

FETCH/WRITE to S5 over Industrial Ethernet



FAQ



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Question



How do I create a S5-compatible communication with the services FETCH and WRITE to the SIMATIC S5 for the SIMATIC NET OPC server over Industrial Ethernet with the SIMATIC NET PC software?

Answer

The instructions and notes listed in this document provide a detailed answer to this question.

1 Assignment of tasks

In this example, a commercially available network adapter is used that implements the S5-compatible communication with the services FETCH and WRITE over the OPC server to the S5 station.

NOTE The method described in these instructions also applies to the CP1613, CP1623, CP1512 and CP1612 communication processors.

1.1 Condition

It is assumed that one of the two following configuration tools is installed:

- NCM PC NCM PC is supplied with the SIMATIC NET CD and allows you to create PC projects and open STEP 7 projects. It is, however, not possible to edit S7 blocks in the STEP 7 project with this software.
- STEP 7
 STEP 7 is a separate software package with which you can create S7-400, S7-300 and PC projects. S7 blocks can be edited with this software.

Only one of these tools can be installed.

In chapter 2 "Configuration of the PC station" is described the configuration of PC station so that you can use the S5-compatible communication with the services FETCH and WRITE over Industrial Ethernet to exchange data between PC station and S5 station.

2 Configuration of the PC station

After successful completion of the hardware and software installation of the SIMATIC NET CD and the configuration tool and after restarting your computer, you start NCM PC or STEP 7 with "Start \rightarrow (in Windows XP: All Programs \rightarrow) SIMATIC \rightarrow SIMATIC Manager or SIMATIC NCM PC Manager or using the desktop icon of the same name.

Create a new project with "File \rightarrow New".

-	Storage path	
Example	F:\Program Files\SIEMENS\SIMAT	IC.NCM\S7proj\Examj
•		Tuner
ame:		I VDO.
a <u>m</u> e: C Station		Disiont
a <u>m</u> e: C_Station	j	Project

Figure 2-1 giving the project a name

Confirm the project name you have entered (in the example: "PC_Station") with OK. An empty STEP 7 or NCM PC project is then created.



Figure 2-2 inserting the PC station	
SIMATIC NCM PC Manager - PC_Station	
Eile Edit Insert PLC View Options Window Help	
№ 🗈 🎰 № 🕞 📰 🗰 < Nof	iter> 🗹 🏏 🔡 🔁 🖽 😢
PC_Station C:\Program Files\SIEMENS\SIMATIC.NCM\S7pr	oj\PC_Stati
PC_Station	MPI(1)
Press F1 to get Help.	CP5611(MPI)

With the menu command "Insert \rightarrow Station \rightarrow SIMATIC PC Station", you insert the PC station.

Figure 2-3 changing the name of the PC station



Give the PC station you have just inserted the same name as your computer (in the example: "PC_Station").

Now open the hardware configuration of the PC station by selecting the PC station, then pressing the right mouse button and selecting "Open Project" (STEP 7: "Open Object").

Figure 2-4 hardware configuration of the PC station

SIMATIC NCM PC Config - [PC_S	tation (Configuration)	PC_Station]				
Station Edit Insert PLC View	Options Window Help					_ 8 ×
	E) 🛍 🖆 🖪 🗖	號 k?				
				-		미치
				_	Eindt	ntai
3						
4 5					PROFIBUS DP	
6						
				_		
4				<u> </u>		
(0) PC						
Index Module	Order number	Firm	M	C		
1						
2		_	$\left \right $	- 11		
4						
5				_		
7		_	$\left \right $	- 1		
8					PROFIBUS-DP slaves for SIMATIC S7, M7, an (distributed cash)	nd C7 🕹 🕹
9						_

You will see an empty rack. If you cannot see the hardware catalog, click on the button marked in red.



SIMATIC NCM PC Config - [PC_St	ation (Configuration) PC_	_Station]				-10/2
UN Station Edit Insert PLC View	Options Window Help					- 6 2
	2 🛋 🗈 🖻 😤	}				
# (0) PC				1		D X
					Eind:	ntni
2						
4					PROFIBUS DP	
3						
7					E SIMATIC PC Station	
					CP Industrial Ethernet	
				_	😟 💼 🗀 CP 1411	
				<u> </u>	😥 💼 CP 1413	
				<u> </u>		
					⊕	
Index Module	Order number	Firm	M	C		
1				-	5 SW V62	
2					SW V6.2 SP1	
3				_	E CP PROFIBUS	
4					ни 🖂 Ниі	
5				_	😟 💼 User Application	
<u>b</u>			$\left \right $	_		
1 / 			$\left \right $		LE CP	Ŧ
		-		-	Substitute for any Industrial Ethernet modu	ile, PROFINET
10				-1	10 controller, ISO, TCP/IP, S7 connection	s, PG functions,

Figure 2-5 selecting the modules from the hardware catalog

Now place your PC modules in this rack (for example by dragging them from the hardware catalog).

If you use a CP1613 (or CP1612 or CP1512) you will select the CP1613 (or CP1612 or CP1512) instead of IE General.

The following dialog appears automatically after you insert the module in the PC station.



Figure 2-6 address assignment dialog

operties - Ether	net interface IE General	(R0/59)	×
General Paran	neters		
Set MAC add	fress / use IS <u>O</u> protocol		
MAC address:	08-00-06-24-E0-B7	If a subnet is selected, the next available address is suggested.	
IP protocol is	being used		
IP address:	192.168.0.1	Gateway	
Su <u>b</u> net mask:	255.255.255.0	C Use router	
		Address: 192.168.0.1	
<u>S</u> ubnet:			
Ethernet(1)	lođ	<u>N</u> ew	
		Properties	
		Dejete	
ок (Cancel Help	6
ОК		Cancel Help	2

Select the check box "Set MAC address / use ISO protocol". Following deselect the check box "IP protocol is being used".

Enter the MAC address of the Ethernet network card.

Click on the button "NEW" to add a new Industrial Ethernet network. The following dialog appears automatically.



roperties - New su	bnet Industrial Ethernet		2
General			
<u>N</u> ame: <u>S</u> 7 subnet ID: Project path: Storage location of the project	Ethernet(1) 0005 - 0003 C:\Program Files\SIEMENS\SIMATIC.	NCM\S7proi\PC Stati	
Author: Date created: Last modified:	25.01.2004 14:29:54 25.01.2004 14:29:54		
<u>C</u> omment:			×.
ОК		Cancel	Help

Figure 2-7 setting up an Ethernet network in STEP 7 or NCM PC

Confirm the dialog with "OK".

Figure 2-8 fulls	/ configured	notwork	adaptor
	/ conniguieu	TIELWOIK	auapter

✓ Set MAC add MAC address:	ress / use 15 <u>0</u> protocol 08-00-06-24-E0-B7	If a subnet is selected, the next available address is suggested.
IP protocol is	being used	
P address: Su <u>b</u> net mask:	192.168.0.1 265.255.255.0	Gateway © Do not use router © Use router Address: 192.168.0.1
2ubnet: not notwork Ethernet(1)	01	<u>N</u> ew
		Properties Dejete

The network adapter is now fully configured and networked. Confirm the configuration with OK.



	ation (Configuration) PC_	Station]			
🕅 Station Edit Insert PLC View	Options Window Help				_ 6]
	1 🛍 🖆 🗈 🔡	N?			
				_	
				_	Eind: At A.
2					
3					
5					PROFIBUS-PA
6					PROFINET IO
7					E SIMATIC PC Station
9 IE General V					CP Industrial Ethernet
				-	E CP 1413
				<u> </u>	🕀 🔁 CP 1511
(0) PC					CP 1512 P - CP 1612
Index Module	Order number	Firm	ы	c 1	🕀 🧰 CP 1613
module	order namber	1 1111	m		E- E General
				A	
2				-	
1 2 3 3					H → SW V6.2 → SW V6.2 SP1 ⊕ → CP PROFIBUS
1 2 3 4 5 6					
1 2 2 3 4 5 6 7					
1 2 2 3 4 5 5 5 6 7 8 8					SW V6.2 SW V6.2 SP1 CP PROFIBUS HMI User Application IE_CP Substitute for any Industrial Ethagenet module_PPOEINET Substitute for any Industrial Ethagenet module_PPOEINET E.
2 3 4 5 6 7 8 9 3 1 1 1 1 1 1 1 1 1 1 1 1 1	IE_CP	V6.2.1			IE_CP Substitute for any Industrial Ethernet module, PROFINET ID controller, ISO, TCP/IP, S7 connections, PG functions,

Figure 2-9 network adapter placed in the PC station

The module is now placed on a PC slot.

Figure 2-10 configuring the OPC server

SIMATIC NCM PC Config - [PC	_Station (Configuration)	PC_Station]				<u>- 0 ×</u>
Station Edit Insert PLC Vi	ew Options Window Help					_ 8 ×
		₩ №?				
I I I I I I I I I I I I I I I I I I I				-		ㅋㅋ
1	×				Eind:	M† M‡
2 UPC Server						
5					CP Industrial Ethernet Dec 1411	-
6					E-CP 1413	
8					⊕ - CP 1512	
9 HE General	<u> </u>				CP 1612 CP 1613	
				-1	E General	
				<u>}</u>		
ter and the second s					E CP PROFIBUS	
	(1			User Application	
Index Module	Order number	Firmware	MPI	C	Application	
2 II OPC Server		V6.2		_ ^	OPC Server	
2 UPC Server		V0.3		- 11	SW V6.0 SP4	
4		_			SW V0.0 3F5	
5				-	SW V6.2 SP1	
8				_	SW/V63	
7				_		-
8					OPC Server	_ ₹.
9 FIE General	IE_CP	V6.2.1			OPC Server for the DP, FDL, FMS, S7	
					Ubetween different subnets1 IS0/TCP SI	amp I
10			+ +		DP master class 2 PBOFINET CBA/IO	



Select the OPC server in the hardware catalog and then drag it to any slot.

Figure 2-11 button "NetPro"



Now open the NetPro program. Use the button marked red in the toolbar in Figure 2-11 button "NetPro".

In NetPro you configure connections to exchange data between OPC server and S5 station.

Figure 2-12 configuring the S5-compatible communication in NetPro

NetPro - [PC_Stal	tion (Network) C:\P	rogram Files\\S7	proj\PC_Stati]			-1013
Network Edit Ir	Network Objects	ons Window Help	station			_83
	Network Objects					
IVIPI	New Connection			^ _		므프
PROFIBUS	DP Master System			Eir	nd:	mt m.
PROFIBUS	PROFILIALI 10 Dystein			Se	election of the network	
Ethernet(1)	Station Egenera				PROFIBUS-PA PROFINET IO Stations Subnets	
C[
.ocal ID	Partner ID	Partner	Туре	<u> </u>		
				P	OFIBUS-DP slaves for SIM	TIC E.
41				Ising the second sec	. M/, and U/ Idistributed rac	

Select the OPC server. Right-click the OPC server \rightarrow "Insert \rightarrow New Connection" use the menu "Insert \rightarrow New Connection" to insert a new connection.



nsert New Co	onnection	×
Connection	Partner the current project PC_Station [Unspecified] All broadcast stations All multicast stations unknown project	
Eroject: Station: Module:	(Unspecified)	₹
Connection Lype: Display	ISO transport connection properties before inserting	
OK	Apply Cancel	Help

Figure 2-13 dialog "Insert New Connection"

Because the communication peer isn't configured in the same S7 project like the PC station, as in this example, an unspecified connection with the type ISO transport will be configured. Select "unspecified" for communication peer in the dialog box.

Confirm the dialog with "OK". Now the property view of the ISO transport connection will open.



perties - ISO transp	ort connection		
General Information	Addresses Options OP(C Overview	
Local Endpoint			
	ch		
Via CP IE Gen	aal		
	Route		
	n establishment		
To Petro connecta	Estab. Details		
2			

Figure 2-14 property view of ISO transport connection → register "General"

In the property view \rightarrow register "General"you can enter a name, choose by yourself, for the ISO transport connection. Enter this name in the text field "Name (ID) ", for example "ISO-Fetch". Select the check box "Active connection establishment".

Change into register "Addresses".

Figure 2-15 property view of ISO transport connection \rightarrow register "Addresses"

Properties - ISO trans	port connection	1			×
General Information	Addresses	Options	OPC Ove	erview	
Lo	ocal		Remote		
<u>M</u> AC (HEX): 08	3-00-06-01-E0-B7		08-00-06-01	-AA-FE	
ISAP (ASCII):	CFETCS5		S5FETCPC		
TSAP (hex): 5	0.43.46.45.54.43.5	3.35	53.35.46.45	.54.43.50.43	
TSAP length: 8			8		
ОК			C	ancel	Help



Enter the MAC address of the communication peer. The TSAPs are used to identify the ISO transport connection between the PC station and S5 station.

NOTE The address information of the created connection must be included in the connection configuration at the S5 end.

Change into the register "Options".

Figure 2-16 property view	of the ISO transport connection	→ register "Options"
---------------------------	---------------------------------	----------------------

perties - 150 transp	ort connectio	n			
General Information	Addresses	Options	OPC	Overview	
Loc	al				
Mode:	ch active	•			
	S7 addressing n	node			

Select the mode "Fetch active".

Confirm the dialog with "OK".

Insert a further unspecified ISO transport connection for the OPC server with the following properties.



Addresses Options OPI		
	C Overview	
Route		
stablishment		
<u>E</u> stab. Details		
	1	
	<u>R</u> oute stablishment <u>E</u> stab. Details	<u>R</u> oute stablishment Estab. Details

Figure 2-17 property view of the ISO transport connection → register "General"

In the property view \rightarrow register "General" you can enter a name, choose by yourself, for the ISO transport connection. Enter this name in the text field "Name (ID) ", for example "ISO-Write". Select the check box "Active connection establishment".

Change into register "Addresses".

Figure 2-18 property view of the ISO transport connection \rightarrow register "Addresses"

operties - ISO tr	ansport conne	ction		
General Informati	on Addresse	es Options	OPC Overview	
	Local		Remote	
<u>M</u> AC (HEX):	08-00-06-01-E0	-87	08-00-06-01-AA-FE	
ISAP (ASCII):	PCRECVS5		S5RECVPC	\supset
TSAP (<u>h</u> ex):	50.43.52.45.43	3.56.53.35	53.35.52.45.43.56.50	43
TSAP length:	8		8	
UK			Lancel	Неір



Enter the MAC address of the communication peer. The TSAPs are used to identify the ISO transport connection between the PC station and S5 station.

Hinweis The address information of the created connection must be included in the connection configuration at the S5 end.

Change into register "Options".

Figure 2-19 property view of the ISO transport connection \rightarrow register "Options"

perties - ISO transp	ort connectio	n				
General Information	Addresses	Options	OPC	Overvie	w	
Loc	al					
<u>1</u> ode:	ite active	J				
	S7 addressing r	nodei				

Select the mode "Write active".

Confirm the dialog with "OK".

If you select the OPC server in the SIMATIC PC station, the created connections will be displayed in the connection table.



	tation (Network) [*)P	rogram Files\\\ST	proj PC Statil	
Network Edit	Insert PLC View Ontic	og Window Help	proj (re_scaci)	
	The set of the set		station l	
	i <u>196</u> <u>216</u> <u>1</u>	<u></u>	<u>aii w</u>	
	Obsting			
	_Station			
OPC Serve	IE er Genera			
Ethernet(1)				
Industrial Et	hernet			
industrial Lu	A			
	Partner ID	Partner	Туре	1
Local ID S0-Fetch	Partner ID	Partner Unknown	Type ISO transport con	nection
Local ID SO-Fetch	Partner ID	Partner Unknown Unknown	Type ISO transport con ISO transport con	nection -
Local ID SO-Fetch SO-Write	Partner ID	Partner Unknown Unknown	Type ISO transport con ISO transport con	nection

Now the configuration of the ISO transport connections with the services FETCH and WRITE is finished. You have to save and compile S7 project. Therefore select the PC station in NetPro and click the button "Save and Compile" in the toolbar. This updates the information in the S7 project.

Figure 2-21 Save and Compile

Lompile and check everything			
Consile shannes sub-	Lompile and che	ck everything	
Complie changes only	Compile change	s <u>o</u> nly	



NOTE Warning indications can be displayed while proceeding with the "Save and Compile" of a S7 project. Warnings serve as piece of information and have no functional effect. In case error warnings occur, search for possible divergences in the previous steps of the instructions.

After the configuration is finished successful you have two possibilities to download the configuration on the PC station.

2.1 Configuration and download from STEP7 or NCM PC

With this function it is possible to perform a configuration completely from a remote computer, if a network connection (standard Ethernet) to the target PC station is available. It is assumed that the PC station can be reached via network connection. The project engineering can be downloaded after that.

2.2 Configuration and Download via "Import Station"

With this function it is possible to download the configuration and project engineering at once also without a connection to the target PC station. Depending on the application, other configurations can be loaded.

Open the "Station Configuration Editor" in the Windows START Menu \rightarrow "Station Configuration Editor" or with the following button in the Windows task bar.

Figure 2-22 button "Station Configuration Editior"





itation:	PC_Station		Mode:	RUN	_P		
Index	Name	Тире	Bing	Status	Bun/Stop	Conn	Ť
1						1	1
2							
3							
4							
5							
6							
7							
8							
9							
10							
11			_				
12							
13							1
14							4
15							4
16							4
17							
lew dia	gnostic entry arrive	ed!					
	Add	<u>E</u> dit)elete		Ring <u>O</u> N	
C1-1	in Name	Impart Station			Die	able Stati	or

Figure 2-23 Station Configuration Editior

Click the button "Import Station...". A message about restarting the PC station will open.

Figure 2-24 message about restarting the PC station

Station Configuration Editor	×
The station will be restarted. Make sure that no communication is active over the components involved. Do you want to import the station?	
Yes No	

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Entry-ID: 16697502

Confirm the message about restarting the PC station with "Yes". The following dialog to select the XDB file, which should be import, opens.

Import X	DB file			? ×
Look jn:	C XDBs	-	🗢 🗈 🔿	
Black	🞯 Desktop			1
m pese_	My Documents			
	😡 My Computer			
	لا الله الله الله الله الله الله الله ا			
	SYSTEM (C:)			
	🚞 Program Files			
	C SIEMENS			
	SIMATIC.NCM			
	🛅 S7proj			
Eile name	C_Stati			0
rile <u>n</u> ame	💼 🔀 Bs			Upen
Files of hu	🖘 DATA (D:)		-	Cancel
Files of Ly	🥪 Win2K (E:)			

Figure 2-25 selecting the XDB file

In this dialog you enter the path of the XDB file. The XDB file is always created in the project by NCM PC / STEP 7 (see **Fehler! Verweisquelle konnte nicht gefunden werden.**). With the combo box "Search in: "you navigate in the path of the XDB file.



	Name	Type	Status	Error	
1					
2	OPC Server	OPC Server			
3	-				
4			1		
5					
6					
7					-
8					
9	IE General	IE General			
10					
11					
12					
13					
14					
15					
16					
13 14 15 16	The XDB import is p	ossible. Refer to t	he list abov	ve for the configuration.	

As information, you can see once again which modules and applications are configured in the XDB file.



ation:	PC_Station	-	Mode:	RUN	l_P		
ndex	Name	Туре	Ring	Status	Run/Stop	Conn	
1							
2	OPC Server	OPC Server		2	0		
3							
4							
5							
6							
7							
8						1	T
9	IE General	IE General		No.	0		
10							
11							
12							
13							
14							
15				_			
16			_	_			
17						1. 1.4	
ew dia	gnostic entry arrived!	<u>E</u> dit		Delete		Ring <u>O</u> N	

Figure 2-27 PC station is configured

Now the import of the XDB file is finished and the configuration is downloaded.

In the column connection, which is marked red, you see that the connection is also been downloaded.

Now the configuration of the PC station is finished.

3 Configuration of the SIMATIC S5

3.1 Initialization of the CP 1430 and configure the S5-compatible communication with the services FETCH / WRITE

Start STEP 5 in the Windows START Menu "Start \rightarrow SIMATIC \rightarrow STEP 5 \rightarrow STEP 5.

Press the "F9" key to change to the configuration tool of the CP 1430 "SINEC NCM COM 1430".

NOTE The "SINEC NCM COM 1430" configuration tool is additional software integrated in STEP 5 to configure the CP 1430. This software is not included in the standard STEP 5 package and must be ordered separately. Initialize the CP using the "Edit \rightarrow CP_Init" menu.

Figure 3-1 Initializing the CP

STEP 5						
CP Basic Initialization		So	urce :	C:ABABS I	C (OFFLINE)	OM 14
MAC address (HEX)	: 🙆	8000601A	AFE			
SIMATIC details :						
Base SSNR	: (8					
Interface communication (P/ /B) SSNR offset	:	P 3	1	2	3	
Informative parameters:						
Card type Module ID	: c	P1430TF	1	Database si	ze :	64
Firmware version	÷ .		1	Date create	d :	
Flant designation	-					
E E E		F				
1 2 3		4	5	6	2	ок

The MAC address of the CP 1430 must match the MAC address configured in NetPro (see Figure 2-15 property view of ISO transport connection \rightarrow register "Addresses").

The Base SSNR specifies the CP in the rack. This interface number must be used in the block calls in the S5 program.

Apply the settings with "F7".



Figure 3-2 creating a connection with the service "FETCH" STEP 5 - 0 COM 1430 C:AFAQFEWR (OFFLINE) (EX) **Transport Connection** Source: SSNR offset : 0 ANR 1 FETCH Active/passive (A/P) M Job type Priority Read/write (Y/N) : 2 Number of jobs per TSAP of 🚺 1 Transport addresses: Loc. parameters: Rem. parameters: MAC address (HEY) TSAP (ASC) : (PCFE TSAP (HEX) : 50 4 TSAP length: 8 08000624E0B (ASC) : (SSHETCHE) PCFETCS TSAP 5U 43 46 (HEX) 5 54 43 50 43 35 46 53 8 length: TSAP IND ADDR TR PARAS HELP SEL FO

Open the "Edit \rightarrow Connections \rightarrow Transport Connections" dialog.

- Enter "FETCH" for the job type and enter "P"for passive.
- In the local parameters, enter the remote TSAP which is defined in NetPro for the ISO transport connection with the service "FETCH" (see Figure 2-15 property view of ISO transport connection → register "Addresses").
- In the remote parameters, enter the MAC address of the network card in the PC station and the local TSAP, which is defined in NetPro for the ISO transport connection with the service "FETCH" (see Figure 2-15 property view of ISO transport connection → register "Addresses").

Create a second connection with "F3".



STEP 5				_0
Transport Conne	ection	Source: C:	AFAQFEWR COF	COM 1430 TF CEX FLINE)
SSNR offset	: 0	ANR		: 2
Job type	: (RECEIVE)	Active/p	passive (A/P)	: 8
Priority	: 2	Read/wri	ite (Y/N)	: ()
Number of jobs	s per TSAP :	1 of []		<u> </u>
Transport addı Loc. parameter	resses: 's:	Rem. pa	arameters:	
TSAP (ASC) : TSAP (HEX) : TSAP length:	STRECUPC) 53 35 52 45 43 56	MAC add TSAP (1 50 43 TSAP (1 TSAP 1 TSAP 1	dress (HEX) NSC) : (PCRECU NEX) : 50 43 Ength: 8	55 57 57 57 57 57 57 57 57 57 57 57 57 5
	1 3 INPUT	DELETE	IND ADDR	TR PARAS HELP

Figure 3-3 creating a connection with the service "RECEIVE"

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- Enter "RECEIVE" for the job type and enter "P"for passive.
- In the local parameters, enter the remote TSAP which is defined in NetPro for the ISO transport connection with the service "WRITE" (see Figure 2-18 property view of the ISO transport connection → register "Addresses").
- In the remote parameters, enter the MAC address of the network card in the PC station and the local TSAP, which is defined in NetPro for the ISO transport connection with the service "WRITE" (see Figure 2-18 property view of the ISO transport connection → register "Addresses").

Apply the settings with "F7".

Following download the configuration with "Transfer \rightarrow FD \rightarrow CP"in the CP1430. To start the loading of CP1430 you have to stop the CP1430: CP-Function \rightarrow stop.

Return to the STEP 5 configuration dialog with "File > Exit" and "ESC".

3.2 Description of the S5 program

Synchronization of the CP 1430 with the CPU using the SYNCHRON call in the start-up OBs

Insert the following start-up OBs in the STEP 5 project:

- OB20
- OB21
- OB22

In these OBs, program the FB125 "SYNCHRON" call that synchronizes the CPU and CP.



Figure 3-4 call the FB125 "SYNCHRON"

STEP 5	
0B 20	
Segment 1	
SUNCHOIN	
SSNR : KY 0.8	
BLGR : KY 0,255	
PAFE : FY 20	
:BE	

Calling the block "SEND_ALL"and "RECEIVE_ALL"in the OB1

Create the OB1.

Program the call of the block FB126 "SEND_ALL"and FB127 "RECEIVE_ALL".

Save the OB1 with F7.

Creating the send and receive buffer

Since the send and receive buffer is located in DB10, this must be created in the project and declared with an adequate length. Then download the entire program to the S5 station.

4 Establish the connection with the OPC Scout

Start the OPC Scout with "Start \rightarrow SIMATIC \rightarrow SIMATIC NET \rightarrow OPC Scout".

Double-click the "OPC.SimaticNet"for connection with the SIMATIC NET OPC server. In the dialog that appears, enter a suitable group name and confirm this with OK.

Figure 4-1 connecting with the OPC server and enter a group name

ervers and groups	Items incl. stal	us information	
Server(s)	1	ltem Names	Value
Add Group Group Properti Enter a ' <u>G</u> roup SR Create <u>n</u> ew group Requested <u>up</u>	es; Name': pup active date rate in ms	∀ 500	×
Extended	<u>D</u> K	<u>C</u> ancel <u>A</u>	pply

Double-click the OPC group which you have created. The "OPC-Navigator" opens. You will now see your protocols in the OPC Navigator. Double-click on "SR". The connection name you configured in NetPro appears.



Nodes	_ Leaves	Iten
Connections SB: SB: SO-Fetch SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SM: SNMP: SNMP: SNMP: SM: SNMP:	 Stress Stress	SR
	•	

Double-click the configured SR-connection with the name "ISO-Fetch". Two items appear in the middle window. Move one of the two items to the right-hand window with the button " \rightarrow ". Double-click the Item in the right-hand window.

Figure 4-3 defining a new OPC item in the OPC Scout

Nodes	1.		The list	llive (s) matt hat	he added to
Connections	Ceaves	SR:[ISO al() SR:[ISO	SR:[IS	D-Fetch]&state	path()
	dify an Item an item with the followi ename]Itemname 60-Fetch]&statepath() Mi	ing Syntax: odify Item	<u>C</u> ancel		
Enter a	n Item				
	•	<u> </u>	<u>F</u> ilter	<u>0</u> K	<u>C</u> ancel
ISU-Fetch is selected				26.06.2003	12:52

In this example, the send area of the CPU is located in DB10. DB10 must be created in the S5 station with an adequate data length. The item for writing from the PC to the CPU is declared as 5 words in DB10 starting at word 0. Click on "Modify Item".

Following dialog appears:

Figure 4-4 modifying name of item

Modify an Ite	m	×
Enter an item with [Devicename]Item	the following Syntax: mame	
SR:[ISO-Fetch]D	810,WORD0,5	
	Modify Item	Cancel
Enter an Item		Lancel

Double-click the SR-connection with the name "ISO-Write" in the OPC Navigator. Two items appear in the middle window. Move one of the two items to the right-hand window with the button " \rightarrow ". Double-click the Item in the right-hand window.

Nodes	Leaves	Item Nam	The listed Item(s) will be added to
Connections □ ↓ \SR: □ ↓ ISO-Fetch ⊡- ∰ aliases	 ⇒ &statepath() ⇒ &statepathva 	SR:[ISO II() SR:[ISO	SR:[ISO-Fetch]C SR:[ISO-Write]&	B10,W0RD0,5 statepath()
B 444 (SNMP: B 444 (SNMP: B 444 (DP: B 444 (DP: B 444 (DP: B 444 (DP: B 444 (DP: B 444 (S7: B 444 (S7:	Modify an Item ter an item with the followir evicename]Itemname R:[ISO-Write]&statepath() Mo	ng Syntax: ndify Item	<u>C</u> ancel	
Maria	able Added/Modified			
			Eilter OK	Cancel

Figure 4-5 defining new OPC items in the OPC Scout

In this example, the receive area of the CPU is located in DB10. DB10 must be created in the S5 station with an adequate data length. The item for receiving CPU data is declared as 5 words in DB10 starting at word 0. Click on the button "Modify Item". Following dialog appears.



Figure 4-6 modifying name of item

e following Syntax:	
ame	
0,WORD0,5	
Modify Item	Cancel
	ame 0,WORD0,5 Modify Item

Exit the dialog with "OK". The items are adopted in the OPC Scout. If the quality of the first item is good, the SR-connection with the service "Fetch" to S5 station is established.

Figure 4-7 OPC Scout

OPC Scout - New Project2						
File View Server Group Item ?						
	2 -	<u>H</u>				
Servers and groups	tems in	cl. status information				
🖃 💑 Server(s)		Item Names	Value	Ac	Quality	
E 🔜 Local Server(s)	1	SR:[ISO-Fetch]DB10,WORD0,5	{1 11111 0 0 0}	R	good	
🖻 😾 OPC.SimaticNET	2	SR:[ISO-Write]DB10,WORD0,5		W	bad	
SR I	3					
OPC.SimaticNET.PD OPC.SimaticNET.PD OPCServer.WinCC						
Add Remote Servers						

Double-click on the box "value" of the OPC item ISO-Write to write values into the PLC of the S5 station.



	icit status information					
	Item Name	S	Value	Access	Quality	Write
1	SR:[ISO-Fetch]DB10,V	VORD0,5	{1 11111 0 0 0}	R	qood	
2	SR:[ISO-Write]DB10.V	/ORD0.5	I	W	bad	
7	Write Value(s) to the	Item(s)				x
Va	lue			19.23 (J.S.		
F	Formatconversion	•	Sync write			
	Formatconversion		<u>S</u> ync write Async write			
-+	Formatconversion • Original C Hex	e c	<u>S</u> ync write As <u>y</u> nc write			

- NOTE
 - If the number of values entered does not match the declared area of five words, the values cannot be written to the S5 station.

Successful sending of values to the S5 is displayed in the "Write Result" and "Error" columns of the OPC Scout. The "Write Result" and "Error" columns can be made visible in the "View \rightarrow Options" menu.

Figure 4-9 successful sending of values

Item Names	Value	Qual	Write Result	Error
SR://SO-Fetch/DB10,WORD0,5	{1 11111 0 0 0}	qood		
SR:[ISO-Write]DB10.WORD0.5	{1 11111 0 0 0}	bad	OK	The operation completed successfully

NOTE The quality of the OPC item "ISO-Write" remains constantly set to invalid because the connection is a one-ended write connection. The quality of the connection can not be checked.

5 Basic configuration instrutions

5.1 TSAP rules

- The length of the TSAP is 8 signs.
- The characters permitted for TSAPs are letters, numbers, hyphens, and underscores.
- Use upper case letters.
- The local and remote TSAP can bet be same.
- The TSAPs must be unique per connection.
- To check the TSAPs, use the output of the character string in hexadecimal format.

5.2 Interface number (SSNR)

- The interface number of the CP is assigned in the configuration tool of the CP1430 "SINEC NCM COM 1430"in the dialog "Edit → CP Init).
- The SSNR must be specified as a parameter in all communication blocks of the CPU (FB120, FB121, FB125, FB126, and FB127).
- The interface number must be divisible by 4 (0, 4, 8, 16...).

5.3 FB126 "SEND_ALL" und FB127 "RECV_ALL", FB125 "SYNCHRON"

- The PAFE and ANZW parameters are output parameters. These are used for diagnostics and job monitoring.
- The blocks must be called using unconditional calls (for example JU FB126).

6 History

Version	Date	Changes
V 1.0	03.03.2008	First Issue