



LabVIEW RT PROFINET VISA Driver

Getting Started

V1.5/27.11.2017

Revision History

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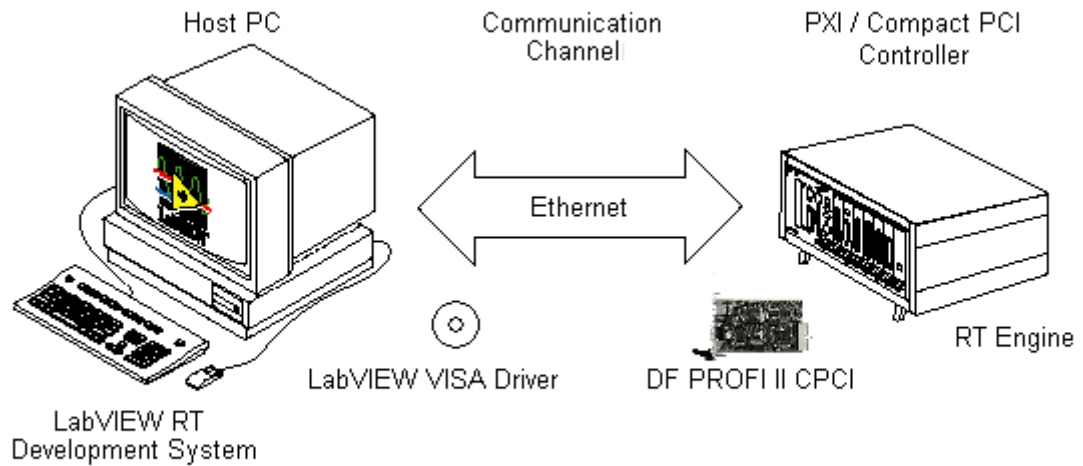
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1 Introduction

This document describes the set into operation procedure of the DF PROFINET IO interface card as a PROFINET IO Controller.

1.1 Prerequisites:

- A KUNBUS DF PROFINET IO CPCI (Compact PCI) and KUNBUS LabVIEW PROFINET VISA driver Setup.
- National Instruments PXI-System with RT.
- The National Instruments LabVIEW Real-Time Development System installed on a Windows PC.
- Installed NI-VISA standard driver on the PXI- and Windows-System.



2 Installation

- Install the DF PROFINET IO CPCI interface card in the PXI-System.

Please note, that the DF PROFINET IO CPCI interface card does not support Hot Plugging. If installing/uninstalling the interface card, the PXI system must be switched off and the power supply must be turned down.

- Switch on the PXI-System.
- Start the Setup from the KUNBUS CD delivered with the package.
- To install the LabVIEW PROFINET VISA driver on the PXI system, start the NI MAX (Measurement & Automation explorer) and open the software installation wizard by right clicking the Software item of your PXI system:

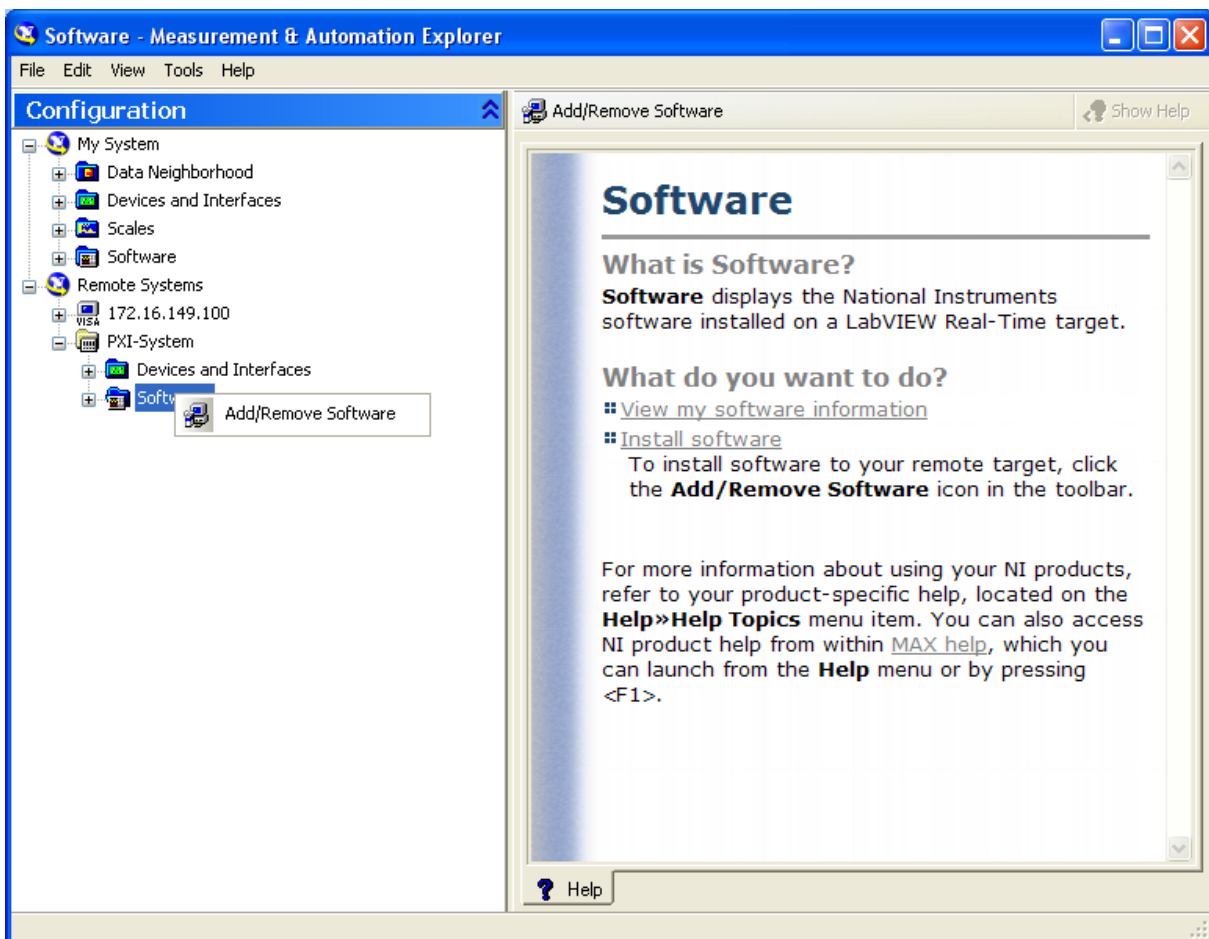


Figure 1: PXI driver installation step 1

- Right click the *KUNBUS DF PROFINET IO – RT Installation 1.xx* component to install it on the PXI system

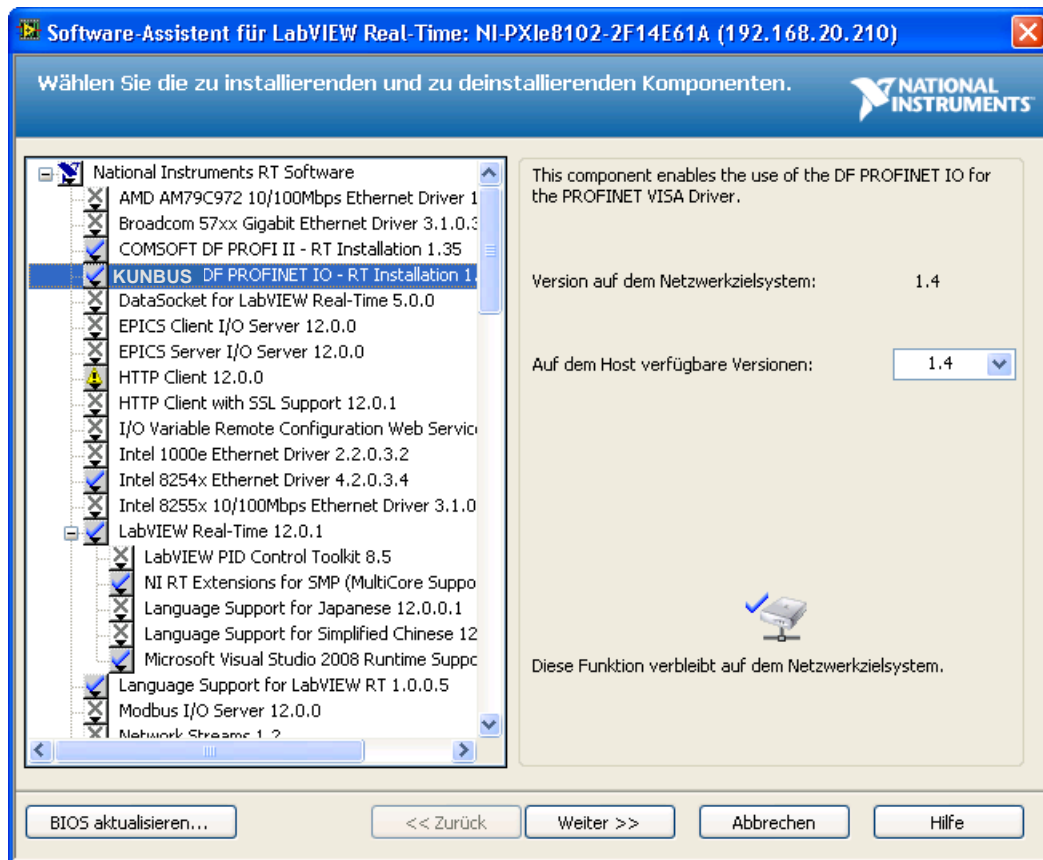


Figure 2: PXI driver installation step 2

All files are copied to the PXI system.

Note: After installation the PXI-System will restart automatically.

- Check by the NI MAX (Measurement & Automation explorer) the proper installation of the DF PROFINET IO interface card:

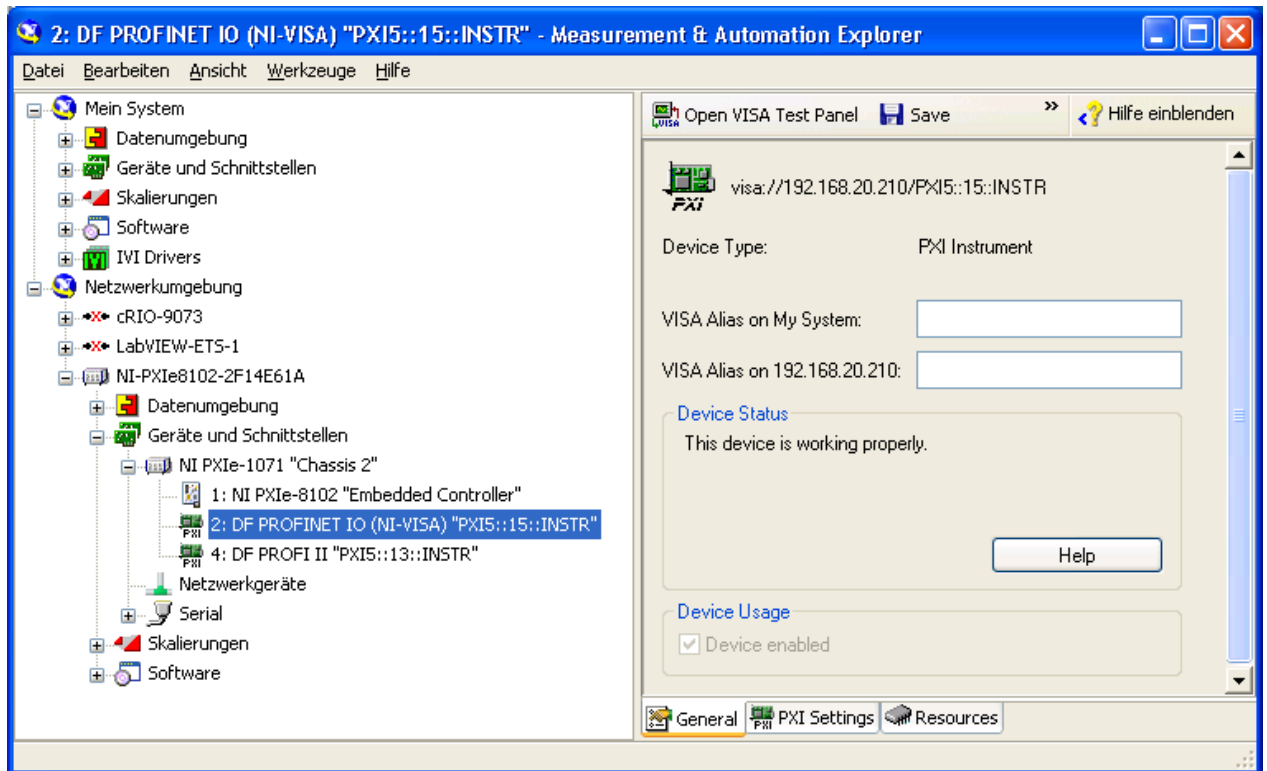


Figure 3: Measurement and Automation Explorer

- To allow the access to each PXI-System with an installed DF PROFINET IO interface card, check the VISA Server permissions. Create a new server permission as described in the picture below (follow step 1 – step 4). Refer to the MAX help menu for more information.

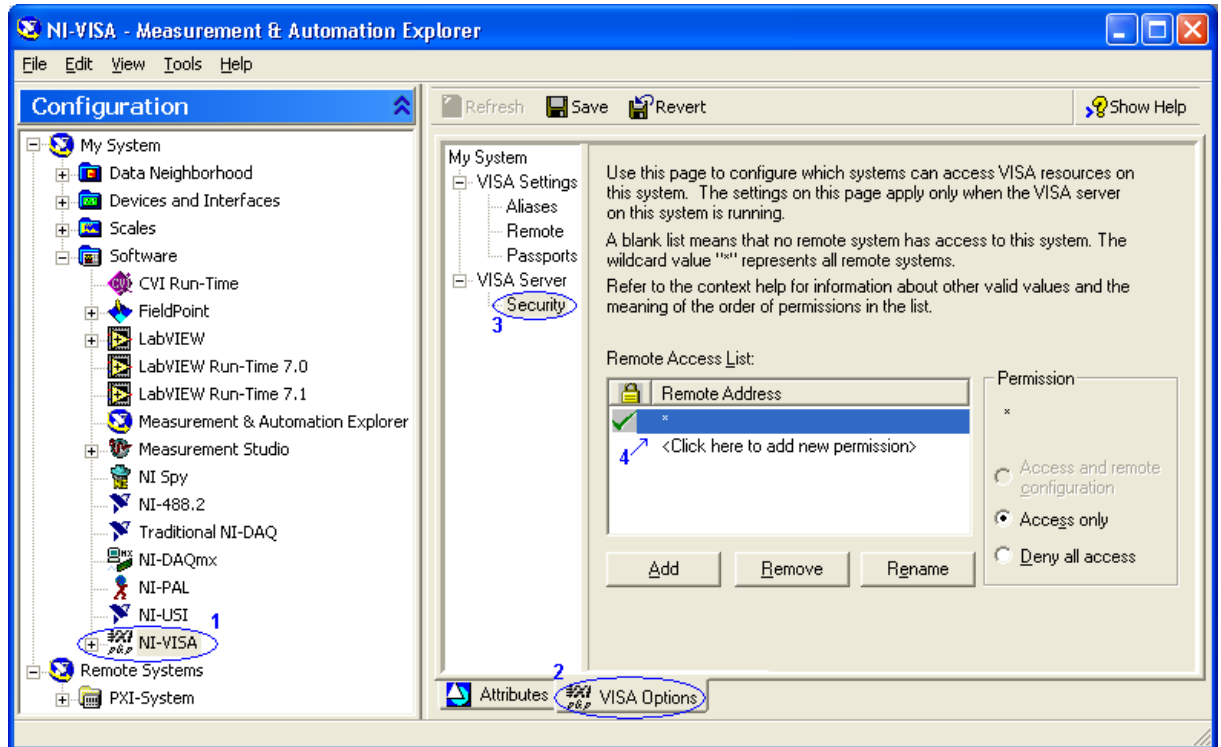


Figure 4: NI-VISA Server Security

- To find DF PROFINET IO interface cards in PXI-Systems, enable the corresponding remote address (follow step 1 – step 4). Refer to the MAX help menu for more information.

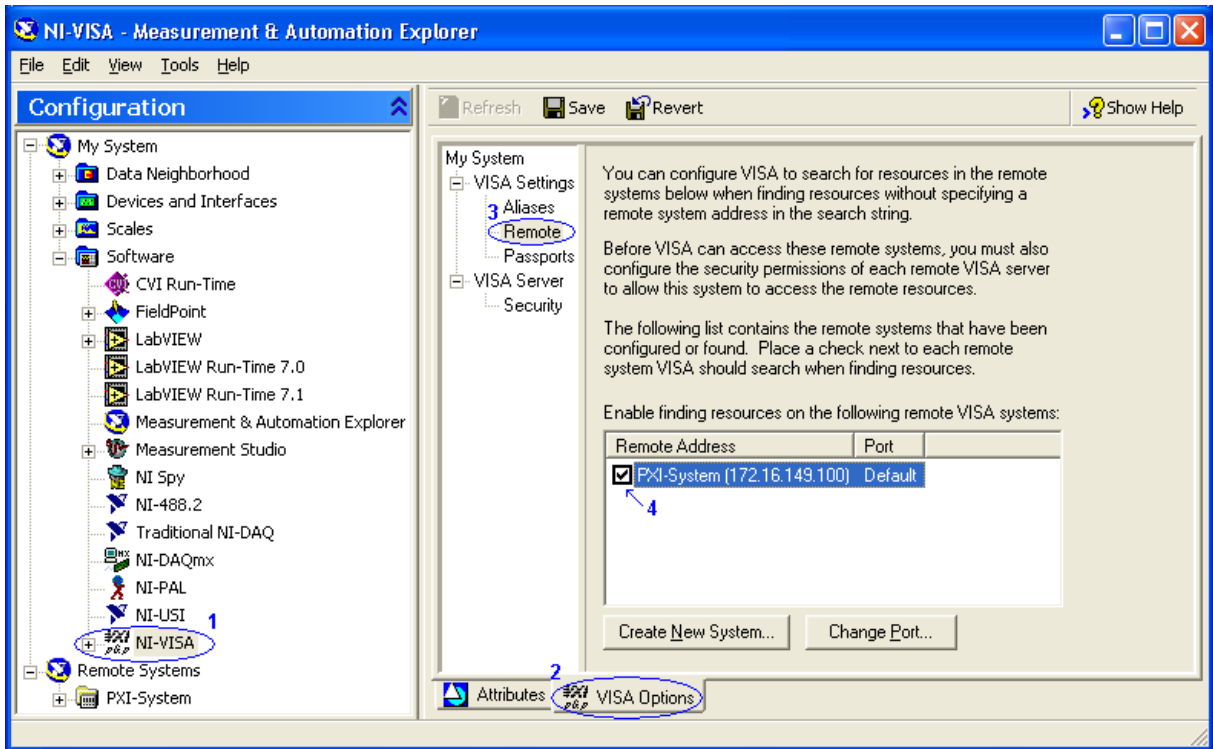


Figure 5: NI-VISA Remote Settings

Note: If the remote address is not listed, use the Create New System-button to create it manually.

3 PROFINET Configuration

The DF PROFINET IO interface card supports the operation mode as PROFINET Controller (Master) and as PROFINET Device (Slave). Both operation modes can be used simultaneously.

3.1 PROFINET Controller (Master) configuration

The PROFINET Controller configuration is carried out by the KUNBUS configuration tool Configurator III.

- Start Configurator III from the KUNBUS GmbH / KUNBUS Configurator menu. Configurator III allows to create the complete PROFINET IO configuration based on Device GSDML-Files. Refer to the online help menu for all details.
- Create and save the configuration.

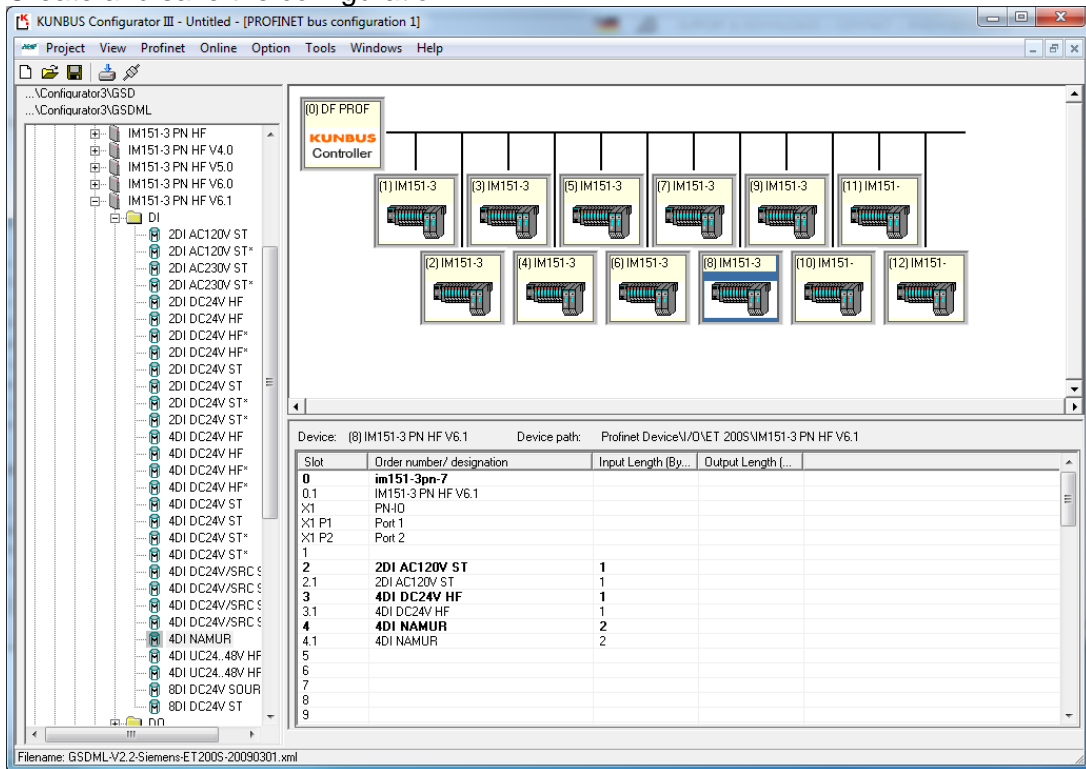


Figure 6: KUNBUS Configurator III

3.1.1 Configuration download

The configuration has to be downloaded and stored in the memory of the DF PROFINET IO interface card.

Proceed the following steps:

- **Select from the menu “Online” the function “Driver selection”** and the Hardware Selection Dialog opens. Depending on the selected KUNBUS PROFINET IO Controller in the bus configuration the Hardware Selection Dialog will be slightly different.
If a fitting KUNBUS PROFINET IO Controller is found, it will be shown in the dialog.

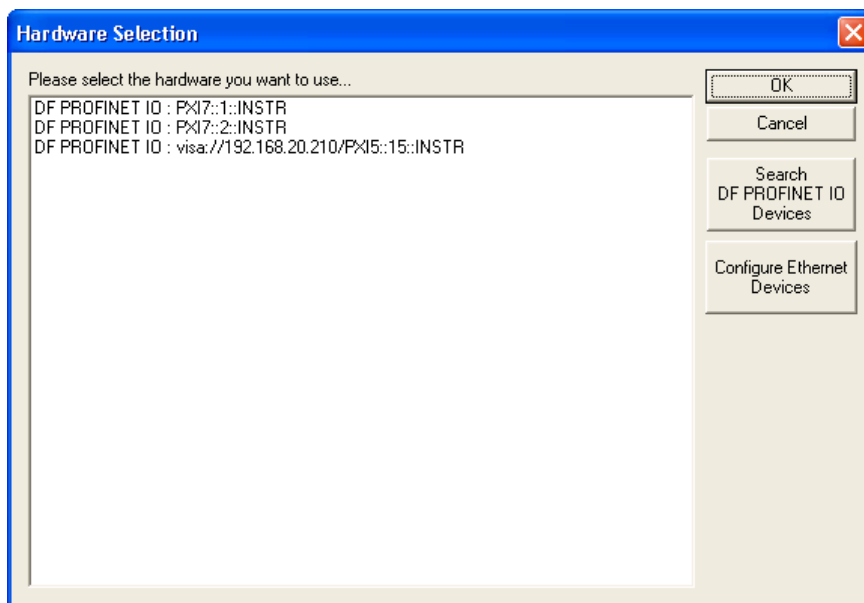


Figure 7: KUNBUS Configurator III Hardware Selection

LabVIEW-based KUNBUS PROFINET IO Controller has to be searched with the Button "Search xxx Devices", if the KUNBUS PROFINET IO Controller is not shown in the dialog!

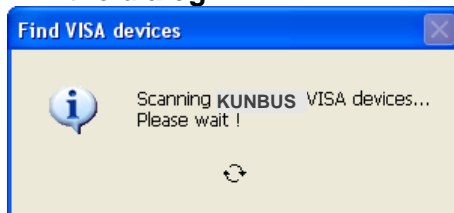


Figure 8: KUNBUS Configurator III Find VISA devices dialog

CONFIGURATOR III scans for available LabVIEW based KUNBUS PROFINET IO Controllers and displays all found devices.

Refer to the online help system of Configurator III for details of the driver selection.

- **Download the PROFINET IO configuration**

Click the Download Symbol in the tool bar of Configurator III :

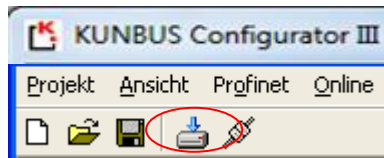


Figure 9: KUNBUS Configurator III Download button

The PROFINET IO configuration will be downloaded to the DF PROFINET IO interface card:

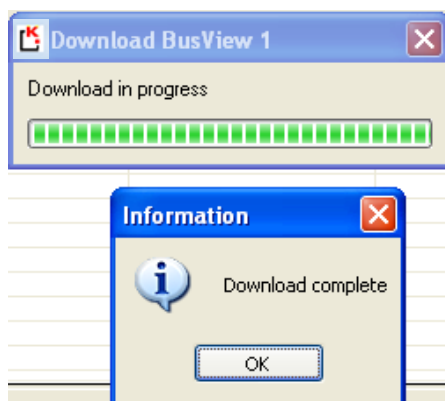


Figure 10: KUNBUS Configurator III Download complete

3.1.2 Monitor/Modify mode

With the Monitor/Modify mode of the Configurator III the flashed PROFINET IO configuration can be tested immediately. Please note that the configured PROFINET IO devices must be connected to the DF PROFINET IO interface card.

Click the Monitor/Modify symbol of the Toolbar of Configurator III:

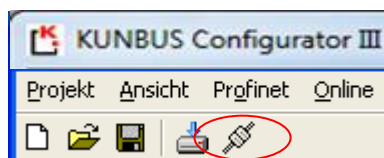


Figure 11: KUNBUS Configurator III Monitor/Modify

Configurator III displays the PROFINET-Network in Online mode:

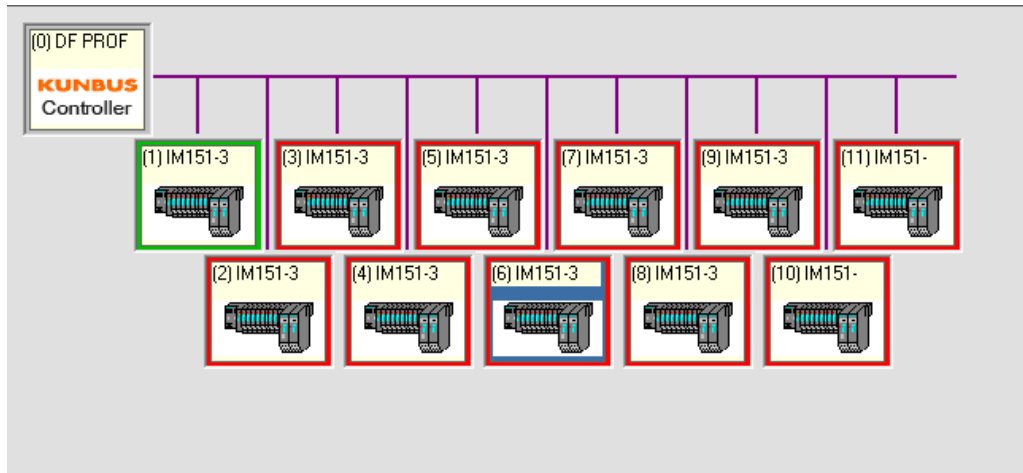


Figure 12: KUNBUS Configurator III Online mode

Configurator III displays the status of every PROFINET IO device (coloured frame) and allows to monitor and modify the I/O data by clicking the PROFINET IO devices. For further details please refer to the online help system of Configurator III.

3.2 PROFINET Device (Slave) configuration

The DF PROFINET IO interface card comes with a typical PN IO Device description file (GSDML-file), which is located in the folder `\users\public\documents\KUNBUS GmbH\GSDML`

Moreover the GSDML-file and the belonging picture is also included in the Example project.

The GSDML-file is used to configure the DF PROFINET IO Device on the relating PROFINET IO Controller i.e. a PLC. To configure the DF PROFINET IO device, import the GSDML-file into the relating PROFINET IO Controller configuration tool.

The GSDML-file offers several modules with different data sizes for input- output- and combined inputs/outputs, which can be used to configure the slot based DF PROFINET IO device.

The DF PROFINET IO device supports shared Device operation mode, what means that multiple PROFINET IO controllers can access different slots of DF PROFINET IO device simultaneously. For the proper configuration of shared devices, refer to the relating user manual of the PROFINET IO controller configuration tool.

4 DF PROFINET IO menu

The delivery package includes VIs to initialize the DF PROFINET IO as Controller and/or as Device and VIs for cyclic data communication and acyclic services for diagnostic and alarm handling. For detailed information about the function of each VI of the palette, refer to the Context Help of LabVIEW.

4.1 PROFINET VISA driver menu

The KUNBUS DF PROFINET IO menu is located under the Industrial Communications menu of the Function palette:

- KUNBUS GmbH menu

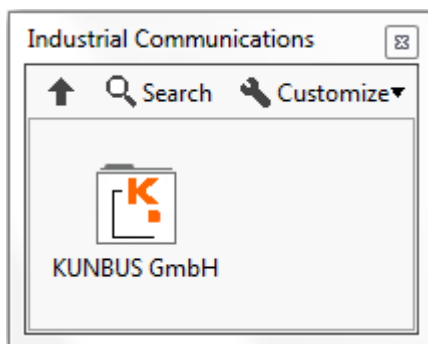


Figure 13: KUNBUS menu

- DF PROFINET IO menu

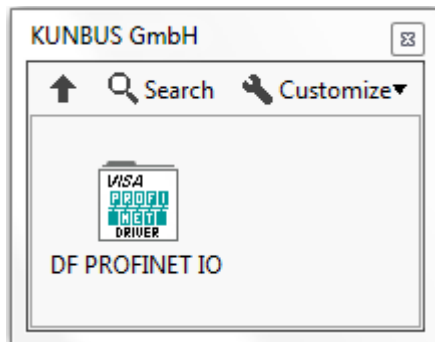


Figure 14: DF PROFINET IO menu

➤ Controller and Device menu

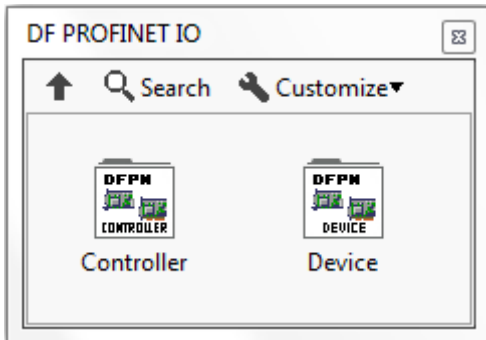


Figure 15: Controller and Device menu

4.1.1 PROFINET IO Controller menu

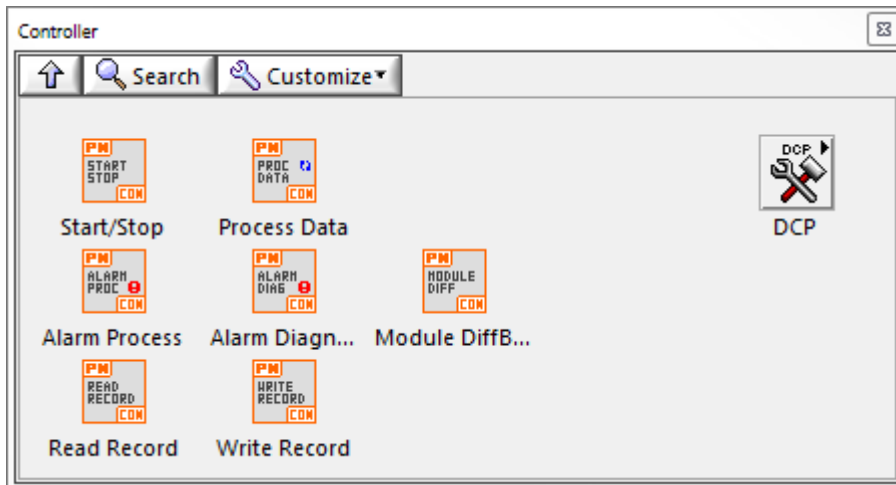


Figure 16: PROFINET IO Controller menu

4.1.1.1 PROFINET IO Controller DCP menu

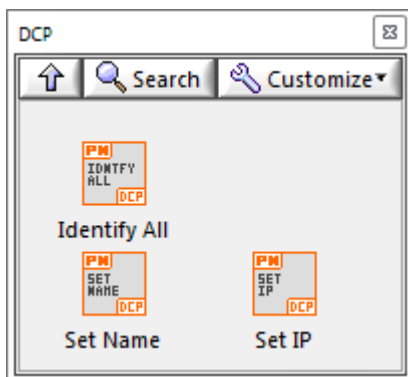


Figure 17: PROFINET IO Controller DCP menu

4.1.2 PROFINET IO Device menu

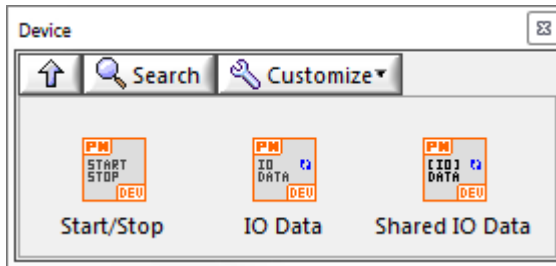


Figure 18: PROFINET IO Device menu

5 PROFINET examples

For a successful communication, find the DF PROFINET IO samples in the NI Example Finder:

LabVIEW → Help → Find Examples

Choose the directory:

Toolkits and Modules → Third-Party Add-Ons → KUNBUS GmbH → PROFINET

Open the LabVIEW project *DF PROFINET IO GettingStarted.lvproj*.

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