FAQ • 05/2014

S7 Communication between SIMATIC S7-1200 and SIMATIC S7-300

STEP 7 V13 (TIA Portal) / STEP 7 V5.5 SP3

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Contents

1 Introduction

This document shows you how to exchange data between an S7-1200 and an S7-300 using S7 Communication.

For this the SIMATIC S7-300 is configured and programmed in STEP 7 V5.5 SP3. It sets up the S7 connection actively.

The SIMATIC S7-1200 is configured and programmed in STEP 7 V13 (TIA Portal).

2 Configuration and Programming of the SIMATIC S7-1200 in STEP 7 V13 (TIA Portal)

You configure and program the SIMATIC S7-1200 in STEP 7 V13 (TIA Portal).

Then you create the user program and define which data is to be exchanged with the S7-300 via the S7 connection.

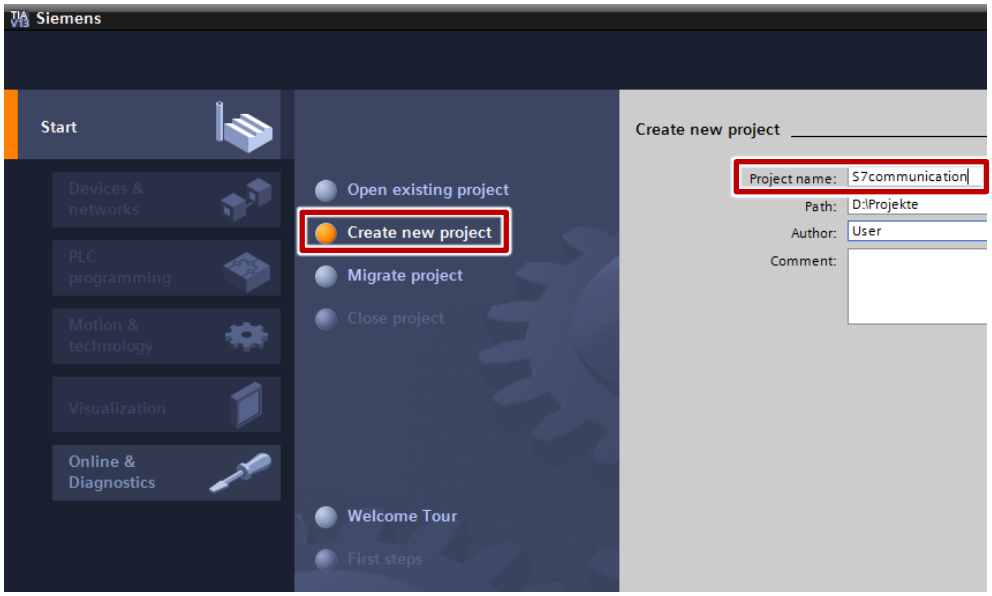
2.1 Creating a Project

In Windows, select the menu "Start > All Programs > Siemens Automation > TIA Portal V13" to start the TIA Portal.

In the Portal View, select the "Create new project" action.

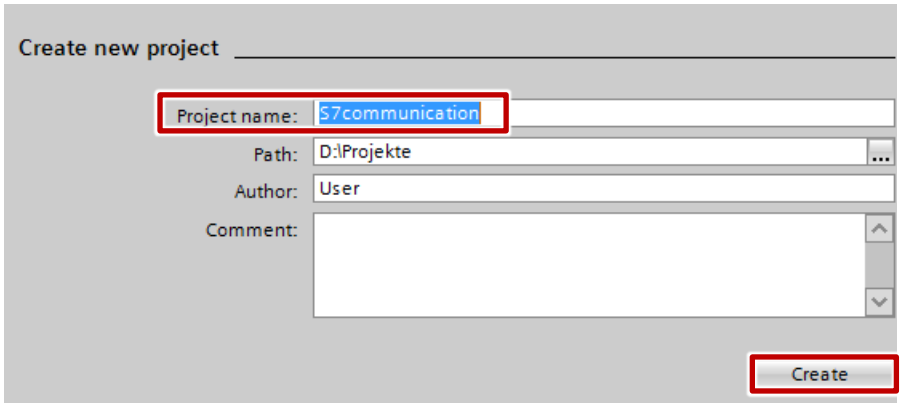
Enter the project name in the appropriate field.

Figure 2-1



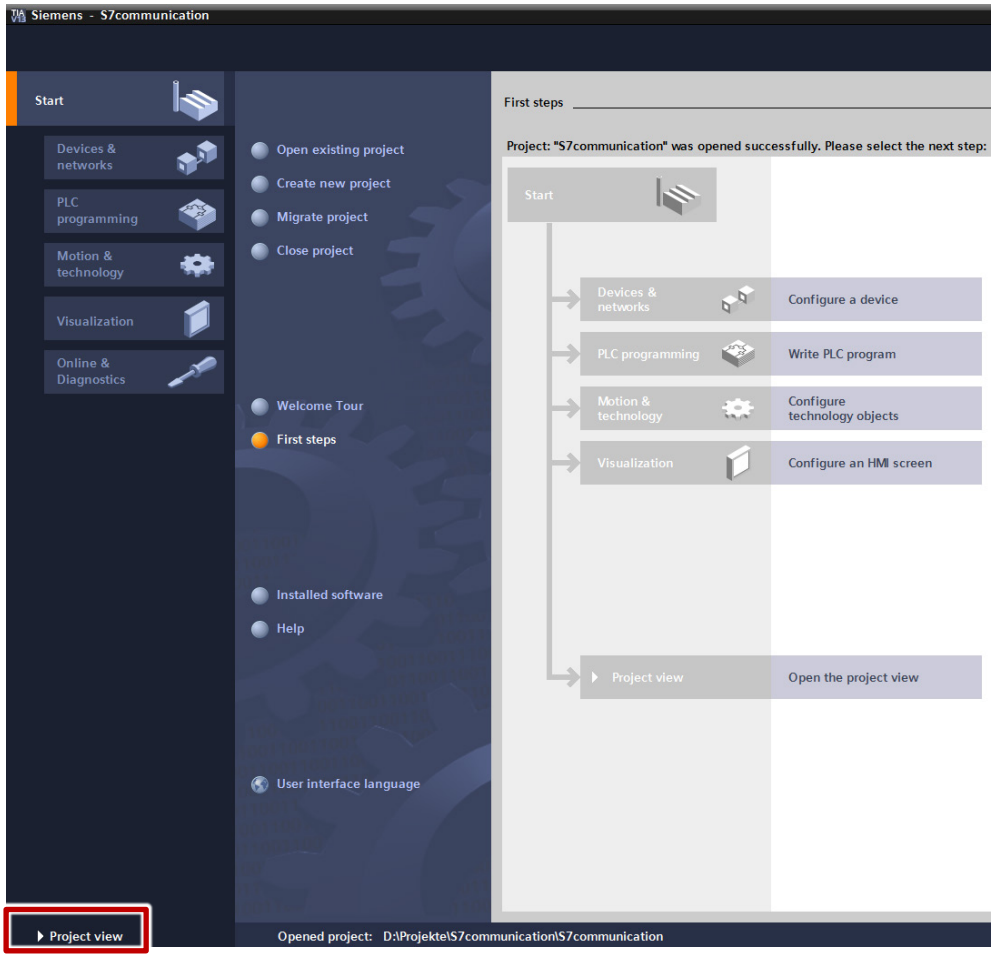
Click the "Create" button to create a new project.

Figure 2-2



Use the "Project View" link to switch to the Project View.

Figure 2-3



2.2 Configuring the Hardware

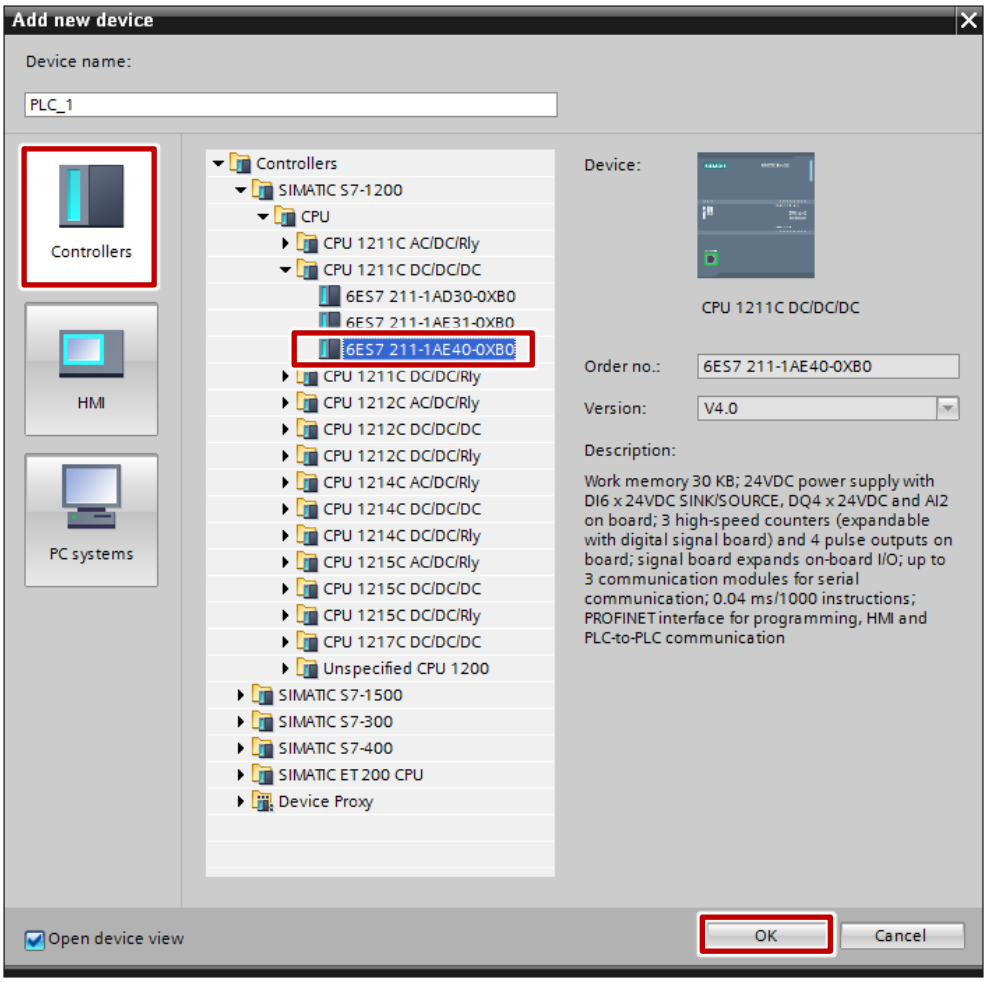
Add a SIMATIC S7-1200

In the project tree, double-click the "Add new device" item. The "Add new device" dialog opens.

Figure 2-4

In the working area, click the "Controllers" button.
Go to "Controllers > SIMATIC S7-1200 > CPU" and select the required controller.
Click the "OK" button to add the selected S7-1200 CPU to your project.

Figure 2-5



Define IP address and assign subnet

In the project tree, double-click the "Devices & networks" item. The Devices and Networks editor opens.

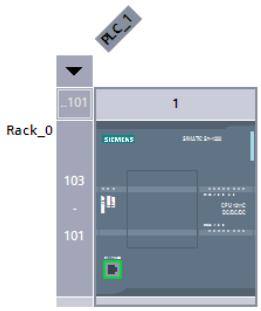
Figure 2-6

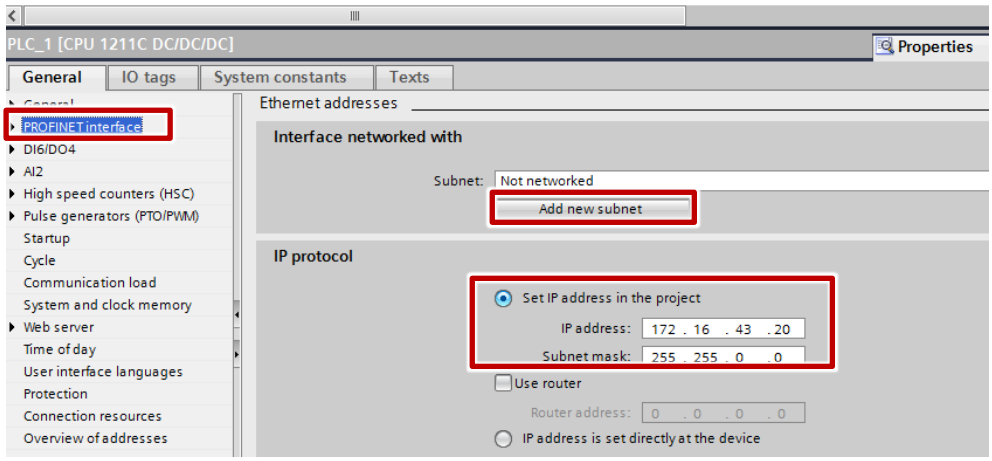
In the Network View or Device View of the Devices and Networks editor you mark the S7-1200 CPU.

In the inspector window you switch to the "Properties" tab. Go to the "General" tab and in the area navigation you select the "PROFINET interface" item.
In this example you enter the IP address 172.16.43.20 and the subnet mask 255.255.0.0 for the PROFINET interface of the S7-1200 CPU.

Then assign a subnet to the PROFINET interface. Click the "Add new subnet" button to insert a new subnet.

Figure 2-7

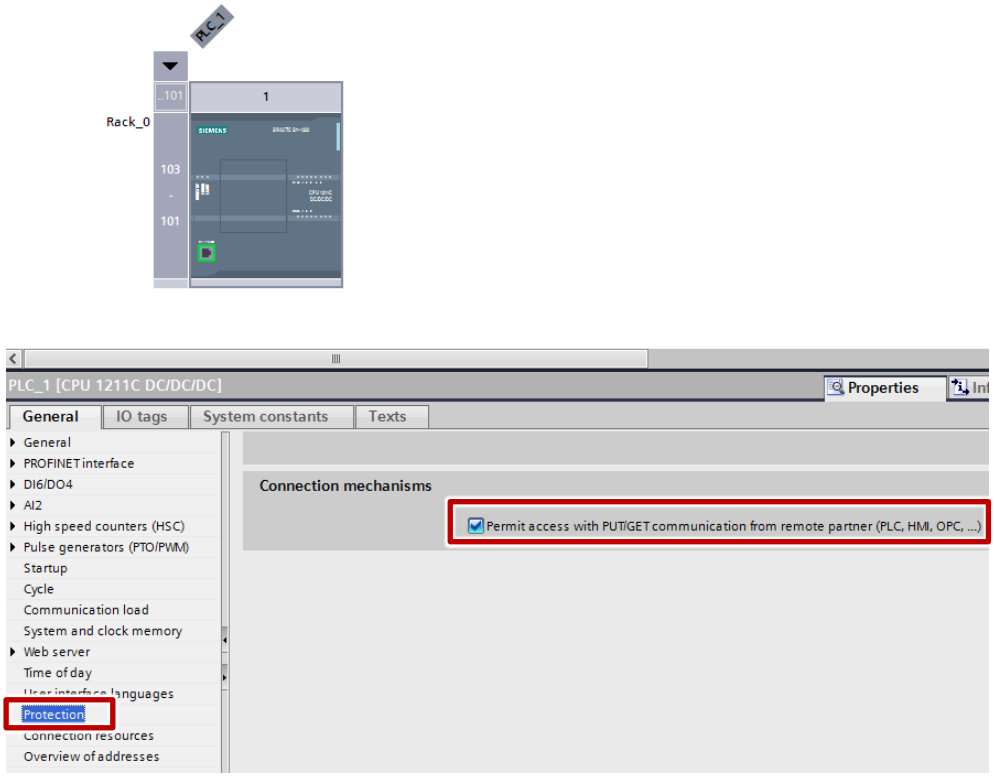




After entering the IP address and the subnet mask and assigning the subnet, in the navigation area of the "General" tab you select the "Protection" item.

Enable the "Permit Access with PUT/GET communication from remote partner (PLC, HMI, OPC …)" function.

Figure 2-8



The connection between the subnet, PN/IE_1, for example, and the S7-1200 is now displayed in the Network View of the Devices and Networks editor.

2.3 Creating a User Program

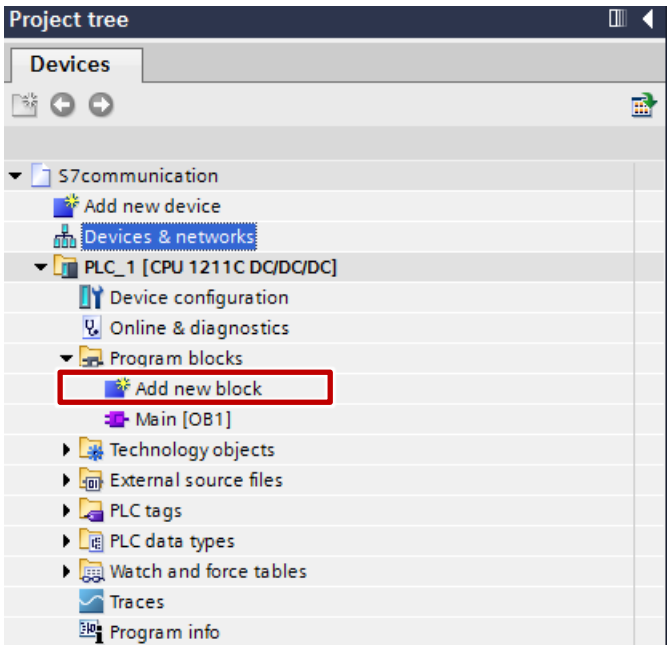
In the user program of the S7-1200 CPU you add the data blocks for saving the Send and Receive data.

Add data block for saving the Send data

In the project tree you mark the device folder of the S7-1200 CPU. The device folder contains structured objects and actions that belong to the device.

In the device folder you navigate to the "Program blocks" subfolder and double-click the "Add new block" action. The "Add new block" dialog opens.

Figure 2-9

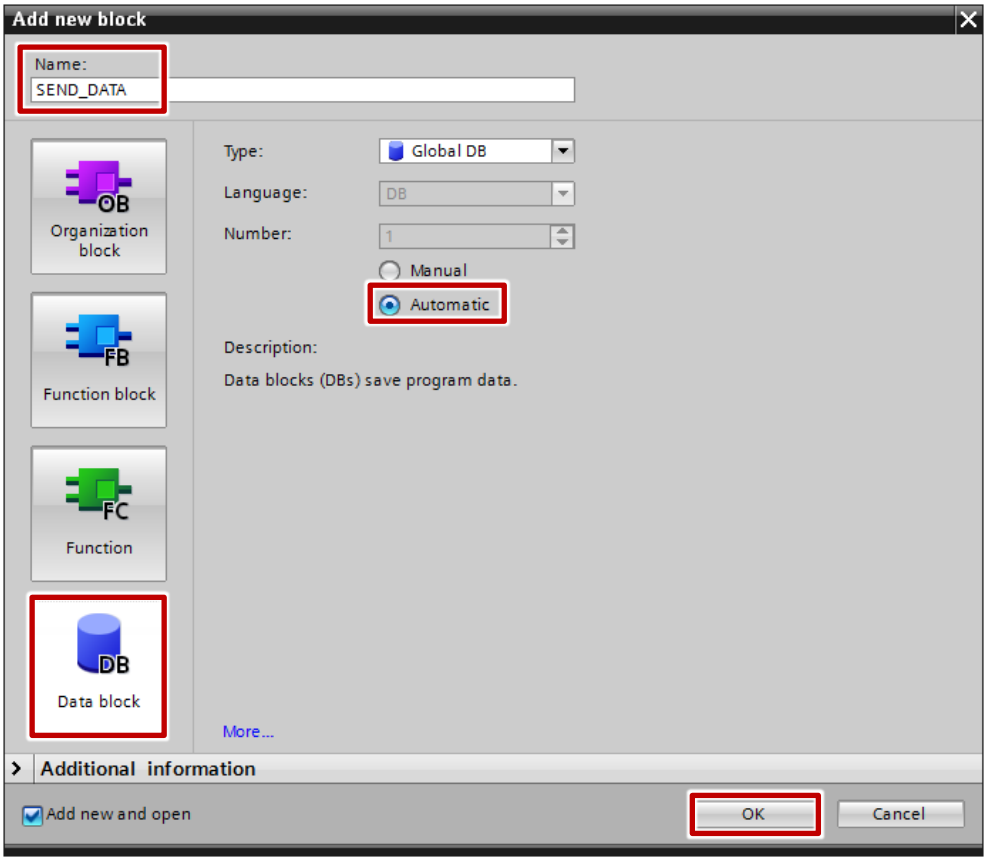


Click the "Data block (DB)" button. Enter the name of the data block and enable the "Automatic" option to assign the number of the data block automatically. If you enable the "Manual" option, you can assign the number of the data block manually.

Apply the settings with "OK".

The data block DB1 "SEND_DATA" is created in this example for saving the Send data.

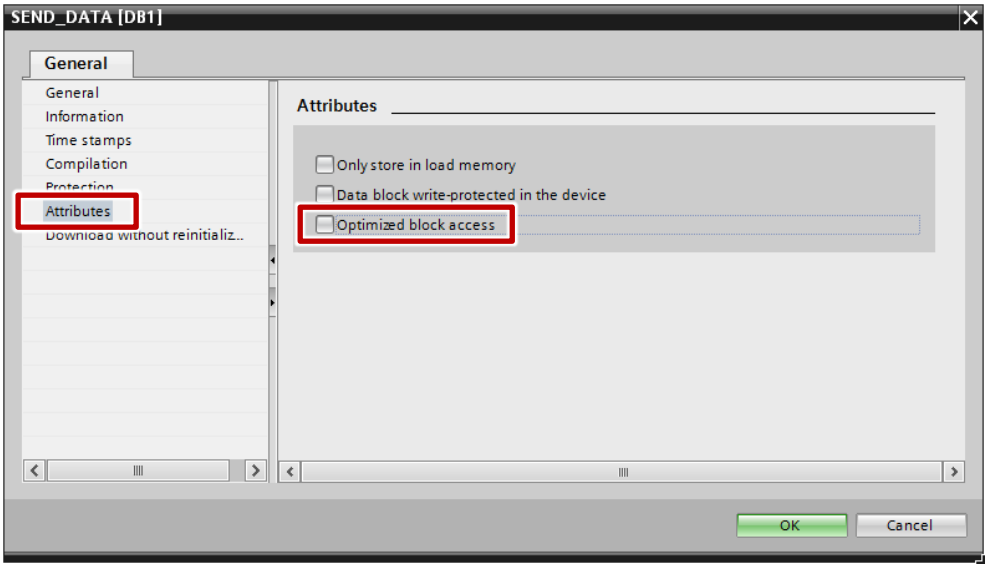
Figure 2-10



In the Properties of the data block, under "Attributes" you disable the "Optimized block access" function.

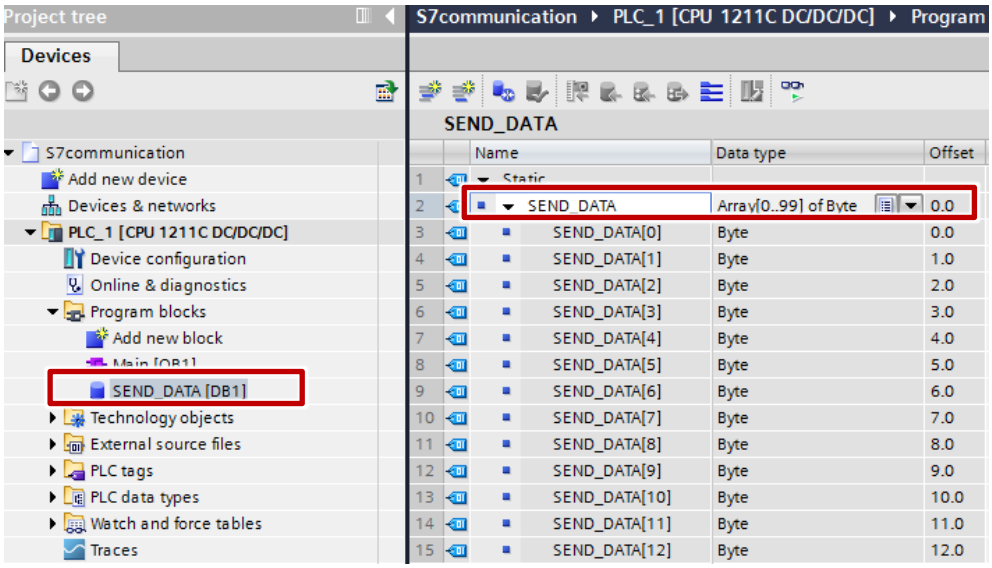
Data blocks with standard access have a fixed structure. The data elements in the declaration include both symbolic names and a fixed address in the block. The address is displayed in the "Offset" column. You can address the variables in this block both symbolically and absolutely.

Figure 2-11



In DB1 "SEND_DATA" you define the static variable "SEND_DATA" of the data type Array[0..99] of Byte.

Figure 2-12



Add data block for saving the Receive data

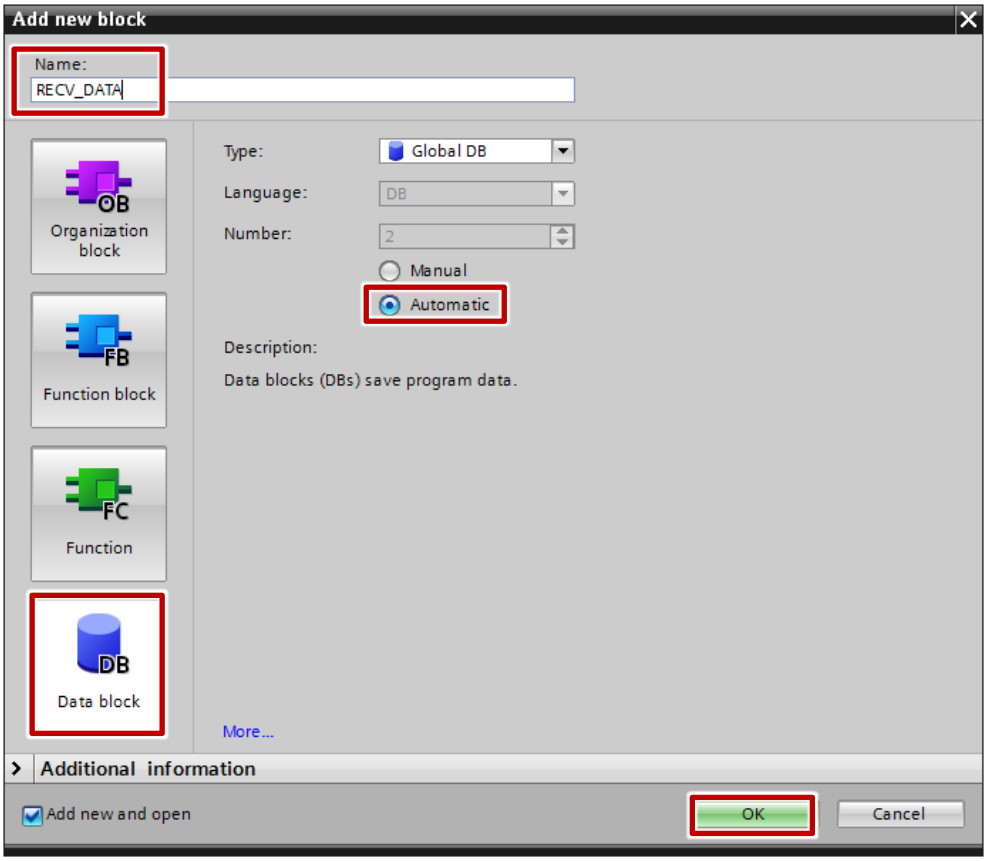
Add another data block for saving the Receive data.

In the "Add new block" dialog you click the "Data block (DB)" button. Enter the name of the data block and enable the "Automatic" option to assign the number of the data block automatically. If you enable the "Manual" option, you can assign the number of the data block manually.

Apply the settings with "OK".

The data block DB2 "RECV_DATA" is created in this example for saving the Receive data.

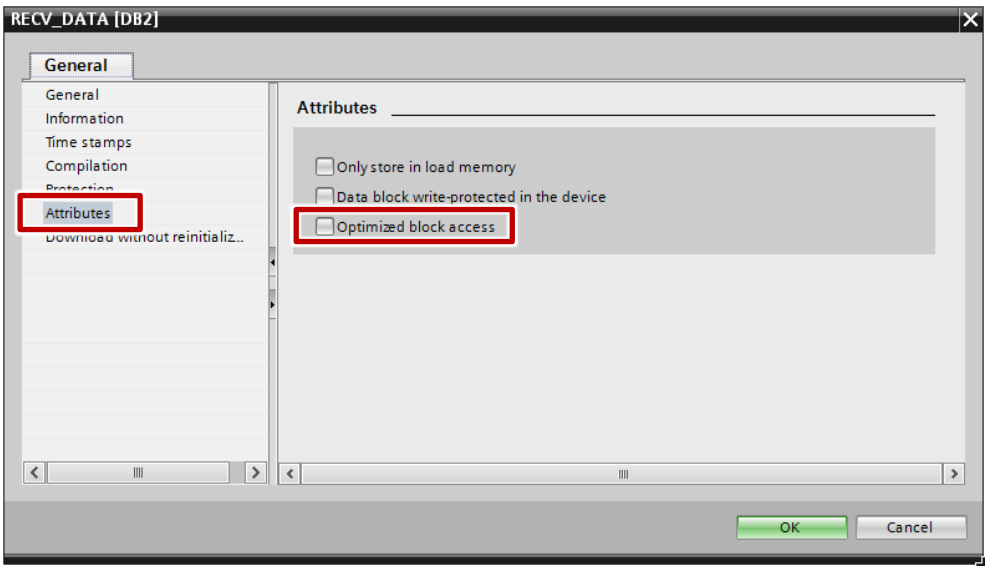
Figure 2-13



In the Properties of the data block, under "Attributes" you disable the "Optimized block access" function.

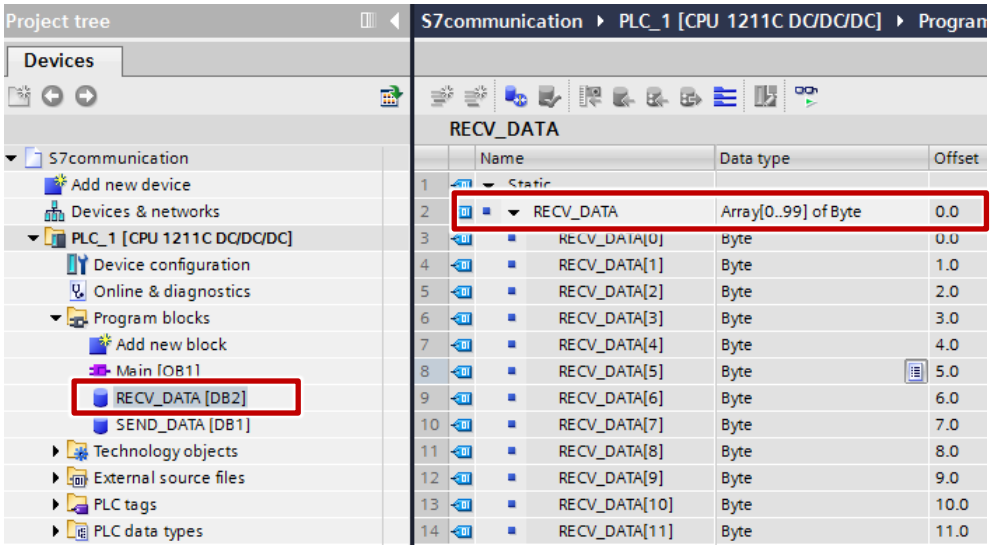
Data blocks with standard access have a fixed structure. The data elements in the declaration include both symbolic names and a fixed address in the block. The address is displayed in the "Offset" column. You can address the variables in this block both symbolically and absolutely.

Figure 2-14



In DB2 "RECV_DATA" you define the static variable "RECV_DATA" of the data type Array[0..99] of Byte.

Figure 2-15



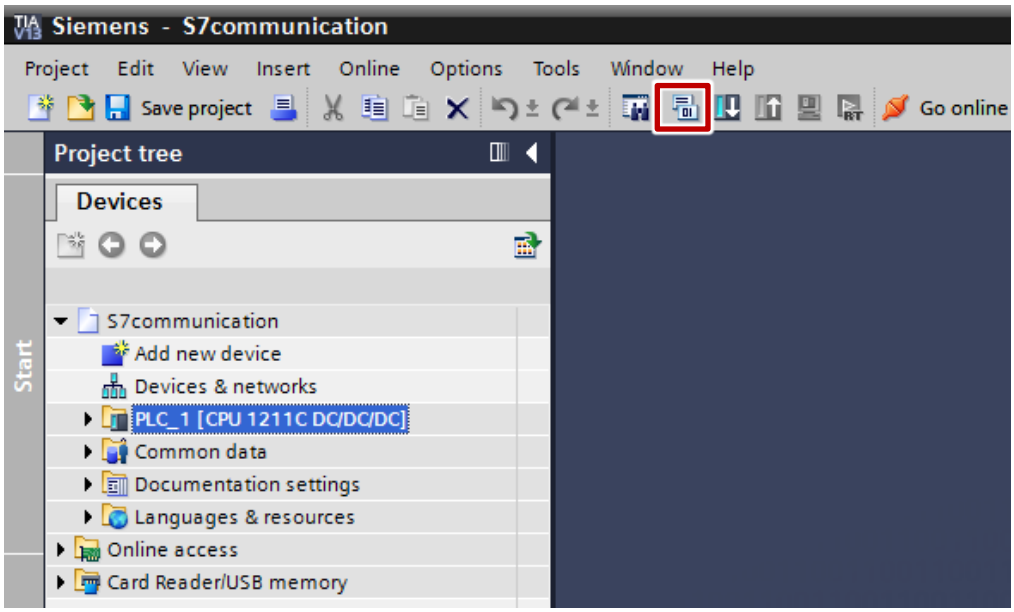
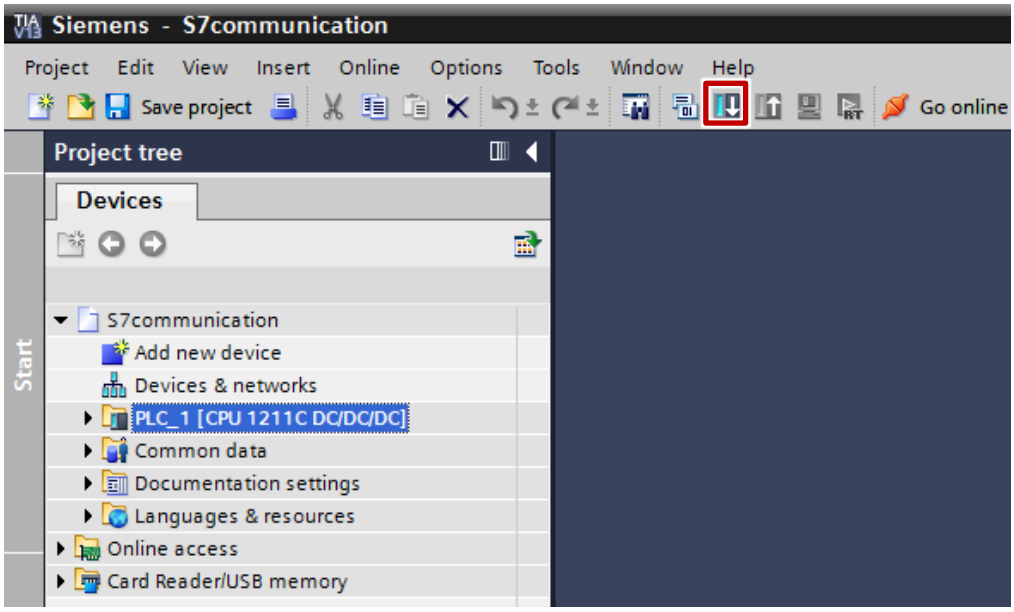
2.4 Downloading the Hardware Configuration and User Program

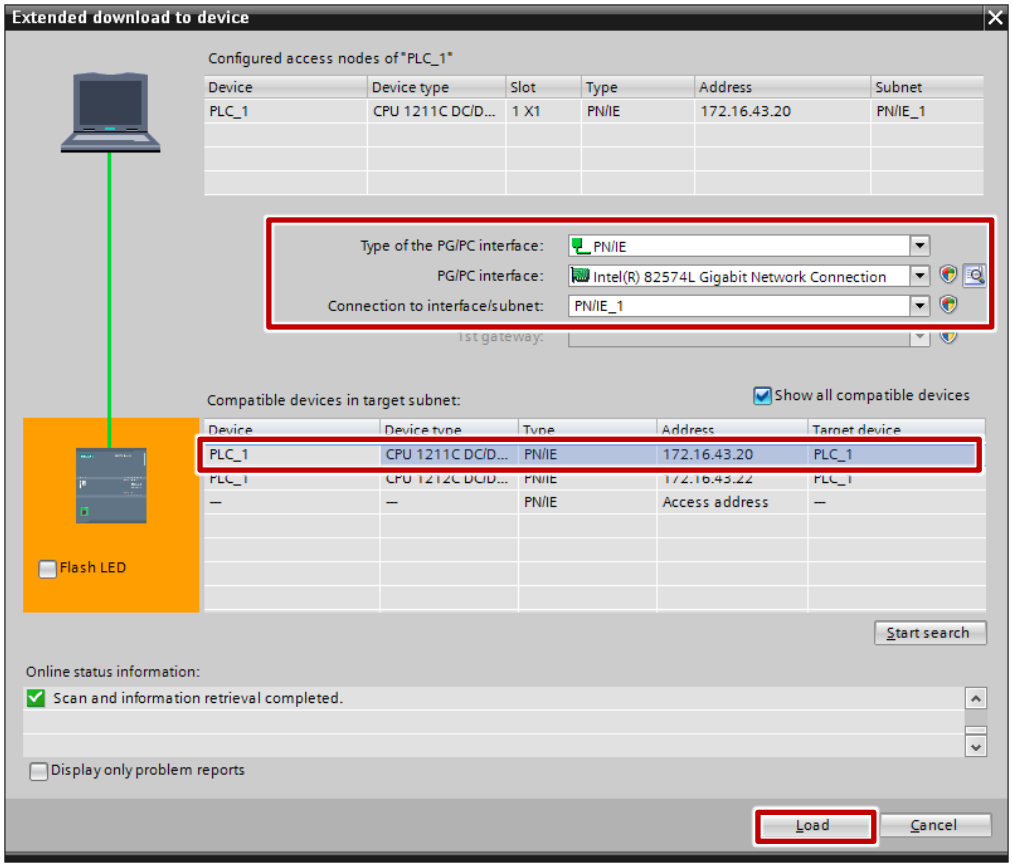
Requirements

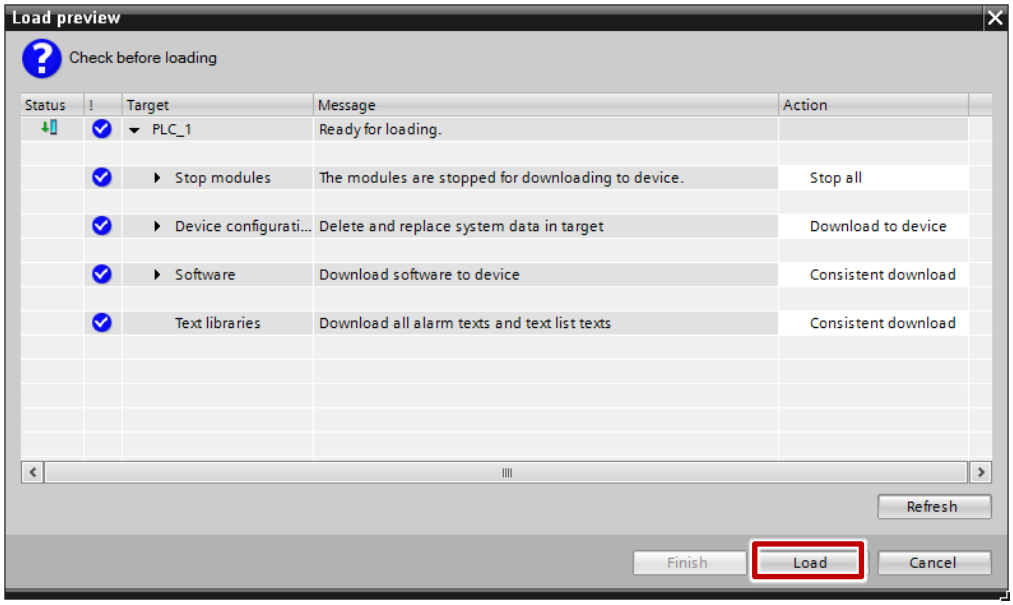
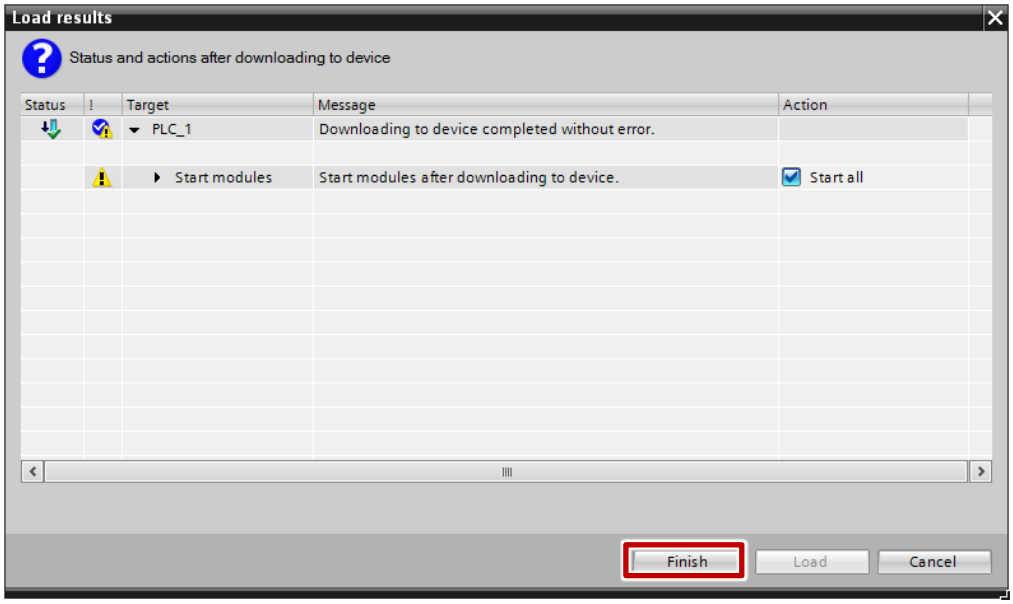
You have already assigned the configured IP address 172.16.43.20 and subnet mask 255.255.0.0 to the S7-1200 CPU.

Instructions

Follow the instructions below to download the configuration and user program into the S7-1200 CPU.

No.	Action
1.	In the project tree you mark the device folder of the S7-1200 CPU. Click the "Compile" button in the toolbar. The hardware configuration and the software of the S7-1200 are compiled. 
2.	In the project tree you mark the device folder of the S7-1200 CPU. Click the "Download to device" button in the toolbar. The "Extended download to device" or "Load preview" dialog opens automatically. 

No.	Action
3.	The "Extended download to device" dialog opens automatically only if the access path from the PG/PC to the S7-1200 CPU has to be set. • Type of the PG/PC interface: PN/IE • PG/PC interface: network card of the PG/PC • Connection to subnet: subnet to which the S7-1200 CPU is connected From the "Compatible devices in target subnet:" list you select the required S7-1200 CPU and click the "Load" button. 

No.	Action
4.	In the "Load preview" dialog you click the "Load" button to start the loading procedure. 
5.	In the "Load results" dialog you enable the "Start all" action and click the "Finish" button to terminate the loading procedure. 

3 Configuration and Programming of the SIMATIC S7-300

You configure and program the SIMATIC S7--300 in STEP 7 V5.5 SP3.

Then you create the user program and define which data is to be exchanged with the S7-300 via the S7 connection.

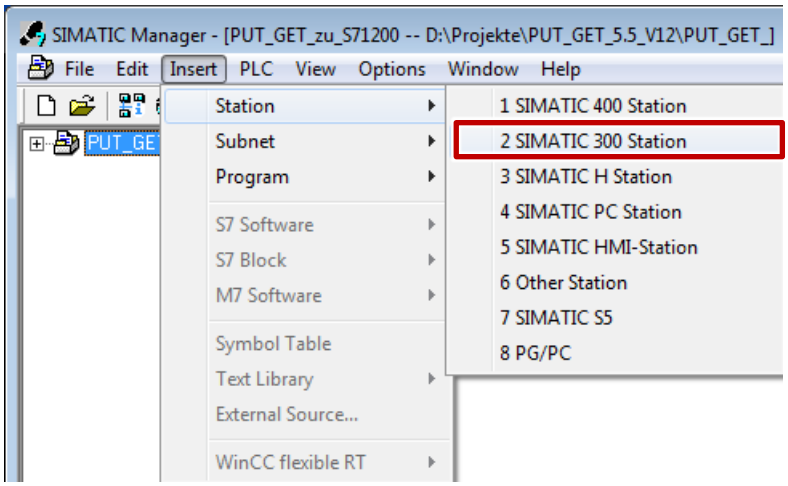
3.1 Creating a Project

In Windows, select the menu "Start > All Programs > SIMATIC > SIMATIC Manager" to start the SIMATIC Manager in STEP 7 V5.5 SP3.

In the SIMATIC Manager, you create a new project with the menu "File > New".

In the SIMATIC Manager, you add a SIMATIC PC station with the menu "Insert > Station > SIMATIC S7-300 Station".

Figure 3-1



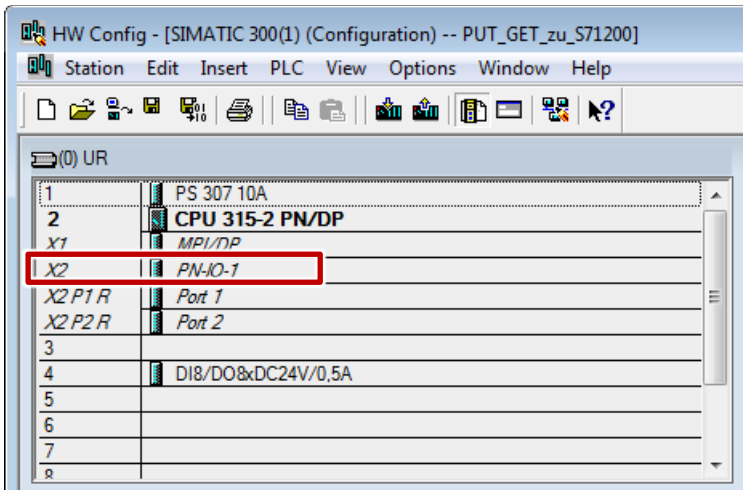
3.2 Configuring the Hardware

Create the hardware configuration of the S7-300 station by drag-and-dropping the relevant modules like Power Supply, CPU etc. from the hardware catalog into the S7-300 profile channel.

Define IP address and assign subnet

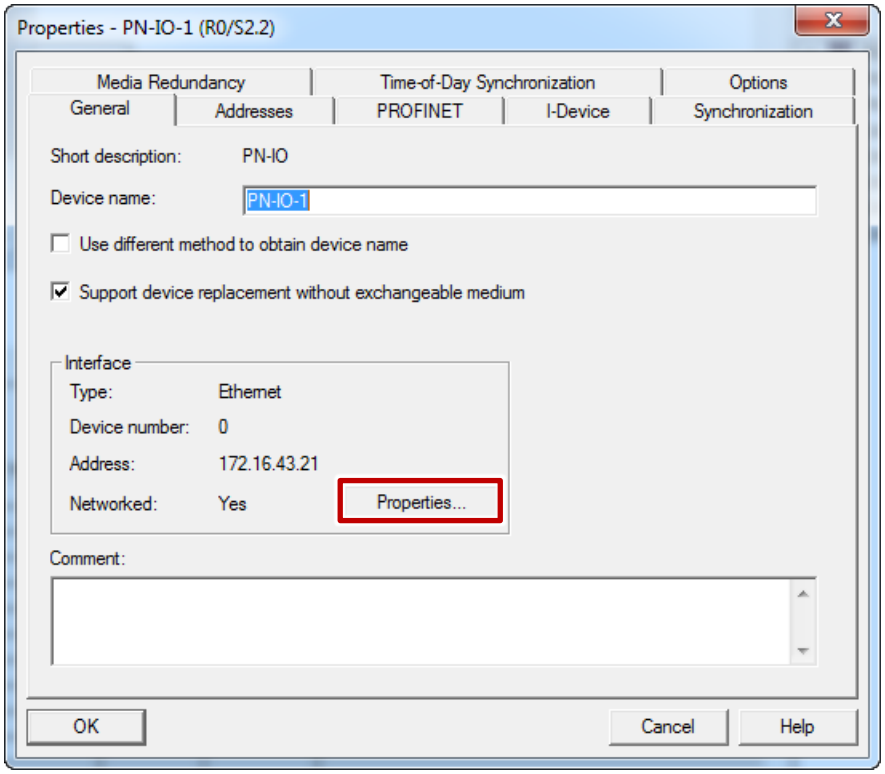
Double-click the PROFINET interface of the S7-300 CPU. The Properties dialog of the PROFINET interface opens.

Figure 3-2



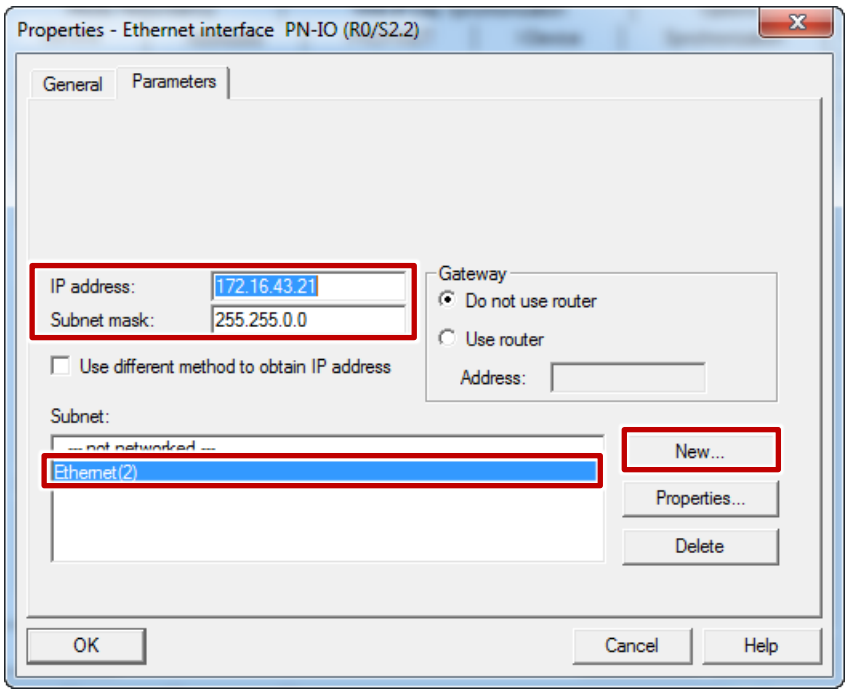
Click the "Properties" button to change the IP address and subnet mask and assign the subnet.

Figure 3-3



In this example you enter the IP address 172.16.43.21 and the subnet mask 255.255.0.0. Click the "New" button to insert a new subnet. Select the new subnet or another existing subnet. Click the “OK” button to apply the IP address and subnet mask and assign the selected subnet to the PROFINET interface of the S7-300 CPU.

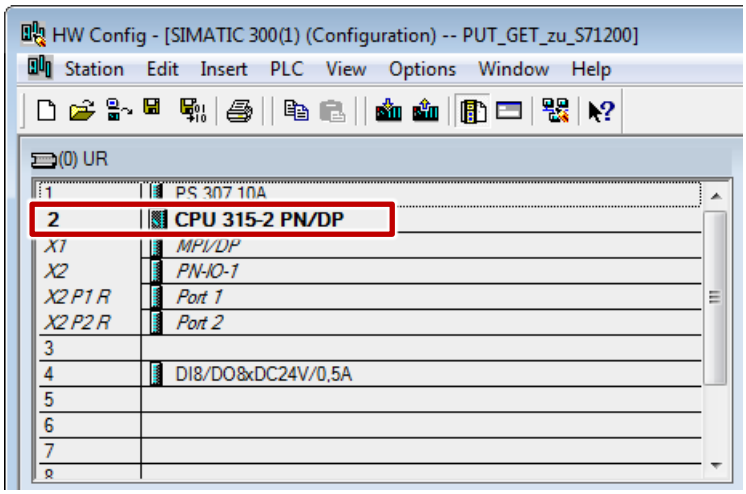
Figure 3-4



Clock memory

Double-click the S7-300 CPU. The Properties dialog of the S7-300 CPU opens.

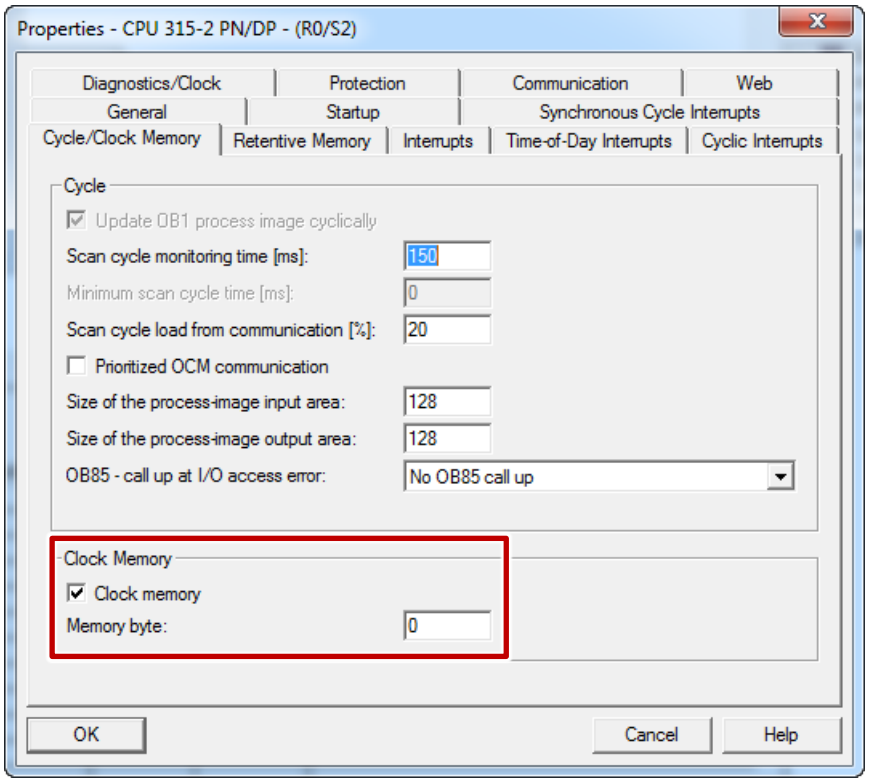
Figure 3-5



Switch to the "Cycle/Clock Memory" tab and enable, for example, the memory byte 0 as clock marker.

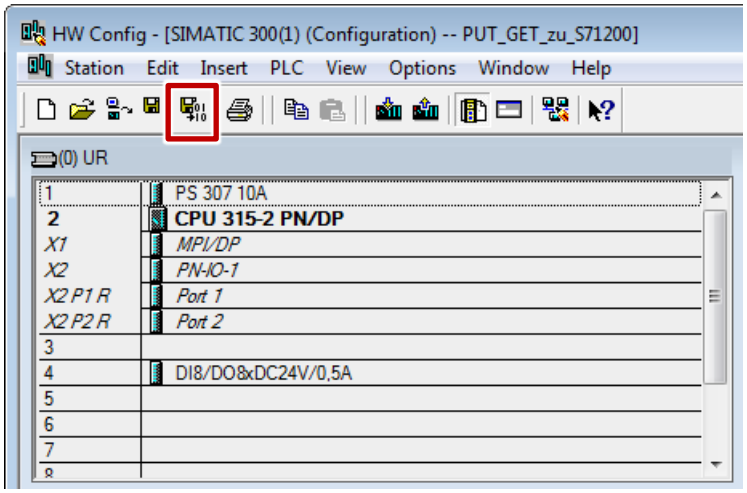
Apply the settings with "OK".

Figure 3-6



Click the "Save and Compile" button to save and compile the configuration of the SIMATIC S7-300.

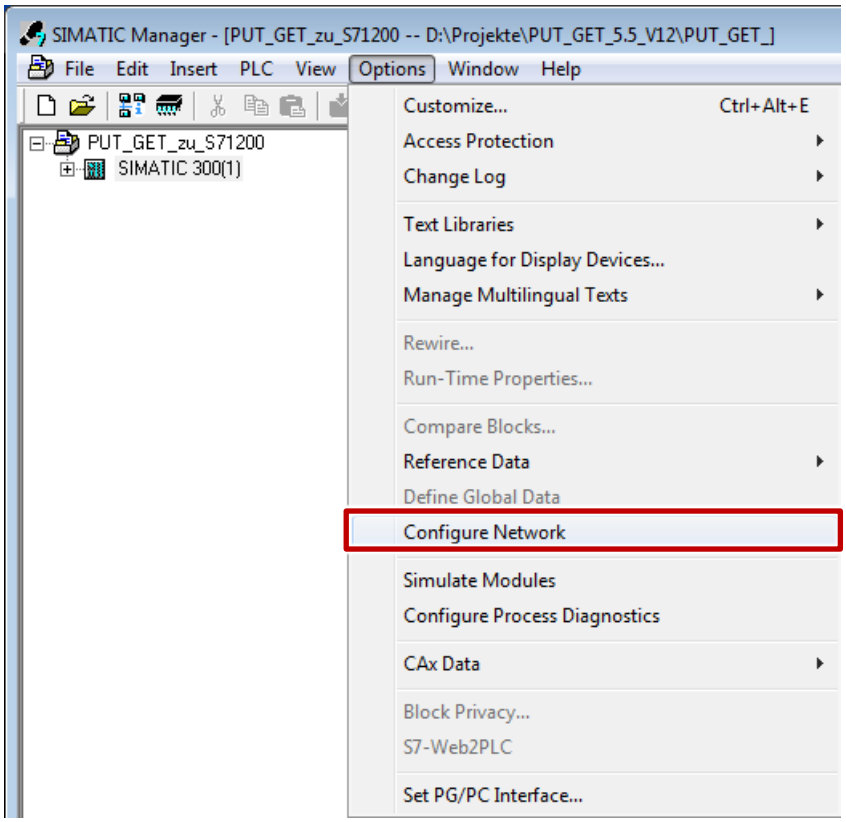
Figure 3-7



3.3 Configuring the S7 Connection

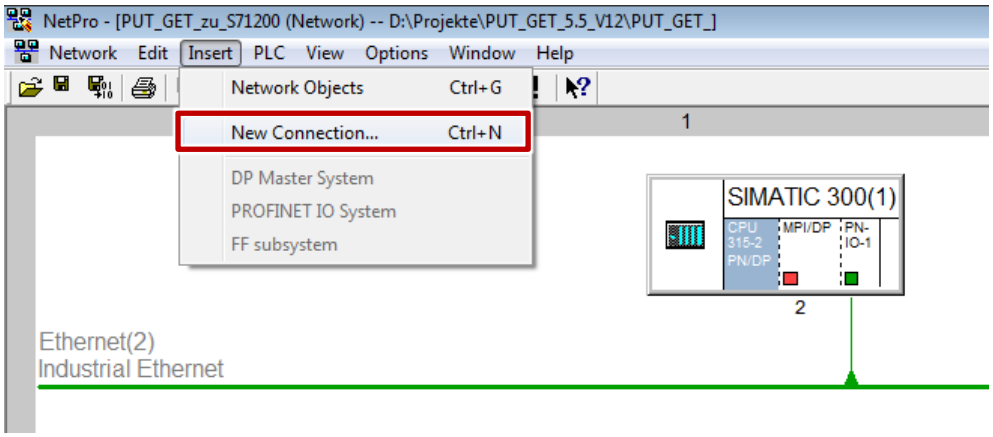
In the SIMATIC Manager you open the "NetPro" tool via the menu "Options > Configure Network". In "NetPro" you configure the S7 connection for the S7-300 CPU.

Figure 3-8



Mark the CPU in the SIMATIC S7-300 station. Open the "Insert New Connection" dialog via the menu "Insert > New Connection". In this example you insert an unspecified S7 connection.

Figure 3-9

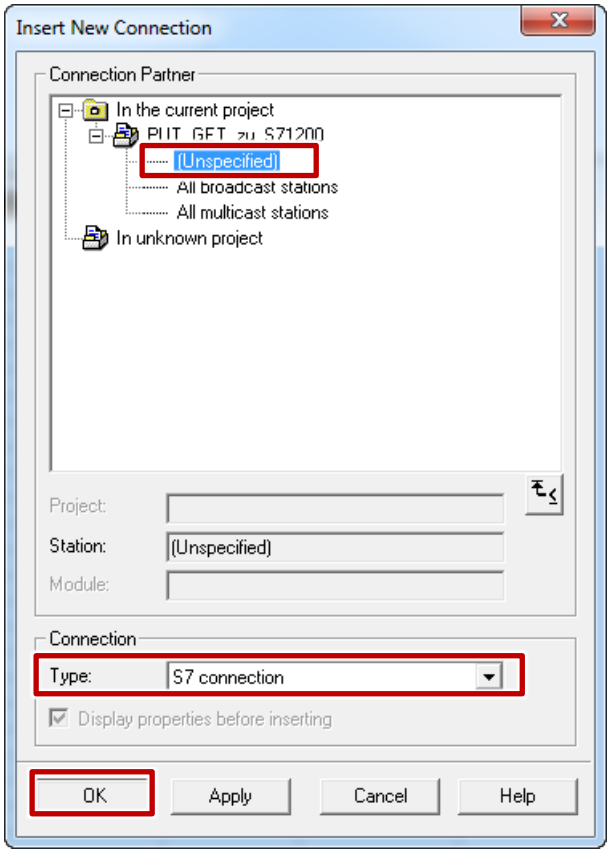


Select the entry "(Unspecified)" under Connection Partner.

Select "S7 connection" as the connection type.

Click "Apply". The Properties dialog of the S7 connection opens.

Figure 3-10



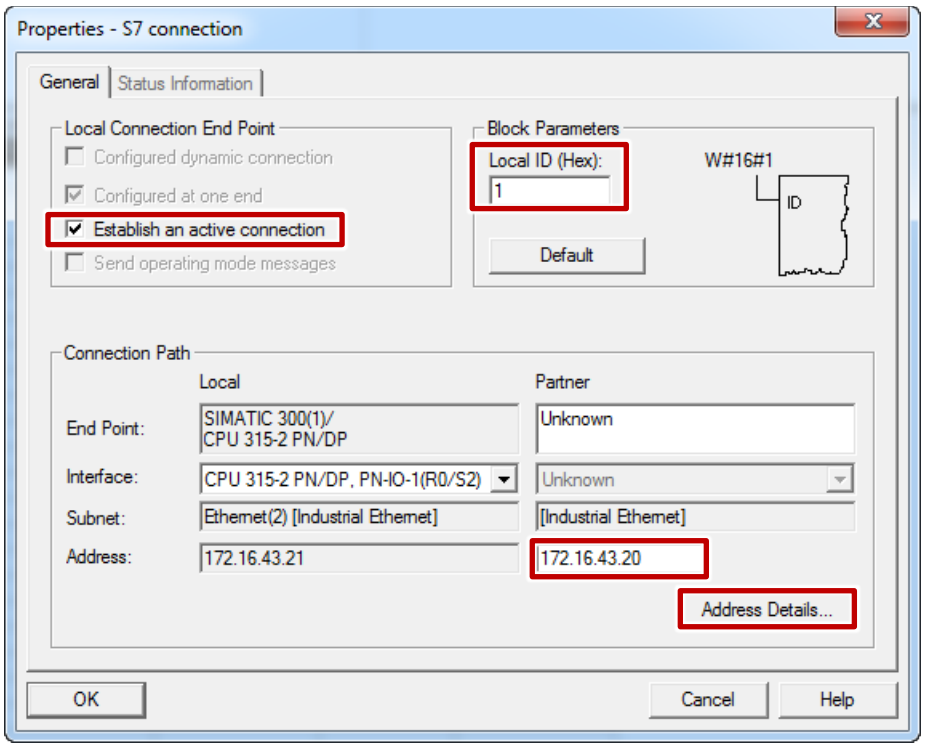
The S7-300 CPU sets up the S7 connection actively.

Enter the IP address of the communication partner. In this example you enter the IP address of the S7-1200 station.

You specify the local ID of the connection in the user program at the input parameter ID of the function blocks FB15 "PUT" and F14 "GET".

Click the "Address Details..." button. The "Address Details" dialog opens.

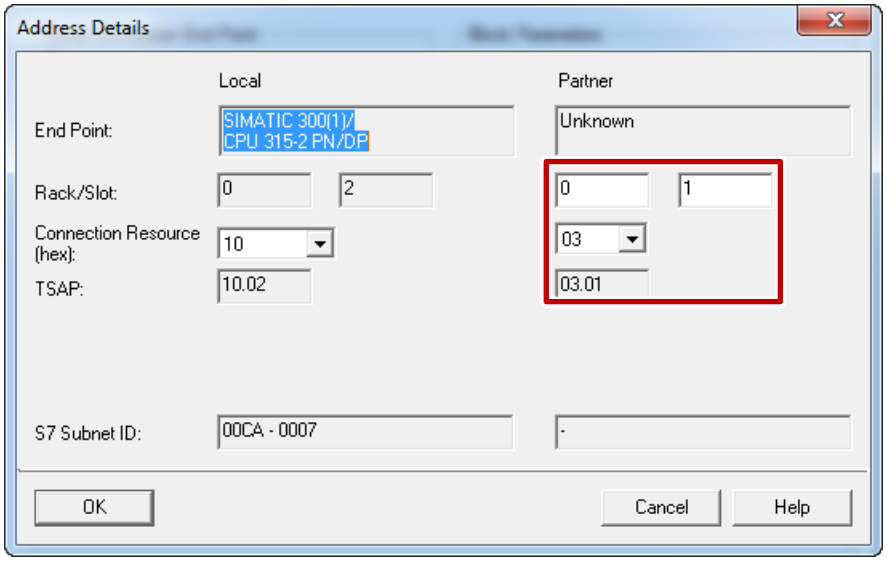
Figure 3-11



Enter the Rack/Slot of the communication partner. The S7-1200 CPU uses Rack 0 and Slot 1. For the Connection Source (hex) you select 03, because the S7 connection is configured unilaterally only in the S7-300 CPU. With these settings the TSAP 03.01 is used for the S7 connection in the communication partner.

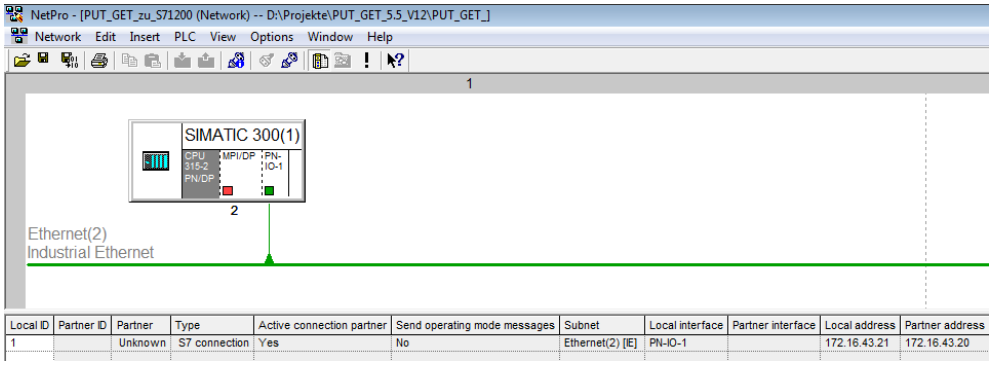
Apply the settings with "OK".

Figure 3-12



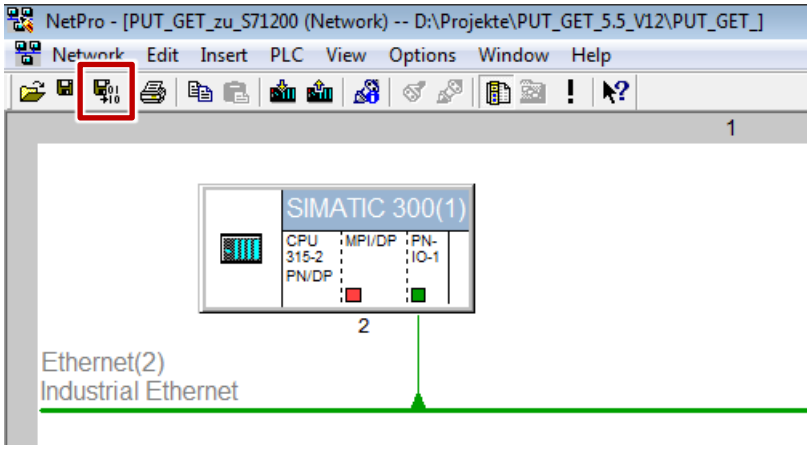
In NetPro, mark the CPU in the SIMATIC S7-300 station. The connection table shows all the connections configured for the CPU.

Figure 3-13



In NetPro you mark the S7-300 station. In the toolbar you click the "Save and Compile" button to save and compile the connection configuration.

Figure 3-14



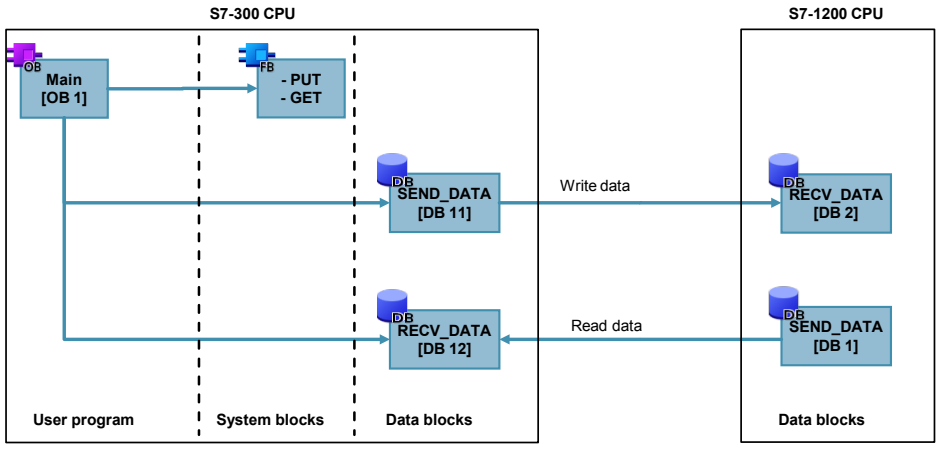
3.4 Creating a User Program

In the user program of the S7-300 CPU you call the function blocks FB15 "PUT" and FB14 "GET".

The function blocks FB15 "PUT" and FB14 "GET" are located in the Standard Library under "Communication Blocks > Blocks". Copy the function blocks from the Standard Library and insert them in your STEP 7 project.

The figure below shows the block calls in the S7-300 and S7-1200 CPUs.

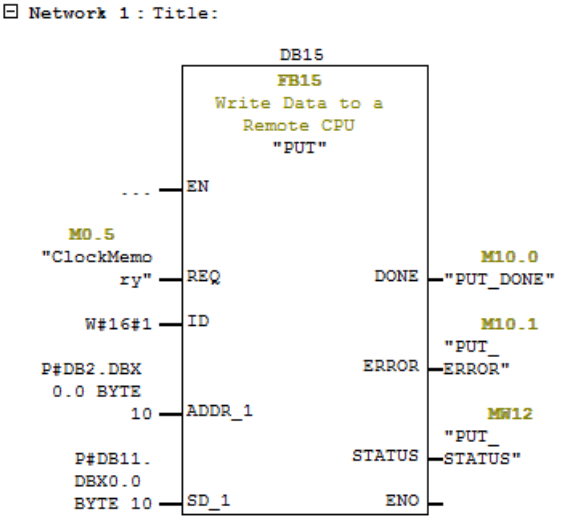
Figure 3-15



3.4.1 FB15 "PUT"

You use FB15 "PUT" to write data to the S7-1200 CPU.

Figure 3-16



FB15 "PUT" has the following input parameters.

Table 3-1

Input parameters	Data type	Description
REQ	BOOLEAN	Request control parameter, enables data transfer on a rising edge In this example the job to write the data is enabled via the clock memory M0.5 "ClockMemory".
ID	WORD	Reference to the local connection description (preset by the connection configuration in STEP 7) In this example the ID = w#16#1 is preset by the configuration connection (see Figure 3-1).
ADDR_1	ANY	Pointer to the area to be written to in the partner CPU (Receive data area in the partner CPU, here S7-1200 CPU). More information about the Receive data area in the S7-1200 CPU is available in section 3.4.3.
SD_1	ANY	Pointer to the area in your own CPU which contains the data to be sent (Send data area in your own CPU, here S7-300 CPU). More information about the Send data area in the S7-300 CPU is available in section 3.4.2.

FB15 "PUT" has the following output parameters.

Table 3-2

Output parameters	Data type	Description
DONE	BOOLEAN	State parameter DONE: 0 = Job not yet started or is still being executed 1 = Job executed error-free
ERROR	BOOLEAN	State parameters ERROR and STATUS: • ERROR = 0: - STATUS = 0000(hex): neither warning nor error - STATUS <> 0000(hex): warning, STATUS provides detailed information • ERROR = 1: A fault has occurred. STATUS provides detailed information about the type of error.
STATUS	WORD	

3.4.2 Send data area in the S7-300 CPU

In the S7-300 CPU the Send data written to the S7-1200 CPU is stored in data block DB11 "SEND_DATA".

In this example 10 bytes of data starting at address 0 are written from DB11 "SEND_DATA" to the S7-1200 CPU.

3.4.3 Receive data area in the S7-1200 CPU

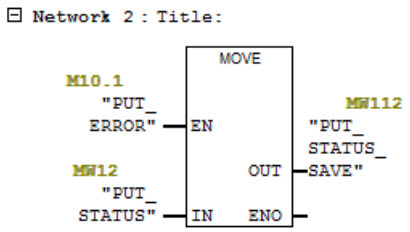
In the S7-1200 CPU the received data is stored in data block DB2 "RECV_DATA".

In this example 10 bytes of data are stored in DB2 "RECV_DATA" starting at address 0.

3.4.4 Error evaluation of the Write job

If the Write job does not terminate successfully, in other words ERROR =1, the value of the output parameter STATUS is stored in MW112 "PUT_STATUS_SAVE".

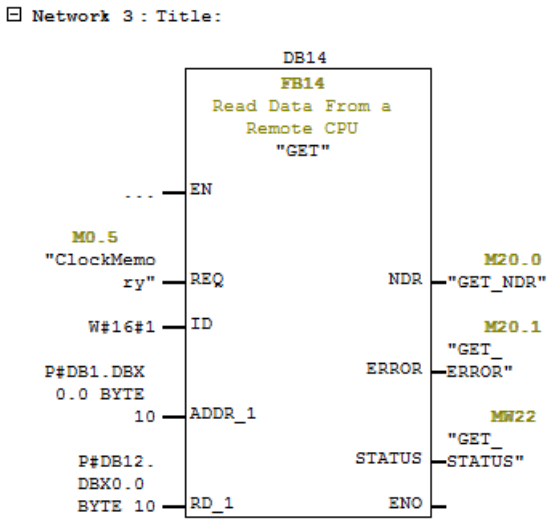
Figure 3-17



3.4.5 FB14 "GET"

You use FB14 "GET" to read data from the S7-1200 CPU.

Figure 3-18



FB14 "GET" has the following input parameters.

Table 3-3

Input parameters	Data type	Description
REQ	BOOLEAN	Request control parameter, enables data transfer on a rising edge In this example the job to read the data is enabled via the clock memory M0.5 "ClockMemory".
ID	WORD	Reference to the local connection description (preset by the connection configuration in STEP 7) In this example the ID = w#16#1 is preset by the configuration connection (see Figure 3-1).
ADDR_1	ANY	Pointer to the area to be read in the partner CPU (Send data area in the partner CPU, here S7-1200 CPU). More information about the Send data area in the S7-1200 CPU is available in the section 3.4.7.
RD_1	ANY	Pointer to the area in your own CPU in which the read data is stored (Receive data area in your own CPU, here S7-300 CPU). More information about the Receive data area in the S7-300 CPU is available in the section 3.4.6.

FB14 "GET" has the following output parameters.

Table 3-4

Output parameters	Data type	Description
NDR	BOOLEAN	State parameter NDR: 0 = Job not yet started or is still being executed 1 = Job executed error-free
ERROR	BOOLEAN	State parameters ERROR and STATUS: • ERROR = 0: - STATUS = 0000(hex): neither warning nor error - STATUS <> 0000(hex): warning, STATUS provides detailed information • ERROR = 1: A fault has occurred. STATUS provides detailed information about the type of error.
STATUS	WORD	

3.4.6 Receive data area in the S7-300 CPU

In the S7-300 CPU the Receive data read from the S7-1200 CPU is stored in data block DB12 "RECV_DATA".

In this example 10 bytes of data are stored in DB12 "RECV_DATA" starting at address 0.

3.4.7 Send data area in the S7-1200 CPU

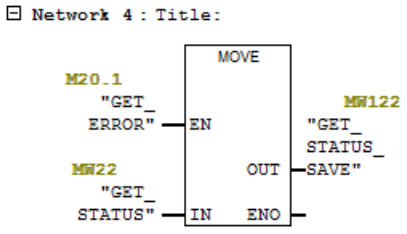
In the S7-1200 CPU the data read from the S7-300 CPU is stored in data block DB1 "SEND_DATA".

In this example 10 bytes of data starting at address 0 are read from DB1 "SEND_DATA" of the S7-1200 CPU.

3.4.8 Error evaluation of the Read job

If the Read job does not terminate successfully, in other words ERROR =1, the value of the output parameter STATUS is stored in MW122 "GET_STATUS_SAVE".

Figure 3-19



3.5 Downloading the Hardware Configuration, Connection Configuration and User Program

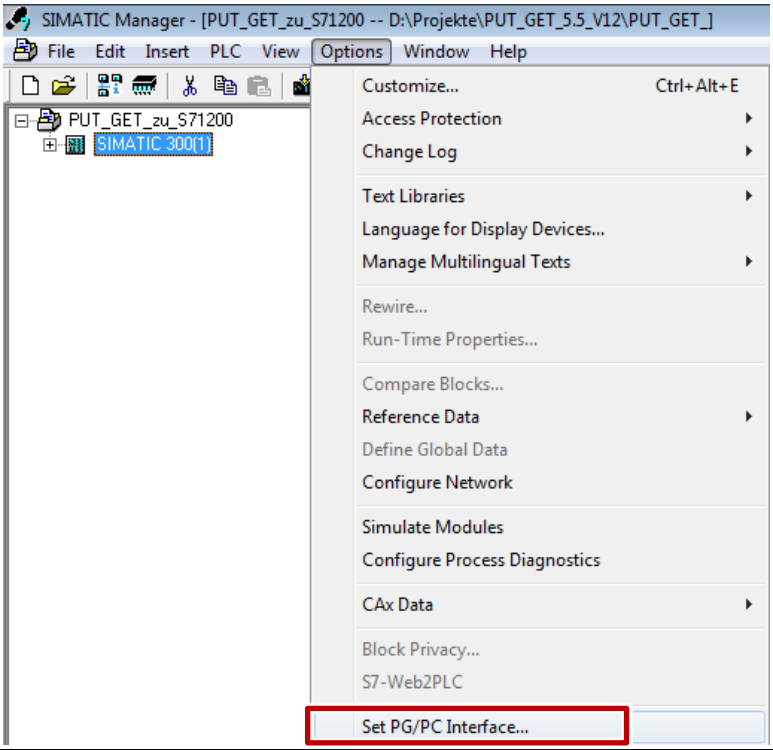
Requirements

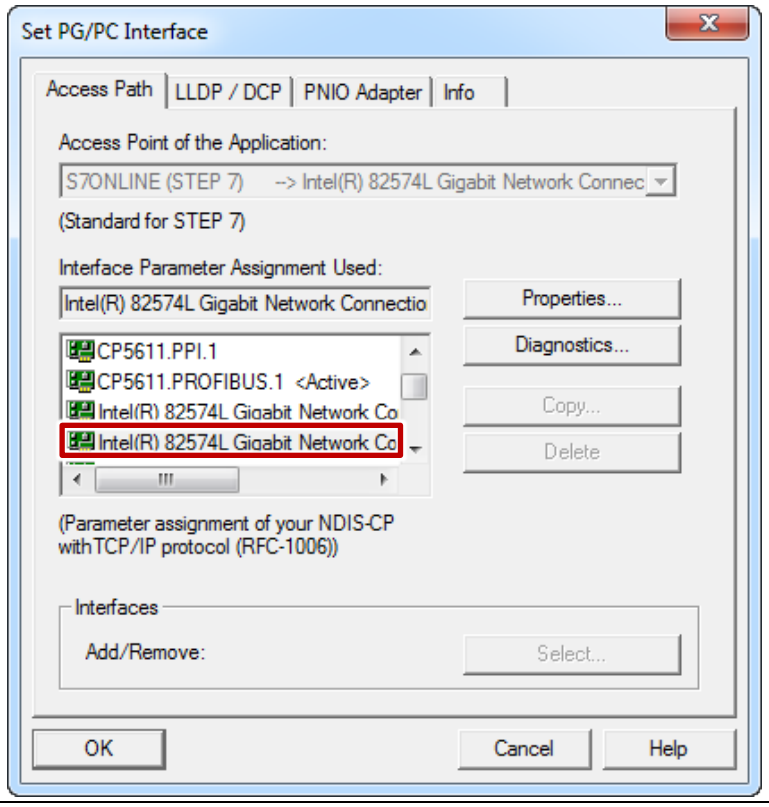
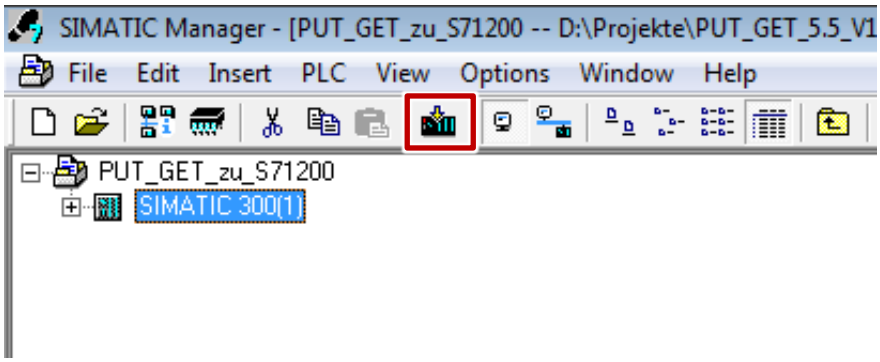
You have already assigned the configured IP address 172.16.43.21 and subnet mask 255.255.0.0 to the S7-300 CPU.

Instructions

Follow the instructions below to download the configuration, the connection configuration and the user program into the S7-300 CPU.

Table 3-5

No.	Description
1.	In the SIMATIC Manager, you select the menu "Options > Set PG/PC Interface". The "Set PG/PC Interface" dialog opens. 

No.	Description
2.	As access point for the application you set the network card with TCP/IP protocol via which the SIMATIC Field PG is connected to the S7-300 CPU and via which you access the S7--300 CPU. Apply the settings with "OK". 
3.	In the SIMATIC Manager you mark the SIMATIC S7-300 station. In the toolbar you click the "Load" button. This loads the configuration, the connection configuration and the user program into the S7-300 CPU. 

4 Operation and Monitoring

Operation and monitoring is done via a variable table in STEP 7 V5.5 SP3 and in STEP 7 V13 (TIA Portal).

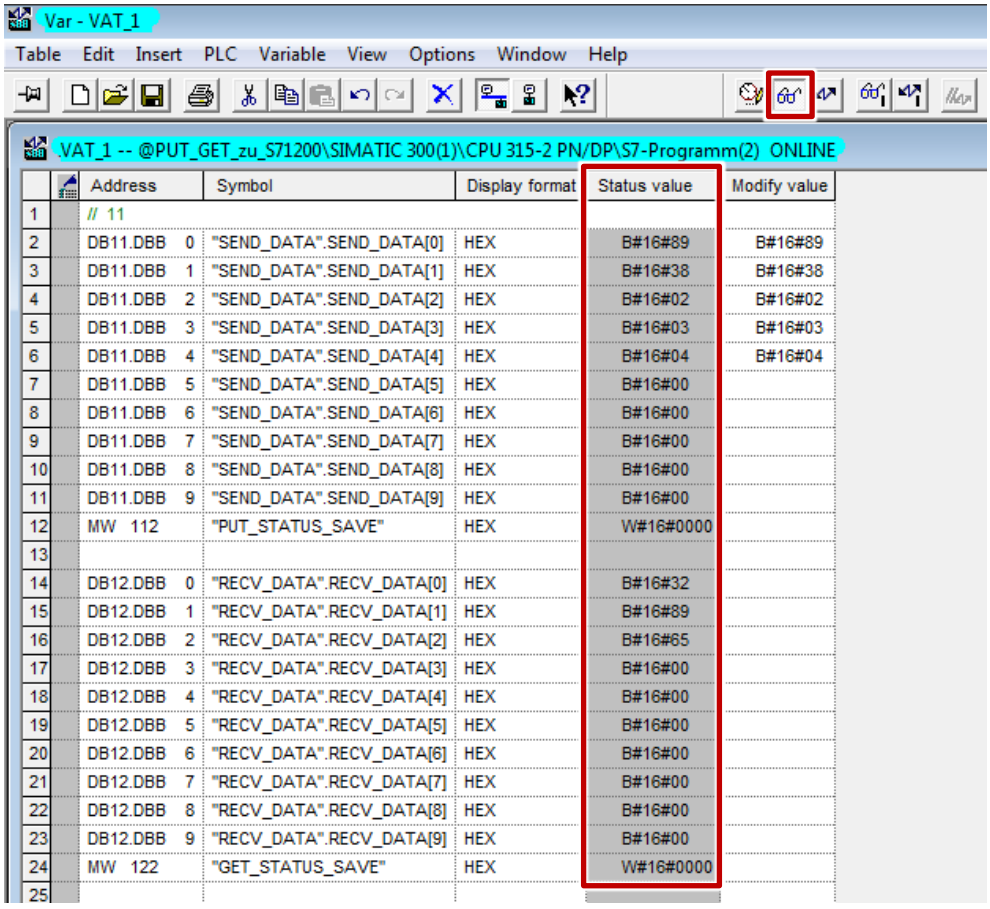
4.1 Writing Data to the S7-1200 CPU

Monitor variables

In STEP 7 V5.5 SP3 you can monitor and modify the Send and Receive data of the S7-300 CPU in the variable table.

In the toolbar of the variable table you click the "Monitor Variable" button. The "Status value" column displays the current values in the Send data area (DB11) and Receive data area (DB12).

Figure 4-1

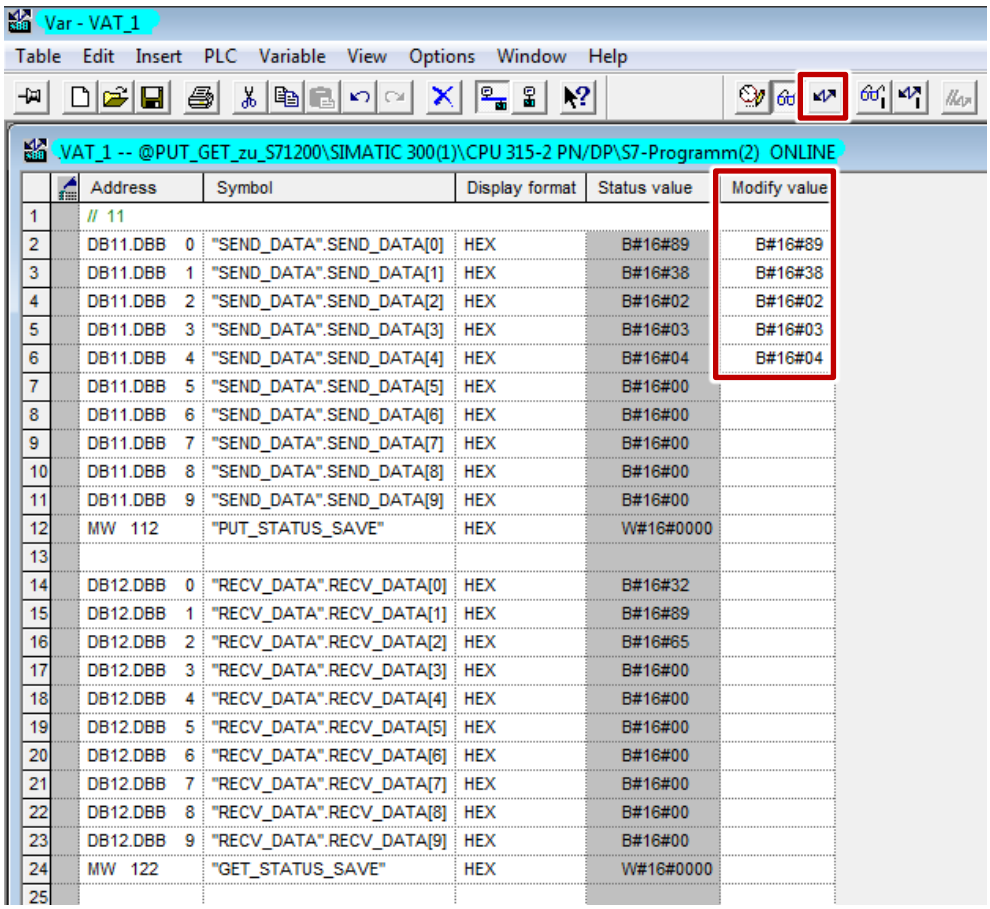


	Address	Symbol	Display format	Status value	Modify value
1	// 11				
2	DB11.DBB 0	"SEND_DATA".SEND_DATA[0]	HEX	B#16#89	B#16#89
3	DB11.DBB 1	"SEND_DATA".SEND_DATA[1]	HEX	B#16#38	B#16#38
4	DB11.DBB 2	"SEND_DATA".SEND_DATA[2]	HEX	B#16#02	B#16#02
5	DB11.DBB 3	"SEND_DATA".SEND_DATA[3]	HEX	B#16#03	B#16#03
6	DB11.DBB 4	"SEND_DATA".SEND_DATA[4]	HEX	B#16#04	B#16#04
7	DB11.DBB 5	"SEND_DATA".SEND_DATA[5]	HEX	B#16#00	
8	DB11.DBB 6	"SEND_DATA".SEND_DATA[6]	HEX	B#16#00	
9	DB11.DBB 7	"SEND_DATA".SEND_DATA[7]	HEX	B#16#00	
10	DB11.DBB 8	"SEND_DATA".SEND_DATA[8]	HEX	B#16#00	
11	DB11.DBB 9	"SEND_DATA".SEND_DATA[9]	HEX	B#16#00	
12	MW 112	"PUT_STATUS_SAVE"	HEX	W#16#0000	
13					
14	DB12.DBB 0	"RECV_DATA".RECV_DATA[0]	HEX	B#16#32	
15	DB12.DBB 1	"RECV_DATA".RECV_DATA[1]	HEX	B#16#89	
16	DB12.DBB 2	"RECV_DATA".RECV_DATA[2]	HEX	B#16#65	
17	DB12.DBB 3	"RECV_DATA".RECV_DATA[3]	HEX	B#16#00	
18	DB12.DBB 4	"RECV_DATA".RECV_DATA[4]	HEX	B#16#00	
19	DB12.DBB 5	"RECV_DATA".RECV_DATA[5]	HEX	B#16#00	
20	DB12.DBB 6	"RECV_DATA".RECV_DATA[6]	HEX	B#16#00	
21	DB12.DBB 7	"RECV_DATA".RECV_DATA[7]	HEX	B#16#00	
22	DB12.DBB 8	"RECV_DATA".RECV_DATA[8]	HEX	B#16#00	
23	DB12.DBB 9	"RECV_DATA".RECV_DATA[9]	HEX	B#16#00	
24	MW 122	"GET_STATUS_SAVE"	HEX	W#16#0000	
25					

Write data

In the "Modify value" column you enter the values for the Send data area (DB11) which are to be written to the Receive data area of the S7-1200 CPU. In the toolbar you click the "Modify variable" button to transfer the modify values to the Send data area of the S7-300 CPU and write them to the S7-1200 CPU.

Figure 4-2

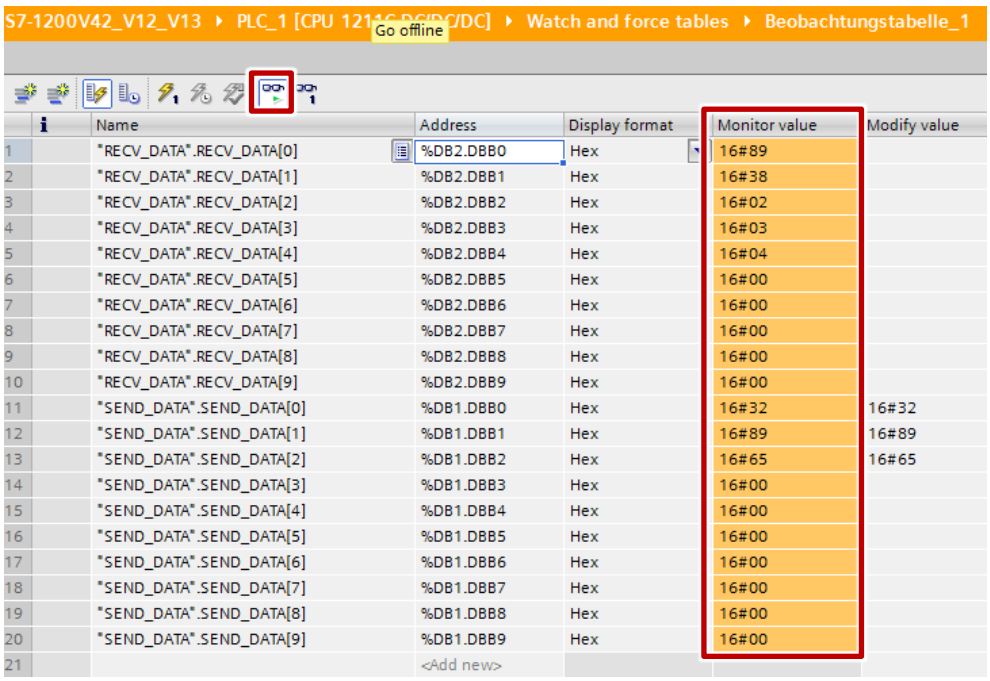


	Address	Symbol	Display format	Status value	Modify value
1	// 11				
2	DB11.DBB 0	"SEND_DATA".SEND_DATA[0]	HEX	B#16#89	B#16#89
3	DB11.DBB 1	"SEND_DATA".SEND_DATA[1]	HEX	B#16#38	B#16#38
4	DB11.DBB 2	"SEND_DATA".SEND_DATA[2]	HEX	B#16#02	B#16#02
5	DB11.DBB 3	"SEND_DATA".SEND_DATA[3]	HEX	B#16#03	B#16#03
6	DB11.DBB 4	"SEND_DATA".SEND_DATA[4]	HEX	B#16#04	B#16#04
7	DB11.DBB 5	"SEND_DATA".SEND_DATA[5]	HEX	B#16#00	
8	DB11.DBB 6	"SEND_DATA".SEND_DATA[6]	HEX	B#16#00	
9	DB11.DBB 7	"SEND_DATA".SEND_DATA[7]	HEX	B#16#00	
10	DB11.DBB 8	"SEND_DATA".SEND_DATA[8]	HEX	B#16#00	
11	DB11.DBB 9	"SEND_DATA".SEND_DATA[9]	HEX	B#16#00	
12	MW 112	"PUT_STATUS_SAVE"	HEX	W#16#0000	
13					
14	DB12.DBB 0	"RECV_DATA".RECV_DATA[0]	HEX	B#16#32	
15	DB12.DBB 1	"RECV_DATA".RECV_DATA[1]	HEX	B#16#89	
16	DB12.DBB 2	"RECV_DATA".RECV_DATA[2]	HEX	B#16#65	
17	DB12.DBB 3	"RECV_DATA".RECV_DATA[3]	HEX	B#16#00	
18	DB12.DBB 4	"RECV_DATA".RECV_DATA[4]	HEX	B#16#00	
19	DB12.DBB 5	"RECV_DATA".RECV_DATA[5]	HEX	B#16#00	
20	DB12.DBB 6	"RECV_DATA".RECV_DATA[6]	HEX	B#16#00	
21	DB12.DBB 7	"RECV_DATA".RECV_DATA[7]	HEX	B#16#00	
22	DB12.DBB 8	"RECV_DATA".RECV_DATA[8]	HEX	B#16#00	
23	DB12.DBB 9	"RECV_DATA".RECV_DATA[9]	HEX	B#16#00	
24	MW 122	"GET_STATUS_SAVE"	HEX	W#16#0000	
25					

In STEP 7 V13 (TIA Portal) you can monitor and modify the Send and Receive data of the S7-1200 CPU in the variable table.

In the toolbar of the variable table you click the "Monitor All" button. The "Monitor value" column displays the current values in the Send data area (DB1) and Receive data area (DB2). This permits you to check whether the data written from the S7-300 CPU has arrived in the Receive data area (DB2) of the S7-1200 CPU.

Figure 4-3



	Name	Address	Display format	Monitor value	Modify value
1	"RECV_DATA".RECV_DATA[0]	%DB2.DBB0	Hex	16#89	
2	"RECV_DATA".RECV_DATA[1]	%DB2.DBB1	Hex	16#38	
3	"RECV_DATA".RECV_DATA[2]	%DB2.DBB2	Hex	16#02	
4	"RECV_DATA".RECV_DATA[3]	%DB2.DBB3	Hex	16#03	
5	"RECV_DATA".RECV_DATA[4]	%DB2.DBB4	Hex	16#04	
6	"RECV_DATA".RECV_DATA[5]	%DB2.DBB5	Hex	16#00	
7	"RECV_DATA".RECV_DATA[6]	%DB2.DBB6	Hex	16#00	
8	"RECV_DATA".RECV_DATA[7]	%DB2.DBB7	Hex	16#00	
9	"RECV_DATA".RECV_DATA[8]	%DB2.DBB8	Hex	16#00	
10	"RECV_DATA".RECV_DATA[9]	%DB2.DBB9	Hex	16#00	
11	"SEND_DATA".SEND_DATA[0]	%DB1.DBB0	Hex	16#32	16#32
12	"SEND_DATA".SEND_DATA[1]	%DB1.DBB1	Hex	16#89	16#89
13	"SEND_DATA".SEND_DATA[2]	%DB1.DBB2	Hex	16#65	16#65
14	"SEND_DATA".SEND_DATA[3]	%DB1.DBB3	Hex	16#00	
15	"SEND_DATA".SEND_DATA[4]	%DB1.DBB4	Hex	16#00	
16	"SEND_DATA".SEND_DATA[5]	%DB1.DBB5	Hex	16#00	
17	"SEND_DATA".SEND_DATA[6]	%DB1.DBB6	Hex	16#00	
18	"SEND_DATA".SEND_DATA[7]	%DB1.DBB7	Hex	16#00	
19	"SEND_DATA".SEND_DATA[8]	%DB1.DBB8	Hex	16#00	
20	"SEND_DATA".SEND_DATA[9]	%DB1.DBB9	Hex	16#00	
21		<Add new>			

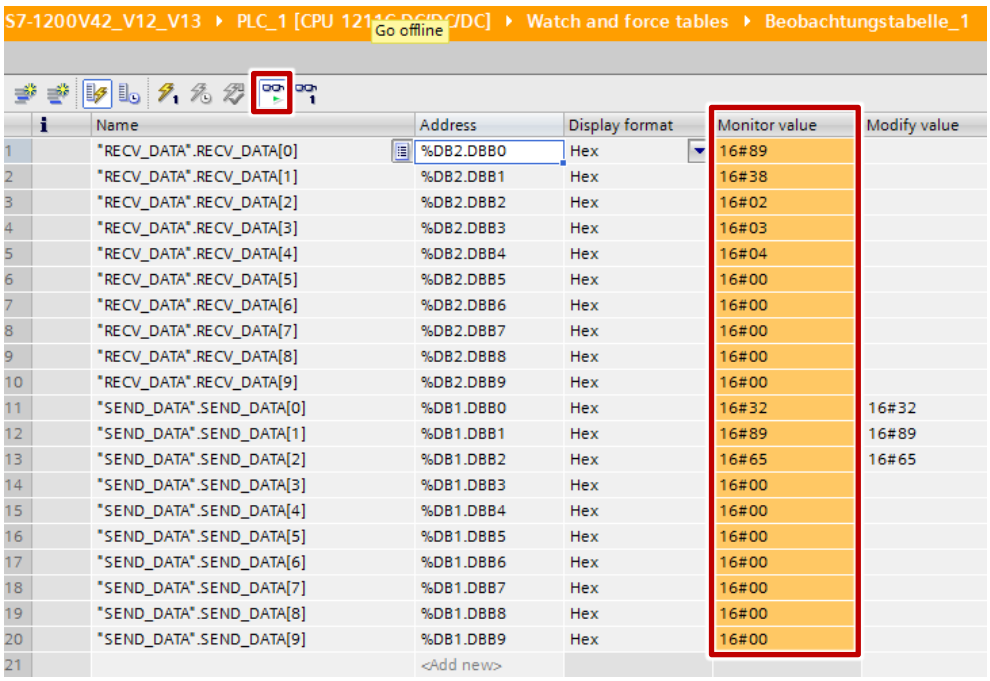
4.2 Reading Data from the S7-1200 CPU

Monitor variables

In STEP 7 V13 (TIA Portal) you can monitor and modify the Send and Receive data of the S7-1200 CPU in the variable table.

In the toolbar of the variable table you click the "Monitor All" button. The "Monitor value" column displays the current values in the Send data area (DB1) and Receive data area (DB2).

Figure 4-4

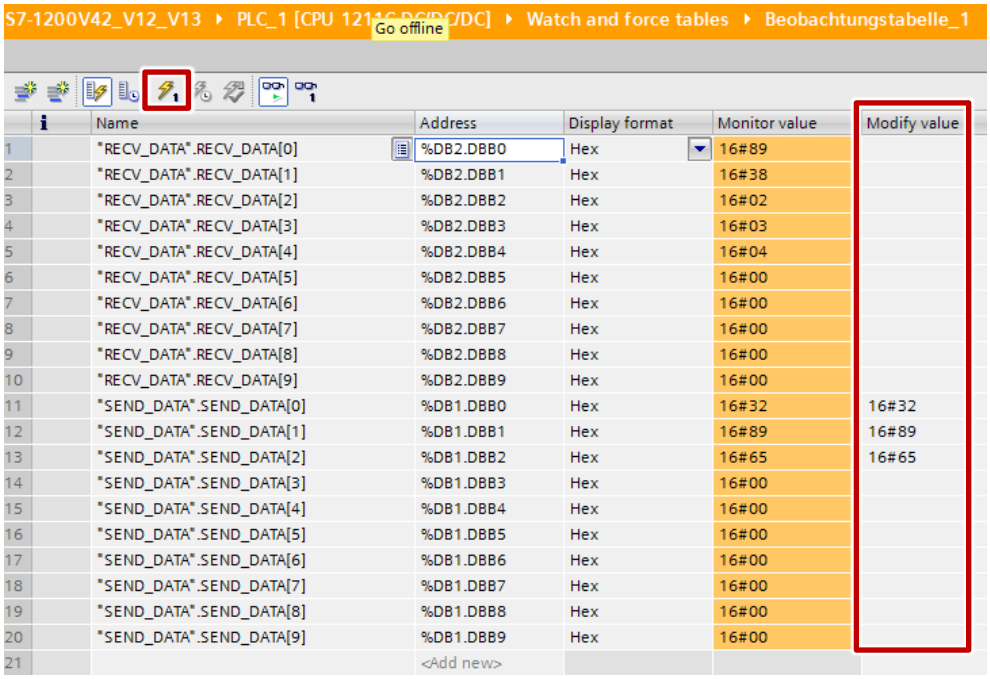


	Name	Address	Display format	Monitor value	Modify value
1	"RECV_DATA".RECV_DATA[0]	%DB2.DBB0	Hex	16#89	
2	"RECV_DATA".RECV_DATA[1]	%DB2.DBB1	Hex	16#38	
3	"RECV_DATA".RECV_DATA[2]	%DB2.DBB2	Hex	16#02	
4	"RECV_DATA".RECV_DATA[3]	%DB2.DBB3	Hex	16#03	
5	"RECV_DATA".RECV_DATA[4]	%DB2.DBB4	Hex	16#04	
6	"RECV_DATA".RECV_DATA[5]	%DB2.DBB5	Hex	16#00	
7	"RECV_DATA".RECV_DATA[6]	%DB2.DBB6	Hex	16#00	
8	"RECV_DATA".RECV_DATA[7]	%DB2.DBB7	Hex	16#00	
9	"RECV_DATA".RECV_DATA[8]	%DB2.DBB8	Hex	16#00	
10	"RECV_DATA".RECV_DATA[9]	%DB2.DBB9	Hex	16#00	
11	"SEND_DATA".SEND_DATA[0]	%DB1.DBB0	Hex	16#32	16#32
12	"SEND_DATA".SEND_DATA[1]	%DB1.DBB1	Hex	16#89	16#89
13	"SEND_DATA".SEND_DATA[2]	%DB1.DBB2	Hex	16#65	16#65
14	"SEND_DATA".SEND_DATA[3]	%DB1.DBB3	Hex	16#00	
15	"SEND_DATA".SEND_DATA[4]	%DB1.DBB4	Hex	16#00	
16	"SEND_DATA".SEND_DATA[5]	%DB1.DBB5	Hex	16#00	
17	"SEND_DATA".SEND_DATA[6]	%DB1.DBB6	Hex	16#00	
18	"SEND_DATA".SEND_DATA[7]	%DB1.DBB7	Hex	16#00	
19	"SEND_DATA".SEND_DATA[8]	%DB1.DBB8	Hex	16#00	
20	"SEND_DATA".SEND_DATA[9]	%DB1.DBB9	Hex	16#00	
21		<Add new>			

Read data

In the "Modify value" column you enter the values for the Send data area which are read from the S7-300 CPU and stored in the Receive data area of the S7-300 CPU. In the toolbar you click the "Modify all enabled values once and immediately" button to transfer the modify values to the Send data area of the S7-1200 CPU.

Figure 4-5

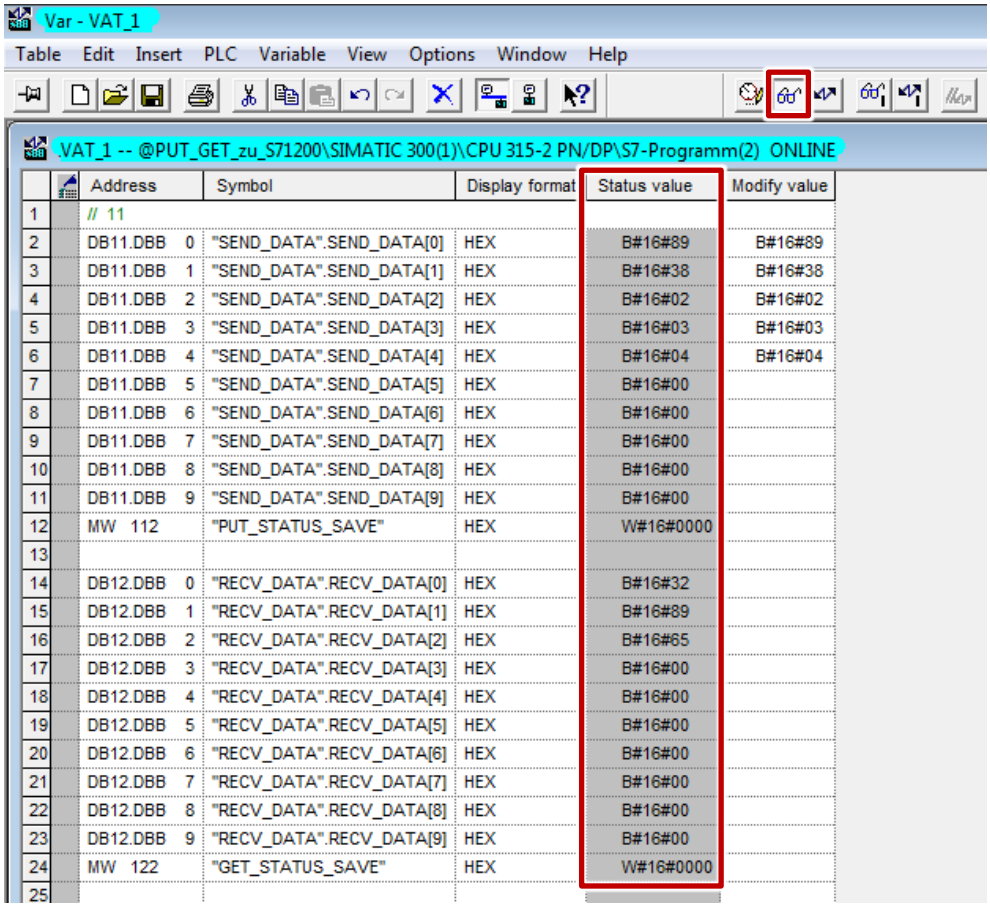


	Name	Address	Display format	Monitor value	Modify value
1	"RECV_DATA".RECV_DATA[0]	%DB2.DBB0	Hex	16#89	
2	"RECV_DATA".RECV_DATA[1]	%DB2.DBB1	Hex	16#38	
3	"RECV_DATA".RECV_DATA[2]	%DB2.DBB2	Hex	16#02	
4	"RECV_DATA".RECV_DATA[3]	%DB2.DBB3	Hex	16#03	
5	"RECV_DATA".RECV_DATA[4]	%DB2.DBB4	Hex	16#04	
6	"RECV_DATA".RECV_DATA[5]	%DB2.DBB5	Hex	16#00	
7	"RECV_DATA".RECV_DATA[6]	%DB2.DBB6	Hex	16#00	
8	"RECV_DATA".RECV_DATA[7]	%DB2.DBB7	Hex	16#00	
9	"RECV_DATA".RECV_DATA[8]	%DB2.DBB8	Hex	16#00	
10	"RECV_DATA".RECV_DATA[9]	%DB2.DBB9	Hex	16#00	
11	"SEND_DATA".SEND_DATA[0]	%DB1.DBB0	Hex	16#32	16#32
12	"SEND_DATA".SEND_DATA[1]	%DB1.DBB1	Hex	16#89	16#89
13	"SEND_DATA".SEND_DATA[2]	%DB1.DBB2	Hex	16#65	16#65
14	"SEND_DATA".SEND_DATA[3]	%DB1.DBB3	Hex	16#00	
15	"SEND_DATA".SEND_DATA[4]	%DB1.DBB4	Hex	16#00	
16	"SEND_DATA".SEND_DATA[5]	%DB1.DBB5	Hex	16#00	
17	"SEND_DATA".SEND_DATA[6]	%DB1.DBB6	Hex	16#00	
18	"SEND_DATA".SEND_DATA[7]	%DB1.DBB7	Hex	16#00	
19	"SEND_DATA".SEND_DATA[8]	%DB1.DBB8	Hex	16#00	
20	"SEND_DATA".SEND_DATA[9]	%DB1.DBB9	Hex	16#00	
21		<Add new>			

In STEP 7 V5.5 SP3 you can monitor and modify the Send and Receive data of the S7-300 CPU in the variable table.

In the toolbar of the variable table you click the "Monitor Variable" button. The "Status value" column displays the current values in the Send data area (DB11) and Receive data area (DB12). This permits you to check whether the data read from the S7-1200 CPU has arrived in the Receive data area (DB12) of the S7-300 CPU.

Figure 4-6



	Address	Symbol	Display format	Status value	Modify value
1	// 11				
2	DB11.DBB 0	"SEND_DATA".SEND_DATA[0]	HEX	B#16#89	B#16#89
3	DB11.DBB 1	"SEND_DATA".SEND_DATA[1]	HEX	B#16#38	B#16#38
4	DB11.DBB 2	"SEND_DATA".SEND_DATA[2]	HEX	B#16#02	B#16#02
5	DB11.DBB 3	"SEND_DATA".SEND_DATA[3]	HEX	B#16#03	B#16#03
6	DB11.DBB 4	"SEND_DATA".SEND_DATA[4]	HEX	B#16#04	B#16#04
7	DB11.DBB 5	"SEND_DATA".SEND_DATA[5]	HEX	B#16#00	
8	DB11.DBB 6	"SEND_DATA".SEND_DATA[6]	HEX	B#16#00	
9	DB11.DBB 7	"SEND_DATA".SEND_DATA[7]	HEX	B#16#00	
10	DB11.DBB 8	"SEND_DATA".SEND_DATA[8]	HEX	B#16#00	
11	DB11.DBB 9	"SEND_DATA".SEND_DATA[9]	HEX	B#16#00	
12	MW 112	"PUT_STATUS_SAVE"	HEX	W#16#0000	
13					
14	DB12.DBB 0	"RECV_DATA".RECV_DATA[0]	HEX	B#16#32	
15	DB12.DBB 1	"RECV_DATA".RECV_DATA[1]	HEX	B#16#89	
16	DB12.DBB 2	"RECV_DATA".RECV_DATA[2]	HEX	B#16#65	
17	DB12.DBB 3	"RECV_DATA".RECV_DATA[3]	HEX	B#16#00	
18	DB12.DBB 4	"RECV_DATA".RECV_DATA[4]	HEX	B#16#00	
19	DB12.DBB 5	"RECV_DATA".RECV_DATA[5]	HEX	B#16#00	
20	DB12.DBB 6	"RECV_DATA".RECV_DATA[6]	HEX	B#16#00	
21	DB12.DBB 7	"RECV_DATA".RECV_DATA[7]	HEX	B#16#00	
22	DB12.DBB 8	"RECV_DATA".RECV_DATA[8]	HEX	B#16#00	
23	DB12.DBB 9	"RECV_DATA".RECV_DATA[9]	HEX	B#16#00	
24	MW 122	"GET_STATUS_SAVE"	HEX	W#16#0000	
25					