

FAQ • 01/2015

Connecting a PC Station to an S7-1200 using OPC

NCM PC or STEP 7 V5.5 SP3, TIA Portal

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Table of contents

1	Introdu	iction	3				
2	Config	Configuring the S7-1200 in the TIA Portal					
	2.1	Creating a Project	4				
	2.2	Configuring the Hardware	6				
	2.3	Creating a User Program	9				
	2.4	Downloading the Hardware Configuration and User Program	13				
3	Config	uration of the PC Station	18				
	3.1	Creating a Project	19				
	3.2	Configuring the Hardware	19				
	3.3	Defining the IP Address and Subnet Mask and Assigning the					
		Subnet	21				
	3.4	Configuring the S7 Connection	23				
	3.5	Downloading the PC Station Configuration	28				
	3.5.1	Installing the Station Configuration Editor	28				
	3.5.2	Setting the PG/PC Interface	31				
	3.5.3	Downloading the PC Station Configuration	33				
4	OPC S	cout V10	36				

1 Introduction

This document shows you how to connect a PC station to an S7-1200 using OPC. Using the SIMATIC NCM PC tool or STEP 7 V5.5 SP3

- You configure a PC station
- You establish an S7 connection between the SIMATIC NET OPC server and the S7-1200.

You configure the S7-1200 in the TIA Portal.

2 Configuring the S7-1200 in the TIA Portal

You configure the S7-1200 in the TIA Portal.

Then you create the user program and define which data is to be monitored over the S7 connection of the OPC server.

2.1 Creating a Project

In Windows, select the menu "Start > All Programs > Siemens Automation > TIA Portal V12" to start the TIA Portal.

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

Enter the project name in the appropriate field.

Figu	re 2-1							
VA Sie	74 Siemens							
St	tart				Create new project			
					Project name:	S7 communication		
			Open existing project		Path:	D:\Projects		
			🥚 Create new project		Author:	User		
			Migrate project		Comment:			
		-	Close project					
	Online & Diagnostics	10	Welcome Tour First steps					

Click the "Create" button to create a new project. Figure 2-2

Create new project	
Project name:	S7 communication
Path:	D:\Projects
Author:	User
Comment:	
	Create



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

2.2 Configuring the Hardware

Add an S7-1200 Station

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

Figure 2-4	
M Siemens - S7 communication	
Project Edit View Insert Online Options Tools Window H → Save project → X → → + → + → + → + → + → + → + → + →	ielp D
Project tree	◀
Devices	
1 O O	a
 S7 communication 	
He Add new device	
び Devices & networks	

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



Figure 2-5

Define IP address and assign subnet

Figure 2-6

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

3.							
₩2	Siemens - S	7 communi	cation				
Pr	oject Edit V	iew Insert	Online	Options	Tools	Window	Help
2	🛉 📑 🔚 Save p	oroject 昌	X 🖻 Ĝ	XS	± C ^{al} ±	R D	
	Project tree					α	
	Devices						
							B
	🔻 📄 S7 comm	unication					
art	📑 Add ne	w device					
St	📩 Device	s & networks					
	▶ 1 PLC_1	[CPU 1212C D	C/DC/DC]				

In the Network View or Device View of the devices and networks editor you click the PROFINET interface of the S7-1200 CPU.

In the inspector window you switch to the "Properties" tab. Select the "Ethernet addresses" item in the area navigation.

In this example you enter the IP address 172.16.43.1 and the subnet mask 255.255.0.0 for the PROFINET interface of the S7-1200 CPU.

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

Figure 2-7

PLC 1 CPU 1212C		
<		
PROFINET inte	face_1 [X1 : PN(LAN)]	S Properties
General General Ethernet addre Advanced opti Time synchron Hardware iden	Iterface networked with Ifer Subnet: Not	networked Add new subnet
	IP protocol	Set IP address in the project IP address: 172.16.43.1 Subnet mask: 255.255.0.0 se router Router address: 0.0.0.0 P address is set directly at the device

The connection between the subnet, PN/IE_1, for example, and the S7-1200 is now displayed in the "Network View" of the devices and networks editor. Figure 2-8



2.3 Creating a User Program

Add a data block

In the project tree, navigate to the device folder of the S7-1200 CPU, "PLC_1 [CPU 1212C ...]", for example. 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 doubleclick the "Add new block" action. The "Add new block" dialog opens.



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

Apply the settings with "OK".

The data block DB1 "OPC_DATA" is created in this example.

Figure	2-10
--------	------

Add new block					×	
Name:						
OPC_DATA						
	Туре:	🤘 Global DB	•			
OB	Language:	DB	-			
Organization	Number:	1	\$			
		🔘 manual				
		 automatic 				
FB	Description:					
Function block	Data blocks (DBs) are data areas in the u	iser program whic	h contain user data.		
	- A global data bl	ock				
	- An instance dat	a DIOCK				
-rc						
Function						
■DB						
Data block						
	more					
> Additional inform	ation					
Add new and open	Add new and open OK Cancel					

In the Properties of the data block you go to "Attributes" and disable the "Optimized block access" option.

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

Figure 2-11
OPC DATA [DB1]

General	
General Information	Attributes
Time stamps	
Compilation	Only store in load memory
Protection Attributes	Data block write-protected in the device Optimized block access
	OK Cancel

Define static variables in the data block

Define the static variable "static_01" of the "Bool" data type in the DB1 "OPC_DATA".

Figure 2-12							
Project tree 🔲 🖣	\$ 7	col	mn	nunication 🕨 PLC	_2 [CPU 1	212C 🛛	DC/DC/DC]
Devices							
B 00 B	3	* =	*	🎭 🅪 🎼 🕾 (k 🗈 🚍		lon ▶
		OP	C_	DATA			
▼ 🔄 S7 communication	-		Na	ame	Data type	Offset	Start value
💕 Add new device	1	-0	•	Static			
Devices & networks	2	-		static_01	Bool	0.0	false
Dig PLC_1 [CPU 1212C DC/DC/DC]	З		•	<add new=""></add>			
▼ 1 PLC_2 [CPU 1212C DC/DC/DC]							
T Device configuration							
🖳 Online & diagnostics							
🕶 🕁 Program blocks							
💕 Add new block							
-Main [OB1]							
OPC_DATA [DB1]							
Technology objects							

Create Main [OB1]

In the "Program blocks" folder, you double-click the "Main [OB1]" block to open the corresponding dialog window.

Figure 2-13	
Project tree	
Devices	
🖄 🖸 🖸	B
🕶 🛅 S7 communication	
💣 Add new device	
📩 Devices & networks	
PLC_1 [CPU 1212C DC/DC/DC]	
Device configuration	
😼 Online & diagnostics	
🕶 🕁 Program blocks	
📑 Add new block	
=E- Main (OB1)	

Create the program as shown in <u>Figure 2-14</u>. The bit links are in the "Instructions" task card under "Basic instructions > Bit links".

Use drag-and-drop to add the normally open contact, the flip-flop and the Assignment to Network 1 of the "Main [OB1]" block.

Assign the variables below to the flip-flop, to the normally open contact at inputs S and R of the flip-flop and to the assignment at output Q of the flip-flop.

Ta	эb	le	2-	1
	JU	10	~	

Variable	Description
M1.0	SR flip-flop input S: NO contact
M1.1	SR flip-flop input R: NO contact
DB1.DBX0.0	SR variable
M2.0	SR flip-flop output Q: Assignment

Figure 2-14



Note The "%" character before the absolute address is added automatically by TIA Portal.

Click the "Compile" button.

2.4 Downloading the Hardware Configuration and User Program

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

Figure 2-15

No.	Action
1.	In the project navigation you mark the device folder of the S7-1200 CPU. Click the "Compile" button in the toolbar. The hardware configuration and the software of the S7-1200 are compiled.
	Siemens - S7 communication Project Edit View Insert Online Options Tools Window Help
2.	In the project navigation you mark the device folder of the S7-1200 CPU. Select the menu "Online > Go online". We Siemens - S7 communication Project Edit View Insert Online Options Tools Window Help
	📑 📑 🚽 Save project 📃 🕼 Go online Ctrl+K
	Project tree Go offline Ctrl+M Devices Simulation Stop runtime/simulation
	Download to device Ctrl+L Extended download to device Download and reset PLC program
	Add new device Download user program to Memory Card
	Devices & networks
	Upload device to PG/PC





Extended download to device Configured access nodes of "PLC_1" Device Device type PLC_1 CPU 1212C DC/D Type of the PG/PC interface: PN/IE PG/PC interface: PN/IE PG/PC interface: PN/IE Ocompatible devices in target subnet: Ist gateway: Show all com PLC_1 Compatible devices in target subnet: Show all com PLC_1 CPU 1212C DC/D PN/IE Access address - PLC_1 PN/IE Access address	path from ad" button
Configured access nodes of "PLC_1" Device Device type Slot Type Address PLC_1 CPU 1212C DC/D 1 x1 PN/IE 172.16.43.1 Type of the PG/PC interface: PN/IE PN/IE PG/PC interface: PN/IE PN/IE PG/PC interface: PN/IE PN/IE Device bevices in target subnet: Show all com Compatible devices in target subnet: Show all com Price Device type Type PLC_1 CPU 1212C DC/D PN/IE Price Device type Type & Address Target devices in target subnet: Show all com Price Device type Type Phile Access address - Phile Access address - Phile Access address -	
Device Device type Slot Type Address PLC_1 CPU 1212C DC/D 1 X1 PN/IE 172.16.43.1 Type of the PG/PC interface: PN/IE PN/IE PS74L Gigab Connection to subnet: PN/IE_1 Ist gateway: Ist gateway: Device Device type Type Address Target d PLC_1 CPU 1212C DC/D PN/IE 172.16.43.1 PLC_1 Ist gateway: Show all com Show all com PN/IE Target d PLC_1 CPU 1212C DC/D PN/IE 172.16.43.1 PLC_1 Flash LED Flash LED Ist gateway: Ist gateway: Ist gateway:	
Type of the PG/PC interface: PN/IE PG/PC interface: PN/IE PG/PC interface: PN/IE PG/PC interface: PN/IE Connection to subnet: PN/IE Ist gateway:	Subnet PN/IE_1
Device Device type Type Address Target d PLC_1 CPU 1212C DC/D PN/IE 172.16.43.1 PLC_1 Flash LED Flash LED Image: Comparison of the second s	it N V V
PLC_1 CPU 1212C DC/D PN/IE 172.16.43.1 PLC_1 - - - PN/IE Access address - Image: Plash LED - - - - - -	evice
Flash LED	
Online status information: Connection established to the device with address 172.16.43.1. Scan completed. 1 compatible devices of 1 accessible devices found. Provide the state of the s	<u>R</u> efresh



3 Configuration of the PC Station

Before you start configuring the PC station in NCM PC or STEP 7 V5.5 SP3, determine or change the IP address of the network card that you are using in your PC station. You enter the IP address and subnet mask of the network card when you configure the PC station in NCM PC or STEP 7 V5.5 SP3.

Determine and change the IP address and subnet mask of the network card

In Windows you open the "Network and Sharing Center" and select the "Change adapter settings" functions. Open the Properties dialog of the network card to which the S7-1200 is connected.

In this example the network card receives the IP address 172.16.40.11 and subnet mask 255.255.0.0.

Note The IP address configured for the PC station in NCM PC or in STEP 7 V5.5 SP3 must match the IP address set in Windows. If you are not using a router, the IP addresses of the PC station and the S7-1200 must be in the same subnet.

Figure 3-1	
Internet Protocol Version 4 (TCP/IPv4)	Properties ? X
General	
You can get IP settings assigned auton this capability. Otherwise, you need to for the appropriate IP settings.	natically if your network supports ask your network administrator
Obtain an IP address automatical	у
Ouse the following IP address:	
IP address:	172.16.40.11
Subnet mask:	255.255.0.0
Default gateway:	172.16.0.1
Obtain DNS server address autom	natically
Ouse the following DNS server add	resses:
Preferred DNS server:	172.16.0.1
Alternate DNS server:	· · ·
Validate settings upon exit	Advanced
	OK Cancel

3.1 Creating a Project

In Windows, select the menu "Start > All Programs > Siemens Automation > SIMATIC > SIMATIC Manager" to start the SIMATIC Manager from NCM PC or in STEP 7 V5.5 SP3.

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

Figure 3-2					
🦂 SIMATIC Manag	SIMATIC Manager - [PC C:\Program Files (x86)\Siemens\Step7\s7proj\Test]				
🎒 File Edit Ins	sert PLC View Opt	ions V	Vindow Help		
🗋 🗃 📲 (Station	•	1 SIMATIC 400 Station		
🖃 🎒 🖸	Subnet	•	2 SIMATIC 300 Station		
SIMA	Program	•	3 SIMATIC H Station		
	S7 Software	→ [4 SIMATIC PC Station		
	S7 Block	•	5 SIMATIC HMI-Station		
	M7 Software	•	6 Other Station		
			7 SIMATIC S5		
	Symbol Table		8 PG/PC		
	Text Library	ר י			
	External Source				
	WinCC flexible RT	- F			

Change the name of the SIMATIC PC station as required. We use the name "SIMATIC PC Station" in this example.

3.2 Configuring the Hardware

Double-click the "SIMATIC PC Station" object and then the "Configuration" object. The "HW Config" dialog open to edit the station configuration.

Figure	e 3-3

🎝 SIMATIC Manager - [PC C:\P	rogram Files (x86)\Sieme	ens\Step7\s7proj\Test]	
File Edit Insert PLC Vie	w Options Window	Help	
D 🛩 🎛 🛲 X 🖻 🛍	🚵 🛛 😨 💼 🖕 👘	🟥 🔟 🔍 No Filter >	,
🖃 🎒 PC	Object name Symbol	ic name Type	
SIMATIC PC-Station	Configuration …	PC station of	onfiguration

Use drag-and-drop to insert the modules below into the configuration table of the SIMATIC PC station, which represent the structure of the real PC. The modules are in the "Hardware Catalog" window under "SIMATIC PC Station".





3.3 Defining the IP Address and Subnet Mask and Assigning the Subnet

Configure the IP address of the PC station in the hardware configuration.

In the configuration table you double-click the "IE General" module. The Properties dialog of the "IE General" module opens. In the "General" tab you click the "Properties" button. A dialog opens in which you enter the IP address and subnet mask of the network card and assign a subnet to the network card.

Figure 3-4		
Properties - IE General		×
General Options PRO	FINET Diagnostics	
Short Description:	IE General	
	Proxy for any Industrial Ethemet module, ISO, communication (via ISOonTCP), PG functions, controller, prioritized startup, SIMATIC NET PC	TCP/IP, S7 and S7-H routing, PROFINET IO software V8.2
Order No./ firmware:	IE_CP / V8.2	
Name:	IE General	
Interface	Plant desig	nation:
Type: Ethe	met	
Address: 172.	16.40.11 Location de	esignation:
Networked: Yes	Properties	
Comment:		
		*
		~
ОК		Cancel Help

In this example you enter the IP address 172.16.40.11 and subnet mask 255.255.0.0 for the network card.

Click the "New" button to insert a new Ethernet subnet and select the newly created Ethernet subnet.

Click the "OK" button to transfer the IP address and subnet mask and assign the selected subnet.

Figure	3-5
--------	-----

General Parame	ters	_	
MAC address:	being used		
IP address: Subnet mask:	172.16.40.11 255.255.0.0	Gateway © Do not use router © Use router Address:	
Subnet:	d		New
Ethemet(1)			Properties Delete
0//			Second 1 Usin

Note The IP address configured for the PC station in the hardware configuration of STEP 7 V5.5 SP3 must match the IP address set in Windows. If you are not using a router, the IP addresses of the PC station and the S7-1200 CPU must be in the same subnet.

In the hardware configuration you click the "Save and Compile" button. The configuration of the PC station is saved and compiled.

Close the hardware configuration.

_.

- -

Figure 3-6	
🖳 HW Config - [SIMATIC PC-Station (Configuration) PC]	
Station Edit Insert PLC View Options Window Help	
D 🛩 🗤 🖩 🖳 🎒 🛯 🛍 🛍 👔 🖪 👯 📢	
🖳 (0) PC	
1 E General	
2 OPC Server	
3	
4 Save and Compile	
5	
6	
7	
8	

3.4 Configuring the S7 Connection

Open NetPro

You configure the S7 connection in NetPro.

In the SIMATIC Manager you open NetPro with the menu "Options > Configure Network".



Configuring the S7 Connection

Mark the OPC server in the PC station.

In NetPro you select the menu "Insert > New Connection". The "Insert New Connection" dialog opens.

Figure 3-8

-			
👫 NetPro - [PC (Net	work) C:\Program Files (x86)\	\s7proj\Te	st]
Network Edit	Insert PLC View Options	Window	Help
🖻 🖩 🗞 🎒	Network Objects	Ctrl+G	₩?
Ethernet(1)	New Connection	Ctrl+N	
Industrial Ethe	DP Master System PROFINET IO System FF subsystem		
	SIMATIC PC-Station	-	

Under "Connection Partner" you select the "(Unspecified)" item, because the connection partner, the S7-1200 CPU, is not configured in the same project as the PC station.

Select "S7 connection" as the connection type.

Then click the "Apply" button to apply the connection partner and type settings. The Properties dialog of the unspecified S7 connection opens.

Figure 3-9	
Insert New Conr	ection 🗾 🔀
Connection P.	artner e current project C (Unspecified) All broadcast stations All multicast stations known project
Project:	<u> </u>
Station:	(Unspecified)
Module:	
Connection	
Туре:	S7 connection
Display pro	operties before inserting
ОК	Apply Cancel Help

For the PC station to actively establish the unspecified S7 connection you enable the "Establish an active connection" option for the local connection end point.

You enter the IP address 172.16.43.1 of the S7-1200 CPU for the partner.

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

Figure 3	3-10
----------	------

-Local Connecti	on End Point	- Conn	ection identification-		
Configured	dynamic connection	Loca	al ID:		
Configured	at one end	S7_	Connection_1		
Establish a	n active connection	VFD	Name:		
Send open	ating mode messages	JOPC	Server		
-Connection Pa	th				
	Local		Partner		
End Point	SIMATIC PC-Station/ OPC Server		Unknown		
Interface:	IE General	-	Unknown		~
Subnet	Ethernet(1) [Industrial Ethernet]		[Industrial Ethernet]		
Address:	172.16.40.11		172.16.43.1		
				Address D	etails

For the partner you enter the Slot 1 of the S7-1200 CPU. In this way the following TSAP is set for the partner: 03.01.

Close the "Address Details" dialog box with "OK".

Figure	3-11
--------	------

Address Details		
	Local	Partner
End Point:	SIMATIC PC-Station/ OPC Server	Unspecified
Rack/Slot:		0 1
Connection Resource (hex):	10 💌	03 💌
TSAP:	10.12	03.01
S7 Subnet ID:	00C8 - 0037	·
ОК		Cancel Help

Click the "OK" button to close the Properties dialog of the S7 connection. Click the "Close" button to close the "Insert New Connection" dialog.

Mark the OPC server in the PC station. The inserted unspecified S7 connection is now displayed in the connection table.

Figure 3-12
🞇 NetPro - [S7 communication (Network) D:\Projects\S7 communication\S7_commu]
Retwork Edit Insert PLC View Options Window Help
2 ² ² ²
Ethernet(1) 1
Industrial Ethernet
MPI(1)
MPI
SIMATIC PC-Station
Local ID Partner ID Partner Type Active connection partner Subnet
S7_Connection_1 Unknown S7 connection Yes Ethernet(1) [IE]

In NetPro, you mark the PC station and click the "Save and compile" button. The configuration of the PC station including the connection configuration is saved and compiled.



3.5 Downloading the PC Station Configuration

3.5.1 Installing the Station Configuration Editor

In Windows you select the menu "Start > All Programs > Siemens Automation > Station Configuration Editor" to open the Station Configuration Editor.

Enter the station name

Click the "Station Name..." button and in the "Station Name" dialog you enter the same name for the PC station as in the SIMATIC Manager.

The name of the PC station is displayed in the Station Configuration Editor. We use the name "SIMATIC PC Station" in this example.

omponer	nts Diagnostics Co	onfiguration Info	Nar	ne of PC	station		
Station:	SIMATIC PC-Statio	on	Mode:	RUN	LP		
Index	Name	Туре	Ring	Status	Run/Stop	Conn	_
1	🌃 IE General	IE General			Ø		
2	OPC Server	OPC Server		×	\bigcirc		
3							
4							Ξ
5							
6							
7							
8							-
9							
10							
12							
12							
14							
15							
16							
17							Ŧ
New dia	gnostic entry arrived! Add	Edit		Delete	1	Ring ON	
Sta	tion Name	Import Station	 		Di	sable Static	n
			1				

Insert modules

In the Station Configuration Editor you insert the modules in accordance with the hardware configuration of the PC station.

	In Plagnostics	Conliguiation nilo					
Station:	SIMATIC PC-S	itation	Mode:	RUN	_P		
Index	Name	Туре	Ring	Status	Run/Stop	Conn	_
1							
2							
3							
4							Ξ
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
√ew dia	gnostic entry arriv	ed!					
	Add	Edit	1) oloto	1	Ring ON	
	A99	L 5015		/01010		ning on	
Sta	tion Name	Import Station			Dis	able Statio	n

Click the "Add..." button. The "Add Component" dialog opens.

Select "IE General" for type and "1" for index to insert the "IE General" module at Slot 1.

Click "OK" to close the dialog box.

Figure	3-16
--------	------

Add Component	×
Type: IE General	
Index: 1	
Name: IE General	
Parameter assig.: Intel(R) 82574L Gigabit Network	Connection.ISO.1,Intel(R) 82574L (💌
	Properties
ОК	Cancel Help

In the Station Configuration Editor you click the "Add..." button once again to insert another module. The "Add Component" dialog opens.

Select "OPC Server" for type and "2" for index to insert the "OPC Server" module at Slot 2.

Close the	dialog	box	with	"OK".
-----------	--------	-----	------	-------

Figure 3-17	
Add Component	×
Type: OPC Server	
Index: 2	
Name: OPC Server	
Parameter assig.:	_
	Properties
ОК	Cancel Help

The "IE General" and "OPC Server" modules must be inserted in the same slots in the Station Configuration Editor as in the hardware configuration of the PC station.

ation Conf Componen	iguration Edito	r - [ONLINE]					
Station:	SIMATIC PC-S	itation	Mode:	RUN	_P		
Index	Name	Туре	Ring	Status	Run/Stop	Conn	^
1	🃳 IE General	IE General			0		
2	OPC Server	OPC Server		*			
3							
4							Ξ
5							
6							
7							
8							_
9							
11							
12							
13							
14							
15							
16							
17							Ψ.
New diag	nostic entry arriv Add	ed! Edit Import Station		Delete	 	Ring ON	on
						Не	elp

Figure 3-18

3.5.2 Setting the PG/PC Interface

In the SIMATIC Manager you use the menu "Tools > Set PG/PC Interface..." to open the "Set PG/PC Interface" dialog.

Figure 3-19			
🎝 SIMATIC Manager - [PC C:\P	rogram	Files (x86)\Siemens\Step7\s7proj\Tes	t]
File Edit Insert PLC Vie	w Op	tions Window Help	
🗅 🛩 🔡 🛲 🕹 🖻 💼	*	Customize	Ctrl+Alt+E
	l o	Access Protection	+
	2	Change Log	•
		Text Libraries	•
		Language for Display Devices	
		Manage Multilingual Texts	•
		Rewire	
		Run-Time Properties	
		Compare Blocks	
		Reference Data	•
		Define Global Data	
		Configure Network	
		Simulate Modules	
		Configure Process Diagnostics	
		CAx Data	+
		Block Privacy	
		S7-Web2PLC	
		Set PG/PC Interface	

In the "Access Path" tab you parameterize the network card as the access point through which the PC station is connected with the S7-1200 CPU and can exchange data.

Click "OK" to close the dialog.

Figure 3-20

Set PG/PC Interface	×
Access Path LLDP / DCP PNIO Adapter In	fo
Access Point of the Application:	anta Naturala Canada -
(Standard for STEP 7) -> Intel(R) 82574E G	gabit Network Connec_
Interface Parameter Assignment Used: Intel(R) 82574L Gigabit Network Connectio	Properties
CP5611.PROFIBUS.1 <active> Image: Active and Active a</active>	Сору
Intel(R) 82574L Gigabit Network Co	Delete
(Parameter assignment of your NDIS-CP withTCP/IP protocol (RFC-1006))	
Interfaces	
Add/Remove:	Select
ОК	Cancel Help

3.5.3 Downloading the PC Station Configuration

In NetPro, you mark the PC station and click the "Download" button. The configuration of the PC station including the connection configuration is downloaded into the Station Configuration Editor.

NetPro - [PC (Network) C:\Program Files (x86)\\s7proj\Test] Network Edit Insert PLC View Options Window Help	
Network Edit Insert PLC View Options Window Help	
	۱p
	₩?
Ethernet(1) 1	1
Industrial Ethernet	
Download	
SIMATIC PC-Station	

Acknowledge the subsequent message with "OK".

Figure 3-22

Stop Target Modules	×	
The following modules will be s data.	stopped for loading of the system	
Module	Index	
IE General OPC Server	1 2	
ОК	Cancel Help	-

In the "Run/Stop" and "Conn" columns symbols show whether the "IE General" and "OPC Server" modules are in "Run" mode and the configured connection is downloaded.

igure 3-23							~
Station Confi	guration Editor - (ONLINE]					×
Component	S Discussion Co	unfiguration Info					
Component	 Diagnostics CC 	iniguiation inio					1
Station:	SIMATIC PC-Statio	on	Mode:	RUN	_P		
Index	Name	Туре	Ring	Status	Run/Stop	Conn	
1	E General	IE General		1			
2	OPC Server	OPC Server			Ø	₽	
3					-		
4				/			E
5	opera	ating mode "I	Run"				
6					/		
7				1			
8			configu	ired cor	nection		
9			is c	lownloa	ded		
10							
11							
12							
13							
14							
15							
16							- I
1 17							
New diag	nostic entry arrived						— II
	,,						
	Add 1	Edit	1) oloto	1	Ring ON	
· · · · · · · · · · · · · · · · · · ·		L GIU		/01010		ning on	
Static	on Name	Import Station	1		Di	sable Stati	on []
			1				
01	-						- I
						H	eip

Figure 3-23

4 OPC Scout V10

In this example the OPC Scout V10 is used as the OPC client. Using the OPC client you can access the data of the S7-1200 CPU over the OPC server.

Start the OPC Scout V10 by means of the Windows menu "Start > All Programs > Siemens Automation > SIMATIC > SIMATIC NET > OPC Scout V10".

Establish connection to the OPC server

In the Server Explorer you double-click the "OPC.SimaticNET" item to establish a connection to the OPC server.

Figure 4-1

🗱 (unknown) - Siemens AG - OPC Scout V10
File Edit View Server Explorer Workbook Te
1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
🚆 Server Explorer
3 .
📮 🖵 Local COM server
🕀 🔣 OPC. SimaticHMI. CoRtHmiRTm
🕀 🔣 OPC. SimaticHMI. HmiRTm
🕀 🛃 OPC.SimaticNET
🕀 🛃 OPC.SimaticNet.AE
🕀 🛃 OPC.SimaticNET.DP
🕒 🕎 OPC.SimaticNET.PD
🕀 🛃 OPC. SimaticNetAlarms
🕀 🚼 OPC. SimaticNetAlarmsSNMP
🗄 📑 OPC. Simotion Alarms
🔁 🔤 Remote COM server
🗊 📃 UA server
🕀 🏉 Web services
🗄 📑 Last server used

The configured S7 connection named "S7_Connection_1" is displayed in the Server Explorer under OPC.SimaticNET in the "\S7" folder.

Figure 4-2



Create OPC items

Add the items below to the DA view.

Table 4-1

OPC item	Description
S7:[S7_Connection_1]MX1.0	By means of the OPC item you monitor and control the marker bit M1.0 in the S7-1200 CPU.
S7:[S7_Connection_1]MX1.1	By means of the OPC item you monitor and control the marker bit M1.1 in the S7-1200 CPU.
S7:[S7_Connection_1]MX2.0	By means of the OPC item you monitor the marker bit M2.0 in the S7-1200 CPU.
S7:[S7_Connection_1]DB1, X0.0	By means of the OPC item you monitor Bit 0.0 of the DB1 data block in the S7-1200 CPU.

Figure 4-3

ζD/	A view 1						
1	Monitoring ON	Generate values O	N		Read 🥖	Write	
	ID	Display name	Туре	Access rights	Time stamp (UTC)	Value	Quality
1	S7:[S7_Connection_1]MX1.0	-	bool	RW	01/13/2015 10:57:27.63	False	good
	S7:[S7_Connection_1]MX1.1	-	bool	RW	01/13/2015 10:57:27.63	False	good
	S7:[S7_Connection_1]MX2.0	-	bool	RW	01/13/2015 10:57:27.63	False	good
	S7:[S7_Connection_1]DB1X0.0		bool	RW	01/13/2015 10:57:27.63	False	good

Monitor OPC items

Click the "Monitoring ON" button to monitor the values of the OPC items. The values of the OPC items are displayed in the "Value" column.

Figure 4-4

	DA view 1						
	Monitoring ON	Generate values O	N		Read 🖍	Write	
	ID	Display name	Туре	Access rights	Time stamp (IITC)	Value	Quality
	10	Display hame	Type	Access rights	Time stamp (ore)	Value	Quanty
2	S7:[S7 Connection 1]MX1.0	-	bool	RW	01/13/2015 10:57:27.63	False	good
	S7:[S7_Connection_1]MX1.0 S7:[S7_Connection_1]MX1.1	-	bool bool	RW RW	01/13/2015 10:57:27.63 01/13/2015 10:57:27.63	False False	good good
	S7:[S7_Connection_1]MX1.0 S7:[S7_Connection_1]MX1.1 S7:[S7_Connection_1]MX2.0		bool bool bool	RW RW RW	01/13/2015 10:57:27.63 01/13/2015 10:57:27.63 01/13/2015 10:57:27.63	False False False	good good good

Write values

In the "New value" column you enter the value that you want to write to the S7-1200 CPU.

Enter the values below in the "New value" column (see Table 4-2).

Click the "Write" button. The marker bit M2.0 and Bit 0 in DB1 are given the value "True".

The results of the write procedure are displayed in the "Value" column. Table 4-2

OPC item	Value
S7:[S7_Connection_1]MX1.0	True
S7:[S7_Connection_1]MX1.1	False

Figure 4-5

15 0	A view 1								
	Monitoring ON	Generate values O	N	L.	Read 🔎	Write			
	ID	Display name	Туре	Access rights	Time stamp (UTC)	Value	Quality	Result	New value
R	S7:[S7_Connection_1]MX1.0	-	bool	RW	01/13/2015 11:15:23.80	True	good	S_OK	True
G	S7:[S7_Connection_1]MX1.1	-	bool	RW	01/13/2015 11:15:23.80	False	good	S_OK	False
A	S7:[S7_Connection_1]MX2.0	-	bool	RW	01/13/2015 11:15:23.80	True	good	S_OK	
R	S7:[S7_Connection_1]DB1X0.0	-	bool	RW	01/13/2015 11:15:23.80	True	good	S_OK	

Enter the values below in the "New value" column (see Table 4-3).

Click the "Write" button. The marker bit M2.0 and Bit 0 in DB1 are reset to the value "False".

The results of the write procedure are displayed in the "Value" column. Table 4-3

OPC item	Value
S7:[S7 connection_1]MX1.0	False
S7:[S7 connection_1]MX1.1	True

Figure 4-6

K DA view 1									
	Monitoring ON	Generate values O	N		Read 🖊	Write			
	ID	Display name	Туре	Access rights	Time stamp (UTC)	Value	Quality	Result	New value
P i	S7:[S7_Connection_1]MX1.0	-	bool	RW	01/13/2015 11:13:34.32	False	good	S_OK	False
9	S7:[S7_Connection_1]MX1.1	•	bool	RW	01/13/2015 11:13:34.32	True	good	S_OK	True
G	S7:[S7_Connection_1]MX2.0	-	bool	RW	01/13/2015 11:13:34.32	False	good	S_OK	