right is absolutely necessary for every user
GSCWeb user	Has access to the web interface
CWAT Access	Has access to Audi Trail
Modify setup	Can change settings
Limited modify setup	With this setting, the use cannot make changes to database or user settings. The corresponding selection menus remain hidden.

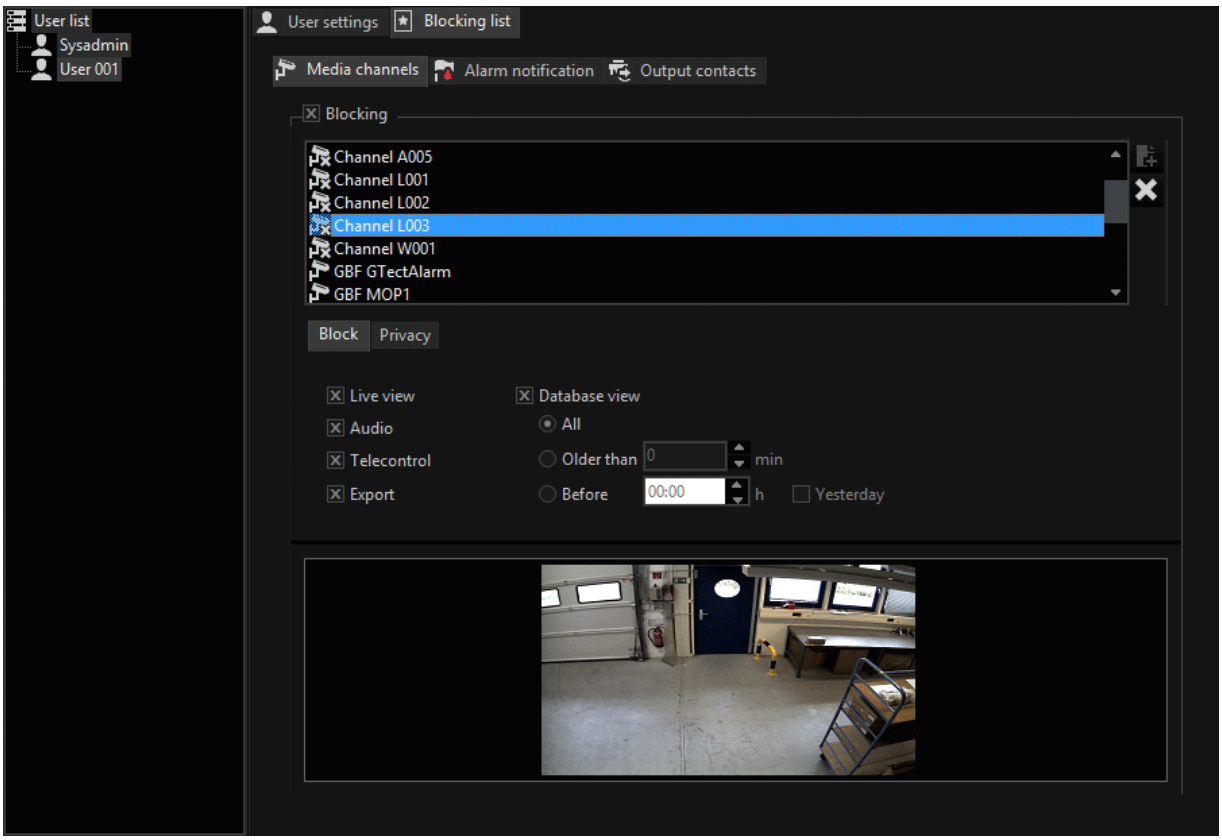
Blocking List

On the **Blocking List** tab, you can find settings to block the alarm messaging and output contacts for added users.

Some alarms, independent of the priority, are completely ignored. They will then no longer appear in G-View for the user in the alarm list (but they will appear in the event list).

Also, output contacts can be hidden from the user. Remember however, G-View would otherwise only show the contacts if it is started with the command line -SHOWCONTACTS.

Besides these two blocks, you have the option of a user-based blocking of functions and properties that are tied to the media channels.



With a click, you can block live images, audio, telecontrol and export of images of the selected media channel.

The database access can be completely blocked according to temporal depth in minutes. It is also possible to block access up till a certain time (start of work).

> Example The setting **Before** is always a mystery. It is primarily intended for users in shifts, but it can be used universally of course.
>
> Let us assume that the user starts a shift at 8 pm. When you enter 20:00 (8 pm), then database recording are only visible for the user starting at this time. If you also mark the field Yesterday, then the user can also see recordings from the database from the last shift (8 pm of the previous day).

In the last two cases it is better to also block the Export/Backup, as not all export pathways can be blocked according to time (cut list!).

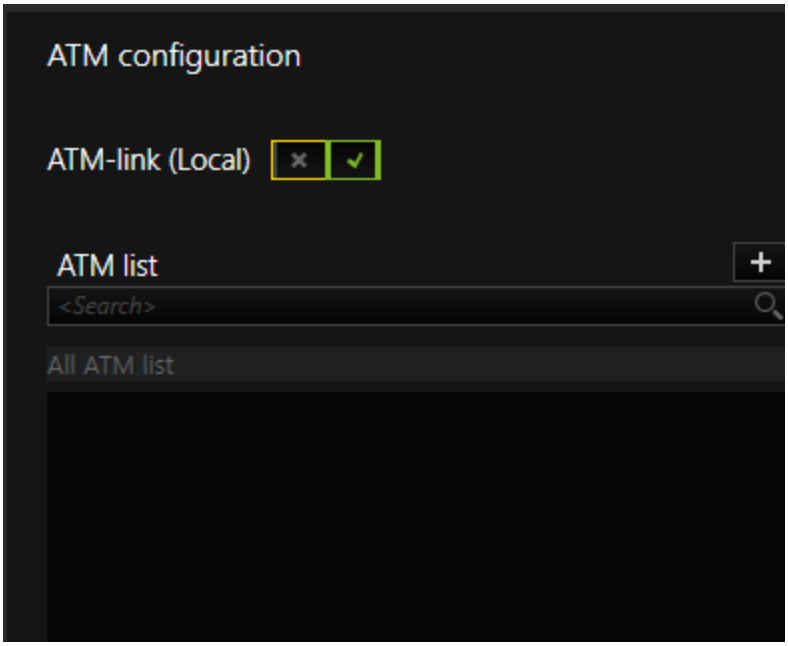
ATM Settings

Configure an ATM

The **ATM configuration** window allows the user to configure G-Set to work with ATM devices.

To enable/disable the GngCom plugin, use the switch button labeled **ATM-Link (Local)**.

To be able to work with the ATM devices, GngCom plugin must be enabled.



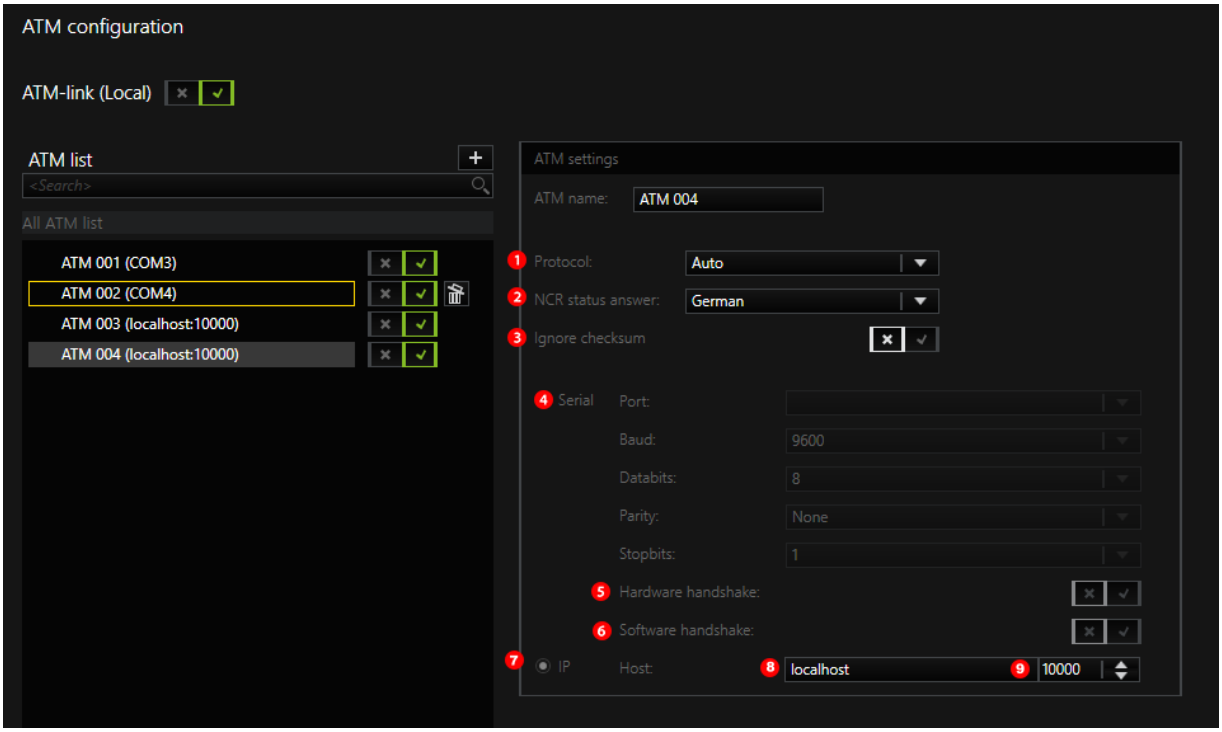
The ATM can be

- based on serial ports or
- based on TCP/IP connections.

For these two different types of ATM, there are some common settings (**Protocol**, **NCR status answer** and **Ignore checksum**). However, the majority of settings differ depending on the type of ATM selected.

The supported ATM protocols are

- IBM,
- NCR,
- Siemens-Nixdorf Videoport,
- Ascom/DeLaRue and
- Migros Bank.



To let the system automatically select a protocol, under **Protocol** 1, select **Auto**.

For the **NCR protocol** 2, the user can choose between **German**, **Swiss** and **Swiss with US** variants.

The user can also choose to **Ignore checksum** 3 for checking the data integrity for RS232 serial protocols.

For the **Serial ATM** 4 the settings are specific to those of the serial ports. There are options for **Port**, **Baud Rate**, **Databits**, **Parity** and **Stopbits**.

For connecting G-Core via RS232 COM port, there is an option for using a **Hardware handshake** 5 when the lines CTS/DSR and DTR/RTS are available. Since these lines are not available for all ATM, there is also an option for using a **Software handshake** 6. This software protocol uses XON and XOFF.

For **TCP/IP ATM** 7, the user can configure the **hostname** 8 and the **port** 9. These are the only configurable parameters for the TCP/IP ATM.

To enable one of both types of ATM, select the radio button next to the preferred ATM type.

Edit an ATM

Add a New ATM

1. To create a new ATM, in the upper right corner of the **ATM list**, click **Add** button.

→ An ATM with default configurations is created. The user can then customize the settings as needed.

2. To save the set up, click **Send Config to Server**.

When a new ATM is created and there are free, unused serial ports on the system, the ATM will by default be created as a serial ATM. In doing so, one of those serial ports will be picked for the newly created ATM. The ATM type can be changed later to a TCP/IP based ATM and its host and port can also be chosen.
If there is no free serial port, an TCP/IP based ATM will be created by default. In this case the ATM type cannot be changed to a serial ATM, unless a serial port becomes available.

Delete an ATM

To delete an ATM, there are two ways:

- 1. Hover the cursor over the item.

  2. To the right side of the item, click **Delete**.

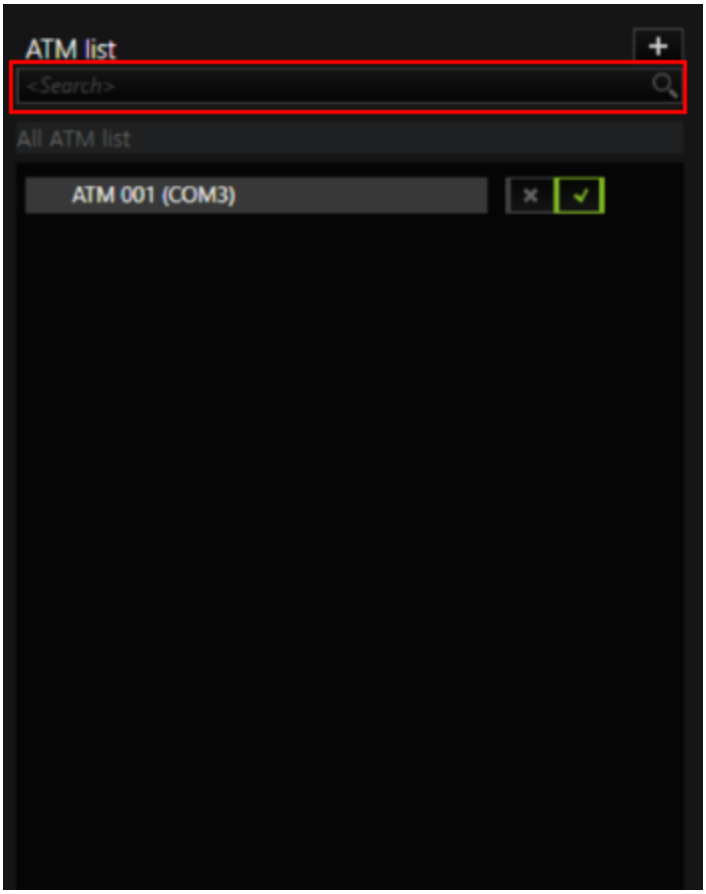
- 1. Right-click the item.

  2. In the context menu, click **Delete**.

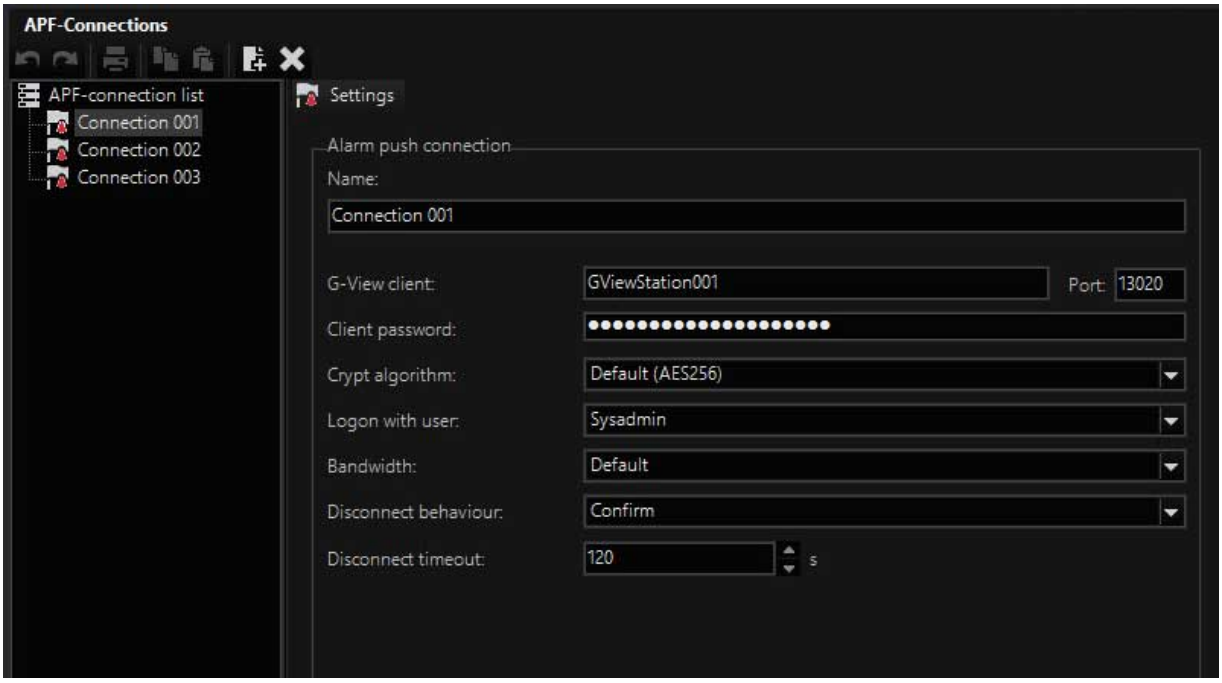
To save the set up, click **Send Config to Server**.

Search an ATM

To search through the list of existing ATM, use the search bar located at the top of the **ATM list**.


ATM list
<Search>
All ATM list
ATM 001 (COM3)

APF Connections



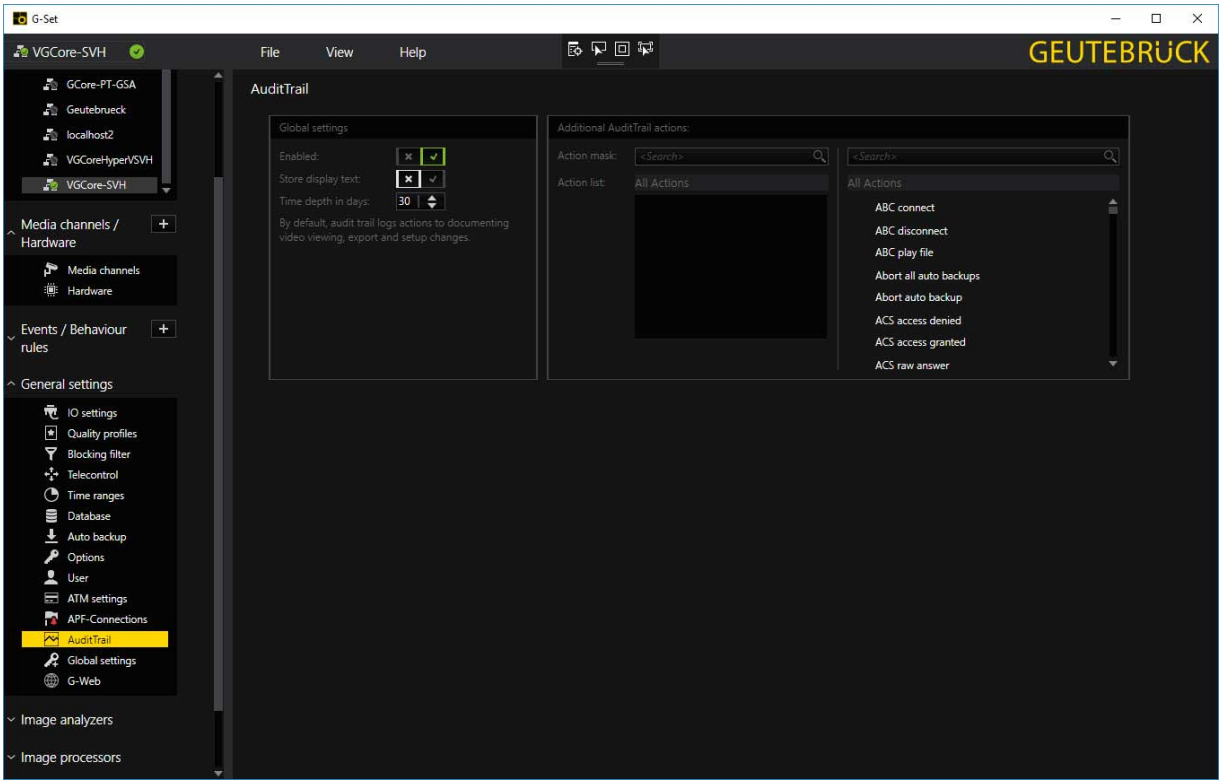
APF connections can be configured in this dialog. To do so, at least one new connection must be created in the **APF connection list**. A connection is created by right clicking the (empty) list and then clicking **Add**. The connection can then be configured. The following settings can be defined:

Connection Settings	Description
Name	The default name can be changed here.
G-View client	Name of the G-View client
Client password	The password for the G-View client
Crypt algorithm	Selection of the encryption type. The following options are available: **Default (AES256)**, **None**, **AES256** and **SALSA**. When creating a new connection, the default encryption is automatically entered.
Login with user	Selection of the user for the login
Bandwidth	Selection of the available bandwidth. The choices are: **Default**, **LAN**, **DSL high speed**, **DSL medium speed**, **DSL low**

Connection Settings	Description
	speed and **Modem/ISDN**
Disconnect behavior	The following options are available: **Never**, **Confirm**, **Warning**, **Force**
Disconnect timeout	Timeout until disconnection in seconds

AuditTrail

You can configure the AuditTrail function of G-Core in the AuditTrail dialog of G-Set.



Settings	Description
Enabled	Activates the AuditTrail function
Store display	This switch controls whether a readable text is written into the

Settings	Description
text	"DisplayText" column for each entry. This is necessary when a third-party application reads audit entries directly from the SQL database, which is not capable of generating the readable text from the other fields. In most cases, it is best to keep this option deactivated!
Time depth in days	Limits the AuditTrail recording depth. The default value is 30 days when no other specification is made.
AuditTrail actions	Defines which actions are recorded in the AuditTrail database in addition to the default actions (see below)

The default actions that are always logged are:

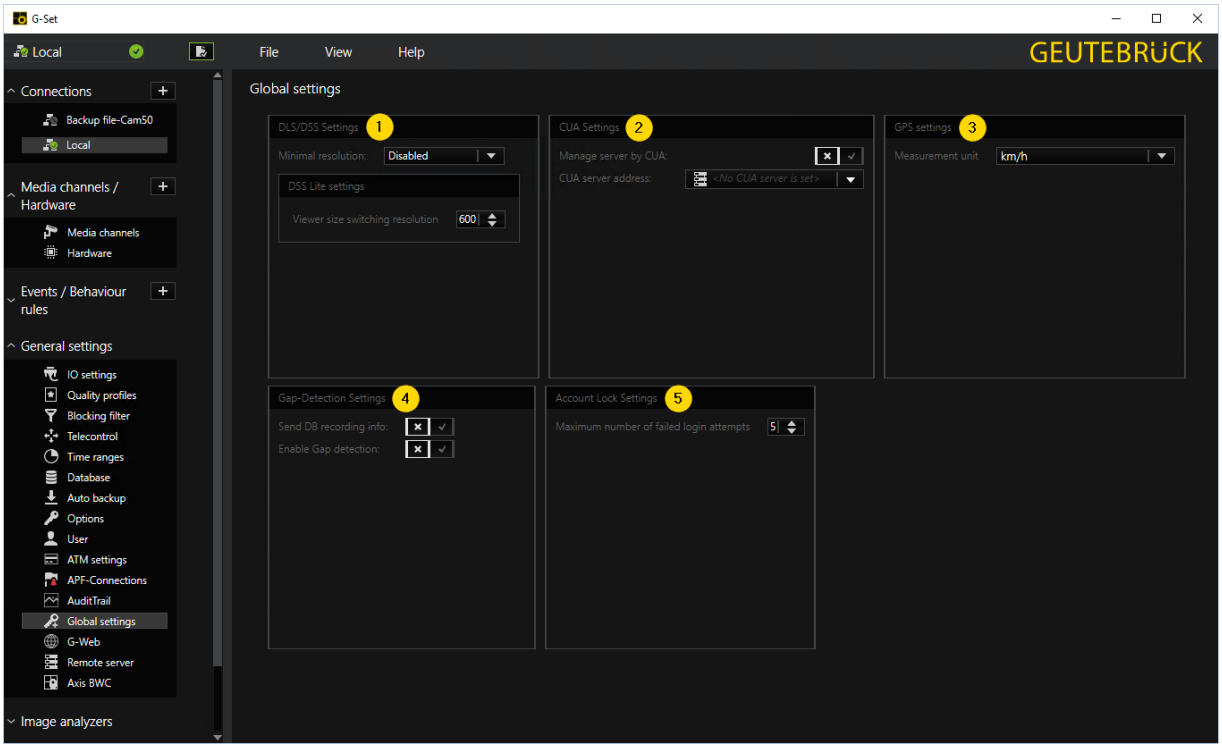
- UserLogin
- UserLoginFailed
- UserLogout
- SetupChanged
- ViewerConnected
- ViewerCleared
- ViewerPlayModeChanged
- ViewerSelectionChanged
- ImageExportNotification
- SceneStoreModification
- VCAlarmQueueNotification
- VCSceneChanged
- SystemSettingsChanged (if TimeRangeChanged or LicenseChanged is not set).

The data written away from AuditTrail can be found in its own SQL database. To read out this database, an SQL query must be created and applied.

Global Settings

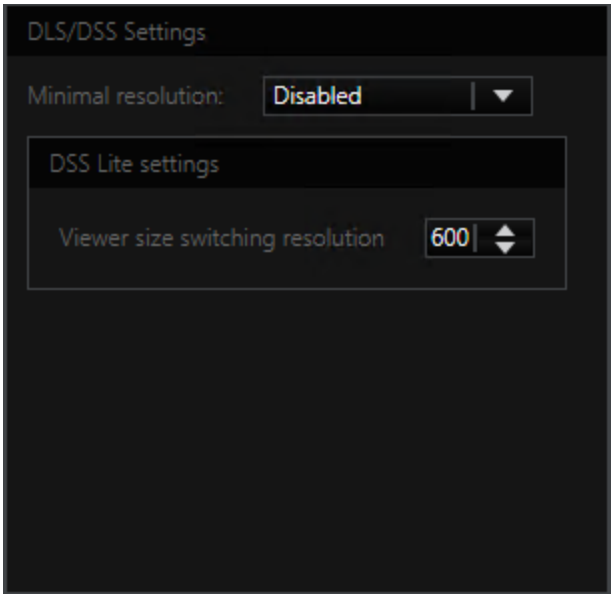
The **Global settings** dialog includes the following settings dialogs:

- 1 **DLS/DSS Settings**
- 2 **CUA Settings**
- 3 **GPS Settings**
- 4 **Gap-Detection Settings**
- 5 Account Lock Settings

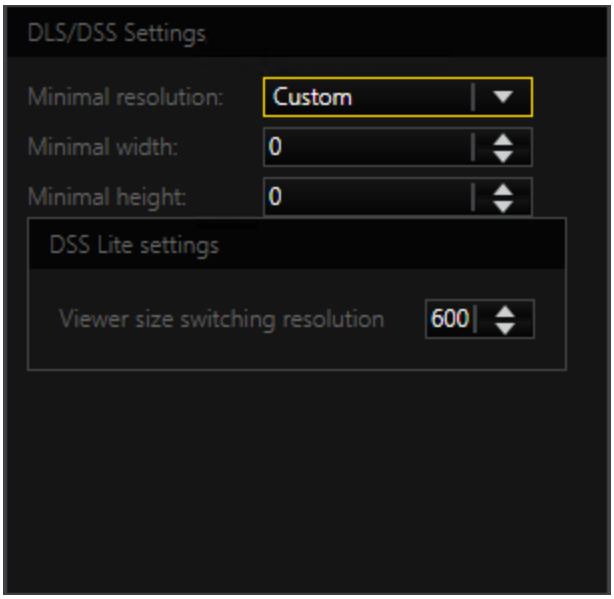


DLS/DSS Settings

In the **Global settings** dialog, you can configure the minimum resolution for DLS/DSS (Dynamic Live Stream / Dynamic Stream Selection) and the viewer size switching resolution for DSS Lite.



Select a predefined resolution from the **Minimal resolution** drop-down list. If you select the **Custom** option, you can set the resolution manually.



The stream size dynamically adjusts to the viewer size when switching viewers. The defined resolution is used as the minimum resolution to which the viewer image can be reduced in the for small viewers.

For DSS Lite, adjust the viewer size for switching between resolutions. This allows you to adjust the viewer size so that the feature can be used for 4k monitors without scaling and the viewers are displayed in the responsive size.

CUA Settings

See **Assignment in G-Core Setup (G-Set)**.

GPS Settings

Subject to license

Location Service is a service for collecting GPS data and sending the GPS data as actions to the G-Core server.

Requirements

To install the Location Service, the following requirements are necessary:

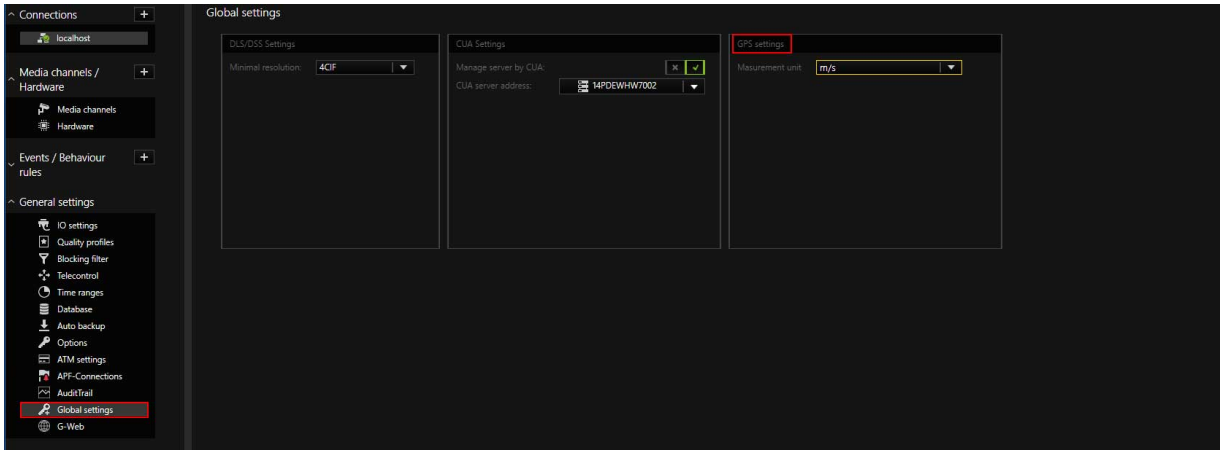
- A G-Core installation with a **GCoreGPSConnect** license.

  Location Service is not automatically installed with G-Core; instead, it uses its own installer.

- A **Sierra Wireless Mobile Broadband** driver package.

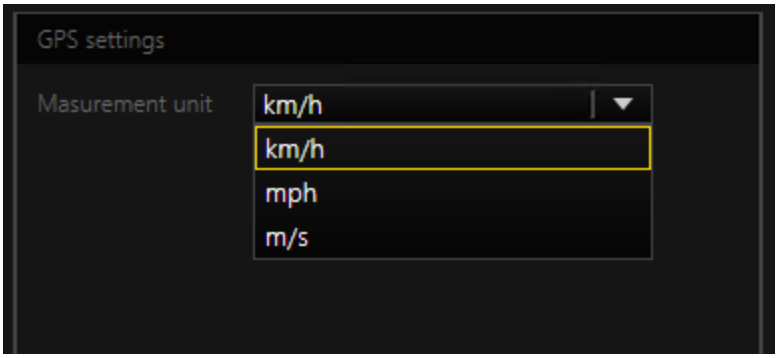
Configuration

Location Service can be configured in G-Set under **General Settings -> Global Settings**.



You can configure the units in which the speed variable is measured:

- **km/h**: kilometers per hour
- **mph**: miles per hour
- **m/s**: meters per second



Location Service sends its GPS results once per second when the GPS data does not match previous GPS data. This action contains the

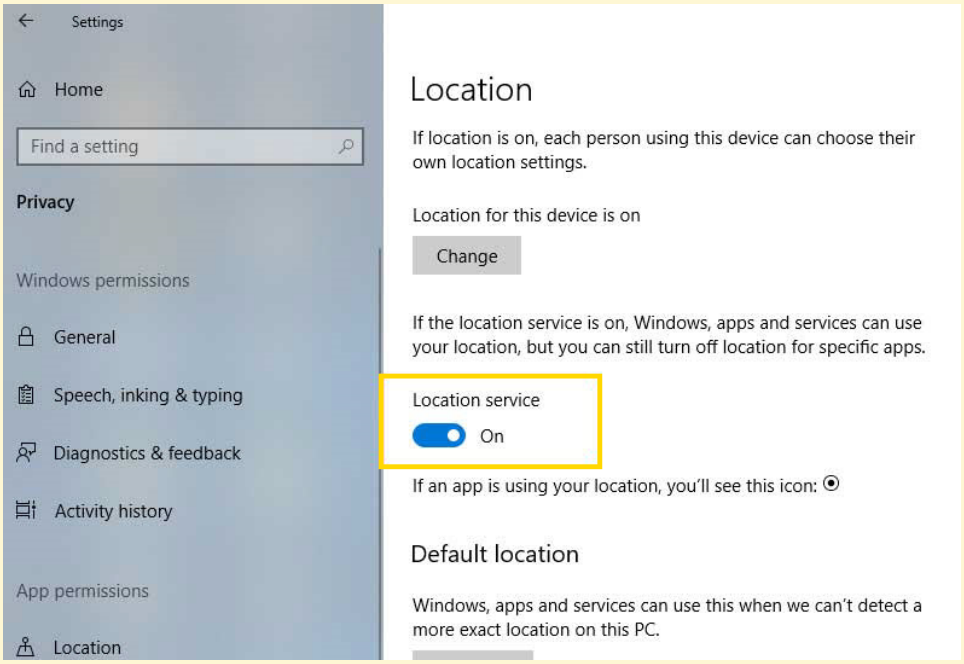
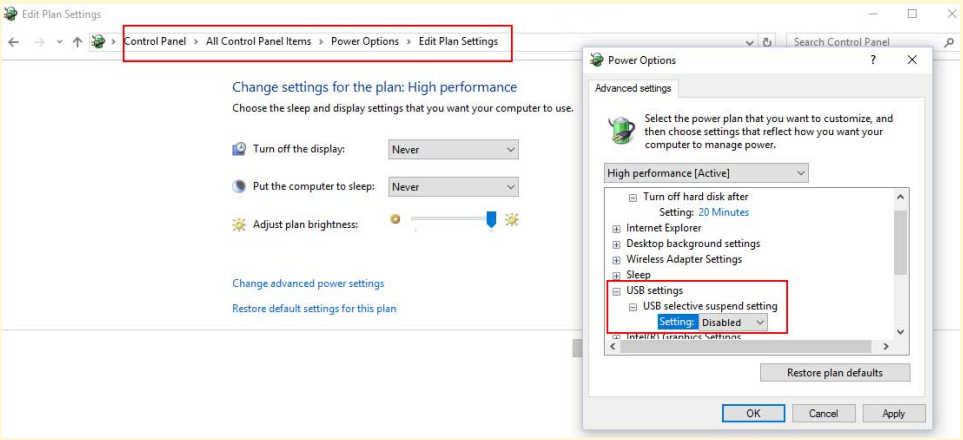
- Time stamp
- Longitude
- Latitude
- Speed

The Service also sends status data in the **GPS status action**. This action can include the following states:

State	Description
Initialization	The Service is being started.
Ready	The Service can receive GPS data.
No Data	The Service can receive GPS data, but there is no source providing GPS data.
Disabled	The GPS module is not active.

Common Problems

Problem	Description
The Service does not record GPS data.	In this case, the Location Service must be activated under **Settings -> Privacy -> Location** (Windows). Turn on **Location Service**.

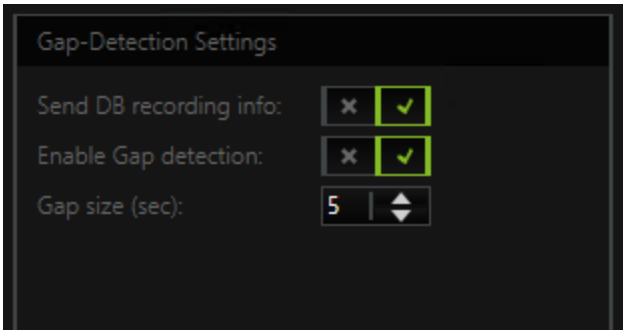
Problem	Description
	
The Service only logs GPS data when logged in.	The problem is that when you log out of Windows, the flow of power to some USB devices that you need is interrupted. To solve the problem, go to **Control Panel -> Power Options -> Edit plan** settings to the active setting. **Advanced settings -> USB settings -> USB selective suspend setting -> Setting: Disabled** . Click **Apply**. **The USB selective suspend setting must be disabled!** 

Gap-Detection Settings

Gap detection is a function to detect and log recording gaps.

The recording gap is checked in the server independently of the camera. The duration of the gap is logged. For this purpose, the time of the last received image is stored for each stream and compared with the next received image.

You can activate the gap detection and configure the parameters in the **Gap-Detection Settings**:



Name	Description
Send DB recording info	Use this option to enable or disable the **DatabaseRecordingInfoChannel** action. This action can be used to log and check the bandwidth and recording rate of a camera.
Enable Gap detection	Use this option to enable or disable the gap detection. If the detection is active, actions are sent for logging. The detection takes into account whether an active stream is set for a camera.
Gap size (sec)	Set the value of the maximum gap size in seconds. This value defines how large a gap is allowed to be that is not considered a gap. The value is valid for all channels.

If a gap is detected that exceeds the **Gap size** value, the **VideoInterrupted** action is sent. This contains the information channel and timestamp of the last image.

As long as no new images are received, this action is sent cyclically every 60 seconds with the same parameters.

If video data is received on a channel again, the server uses the current timestamp and the timestamp of the last received image to calculate the time span of the gap in whole seconds. This information is sent with the **VideoRestored** action.

G-Web

This G-Web Help can also be accessed directly from G-Web. To do so, G-Core Help must be installed on the server on which the G-Web service is running. If no G-Core Help is installed there or the path is not found for other reasons, you will receive an error message (Error 404) indicating that you should contact your administrator.

G-Web is an application that allows access to the media channels of a G-Core server via a web browser.

G-web is optimized for the end-device classes:

- Desktop
- Tablet (landscape) and
- Smartphone (portrait and landscape format).

While the functionality of the desktop and tablet is nearly the same, it is reduced in smartphones.

G-Web is programmed as a so-called single-page application. This means that the application is only loaded initially once by the browser and then only the dynamic components are exchanged asynchronously. Up to five sessions (or 1 session for the G-Scope 1000 series) can be opened.

A client can also simultaneously connect with several devices/different browsers, for this reason counting is performed based on sessions, not the number of clients.

How Does G-Web Work?

The G-Web server runs as a service on the G-Scope. This service consists of two components

- the HTTP server
- the media server.

The HTTP server provides the browser the html, JS and CSS file. The JavaScript files contain the GEUTEBRÜCK-specific program interface (API). The API is connected to the media server through the browser application. The media server is itself con-

nected with the G-Core server. The connection between the browser and the G-Web service is optimized for low latency and video data can be transmitted with an extremely low overhead.

Functions

- Authentication (setting made using G-Set)
- Media channel list (channel name, type of camera, PTZ functions, availability of the camera)
- Playback (just video, live playback, stored image playback, digital zoom)
- PTZ control (pan, tilt, zoom, move to or save fixed position, focus)
- Customizable buttons

Requirements

An IP address of the machine on which the service runs is required for a connection to the G-Web server. In addition, a username and password are required to login.

If the G-Web server is not configured, it automatically connects to the G-Core server on the same G-Scope. Using the **G-Web Setup**, the G-Core servers which will be connected to can be configured.

The same username and password should be stored (with the help of G-Set) on all G-Core servers with which a user should be able to connect at the same time via G-Web.

The service (including G-Web and G-Web/Setup) is only installed if G-Web was selected during installation of the G-Core software. The minimum operating system requirement for the machine on which the G-Web server is installed is Microsoft Windows 8.1. It should have a fast processor, at least Intel Core i-series 4th generation (Haswell), and fast memory. (If the performance needed by the service (depending on the number and type (source resolution and frame rate) of the transcoded channels) exceeds the performance of the machine, an automatic reduction of the provided frame rates occurs.)

What you should also know:
The user sysadmin is not available as web user!
Created web users must be assigned the rights of a web user.
Live view or database access can be blocked for individual users.

First Steps

Two conditions must be met for G-Web to run:

- The component G-Web must be activated during software installation. Only then is the service installed and started automatically.
- In the firewall port 80 must be open for incoming connections (protocols: HTTP 1.0 and 1.1)

Once the service is installed and running, the IP address of the server on which the G-Web server is running must be entered in the browser's address bar. If an HTTP connection is established, the login screen appears. The message "Connecting to serer..." is then displayed until the real-time connections to the G-Web server have been established. This also makes the login button available.

It supports all standard browsers. On tablets and smartphones, we recommend that you use CHROME.

If HTTPSecure will be used, please note the following section!

HTTPSecure

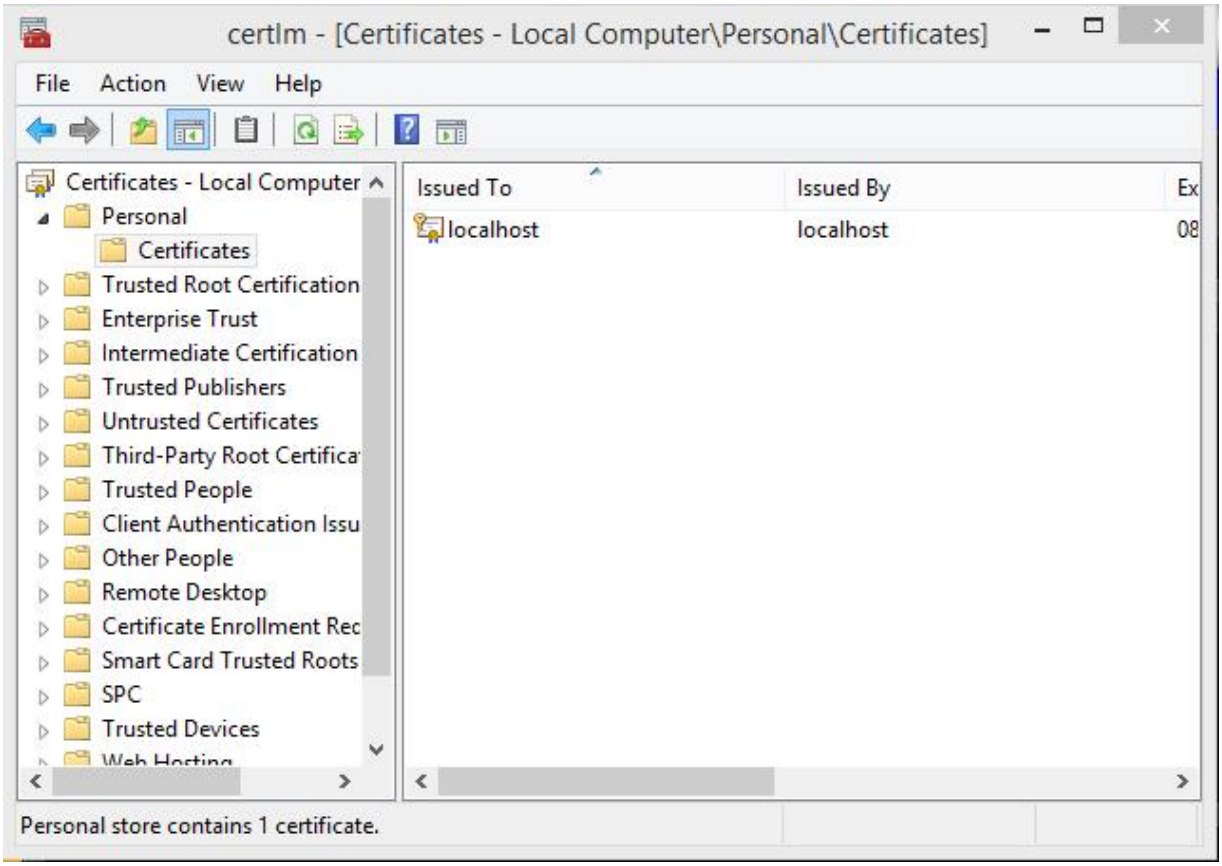
If HTTPSecure will be used, on the G-Scope on which the G-Server is running, the SSL/TLS certificate must be installed and signed. The signature can be added manually (**Signing an SSL Certificate** or by using a batch file (**Signing an SSL Certificate with the TOOL GCoreWeb_RegisterSSLCerificate.bat**). Signing using a batch file is recommended.

Call up explicitly with *https//:IP address*!

Installing an SSL/TLS Certificate in Windows

Open the Certification Manager: Press Window Key + R and in the dialog box enter **certlm.msc**. Confirm with OK. (Alternatively: Click Start with the mouse and then under run, enter **certlm.msc** and press return.)

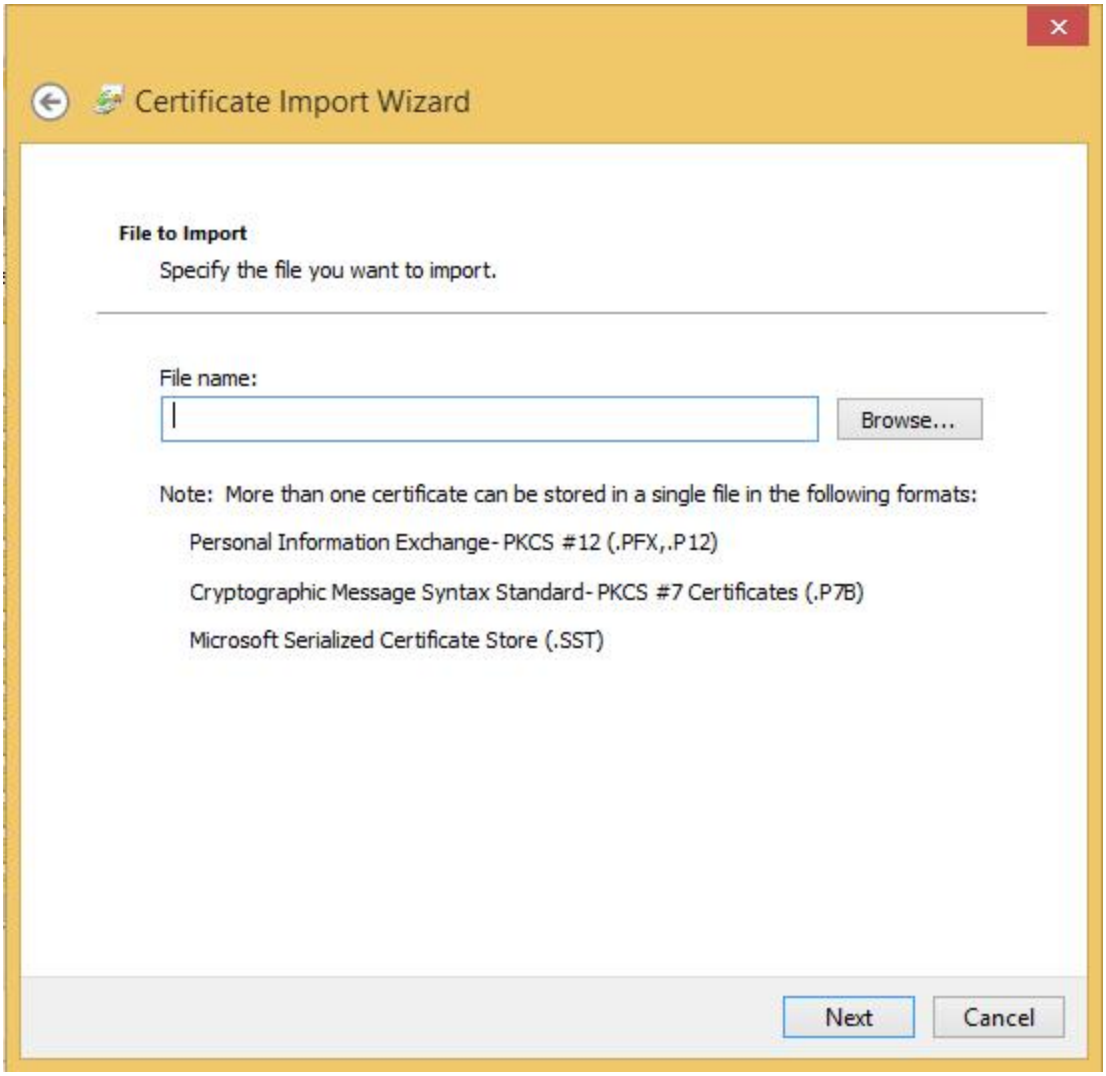
You should see this window:



In the toolbar, click **Action**, then **All Tasks**, then **Import...**.

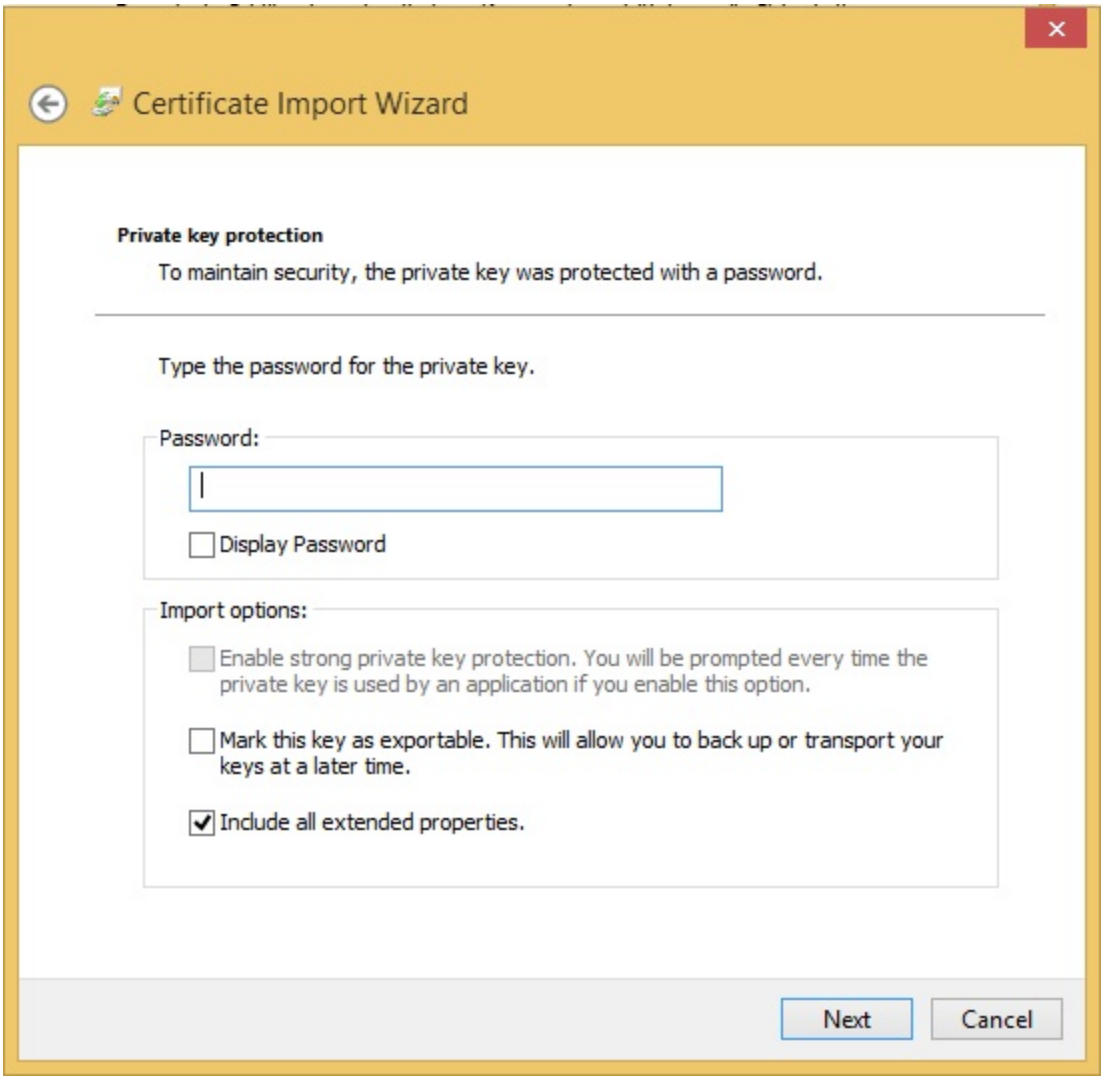
Choose, if possible, **Local Computer** in the first step as the destination.

The dialog asks for the path and name of the certificate. You can use **Search...** to look for the certificate. When searching, make sure that the correct file extension is selected, otherwise the certificate will not appear. Then confirm with **Next**.

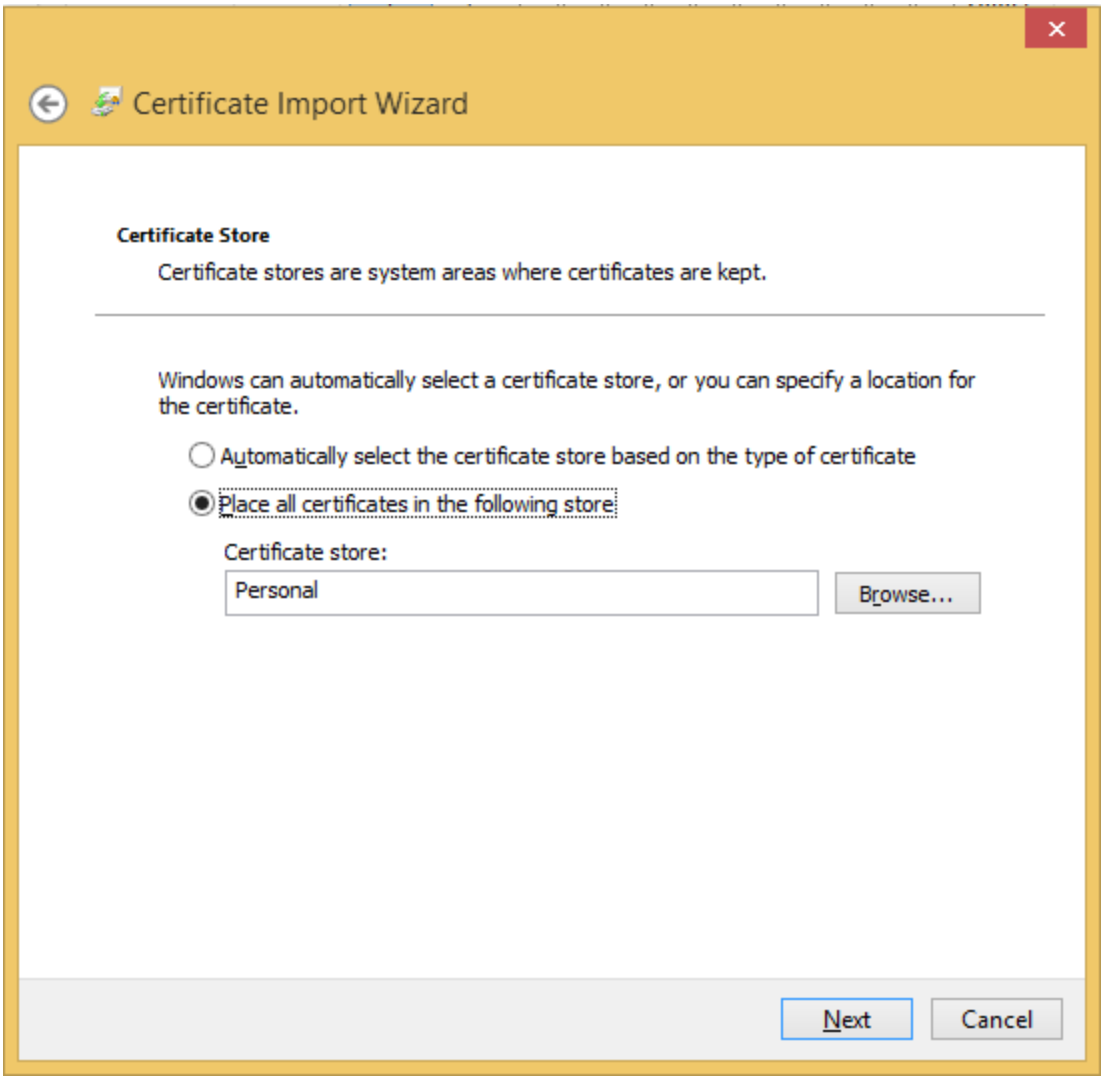


Now the password must be entered to unlock the private key of the certificate. The option **Include all extended properties** must be enabled.

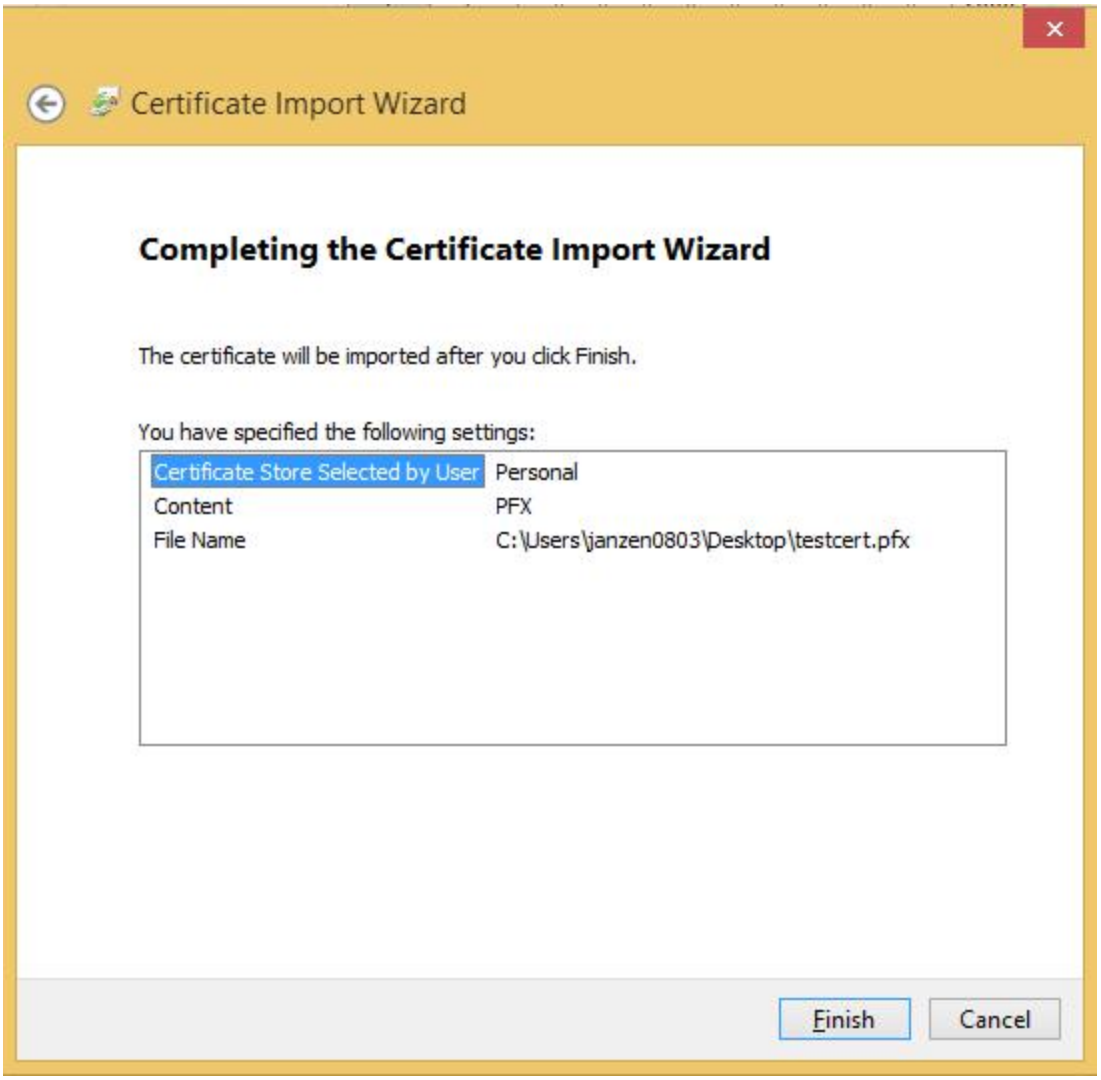
Optionally: The option **Enable strong private key protection...** when the private key should not be made available to everyone when re-using the certificate.



At the end, the folder must be selected where the certificate will be saved. **Place all certificates in the following store** should be selected. By default, **My certificates** is then entered. If this is not the case, it should be modified accordingly.

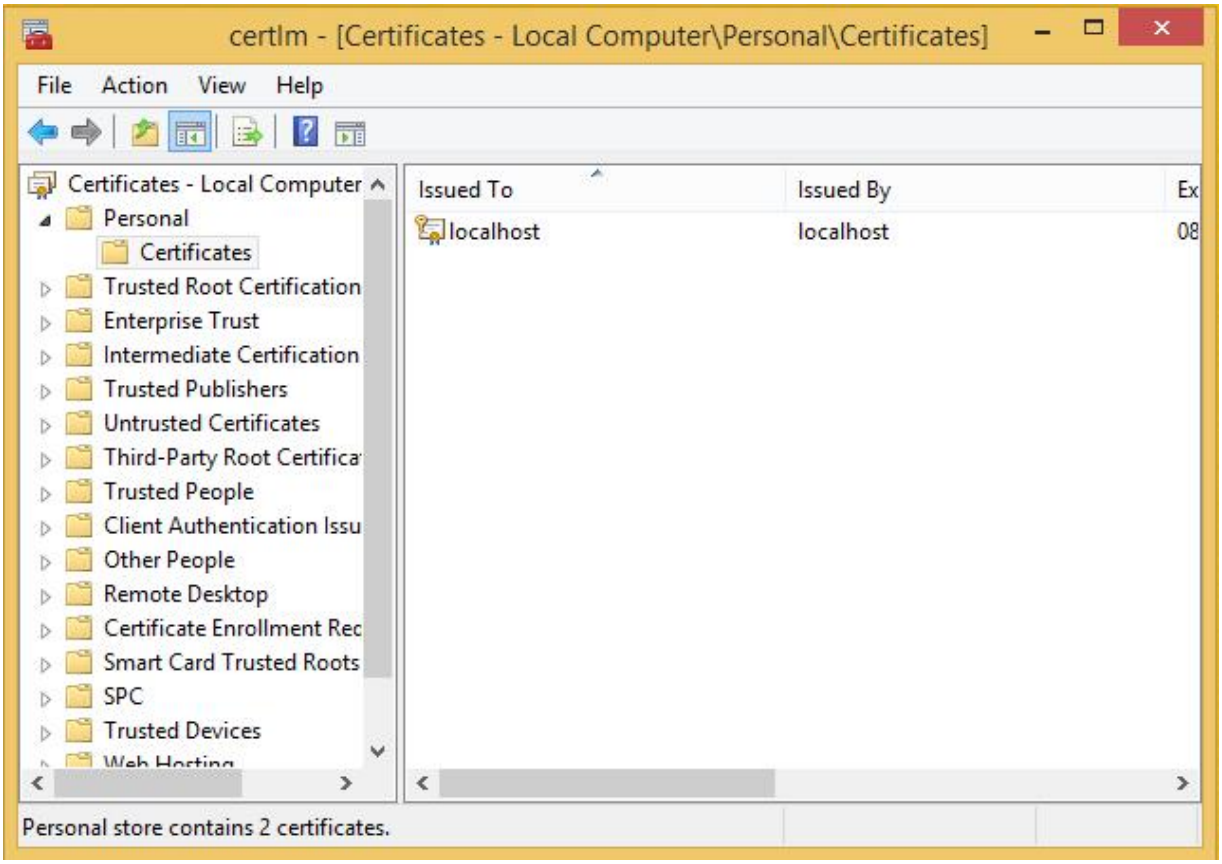


Click Finish to complete the installation. The certificate should now be shown in the Certificate Manager under **My Certificates/Certificates**.

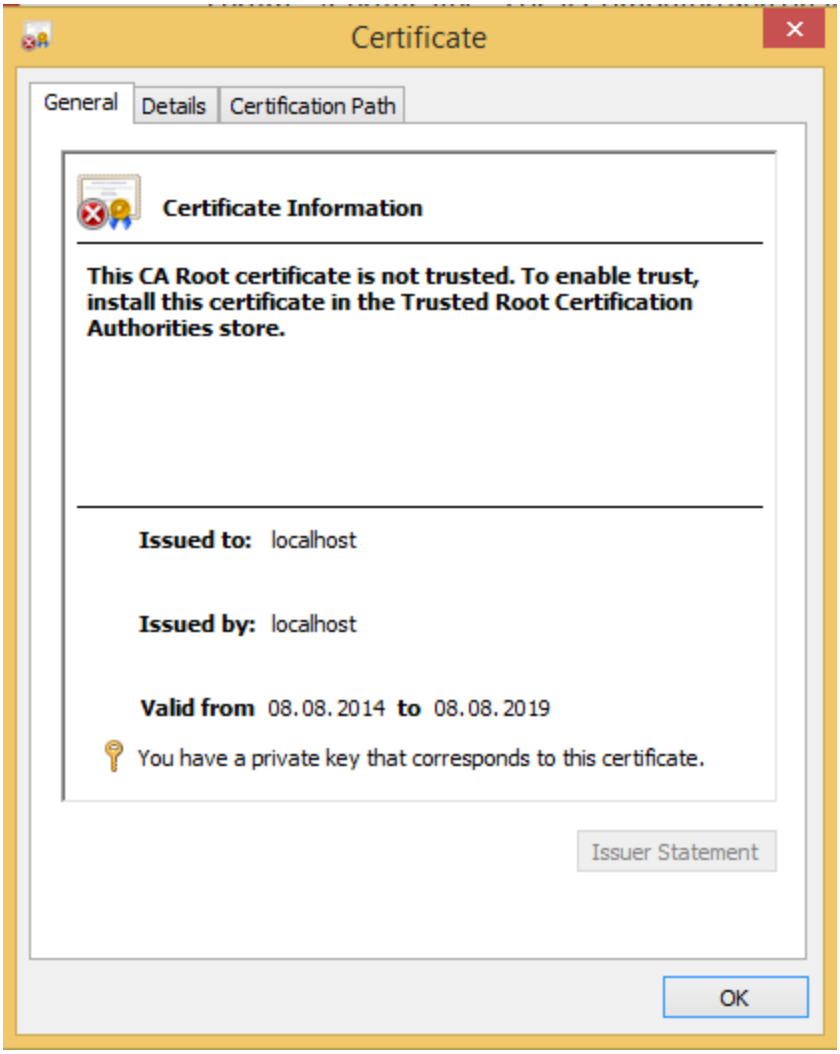


Signing an SSL Certificate

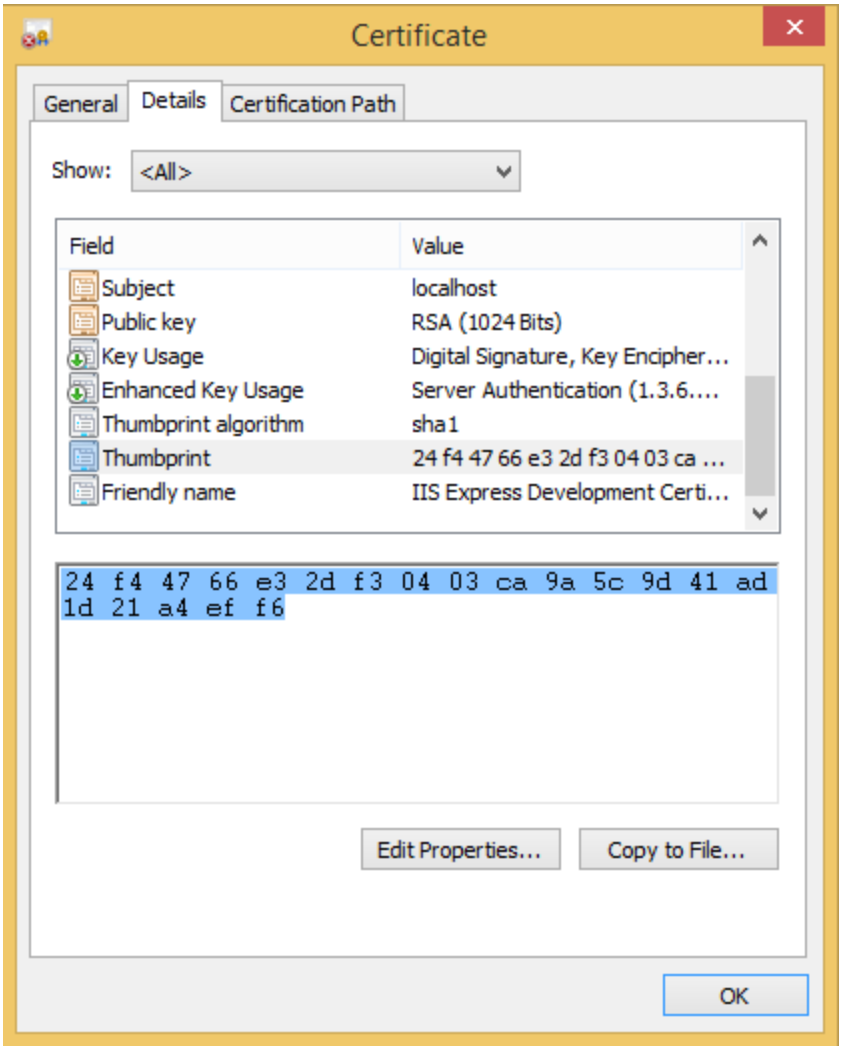
Open the Certification Manager: Press Window Key + R and in the dialog box enter **certlm.msc**. Confirm with OK. (Alternatively: Click Start with the mouse and then under run, enter **certlm.msc** and press return.)



Under My Certificates/Certificates (see above under Installation), double click the certificate to be signed. The Properties window of the certificate opens.



In the tab **Details** click on the entry **Thumbprint** and copy the HEX number series from the lower window.



Save the HEX values in a text editor and remove all spaces between the HEX values.

The console window must now be opened (C:\Windows\system32\cmd.exe Run as administrator) and the following command entered. During this process the **certhash** value must be replaced by the value that you saved and edited.

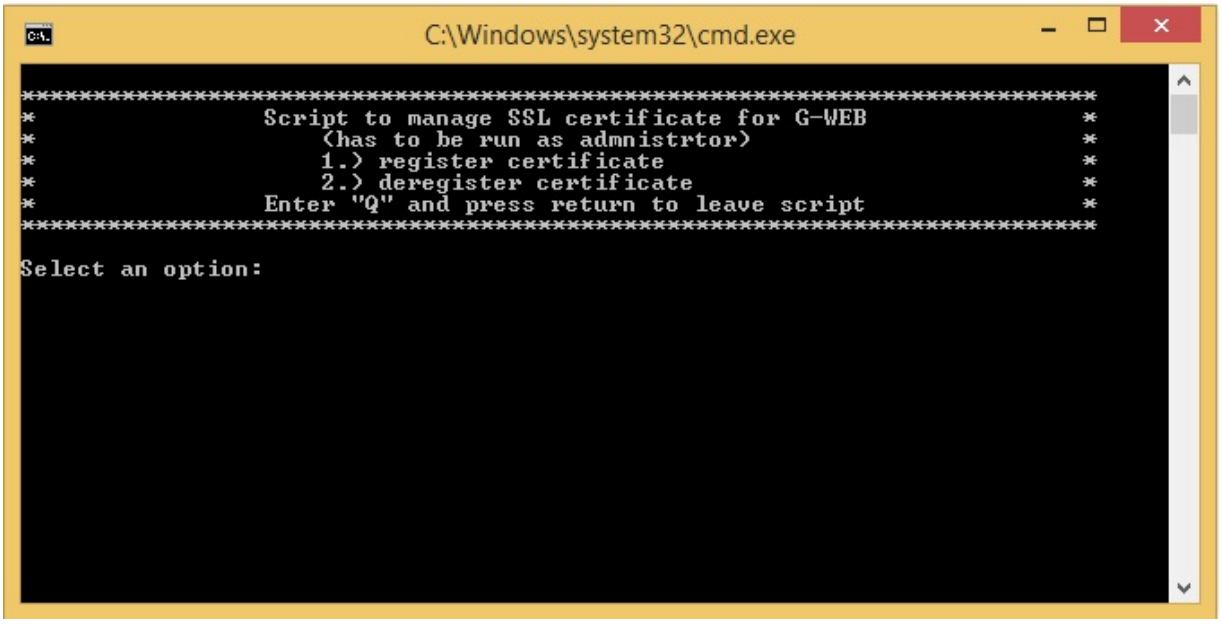
Press the Enter key to sign the certificate:

```
netsh http add sslcert ipport=0.0.0.0:443 certhash=0000000000000000000000000000000000000000 appid={712446fe-eff0-4905-a993-2df8b9f801ee}
```

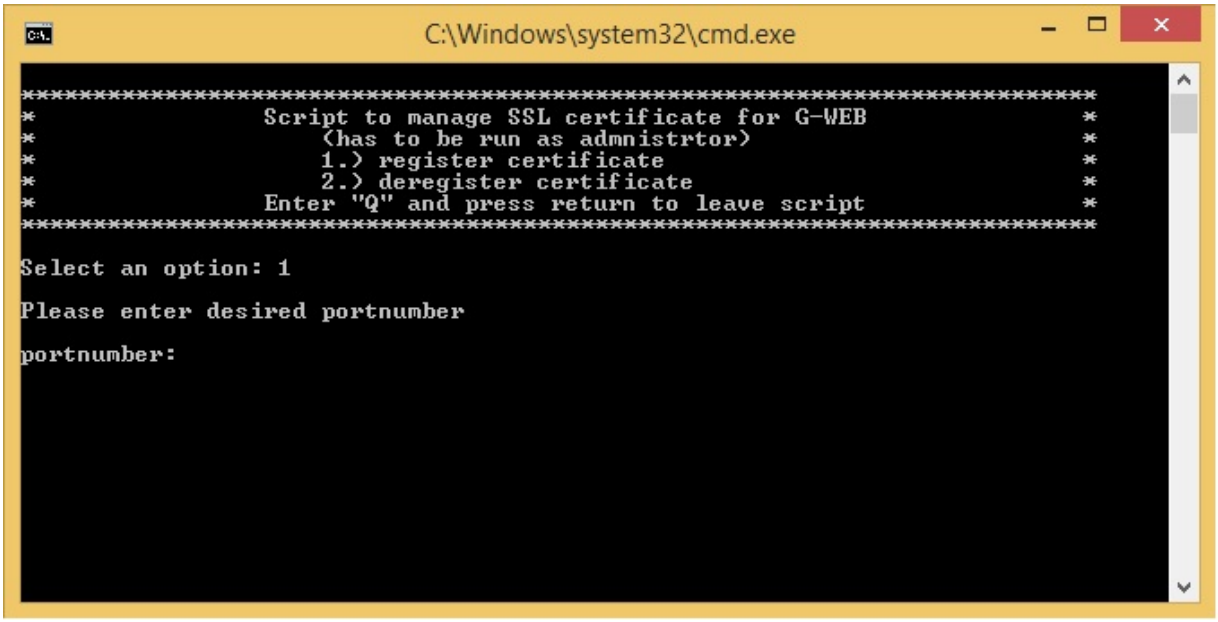
Note: The appid is from G-Web and therefore must not be changed.

Signing an SSL Certificate with the TOOL GCoreWeb_RegisterSSLCerificate.bat

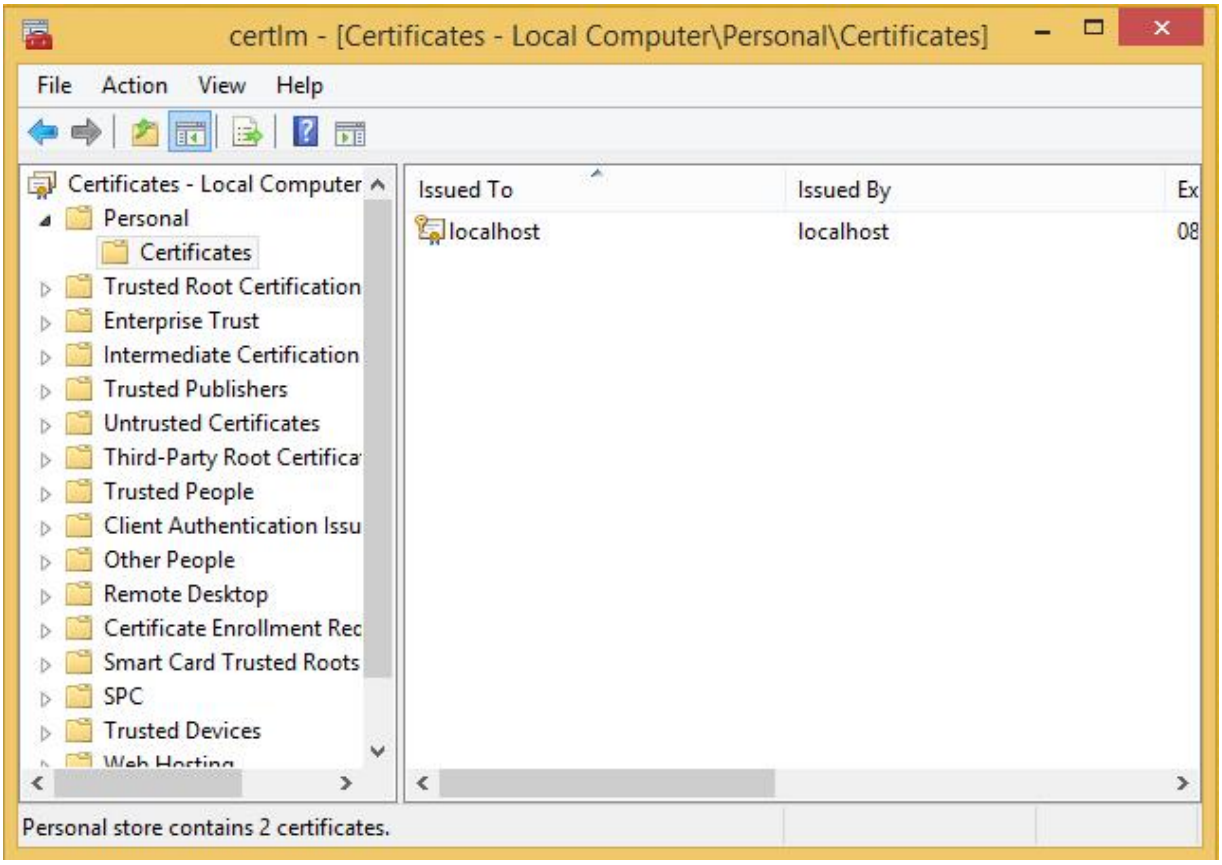
Open the file GCoreWeb_RegisterSSLCerificate.bat as an administrator. To register a certificate, press **1**.



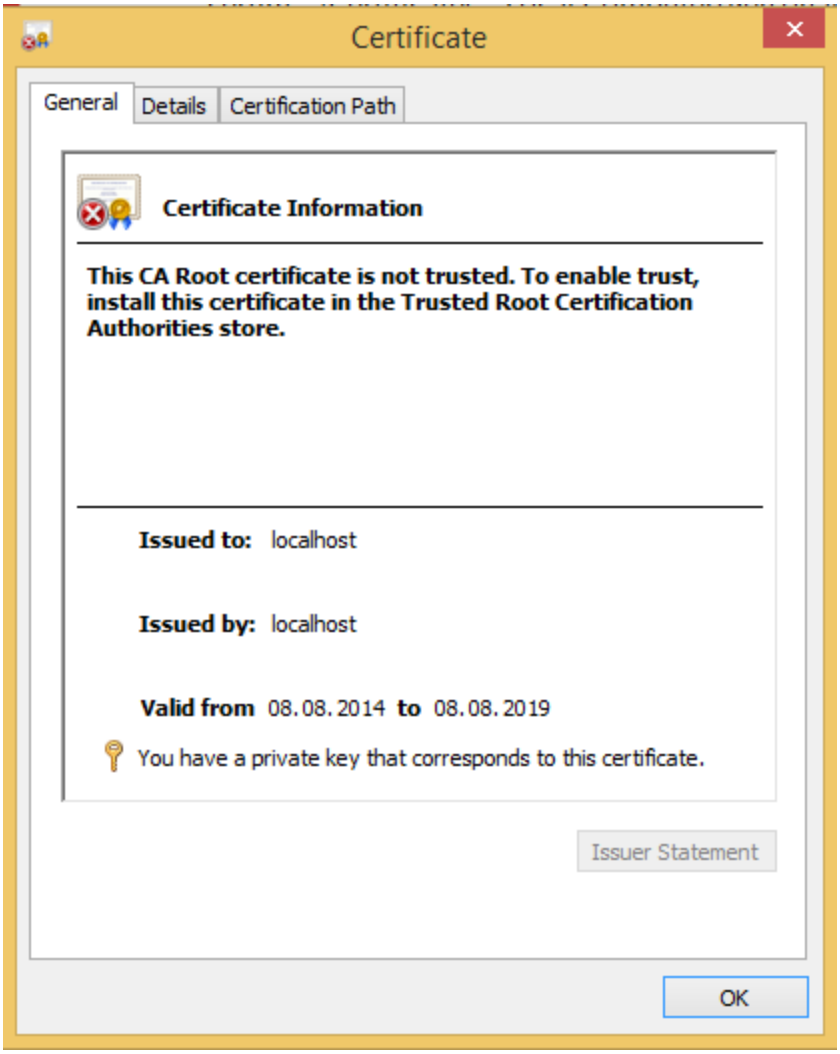
Then specify the desired port (for HTTPS this is 443 by default) and proceed by pressing the Enter key.



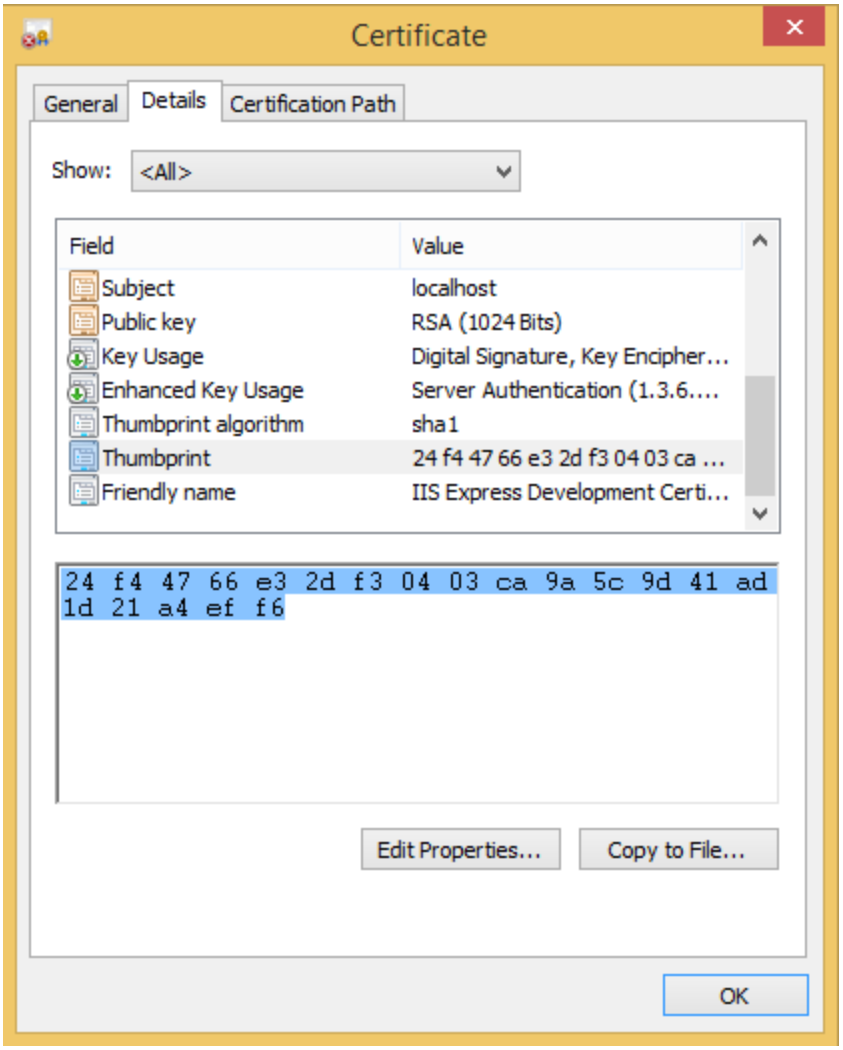
The program now asks for the thumbprint of the certificate. To obtain it, GCoreWeb_RegisterSSLCerificate.bat automatically opens the Windows Certificate Manager.



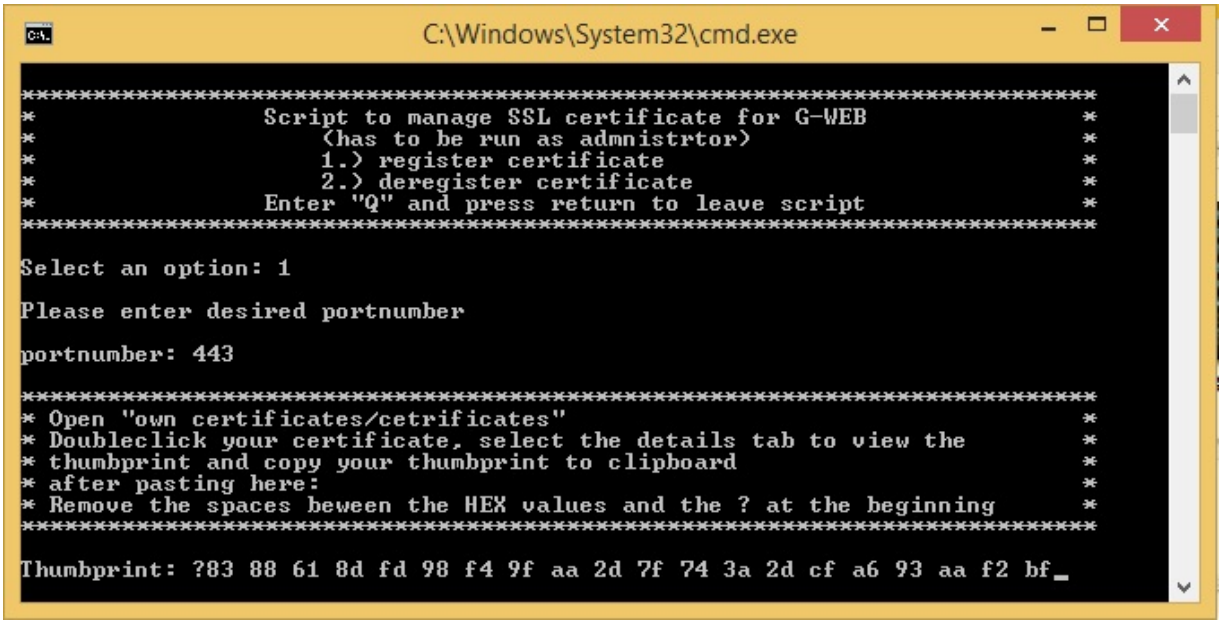
Under My Certificates/Certificates (see above under Installation), double click the certificate to be signed. The Properties window of the certificate opens.



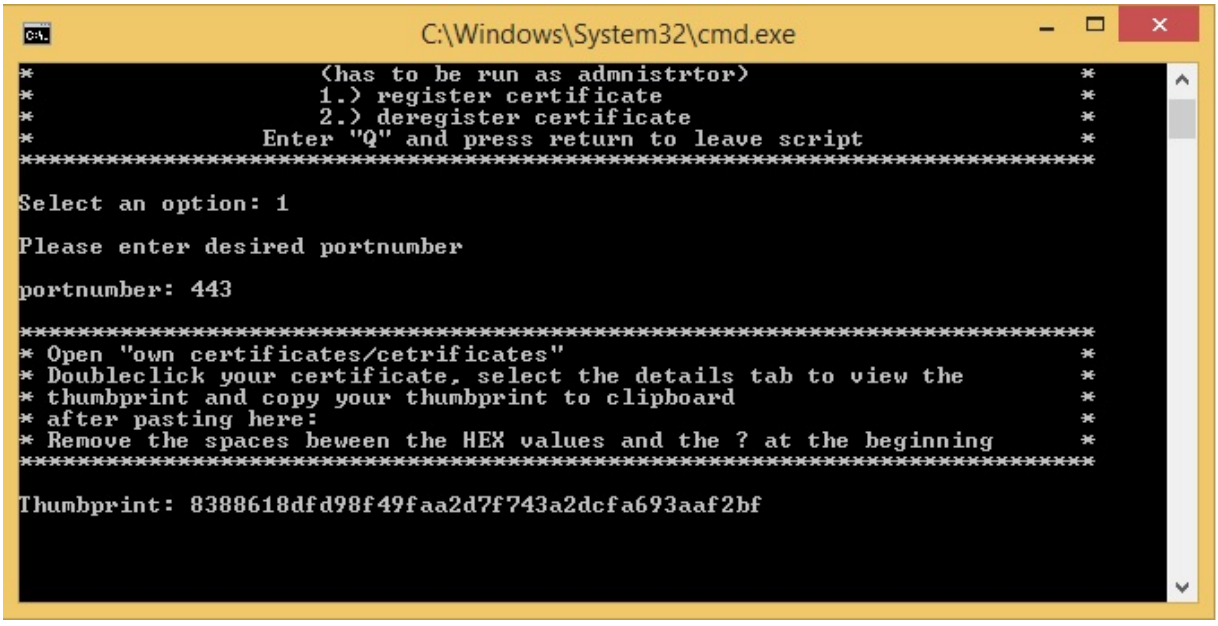
In the tab **Details** click on the entry **Thumbprint** and copy the HEX number series from the lower window.



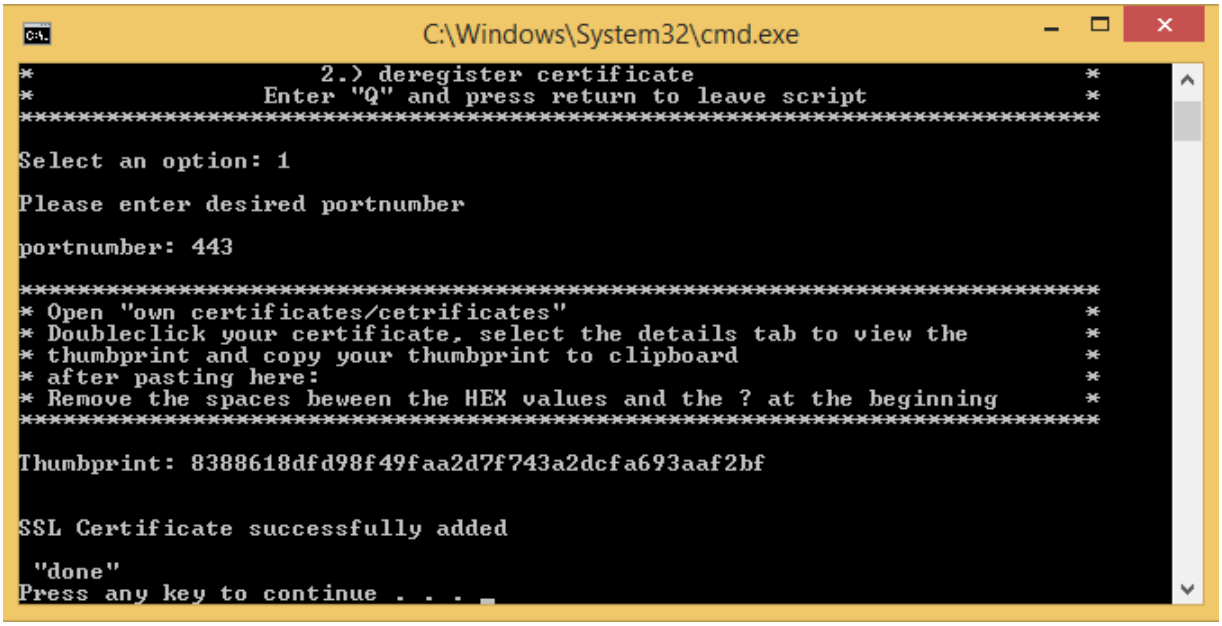
Now paste the copied HEX values in GCoreWeb_RegisterSSLCerificate.bat.



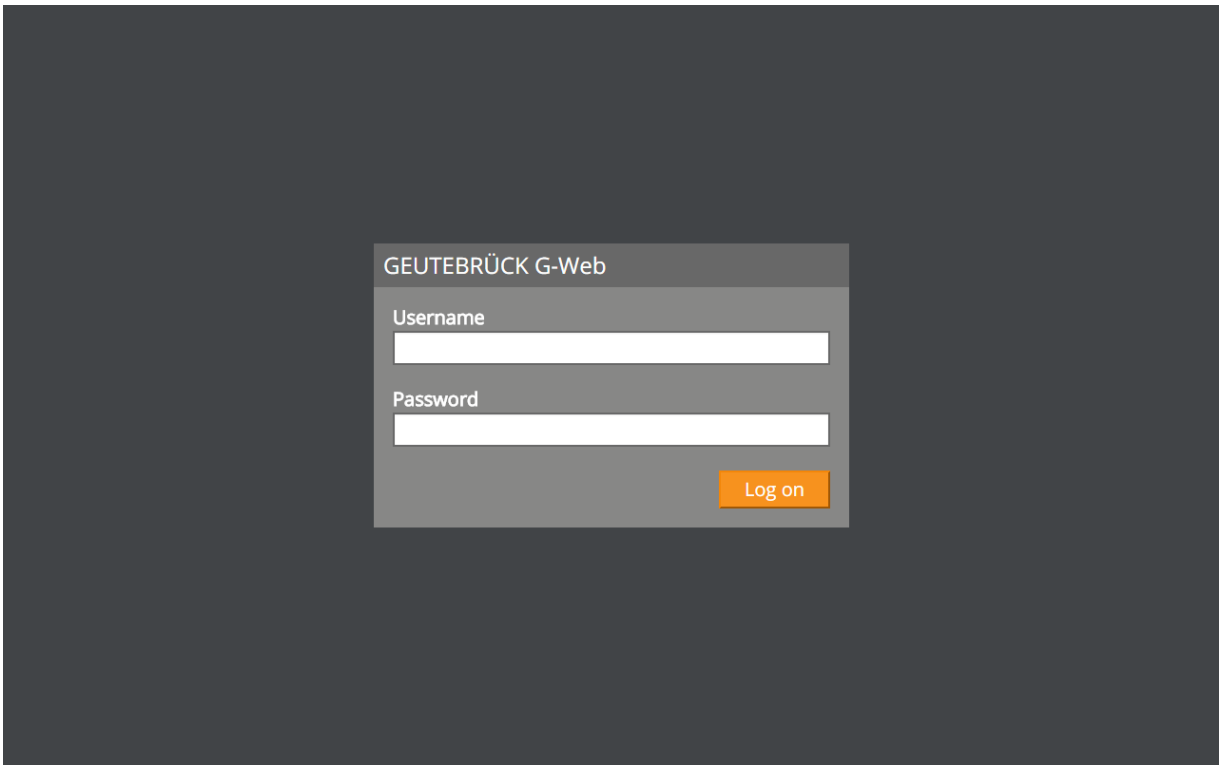
Before continuing by pressing the Enter key, all spaces between the HEX numbers (and if it is present, the ? at the start of the string) must be removed.



Then press the Enter key. The certificate should now be signed and a message appears stating that the operation was successful.



User Interface



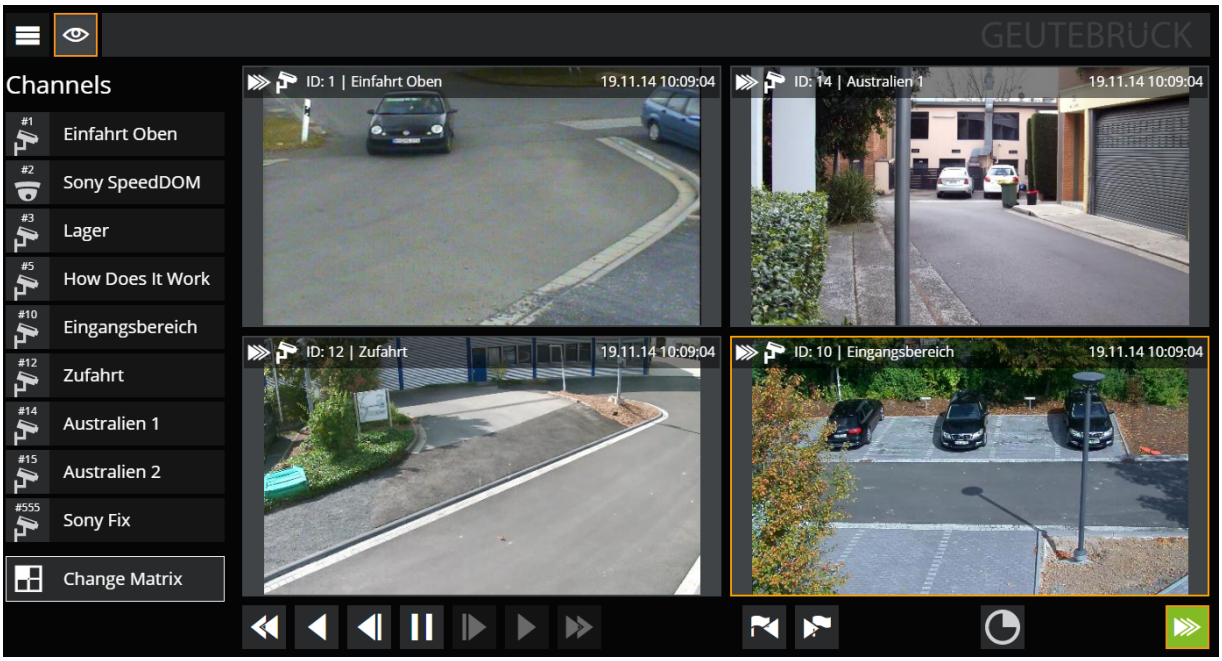
After entering the IP address in the address bar, the login screen appears (here on a tablet), in which a valid username and password must be entered to access the G-Core server.

If any of the information is not correct or is invalid, an error message is displayed. An error code is issued:

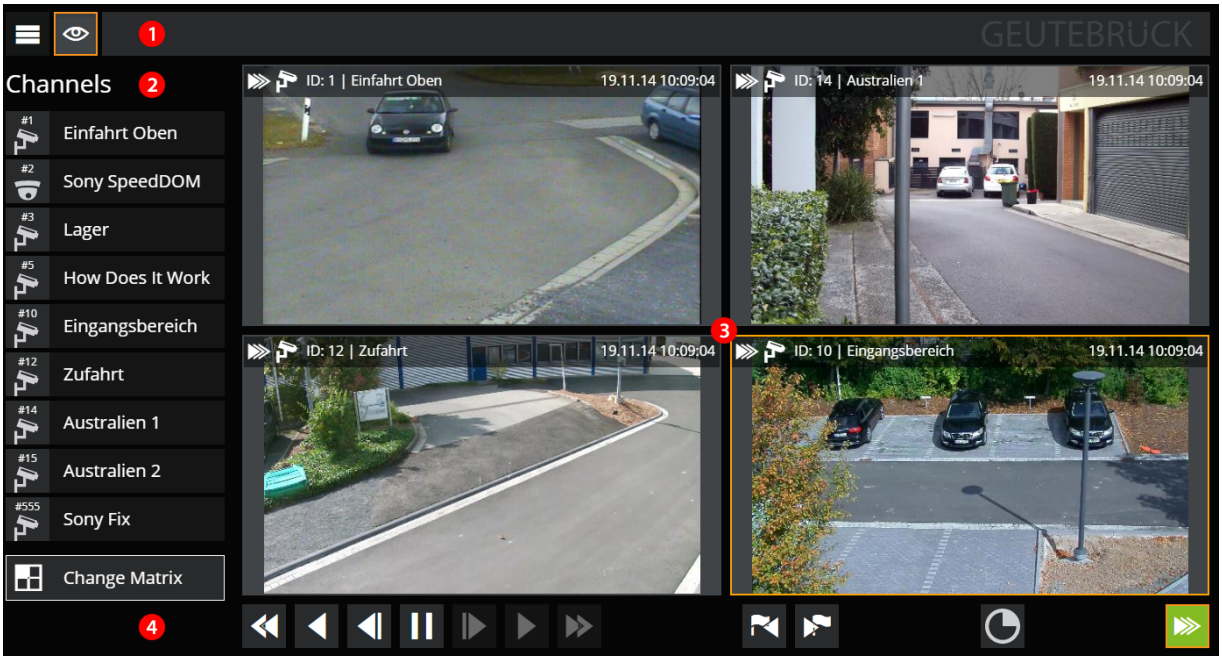
Code	Error	Possible solution
0	Everything OK	
100	Connection error	Factors that prevent connecting to all G-Core servers configured as destination servers. (This error is only displayed if no connection could be made to any G-Core server.) Possible factors/causes: • Network connection • G-Core server service not started • Port 13003 is not opened in the firewalls (incoming connection to "G-Core Server" page, outgoing to machine with G-Web server) • User not created with the help of G-Set to the destination "G-Core servers" • Users not assigned web rights. An account other than sysadmin should be used. In G-Set the user to be used must be assigned the user right web user (previously GSCWeb user). In addition, the default rights "Login alone" and "Read setup" are required
302	Wrong user-name or password	Check entry. G-Web user must be added in G-Set > User.
307	Connection limit reached	The maximum number of Web users has been reached for this G-Scope.
600	Control channel of the G-Core web server not opened	

For all other errors, only the error code is issued!

Upon valid authentication, the browser displays the current viewer matrix and the list of media channels. In the following figure, four channels on the 2x2 matrix are already switched on:

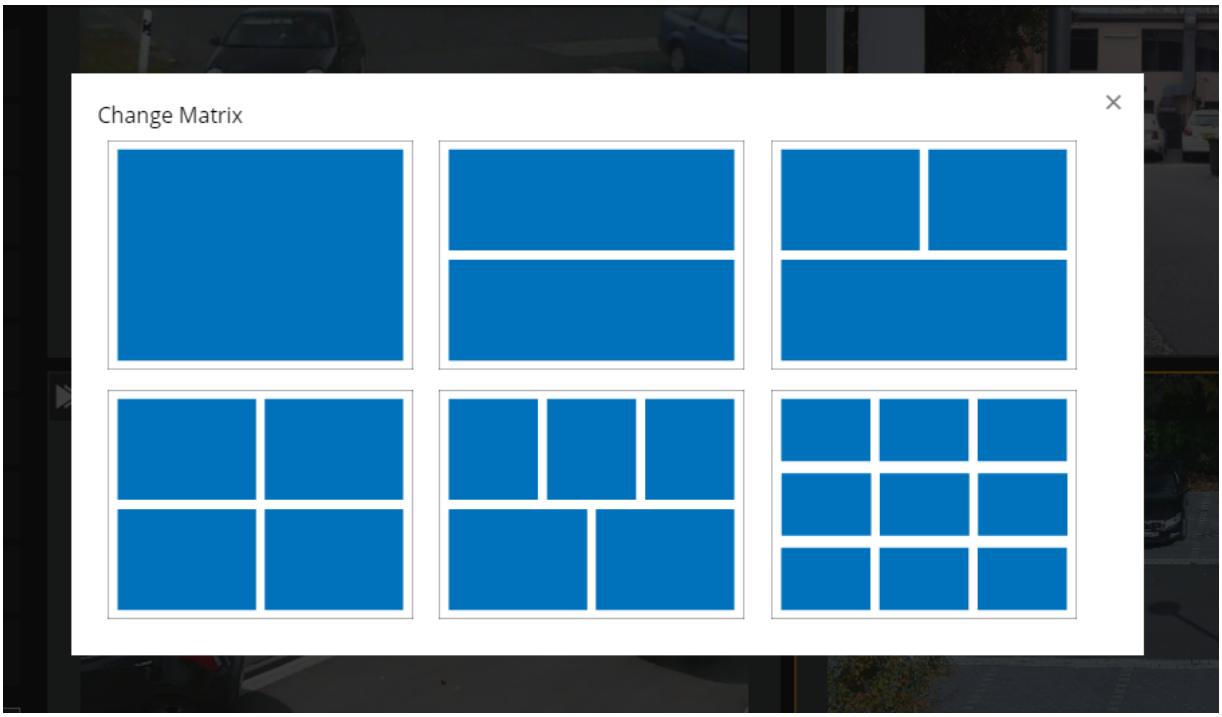


The interface for desktop and tablet is divided into four areas:



Area	Description
1	Menu bar with icons for the channel list and the settings
2	Channel list
3	Viewer matrix
4	Control bar

The viewer matrix 3 can be changed using the **Change Matrix** button 2. There are six different templates to choose from:



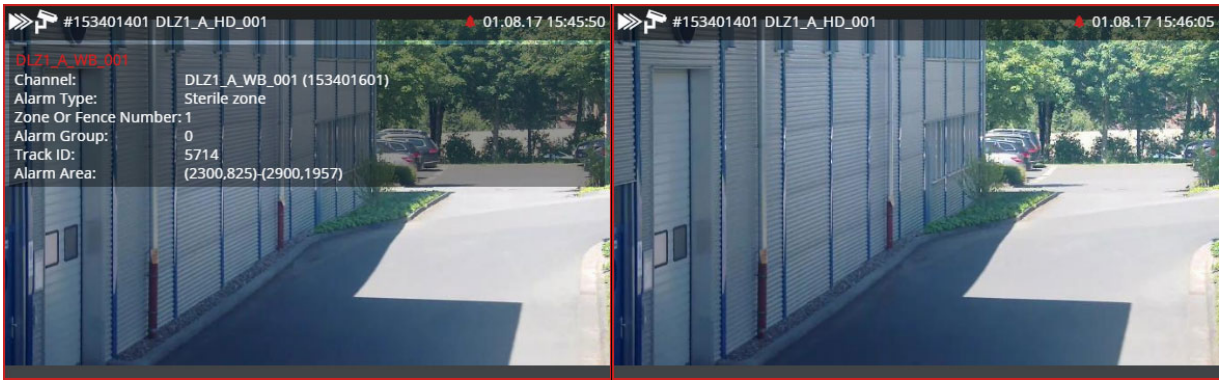
Clicking on a different template selects that template.

Activating images onto the viewer is performed by clicking or by dragging the media channel with the left button onto a viewer.

The control bar 4 shows the icons familiar from G-View:

Icon	Description
	Faster database rewind
	Rewind
	Rewind picture-by-picture
	Stop
	Fast-forward picture-by-picture
	Fast forward
	Database fast forward
	Previous event
	Next event
	Timepicker
	Live streaming

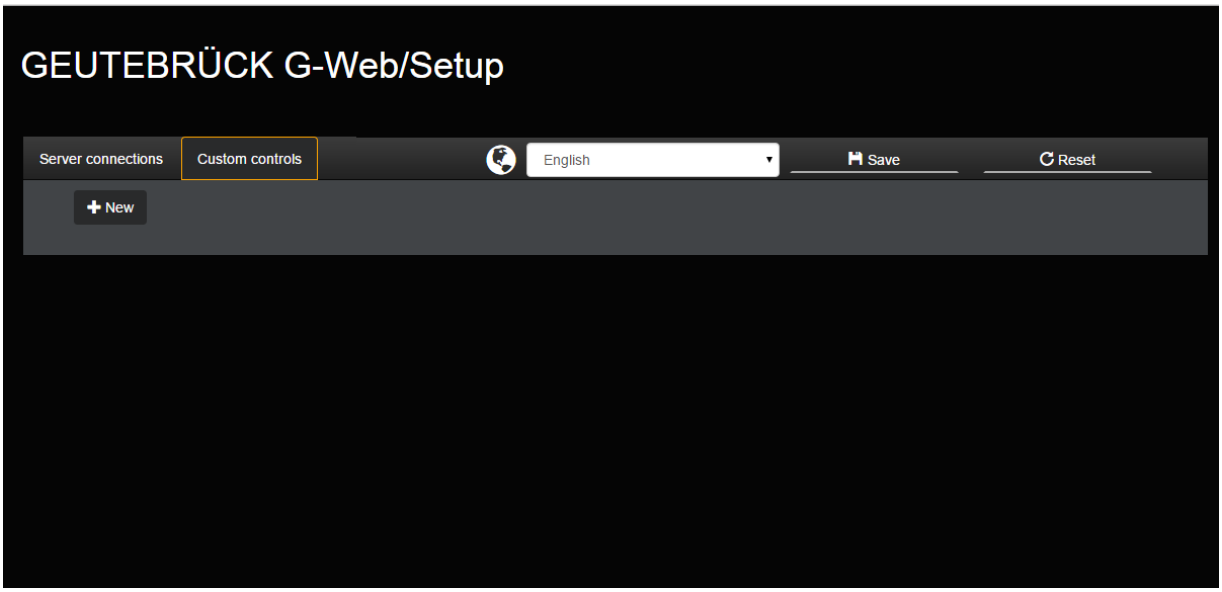
The button can be used to switch the display of meta data in the viewers on or off.



G-Web/Setup

G-Web/Setup makes it possible to create multiple G-Core/GeViScope server connections and **Custom buttons** that are used by the G-Web service.

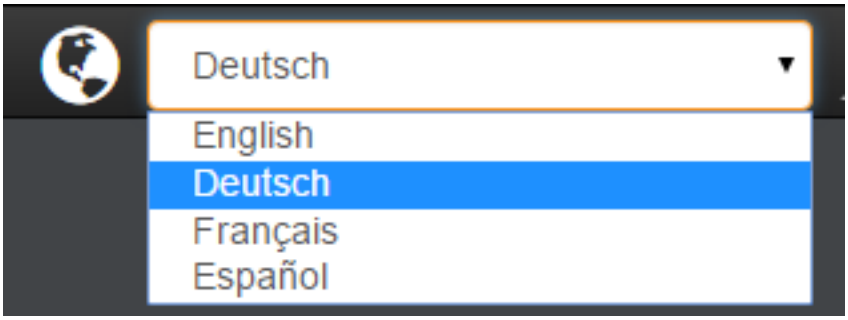
G-Web/Setup can ONLY be accessed on the machine on which the G-Web service is running by opening the URL `http://localhost:13080` with any browser.



In the menu bar, there are two tabs: **Server connections** for the connection list and **Custom controls** for creating customized buttons. A drop-down field for the language setting and the buttons for Save and Reset complete the menu.

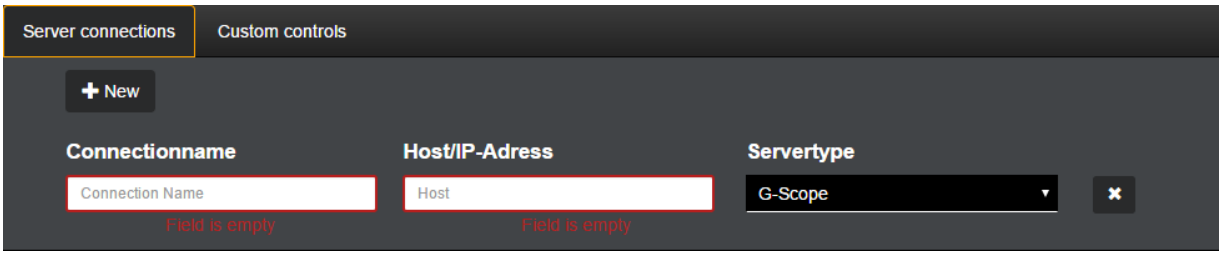
Language Selection

Using the drop-down field, the display language can be set to German, English, Spanish or French. The language change takes place dynamically and is stored permanently in the corresponding browser.



Creating Server Connections

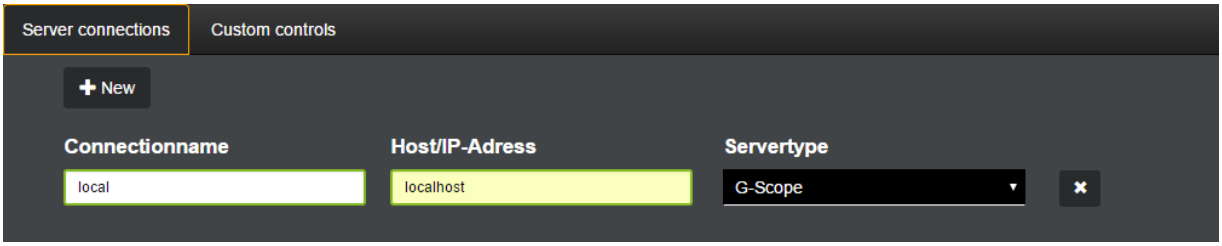
Using the **Server connections** tab, the **New** key can be used to create input fields for configuring a G-Core/GeViScope connection. The number of connections depends on your system, network and number of cameras / servers. For each connection created using the **New** key, two input fields, one drop-down menu for the server selection and one button for deletion are provided.

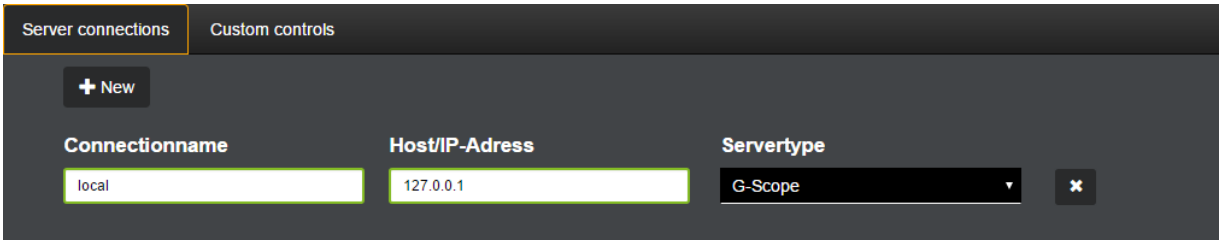


If nothing is entered in the input fields, they are outlined red and an error message is displayed below and the Save key is grayed out and deactivated.

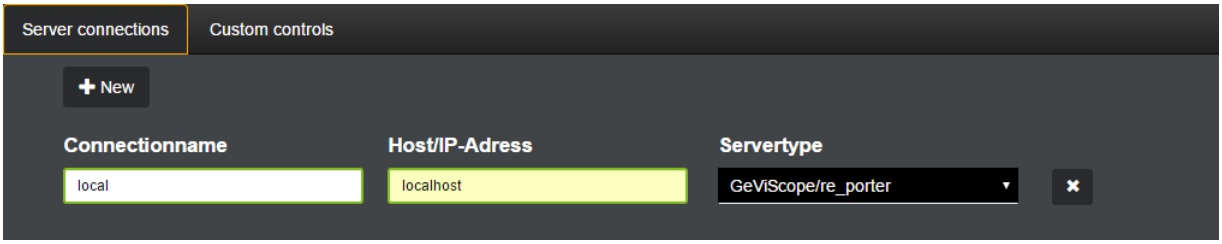
A **Connection name** is entered in the first input field. The name should be clear and unique and able to be associated with the G-Core/GeViScope server.

In the second field a host/IP address, such as **localhost**, or the IP address of the G-Core(GSC) server is entered.



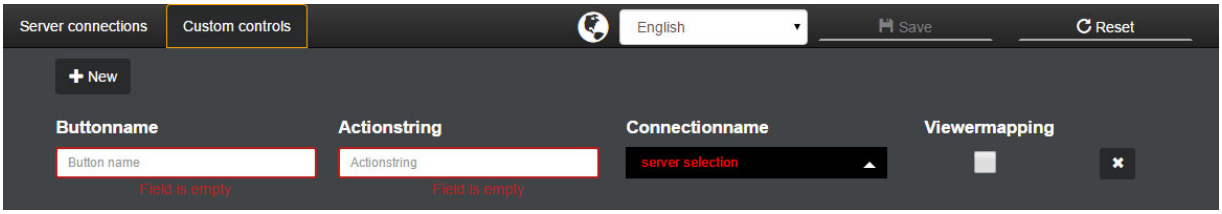


In the third field, the server type (G-Scope or GeViScope/re_porter) can be set using a drop-down menu.

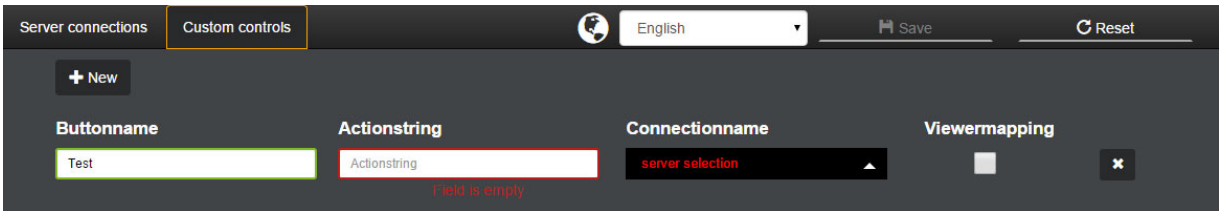


Creating Custom Buttons

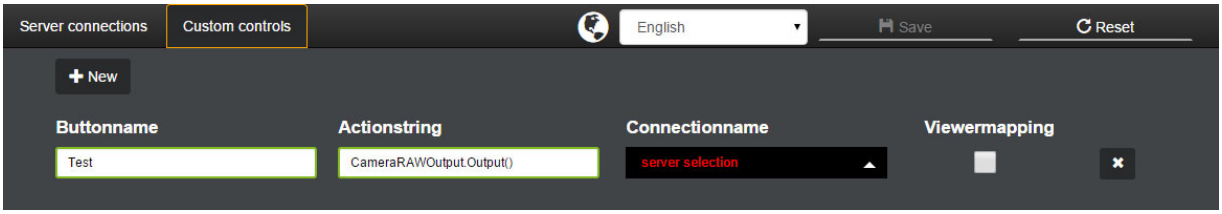
In the **Custom controls** tab, similar to the Server connections tab, the **New** button can be used to create customer buttons. Four parameter fields are provided for each button.



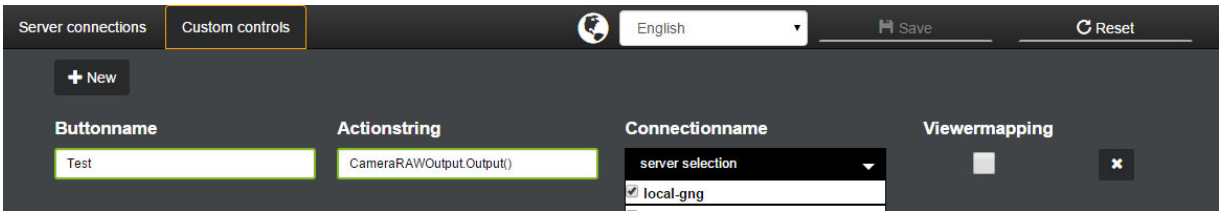
In the first input field a name for the custom button is entered, which then appears in G-Web as key name.



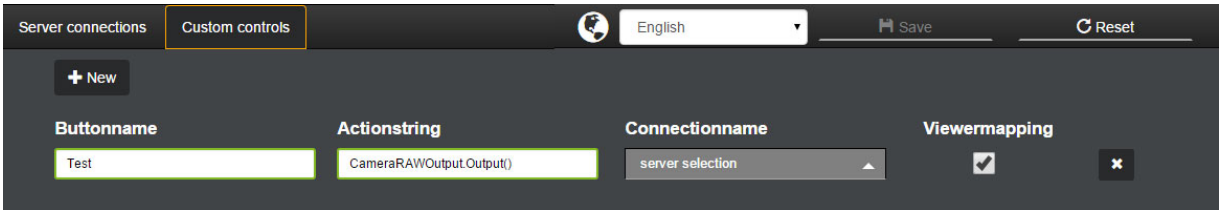
In the second input field, Action String is entered (a guide for finding it can be found **here**).



With the connection name selection you assigned the button to a previously configured connection. This drop-down menu works dynamically and automatically adapts with any newly added or renamed connection.



The last option is a check box to enable or disable the viewer mapping.



If viewer mapping is disabled, the action of the button is sent to the configured servers globally. If viewer mapping is enabled, the drop-down menu of the connection name is disabled. In this case, the action of the button is sent to the camera selected in G-Web.

Saving and Resetting

By saving the button, the configured connections and customer buttons are sent to the G-Web service, which is saved in the Windows Registry under HKEY_LOCAL_MACHINE\SOFTWARE\Geutebrueck\Gng\GCoreWEB.

If sending the parameters to the G-Web service is successful, a green disc icon is displayed.

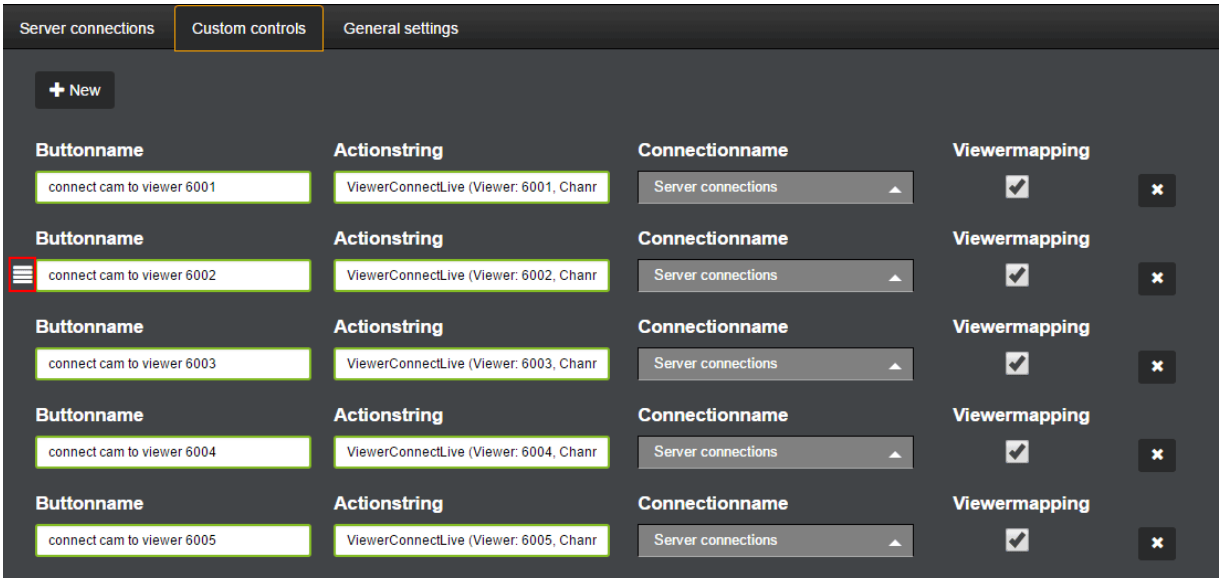
If an error occurs, a red disk icon will appear.

Clicking **Reset** sets everything back to the last saved configuration. Here all changes that differ from the parameters saved in the Windows Registry are removed.

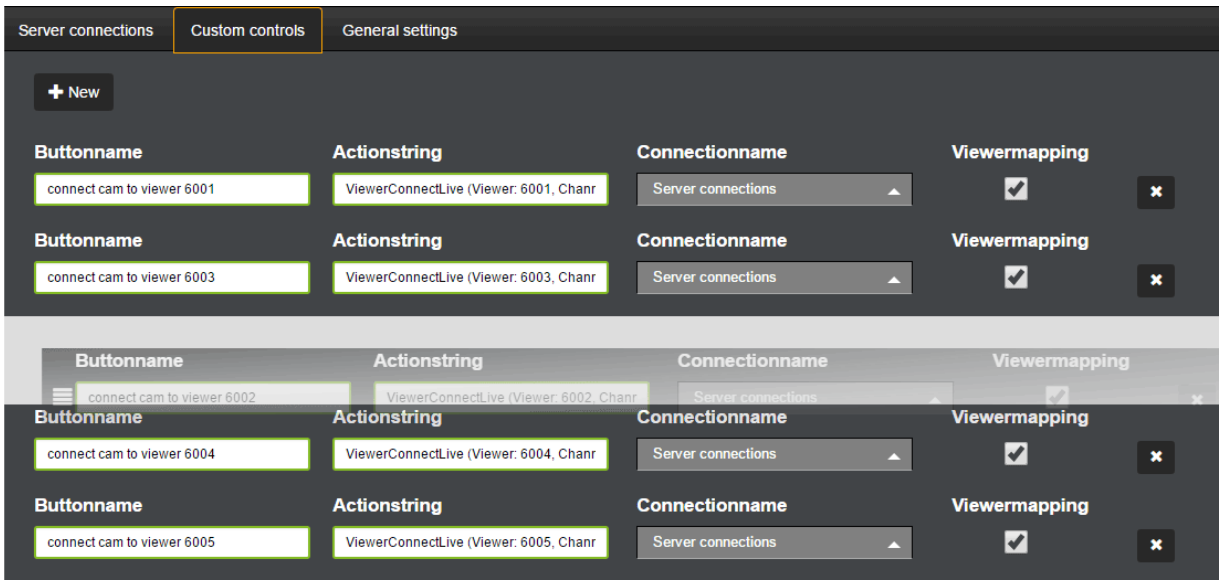
Changing the Order of Custom Buttons

The sequence of custom buttons in G-Web can be changed by changing the position of the parameter sets.

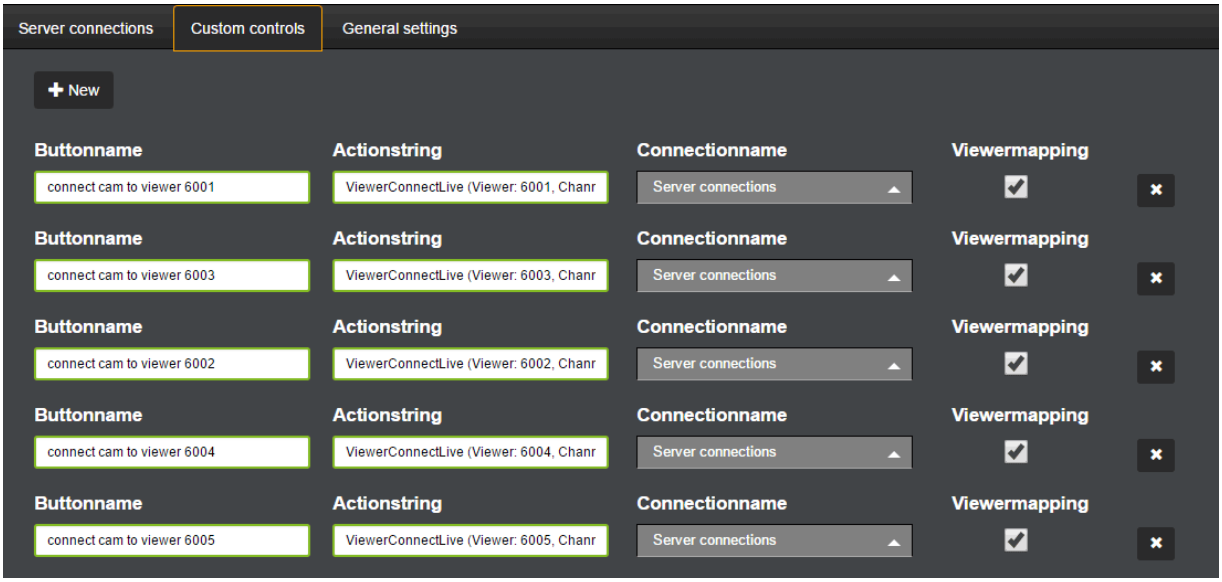
To change the position of a custom button, a drag/drop icon must be selected by a continuous left click. The icon appears in front of the button name when you hover the mouse over the parameter set.



If you drag this icon, the entry of the custom button is removed from the list and you can be moved to a new position. This new position is indicated during the process by a gray placeholder.



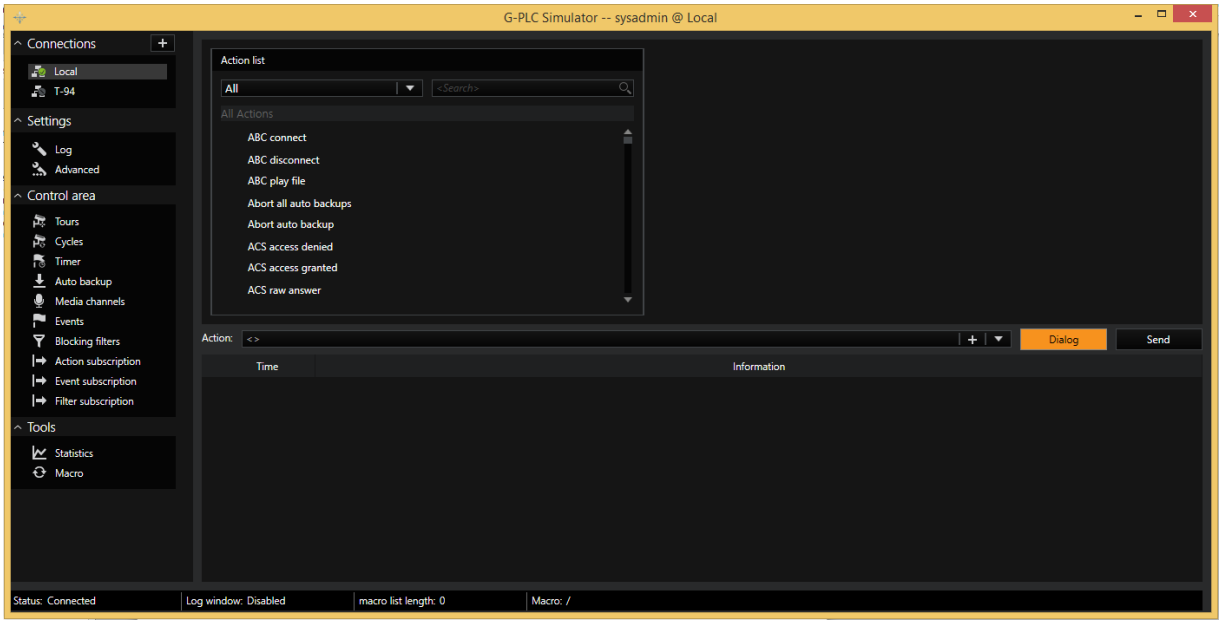
Once the desired position is selected, release the left mouse button. The entry of the custom button is entered at the position marked by the placeholder.



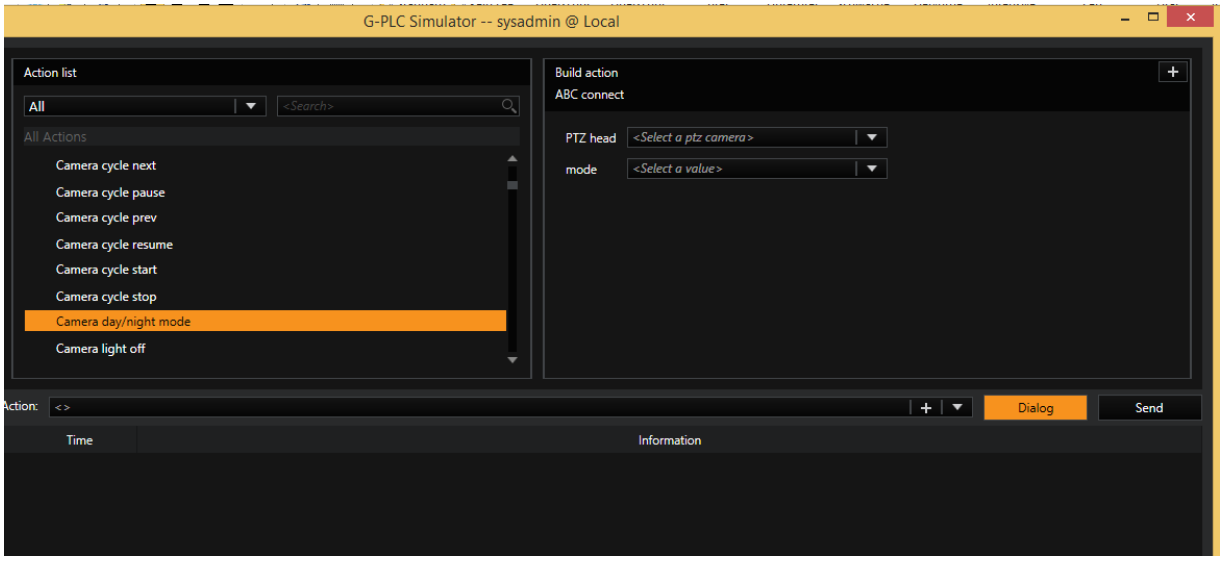
After saving the customized list, the order of custom buttons in G-Web is automatically updated.

Creating an Action String

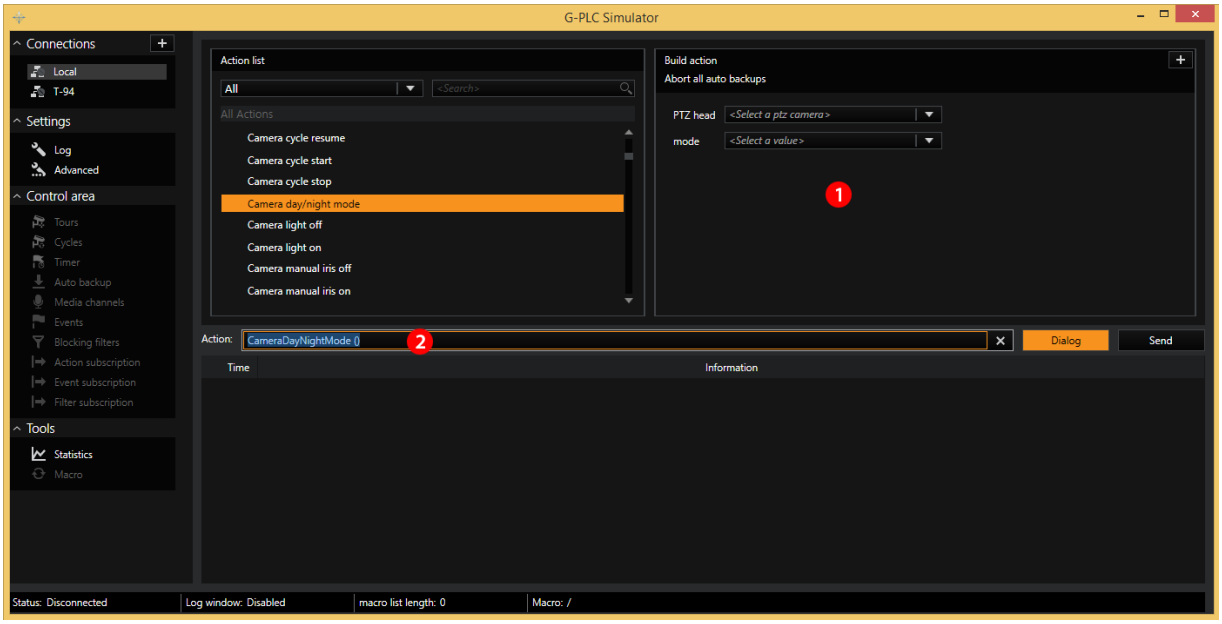
To create an action string that you can enter in G-Web/Setup for a custom button, you open the PLC Simulator and click **Dialog** (on the right side in the PLC simulator). The action strings generated work both for G-Scope servers as well as for GeViScope/re_porter servers.



In the upper section of the PLC simulator, an action can now be selected.



For each action, on the right side a configuration menu 1 opens, which can be used to add additional parameters to the action.



By double-clicking in the input field 2, the action will be selected and can be copied using the key command **Ctrl+C**. The string can then be pasted into the input field of the action string in G-Web/Setup using the key combination **Ctrl+V**.

Here is an example action to trigger the day/night mode of a TopbLine camera:

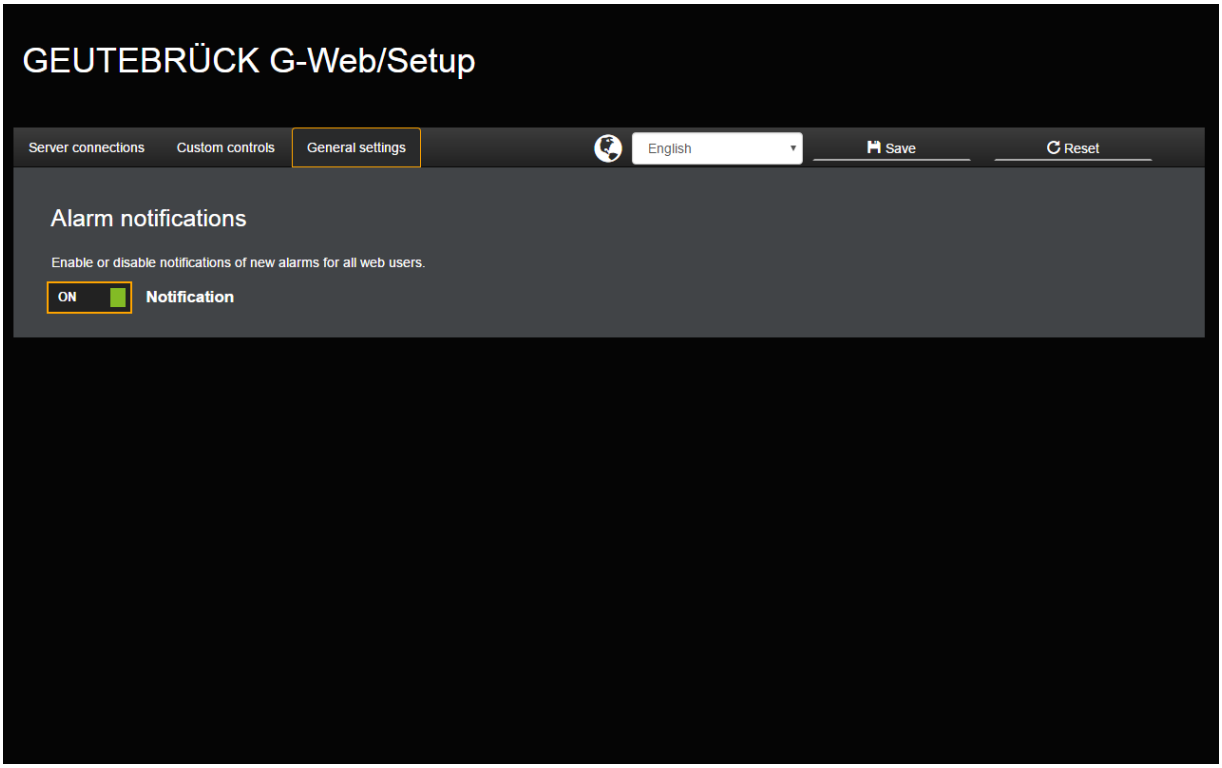
```
CameraRAWOutput (Output: "&Action_0=ImageCo-
ontrols.IRFilterMode.SetStringValue&Parameter_0_0=Open")
```

General Settings

Alarm Notification

Notification of new alarms can be activated here.

This setting applies globally for all G-Web users!



Operation and Settings

Operation

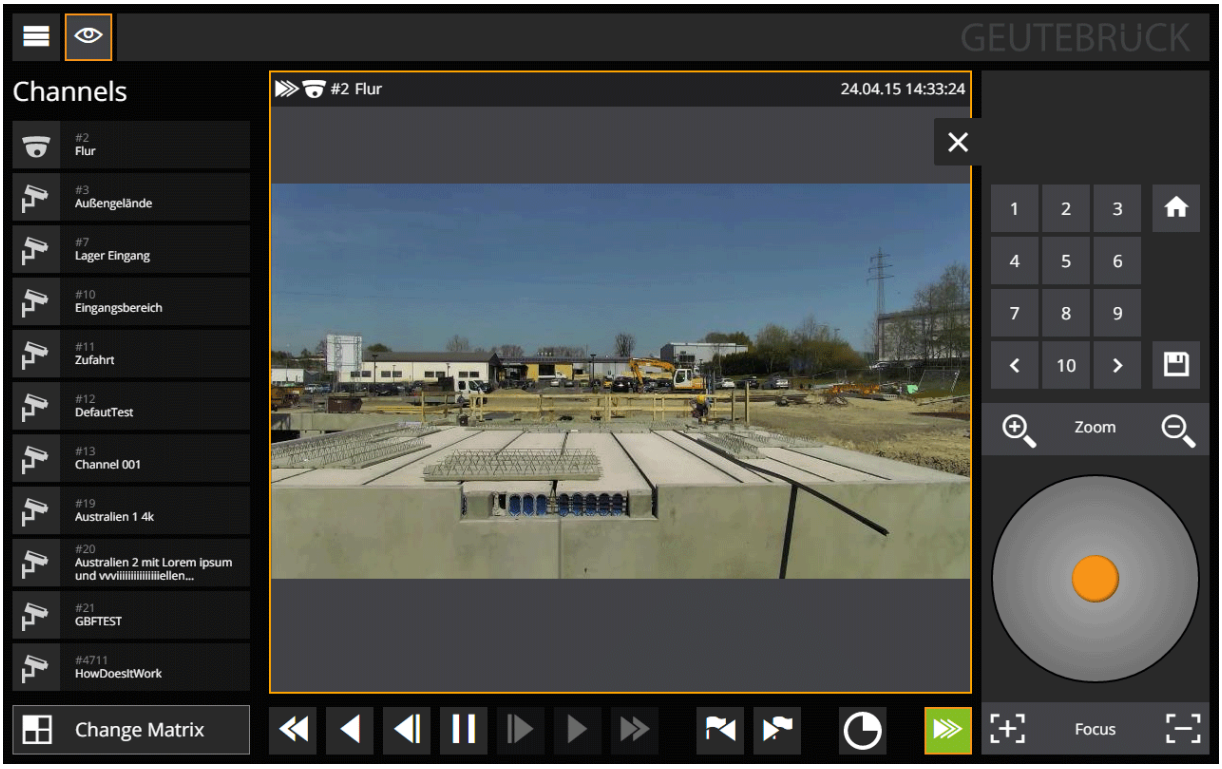
With respect to the control bar and other controls, operation is similar to G-View and is self-explanatory.

The images are activated on the viewer by dragging and dropping, either using a finger on tablets and smartphones or with a mouse on the desktop. The following table lists other operating options:

	Tablet and smartphone	Desktop with the mouse
	Single tap to operate the buttons	Click on the buttons with the left mouse button
	Zooming the image in the viewer (the image can be positioned by swiping)	Zooming with mouse wheel (position image with the left mouse button pressed)
	Double tap to switch to the	Double click with the left mouse

	Tablet and smartphone	Desktop with the mouse
	viewer full screen mode*	button*
	Swipe in all directions for PTZ control (otherwise, digital zoom is controlled)	Like digital zoom in G-View

*If a PTZ camera is in the viewer, the controls in the right sidebar will appear.



Using automatic, device-specific scaling, the viewer always only shows the resolution that the device is able to physically display. When changing to the viewer full-screen mode (and thus to a larger display area), the transmitted image resolution is dynamically adapted/enlarged.

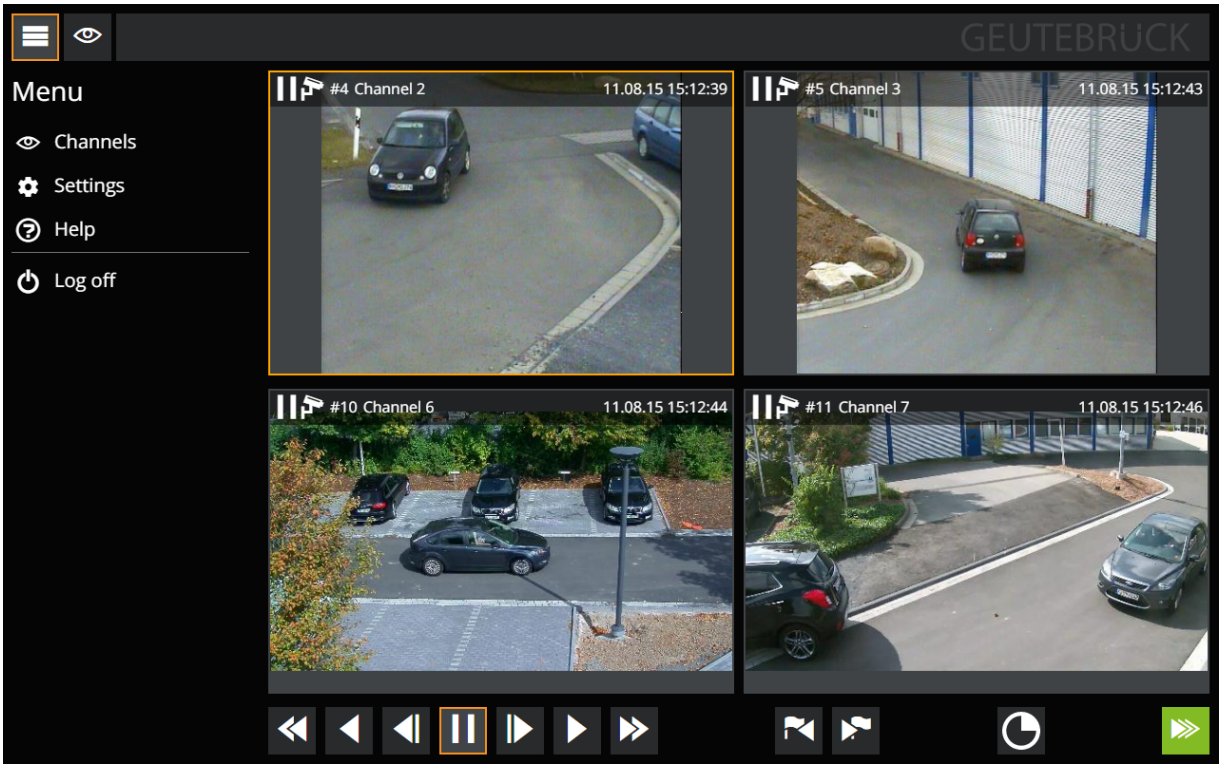
IMPORTANT: The user should log off because the maximum number of logged-in users or sessions is limited.
Locking the screen or pressing the **Home** button will not log you out!

Handling of PTZ channels with blocked PTZ control (blocked tele-control)
In G-Set it is possible to block PTZ control for a user (Telecontrol -> User configuration -> *Block* tab). Starting from version 2.0 of G-Web, when blocked the PTZ camera is shown to the user as a "normal" camera and no control bar is shown for the PTZ control when the viewer is switched to full screen mode.

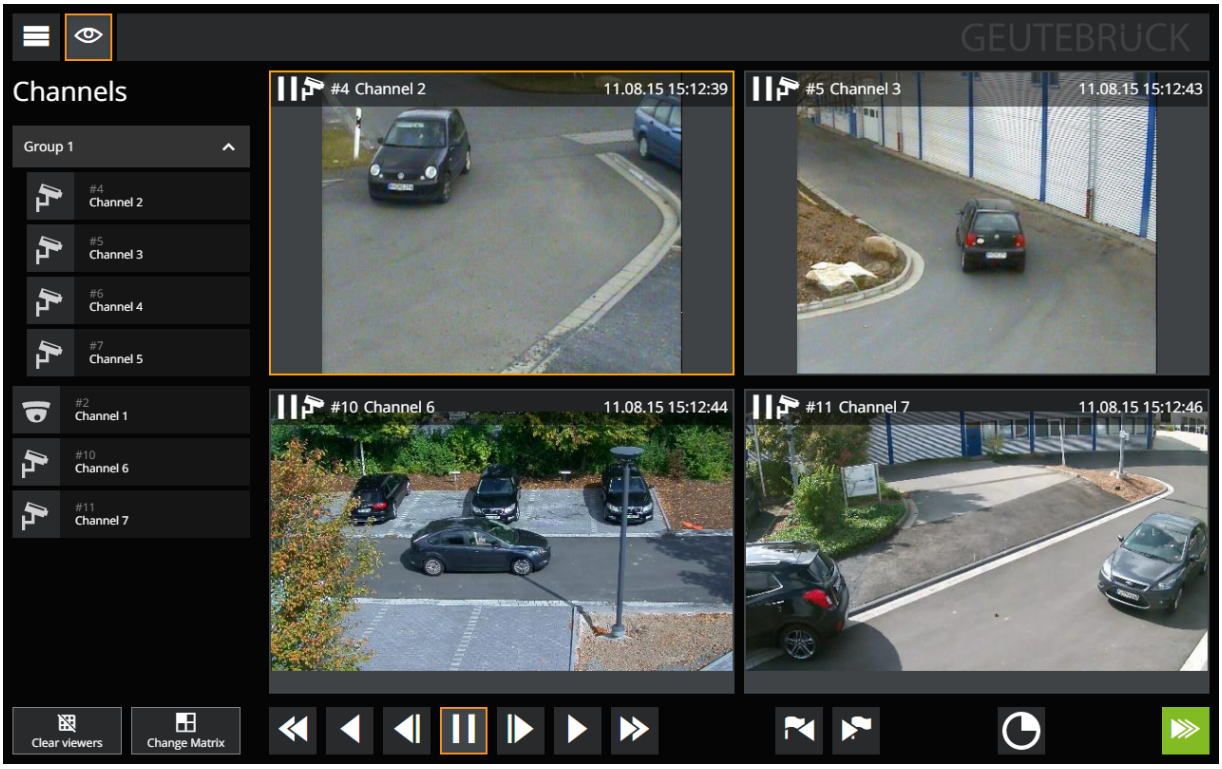
Settings

The setting menu that is opened by a click or tap on the icon contains a number of settings:

Icon	Description
Channels	Show channel list
Settings	Opens the dialog for device-specific settings
Help	Opens the G-Web help
Logout	Exit



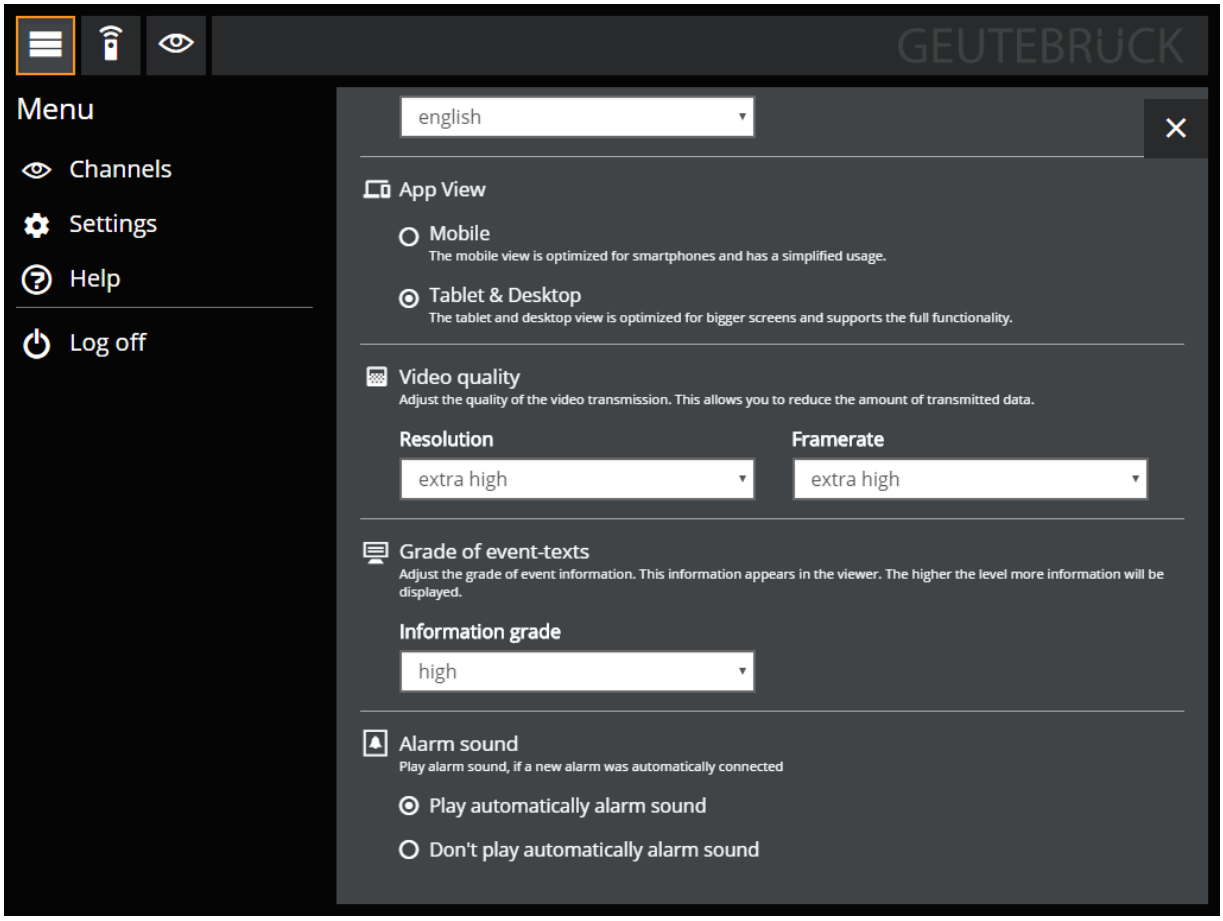
Clicking on **Channels** opens the familiar media channel list.



Camera Groups: G-Web takes into account media groups (since version 1.3). Clicking on the group name shows or hides the channels of the group

Settings

Clicking on **Settings** opens the configuration dialog:



The following applies as a general rule: The settings made here relate solely to the current device. They are directly accepted with no further actions necessary. In addition, the settings are retained if cookies are allowed, and so long as the cookies are not deleted.

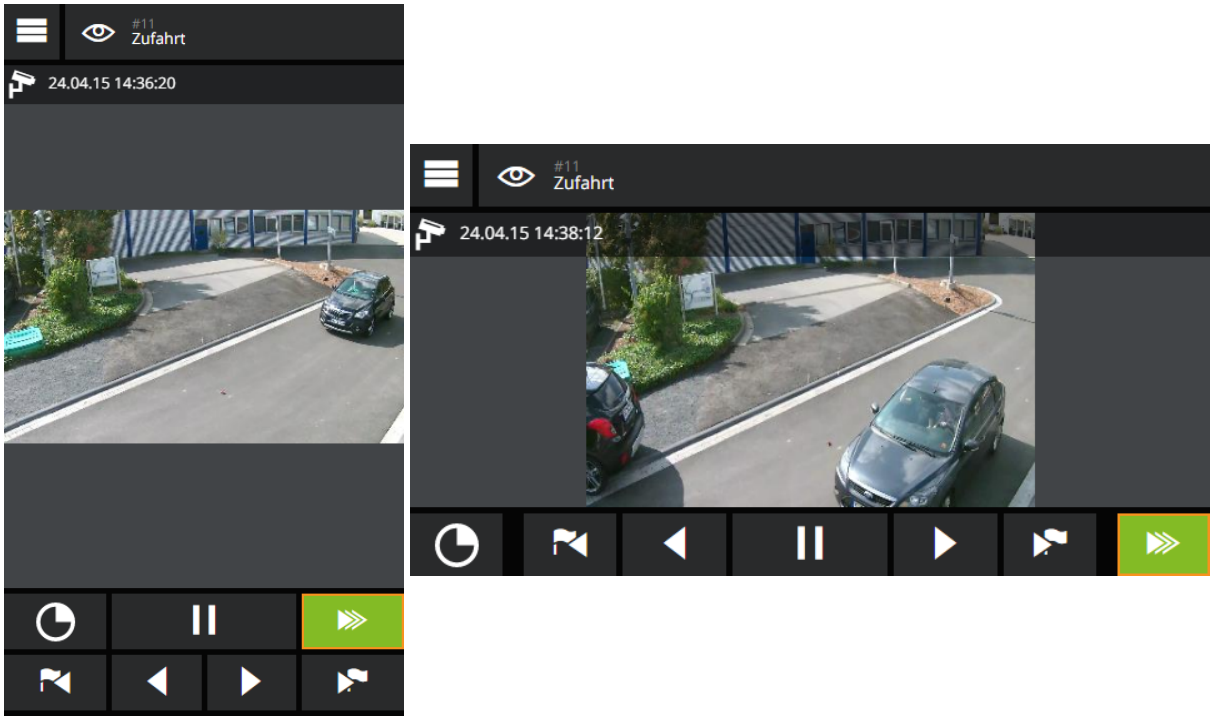
Language

Using the **Language** menu, you can switch between 4 languages, which are activated immediately without restarting app. Currently the languages English, German, French and Spanish are supported.

If the language is changed, this setting is used again for the next start.

App View

Under **App View** you can select between **Mobile** and **Tablet & Desktop**. **Mobile** mode is used when G-Web is opened on a smartphone. **Mobile** mode can be activated anytime on other devices or be activated or disabled on the smartphone.



When using mobile devices, you must first create a shortcut on the desktop. When G-Web is started using this link, it will switch to full-screen mode.

Video Quality

This setting can be used to influence the resolution and frame rate of the stream. The setting applies to all streams of this device equally.

Resolution: The resolution in G-Web is automatically determined based on the device resolution, viewer size and if necessary digital zoom and adapted during operation. The Resolution parameter can be used to influence this mechanism by reducing all determined resolution values by a specific percentage. This corresponds to the same percentage reduction in the amount of data to be transferred (based on the amount of data that would be transferred if the resolution were not reduced).

The levels correspond to: very low: 10%, low: 25%, medium: 50%, high: 75%, very high: 100%.

Refresh rate: Adjusting the refresh rate is equivalent to a limitation of the number of transferred images per second for each stream. The levels correspond to: very low: ≤1 fps, low: ≤5 fps, medium: ≤13 fps, high: ≤20 fps, very high: ≤30 fps

The next smallest possible frame rate that can be generated is used for the transmission. The highest setting also reduces the frame rate to 30 fps, as more is not useful for viewing a stream.

Information Grade

A range of information is displayed in the viewer. The level of detail of the event parameters can be modified here. The available choices are: none, low, medium, high.

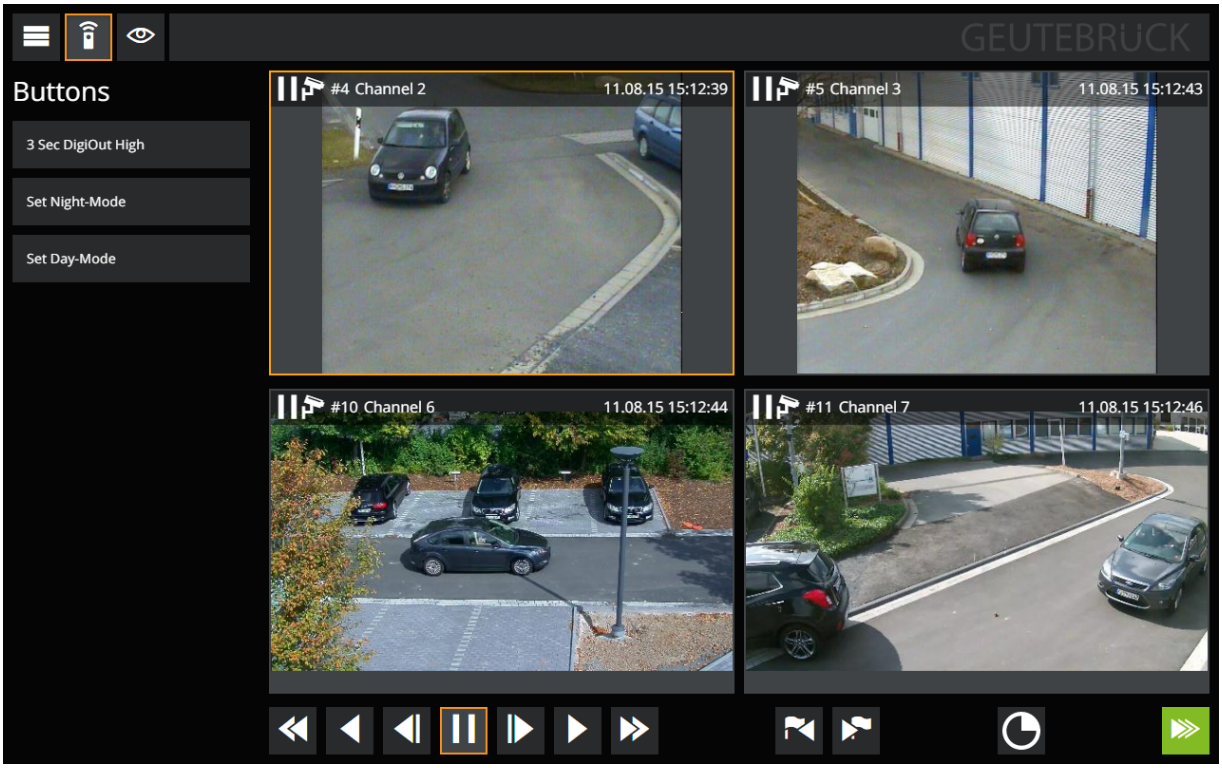
Alarm Sound

When a new alarm occurs, a sound is played automatically. If this should not happen, playback can be turned off here.

Playback of the alarm sound is not possible on mobile devices. For this reason, the corresponding operating options and settings are not shown on these devices.

Customizable Buttons

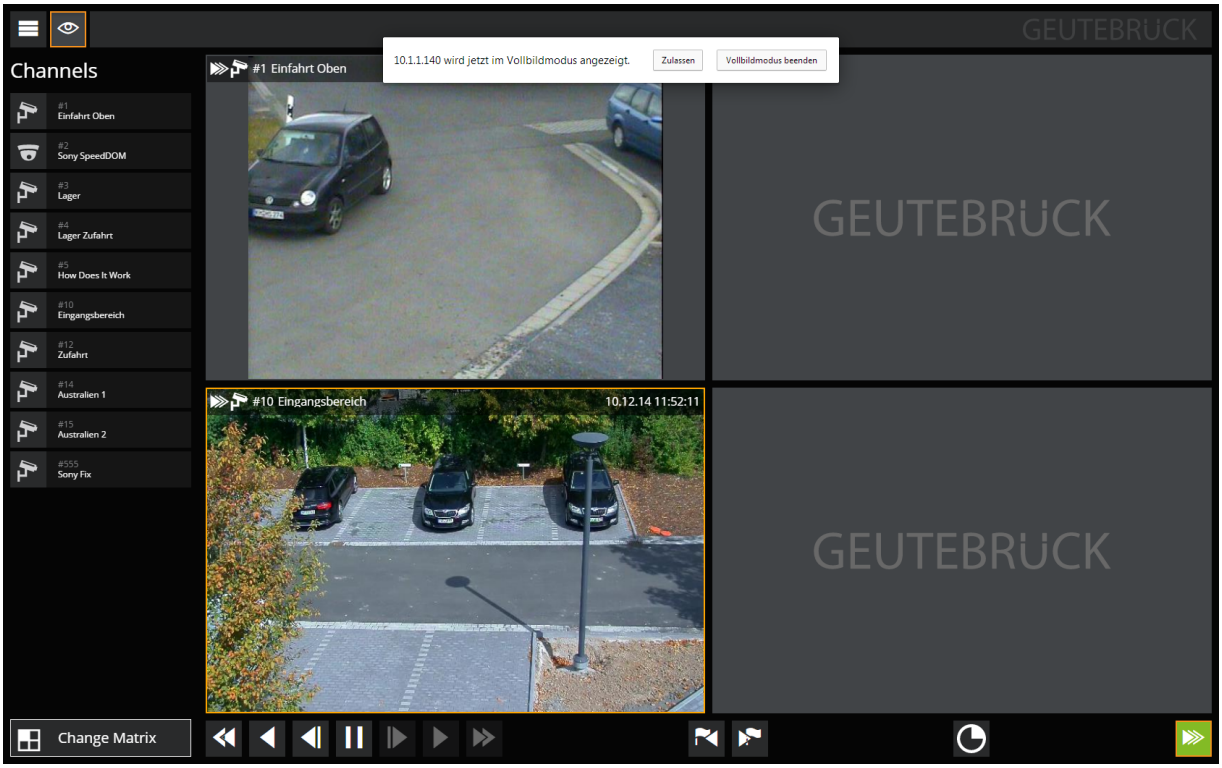
In G-Web buttons can be set up that can be used to trigger a G-Core action. More information can be found in the section **G-Web/Setup**.



Full-Screen Node

Clicking on the Geutebrück logo switches G-Web to full-screen mode in the desktop version. Please note that this mode does not run reliably in all browsers.

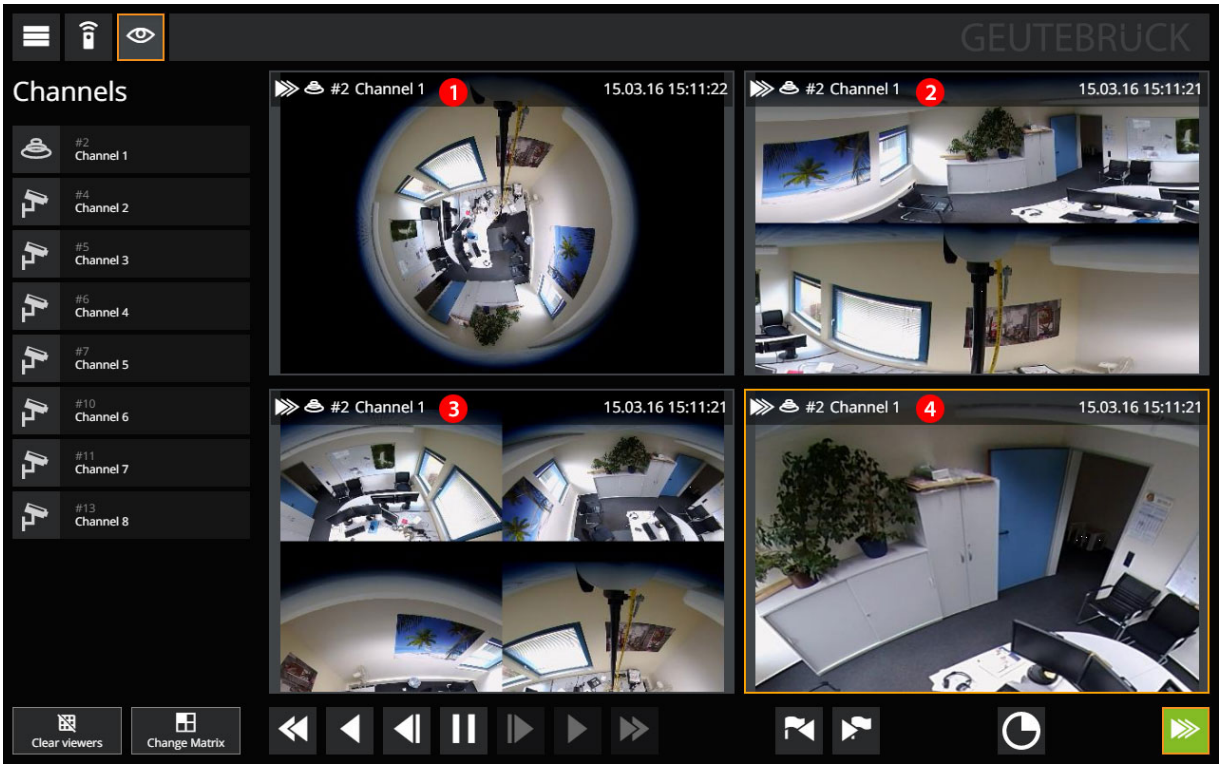
When using mobile devices, you must first create a shortcut on the desktop. When G-Web is started using this link, it will switch to full-screen mode.



Fisheye Channels

With the help of fisheye lenses, cameras can record very large areas. Here, the raw image material is unfortunately distorted. G-Web makes it possible to straighten out these raw images when viewing individual portions of the overall area that is recorded.

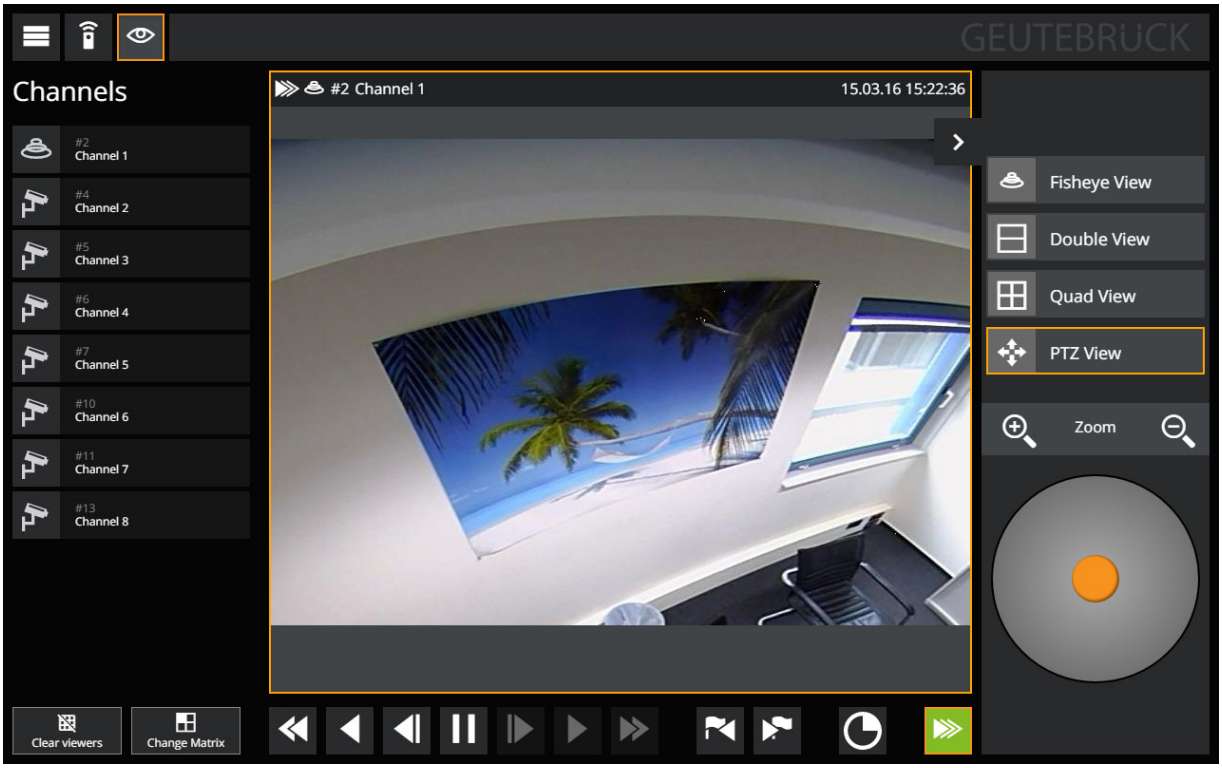
It is possible to select four views:



The figure shows the four available views:

Area		Description
1	Fisheye view	The distorted raw image from the camera
2	Double view	Corrected image, 2 x 180° (panning is possible, except for with lenses from Immer-Vision.)
3	Quad view	Corrected image 4 x 90°
4	PTZ view	Image area that can be modified using pan, tilt and zoom control. Control is performed using viewer gestures (similar to controlling a PTZ camera) or using the elements in the side bar for camera control

You can switch between the views by switching the corresponding viewer to full screen mode by double clicking/tab. This opens the side bar for camera control:



- The functionality can be used both in the live stream and with database access.
- When connecting a fisheye channel, the view configured in G-Set as the default view is used.
- If G-Web is used in mobile view (for example, with a smartphone), it is not possible to switch the view. The default view is used.

Event and Alarm Functionality

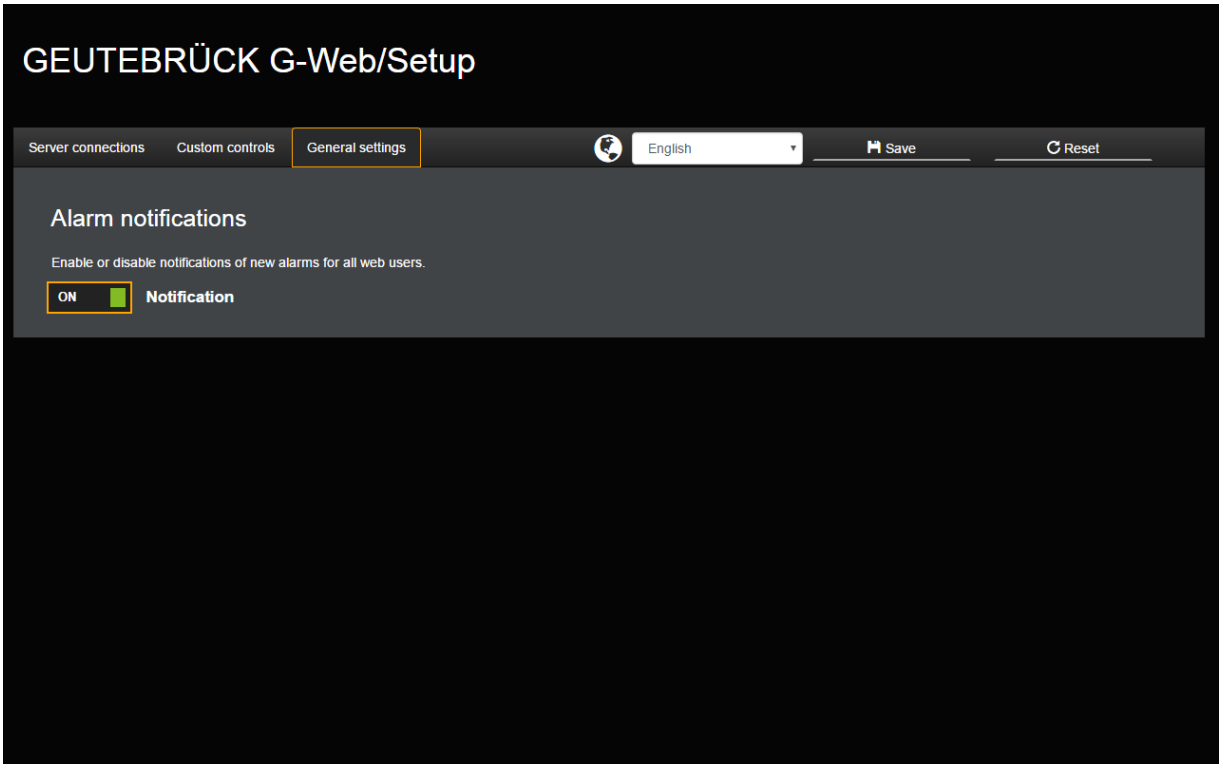
Starting with version 2.0.xx, G-Web supports displaying event and alarm information in the viewer (on-screen display) and notification of new alarms when the user is logged on.

Searching for past events and alarms is not currently supported. In addition, the visual information of the video analysis does not appear.)

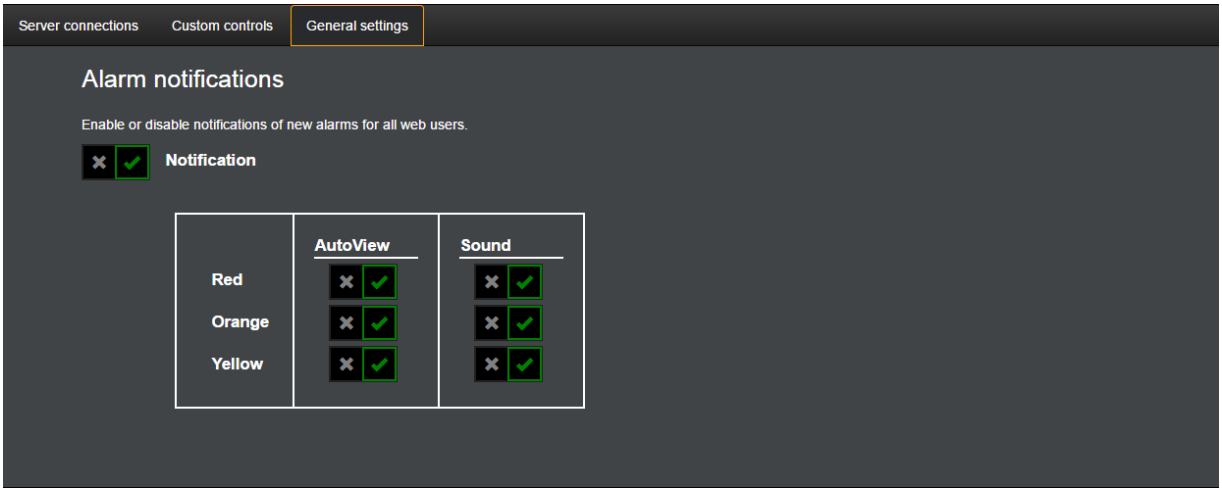
Configuration

Notification of new alarms must be activated in the G-Web/Setup **General settings** tab.

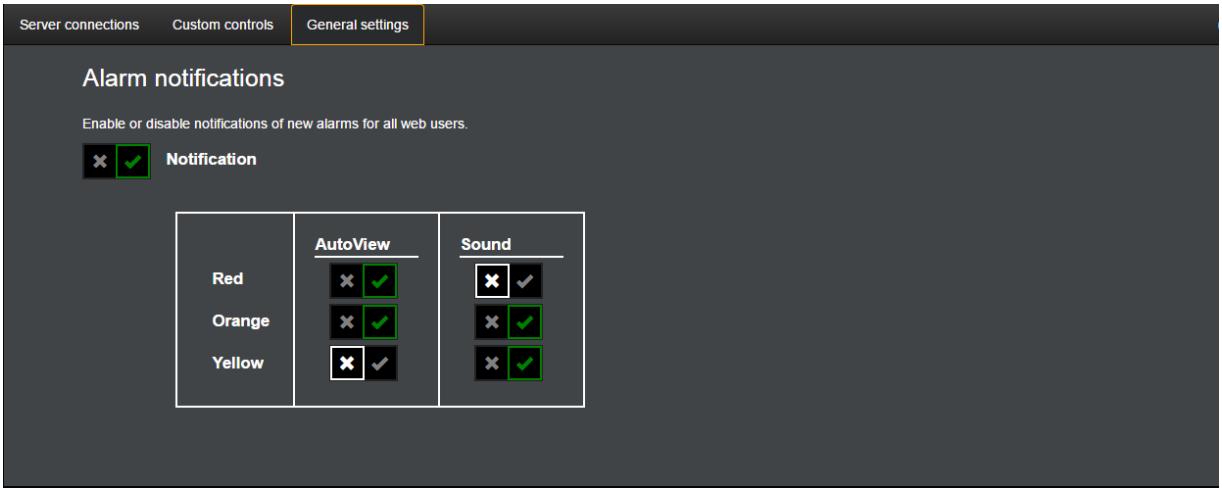
This setting applies globally for all G-Web users!



After activating the alarm notification, a submenu will appear. There you can set the automatic activation of the alarms and the playback of the alarm sound for the different alarm priorities.



The settings in this sub menu are activated by default and can be adjusted as required.

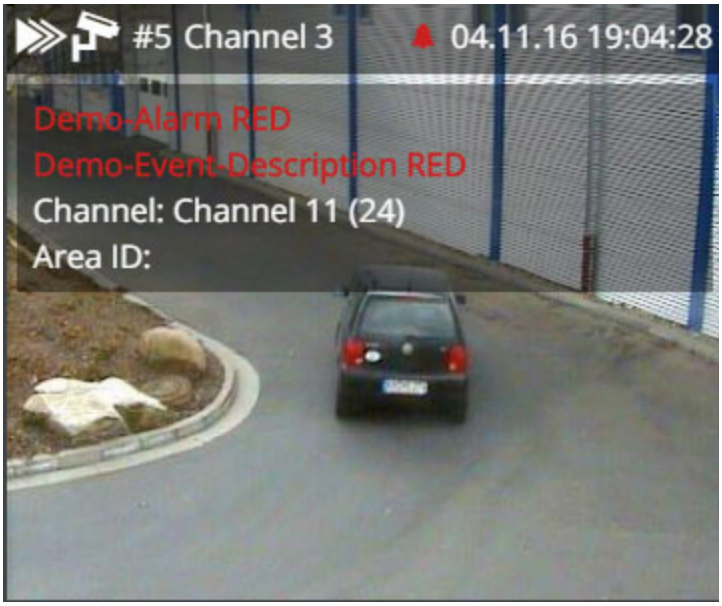


Please notice, that playing alarm sounds on mobile devices are not available.

On-Screen Display

The on-screen display of alarm and event information does not depend on the Alarm notification setting is always active.

The event and alarm information is displayed in the viewer during live or database playback.



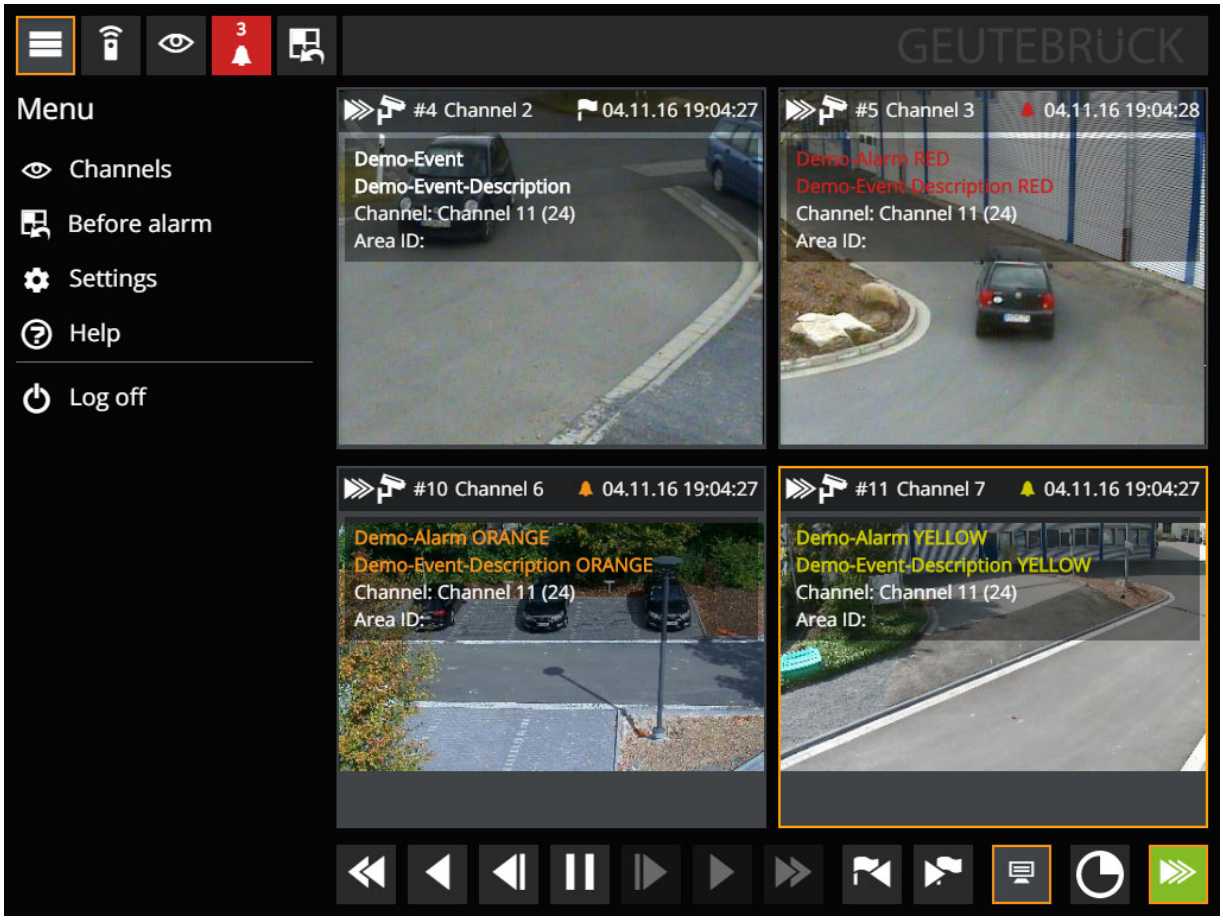
The following is displayed in the viewer:

- Event or alarm name
- Event description
- Event parameters

The event or alarm symbol also appears in the viewer status bar.

For alarms, the following are displayed:

- Alarm name
- Event description
- Alarm symbol in the color of the alarm priority



The viewer overlay can be switched on or off using a button in the viewer control bar. The level of detail of the event parameter can be adjusted in the settings (none, low, medium, medium, high). More information can be found under **Settings**.

In the 3x3 matrix, the viewer overlay (according to the viewer status bar) is hidden as the viewers are very small.

Notifications for certain alarms can be blocked for certain users under G-Set -> User -> Blocking list -> Alarm notifications.

Alarm Notification

A requirement is that the alarm notification is active in G-Web/Setup (see **Configuration**).

If a new alarm starts (while the user is logged on), the corresponding alarm scene is automatically activated. A matrix is used that corresponds with the number of channels in the configured alarm scene. The alarm play modes and the prehistory are also taken into account.

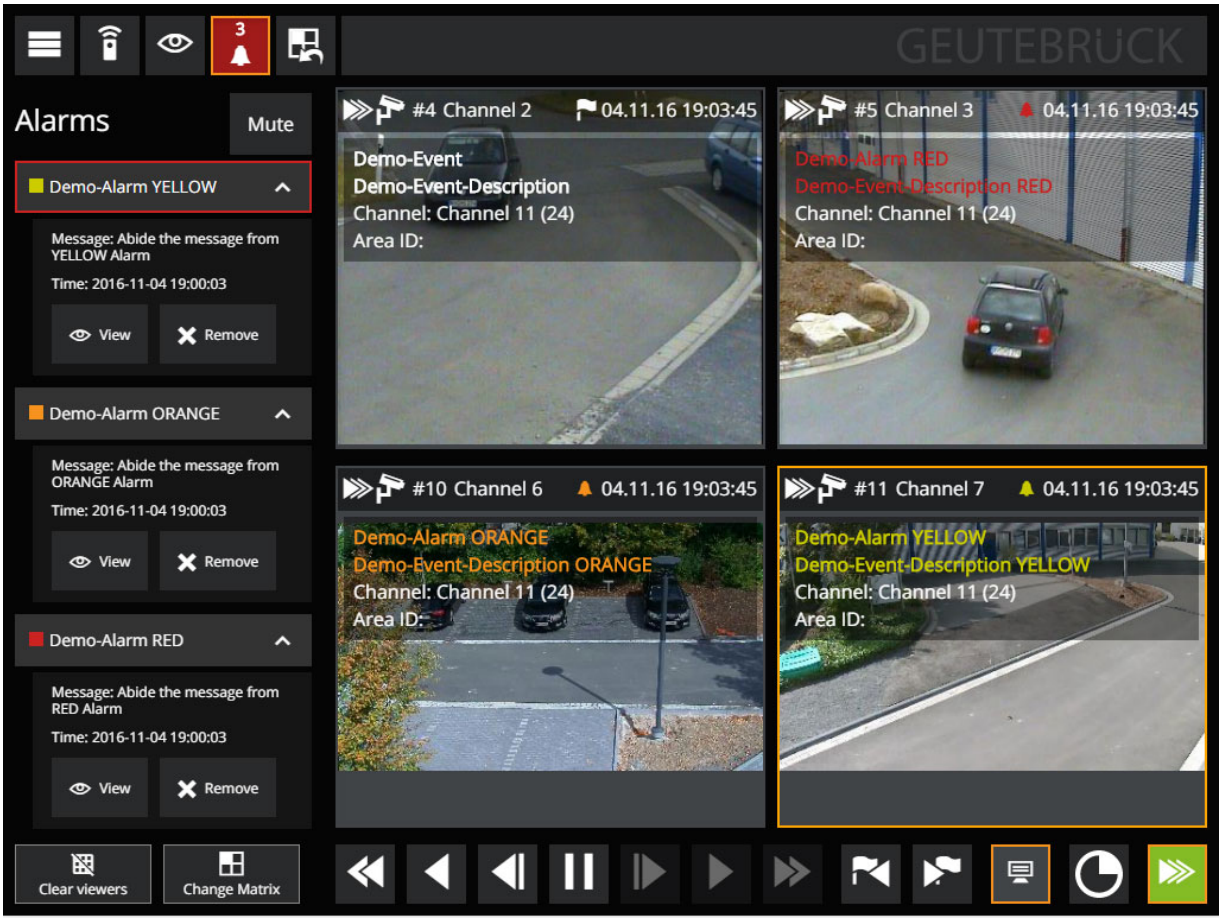
In addition, the alarm list is opened and a symbol with the number of reported alarms appears. To switch back to the scene before the first alarm was reported (before-alarm scene), an additional symbol and a menu entry are created.

For each new alarm, an alarm sound is played that can be switched off with the mute button. The alarm sound can also be suppressed in general for the devices currently in use (see **Settings**).

The alarm list entries provide information about:

- The alarm name
- The alarm message
- The start time of the alarm

Using the View and Remove buttons, the alarm scene of the alarm can be activated or the entry removed.



In the mobile view, the channels of the alarm scene are also added, since in this view, only one viewer is displayed.

After touching the alarm symbol, tapping an alarm scene channel will activate it. In addition, an expanded viewer control bar appears that displays the current alarm and makes it possible to cycle through the alarm scene channels. Using the Research button, it is possible to return to the standard viewer control bar.

Remote Server

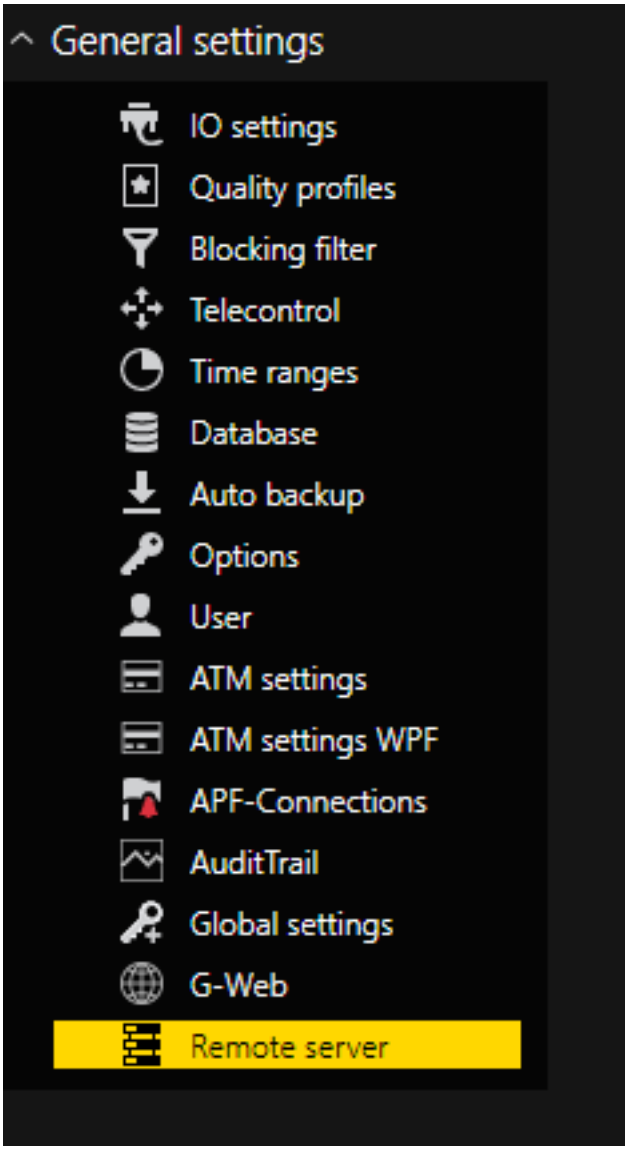
Remote Server Replication / Live Stream Proxy

The remote server replication allows to configure a list of remote NVRs which will have their databases replicated on the running server instance. For the same list of NVRs the Live Stream Proxy allows to mirror live stream channels from the NVR to the server instance via a shared connection. A common scenario might be that the NVRs are connected to the network via a lower bandwidth connection, whereas the server has a higher bandwidth. In order to grant access to live streams for multiple users, the server can act as a proxy to which the users

connect. Instead of each user connecting separately to the NVR, only one connection from the server to the NVR will be created,. This is commonly referred to as multiplexing and avoids wasting bandwidth. The Live Stream Proxy also has stream counting and limiting, which can be used to further control bandwidth usage.

Configuration

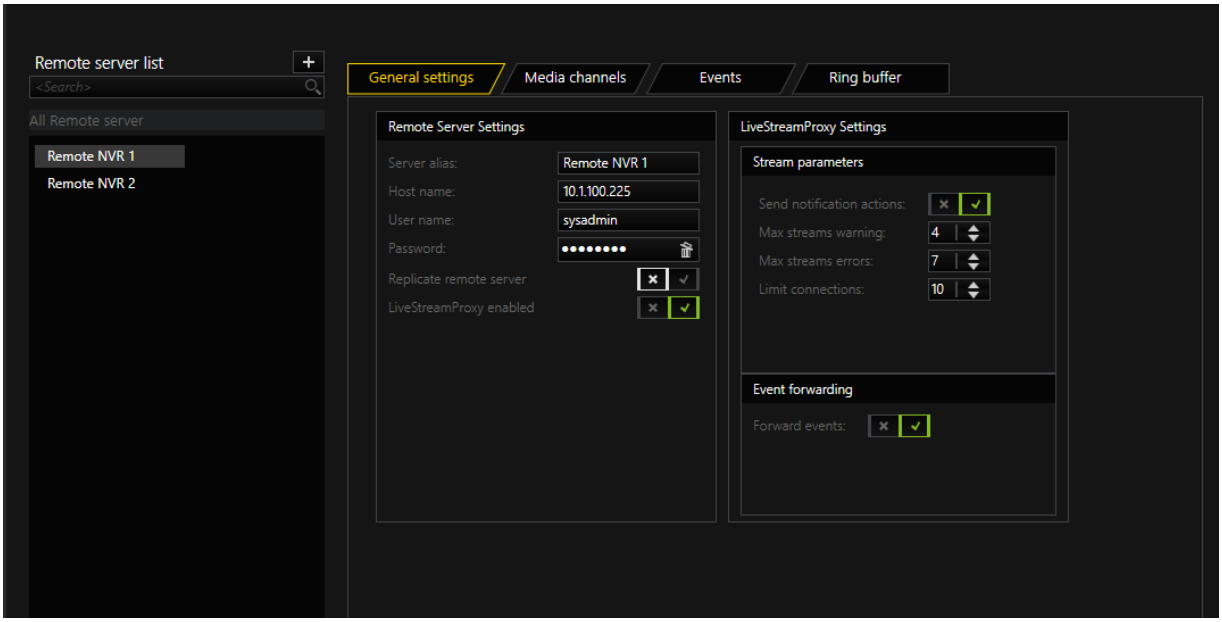
The configuration is made in G-Set under the **Remote Server** panel in the **General settings** roll-out menu. As always within G-Set, click **Save** in the toolbar to finalize any changes and apply them to the server.



On the **Remote Server** panel to the right,

- remote NVRs can be added, deleted and checked,
- media channels can be imported
- and events and ring buffers can be configured on the NVR.

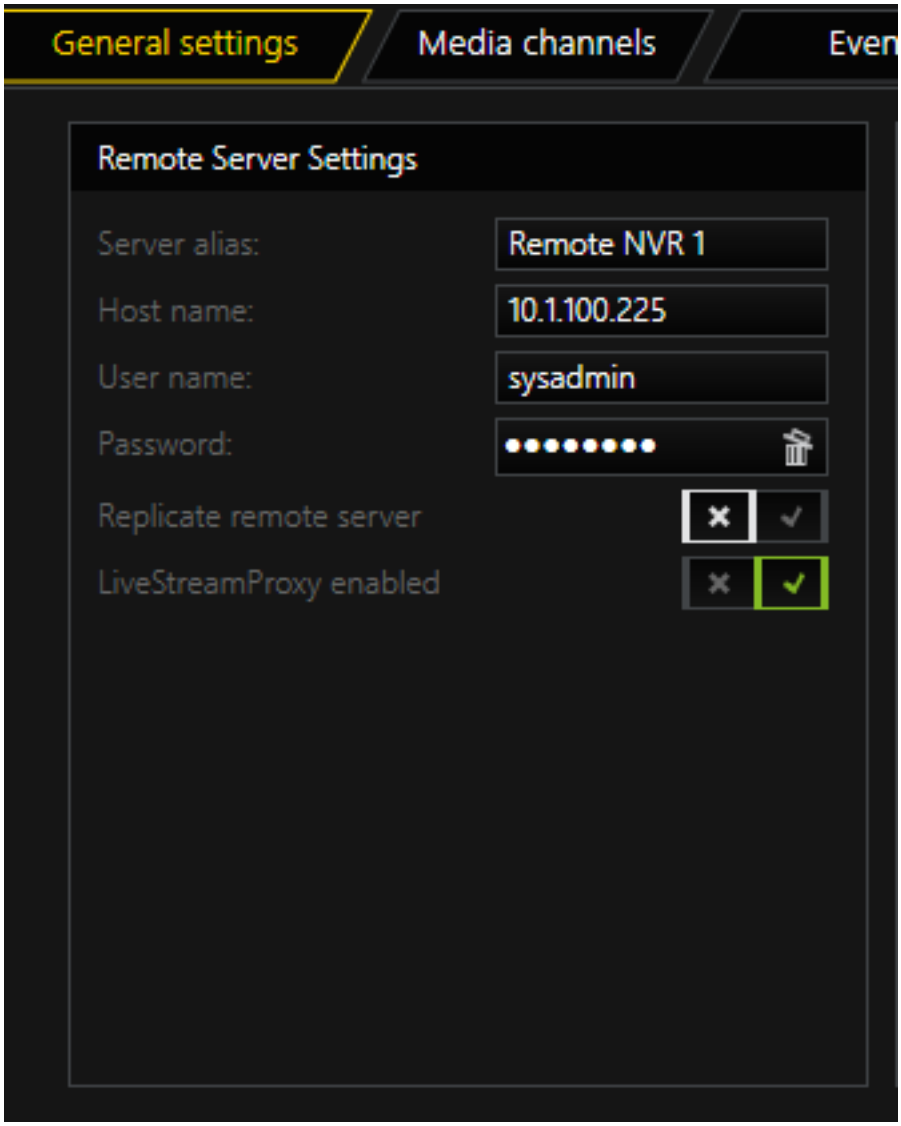
General Settings



To add a new NVR to the list, click **Add** on top of the list.

→ A new list entry is created, which can be modified.

To delete an entry, hover over the list entry and click the **Delete** icon, which appears on the right-hand side of the entry.



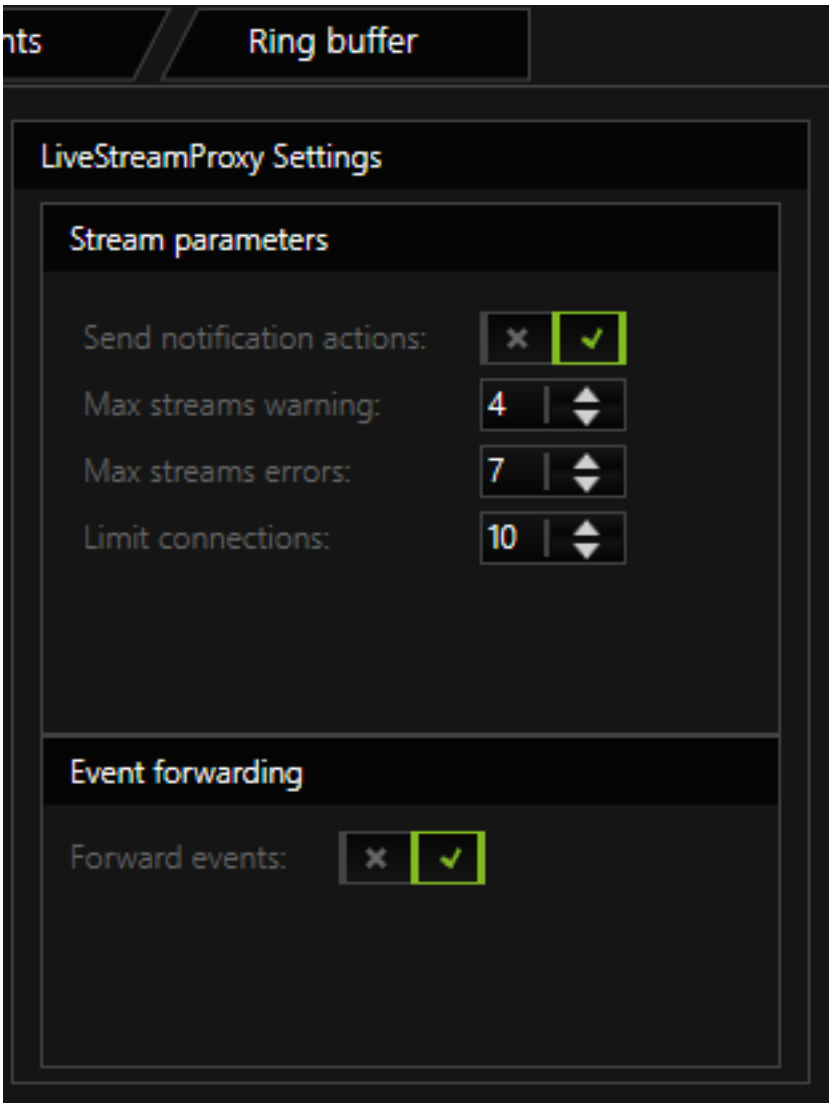
The **Remote Sever Settings** panel allows to set up connection and management parameters for the NVR:

Parameter	Description
Server alias	A locally used alias to identify the remote NVR
Host name	Name of the host
User name	
Password	Login credentials

Parameter	Description
Replicate remote server	Enables/Disables database replication for the NVR
LiveStreamProxy enabled	Enables/Disables the ability to receive and forward live streams from the NVR

Media channels and events will be prefixed using the alias for easy identification of the corresponding NVR.

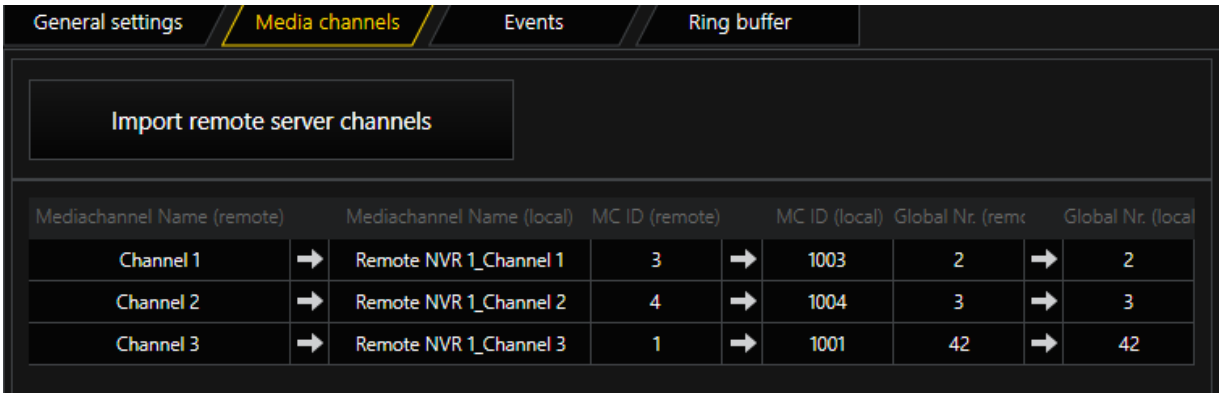
To connect to the NVR, fill in the **Hostname** of the NVR, as well as the login credentials. The account used to log in must have the right to access the setup on the NVR, as this is needed to set up local resources for each NVR.



Settings for the Live Stream Proxy are to be configured on the **LiveStreamProxy Settings** panel:

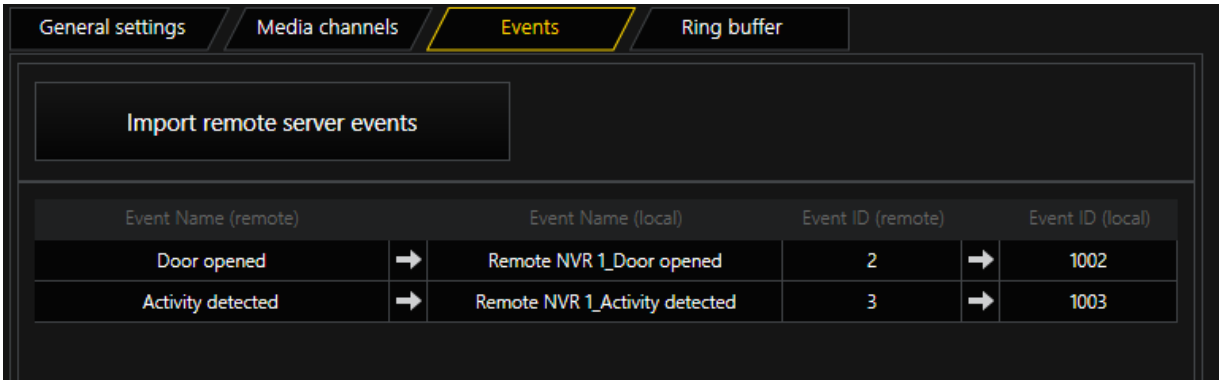
Settings	Description
Stream parameters	Lets you specify limits for stream connections
Send notification actions	When enabled, it will trigger the LiveStreamProxyConnectionCount action if one of the limits is hit
Max streams warning	Is the number of connected streams from the NVR to the server which, when hit, triggers a warning action
Max streams errors	Does the same as Max streams warning, however the action will carry an error flag instead.
Limit connections	Is the maximum number of stream connections from NVR to server that will be established. Hitting this limit means that no new streams will be established, the respective channel on the server will display a corresponding error message. These settings effect only streams for channels that appear in the overview on the **Media channels** tab.
Forward events	If enabled, received events will be forwarded from the NVR by triggering a mapped event on the server. Please see the **Events** tab for an overview of this mapping.

Media Channels



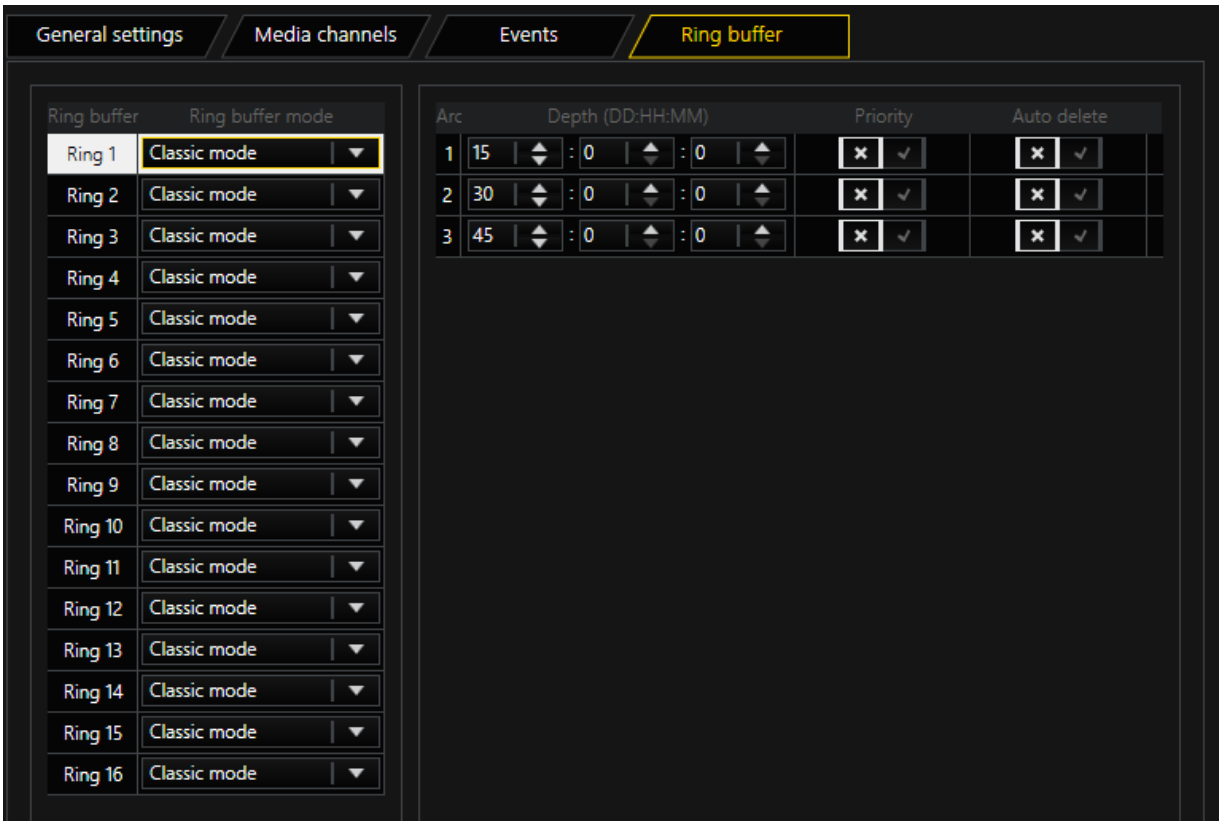
Initially the **Media channels** tab will be empty. By clicking the **Import remote server channels** button, the media channels configured on the NVR will be imported and a corresponding local hardware and media channel will be created. The table displays the mapping between the remote NVR media channel and the locally created ones.

Events



The table on the **Events** tab will initially be empty. By clicking **Import remote server events**, the events configured on the remote NVR will be imported and local events, which are linked to the remote events, will be created. If event forwarding is enabled, the locally mapped events will be triggered in case a remote event is received. The table displays the mapping between the remote and the local events used.

Ring Buffer



On the **Ring buffer** tab, ring buffer settings for remote server replication may be configured.

See here for more information on Ring buffer

Axis Bodycam Integration

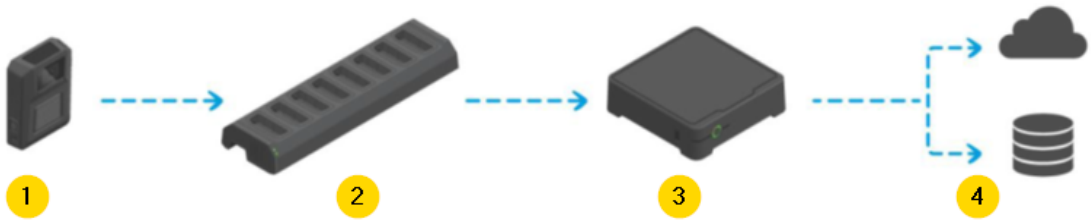
The **Axis Bodycam Integration** feature describes the connection between the G-Core Video Management System (VMS) from Geutebrück and the Body Worn system from Axis.

The main functionality is the data transfer of video and audio files from the connected Body Worn Cameras (BWC) to the G-Core database. The integration includes a centralized view of all video footage and provides the ability to view, search, and synchronize the video footage with other video footage within G-View. Therefore, the integration allows the operator to easily search for specific bodycam users in a specific time period.

The data transfer is performed automatically after configuration and only requires sufficient storage space on the internal hard disk. The video footage is after wards watermarked with different watermarks to ensure manipulation-proof usage.

Axis Body Worn System

The Axis Body Worn system consists of Axis Body Worn cameras 1, Axis docking stations 2, Axis system controllers 3 and a content destination 4 to which the data from the cameras is transferred. In this integration, G-Core is the content destination.



The system controller is the core of the system, as it is responsible for integrating and managing the system as well as transferring the video material to G-Core. In addition, the system controller caches the video material of a newly connected bodycam in the internal drive until the data has been completely transferred to G-Core.

Configuration and management of the connected bodycams and their respective users can be performed via the included web application, **Axis Body Worn Manager**.

Geutebrück has the bodycam and its respective docking station, which can be purchased in two versions: 1-bay and 8-bay. Up to five docking stations can be connected to a single system controller.

Detailed information about the Axis Body Worn system can be found in the Axis documentation:

- Axis Bodyworn Solution: **https://www.axis.com/products/wearables**
- Axis System ControllerW800: **https://help.axis.com/axis-w800**
- Axis Bodycam W100: **https://www.axis.com/products/axis-w100/support**
- Axis Dockingstation 1-Bay W700: **https://www.axis.com/products/axis-w700/support**

- Axis Dockingstation 8-Bay W701: **https://www.axis.com/products/axis-w701/support**

Geutebrück Integration

The integration of the Axis Body Worn system into the G-Core VMS is composed of the following components:

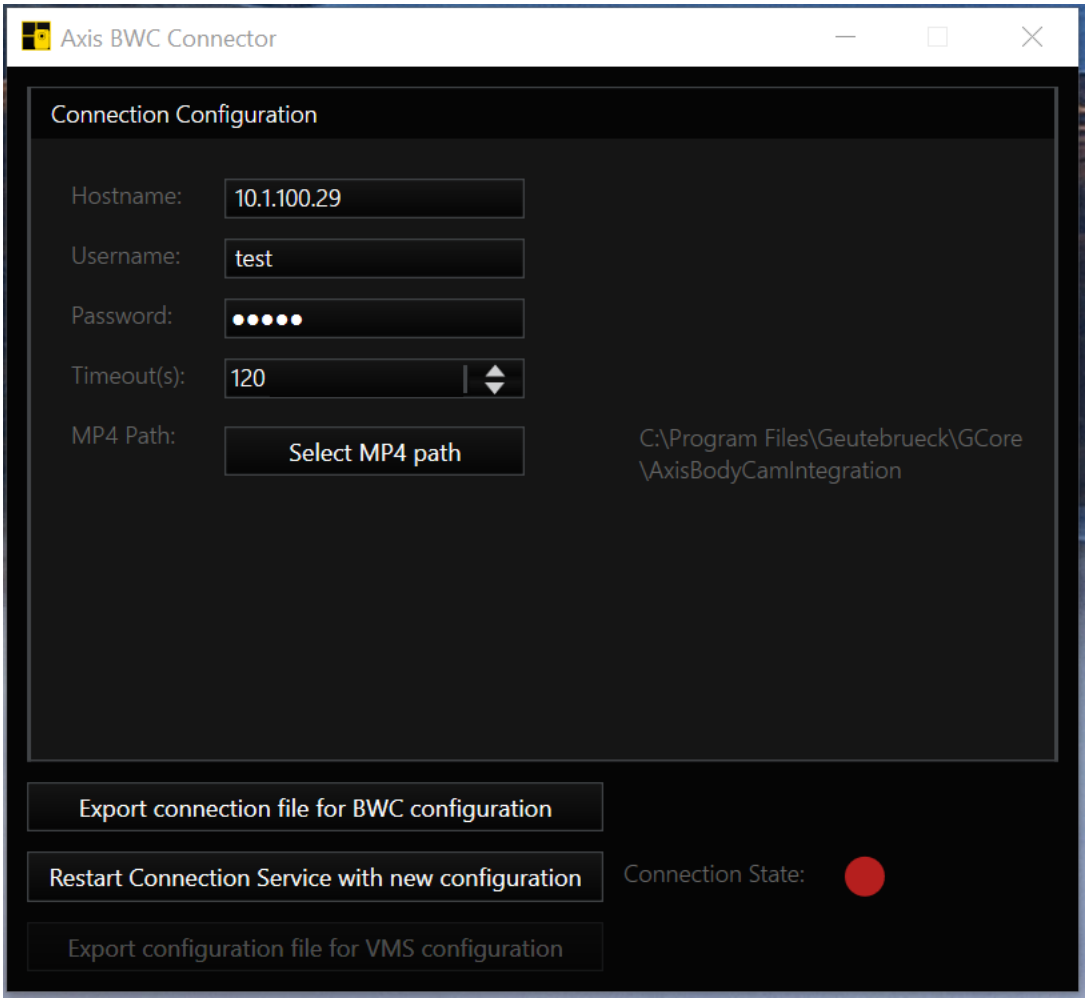
- **Axis BWC Connector**
- **Axis BWC Menu in G-Set**
- **BWC Footage Plugin and Media Channels**

Axis BWC Connector

The Axis BWC Connector comprises the main functionality of the integration. The Windows service is responsible for connecting and transferring data with the system controller and caches the transferred data in user-based folders.

During the initial installation and configuration, the connection from G-Core to the system controller is established using Axis BWC Connector. This is done by creating and exporting a connection file, which is then imported into the system controller's web application, the Axis Body Worn Manager (see .

The following parameters can be set in the Axis BWC Connector:



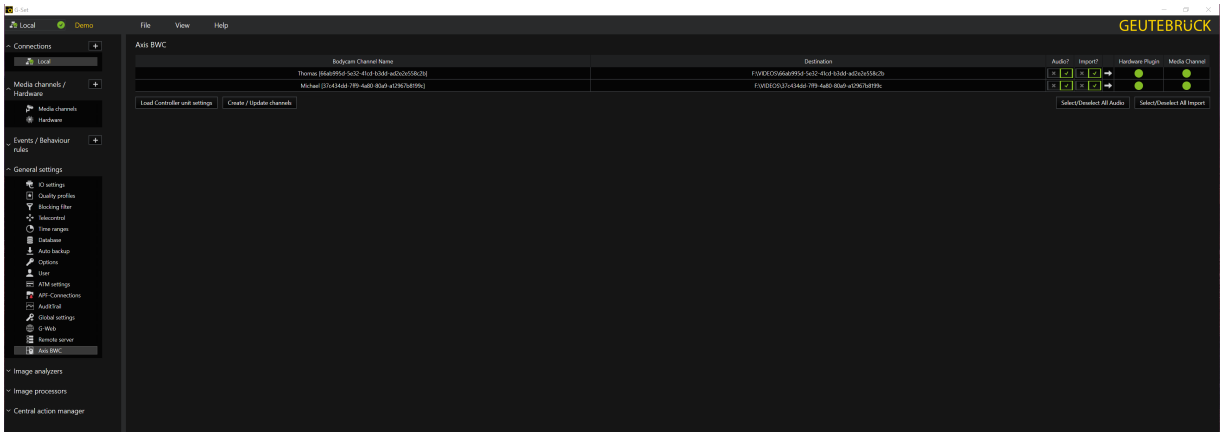
Parameter	Description
Hostname	The hostname of the server on which the BWC Connector is running. The localhost respectively 127.0.0.1 cannot be used, as this would lead to the IP address of the Axis system instead of the G-Core server.
Username	The user name that the Axis system can use to log in to the BWC Connector.
Password	The password that the Axis system can use to log in to the BWC Connector.
Timeout(s)	Determines the number of seconds G-Core will wait until the

Parameter	Description
	files are read in. • Minimum: 30 seconds • Default: 120 seconds • Maximum: 360 seconds
MP4 Path	Select a path that the BWC connector will use to cache the MP4 files before the plugin streams them to the server.
Export connection file for BWS configuration	This button saves a configuration in a selected file. This config file can later be imported into the Axis system via the web browser to transfer all relevant settings. Only available when all required parameters have been entered.
Restart Connection Service with new configuration	This button is used to save a configuration in a selected file in the run directory of the BWC Connector. The BWC Connector is then restarted to ensure that the file is read in. The file provides all relevant settings for the BWC Connector. Only available if all necessary parameters have been entered. For this, the tool must be executed on the same computer as the BWC Connector.
Export configuration file for VMS configuration	This button is used to save a configuration file in a file of your choice. This file should be imported later via the G-Set Plugin dialog to configure the G-Core plugin. It contains the BWS configuration that the plugin needs to process video data correctly. Only available if the BWC connector is running.
Connection State	This light shows the status of the BWC Connector. • Green: The service is running and connected. • Red: The service is not running or is not connected.

Axis BWC Menu in G-Set

Within G-Set, there is the Axis BWC menu where the creation and association of the respective BWC footage plug-ins and user-based media channels can be made.

Within this menu, a previously created configuration file can be imported to create or associate the hardware plug-ins with the media channels. It is also possible to enable or disable the saving of audio material to the G-Core database. For detailed information, see Configuration in G-Set.

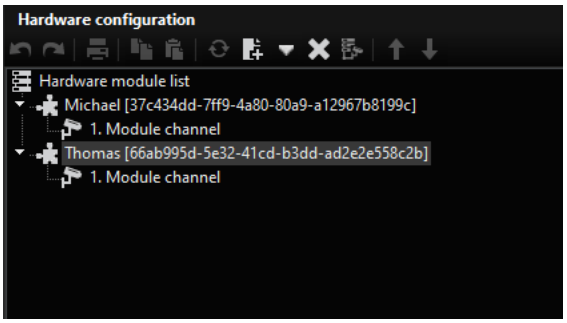


BWC Footage Plugin and Media Channels

The BWC footage plugins are responsible for detecting new video footage and storing the files in the G-Core database. The data can then be viewed via the respective media channels.

The BWC footage plugin, also referred to simply as the hardware plugin, is responsible for saving video and audio footage to the G-Core database after successful configuration.

To do this, it is necessary to know that the plugins are mapped to a user-based media channel that contains the bodycam user's username and the specific user ID in their name. This makes it easy to find the user within G-View after wards. It does not matter which bodycam a user is using, because the system is based on the set user name in combination with the user ID. Accordingly, it is necessary that each bodycam is assigned to a specific user in the Axis System Controller, regardless of whether this assignment was made in the web interface or changes dynamically.



Licensing

The current licensing of the integration differentiates between two license types:

Basic license

- G-Core - AxisBodyCamIntegration → 8.34700
- This license is required once per G-Core server or once per running Axis BWC Connector service.

> ⚠ **IMPORTANT:** There is no possibility to configure the integration without this license.

Channel license

- G-Core - AxisBodyCamConnect → 8.34701
- This license is required per active media channel or per active bodycam user.

The system and the licensing is completely user-based, which means that if you want to view the video material of a bodycam, you must have enough licenses to cover all active bodycam users. In order to save the video material for all configured bodycam users in parallel, it is necessary to have as many channel licenses as there are users.

> ⓘ **When updating the license dongle with the mentioned licenses, a restart of the entire system is recommended to ensure the correct use of the licenses afterwards.**

Installation and Configuration

The steps of the initial installation and configuration of the Axis system are as follows :

1. **Installation and Configuration of Axis Body Worn System**
2. **Connection of G-Core with Axis Body Worn System**
   - **Install G-Core Server**
   - **Create Connection File**
3. **Configuration in G-Set**
   - **Create Configuration File**

- **Import Configuration File into G-Set**
- **Configuration in Axis BWC Menu**

Important Information Before Installation

- Since there is no possibility to use the G-Core demo mode, it is necessary to make sure that the system is licensed with a basic license in order to configure it. Without a license, it is not possible to configure the integration.
- The Axis BWC Connector service temporarily stores the video footage in the Windows file system until it is fully transferred to the G-Core database.

  Therefore, it is recommended to have enough free internal space on the hard disk or to use a separate hard disk for caching the videos.

- The configuration of the connection and the channels should not and cannot be changed during the transfer process of a bodycam.

Installation and Configuration of Axis Body Worn System

The first step is to install the Axis Body Worn system and connect it to the appropriate docking stations and body cams. The configuration of the system takes place in the included web application, the Axis Body Worn Manager.

Detailed information on installation and configuration can be found in the Axis documentation: https://help.axis.com/axis-w800

Google Chrome is recommended as the web browser for viewing the Axis documentation instead of Internet Explorer.

1. Install the Axis Body Worn system and connect the appropriate docking stations and body cameras to the system (see Axis documentation: **Install your system**).
2. Open Axis Body Worn Manager and configure the system settings (see Axis documentation: **Access AXIS Body Worn Manager for the first time**).
3. Before you can continue configuring the system, you must establish a connection between G-Core and the system.
4. Follow the steps below to establish a connection between G-Core and the Axis Body Worn system.

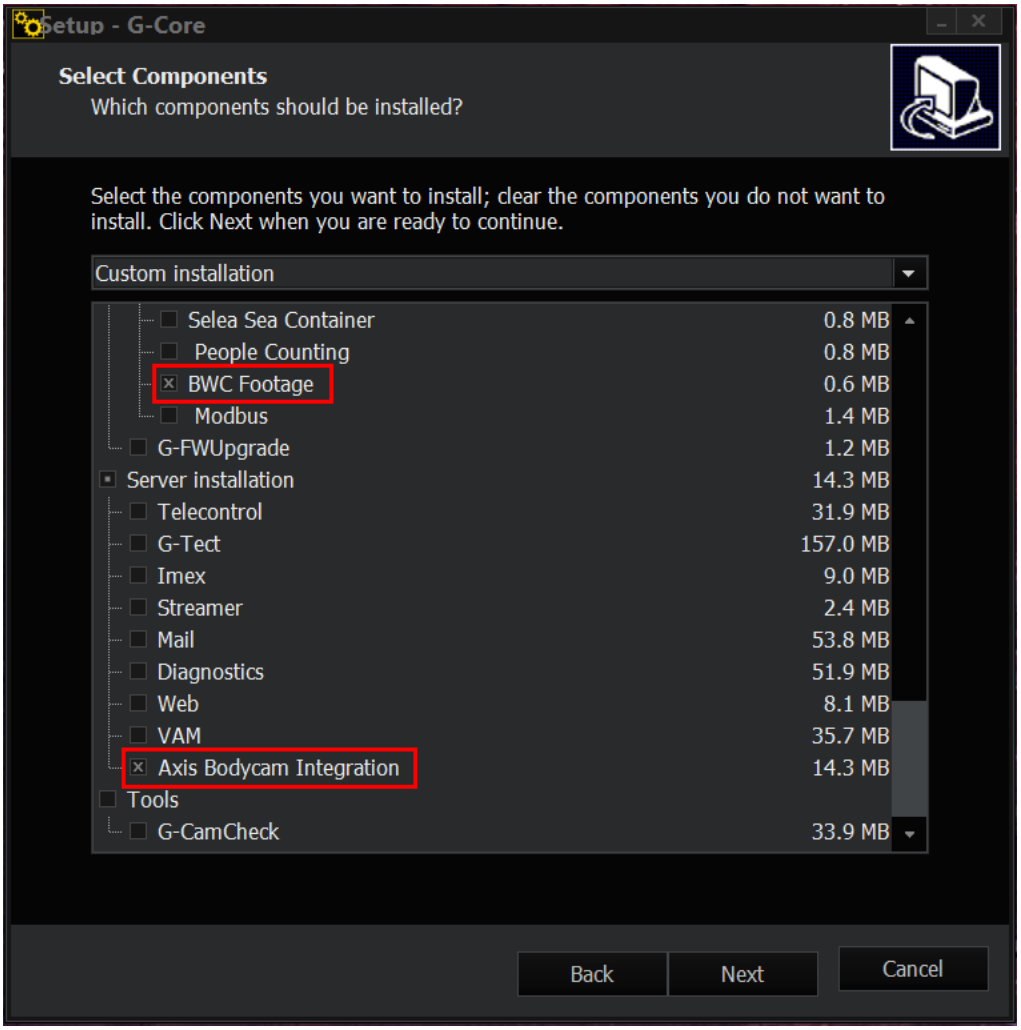
Connection of G-Core with Axis Body Worn System

To connect G-Core and the Axis Body Worn system, a connection file is required, which is generated in G-Core using the Axis BWC Connector. To do this, you must first install the G-Core server with the required components, then use the Axis

BWC Connector to generate the connection file and import it into the Axis Body Worn system.

Install G-Core Server

1. Install the G-Core server. Make sure that the **BWC Footage** and **Axis Bodycam Integration** components are selected.



2. Follow the usual installation and configuration steps of G-Core (see **Software installation** and **G-Set**.

Create Connection File

1. Open the Axis BWC Connector. You can find it in the **Axis Bodycam Integration** subfolder inside the G-Core folder or on your desktop screen after the G-Core installation.

   > ⚠ **IMPORTANT:** Before starting the service, Windows port 13190 must be open to ensure a connection between the service and the Axis system controller.

2. Enter the necessary parameters. Detailed information about the parameters can be found here: **Axis BWC Connector**.
3. Click the **Restart Connection Service with new configuration** button.

   → The connection file is created and saved in the running directory of the Axis BWC Connector. The service is then restarted to ensure that the file is recognized.
4. After restarting the service, click the **Export connection file for BWC configuration** button and select a folder where the file should be saved.
5. Import the created connection file into the Axis Body Worn system (see Axis documentation: **Content destinations**).

   → Follow the further steps in the Axis documentation to complete the configuration of the system.

Configuration in G-Set

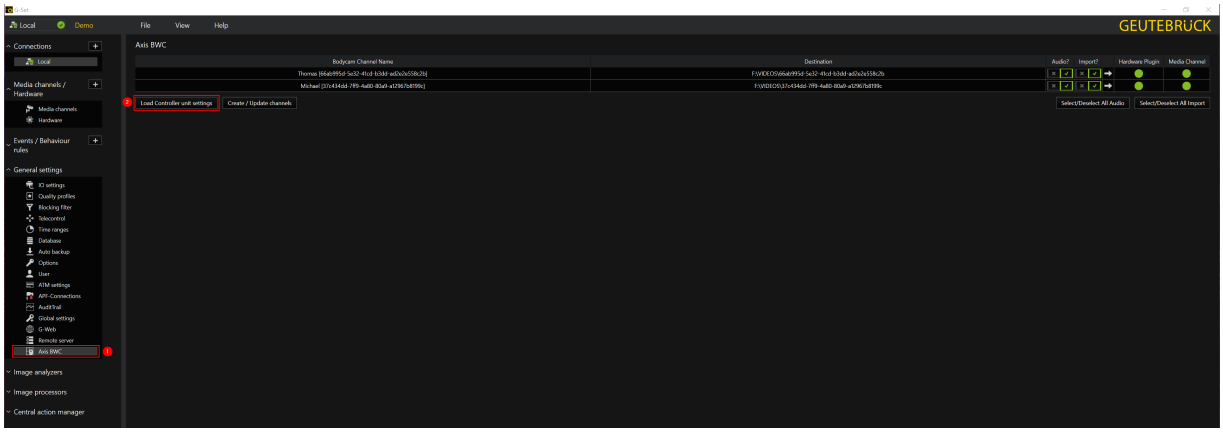
Configuring the G-Core VMS requires a configuration file that is generated in G-Core using the Axis BWC Connector and then imported into G-Set from the Axis BWC menu. In G-Set, you can then see and configure the hardware plug-ins and media channels to be created in the overview of this menu.

Create Configuration File

1. Open the Axis BWC Connector.
2. Click the **Export connection file for VMS configuration** button.
3. Select a folder where you want to save the file.

Import Configuration File into G-Set

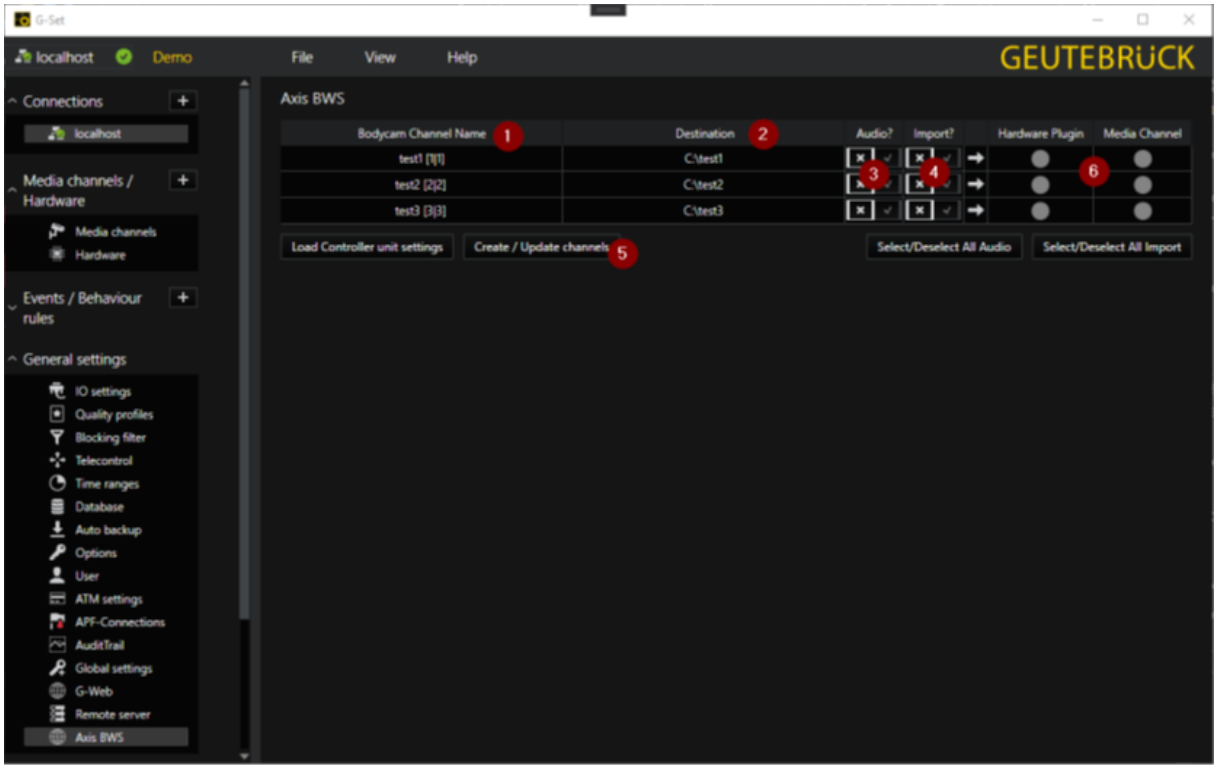
1. Connect G-Set to your local G-Core server.
2. Open the **Axis BWC** 1 menu.
3. Click the **Load Controller unit settings** button 2 and select the created configuration file.



Configuration in Axis BWC Menu

The Axis BWC menu in G-Core consists of the following components for configuring the hardware plug-ins and media channels:

The configuration of media channels cannot be done within G-Set. This is only possible in the Axis web application, Axis Body Worn Manager, where the resolution, audio and other parameters can be set.

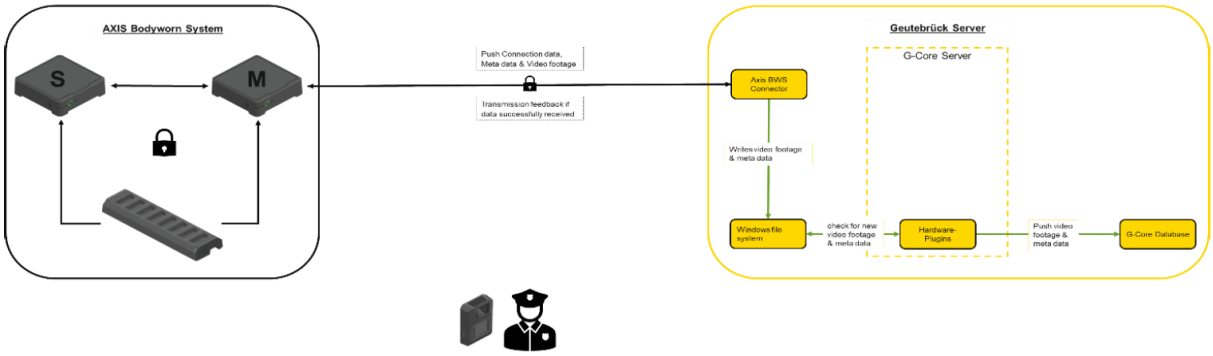


Area	Description
1	Name of the bodycam. Contains the user ID and the user name configured in the Axis system.
2	Destination address of the bodycam.
3	For each bodycam it is possible to enable or disable the processing of audio data. This is a setting in G-Core and does not affect the settings made in the Axis system, but can override them. For example, if a bodycam is configured to record audio in the Axis system, but audio is disabled in G-Core, the camera will record audio, but G-Core will not process it and no audio will be stored in the G-Core database.
4	Each bodycam can be activated or deactivated.
5	Click this button to save the configured settings. The corresponding hardware modules and media channels are then created.

Area	Description
6	The **Hardware Plugin** and **Media Channel** columns indicate whether a hardware module or media channel is configured for a bodycam. The media channel of a bodycam is not deleted by this dialog, so that no video data is lost. So if a bodycam is activated and later deactivated, only the corresponding hardware module will be deleted.

Work Process of the Bodycam User

The following diagram shows the work process of a bodycam user or end user of the system.



The prerequisite is a fully configured system that includes the Axis Body Worn system and the Geutebrück VMS integration (see Installation and Configuration of the Axis System).

The bodycam user plugs the respective bodycam into a free port of the docking station, which charges the bodycam's battery and connects the bodycam to the system. The data from the bodycam is now transferred to the system controller and is temporarily stored on the bodycam until the system controller has sent a transfer confirmation.

The data is then transferred to the Axis BWC Connector service via an encrypted connection. This service now filters the received data based on the user name and user ID and stores the data in the user-based folders. When the data has been successfully stored, the Axis BWC Connector sends a transfer confirmation to the system controller to indicate that the cached data can be deleted.

The configured BWC footage plug-ins now detect new video and audio and directly attempt to transfer it to the G-Core database. Until this transfer is complete, the data is cached in the user-based folders.

After this transfer process, the data can be viewed normally via G-View or another viewer such as G-SIM's Operator Console or Remote Console.

Image Analyzers

Image analyzers include the Tools **Activity Detection (AD)**, the **Video Motion Detection (VMD)**, the movement detection **Video Motion Extended (VMX)**, the **Scene Validation (SV)**, the **AI-Connect**, the **Analytic Host** , the **Number Plate Recognition (ANPR)** and the **License Plate Recognition (LPR)** .

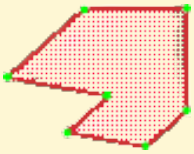
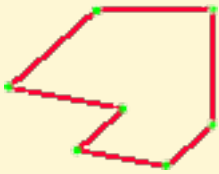
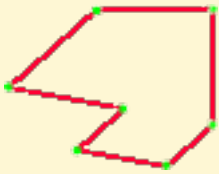
For all image analysis applications, the server connections must be configured and the media channels to be analyzed must be selected. You also need to define which applications will be included in the analysis. These settings are made in the **VCA Setup Editor** for the analysis application ANPR and LPR. For AD, VMD, VMX, SV and AI-Connect these settings can be made via the **Analytic Host**.

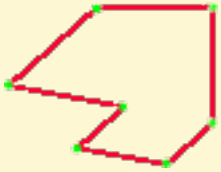
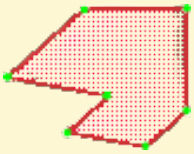
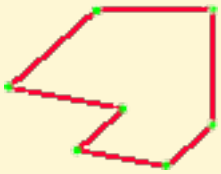
Drawing Zones

Zones are created in the applications of G-Tect, in Activity Detection (AD) and Privacy Zones.

In these applications zones are drawn as polygons. This makes it possible to mark more complex shapes in the image and zones can be moved, made larger or smaller or changed in shape at any time. They can be copied, cut, duplicated and pasted, too.

Marked zones look different in the different applications:

Application	Marked zone	Function	Zone while drawing
G-Tect		Activated Zone	
Activity Detection (AD)		Activated Zone	

Application	Marked zone	Function	Zone while drawing
Privacy Zones		Activated Static Privacy Zone	
		Activated Motion Privacy Zone	

Polygonal zones may overlap. Each zone retains your settings. Intersections can not be configured separately.

Draw a Polygon

1. Click to create a node.
2. Move the cursor to another point in the image and click again. The two points are connected.
3. Move the cursor to another point in the image and click again. The marked points now form a surface.
4. You can now add as many points as you want for this polygon.
5. You stop drawing the polygon by clicking on its starting point.

Move a Polygon

1. Move the cursor over the polygon.
2. When the mouse pointer changes shape, click the polygon and drag it to the desired location.

Change the Shape/Size of the Polygon

1. Move the cursor to a node.
2. Hold the left hand mouse button down, and drag the node in the desired direction.

Add Node

You can always add a node to the polygon. Move the cursor to the desired location on the perimeter of the polygon and click with the left mouse button.

Delete Node

To delete a node, move the cursor over the node and right click.

Context Menu of a Polygon

When you move the cursor over a polygon and right click, a context menu with the following commands appears:

Command	Description
Delete	The polygon will be deleted.
Duplicate	The polygon is duplicated.
Cut	The polygon is cut out. It can be added here, at another location or in another application using the Paste command
Copy	The polygon is copied. It can be added here, at another location or in another application using the Paste command
Paste	The copied or cut polygon is added.
Paste here	The copied or cut polygon is added at the location of the mouse.

Activity Detection (AD)

Activity Detection (AD) is the identification of movement in defined areas of a picture. Movements that are detected trigger pre-defined reactions.

AD control means that significantly less database storage capacity is required in contrast to permanent recording, since images are only saved when movements have triggered the start of recording.
Saving database capacity is one thing, high image quality when required is another: An empty corridor requires neither high frame rates nor high resolutions – 1 or 2 fps are sufficient in this case.

However, within 40 ms of detecting movement, the AD switches to the full frame rate and to a higher resolution, maintaining this performance for the duration of the alarm.

AD is of particular value for indoor applications. For outdoor applications see **Video Motion Extended (VMX)**.

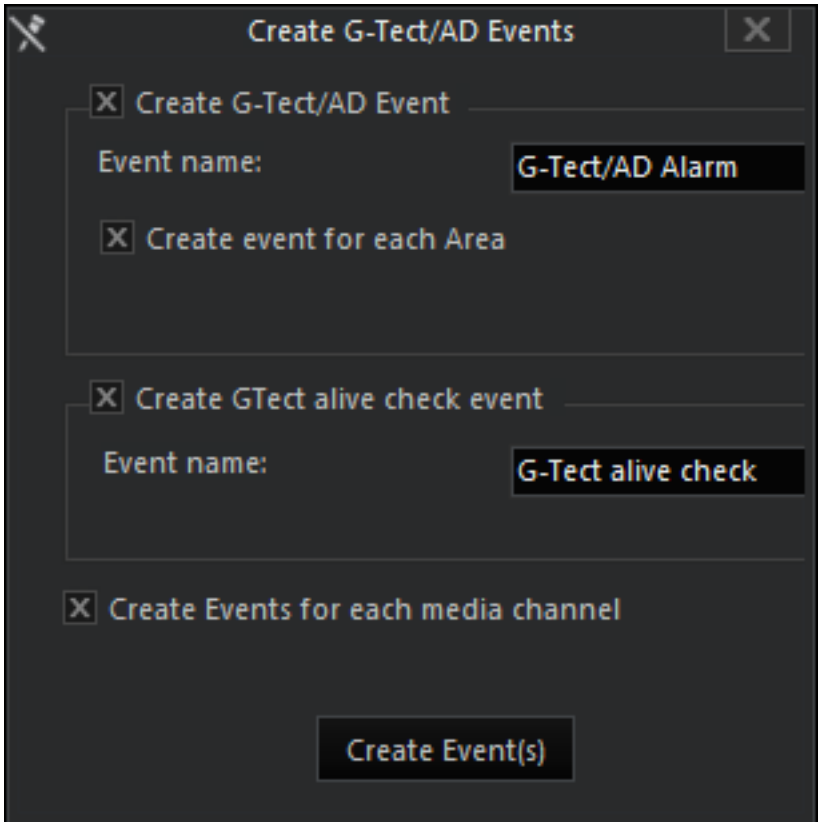
Description of the User Interface

The AD's user interface screen is divided into four areas:

Area	Description
1	The media channels of the connected servers whose images can be displayed on the viewer are listed in the left area. In addition, the available media channel templates are shown.
2	In the area to the right of that you will find the setting for the **Sensitivity** and the **Directional Filter**.
3	The largest part of the interface is taken up by the viewer with its controls.
4	Below the viewer you will find the setting for the alarm duration and the display for the AD status and the AD measurements.

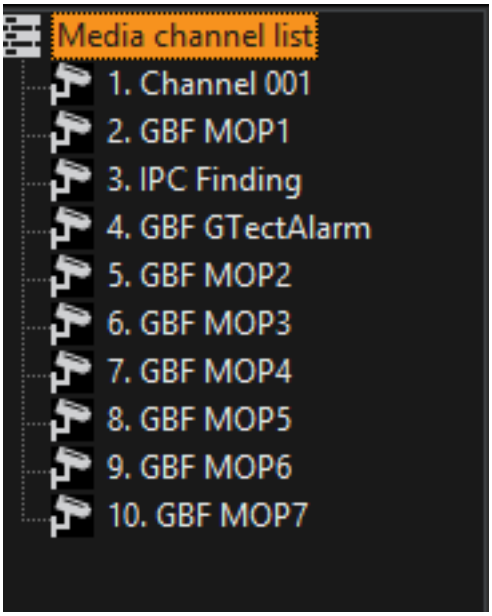
Click on the symbol to switch the viewer image to black and white.

Click on the symbol to open the dialogue for event configuration. Events can be quickly configured using this dialogue:



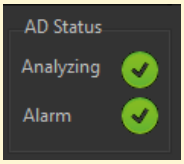
If AD is used on a media channel with DVSP8 hardware, **Sensor Video Alarm** (with the sensor type **AD**) is no longer used, instead the action **G-Tect/AD Alarm** is used! Accordingly, for the stopping action, **Sensor Alarm finished** (with the sensor type **AD**) is longer used, but rather **G-Tect/AD Alarm finished** is used. In addition, it is not necessary to activate **AD** in the VCA Editor for this channel, or even to use the G-Tect service! The analysis of the image changes is performed within the DVSP8 card.
The action **Sensor Video Alarm** with the sensor type **AD** and **IP-AD**, are now only required by IP camera plugins for triggering events by the camera-internal sensors.

All configured media channels of the connected server are found in the Media Channel List. Click on a media channel to activate it on the viewer and to set up zones for the AD.



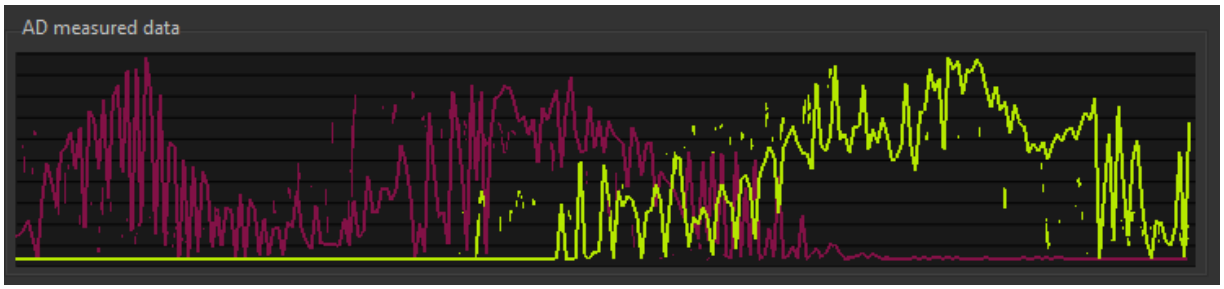
Different images can be used for the AD settings in the Viewer: live streaming, images from the database, and captured sequences of images. Any of these images can be used for drawing zones.

AD Status and Measurement Display

Button	Description
	The alarm status display shows the current status for the image analysis and the alarm. There are three statuses: Active, standby and alarm.

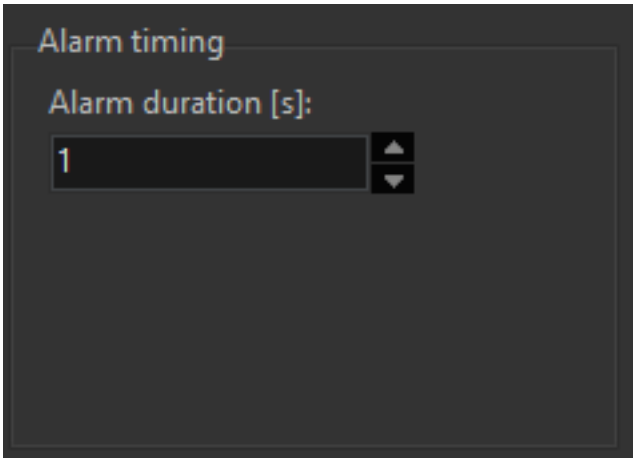
Button	Description
	When the image is analyzed, i.e. evaluated for movement, this is indicated, as can be seen in the above figure, with the icon shown on the left.
	If no analysis takes place or streaming is interrupted, the icon for standby is displayed.
	When motion is detected in one of the zones, if the alarm is active, the icon changes to indicate an alarm.

The AD Measured Data display visualizes the detected motion in the zones, color coded, with each zone having its own color. The figure shows the measured values for two zones. From the shape of the curves you can also read out which zone was triggered first and the seamless transition indicates that the zones are close together or even overlap. Compare this with the first figure in this section: There the measurement values in the analysis phase can be seen and it is clear that the zones actually do lie close together. Apparently, someone has come through the door and then walked to the control panel.



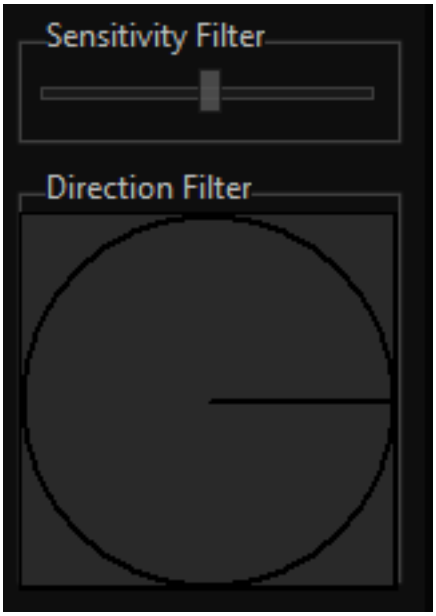
Alarm Settings for Images

The **Alarm duration (s)** is the length of time that an alarm runs if no additional movement occurs. If there are further movements in the image during the alarm duration, the alarm is thus continued until no more movement occurs. For movements lasting 120 seconds, an alarm duration time of 1 seconds results in a total alarm duration of 121 seconds.



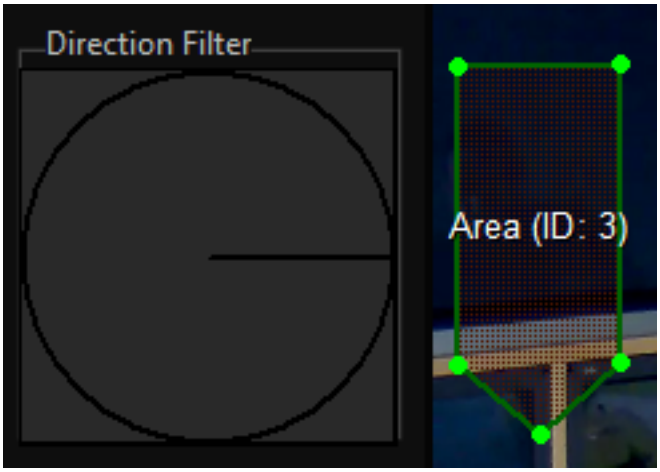
Sensitivity

The sensitivity is set using a slider. It can be individually adjusted for each area. The default setting is in the middle.
Move the slider to the left to reduce the sensitivity and to the right to increase it.
In most cases, the default setting is suitable.

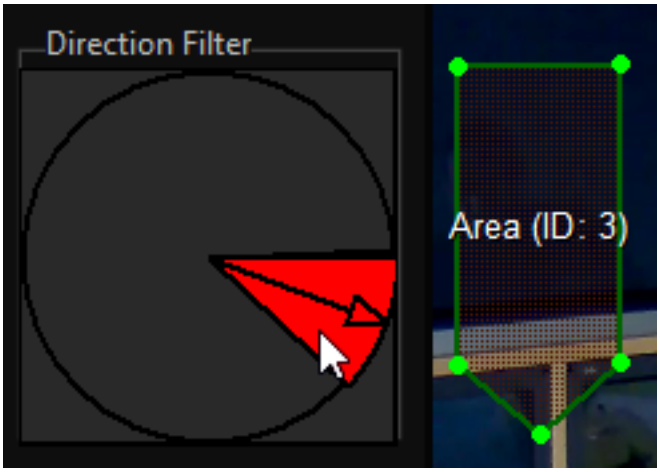


Direction

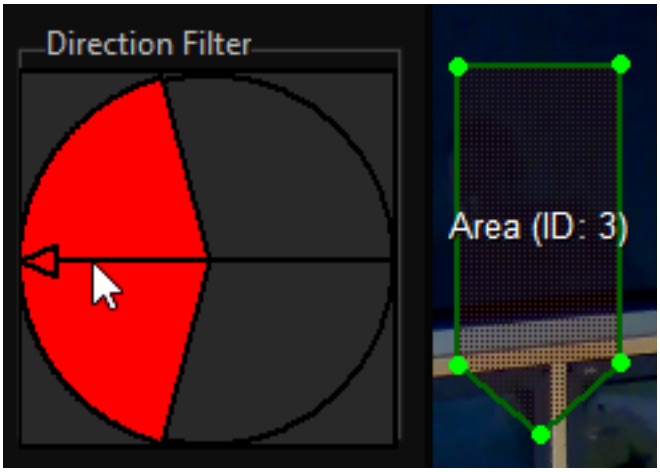
Filtering the direction is set using the Direction Filter. The direction filter can be set only when an area was clicked on and activated (here as an example only, an area with the ID 3).



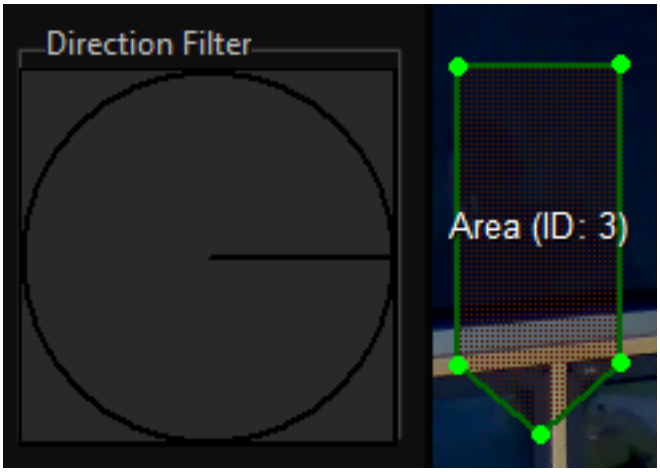
If you double click in the circle, a red triangle with a direction arrow is created. It represents the direction in which the movement must occur. The angle indicates the range, i.e. the area within which the direction is to be detected.



By clicking and dragging the outer edge of the angle, you can increase or decrease it.
If you grab the arrow, you can change its direction.



You can delete a direction filter by right clicking in the area.



Several directions can also be defined simultaneously. To do so, click as described above in different areas in the circle.

Controlling the User Interface

Selecting the Image Display

Three different types of display can be shown on the Viewer:

- Live streaming of the active media channel (simply drag the desired media channel onto the Viewer) or
- Display of an image from the database (double click the desired media channel, then use the toolbar to set the desired image display).
- Sequences of images can also be captured (in capture mode).

Before You Start

It is essential that you understand the method by which movement is detected in the zones if you are to adjust movement detection in the image properly.

In order to be able to detect movements in a picture, it is necessary to define the part of the picture in which movements are to be detected appropriately. For this purpose, zones can be arranged in the image. The position and shape of the zones can be freely configured so that the monitored area can be outlined precisely. This also makes it possible to match the measured areas to the sizes of the object or persons on the image. More on creating zones can be found here: **Drawing Zones**.

In each zone, the gray values of the pixels are determined and evaluated using a mathematical method. The values determined are compared with the previous values. When movements occur, differences are always generated.

Movements are identified by the fact that a limited area of the picture (one or a more zones) are affected. Movements primarily involve local changes.It is typical of brightness fluctuations that a larger area of the picture (many or all zones) is affected. Brightness fluctuations usually involve global changes.

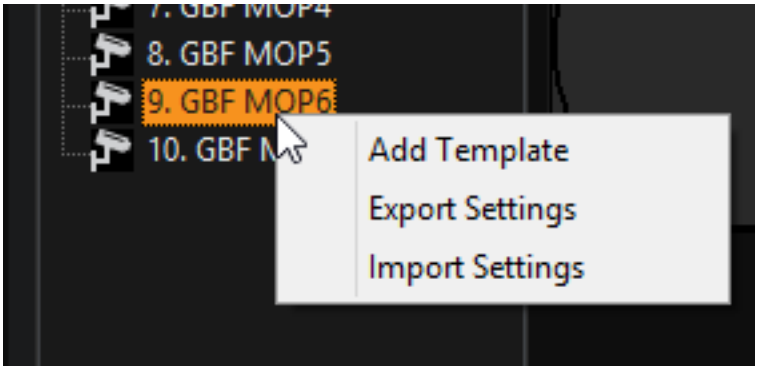
In order to distinguish between movements and brightness fluctuations, the largest of all the measured values is determined, and is then processed as the maximum. In parallel with this, the sum is formed (from all the measured values). An alarm is created if the difference is large enough.

Procedure

- First, specify which type of images of the media channel will be displayed.
- Draw zones in the areas in the image that you want to analyze for movement.
- Adjust the sensitivity and (if necessary) the direction filter. Consider the situation and set a suitable alarm duration.
- Save the settings by transferring them to the server.
- Test the settings. Check the AD status and the measured values.
- If necessary, modify the settings and save them again.
- Now configure the events and alarms.

Saving the settings for later use.

The AD settings can be exported as a parameter set and reused later for another media channel. The export and a later import of the parameter sets is performed using a pop-up menu that appears when you right click on the configured media channel.



Export: For the export, click **Export Settings**. The Windows Explorer opens. Give the file a name and save it in a directory of your choice. The settings are saved as an xml file.

Import: For the import, right click on the desired media channel and then on **Import Settings**. The Windows Explorer opens. Go to the directory in which you saved the export file. Select the file.

> Example Export/import of parameter sets:
>
> An office building has four corridors, one above another. On their right hand sides are office doors with alarm zones. Proceed as follows:
>
> Draw the alarm cells for just one corridor
>
> Export these parameters as just described
>
> Right click on the media channel whose connected camera shows the corridor above and and import the saved parameters as just described

You can also export the AD parameters and import them for use elsewhere, for instance, on another G-Core.

Template: With the Add Template command you can add a template to the active media channel. Select the template and also create zones. Enter a name (double-click on Templatexx) and save the configuration.

You can activate this template using the action **ChangeADParameterSet**. An example: In the corridor of an office building under watch in the above example, it is likely that someone goes down the corridor now and then. Most recently the

cleaning services. After that, no one else should be in the corridor until the next morning. If you have created a time range for the evening and night time, with this change you could also modify the parameter set for the AD. The associated template would now not record the doors, but rather the entire corridor area.

Video Motion Detection (VMD)

Subject to license

Video Motion Detection, abbreviated to VMD, refers to the detection of movement in video images through the use of up to 128 definable zones which can be linked into chains. Movements that are detected trigger pre-defined reactions.

Amongst other things, the VMD can:

- Distinguish and correctly identify the difference between global changes and local changes in the image
- Detect directions and speeds through zone functions
- Recognize perspectives through adjusting the size of the zones.

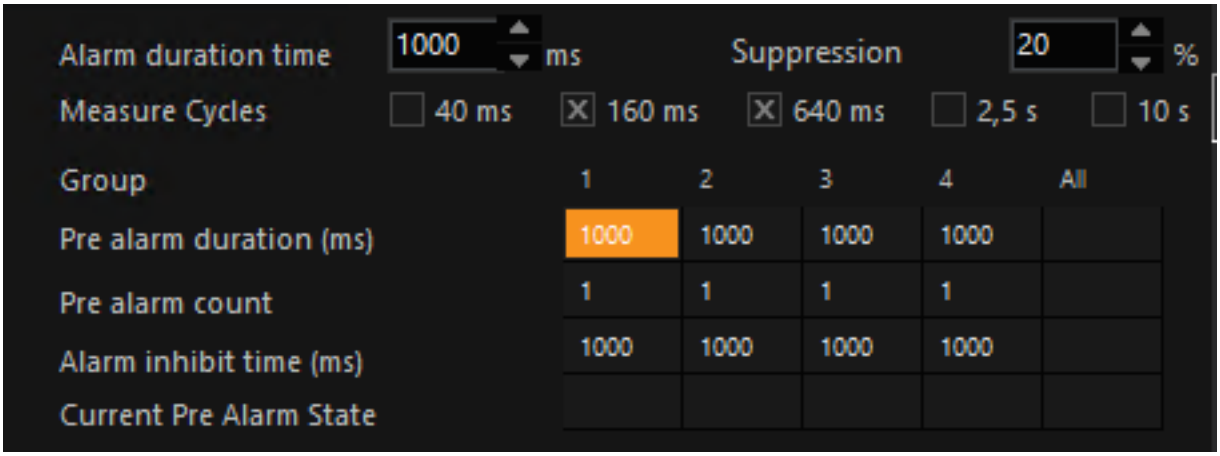
You will find the VMD user interface in G-Set under the Image analysis menu.

User Interface

The VMD interface is not very different from the interface for the Basic/Extended Activity Detection, AD: the media channel list is on the left, while the viewers are to the right. The whole of the lower area is used for configuration.

The operating elements for suppression and for the movement and contrast thresholds are the same.

To the left of these you will find the settings area for alarm configuration and the measurement cycles.



Parameter	Description
Alarm duration time	Duration of the alarm after having been triggered (alarm run time).
Group	
Pre-alarm duration	Duration of the pre-alarm status of a zone after something has been detected in the zone (can be set for individual groups or all of them)
Pre alarm count	Indicates how many zones in one group must be in the pre-alarm status to trigger a VMD alarm
Alarm inhibit time	Duration of the alarm inhibit in all groups after an inhibit zone has triggered.
Current pre alarm state	Counts the zones within a group that are in the pre-alarm state
Measure cycles	Five measuring times are available -> see Chapter 7.2.4, Understanding and using VMD – measurement cycles

Controlling

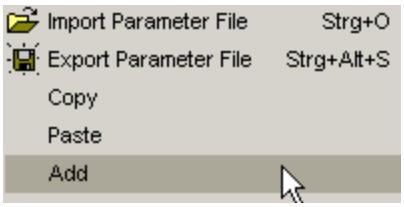
Media Channel List

In the media channel list, only media channels are listed to which are assigned

- The VMD function packet and
- Additionally all IP cameras and plug-ins.

When a VMD license is present, the icon of the media channel changes.

To put a media channel onto the list, click in the toolbar on the symbol, or with the right mouse button in the media channel list. A popup dialog opens. Select Add.



Parameter	Description
Import parameter file	You can load a parameter file that has previously been exported for the active media channel
Export parameter file	You can save the parameters of an active media channel
Copy	You can copy the settings of the active media channel
Paste	You apply the previously copied parameters to the media channel that is now active
Add	You add another media channel

The media channels of the list can be switched to the viewer. To do this, click on the desired media channel with the left mouse button or drag it to the viewer.

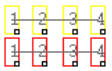
Zones

There are 4 types of detection zones: Alarm zones, Inhibit zones, Prealarm zones and Suppression zones.

It is also possible to create a chain. Chains, however, can be created from a series of different zones. (See **Understanding and Using VMD**).

The task of each of these zones is identified by a corresponding color:

Zone	Color
Alarm zone	2

Zone	Color	
Inhibit zone		
Prealarm zone		
Suppression zone		
Chain	Changes according to particular function	

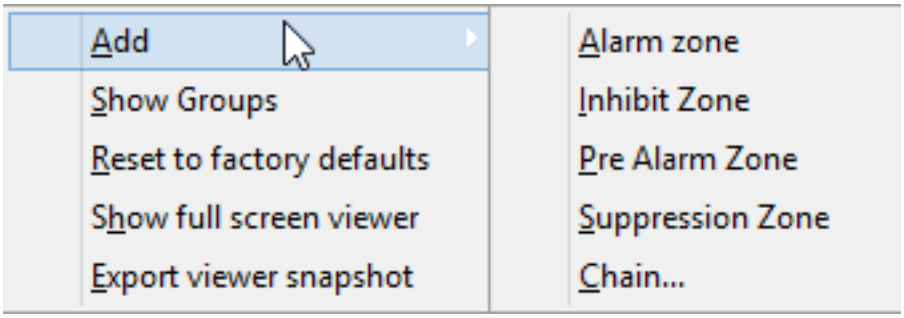
The zones can adopt different states:

Zones state	Description
	Normal display of a zone (an alarm zone, in this example).
	The zone has been selected in order to enlarge it, move it, or change its properties.
	The zone with the highest value of movement detection is displayed in cyan.
	Activated pre-alarm zone, included in the alarm evaluation.
Special form for chains:	
	Zones with a black square in the upper left-hand corner are known as anchors.

Adding Zones

To add a zone, click with the right mouse button in the viewer. The popup dialog opens.

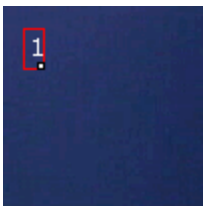
Select the zone type from the list.



Zone Size/Position

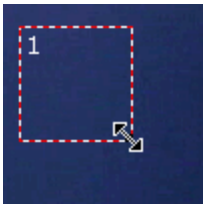
Change the Size of a Zone

In our example, an alarm zone is created whose size has to be changed. You will see a white square with a black border in the lower right hand corner of each zone that has been created.



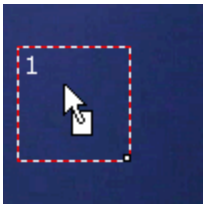
If you move the mouse pointer over the square, the cursor will change.

Hold down the left hand mouse button, and drag the zone up to the desired size and proportions.



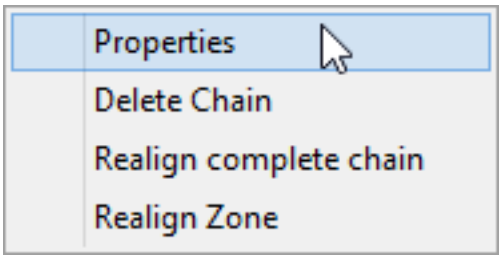
Moving a Zone

Move the cursor over the zone. The dotted border shows that the zone has been selected. The cursor changes its appearance. Hold the left hand mouse button down, and drag the zone to where you want it.



Properties

To change the properties of a zone, click the zone with the right mouse button. The selection dialog appears.



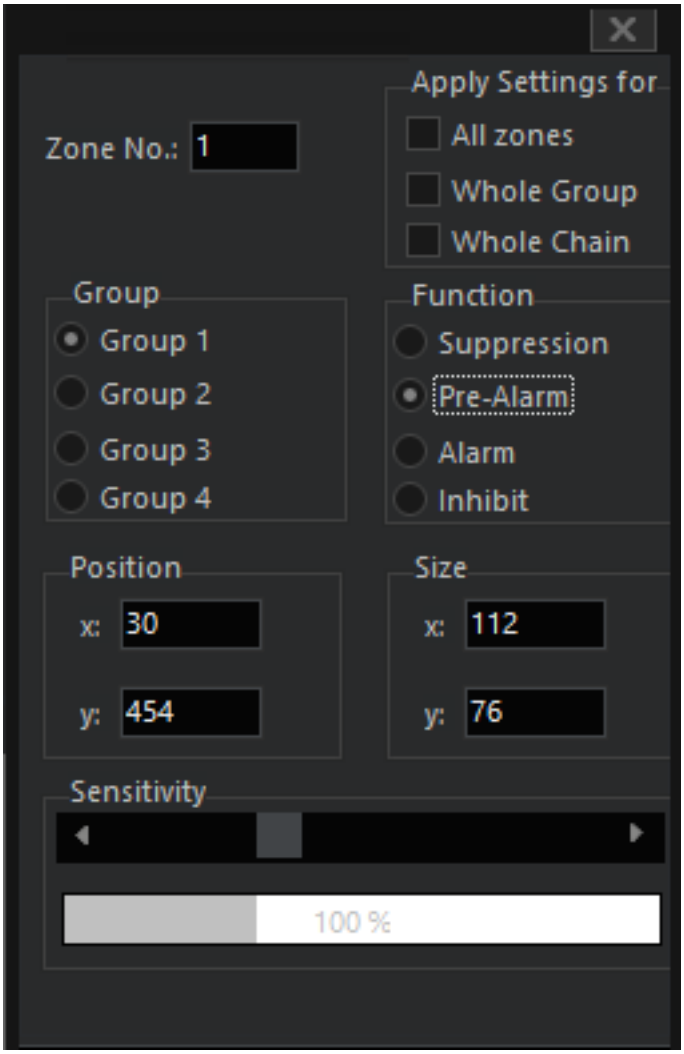
Select **Properties**.

The properties dialog provides a variety of settings that can be configured.

Under **Apply Settings For**, you can select whether the changes that have been made will apply to **All Zones**, to the **Whole Group**, or to the **Whole Chain**.

It is possible to change:

- Whether the zone belongs to a **group**
- The **zone position**
- The **zone size**
- The **zone sensitivity**

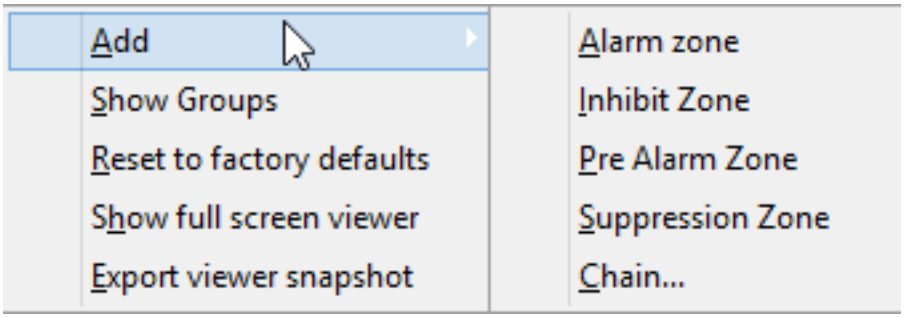


Click **Accept** to save the changes.

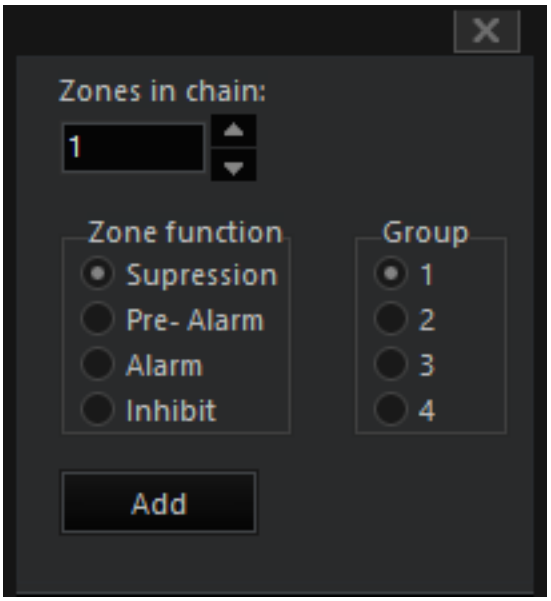
Working with Chains

To create a chain, first click with the right mouse button on the viewer, and then click on Add.

Create Chain



Select **Chain...** . The Add chain parameter dialog opens.



Enter the number of zones in the chain, and select a zone function and a group.

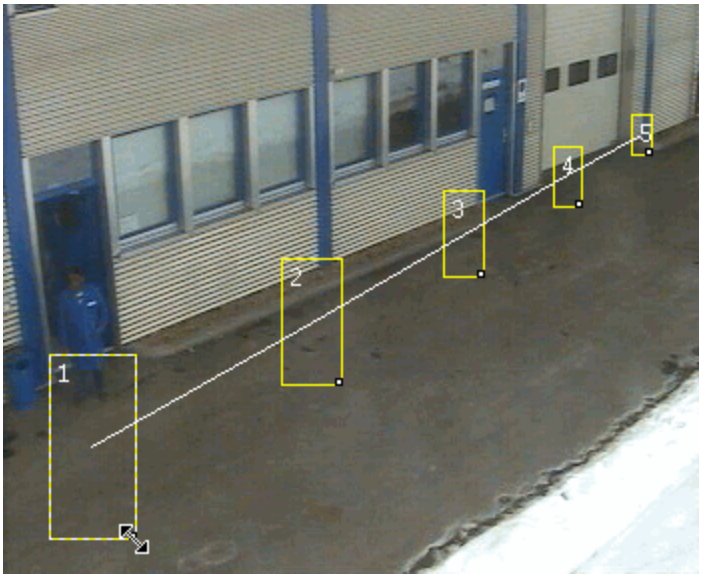
All the links of the chain must have the same zone function. It is not possible to have mixed chains.

In our example, we have constructed a pre-alarm chain with 5 zones in group 1. The five zones should protect the outer wall between the two doors.

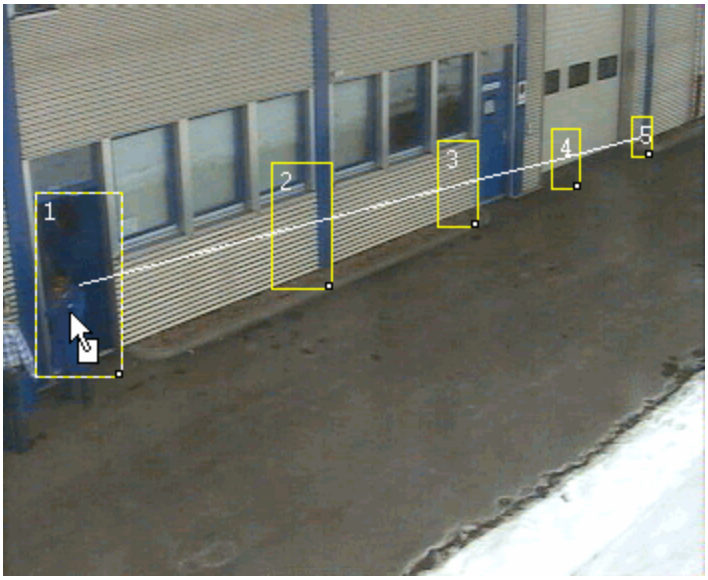
To align the chain, we pick up the outside zones (left mouse button) and drag them to the desired location. The white connecting line clearly shows the alignment.

Draw Perspective

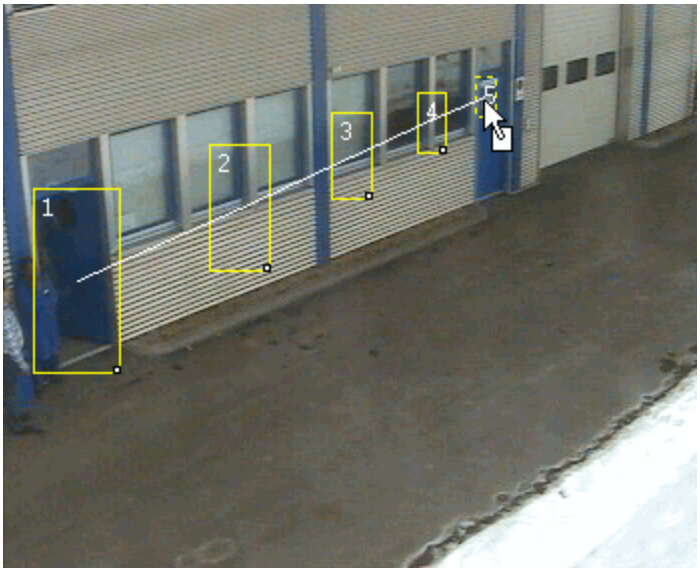
To take account of the perspective (the door on the left is larger than the door on the right; people who come out of the door on the left are larger than when they are by the right hand door) we adjust the size of the first zone ...



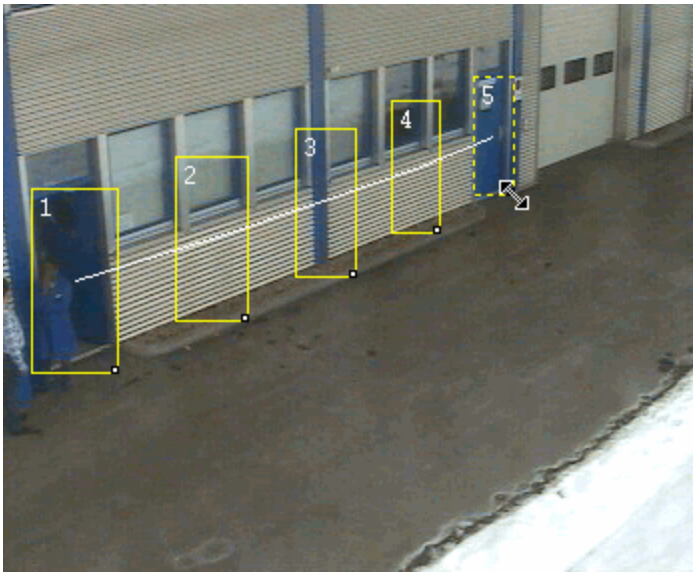
... and we position the zone over the door.



Then we do the same thing for the fifth zone over the right hand door. Here, the alignment over the right hand door ...



... and here the size matching.

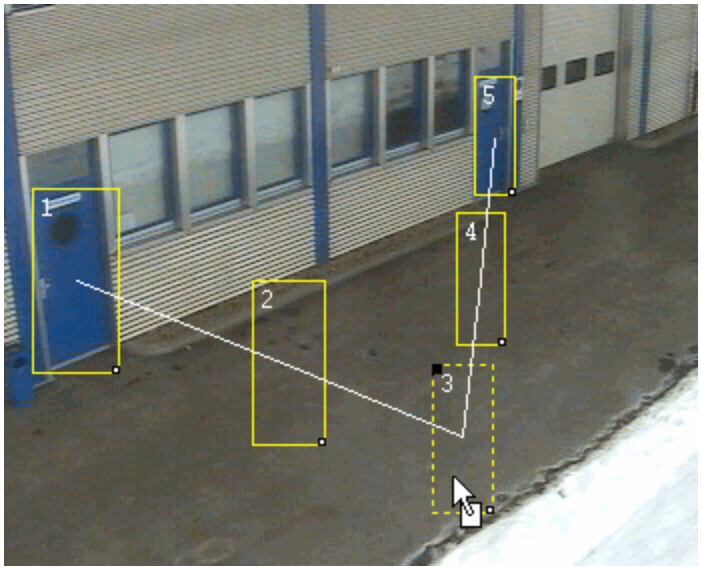


It can be seen clearly how zones 2 to 4 adapt to the perspective.

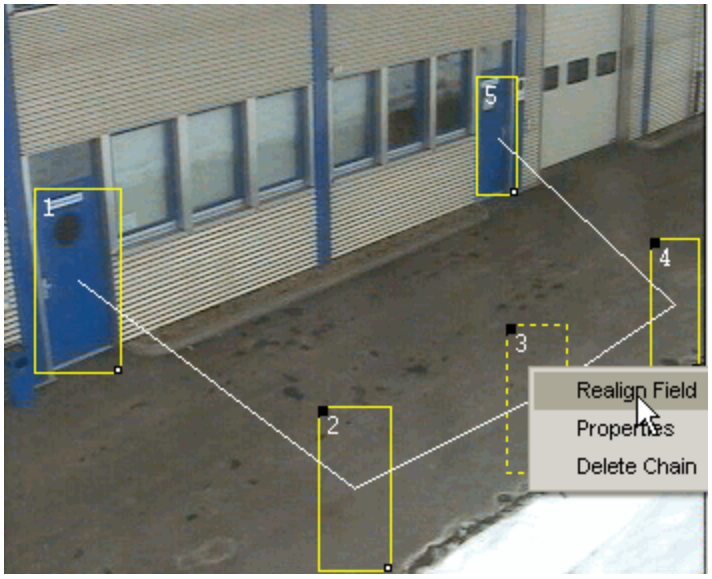
Shaping Chains

As this does not have much real use on our example image, we show you here how chains can be reshaped:

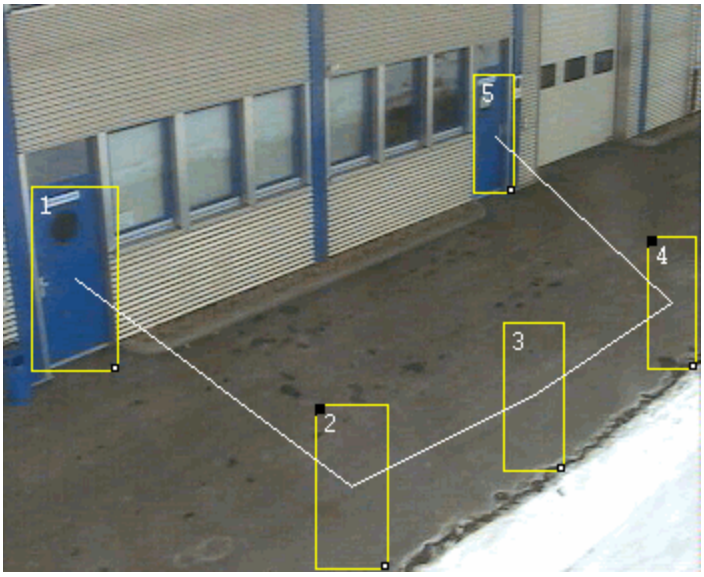
Select zone 3. Pull it downwards to the right. The outermost zones hold their positions, while the other zones adjust their position and size. Zone 3 has a black square in the upper left-hand corner. This means that zone 3 has become an anchor. All the movements of the outer zones now rotate around this anchor.



If we now also move zones 2 and 4, they also become anchor zones. The anchor can be removed by clicking the zone with the right mouse button and then clicking Realign Zone.

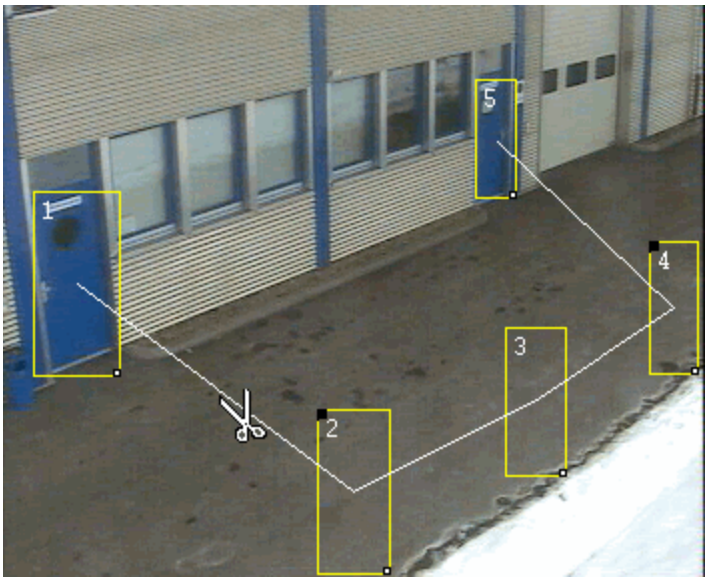


Here is the result:

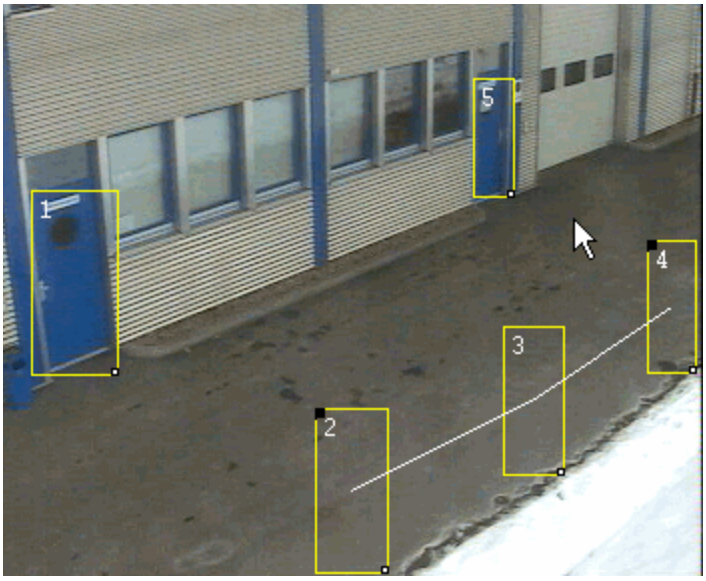


Cutting Chains

When you move the mouse pointer over the white connecting line, the cursor changes to a pair of scissors. The zones can be separated with a left click.

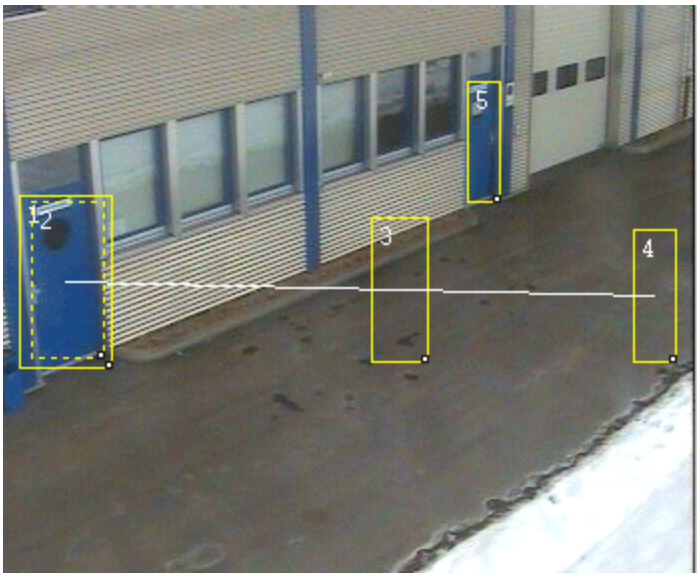


In our example, we separate the door zones from the chain at the other side of the access.



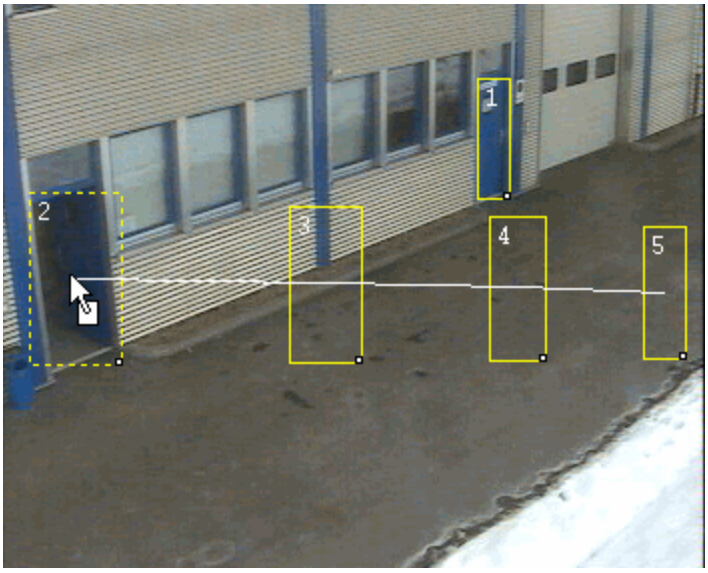
Joining Chains

To join chains, pull one of the outermost zones of a chain to the center of the zone or the chain end with which you want to connect. Differences in the sizes of the zones are irrelevant here. In our example, we have pulled zone 2 to the center of zone 1.



If you release the mouse button, the zones will be joined and the perspective will be recalculated.

The recalculation of the perspective is only carried out from the joined side to the first anchor.



Deleting Chains

If you want to delete a chain, click with the right mouse button on any of the chain's zones, and then on Delete chains in the dialog. The chain is deleted without any further query for confirmation.

> **IMPORTANT:** Five measuring times are available -> see Section 7.2.4, Understanding and using VMD - measurement cycles

Understanding and Using VMD

Comments on the Function of the VMD

When you open the VMD window, you will already see 4 chains with 8 zones each. These 32 zones make up the base frame for the VMD.

Although you can add a maximum of 96 additional zones (individually or as chains), until the maximum of 128 zones has been reached, it is not possible to have less than 32 zones.

The reason for the limitation lies in the fact that, for steady and reliable measurement for distinguishing between global and local changes in the picture, a minimum number of zones must be evaluated.

If, however, you require fewer than these 32 zones for your specific circumstances, set the remaining zones to 'Suppression'.

> **If you have set zones to Suppression, these zones are subsequently only used for the calculation of global changes. These zones should not be situated on parts of the picture that contain movement (trees, bushes, clouds, flags etc.) and also not on segments with**

fluctuations in contrast (the sky in general, bright car headlamps, flashing advertising, etc.). Including these kinds of zones will lead to sensors becoming less sensitive.

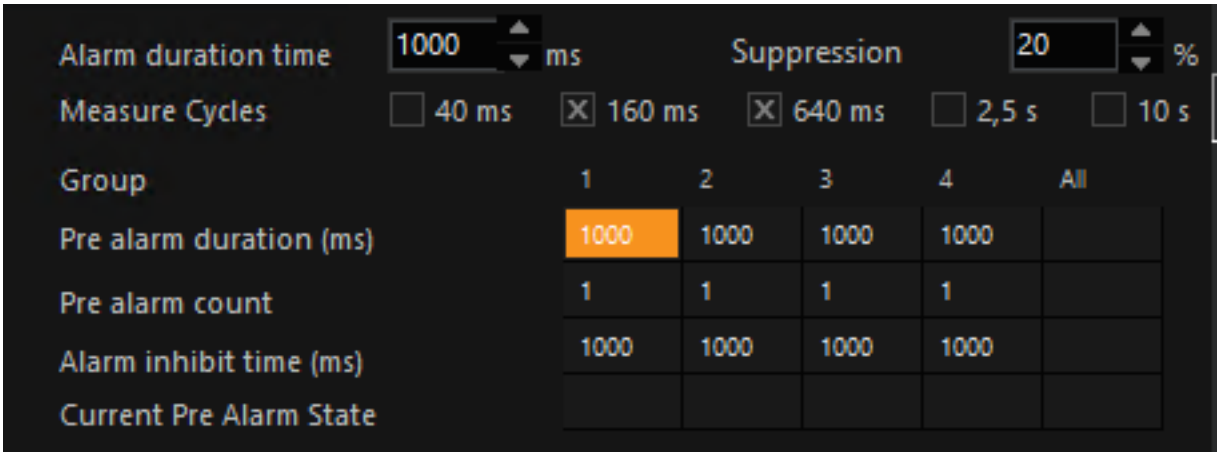
How does this work? The suppressed part (indicated by a percentage) is subtracted from all the measured global changes in the picture. Given that both the movement and the contrast threshold have been set correctly, with a suppression threshold of 100% neither a global nor a local change will be signaled. With a suppression of 0%, there will be constant movement detection, where any change in the picture will always be signaled.

Based on the above-mentioned conditions (moving sections of the picture or strong changes in contrast), it is essential to monitor suppression at various times of the day and with various light/weather ratios. Anyone who has seen a lawn at different times of day will understand how tricky it can be to correctly set the suppression: In the morning with dew and back-lighting, the lawn shines like silver (high white value), while in the afternoon it is a soft green (mid-greybeard value). Or, something that is often not taken into consideration: Plants grow and change with the seasons. Moving shoots push into the picture, and where vision was clear in autumn, shimmering foliage fills the picture in summer.

Via actions and/or the configured time ranges, it is possible to start adjusted profiles for the VMD at various times of day. In this way, difficult situations can be better managed.

Alarm Configuration

The alarm configuration displays all the important settings in a clear, tabular form.



The **alarm duration time** in milliseconds must first be set. This setting applies to all alarms.

It is possible here to make settings for each group or one for all the groups in the All column.

Pre-Alarm Time

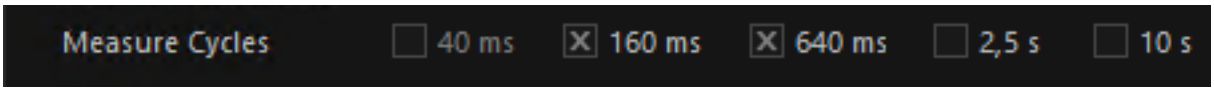
Special attention should be paid to the **Pre-alarm duration**; in our example we have entered 1000s.

The pre-alarm duration is the length of time within which the number of pre-alarm zones entered under the Pre-alarm count must detect movement before an alarm is recognized. (See below)

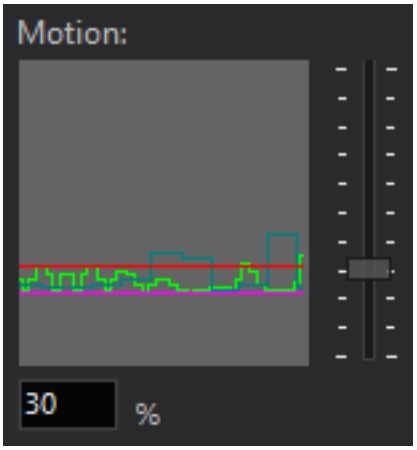
This is considered in more detail below. The Alarm inhibit time line specifies the time for which all the alarms in all the groups are inhibited once a movement has been detected in an inhibit zone.

Measurement Cycles and Image Contrast

In the alarm configuration settings area you will also find a line called Measurement cycles, where five settings are possible.



The activated measurement cycles are also displayed as curves on the monitor. The values for 40 and 160 ms are:



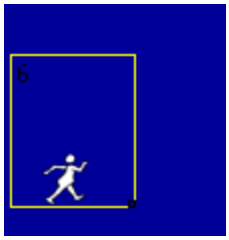
These times require explanation:

> Example Let us consider an alarm zone with a measuring cycle of 40 ms. This means that contrast changes within the zone will be compared every 40 ms. If a ball now flies through the zone it will be detected, since 40 ms

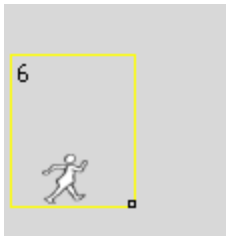
is quite short. If, however, a person slowly and carefully creeps through the zone, the contrast changes occurring within 40 ms are too small to trigger an alarm.
On the other hand, the situation with a setting of 10 s is the reverse: The ball will not be detected, but the slowly creeping person will be.

This is, however, only true when the size of the objects has a reasonable relationship to the size of the zone. As shown here, with our example figure.

Nevertheless, a smaller object such as a rabbit could also be detected, provided the contrast is strong enough. If the contrast is too weak, detection will not take place.



Is recognized



Is not recognized

This gives us three criteria for setting the measuring cycles: speed, size and contrast. To make the right settings, you should:

- Make your settings in monochrome mode, so that it is easier to judge the contrast
- Test various measuring cycles and their combinations
- Deliberately initiate alarms using people and/or objects under different light conditions and with varying contrasts

- Pay particular attention to the settings for dusk and night (zones in totally dark areas are as useless as zones in which the camera image is flooded by searchlights).

Seasonal conditions (a low sun, white areas of snow, etc.) should also be considered.

Alarm and Inhibit Zones

Alarm Zones

Alarm zones are appropriate in those parts of the image where movements are to be detected. Single zones (chains with a single link) or full chains may be used. A chain is particularly useful when, in addition to the movement itself, the direction and speed are also to be detected. Pre-alarm zones are particularly helpful here (see next section).

Inhibit Zones

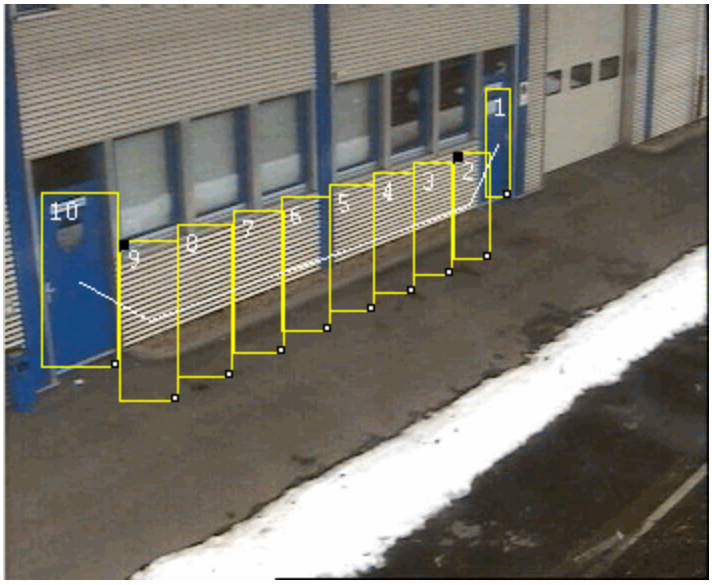
The case of inhibit zones is different: Because inhibit zones do not trigger an alarm in response to activity, but inhibit triggering of the alarm by the alarm zones for a specified period of time, they are only used in special cases.

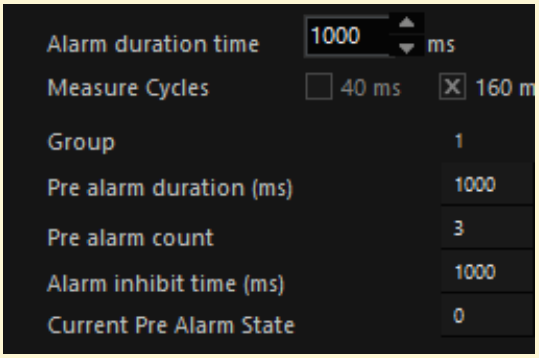
If you have created inhibit zones, and if a movement is detected in these inhibit zones, all the alarms in all the groups will be inhibited!

From Pre-Alarm to VMD Alarm

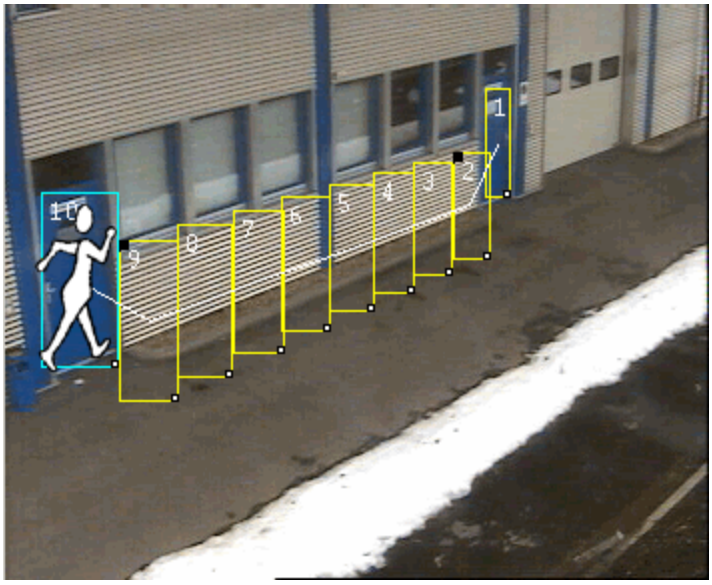
In this section we want to use an example to explain the way pre-alarm zones function. We have created a very simple scenario for this purpose:

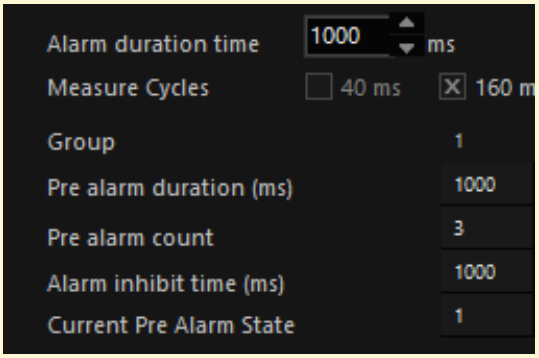
In the next illustration, you see a pre-alarm chain having 10 zones that has been created in area 1.



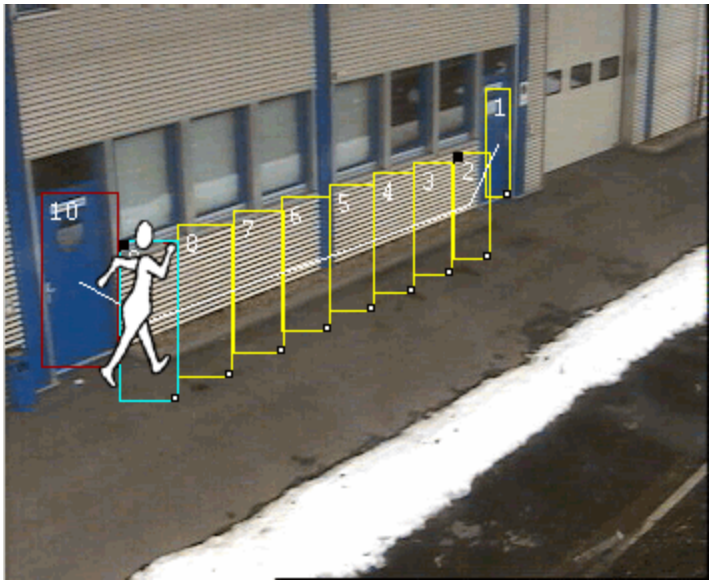
	The **pre-alarm count** has been set to 3, which means that if 3 zones in the chain are activated by movement within the 1000 ms pre-alarm duration, a VMD alarm will be initiated. The **Current pre-alarm state** shows how many zones satisfy the above condition.
	The VMD alarm LED is not showing an alarm.

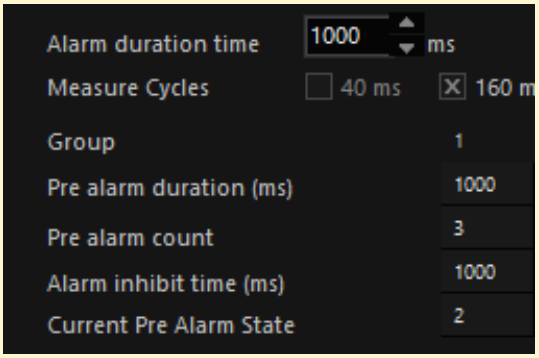
In the next illustration, our example figure triggers a movement signal in zone 10 of the chain. The detection zone is outlined in cyan, because it is the zone with the maximum detection level.



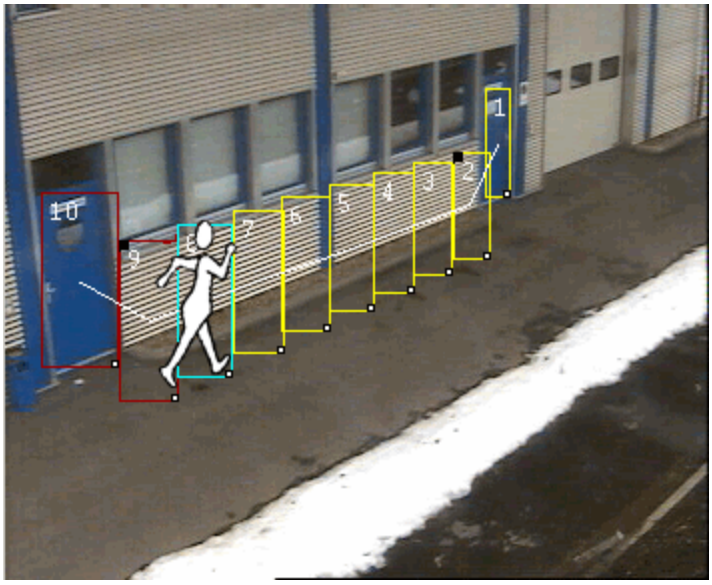
	You can see, under **Current pre-alarm state**, how the movement in zone 10 causes a change in the status (from 0 to 1).
	The VMD alarm LED is not showing an alarm.

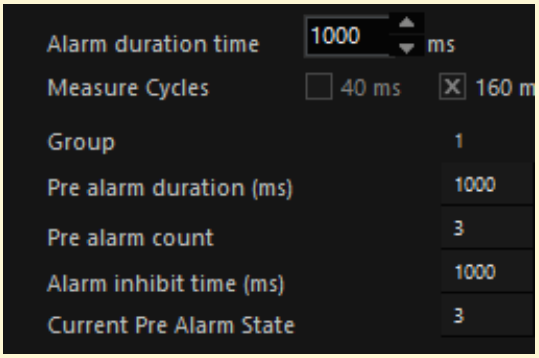
Our figure moves on: Zone 10 is now outlined in dark red, which shows that it is in the pre-alarm state. Zone 9 is cyan, due to the maximum movement detection.



	The **Current pre-alarm state** jumps from 1 to 2, since by now 2 zones in the pre-alarm chain have come to satisfy the condition.
	The VMD alarm LED is not showing an alarm.

Our figure has triggered a movement detection in zone 8 within the specified time. Zones 10 and 9 are in the pre-alarm state, and the current zone 8 also triggers.





The counter now rises to 3.
The set alarm condition is therefore satisfied. A VMD alarm is given.

The VMD alarm LED also shows an alarm.

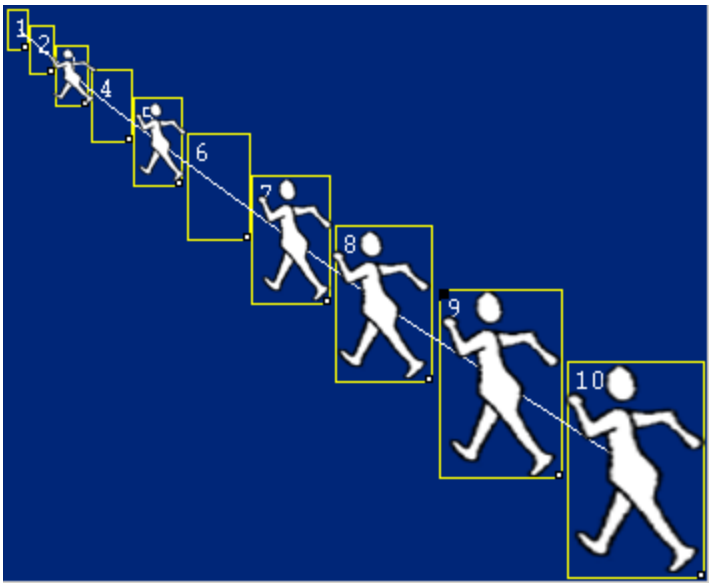
The Significance of the Perspective

People, of course, appear smaller when at greater distances than when they are close to the camera. They also move at correspondingly different speeds on the monitor screen.

Our example figure illustrates the perspective problem. The change in size can clearly be seen.

Nevertheless, a motion detector should be able to record all movements with the same degree of reliability, irrespective of their size and speed on the monitor.

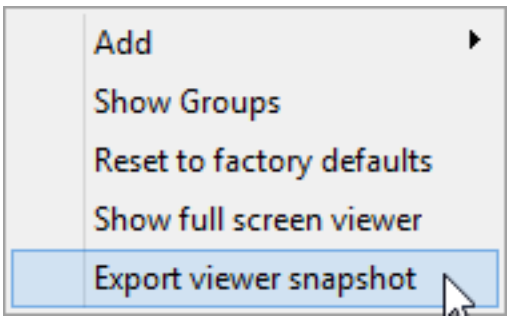
Further above we have seen how chains are formed and can be shaped. Due to the way in which the detection zone size and the distance of the detection zones from one another can be adapted to the perspective of the objects (or persons) to be detected, the VMD system is well able to satisfy the demand for consistent movement detection.



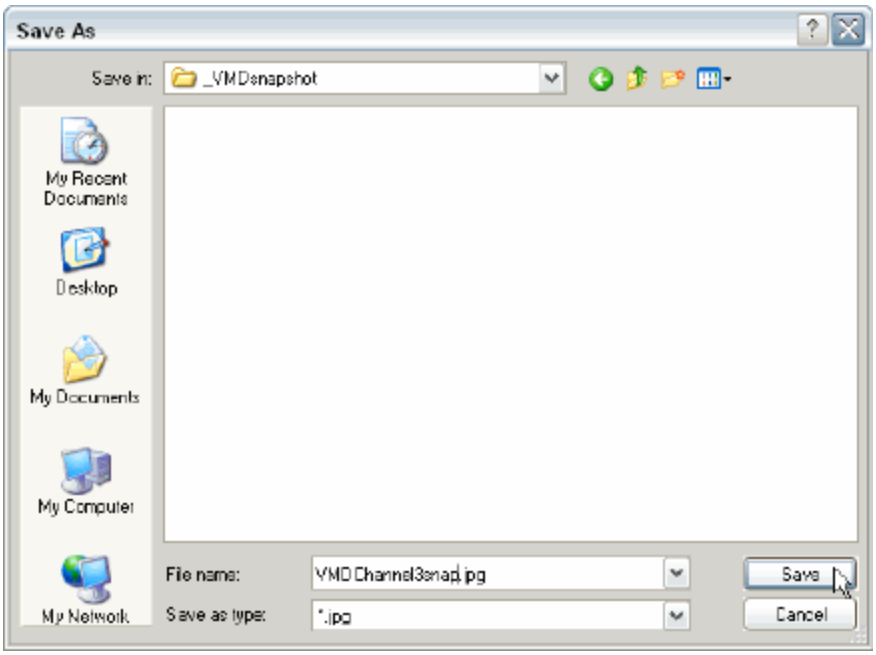
Exporting Viewer Snapshot

You can export the installed chains as a snapshot in order to record these settings.

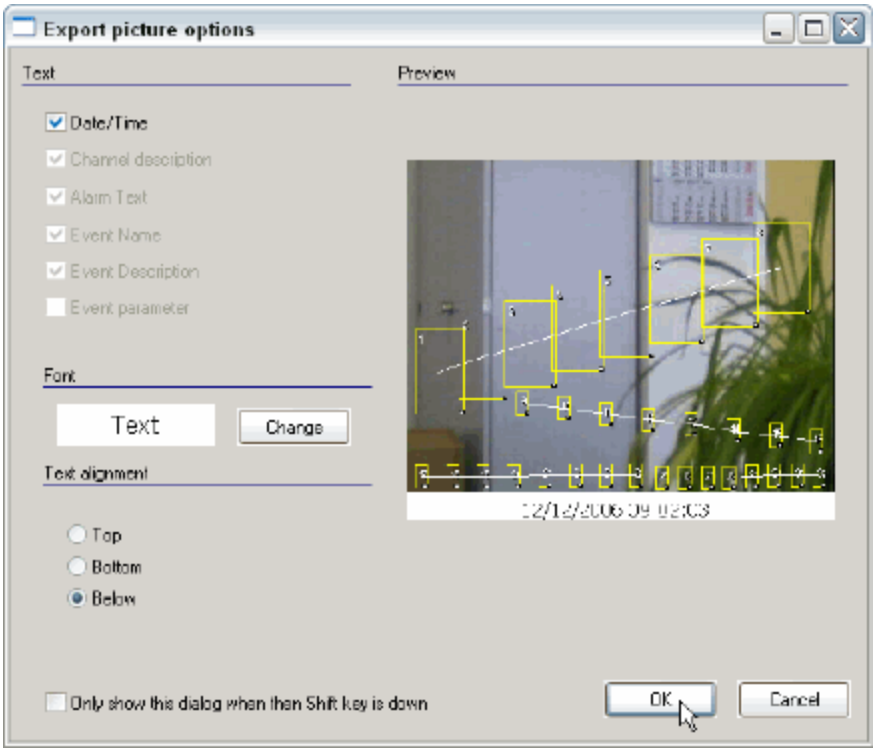
If you would like to export the installed chain as a snapshot, double-click on the viewer and, in the menu, on **Export viewer snapshot**.



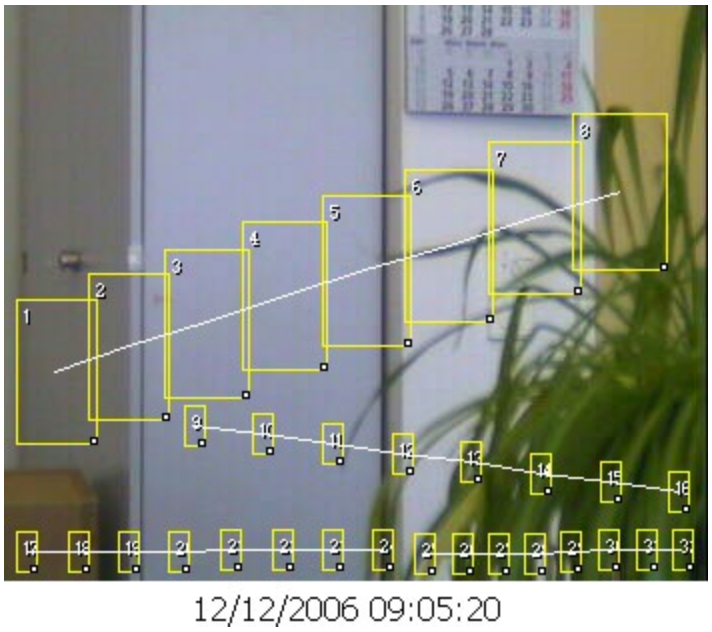
A dialogue box opens in which you can specify the name for the snapshot and the file location where it is to be saved:



By clicking on Save, the options dialogue box for the image for exporting will open:

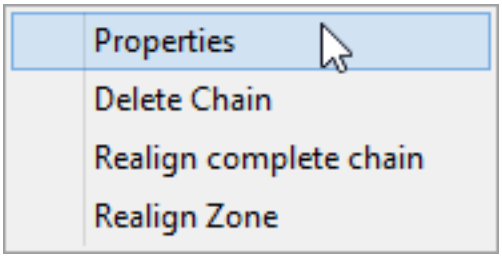


After having specified the font and the arrangement of the lettering, click on **OK**. A snapshot of your alarm/restriction zones is saved.



Zone properties

To change the properties of a zone, click the zone with the right mouse button. The selection dialog appears.



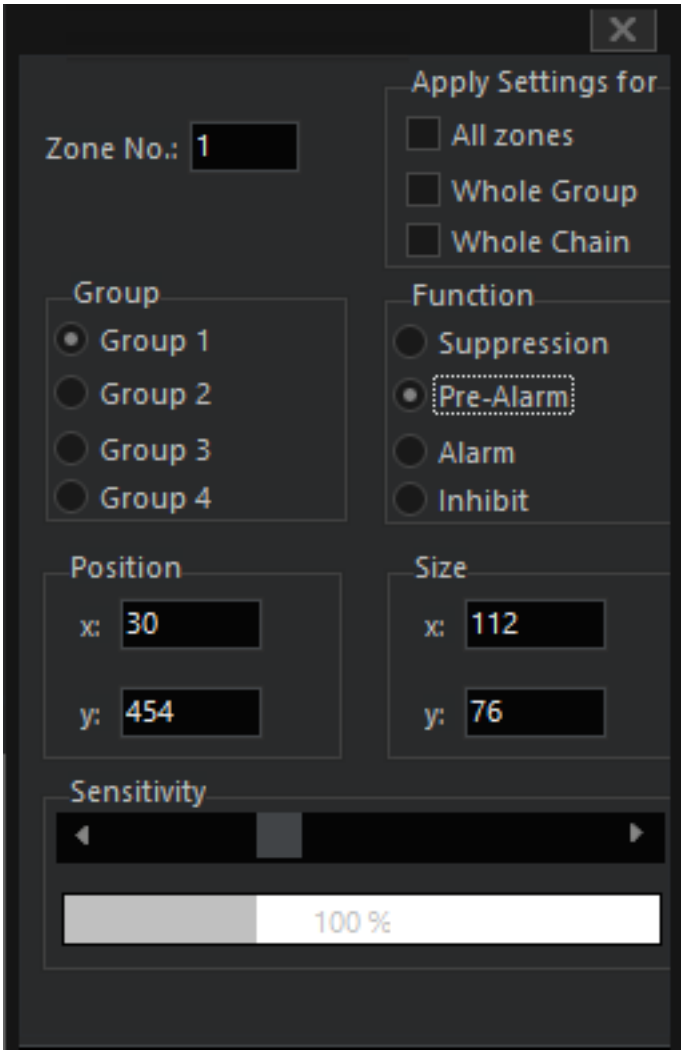
Select **Properties**.

The properties dialog provides a variety of settings that can be configured.

Under **Apply Settings For**, you can select whether the changes that have been made will apply to **All Zones**, to the **Whole Group**, or to the **Whole Chain**.

It is possible to change:

- Whether the zone belongs to a **group**
- The **zone position**
- The **zone size**
- The **zone sensitivity**



Click **Accept** to save the changes.

Video Motion Extended (VMX)

G-Tect/VMX is the name of a sensor for perimeter protection (outdoor protection). Any spacious premises containing objects that must be secured requires a special type of protection against intruders. This includes physical measures (fences, gates, etc.) as well as personnel and monitoring activities through video installations. Video security surveillance is particularly useful in the area between an outer enclosure and the objects to be protected.

Correctional facilities have similar and yet very different requirements: The aim here is to prevent breakouts and the providing of aid for escape by monitoring a sterile zone, which is physically secured inwardly and outwardly.

G-Tect/VMX detects movements within defined zones and automatically issues alarms when areas are entered that have been marked as sterile zones.

G-Tect/VMX was designed with two objectives:

- Reduction of false alarms
- Ease of use and configuration.

In addition, the configuration level was separated from the functional level so that changes to the functionality can be made without changing the settings.

This principle should be familiar to users of VMD. So why another sensor?

With VMD we use a field (zone) based method to detect movement. This method is proven and works, where it is needed, extremely well. However, basic understanding of the functionality is necessary to be able to set up VMD effectively.

G-Tect/VMX takes a different approach: It operates object-oriented and is thus able to recognize, observe and follow objects in an image. It also determines the directionality of the object. Using applied perspectives, it can make conclusions about the size and speed of the object.

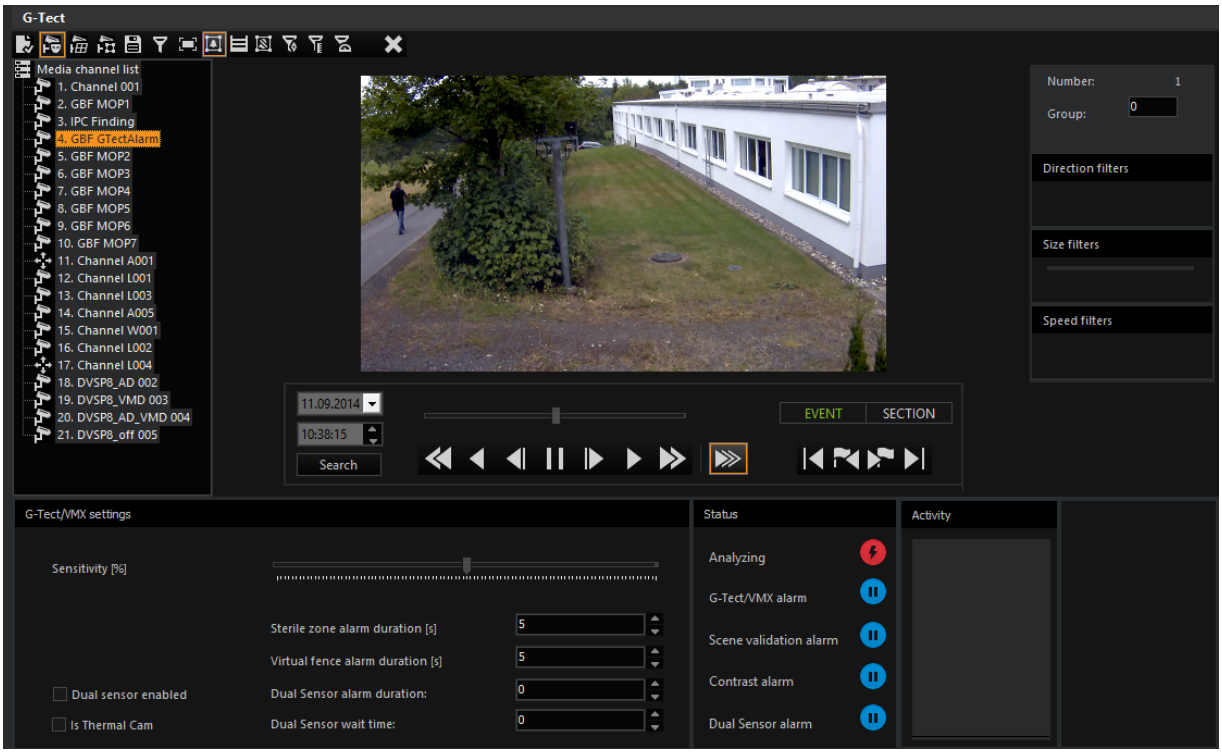
Using this data, G-Tect can determine whether an object must be reported as an event/alarm situation.

G-Tect also learns. For instance, if a car with flashing hazard lights appears in the image and the car is otherwise stationary, G-Tect/VMX "accepts" this object after a period time as "belonging" and only reacts once a new type of movement is initiated by this object.

G-Tect/VMX detects disturbances in the image (weather, animals, insects, ...) and evaluates them as global disturbances, which do not represent a threat. At the same time, G-Tect/VMX switches to another mode, which neutralizes these disturbances for the analysis.

Note that in the section that describes the user interface, information on operation of G-Tect/VMX has been provided. Further information is available then in the section on configuration.

User Interface

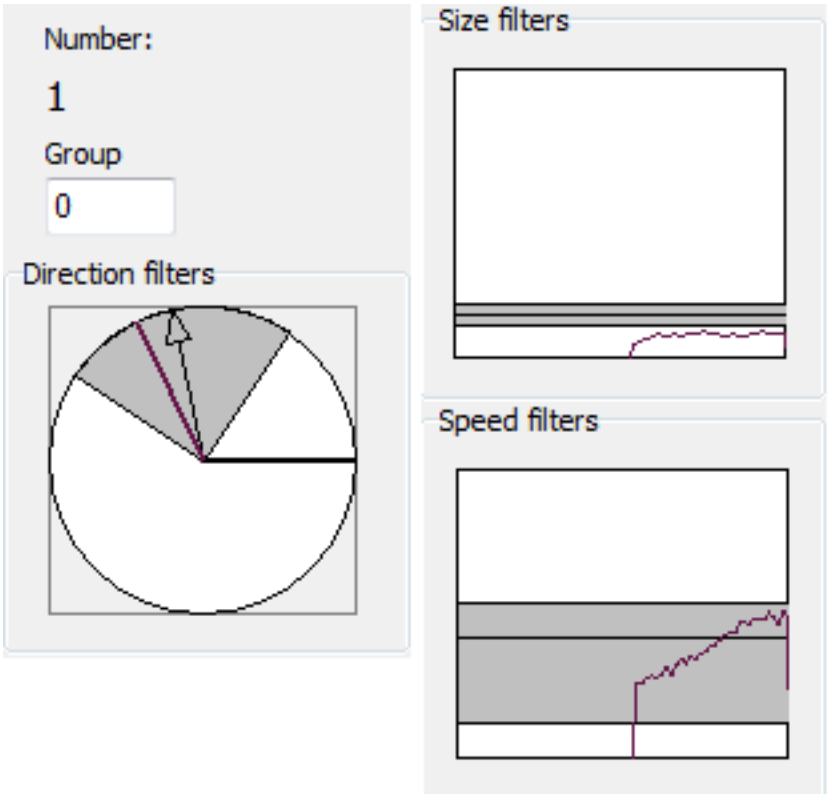


Toolbar and Display

Button	Description
	Show and edit sterile zones or virtual fences
	Show and edit perspective settings
	Show and edit advanced perspective settings (scene boundary)
	Show and edit VMD Parameter
	Save as

Button	Description
	Open filter dialogue
	Full screen viewer
	Add sterile zone
	Add virtual fence
	Add suppression zone
	Add direction filter
	Add size filter
	Add speed filter
	Create Events
	Delete

Each detected object is assigned a color with which the object is framed and the graph is drawn. At the same time, the approximate speed of the objects and their current, approximate size is displayed. Under Number, the number of the sterile zone that you have selected is shown.If a group was formed, the group number is also shown.



Creating Groups

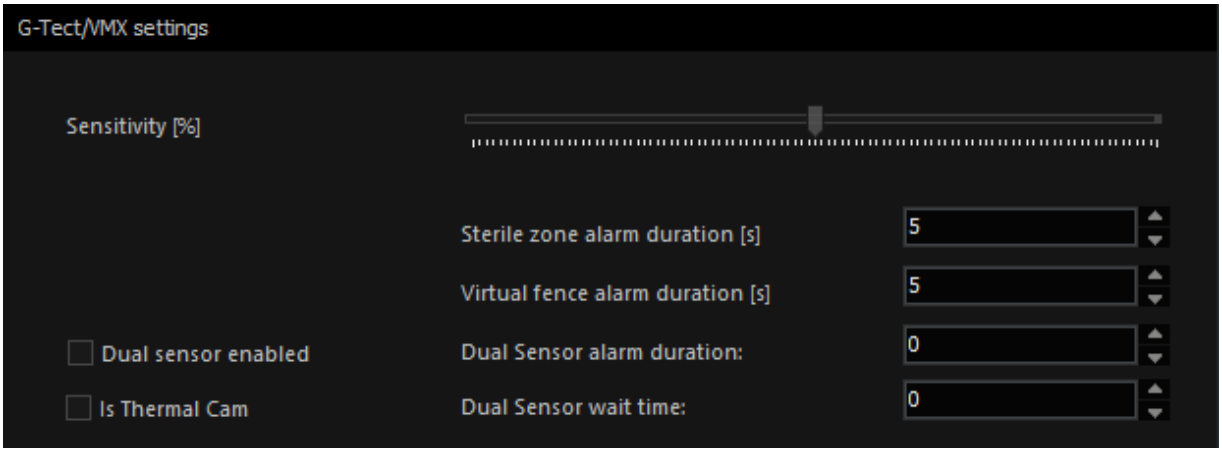
You can combine multiple sterile zones or virtual fences into groups. Mixed groups are also possible.

To do so, mark a sterile zone or a virtual fence and enter any number under **Group**. Confirm with the ENTER key. Now mark another sterile zone or a virtual fence and enter the same number. After pressing the ENTER key, both belong to the same group and can be addressed as such in the event configuration.

Find Images for the Configuration

Search and control of the database images is handled just as in G-Set or G-View. Read more under **Controlling Images**.

Settings for G-Tect



A slider controls the **sensitivity**.

Be careful with the sensitivity setting and check on the screen whether the settings made actually deliver the results that you expect with your configuration.
Normally, you would assume that a high sensitivity would lead to every moving or suddenly appearing object to be detected, calculated, displayed and reported as an alarm. On the other hand, the mathematical law of statistics dictates that an increase in the sensitivity is associated with a greater error rate.
Check your settings on different days, under different conditions, until you find the right sensitivity for your situation.

The dual sensor settings are only available if you enable the dual sensor. To do so, mark the box **Dual sensor enabled**. You can then specify the duration of the dual sensor alarm.

With the dual sensor wait time, you specify the period within which both G-Tect/VMX and VMD must be triggered for a dual sensor alarm to be issued. Example: If you set the wait time to 2 seconds, then both G-Tect and VMD must trigger within this time period. Assuming that VMD is triggered after 3 seconds, then this alarm is not treated as a dual sensor alarm.

For the VMD portion of the dual sensor, you can select templates or click on the **Auto Set VMD Fields** button, for instance, to set a sterile zone with a corresponding number of suitably sized VMD fields.

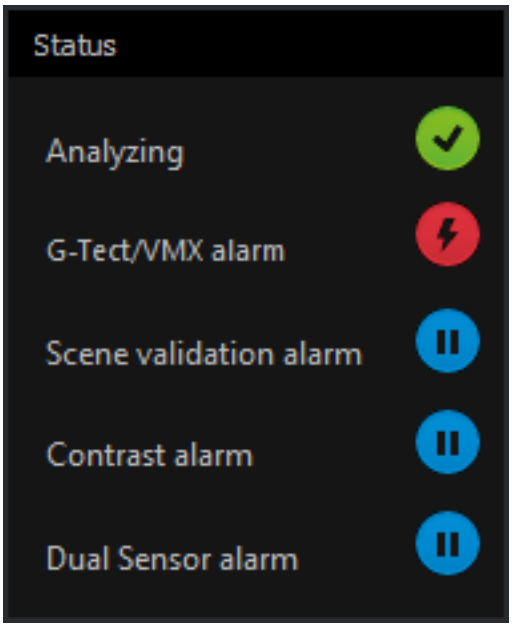
If you rearrange the VMD fields within G-Text or have the VMD fields set automatically and send the setting to the server, the previously defined VMD settings of this channel are overwritten without warning.

Is Thermal cam: If you are using a thermal imaging camera, select the **Thermal Camera** field. This ensures that the special image transfer properties of a thermal camera are taken into account in the algorithm.

G-Tect/VMX is capable of achieving good results without any special settings. With just a few additional settings, the detection rate and analysis can be improved.

You can set the **Alarm duration** both for the sterile zones as well as for virtual fences.

G-Tect Status

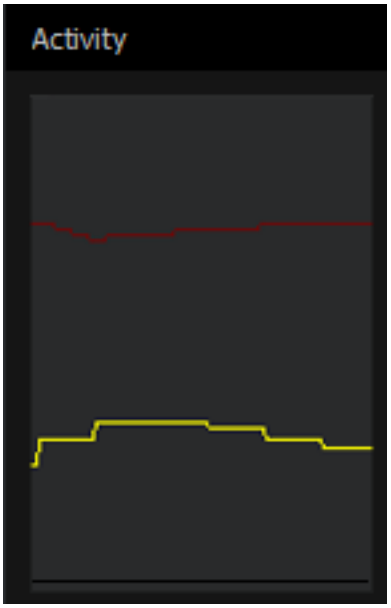


Button	Description
	Idle
	Activity or alarm
	Channel is analyzed

Status	Description
Analyzing	Standard is a green LED. While the scene is analyzed or in case of an alarm (contrast or camera rotated), the LED is red.
G-Tect (VMX) alarm	Standard is a blue LED. When an object is detected (alarm) the LED is red for the duration of the alarm.
Scene validation alarm	Standard is a blue LED. When rotation of the camera or a contrast error is detected, the LED is red for the duration of the alarm.
Contrast alarm	Standard is a blue LED. When a contrast error is detected, the LED is red for the duration of the alarm.
Dual sensor alarm	Standard is a blue LED. When a dual sensor alarm is triggered, the LED is red for the duration of the alarm.

Activity

The activity monitor displays different colored lines: Brown = suppression, Yellow = activity.As described in the introduction, G-Tect is able to automatically suppress disturbances. This action is displayed by the brown line. The yellow line shows the size of activities in the image.



Optimized Image Section

For optimum performance of a video sensor, the lens and the setting of the focal length must be selected according to the needs of the situation.

With the same camera position, different focal lengths can negatively affect the perspective view, as can be clearly seen in this example:

Source: http://upload.wikimedia.org/wikipedia/commons/7/70/Weitwinkelperspektiven.jpg

The object size of the cross in the foreground does not change, which is not the case, however, for the building in the background. The focal length plays a crucual role in being able to represent distant objects as large as possible in the image, regardless of the location of the camera.

The larger the focal length, the larger distant objects will be represented in the image. Wide-angle lens stretch the image, telephoto lens compress it!

The effect is even more pronounced when we take a look at a picture from Michael Zhang:

Source: http://petapixel.com/2012/05/03/trippy-example-of-hitchcock-zoom-shot-on-a-beach/

Alfred Hitchcock was a fan of this effect. Here again the beach example as a moving image (animated GIF):

Source: Micaël Reynaud (https://plus.-google.com/+micaelreynaud/posts/dvfGJz1Din9)

Effects on the video sensor

We will demonstrate the effects on the video sensor using an example of a construction site. A 4.0-12.0 mm Tamron zoom lens and the Ikegami ICD-879 PA camera are used.

Bild1
Brennweite 4mm Ausschnitt bis Mastfuß

Bild2
Brennweite 4mm Ausschnitt bis Mastspitze

Bild3
Brennweite 12mm Ausschnitt bis Mastfuß der nächsten Kamera

Bild4
Brennweite 12mm Ausschnitt bis Höhe nächste Kamera

For a 4 mm focal length (Image1 and Image2), objects in the rear of the image are too small to be securely detected.

The optimal image section for the video sensor is shown in Image4. In terms of the depth of field, this is the optimal image. At the same time, the common customer requirement that the next camera must be visible in the image is fulfilled. The lighting mounted above the camera must not be visible in the picture.

But: The larger the focal length, the greater the area directly under the camera that is not visible!

This area must be covered by the adjacent camera. At all 90 degree angles of the monitoring area, the mast opposing the corner camera must be equipped with a second camera, which points in the opposite direction (complete coverage of the surveillance area). This ensures that there are no "blind" areas in the corners.

For reliable detection, an object should fill at least 5% of the total image size. As can be clearly seen in the example images, this cannot be achieved with small focal lengths (wide-angle lenses) and the corresponding distance of the object to the camera. In general, therefore, larger focal lengths are preferable because these "compress" the surveillance area. In this case, even far off objects are large enough for reliable detection.

Negative example = the focal length is too small

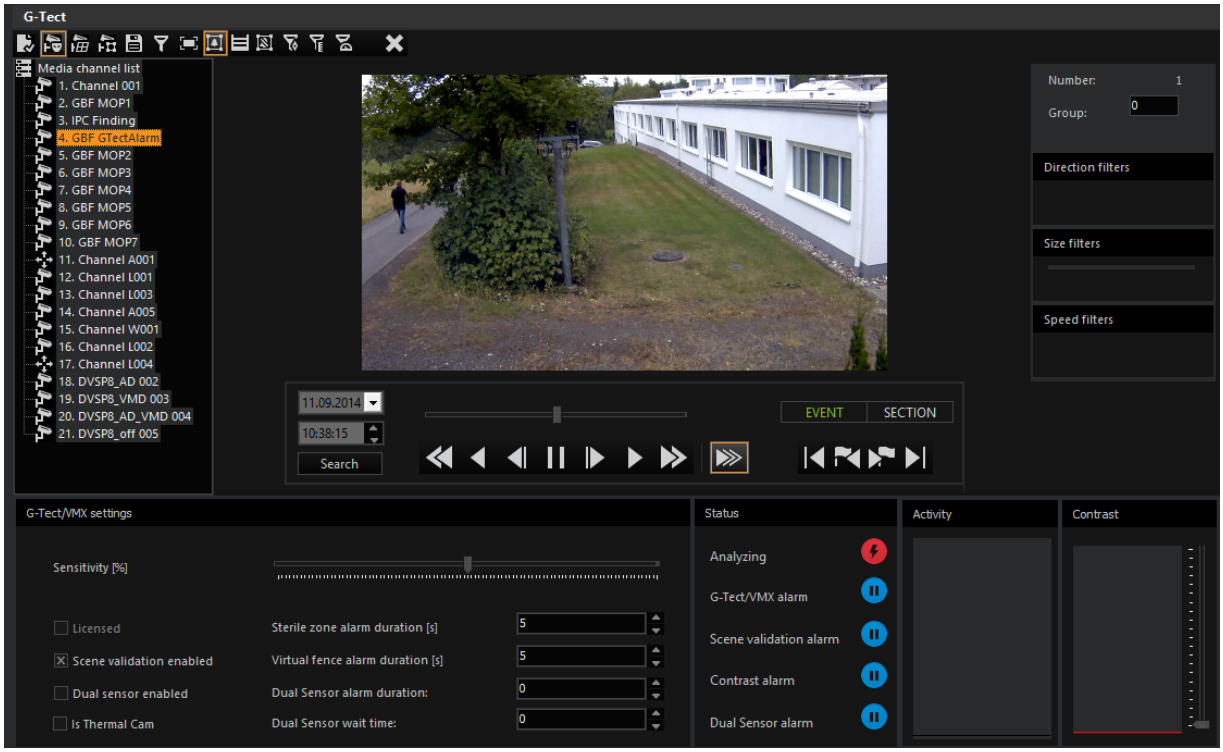
In the configuration of size ratios (adjustment of perspective) be sure to take into account the changes in size resulting from the focal length!

Configuration

Before starting configuration: Please make sure that the live stream of the media channels for which you want to configure G-Tect, are operating with a frame rate of 25 frames/second!

For configuration, first open G-Tect/VMX clicking on **G-Tect/VMX** in the selection menu **Image Analyzers**.

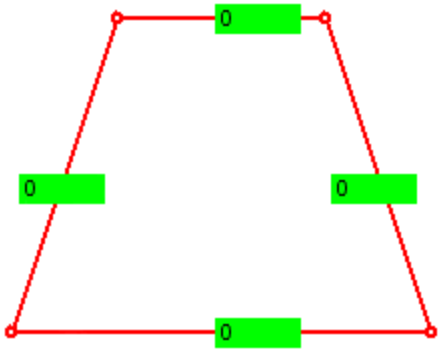
You will now see the user interface that is described in detail in the previous section.



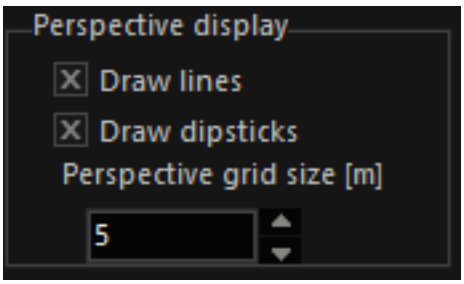
Configuration of the Perspective

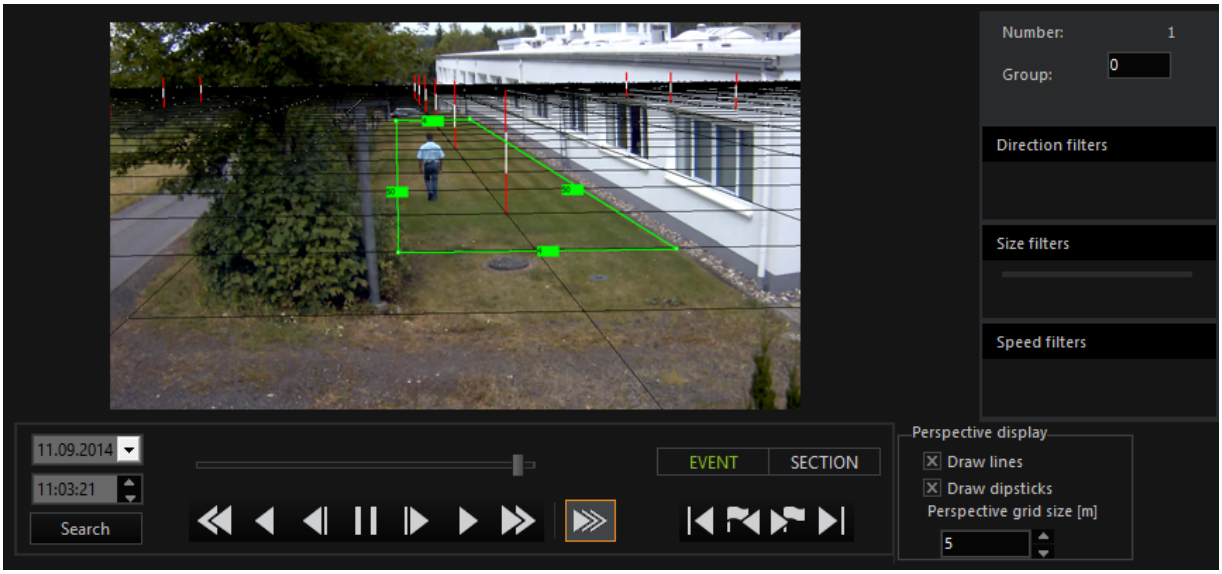
When you activate a channel, a frame for perspective configuration is added to the image. This perspective configuration must be performed first so that the program can calculate the size and speed of objects.

The frame consists of the drag points at the corners and four green fields. With the drag points you specify the perspective (by clicking and dragging with the left mouse button pressed). You then enter the actual distance information into the green fields. In our example, the lawn in front of the house is 5 meters wide and 20 meters long. See the picture below.



You can change the representation of the perspective below the camera image. You can also have the perspective lines displayed using a ruler. This is the default setting. In addition, you can change the size of the perspective grid.





Automatic Camera Settings

Distortions can occur in each image, depending on the quality of the hardware used. G-Tect takes into account the camera-specific settings and calculates the optimal values for **Focal length** and **Chip size** automatically.

Measurement Mode

With the measurement mode it is possible to check the sizes with a measuring stick.

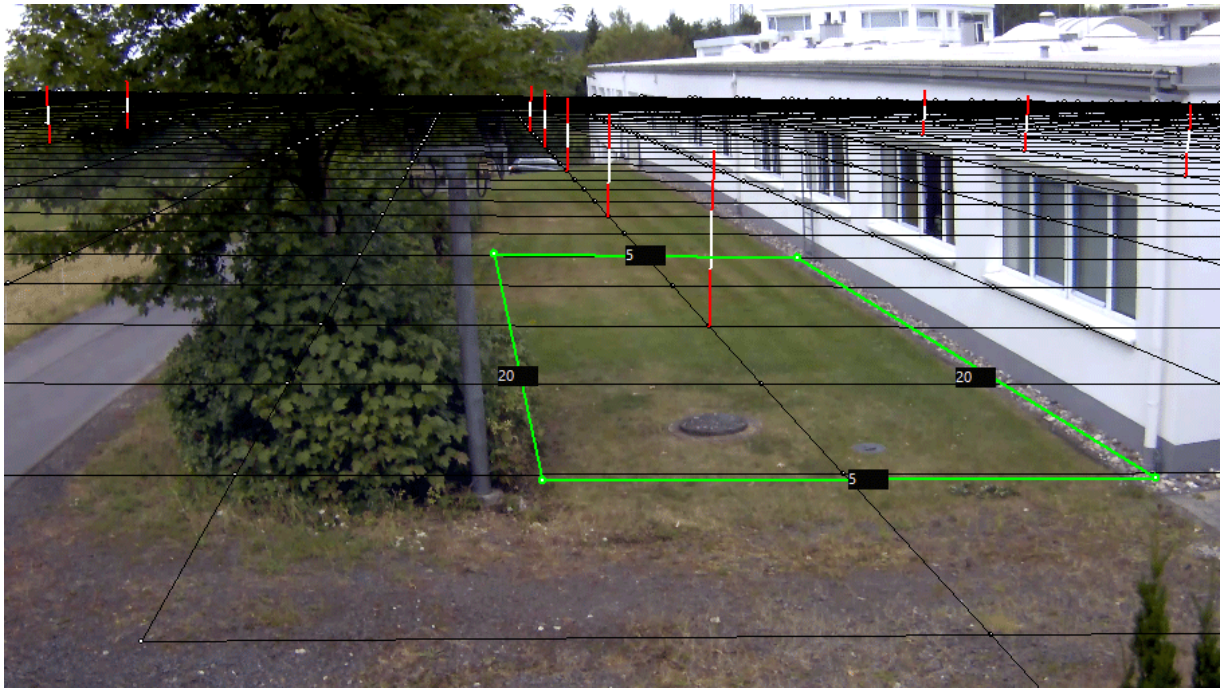
To create a measuring stick, right-click on a position in the image at which you know the size (in the image, 4 meters from the gravel bed to the gutter). This point is the lower measuring point.

The default setting is 2 meters. Using the mouse wheel, you can lengthen or shorten the measuring stick by a meter.

As long as you keep the right button pressed, you can move the measuring stick anywhere in the image. This makes it possible to check the perspective settings in the image (a selected height must remain the same in the perspective depth; in our example the 4 meter high measuring stick must also show the same building height at the end of the building.)

Confirm the settings with ENTER. You will then see the perspective view.

When you enter obviously incorrect values (in our example, on one side 20 meters, on the opposing side 100 meters) then the frame remains red and the values are not accepted for the perspective configuration. G-Tect works in this case with default values. Intermediate values (for example 20,75 m) must be entered separated by a comma. Dot-separated entries (for example, 20.75 m) are NOT supported!



The most important specifications for the size and speed calculations have thus been made for the program.

Advanced Perspective Settings

G-Tect/VMX calculates the features of objects in the camera image (size, speed, direction) based on the configured perspective (virtual base plane) (see above: **Configuration of the perspective**). Additional user information on significant objects in the camera image help G-Tect/VMX to improve the feature calculation and thus to increase the detection quality.

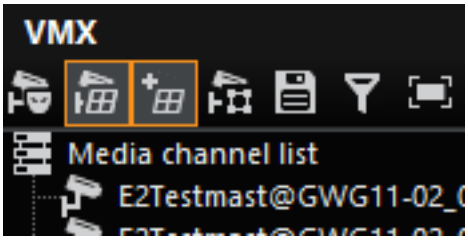
In the picture you can see a that the object of interest is reflected in the windshield of a vehicle driving along the adjacent street. Without more information about the three-dimensional scene, G-Tect/VMX calculates the size, speed and direction based on the virtual base plane. The result is a relatively large and fast object that is located within an alarm zone, and thus triggers an alarm.

If the **scene boundaries** are configured in the advanced perspective settings with a boundary along the house wall (see image), it is possible to measure the object features more precisely.

In addition to buildings and walls, scene boundaries are also extremely useful for natural boundaries compromised of vegetation (trees, bushes, see image).

The use of scene boundaries for (moving) shadows, swaying trees, birds and insects and precipitation can cause a significant reduction in false alarms.

Working with Scene Boundaries

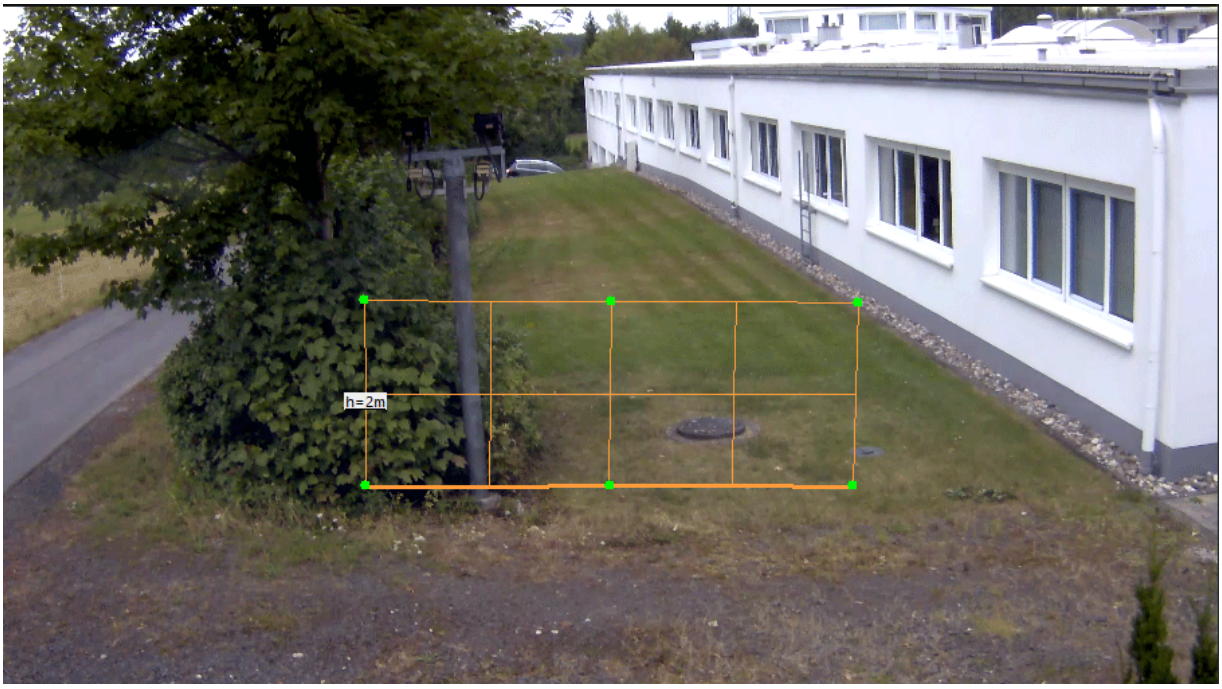


The icon for the advanced perspective setting appears only when the perspective setting has already been activated. Clicking on the icon then allows you to create and edit the scene boundaries.

A scene boundary is generated using a context menu. The context menu opens by right-clicking in the preview image:

Context Menu Item	Description
Add boundary	Adds a new scene boundary
Delete boundary	Deletes the selected scene boundary
Add vertex	Adds an additional vertex to the selected scene boundary
Delete vertex	Deletes the selected vertex of the selected scene boundary

Clicking on **Add boundary** adds a scene boundary to the preview image:



With a left-click, the scene boundaries and their vertices can be selected. By clicking a blank area of the preview image, scene boundaries and vertices are deselected

Selected scene boundaries or vertices can then be dragged by pressing the left mouse button. Moving the upper vertex of a scene boundary sets the height.

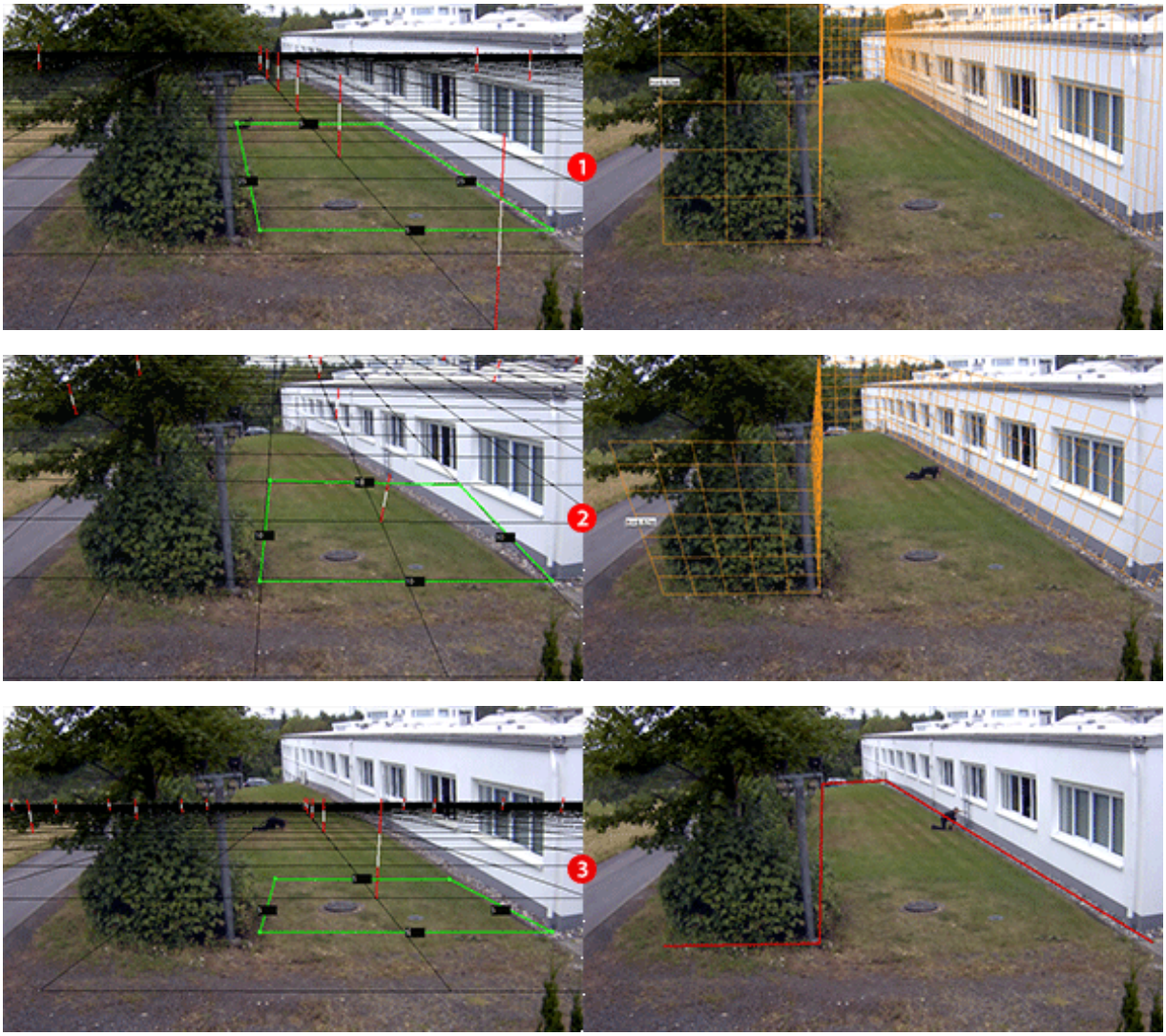
This makes it possible to generate the required number scene boundaries that are needed for the given situation.

Additional Information on the Definition of Scene Boundaries

The user uses the mouse to place the baseline of the scene boundary by moving the lower vertex. The spatial expansion is defined by the previously applied, correct perspective setting of the base plane (see above **Configuration of the Perspective**) 1 .

An incorrectly defined base plane will result in incorrect spatial expansion of the scene boundaries 2 .

All vertices of the scene boundaries must touch the base plane! This also means that the boundaries cannot be moved past the defined horizon. Invalid boundary definitions are shown in red and cannot be edited further. They must either be deleted or made valid again by correcting the perspective transformation (base plane) 3 .



If you do not create a sterile zone, the entire image is evaluated as a sterile zone.

If you wish to change the perspective settings, click on the symbol in the toolbar. After making the changes, send the settings to the server!

Configuring a Sterile Zone

To create a sterile zone, click on the icon. Then draw a sterile zone as described here.

In our example, the sterile zone corresponds (sensibly) with the perspective. This is not necessarily the case, however.

You can also create additional zones if you wish.

The G-Tect/VMX is thus capable of detecting intruding objects and issuing an alarm without any further refinement of the settings. In the lower left of the image we see, next to the ObjectID, the approximate speed of the object (in km/h) and its approximate size in m².

G-Tect/VMX also displays multiple objects with different IDs at the same time.

Using Filters

Information on how to use filters to optimize the configuration can be found in the section **Filter Setting**.

Configuring a Virtual Fence

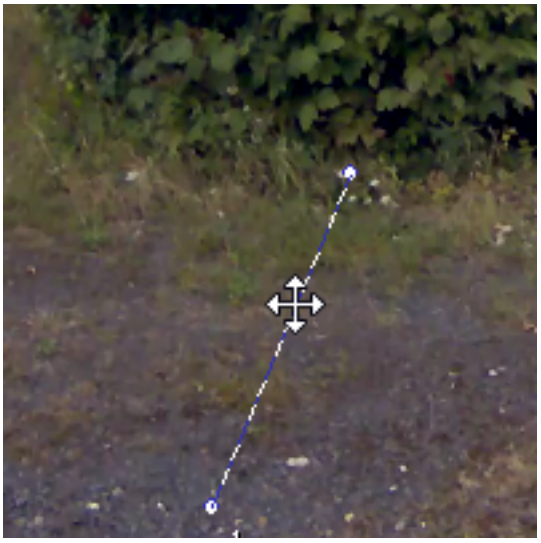
Click on the icon. Then draw a fence. Click with the left mouse button at the beginning of the fence and for a simple fence like our example, right click at the end of the fence. The virtual fence has been drawn.

If you want to create a more complex fence, proceed as described above and then finish the fence with a right click.

This is what the finished fence looks like in the image.

If you want to edit a fence, move the cursor over the fence. The cursor turns into a hand. Use it to click on the fence.

The fence has now been selected and can be moved or extended using the mouse. To delete the fence, select it and then click on ✖ in the toolbar.

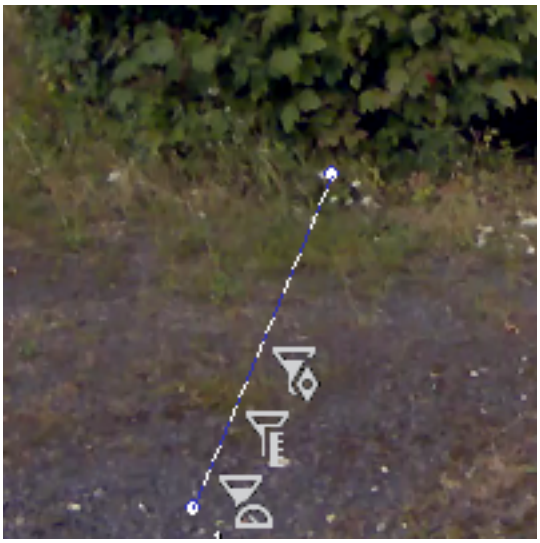


When the fence is crossed, an alarm is issued.

While a sterile zone describes a large area and usually reports every shape and direction of a moving object, the fence works somewhat differently. Here, the direction can play an important role.

In our example, we only want to be notified of objects that cross the fence heading toward the house.

Select the fence and then click on the icon for the directional filter. The icon is shown next to the fence. (In the following image, in addition to the directional filter the size filter and speed filter have also already been added.)



Configuring a Suppression Zone

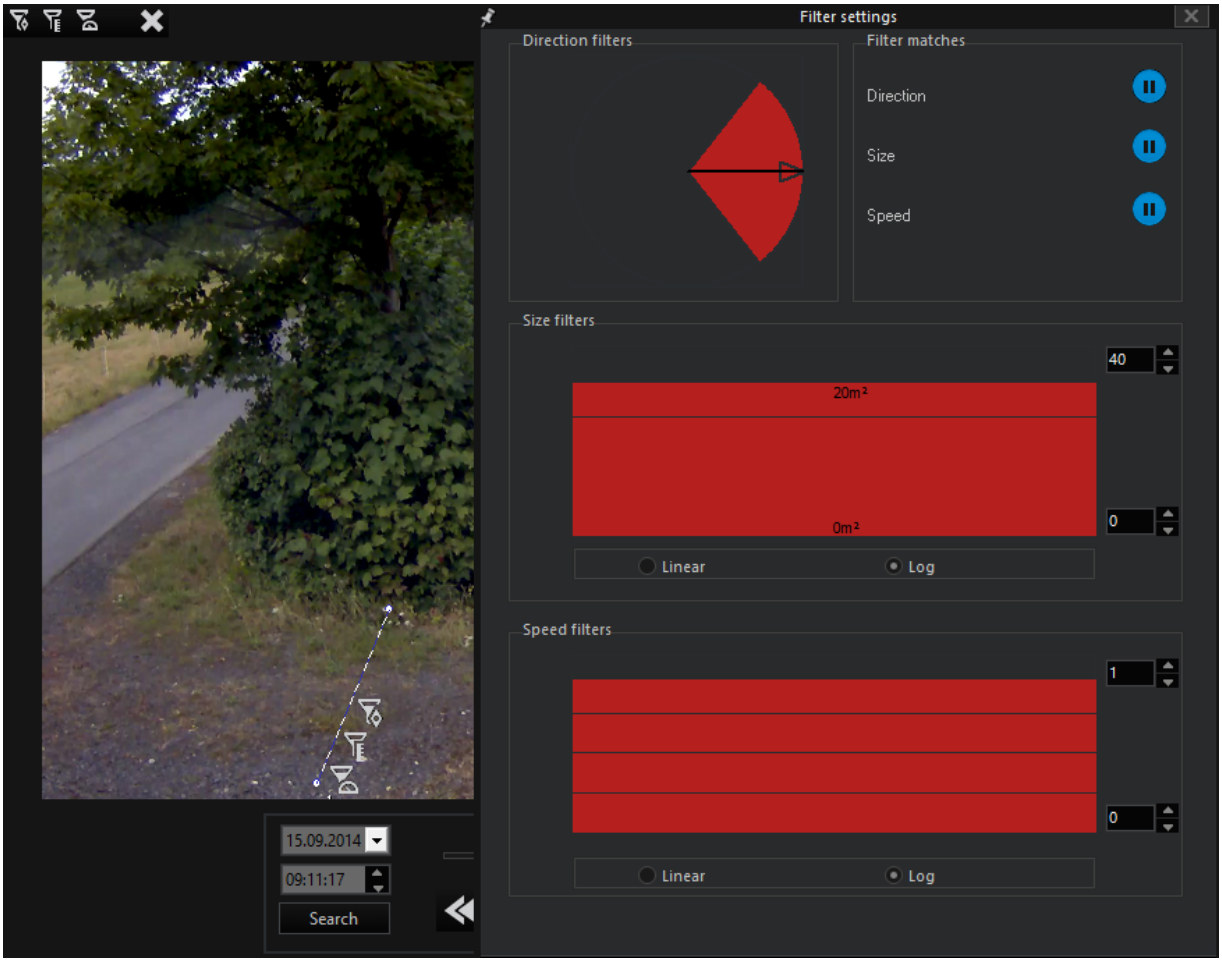
In practically every picture, there will be elements that continually lead to false alarms. In our example, this includes incidents on the small street on the left of the picture. These areas of the picture can be excluded using a suppression zone.

You add suppression zones at the very end of the configuration process, after you have completed all sterile zones and fences, including directional, size and speed settings. After performing the recommended testing of the settings at different times of day and lighting conditions, you will quickly identify the areas where it makes sense to configure a suppression zone.

To create a suppression zone, click on the icon and draw the desired zone(s).

Do not forget to save the settings. To do so, click on the icon .

Filter Setting



You can use filters for zone(s) and fences as an important step for optimizing your settings*. Directional, size and speed filters, as described above, are available.

*For the virtual fence, only the directional filter is of practical use.

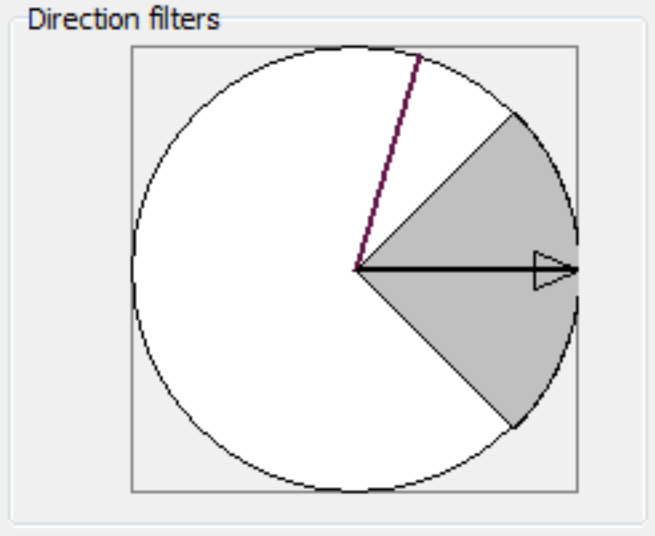
You set a filter, as previously described, by selecting a zone/fence and then clicking on the corresponding icon. When you then double click on the selected zone, the **Filter Settings** dialog opens.

Directional Filter

In the direction filter, a directional arrow is specified.

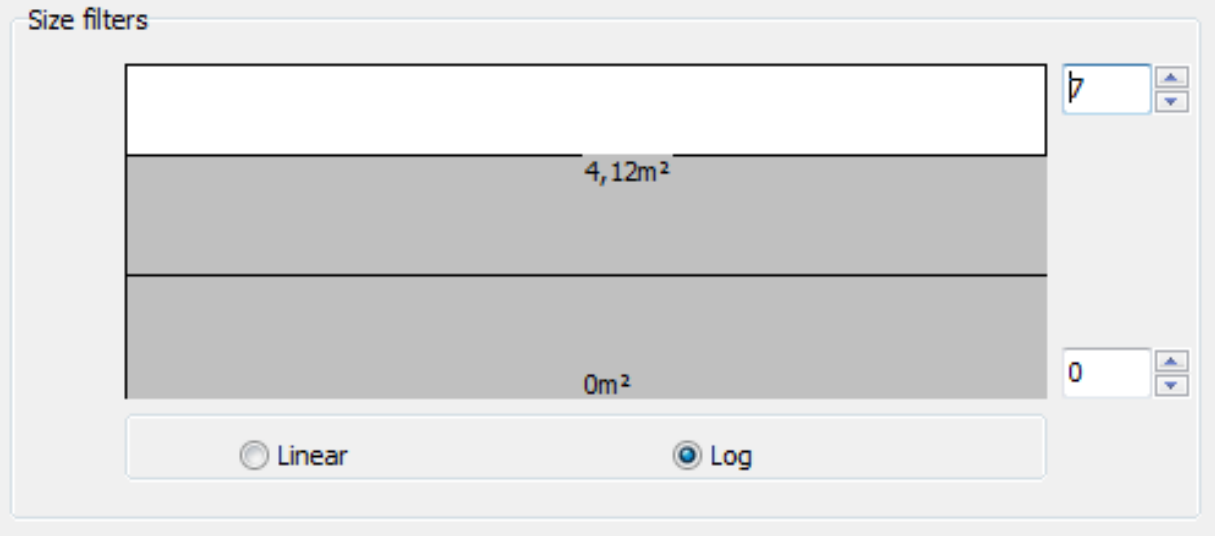
You specify the direction by pulling the arrow in the desired direction while holding the left mouse button. In our example, the direction is from the left onto the building. This means that all movements in this direction are automatically detected.

If you grab the red shaded area, you can also specify the angle.



You can also create multiple filter settings. Simply double-click in the corresponding filter field and a new filter will appear. If you drag the mouse onto a filter and press the right mouse button, the filter is deleted. This applies for all filters.

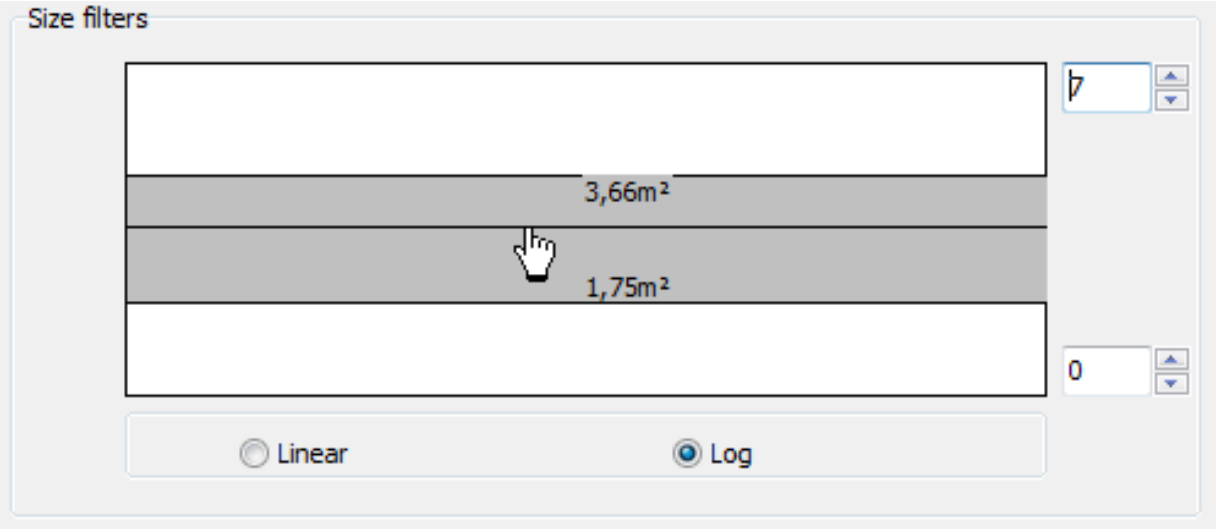
Size Filter



First, specify the size of the display by specifying on the right the maximum value in the upper field and the minimum value in the lower field. The sizes are specified in m².

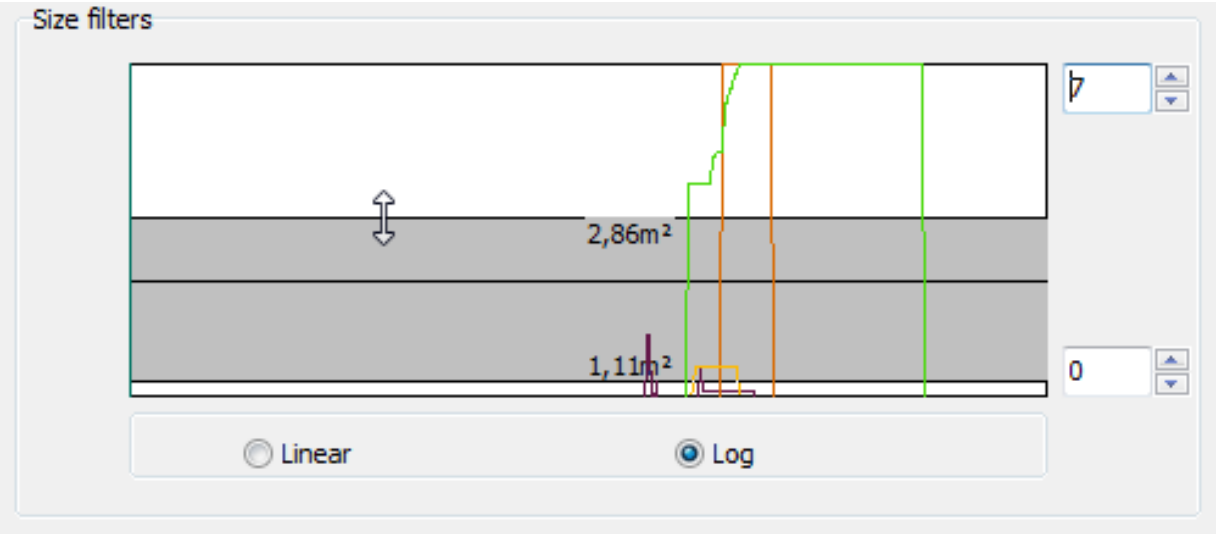
The displayed m² does not represent the actual size of the object, but the area that the sensor places around the object. Keep this in mind during the configuration.

Then double-click in the field to specify the measurement threshold.

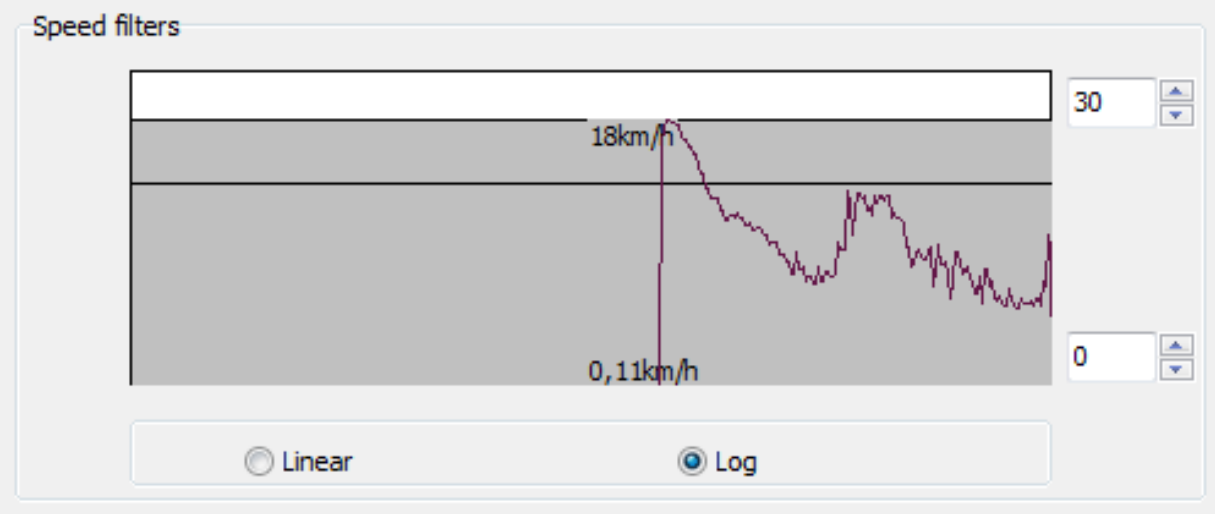


When the mouse cursor is moved onto the center line, it turns into a hand icon. You can now move the entire area. In our example, we have set it roughly to the middle of 0 to 7 m². You specify the deviations from this value by moving the mouse over the upper or lower edge of the measurement threshold. When the pointer becomes a double arrow, you can specify the difference to the center line.

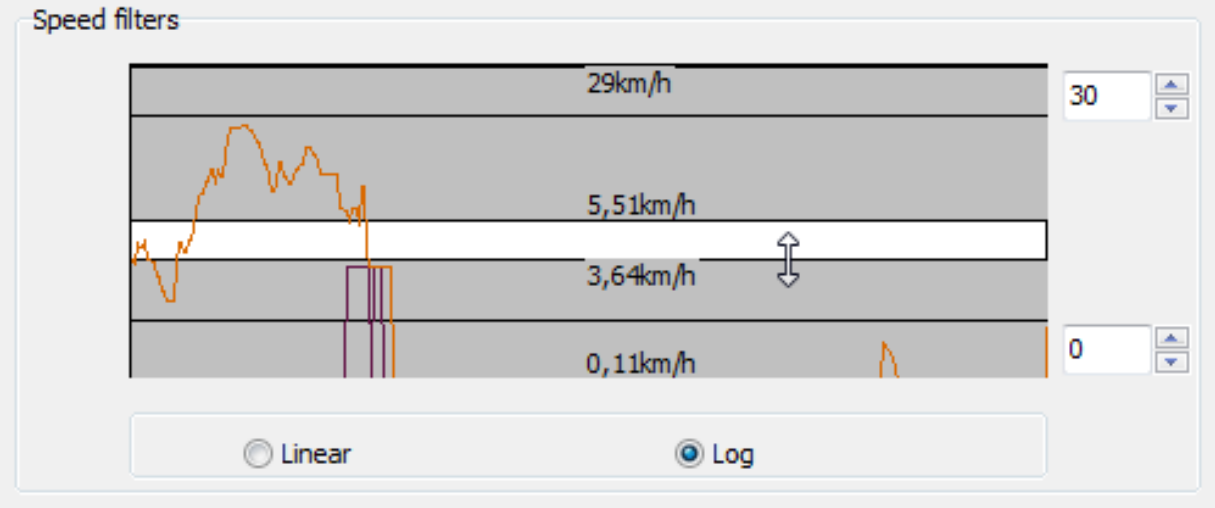
In the following figure you see this double-headed arrow as well as notifications from multiple zones. The green display indicates that objects also larger than 7 m² were detected in a zone.



Speed Filter



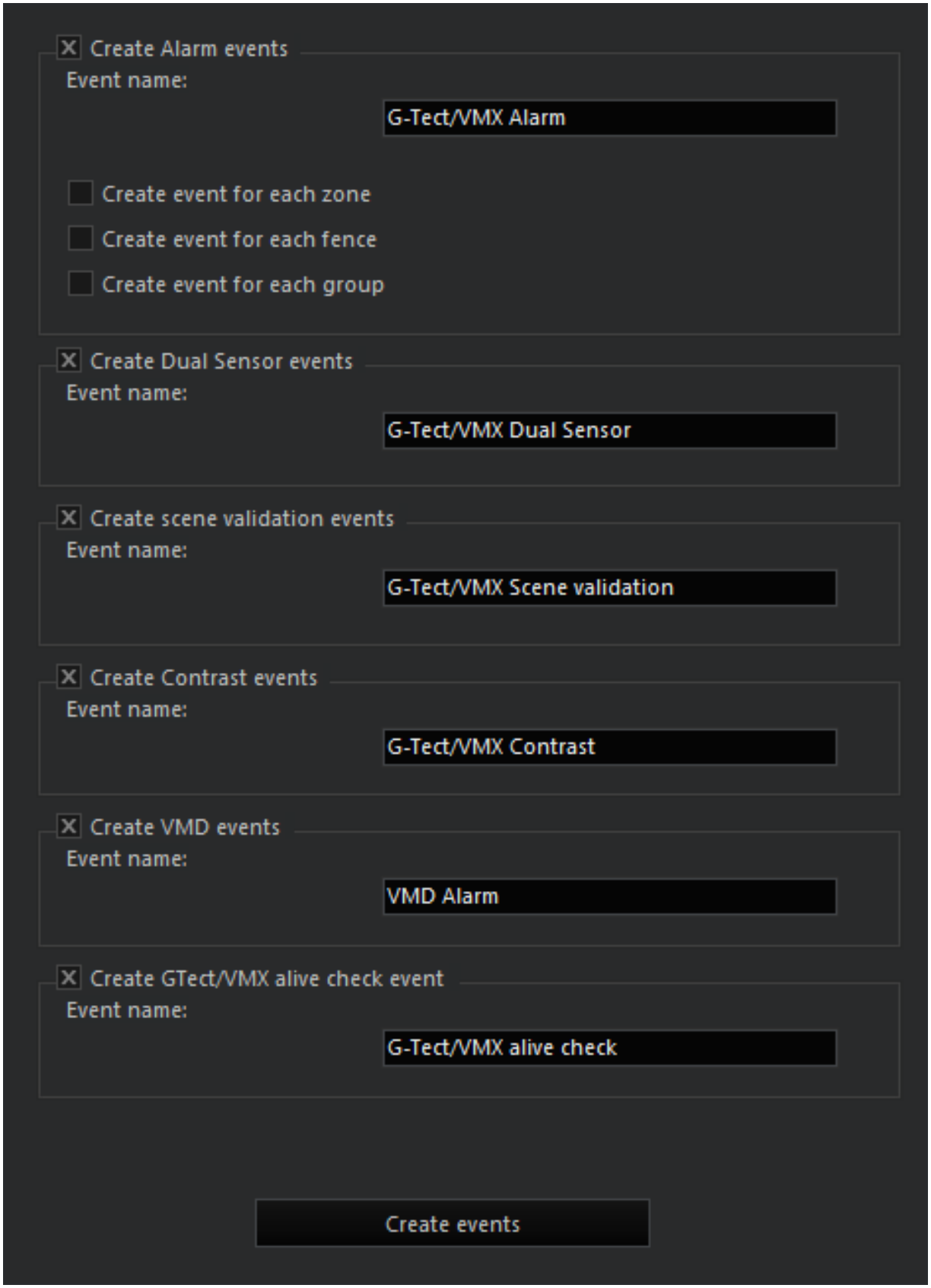
The speed filter is set in a similar manner as the size filter. In the lower figure you can see two filter settings (see above) and multiple detections of the sensor according to the settings.



Configuring Events

When you have made all the necessary settings, it is time to configure events and alarms. G-Tect/VMX can help.

To create events click on the ⚑ symbol. This opens the dialog for creating G-Text events:


Create Alarm events
Event name:
G-Tect/VMX Alarm
Create event for each zone
Create event for each fence
Create event for each group
Create Dual Sensor events
Event name:
G-Tect/VMX Dual Sensor
Create scene validation events
Event name:
G-Tect/VMX Scene validation
Create Contrast events
Event name:
G-Tect/VMX Contrast
Create VMD events
Event name:
VMD Alarm
Create GTect/VMX alive check event
Event name:
G-Tect/VMX alive check
Create events

The dialog needs no further description, as it is self-explanatory.

Thermal Imaging Camera

Due to their physical properties, thermal imaging cameras have to regularly perform a "recalibration". After this process they produce a new image, sometimes with more detail, sometimes with less. This can in turn lead to the false alarms as objects suddenly appear or disappear that were not present in the original image. This "recalibration" is recognized by our sensor and is automatically suppressed.

Many thermal imaging cameras place a black frame around their image. To ensure that suppression works effectively, the sensor must identify the actual image content (Region of Interest, ROI). You must define this area of the image using a rectangular frame.

First select the option **Thermal Cam**.

Drag the icon onto the image by holding the left mouse button down.

In the viewer, a gray border appears around the image. Holding down the left mouse button, the boundary lines can be drawn onto the actual image content.

Send the settings to the server.

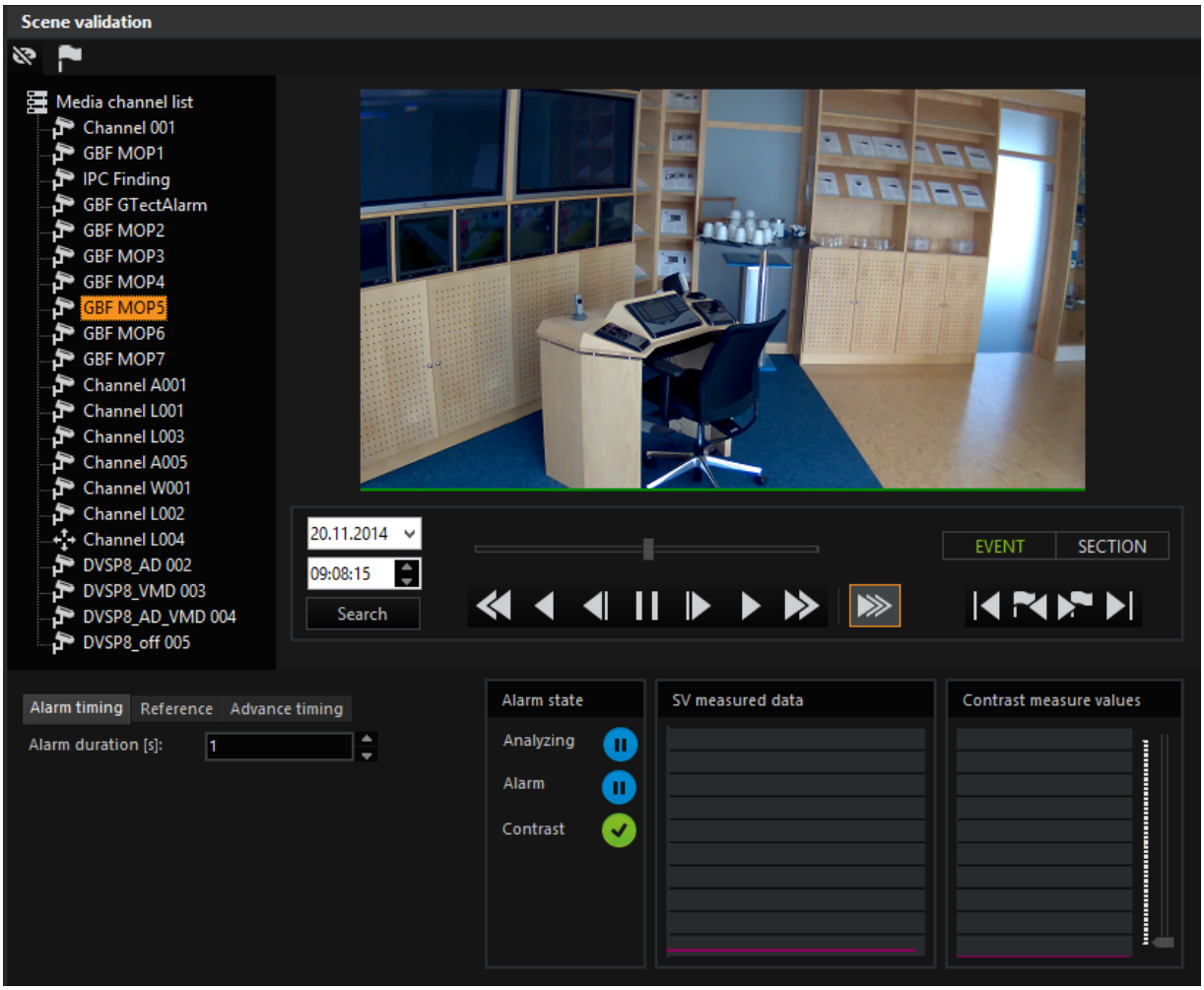
The configuration for thermal imaging cameras for avoiding false alarms has been completed.

Scene Validation (SV)

G-Tect/SV stands for SceneValidation. G-Tect/SV recognizes changes in camera position or acts of sabotage to the camera, and triggers an action on recognition.

G-Tect/SV compares a reference picture with the current picture from the same camera. Both pictures are edge-filtered.
If on analysis significant differences are detected (low correlation between filtered reference picture and filtered live picture), the G-Tect/SV triggers a video sensor action that can be used via an event/alarm configuration.

User Interface



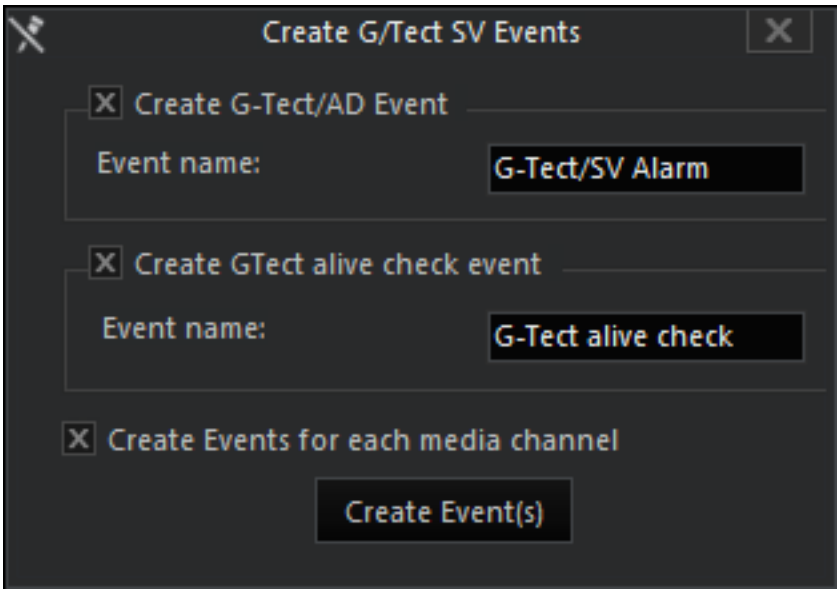
The interface itself has three components:

- A list of media channels
- A field with visualization of pictures, and in the lower third
- The settings and the display of measurement data.

Aside from the setting for the alarm duration and choosing between automatic setting, manual generation of the reference image in the Reference tab and the advanced timing, there are no additional settings.

Click on the symbol to switch the viewer image to black and white.

Click on the symbol to open the dialogue for event configuration. Events can be quickly configured using this dialogue:



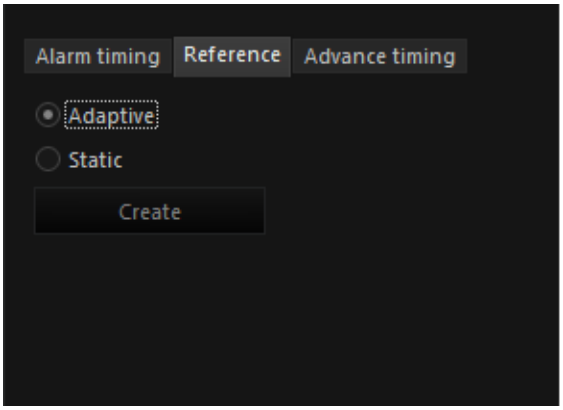
Configuration

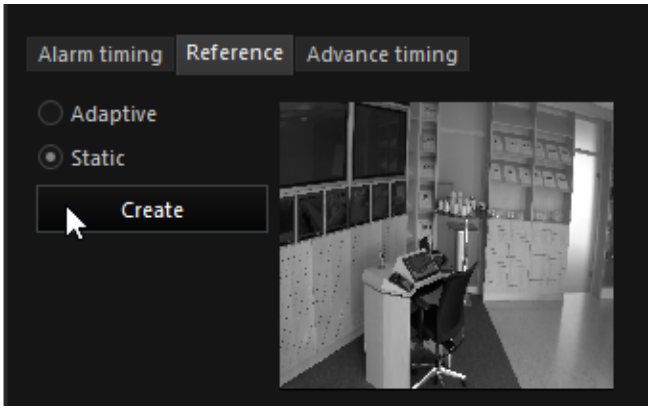
First select a media channel and then set the alarm duration.

Then go to the Reference tab. There you specify whether the G-Tect/SV will create the background model for the comparison itself (this is the recommended default setting, Adaptive) or whether you want to manually generate a reference image (Static). To generate a static background model, click Create.

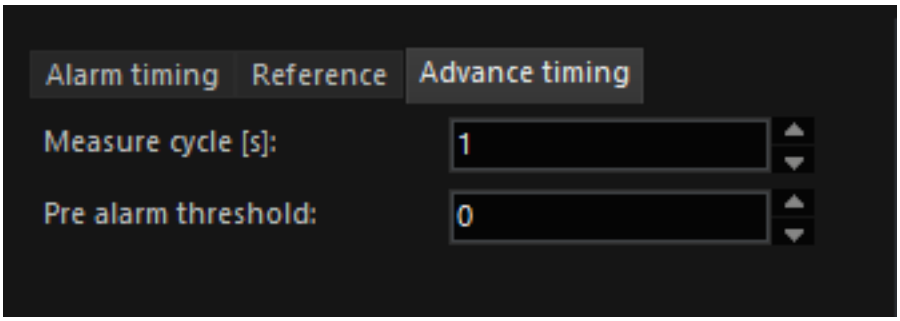
Image sections that are constantly moving/changing (such as fade-ins) would also trigger alarms on a regular basis. A polygon can be plotted in order to hide these image sections, so that the moving/changing image sections are left blank.
Use the left mouse button to plot polygons in the viewer and the right mouse button to delete them. Here you can find more about plotting the zones.

IMPORTANT: It is only possible to create one polygon per channel!





The Advance Timing tab shows two settings:



Parameter	Description
Measure cycle [s]	This parameter passes on the intervals (in seconds) at which an picture should be retrieved from the server to the SV service in order to compare it to the reference picture.
Pre-alarm threshold	This parameter defines the number of (internal) pre-alarms, after which a real alarm is issued.

> Example If the pre-alarm threshold is set to 3, then 3 internal alarms must occur before an SV alarm is triggered. For a measure cycle [s] of 30 seconds, for instance, this could be the case after a minimum 90 seconds.

The G-Tect/SV Measurement Data

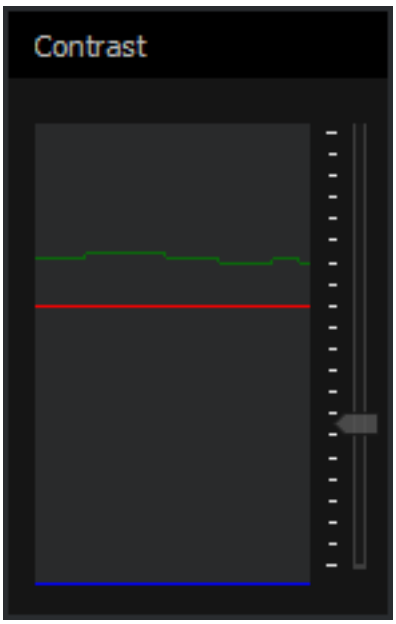
You will see two lines in the G-Tect/SV Measured Data window: The red line represents the calculated threshold value below which the blue line may not fall. The blue line represents the actual measured values of the analysis. In the following figure you can see three different situations for the same media channel:

- A = The image of the media channel is analyzed and there are no changes compared to the stored background model
- B = The image of the media channel is analyzed and there are changes compared to the stored background model (e.g. persons in the image)
- C = The image of the media channel is analyzed. There are significant changes compared to the stored background model (camera rotated or covered, sync failure, ...). The G-Tect/SV sends a **video sensor alarm** action.

Contrast

The contrast monitor displays different colored lines: Green = current contrast, Red = threshold (adjustable via slider). Use the slider to determine the threshold. If the threshold is higher than the current setting, then a contrast error action is sent. The threshold should be set so that camera sabotage (concealing or covering the

camera) can be detected quickly and not only once the camera fails. Therefore, you should check the contrast at different times of day and night and set the threshold just below the average contrast.



AI-Connect

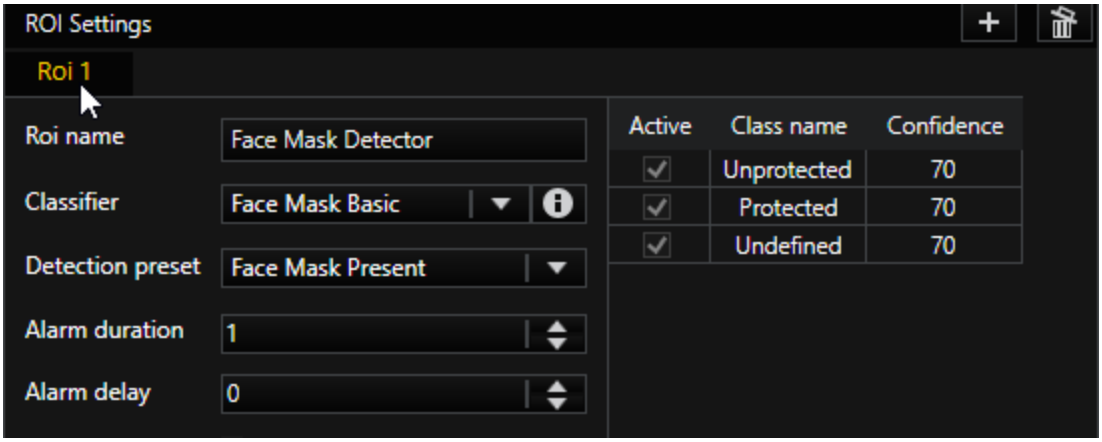
Subject to license

The integration of neural networks is a licensed function for the use of artificial intelligence. The networks used in the G-Tect service have a one- or two-level structure. Single-level networks serve for the "simple" detection of objects within the monitored scenario. Two-level networks are used for detection and classification. This provides a checking logic within the network, which is used to refine and/or verify the results. The aim of the implementation and therefore the great advantage of using neural networks is the application in very specific as well as general areas and scenarios.

With the activation of the basic function via G-Tect/AI-Connect, the user is provided with a general network for the recognition of persons, cars, trucks, mobile phones and notebooks. This is a one-level detector network that searches for the corresponding objects within the image section.

Description of the Configuration Interface

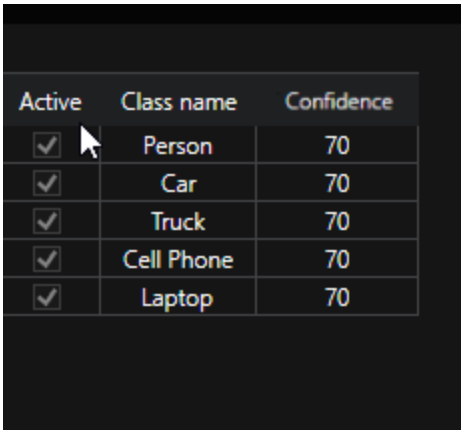
ROI Settings



Parameter	Description
+ Button	Adds a ROI (=Region of Interest). This region is used for the alarm evaluation and can be adapted to specific requirements with the further setting options.
Roi Name	Allows to assign a name for the ROI. The name must be unique locally and globally (guid).
Classifier	Dropdown selection of the available neural network containers. Must be selected separately for each ROI.
Detection preset	Dropdown selection of the logic selected for the Neural Network. The G-Tect analyses the results according to the selected logic. Must be selected separately for each ROI.
Alarm duration	The time in seconds that the ROI or corresponding alarm remains in the alarm state and provides visual feedback. Must be selected separately for each ROI.
Alarm delay	The delay in seconds with which the alarm is triggered (sensitivity is still pending).

Object Classes

Each net has different object classes. In the case of AI sample NN the selection looks like this:



Parameter	Description
Active	The check mark determines whether a class is used for further analysis or for alarm forwarding.
Class name	The name of the object class used for alarm forwarding.
Confidence	The threshold value is a percentage value that describes the certainty with which an object must be detected in order to be used for further analysis or for alarm forwarding.

Selection of the threshold value:

During the analysis, each object is checked for its assignment to a class. The assignment is based on the classes of the network. A percentage probability is assigned to each object, which determines to what extent it is the respective class. In the above example, a network could assign a person at detection as follows:

- Person: 95%
- Car: 1%
- Truck: 1%
- Cell Phone: 2%
- Laptop: 1%

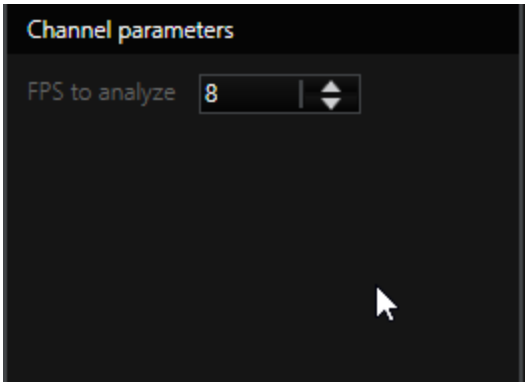
→ Total: 100%

The following rules apply to the selection of the threshold value:

The more classes are available within a network, the lower the threshold value must be selected for the analysis. This also applies if only one of the classes is relevant for the analysis.

With increasing similarity of the objects, the possible detection certainty decreases. For this reason, lower threshold values should be selected in such cases.

Channel Parameters



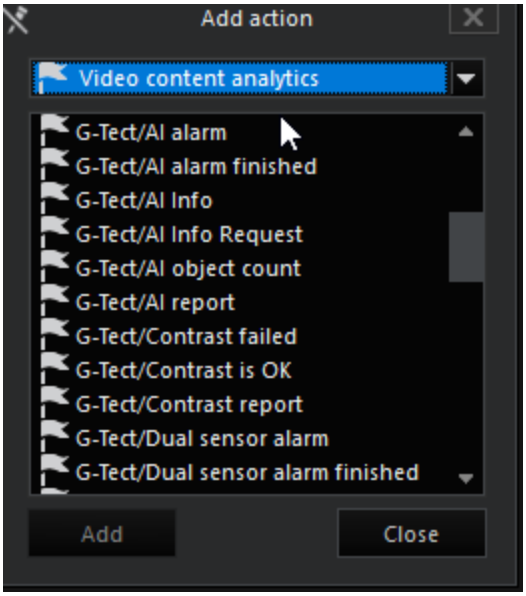
The **channel parameter** specifies how many images are used for the analysis and thus influences the alarm rate. The default value of 8 FPS should only be changed if objects are moving very fast through the scenario.

Detection List

The **detection list** supports configuration by displaying detections according to the activated object classes and the logic within the ROI. Thus, alarm messages can already be verified in the G-Set.

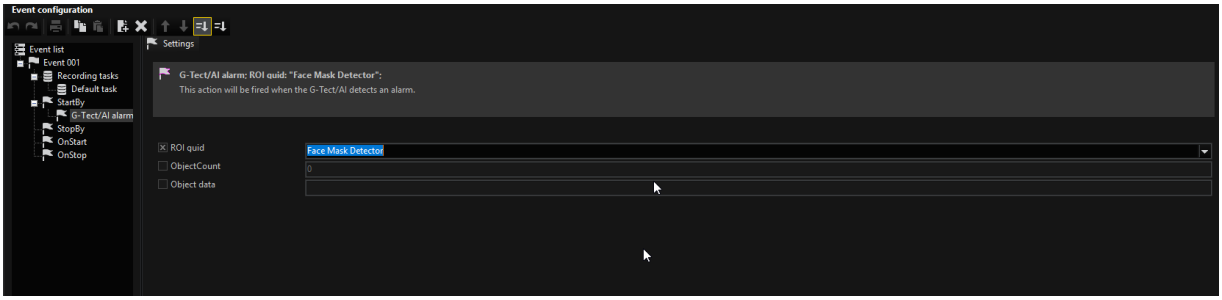
Events

To initiate events, an action must be selected from the action list and added to the event list using the **Add** button:



Action	Description
G-Tect/AI alarm	Triggers the alarm if the detection matches the activated object classes and the logic within the ROI. Terminates according to the set alarm duration
G-Tect/AI Info	Not relevant, internally used.
G-Tect/AI Info Request	Not relevant, internally used.
G-Tect/AI report	Not relevant, internally used.
G-Tect/AI object count	Not relevant for configuration, implemented for future development.

The action is then added and displayed in the setting dialog with the event list on the left-hand edge and the register on the right-hand side of the setting area:



Face Mask Detection (FMD)

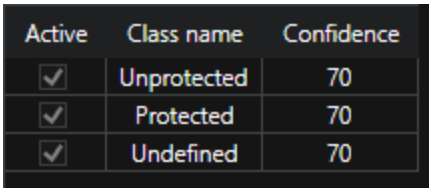
Subject to license

Face Mask Detection (FMD) is a licensed feature. It uses artificial intelligence to detect whether people approaching the camera are wearing a protective mask. The FMD license includes two networks and thus two solutions with the same objective. The accuracy and performance depends on the respective scenarios.

Object Classes

Within the FMD the following object classes are used:

Class	Description
Protected	Protected faces or persons
Unprotected	Unprotected face or persons
Undefined	Heads from the back and from the side



Face Mask Basic Network

Face Mask Basicis a simple detector network that searches for results directly in the entire image. The detection depends on the whole scenery.

Face Mask Advanced Network

Face Mask Advanced is a two-stage network consisting of a head detector for focusing and a classifier that assigns the head to the object classes. Thus the analysis concentrates on the head area. Since two networks are chained in a row, the **Face Mask Advanced** network requires a higher load.

Logics

For the FMD, the checking logics **Face Mask Present** and **Face Mask Absent** are provided:

Personal Protective Equipment (PPE)

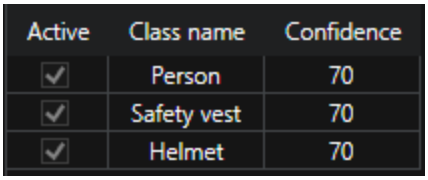
Subject to license

The detection of personal protective equipment (PPE)is a function requiring a license. The neural network is used to comply with the guidelines for wearing protective clothing. The algorithm checks in two stages whether a person is wearing protective equipment within or before entering an area.

Object Classes

Within the PPE the following object classes are used:

- Person
- Safety vest
- Helmet



Logics

For the PPE, the checking logics **PPE Present** and **PPE Absent** are provided:

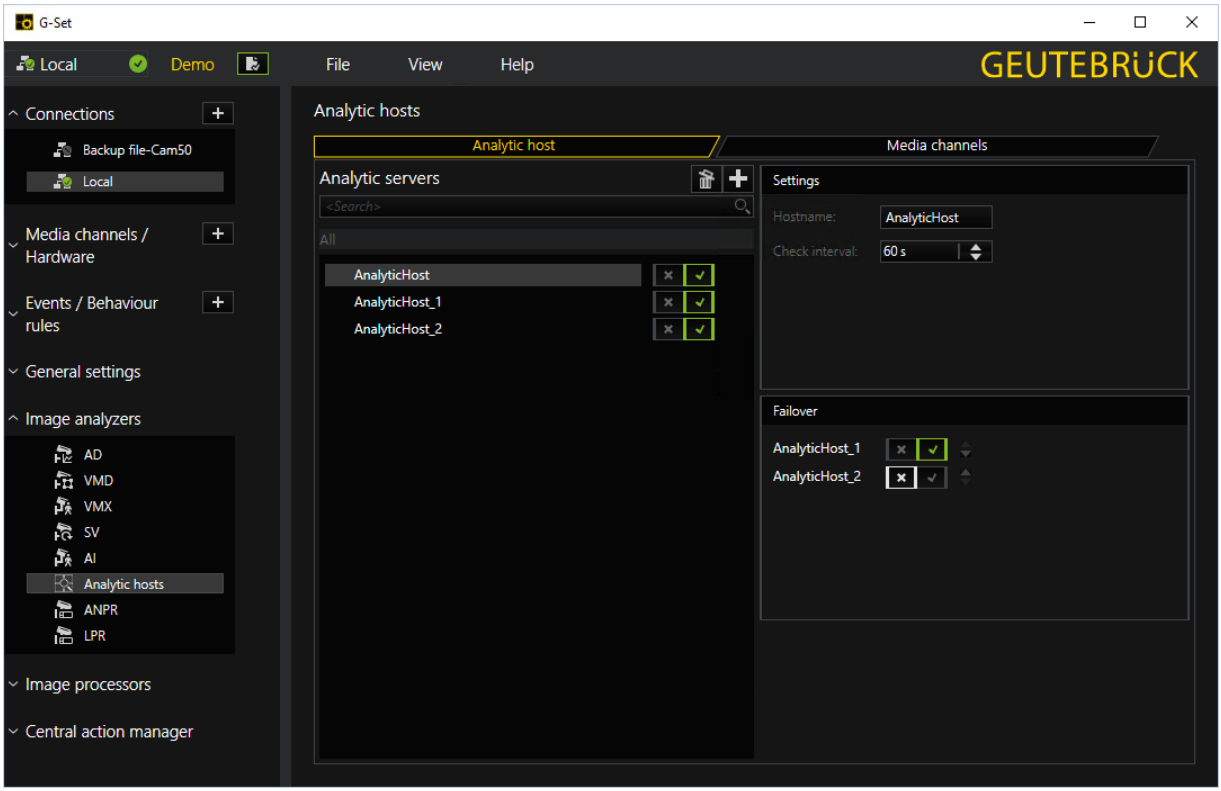
Analytic Host

The G-Tect analysis algorithms Activity Detection (AD), Video Motion Detection (VMD), Video Motion Extended (VMX), Scene Validation (SV) and AI-Connect (AI) can be activated and set up with the Analytic host. To apply one of the analysis algorithms to a media channel, a host and, if necessary, a fail over host must be defined for each media channel in addition to the corresponding algorithm.

Analytic Host

Adding analysis hosts

After establishing a server connection, new analytic hosts can be added and existing analytic hosts can be configured under **Image Analyzers -> Analytic Hosts**. To add a new analysis host, click **+** under the **Analytic host** tab.



Configuring analytic hosts

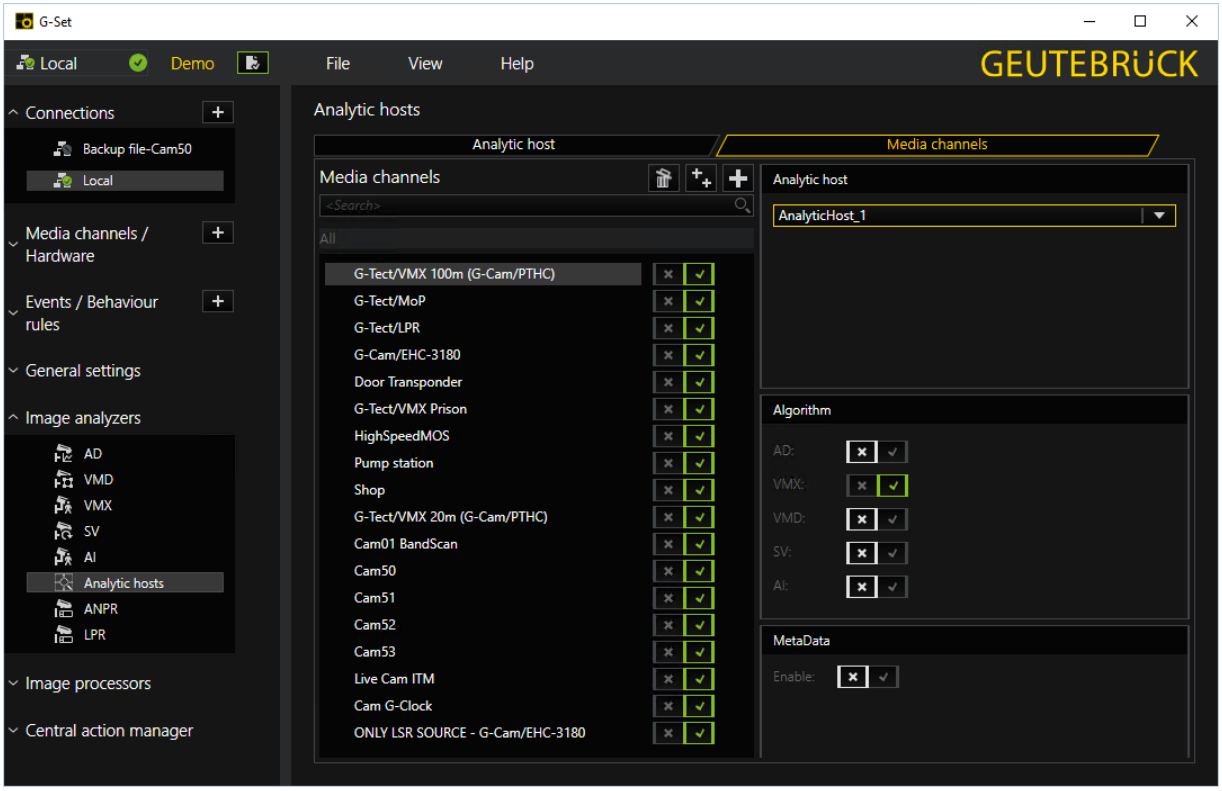
By selecting a analytic hosts, host-specific settings can be made. Under **Settings**, the name or IP address of the host and a check interval can be specified, which specifies how often the analysis host should check the connection to the G-Tect service in order to be able to continue the analysis via a fail over host in the event of a failure. Under **Fail over**, hosts can be defined for use in the event of a fail over by activating the slider. If several fail over hosts are stored, they can be prioritized using the arrows behind the hosts for switching position. The first host in the list has the highest priority. If this host fails or has already taken over another fail over case, the next activated host in the list takes over.

> **IMPORTANT:** A fail over host can only take over for a maximum of one failed host. Therefore, it is not allowed to analyze any media channels itself.

Media Channels

Adding media channels

In the **Media Channels** tab, individual media channels can be added by clicking + and all available media channels can be added by clicking ++ .



Configuring media channels

By selecting a media channel, channel-specific settings can be made to the left of it under **Analytic Host**, **Algorithm** and **Meta data**.

Under **Analytic host**, the analysis host can be specified which will take over the analysis of the media channel. Under **Algorithm**, an analysis algorithm can also be selected by activating the slider.

Whether meta data should be generated for the motion search can be specified by activating/deactivating the slider under **Meta data**.

> ⚠ **IMPORTANT:** At this point, only the image analysis is generally switched on or off. A configuration of the analysis algorithms takes place under the respective analysis algorithm in the **Image Analyzers** drop-down menu.

Number Plate Recognition (ANPR)

Subject to license

ANPR, Number Plate Recognition, is an image analysis method, requiring a license, for recognition of number plates on moving and stationary vehicles at a maximum distance of 20 m and a speed of up to 100 km/h.

The plates that are recognized are put into a Black/White list under optional categories and an action is sent that can be utilized with the event/alarm configuration.

Using the identification of the vehicle plate, it is possible to, for instance, control entrance gates etc. in parking lots, loading areas, entrances to a property, etc.

Recognition Rates

The typical recognition rate is > 96 %. Decisive factors for the maximum recognition rate are:

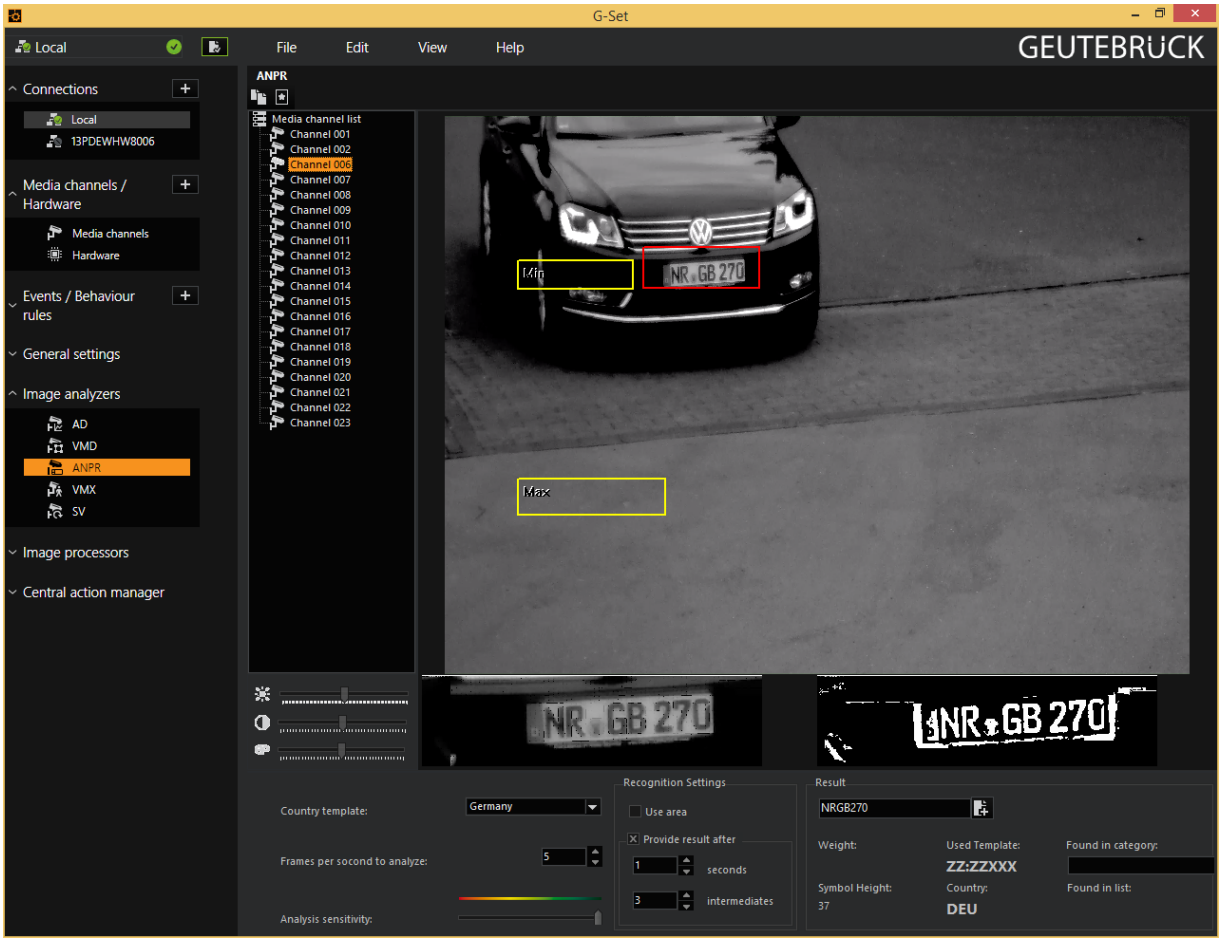
Decisive factors	Description
the country plates involved	The vehicle plates of various countries can differ in the font type, size, syntax used and the quality of the lettering. Additionally, the reflection behavior differs, as do the character order, character contrast and character color and, of course, the background color.
the ambient light	Insufficient lighting makes recognition more difficult, as the character color and background color “blur” and several fonts have too little contrast due to their size.
the perspective of the recording	Depending on the vertical and horizontal orientation of the camera, dis-tortions occur. There can also be problems due to the shearing of the characters.

Optimizing the system parameters can make it possible, even for problematic plates, to achieve high recognition rates, which can come very close to the > 96 % mentioned above.

Practical experience has demonstrated that the recognition quality is not only dependent on the parameter settings, but also on external factors. This includes the resolution of the camera and the thus available "size” of the characters to be recognized.

Additionally, the quality of the images depends on the environment and the external conditions during recording. These days, the resolution of the images can be positively influenced, easily and inexpensively, with an appropriate selection of a digital camera. Unfavorable light and ambient conditions can be controlled with lighting or the selection of an appropriate camera location. A portion of possible disturbances can be compensated with software by brightening, increasing the contrast, rotation, etc.

User Interface



The user interface for number plate recognition has three parts:

- The media channel list to the left
- The camera image with the frame for the configuration to the right
- The controls on the lower edge of the image.

Additionally, you will find two more symbols in the toolbar:

Symbol	Description
	Opens the categories dialog, in which you can add and delete categories and add or delete plates to categories and the Black-/White list.
	Opens the Advanced ANPR settings

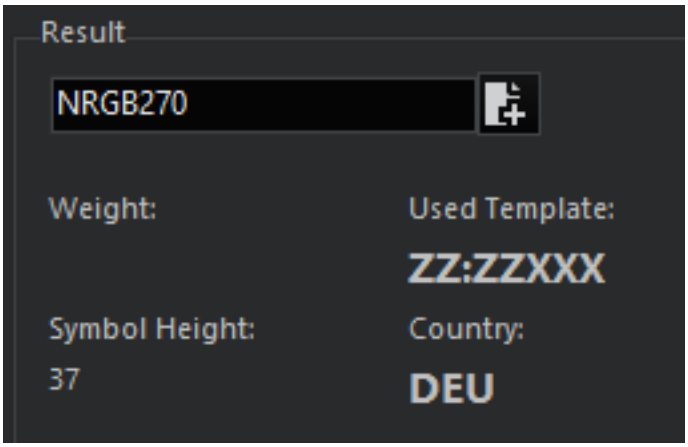
Slide Control

The slide controls have a special function for number plate recognition: Its purpose is not so much to adjust the image so that the users can recognize it well, but rather to adjust the image so that the system can optimally recognize the number plate. After installation, you should therefore make several attempts to improve the recognition rate of image using the slide controls.

	Brightness	Slide control for brightness
	Contrast	Slide control for contrast
	Color	Slide control for color intensity

Parameter	Description
Country template	Select here the configuration that will be used for system-wide recognition of number plates. Use ANPRSetupEditor and the Pattern Configurator to create your own templates (see below).
FPS to be ana-	Enter the picture rate to be analyzed in half-pictures per

Parameter	Description
lyzed	second. 3 is the lowest value, 25 the maximum value. This setting **does not** work with H.264. Here, for technical reasons, 25 FPS are selected regardless of the setting!
Analysis sens-itivity	Select here the country for which you wish to recognize num-ber plates. The system loads the appropriate tem-plates according to the selection of the country.
Recognition settings	
Use area	When this function is not active, the entire image is used for recognition of the number plate. The recognition rate will be improved, however, when the conditions listed below are ful-filled and the area of recognition is restricted. When this function is active, you will see a green frame in the image, with which you can isolate the area for recognition .
Provide result after seconds / intermediates	When this function is active, the result of the recognition pro-cess is prepared either after the set time or after the number of intermediates (depending on which occurs first). This function should be turned on for gates!



Displays

Parameter	Description
Result	Here the recognized vehicle number plate is depicted. With a click on the + button, you open the “Edit Plate entry” dialog. There you can assign the plate another category and add it to

Parameter	Description
	the Black/White list.
Weight	Shows the weight of the results. A maximum recognition is indicated with 100. For weights under 85 to 89, vehicle recognition may not be complete or possible. The system makes this estimation itself. Experience has shown that recognition is significantly better than the system assumes.
Symbol height	The display of the symbol height is to be seen as pixels relative to the set size of the number plate. If the set height (see further below) does not correspond to those found in the image, then errors may result.
Used template	Displays the template used for recognition. ZZ are the letters; XX stands for numbers. A template for German number plates would be, for instance, the character string ZZ: ZZ XXXX.

Parameter	Description
Found in category	If categories were created, the category belonging to the recognized number plate is displayed here. The number plate must already be in the database.
Found in list	If the number plate is already in the Black/White list, then this relationship is displayed here.

Configuration

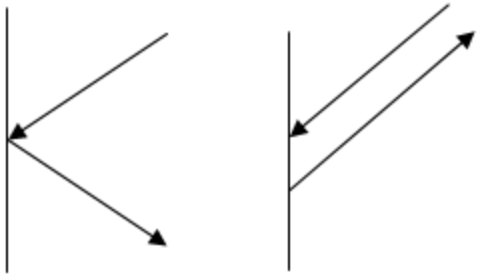
Information About Configuration

Before starting with the configuration of the NPR, please first ensure that the licensed channel delivers a well-lit and high-contrast image, independent of the light conditions (day, night, sunshine, background lighting, headlights, etc.). One solution is implementation of an infrared light.

As far as possible, the vehicle plates should be recorded from the front and horizontally. Distortions can lead to recognition errors. For this reason, the angle may deviate by not more than 30° vertically and not more than 20° horizontally.

The distance between camera and number plate should not exceed 10 m.

Light is reflected at a certain angle. The arrival angle is equal to the reflected angle (on the left in the figure below). The vehicle number plates in many countries have so-called retroreflecting plates, which reflect the light back to the source (on the right in the figure).



To take advantage of the retroreflecting properties of number plates, an IR light should always be set up parallel to the camera.

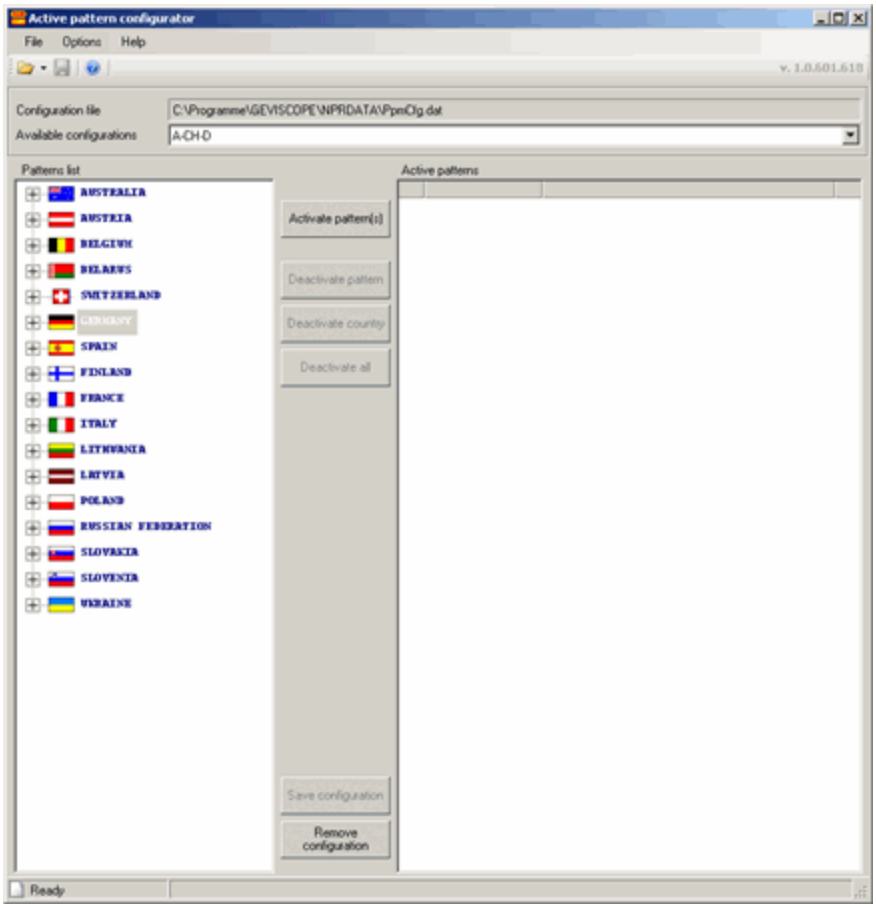
The vehicle speed also effects the recording and analysis of the image. A vehicle approaching at a speed of 30 km/h covers a distance of 8.3 m in 1 second. A camera normally operates at 50 frames/second for an exposure time of 1/50 of a second. In 1/50 of a second, the vehicle has covered a distance of 0.166 m (166 mm), resulting in blurry images. For this reason, an exposure time of 1/1000 of a second is recommended. Alternatively, 1/1500 of a second could be used for a speed of 30 km/h or 1/1250 of a second for an approach at 5 km/h.

Regulation of the iris also belongs to regulation of the exposure time: When the iris aperture is smaller (higher f-stop), the area from the foreground to the background is shown more clearly. With sufficient lighting, there is no problem with short exposure times.

Pattern Configurator

If you click on this button, the ANPRPatternConfigurator will open, which allows you to create country templates (patterns).

You can also find the ANPRPatternConfigurator in the G-Core directory in the subdirectory ANPRDATA under the name PatCfgrG.exe.



Before you begin working with the pattern configurator, you must stop the service ANPR. If you do not stop this service (and restart it subsequently) the stored patterns CANNOT be accepted!

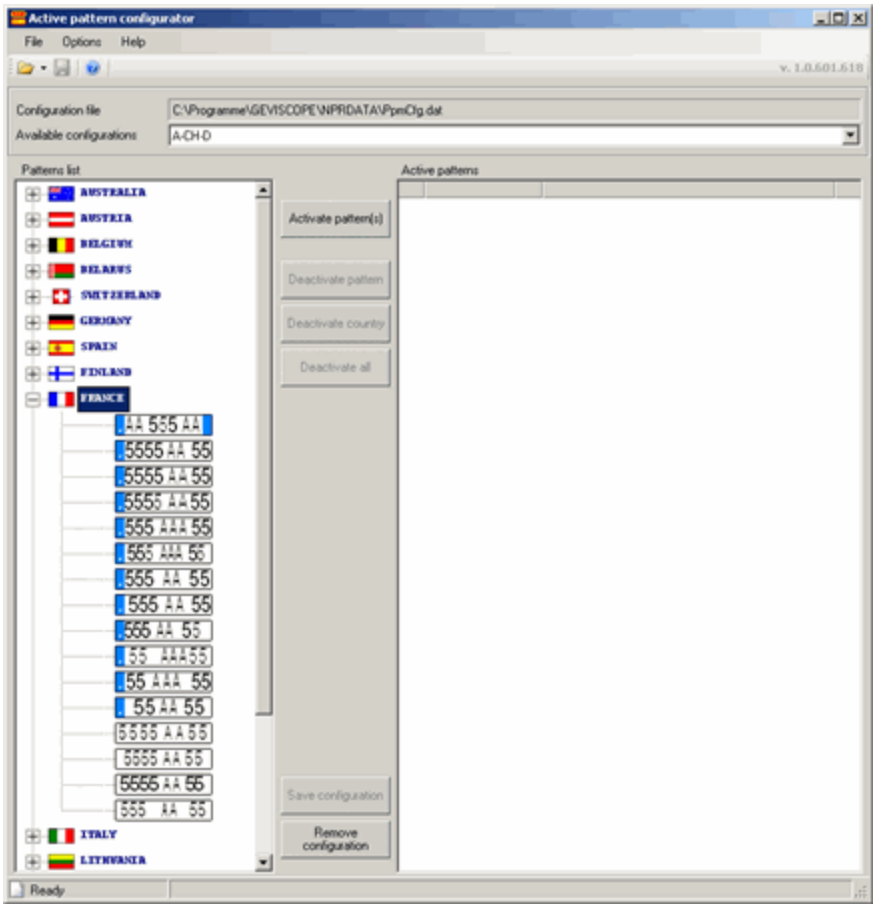
Click File and then Open and open the file PpmCfg.dat. This will load the existing patterns into the editor.

The available patterns can be seen and edited using the drop-down menu Available Configurations.

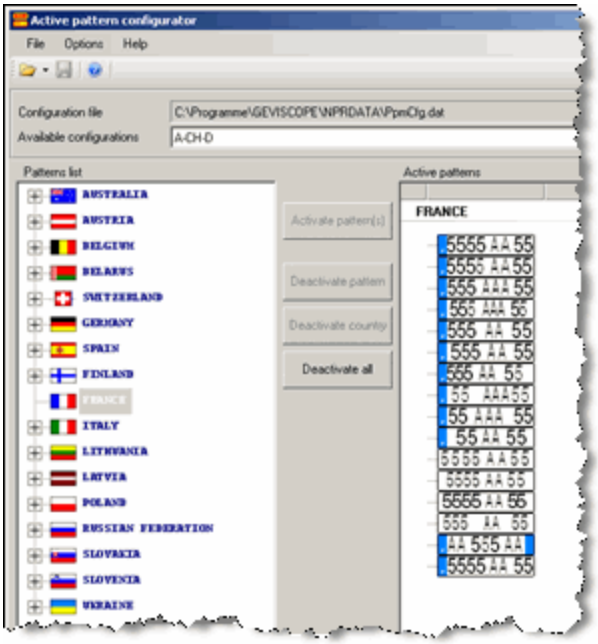
Creating a new pattern

If you want to create a new pattern, proceed as follows:

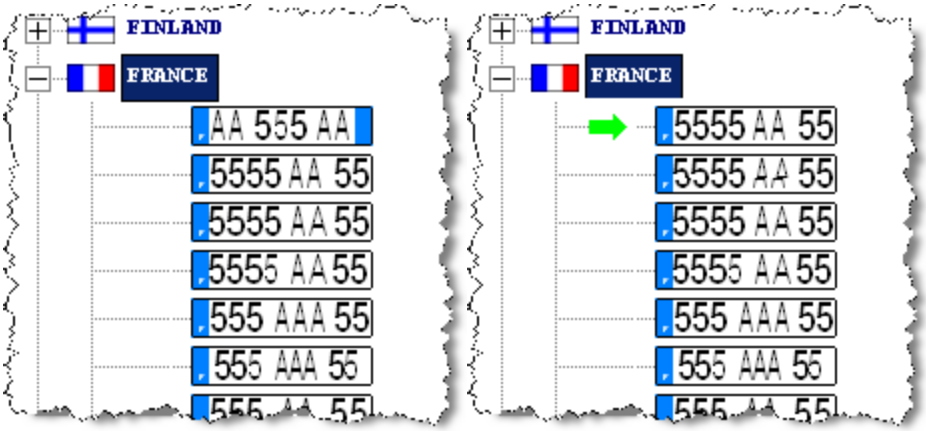
In most countries, the look and type of number plate has changed over the years. For the listed countries, these changes have been incorporated. We show in our example the number plate representation for France:



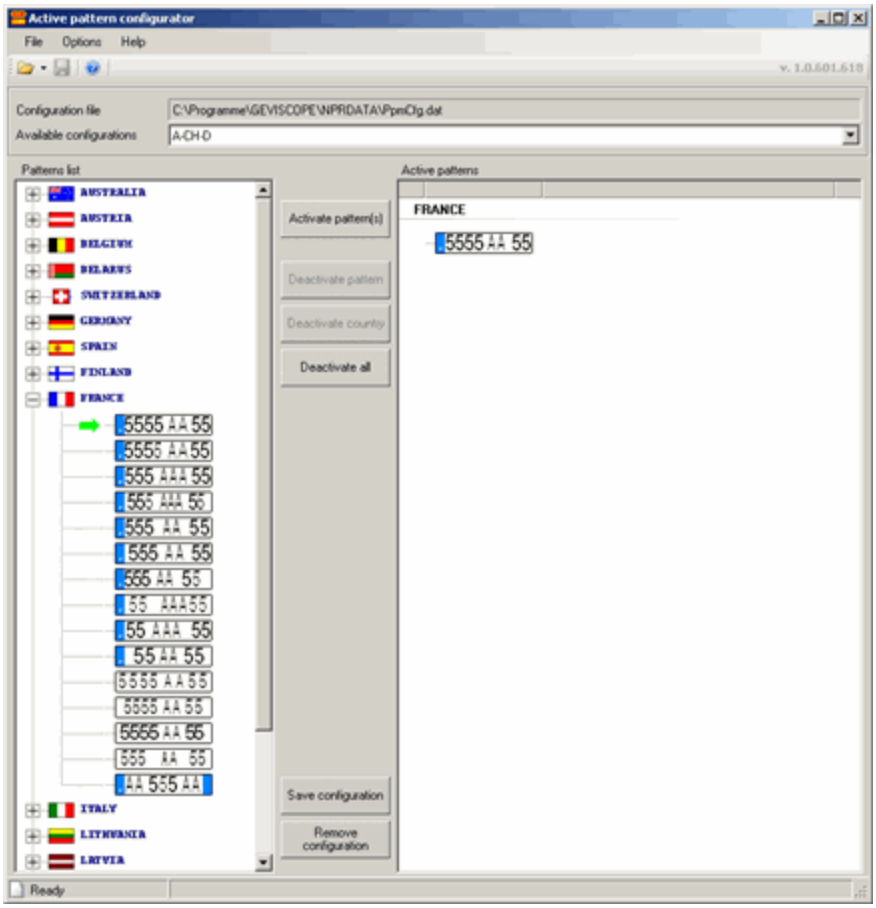
You can now accept all types in your pattern, by selecting the country and clicking on the button Activate Pattern(s) or also include individual types in your pattern.



If you want to show only one number plate type, open the Countries Display, select the type and click **Activate Pattern(s)**.



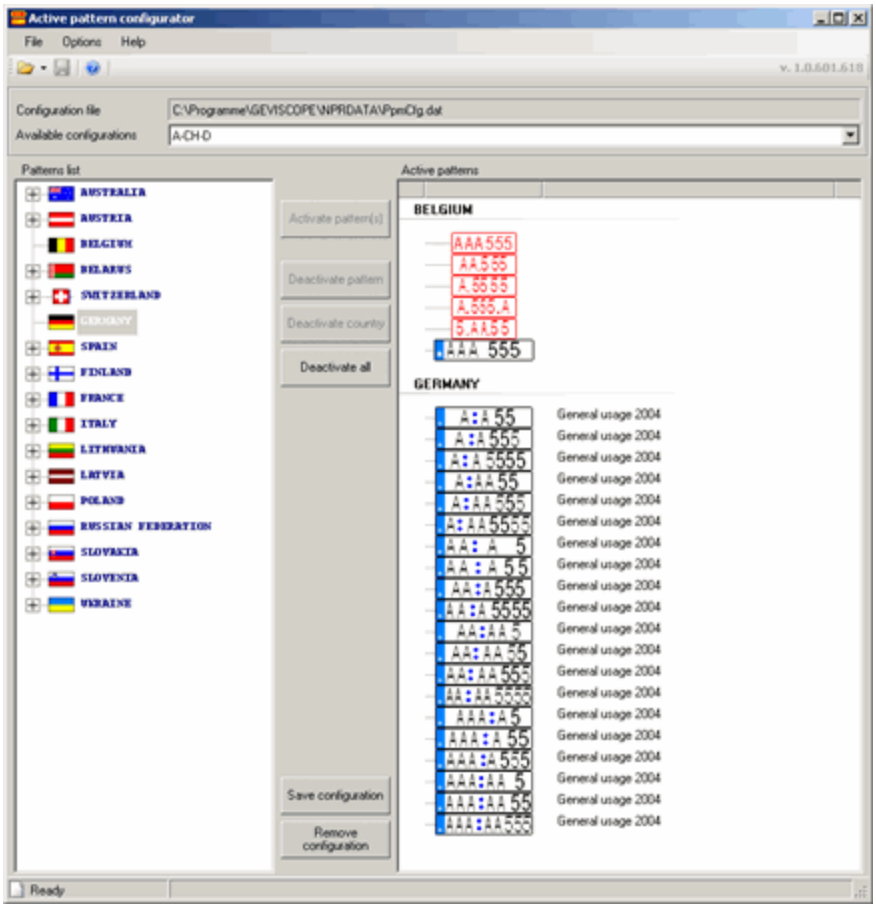
The selected number plate type is added to the pattern.



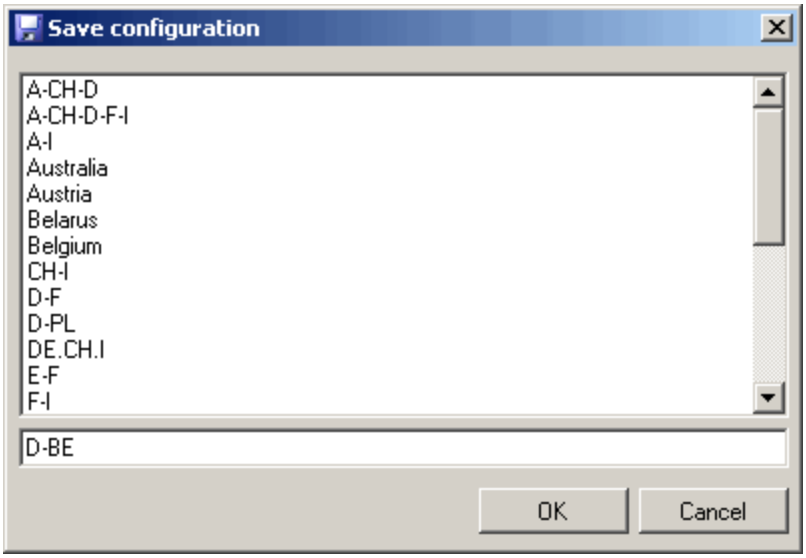
For example, we wish to create a pattern as it would be of interest in the region of Aachen (Germany): German and Belgian number plates.

To do so, select **Belgium** in the number plate list and click on **Activate Pattern(s)**. Then do the same for **Germany**.

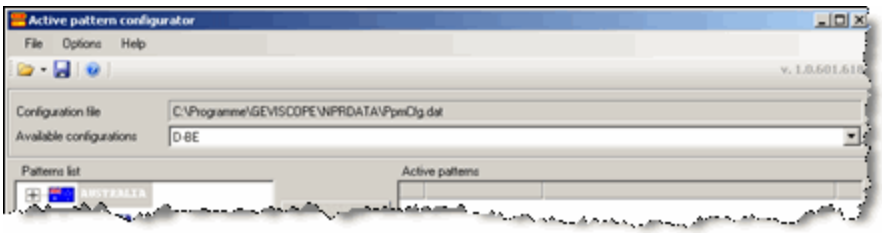
All the number plate types of both countries are now in the list of active number plates:



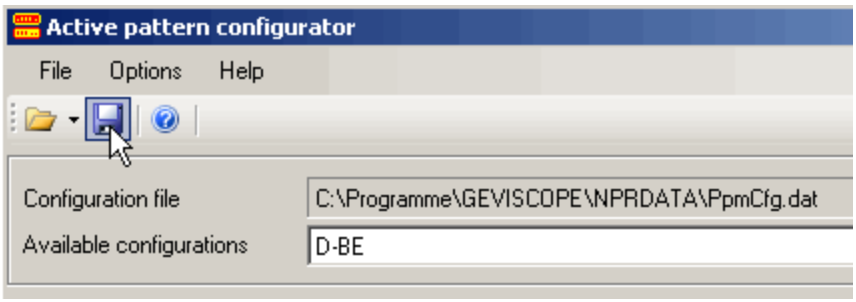
Click the button **Save Configuration** and enter a name for the pattern in the New Configuration dialog, here: D-BE. Confirm the entry with OK.



As you can see, the new pattern has been added to the list of available configurations.



Click on the symbol to save the new configuration file.



Remember to restart the service to let the changes take effect. The pattern will then be available.

Deleting a pattern

You can always delete an existing configuration. To do so, stop the service, load the configuration file and select the pattern you want to delete (using **Available Configurations**).

Now click on **Remove Configuration**. The selected configuration is deleted. Save the configuration file and restart the service.

Set up of the image

Follow the recognition of the number plates in the live image and pay attention to the weight of the result (weight preferably 89–91 or higher) and whether or not the number plate is correctly recognized. Use the slide controls to set up the image so that the weight is as high as possible and the correct number plate is displayed.

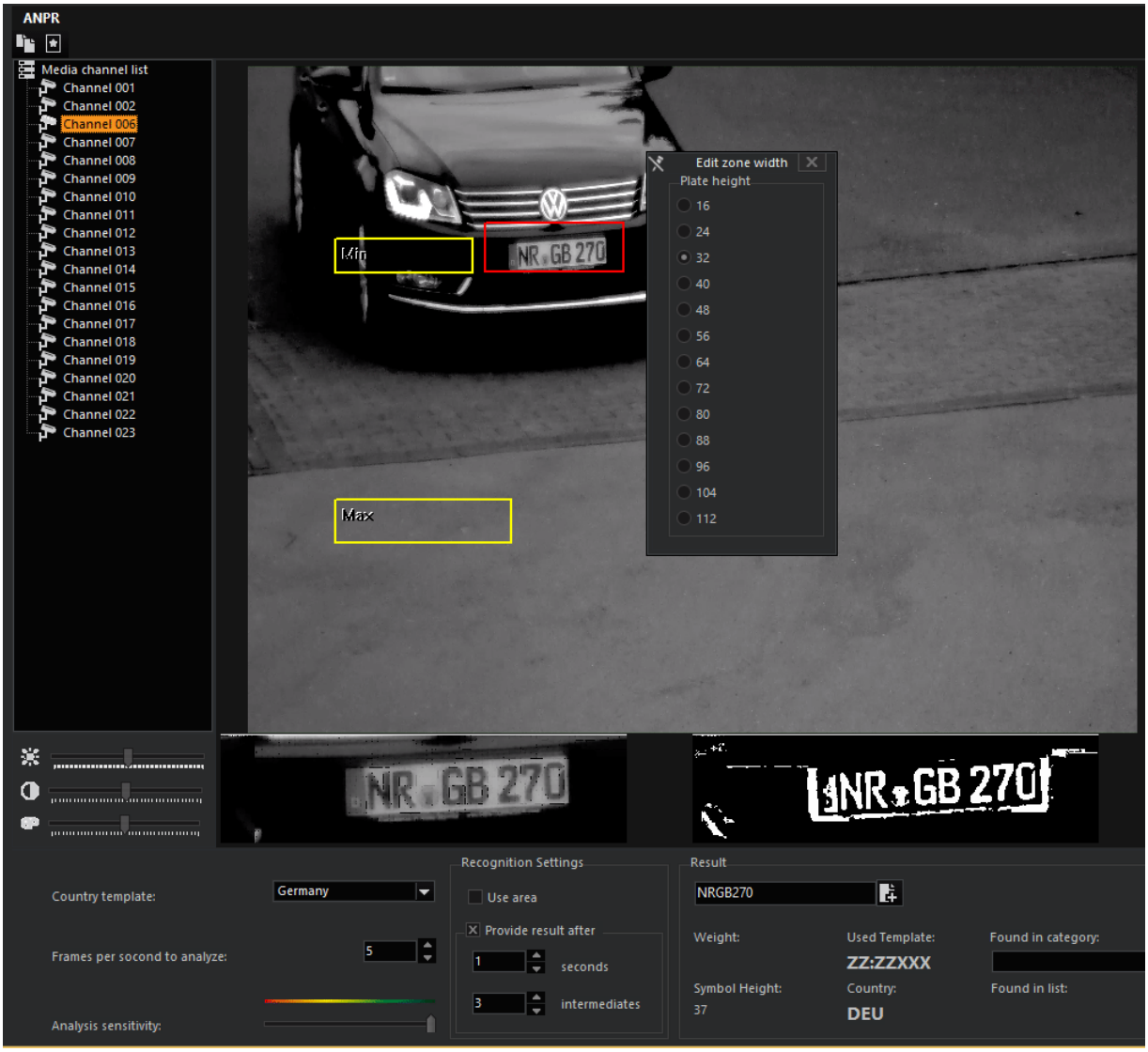
Here it is not important that you can see and recognize the number plate well. Only the result counts!

In the picture you also see the two yellow frames for setting the minimum and maximum number plate size. Both should be somewhat larger than the actual number plates that will appear in the picture. The configuration will work best if you position a vehicle in different locations in the camera picture and set the frame.

What exactly do the yellow frames do? They specify a (size) measurement area, within which the number plates are searched for. The arrangement of the frames can be chosen freely. It is not about a perspective view and an area, but rather only about a minimum/maximum comparison value. The actually recognized number plate is framed in red.

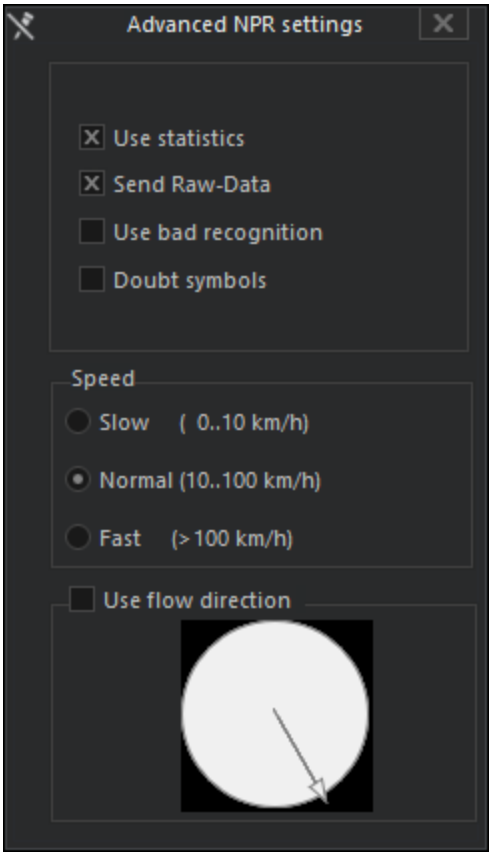
Set the size of the number plate as follows

Right click in one of the yellow frames and specify the size in the dialog. Set the other frames in the same manner. The sizes are specified in pixels. Depending on the setting, the size of the frame displayed in the image changes. A setting that is too small may interfere with proper recognition. A setting of the frame that is too different, such as 16/64, will also lead to poor recognition rates.



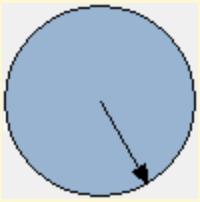
Advanced settings

Clicking on the symbol in the toolbar opens the advanced settings.



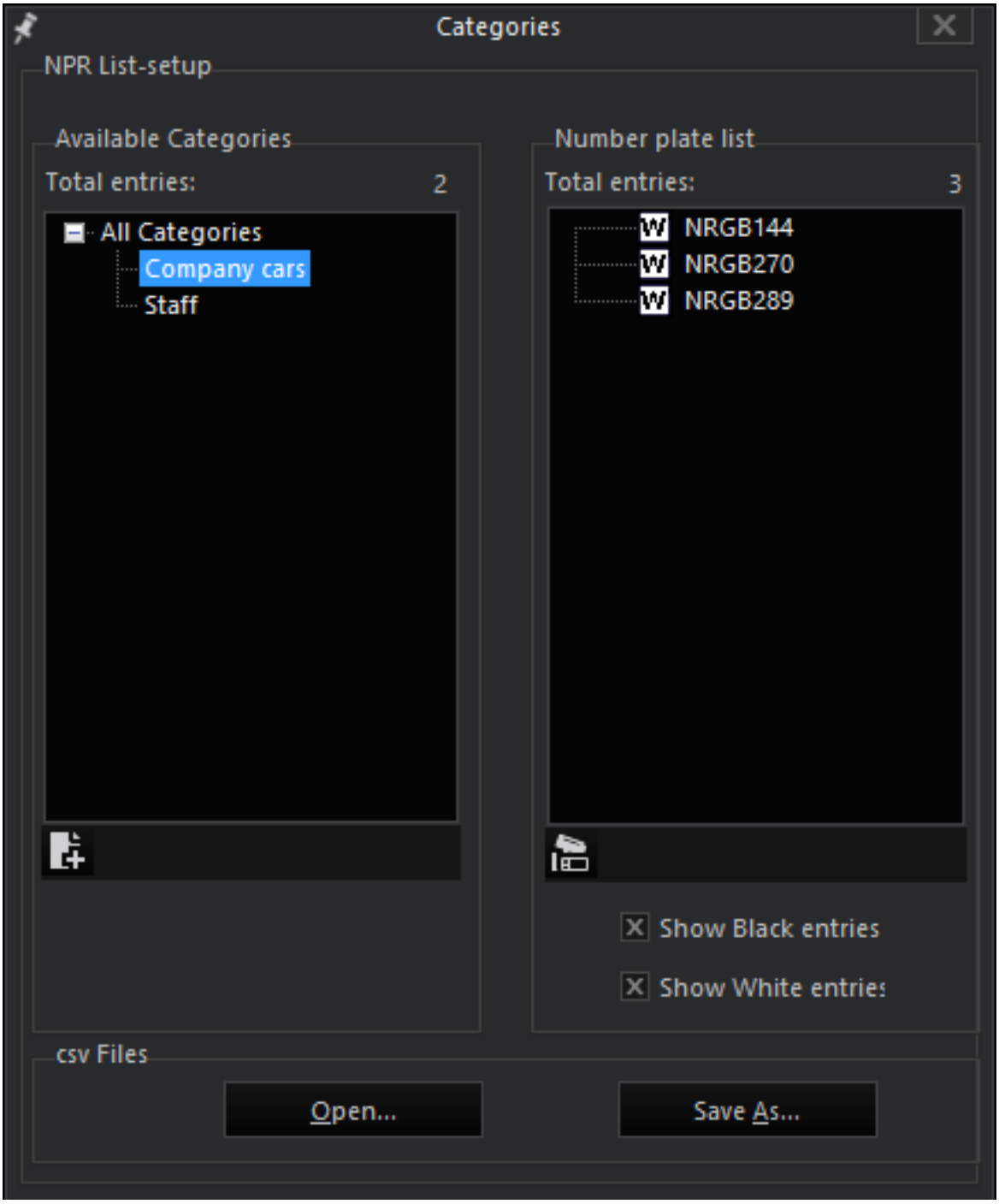
You will find the following settings in this dialog:

Parameter	Description
Use statistics	ANPR performs its own internal statistics regarding the recognized number plates, as a sequence of recognition procedures are performed. When this function is activated, ANPR attempts to integrate these statistics into the recognition. The default setting is on.
Send RAW-Data	The ANPR continually sends RAW data when this function is activated. The default setting is off.
Use bad recognition	Due to wear or dirt, number plates can be difficult to read. An example: instead of a only the following character is present: . When you activate this advanced function, the system attempts to recognize the correct character. This is typically

Parameter	Description
	not necessary, however. The default setting is off.
Doubt symbols	For a low weight of the recognition, it can occur that a * is entered instead of a character. When you activate this function, the last recognized character is set for the placeholder *; this may not be correct, however!
Speed	
Slow	For speeds from 0 to approx. 10 km/h
Normal	For speeds from 10 to approx. 100 km/h
Fast	For speeds > 100 km/h
Use flow direction	
	You can move the arrow with the left mouse button and set the direction from which the vehicles come. In our example this is from the left at a slant. This setting can be helpful for difficult situations. Normally, however, it is not needed. The default setting is off.

The category list

Clicking on the symbol opens the list dialog. The existing categories and the recognized number plates are compiled in the list. The icons of the number plates indicate whether the plate is in the **Black List** or the **White List**. An empty icon is present for number plates that are not assigned.



Adding a category

Right click in the list of the categories and then click on **Add category**. A dialog opens. Enter the name for a category and confirm it with the return key.

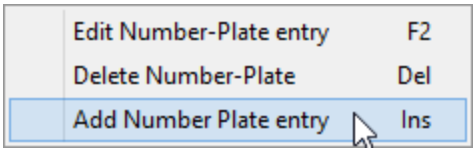
Editing a category

Click on a category with the left button. You can now edit the name.

Deleting a category

Right click on a category and then click on **Delete category** in the pop-up menu.

You can also edit the number plate list. Select a task:



Task	Description
Add Number-Plate to list	Right click in the number plate list and then click on **Add Number Plate to list** in the pop-up menu. The "Edit Plate entry" dialog opens. Enter the plate. Select whether the plate belongs to a permitted vehicle [White list] or whether it belongs to a forbidden vehicle [Black list]. If you wish, you can also assign the vehicle to a category.

When entering new number plates, you can also use so-called wildcards. You can use an asterisk (*) or a question mark (?). Asterisks represent a character string of any length, question marks only represent a single character. It is possible to combine the two.

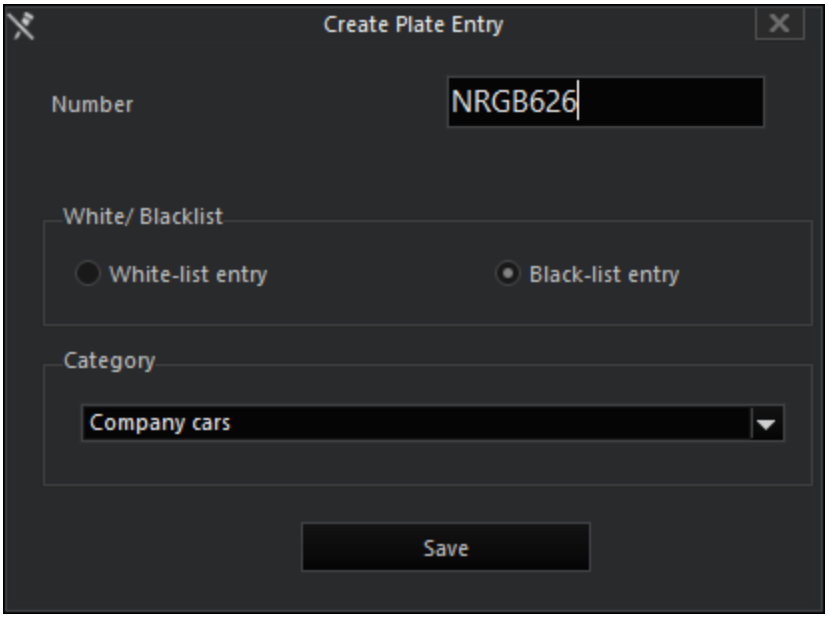
Example For the template ZZ:ZZXXX (two letters followed by two letters and then 3 numbers), a white list entry for our company cars could be: NRGB*, i.e. all vehicles with a number plate from the district Neuwied (Germany), represented by the first two letters, NR, followed by the letter combination GB and any number combination thereafter. If we specified NRGB6*, then only the vehicles with the number plates NR-GB 600 to 699 would be included in the white list.

The characters string NRGB66? would only allow 10 vehicles, namely NR-

GB 660 to NR-GB 669.

Using these methods, it is possible to create various usage models. For instance, all non-local vehicles could be sorted out.

Task	Description
Edit Number-Plate entry	Right click on a plate in the number plate list and then click on **Edit Number Plate entry** in the pop-up menu. The **Edit Plate entry** dialog opens. Modify the plate and or the assignment to a list [White list or Black list]. If you wish, you can also assign the vehicle to a different category. Confirm your entries by clicking on **Save**.
Delete Number-Plate	Right click on a plate in the number plate list and then click on **Delete Number Plate** in the pop-up menu.

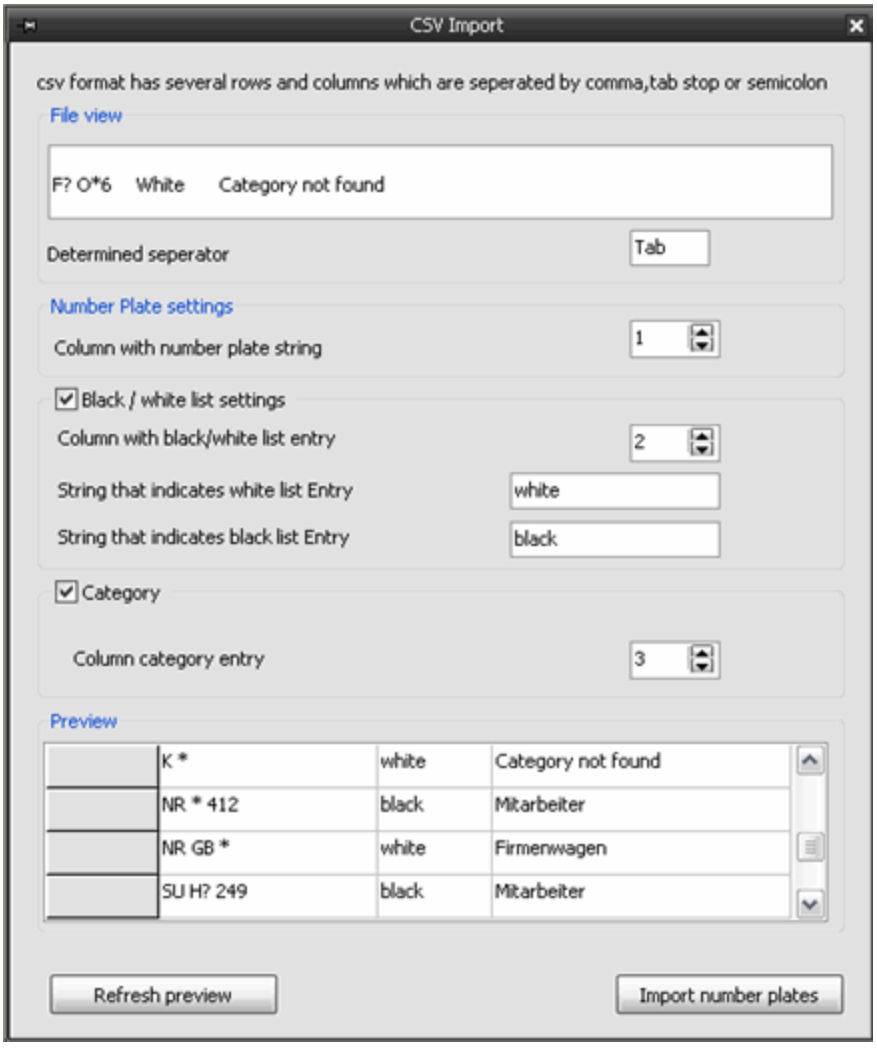


Import and export of number plate lists

A click on the Open button makes it possible to import number plate lists in tab, comma or semicolon separated CSV files. As these files contain a number of rows and columns, the structure of the CSV file must be made known to the program.

Under **Determined separator**, the separator used is displayed, e.g. a semicolon (;). You then specify which information is found in which column. In our example:

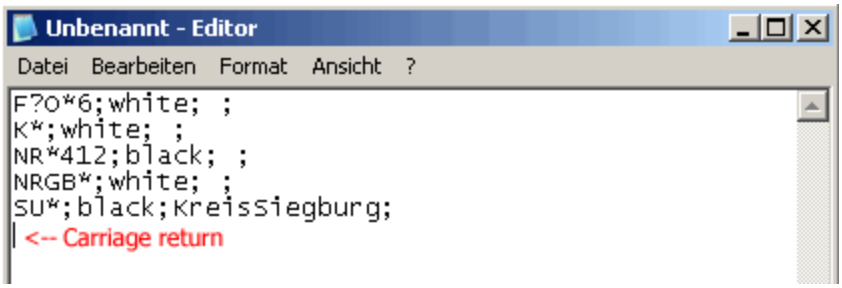
- The specification of the number plate is in column 1 (Column with number plate string)
- The (available) black/white list specifications are in column 2
- The categories are in column 3 (in the example, these are empty).



Click next on **Refresh preview** and check the display. If everything is OK, click **Import number plates** to import the information.

Note: If you wish to prepare number plate lists in a CSV file, you must pay attention to the following:!
- Do not use titles or comments
- Close the last line with the separator you are using
- Press the ENTER key
This is necessary because the program looks for the last carriage return character and cuts off the file there when importing. If you do not follow this procedure, the file will not be imported properly!

Here an example for a file written in the editor and separated with semicolons:



Event control

When configuring an event that is based on ANPR actions, enter the “NPR recognition” action under Start by. Select the channel that should start the event in the action dialog.

Please enter the Event run time under StopBy.

License

The number plate recognition ANPR requires a license. For the desired media channels, please enter the acquired licenses using the license manager in G-Set.

Multiplex Mode

What Is Multiplex Mode?

ANPR multiplex mode is a special type of number plate recognition, with which the multiplex mode license allows licensing of four media channels.

As opposed to a full ANPR license, the licensed multiplex channels are not monitored and evaluated continuously, rather only a certain number are monitored.

As it can take a certain amount of time until a channel is activated, the multiplex mode license is primarily suitable for stopped traffic, i.e. barrier control or similar applications.

How Does Multiplex Mode Work?

The number of channels determines the number of multiplex slots that perform the actual evaluation. For up to four media channels each, a multiplex slot is made available. 5 channels require two slots, as would 8 channels.

> **The maximum number of slots is 16, corresponding to 64 media channels. If more than 64 channels are to be licensed, then only 16 slots are made available for evaluation. The performance remains at the level of 16 slots.**

A media channel in the multiplex mode is different from a channel with a full license because processing is constantly interrupted at intervals due to the other channels, meaning that no pictures are evaluated for certain periods of time.

The channels alternate every second, meaning that the live stream of the current channel is stopped and the next channel is switched on. The channel that has been interrupted then gets back into the waiting line. This cyclical alternation makes it possible to evaluate a channel every four seconds.

> **The use of multiplex mode requires corresponding settings for the program: For one, the video sources must supply a sufficient number of pictures; the picture rate should not be under 5 pictures/second. Also, the Setup Parameter must be modified using the Provide Result After option. The number of intermediate results must be selected so that there is a result within the analysis time (approximately 1 second).**

How Do I Setup Multiplex Mode?

If you have a multiplex mode license, then you will see four ANPR licenses in the license management, which you can distribute to any of the media channels. Send the modified settings to the server and configure the parameters. ANPR multiplex mode is then operational.

License Plate Recognition (LPR)

Subject to license

The G-Tect LPR (license plate recognition) is used for number plates recognition, including US and Australian number plates.

G-Tect LPR consists of a LPR service, which integrates the LPR SDK (delivers the algorithm for the number plate recognition) and a parametrization page in G-Set as well as the VCA Setup Editor.

Requirements

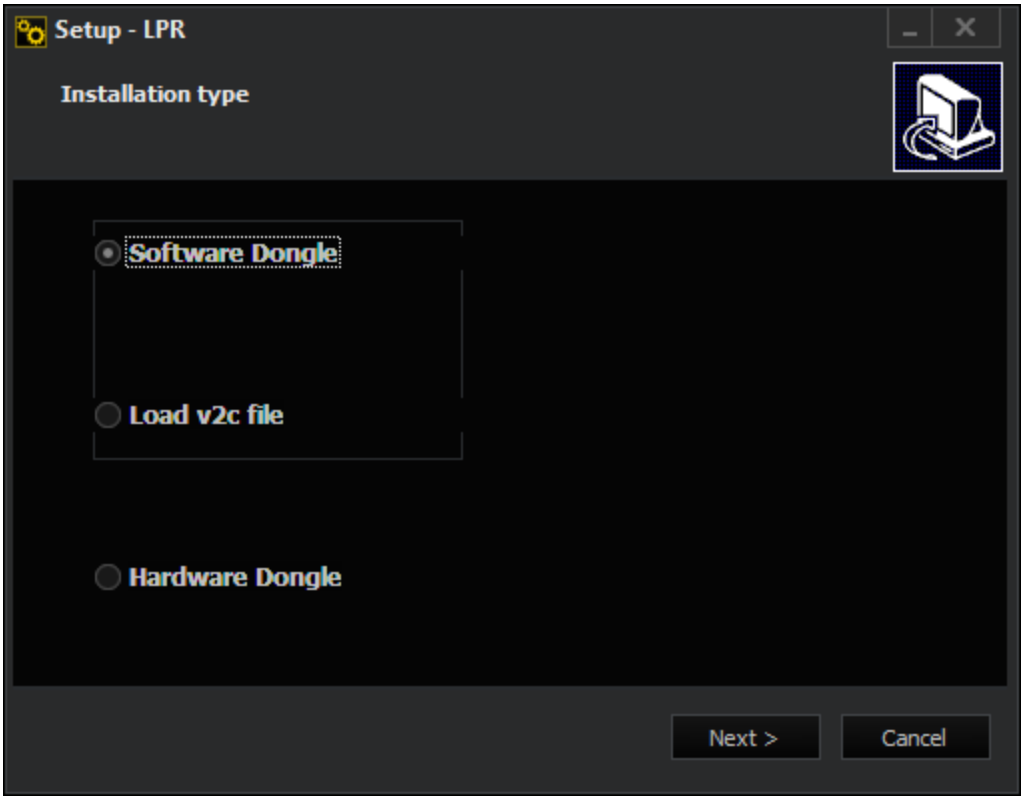
For installing and using G-Tect/LPR, the LPR dongle (verifies and regulates the LPR licensing) and an installation of G-Core together with the respective G-Core option for LPR are necessary.

The G-Tect/LPR licensing is carried out per each channel.

Installation

The G-Tect/LPR is not installed automatically using G-Core, but using a separate G-Tect/LPR installer.

At the beginning of the installation, there are three options to choose from:



Installation Type	Description
Software Dongle	During the installation of the software dongle, the LPR and haspdinst.exe are installed. At the end of the installation, a c2v file is generated and needs to be sent to

Installation Type	Description
	anpr@geutebrueck.com. gesendet werden muss. After sending, a v2c file is returned from Geutebrück.
Hardware Dongle	During the hardware dongle installation, the LPR and the Marx dongle is installed. Therefore the LPR Marx dongle is necessary.
Load v2c file	Here, the user can view returned v2c files to license the LPR's software dongle version.

After the installation process has been successfully completed, the CBIOS or the Secure Sentinel and the G-Tect LPR Service is started.

Configuration

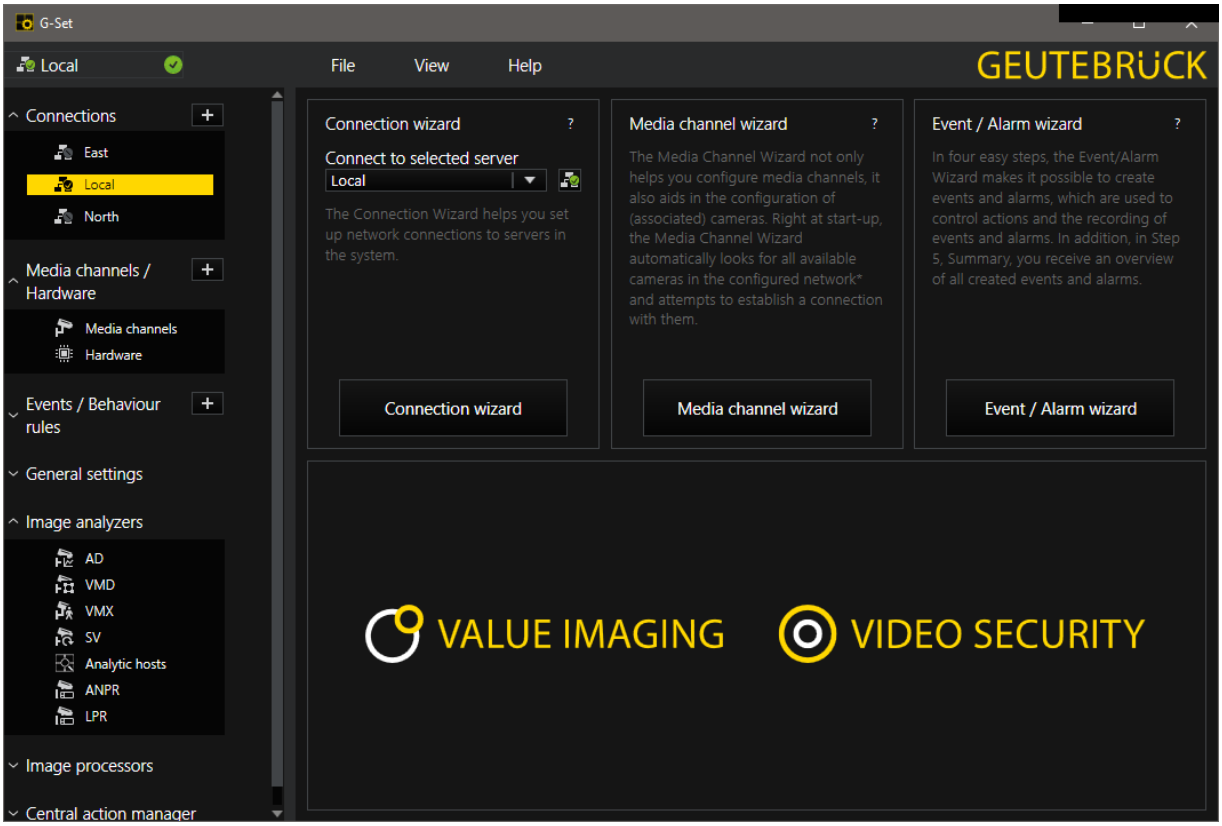
The LPR is configured in two different locations:

- Using the VCA Setup Editor a local connection of the G-Tect LPR Services is set up on the analysis host to one or more G-Core servers.
- Using the parametrization page in G-Set, the exact parameters for the analysis are to be generated.

Configuration of Parameters in G-Set

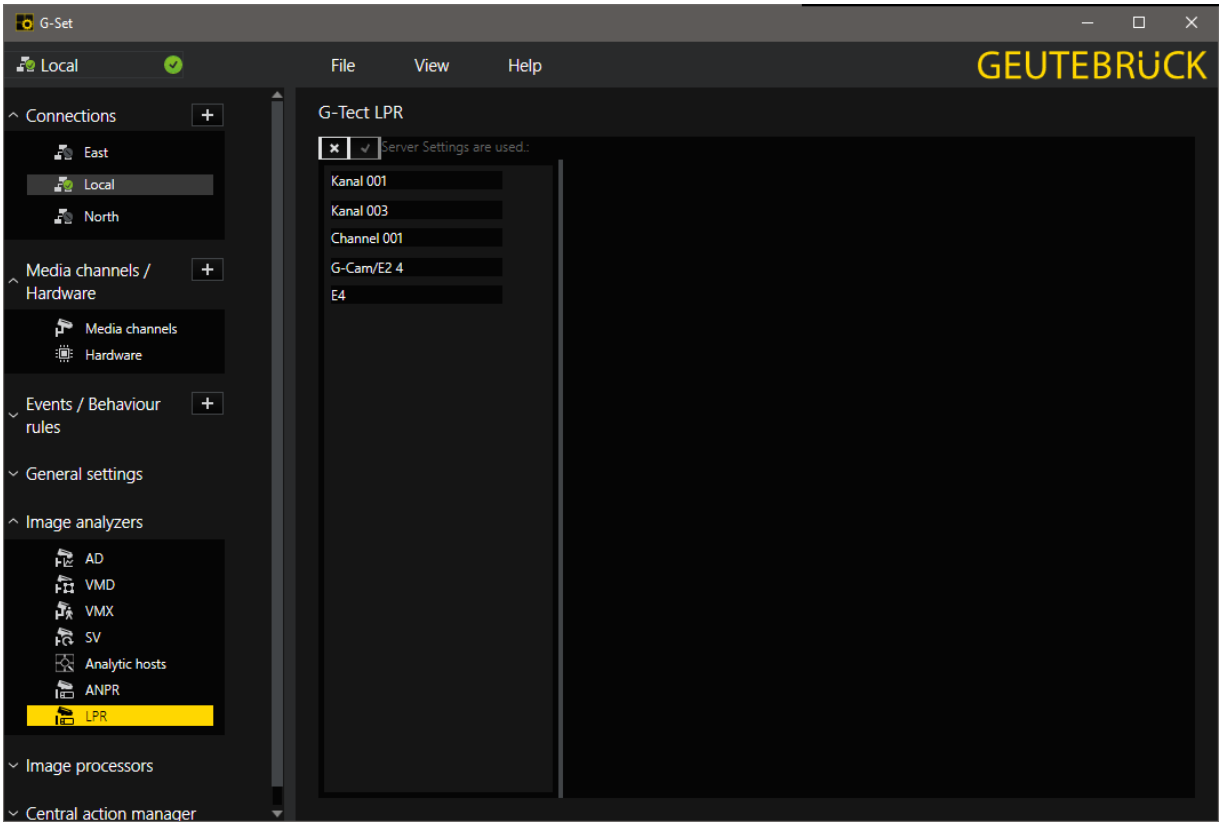
Via the parametrization page **LPR** in G-Set some basic settings must be made in the first place.

Therefor, a connection to the G-Core server is to be established:

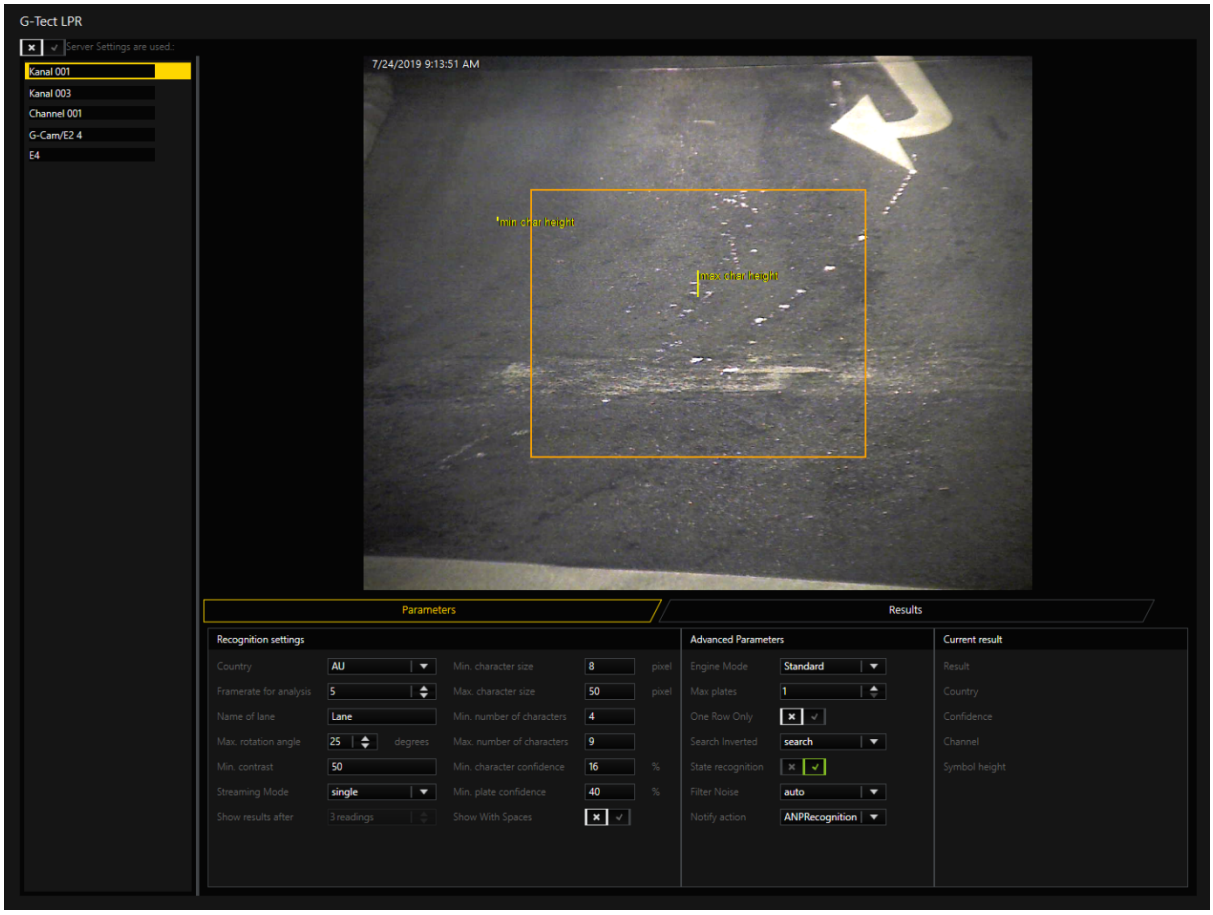


When a connection to server was established, the page **LPR** can be found under **Image Analyzers**.

At the top of this page, there is a switch that displays whether later during the analysis for backwards compatibility the LPR Setup Editor's settings are used or whether the settings made in G-Set are used. If the switch is disabled, the settings made in G-Set are used. Those are saved to the **G-Core Registry**.



Settings can be set for each media channel individually.



In the **Parameter** tab, various settings can be made:

Parameter	Description	Default value
Country1	Determines the country template used for the number plate registration	-
Framerate for analysis	Determines how many images should be analyzed	every fifth image
Name of lane	Determines the name of the displayed lane (e.g. entry/exit)	-
Max. rotation angle	Determines the maximum rotation of a number plate in the image	25
Min. Contrast	Determines the contrast between letter and background of the number plate	

Parameter	Description	Default value
Streaming Mode	Can be selected to set several pre-defined settings for the processing of the images (values: single, parking, off-line, freeflow)	single
Show results after x readings	Determines after how many consecutive registrations of the same number palte, the LPR Service should display results.	-
Min. character size	Determines the minimum height of a character on a number plate	8
Max. character size	Determines the maximum height of a character on a number plate	50
Min. number of characters	Determines the minimum amount of the characters on the number plate	4
Max. number of characters	Determines the maximum amount of the characters on the number plate	9
Min. character confidence	Determines at which security per character the LPR Service should deliver a result	16
Min. plate confidence	Determines at which security per number plate the LPR Service should deliver a result	40
Show with Spaces	The result contains the number plate correctly formatted with spaces	false
Engine mode	Determines in which performance mode the LPR service should operate (options: best, high, standarf, fast or fastest)	Standard
MaxPlates	Determines the maximum amount of number plates being returned as a result per each image	1
One Row Only	If activated, number plates with more than one row are ignored	false

Parameter	Description	Default value
Search Inverted	Determines if the system should search for inverted number plates (white on black). *Search* searches for such number plates in case no usual ones can be found (Values: none, search, always)	none
State Recognition	If the number plate's country of origin should be recognized automatically	true
Filter Noise	Determines if the noise in an image should be filtered out (Values: on, off, auto)	auto
Notify action	Which action should be sent: 1. ANPRRecognition 2. LPRRecognition 3. Both	ANPRRecognition

1The available countries are read from the classifiers' prefixes in the directory C:\ProgramData\Gng\LPR\data.

Another parameter , the "„ROI" (= region of interest) indicating in which area of the image number plates are to be found and analyzed, can be customized by holding the left mouse button and then dragging the mouse over the viewer. The ROI is displayed in an orange color within the viewer. Furthermore, the parameters **Min. and Max. character size** are displayed in yellow within the viewer.

To save changes, the setup has to be sent to the server (**Send Config to Server**). The data is saved to C:\ProgramData\Gng\LPR\GTectLPR.xml) as an XML file.

Hidden Parameters

There is a hidden parameter that is not editable via the LPR dialog in G-Set. It does not exist by default and will not be created automatically by G-Core at any point. It needs to be created manually in the G-Core Registry. As long as the key in the G-Core Registry is not created, the service operates with the default value. '

Parameter	Function	Default Value
MinTimeBetweenRetrigger (System -> Global Settings -> MinTimeBetweenRetrigger;	Indicates for how many seconds a certain license plate will be ignored if no other license plate is	30

Parameter	Function	Default Value
Int 32)	recognized in the meantime . After the expiration of this time period, the license plate will be recognized again. The setting "0" is interpreted as infinite, which means that another license plate needs to be recognized before another action can be sent to a recognized incense plate. This corresponds to the former behavior of the service.	

Country Classifier

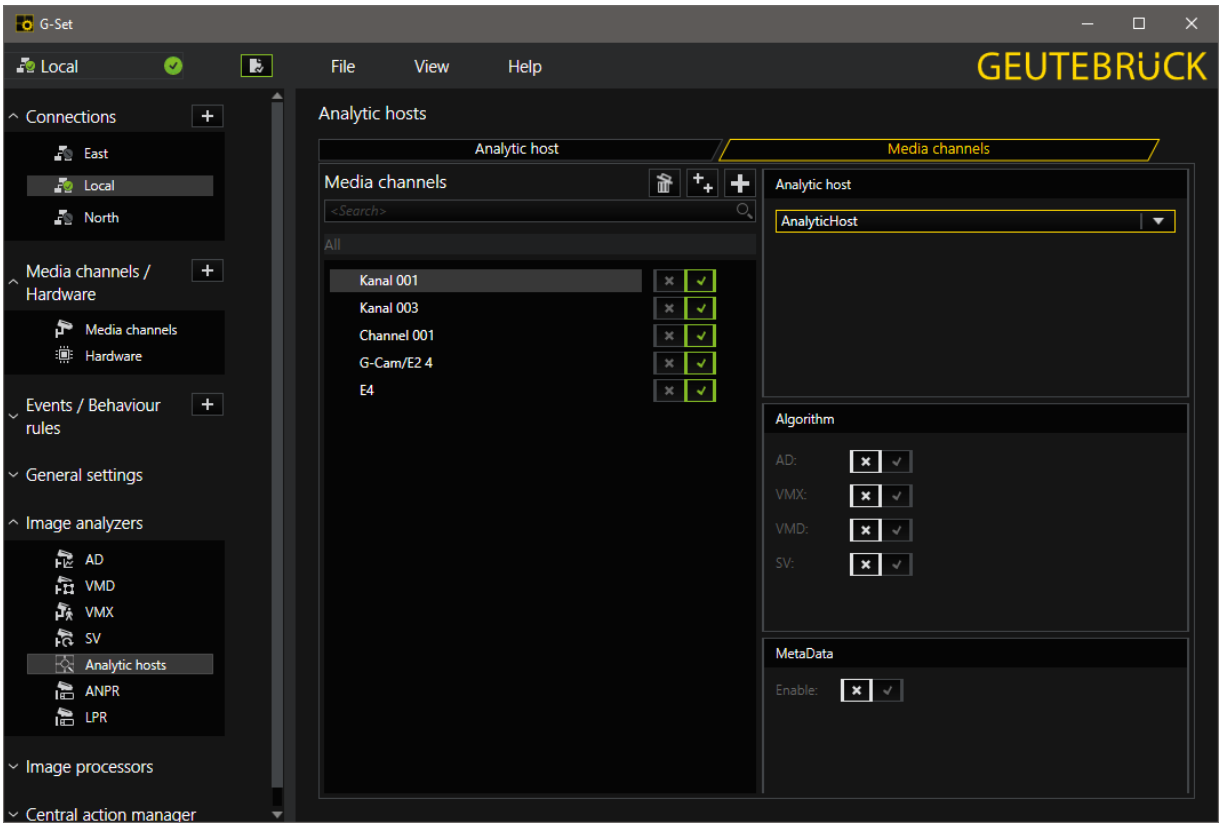
The following classifiers are installed along and should exist in the directory C:\ProgramData\Gng\LPR\data before running G-Set or the LPR Service.

If this is not the case, an analysis will not be performed.

Initials/File name	Meaning	Supports State Recognition
AU	Australia	Yes
AE	United Arab Emirates	Yes
BN	Nation of Brunei, the Abode of Peace	No
EU	Europe	Yes
HK	Hong Kong	No
IN	India	No
MY	Malaysia	No
NZ	New Zealand	No
PE	Peru	No
PH	Philippines	No
USA	United States	Yes

Turn On/Off Analysis in VCA Setup Editor

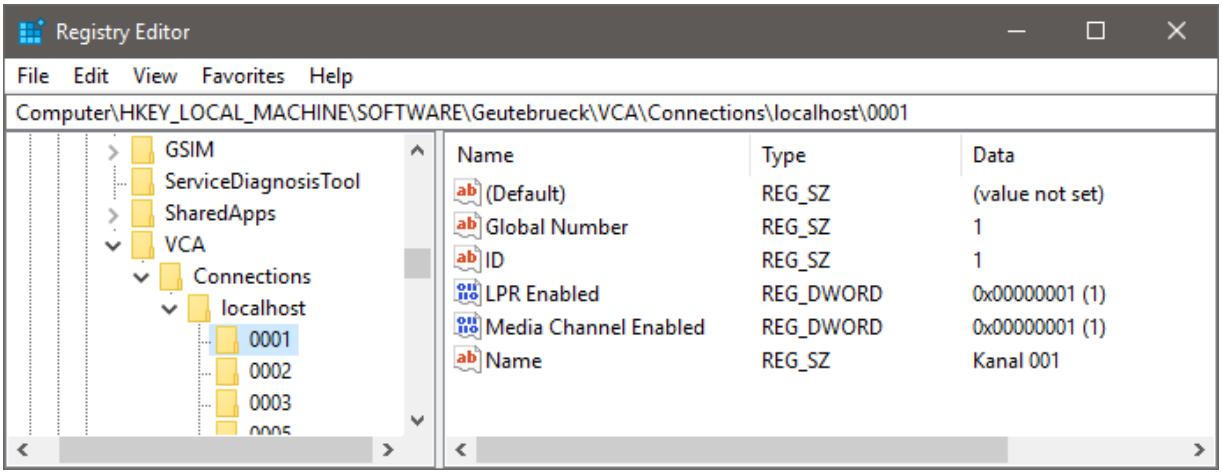
In G-Set only parameters for the analysis are set. However, switching on/off the individual channels can be done in the VCA Setup Editor.



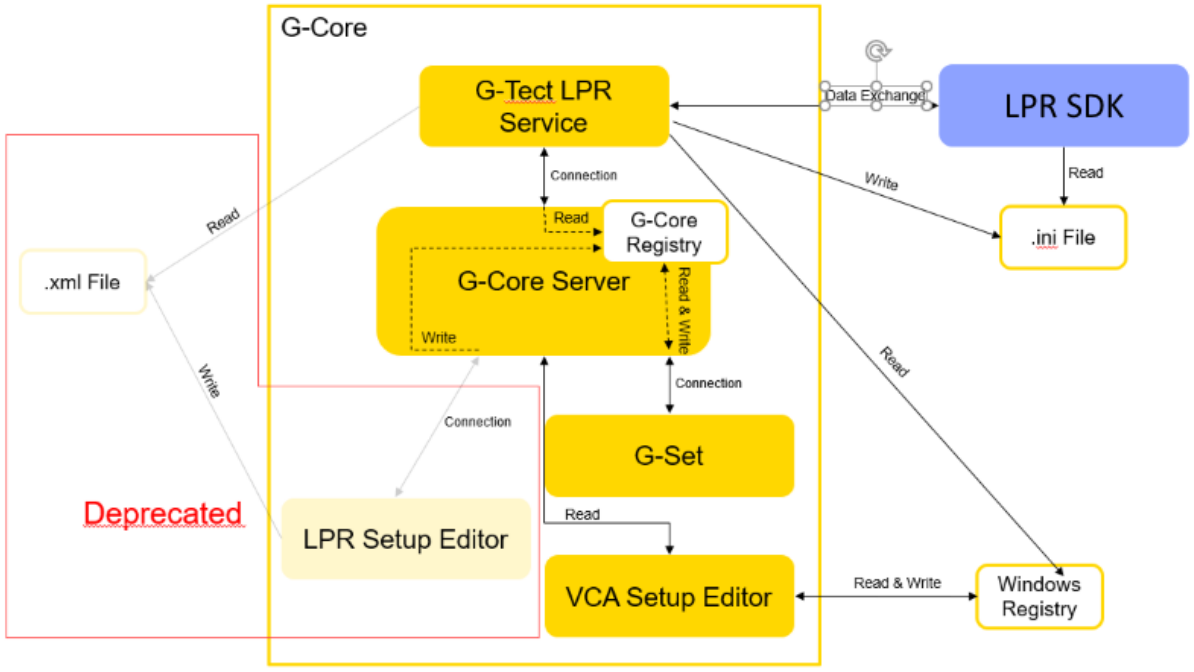
> **IMPORTANT:** The VCA Setup Editor has to be run locally on the device designated to run the G-Tect LPR service, not depending on where the G-Core server is running.

The VCA Setup Editor is storing to which G-Core servers the G-Tect LPR service should connect to and which channels should get analyzed. On the screen shot, the service would connect to the local G-Core server and analyze the channel **Kanal 001**.

The settings are saved to the Windows Registry under the key Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Geutebrueck\VCA\Connections\ :



Functioning and Data Exchange



The G-Tect LPR is part of G-Core. However, the software is independent from the G-Core server and can run on a separate device. The LPR service as well as G-Set and the VCA Setup Editor establish a connection to the G-Core server.

G-Set saves the analysis parameters to the G-Core Registry. The VCA Setup Editor saves information about the activated channel to the Windows Registry, which are read from the LPR service. The LPR service connects to the server specified in the Windows Registry and instantiates the LPR SDK.

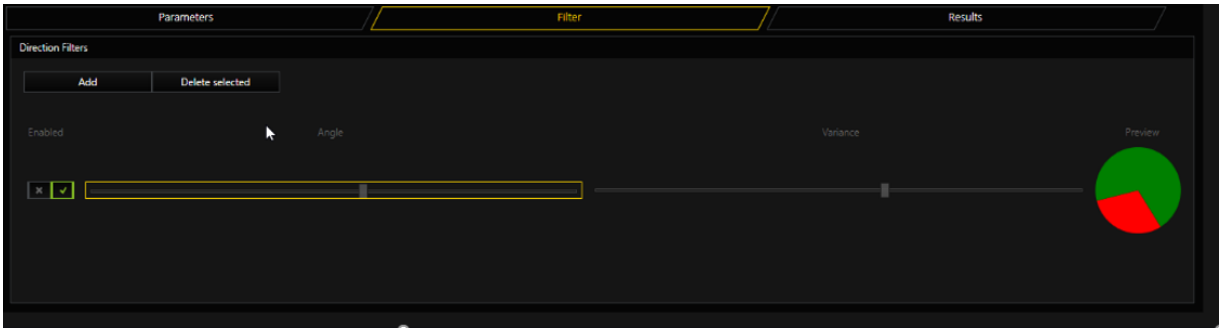
To this LPR SDK the LPR service delivers parameters for the analysis in an *.ini filem which are stored in the directory C:\ProgramData\Gng\LPR\data\. It reads out the parameters from the G-Core registry. Next, the LPR service and the LPR SDK exchange data to handover the images to the analysis and to get the identified number plates.

When the algorithm recognized a number plate, it sends an action to the LPR service. The LPRSetup responds and displays the results under **Current result** or in the **Results** tab.

With each change of the G-Core registry the LPR service is notified and the channels are initialized anew, meaning that the *.ini file is rewritten and the SDK is notified.

As a fallback the server searches for the *.xml file of the LPR Setup Editor and uses the parameters included for initializing the SDK.

LPR Direction Filter



In the **Direction Filter** tab number plates, that move into image form certain directions, can be excluded . Added directional filters must be activated via the slider.

Two additional sliders are implemented for the exact configurations:

Configuration	Description
Angle	With the angle slider the direction of the angle can be configured.
Variance	The Variance slider determines the size of the angle.

For tab parameter the streaming mode must be different from "single" to activate the recognition of the number plates.

The **Preview** chart represents the set direction filter. In red are the excluded license plates that move form the center to the outside of the camera image. Accordingly, number plates that are recognized and forwarded by G-Tec/LPR are shown in green. To realize more complex analysis situations it is possible to implement several direction filters. Usually, one filter should be sufficient to solve classical entry and exit scenarios. Only unfiltered license plates generate actions that can be displayed and understood afterwards.

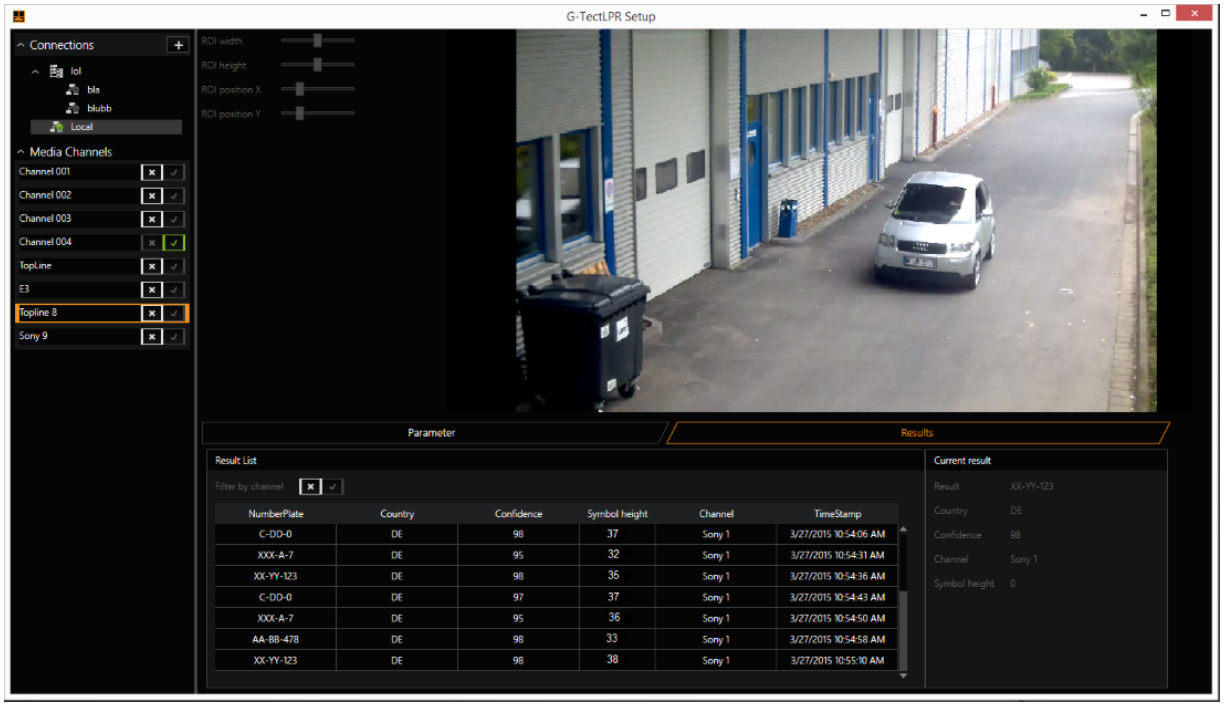
Results View

In the **Parameter** tab as well as in the **Results** tab, the most recent reading result (of the currently switched channel) is displayed at the lower right-hand edge. The data contain:

- the reading result (e.g. XXYY123)
- the country the number plate was assigned to (e.g. DE),
- the security information about the recognized number plate (e.g. 92 %)
- the channel on which the number plate was recognized
- the size of the characters on the number plate

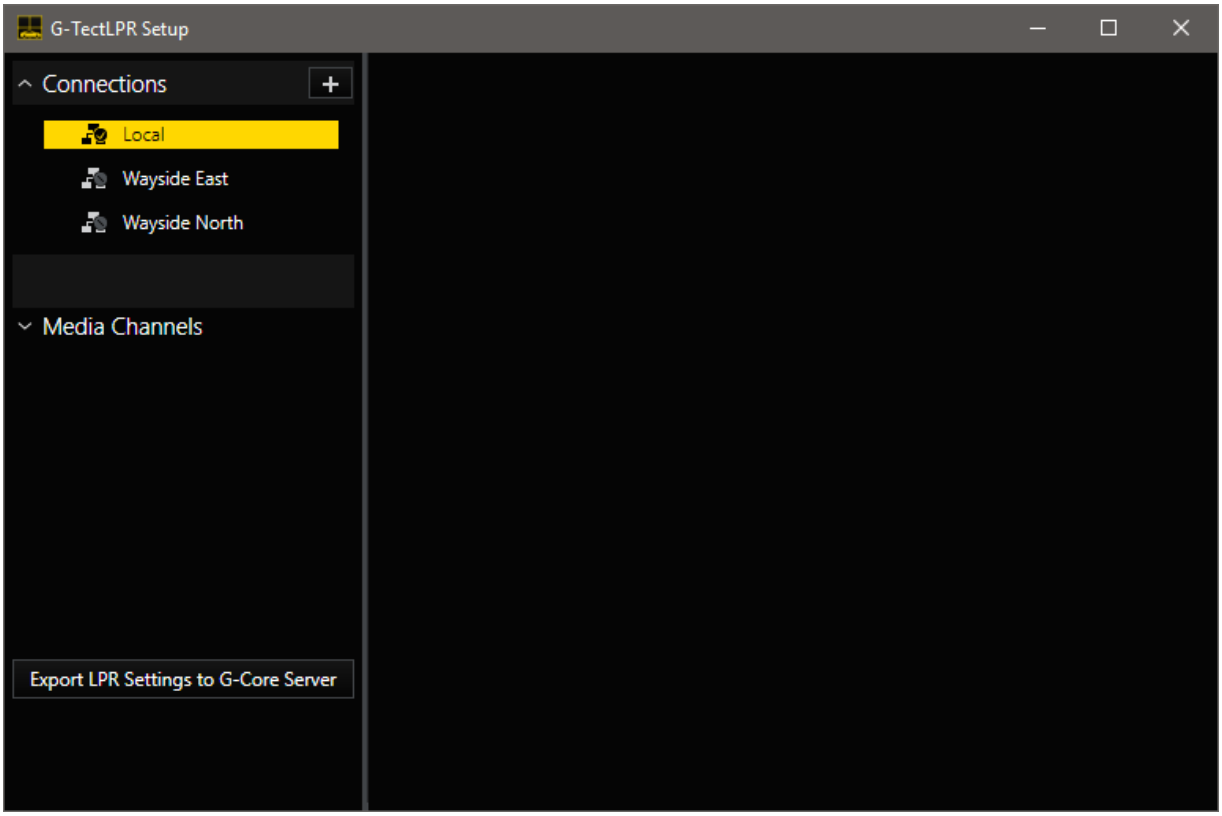
These data is registered together with a timestamp in the table in the **Results** tab.

The table displays all the results delivered from the LPR service but can also be filtered by the currently switched channel or sorted by the table columns. All results are temporary saved in the **Results** table and are discarded when G-Set or the LPR Setup Editor is closed.



LPR Setup Editor

The LPR Setup Editor is outdated and is replaced by the configuration interface in G-Set.



To guarantee existing installations a transition the LPR Setup Editor offers the possibility to transmit its settings to the respective G-Core server:

1. In the LPR Setup Editor, establish a connection to the G-Core Server.

2. To transfer the settings individually to each server, click **Export LPR Settings to G-Core Server**.

> ⚠ **IMPORTANT:** Since the LPR Setup Editor muste be able to save settings, it connects to the G-Core server with the same privileges as G-Set. Consequently, it is not possible for the LPR Setup Editor to connect to the C-Core server when G-Set is already connected, and vice versa,

The *.xml file, in which the LPR Setup Editor's settings are saved, will remain to prevent settings from getting lost.

In G-Set, it is possible to determine via a switch whether the G-Tect LPR service should read out the data from the registry or if it should continue using the *.xml file enabling to go back to the former configuration again. Furthermore, in case no data can be found in the registry or in case the data is incorrect, the service as a

fallback tries to read out data from the *.xml file in order to initialize the SDK . However, it is not possible to generate a new *.xml file from the new configuration using G-Set.

The LPR Setup Editor is to be removed with the upcoming release. Thus, it should not be used anymore. Instead, the settings in G-Set should be used.

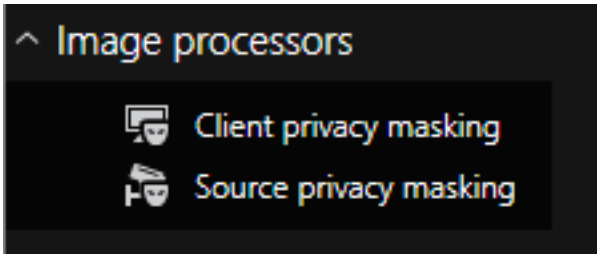
Image Processors

Using image processors it is possible to mask parts of the image – to black them out or pixelize them.

This electronic privacy function is often prescribed or appropriate to protect personal rights or to secure industrial secrets in situations where video monitoring is necessary.

The picture masking is configured in G-Set and is effective immediately in G-View once the data has been transmitted to the server.

In G-Set the desired image processor can be selected in the Image processors selection menu. You can choose between Client privacy masking (CPM) and Source privacy masking (SPM).



The difference between the two methods is that for SPM the masking is written directly into the database. This means that these parts of the image are always hidden and there is no option for restoring them. Please note: This type of masking can not be used with network cameras!

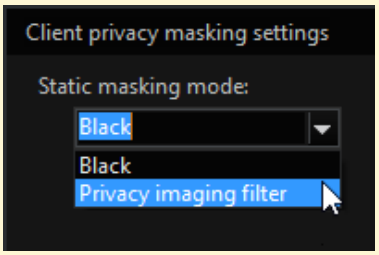
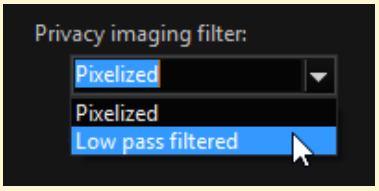
With CPM, the sections of the image are also hidden when displayed, but it is possible to reconstruct them later from images in the database. The masking also does not apply for all users.

In both cases, there is a change for the setting area, which is slightly more complex for CPM.

Types of Masking

Three different modes can be set for masking:

Black, **Pixelized** or **Low-pass filtered**. The default setting is **Black**.

Settings	Description
	First, under **Client privacy masking settings**, you decide whether the default setting, **Black**, should remain in use or whether an image filter will be applied.
	If **Privacy imaging filter** was set, you can choose between **Pixelized** and **Low-pass filtered**.

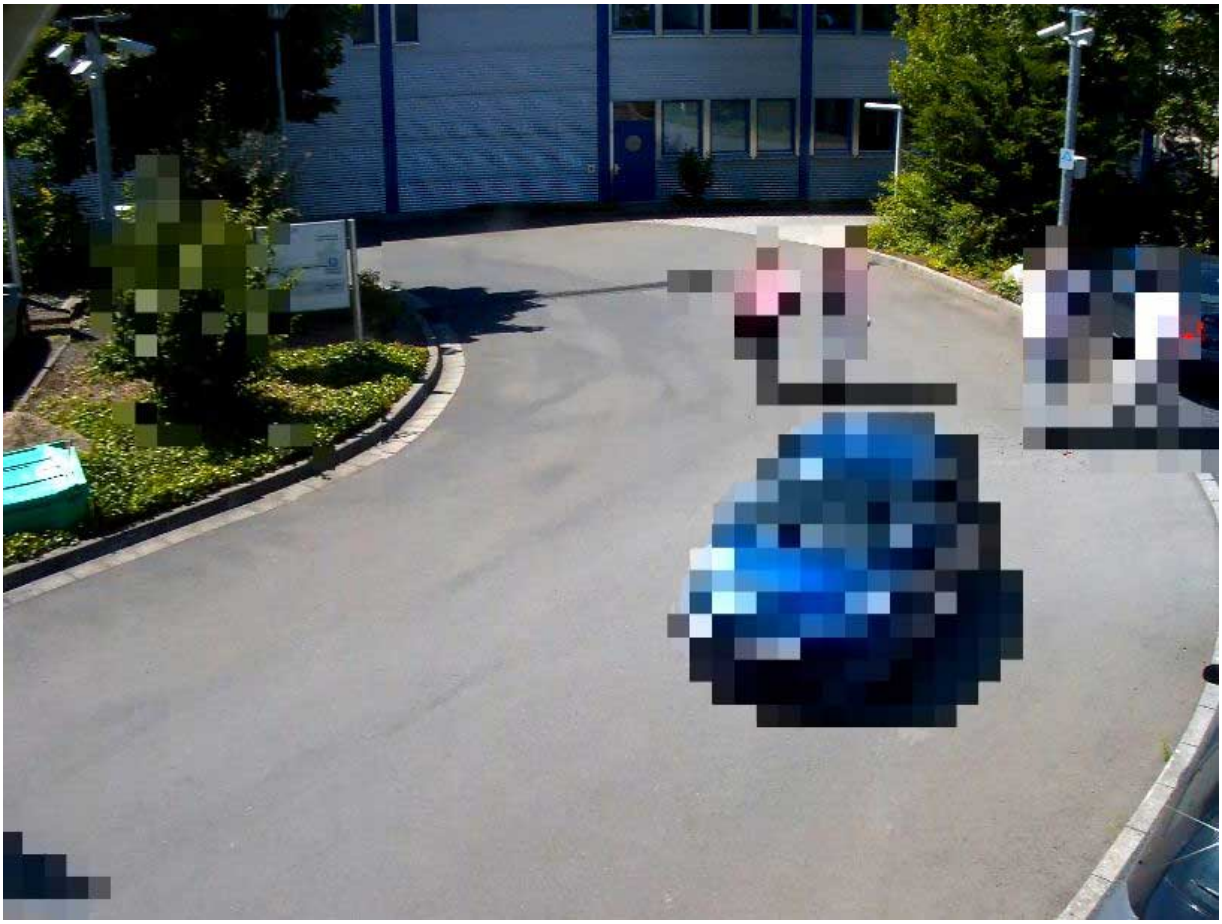
Here are the different settings in the view:

Mask	Description	Example
Black	In our example, this selection is not particularly useful, as the entire street is covered by the privacy masking. On the other hand, it illustrates the disadvantage of blacking out for privacy: Large portions of the image are covered even though the objects to be hidden are much smaller.	
Pixelized	Here the zone is pixelized.	
Low-pass filtered	Here the zone shown is displayed blurred (with a low-pass filter).	

Selected areas are blacked out by default. Moving objects in the image should be shown pixelized or blurred. Using **Motion privacy**, persons can be identified as such, but they cannot be recognized as individuals. The overall impression of the scene is maintained.

Pixelized	Blurred

Once configured, all moving objects are hidden. This includes persons and vehicles as well as flags, bushes and trees moved by the wind (on the left in the image).

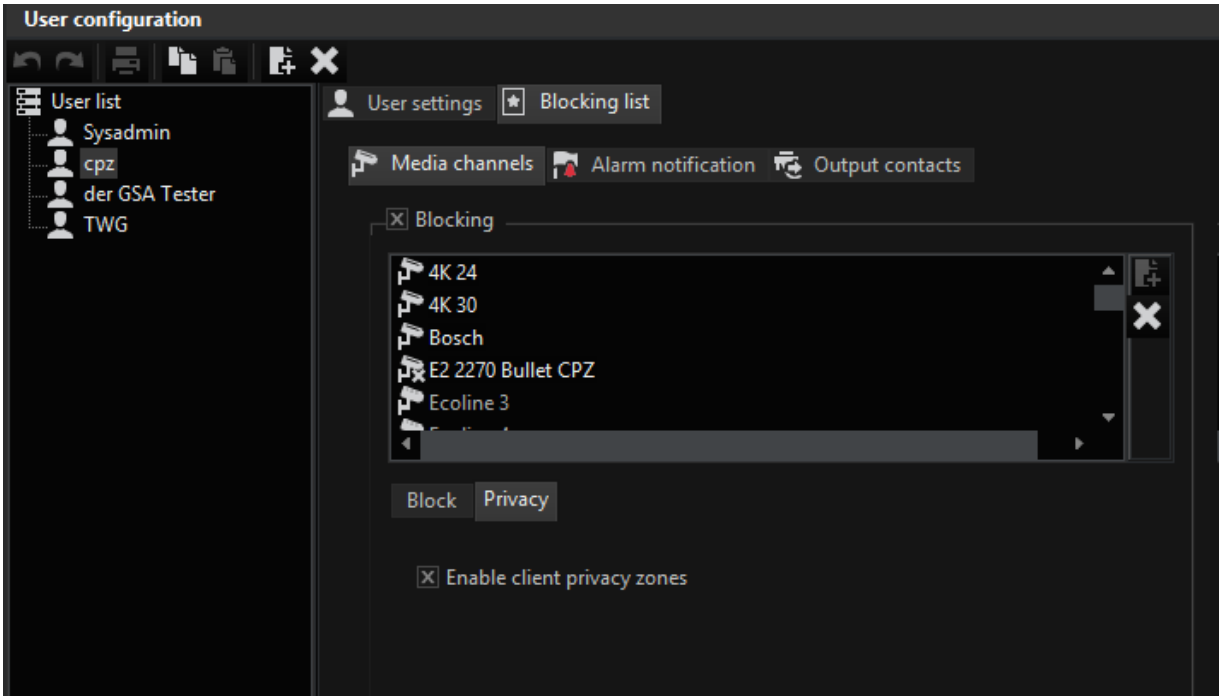


Before You Begin

An important piece of information first:
If you are logged on to G-View as an administrator, you will not see any privacy zones in CPM, the images remain fully visible. This feature cannot be used for administrators. If you have not created any other users aside from the administrator, you must first create one to activate CPM.

Configuration takes place in G-Set in two steps: Setting user rights and drawing the zones for the static masking and/or motion masking.

Setting the User Rights in G-Set

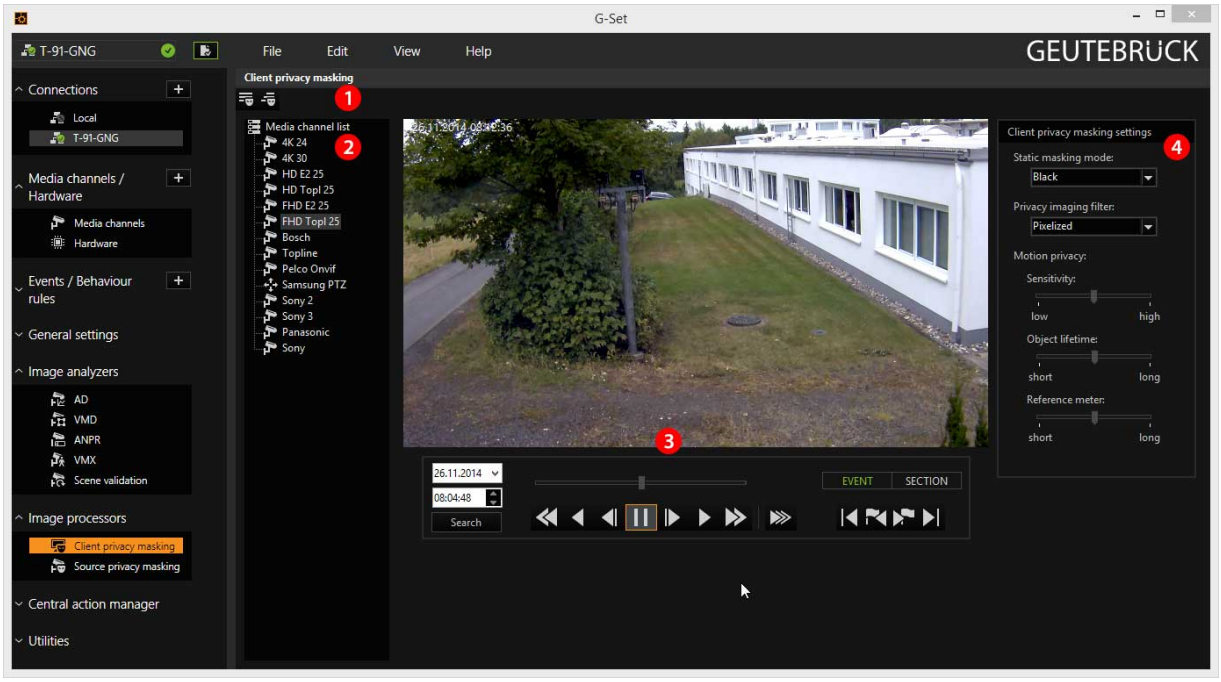


Open G-Set and then in **General settings** open the **User configuration-> User**.

Select the desired user (in our example the user **cpz**) and activate on the **Blocking** tab the selection field **Blocking**.

Now go to the **Privacy** tab and activate the selection field **Enable client privacy zones**.

Client Privacy Masking (CPM)



Client privacy masking is chosen in the Image processors selection menu, the setting area changes as shown above:

Area	Description
1	Icon with the selection for **Static privacy masking** and **Motion privacy masking**. For **Static privacy masking** all portions of the image in the marked zone are hidden, while for **Motion privacy masking** only the moving parts are pixelized in the image.
2	The list of media channels
3	Viewer for the current media channel in which the privacy masking is drawn and the associated control bar
4	Settings for the CPM

When the user rights were configured (**Image Processors**), the areas of the image can be masked.

Static Privacy Masking

Drag the desired media channel onto the viewer.

After activating static privacy marking by clicking on the icon, you can use the left mouse button to draw the zones in the viewer. These zones are then masked in G-View. More information on drawing zones can be found under **Drawing zones**.

A drawn zone can be deleted by right clicking and selecting **Delete** in the pop-up menu. It is also possible to duplicate and copy zones using this method.

According to the (previously) defined settings, the drawn zones will be shown either blacked out or pixelized (refer to **Types of Masking**).

Motion Privacy Masking

Moving objects in the image should be shown pixelized or blurred. Using **Motion privacy**, persons can be identified as such, but they cannot be recognized as individuals. The overall impression of the scene is maintained.

Pixelized	Blurred

Pixelized	Blurred

Drag the desired media channel onto the viewer.

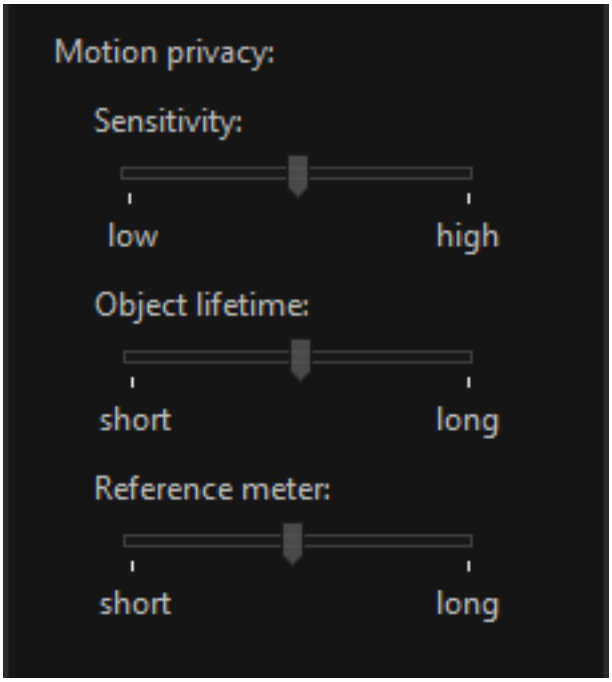
After activating motion privacy masking by clicking on the icon, you can use the left mouse button to draw the zones in the viewer. Motion privacy masking zones are orange. These zones are then masked in G-View. More information on drawing zones can be found under **Drawing zones**.

A drawn zone can be deleted by right clicking and selecting Delete in the pop-up menu. It is also possible to duplicate and copy zones using this method.

According to the (previously) defined settings, the drawn zones will be shown either pixelized or blurred (refer to **Types of Masking**).

Special Features of Motion Privacy Masking

For motion privacy masking, some settings are necessary, which can be configured under Motion privacy.



Sensitivity

With the sensitivity control, you determine how fast moving objects are pixelized.

Take a look at the scene. If an object remains recognizable in the scene, move the slider to the right. The object is then pixelized faster.

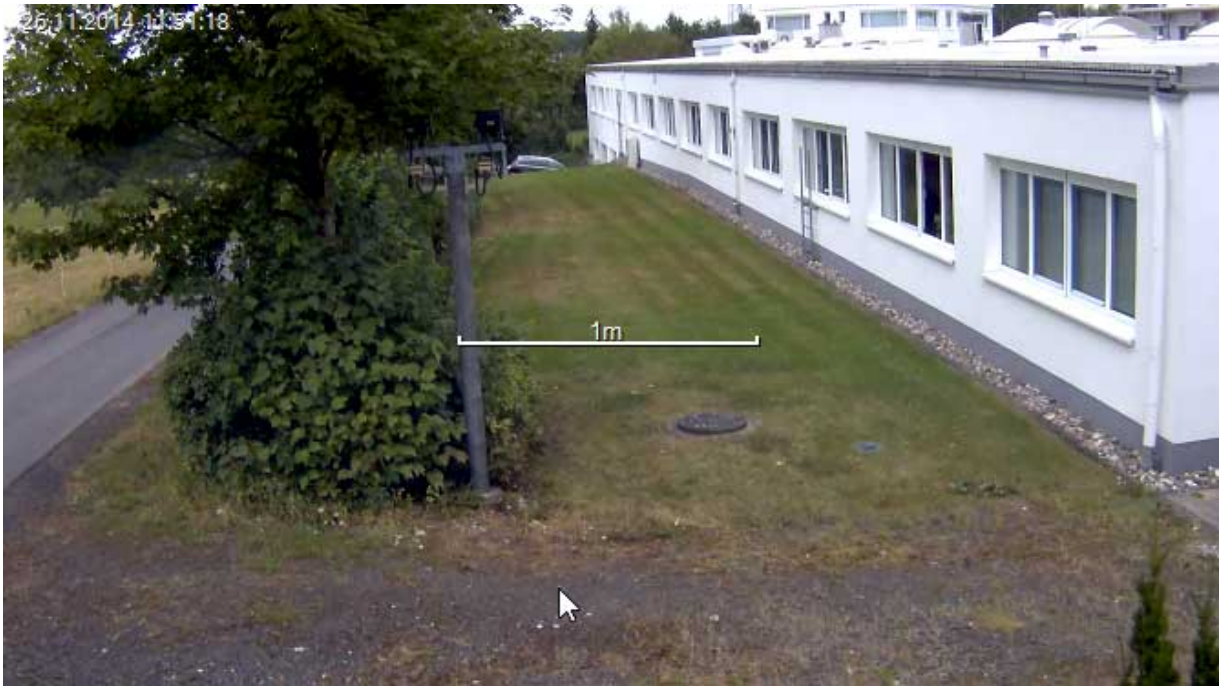
Objekt Lifetime

Sometimes, objects that appear in the scene suddenly remain stationary (for shorter or longer periods). These objects are then added to the scene and are no longer pixelized. With the slider, you specify the amount of delay that is used before stationary objects are added to the scene.

Take a look at the scene and ask the persons walking through to stop for a moment. Move the slider to the left (**slow**) if the persons are added to the image too quickly or to the right when you feel that the object has been in the image long enough and should have been added to the image by now.

Reference Meter

Once you have clicked on this setting, a white line will appear roughly in the middle of the image. The length of the line can be changed using the slider.

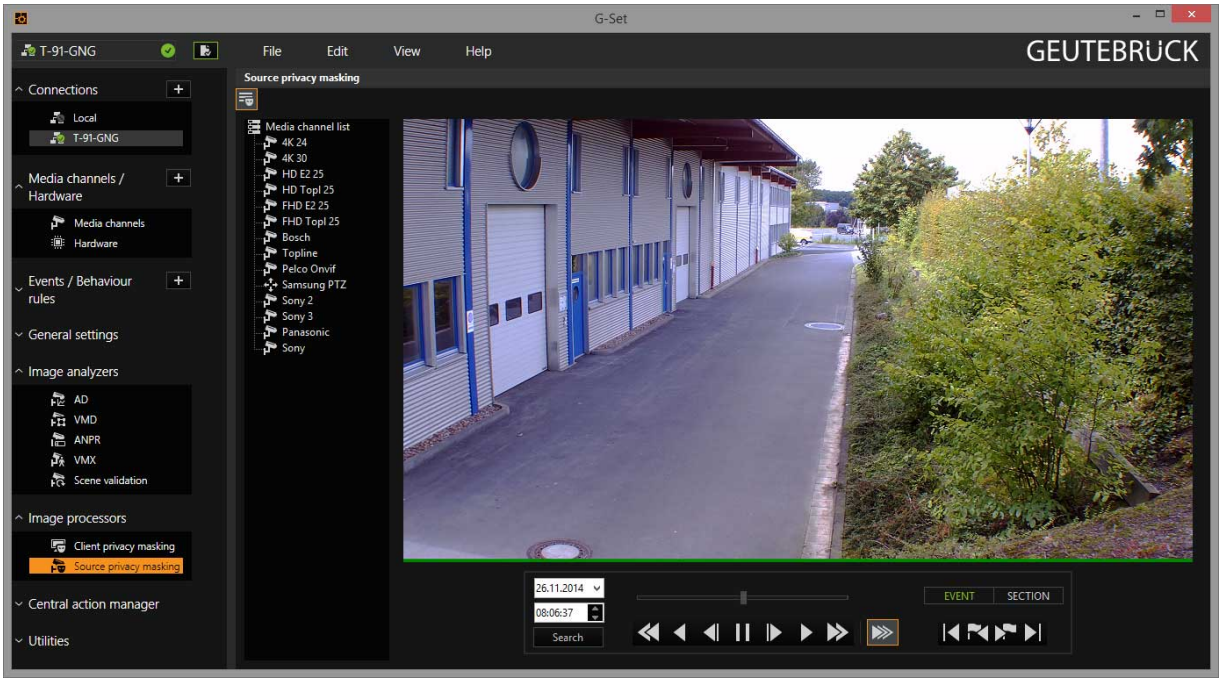


The program uses this "virtual yardstick" for orientation and configures the pixelization accordingly. If the scale is set too large, the pixels are shown too coarsely. In the opposite case, the pixelization is too fine. Under certain circumstances, this can lead to persons or vehicles being identifiable, in particular if you use a low-pass filter.

Find a dimension in the image (window, door, sign, etc.) that is roughly equal to one meter and set the "virtual meter" accordingly.

Source Privacy Masking (SPM)

This type of masking cannot be used with network cameras!



The interface for **Source privacy masking (SPM)** is less complex. This also applies for operation:

When the user rights were configured (**Image Processors**), the areas of the image can be masked. Drag the desired media channel onto the viewer.

After activating static privacy marking by clicking on the icon, you can use the left mouse button to draw the zones in the viewer. These zones are masked in the image **permanently**. More information on drawing zones can be found under **Drawing Zones**.

A drawn zone can be deleted by right clicking and selecting **Delete** in the pop-up menu. It is also possible to duplicate and copy zones using this method.

Once SPM masking has been applied for recorded images, it can no longer be undone. These settings must therefore be chosen very carefully.

Fisheye De-Warping

Until now it was only possible to de-warp fisheye images in the camera. Now, G-Core also makes it possible to view recorded images de-warped with the help of a client-side de-warping algorithm. De-warping of fisheye images from IP cameras and displaying custom views is available starting with G-Core version 1.3.

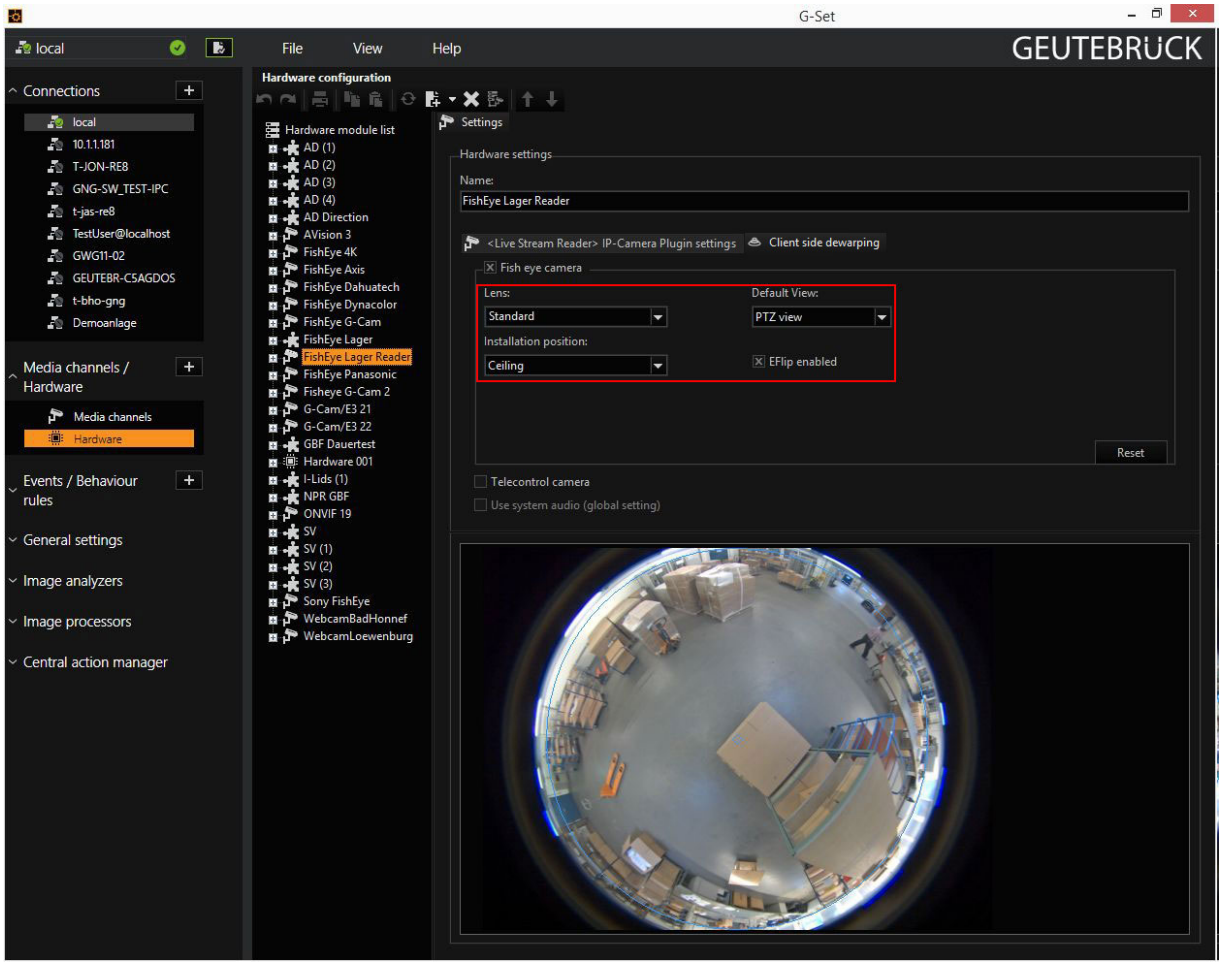
Two lens-dependent methods were implemented for the de-warping procedure:

1. ImmerVision – The ImmerVision lens produces elliptical images. This process is patented. The de-warping is realized via the SDK from ImmerVision (more information can be found at https://www.immervisionenables.com).
2. Standard – The camera provides a round fisheye image. De-warping is performed according to a standard de-warping algorithm. To do so, in G-Set the lens must be selected and other settings made.

Configuration

In G-Set, to use the client-side fisheye de-warping for an IP camera hardware, various settings must be made:

Settings	Description
Client side dewarping	On the **Client side dewarping** tab, the check box must be clicked when dealing with fisheye optics.
Lens	The lens must be selected (see further above)
Installation position	Here you must select where the camera is installed. There are four choices. **Ceiling**, Ground and Wall.
Default View	Here you can select which view you want to display in G-View by default (**context menu -> FishEye**)
EFlip enabled	Dome cameras behave differently when they are driven past the 0.0-point: Some stop and need to be moved in order to continue their trip, others jump by 180° and then continue. The behavior of your camera can be found in the settings of the camera, where it can also be configured. In G-Set you only specify whether or not EFlip is enabled.
Viewer	When the standard lens was selected, the exact position of the fish eye must be marked in the viewer. To do so, an elliptically distorted circle appears in the viewer. Using your mouse, the center and the radius of the circle should be adjusted.
In order to improve the result of the de-warping, it is advisable to lay blurred edge areas outside the circle.	

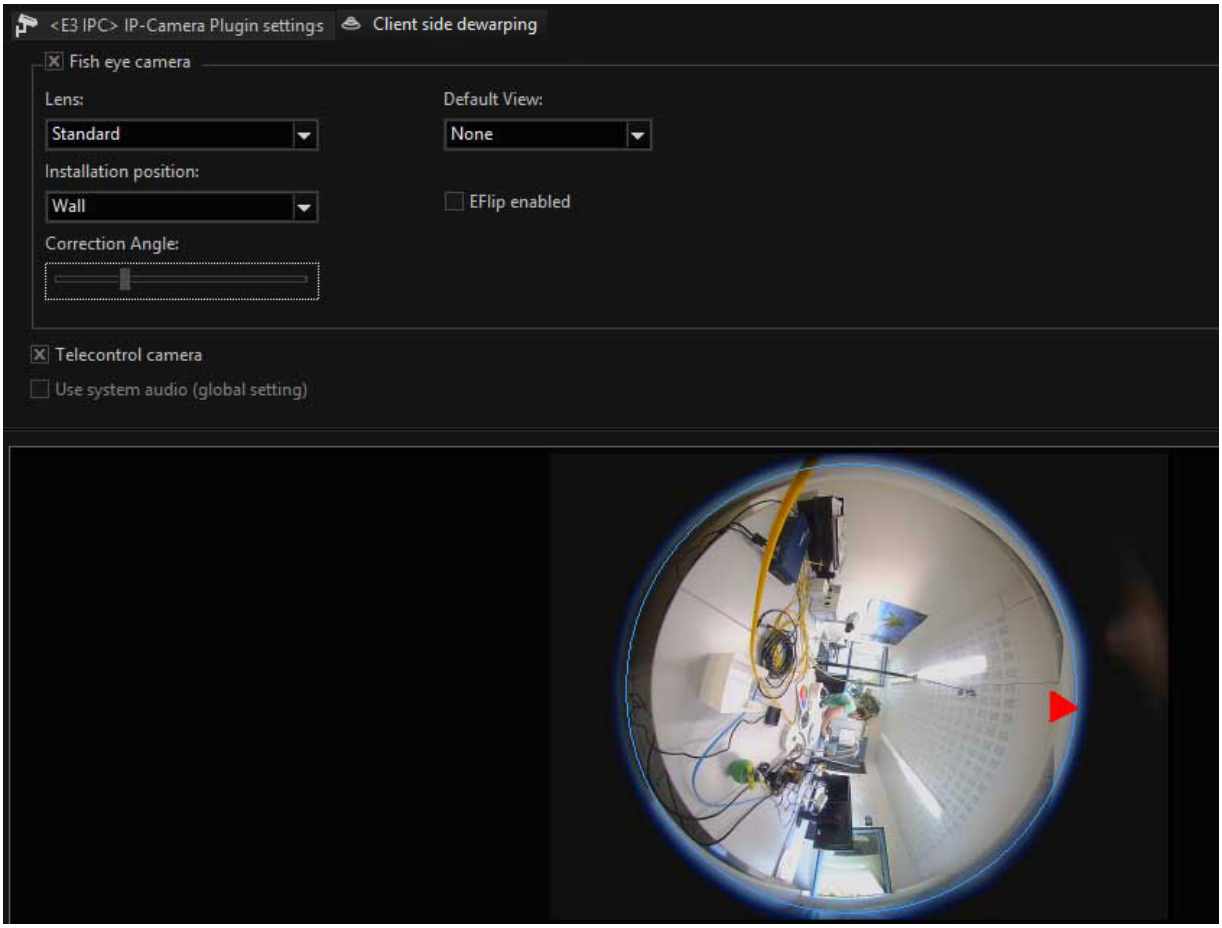


Correction angle

If the camera cannot be mounted on the wall so that the video image is pointed upward, the image can be rotated. This is performed by setting a correction angle.

If on the **Client side dewarping** tab the **Installation Position** is set to **Wall**, a slider appears for setting the correction angle. The setting is depicted by a small arrow in the viewer image.

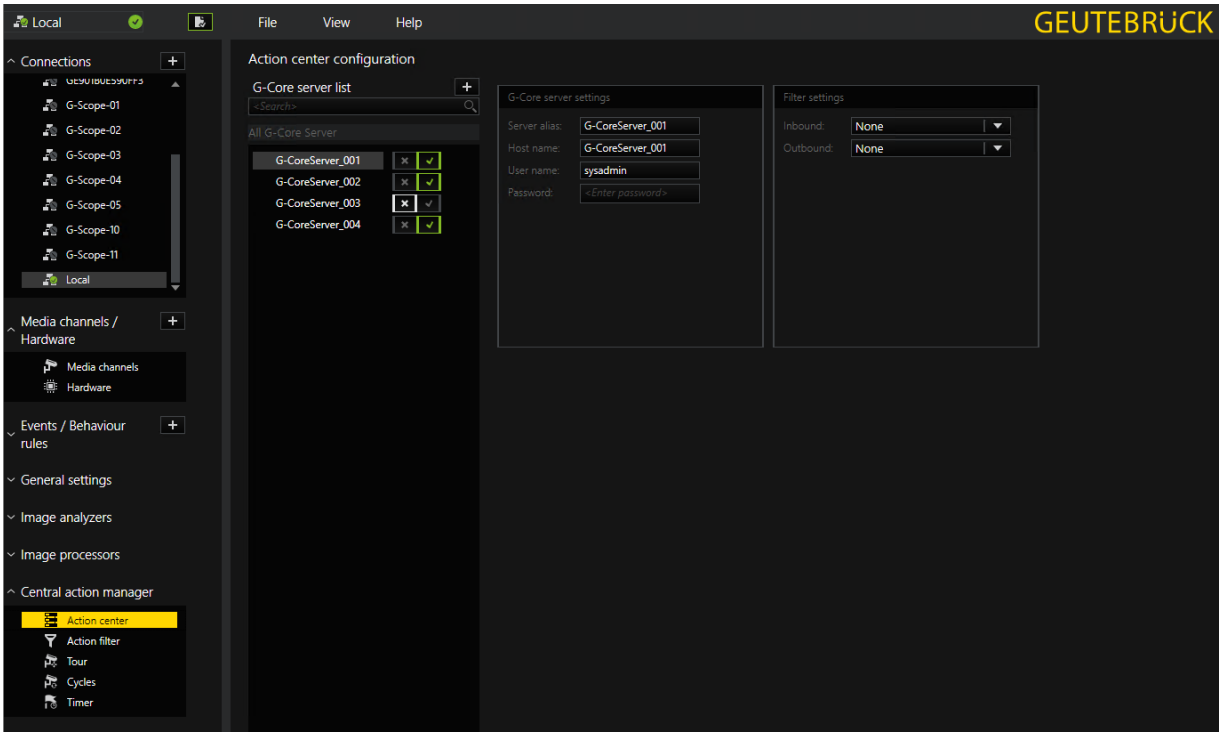
The arrow shows the orientation of the video image after the correction.



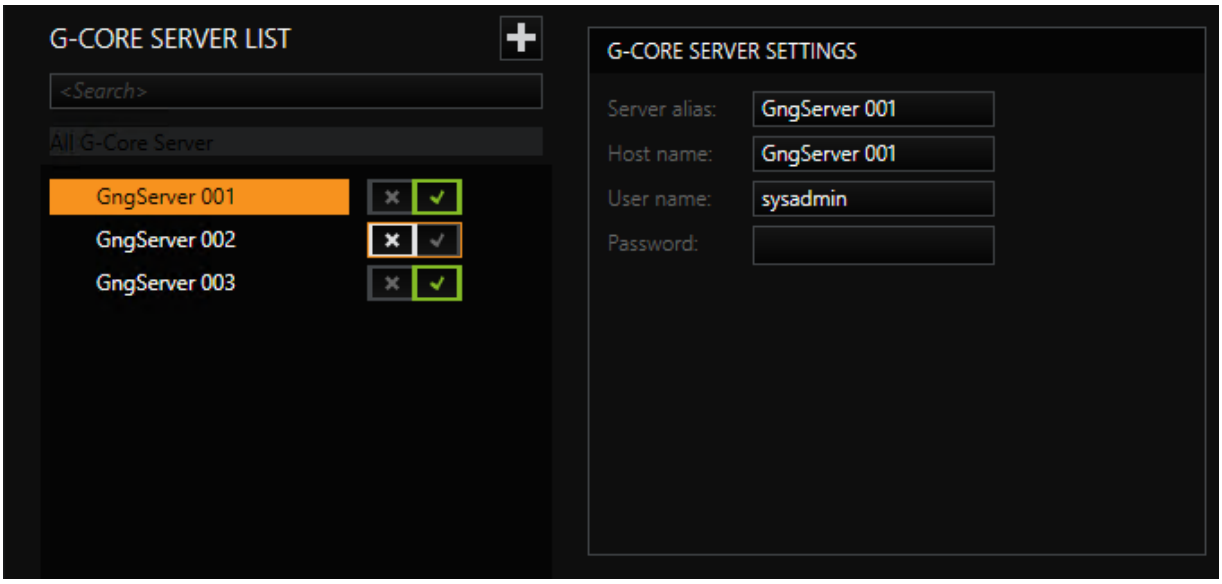
Central Action Manager

Action Center

With the settings in **Action center** you can turn the server that you are currently configuring into a "distribution station" in your video network. After configuration, it gathers all the actions of the connected servers and passes them to the other servers. This makes it possible for clients that are connected to only one server, for example, to be aware of the started actions and events of the other servers. This does not mean that it will react to all these actions and events.



Adding Server Connections



Each time you click the + icon in the **G-Core Server list**, a server (with a sequential number) is added to the list, the connection for which is activated by clicking the check mark or deactivated by clicking on the X. By default, the server connections in the list are enabled.

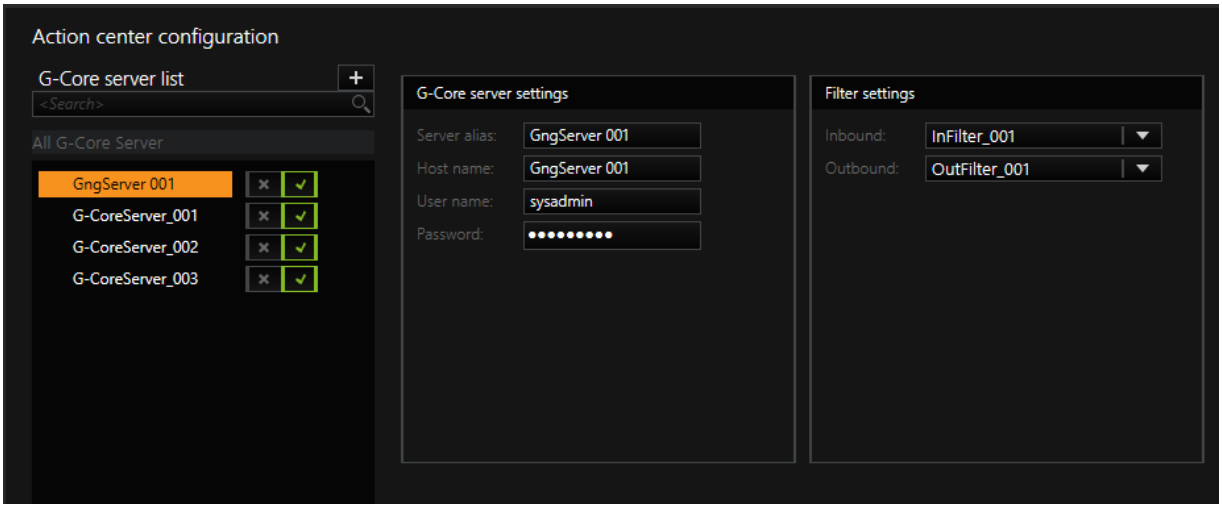
Select a server from the list and define the necessary settings in the **G-Core Server Settings** dialog.

You can freely choose the alias name that you give to the server selected in this list. However, when you assigning the **Host name**, you must provide the actual name of the server in the network, otherwise the name resolution will not work properly. You also need the correct login information (user name and associated password).

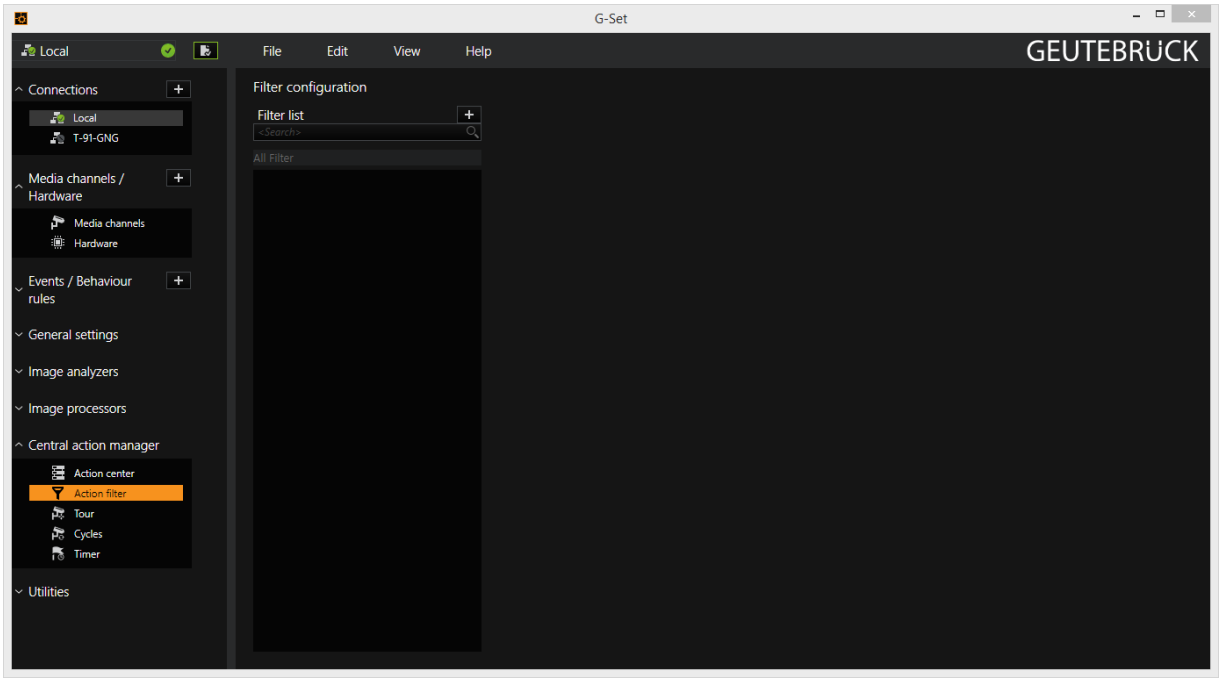
Filter Settings

Using the filter settings it is possible to define which actions the central action manager should listen to for the connected servers (**outbound**) and which actions it should forward to the connected servers (**inbound**). More information can be found in the section **Action Filter**.

If filters were applied, they can be assigned to the inbound or outbound filter settings in the **Filter Settings** dialog:

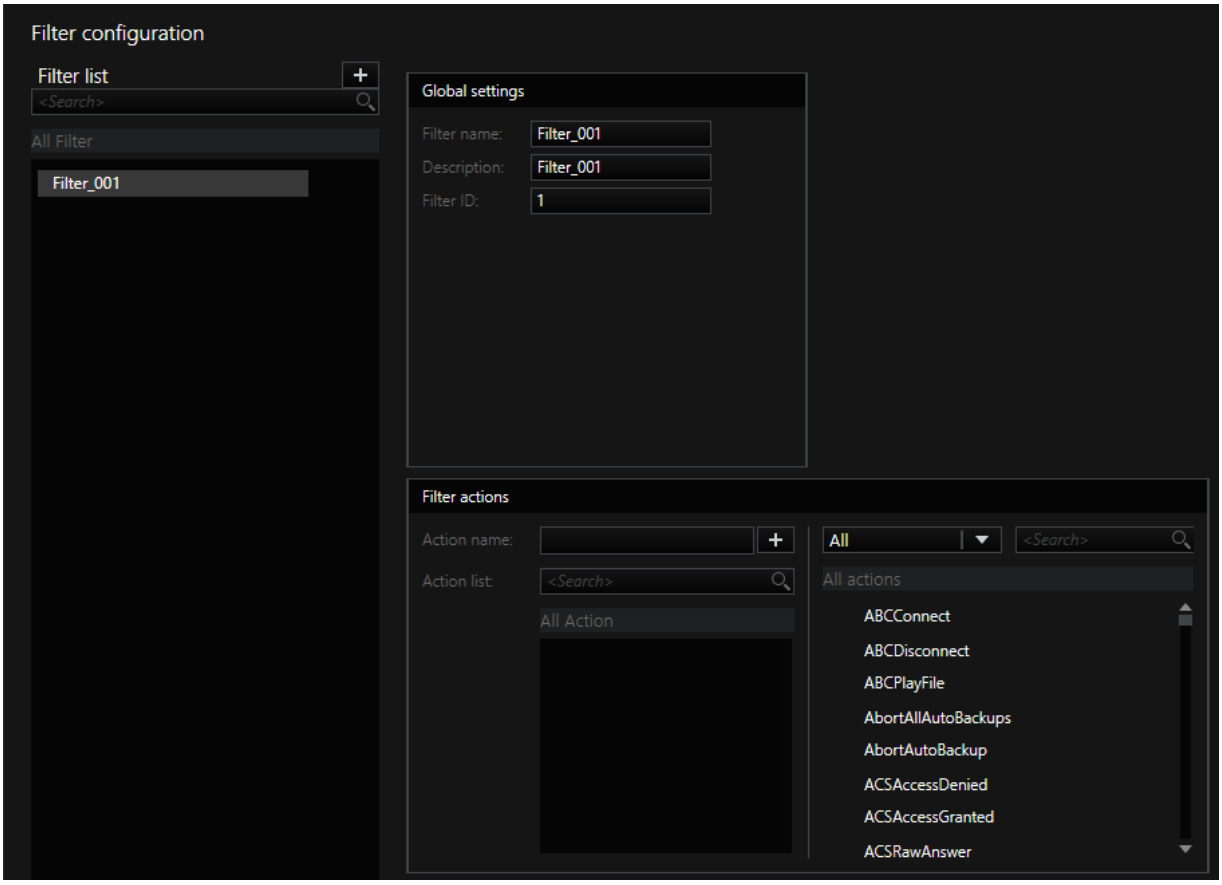


Action Filter



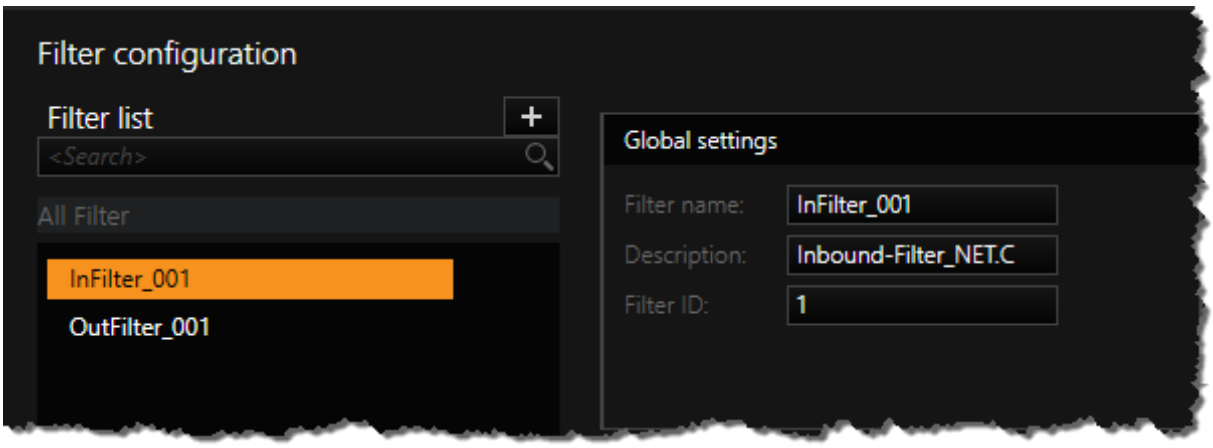
Inbound and outbound filters are created using the **Action filter** dialog. When the dialog is opened for the first time the filter list is empty.

Clicking on **+** adds a new filter to the list. At the same time, the dialogs for the configuration of the filter appear: **Global settings** and **Filter actions**.



Global Settings

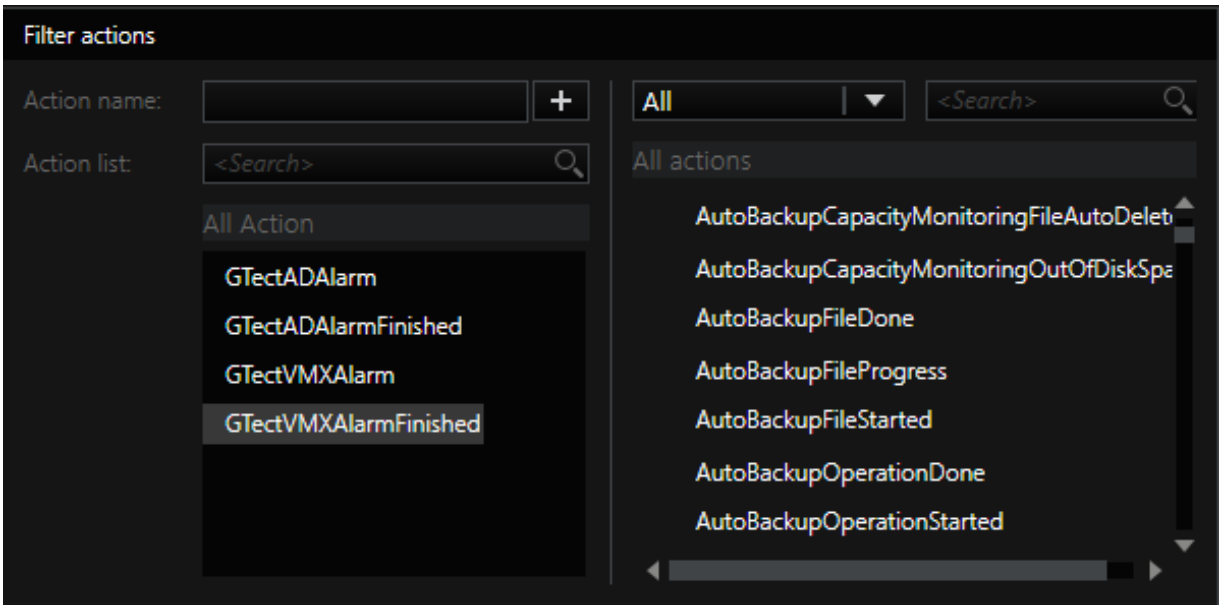
In this dialog, the default name **Filter_XXX** can be changed and a description can be added for the filter. The **Filter ID** can also be redefined is required.



Two filters were added to the list in the above figure: A filter for the incoming messages (InFilter_001), another for the outgoing messages. A description was created for both.

Filter Actions

In the dialog **Filter actions**, the actions for which the filter will listen are now assigned to the filter. In the example, these are the G-Tect alarms, which were dragged from the list of actions and dropped onto the filter.

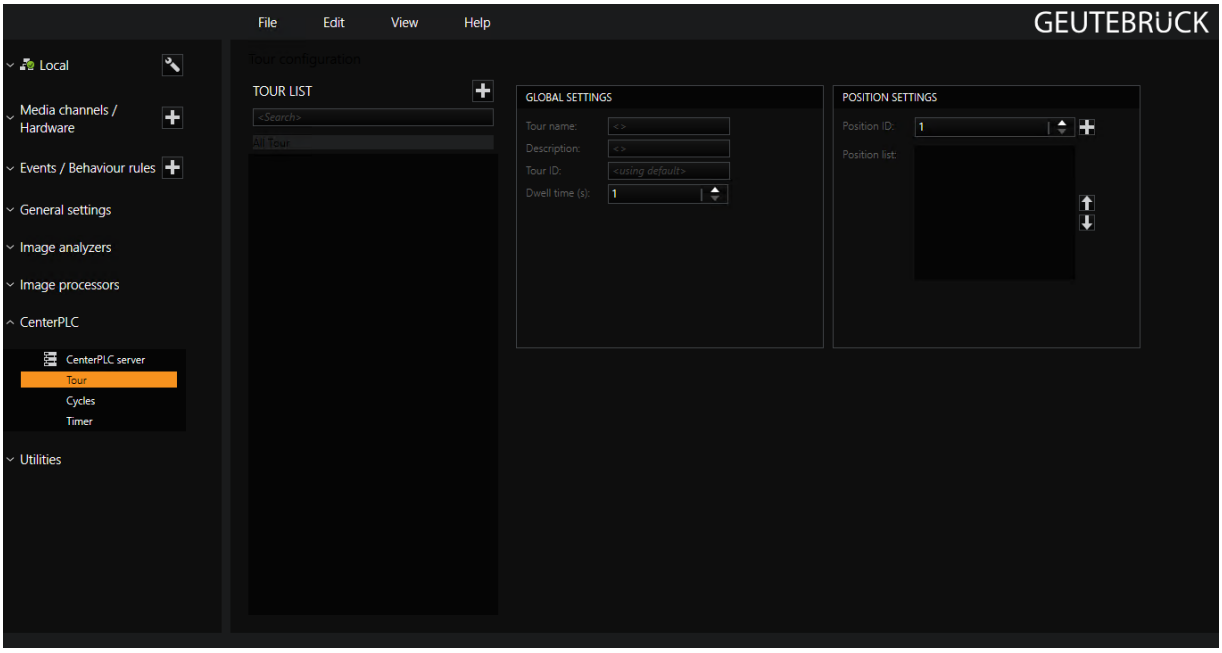


The selection of actions can be simplified by entering a search string. If, for instance, "gtectad" would have been entered under **Action name**, then all actions in whose name the string "gtectad" appears would have been listened to.
This wildcard function makes it easer to search for the necessary actions immensely, but it has a small imperfection: In the action filter list, only the selected string would appear in place of all found actions and in the list of actions, the selected actions would be neither marked nor removed from the list.

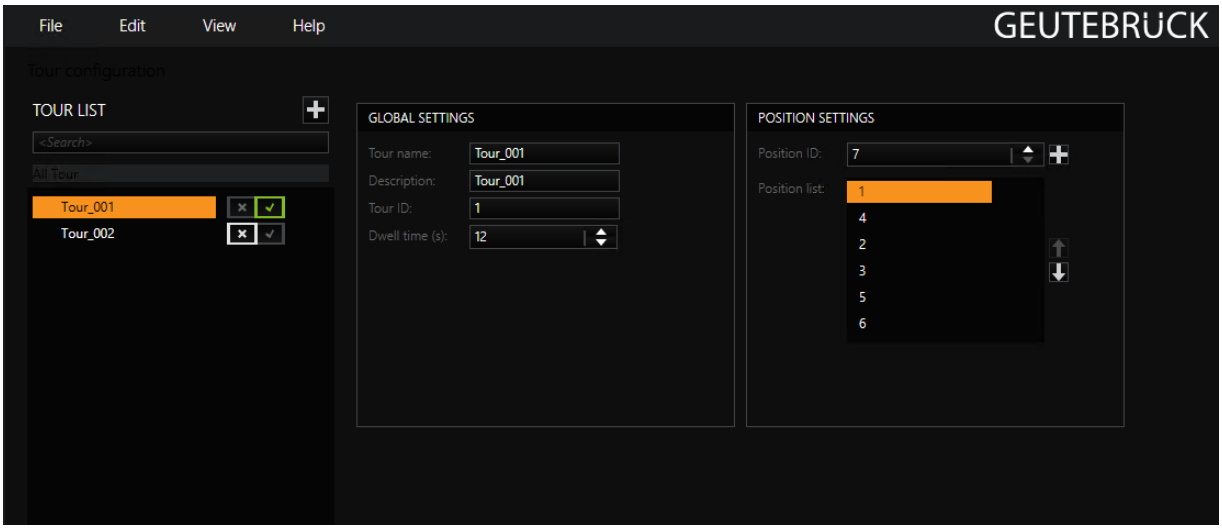
The created filters can now be used in the **Action center**.

Tour

With this function, you can configure tours that you assign to cameras elsewhere.



Creating Tours



Each time you click the + icon in the **Tour list**, a new tour (with a sequential number) is added to the list. The tour is then is activated by clicking the check mark or deactivated by clicking on the X. By default, the tours in the list are enabled.

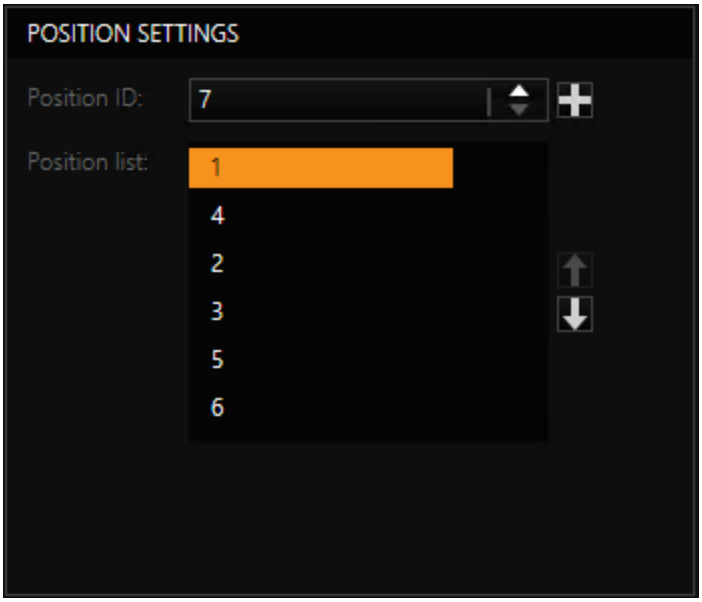
Select a tour and go to the **Global Settings** dialog.

Enter the name of the tour under **Tour Name**. In the **Description** field you can provide a description, explanation or commentary for the camera tour. This makes it possible to more easily assign and recognize the various tours.

Each camera tour receives a **Tour ID**, which is used to identify and locate the cycle more quickly. If you enter an ID that already exists, no new tour will be created.

Under **Dwell Time (s)**, select the corresponding dwell time for the tour. After this amount of time elapses, the next position from this tour is approached. The time is specified in seconds.

Finally, in the **Position Settings** dialog you create a list of positions that the will be gone to during the tour:

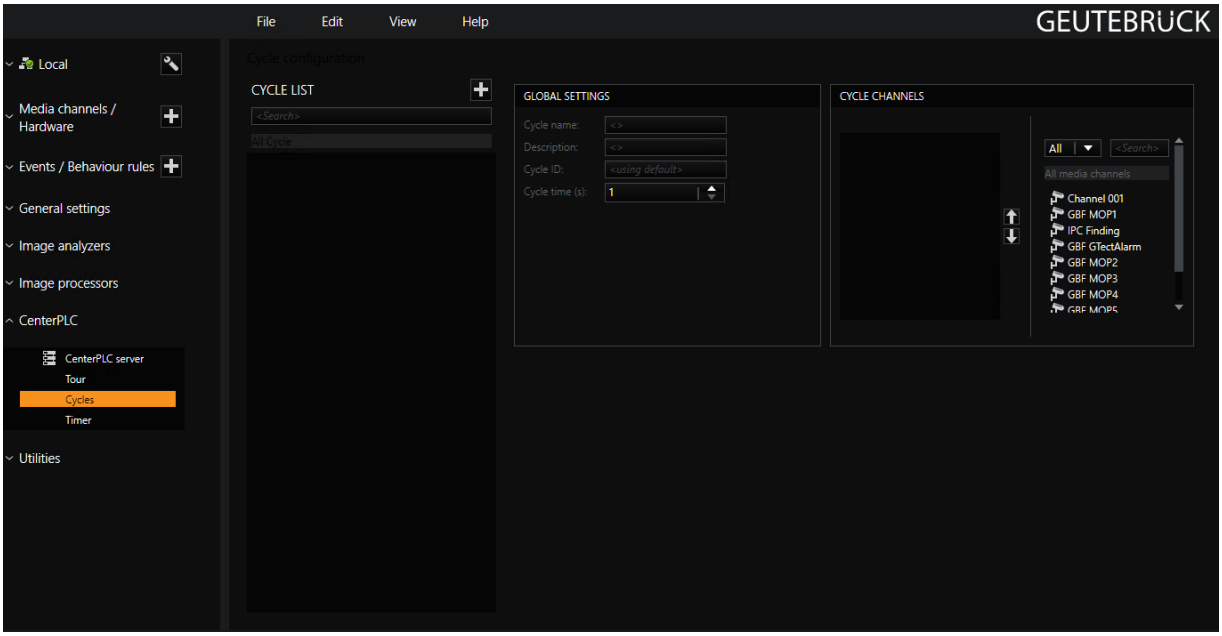


Click on the + icon. With each click, a new **Position ID** is added to the list. You can then change the order of positions: Select a position in the list and move it using the arrows.

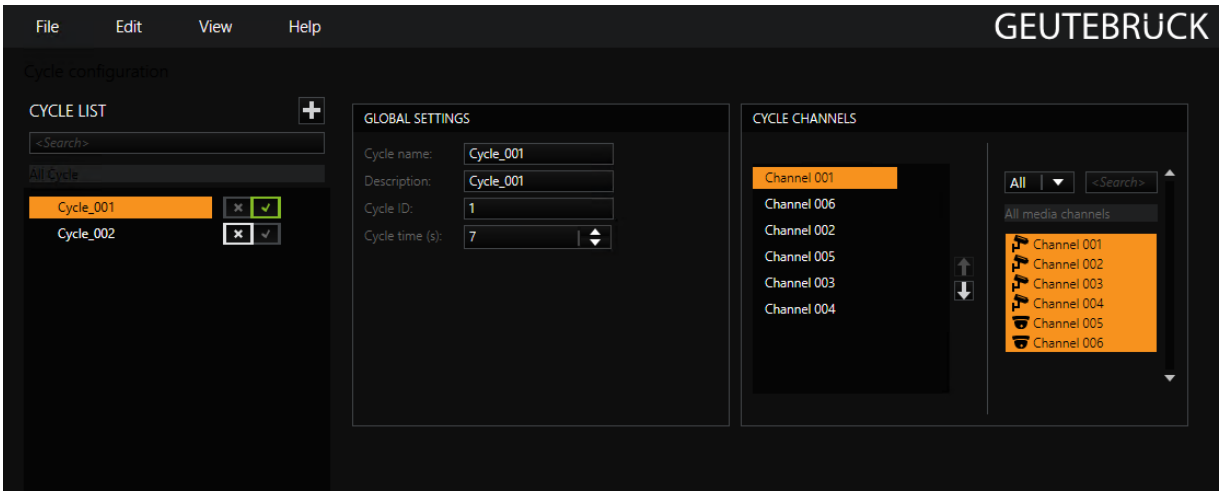
> Example In our example tour, 6 positions were assigned to Tour_001 and arranged in a specific order. If this tour is assigned to a camera that has fewer saved positions, then the non-configured positions are skipped. For instance, if a camera with 4 positions is specified, then in the tour only the configured positions (in this order) 1, 4, 2 and 3 would be approached.

Cycles

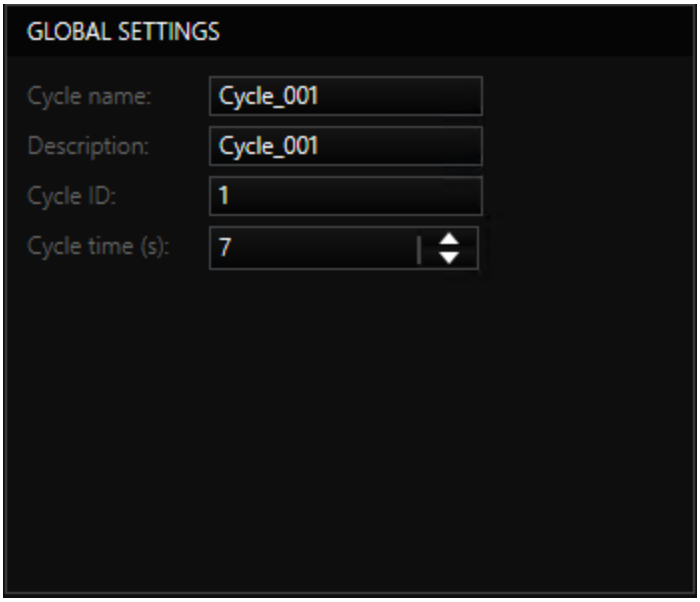
With this function, you can configure cycles that you assign to viewers elsewhere. The cycles are started with the **StartCycle** action.



Each time you click the + icon in the CYCLE LIST, a new cycle (with a sequential number) is added to the list. The cycle is then is activated by clicking the check mark or deactivated by clicking on the X. By default, the cycles in the list are enabled.



Select a cycle and go to the **Global Settings** dialog.

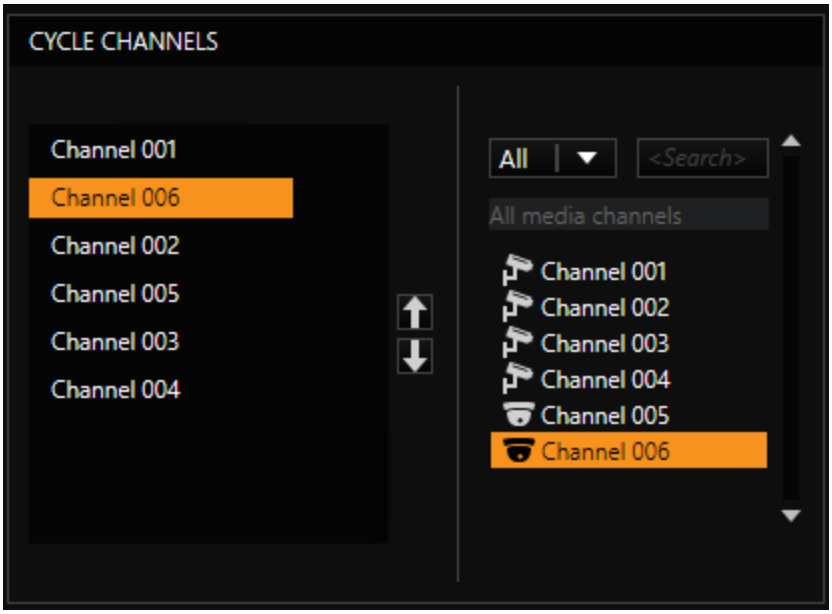


Under **Cycle Name**, enter the name for the cycle. In the **Description** field you can provide a description, explanation or commentary for the cycle. This makes it possible to more easily assign and recognize the various cycles.

Each cycle receives a **Cycle ID**, which is used to identify and locate the cycle more quickly. If you enter an ID that already exists, no new cycle will be created.

Under **Cycle Time (s)** you select the activation time of the cycle. After this amount of time elapses, the next configured camera in the cycle is activated. The time is specified in seconds.

Finally, in the **Cycle Channels** dialog you create the list of cameras that will be activated during the cycle.

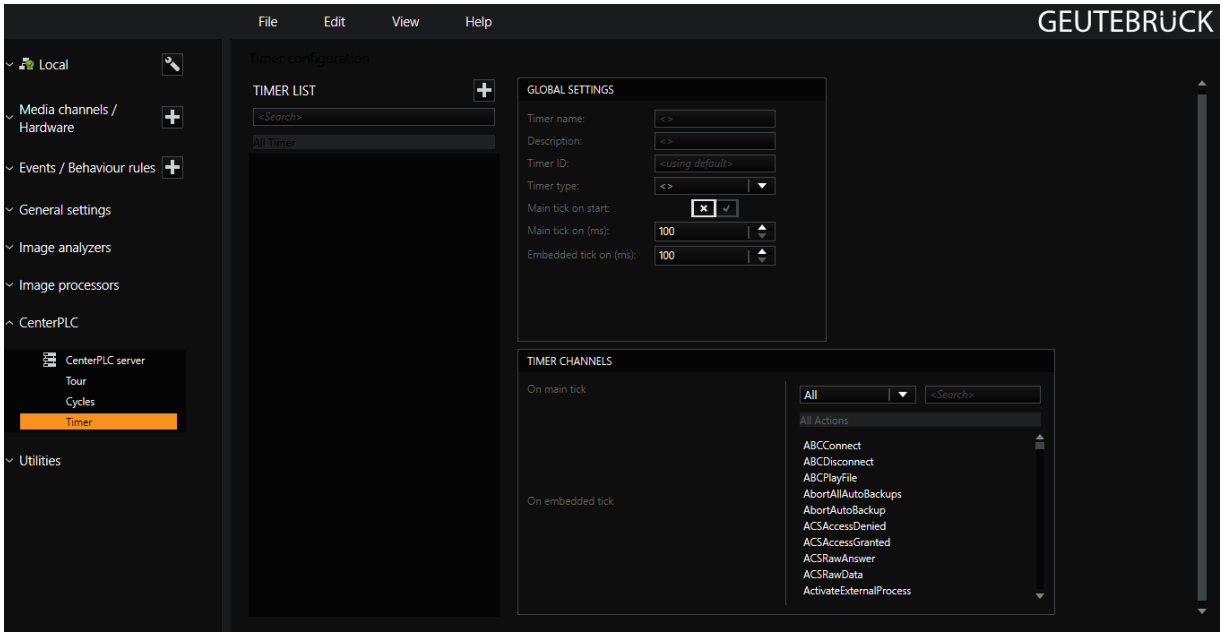


Click on the + icon. Each time you click on the icon, a new **Media Channel** is added to the list. You can then change the order of media channels: Select a media channel in the list and move it using the arrows.

Timer

Timers are used to measure time intervals. Once the set time has elapsed, a signal is issued. With G-Core, timers are used for time-dependent activity control: Once the set time has elapsed, an action is triggered.

The timer operation can be triggered one time only or periodically. For a periodic timer trigger, it is also possible to add a time-dependent control (**embedded ticker**).

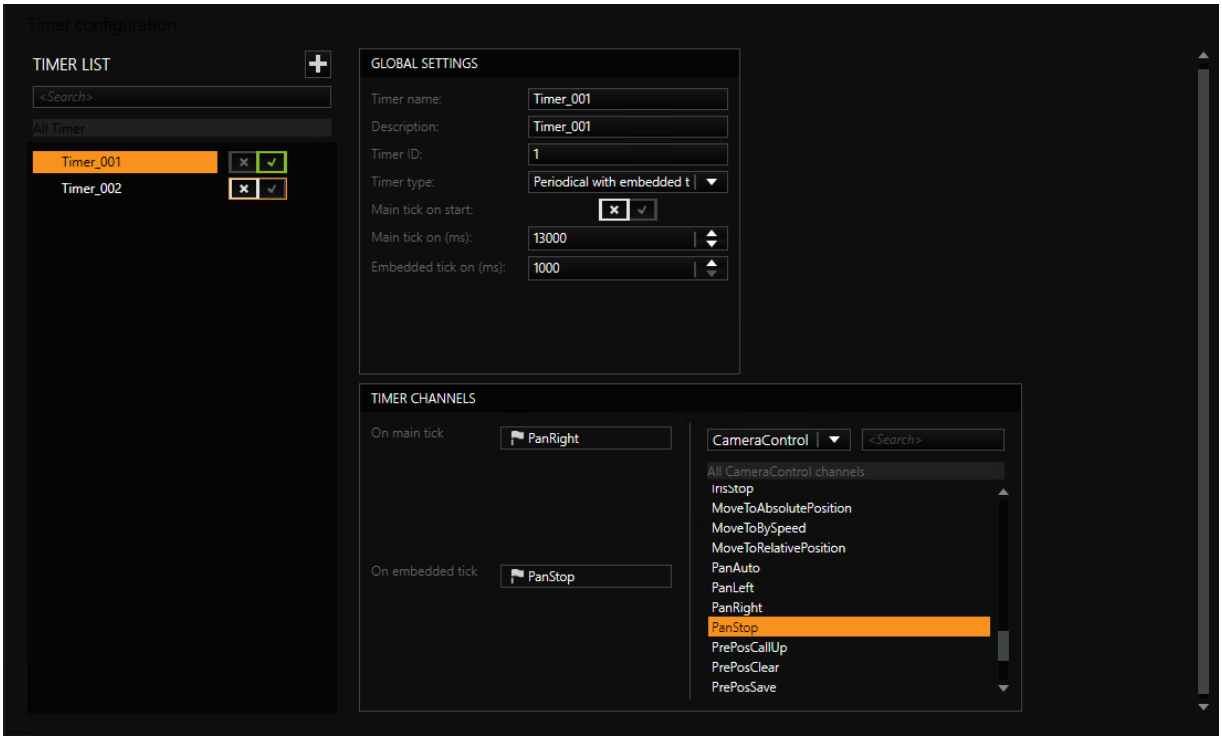


The timer dialog consists of three parts:

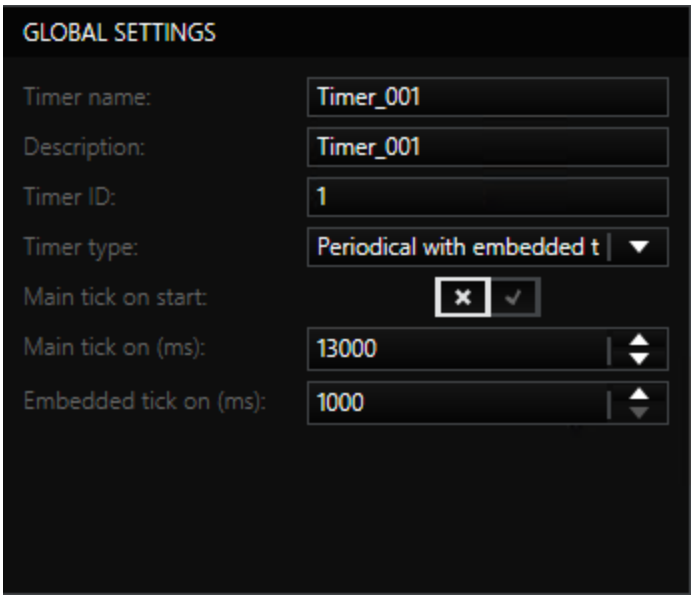
- Timer List
- Global Settings
- Timer Channels

Creating a New Timer

If you want to create a new timer, click the + icon in the timer list. This generates a timer with a sequential number and the timer is activated.



Now go to the **Global Settings**.



Also assign (optionally) for **Timer Name** a name and under **Description** a short but meaningful description of the timer.

The **Timer ID** is the serial number of the newly created timer. However, you can assign your own number.

Under Timer Type you must specify what type of timer you want to create. Three types of timers are available:

Timer	Description	
Once	A one-time timer	After the expiration of the configured period of time, the one-time timer starts the action set under Timer Channels. If the trigger should trigger again, it must be restarted.
Periodical	A periodic timer	After the expiration of the configured period of time, the periodical timer starts the action set under Timer Channels. The set time then begins to count down again from the beginning. The timer does not need to be restarted.
Periodical with embedded ticker	Periodic timer with an embedded timer	After the expiration of the configured period of time, the periodical timer with embedded timer starts the action set under Timer Channels at **On main tick**. The set time then begins to count down again from the beginning. The timer does not need to be restarted. With the timer, the embedded ticker also starts to run. It starts after expiration of an action set under **On embedded tick**.

What are the timers for? What can you do with them? The applications are broad. The one-time timer, for example, is perfect for testing the system. The periodic timer can in some cases be used to replace a number of event configurations that would have been necessary to achieve the same results. And the periodic timer with embedded timer can be used, for example, to switch a camera that requires a restart after the switchover.
Whenever timed sequences play a role, the timer is the first choice. (In our above example configuration we have chosen a periodic timer with embedded timer that triggers an action every 13 seconds, and then, one second later, starts a second action).

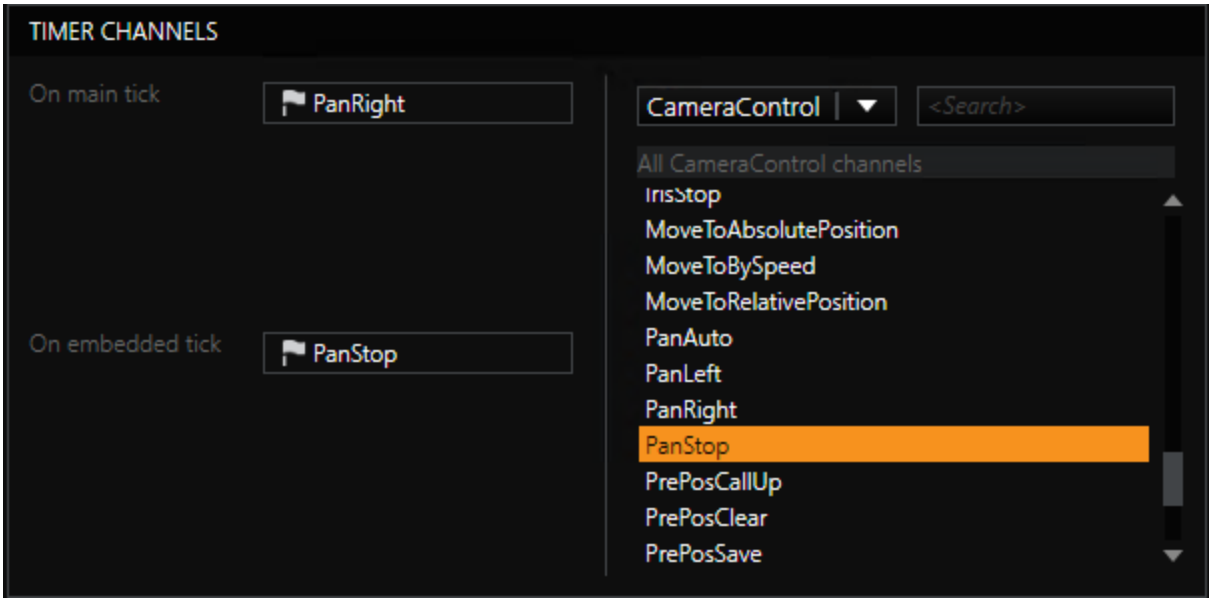
After you have decided which timer you need, you should decide whether

- The timer should start immediately (then enable the setting Main tick on start or whether

- The timer should expire after a certain amount of time (then set **Main tick on (ms)**.

If you have selected the periodic timer with time control, in addition to the setting above, you must also configured the embedded timer using **Embedded tick on (ms)**.

Now proceed to the **Timer Channels** dialog. There you assign the desired action that will be triggered when the timer (and the embedded timer) expires.

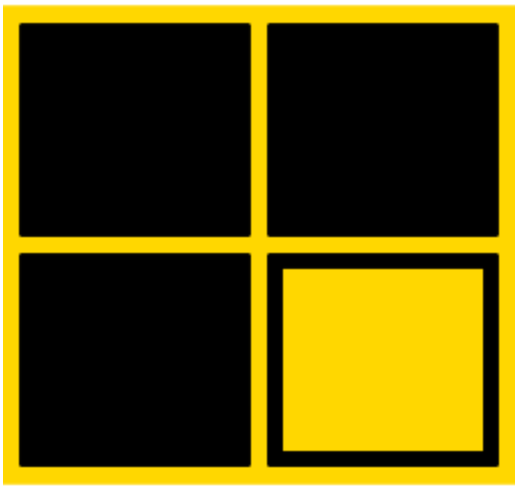


To do so, select an action from the action list and drag it with the mouse onto the corresponding field (**On main tick** or also **On embedded tick**). In our configuration, the camera would start to move to the right every 13 seconds and then stop 1 second later.

The configuration of timers seems simple, but can be difficult. Our example configuration works well. But it would be worth considering whether you should proceed in a different manner: Let us assume that the timer is normally switched on and off using a button. The user has pressed the button by mistake and stops the timer by pressing it again immediately. This would stop the timer, but the camera would continue to move to the right if the timer shutoff was performed within the first second. This is definitely not the desired effect.
For this reason, for the periodic timer with embedded timer in our example, it owuld be better to set the main tick to 13 seconds and

PanStop, and the embedded tick to 12 seconds and PanRight. The same functionality results, but when the timer stops, the camera stops as well!

G-View



G-View is the viewer interface of the G-Core software. It allows the user to view and evaluate captured videos.

In addition, G-View contains the other basic video security system functions:

- Overview
- Alarm management
- Content management
- Focus

Introduction

In order to be able to use G-View with its many facilities, a certain amount of background knowledge about the logical structure and the terminology is necessary.

Views

The distribution of viewers in the program window and their arrangement is what is meant by "views". It refers to the optimum exploitation of the available area.

Scenes

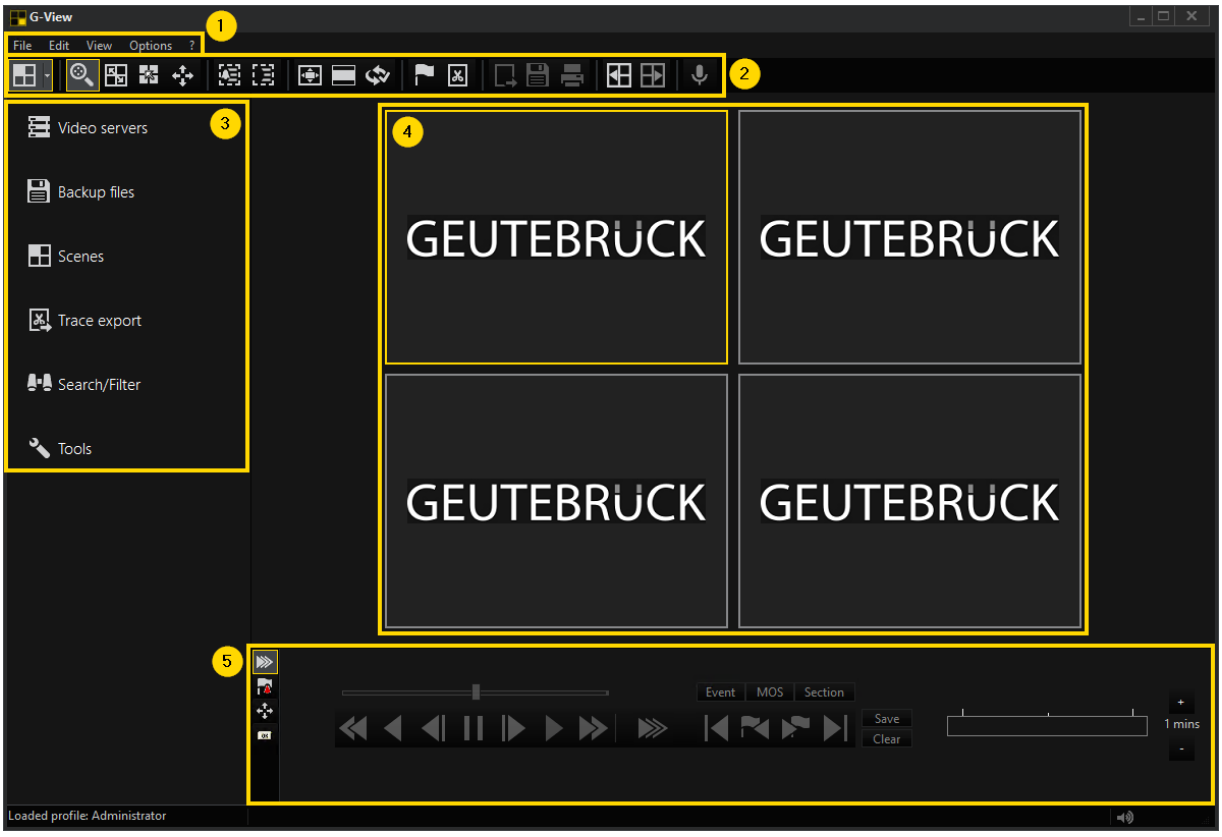
Scenes are similar to views, and can be confused with them. This is not surprising, since they are indeed views, but in this case a connection to a media channel has been assigned to them. When the scene is loaded, the viewers contain predefined connections, and display the media channels.

Profiles

Profiles are settings that apply to a user who is logged on. You create profiles using the **Profile Manager**. The settings include the way G-View will appear, along with the user's rights. Profiles can be created, edited, cloned and deleted at any time. If there is no dedicated profile for a particular user, the standard profile is loaded.

User Interface

When you open G-View, the following user interface appears. It is divided into five areas.



As in all of G-Core's program modules, G-View displays the **Menu bar** and **Toolbar** in the upper part of the window and the **Sidebar** menus on the left-hand side, while the largest area is taken up by the **Viewers**, where you can add media channels to see your camera images. The number and size of the viewer windows can be varied. Underneath the viewer area is the **Control bar**, used for controlling recorders, alarm lists and telecontrol.

1 Menu Bar

File

Icon	Description	Function
	Open backup file...	Load backup file.
	Authenticate Video...	Validate authenticated MPEG export file.
	Show export information	Display information of MPEG or GBF export.
	Save backup file...	Save backup file.
	Export pictures as...	Save picture of selected viewer.
	Print picture...	Print picture of selected viewer.
	Page setup...	
	Snapshot to clipboard	

Edit

Icon	Description	Function
	Advanced search... (Ctrl+F)	Search the database with custom options.

Icon	Description	Function
	Search again (F3)	Search the database again.
	Filter...	Set filter for database viewing.
	Remove filter	Remove filter for database viewing.
	Background MOS...	Do background motion analysis on selected viewer.

View

Icon	Description	Function
	Event list	Open event list dialog.
	Bookmark list...	Open bookmark list.
	Cut list	Open cut list.
	Server info	Show server information.
	Full mode (F11)	Switch to full mode view.
	Scenes	
	Player control	Select recorder tool bar.
	Alarm queue	Select alarm tool bar.
	Telemetry control	Select telecontrol tool bar.
	Custom controls	Select custom controls tool bar.
	Time line	Show time line.

Icon	Description	Function
	Time as GMT	
	Tool bars	
	Show in Viewer...	
	Export	

Options

Icon	Description	Function
	User options...	Edit current options profile.
	Profile manager...	Open Profile Manager for setup.

?

Icon	Description	Function
	GEUTEBRÜCK website	Open GEUTEBRÜCK website.
	Help (F1)	Open help.
	About...	Show about dialog.

2 Toolbar

The toolbar can be customized to meet your own wishes and needs. The standard settings are described here.

Icon	Description	Function
	Viewer	Select the predefined viewer settings here: From a single image up to 36 viewers or different matrix settings.
	Zoom viewer	Click this button to activate the zoom mode and use the digital zoom (see **Use Digital Zoom**).
	Copy/exchange viewers	If the icon is marked, you can simply drag the image from one viewer to another viewer using the left mouse button.
	Execute linked scene on viewer double click	When the button is activated you can double click on the active viewer to activate a linked template.
	Use mouse for telecontrol in viewer	Click this button to activate the telecontrol mode and use the optical zoom (see **Use Optical Zoom**).
	Select region for Motion search	Using the left mouse button you can draw a region for **Motion Search** (MOS). **If MOS is activated without a defined area, the entire viewer is used.**
	Motion detection is active/inactive in selected viewer	Enables/disables Motion Search in the selected viewer.
	Stretch view	Clicking on the icon stretches the viewer and fits it to the size of the G-View window in Windows.
	View letter boxed or pilliar boxed to keep correct aspect ratio	The viewers are displayed in the correct aspect ratio. This may result in black bars on the edges (above/below or right/left). The text is displayed across the entire width of the viewer.

Icon	Description	Function
	Sync or unsync all viewers	Synchronization of all connected viewers with the previously selected viewer (= Master) (only G-Core or Multi Scope to be connected!). If the Master part consists of a various choices, then only the selected viewers are synchronized. If the viewers are then added/removed from the selection, these are also included or excluded from the synchronization action.
	Open event list	Opens the **Event List** in its own window.
	Open cut list	Opens the **Cut List**
	Save pictures as GBF or MPEG	Opens the export dialog to save images in GBF or MPEG format.
	Save picture of selected viewer	Saves the current image of the selected viewer as BMP, JPG.
	Print picture of selected viewer	Opens the print export dialog to print the current viewer image
	Show previous used matrix	Switches to the last or next used matrix.
	Show next used matrix	
	Audio transmission	Click this button to activate the audio transmission (see **2-Way Audio Transmission**).

3 Sidebar

You will find five additional icons below the toolbar. Clicking on the corresponding icon opens the associated selection menu:

Icon	Description	Function
	Video servers	In the **Video servers** menu you connect G-Core to the selected server.
	Backup files	The menu **Backup files**.
	Scenes	The **Scenes** menu allows you to load ready-made templates for your viewers connected to media channels with a single click.
	Search / Filter	The menu **Search / Filter** enables you to search pictures in the database. You can enter a date and a time or use **Jump in time** according to the jump in time set to page forwards and backwards. The extended settings open dialogs for the **Advanced search...** , for filters and movement search in the background using Motion Search.
	Tools	The **Tools** selection menu provides various setting tools. Using the **Viewer Selection** you define the image sequences, which you can save by clicking on the export icon or add to the cut list by clicking on the scissors. A click on the **X** deletes the selection in the selected viewer. You can see the controls for the adjustment of the picture depiction (brightness, contrast and color) under **Viewer Adjustment** and Quality (DLS quality). Clicking on the disk saves the settings as default.

Icon	Description	Function
		Clicking on the icon transfers the settings to all viewers. Clicking on the arrow loads the current settings and resets any changes to the default.

4 Viewer

More about Viewer and how to see images on viewers under **Seeing Images**.

5 Control Bar

The control bar is used to control the images in the active viewer

More about the control bar and how to use it under **Controlling Images**.

Seeing Images

Connect to Server

The Video Servers element in the sidebar can be used to establish a video server connection. To do so, click on **Video servers**. A drop down menu with all possible servers you can connect to will open. Select the desired video server and double click on it to establish a connection. An existing connection to a server is indicated by .

Linking Viewers to Media Channels

You can assign the images of a media channel to a viewer in three ways:

1. By selecting the viewer and then double clicking the media channel.
2. Simply by dragging a media channel to the viewer.

3. By selecting the viewer, opening the context menu by right clicking and selecting Select channel by number.... A selection dialog, where all available media channels is displayed. The desired media channel can be selected and by clicking on the arrow key it will be assigned to the viewer.

When the selection dialog is open, you can also select the desired channel directly using its global number. To do this, simply use the number pad.
For systems with multiple servers, if the global numbers have not been assigned consistently, the first media channel to be found with the specified global number is displayed.

The available media channels are listed by video server in the drop down menu of Video servers.

If you have assigned media channels to viewers, you can use the space bar to display the channel number, date and time, among other things. This is useful whenever images that are not live are displayed, as it allows them to be distinguished clearly. The displayed information also makes searching easier.

In the Menu bar under View -> Show in Viewer... you can configure what information should be displayed in the viewers. All elements with a check mark are displayed in the viewers. Click on an element to add or remove the checkmark.

Specify a View or Load a Scene

If the standard view is not appropriate for your needs, or if you have already specified a particular arrangement of viewers or even created scenes, then, unless you have already changed the profile, you should now load the view or scene.

Load a Scene

There are two options to load a scene.

1. Clicking on the sidebar item Scenes opens a list of all available scene. Select one and double click on it to load the scene.
2. Open the Context menu by right clicking on a viewer. Then click on the contexts menu option Select scene and select the desired scene in the upcoming dialogue box. Finally click on the arrow key to confirm your selection.

Controlling Images

Control Bar

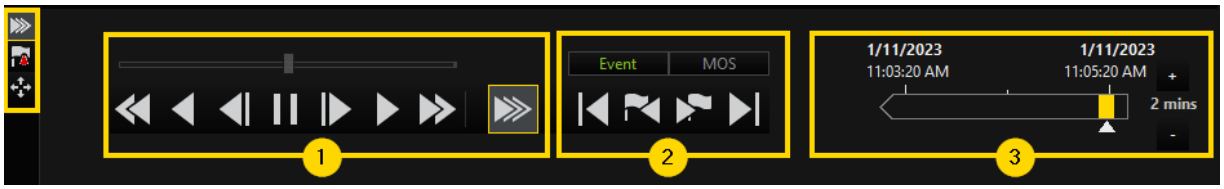
In the control bar you can choose between the following three tool bars:

Recorder tool bar	Alarm tool bar	Telecontrol tool bar

By default, the recorder control bar is selected. To select one of the other bars click on the corresponding icon on the left side of the control bar area.

Recorder Tool Bar

The recorder tool bar is used to control the images in the active viewer. Here is a view of the tool bar with time line:



The **General Control** bar (1) shows only the most important elements, similar to the familiar controls on DVD players or other similar devices. To the right you will find additional buttons for **Event, Motion Search (MOS) and Section** (2).

(3) Shows a additional **Time Line**, which can be activated in the **View** menu, marking **Time line**.

General Control

Here is an overview of all the general controls:

Icon	Description
⏸	Stop

Icon	Description
	Forward picture by picture
	Rewind picture by picture
	Play forward
	Play backward
	Fast forward (speed adjustment using the slide controller)
	Fast backward (speed adjustment using the slide controller)
	Live streaming

Event, Motion Search (MOS) and Section

By default, only the **Event** and **MOS** options are displayed. The addition of the **Section** option is set in the Profile Manager. To do this, open the Profile Manager via the menu bar under **Options -> Profile Manager** and activate the **SCS Mode** option under **Options profile** for all desired profiles. The **Section** option is then displayed in the tool bar.

With a click on **Event**, **MOS** or **Section** you can switch the buttons in the tool bar between Event search, Motion Search (MOS) and Section search. Depending on the search mode, the buttons described below are now available. To show witch buttons are displayed the associated font is marked green when selected.

Event		Motion Search (MOS)		Section	
	Start of the database		Start of the database		Start of the database
	First event		MOS back-wards		Mark point of time as section start

Event		Motion Search (MOS)		Section	
	Last event		MOS forward		Mark point of time as section end
	End of the database		End of the database		End of the database

You can find more information about Motion Search (MOS) under **Motion Search**.

You can also use the First Event and Last Event buttons to jump to the time points of the prehistory instead of those of the event by pressing and holding the Ctrl key. You can also set jumping to the prehistory time points as default, for this see **Previous Event / Next Event**).

Time Line

The time line 3 displays the time range of the given video material.

It have to be activated under the menu bar element View, marking Time line. If activated the time line is displayed next to the event and MOS buttons.

Use the time line to navigate quickly in the active viewer. To do so move the yellow range with the mouse. The active viewer is stopped and the saved picture for the set time point is displayed.

To change the time frame, click the + and - icons within a range of 1 minute to 24 hours.

Context Menu

The context menu opens by right-clicking on a viewer.

Context Menu Item	Function
Full size	Opens the selected viewer in full size. Double click on the viewer to exit the full size mode.
Clear	Deletes the assignment of the media channel to the viewer.
Clear Scene	Deletes the assignment of media channels to the scene (all viewers).

Context Menu Item	Function
Add to cut list	
Add Bookmark	Adds bookmark to the viewers bookmark list.
Snow Filter	Activates/deactivates the Snow filter. check mark = Snow filter is active no check mark = Snow filter is not active
FishEye	Switch fisheye view.
Enhanced overlay drawing	
Linking Viewers to Media Channels...	Opens a selection dialog of all available media channels to link a media channel to the selected viewer.
Select scene...	Opens a selection dialog of all available scenes to link a scene.
Audio	Settings of the viewers audio.
Master viewer	Sets the selected viewer as master viewer.
Synchronized Viewer	Synchronizes the selected viewer with the master viewer.
Sync all to this viewer	The selected viewer becomes the master viewer, all other viewers are synchronized with it.
Clear synchronization	Undo synchronization settings.
Sync only selected matrix	Synchronizes the selected viewer to the master.
Export	With Export videos and images of media channels can be exported in a few ways and formats.
Advanced Search...	Opens the dialogue for advanced search.
Search again	The search is carried out again.
Filter...	Opens the filter dialog to set filter for database viewing.

Context Menu Item	Function
Remove Filter	Removes filter for database viewing.
Background MOS...	Opens the dialogue for Background MOS.
Event List...	Opens the event list filtered according to media channel.
Cut List	Opens the cut-list dialog.
Bookmark	Opens the bookmark list of the selected viewer.
Properties	Opens a window with various facts on the selected viewer.

Templates

It is appropriate in many situations to adapt views, scenes and/or alarm scenes to particular needs. The **Profile Manager** allows you to do this easily, and to make the views and scenes you have prepared available to users. Views etc. created this way are called templates.

Templates are particularly useful if they are created as scenes: not only are the number, positions and sizes of the viewers matched to your needs, but so is the automatic switching of media channels through to those viewers.

In addition to individually adjusting the scenes, it is also possible to jump, with a single double-click, from one template to another, and to further customize your viewers in that way: templates can be linked.

Creating Templates

Templates are created via the Profile Manager. An example of creating views, scenes and alarm scenes has already been described under **Views**.

Linking Templates

As well as the creation of templates, template linking can be set via the Profile Manger.

To see how it works see **Scenes**.

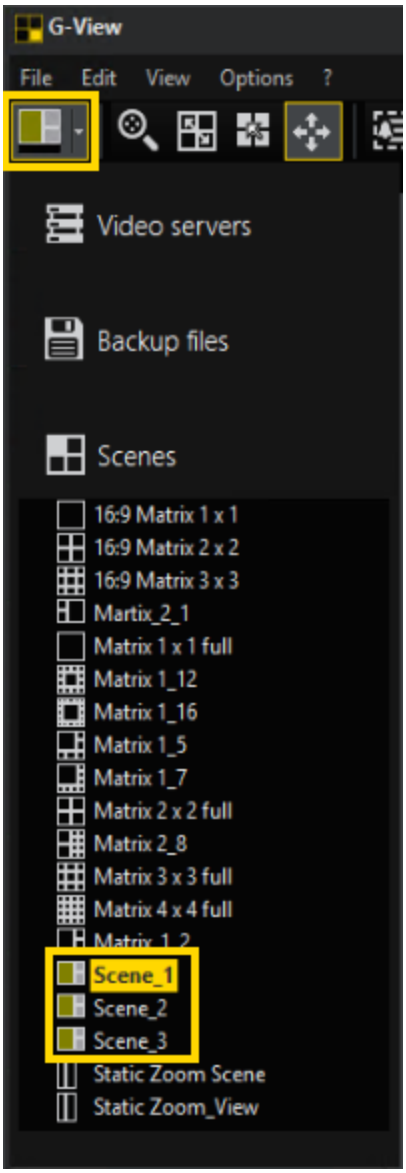
Using Template Linking

If you have created your own templates and configured template linking you only need to activate template linking to use it. To do so double-click the button in the toolbar. After this activation you can click on linked viewers in your scene

template to switch to linked scene template.

A linked viewer is indicated by a green color of the viewer in the scenes area or in the viewer button of the toolbar (if the scene is actually selected).

Example The Scenes Scene_1, Scene_2 and Scene_3 of the scenes sidebar menu are linked scenes because they all have a linked viewer which is marked green.



Synchronized Viewer

The Synchronized Viewer feature allows you to select a master viewer with which all other viewers will be synchronized. Depending on the applied play mode, the identical time stamp as in the master viewer is displayed in all viewers. The feature is available in the context menu of a viewer (see **Context Menu**).

IMPORTANT: It is mandatory that all servers including sources and viewer stations are time synchronized (e.g. NTP sync).

We recommend a maximum of 6 viewers in synchronized mode. Any additional viewer could result in a substandard user experience.

Performance

The performance of the synchronized viewer depends mainly on the used parameters:

- Database size:

  The performance of the synchronized viewer depends on the size of the database, because the time to retrieve synchronized images from the database increases linearly with the size of the database. A long retrieval time of the large database may result in a slow playback speed and low frame rate, resulting in stuttering playback.

  Example Test results have confirmed that the lower retrieval performance of large database must be taken into account when using the synchronized viewers, because it has an impact on the viewer playback speed.

  Two test scenarios can be distinguished from each other, which clearly show the relationship between database size and playback speed:

  1st scenario: local server, small database (6 TB): short retrieval time and smooth playback.

  2nd scenario: Remote server (connected via LAN), large database (250 TB): long retrieval time and stuttering playback

- Viewer count:

Adding more viewers for synchronization may result in lower performance.

- Other system parameters:
  - FPS of each viewer
  - Video formats
  - Resolution of the individual viewer recordings

RegistryKeys

There are currently two important RegistryKeys that can be used with the Synchronized Viewer feature. Each RegistryKey has its own results and achieves different behaviors under different conditions.

RegistryKey	Description
FastSyncByBookmark	[HKEY_LOCAL_MACHINE\SOFTWARE\Geutebrueck-\Gng\GNGView] "FastSyncByBookmark"=dword:00000001 Current and default behavior. This mode retrieves the images via bookmarks and provides thus a smoother playback and better frame rate (fps). However, in this mode the synchronization is not as accurate (as "FastSyncByTime") and can have time differences in the range of seconds. In this mode, the viewers are not as much dependent on each other. A slow NVR won't affect overall performance much, but it can lead to unsynchronized timestamps within sequences.
FastSyncByTime	[HKEY_LOCAL_MACHINE\SOFTWARE\Geutebrueck-\Gng\GNGView] "FastSyncByTime"=dword:00000001 In this mode, the time synchronization is 100% accurate. However, this requires a high power and can thus slow down the playback speed. In this mode, all viewers are interdependent. If there is a slow NVR or slow connection, the overall performance will be affected, resulting in stuttering playback ("slideshow" feeling).

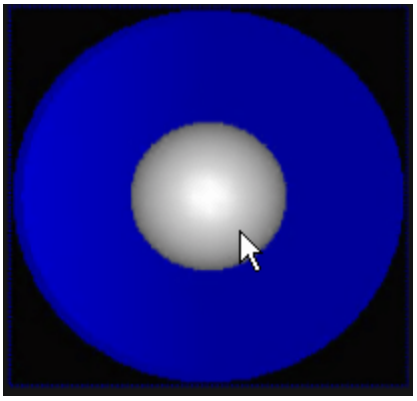
Telemetry

You open the telemetry control by clicking the icon underneath the viewer. The controller consists of four parts:

1. Virtual joystick
2. Zoom and focus control
3. Number block with the button for the **Home** position
4. Fish eye views

You can raise or lower the values in the number block by 10 at a time with the buttons next to the number block.

You use the virtual joystick with the left hand mouse button. Bring the cursor over the joystick, press the left hand mouse button, and hold it down while you move.



To store a fixed position, click the icon. Then click the number that you want to assign to the position. Next click the again. The position is now saved.

It is also possible to create custom buttons. These can be created and configured in the profile manager. Click **here** for more information.

Snow Filter

The snow filter reduces disturbances due to heavy snow fall, rain or strong image noise in moving images. This makes it possible to more easily identify objects that are relevant to security in the filtered image.

Without snow filter

With snow filter

The filter requires a frame rate of at least 25 frames per second. It works on the client-side in G-View and thus has no influence on the images saved in the database.

The snow filter can be activated via the context menu. To open the context menu right click on a viewer. If the snow filter is active, a check mark is shown in the context menu next to **snow filter**.

Bookmark

While working with image material, you can mark those places that appear to be important or on which you would like to continue working later with a bookmark.

Add Bookmark

To place a bookmark, right-click in the viewer concerned to open the context menu. Then click on **Add bookmark**. All bookmarks are stored in the bookmark list.

Bookmark List

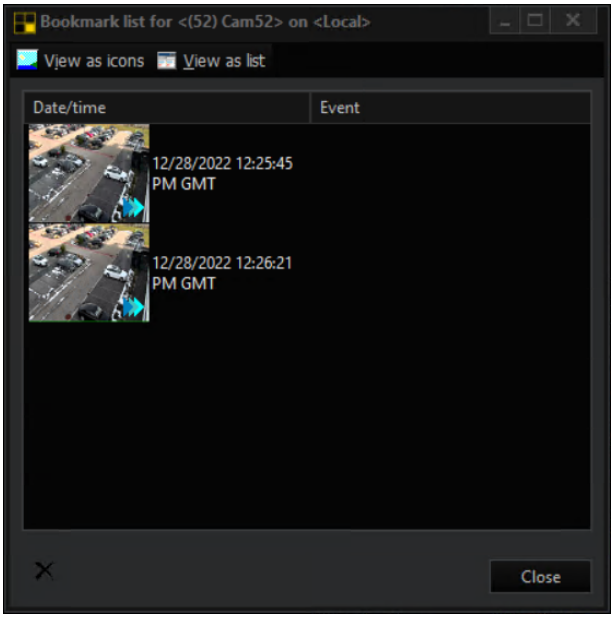
All created bookmarks are stored in a bookmark list per media channel, which you can access from the context menu by right-clicking the viewer for which you want to see the bookmark list, and then selecting **Bookmark List** in the opened context menu.

The bookmarks are given as small icons that indicate whether the bookmark has been created from the database or from the live image .

Remove Bookmark

To remove a bookmark from the bookmark list open the bookmark list as described in **Bookmark**. Then select the bookmark you want to remove and click on the ✖ button in the lower left corner.

Example In this example you can see a bookmark list of the media channel (52) Cam 52 of the video server Local, where the bookmarks were created from live images.



Audio

In addition to a camera image, an audio sequences also belongs to a media channel. Often, several media channels are linked to viewers, so that all associated audio sequences as well as all image material are played back simultaneously.

To prevent unwanted audio sequences, the following settings can be made in the Context menu under Audio. Open the context menu right clicking on a viewer.

Setting	Function
Sync audio + video	Synchronizes audio and video.
Selected viewer only	Only plays the audio of the selected viewer.

Setting	Function
Keep audio selection	
Mix all viewer	Plays the audio of all viewers at once.

2-Way Audio Transmission

The 2- way audio transmission extends the current ONVIF plugin. It is applicable to supported media channels which means to cameras connected via ONVIF with internal or external speakers. It allows talking directly to specific people through the camera speakers. The microphone on the computer can be used to easily fulfill various scenarios such as directly addressing offenders during crimes.

Note that there are some limitations:

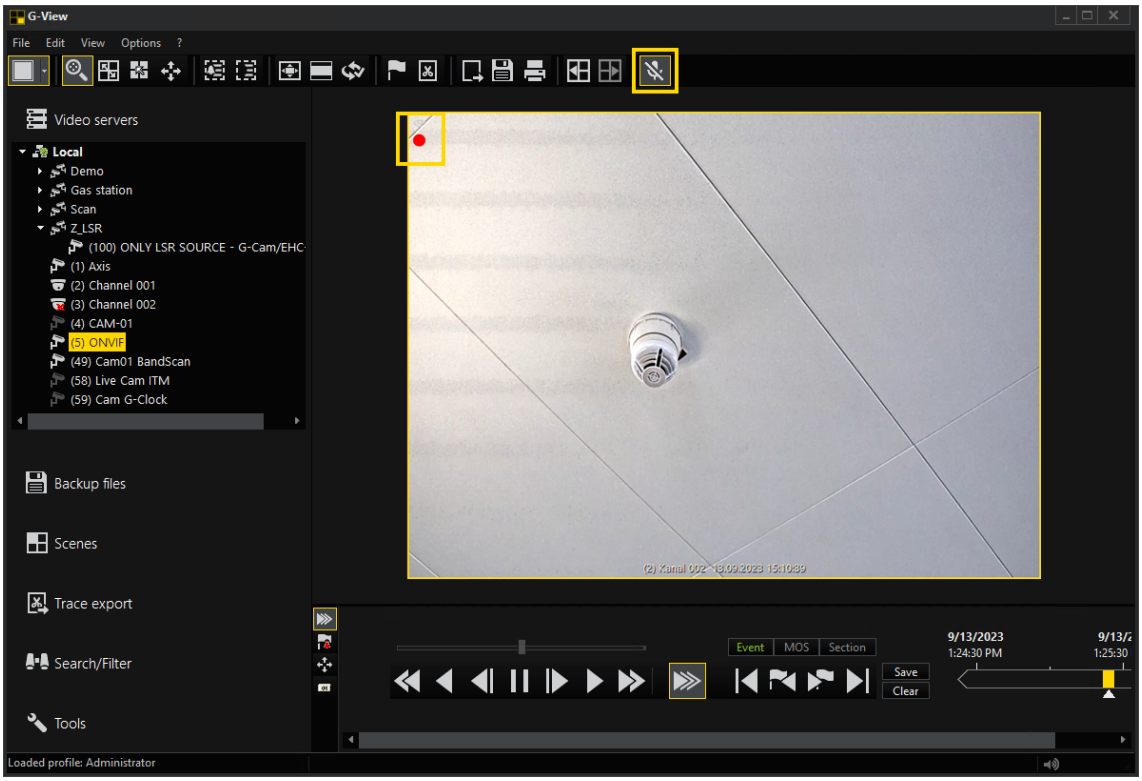
- There is no multiselect available which means you cannot select several viewers. As a result, there is also no multicast or broadcast function available.
- The input device is not selectable.

Before you can use this feature, you must activate the audio transmission in the ONVIF IP-Camera Plugin settings.

How to apply the 2-way audio transmission:

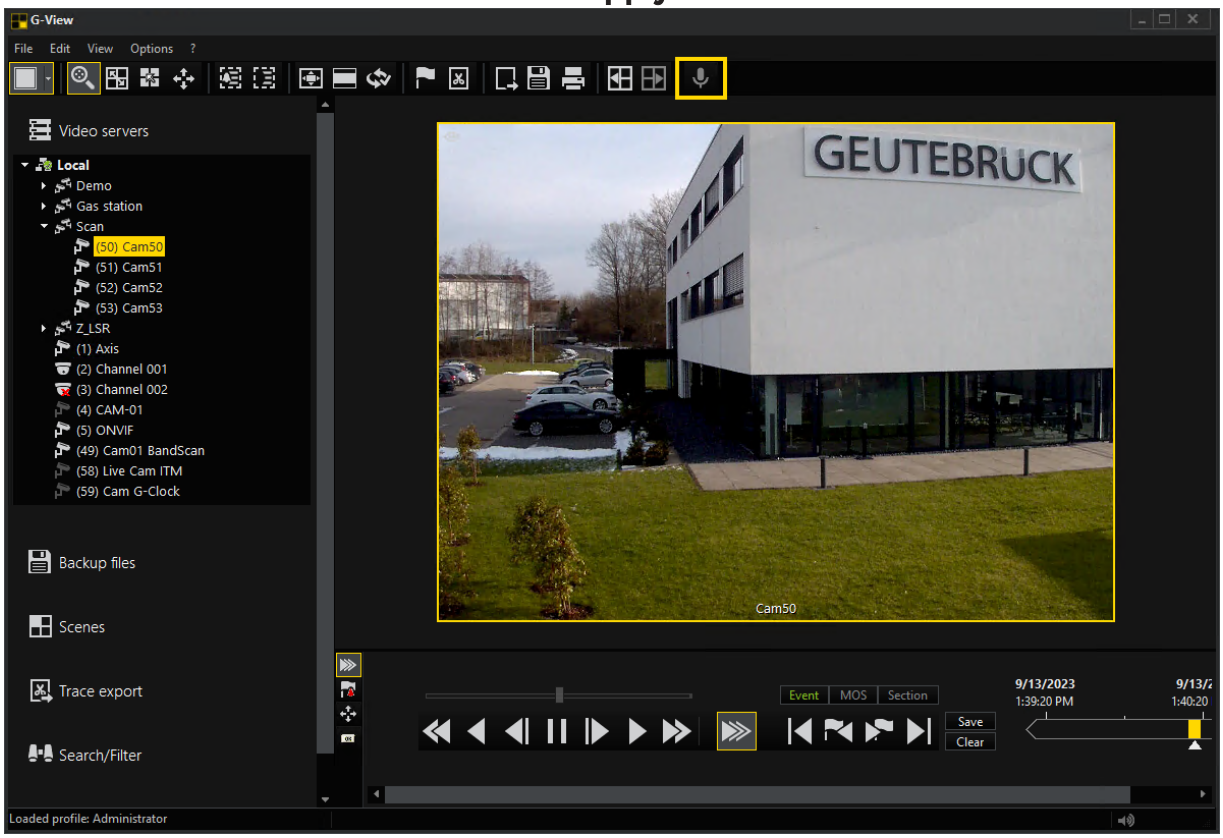
1. To start with the audio transmission, select a supported media channel. Now the audio transmission button is selectable.

2. Click on the button. Now the audio transmission is in progress. This is indicated by a red recording symbol.



3. To stop the process, click on the corresponding button again.

If the audio transmission button is deactivated (grayed out), the selected media channel is not able to apply audio transmission.

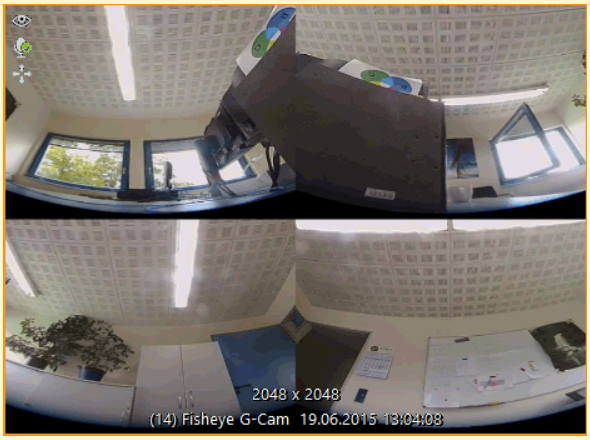


Fisheye

Fisheye de-warping has to be activated and configured in G-Set. See here for more information.

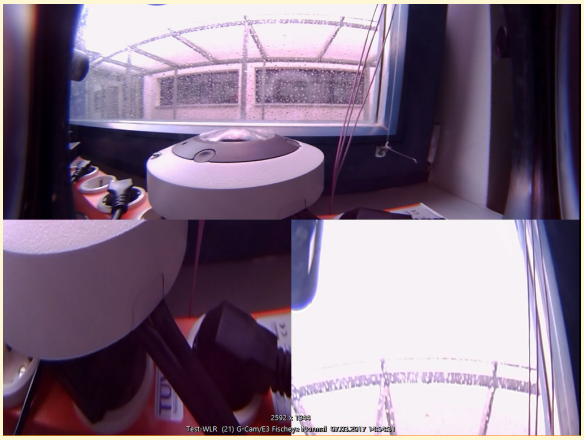
If fisheye de-warping has been configured in G-Set for an IP camera, the view can be switched in G-View via the context menu of the viewer. Open the context menu by right-clicking on the viewer, select **Fisheye** and then one of the following views:

View	Description	Example
Board view	De-warping of the image does not take place (the standard view of the fisheye image).	
PTZ view	The fisheye image is de-warped and displayed in a viewer. PTZ view can be controlled using the PTZ joystick (also via an MBeg).	
Double view	The fisheye image is de-warped and displayed on two superposed viewers. Double view can be controlled using the PTZ joystick (also via an MBeg).	

View	Description	Example
Quad view	The fisheye image is de-warped and displayed on four viewers.	

If the installation position **Wall** is set in G-Set, the following views are available instead of **Double view** and **Quad view**:

View	Description	Example
Panorama view	The fisheye image is de-warped and shown as a panorama.	

View	Description	Example
Triple view	The fisheye image is de-warped and split into three viewers.	

Zoom

You can use the zoom function if there is an area or object in the viewer that you want to zoom in and look at in more detail.

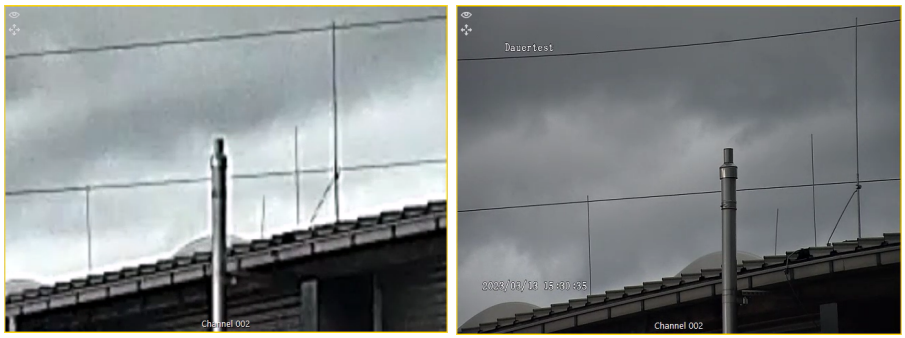
There are two different types of zoom:

Digital zoom:

- The image is cropped and resized to the pixel size of the original image to zoom in on the required image area.
- The quality of the image gets lower.
- The use of the digital zoom is not reflected in the recording.

Optical zoom (only for PTZ cameras):

- The camera lens physically moves to zoom in on the required image area.
- The quality of the image does not change.
- The use of the optical zoom is reflected in the recording.



Digital zoom Optical zoom

Use Digital Zoom

The digital zoom is activated when you have selected the zoom mode in the toolbar. It works both in live and playback mode.

Scroll to Zoom

To zoom in on the current camera view:

1. Click the icon in the toolbar to activate the zoom mode.
2. Position the mouse cursor over the viewer, at the position you want to zoom in.
3. Scroll the mouse to zoom in or out. This zooms in on the area around the mouse cursor's position in the viewer.
4. To change the position in the zoomed view, left-click and drag the mouse.
5. To reset the zoom, double-click in the viewer or scroll out with the mouse.

Drag to Zoom

To zoom in on a specific area in the current camera view:

1. Click the icon in the toolbar to activate the zoom mode.
2. Use the left mouse button to drag a rectangle from top left to bottom right over the area of interest in the viewer. When you release the mouse button, the area is centered and zoomed in.
3. Scroll with your mouse to zoom in or out.
4. To change the position in the zoomed view, left-click and drag the mouse.
5. To reset the zoom, double-click in the viewer or scroll out with the mouse.

Use Optical Zoom

The optical zoom is activated when you have selected the telecontrol mode in the toolbar. It works only in live mode.

The Area Zoom and Click to Move features only work with the following PTZ cameras and the respective IP camera plugins: Axis, Bosch, G-Cam/E3, G-Cam/E4, G-Cam/E5, GNSD, Samsung, ONVIF and Hanwha cameras connected via the ONVIF plugin. Your camera must support this features.

Some Hanwha cameras support Area Zoom via their own API, but not via ONVIF. To use the Hanwha Zoom in the ONVIF plugin, select the plugin in the Hardware module list and open the Advanced settings tab using the shortcut `Ctrl` + `Alt` + `R`. Change the following values:
- system.ONVIF.UseHanwhaAreaZoom: Set the value to True.
- system.ONVIF.HanwhaAreaZoomChannelID: Enter the Channel ID. For single PTZ cameras, this is usually 0. For multihead cameras, you must enter the correct channel ID. You can find this in the web interface of the camera. The IDs usually start with 0, i.e. channel 1 has the ID 0 and so on.

If you use the optical zoom on your camera while recording, the zoom levels used will be reflected in your recording.

Click to Move

To move to a specific position in the current PTZ camera view:

1. Click the icon in the toolbar to activate the telecontrol mode.
2. Right-click on the specific position in the viewer. The camera moves to this position and centers it.
3. To reset the position of the camera, click the Home button in the telecontrol tool bar.

See how to control your PTZ camera with the telecontrol toolbar **here**.

Scroll to Zoom

To zoom in on the current PTZ camera view:

1. Click the icon in the toolbar to activate the telecontrol mode.
2. Position the mouse cursor over the viewer, at the position you want to zoom in.
3. Scroll the mouse to zoom in or out.
4. To change the position in the zoomed view, left-click and drag the mouse or right-click on a specific position.
5. To reset the zoom, drag a rectangle with the left mouse button in the opposite direction, from the bottom right to the top left or scroll out with the mouse.

Area Zoom

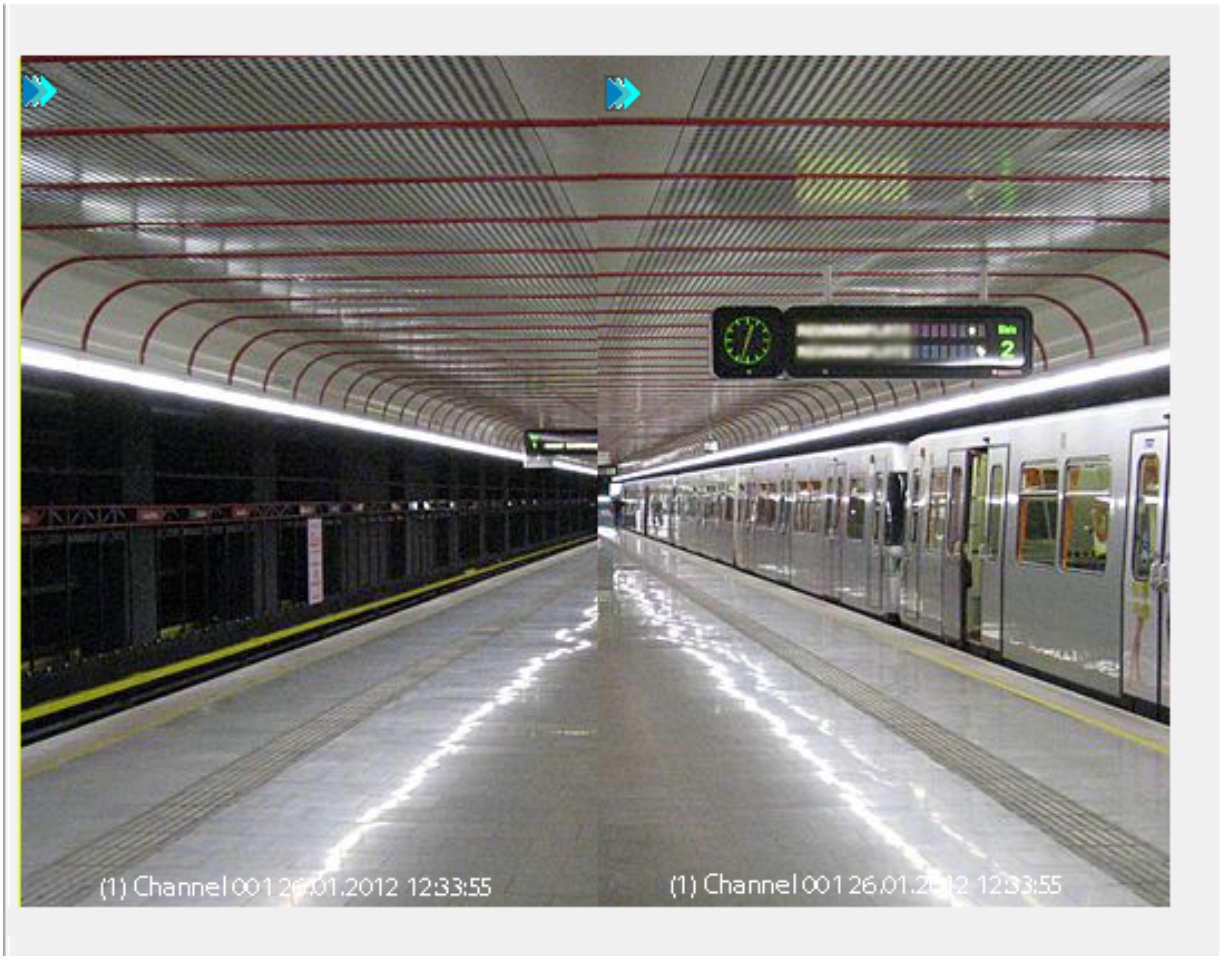
To zoom in on a specific area in the current PTZ camera view:

1. Click the icon in the toolbar to activate the telecontrol mode.
2. Use the left mouse button to drag a rectangle from top left to bottom right over the area of interest in the viewer. When you release the mouse button, the area is centered and zoomed in.
3. Scroll with your mouse to zoom in or out.
4. To change the position in the zoomed view, left-click and drag the mouse or right-click on a specific position.
5. To reset the zoom, drag a rectangle with the left mouse button in the opposite direction, from the bottom right to the top left or scroll out with the mouse.

Static Zoom

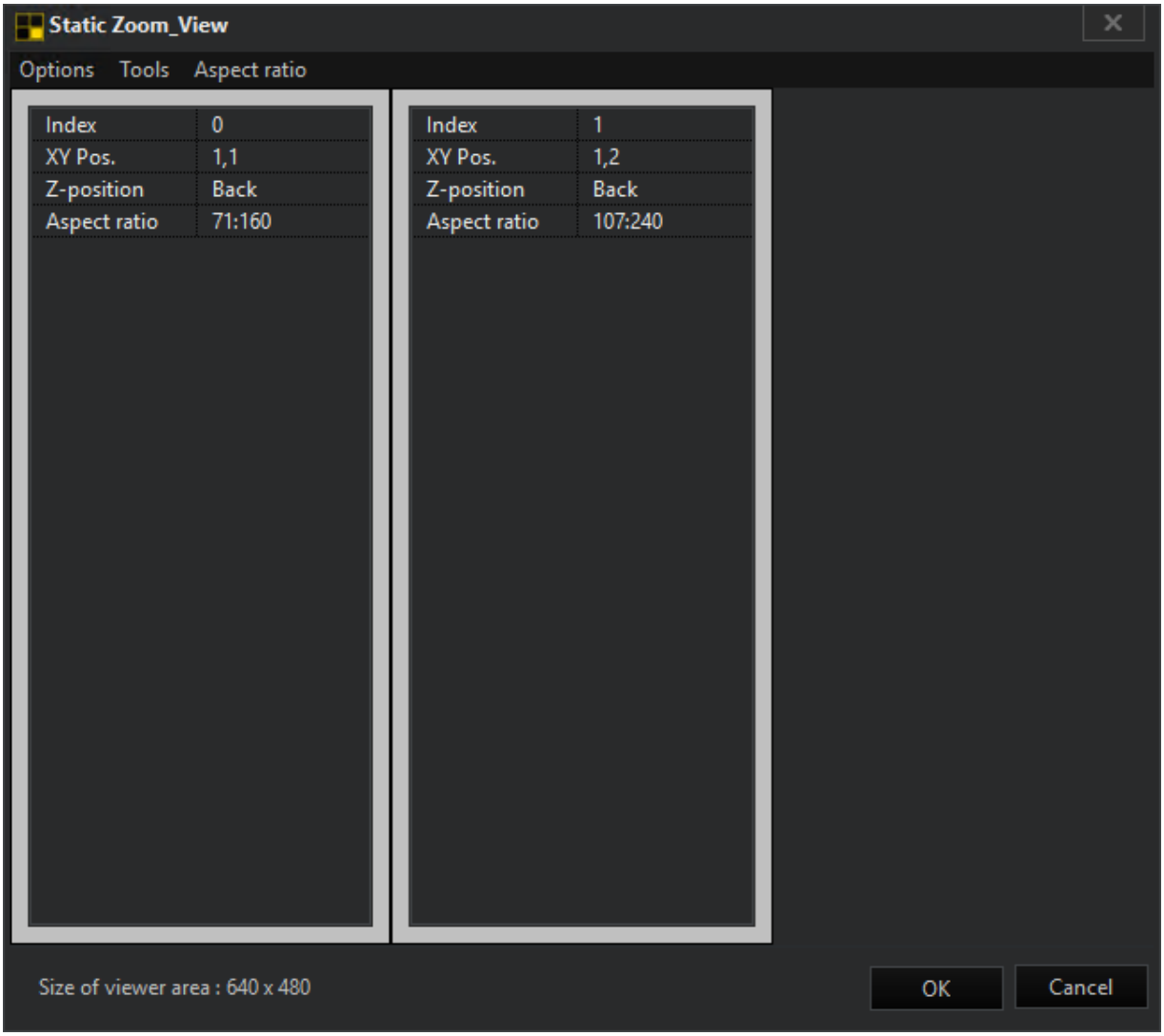
Static Zoom is actually a screen splitter function, where the images of two cameras are prepared so that it appears as one image.

Originally, this function was created for a railway project. The objective was the generation of an optimal view of the platform from the images of two cameras. Irrelevant portions of the image were cut out. The left part of the splitter window shows the left half of the image of the first camera and the right portion of the splitter window shows the right half of the image of the second camera.



Setting a Static Zoom

To create a camera image as shown in the previous image, a view in the form of a 2x3 matrix must first be created in the Profile Manager via Views. The viewers in each column are then combined to create a view like the following:



For detailed information on creating and configuring views and scenes, see the Views and Scenes chapter.

Now add a scene to the created view under **Scenes**. Activate the Static Zoom by clicking the **Edit scene** button and mark **Options-->Static Zoom** in the appearing window. A check mark at **Static Zoom** confirms the activation.

Now in each viewer, the scene of a standard rectangle can be entered for a fixed zoom area. The rectangle is described using the corners top left and bottom right.

L;T;R;B = left, top, right, bottom

The rectangle is normalized to 1000 (per mill). A specification such as 0;0;1000;1000 thus describes the entire viewer. You are completely free to select any section to view.

In such a zoomed viewer, you can no longer zoom any further.

The cameras should be switched manually, using scenes or actions. Switching to cameras defined in the scene (media channel left or only using global numbers) works as well.

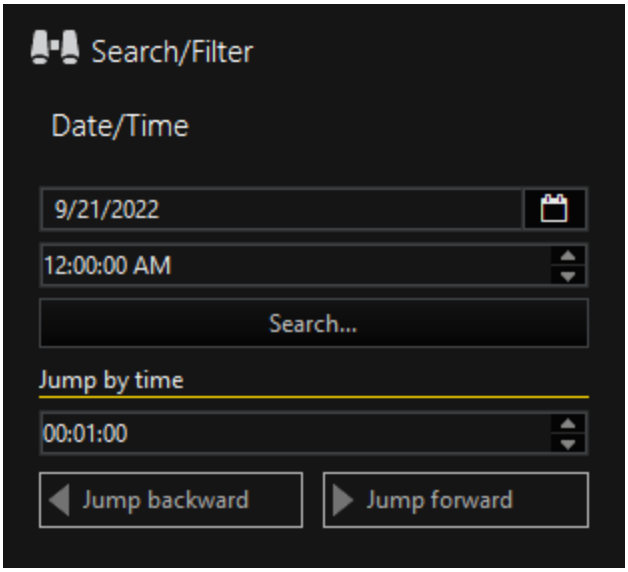
> Example If as in the railway project, the whole left portion of a camera should be visible in the left viewer and the whole right portion of a camera should be visible in the right viewer, then following settings should be made.
>
> Left Viewer Static Zoom: [0;0;500;1000]
>
> Right Viewer Static Zoom: [500;0;1000;1000]

Searching

There are two types of search available under the **Search/Filter** menu: **Simple Search** and **Advanced Search**.

Simple Search

Click on the viewer that is showing the media channel whose image database you want to search through. Clicking **Date/Time** opens the simple search function. Enter the date and time of interest, then click **Search...** When an image is found it will be displayed.



You can refine your search, in particular if you only know the approximate time. To do this, use the **Jump by Time** function and enter a time interval. Use the buttons **Jump backward** and **Jump forward** to jump forward or backward in the recording by the specified time interval.

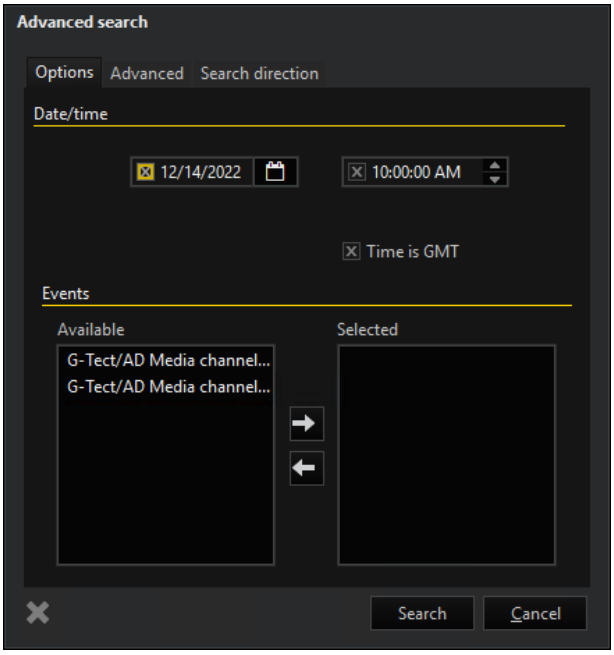
Advanced Search

In addition to a date/time, the advanced search can also be used to search specifically for events.

Clicking **Advanced search** opens the options dialog.

For all tabs: You can reset the set search criteria by simply clicking ✖.

Options



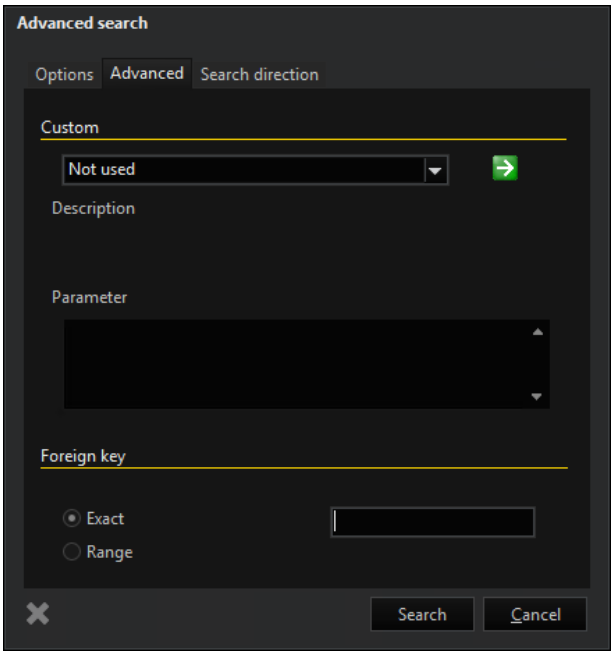
The dialog **Events** shows the **Available** events on the left-hand side and the **Selected** events on the right hand side. To select an event for searching, highlight it, then click the arrow that points to the right. The highlighted event appears in the list of selected events, and is removed from the list of existing (selectable) events.

To remove an event from the list of selected events, highlight it and click on the arrow that points to the left.

Advanced

The advanced tab allows you to search with the user settings according to

- Cash management
- Action filter
- ATM transactions
- Generic
- Face recognition
- Number plate recognition
- Point of sales
- Supply Chain Security data filter (SCS data filter)



Custom

If you wish to use one of these options, select the desired option under **Custom** and click on the green button next to it. This opens a thematic dialog, in which you can specify the exact settings depending on the option you chose.

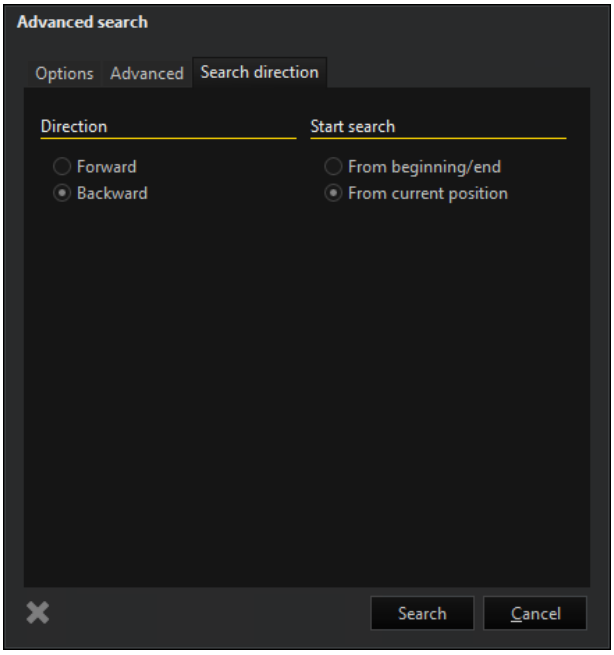
Foreign key

The advanced search provides users whose application was created using the SDK an additional option for refining the search by specifying an external key. To do this, either the exact key or a range must be specified under **Foreign key**.

Search direction

Under the next tab **Search direction** the search direction for the selected event can be configured. Available are two conditions search direction and the start of search:

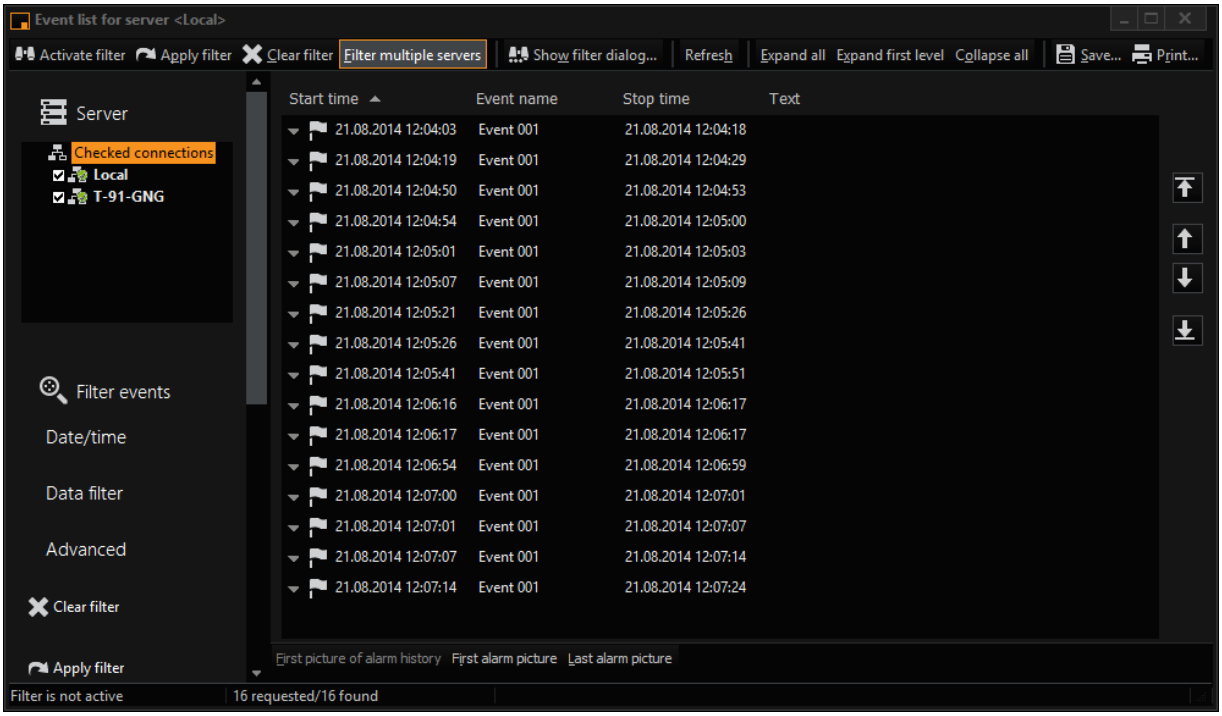
- **Direction**: **Forward** or **Backward**
- **Start search**: **From beginning/end** or **From current position**.



Multiple-Server Search

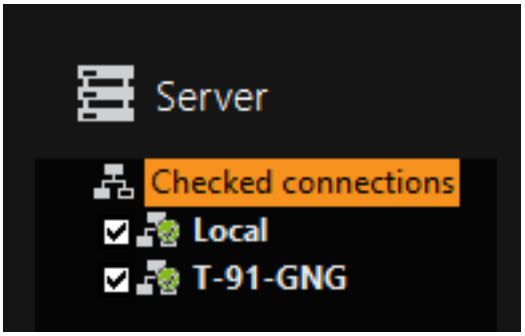
Multiple-server search makes it possible to query events simultaneously on several selected servers.

Filtering of events can be restricted using date/time and a data filter, for instance for events with accompanying data such as number plate from ANPR or scanner/bar code data.



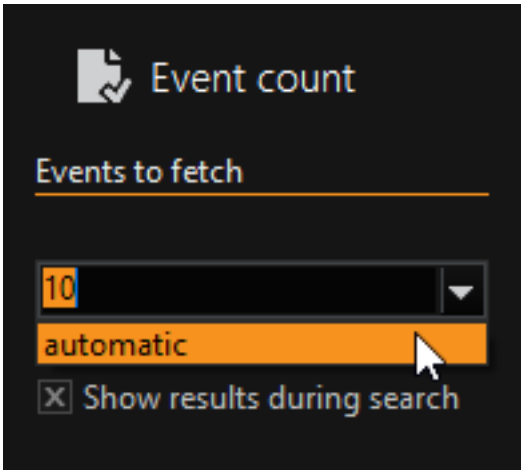
A click on the icon in the toolbar of G-View will open the event list. Another click on the **Filter Multiple Servers** tab opens the multiple-server search.

In front of all server connections, check boxes are now displayed, using which the connections can be selected that will be used for search. If the connection icons are selected directly, the search is performed only on this connection. The filter settings are applied. If the parent entry **Checked Connections** is selected, the search is performed simultaneously on all selected connections.



If the number of events is specified, then this exact number of events is queried from each server.

The option **Show Results During Search** makes it possible to query individual events and display them immediately until the specified quantity has been reached.



In particular, if there is a small number of matching events in the database, the matches are displayed more quickly and the rest of the search can be canceled when it becomes no longer necessary. Without this function, the entire database must be searched if the specified number of events is not found. This search procedure can take a considerable amount of time.

Events from multiple servers can be activated as usual or also added completely to a cut list and exported.

The number of queried events per server depends on the specified **event count**. Depending on the density of events on the servers, they can also come from different time ranges. If you scroll through the events, the following events are queried separately for each server. There is no temporal relationship between the events of the various servers.

To show as **many** events as possible from **all** servers in a **specified time range** you should choose a **small time interval** in the filter settings and request **a large number of events**.

Motion Search

Motion Search (MOS), is a simple and very efficient means of quickly finding motion in recorded or live pictures of a media channel.

A vehicle can for instance be marked in the recorded pictures of a parking lot and MOS then searches the database for motion within the marked area. In this way, the time of arrival of the vehicle, persons in the vicinity of the vehicle and other vehicles in the marked area can quickly be identified.

Starting from G-Core version 1.4, the MOS search for movement can be accelerated in the recordings of media channels using so-called meta data. To achieve this goal, an additional table (VCA Data) is created in the Microsoft SQL database, which saves the meta data and which can be used to read this data when needed. This reduces search time to a fraction of the original time. If no meta data is available for the desired search time frame, the classic method is used to find movements in the recording. Please note that the meta data must be generated during the run time. This means that for the affected channel or channels, the G-Tect analysis must be activated (activation of the selected channel(s) in the VCA Setup Editor for the AD). The results can be improved by activating the VMX sensor.

MOS in the Active Viewer

For motion search, a rectangle can be drawn in the viewer, within which a motion search will be performed (recommended approach). If you do not specify a search area, the search will be performed in entire view area.

Click on the icon, hold down the right mouse button and draw a rectangle.

Click on the icon. This activates or deactivates the search in the current viewer.

Manual Search

With this type of MOS you jump from one motion to the next. Every search process must be started with a click. This is how manual search is started:

For a reverse search, click on the icon and the search starts. When the first motion in the marked area is detected the search area box switches from blue to red and the search stops. Time and date can be seen in the viewer. By clicking on the icon again, the search continues.

By clicking on the icon, the search direction is changed to real time.

Automatic Search

If you want to perform an automatic search of all motion within an area, then use **Background MOS**.

Background MOS

With using **Background MOS** all detected motions during a search are entered into a**cut list**. A new cut list is created for every background search.

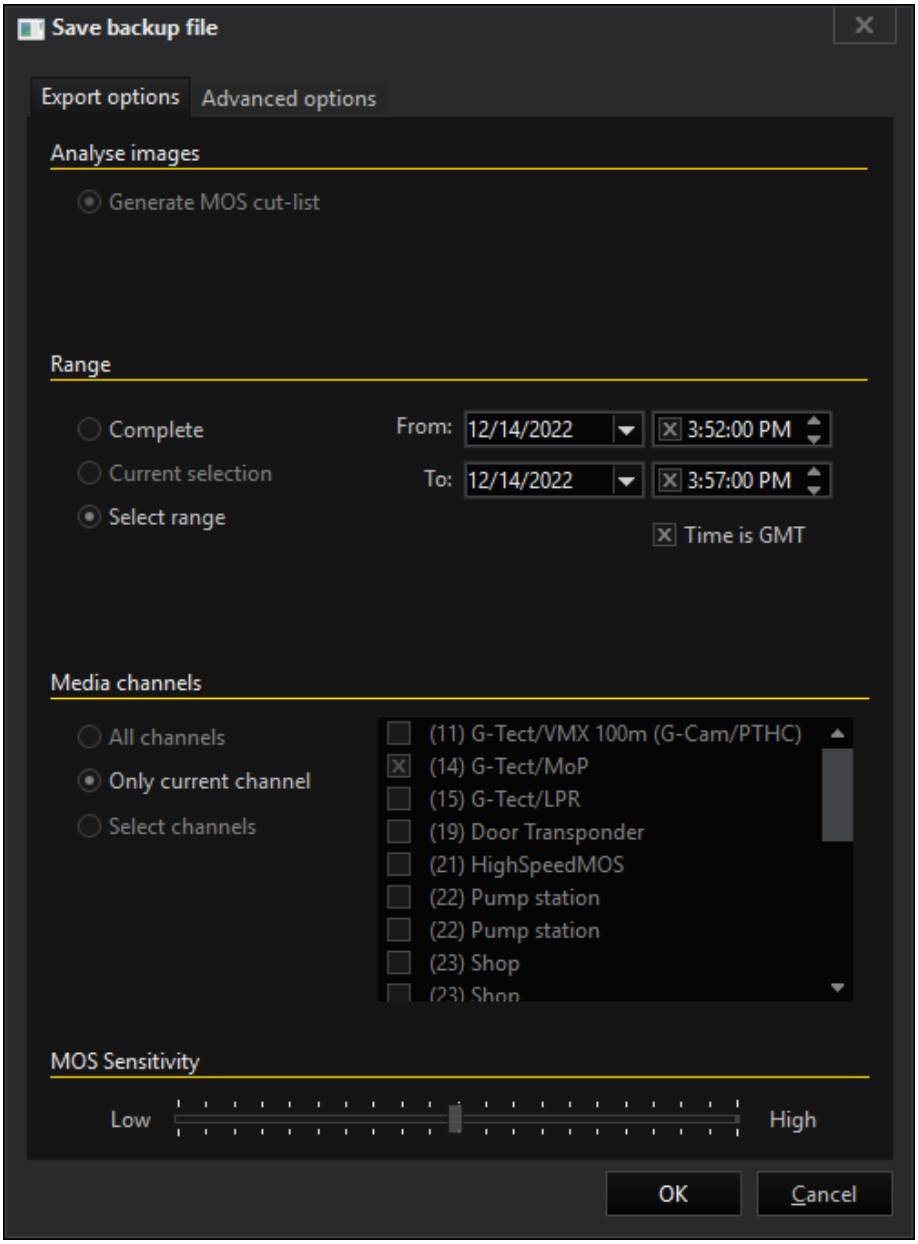
Background MOS is started with the command **Background MOS** in the **Edit** menu.

Export Options

Enter date, time period and media channel for the selected search.

Use the slider to specify the sensitivity of the MOS background search. When the controller is moved to **Low**, reoccurring, irrelevant messages can be suppressed.

Then open **Advanced Options** or click on **OK** to start the search.



Advanced Options

The previously drawn rectangle of the viewer is used for the Background MOS. If no rectangle has been defined, the entire viewing area is used. Background MOS is performed for the specified period of time.

Additional options:

Option	Description
Min. motion duration [ms]	This is where you specify how long a motion must last in order to be detected as a motion.
Add time before motion [ms]	If a motion was detected, the time interval can be increased forwards and backwards.
Add time after motion [ms]	
Merge overlapped entries	If two successive motions overlap, they can be combined into a single entry.

Sometimes more information about the detected motions is needed. For instance, you have detected a motion by a person in a workshop. You would now like to know, where the person came from and where the person went (corridor cameras).
Mark the relevant entry in the cut list (multiple marking is possible) and drag the relevant media channels to the marking. The media channels are added to the MOS entry for the same period of time.

Export

Videos and images of media channels can be exported in a few ways and formats. While entire videos can be exported as backup files, individual images of a media channel can also be exported.

More about creating backup files can be found at **Export Backup**.

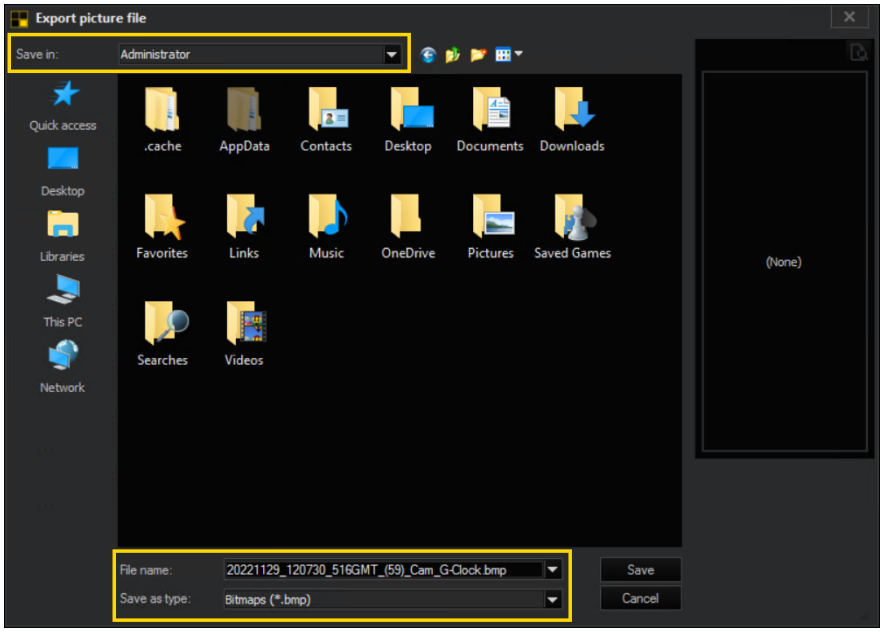
How to export single images you can learn at **Export Images**.

Export Images

In G-View there are three options for exporting images:

Saving an image as BMP, JPEG, or RAW

To save an image from a Viewer as BMP, JPEG or in RAW format, in the menu **File** click on **Export picture as...** or right-click on the viewer you want to export an image from, then in the context menu click **Export** and then click **Export picture as...**. The following dialogue opens:



Select a file in where you want to save the image.

The format can be selected under **Save as type**. Available are:

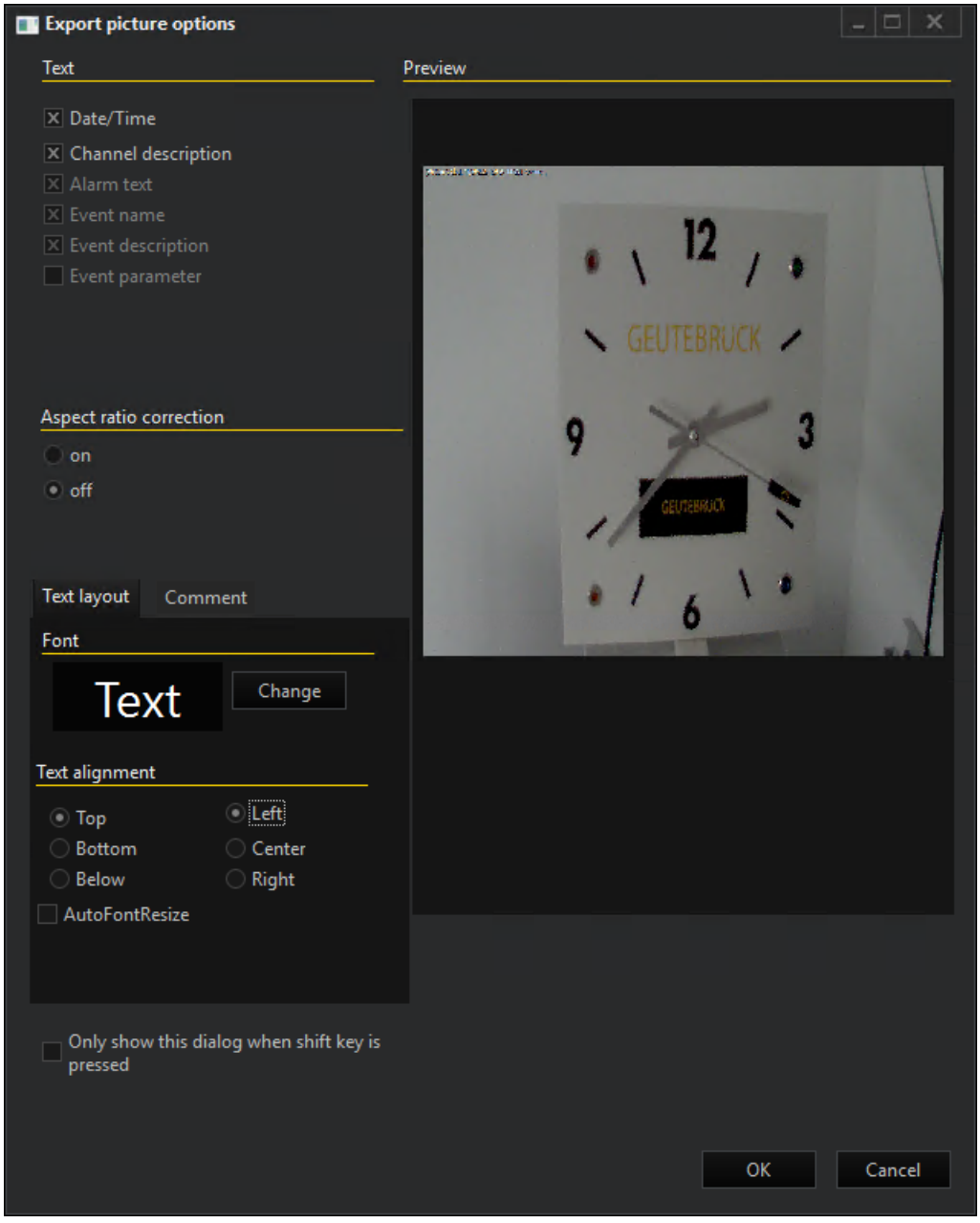
- BMP
- JPEG (low, medium or high quality)
- RAW

RAW

If RAW format is selected, the image is saved in a file, unchanged. For viewer displays under the JPEG function packet and for IP cameras, a JPEG file is easily created.

BMP and JPEG

For BMP and JPEG formats, the **Export picture options** dialogue is opened now:



In this dialog, texts describing e.g. the camera channel or the date and time of the image can be inserted into the image. All settings can be verified immediately via a simple preview on the right. When you are done, confirm your choice by clicking on **OK**.

Available for adding are:

Text	
Date/time	Date and time of the saved pictures.
Channel description	Naming of the channel
Alarm text	Alarm text (where applicable)
Event name	Event names (where applicable)
Event description	Event description (where applicable)
Event parameter	Event parameter (where applicable)

Text Layout

The font and font-size are determined with a click on **Change**. For text alignment the following options are available:

Text alignment		
Top	Left	Defines where the text and **Image Watermark** (if added) will appear
Bottom	Center	
Below	Right	

Comment

To add an individual comment to the text on the image, write it in the text field under **Comment**. The comment will be added to the text.

Other

If the option **Only show this dialog when Shift key is down** has been set, then the **Export picture options** dialog will be skipped on the next export and the last selected options will be used. The dialogue is only shown again if the shift key is held down on calling up **Export**, or when the menu option **View** -> **Export** -> **Show Export options** is chosen again.

Printing an image

The printing of an image can be managed via the menu **File** -> **Print picture ...** or via the viewer context menu **Export** -> **Print picture ...**.

The **Export picture options** dialog will open. In this dialog, texts describing e.g. the camera channel or the date and time of the image can be inserted into the image. All settings can be verified immediately via a simple preview on the right. When you are done, confirm your choice by clicking on **OK**.

The settings are saved and are preset for the next export.

If the option **Only show this dialog when Shift key is down** has been set, then this dialog is skipped and the last chosen options are used the next time printing an image.

The dialogue is only shown again if the shift key is held down on calling up **Export**, or when the menu option **View** -> **Export** -> **Show Export options** is chosen again.

Opening the option dialogue can also be suppressed if the user chooses the right-click menu **Export** -> **Show Print Options**.

Edit Page

With **Edit page**, the page can be edited before printing.

Here, texts can be added or cleared. In addition, the font, the font size, color and alignment can be changed. Additional pictures can also be added.

On leaving the editor, after an inquiry the changes are applied.

Copying to the clipboard

You can also copy the viewer image for editing, for example, via the menu **File** -> **Snapshot to clipboard**, or via the viewer context menu **Export** -> **Snapshot to clipboard**.

The image is then copied to the clipboard without adding any text and can be saved in other applications as a bitmap from there.

If the shift key is pressed in during the menu selection, the operations dialog **Export pictures options** opens. The settings are similar those in **BMP and JPEG**

Export Privacy

Using Export Privacy allows the user to mask areas of the image after exporting it.

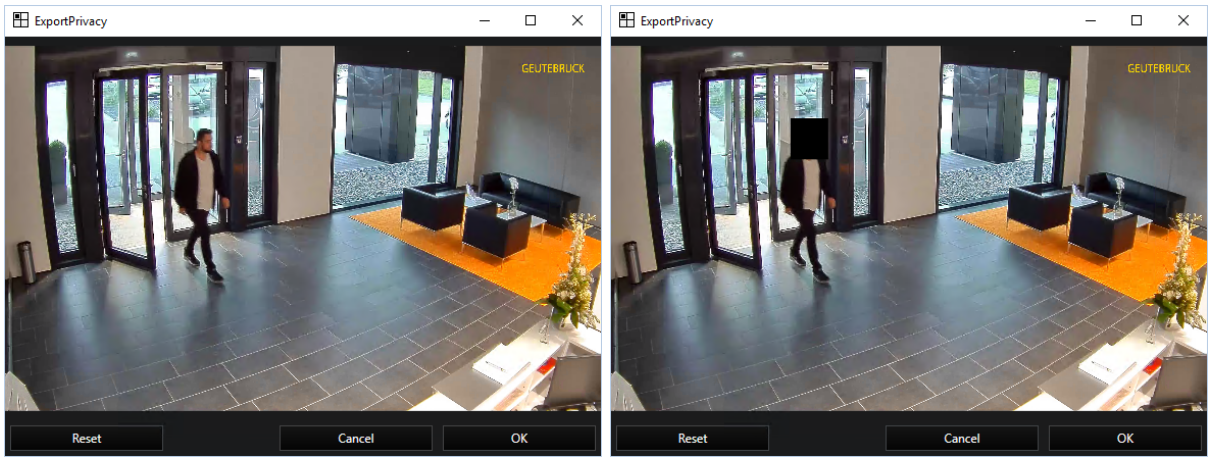
Installation

Export Privacy needs to be installed during the initial G-Core installation. Otherwise it can be installed doing a **Reinstallation** by adding Export Privacy during the installation process.

Functionality

Export Privacy can be called manually by opening the `ExportPrivacy.exe` or it can be called automatically in G-View as a part of the image exporting process. For both options the `ExportPrivacy.exe` application needs to be in the same directory as G-View.

To manually use Export Privacy open a exported image with Export Privacy. The interface of Export Privacy with the exported image will open. Holding down the left mouse button creates a mask that can be used to black out parts of the image. The number of masks that can be applied is unlimited.



By clicking **Reset**, all masks are removed.
When all desired areas are masked, the image can be saved by clicking **OK**. The application closes.

Call Export Privacy automatically

If Export Privacy is opened as part of the export process can be set for each user profile in the Profile Manager. Open the Profile Manager clicking **Options -> Profile manager...**. Under **Options profile -> Export** select a user profile and mark the option **Use Export Privacy**.

Remember to save your settings before closing the Profile Manager

Now, for the selected user Export Privacy opens at the end of the exporting process.

Call control via Registry Keys

Alternatively, another image editing application such as paint can be opened automatically in place of Export Privacy application using the registry keys. For this option the Use Export Privacy option in the Profile Manager needs to activated as described before.

> **IMPORTANT:** Changes to the registry keys may only be performed by qualified personnel who are familiar with the registry.
> If you are not familiar with the registry, under no circumstances should you make any changes to it.
> Any change in the registry is performed at your own risk!

For this open the registry editor and add a new registry key named **ExportPrivacyAppPath** in the directory `\SOFTWARE\Geutebrueck\Gng\GNGView` with the path of the application you want to open instead of Export Privacy.

> **An entry under HKEY_CURRENT_USER overwrites an entry under HKEY_LOCAL_MACHINE. This allows a program call to be explicitly suppressed or forced for certain users. Environment variables are supported. If a non-existent path is entered, no program is called.**

Example In this example, a new registry key has been created in the `Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Geutebrueck\Gng\GNGView` directory, with which MS Paint is to be opened automatically instead of Export Privacy.

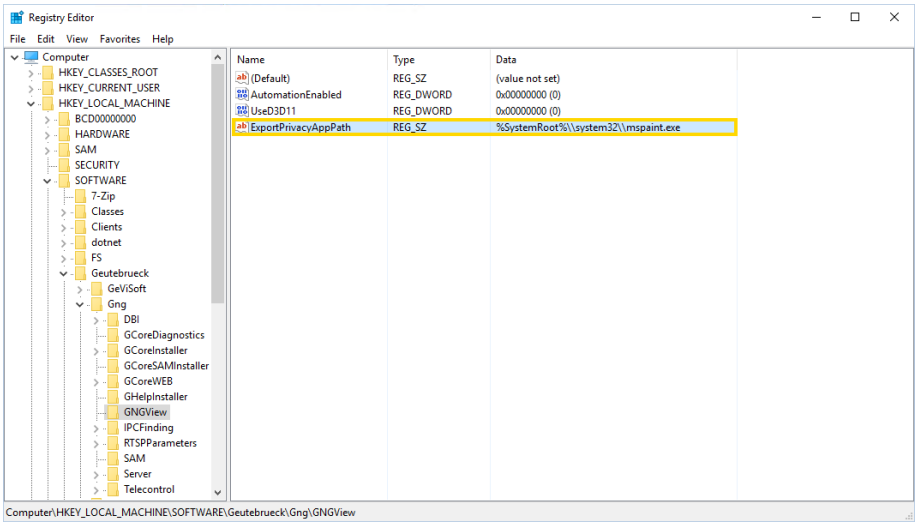


Image Watermark

In G-View you have the option to add a watermark to an image when exporting it.

Add Image Watermark

1. The watermark you want to add must be saved as a bitmap file under the name "ExportLogoS" or "ExportLogoL".

   Preferably the image has a transparent background. Otherwise the logo will be cut out automatically.

2. Paste the watermark into the folder `C:\Program Files\Geutebrueck-\GCore` under the name ExportLogoS or ExportLogoL. You may need admin rights to do this.

3. Finally, you need to restart G-View. After that all images you export from now on will be watermarked. How to export images can be found in chapter **Export Images**.

During the exporting process you can change the position of the watermark in settings menu Export Picture Options under Text Layout -> Text alignment. By default, the watermark is at the upper right edge of the image.

Example In this example, the Geutebrück logo was added as a watermark to an image in the upper left corner.

Export Backup

To create a backup of your recordings select the viewer that displays the media channel that you want to back up. Right clicking on the selected viewer opens the associated pop-up menu. Under **Export**, click **Save backup file** to open the backup dialog.

Export Options

Format Selection

The formats **GBF** (G-Core Backup File), **MP4** and **MPEG4CCTV / H.264 raw/ H.265 raw** are available for the export. Depending on the selection, different options are available in the tab **Advanced Options**. The tab **Export Options** is the same for all formats.

In addition, backup files can be exported directly to CD/DVD activating the **Directly write to CD/DVD** button. More information can be found **here**.

Range

Three options are available for selecting the range to be exported:

Option	Description
Complete	Selects all saved pictures of the selected channel.

Option	Description
Current selection	If a selection has already been created, it can be selected here.
Select range	If no selection has been made, it can be specified here. To do so, the range must be defined using time and date.

Media channels

Under Media Channels you can select which media channels should be exported. Choose between **All channels**, **Only current channel** or **Selected channels**. For the latter, you can select the media channels from the field next to it.

Advanced Options

Depending on the selected file format, different options are available in the tab **Advanced Options**.

File Options

File Options sets: the size of the backup file and whether to split it if the playback media is smaller than the backup file. The following options are available:

Option	Description
No limitation	A very large file may be copied to the hard disk (in the next step), which would then not fit on a medium to be passed on.
4100 MB	Suitable for a DVD
640 MB	Suitable for a CD
Customized	The size can be freely selected in Mega Byte (MB).

If split file with max. file size is marked, the backup file will be split according to the set size.

In some special cases, the export files are split automatically:
- Only files up to a size of 4 GB can be written.
- For MPEG export with audio, the files can be up to 2 GB in size.
- When exporting a cut list, for the MPEG/VideoDVD export, for each switch between audio/not audio or vice versa, a new file is started.

Other options of the **Advanced options** tab vary according to format:

GBF Format

Under **Backup Options**, the bandwidth limit can be set and the file can be reduced with the **Shrink mode**.

By selecting the option **Include viewer in backup** the installation of various media players is activated and will be done with exporting the backup. Activate this option to guaranteed that on all machines from and after XP/Vista all backup files can be played. This includes especially the MP4 files, which can be played with VLC32.exe without installed codec! In addition an automatic playback can be activated marking the option **Create AutoRun information**.

In case of high security requirements, the backup can be encrypted with the selection of an encryption key of up to 128 characters. This is not just password protection, which could possibly be hacked quite easily, but a genuine full encryption of the file. If you want to open the saved file again, you must provide the key.

> ⚠ **IMPORTANT:** If you forget or loose the key, the file cannot be deciphered again.

Export Comment

The **Export Comment** option is only available for GBF format.

You also have the option of saving a comment together with the video sequences. This comment can later be displayed via **G-View** -> **File** -> **Show export information**.

Open the **Export comment** tab in order to save a comment.

MP4 Format

For MP4 format exports, the viewer is integrated into the export by default. This is important because due to licensing issues, Microsoft does not provide a suitable viewer, meaning it would otherwise be necessary to install additional programs for playback.

The following settings can be made:

Target resolution	
First image	The resolution of the first image determines the resolution of the backup file.

Target resolution	
Split	The resolution of the first image determines the resolution of the backup file. If the resolution changes in the selected time frame, for example due to an event recording with higher resolution, the backup file is split each time the resolution is changed.
UHD	UHD size
FullHD	FullHD size
HD	HD size
4CIF	4CIF size
CIF	CIF size

Optional text overlay	
Do not insert text	Text is not exported
Insert text (burn into image)	Test is “burnt” into image
Insert text as SRT embedded	Text is shown as subtitle
Insert text as separate SRT file	Text is inserted as separate subtitle file (SRT)

Click on the **Edit text settings** button to open a further dialog for setting the text insertion.

Enabling **AutoFontResize** adjusts the text according to the resolution of the images.

MPEG4CCTV / H.264 RAW / H.265 RAW Format

After selecting this format the only format specific options are options for inserting text. Available are:

Insert Text Options	
Do not export video text with RAW-format	Text is not exported
Non transcoded MP4 embedded text	Text is embedded
Non transcoded MP4 separate SRT	Test is exported as separate subtitle file (SRT)

Saving the Backup

Once all settings have been made, click **OK** to open the dialog to select the storage location. After clicking **Save**, the backup starts. The storage process is shown in a separate window and can be canceled prematurely by clicking on **Abort.**

Once the backup is complete, you receive a message that you can use to see the storage location and file names again. The file name is composed of the channel number, the channel name and the time and date of the selection. When you confirm the successful backup by clicking **OK**, the backup is complete.

After completion of the save operation, the backup file, together with the viewers and the auto start program are found at the specified location.

Backup to DVD

All formats created during the export can be written directly to CD or DVD when you activate the option **directly write to CD/DVD**:

- Backup files (gbf, mbf)
- Recoding MPEG export (mpg with/without audio, mp4)
- MPEG4CCTV (m2v)
- VideoDVD (with/without audio)

The DVD writer can always only be used by one export. As long as the writer is in use, no new export can be started with writing. Similarly, it is not possible to write using multiple writers in parallel.

The export and downstream processing are divided into separate steps, which are executed in parallel. At the start of the export operation, the writer is selected. It can also be the ISO writer.

This is followed by an export to an ISO file, which can be subsequently written.

The free storage space of the medium is queried at the start of the export. If an export is larger than a CD/DVD, the export will be automatically split into multiple media. They must then all have the same size.

During the write process, temporary files are generated that are approximately twice the size of the medium that will be written to. For this reason, for a full DVD (4.3 GB), you need at least 10 GB of free space on the hard drive that holds the system path for temporary files (%TEMP%). For a typical system setup, this is the C drive. If the C: partition is too small, in G-View an alternative folder on a different drive can be selected under Options -> Backup.

If no other drive is available, the size of the files that will be written is limited to roughly half the available hard disk space. As a result, more DVDs will be needed for the same amount of data.
This restriction also applies to the MPEG export with audio without burning, as temporary files are also generated for this process.

The files in the alternative folder for the temporary files are deleted before each write operation. For this reason it should only be used for the temporary files.

Cancel Export

The export can be canceled at any time. A prompt asks whether the write operation should also be canceled. The options here are:

Option	Description
Yes	Cancel everything
No	Complete the current write operation and delete pending jobs or
Cancel	Do not cancel and continue
Complete all pending write operations	(appears only if there are multiple pending jobs)

Status Window

In the status windows, the separate operations (creating the ISO file and the actual write operation) are visible individually. Both have their own status bar, indicating which medium you are currently on:

Once a write operation is completed, if applicable the user will be prompted to insert a new medium. Media is then only accepted that provides sufficient storage space. In addition, further writing can be aborted.

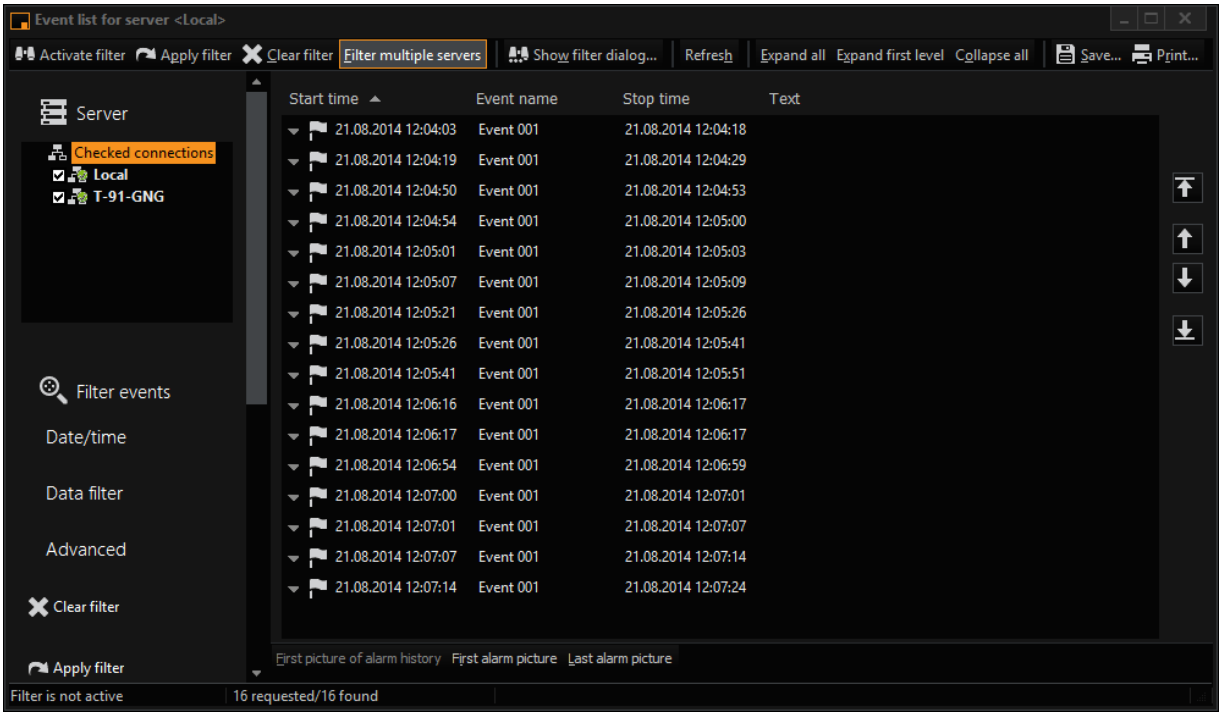
USB Memory Stick

Export to a UBS memory stick is canceled when it is full and the user is prompted to insert another memory stick.

Lists

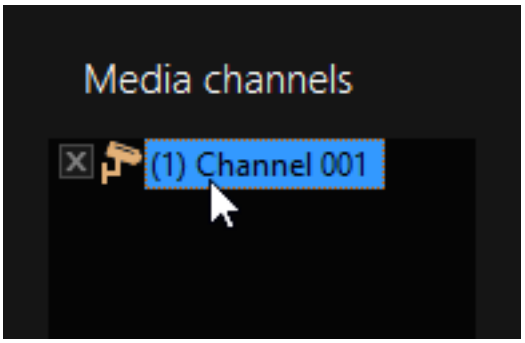
Event List

By clicking on the icon in the toolbar, the **Event List** opens. The list is opened in a separate window.



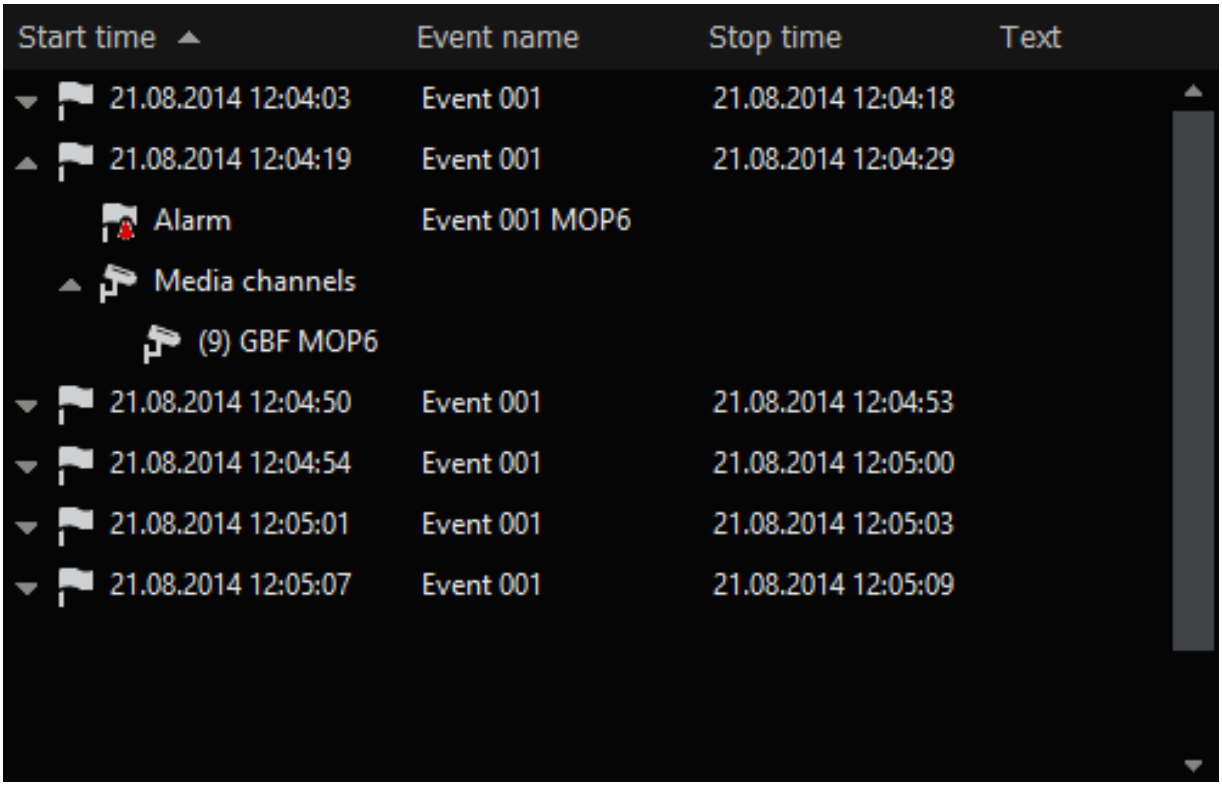
The server selection shows the server for which the events are displayed. When you click on another server, its events are displayed.

The media channel to be displayed is selected in the same way. If no events exist on a server or in a selected media channel, you receive a corresponding message.



Existing events are shown in great detail in the overview with time and date, event name, stop time and the configured text.

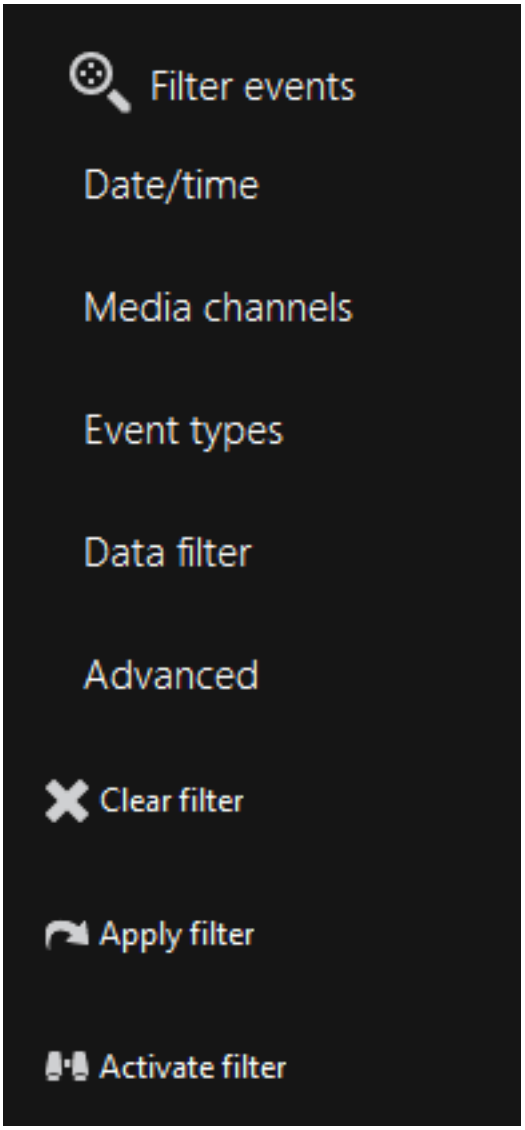
When you open an event, you are also shown all further information about the event.



The alarms are also shown in the list. They are indicated with a different symbol.

Filter Events

The event filter dialog offers a number of options of filtering the events list according to specific criteria in the search for certain events:



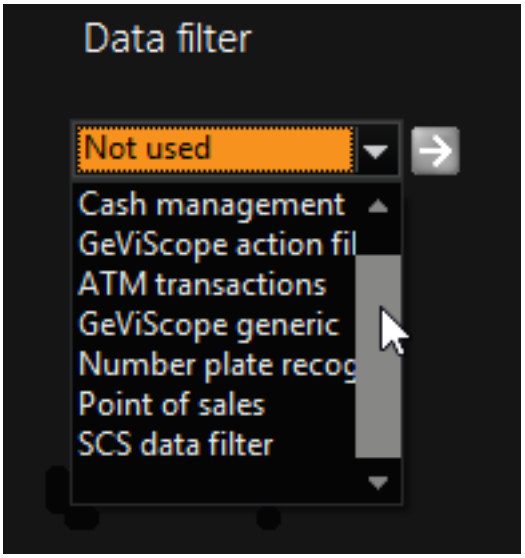
Option	Description
Date/time	Filter according to date and time
Media channels	Filter according to media channels

Option	Description
Event types	Filter according to event types
Data filter	Filter according to data types
Advanced	Opens the standard filter dialog
Clear Filter	Delete filter
Apply filter	Add a filter
Activate filter	Activate or de-activate a filter

It applies to all filters, that they are only activated if you have clicked on the **Activate filter** button.

Data Filter

The Data Filter allows very intensive filtering.



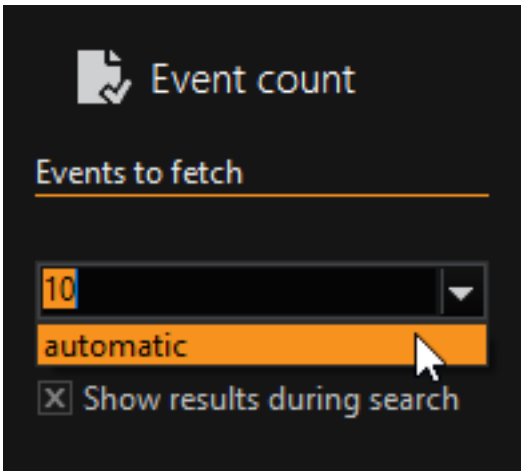
Filter	Description
Not used	The data filter is not being used
Cash management	Opens the dialog for cash management
G-Core action filter	Opens the dialog for actions

Filter	Description
ATM transactions	Opens a dialog for ATM search items
G-Core generic	GSC-specific items
Number plate recognition	Opens dialog for number plate recognition
Point of sales	Opens dialog for point of sales
SCS data filter [Supply Chain Security]	Opens the dialog for Supply Chain Security events

Advanced

The Filter dialog opens, which guides you through the search function (the search corresponds to the familiar search in G-View).

Event Count

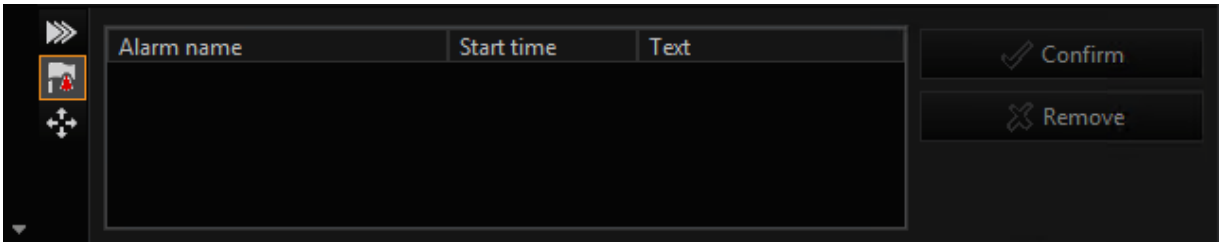


Specification of the number of displayed events allows you to access the data more quickly, in some cases speeding up the search significantly. By default the event count is set to **automatic**.

If we assume that your application was created using the SDK, and you can expect an exact number of events, then you should enter this number here. This will greatly speed up the process of finding specific events.

Alarm List

You open the alarm list by clicking the icon underneath the viewer. The empty list displays three columns.



When the system triggers an alarm, it is not just the alarm dialog that opens, but an entry is also made in the alarm list.

The alarm is displayed in the color appropriate to its priority, along with its start time and the configured alarm text. If no text has been configured, only the initiating event is listed. A configured alarm description appears in front of the triggering event, while a triggered event text appears behind the triggering event.

Double clicking the alarm opens the relevant media channel in the standard view or in the defined alarm scene.

As long as you have not confirmed an alarm, you cannot switch to a media channel or change the scene.

You can select a listed alarm by clicking it, you can confirm it by clicking the **Confirm** button, or you can remove it from the list of by clicking **Remove**.

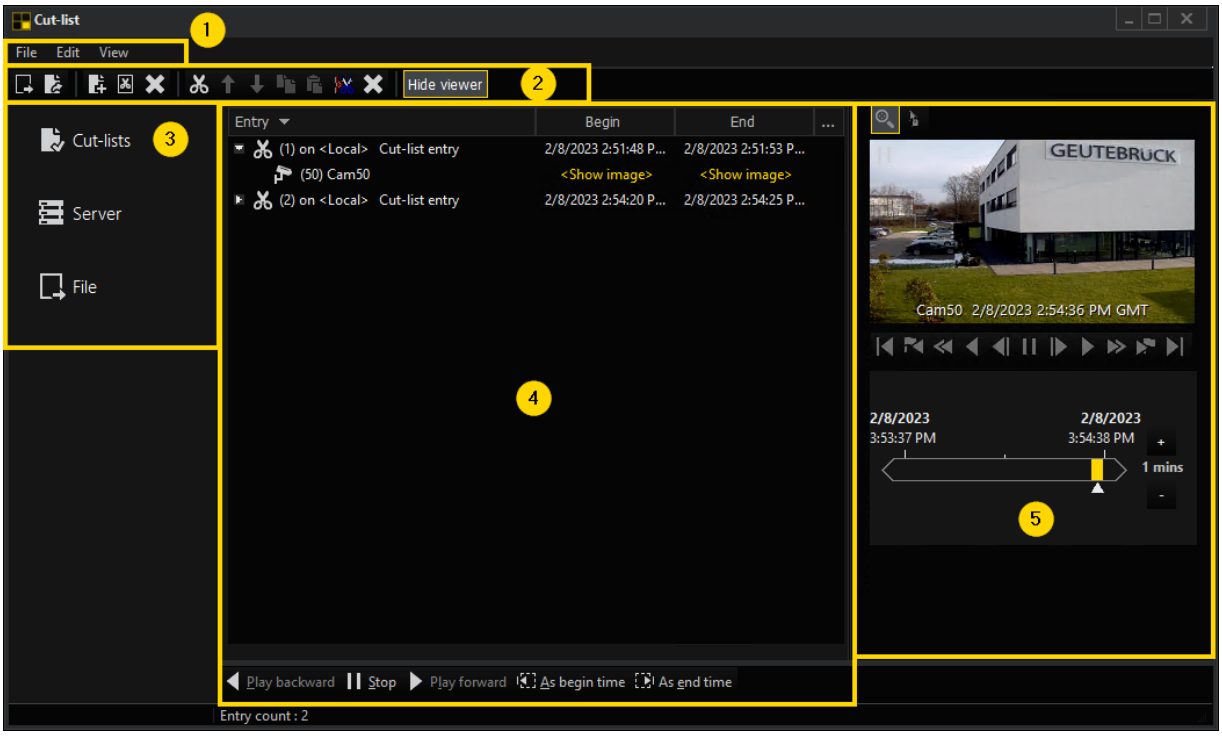
Cut List

The Cut list provides an easy way of creating sections from a database, to edit them, to display them and to export them.

There are various options for opening the Cut list dialog:

1. Clicking on the icon in the **Toolbar**.
2. Via a viewers **Context Menu**. Open the context menu right clicking on a viewer. Then select **Cut-List**.
3. Via the **Menu Bar** element **View->Cut-List**.

User Interface



The Cut list dialog comprises five parts:

1 Menu Bar

File

Icon	Description
	Export the Cut list as a gcl (G-Core cut list) or as a merged MPEG or video DVD
	Opening a gcl file. The associated files can be loaded into the entry via the drop-down menu

Edit

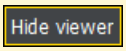
Icon	Description
Clear cut list	Clear the cut list.
Modify time span	Set new time span in seconds.

View

Under **View->Hide viewer** the viewer can be activated or deactivated.

2 Toolbar

Icon	Description
	Export the Cut list as a gcl (G-Core cut list) or as a merged MPEG or video DVD
	Opening a gcl file. The associated files can be loaded into the entry via the drop-down menu
	Create a new cut list
	Trace export
	Delete the entire cut list
	Create a new entry
	Move entry or camera up
	Move entry or camera down
	Copy an entry (multiple selection is possible)
	Paste a copied entry
	Merge entries (multiple selection is possible). Entries originating from the same server are merged, i.e. the earliest begin time and the latest end time is used to create a common camera list

Icon	Description
	Delete an entry or a camera (multiple selection is possible)
	Hide or show the panel with the current viewer. This setting also influences the display of the Cut list

3 Sidebar

The sidebar menu has got three elements: Cut list, Server and File.

Field	Description
Cut lists	All Cut lists, which are currently being edited, are shown in this field. The work list is always present and cannot be deleted. New entries are always added to the selected list. For Background MOS separate lists are created to which entries are added, irrespective of whether they are selected or not.
Server	A list of all connected servers and their cameras. The cameras can be dragged onto individual entries and are then added there if the entry belongs to this server.
File	Import and export options are available here.

4 Cut list

The actual Cut list is situated in the center, structured as a table. There are four columns:

Column	Description
Entry	Shows the camera and the server. When the entry is opened, the associated media channel is displayed.
Begin	Date and start time of the entry
End	Date and end time of the entry
Comment	Comments on the entries can be made here

5 Viewer with Time Line

On the right hand side there is a viewer with a time line for displaying cameras and for navigating.

The two buttons (directly above the viewer) can be used to switch between Zoom mode and Drag mode.

Below the current viewer there are buttons for displaying the Cut list, for changing times of the entries or for closing the dialog.

Working with the Cut List

A cut list consists of individual entries with begin and end times and a camera list. Each entry has got a name and a comment.
The position of the entries in the list and the cameras can be moved, which has got an influence on the replay and the export.

An entry can only contain cameras of a single server. However, a Cut list can contain entries from different servers, which could be G-Cores, reporter or MultiScopes. Up to 10 Cut lists can be edited simultaneously.

Adding Entries

New entries which are created directly in the Cut list dialog always have the current time as begin time and an end time of 5 seconds later.

The first column of the entry contains the index and the name of the server. After that the name of the entry follows. The next two columns contain the begin time and the end time and the last column contains a comment.

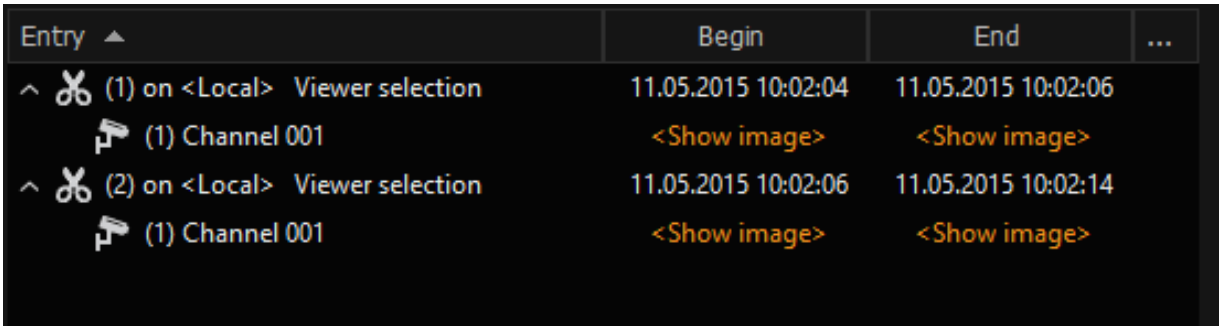
Entries can be added in a number of ways:

Option	Description
In the Edit menu	Click on New entry
In the Cut list	Right-click on the Cut list and select New entry in the drop-down menu.
By using the Server list	Drag a camera directly from the Server list into the Cut list. This creates a new entry with the current time of the viewer.
By using the current viewer	If the current viewer is in Drag mode, a camera can be dragged into the Cut list from this viewer.
By using the selection menu Tools -> Viewer selection	By clicking on the Cut list icon in the selection menu Tools-> Viewer selection, an entry with the begin and end time is created from the selection.
By using the Event list	Right-click on the event and then on Add to Cut list in the drop-down menu. The begin and end times and the camera list are taken over.

Editing Entries

All entries can be edited by means of a slow double-click or by pressing the F2 key. Camera names, however, cannot be edited.

The drop-down menu, which is opened with a right-click, can be used to switch between date and time.



By double-clicking on the entry <Show image>, the camera is either displayed in the current viewer or in the selected viewer of the main window.

Navigation is then possible in the current viewer and the displayed point in time for the selected Cut list entry can be specified with "As begin time" and "As end time".

Change Sequence

The sequence of entries can be changed. The selected entry can be moved up or down with the arrows on the toolbar or by means of dragging with the mouse.

The sequence of cameras of a Cut list entry can be changed in the same way.

Merging Entries

Entries can also be merged. Either via the drop-down menu, the toolbar or by dragging with the mouse.

Merging is only possible if all entries originate from the same server. The earliest begin time and the latest end time is taken and the camera list contains all cameras and all entries.

Duplicating Entries

Entries can be duplicated or transferred to other Cut lists by means of copy and paste.

Furthermore entries can be deleted or entire lists can be cleared.

The Cut list can be replayed as a whole, by clicking on the Play forward button or Play backward button.

If the current viewer is displayed, all cameras are shown in succession. If the current viewer is not displayed, individual cuts are replayed in the main window.

If a cut contains multiple cameras, a scene which can display all cameras is automatically selected. Replay is then synchronized.

Import and Replay

A Cut list can be imported into the main window for replay and into the Cut list dialog for further editing.

If a gcl (Geutebrück Cut LIST) file is opened in the main window, a new entry for the Cut list and a list of all individual cuts is created in the directory tree. Replay of the Cut list can be started with a double-click on the entries. All cameras of a cut are replayed synchronously.

Replay mode can be changed via the toolbar (forward, reverse, fast, slow, individual picture).

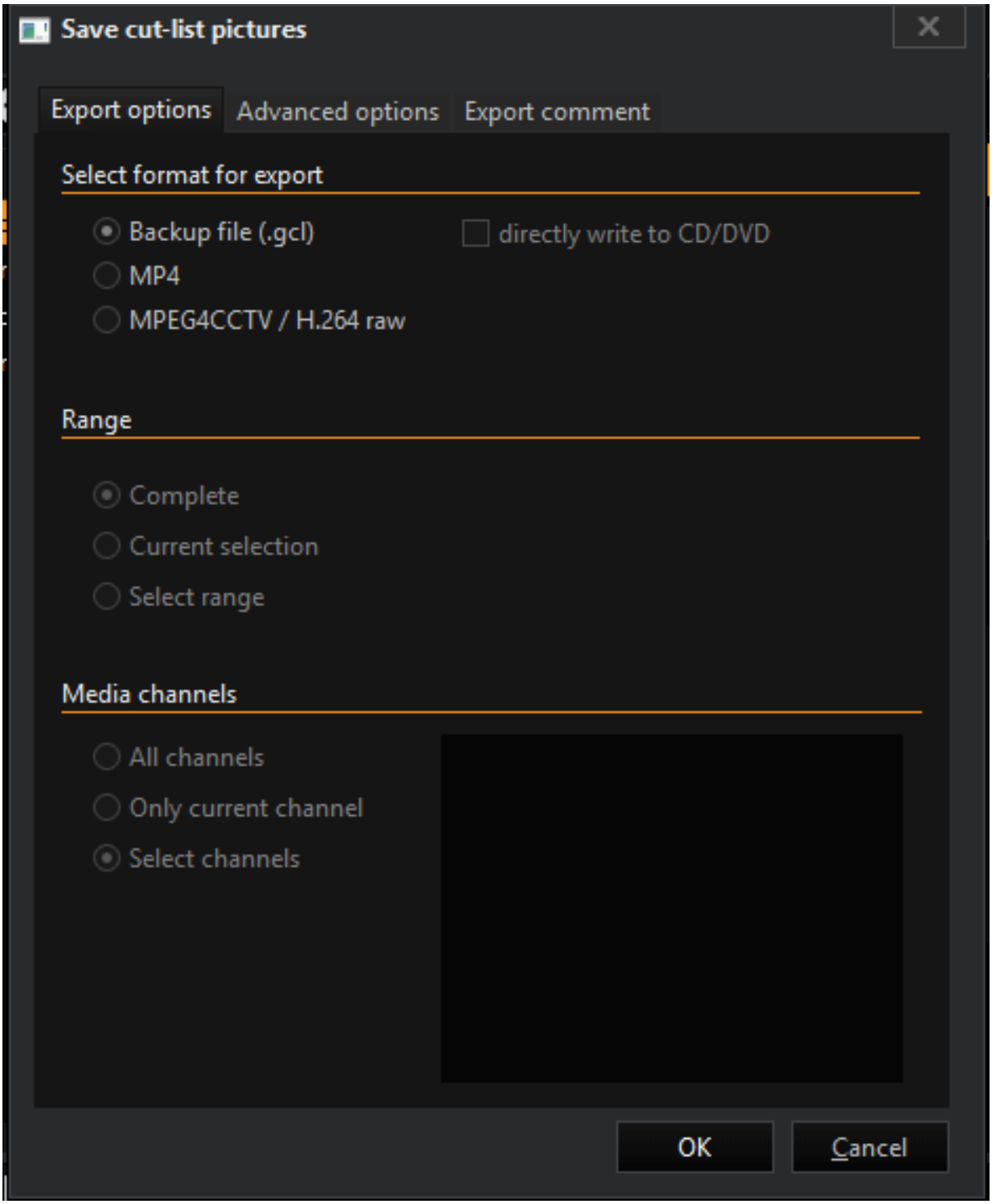
Associated backup files can be displayed via the drop-down menu of the Cut list entry. Contained cameras can be activated as for other export files.

If a Cut list is opened in the Cut list dialog, only the Cut list and the entries are displayed initially. If pictures are to be displayed, the associated backup files must be loaded. (Via the drop-down menu -> Load backup files). The Cut list can then be edited and expanded.

Export Options

The Cut list can be exported via the selection menu File - Export images.

Export Dialog



The dialog starts with a query about the way in which the Cut list is to be exported.
The following two formats are available for exporting:

Format	Description
MPEG	For a MPEG export all entries and all cameras are exported sequentially as a film. The sequence of entries and cameras can therefore be changed. Text masking can be activated. The name and comment of an entry can be masked in addition to the MPEG export.
CutList (gcl)	A backup file and an additional description file (gcl) are created for each involved server in case of an export as a gcl file. Export files can be opened via the gcl file, either individually or as a Cut list.

Export as a raw MPEG is not possible, however, a video DVD can be burned directly.

Advanced Options

Advanced options can be used to:

- set maximum file size and possibly file splitting as file options,
- set bandwidth, encryption and the option of adding a viewer to the backup, as backup options.

Export Comment

Some comments regarding the export, content, etc. can be made on the Export tab.

Profile Manager

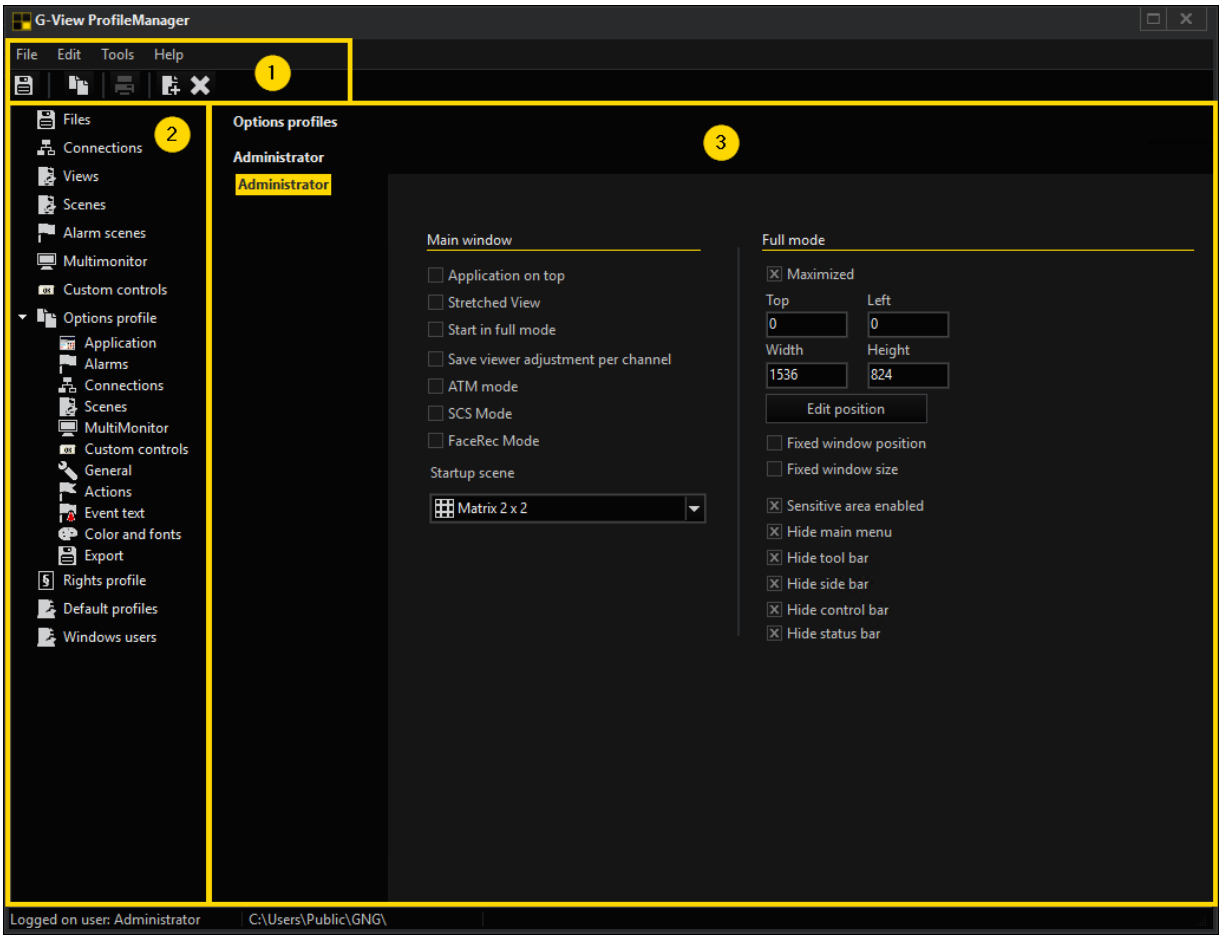
The profile manager is the most important setting tool for G-View. It can be opened in the G-View user interface under the menu bar element **Options** by clicking on **Profile manager**.

The profile manager always opens with the settings that apply to the registered Windows user. By default this is the profile of the administrator.

The profile can be edited directly. Changes must be saved using the save button.

User Interface

As in all of G-Core's program modules, the G-View Profile Manger displays the **Menu Bar** and **Toolbar** in the upper part of the window 1 and the **Sidebar** menus on the left-hand side 2, while the largest area is reserved for the **Settings** 3.



Menu Bar

The menu bar consists of the elements **File**, **Edit**, **Tools** and **Help**.

File

Icon	Description	Function
	Save	Save settings
	Export connections...	Exports the connections in a file that can be loaded to this or another GSC via the following function
	Import connections...	See above
	Export setup...	Exports the G-View settings in one file, that can be loaded onto this or another GSC via the following function
	Import setup...	See above
	Close	Closes the profile manager

Edit

Icon	Description
	Clone (Ctrl+C)
	Print
	Rename (F2)
	Add
	Delete

Tools

Options

Starting with version 5.1.8xx, registry keys for the local computer can be set in the profile manager.

However, this applies only if G-View was started with advanced administrator rights and it has full write access to the registry.

The entries are made under HKLM; they apply for all Windows users on this computer.

The dialog can be found on the menu in the Profile Manager Tools -> Options. Without advanced administrator rights, the menu item is disabled.

Two settings can be made:

- Specification of the setup files storage location
- Allow access to the local DVD burner.

Set the storage location for setup files

Normally the setup files are stored in the application data of all users (all users application data), since only administrators have write access there.

Under Windows 7, however, the rights were changed so that only the creator is allowed to write the setup files, even without advanced administrator rights.

To give other users without UAC request write access to the files, it is now possible to store the setup files in an alternative location, in a public folder.

When the storage location is changed, the current settings are preserved. Any existing old files in the new location will be stored as backup files.

If the path for the setup file is already overwritten by a set registry key that is not the public folder, the function is disabled. It is then assumed that the desired location is already set and should no longer be changed.

The logged on user and the storage location of the setup files are visible in the status bar of the profile manager. In addition, the path is displayed in the G-View Info Dialog.

Access to the local DVD burner for Windows users with standard rights

Under Vista and Windows 7, Windows user with standard privileges cannot access the built-in G-View CD/DVD burning capabilities for the local disk burner.

This requires that the local security policy "Devices: Restrict CD-ROM access to locally logged-on user only" is enabled.

Setting the option "Allow burning for standard users" performs this function.

Link All Resources to New Profiles

When you create a new option profile and this entry is active, all settings (connections, scenes, views, etc.) of the **currently active** profile are added to the new option profile.

If the entry is not activated, a new, empty profile is generated without connections, scenes, etc.

The status of the corresponding entry can be found in the status bar.

The settings are saved in C:\Users\Admin\AppData\Roaming\G-Core in the file FomSettings.ini.

Don’t Dim Server Entries

In large networks, sometimes clients cannot be reached through the normal network via UDP. This will cause the servers to all be displayed as OFFLINE.

This can be changed using the **Do not dim server entries setting**: The server list is not dimmed.

Help

Icon	Description	Function
?	Help (F1)	Opens the Geutebrück Online Help

Toolbar

The toolbar icons change depending on which sidebar menu is selected. You can find the specified tool bars in each sidebar menu chapter.

Sidebar

The sidebar consists of different sidebar menus.

Sidebar menu	Description
Files	With the Files menu saved backup files can be added to a profile.
Connections	In the Connections menu server connections can be established and settings can be made.
Views	Under the menu Views viewer settings can be made.
Scenes	In the menu Scenes scenes settings can be made.
Alarm Scenes	In Alarm scenes settings of alarm scenes can be made.
Multimonitor	
Rights Profiles	
Default Profile	
Windows Users	

Settings

In the settings area all possible settings for the selected sidebar menu are displayed and can be customized.

Files

The Files menu allows you to add previously created backup files in gbf or mbf format to the profile and have them loaded when the profile is logged in. The cor-

responding backup files will then appear in the G-View sidebar menu **Backup files**. Like media channels, the backup files can be displayed and browsed in the viewer.

Backup files (GBF files) can be created in G-Core that are not compatible with the backup files created under MultiScope. However, G-Core can read both formats.

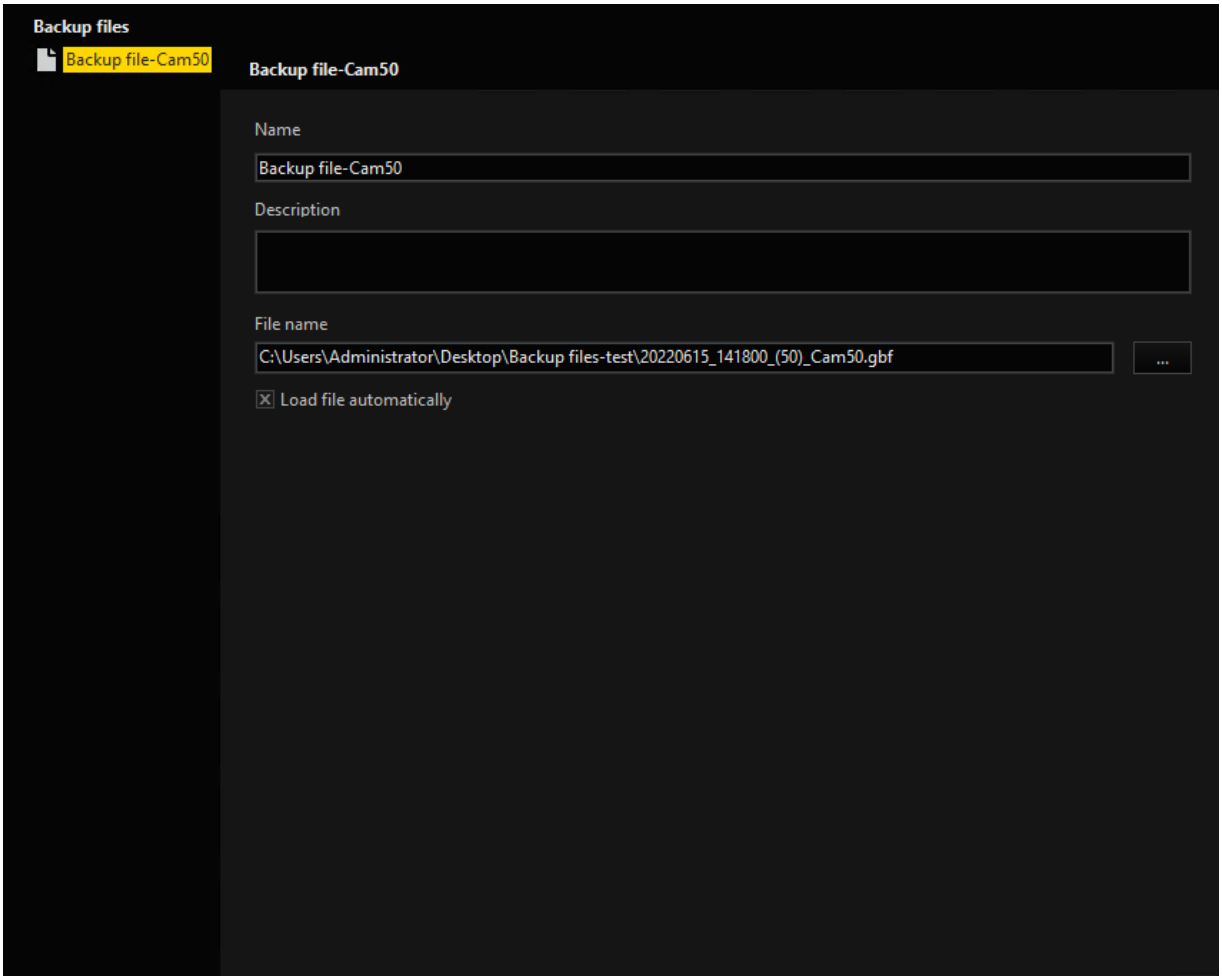
Toolbar

The toolbar of the files menu consists of the following elements:

Icon	Description
	Save settings
	Clone selected file connection
	Print
	Add new file connection
	Delete selected file connection
	Connect file
	Disconnect file

Load Backup File

To load a backup file create a new file connection using the toolbar button and select a backup file. Then fill in a name and if wanted a description. You can also search for backup files clicking on the ... button.



To be able to use the backup file the same way as a media channel, make sure you are connected to the backup file. Use the toolbar button to build a connection to the backup file or to check the **Load file automatically** box.

Backup file settings can only be made when the backup file is disconnected from G-View

Connections

In the connections menu connection settings can be made as well as new connections can be configured.

Toolbar

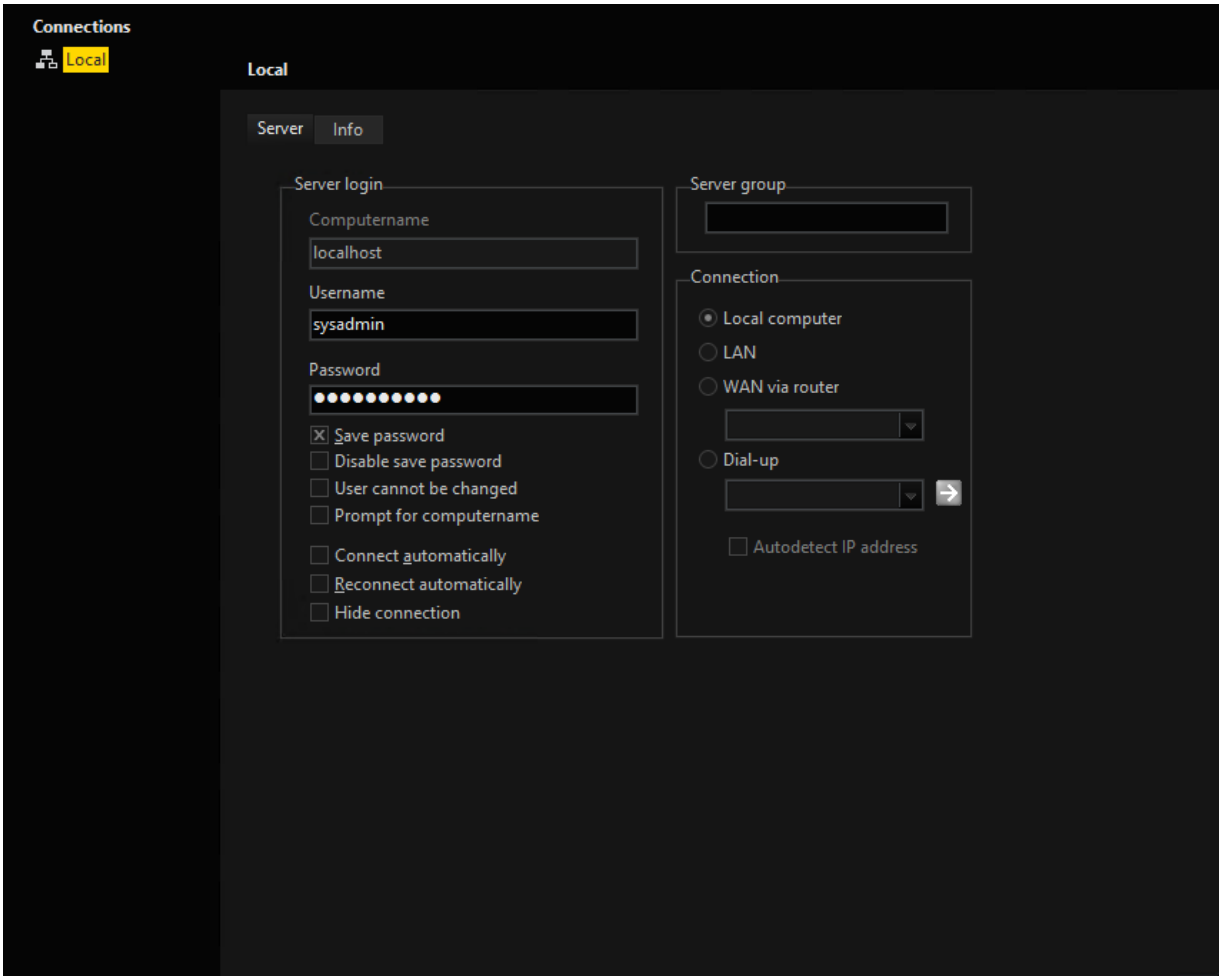
The toolbar of the connections menu consists of the following elements:

Icon	Description
	Save settings
	Clone selected connection
	Print
	Add a new connection
	Query servers available in the network
	Delete selected connection
	Connect server
	Disconnect server

Add New Server Connection

A new server connection can be created by using the toolbar button. In the connections list, a new connection is added and the cursor moves directly to the input field for the computer name.

Server settings can only be made when there is no existing connection to the server, to which changes are to be made



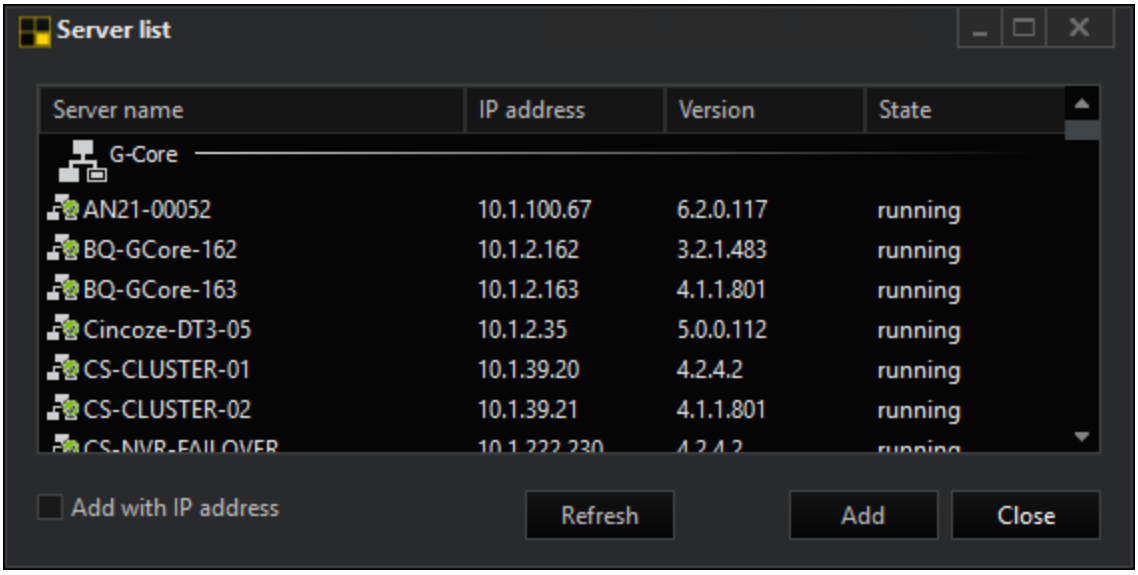
Enter a **computer name**, **user name**, and if you have checked the **Save password** box, also enter the password. If this box is not checked a log in is needed with every start of a server connection.

Select the **server group** and the type of connection. This could be local, LAN, WAN via router and Dial up. The **Dial-up** type connection is available for connections via modem/ISDN. Select the desired options for the connection by clicking on the option fields.

You can change the name of the connection by clicking the connection name you want to change and press the F2 key. Alternatively, right click on the connection and choose **Rename** from the pop up menu.

Server List

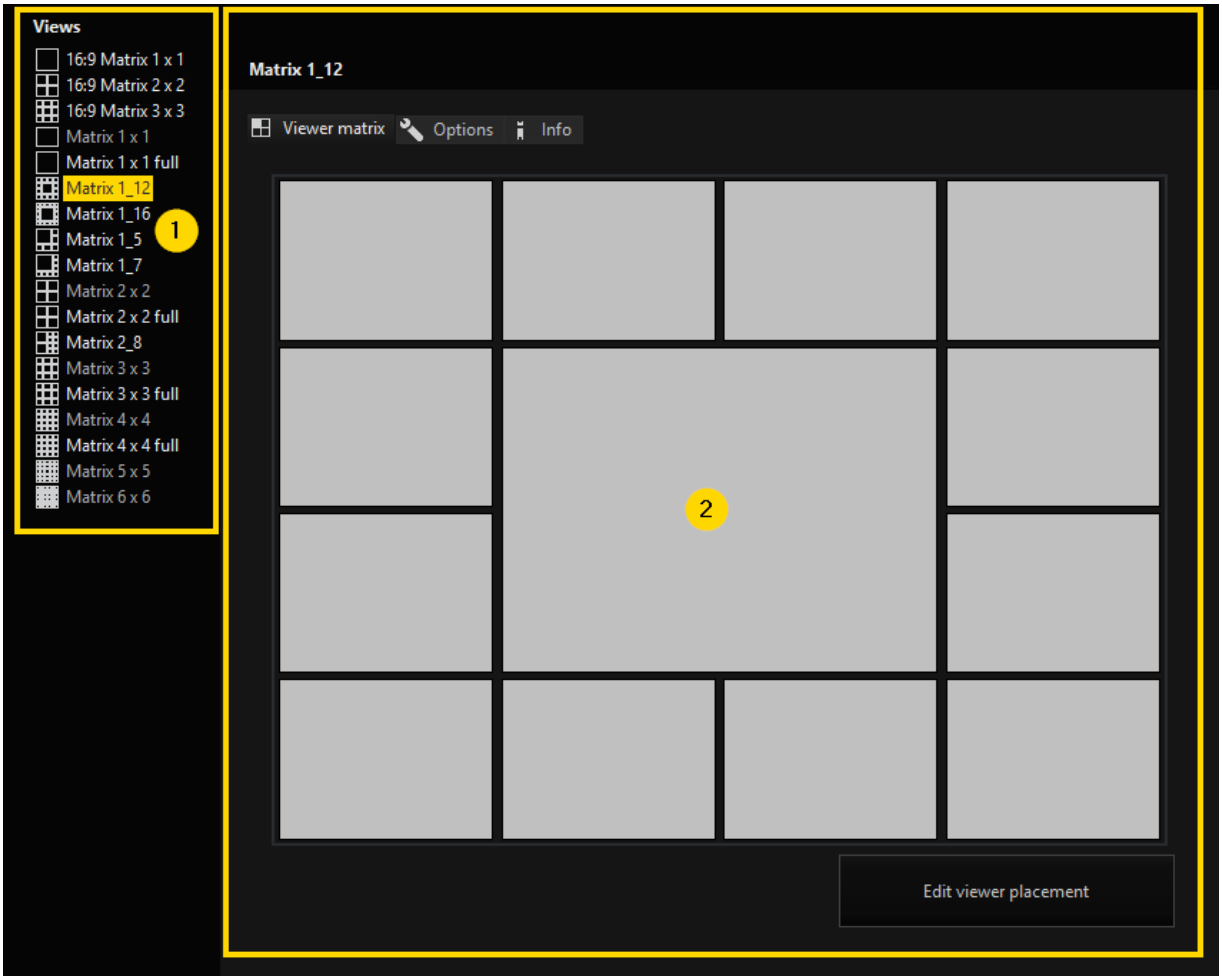
If you do not know the name of the computer you want to connect to, you can click the x button for search servers. A dialog is displayed with the servers found on the network.



Select the desired server and add it by clicking **Add**.

Views

In the **Views** menu you can create and configure views consisting of at least one viewer. The interface includes the **Toolbar**, a list of existing views 1 and a settings area 2 with a selection bar consisting of the tabs **Viewer matrix**, **Options** and **Info**.



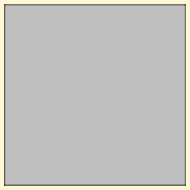
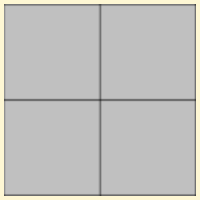
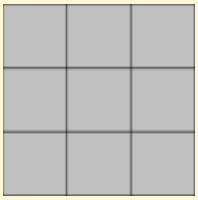
Toolbar

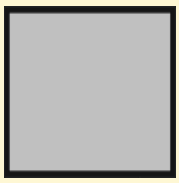
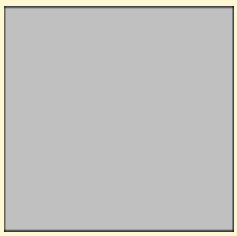
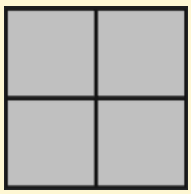
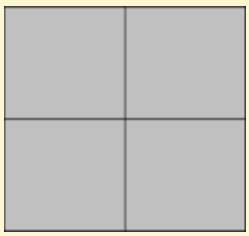
Icon	Description
	Save settings
	Copy selected view
	Print
	Add new view

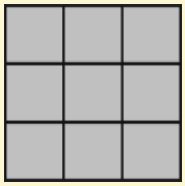
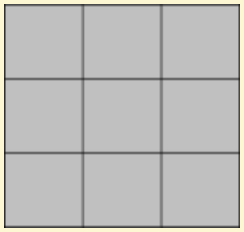
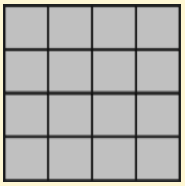
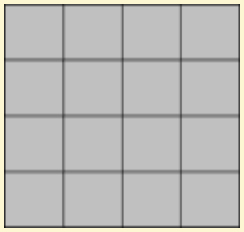
Icon	Description
	Delete selected view
	Export matrix to file
	Import matrix from file

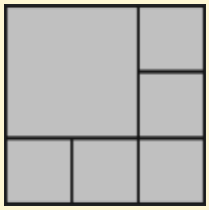
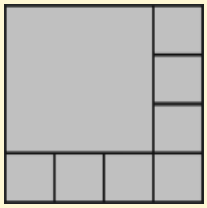
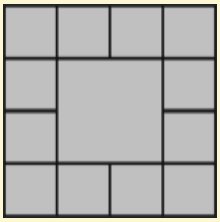
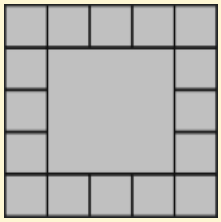
Default Views

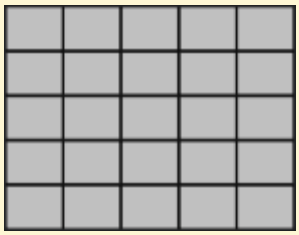
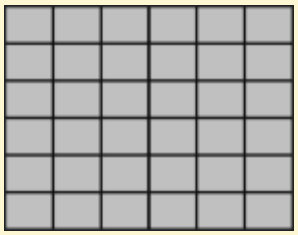
The following series of views is configured as a default. To add new views manually see **Create New Views**

16:9 Matrix 1x1	16:9 Matrix 2x2	16:9 Matrix 3x3
		

Matrix 1x1	Matrix 1x1 full	Matrix 2x2	Matrix 2x2 full
			

Matrix 3x3	Matrix 3x3 full	Matrix 4x4	Matrix 4x4 full
			

Matrix 1_5	Matrix 1_7	Matrix 1_12	Matrix 1_16
			

Matrix 5x5	Matrix 6x6
	

Create New Views

In addition to the default views, individual views can also be created.

Create a new views using the button or right click in the views list and select **Add**.

A new view named **New View (No.)** will be created and added to the **Views** list. The name can be changed by right clicking on the view and choosing **Rename**.

Edit Views

A view can be edited in the settings area 2. Select the view you want to edit and the specific settings area will open.

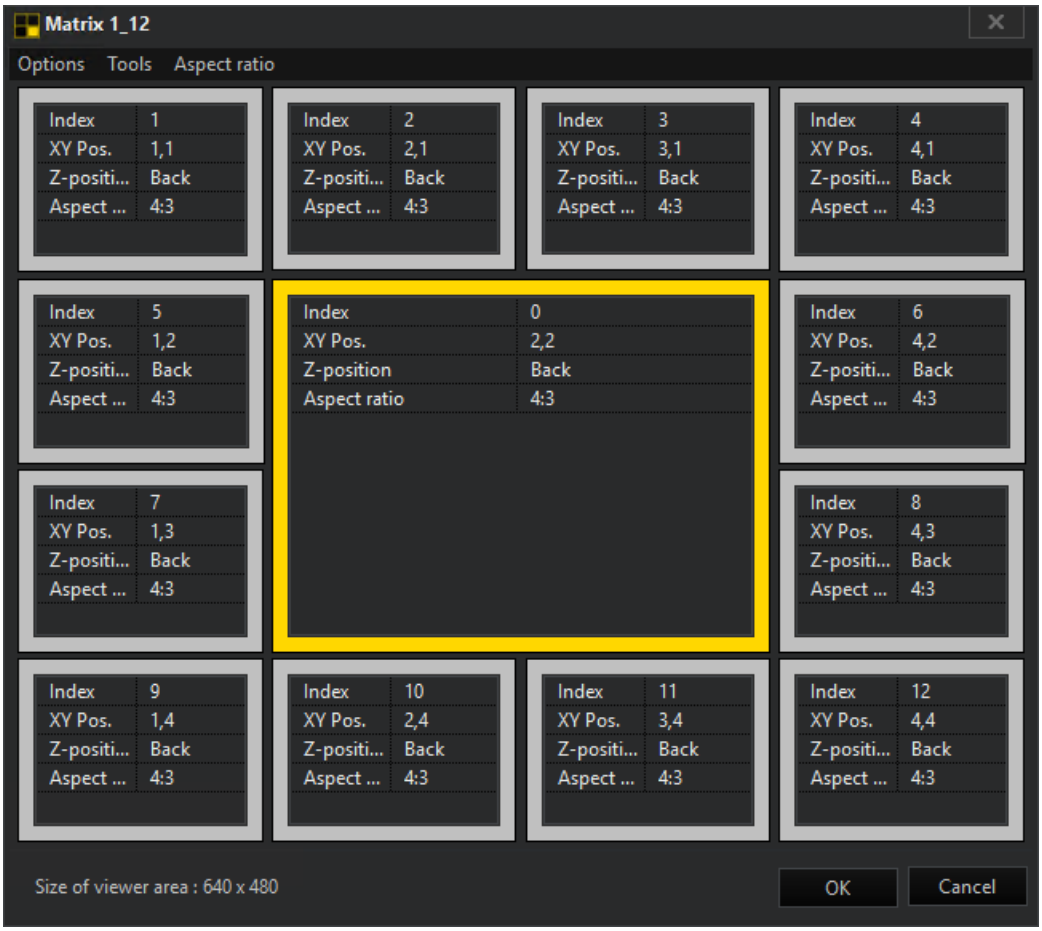
In the selection bar of the settings area you can choose between the setting tabs **Viewer matrix**, **Options** and **Info**.

Viewer Matrix

The **viewer matrix** setting tab shows a preview of the actual arrangement of viewers of the chosen view.

To edit the arrangement click on the **Edit viewer placement** button and a new window will open, in which you can edit the desired viewer and its placement. Each viewer can be assigned an index, a position and a format. The viewers position is specified via x, y and z coordinates.

Example



The context menu will help you edit individual desired viewers and their placement. Use a right click to open the context menu with the following edit options:

Context menu	Function
New viewer	A new viewer will be added
Copy viewer	Copies the selected viewer **This helps you to get viewers of the same size**
Delete viewer	Deletes the selected viewer
Combine selection	Combines the selected viewers to one viewer

Every viewer itself can be manually adjusted in size and position. Addtionally unnecessary viewers can be deleted or viewers can be combined.

For some functions viewer need to be selected. To select a viewer left click on it. All selected viewers will be framed in yellow.

In addition to creating and editing individual viewers, entire viewer matrices can also be created at once. To create a viewer matrix, clicking on **Tools** and then **Create matrix**. In the up coming window a matrix size can be defined by highlighting the shown squares yellow for every viewer that should be added.

Options

Appearance

Under **Appearance** you can hide the chosen view from users ticking the box of **Hide from users** as well as be able to add a background image to your view. For this tick the box of **Background image** and select a background image you want to add.

Execution

In **Execution** you can specify how to deal with viewers and connected media channels of a previous view in case of changing it into a new view. You can choose between the options to clear all viewers before applying the new view with it matrix or to take the media channels form the previous view matrix and apply them to the new view using the x, y coordinates that are defined in the view.

To activate one of these option tick the appropriate box next to the option.

Window

Under **Window** you can define a specified window where the view should be shown only. The default is **No restriction**.

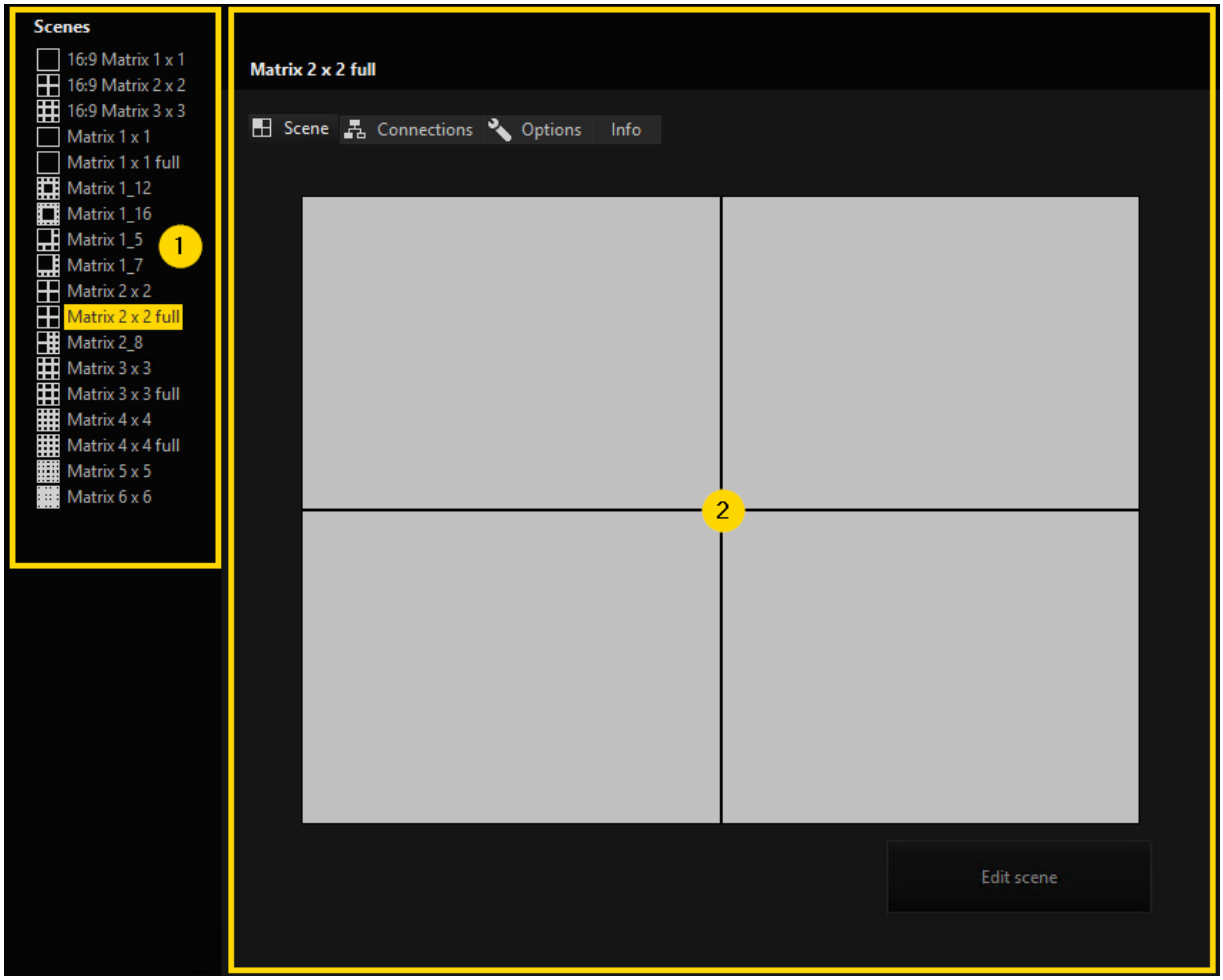
Info

In the **Info** setting tab a name and a description for the view can be set.
To save the changes use the button in the toolbar.

Scenes

Scenes are based on the available views. They supplement views with media channels.

In the **Scenes** menu a number of settings for each viewer can be configured (media channel assignment, playback mode, etc.). The interface includes the tool-bar, a list of available views and their scenes 1 and a settings area 2 with a selection bar consisting of the tabs **Scene**, **Connections**, **Options** and **Info**, with which scenes can be edited.



Toolbar

Icon	Description
	Save settings

Icon	Description
	Copy selected scene
	Print
	Add new scene
	Delete selected scene

Create a Scene

Select the view you want to create a new scene for. Then create a new scene using the button in the toolbar or select and right click a view in the list of available views and select **Add**. A new scene named **New scene(No.)** will be created and added to the selected view. The name can be changed by right clicking on the scene and choosing **Rename**.

Scene Settings

Scenes can be edited through settings that can be made in **Scene**, **Connections**, **Options** and **Info** of the selection bar in the settings area.

Scene

In **Scene** settings for each viewer, like media channel assignment, playback mode, etc. can be configured. Through the button **Edit scene** a new window opens, where these settings can be done.

Using drag and drop media channels can be assigned to viewers.

You can also assign the viewer media channels when you are not connected with a server. To do this, simply enter the global number of the media channel.

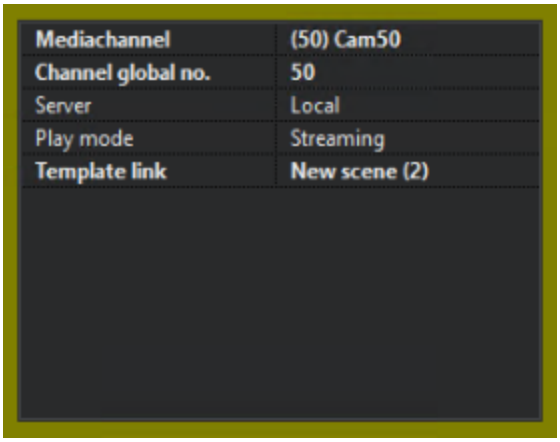
> **IMPORTANT:** If you are connected with multiple servers, and you have not coordinated the global numbers of the systems with one another, it is possible that the desired media channel does not appear, but rather the first channel found with the specified global number.

In the **Options** menu of the scene window are the four setting options: **Template linking**, **Synchronization**, **Global viewer number** and **Static Zoom**.

Template Linking

With activating Template linking different scenes can be connected.

In the scene window a new tab called templates appears. It displays a list of all views and scenes. By selecting a scene and dropping it to a viewer of the actual scene, you connect the scenes. The color of the viewer's border changes to green and an additional entry **Template link** appears.



Now, if the icon in the toolbar is activated, the scene can be switched to a different scene by double-clicking the viewer the new scene is linked to.

There is an additional option for linking: Select the Options tab in the profile manager. Under the Template Walker, enter the global number of a camera (e.g. 3) for the referenced viewer. Save the settings.

If in G-Viewer you then double-click on a viewer that displays the picture of a camera with the global number 3 (with template mode on), the scene is switched on.

Make sure that you have assigned the global numbers accordingly for the use of multiple servers. If you have not done this, then the setting will apply for every camera with the global number 3.

A template link can be deleted through the viewers context menu clicking **Clear template link**.

Synchronization

Sync mode: not synchronized, Sync master, Sync slave

Global Viewer Number

By activating Global Viewer Number you can set a global viewer numbers for your viewers.

Static Zoom

Information about Static Zoom in the chapter **Static Zoom**.

Connections

In Connections video server and backup file connections that will be established when applying the scene can be selected.

Options

The settings under points Appearance, Execution and Window are identical to those settings of the same name in views. More about the these settings under **Options** of views.

Info

In the Info setting tab a name and a description for the scene can be set.
To save all changes use the button in the toolbar.

Alarm Scenes

Alarm scenes switch on pictures in case of an alarm. You create alarm scenes, as described in the previous section for **Scenes**, by right clicking on the desired matrix. You can then determine which viewer will display the alarms when an incident occurs.

Toolbar

Icon	Description
	Save settings
	Copy selected alarm scene
	Print
	Add new alarm scene
	Delete selected alarm scene

Multimonitor

Multimonitor permits additional windows next to the main G-View window. Any of the types of window available under Windows can be used. The full-screen view simulates an analog monitor.

Toolbar

In the Multimonitor menu includes the following toolbar buttons:

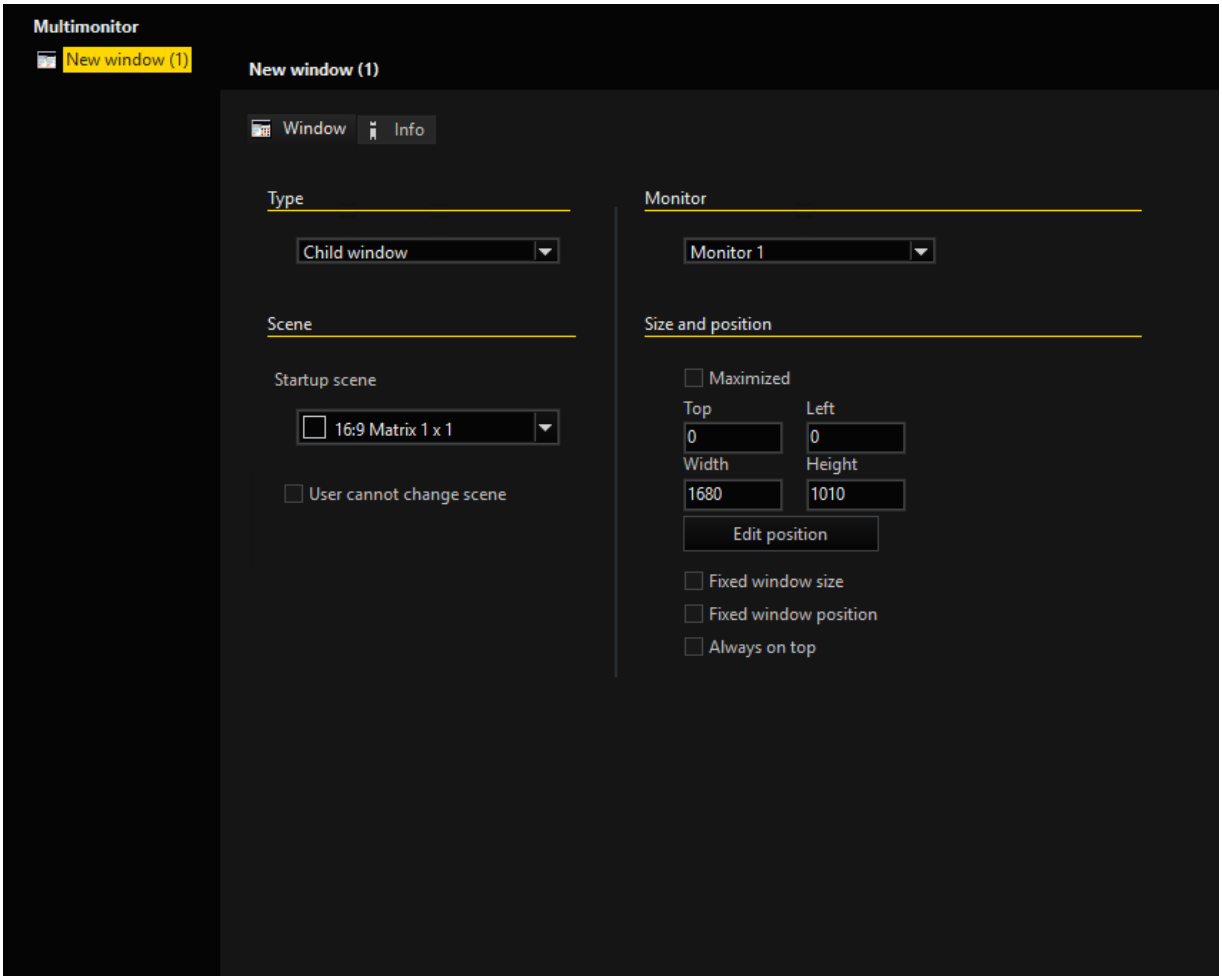
Icon	Description
	Save settings
	Copy selected window
	Print
	Add a new window
	Delete selected window

Create Multimonitor

Click with the right mouse button in the empty Multimonitor list, and then on Add or directly use the toolbar button to create a new window.

Configuration

Mark the window in the multimonitor list that should be configured and the following setting menu appears:



Type

Under **Type** you can select the type of the selected window. Choose between a **Full screen** or a **Child window**.

Leave a full scene window using the windows logo key on the keyboard.

Scene

In the **Scenes** part a Startup Scene for the window can be chosen. Additionally it can be defined if the user is allowed to change the scene independently. For that set a check mark at **User cannot change scene**.

Monitor

Under Monitor a connected Monitor on which the window will open can be configured.

Size and Position

If the type of the selected window is a child window you are able to set the size and position of the child window with these settings:

Setting	Description
Maximized	Maximizes the multimonitor window
Top / Left	Specifies the position of the window, in pixels, starting at top, left (0,0).
Width / Height	Specifies the size of the window, in pixels, as the width and height.
Fixed window size	The window size is fixed. It cannot be changed by the user.
Fixed window position	The window position is fixed. It cannot be moved by the user.
Always on top	Opens the window always on top

Click Edit position to get a preview of your taken size and position settings.

Activate / Deactivate

Multimonitors can be activated or deactivated per profile thru Options profile -> Multimonitor in the Profile manager. To activate a window for a profile mark a profile and select a window by placing a tick. Otherwise remove the tick.

Leave a full scene window using the windows logo key on the keyboard.

When a multimonitor window is active, you can divide it in a different way. Click with the right mouse button on, for instance, the 2x2 view on the toolbar, and then on the name of the multimonitor. The multimonitor window will change to the new appearance.

Custom Controls

For G-View, you can create your own buttons and control elements, which are then displayed below the viewer. Depending on which camera is active, the Custom Controls site is switched. You can enter the site that should be switched to in the setup for the media channels (see there).

A distinction is made between Custom Controls (the buttons) and PTZ dialogs. The buttons can always be switched manually, the PTZ templates only by the selection of a viewer, as they replace the Tele-control Dialog.
In the Profile Manager, various dialogs are created, which are then selected in the Options profile.

Compatibility: Older versions only recognize one Custom Button dialog, which can be selected by a combo box under Application. The new list of the dialogs will be saved under a different path, so that there is no interference. The new versions read both the old and the new location and compile the two together.

Toolbar

In the Profile Managers sidebar menu, click on **Custom controls**. The dialog for creating controls opens. In the menu bar you find the flowing buttons.

Icon	Description
	Save settings
	Copy selected control
	Print
	Add new custom control
	Delete selected custom control
	Restore to default template
	Export custom controls to file
	Import custom controls from file

Creation of Custom Controls

To create custom controls use the toolbar button. In the editor, new controls can now be created and positioned. Select the control and click on **Edit Controls**.

Edit Controls

The editor for the button menu appears. In the menu bar you find the flowing tools:

Icon	Description
	Add new custom control
	Clone custom control
	Delete custom control
	Edit custom control

Single-click the icon to open the selection for adding a new control element. Available are:

- Buttons
- Labels
- Joysticks
- Zoom control
- Focus control
- Present selector
- Present number set

Select an element and position it as desired. You can change the size of the control element by grabbing the edge of the graphics.

Double-clicking on a control or selecting the control and clicking the button opens the settings menu. Here you can specify the settings for the name of the control under **Caption**, the help text to be shown under **Hint** and the action to be performed under **Action**.

Action

You can specify how the action is started: By clicking and holding the left mouse button or releasing the control (or key combination).

Special treatment for the actions StartEvent() / StopEvent(): If the event type is not defined, the channel name is entered as event type. Thus, an attempt is made to start an event that has the same name as the channel.
In addition, with "Broadcast to all connected viewers", a unique Foreign Key is generated from the current time stamp, generated and assigned to all StartEvent() actions. Thus, across servers, the association of these events is specified and later a Foreign Key filter can be performed on the events.

Blocking filter

If you have created a blocking filter, you can switch it on and off with a button. The configurable colors indicate whether the filter is active or inactive.

If you select **Only display filter status** then the button color only shows the status of the blocking filter. No switching operations are performed.

If the option **Broadcast to all Connected Viewers** is checked, the button action is repeated for each connected viewer (a matrix). If the action contains a viewer parameter, the global monitor number of the viewer is patched in; if a channel parameter exists, the global number of the activated camera is patched in.

The settings of the destination server for the action (all, involved, dedicated) are evaluated as usual. Whether all the connected viewers or all viewers of the selected matrix are processed depends on the option **Viewer -> Sync only selected matrix**. When you double click on an already created control, the setting menu opens to be able to make changes to the settings.

Options

In the options dialog, the style (classic or XP button) and the following two options can be set:

Option	Description
Replaces telecontrol dialog	Here the behavior described above is selected: If the check box is set, the dialog will be activated only on selecting the right camera or viewer, otherwise the dialog is hidden. If the option is not set, the dialog appears as a separate tab on at the Custom buttons and can also be adjusted manually.
Use as default	If an empty viewer or a camera channel is selected for which no specified dialog is allocated, this default dialog is displayed. If more than one dialog is marked as default, the first dialog found is used. If no default dialog is selected, the display remains unchanged.

Options Profile

In fact you have already met the options profile when opening the profile manager. This represents, however, only the profile of the registered Windows user if you have the appropriate rights.

In the **Options profile**, however, you can provide advanced definitions of options profiles and assign them to users later. A new profile is created through a right click on the profile list and then by clicking **Add** or by using the toolbar button.

Application

Under **Application**, user-dependent views and windows of G-View can be configured.

Main Window

Settings	Description
Application on top	Use only on view stations without user interaction
Stretched View	Stretches the images of the viewers so that they are displayed as large as possible.
Start in full mode	Opens G-View with the settings defined under **Full mode**.
Save viewer adjustment per channel	

Settings	Description
ATM mode	Automated teller machine mode
SCS Mode	Supply Chain Security
FaceRec Mode	

Startup Scene specifies the scene that apply when the system first starts.

Full Mode

By activating **Maximized**, G-View is opened in a maximally large window. Alternatively the size of the window and its position on the screen can be specified.

Starting from the upper left edge of the screen, the position of the window can be specified manually using **Top** and **Left**. The width and height of the window can be specified using **Width** and **Height**. The button **Edit position** can be used to adjust the size and position of the window that opens as a result. With a click on **OK** the adjustments are saved and applied.

Alarms

Under **Alarm** settings for the presentation of alarms can be made. The settings for the alarm presentation are deactivated until the box of **Process server alarms** is ticked.

Presentation Mode

First you must choose a presentation mode. The following options are available:

- Present newest alarm
- Present newest alarm and confirm previous alarm
- Present newest alarm and remove previous alarm
- Keep presented alarm and queue newer ones

With **Max alarms in queue** you specify how many alarms will be shown maximally in the alarm message.

Alarm Priority Options

You will find the three known priority settings for alarms from G-Set under options: **Red alarm**, **Orange alarm** and **Yellow alarm** (in the sequence of high to low priority). You specify options for each of these alarm priorities.

Level selection

If you remove the alarm markings from the option fields of **Process alarms of levels**, you prevent the display of red, orange or yellow alarms.

Confirmation

Show notification dialog switches on a notification dialog when an alarm is raises and you have to decide whether to confirm or delete the alarm.

Presentation

Option	Description
Show alarm images	The alarm images are switched through to the viewer.
Bring to front on new alarm	G-View is brought to front in the case of an alarm.
Play sound on receiving new alarm	An acoustic signal is produced by playing a WAV file when an alarm is raised.
Clear viewer on remove alarm	
Restore prealarm state	

Queue management

Option	
Allow only one event instance	

Option	
Remove alarm after disconnect	
Save and restore on program start	

Remote Alarm Management

If the Remote control is activated by ticking the box Remote control under **Options Profile -> Actions -> Receive viewer actions**, the setting options are extended by the following options for Remote alarm management:

Option	Description
Send remote alarm management (RAM) notifications	An alarm notification is sent to the remote connection
RAM: Confirm local alarm on remote confirmation	Local alarms are also confirmed for remote confirmation
RAM: Remove local alarm on remote confirmation	Local alarms are deleted with remote confirmation

Alarm Sound

When alarm notifications occur alarm sounds can be played. For this purpose, a sound can be stored under **Play special sound for alarm notification**.

For occurring alarms in LiveMOS a sound can also be played. Store the sound under **Play special sound on LiveMOS**.

Connections

Possible video server and backup files connections are displayed under **Connections**. These can or can not be assigned to a profile by marking the connections check mark. With the selected profile only marked connections will be reachable in G-View.

Scenes

In **Scenes** you can select the scenes that are to be assigned to the different profiles. The standard views are only displayed when the selection field **Show standard matrix views** is marked.

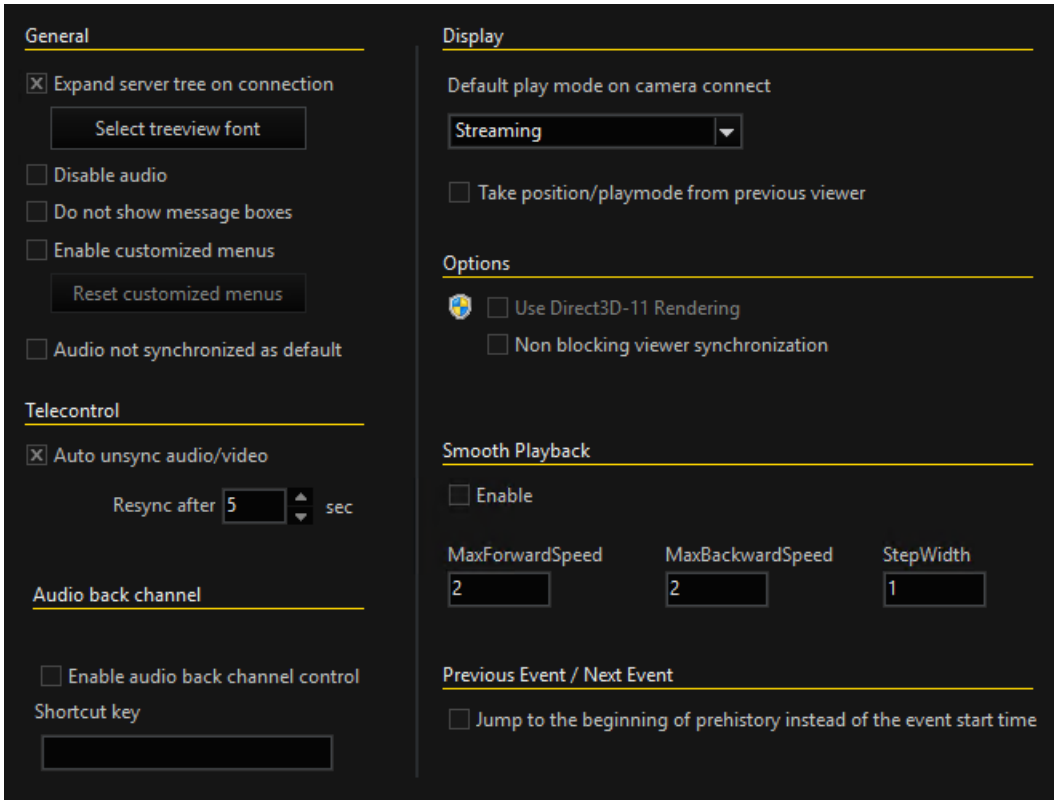
Mulitmonitor

Under **Multimonitor** available windows can be assigned to the different profiles.
To do so, select a profile and additionally mark all windows in the displayed window list that are to be used with this profile.

Custom controls

Under **Custom controls** specific custom control can be assigned to a profile. Select a profile and mark all custom controls that are to be used with this profile.

General



General

Settings	Description
Expand server tree on connection	If Expand server tree on connection is marked, then a server's media channels will be displayed immediately on the video server list when a connection to a server is established.*
Disable Audio	Switches Audio off
Enable customized menus	Enable customized menus
Audio not synchronized as default	Audio not synchronized as a default

* For many servers it is advisable to arrange for the display not to show the media channels, since otherwise the video server list can become very long and difficult to understand.

Telecontrol

With **Auto unsync Audio/Video** the audio and video of the viewer synchronizes automatically after a unsynchronization in a definable period of time.

Audio Back Channel

Settings	Description
Enable audio back channel control	Enable audio back channel control
Shortcut key	Determine keyboard command

Display

Settings	Description
Default play mode	You can choose here between streaming, the

Settings	Description
on camera connect	first image from the database, or the last image from the database.
Take position/playmode from previous viewer	Takes the position/playback mode from the previous viewer.

Options

Settings	Description
Use Direct3D-11 Rendering	Switching the renderer from DirectDraw to DirectX11. **The Direct3D-11 Rendering setting is active by default.**
Non blocking viewer synchronization	Switches to the date/time method for synchronized viewers during the search and thus enables a faster viewer response

Smooth Playback

With the help of Smooth Playback, database images can be played forward and backward by clicking on the Play button one or more times in a quick motion.

Settings	Description
Max. Forward Speed	setting for the maximum speed forward 1 stands for normal speed, 2 for twice as fast, 3 for three times as fast, etc.
Max. Backward Speed	setting for the maximum speed backward 1 stands for normal reverse speed, 2 for twice as fast, 3 for three times as fast, etc.
Step Width	integer increments (1,2,3, ...)

Example The maximum forward speed was set to 2, the step width to 3. If the Play button is pressed in the viewer, the images from the database are played back normally. Clicking again doubles the speed (step 1), clicking again quadruples it (step 2) and clicking again changes playback speed to six times (step 3). Because only three steps were specified, the fourth click returns the system to the default setting (normal playback).

Note the following:
- Due to technical reasons, fast rewind can cause jerky pictures
- Switching to another playback mode will leave Smooth Playback
- No response about the actual playback speed takes place - For the speed settings, decimal values such as 1.2 or 1.8 can also be entered.

Previous Event / Next Event

If the option **Jump to the beginning of prehistory instead of the event start time** is activated, the buttons **First Event** and **Last event** in the control bar (see **Event, Motion Search (MOS) and Section**) jump to the time points of the prehistory instead of the event. If you press the Ctrl key, the buttons jump to the event times as usual.

If this option is deactivated, you can move to the prehistory times instead of the event times by pressing the Ctrl key.

Actions

Receive Viewer Actions

Use the Actions dialog to establish some of the base settings for handling actions:

Receive viewer actions

Actions	Description
Remote control	Accept viewer actions for the remote control of the program
Viewer client number	Number of the Viewer client for remote control

Send Notification Actions

Actions		Description
Alarm queue		Send actions in case of alarm list changes, confirmations and deletion
Image export		Send actions in case of export of pictures and sequences, when printing or copying to the clipboard
Viewer status		Send actions when connecting or disconnecting the viewer or when changing the playing mode
	... to participating server	Send to participating servers
	... as broadcast to all	Send as broadcast to all

If under Receive Viewer Actions you have activated the field Remote Control, the settings options under Alarm expand Remote alarm management.

Settings for fisheye dewarping (fisheye distortion correction)

In all viewers that are connected to a server, the camera movements are also controlled when fisheye dewarping is used, for example, when the connected MBEG actively controls the camera.

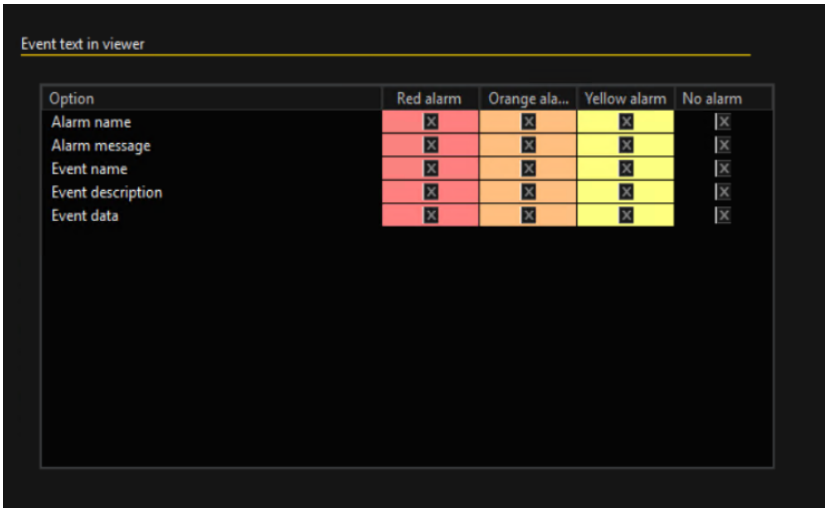
Because fisheye dewarping is a software feature that is or can also be applied retroactively to recorded client server data, these camera movements are not always desired by the remote control. With the help of the **Ignore Remote PTZ** switch, the remote control can be switched off.

Event Text

Event text in viewer

For the selected profile, you need to establish which event text (name, description, data) should be displayed for the alarm in question.

Example In the example, alarm name, alarm message and the name, description and data of the event are displayed for all types of alarms.

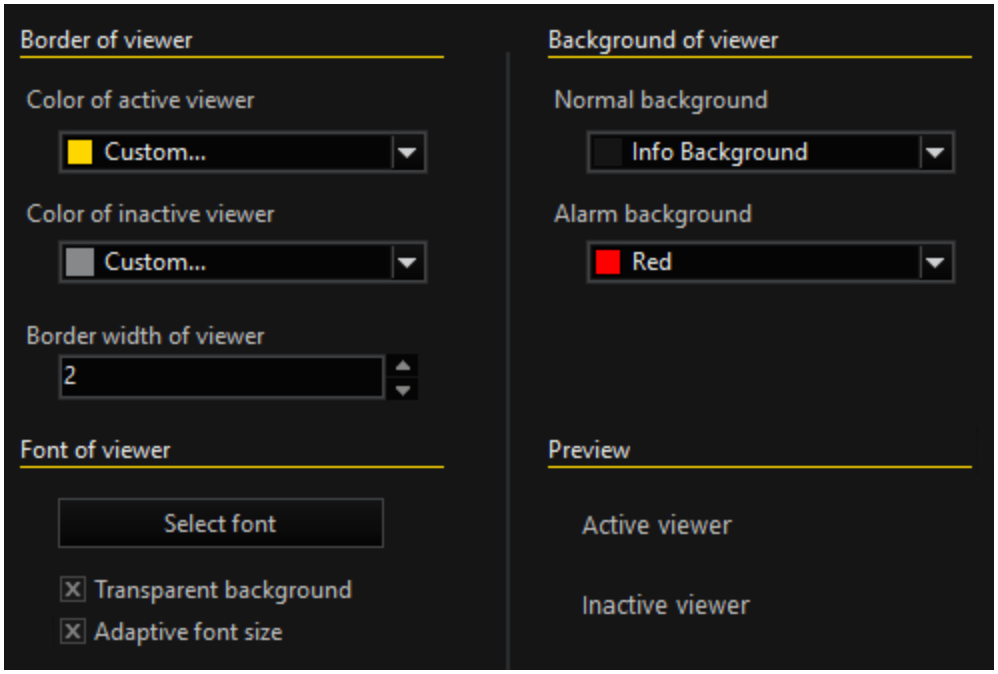


Font of event text

Configure the event text position. Choose between centered, left-aligned and right-aligned

Color and Fonts

Color and fonts specifies the appearance of the viewer's surroundings. Under the points **Border of viewer**, **Background of viewer** and **Font of viewer** color and font settings can be made for the viewers.



When selecting colors, they can choose between the suggested colors and custom colors. To select or add custom colors, select **Custom...**. In the dialog window you can select a color or define a new one clicking on **Define custom colors...**

Export

Export path

To create a fixed export path add a specific path under **Export path**. The path indicates where exports should be placed. The user will then only receive a file name suggestion, which can be changed.

The file extension, and thus the format, can be chosen from the given selection. The preselected file extension for single frame export can be specified. Environment variables are expanded. GBF or MPEG format cannot be assigned.

> Example Thus an entry such as "C:\Test*.jpg" saves all exports in the c:\Test directory and selects JPEG.

Trace export

Trace export is only available in SCS mode. SCS mode can be activated in **Options profile -> Application -> Main window**.

Image export

Use Export Privacy: As long as this option is not active, the images are exported from the database as they are saved in the database (normal or masked, depending on the presetting). If the option is activated, masking is performed when an export is carried out.

DVD writer

When creating Video DVDs, you need at least 10 GB of free hard drive space. If the available space on the system partition is not sufficient, you must specify an alternate path for temporary storage. You can enter this path here.

GBF export

Enable locked export: If this function is activated, when viewed in G-View, an exported GBF file cannot be saved again as a GBF file.

Irremovable privacy zones: If this function is enabled, the privacy zone is permanently burned into the image. If it is not enabled, the privacy zone is only hidden again using a software mechanism when the GBF file is reloaded into G-View.

Rights Profiles

Clicking the Rights profiles opens the setting window for the three predefined rights profiles: Administrator, Main User and User.

You can, however, create additional rights profiles yourself: Right click the Rights profiles list, then click Add or use the toolbar button. You can assign both the predefined rights profiles and any that you have created yourself to Windows users in the subsequent **Windows Users** menu.

These three standard groups have different rights:

- The administrator has full access to all functions.

- Under the default settings, the main user has almost the same rights, but has only restricted rights over the options. He can therefore not change users' options profiles.
- The user is subject to further restrictions.

The administrator can configure which rights are assigned to which rights profile. To do this, he first selects the rights profile and can then mark those rights in the list of rights that appear that the rights profile should have and do not mark those that the rights profile should not have.

IMPORTANT: Changing the rights assigned to a rights group affects all the Windows users who have been assigned to this group!

Default Profile

The **default profile** is used to adjust the behavior, if a previously unknown Windows user logs on to G-View. Here you can define the options and rights profile that should be assigned to the user. In this connection, first create an **options profile** and a **rights profile** or use the predefined profiles.

In the dialog boxes **Select default options profile** and **Select default rights profile**, select the desired options and rights profile for your default profile.

If you activate the menu option **Create individual copy of default options profile**, then the first time that a user who has not been assigned a profile logs in, the default profile defined here will be saved under his/her name. This profile can be changed later if necessary.
If you leave the menu option unselected, you can change the settings for the default profile any time, and in so-doing allocate the changes to all users who have not yet been assigned profiles.
This is the default setting.

If no rights profile is defined, until now an administrator profile was always assigned, meaning the user had no limitations.

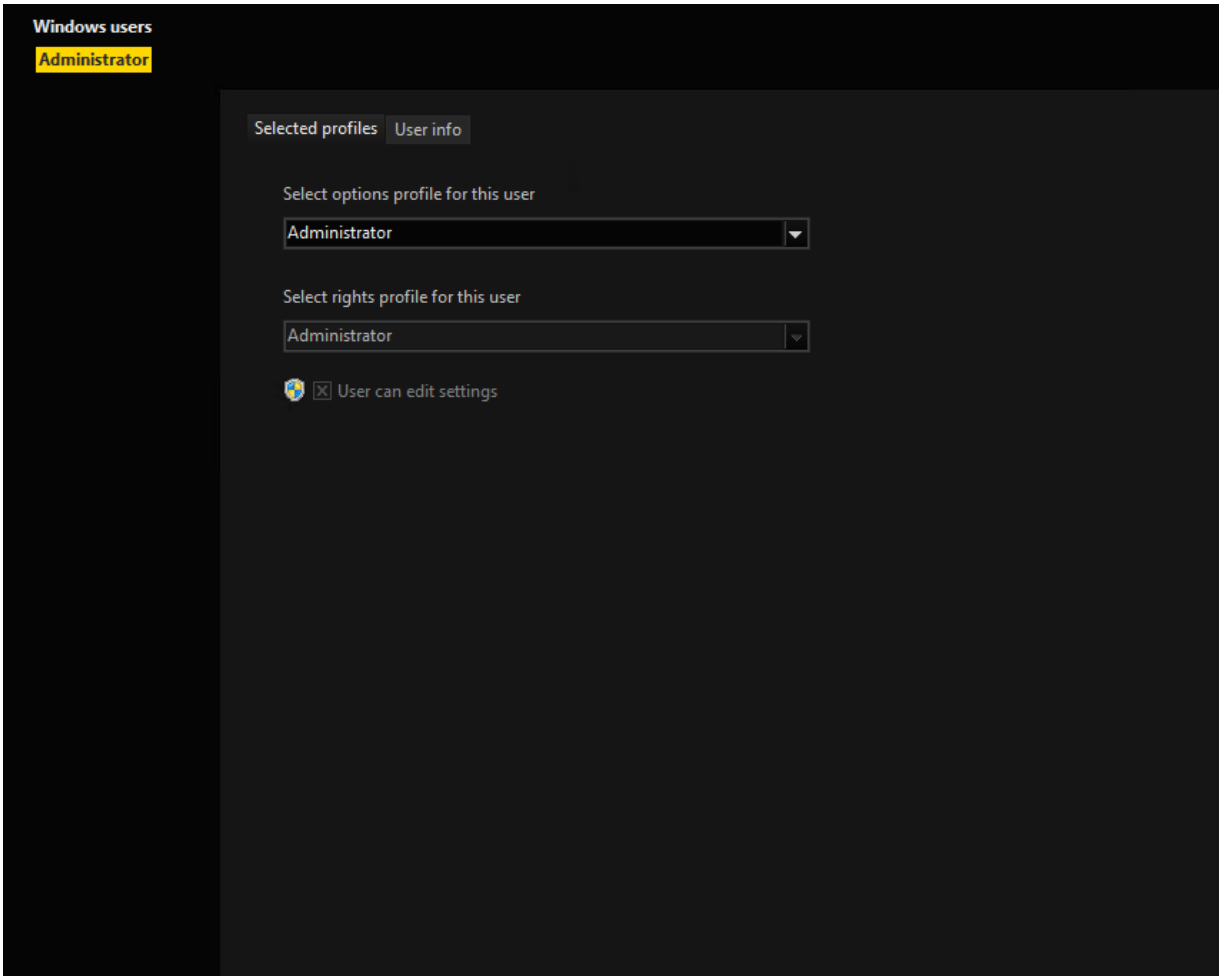
For new installations for which no setup files exist, the default behavior has now been changed.

With the option **Link default rights profile only for non administrators** is set members of the administrators group get admin profile assigned, all others get the under **Select default rights profile** selected rights profile.

The option **Use windows groups for profiles** effects that options and rights profile is linked by windows user group. Default profile is used if no group is found for the user.

Windows Users

You assign options profiles and rights profiles to Windows users in the Windows user menu. Use either the standard profiles or profiles you have created yourself for this purpose.



By default, only the users in the G-Core group are displayed. If you deactivate this setting, you will be shown all the Windows users.

PLC Simulator

With the Programmical Logic Controller Simulator (PLC Simulator) events, previously configured in G-Set, can be tested by simulation. The PLC Simulator is a log that allows you to test parameterizations and, among other things, to check the database and user behavior. In summary it gives information about databases, user behavior, events and actions.

User Interface

When you open the PLC Simulator , the following user interface appears. It is divided into three areas. The sidebar menu 1 located on the left, the settings area 2 and the log window 3.

In the sidebar menu forms the main navigation while in the settings area depending on the selected element in the sidebar menu simulation settings can be made. Simulations and related parameters can be started and viewed, there. Log information that arise through the simulation are shown in the log window.

Connections

In the sidebar menu item **Connections** all saved connections are listed. To build a connection to a server of in the list, double click any. A successful connection is indicated by green check marks in the connections symbol .

To add a new connection to the list, click the + button next to **Connections**. The connection wizard will open.

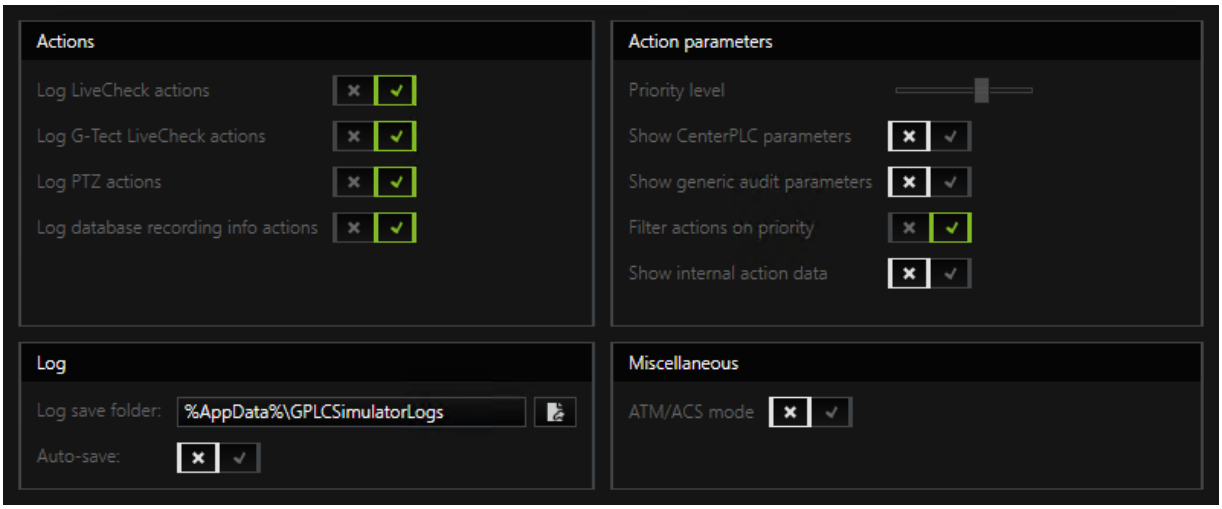
More a about the connection wizard and how to add connections with it under **Connection Wizard**.

Settings

The settings are divided into **Log** and **Advanced**.

Log

The **Log** settings contain the following fields **Actions**, **Log**, **Action parameters** and **Miscellaneous**.



Actions

Parameter	Function
Log LiveCheck actions	Enables/Disables LiveCheck messages
Log G-Tect LiveCheck actions	Enables/Disables G-Tect Livecheck messages
Log PTZ actions	Enables/Disables PTZ data messages
Log database recording info actions	Enables/Disables database info messages

Log

Parameter	Function
Log save folder	Specification of a location where logs get save
Auto-save	Enables/Disables regular saving of the log

Action Parameters

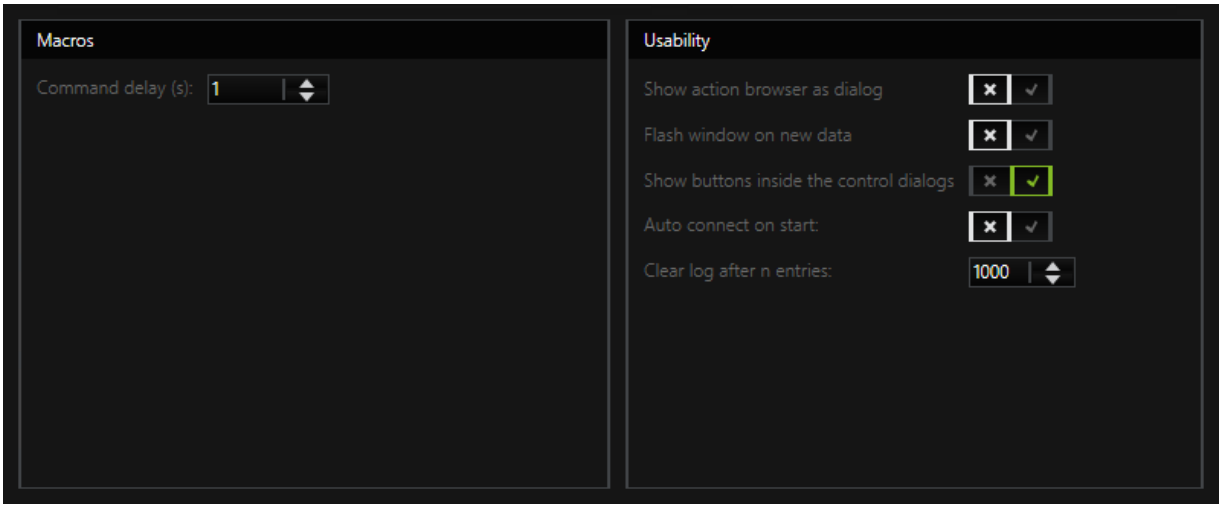
Parameter	Function
Priority level	If **Filter actions on priority** is enabled, message parameters lower than the set priority are not displayed
Show CenterPLC parameters	Enables/Disables whether CenterPLC parameters are shown
Show generic audit parameters	Enables/Disables whether generic audit parameters are shown
Filter actions on priority	Enables/Disables filtering actions on priority
Show internal action data	Enables/Disables whether internal action data parameters are shown

Miscellaneous

Parameter	Function
ATM/ACS mode	Only shows ATM/ACS related actions in the **Log** window

Advanced

The Advanced settings contain the fields Macros and Usability.



Macros

Parameter	Function
Command delay (ms)	The time between single actions within a macro
Loop macros	Enables/Disables looping of macros
Random firing	Enables/Disables random firing of macros
Command delay (ms)	The time between single actions within a macro

Usability

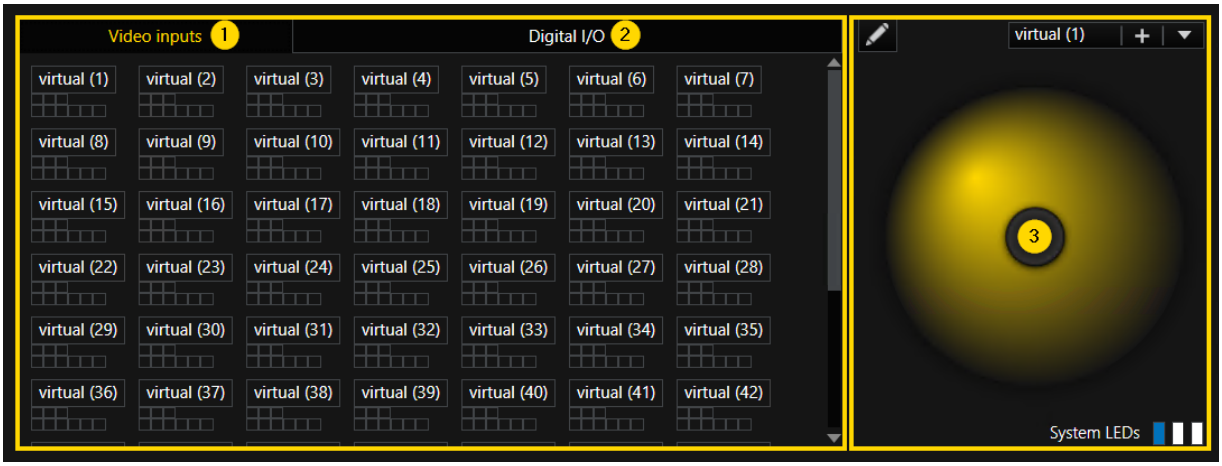
Parameter	Function
Show action browser as dialog	Enables/Disables showing the action browser as dialog
Flash window on new data	Flashes the icon in the taskbar when new data is received
Show buttons inside the control dialogs	Hides/Shows button in the control dialogs
Auto connect on start	Determines if the server is connected to the PLC simulator automatically
Clear log after n entries	The number of entries for when they get deleted from the log

Control Area

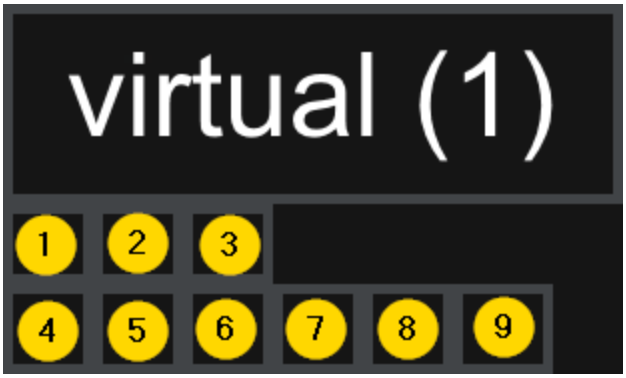
Media Channels

Video Inputs

The Video inputs 1 tab shows all video inputs and the status of video analysis.



The boxes below each video input name are status lights. Each status light describes a different signal and its status.



Status light	Description
1	Sync signal
2	Contrast signal
3	G-Tect contrast signal
4	VMD inhibit signal
5	VMD signal

Status light	Description
6	AD signal
7	SV signal
8	VMX signal
9	Dual signal

If you click on any video input, the PLC simulator will check the state of this video input. If the button gets colored red, the state of the input is low. When the color is green, the state of the input is high.

Digital I/O

On the right-hand side you can find all digital outputs.

To open/close an output, click any of the outputs in the list.

PTZ Controller

Using the PTZ controller, it is possible to send PTZ commands to cameras:

1. To select a PTZ camera, click the arrow downwards symbol (▼) on the **Select a PTZ camera** text box.
2. To send PTZ commands, click and drag the “virtual joystick”.

System LEDs

The **System LEDs** display which system LEDs are turned on.

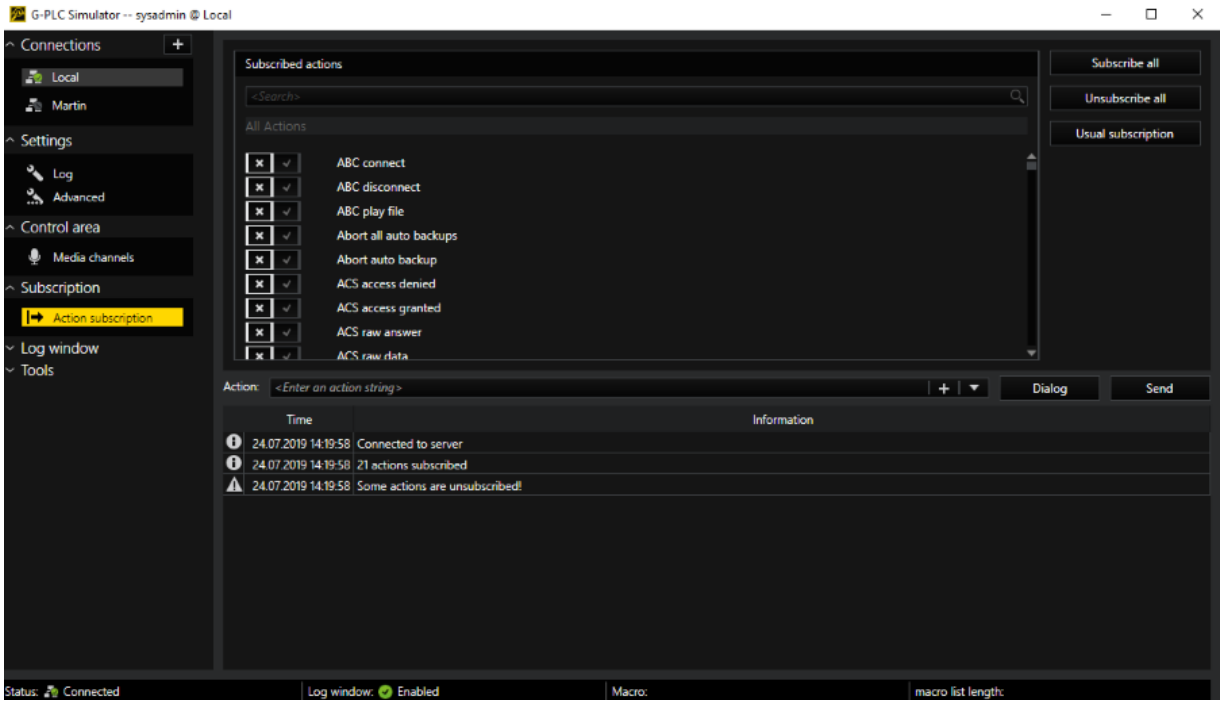
To turn on/off the System LEDs, click the LED button.

Subscription

Action Subscription

Using **Action subscription**, it is possible to determine which actions will be logged by enabling/disabling actions:

- To enable all actions to be logged, click **subscribe all**.
- To disable all actions to be logged, click **unsubscribe all**.
- To disable all actions to be logged except the present selection, click **Usual Subscription**.

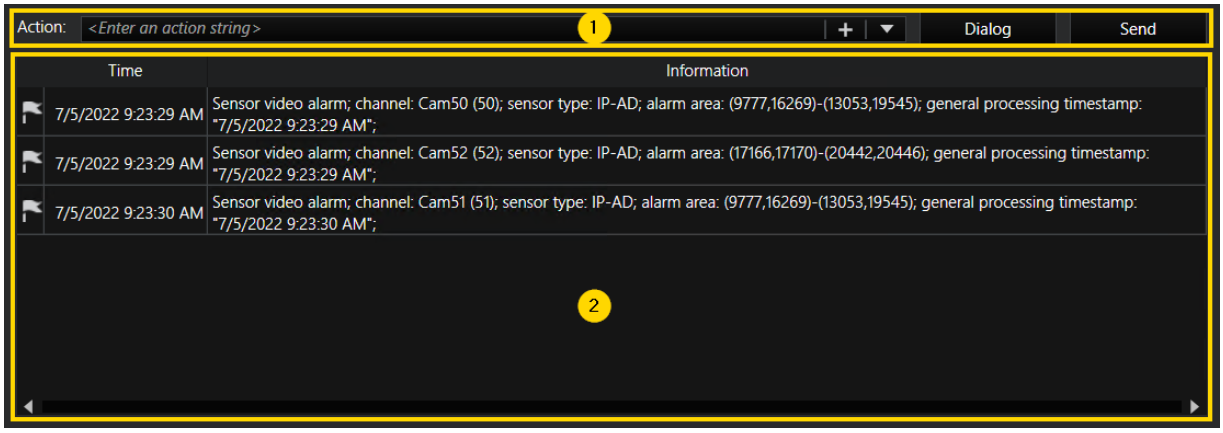


In the search bar, it is also possible to search for actions.

Log Window

Logged Actions Window

The logged actions window 2 contains all logged actions displaying the time they were received and the content of the actions.



To stop/start the log window updates, click **Disable log window/ Enable log window** in the sidebar.

To delete all actions from the log window, click **Clear** and to save the current log window to an *.txt set, click **Save**.

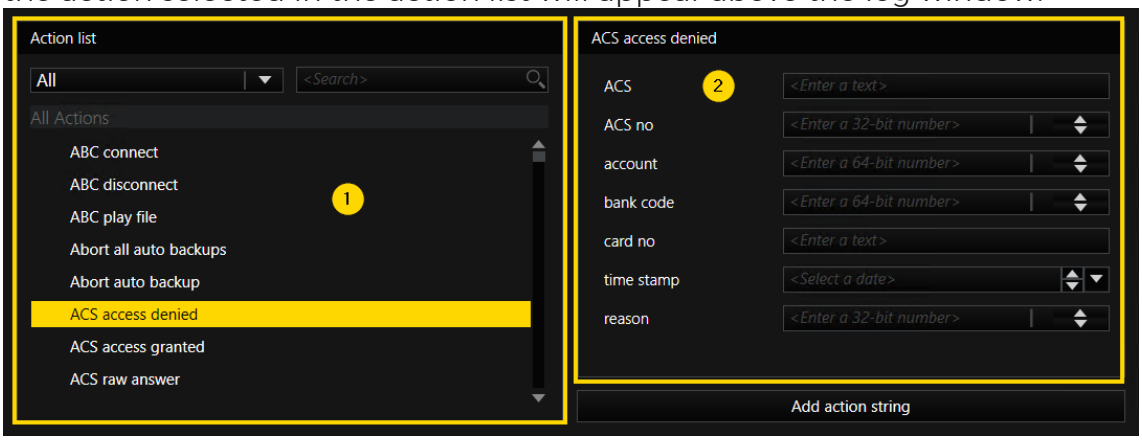
To type the action manually in the action text box 1 , use the following pattern:

{action name} ({property name} : {value},{property name} : {value})

To send the action to the connected G-Core server, click **Send**.

Creating an Action

1. Click **Dialog** and the areas **Action list** 1 and second area 2 named after the action selected in the action list will appear above the log window.



2. In the **Action list**, select the action to be added. It is possible to search for a specific action or to sort the actions by categories.

3. The action parameters can be edited in the second area, next to **Action list**.
4. To add the action to the action text box, click **Add action string**.

Tools

Statistics

The **Statistics** menu contains statistics of the log since the start of the PLC simulator.

Input

The **Input** section contains the following fields:

Field	Description
Actions received	The number of actions received
LiveCheck	The number of LiveChecks performed
GTectAnalyticsLiveCheck	The number of G-Tect Analytics LiveChecks performed
PTZ commands	The number of PTZ commands
System warnings	The number of system warnings
System errors	The number of system errors
LiveCheck delay	The LiveCheck delay
G-Tect LiveCheck delay	The G-Tect LiveCheck delay

Output

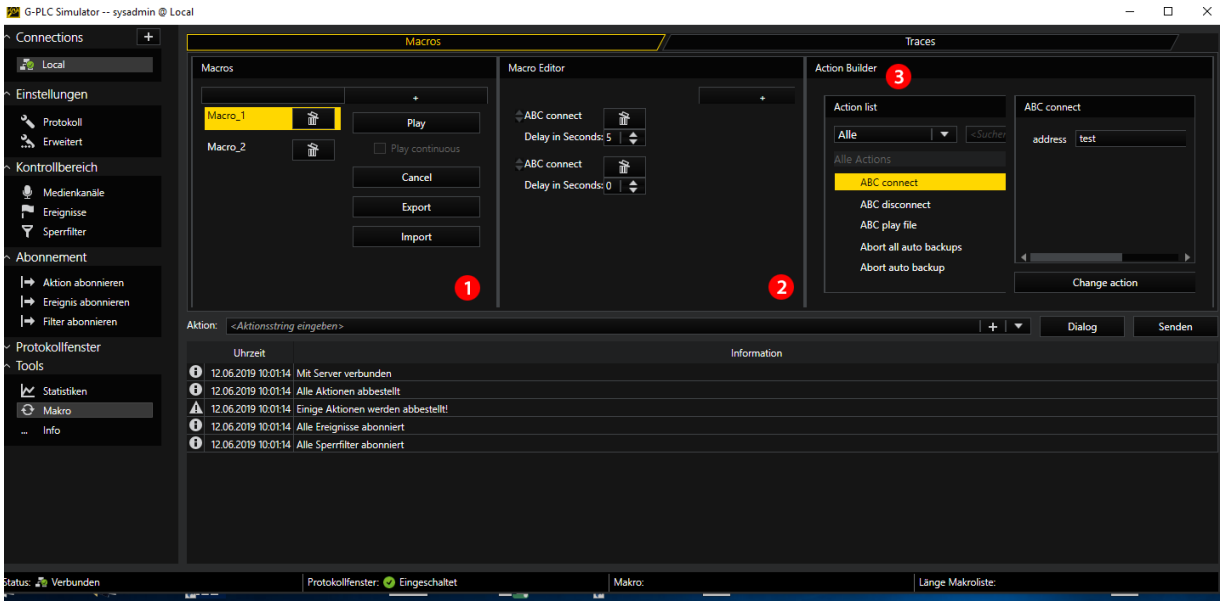
The **Output** section contains the following fields:

Field	Description
Actions sent	The number of actions sent by the PLC simulator
LiveCheck	The number of live checks put out

Field	Description
GTectAnalyticsLiveCheck	The number of G-Tect Analytics LiveCheck put out
PTZ commands	The number of PTZ commands put out

Macro

Using Macros, it is possible to replay several consecutive actions.



Macros

The **Macros** 1 section contains the following fields:

Field	Description
Add	Adds a new macro to the macros list when a name is entered into the text field to the left.
Delete	Clicking **Delete** next to the macro name deletes the respective macro.
Play	Sends the actions of the selected macro sequentially to the server.
Play con-	Allows you to constantly play the selected macro in a loop.

Field	Description
tinuous	
Cancel	Clicking **Cancel** will finish the currently playing macro and stop the playback.
Export	Exports all macros and traces.
Import	Imports all macros and traces.

Macros Editor

The Macro Editor 2 section contains the following fields:

Field	Description
Add	Adds the selected action from ActionBuilder to the selected macro.
Delete	Clicking **Delete** next to the action name deletes the respective action from the selected macro.
Up/Down	Moves respective action up or down the list.
Delay time in Seconds:	The time delay after the action is sent.

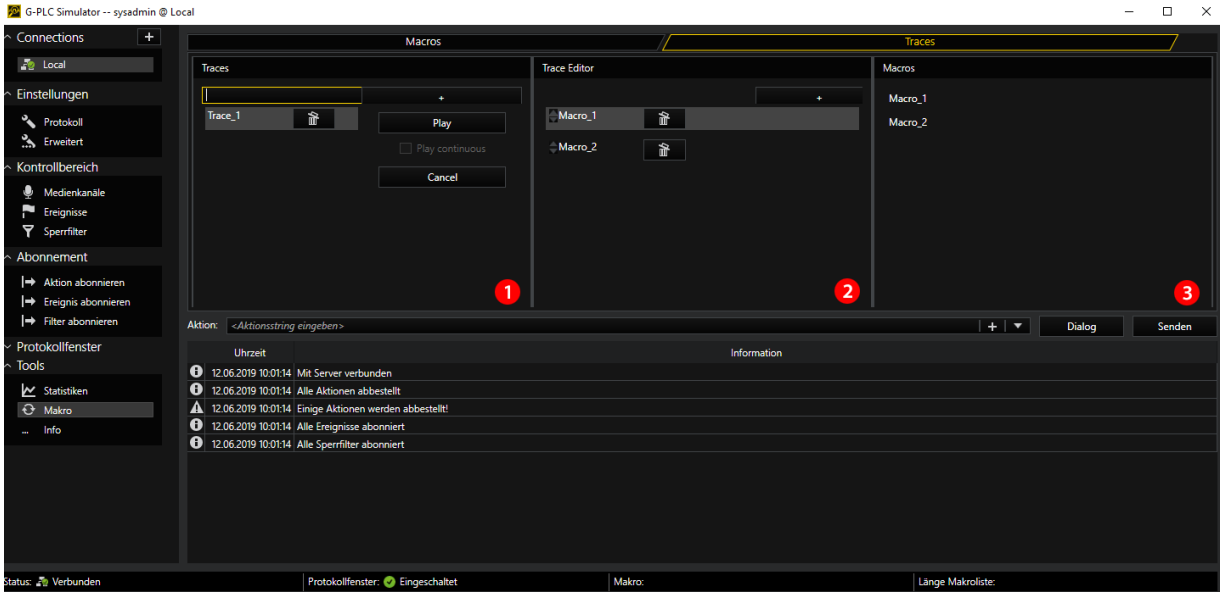
Action Builder

The Action Builder 3 section contains the following fields:

Field	Description
Action list	Allows to select an action and to edit the action parameters.
Change action	Changes the selected action from the **Macro Editor**.

Traces

A Trace consists of several macros that are played sequentially.



The **Traces** 1 section contains the following fields:

Field	Description
Add	Adds a new trace to the trace list when a name is entered into the text field to the left.
Delete	Clicking **Delete** nex to the trace name deletes the respective trace.
Play	Sends the macros of the selected traces sequentially to the server.
Play con-tinous	Allows you to constantly play the selected trace in a loop.
Cancel	Clicking **Cancel** will finish the currently playing trace and stop the playback.

The **Trace Edtior** 2 section contains the following fields:

Field	Description
Add	Adds the selected macro from Macros to the selected trace.
Delete	Clicking **Delete** next to the macro name deletes the respective

Field	Description
	macro from the selected trace.
Up/Down	Moves respective macro up or down the list.

The Macros 3 section contains a list of all configured macros.

Info

Sever Info

The Server info section contains the following fields:

Field	Description
File version	The version of the file
Product version	The version of the G-Core server
Restricted mode	Shows if restricted mode is enabled or disabled
Last requested server time	The last time the time got synchronized with the G-Core server
Dbe classic archive levels	The number of archive levels
Dbe ring count	The number of Dbe rings

PLC Info

The PLC info section contains the following fields:

Field	Description
Log action definition version	The action definition version used by the PLC Simulator
Server's action definition version	The action definition version used by the G-Core server

G-Streamer

The G-Core streamer is a module for transferring the images from the G-Core system and enables simple integration into external systems on the basis of the HTTP protocol. These video streams can be controlled either centrally using the server or locally over the respective HTTP channel.

The G-Core streamer is an add-on component in the G-Core software package and is included together with those packages. During installation of the G-Core software, you can enable the G-Core streamer.

Functionality

The G-Core streamer offers several (standard 4) licensable, independently usable channels. Access to video streams thus made available is analogous to accessing Axis IP cameras. To do so, a part of the "VAPIX® HTTP API" specification from Axis (versions 2 and 3 of the specification are supported) is implemented in G-Core streamer.

This specification also describes a number of URL commands with which the corresponding video stream can be controlled (e.g., PTZ control, switching cameras, turning auto focus on and off, etc.). Additionally, using auxiliary actions you can send any G-Core action to the server. For a complete list of supported commands, see the appendix.

Each channel is implemented by a separate viewer and can be accessed centrally via its global number. Here is a brief overview of the flow of communication:

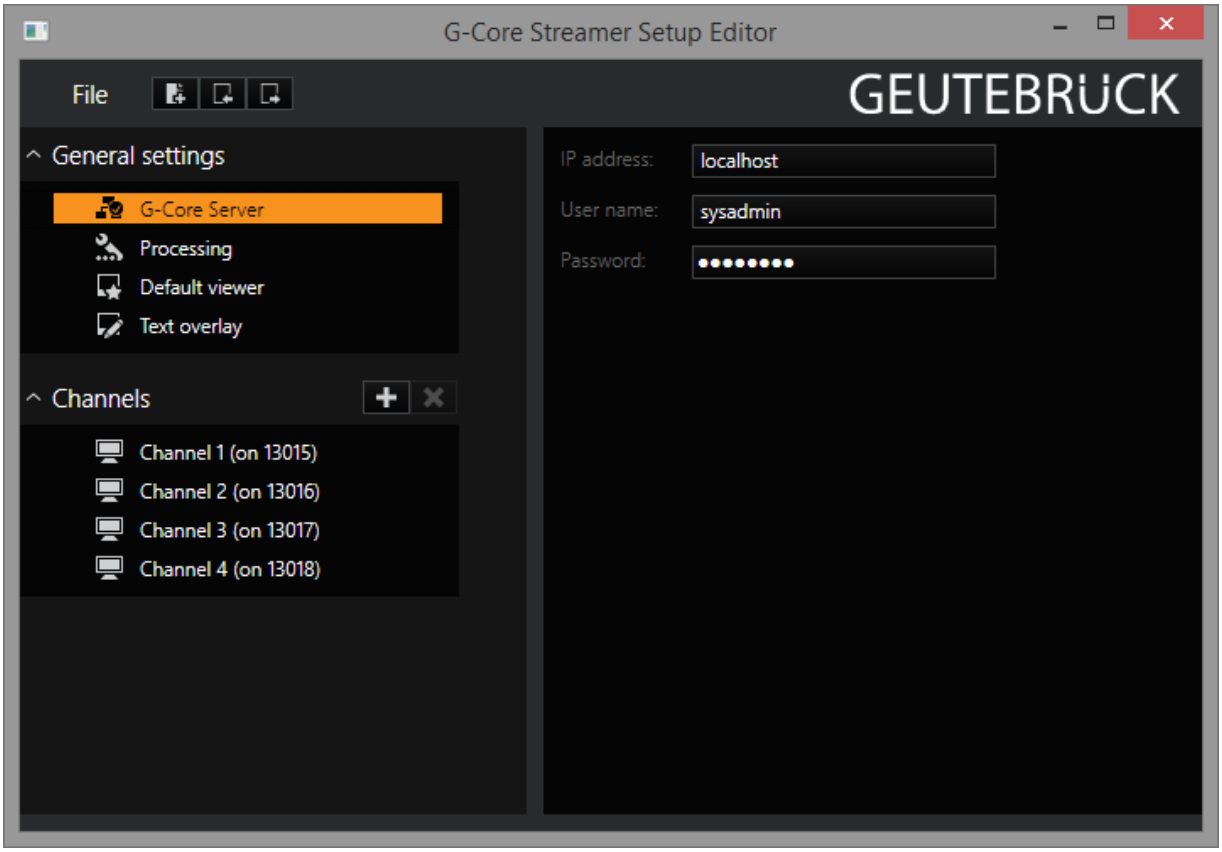
Configuration

To configure the local G-Core streamer, start its setup interface, the G-Core Streamer Setup Editor. The GUI provides five configuration areas:

Area	Function
G-Core server	Connection to the G-Core server
Processing	Settings for processing
Default viewer	Settings for generation of the synthetic images
Text overlay	Parameters for the text overlay
Channel <n>	Channel parameters

G-Core Server

For a connection to the G-Core server to be established, it must be ensured that the corresponding connection is configured.



For this purpose , the corresponding settings are made in the area **G-Core server**:

Setting	Description
IP address	IP address or name of the server
User name / password	Access data to the corresponding server

Information for the local G-Core server is already entered here as the standard setting.

Processing

In this area you specify whether in the following situations images with the corresponding text overlay must be generated: When a viewer was deleted, when an invalid camera was selected or when the database no longer has any pictures. The reason for this is the fact that some monitor servers (e.g. Axis 292) disconnect if no

images are received within a few seconds. If you operate such a monitor server, you should leave these settings enabled; otherwise it is more of a hindrance and should be disabled.

You also have the following additional setting options:

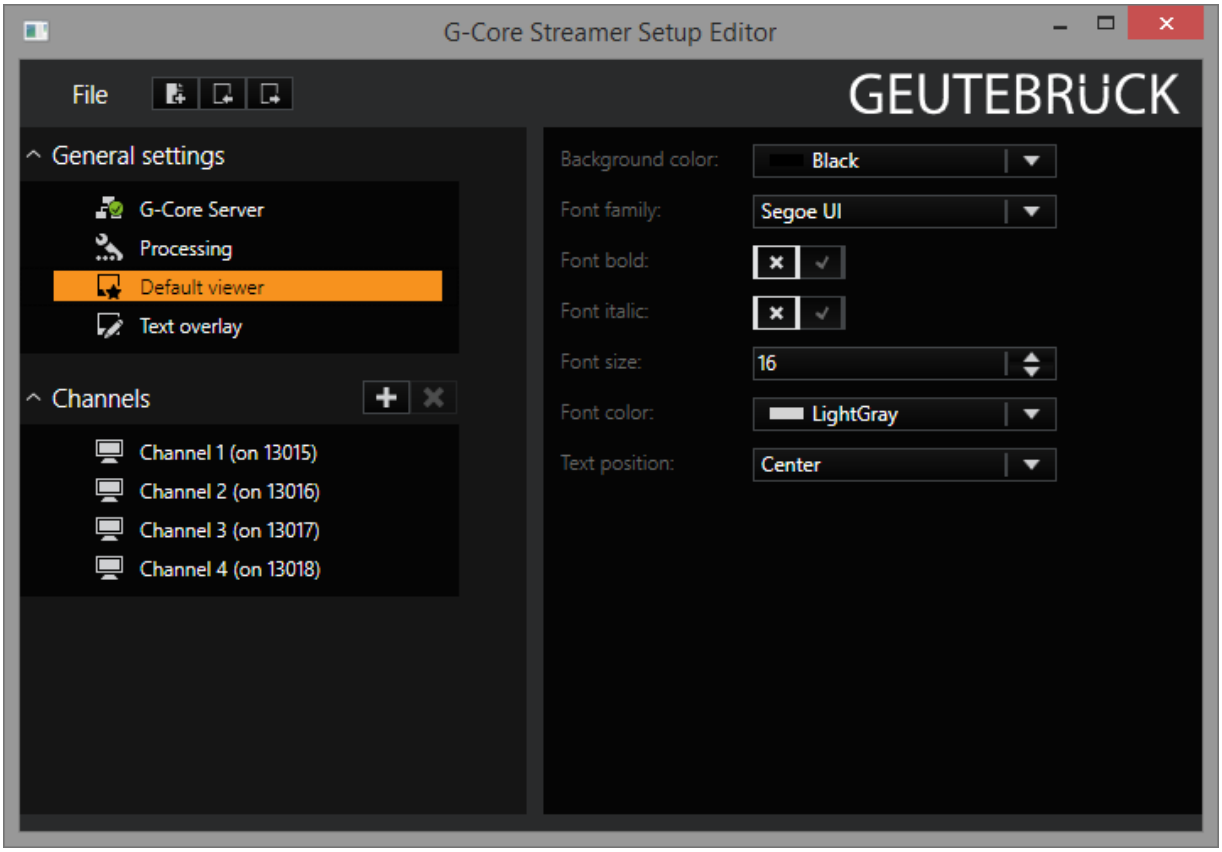
- The **JPEG quality** parameter specifies JPEG compression for these generated images.
- With the **Status Notifications** parameter, you switch the status messages on or off.

  When switched on, the G-Core streamer informs the server of any changes to its viewers, for example, if a new camera has been activated or the PlayMode has been changed.

- With the **Recompress Images** parameter you can prevent the transcoding of images and pass the images through directly. You can thus pass on images without any quality loss.

Default Viewer

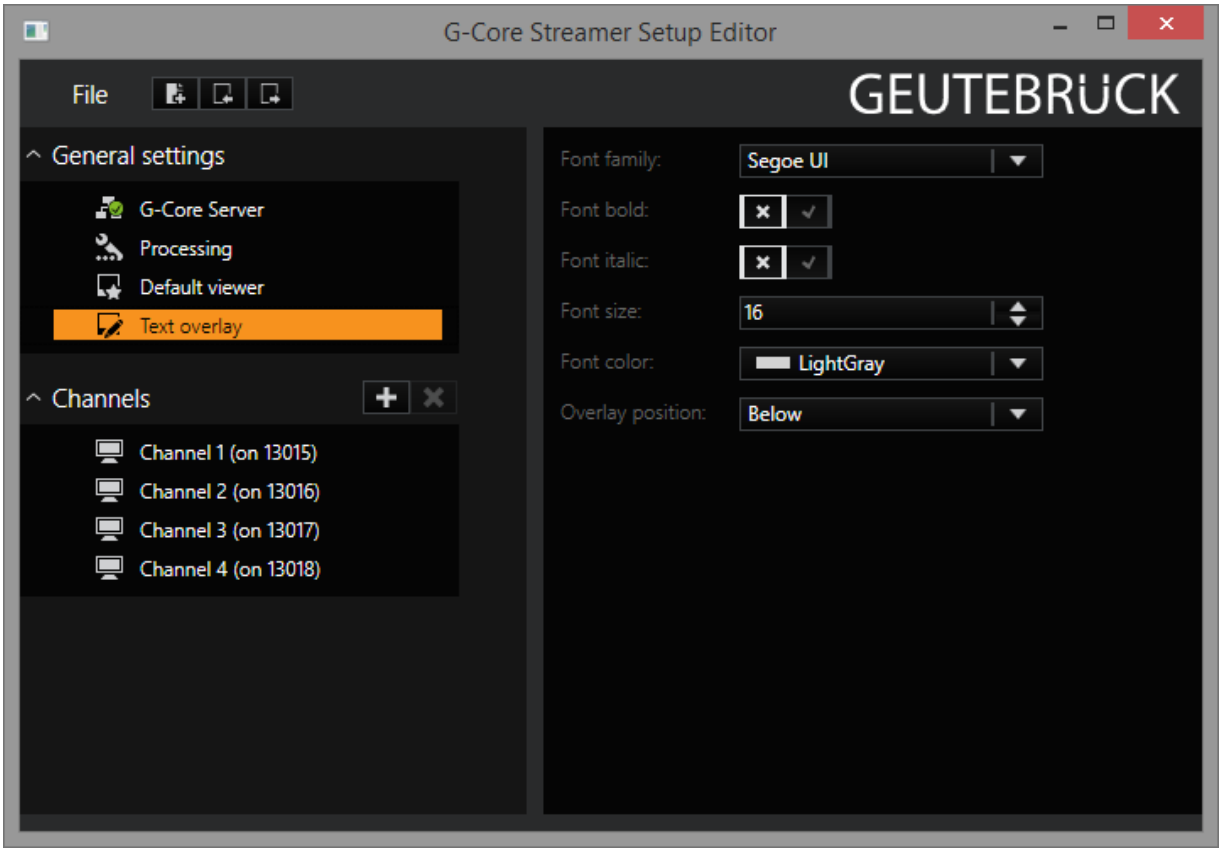
In this section you specify the global parameters for the text overlay for the images generated in the section **Processing**.



You can set the background color and the font type and font color here.

Text Overlay

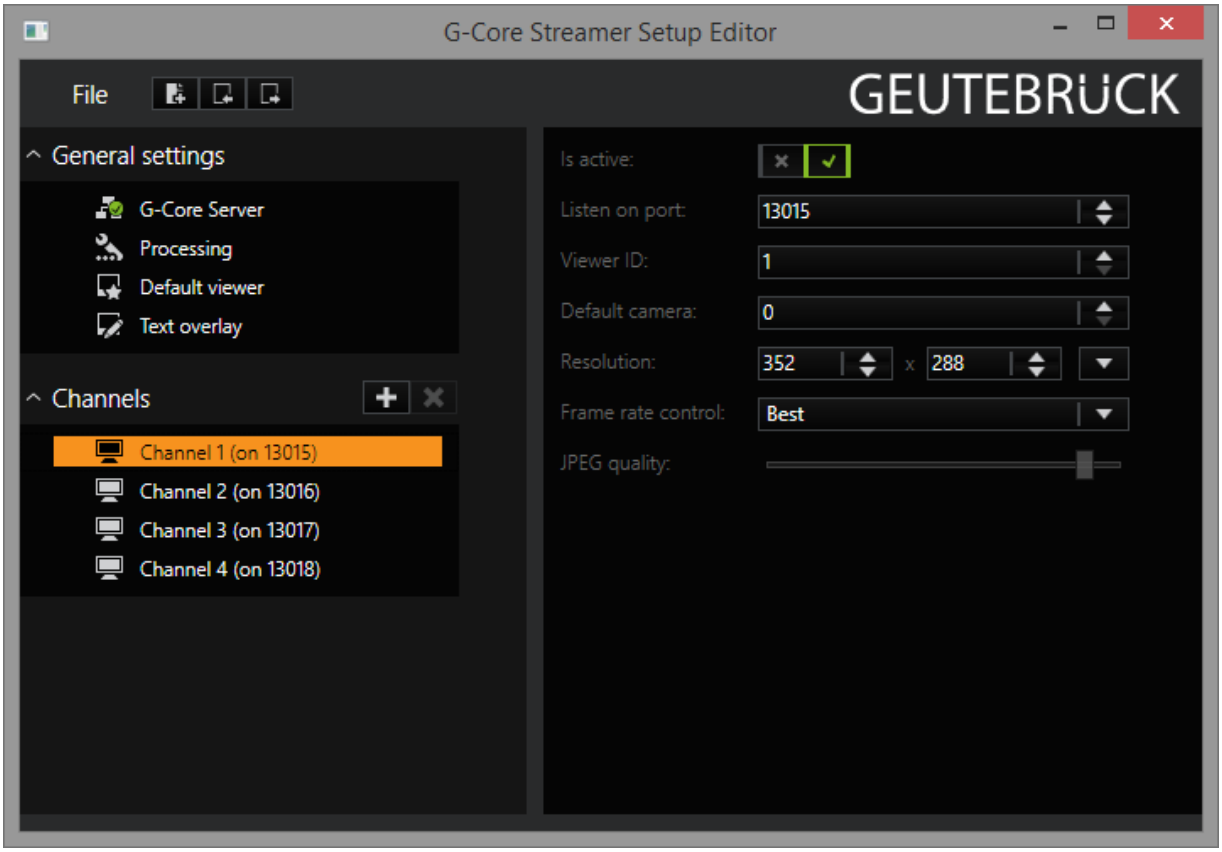
In this area you specify the parameters for the channel text overlay.



Here you can set the font type and font color as well as the position of the text overlay.

Channels

The settings for the individual streams are made in the **Channels** area.



The essential settings are the port number, on which the stream is made available, and the viewer ID, over which the stream can be controlled using G-Core actions.

If possible, the standard settings should not be changed. The viewer ID should be a unique system-wide global number, to be able to display live pictures of a G-Core camera in the stream using a ViewerConnectLive action and specifying the global viewer ID.

Furthermore, you can control the image size and quality and possibly perform a frame rate reduction.

The **Default Camera** parameter controls whether the specified camera should be automatically displayed at the initial connection to the server.

Using the Video Stream

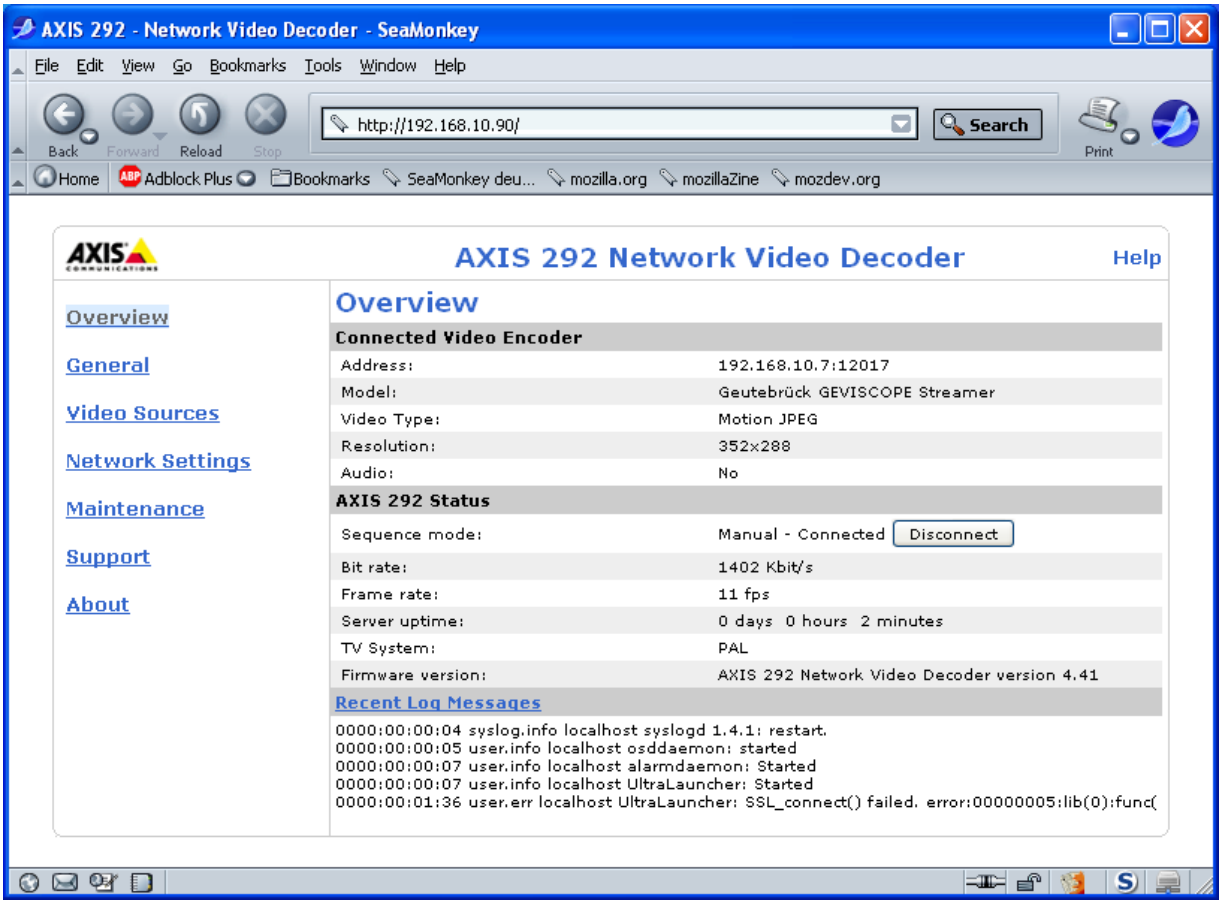
In this section we describe two typical scenarios for G-Core streamer:

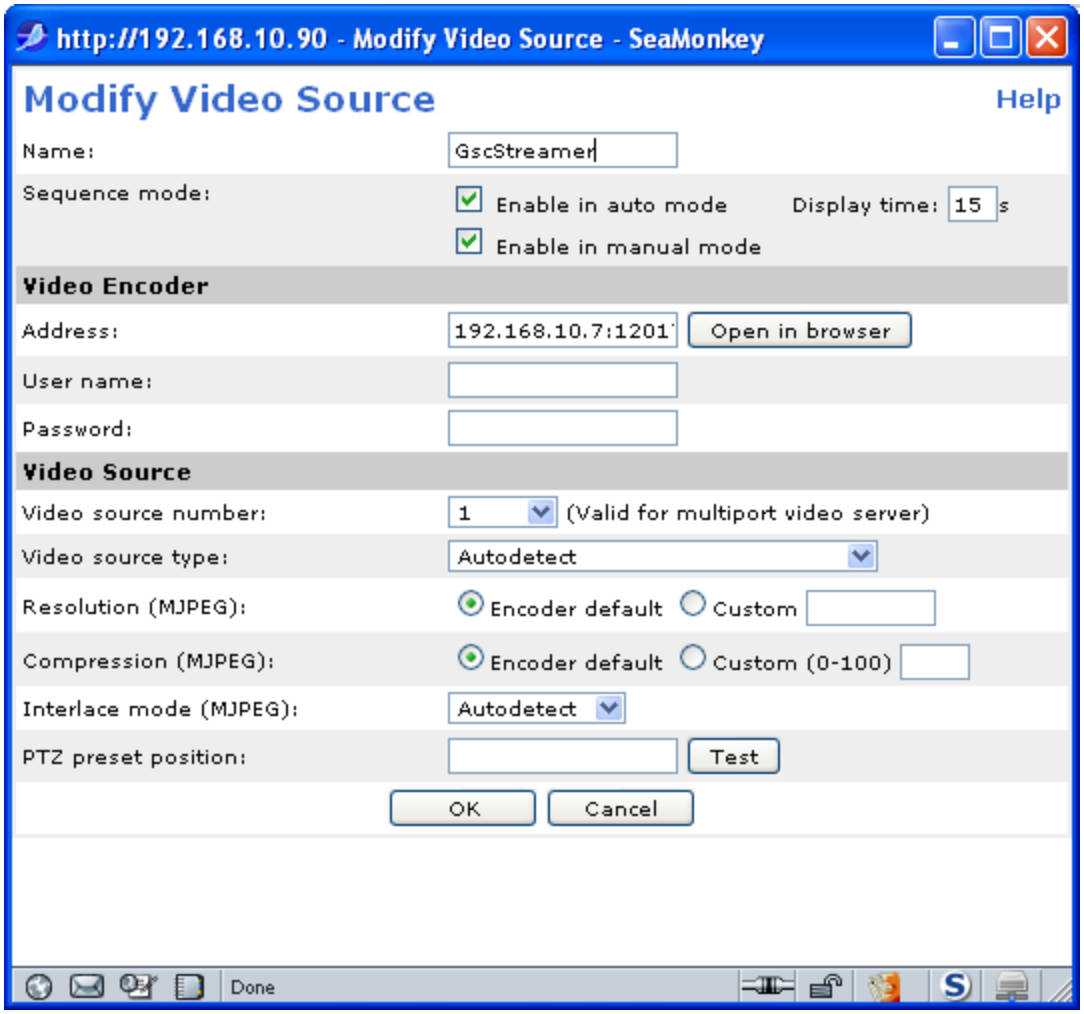
- Use of a monitor server
- Forwarding to a remote G-Core server

Using a Monitor Server Using the Example of Axis 292

An Axis 292 Network Video Decoder does not require any special settings for the G-Core streamer. For optimum use, it is recommended that you enable the generated texts under **Processing**.

Open the web browser and go to the settings page of the monitor server:





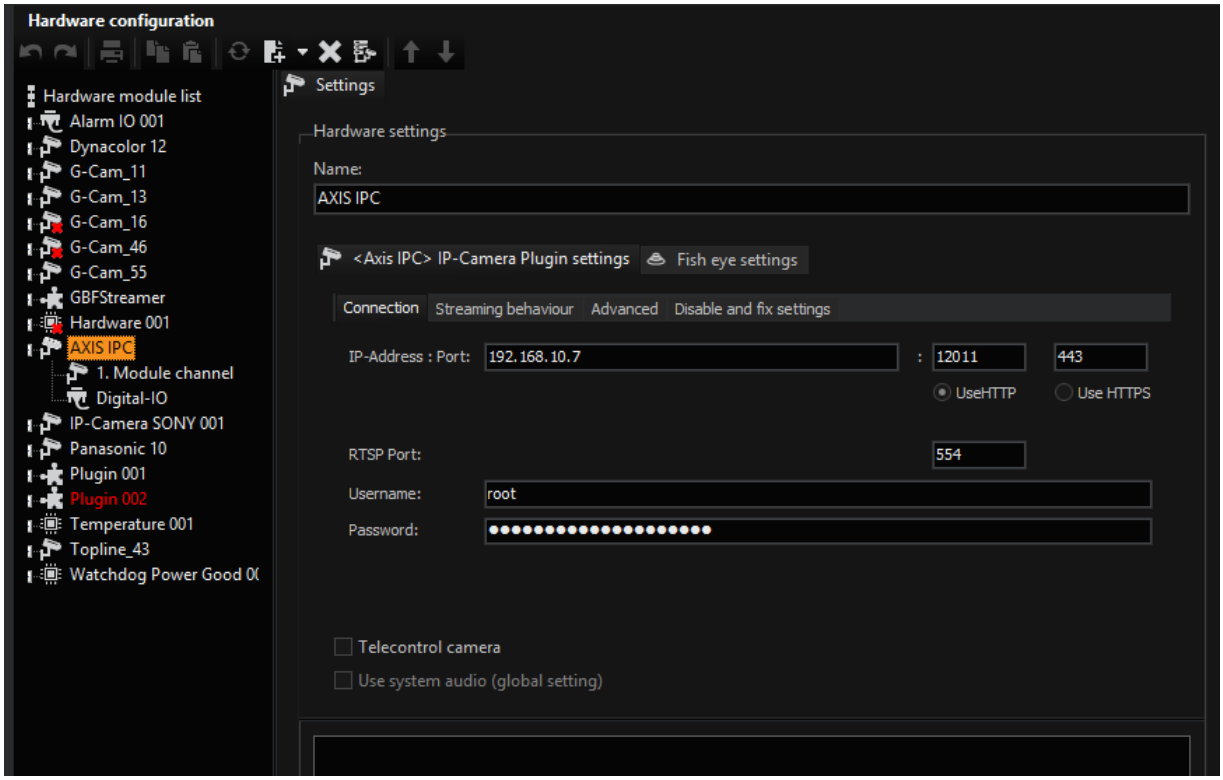
Under **Video Sources** you can add a new source and enter the G-Core streamer address:

Please enter the address in the format computer address: port number.

Transmission to a Remote G-Core Server

As G-Core server itself supports the Axis IP cameras, it can directly use the output of a G-Core streamer.

For this we must first add an Axis camera in G-Core setup:



It now only needs to be set to the local G-Core streamer channel.

For streamer channels 1 to 4 use streamer ports 13015 to 13018 (see Channels).

If you wish to transmit a PTZ camera, you can select any camera type with PTZ support, e.g. "Axis 121 PTZ" and activate the option **Telecontrol Camera**.

For optimal working conditions, you should specify the following settings in the G-Core streamer:

- To minimize CPU utilization and to avoid the quality loss due to recompression of the images, turn off **Recompress Images**. Thus the received JPEG images are transmitted further unchanged.
- For better camera failure recognition, you should avoid generation pictures under **Processing**.

List of Supported Axis Commands

The following URLs are supported for display in the browser:

URL	Description
`http://host`	Start page in web interface mode.
`http://host:port/image.html`	Simple HTML side with picture play-back.
`http://host:port/jpg/image.jpg`	Individual image.
`http://host:port/mjpg/video.mjpg`	An M-JPEG video stream.

The following URLs from the "VAPIX® HTTP API" specification are supported:

The specified paragraph numbers refer to version 3 of the "VAPIX® HTTP API" specification.

URL	Description
`http://host:port/axis-cgi/-param.cgi`	§ 5.1.1 Add, update, remove and list parameters and their values. Query the G-Core streamer parameters. Only "action=list" and "group" parameters are supported.
`http://host:port/axis-cgi/-param.cgi`	§ 5.1.9 System date and time Query of the system time. Only "action=get" parameter is supported.
`http://host:port/axis-cgi/imagesize.cgi`	§ 5.2.1 Image size Query of the picture resolution.
`http://host:port/jpg/image.jpg` `http://host:port/axis-cgi/jpg/image.cgi`	§ 5.2.4 JPEG/MJPG (part 1 JPEG) Transmission of the individual picture.
`http://host:port/mjpg/video.mjpg` `http://host:port/axis-cgi/mjpg/video.cgi`	§ 5.2.4 JPEG/MJPG (part 2 MJPG) Transmission of the M-JPEG video streams.
`http://host:port/axis-cgi/-com/ptz.cgi`	§ 5.3.3 PTZ control See **Valid parameters for http://host:-port/axis-cgi/com/ptz.cgi:**

URL	Description
`http://host:port/axis-cgi/-com/ptzconfig.cgi`	§ 5.3.4 PTZ configuration See **Valid parameters for http://host:-port/axis-cgi/com/ptzconfig.cgi:**
`http://host:port/axis-cgi/video-control.cgi`	§ 5.9 AXIS 292 Network Video Decoder in version 2 of the specification. This realizes switching of the camera on the channel. The following parameters are expected: "action=goto" and "SourceName=<no>" with camera number.

Valid parameters for **`http://host:port/axis-cgi/com/ptz.cgi`**:

Parameter	Description
auxiliary=<string>	Any G-Core actions. Observe the URL coding. 0 can be used as placeholders for the current camera and viewer numbers. Example `http://-localhost:13015/axis-cgi/-com/ptz.cgi?auxiliary=ViewerSetPlayMode(0,3,0)`
whoami	Query of the G-Core streamer version.
pan=<float>&tilt<float>	Move to an absolute position.
rpan=<float>&rtilt<float>	Move to a relative position.
riris=<int>	Open the aperture (parameter > 0) close (parameter < 0) or stop (parameter = 0).
autofocus=<string>	Switch auto focus on and off.
autoiris=<string>	Switch auto iris on and off.

Parameter	Description
continuouspantiltmove=<int>,<int>	Pan/tilt movement.
continuouszoommove=<int>	Zoom movement.
continuousfocusmove=<int>	Focus movement.
move=home	Move to default position.
gotoserverpresetno=<int>	Move to preset position.
home=yes	Save the default position.
setserverpresetno=<int>	Save a preset position, 0 – default position.
removeserverpresetno=<int>	Delete a preset position, 0 – default position.

Valid parameters for **`http://host:port/axis-cgi/com/ptzconfig.cgi`**:

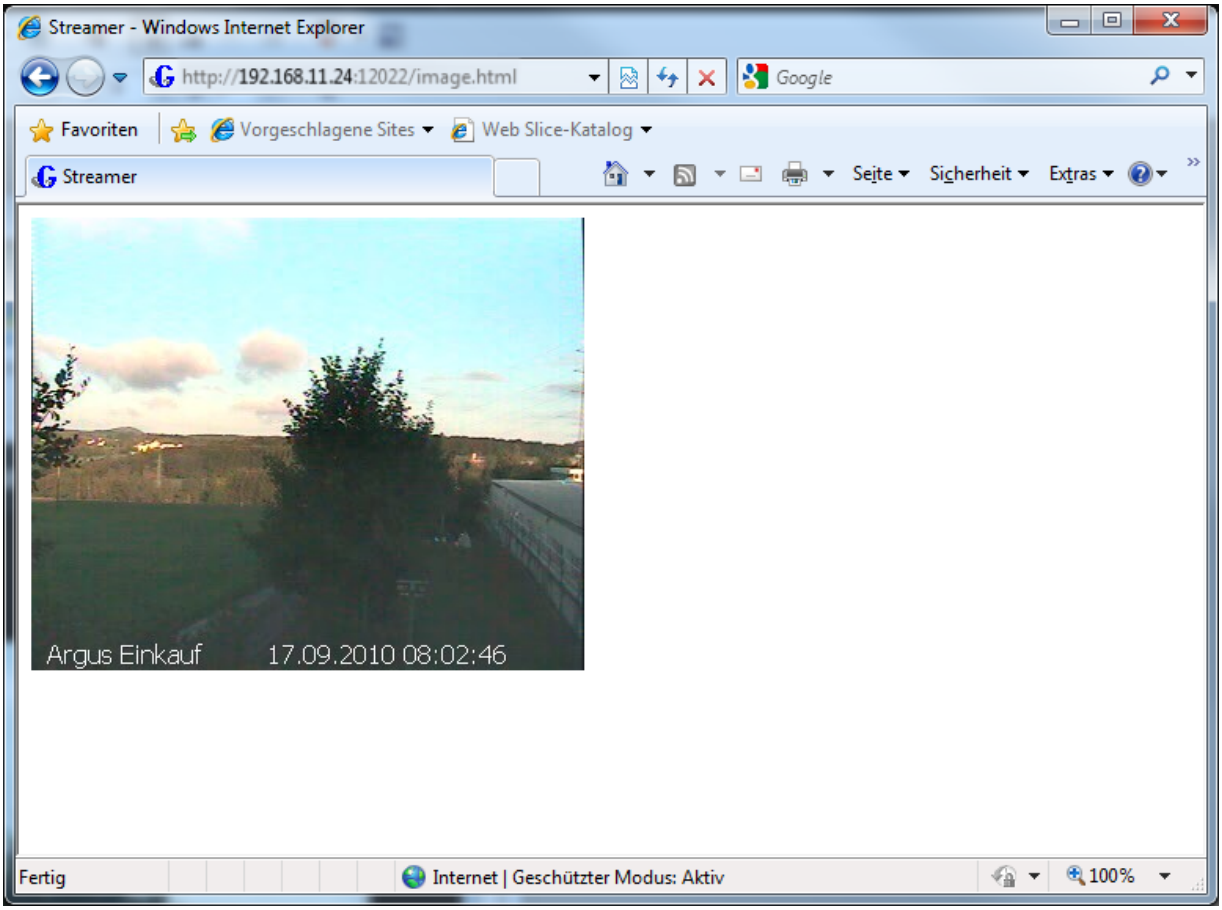
Parameter	Description
home=yes	Save the default position.
setserverpresetno=<no>	Save a preset position, 0 – default position.
removeserverpresetno=<no>	Delete a preset position, 0 – default position.

Browser Support

If you only wish to check pictures briefly on a camera, there is a simplified display for this purpose at the following URL address:

`http://host:port/image.html`

Do not forget the port number!



Dynamic Resolution Control

G-Core streamer normally uses the quality parameters preset in the setup such as image width, height and the JPEG compression level. This values can be over-written using the following URL parameters:

- width: image width (32 – 2048)
- height: image height (32 – 2048)
- quality: Jpeg compression quality (0 – 100)

Example Here is an example for PAL-D1:

```
http://host:port/mjpg/video.mjpg?width=720&height=576
```

Missing parameters (as in our case quality) retain their default value.

G-Mail

G-Core Mail is a module for G-Core systems that automatically generates e-mails. The generation can be triggered in different ways:

- By a G-Core action (SMTPMailSend), for which

  JPEG live picture can also be sent.

- By a G-Core event/alarm configuration, for which

  JPEG live picture can also be sent.

In order to avoid problems with spam e-mail, there is an internal delay when sending. It ensures that e-mails are sent at intervals from 60 seconds up to 5 minutes.

If additional e-mails are generated, they are placed in a queue with a size of 5 to 10 e-mails. Further e-mails are then ignored and a system warning action is triggered.

G-Core Mail can be connected with G-Core.

For G-Core Mail to be able to send e-mails, the system must have access to an SMTP mail server (for instance, to an MS Exchange server).

SMTPMailSend

The actual SMTPMailSend action has the following options:

- Target e-mail address
- CC e-mail address
- E-mail subject text
- E-mail body text.

The G-Core action also contains the entry Media channel for live picture.

G-Core Mail must be explicitly selected during the G-Core software installation, otherwise it will not be installed.

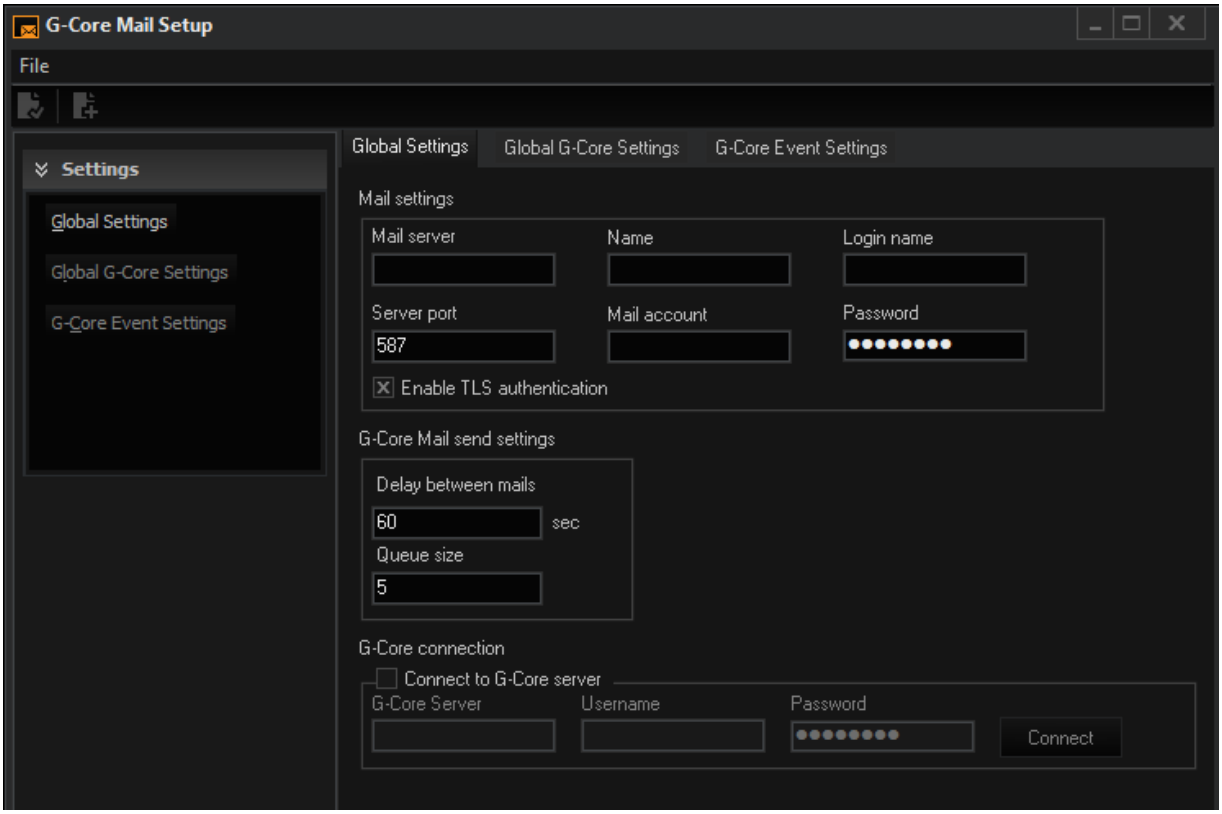
Setup Editor

The G-Core Mail Setup editor serves to configure the general settings for sending e-mails.

Open the G-Core Mail Setup editor by double clicking on the G-Core Mail icon on the desktop.

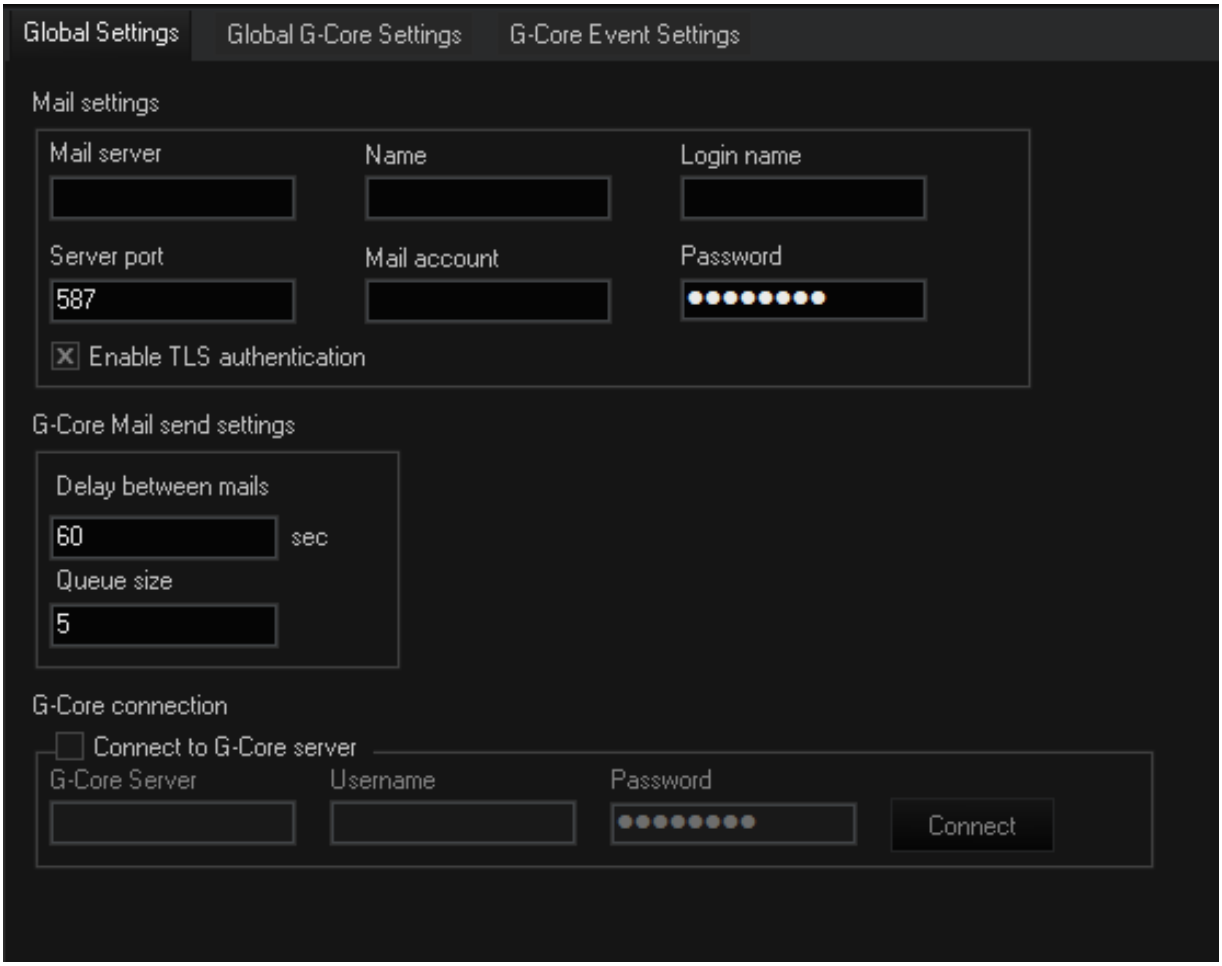
The window has three tabs:

- **Global Settings**
- **Global G-Core Settings**
- **G-Core Event Settings**



Global Settings

The tab **Global Settings** allows for the configuration of the SMTP server and e-mail access information. Additionally, the send delay and size of the e-mail queue can be set. The G-Core server connection must also be defined.



Mail Settings

Parameter	Description
Mail server	Computer name or IP address of the SMTP server. **Mail providers who are using separate app passwords for authentication without OAuth 2.0 (like Gmail or Yahoo) are not supported.**
Server port	Enter the port of the SMTP server. The default port for SMTP is 25 (unsecure connection). Enable the **Enable TLS authentication** option for a secure connection with STARTTLS. The default port for STARTTLS is 587.

Parameter	Description
	STARTTLS is only supported on port 587.
Name	Name of sender
Email account	Mail address
Login name	(User) name for the e-mail access (required for SMTP authentification)
Password	Password for the e-mail access (required for SMTP authentification)

G-Core Mail Send Settings

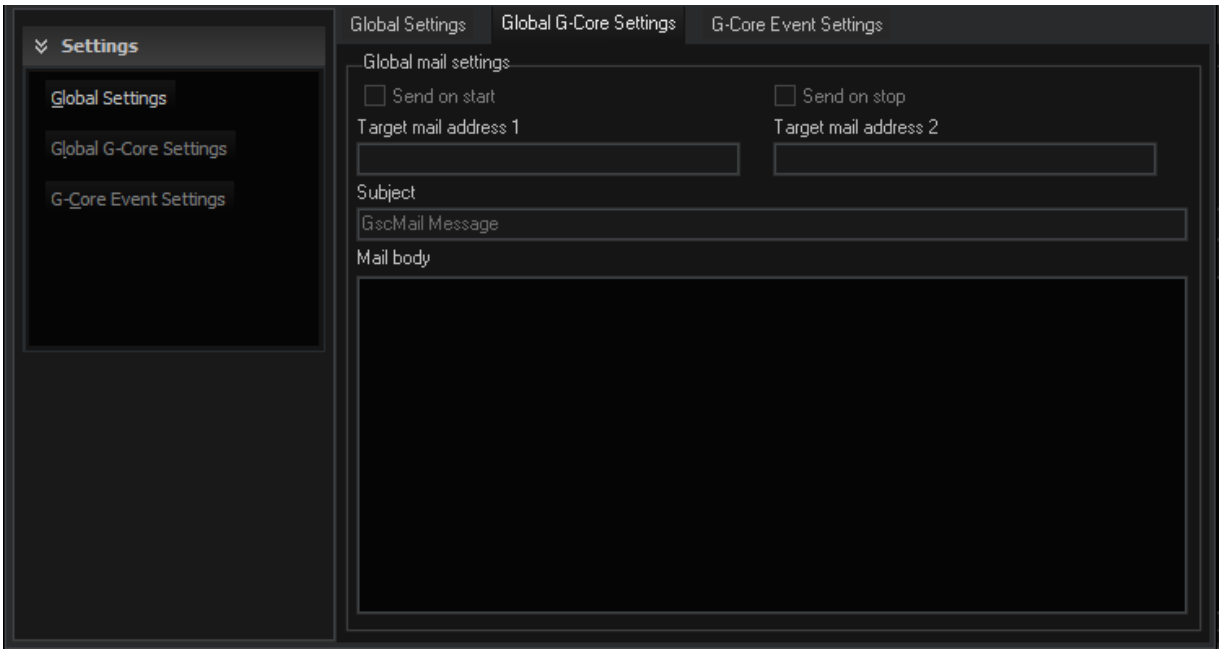
Parameter	Description
Delay between mails	Delay time in seconds (60-300)
Queue size	Queue size for additionally occurring e-mails during the delay (5-10)

G-Core Connection

Parameter	Description
Connect to G-Core server	Activation of a G-Core connection
G-Core server	Computer name or IP address of the G-Core server
Username	Username for the G-Core connection
Password	Password for G-Core connection
Connect button	A click on this button generates a connection to the G-Core for the event configuration

Global G-Core Settings

The **Global G-Core settings** tab allows for the configuration of e-mails based on G-Core events/alarms. These settings are used in case of an event/alarm when G-Core Mail is activated and no individual settings are required. This tab is active when a G-Core server connection has been made.



Global Mail Settings

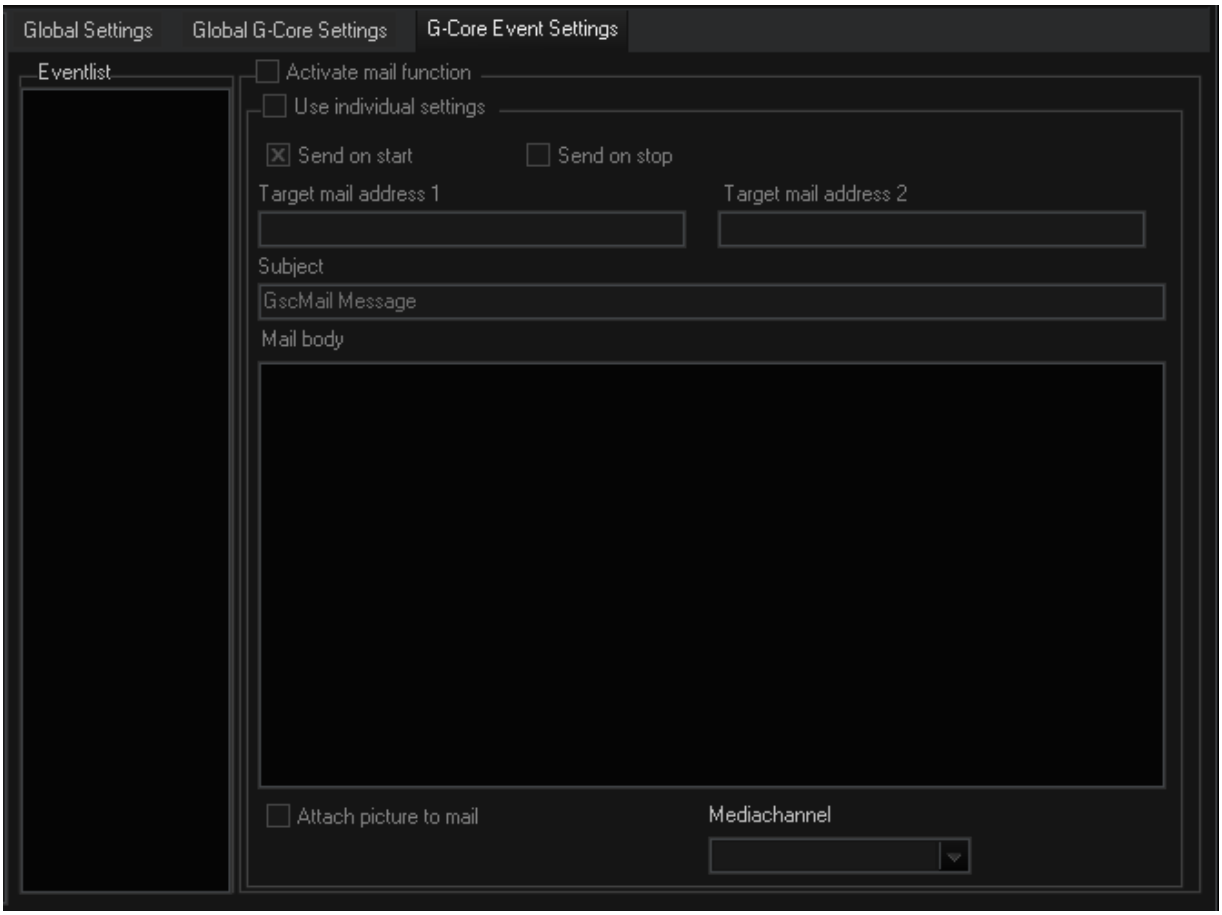
Parameter	Description
Send on start	When activated, an e-mail is sent at the start of an event/alarm
Send on stop	When activated, an e-mail is sent at the stop of an event/alarm
Target mail address 1	Defines a target address
Target mail address 2	Defines additional target address (optional)
Subject	E-mail subject
Mail body	E-mail text

E-mail subject and e-mail body can contain event parameters. See further below under Event parameters.

G-Core Event Settings

The G-Core Event Settings tab allows for the configuration of event/alarm controlled e-mails. The settings activate the G-Core Mail functions for each event/alarm configuration on the connected G-Core server. It is also possible to save a separate setting for each event/alarm configuration.

This tab and its functions are active when there is a connection to a G-Core server. All configured event/alarms are also then displayed.



If you activate Use individual settings, you can make the desired settings. Otherwise these options remain grayed out.

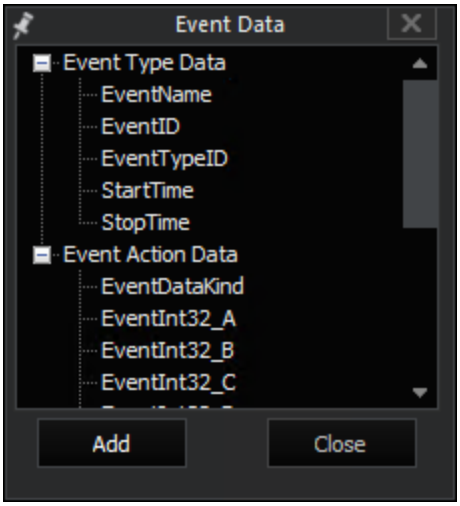
Parameter	Function
Activate mail function	Activates the G-Core Mail functions for the selected event-s/alarms
Use individual settings	When activated, allows for individual settings for the selected event. When deactivated, the general G-Core settings are used for e-mails (Global G-Core Settings tab)
Send on start	When activated, an e-mail is sent at the start of an event/alarm
Send on stop	When activated, an e-mail is sent at the stop of an event/alarm
Target mail address 1	Defines a target address
Target mail address 2	Defines additional target address (optional)
Subject	E-mail subject
Mail body	E-mail text
Attach picture to mail	When you have activated this function, a live picture of the media channel selected to the right is attached to the e-mail.
Media channel	Select here the media channel for the live picture attach-ment.

E-mail subject and e-mail body can contain event parameters. See further below under **Event parameters**.

Event Parameters

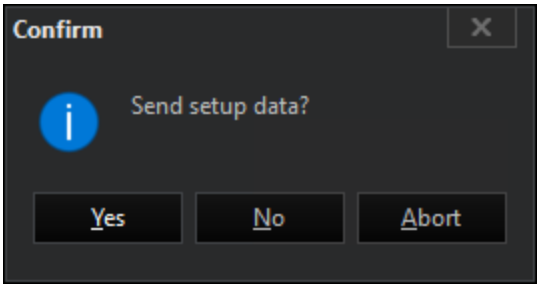
It is possible to include the current event parameters in the e-mail body or sub-ject line. When this is done, placeholders are set by the event parameters of G-Core events. Placeholders that do not exist as parameters are deleted when the e-mail is automatically generated.

Place the cursor at the position where you would like to add a placeholder and then click in the list and use **Add**.



Saving Settings

Clicking on the icon sends the setting to the G-Core Mail clients and, if defined, also to the G-Core server.



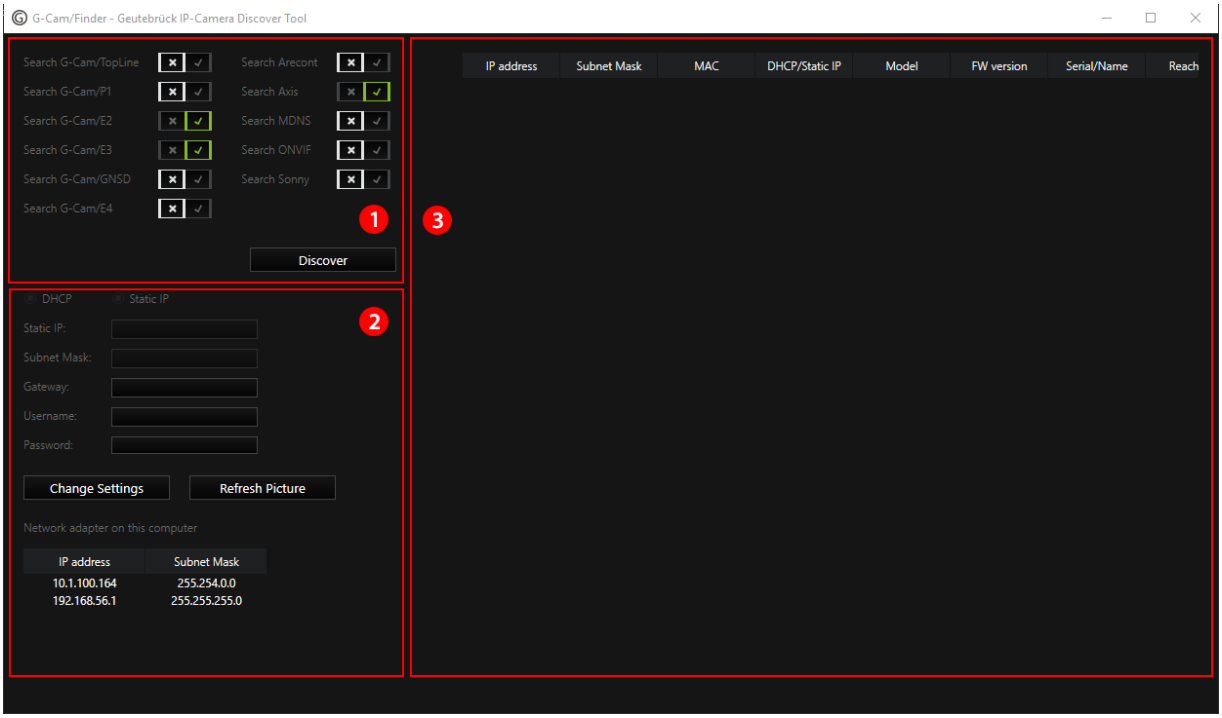
Confirm sending by clicking on the **Yes** button.

G-Finder

G-Finder is a tool to search for cameras in a network and gives an overview of all relevant connection information and the firmware status.

G-Finder

On startup of the G-Finder, the following user interface will appear:



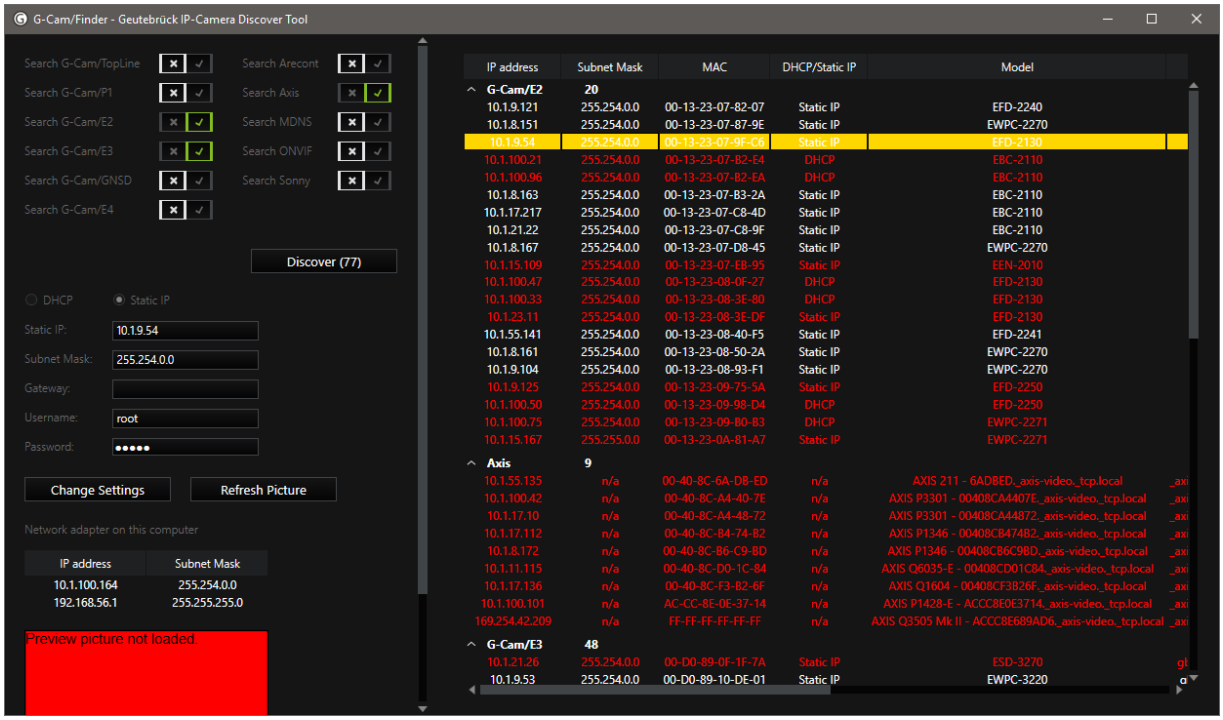
The user interface has three parts:

- The search settings 1 (on the upper left side)
- The camera details and settings 2 (on the lower left side)
- The list of cameras 3 (on the right side)

Searching for Cameras

In the search settings on the upper left side it is possible to select/deselect the types of cameras that the system should search for in the network.

To start the search, click **Discover**. A list of cameras will be shown on the right.



The camera list shows the following information about the camera:

- IP address,
- subnet mask,
- MAC address,
- whether it has a static IP or is configured via DHCP,
- model number,
- firmware version,
- serial number
- and whether it is reachable or not.

The list is ordered primarily by camera type so that all cameras of one type are grouped and can be collapsed to hide them from the list.

If a camera is reachable and a preview image can be retrieved, the camera name is colored white. If the camera is not reachable, the camera name is colored red.

To open the web interface of a camera in a browser, double click a camera.

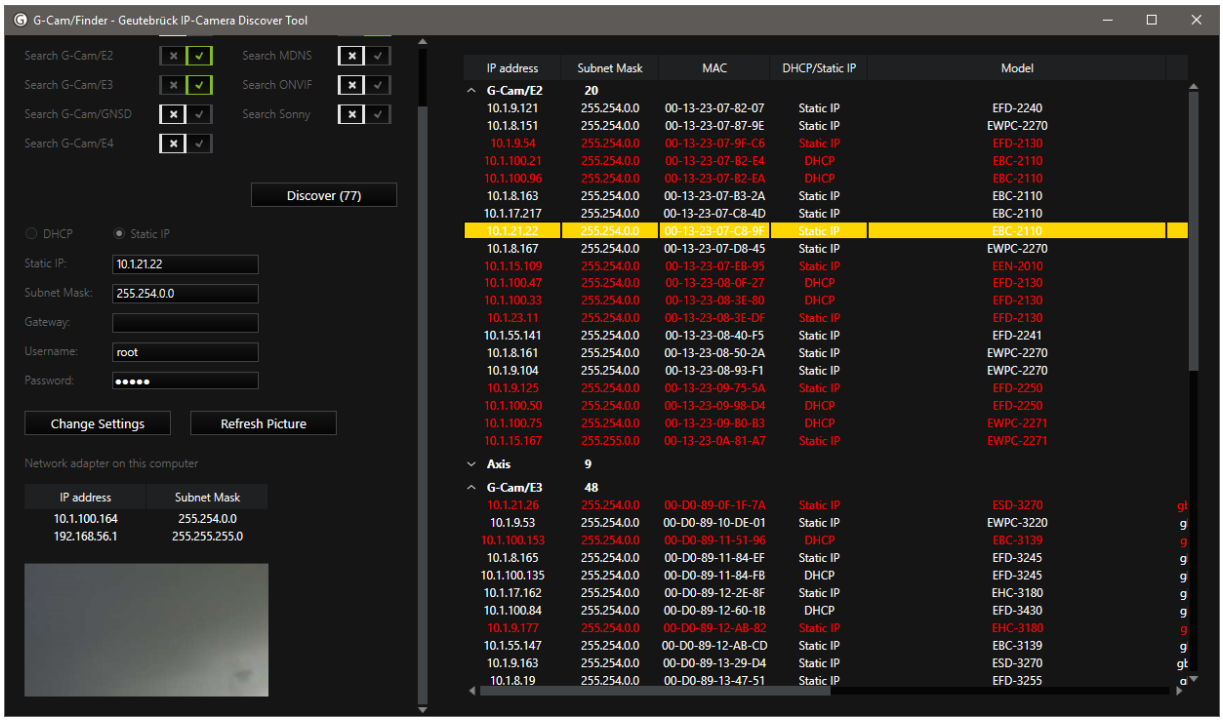
Camera Details and Changing the Settings

To display the details of a camera, click a camera. The details of the selected camera will be displayed on the left.

The details consist of:

- cameras IP address,
- subnet mask,
- gateway,
- username and password (not in plain text)
- and whether it has a static IP address or is configured via DHCP.

Below, there is also a list of all the network adapters installed on your computer and their IP configuration as well as a camera preview image.



To change the settings, do the following:

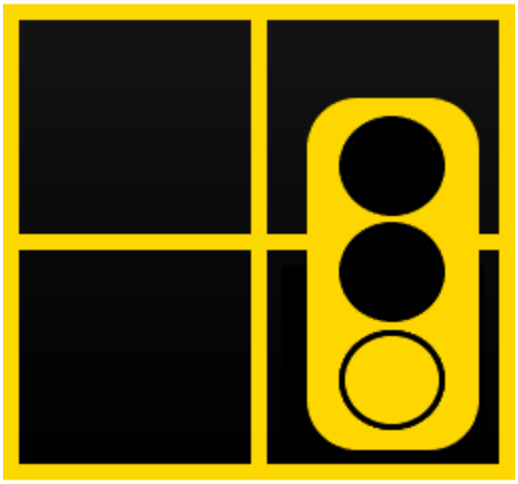
1. Enter the new setting information into the input field.
2. Click **Change Settings**.

To get a new preview image from the camera, click Refresh Picture.

If the camera is not reachable or does not use standard username and password, there will be an error message instead of the current preview image.

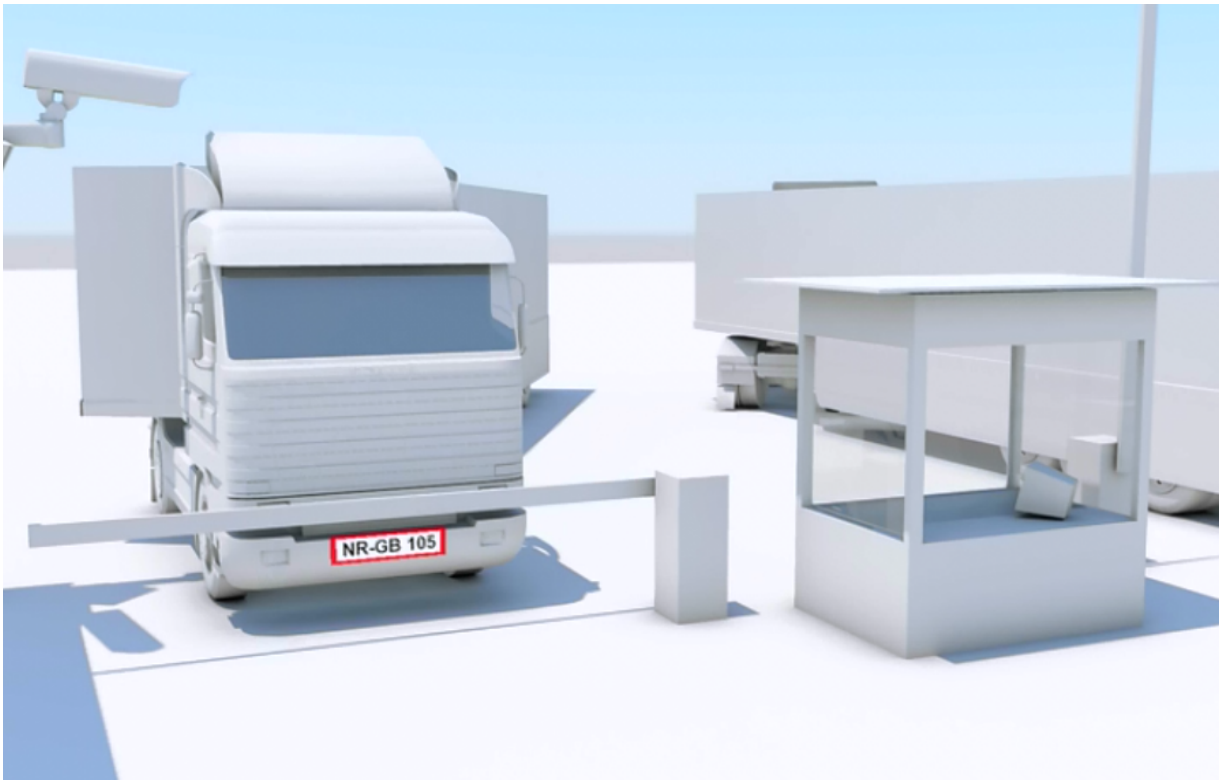
By hovering the mouse over the camera list, the preview image of the camera that the mouse is hovering over is shown, not the image of the selected camera.

Vehicle Access Manager (VAM)



The VehicleAccessManager (in the text usually abbreviated as VAM) is a component of the Supply Chain Security software. With it, all vehicle movements on the premises are documented.

It works across workstations, meaning individual driveways can be assigned different workstations. The necessary access rights are assigned on a user basis, meaning that the user only sees what he needs and is allowed to see to perform his work.



Logistics processes are mapped specifically: Vehicles are assigned to service providers, drivers, contact data or orders. The driveways can be assigned to completely different workstations. When a vehicle approaches, overview cameras and driver cameras are automatically activated at the request of the user.

An easy to manage black/white list with additional rights options such as **time ranges** or **max. length of stay** simplify the access control.

At the same time, you can initiate a search according to different filter criteria, such as **time span**, **plate**, **customer group**, etc.

For the documentation required for regulations, the VehicleAccessManager creates **one-click daily reports** of all operations. A summary table lists all the vehicles currently on the premises.

All operations, customer data and vehicle data are stored in a central MS-SQL database and can be queried by each client individually.

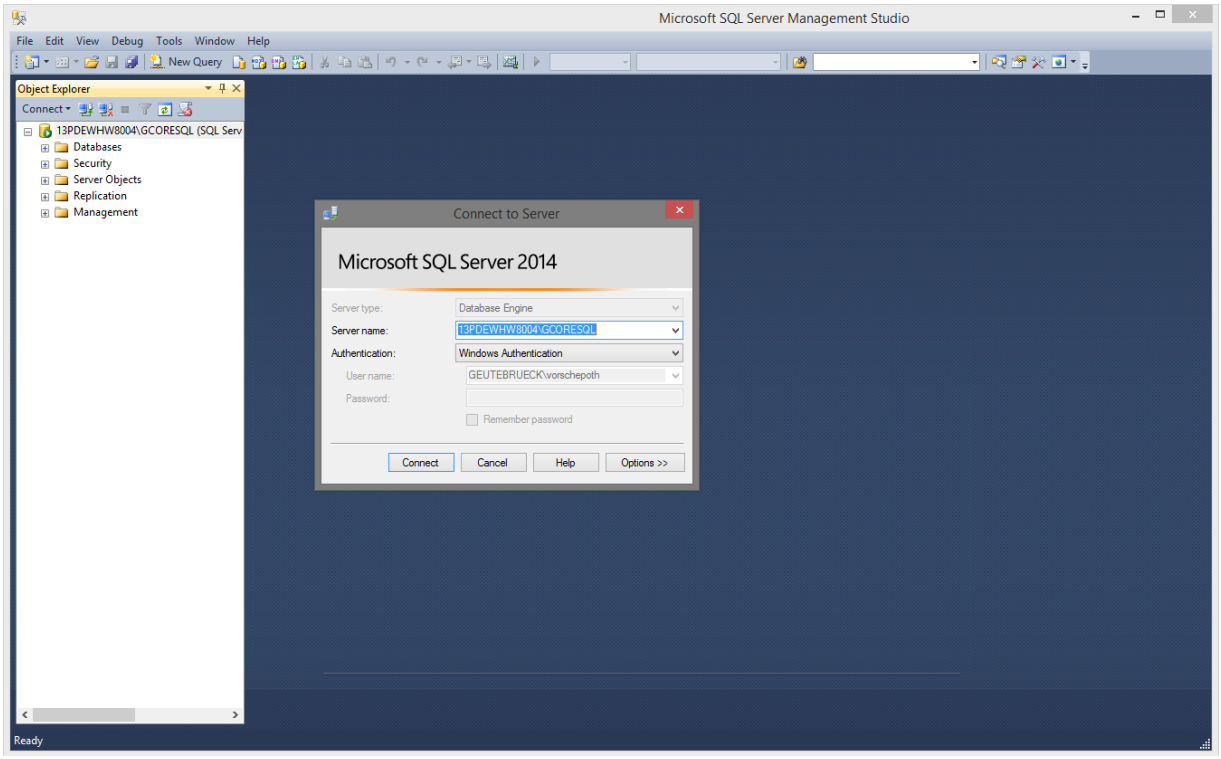
Configuration

Introduction

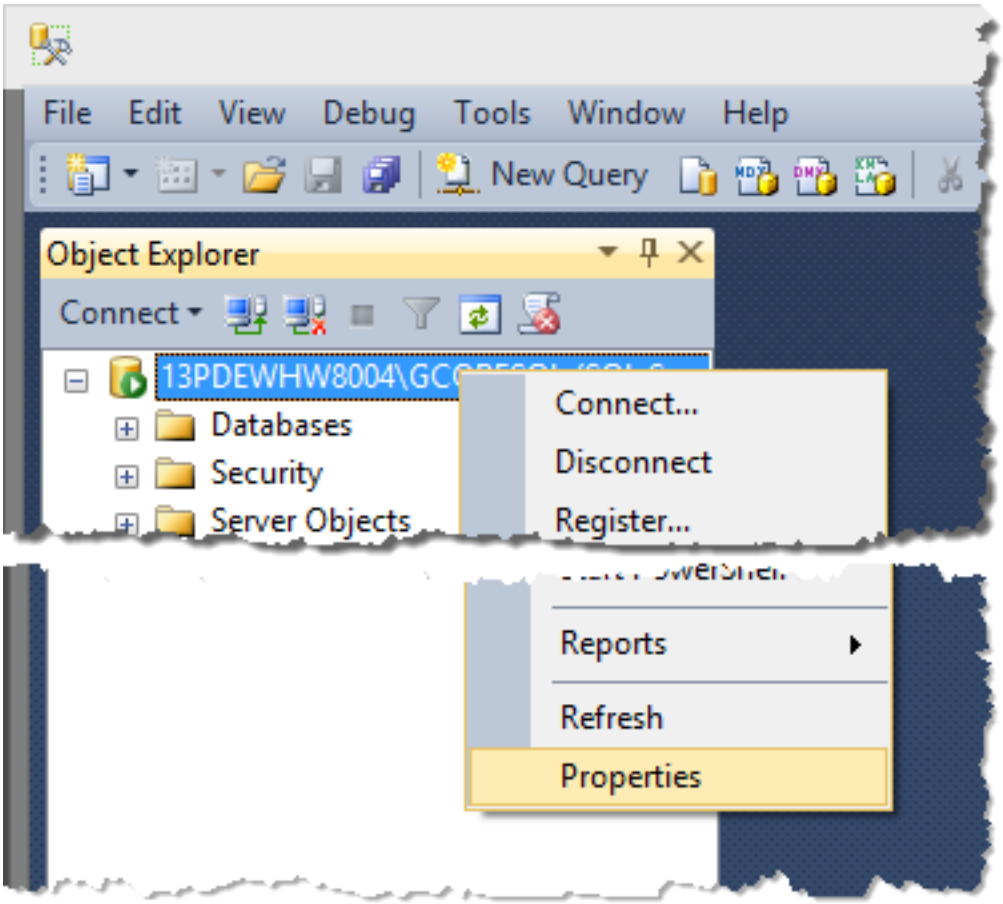
Before using G-CoreVAM, the user administration of the MS SQL server must be changed to mixed mode.

Changing the SQL Server to Mixed Mode

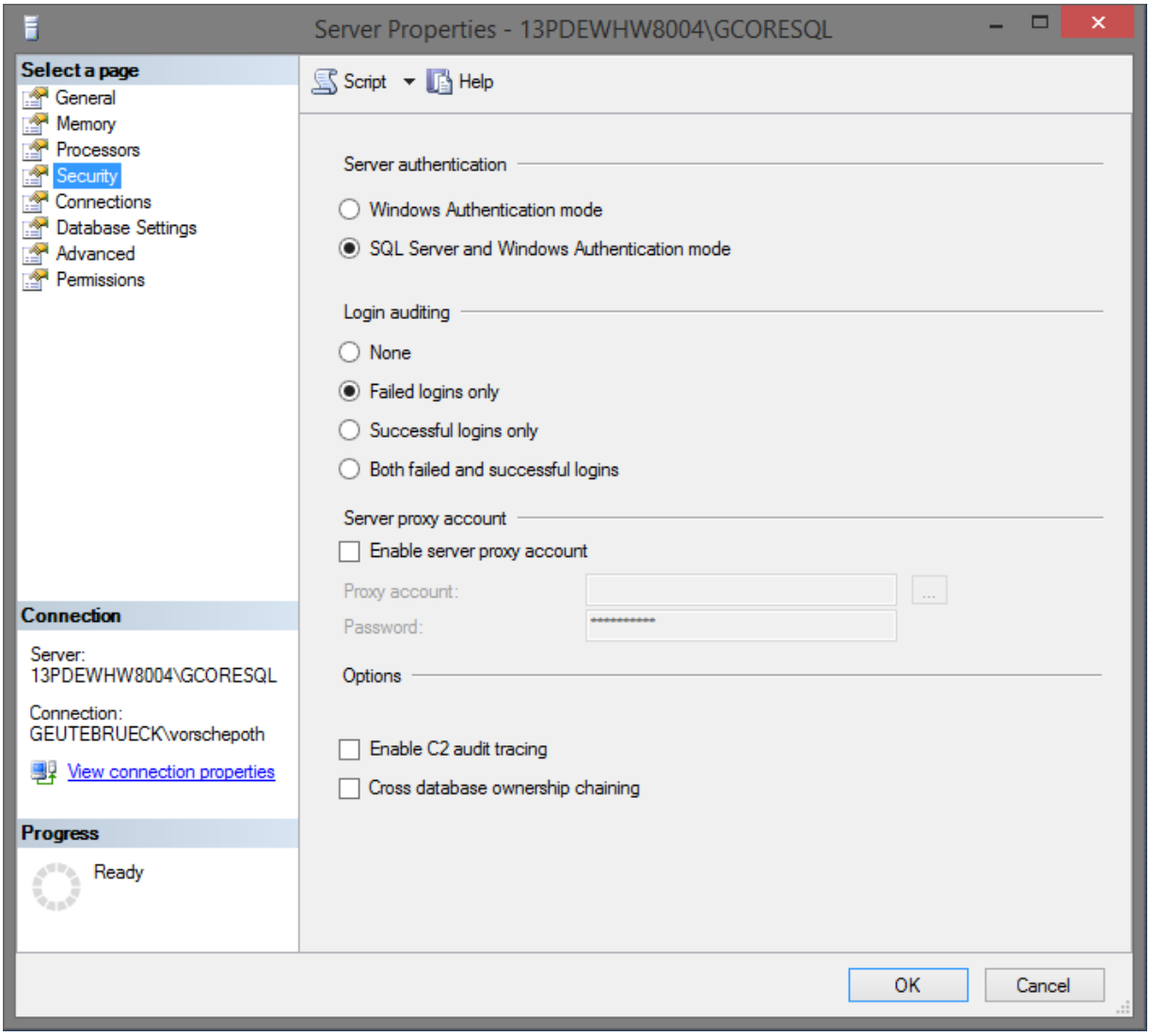
To set the SQL server to mixed mode, the **SQL Management Studio** must be opened (`C:\Program Files (x86)\Microsoft SQL Server-\120\Tools\Binn\ManagementStudio\Ssms.exe`).



After logging on, right clicking on the server name opens the popup menu in which the **Properties** must be selected.



In the **Server Properties** dialog, clicking **Security** brings you to the desired settings:

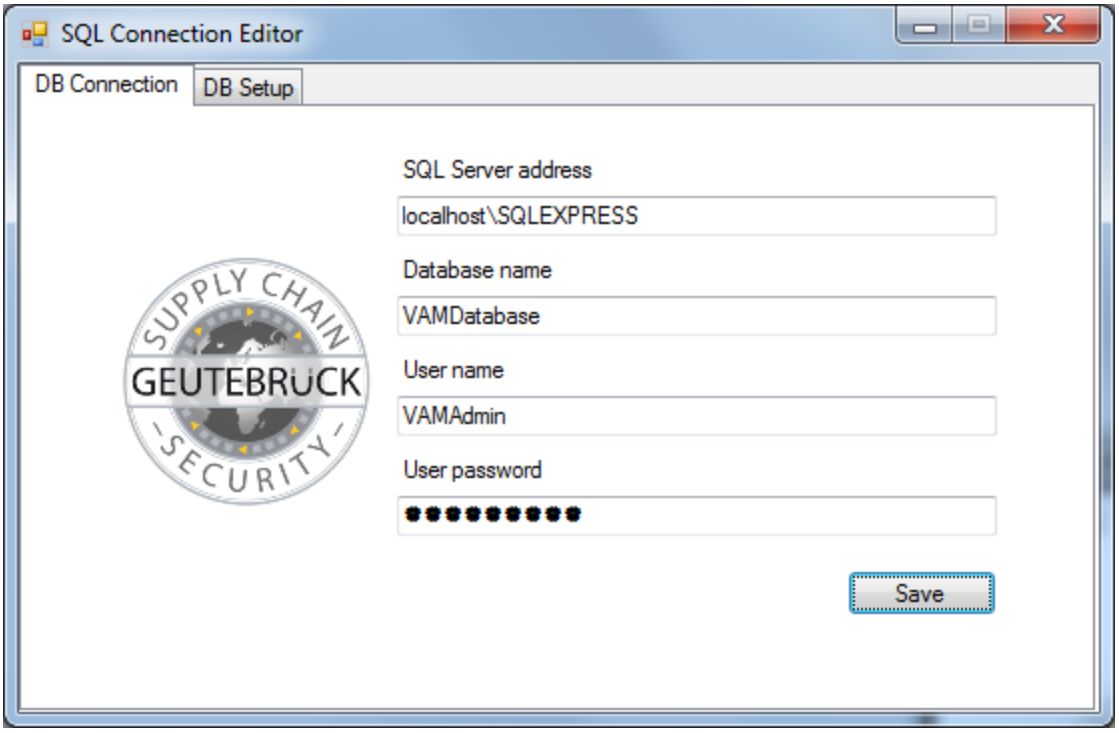


The default setting under **Server authentication** is **Windows Authentication mode** and must be set to mixed mode: **SQL Server and Windows Authentication mode**.

The setting is active after confirmation OK and after closing the SQL Management Studio without having to restart the SQL server.

Configuration of the SQL Server

For an initial installation of the SQL server, the database must be set up on the server and the administrator must be created for the VAM with the tool **GSQLConnectionEditor**.



The required settings for the new configuration are grouped under the **DB Setup** tab.

The following settings must be specified:

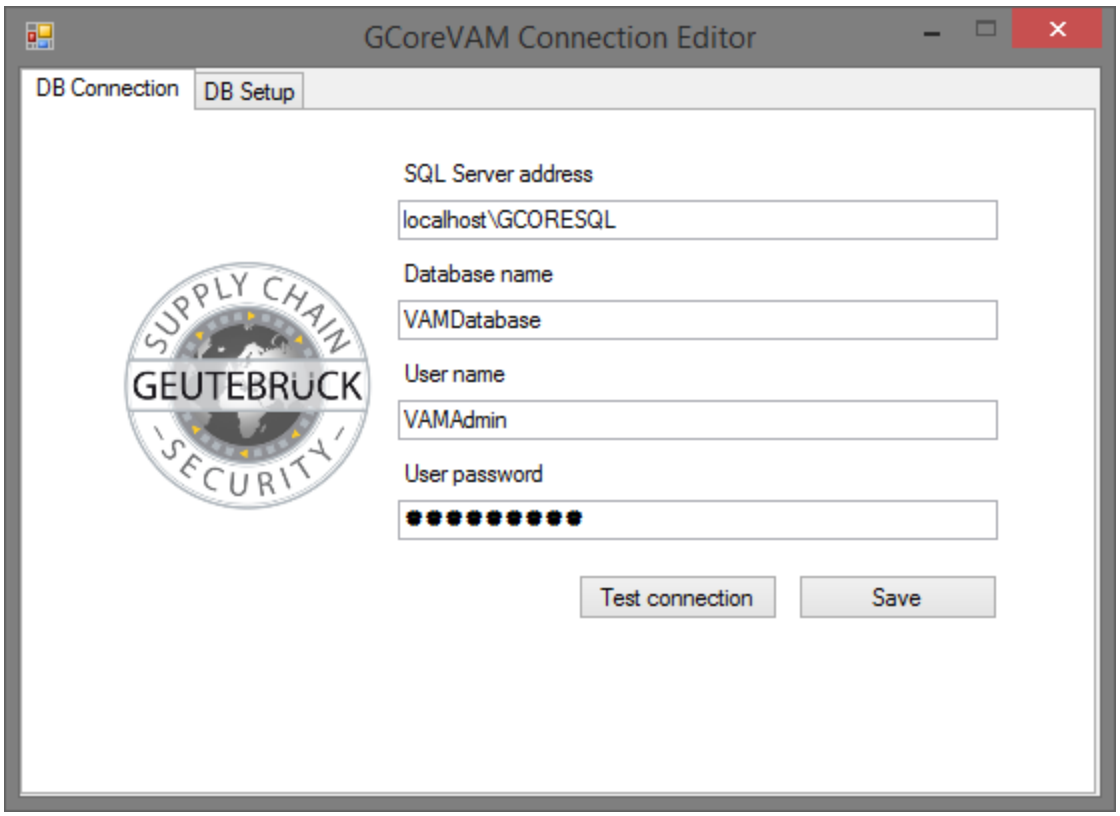
Setting	Description
SQL server address	The SQL server address consists of the computer address + "\" + the instance name that was specified during installation of MS SQL Server. (Default: localhost\SQLEXPRESS)
Server admin password	The server admin password is the password that was specified during the installation of MS SQL Server in the "Database Engine Configuration" dialog. (Default: masterkey)
VAM database name	The name of the database in which all the information of the VehicleAccessManager is stored. (Default: VAMDatabase)
VAM database admin name	User name of the administrator of VehicleAccessManager database. (Default: VAMAdmin)
VAM admin password	The password of the administrator of the VehicleAccessManager database. (Default: masterkey)

With the **Create User and DB** button, the database and the administrator are created on the SQL server.

If the administrator already exists, only the database is created.

Configuration of the Connection Parameters

So that the **SQLConnect** service and the **GSupplyChainVAM** clients can communicate with the database, on each PC on which one of these programs runs, the **GSQLConnectionEditor** must be run to configure the connection data of the programs. This is performed with the **DB Connection** tab.



The parameters must be specified according to the configuration of the SQL server:

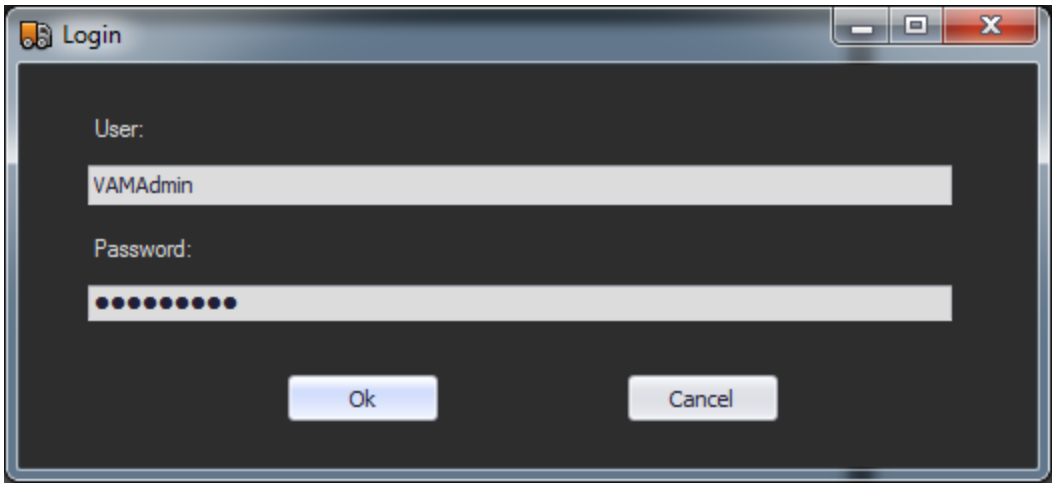
Parameter	Description
SQL server address	The SQL server address consists of the computer address + "\" + the instance name that was specified during installation of MS SQL Server. (Default: localhost\SQLEXPRESS)

Parameter	Description
VAM database name	The name of the database in which all the information of the VehicleAccessManager is stored. (Default: VAMDatabase)
VAM database admin name	User name of the administrator of VehicleAccessManager database. (Default: VAMAdmin)
VAM admin password	The password of the administrator of the VehicleAccessManager database. (Default: masterkey)

A recorder requires the license for VAM. With this license, any number of recorders can connect to the VAM.

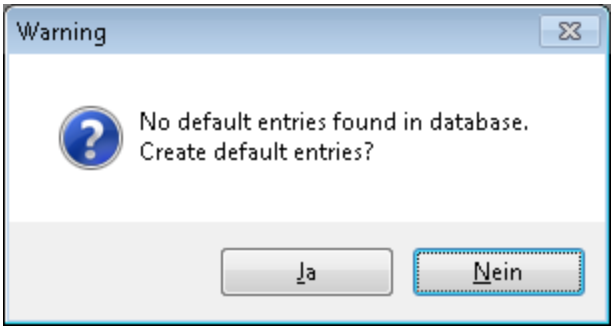
Creating Configuration Data

At the start of the VAM a login dialog appears.

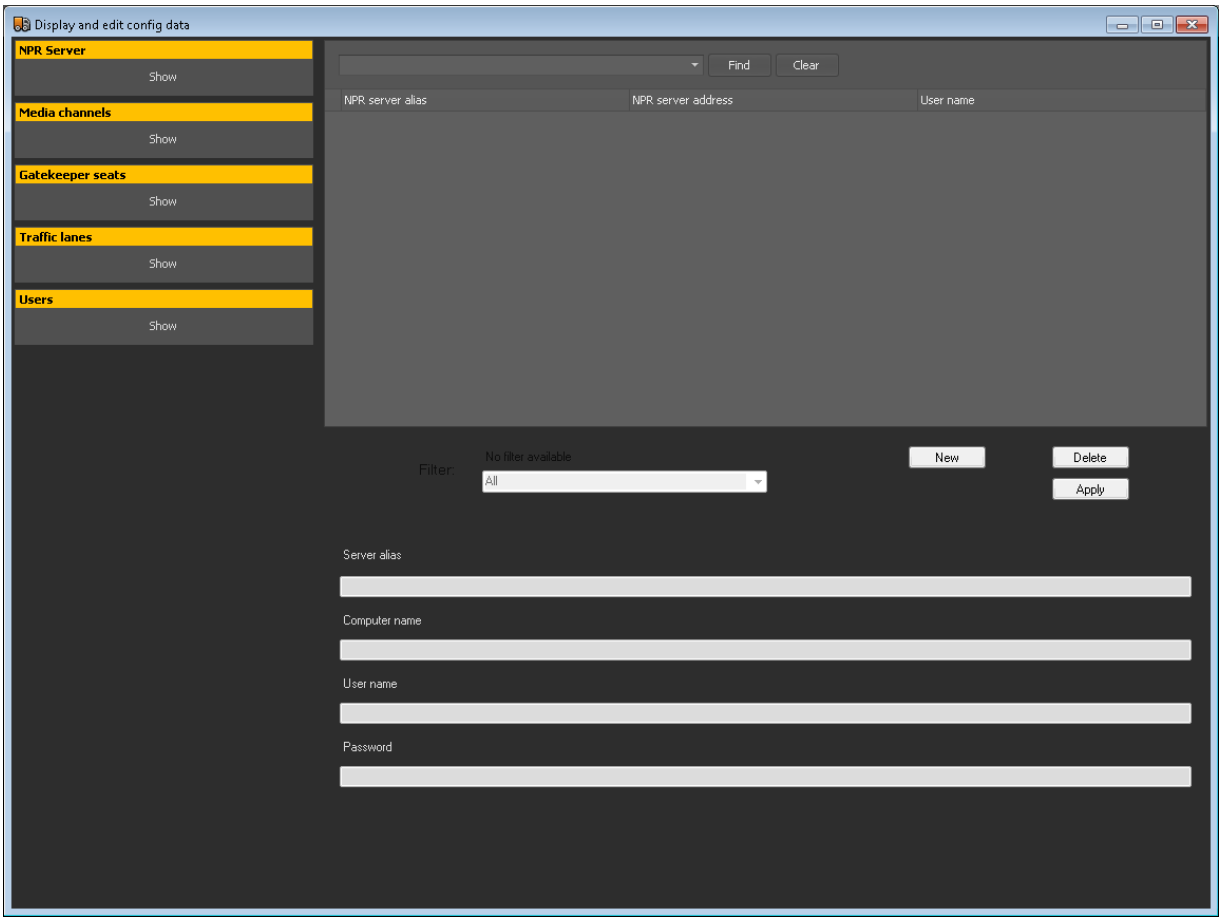


For initial setup, you must login using the database admin login, as no users have been created yet.

When you first login, the default entries (Undefined Category, Undefined company, Not required transport order) can be created.



After login, using **Edit...** -> **...config data** in the menu bar, you can open the overview and setting dialog of the configuration data.

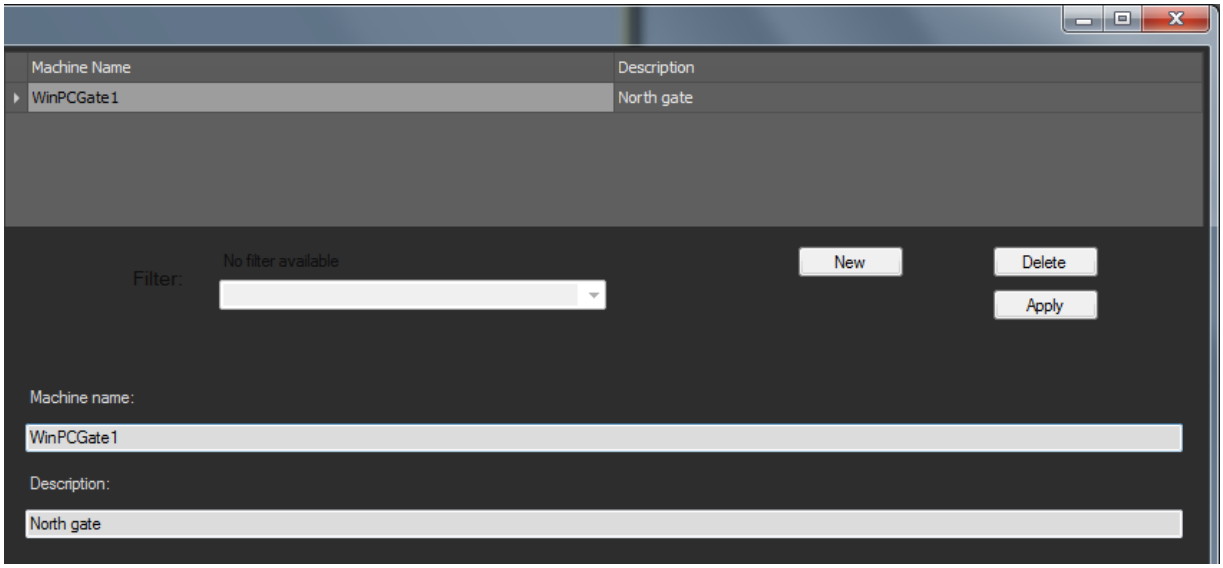


In this dialog, all configuration data is shown and it is possible to create new data records. The configuration data is comprised of:

- Gatekeeper seats
- Media channels

- NPR Server
- Traffic lanes
- Users

Gatekeeper Seats

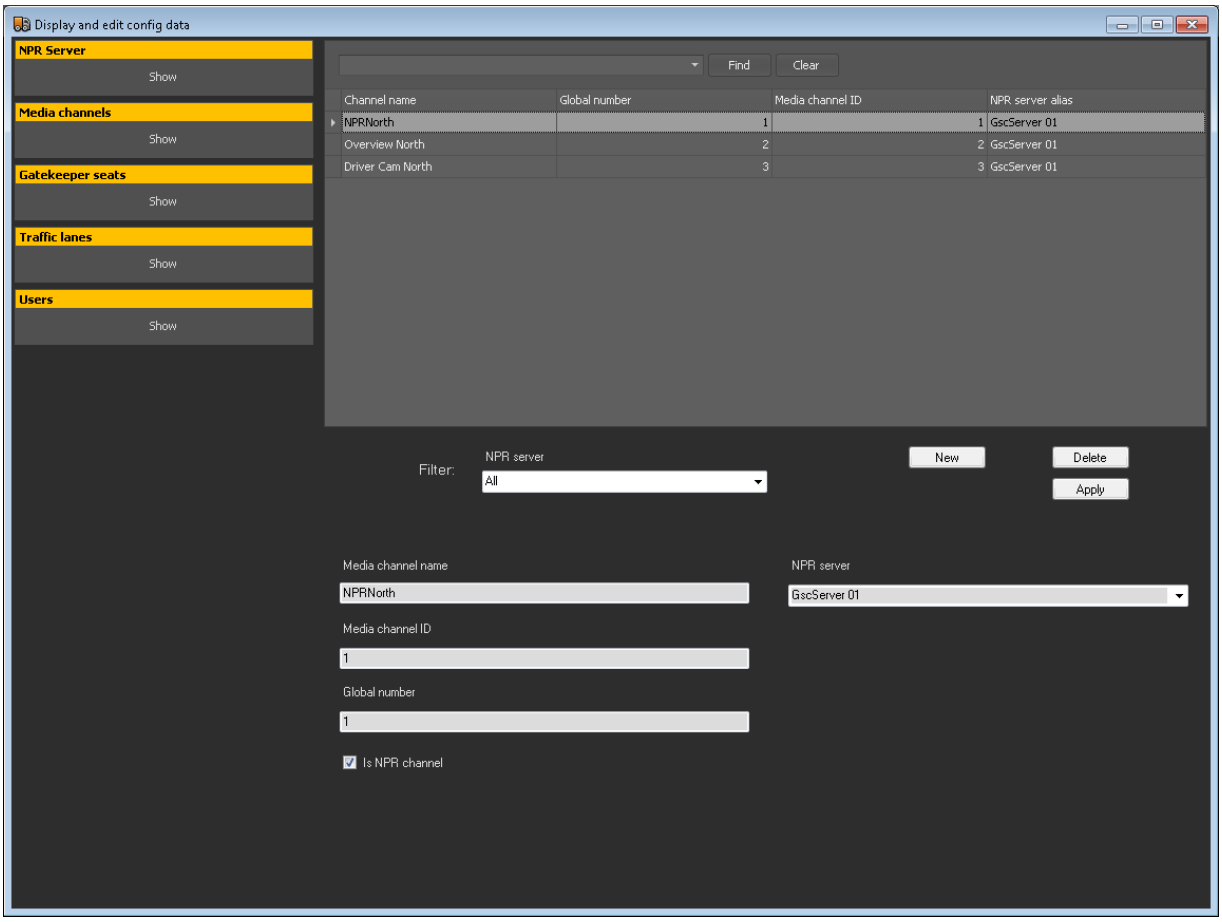


Here the workstations are listed that have permission to work with the VAM.

To enter a workstation, you need the

- Machine name - computer name of the workstation and a
- Description - a description of the workstation.

Media Channels



In the list of media channels, all media channels are added that are important for the VAM environment.

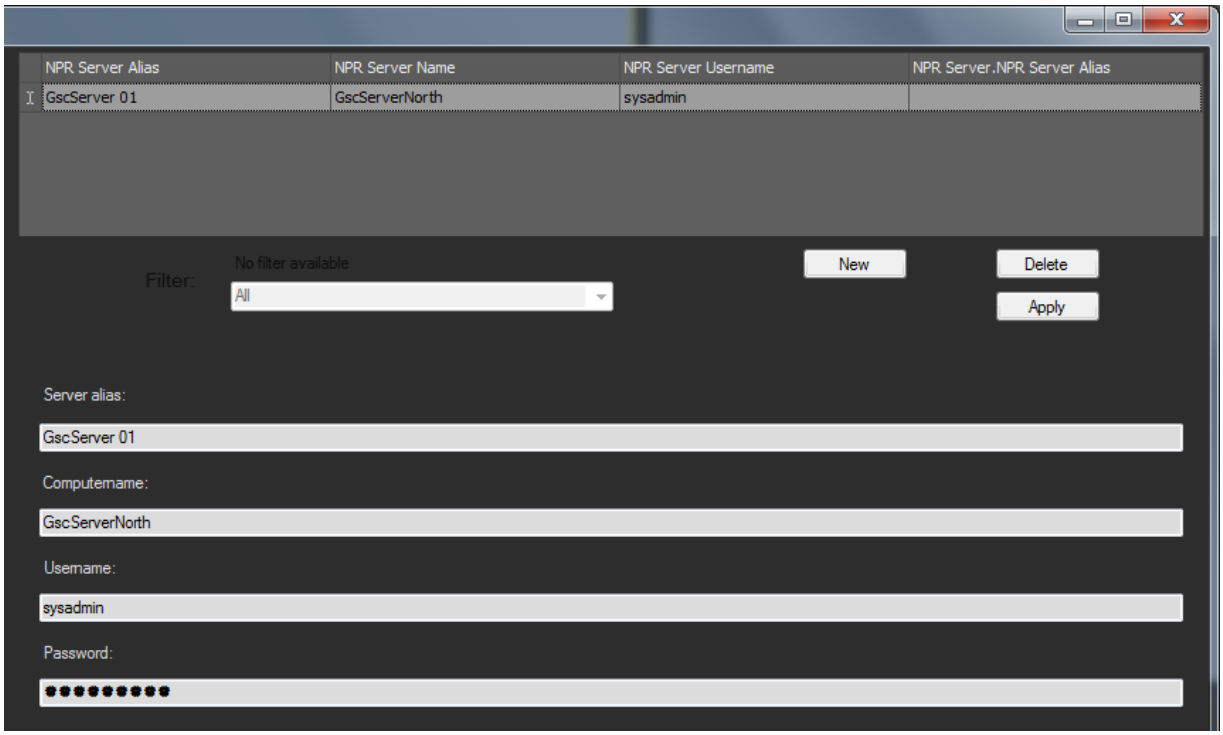
This includes all NPR channels at the entrances and exits, as well as possible overview and driver cameras.

The following information is necessary for the individual media channels:

- Media channel name - channel name in the G-Core server.
- Media channel ID - ID of the media channel in the G-Core server.
- Global number - the global number of the media channel.
- Is NPR channel - this channel analyses the NPR service.

- NPR Servers - in the list of NPR servers, all GeViScope servers with their connection parameters are entered on which at least one of the media channels is set up.

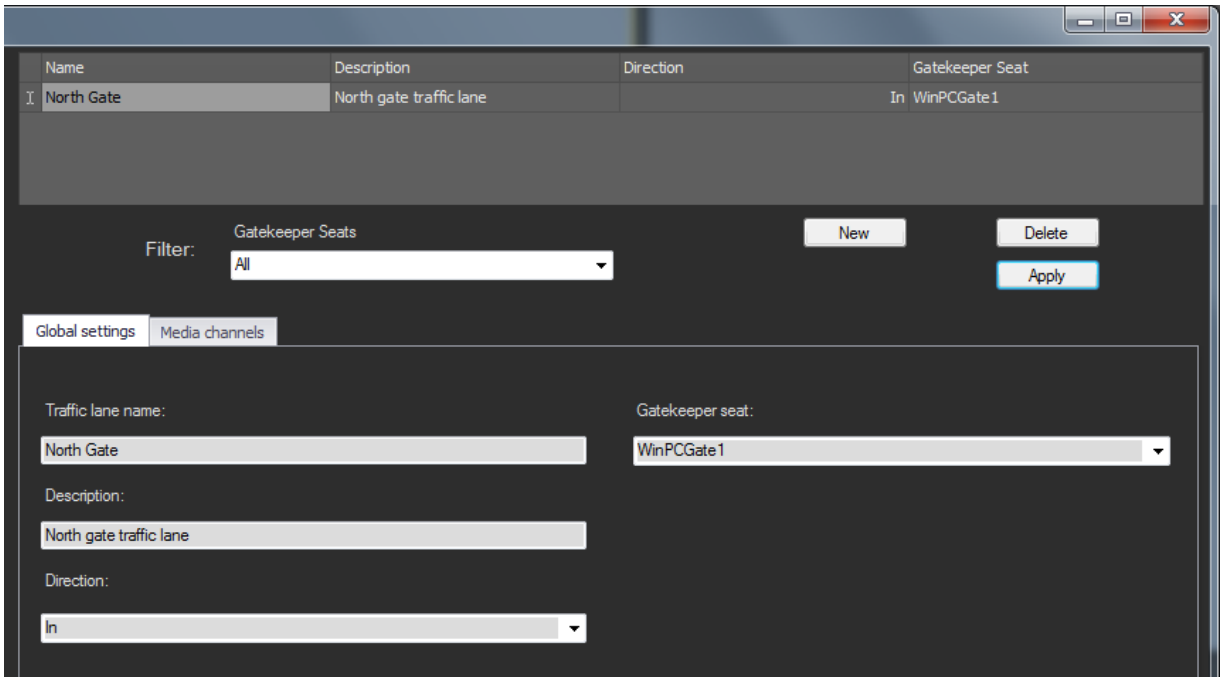
NPR Server



The following information is necessary for the NPR servers:
Server Alias - description of the GeViScope server.

- Computer name - GeViScope server address
- Username - the username with which the VAM clients establish the connection
- Password - the password of the GeViScope user

Traffic Lanes

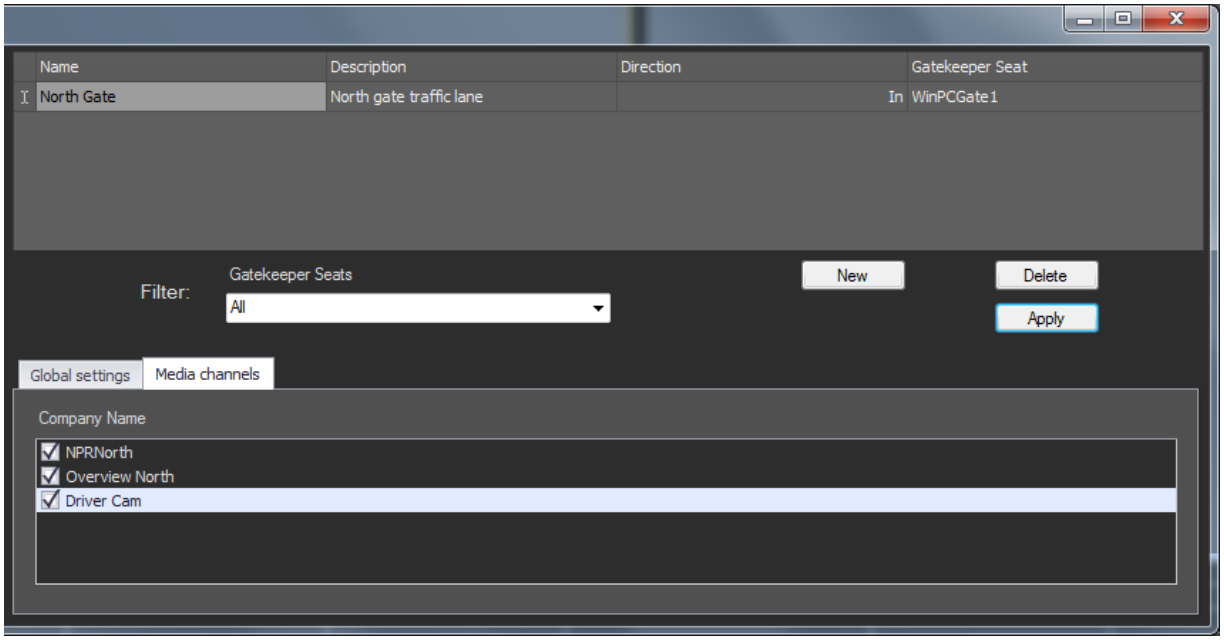


Traffic lanes define the entrances and exits in the system. At the same time, a group of media channels is thus defined, which is important for this lane.

> **IMPORTANT:** Please note that you must have separate lanes for the entrance and the exit, each monitored with a separate camera. Otherwise, vehicles will be evaluated by the NPR camera for the entrance as well as from the camera for the exit. The system cannot identify the group to which the vehicle belongs. This leads to errors in the system.

Each lane has the following parameters (**Global Settings** tab):

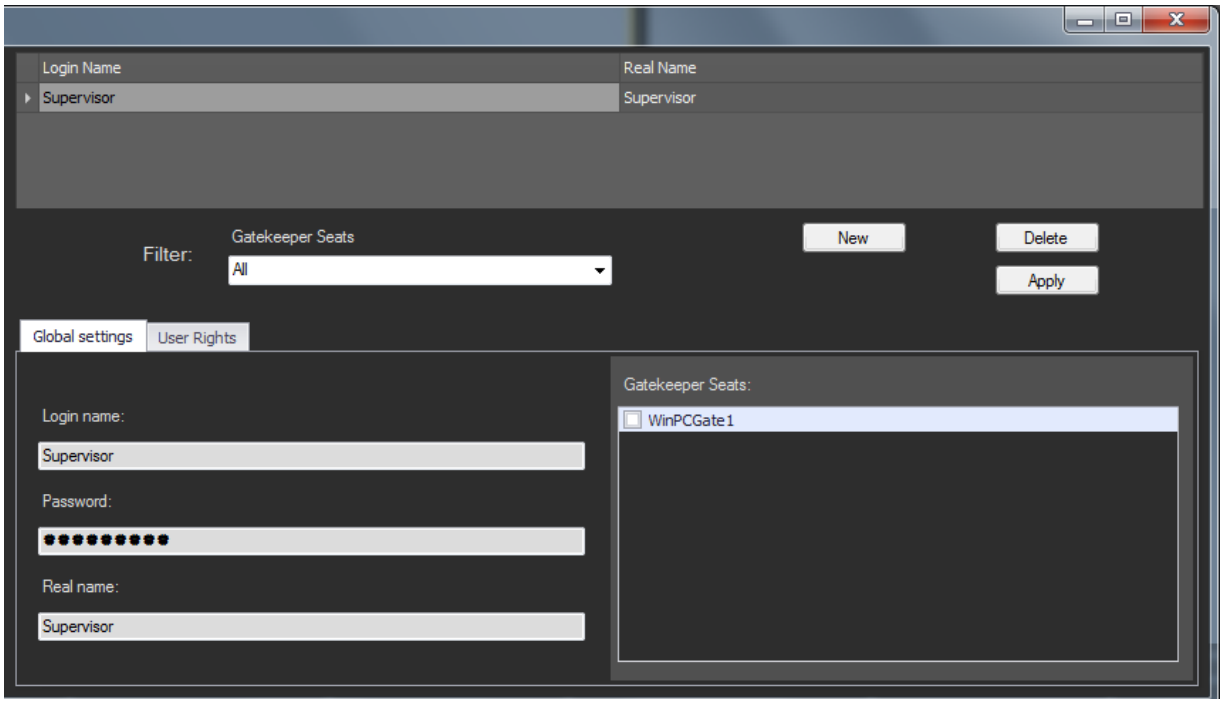
- **Traffic lane name** - name of the lane
- **Description** - a description of the lane.
- **Direction** - the direction indicates whether the lane is an entrance or an exit.
- **Gatekeeper seat** [workstation] - workstation that is responsible for this lane.

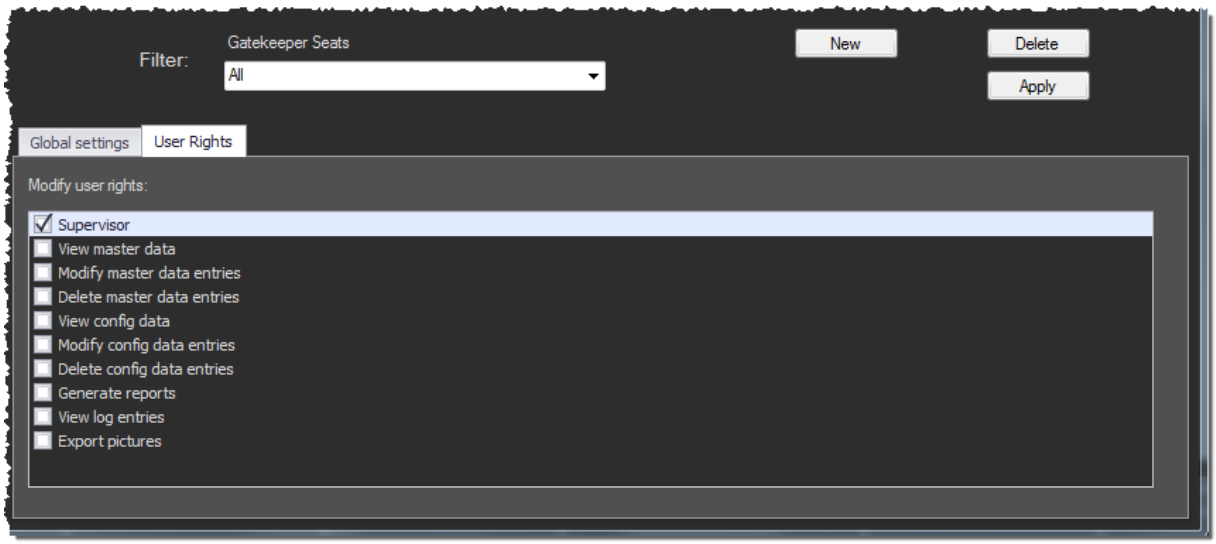


Each lane has the following parameters (**Media Channels** tab):

- **Media channels** - in the list of media channels, up to 4 channels of a lane can be added, individual media channels, however, can be assigned to multiple lanes, provided it is not an NPR camera.

Users



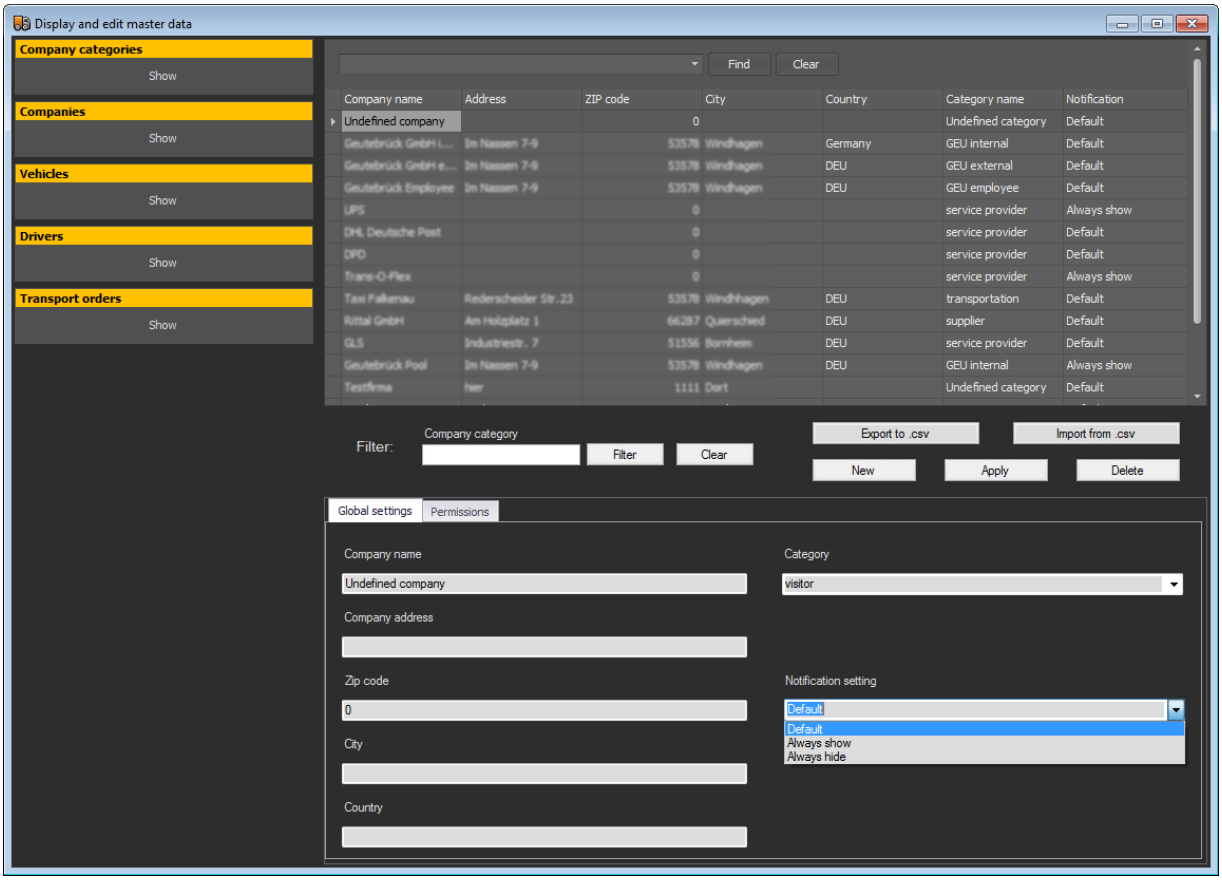


In this dialog, all VAM users are managed. Using the two tabs, it can be defined which workstations each user can log in at and which general permissions the user has in the VAM system.

The user has the following parameters

- Login name - login name of the user.
- Password - the user's login password:
- Real name - user information.
- Gatekeeper seats - list of all workstations, at the selected workstations the user can login.
- User rights - list of all user rights.

Creating the First Master Data



The menu bar options **Edit... -> ... master data** opens the overview and setting dialog for all master data in the system.

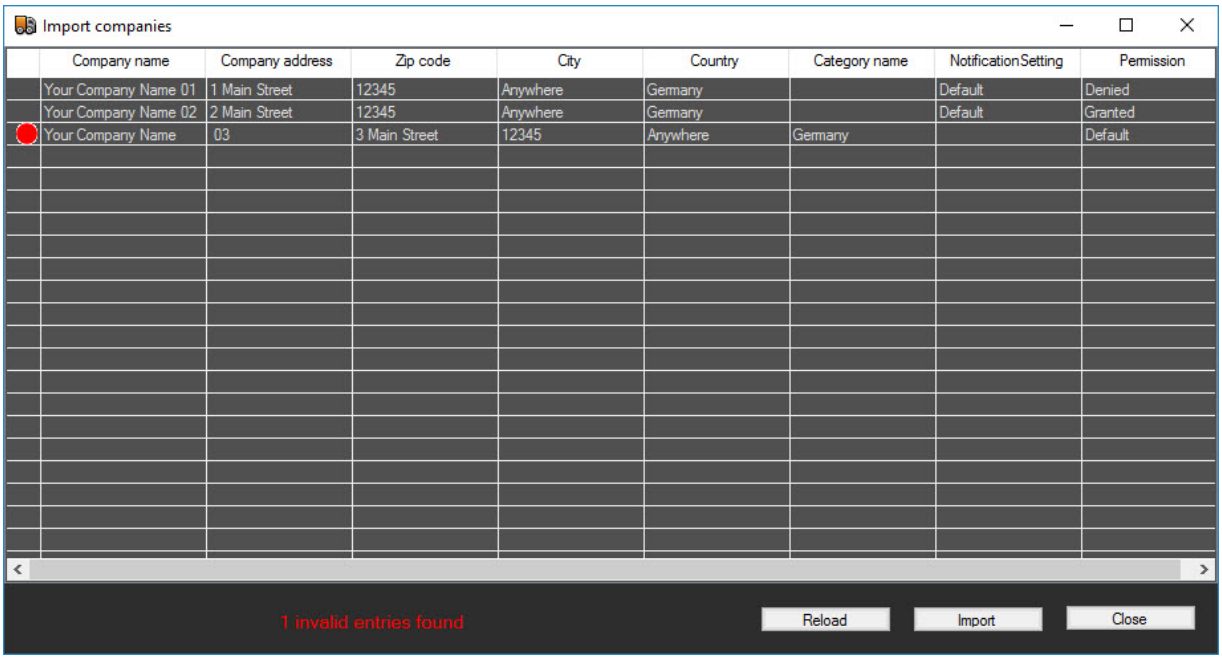
This data will be maintained and expanded later at runtime. To ensure that the system works normally after a new installation, it is necessary to first create data records for the master data.

The master data is divided into the following categories:

- Companies
- Company categories
- Drivers
- Transport orders
- Vehicles

All lists can be exported and imported as a CSV file. Exported CSV files can be processed (using Excel for example). Export to .csv – exports the data to a CSV file. Import from .csv – imports a CSV file.

For an export to a CSV file, the column name are not applied in the interface language, but rather in English.
For an import of data, the data to be imported are shown in a dialog and invalid entries are marked. These entries can be corrected in a CSV file. With the Reload button, the corrected CSV file is reloaded to the Import dialog. If the data are recorded correctly, they are added to the G-Core VAM database using the Import button. Close exits the Import dialog.



Companies

In the company list, all known companies with their master data are entered.

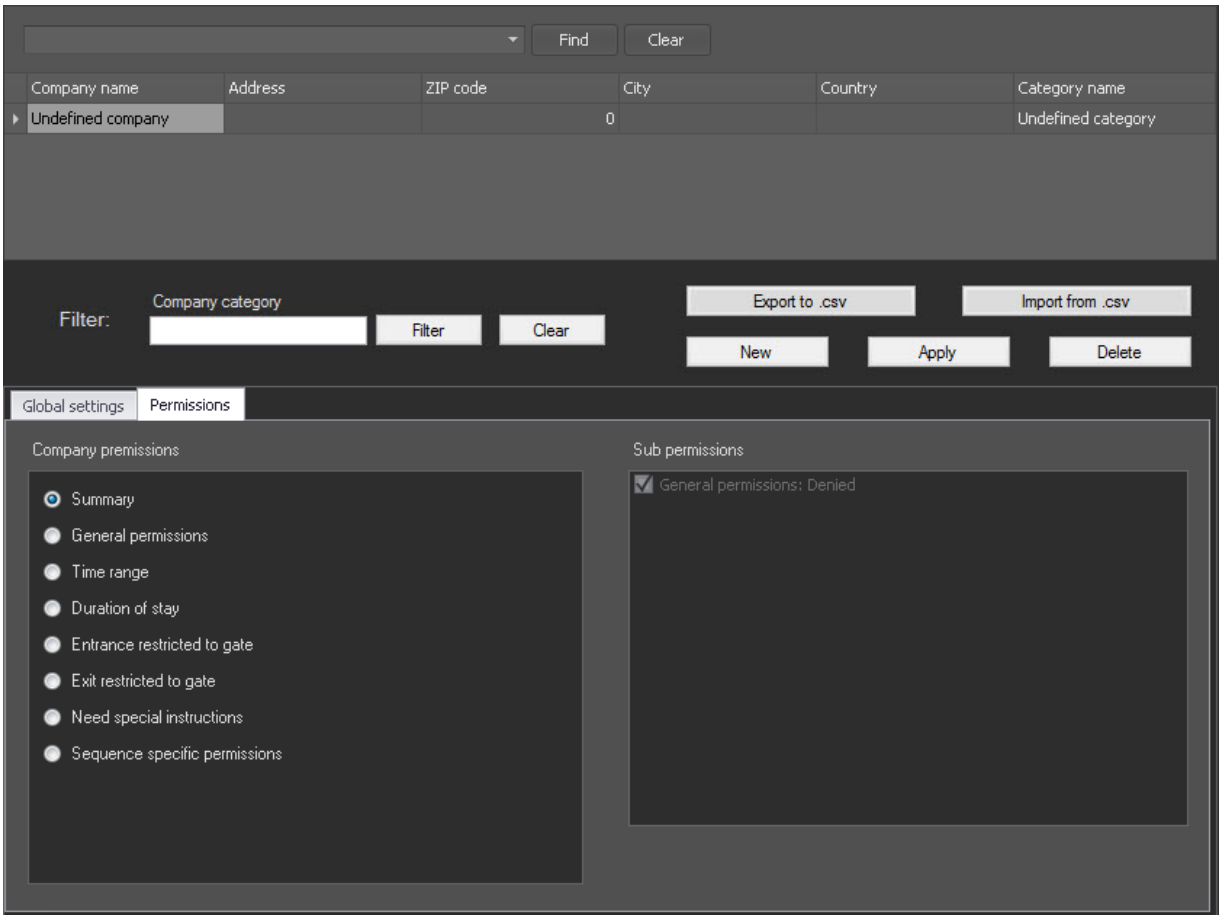
Each company is assigned a business category, which can also be used for filtering.

Under **Notification Setting**, you can specify the following

- Whether the default values from the option settings should be used (link)
- Or all are to be displayed,
- Or all should be hidden.

The settings in the Options menu for this dialog are overwritten with these settings.

It is possible to distribute company-wide permissions. However, in the case of assigned vehicle permissions, these are taken into consideration first.



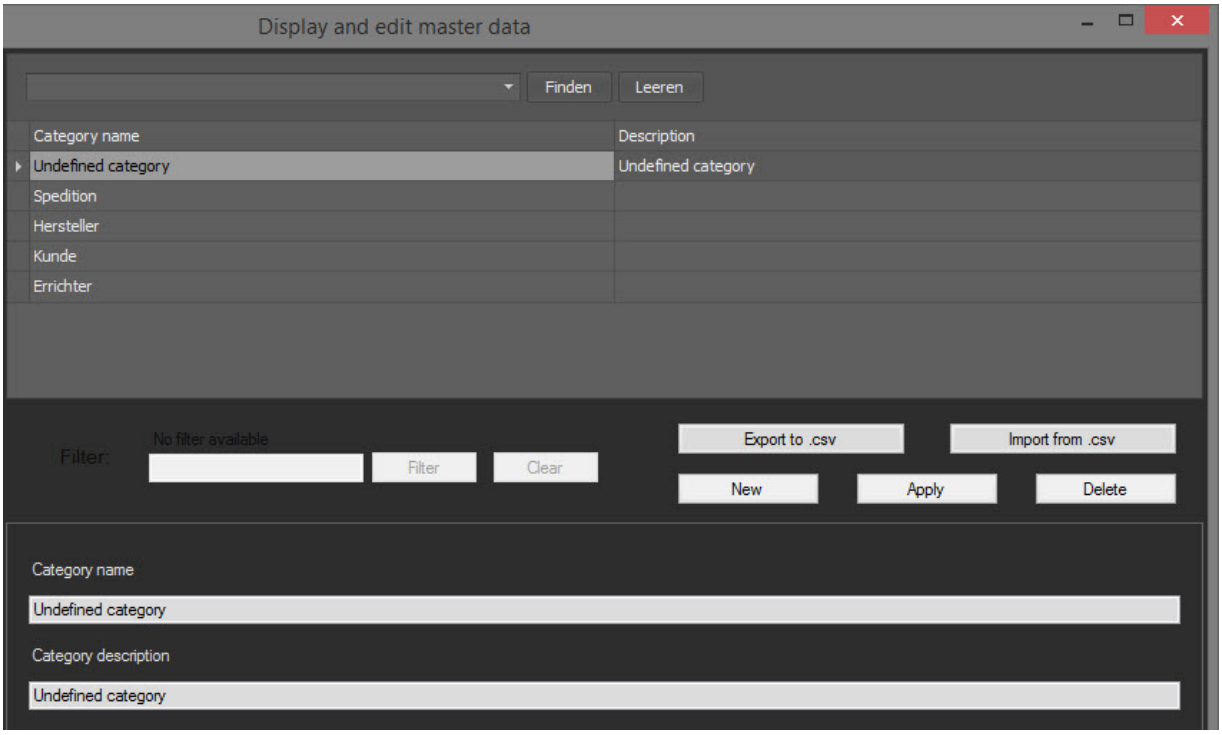
The permissions are grouped according to the following criteria:

- Summary - provides an overview of all selected permissions
- General permissions:
    - Denied - entrance is prohibited.
    - Allowed - entrance is allowed without restriction.
- Time range - entrance is allowed only at certain times on certain days.
- Duration of stay - stay on the premises is limited.
- Entrance restricted to gate - entrance is allowed only at certain gates.
- Exit restricted to gate - exit is allowed only at certain gates.
- Need special instructions - special instructions to the driver or to the user, for example, report at loading bay x, report to supervisor, etc.
- Sequence specific permissions:
    - Vehicle data needed - vehicle data must be entered by the user. This includes trailer numbers, weight of the trailer and trailer seal numbers
    - Transport order needed - the user must assign a transport order to the process
    - Driver data needed - the user must assign at least one driver to the process.

General permissions - Denied
If an event is created with the action G-SCS vehicle access denied, key words can be entered in the Reason field so that it is possible to filter later according to the reason why entrance was denied. The keywords are: Denied, Timerange, LimitedAccess, Duration, Gate.If multiple permissions are affected, the keywords must be separated by a semicolon.

Company Categories

Companies can be grouped by categories.



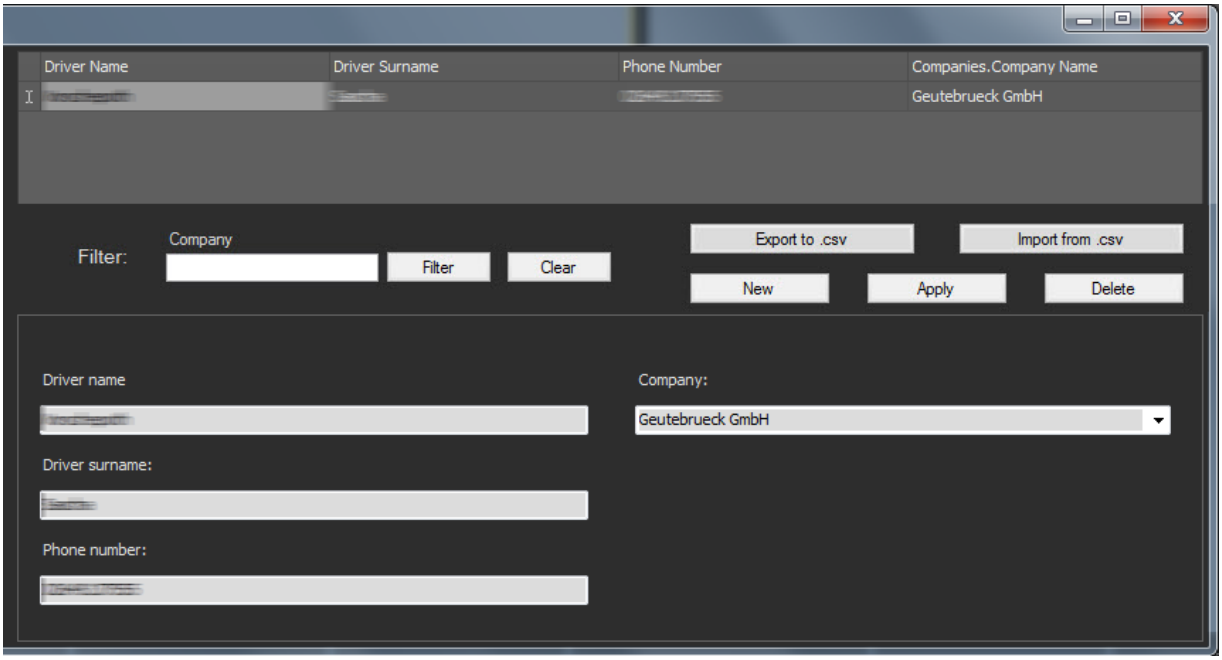
A category has a

- Category name and a
- Description.

Drivers

In this list, all known drivers and their data are recorded.

A driver is only needed for the individual operations when the corresponding permission is set for the operation.

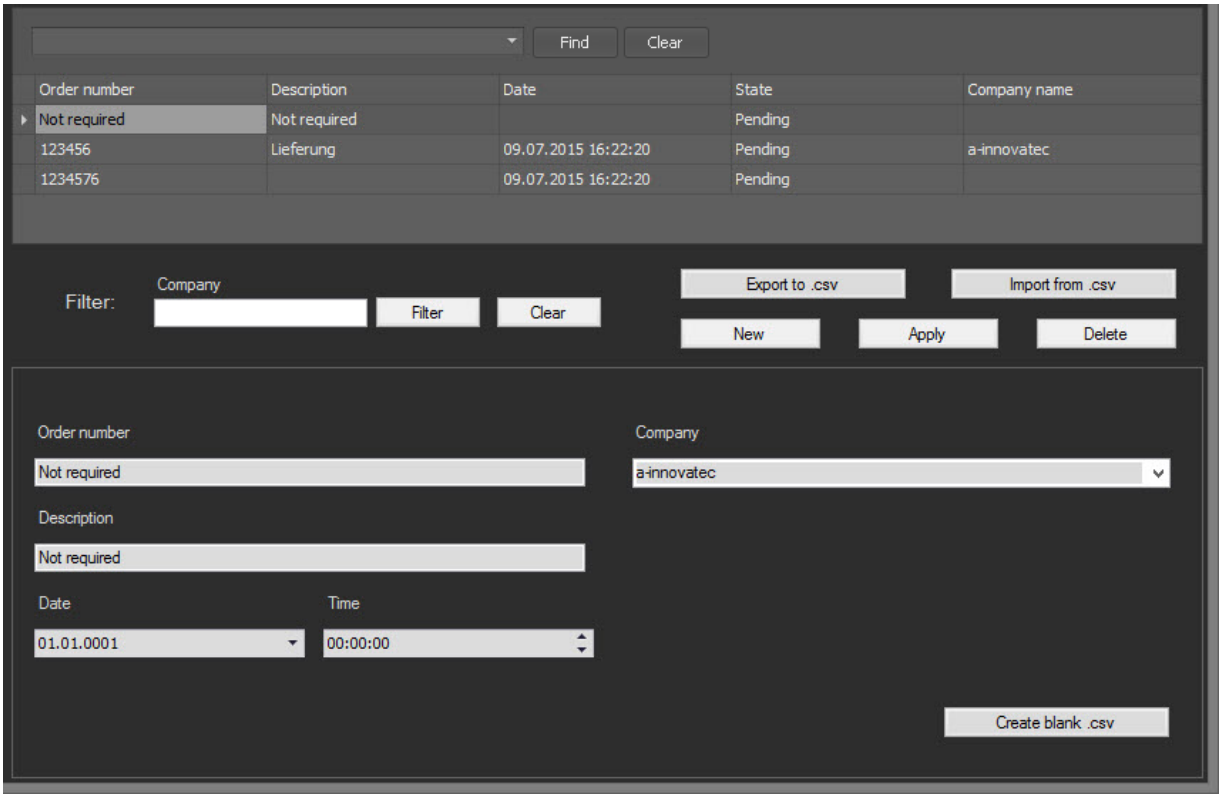


The driver data are

- First and last name
- Telephone number and
- Company, in which the driver is employed.

Transport Orders

Transport orders define special deliveries that need to be picked up in a certain time period.



The following data must be recorded for an order:

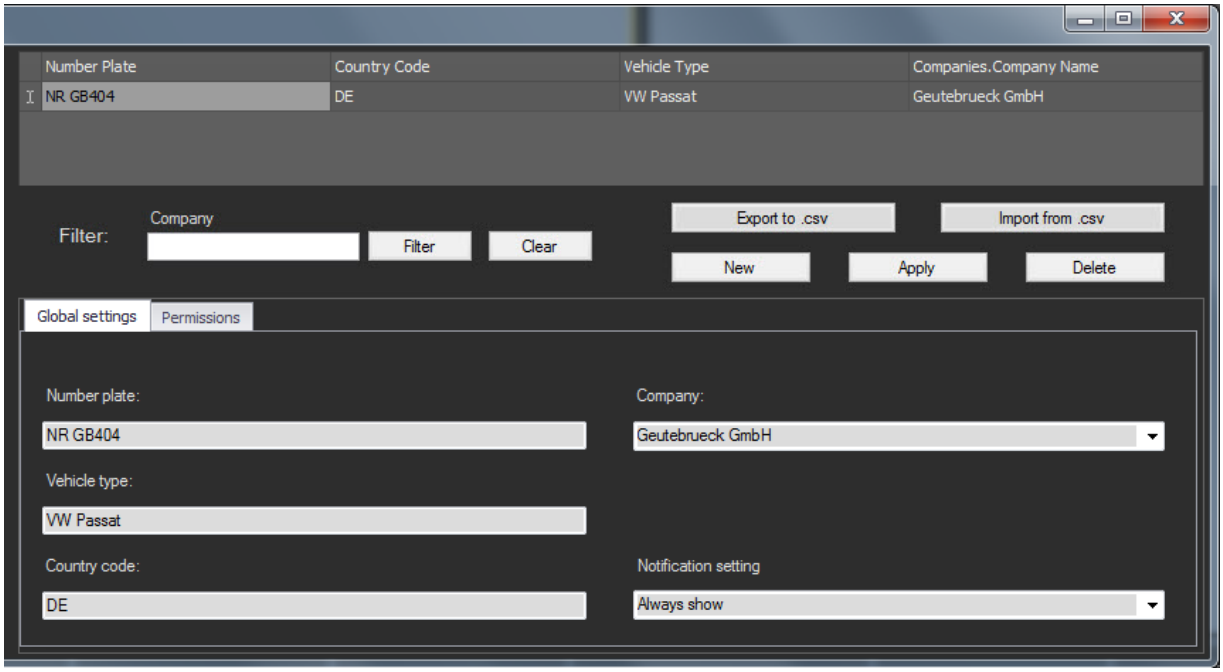
- Order Number - the number under which the transport order is identified.
- Description - description of the order, including instructions to the driver.
- Date/time - the period during which the order is valid.
- Company - responsible company.

Create blank .csv – creates an empty CSV template for external processing (using EXCEL for example) for importing later.

Vehicles

In this list, all known vehicles are listed and managed.

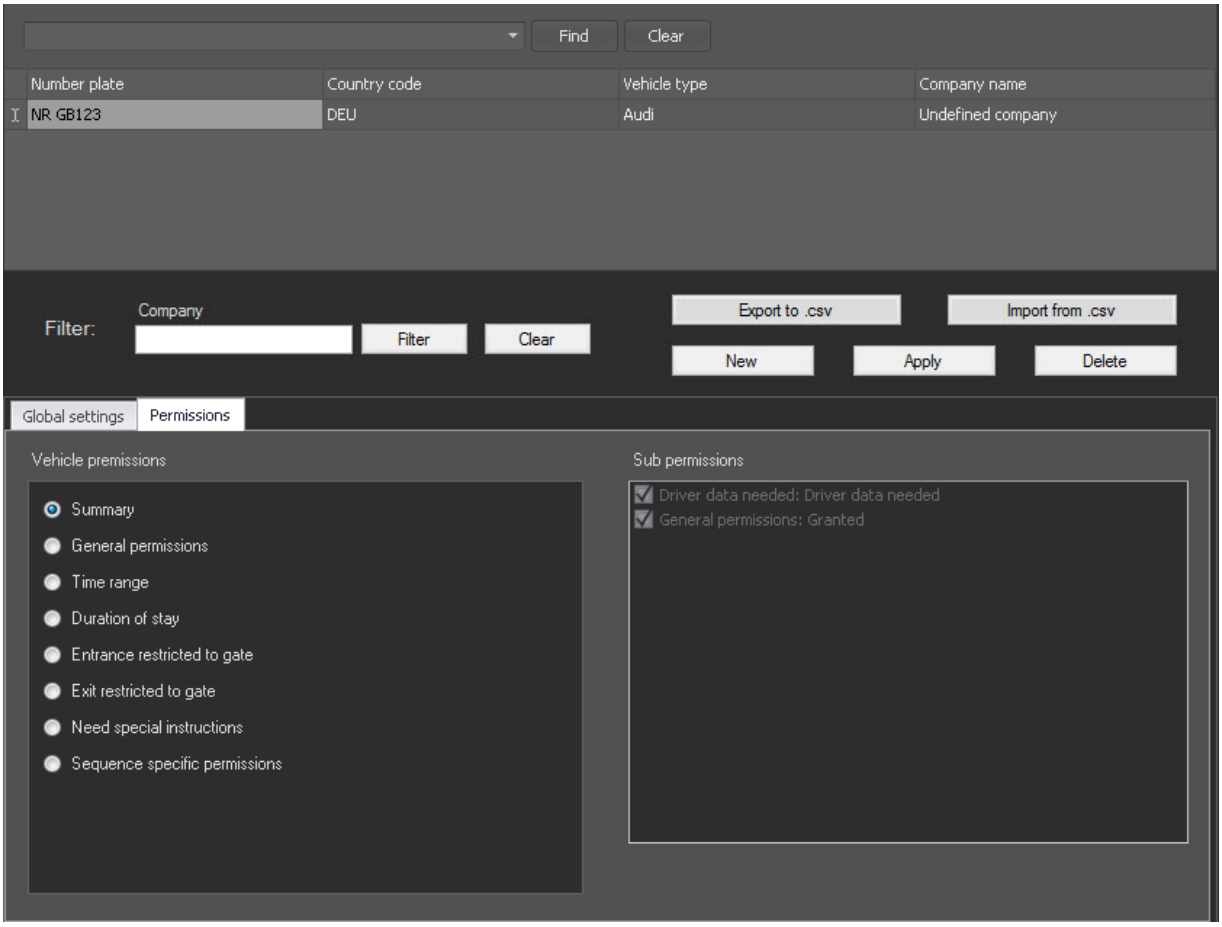
Recognized number plates are matched against this list to identify the vehicle associated with the license plate.



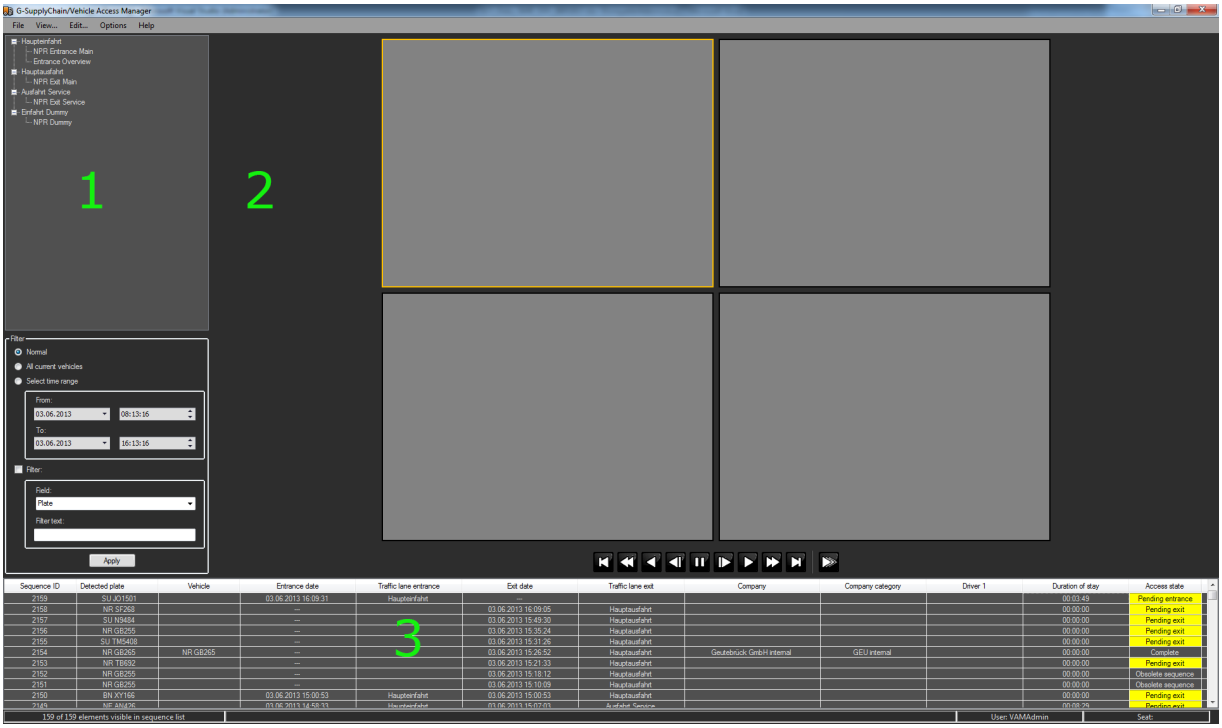
A vehicle includes the following data:

- Number plate - license plate of the vehicle.
- Vehicle type - type of the vehicle.
- Country code - three-digit country code, which is also used in the NPR.
- Company - company to which the vehicle belongs.

Individual vehicles can be assigned individual access permissions that override the permissions of the company. More information about the individual permissions can be found in **Companies** .


Find
Clear
Number plate
Country code
Vehicle type
Company name
NR GB123
DEU
Audi
Undefined company
Filter:
Company
Filter
Clear
Export to .csv
Import from .csv
New
Apply
Delete
Global settings
Permissions
Vehicle premissions
Summary
General permissions
Time range
Duration of stay
Entrance restricted to gate
Exit restricted to gate
Need special instructions
Sequence specific permissions
Sub permissions
Driver data needed: Driver data needed
General permissions: Granted

Working with the VAM

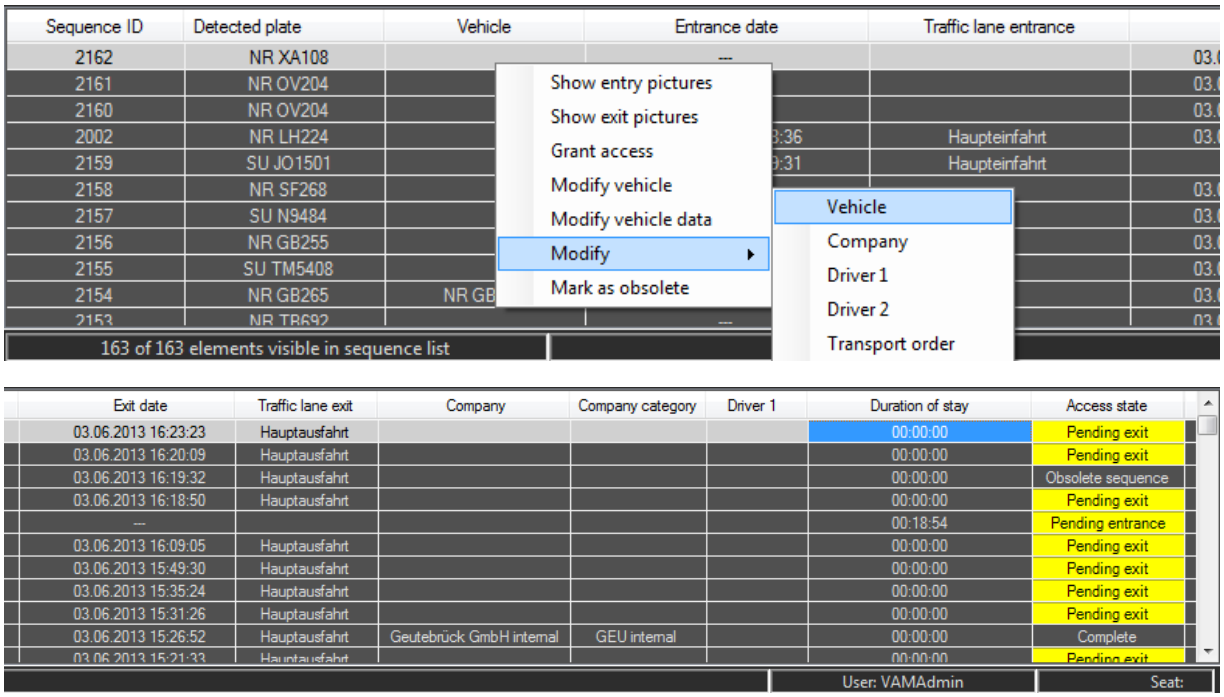


The interface of the Vehicle Access Managers is divided into several areas:

Area	Description
1	On the left side, there is a list of the lanes assigned to the work-station with the assigned media channels.
	Below that are the filter options for filtering the current operation list.
2	On the right side is the viewer pane, in which up to 4 channels can be activated and controlled using the navigation bar. You can maximize a viewer by double clicking on it. Within a viewer, you can use the mouse wheel to zoom and the zoomed area can be moved with the left mouse button.
3	In the lower area, there is a list of all current operations, which allows the user fast access to the individual operations.
4	In the status bar at the bottom you can see how many operations

Area	Description
	are currently displayed in the list (e.g. through filtering) and how many operations are contained in the list. In addition, the registered user and the workstation name are displayed.

In the menu under **File**, you will find the entry **Connection Info**. Clicking on it opens a popup window with the list of configured servers. In the list you can also see whether or not the servers are currently connected.
Under **Options** you will find an entry with the name **Notification**. Here you can set the default display behavior for the notifications. The following options are available: Approved entrances, waiting entrances and unknown vehicles. You can also activate multiple options.



The list shows the following information:

- Sequence ID - ID of the process.
- Detected plate - the license plate that was detected
- Vehicle - license plate of the assigned vehicle (in case of incorrect detection, may deviate from the “Detected plate”

- Vehicle type – additional description for the vehicle, e.g. make or type of vehicle (refrigerated truck, hazardous materials, etc.)
- Entry Date - timestamp of entrance
- Traffic lane entry - lane at the entrance
- Exit date - time stamp of exit
- Traffic lane exit - exit lane
- Company - name of the company to which the vehicle belongs.
- Company category - category of the company for search purposes
- Driver 1 - name of the first driver.
- (Optional) Driver 2 - name of the second driver.
- Transport order
- Duration of stay - duration of the stay on the premises.
- Access - the status of the entrance/exit indicates to the user whether an interaction is necessary for the corresponding procedure.

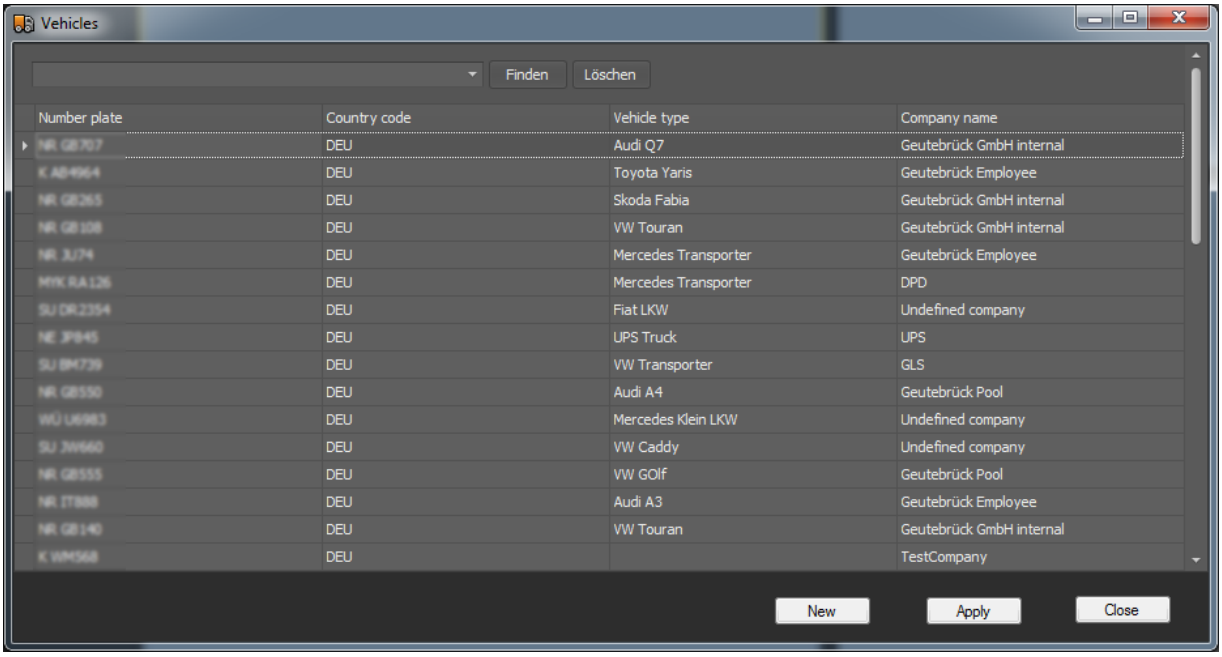
Using the context menu, the operation list, the following actions can be performed:

- Show entry pictures - displays images of the entrance.
- Show exit pictures - displays images of the exit.
- Grant access - provides the user the permissions to edit the operation.
- Modify ... - depending on the current column, it allows the user to change accompanying data <Vehicle><Company><Driver 1><Driver 2><Transport order>.
- Modify vehicle data - the vehicle data (entry and exit) of the current operation can be displayed and modified. More information can be found in -> Vehicle Data.

- Modify -> Vehicle/Company/Driver 1/Driver 2/Transport order - makes it possible for the user to change accompanying data <Vehicle><Company><Driver 1><Driver 2><Transport order>.
- Mark as obsolete - the current operation is marked as obsolete and no longer considered for future NPR actions.

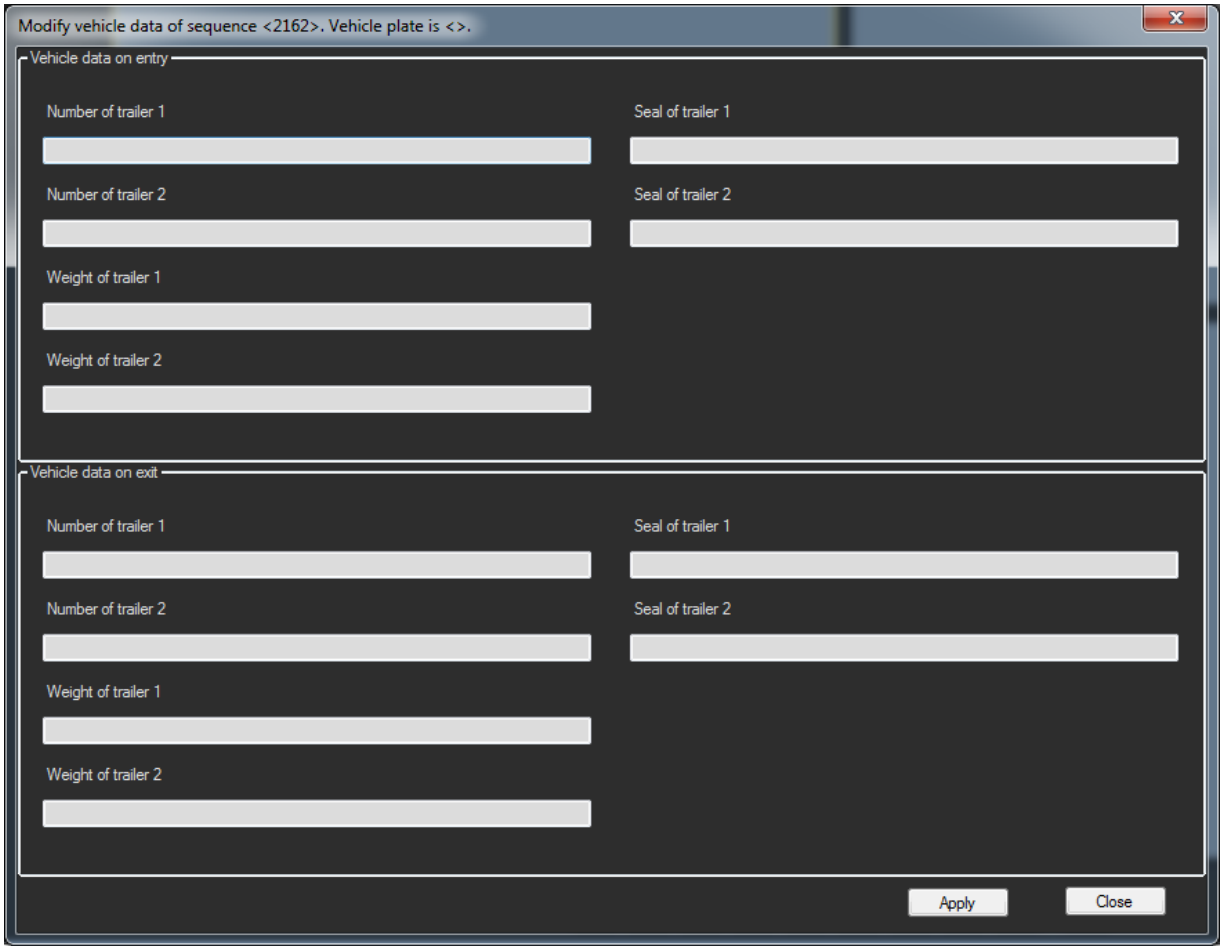
By double clicking on the corresponding column of the operation list, the following actions can be performed:

- Sequence ID - activates, if they exist, images of the entrance and exit.
- Detected plate - activates, if they exist, the images of the entrance and exit.
- Vehicle – opens the dialog for modifying the vehicle.
- Entry date - activates, if they exist, the images of the entrance.
- Traffic lane entry - activates, if they exist, the images of the entrance.
- Exit date - activates, if they exist, the images of the entrance.
- Traffic lane exit - activates, if they exist, the images of the exit.
- Company – opens the dialog for modifying the company.
- Company category – opens the dialog for modifying the company.
- Driver 1 – opens the dialog for modifying the first driver.
- (Optional) Driver 2 – opens the dialog for modifying the second driver.
- Access – opens the dialog for editing the permissions of the operation.



In this dialog, existing vehicles, companies, drivers or transport orders can be assigned to the operation. It is also possible to create new records.

Modify vehicle data:



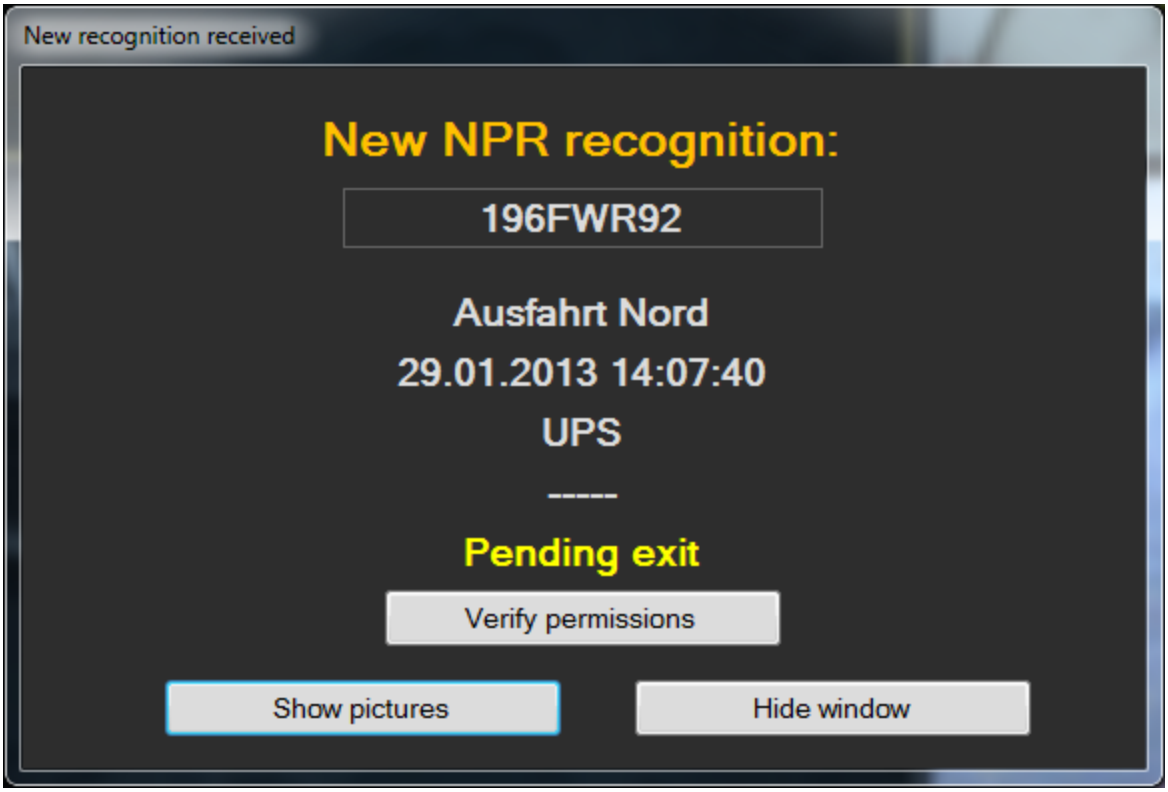
In this dialog, vehicle data (trailer numbers, weights and seal numbers) are entered for the current operation.

Managing Operations

A New Vehicle

If a new license plate is detected by an NPR, the SQLConnect service signals that an operation has been created or an existing operation has been modified.

The user who is responsible for the vehicle is informed by a message dialog that a new vehicle has been detected.



The dialog gives the user three options:

- By clicking on **Show Pictures**, to activate the associated cameras or
- By clicking on **Verify Permissions** to edit the permissions of an operation, to allow or forbid the vehicle entrance/exit.
- Or just to close the dialog (**Hide Window**).

The user can also open the permissions dialog via the context menu of the entry in the operation list of the main form with the option **Grant Access**.

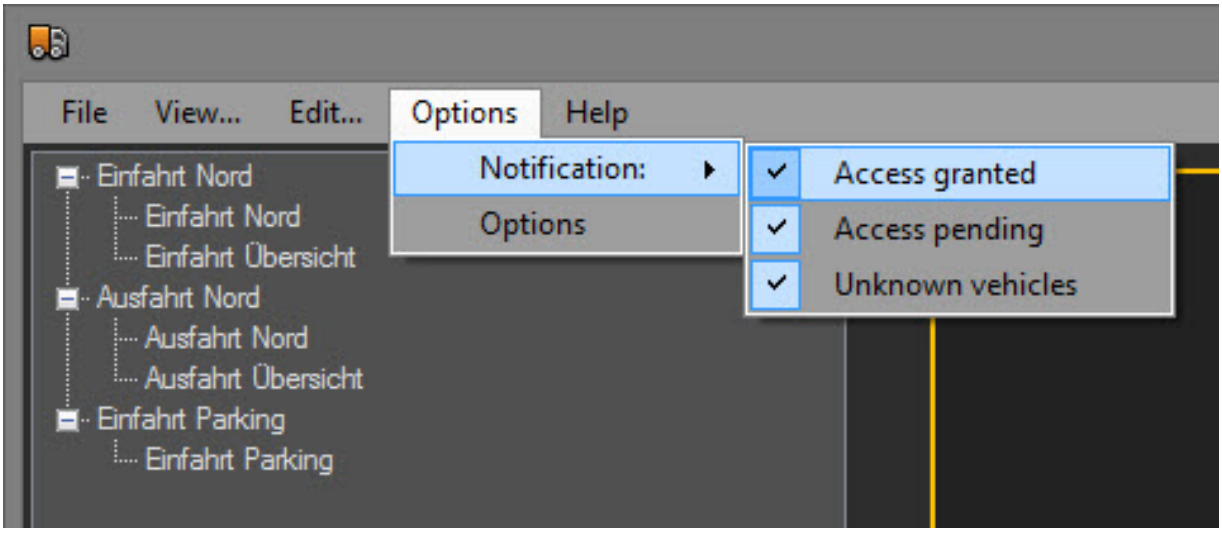
Using the context menu, the user can also assign operations to vehicles, companies or vehicles, as well as activating the entrance or exit cameras.

If the operation must be assigned a new vehicle, a new company or a driver, a new dialog opens, which lists all current entries found in the database. Using this dialog it is also possible to create new data records to add new drivers/companies or vehicles in the system.

Options

If you make changes under Options, you must restart the G-Core VAMConnect service for the changes to take effect.

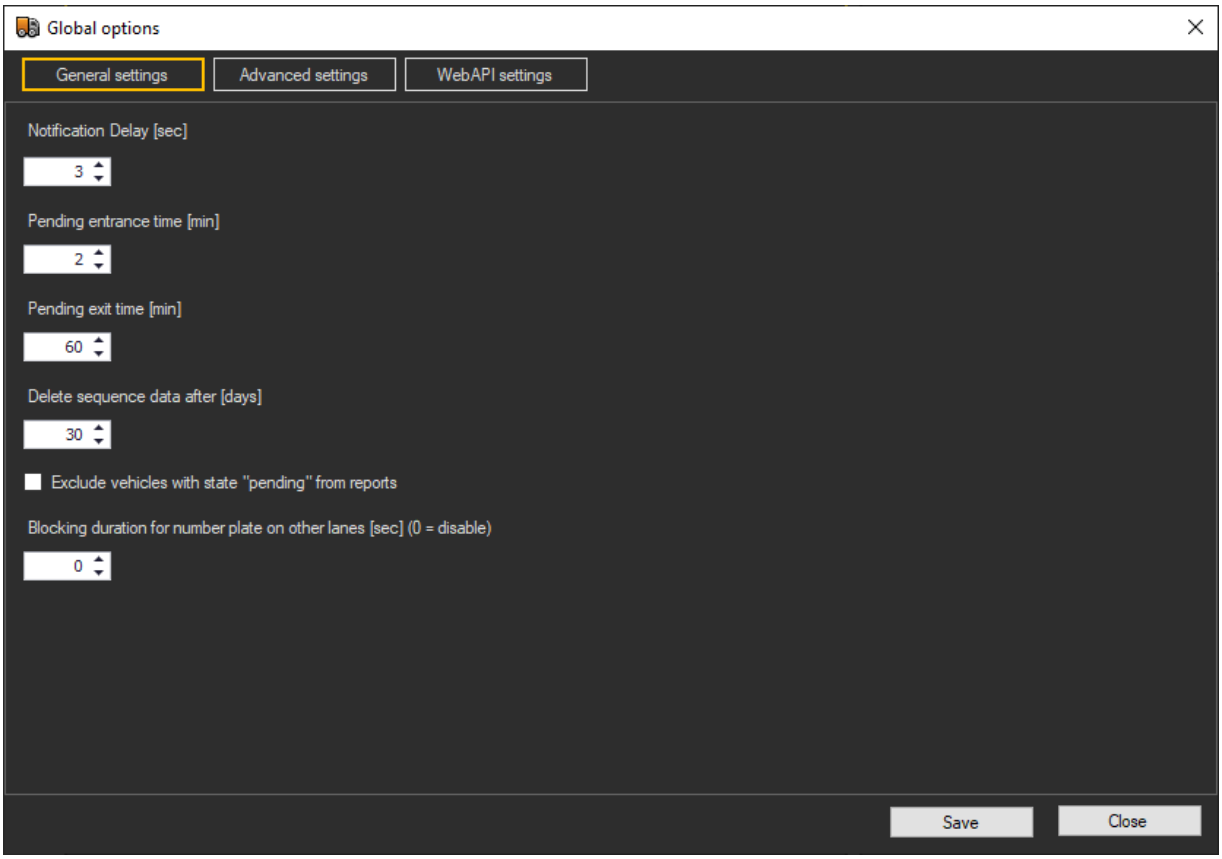
In addition, there are other option settings for how NPR messages are processed. The option dialog is found under **Options -> Options** in the menu bar.



Clicking **Notification** opens the selection of possible notifications: **Access granted**, **Access pending**, **Unknown vehicles**. All selected notifications are displayed.

Click **Options** to open the following dialog.

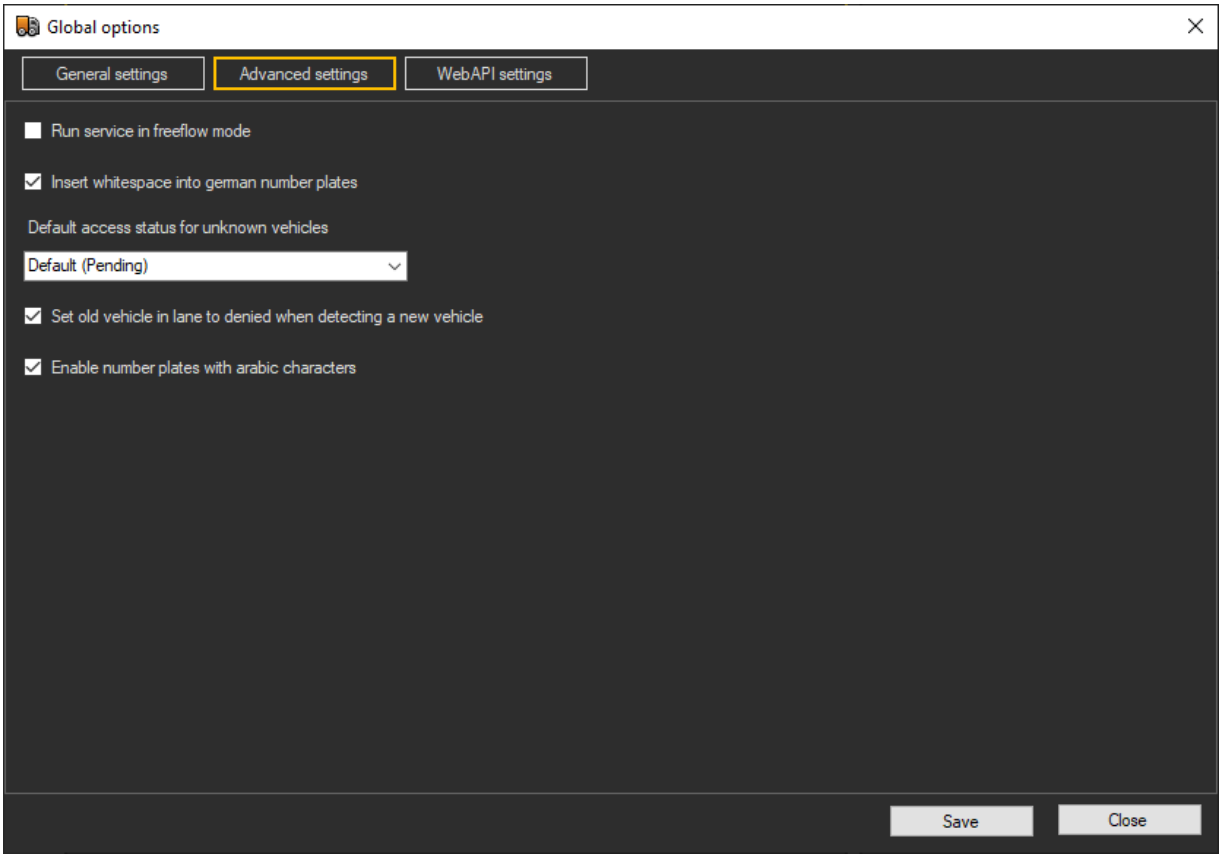
General Settings



Parameter	Description
Notification Delay (sec)	Delay in seconds between arrival and generation of the sequence. The delay gives the NPR the possibility to send a second number plate recognition with higher recognition. If no further detection action occurs in the set time, the action with the highest recognition value is processed.
Pending entrance time (min)	If a vehicle is already approved to enter on the corresponding lane and it is subsequently captured by the NPR again, then this recognition is ignored within the set time period.
Pending exit time (min)	If a vehicle is already approved to exit on the corresponding lane and it is subsequently captured by the NPR again, then this recognition is ignored within the set time period.

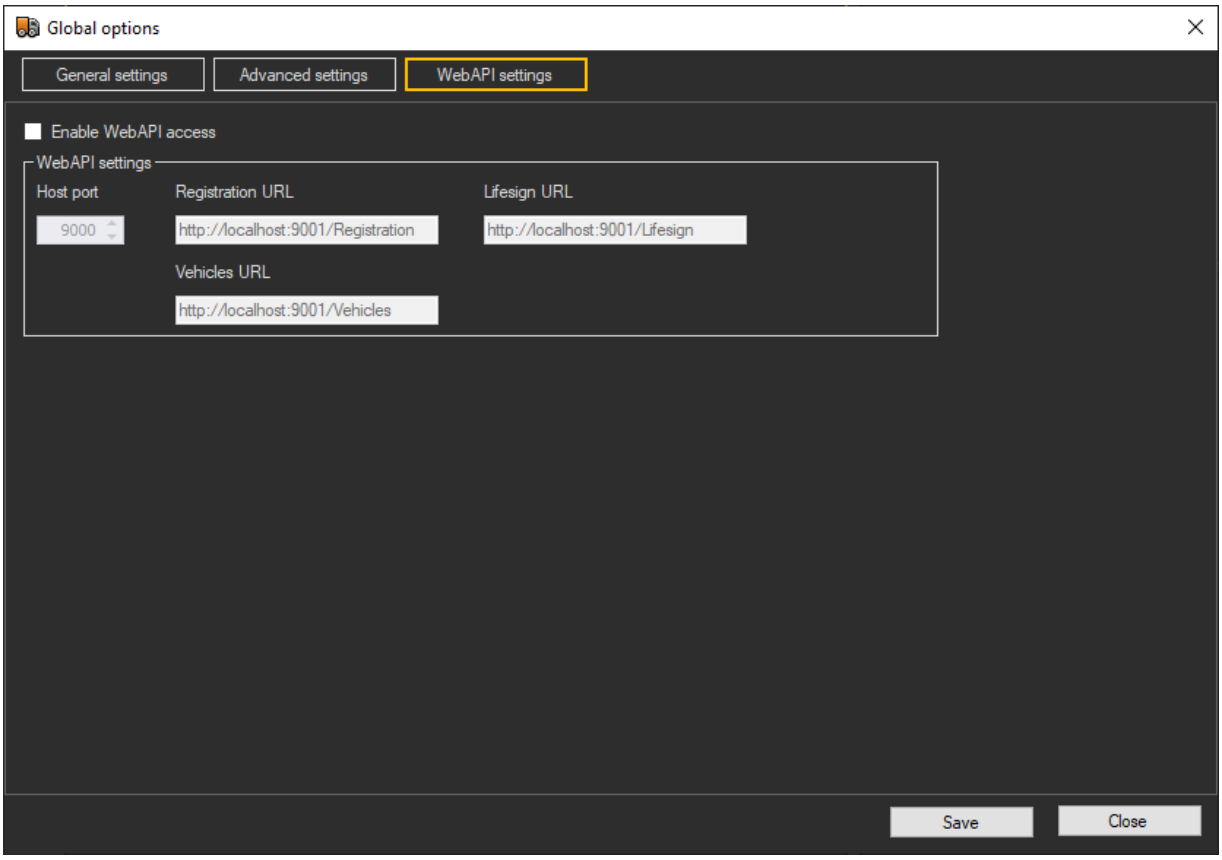
Parameter	Description
Delete sequence after (days)	Entries that are older than the specified number of days will be deleted
Exclude vehicles with state "pending" from reports	If the option is enabled, vehicles with the status "pending entrance/exit" are excluded from reports.
Blocking duration for number plate on other lanes [sec] (0 = disable)	GCoreVAM blocks incoming NPR actions when the same number plate is found (within the specified time frame) in a running sequence in the database. If the blocking duration is set to 0, the function is deactivated.

Advanced Settings



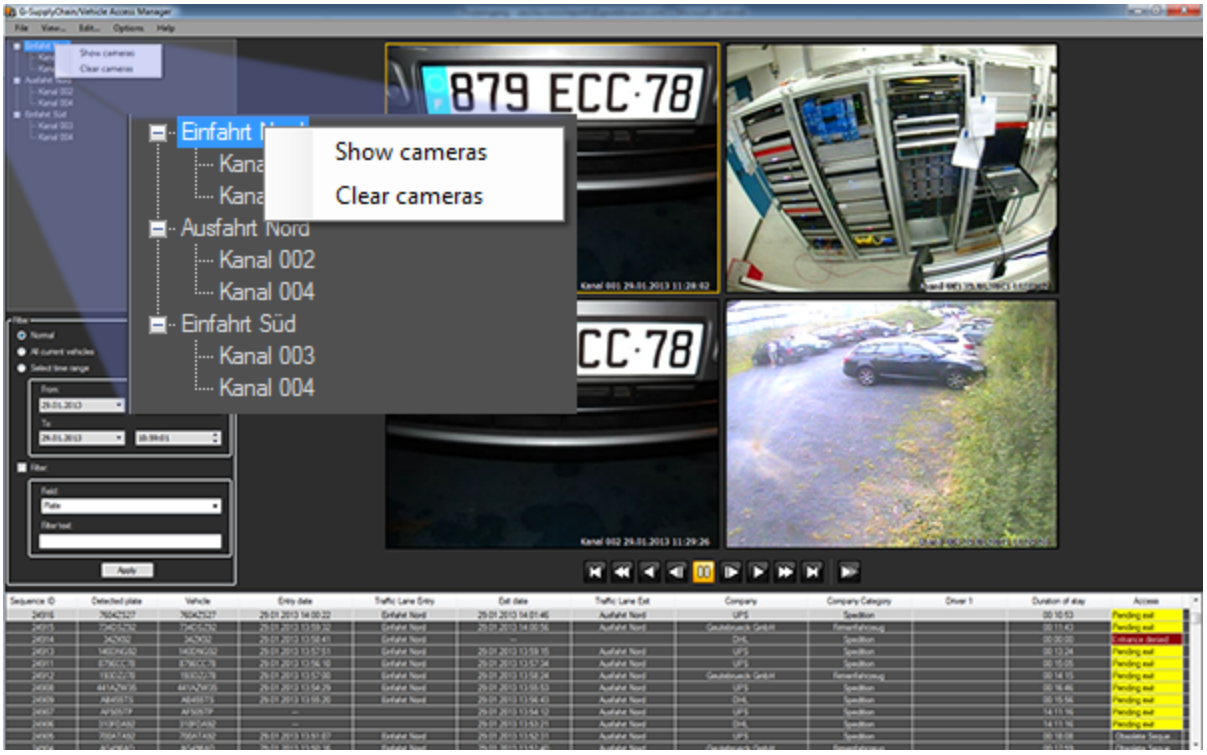
Parameters	Description
Run service in freeflow mode	If this option is enabled, NPR actions are also processed without considering permissions. The **freeflow mode** is used for just recording entrance and exit procedures.
Insert whitespace into german number plates	If this option is enabled, for German license plates a space is added after the district code.
Default access status for unknown vehicles	Here the default access status is defined for unknown vehicles. You can choose between: default (pending), granted and denied.
Set old vehicle in lane to denied when detecting a new vehicle	When this function is activated and a new vehicle was detected in the same lane, the vehicle with the status “Waiting for entrance/exit” is set to the status “Entrance/exit denied”.
Enable number plates with Arabic characters	When this function is activated, vehicles' number plates get to be defined in Latin and Arabic letters. The function makes it also possible to filter number plates using Arabic letters. Changing this option requires a restart of the G-CoreVAM UI.

WebAPI Settings



Parameter	Description
Enable WebAPI access	If this option is enabled, SDK applications will send commands to the WebAPI interface of the GCoreVAMConnect service. For further information on this interface please contact our SDK department.
Host port	Defines the port the GCoreVAMConnect WebAPI interface uses to listen for incoming commands.
Registration URL	Defines the URL the GCoreVAMConnect WebAPI uses to send the registration command to the external WebAPI server.
Lifesign URL	Defines the URL the GCoreVAMConnect WebAPI uses to send the lifesign command to the external WebAPI server.
Vehicles URL	Defines the URL the GCoreVAMConnect WebAPI uses to send all vehicle depending commands to the external WebAPI server.

Activating Cameras



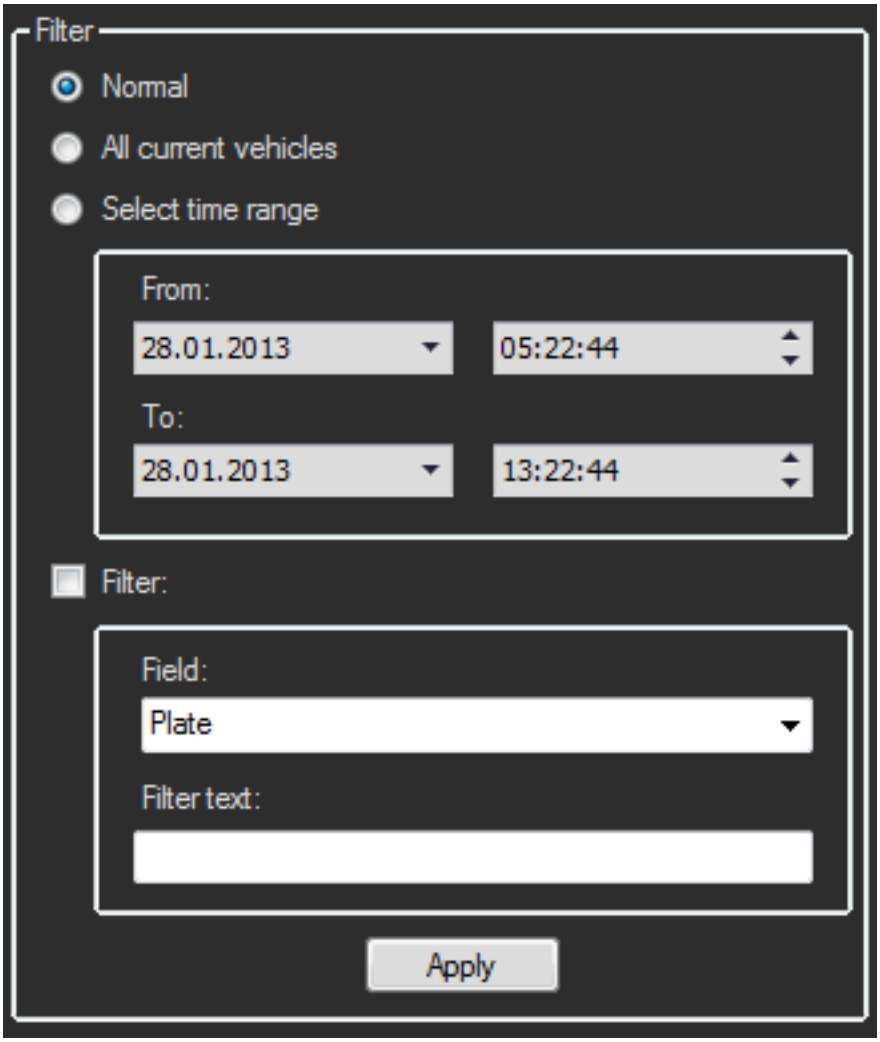
Using the list of lanes on the left side of the VehicleAccessManager, the user can activate individual media channels or the entire lane with all associated media channels.

In addition, the user can delete media channels or lanes from the corresponding viewers using the context menu.

Using the navigation bar under the viewers, the user navigates through the database images of the selected channel to view the prehistory. If the user has permission, he can use the context menu of the viewer to export the current image as an individual image.

Filter Current Operations

Using the filter options it is possible to filter and evaluate entries of the operation list according to specific criteria.



The following filter criteria are available:

- Normal - the default view of all operations of the last 8 hours.
- All current vehicles - this option lists all operations for which the vehicles are still on the premises of the company.
- Select time range - with this option it is possible to show the operations of a specific time range. This makes it possible to search through historic events, as long as they are still present in the system.

Filter - this additional option affects all the above options. As long as the option is set, all events of the above filter continue to be filtered according to special criteria:

- Plate
- Company
- Company category
- Driver
- Traffic lane entry
- Traffic lane exit

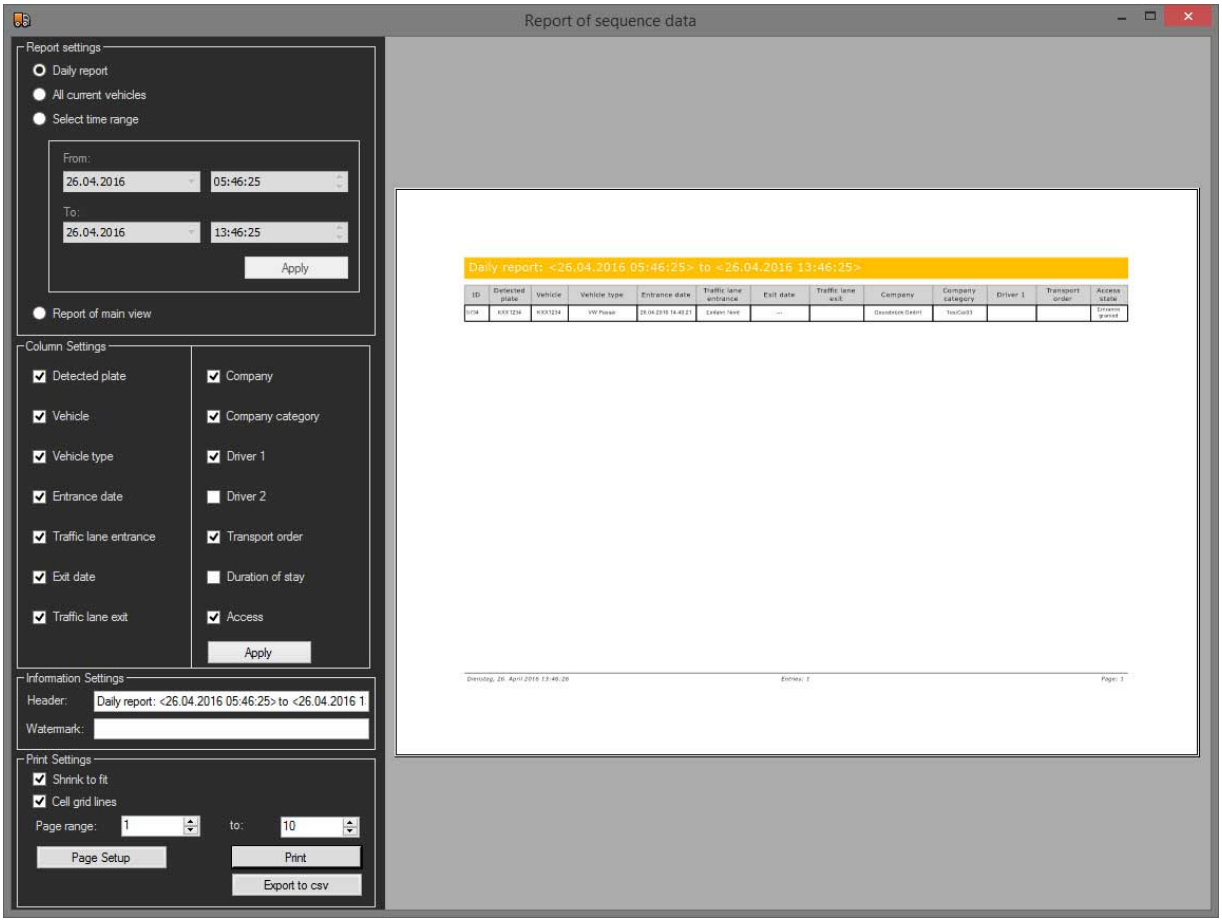
The filter text can be a complete text string or a part of a string.

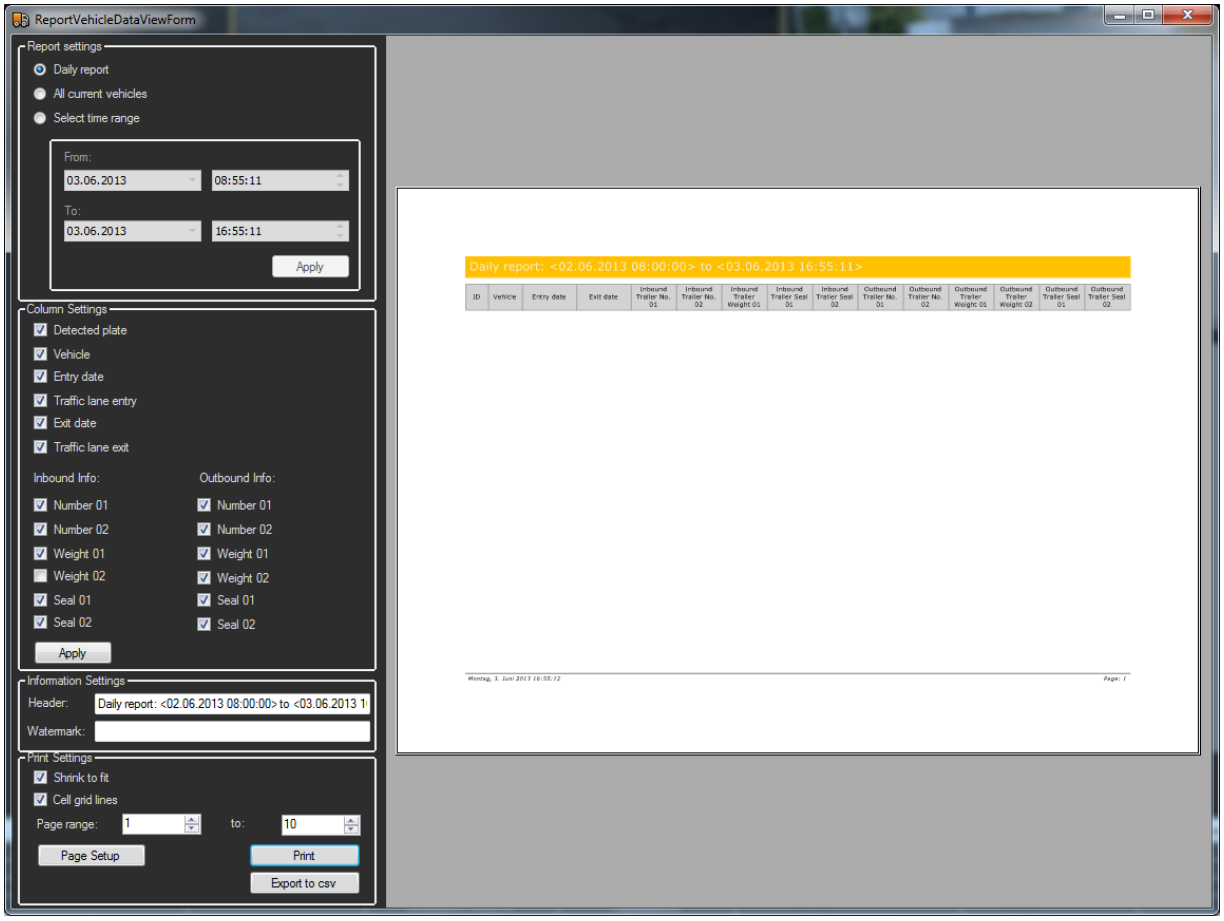
Creating Printable Reports and Daily Statements

With the menu bar option View... > ...Reports you open the dialog for creating and printing reports on operations.

With the menu bar option View... > ...vehicle data you open the dialog for creating and printing reports on vehicle data.

In these dialogs it is possible to filter and restrict the results of the report to process the desired report.


Report of sequence data
Report settings
Daily report
All current vehicles
Select time range
From:
26.04.2016
05:46:25
To:
26.04.2016
13:46:25
Apply
Report of main view
Column Settings
Detected plate
Vehicle
Vehicle type
Entrance date
Traffic lane entrance
Exit date
Traffic lane exit
Company
Company category
Driver 1
Driver 2
Transport order
Duration of stay
Access
Apply
Information Settings
Header:
Daily report: <26.04.2016 05:46:25> to <26.04.2016 1
Watermark:
Print Settings
Shrink to fit
Cell grid lines
Page range:
1
to:
10
Page Setup
Print
Export to csv
Daily report: <26.04.2016 05:46:25> to <26.04.2016 13:46:25>



The filter options are:

- **Daily report** - all operations of the current business day.
- **All current vehicles** - list of all vehicles currently on the premises.
- **Select time range** - all operations of the specified time range
- **Report of main view** - all entries as they are currently filtered in the operation list of the main interface. (Only possible for reports of operations)

It is also possible using the **Column Settings** to remove or activate individually unneeded columns of the entries. Using the **Apply** button, this filter is used.

With the **Information Settings** the heading and watermarks of the current print out can be modified.

The **Print Settings** define settings, such as table layout, pages to be printed and page settings such as portrait or landscape.

By clicking on **Print**, the current list is printed out on one of the installed printers.

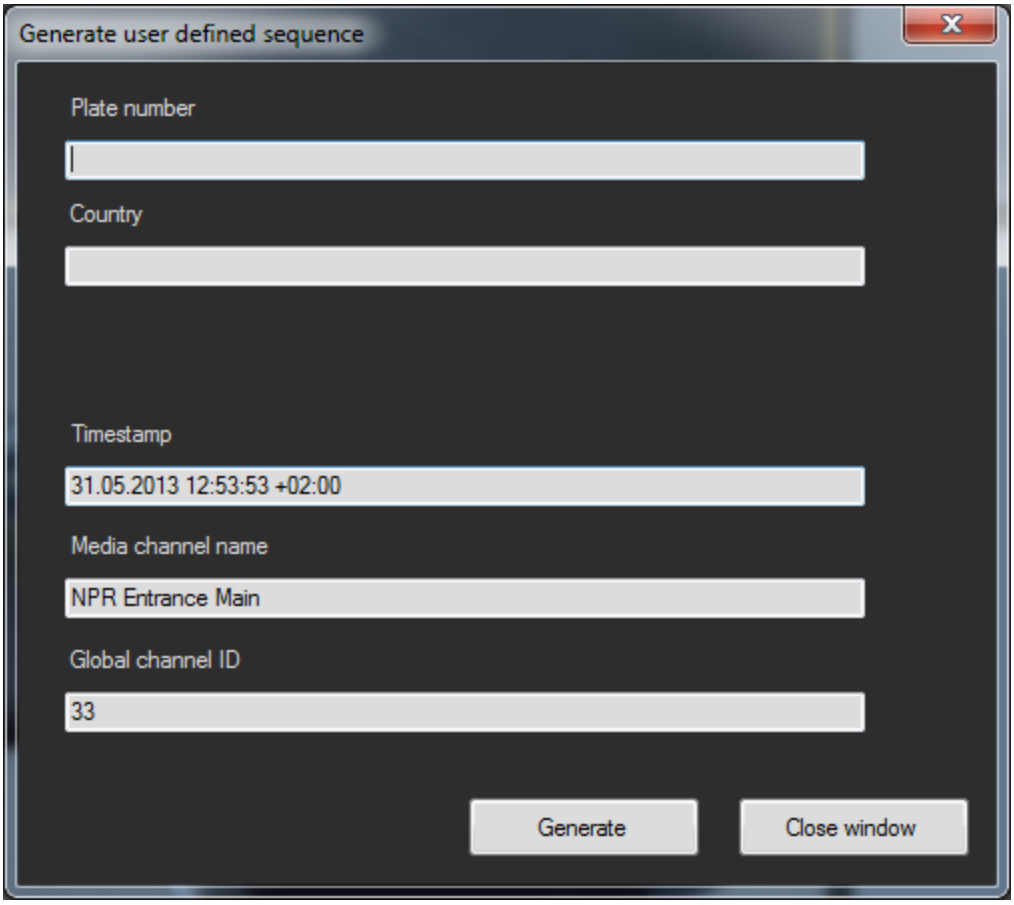
By clicking on **Export to csv**, the current list is saved in a CSV file.

Creating Custom NPR Detections

If an entrance or exit is not detected by the NPR service, it is possible to send a user-defined action and to add it to the current operation list using the SQLConnect service.

For this purpose, one of the viewers must show the desired NPR media channel and be navigated to at the desired time.

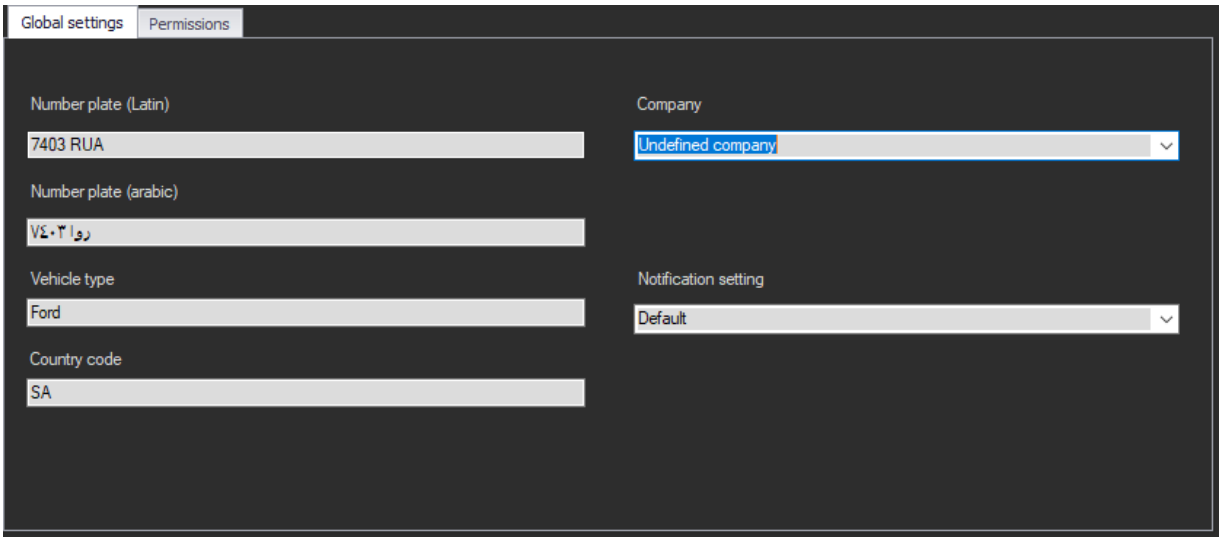
Using the context menu of this viewer it is possible, using the option “Generate Sequence”, to open the dialog for creating the action.



Here you enter the desired number plate and the country code and you can check the time stamp and the media channel before clicking **Generate** and sending the action.

Using GCoreVAM Arabic Support

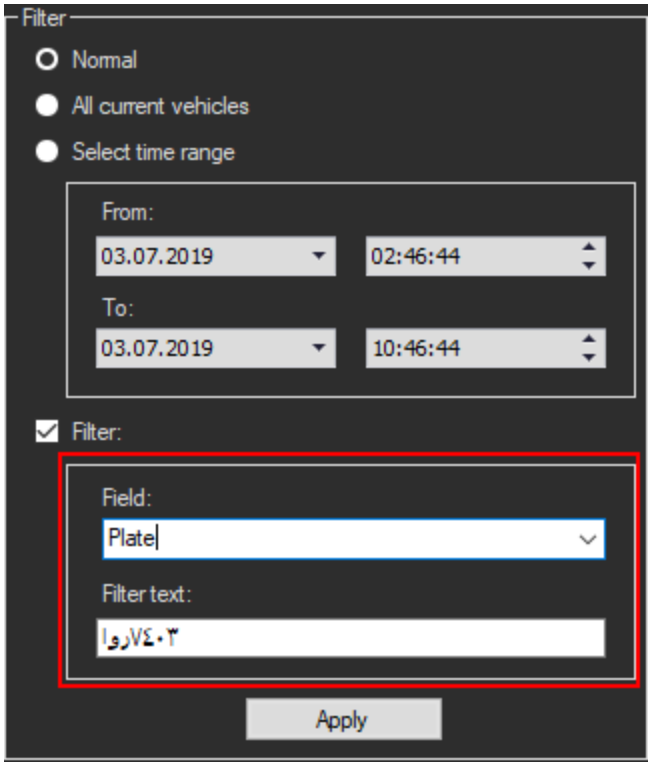
When the Arabic support is activated in GCoreVAM, it is possible to add number plates with Arabic letters to the vehicle master data.



When you enter a number plate in Latin letters, it will automatically translate to the Arabic plate and vice versa.

The sequence list also includes a column for the new Arabic number plates:

It is also possible to filter vehicles using Latin or Arabic letters in the input field.


Filter
Normal
All current vehicles
Select time range
From:
03.07.2019
02:46:44
To:
03.07.2019
10:46:44
Filter:
Field:
Plate
Filter text:
٧٤٠٣روا
Apply

VCA Setup Editor

The VCA Setup Editor can be used to set up the image analysis applications ANPR and LPR in terms of server connections, selecting the channels to be analyzed and defining the applications.

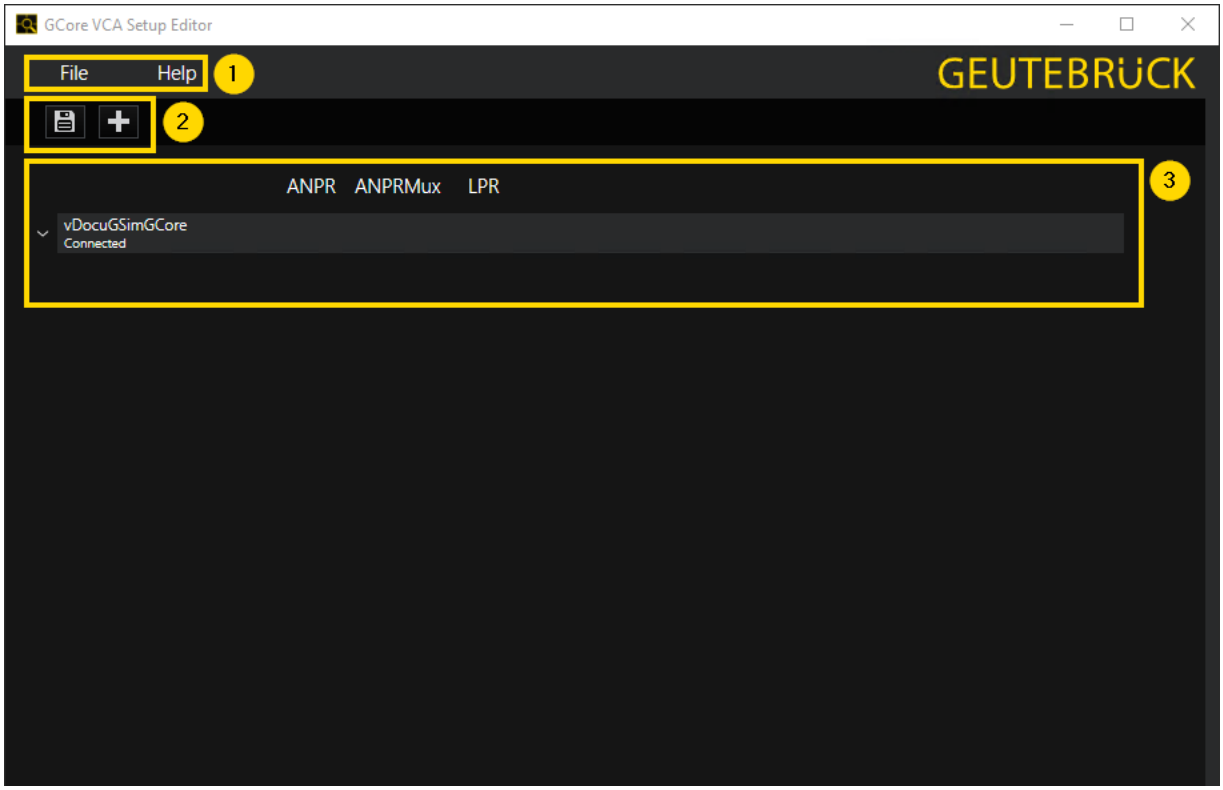
The G-Tect Image analyzers Activity Detection (AD), Video Motion Detection (VMD), Video Motion Extended (VMX) and Scene Validation (SV) can be activated and configured in G-Set via the Analytic Host.

VCA Setup Editor

For ANPR and LPR image analysis applications, the server connections must be configured and the channels to be analyzed must be selected. You also need to define which applications will be included in the analysis. These settings are made in the VCA Setup Editor.

The VCA Setup Editor will be automatically installed if G-Tect is selected in the G-Core installer and can be found in the Geutebrück directory (VCASetupEditor.exe).

The application consists of the menu bar 1, toolbar 2 and the server list 3.



Menu Bar

The menu bar contains the following menu items:

Item	Option	Description
File	Save	Saves your configuration (locally).
	Exit	Closes the VCA Setup Editor.
Help	About	Displays information about the version of the application.

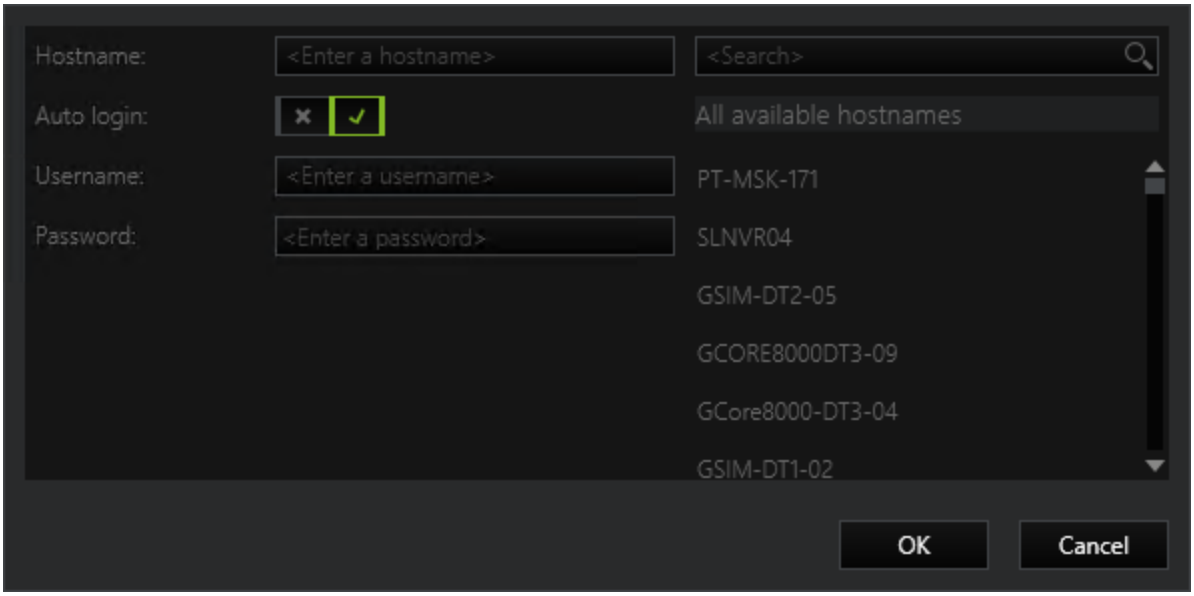
Toolbar

The toolbar contains the following icons:

Icon	Description	Function
	Save settings to registry	Click this icon to save your settings to the registry.
	Open connection wizard	Click this icon to add a server to your configuration. The **Connection wizard** opens.

Connection Wizard

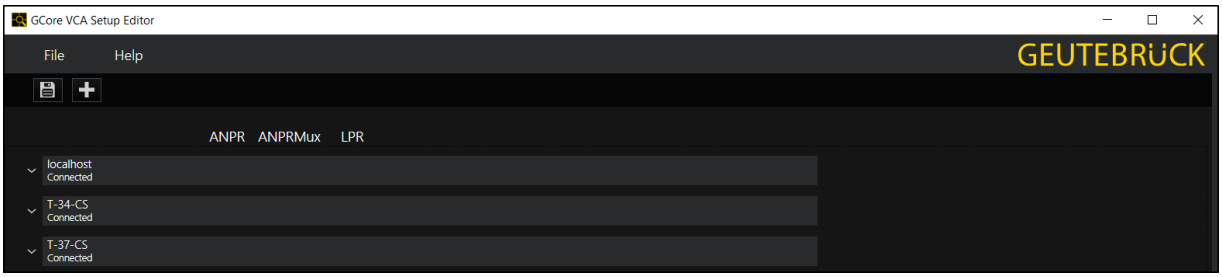
The connection wizard helps you to add new servers to your configuration:



Name	Description
Hostname	Enter the hostname of the server or select it from the **All available hostnames** list. The list can be filtered by typing in the search field.
Auto login	Enable this option if the server login should be performed automatically.
Username	Enter the username of the server.
Password	Enter the password of the server.

Server List

When you have added a server to your configuration, it is displayed in the server list, with each row corresponding to a single server. Unconnected servers are grayed out.



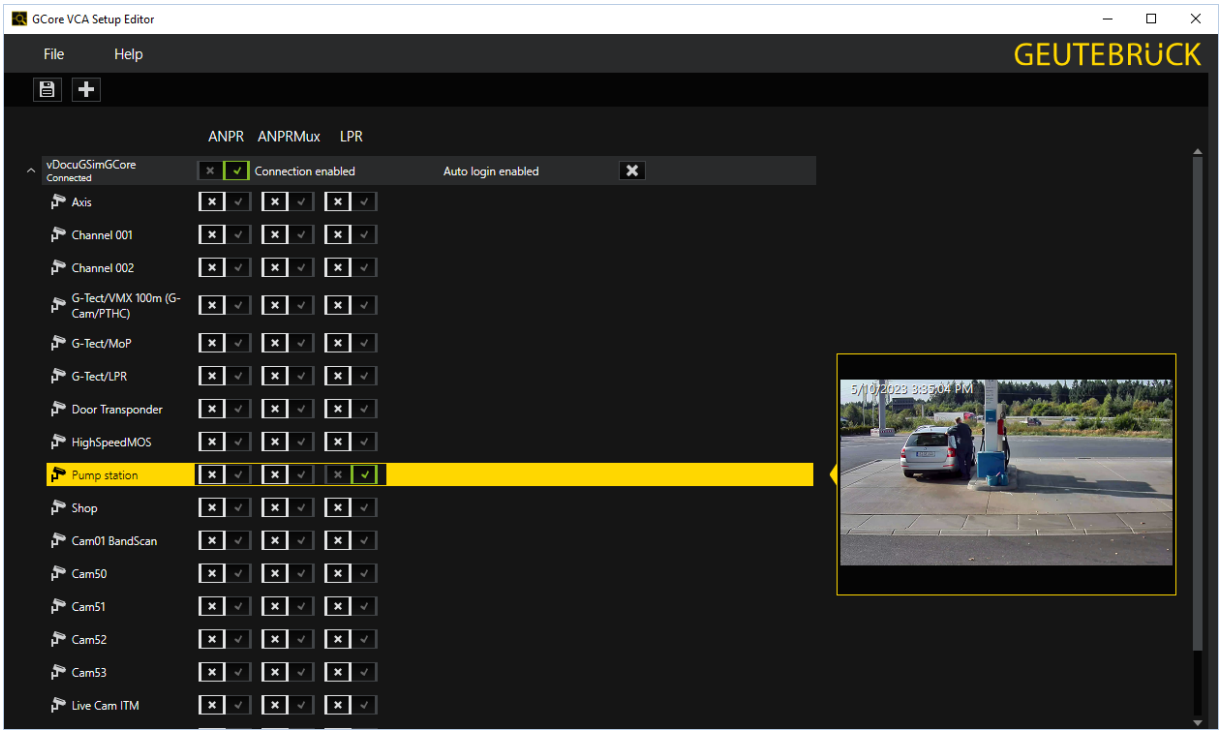
When you click on a server row, it expands and displays a settings matrix. In this matrix you can specify, for each channel, whether it should be used and in which analysis application.

The following applications are available:

- Automatic Number Plate Recognition (ANPR)
- ANPR multiplex version (ANPRMux)
- License Plate Recognition (LPR)

All applications require an option (license). The VCA Setup Editor does not take into account whether an option exists, so that adjustments can be made and saved that may later not work properly. The same applies when more channels are activated for the analysis than there are available options.

In the following image, the highlighted channel is used for LPR.

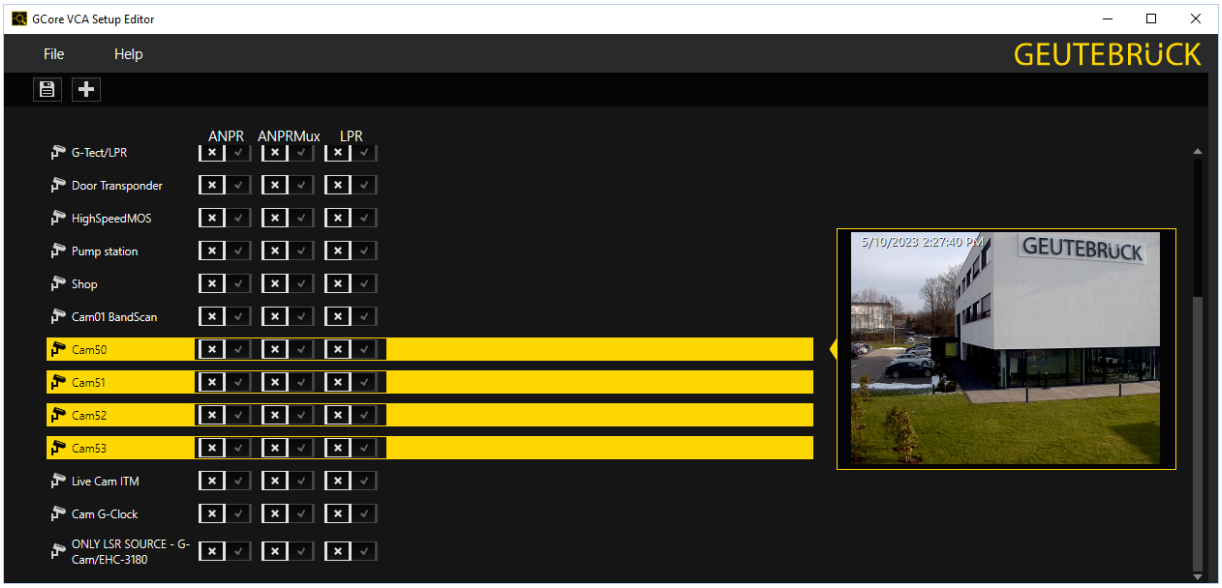


There are three settings in each row of the server list:

Setting	Description
Connection enabled	Disable this option if a connected server should not to be used for the VCA analysis.
Auto login enabled	This setting can be configured in the connection wizard when adding a server. Enable this option if the server login should be performed automatically (recommend).
✖	Click this icon to remove the selected server from the configuration.

If a channel is selected for the configuration, the associated camera image appears next to the matrix.

In many cases, multiple channels need to be activated at the same time for an application. To make this procedure easier, it is possible to select several channels (even across servers) and then switch them on or off together.



If a connection to a server is lost during the configuration, the configuration can still be continued and saved.

To do so, click on the icon or select **File** > **Save** in the menu bar. The saved settings become active once the connection to the server has been re-established.

ABBViewer

Target Position

The ABBViewer module is a customer-specific video browser for the G-Core platform. The module is controlled via the stated command line parameters and can be accordingly activated by a third-party application to display the G-Core video images if necessary. Besides the image display of freely selectable channels of freely selectable G-Core servers, the module allows the control of all PTZ cameras that can be run on the G-Core System. Another supported feature is the digital zoom of the displayed images. This feature can be used for all cameras supported by G-Core and can especially in case of megapixel cameras help to make relevant details visible despite a restriction in display size.

Installation

The ABBViewer is compatible with G-Core software versions from main release version 4.1

If it is intended to perform image display directly on a G-Core, the installation of a copy of the file ABBViewer.exe in G-Core's installation directory is sufficient (in general: C:\Programme\GCore).

If image display is to be performed from another computer, then first of all a client installation should be carried out on this computer. After installing the G-Core installation directory exists (C:\Programme\GCore). In this directory the ABBViewer is to be copied.

Start

The ABBViewer is an application controlled via command lines. For starting, three parameters are necessary (two mandatory parameters and one optional parameter):

- G-Core Server: Here, either the IP address or the network name of the G-Core server to which the viewer should connect to when starting is specified.
- Channel: Here, the number of the video channel which should be displayed after starting is specified.

- **Fixed Position**: Here, it is optional to specify a fixed position for a PTZ camera G-Core approaches as soon as the Viewer has established a connection. If the camera channel is not a PTZ system, this parameter is ignored.

Parameters are separated by space characters. The order is mandatory.

Example

```
C:\Programme\GCore\ABBViewer.exe localhost 5
```

Here, the viewer connects to the local G-Core server and switches its channel to channel 5.

Example

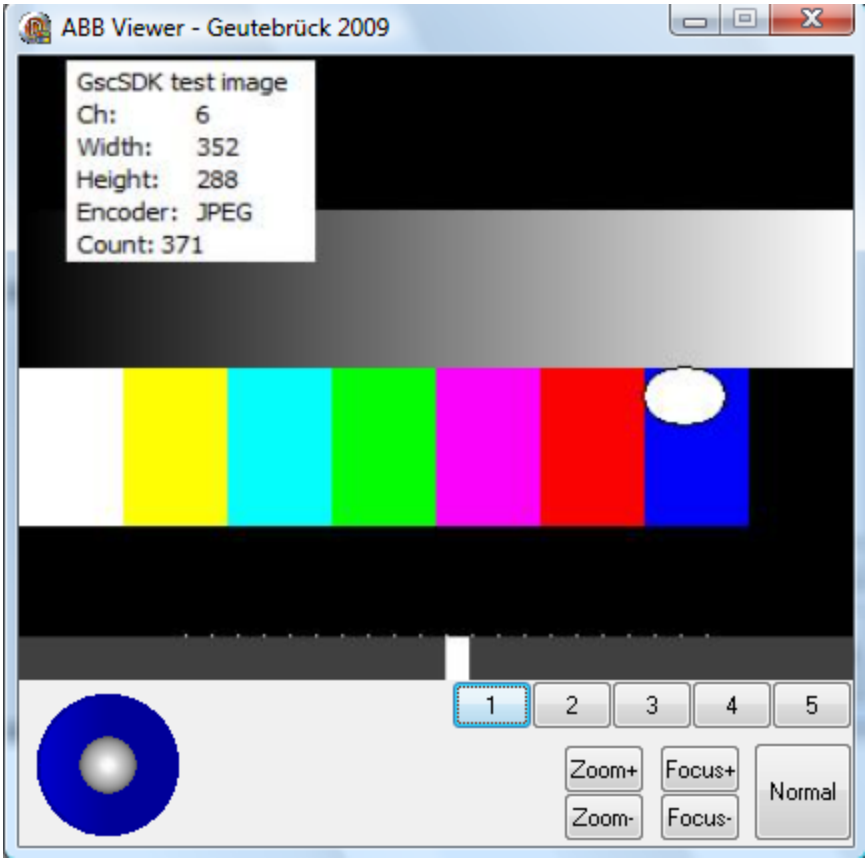
```
C:\Programme\GCore\ABBViewer.exe GSC_1 16 5
```

Here, the viewer connects to a G-Core GSC_1 and displays its channel number 16. Furthermore, the fixed position 5 is approached in case channel 16 is a PTZ system.

For logging in to G-Core, ABBViewer makes use of the standard administrator account of the G-Core Server (sysadmin, masterkey).

Operating

After startin, the ABBViewer displays the following surface:



The lower part includes the controls for controlling the PTZ system.

- The virtual joystick allows moving and tilting of the camera in proportion to speed.
- The switches 1 to 5 allow to address five already parametrized fixed positions.
- The switch Zoom/Focus allows to control the zoom and focus functions in both directions.

The operation of the digital zoom function is carried out via the mouse within the video window:

- By clicking the left mouse button, a zoom rectangle can be brought up. The content within this rectangle is zoomed in.
- By double-clicking, the video image is reset to full view.

- Furthermore, the mouse wheel allows a comfortable zooming process. If the cursor is placed in the video window, the area around the cursor is zoomed in smoothly when using the mouse wheel.

The switch **Normal** resets the ABBViewer to the Factory Defaults concerning size and position.

Special Functions

The ABBViewer saves its image positions in the following registry key of the Windows Registry:

HKLM\Software\Geutebrueck\ABBViewer

This position is reconstructed every time the viewer is started.

Cam Check

The Cam Check is a simple, manually operated software for checking the camera alignment.

It offers the possibility to compare live images with reference images and to create a report for later documentation if required.

For a variety of reasons, in certain cases some camera settings, such as camera angle, are not checked by the system or CPA, but rather by personnel who report and correct any improper settings. Cam Check has been programmed for exactly this purpose: A simple, manually operable software for checking camera orientation.

This is the old version of the Cam Check, which is located directly in G-core. Information about the new version of the Cam Check is available here: Cam Check Documentation

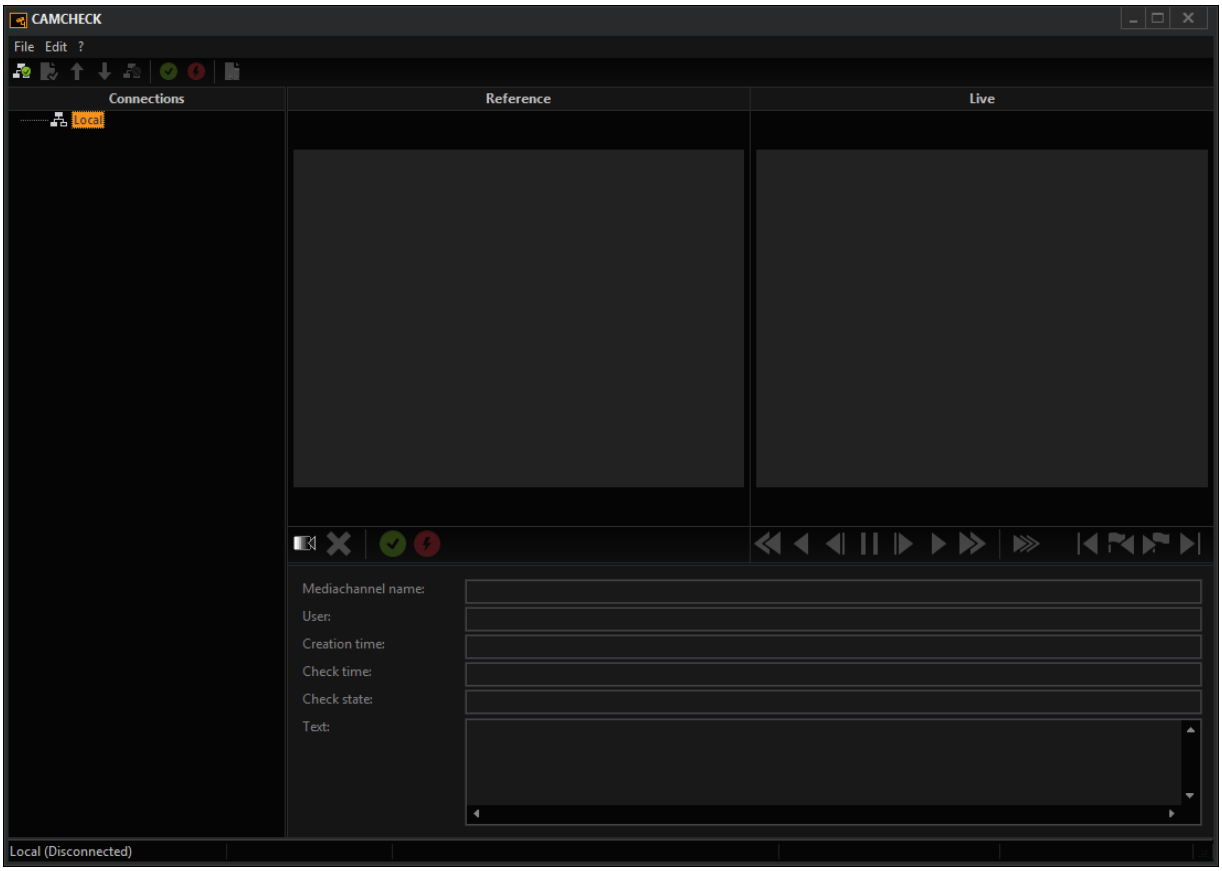
Installation

Cam Check is part of the installation but needs to be selected separately for installation.

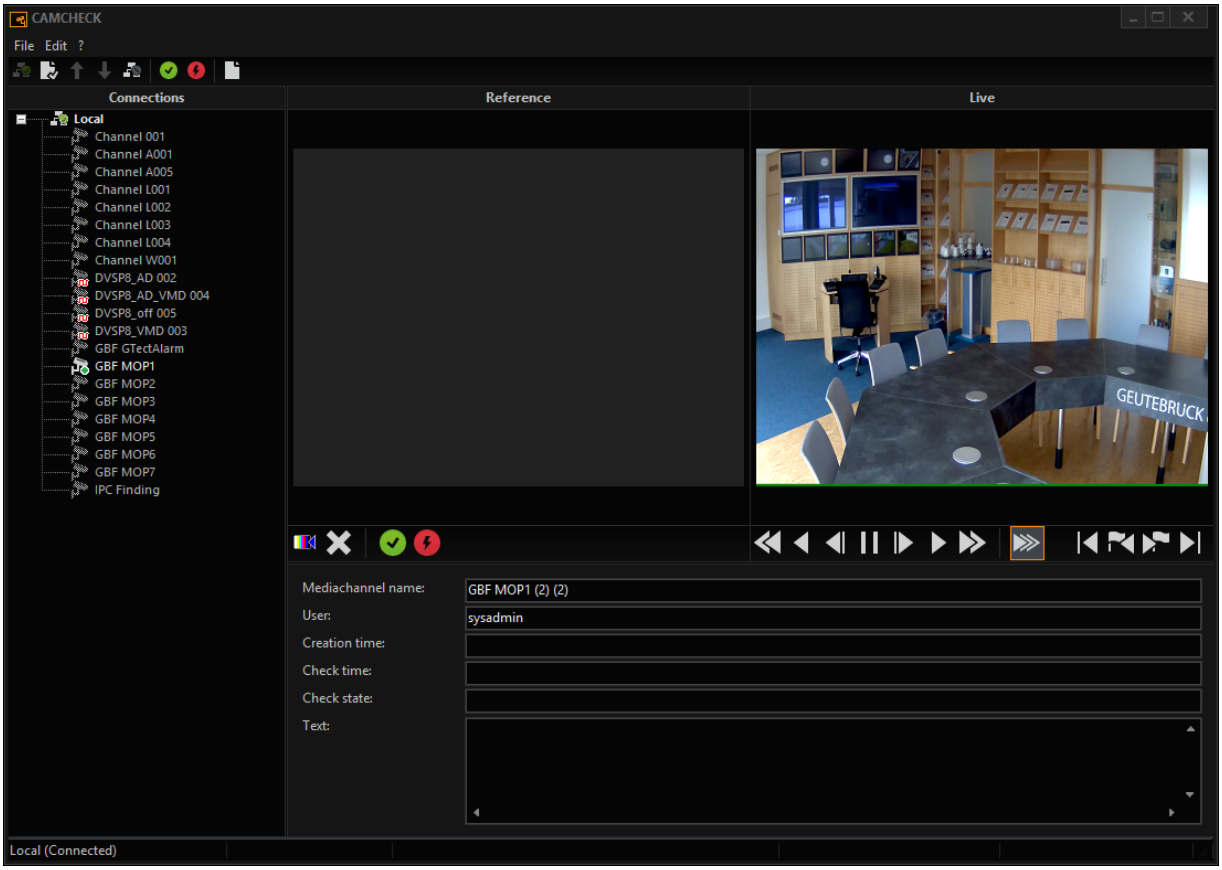
If Cam Check was not selected during installation, reinstall G-Core for adding it. See how to do a reinstallation under **Software Installation**.

User Interface

To check the orientation of camera with Cam Check manually, you first have to open the program `GCamCheck.exe` in the default directory `C:\Program Files\Geutebrueck\G-Core` by double clicking on it.

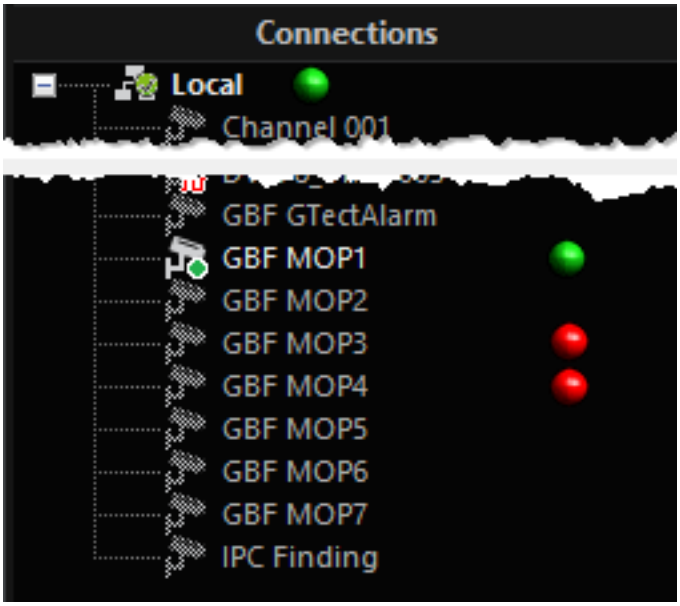


On the left side, under **Connections**, all configured servers are listed. By double clicking on a server name, a connection is established with the corresponding server.



Once you have connected to the server, all configured media channels will be displayed in a tree view:

- All cameras that are disabled in CPA show no LED.
- All cameras that are checked by the CPA and whose image no longer matches the reference image show a red LED (GBF MOP3 and GBF MOP4).
- All cameras that are checked by the CPA and whose image matches the reference image show a green LED (GBF MOP1).



Click on a media channel to switch to it.

You now see a live view of the corresponding image. The control bar below and its operation are familiar from G-View.

To the left, you will see the icons:

Icon		Description
	Make reference image	By clicking on this icon, a reference image is created from the media channel currently being viewed with live images.
	Check state ok	Clicking on this icon marks the reference image as compliant with the live image of the media channel. (See below)
	Check state not ok	Clicking on this icon marks the reference image as non-compliant with the live image of the media channel. (See below)
	Delete reference image	Clicking on this icon the reference image will be deleted.

Below the toolbar, you see all the necessary information regarding the displayed media channel. In addition, you will find a field for text entry (See below).

After Cam Check is started, you can check all channels. To do so, connect to the server and click on the corresponding icons in the toolbar.

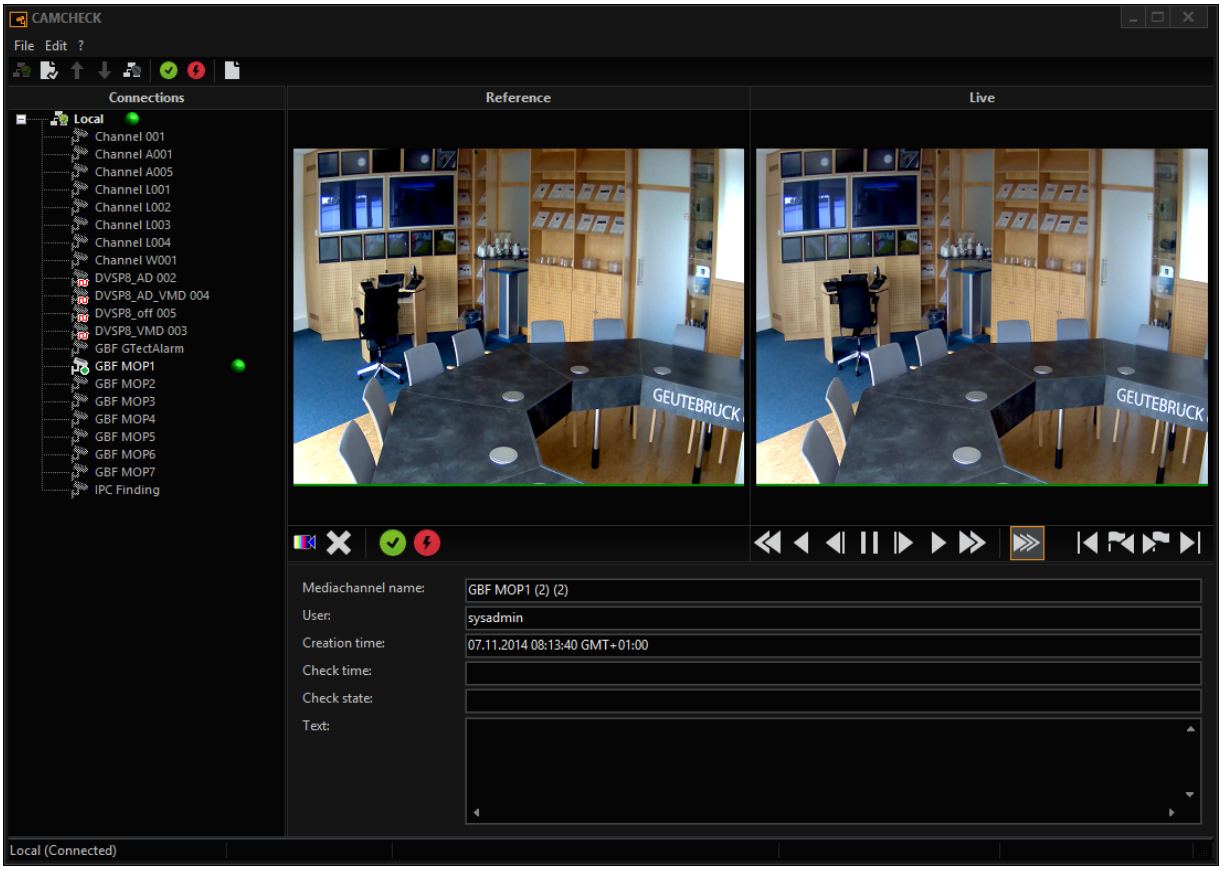
Usage

Procedure

Define a reference image to be used for checking.

Switch to a media channel and use the toolbar to go to the image to be recorded.

Then click on the icon **Make reference image**.

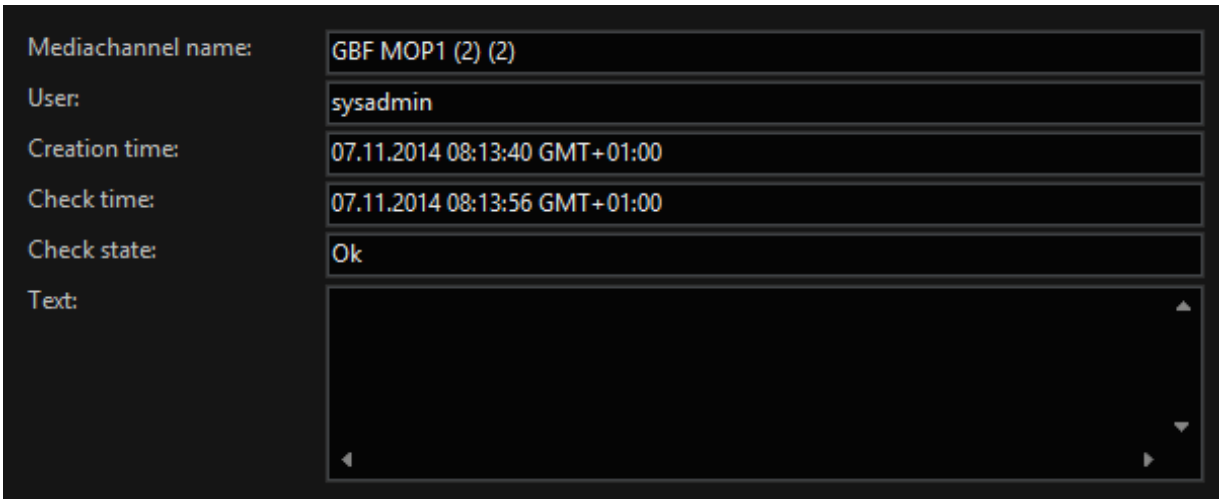


Then click on the icon **Check state OK**.

The selected and checked media channel is now marked by a green dot.

In the info box, you will see the creation date and time of the reference image, the date and time of the check (in this case, of course, the same date) and the user name of the person who performed the check.

Send the data to the server.



You can also click in the text box and save a comment (status text).

Now proceed in the same manner with all media channels, including those on other servers, whose orientation you want to check regularly.

Checking a Reference Image

Open Cam Check and establish the connection to the servers for which you have created reference pictures of the media channels. These media channels are marked with a green dot.

Media channels whose orientation has not been checked for more than 30 days are shown with a red exclamation mark.

Now click on a media channel and compare the live image with the reference image for changes in the orientation of the image.

If the reference image matches the live image, click on the icon **Check state OK** and then type a comment in the text box. Send the data to the server.

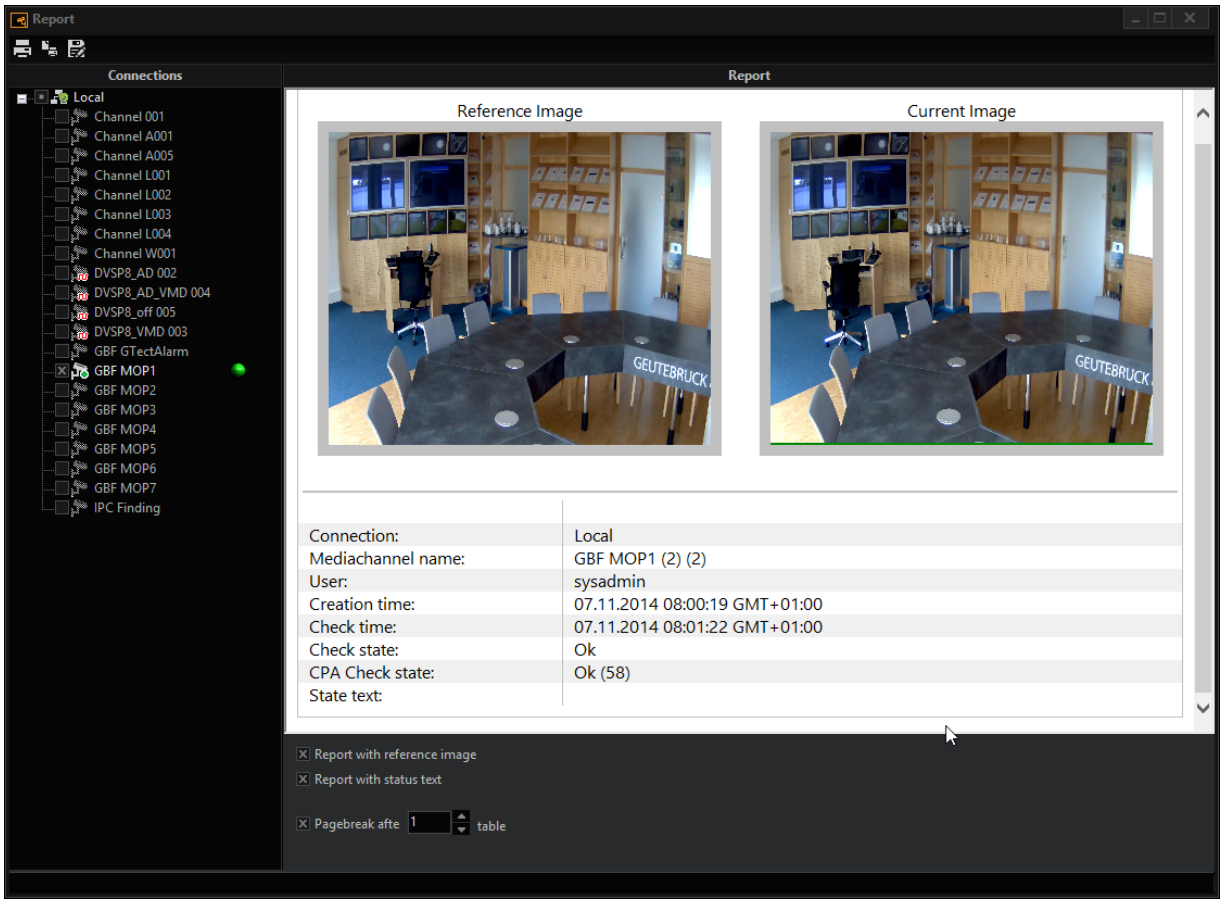
If the reference image does not match the live image, click on the icon **Check state not OK** and then type a comment in the text box. Send the data to the server.

Documentation of the Check

At the very latest, when the image is no longer set properly, it is necessary to document this incorrect orientation in a report.

We recommend you also document inspection of images whose orientation was not changed.

Click on the icon below the menu bar or, in the **File** menu, on **Report Setup ...** [Create Report ...]. You will see the following dialogue:



You can mark one recorded media channel (green dot), or also select multiple channels. In the window you will see the display of the report.

You can define the appearance of the report in part using the check boxes below the report display:

Check box	Function
Report with reference image	The reference image will appear in the report
Report with state text	The status text you entered appears in the state report in the table

Check box	Function
Pagebreak after xx table	There will be a pagebreak for the table after the first, second nth table

You can

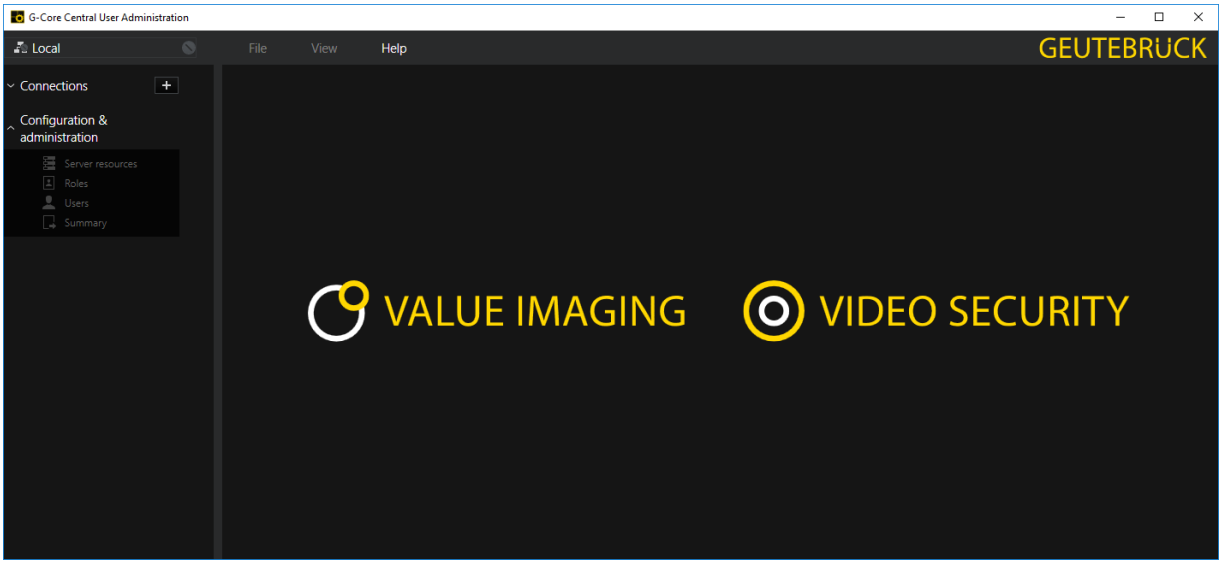
- Print the report.
- View a print preview.
- Save the report.

When saving, you can choose between the formats

Format	Description
Web archive (mht)	Web archive (photos and text) are stored as a file that is displayed in the browser by double clicking.
Web page (htm, html)	The table is saved as html file, which is displayed in the browser by double clicking.
Web page complete (htm, html)	The table is saved as html file, the associated images in a directory with same name as the website. By doubleclicking on the web page, text and images are displayed in the browser.
Text file (txt)	

Forward the report (as copy) to the responsible technician, so the camera can reset and then create at a new reference image.

Central User Administrator



CUA stands for Central User Administration, a central user source for G-Core servers.

Up till now, a user list has been maintained on every G-Core server and typically a cross-server user was needed. This resulted in a high degree of configuration work.

The configuration of the users in the **CUA setup** no longer takes place in the usual workflow. User rights and blocking settings are now distributed to roles and users are assigned to these roles. In addition, a role can be assigned to the two-person principle instead of individual users.

In the configuration of the CUA, predefined roles are built in that automatically receive the necessary rights for the G-Core servers. More about that can be found in the section **User Roles**.

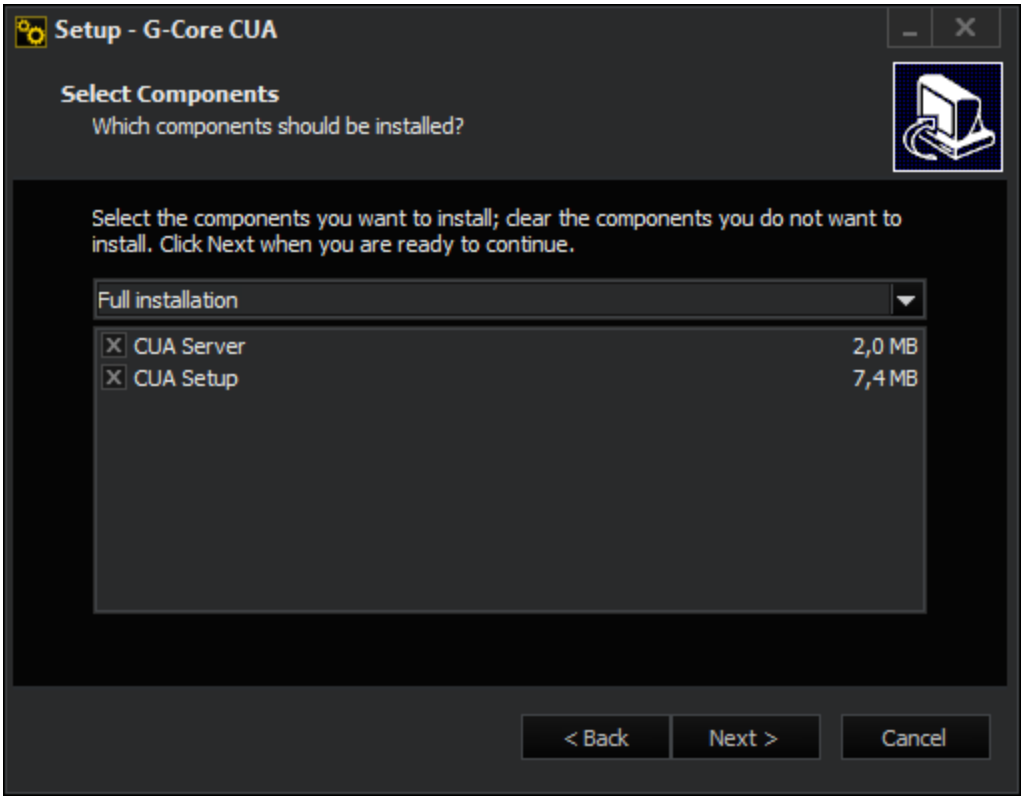
For compatibility reasons, a copy of the user configuration from the CUA service is stored in the G-Core server setup. This means that all user data is known to every G-Core server without having to retrieve this data at runtime from the CUA service.

To prevent unauthorized overwriting of users with the use of a CUA service, G-Set must authorize a specific CUA service as the user source.

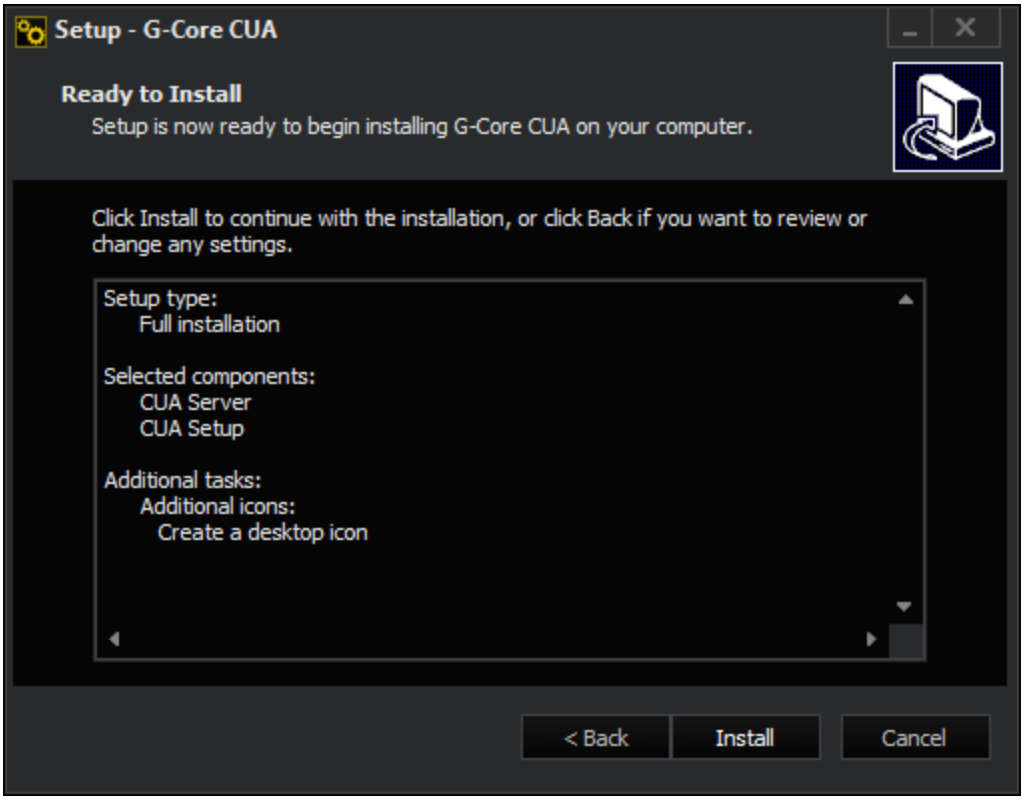
Installation

After starting the G-Core CUA installer, the license conditions must first be approved.

Subsequently, a distinction can be made between server and client installation.



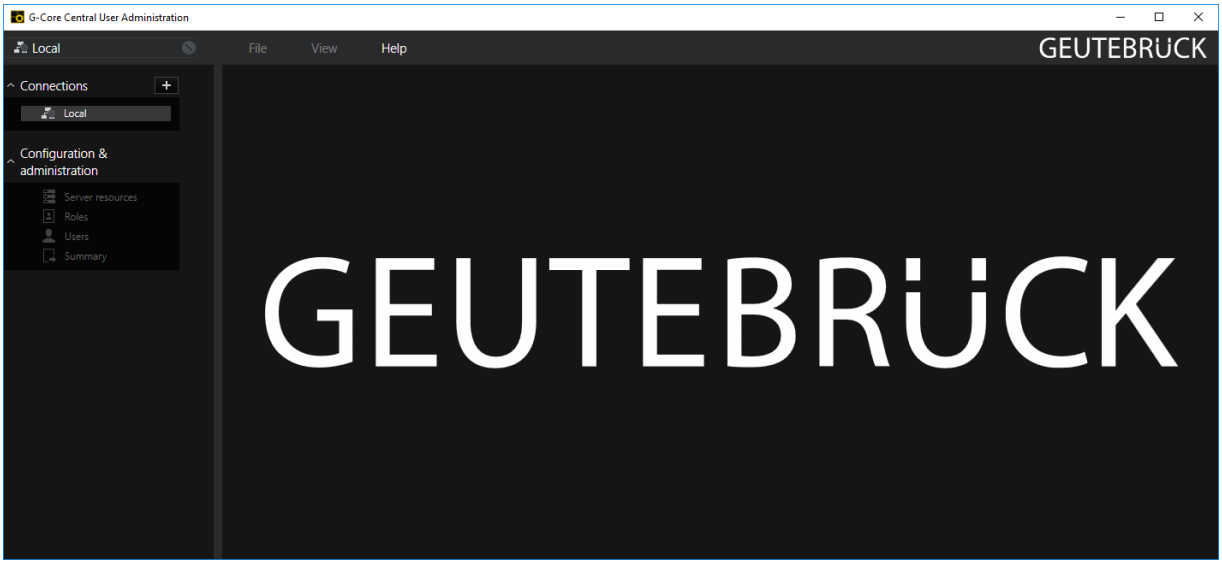
Click on **Install** to copy the required files to the program directory `%ProgramFiles%\Geutebrueck\G-Core CUA`.



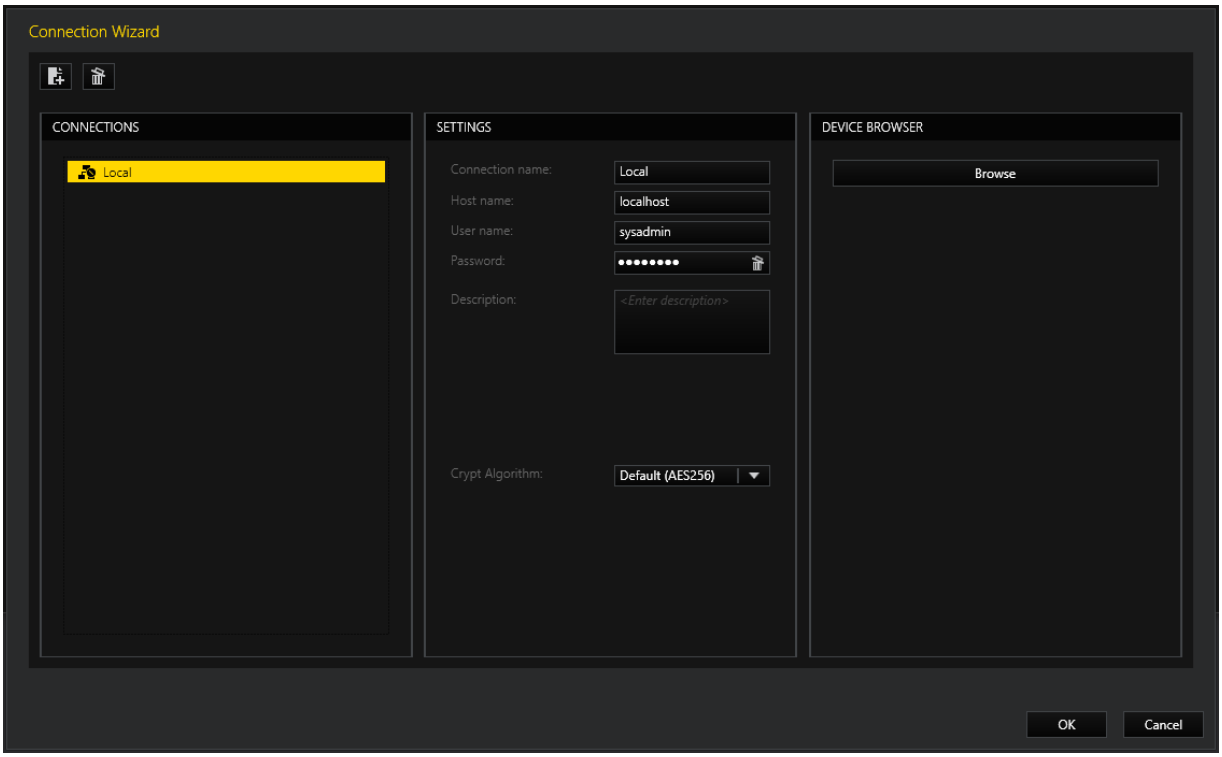
There is now a shortcut to the **CUA setup** on the desktop, if this option was checked during the installation.

Server Connections

During initial startup, an entry for a local CUA connection has already been created.



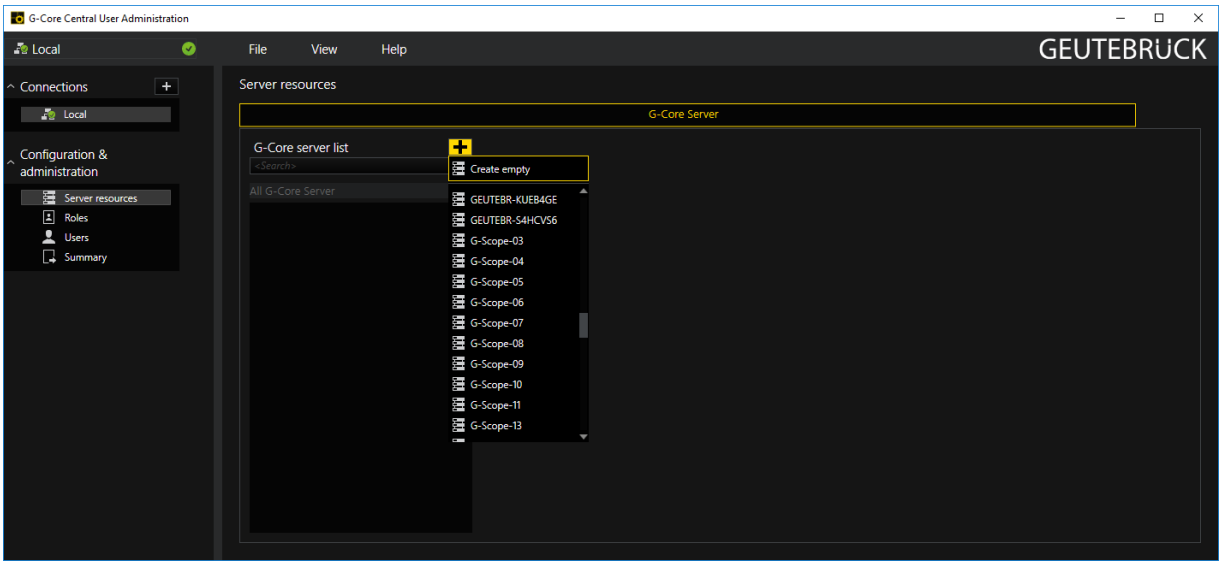
If a connection to a remote CUA server is needed, it can be added in the **Connections** dialog.



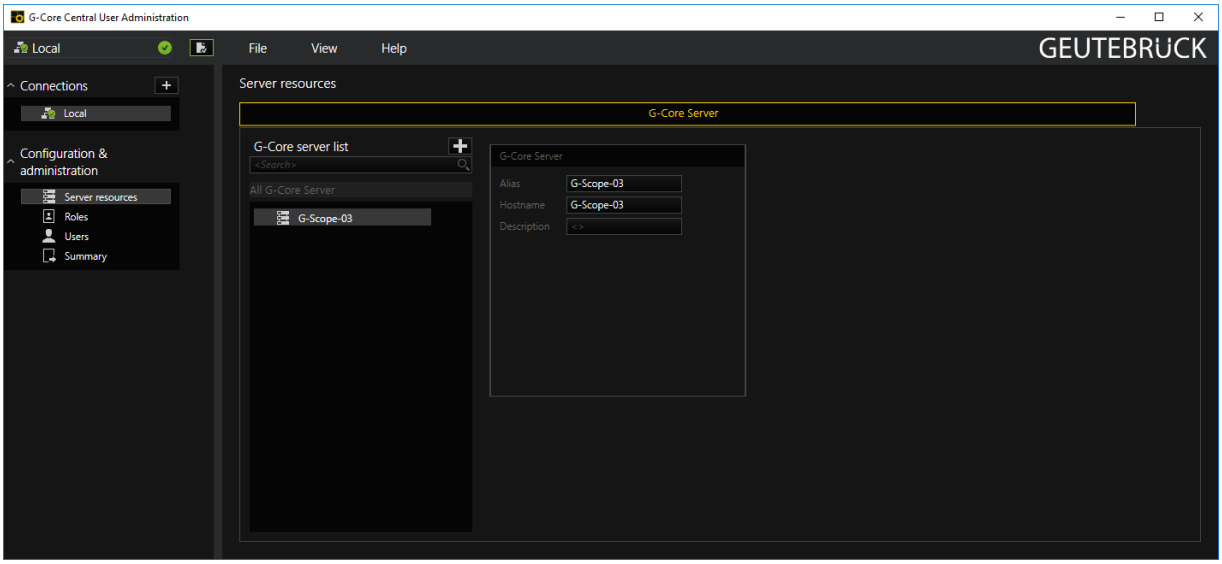
For more information, see **Connection wizard**.

Server Import

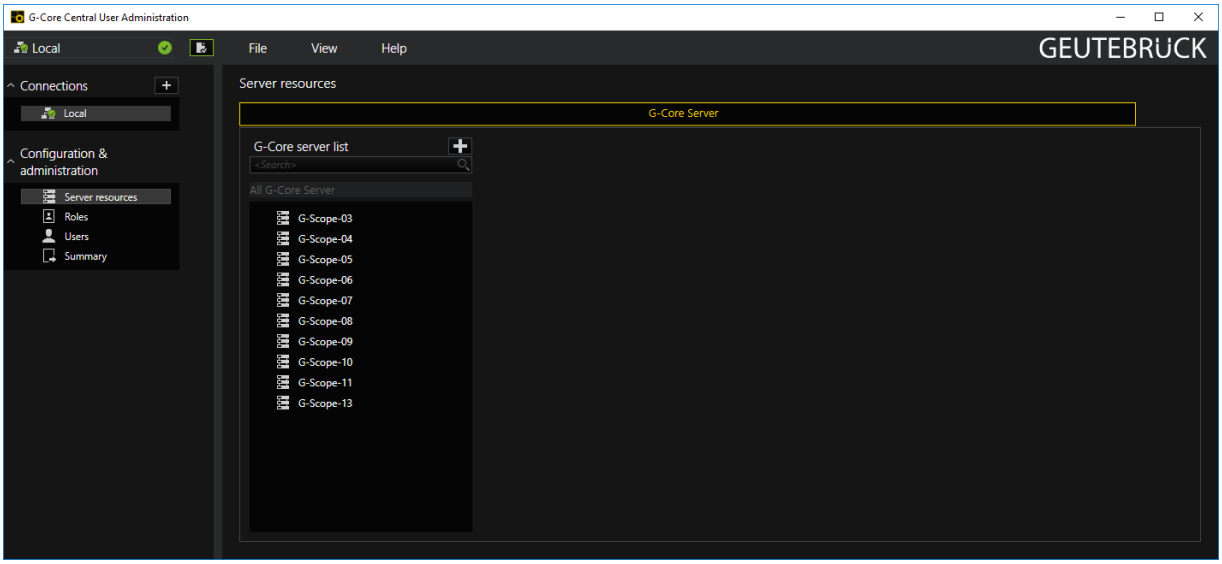
Under **Server resources** G-Core servers can be announced to the CUA service.



Either you select a server from the network and add it or you create a dummy entry to which you subsequently assign a host name.



You should complete the setup of the CUA service first before the G-Core servers are released for management by a CUA service.



After adding the G-Core servers, the respective setup will be called up in the background to

- import already existing user accounts and
- provide channels, alarms, and output contacts to configure the block settings.

When importing user accounts, user rights and block settings will not be applied! These must be re-assigned or managed via a role assigned to the user.

User Roles

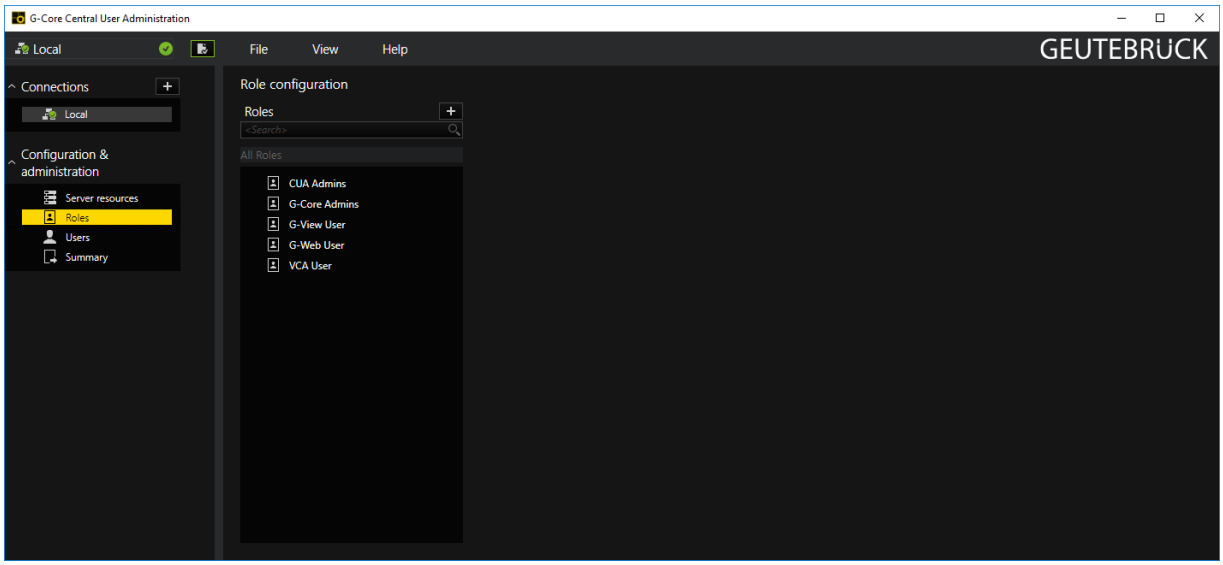
Default Roles

The rights of users are no longer assigned to each individual user, but instead distributed via roles. Users can then belong to different roles.

As familiar from **sysadmin**, CUA also has built-in roles:

- CUA admins
- C-Core admins
- G-View user

- G-Web user
- VCA user

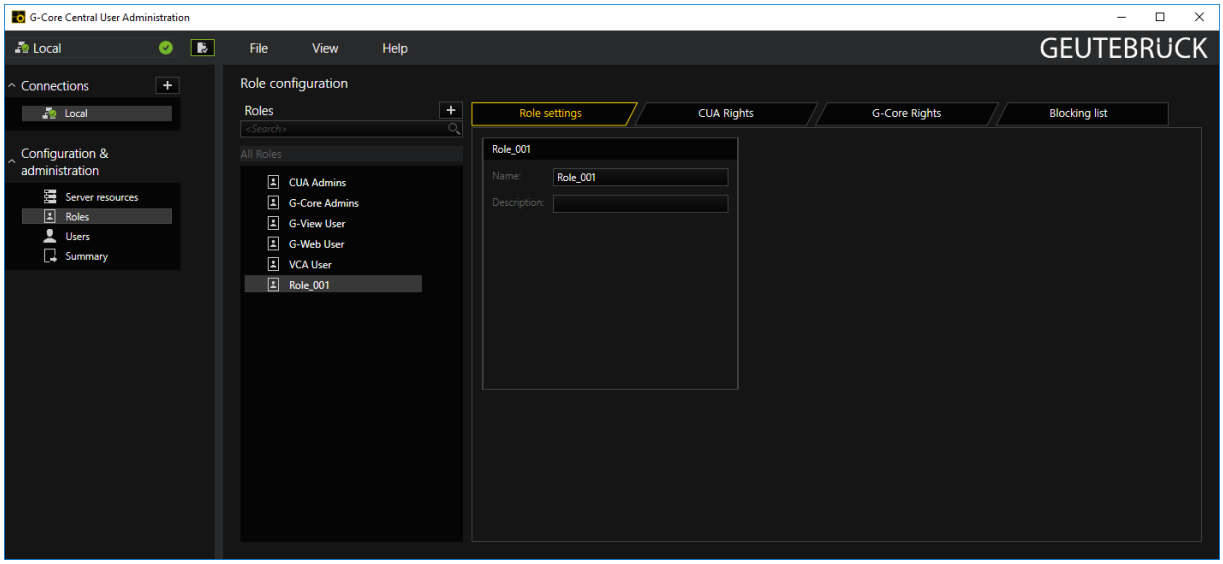


These predefined roles cover the common roles in default configurations, facilitating basic configuration by automatically receiving the necessary rights for the added G-Core servers.

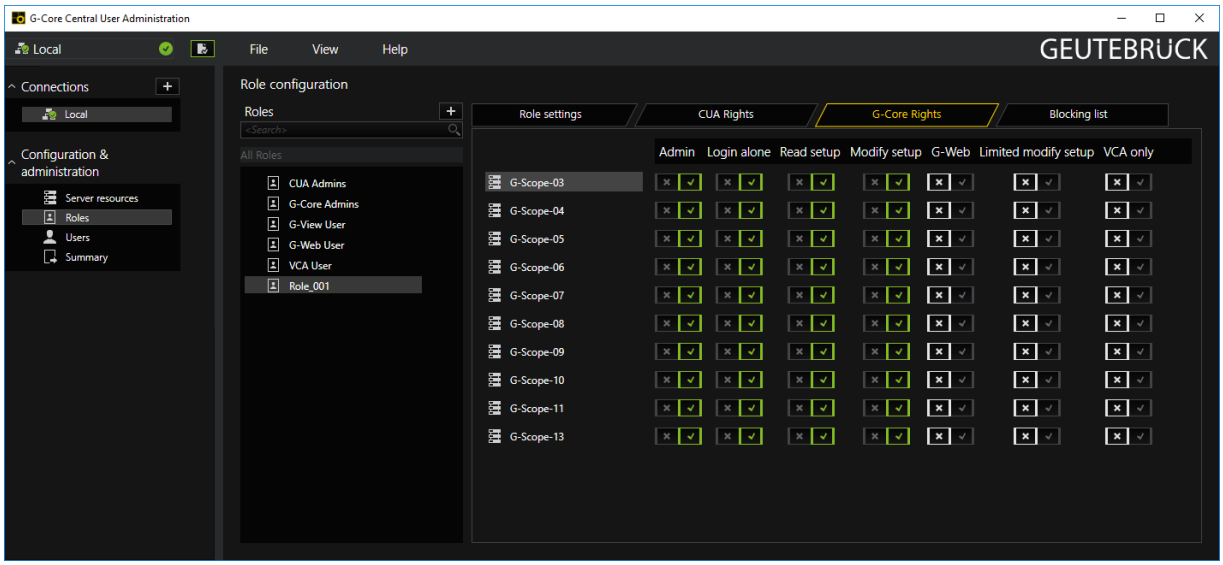
Since they are **built-in**, they cannot be deleted and have limited configurability. There are no unwanted side effects when the roles are not needed or not used.

Other Roles

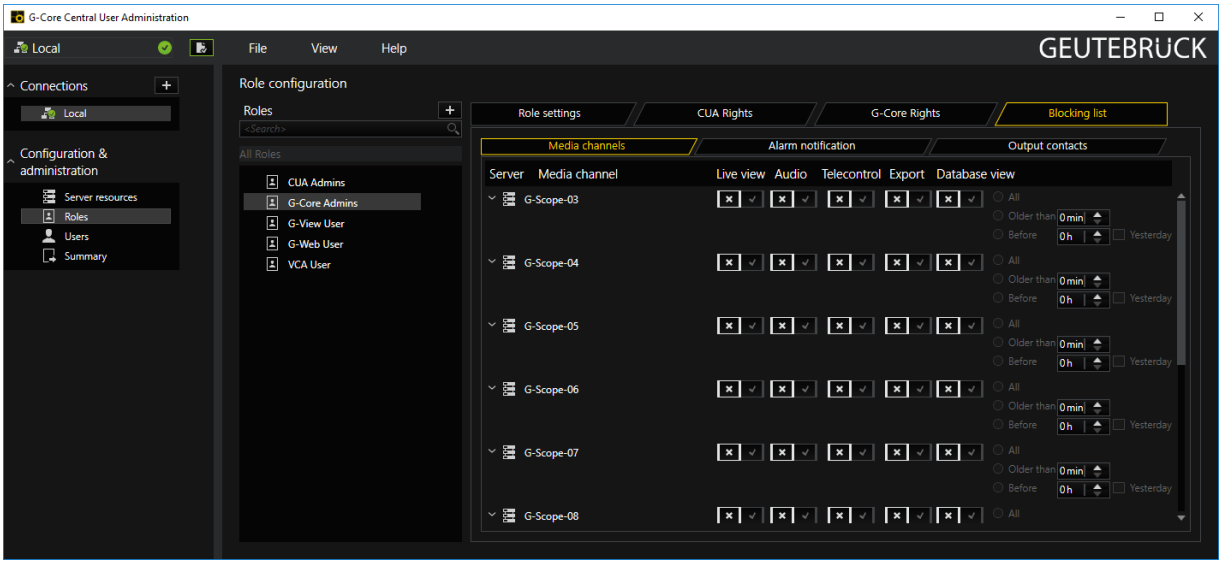
To define additional roles, a new role can be added by clicking on the plus icon.



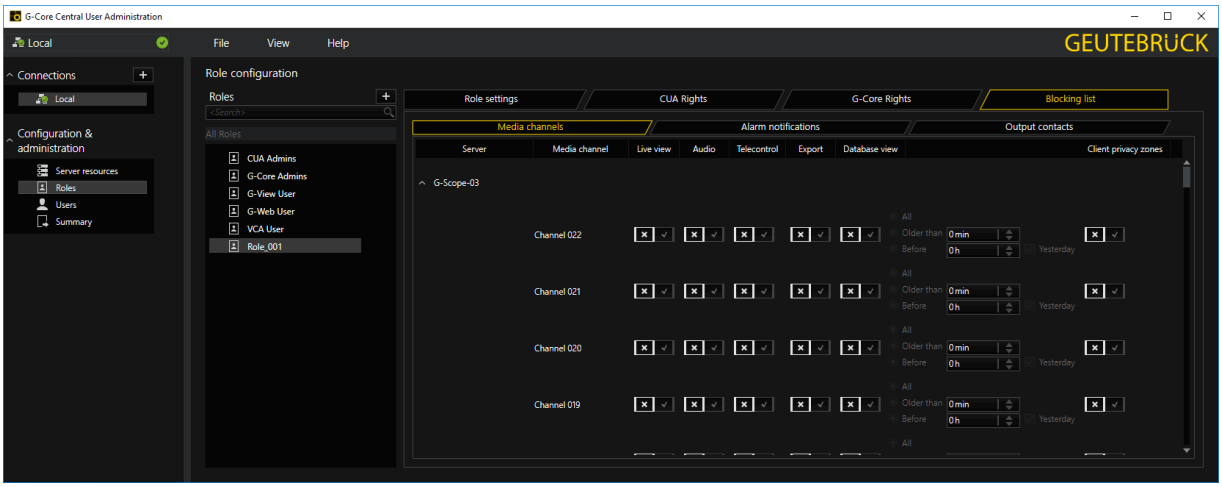
The **G-Core Rights** tab lets you manage the rights of the users assigned to the role.



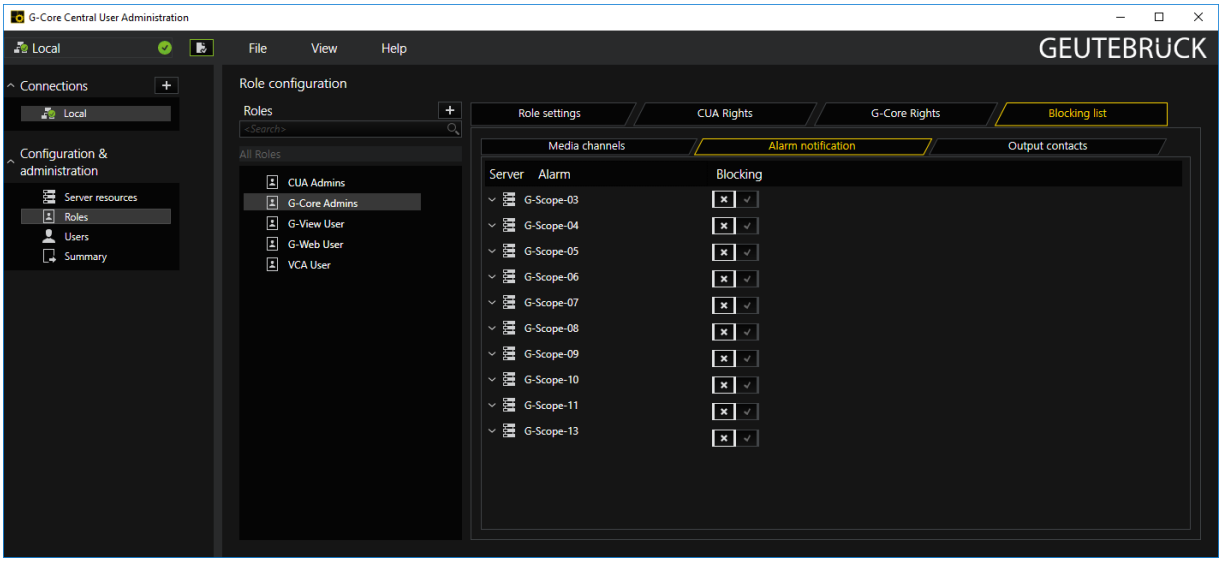
The **Blocking list** tab can be used to block certain channels, alarms or output contacts for roles or their assigned users.



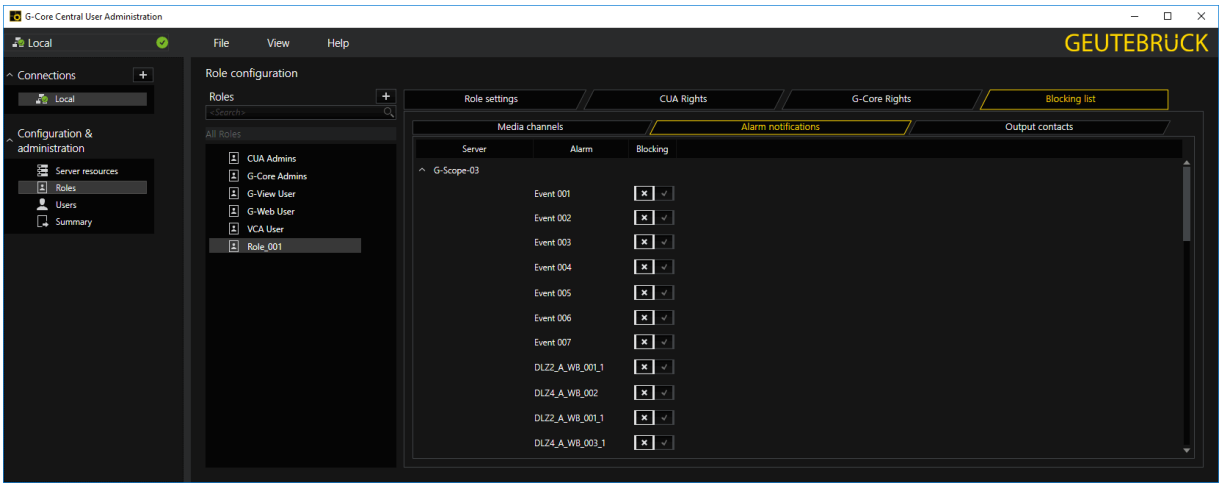
Everything from a server can be blocked, or separately channel by channel if the server node is expanded.



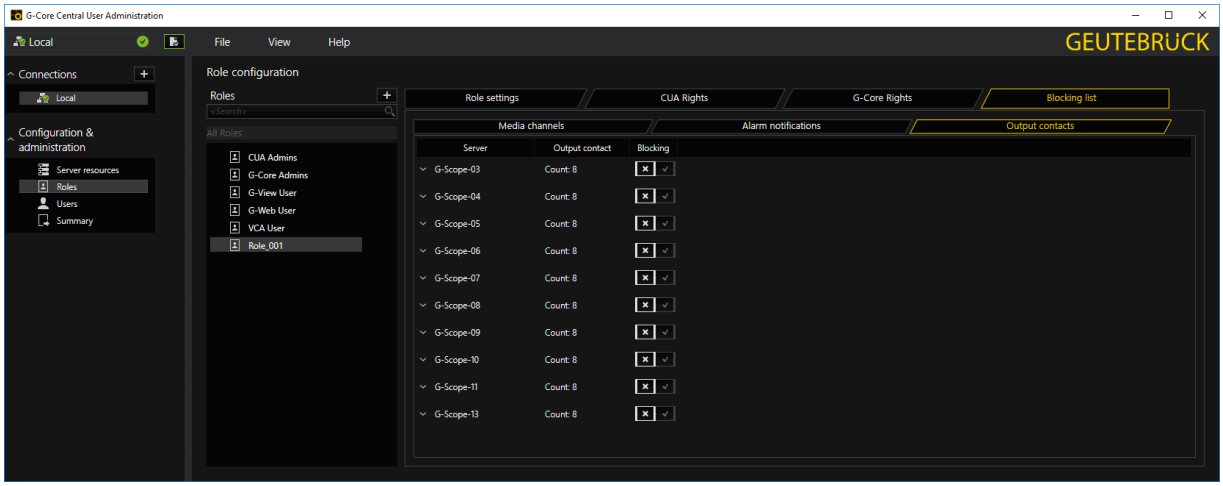
The **Alarm notification** tab determines which alarm permissions the user should not see.



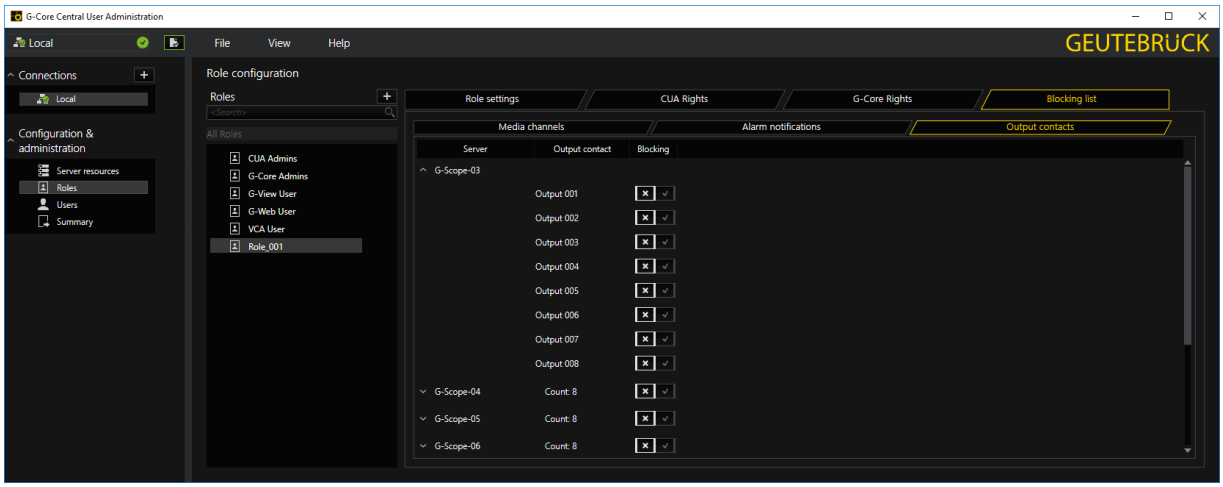
As with the channels, the alarm notifications can be selectively configured when the entries are expanded.



Output contacts can be blocked in the **Output contacts** tab.



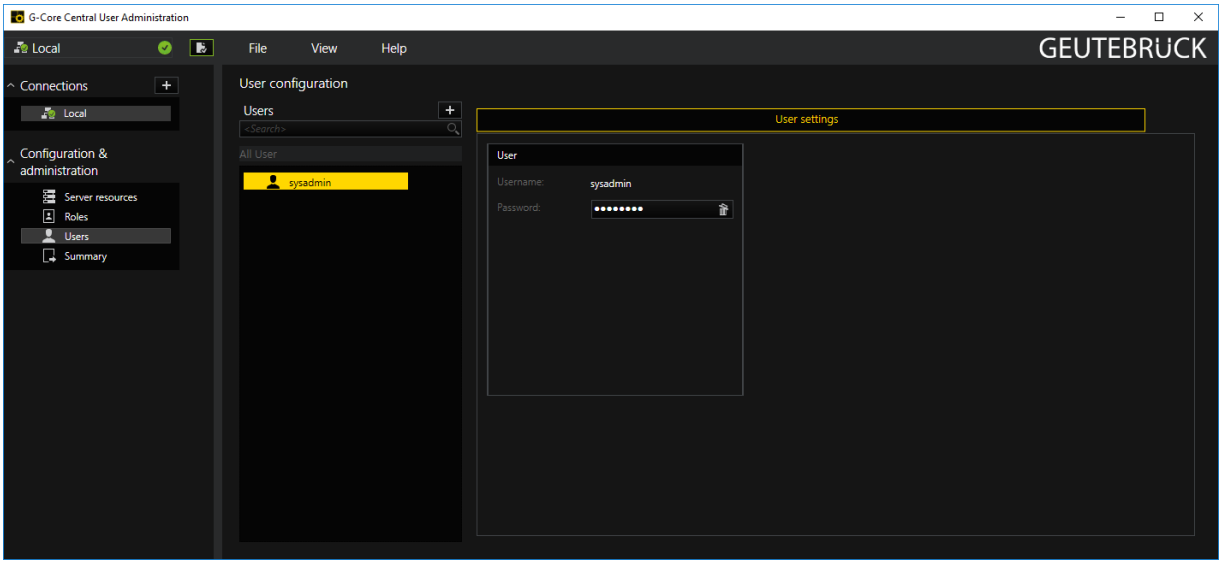
This can be done selectively when the entries are expanded.



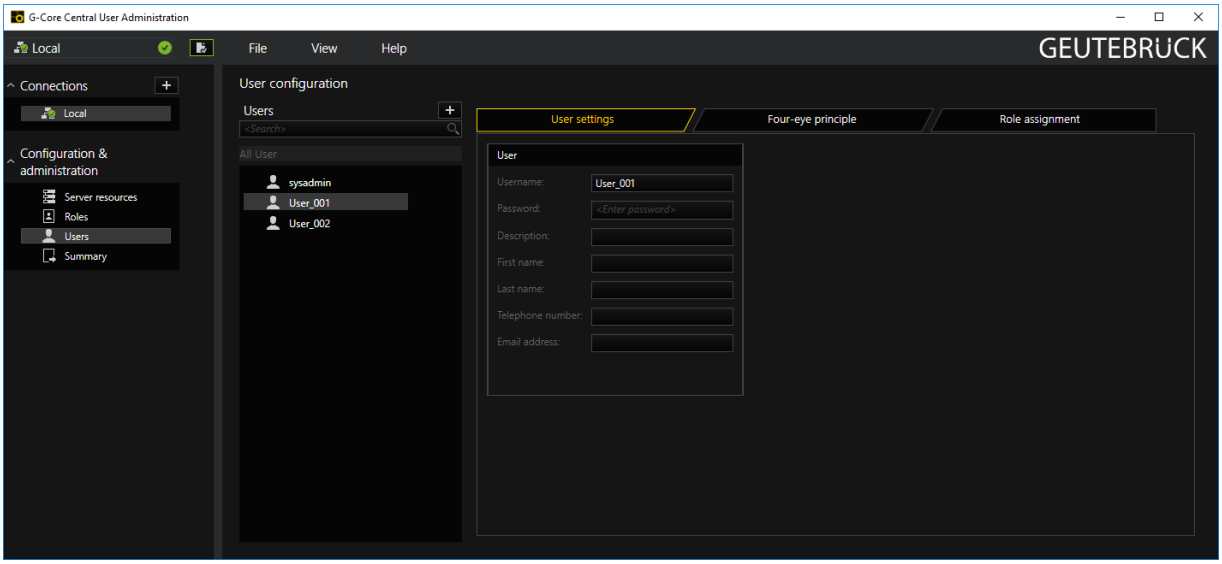
User

Users can be created under Users and then assigned to different roles.

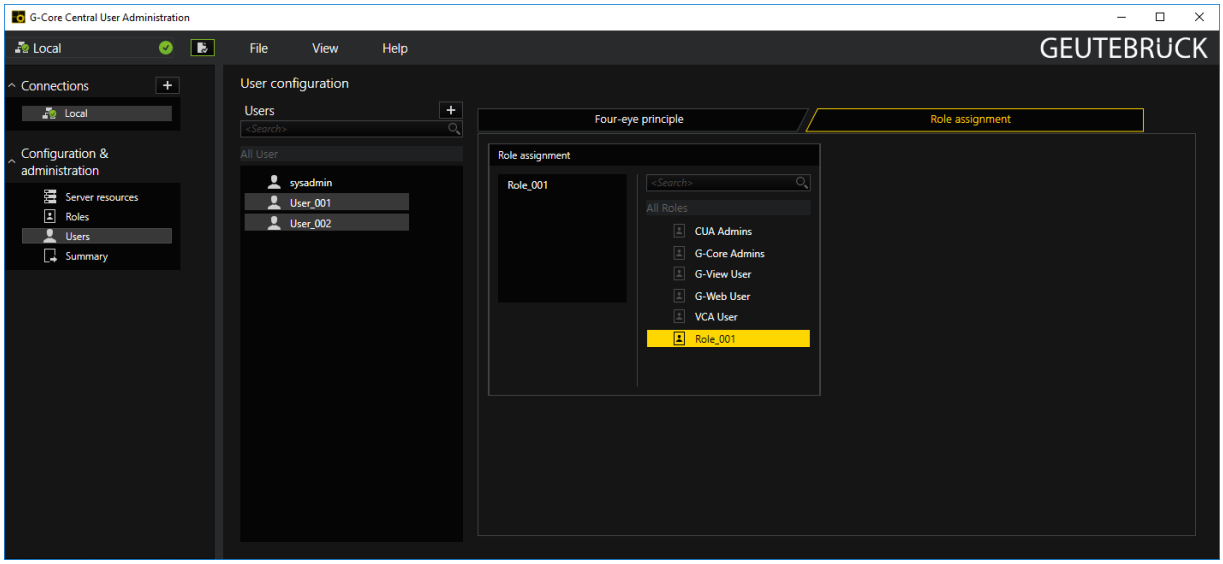
The user **sysadmin** is already predefined and assigned to the roles "CUA Admins" and "G-Core Admins".



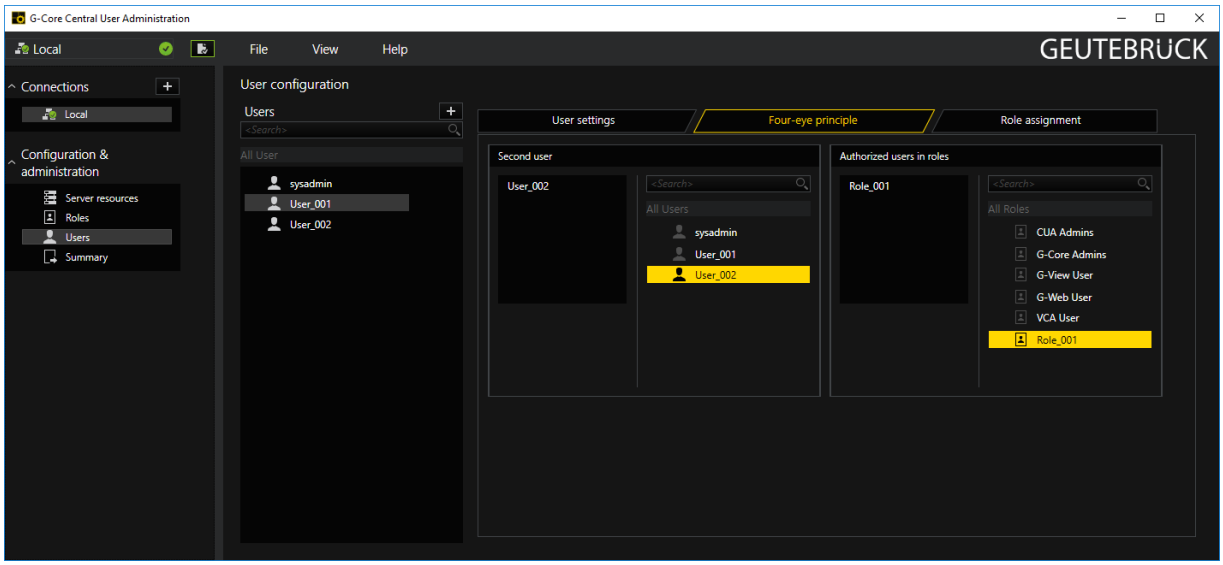
By clicking on the plus symbol, new users can be added. Assign unique user names to facilitate the configuration. At minimum, a user name and password are required.



In the **Role assignment** tab, roles can be assigned to users.

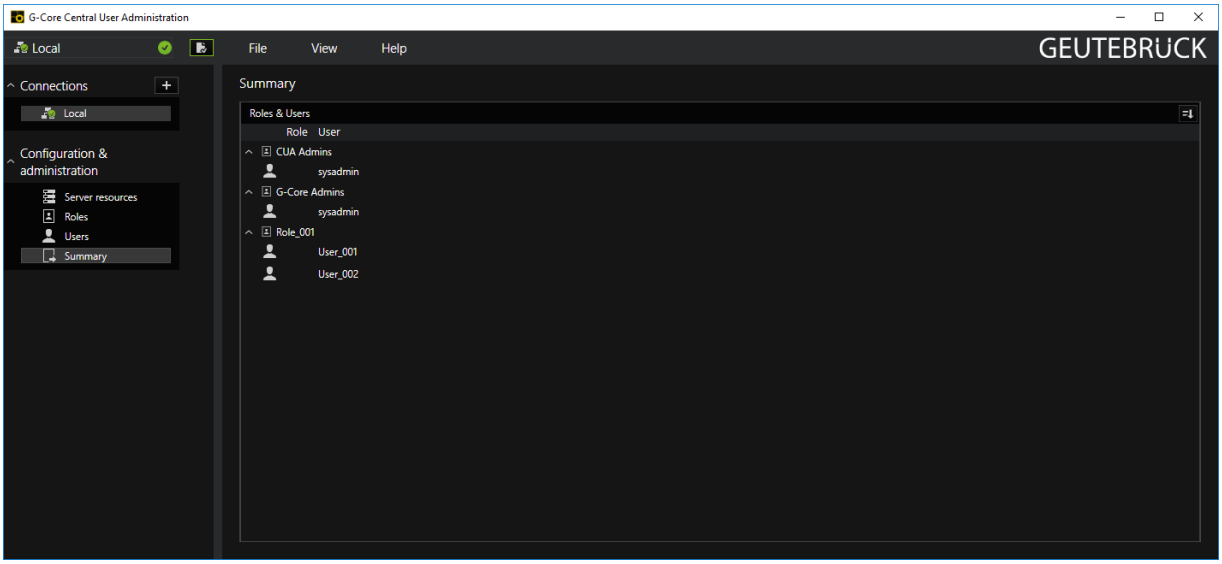


In the tab **Four-eye principle**, a user login can be restricted to the four-eye principle. It is possible to authorize all users of a specific role.



Summary

When creating roles, assigning roles to users and, above all, during a later (new) configuration, you may well lose track of the overview. A **summary** helps prevent this from happening by listing users and role affiliations

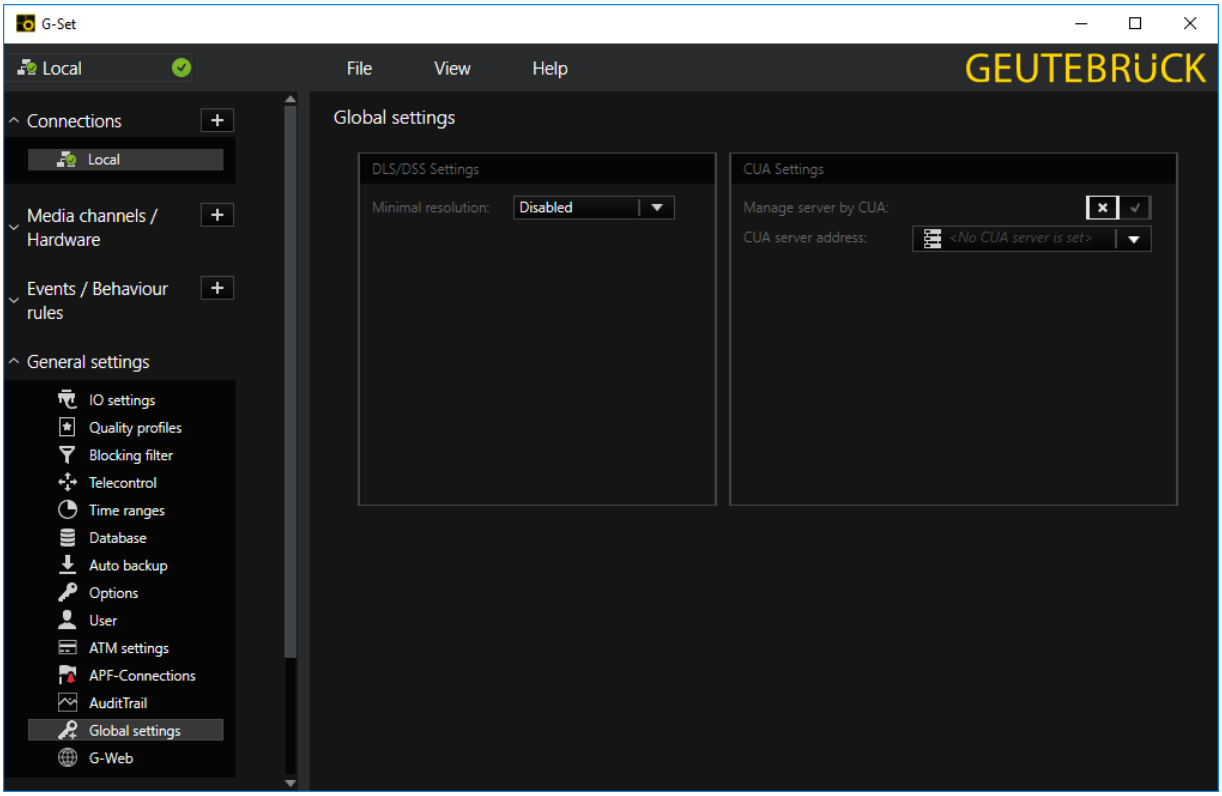


Assignment in G-Core Setup (G-Set)

The central user administration setup is not only set up in the **CUA setup**, where the G-Core server is entered as resource, but also in the G-Core setup. This serves as a safety measure.

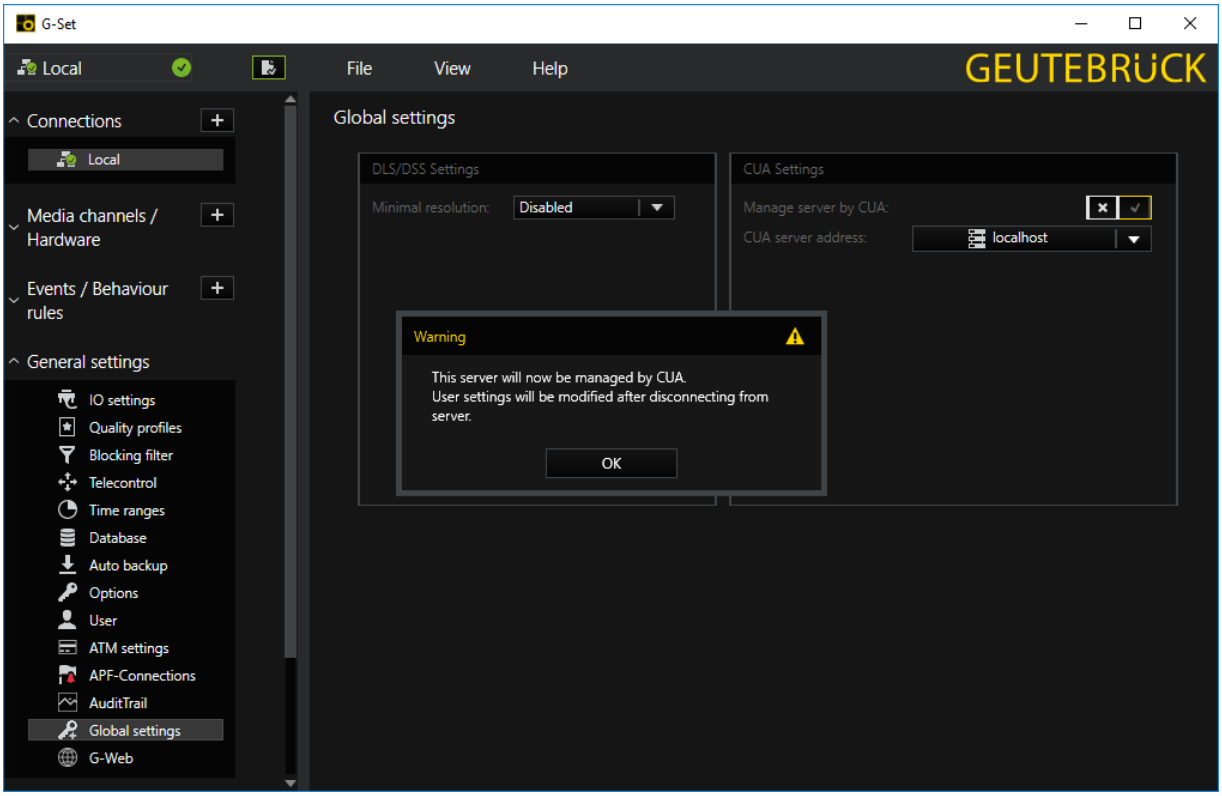
If you open G-Set and navigate to **General settings -> Global settings**, you will see settings for the CUA server.

Not only does a host name have to be given here (**CUA server address**), but the G-Core server must also be released with the CUA for administration (**Manage server at CUA**). Click on the check mark to release.



After enabling management by the CUA, you receive an indication that the user list of the G-Core Server can be edited by the CUA if there is no connection from a setup client open.

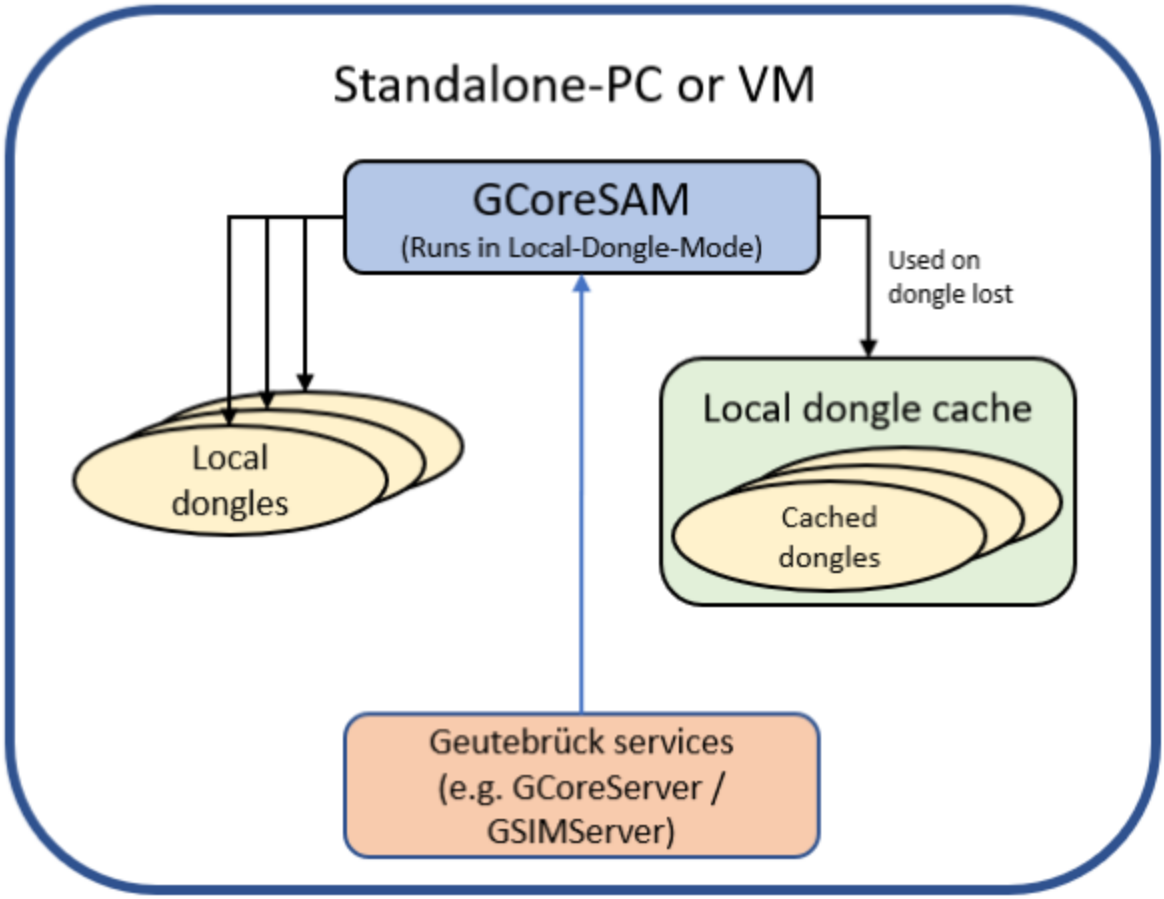
For this reason, we recommend that you always disconnect from the G-Core server once the configuration is complete.


G-Set
Local
File
View
Help
GEUTEBRÜCK
Connections
Local
Media channels / Hardware
Events / Behaviour rules
General settings
IO settings
Quality profiles
Blocking filter
Telecontrol
Time ranges
Database
Auto backup
Options
User
ATM settings
APF-Connections
AuditTrail
Global settings
G-Web
Global settings
DLS/DSS Settings
Minimal resolution:
Disabled
CUA Settings
Manage server by CUA:
CUA server address:
localhost
Warning
This server will now be managed by CUA.
User settings will be modified after disconnecting from server.
OK

Operation Modes

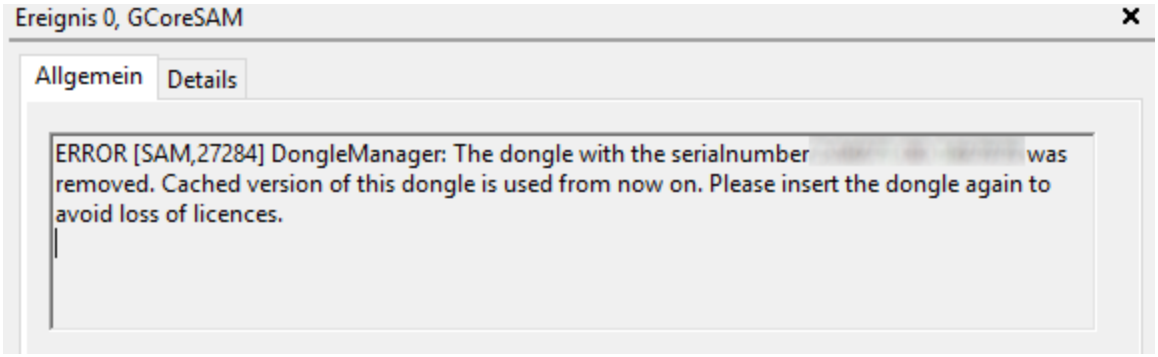
Local-Dongle-Mode

In the Local-Dongle-Mode, the G-Core SAM service connects to all local dongles, reads their information and processes all requests. Select this mode for a server installation with locally connected dongles or for a central option server installation.



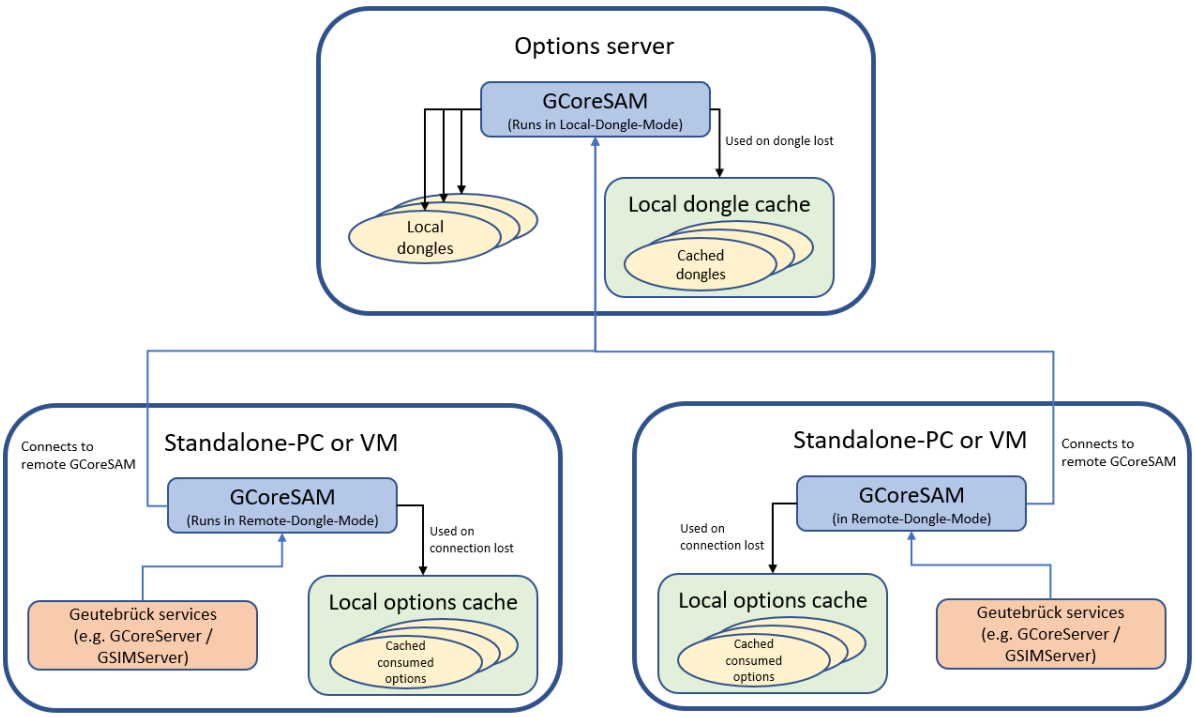
Local Dongle Cache:

The local dongle cache is a backup mechanism that saves all local dongle information on the system and makes it available for up to 30 days in case a dongle fails. In case of an error, a windows event log entry is created.



Remote-Dongle-Mode

In the Remote-Dongle-Mode, the G-Core SAM service is connected to a remote SAM and forwards all requests and responses. Use this mode if you have a central option server. You must then select this mode for all remote systems connected to the central option server.



Local Options Cache:

The local options cache is a backup mechanism that saves all requested options of this system on the system and makes them available for up to 30 days if the connection to the remote SAM is lost.

Two different actions are generated in the G-Core system depending on the current state of the system:

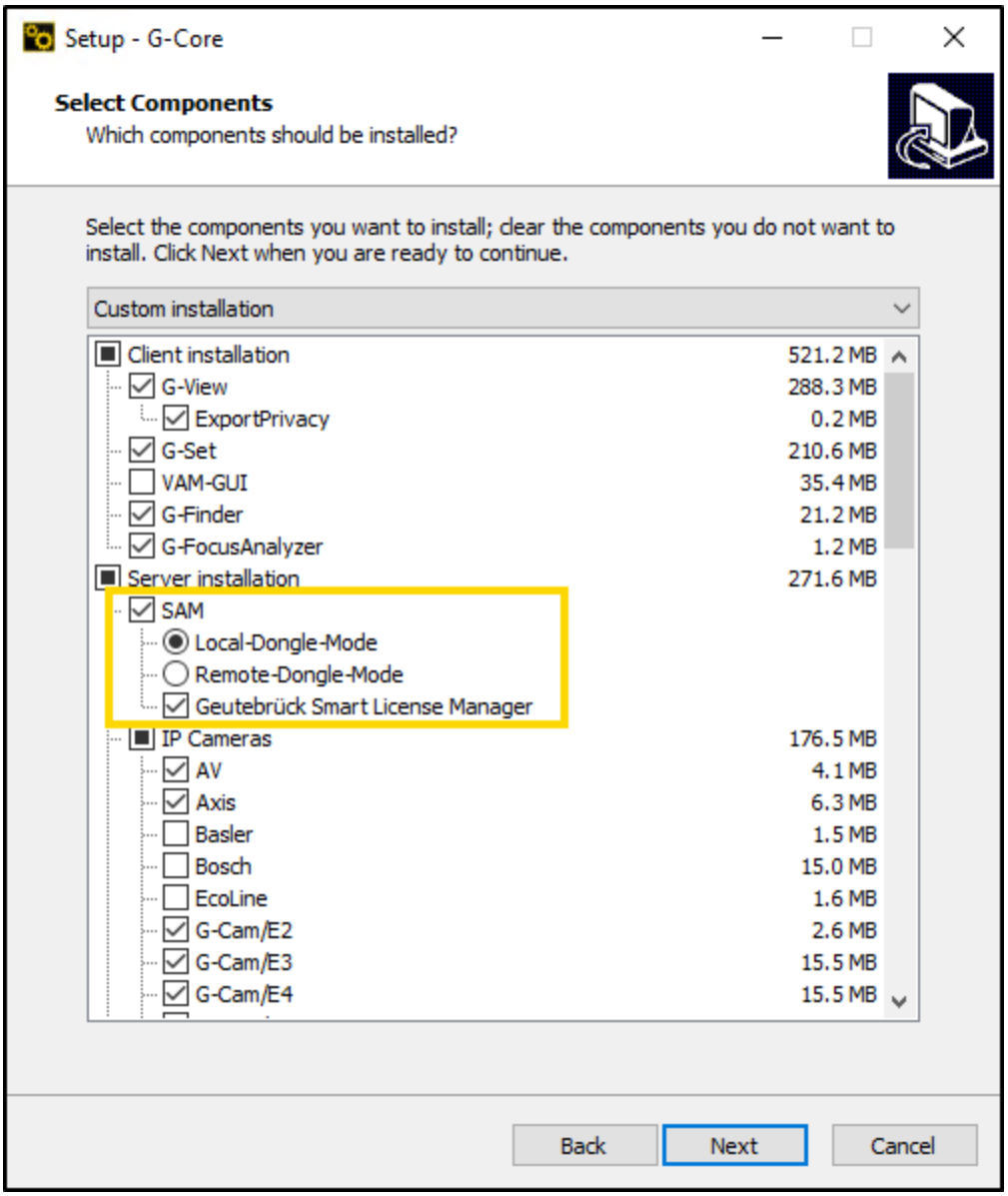
- SystemError: This action is triggered repeatedly when the connection to the remote SAM is lost and contains the last time the connection was established.

- SystemInfo: This action is triggered when the connection to the remote SAM is established or reestablished.

Installation

Install G-Core SAM using the G-Core installer. For the central options server, a standalone G-Core SAM installer is available.

1. Run the `G-Core_installer.exe` file.
2. Accept the **License Agreement** and click **Next**.
3. In the **Select Components** dialog window, select **SAM** and the required operation mode **Local-Dongle-Mode** or **Remote-Dongle-Mode** (see **Operation Modes**).



4. Click **Next** and follow the further installation steps (see **Software Installation**).
5. In the **Ready to Install** dialog window click **Install**.
6. G-Core and G-Core SAM are installed.
7. To complete the installation, the computer must be restarted.

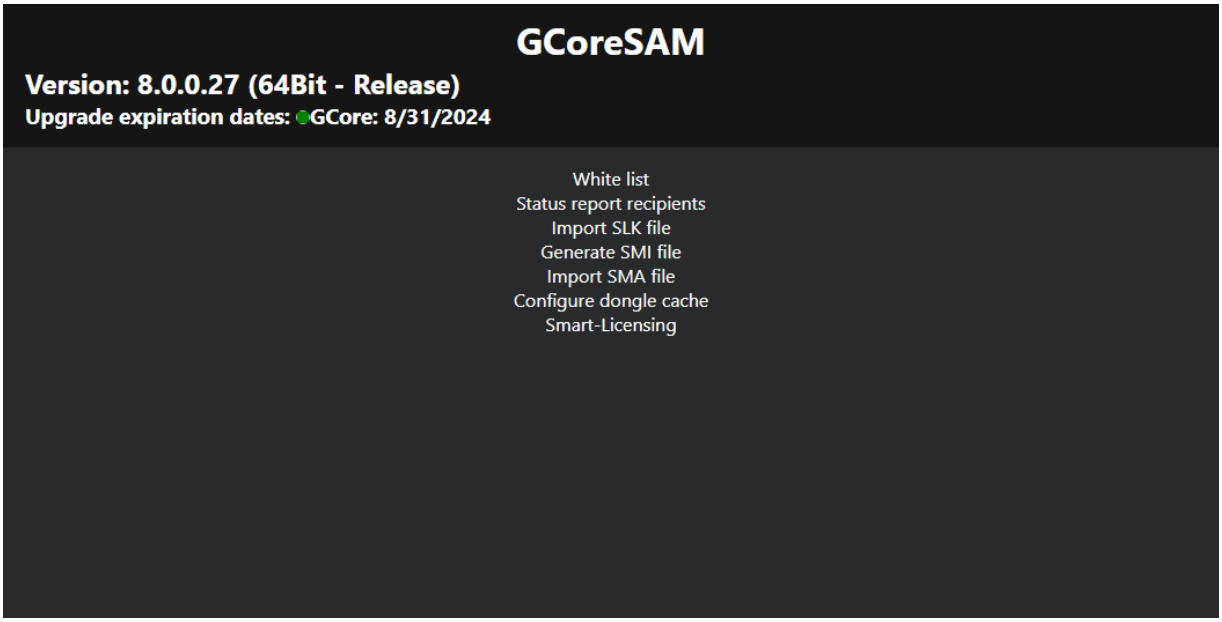
Configuration

Some configurations are made via the G-Core SAM web interface. All other configurations must be made in the configuration software of the installed software package. You can open the web interface via the URL: `http://-localhost:13008/config`.

Access to this URL requires authentication via NTLM (NT LAN Manager), which is performed automatically in the background. The logged-in user must have administration rights, i.e. the user must be a member of the administration group of the server on which the central SAM service is running.

The web interface consists of the following menu items:

- **White List**
- **Status Report Recipients**
- **Import SLK File**
- **Generate SMI File**
- **Import SMA File**
- **Configure Dongle Cache**
- **Smart Licensing**



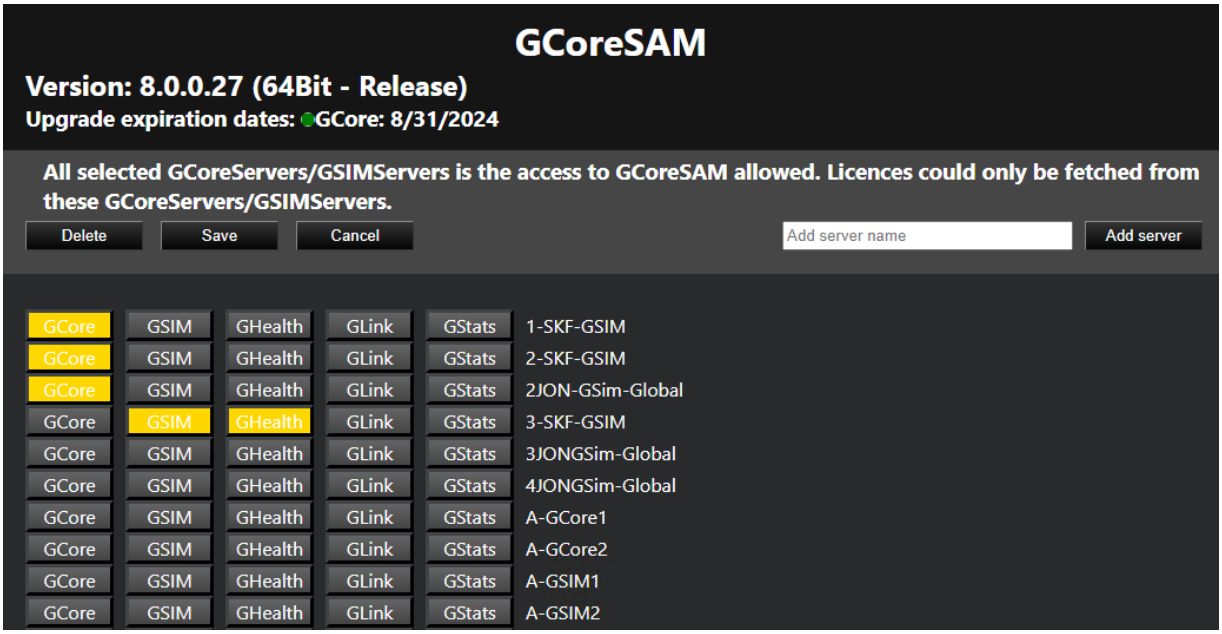
White List

The SAM service is equipped with a blocking filter that only allows localhost connections in its default configuration. Thus, it is not possible to connect to the SAM service from a remote computer without configuring the blocking filter.

> **If you use the Local-Dongle-Mode (see Operation Modes), i.e. a single system with a local dongle connected, you do not have to make any configurations.**

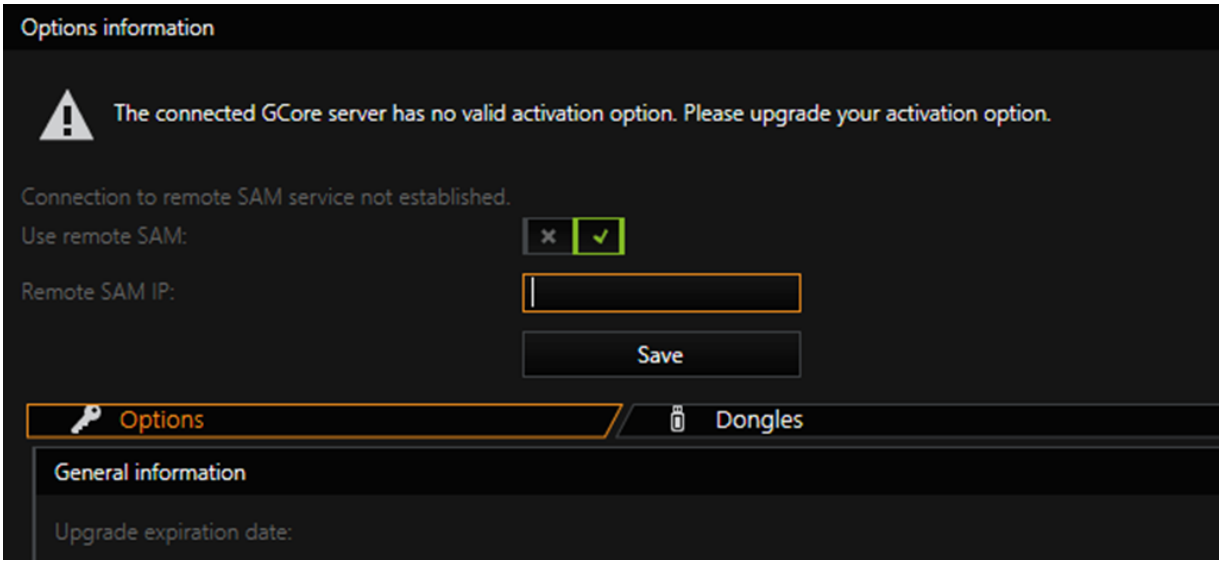
In the White list menu, you can configure the blocking filters. The list contains all G-Core, G-SIM, G-Health, G-Stats and G-Link servers that are currently running on the network (and all that are included in the current blocking filter settings). The access to the individual SAM servers and software types (e.g. G-SIM or G-Core) can be disabled by clicking the corresponding buttons. The servers highlighted in orange are currently disabled.

If the desired server does not appear in the list, it you can add it by clicking the Add Server button. To do this, enter the network name of the associated computer in the text field.



If you use the Remote-Dongle-Mode (see **Operation Modes**), you have to configure the connection to the central SAM service in G-Set in the **Options Menu** menu after installing the software package.

Enable the Use remote SAM option to activate the use of the central SAM service and specify the IP address of the central SAM server in the Remote SAM IP text box. Then click the Save button.



Status Report Recipients

The SAM service sends status messages to the connected G-Core client. These status reports provide notifications, for example, about newly detected or removed dongles, expired activation options, or other important events.

In the **Status report recipients** menu, you can select the computers to receive these reports. All clients on the selected computer will receive a status report.

The connected G-Core server converts the status reports into actions. The following actions are sent:

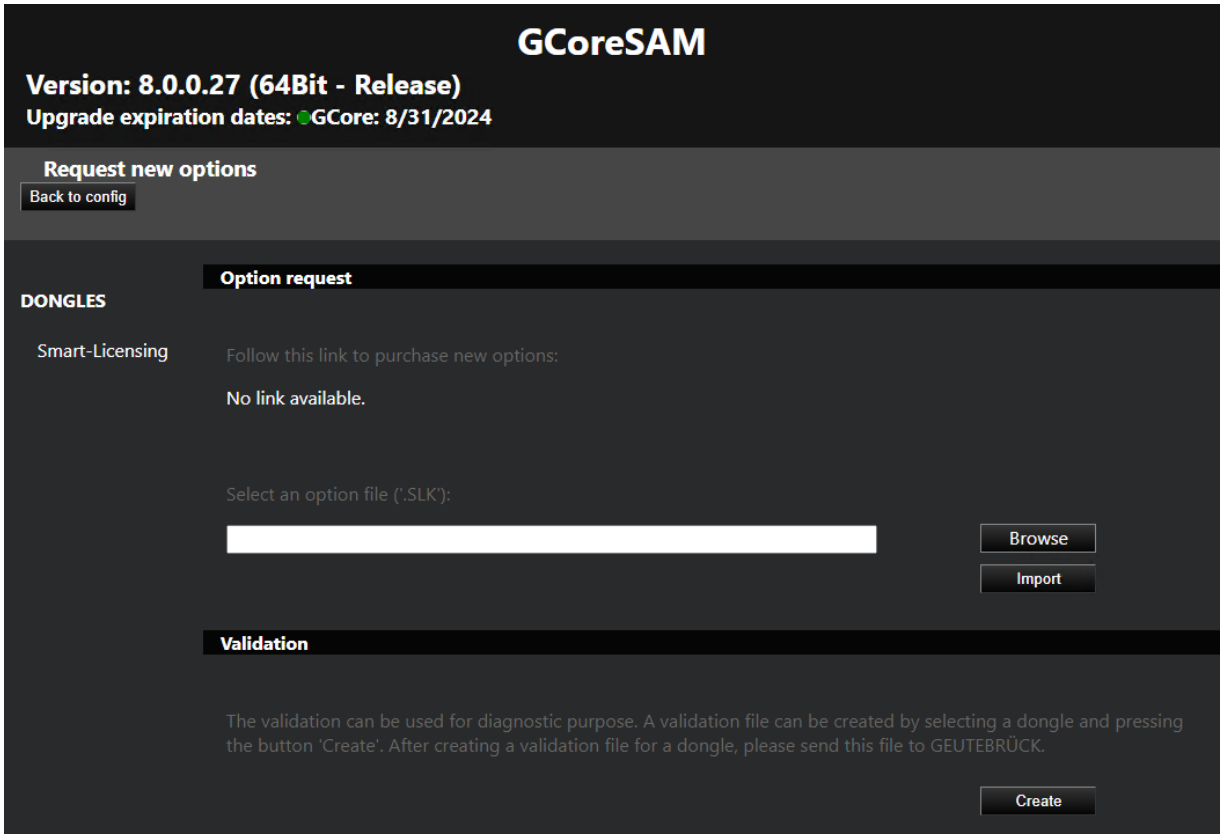
Event	Action	Parameter
Dongle removed	System Error	"source subsystem" = "dongle" "message code"= "Dongle missing"
Dongle added/recognized	SystemInfo	"source subsystem" = "dongle" "message code"="Dongle found"
Activation option lost	SystemError	"source subsystem"="dongle" "message code"="unlicensed" "description"="... activation has been expired."
New activation option	SystemInfo	"source subsystem"="dongle"

Event	Action	Parameter
recognized		"message code"="unlicensed" "description"="... activation expired at..."
Activation option expired	SystemInfo	"source subsytem"="dongle" "message code"="unlicensed"

Import SLK File

In the **Import SLK File** menu, you can import SLK files, export requested links and create GDV files.

This web interface for importing SLK files uses the same layout and functionality as the options dialog in G-Set (see **Options Menu**).

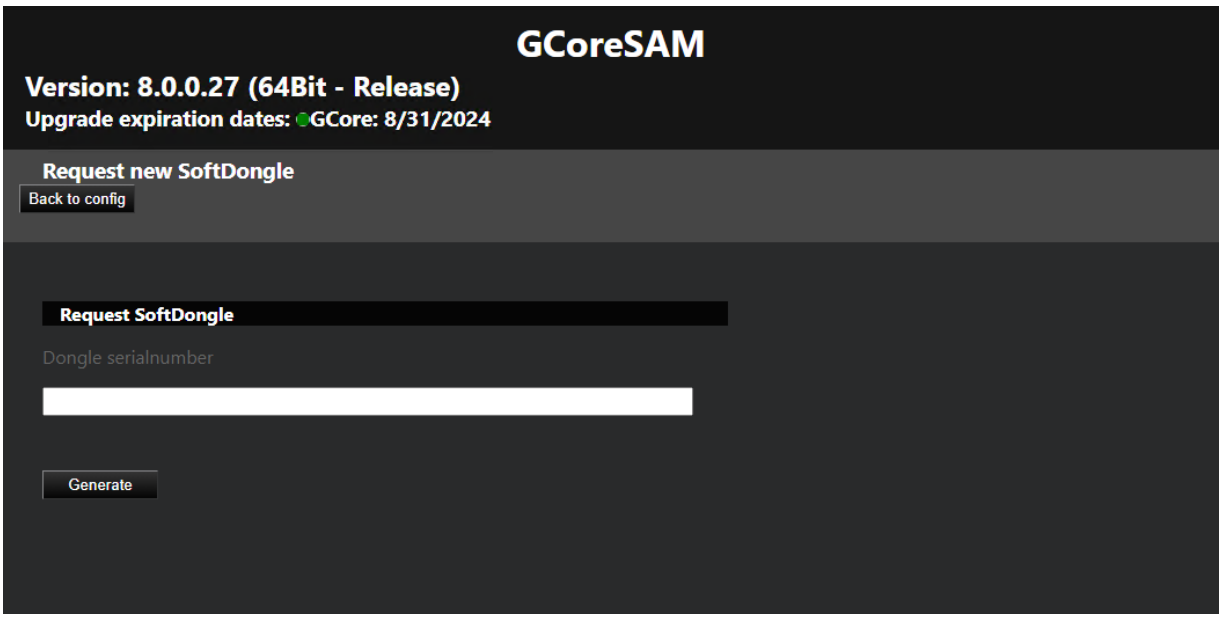


Generate SMI File

In the Generate SMI file menu, you can generate SMI files for soft dongle request files. The SMI file contains information about the system and is required when asking for a soft dongle for the system.

> **For virtual systems, it is required that the system is part of a domain to be able to generate an SMI file.**

To generate an SMI file, enter the dongle serial number of the requested soft dongle and generate the file by clicking the Generate button. Download the generated SMI file to proceed with the soft dongle request.

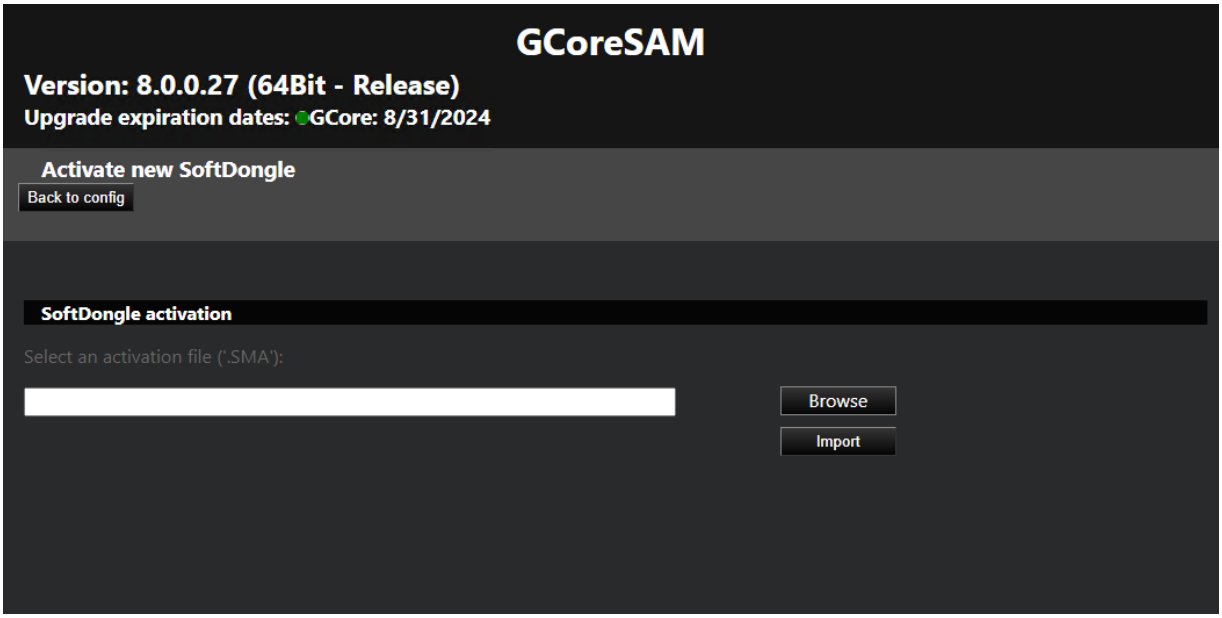


Import SMA File

In the Import SMA file menu, you can import the SMA soft dongle files and activate the received soft dongle in the system.

> **A soft dongle can only be activated on the system on which the request (SMI) was generated.**

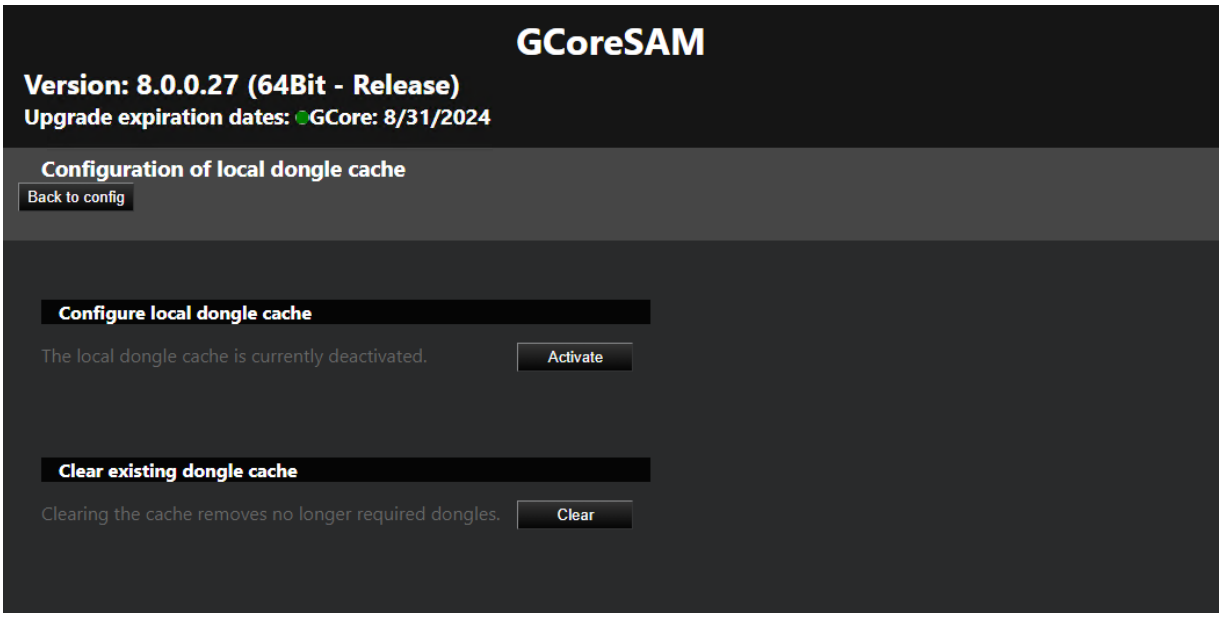
To activate a soft dongle, click Browse to select the SMA activation file and import the SMA activation file by clicking Import.



Configure Dongle Cache

In the **Configure local cache** menu, you can activate or deactivate the local dongle cache for your system. To do this, click **Activate** or **Deactivate** button.

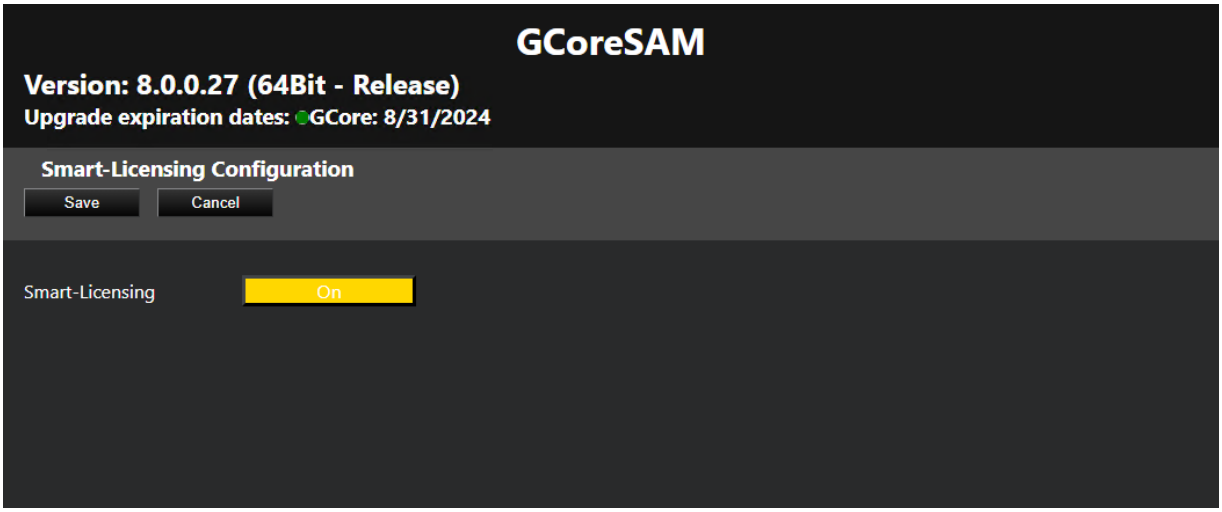
The dongle cache is used for all currently connected dongles (physical and soft dongles). If one or more local dongles need to be changed and both the old dongle and its cache are obsolete, the dongle cache must be cleared. To do this, click the **Clear** button.



Smart Licensing

In the **Smart Licensing** menu, you can activate Smart Licensing. To do this, set the Smart Licensing button to **On** and click **Save**. The new licensing model is activated and the Smart Licensing licenses are used. The G-Core SAM server is restarted to complete the switch.

Deactivate the **Smart-Licensing** option to use the Traditional Licensing licenses. It is possible to switch the licensing model at any time. Parallel operation of both licensing models is not possible.



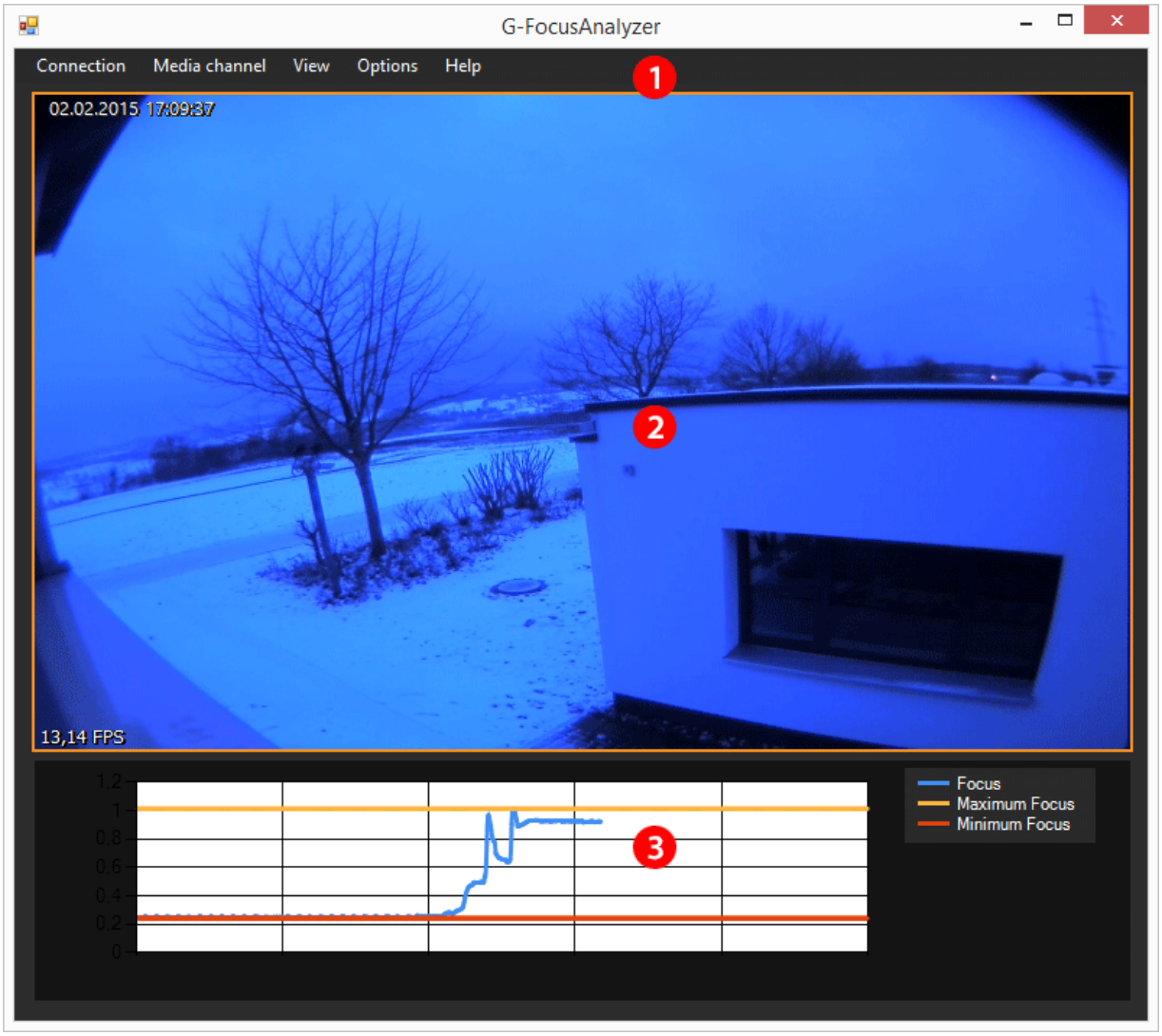
G-Focus Analyzer

The G-Focus Analyzer helps the user set the optimum focus of the camera by calculating the focus of the camera by measuring the level of detail in the video image.

A blurred image is mainly composed of homogeneous surfaces. A sharp image, on the other hand, shows the maximum level of detail (it should be noted that level of detail/focus does not represent an absolute value as it is dependent on the scene). With the values of a calculated focus over time, the user can optimally set the focus.

Audio output also makes it possible to use the camera freehand.

User Interface



The interface consists of three parts, the **Menu Bar** 1, the **Viewer** 2 and the **Oscilloscope** 3.

Menu Bar

The menu bar displays the following menu items:

Item	Description
Connection	Creates a connection to a G-Core Server.
Media channels	Provides the ability to select the media channel of the connected server for which the Focus Analyzer will be used.
Options	This menu item is used to set the oscilloscope, the ROI and the audio output.
View	Here you can specify if just the viewer, just the oscilloscope or both will be displayed.
Help	

Viewer

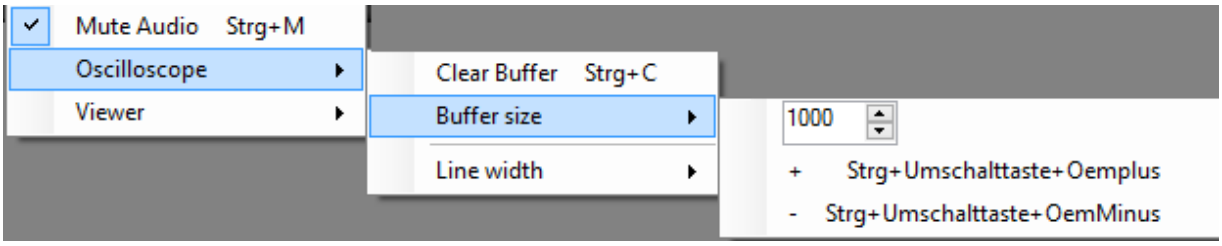
The viewer displays live images from the selected camera. On the bottom left of the screen, the current frame rate/second (FPS) is displayed.

If the frame rate is below 5 FPS, it is not possible to perform a useful analysis!

Oscilloscope

The oscilloscope displays the current camera focus settings and its progress. The blue line shows the current focus. The yellow and red lines show the maximum and minimum focus values of the current measurement.

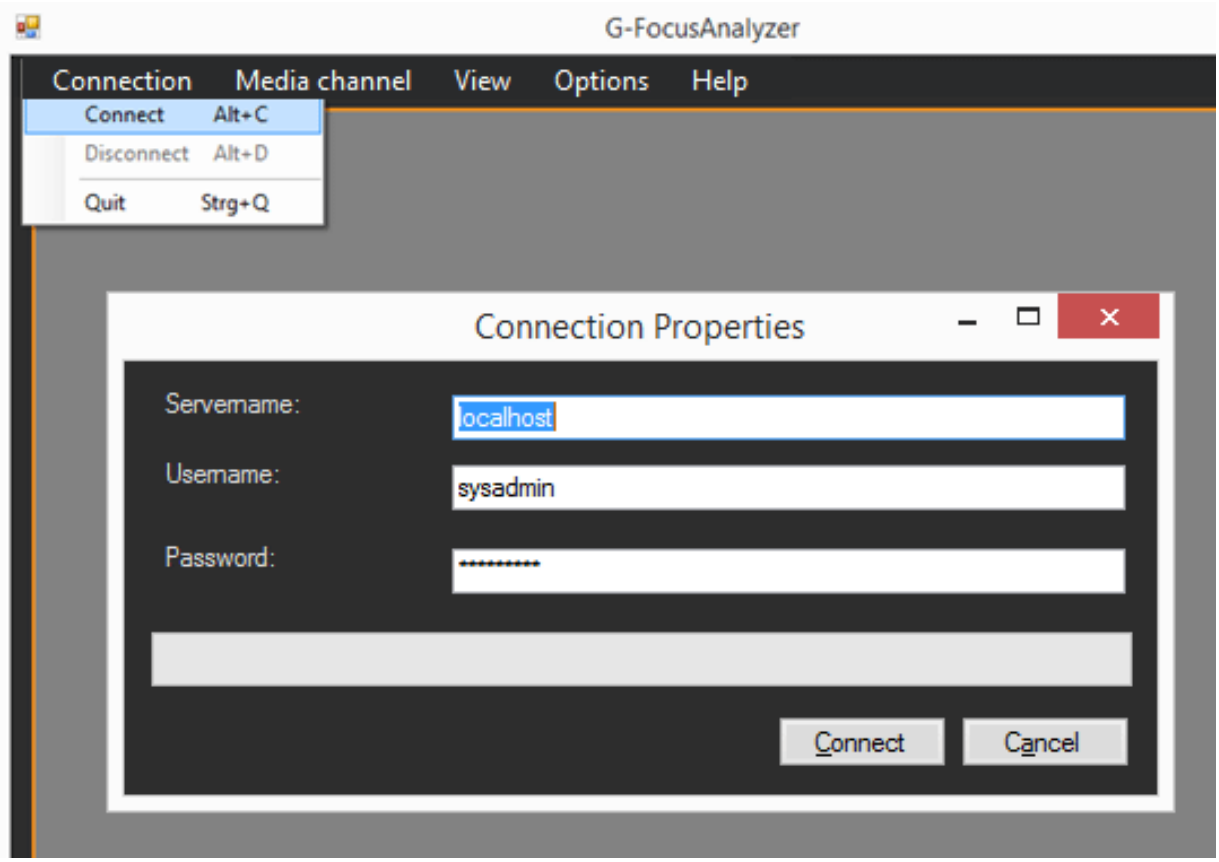
The oscilloscope is configurable (**Options** menu). If too few frames are displayed, the **Buffer** can be increased here.



Usage

Procedure

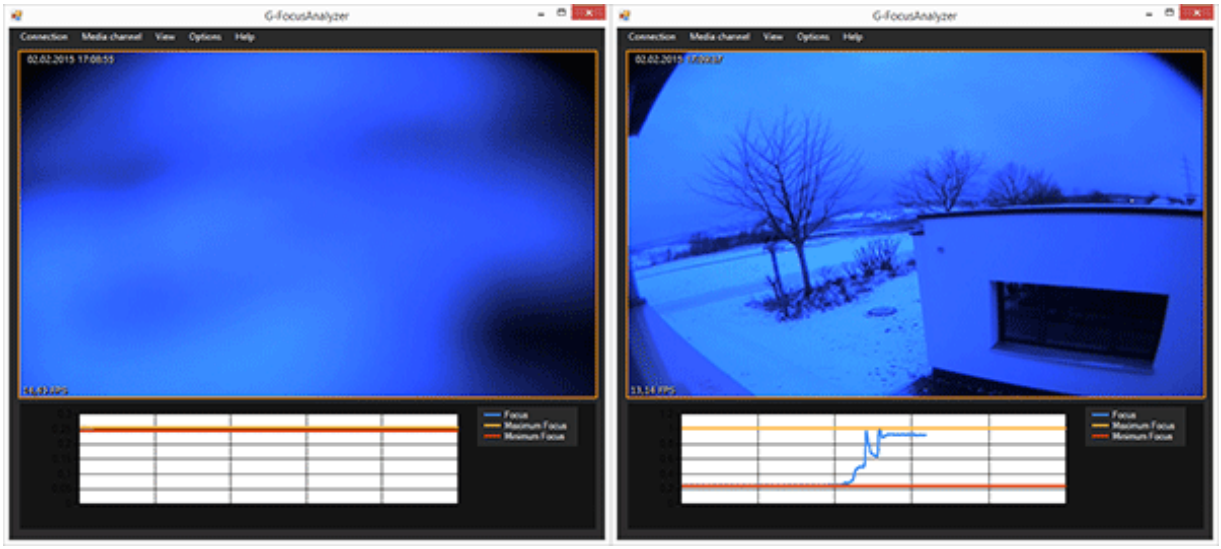
The Focus Analyzer must be connected with a G-Core Server. When you click on **Connection** in the menu bar, a pop-up menu opens. Click **Connect** to open a connection dialog.



Once the connection has been established, a media channel of the connected server can be selected under **Media channels**. The live image of the selected media channel is displayed in the viewer, along with the frame rate.

At the same time, the oscilloscope starts up and displays the current focus (blue) and the maximum or minimum focus values (yellow and red lines) for the current measurement.

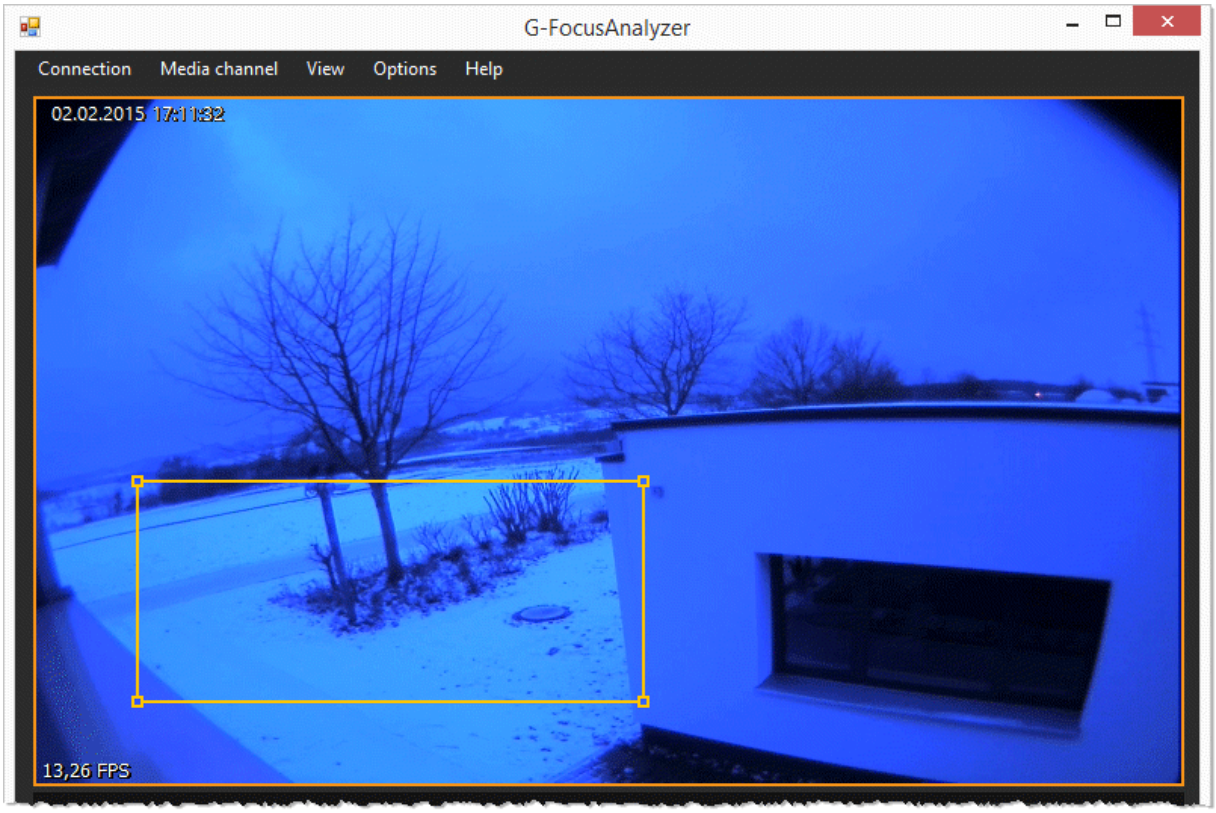
The camera focus must not be modified so that the blue line approaches the yellow line.



On the left an extremely blurred image: Max. and min. focus are very close together. The focus of the camera is barely visible.
On the right the image is perfectly in focus. The camera focus is close to the max. focus (yellow line).

Region of Interest (ROI)

By adding a bounding box (holding down the left mouse button) in the image, a region of interest can be selected. For a very large area, this makes it possible to focus the camera on small areas.
The ROI box can be deleted by right clicking within the box and selecting **Remove**.



Once the media channels have been properly focused, the program can be closed using **Connection -> Quit**.

Image Export Tools

Imex provides functions for automated export of individual frames. This export can be either event-triggered or action-triggered.

The file path and file name can be composed of image and event data, making it possible to link the images to the data with sorting and search operations. The module thus represents a simple, image-based interface to other systems, whether they be management systems or web services.

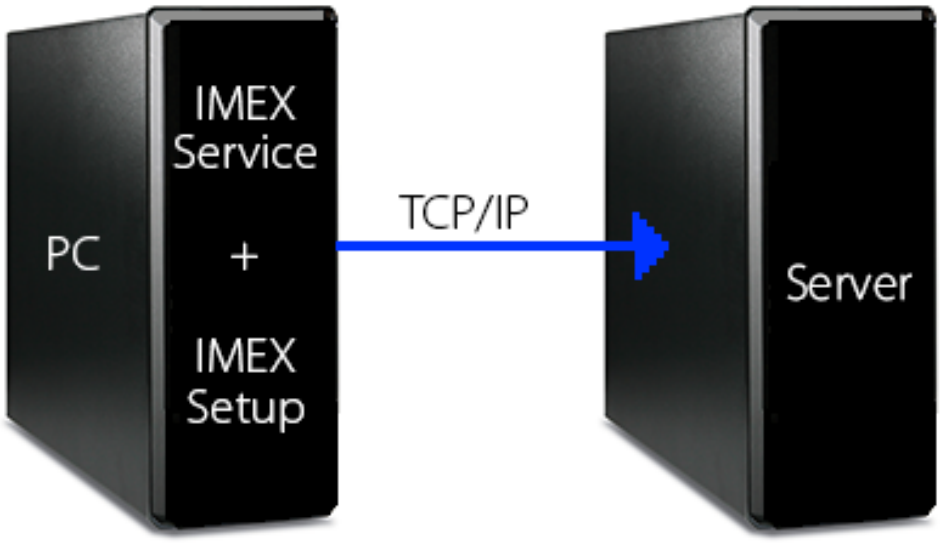
The program connects with a specified G-Core Server and reacts, depending on the configuration, to the events or actions that occur. A setup program is available for configuration.

Components/Setup

Imex consists of a service (GCoreImexService) and a configuration program (GCoreImexEditor.exe).

The connection between the service and a G-Core Server is established via TCP/IP. The service can thus be installed independently on any computer.

To configure the service, the setup application must be opened on the same computer as the service.



By establishing a TCP connection to a G-Core Server, the ImexService is also able to process events and actions of this server.
When events or actions of an additional G-Core Server are to be processed, then an ImexService must be started on an additional PC.

ImexEditor

When starting the setup client, an automatic attempt is made to establish a connection between the ImexService and the ImexEditor.

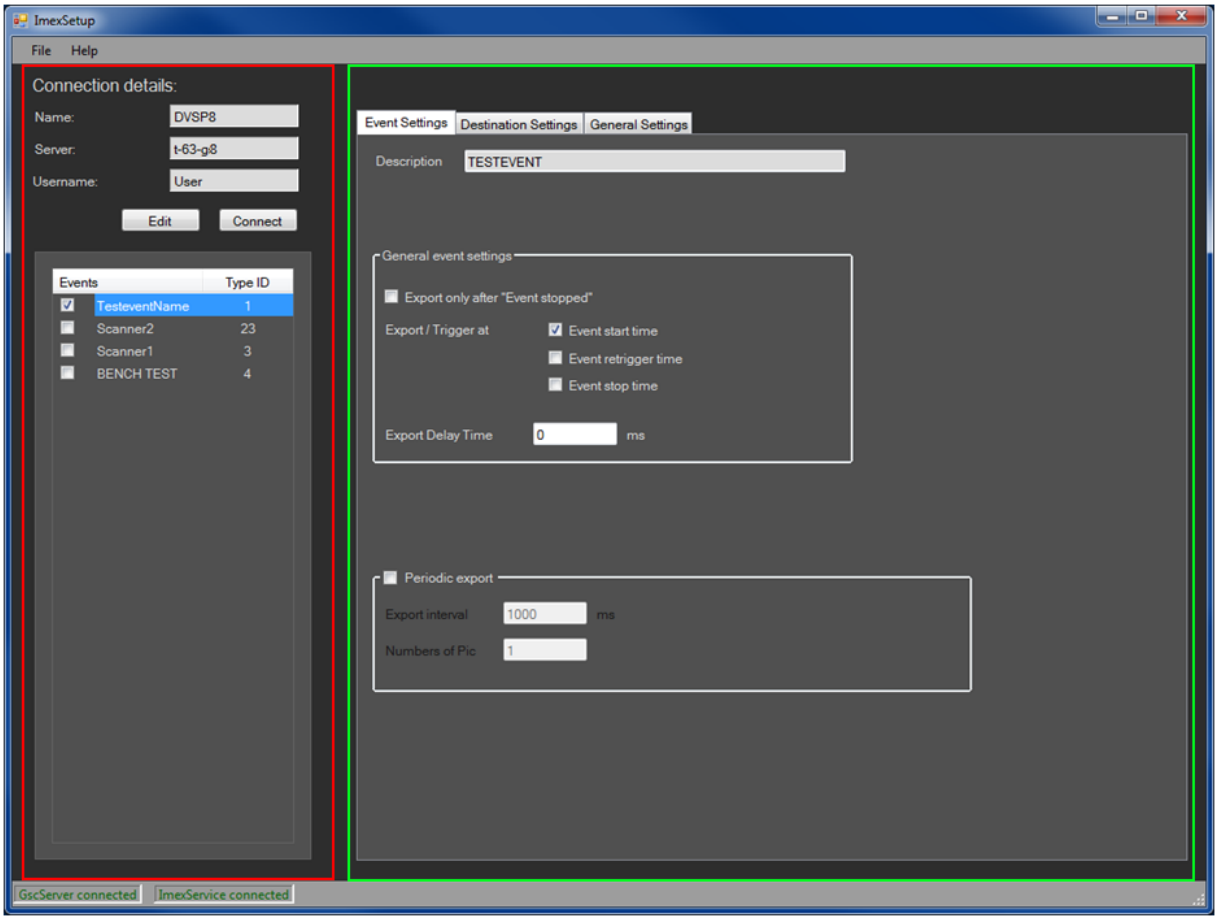
If the connection cannot be established because no such service currently exists or is started, the editor is terminated with an error message.

The main screen of the application (see figure) is divided into two areas: On the left is the connection data, on the right the configuration.

The left side with the connection data is fixed and is always visible. In the upper area, the current connection parameters of the Server connection saved in ImexEditor are displayed.

Below that is a list view in which all events configured in the Server are displayed. This list is only shown when there is an active connection to the Server.

The right area of the window is used to show the currently selected input mask. Here all relevant settings for the configuration of the ImexService are made. Three tabs are available for this purpose: Event Settings, Destination Settings and General Settings.



Connection details = Window for setting screens =

The status bar at the bottom of the window shows the current statuses of the Server connection and the connection to the ImexService.

The connection to ImexService is automatically monitored by the editor, which means that if the connection is interrupted an error message is displayed and editing the settings is disabled. The connection to the Server must be managed by the user.

Server – Connection

The connection parameters of the Server connection can be set either using the **Edit** button in the left pane or with the **File** - **Edit Connection** menu.

A connection to the Server can be established using the **Connect** button on the left side of the window or with the menu item **File** - **Connect**.

To disconnect an existing connection, you must use the menu item **File** - **Disconnect**.

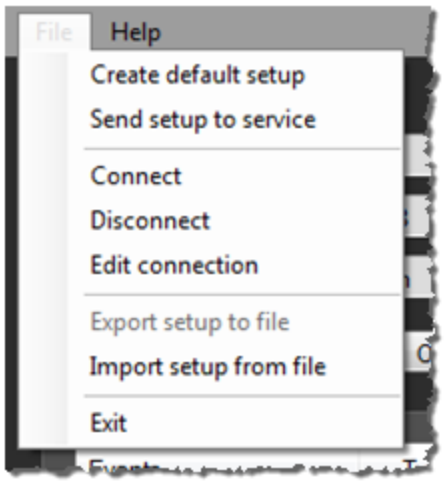
Menu

In addition to the aforementioned items for enabling and disabling the connection to the Server and editing the connection parameters, the menu contains additional items:

With **Create Default Setup** a new setup can be created with default values.

With **Send Setup to Service** the current settings are transferred to the ImexService and saved. Only afterward are the changes accepted by the ImexService.

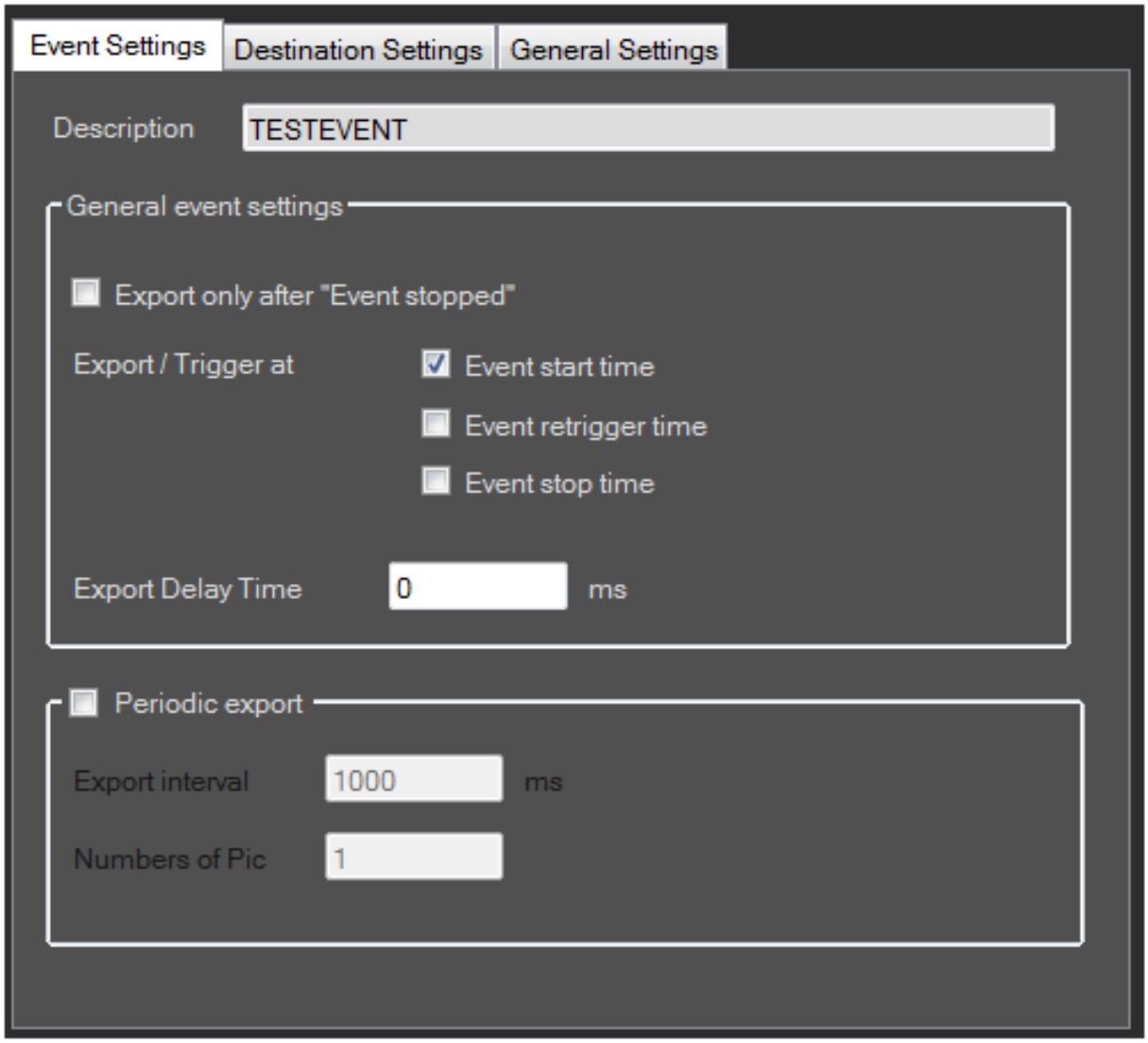
In addition, it is also possible to export the current setup to a file or to import settings from a previously saved file.



Event Settings Tab

This tab shows the current export settings for the event selected in the event list on the left side of the window.

This tab is only active when you have activated the export for the selected event. You activate an event for export by activating the check box in the event list in front of the event name.



The settings in this section of the window control image export when the associated event occurs.

The area **General Event Settings** contains settings that are used when an image is exported. The following settings are available:

Button	Function
Export Only after Event Stopped	Export of all event images is performed only after the event has been stopped. This setting is required when event data needs to be displayed in all exported images and the data is only available when the event stops.

Button	Function
Export/Trigger At	Here, points in time are defined at which images are exported. The item **Event Retrigger Time** means in this context that for each **Event Retriggered** notification that is sent by the GSCServer, an image export occurs. To be able to use this function, sending an event notification must be activated for the case "On Retrigger" in GSCSetup.
Export Delay Time	The value specified here delays the image export by X milliseconds. If a negative value is entered, the export is defined to a point in time that is before the event trigger. Example: The export delay is set to 2000. For an event, images are to be exported at the start and stop of the event. If this event starts at 12:00:00 o'clock and is active for 10 minutes, the corresponding media channels are exported from the time points 12:00:02 and 12:10:02. For a negative time delay of 2000, images would then be exported from the time points 11:59:58 and 12:09:58.

Beyond these settings, periodic export of the images is possible as well. It is activated using the check box Periodic Export.

The functions Export Only after Event Stopped and Periodic Export are mutually exclusive, meaning only one of these two functions can be active at any given time.

For periodic export, the following settings can be made as well:

Button	Function
Export Interval	Defines the time interval between two exported images in milliseconds. This value must be greater than 500 ms
Number of Pics	Defines the number of images to be exported. The maximum for this value is 100. The periodic export is triggered by trigger points selected in the field **General Event Settings**. Example: When **Event Start Time** and **Event Stop Time** are selected as trigger points, then the periodic export is started and stopped with the specified number of pictures and the picture interval when an event is started and when one is stopped

Destination Settings Tab

This tab contains the settings for the destination directory of the export.

In the top section of the window, the saved destination paths are listed. To create new paths in the list, press Add.

If the destination path is on a network drive that requires a login with username and password, these need to be saved here.

The currently used path is selected by marking an entry in the list. In the area Destination, the path and, if applicable, user data are shown (in red).
In addition, the list entry of the currently active drive is highlighted in the upper list.

Clicking on the Test button checks whether the destination path can be accessed with the specified user data and whether write permission is granted.

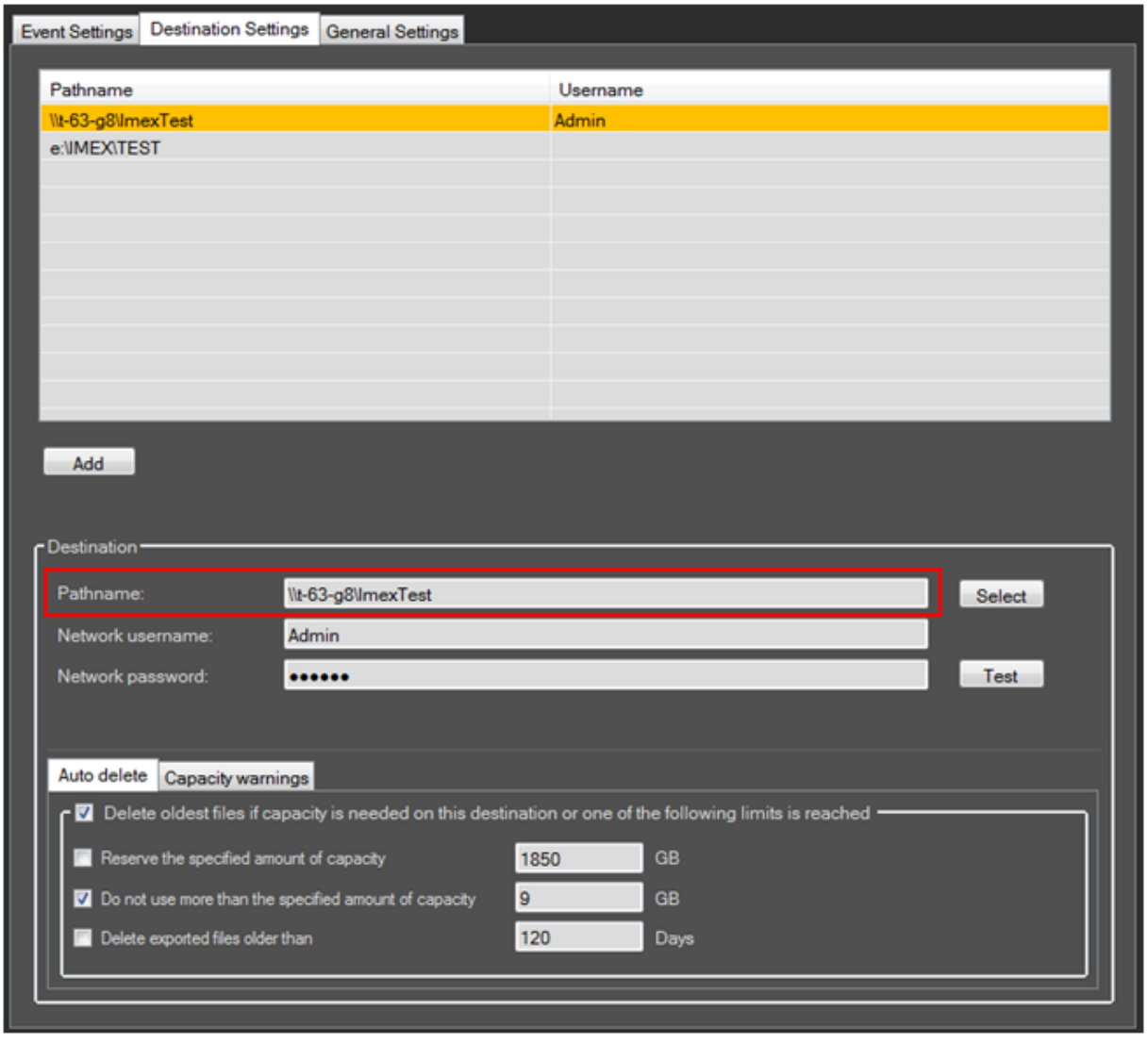
Only one destination path is active at a time!
Creating multiple paths is only supported to make it easier to switch between two destination paths.

In the bottom of the window, settings can be made for storage management. This includes settings that provide a warning when capacity limits are reached.

By activating the Auto Delete function, deleting the oldest files is activated when a specified limit is reached. When the Auto Delete function is disabled, images are exported to the destination directory until the destination drive is full. The following settings can be made for configuration of the Auto Delete function:

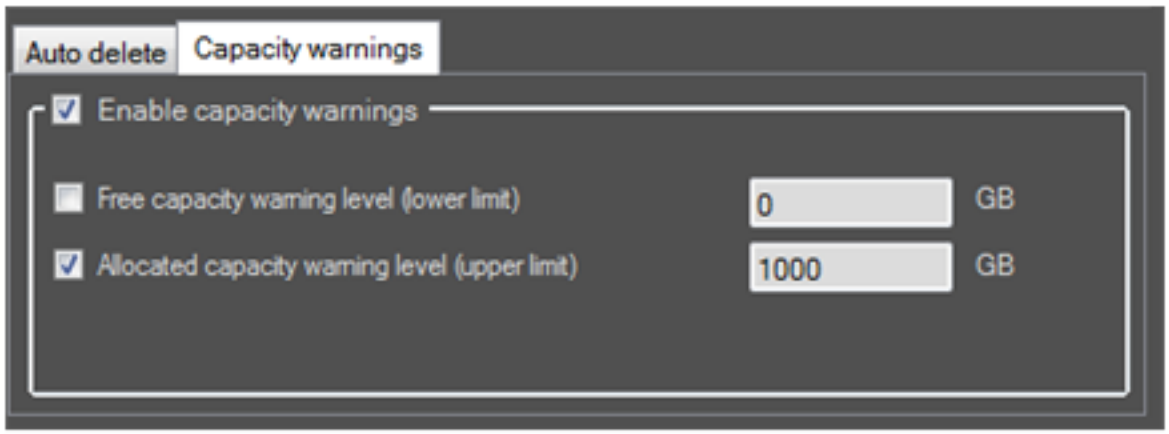
Button	Function
Reserve the Specified Amount of Capacity	Specifies how much storage space (in GB) must be kept free on the destination drive. When less storage space is available on the destination drive than is set here, then the oldest images are deleted.
Do Not Use More Than the Specified Amount of Capacity	Specifies the maximum amount of storage space (in GB) that can be used by the exported images on the destination drive. When the overall size of the exported images on the destination path exceeds the value defined here, then the oldest images are deleted.

Button	Function
Delete Exported Files Older Than	When this option is activated all exported files that are older than the specified period are automatically deleted.



In the **Capacity Warnings** tab, sending actions can be set when specified capacity limits are reached. The following two options are available for this purpose:

Button	Function
Free Capacity Warning Level (Lower Limit)	When the free capacity on the destination drive drops below the value specified here in GB, then **Imex Capacity Warning** actions are sent
Allocated Capacity Warning Level (Upper Limit)	Specifies how much storage space in GB must be in used in the destination path by exported images before **Imex Capacity Warning** actions are sent

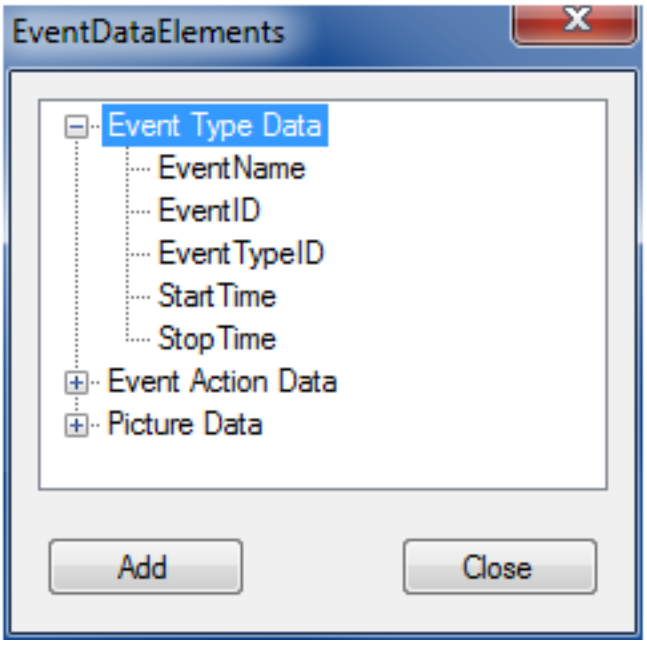


General Settings Tab

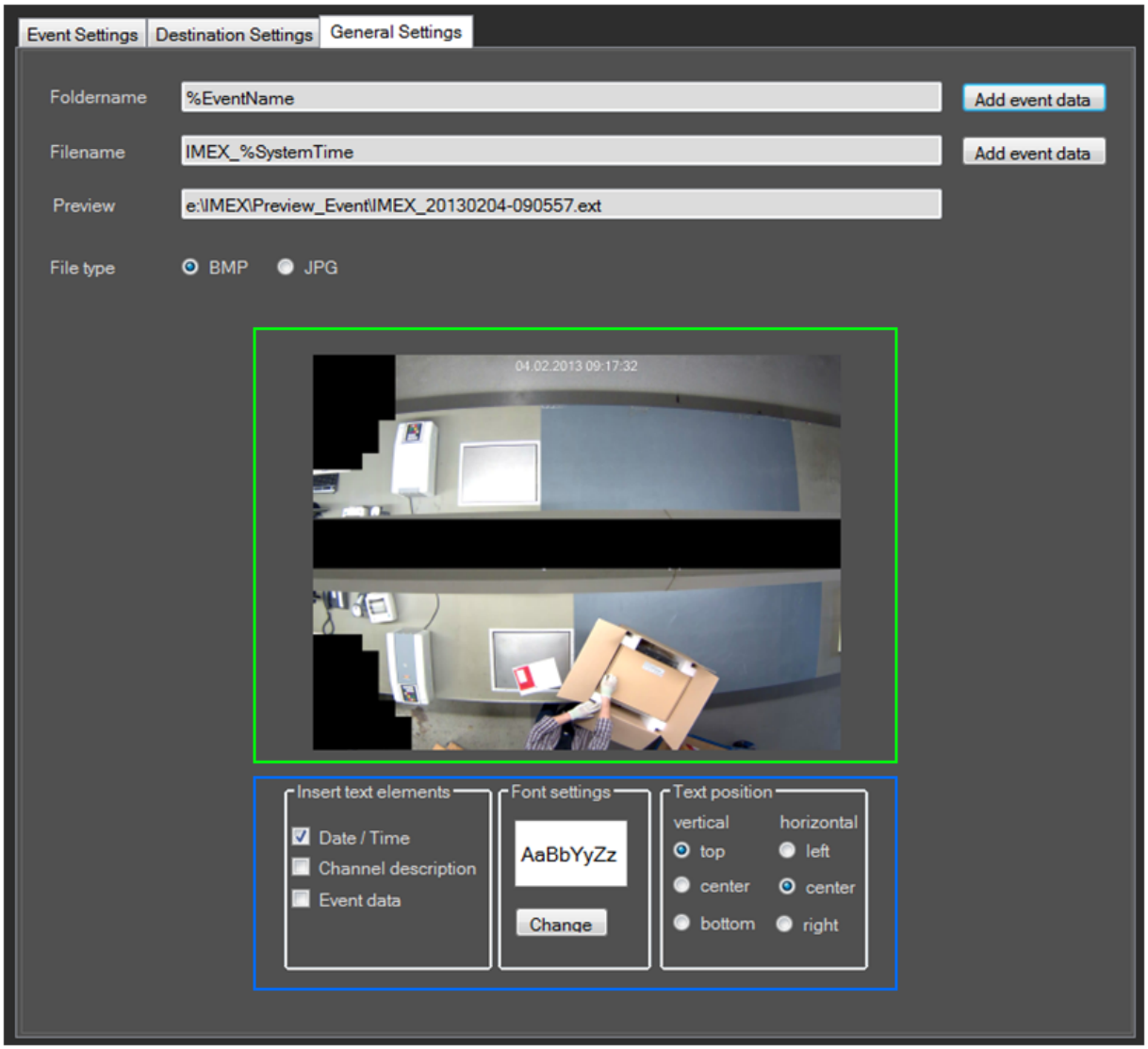
In this window, all basic settings are made for the image export.

In the top of the window, the structure of the file name of an exported image is defined.
Various templates are available for this purpose.

Clicking Add Event Data opens a window (see below) that provides an overview of all available templates.



To add a template to the file or folder name, the name of the desired template must be selected and then the **Add** button actuated. The template is then added to the file or folder name at the position where the cursor was previously located.



Preview window = Settings for the text overlay =

In the **Preview** field the created file and folder name templates are combined, using the example image and event data, to an overall path. The path shown here is used for the creation of meaningful file and folder name templates.

When assigning file and folder names, ensure that at least one image-specific template is used, as otherwise each exported image will have the same path, which will cause the images to overwrite each other.
Image-specific templates include System Time, EventID, StartTime and StopTime.

Next, you specify the type of the exported images. JPG and BMP are the available options.

In the lower section of the window, the overlay of information text can be added to the exported images (highlighted blue).

In the left area Insert Text Elements you specify which information should be shown.

If no checkmark is set, the text overlay is deactivated.

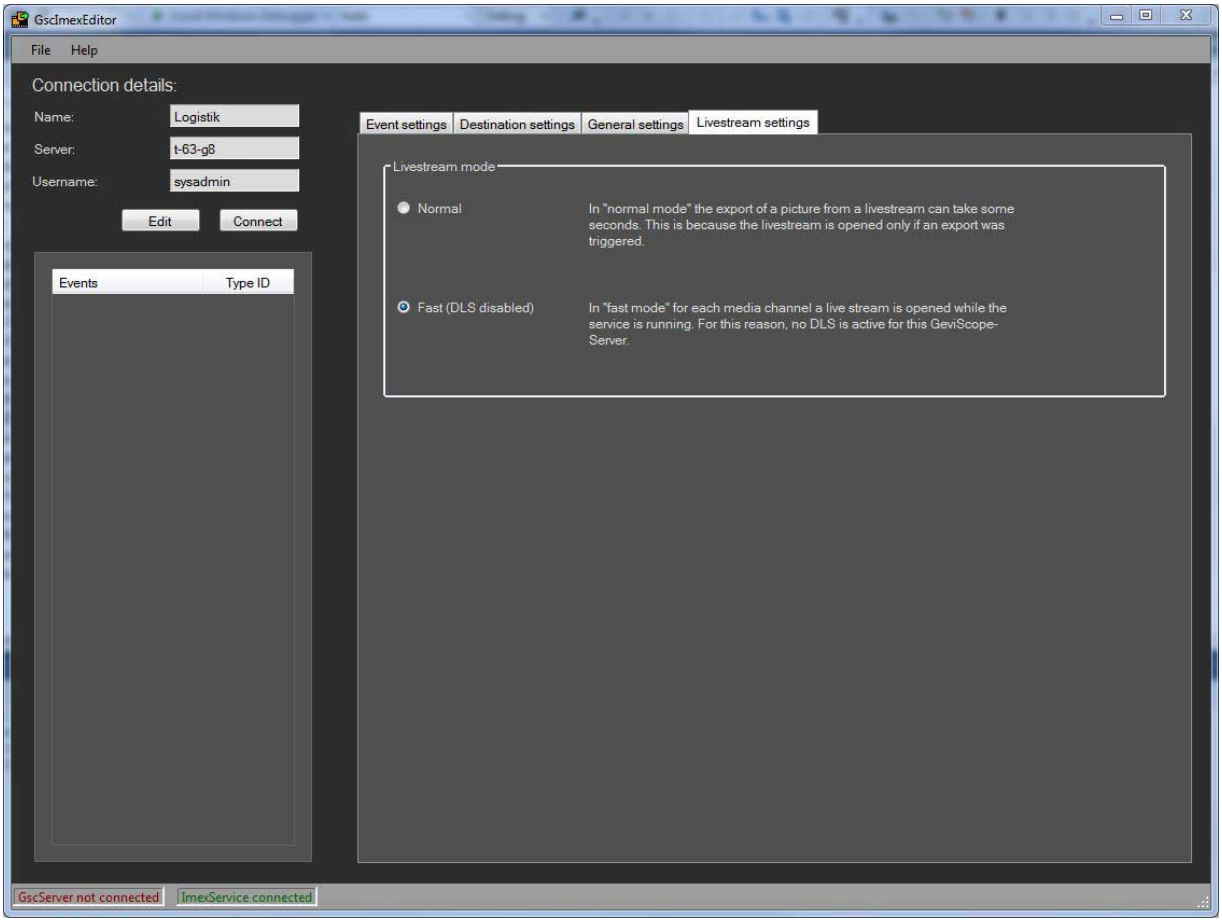
The following points are also available:

Button	Function
Date / Time	Activates the display of the system time of the image with date
Channel Description	Activates the display of media channel ID
Event Data	Activates the display of available event data

The middle area Font Settings is for the setting of the usual font parameters that will be used for the text overlay.

In the right section Text Position the position in the image is specified at which the text overlay should appear.

Live Stream Settings Tab



Select the mode for the live stream on this tab. You have two options:

Option	Description
Normal	In normal mode, the export of images of streams may take a few seconds. This is because the live stream is opened only when an export is triggered.
Fast (DLS disabled)	In fast mode, a live stream is opened for each media channel while the service is running. For this reason, no DLS is active for the G-Core server.

RTSP Server

G-Core RTSP Server is a G-Core client module. The G-Core RTSP Server is capable of converting G-Core live channels into RTSP standard-compliant streams. These streams can be received and played back by RTSP clients (for example, VLC Media Player). The prerequisite is that the corresponding RTSP clients support one of the three formats provided by G-Core RTSP Server:

- Motion JPEG
- MPEG-2
- H264

G-Core RTSP Server enables a number of new applications that have not been available through the proprietary GCoreDBI interface. The G-Core RTSP Server allows the integration of G-Core live streams into RTSP-enabled environments without further software development. Examples of applications include:

- Streaming of G-Core channels on monitor walls
- The integration of G-Core into RTP-capable security management systems
- In conjunction with the transcoder integrated in G-Core Server, a transcoding multichannel proxy server can be implemented for IP cameras
- The G-Core Server enables the realization of novel redundancy scenarios. To this end, G-Core live channels can be received from other G-Core servers via the RTSP Universal Plugin (for example, for redundant recording).
- The use of G-Core as a proxy server for video cameras: Here, the G-Core RTSP Server, in conjunction with the G-Core Server, raises the limitations of IP cameras with respect to unicast channel numbers.

The current version of the G-Core Server has the following restrictions:

- Only live video is supported
- Audio is not supported
- Access to stored media data is not possible

- The G-Core RTSP Server does not support multicast
- The RTSP server does not support user authentication. The RTSP client can thus anonymously request images from the G-Core Server
- H.265 is not supported.

The number of channels provided by a G-Core RTSP Server depends on CPU performance, the available network bandwidth, and the available options (licenses).

Protocols, media transport, payload types

The G-Core Server supports the following protocols for control and media data transport:

- RTSP (Real Time Streaming Protocol)

  This is the control protocol for generating media streaming sessions. The G-Core Server supports the following RTSP requests: OPTIONS, DESCRIBE, SETUP, PLAY, TEARDOWN

- RTP (Real Time Transport Protocol)

  RTP is responsible for the actual media transfer. The following transport types are supported:

  - *RTP over RTSP (TCP)*

    TCP-based transport ensures secure data transmission and should be the preferred transport type for security applications. No image data losses occur as long as the network bandwidth allows the transmission of the image data. If the available bandwidth is not sufficient, there will be data packet loss and thus image errors.

  - *RTP over UDP*

    UDP transport is more prone to failure. Even in case of sufficient network bandwidth, image loss due to packet loss can occur.

- RTCP (Real Time Control Protocol)

  The protocol controls the flow of data and the adaptation of channel

parameters. In unicast environments with sufficient transmission bandwidth (LAN environment), the protocol is generally not required. The G-Core RTSP Server supports a simplified RTCP implementation and uses the data exchange with the client to control the connection status of sessions. A session is terminated if no RTCP data exchange takes place over an adjustable timeout. For receivers that do not support RTCP, the function should be disabled in the G-Core RTSP Server Editor.

The G-Core RTSP Server supports the following payload types:

- Motion JPEG

  G-Core JPEG channels are converted into RTP-compliant payloads. Due to the variety of JPEG formats, it cannot be guaranteed that all IP camera sources with JPEG are supported. If a JPEG source cannot be processed directly by the G-Core RTSP Server, it is possible to transcode it via the G-Core Server to H264CCTV

- MPEG-2

  GSC MPEG4CCTV channels are converted into MPEG-2 payloads. The G-Core RTSP Server supports both I-frame only MPEG4CCTV as well as MPEG4CCTV with IBBB-GOP structure.

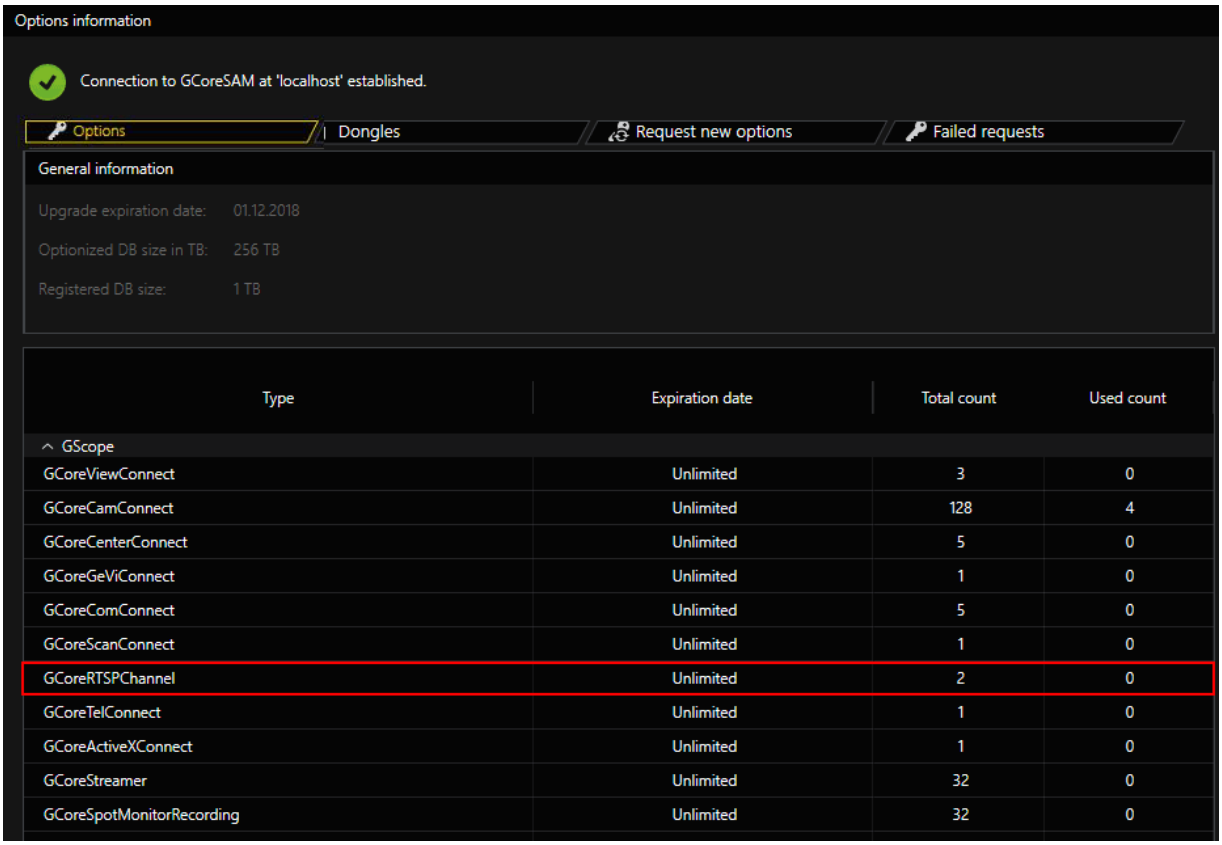
- H264

  The G-Core RTSP Server supports H264.

With IBBB-MPEG-4CCTV, the principle of the (frame-reordering) process results in an accumulation of latency, which increases as the number of B-pictures that belong to a GOP increases. Therefore, in real-time critical applications (for example, dome control), it is recommended to work with I-frame only or with short GOP lengths.
It cannot be guaranteed that any MPEG-2 capable RTSP client can work with the streams from G-Core.

Options (Licensing)

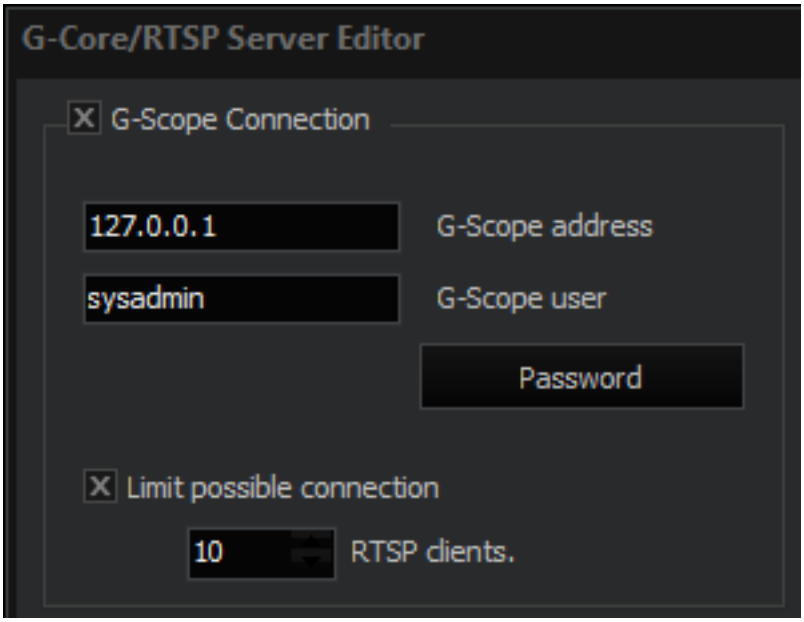
For each RTSP stream to be delivered, the G-Core RTSP Server requires an option (license) with the name **GCoreRTSPChannel**. The option is saved on the G-Core server dongle.



Each RTSP client that requests a channel requires an option (license). It is irrelevant whether several clients request exactly the same channel or not – each client requires an option (license).

To limit the maximum number of options in use (licenses) of one G-Core RTSP Server, you can set an upper limit in the G-Core RTSP Server Editor. With the help of this limitation, it is possible to connect several G-Core RTSP servers to one and the same G-Core Server and to allow a different number of users.

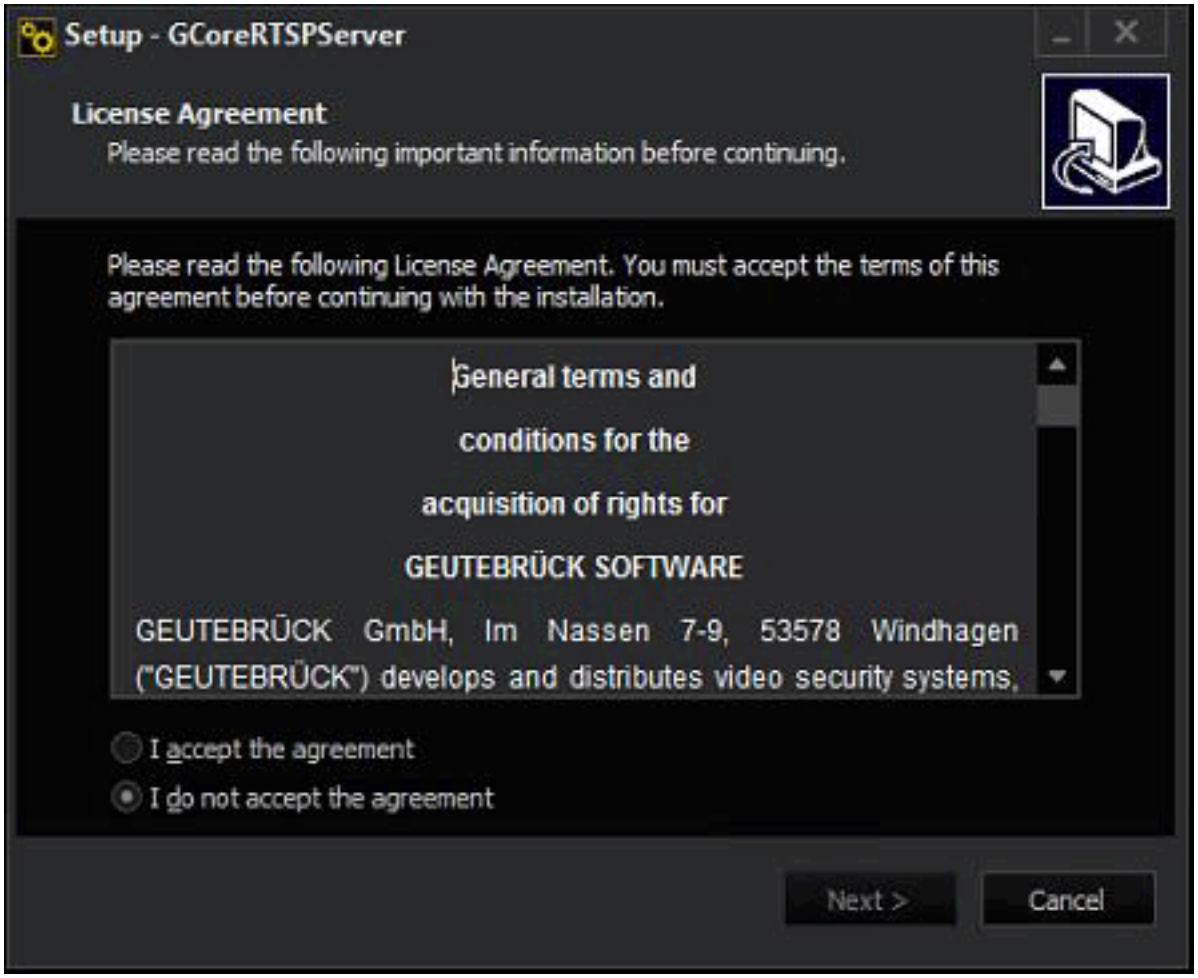
By default, this limitation is disabled. Enable **Limit possible connection** in the G-Core RTSP Server Editor to define an upper limit.



Installation

An installer is available for the installation of the G-Core RTSP Server and the other required files (`GCoreRTSPServer_installer__Version.exe`). When installing the G-Core RTSP Server, follow the instructions of the installer.

All required files are stored in this path: `C:\Program Files\Geutebrueck-\GCoreRTSPServer`.



Modules

In addition to the G-Core files GngDBI.dll and GngActions.dll, G-Core RTSP Server also requires the following modules:

Modules	Description
GCoreRTSPServer	This is the actual service. The G-Core RTSP Server can connect to **ONE** G-Core Server and make the channels available as RTP streams. The server supports the usual console settings of a G-Core service (parameters: Console, Install, Start, Stop, Deinstall).
GCoreRtspVsc	Virtual Stream Container DLL – The DLL provides virtual streams for the 3 payloads,

Modules	Description
	which simulate the generation of JPEG, MPEG-2 and H264 streams for test purposes. Furthermore, the DLL provides a stream, which can be used as an error image.
GCoreRtspServerEditor	The module is the GUI of the G-Core RTSP Server project. It allows you to set various operating parameters of the G-Core RTSP Server, which are stored in the Windows registry.
GCoreRtspPerformanceTester *	The module represents a multi-channel RTSP client and is used for performance tests. For example, to investigate whether a given network infrastructure is capable of transmitting the required frame rates to a larger number of G-Core live channels.

* The program must be started in the command line. The transfer parameters are:

GscRtspPerformanceTester [-a <ChnURL>] [-n <number>] [-p <port>]

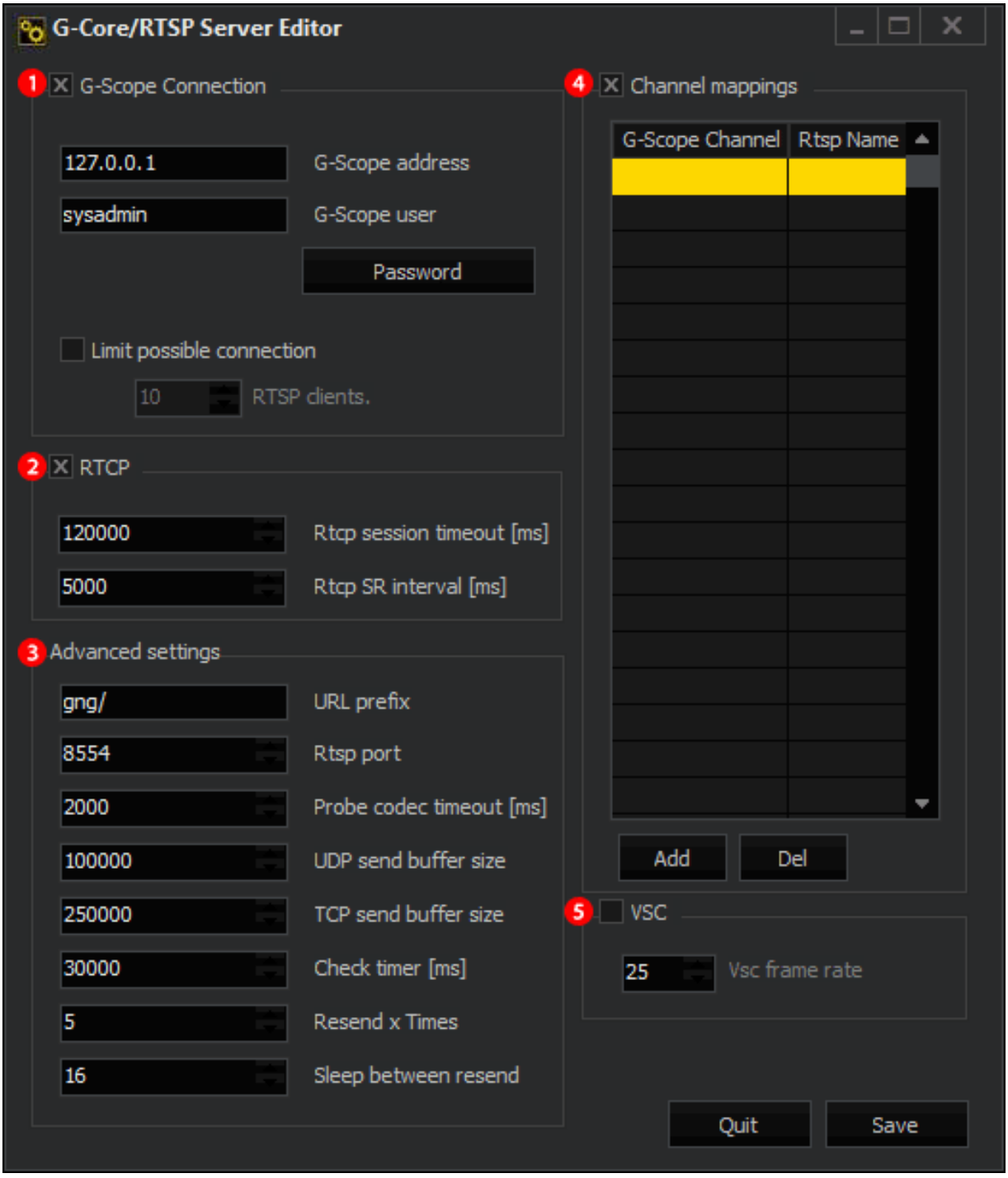
Parameter	Description
-a <ChnURL>	RTSP URL to be queried. Default is rtsp://127.0.0.1/error/1
-p <port>	RTSP Port of ChanURL. Default is 8554
-n <number>	Number of RTSP streams to be requested. Default is 1

Example

To request 5 RTSP streams from the GCoreRTSPServer with IP 10.1.92.12 and port 8554, enter the following in the command line:

GCoreRtspPerformanceTester -a rtsp://127.0.0.1/gng4 -p 8554 -n 5

Setup


G-Core/RTSP Server Editor
1 G-Scope Connection
127.0.0.1
G-Scope address
sysadmin
G-Scope user
Password
Limit possible connection
10
RTSP clients.
2 RTCP
120000
Rtcp session timeout [ms]
5000
Rtcp SR interval [ms]
3 Advanced settings
gng/
URL prefix
8554
Rtsp port
2000
Probe codec timeout [ms]
100000
UDP send buffer size
250000
TCP send buffer size
30000
Check timer [ms]
5
Resend x Times
16
Sleep between resend
4 Channel mappings
G-Scope Channel
Rtsp Name
Add
Del
5 VSC
25
Vsc frame rate
Quit
Save

The settings of the G-Core RTSP Server are stored in the Windows registry. The G-Core RTSP Server Editor allows for the following settings:

1 G-Scope Connection	
When switched off, no connection is established to the G-Core server. Can only be used if the VSC is used.	
G-Scope Address	The address of the G-Core Server that supplies the source channels of the G-Core RTSP Server
G-Scope user	The G-Core user account that the G-Core RTSP Server uses. The access password used by the G-Core RTSP Server can be changed via "Password"
Limit possible connection	See **Options (licensing)** below
2 RTCP	
The parameter allows you to enable/disable the RTCP communication. If a client does not support RTCP, RTCP should be disabled. Otherwise, there is a session timeout due to missing RTCP client report messages and the image transmission is stopped.	
RTCP session timeout	When the RTCP is active, the G-Core RTSP Server stops the image transmission if no RTCP client report has been received within the time set here.
RTCP SR Interval	The parameter controls how often the G-Core RTSP Server generates RTCP sender reports and sends them to the client.
3 Advanced Settings	
URL prefix	This prefix is used for channels for which no explicit mapping of G-Core channel numbers to RTSP channel numbers is specified. A client can address a G-Core channel as follows: rtsp://IPAddress:RtspPort/URLPrefix/GcoreChannelNumber
RTSP Port	This is the port to which RTSP clients must connect. The default value is 8554.

	An RTSP URL for access to a channel is composed as follows: rtsp://IPAddress:RtspPort/URLPrefix/GcoreChannelNumber
Probe codec timeout	The G-Core RTSP Server automatically calculates the used codec of a G-Core live channel by querying images at startup (JPEG, MPEG, H264). For channels with a low frame rate, the G-Core RTSP Server may not receive information on the codec within the sample codec timeout time. The query for the codec is then tried again during the subsequent streaming. The parameter increases the wait time for determining the codecs of the individual channels. Channels for which the codec cannot be determined (for example, image failure) delay starting the G-Core RTSP Server accordingly.
UDP send buffer size	For transmission errors and very large images in the live streams, this value can be increased as necessary. Normally, however, no adjustment should be necessary here.
TCP send buffer size	Refer to the UDP send buffer size
Check timer	The parameter allows you to change the check time. The G-Core RTSP Server cyclically checks the state of certain resources – such as the status of the connection to the G-Core RTSP Server.
Resend x Times	The greater the number of RTSP clients that request a stream from the RTSP server, the higher the bandwidth in the G-Core RTSP Server. If the load is high, the G-Core RTSP Server cannot send an image. This parameter specifies the number of times an image is to be retransmitted before it is finally discarded.
Sleep between resend	Before resending an image (Resend x Times), a certain amount of time (in milliseconds) is waited so that the computer has more resources at its disposal.

4 Channel Mappings

If inactive, the explicit mappings of the Channel Mappings table are ignored and the link between the G-Core channel number and the RTSP name is made

via the implicit specifications (see URL prefix).
The table records the explicit specifications that assign a RTSP name to a G-Core channel (global media channel number).
If no explicit mapping is specified for a G-Core channel, the names are defined by the implicit rules.

5 VSC Virtual Stream Container

The availability of the test streams of GCoreRtspVsc.dll can be controlled by this parameter. If VSC is inactive, all simulated streams are inactive. This does not affect the error stream.

VSC frame rate	Allows you to set the image rate of the simulated streams of GCoreRtspVsc.dll

Technical alterations reserved.

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