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NEWS

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

STEP 7 V15.1 / STEP 7 V5.6

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## 1 Introduction

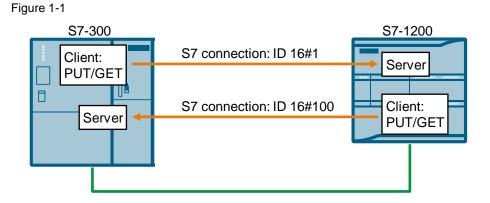
This document shows you how to exchange data between an S7-1200 and an S7-300 using S7 Communication.

The SIMATIC S7-1200 is configured and programmed in STEP 7 V15.1. The SIMATIC S7-300 is configured and programmed in STEP 7 V5.6.

Two S7 connections are established.

For the first S7 connection the S7-300 acts as a client and the S7-1200 as server. This means that the S7-300 actively establishes the connection. The function blocks FB14 "GET" and FB 15 "PUT" are called in the user program of the S7-300 to read data from the S7-1200 and write data to the S7-1200.

For the second S7 connection the S7-1200 acts as a client and the S7-300 as server. This means that the S7-1200 actively establishes the connection. The instructions "GET" and "PUT" are called in the user program of the S7-1200 to read data from the S7-300 and write data to the S7-300.



## 2 Configuration and Programming of the SIMATIC S7-1200

You configure and program the SIMATIC S7-1200 in STEP 7 V15.1 (TIA Portal V15.1).

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

## 2.1 Create a Project

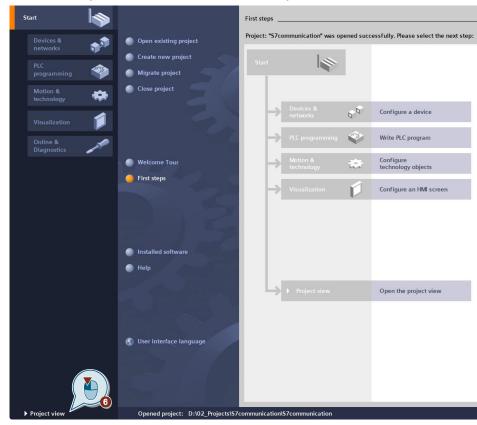
- 1. Open STEP 7 V15.1 (TIA Portal V15.1).
- 2. In the Portal View, select the "Create new project" action.

JA Siemens			
Start			Create new project
		Open existing project	Project name: 57communication Path: D:102_Projects
		Create new project	Version: V15.1 Author: User
		Migrate project	Comment:
	<b>.</b>	O Close project	
Online & Diagnostics	1		
		Welcome Tour	

- 3. Enter a project name, "S7communication", for example.
- 4. Select a path in which the project is to be stored.
- 5. Click the "Create" button.

The project with the name "S7communication" is stored in the selected path.

Create new project	
Project na	
P	th: D:102_Projects
Vers	on: V15.1
Aut	or: User
Comm	nt:
	×
	Create



6. Click the "Project view" link to switch to the Project View.

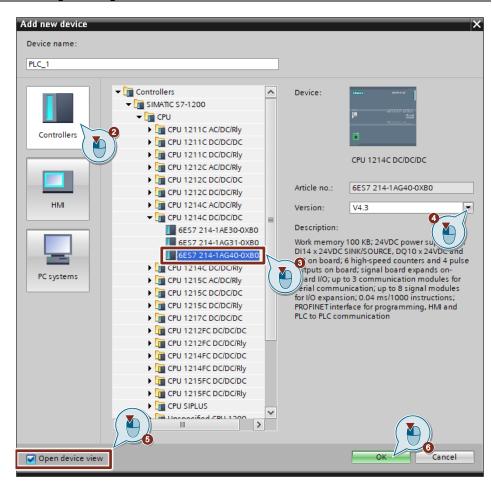
### 2.2 Configure the Hardware

#### 2.2.1 Add a SIMATIC S7-1200

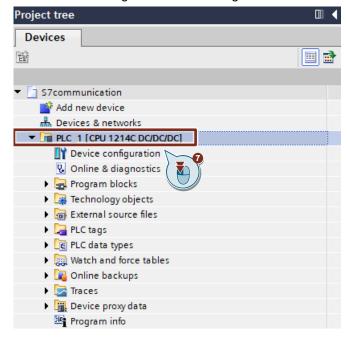
1. In the project tree you double-click the "Add new device" item. The "Add new device" dialog opens.

Project tree	
Devices	
12m	🔲 🖻
S7communication	
🖆 Add new device	
🛗 Devices & network	
🕨 🔚 Ungrouped device	
🕨 🚟 Security settings	
🕨 🙀 Common data	
Documentation settings	
🕨 🐻 Languages & resources	
🕨 🔚 Online access	
Emp Card Reader/USB memory	

- 2. In the working area you click the "Controllers" button.
- 3. Under "Controllers > SIMATIC S7 1200 > CPU" you select the required S7-1200 CPU.
- 4. As required, you can change the firmware version that is to be used to configure the selected S7-1200 CPU.
- 5. Enable the "Open device view" function.
- 6. Click the "OK" button to apply the settings and close the dialog.
  - If the "Open device view" function is enabled, the device view of the S7-1200 CPU opens in the "Devices & networks" editor.
  - The device folder of the S7-1200 CPU is displayed in the project tree.

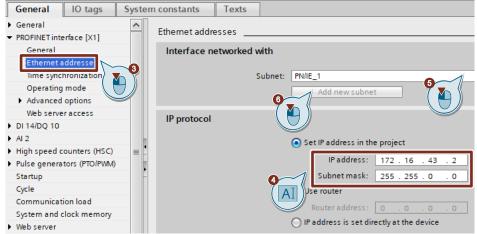


 Alternatively, you can open the device view of the S7-1200 CPU in the "Devices & networks" editor by opening the device folder of the S7-1200 CPU and double-clicking the "Device configuration" item.



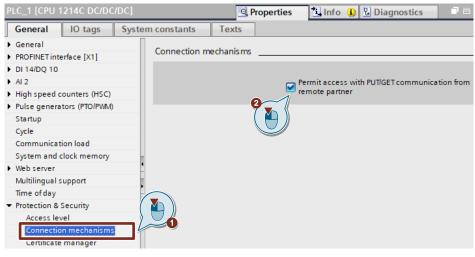
#### 2.2.2 Define IP Address and Assign Subnet

- 1. In the device view or network view of the "Devices & networks" editor you mark the S7-1200 CPU.
- 2. In the inspector window you select the "Properties" tab.
- 3. In the "General" tab you select "PROFINET interface [X1] > Ethernet addresses".
- 4. In this example you enter the IP address and the subnet mask for the PROFINET interface of the S7-1200 CPU as follows:
  - IP address: 172.16.43.2
  - Subnet mask: 255.255.0.0
- 5. Assign a subnet to the PROFINET interface.
- 6. Click the "Add new subnet" button to create a new subnet.
  - PLC\_1 [CPU 1214C DC/DC/DC]



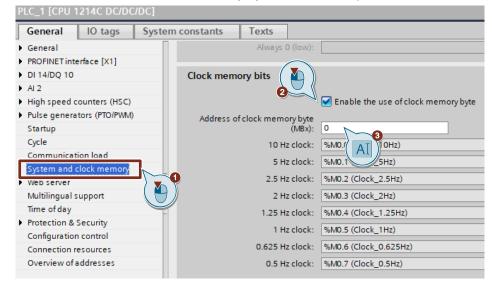
#### 2.2.3 Permit Access with PUT/GET Communication from Remote Partner

- 1. In the "General" tab you select "Protection & Security > Connection mechanisms".
- 2. Enable the "Permit access with PUT/GET communication from remote partner" function.



#### 2.2.4 Define Clock Memory

- 1. In the "General" tab you select "System and clock memory".
- 2. Enable the "Enable the use of clock memory byte" function.
- 3. Enter the address of the clock memory byte, "0", for example.



### 2.3 Configure the SIMATC S7-1200 as Server

#### 2.3.1 Create 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 navigate to 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.

Project tree	
Devices	
Ē	
S7communication	
📑 Add new device	
Devices & networks	
PLC_1 [CPU 1214C DC/DC/DC]	
Device configuration	
🖳 Online & diagnostics	
🔻 🔙 Program blocks	
📑 Add new block	
📲 Main [OB1]	
🕨 🙀 Technology objects	
External source files	
🕨 🚂 PLC tags	
PLC data types	

- 3. Click the "Data block (DB)" button.
- 4. Enter the name of the data block (DB), "SendDataServer", for example.
- 5. Enable the "Automatic" option to have the number of the DB assigned automatically by STEP 7.
- 6. Enable the "Add new and open" function.

- 7. Click the "OK" button to apply the settings and close the dialog.
  - In the project tree the "SendDataServer" DB is added to the "Program blocks" folder of the S7-1200 CPU.
  - If the "Add new and open" function is enabled, the "SendDataServer" DB opens in the working area of STEP 7 V15.1.

Add new block			×
Name:			
SendDataServer			
		🧧 Global DB 🔍	
	Language:	DB	
Organization	Number:		
block	Number.	1 🗘	
		Automatic	
FB	Description:		
Function block	Data blocks (DB	is) save program data.	
FC			
Function			
DB	3		
Data block	more		$\frown$
> Additional info			
		6	
Add new and open	n		OK Cancel

8. Alternatively, you can open the "SendDataServer" DB in the working area of STEP 7 V15.1 by going in the project tree to the "Program blocks" folder of the S7-1200 CPU and double-clicking the "SendDataServer" DB.

Project tree				
Devices				
ĒŇ				📃 🖻
🔻 🛅 S7comm	unication			
📑 Add n	ew device			
n Device	es & networks			
🔹 🔻 🛅 PLC_1	[CPU 1214C DC/DC/I	DC]		
📑 De	vice configuration			
🛛 😓 Or	nline & diagnostics			
💌 🔜 Pro	ogram blocks			
	Add new block			
-	Main [OB1]			
<b>_</b>	SendDataServer [D	B1]	~0	
🕨 🙀 Te	chnology objects	}		
🕨 🕨 🖬	ternal source files			
🕨 🕨 🔚 PLO	C tags		-	

9. In the "SendDataServer" DB you define the static variable "sendData" of the data type Array[0..99] of Byte.

	SendDataServer					
		Na	me	Data type	Start value	Retain
1	-	•	Static			
2	-	•	sendData	Array[099] of Byte		
3		•	<add new=""></add>			
				-		

#### Add data block for saving the Receive data

- 1. Add another DB for saving the Receive data.
- 2. In the "Add new block" dialog you click the "Data block (DB)" button.
- 3. Enter the name of the DB, "RecvDataServer", for example.
- 4. Enable the "Automatic" option to have the number of the DB assigned automatically by STEP 7.
- 5. Enable the "Add new and open" function.
- 6. Click the "OK" button to apply the settings and close the dialog.
  - In the project tree the "RecvDataServer" DB is added to the "Program blocks" folder of the S7-1200 CPU.
  - If the "Add new and open" function is enabled, the "RecvDataServer" DB opens in the working area of STEP 7 V15.1.

Name:	
RecvDataServer	
Global DB	
OB Language:	
Organization Number: 2	
block	
Automatic	
FB Description:	
Function block Data blocks (DBs) save program data.	
FC	
Function	
DB	
Data block	
more	
> Additional information	
6	
Add new and open OK Ca	ncel

 Alternatively, you can open the "RecvDataServer" DB in the working area of STEP 7 V15.1 by going in the project tree to the "Program blocks" folder of the S7-1200 CPU and double-clicking the "RecvDataServer" DB.

Figure 2-1				
Project tree				□
Devices				
E				🔲 🖻
🔻 🛅 S7comm	unication			
📑 Add ne	ew device			
device	es & networks			
👻 🔽 PLC_1	[CPU 1214C DC/D	C/DC]		
📑 De	vice configuration	ı		
😵 On	line & diagnostic	s		
💌 🔜 Pro	ogram blocks			
	Add new block			
	Main [OB1]			
<b>_</b>	RecvDataServer	[DB2]	<b>.</b>	
	SendDataServer	[DB1]	T	
🕨 🕨 🙀 Teo	chnology objects			
🕨 🗎 Ext	ternal source files			
🕨 🕨 🔚 PLO	C tags			

8. In the "RecvDataServer" DB you define the static variable "recvData" of the data type Array[0..99] of Byte.

	RecvDataServer					
	-	Name		Data type	Start value	Retain
1		•	Static			
2	-00	•	recvData	Array[099] of Byte		
3		•	<add new=""></add>			
					1	

#### Disable the "Optimized block access" option

Because the communication partner, SIMATIC S7-300, for example, does not support DBs with optimized block access, you have to disable the "Optimized block access" option under "Attributes" in the Properties of the DB. DBs with standard access have a fixed structure. The data elements in the declaration include both a symbolic name 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.

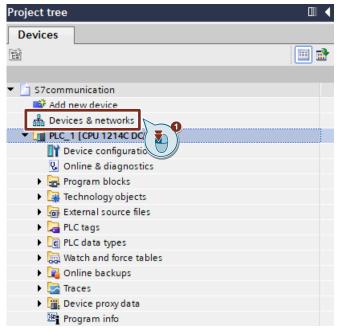
Figure 2-2

SendDataServer [DB1]	×
General Texts	
General Information	Attributes
Time stamps	
Compilation	Only store in load memory
Attributes Download without reinitializati	Data block write-protected in the device
< m >	
	OK Cancel

## 2.4 Configure the SIMATC S7-1200 as Client

#### 2.4.1 Configure the S7 Connection

1. In the project tree you double-click the "Devices & networks" item. The network view opens in the "Devices & networks" editor.



- 2. Click the "Connections" icon in the toolbar.
- 3. Select "S7 connection" as the connection type in the adjacent drop-down list box. The S7-1200 CPU is displayed highlighted in color in the network view.
- 4. Right-click the S7-1200 CPU. The pop-up menu opens.
- 5. Select the "Add new connection" item. The "Add new connection" dialog opens.

	Devices & networks  nections \$7 connection	
PN/IE_1	Device configuration Change device     Cut     E Copy     Copy     Paste	Ctrl+X Ctrl+C Ctrl+V
	X Delete Rename Assign to new DP master / IO co Disconnect from DP master sys Highlight DP master system / IC	tem / IO system
	Go to topology view Add new connection Highlight connection partners	6

- 6. Click the "Add" button. An S7 connection is added.
- 7. Click the "Close" button to close the dialog.

10.00		
Unspecified		
	Local interface PLC_1  PLC_1, PROFINET interface_1[X1 : PN(LAN)]	
	Local ID (hex): 100	Establish active connection 💽 One-
Information		

#### **Define Connection Parameters**

- 1. In the table area of the network view you open the "Connections" tab.
- 2. Mark the S7 connection. The properties of the S7 connection are displayed in the inspector window.

S7communication > Devices 8	a network			E To
Network overview C	onnections I/O commu	nication VPN	TeleControl	
	Local end point 🔺	Local ID (hex) Partner ID		Connection type S7 connection

3. In the "General" tab you select the "General" item. Enter the IP address of the partner CPU. In this example you enter the IP address of the S7-300 CPU: 172.16.43.1.

S7 connectio	n [S7 conne	ction	]		<b>Q</b> Properties
General	IO tags	Sys	tem constants Text	s	
General			General		
Special conn	ection properti	es	Connection		
Address deta	ils				
		_	Name:	S7 connection	
			Connection path		
				Local	Partner
					?
		-	End point:	PLC_1 [CPU 1214C DC/DC/DC]	Unknown
			Interface:	PLC_1, PROFINET interface_1[X1 : PN(LAN)]	Unknown
			Interface type:	Ethernet	Ethernet
			Subnet:	PN/IE_1	
			Address:	172.16.43.2	172,16.43.1
				Find connection path	AI

4. In the "General" tab you select the "Local ID" item. You specify the local ID of the connection in the user program at the input parameter "ID" of the instructions "GET" and "PUT".

S7 connection [S7 con	nection]			
General IO tags	Syst	tem constants	Texts	
General Local ID		Local ID		
Special connection prope Address details	erties	Block parame	ters	
			Local ID (hex):	100
		·	ID:	W#16#100
				ID

- 5. In the "General" tab you select the "Address details" item. Enter the rack and slot of the partner CPU. The S7-300 CPU uses Rack 0 and Slot 2.
- 6. Select the connection resource 03(hex) for the partner CPU because the S7 connection is only configured one-sided in the S7-1200 CPU. With these settings the TSAP has the value 3 in the partner CPU.

<mark>87 connect</mark> io	n [S7 conne	ction]			💁 Properties 🚺 Info 🕯
General	IO tags	Syst	em constants Tex	cts	
General Local ID			Address details		
	ection properti	es			
Address deta	ils			Local	Partner
			End point:	PLC_1 [CPU 1214C DC/DC/DC]	Unknown
			Rack/slot:	0	0
			Connection res. (hex):	10	▼ 03
			TS AP:	10.01	03.02
				SIMATIC-ACC	🗆 SIMA 🤇 💾 🌖
		•	Subnet ID:	DEDE - 0001	

7. In the "General" tab you select the "Special connection properties" item. If the TSAP has the value 3 in the partner CPU, the "Active connection establishment" function is enabled automatically and cannot be disabled.

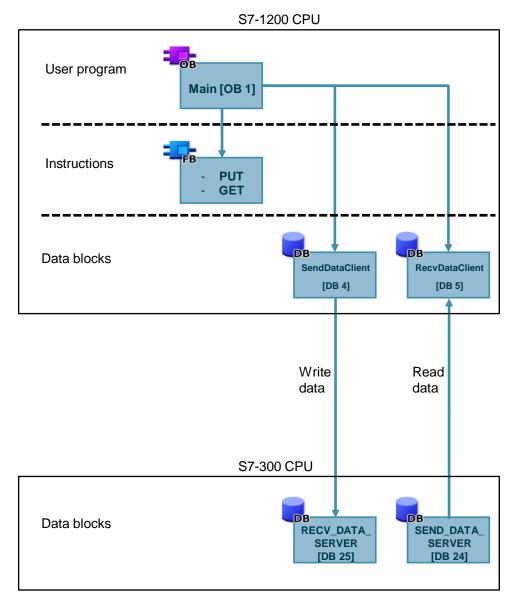
S7 connection [S7 connection]	Properties
General IO tags Sys	tem constants Texts
General	Special connection properties
Special connection properties	Local end point
	✓ One-way
	Active connection establishment
	The active connection establishment cannot be deactivated if the Partner TSAP in the address details has the value 3.
	Send operating mode messages

#### 2.4.2 Create a User Program

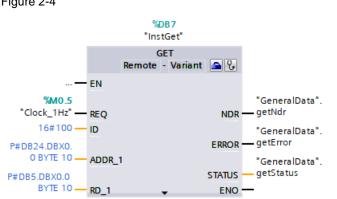
In the user program of the S7-1200 CPU you call the instructions "GET" and "PUT" for data transfer. The instructions are in the "Instructions" task card under "Communication > S7 Communication". Add the instructions by drag-and-drop to the "Program blocks" folder of your S7-1200 CPU.

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





#### "GET" instruction



You use the "GET" instruction to read data from the S7-300 CPU. Figure 2-4

The "GET" instruction has the following input parameters. Table 2-1

Input parameters	Data type	Description
REQ	BOOLEAN	The "REQ" 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 "Clock_1Hz".
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.
ADDR_1	ANY	Pointer to the area to be read in the partner CPU (Send data area in the partner CPU, here S7-300 CPU).
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 S7-1200 CPU).

The "GET" instruction has the following output parameters. Table 2-2

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

#### Receive data area in the S7-1200 CPU

In the S7-1200 CPU the Receive data read from the S7-300 CPU is stored in data block DB5 "RecvDataClient".

In this example 10 bytes of data starting at address 0 are stored in DB5 "RecvDataClient".

#### Send data area in the S7-300 CPU

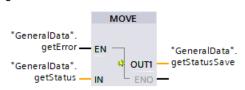
In the S7-300 CPU the data read from the S7-1200 CPU is stored in data block DB24 "SEND\_DATA\_SERVER".

In this example 10 bytes of data starting at address 0 are read from the data block DB24 "SEND\_DATA\_SERVER" of the S7-300 CPU.

#### Error evaluation of the Read job

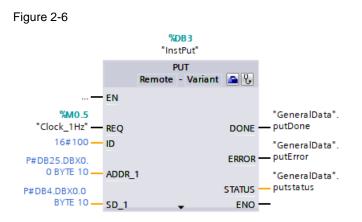
If the Read job does not terminate successfully, in other words ERROR =1, the value of the output parameter STATUS is stored in a global data block.

Figure 2-5



#### "PUT" instruction

You use the "PUT" instruction to write data to the S7-300 CPU.



The "PUT" instruction has the following input parameters. Table 2-3

Table 2-3		
Input parameters	Data type	Description
REQ	BOOL	The "REQ" 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 "Clock_1Hz".
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.
ADDR_1	ANY	Pointer to the area to be written to in the partner CPU (Receive data area in the partner CPU, here S7-300 CPU).
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 S7-1200 CPU).

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

The "PUT" instruction has the following output parameters. Table 2-4

#### Send data area in the S7-1200 CPU

In the S7-1200 CPU the Send data written to the S7-300 CPU is stored in data block DB4 "SendDataClient".

In this example 10 bytes of data starting at address 0 are written from DB4 "SendDataClient" to the S7-300 CPU.

#### Receive data area in the S7-300 CPU

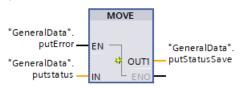
In the S7-300 CPU the received data is stored in data block DB25 "RECV\_DATA\_SERVER".

In this example 10 bytes of data starting at address 0 are stored in DB25 "RECV\_DATA\_SERVER".

#### 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 a global data block.

Figure 2-7



## 2.5 Download the Hardware Configuration and User Program

#### Requirements

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

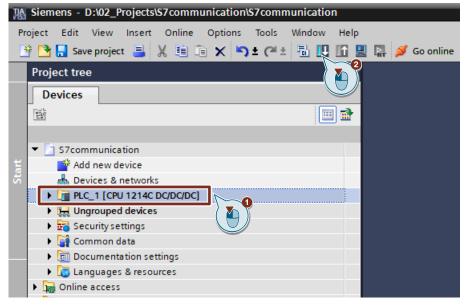
#### Compile

- 1. In the project tree you mark the device folder of the S7-1200 CPU.
- 2. Click the "Compile" button in the toolbar. The hardware configuration and the software of the S7-1200 are compiled.

R Siemens - D:\02_Projects\S7communication\S7communication
Project Edit View Insert Online Options Tools Window Help
📑 🔁 🔚 Save project 📇 🐰 🏥 👔 🗙 🏷 🛨 (주 🛨 🗟 🛄 🧖 🖳 💋 Go online
Project tree
Devices
▼ 🖸 S7communication
T Add new device
🛱 🔜 📥 Devices & networks
▶ 📑 PLC_1 [CPU 1214C DC/DC/DC]
🕨 🔛 Ungrouped devices
🕨 🙀 Security settings
🕨 🙀 Common data
Documentation settings
🕨 🐻 Languages & resources
Image: A second seco

#### Download

- 1. In the project tree you mark the device folder of the S7-1200 CPU.
- 2. Click the "Download to device" button in the toolbar. The "Extended download to device" or "Load preview" dialog opens automatically.



- 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. Make the following settings:
  - Type of the PG/PC interface: PN/IE
  - PG/PC interface: Network card of the PG/PC
  - Connection to interface/subnet: Subnet to which the S7-1200 CPU is connected
- 4. In the drop-down list box, you select "Show all compatible devices".
- 5. Click "Start Search".
- 6. The S7-1200 CPU is displayed in the "Select target device:" list. Mark the S7-1200 CPU.
- 7. Click the "Load" button.

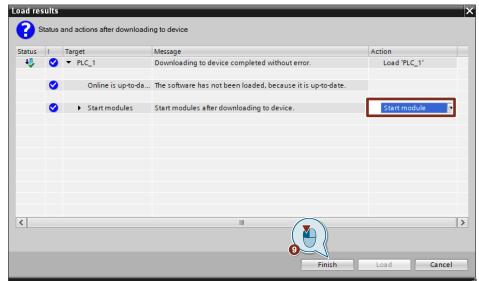
#### 2 Configuration and Programming of the SIMATIC S7-1200

	Device	Device type	Slot Int	terface type	Address	Subnet
	PLC_1		1 X1 PN	N/IE	172.16.43.2	PN/IE_1
	<b>e</b>	Type of the PG/PC inte PG/PC inte Connection to interface/su	rface: 💓 Ir bnet: PN/I	ntel(R) Ethern	et Connection (2) 12	▼ 19-LM ▼ €
	Select target de				Show all compatibl	
	Device PLC_1	Device type CPU 1214C DC/D	Interface typ PN/IE		Iress 2.16.43.2	Target device PLC_1
·	-		FN/IE	ACC	ess address	5
Flash LED						<u>S</u> tart sear
Flash LED	on:			C	Display only erro	<u>S</u> tart sear r messages

8. In the "Load preview" dialog you click the "Load" button to start the loading procedure.

Status	1	Targe	t	Message	Action
<b>+</b> ∎	0	▼ Pl	.C_1	Ready for loading.	Load 'PLC_1'
	0	•	Online is up-to-da	The software will not be loaded, because the online status is up-t.	
	0	•	Device configurati	Delete and replace system data in target	Download to device
e 1					
<					

9. In the "Load results" dialog you enable the "Start module" 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 V5.6.

Then you create the user program and define which data is to be exchanged with the S7-1200 via the S7 connection.

## 3.1 Create a STEP 7 project

- 1. Open the SIMATIC Manager.
- In the SIMATIC Manager, you create a new STEP 7 project via the menu "File > New".

4										
Ð	File	Edit	Insert	PLC	View	Options	Window	Help		
Ľ		New								Ctrl+N
<b>.</b>		'New I	Project'	Wizard						
		Open.								Ctrl+0
		Close								
		Multip	project							>
		S7 Me	emory Ca	ard						>
		Memo	ory Card	File						>
		Save A	As							Ctrl+S
		Delete	·							
		Reorg	anize							
		Mana	ge							
		Archiv	/e							
		Retriev	ve							
		Print								>
		Page S	Setup							
		1 PUT	_GET_zu	_S7120	0 (Proje	kt) D:\	\PUT_GET_	S7-300		
		2 Stan	dard Lib	rary (B	ibliothe	k) C:\\	Step7\S7lib	os\stdlib30		
		3 FAQ	PROFIN	IET (Pr	oject) -	- D:\Temp\	fc11_und_f	c12_dev\FAQ_P	ROF	
		4 Test	(Projekt	) D:\	02_Proj	ects\Test				
		Exit								Alt+F4

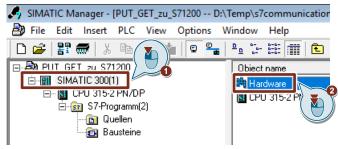
 In the SIMATIC Manager, you add a SIMATIC PC station with the menu "Insert > Station > SIMATIC S7-300 Station".

SIMATIC Manag	er - [PUT_GET_zu_S	71200 C	0:\Temp\s7communication\S7comm
File Edit Ins	ert PLC View	Options	Window Help
🗅 🗃 🖁 (	Station	>	1 SIMATIC 400 Station
E PUT_GE	Subnet	>	2 SIMATIC 300 Station
	Program	>	3 SIMATIC H Station
	S7 Software	>	4 SIMATIC PC Station
	S7 Block	>	5 Other Station
	Symbol Table		6 SIMATIC S5
	1		7 PG/PC
	Text Library	>	
	External Source		

### 3.2 Configure the Hardware

#### 3.2.1 Open the Hardware Configuration

- 1. In the SIMATIC Manager you mark the SIMATIC S7-300 station that you have added to your STEP 7 project.
- 2. Double-click the "Hardware" item. The Hardware Configuration opens.



3. Configure the S7-300 station by dragging-and-dropping the relevant modules like Power Supply, CPU etc. from the hardware catalog into the S7-300 profile channel.

🖳 HW Confi	ig - [SIMATIC 300(1) (Configuration) PUT_GET_zu_S71200]
Station	Edit Insert PLC View Options Window Help
🗅 🖻 📽	5 🗣   🚑    🖻 🛍   🏙 🏜   👔 🗖 😫   😢
<b>≕(0)</b> UR	
1	PS 307 10A
2	CPU 315-2 PN/DP
X1	MPI/DP
X2	PN-IO-1
X2P1R	Port 1
X2 P2 R	Port 2
3	
4	DI16xDC24V
5	
C	

#### 3.2.2 Define IP Address and Assign Subnet

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

	ų	HW Co	onfi	g - [	SIMATI	C 300(1)	(Config	juration)	PUT_GET	_zu_S71200]
ļ	900	Statio	n	Edit	Inser	t PLC	View	Options	Window	Help
	D	🖻	j~		<b>\$</b> 1 {	<b>3</b>    Pe	•	<b>ển ển</b> [	🔁 🗖 🖁	₩ №?
		(0) UR								
	1				PS 307	10A				
	2	2			CPU 31	5-2 PN	/DP			
L	<u>x</u>	7			MPI/DP					
	X	2			PN-10-1		$\rightarrow$			
Ľ	<i>X</i>	2 <i>P1 R</i>			Port 1					
	<i>x</i>	'2 P2 R		1	Port 2					
	3									
	4				DI16xDC	24V				
	5									
1										

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

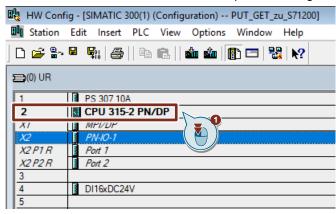
operties - PN-IO-	1 (R0/S2.2)				
Media redu General	ndancy Addresses	Time-of-Day Syn PROFINET	chronization		Options Inchronization
I		FROFINET	I-Device	Sy	nchronization
Short description:	PN-IO				
Device name:	PN-IO-1				
Use different i	method to obtain dev	ice name			
Support device	e replacement witho	ut exchangeable med	lium		
Interface					
Type:	Ethernet				
Device	0				
Address:	172.16.43.1				
Networked:	yes	Properties	<b>1</b>		
Comment:		(			
					<u>^</u>
					× .
					¥

- 3. Enter the IP address and subnet mask, for example:
  - IP address: 172.16.43.1
  - Subnet mask: 255.255.0.0
- 4. Click the "New..." button to create a new subnet.
- 5. Select the new subnet or another existing subnet.
- 6. 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.

Properties - Ethernet interface PN-IO (R0/S2.2)	Х
General Parameters	
IP address: Subnet mask: 255.255.0.0  Gateway  Do not use router  Use different method to obtain IP address:  Subnet:	
Ethemet(2)	0
Properties Delete	
OK Cancel Help	

#### 3.2.3 Define the Clock Memory

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



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

Diagnostics/Clock	Protection	on 🛛	Communication	Web
General Startup		i	Synchronous Cycle	Interrupts
cle/Clock Memory Retentive Memory		Interrupts	Time-of-Day Interrupts	Cyclic Interrupts
Cycle				
🗹 Update OB1 proc	ess image cyclically			
Scan cycle monitoring	g time [ms]:	150		
Minimum scan cycle (	time [ms]:	0		
Scan cycle load from	communication [%]:	20		
Prioritized OCM co	ommunication			
Size of the process-in	nage input area:	128		
Size of the process-in	nage output area:	128		
OB85 - call up at I/O	access error:	No OB85 c	all up	•
Clock Memory			٦	
Clock memory				
Memory byte:		0		
		,		

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

🖳 HW Config	g - [SIMATIC 300(1) (Configuration) PUT_GET_zu_S71200]
💵 Station	Edit Insert PLC View Options Window Help
] 🗅 😅 🔓 I	■ \$\\ \$\  \$\\ \$\\ \$\\ \$\\ \$\\ \$\\ \$\\ \$\\
🚞(0) UR	
1	PS 3 A
2	CPU 315-2 PN/DP
X1	MPI/DP
X2	PN-IO-1
X2P1R	Port 1
X2 P2 R	Port 2
3	
4	DI16xDC24V
5	

### 3.3 Configure the SIMATC S7-300 as Client

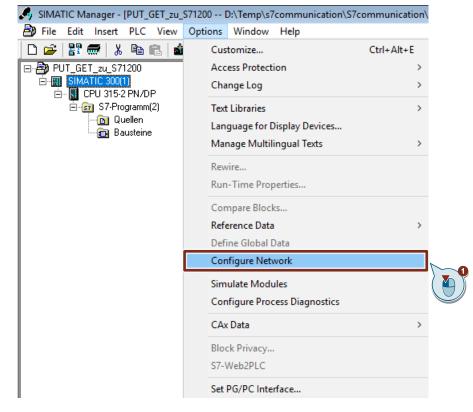
The S7-300 station actively sets up the S7 connection. In this case you must configure an S7 connection for the S7-300 CPU and call the following function blocks (FBs) in the user program:

- FB14 "GET": You use FB14 "GET" to read data from a partner CPU. With an S7-400 CPU you use the system function block SFB14 "GET".
- FB15 "PUT": You use FB15 "PUT" to write data to a partner CPU. With an S7-400 CPU you use the system function block SFB15 "PUT".

#### 3.3.1 Configure the S7 Connection

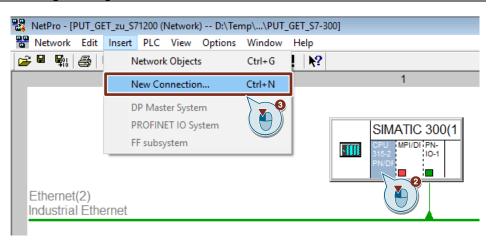
#### Add an S7 Connection

 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.



- 2. Mark the CPU in the SIMATIC S7-300 station.
- 3. Open the "Insert New Connection" dialog via the menu "Insert > New Connection...".

3 Configuration and Programming of the SIMATIC S7-300



- 4. Select the "Unspecified" item under "Connection Partner".
- 5. Select "S7 connection" as the connection type.
- 6. Click "Apply". The Properties dialog of the S7 connection opens.

Insert New Conn	nection	$\times$
Connection Pa	artner	
□ □ ₽ ₽	e current project HT_GET_2U_SZ1200 All broadcast station All multicast station known project	
Project:		₹ <u>&lt;</u>
Station:	(Unspecified)	
Module:		
Connection		
Type:	S7 connection	-6
Display pro		
ОК	Apply Cancel He	lp

#### **Define connection parameters**

In the Properties dialog of the S7 connection you define the connection parameters.

- 1. Enable the "Establish an active connection" function.
- 2. Enter the IP address of the partner CPU. In this example you enter the IP address of the S7-1200 CPU: 172.16.43.2.
- 3. You specify the local ID of the connection in the user program at the input parameter "ID" of the function blocks FB14 "GET" and FB15 "PUT".
- 4. Click the "Address Details..." button. The "Address Details" dialog opens.

Properties - S7 con	nection	×
General Status Ir	nformation	
Configured	dynamic connection	Default
Connection Pat	th	Partner
End Point:	SIMATIC 300(1)/ CPU 315-2 PN/DP	Unknown
Interface:	CPU 315-2 PN/DP, PN-IO-1(R0/S2)	Unknown
Subnet:	Ethemet(2) [Industrial Ethemet]	[Industrial Ethernet]
Address:	172.16.43.1	172.16.43.2
ок		Address Details

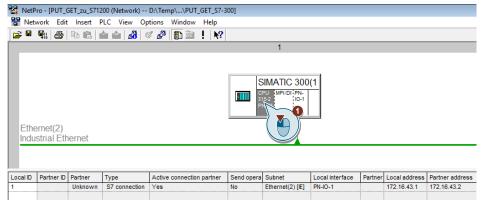
- 5. Enter the rack and slot of the partner CPU. The S7-1200 CPU uses Rack 0 and Slot 1.
- Select the connection resource 03(hex) for the partner CPU because the S7 connection is only configured unilaterally in the S7-300 CPU. With these settings the TSAP has the value 03.01 in the partner CPU.
- 7. Apply the settings with "OK".

Address Details		×
	Local	Partner
End Point:	SIMATIC 300(1)/ CPU 315-2 PN/DP	Unknown
Rack/Slot:	0 2	0 1 3
Connection Resource (hex):	10 -	
TSAP:	10.02	03.01
S7 Subnet ID:	00CA - 0007	·
ОК		Cancel Help

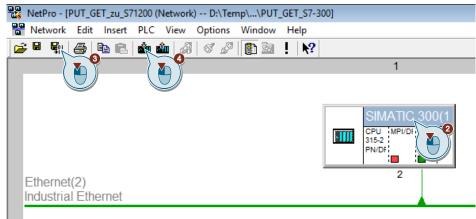
- 8. Likewise apply the settings in the Properties dialog of the S7 connection with "OK".
- 9. In the "Insert New Connection" dialog you click the "OK" button to close the dialog. The S7 connection is inserted in "NetPro".

## Load the S7 Connection

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



- 2. In "NetPro" you mark the SIMATIC S7-300 station.
- 3. In the toolbar you click the "Save and Compile" button to save and compile the connection configuration.
- 4. In the toolbar you click the "Load marked station(s)" button to load the connection configuration into the CPU.



# 3.3.2 Create a User Program

In the user program of the S7-300 CPU you call the function blocks FB14 "GET" and FB15 "PUT" for data transfer. You will find the FBs in the Standard Library under "Communication Blocks". Copy the FBs from the Standard Library and insert them in your STEP 7 project.

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

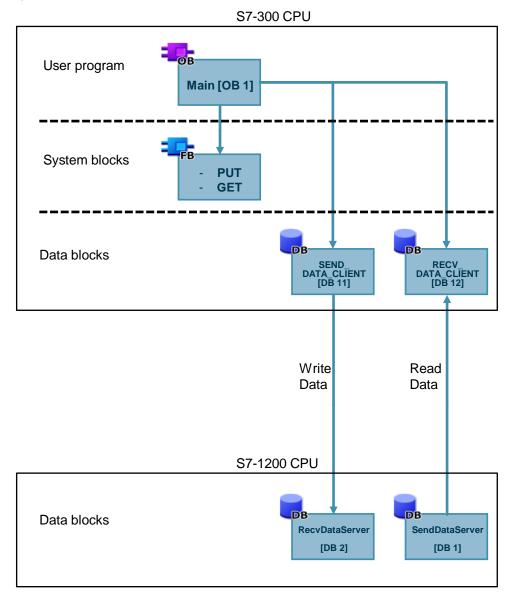


Figure 3-1

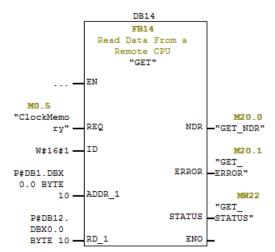
**Note** The system function blocks SFB14 "GET" and SFB15 "PUT" for the S7-400 are located in the Standard Library under "System Function Blocks".

# FB14 "GET"

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

Figure 3-2

Netzwerk 3: Titel:



FB14 "GET" has the following input parameters. Table 3-1

Input parameters	Data type	Description
REQ	BOOL	The "REQ" 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 "NetPro"). In this example the ID = w#16#1 is preset by the configuration connection.
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).
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).

FB14 "GET" has the following output parameters. Table 3-2

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

#### 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\_CLIENT".

In this example, 10 bytes of data starting at address 0 are stored in DB12 "RECV\_DATA\_CLIENT".

#### Send data area in the S7-1200 CPU

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

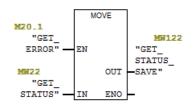
In this example, 10 bytes of data starting at address 0 are read from DB1 "SendDataServer" of the S7-1200 CPU.

## 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".

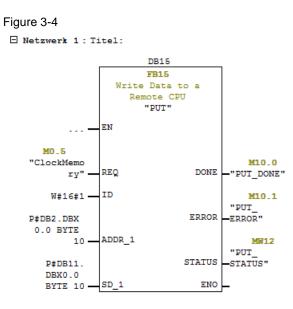
#### Figure 3-3

Netzwerk 4 : Titel:



# FB15 "PUT"

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



FB15 "PUT" has the following input parameters.

Input parameters	Data type	Description
REQ	BOOL	The "REQ" 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 "NetPro"). In this example the ID = w#16#1 is preset by the configuration connection.
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).
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).

Table 3-3

Table 3-4

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

#### 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\_CLIENT".

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

#### Receive data area in the S7-1200 CPU

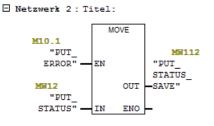
In the S7-1200 CPU the received data is stored in data block DB2 "RrcvDataServer".

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

#### 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 3-5



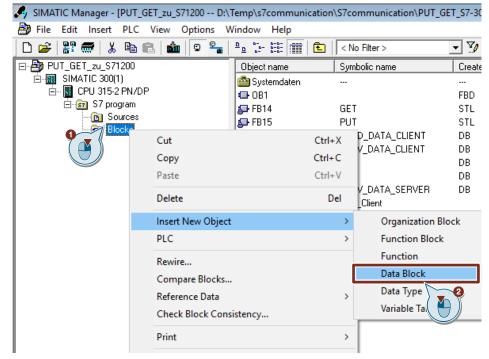
# 3.4 Configure the SIMATC S7-300 as Server

## 3.4.1 Create a User Program

In the user program of the S7-300 CPU you add the data blocks for saving the Send and Receive data.

#### Add data block for saving the Send data

- 1. In your STEP 7 project you right-click the "Blocks" folder. The pop-up menu opens.
- 2. You select the menu "Insert New Object > Data Block". The Properties dialog of the DB opens.



- 3. You enter the name and type of block that is to be created, DB24, for example.
- 4. Enter a symbolic name for the block, "SEND\_DATA\_SERVER", for example.
- 5. Apply the settings with "OK". Block DB24 "SEND\_DATA\_SERVER" is inserted in the "Blocks" folder.

3 Configuration and	Programming of the	SIMATIC S7-300
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Descention Data Disale		~	
Properties - Data Block		×	
General - Part 1 General	- Part 2   Ci		
Name and type:	DB24 Share		
Symbolic Name:	SEND_DATA_SERVER		
Symbol Comment:			
Created in Language:	DB		
Project path:			
Storage location of project:	) D:\Temp\s7communication\S7communication\PUT_GET_S7-300		
	Code	Interface	
Date created:	08/05/2019 12:21:24 PM		
Last modified:	08/05/2019 12:21:24 PM	08/05/2019 12:21:24 PM	
Comment:		^	
		~	
OK 5		Cancel Help	

6. Double-click DB24 "SEND\_DATA\_SERVER" in the "Blocks" folder. The DB opens.

🎝 SIMATIC Manager - [PUT_GET_zu_S71200 D:\`	Temp\s7communication	\S7communication\PUT_
🎒 File Edit Insert PLC View Options W	Vindow Help	
🗅 🛩   👪 🛲   🙏 🛍 💼   🏜   😨 🏪	<u>□</u>	< No Filter >
🖃 🎒 PUT_GET_zu_S71200	Object name	Symbolic name
🖻 🎆 SIMATIC 300(1)	🚵 Systemdaten	
🖻 📓 CPU 315-2 PN/DP	🕀 0B1	
⊡- 🛐 S7 program	🚰 FB14	GET
Blocks	🗗 FB15	PUT
DIOCKS	🗗 DB11	SEND_DATA_CLIENT
	DB12	RECV_DATA_CLIENT
	🖽 DB14	
	DB15	
	<mark>അ</mark> DB24	SEND_DATA_SERVER
	DB25	RECV_DATA_SERVER
	VAT_Client	VAT_Client (
	VAT_Server	VAT_Server
	SFB14	
	SFB15	

7. In DB24 "SEND\_DATA\_SERVER" you define the variable "SEND\_DATA" of the data type Array[0..99] of Byte.

🗱 LAD/STL/FBD - [DB24 "SEND_DATA_SERVER" PUT_GET_zu_S71200\SIMATIC 300(1)\CPU 315-2 PN/DP\\DB24]					
🖬 File Edit Insert PLC Debug	g View Options Window H	elp			
- D 😅 🔐 🛃 🎒 👗 🖻 💼 🗠 억 🕼 🎪 🔁 🏪 🚳 !:« >!   🗖 🔯 🖶 🖬 😥					
X	Address Name	Туре	Initial value		
	*0.0	STRUCT			
	+0.0 SEND_DATA	ARRAY[099]	B#16#0		
	*1.0	BYTE			
	=100.0	END_STRUCT			

# Add data block for saving the Receive data

- 1. Add another DB for saving the Receive data.
- 2. You enter the name and type of block that is to be created, DB25, for example.
- 3. Enter a symbolic name for the block, "RECV\_DATA\_SERVER", for example.
- 4. Apply the settings with "OK".
  - Block DB25 "RECV\_DATA\_SERVER" is inserted in the "Blocks" folder.

Properties - Data Block	$\bigcirc$		×
General - Part 1 General	- Part 2 AI ttributes	]	
Name and type:	DB25 Shar	red DB 💌	~
Symbolic Name:	RECV_DATA_SERVER		
Symbol Comment:			
Created in Language:	DB		
Project path:			
Storage location of project:	D:\Temp\s7communicatio	n\S7communication\PUT_G	ET_S7-300
	Code	Interface	
Date created:	08/05/2019 12:25:15 PM		
Last modified:	08/05/2019 12:25:15 PM	08/05/2019 12:25:	15 PM
Comment:			^
			~
ОК		Cancel	Help

5. Double-click DB25 "RECV\_DATA\_SERVER" in the "Blocks" folder. The DB opens.

SIMATIC Manager - [PUT_GET_zu_S71200 D:\7	Temp\s7communication	\S7communication\PUT_
🎒 File Edit Insert PLC View Options W	/indow Help	
🗅 🖆   🎛 🛲   % 🗈 🗈   🏜   😨 🏪	<u>□</u> <u>·</u>	< No Filter >
⊡-🞒 PUT_GET_zu_S71200	Object name	Symbolic name
É 🕅 SIMATIC 300(1)	🚵 Systemdaten	
🖻 📓 CPU 315-2 PN/DP	🕀 0B1	
⊡	🗗 FB14	GET
	🗗 FB15	PUT
Blocks	🕀 DB11	SEND_DATA_CLIENT
	🖬 DB12	RECV_DATA_CLIENT
	🕞 DB14	
	🕀 DB15	
	DB24	SEND DATA SERVER
	💷 DB25	RECV_DATA_SERVER
	VAT_Client	VAT_Client
	VAT_Server	VAT_Server ( 🚺 )
	🗗 SFB14	
	🛃 SFB15	
	SFC20	BLKMOV
-		

6. In DB25 "RECV\_DATA\_SERVER" you define the variable "RECV\_DATA" of the data type Array[0..99] of Byte.

🗱 LAD/STL/FBD - [DB25 "RECV_DATA_SERVER" PUT_GET_zu_S71200\SIMATIC 300(1)\CPU 315-2 PN/DP\\DB25]							
🖬 File Edit Insert PLC Debug	View Opt	tions Window He	elp				
🗋 🖻 🔓 🔚 🖨 👗 🖻 💼	ର ର  <b>0</b> %	🚵 🖂 🖻 🕯	!« »!   🗖 🖪   ٩	a 🖻 🖽 🙌			
	Address	Name	Туре	Initial value			
	*0.0		STRUCT				
	+0.0	RECV_DATA	ARRAY[099]	B#16#0			
1 11	*1.0		BYTE				
1 11							
1 11	=100.0		END_STRUCT				
1 11							

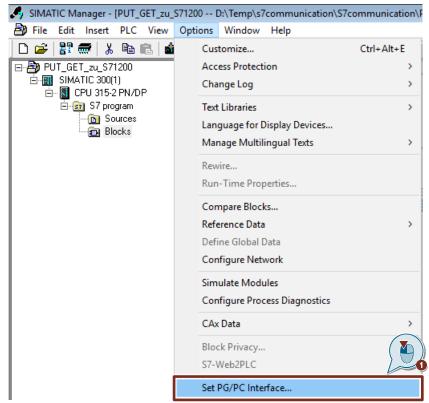
# 3.5 Download the Hardware Configuration and User Program

#### Requirements

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

#### Instructions

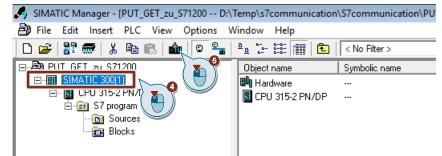
1. In the SIMATIC Manager, you select the menu "Options > Set PG/PC Interface...". The "Set PG/PC Interface" dialog opens.



- 2. As access point for the application you set the network card with TCP/IP protocol via which the PC is connected to the S7-300 CPU and via which you access the S7-300 CPU.
- 3. Apply the settings with "OK".

Set PG/PC Interface		×
Access Path LLDP / DCP PNIO Adapter Ir	fo	
Access Point of the Application: S70NLINE (STEP 7)> Intel(R) Ethemet C	Connection (2) 121	9-LM 🔻
(Standard for STEP 7)		
Interface Parameter Assignment Used:	Properties	
Intel(R) Ethemet Connection (2) I219-LM.T(	Diagnostic	
Intel(R) Dual Band Wireless-AC 726	Сору	
Intel(R) Ethemet Connection (2) I21:	Delete	
(Parameter assignment of you P with TCP/IP protocol (RFC-10		
ОК	Cancel	Help

- 4. In the SIMATIC Manager you mark the S7-300 station.
- 5. Click the "Load" button in the toolbar. The hardware configuration and the user program are downloaded to the S7-300 CPU.



# 4 **Operating and Monitoring**

Operating and monitoring is done via a variable table in STEP 7 V5.6 and STEP 7 V15.1.

In STEP 7 V5.6 you can monitor and control the Send and Receive data of the S7-300 CPU in the variable table.

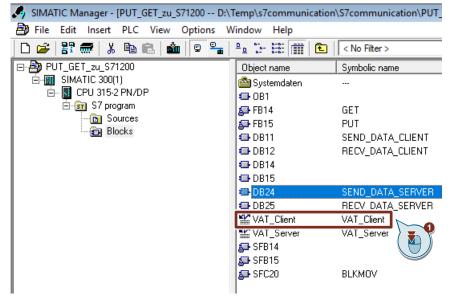
In STEP 7 V15.1 you can monitor and control the Send and Receive data of the S7-1200 CPU in the variable table.

# 4.1 SIMATIC S7-300 Writes and Reads Data as Client

# 4.1.1 Write Data to the S7-1200 CPU

#### Using the variable table in STEP 7 V5.6

1. In the "Blocks" folder you double-click the variable table "VAT\_Client". The variable table opens.



2. Click the "Monitor variable" button in the toolbar. The "Status value" column displays the current values in the Send data area (DB11) and Receive data area (DB12).

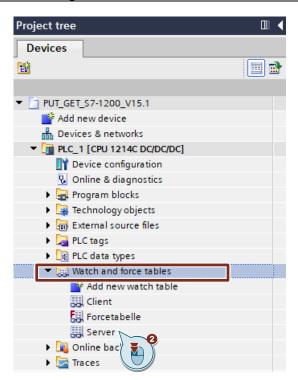
	- VAT_Client	2				
able	Edit Insert	_	PLC Variable View Options Wi	ndow Help		
¤ [	0 🚄 日	Ē	) X B B 🖻 🗠 🖂 🗙 🗣		Sø (	<u>87 M2 66 M2</u>
		_				0
Se V	AT_Client @	₽PI	UT_GET_zu_S71200\SIMATIC 300(1)\CI	PU 315-2 PN/DP	\S7 program_OI	V( 📉 )
	Address		Symbol	Display format	Status value	Mouny value
1	//SEND DATA	۸.				
2	DB11.DBB	0	"SEND_DATA_CLIENT".SEND_DATA[0]	HEX	B#16#11	B#16#11
3	DB11.DBB	1	"SEND_DATA_CLIENT".SEND_DATA[1]	HEX	B#16#12	B#16#12
4	DB11.DBB	2	"SEND_DATA_CLIENT".SEND_DATA[2]	HEX	B#16#13	B#16#13
5	DB11.DBB	3	"SEND_DATA_CLIENT".SEND_DATA[3]	HEX	B#16#14	B#16#14
6	DB11.DBB	4	"SEND_DATA_CLIENT".SEND_DATA[4]	HEX	B#16#15	B#16#15
7	DB11.DBB	5	"SEND_DATA_CLIENT".SEND_DATA[5]	HEX	B#16#16	B#16#16
8	DB11.DBB	6	"SEND_DATA_CLIENT".SEND_DATA[6]	HEX	B#16#17	B#16#17
9	DB11.DBB	7	"SEND_DATA_CLIENT".SEND_DATA[7]	HEX	B#16#18	B#16#18
10	DB11.DBB	8	"SEND_DATA_CLIENT".SEND_DATA[8]	HEX	B#16#19	B#16#19
11	DB11.DBB	9	"SEND_DATA_CLIENT".SEND_DATA[9]	HEX	B#16#20	B#16#20
12						
13	//RECEIVE DA	AT/	Ą			
14	DB12.DBB	0	"RECV_DATA_CLIENT".RECV_DATA[0]	HEX	B#16#26	
15	DB12.DBB	1	"RECV_DATA_CLIENT".RECV_DATA[1]	HEX	B#16#09	
16	DB12.DBB	2	"RECV_DATA_CLIENT".RECV_DATA[2]	HEX	B#16#19	
17	DB12.DBB	3	"RECV_DATA_CLIENT".RECV_DATA[3]	HEX	B#16#81	
18	DB12.DBB	4	"RECV_DATA_CLIENT".RECV_DATA[4]	HEX	B#16#30	
19	DB12.DBB	5	"RECV_DATA_CLIENT".RECV_DATA[5]	HEX	B#16#06	
20	DB12.DBB	6	"RECV_DATA_CLIENT".RECV_DATA[6]	HEX	B#16#19	
21	DB12.DBB	7	"RECV_DATA_CLIENT".RECV_DATA[7]	HEX	B#16#84	
22	DB12.DBB	8	"RECV_DATA_CLIENT".RECV_DATA[8]	HEX	B#16#03	
23	DB12.DBB	9	"RECV_DATA_CLIENT".RECV_DATA[9]	HEX	B#16#11	
24						

- 3. In the "Modify value" column you enter the values that are to be put in the Send data area and written to the S7-1200 CPU.
- Click the "Modify variable" button in the toolbar. The modified values are put in the Send data area (DB1) of the S7-300 CPU and written to the S7-1200 CPU.

ble	Edit Insert	F	PLC Variable View Options Wi	ndow Help		
a [	) 🛩 🖬 🛛	ē		£ <b>∖?</b>	9	60° 47° 66°
<mark>8 .</mark> ₩	AT_Client @	Pl	JT_GET_zu_S71200\SIMATIC 300(1)\CI	PU 315-2 PN/DP	\S7 program O	NLINE
	Address		Symbol	Display format	Status value	Modify value
1	//SEND DATA					
2	DB11.DBB (	0	"SEND_DATA_CLIENT".SEND_DATA[0]	HEX	B#16#11	B#16#11
3	DB11.DBB 1	1	"SEND_DATA_CLIENT".SEND_DATA[1]	HEX	B#16#12	B#16#12
4	DB11.DBB 2	2	"SEND_DATA_CLIENT".SEND_DATA[2]	HEX	B#16#13	B#16#13
5	DB11.DBB	3	"SEND_DATA_CLIENT".SEND_DATA[3]	HEX	B#16#14	B#16#14
6	DB11.DBB 4	4	"SEND_DATA_CLIENT".SEND_DATA[4]	HEX	B#16#15	B#16#15
7	DB11.DBB §	5	"SEND_DATA_CLIENT".SEND_DATA[5]	HEX	B#16#16	B#16#16
3	DB11.DBB (	6	"SEND_DATA_CLIENT".SEND_DATA[6]	HEX	B#16#17	B#16#17
9	DB11.DBB 7	7	"SEND_DATA_CLIENT".SEND_DATA[7]	HEX	B#16#18	B#16#18
10	DB11.DBB 8	8	"SEND_DATA_CLIENT".SEND_DATA[8]	HEX	B#16#19	B#16#19
11	DB11.DBB 9	9	"SEND_DATA_CLIENT".SEND_DATA[9]	HEX	B#16#20	B#16#20
12						
13	//RECEIVE DA	T/	4			
14	DB12.DBB (	0	"RECV_DATA_CLIENT".RECV_DATA[0]	HEX	B#16#26	
15	DB12.DBB 1	1	"RECV_DATA_CLIENT".RECV_DATA[1]	HEX	B#16#09	
16	DB12.DBB 2	2	"RECV_DATA_CLIENT".RECV_DATA[2]	HEX	B#16#19	
17	DB12.DBB	3	"RECV_DATA_CLIENT".RECV_DATA[3]	HEX	B#16#81	
18	DB12.DBB 4	4	"RECV_DATA_CLIENT".RECV_DATA[4]	HEX	B#16#30	
19	DB12.DBB	5	"RECV_DATA_CLIENT".RECV_DATA[5]	HEX	B#16#06	
20	DB12.DBB (	6	"RECV_DATA_CLIENT".RECV_DATA[6]	HEX	B#16#19	
21	DB12.DBB	7	"RECV_DATA_CLIENT".RECV_DATA[7]	HEX	B#16#84	
22	DB12.DBB 8	8	"RECV_DATA_CLIENT".RECV_DATA[8]	HEX	B#16#03	
23	DB12.DBB	9	"RECV_DATA_CLIENT".RECV_DATA[9]	HEX	B#16#11	

## Using the variable table in STEP 7 V15.1

- 1. In the project tree you open the device folder of the S7-1200 CPU.
- 2. In the "Watch and force tables" folder you double-click the watch table "Server". The watch table opens in the working area of STEP 7 V15.1.



3. Click the "Monitor all" button in the toolbar.

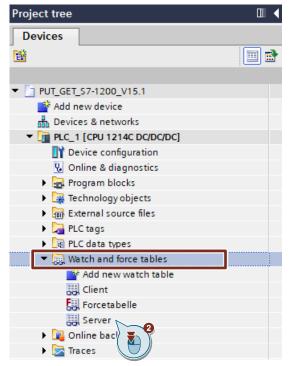
The "Monitor value" column displays the current values stored in the Send data area (DB1) and Receive data area (DB2). This permits you to check whether the data written from the S7-300 CPU has arrived in the Receive data area (DB2) of the S7-1200 CPU.

PU.	T_GET	[_\$7-1200_V15.1 → PLC_1 [Cl	PU 1214C DC/DC/I	DC] 🕨 Watch and	force tables 🔸 🤅	Server		
🦸 🔮 🎎 🕼 🌮 🖧 🖉 🞯 📬								
-	i	Name	3 ddress	Display format	Monitor value	Modify value		
	// Rece	ive Data 🛛 🛛 👔						
		"RecvDataServer".recvData[0]	%DB2.DBB0	Hex	16#11			
		"RecvDataServer".recvData[1]	%DB2.DBB1	Hex	16#12			
		"RecvDataServer".recvData[2]	%DB2.DBB2	Hex	16#13			
		"RecvDataServer".recvData[3]	%DB2.DBB3	Hex	16#14			
		"RecvDataServer".recvData[4]	%DB2.DBB4	Hex	16#15			
		"RecvDataServer".recvData[5]	%DB2.DBB5	Hex	16#16			
		"RecvDataServer".recvData[6]	%DB2.DBB6	Hex	16#17			
		"RecvDataServer".recvData[7]	%DB2.DBB7	Hex	16#18			
0		"RecvDataServer".recvData[8]	%DB2.DBB8	Hex	16#19			
1		"RecvDataServer".recvData[9]	%DB2.DBB9	Hex	16#20			
2						-		
3	// Send	d Data						
4		"SendDataServer".sendData[0]	%DB1.DBB0	Hex	16#26	16#26		
5		"SendDataServer".sendData[1]	%DB1.DBB1	Hex	16#09	16#09		
6		"SendDataServer".sendData[2]	%DB1.DBB2	Hex	16#19	16#19		
7		"SendDataServer".sendData[3]	%DB1.DBB3	Hex	16#81	16#81		
8		"SendDataServer".sendData[4]	%DB1.DBB4	Hex	16#30	16#30		
9		"SendDataServer".sendData[5]	%DB1.DBB5	Hex	16#06	16#06		
0		"SendDataServer".sendData[6]	%DB1.DBB6	Hex	16#19	16#19		
1		"SendDataServer".sendData[7]	%DB1.DBB7	Hex	16#84	16#84		
2		"SendDataServer".sendData[8]	%DB1.DBB8	Hex	16#03	16#03		
3		"SendDataServer".sendData[9]	%DB1.DBB9	Hex	16#11	16#11		
4			Add new>					

# 4.1.2 Read Data from the S7-1200 CPU

# Using the variable table in STEP 7 V15.1

- 1. In the project tree you open the device folder of the S7-1200 CPU.
- 2. In the "Watch and force tables" folder you double-click the watch table "Server". The watch table opens in the working area of STEP 7 V15.1.



 Click the "Monitor all" button in the toolbar. The "Monitor value" column displays the current values stored in the Send data area (DB1) and Receive data area (DB2).

<i>ii</i>	<b>e</b>	n 🖉 🕼 🍠 🗞 🌮 🖺				_
	i	Name	3 Address	Display format	Monitor value	Modify value
	// Rece	ive Data 🌔 🍋				
		"RecvDataServer".recvData[0]	%DB2.DBB0	Hex	16#11	
		"RecvDataServer".recvData[1]	%DB2.DBB1	Hex	16#12	
		"RecvDataServer".recvData[2]	%DB2.DBB2	Hex	16#13	
		"RecvDataServer".recvData[3]	%DB2.DBB3	Hex	16#14	
5		"RecvDataServer".recvData[4]	%DB2.DBB4	Hex	16#15	
7		"RecvDataServer".recvData[5]	%DB2.DBB5	Hex	16#16	
3		"RecvDataServer".recvData[6]	%DB2.DBB6	Hex	16#17	
)		"RecvDataServer".recvData[7]	%DB2.DBB7	Hex	16#18	
0		"RecvDataServer".recvData[8]	%DB2.DBB8	Hex	16#19	
1		"RecvDataServer".recvData[9]	%DB2.DBB9	Hex	16#20	
2						
3	// Send	Data				
4		"SendDataServer".sendData[0]	%DB1.DBB0	Hex	16#26	16#26
5		"SendDataServer".sendData[1]	%DB1.DBB1	Hex	16#09	16#09
6		"SendDataServer".sendData[2]	%DB1.DBB2	Hex	16#19	16#19
7		"SendDataServer".sendData[3]	%DB1.DBB3	Hex	16#81	16#81
8		"SendDataServer".sendData[4]	%DB1.DBB4	Hex	16#30	16#30
9		"SendDataServer".sendData[5]	%DB1.DBB5	Hex	16#06	16#06
0		"SendDataServer".sendData[6]	%DB1.DBB6	Hex	16#19	16#19
1		"SendDataServer".sendData[7]	%DB1.DBB7	Hex	16#84	16#84
2		"SendDataServer".sendData[8]	%DB1.DBB8	Hex	16#03	16#03
3		"SendDataServer".sendData[9]	%DB1.DBB9	Hex	16#11	16#11

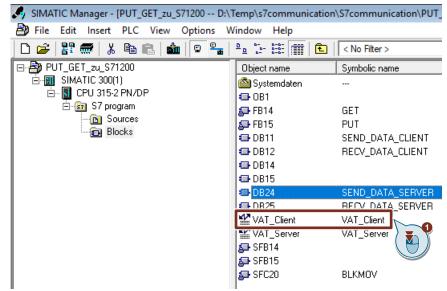
- 4. In the "Modify value" column you enter the values that are to be put in the Send data area (DB1) of the S7-1200 CPU and read from the S7-300 CPU. The data read is stored in the Receive data area (DB12) of the S7-300.
- 5. In the toolbar you click the "Modify all enabled values once and immediately" button.

The modified values are put in the Send data area (DB1) of the S7-1200 CPU.

<b>*</b> 1	* 🏥 🕪 🌆 🏞 🍄 🖤 🕾				
i	Name 5	Address	Display format	Monitor value	Modify value
<i>  </i> F	Receive Data ( 🍋 🌖				
2	"RecvDataServel Data[0]	%DB2.DBB0	Hex	16#11	
3	"RecvDataServer".recvData[1]	%DB2.DBB1	Hex	16#12	
1	"RecvDataServer".recvData[2]	%DB2.DBB2	Hex	16#13	
5	"RecvDataServer".recvData[3]	%DB2.DBB3	Hex	16#14	
6	"RecvDataServer".recvData[4]	%DB2.DBB4	Hex	16#15	
7	"RecvDataServer".recvData[5]	%DB2.DBB5	Hex	16#16	
в	"RecvDataServer".recvData[6]	%DB2.DBB6	Hex	16#17	
Э	<pre>"RecvDataServer".recvData[7]</pre>	%DB2.DBB7	Hex	16#18	
10	"RecvDataServer".recvData[8]	%DB2.DBB8	Hex	16#19	
11	"RecvDataServer".recvData[9]	%DB2.DBB9	Hex	16#20	
12					
13 // 9	Send Data				
14	"SendDataServer".sendData[0]	%DB1.DBB0	Hex	16#26	16#26
15	"SendDataServer".sendData[1]	%DB1.DBB1	Hex	16#09	16#09
16	"SendDataServer".sendData[2]	%DB1.DBB2	Hex	16#19	16#19
17	"SendDataServer".sendData[3]	%DB1.DBB3	Hex	16#81	16#81
18	"SendDataServer".sendData[4]	%DB1.DBB4	Hex	16#30	16#30
19	"SendDataServer".sendData[5]	%DB1.DBB5	Hex	16#06	16#06
20	"SendDataServer".sendData[6]	%DB1.DBB6	Hex	16#19	16#19
21	"SendDataServer".sendData[7]	%DB1.DBB7	Hex	16#84	16#84
22	"SendDataServer".sendData[8]	%DB1.DBB8	Hex	16#03	16#03
23	"SendDataServer".sendData[9]	%DB1.DBB9	Hex	16#11	16#11

#### Using the variable table in STEP 7 V5.6

1. In the "Blocks" folder you double-click the variable table "VAT\_Client". The variable table opens.



 Click the "Monitor variable" button in the toolbar. 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.

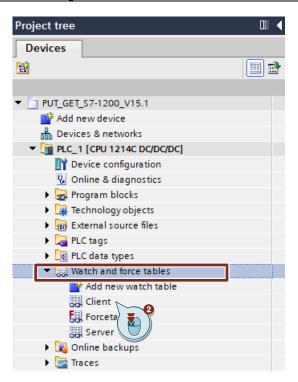
Va Va	ar - VAT_Client	2				
Table	Edit Inser	t	PLC Variable View Options Wi	ndow Help		
-ja		€		\$ ▶?	<b>9</b>	<u>87 87 66 87</u>
8	VAT_Client	@P	UT_GET_zu_S71200\SIMATIC 300(1)\CF	PU 315-2 PN/DP	\S7_program_ON	
	Address		Symbol	Display format	Status value	Mo value
1	//SEND DAT	Α				
2	DB11.DBB	0	"SEND_DATA_CLIENT".SEND_DATA[0]	HEX	B#16#11	B#16#11
3	DB11.DBB	1	"SEND_DATA_CLIENT".SEND_DATA[1]	HEX	B#16#12	B#16#12
4	DB11.DBB	2	"SEND_DATA_CLIENT".SEND_DATA[2]	HEX	B#16#13	B#16#13
5	DB11.DBB	3	"SEND_DATA_CLIENT".SEND_DATA[3]	HEX	B#16#14	B#16#14
6	DB11.DBB	4	"SEND_DATA_CLIENT".SEND_DATA[4]	HEX	B#16#15	B#16#15
7	DB11.DBB	5	"SEND_DATA_CLIENT".SEND_DATA[5]	HEX	B#16#16	B#16#16
8	DB11.DBB	6	"SEND_DATA_CLIENT".SEND_DATA[6]	HEX	B#16#17	B#16#17
9	DB11.DBB	7	"SEND_DATA_CLIENT".SEND_DATA[7]	HEX	B#16#18	B#16#18
10	DB11.DBB	8	"SEND_DATA_CLIENT".SEND_DATA[8]	HEX	B#16#19	B#16#19
11	DB11.DBB	9	"SEND_DATA_CLIENT".SEND_DATA[9]	HEX	B#16#20	B#16#20
12						
13	//RECEIVE D	DAT	A			
14	DB12.DBB	0	"RECV_DATA_CLIENT".RECV_DATA[0]	HEX	B#16#26	
15	DB12.DBB	1	"RECV_DATA_CLIENT".RECV_DATA[1]	HEX	B#16#09	
16	DB12.DBB	2	"RECV_DATA_CLIENT".RECV_DATA[2]	HEX	B#16#19	
17	DB12.DBB	3	"RECV_DATA_CLIENT".RECV_DATA[3]	HEX	B#16#81	
18	DB12.DBB	4	"RECV_DATA_CLIENT".RECV_DATA[4]	HEX	B#16#30	
19	DB12.DBB	5	"RECV_DATA_CLIENT".RECV_DATA[5]	HEX	B#16#06	
20	DB12.DBB	6	"RECV_DATA_CLIENT".RECV_DATA[6]	HEX	B#16#19	
21	DB12.DBB	7	"RECV_DATA_CLIENT".RECV_DATA[7]	HEX	B#16#84	
22	DB12.DBB	8	"RECV_DATA_CLIENT".RECV_DATA[8]	HEX	B#16#03	
23	DB12.DBB	9	"RECV_DATA_CLIENT".RECV_DATA[9]	HEX	B#16#11	

# 4.2 SIMATIC S7-1200 Writes and Reads Data as Client

#### 4.2.1 Write Data to the S7-300

#### Using the variable table in STEP 7 V15.1

- 1. In the project tree you open the device folder of the S7-1200 CPU.
- 2. In the "Watch and force tables" folder you double-click the watch table "Client". The watch table opens in the working area of STEP 7 V15.1.



 Click the "Monitor all" button in the toolbar. The "Monitor value" column displays the current values stored in the Send data

The Monitor value column displays the current values stored in the Send dat
area (DB4) and Receive data area (DB5).

¢ 👻	1. 19 10 91 90 97				_
i	Name 3	Address	Display format	Monitor value	Modify value
// Se	nd Data ( 🍋 )				
	"SendDataClient".sendData[0]	%DB4.DBB0	Hex	16#03	16#03
	"SendDataClient".sendData[1]	%DB4.DBB1	Hex	16#11	16#11
	"SendDataClient".sendData[2]	%DB4.DBB2	Hex	16#69	16#69
	"SendDataClient".sendData[3]	%DB4.DBB3	Hex	16#12	16#12
	"SendDataClient".sendData[4]	%DB4.DBB4	Hex	16#07	16#07
	"SendDataClient".sendData[5]	%DB4.DBB5	Hex	16#57	16#57
	"SendDataClient".sendData[6]	%DB4.DBB6	Hex	16#03	16#03
	"SendDataClient".sendData[7]	%DB4.DBB7	Hex	16#10	16#10
0	"SendDataClient".sendData[8]	%DB4.DBB8	Hex	16#12	16#12
1	"SendDataClient".sendData[9]	%DB4.DBB9	Hex	16#04	16#04
2 // Re	ceive Data				
3	"RecvDataClient".recvData[0]	%DB5.DBB0	Hex	16#12	
4	"RecvDataClient".recvData[1]	%DB5.DBB1	Hex	16#07	
5	"RecvDataClient".recvData[2]	%DB5.DBB2	Hex	16#19	
6	"RecvDataClient".recvData[3]	%DB5.DBB3	Hex	16#57	
7	"RecvDataClient".recvData[4]	%DB5.DBB4	Hex	16#03	
8	"RecvDataClient".recvData[5]	%DB5.DBB5	Hex	16#11	
9	"RecvDataClient".recvData[6]	%DB5.DBB6	Hex	16#19	
0	"RecvDataClient".recvData[7]	%DB5.DBB7	Hex	16#60	
1	"RecvDataClient".recvData[8]	%DB5.DBB8	Hex	16#12	
2	"RecvDataClient".recvData[9]	%DB5.DBB9	Hex	16#04	
3		Add new>			_

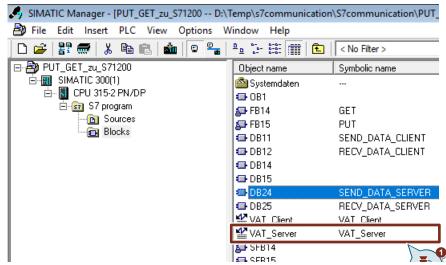
- 4. In the "Modify value" column you enter the values that are to be put in the Send data area (DB4) of the S7-1200 CPU and written to the S7-300 CPU.
- 5. In the toolbar you click the "Modify all enabled values once and immediately" button.

The modified values are put in the Send data area (DB4) of the S7-1200 CPU and written to the S7-300 CPU.

<i>≇ ≇ ₫ №</i> ₺ १ % % ₽ ™ °°							
	i Name	Address	Display format	Monitor value	Modify value		
	// Send Data 🛛 🛛 💾 🌖						
2	"SendDataClien Data[0]	%DB4.DBB0	Hex	16#03	16#03		
	"SendDataClient".sendData[1]	%DB4.DBB1	Hex	16#11	16#11		
	"SendDataClient".sendData[2]	%DB4.DBB2	Hex	16#69	16#69		
	"SendDataClient".sendData[3]	%DB4.DBB3	Hex	16#12	16#12		
6	"SendDataClient".sendData[4]	%DB4.DBB4	Hex	16#07	16#07		
	"SendDataClient".sendData[5]	%DB4.DBB5	Hex	16#57	16#57		
	"SendDataClient".sendData[6]	%DB4.DBB6	Hex	16#03	16#03		
	"SendDataClient".sendData[7]	%DB4.DBB7	Hex	16#10	16#10		
0	"SendDataClient".sendData[8]	%DB4.DBB8	Hex	16#12	16#12		
1	"SendDataClient".sendData[9]	%DB4.DBB9	Hex	16#04	16#04		
2	// Receive Data						
з	"RecvDataClient".recvData[0]	%DB5.DBB0	Hex	16#12	9		
4	"RecvDataClient".recvData[1]	%DB5.DBB1	Hex	16#07	( A )		
5	"RecvDataClient".recvData[2]	%DB5.DBB2	Hex	16#19			
6	"RecvDataClient".recvData[3]	%DB5.DBB3	Hex	16#57			
7	"RecvDataClient".recvData[4]	%DB5.DBB4	Hex	16#03			
8	"RecvDataClient".recvData[5]	%DB5.DBB5	Hex	16#11			
9	"RecvDataClient".recvData[6]	%DB5.DBB6	Hex	16#19			
0	"RecvDataClient".recvData[7]	%DB5.DBB7	Hex	16#60			
1	"RecvDataClient".recvData[8]	%DB5.DBB8	Hex	16#12			
2	"RecvDataClient".recvData[9]	%DB5.DBB9	Hex	16#04			

## Using the variable table in STEP 7 V5.6

1. In the "Blocks" folder you double-click the variable table "VAT\_Server". The variable table opens.



 Click the "Monitor variable" button in the toolbar. The "Status value" column displays the current values in the Send data area (DB24) and Receive data area (DB25). This permits you to check whether the data written from the S7-1200 CPU has arrived in the Receive data area (DB25) of the S7-300 CPU.

🔓 🔽	r - VAT_Server	- )						
Table	Edit Inser	t	PLC Variable View Options Wind	low Help				
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	VAT_Server @PUT_GET_zu_S71200\SIMATIC 300(1)\CPU 315-2 PN/DP\S7_program_ONL							
1	Address		Symbol	Display format	Status value	value		
1	//Receive Da	ta						
2	DB25.DBB	0	"RECV_DATA_SERVER".RECV_DATA[0]	HEX	B#16#03			
3	DB25.DBB	1	"RECV_DATA_SERVER".RECV_DATA[1]	HEX	B#16#11			
4	DB25.DBB	2	"RECV_DATA_SERVER".RECV_DATA[2]	HEX	B#16#69			
5	DB25.DBB	3	"RECV_DATA_SERVER".RECV_DATA[3]	HEX	B#16#12			
6	DB25.DBB	4	"RECV_DATA_SERVER".RECV_DATA[4]	HEX	B#16#07			
7	DB25.DBB	5	"RECV_DATA_SERVER".RECV_DATA[5]	HEX	B#16#57			
8	DB25.DBB	6	"RECV_DATA_SERVER".RECV_DATA[6]	HEX	B#16#03			
9	DB25.DBB	7	"RECV_DATA_SERVER".RECV_DATA[7]	HEX	B#16#10			
10	DB25.DBB	8	"RECV_DATA_SERVER".RECV_DATA[8]	HEX	B#16#12			
11	DB25.DBB	9	"RECV_DATA_SERVER".RECV_DATA[9]	HEX	B#16#04			
12	//Send Data							
13	DB24.DBB	0	"SEND_DATA_SERVER".SEND_DATA[0]	HEX	B#16#12	B#16#12		
14	DB24.DBB	1	"SEND_DATA_SERVER".SEND_DATA[1]	HEX	B#16#07	B#16#07		
15	DB24.DBB	2	"SEND_DATA_SERVER".SEND_DATA[2]	HEX	B#16#19	B#16#19		
16	DB24.DBB	3	"SEND_DATA_SERVER".SEND_DATA[3]	HEX	B#16#57	B#16#57		
17	DB24.DBB	4	"SEND_DATA_SERVER".SEND_DATA[4]	HEX	B#16#03	B#16#03		
18	DB24.DBB	5	"SEND_DATA_SERVER".SEND_DATA[5]	HEX	B#16#11	B#16#11		
19	DB24.DBB	6	"SEND_DATA_SERVER".SEND_DATA[6]	HEX	B#16#19	B#16#19		
20	DB24.DBB	7	"SEND_DATA_SERVER".SEND_DATA[7]	HEX	B#16#60	B#16#60		
21	DB24.DBB	8	"SEND_DATA_SERVER".SEND_DATA[8]	HEX	B#16#12	B#16#12		
22	DB24.DBB	9	"SEND_DATA_SERVER".SEND_DATA[9]	HEX	B#16#04	B#16#04		
23								

# 4.2.2 Read Data from the S7-300

# Using the variable table in STEP 7 V5.6

1. In the "Blocks" folder you double-click the variable table "VAT\_Client". The variable table opens.

SIMATIC Manager - [PUT_GET_zu_S71200 D:\	Temp\s7communication	\S7communication\PUT_
🎒 File Edit Insert PLC View Options V	Vindow Help	
🗋 D 😅   🎛 🛲   X 🖻 💼   🏜   오 🀾		< No Filter >
□- 🎒 PUT_GET_zu_S71200	Object name	Symbolic name
SIMATIC 300(1)	🚵 Systemdaten	
🖻 📓 CPU 315-2 PN/DP	🕀 OB1	
⊡- 🗊 S7 program	🗗 FB14	GET
Blocks	🛃 FB15	PUT
DIOCKS	🕀 DB11	SEND_DATA_CLIENT
	🕀 DB12	RECV_DATA_CLIENT
	🕀 DB14	
	DB15	
	📾 DB24	SEND_DATA_SERVER
	DB25	RECV_DATA_SERVER
	VAT Client	VAT Client
	VAT_Server	VAT_Server
	SFB14	1 🔊 🕅
	🛃 SFB15	
	SFC20	BLKMOV

2. Click the "Monitor variable" button in the toolbar. The "Status value" column displays the current values in the Send data area (DB24) and Receive data area (DB25).

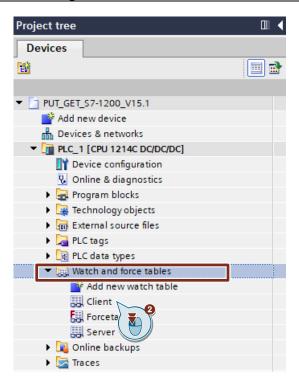
a Va	ar - VAT_Server				
able	Edit Insert	PLC Variable View Options Wind	ow Help		
æ			▶?	Sa 🔊	
12 <mark>- 1</mark>	/AT_Server @I	PUT_GET_zu_S71200\SIMATIC 300(1)\CPU	315-2 PN/DP\S7	program ONLI	
	Address	Symbol	Display format	Status value	Malue
1	//Receive Data				
2	DB25.DBB 0	"RECV_DATA_SERVER".RECV_DATA[0]	HEX	B#16#03	
3	DB25.DBB 1	"RECV_DATA_SERVER".RECV_DATA[1]	HEX	B#16#11	
4	DB25.DBB 2	"RECV_DATA_SERVER".RECV_DATA[2]	HEX	B#16#69	
5	DB25.DBB 3	"RECV_DATA_SERVER".RECV_DATA[3]	HEX	B#16#12	
6	DB25.DBB 4	"RECV_DATA_SERVER".RECV_DATA[4]	HEX	B#16#07	
7	DB25.DBB 5	"RECV_DATA_SERVER".RECV_DATA[5]	HEX	B#16#57	
8	DB25.DBB 6	"RECV_DATA_SERVER".RECV_DATA[6]	HEX	B#16#03	
9	DB25.DBB 7	"RECV_DATA_SERVER".RECV_DATA[7]	HEX	B#16#10	
10	DB25.DBB 8	"RECV_DATA_SERVER".RECV_DATA[8]	HEX	B#16#12	
11	DB25.DBB 9	"RECV_DATA_SERVER".RECV_DATA[9]	HEX	B#16#04	
12	//Send Data				
13	DB24.DBB 0	"SEND_DATA_SERVER".SEND_DATA[0]	HEX	B#16#12	B#16#12
14	DB24.DBB 1	"SEND_DATA_SERVER".SEND_DATA[1]	HEX	B#16#07	B#16#07
15	DB24.DBB 2	"SEND_DATA_SERVER".SEND_DATA[2]	HEX	B#16#19	B#16#19
16	DB24.DBB 3	"SEND_DATA_SERVER".SEND_DATA[3]	HEX	B#16#57	B#16#57
17	DB24.DBB 4	"SEND_DATA_SERVER".SEND_DATA[4]	HEX	B#16#03	B#16#03
18	DB24.DBB 5	"SEND_DATA_SERVER".SEND_DATA[5]	HEX	B#16#11	B#16#11
19	DB24.DBB 6	"SEND_DATA_SERVER".SEND_DATA[6]	HEX	B#16#19	B#16#19
20	DB24.DBB 7	"SEND_DATA_SERVER".SEND_DATA[7]	HEX	B#16#60	B#16#60
21	DB24.DBB 8	"SEND_DATA_SERVER".SEND_DATA[8]	HEX	B#16#12	B#16#12
22	DB24.DBB 9	"SEND DATA SERVER".SEND DATA[9]	HEX	B#16#04	B#16#04

- 3. In the "Modify value" column you enter the values that are to be put in the Send data area (DB24) of the S7-300 CPU and read from the S7-1200 CPU. The data read is stored in the Receive data area (DB5) of the S7-1200.
- 4. Click the "Activate modify values" button in the toolbar. The modified values are put in the Send data area (DB24) of the S7-300 CPU.

a Va	r - VAT_Serve	er	1			
[able	Edit Inse	rt	PLC Variable View Options Windo	ow Help		
¥	0 🖻 🔒	é	3 <u>X B</u> EVA X <b>-</b> 2	N?	Sy 6	r 🗤 🖓
8 <mark>.v</mark>	AT_Server	@P	UT_GET_zu_S71200\SIMATIC 300(1)\CPU 3	15-2 PN/DP\S7	program ONL	
1	Address		Symbol	Display format	Status value	Modify
1	//Receive D	ata				
2	DB25.DBB	0	"RECV_DATA_SERVER".RECV_DATA[0]	HEX	B#16#03	
3	DB25.DBB	1	"RECV_DATA_SERVER".RECV_DATA[1]	HEX	B#16#11	
4	DB25.DBB	2	"RECV_DATA_SERVER".RECV_DATA[2]	HEX	B#16#69	
5	DB25.DBB	3	"RECV_DATA_SERVER".RECV_DATA[3]	HEX	B#16#12	
6	DB25.DBB	4	"RECV_DATA_SERVER".RECV_DATA[4]	HEX	B#16#07	
7	DB25.DBB	5	"RECV_DATA_SERVER".RECV_DATA[5]	HEX	B#16#57	
3	DB25.DBB	6	"RECV_DATA_SERVER".RECV_DATA[6]	HEX	B#16#03	
9	DB25.DBB	7	"RECV_DATA_SERVER".RECV_DATA[7]	HEX	B#16#10	$\sim$
10	DB25.DBB	8	"RECV_DATA_SERVER".RECV_DATA[8]	HEX	B#16#12	
11	DB25.DBB	9	"RECV_DATA_SERVER".RECV_DATA[9]	HEX	B#16#04	
12	//Send Data					
13	DB24.DBB	0	"SEND_DATA_SERVER".SEND_DATA[0]	HEX	B#16#12	B#16#12
14	DB24.DBB	1	"SEND_DATA_SERVER".SEND_DATA[1]	HEX	B#16#07	B#16#07
15	DB24.DBB	2	"SEND_DATA_SERVER".SEND_DATA[2]	HEX	B#16#19	B#16#19
16	DB24.DBB	3	"SEND_DATA_SERVER".SEND_DATA[3]	HEX	B#16#57	B#16#57
17	DB24.DBB	4	"SEND_DATA_SERVER".SEND_DATA[4]	HEX	B#16#03	B#16#03
18	DB24.DBB	5	"SEND_DATA_SERVER".SEND_DATA[5]	HEX	B#16#11	B#16#11
9	DB24.DBB	6	"SEND_DATA_SERVER".SEND_DATA[6]	HEX	B#16#19	B#16#19
20	DB24.DBB	7	"SEND_DATA_SERVER".SEND_DATA[7]	HEX	B#16#60	B#16#60
21	DB24.DBB	8	"SEND_DATA_SERVER".SEND_DATA[8]	HEX	B#16#12	B#16#12
22	DB24.DBB	9	"SEND_DATA_SERVER".SEND_DATA[9]	HEX	B#16#04	B#16#04
23						

# Using the variable table in STEP 7 V15.1

- 1. In the project tree you open the device folder of the S7-1200 CPU.
- 2. In the "Watch and force tables" folder you double-click the watch table "Client". The watch table opens in the working area of STEP 7 V15.1.



3. Click the "Monitor all" button in the toolbar.

The "Monitor value" column displays the current values stored in the Send data area (DB4) and Receive data area (DB5). This permits you to check whether the data read from the S7-300 CPU has arrived in the Receive data area (DB5) of the S7-1200 CPU.

# # 16 91 % 72 📭 m								
	i N	lame 3	3 Address	Display format	Monitor value	Modify value		
	// Send D	ata 🌔 🍋 🌔						
		SendDataClient".sendData[0]	%DB4.DBB0	Hex	16#03	16#03		
		SendDataClient".sendData[1]	%DB4.DBB1	Hex	16#11	16#11		
Ļ		SendDataClient".sendData[2]	%DB4.DBB2	Hex	16#69	16#69		
		SendDataClient".sendData[3]	%DB4.DBB3	Hex	16#12	16#12		
5		SendDataClient".sendData[4]	%DB4.DBB4	Hex	16#07	16#07		
7		SendDataClient".sendData[5]	%DB4.DBB5	Hex	16#57	16#57		
}		SendDataClient".sendData[6]	%DB4.DBB6	Hex	16#03	16#03		
)		SendDataClient".sendData[7]	%DB4.DBB7	Hex	16#10	16#10		
0		SendDataClient".sendData[8]	%DB4.DBB8	Hex	16#12	16#12		
1		SendDataClient".sendData[9]	%DB4.DBB9	Hex	16#04	16#04		
2	// Receive	e Data				_		
3		RecvDataClient".recvData[0]	%DB5.DBB0	Hex	16#12			
4		RecvDataClient".recvData[1]	%DB5.DBB1	Hex	16#07			
5		RecvDataClient".recvData[2]	%DB5.DBB2	Hex	16#19			
6		RecvDataClient".recvData[3]	%DB5.DBB3	Hex	16#57			
7		RecvDataClient".recvData[4]	%DB5.DBB4	Hex	16#03			
8		RecvDataClient".recvData[5]	%DB5.DBB5	Hex	16#11			
9		RecvDataClient".recvData[6]	%DB5.DBB6	Hex	16#19			
0		RecvDataClient".recvData[7]	%DB5.DBB7	Hex	16#60			
1		RecvDataClient".recvData[8]	%DB5.DBB8	Hex	16#12			
2		RecvDataClient".recvData[9]	%DB5.DBB9	Hex	16#04			