Component Based Automation

SIMATIC iMap STEP 7 AddOn

V3.0 incl. SP1 to SP5

Notes on installation and use

Table of contents

1   What's new in SIMATIC iMap STEP 7 AddOn?

1.1   What's new in SIMATIC iMap STEP 7 AddOn V3.0 SP5?

New operting systems

The following operating systems will be supported with SIMATIC iMap STEP 7 AddOn V3.0 SP5 in addition to the operating systems supported so far:

- MS Windows Vista 32 SP1: Business and Ultimate

- Windows 2008 Server

New PROFINET devices

Creating PROFINET components with the following IO controllers is supported with SIMATIC iMap V3.0 SP5:

- WinAC: WinAC RTX 2008 or higher

- S7-modular Embedded Controller: EC31-RTX (WinLC RTX EC)

1.2 What's new in SIMATIC iMap STEP 7 AddOn V3.0 SP4?

- Improved PROFINET CBA consistency check with output of results in a separate window. Context-sensitive help is available for every alarm or warning.

- Complex data types that can contain further complex date types, such as multidimensional arrays and structures of arrays and structures, are supported for devices in PROFINET Runtime version V2.3 and higher. This function is available in connection with SIMATIC iMap V3.0 SP1 only.

- Version numbers for functions can be specified when creating the PROFINET interface and are displayed in SIMATIC iMap in the properties of the PROFINET component.

1.3 What's new in SIMATIC iMap STEP 7 AddOn V3.0 SP3?

With SIMATIC iMap STEP 7 AddOn V3.0 SP3 the operating system MS Windows Vista 32: Business and Ultimate is additionally supported to the previous operating system.

1.4 What's new in SIMATIC iMap STEP 7 AddOn V3.0 SP2?

With SIMATIC iMap V3.0 SP2, support is available for creating PROFINET components from the following PROFINET IO controllers:

- CPU 31x-2 PN/DP, CPU 31x-3 PN/DP in firmware version V2.6 or later
- CPU 41x-3 PN/DP in firmware version V5.1 or later

You can recognize these modules in the hardware catalog by the corresponding name in the info text.

1.5 What's new in SIMATIC iMap STEP 7 Add-on V3.0 SP1?

- Improved PROFINET CBA consistency check, also for PROFINET interfaces with more than one function (multifunction components)

- New PROFINET-compliant devices supported: CPU 414-3 PN/DP, CPU 416-3 PN/DP und CPU 416F-3 PN/DP (also in multifunction components)

- Configurations with CiR elements (Configuration in RUN) as Singleton components

- Support for all S7 data types in blocks for PROFINET interfaces All S7 data types can be used in the Global DB or in the declaration section of an FB. However, only certain data types can be used for PROFINET CBA in the active blocks of the PROFINET interfaces, (see "Data types of the connectors").

1.6 What's new in SIMATIC iMap STEP 7 AddOn V3.0?

- Creating PROFINET components with several functions (multi-function components). For the time being, this functionality is only supported by the CPU 319-3 PN/DP.
- Creating PROFINET components with multiple PROFIBUS connectors.
- New PROFINET-compliant devices supported:

    PROFINET IO controllers with PROFINET IO system

    CPU 319-3 PN/DP, including PROFINET IO

    CP 343-1 V1.1 and CP 343-1 Advanced V1.0 or later, including PROFINET IO

    CPU 41x with CP 443-1 Advanced

    SIMOTION devices as intelligent DP slaves on the PROFIBUS

    SINUMERIK 840D via CP 343-1 as a singleton component

- Several internal HMI devices (OPs, TPs, MPs, PCs) on the Industrial Ethernet which are configured with WinCC flexible Version 2005 SP1 or later.
- Different identification of HMI variables and MES variables.

2 Installation notes

2.1 Requirements

STEP 7 including NCM for Industrial Ethernet and PROFIBUS are required for installing SIMATIC iMap STEP 7 AddOn. Ensure that one of the following SIMATIC STEP 7 software packages is installed:

- STEP 7 as of V5.4
- STEP 7 Professional as of V5.4

Notes:

- If STEP 7 does not exist, then SIMATIC iMap STEP 7 AddOn cannot be installed.
- If an older version of STEP 7 than the version stipulated in the installation requirements exists, then SIMATIC iMap STEP 7 AddOn can only be selected for installation, however the installation will result in an error.

2.2 Installation

Please follow the instructions of the set-up program.

2.3 Manuals and Online Help

You can find the electronic manual for SIMATIC iMap STEP 7 AddOn

- After installation on your computer with the Windows task bar :

  Start > SIMATIC > Documentation > or

  Start > Programs > Component Based Automation > Documentation (when SIMATIC iMap is installed)

- In the SIMATIC Manual Collection or

- On the Internet at
  "http://support.automation.siemens.com/WW/view/en/10805413/133300"

Note

The online help for creating PROFINET components is integrated in the STEP 7 basic help. In SIMATIC Manager, select:

Menu command Help > Contents > Open help for optional packages > Creating PROFINET Components.

3 Compatibility

3.1 Compatibility with STEP 7 versions

SIMATIC iMap STEP 7 AddOn as of V3.0 is compatible with...

STEP 7 V5.1 SP6	NO
STEP 7 V5.2	NO
STEP 7 V5.2 SP1	NO
STEP 7 V5.3 SP1, SP2	NO
STEP 7 V5.3 SP3	YES
STEP 7 as of V5.4	YES

3.2 Compatibility of SIMATIC iMap and STEP 7 AddOn

SIMATIC iMap V3.0 SP1 can be operated with SIMATIC iMap STEP 7 AddOn as of V3.0 SP4 only.

Note

The new devices with PROFINET Runtime as of version V2.3 are supported by the following software only:

- STEP 7 as of V5.4 SP4

- SIMATIC iMap as of V3.0 SP1

- SIMATIC iMap S7 AddOn as of V3.0 SP4

Make sure that PROFINET components of these new devices that were created with SIMATIC iMap S7 AddOn as of V3.0 SP4 are only operated with SIMATIC iMap as of V3.0 SP1 and STEP 7 as of V5.4 SP4. If not, you may encounter problems during configuration and in runtime.

4   User guide - Tips and Tricks

4.1   Using STEP 7

Copy blocks

SIMATIC iMap STEP 7 AddOn V3.0 and later provides new copy blocks for intelligent DP slaves.

Caution:

For intelligent DP slaves with more than one function (multi-function components) it is compulsory for the S7 programs of the PROFINET components which have been created with a version earlier than V3.0 to be updated. To do this, copy the blocks FC10, FC11 and DB2 from the I-DP_Slave > Blocks folder of the PROFINET System Library to the S7 Program > Blocks folder of the STEP 7 basic project, and create a new version of the PROFINET component.

Copy blocks FC10, FC11 and DB2 of an S7 program must have all the same version.

This version of the copy blocks in SIMATIC iMap V2.0 1 is not released for use with ET 200X, order no. 6ES7147-1AA01-0XB0.

Using ET 200X

SIMATIC iMap V2.0 SP1 is not released for use with ET 200X with order no. 6ES7147-1AA01-0XB0.

4.2   Other information

Rules for configuring the Sync domain and topology

When creating a Standard component, the configured Sync domain and topology of the SIMATIC-300-/400 station in Step7 Basic project is checked. If one of the following rules is broken, only a singleton component can be created:

- Rule 1: A Sync domain / topology connection must be fully configured within the SIMATIC Station.
- Rule 2: A Sync domain / topology connection is only allowed to range over an Ethernet subnet.

- Rule 3: Within the SIMATIC station of a PROFINET component, one and only one PROFINET IO system (or one and only one PROFINET IO controller) that uses isochronous realtime (IRT) communication can be defined.

- Rule 4: On an Industrial Ethernet subnet, one and only one PROFINET IO system (or one and only one PROFINET IO controller) that uses IRT communication can be configured.

PROFINET IO controllers and devices with a default port in the topology editor

These modules have no configured ports to the PROFINET interface in HW Config, for example, CP 443-1 Advanced IT, order number 6GK7 443-1EX40-0XE0 and 6GK7 443-1EX41-0XE0. No topology configured for these CPs is supported for PROFINET CBA components and there is no display in the topology editor.

Use of fail-safe signal modules

Hardware configurations with fail-safe signal modules, for example, SM 326F DI/DO or SM 336F AI, in DP slaves with fixed functionality (S7 slaves/standard slaves), are not supported for creating PROFINET components.

Remedy

Configure such DP slaves on the local PROFIBUS of an F CPU and create the PROFINET component of the station, if you require the fail-safe signal modules for your application.

Revising PROFINET components

Recommendation:

If multiple revision of PROFINET components in SIMATIC iMap is required, we recommend that you always use the latest version of the PROFINET component as the basis for further revision. This way you will avoid assigning the same version number several times.

PROFINET components out of DP slaves of fixed functionality

Rule

To create the PROFINET component of a DP slave fixed functionality (S7 slave or standard slave), a SIMATIC 300 station is required in the STEP 7 Basic project, in which one CPU is exactly configured as an integrated PROFIBUS interface as DP master, e.g. CPU 315-2 DP. The decentralized I/O device of which the PROFINET component should be created, must be configured as DP slave on this DP master system.

Make sure that the SIMATIC 300 station does not contain any more PROFIBUS interfaces as DP master, whether interfaces nor on PROFIBUS-CPs, otherwise it is not possible to create the PROFINET component out of a DP slave.

PROFINET component out of a CPU-400 as intelligent DP slaves

Hardware configurations with CPU-400 AND Ethernet CP as intelligent DP slaves are not supported for the creation of PROFINET components in SIMATIC iMap STEP 7 Add-on V3.0.

PROFINET components out of intelligent DP slaves that were created with earlier versions of SIMATIC iMap STEP 7 add-on.

It is not possible to download the program to PROFIBUS devices whose PROFINET components were created with SIMATIC iMap STEP 7 add-on V1.2 if the configured output address area or input address area in the STEP 7 component project is located only partially inside the process map.

In this case the consistency test in HW Config will result in the following error message being displayed:

"The input address area / output address area ... must be located either completely inside or completely outside the process image."

Remedy:

Revise the PROFINET component and recreate it with SIMATIC iMap STEP 7 Add-on V3.0 or later.

Modifying data type in PROFINET Interface Editor

A data type modification in the PROFINET Interface Editor is not saved if, after the modification (selection of data type from the list), the File > Save menu command is called immediately or the "Save" icon is clicked.

Remedy:

After modifying the data type, click in any field outside the one that has been modified before saving the modified interface DB.

Creating PROFINET components with an HMI component

The Component Manager of WinCC flexible 2005 (V1.1) does not support the currently required PCD format (PROFINET Component Description, XML for PROFINET components). This is why it is not possible to use it to create any PROFINET components for SIMATIC iMap V3.0

4.3 Further information

On the Internet

You can find additional information on component-based automation, PROFINET and SIMATIC iMap on the Internet at "http://www.siemens.com/automation/service&support"

You will find additional information at "http://www.siemens.com/cba".