How-To-Do

Hardware Configuration SLIO CPU 015
With the SIMATIC Manager from SIEMENS AG

Inhaltsverzeichnis

1 General

1.1 Information

This 'How-To-Do' describes, how you can configure the VIPA SLIO CPU 015-CEFPR00 in the SIMATIC Manager from Siemens. This includes the configuration of a PROFINET system, of a PROFIBUS-Master / slave system as well as the enabling of PROFIBUS extensions and memory extension via VSC (VIPA Set Card).

You can find a detailed description of the SLIO CPU 015-CEFPR00 in the manual under the link:

SLIO CPU 015-CEFPR00

http://www.vipa.com/de/service-support/manuals/io-systems/slio/

1.2 Reference

In this 'How-To-Do' principal procedures are described by means of examples. You can download the required GSDML file from the website http://www.vipa.com/de/service-support/downloads/.

Liability for material defects and defects of this documentation, especially for the correctness, accuracy, freedom and protection or third party rights, completeness and / or usability - except for willful misconduct or bad faith - are excluded.

2 Step by step Hardware Configuration
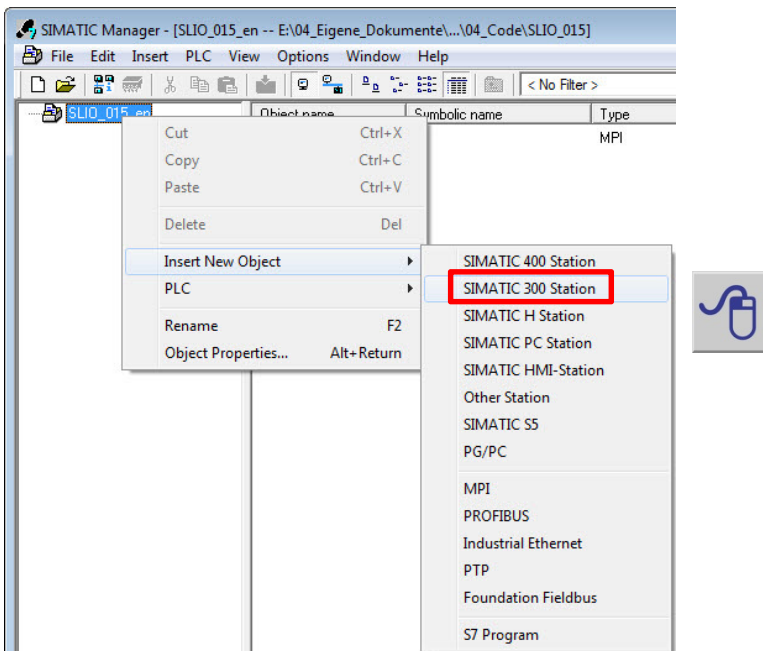
2.1   Configuration of the SLIO CPU 015-CEFPR00

1. Start the **SIMATIC Manager** from SIEMENS AG and open a new projekt.
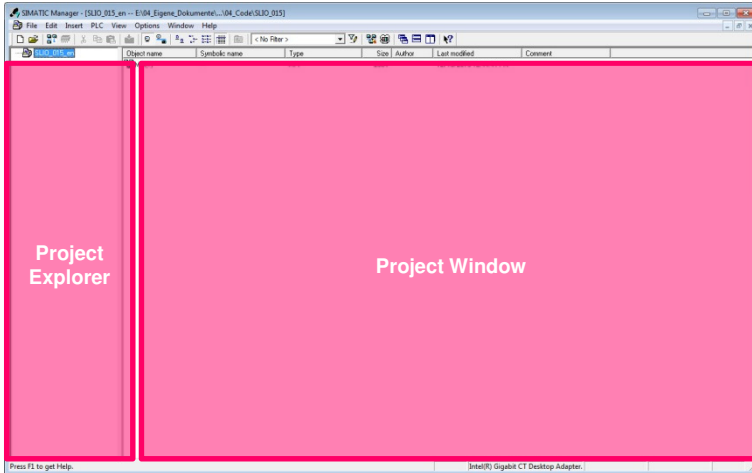
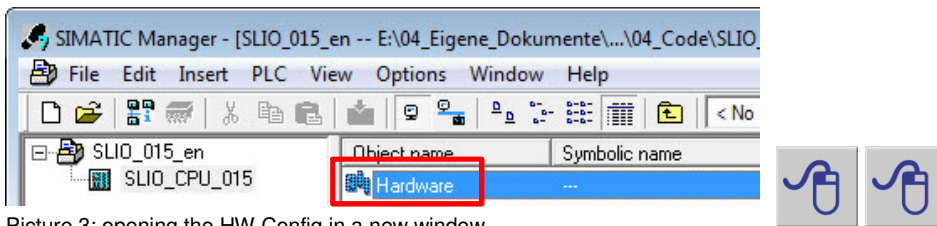Picture 1: Structure of the SIMATIC Manager from SIEMENS AG
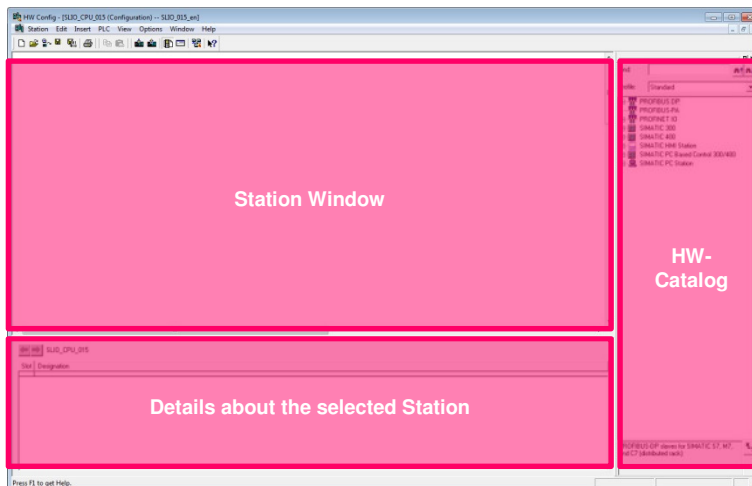
2. Insert a *'SIMATIC 300-Station'*.

Picture 2: Configuring a SIMATIC 300 Station

3. Select the new integrated ‚*SIMATIC 300-Station*‘ and open the '*Hardware Configurator*' by double click on ‚*Hardware*‘.
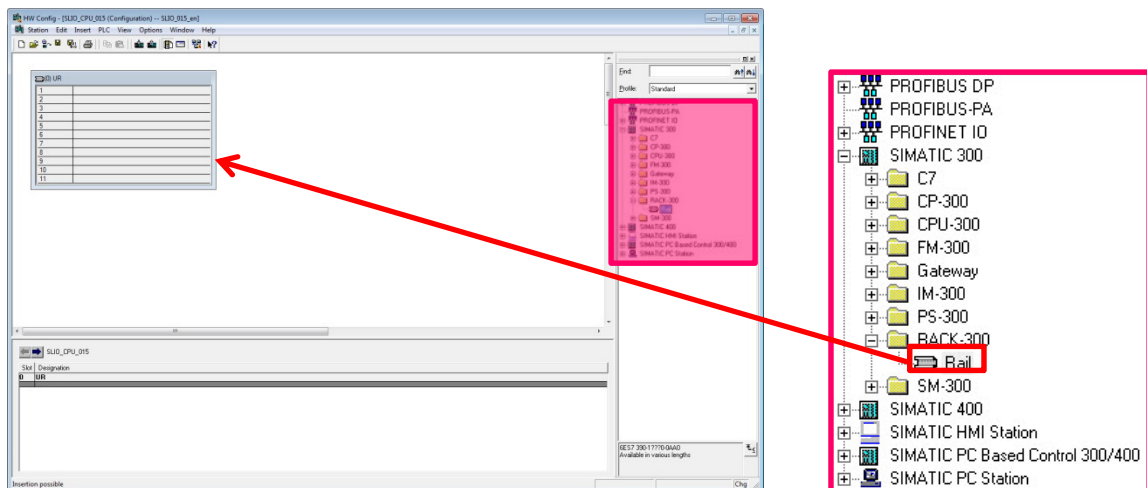

Picture 3: opening the HW Config in a new window

Picture 4: Structure of the 'HW Config' in the SIMATIC Manager from SIEMENS AG

4. Navigate in the 'HW-Catalog' to the folder ‚*SIMATIC 300 -> Rack-300*‘ and integrate the object ‚*Rail*‘ into the 'Station Window' via ‚*Drag&Drop*‘.

Picture 5: Integration of a profile rail into the 'Station Window'

5. For configuration of the **VIPA SLIO CPU 015-CEFPR00** select the folder ‚*SIMATIC 300 -> CPU-300 -> CPU 315-2PN/DP -> 6ES7 315-2EH14-0AB0'* an. Select the **CPU 315-2 PN/DP (6ES7 315-2EH14-0AB0 V3.2)** and insert it into Slot 2 of the 300 rack via ‚*Drag&Drop'*.
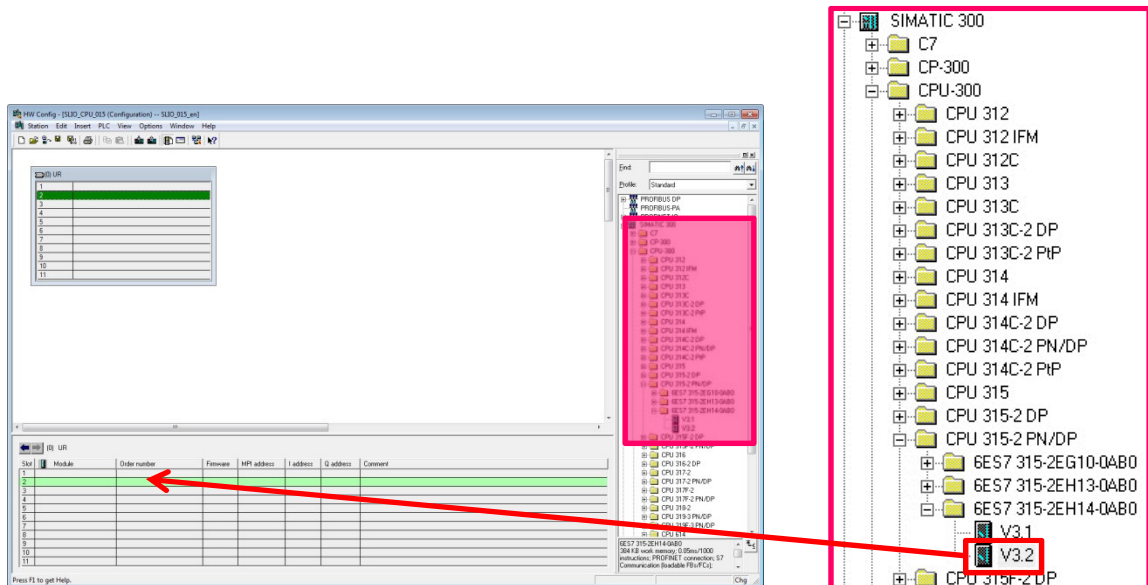
Picture 6: Integration of the CPU 315-2 PN/DP into the 300 rack

6. Now a dialogue window opens, in which you can configure the Ethernet interface of the CPU.
The Ethernet interface is applied for the virtual backplane bus (SLIDE-Bus) as well as for the PROFINET system.

Fill in the requested IP address and subnet mask of your CPU (PROFINET System) into the dedicated fields. For creation of a new Ethernet line, click on <New>.
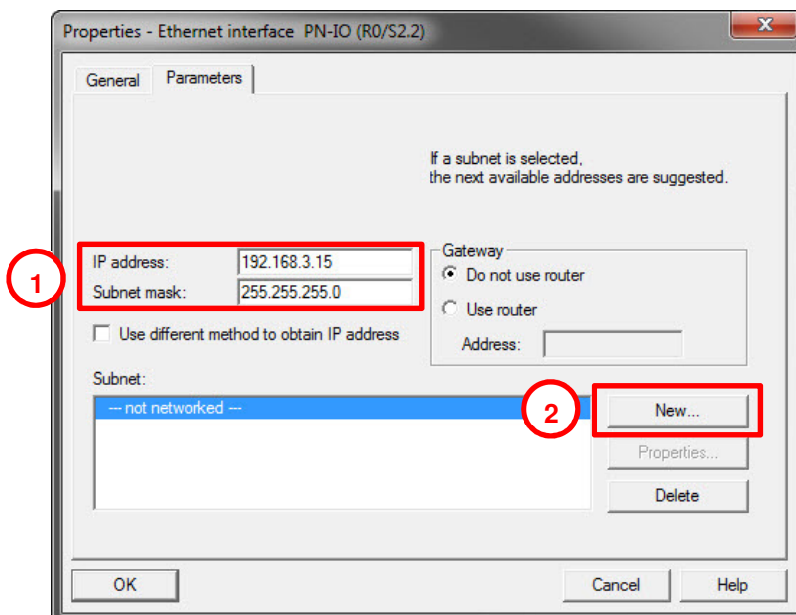
Picture 7: Parameterization of the Ethernet (backplane bus /PROFINET) interface of the CPU
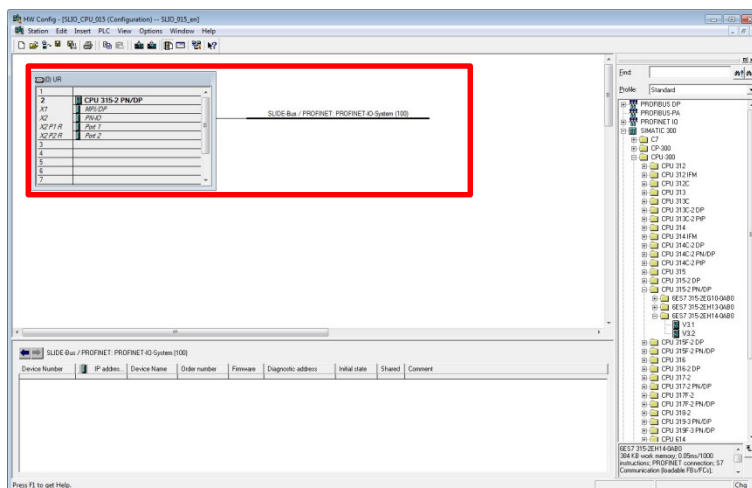
7. In the properties window you can name your Ethernet subnet. In this 'How-To-Do' example the subnet is named **„SLIDE-Bus / PROFINET".** Close both windows with <OK>.
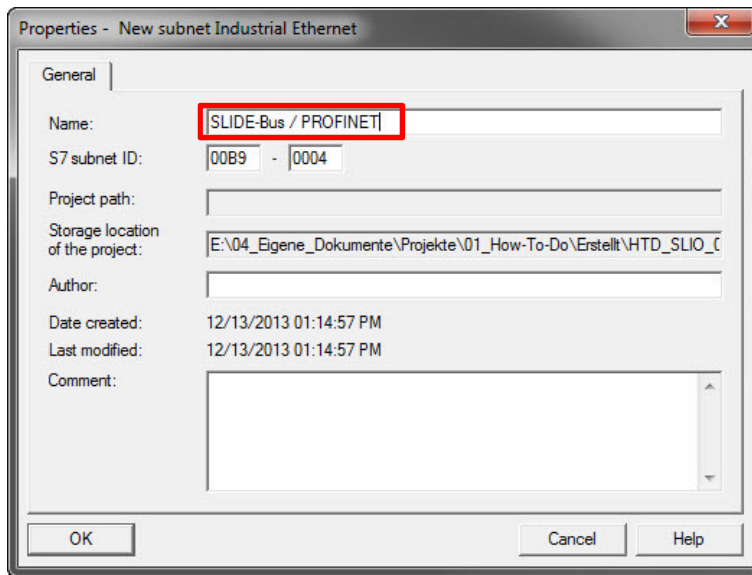
Picture 8: Assigning names for the subnet of the CPU (SLIDE-Bus / PROFINET)

8. Now you should see the **CPU 315-2 PN/DP** with the appended Ethernet rail in the 'Station Window'.

Picture 9: CPU 315-2 PN/DP with SLIDE-Bus / PROFINET system

9. For configuration of the Ethernet PG/OP channel of the **VIPA SLIO CPU 015-CEFPR00** select the folder ,*SIMATIC 300 -> CP-300 -> Industrial Ethernet -> CP 343-1 -> 6GK7 343-1EX21-0XE0'*. Select the **CP343-1 (6GK7 343-1EX21-0XE0 V1.2)** and insert it into slot 4 of the 300 rack via ,*Drag&Drop'*.
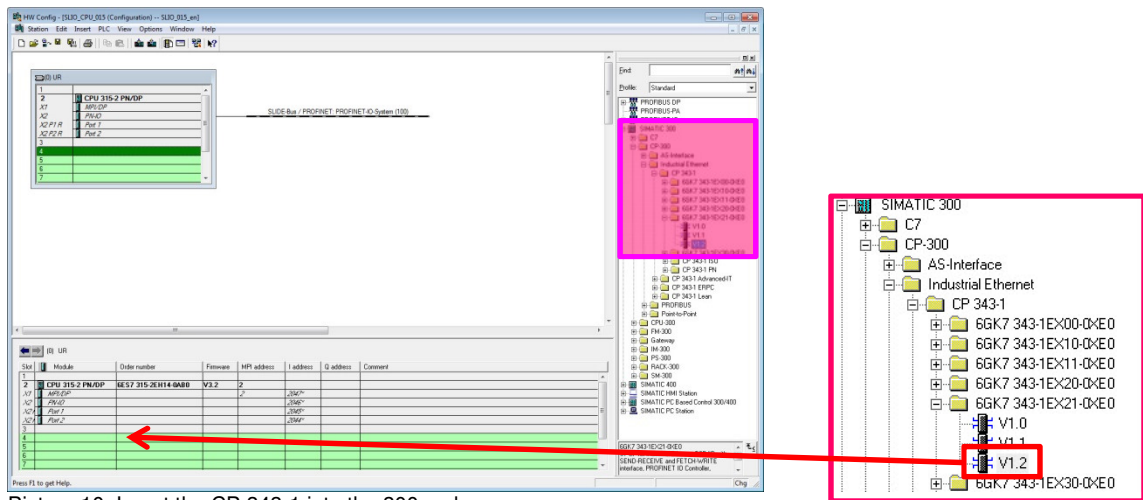

Picture 10: Insert the CP 343-1 into the 300 rack

10. Now a dialogue window opens, in which you can configure the Ethernet interface of the CP. Fill in the requested IP address and subnet mask of your CP (PG/OP channel)) into the dedicated input fields. For creation of a new Ethernet line, in this case for the PG/OP channel of the VIPA CPU, click on <New>.
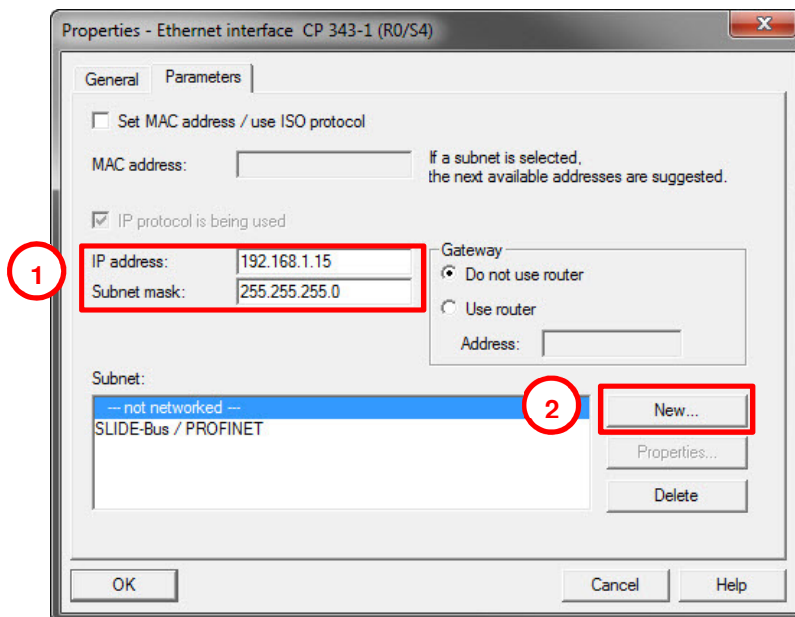
Picture 11: Parameterizing the PG/OG interface of the CPU via the CP 343-1

11. In the properties window you can name your Ethernet subnet. In this 'How-To-Do' example the subnet is named „**PG/OG Interface**". Close both windows with <OK>.
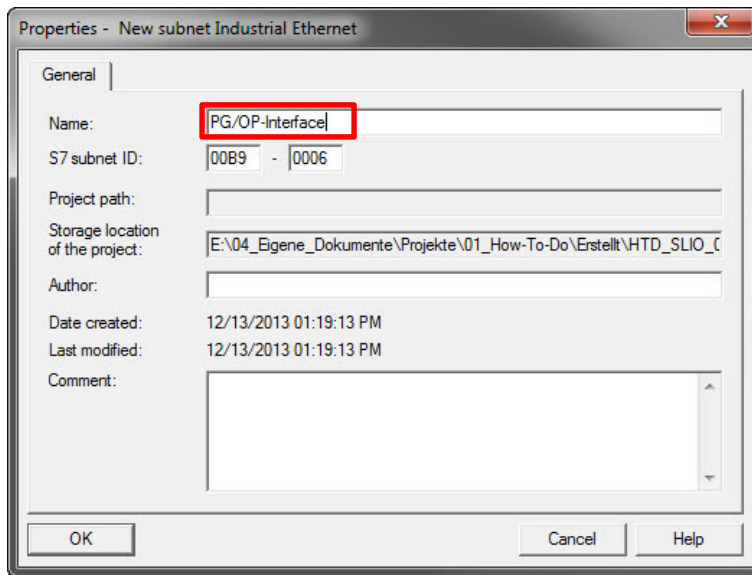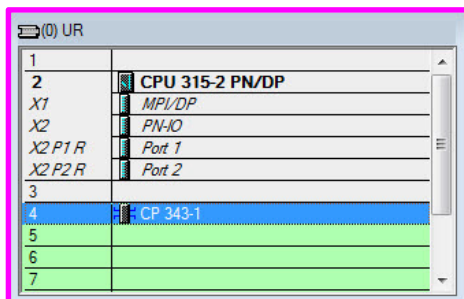

Picture 12: Naming the subnet of the CP (PG/OG interface)

12. After the successful creation of the Ethernet line you should see a CP 343-1 in the Slot 4 of the CPU 315-2 PN/DP.
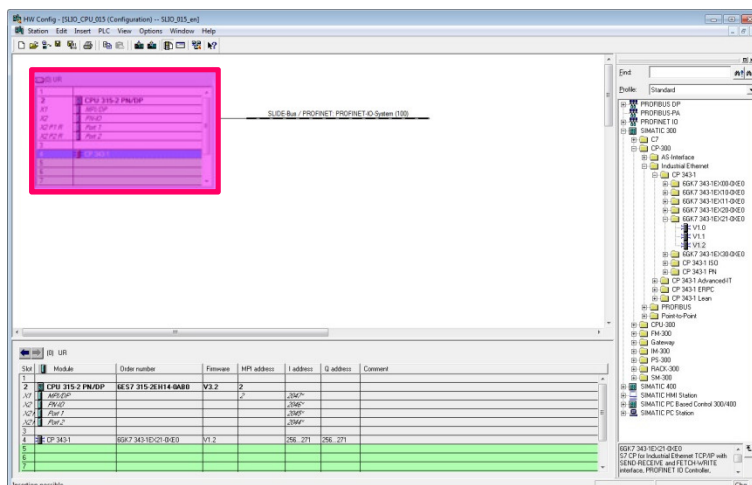
Picture 13: CPU 315-2 PN/DP with backplane bus /PROFINET system and PG/OG interface (CP343-1)

13. For the following steps the GSDML file **Cx000166.gsdml** must be installed in the 'HW-Catalog'. You can download a zip file containing the GSDML under the following link:

GSDML for the SLIO CPU 015-CEFPR00:

http://www.vipa.com/de/service-support/downloads/

14. Navigate in the HW catalog to the folder '*PROFINET IO -> Additional Field Devices -> I/O -> VIPA SLIO System*' and insert the object '*015CEFPR00 Profinet CPU*' into the before added PROFINET line (SLIDE-Bus/PROFINET system) via '*Drag&Drop*'.
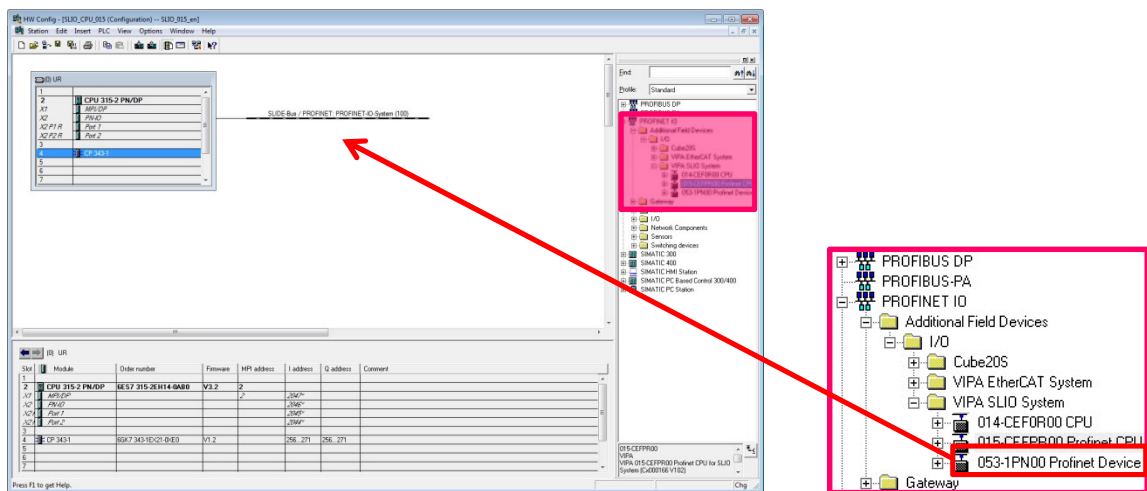
Picture 14: Inserting the SLIO CPU 015-CEFPR00

15. Now you can append the IO modules to the configured 'SLIO CPU 015'. Navigate in the 'HW Catalog' to the folder '*PROFINET IO -> Additional Field Devices -> I/O -> VIPA SLIO System -> 015-CEFPR00 Profinet CPU*' and select your required IO modules. Insert them into the slots of the 'SLIO CPU 015' (beginning with slot 1) via '*Drag&Drop*'. In this 'How-To-Do' example the following module is applied:

<div align="center">

1x   **DO 8xDC24V 0,5A**   **022-1BF00** (Slot 1)   [up to 64 IO modules configurable]

</div>
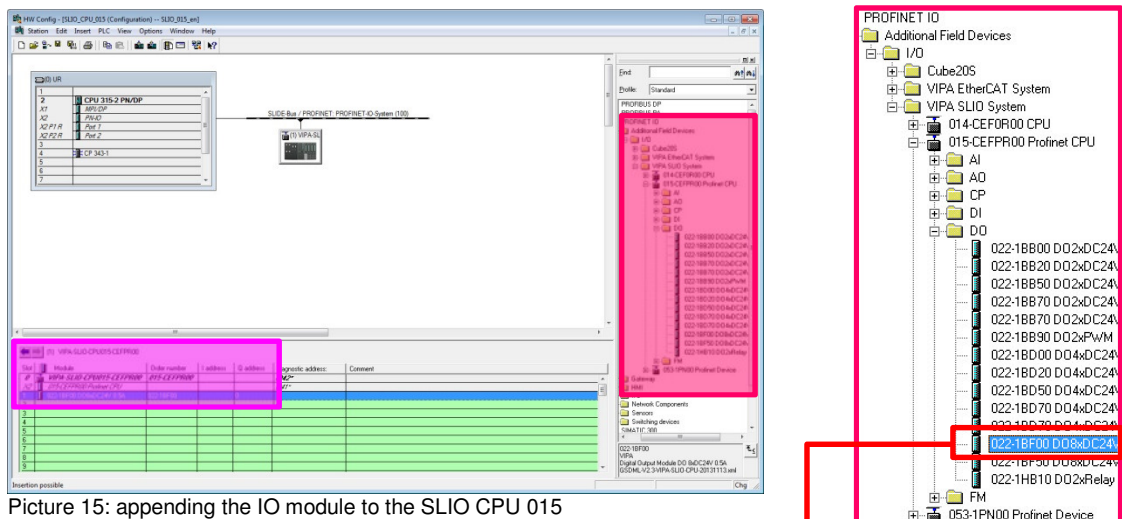
Picture 15: appending the IO module to the SLIO CPU 015

16. When you have finished, move to the menu ,*Station > **save and compile**,* or click on the symbol [icon] in the menu bar for compilation and saving of the configuration.

17. Connect the PLC and your PC via Ethernet.

18. With the menu item **<PLC -> Download>** or with the symbol [icon] you can transfer your hardware configuration into your PLC.

2.2   Enabling the PROFIBUS Functions and the Memory Extensions

The PROFIBUS master/-slave funktions as well as the memory extensions (+ 64kBytes, + 128kBytes, + 256kBytes) can be enabled by the VIPASetCards (VSC). The following spreadsheet contains the order numbers of the VSCs for the several function extensions and memory extensions:

|	−	+ 64KByte	+ 128KByte	+ 256KByte
−	955 − 0000000	955 − C000020	955 − C000030	955 − C000040
PROFIBUS-Master	955 − C000M00	955 − C000M20	955 − C000M30	955 − C000M40
PROFIBUS-Slave	955 − C000S00	955 − C000S20	955 − C000S30	955 − C000S40

1. To execute the respective functions and memory extensions you must insert the suitable VSC into your ‚SLIO CPU 015‘.

    In the 'How-To-Do' example the **VSC 955-C000M40** (PROFIBUS master + 256KByte) is applied.

2. Now you must execute 'Clear memory' in the ‚SLIO CPU 015‘. Here there are two possibilities:

    a.   Memory Reset via SIMATIC Manager from SIEMENS AG

    1. Select the configured „Siemens-Dummy-CPU" in the ‚Hardware configurator' of the SIMATIC Manager from SIEMENS AG. Then execute the memory reset via the menu <PLC ->Clear/Reset>.
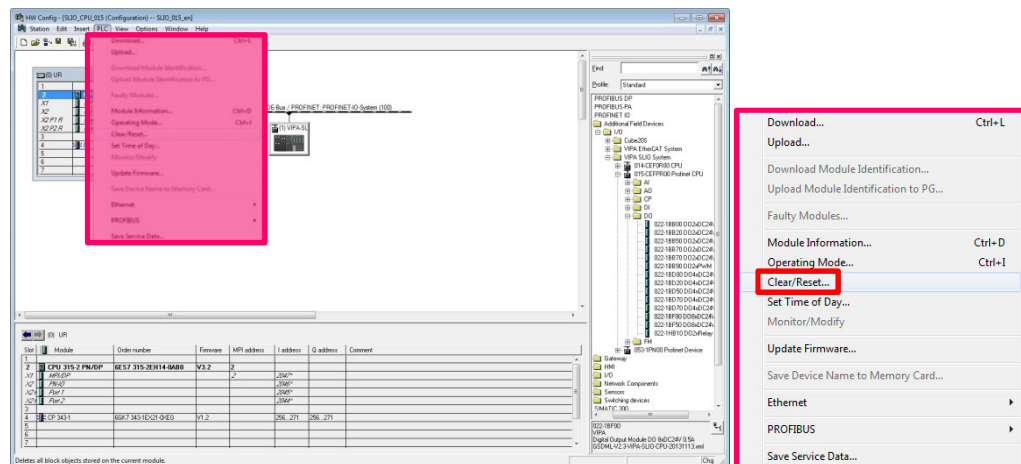
Picture 16: Clear Memory of the SLIO CPU 015

b. Memory Reset via the operating mode switch of the CPU

1. Switch your 'SLIO CPU 015' into the STOP status. Therefor switch the operating mode switch on „STOP".

   ➔ The STOP LED is on.

2. Position the operating mode switch into MRES and hold it approximately 3 seconds.

   ➔ The STOP LED changes from blinking to continuous light.

3. Position the operating mode switch into STOP and within 3 seconds shortly into MRES, then again into STOP.

   ➔ The STOP LED is blinking (Memory reset is running).

4. The memory reset has been finished, if the STOP LED changes into continuous light.

   ➔ The STOP LED is on.

3. For checking the activation of the function extensions and memory extensions please open the 'website' of the 'SLIO CPU 015' (in the 'How-To-Do' example accessible via the IP address 192.168.1.15) and then move to the "Expert view".



Picture 17: PROFIBUS Master Function and 256KByte Memory Extension

2.3 Configuration of the PROFINET System

1. Use the hardware configuration of chapter 2.1.

2. Select a PROFIBUS communication participant for the ‚SLIO CPU 015' out of the 'HW-Catalog'. In the 'How-To-Do' example a ‚SLIO IM 053PN' is configured.
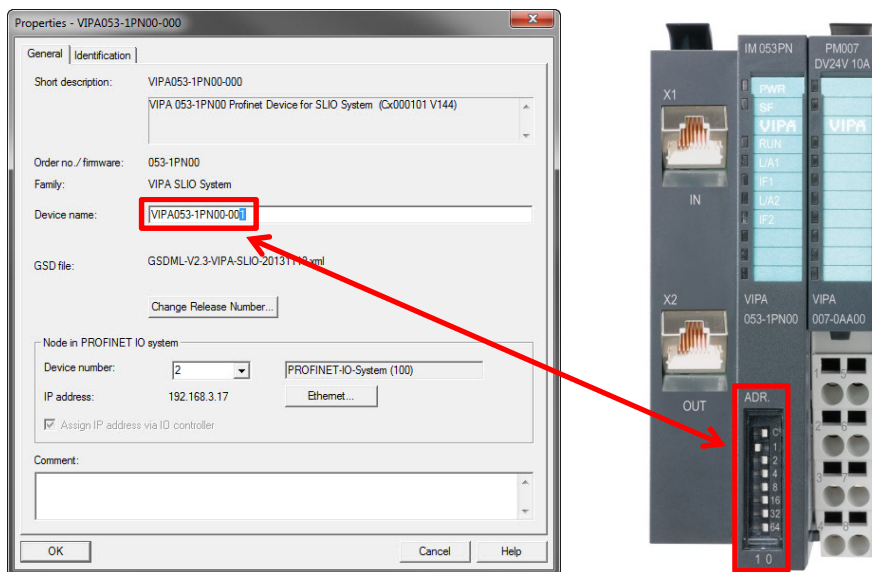
   1x   **IM 053PN**   *053-1PN00*

   Navigate in the 'HW-Catalog' to the folder *‚PROFINET IO -> Additional Field Devices -> I/O -> VIPA SLIO System'* and add the VIPA IM module (**053-1PN00 Profinet Device**), which is contained in this folder, to the *‚SLIDE-Bus / PROFINET' system"* via *‚Drag&Drop'*.
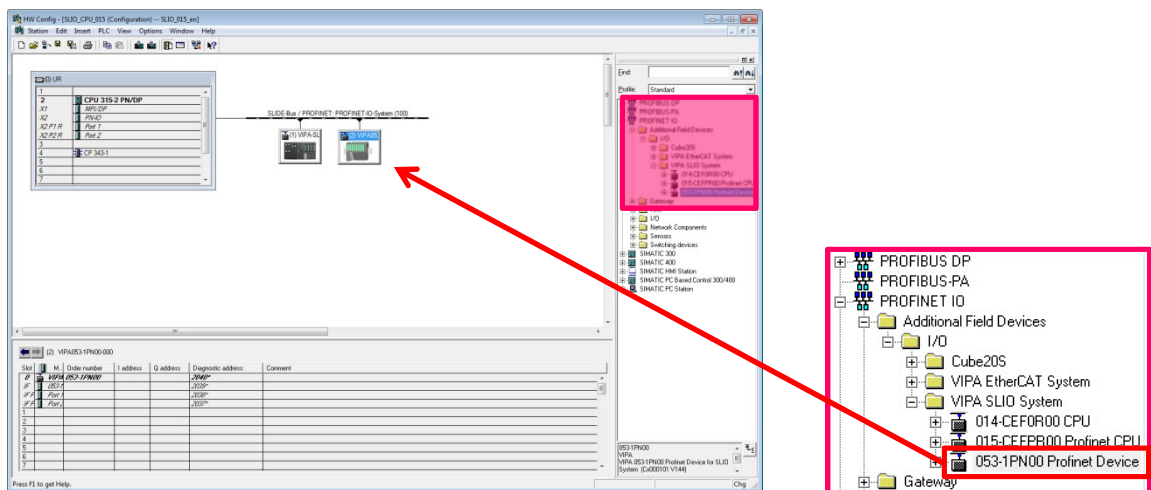
Picture 18: Adding the IM 053 to the backplane/bus/PROFINET-System

3. Change now the Standard „Device name" of the ‚SLIO IM 053' (**VIPA053-1PN000**) in a unique „Device name". Therefor adjust the required address/Device name via „dip switch" of the ‚SLIO IM 053' (in the 'How-To-Do' example **Address** 1). Open the ‚SLIO IM 053' via double click in the hardware configurator. Please fill in there the new device name into the suitable input field (in the 'How-To-Do' example **VIPA053-1PN001**).
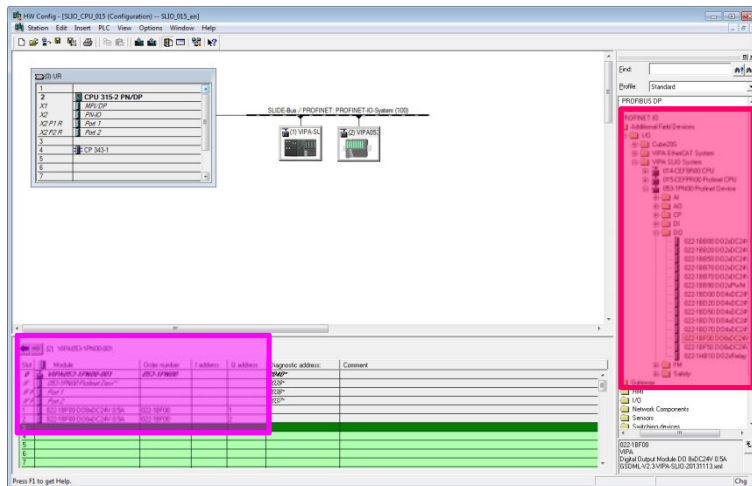

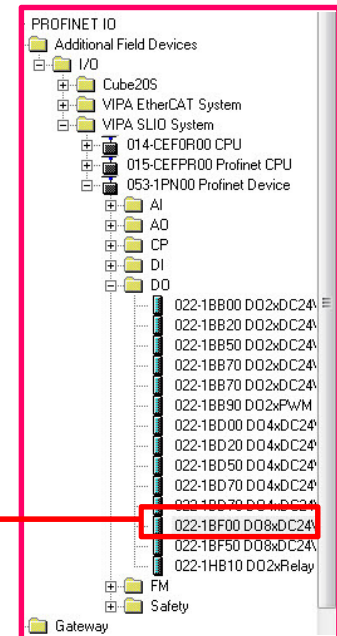Picture 19: Changing the PROFINET Device name of the VIPA IM 053

4. Now you can append the I/O modules the the projected 'SLIO IM 053'. Navigate in the 'HW-Catalog' to the folder *'PROFINET IO -> Additional Field Devices -> I/O -> VIPA SLIO System -> 053-1PN00 Profinet Device'* and select the required I/O modules. Add them via *'Drag&Drop'* to the slots of the 'SLIO IM 053' (starting with slot 1). In the 'How-To-Do' example the following modules are applied:

   2x   **DO 8xDC24V 0,5A**   **022-1BF00** (from Slot 1) [up to 64 I/O modules configurable]

Picture 20: Adding I/O modules to the IM 053

5. If you have finished, move to the menu *'Station >* **Save and Compile'**, or click on the symbol [icon] in the menu bar to compile and save the configuration.

6. Connect the PLC to your PC (PG/OP Interface [X1]) and the PLC (PROFINET Interface [X2]) to the 'SLIO IM 053' (PROFINET Interface [X1]) via Ethernet.
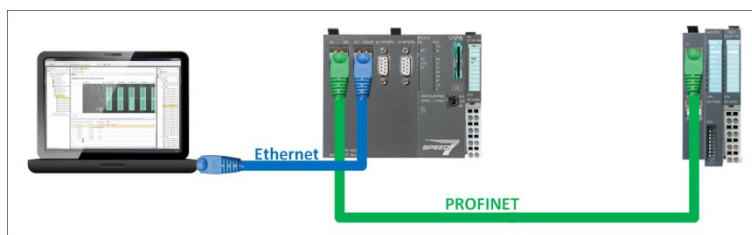

7. Via clicking on the menu point **'PLC > Download'** or on the symbol [icon] you can transfer your hardware configuration into your PLC.

2.4   Configuration of the PROFBUS Master System

1.   Use the hardware configuration of chapter 2.1.

2.   If the PROFIBUS master function is not yet enabled, please follow the description in chapter 2.2.

3.   Open via double click the ‚**MPI(DP)**‘ interface of the CPU for configuration it from MPI to PROFIBUS master.
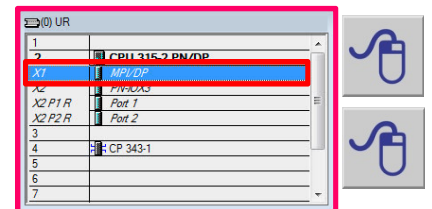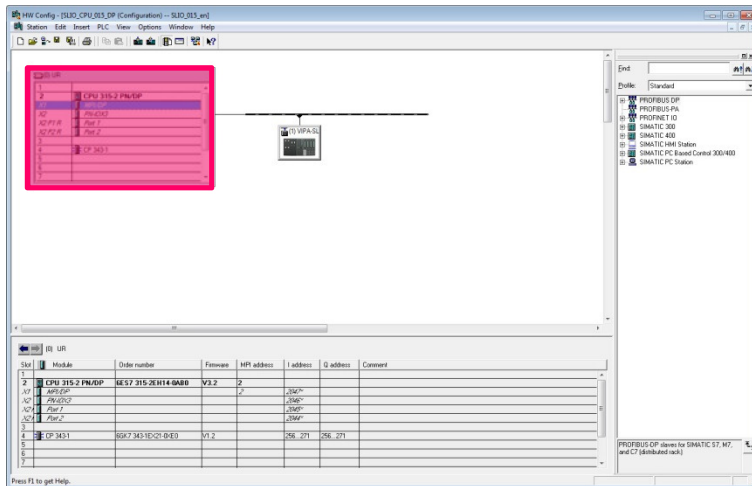
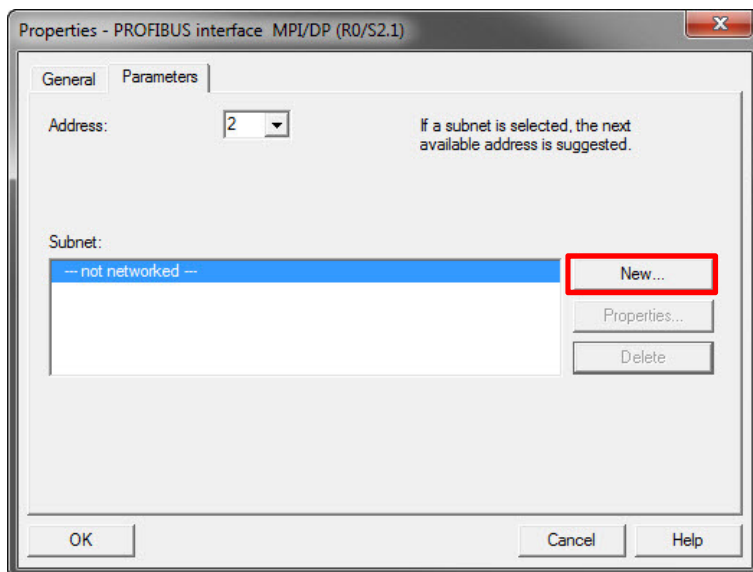Picture 21: Open properties of the MPI/DP interface

4.   Now change the „type" of the interface from ‚MPI' to 'PROFIBUS'. Then open the properties of the interface to parameterize the interface.
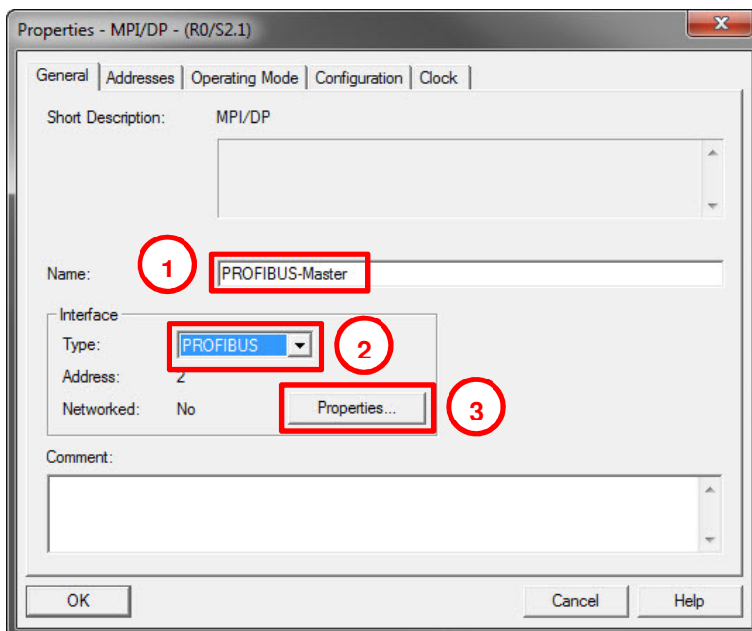
Picture 22: Changing the interface from MPI to PROFIBUS

5. Now create a ,**PROFIBUS System**' via clicking on the button <New...>. Then select it, before you close again the window by the button <OK>.
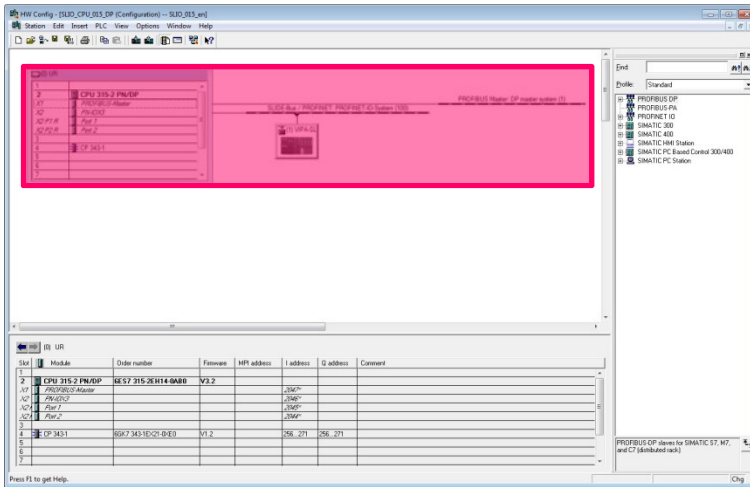
Picture 23: Selecting a new PROFIBUS system

6. Now you have created a PROFIBUS system for your configured PROFIBUS interface. You can assign this system with an „own" name. Close all windows with the button <OK>.
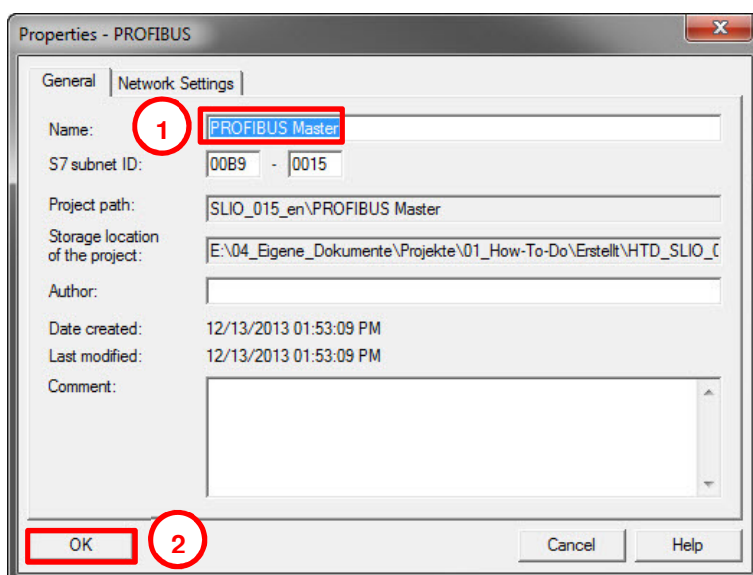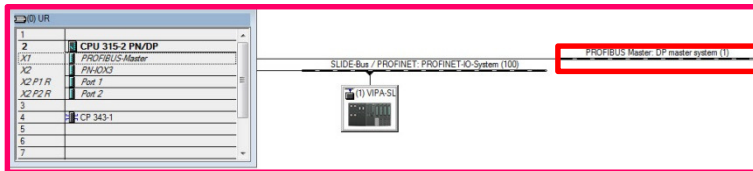
Picture 24: Creating a new PROFIBUS system

7. Now you should see a ,**PROFIBUS System'** in your hardware configuration additionally to the ,**SlIDE-Bus / PROFINET'** system.


Picture 25: SLIO CPU 015 incl. the new projected PROFIBUS system

8. Select a PROFIBUS communication participant for the ,SLIO CPU 015' out of the 'HW-Catalog'. In the 'How-To-Do' example a ,SLIO IM 053DP' is configured. You can find it in the folder:
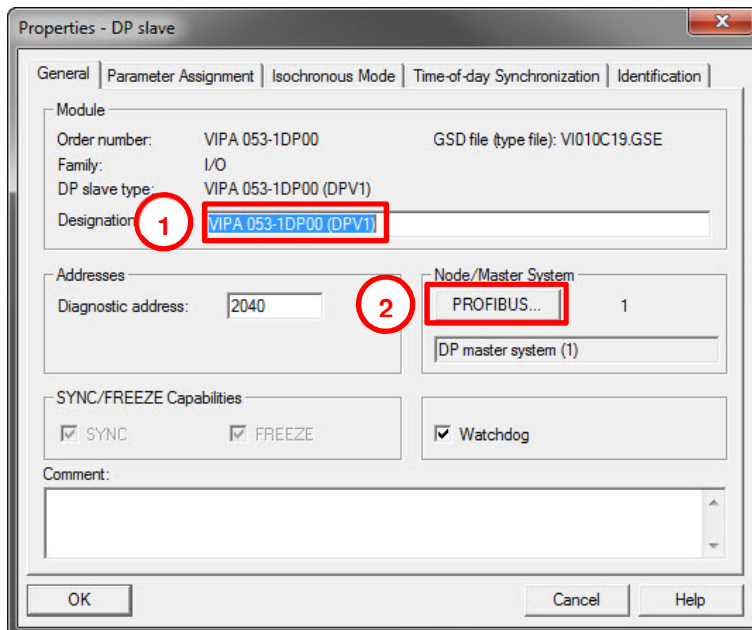
  1x   **IM 053DP**   **053-1DP00**

Navigate in the 'HW-Catalog' to the folder ,*PROFIBUS DP -> Additional Field Devices -> I/O -> VIPA SLIO'* and add the VIPA IM module (**053-1DP00 DPV1**), which is contained in this folder, to the PROFIBUS system via ,*Drag&Drop'*.
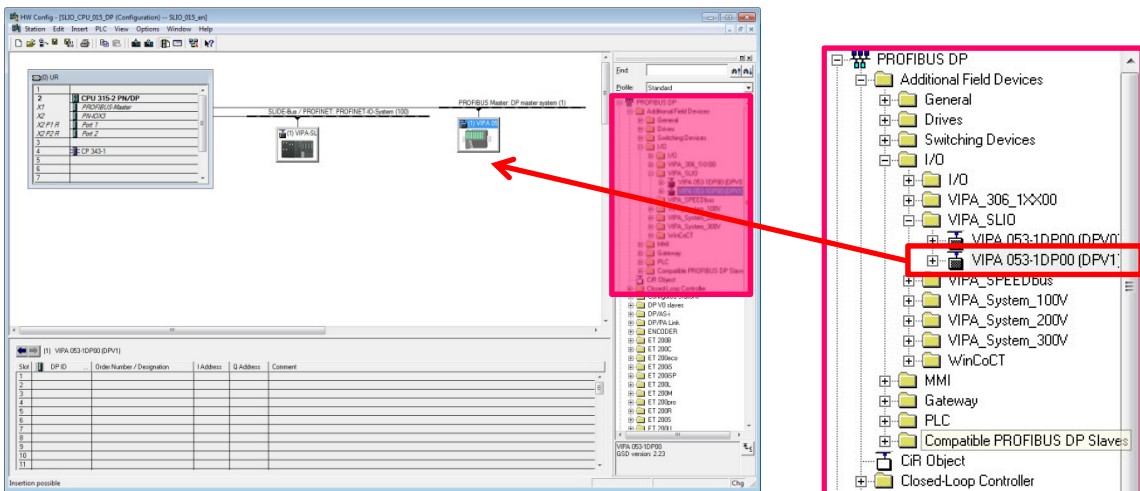

Picture 26: Adding the IM 053 to the PROFIBUS system

9. If you have added the IM 053 to your hardware configuration, the properties window of the DP slave opens. Here you can name the slave individually and adjust **the PROFIBUS address** of the IM 053 via the button <PROFIBUS…>.

Picture 27: Parameterization of the PROFIBUS slaves

10. Please now adjust the PROFIBUS address of the ‚SLIO IM 053' (**VIPA053-1DP000**). For this adjust the required PROFIBUS address via „dip switch" of the ‚SLIO IM 053' (in the 'How-To-Do' example **Address 3**). Now fill in this PROFIBUS address into the suitable input field, mark your PROFIBUS system and close the window with the button <OK>.
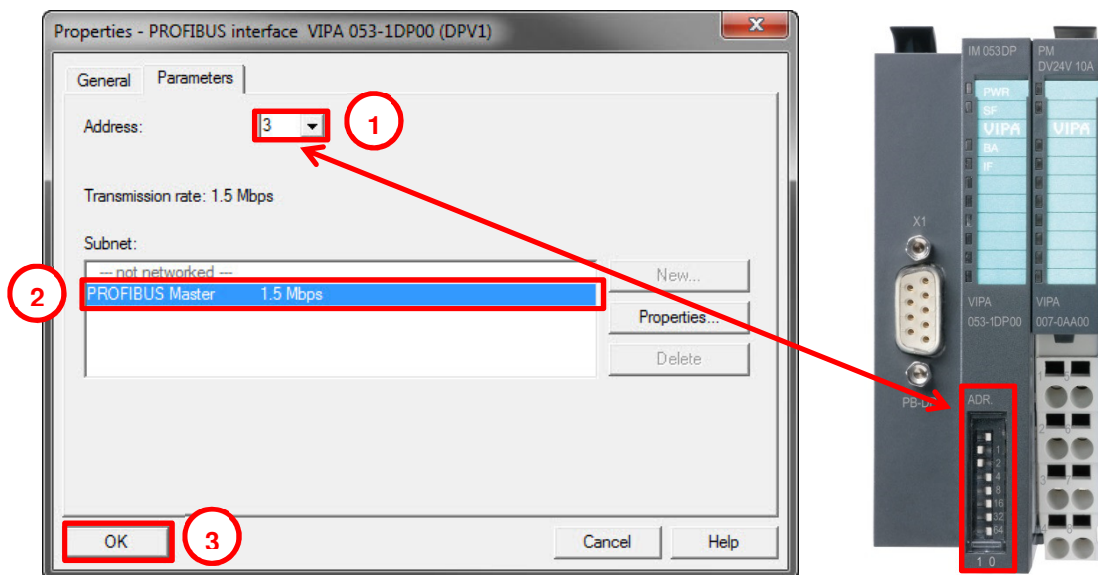

Picture 28: Changing the PROFIBUS device name of the VIPA IM 053

11. Now you can append the I/O modules to the the projected 'SLIO IM 053'. Navigate in the 'HW-Catalog' to the folder '*PROFIBUS-DP -> Additional Field Devices -> I/O -> VIPA_SLIO -> 053-1DP00 DPV1*' and select the required I/O modules. Add them to the slots of the 'SLIO IM 053' (starting with slot 1) via '*Drag&Drop*'. In the 'How-To-Do' example the following modules are applied:

   2x   **DO 8xDC24V 0,5A**   **022-1BF00** (from Slot 1) [up to 64 I/O modules configurable]
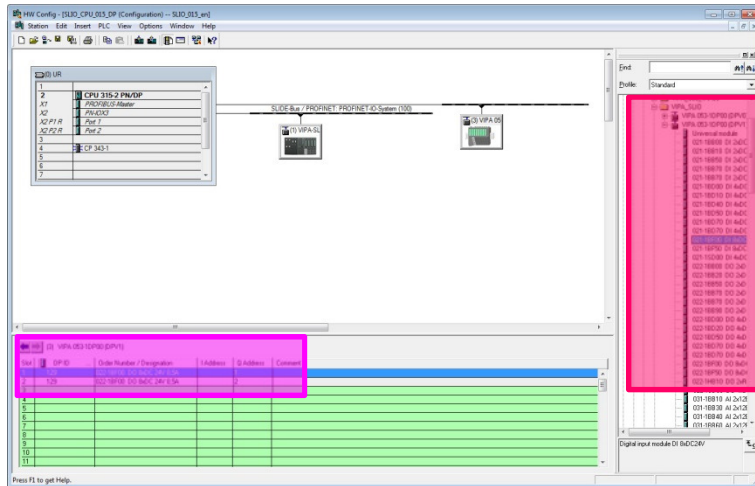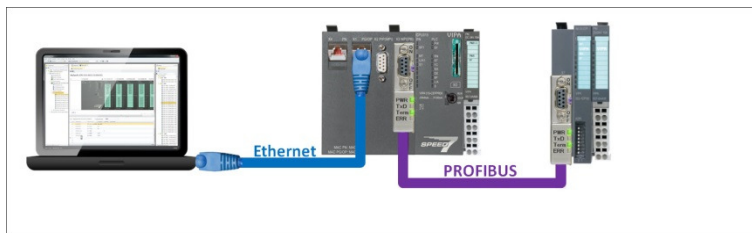

Picture 29: Add IO-modules to the IM 053
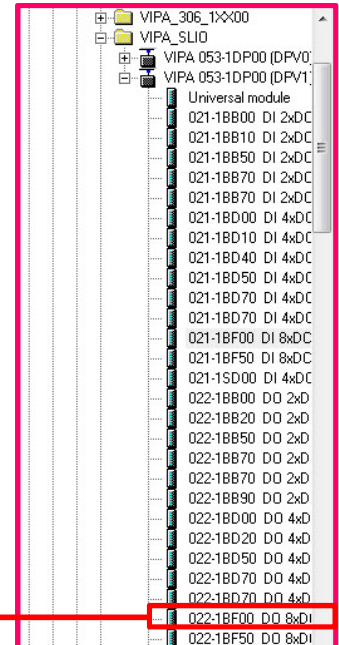
12. If you have finished, move to the menu '*Station > **Save and Compile**',* or click on the symbol in the menu bar to compile and save the configuration.

13. Connect the PLC to your PC (PG/OP Interface [X1]) and the PLC (PROFIBUS Interface [X3]) to the 'SLIO IM 053' (PROFIBUS interface [X1]) via PROFIBUS.

14. Via clicking on the menu point '***PLC > Download***' or on the symbol you can transfer your hardware configuration into your PLC.

3 Revision History

3.1 Änderungen:

DATUM	ÄNDERUNGEN	BEARBEITER
10.01.2014		M. Dörnhöfer
08.01.2014	Übersetzungsüberprüfung durchgeführt	M. Dörnhöfer
16.12.2013	Erstellung Dokument	M. Dörnhöfer