

AVT NeuroCheck Interface



User Guide

V2.0.0

09 February 2012

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Introduction

The **AVT NeuroCheck Interface** can be used to access the features of AVT's high-performance FireWire and GigE Vision compliant digital cameras from within the **NeuroCheck 6.0** environment.

NeuroCheck 6.0 provides a consistent interface to all supported devices and allows users to acquire data directly in **NeuroCheck 6.0** for analysis, visualization, and modeling.

The **AVT NeuroCheck Interface** is based on AVT's interface-independent UniAPI provided with the AVT Universal Package and can easily be installed via an installer executable.

- | | |
|---------------------|---|
| Advantages | <ul style="list-style-type: none"> • Supports AVT's FireWire and GigE cameras. • Straightforward control of the camera-integrated image preprocessing features (AVT's smart features) |
| Requirements | <ul style="list-style-type: none"> • AVT Universal Package installed on your system • NeuroCheck 6.0 installed on your system |

www



For more information on **NeuroCheck 6.0** see:

<http://www.alliedvisiontec.com/emea/products/software/3rd-party-solutions/neurocheck.html>

<http://www.neurocheck.com>

Document history

Version	Date	Remarks
V2.0.0	09 February 2012	New Manual

Table 1: Document history

Manual overview

The manual overview describes each chapter of this manual shortly.

- Chapter [System requirements](#) on page 7 lists conditions for hardware, operating systems and software. Read the special advice when working with Windows Vista / Windows 7 (**UAC** = **U**ser **A**ccount **C**ontrol).
- Chapter [Components overview](#) on page 10 describes the **AVT NeuroCheck Interface** in general and its components.

- Chapter [Installing the AVT NeuroCheck Interface](#) on page 12 describes how to install the **AVT NeuroCheck Interface**.
- Chapter [AVT NeuroCheck Interface architecture](#) on page 24 gives you an overview of the **AVT NeuroCheck Interface** architecture.

Conventions used in this manual

To give this manual an easily understood layout and to emphasize important information, the following typographical styles and symbols are used:

Styles

Style	Function	Example
Bold	Programs, inputs or highlighting important things	bold
Courier	Code listings etc.	Input
Upper case	Register	REGISTER
Italics	Modes, fields	<i>Mode</i>
Parentheses and/or blue	Links	(Link)

Table 2: Styles

Symbols

Note This symbol highlights important information.



Caution This symbol highlights important instructions. You have to follow these instructions to avoid malfunctions.



www This symbol highlights URLs for further information. The URL itself is shown in blue.



Example:

<http://www.alliedvisiontec.com>

Target group

NeuroCheck 6.0 users who

- are familiar with NeuroCheck 6.0 and
- would like to have the flexibility in integrating camera of different manufacturers in their application.

Note You should have knowledge of **NeuroCheck 6.0**.



For more information see the NeuroCheck documentation.

Furthermore, we recommend that you become acquainted with the **AVT UniCam viewer** provided with the **AVT Universal Package**, to ensure an optimized camera control.

Before operation

The **AVT NeuroCheck Interface User Guide** describes the installation of the **AVT NeuroCheck Interface**.

Note Please read through this manual carefully before installing AVT NeuroCheck Interface.



FireWire hot plug precautions

Note Although FireWire devices can be hot-plugged without powering down equipment, **we recommend turning the computer power off, before connecting a 1394 digital camera to the system via a FireWire cable.**



If you hot-plug a 1394 digital camera, it may be damaged.

System requirements

This chapter describes the requirements (or places where the actual requirements can be found) for installing **AVT NeuroCheck Interface**:

- Hardware requirements
- Operating system requirements
- Software requirements

... and gives a special advice when working with Windows Vista or Windows 7.

Hardware/operating system and software requirements

Info



For hardware and operating system requirements see

- AVT Universal Package User Guide
<http://www.alliedvisiontec.com/emea/products/software/windows/avt-universal-package.html>
- Documentation of NeuroCheck
<http://www.neurocheck.com>

Supported operating systems:

- Windows 7 (64-bit and 32-bit)
- Windows XP (32-bit only)

Before installing **AVT NeuroCheck Interface**, the following software has to be installed on your system:

- **32-bit Windows OS:**
32-bit version of NeuroCheck 6.0 (Service Pack 3 (SP3) or later)
or
- **64-bit Windows OS:**
64-bit version of NeuroCheck 6.0 (Service Pack 3 (SP3) or later)
- AVT Universal Package V2.0 (32-bit only) or greater

FireWire hot plug precautions

Caution



Although FireWire devices can be hot-plugged without powering down equipment, **we recommend turning the computer power off, before connecting a 1394 digital camera to the system via a FireWire cable.**

If you hot-plug a 1394 digital camera, it may be damaged.

Not supported cameras

Info



AVT cameras with **interlaced** sensors are **not supported** by the **AVT NeuroCheck Interface**.

AVT **Bigeye/Pearleye/Goldeye** cameras are **not supported** by the **AVT NeuroCheck Interface**.

Special advice when working with Windows Vista / Windows 7

This chapter gives you a short introduction to a new technology that Microsoft introduced with Vista operating systems and is also present when using Windows 7: the so-called **User Account Control**.

Basic information

User Account Control (UAC) is a technology and security infrastructure for Windows **Vista** and later operating systems. It aims at improving the security of Windows Vista by limiting application software to standard user privileges until an administrator authorizes an increase in privilege level. In this way, only applications that the user trusts receive higher privileges, and malware is kept from receiving the privileges necessary to compromise the operating system. So a user account may have administrator privileges assigned to it, but applications that the user runs do not have those privileges automatically unless the user explicitly authorizes them to have higher privileges.

UAC warning

An example of an **UAC warning** when a program (e.g. **AVT NeuroCheck Interface** installation program) wants to write in a system folder is the following:

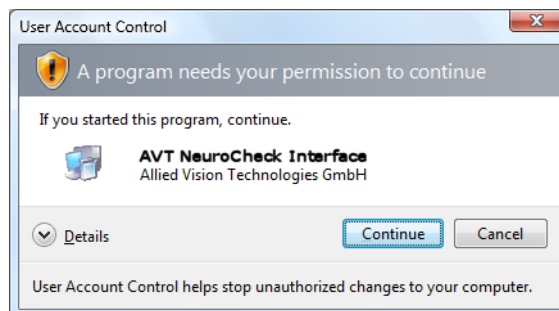


Figure 1: UAC warning: example

Perform the following steps:

1. In this case just click **Continue** because the shown program needs to write certain files to the system folder for general use.
2. Go on working.

Note



You may prevent this UAC warning by right-clicking the **AVT NeuroCheck Interface EXE file** and select **Run as administrator** before you install the software.

Components overview

This chapter describes the following:

- What is the **AVT NeuroCheck Interface**?
- What are the advantages of the **AVT NeuroCheck Interface**?
- Description of package content of **AVT NeuroCheck Interface**

What is the AVT NeuroCheck Interface?

The **AVT NeuroCheck Interface** is a set of two dynamic link libraries (DLLs):

- **AVTncUni.NET.dll** (which implements the connection between the **AVT NeuroCheck Interface** and a device driver by utilizing elements of the AVT Universal Package)
- **AVTCameraControl.dll** (which delivers the Configuration dialog to configure the digital camera within AVT NeuroCheck Interface)

What are the advantages of the AVT NeuroCheck Interface?

- Supports AVT's FireWire and GigE cameras.
- Straightforward control of camera features
- Access to camera-integrated image preprocessing features (AVT's smart features)

Package content

The **AVT NeuroCheck Interface** consists of the following files:

OS	Driver related file	Description
All versions	ReleaseNotes.txt	Release notes with up-to-date information about this product.

Table 3: **AVT NeuroCheck Interface** components

OS	Driver related file	Description
32-bit version and 64-bit version	AVTNcUni.NET.dll	AVT Interface DLL
	AVTCameraControl.dll	Camera Configuration DLL


Table 3: **AVT NeuroCheck Interface** components**Note**

For information about the **AVT NeuroCheck Interface** architecture see Chapter [AVT NeuroCheck Interface architecture](#) on page 24.

How to use online help

Currently no online help is available for the **AVT NeuroCheck Interface**. Therefore refer to this User Guide or the online help provided with NeuroCheck software to learn more about the integration of digital cameras.

To activate the online help of NeuroCheck do the following:

1. In the lower-left corner of your screen click the **Start** button .
2. Click **All Programs** → **NeuroCheck 6.0** → **Help system**.

Installing the AVT NeuroCheck Interface

Overview

We assume that you have already installed the following software:

- NeuroCheck 6.0 (SP3 or later)
- AVT Universal Package (V2.0 or later)

... on your system.

Info



For installing AVT Universal Package see **AVT Universal Package User Guide** available on the following AVT website:

<http://www.alliedvisiontec.com/emea/products/software/windows/avt-universal-package.html>

Installing AVT NeuroCheck Interface

To install **AVT NeuroCheck Interface**, perform the following steps:

1. Save your data and exit out of all currently running applications.
 - **GigE camera:** If you want to install a GigE camera, connect it now (hot plug possible) and go on reading step 7 on page 13.
 - **1394 camera:** If you want to install a 1394 camera, read the caution below and follow the instructions (hot-plug may lead to a damaged camera).

Caution



Although FireWire devices can be hot-plugged without powering down equipment, **we recommend turning the computer power off, before connecting a 1394 digital camera to the system via a FireWire cable.**

If you hot-plug a 1394 digital camera, it may be damaged.

2. **Shut down your system.**
3. **Turn computer power off.**
4. Connect your 1394 camera to the 1394 (FireWire) port.
5. Turn computer power on.
6. Restart your system.

7. Download the **AVT NeuroCheck Interface** zip file (AVTNeuroCheckInterface_XvY.zip) from the AVT web site: <http://www.alliedvisiontec.com/emea/products/software/3rd-party-solutions/neurocheck.html>

Unpack it and start the corresponding *.exe.

The **Windows Installer** box with a progress bar appears while setup prepares to start the installation process.

Now you are ready to start the installation wizard of **AVT NeuroCheck Interface**.

The **Welcome** dialog box appears:

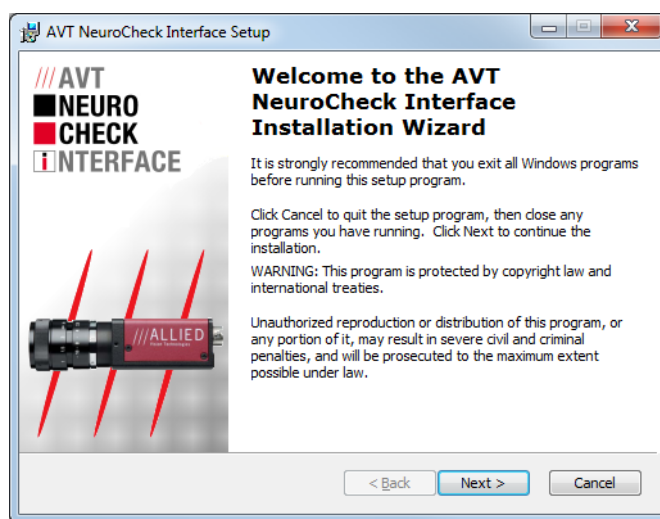


Figure 2: **AVT NeuroCheck Interface** setup: Welcome

8. Read the information in the **Welcome** dialog box.
 - If any applications are running on your system, click **Cancel** to quit the setup program, then close any applications you have running.
 - If you already closed all your programs, click **Next** to continue the installation.

The **Readme Information** dialog box appears:

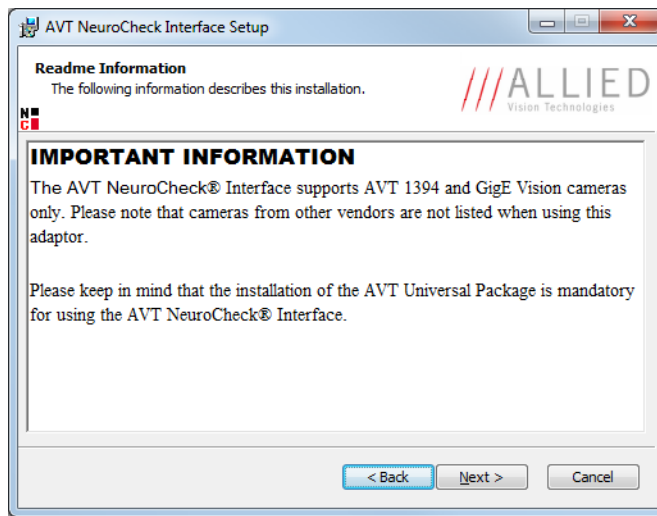


Figure 3: **AVT NeuroCheck Interface** setup: Readme Information

9. Read the **IMPORTANT INFORMATION**.
10. Click **Next** to proceed.

The **Destination Folder** dialog box appears:

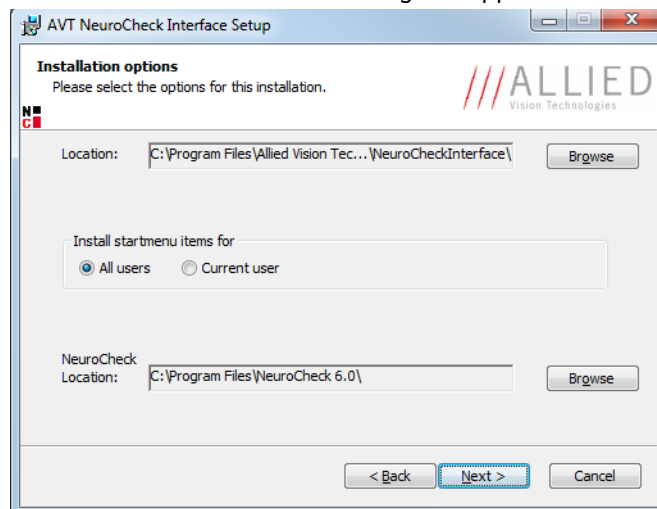


Figure 4: **AVT NeuroCheck Interface** setup: Destination Folder/Installation options

The default location of **AVT NeuroCheck Interface** files is

C:\Program Files\Allied Vision Technologies\NeuroCheckInterface\

The default location of **NeuroCheck 6.0** files is

C:\Program Files\NeuroCheck 6.0\

11. If you want to change the location: Click **Browse** and enter the path for the desired folder.

- If you installed NeuroCheck 6.0 in a different location, the following error message appears:

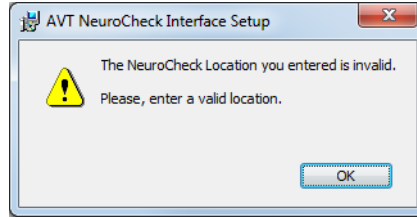


Figure 5: Error message: wrong NeuroCheck path

- Click **Browse** and enter the path, where you installed NeuroCheck 6.0.
12. Furthermore you set a general installation option for the startup menu:

Check box / option	Description
Install startmenu items	Installs access to the release notes in the start menu. Choose an option to install the items for <ul style="list-style-type: none"> • All users • Current user (default)

Table 4: **AVT NeuroCheck Interface** setup: Installation option

13. Click **Next**.

The following dialog will appear:

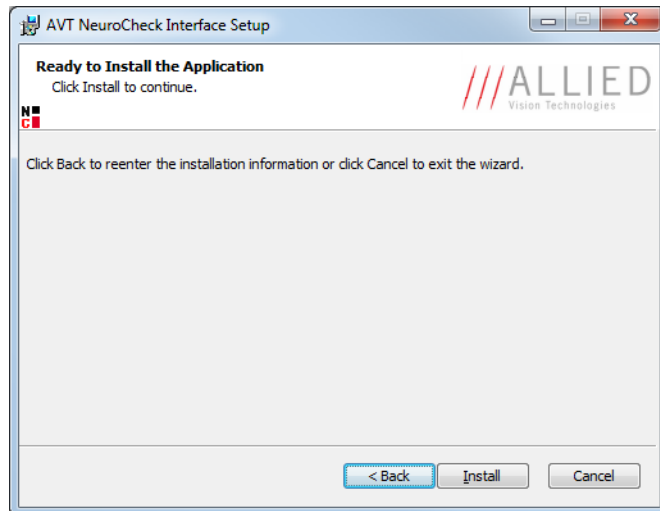


Figure 6: **AVT NeuroCheck Interface** setup: Ready to Install the Application

14. Click **Install**.

AVT NeuroCheck Interface will be installed. The following dialog will appear:

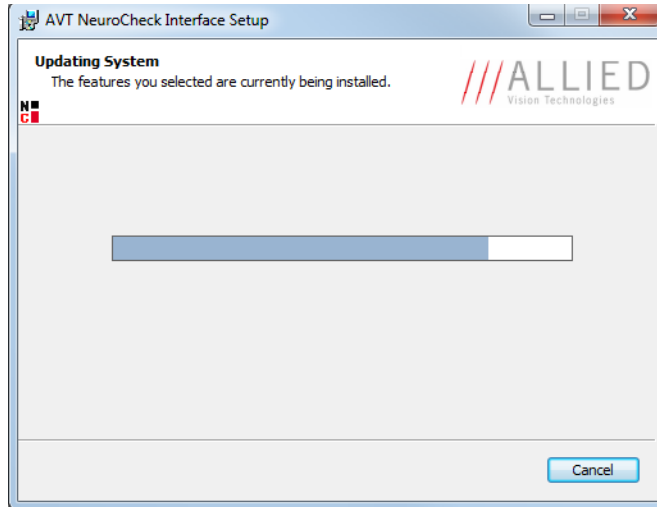


Figure 7: **AVT NeuroCheck Interface** setup: Updating System

Once the installation is finished, the following dialog box appears:

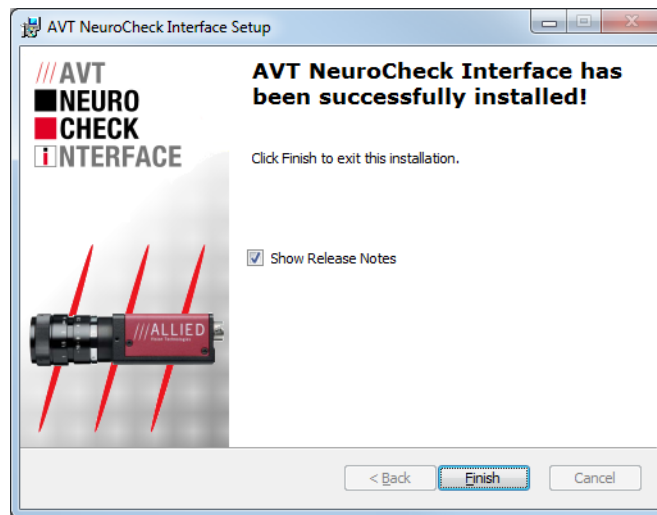


Figure 8: **AVT NeuroCheck Interface** setup: Successfully installed

Show Release Notes check box is already activated. You can read the release notes with the latest information immediately after the installation is finished.

15. Click **Finish** to exit the installer.

Note



Depending on your operating system you might need to reboot your system at this point. You will be prompted if a reboot is required; if a message appears, follow the on-screen instructions.

How to use the AVT NeuroCheck Interface

Target group

For this chapter you should have knowledge in NeuroCheck 6.0.

For more information see the NeuroCheck documentation.

Overview

This chapter provides an easy start for using the **AVT NeuroCheck Interface**.

To get an image from the camera:

- Install hardware device (digital camera) via NeuroCheck's **Device Manager**
- Use UniCam viewer from **AVT Universal Package** via the **Properties** button of NeuroCheck's **Device Manager (Configuration dialog)**

Installing hardware device via Device Manager

The NeuroCheck device manager is the central dialog to manage digital cameras with NeuroCheck.

1. To open Device Manager in NeuroCheck navigator:
Click **System** ⇒ **Device Manager**



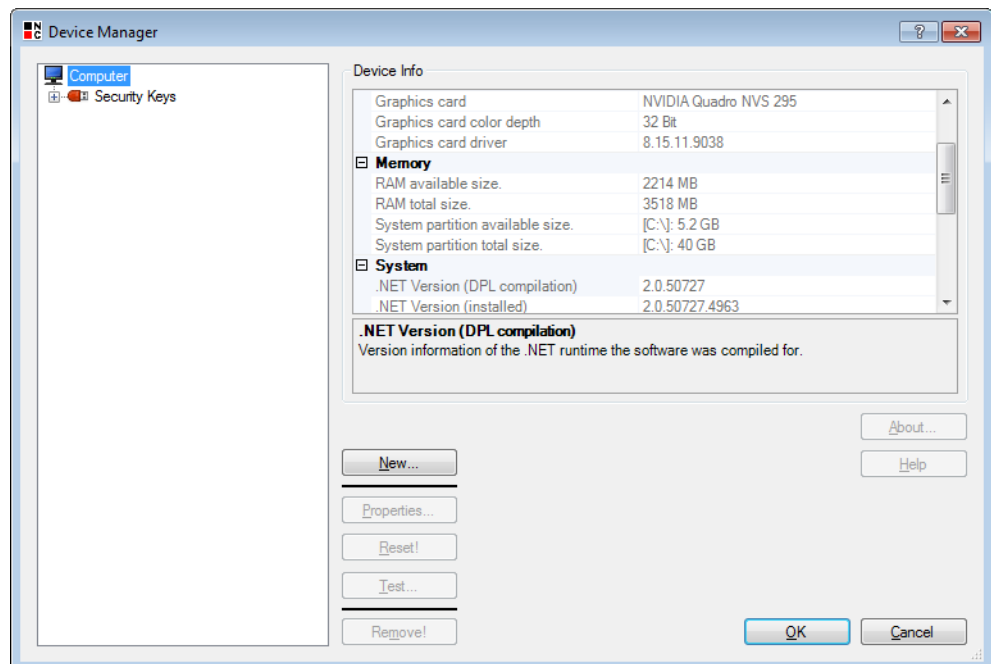


Figure 9: **AVT NeuroCheck Interface: Device Manager**

The tree view on the left displays configured devices, sorted by categories.

If you work with NeuroCheck after installation, the tree shows an entry for the Security Keys only.

To integrate a new digital camera, perform the following:

1. Click **New** to open the **Hardware Wizard**.

The hardware wizard helps you to configure the digital camera, so that you can use it via NeuroCheck.

Note



Ensure that the hardware drivers for AVT FireWire cameras and GigE cameras have been already installed automatically by **AVT Universal Package** or manually.

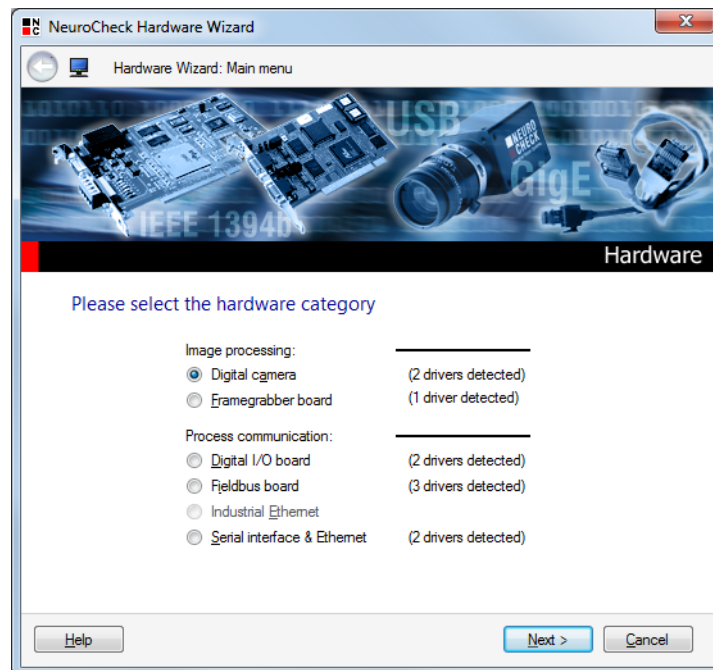


Figure 10: **AVT NeuroCheck Interface: Hardware Wizard**

2. Select the type of hardware device to be configured:
Select **Digital camera**. (IEEE 1394a/b or GigE)

3. Click **Next**.

The message 3rd Party Driver and the logo indicate that you are using a driver developed by Allied Vision Technologies.

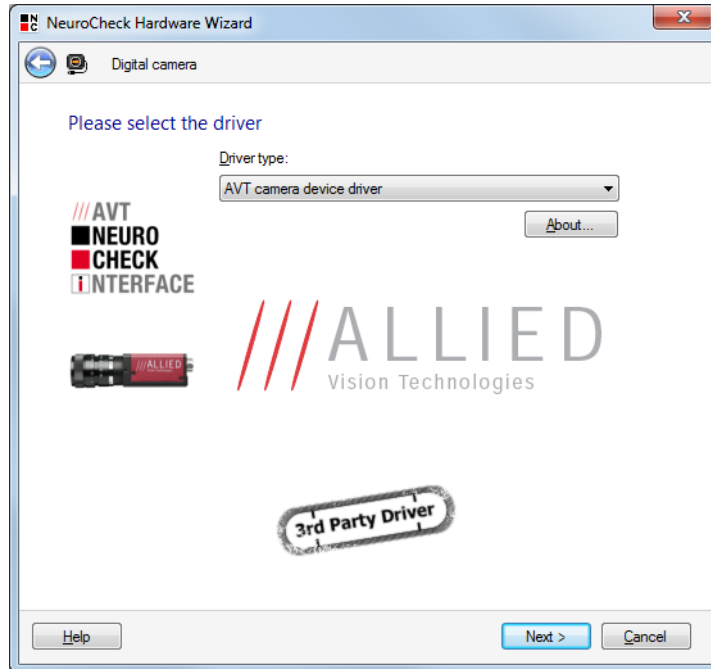


Figure 11: **AVT NeuroCheck Interface:** Hardware Wizard, Select driver

4. Select the driver type (**AVT camera device driver**) from the list box.

5. Click **Next**.
All available cameras are listed.

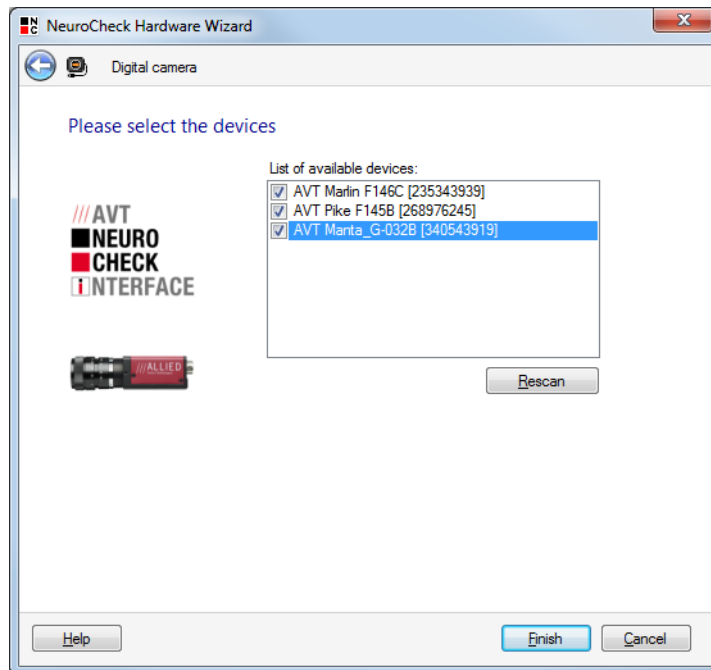


Figure 12: **AVT NeuroCheck Interface**: Hardware Wizard, Select devices

6. Select the cameras you want to use and click **Finish**.
The chosen cameras will be tested and integrated.

Using Configuration Dialog of Device Manager

To configure the camera perform the following steps:

1. In the tree view of **Device Manager** select desired camera and click on **Properties** to configure the selected camera in the **Configuration** dialog.

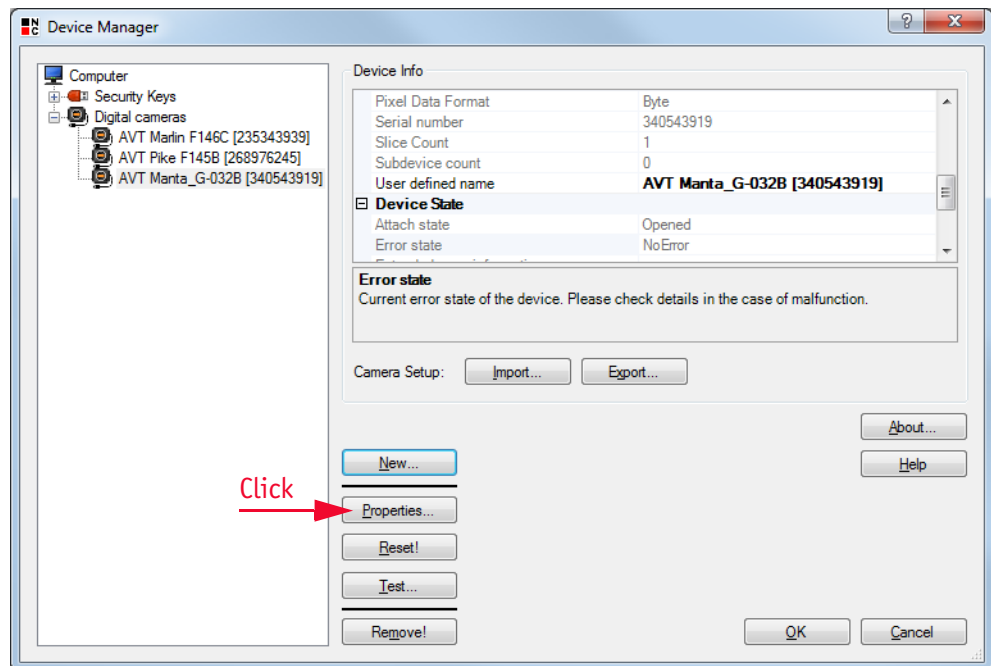


Figure 13: AVT NeuroCheck Interface: Device Manager

2. Configure camera in the **Configuration** dialog.

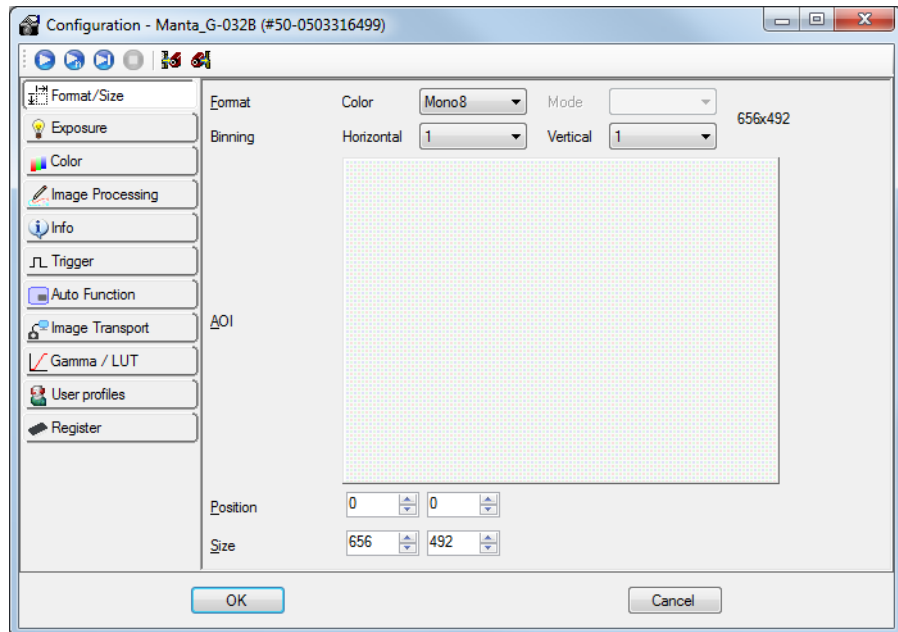


Figure 14: Device Manager: Configuration dialog

AVT NeuroCheck Interface architecture

The following diagram describes the architecture of the **AVT NeuroCheck Interface**:

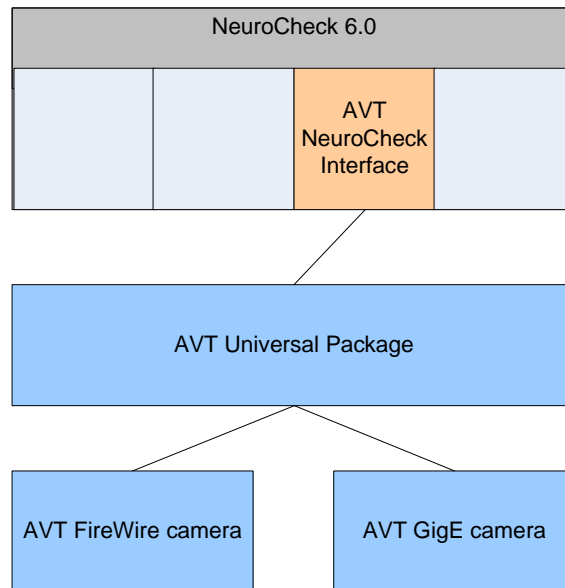


Figure 15: Architecture of **AVT NeuroCheck Interface**

Element	Description
NeuroCheck 6.0	NeuroCheck 6.0 is an universal machine vision software for all areas of automatic visual inspection in industrial manufacturing. NeuroCheck offers an integrated environment for the interactive configuration of visual inspection applications and their fully automated execution on the manufacturing line.
AVT NeuroCheck Interface	<p>The AVT NeuroCheck Interface is a set of dynamic link libraries (DLLs) which are based on the AVT UniAPI (part of AVT Universal Package).</p> <p>The AVT NeuroCheck Interface enables to use AVT 1394 and GigE Vision compliant cameras with NeuroCheck 6.0 after installing the corresponding AVT drivers.</p>

Table 5: Description of **AVT NeuroCheck Interface** architecture

Element	Description
AVT Universal Package	The AVT Universal Package is an SDK for FireWire and GigE Vision compliant cameras from AVT. The Universal API (UniAPI) provided with the AVT Universal Package enables camera interface independent camera control and simplified camera smart features access.
AVT FireWire camera	AVT's digital cameras with IEEE 1394 interface (IIDC compliant)
AVT GigE camera	AVT's digital cameras with Gigabit Ethernet interface (GigE Vision compliant)

Table 5: Description of **AVT NeuroCheck Interface** architecture

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