PYROSOFT

Add-on Programs and Troubleshooting

DIAS Infrared GmbH

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DIAS Infrared GmbH
Pforzheimer Straße 21
D-01189 Dresden
www.dias-infrared.de
info@dias-infrared.de
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CHAPTER 1

Add-on Programs

In this Chapter

CamDiag

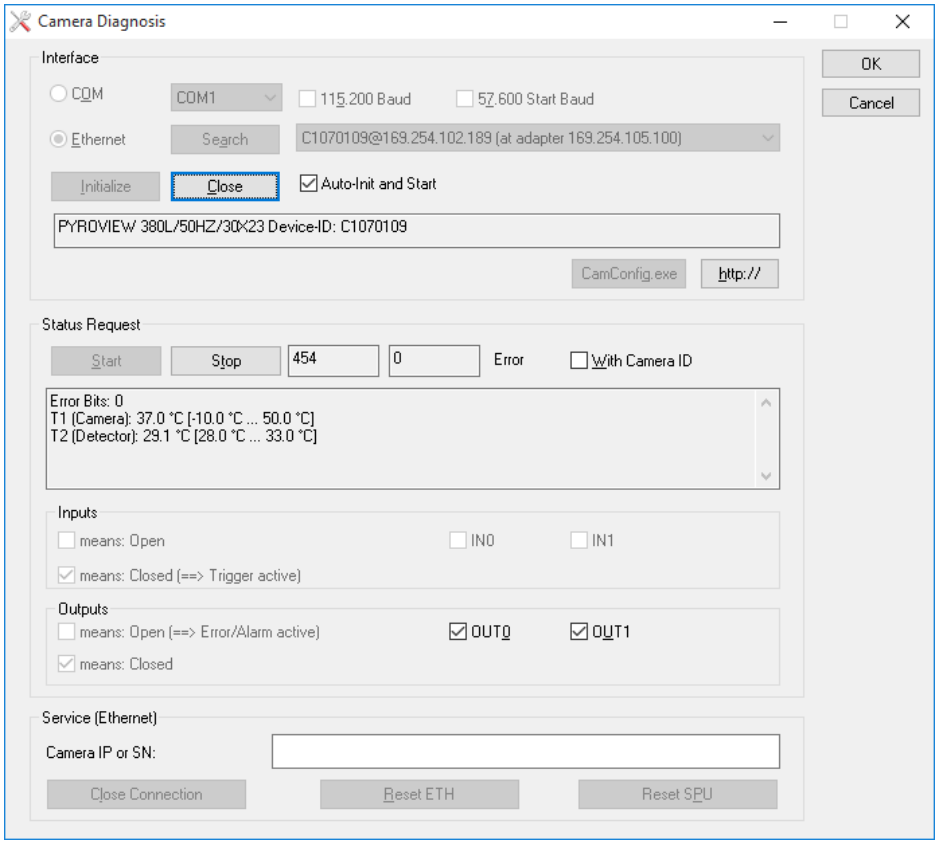
CamDiag.exe is an add-on program**,** which allows the diagnosis of a camera:

- Check the connection to the camera
- Request status information
- Function test of the digital inputs and outputs of the camera
- Execute service commands for Ethernet cameras

If an online connection to the camera is already in use this connection has to be closed, before **CamDiag.exe** is able to connect to the camera.

How to start **CamDiag.exe:**

- In program directory **"DIAS\PYROSOFT...\Tools"**



By default, after the program was started, a search for Ethernet cameras will take place. If a camera is found, the connection to this camera will be established and a continuous status request will be started.

To select another camera, the connection to this camera has to be closed (Button **[Close]**).

After selecting the interface, the camera has to be initialized (Button **[Initialize]**). For Ethernet cameras, it is necessary to search (Button **[Search]**) and select a camera first.

If the initialization was successful, the Button **[Start]** starts the status request.

- In case of a trouble-free connection to the camera there will be no errors (number of errors = 0)
- For the valid operation of the camera, the "Error Bit" value is 0.
  If there is an "Error Bit" value greater than 0, a fatal dysfunction is detected. Please contact your supplier in this case.
  Error Bit 1: Configuration Error
  Error Bit 2: Frequency Error
  Error Bit 4: TEC Error
  Error Bit 8: Shutter/Chopper Error
  Error Bit > 128: Internal Errors
- During the status request, the states of the digital inputs of the camera are displayed in the dialog box (check boxes "IN0" and "IN1").
- The outputs of the camera can be changed by selecting the check boxes "OUT0" and "OUT1", if the camera is equipped and configured accordingly.

For cameras with configurable inputs/outputs, the program **CamConfig** (see page 12) can be used to set the configuration (Button **[CamConfig.exe]**). The button **[http://]** opens the camera's webpage.

SetIP

SetIP.exe is an add-on program, which can be used to read-out and change the current IP address of a camera.

A connection from **PYROSOFT** to the camera can be established only if the IP addresses of the camera and the associated network adapter in the PC are configured correctly.

Configuration of IP Addresses

By default IP addresses are configured automatically.

But it's also possible to setup static IP addresses. This is recommended e.g. for systems with several cameras. Older cameras without DHCP/AutoIP capability do need static configuration.

Example of a valid configuration with automatically obtained IP addresses (AutoIP):

PC Adapter: IP address: 192.254.63.69 Subnet mask: 255.255.0.0

Camera : IP address: 192.254.100.120 Subnet mask: 255.255.0.0

Example of a valid configuration of static IP addresses:

PC Adapter: IP address: 192.168.2.**1** Subnet mask: 255.255.255.**0**

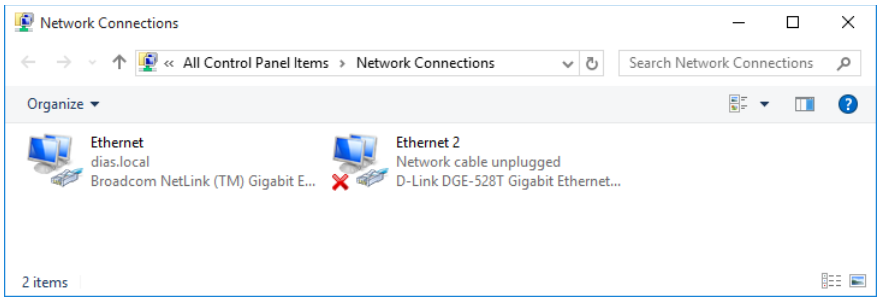
Camera: IP address: 192.168.2.**222** Subnet mask: 255.255.255.**0**

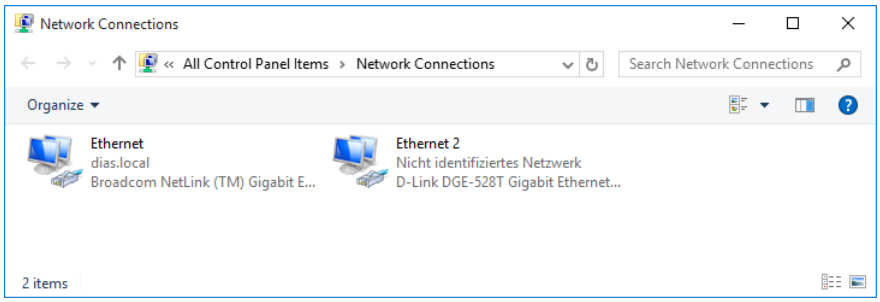
The IP addresses must be different and they must be located inside the same subnet, i.e. the set bits of the subnet masks must be identical (here 255).

Changing the IP Address of a Network Adapter

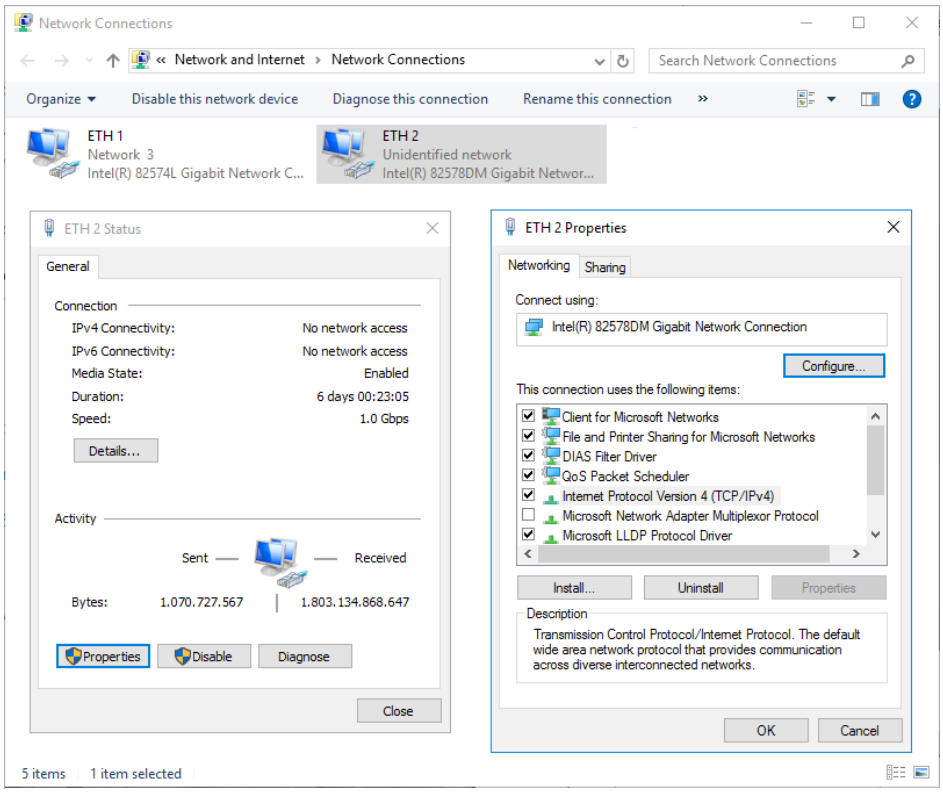
It is possible to setup the IP address for the network adapter connected with the camera using the Windows Control Panel.

By disconnecting and reconnecting the network cable to the PC, the network adapter that is used can be identified: the network adapter in use becomes inactive or active [Settings > Network & Internet > Ethernet > Change adapter options].

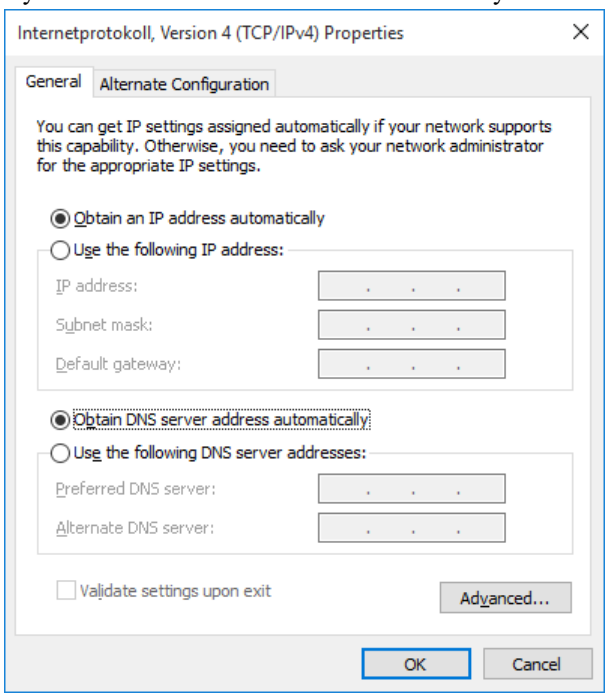




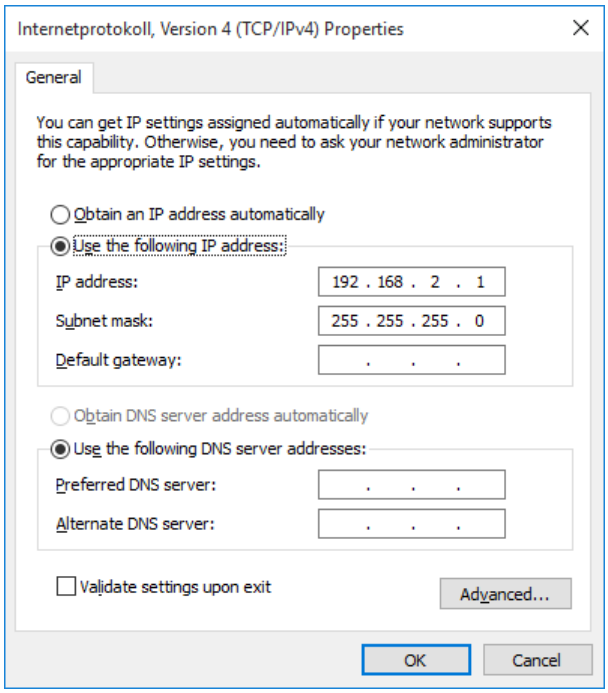
The IP address of the network adapter may be changed in the Windows Control Panel [Settings > Network & Internet > Ethernet > Change adapter options > Select adapter (Status) > Properties > Internet Protocol Version 4 (TCP/IPv4)]:



By default "Obtain an IP address automatically" is selected.



For static IP addresses "Use the following IP address" has to be selected and a fixed IP address can be entered.



Changing the IP Address of a Camera

How to start **SetIP.exe:**

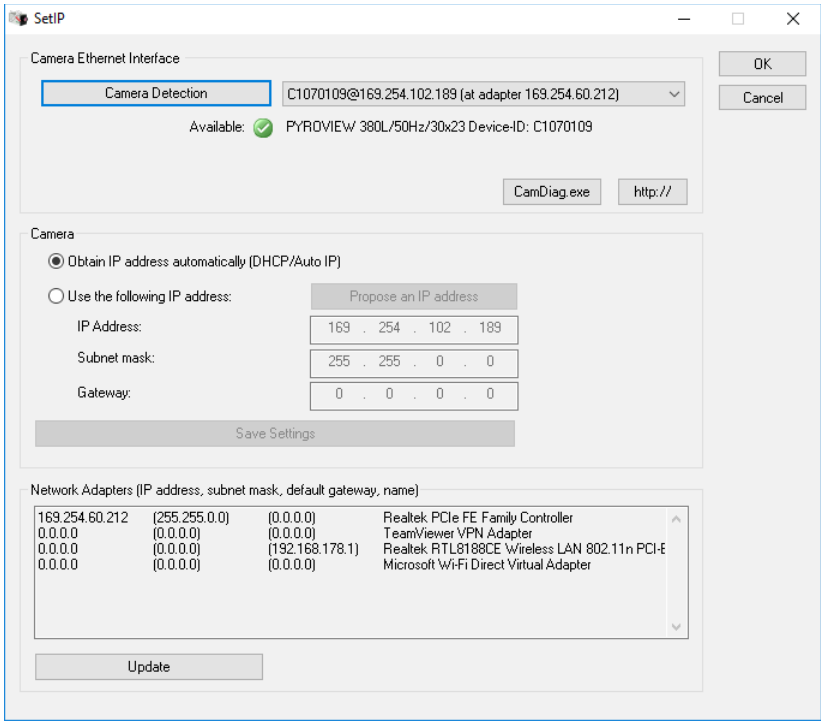
- In program directory **"DIAS\PYROSOFT...\Tools"**

After the program was started, a search for cameras will take place (**[Camera Detection]**).

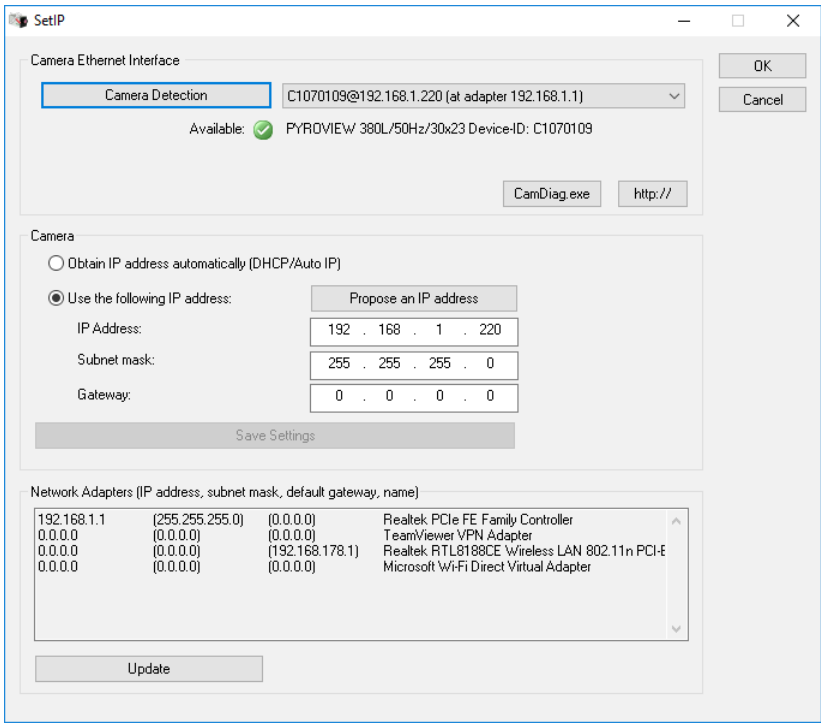
If a camera is found, a connection to this camera will be established and the network settings of the camera are displayed.

In addition, all network adapters and their settings are displayed.

SetIP: Example of a valid configuration with automatically obtained IP addresses:



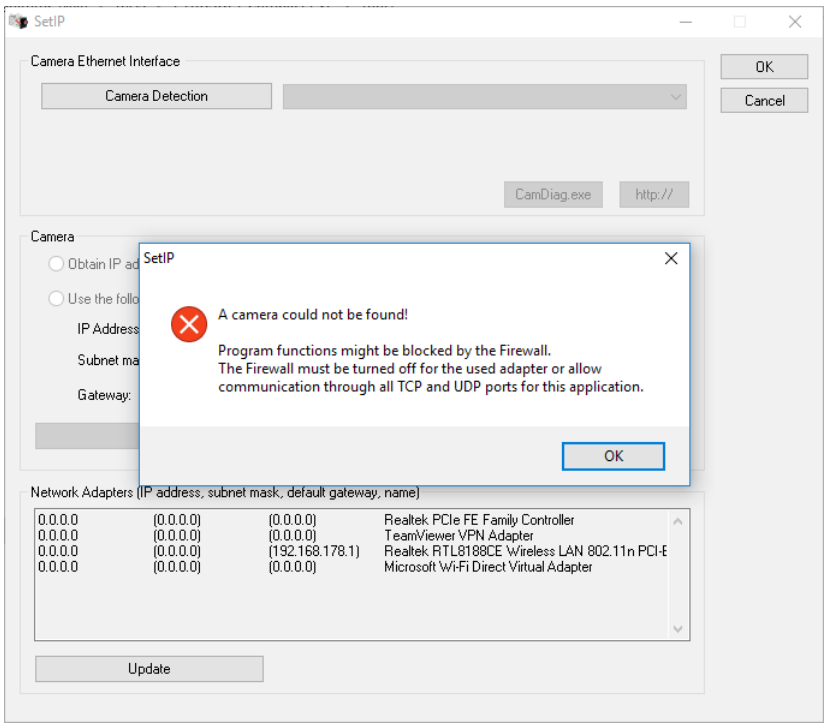
SetIP: Example of a valid configuration of static IP addresses:



If the connection state is "Available" the selected camera can be used by software **PYROSOFT**.
In case of using static IP addresses the IP address of the camera can be changed.
The button [**http://**] opens the website of the camera in the standard internet browser. The button **[CamDiag.exe]** opens the add-on program **CamDiag** (see page **3**) for camera diagnosis.

The following connection errors might happen in **SetIP**:

Case 1: A camera could not be found:

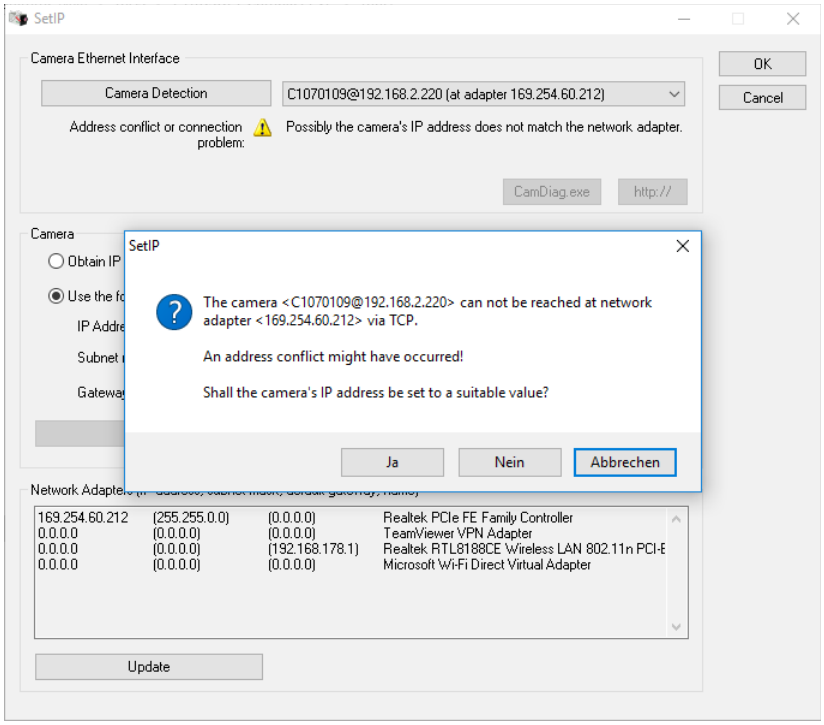


Please note chapter **Troubleshooting**, particularly **Device detection: no connection to camera** on page **17**.

Case 2: A camera was found in the network but an IP address conflict or a connection problem was detected:

The camera is configured with "Use the following IP address:" (here 192.168.2.220).

The network adapter is configured with "Obtain IP address automatically".



Troubleshooting:

- Confirm the question "Shall the camera's IP address be set to a suitable value" with **[Yes]**. The camera settings will be changed to "Obtain IP address automatically" automatically.

Or

- Use **SetIP** to change the camera settings to "Obtain IP address automatically" and save it with button [**Save Settings]** into the camera.

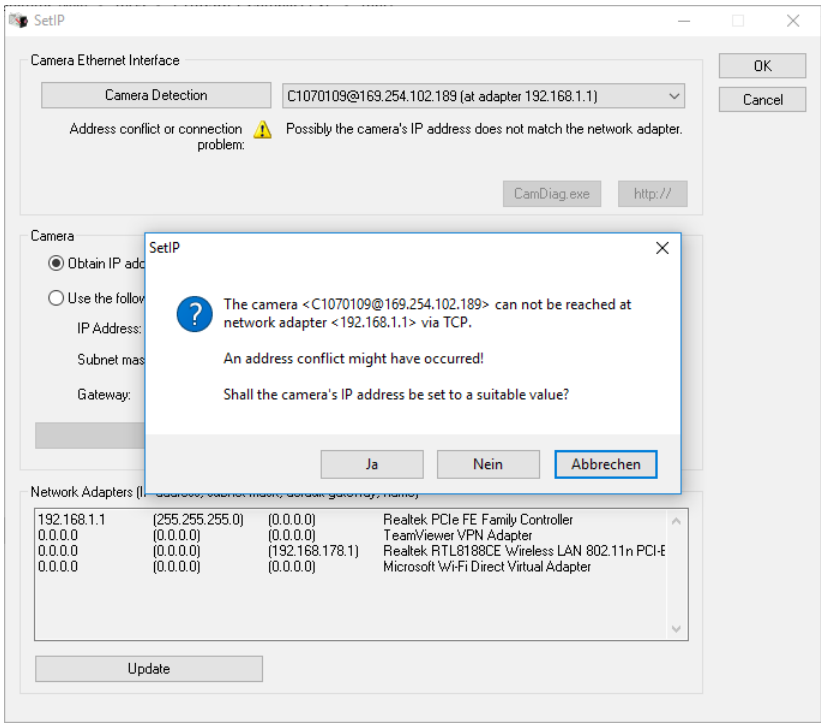
Or

- Change the IP address of the network adapter to "Use the following IP address:" (see **Changing the IP Address of a Network Adapter** on page **5**), enter matching values for a valid network configuration and execute a new **[Camera Detection]** with **SetIP**.

Case 3: A camera was found in the network but an IP address conflict or a connection problem was detected:

The camera is configured with "Obtain IP address automatically".

The network adapter is configured with "Use the following IP:" (here 192.168.1.1).



Troubleshooting:

- Confirm the question "Shall the camera's IP address be set to a suitable value" with **[Yes]**. The camera's IP address will be changed to a fitting value automatically.

Or

- Use **SetIP** to change the camera settings to "Use the following IP address:", enter matching values for a valid network configuration and save it with button [**Save Settings]** into the camera.

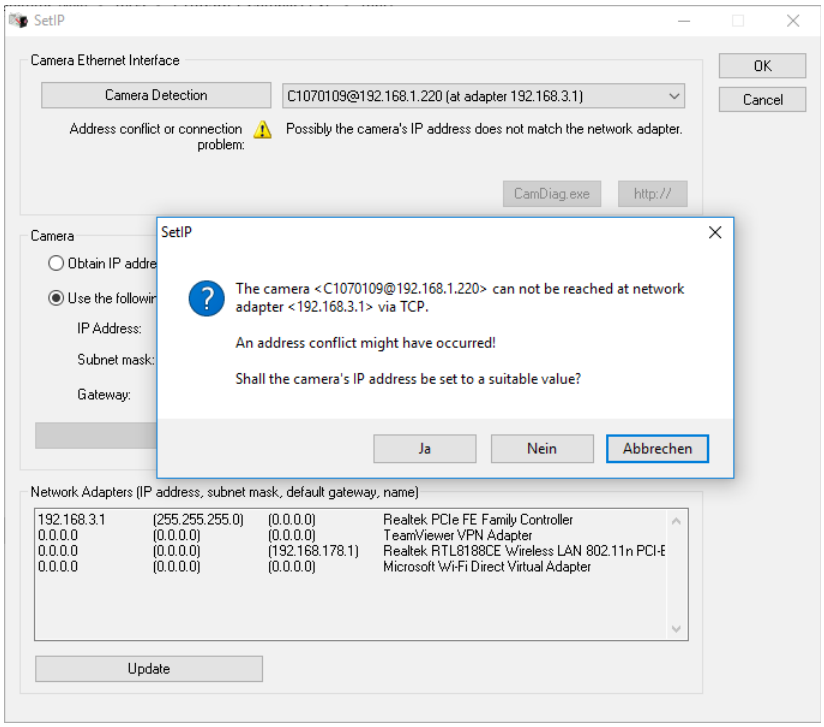
Or

- Change the IP address of the network adapter to "Obtain an IP address automatically:" (see **Changing the IP Address of a Network Adapter** on page **5**), switch the camera off and on again and execute a new **[Camera Detection]** with **SetIP.**

Case 4: A camera was found in the network but an IP address conflict or a connection problem was detected:

The camera is configured with "Use the following IP:" (here 192.168.1.220).

The network adapter is configured with "Use the following IP:" (here 192.168.3.1).



Troubleshooting:

- Confirm the question "Shall the camera's IP address be set to a suitable value" with **[Yes]**. The camera's IP address will be changed to a fitting value automatically.

Or

- Use **SetIP** to change the camera settings for "Use the following IP address:", enter matching values for a valid network configuration and save it with button [**Save Settings]** into the camera.

Or

- Change the IP address of the network adapter to "Use the following IP address:" (see **Changing the IP Address of a Network Adapter** on page **5**), enter matching values for a valid network configuration and execute a new [**Camera Detection]** with **SetIP**.

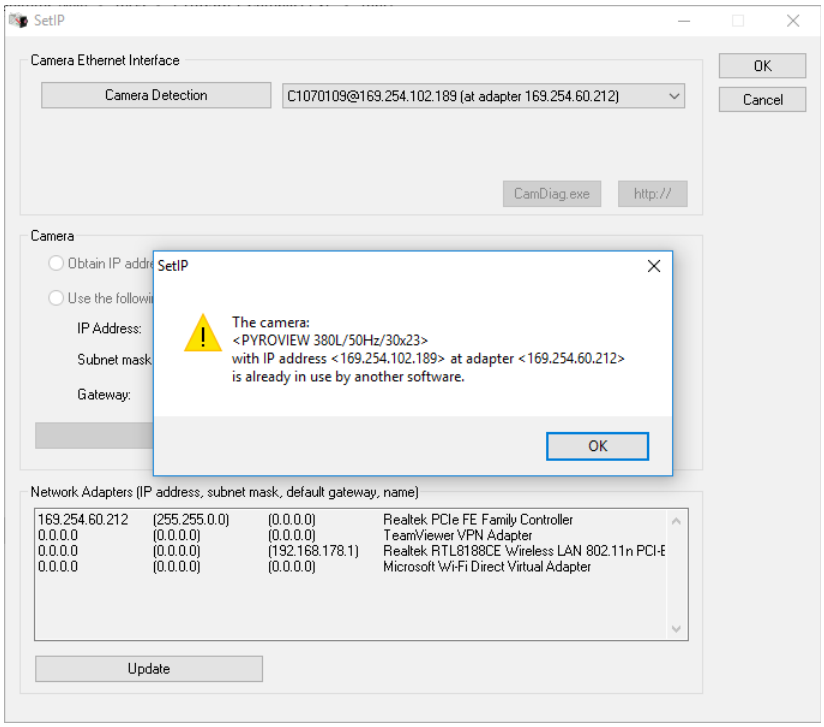
Or

- Change the IP address of the network adapter to "Obtain an IP address automatically:" (see **Changing the IP Address of a Network Adapter** on page **5**), switch the camera off and on again and execute a new **[Camera Detection]** with **SetIP.**

And

- Use **SetIP** to change the camera settings to "Obtain IP address automatically" and save it to the camera using button [**Save Settings]**.

Case 5: A camera was found in the network but the camera is already in use by another software:



Troubleshooting:

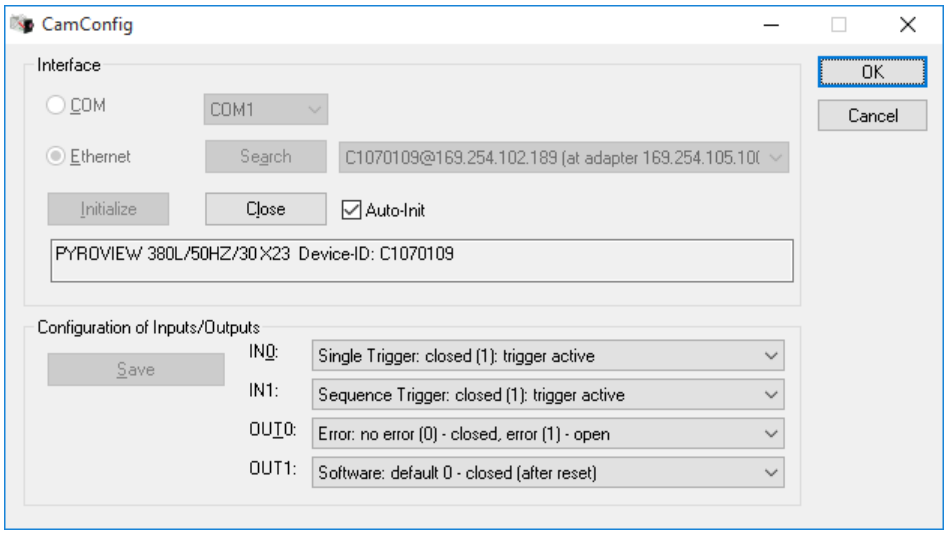
- If another software is using the camera, close this software and execute a new **[Camera Detection]** with **SetIP**.
- Close the existing connection of the camera by using the Ethernet service function **[Close Connection]** in the add-on program **CamDiag** (on page **3**) by the means of entering the serial number of the camera (e.g. C1070109) or the camera IP address and then execute a new **[Camera Detection]** with **SetIP**.

CamConfig

CamConfig.exe is an add-on program, which allows to setup the configuration of the inputs/outputs of the camera.

How to start **CamConfig.exe:**

- In program directory **"DIAS\PYROSOFT...\Tools"**



By default, after the program was started, a search for Ethernet cameras will take place. If a camera is found, a connection to this camera will be established and the configuration of the inputs and outputs is requested.

To select another camera, the connection to this camera has to be closed (Button **[Close]).**

After selecting the interface, the camera has to be initialized (**[Initialize]**). For Ethernet cameras, it is necessary to search (**[Search]**) and select a camera first.

If the initialization was successful, the configuration of the inputs and outputs may be changed and saved into the camera (**[Save]**).

The following possibilities are available:

- Input IN0:
  - Disable the automatic shuttering (for cameras with shutter: PYROVIEW 160L; 320L; 380M/F/G/L; 640M/F/G/L; PYROINC 320F, 380F/LF)
  - Single Trigger
- Input IN1:
  - Disable the automatic shuttering (for cameras with shutter: PYROVIEW 160L; 320L; 380M/F/G/L; 640M/F/G/L; PYROINC 320F, 380F/LF)
  - Sequence Trigger
- Output OUT0:
  - Error (error channel of the camera)
  - Shutter (shutter state)
  - Software with default value (internal zone calculation or **PYROSOFT**)
  - Active (fix)
  - Echo from IN0
- Output OUT1:
  - Synchronous Signal (image frequency of the camera)
  - Shutter (shutter state)
  - Software (internal zone calculation or **PYROSOFT**)
  - Active (fix)
  - Echo from IN1

SetDetect

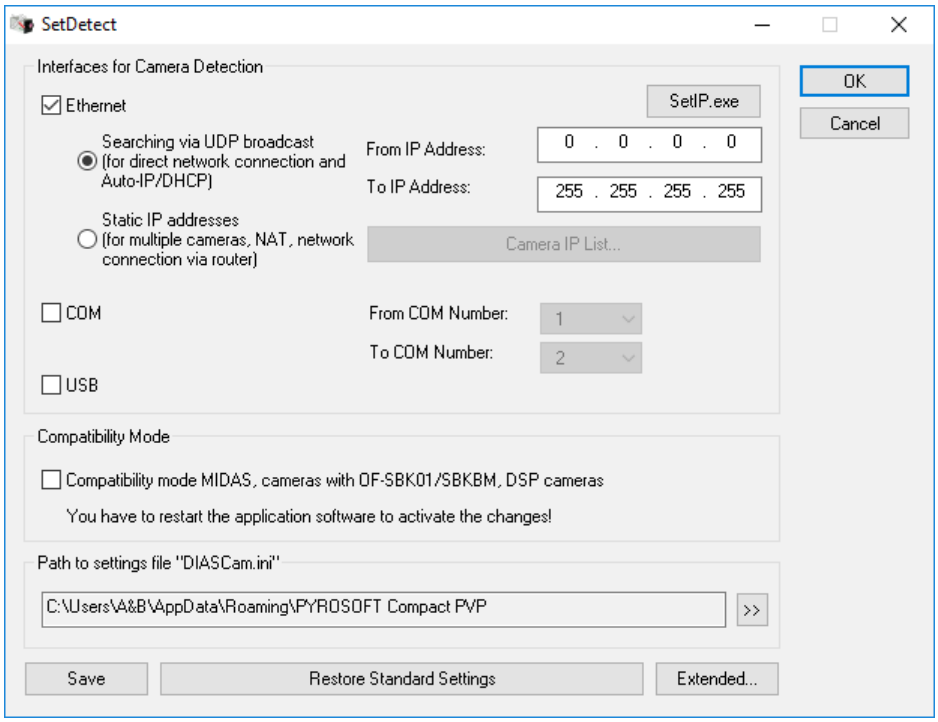
SetDetect.exe is an add-on program, which can change the parameters for the camera detection for **PYROSOFT**.

Additional extended parameters for the camera operation can be configured.

All changes made by **SetDetect.exe** are active only after the next program start of **PYROSOFT**.

How to start **SetDetect.exe:**

- In program directory **"DIAS\PYROSOFT...\Tools"**



Interfaces not in use can be deactivated to speed up the device detection during the program start of **PYROSOFT**.

For Ethernet cameras there are the following possibilities:

- Searching for cameras via UDP broadcast: it is also possible to search only inside a certain IP range.
- Setup static IP addresses: cameras will be connected directly.

Warning: If a network camera is connected whose IP address is not inside the selected IP range, the camera cannot be found by **PYROSOFT**! By using the add-on program **SetIP** (see page **5**), the camera's network configuration can be verified and changed (button **[SetIP.exe]**).

Compatibility mode: has to be activated for cameras with OF-SBK01/SBKBM and DSP cameras.

Using the button **[Extended...]** additional parameters for the camera operation can be configured.

Warning: The usage of the extended settings depends on the camera configuration and installed software components.

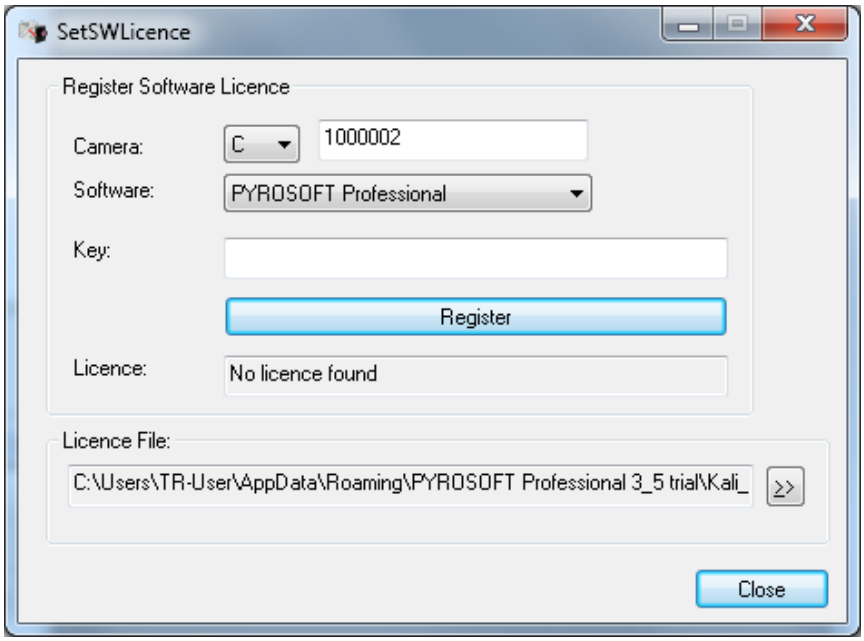
SetSWLicence.exe

SetSWLicence.exe is an add-on program, which allows software registration for a specific camera.

How to start **SetSWLicence.exe:**

- Menu item **[EXTRAS > External Tools > Register Camera Licence]**
- In program directory **"DIAS\PYROSOFT...\Tools"**

In order to register a new licence the serial number of the camera, the used software type and the licence key are required. After a successful registration the licence validity will be displayed. In case of an invalid licence an error message will be displayed.


SetSWLicence
Register Software Licence
Camera:
C
1000002
Software:
PYROSOFT Professional
Key:
Register
Licence:
No licence found
Licence File:
C:\Users\TR-User\AppData\Roaming\PYROSOFT Professional 3_5 trial\Kali_
>>
Close

CHAPTER 2

Troubleshooting

In this chapter, some important items are listed for troubleshooting.
If you still have problems after compliance with these instructions, please contact your supplier.
Please describe the error as exactly as possible to your supplier and advise him of your precise system configuration.
Should it be necessary to send the camera for troubleshooting and repair to DIAS Infrared GmbH, please ask first to authorize the return (RMA number):
www.dias-infrared.de/service

In this Chapter

Device detection: no connection to camera

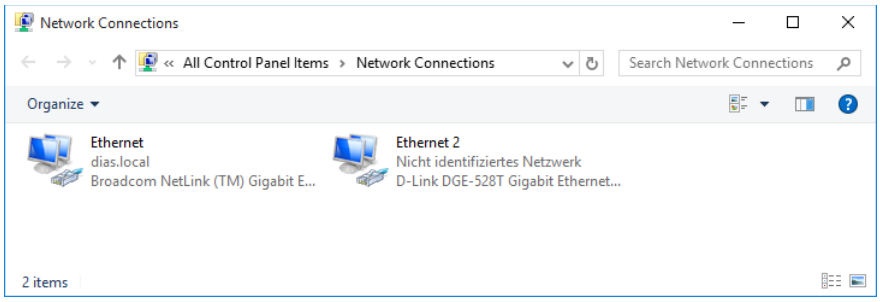
Power supply of the camera

Check the power supply of the camera!
- Is the system cable cable correctly screwed or plugged into the camera?
- Is the input voltage available?
- Measure the input current! The value is appr. 0.3 … 0.6 A at 24 V, depending on camera type)
- Switch off and on again the camera! For all cameras with internal shutter (PYROVIEW 160L, 320L, 380M/F/G/L, 640M/F/G/L; PYROINC 320F, 380F/LF) directly after powering up, a typical “click” noise should occur.

Ethernet connection of the camera

Check the Ethernet connection of the camera!
- Is the Ethernet cable cable correctly screwed into the camera?
- Are any extension cables or couplings properly connected?
- Is a cable broken (e.g. through permanent movements of the cable)?
- Is any used switch or hub turned on and functioning?
- Is the maximum wire cable length of 100 m not exceeded?
- Are any used media converter to optical fiber functional?
- Is the "Link" LED on the PC network adapter or any used switch, hub or media converter to fiber optic active?

- Check the used network adapter at the PC, it should be active: [Settings > Network & Internet > Ethernet > Change adapter options]:



By disconnecting and reconnecting the network cable to the PC, the network adapter that is used can be identified: the network adapter in use becomes inactive or active.

Firewall settings, Anti-Virus/Defender software

For the PC adapter to which the camera is connected, the Firewall must be turned off or have rules for access to all ports for UDP and TCP.

During the installation of PYROSOFT rules for the Windows Firewall are created. If the IP address of the PC adapter was changed, possibly a new installation of PYROSOFT is necessary to create new rules for the Windows Firewall.

If another Firewall instead of the Windows Firewall is used, this Firewall have to be configured accordingly.

- Check the settings of the firewall!

- Verify that any Anti-Virus/Defender software does not block access to the IP addresses of the PC adapter and the camera!

After changing the settings of Firewall or Anti-Virus/Defender software, it may be necessary to restart the PC.

Ethernet settings of camera and PC

- Check the camera and the PC Ethernet settings!

Please use the add-on program **SetIP** (see page **5**) and the chapters according:

- **Configuration of IP Addresses** on page **5**
- **Changing the IP Address of a Network Adapter** on page **5**
- **Changing the IP Address of a Camera** on page **7**

Settings for device detection in PYROSOFT

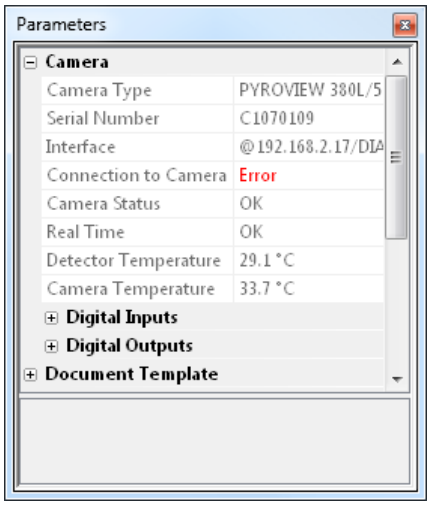
- Check the settings for device detection in PYROSOFT!

Please use the add-on program **SetDetect** (see page **13**).

No or very slow and interrupted data acquisition from camera

Firewall settings, Anti-Virus/Defender software

If a firewall or Anti-Virus/Defender software is blocking the UDP data stream from the camera, the camera was found via TCP, but no images will be displayed after the started data acquisition (empty image, blinking status indicator "Error" in PYROSOFT).



- Check the **Firewall settings, Anti-Virus/Defender software** (see page **18**)

Ethernet cable

- Check the **Ethernet connection of the camera** (see page **17**).

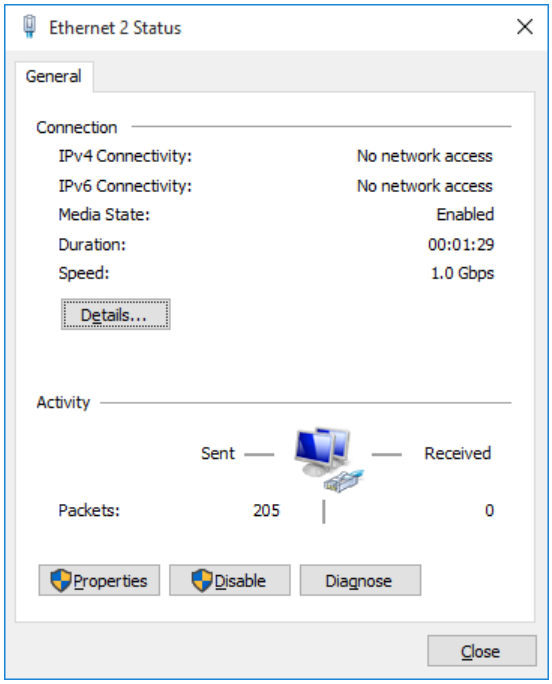
Connection speed

The cameras PYROVIEW 320N, 512N, 640M/F/G/L require a connection speed of 1 GBit/s, all other cameras require a connection speed of 100 Mbit/s.

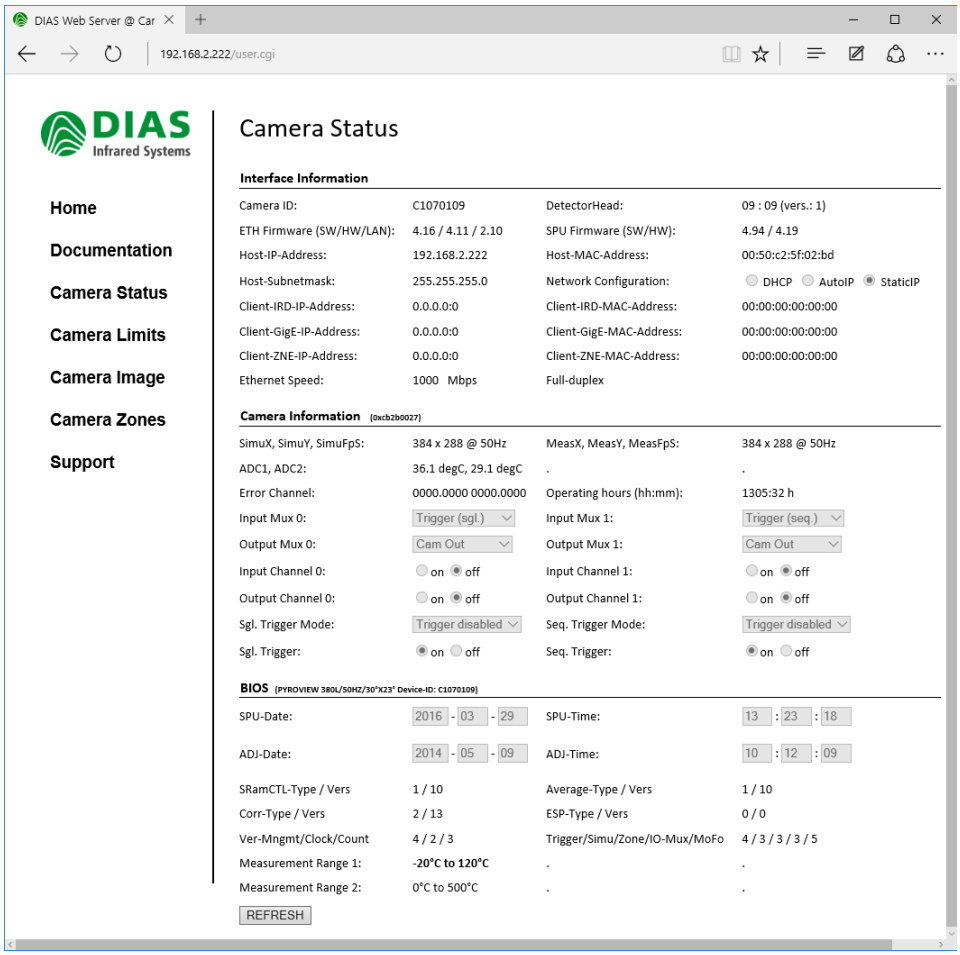
- Check that possibly used switches or hubs support that connection speed or are configured accordingly!

The connection speed of the PC network adapter used must match the used camera:

- Check the connection speed of the PC network adapter used on [Settings > Network & Internet > Ethernet > Change adapter options > Status > Speed]:



- Check the connection speed of the camera on the camera's website **[Camera Status >> Interface Information >> Ethernet Speed]** (via http://[IP address] or http://[camera serial number] or button **[http://]** in the add-on program **SetIP** (see page **5**).



Triggering the data acquisition

With activated triggering the data recording (single trigger, sequence trigger, start trigger) the trigger event must be triggered so that an image display is performed.

- Check the selected trigger parameters.
- Switch off the trigger parameter for test purpose.
- Verify that the trigger signal is active.

When triggering the data acquisition via digital inputs of the camera:

- Check the function of the digital inputs (see **Digital inputs or outputs of the camera do not work** on page **23**)

When triggering the data acquisition via temperature threshold:

- Check the image quality (see **Images with wrong temperatures, low contrast, unfocused, blurry or non-uniform** on page **21**)

When triggering the data acquisition via IO system:

- Check the configuration and the function of the IO system

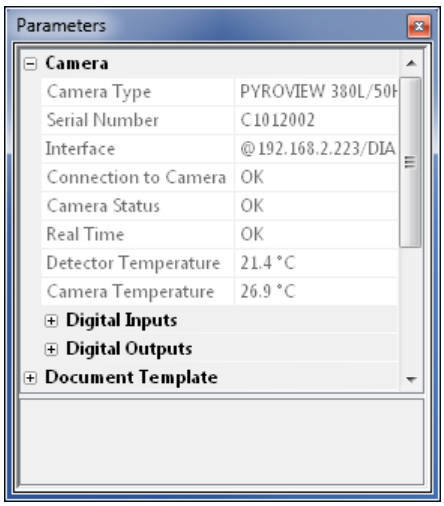
Image frequency, measurement range, scaling range

- Check the displayed frame rate in the status line of PYROSOFT.

The first value is the captured image frequency which is also the frequency of the internal data analysis; This value should match the value set in the parameter page of PYROSOFT. The second value is the display frequency of images.

- If the frame rate of the data acquisition indicates a correct value, please check the measurement range set in the parameter page and the display range of the scaling.

- If the frame rate indicates a too low value, but not 0, check the load of the PC. Possibly the utilization of the PC by other applications is too high or the PC is not powerful enough. In this case, the status display of the entry "Real Time" in PYROSOFT is not "OK".



Camera diagnosis

The add-on program **CamDiag** (see page 3) can be used for the diagnosis of the camera connection.

Images with wrong temperatures, low contrast, unfocused, blurry or non-uniform

Lens dirt

Dust and dirt on the lens or on a protection windows cause an incorrect temperature measurement and blurry images.

- Check the cleanliness of the lens and of a possibly protection window used.

Use clean air to remove dust and isopropanol for cleaning the lens or the protectiion window.

Focus

Depending on the configuration, the camera is equipped with motorized focus or manual focus.

Attention! The manual focusing for camera with motorized focus is not possible and may cause damage!

For cameras with motorized focus:

- Use the buttons in the Toolbar "Data Acquisition" in **PYROSOFT** for focusing the measurement object.

or

- Use the buttons on the website of the camera to focus the measuring object (http://[IP address] or http://[camera serial number]), page "Camera Image": user: "direct", password "dias"):

For cameras with manual focus:

- Focus the object to be measured using the rotatable lens ring.

Parameter of measurement object

Wrong parameters for the measurement object (emissivity, transmittance, ambient temperature) lead to an incorrect temperature indication in the image.

- Check the settings for the parameters of the measurement object!

Shutter defective

The cameras PYROVIEW 160L; 320L; 380M/F/G/L; 640M/F/G/L und PYROINC 320F, 380F/LF are equipped with an internal shutter. This shutter guaranteed an uniform image and correct absolute temperature values. The frequency of the internal shutter procedure depends on ambient conditions and the time of last shutter procedure.

- Check this feature by manually executing a shutter procedure using the button [**Shutter Procedure]** in the Toolbar "Data Acquisition" in **PYROSOFT**. Should no shutter procedure be executed, there is a possibility of a defect on the shutter.
- The add-on program **CamDiag** (see page **3**) can be used for the diagnosis of the error channel (error bit shutter).

Shutter disabled

Automatic shutter procedure for above mentioned cameras can be disabled via hardware or software. This blocking must be lifted from time to time depending on operating conditions, so that a shutter procedure is performed in the camera.

- Check the settings for disabling the automatic shutter procedure!
- Verify that when the automatic shutter procedure is disabled, the blocking is canceled from time to time.

Chopper defective

The cameras PYROLINE 128N/M/G/L/LS; PYROLINE 256N/M/G/L/LS are equipped with an internal chopper. There is the possibility of a defect on the chopper.

- The add-on program **CamDiag** (see page 3) can be used for the diagnosis of the error channel (error bit shutter).

Digital inputs or outputs of the camera do not work

Cabling

- Check the correct electrical wiring of the digital inputs or outputs according to the camera manual for details!
- Check the wiring for any cable breaks!

Configuration of camera

The inputs and outputs of the camera can be configured according to the requirements of the application.

- Check the correct configuration of the inputs and outputs! For this, use the add-on program **CamConfig** (see page 12).

Testing the inputs and outputs

The add-on program **CamDiag** (see page 3) can be used for testing the inputs and outputs of the camera.

Error channel of the camera is active or camera status in PYROSOFT is "Error"

Camera diagnosis

May be there is a malfunction of the camera.

- The add-on program **CamDiag** (see page 3) can be used for the diagnosis of the error channel (error bits).

Ambient temperature range

May be the valid ambient temperature range of the camera is exceeded or fallen below.

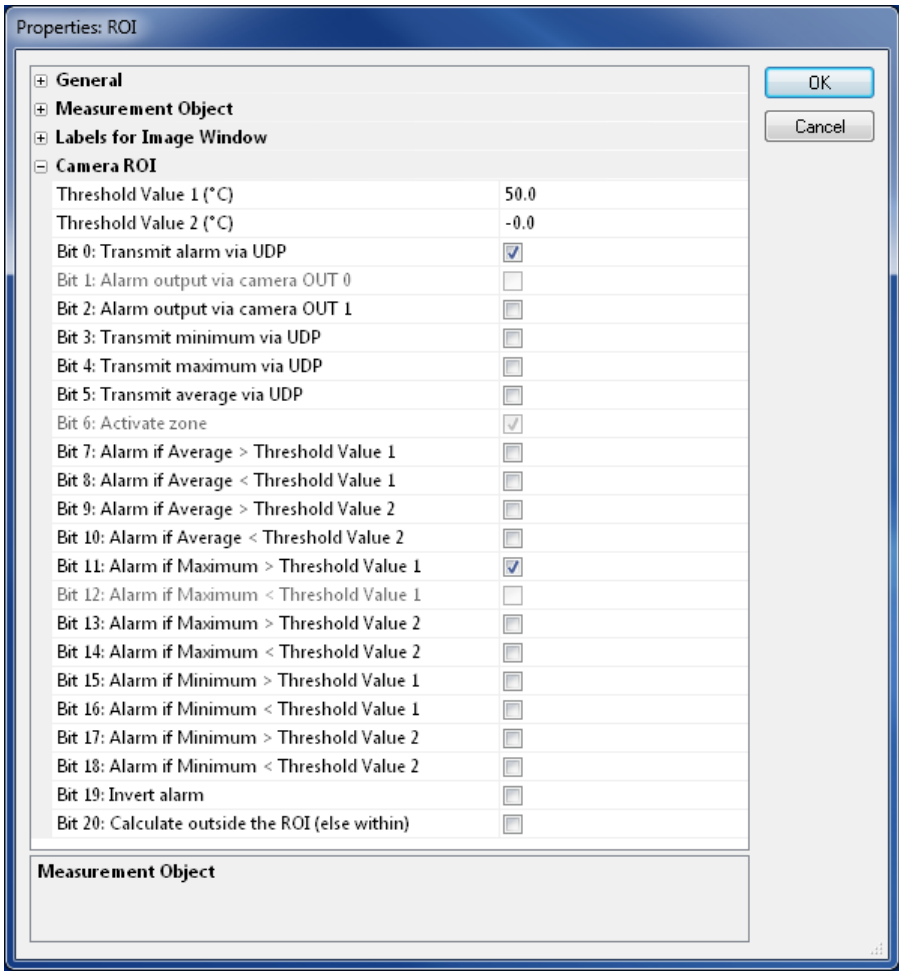
- Check a potential connected cooling system for proper operation!

Internal zone calculation of the camera or alarm output do not work

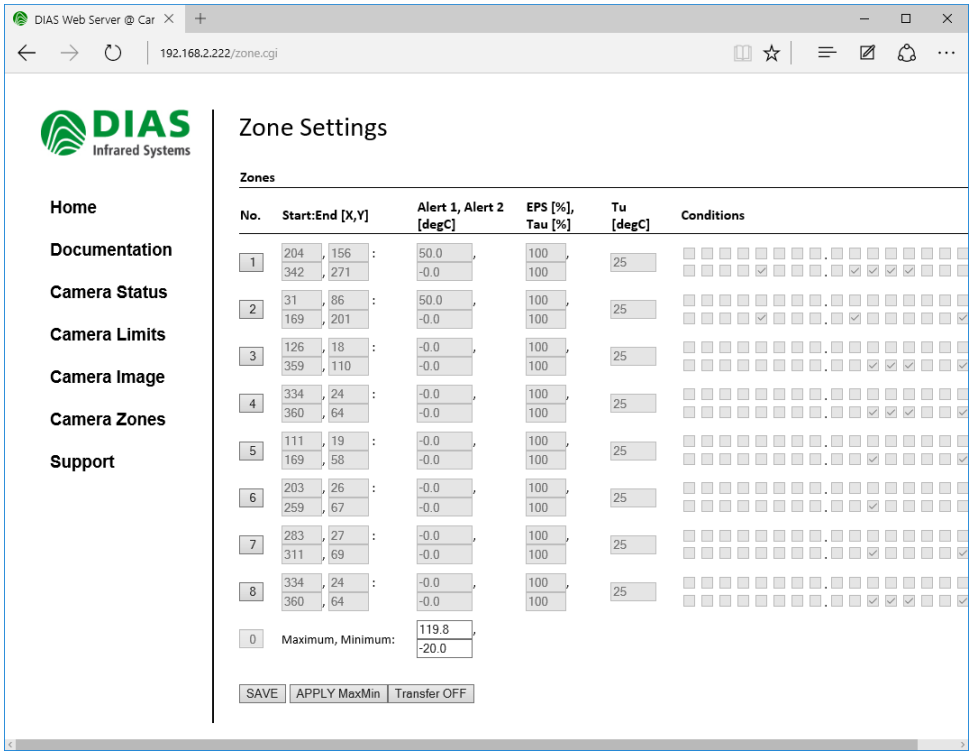
Zone programming

The programming of the internal zone calculation can be done and tested by the Software **PYROSOFT CamZone**.

Check the parameters of the zone programming for each zone in **PYROSOFT CamZone**!



Alternatively the website of the camera can be used: (http://[IP address] or http://[camera serial number] or the [http://], "Camera Zones": user: "direct", password "dias"):



Alarm output via digital outputs

Check the configuration and function of the digital outputs (see **Digital inputs or outputs of the camera do not work** on page **23**)! To use the camera outputs for alarm value output of the internal zone calculation, their configuration must be set to "software" (see **CamConfig** on page **12**).

Check the settings of the **Zone programming** (see page **23**), in particular the threshold values, alarm output and alarm conditions!

UDP data transfer of zone values

Check the settings of the **Zone programming** (see page **23**), in particular the settings for UDP transmission!

Make sure that the UDP data transfer for the zone values is not already used by another software!

Observe the instructions for connection problems and data acquisition from the camera (see **Device detection: no connection to camera** on page **17** and **No or very slow and interrupted data acquisition from camera** on page **18**), which also apply to the UDP data transfer of the zone values.

CHAPTER 3

PYROINC/PYROVIEW N Series - Setup and Network Configuration

Please note the following special features, which are important for the setup and operation of the PYROINC/PYROVIEW N infrared cameras.

In this Chapter

Network Connection Optimization

For stable and secure data transfer from the camera, the network adapter must be optimally configured.

General Information

It is recommended to use a separate network adapter, to which no other network components are connected, for the camera connection.

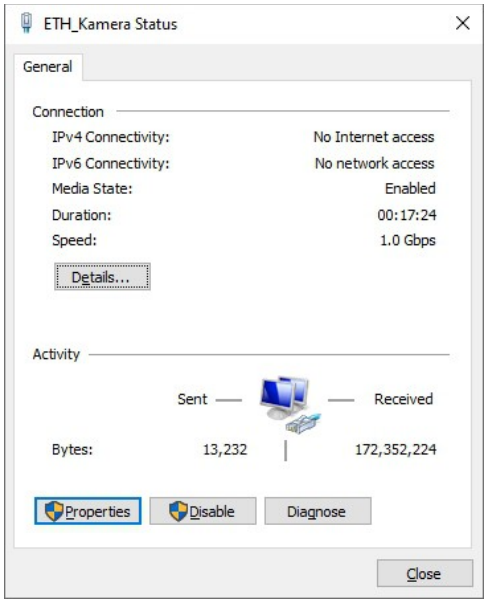
Recommended network adapters are: Intel Pro 1000 series, Intel i210 series, Intel i340 series, Intel i350 series

In a virtual machine, the network adapter must be configured as a bridge, NAT is not supported.

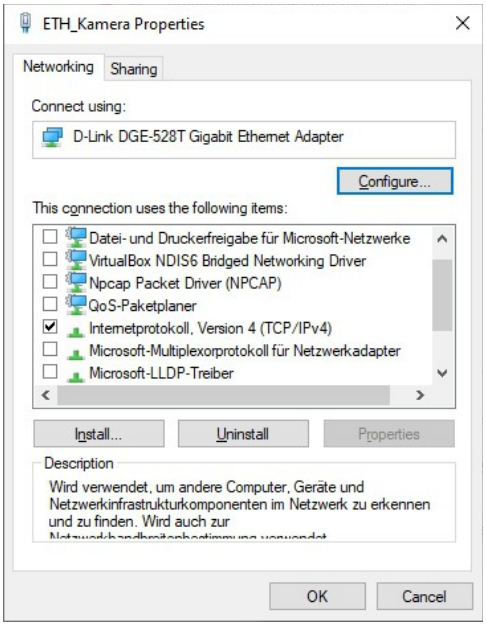
To achieve data transfer at maximum speed, please set the PC to "High Performance" in [Windows Control Panel > Power Options].

Recommended Network Settings

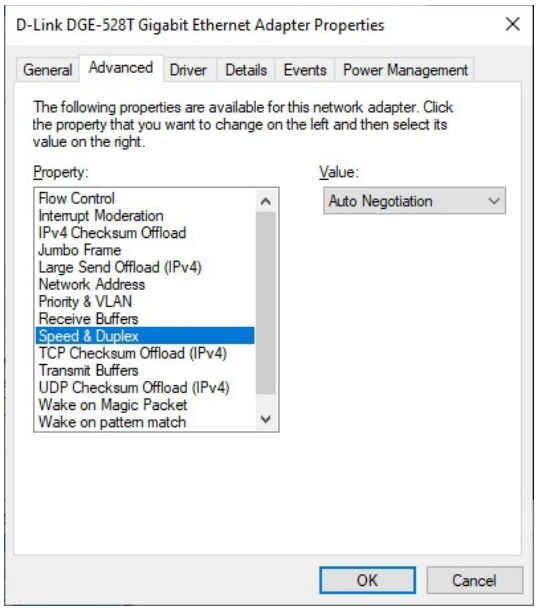
- Use a separate network card for the camera with a transfer rate of 1.0 Gbit/s (check the status of the network adapter)



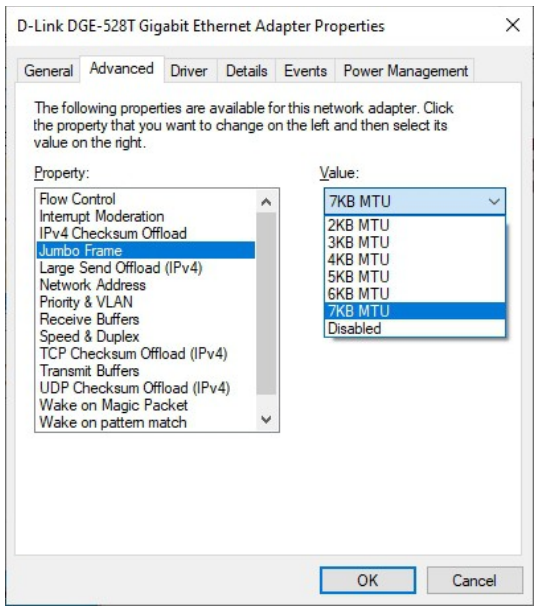
- Disable all services except TCP/IPv4 (Network Adapter Properties)



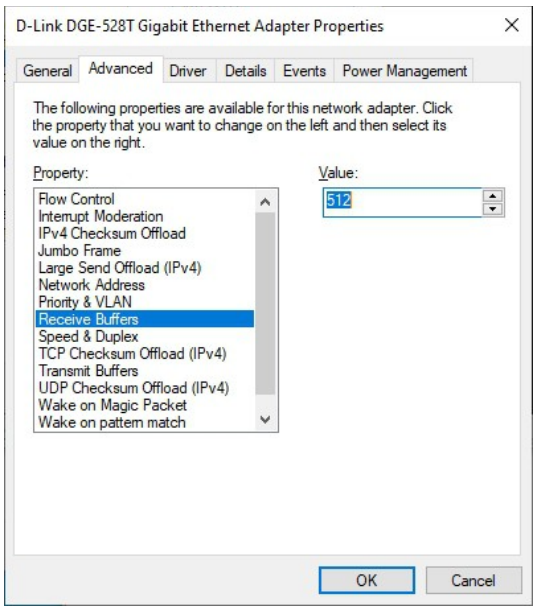
- Set Speed & Duplex to "Auto Negotiation" (Network Adapter Properties> Advanced)



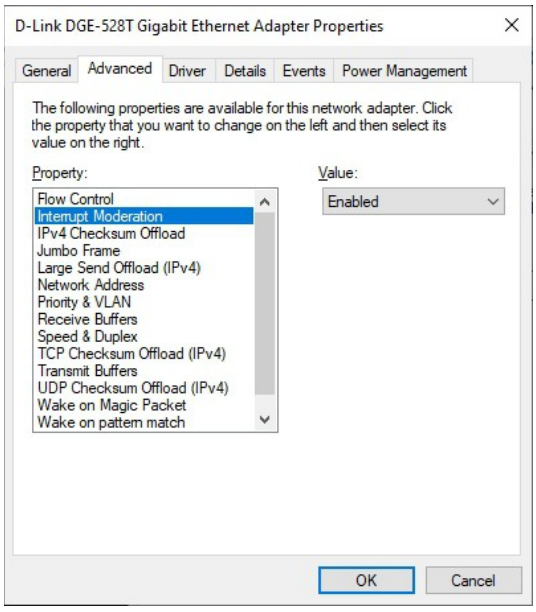
- Activate jumbo frames (large frames, JumboFrames) with maximum size (Network Adapter Properties> Advanced)



- Set the size of the receive buffer and transmit buffer to maximum value (Network Adapter Properties> Advanced)



- Set the interrupt moderation to "Extreme" (if available) or "Enabled" (Network Adapter Properties> Advanced)

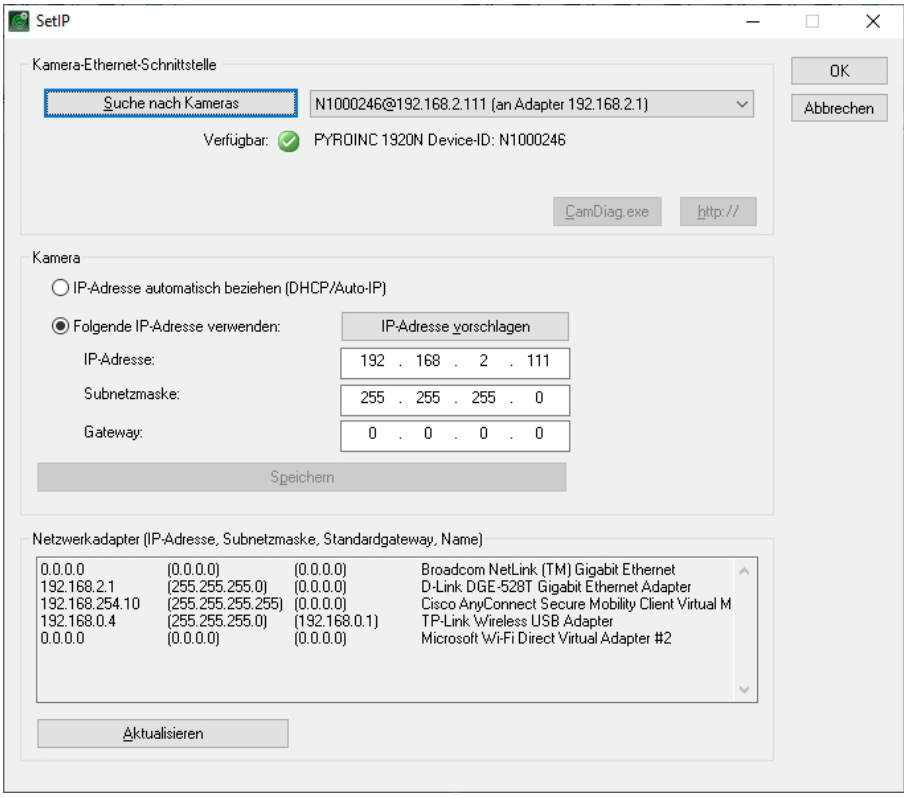


Firewall Settings

Turn off the Firewall for the network adapter you are using.

Configuring the IP address of the Camera

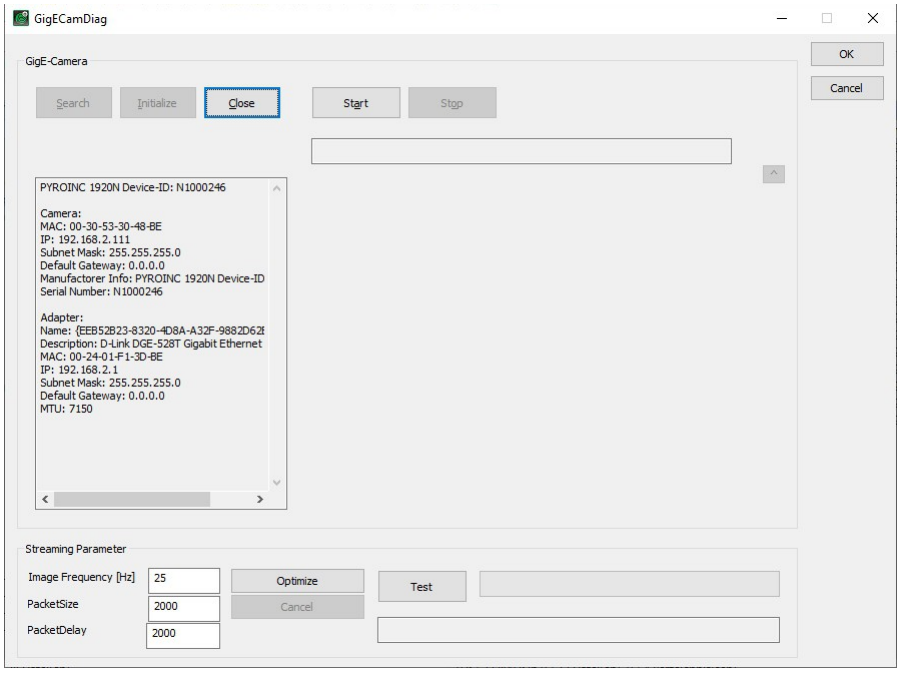
Use the software tool "SetIP.exe" to configure the camera's IP address.



If no camera is found, please check that the firewall is turned off.

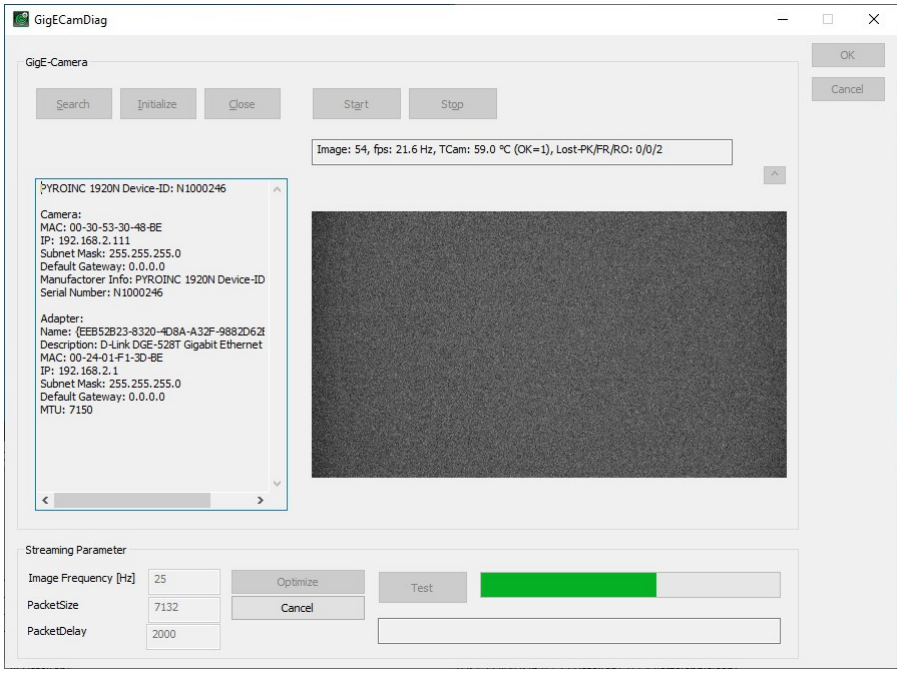
Parameter Optimization "PacketSize" and "PacketDelay"

Use the software tool "GigECamDiag .exe" to optimize the camera's streaming parameters.

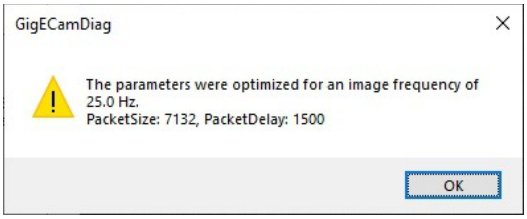


If no camera is found, please check that the firewall is turned off.

Start the parameter optimization using **<Optimize>**:



If the optimization is successful, a message appears:



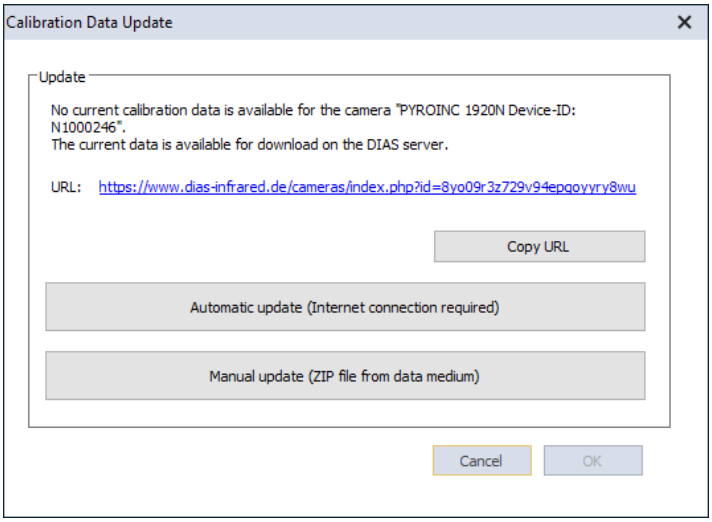
When you exit the program, you will be asked whether the parameters should be saved in order to be used by **PYROSOFT**. Exit "GigECamDiag.exe" and start the **PYROSOFT** software.

Updating the Calibration Data

Every camera has its own individual calibration data set. Before starting the first measurement with **PYROSOFT**, the calibration data of the camera have to be downloaded from the DIAS server and imported into the software.

To do this, proceed as follows:

Connect the camera to the PC and start **PYROSOFT**. The software automatically checks whether calibration data already exist for the camera. If this is not yet the case, the following message appears:



You can now choose:

Automatic Update

If your PC has a connection to the Internet, the update can be performed automatically by **PYROSOFT**. If the update was successful, the connection to the camera will be established automatically and data acquisition will start.

Manual Update

If the PC does not have an Internet connection, the data must be imported manually. The data is provided as a ZIP file on the DIAS server and can be downloaded from there.
To do this, copy the download link displayed.
Open the link on a PC with Internet connection and download the calibration data to a mobile data carrier. Transfer the file to the PC on which PYROSOFT is used and follow the instructions on the screen to import the file.