



# ibaCapture

## Synchronous Video Recording with ibaPDA

Manual  
Issue 5.2

Measurement Systems for Industry and Energy

[www.iba-ag.com](http://www.iba-ag.com)

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The current version is available for download on our web site [www.iba-ag.com](http://www.iba-ag.com).

Version	Date	Revision	Author	Version SW
5.2	07-2023	Installation	st	5.2

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# 1 About this documentation

This documentation describes the function and application of the software *ibaCapture*.

## 1.1 Target group and previous knowledge

This documentation addresses qualified professionals, who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded as a professional if he/she is capable of assessing the work assigned to him/her and recognizing possible risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

This documentation in particular addresses persons, who are concerned with the configuration of video camera systems in conjunction with *ibaCapture*. As *ibaCapture* is an add-on for *ibaPDA*, the following basic knowledge *ibaCapture* is required for the configuration of *ibaCapture*:

- Operating system Windows
- Basic knowledge *ibaPDA*
- Knowledge of video processing (coding, transmission) is useful but not required

## 1.2 Notations

In this manual, the following notations are used:

Action	Notation
Menu command	Menu <i>Logic diagram</i>
Calling the menu command	<i>Step 1 – Step 2 – Step 3 – Step x</i> Example: Select the menu <i>Logic diagram – Add – New function block</i> .
Keys	<Key name> Example: <Alt>; <F1>
Press the keys simultaneously	<Key name> + <Key name> Example: <Alt> + <Ctrl>
Buttons	<Key name> Example: <OK>; <Cancel>
Filenames, paths	<a href="#">Filename</a> , <a href="#">Path</a> Example: <a href="#">Test.docx</a>

## 1.3 Used symbols

If safety instructions or other notes are used in this manual, they mean:

---

### Danger!



The non-observance of this safety information may result in an imminent risk of death or severe injury:

- Observe the specified measures.

---

### Warning!



The non-observance of this safety information may result in a potential risk of death or severe injury!

- Observe the specified measures.

---

### Caution!



The non-observance of this safety information may result in a potential risk of injury or material damage!

- Observe the specified measures

---

### Note



A note specifies special requirements or actions to be observed.

---

### Tip



Tip or example as a helpful note or insider tip to make the work a little bit easier.

---

### Other documentation



Reference to additional documentation or further reading.

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## 2 Overview

### 2.1 Introduction

*ibaCapture* is a video capture system designed for recording video from multiple cameras simultaneously. It can be connected to *ibaPDA*, which allows synchronized recording of video and measured data.

This synchronized connection of image information and measured data allows recognizing relations between process and measurement and significantly improves the quality of data analysis.

In addition to video images, it is also possible to integrate output images from *ibaVision* programs as well as images from HMI stations using virtual cameras. Up to 64 cameras of various types can now be operated with each *ibaCapture* Server.

User management can be integrated in Active Directory so users and passwords can be administered centrally.

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#### Note



*ibaCapture* v5.0 is supported from *ibaPDA* version 6.36.6 and higher. For replaying videos in analyses, *ibaAnalyzer* version 5.20.3 or higher is required. There can be other dependencies for higher versions and certain functions. For this, see the version history "versions\_cam.htm", which can be found in the installation directory.

---

The *ibaCapture* functions are enabled by activating a license key (USB dongle or soft license).

The *ibaCapture* Server and the *ibaPDA* Server communicate via a TCP/IP or UDP connection. Multiple *ibaCapture* Servers can be used simultaneously for video recording.

The video files are stored in a special format and can only be viewed with *ibaCapture* Manager, *ibaPDA*, *ibaQPanel* or *ibaAnalyzer*. However, it is possible to export individual sequences to MP4 files or extract measured data together with video data into DAT files.

---

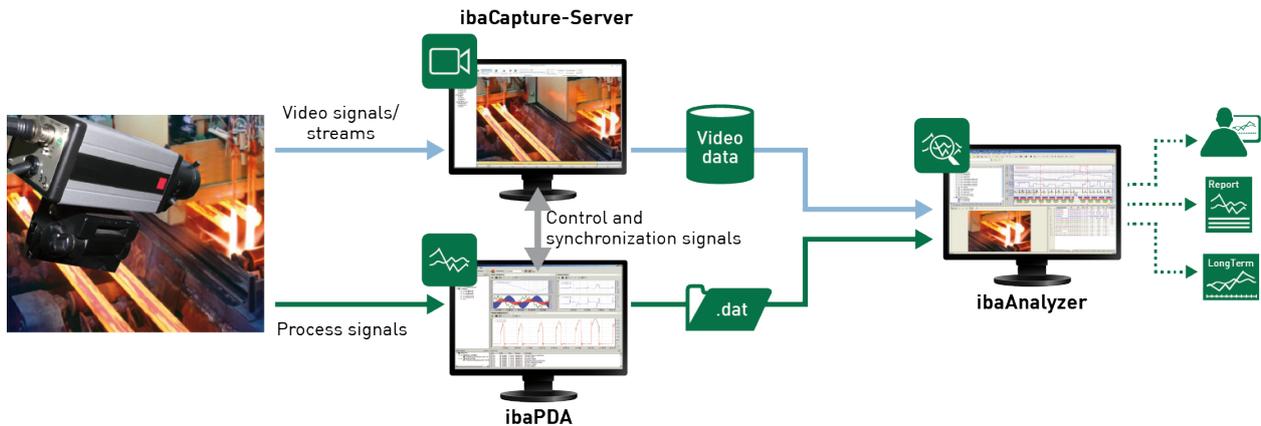
#### Note



For detailed information about requirements and handling of GigE cameras, refer to the manual *ibaCapture GigE*.

## 2.2 Functional principle

The following diagram shows the functional principle and data flow of *ibaCapture*.



The plant or the process delivers various data.

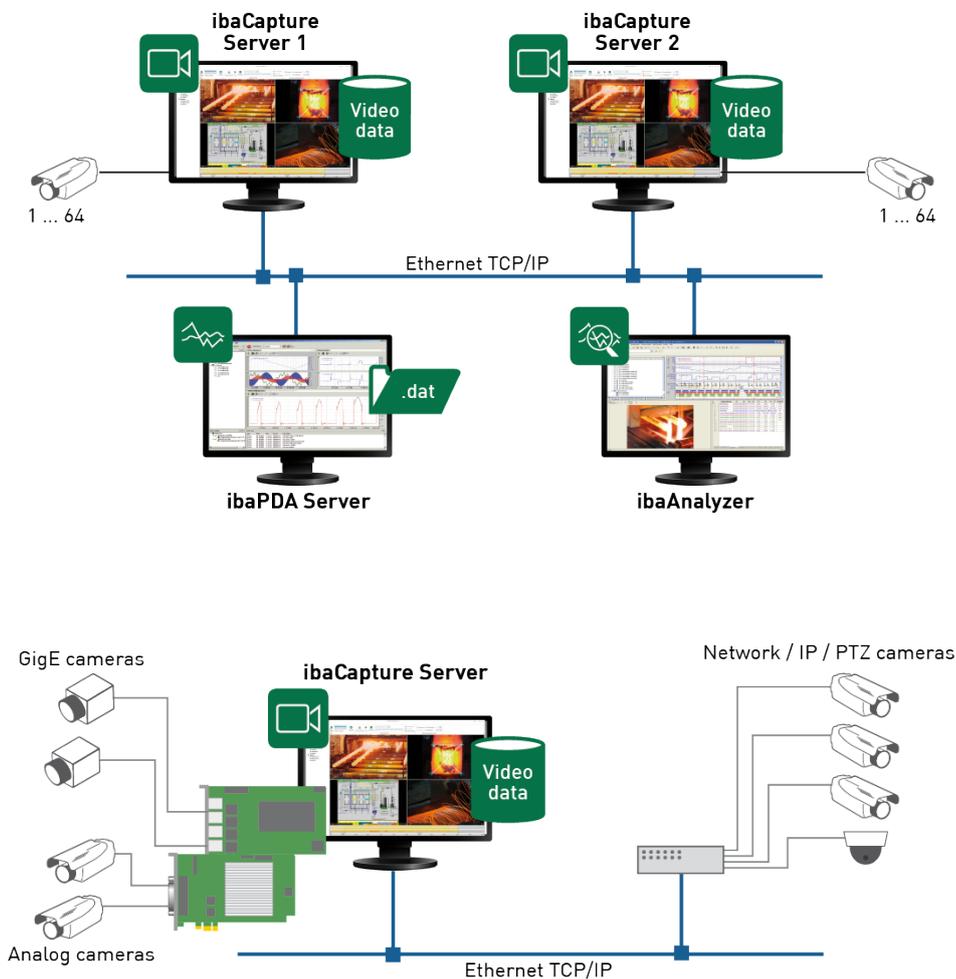
- Measured data for *ibaPDA* (process signals)
- Image data from video cameras

Image data from video cameras is recorded by *ibaCapture* and saved in video directories. Measured data is saved by *ibaPDA* in measuring files (\*.dat) as usual. Synchronization with *ibaCapture* Server takes place concurrently to the measurement by means of control and synchronization telegrams. This way a temporal relation between signal values and video data can be ensured.

*ibaAnalyzer* can access both measured data and video to display the information in a synchronized fashion. For analyzing and viewing recorded video in *ibaAnalyzer*, network access to the *ibaCapture* Server is required.

## 2.2.1 Topology

Multiple *ibaCapture* Servers can be run in a network.



The core of a video recording system is the *ibaCapture* Server (computer). Either analog and/or IP cameras can be connected to *ibaCapture* Server.

For connecting analog cameras to *ibaCapture* Server, either a frame grabber board or an analog-to-IP converter is required.

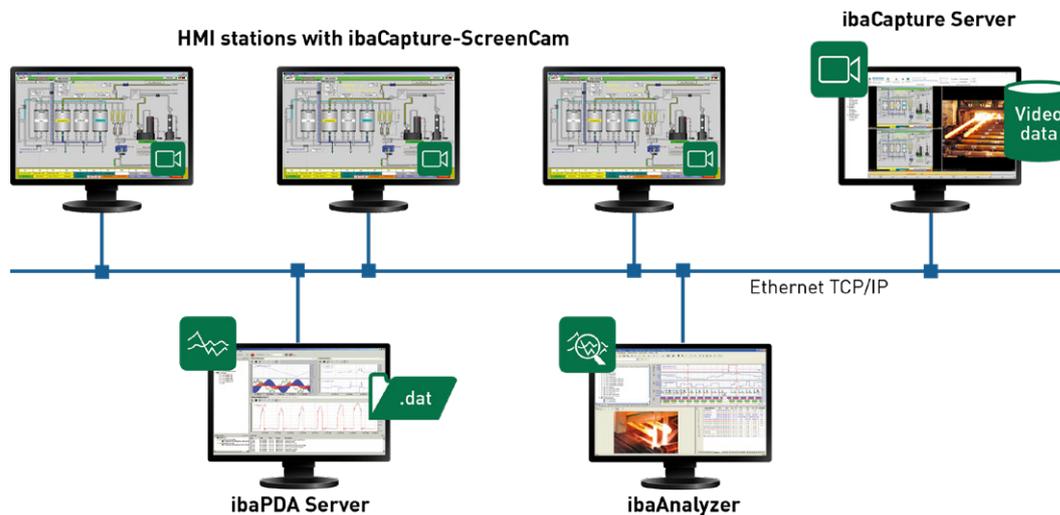
Supported network-compatible cameras are connected to *ibaCapture* Server via standard Ethernet connections. The network infrastructure should be designed to handle continuous camera streams for the given number of cameras and display clients.

So-called GigE cameras must support the GigE Vision® standard. They allow high-speed capturing with frame rates of up to 300 fps. GigE cameras must be connected to *ibaCapture* Server via a special GigE frame grabber or network card (e. g. Type Matrox Solios GigE or Intel® Ethernet Server Adapter I350-T4V2). The card allows connecting up to 4 GigE cameras. Only 1 card is supported per *ibaCapture* Server. If a GigE card is used, further system requirements apply.

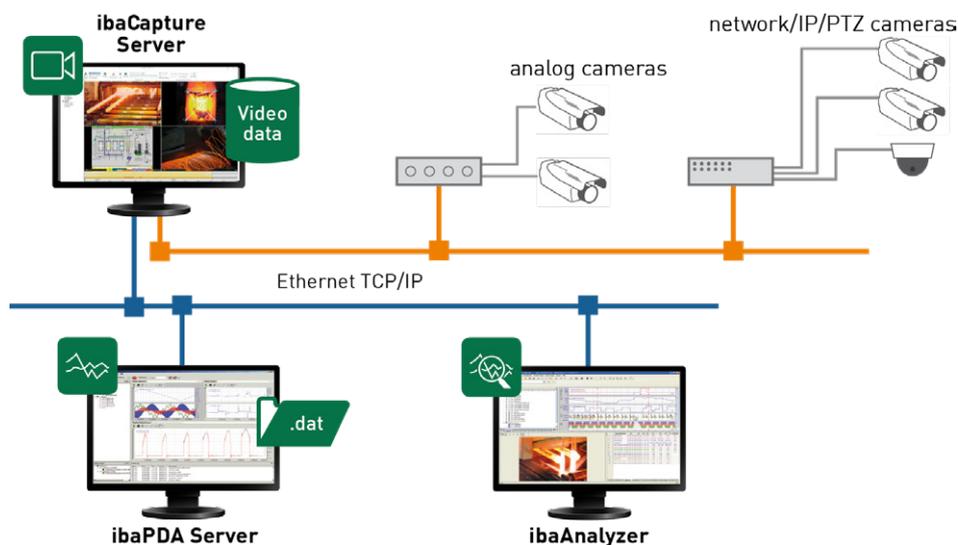
For more information, see separate manual *ibaCapture GigE*.

Visual information of the HMI operator stations, including operating procedures, is recorded synchronously with process data from *ibaPDA* with the help of virtual cameras. This way, the relations between process control and measured data can easily be identified.

All computer monitors that work with a Windows operating system can be captured. An *ibaCapture-ScreenCAM* program is installed on computers for this purpose and they must be connected to *ibaCapture Server* via TCP/IP.



It is furthermore recommended installing a dedicated network (blue LAN in the figure below) between *ibaCapture Server*(s), *ibaPDA Server*(s) and *ibaPDA Client*(s) with camera view and analysis computers. Multiple *ibaPDA Client*s with active camera view will draw multiple video streams over the network. If analysis computers additionally request video streams, the network load can increase significantly.



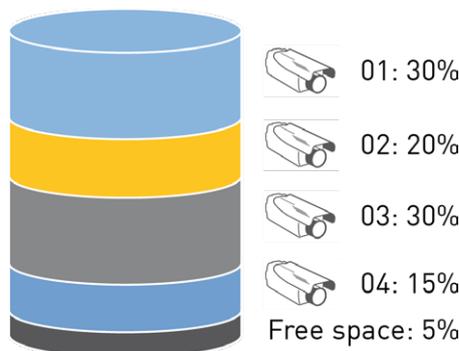
The total number of cameras is limited to 64 cameras per *ibaCapture Server*. The camera types analog and/or IP cameras (incl. GigE) can be combined as desired.

The maximum number of cameras which can be simultaneously operated depends on the *ibaCapture Server* license (see chapter ↗ *License model*, page 16) and on the performance of the hardware.

### 2.2.2 Principles of video recording

The storage of video data is managed by the *ibaCapture* Server. The service is started automatically after booting the system.

For every camera, a fixed memory segment is allocated on the hard drive. This is done to avoid storage fragmentation as far as possible and to ensure stable storage performance. The exact procedure to configure *ibaCapture* Server can be found in the chapter [↗ Configuration of \*ibaCapture\* Server](#), page 56.



The cameras' memory segments are built in ring buffer architecture. Within the ring buffer, a configurable percentage of the allocated space can hold protected video. Example:

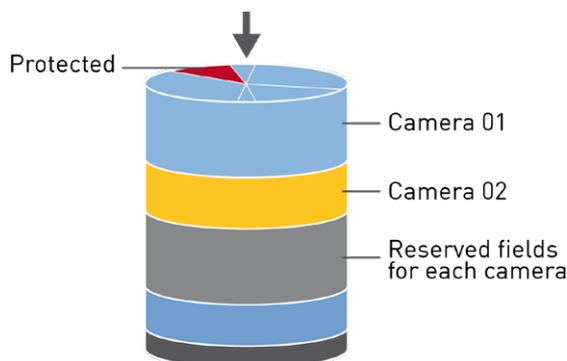


The whole area is generally used for continuous video recording. Continuous recording of the configured camera(s) starts immediately after system startup of *ibaCapture* Server. The video recording will be linked to the measured data as soon as the recording of *ibaPDA* is started.

The protected area is used to store video sequences which should be saved for a longer period. Video data for protected video is stored in the ring buffer and then marked as “protected”. This can happen interactively or through the video trigger feature in *ibaPDA*. Video triggers can be configured in the data storage settings of *ibaPDA* with multiple start and stop conditions. These start and stop conditions enable the specific recording of events and reduce the memory requirements of the protected memory segments of each camera.

The video sequences controlled by video triggers are called triggered recordings.

When continuously recording video data, the protected areas are skipped.



When the unprotected or protected video storage has been completely written, the oldest sequences lose their protection and can be overwritten by newer entries due to the ring buffer architecture.

### 2.2.3 Security and data protection

User management is available for the protection of the system configuration and to control video access. The access to both live videos and video recordings can be granted or denied individually and protected with a password for any number of users.

Authentication can be done via Active Directory services.

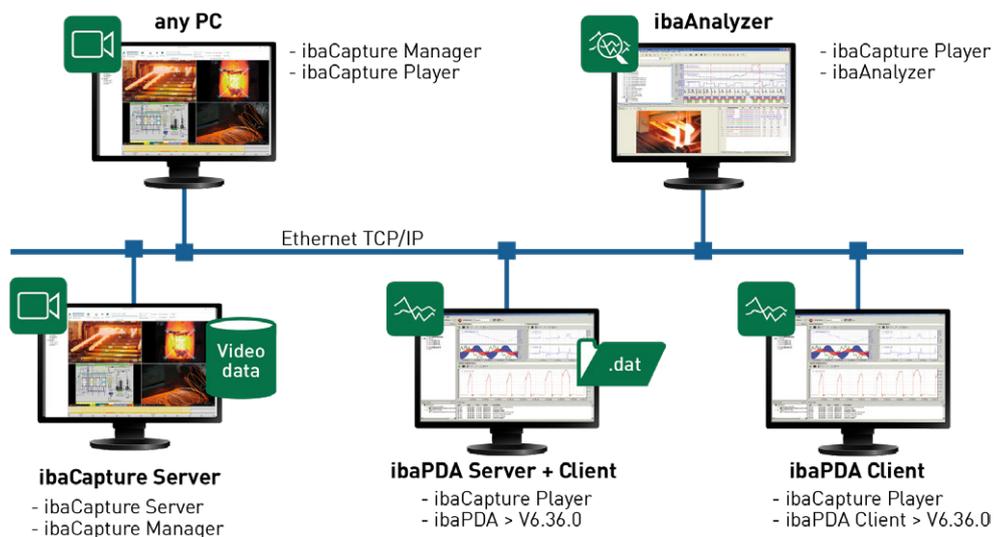
For the protection of business secrets, personal rights, and ethnic and/or ethical aspects, a so-called panic mode can be activated by every authorized user. In panic mode, only a main responsible person (administrator) is allowed to view the videos. Video sequences, that shall not be viewable for general users, can be locked by the administrator.

The panic mode can be canceled in ibaCapture Manager only by the administrator.

## 2.3 Software components

The software package *ibaCapture* consists of several programs, that can be installed on different computers according to their intended use.

- *ibaCapture* Server: video recording service, which is installed on *ibaCapture* Server; installation file on the data medium "iba Software & Manuals": *ibaCapture* setup v5.x.y.exe
- *ibaCapture* Manager: Software for the configuration of *ibaCapture* Server and for displaying live images or video recordings; to be installed on *ibaCapture* Server. Optionally, the software may also be installed on another PC (at least Windows 7 or Windows Server 2008) with a network connection to *ibaCapture* Server in order to view live images or replay videos by means of the camera view function.  
The installation of *ibaCapture* Manager can be enabled or disabled in the installation process. Uncheck the "Server" option in the installation wizard to install only *ibaCapture* Manager.
- *ibaCapture* Player: plug-in required for playing video recordings in *ibaCapture* Manager, *ibaPDA* client and *ibaAnalyzer*. This component is always installed.
- *ibaCapture* Encoder: This program is part of the *ibaCapture* Server installation. It is required when using GigE cameras. The video encoder runs as program – not as service! Therefore, the program is placed in the Startup folder and requires an auto-logon user account. See also separate manual *ibaCapture* GigE.



You will find all the software on the included data medium. In case the *ibaCapture* programs are not yet installed on the *ibaCapture* Server PC, please follow the installation guide in chapter [➤ Installing ibaCapture software, page 20](#).

## 2.4 License model

From *ibaCapture* v5.0.0 WIBU CodeMeter licenses are supported, either as CmDongle (USB) or as CmActLicense (soft-license).

A separate manual from iba is available for handling the WIBU CodeMeter licenses.

Existing licenses of *ibaCapture* v4 remain valid for *ibaCapture* v5. The license requires that the EUP date stored in the license is sufficient for the maintenance period of the used version of *ibaCapture* v5.

If the existing license of *ibaCapture* v4 cannot be used for *ibaCapture* v5, please contact the local iba support.

*ibaCapture* Server and cameras are licensed separately.

### ibaCapture Server licenses

Different licenses are available for *ibaCapture* Server. Each license specifies an upper limit of frames per second (fps) transmitted by the cameras in total to the *ibaCapture* Server and an upper limit of client live-streams from the server.

The amount of frames per second can be increased by purchasing an upgrade license.

Order no.	Name	Description
38.000001	ibaCapture-Server-60fps	Video recording for up to 60 fps, up to 8 client live-streams
38.000002	ibaCapture-Server-180fps	Video recording for up to 180 fps, up to 16 client live-streams
38.000003	ibaCapture-Server-480fps	Video recording for up to 480 fps, up to 48 client live-streams

Order no.	Name	Description
38.000004	ibaCapture-Server-960fps	Video recording for up to 960 fps, up to 96 client live-streams
38.000005	ibaCapture-Server-1440fps	Video recording for up to 1440 fps, up to 144 client live-streams
38.000010	Upgrade-ibaCapture-Server-60fps to 180fps	Extension from 60 fps to 180 fps
38.000011	Upgrade-ibaCapture5-Server-180fps to 480fps	Extension from 180 fps to 480 fps
38.000012	Upgrade-ibaCapture-Server-480fps to 960fps	Extension from 480 fps to 960 fps
38.000013	Upgrade-ibaCapture-Server-960fps to 1440fps	Extension from 960 fps to 1440 fps

Each *ibaCapture* Server license includes the activation for a connection to an *ibaPDA* server. If the video data is to be synchronized with other *ibaPDA* servers, an "ibaCapture-Interface-PDA" is required for each additional *ibaPDA* server.

The number of client live-streams can be extended with "ibaCapture-Live-Stream Add- On" licenses. Viewing recorded video is not limited.

The integrated RTSP server allows video to be streamed from the *ibaCapture* server to third-party video players. This way you can watch live video as well as saved recordings, for example with the VLC Media Player. The additional license "ibaCapture-AddOn-RTSP-Server" is required to use this function.

Order no.	Name	Description
38.000040	ibaCapture-Interface-PDA	Access from ibaPDA to ibaCapture Server
38.000041	ibaCapture-Live-Stream Add-On	8 additional live-streams for display
38.000042	ibaCapture-AddOn-RTSP-Server	Add-on for receiving RTSP streams at third-party hardware/software

### Camera licenses

Camera licenses are required in addition to an *ibaCapture* Server license. *ibaCapture* supports analog cameras, IP cameras, virtual cameras as well as cameras compatible with GigE Vision®. The total number of configured cameras is limited to 64.

Different licenses are available for recording cameras, display-only cameras and virtual cameras. Virtual cameras are required to record HMI images or output images of *ibaVision*. For the use of a GigE camera an ibaCapture-1CAM-GigE license is required.

Order no.	Name	Description
38.000030	ibaCapture-1CAM-REC	1 camera license for recording and display
38.000031	ibaCapture-1CAM-DISP	1 camera license for displaying only

---

Order no.	Name	Description
38.000032	ibaCapture-1CAM-VIRT	1 camera license for recording HMI or ibaVision images
38.000033	ibaCapture-1CAM-GigE	1 GigE camera license for recording

---

#### Note on camera licenses



*ibaCapture-1CAM-REC* and *ibaCapture-1CAM-GigE* are not strictly usable for these camera types only.

With *ibaCapture-1CAM-GigE* licenses, all camera types can be configured and operated. If a free *ibaCapture-1CAM-REC* license is available, it can also be used for virtual cameras or cameras without video recording.

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#### Product updates

The purchase of an *ibaCapture* license includes free product updates for a period of two years from the purchase date.

By concluding a maintenance contract, *ibaCapture* users are entitled to install product updates during the term of the contract and continue to benefit from continuous improvements and new features.

## 3 Installation

### 3.1 System requirements

#### Software

- Windows 10, Windows Server 2012 R2 or later versions
- .NET Framework 4.8

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#### Note



In the "versions\_cam.htm" version information enclosed with each software version, you will find information on the supported systems and compatibility issues.

---

#### Note



In exceptional cases, it may happen that the start of iba programs is prevented by security or other third party software. In this case, contact your administrator.

---

#### Hardware

- PC, Intel® Core™ CPU, at least 4 GB RAM (requirements can be higher with greater number of cameras)
- Analog IP converter for connecting analog cameras
- Sufficient hard disk space for video data storage

Due to the continuous write operations when storing video data, it is recommended to use hard disk drives with a redundant structure (e.g. RAID1, RAID5).

For more information on supported cameras ↗ *Supported cameras*, page 174.

---

#### Note



For displaying videos, it is recommended to use a graphics card that is compatible with Direct-X 9 and has at least 256 MB of memory.

## 3.2 Installing ibaCapture software

1. To install ibaCapture, execute the file "ibaCapture Setup v5.x.y.exe" in the directory "\01\_iba\_Software\ibaCapture\ibaCapture" on the data medium "iba Software & Manuals".
2. Click on <Next> to execute the installation wizard. Follow the instructions of the installation wizard.
3. Agree to the terms of this license.
4. Select the installation directory.
5. Select the components you wish to install on the computer.
  - If you want to install ibaCapture Server, all components must be checked.
  - If you want to install ibaCapture Manager only, uncheck the server component.
  - If you want to install ibaCapture Player only, uncheck the server and manager components.
  - Install ibaCapture Encoder only if you want to use GigE cameras.
  - Installing ibaManagementStudio is optional.
6. Click on <Next> to continue.
7. Confirm the license information with <Next>.
8. Start the installation with <Install>.
9. Complete the installation with <Finish>.

## 3.3 Installing ibaCapture via command line

The installation of *ibaCapture* can also be started via a command line. This is helpful for central software administration or when using deployment systems.

The installer offers various options and we provide a list of the most useful ones for installing the software.

You can control how the installation should take place and which components should be installed with the command line switches that are set after the call of the installation program.

Notation:

```
ibaCaptureSetup_vX.Y.Z.exe [/VERYSILENT /SUPPRESSMSGBOXES] [/COMPONENTS=] [/TASKS=] [/DIR=] [/PORT] [/LANG=]
```

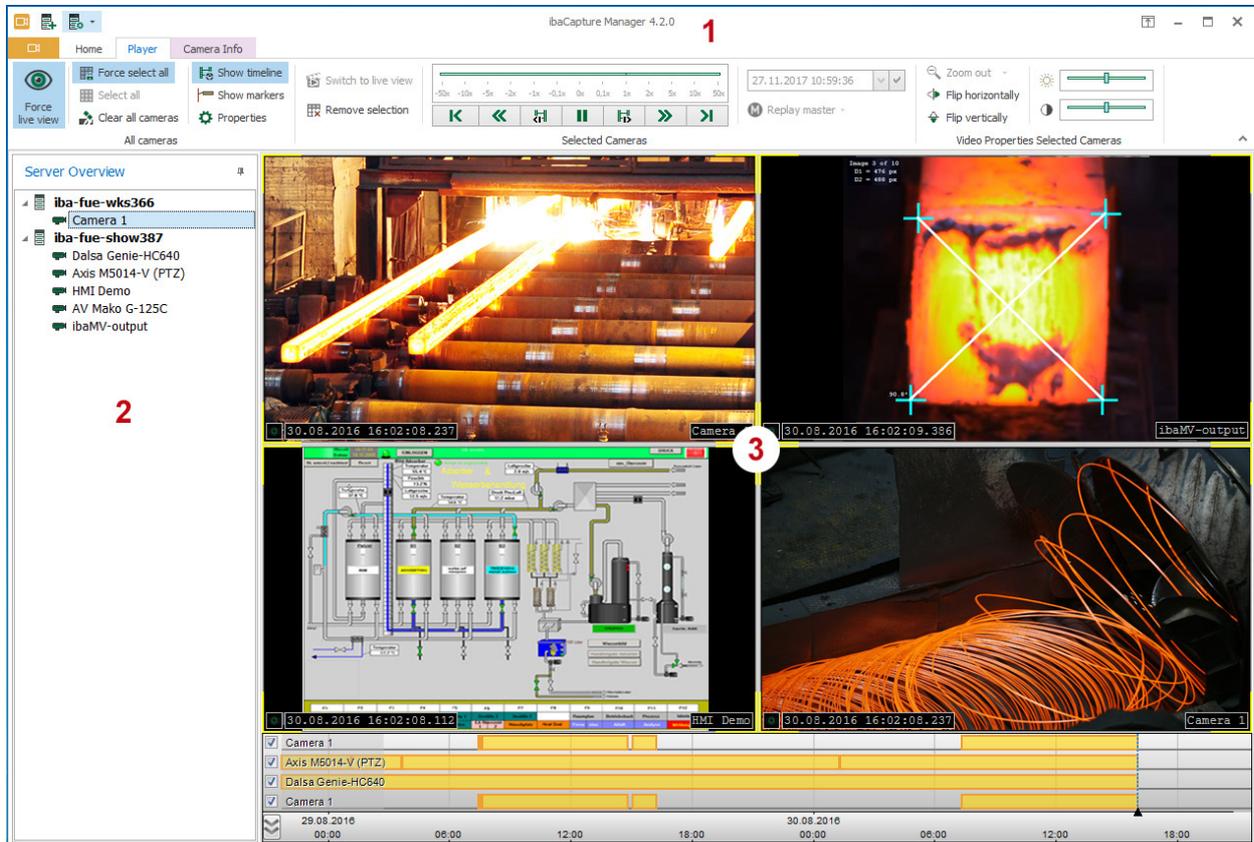
<pre>/VERYSILENT /SUPPRESSMSG- BOXES</pre>	<p>With these switches, you install the software in "Silent Mode", i.e. no interaction is required during the installation.</p> <p>Without specifying further parameters, the installer is executed as if &lt;Next&gt; was always pressed in the dialog. This will install the program parts from the default setting during a fresh installation. During an update installation, the selections from the previous installation remain valid.</p>
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<code>/TASKS=</code>	With this option you can decide if a desktop icon is generated during the installation. Examples: <code>/TASKS=desktopicon</code> <code>/TASKS=nodesktopicon</code>
<code>/DIR=</code>	Use this option to specify the installation folder, i.e. the program folder. Example: <code>/DIR="C:\Program Files (x86)\iba\ibaProduct"</code>
<code>/LANG=</code>	Selects the language of the installer. If not specified, the system language is used. Examples: <code>/LANG=en</code> <code>/LANG=de</code> <code>/LANG=es</code> <code>/LANG=fr</code>
<code>/COMPONENTS=</code>	Use this switch to select the installed components. Possible values are: <ul style="list-style-type: none"><li>■ <code>ibacaptureplayer</code></li><li>■ <code>ibacapturemanager</code></li><li>■ <code>ibacaptureserver</code></li><li>■ <code>ibacaptureencoder</code></li></ul> Example: <code>/COMPONENTS=ibacaptureplayer,ibacapturemanager</code>

## 4 ibaCapture Manager Camera View

*ibaCapture* Player is the software module enabling several iba software applications to visualize camera images captured by *ibaCapture* Server.

In *ibaCapture* Manager, *ibaCapture* player provides the following user interface:



1	Ribbon-based controls
2	Server overview with configured cameras
3	Camera views

It is possible to establish connections to multiple *ibaCapture* Servers in the network and add their cameras to the camera view. This way, you can arrange views with cameras of different video servers, also see chapter ↗ *Adding servers*, page 61.

### 4.1 Layout

Depending on which program you use to access the camera view (*ibaCapture* Manager, *ibaPDA* or *ibaQPanel*), there are different methods to add a camera to the view. Usually this can be done by double-clicking on the camera in the server overview or by means of drag & drop.

For information on how to add a camera view, please refer to the corresponding descriptions in the *ibaPDA* or *ibaQPanel* manuals.

The camera view allows the simultaneous display of several cameras.



By double-clicking on one of the cameras in the configuration tree or by means of drag & drop, the live image of the camera is opened in a player. With each double-click on a camera icon in the tree another player opens. All players are displayed next to each other by default.

For further actions, the respective players can be selected. If a camera view only contains one player, this player is always selected. If multiple players are displayed in the camera view, simply click inside the camera window in order to select the player. Yellow highlighted corners indicate that a player is selected. Multiple players can be selected by holding down the <Shift> or <Ctrl> key and clicking on the player areas. To uncheck a player from the multi-selection, press <Ctrl> and click the relevant player area.



However, the arrangement of the players can be modified to customize the layout.

When the mouse cursor is moved to the upper left corner of a player the positioning icon appears. This icon will only appear if multiple players have been added to the camera view.



Hold down the left mouse button on the positioning icon. Move the mouse pointer to the desired position. There will always be four indicators in the camera view, one at each side. If you drag the mouse over another player, it will also display position indicators.



Release the mouse button over one of these indicators to realign the opened players.



To change the size of a player, you can move the separator line between two camera windows horizontally or vertically – depending on the orientation.

In order to resize one player to full screen, double click on the player area or on the positioning icon in the upper left corner of the respective player area.

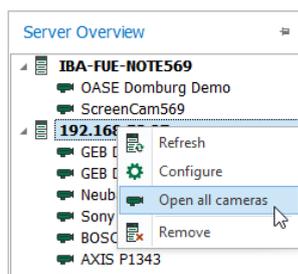


If a player is selected and displayed in full screen format, the icon  is displayed in the top left corner.

After double-clicking on the icon  again, the previous layout is displayed.

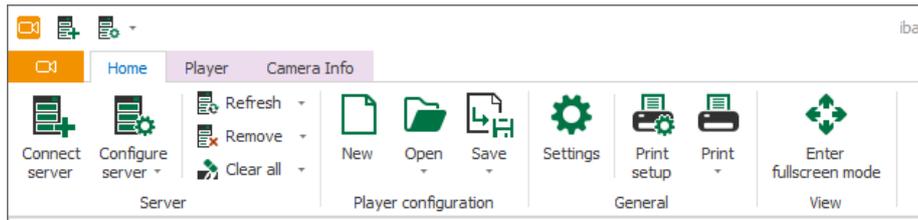
**Open all cameras**

If you want to add all active cameras of a selected *ibaCapture* Server to the camera view, open the context menu of the server and select "Open all cameras".

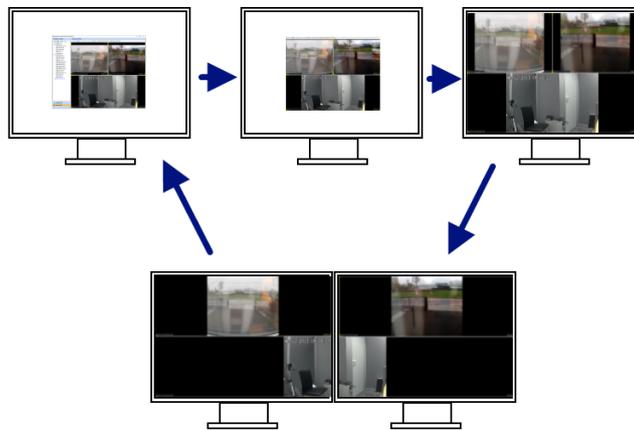


**Display modes**

The camera view provides different screen modes which can be toggled cyclically using the <F10> key or with the "Enter fullscreen mode" button on the "Home" ribbon:



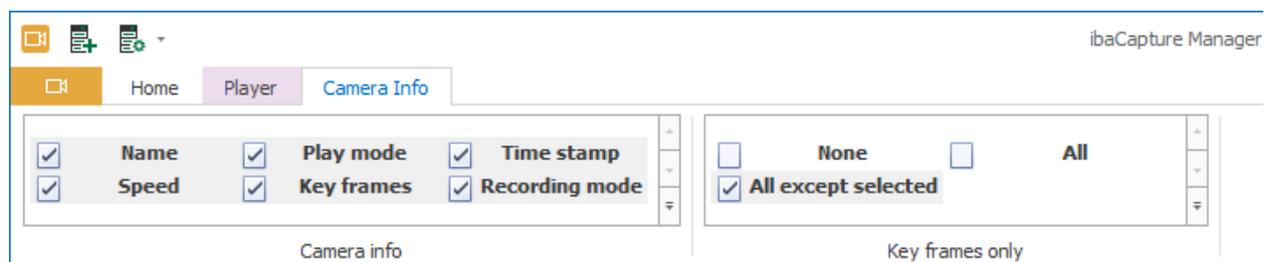
- Normal view
- Enlarged (menu bar and tree view are hidden)
- Full screen (is equivalent to the "Enlarged" display, but enlarged to the whole screen).
- Full screen on all monitors (display on all available monitors. This mode is only available if more than one monitor is connected.)



### Saving the camera view configuration

After having created a layout according to your needs, it is possible to save the camera view configuration and load the configuration at a later point in time again. For this purpose switch to the Home menu and click *Save*  in the ribbon.

## 4.2 Camera info menu



By setting / removing a checkmark, you can enable/disable the camera information items in the camera view.

- Name
- Play mode
- Time stamp
- Speed
- Key frames
- Recording mode (  = recording is running,  = no recording)

The time stamp within a camera window shows the system time of the relevant camera.



1\_2\_3\_4\_\_\_\_\_5\_\_\_\_\_6

Legend:

1. Play mode
2. "Only key frame" display
3. Play speed (in replay mode only)
4. Recording mode
5. Date and time (time stamp)
6. Camera name

### “Key frames only”

In order to save system resources, you can limit the data stream for the camera view to the key frames. The key frames are the first images of the GOPs( see also chapter ↗ *Glossary*, page 178). As a result, cameras in “key frames only” view mode will show less fluid motion images. To do so, the following options are available in the “Key frames only” context menu:

- All: all cameras are limited to show only key frames
- None: video for all cameras is shown with all images
- All but the selected ones: only selected cameras show all images, unselected cameras only show key frames

### 4.3 Operation modes

A camera can take on various operating modes. The current mode is displayed in the lower left corner of the player window.



The following camera states are possible:

	Live	The camera's live stream is displayed.
	Replay	Replay of a recorded video.
	Stop replay	Stops replay of a recorded video.
	Busy	The camera window is busy (waiting for response from server).
	Error	An error has occurred.
	No records	No records available for this time stamp in the server's database and thus no recordings.

The "Error" state can have various reasons, for example:

- *ibaCapture* Player was not installed on the respective computer where it is needed (see chapter ↗ *Software components*, page 15).
- *ibaCapture* Player cannot connect to the configured *ibaCapture* Server.
- No camera is connected to the specified camera input on the video server.

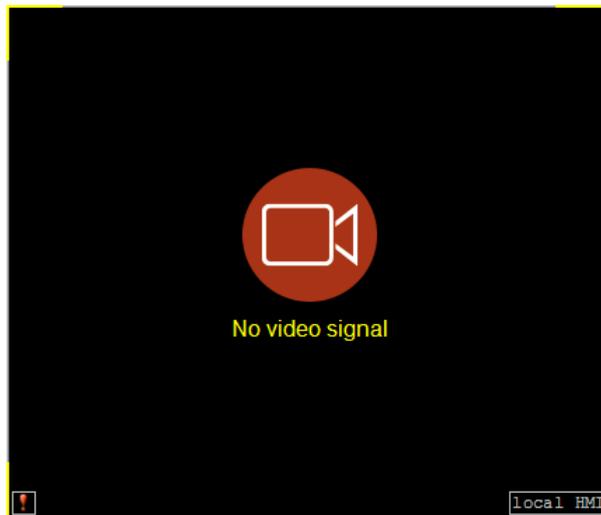
Usually, the video server starts transmitting the camera images immediately.

Moreover, the different fault states are indicated by big colored camera icons, supplemented by text describing the situation:

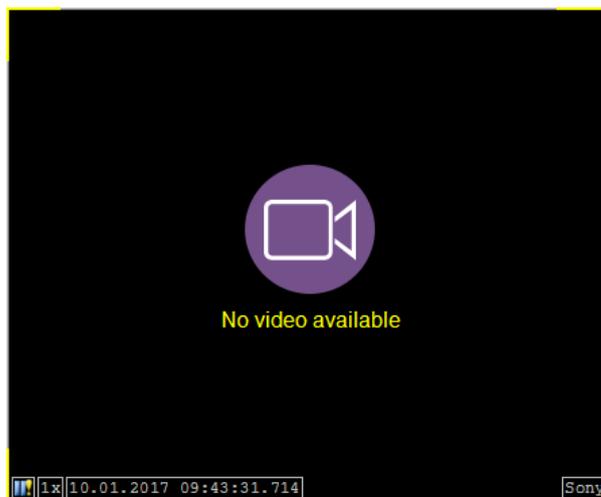
If *ibaCapture* Player is not installed or the version installed is not up-to-date, the following red icon appears.



The red image indicating the "No video signal" state occurs with one of the last two reasons mentioned above.



When a camera is in the "No video available" state, it will display the purple camera icon below.



For more information refer to chapter [↗ Player settings](#), page 30.

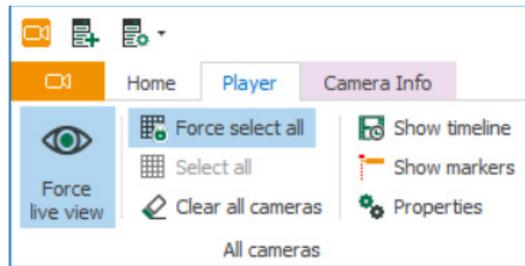
Double-clicking on the player window when it is in a fault state will open the log file of the application which is used for the camera view (*ibaCapture Manager* or *ibaPDA client*).

## 4.4 Player settings

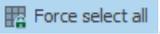
The player settings can be adjusted using command icons in the ribbon. The ribbon has three main sections: settings, which affect all cameras, settings which affect only the selected cameras and adjusting video properties.

The status of the icons (enabled / disabled) depends on the status of the selected camera(s).

### 4.4.1 Player settings for all cameras



	Force live view	All cameras will switch to live view.
	Force select all	All cameras will be selected, no camera can be deselected.
	Select all	All cameras will be selected, but cameras can be deselected by clicking on the camera view with <Ctrl> key depressed.
	Clear all cameras	All camera views will be removed.
	Show timeline	Show/ hide timeline
	Show markers	With the use of markers, video sections can be protected, locked or exported. See chapter <a href="#">Protect or lock videos</a> , page 46.
	Properties	Open properties dialog, see section below.

A blue background indicates that a setting is enabled: . Clicking the command icon toggles the setting.

## Properties

The screenshot shows the 'Properties' dialog box with the following settings:

- Camera information:**
  - Name
  - Play mode
  - Play speed
  - Time stamp
  - Key frames only
  - Recording mode
- View:**
  - Show toolbar
  - Select all cameras
  - Dock timeline in view
  - Refresh interval: 10 s
  - Left/right arrow key time step: 0,500 s
  - Page up/down key time step: 5,000 s
  - Automatically zoom out after 60 s of inactivity
  - Anchor markers on X-axis
  - Show key frames only
    - All cameras
    - All cameras except selected ones
- Replay speed:**
  - Pause after time jump
  - Replay speed while pressing previous/next image button: 5 fps
  - Switch to live mode when replay catches up with the live video
- Live:**
  - Live stream mode: Auto
  - Switch to live mode after 60 s of inactivity
- Notifications:**
  - Show warning on camera removal

Buttons at the bottom: Apply, OK, Cancel.

The "Properties" dialog is structured in four sections:

- Camera information
- View
- Replay speed
- Live
- Notifications

### Camera information

By setting / removing a checkmark you can show/hide the camera information items (similar to the context menu) in the camera window (see chapter ↗ *Camera info menu*, page 26):

- Name
- Play mode
- Play speed
- Time stamp
- Key frames only
- Recording mode

## View

- Uncheck the option “Show toolbar” if you want to hide the replay toolbar in the camera view. This option is only relevant, when a toolbar is available, e.g. when *ibaCapture* Player is used in *ibaPDA* or *ibaQPanel*.
- Check "Select all cameras" to select and lock all camera views. This state corresponds with the button  (force select all) in the ribbon.
- Check “Dock timeline in view” to display the video timeline on the bottom of the camera view window. Specify the update time in the “Refresh interval” input field. Do not set the update time too low in order to avoid unnecessary network load. For more information refer to chapter [↗ The camera timeline](#), page 41.
- If the option “Anchor markers on X-axis” is disabled then the markers will remain at the same position on the screen when the timeline is moved, e. g. by dragging or panning. As a result the markers will be positioned on a different timestamp after moving the timeline. If the option is enabled then the markers will remain at the same timestamp. So if the X-axis is moved then the markers move with the X-axis.
- Show key frames only  
The “Key frames only” setting is explained in chapter [↗ Camera info menu](#), page 26.
- Navigation keys  
By entering values given in seconds for the arrow keys and the keys <Page up>/<Page down>, you can define short pitch and long pitch setting when using these keys for navigation on the timeline.
- Automatically zoom out after ... s of inactivity  
If there is no more activity in the camera view after enlarging a camera view, all cameras can be automatically zoomed out after a defined time. Enable this option and specify a time in [s].

## Replay speed

In the "Replay speed" section, the replay speed of the video recordings can be set with the option "Replay speed after time jump". If you additionally enable the "Select all cameras" option under "View", the preset replay speed applies to all cameras.

The second setting *Replay speed when previous / next image button pressed* defines the replay speed in images per second. This replay speed is applied if the mentioned buttons  and  are pressed and held down.

Check the option *Switch to live mode when replay catches up with the live video* to switch automatically to live mode, when replay catches up with the live video.

## Live

The live streaming settings apply to the streaming protocols between *ibaCapture* Server and client. Clients can be *ibaCapture* Manager (camera view), *ibaPDA* camera view or *ibaQPanel* camera view.

For setting up the best streaming protocol you can choose between the following options:

**Auto (default setting)**

In Auto mode, the system initially uses the unicast UDP protocol which is usually the first choice. If too many frames get lost, the system switches automatically to TCP mode. This could happen, for instance, when the server is running in a Gigabit network while the client is connected over a 100 Mbit network.

**Unicast UDP**

Recommended streaming protocol

**TCP**

Recommended streaming protocol if UDP does not work satisfactorily.

**TCP Active**

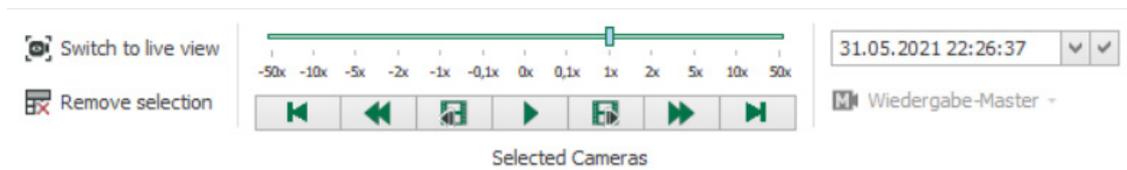
When a certain port for streaming live video has to be set in *ibaCapture Server*, this stream mode has to be used. For more information refer to chapter ↗ *Streaming ports*, page 107.

**Switch to live mode after ... s of inactivity**

If no more activity is detected in the camera view in playback mode, all cameras can be automatically switched back to live mode after a defined time. Enable this option and specify a time in [s].

**Notifications**

If the *Show warning on camera removal* option is enabled, a warning message is displayed when you remove a camera from view.

**4.4.2 Player settings for selected cameras**

With the icon  the selected cameras are switched to live view. The icon is available when the camera selection contains at least one camera which is in replay or in error mode.

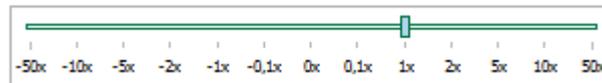
**Replay mode**

With the icon  the selected cameras are switched to replay mode. The icon is available when the camera selection contains at least one camera which is in live or in error mode. Replay or live view on all selected players is then paused. It should be borne in mind that all cameras, at this point, are synchronized. Although it is possible that individual cameras show different time stamps, images are shown which were recorded at the same moment in time – as close as possible to the time the command icon was pressed.

The replay mode does not affect recording of video data.

Using the buttons and the slider you can control the replay.

The replay speed after the time jump can be set with the speed slider. The function is only available if the selected cameras are in replay mode.



Note that the replay speed is specified relative to the normal speed. For example, 2x means that the current replay speed is twice the normal speed.

Meaning of the buttons:

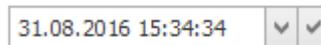
-   Start/stop replay
-   Jump to the previous/next image
-   Decrease/increase replay speed
-   Jump to the previous/next event

Events always refer to the currently selected replay master camera. Events are:

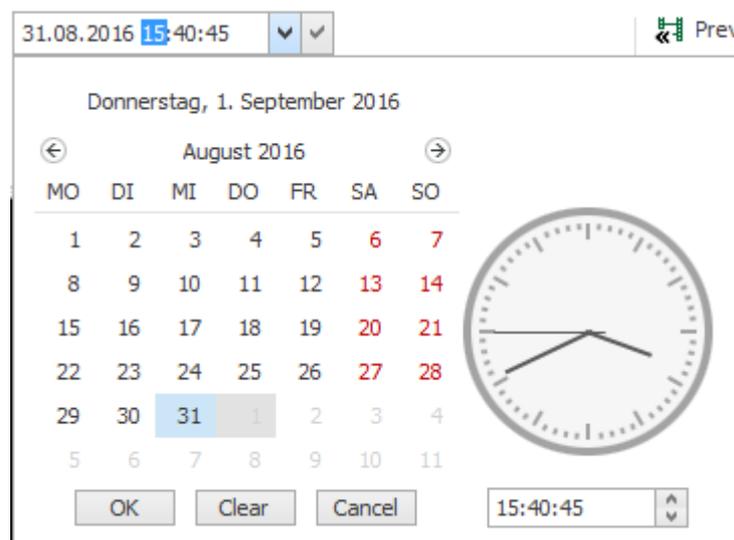
- The first or last frame received
- The start or end of a protected video sequence
- The start or end of a locked video sequence

### Time picker

The time picker allows the user to jump to a particular point in time in the recording. In doing so, all video recordings in the selected camera windows are also reset to this time. To specify the time, you can directly enter the date and time in the time picker entry field.



It is also possible to use a calendar function to specify the point in time. Click the arrow icon to open the calendar dialog .



**Note**

On the video server, the video stream captured by a camera is stored together with time data. The time stamp is generated by the *ibaCapture* Server's clock for all camera types.

When

- a) the *ibaCapture* Server clock is not set correctly and
- b) recorded video is viewed in *ibaCapture* Manager,

the recorded video will also be off by the time difference at the time of recording. This does not affect synchronization when viewing recorded video in *ibaAnalyzer*, but may cause inconsistent behavior when cameras from multiple *ibaCapture* Servers are opened in a single instance of *ibaCapture* Manager. In such a case it is recommended to use some kind of clock synchronization mechanism on all *ibaCapture* Servers, e.g. PTP. (see chapter ↗ *PTP time synchronization*, page 76).

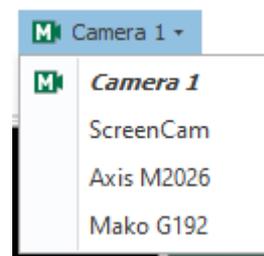
**Replay master**

In replay mode, you can configure a replay master which allows you to replay the video recordings in a time synchronous way. The replay master generates the clock for replaying videos. All other selected cameras will be replayed synchronously. This mechanism also maintains synchronicity when using the "previous image" and "next image" functions. For the replay master, the previous/next image will be shown, while for all other cameras the image closest to the master image will be used. This is especially important when using cameras with different frame rates.

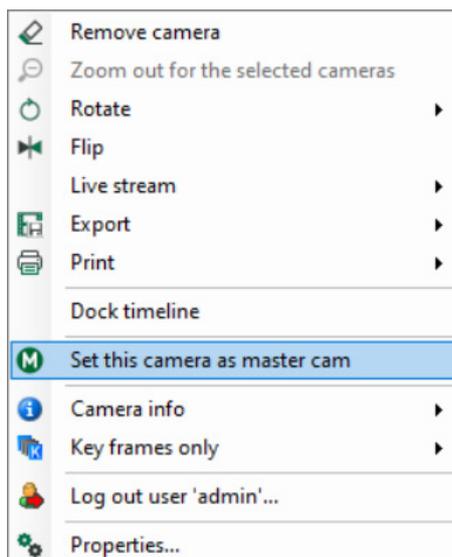
At first, the current replay master will be selected automatically and indicated by the master icon in the camera information bar.



By clicking on the master icon in the menu ribbon, the user can specify the replay master in the drop-down menu.



Optionally, you can configure a camera as replay master. For this purpose, open the context menu in the camera view you want to configure as master with a right mouse-click and select *Set this camera as master cam*.



### 4.4.3 Video properties

Each camera offers operating functions to control zoom, contrast, brightness, saturation and hue and to flip the image. All functions can be controlled by command icons in the ribbon.



	Zoom out
	A click on the small triangle offers the option <i>Zoom out all</i> . All zoom steps are undone at once by selecting this option.
	A click on the small triangle opens a selection of options to rotate the image: 90°, 180° and 270° counterclockwise
	Flip image horizontally
	Slider for adjusting image brightness Brightness will be reset to the default value by clicking the icon.
	Slider for adjusting image contrast Contrast will be reset to the default value by clicking the icon.
	Slider for adjusting the saturation Saturation will be reset to the default value by clicking the icon
	Slider for adjusting the hue Hue will be reset to the default value by clicking the icon.

Please note that brightness, contrast, saturation and hue are only changed in selected video players. There is no effect on stored video and on players in other applications, e.g. *ibaPDA* or *ibaAnalyzer*.

There are also alternative ways to zoom in and out and to change brightness, contrast saturation and hue:

### Zooming

In order to zoom in position the mouse pointer in the top left corner of the area that you wish to magnify. Draw a red rectangle by keeping the mouse button pressed and dragging the mouse to the lower right corner. Release the mouse button.



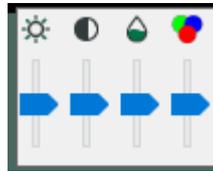
Zooming out is performed by pressing *Zoom out*  in the ribbon.

As third way, it is possible to zoom in/out by scrolling the mouse wheel. Position the mouse pointer over the image and scroll the mouse wheel. When zoomed in, you can move the section by moving the mouse keeping the <ALT> and left mouse button pressed.

To preserve the original aspect ratio of the video during display, the image is centered between black bars. When zooming in, the black areas are reduced accordingly or are no longer visible, while still maintaining the aspect ratio.

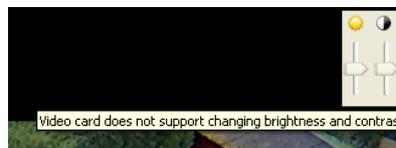
### Change properties in the camera window

Contrast, brightness, saturation and hue can also be changed using the sliders in the camera window. To do so, move the mouse pointer in the upper right corner of the camera window where sliders appear.



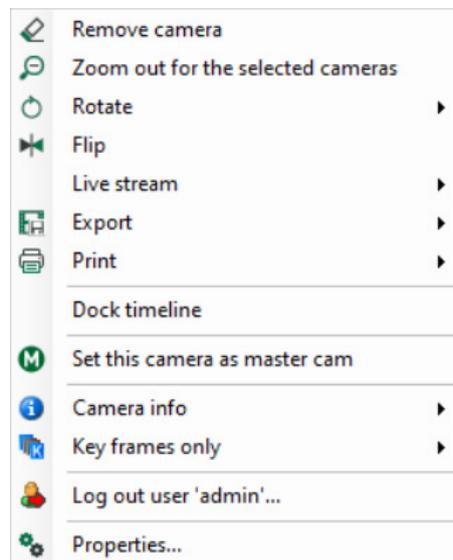
Brightness, contrast, saturation and hue will be reset to the default value by clicking the respective icon above the sliders.

If the graphics adapter of your computer does not support changing these settings you'll get an error message in a tooltip with the mouse hovering over the control.



## 4.5 Camera context menu

A right click on a camera window opens the context menu.



The menu items "Dock timeline", "Camera info" and "Key frames only" apply to all cameras in a camera view.

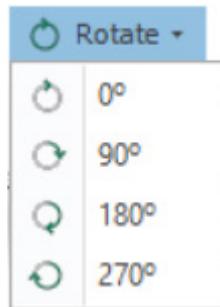
The command "Log out user 'xy'..." is only visible when user management is active and applies to all cameras from that ibaCapture Server in the current camera view.

The commands "Remove camera", "Rotate", "Flip" and "Export" apply to the camera where the context menu was opened.

The "Print" command allows you to choose whether to print this camera or all cameras in the view.

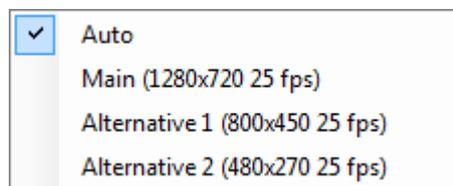
The command „Set this camera as master cam“ is available in replay mode. For a description of this function, see chapter [Player settings for selected cameras](#), page 33.

### 4.5.1 Submenu "Rotate"



You can select here from preset values by how many degrees the image is rotated counterclockwise.

### 4.5.2 Submenu "Live stream"



In order to save system resources, you can configure alternative live streams with a lower resolution for the live stream display.

#### Auto

"Auto" is the default setting for the live stream. "Auto" automatically selects the resolution of the live stream depending on the player size, i.e. when the player window gets smaller, an alternative live stream with a lower resolution will be selected automatically.

#### Main / Alternative 1 / Alternative 2

By selecting one of the other options, the live stream will be set permanently to the respective resolution.

For more information about the alternative live streams, see chapter [↗ Additional streams](#), page 108.

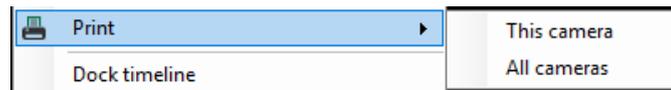
### 4.5.3 Submenu "Export"



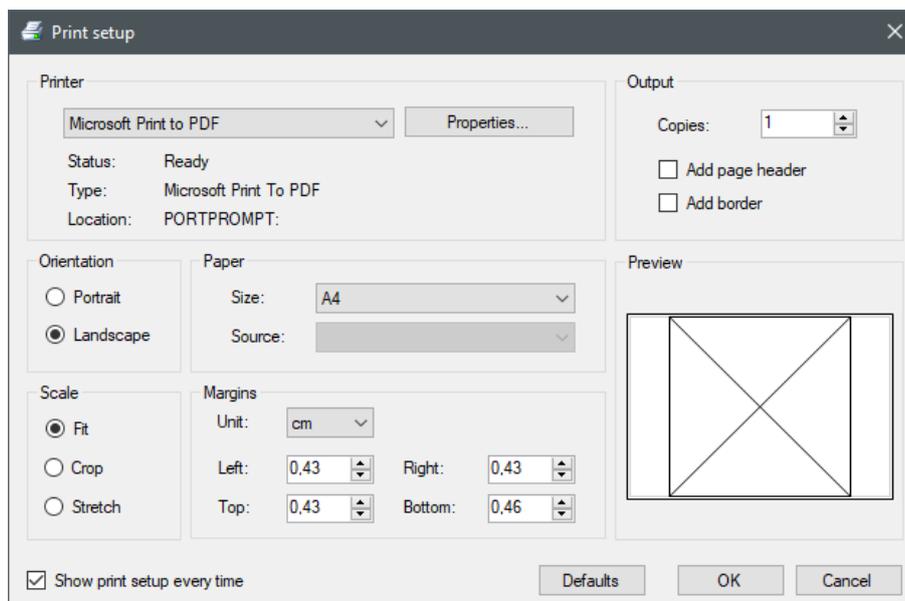
Individual camera images (snapshots of the current frame) can be exported as JPG image files using the "Image" option. Video sequences can be exported as MP4 video files with the "Video" option.

If an image is to be exported, then a file browser appears to select the location. When exporting a video sequence, a dialog will appear in which a start and stop time can be specified. The start and end times are set to the positions of the markers in the camera timeline when the dialog is opened.

### 4.5.4 Submenu “Print”



Here you can select whether you want to print this camera or all cameras, i.e. the currently visible camera layout. In the *Print setup* dialog, you can select the printer, set the orientation, scaling and margins. The preview shows how the camera images will be printed on the selected paper and the effect of the settings.

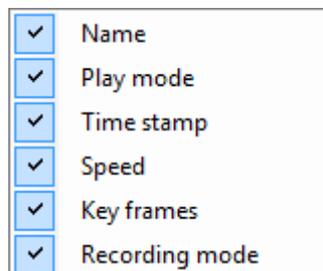


### 4.5.5 Dock timeline

Check / uncheck the “Dock timeline” item to show or hide the timeline at the bottom of the camera view.

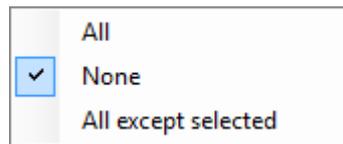
More information about the timeline, see chapter ↗ *The camera timeline*, page 41.

### 4.5.6 Sub-menu "Camera info"



By setting/removing a checkmark, you can set visibility for the camera information items, see also chapter ↗ *Camera info menu*, page 26.

### 4.5.7 Sub-menu "Key frames only"



By setting/removing a checkmark, you can specify which cameras shall only display key frames. See also chapter [↗ Camera info menu](#), page 26.

### 4.5.8 Properties

The properties dialog can also be opened in the context menu, description see chapter [↗ Player settings for all cameras](#), page 30.

## 4.6 The camera timeline

The camera timeline provides the user with an overview of the available video sequences of all cameras that have been added to the view. Furthermore, it allows easy navigation to a certain point in time.

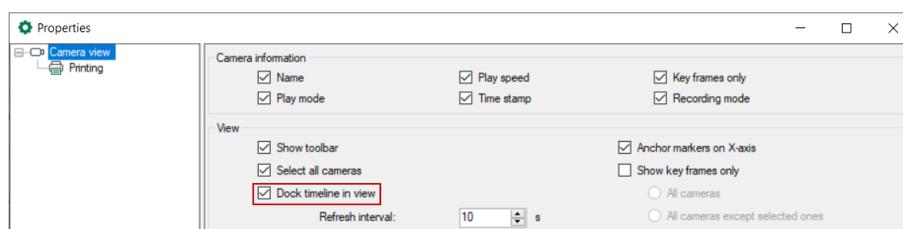
### 4.6.1 Show timeline

The timeline can be enabled in several ways:

1. Click *Show timeline*  in the ribbon. Another click on the command will hide the timeline again.
2. Open the camera view's context menu and select "Dock timeline".

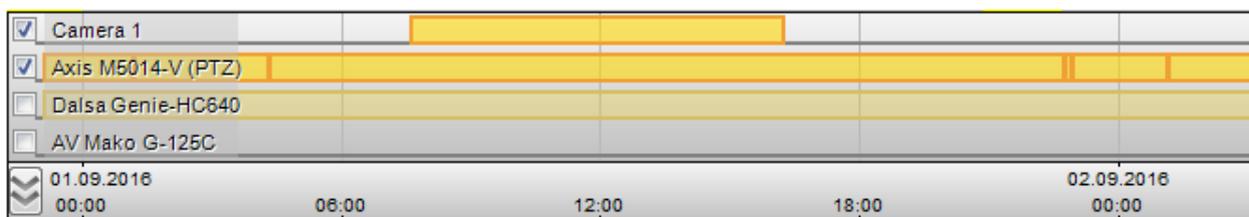


3. Open "Properties" with a double-click on the icon  and select "Dock timeline in view".



### 4.6.2 Bar display

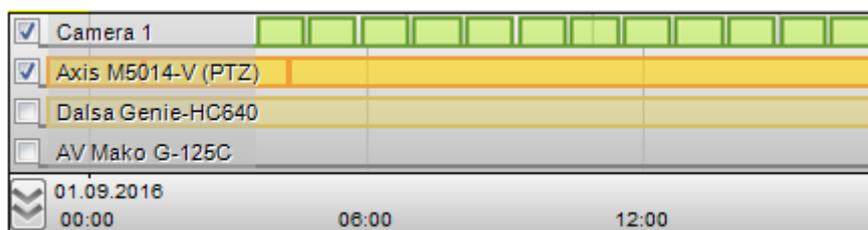
A timeline is displayed for each camera in the view. A time range containing video recordings is displayed as a colored bar. A range without video recordings is displayed as gray line. The display of the recorded sequences in the timeline is updated cyclically, according to the setting in the properties dialog of the view.



The cameras that are currently selected are shown in bright colors and a checkmark is set in front of the camera name.. The non-selected cameras are displayed in pale colors.

Meaning of bar colors:

- Orange: continuous recording
- Green: protected recording (use of video triggers)
- Violet: locked video (see chapter ↗ *Protect or lock videos*, page 46 for examples)



The timeline can be collapsed and expanded with the button  in the bottom left corner of the timeline. A collapsed timeline contains a line for selected players and one for unselected players (if available).



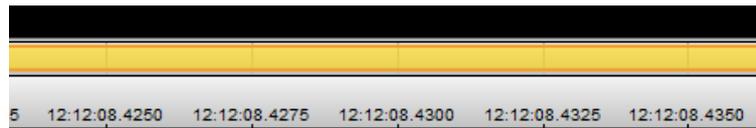
The colored bar of a collapsed timeline shows the total of the camera’s timelines it contains. The number in front of a timeline indicates the number of cameras the timeline contains. In the example above, the first line shows stored video for 1 selected camera and the second line shows this information for 3 unselected cameras.

### 4.6.3 Time axis

The time axis shown at the bottom of the timeline is interactive. You can:

- Shift the visible time range by clicking the axis keeping it pressed and then dragging the mouse horizontally
- Zoom in/out by scrolling the mouse wheel (at any position in the timeline)
- Zoom in by dragging a rectangle over the camera timeline
- Auto-scale by clicking the center mouse button

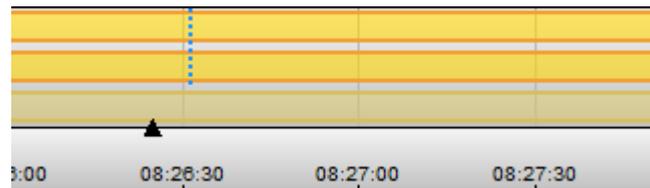
The maximum resolution of the timeline is 2.5 ms. This allows navigating from frame to frame when using cameras with high frame rates.



#### 4.6.4 Indicators and markers

A black triangle represents the marker of the current time stamp on the timeline. Moving the current time marker will stop all selected players and jump to the timestamp of the marker.

A dotted blue line indicates the current point of time of a selected camera view on the timeline of the camera. This marker is dynamic. It moves forward when a video is playing.



The current time marker (triangle) can be moved by clicking and dragging it with the mouse. If you click anywhere on the timeline, the marker will jump to this position.

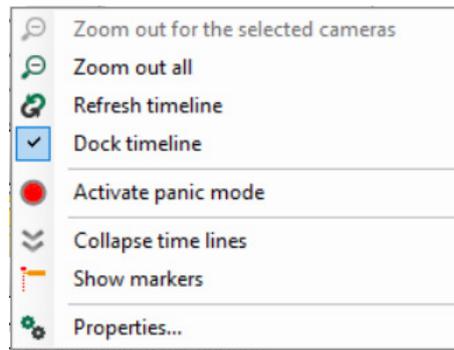
Moving the marker sets the selected camera(s) back to play mode. The players follow the marker time. The blue dotted lines follow the current time marker as well. The replay speed of the selected camera(s) will be set to the replay speed configured in the properties dialog.

Moving the marker also updates the time in the time picker. If you want the selected camera(s) to jump to the specified time in the time picker, the jump icon  must be clicked.

#### 4.6.5 Context menu

The timeline has its own context menu which allows the user to:

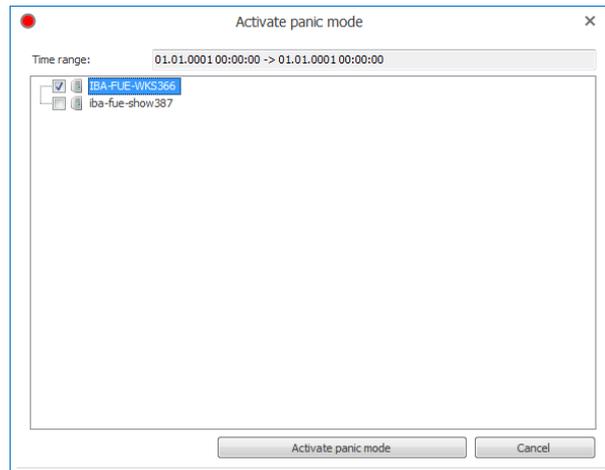
- Zoom out if the user has previously zoomed in using the zoom rectangle, either for the selected cameras or all cameras
- Manually refresh the timeline
- Dock or undock the timeline.
- Enable panic mode
- Collapse/expand timelines
- Show markers which are used for protection and safety functions (see next chapter)
- Open the properties dialog



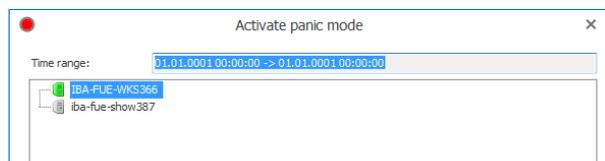
**Panic mode**

Panic mode can only be used when user management is enabled, see also chapter ↗ *User management in ibaCapture*, page 78. This mode can only be activated by authorized users. In panic mode, only a main responsible person (administrator) is allowed to view the videos.

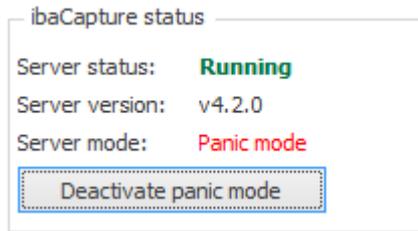
A click on the command opens a dialog where you can select the server(s) the panic mode shall be activated for. Select one or multiple servers in the tree structure and click on <Activate panic mode>.



When panic mode is active, the color of the server icon turns to green.

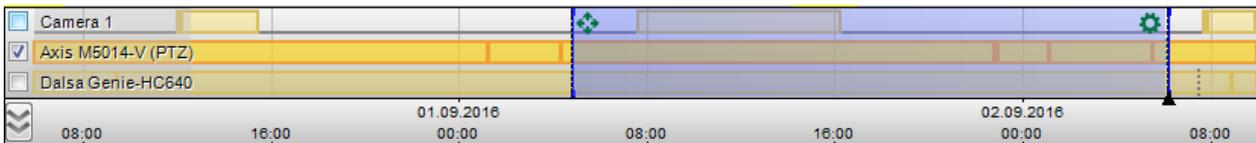


The panic mode can only be deactivated by the admin user by restarting the *ibaCapture* service. In case the panic mode is active, you can see a button that allows you to disable the mode in the “iba Capture status” field.



### 4.6.6 Range markers

To carry out protection and safety functions, range markers are necessary. Range markers can be added by clicking *Show markers*  in the ribbon or right-click on the timeline and select *Show markers* from the context menu. By default, 1/3 of the timeline range will be marked.



The marked range can be changed in two ways:

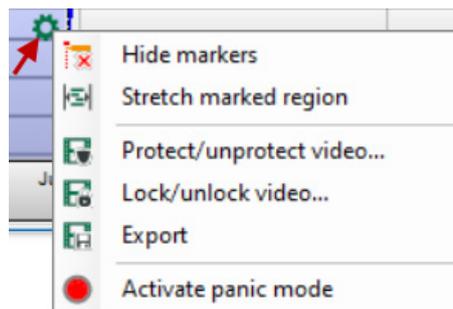
1. Move the begin or end marker while keeping the left mouse button pressed
2. Move the total range while keeping the left mouse button pressed on the move icon in the top left corner of the marked range.



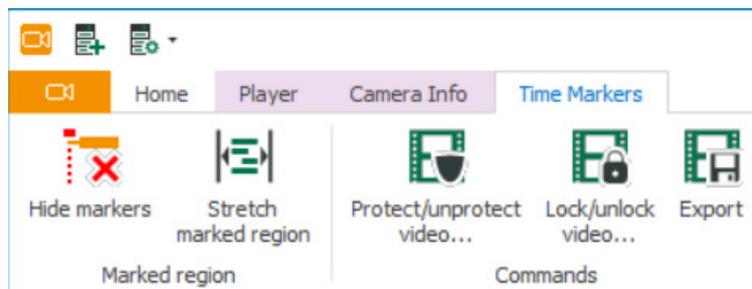
You can also select a range manually. Proceed as follows:

1. Hold down <Ctrl>-key
2. Hold down left mouse key on the camera timeline
3. Select the range by moving the cursor
4. Release the left mouse key
5. Release the <Ctrl>-key

Hovering the mouse over the icon in the top right corner of the marked range opens a context menu providing commands for export, protection and safety functions. See chapters [Protect or lock videos](#), page 46 and [Export videos](#), page 48 for more information.



The same commands appear in the menu *Time Markers*, which is visible when time markers were added.



Commands for protection and safety functions:

	Hide markers
	Stretch marked region (over the displayed timeline)
	Protect/unprotect video; see chapter ↗ <i>Protect or lock videos</i> , page 46
	Lock/unlock video, see chapter ↗ <i>Protect or lock videos</i> , page 46
	Export; see chapter ↗ <i>Export videos</i> , page 48

### 4.6.7 Protect or lock videos

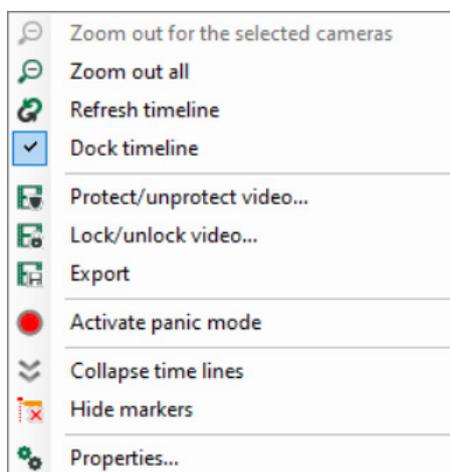
The functions “protect/unprotect video” and “lock/unlock video” can be performed by authorized users.

See also “Action rights” in chapter ↗ *User management in ibaCapture*, page 78.

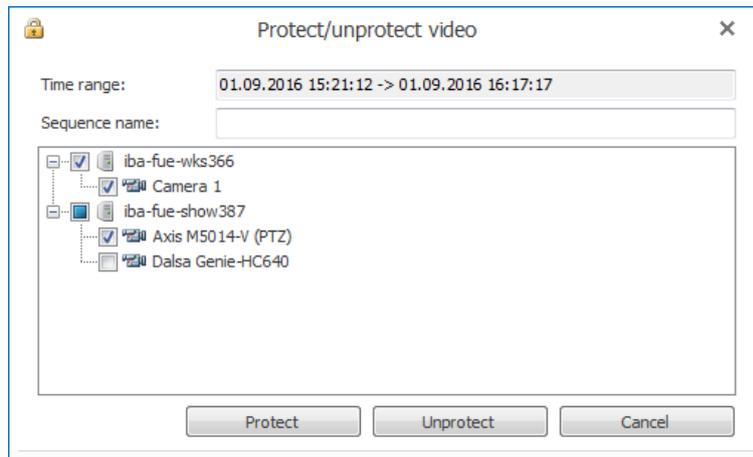
Protected video will be overwritten less frequently than normal video. Locked videos can be viewed only by users who have this right. User management must be enabled for locked video to have effect.

In order to protect or lock a particular video sequence, you first need to specify a time range using the time markers as described in the previous chapter.

Then, click the command icon in the ribbon for the desired function or open the context menu of the timeline and select the desired function.

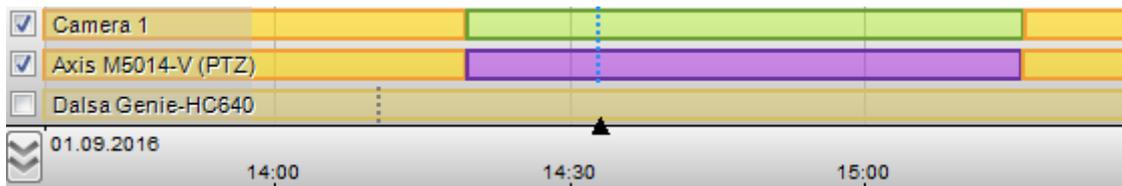


A dialog opens where you can select the cameras for which the function is to be performed. From a tree structure you can select one of the cameras that are shown in the camera view. By default, all cameras selected in the camera view are checked.



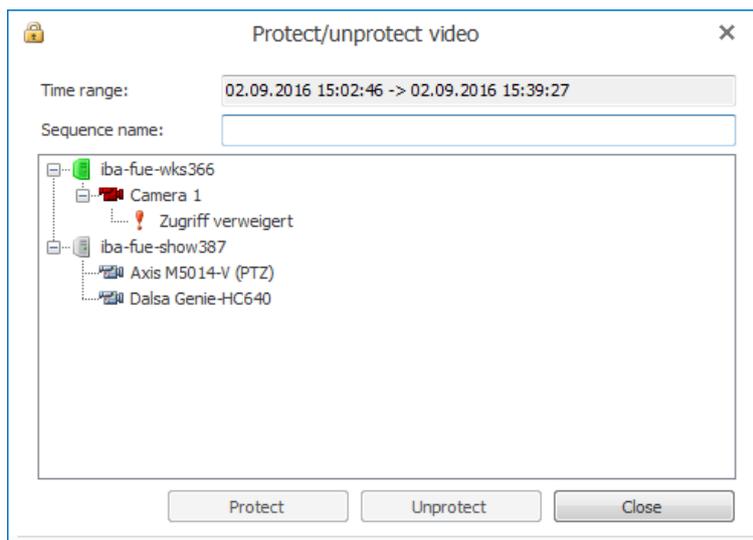
In the *Time range* line, the relevant time range is shown corresponding to the marker positions. For the "Protect video" function, you can additionally enter a sequence name.

Locked sequences are displayed violet, protected sequences are colored green.



Protected recordings created automatically via video trigger remain unaffected by the *Unprotect* function.

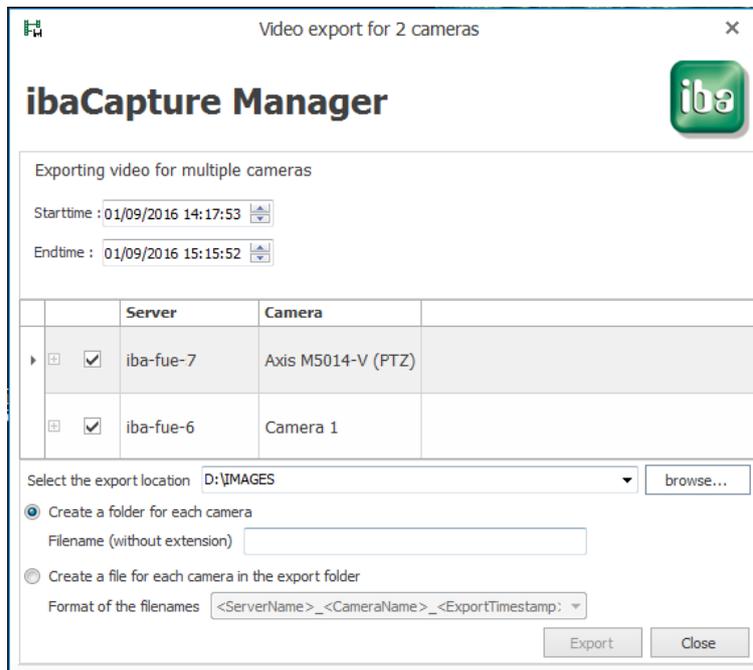
If a user selects a camera, but is not authorized to perform the desired function for this particular camera, an error message appears, the camera icon turns red and the dialog remains open.



### 4.6.8 Export videos

Video sequences from multiple cameras can be exported as MP4 file. When user management is enabled, only authorized users can export videos. First, a time range needs to be specified with the range markers.

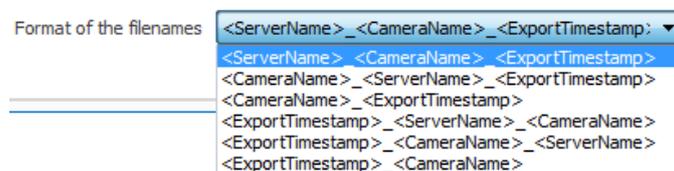
Then, click *Export*  in the ribbon or open the context menu of the timeline and select the *Export* function. The video export dialog will open.



By default all currently opened cameras are selected. The marked region is given as start and end time. It is possible to uncheck single cameras if no video shall be exported.

One video file will be created for each selected camera. Possible file locations are:

- Create a directory in the export location root for each camera and define a filename. Each camera will generate the same filename in its own directory.
- Create all files in the export location root. Since all files should have distinctive names in this case, you can select a format for the filename.



As soon as the export is started, progress bars are shown for each camera.

		Server	Camera	
▶	<input checked="" type="checkbox"/>	DEVPC-GEERT1	Camera 1	<div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, green 48.03%, grey 48.03%);"></div> <span style="margin-left: 5px;">48,03%</span> <span style="margin-left: 10px;">✕</span> </div> <div style="font-size: small; margin-top: 2px;">01/08/16 09:01:56</div>
	<input checked="" type="checkbox"/>	DEVPC-GEERT1	Camera 2	<div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, green 43.02%, grey 43.02%);"></div> <span style="margin-left: 5px;">43,02%</span> <span style="margin-left: 10px;">✕</span> </div> <div style="font-size: small; margin-top: 2px;">01/08/16 09:01:52</div>
	<input checked="" type="checkbox"/>	DEVPC-GEERT1	Camera 1	<div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, green 48.03%, grey 48.03%);"></div> <span style="margin-left: 5px;">48,03%</span> <span style="margin-left: 10px;">✕</span> </div> <div style="font-size: small; margin-top: 2px;">01/08/16 09:01:56</div>
	<input checked="" type="checkbox"/>	DEVPC-GEERT1	Camera 2	<div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, green 44.42%, grey 44.42%);"></div> <span style="margin-left: 5px;">44,42%</span> <span style="margin-left: 10px;">✕</span> </div> <div style="font-size: small; margin-top: 2px;">01/08/16 09:01:53</div>

It is possible to cancel the export for each player with a click on the  button. Closing the dialog will cancel the export of all players.

## 4.7 Operation via keyboard shortcuts

If the camera view is in replay mode, some functions can be directly controlled by keys:

Key	Function
	Time step backward
	Time step forward
< Page up >	Bigger time step backward
< Page down >	Bigger time step forward
	Increase replay speed
	Decrease replay speed
< Ctrl > + < > 	Show next image
< Ctrl > + < > 	Show previous image
< Space bar >	Play / Pause

### Note



For the keyboard shortcuts to work, focus has to be on the camera view/player area. If the ribbon is active, e.g. because the user has clicked on commands, the cameras will not receive the key strokes.

Simply click once on one of the cameras to activate camera operation via key strokes.

## 4.8 Using PTZ cameras

In the camera view, there are different options to control PTZ cameras:

- with a joystick
- with the mouse
- via the PTZ context menu

### 4.8.1 Joystick

*ibaCapture* supports the use of USB joysticks which are recognized by Windows, e.g. AXIS T8311 video monitoring joystick, part of the AXIS T8310 video monitoring unit or other standard game controllers.

The joystick can be connected to every client to control the configured PTZ cameras. Panning and tilting of the camera can be controlled intuitively by moving the joystick. Depending on the joystick model, the zoom function can be controlled using a rotary knob or setting wheel.

When panning or tilting, the following pointer appears in the image.



When zooming in or out, the following markings appear in the image:

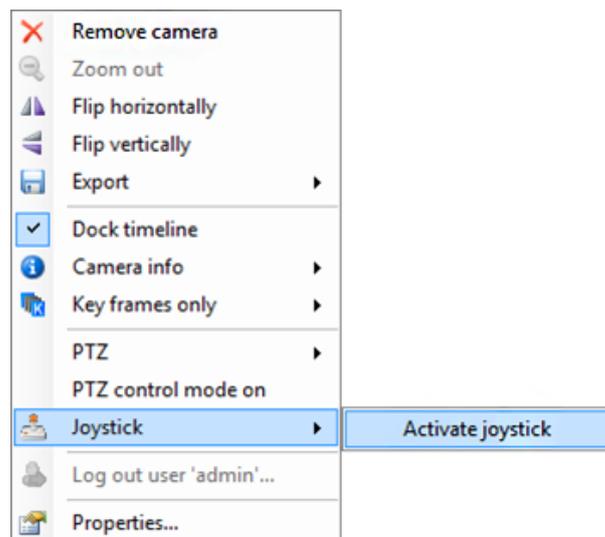




Various functions can be assigned to the joystick keys. *ibaCapture* provides the following functions: moving to the left, right, up or down, zooming in and out and moving to one of the preset positions.

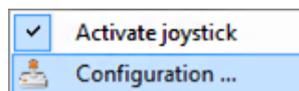
### Activate joystick

To control the camera with the joystick, this needs to be activated first. Select *Joystick* in the camera context menu and select *Activate joystick* in the sub-menu.



### Configuring the joystick

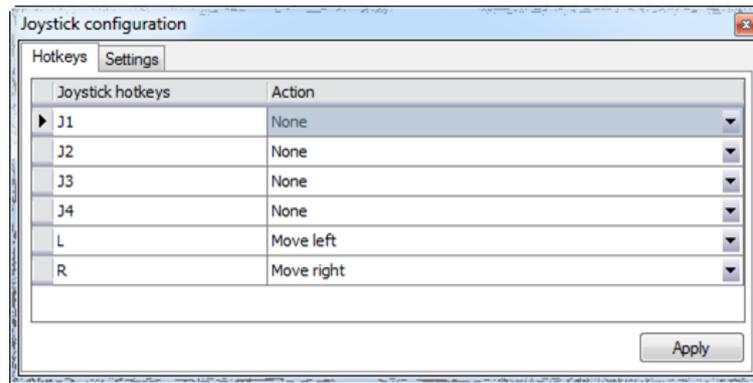
For programming the function keys and changing the joystick settings, select *Joystick* in the camera context menu and *Configuration* in the sub-menu.



The dialog for configuring the joystick opens.

### Programming function keys

The function keys are programmed in the Hotkeys tab.



To program a function key, select the relevant function key (in the above image "Jn") and open an action tree by clicking on the arrow.

Select the desired action from the action tree. Available for selection are:

- "Goto preset" - this shows a list of all positions already saved
- "Move" – here, you can select from 4 directions of movement
- "Zoom" – zooming in and out can be selected
- "Switch camera" – here, it can be selected whether to switch to the next or previous camera.

Select the desired function for every function key and confirm the setting by clicking the <Apply> button.

If the check box "Apply to all cameras" has been selected, the movement functions (to the right, left, up and down) and the zoom functions (zooming in and out) apply to all PTZ cameras. The function "Goto preset" only applies to the camera for which this preset has been configured. The functions assigned to the function keys are saved for the current Windows user.

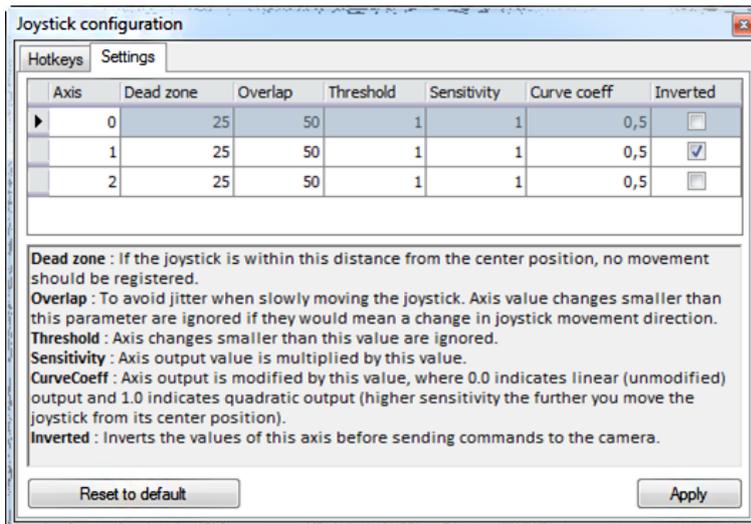
#### Note



In case of an Axis T8311 joystick, the function keys L and R are already preconfigured. R = moving to the right, L = moving to the left.

#### Change joystick settings

In the "Settings" tab, you can change the settings for the joystick such as sensitivity and threshold values.

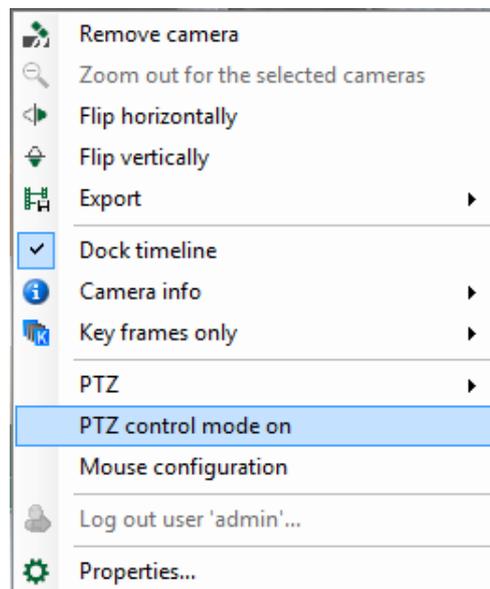


The changed settings are applied by clicking the <Apply> button.

You can reset the settings to the default values by clicking the <Reset to default> button.

### 4.8.2 Mouse

For the PTZ camera to be controllable with the mouse, the PTZ control mode needs to be activated. For this purpose, select PTZ control mode on in the camera context menu or click with the middle mouse button or the setting wheel. Do the same for deactivation.



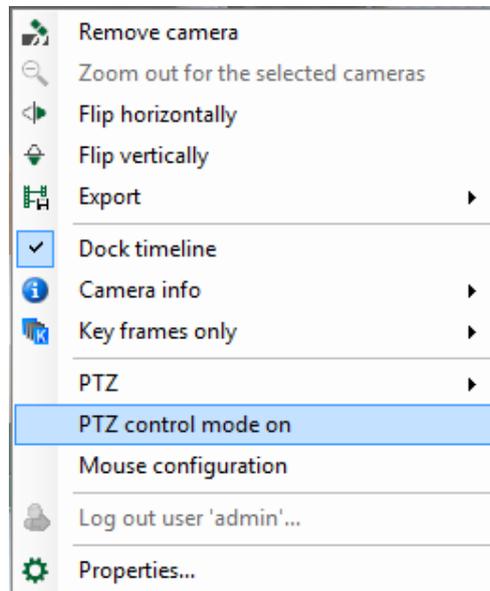
If the PTZ control mode is activated, a crosshair appears in the middle of the video image. The movement of the PTZ camera can be controlled by moving the mouse keeping the left mouse button pressed. Releasing the mouse button stops the movement of the camera.

The mouse wheel is used for zooming in and out. Scroll the mouse wheel up to enlarge the view, scroll it down to minimize the view. When moving the camera as well as zooming in and out, the familiar markings appear on the screen, see chapter ↗ *Joystick*, page 50.

Select *Mouse configuration* from the context menu to make settings for the sensitivity and dead zone of the mouse.

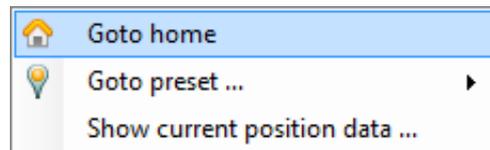
### 4.8.3 PTZ context menu

To control the camera via the menu, open the context menu of *ibaCapture* Player and select "PTZ".

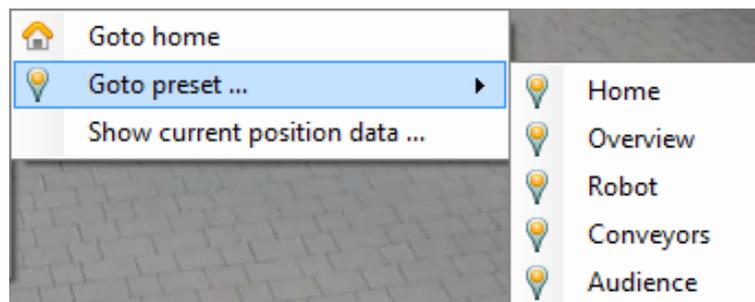


The related sub-menu provides the following options:

- Goto home: moves the camera to the initial position



- Goto preset: moves the camera to a preset position



- Show current position data: shows the absolute pan, tilt and zoom values of the current camera position. By clicking on <Copy to clipboard>, the data can be copied and, if required, inserted as absolute position in "Absolute move" of the "PTZ" tab of the *ibaCapture* configuration. For insertion, place the mouse pointer on one of the input fields and press the key combination <Ctrl> + <V>.

Current position ✕

Pan:

Tilt:

Zoom:

## 5 Configuration of ibaCapture Server

The *ibaCapture* Server service can be controlled through the *ibaCapture* Server Status application. It provides information about the server status and allows manual start and stop of the *ibaCapture* Server service, see chapter [↗ ibaCapture Server Status](#), page 56 .

Moreover, *ibaCapture* Manager allows adding and removing cameras, changing camera settings and setup the video storage including protected and unprotected disk space, see chapter [↗ ibaCapture Manager](#), page 57.

In *ibaCapture* Manager, also camera views are displayed and the cameras can be controlled.

Basically, *ibaCapture* Manager provides 2 modes with the following functions:

- Camera view
  - Overview of connected cameras and servers as tree-view. Servers can be added and removed.
  - Player area for video players of the selected cameras.
  - Menu ribbon with application and player control commands
- Server configuration mode
  - Configuration of *ibaCapture* Server
  - Camera configuration
  - Storage configuration
  - User management

### 5.1 ibaCapture Server Status

The *ibaCapture* Server Status application will be automatically started after the installation of *ibaCapture*.

After installation you will find the *ibaCapture* Status icon in the Windows system tray: 

The different symbols indicate the following states:

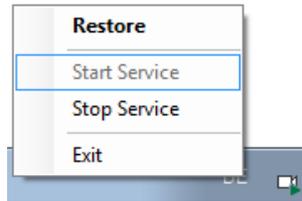
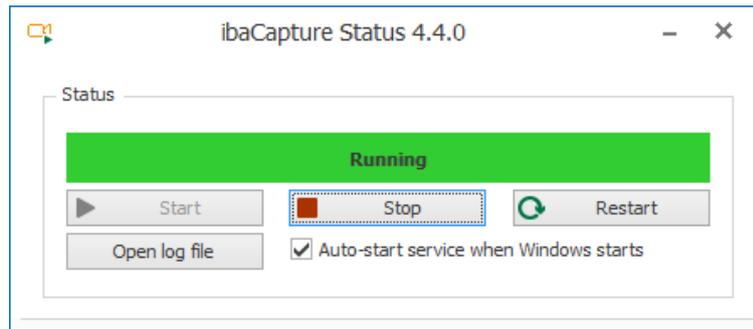
 *ibaCapture* service is running

 *ibaCapture* service is stopped

The application can be started in different ways:

- Double-click the *ibaCapture* Status icon in the system tray
- Using the context menu of the *ibaCapture* Service icon (right mouse-click *Restore*)
- Using the Windows start menu *All programs – iba – ibaCapture – ibaCapture Server Status*

The *ibaCapture* Server Status application allows you to start, stop and restart the service using either the buttons or the context menu.



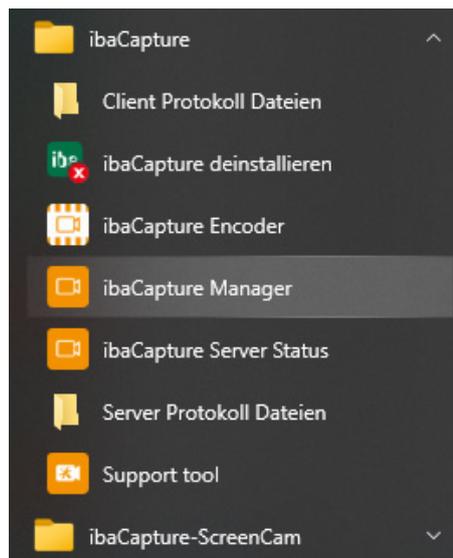
The button <Open log file> opens the *ibaCapture* Server log file *ibaCCServerLog.txt*.

If the option *Auto-start when Windows starts* is enabled, the *ibaCapture* Server Status application starts automatically when logging in to Windows.

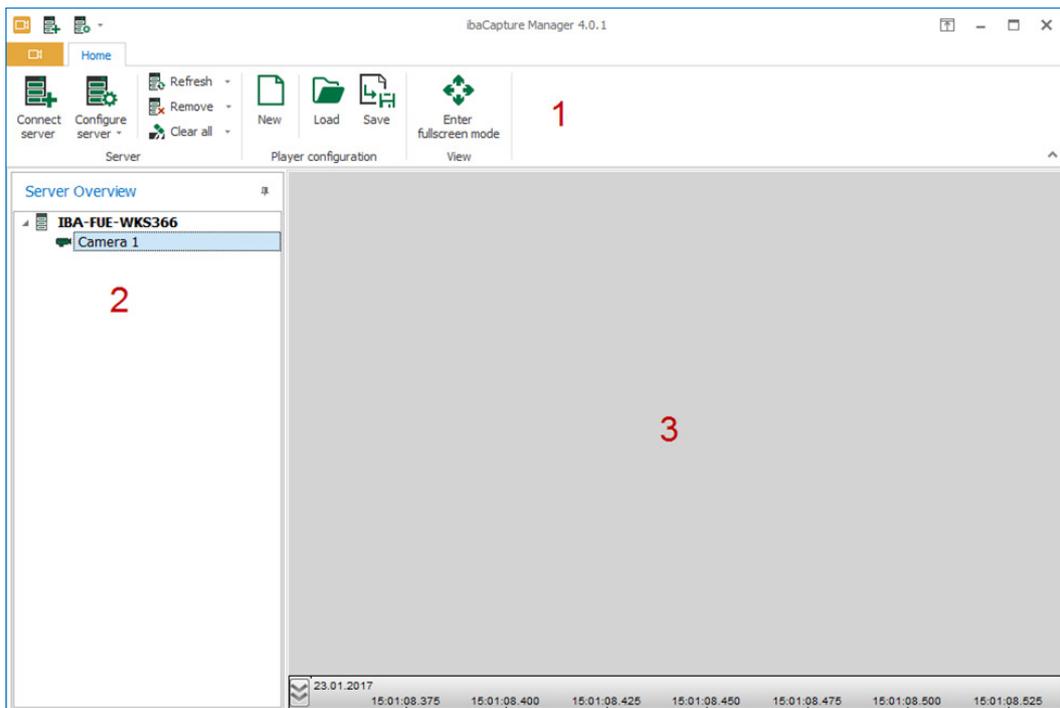
## 5.2 ibaCapture Manager

If *ibaCapture* Manager is not yet installed on your computer, turn to the chapter ↗ *Installing ibaCapture software*, page 20 and proceed accordingly.

Start *ibaCapture* Manager by double clicking on the icon on the desktop  or via the Windows "Start" menu.



At the first start *ibaCapture* Manager opens with the following user interface.



1	Ribbon (providing the commands)
2	Server overview (servers which can be configured and list of configured cameras for viewing video)
3	Camera view (video players of the selected cameras)

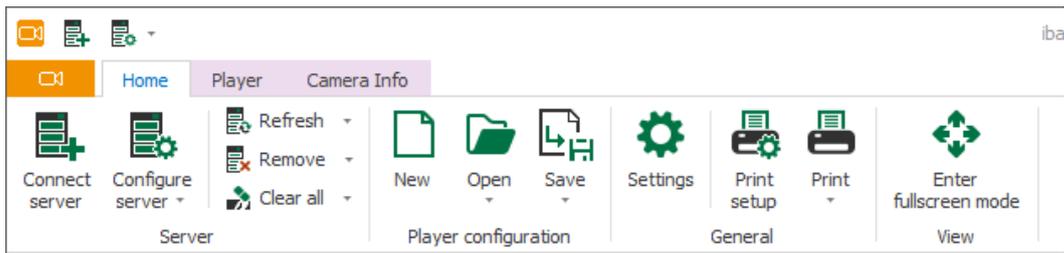
### Initial installation

When *ibaCapture* is installed for the first time, i.e. no upgrade from previous versions, and *ibaCapture Manager* is opened on the same PC as *ibaCapture Server* runs, that server is automatically added to the server overview. You can directly switch to server configuration mode, see chapter ↗ *Switching to server configuration mode*, page 62, and configure the server and cameras.

### Upgrade installation

When *ibaCapture* is installed as an upgrade from previous versions, the *ibaCapture Server* PC has to be added to the server overview, see chapter ↗ *Adding servers*, page 61. The cameras which are already configured at the server will be automatically detected when the server has been added.

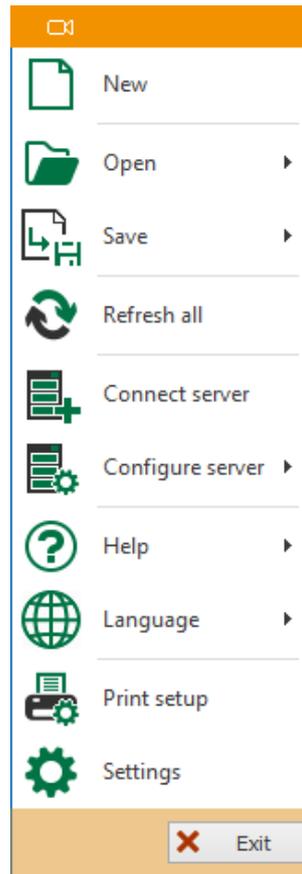
### 5.2.1 Menu and commands



The *Home* menu provides the following commands:

	Connect server	opens the dialog to add a server or to search the network for <i>ibaCapture Servers</i>
	Configure server	switches to server configuration mode
	Refresh	refreshes the server overview
	Remove	removes the selected server
	Clear all	removes all connected servers
	New	creates a new camera view layout. Note: the current server list will be deleted
	Load	loads a camera view configuration file (*.xml, *.ccl). You can select the last 10 entries from the drop-down menu. (the current server list will not be changed)
	Save	saves a camera view layout as camera view configuration file
	Settings	opens the <i>Settings</i> dialog. Here you can select a layout that will be loaded with the next start of <i>ibaCapture Manager</i> .
	Print setup	Opens the <i>Print Setup</i> dialog. Here you select the printer and you can define the orientation, scaling and margins in addition to the standard printer settings. You can check the settings and their effects in the preview.
	Print	Use the <i>Print</i> command to open a drop-down list with all open cameras. Select <i>Print all</i> to print the currently visible camera layout with all displayed cameras. To print the image of a camera, select the camera name from the list.
	Enter fullscreen mode	switches to fullscreen mode

## Main Menu



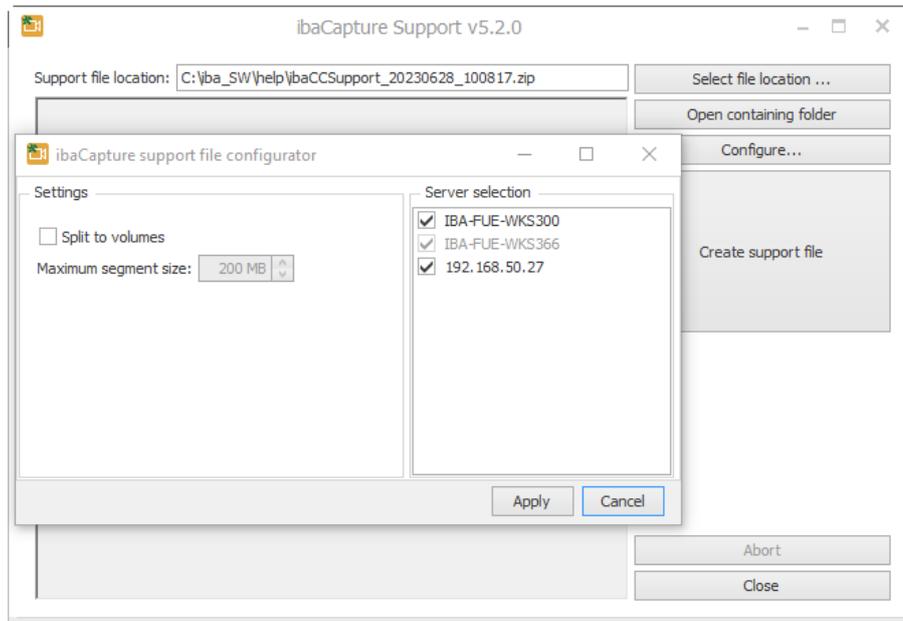
The *Main* menu offers functions like the *Home* menu plus 3 additional functions.

### Help

Opens a dialog where you can select further options.

- *Support*: here you will find the iba customer support and contact details for the subsidiaries worldwide.
- *Save information for iba support...*: this command creates a zip file containing information for the iba support. In general, iba recommends sending a current support file to the support desk when a problem occurs.

Clicking the command opens a dialog where you can configure the content of the support file.



You can select the storage location of the file and open the specified directory. The <Configure> button opens a dialog where you can select the *ibaCapture* Server to which *ibaCapture* Manager is connected and for which you want to create a support file.

The support file can also be split into multiple files if it is too large. You can specify the maximum size of the files in the *Maximum segment size* field

- *Version history*: This menu command opens an Internet browser with an html file where you can read the history of the different program versions.
- *Open ibaCapture Player log files location*
- *Open ibaCapture Manager log files location*
- *About...:* Here you will find the necessary information about the current version of *ibaCapture* Manager.

### Language

It is possible to switch the language of *ibaCapture* Manager. Select a language from the context menu. The menu offers all languages available in *ibaCapture*. Please note that some languages are only available with an additional language pack.

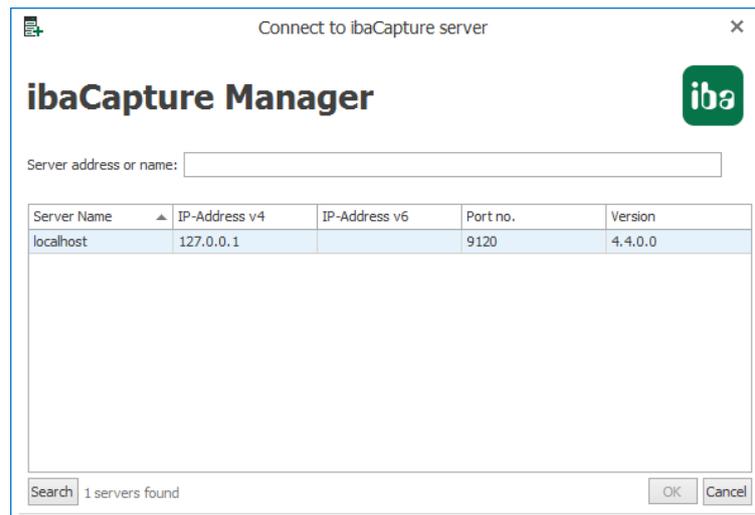
### Exit

Closes *ibaCapture* Manager.

## 5.2.2 Adding servers

When the PC running *ibaCapture* Server is not displayed in the server overview or when an *ibaCapture* Server shall be configured remotely, the server must be added to the server overview.

1. Open the dialog for adding a server by clicking *Connect server*  in the ribbon.

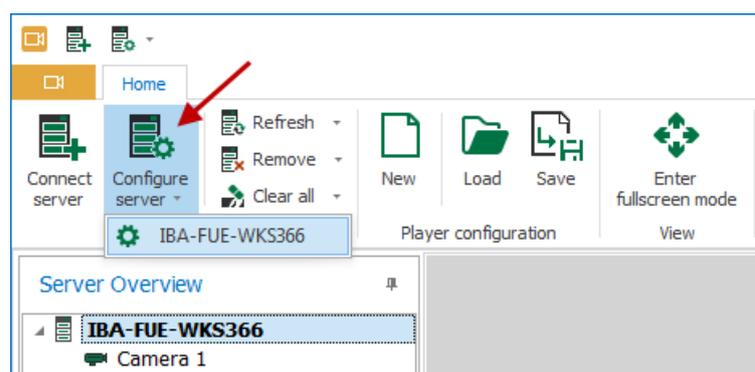


2. The server list displays the servers found in the network. A click on the <Search> button searches the local network for other *ibaCapture* Servers. Also *ibaCapture* Servers from a previous *ibaCapture* version can be found.
3. Select the desired server from the server list or enter the server's hostname or its IP address in the textbox.
4. Click <OK> and the server will be added to the server overview. If there are already cameras configured at the server, they will be also displayed.

### 5.2.3 Switching to server configuration mode

There are several ways to switch to sever configuration mode:

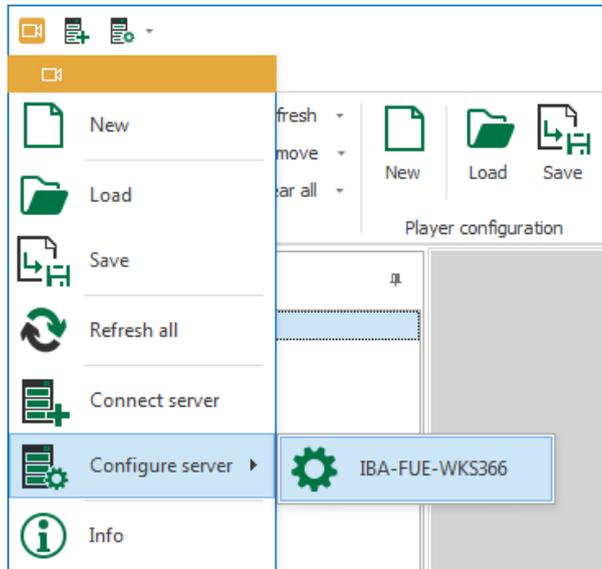
1. Click *Configure server* in the ribbon  and select the server you want to configure.



2. Click the button in the quick access toolbar  and select the server you want to configure.



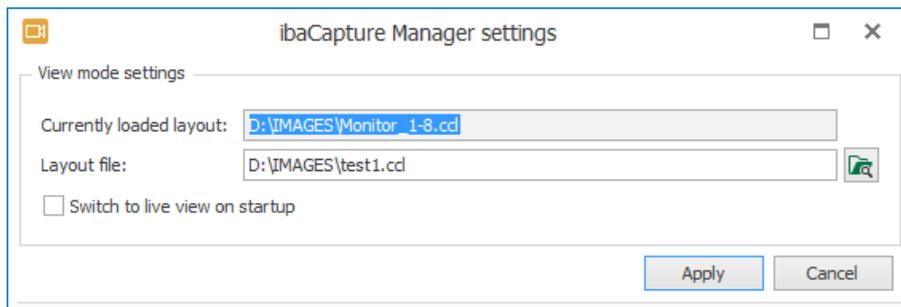
3. Open the main menu, click on *Configure server* and select the sever you want to configure.



Note: A server can only be configured when it is displayed in the server overview.

### 5.2.4 ibaCapture Manager settings

Settings for the view mode can be made in the *ibaCapture Manager Settings* dialog. A click on *Settings*  opens the dialog:



The current layout is displayed in the field *Currently loaded layout*. This field is for display only. In the *Layout file* field, you can specify a saved layout that will be loaded the next time *ibaCapture Manager* is started. You can specify the file name with the full path or use the <Browse> button  to search for the file.

If you activate the *Switch to live view on startup* option, all cameras are displayed in live view when *ibaCapture Manager* is started.

### 5.2.5 Starting ibaCapture Manager from the command line

When starting *ibaCapture* Manager from the command line, it is possible to specify arguments that affect the behavior of *ibaCapture* Manager.

#### Camera layout

Files with saved camera layouts (\*.ccl) can be directly appended as argument following the call of *ibaCapture* Manager:

```
ibaCCManager.exe <Path_to_ccl_file>
```

#### Manager configuration

The manager configuration (\*.xml) contains the following information:

- Connected *ibaCapture* Server
- Window position
- User-defined settings of the control elements

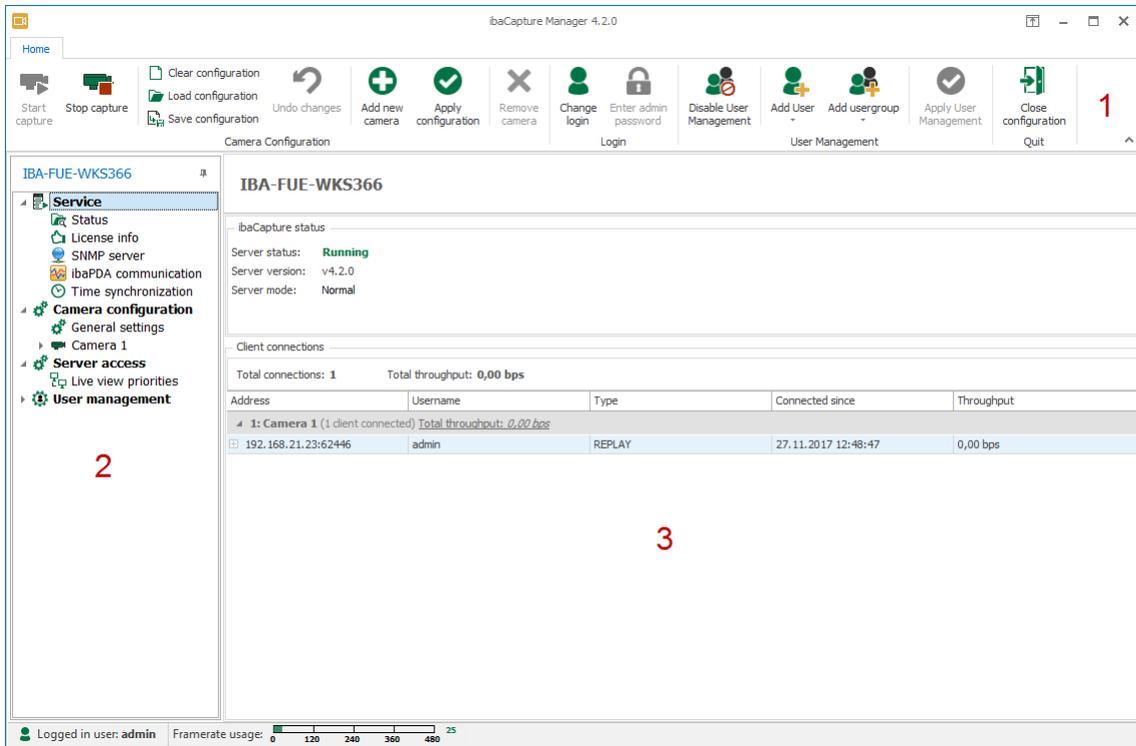
Calling *ibaCapture* Manager via the command line with transfer of the manager configuration is to be carried out with the switch "/M". If the absolute path to the file is used, the changes made are written back to the transferred manager configuration after *ibaCapture* Manager has been closed.

```
ibaCCManager.exe /M:<Path_to_manager_configuration>
```

It is also possible to pass both files (a layout file, a manager configuration). In this case, the camera layout must be specified as an argument before the manager configuration.

## 5.3 Server Configuration

### 5.3.1 Server configuration overview

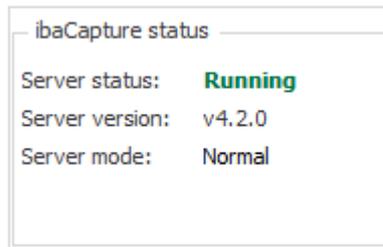


The server configuration mode consists of three major parts:

1	Ribbon with commands for - Camera configuration - Login - User management
2	Tree for server configuration Navigation through different configuration options
3	Dialog area Area for entering settings and displaying information

### 5.3.2 Status information

If you click on the “Status” branch, you will see some information about the *ibaCapture* status and active connections between the *ibaCapture* Server and *ibaPDA* system(s) and/or cameras.



#### ibaCapture status

Display of *ibaCapture* status and server mode.

Client connections				
Total connections: 1		Total throughput: 0,00 bps		
Address	Username	Type	Connected since	Throughput
▲ 1: Camera 1 (1 client connected) <u>Total throughput: 0,00 bps</u>				
192.168.21.23:62446	admin	REPLAY	27.11.2017 12:48:47	0,00 bps

#### Client connections

The connections table gives an overview of active client connections to *ibaCapture* Server. Clients can be *ibaCapture* Players requesting a camera view, such as *ibaQPanel* or *ibaCapture* Manager. Synchronization and control connections to *ibaPDA* Server systems are also listed here.

In the “Address” column, you can see the IP address and port number of each connection.

In the “Type” column, you get information about the type of communication running over the related connection.

### 5.3.3 License info

The screenshot shows the 'License info' page in IbaCapture Manager 4.2.0. The interface includes a top toolbar with various configuration and management actions, a left sidebar with a navigation tree, and a main content area. The main content area is titled 'IBA-FUE-WKS366' and 'Licensed version'. It contains the following sections:

- General License Info:**
  - License serial number: **ibaST01**
  - Dongle identification: **97 00 01 00 81 62 42 01 (Smarx05 v2.3)**
  - Customer name: **iba AG**
  - License time limit: **Unlimited**
  - Grace period: **None**
  - End of Update Period: **21.11.2019**
  - Build date: **08.11.2017**
- Server License Info:**
  - Server license type:
    - Capture-60
    - Capture-180
    - Capture-480
    - Capture-960
  - Licensed framerate: **480 fps** (with a gauge showing 'Current FPS: 25')
  - Licensed livestreams: **48** (with a gauge showing 'Current livestreams: 0')
- Licensed Options:**

Option	Licensed amount	Consumed licenses	Licenses left
Recording cameras	4	1	3
GigE camera interface	Licensed		
Virtual cameras (HMI/Machine Vision)	4	0	4
Display-Only cameras	0	0	0
PDA connections	2	0	2

At the bottom of the window, it shows 'Logged in user: admin' and a 'Framerate usage' gauge.

In this area, the license number is the most important information for support cases or inquiries for system extensions. The *end of update period* specifies the period of validity of your license.

You can also see other licensed options, like frame rate, livestreams, recording cameras, virtual cameras, display-only cameras and GigE interface.

### 5.3.4 General server settings

The screenshot shows the 'General server settings' page in IbaCapture Manager 4.4.0. The interface is similar to the previous screenshot but focuses on configuration options. The main content area is titled 'IBA-FUE-WKS366' and contains the following sections:

- Configuration:**
  - Enable remote server configuration
- Access logging:**
  - File format: **Default** (dropdown)
  - Retention period: **30 days** (dropdown)
  - Use an alternative path
  - Path:
  - Username:
  - Password:

The bottom of the window shows 'Logged in user: admin' and a 'Framerate usage' gauge.

## Configuration

The *Enable remote server configuration* checkbox can be used to enable or disable the remote configuration of this server, even without setting up a user administration.

## Access logging

Certain actions (e.g., PTZ operations, opening a livestream) are logged in separate access log files. The standard format or the CSV format can be selected as the file format. The retention period for this log file can be set here. The default setting is 30 days.

An alternative (UNC) storage path can be defined for the log files. If user credentials are required for the path, enter the user name and password here.

If the storage path is changed, the old files are moved to the new location.

## 5.3.5 SNMP Server

*ibaCapture* has a built-in SNMP server.

SNMP (simple network management protocol) was designed to be able to monitor and control network elements (e.g., routers, switches, printers, computers, etc.) from a central station. By using the SNMP server, the *ibaCapture* system can be monitored by a network-monitoring tool, e. g., Paessler PRTG or Nagios. The SNMP versions V1, V2c and V3, are supported. By default, the SNMP server provides a set of diagnostic signals that give feedback about the state of the system and the various data recordings.

### 5.3.5.1 SNMP configuration

The screenshot displays the **ibaCapture Manager 4.2.0** interface. The top toolbar contains icons for **Start capture**, **Stop capture**, **Clear configuration**, **Load configuration**, **Save configuration**, **Undo changes**, **Add new camera**, **Apply configuration**, **Remove camera**, **Disable User Management**, **Add User**, **Add usergroup**, **Apply User Management**, and **Close configuration**. The main window is titled **Camera Configuration** and shows the **SNMP server** configuration page. The left sidebar lists the following categories: **Service** (Status, License info, **SNMP server**, ibaPDA communication, Time synchronization), **Camera configuration**, **Server access** (Live view priorities), and **User management**. The main configuration area for the **SNMP server** includes the following settings:

- Configuration** tab selected.
- Enabled** Port: 1616
- SNMP V1/2c security**: Community string: public
- SNMP V3 security**:
  - Authentication: MD5 Username: public Password: \*\*\*\*\*
  - Encryption: AES Encryption key: \*\*\*\*\*
- Text encoding**: 65001 - Unicode (UTF-8)

The status bar at the bottom indicates: **Logged in user: admin** and **Framerate usage: 641**.

**Enabled**

You can enable or disable the SNMP server here.

**Port**

Here, you can specify the port via which the SNMP server accepts connections. The default value is 1616.

**Community string**

For authentication with protocol variants V1 and V2c, only a so-called community string can be specified, which assumes the function of a password for the data traffic between SNMP server and SNMP client. The default value for the community string is "public".

**Authentication, user name and password**

For the V3 protocol version, the safety standard is higher and there are multiple methods of authentication and encryption for selection. Two standards are supported for the authentication:

- MD5 (message-digest algorithm 5, hash function, 128 bit)
- SHA (secure hash algorithm, SHA1 class, hash function, 160 bit)

In addition to selecting the authentication algorithm, you need to enter a user name and a password.

**Encryption, key**

For encryption, you can choose between:

- no encryption
- DES (data encryption standard)
- AES (advanced encryption standard)

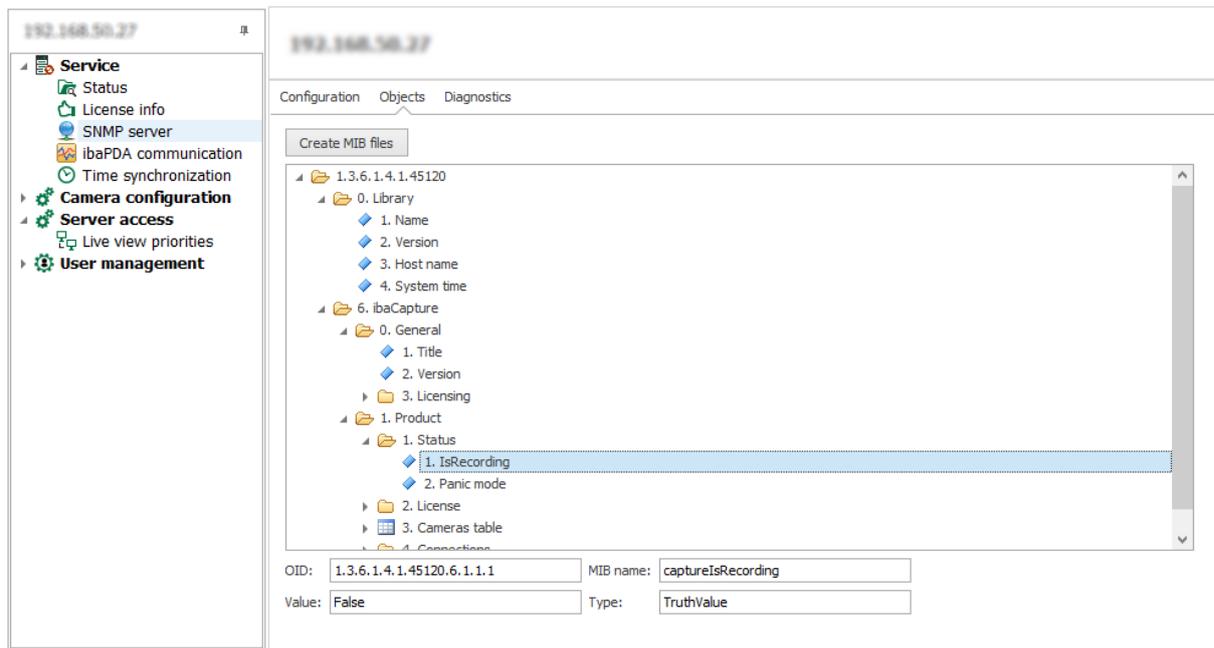
In addition to selecting the encryption type, you still need to enter a key.

The button with the eye icon is used to display the key and password.

**Text encoding**

Select a text encoding from the drop-down menu, which should be used for the SNMP server.

### 5.3.5.2 SNMP objects



This tab shows which information and data are available on the SNMP server. The tree structure shows the OID tree (object identification). The SNMP objects are:

- Objects about SNMP library
- Objects about ibaCapture general properties like the version and dongle information
- Objects about the current status like an *IsRecording* object
- Objects about the license
- Objects about the configured cameras
- Objects about connections

#### <Create MIB files>

You start the generation of MIB (management information base) files using this button and you have to specify a storage directory. 2 MIB files are generated by the *ibaCapture* Server:

- IBA-GENERAL-MIB.txt: This file contains the objects that are common to all iba products.
- IBA-PRODUCT-IBACAPTURE-MIB.txt: This file contains the *ibaCapture* specific objects.

The following is displayed under the OID tree for the currently selected node or object:

- Full OID
- MIB name
- Current value
- Data type

To access the information in the cameras table, the OID has to be extended by the number of the camera on the server.

So, the base OID to get the camera name would be 1.3.6.1.4.1.45120.6.1.3.1.1.

Now to get the name of the first camera, append “.0” to the OID: 1.3.6.1.4.1.45120.6.1.3.1.1.0

If a camera index is specified that can't be matched to a camera on the *ibaCapture* Server, “NULL2” will be returned as value.

The OID 1.3.6.1.4.1.45120.6.1.3.1.2.x allows retrieving the current camera status. The result can have the following values:

- disabled (0): The camera is disabled in the configuration.
- checkingConfig (1): Validation of the camera configuration.
- configError (2): The configuration failed validation.
- storageLoadingIndex (3): Loading of the index file for video storage.
- storageCreatingVideo (4): Checking and/or creating the video files for video storage.
- storageInitializeDB (5): Initializing the database for protected/locked video sequences.
- storageError (6): Storage initialization failed.
- storageInitialized (7): Storage initialized successfully.
- startRecording (8): Starting the camera recording.
- noVideo (9): No incoming video detected.
- recording (10): The camera is recorded.
- recordingError (11): An error occurred while recording.
- stopped (12): Recording for the camera has been stopped.
- noLicense (13): No license is currently available for the camera.
- recordingDisabled (14): Recording is disabled for the camera.
- recordingDisabledLiveAvailable (15): Recording is disabled for the camera, but live streams are allowed.
- storageCheckingFiles (16): Performing a consistency check for the index and video files of the camera.

### 5.3.5.3 SNMP diagnostics

The screenshot shows the web interface for the ibaCapture Server. On the left, a navigation tree is visible with the following items: Service (expanded), Status, License info, SNMP server (selected), ibaPDA communication, Time synchronization, Camera configuration (expanded), Camera 1, Server access (expanded), Live view priorities, and User management (with a note 'Usermanagement is disabled'). The main content area is titled 'DEVPC-GEERT2' and has tabs for 'Configuration', 'Objects', and 'Diagnostics'. The 'Diagnostics' tab is active, showing a status bar with the text 'SNMP server running on port 1616'. Below the status bar, there is a section for 'Connected SNMP clients' with a 'Clear client list' button. A table lists the connected clients:

	Address	Protocol	Message Counter	Last Message
▶	192.168.123.74	V1	6	9/25/2017 10:57:56 AM

The *Diagnostics* tab provides information about the status of the SNMP server.

There is also a list of all the clients who have accessed the SNMP server within the last hour. Clients who have accessed the SNMP server within the past 10 minutes are highlighted in green and the others in gray.

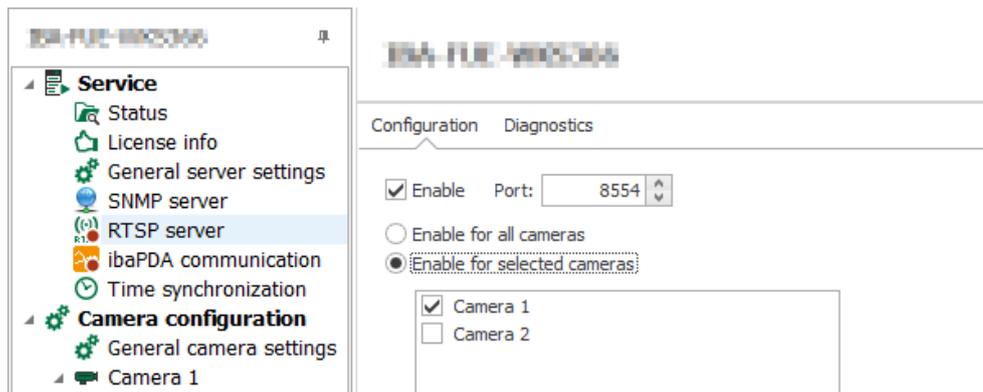
With the <Clear client list> button, you can remove all entries from the list.

### 5.3.6 RTSP Server

The *ibaCapture* Server can be set up as RTSP server, allowing users to access video content via RTSP streams. Both live and replay streams are supported. An additional license of *ibaCapture-AddOn-RTSP-Server* (order no. 38.000042) is required for this function. Also note that live RTSP streams count towards the live stream license usage.

#### Configuration

In the *Configuration* tab, streaming via the RTSP server can be activated, either for all cameras or for selected cameras.



## Note



RTSP streaming is not supported for *ibaCapture-ScreenCam* sources because their format is incompatible with RTSP players.

## Diagnostics

The *Diagnostics* tab displays the current status of the RTSP server as well as further information about the streams.

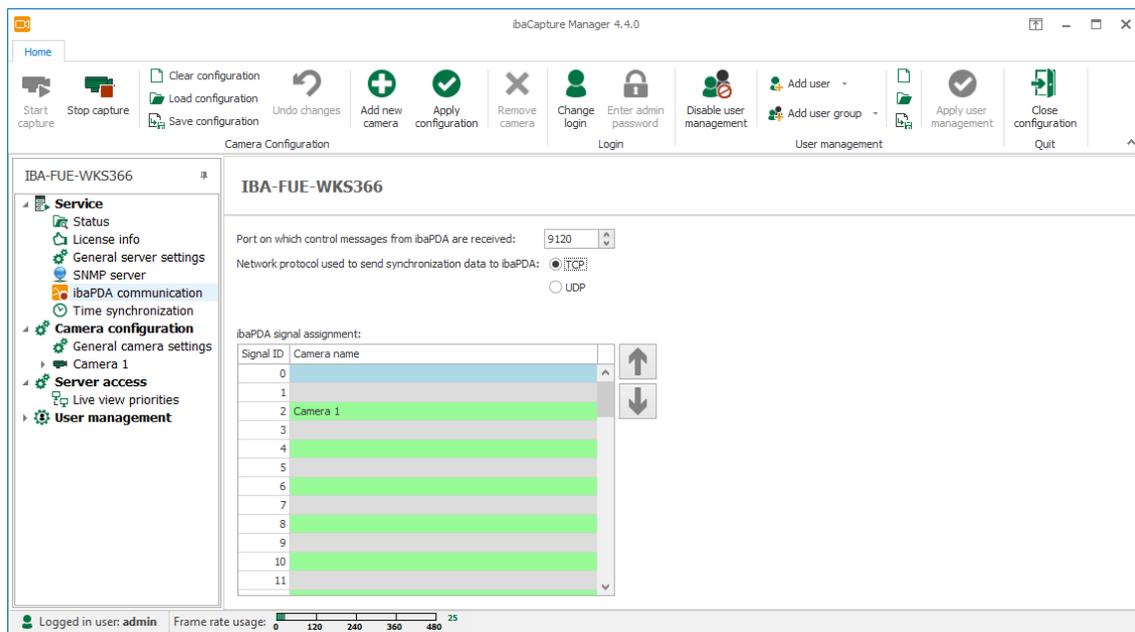
Address	Username	Type	Connected since	Throughput
<b>10: Axis_M2026 (1 client connected) Total throughput: 1,54 Mbps</b>				
192.168.50.44:49728	test	LIVE RTSP	10.07.2019 14:35:58	1,54 Mbps

Valid RTSP URLs for accessing videos can be created as follows:

- Live:  
rtsp://ip\_address:port\_no/camera\_name/live
- Replay:  
rtsp://ip\_address:port\_no/camera\_name/replay?begin=yyyyMMddHHmmss  
[&end=yyyyMMddHHmmss][&speed=floating-point]
- Alternative live streams:  
rtsp://ip-address:port\_no/camera\_name/alt1  
(for alternative live stream 1, see chapter [↗ Additional streams](#), page 108).

Special characters in camera names can be specified url-encoded. Spaces can be replaced by %20. For replay streams, a timestamp that marks the start of the stream is required. Optionally, you can add a timestamp for the end and/or a speed factor. Note that negative speed factors are not allowed. The order of the parameters in the string is not relevant.

### 5.3.7 ibaPDA communication



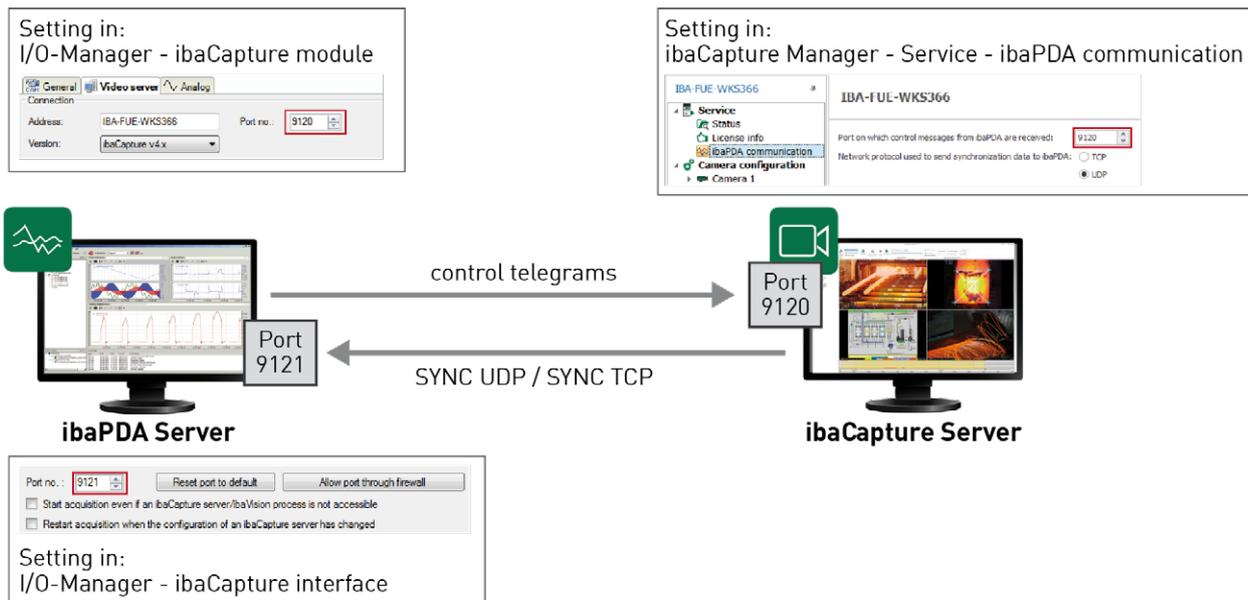
The control messages are sent and received over port number 9120 (default). This port number can be changed but has to be the same on both sides, on *ibaPDA* and *ibaCapture*.

Select the network protocol which is used to send synchronization data to *ibaPDA*, either TCP or UDP.

#### Communication ports to ibaPDA

There are two connections for *ibaPDA*, which are routed via different ports.

1. Type CONTROL for control telegrams sent from *ibaPDA* to the video server. The control messages are sent and received over port number 9120 (default). This port number can be changed but has to be the same on both sides, on *ibaPDA* and *ibaCapture*.
2. Type SYNC UDP or SYNC TCP for synchronization data from video server to *ibaPDA*. The port number for SYNC is by default the CONTROL port number + 1. Whether SYNC UDP or SYNC TCP is displayed depends on the setting in *ibaCapture* Manager for the server configuration.



The installation of *ibaCapture* Server automatically configures the corresponding ports in the Windows firewall.

### ibaPDA signal assignment table

In the *ibaPDA* signal assignment table it is possible to assign cameras to specific signal IDs. The signal IDs define the position of the cameras in *ibaPDA* in the signal list of an *ibaCapture* module. The signal IDs are not changed by removing a camera.

If you want to change the positions, select a camera and move it up or down using the arrow keys. If there is already a camera in a line in which the selected camera is to be moved, the positions of the two cameras are swapped. You can also drag and drop the cameras to a new position. If a camera is deleted from the configuration, the line remains empty.

### Connections to cameras

Connections for cameras are established as soon as the video server has to supply a video stream for a camera view to any client. Such clients are *ibaPDA* clients, *ibaQPanel* or *ibaCapture* Manager with their camera views running in replay or live mode. In case the same camera view is requested by multiple clients at the same time, multiple connections will be established. Each client receives a separate stream. With many clients, it should therefore be ensured that the network capacity is sufficient. You can reduce the data throughput by configuring alternative live streams with a low resolution, see also chapter [Additional streams](#), page 108.

Depending on the operating mode of the camera view, the following types are displayed:

- REPLAY - Replay mode
- LIVE ... - Live display with main stream
- LIVE (ALT 1/2) - Live display, alternative stream

Client connections				
Total connections: 7		Total throughput: 832,42 Kbps		
Address	Username	Type	Connected since	Throughput
<b>0: ibaPDA (4 clients connected) Total throughput: 832,42 Kbps</b>				
192.168.50.26:59864	ibaPDA	CONTROL	23.11.2017 17:10:03	0,00 bps
192.168.50.26:9121	ibaPDA	SYNC UDP	23.11.2017 17:10:03	416,22 Kbps
192.168.21.159:53218	ibaPDA	CONTROL	27.11.2017 12:18:34	0,00 bps
192.168.21.159:9121	ibaPDA	SYNC UDP	27.11.2017 12:18:34	416,20 Kbps
<b>1: M5014 (1 client connected) Total throughput: 0,00 bps</b>				
192.168.21.23:64688 (IBA-FUE-...)	test	REPLAY	27.11.2017 13:36:48	0,00 bps
<b>16: Mako G192-C (1 client connected) Total throughput: 0,00 bps</b>				
192.168.21.23:64707 (IBA-FUE-...)	test	REPLAY	27.11.2017 13:37:09	0,00 bps
<b>20: AXIS P1343 (1 client connected) Total throughput: 0,00 bps</b>				
192.168.21.23:64698 (IBA-FUE-...)	test	REPLAY	27.11.2017 13:37:01	0,00 bps

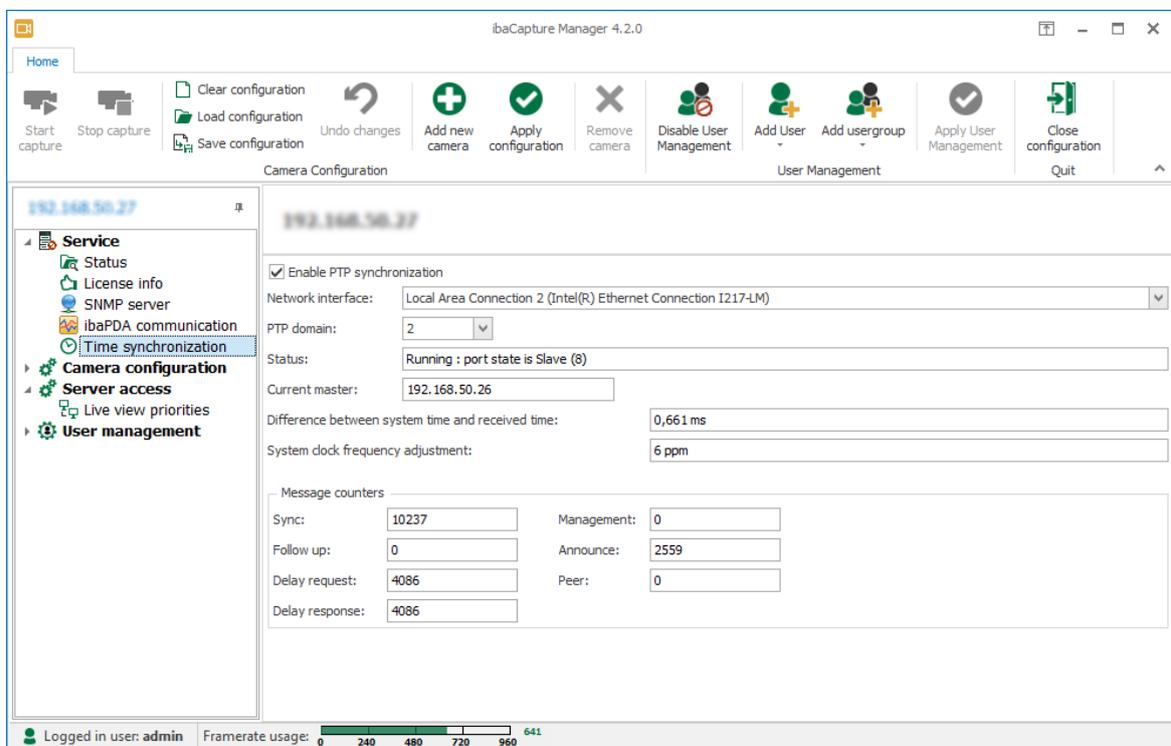
### 5.3.8 PTP time synchronization

ibaCapture offers the possibility of time synchronization with Precision Time Protocol (PTP). PTP is a communications protocol for synchronizing the system time of different systems (PC, PLC and other devices) in a network. The protocol is defined in accordance with Standard IEEE 1588.

In a typical PTP topology, there is one time master and one or more time slaves that synchronize to the master. The best synchronization accuracy of software-based PTP applications, as in ibaCapture, is 5 ms. An ibaCapture system is a PTP slave, it synchronizes to a PTP master in the network.

#### PTP settings

Switch to server configuration mode and select the node *Time synchronization*. Here you can enable PTP time synchronization with a tick in the checkbox. Changes will be applied when the server configuration is applied again.



**Network interface**

Here, choose the network interface of the *ibaCapture* Server to be used for time synchronization.

**PTP domain**

The multicast address is set using the PTP domain. There are 4 standard domains available (0 to 3), each assigned a particular multicast address in accordance with IEEE 1588.

- 0: 224.0.1.129
- 1: 224.0.1.130
- 2: 224.0.1.131
- 3: 224.0.1.132

**Status**

The status field shows the current status of the time synchronization.

**Current master**

The IP address of the time master is displayed here.

**Difference between system time and received time**

The received time is compared with the system time cyclically and the deviation is determined. Depending on whether the difference is more positive or more negative, a corresponding frequency adjustment of the internal system clock is calculated.

**System clock frequency adjustment**

The value of the frequency adjustment has been determined from the difference between the system time and the received time. Thus, a system clock ahead or behind is corrected.

**Message counters**

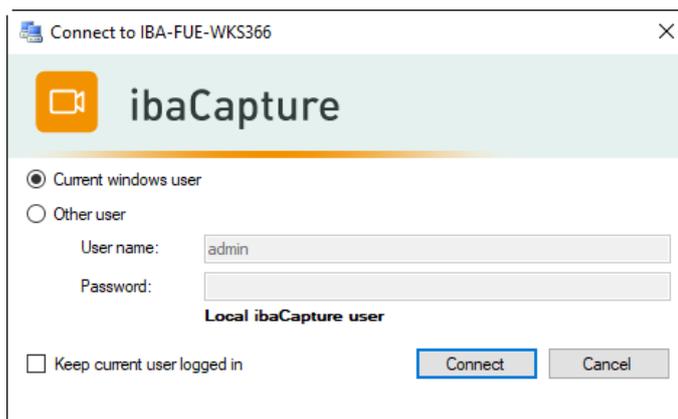
This overview shows different message counters. There is one counter per telegram type. If there is a master-slave connection, the counters should usually count up: sync, announce, delay request and delay response.

**5.3.9 Login**

The login group provides two commands:

	Change login
	Enter admin password

If you want to enable the user management, you have to set a password for the admin user. A click on *Enter admin password*  opens the login dialog. The header of the dialog shows the name of the *ibaCapture* Server you login to.



After you have entered a password and clicked on <Connect>, the user management is active. For detailed information, see the next chapter.

When the user management is active, it is possible to login as another user than the currently logged in user. For this purpose click on *Change login*  and enter the user credentials in the login dialog.

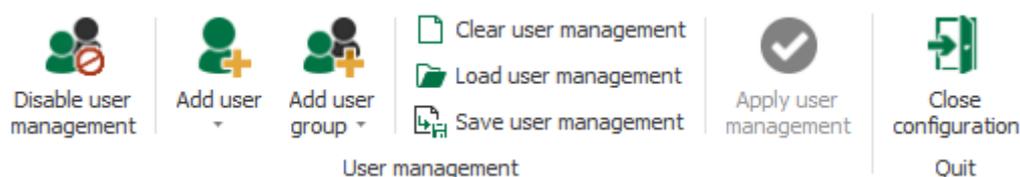
### 5.3.10 User management in ibaCapture

The user management allows the creation of different user accounts. The user management supports users and user groups.

If the computer where *ibaCapture* Manager is running is joined to a domain, it is possible to add users and user groups that belong to that domain.

Each user account can be assigned different access rights to videos and/or cameras. Only one administrator user (“admin”) exists, which always has all rights. It is the only user that is not subject to any restrictions and can add or delete other users as well as change their user rights. The name "admin" cannot be changed.

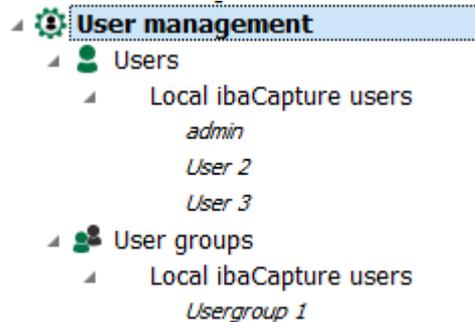
The user management system can be controlled via the following commands:



	Disable the user management system
	Add user
	Add user group
	Delete user management
	Load user management (a user management configuration file can be imported by loading the corresponding ccu file)

	Save user management (the user management configuration file can be saved (*.ccu))
	Apply user management

These commands are available if the *User management* branch is selected in the server configuration tree, and when the *Users* and *User groups* branches are selected.



The menu in the ribbon changes to *Local*, when a single user or user group is selected, see chapter [Manage users](#), page 80.

### Save/load user management file

The user management configuration can be saved and loaded as a ccu file. When importing a user management configuration to another (or the original) server, all non-applicable permissions (e.g., permissions for non-existing cameras) are removed from the new configuration. Only the *admin* user and users who have the security administration permission can save, load or delete the user administration configuration.

#### 5.3.10.1 Enabling the user management system

By default, the user management is disabled. When the user management system is disabled, every *ibaCapture* Player will connect as *admin*. This means that every *ibaCapture* Player (and user) has full rights.

To enable the user management system, you must set a password for the *admin* user. This password is saved in the dongle.

1. You can do this by clicking on *Enter admin password* . The input dialog for the password will open.
2. Enter the desired password in both fields and click on <OK>. The user management system is now enabled and you can add additional users and set their user rights (see next chapter).

### 5.3.10.2 Manage users

#### Add users

1. Click on *Add user* in the  ribbon. The input dialog for the user name and password will open.
2. Enter a user name. Setting a password is optional. The user can also specify or change the password at a later time. Close the dialog with <OK>.
3. Now, assign the user rights (see next chapter).

#### Remove users

Select the relevant user in the configuration tree and click *Remove user* .

#### Clone user

Via this function, it is possible to copy a user including its permissions.

1. Select a user and click *Clone user* . The input dialog for the user name and password will open.
2. Enter a new user name. A user name cannot be used twice. Setting a password is optional. The user can also specify or change the password at a later time. Close the dialog with <OK>.

#### Reset a password

1. If you want to change a password or specify a password for a user later on, select the relevant user and click *Reset password* .
2. Enter the new password twice for safety reasons. Confirm with <OK>.

#### Disable the user management system

1. Log in as admin and select the user management branch in the configuration tree.
2. Click on *Disable user management*  and confirm with <OK>.

### 5.3.10.3 User groups

A user group can contain multiple users, and a user may be member of multiple user groups simultaneously.

#### Establish a user group

1. Click *Add user group* in the ribbon . The input dialog for the user group will open.
2. Enter a name for the user group.
3. Assign the rights for the user group.

The following rules apply to the assignment of user rights:

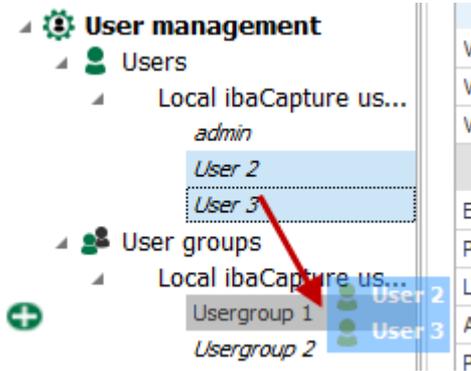
- If a user has more granted permissions than the user group, the user keeps its permissions.
- A permission for a user is overridden by a permission for the user group if the user group has more granted permissions.

- If a user belongs to multiple user groups, the rights of the user group with the most granted permissions will apply to the user.

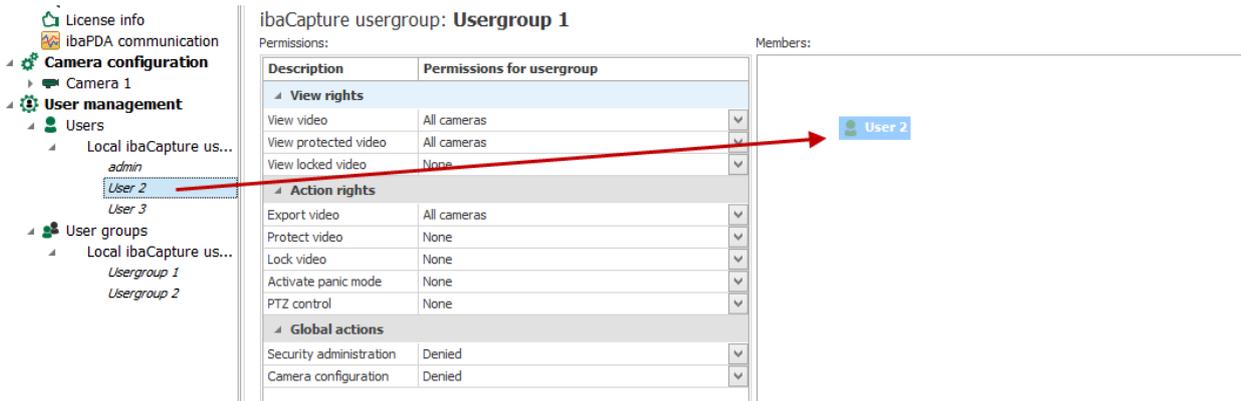
### Add a user to a group

There are two ways to add a user to a user group:

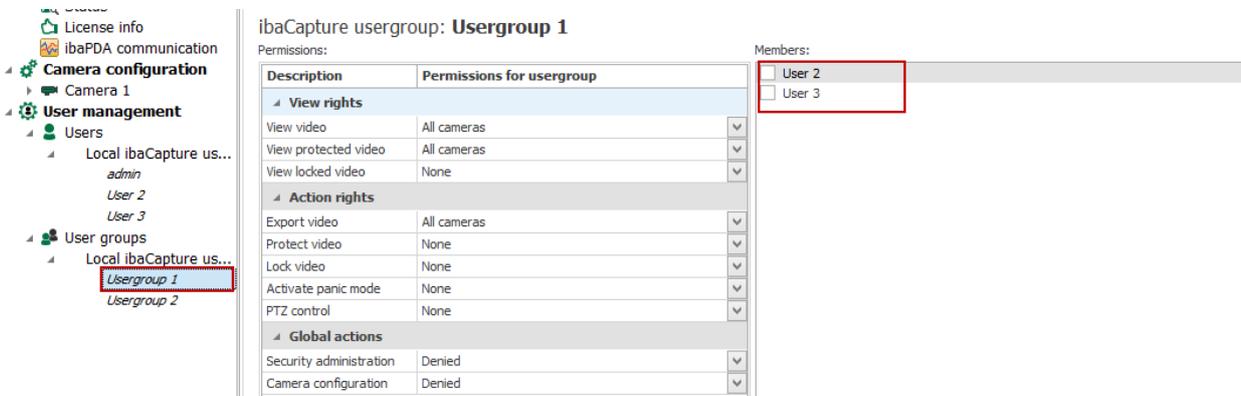
- Select one or multiple users in the configuration tree, drag them by keeping the left mouse button depressed and drop the users on the branch of the related user group.



- Select a user in the configuration tree, drag the user by keeping the left mouse button depressed and drop the user on the member list of the currently selected user group.



When the user group is selected, the users of this user group are displayed in the members list:



When a user is selected, the user groups of which the user is a member are listed.

ibaCapture user: **User 2**

Permissions:

Description	Permissions for user	Final Value
<b>View rights</b>		
View video	All cameras	All cameras
View protected video	None	None
View locked video	None	None
<b>Action rights</b>		
Export video	All cameras	All cameras
Protect video	None	None
Lock video	None	None
Activate panic mode	None	None
PTZ control	None	None
<b>Global actions</b>		
Security administra...	Denied	Denied
Camera configuration	Denied	Denied

Member of:

- Usergroup 1
- Usergroup 2

### Remove a user from a user group

- Select one or multiple users who should be removed by adding checkmarks in the members list. Click on *Remove members* in the ribbon

### Remove a user group

- Select the user group in the configuration tree and click *Remove user group*

### Remove membership of a user from a user group

1. Select the relevant user in the configuration tree.
2. Select one or multiple user groups from which the user should be removed by adding checkmarks in the “Members of” list.
3. Click on *Remove group membership*

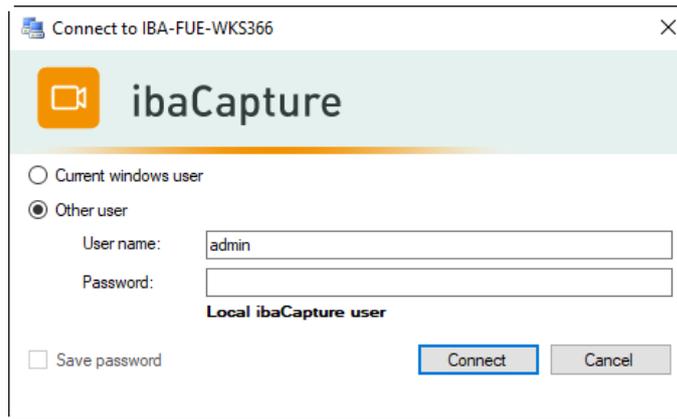
### 5.3.10.4 Domain objects

If the computer on which *ibaCapture* Manager is running is joined to a domain, it is possible to add users and user groups of that domain.

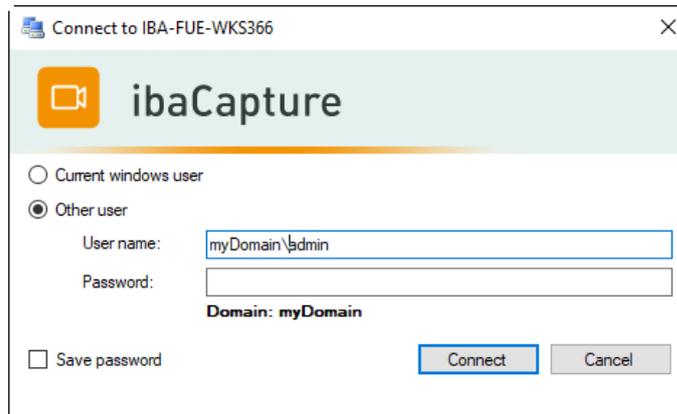
These users can be members of *ibaCapture* user groups. Conversely, a domain user group can have *ibaCapture* users in its member list.

The user login has the following options

- Current windows user: the current logged in user
- Other user
  - Local *ibaCapture* user: Enter the name



- Domain user: Enter the domain and the user name in the format *domain\user name*



### 5.3.10.5 User rights

User rights can be categorized as viewing rights, access rights, and global actions rights. By assigning the user rights, you can determine who is allowed to view which video and/or to perform actions such as protecting, locking or exporting videos.

The viewing rights apply to both the live videos and the video recordings.

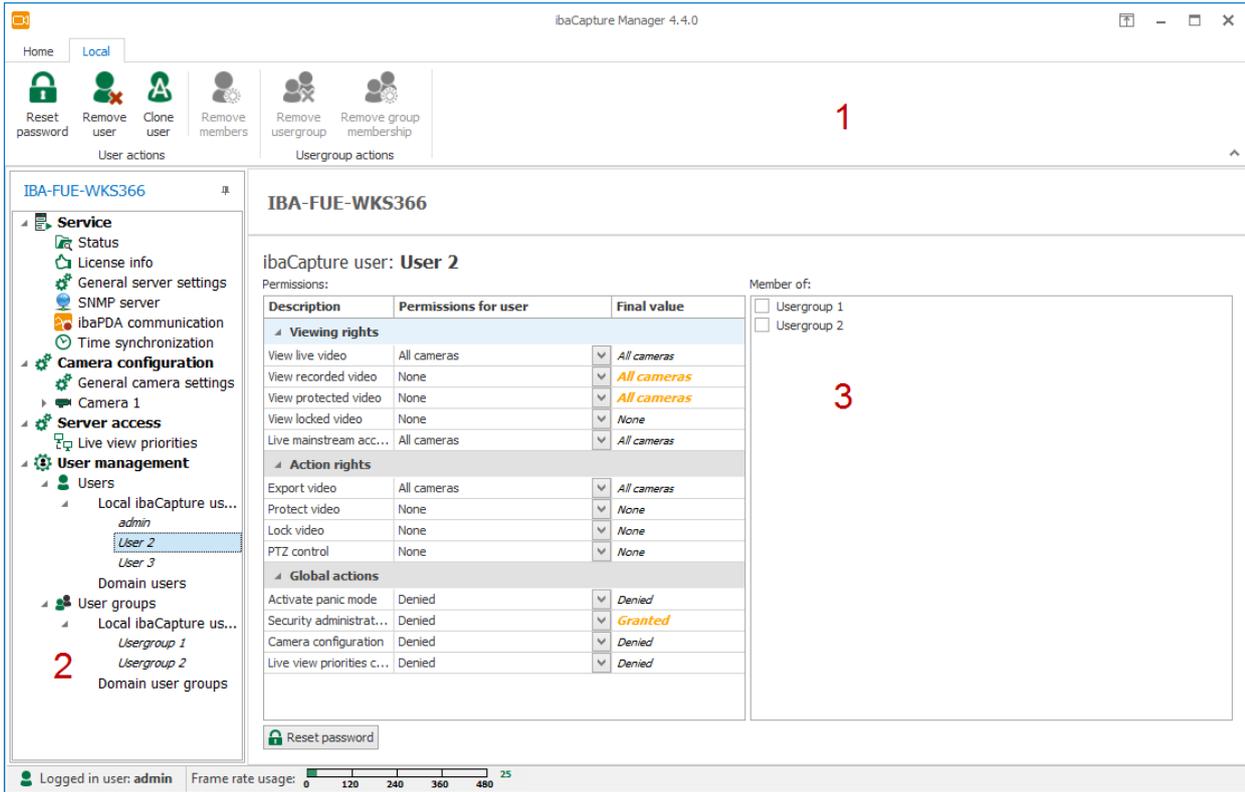
Viewing rights	
View live video	A user granted this right can view live videos
View recorded video	Applies to "standard" videos, which are neither protected nor locked and which are overwritten cyclically.
View protected video	Protected videos are stored for a longer period than standard videos. These videos are created either with help of the video triggers in <i>ibaPDA</i> or manually by means of the timeline in the <i>ibaCapture</i> .
View locked video	Locked videos are continuously recorded videos that are manually marked as locked in the timeline in the <i>ibaCapture</i> view.

Viewing rights	
Live access to the main stream	A user granted this right can watch the main stream in live mode. Without this permission, the user will only have access to an alternative stream. If no alternative stream is available, an error message is displayed.

Action rights	
Export videos	In order to export a video to an MP4 file while viewing it in the <i>ibaCapture</i> view or in <i>ibaAnalyzer</i> , the user must be granted the specific right. Users can only export videos for which they have viewing rights. If a user, for example, has no viewing rights for Camera 1, the exported MP4 file will not contain video from Camera 1.
Protect video	A user granted this right can protect different sections of a video in the timeline of the <i>ibaCapture</i> view or remove the protection. <i>ibaPDA</i> basically has the right to protect videos by means of the video triggers. This function does not require a user login.
Lock video	A user granted this right can lock or unlock different sections of a video in the timeline of the <i>ibaCapture</i> view.
PTZ control	A user granted this right can control PTZ cameras. The user can be assigned this right for all PTZ cameras or for specific, selected cameras.

Global actions	
Activate panic mode	A user granted this right can enable the panic mode via the timeline of the <i>ibaCapture</i> view. With panic mode enabled, only the administrator can view videos.
Security administration	A user granted this right can configure security settings.
Camera configuration	A user granted this right can configure cameras.
Configuring priorities for live view	A user with this right can configure priorities for the live view.

### User permissions dialog



The user permissions dialog consists of

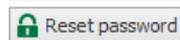
1	Ribbon with commands
2	Configuration tree
3	Permissions table

When an individual user or user group is selected in the configuration tree, the *Local* menu appears. This menu provides commands for actions by users and user groups.

ibaCapture user: **User 2**

Permissions:

Description	Permissions for user	Final value
<b>Viewing rights</b>		
View live video	All cameras	All cameras
View recorded video	None	All cameras
View protected video	None	All cameras
View locked video	None	None
Live mainstream acc...	All cameras	All cameras
<b>Action rights</b>		
Export video	All cameras	All cameras
Protect video	<input checked="" type="checkbox"/> (Select All)	None
Lock video	<input checked="" type="checkbox"/> Camera 1	None
PTZ control		None
<b>Global actions</b>		
Activate panic mode	Denied	Denied
Security administrat...	Denied	Granted
Camera configuration	Denied	Denied
Live view priorities c...	Denied	Denied

 Reset password

Each right can be assigned to either all cameras, no camera or specific cameras. The camera list can be opened by clicking on the arrow  button. Select all or specific cameras by means of a checkmark and confirm with <OK>.

If a user group to which the user belongs has been granted more permissions than the user itself, the user's permissions are overridden by the permissions of the user group.

In the example above, the user is not allowed to view protected videos from any camera. But a user group to which it belongs has the permission to view protected videos from all cameras. As a result, the user has also the permission to view protected videos from all cameras. If the permissions granted to the user and the user group differ, the valid permission is stated in orange in the "Final Value" column.

The user's password can be changed by clicking on the <Reset password> button.

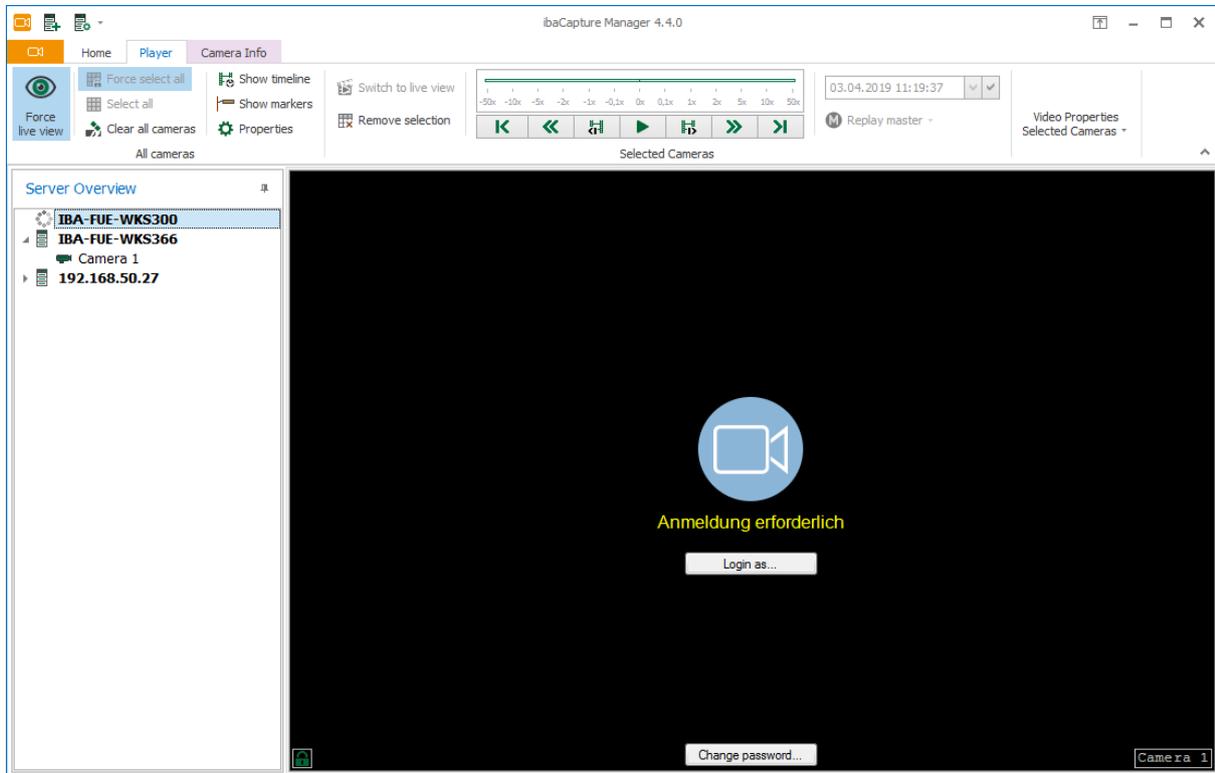


For security reasons, the password must be entered twice.

### 5.3.10.6 Video viewing with active user management

If user rights are restricted for a camera, each *ibaCapture* view has to login.

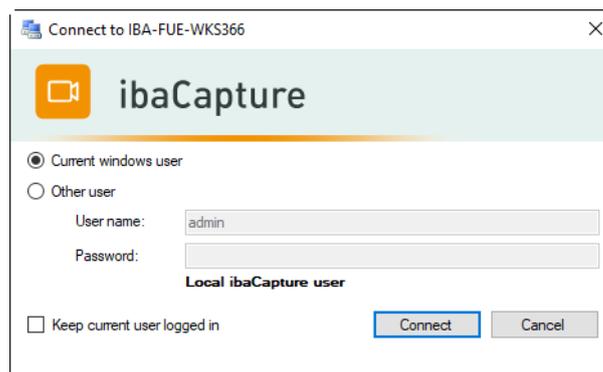
This is represented as follows in *ibaCapture*-Player:



First, the user has to login to be able to view the video. Local users can also change the password here.

#### User login

A click on <Login as...> opens the login dialog.



The header of the dialog shows the name of the *ibaCapture* Server you login to. After you have entered user name and password and clicked on <Connect>, a login attempt is started. After successful login, the video of the relevant camera opens. If the user is unknown or does not have the necessary rights, "Access denied" is shown again.

If you have opened multiple camera views in one application that all refer to the same *ibaCapture* Server, the same login applies to all views. Thus, you need to login to only one camera view. All other views will be logged in with the same login information.

The "Save password" function works differently, depending on the application *ibaCapture* Player is started in.

In *ibaCapture* Manager, the password is saved to the view configuration. When starting *ibaCapture* Manager, the players login with the same user name.

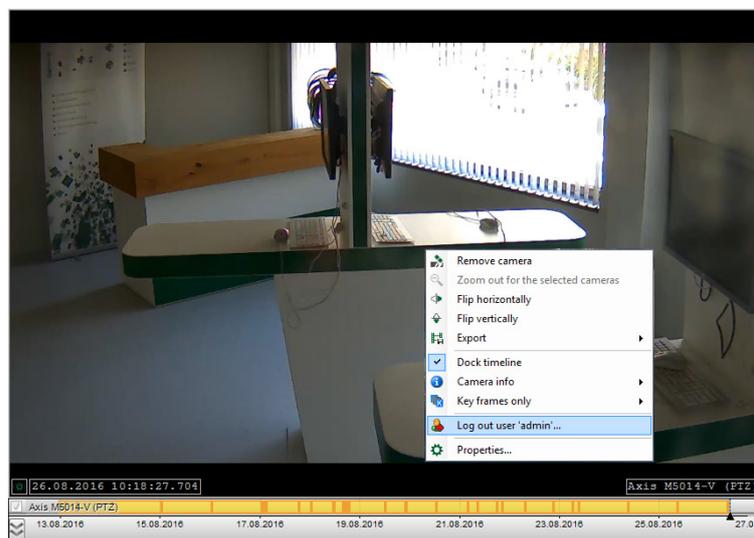
In *ibaPDA*, the password is saved to the layout.

In *ibaAnalyzer*, the password is saved to the analysis file.

The password for the *admin* user cannot be saved.

### User logout

You can logout the current user by opening the context menu of the camera view and selecting "Logout user 'xy'...".



### Change password

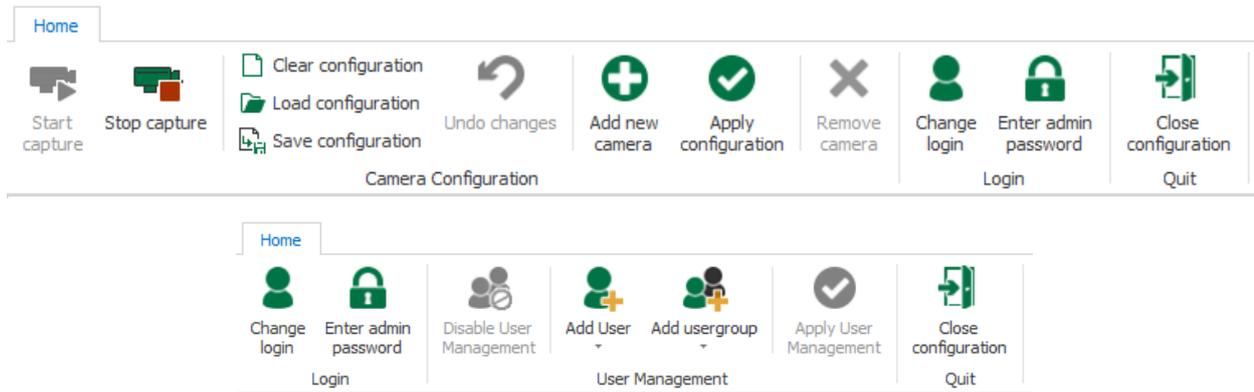
Local users can change their password when logging in. A click on the <Change password> button opens the *Change password* dialog. Enter your user name and the current password here. For safety reasons, the new password must be entered twice.

### 5.3.10.7 Changing the configuration when user management is active

When user management is active and you switch to server configuration mode, login is required.

The administrator (admin) has all permissions to change the configuration of *ibaCapture* Server.

If a user other than the admin logs in, the available configuration functions depend on his granted permissions. Only permissible functions will be shown in the ribbon.



The currently logged-in user is displayed in the status bar.



## 5.4 Camera configuration

Cameras can be set up in server configuration mode.

The ribbon provides the following commands for camera configuration:

	Start capture
	Stop capture
	Load project (loads saved project, ZIP file)
	Save project: The ibaCapture server and user administration configuration can be saved as an ibaCapture project (ZIP file). In a selection dialog you can choose whether you want to save the ibaCapture server and/or user administration configuration.
	Add new camera
	Apply configuration
	Remove camera (only available if a camera is selected in the tree)
	Clear configuration (clears all configuration settings)
	Load configuration (loads a saved configuration)
	Save configuration (saves the current configuration as XML file)

### 5.4.1 Add new camera

In order to add a new camera click *Add new camera* in the ribbon. 

A configuration wizard guides you through the configuration process:

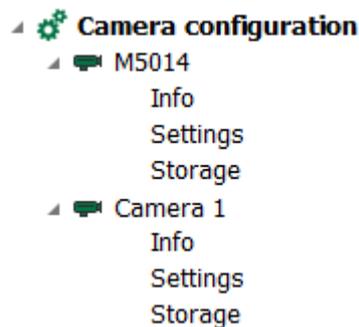
Step 1: Camera information, settings are described in chapter [↗ General information](#), page 91

Step 2: Camera settings - Configuration; the settings depend on the selected camera type, camera specific settings are described in chapter [↗ Camera settings](#), page 93

Step 2: Camera settings – Streaming; settings are described in chapter [↗ Streaming ports](#), page 107

Step 3: Storage settings; settings are described in chapter [↗ Storage settings](#), page 114

When configuration is completed, the cameras appear in the configuration tree.



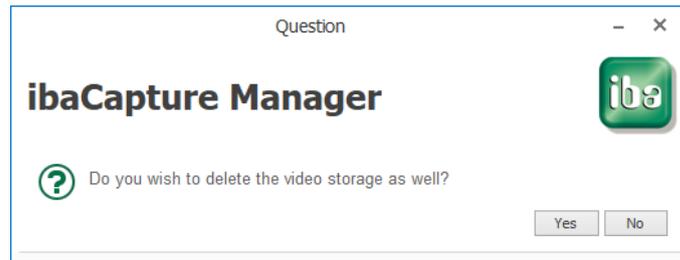
Each camera branch has three main sections:

- Info (camera name and type, deactivation option, camera recording mode, camera diagnostics). For detailed information, see chapter [↗ Camera info](#), page 117.
- Settings (camera access, video configuration, streaming, PTZ configuration). The settings for the different camera types are described in the subchapters of chapter [↗ Camera settings](#), page 93.
- Storage configuration, you find detailed information in chapter [↗ Storage settings](#), page 114.

You can change the order of the cameras in the configuration tree by selecting a camera and dragging it to the desired position using drag & drop.

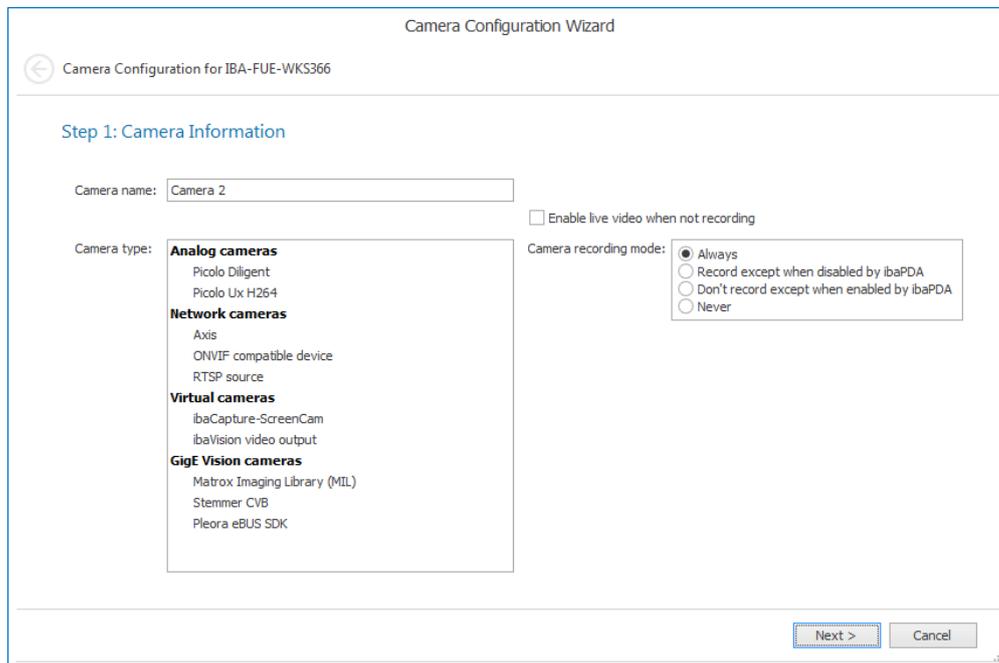
### 5.4.2 Removing a camera

In order to remove a camera from the configuration, select the camera in the tree and click *Remove camera* in the ribbon. It is possible to delete also the corresponding video storage when removing the camera. To do so, confirm the following question with <Yes>.



Keep in mind that after confirming the question, the deletion of video storage can only be undone by closing the configuration mode without applying the unsaved changes of the configuration.

### 5.4.3 General information



If a new camera is added, it is automatically assigned with a default name. You may however change the camera name by entering a new name in the entry field. Furthermore, you need to select the camera type from the camera type list. The following camera types are available:

#### Analog cameras

- *Picolo Diligent* for analog cameras connected to *ibaCapture* Server over frame grabber cards of type Picolo Diligent.
- *Picolo Ux H264* analog cameras connected to *ibaCapture* Server over frame grabber cards of type Picolo Ux H264 (x = 4 or 8).

#### Network cameras

- *Axis* for IP cameras from Axis
- *ONVIF compatible device* for network cameras or imaging devices supporting the ONVIF standard.
- *RTSP source* for cameras or other video sources supporting RTSP (Real Time Streaming Protocol).

## Virtual cameras

- *ibaCapture-ScreenCam*: for virtual cameras for recording HMI screens.
- *ibaVision video output* for virtual cameras for recording output videos from *ibaVision*.

## GigE Vision Cameras

- *Matrox Imaging Library (MIL)*: record videos from GigE-Vision cameras with the MIL SDK
- *Stemmer CVB*: record videos from GigE-Vision cameras with the Common Vision Blox as SDK
- *Pleora eBUS SDK*: record videos from GigE-Vision cameras with the Pleora eBUS SDK

A detailed description of the handling of GigE vision cameras can be found in the *ibaCapture GigE* manual.

The option "Enable live video when not recording" and the setting of the camera recording mode are relevant if you want to control the recording of video files with *ibaPDA*. From *ibaPDA* version 6.29.1 and *ibaCapture* version 3.5.0 and higher, you can enable or disable the video recording with digital, virtual output signals from *ibaPDA*.

For further information regarding recording control with *ibaPDA*, see chapter [➤ Controlling the video recording with ibaPDA](#), page 147.

Camera recording mode	Description
Always (default)	By default, video is always recorded, irrespective of whether or not a recording control was enabled in <i>ibaPDA</i> . Even if the recording control is enabled and camera recording is disabled in <i>ibaPDA</i> , <i>ibaCapture</i> will record videos.
Record except when disabled by ibaPDA	Video is recorded unless the recording control is enabled in <i>ibaPDA</i> and recording is disabled for the relevant camera (output signal = true).
Don't record except when enabled by ibaPDA	Video is not recorded unless the recording control is enabled in <i>ibaPDA</i> and recording is enabled for the relevant camera (output signal = true).
Never	No videos are recorded by <i>ibaCapture</i> , irrespective of whether or not a recording control was enabled in <i>ibaPDA</i> . Only a live image is provided.

### Note



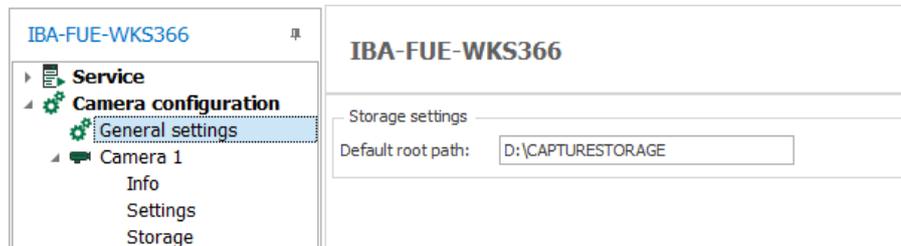
In those cases *ibaCapture* is not recording, no live images will generally be provided. If, however, you still want to receive images, you have to check the "Enable live video when not recording" option.

The following steps depend on the selected camera type. However, a connection to the camera has to be established.

## 5.4.4 Camera settings

The camera settings vary depending on the camera type. The specific configuration for each camera type is described in the following subchapters.

A default storage path can be set on the *General settings* node under *Camera configuration*. This will be the default path when the storage of a camera is configured for the first time.



Streaming port settings are described in chapter [➤ Streaming ports](#), page 107.

Specific PTZ settings of PTZ cameras are described in chapter [➤ PTZ cameras](#), page 120.

### 5.4.4.1 Analog cameras (Ux H264)

Camera settings			
Board:	1	Standard:	PAL
Connector:	1	Compression mode:	CPQ
GOP size:	30	Picture quality:	30 %
Frame rate divider:	1	Maximum bitrate:	2000 kbit/s

#### Board

Select the appropriate board number of the Picolo Ux H264 card the camera is connected to.

- For U4 cards from 1 to 4
- For U8 cards 1 or 2

#### Connector

Select the appropriate connector on the card the camera is connected to.

- For U4 cards from 1 to 4
- For U8 cards from 1 to 8

#### GOP size

See chapter [➤ Glossary](#), page 178.

#### Frame rate divider

Analog cameras usually provide a video stream of 25 fps (PAL) or 30 fps (NTSC). These frame rates ensure for the human eye an impression of fluid motions in the video. In some cases, when there are only few or very slow motions in the filmed set-up, it might be reasonable to reduce the frame rate. A reduced frame rate can significantly save storage space on the hard disk. As a result, it is possible to cover a longer time range of video recording with the same disk space.

Divider	PAL		NTSC	
	Frame rate	1 frame every...	Frame rate	1 frame every...
1	25 fps	40 ms	30 fps	33.3 ms
2	12.50 fps	80 ms	15 fps	66.7 ms
3	8.33 fps	120 ms	10 fps	100 ms
4	6.25 fps	160 ms	7.5 fps	133 ms
10	2.5 fps	400 ms	3 fps	333 ms

### Note



If you use high divider values, remember to lower the GOP size value, as it takes more time until a GOP is filled with a low frame rate.

### Standard

Select the TV standard of the camera (see camera manual). Typical settings:

- PAL in Europe
- NTSC in America and Asia

### Compression mode

- CPQ (Constant Picture Quality)  
Select this mode if you want to maintain a constant subjective image quality. The effective bit rate is continuously varying.  
A value for picture quality can be entered below for further configuration.
- VBR (Variable Bit Rate)  
VBR will adjust the bit rate according to the images' complexity. This requires a lot of bandwidth for a high activity in the image and less bandwidth for a low activity.
- CBR (Constant Bit Rate)  
When using CBR, you can set a fixed maximum bit rate, which will ensure that the level of bandwidth consumed is predictable and will not change, irrespective of the activity in the image. The maximum value will not be exceeded, irrespective of the activity in the image.

### Picture quality (only available for CPQ compression mode)

The value entered here is a measure for compression.

100 = best picture quality, maximum memory requirement.

0 = worst picture quality, minimum memory requirement.

The default value of 30% works for many cases.

### Average bit rate

In case of choosing VBR compression mode, you can set an average bit rate with this setting.

Experience shows that an average bit rate of 1200 kbit/s produces a sufficient recording quality.

### Maximum bit rate

Here, you can set the maximum permissible bit rate for every compression mode. The default value is 2000 kbit/s. The higher the max. bit rate, the higher the image quality of the recording in case of high complexity of the recorded image; however, the higher is also the storage requirement. If CPQ is set as compression mode, the bit rate will be limited irrespective of the selected picture quality. This means a reduction of the picture quality if a bit rate higher than the max. one set was required for achieving the selected picture quality.

#### 5.4.4.2 Analog camera (Picolo Diligent)



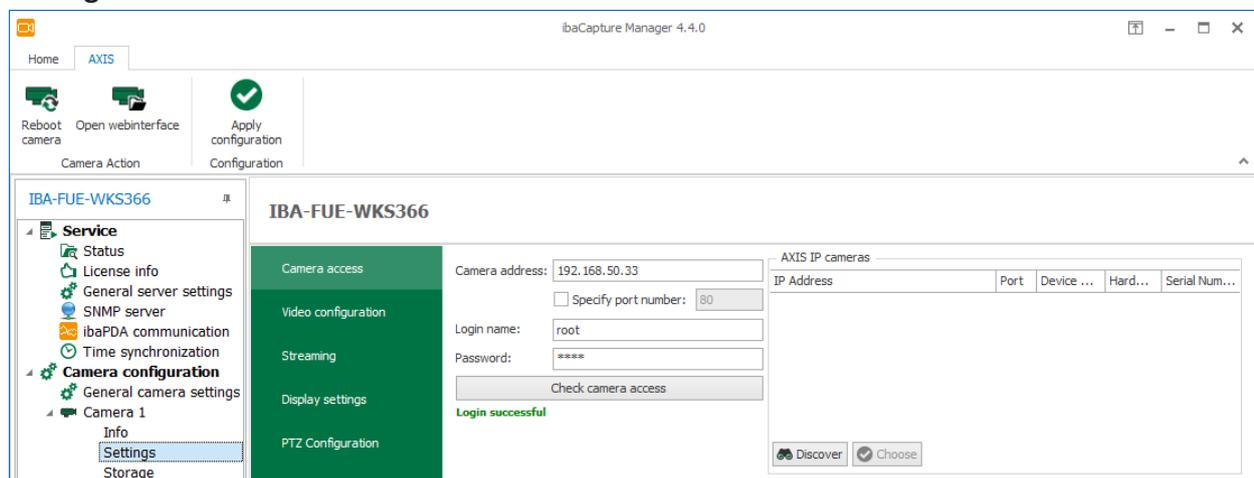
Basically, the camera settings for this older type of frame grabber cards correspond to those in the chapter above.

The differences are:

- The "Connector" status display serves for information purposes only. The connection is established automatically.
- You may change the average bit rate for the recording. The default value of 1500 kbit/s provides for a fair recording quality.

#### 5.4.4.3 Axis IP cameras

##### Settings – camera access



A basic setup of Axis IP cameras should be performed by means of the software tools, which come with the camera, such as AXIS IP Utility or over the web interface of the camera.

This basic setup includes settings such as TCP/IP settings, user login data, streaming and compression settings, focus, color and contrast.

Some settings can be made in *ibaCapture* Manager.

### Camera address

The IP address of the camera as specified in the camera installation wizard is displayed here. If you do not know the IP address, use AXIS IP Utility to find the address. In case the camera is dynamically assigned the IP address by a DHCP server, it is advisable to use a fix host name, if possible within the network.

### Login name, password

Every access to the camera requires authorization, e.g. for changing settings. Therefore, enter user name and password for the camera as created before by means of AXIS camera software. Verify user data by pressing <Check camera access> button.

### Axis IP cameras

With a click on the <Discover> button, a list of all detected, active Axis IP cameras will be shown.

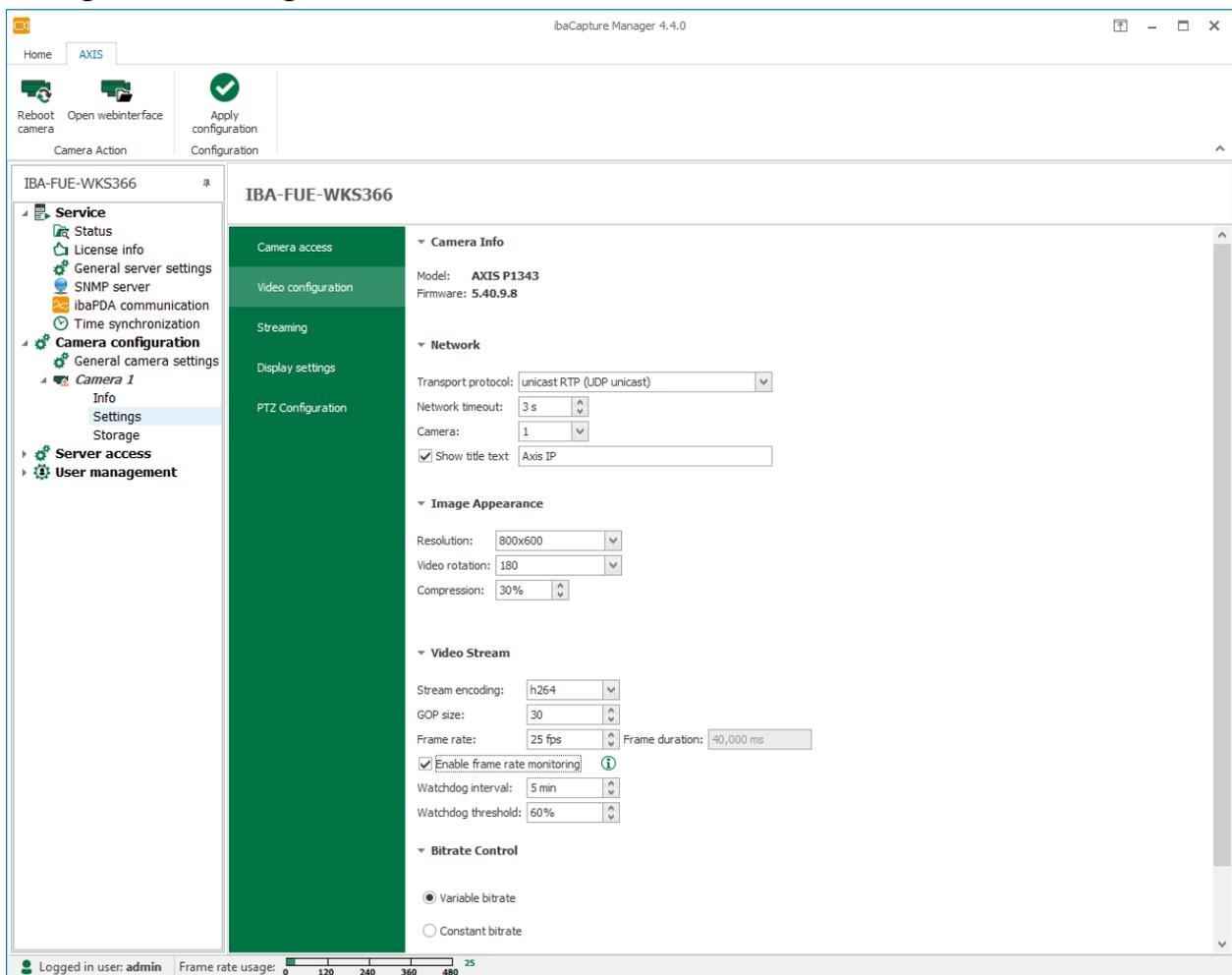
### Open webinterface

A click on the command icon in the ribbon will open the camera’s web interface for more information and settings. A web browser is required for this function.

### Reboot camera

Click this command icon in the ribbon only in exceptional cases, e.g. when there is no video stream visible although the settings are correct.

## Settings – video configuration



The screenshot shows the IbaCapture Manager 4.4.0 interface. At the top, there's a ribbon with three buttons: 'Reboot camera', 'Open webinterface', and 'Apply configuration'. Below the ribbon is a search bar and a list of camera actions. The main content area is titled 'IBA-FUE-WKS366' and contains a configuration panel for 'Camera 1'. The left sidebar shows a tree view with categories: Service (Status, License info, General server settings, SNMP server, ibaPDA communication, Time synchronization), Camera configuration (General camera settings, Camera 1 (Info, Settings, Storage)), Server access, and User management. The main configuration panel is divided into sections: Camera access, Video configuration, Streaming, Display settings, and PTZ Configuration. The 'Video configuration' section is expanded, showing settings for Camera Info (Model: AXIS P1343, Firmware: 5.40.9.8), Network (Transport protocol: Unicast RTP (UDP unicast), Network timeout: 3 s, Camera: 1, Show title text: Axis IP), Image Appearance (Resolution: 800x600, Video rotation: 180, Compression: 30%), Video Stream (Stream encoding: h264, GOP size: 30, Frame rate: 25 fps, Frame duration: 40,000 ms, Enable frame rate monitoring), Watchdog interval: 5 min, Watchdog threshold: 60%, and Bitrate Control (Variable bitrate selected).

**Model, firmware**

This information is displayed automatically after accessing the camera.

**Network****Transport protocol**

A selection of different transport protocols for data transmission from camera to *ibaCapture* Server is available.

- Multicast RTP (UDP multicast); default setting
- Multicast RTP (UDP Multicast)
- Unicast RTP over RTSP (TCP)
- Unicast RTP over RTSP over HTTP (TCP)
- Unicast RTP over RTSP over HTTPS (TCP)

If the video stream must be encrypted, you can select any option that includes transport over HTTPS. *ibaCapture* Server also accepts self-signed certificates, which are enabled by default on AXIS cameras.

**Network timeout**

Time span of interrupted network connection between camera and *ibaCapture* Server given in seconds before a “No video signal” error message will be posted. Default value = 3

**Camera**

In case of one single camera or a video A/D converter for a single analog camera connected, this value is always = 1 and cannot be changed. In case of an A/D converter for multiple analog cameras connected, the stream of a specific camera can be selected by using the spinner.

**Show title text**

If you enable this option, you can enter a text, which will be displayed above the image in the camera view window.

**Image Appearance****Resolution**

A selection of available image resolutions is offered in the drop-down list, depending on the camera model. A change may have a significant influence on the image quality.

**Video rotation**

If necessary due to the camera installation, you can rotate the video image. The options and possible angles depend on the camera model.

**Compression**

Besides the bit rate, you can set a value for image compression. The default value of 30% works for many cases. The higher the compression the smaller the file size. However, there is then also less detail in the image. Delicate structures may not be visible anymore.

## Video stream

### Stream encoding

This is the video encoding format for video compression used by the camera. Some camera models allow changing the encoding. *ibaCapture* supports MPEG-4, H.264 and H.265.

### GOP size

See glossary, chapter 11, page 178

### Frame rate

A frame rate of 25 fps usually works for the human eye to get the impression of smooth movement.

### Frame duration

Shows the time for one frame in ms depending on the frame rate setting. For information only.

### Enable frame rate monitoring

If this option is enabled, a watchdog monitors the current frame rate. If the frame rate for the set *watchdog interval* falls below the set *watchdog threshold*, the connection to the camera is reset.

## Bitrate control

### Variable/constant bitrate

Select one of the two options which fits best your needs and network performance.

- VBR (Variable Bit Rate) will adjust the bit rate according to the complexity of the image. This requires a lot of bandwidth for a high activity in the image and less bandwidth for a low activity.
- If you select a constant bit rate, you should enter a fixed bit rate in the field nearby (default value 300 kbit/s).
- If there is a lot of movement in the image, a high bit rate provides a smooth representation of the movements. The lower the bit rate the more jolt will occur in motions. Furthermore, you can select a priority either in favor of frame rate or quality. As the bit rate would need to increase for increased image activity, but cannot when a constant bit rate is selected, the frame rate (motion) and image quality (details) will both be affected negatively. By selecting the priority, you can contribute to your needs.
- Priority on frame rate will provide for smoother motions but less image quality. Priority on quality will provide for good image quality but motions with jolt. If you select "None", frame rate and image quality will be affected approximately equally.

Constant bitrate

Bitrate:

Bitrate priority:

none  
framerate  
quality

### 5.4.4.4 ONVIF compatible device

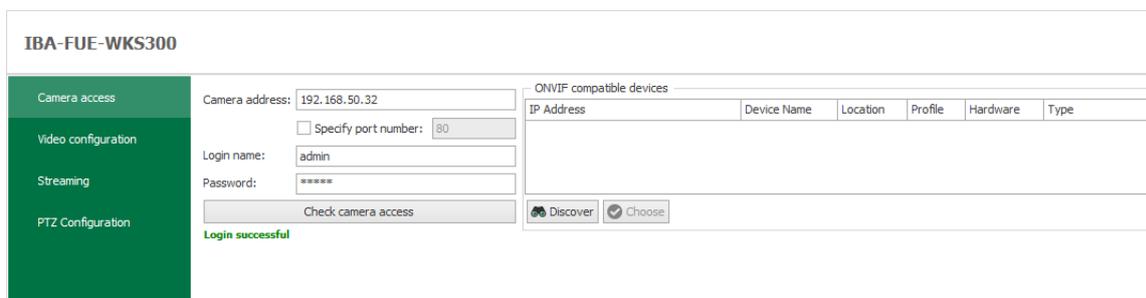
ONVIF is an open interface standard for network-based video devices that is increasingly supported by various manufacturers. If you have cameras or encoders supporting ONVIF, use this type of device.

*ibaCapture* supports the ONVIF profiles S and T.

**Note**



In order to prevent malfunctions as far as possible, we recommend having installed the latest firmware for your ONVIF devices.



As ONVIF compatible devices support an automatic detection, the easiest way is to click on the <Discover> button. A list of all detected, active ONVIF compatible cameras will be shown.

ONVIF compatible devices

IP Address	Device N...	Location	Profile	Hardware	Type
192.168.50.35	Bosch		Strea...	DINION_40...	Network_Video_Transmitter;
192.168.50.33	AXIS P1343		Strea...	P1343	video_encoder;audio_encoder;
192.168.50.32	Sony	country/...	Strea...	SNC-CH160	video_encoder;ptz;audio_encoder;video...

Discover Choose

If the desired device is not shown in the list because it was turned off or not connected, then click on <Discover> after the device is turned on or connected.

Click on the desired device in order to select it and press <Choose> or double-click the device.

**Note**

If the device is still not detected, check the firmware version and update it if necessary. Some older camera models possibly cannot be optimized for ONVIF operation. In order to prevent malfunctions as far as possible, we recommend having installed the latest firmware for your ONVIF devices.

Network restrictions may be another reason for the automatic detection not working. In such a case, directly enter the IP address of the ONVIF device into the device address field and click <Choose>.

If user credentials are required for camera access, then enable the selection field "Authentication required" in the "Device authentication" area and enter user name and password.

Afterwards, click <Connect>.

**IBA-FUE-WKS300**

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Camera access

Video configuration

Streaming

PTZ Configuration

▼ **Camera Info**

Device name: **SNC-CH160**

Firmware version: **1.85.00**

Serial number: **3012839**

▼ **Network**

Transport protocol:

▼ **Onvif profile**

Choose profile:

Source: **video\_source\_config1**

Encoding: **H264**

Resolution: **1280 x 720**

Quality: **7,5**

GOP size: **25**

Framerate limit: **25 fps**

Bitrate limit: **3072 kbit/s**

The connection with the device will be established.

In the "Onvif profile" section, the ONVIF profiles available and supported by *ibaCapture* (H.264, H.265, MPEG-4) are now shown in the drop-down list. You find other profiles than the ONVIF profile in the wizard for editing profiles.

Select an ONVIF profile to use for recording.

---

**Note**

*ibaCapture* supports only finite GOP sizes. Some devices, such as the BOSCH VIP X1600 Encoder, are preset by the manufacturer to an infinite GOP size (value = 0) and key frames are sent on demand. You need to change this default value to a value >0 before you enable the configuration in *ibaCapture*. You can change this value either in the web interface of the device or in the profile editor within *ibaCapture*.

---

**Note**

The video encoders of some cameras allow setting the frame structure. There are values like "IP" or "IBP". For *ibaCapture* it is recommended to use only structures without "B" frames.

---

**ONVIF profile**

The ONVIF profile is a combination of the source profile (video source) and the encoder profile (video encoder).

The configuration of the source profile is determined by the properties of the ONVIF device. A camera generally has only one source profile. Other devices, such as analog IP encoders, can provide several video sources. Depending on the equipment, the available inputs can be selected via the source profiles.

The configuration of the encoder profile determines the way the video stream is encoded within the camera. These settings are usually made via the web interface of the camera/device. This includes parameters such as coding (H.264, H.265, MPEG-4), resolution, quality, GOP size, frame rate and bit rate. Different encoding configurations may help you to optimize videos with regard to purpose or way of transmission.

The ONVIF profiles can be adjusted to individual requirements.

**Editing ONVIF profiles**

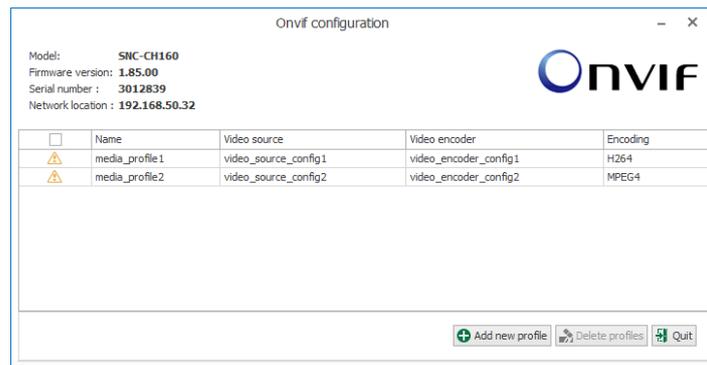
For editing an ONVIF profile, you first need to ensure that the user set in the "device authentication" area (see above) has the user rights required for changes in the ONVIF profiles. If this is not the case, an error message will appear later at the corresponding step.

 An error occurred while creating the ONVIF profile

1. Click *Manage Profiles* in the ribbon .

The assistant opens showing a list of available ONVIF profiles.

The available ONVIF profiles are presented in a table indicating name, source profile, encoder profile and type of video coding. If the option "Show only supported profiles" is checked, the list contains only those profiles supported by *ibaCapture*. ONVIF profiles can be added or removed. It is not possible to change existing ONVIF profiles. In order to adjust the video coding, the encoder profile can be modified.



2. Press the <Add new profile> button

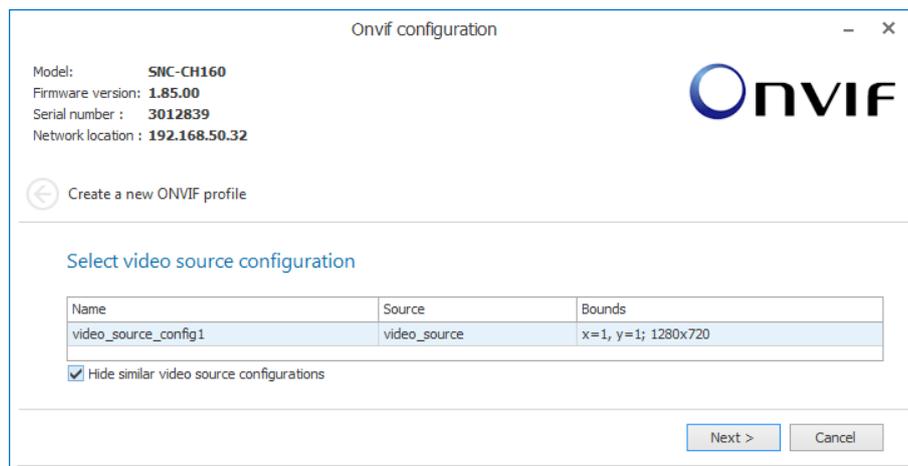
A new ONVIF profile is created on the basis of the last selected profile. The assistant will guide you through the next steps.

### Selection of the video source configuration

1. First, select a source profile.

The video sources are permanently stored in the respective ONVIF device and cannot be changed. If the option "Hide similar video source configurations" is checked, the assistant attempts to reasonably narrow down the available video sources, e.g. when the same video source is listed multiple times.

A camera usually has only one video source. Afterwards, click <Next>.

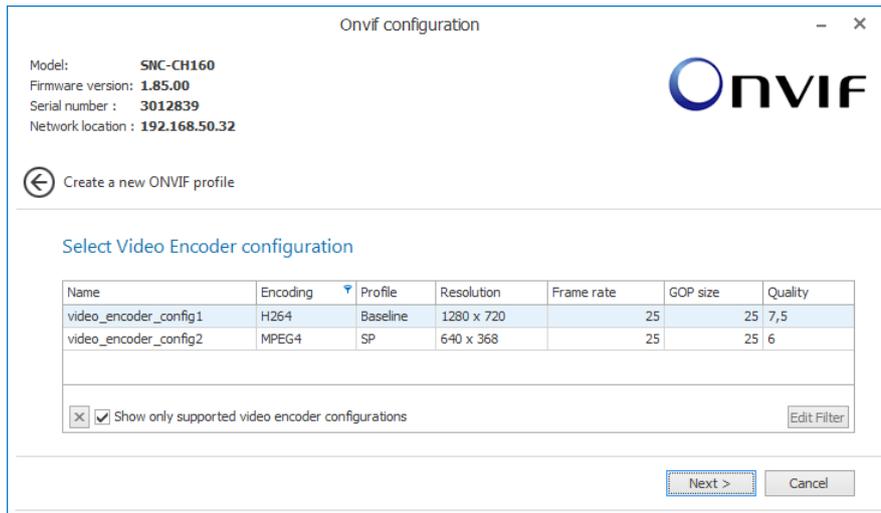


2. Select the encoder profile in the next step.

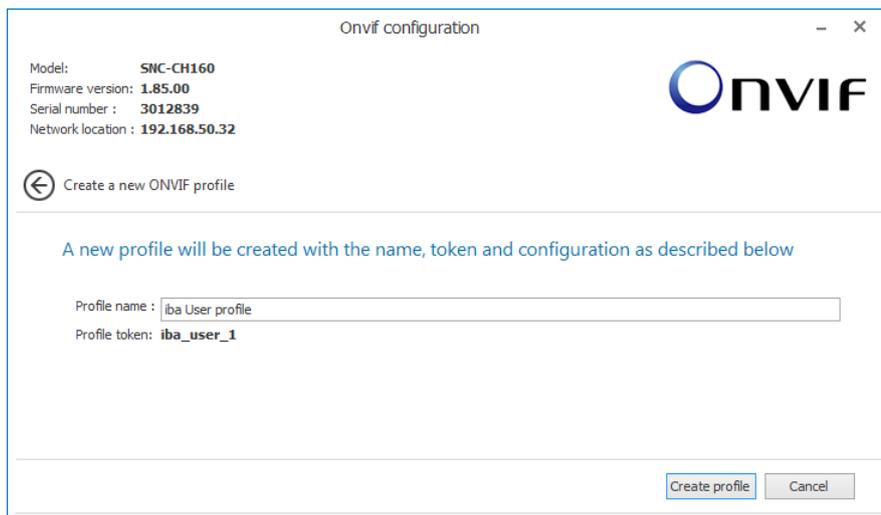
The encoder profiles are stored in the device.

Select the desired profile and click <Next>.

If none of the offered encoder profiles meets your requirements, you can change an existing profile. Hereto, refer to the next chapter.



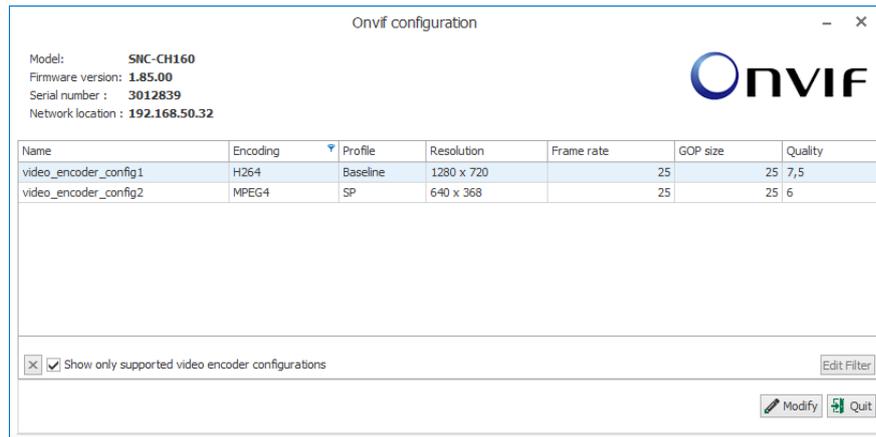
3. In the third step, you confirm your selection. The properties of the profile will be shown again.  
 Enter a name for your new ONVIF profile. The token at the end is an internal ID for the profile and will be assigned automatically.  
 Complete the creation of the new profile by pressing <Create profile>.



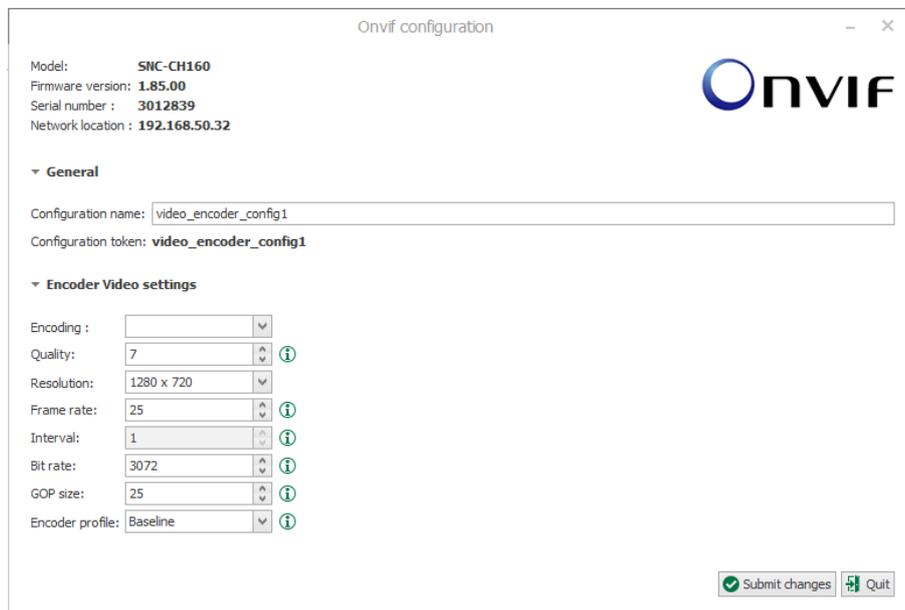
### Editing of the video encoder configuration

In contrast to the video source configuration, you have the opportunity to modify the encoder configuration. For this purpose, click *Manage Encoders*  in the ribbon.

1. In order to change an existing video encoder configuration, click on the aforementioned button. The dialog for selecting the configuration to be modified opens.



2. Click on the configuration to be modified and press <Modify>.
3. In the next step of the encoder configuration, you adjust the properties.



- select the coding.  
(ibaCapture supports only H.264, H.265 or MPEG-4)
- select or change the quality, resolution, frame rate, encoding interval and bit rate.
- please ensure to enter a value greater than 0 into the GOP size field.
- encoder profiles are not always available.

You will receive a quick info on the individual parameters when you move the mouse over the icon. 

4. If the modified configuration is not to replace the original, you can enter a new name for the configuration in this dialog. It will then be added to the list of available encoder configurations.
5. Confirm the settings with <Submit changes>.

**Caution!**

**All changes you make to the video profiles and video encoder configurations are permanent.**

**They will remain even after a restart of the device.**

- Therefore, be careful when making changes, especially when removing profiles.

You will find additional device- and manufacturer-specific notes on the use of ONVIF compatible devices in the chapter [Supported cameras](#), page 174.

### 5.4.4.5 RTSP source

Over RTSP (Real Time Streaming Protocol), it is possible to receive video streams from cameras or other video sources that are not explicitly supported by *ibaCapture*.

The prerequisite is that these sources support RTSP and provide an MPEG-4, H.264 or H.265 video stream.

For configuration purposes, the full URL of the video source needs to be entered. Video parameters such as resolution, stream coding, frame rate etc. need to be configured in the camera and will be detected by ibaCapture.

Camera Configuration Wizard

Camera Configuration for IBA-FUE-WKS366

---

Step 2: Camera settings (RTSP source)

Camera access

Video configuration

Streaming

PTZ Configuration

Camera address:

Specify port number:

Login name:

Password:

Apply RTSP URL

None

Axis

#### RTSP source URL

Please refer to the camera manual to find out which URL you have to enter here. This information differs depending on the manufacturer or the model.

The entry generally starts with the IP address or host name of the camera or source and further path information. Currently the default RTSP path for AXIS cameras can be selected from the "Apply RTSP URL" list.

**Note**

There are websites documenting the RTSP URLs of different cameras. In case of doubt, read the manual of your camera or contact the manufacturer support.

### 5.4.4.6 HMI camera

Recording HMI screens and configuring virtual cameras with *ibaCapture-ScreenCam* is described in chapter [➤ Capturing HMI screens](#), page 164.

### 5.4.4.7 Virtual camera (ibaVision)

The virtual camera type (*ibaVision*) is designed for capturing *ibaVision* output video. *ibaVision* processes image data recorded with *ibaCapture* and extracts visual signals or processed images with added visual information. The images processed by *ibaVision* can be captured again in *ibaCapture* and recorded using this camera type.

This chapter only describes the configuration of virtual cameras in *ibaCapture*. For a detailed description of *ibaVision*, please refer to the *ibaVision* manual.

The screenshot shows the configuration interface for the ibaVision server location. It includes a sidebar with 'Configuration', 'Streaming', and 'PTZ Configuration' options. The main area is titled 'ibaVision Server Location' and contains input fields for 'Host Address' (192.168.50.28) and 'Host Port' (7110). Below these is a table for 'Discovered ibaVision Servers' with columns for IP Address, Computer Name, Port nr, Version, and Status. There are 'Search' and 'Cancel' buttons below the table. The 'ibaVision Settings' section is partially visible below.

#### ibaVision Server Location

Enter the IP address of the *ibaVision* Server, whose output data shall be recorded into the field "Host Address". Alternatively, you can click on the <Search> button to search the network for *ibaVision* instances.

The available *ibaVision* instances will be listed in the table. Select the desired host and configure the *ibaVision* settings.

#### ibaVision settings

The screenshot shows the 'ibaVision Settings' configuration panel. It includes dropdown menus for 'Program' (Offline program) and 'Video output' (Video output 0). Below these are fields for 'Resolution' (640 x 480), 'Frame rate' (10), and 'GOP size' (30). There is a section for 'Offline processing' with a checked checkbox for 'Offline processing activated' and a 'Synchronized camera' field set to 'Offline\_Test\_Cam (26)'.

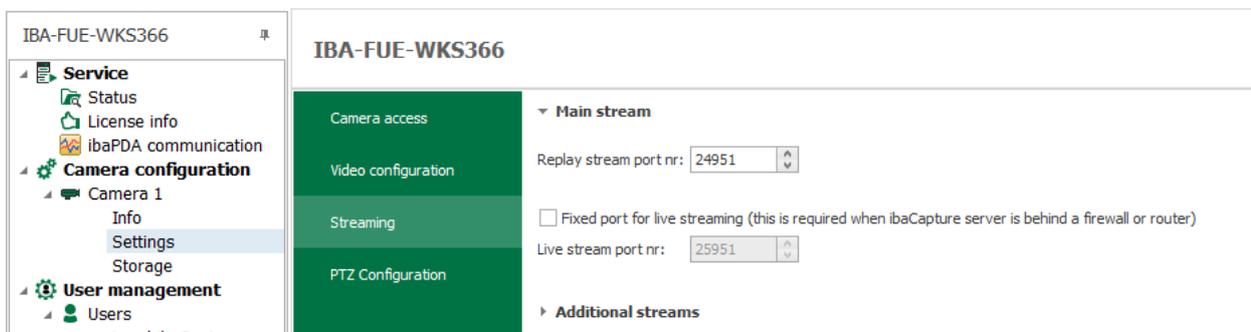
This section contains two drop-down controls. The first selection list "Program" lists all configured *ibaVision* programs of the active *ibaVision* instance. If the selected program offers more

than one video output, the desired one can be selected from the second selection list “Video output”.

All settings regarding video resolution and size need to be done in ibaVision. The values are displayed here for information only.

Furthermore, *ibaVision* offers an offline processing mode that allows to execute image processing on stored video at a later time. This requires the definition of a source camera, which is also used to generate synchronization data for an offline virtual camera. The videos processed later can then be recorded with the virtual camera and stored in the ring buffer of the virtual camera at the correct time. When the offline processing mode is enabled in ibaVision, this is displayed here. In addition, the source camera is displayed, which must be present at the *ibaCapture* Server.

### 5.4.5 Streaming ports



Besides the ports used for the communication between *ibaCapture* Server and *ibaPDA* Server for control and synchronization purposes, there are ports required for displaying live video and replay of recordings.

Each instance of *ibaCapture* Player that is to display a live video or play a recording requires a port for the transmission of the video stream. In this case, it is irrelevant whether the player is running in the camera view of an *ibaPDA* Client, in *ibaCapture* Manager or *ibaAnalyzer*.

A distinction is made here between live stream and replay stream.

#### Replay stream port no.

Each camera is assigned an individual port number for the replay streams which is initially allocated by the system. The port number however can be changed, thus be adjusted to IT administrative requirements (firewall or similar).

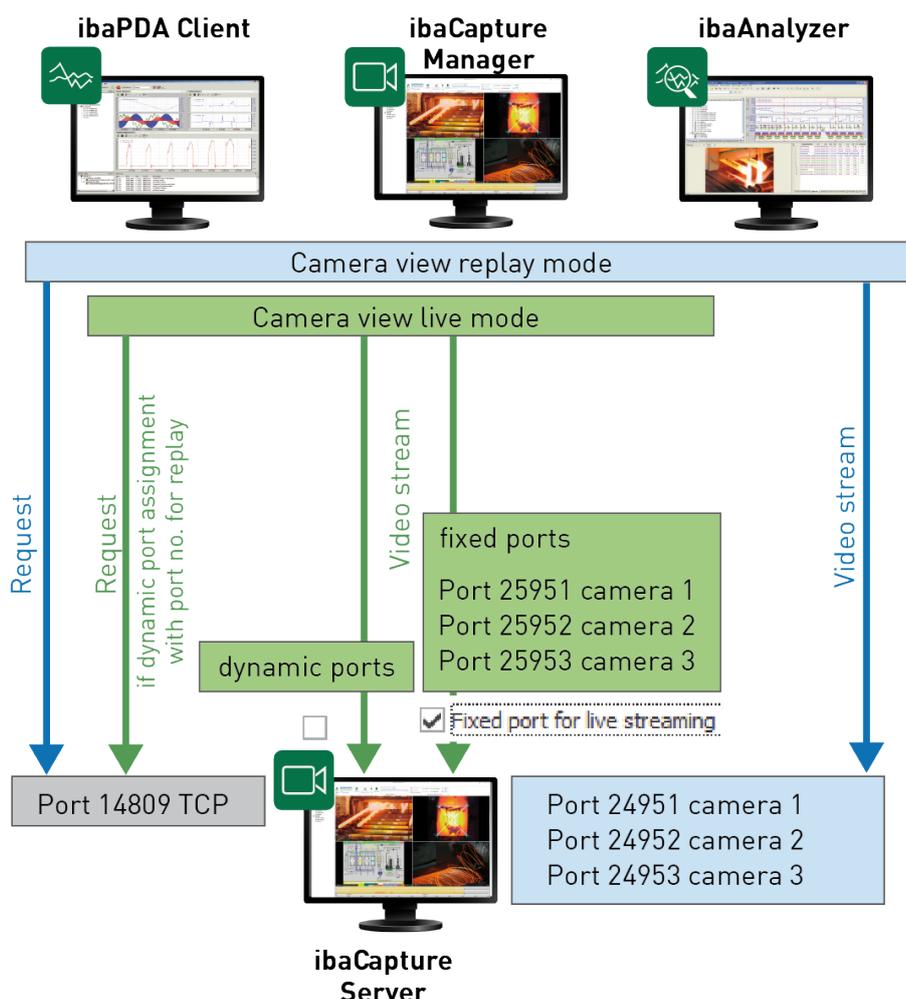
Port numbers will start at 24951 and increase by 1 for each camera.

#### Fixed port for live streaming

This option allows you to assign a permanent port to a camera for live video stream transmission. In this case, the preset value or the value set by you in the field below is valid. The port numbers assigned automatically will start at 25951 and increase by 1 for each camera.

If you disable this option, the port number cannot be set for the transmission of the live stream. It will then be set automatically according to requirement. As a consequence, the port number can change between two sessions (between player and server).

The following figure shows the principle behind the port number assignment. The arrows indicate the direction of the connection (important for the configuration of firewalls).



### 5.4.5.1 Additional streams

The display of numerous cameras puts high demands on the performance of the processor and the RAM, especially for videos with a high resolution. However, live displays do not always require a high resolution. Often, the camera window in the player is significantly smaller than the full resolution when several cameras are displayed simultaneously. Thus, a Full HD video with 1920 x 1080 pixels might be displayed in the player with only 640 x 480 pixels. As in this case a lower resolution is sufficient, you can configure alternative streams with a lower resolution for the live views of each camera. Thus, processor and RAM are relieved.

If the server administrator has configured an additional stream, the live view automatically switches to the lower resolution if the size of the player is accordingly small.

The alternative live streams only affect the live view. They are only created for the live view and are not being recorded. The videos are recorded with the resolution configured under *Video configuration*.

You can configure up to 2 alternative live streams for each camera. The following settings may serve as an orientation:

	Ratio 4:3	Ratio 16:9
1 alternative live stream	640 x 480	640 x 360
2 alternative live streams	1. stream: 800 x 600 2. stream: 320 x 240	1. stream: 800 x 450 2. stream: 320 x 180

### Configuration

You can configure live streams for Axis IP, ONVIF compatible and RTSP camera types.

#### ■ Axis cameras

Set a checkmark in the area *Additional streams* for 1 or 2 alternative live streams. For Axis IP cameras, you can select the resolution directly from the drop-down menu. Moreover, you can enter the frame rate in the entry field.

■ ONVIF compatible cameras

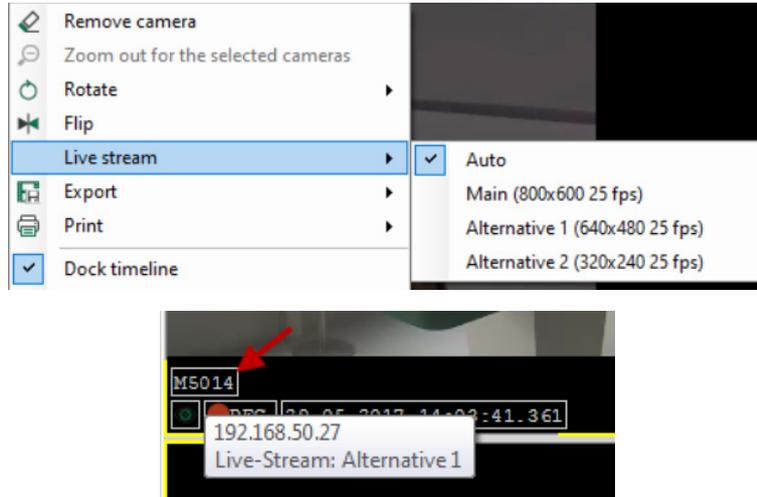
Set a checkmark in the area *Additional streams* for 1 or 2 alternative live streams. For ONVIF compatible cameras, you have to choose an ONVIF profile. In this profile, the resolution is defined. It might be necessary to configure such profiles in the camera.

■ RTSP sources

Set a checkmark in the area *Additional streams* for 1 or 2 alternative live streams. You have to enter an URI (Uniform Resource Identifier) for RTSP sources. In this URI, the video parameters are defined with an according resolution.

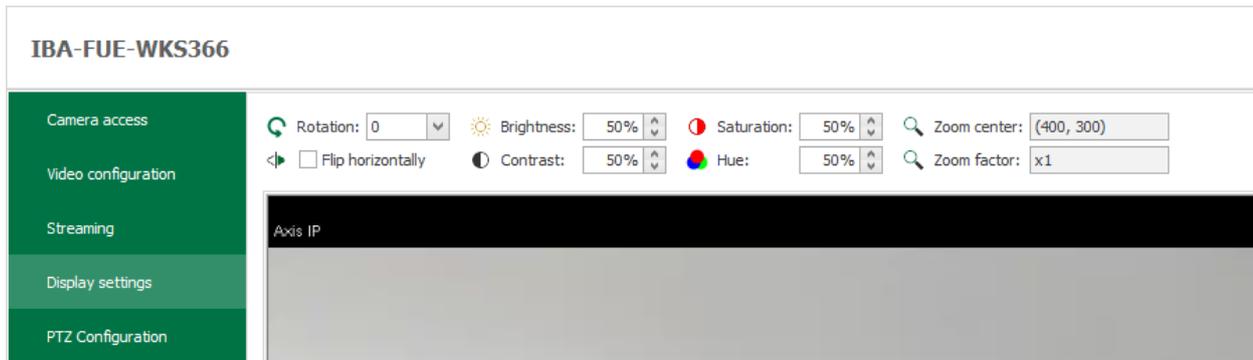
### Display of alternative live streams in the Player

In the camera view, the user can define which live stream will be displayed. Open the context menu in the respective camera view with a right mouse click. (For a description, see chapter ↗ *Submenu "Live stream"*, page 39)



You can see in a tooltip, which camera is currently running. Just move the mouse over the camera name in the info toolbar. Furthermore, the tooltip displays the name of the video server.

### 5.4.6 Display settings

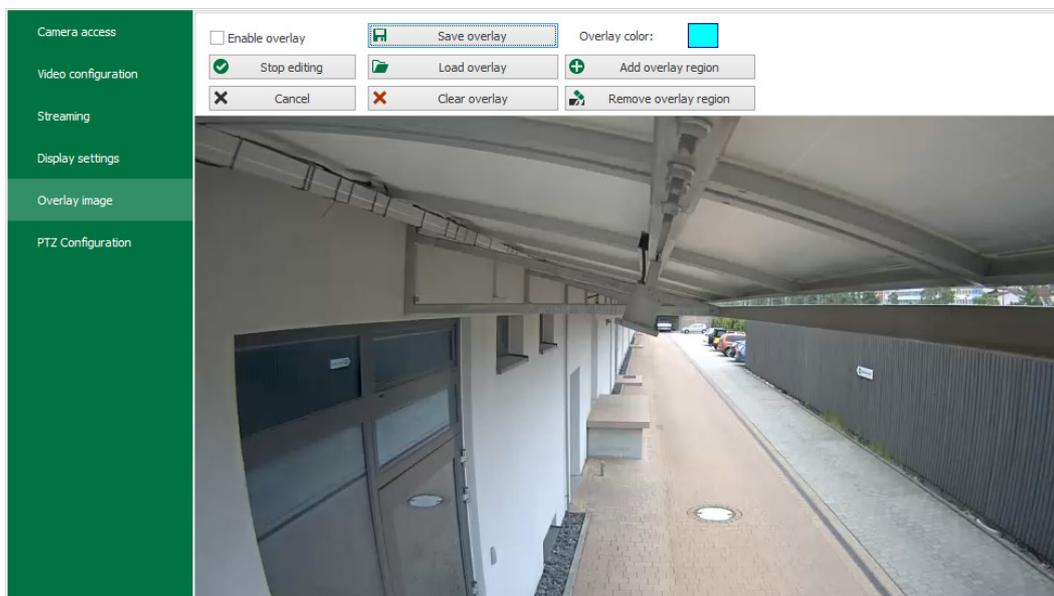


A number of display settings in the *ibaCapture* Player can be set and saved as default settings in the *Display settings* tab for each camera: rotation, flip horizontally, brightness, contrast, saturation, hue, zoom center, zoom factor.

Every *ibaCapture* Player (v4.4.0 or higher) will start streaming using these default settings unless they are overwritten by custom adjustments.

### 5.4.7 Overlay image

With the *Overlay Image* function, a static image can be displayed over the current video image, for example to mask areas relevant to privacy protection. The function can also be used to display calibration/orientation information within the image.



Use the Enable overlay check box to enable the overlay function for all *ibaCapture* clients.

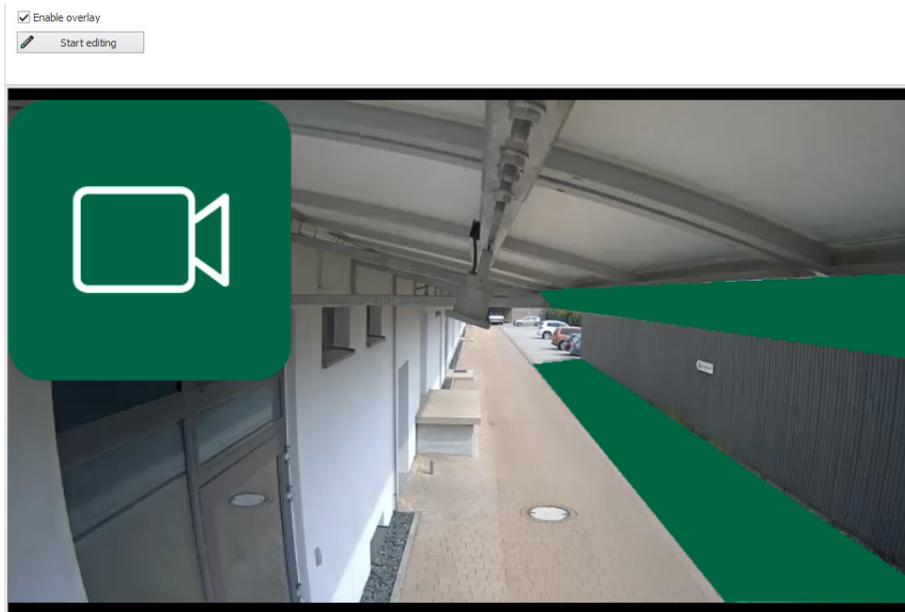
With <Start editing> you can edit an overlay image. The camera image will be shown as a still image in its original size. For large resolutions, it may be required to use the scroll bars to see the whole image.

The overlay image can be created by using these controls:

Overlay color	The overlay color can be selected by clicking the color field.
<Add overlay region>	Overlay regions generally are created as polygons. Set the corner points by clicking at the desired position in the image. To abort polygon creation, click the <Cancel> button. With <Apply> you confirm the created polygon. You can verify the created polygon in the preview.
<Remove overlay region>	You can create corner points of a polygon by clicking. With this polygon, areas can be removed from the previously created overlay image. This means that the area thus defined is made visible again.
<Save overlay>	Overlay images can be saved as PNG.
<Clear overlay>	The overlay image is removed.
<Load overlay>	Existing PNG images can be loaded as overlay images.

With <Stop editing> you finish editing the overlay masking. You can verify the overlay image in the preview.

By clicking <Apply> the new *ibaCapture* server configuration becomes effective.



### Restrictions with enabled overlay

The main use for image overlays is the creation of privacy masks. As the received video streams are not modified after they are received by *ibaCapture* Server, video from potentially sensitive areas is still stored. It will only be masked when video is displayed by *ibaCapture* Player.

To avoid sensitive areas being visible, the following functions of *ibaCapture* are restricted for cameras with overlay enabled:

- RTSP server
- Video export

---

#### Note



Without enabling user management, every user with access to the *ibaCapture* Server will be able to disable the overlay.

---

## 5.4.8 Storage settings

The screenshot displays the 'Storage' configuration page for camera IBA-FUE-WKS366. The left sidebar shows a navigation tree with categories like Service, Camera configuration, Server access, and User management. The main content area is divided into sections: 'Video storage location' with a checked checkbox and a text field for the path; 'Video storage settings' with two progress bars for 'Allocated disk space' and 'Protected disk space'; and 'File settings' with input fields for file size and deletion intervals. At the bottom, there are buttons for 'Apply to all cameras' and 'Reinitialize storage', and a status bar showing the user is logged in as 'admin' and the frame rate usage is 25.

All settings for saving the video data are made in the *Storage* branch.

### Video storage location

In the entry field "Video location at host <Capture Server name>", enter the local directory in which the video recording of the selected camera is to be saved.

Each camera needs its own directory. When enabling the option "Create a folder with the camera name" a corresponding folder will be automatically created.

Create a folder with the camera name

Final directory name on server: **D:\IMAGES\CAMERA1**

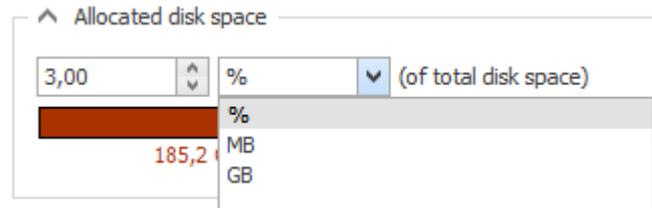
Changing the storage location of a camera will move the old recording to the new location. This way, it remains available for watching. It is not necessary to manually delete the old recording.

### Video storage settings

The total memory capacity for the respective cameras is set in the input field "Allocated disk space". The memory segment is stated either

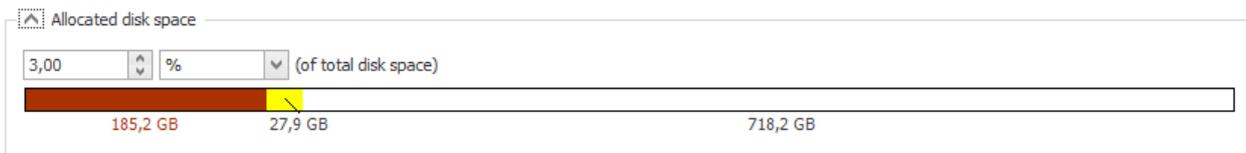
- as relative value in percent of the total disk space on the drive or partition (D:\ in the figure above).
- or as absolute value in MB (Megabytes) or GB (Gigabytes).

Select the desired option in the drop-down menu:

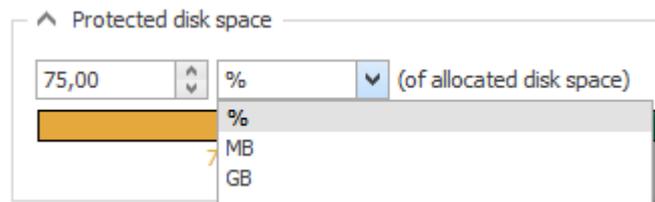


The memory capacity is depicted in the bar below with different colors.

- Red: used space on the disk
- Yellow: space used by this camera
- White: free space



A so-called protected disk segment of the memory capacity is specified in the input field "Protected disk space". The memory segment is also stated either in percent of the allocated disk space or as absolute values in MB or GB.



The memory capacity is depicted in the bar below with different colors.

- Orange: space for normal videos
- Green: space for protected videos



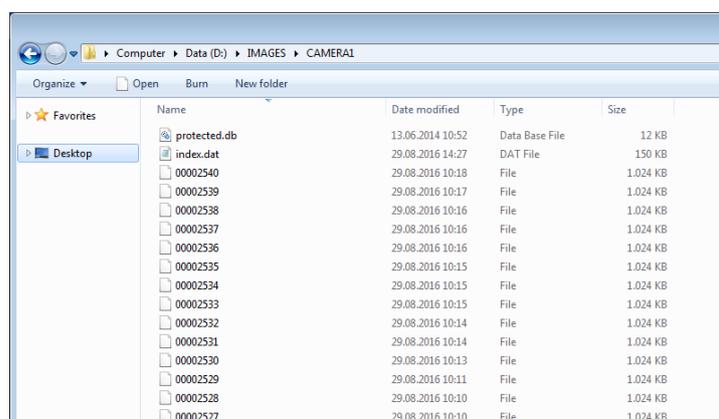
Basic information for saving video data and the associated division of the memory segments in maximum and protected memory segments can be found in chapter ↗ *Principles of video recording*, page 14.

**Note**

On first configuration of a camera, we recommend setting a small percentage ( $\approx 1\%$ ) for “Allocated disk space” at the beginning. When using a large memory size (TB scale), the initial setup of the memory segments can take a long time (several minutes or even hours).

We suggest setting up the final memory size after completion of the camera configuration and to run the allocation job, e.g. overnight.

In order to prevent disk fragmentation during recording, the memory segment of each camera is filled with files as placeholders already at the time of applying the configuration to the server.



The "index.dat" file is not a data file within the meaning of *ibaPDA* (.dat). It is an index file over all video files of a camera. There is an “index.dat” file in each directory per camera.

**Example:**

For a hard disk with 259 GB, 1% for Camera1 is provided. This produces 2.6 GB for the reserved hard drive area of the camera. The protected memory segment should be 75% of the one percent of the memory capacity. This produces a protected memory capacity of 1.9 GB.

**File size**

The size of the individual video files is specified here. Normally, the default value (1024 KB) can be used.

**Delete video after**

This option serves as adaptation to the regulations stipulating an absolute upper time limit for storing video footage. If such a regulation exists, you can set the maximum storage period here and enable the option. All regular video recordings older than the period set are deleted.

### Delete protected and locked video after

This option allows you to separately set a maximum storage time for protected and locked videos. Protected and locked videos that are older than the specified storage time will be deleted.

### <Apply to all cameras>

The settings can be applied to all cameras by pressing the button at the bottom

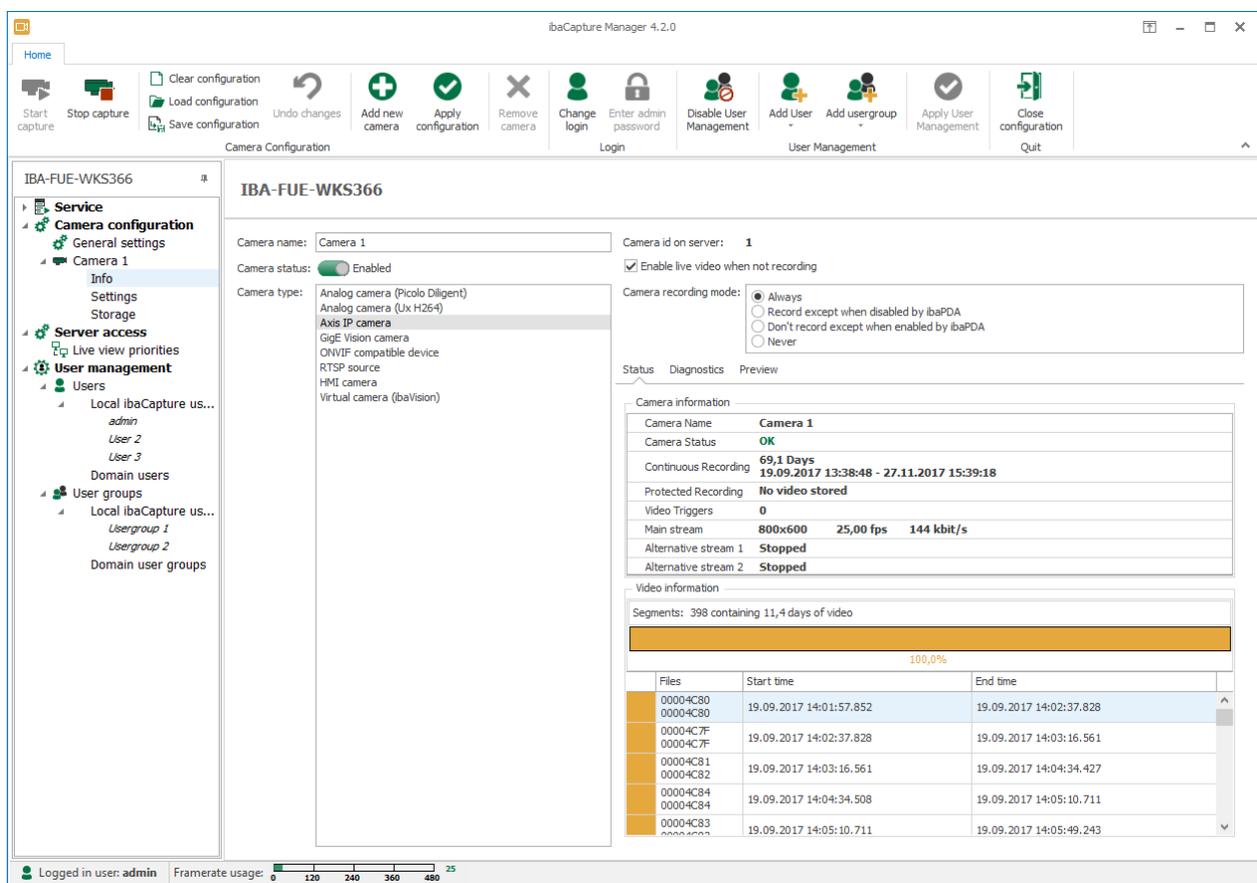


### <Reinitialize storage>

Reinitializes the specified location. The complete contents of the directory will be removed.

## 5.4.9 Camera info

For each camera, there is an *Info* branch, where you can enable/disable the camera, find status information, diagnostics and a camera preview.



Camera name, camera status and camera type are displayed on the left side. To temporarily disable a camera (e.g. for test purposes or to setup a camera which is not yet physically connected), click the enable/disable button . A disabled camera is indicated by a red button .

On the right side you find the following information.

### Camera id on server

The ID is assigned automatically by *ibaCapture* Server.

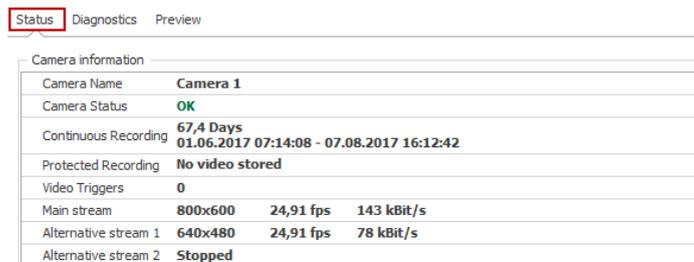
## Enable the live video when not recording

In those cases *ibaCapture* is not recording, no live images will generally be provided. If, however, you still want to receive images, you have to check this option.

## Camera recording mode

When configuring a new camera, you have to specify the camera recording mode, see chapter [➔ General information](#), page 91. Here, you can change this setting.

## Status tab



Camera information			
Camera Name	Camera 1		
Camera Status	OK		
Continuous Recording	67,4 Days 01.06.2017 07:14:08 - 07.08.2017 16:12:42		
Protected Recording	No video stored		
Video Triggers	0		
Main stream	800x600	24,91 fps	143 kBit/s
Alternative stream 1	640x480	24,91 fps	78 kBit/s
Alternative stream 2	Stopped		

- Camera status can be: OK, disabled, recording blocked or disabled, no connection.
- The recording time is displayed for each camera:
  - Continuous recording (unprotected recordings)
  - Protected recording (e.g. by video triggers)

The time is given roughly in days, followed by the first time (earliest available recording date) and the last time (most recent available recording date).

## Video triggers

The number of video triggers refers to the number of triggered recording sequences. The number is 0 (zero) when only continuous recording is/was used.

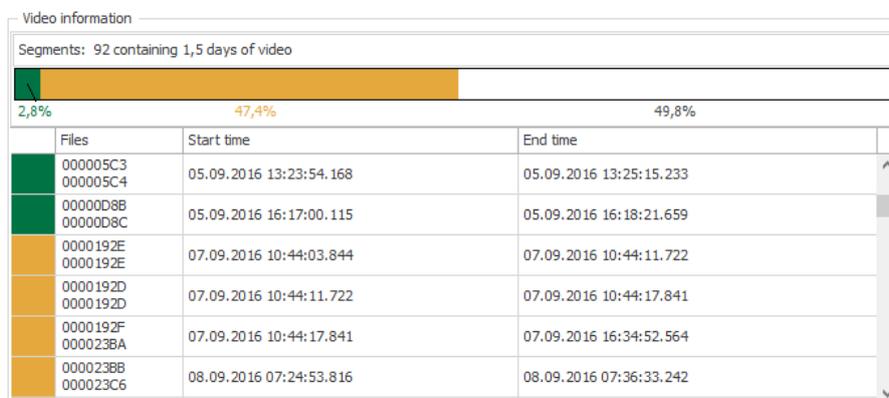
## Main stream

Current resolution, frame rate, video bit rate of the camera. The main stream is being recorded.

## Alternative Stream 1 / 2

Current resolution, frame rate, video bit rate of the currently active alternative live stream.

## Video information



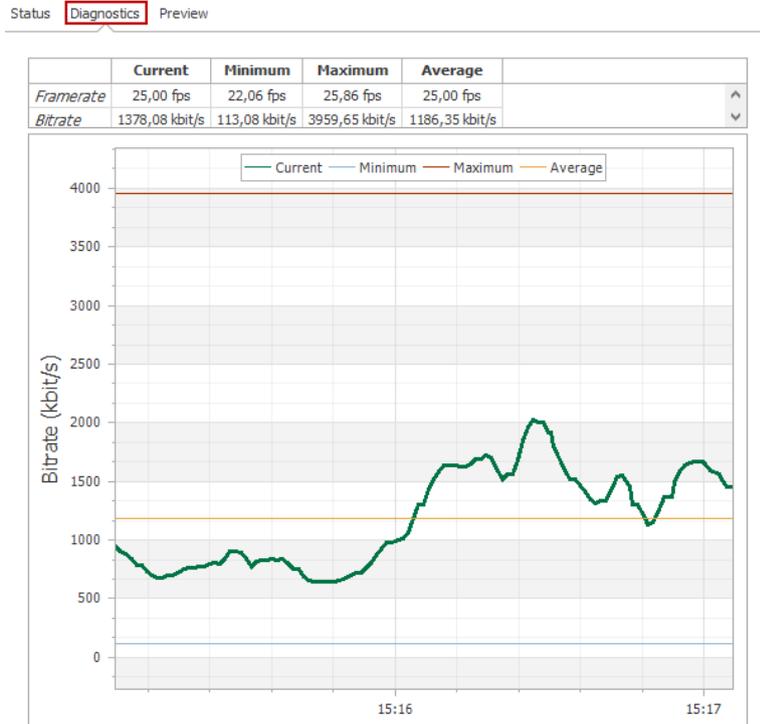
Files	Start time	End time
000005C3 000005C4	05.09.2016 13:23:54.168	05.09.2016 13:25:15.233
00000D8B 00000D8C	05.09.2016 16:17:00.115	05.09.2016 16:18:21.659
0000192E 0000192E	07.09.2016 10:44:03.844	07.09.2016 10:44:11.722
0000192D 0000192D	07.09.2016 10:44:11.722	07.09.2016 10:44:17.841
0000192F 000023BA	07.09.2016 10:44:17.841	07.09.2016 16:34:52.564
000023BB 000023C6	08.09.2016 07:24:53.816	08.09.2016 07:36:33.242

The bar graph for segments shows quota of free disk space (white), continuous recordings (orange) and triggered recordings (green). The corresponding percentage is shown below the bar graph.

The table shows all stored sequences with file names, start and end time.

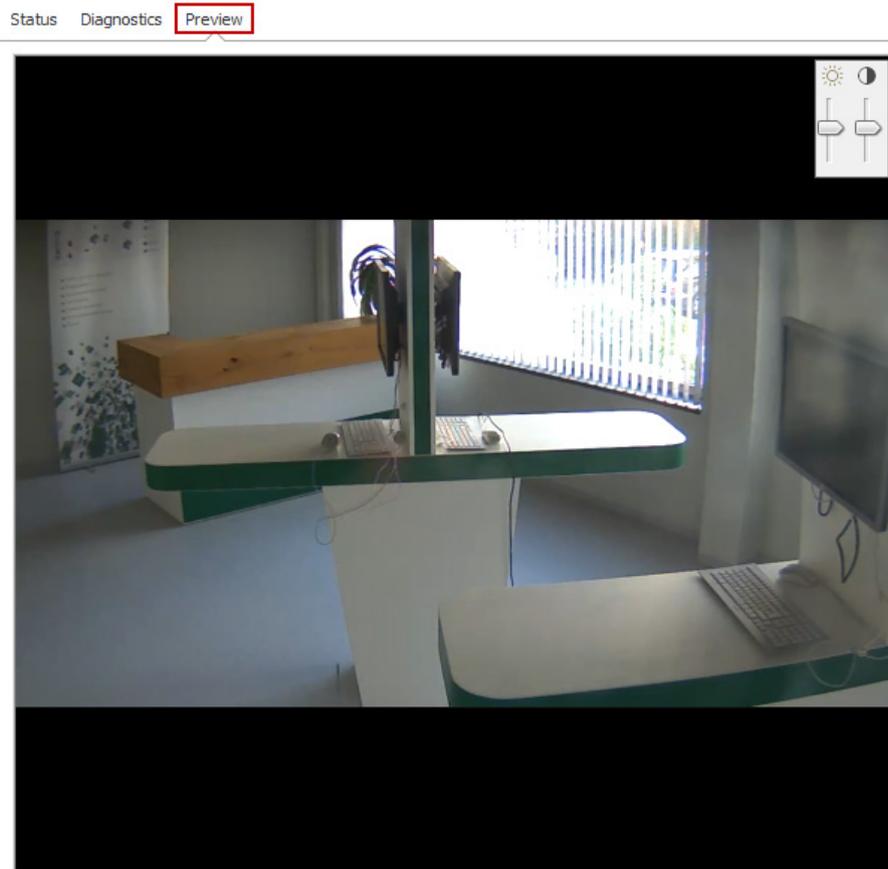
**“Dignostics” tab**

The *Diagnostics* tab provides information about the camera as well as frame and bit rates. A trend view shows the bit rate trend over the last two minutes.



**“Preview” tab**

The *Preview* tab provides a preview of the camera. If you move the mouse over the top right corner of the preview window, two sliders appear for adjusting contrast and brightness of the camera.



#### 5.4.10 PTZ cameras

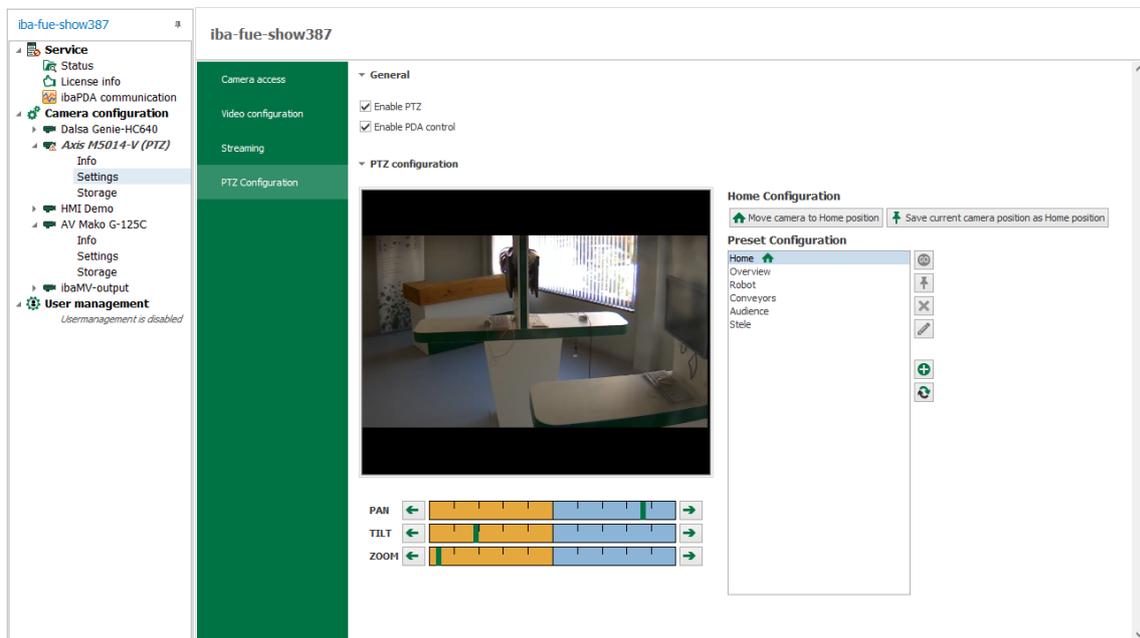
ibaCapture supports PTZ cameras (pan, tilt, zoom). PTZ cameras provide functions for panning, tilting and zooming of the camera via remote control. The movement of the PTZ camera can be controlled in server configuration mode ("Camera configuration" - "Settings" branch) in the "PTZ Configuration" section or by using a joystick, the mouse or via ibaPDA, see chapter [Controlling PTZ cameras with ibaPDA](#), page 147. An initial position and several preset positions can be configured for each PTZ camera.

ibaCapture supports the control of the following camera types:

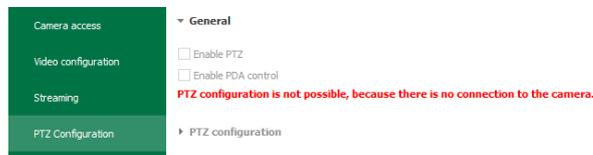
- ONVIF-compatible PTZ cameras
- Axis-IP cameras (with VAPIX log version 3)

### 5.4.10.1 Configuration

Mark the “Settings” branch under the camera and select “PTZ Configuration” in order to configure PTZ settings.



If the camera does not support PTZ control, the message "PTZ is not supported for this camera" is displayed.

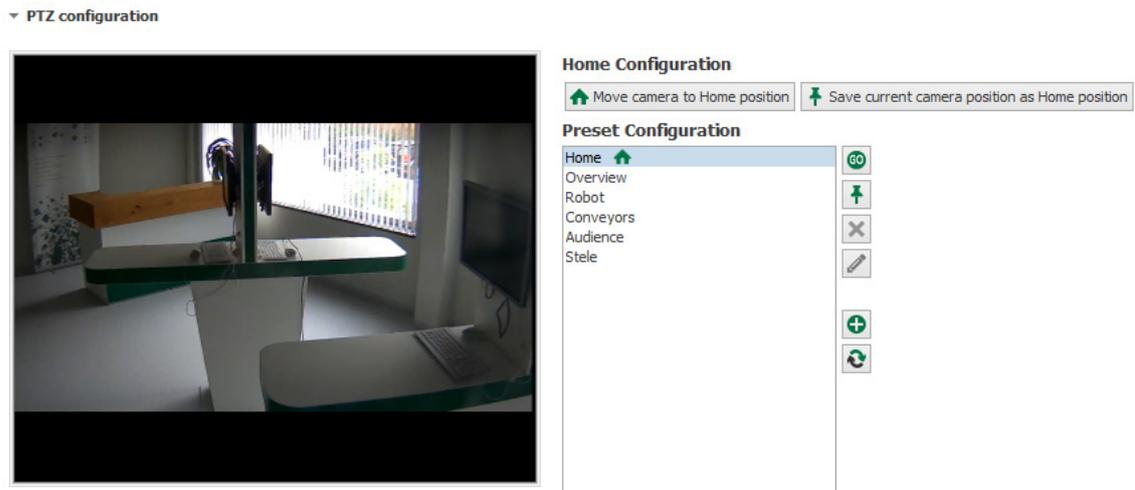


#### Note



PTZ is disabled for all new cameras by default. For activation, the checkmark must be set and the server configuration applied.

### 5.4.10.2 Home configuration



Using the two buttons, you can move the camera to its home position or adjust the home position.

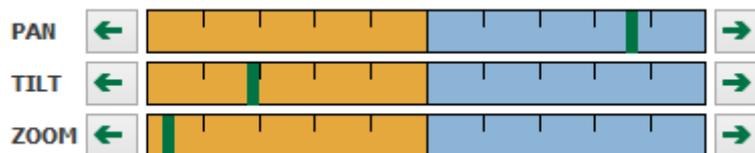
#### Note



The settings for the camera positions (home position and other presets) are stored in the camera, not in *ibaCapture*.

Moving the camera can be controlled by a joystick or the mouse, see chapter [Using PTZ cameras](#), page 50.

Otherwise you can use the sliders “Pan”, “Tilt”, and “Zoom”, either by clicking on the arrows or by dragging the green cursor with pressed left mouse button.



#### Set home position

1. Move the camera to the desired position.
2. Select the „Home" branch and click the button <Save current position as Home position> or click *Update home*  in the ribbon.

#### Move the camera to the home position

- ➡ Click the button <Move camera to Home position> or click *Move to home* .

### 5.4.10.3 Preset configurations

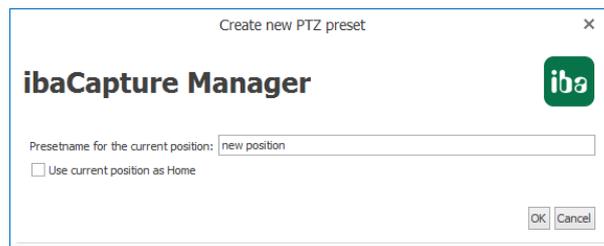
You can save camera positions (presets) and move the camera to the defined positions by mouse click.

The PTZ configuration can be controlled using these buttons:

	Move the camera to the selected preset
	Save the current position to the selected preset
	Remove the selected preset
	Rename the selected preset
	Create a new preset for the current camera position
	Refresh the preset list

#### Create a new preset

1. Move the camera to the selected preset.
2. Click on the *Create new preset...* button and  enter a name for this setting in the dialog.



3. The position can be set as home position by setting a checkmark in the box below the text-field.
4. Click on the <OK> button to save this setting.

#### Move camera to the preset position

- ➔ Select the desired position in the preset list and click on the button 

The green markers on the pan, tilt and zoom sliders show the absolute pan, tilt and zoom values of the saved camera position.

The values for the current position retrieved by the camera can deviate from the actual values, e. g. due to firmware implemented incompletely in the camera. This depends on the model.

#### Change preset position

1. Move the camera to the desired position.
2. Select the position to be changed in the preset list and click on the button 

### Change preset name

1. Mark the preset name that you wish to modify and click on the button 
2. Change the name in the text field of the dialog and confirm with <Yes>.

#### Note

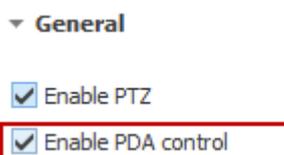


Before you change a preset name, move the camera to the preset position by clicking on the  button, since otherwise the position will be changed, too.

### Delete preset position

- ☞ Select the preset you wish to delete and click on the  button.

#### 5.4.10.4 ibaPDA control



The movement of the PTZ cameras can be controlled with *ibaPDA* version 6.31 and higher. The prerequisite is that the "Enable PDA control" checkbox is enabled and that the setting has been applied. The control with *ibaPDA* is not selected in the default setting.

*ibaPDA* can control the PTZ camera via the output signals. The signals can either contain absolute position values or one of the preset positions, see chapter [↗ Controlling PTZ cameras with ibaPDA](#), page 147.

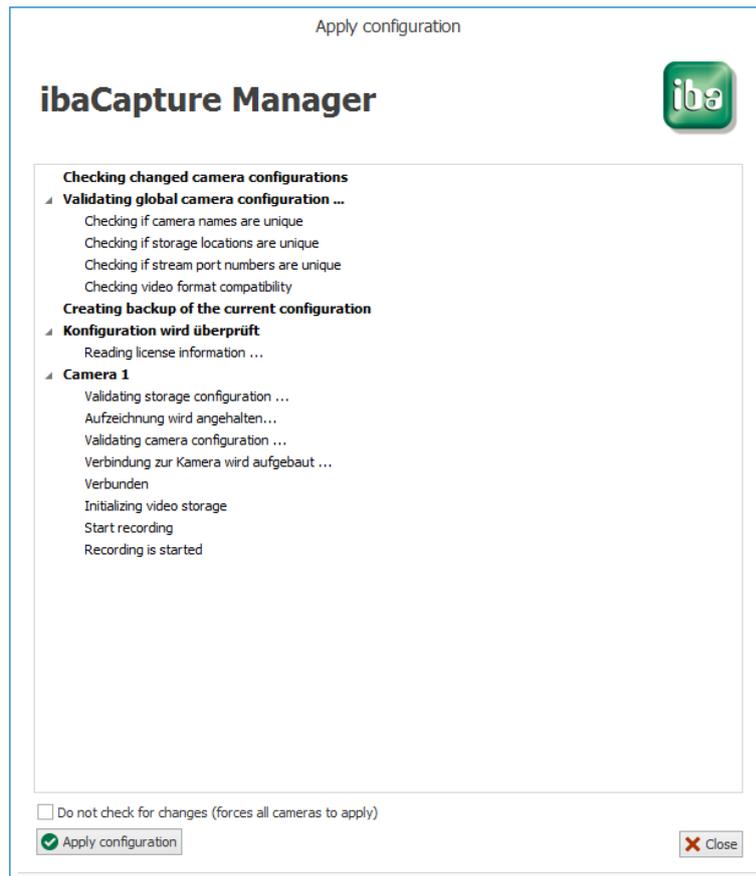
#### 5.4.11 Applying the configuration

After a camera has been configured the configuration must be applied by the server.

If the camera configuration has been changed and has not been applied by the server, this will be indicated by a yellow triangle over the camera icon in the configuration tree 

By clicking *Undo changes*  you can revert to the last saved configuration.

When clicking *Apply configuration*  the changes are applied to the server. The configuration validation is shown in the following window.



By default, the server will only stop those cameras whose configuration was changed. This can be overruled by checking the checkbox "Do not check for changes" and clicking the <Apply configuration> button again. This will force the server to stop all cameras and apply their configuration, regardless if the configuration was changed or not.

If you do not want all cameras to be stopped, you can close the window.

#### Note



Applying a new configuration can cause the system to reconfigure and initialize the hard disk partition for video storage, i. e. the directories for the respective camera. In case of memory quota extension, new empty video files (place holders) will be added to a camera folder. In case of a quota reduction, existing video recordings may be deleted.

Only folders of the respective camera(s) will be affected.

*ibaCapture* Manager saves the configurations on the video server in an XML file. After that, the video service will be restarted and the changes will take effect. The hard disk (the partition for the video files) is reconfigured.

After the changes have been applied  click *Close configuration* to switch to camera view mode.

## 5.5 Live view priorities

Every *ibaCapture* Server has a licensed number of live streams. When multiple clients (e.g. *ibaPDA* Client, *ibaCapture* Manager) in the network access live streams, the number of available live streams can be exhausted. With live view priorities it is possible to define clients that should be preferred when requesting live views from *ibaCapture* Server

The screenshot shows the configuration interface for IBA-FUE-WKS366. On the left is a navigation tree with categories: Service (Status, License info, SNMP server, ibaPDA communication, Time synchronization), Camera configuration (General settings, Camera 1), Server access (Live view priorities, User management), and User management. The main panel is titled 'IBA-FUE-WKS366' and contains a 'Client defined priorities' section with a checked 'Enable client defined priorities' checkbox. Below this is a table with columns 'Client name' and 'Priority'. Two entries are listed: 'iba-fue-wks366' with priority 2 and 'iba-fue-wks\*' with priority 0. To the right of the table are '+' and '-' icons. Below the table is a 'Current live streams' section with a 'Number of streams' input set to 1. A table below shows one active stream for 'admin' connected to 'IBA-FUE-WKS366' at IP 'fe80::31fc:255b:2036:...' since '29.11.2017 13:51:56' with priority 2.

Live view priorities can be configured in server configuration mode on the *Live view priorities* node. Priorities are based on the client name of the system.

If you want to use live view priorities, first enable *client defined priorities* with a tick in the checkbox. A priority rule consists of the client name (server name) and a numeric priority. The higher the number the higher the priority. The default priority is 0. Negative priorities are supported as well.

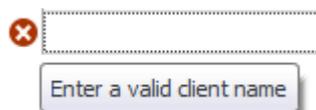
Priority rules can be added and/or removed with the buttons <+> and <x>. Enter a name and a value for the priority.

A rule can be applied to multiple clients with the use of wildcards. The supported wildcards are:

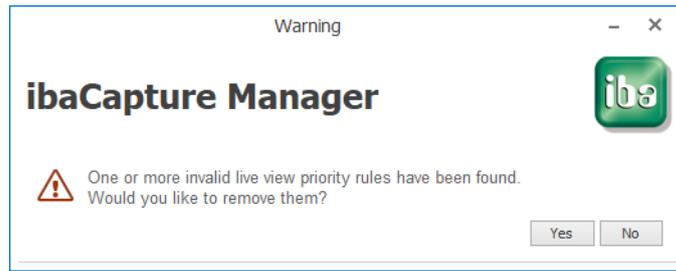
- ?: matches exactly one character.
- +: matches one or more characters.
- \*: matches zero or more characters.

Rules without wildcards will always overrule rules with wildcards.

While configuring priorities, invalid rules will be marked with a red icon. Hovering over the icon will show a tooltip with more information to correct the rule.



If you try to leave the *Live view priorities* node while there are invalid rules, you will be asked if you would like to remove these. Only if all rules are valid you are able to leave the node.



The grid underneath the priority rules grid shows the current live stream connections and their priorities.

## 6 Configuration of ibaPDA

This manual only deals with the additional configuration possibilities for ibaPDA regarding ibaCapture. All basic and further information and settings in ibaPDA can be found in the ibaPDA manual.

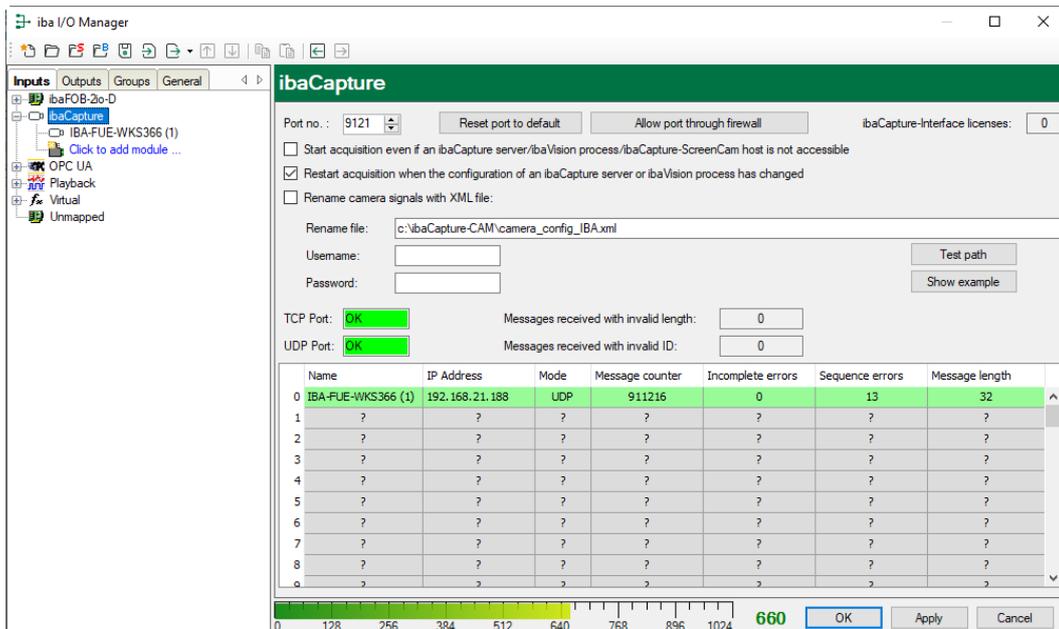
### 6.1 ibaCapture interface and modules

If installation and configuration of *ibaCapture* Server have been completed, it is now possible to add and configure *ibaCapture* modules. For this purpose, it is helpful if *ibaCapture* Server is running and accessible by the *ibaPDA* computer via network.

The modules are created and configured in the I/O Manager of *ibaPDA*.

To open the I/O Manager, start the *ibaPDA* client and click on the icon  in the toolbar. You can also access the I/O Manager via the menu “Configure - I/O Manager”.

#### 6.1.1 ibaCapture interface



The figure above shows the view of the *ibaCapture* interface.

#### Port number

The port number is specified in the entry field in the top left. The port number is used to receive synchronization data from one or more *ibaCapture* Server via Ethernet connection. The default port number can normally be used.

For further information, see chapter [↗ ibaPDA communication](#), page 74.

If the default port number is already used in your network for other purposes you can change it here. The port number is always transferred to *ibaCapture* Server, to inform the video server about the correct port number for the exchange of the synchronization telegrams.

### ibaCapture-Interface licenses

The available *ibaCapture* licenses are shown in the top right of the screen. You need one license for each connection to an instance of *ibaCapture* Server.

### Start acquisition even if an ibaCapture Server/ibaVision process is not accessible

If you want to make sure that the acquisition starts, regardless of *ibaCapture* Server or *ibaVision* being accessible or not you should checkmark the corresponding option.

### Restart acquisition when the configuration of an ibaCapture server has changed

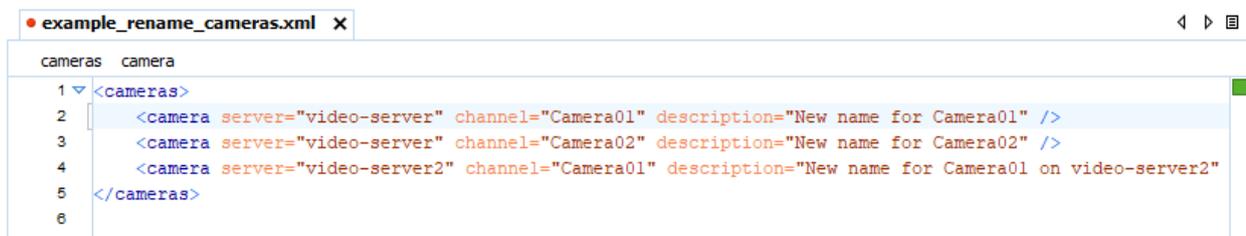
If ibaPDA detects a change in configuration for one of its active cameras then the acquisition can be automatically restarted (only works with ibaCapture Servers v4 or higher).

### Renaming camera signals with XML file

If there is a chance that the system configuration of the *ibaCapture* Server(s) is changed from time to time, e. g. due to renaming of the cameras, the XML file is a helpful mean.

If this option is selected *ibaPDA* will read the XML file specified in the field "Rename file".

A sample file is stored during installation of *ibaPDA* and can be seen by pressing <Show example>.



```

example_rename_cameras.xml x
cameras camera
1 <Cameras>
2   <camera server="video-server" channel="Camera01" description="New name for Camera01" />
3   <camera server="video-server" channel="Camera02" description="New name for Camera02" />
4   <Camera server="video-server2" channel="Camera01" description="New name for Camera01 on video-server2"
5 </Cameras>
6

```

If you prepare such files with different content (according to the different camera constellations) and copy it to the specified path before restarting the acquisition, *ibaPDA* will automatically acquire the new camera names.

## 6.1.2 Modules in ibaCapture

The signal tree shows the available *ibaCapture* modules in a tree structure under the *ibaCapture* interface. Two different module types are available:

- ibaCapture
- ibaCapture-ScreenCam
- ibaVision input
- ibaVision V2 input
- ibaVision V2 text input

*ibaCapture* modules are designed for video cameras (analog, IP, GigE) and virtual cameras. Each module is assigned to one *ibaCapture* Server and can handle up to 64 cameras of the aforementioned types. The actual number of cameras depends on the *ibaCapture* Server configuration.

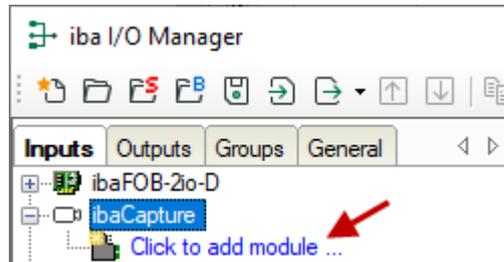
The configuration of an *ibaCapture* module is described in chapter [➤ Configuring an ibaCapture module](#), page 131.

*ibaVision* input modules are designed to receive analog and digital signals sent from an *ibaVision* process.

The configuration of an *ibaVision* input module is described in the *ibaVision* manual.

## 6.2 Creating a new ibaCapture module

To create a new *ibaCapture* module, click on "Click to add module..." under *ibaCapture*.

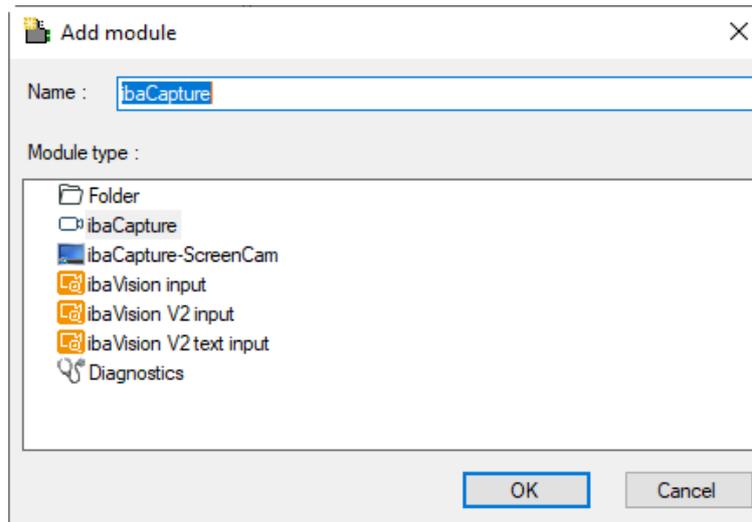


Enter a module name in the text box and select the module type:

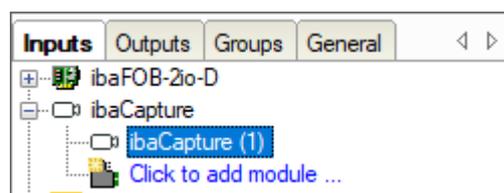
- *ibaCapture*, when connecting to an *ibaCapture* Server
- *ibaVision* input, when receiving data from *ibaVision*.

Confirm with <OK>.

Choose a name so that the video server and its respective cameras can easily be identified later.



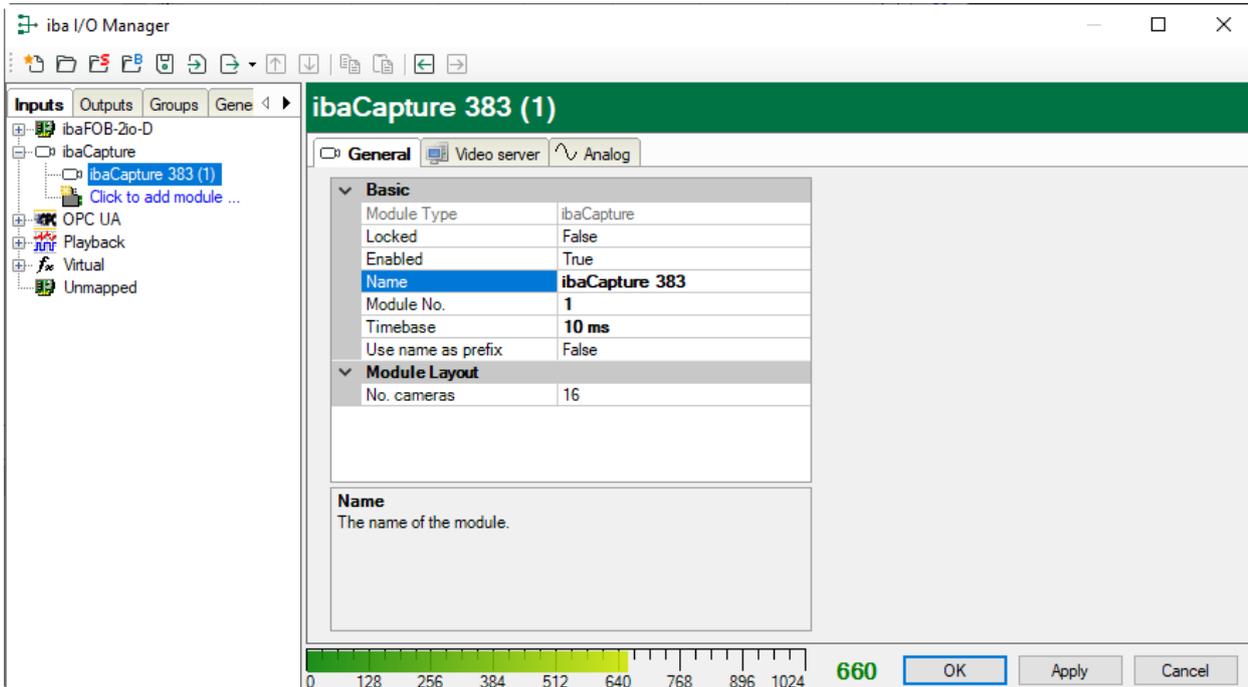
Once the module has been created, it is shown in the signal tree.



To configure an *ibaCapture* module, select the respective *ibaCapture* module in the signal tree.

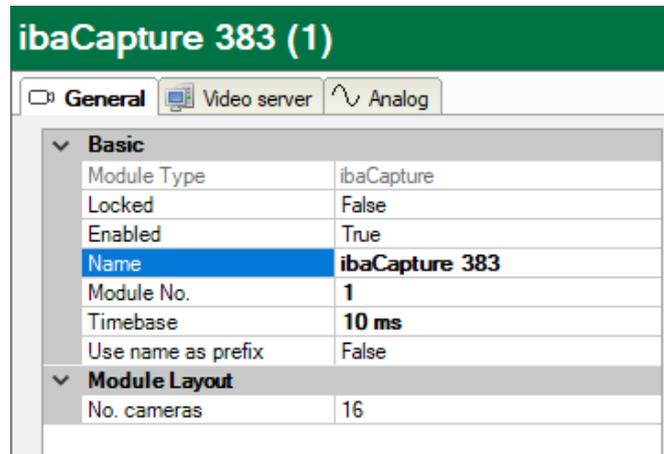
### 6.3 Configuring an ibaCapture module

The settings for the connection between *ibaPDA* and an *ibaCapture* server are made in the configuration of the *ibaCapture* module.



#### 6.3.1 General

The basic settings are described in detail in the *ibaPDA* manual. Normally, the preset values do not need to be changed.



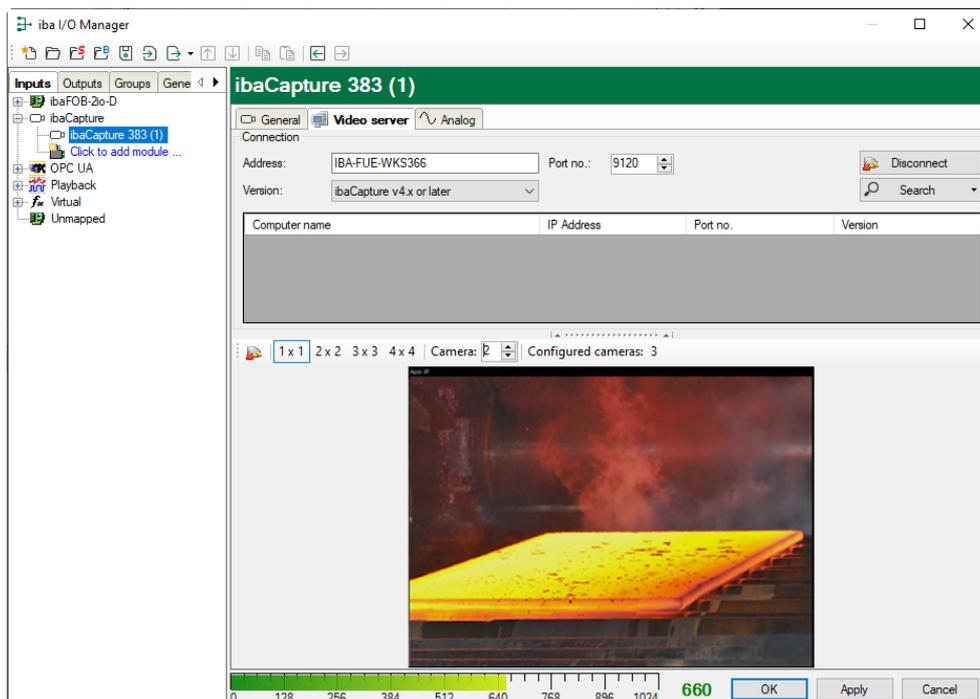
In the field “No. cameras”, you can configure the number of cameras to be configured. The minimum value is 16. When connected to the video server, *ibaPDA* will automatically set the number of cameras to the correct value, if a higher number of cameras is available.

**Note**

The timebase in this case sets the period for writing the synchronization data in the data file. It is recommended setting this timebase at least half the timebase of the fastest camera or lower.

Example: Camera with 25 fps (= 40 ms) -> recommended time base  $\leq$  20 ms

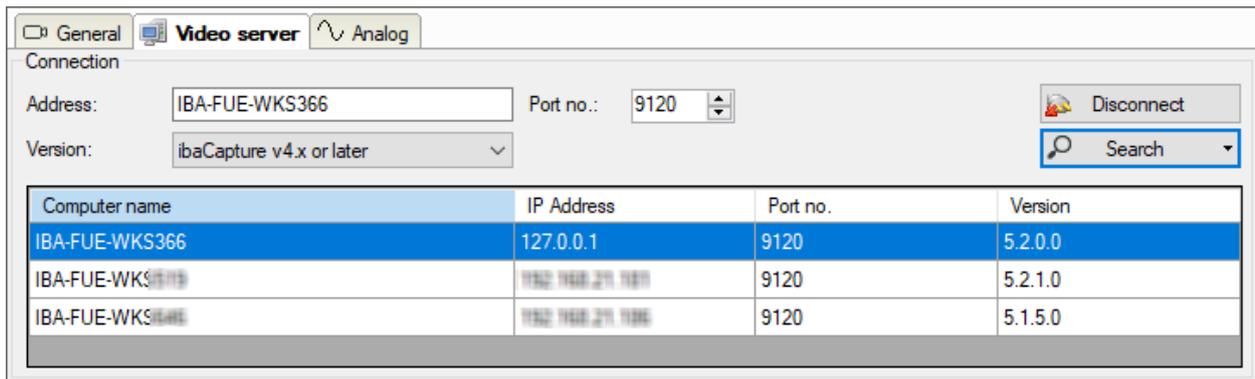
Camera with 300 fps (= 3.33 ms) -> recommended time base  $\leq$  2 ms

**6.3.2 Video server**

The *Video server* dialog consists of two sections:

- Connection
- Live screen

### 6.3.2.1 Connection



Computer name	IP Address	Port no.	Version
IBA-FUE-WKS366	127.0.0.1	9120	5.2.0.0
IBA-FUE-WKS366	192.168.21.101	9120	5.2.1.0
IBA-FUE-WKS366	192.168.21.100	9120	5.1.5.0

In the section *Connection* the *ibaCapture* Server is selected on which a video sequence is to be recorded. In order to establish a connection to a video server you have two possibilities:

1. Enter the computer name or the IP address of the video server computer into the field "Address" or
2. Click on the <Search> button. In the area below all *ibaCapture* Servers available in the network will be listed with their computer names.

Please note that the search function might fail due to network restrictions concerning multicast messages.

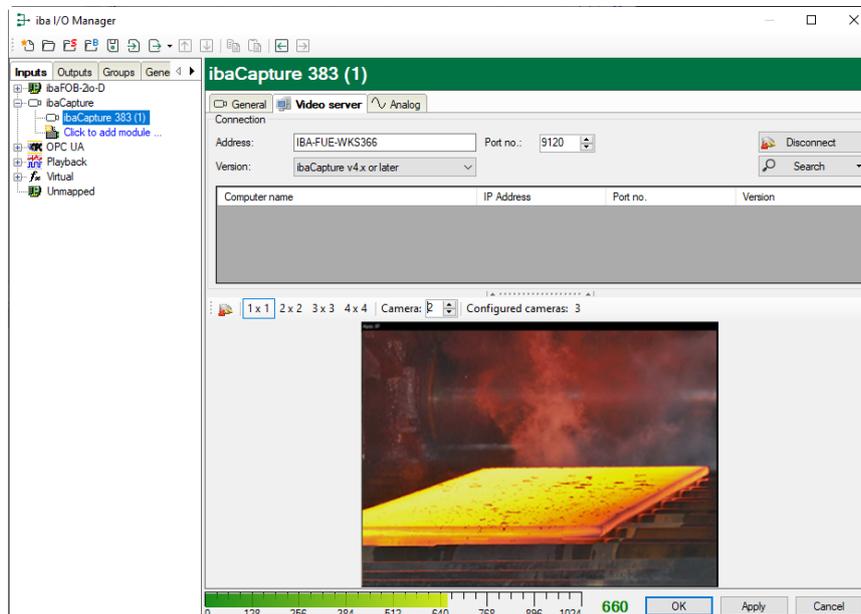
The default port number can usually be retained as it equals the default port number of the video server.

The server in question should then be selected with a mouse click. Click the <Connect> button to connect to the *ibaCapture* Server. The selected server is shown in the "Address" field.

The version of *ibaCapture* will be automatically detected when connected to the server.

### 6.3.2.2 Camera screen

As soon as the connection between *ibaPDA* and *ibaCapture Server* is established, a live screen of the connected camera(s) appears in the lower area of the dialog "video server". Depending on the toolbar settings, one or more camera screens are visible.



The toolbar for the display area is located above the live screen.



 : Interrupts the connection to *ibaCapture*

 1 cameras is displayed.

 4 cameras are displayed.

 9 cameras are displayed.

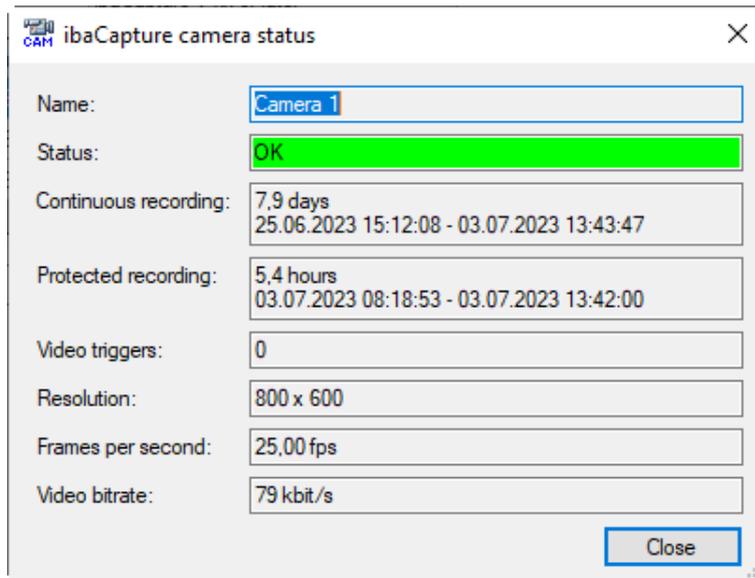
 16 cameras are displayed.

 Camera: 0 Selection of camera / camera group

The display area can display a maximum of 16 live screens at the same time. Display as a tile pattern reduces the screens in size. The field "Camera" provides the possibility of a larger display. If eight cameras are connected and only four live screens are to be displayed at the same time, open the view 2x2 by clicking in the toolbar. Cameras one to four will be displayed. A mouse click on the "arrow upwards" displays the next four live screens. The camera number jumps from 0 (for the first camera) to the number 4 (for the fifth camera) automatically. With a mouse click on the "arrow downwards" the live screens of the first four cameras are displayed again.

The number of licensed cameras is also displayed in the toolbar.

With a double click on a camera image the *ibaCapture* camera status window will open.



The *ibaCapture* camera status shows useful information on the camera (e.g. status, recording time, number of video triggers, resolution and bit rate).

When the camera is in error state a double-click on the camera view will open the *ibaPDA* client log file.

### 6.3.3 Analog

ibaCapture 383 (1)			
General Video server Analog			
Name	Delay (ms)	Active	Actual
0 ScreenCam	200	<input checked="" type="checkbox"/>	16883847433405664
1	200	<input type="checkbox"/>	0
2 Camera 1	200	<input checked="" type="checkbox"/>	16883847434286028
3	200	<input type="checkbox"/>	0
4	200	<input type="checkbox"/>	0
5	200	<input type="checkbox"/>	0

The *Analog* tab displays all the connected cameras in a signal table.

#### Name

Clicking in the column *Name* enables you to change the name of the camera in the respective row.

If no camera names have been assigned yet in *ibaPDA*, the camera names from *ibaCapture* Server are loaded as default as soon as *ibaPDA* connects to *ibaCapture* Server.

#### Delay

The delay time given in ms is the time needed for the transfer of the video data from the camera via MPEG/H.264/H.265 compression to time stamp and storage on the video server. It can be modified according to real circumstances if required.

Usually, the pre-set values of the delay can be retained.

## Active

For the synchronization data of a camera to be stored in the data file and thus connecting the video to the measuring data recording, the *Active* column must be ticked off. Respectively, *ibaAnalyzer* will show the camera in its signal tree later when the DAT file is opened for analysis. If you double-click the camera, then in *ibaAnalyzer* it will retrieve the video from the ring buffer of the *ibaCapture* Server using the stored sync information.

## Actual value

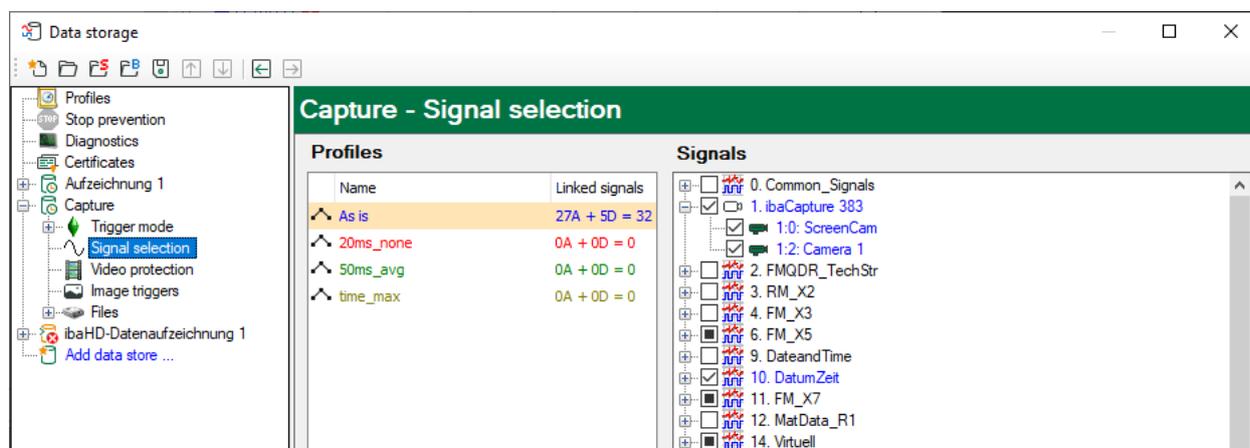
The actual value is the timestamp/sync value for each camera (64 bit value).

## 6.4 Data acquisition with ibaPDA

### 6.4.1 Continuous video recording

The continuous video recording is started automatically with start of data recording. As soon as *ibaPDA* data storage has been started the synchronization data sent by *ibaCapture* Server is stored in the data file together with the measured data. This is how the measured values are connected to the video recording. When stopping the data recording, the data file is closed and the connection is removed. In doing so, *ibaPDA* does not have any impact on the video server.

To make sure that the video streams are correctly stored with the measured data, for both continuous and triggered recording, you must check the camera signals in the signal selection pane of the data storage configuration dialog:



An unchecked camera will not be available later in *ibaAnalyzer*, although *ibaCapture* Server has recorded the video stream.

With *ibaHD-Server* v1.6.4 and higher, it is also possible to store camera synchronization data. Video in *ibaAnalyzer* can then be used as if a DAT file was opened. For this to work, the camera signals also have to be enabled in the HD data store configuration.

### 6.4.2 Triggered video recording

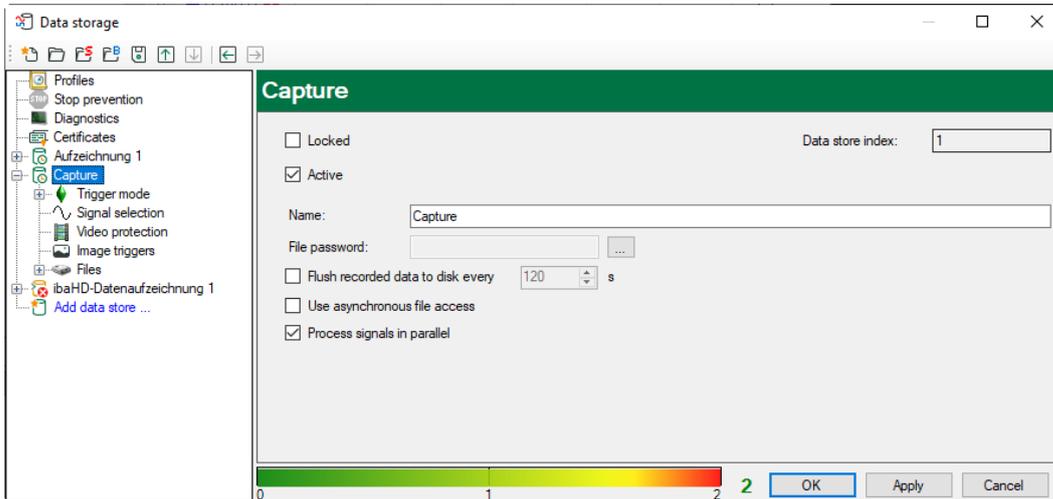
Parallel to the continuous video recording, triggered video sequences can be recorded. As described in chapter "Principles of video recording", particular video sequences are stored protected on *ibaCapture* Server by means of video triggers during video recording to protect the video data against being overwritten by the continuous recording.

ibaPDA therefore sends the information on the trigger events to the video server.

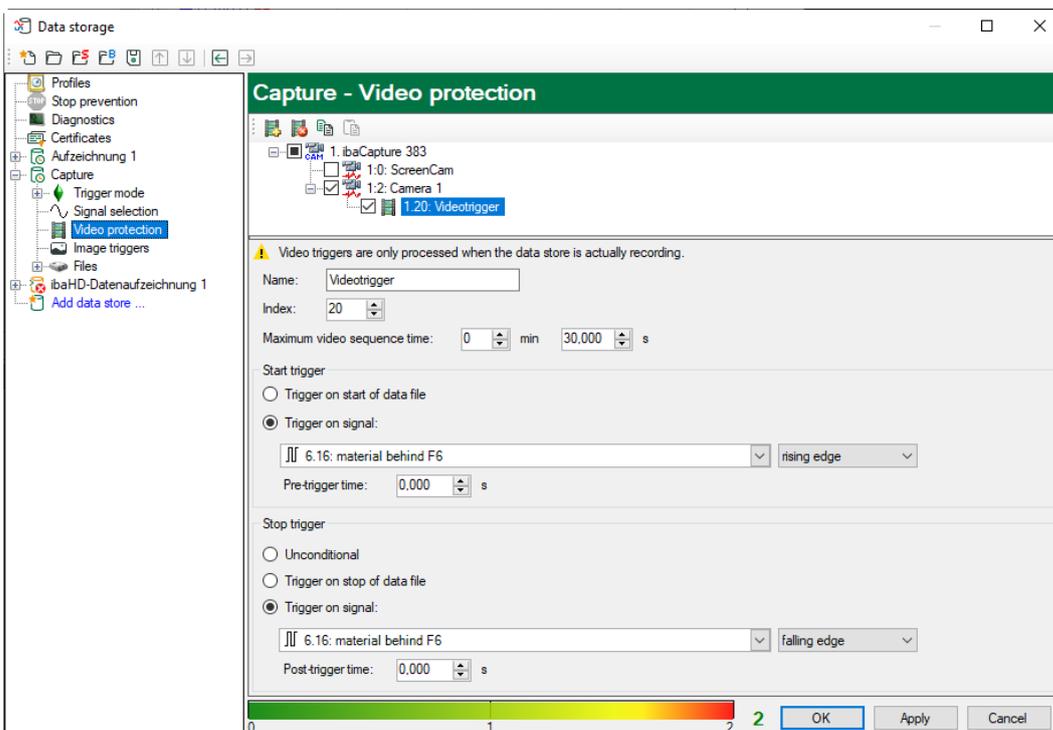
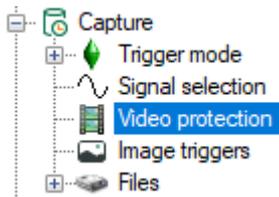
In order to record triggered video sequences, the video triggers need to be configured.

Select an existing data storage you want the video recording to be linked with or create a new data storage.

For this purpose, open the "Data storage" dialog by clicking on the icon  in the toolbar or on the *Configure - Data storage...* menu.



Click on the branch "Video protection" to open the video trigger setup dialog.



The available video servers and all active cameras connected to them are displayed in the upper section in a tree structure. All further video triggers to be configured are created under the corresponding (marked) camera.

Up to 10 video triggers can be added to each camera.

### Adding an image trigger

You can assign an image trigger to a camera by selecting the camera in the tree structure and pressing the "Add image trigger" button in the toolbar. Alternatively, you can use the context menu (right-click on the camera).

By setting or removing a checkmark in the corresponding checkbox, you can enable or disable every trigger for recording.

The video trigger toolbar is located in the upper section.



 Add image trigger, alternatively, a image trigger can be added via the context menu. The relevant camera must be marked for this.

 Removing image trigger

 Copying marked image trigger to clipboard

 Pasting image trigger from the clipboard

If an image trigger was marked, the name can be changed. Furthermore, it is possible to set the index in the rotary field "Index" and the maximum video sequence time. The trigger index defines the order of the triggers for one camera.

For a triggered recording, at least a start trigger has to be configured. Every trigger can have its individual conditions.

The setting of trigger conditions is widely the same as for *ibaPDA* data storage triggers.

In the "Start trigger" section, both a digital and analog signal can be selected as trigger signal. The following trigger conditions can be selected:

- Rising / falling edge or log. 0 / log 1 for digital signals
- Rising / falling edge or below / above level X for analog signals

Optionally, it is possible to define a pre-trigger time.

According to the "Start trigger" section, a trigger signal can be selected with the aforementioned trigger conditions in the "Stop trigger" section. Optionally, it is possible to define a post-trigger time.

The video sequence will start after firing of a start trigger.

The video sequence will stop when the maximum video sequence time has been reached or a stop trigger fires.

If a stop trigger was defined for stopping the recording which, however, did not occur (due to bad level or edge setting), the recording is stopped after lapse of time.

**Note**

The maximum video sequence time limit is dominant compared to a stop trigger. If you want to use a stop trigger, make sure that the maximum video sequence time value is high enough.

A click on the <OK> button applies the configuration of the data storage.

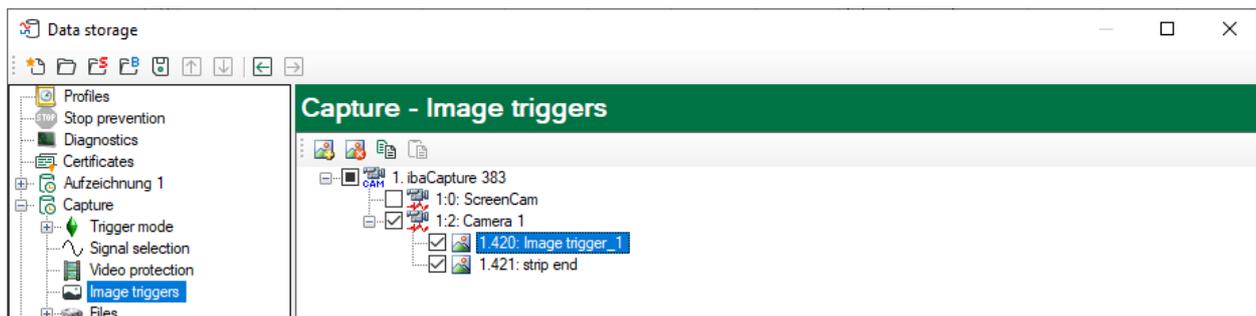
### 6.4.3 Still images/snapshots via image trigger

Image triggers allow saving of single images from a video stream at a specific time. With each trigger fired, ibaCapture creates an image (.jpg or .bmp) of the corresponding frame of the video stream.

Similar to video triggers (see above), image triggers are defined in the data storage configuration of *ibaPDA* (version 6.29.0 or higher). A branch "Image trigger" can be seen in the tree of data storage if ibaCapture modules are included in the I/O configuration.

All *ibaCapture* Servers and the cameras connected are shown in the tree structure of the "Image trigger" branch.

Up to 10 image triggers can be added to each camera.



#### Adding image triggers

You can assign an image trigger to a camera by selecting the camera in the tree structure and pressing the "Add image trigger" button in the toolbar. Alternatively, you can use the context menu (right-click on the camera).

-  Add image triggers
-  Remove image trigger
-  Copy marked image triggers to clipboard
-  Insert image triggers from clipboard

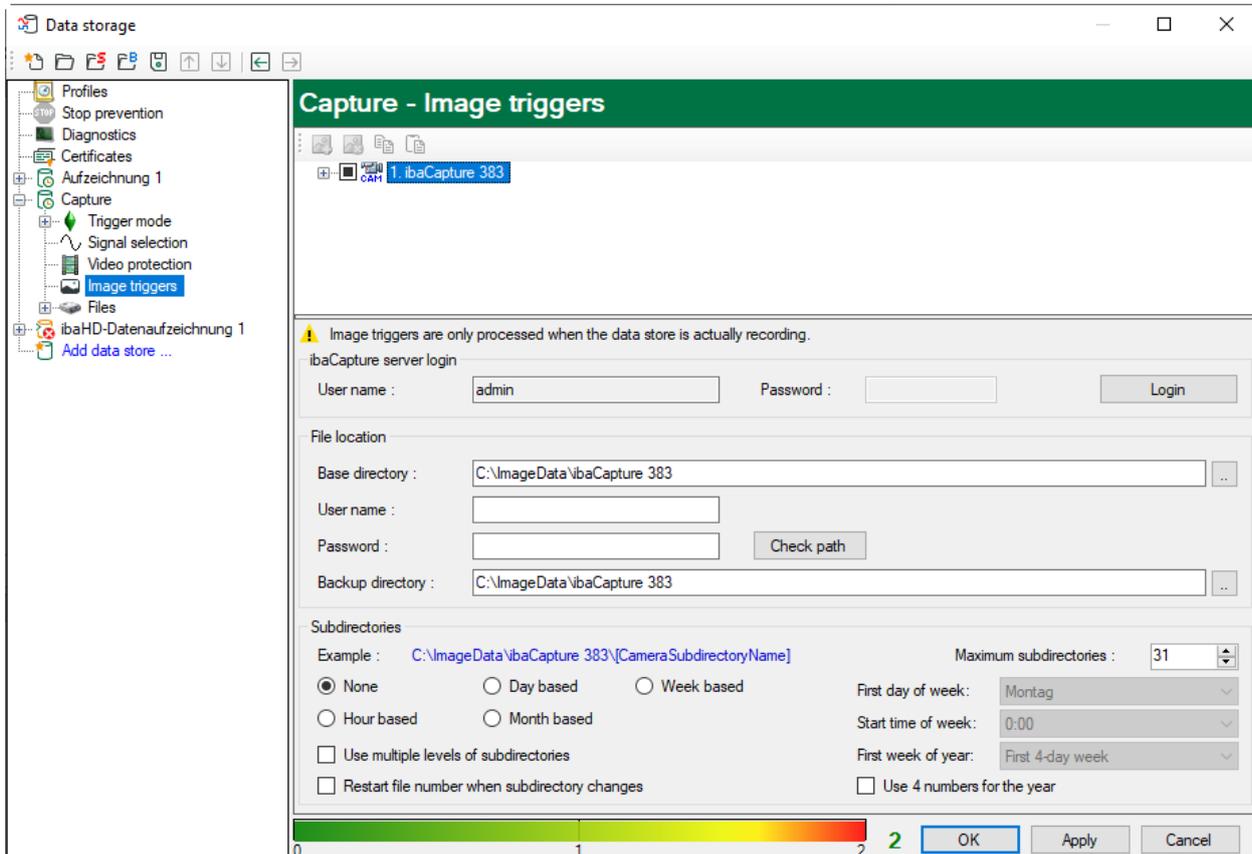
By setting or removing a checkmark, you can enable or disable every image trigger for recording.

## Configuring image triggers

The configuration of the image triggers is done on 3 different levels: *ibaCapture* Server, camera and image trigger.

### Server level

Select the server branch.

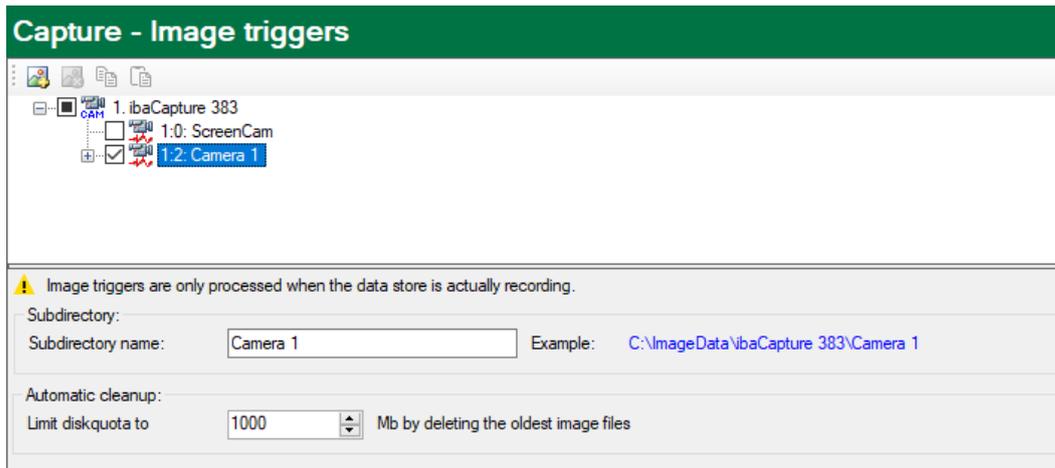


On the video server level, you can determine the main folder and the subfolder structure for the storage of image files. A subdirectory is automatically created under the main directory of the server for each camera. A structured storage is then made below this, which you can configure here, similar to the measurement files in the data storage.

In addition, you can determine a user account to be used for login to the video server.

### Camera level

Select the camera branch.



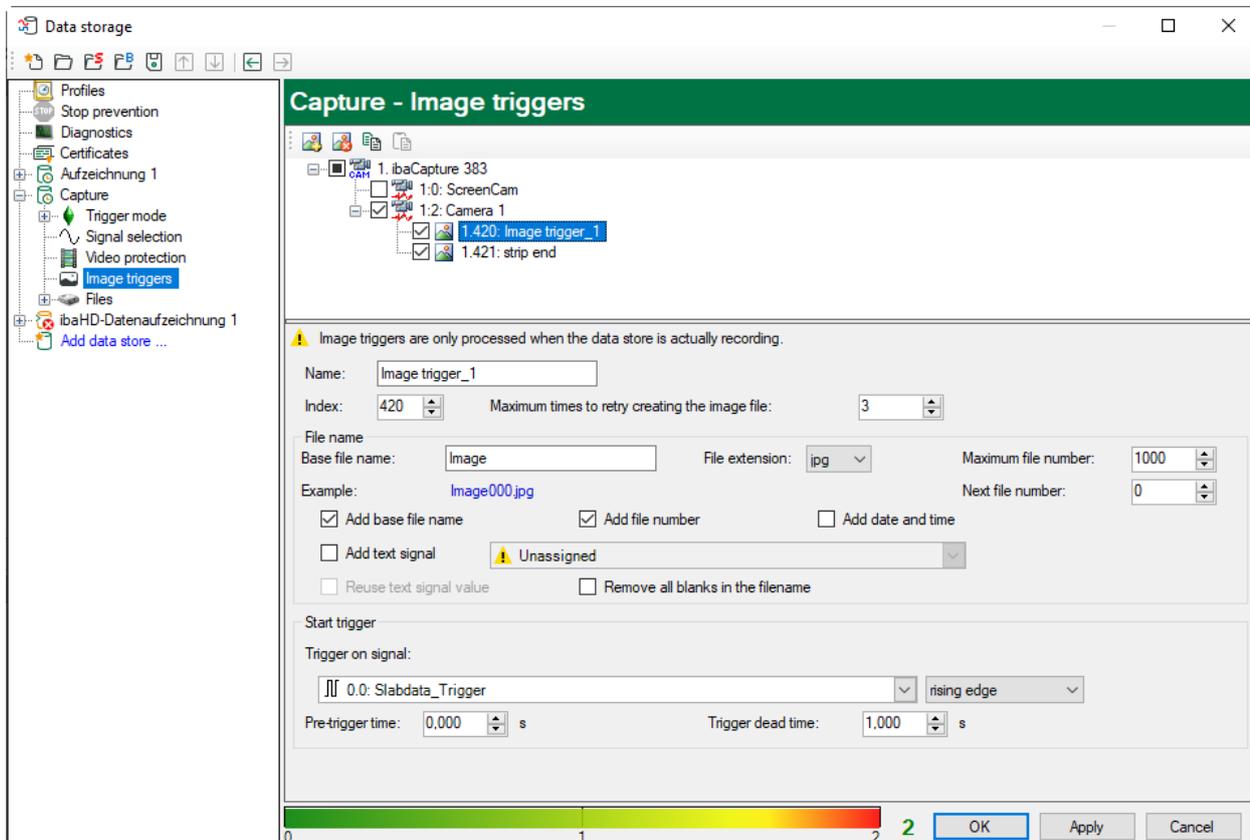
Specify the name of the subdirectory for the camera and the allocated disk space in MB at the camera level. The disk quota is checked every 15 minutes. Choose a memory size that corresponds to the maximum permissible disk space minus the approximate data volume generated within 15 minutes. Doing so helps you to ensure that the maximum permissible disk space is not exceeded.

### Example

A maximum of 500 MB is available for one camera. Approximately 10 MB of image files are generated within 15 minutes. The memory use should then be limited to 490 MB.

### Image trigger level

Select an image trigger



On the trigger level, you can change the name and index of an image trigger. The index determines the order of triggers for a camera.

Furthermore, you can set the way the file name of the image file is created. The same setting options as for the data files are available.

The start trigger determines the time a snapshot is made. You can also trigger on the edge of a digital signal or the pass-by value of an analog signal. It is also possible to define a pre-trigger time. The snapshot is then taken at the time set (trigger event – pre-trigger time). The trigger dead time determines the minimum time interval between two snapshots. In addition, the image triggers are saved in the measurement file as image channels. An image channel contains the file names of the created images.

#### 6.4.4 Starting the video recording

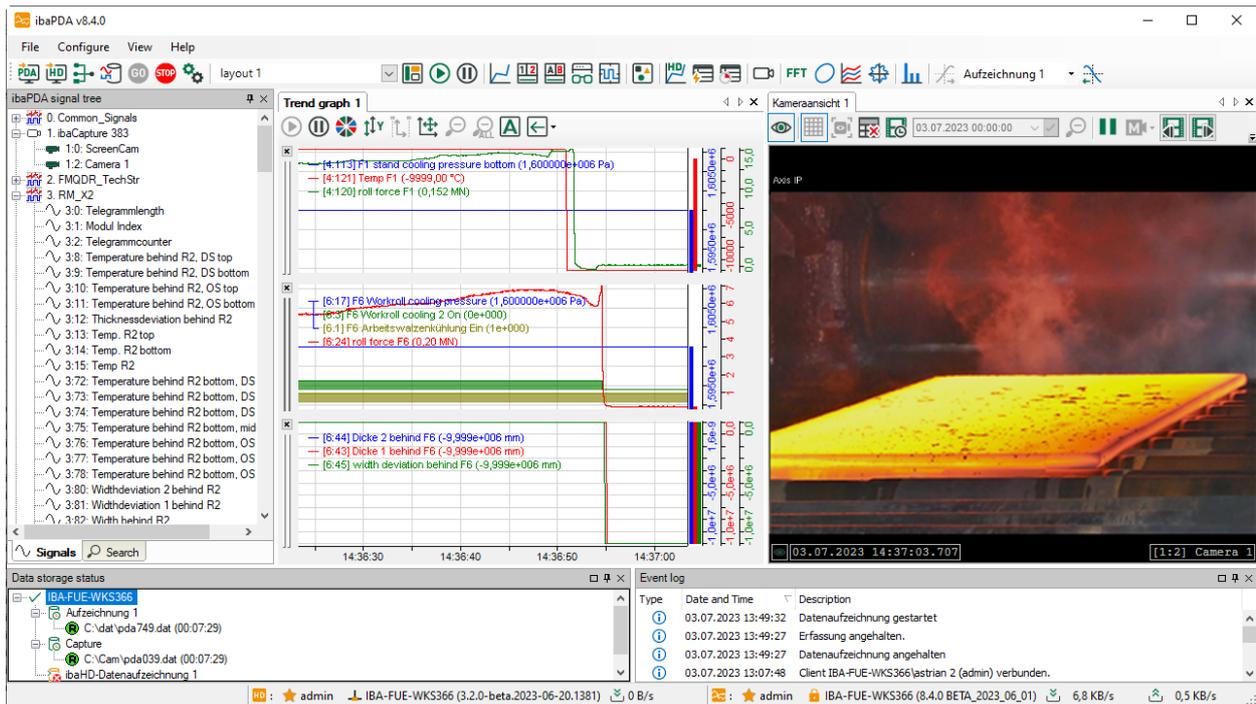
While the actual video recording takes place as soon as the *ibaCapture* server is running, the transmission of the synchronization data is started and stopped with the *ibaPDA* data acquisition. When *ibaPDA* measured value recording is started, *ibaPDA* Server connects to *ibaCapture* Server and starts the transmission of synchronization messages.

### 6.5 Video display in ibaPDA

With *ibaCapture* it is possible to display camera views in the *ibaPDA* signal display area. An instance of *ibaCapture* Server is equivalent to an *ibaCapture* module. *ibaCapture* modules are displayed in the signal tree like all other *ibaPDA* modules.

The following methods can be used in order to get camera views displayed in the signal display area:

- A double click on the camera icon in the signal tree opens a camera view showing the actual image of the respective camera (Camera 1 in the figure below).
- A click on the icon  opens a new and empty camera view. Afterwards, you can add one or more cameras by drag and drop.



The component being used for display and application is *ibaCapture Player*.

### Toolbar in ibaPDA camera view

When integrated in *ibaPDA*, *ibaCapture Player* provides a toolbar to control the video functions, in contrast to the ribbon-style menus in *ibaCapture Manager*.

The toolbar "camera settings" is located on top of the camera view. The status of the icons (enabled / disabled) depends on the status of the selected camera(s). When the camera view contains a camera in busy state, all toolbar items will be not available.



With the icon  the selected cameras are switched to live view.

With the icon  the selected cameras are switched to replay mode. The replay speed of the video recording is then set to zero for all selected camera recordings. It should be borne in mind that all cameras, at this point, are synchronized.

A click on the icon  resets all zoomed in players to their original resolution.

With the icon  all players are selected and locked. The locking makes it impossible to change the selection. To unlock the windows, click the button again.

With the icon  the user is enabled to jump to a particular point in time in the recording. In doing so, all video recordings in the selected camera windows are also reset to this time. To specify the time, you can enter the date and time in the "time picker"  .

The replay speed after the time jump can be set in the "Properties" dialog, see chapter [Player settings for all cameras](#), page 30 in the "Properties" section. The function is only available if the selected cameras are in replay mode.

Clicking the button (  ) shows or hides the camera timeline. The timeline is explained in chapter [Time axis](#), page 42.

The control element  allows the setting of the replay speed of the selected camera windows. The control element is only available if replay mode is activated.

Note that the replay speed is specified relative to the normal speed. For example, 2.00x means that the current replay speed is twice the normal speed.

With the icons  and  you can jump to the next or previous video image if the replay speed was set to zero.

### 6.5.1 Overlay text display

It is possible to add a dynamic text overlay to each camera view. This can be done by dragging a technostring from the ibaPDA signal tree onto the desired camera. The text will be positioned depending on where the signal was dropped.

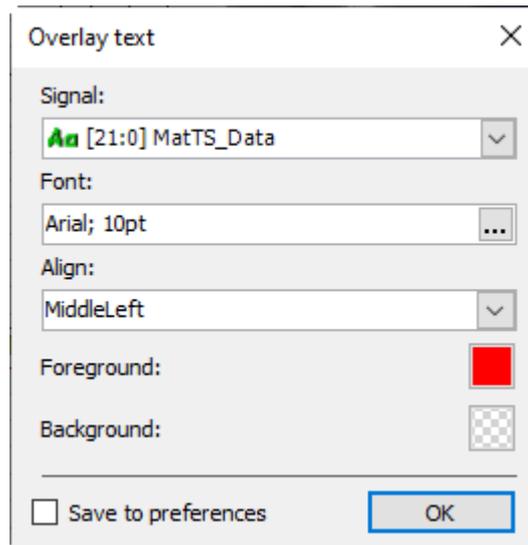
#### Note



The overlay text display is only available in the ibaPDA camera view.



An overlay text can be removed easily using the context menu (right-click on the text). In the context menu, you can also find the command for opening the properties dialog.



In this dialog, you can configure:

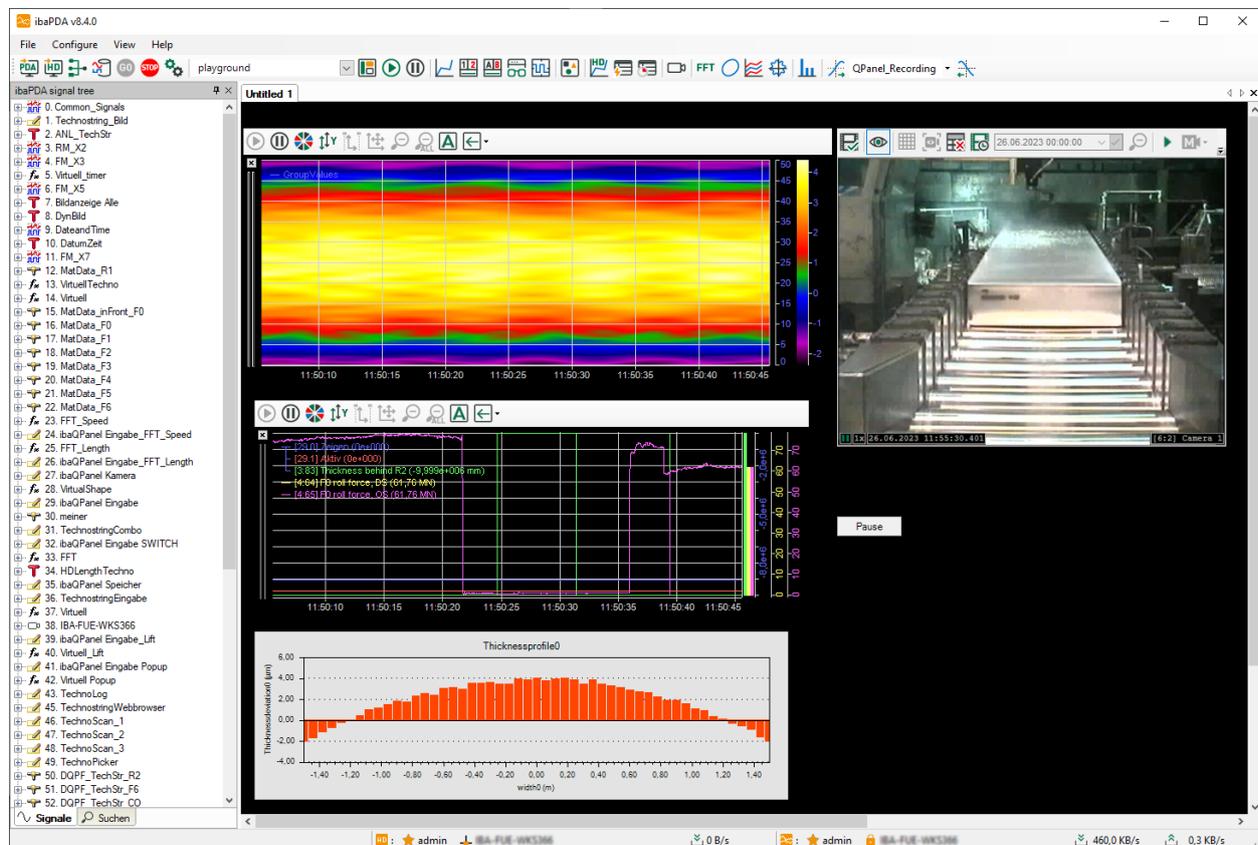
- font in which text is displayed
- foreground and background color
- orientation of the text in the camera window

By right-clicking the background color button, it is possible to select an entirely transparent color. By checking the "Save to preferences" checkbox before clicking <OK>, you can save the current settings as default settings.

If the camera switches to replay mode, the system will attempt to synchronize the technosting with the replay time of the camera. In ibaPDA, this is only partly possible. If the required technosting data is not available, the text "[?]" will be displayed. ibaPDA receives the buffered technosting data at the beginning of the data acquisition. The buffer size is adjustable in the branch "General" – "Size of text signal buffers" in the preferences of ibaPDA.

## 6.6 Online display in ibaQPanel

With *ibaCapture* it is possible to display a live image view of the video recording in the signal display area of *ibaQPanel*.



First, you have to create a panel to be able to use the camera view in *ibaQPanel*. You can also use an existing panel. Information about how to use *ibaQPanel* can be found in the corresponding *ibaQPanel* manual.

Switch the panel to the design mode. Select the "Camera view" object from the "Tools" window, drag the object and drop it into the panel. Then exit design mode.

Now, you can add one or more cameras from the signal tree to the camera view object by drag and drop.

The component being used for display and application is *ibaCapture* Player.

For further information regarding the toolbar, see previous chapter [Video display in ibaPDA](#), page 142.

The scenario player in *ibaQPanel* is a specific feature for controlling the camera layout. The scenario player provides a trigger mechanism to change camera layouts controlled by *ibaPDA* signals.

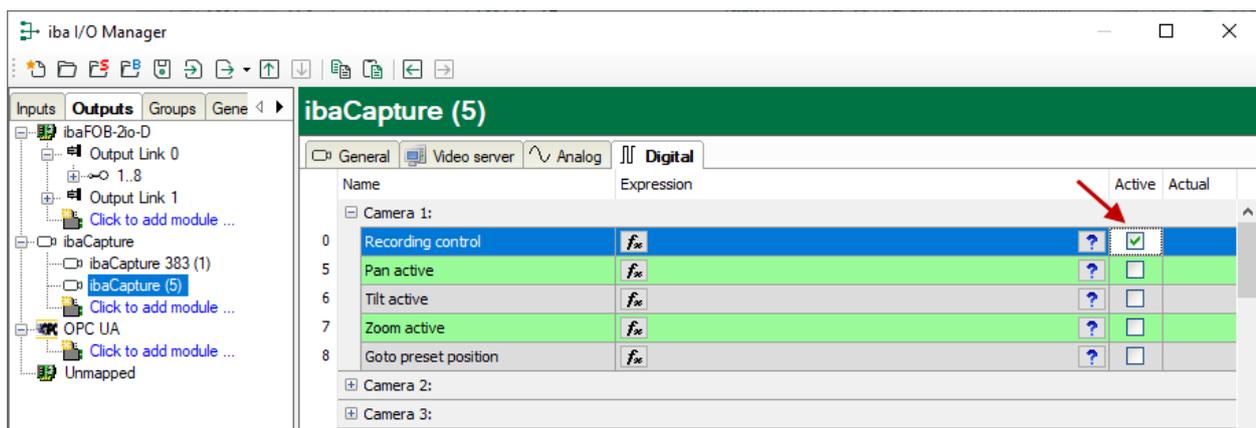
Thus the camera view can be automatically switched by special events or process signals. This allows the cameras in the relevant sector of a plant to be activated in the event of an emergency stop, giving the operator immediate insight into the situation. For detailed information, see the *ibaQPanel* manual.

## 6.7 Controlling the video recording with ibaPDA

Irrespective of whether or not using a trigger, all aforementioned setup options for video recording require the video images of all cameras to be always saved by *ibaCapture* Server. Using video triggers only affects the marking of specific video sequences and even stopping and re-starting the measurement only affects the link between data file and video file. The actual video recording is done independently unless it was disabled for individual cameras in the configuration of *ibaCapture* Server.

From *ibaPDA* version 6.29.1 and *ibaCapture* version 3.5.0 and higher, you can enable or disable the video recording with digital output signals from *ibaPDA*.

The related settings are made in the *Outputs* tab of the I/O Manager.



For each configured *ibaCapture* module, i.e. for each *ibaCapture* Server, there is also a module in this section. For each camera, you can define a digital signal or a boolean expression to control the video recording of the corresponding camera. If the expression is 'true', the recording is enabled or disabled according to the selected camera recording mode.

With a checkmark in the "Active" column, you determine whether or not the control of the camera is enabled.

If you enable the recording control for a camera in *ibaPDA*, please consider the basic camera settings in *ibaCapture* Manager.

See chapter [General information](#), page 91.

## 6.8 Controlling PTZ cameras with ibaPDA

If a PTZ camera is connected to *ibaCapture*, this can be controlled by output signals of *ibaPDA*.

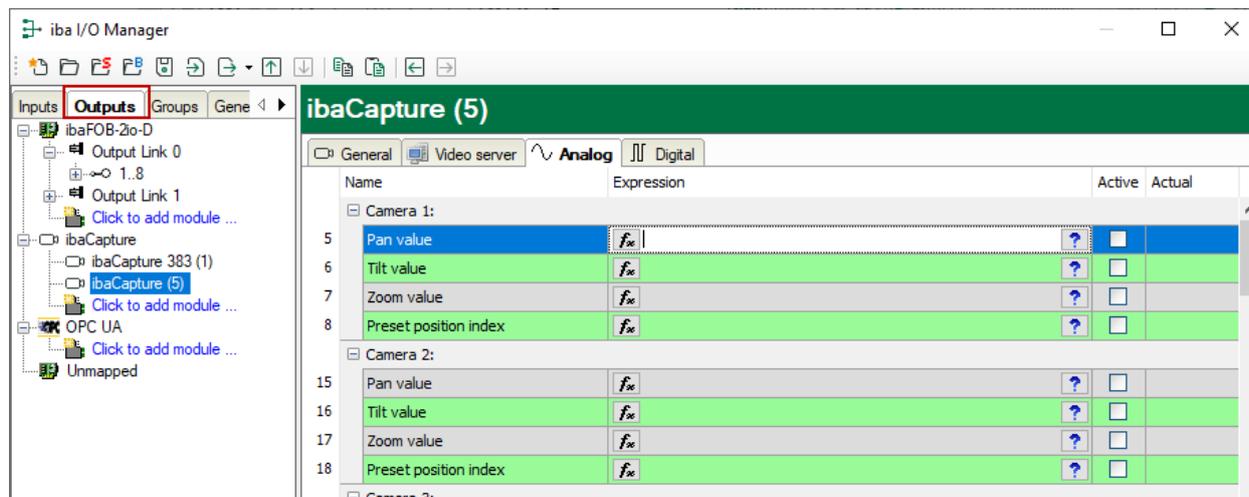
A prerequisite is:

- *ibaPDA* version 6.31 or higher
- Controlling the PTZ cameras with *ibaPDA* needs to be permitted in *ibaCapture*.

The output signals for controlling the camera are configured in the I/O Manager of *ibaPDA*. Add an *ibaCapture* module in the I/O Manager and select the *Outputs* tab.

### "Analog" tab

In the "Analog" tab, 4 signals appear for each configured camera. Using the expression builder, you can assign values to the signals.



- Pan value, tilt value, zoom value: absolute pan, tilt and zoom values of the camera position
- Preset position index: using an index, a position from the configured presets can be set.

The indices for the presets are counted upwards in the order in which they have been configured. The counting method for cameras working on the basis of the ONVIF standard differs from that for cameras using the VAPIX log, see the following table:

	VAPIX index	ONVIF index
Home	0	-
Preset 1	1	0
Preset 2	2	1
Preset 3	3	2
...	...	...

#### Note



If the index used in *ibaPDA* is higher than permitted, the signal will be ignored.

### "Digital" tab

In the *Digital* tab, 4 digital signals appear for each camera, each belonging to the 4 analog signals. By means of the digital output signals, the analog signals are activated or deactivated.

In the *Digital* tab, the signal "recording control" additionally appears. The recording can be activated or deactivated with this signal.

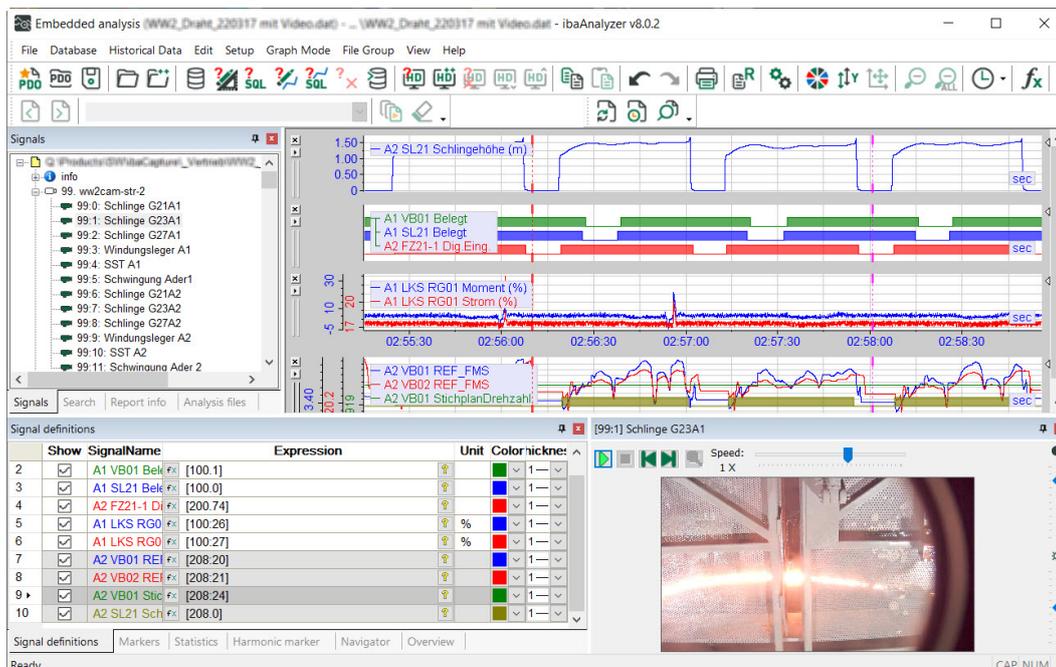
The screenshot shows the 'iba I/O Manager' application window. The 'Outputs' tab is selected in the top navigation bar. On the left, a tree view shows the hierarchy of outputs, with 'ibaCapture (5)' highlighted. The main area displays the configuration for 'ibaCapture (5)' under the 'Digital' tab. A table lists the following controls:

Name	Expression	Active	Actual
<b>Camera 1:</b>			
0 Recording control	<i>fse</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5 Pan active	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
6 Tilt active	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
7 Zoom active	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
8 Goto preset position	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Camera 2:</b>			
10 Recording control	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
15 Pan active	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
16 Tilt active	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
17 Zoom active	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
18 Goto preset position	<i>fse</i>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Camera 3:</b>			

## 7 Offline viewing with ibaAnalyzer

### 7.1 Displaying video recordings

After the data recording has been successfully carried out, an offline analysis can be carried out using *ibaAnalyzer*. *ibaAnalyzer* is a high-performance tool for analyzing complex data recorded with *ibaPDA* and *ibaCapture*.



#### Note



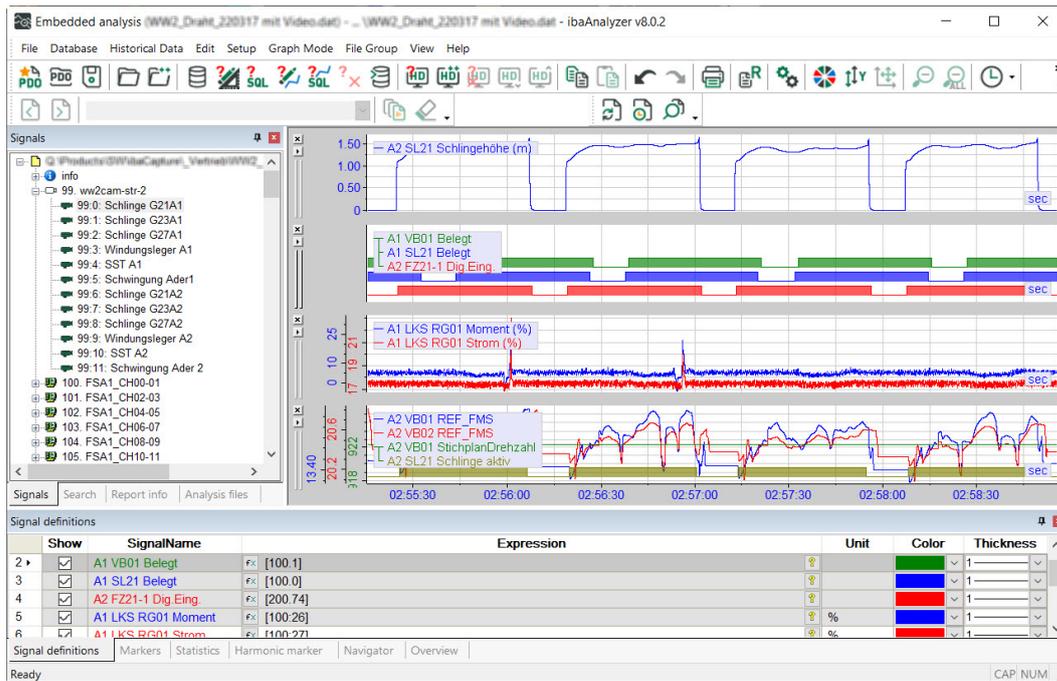
This manual only deals with the additional configuration possibilities for *ibaCapture*. All the basic and advanced settings in *ibaAnalyzer* can be found in the manual "*ibaAnalyzer, Analysis Program*".

#### Note

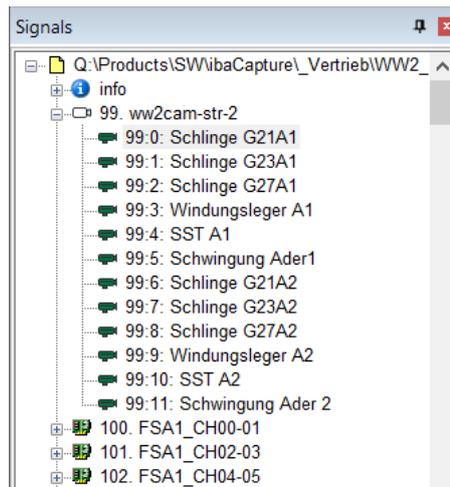


The *ibaCapture* Server, where the videos are stored, must be accessible for the computer with *ibaAnalyzer* via the network.

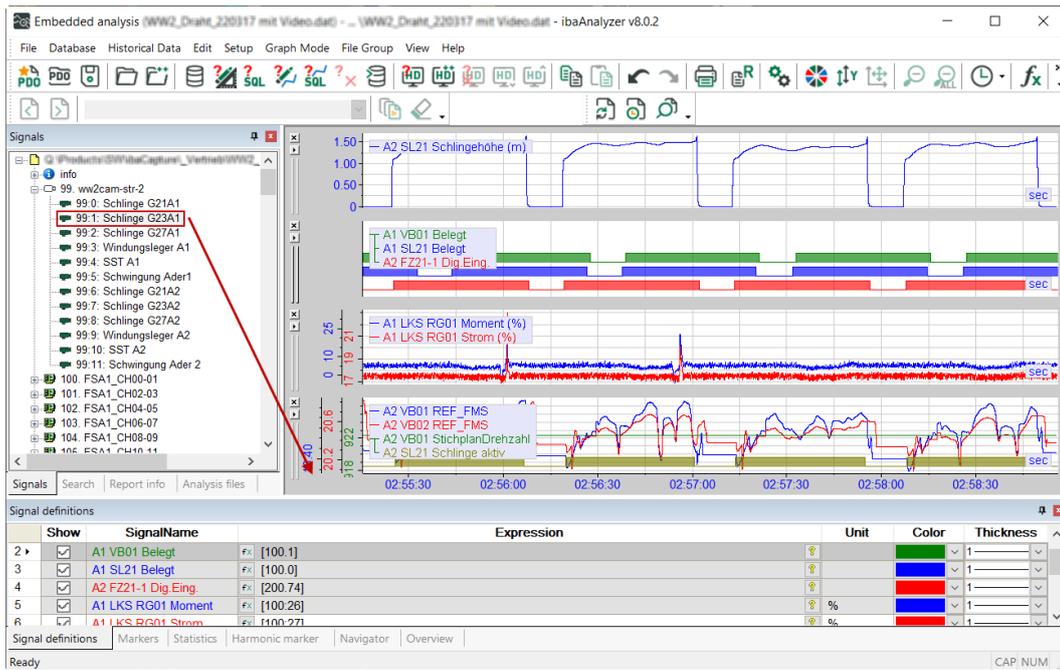
The following section assumes that you have created an analysis procedure and have loaded the measured signals selected into one or more signal strips.



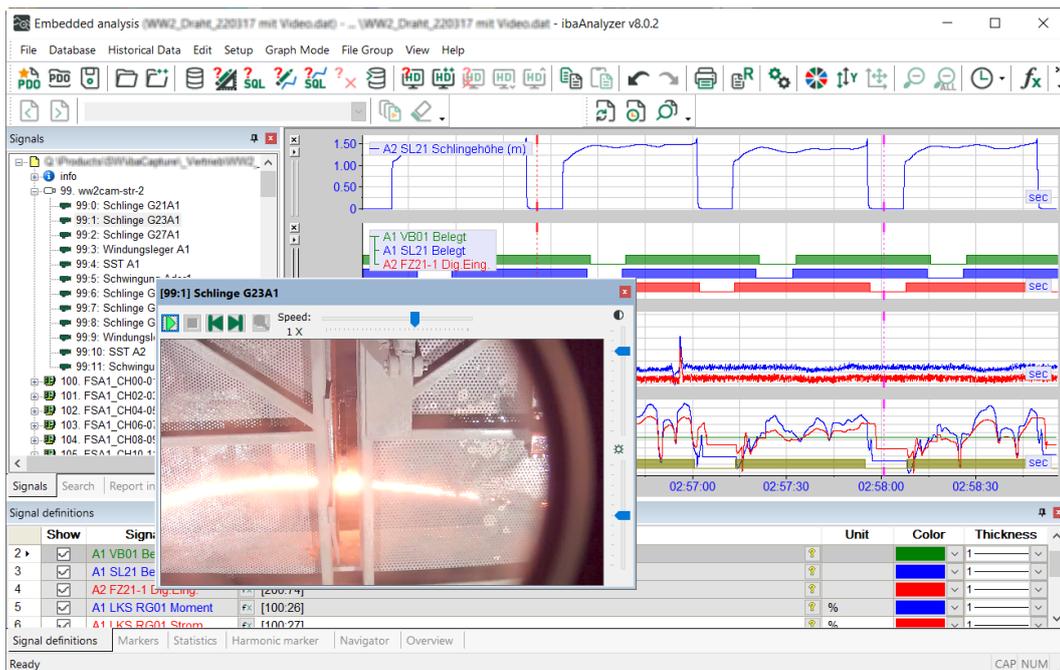
In the figure above, several measured values have been loaded in the signal strips. In addition to the measured values, the signal tree contains *ibaCapture* modules.



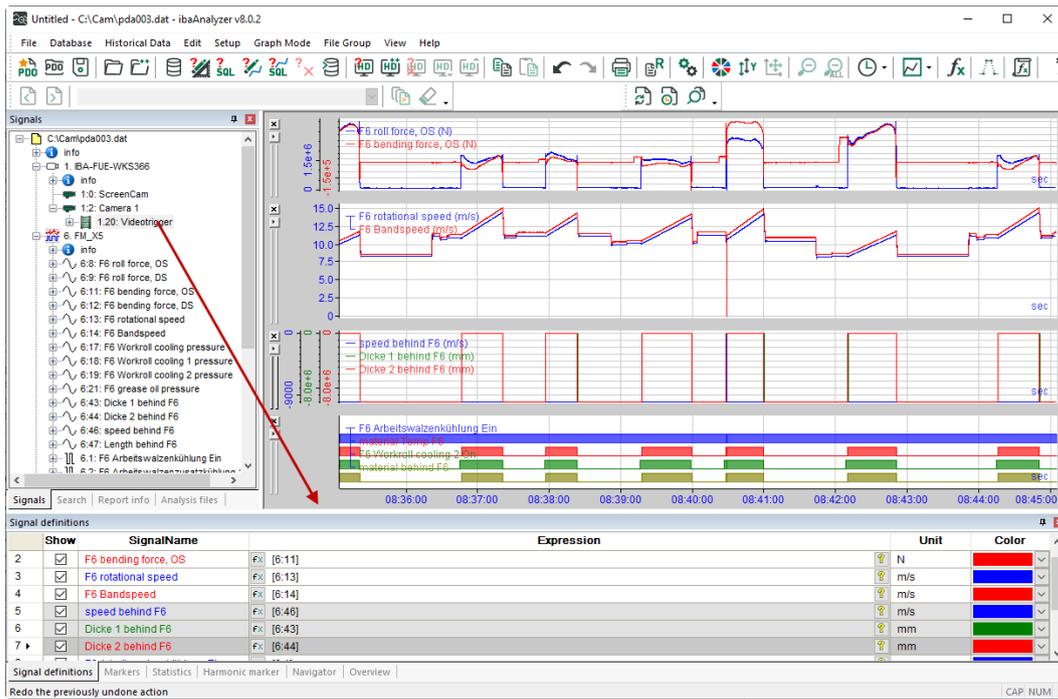
To display the video sequences, click on the camera module and drag it out of the signal tree area. Alternatively, double clicking on a camera, loads the video file.



A window opens showing the corresponding video image.



To display the triggered video sequences, click on the video trigger signal of a camera and drag it into the signal strip area. The trigger signal is displayed in a new signal strip.



Alternatively, double-clicking on the video trigger also displays the corresponding trigger signal in a new signal strip.



If the mouse pointer is moved directly onto the video trigger signal, a small camera icon will appear in addition to the mouse pointer. After double clicking onto the video trigger signal, a video window with the appending video sequence is loaded.

### Video window toolbar

The video window toolbar contains five control elements to control video sequence replay.



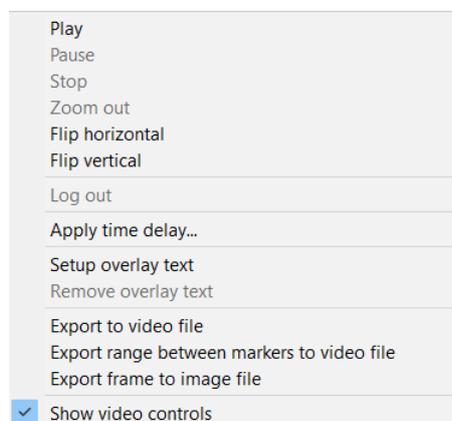
-  Start: Start replay
-  Pause: Pause replay
-  Stop: Stop replay
-  Forward: Play forward one video frame
-  Rewind: Play reverse one video frame
-  Zoom out one step

The 2 buttons   have repeat function. This means that if you keep the button pressed for more than 1 s, the frames will be forwarded with about 5 frames/second, thus allowing you to forward or rewind the video frame by frame rapidly.

There are also two controls on the right of the video window in the form of sliders for adjusting contrast and brightness.

A slider is located next to the toolbar to set the replay speed. Replay speed can be set both positively and negatively. If the replay speed is negative, the video recording is played backwards. To stop replaying the video recording, click the icon  in the toolbar or press the space bar on the keyboard.

The video window has a context menu. Right click on the video window to access the following context menu:

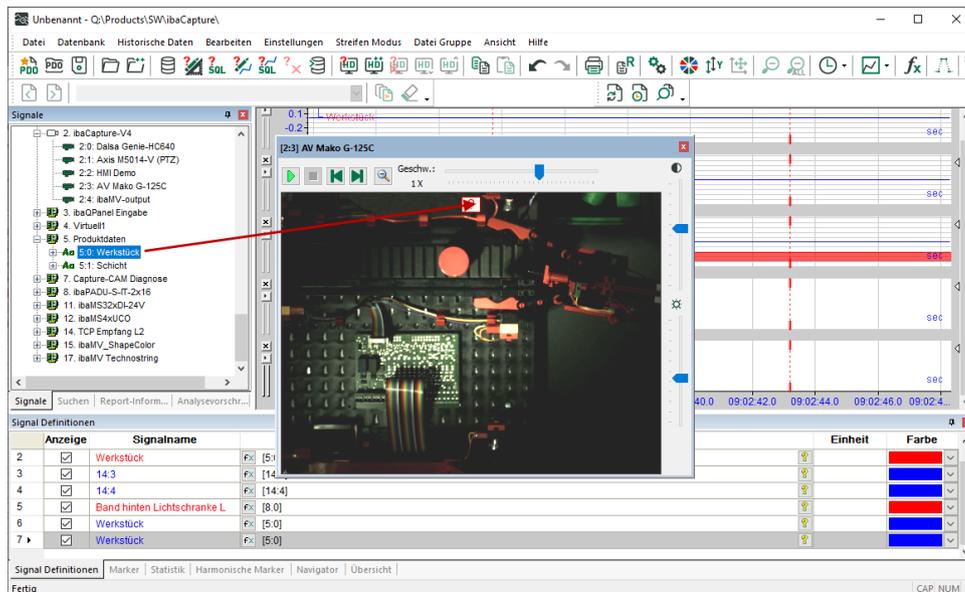


### Replay commands

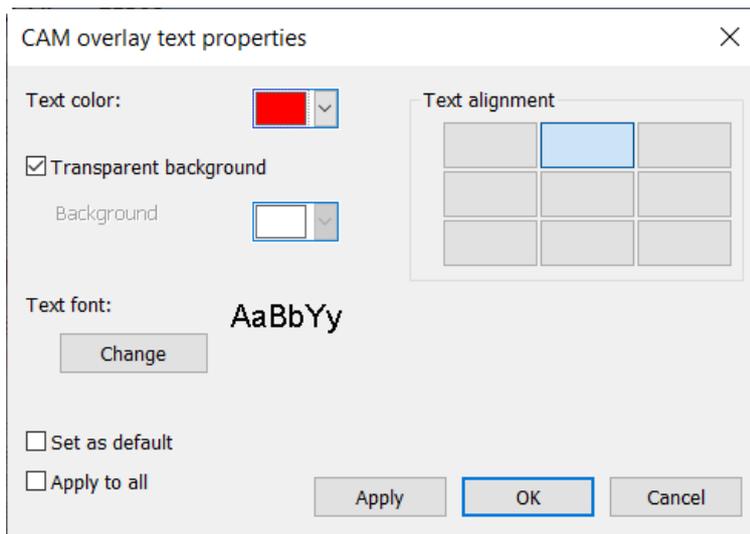
The start, pause and stop menu items correspond to the functions of the toolbar described above.

### Overlay text

The menu "Setup overlay text" enables the setup of the text messages that can be displayed in overlay on each video window. Text messages can be displayed by drag and drop text channels from the signal tree onto the camera view.



Depending on where the text channel is dropped, the text will be aligned to one of 9 possible positions. This setting and other settings like font, background and text color can be altered by selecting "Setup overlay text" in the context menu.



Click "Set as default" to save the actual settings as default settings for new camera windows.

Click "Apply to all" to apply the current settings to all visible camera views.

By clicking the "Remove overlay text" item in the context menu, the text being currently visible in the video window will be removed. The text channel will be updated, synchronized with the

video marker or the replayed video as explained in chapter ↗ *Evaluating measuring signals using video recording*, page 157.

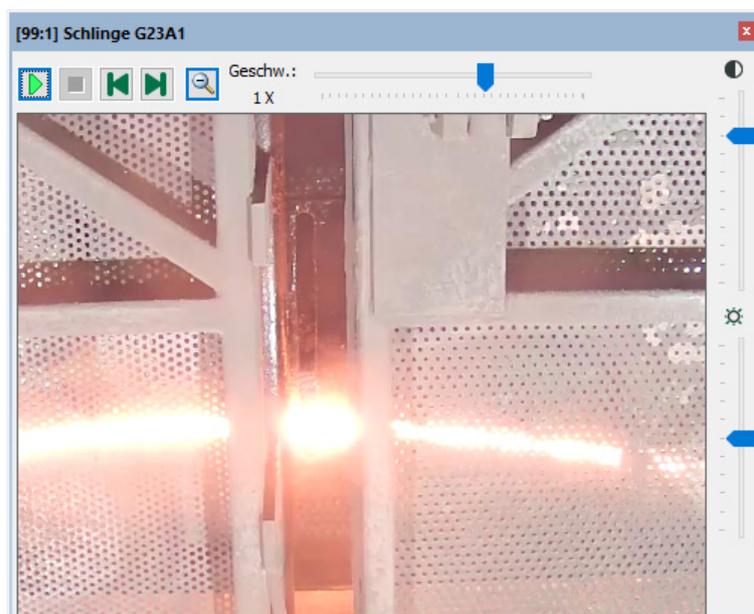
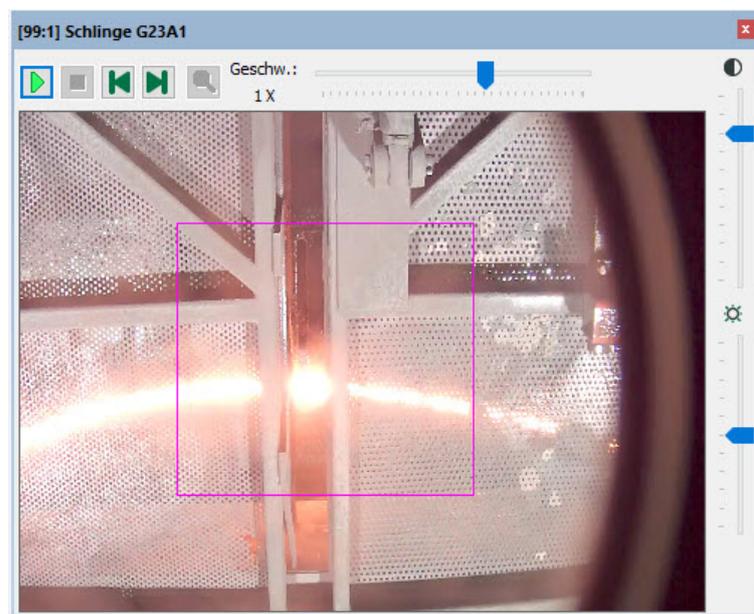
### Export commands

The "Export to video file" menu item enables you to save the video sequence on a data carrier as an MP4 video file.

The "Export frame to image file" menu command enables you to make a snapshot of the current frame and save it as a JPG file.

### Zooming

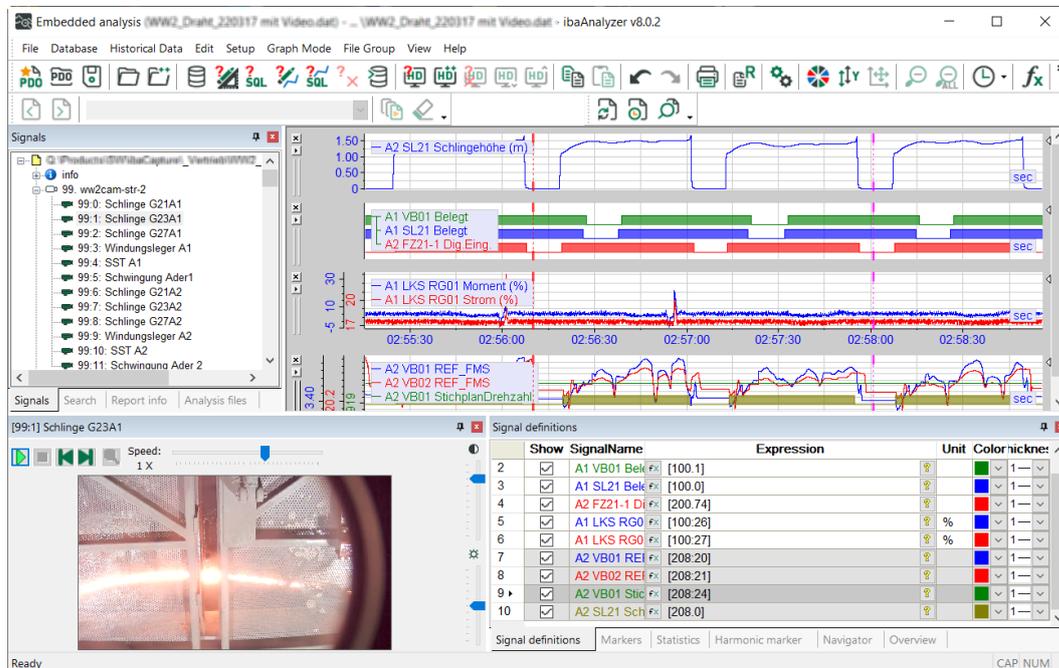
The image content in video windows can be enlarged. To do so, move the mouse pointer in the respective area of the video window. With a depressed left mouse button, drag a red rectangle of the desired size and then release the mouse button.



To display the previous image detail, click on the icon .

## Positioning the video window

You can now use the mouse to drag the video window and drop it in the *ibaAnalyzer* window. As long as the video window has not been docked, you can change its size. For this purpose, put the mouse pointer on one of the corners of the video window and drag the video window to the desired size by keeping the mouse button pressed. The images' proportions always remain unaffected.

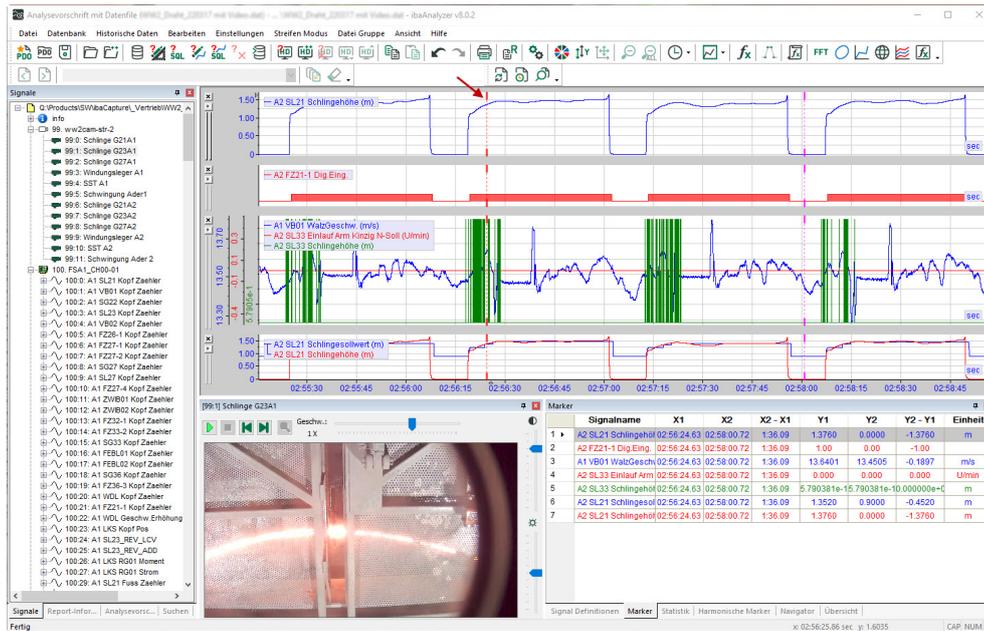


In order to undock a window, place the mouse on the header of the window in question and drag it by keeping the mouse button pressed or double-click to release it.

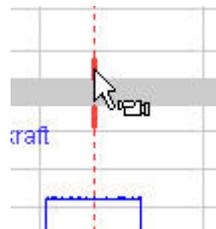
## 7.2 Evaluating measuring signals using video recording

Once ibaAnalyzer has been configured with all the measuring signals and video sequences of interest for display, the measured data can be evaluated and the measured values viewed in relation to the video sequences.

To do so, change the marker display by clicking on the "Marker" tab under the signal table and set the marker X1 at any point in the signal strip. The markers show the current measured values recorded for the respective video sequences. The video sequences are linked to the measured values by a shared time base. If you move the marker X1, the video window displays the related video sequences. Text channels displayed on the camera view will be updated as well.



You can run through the measured values "automatically". Start the video sequence with "Play" (▶). With the „Pause“ (⏸) and „Stop“ (■) buttons, you can interrupt and stop the video sequence and thus the run-through of the measured values. The run-through of the measured values is indicated by a camera icon at the marker when you lead the mouse pointer over the marker X1.



**Note**

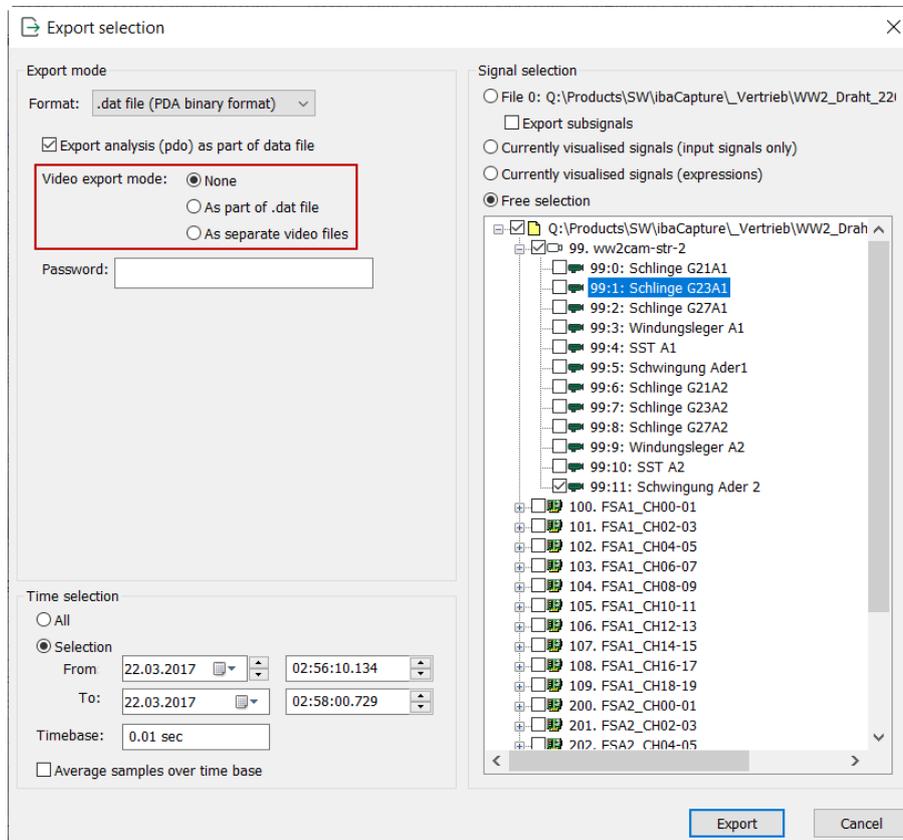


The *ibaCapture* Server, where the videos are stored, must be accessible for the computer with *ibaAnalyzer* via the network.

## 7.3 Export and options

### 7.3.1 Exporting video data

In the export dialog, also the video recordings can be exported with a binary data export. You access the export dialog via the “File - Export...” menu .



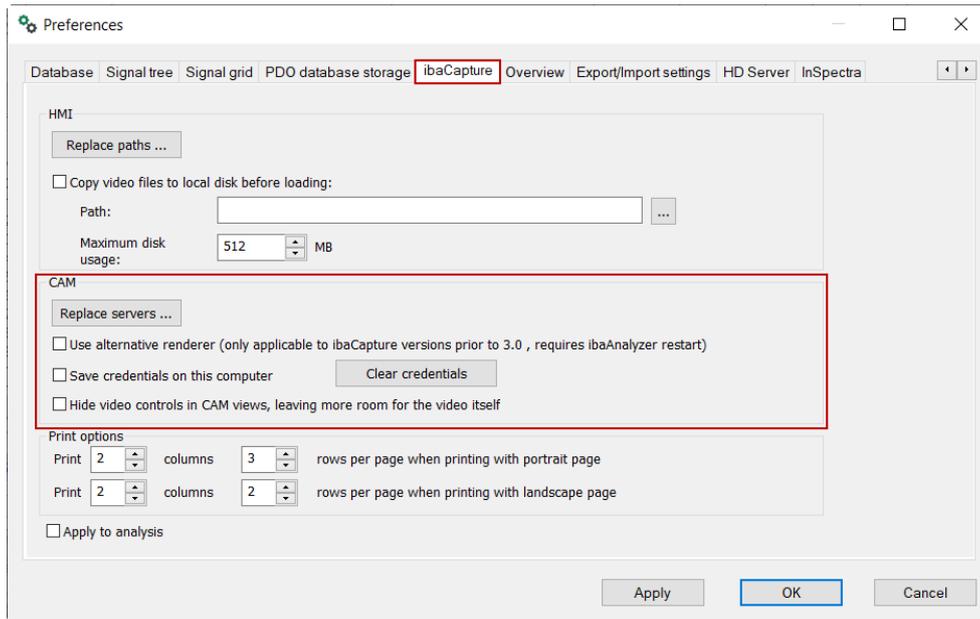
There are 3 export modes you can select from:

- None: Videos will not be exported
- As part of the data file: The data file (\*.dat) contains the video sequences
- As separate video file: In addition to the DAT file, an MP4 file is generated.

The "as part of data file" export function is conceived for a case in which data files including their synchronized video files are to be played irrespective of the video server. A network connection to the video server is thus not necessary. A new DAT file is created which contains the selected measuring signals and video recordings. Continuous and triggered video recordings can be exported in one data file.

All further and basic settings in the export dialog are described extensively in the manual "ibaAnalyzer", chapter "Exporting data".

### 7.3.2 ibaAnalyzer preferences for ibaCapture



In the preferences dialog, *ibaCapture* tab, there are 3 group boxes.

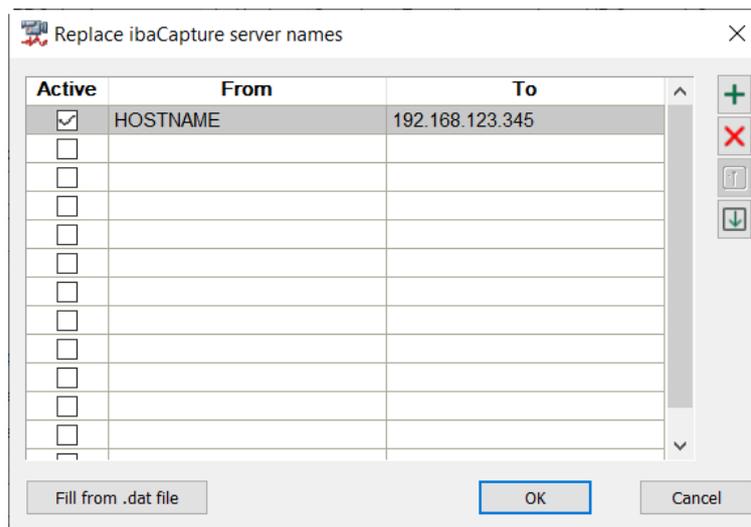
#### HMI

These settings refer to ibaCapture-HMI (V1 and V2) (*ibaCapture-ScreenCam*) only.

#### CAM

These preferences refer to *ibaCapture(-CAM)*.

When *ibaCapture* and *ibaPDA* Servers have connections to multiple networks, it may become necessary to use the “Replace servers ...” feature.



In the depicted example, *ibaPDA* was configured to connect to the ibaCapture Server "HOSTNAME". For the PC running ibaAnalyzer, HOSTNAME could not be reachable over the network, however the address 192.168.123.345 can be reached. When you click “Fill from .dat file”, all *ibaCapture* server names that are stored in the currently opened measurement file are listed in the "From" column.

Since *ibaAnalyzer* has been supporting OS Windows 7, an alternative renderer is recommended being used when dealing with older versions (<3.0) of *ibaCapture-CAM*. When running on Windows 7, this option should be checked to improve quality and performance.

Save credentials on this computer needs to be enabled so login data can be stored by *ibaAnalyzer* when user management is enabled on *ibaCapture Server*.

With newer *ibaAnalyzer* versions, the single video toolbars in each player can be hidden. In that case, there will be a video toolbar in the main *ibaAnalyzer* toolbar.



The functions are the same as in the individual player controls.

### Print options

These options apply to both HMI and CAM videos. Here, the user can setup the layout of the camera views and / or HMI screens on a printout.

For more information refer to chapter [Printing still images or logging](#), page 161.

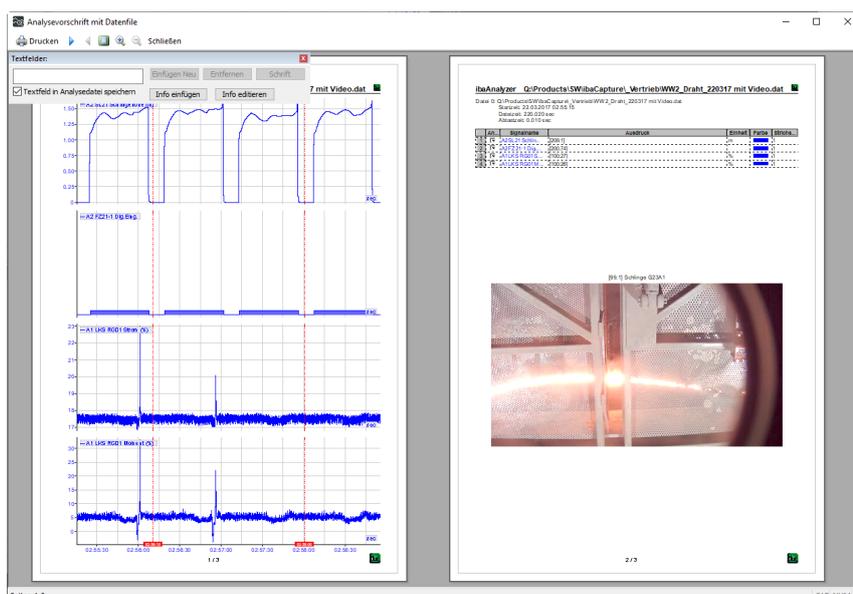
All further and basic settings in the "preferences" dialog are described in detail in the manual "ibaAnalyzer, Settings".

## 7.4 Printing still images or logging

Video still images can be printed via the built-in print function of *ibaAnalyzer* or added to a report using the report generator.

### 7.4.1 Printing

By using the standard print function of *ibaAnalyzer*, all actual displayed camera views can be printed. The still images of the camera are printed after the signal table, as illustrated by the print preview below.



The layout can be setup in the *Preferences* dialog, in the *ibaCapture* tab, as explained in the *Preferences* chapter .

## 7.4.2 Including images in the report generator

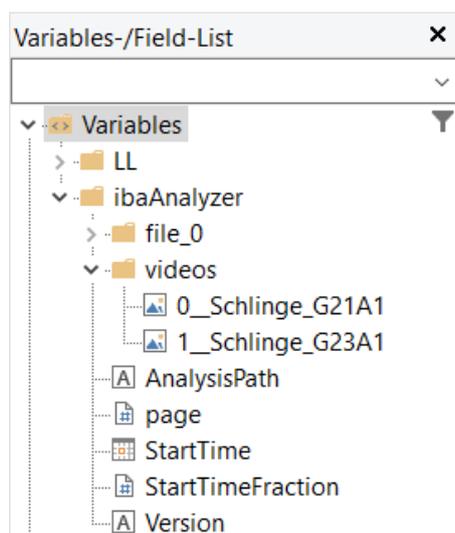
Using the report generator, the user can include also still images in a report.

### Note



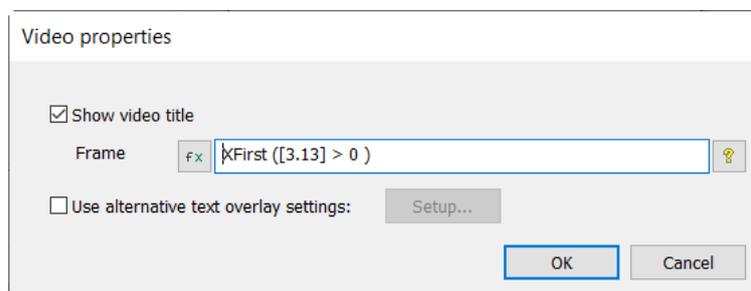
We recommend booking an additional report generator training course at our company in order to learn how to use this complex tool. Please visit our website for training dates, availability and prices, or just call us.

*ibaAnalyzer* exports any visualized camera view to the report generator variables list, "Videos" branch, as shown below.



Simply drag and drop the camera view on the layout (designer) window and position and resize the view as with a standard graph view.

Double-click the camera view to change its properties.



In this property dialog, the user can decide to show / hide the video title.

In the "frame time" input field, an *ibaAnalyzer* expression or a formula from the *ibaAnalyzer* expression builder can be entered. The result of this expression in seconds can be used to see the video image matching this timestamp. This timestamp is relative to the start of the oldest data file opened most recently in *ibaAnalyzer*.

Furthermore, if an overlay text is used in the camera view, the text settings used in *ibaAnalyzer* can be overridden by specifying new local settings here.

## 8 Capturing HMI screens

Besides capturing images from video cameras, it is also possible to record visual information of HMI operator stations, including operating procedures, synchronously with process data from *ibaPDA*. For this purpose, the virtual camera type “*ibaCapture-ScreenCam*” is available.

Computer monitors that work with a Windows operating system (at least .Net 4.0) can be captured. An *ibaCapture-ScreenCam* program must be installed on computers for this purpose and they must be connected to *ibaCapture* Server via TCP/IP.

Virtual *ibaCapture-ScreenCams* can be configured in *ibaCapture-ScreenCam*, which can be accessed by *ibaCapture*. *ibaCapture* receives the screen recording stream and stores these recordings like for usual surveillance cameras.

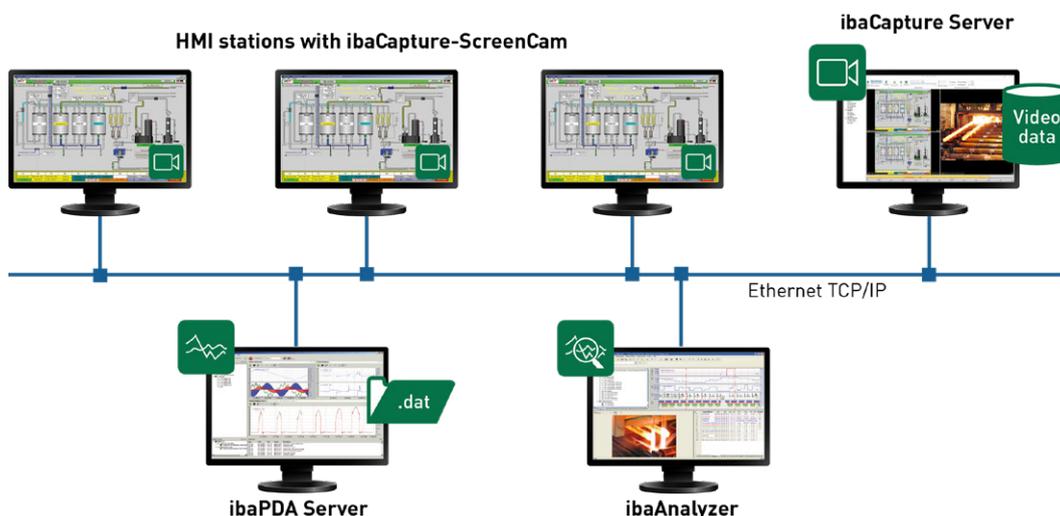
One virtual *ibaCapture-ScreenCam* can capture either all monitors connected to a computer or one whole screen or a region of a screen. When several regions of a screen should be captured, a virtual *ibaCapture-ScreenCam* can be created for each region.

The number of cameras which can be operated on the *ibaCapture* Server depends on the *ibaCapture* license. The *ibaCapture-ScreenCam* program does not require a specific license.

### Note



*ibaCapture-ScreenCam* v4.0 or higher must always be installed on the computer where the image sequences are to be recorded. An installation of *ibaPDA* is not required on that computer.



## 8.1 Installing ibaCapture-ScreenCam

On each system, you want to do screen recording you have to run the *ibaCapture-ScreenCam* program.

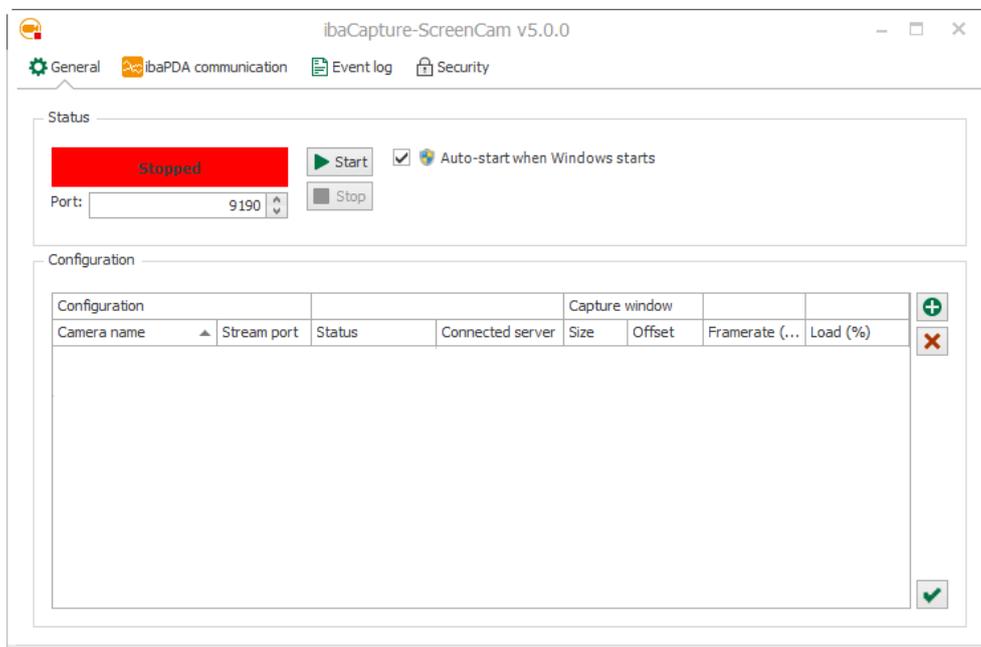
1. To install *ibaCapture-ScreenCam*, execute the file "ibaCapture-ScreenCam Setup v5.x.y.exe" in the directory "\01\_iba\_Software\ibaCapture\ibaCapture-ScreenCam" on the data medium "iba Software & Manuals".
2. Select the desired language for installation and click the <OK> button.
3. Click on <Next> to execute the installation wizard.
4. Specify the target directory for *ibaCapture-ScreenCam*. The default target directory can generally be used. Click the <Install> button to start the installation.
5. Click the <Finish> button to complete the installation. If the option "Run *ibaCapture-ScreenCam*" is selected, the program starts right after the installation.

## 8.2 ibaCapture-ScreenCam configuration

When successfully installed, the *ibaCapture-ScreenCam* symbol appears in the Windows taskbar indicating the following states:

	Green symbol: ibaCapture-ScreenCam is recording
	Red symbol: error state or stopped

Open *ibaCapture-ScreenCam* with a double-click on the icon  in the Windows taskbar.



### “General” tab

The “General” tab is divided in 2 sections. In the “status” section, you find information about the status of the *ibaCapture-ScreenCam* program indicated by different colors:

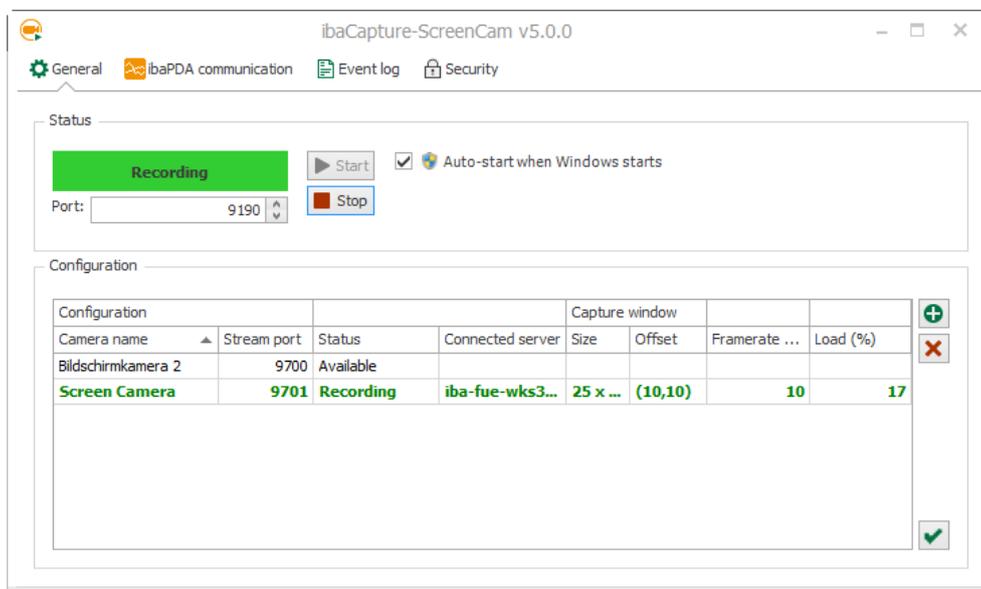
- Stopped (red)
- Waiting (orange)
- Recording (green)

With the <Start> and <Stop> button, you can start and stop the program. The port number should be only changed for special configurations. If the option "Auto-start when Windows starts" is activated, the ibaCapture-ScreenCAM program starts automatically when logging in to Windows.

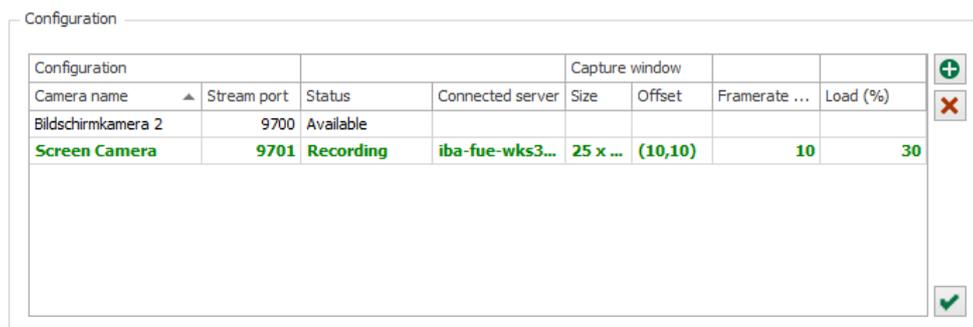
In the "configuration" section, you can disable Windows aero theme in order to save computing capacity.

In the table, you can add (+) or remove (X) HMI cameras. A camera is required for every screen or region on the screen which shall be captured. The HMI camera settings, like screen or region selection, can be configured in *ibaCapture Manager*.

When you add a camera, you can specify a camera name. The port number is entered automatically.



Apply the settings (+) and configure capture window and frame rate in *ibaCapture Manager*, see chapter ↗ *Configuration in ibaCapture Manager*, page 169. When configuration was done in *ibaCapture Manager*, additional information is displayed in the table.



- Status can be recording, available or not applied
- Connected server (host name)

### Capture Window

The width and height of the captured region is given in pixels. The offset (X/Y) of the top left corner of the region rectangle refers to the top left edge of the monitor.

### Frame rate (fps)

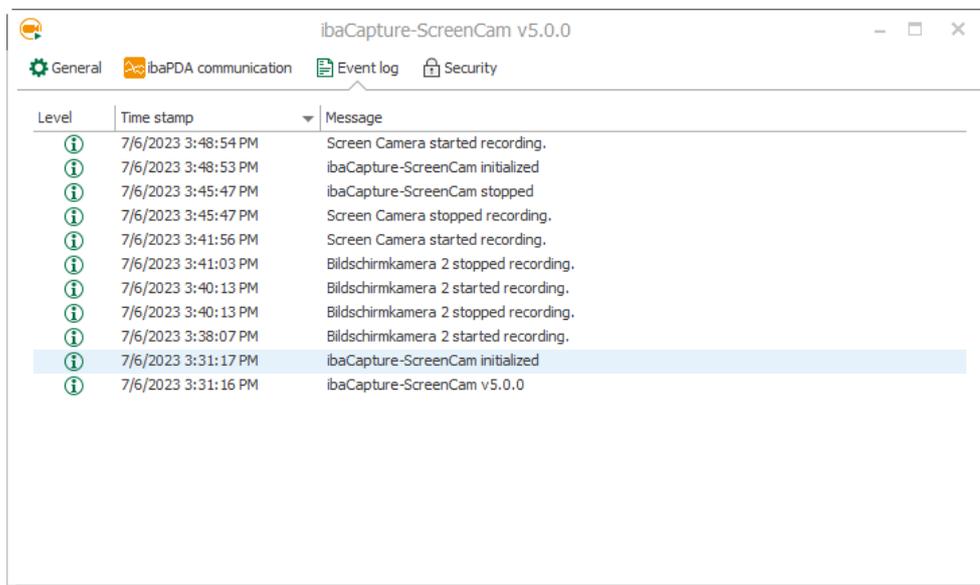
The "Configured" column displays the frame rate as configured in *ibaCapture* Manager.

### Load (%)

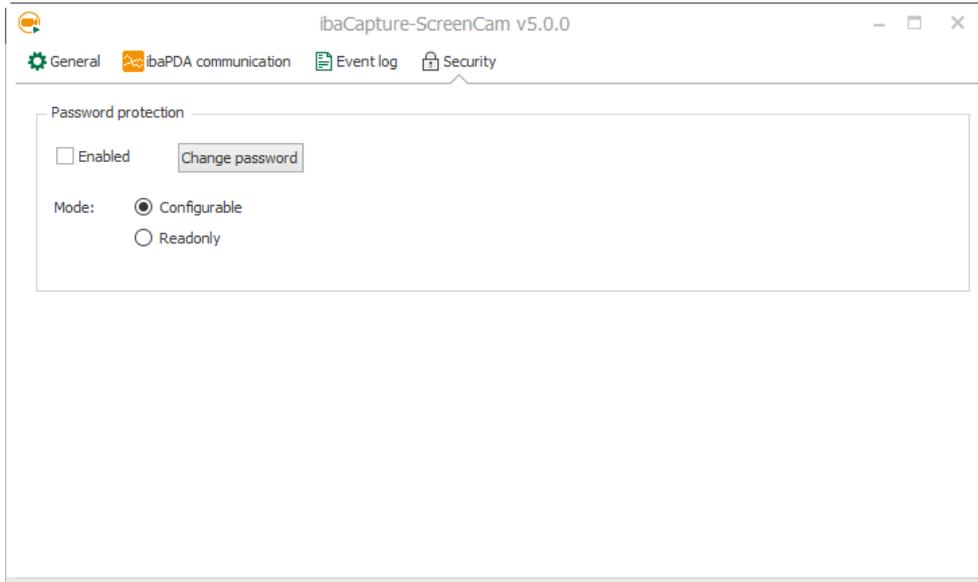
The load of the encoder is given in %. If the load increases nearly to 100%, it is recommended to decrease the resolution (video quality) and/or frame rate for this HMI camera in *ibaCapture* Manager. A value of 100% means that the application needs all the time between two images to capture, encode and send each image.

### "Event log" tab

On the "Event log" tab, events, especially error and warning messages are displayed.



## "Security" tab



Access to screens can be protected with a password. Click on <Change password> to activate the password protection. In *ibaCapture-ScreenCam* only the account with the user "admin" is supported.

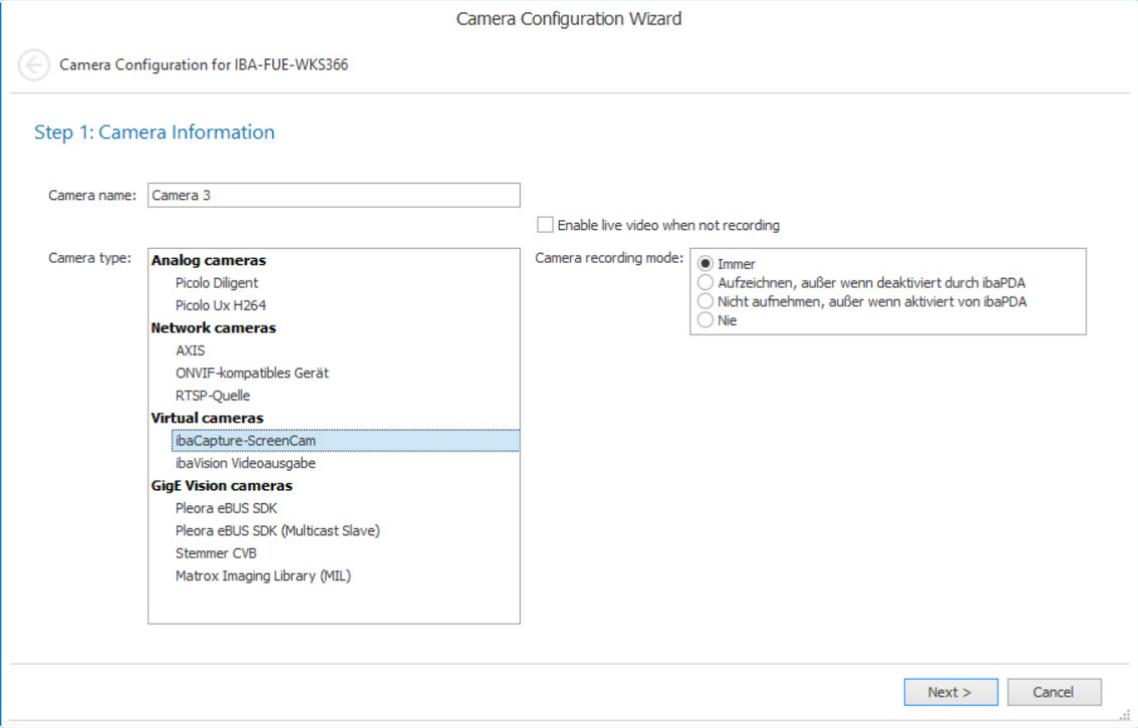
Once a password has been set, the "Enabled" checkbox will be checked. Then screen recording from this system only works after entering the correct password. The *ibaCapture-ScreenCam* instance can also only be exited by entering the correct password.

To protect the local configuration, the mode can be switched between "Configurable" and "Readonly". If you switch from "Readonly" to "Configurable", the password must be entered.

## 8.3 Configuration in ibaCapture Manager

In *ibaCapture Manager*, a *ibaCapture-ScreenCam* has to be added to the *ibaCapture Server*, where HMI screen recording shall be stored. Switch to server configuration mode and select the respective *ibaCapture Server*.

A click on *Add new camera*  in the ribbon opens the configuration wizard. The first step is to select *ibaCapture-ScreenCam* as camera type and to select the camera recording mode, see chapter [↗ General information](#), page 91.



Camera Configuration Wizard

Camera Configuration for IBA-FUE-WKS366

Step 1: Camera Information

Camera name:

Enable live video when not recording

Camera type:

- Analog cameras**
  - Picolo Diligent
  - Picolo Ux H264
- Network cameras**
  - AXIS
  - ONVIF-kompatibles Gerät
  - RTSP-Quelle
- Virtual cameras**
  - ibaCapture-ScreenCam**
  - ibaVision Videoausgabe
- GigE Vision cameras**
  - Pleora eBUS SDK
  - Pleora eBUS SDK (Multicast Slave)
  - Stemmer CVB
  - Matrox Imaging Library (MIL)

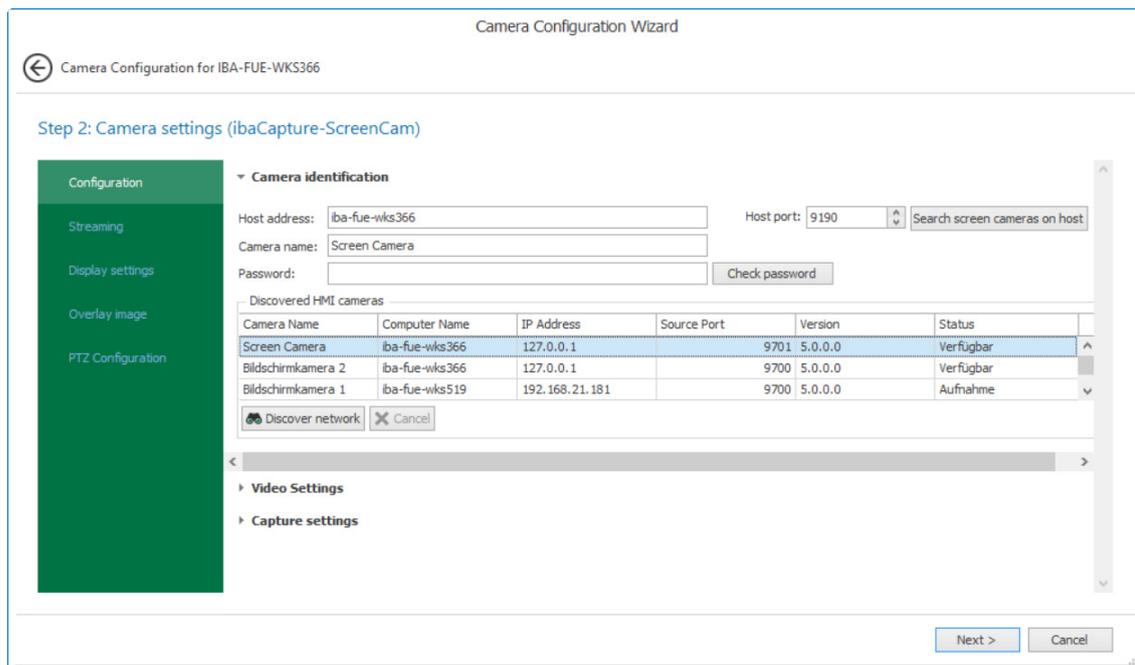
Camera recording mode:

- Immer
- Aufzeichnen, außer wenn deaktiviert durch ibaPDA
- Nicht aufnehmen, außer wenn aktiviert von ibaPDA
- Nie

Next > Cancel

In the next step, the camera(s) configured in the *ibaCapture-ScreenCam* program is listed in the camera table.

### 8.3.1 Camera settings



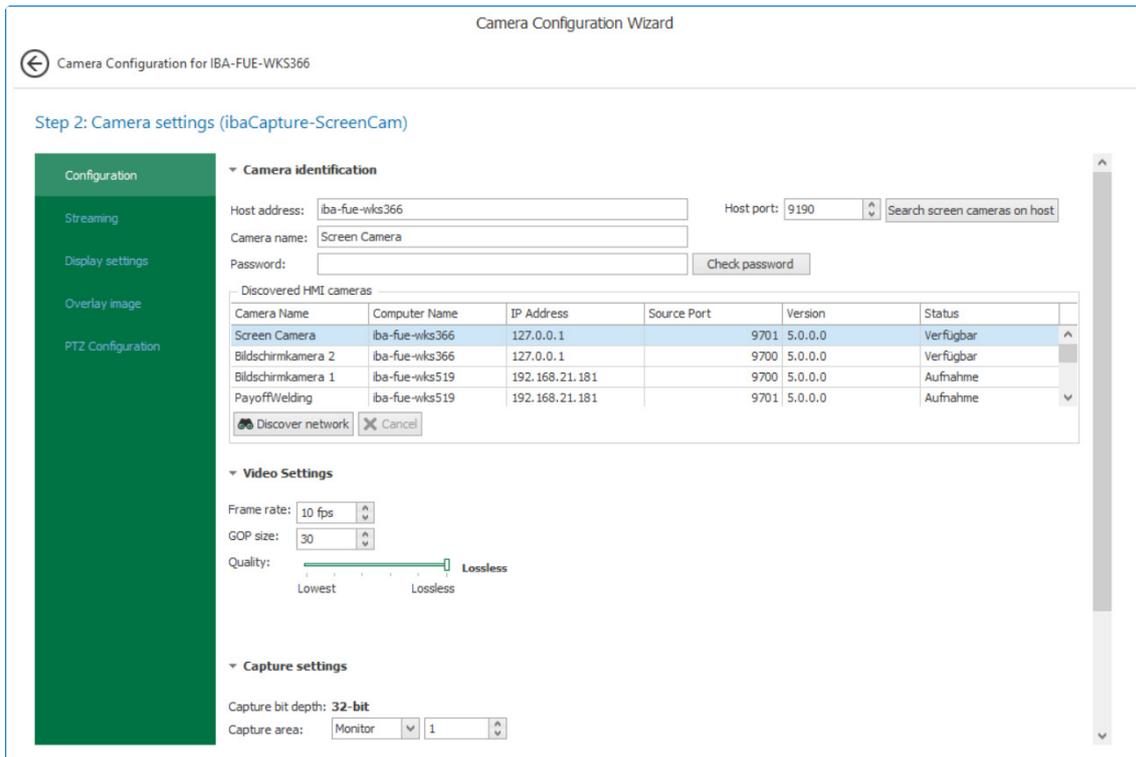
With a click on the <Search screen cameras on the host> button, screen cameras, which are configured at the entered host address and port number, can be searched. If password protection is enabled in *ibaCapture-ScreenCam*, you must enter the password here.

After a restart or during configuration, click the <Discover network> button to search screen cameras in the network. Depending on the network topology, not all instances of *ibaCapture-ScreenCam* may be found. Detected ScreenCam instances can be selected by double-clicking on the entry.

The connection table contains the following information:

- "Camera name" is the camera name configured in the *ibaCapture-ScreenCam* program
- "Computer name" is the name of the computer the screen camera (*ibaCapture-ScreenCam*) is running on
- "IP Address" is the IP address of the computer
- "Source Port" is the TCP/IP port number that is used by *ibaCapture-ScreenCam* to communicate with *ibaCapture Server*
- "Version" of the *ibaCapture-ScreenCam* program
- "Status" of the screen camera

Select a camera in the list in order to configure its video and capture settings.



### Video settings

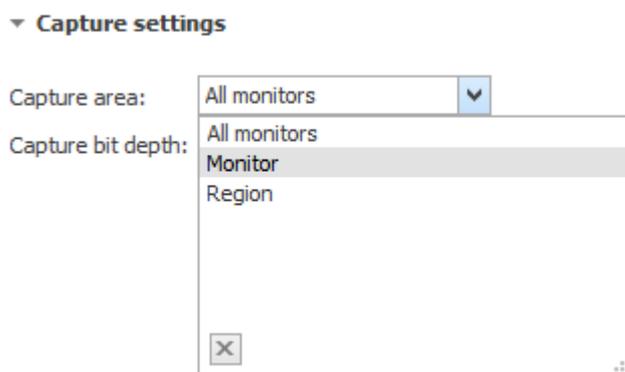
You can set the frame rate (in frames per second) and the GOP size.

The video quality can be adjusted with the slider. Please note that the higher the quality, the larger the file size of the video files and the higher the required computing capacity.

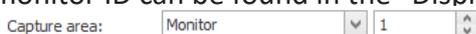
### Capture settings

It is possible to capture all monitors connected to a computer, one whole monitor or a rectangular region of the monitor.

These three options are available in the drop-down list.

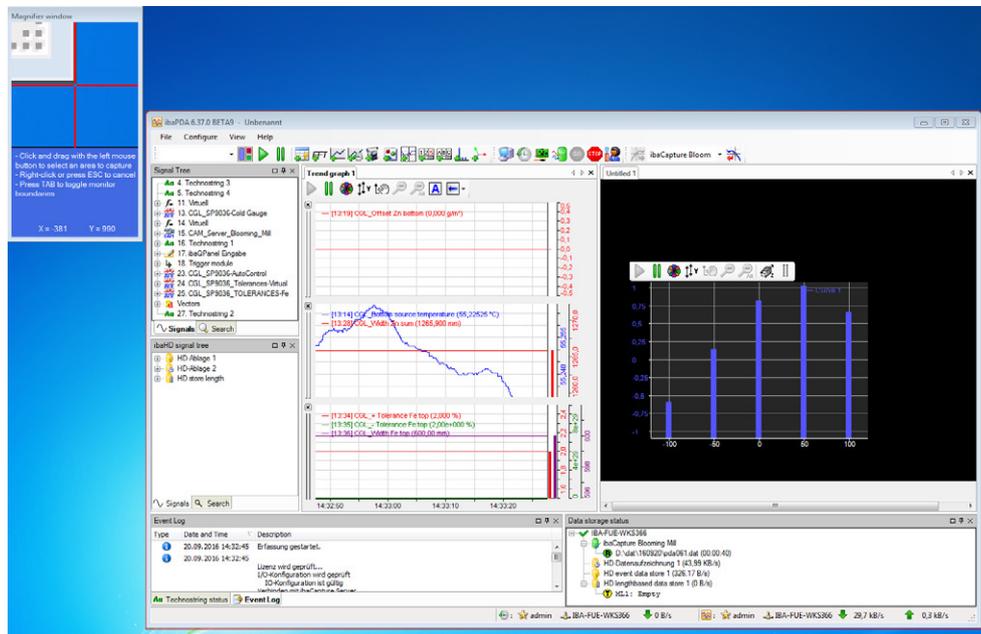


- All monitors (connected to the computer)
- Monitor (whole screen): specify the monitor ID assigned in Windows to the monitor. The monitor ID can be found in the "Display" dialog in the Windows control panel.



- **Region:** a click on the icon opens a preview of the selected monitor. Here, you can draw a rectangle with the mouse while holding the left mouse button down over the region to be captured.

Capture area:



▼ **Capture settings**

Capture area:

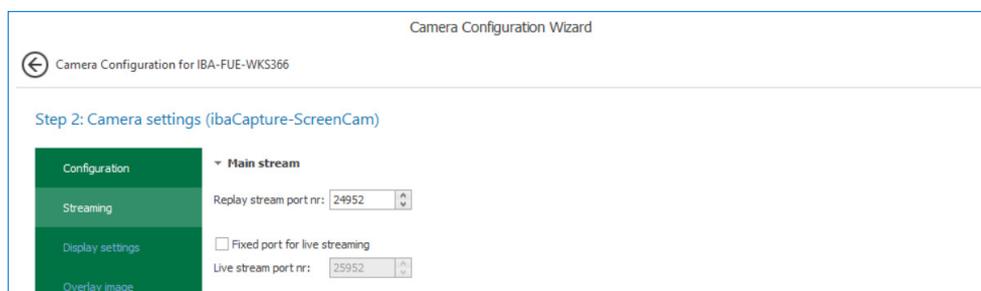
Capture bit depth: **32-bit**

The region is given in pixels (X, Y) => w x h

(X, Y) = Offset of the top left corner of the region rectangle from the top left edge of the monitor.

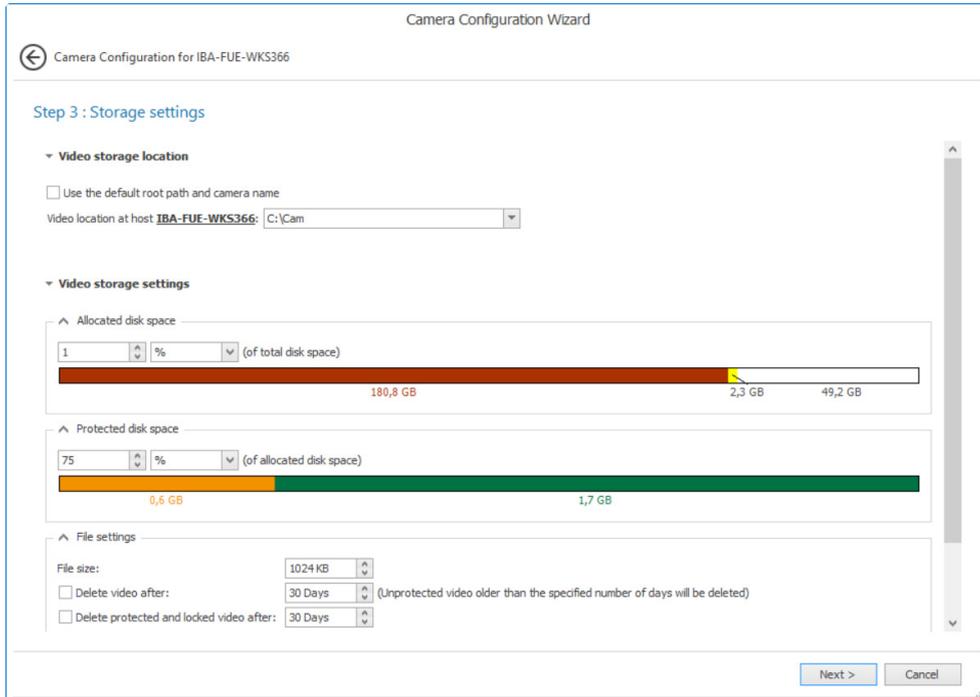
w x h = width x height

In the next step, port numbers can be assigned for video streams, see chapter [Streaming ports](#), page 107.

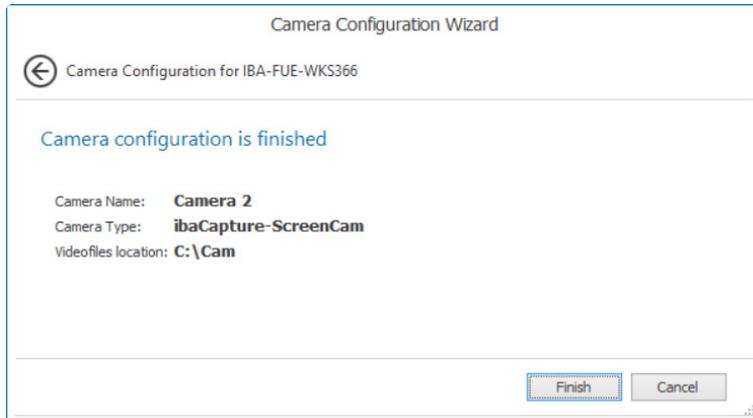


### 8.3.2 Storage settings

The last step is to configure the storage settings, ↗ *Storage settings*, page 114.



Complete the configuration of the screen camera with a click on <Finish>.



The preview tab depicts a preview of the area that will be recorded.

## 9 Supported cameras

### Note



IP cameras which do not support the video codecs MPEG-4, H.264 or H.265 are not supported by *ibaCapture*.

Due to the numerous manufacturers and camera models as well as the continuous development of imaging technologies, the devices, which can be used with *ibaCapture*, cannot be completely listed here.

Please contact us in case of doubt whether the camera you want to use is suitable or send us a camera for test purposes.

### 9.1 AXIS

Usually, all AXIS IP cameras that can be addressed via the VAPIX protocol are supported. Verify in the camera's datasheet if the VAPIX protocol is supported.

#### ONVIF activation on AXIS cameras

To enable ONVIF, the user has to be added as ONVIF user in the device configuration.

Web link: [http://www.axis.com/techsup/faq/index.php/index\\_axis.php?action=artikel&-cat=146&id=115393&artlang=en](http://www.axis.com/techsup/faq/index.php/index_axis.php?action=artikel&-cat=146&id=115393&artlang=en)

### 9.2 ONVIF

ONVIF cameras that are compatible to either ONVIF Profile S or Profile T are supported by *ibaCapture*.

An ONVIF profile is described by a set of services defined by the ONVIF standard. ONVIF profiles make it easy to recognize how ONVIF conformant devices and clients are compatible with one another.

An ONVIF profile has a fixed set of features that must be supported by a conformant device and client. It ensures that a client that conforms to Profile S, for example, will work with a device that also conforms to Profile S.

There are also conditional features, which are features that shall be implemented by an ONVIF device or ONVIF client if it supports that feature in any way, including any proprietary way.

The underlying functions of the features included in a profile are defined in the ONVIF Network Interface Specifications, see <https://www.onvif.org/profiles/specifications/>

Clients and devices can support more than one ONVIF profile; for instance, a network camera with local storage can conform to both Profile S and G.

You can find more information at <https://www.onvif.org/profiles/>

**Profile S**

The ONVIF Profile S is designed for basic video streaming of IP-based video systems. A Profile S device (e.g., an IP network camera or video encoder) is one that can send video data over an IP network to a Profile S client. A Profile S client (e.g., a video management software) is one that can configure, request, and control video streaming over an IP network from a Profile S device. Profile S also covers ONVIF specifications for PTZ control, audio in, multicasting and relay outputs for conformant devices and clients that support such features.

**Profile T**

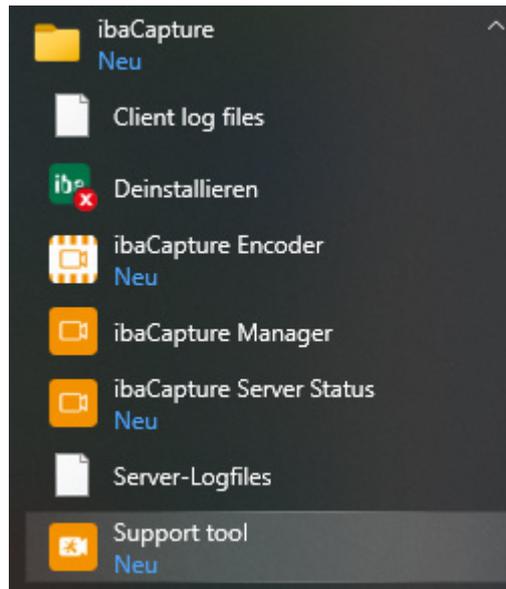
The ONVIF Profile T is designed for advanced video streaming of IP-based video systems. Profile T supports video streaming features such as the use of H.264 and H.265 encoding formats, imaging settings, and alarm events such as motion and tampering detection. Mandatory features for devices also include onscreen display and metadata streaming, while mandatory features for clients also include PTZ control. Profile T also covers ONVIF specifications for HTTPS streaming, PTZ configuration, motion region configuration, digital inputs and relay outputs, and bidirectional audio for conformant devices and clients that support such features.

## 10 Troubleshooting

### 10.1 Support tool

If you need the Support's help in case of malfunctions or unclear errors, a tool is available collecting all relevant ibaCapture information and saving it in a ZIP file. You can then email this ZIP file to iba Support.

You start the support tool via the Start menu – Program Files – iba – ibaCapture – Support tool.



Starting with *ibaCapture*-Manager 4.0, the support tool can also be started in the main menu of *ibaCapture*-Manager.

A description of the support file creation can be found in chapter ↗ *Menu and commands*, page 59.

The file has the default name `ibaCCSupport_yyyymmdd_hhmmss.zip`

The ZIP file contains the following information:

- Settings and logfiles of ibaCapture Manager
- Player logfiles
- Logfiles of the ibaCapture Server
- Configuration of ibaCapture Server
- Camera info
- System information

## 10.2 Low frame rate with multi-access to IP cameras

### Problem

The frame rate of a camera significantly decreases if several users simultaneously access an IP camera via web services (not ibaCapture).

### Background

If several sessions access a camera and their parameter settings differ (e.g. image rotation or encoding), this results in a higher load of the camera and therefore in a reduction of the frame rate. If, however, the sessions use the same parameters, the number of simultaneous sessions has no significant effect on the frame rate.

### Remedy

- Please ensure that all sessions (also access via web browser) are set to the same image rotation.
- Please ensure that all sessions use the same stream encoding (e.g. H.264, H.265 or MPEG-4).
- When using browsers, the corresponding plug-ins/add-ons (e.g. Active-X) have to be installed in the browser so an H.264-/H.265-/MPEG-4 stream can be displayed.
- Some cameras offer the option in the configuration menu to set a fixed stream encoding and to disable a pick-list for other encodings. Use this option and set the same encoding as for ibaCapture.
- Alternatively, you can also use ibaCapture Manager as viewer free of charge instead of web browsers. In this case, however, an active user management is recommended so no unauthorized configuration changes can be made at ibaCapture Server.

# 11 Glossary

## ***Bayer pattern***

The "Bayer pattern", also known as "Bayer matrix", describes a photo sensor covered by a color filter (Bayer filter). The Bayer filter is a color filter array with a specific arrangement of RGB color filters in a square grid on the surface of a photo sensor. Its particular arrangement of color filters is used in most single-chip digital image sensors used in digital cameras, camcorders, and scanners to create a color image. The filter matrix is 50 % green, 25 % red and 25 % blue; hence it is also called RGBG, GRGB, or RGGB.

The options for the Bayer pattern in ibaCapture refer to the order of the first two pixels of any possible combination: Blue-Green (B-G), Green-Blue (G-B), Green-Red (G-R) and Red-Green (R-G).

(Source: Wikipedia)

For more information, refer to the online help of the Matrox Intellicam software.

## ***Encoding level***

As the term is used in the standard, a "level" is a specified set of constraints indicating a degree of required decoder performance for a profile. For example, a level supported for a particular profile determines the maximum frame resolution, frame rate, and bit rate that a decoder can use. A decoder corresponding to a given level must be able to decode all bitstreams encoded for that level and all lower levels.

(Source: Wikipedia)

More information: [http://en.wikipedia.org/wiki/H.264/MPEG-4\\_AVC](http://en.wikipedia.org/wiki/H.264/MPEG-4_AVC)

## ***Encoding profile***

Baseline Profile (BP): Originally created for low-cost applications that require higher security against data loss, this profile is used in some video conferencing and mobile applications.

Main Profile (MP): This profile is used for standard-definition digital TV broadcasts that use the MPEG-4 format as defined in the DVB standard.

High Profile (HiP): The high profile is the primary profile for broadband and disc storage applications, particularly for high-definition television applications. This profile, for example, was adopted for the Blu-ray Disc storage format and the DVB HDTV broadcast service.

(Source: Wikipedia)

More information: [http://en.wikipedia.org/wiki/H.264/MPEG-4\\_AVC](http://en.wikipedia.org/wiki/H.264/MPEG-4_AVC)

## ***GigE Vision®***

GigE Vision® is an interface standard introduced in 2006 for high-performance industrial cameras. It provides a framework for transmitting high-speed video and related control data over Gigabit Ethernet networks at data transfer rates of up to 1000 Mbit/s.

Please note that not all cameras connected over GigE interface do support the GigE Vision standard.

(Source: Wikipedia)

**GOP**

GOP (Group Of Pictures) defines the number of pictures after which a full picture, a so called keyframe will be stored. The pictures between the keyframes are derived from the previous keyframe, in between, only changes of the pictures are stored. With a high GOP, possible encoding errors exist longer, with a low GOP, the bitrate and hence the memory requirements of the video stream tend to grow. The default setting 30 is fitting for most of the cameras.

**H.264**

An H. standard for highly efficient video compression. ISO/IEC MPEG lists the standard under MPEG-4/AVC (Advanced Video Coding). It is part 10 of the MPEG-4 standard (MPEG-4/Part 10, ISO/IEC 14496-10). H.264 is a video encoding standard for Blu-ray Discs and is widely used by streaming Internet sources (Vimeo, You Tube, iTunes, etc.).

(Source: Wikipedia)

**H.265**

High Efficiency Video Coding (HEVC), also known as H.265 and MPEG-H Part 2, is a standard for encoding video content and images. It is the successor of the H.264/MPEG-4-AVC standard. The aim was to achieve twice as much compression compared to H.264/MPEG-4-AVC while maintaining the same quality. .

(Source: Wikipedia)

**MPEG-4**

An MPEG standard (ISO/IEC-14496) that describes, among other things, methods for video and audio data compression. MPEG-4 defines the compatibility to Part 2 of the MPEG-4 standard (MPEG-4/Part 2).

(Source: Wikipedia)

**ONVIF**

The Open Network Video Interface Forum (ONVIF) is a global and open industry forum with the goal to facilitate the development and use of a standard for the interface of network-based video devices. Started in 2008 by Axis, Bosch and Sony, the ONVIF aims to achieve interoperability between devices of different manufacturers, flexibility, future viability and a certain quality standard.

The ONVIF Core Specification covers the following areas:

- IP configuration
- Device detection
- Device management
- Media configuration
- Real time viewing (live video)
- Event handling
- PTZ camera control
- Video analysis
- Security

(Source: Wikipedia)

***PTZ camera***

A pan–tilt–zoom camera (PTZ camera) is a camera that is capable of remote directional and zoom control.

(Source: Wikipedia)

***RTP***

Real-time Transport Protocol: A protocol designed for continuous transmission of audio and video data (streams) over IP networks.

(Source: Wikipedia)

***RTSP***

Real Time Streaming Protocol:

A network control protocol designed for continuous transmission of audio and video data (streams) or software over IP networks. RTPS is a text-based protocol and can be transmitted over UDP or TCP.

(Source: Wikipedia)

***TCP***

Transmission Control Protocol:

The protocol is a reliable, connection-oriented protocol delivering data packages within computer networks. It is part of the Internet protocol suite (IP), the heart of the Internet.

(Source: Wikipedia)

***UDP***

User Datagram Protocol:

A minimal, connectionless network protocol and a transport layer of the Internet protocol suite.

(Source: Wikipedia)

## 12 Support and contact

### Support

Phone: +49 911 97282-14  
Fax: +49 911 97282-33  
Email: [support@iba-ag.com](mailto:support@iba-ag.com)

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### Note



If you need support for software products, please state the number of the license container. For hardware products, please have the serial number of the device ready.

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### Contact

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**[www.iba-ag.com](http://www.iba-ag.com)**.