

Checklist for using NCCG cameras

17 March 2022

Author:	NeuroCheck GmbH, E-Mail: support@neurocheck.com
Contents:	This white paper contains general notes and tips and tricks for installing, configuring and setting up a NeuroCheck NCCG Gigabit Ethernet camera including components.
Note:	This document is not part of the official product documentation of the NeuroCheck software.

Contents:

1.	Introduction	2
2.	Models	2
3.	Selection of hardware components	2
4.	Checklist configuration	3
4.1.	Network adapter	3
4.2.	Filter driver	6
4.3.	Switch	6
4.4.	Cameras	6
4.5.	NeuroCheck camera driver	7



1. Introduction

The Gigabit Ethernet cameras of the NCCG series can be comfortably integrated into NeuroCheck just like other types of cameras. Due to the technical complexity, situations may arise requiring careful matching of components and detailed configuration to guarantee smooth operation.



You should study the help file for the camera driver (NcDc.NeuroCheck.BO.chm) in any case; this document provides you with additional valuable tips and tricks for smooth system installation.

Unless otherwise indicated, all notes refer to the different NeuroCheck software versions in the same way.

2. Models

This checklist applies to all NeuroCheck Gigabit Ethernet cameras. We are talking about NCCG cameras here. The following model series are currently supported:

- NCCG
- NCCG.I
- NCG (discontinued)
- NCHG (discontinued)
- NCLG (discontinued)
- NCLT

3. Selection of hardware components

- Use NeuroCheck digital cameras as listed above.
- Use computer with much memory (at least 4 GB RAM for 32-bit operating system, 8 GB RAM for 64-bit operating system), more is better.
- Do not use Cat 5 cables but at least Cat 6.
- GigE adapter: Please ask NeuroCheck GmbH or your local supplier for the compliance list of the manufacturer. Best use Intel server adapter for PCI express.
- NCCG cameras can only be operated using GigE adapters. NCCG cameras cannot communicate with 100 Mbit/s network adapters.



4. Checklist configuration

4.1. Network adapter

These settings are made in the Properties of the network adapter.

Attention: The settings may be overwritten when updating Windows.

- Windows 7: Control Panel | Network and Internet | Network and Sharing Center Follow link to Adapter Settings (left hand side).
- Windows 10: Settings | Network and Internet | Change adapter options.
 - Install vendor driver if available. Microsoft Windows automatically installs its own driver but generally, the vendor's driver is better.

Intel(R) PRO/1000 GT Desktop Adapter Properties				
ſ	General	Advanced Driver	Details Resources	
Intel(R) PRO/1000 GT Desktop Adapter				
		Driver Provider:	Intel	
		Driver Date:	6/19/2013	
		Driver Version:	9.16.10.0	
		Digital Signer:	Microsoft Windows Hardware Compatibility Publisher	

 Enable Jumbo Packets and set to maximum size supported by the network adapter and connected switch (if present).

(Intel PRO/1000: 9014 Byte).

I	ntel(R) PRO/1000 GT Desktop Adapter Properties	x
ſ	General Advanced Driver Details Resources	
	The following properties are available for this network adapter. Click the property you want to change on the left, and then select its value on the right.	
	Property: Value:	
	Adaptive Inter-Frame Spacing Enable PME Flow Control Gigabit Master Slave Mode Interrupt Moderation Interrupt Moderation Rate IPsec Offload IPv4 Checksum Offload Jumbo Packet Large Send Offload (IPv4)	•
	Large Send Offload (IPv4) Large Send Offload (IPv6) Link Speed & Duplex Locally Administered Address	



• Set value of Receive Buffers / Receive Descriptors to maximum.

For Intel cards the settings are in the Properties dialog for the adapter under Advanced | Receive Buffers (Maximum Intel PRO/1000: 2048 or 4096). Sometimes you will find this setting in a sub entry Performance options (or something like that).

Intel(R) PRO/1000 GT Desktop Ada	apter Properties
General Advanced Driver Deta	ails Resources
The following properties are availab the property you want to change on on the right.	ole for this network adapter. Click n the left, and then select its value
Property:	<u>V</u> alue:
Large Send Offload (IPv4) Large Send Offload (IPv6) Link Speed & Duplex Locally Administered Address Log Link State Event Priority & VLAN	▲ 2048 <u>·</u>
Receive Buffers Receive Side Scaling Receive Side Scaling Queues Smart Power Down TCP Checksum Offload (IPv4) TCP Checksum Offload (IPv6) Transmit Buffers UDP Checksum Offload (IPv4)	-

• Set Interrupt Moderation Rate to Adaptive (if available).

Value:
Adaptive Off Minimal Low Medium High
Adaptive
roller moderates or delays the ssible to optimize network Adaptive setting adjusts the g on traffic type and network may improve network and igurations.
ilization increases at higher

Energieeffizientes Ethernet deaktivieren



General Lin	Link Speed		Advanced	
Power Management	Teaming	Boot Options	Driver	Detail
B C O.:		disable		
Power Saver Options:	themet	disable		

• Each adapter should have its own subnet. Dual port cards have two adapters, therefore, they should work in two subnets.

Example: 4 cameras with 2 adapters and a switch each;

cameras 1 & 2 with adapter 1, cameras 3 & 4 with adapter 2.

- Wrong configuration:
 - 1. Adapter: 192.168.1.101, 255.255.255.0
 - 2. Adapter: 192.168.1.102, 255.255.255.0
 - 1. Camera: 192.168.1.1, 255.255.255.0
 - 2. Camera: 192.168.1.2, 255.255.255.0
 - 3. Camera: 192.168.1.3, 255.255.255.0
 - 4. Camera: 192.168.1.4, 255.255.255.0
- Better configuration:
 - 1. Adapter: 192.168.1.100, 255.255.255.0
 - 2. Adapter: 192.168.2.100, 255.255.255.0
 - 1. Camera: 192.168.1.1, 255.255.255.0
 - 2. Camera: 192.168.1.2, 255.255.255.0
 - 3. Camera: 192.168.2.1, 255.255.255.0
 - 4. Camera: 192.168.2.2, 255.255.255.0
- Disable firewall for the network adapter.



4.2. Filter driver

Installation and update using DriverManager.exe. Check in the network adapter Properties (see above).

- Install filter driver for every network adapter connected to NCCG cameras. Update filter driver:
 - a) Uninstall old driver
 - b) Restart computer
 - c) Install new driver
 - d) Restart computer

Local Area Connection 5 Properties		
Networking Sharing		
Connect using:		
Intel(R) PRO/1000 PT Quad Port Server Adapter #4		
Configure		
This connection uses the following items:		
Client for Microsoft Networks		
🗹 📮 Baumer Filter Driver		
🗹 🚚 QoS Packet Scheduler		
🗆 📮 File and Printer Sharing for Microsoft Networks		
Internet Protocol Version 6 (TCP/IPv6)		
Internet Protocol Version 4 (TCP/IPv4)		
🗹 🛶 Link-Layer Topology Discovery Mapper I/O Driver		
🗹 📥 Link-Layer Topology Discovery Responder		
Install Uninstall Properties		

• The Baumer filter driver and Basler streaming driver are not compatible. After installing the Basler driver, the Basler driver must be disabled in the network adapter properties, and the Baumer filter driver must be enabled.

4.3. Switch

Set using the HTML interface of the switch.

• Make sure that Jumbo Packets are enabled.

4.4. Cameras

 The IP address of each camera must be in the same subnet as the network adapter to which it is connected.



4.5. NeuroCheck camera driver

Make settings using the camera's Properties or Info dialog in NeuroCheck device manager.

- Set Packet Size to the same value as Jumbo Packet size in the network adapter. If you
 are using a switch and the maximum Packet Size supported by the switch is smaller
 than the Jumbo Packet Size set in the network adapter, set the Packet Size to the
 maximum size supported by the switch.
- Setting the Packet Gap is only necessary for systems where several cameras transfer data simultaneously (!) via a switch to a network adapter, i.e. only when using parallel image capturing and a switch. Otherwise use the default.
- In case of trouble, enable logging. NCCG camera Additional Information gives manufacturer information and camera statistics. Manufacturer information is logged during Open of the camera (start of NeuroCheck, integration of camera into NeuroCheck, closing NeuroCheck device manager (NeuroCheck 5.1)) and gives information about the FirmWare status. Camera statistics are logged for each image capture (not parallel) and give information concerning image data transfer.
- Upon request of NeuroCheck technical support, tracing of the manufacturer drivers can be enabled:
 - NeuroCheck 5.1: NcGeBoGe.dll: NCGEBOGE.INI, new entry: Trace=1. The output file bgapi_tracefile.log will be written into the NeuroCheck program directory; please enable write permission.
 - NeuroCheck 6.0: NcDc.Baumer.(UI).NET.dll: NC60CFG.DRV.cfgx, Node: NcDc.Baumer.NET, Sub node: trace, Value: 1. The output file BGAPI_TraceOutput.log will be written into the NeuroCheck program directory; please enable write permission.
 - NeuroCheck 6.1: NcDc.NeuroCheck.BO.(UI).dll: NC61CFG.DRV.cfgx, Node: NcDc. NeuroCheck.BO.dll, Sub node: trace, Value: 1, The output file NcDc.NeuroCheck.BO_TraceOutput.log will be written into the NeuroCheck project folder subfolder SystemOutput.
 - NeuroCheck 6.2: NcDc.NeuroCheck.BO.(UI).dll: NC62CFG.DRV.cfgx, Node: NcDc. NeuroCheck.BO.dll, Sub node: trace, Value: 1, The output file NcDc.NeuroCheck.BO_TraceOutput.log will be written into the NeuroCheck project folder subfolder SystemOutput.