

Radiology Solutions Services

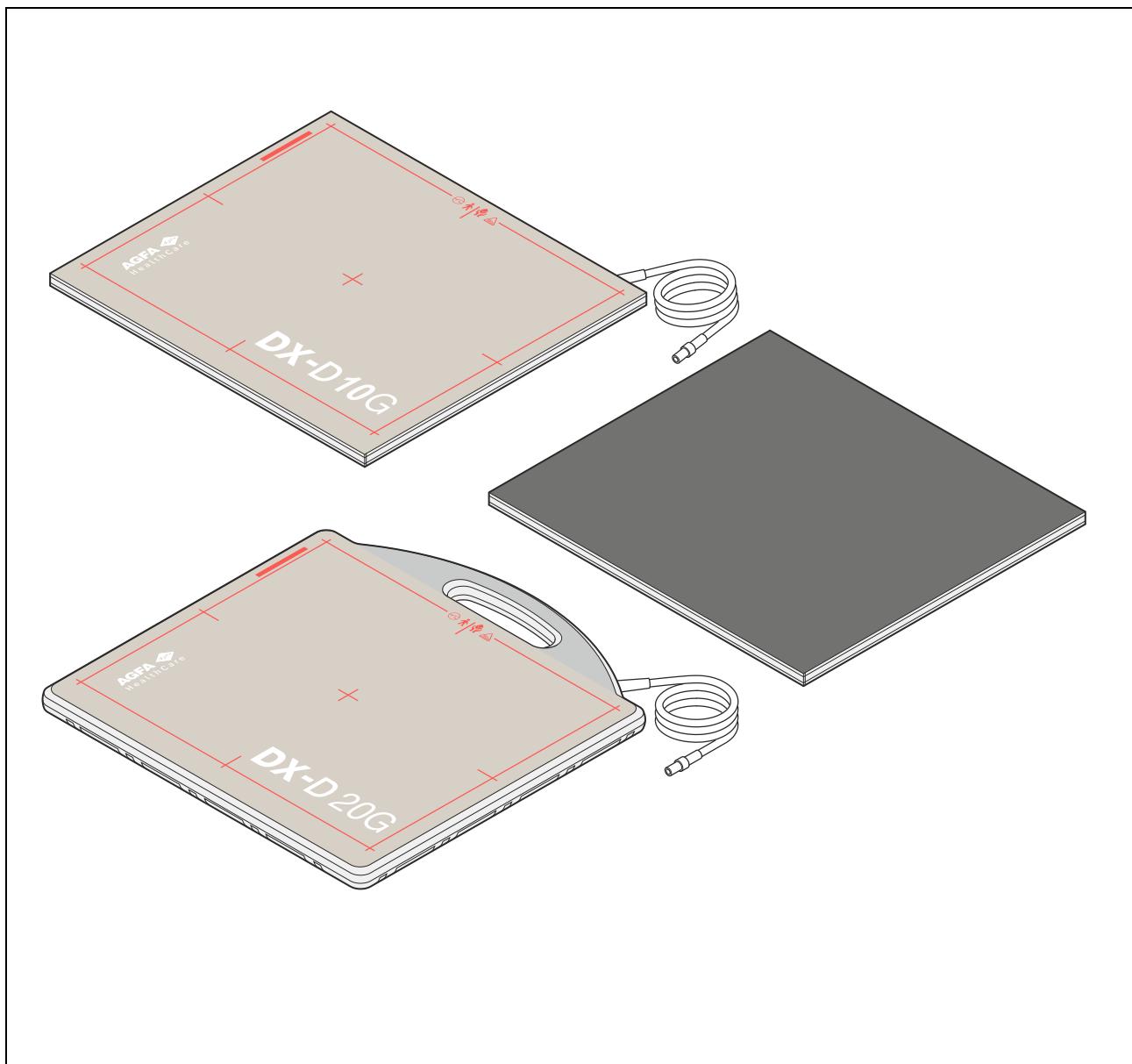
Document ID: 41222172

DX-D 10 / DX-D 20 Detector

Type 5400/100/101/102/103

DX-D Fixed Detector (4343R)

Type 8206/101/102

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Published by

Agfa-Gevaert HealthCare GmbH
Tegernseer Landstraße 161
D - 81539 München
Germany

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WARNING:

Improper operation or service activities may cause damage or injuries.

- (1) Read the *Generic Safety Directions* prior to attempting any operation, repair or maintenance task on the equipment. Refer to Document ID [11849633](#).
- (2) Strictly observe all safety directions within the *Generic Safety Direction* and on the product.



IMPORTANT:

The installation and service of the product(s) described herein is to be performed by qualified personnel who are employed by Agfa NV or one of its affiliates or who are otherwise authorized by Agfa NV or one of its affiliates to provide such services.

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0 About this manual

0.1 Purpose of this document

This document contains all information that the Field Engineers need for installation as well as for corrective and preventive maintenance of the DX-D 10 / DX-D 20 / DX-D Fixed Detector (4343R).

It does *not* contain:

- Service information for other target readers such as Clinical Application Specialists or Service Managers
- Service Bulletins

0.2 Changes compared to previous revision

The following modifications have been implemented:

- Added step to activate Varian logging. Refer to section 4.5.6.

0.3 Referenced documents

#	Document	Reference
1	Generic Safety Directions	Document ID 11849633
2	User Manuals	Refer to the Agfa Medimg Library
Additional documents are referenced in the corresponding sections.		

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0.4 Explanation of notes

Safety-relevant notes

Icon	Signal word	Situation
	CAUTION:	Hazardous situation which, if not avoided, can lead to a minor injury to a user, engineer, patient or any other person.
	WARNING:	Hazardous situation which, if not avoided, can lead to a potential serious injury to a user, engineer, patient or any other person.
	DANGER:	Direct, immediate danger: If not avoided, it can lead to a serious injury to a user, engineer, patient or any other person
	-	Instruction to avoid damage to equipment and/or environmental pollution.
	-	Prohibition to avoid damage to equipment and/or environmental pollution.

Non-safety-relevant notes

Icon	Name	Type of information
	IMPORTANT:	Highlights very important actions which have to be carried out to prevent malfunction.
	NOTE:	<ul style="list-style-type: none"> Indicates advice to facilitate the following step or action without having a direct influence on the step or action. Highlights unusual points. Indicates background information. Can be used to explain or highlight displays of the graphical user interface.

0.5 Conventions

Style	Use case	Example
(1) Step 1 (2) Step 2	Step by step task description	(1) Connect the cables. (2) Mount the cover.
Bold	Menu topics, keyboard keys, device buttons, commands, and so on	Press F9 or double-click the Refresh button.
<i>Italic</i>	Emphasizing a word or indicating references in continuous text.	Do <i>not</i> insert the USB flash drive yet. Refer to section 10, <i>Release information</i> .
Courier bold	System messages	When the success message appears, close the window.

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1 Product description

This section:

- Provides an overview of the components of the DX-D 10 / DX-D 20 / DX-D Fixed Detector (4343R).
- Describes the function of the different components.

1.1 Intended use

The “intended use” describes how the device is intended to be used by the user. The intended use statement is listed in the *User Manual* of the DX-D 10 / DX-D 20 / DX-D Fixed Detector (4343R).

1.2 Type overview

This section describes the single components of the following DR detectors, originally manufactured by Varian.

The manufacturer has been renamed to “Varex”. This is the reason why both names will be used in this documents.

#	Type Number	Product	Varex Model Name / Part Number
1	8206/101	DX-D Fixed* DR Detector, Cesium Iodide (CsI)	4343R CSI / 7965
2	8206/102	DX-D Fixed* DR Detector, Gadolinium Oxide Sulfite (GOS)	4343R DRZ+ / 7964
3	5400/100	DX-D 20C Portable** DR Detector CsI	4336R CSI / 20665
4	5400/101	DX-D 20G Portable** DR Detector GOS	4336R DRZ+ / 7358 and 20586
5	5400/102	DX-D 10G Portable** Detector GOS	4336R DRZ+ / 7358 and 20586
6	5400/103	DX-D 10C Portable** Detector CsI	4336R CSI / 20665

*Fixed means: The detector is mounted fixed in the Table or Wallstand, and cannot be removed by the user.

**Portable means: Can be removed from the Bucky by the user, e.g. for free exposure. Range depends on cable length. See Figure 3.

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**NOTE:**

The manufacturer "Varian or Varex Medical Systems" is printed on the type label of the DR detector.
Agfa is the distributor.



Figure 1: Example Varian

1.3 Functional differences

The following table shows the functional differences of the different DR detectors:

	DX-D Fixed	DX-D 10	DX-D 20
Software DVD with specific data for the detector	Part of delivery.		
Varian detector driver software	Available for download on the Agfa Medimg Library. Version depends on Application License File (ALF) file. Released versions per system are listed in the "Simplified ELMS DR Subproduct Interoperability Matrix", Document ID 35878296 .		
Firmware	Dedicated for DX-D Fixed. E.g. 4343R_rev1_build17.xsvf	With the exception of the (old) models 7358, they use the same firmware. For example 4336R_rev1_build37.xsvf	
IO Box	IO Box functionality "Sync" and "Interface to send image data to workstation" is integrated in the detector. Refer to Figure 2		
Interface to Workstation	For details see section 1.3.1.		
Integration in Table / Wallstand	Mounted fixed in the Table or Wallstand. Cannot be removed by the user.	Can be integrated in the Bucky. Removable by the user.	Cannot be integrated in the Bucky by its mechanical design. Free exposure only.

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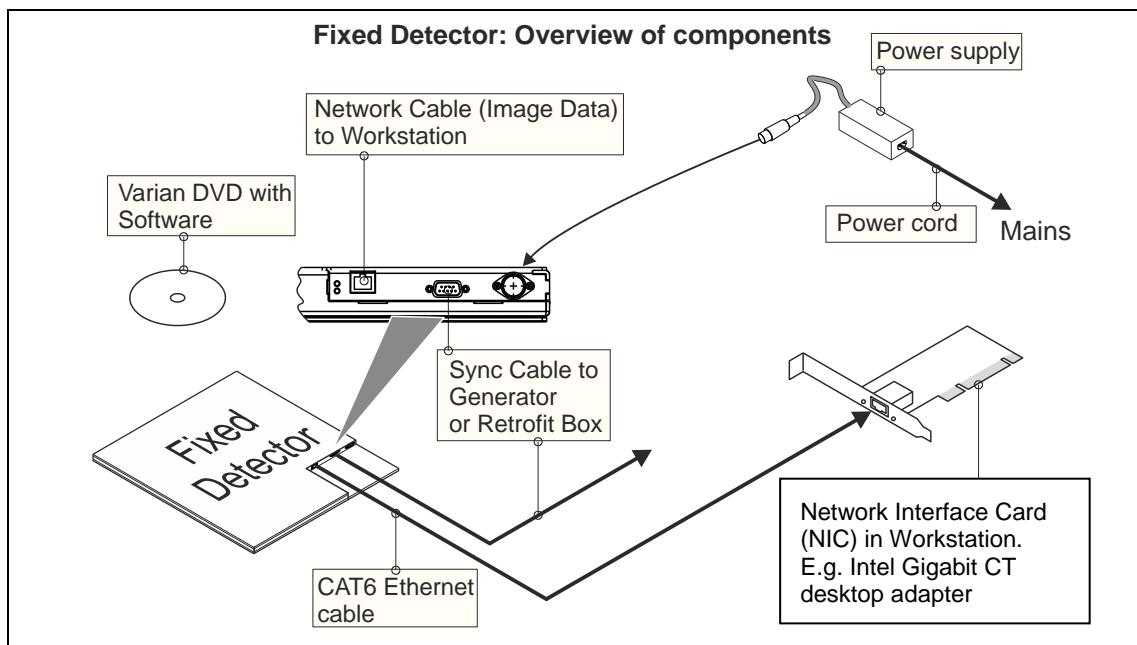


Figure 2

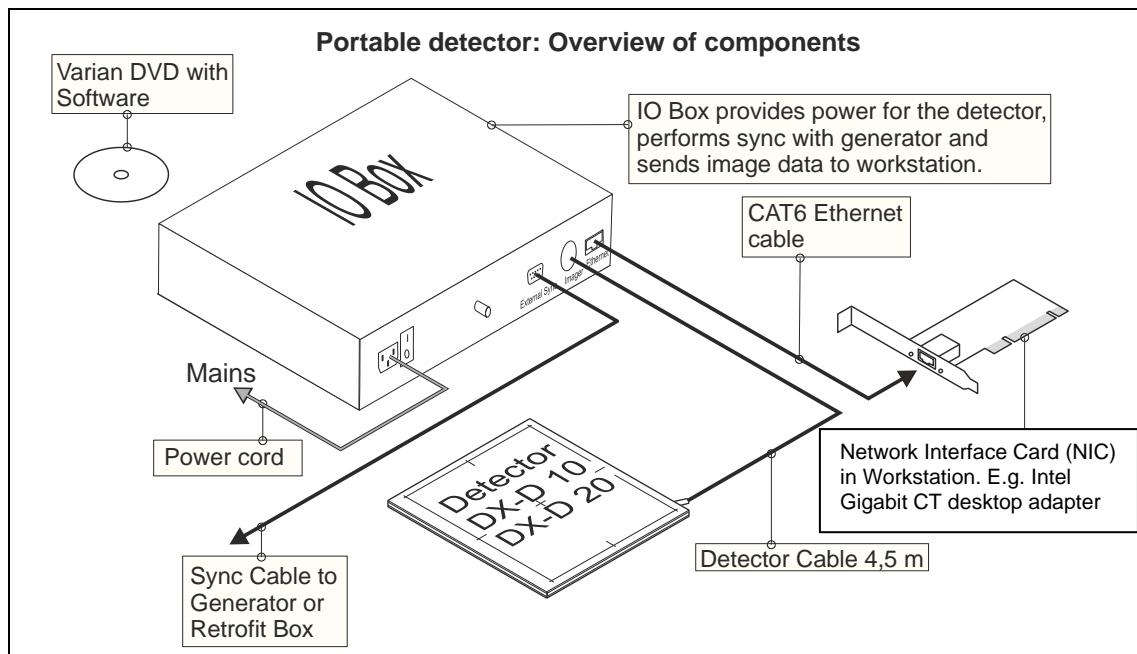


Figure 3

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**NOTE:**

Via certain sales channels the NX is also offered on a laptop. The DR detector is connected to the laptop via integrated 1 GB/s Ethernet interface.

The PCMCIA interface which is part of delivery is used to make the connection to the hospital network.

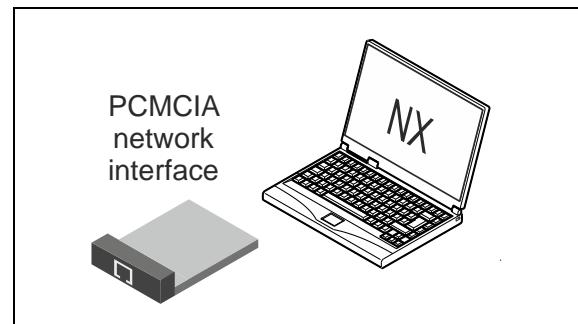


Figure 4

1.3.1 Network Interface Cards

A Network Interface Card (NIC) is part of delivery. Each DR detector has its dedicated NIC.

There are three NICs to connect the detectors:

- Intel® PRO/1000 GT (PCI)
- Intel® Gigabit CT (PCIe)
- Intel® I210-T1 (PCIe)

In case of connection problems, the Intel® I210-T1 NIC needs to be installed.

Refer to *SB DX-D 10/20/Fixed detector software VRN 7.5 and Intel® I210-T1 network card introduced*, Document ID [60936957](#).

It is recommended to install the latest version of VRN.

In case of using Windows 10 and an Intel® I210-T1 network card, VRN V8.0 or later is *mandatory*.

To connect the NIC to the IO Box a CAT6 Ethernet cable is required (part of delivery).

**IMPORTANT:**

A mix of network card types for the connection to Varex detectors is *not allowed*!

On the same system, multiple Varex detectors will always have to be connected to the same type of network card.

This means two connected detectors require two Intel® PRO/1000 GT cards *or* two Intel® Gigabit CT cards *OR* two Intel® I210-T1 cards.

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2 Safety directions

This section contains the service activity related safety notes.



IMPORTANT:

For each service intervention follow the instructions in the *Generic Safety Directions*, Document ID [11849633](#).

The Generic Safety Directions document comprises the general safety-relevant information including relevant environmental and occupational safety instructions for the Service Engineer.

2.1 Safety notes for service activities

Observe the following safety note:

- Before hand-over of the system to the customer or
- After any corrective maintenance activity at the interface between NX and the detector:



WARNING:

Images can be lost due to moderate system speed if the system runs at 100 Mbps.

Check Ethernet speed via LEDs at the network interface. It must run at 1 Gbps.

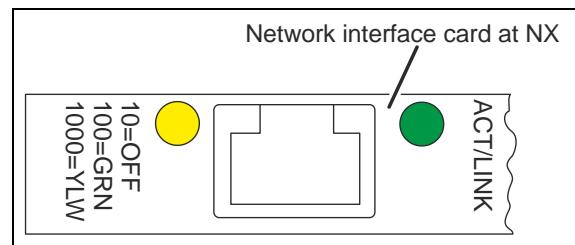


Figure 5

Observe the following safety note if the detector is installed in a mix of different brands of detectors (E.g. Varian and Rayence):



CAUTION:

Detector can be damaged when connected to the wrong type of power supply.

Be sure to connect the detector to the appropriate power supply.



CAUTION:

Sensitive device: Damage possible.

Observe the safety guidelines listed in the detector user manual.

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2.2 Labels

**NOTE:**

For the meaning of the labels in and on the product refer to:

- The corresponding *User Manuals* of the DX-D 10 / DX-D 20 / DX-D Fixed Detector (4343R) and
- The *Generic Safety Directions*, Document ID [11849633](#).

DOCUMENT CONTROL NOTE:

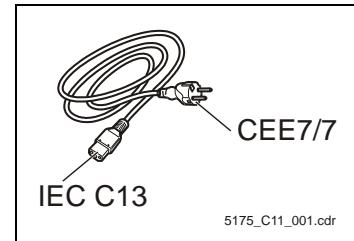
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3 Pre-Installation

3.1 Items to be organized locally before installation

The detector is delivered with one power cable for Europe, refer to Figure 6.

If a different cable is needed, organize it locally.



5175_C11_001.cdr

Figure 6

3.2 Further pre-installation activities



NOTE:

A DR detector cannot be used standalone. It is always part of a DR system.

Pre-installation activities are therefore described in the corresponding system service manual.

3.3 Technical data



NOTE:

This section lists the technical data, which might be required for pre-installation. For additional technical data refer to the corresponding user manual on the Agfa Medimg Library.

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3.3.1 Electrical connection

Parameter	Value
Power Supply/Adaptor (Voltage / Frequency)	DX-D 10 / DX-D 20: 100-240 VAC, 47-63 Hz Fixed: 90-240 VAC, 47-63 Hz

3.3.2 Environmental conditions

Parameter	Value
Storage and Transport Temperature	DX-D 10 / DX-D 20 / Fixed: -20 °C to +70 °C
Normal Operation Temperature (measured at the center of the rear cover)	DX-D 10 / DX-D 20 / Fixed: 10 °C to 35 °C
Operation and Storage Humidity (non-condensing)	DX-D 10 / DX-D 20 / Fixed: 10 % to 90 %

3.3.3 Specifications

Parameter	Value
Detector size	DX-D 10: 46 cm x 38.4 cm x 1.5 cm DX-D 20: 49.2 cm x 47.5 cm x 2.3 cm Fixed: 46.9 cm x 46.9 cm x 3.8 cm
Pixel matrix (active)	DX-D 10 / DX-D 20: 3052 x 2540 Fixed: 3052 x 3052
Weight	DX-D 10: 3.9 kg DX-D 20: 4.9 kg Fixed: 7.5 kg
Power Dissipation	DX-D 10 / DX-D 20: 35 W max. Fixed: 42 W max.

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3.4 Safety standards

The detector DX-D 10 / DX-D 20 / DX-D Fixed complies with:

- US: UL 60601-1
- Canada: CSA 22.2 No. 601.1-M90

It carries the CE label.

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4 Installation and configuration



NOTE:

The screenshots depicted in this manual can differ from their actual appearance on the screen (for example depending on what operating system and hardware is used).

4.1 Installation overview

4.1.1 Installation steps

The following table shows the main steps of the detector installation and configuration. It distinguishes between:

- Initial detector installation.
- Clean installation of NX or DX-D 100.
- Detector installation in case of a replacement. See also section 8, Repair.
- Adding a detector later on, after initial detector installation.

#	Step	Main task	Initial Installation	Clean Installation	After Replacement	Adding a detector later on	Reference
1	Preparation	• Check shipment completeness.	✓	—	✓	✓	Section 4.2
		• For fixed detector only: Write down detector serial number.	✓	—	✓	✓	
2	Hardware installation	• Install the network card(s) in NX.	✓	—	—	✓	Section 4.3
		• Install the fixed detector(s) in Wallstand / Table.	✓	—	✓	✓	
		• Perform cable connections.	✓	—	—	✓	

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#	Step	Main task	Initial Installation	Clean Installation	After Replacement	Adding a detector later on	Reference
3	Software installation	• Install network card driver.	✓	✓	—	✓	Section 4.4
		• Activate NX.	✓	✓	—	—	
		• In case detector is added later on: Run Varian Detector Software installer manually.	—	—	—	✓	
		• Install detector files from Varian DVD.	✓	✓	✓	✓	
4	Configuration	• Set network interface TCP/IP properties.	✓	✓	—	✓	Section 4.5
		• Optional: Adapt C:IMAGERs folder permissions.	✓	✓	✓	✓	
		• Update the hcpconfig.ini file.	✓	✓	✓	✓	
		• Optional: Check the hcpconfig.ini file.	✓	✓	✓	✓	
		• Check detector firmware. Upgrade or downgrade if required.	✓	✓	✓	✓	
		• Configure NX: <ul style="list-style-type: none"> ○ Monitor, users, exam tree ○ X-ray device configuration ○ Detector settings ○ Retrofit Box settings (if available) ○ DR recovery procedure ○ Activate configuration 	✓	—	—	✓	
4	Configuration	• Compare sensitivity values in ATPxxxx.xml file with values of ATP document.	✓	✓	✓	✓	Section 4.5

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#	Step	Main task	Initial Installation	Clean Installation	After Replacement	Adding a detector later on	Reference
5	Installation verification	<ul style="list-style-type: none"> Use the “DR Installation Checker” to verify proper setup. 	✓	✓	✓	✓	Section 4.6
		<ul style="list-style-type: none"> Check the network interface LEDs at NX to check the required network speed of 1 GB/s. 	✓	✓	✓	✓	
6	Calibration	<ul style="list-style-type: none"> Perform detector (gain) calibration. 	✓	✓	✓	✓	Section 5
7	Acceptance test	<ul style="list-style-type: none"> Perform acceptance test as defined in system service manual. 	✓	—	—	—	Section 6
		<ul style="list-style-type: none"> Perform acceptance test after detector replacement as defined in system service manual. 	—	✓	✓	✓	

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4.1.2 Required software

Download the following software from the Agfa Medimg Library:

Software	Comment
Varian Detector Software*	Refer to the simplified ELMS DR Subproduct Interoperability Matrix, Document ID 35878296 , or release bulletin of the DR system for the appropriate version.
Detector firmware	Refer to the CR / DR Interoperability Matrix, Document ID 31333326 , for the appropriate version.
DR Service Toolbox	Contains <i>DR Installation Checker</i> and the <i>Agfa DR Dead Pixel Count Tool</i> (ADPT, formerly DMAT).

* Varian Paxscan interface software "Varian VirtualCP L.0X" is integrated in the Varian Detector Software as of Varian Detector Software VRN 7.1.

The software version is defined via ALF. Software is installed only, if it matches with the ALF (SW type & version).

Software	Comment
XML editor	Download e.g. Microsoft XML notepad or use Notepad.

IMPORTANT:

Additional required software (e.g. SoftConsole, XRDI and so on) and preconfigured NX exam trees depend on the system.

For additional required software refer to the *Simplified ELMS DR Subproduct Interoperability Matrix*, Document ID [35878296](#), or release bulletin of the DR system for the appropriate version.

Note that the NX contains all additional required software, which was released at the time of the corresponding NX software release, in the following directory:

C:\Agfa\Healthcare\NX\Installers\<installer directory>.

The NX picks up the software automatically during activation from this directory.

For NX software upgrades or clean installation the installers are also available on the NX software DVD/USB in the following directory:

Service Software\NX Application NX XX.0.XXXX\Additional\Installers

During clean installation or software upgrades the NX copies the files to
C:\Agfa\Healthcare\NX\Installers\<installer directory>.

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4.1.3 Required time for the installation



Average required time: 1 h 30 min. to 2 h 15 min.

15 min. to 1 h	Hardware installation
15 min.	Software installation
15 min.	Configuration
30 min.	Calibration
15 min.	Installation Verification

4.2 Preparation

4.2.1 Checking shipment completeness

- (1) Check shipment completeness by comparing it with the packing list.
- (2) In case of missing parts, escalate to the next support level.
- (3) Save a detector packaging to be prepared for a detector return.

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4.2.2 File conversion

**NOTE:**

The DAT file is located on the detector specific DVD.
There is no additional DAT File conversion needed anymore.

Only make sure in case a clean install is needed, that the DAT file of the original installation is used.

4.3 Hardware installation

4.3.1 Installing the network interface(s) in NX

**IMPORTANT:**

A mix of network card types for the connection to Varex detectors is not allowed!

**IMPORTANT:**

If the system uses two Varex detectors, the related network cards (Pro 1000 GT or Gigabit CT) are usually mounted on a riser card (for explanation of the riser card refer to NX Service Bulletin with Document ID [51305017](#)).

Internal tests showed: Pro 1000 GT or Gigabit CT mounted on a riser card results in communication problems. If the network cards are mounted directly on the motherboard no communication issues have been reported.

If it is necessary to use a riser card, replace both network cards by I210-T1 cards.

Purpose The NIC is the interface from detector to NX. Each detector needs a dedicated network interface. The NIC is part of delivery. In case two or three detectors need to be installed, the required network interfaces can be installed at once.

- (1) Stop NX and power off the PC (if switched on).
- (2) Disconnect the power cable.
- (3) Use electrostatic discharge precautions, e.g. an antistatic wristband.
- (4) Open the PC cover.
- (5) Mount the NIC(s).
See also *XD 10 / XD 14 / XD 17 - Video - Mounting a network interface card*, Document ID [76358952](#). The shown procedure is applicable to any DR Detector.
- (6) Close the PC cover and connect the power cable.

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4.3.2 Installing a detector in Table and Wallstand

**NOTE:**

For mounting of the DX-D 10 or DX-D 20 detector in the Bucky or Wallstand or Table refer to the system-specific user manual.

The detector IO Box is factory installed and the DR detector can be inserted and removed from the IO Box any time.

4.3.3 Installing a DX-D Fixed detector in Table and Wallstand

Refer to the following documents for DX-D Fixed detector installation instructions in Wallstand and Table:

#	Document	Reference
1	DX-D 300 U-Arm - Service Manual	Chapter "Detector support installation". Document ID 41588092
2	DX-D 400 - Service Manual for Table and Wallstand	Chapter "Installation of the digital detector in the RAD Table". Document ID 31833723
3	DX-D 600 - Service Manual for Table	Chapter "Installation of the fixed detector with removable grid" Document ID 41818482

**NOTE:**

For the DX-D Fixed detector installation in the DX-D 600 Wallstand refer to the instructions for DX-D 400: Chapter *Installation of the digital detector in the Wallstand*, Document ID [31833723](#).

4.3.4 Performing cable connections

- (1) Connect the cables as shown in the system wiring diagram.
Chapter 13 shows a typical example.

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4.4 Software installation

4.4.1 Activating the NX Workstation

Purpose Via activation the NX features are loaded depending on the license file.



IMPORTANT:

If also another detector type (e.g. a wireless detector) shall be installed:

- First perform all steps as described in the corresponding detector service manual until section “Activating the NX Workstation”. Also load the required installers before activation, as described next page.

This saves time, as NX activation only needs to be performed once.

If first install one detector type, activate NX, configure the detector and repeat the same procedure for the next detector type, the configuration will be deleted by the activation utility.

- As an alternative: Start the corresponding installer manually.

- (1) If not yet done:
 - Perform cable connections at NX and
 - Configure the windows operating system, as described in the *NX/MUSICA Acquisition Workstation - Service Manual*, Document ID [74737949](#), chapter *Installation and configuration*.
- (2) Check which additional installers (e.g. Agfa SoftConsole, Varian Detector Software etc.) are required for the system. Refer to chapter 4.1.2.
- (3) Copy the required installers to **C:\AgfaHealthcare\NX\Installers** in the appropriate subdirectories. See Figure 7.

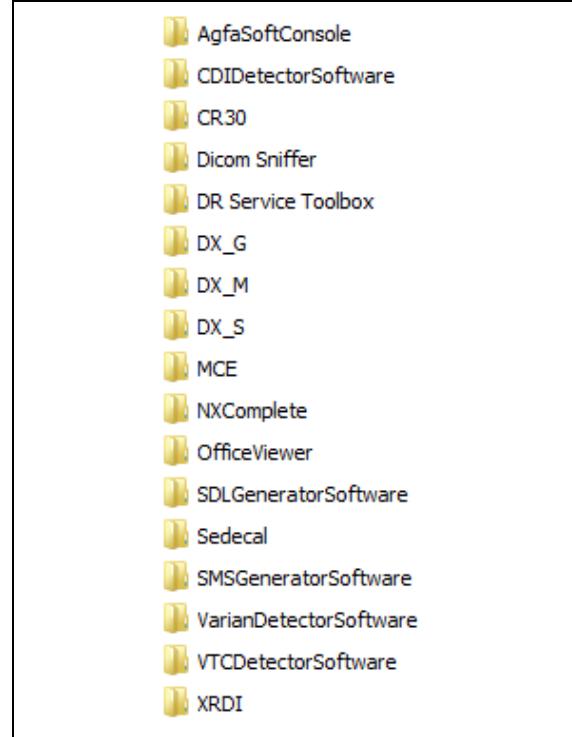


Figure 7: Example

- (4) Load license and activate configuration as described in the *NX/MUSICA Acquisition Workstation - Service Manual*, Document ID [74737949](#), chapter *Installation and configuration*.

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- (5) During NX activation, together with other installers the Varian installer starts. In the eBUS Driver Installation Tool window:
- Select **Install High-Performance IP Device Driver** for
 - Intel® PRO/1000 GT or Intel® Gigabit CT network card in combination with VRN 7.5.
 - Select **Do Nothing** for:
 - Intel® PRO/1000 GT or Intel® Gigabit CT network card in combination with VRN 8.0.
 - Intel® I210-T1 network card.
 - Other network adapters for wireless detectors.
 - An onboard network adapter (see also NOTE below).

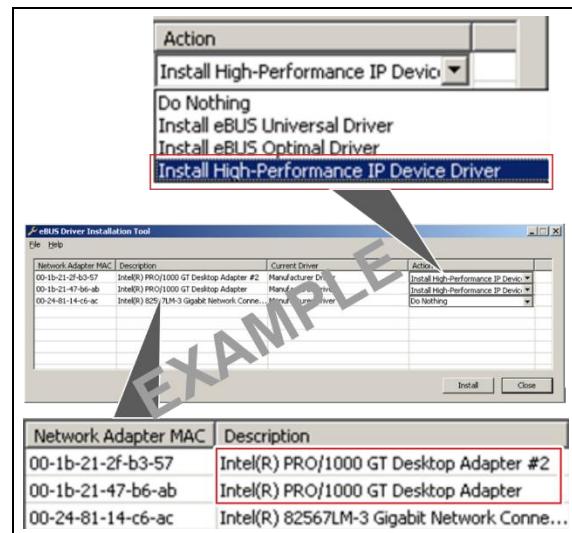


Figure 8

The following description is applicable only when installing VRN 7.5 on a laptop:



NOTE:

For a laptop installation with VRN 7.5 select **Install eBUS Universal Driver** for the onboard NIC. The PCMCIA card is used for communication with the hospital network.

Further configuration steps are required later on. Refer to section 4.5.1.

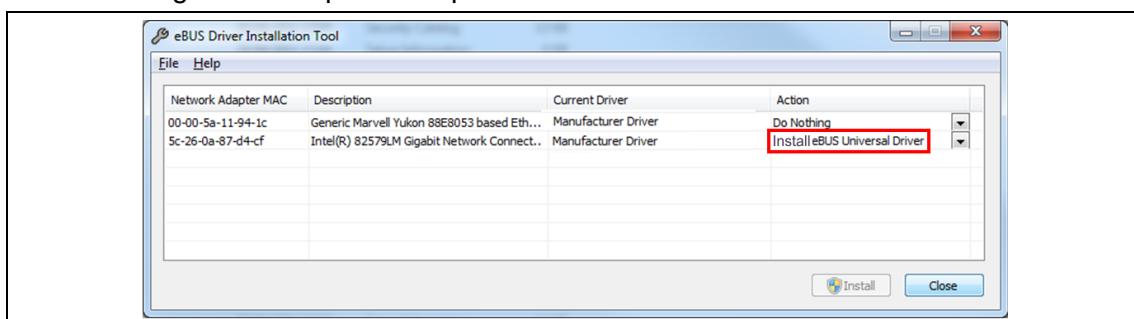


Figure 9: Example

- (6) Click **No**, if the eBus Driver Installation Tool asks for a reboot.

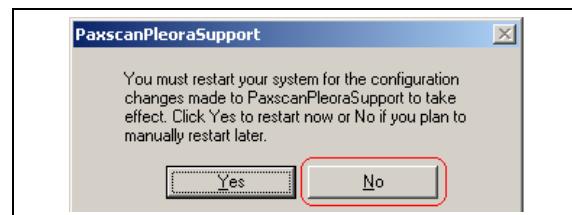


Figure 10

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- (7) During NX activation check the messages in the “Activation Helper” window: If a warning about a missing installer appears, the step to copy the required installers to **C:\Agfa\Healthcare\NX\Installers** has not been completed properly.

In this case start the installation of the required installer manually after the NX activation is completed.

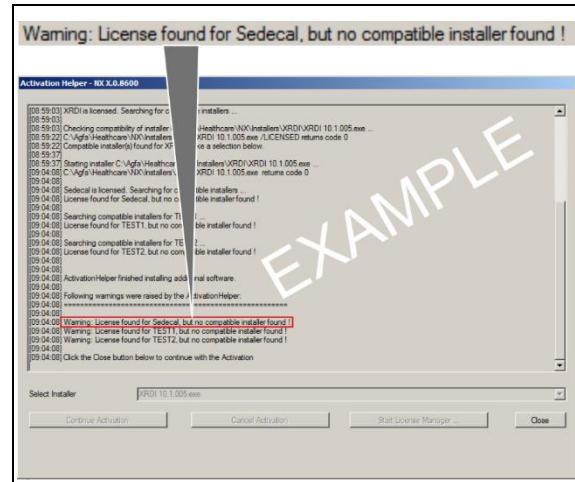


Figure 11

- (8) After finalization of the activation and reboot of the NX, go to **Control Panel > Device Manager > Network Adapters**.
- (9) In case of Intel® PRO/1000 GT or Intel® Gigabit CT network card in combination with VRN 7.5: Confirm that the installed NIC(s) is (are) converted now to Grabber Devices. Refer to Figure 12 for an example.

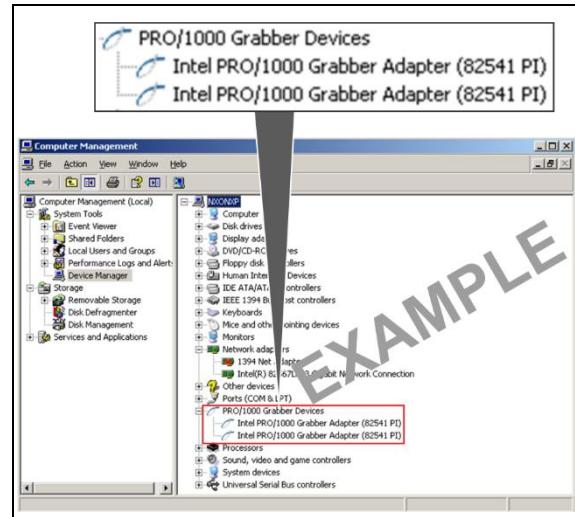


Figure 12

**NOTE:**

The default monitor at NX is configured for 1280 x 1024 pixels.

If the connected monitor has a different resolution, the NX will not start up, but shows a message about incorrect screen resolution.

This message will not show up anymore after monitor configuration on the NX.

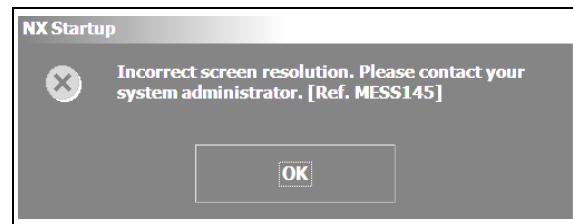


Figure 13

- (10) Add Windows users and install additional drivers for the monitor as described in the *NX/MUSICA Acquisition Workstation - Service Manual*, Document ID [74737949](#), chapter *Installation and configuration*.

4.4.2 **Installing VRN**

**IMPORTANT:**

A mix of network card types for the connection to Varex detectors is not allowed!

**NOTE:**

VRN 8.0 is mandatory:

- For Windows 7 NX PCs with NX hotfixes equal or later as hotfix 7.0.091 (VRN 7.5. is only compatible with hotfixes \leq 7.0.90)
- In case of using Windows 10 NX PC with Intel® I210-T1.

On a WIN 7 PC

an upgrade to VRN 8.0 with Intel® PRO/1000 GT or Intel® Gigabit CT or with Intel® I210-T1 network cards is possible. For more details about upgrading network cards refer to section 11.4. For upgrading VRN software refer to section 11.3.

On a WIN 10 PC

only a new installation of VRN 8.0 in combination with Intel® I210-T1 network cards is applicable.

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4.4.2.1 Installing VRN 7.5 manually (Windows 7)

Purpose In case a detector is added after initial installation, or if the activation utility reported a missing installer, it is possible to run the installer manually.

Perform the following steps only if it is needed to install the Varian Detector Software manually, e.g. if a warning during NX activation indicated a missing installer, or if a detector is added later on.

- (1) Copy the compatible Varian installer (e.g. VarianDetectorSoftware_7.5.0300.exe) to e.g. D:\ drive on the NX.
- (2) Double-click the exe file.
- (3) Follow the installation wizard. See Figure 14.
- (4) In the eBUS Driver Installation Tool window, select **Install High-Performance IP Device Driver** for all installed new NICs for the Varian detectors (Intel® PRO/1000 GT or Intel® Gigabit CT). Refer to Figure 8. In case of the installation on a laptop select the corresponding driver.

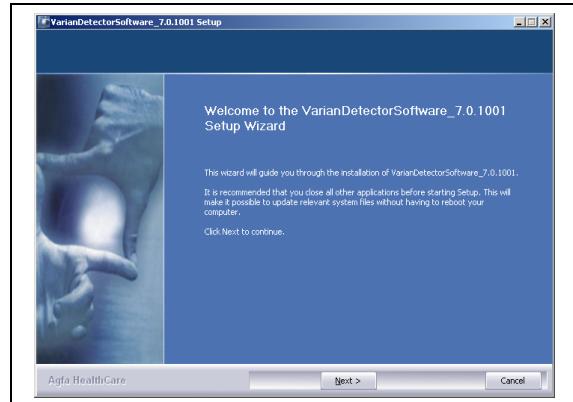


Figure 14

4.4.2.2 Installing VRN 8.0 manually (Windows 10)

Purpose In case a detector is added after initial installation, or if the activation utility reported a missing installer, it is possible to run the installer manually.

Your system must be equipped with one or more Intel® I210-T1 network cards for connection to Varex detectors.

- (1) Download the VRN 8.0 software from the Agfa Medimg Library or use the Electronic License Management System (ELMS) collection tool.
- (2) Start the VRN 8.0 installer. Be sure the proper licenses are installed.
Note that no network card type selection is shown since only the I210-T1 card is supported.
- (3) Click **Install**.

During installation the new Intel® Network driver version will be installed.

4.4.3 Installing detector files from the Varian DVD

Purpose The Varian DVD contains detector specific files.

- (1) Insert the detector DVD in the DVD drive on the NX Workstation.
- (2) Double-click **setup.exe** from the root of the DVD.
- (3) Follow the installation wizard.
- (4) Repeat these steps for the other Varian detectors, if available.

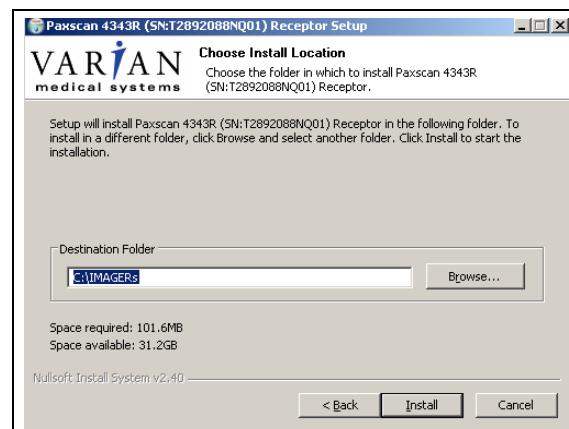


Figure 15

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4.5 Configuration



NOTE:

The following section 4.5.1 is required only for a notebook PC where the detector is connected via Ethernet PCMCIA network interface to NX in combination with VRN ≤ 7.5.

- For desktop PCs with VRN 7.5 start configuration with section 4.5.2.
- For desktop PCs with VRN 8.0 (or later) start configuration with section 4.5.3.

4.5.1 Configuring eBUS Universal Driver on a NX Laptop with VRN up to 7.5

Purpose In case of installing the eBUS Universal Driver on a NX Laptop in combination with VRN ≤ 7.5, perform the following additional steps:

Connection settings in Windows:

- (1) From the Windows Start menu, **select Start > Control Panel > Network and Sharing > Change Adapter Settings**.
- (2) Right-click your Local Area Connection that corresponds to the PCMCIA card used.
- (3) Select **Properties**.
The Local Area Connection Properties dialog appears.
- (4) Select the following items (if not selected):
 - Client for Microsoft Networks
 - File and Printer Sharing for Microsoft Networks
 - QoS Packet Scheduler

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Configuration of the NIC:

- (5) Select **Internet Protocol (TCP/IP)**

Version 4 and click **Properties**.

The Internet Protocol (TCP/IP)

Properties dialog appears.

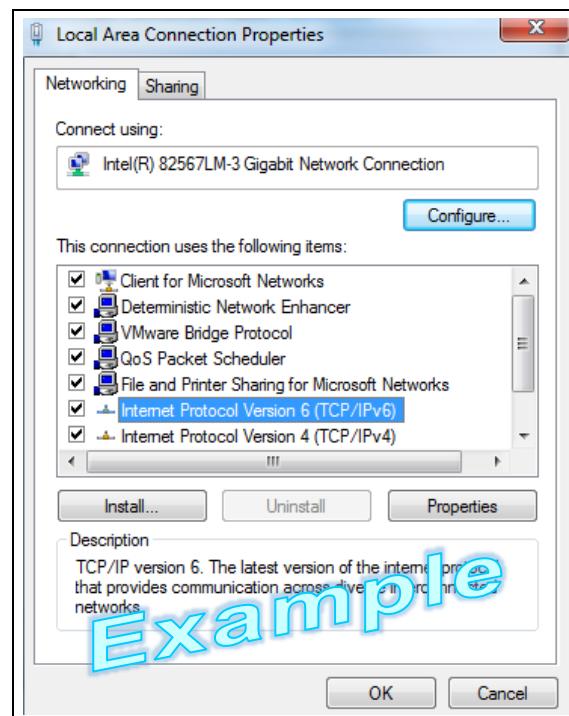


Figure 16

- (6) Use the following IP address and settings:

- 192.168.2.11
- 255.255.255.0
- Default gateway: leave empty

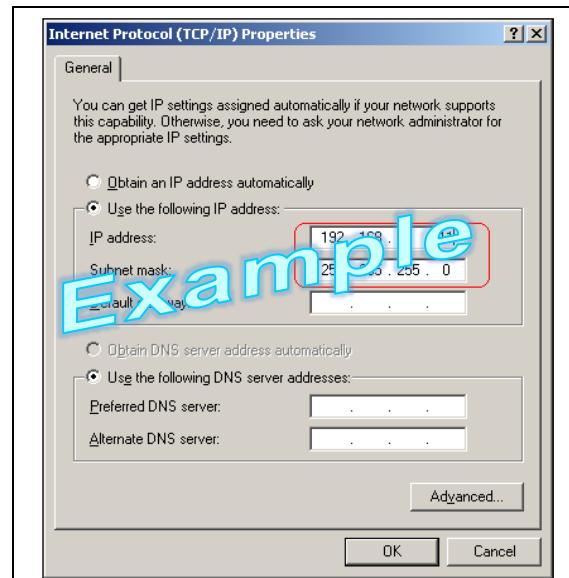


Figure 17

IMPORTANT:

Ensure there is no conflict with an existing IP address on another NIC.

For multiple dedicated connections on the same host PC, increment the IP address for each NIC (this means 101, 102, 103, and so on).

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- (7) Click **OK** to close the Internet Protocol (TCP/IP) Properties dialog.
- (8) Click **Close** to close the Local Area Connection Properties dialog.
Your NIC is now configured for a dedicated connection.

Network Adapter Configurations:

- (9) From the Windows Start menu, select **Start > Control Panel > Device Manager**
- (10) Right-click the Intel(R) 82579 network adapter and select **Properties**.
The Intel(R) 82579 Network Connection Properties dialog appears.
- (11) Select **Advanced** tab.
- (12) Select Property **Jumbo Packet** and select its value: **9014 Bytes**.

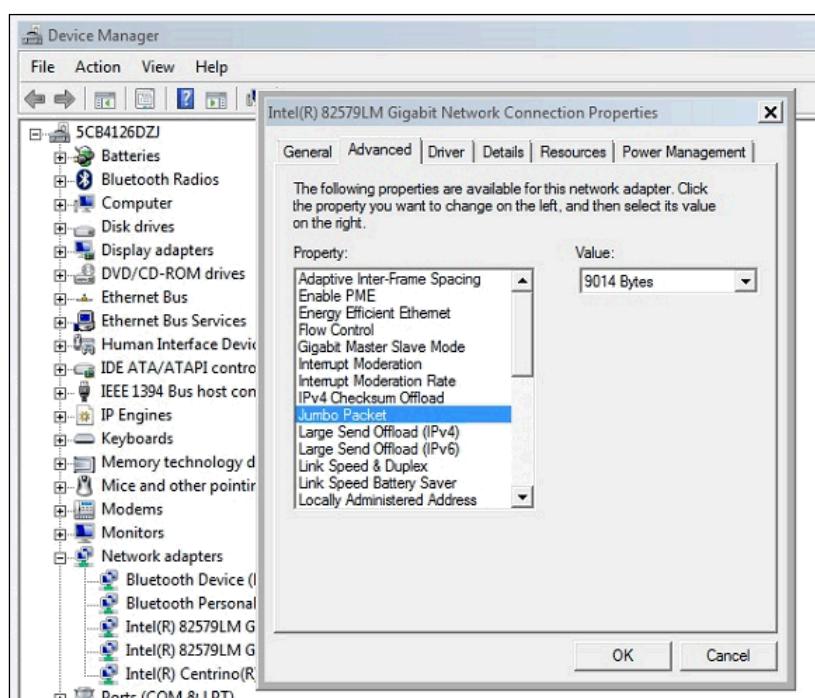


Figure 18

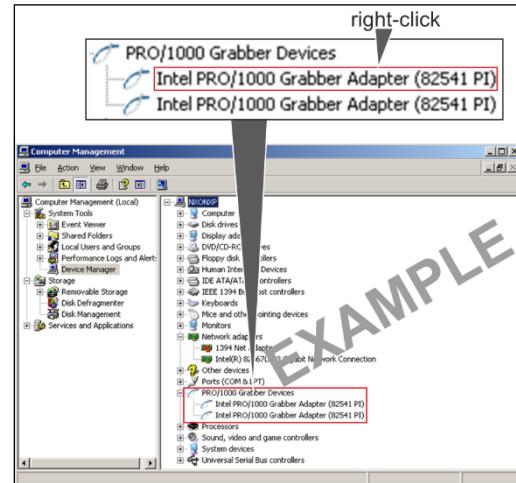
- (13) Click **OK** to close the Intel(R) 82579 Network Connection Properties dialog.
- (14) Close the Device Manager.

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4.5.2 Setting grabber TCP/IP properties on VRN 7.5

- (1) Go to **Control Panel > Device Manager > Network Adapters**.
- (2) Right-click on the first displayed grabber adapter.
- (3) Select **Properties**.



EXAMPLE

Figure 19

- (4) Go to the **Settings** tab.
- (5) Delete one figure of the IP address (e.g. the last one) and re-enter it.
- (6) Perform IP address, Subnet mask settings and Dynamic Host Configuration Protocol (DHCP) range settings as shown in table below.
- (7) Click **OK**.
- (8) Repeat the grabber properties setup for all other grabber adapters, if available.
- (9) Reboot the NX Workstation.

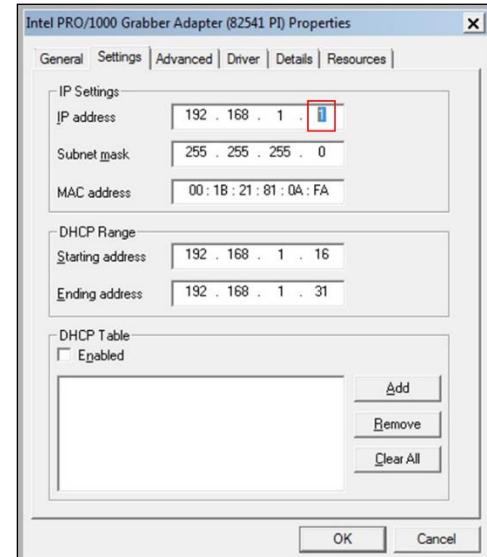


Figure 20

	IP Address	Subnet mask	DHCP Range Starting address	DHCP Range Ending address
Grabber 1	192.168.1.1	255.255.255.0	192.168.1.16	192.168.1.31
Grabber 2	192.168.3.1	255.255.255.0	192.168.3.16	192.168.3.31
Grabber 3	192.168.5.1	255.255.255.0	192.168.5.16	192.168.5.31

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4.5.3 Configuring network cards on a desktop PC with VRN 8.0 (or later)

4.5.3.1 Driver version check

- (1) Go to **Control Panel > All Control panel Items > Device Manager> Network adapters.**
- (2) Double-click on the adapter entry.

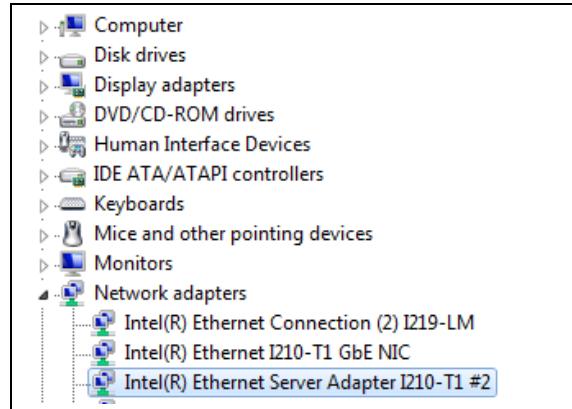


Figure 21: Example for Intel® I210-T1 network card

- (3) Go to the “Driver” Tab.
- (4) Check the driver version for the following combinations:
 - Intel® PRO/1000 GT: **8.3.15.0** or later.
 - Intel® Gigabit CT: **12.7.28.0** or later.
 - Intel® I210-T1 in WIN7 PC: **12.13.27.0** or later.
 - Intel® I210-T1 in WIN10 PC: **12.15.184.0** or later.

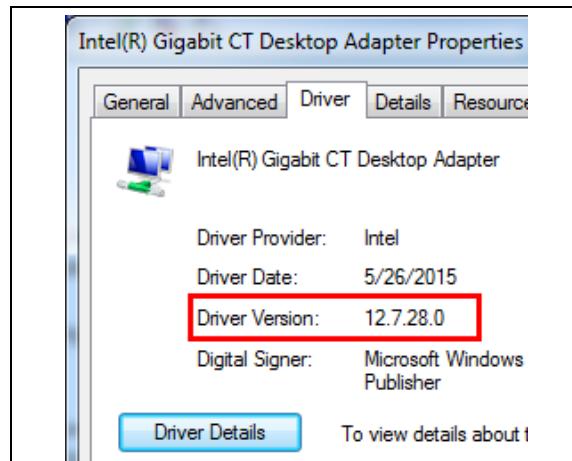


Figure 22: Example

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4.5.3.2 Advanced settings

- (1) Go to the **Advanced** Tab.
- (2) In the settings list, select **Jumbo Packet** and change value to **9014 Bytes**.
 - o If the Intel manufacturer driver is reinstalled, this setting may be set to defaults, so best to check it again after every reinstall.
- (3) In the settings list select **Performance Options** and click **Properties**.
A new window appears.

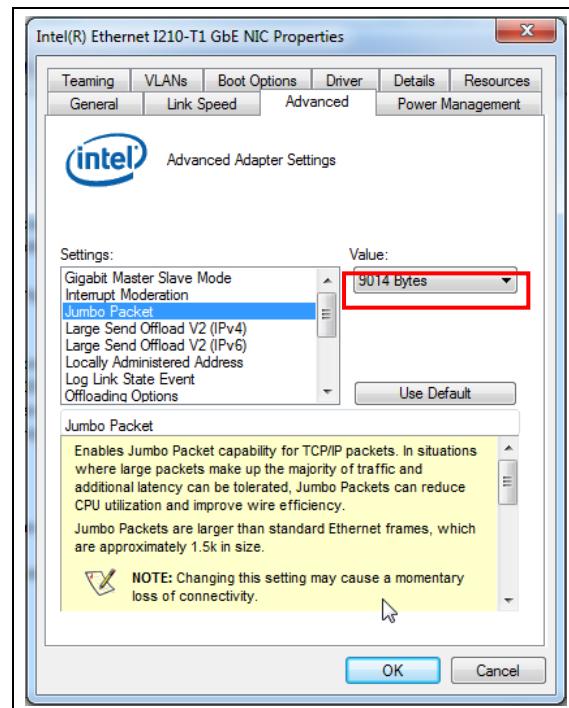


Figure 23: Example

- (4) Only when using an Intel® I210-T1 network card and/or VRN 8.0:
Select **Receive Buffers** and change value to 2048.
- (5) Click several times **OK** to close all the windows.

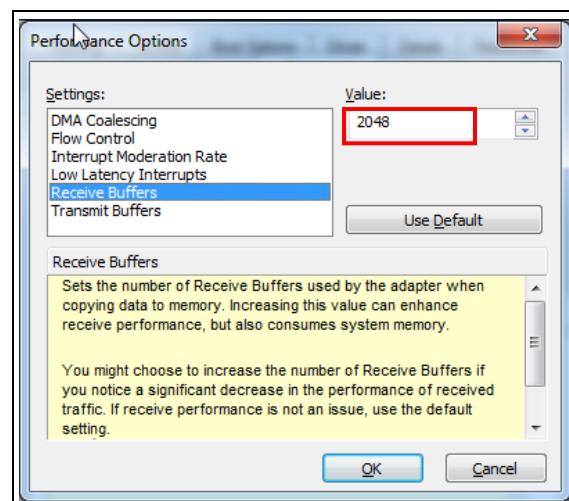


Figure 24: Example

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4.5.3.3 IP address settings

- (1) Go to **Control Panel > Network and Internet > Network and Sharing Center**.
- (2) Select the network connection.
- (3) Set the IP address and subnet mask:
 - For one network card:
Set the values as shown in the table for “Network card 1”.
 - For multiple detectors/cards:
Set the values as shown in the table:

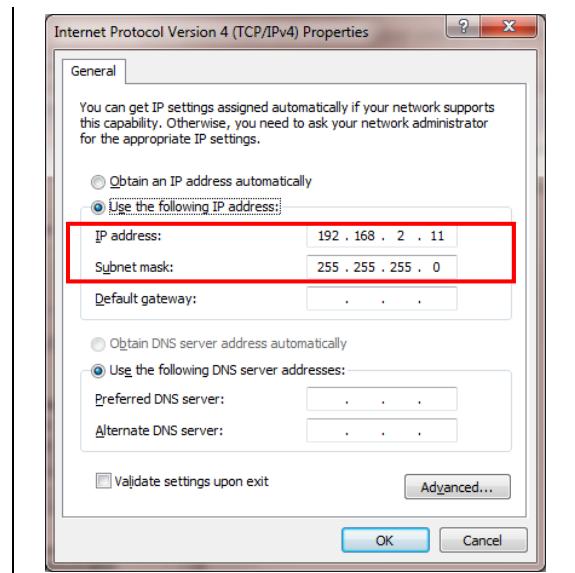


Figure 25: Example

	IP Address	Subnet mask
Network card 1	192.168.2.11	255.255.255.0
Network card 2	192.168.3.11	255.255.255.0
Network card 3	192.168.4.11	255.255.255.0

- (4) Click **OK**.
- (5) Reboot the NX Workstation.

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4.5.3.4 Network Interface power settings (only Windows 7)



NOTE:

To avoid timeout errors when logging in and DR Detector Error 30, change the power settings for all installed NICs.

- (1) Click the Windows Start Menu Button and type **device manager**.
- (2) Double-click **Device Manager**.
- (3) Navigate to Network adapters.
- (4) Right-click on the Network Adapter where the power settings should be changed.
- (5) Click **Properties**.
- (6) Go to the **Power Management** tab.
- (7) If using an Intel® I210-T1 network card:
Deactivate **all** Power Save Options: Use the scroll bar to make sure that all options are deselected!

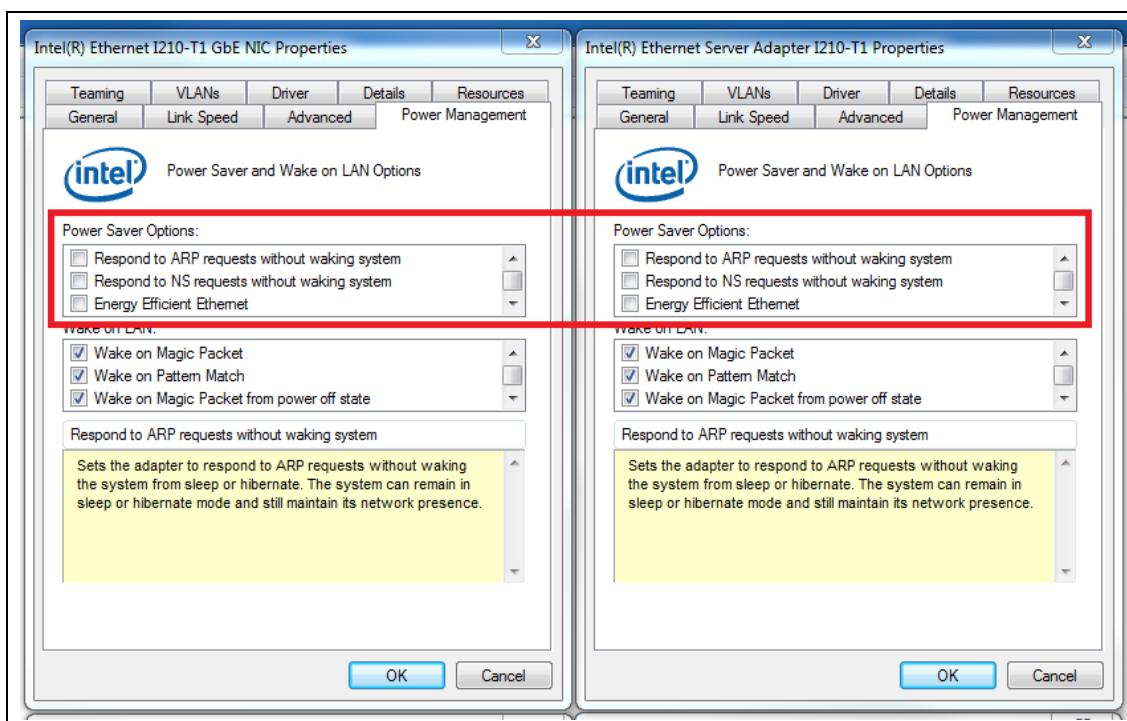


Figure 26: Example for Windows 7, two Network Interface Cards

- (8) If using an Intel® PRO/1000 GT or Intel® Gigabit CT network card:
Deactivate **all** Power Save Options: Make sure that all options are deselected!
Note that the screen for Intel® Gigabit CT might look different.

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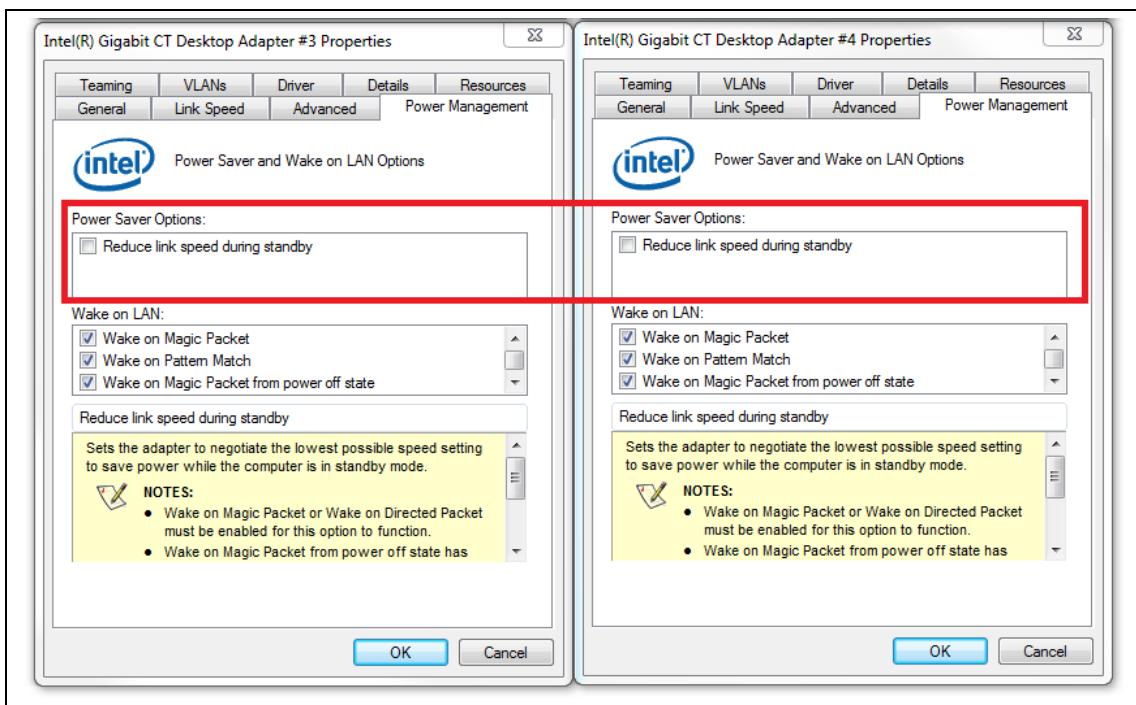


Figure 27: Example for Windows 7, with two Intel® PRO/1000 GT Network Interface Cards

4.5.3.5 Change of HcpConfig.ini files



NOTE:

Do *not* change the HcpConfig.ini file when using an Intel® PRO/1000 GT or Intel® Gigabit CT network card in combination with VRN 7.5.

When using Intel® I210-T1 and/or VRN 8.0, the HcpConfig.ini files have to be changed.

- (1) Perform the following steps for every detector in its imager folder.
- (2) Go to **C:\IMAGERs\<detectorSN>** directory.



NOTE:

Make sure that the **HcpConfig.ini** file is *not* set to “read only”. Right-click on the file, click **Properties** and clear the read-only checkbox if needed.

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(3) Open the **HcpConfig.ini** file.

(4) Add the following entries:

```
HcpFgPleora]  
PleoraPacketSize=8128  
PleoraIpAddress=192.168.xx.34
```

(This defines the IP address for the respective detector. The Framegrabber device is not used anymore.)

xx has to be replaced as shown in the examples below.)

Example:

Network Interface Card 1 address 192.168.**2**.11

```
PleoraIpAddress=192.168.2.34
```

Network Interface Card 2 address: 192.168.**3**.11

```
PleoraIpAddress=192.168.3.34
```

4.5.3.6 Detector reboot

(1) After connection with the ViVA Tool, reboot the detector(s).

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4.5.4 Optional step: Adapting C:\IMAGERs folder permissions

Purpose For proper function the Varian software needs access to all files in the C:\IMAGERs directory.

This step is optional, as the DR Installation Checker, which is executed at the end of the installation process, performs this step automatically.

- (1) Right-click **C:\IMAGERs** folder and click **Properties**.
- (2) Click **Security** tab.
- (3) Click **Advanced**.

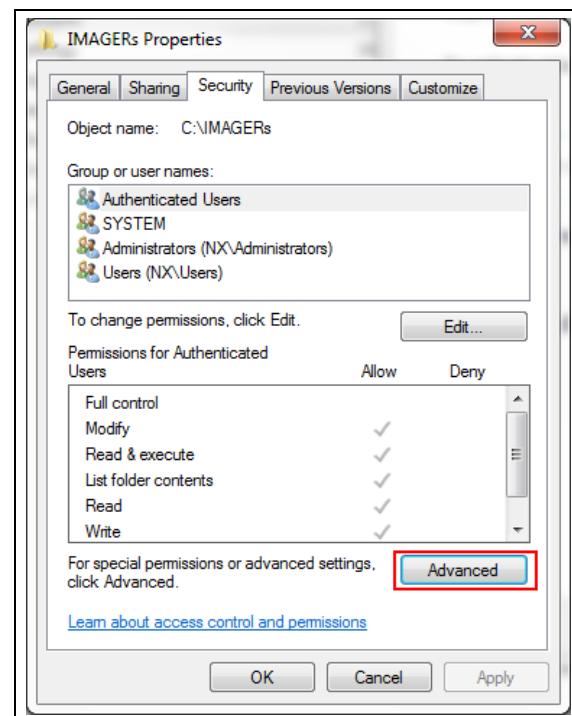


Figure 28

- (4) Click **Change Permissions**.
- (5) Click **Add...**

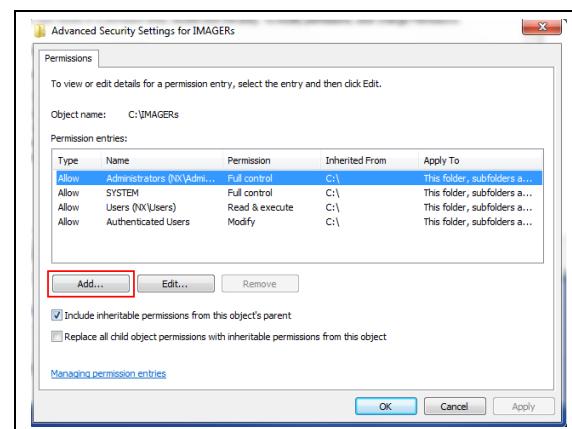


Figure 29

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- (6) Type **everyone**.
 (7) Click **OK**.

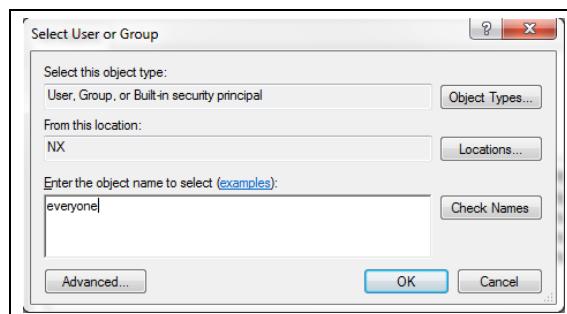


Figure 30

- (8) Select the **Full control** checkbox and click **OK**.
 (9) In the Permissions window click **OK**.

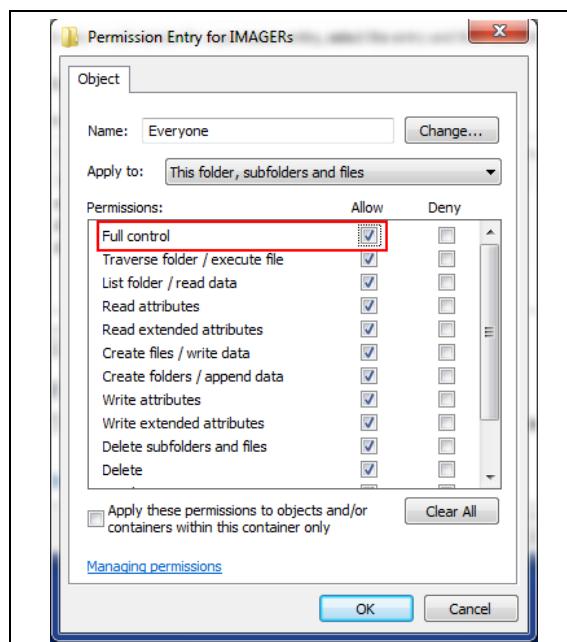


Figure 31

- (10) Select the **Replace all child object permissions...** checkbox and click **OK**.

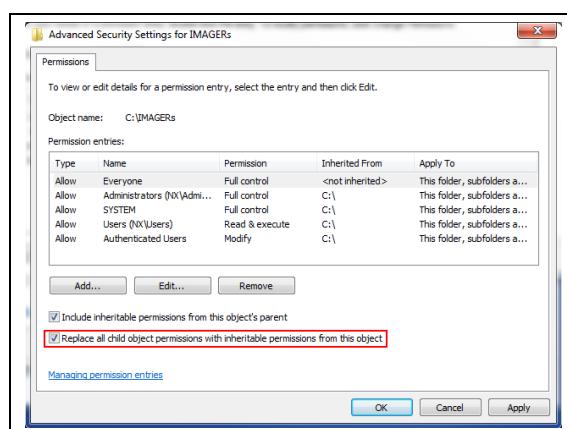


Figure 32

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- (11) In the Windows Security pop-up window select **Yes**.
- (12) Close the following windows by clicking **OK**.

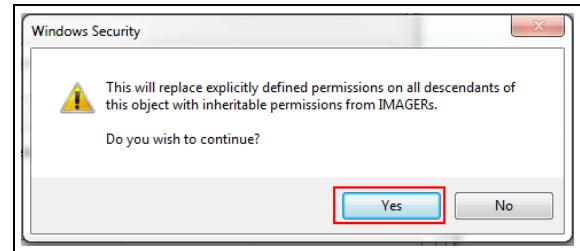


Figure 33

4.5.5 Updating the hcpconfig.ini file(s)

Purpose The hcpconfig.ini file (hardware configuration file for Virtual CP) needs to be updated with the actual configuration (e.g. MAC address of the detector).

- (1) In case more than one detector is installed: Remove the power input from the other detector(s) or remove the network cable(s) at the NX: Only one detector can be connected during this procedure.
- (2) Stop NX. Select **Start Agfa > NX > Service > Stop NX**.
- (3) Start the detector service program: **Start > Agfa > Service > Varian > Viva**.
- (4) In case more than one DR detector exists in the C:\IMAGERs folder, a data loss warning appears.
Click **No**.

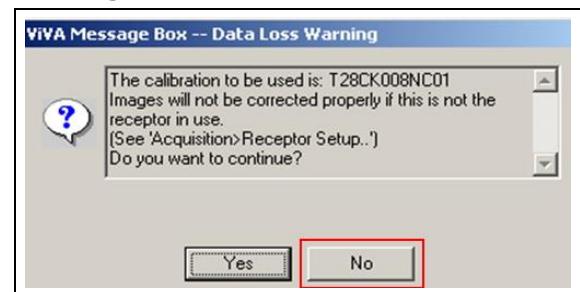


Figure 34

- (5) Select **Acquisition > Receptor Setup...**

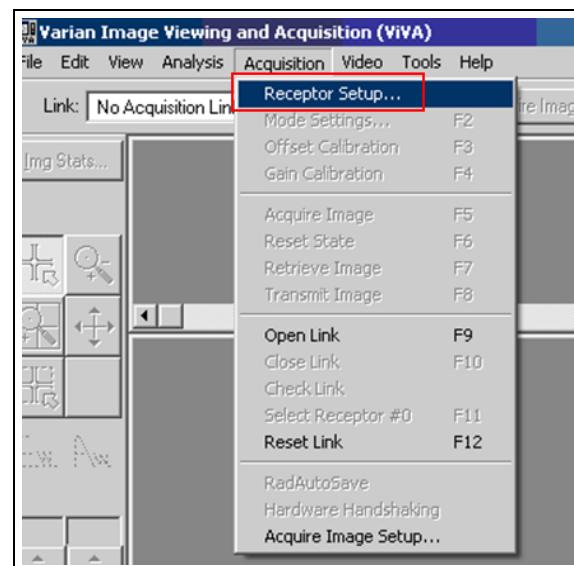


Figure 35

- (6) Select the appropriate DR Detector and click **OK**.

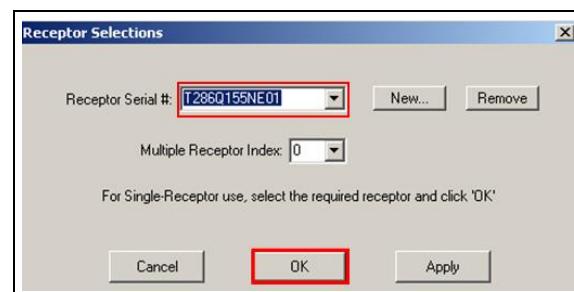


Figure 36

- (7) Select **Acquisition > Open Link**.

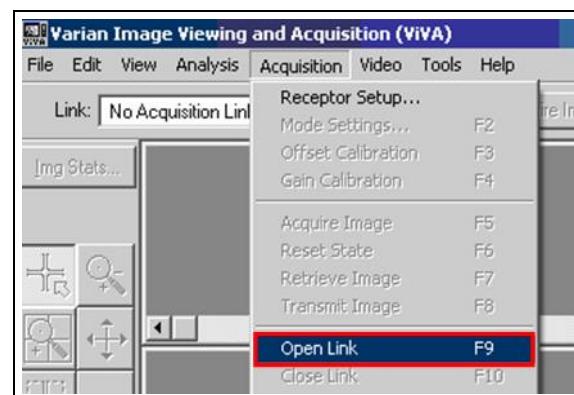


Figure 37

DOCUMENT CONTROL NOTE:

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(8) Click **Yes**.

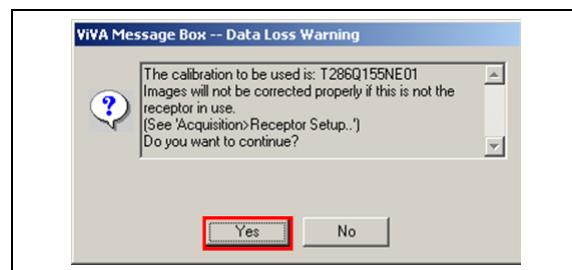


Figure 38

 **NOTE:**

The ViVA tool automatically connects to the DR Detector in case only one DR Detector is available under C:\IMAGERs.

(9) Select one of the available modes.

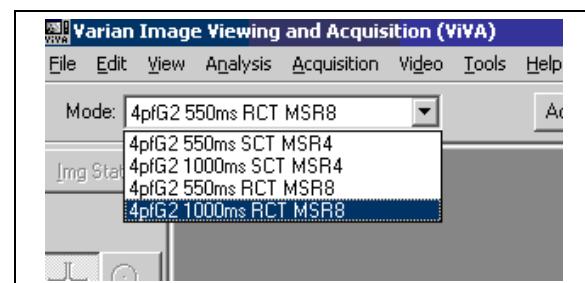


Figure 39

(10) Select **Acquisition > Check Link**.

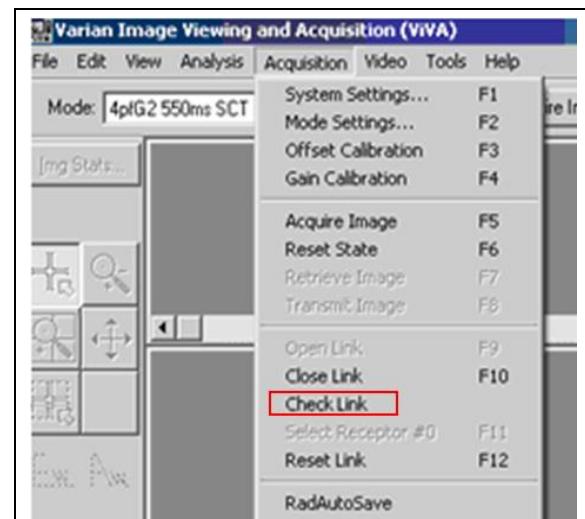


Figure 40

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(11) Click **OK**.

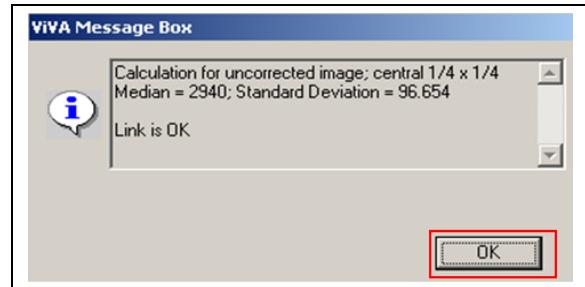


Figure 41

- (12) Repeat step (9) to (11) for all four modes.
- (13) Perform this procedure for **every** DR detector.
- (14) Close the ViVA tool.

4.5.6 Activating Varian logging

Purpose With VRN 8.0 the Varian logging is not active due to a software issue. This has to be activated by modification of the **HcpConfig.ini** file.

- (1) Open **C:\IMAGERs\<detector serial number>\HcpConfig.ini** with Notepad.
- (2) Add the bold marked line:

```
[VirtCp]
FileRev=2
LogRotation=20
DebugMode=2
```

- (3) Save the ini file.
- (4) Repeat this step for all other Varex detectors.

4.5.7 Optional Step: Checking the hcpconfig.ini

Purpose In the past some hcpconfig.ini files did not contain all entries. This step is performed to check whether all entries are present. This step is optional, as the DR Installation Checker, which is executed at the end of the installation process, performs this step automatically.

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- (1) Open the **C:\IMAGERs\<detector SN>\HcpConfig.ini** file with the notepad.
- (2) Check that the file contains the red marked entries. Refer to Figure 42. These entries differ for fixed or portable detectors. DR Installation Checker will automatically check.
- (3) Add these entries if they are not present.
- (4) Save the file.
- (5) Repeat this procedure for the other Varex detector(s).

```

; HcpConfig.ini is the hardware configuration file for Virtual CP software.
; This file is specific to -- 4343R -- which uses the Pleora ethernet
; frame grabber module.
; It also specifies additional configuration files required.

[ReceptorControl]
PgPll1=HcpFgPleora
PgPll2=HcpRpRad
FixedFrameRate_00=0..372
PgClockRate_00=1..000
FixedFrameRate_01=0..319
PgClockRate_01=1..000
FixedFrameRate_02=0..265
PgClockRate_02=1..000
FixedFrameRate_03=0..237
PgClockRate_03=1..000

[VirtCp]
FileRev=2
LogRotation=20

[HcpConfigFiles]
HcpFile_01 = *.dat
HcpFile_02 = vivacy002.xml

[VirtCp]
FileRev=2
LogRotation=20

[ImageAcquisition]
IoCtl=HcpIoRad

[HcpFgPleora]
PgTimeoutBootSec=4
PleoraMacAddress=00-11-1C-00-A-2E

[RadMode]
FrameErrorTolerance=3
StatusFrameControl=1
RadCommandEcho=1

[RadMode]
FrameErrorTolerance=3
StatusFrameControl=1
RadCommandEcho=1

```

The figure shows a screenshot of the HcpConfig.ini file. Several sections are highlighted with red boxes: [VirtCp], [ImageAcquisition], [HcpFgPleora], and two instances of [RadMode]. Within these sections, specific entries like 'FileRev=2' and 'LogRotation=20' are also highlighted with red boxes.

Figure 42

4.5.8 Optional step: Setting the hcpconfig.ini file(s) to read only mode

Purpose The hcpconfig.ini file must be set to read-only to prevent that it is altered accidentally (e.g. when the DR Detector overheats) and for faster start-up.

This step is optional, as the DR Installation Checker, which is executed at the end of the installation process, performs this step automatically.

- (1) Go to **\Imagers\<detector SN>** directory.
- (2) Right-click the **hcpconfig.ini** file.
- (3) Select **Properties**.
- (4) Select **Read only**.
- (5) Select **OK**.
- (6) Repeat this procedure for the other Varex detectors.

4.5.9 Checking detector firmware and performing upgrade or downgrade if required

Purpose The detector firmware on the delivered detector can be different to the released firmware. The released firmware versions are listed in the *CR/DR Interoperability Matrix*, Document ID [31333326](#).

- (1) Refer to chapter 11 for:
 - Checking the firmware version.
 - Performing a firmware upgrade or downgrade if required.

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4.5.10 Performing NX configuration

4.5.10.1 Configuring monitor, users and loading the default exam tree

Perform the following configuration activities on NX:

- (1) Configure the monitor and add NX users. For details refer to the *NX/MUSICA Acquisition Workstation - Service Manual*, Document ID [74737949](#), chapter *Installation and configuration*.
- (2) Load the system-specific default exam tree. For details refer to the system-specific Service Application Manual.

4.5.10.2 Performing X-ray device configuration

Purpose The X-ray device configuration defines the way the NX communicates with the modality, this means with the generator.

- (1) Start the NX configuration tool.
- (2) Go to **Devices > X-ray Device Configuration**.
- (3) Click **New**.

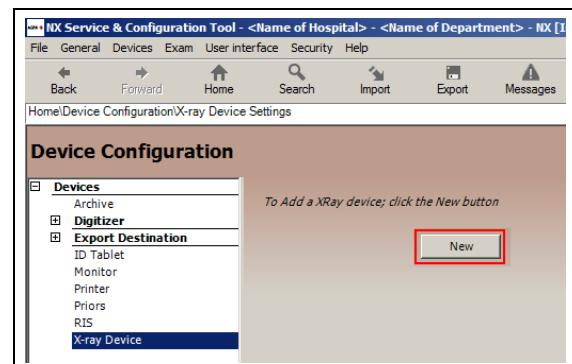


Figure 43

- (4) Click **Upload**.

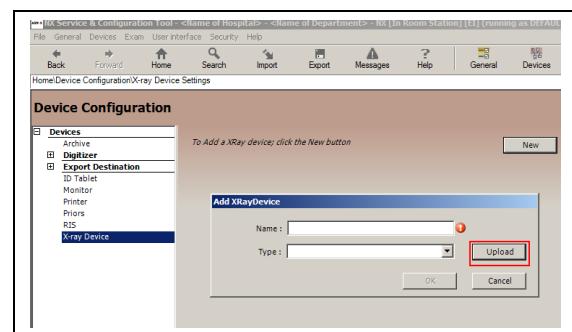


Figure 44

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- (5) Open the required model file, depending on the system. Refer to table below.
- (6) Click **Open**.
- (7) Type a name for the system (name not relevant for the function).
- (8) Click **OK**.

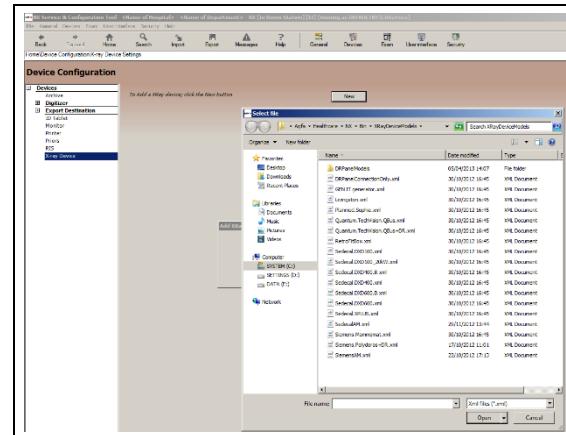


Figure 45

**IMPORTANT:**

Do *not* use the following model files:

- RetrofitBox.xml: Research & Development (R&D) internal model file. Not relevant for service.
- Sedecal.DXD400.B.xml: Not used anymore.
- Sedecal.DXD400.xml: Not used anymore.
- Sedecal.DXD600.B.xml: Not used anymore.

Available system	X-ray device model file to be selected
DR 400 Type 5520/100	Spellman.DR400.xml
DR 400 Type 5520/200	Agfa.DR400.xml
DR 600 Type 5530/100	Agfa.DR600.xml
DX-D 100 system with a 20 kW generator	Sedecal.DXD100_20kW.xml
DX-D 100 system: All except 20 kW generator	Sedecal.DXD100.xml
DX-D 300 system	Sedecal.XPLUS.xml
DX-D 400, with or without Retrofit Box	SedecalAM.xml
DX-D 500 system	Siemens.Polydoros+DR.xml
DX-D 600 system	Sedecal.DXD600.xml
Livingston Mammo generator	Livingston.xml
Planmed Mammo generator	Planmed.Sophie.xml
Quantum solution CR and DR	Quantum.Techvisison.QBus+DR.xml
Quantum solution only CR	Quantum.Techvisison.QBus.xml

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Available system	X-ray device model file to be selected
Retrofit system with Sedecal generator connection (XRDI connection)	SedecalAM.xml
Retrofit system with Siemens generator connection (XRDI connection)	SiemensAM.xml
Retrofit system <u>without</u> XRDI connection between NX and generator.	DRPanelConnectionOnly.xml
Siemens DXSi (XRDI 10)	GENIT generator.xml
Siemens DXSI Solution (XRDI 15 and later)	Siemens.DXSi.xml.xml
Siemens Mammo	Siemens.Mammomat.xml

4.5.10.3 Performing detector settings

- (1) In the Detector Settings screen select **Add**.
- (2) Select the detector model according to the table below.

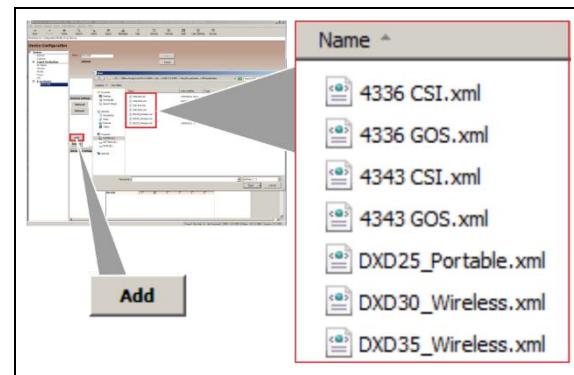


Figure 46

Detector Name	Model (on type label)	Agfa part # (on type label)	Model File name
DX-D 10 C	4336R	20665	4336 CSI.xml
DX-D 20 C	4336R	20665	
DX-D 10 G	4336R	7358 (V1) or 20586 (V2)	4336 GOS.xml
DX-D 20 G	4336R	7358 (V1) or 20586 (V2)	
DX-D Fixed CsI	4343R	7965	4343 CSI.xml
DX-D Fixed GOS	4343R	7964	4343 GOS.xml

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- (3) Select the Serial Number from the drop down box.
- (4) Type a detector nickname. See also NOTE below.
- (5) Select the detector load direction. This is relevant for the portable detector in the Wallstand only.
- (6) Repeat steps (1) to (5) for the other detectors.
- (7) Label the detectors and Bucky with the detector nickname to assist correct detector identification per Bucky.

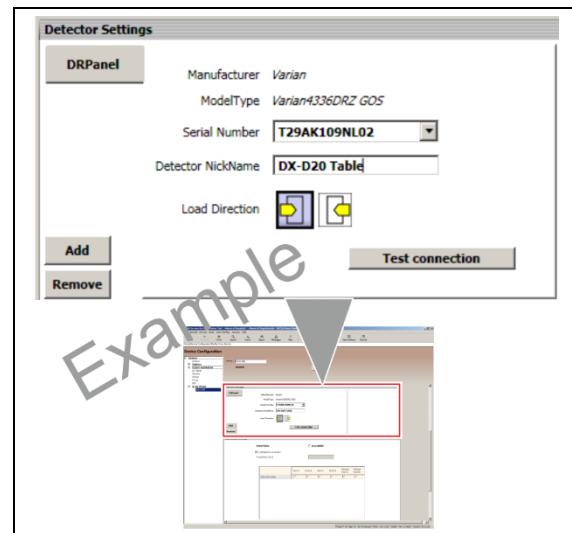


Figure 47



NOTE:

For more information about the detector nickname and detector switch in the NX Graphical User Interface (GUI) refer to *Application Note - DR Detector Switch Configuration*, Document ID [39974115](#).

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4.5.10.4 Performing Retrofit Box settings



NOTE:

From version 3.0 onwards the *DX-D Retrofit Box* is renamed *DR Generator Sync Box*. It is downwards-compatible with the former DX-D Retrofit Box versions.

Purpose

- Define whether a Retrofit Box or DR Generator Sync Box is available.
- Define in which mode it works:
 - Retrofit mode: The generator does not expect a connection to synchronize with the detector = the connector of the exposure switch is used.
 - Retrofit mode using the virtual port: In system configurations with several detectors. Typically, a fixed detector and one or more portable/wireless detectors, where the fixed detector uses the virtual port of the DR Generator Sync Box.
 - Routing mode: The generator expects a connection to synchronize with the detector = the exposure switch remains connected to the hardconsole of the generator.
 - Define which detector is connected to which detector input connector.

Retrofit mode

- (1) In case the detector is connected via Retrofit Box / DR Generator Sync Box: Select **Is available** checkbox.
- (2) Type the **Prepdelay** value (in seconds), determined during the prepdelay determination procedure. For details, refer to the relevant DR system service manual.

	Port 1	Port 2	Port 3	Port 4	Virtual Port A	Ethernet Port
Varian	✓					
30C_P1		✓				
DPT3.09					✓	
DPT4.01						✓
DPT5.01						✓
30C_P4		✓				

Figure 48: Retrofit mode

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Retrofit mode using the virtual port



NOTE:

The following configuration only applies, if the DX-D Retrofit Box / DR Generator Sync Box is used with the DX-D 500 in the retrofit mode.

If a fixed DR detector **and** a portable or wireless DR detector are used in retrofit mode, the virtual port has to be selected for the fixed detector because the fixed detector remains connected to the generator.

The portable detector will be connected to port 1 of the DR Generator Sync Box.

In this configuration mode exposures are always triggered by using the exposure button at the DR Generator Sync Box.

- (1) In case the detector is connected via Retrofit Box / DR Generator Sync Box:
Select **Is available** checkbox.

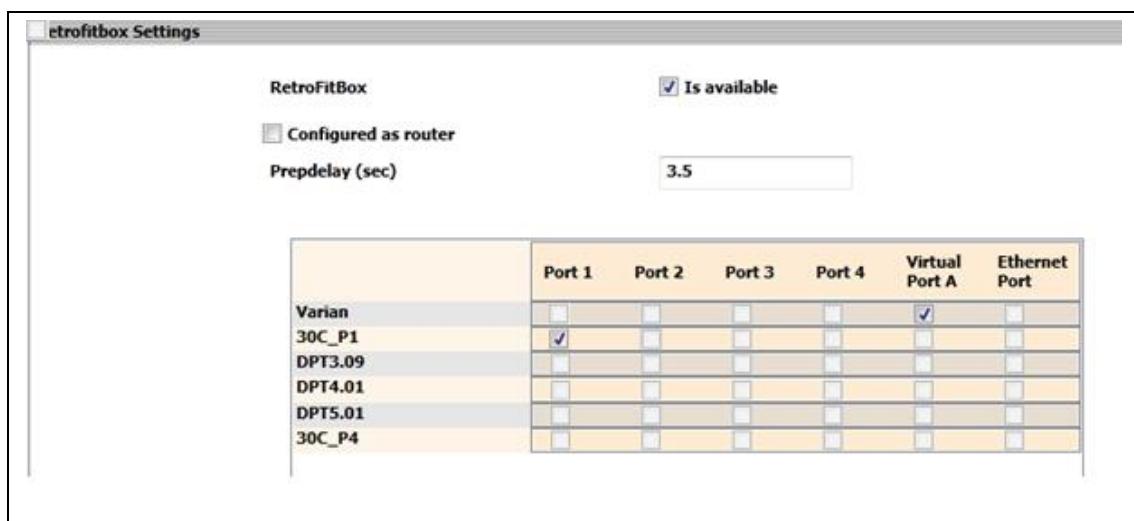


Figure 49: Retrofit mode using the virtual port

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Routing mode:

- (1) Select **Configured as router** checkbox.
In this case the prepdelay parameter is not used. The corresponding GUI field gets grayed out.
- (2) Define the detector connection ports.
The port numbers correspond with the port numbers at the back of the DR Generator Sync Box.
- (3) For a Varex detector select port 1 through 4 for hardware synchronization with the generator. Ethernet connection is not intended for Varex detectors.

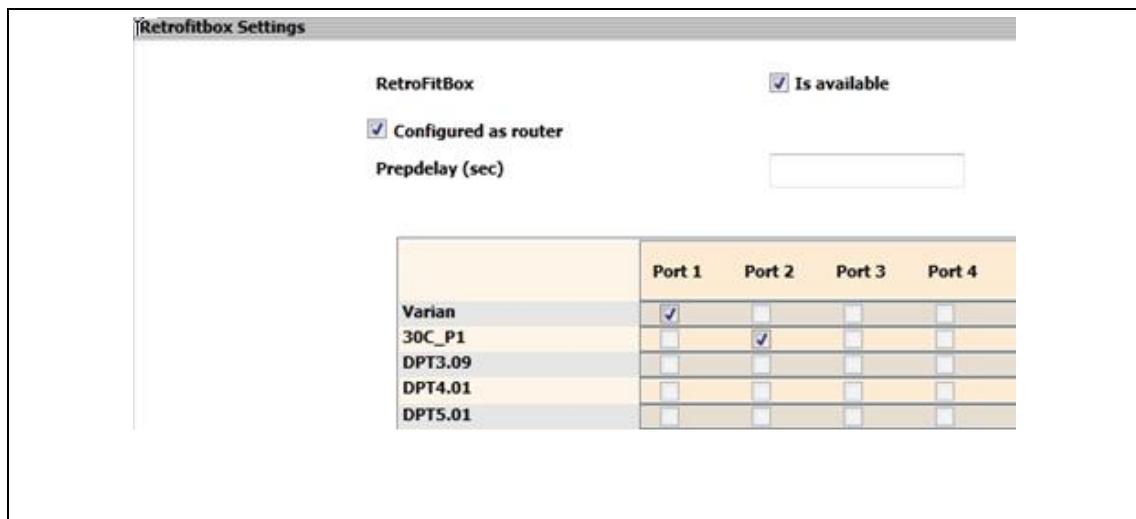


Figure 50: Routing mode

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4.5.10.5 Configuring the DR Recovery Procedure

Purpose Define the image processing settings to apply when a DR image is received that cannot be linked to a listed exposure. This can happen for example if the user selects a new thumbnail on NX before the previous image is completely loaded.

- (1) Select X-ray Device.
- (2) Define the parameters for the DR Recovery Procedure.
- (3) If no Exposure Type can be selected it has first to be created in the Exam settings. Follow next steps.

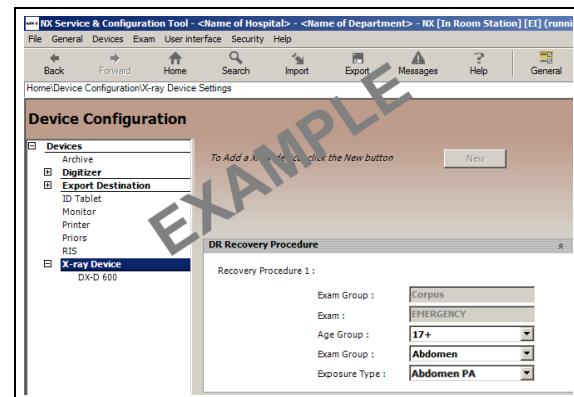


Figure 51

The following step is required only if no Exposure Type can be selected in the Recovery Procedure configuration.

- (4) Create one exam in the NX exam tree configuration window.
 - (5) Ensure to set the modality position to one of the available DR positions (e.g. DR detector in table).
- In case a CR modality position is selected, this exam will not show up when configuring the DR recovery procedure.

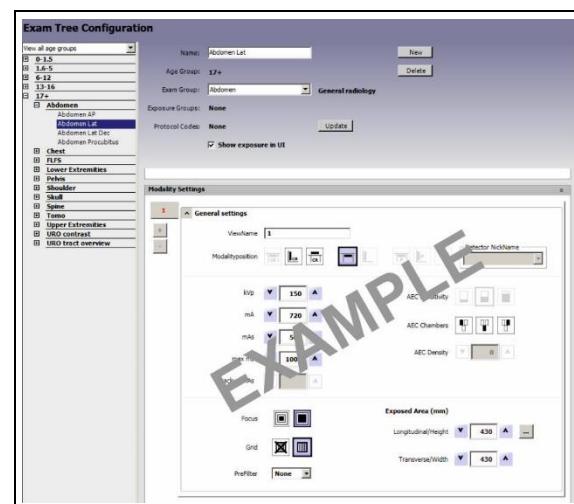


Figure 52

4.5.10.6 Activating the configuration

- (1) In the NX Configuration Tool select **File > Verify Configuration**.
- (2) Solve the errors and warnings, if any are displayed.
- (3) Select **File > Activate Configuration**.
- (4) Close the NX Configuration Tool.

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4.5.11 Comparing sensitivity values in ATPxxxx.xml file with values of ATP document

- (1) In the explorer go to **C:\IMAGERs\<detector SN>\Receptor Test Summary**.
- (2) Open the XML file (e.g. ATPXMLT29AK109NL02.xml) with the Internet Explorer.

```

<Sensitivity>
  - <Mode ModeNum="0">
    <Dose_mR>0.889</Dose_mR>
    <Counts>1059</Counts>
    <Gain>1.09</Gain>
  - <GainRange>
    <Min>0.80</Min>
    <Max>1.20</Max>
  </GainRange>
  <MaxCounts>10549.014</MaxCounts>
  <MaxLinDose_uR>96.78</MaxLinDose_uR>
  <MinimalMaxLinDose_uR>50</MinimalMaxLinDose_uR>
</Mode>
</Sensitivity>

```

Figure 53

- (3) In the same directory, open the Varex ATP PDF file (e.g. T29AK109NL02.pdf).
- (4) Compare the entries in the XML file with the entries in the lowermost line of the PDF file according to the table below.
- (5) In case of differences: Adapt and save the XML file e.g. with XML notepad or with Notepad.

4343R DRZ+ AGFA Receptor ATP Results		Status: PASS
Receptor Serial#: T29AK109NL02 Date/Time: Jan 31, 2011 10:06 PM		Entered By: 100mA 80ms
Meas:	MTF MEC 4pf G2 550ms SCT MSR4	Minimum Value
Mo: 4pf G2 550ms SCT MSR4	32.4	48.5
Long Calibration Dose (mR)	Long Calibration current	100mA
2.84	1744.4	179
High Dose (mR)	High Dose (mR)	High Dose (mR)
111455.303	100.43	0.00021
Meas:	MTF MEC 4pf G2 550ms SCT MSR4	Minimum Value
Mo: 4pf G2 550ms SCT MSR4	PASS	PASS
MT: 4pf G2 550ms SCT MSR4	PASS	PASS
HS: 4pf G2 550ms SCT MSR4	PASS	PASS
Conformity Test		Maximum Value
Sensitivity Mo: 4pf G2 550ms SCT MSR4		100mA 80ms
70 KV RQA-S	Avg Pixel Value (ADU counts)	Std Dev Pixel Value
100mA 80ms	1059.964	7.368
		Min SH&T
		Max SH&T
		Sensitivity (cts/uR)
		Sensitivity (mR/uR)
		Max Counts
		Max Lin. Dose
		Min

Figure 54

Entry in XML file	Corresponding entry in PDF file
Counts	Avg Pixel Value (ADU counts)
Gain	Sensitivity (cts/uR)
Gain Range Min / Max*	Sensitivity (cts/uR) Range
MaxCounts	Max Counts
MaxLinDose	Max Lin. Dose
MinimalMaxLinDose	Min

!IMPORTANT:

Set **<Gain Range> <Min>** and **<Gain Range> <Max>** values with two decimal places.

Example: Varex ATP PDF shows Sensitivity (cts/uR) Range: 0.8 to 1.2.

Type **<Gain Range> <Min> 0.80** and **<Gain Range> <Max> 1.20** in the XML file.

4.6 Installation verification

4.6.1 Running the DR Installation Checker

- Purpose** Via DR installation checker the correct setup is checked and several corrections are performed. If the optional steps in the previous sections have not been performed, it is mandatory to run the DR Installation Checker.
- For more details to the DR Installation Checker see chapter 7.2.

- (1) Install the DR Service Toolbox.
- (2) Select **START > Agfa > Service > DRInstallationChecker**.
- (3) Check the displayed results.



IMPORTANT:

If an error appears concerning wrong separator in the regional settings for the **NXWorkStationUser**, proceed as follows:

- (1) Contact the Regional Support Network (RSN) to get the password for user **NXWorkStationUser**.
- (2) Switch user to **NXWorkStationUser**.
- (3) Go to **Control Panel > Region and Language**.
- (4) Set **format to English (US)**.
- (5) Go to **Additional settings....**
- (6) Set the Decimal Symbol to a “dot”. See Figure 55.
- (7) Select **Apply** and leave the Region and Language window.
- (8) Switch user to **crservice** again.

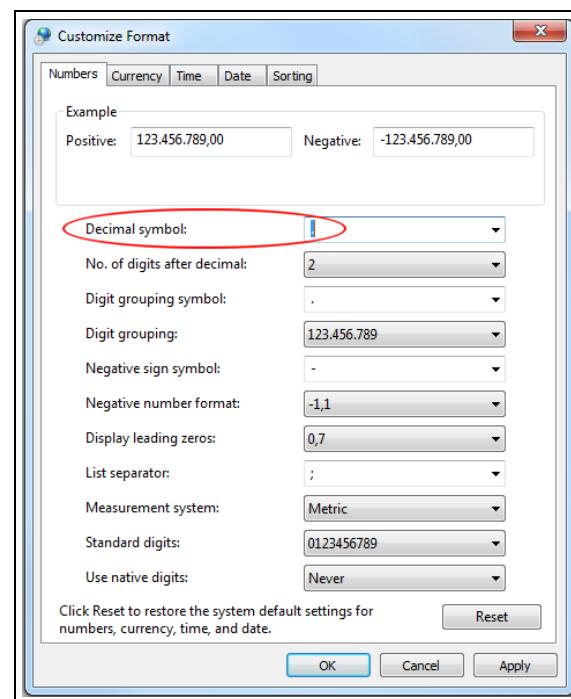


Figure 55

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4.6.2 Checking communication speed between detector and NX

- (1) Check the communication speed LED at the NX network interface for the detector. It must indicate a network speed of 1 GB/s. See also related safety note in chapter 2.1.
- (2) In case it does not show a network speed of 1 GB/s:
 - Check cabling.
 - Preferably only use the CAT 6 Ethernet cable which is part of delivery.

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5 Calibration

This chapter gives a short summary of the detector calibration procedure.

For details refer to the *DX-D DR Detector Calibration – Key User Manual* in the Agfa Medimg Library.

5.1 Detector calibration

- Purpose
- Determine the sensitivity for each pixel of the detector.
 - Eliminate the effect of dead pixels.
 - Eliminate inhomogeneity of the X-ray tube.

Several flatfields are recorded. For each pixel a gain factor is stored in a file on the C:\IMAGERs directory on the NX. After the calibration, the signal of each pixel is multiplied with its gain factor.

Use Case Perform a detector calibration **for each detector** in the following cases:

- After installation
- After replacement of a detector
- In the time interval of 3 months the customer has to re-calibrate (triggered via user message at NX)



REQUIRED TOOLS:

1.5 mm CU filter, spare part number CM+9515510152*

* The last digit in the spare part number indicates the spare part revision at release of this document.
When ordering, the actual revision of the spare part is delivered.



REQUIRED TIME:

Approximately 30 minutes

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5.1.1 Warming up the detector

Purpose The detector needs to have a stable operating temperature for calibration.

- (1) Before starting calibration the detector should be switched on for one hour.

5.1.2 Preparing detector calibration

Purpose Before starting the calibration the exposure parameters need to be set, the flatfield needs to be collimated larger than the detector and the Cu filter needs to be installed.

- (1) Stop NX.
- (2) Put the detector on a flat surface.
- (3) Collimate > 1.5 cm above the detector edges.
In case of automatic collimation: Unlock the collimator and collimate manually.
- (4) Open the Calibration Tool on NX.
- (5) Select the detector (identified by nickname as of XRDI 14).
- (6) Click **Start Calibration**.
- (7) Perform settings at the modality: Source Image Distance (SID) 130 cm (Table) or 150/180 cm (Wallstand – 150 cm or 180 cm depend on installed grid), 75 kV, 28 mAs*, large focus.
- (8) Remove the grid. If the grid is fixed: Use 32 mAs*.
- (9) Mount Cu Filter.

*indicative value. Needs possibly to be enlarged / reduced during calibration procedure.



NOTE:

- If the DR Detector is used in a fixed position, use the same position for calibration.
- If the DR Detector is used in different positions, perform the calibration with the short side of the DR Detector parallel to the axis of the X-ray tube. See Figure 56.

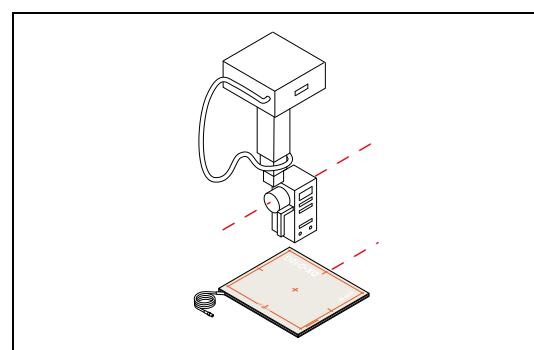


Figure 56

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5.1.3 Exposing the flat fields

- (1) Perform the number of exposures as defined by the calibration wizard.
After the last exposure the calibration procedure is finished.
See next section in case of an error message.

5.1.4 Solving errors during detector calibration

If the calibration procedure was not successful, the old calibration values are restored and the detector remains operational.

Enclosed a list of possibly symptoms and their solutions:

#	Symptom	Cause	Cause
1	Calibration fails with unspecific error message.	Magnetic or electromagnetic interference or power supply interference.	Check the environment.
2	Error message pointing to an uneven exposure.	Object in the X-ray beam.	Check the X-ray beam path for presence of X-ray opaque objects or particles, e.g. on the upper surface of the Dose Area Product (DAP) meter. Check collimation.
3	Error message about signal level too high / too low.	Dose too high / too low.	Decrease or increase the mAs by 2 points and restart the calibration procedure.

5.1.5 Verifying the calibration

The detector calibration after installation or after detector replacement is verified via the ATP of the system. See chapter 6.

The recurrent detector calibration by the customer is verified via exposure and evaluation of a flatfield image.

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6 **Acceptance test**

For the detector no separate acceptance test is available: As the detector only works if installed in the system, the proper function of the detector is tested via acceptance test on system level.

Refer to the corresponding system service manual.

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7 Troubleshooting

**NOTE:**

For the general escalation procedure refer to the *Field Service ABCs*, Document ID [25722561](#).

For the DR detector repair procedure refer to chapter 8 within this document.

This chapter lists following topics to assist troubleshooting of the detector:

#	Topic	Reference
1	List of symptoms and solutions	7.1
2	Troubleshooting Tool: DR Installation Checker	7.2
3	Troubleshooting Tool: Agfa Defect Pixel Tool	7.3
4	Troubleshooting: BIOS error after plugging in multiple Intel® I210-T1 network cards	7.4
5	List of error codes	7.5

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7.1 List of symptoms and solutions

7.1.1 Image quality related symptoms

Symptom	Solution
White area or white line in the image.	<ul style="list-style-type: none"> • Perform calibration. See chapter 5. • If this does not solve the problem, escalate as described in chapter 8.
Poor image quality.	<ul style="list-style-type: none"> • Confirm that image corrections are all selected in the Systems Settings dialog box in ViVA. • Re-acquire gain and offset images. • Assure that the exposures are appropriate for gaining calibration images (not saturated).
Acquired image is completely dark.	<ul style="list-style-type: none"> • Increase the exposure and acquire a new image. If the image is still dark, verify that all cables are properly connected. Turn the power OFF and ON. Acquire a new image.
Residual X-ray image from previous exposure shows up in the current image.	<ul style="list-style-type: none"> • Charge on the sensor pixels from a super saturated exposure may cause a residual image. It can be erased by taking another image or multiple images without X-rays until the residual image is gone.

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7.1.2 Other symptoms

Symptom	Solution
Detector fails to respond.	<ul style="list-style-type: none"> Check cables.
Detector causes electromagnetic interference.	<ul style="list-style-type: none"> Reorient or relocate the receiving device. Increase the distance between the items. Connect the other device(s) into an outlet on a different circuit.
Software hangs up.	<ul style="list-style-type: none"> Restart ViVA.
Out of virtual memory.	<ul style="list-style-type: none"> Close some of the windows that are open.
ViVA error message.	<ul style="list-style-type: none"> Enable the following flag in the ViVA tool: Menu Tools > Receptor > Debug Verbosity. Check the log file. This log file is normally found in c:\IMAGERs\<detector SN>\HcpDebug.txt.
DMAT* does not work as expected continuously. DMAT tool has encountered a problem and needs to close.	<ul style="list-style-type: none"> Perform gain calibration (= calibration, see chapter 5) again.
VRNMESS7036 (106 and/or 90 and/or 30) occurs sporadically.	<ul style="list-style-type: none"> If cable extensions for the Ethernet cable to the NX are used: use one cable with the right cable length instead or use higher quality extensions. Install VRN 8.0 (or later) and replace the Network Interface Card by Intel® I210-T1.

* DMAT tool is called now: Agfa Defect Pixel Tool – ADPT

7.1.3 Gray image after making an exposure



NOTE:

The issues described in this section only occur on DX-D 100 / DX-D 300 / DX-D 400 / DX-D 600 systems and at accordingly equipped integrated DX-D Retrofit systems.

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7.1.3.1 Gray image after exposure without error message

Symptoms Gray image after exposure. Low Exposure Index, no DAP value but the exposure took place. Customer can hear the beep that indicates the exposure.

Cause This issue is related to the generator firmware. This problem occurs during communication between the HT Controller and the ATP Console.

Solution 1 Install U24 EPROM with generator ATP firmware v7R1b78 (or later). Refer to respective system-specific Service Bulletin on the Agfa Medimg Library.

7.1.3.2 Gray image and intermittent Error 97

Symptoms Gray image (no exposure taken). Error 97 is displayed intermittent.

Cause 1 The operator has released the exposure switch before starting the exposure due to human error.

Solution 1 Train the operator.

Cause 2 The operator has kept pressed the exposure switch for a time supposed to be enough in a normal case, but due to a lack of "Ready" from the detector, the exposure had not been started yet.

This may happen if the operator takes some distance from the generator and does not verify visually or by the buzzer that the exposure has been completed.

Solution 2 Troubleshoot the causes of the lack of "Ready":

Identify the problem, e.g. in the hardware of the panel interconnections and troubleshoot respectively. Check XIF box.

Cause 3 Low battery in the wireless exposure switch.

Solution 3 Exchange the battery.

Cause 4 The exposure switch fails due to bad contact on the ATP controller.

Solution 4 Check the contacts at HT controller and ATP board: ATP: P3 pin 1 and HT: P1 pin 6 for proper connection.

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7.1.3.3 Gray image and permanent Error 97

Symptoms E97 occurs every time an exposure is performed.

Cause Different causes possible.

Solution Keep the exposure switch pressed (approx. 20 seconds) until an error appears e.g. E24.

Troubleshoot according to the Error number. Refer to the system-specific Service Manuals in the Agfa Medimg Library.

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7.2 Troubleshooting tool: DR Installation Checker

- Purpose** The DRInstallationChecker tool is a tool used to detect DR installation problems in NX systems. The tool also makes some minor adjustments (correcting file permissions, ini file adjustments, and so on).
 The tool can be used for all DR solutions as well on Windows XP as on Windows 7.
 The DR Installation Checker (part of CR/DR Service Toolbox 3.3) only performs checks for Varex detectors.
- (1) Install the DR Service Toolbox.
 - (2) Select **START > Agfa > Service > DRInstallationChecker**.
 - (3) Check the displayed results. See also NOTE below.

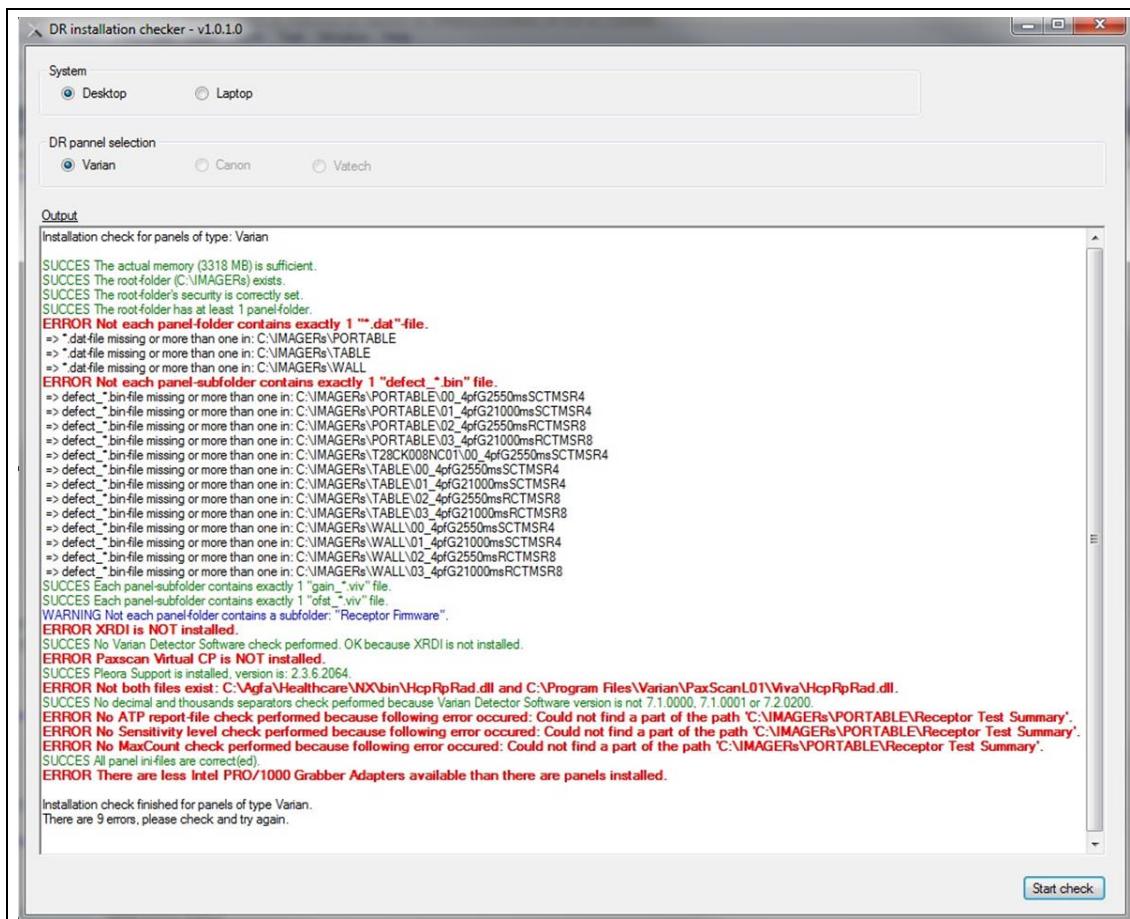


Figure 57: Example result

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**NOTE:**

Enclosed, as an example, a list of tests and adjustments that are available in DRInstallationChecker version 1.2. The tests and adjustments are extended or changed with each version of the DRInstallationChecker.

Tests:

Error in case of:

- A root folder: C:\imagers exists.
- At least one subfolder exists under the root folder (e.g. "T28CK008NC01").
- Varian L0# software is installed in case XRD1 version is higher than 10.
- Paxscan Virtual CP L0# is installed only one. Unless Varian version is higher than 6. Because in that case there is no Paxscan Virtual PC installed (at least not in the registry).
- PaxsanPeoraSupport is installed with version v2.3.6.2064.
- The same version of HcpRpRad.dll is installed in as well C:\agfa\healthcare\nx\bin folder as in :\program files\varian\paxscanL0#\viva folder.
Only when Varian version is 6 or smaller. Otherwise the assembly is only available in the first location.
- Paxscan Virtual CP L0# version is 6 or later when Operating System = Windows 7.
- If for each detector an “Intel Pro/1000 grabber adapter” is available in case of a desktop PC when using Intel© PRO/1000 GT or Intel® Gigabit CT network card in combination with VRN 7.5.
Otherwise the “Ethernet Bus driver” is installed in case of a laptop PC.
- If in the C:\imagers\<detector>\00_*\ folder and C:\imagers\<detector>\01_*\ folder, the following files exist:
 - exactly one with the pattern: defect*.bin
 - exactly one with the pattern: gain*.viv
 - exactly one with the pattern: ofst*.viv
- If exactly one file with the pattern “*.xml” (= ATP report) exists in the: C:\imagers\<detector>\Receptor Test Summary\ folder. And the Sensitivity Gain value lies between the Min and Max value. And the Sensitivity MaxCount value is larger than 9000.

Warning in case of:

- Each subfolder of the C:\imagers\ folder contains a “Receptor Firmware” folder (for example C:\imagers\T28CK008NC01\Receptor Firmware).
- The region settings for user NXWorkStationUser have a dot (".") as decimal or as thousands separator.

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Corrections:

- Set the correct permissions on "C:\imagers\" and all files and folders below.
- Adjust the ini file.
- Set each HcpConfig.ini file read-only when:
 - Varian version = 7 or larger.
 - Else if XRDI version smaller than 11 and Varian version larger than 5.
 - Or XRDI version = 11 or larger and PaxScan version larger than 5.

7.3 Troubleshooting Tool: Agfa Defect Pixel Tool

The Agfa Defect Pixel Tool is part of the CR/DR Service Toolbox.

It is used during the Acceptance Test or during troubleshooting.

Prerequisite for usage of the tool: A successful gain calibration has been performed previously.

- (1) Install the CR/DR Service toolbox.
- (2) Select **START > Agfa > Service > Agfa DR Dead Pixel Count Tool (ADPT)**.
- (3) Select **Varian** as Panel supplier and the Panel ID.
- (4) Click **Analyze**: Check the result (PASS or FAIL). Note that a good result (PASS) does not necessarily mean that there are no defective pixels.
- (5) Compare the single results of each mode with the limits specified in the table below.
- (6) If one parameter is outside the acceptance level, escalate as described in section 8.

 **NOTE:**

The listed acceptance levels below may be subject of change. For up-to-date values refer to the *Service Quality Test Tool*, Document ID [55022710](#).

Type of Defect	Acceptance Level
Separation between defective Columns or between Rows	≥ 8
Defective Columns + Rows	≤ 16
Number of Class 4 defects	≤ 115
Number of Class 5 defects	≤ 100
Number of Class 6 defects	< 100
Number of Class 7 defects	< 100
Number of Class 8 defects	< 100

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Type of Defect	Acceptance Level
Minimum line separation between Class 7 pixel clusters	≥ 16
Minimum line separation between Class 8 pixel clusters	≥ 32
Total number of individual point defects	$\leq 11\,000$

7.4 Troubleshooting: BIOS error after plugging in multiple Intel® I210-T1 network cards

- BIOS issue* When plugging multiple Intel® I210-T1 network cards in a HP 5810, the following BIOS message appears.

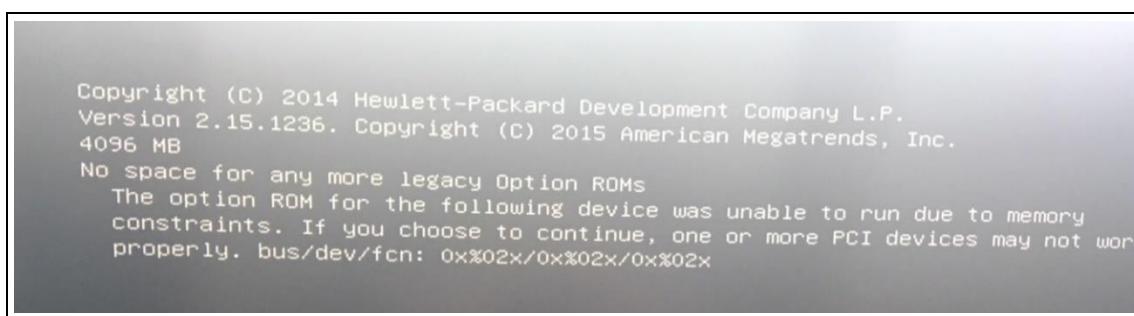


Figure 58

- Solution*
- (1) Press **F10** during boot to enter setup (Hewlett Packard Setup Utility appears).
 - (2) Set OPTION ROM LAUNCH POLICY as shown in the screenshot below.
 - (3) Press **F10** to accept.
 - (4) **Save** the BIOS settings.

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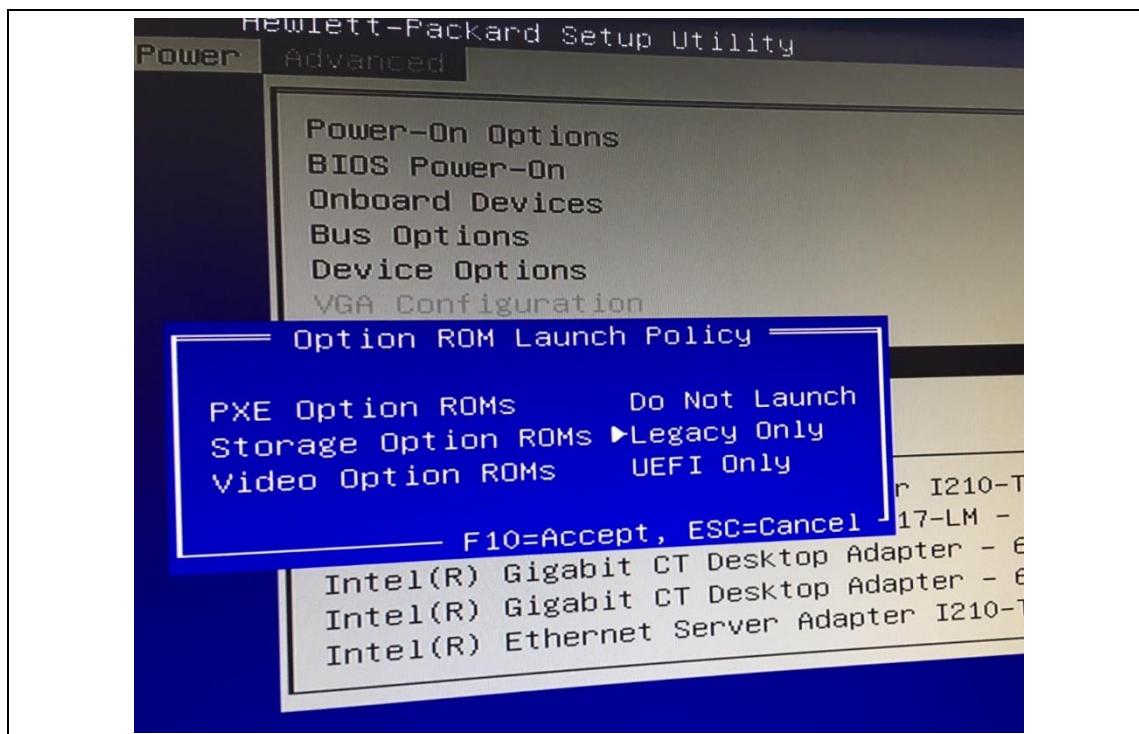


Figure 59

7.5 List of Varian error codes

The following table lists the error codes for the Varian software with the associated error message. These errors may be shown in NX dialogs in case something goes wrong.

Error Code	Error Message
0	No Error
1	Communication Error
2	State Error
3	Initialization error OR Device not open
4	Data Error
5	Not Implemented Error
6	Other Error
7	!! Unknown Error
8	No Data Error

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Error Code	Error Message
9	Bad Ini File
10	Bad Gain Ratio
11	Bad Threshold Values
12	Bad File Path
13	File Open Error
14	File Read Error
15	File Write Error
16	No Server Error
17	Number of Calibration Frames exceeds Allocated Buffers
18	Memory Allocation Error
19	Video Not Initialized
20	Acquisition State: Not Ready
21	Directory Not Found
22	Error Initializing IMAGERs Directory
23	Error Selecting Mode
24	Function Address not found in Library
25	Sequence Not Saved
26	Error Initializing Video
27	Logic Error
28	Timeout in Data Thread - Possible Memory Leak
29	Bad Pointer
30	Timed out
31	!!Unknown Error
32	Setup Error
33	Drive Not Found
34	Function Address not found in Library
35	Abort Operation no message should be displayed
36	Bad Drive Letter
37	Error Opening Device
38	Not Enough Space on Device
39	Error Writing to Device

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Error Code	Error Message
40	Media Size Not Supported
41	Header not found on flash card
42	Error Reading from Device
43	File read/write error
44	Logic Error
45	Too few Images for Calibration
46	Multiple headers found on Flash - Not Usable
47	Offset correction not accepted
48	Gain correction not accepted
49	Defect correction not accepted
50	Header Verification Problem. This could result from changing the memory card while the link is open. Select Reset Link from the Acquisition menu.
51	Error due to probable read-only ini file
52	Image dimensions do not match with ini file
53	Bad CB state selected
54	Unhandled exception in dll
55	Timed out waiting for Ready for Pulse
56	Operation Cancelled
57	Not enough modes allocated
58	Iteration limit reached, or convergence not achievable
59	Diagnostic data not recognized
60	Receptor frame number out of sequence
61	Receptor frame unexpected state
62	!!Unknown Error
63	!!Unknown Error
64	No Calibration Error
65	No Offset Calibration
66	No Gain Calibration Error
67	Command Processor is not Correction Capable
68	Device ambiguity - Multiple devices found, and unable to resolve which is required. Possibly because MAC address not set in ini file.

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Error Code	Error Message
69	Unable to find the device with the specified MAC address. There may be the need to select another or create a new receptor directory for the device in use (e.g. ViVA – Acquisition > Receptor Select > New).
70	Multiple link open failed. Receptors must be supported by the same RP & FG dlls - the latter of "FgEx" type.
71	Open link failed AND unable to reselect the prior receptor --\r\n. ALL RECEPTOR LINKS HAVE BEEN CLOSED.
72	The selected device is already open. Check MAC address or other identifier in HcpConfig.ini.
73	Calibration Error
74	!!Unknown Error
75	!!Unknown Error
76	!!Unknown Error
77	!!Unknown Error
78	Captured image has unexpected size.
79	The number of frames specified in the call has been accepted. But errors could result with rad panels. This code is returned when the number of acquisition frames exceeds 1 or the number of calibration frames exceeds 4 if a fixed frame rate panel is detected.
80	Function Not Exported
81	Sub-Module Not Found
82	No Mode Selected
83	Pleora Error
84	Frame Grabber Initialization Error
85	Frame Grabber Error
86	Error Starting Grabber
87	Error Stopping Grabber
88	Error Starting Record Sequence
89	Error Stopping Record Sequence
90	Error Communicating With Frame Grabber
91	Data Transmission Error
92	No Event For Index
93	Error Occurred During Grab

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Error Code	Error Message
94	Not Grabbing Error
95	Bad Parameter
96	Zero frames specified
97	Resource allocation problem
98	Bad Image Dimension
99	Frame Rate is Overridden
100	Receptor Not Supported
101	Problem with receptor config file
102	Inadequate buffer supplied
103	Resource already allocated
104	Unable to handle request
105	Receptor Not Ready
106	Pleora Connect Error \r\n For driver info, search for: \r\n 'iPORT Driver Manual.pdf'. A suggested IP address for your ethernet adapter is:192.168.2.11
107	Internal Logic Error
108	Serial transmission error - Please try again
109	Storage device is not formatted correctly
110	Driver Version Error
111	Problem with structure or StrucSize member
112	Dll Version Error
113	Fixed Frame Rate Receptor
114	Receptor temperature over threshold
115	Link speed error
116	HCP_DREAD_ERR
117	HCP_ACE_ERR
118	HCP_WTR_MRK_ERR
119	!!Unknown Error
120	!!Unknown Error
121	!!Unknown Error
122	!!Unknown Error
123	!!Unknown Error

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Error Code	Error Message
124	!!Unknown Error
125	!!Unknown Error
126	!!Unknown Error
127	!!Unknown Error
128	No Image
129	HCP_WIFI_IOBOX_ERR
130	HCP_WIFI_NO_ASSOCIATION
131	HCP_WIFI_NO_WAKEUP
132	HCP_WIFI_RECECTOR_ERR
133	HCP_WIFI_BATTERY_LOW
134	HCP_WIFI_LINK_QUALITY_LOW

7.6 X-ray generator configuration error (MESS372, xMESS55) after VRN upgrade

Symptom A model file related error will be displayed in the NX Configuration Tool (...please upgrade models ...) and NX (xMESS55) after software update.

Cause This is due to an updated model file for the Detectors.

Solution

- (1) Start the NX configuration tool.
- (2) Select **Load active configuration**.
- (3) Select **File > Save as...**, define a file name and save the configuration.
- (4) Select **File > Load from File** to re-load the same configuration again.
- (5) Activate the configuration.

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8 Repair

8.1 DR Detector Repair Process

In case of a detector problem, which cannot be solved by the Field Service Engineer (FSE) on site, it is mandatory to follow a dedicated DR detector repair process. This ensures an efficient detector repair.

Refer to the *DR Detector repair process*, Document ID [56762931](#).

8.2 Replacing a DX-D 10/20/Fixed detector

When replacing a DX-D 10/20/Fixed detector, follow the instructions in section 4.

The overview table in section 4.1.1 lists the steps in case of a DR detector replacement.

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9 Maintenance

Preventive maintenance tasks by service are not required.

Preventive maintenance tasks by the user:

The DR Detector requires regular calibration (once per 3 months). Calibration instructions are described in the *DX-D DR Detector Calibration Key User Manual*.

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10 Release information

10.1 Software release Varian L05 Release 3

Release Date	2010
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	Initial version
Reference	See system-specific Service Bulletin on the Agfa Medimg Library.

10.2 Software release Varian L05 Release 5

Release Date	2011
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	Bug fixing
Reference	See system-specific Service Bulletin on the Agfa Medimg Library.

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10.3 Software release Varian Detector Software 5.0

Release Date	2011
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	Own installer for NX (VarianDetectorSoftware 5.0.0051.exe) <ul style="list-style-type: none"> • Installer installs some of the Varian dlls from version Paxscan L05 release 5 • DMat tool is now installed by this installer instead of XRDI
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

10.4 Software release Varian L06 release 3

Release Date	01-2012
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	<ul style="list-style-type: none"> • Support for Windows7 and XP • Hot swappable detector
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

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10.5 Software release Varian Detector Software 6.0

Release Date	01-2012
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	Own installer for NX (VarianDetectorSoftware 6.0.3040.exe) <ul style="list-style-type: none"> • Integrated Varian VCP-L06-Rel. 304
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

10.6 Software release Varian Detector Software 7.0

Release Date	10-2012
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	First complete installer for NX (VarianDetectorSoftware 7.0.1001.exe): <ul style="list-style-type: none"> • Installs Pleora drivers • Installs ViVA tool • Installs DRInstallationChecker • Installs Varian L06
Reference	See system-specific Service Bulletin on Agfa Medimg Library

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10.7 Software release Varian Detector Software 7.1

Release Date	11-2012
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	Bug fixing (via VarianDetectorSoftware 7.0.1001.exe)
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

10.8 Software release Varian Detector Software 7.2

Release Date	03-2013
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	Bug fixing (via VarianDetectorSoftware 7.2.0200.exe)
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

10.9 Software release Varian Detector Software 7.3

Release Date	01-2014
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	Bug fixing (via VarianDetectorSoftware 7.3.0000.exe)
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

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10.10 Software release Varian Detector Software 7.4

Release Date	03-2017
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	Bug fixing (via VarianDetectorSoftware 7.4.0100.exe)
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

10.11 Software release Varian Detector Software 7.5

Release Date	05-2018
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	New Network Interface Card supported (Intel® I210-T1)
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

10.12 Software release Varian Detector Software 8.0

Release Date	05-2018
Availability	Agfa Medimg Library (references to AgfaBox)
Prerequisites	Refer to the CR/DR Interoperability Matrix, Document ID 31333326
New Features	<ul style="list-style-type: none"> • Support of Windows 10* • Solves detector communication issue after NX Hotfix 7.0.091
Reference	See system-specific Service Bulletin on the Agfa Medimg Library

* It is compatible to Windows 7 and Windows 10, but observe the compatibility with network cards:

- For Win 7: VRN 8.0 is released in combination with Intel® PRO/1000 and with Intel® I210-T1 network card (I210-T1 is recommended).
- For Win 10: VRN 8.0 is released only in combination with Intel® I210-T1 network card.

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11 Upgrade procedure



IMPORTANT:

This section describes the upgrade procedure to higher firmware versions.

Depending on the firmware version of the delivered detector and the released firmware versions by Agfa, it might also be possible that a downgrade is required.

This procedure can be used to perform a firmware upgrade or downgrade.

Upgrading the detector driver software on NX (e.g. VRN or XRDI software) is described in the corresponding system manual.

11.1 Checking the DR detector firmware

- (1) Stop the NX Workstation: **Start > Agfa > NX > Service > Stop NX.**
- (2) Open the ViVA tool: **Start > Agfa > Service > Varian > Viva.**
- (3) Click **Acquisition > Receptor Setup.**
- (4) Select the specific receptor from the Receptor Serial # drop down.



NOTE:

Close an already opened link before selecting the specific selector.

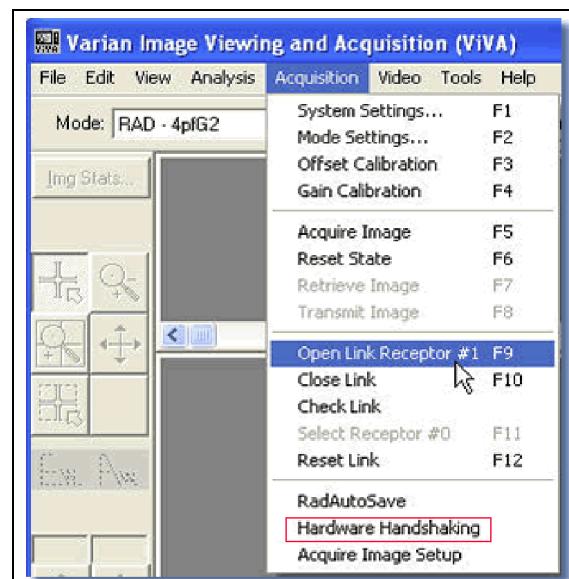


Figure 60

- (5) Click **Acquisition > Open Link.**
Be sure that Hardware Handshaking is deactivated.
- (6) Select: **Acquisition > Acquire Image.** This acquires the current latent image.

- (7) Right-click on the image and select **Image Information**.
- (8) Select the tab **Receptor** and check the firmware.
- (9) Compare it with the released firmware version in the *CR / DR Interoperability Matrix*, Document ID [31333326](#).
Status 08/2013 the latest released firmware is:
 - For DX-D 10/20 (model 4336R): Build 39
 - For DX-D Fixed (model 4343R): Build 17

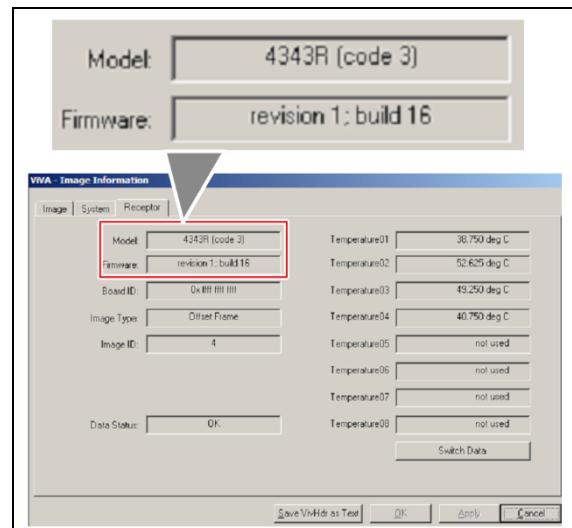


Figure 61

11.2 Upgrading or downgrading the DR detector firmware



IMPORTANT:

Only one DR detector can be up- or downgraded at a time.
Power down the other DR detectors.

- (1) Download the compatible latest firmware file from the Agfa Medimg Library.
- (2) Select in the ViVA tool **Tools > Receptor > Transmit Files**.
- (3) Select **Receptor Firmware File**.
- (4) Browse to the firmware file (for example 101266_4336R_rev1_Build39.xsvf). If the file is not listed adjust the extensions to “All Files” (*.*).
- (5) Select **Transmit**.
- (6) Wait until the transmission is finished.
- (7) Close the ViVA tool.
- (8) Power off and on the DR detector.

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11.3 Upgrading VRN Detector software

11.3.1 Upgrading to VRN 7.5

For some reasons it might still be required to use VRN 7.5, but usually all systems should be upgraded to VRN 8.0.

See also for example *DR 600 - SB 70 - DX-D 10/20/Fixed detector software VRN 7.5 and Intel I210-T1 network card introduced*, Document ID [60936957](#) and the system-specific VRN 8.0 release Bulletins.

11.3.1.1 Upgrading to VRN 7.5 in combination with Intel® PRO/1000 or Intel® Gigabit CT network cards

Your system is equipped with one or more Intel® PRO/1000 GT or Intel® Gigabit CT network cards for connection to Varex detectors.

If a previous version of VRN Detector software is installed, it will be upgraded by the VRN 7.5 installer.

- (1) Download the software from the Agfa Medimg Library or use the ELMS collection tool.
 - (2) Start the VRN 7.5 installer. Be sure the proper licenses are installed.
 - (3) On the **Choose Network card** page, select the network used in the system.
Intel (R) PRO/1000 for Intel® PRO/1000 GT or Intel® Gigabit CT network cards.

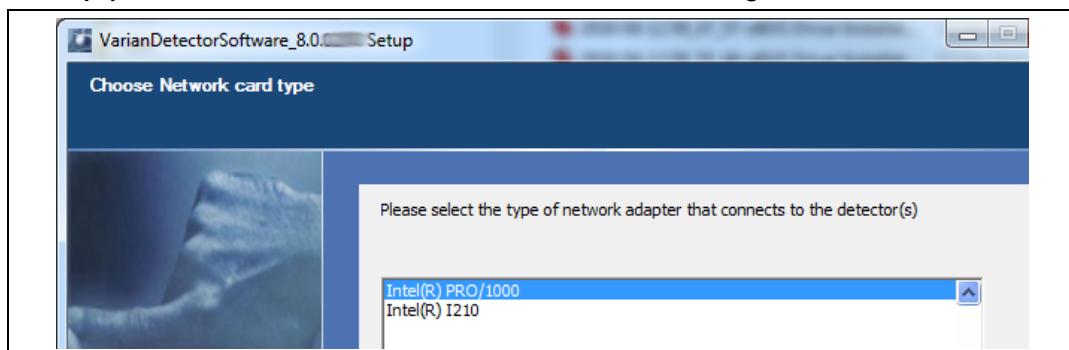


Figure 62

- (4) Click **Install**.
During installation, the eBus Driver InstallationTool will pop up.
 - (5) The current driver for Intel® PRO/1000 GT or Intel® Gigabit CT network cards has to be the “**Install High-Performance IP Device Driver**”.
If this is the case, select **Do Nothing** as action and click **Close**.

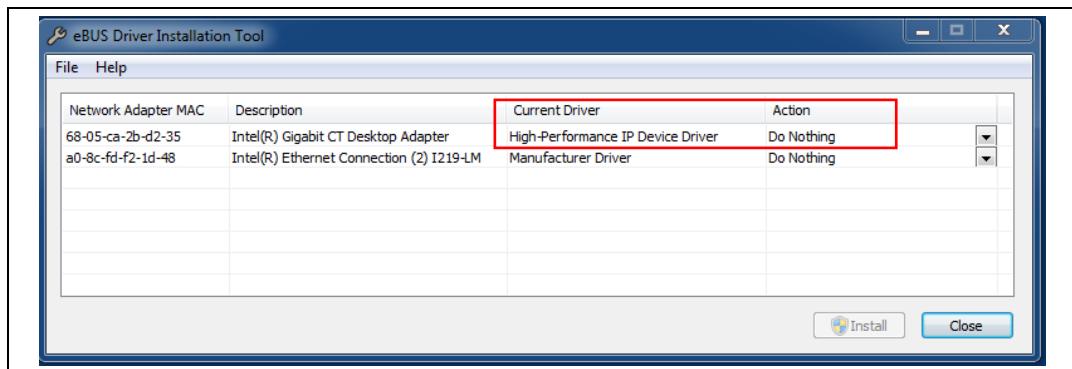


Figure 63

- (6) If another driver (e.g. Manufacturer Driver) is installed as the current driver for one or more of the network cards:
Select **Install High-Performance IP Device Driver** as action for these cards.
(7) Click **Install** (available after selection).

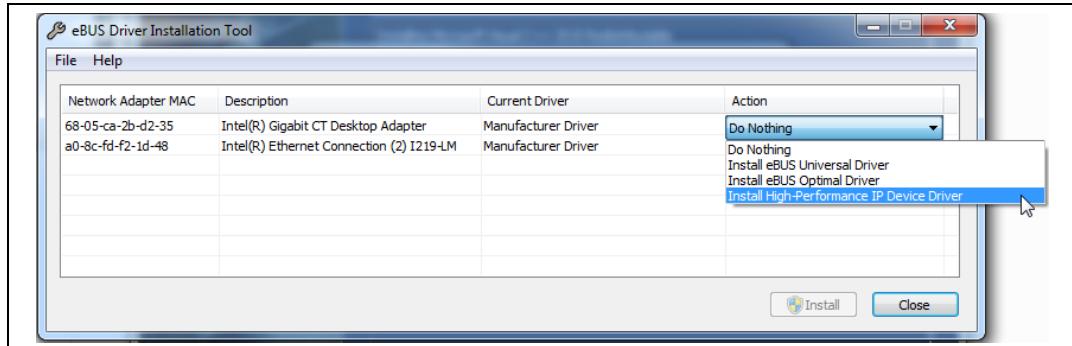


Figure 64: Example only

- (8) Configure the network card(s) (refer to section 4.5.3).

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11.3.1.2 Upgrading to VRN 7.5 in combination with Intel® I210-T1 network card

Your system is equipped with one or more Intel® I210-T1 network cards for connection to Varex detectors.

If a previous version of VRN Detector software is installed, it will be upgraded by the VRN 7.5 installer.

- (1) Download the software from the Agfa Medimg Library or use the ELMS collection tool.
- (2) Start the VRN 7.5 installer. Be sure the proper licenses are installed.
- (3) On the **Choose Network card type** page, select the **Intel(R) I210** card.

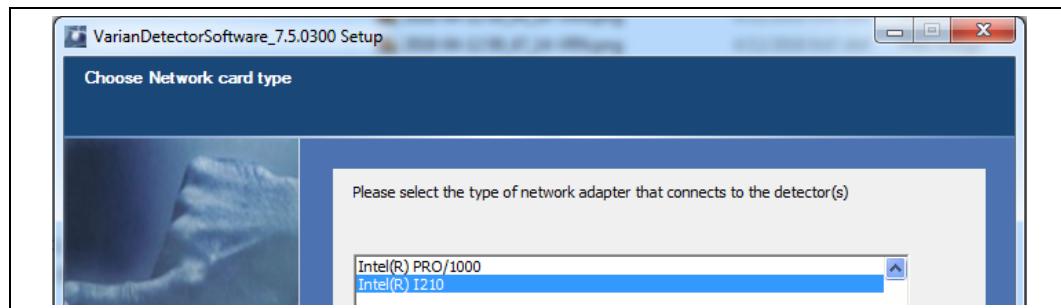


Figure 65

- (4) Click **Install**.
- (5) During installation the new Intel® Network driver version will be installed.
- (6) Configure the network card(s) (refer to section 4.5.3).

11.3.2 Card selection during installation the offline configuration tool - as from VRN 7.5



NOTE:

During installation of the offline config tool the selection of the network adaptor to which the detector is connected is requested.

This is **not** relevant as this is a service / administrative PC. It does not matter which card is selected.

- (1) Select one of the cards and click **Install**.

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11.3.3 Upgrading to VRN 8.0

Your system is equipped with one or more Intel® PRO/1000 GT or Intel® Gigabit CT or Intel® I210-T1 network cards for connection to Varex detectors.

If a previous version of VRN Detector software is installed, it will be upgraded by the VRN 8.0 installer.

- (1) Download the software from the Agfa Medimg Library or use the ELMS collection tool.
- (2) Start the VRN 8.0 installer. Be sure the proper licenses are installed.
- (3) On the **Choose Network card** page, select the network used in the system:
 - **Intel (R) PRO/1000** for Intel® PRO/1000 GT and Intel® Gigabit CT network cards
 - **Intel (R) I210** for Intel® I210-T1 network cards

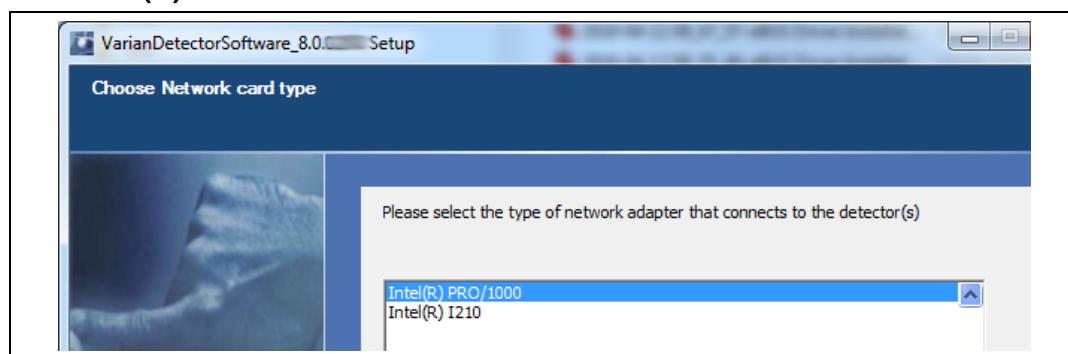


Figure 66

- (4) Click **Install**.
During installation, the eBus Driver Installation Tool will pop up.
- (5) The current driver for all network cards has to be the “**Manufacturer Driver**”. If this is the case, select **Do Nothing** as action and click **Close**.

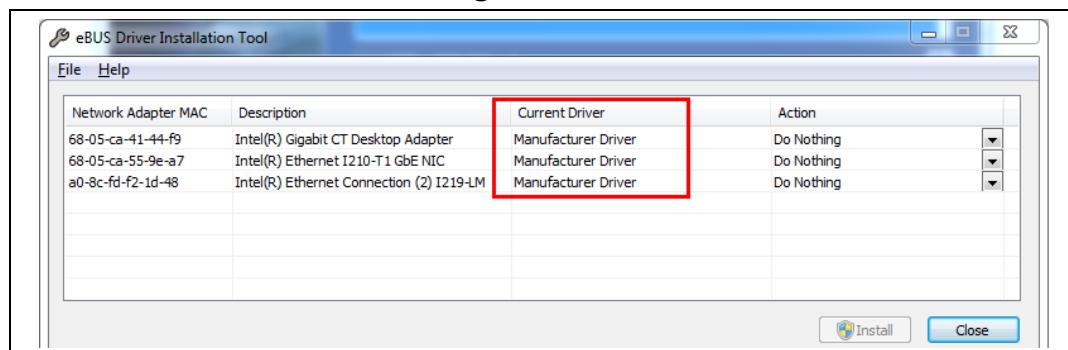


Figure 67: Only example for different network cards. (The card combination is not possible.)

- (6) If another driver (e.g. High-Performance IP device driver) is installed as the current driver for one or more of the network cards:
Select **Install the Manufacturer Driver** as action for these cards.
- (7) Click **Install** (available after selection).

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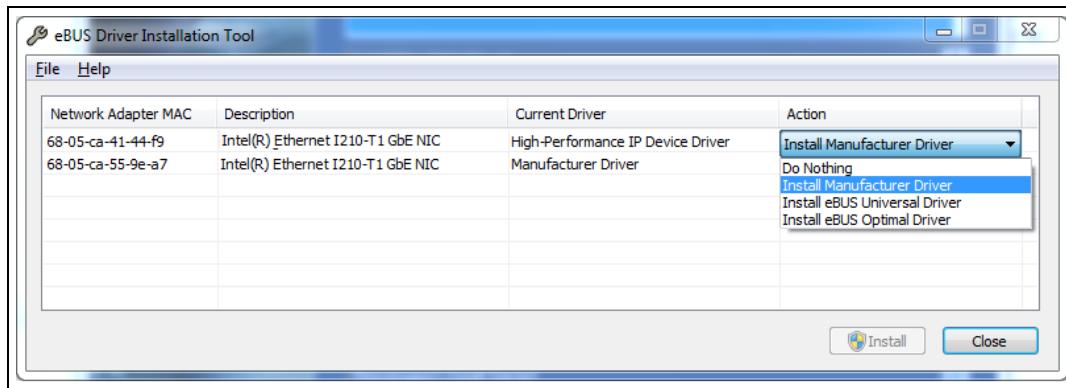


Figure 68: Example only

- (8) Configure the network card(s) (refer to section 4.5.3).

11.4 Replacing Network Interface Card

In case of connection problems between the NX and the detector, the Intel® PRO/1000 GT or Intel® Gigabit CT has to be replaced by the Intel® I210-T1 Network Interface Card.

Additionally, the Varian Detector Software has to be updated: VRN 8.0 (or later) is strongly recommended instead of VRN 7.5.

For more details refer to e.g. *DR 600 - SB 70 - DX-D 10/20/Fixed detector software VRN 7.5 and Intel I210-T1 network card introduced*, Document ID [60936957](#).

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12 Spare parts

The Spare Parts List is not integrated in this service manual.

Refer to the following documents:

#	Document	Reference
1	DX-D Fixed Detector - Spare Parts List	Document ID 27857353
2	DX-D 10 / DX-D 20 - Spare Parts List	Document ID 31372837

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13 Wiring diagram

13.1 Wiring diagram example

The wiring scheme of the detector in the system (connection to NX / Generator / Retrofit Box/DR Generator Sync Box) depends on the system. Refer to the respective system service manual for more wiring diagrams.

Enclosed a typical example for a retrofit system:

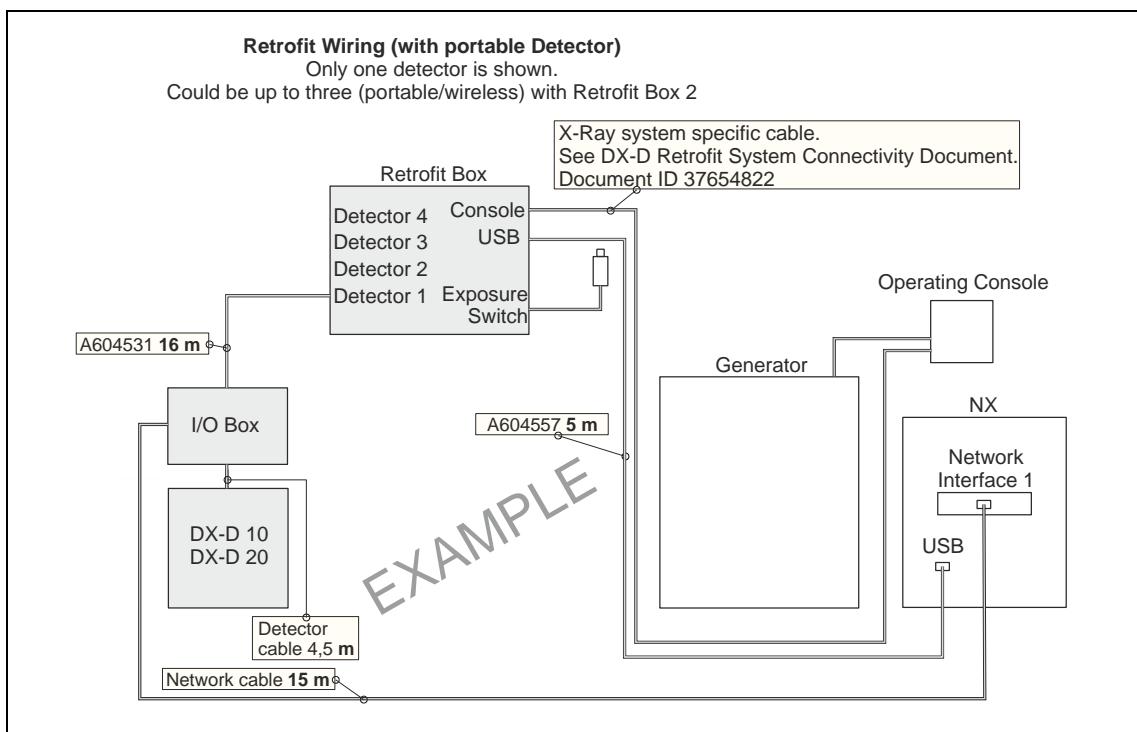


Figure 69: Example

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