SIEMENS

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Product information

What's new in SIMATIC iMap V2.0 SP1?

This Product Information contains **important information about SIMATIC iMap V2.0 SP1.** The Product Information is part of the product supplied and the information in it should be considered more up-to-date if uncertainties arise.

New features and changes in SIMATIC iMap V2.0 SP1 compared to version V2.0

- New S7 modules for PROFInet components are supported
- Connectors with user-defined data types (UDT) are supported
- Improved access to variables of the type STRUCT via OPC
- Improved HMI integration with WinCC Flexible V1.1
- New examples for SIMATIC iMap V2.0 or later (STEP 7 basic project, PROFInet components, SIMATIC iMAP project and library)
- The "Getting Started with SIMATIC iMAP" and "Commissioning Systems" manuals are now available in French, Spanish and Italian

The first two topics are described in detail in the following sections.

Access to variables of the type STRUCT via OPC

In SIMATIC iMap V2.0 SP1, individual elements of a variable of the type STRUCT can be accessed via OPC. The PN OPC Server, which is part of SIMATIC NET V6.2 SP1, is needed in order to do this.

New examples

SIMATIC iMap V2.0 SP1 is supplied with some new examples, e.g. so that the CPU 317-2 PN/DP can be used as a PROFInet component. The examples are installed as follows:

- A STEP 7 basic project for creating PROFInet components - under \Step7\Examples\ZDT27_09
- \Step7 is the STEP 7 install directory.
- Off-the-shelf PROFInet components – under \iMap\Examples\Components
- A SIMATIC iMap project – under \iMap\Examples\Projects
- A SIMATIC iMap library – under \iMap\Examples\Libs
  \iMap is the SIMATIC iMAP install directory.

Note

Description of the examples

The "Component based Automation, Commissioning Systems" manual (commissioning tutorial) relates to these examples. It shows you how to work with these examples.

Manuals in additional languages

The "Getting Started with SIMATIC iMAP" and "Commissioning Systems" manuals in French, Spanish and Italian can be found in the **\iMap_Manuals** directory on the SIMATIC iMap V2.0 SP1 CD.

New modules for PROFInet components

SIMATIC iMap V2.0 SP1 supports the following new SIMATIC modules for creating PROFInet components:

- CPU 315-2 PN/DP V2.3 or later as a standard or singleton component
- CPU 317-2 PN/DP V2.3 or later as a standard or singleton component
- CP 343-1 PN V2.0 as a standard or singleton component
- CP 443-1 Advanced V2.0 as a singleton component only
- CPU 317T as a standard or singleton component
  The S7 Technology V2.0 optional software will be needed to configure this CPU.

Creating components from PROFInet IO controllers

A PROFINET IO controller with IO system can only be used as a singleton component. This is true even if there are no IO devices linked to the IO system.

The PROFINET IO system must be deleted from the hardware configuration in order to create a standard component.

Cyclical exchange of data via PROFINET CBA and PROFINET IO

If a cyclical exchange of data via PROFINET IO and PROFINET CBA (Component based Automation) takes place on the same Ethernet subnet, then the communication fractions for PROFINET CBA and PROFINET IO must be defined. In STEP 7, the communication fraction for PROFINET IO is configured on the "Update Time" tab in the PROFINET IO system properties. If no PROFINET IO devices are configured, the fraction is 0.0 % and the fraction for PROFINET CBA (cyclical) is consequently 100%.

If it is set to 100%, the available capacity is reserved exclusively for PROFINET IO data exchange, which means that there can be no cyclical transfer via PROFINET CBA.

This communication fraction setting does not affect the acyclical exchange of data via PROFINET CBA.

Note

Setting required for PROFINET CBA

The maximum permitted communication fraction for PROFINET IO that still allows a cyclical exchange of data via PROFINET CBA depends on the device used.

Attention

Calculating the utilization parameters for cyclical transmission

In SIMATIC iMap, a fraction of 100% is always assumed for PROFINET CBA when calculating the utilization parameters for cyclical transmission. This means that when PROFINET CBA and PROFINET IO are used in mixed mode, the values displayed for the utilization parameters for cyclical transmission cannot be guaranteed.

Detailed information

Detailed information can be found in the following basic help topics:

- for PROFINET IO - in the STEP 7 basic help, under: "Configuring the hardware, Configuring PROFINET IO devices"

- for PROFINET CBA - in the SIMATIC iMAP basic help, under "Configuring plants"

Using user-defined data types (UDT)

User-defined data types (UDT) can be created using a language editor. UDTs have their own names, which means that they can be reused. For example, a user-defined data type can be used to generate several PROFInet interface data blocks with the same inputs and outputs.

Requirement

STEP 7 V5.3 SP1 or later is needed in order to use UDTs in PROFInet interfaces.

To use a user-defined data type in a PROFInet interface

1. Open the block folder of the STEP 7 basic project in SIMATIC Manager.

2. Use the **Insert > S7 block > Data type** menu command to create a UDT. On the "General, Part 1" tab in the Properties dialog, enter the name and further properties of the UDT (if necessary).

3. Edit the UDT using a language editor and enter the names, types and initial values of the individual elements.

4. Save the UDT.

5. Open the PROFInet interface DB using the **Edit > Create PROFInet interface** menu command.

6. To assign the UDT to a certain connector, select the UDT from the drop-down list in the "Data type" box and enter the UDT number.

   Result: The UDT is referenced with the specified number in the interface DB. The elements of the UDT cannot be edited in the PROFInet interface editor.

Note

Representation in SIMATIC iMap

Connectors of the type UDT are represented as STRUCTs in the SIMATIC iMAP plant view (see example).

Example: Interface DB with UDT connector

In the following screen shot, the user-defined data type UDT1 was assigned to output q2.
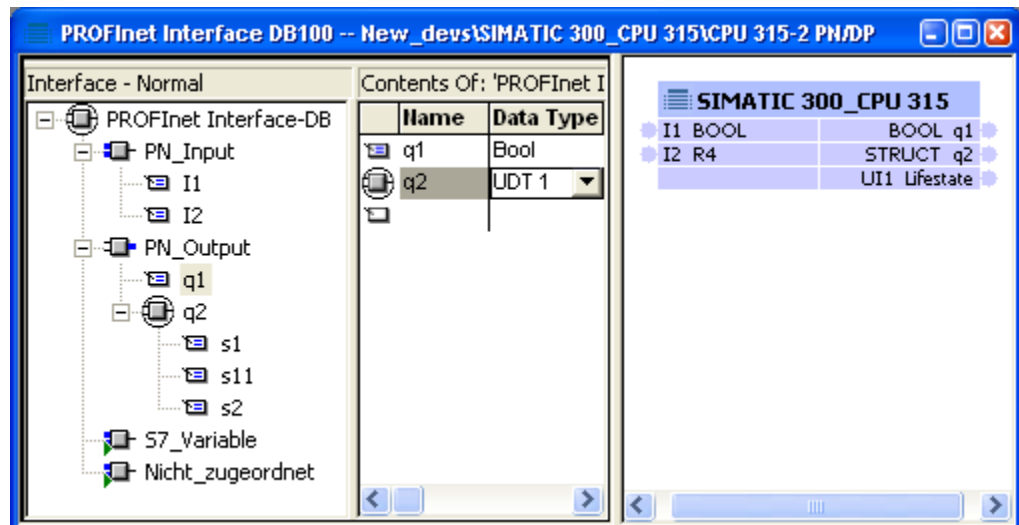

Figure 1   Interface DB with UDT connector
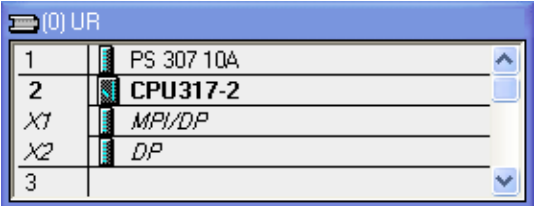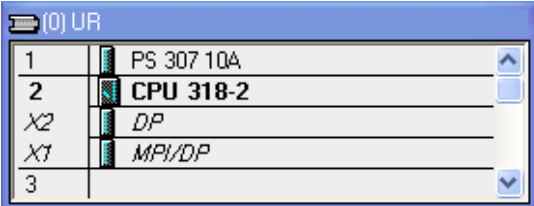
Rules for using UDTs

The rules for using UDTs in PROFInet interfaces are the same as for using other composite data types:

- A UDT may only contain simple data types; arrays, structures and further UDTs are not permitted within a UDT (the PROFInet component cannot be created).

- In SIMATIC iMAP, only connectors of the same type may be interconnected, i.e. the UDTs must have the same structure. Connectors of the type STRUCT and UDT may be interconnected if they have the same structure.

Correction to the "Creating PROFInet Components" manual, section 2.3.2

Since the arrangement of the integral X1 and X2 interfaces on the CPU 317-2 is the other way around compared to the CPU 318-2, the descriptions in the manual for this CPU are not applicable.

Table 1 Arrangement of the X1 and X2 interfaces on the CPU 31x-2

CPU 317-2	CPU 318-2
On the CPU 317-2, the **X1** interface is in the first position in the CPU.	On the CPU 318-2, the **X2** interface is in the first position in the CPU.
(0) UR 1 PS 307 10A 2 CPU317-2 X1 MPI/DP X2 DP 3	(0) UR 1 PS 307 10A 2 CPU 318-2 X2 DP X1 MPI/DP 3

The following rules must be followed for hardware configurations using these CPU types:

Configuring the integral X1 and X2 interfaces on the CPU 317-2 and CPU 318-2

The configuration of the integral interfaces only differs in the configuration as an intelligent DP slave. In this case, "DP slave" operating mode must be set on the integral interface that is located in the first position in the CPU.

The following table shows the possible settings for the integral X1 and X2 interfaces for the following configurations:

- Standard components:
    - PROFInet device
    - PROFInet device with programmable functionality
    - DP master device for PROFIBUS devices with fixed functionality (in this case, the CPU 317/318-2 is not a part of the created PROFInet component)
- Singleton components

Table 2   Settings of the integral interfaces X1 and X2 for CPU 317-2
          and CPU 318-2

	CPU 317-2		CPU 318-2	
Configuration	**X1 (MPI/DP)**	**X2 (DP)**	**X1 (MPI/DP)**	**X2 (DP)**
Standard components:				
• PROFInet device	Type: MPI	Operating mode: DP master[1]	Type: MPI	Operating mode: DP master[1]
• PROFIBUS device Intelligent DP slave	Type: PROFIBUS with operating mode: DP slave	Operating mode: DP master[2]	Type: MPI or PROFIBUS with operating mode: DP master[1]	Operating mode: DP slave
• DP master device for PROFIBUS devices with fixed functionality	Type: MPI	Operating mode: DP master	Type: MPI	Operating mode: DP master
Singleton components	Type: MPI or PROFIBUS with operating mode: DP master[1]	Operating mode: DP master[1]	Type: MPI or PROFIBUS with operating mode: DP master[1]	Operating mode: DP master[1]
[1] A local PROFIBUS or MPI bus is possible as an option				
[2] A local PROFIBUS is possible as an option, but a local MPI bus is not possible				