



Application Software for Industrial Vision Systems



# Documentation of the NCG IP-Configuration tool Version 1.0

For Microsoft® Windows®  
XP / Vista® / 7

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# 1. Introduction

The **NCG IP-Configuration** tool is a small stand alone application that can be used to change the IP configuration of NeuroCheck NCG cameras. Furthermore the **NCG IP-Configuration** tool can be used to change the name of NeuroCheck NCG cameras.

To identify and integrate a NCG camera to the NeuroCheck software a unique and persistent IP address is required. The factory settings of the NeuroCheck cameras of NCG series define no persistent IP address. Therefore a persistent IP address must be assigned to every NCG camera once. This can be done with the **NCG IP-Configuration** tool.

In the case that two cameras have the same persistent IP addresses and should be used in the same network, the IP address of one of the cameras must be changed. The **NCG IP-Configuration** tool can be used for that too.

This document is organized as follows:

- The next chapter describes the installation of this tool.
- The third chapter presents a brief introduction in selecting IP addresses.
- The forth chapter presents work instructions for the typical use cases.
- The last chapter provides a reference of the user interface of this tool.

## 2. Installation

The **NCG IP-Configuration** tool requires the Microsoft .NET framework 3.5 or later.

Furthermore the tool requires a proper installation of the NeuroCheck NCG driver. Please refer to the help of the NeuroCheck NCG driver for details of installation and requirements for using cameras of the NeuroCheck NCG series.

Create a local copy of the directory of the **NCG IP-Configuration** tool. Within the local directory the "NCG IP-Configuration.exe" and the following files must be present:

- bgapi.dll, minimum version 1.7.1.10453
- BO\_GigEFilterDrv.dll 1.7.1.0
- bonetwrap.dll, minimum version 1.7.1.10453
- bsysgige.xml
- img\_proc.dll, minimum version 1.7.1.10453
- sys\_gige.dll, minimum version 1.7.1.10453
- MathParser.dll

The first time the **NCG IP-Configuration** tool is started the Windows Firewall might warn that some function of the program are blocked. Please stop further blocking of the **NCG IP-Configuration** tool. Otherwise the program cannot work properly.

### 3. Selection of IP address and subnet mask

We recommend configuring the network adapter within the computer and the connected cameras as subnet. In the case of an existing company or production Ethernet network, we strongly recommend to use different network adapters and different subnets.

The IP addresses in this document are shown as four numbers in the range between 0 to 255 separated by dot. A typical IP address may look like 192.168.10.3.

If you are not familiar with network configuration we recommend the following rules.

The components of the camera network are the network adapter within the computer that is connected with the camera network, the switches that you possibly use to connect several cameras with the network adapter within the computer and the connected NCG cameras.

We recommend starting every IP address with 192.168.x.y. In the following the x describes the subnet and y describes the device.

We strongly recommend using different subnets for an existing company or production Ethernet network and the camera network. Due to the fact that most subnets use 0 or 1 as identifier, a value of 10 might be a good choice as subnet identifier of the camera subnet in many cases. The IP address of all components of the camera network look like 192.168.10.y in this case. Keep in mind that the subnet identifier must be identical for all components within the camera network.

The last digit of the IP address identifies the individual component. This digit must be unique for every component within the network. We recommend the usage of a value of 1 for the network adapter within the computer that is connected with the camera network and enumerate the switches and cameras with values starting with 2. The IP address of the first camera is 192.168.10.2 in the case that no switch is used. The IP address of the next camera is 192.168.10.3 and so on.

The second part of the IP configuration is the so called subnet mask. The subnet mask defines which part of the IP address identifies the network and which part of the IP address identifies the camera or computer. In other words the subnet mask allows differentiating between the parts of the IP address that all devices have in common and the parts that are unique to one device. In the case that the third digit of the IP address is used for identification of the subnet and the forth digit is used for identification of the camera or computer the subnet mask must be 255.255.255.0.

In the case that the computer NeuroCheck runs on is also connected with another network consult the responsible network administrator about the IP configuration of the subnet.

#### Example:

The table below shows one possible IP configuration for five NCG cameras connected with one computer. The example is given exclusive any warranty. The values must be adapted to your system.

Device	IP address	Subnet mask
Network adapter of the computer connected with the camera network.	192.168.10.1	255.255.255.0
Switch	192.168.10.2	255.255.255.0
First NCG camera	192.168.10.3	255.255.255.0
Second NCG camera	192.168.10.4	255.255.255.0
Third NCG camera	192.168.10.5	255.255.255.0
Forth NCG camera	192.168.10.6	255.255.255.0

## 4. Work instructions

### 4.1 First assignment of IP addresses

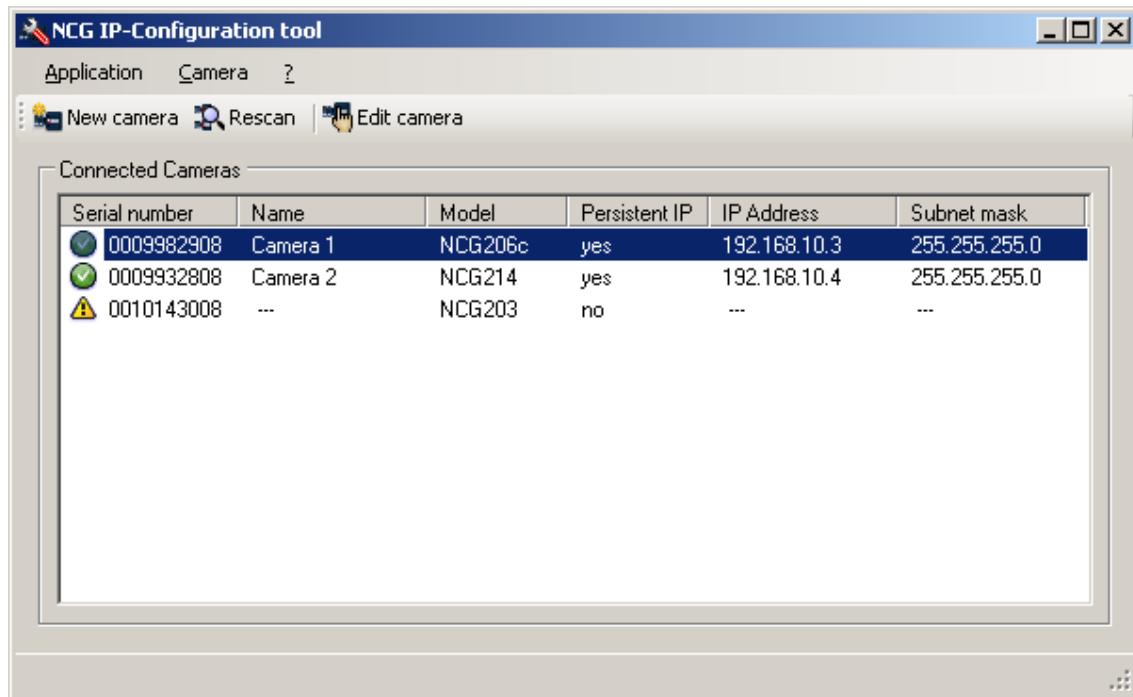
1. Make sure that the NeuroCheck software is closed and the installation of the low level driver of the NCG cameras is done according to the guidelines of the NeuroCheck NcGeBoGe driver help. Make sure that the network adapter within the computer that is connected with the camera network is configured with a valid persistent IP address.
2. Connect the cameras with the computer and the power supply unit. Wait until the connections between the computer and the cameras are established. In worst case this may take several minutes.
3. Start the NCG IP-Configuration tool.
4. In the case that the cameras are not listed in **Connected Cameras** press **New camera**. If the list is still empty check the installation of the driver on the computer. Please refer to the NcGeBoGe driver help.
5. Select one entry in the **Connected Cameras** list and open the **configure camera** dialog by pressing **Edit**.
6. Configure the IP address and subnet mask of the camera. Please refer to the chapter "Hints about IP configuration" if you are not familiar with IP configuration. After configuration close the dialog with OK.
7. Repeat the steps 5 and 6 for each new camera.
8. Close the NCG IP-Configuration tool. The cameras can be used in the NeuroCheck software now.

### 4.2 Change of IP addresses

1. Make sure that the NeuroCheck software is closed and the installation of the low level driver of the NCG cameras is done according to the guidelines of the NeuroCheck NcGeBoGe driver help. Make sure that the network adapter within the computer that is connected with the camera network is configured with a valid persistent IP address.
2. Connect the cameras with the computer and the power supply unit. In the case of an existing IP address conflict connect only one of the cameras with the same IP address, in order to change the IP address.
3. Start the **NCG IP-Configuration** tool.
4. In the case that the cameras are not listed in **Connected Cameras** press **Rescan**. If the list is still empty check the installation of the driver on the computer. Please refer to the NcGeBoGe driver help.
5. Select the entry in the **Connected Cameras** list that should be changed and open the **configure camera** dialog by pressing **Edit**.
6. Configure the new IP address manually.
7. Close the NCG IP-Configuration tool. The new address is assigned after restarting the camera, therefore the connection of the camera to the power supply must be interrupted.

## 5. User Interface

The NCG IP-Configuration tool offers an overview of all cameras of the NeuroCheck NCG series that are connected with the computer.



### 5.1 List of Connected Cameras

This list provides information about the IP configuration of all detected cameras.

Column	Content
Serial number	<p>The serial number of the camera. The icon in front of the serial number shows whether the camera can be accessed by the NeuroCheck software or not.</p> <ul style="list-style-type: none"> <li> NeuroCheck can access the camera.</li> <li> NeuroCheck can not access the camera.</li> </ul>
Camera name	The user-defined name of the camera.
Model	The model of the camera of NCG series.
Persistent IP	<p>A flag whether the camera uses a persistent IP address.</p> <ul style="list-style-type: none"> <li>yes: A persistent IP address is used.</li> <li>no: A persistent IP address is not used.</li> </ul>
IP Address	The currently configured persistent IP address of the camera.
Subnet mask	The currently configured persistent subnet mask of the camera.






## 5.2 Menus

### 'Application' menu

Element	Description
Settings	Opens a dialog to configure the settings of the application (see chapter 'The settings dialog')
Exit	Closes the application.




### 'Camera' menu

Element	Description
 New camera attached	Searches for a new NCG camera with no persistent IP address within the system. Please note that the function stops searching for cameras after one additional camera is found.
 Rescan for cameras	Rescans the system for cameras. Please use this function if a camera with persistent IP address is newly attached to the system.
 Edit camera configuration	Opens the configure camera dialog for editing the IP configuration of the selected camera (see chapter 'The camera configuration dialog').

### '?' menu

Element	Description
About	Shows a dialog that provides information about the <b>NCG IP-Configuration</b> tool.
Help	Opens this PDF document containing the documentation of the <b>NCG IP-Configuration</b> tool.

### Menu buttons

Element	Description
 New camera	Searches for a new NCG camera with no persistent IP address within the system. Please note that the function stops searching for cameras after one additional camera is found.
 Rescan	Rescans the system for cameras. Please use this function if a camera with persistent IP address is newly attached to the system.
 Edit camera	Opens the configure camera dialog for editing the IP configuration of the selected camera (see chapter 'The camera configuration dialog').

## 5.3 The configure camera dialog

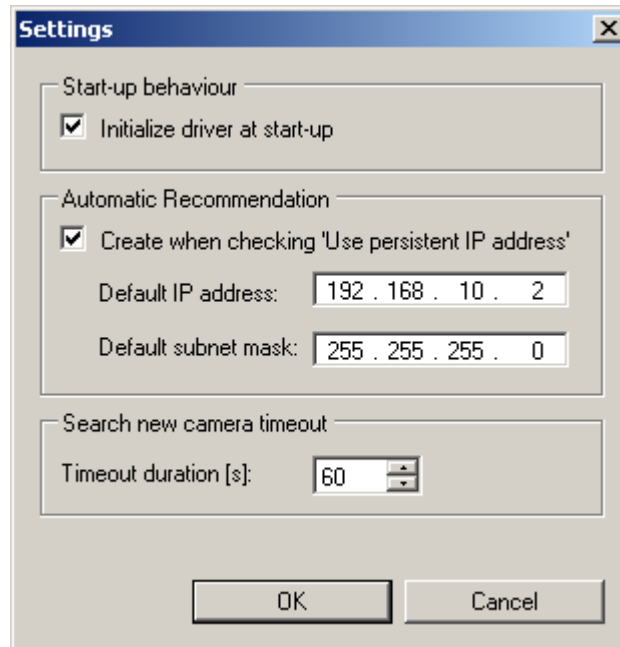
This dialog can be used to change the IP configuration of the selected camera. The dialog opens by pressing the **Edit camera** button or clicking **Edit camera configuration** in the **Camera** menu or by double clicking an entry in the **Connected Cameras** list or by selecting **Edit camera configuration** in the context menu of the camera list entry.

Element	Description
<b>IP Configuration</b>	
Use persistent IP address	Activates or deactivates the usage of a persistent IP address for the selected camera.
IP address	The currently configured IP address of the selected camera. If <b>Use persistent IP address</b> is activated the IP address must be valid. A valid IP address contains four numbers each in the range between 0 and 255.
Subnet mask	The currently configured subnet mask of the selected camera. If <b>Use persistent IP address</b> is activated the subnet mask must be valid. A valid subnet mask contains four numbers each in the range between 0 and 255.
<b>Identification</b>	
Name (1 to 15 char.)	The name that is assigned to the camera. The name can contain from 1 up to 15 characters.
<b>Camera information (read-only)</b>	
Model	The model of the camera of NCG series.
Serial number	The serial number of the camera.
MAC address	The MAC address of the Ethernet controller of the camera.
<b>Current state (read-only)</b>	
Persistent IP address	Information about the current usage of a persistent IP address by the camera. <ul style="list-style-type: none"> <li>• yes: A persistent IP address is currently used.</li> <li>• no: A persistent IP address is currently not used.</li> </ul>
IP address	The currently used persistent IP address. Only if a persistent IP address is used.
Subnet mask	The currently used persistent subnet mask. Only if a persistent IP address is used.
Name	The currently configured camera name. This value is available only in

the case of a valid IP configuration.

## 5.4 The settings dialog

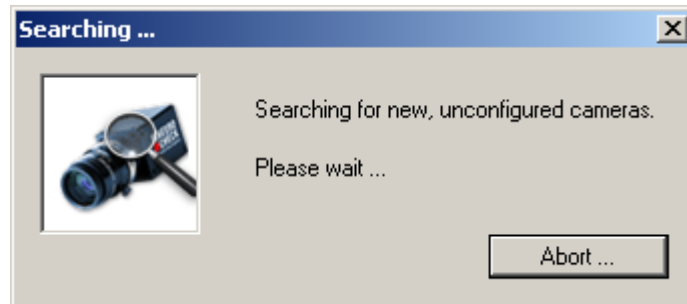
The settings dialog can be used to configure the start-up behaviour of the NCG IP-Configuration tool and the default values for the calculation of IP addresses and subnet masks.



Element	Description
<b>Start-up behaviour</b>	
Initialize driver at start-up	Activates or deactivates whether the application searches for connected cameras at start-up of the application. Please notice that the scanning process may take some time.
<b>Automatic Recommendation</b>	
Create when checking 'Use persistent IP address'	Activates or deactivates whether a recommendation of an IP address is created in the case that 'Use persistent IP address' is checked in the <b>configure camera</b> dialog by the user.
IP address	The IP address that is used as starting point for calculating a recommendation for an IP address.
Subnet mask	The subnet mask that is used as starting point for calculating a recommendation for an IP address.
<b>Search new camera timeout</b>	
Timeout duration [s]	The timeout the search for new cameras is aborted.

## 5.5 The searching window

The searching window appears when the New camera attached menu entry is clicked. The searching window is displayed until a additional, unconfigured NCG camera is found in the system. The window closes also when the timeout configured in the settings dialog expires.



Element	Description
Abort ...	Aborts the search for additional, unconfigured NCG cameras. Aborting the search may take some seconds.