PNOZmulti 2 Profinet communication with S7-1500 PLC in TIA Portal V13

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Product
Type: PNOZmulti 2
Name: PNOZ m ES Profinet
Manufacturer: Pilz GmbH & Co. KG, Safe Automation

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Document Revision History

Release	Date	Changes	Chapter
01	2015-11-27	Creation	all

Validity of Application Note

This present Application Note is valid until a new version of the document is published.
This and other Application Notes can be downloaded in the latest version and for free from www.pilz.com.
For a simple search, use our content document (1002400) or the direct search function in the download area.

Exclusion of liability

We have taken great care in compiling our application note. It contains information about our company and our products. All statements are made in accordance with the current status of technology and to the best of our knowledge and belief.
However, we cannot accept liability for the accuracy and entirety of the information provided, except in the case of gross negligence. In particular it should be noted that statements do not have the legal quality of assurances or assured properties.
We are grateful for any feedback on the contents.

November 15

Contents

Abbreviations

GSD	**G**eneral **S**tation **d**escription file
SFB	**S**ystem **f**unction **b**lock
SCL	**S**tructured **c**ontrol **l**anguage

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1. Useful documentation

Reading the documentation listed below is necessary for understanding this application note. The availability of the indicated tools and safe handling are also presupposed with the user.

1.1. Documentation from Pilz GmbH & Co. KG

No.	Description	Item No.
1	Pilz international homepage, download section	www.pilz.com
2	PNOZmulti 2 Communication Interfaces	1002971-EN-XX
3	Operating Manual PNOZ m B0	1002660-EN-XX
4	Operating Manual PNOZ m ES Profinet	1003386-EN-XX

1.2. Documentation from other sources of information

No.	Description	Item No.
1	SIMATIC portal "Automation Systems" (international) Internet-Link to "www.automation-siemens.com"	

2. Configuration

2.1. Used Hardware

No.	Descriptions	Order number	Version	Number
1	Siemens SIMATIC S7-1518F-4 PN/DP	-	1.6	1
2	PNOZ m B0	772100	1.2	1
3	PNOZ m ES Profinet	772138	1.0	1

2.2. Used Software

No.	Descriptions	Order number	Version
1	Siemens TIA Portal	-	13 Update 1
2	PNOZmulti Configurator	-	9.4.0 build 6

2.3. Profinet specific parameters

For a basic communication, the default parameters of the engineering tool are used. Only for the addressing purpose we assign specific Profinet names to each device.

2.4. Device properties

No.	Device	Profinet name	IP-Address	Subnet mask
1	Siemens SIMATIC S7-1518F-4 PN/DP	6es7	169.254.60.151	255.255.0.0
2	PNOZ m ES Profinet	mes-dp-net	169.254.0.1	255.255.0.0

2.5. Topology
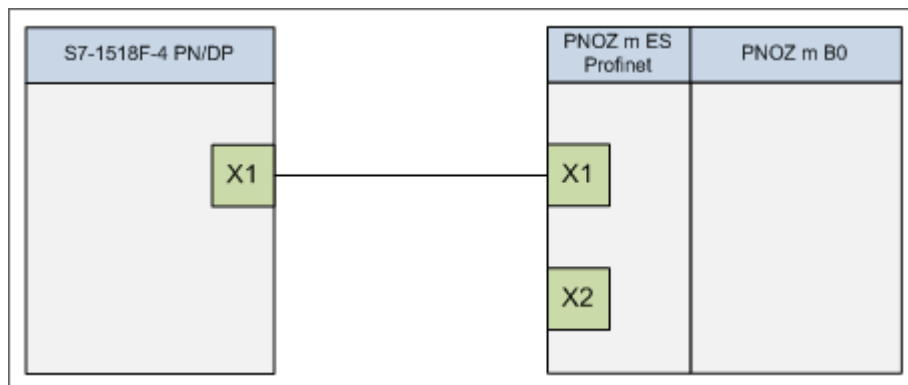
Fig. 1: Topology of Profinet

3. Preface

This document provides a Step by Step example how to communicate between Siemens S7-1500 and PNOZ multi 2 with Profinet connection.

- ▶ Prepare PNOZ m B0 base module for Profinet communication (see Chapter 4.1)
- ▶ Build up a simple Profinet connection in TIA Portal (see Chapter 4.2)

The initial S7-Hardware configuration is not part of this "Application Note".

In order to reproduce this application, the prerequisites must be met as described in Chapter 2

4. Application Task

4.1. Prepare PNOZ m B0 base module for Profinet communication

▶ Start PNOZmulti Configurator and create the hardware configuration
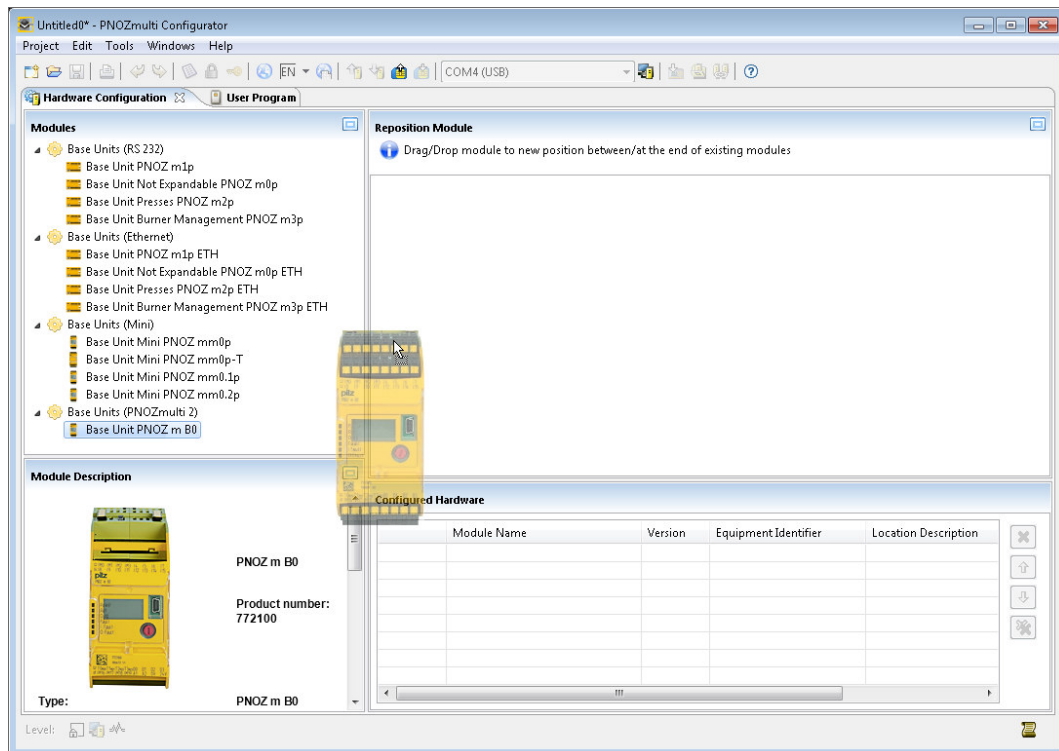
Fig. 2: Drag and drop the "Base Unit PNOZ m B0" to the workspace
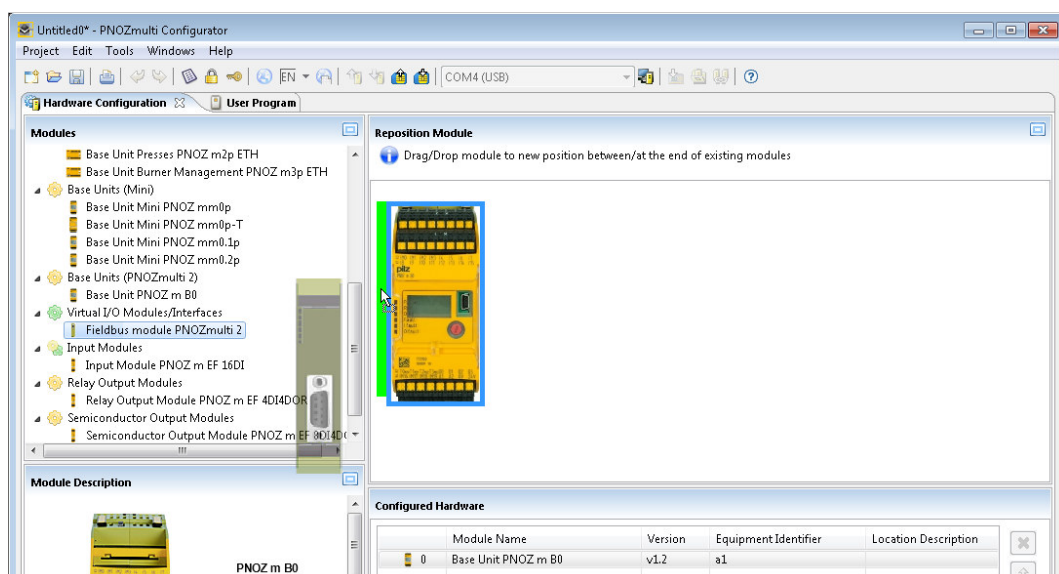
Fig. 3: Drag and drop the "Fieldbus module PNOZmulti 2" left beside the base module

▶ Create a user program for the base module. At least one security function must exist in the user program.
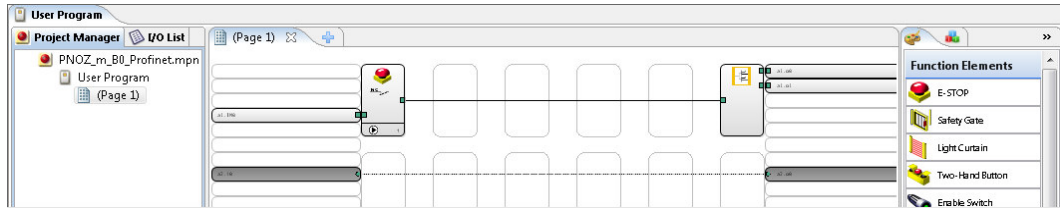
Fig. 4: Example for a user program for the base module

Fig. 5: Save the actual configuration
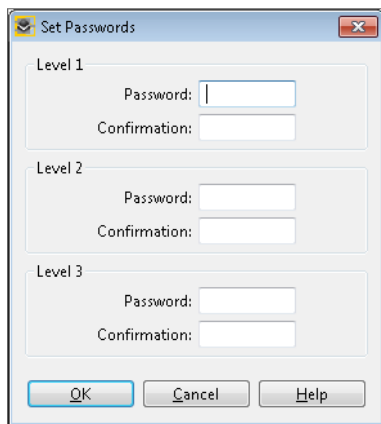
Fig. 6: Define password for each security level
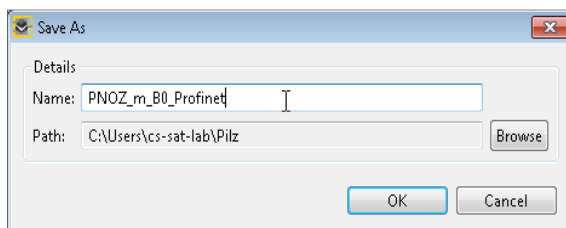
Fig. 7: Define the name of the project to save

▶ Choose the USB connection which applies to the base module and go online.
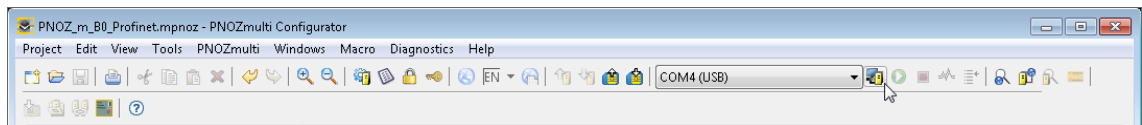
Fig. 8: USB connection with base module

▶ Download hardware configuration and user program to base module
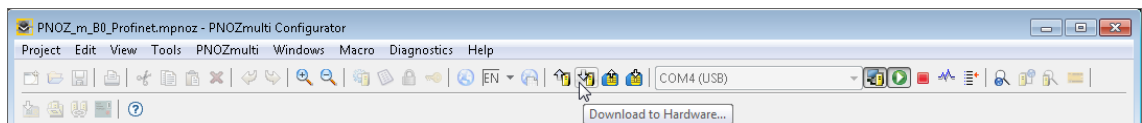
Fig. 9: Download to hardware

4.2. Build up a simple Profinet connection in TIA Portal

▶ Install the GSD-file for the fieldbus module into TIA.
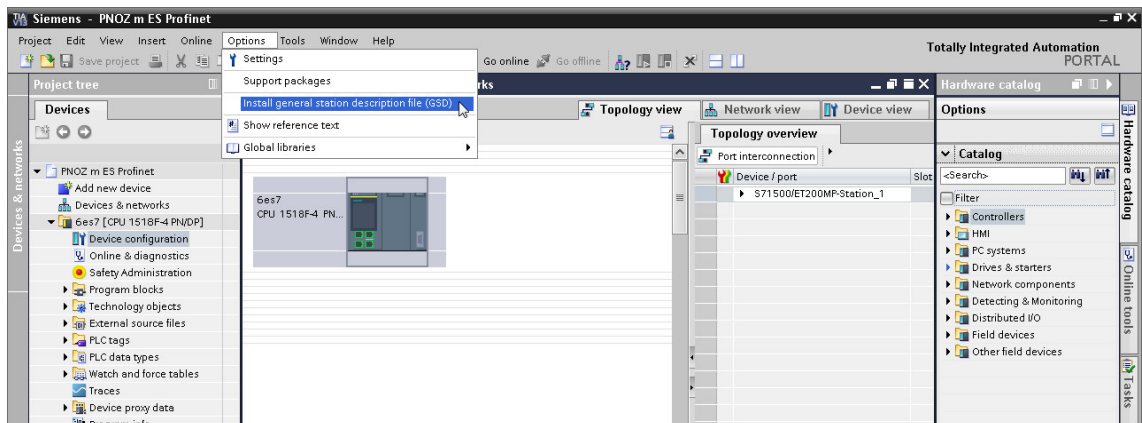
Fig. 10: Start installing GSD-file

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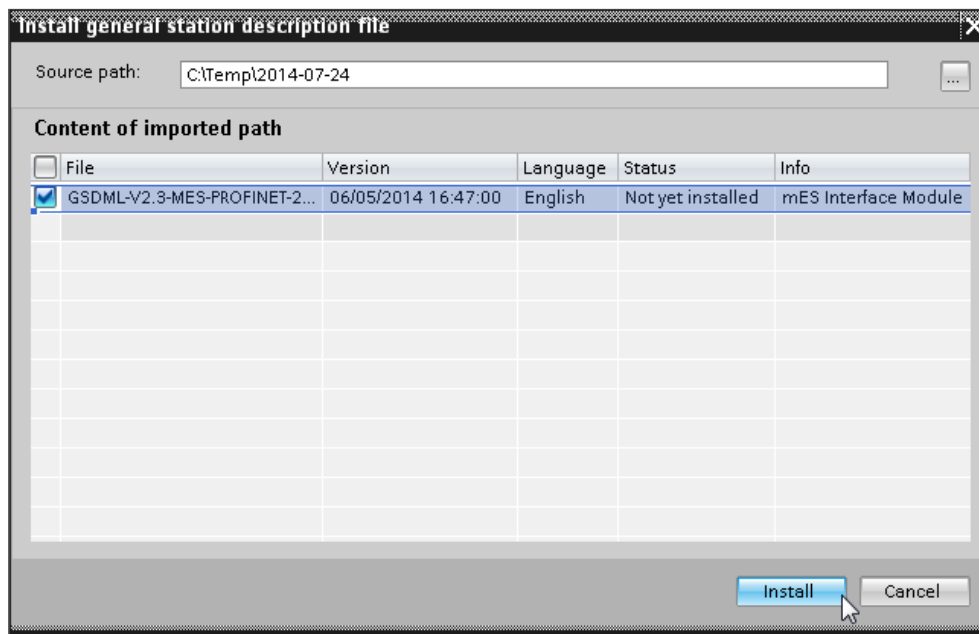
Fig. 11: Navigate to the directory where the GSD-file is stored[1] and start installation

▸ Add the "PNOZ m ES Profinet" device to the project
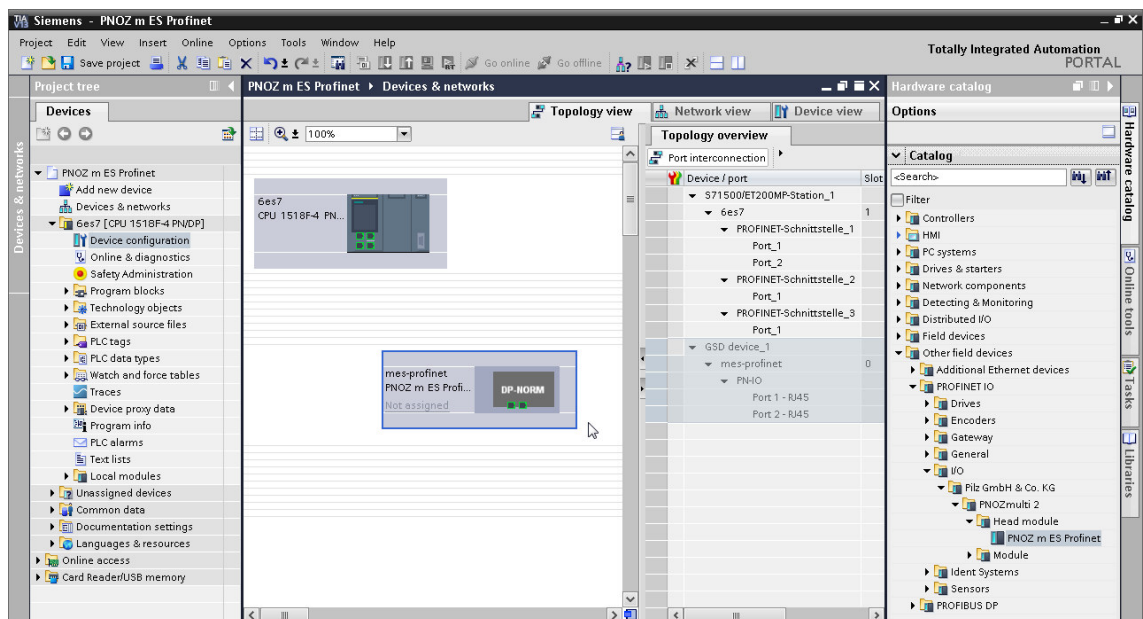
Fig. 12: Adding "PNOZ m ES Profinet" device from the hardware catalogue

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[1] The GSD-file can be downloaded from the Pilz homepage

▶ Add available modules to the "PNOZ m ES Profinet" device
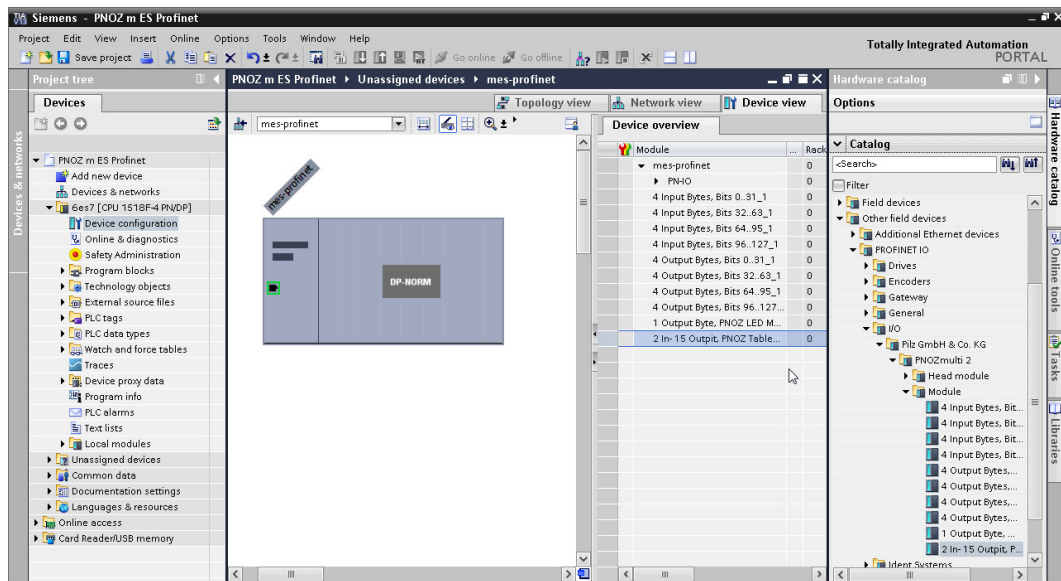
Fig. 13: Adding modules to the "PNOZ m ES Profinet" device

▶ Define PROFINET device name to use for the "PNOZ m ES Profinet" device
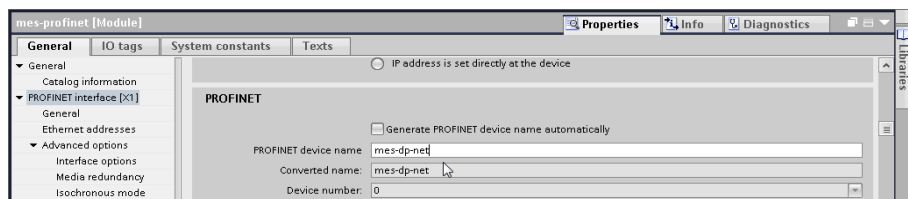
Fig. 14: Define PROFINET device name

▶ Search online for accessible devices and assign name to the PNOZ m ES Profinet device
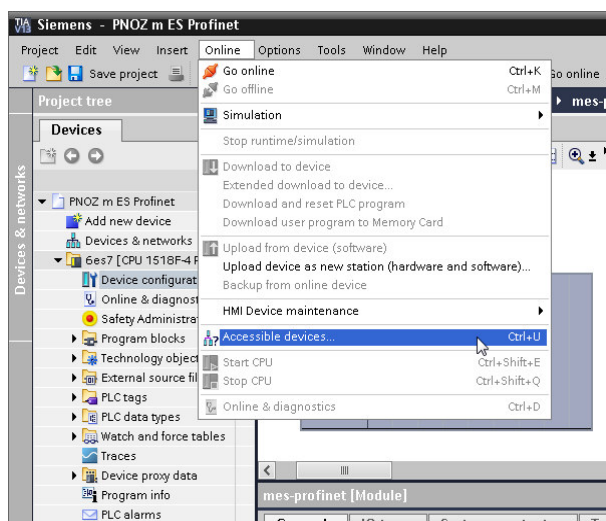
Fig. 15: Start searching for accessible devices
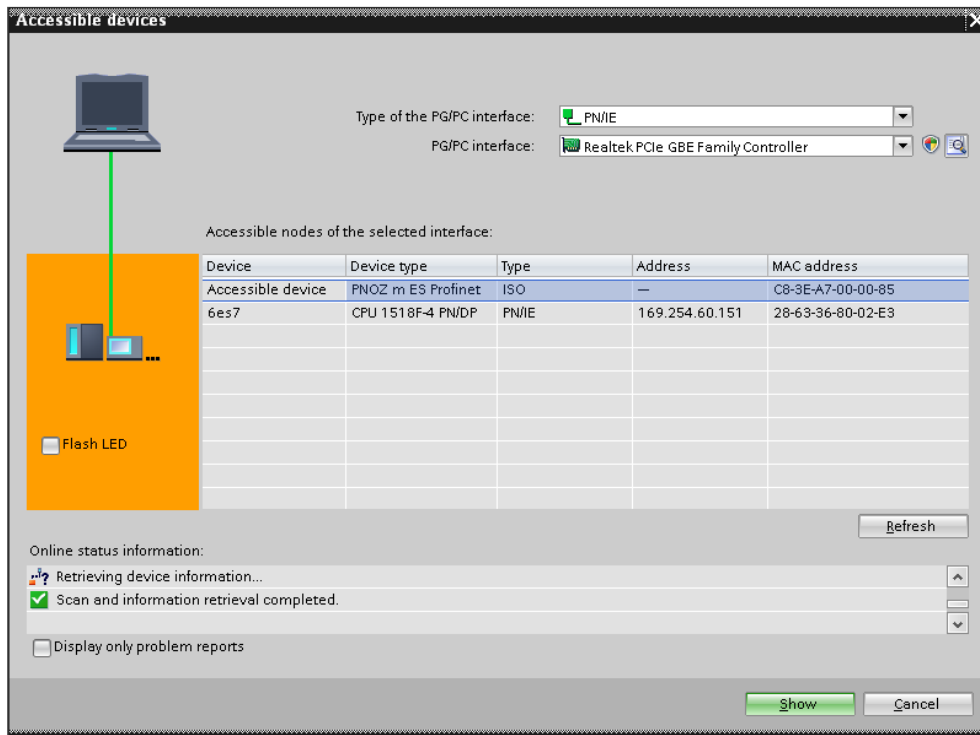
Fig. 16: List of found devices
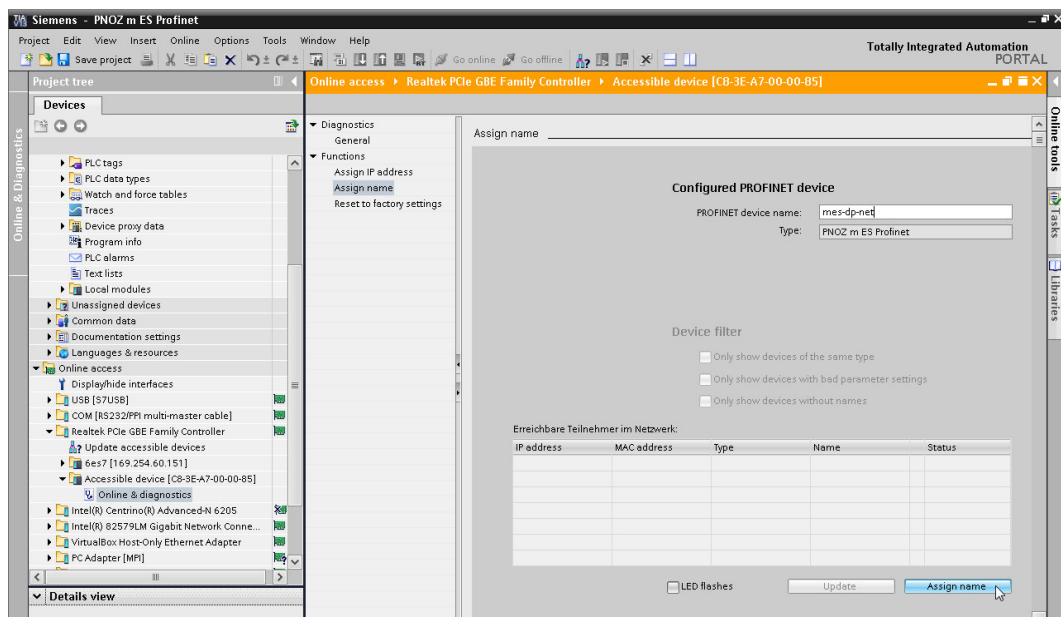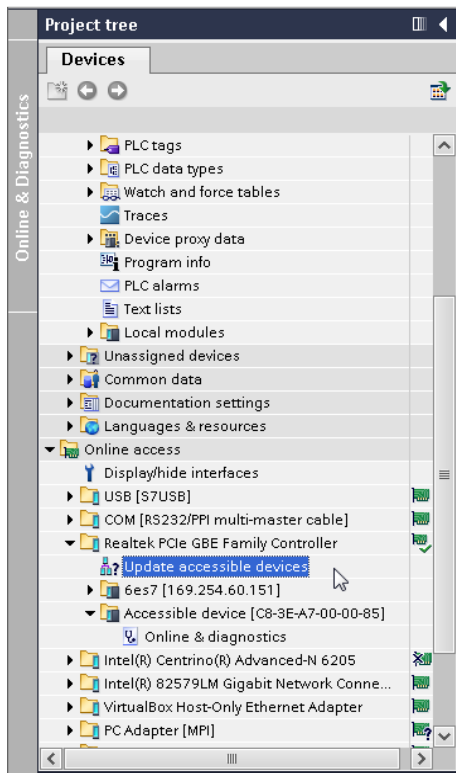

Fig. 17: Assign Profinet device name to accessible PNOZ m ES Profinet device

Fig. 18: Initiate updating list of accessible devices
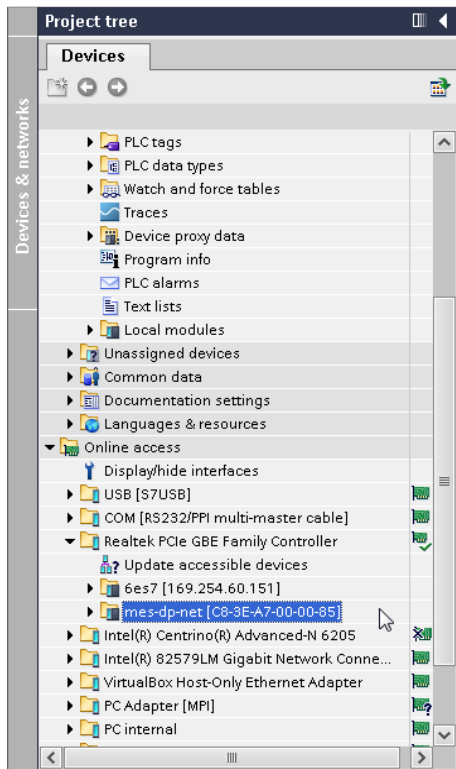
Fig. 19: Updated list of accessible devices

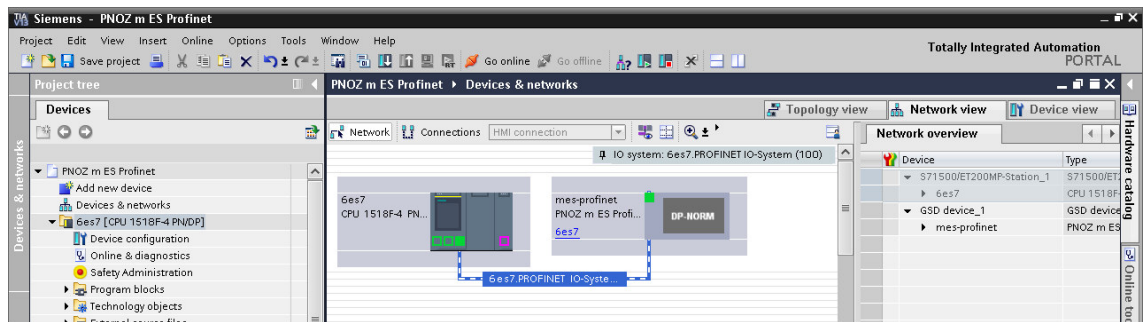▶ Connect controller with the PNOZ m ES Profinet device in the network view
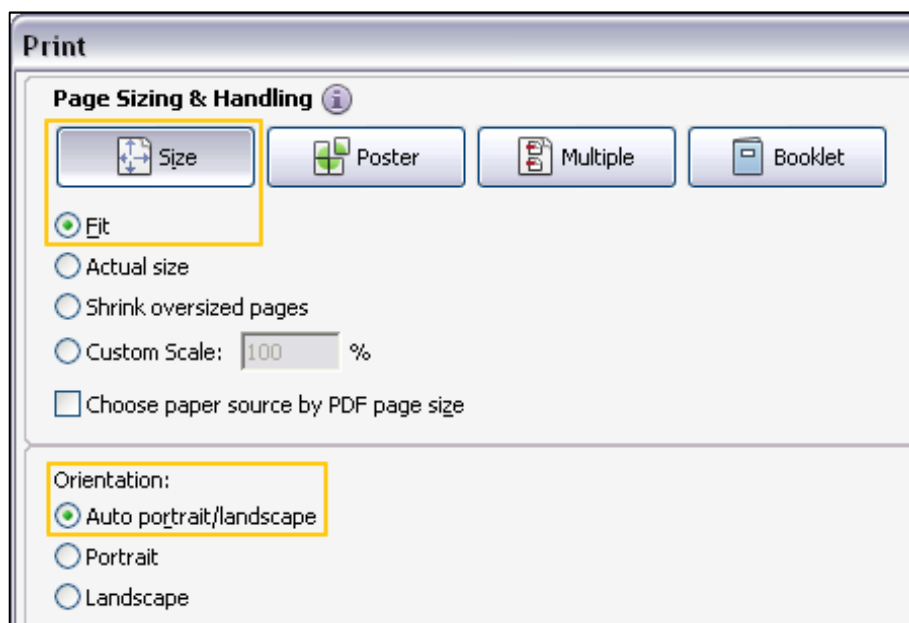

Fig. 20: Controller connected with Profinet device

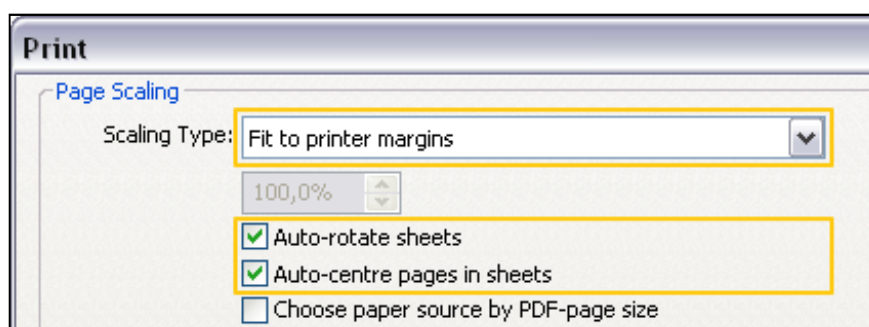▶ Compile configuration and initiate download to the controller

5. Table of figures

Recommended printer settings

Adobe Acrobat Reader (www.adobe.com)

PDF-XChange Viewer (www.tracker-software.com)

▶ Support

Technical support is available from Pilz round the clock.

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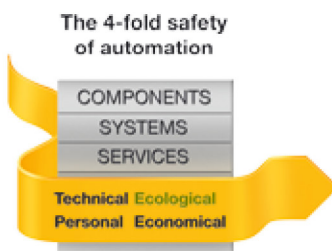
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