



Communication in Substations with IEC 61850 Simple Communication Test with IEC61850

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SIEMENS

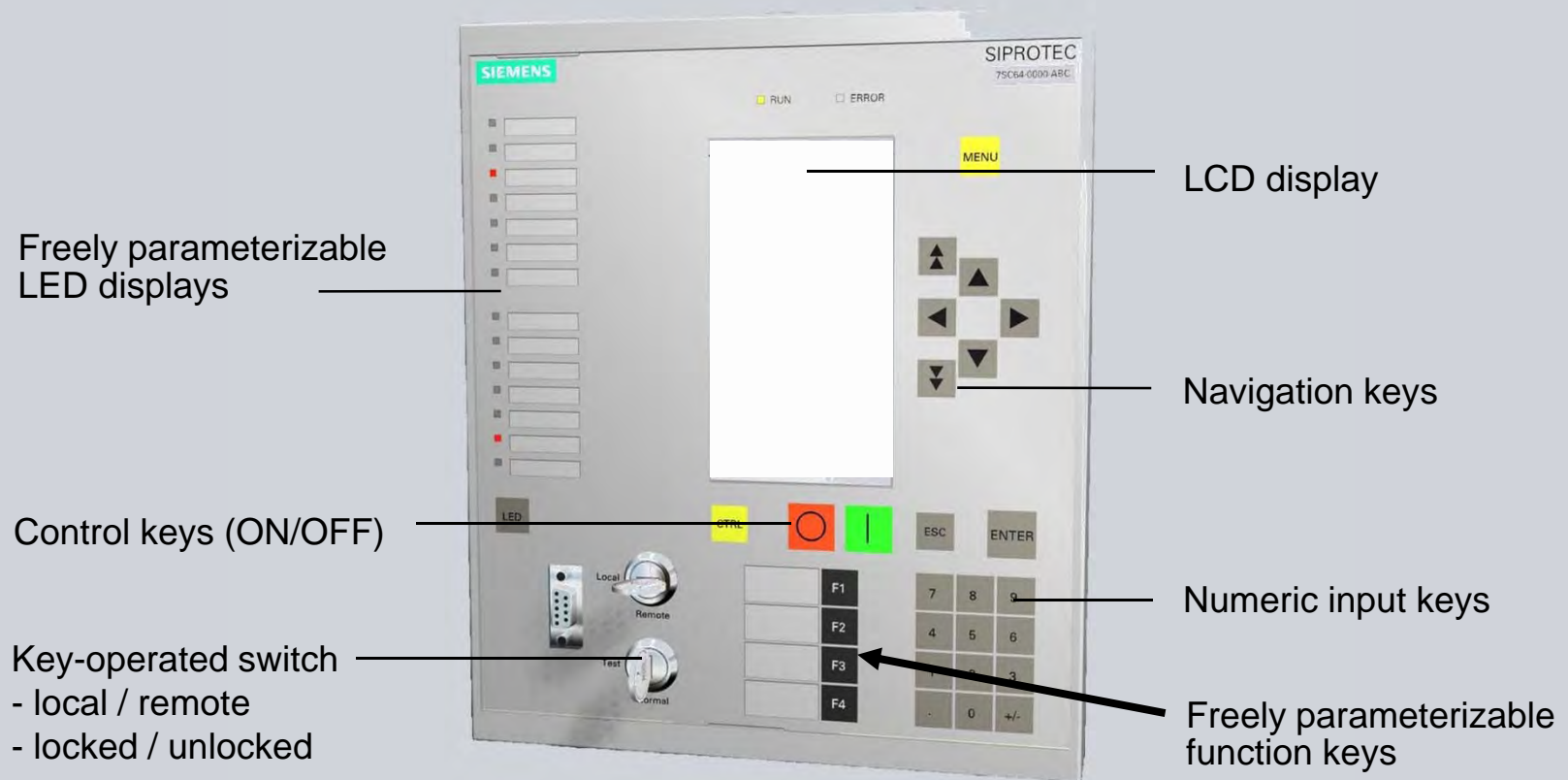
As a first example, it has to be checked in a simple way that the communication between the devices is functional.

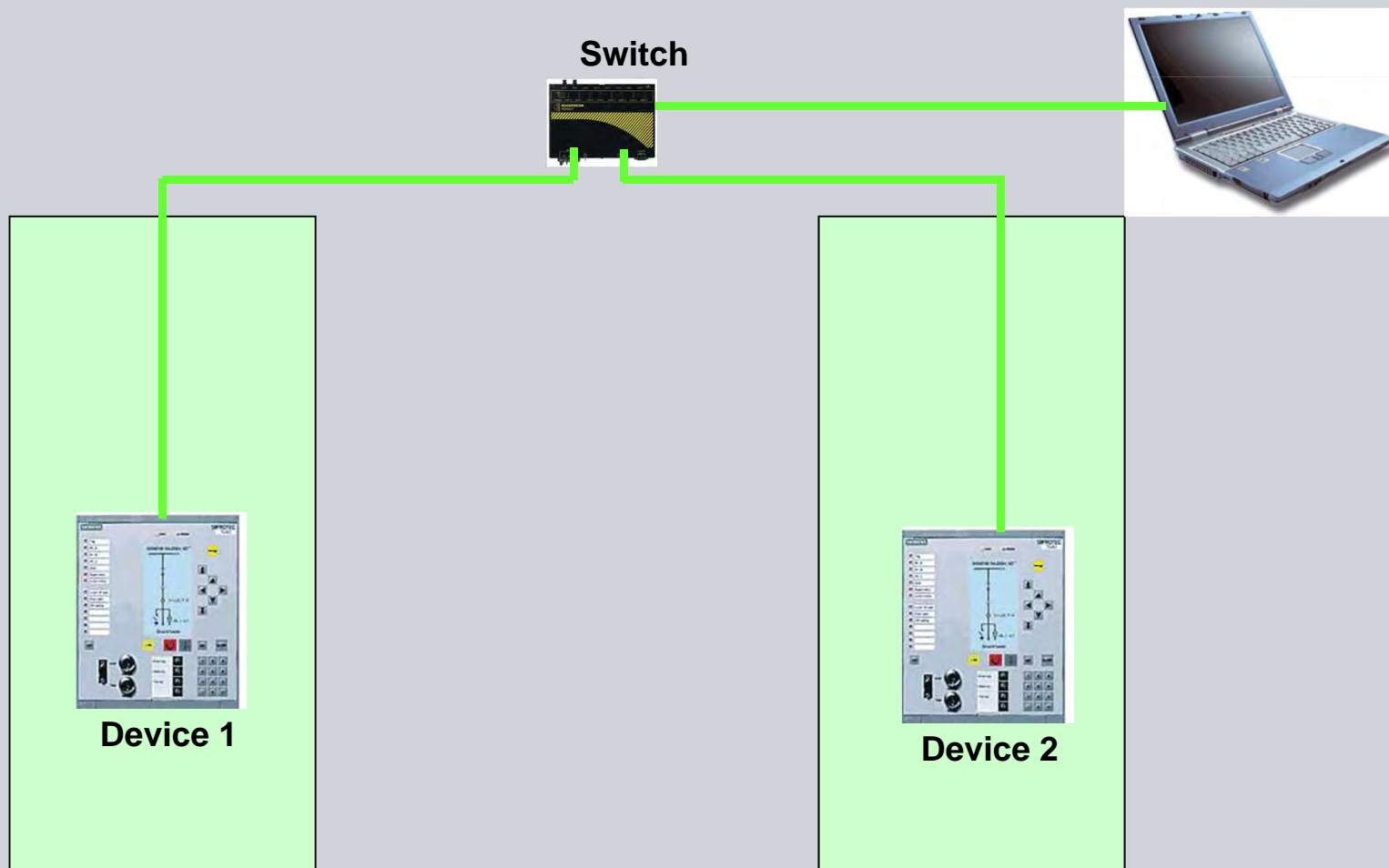
For that, function key 1 of a device is to be pressed so that LED 1 lights up.

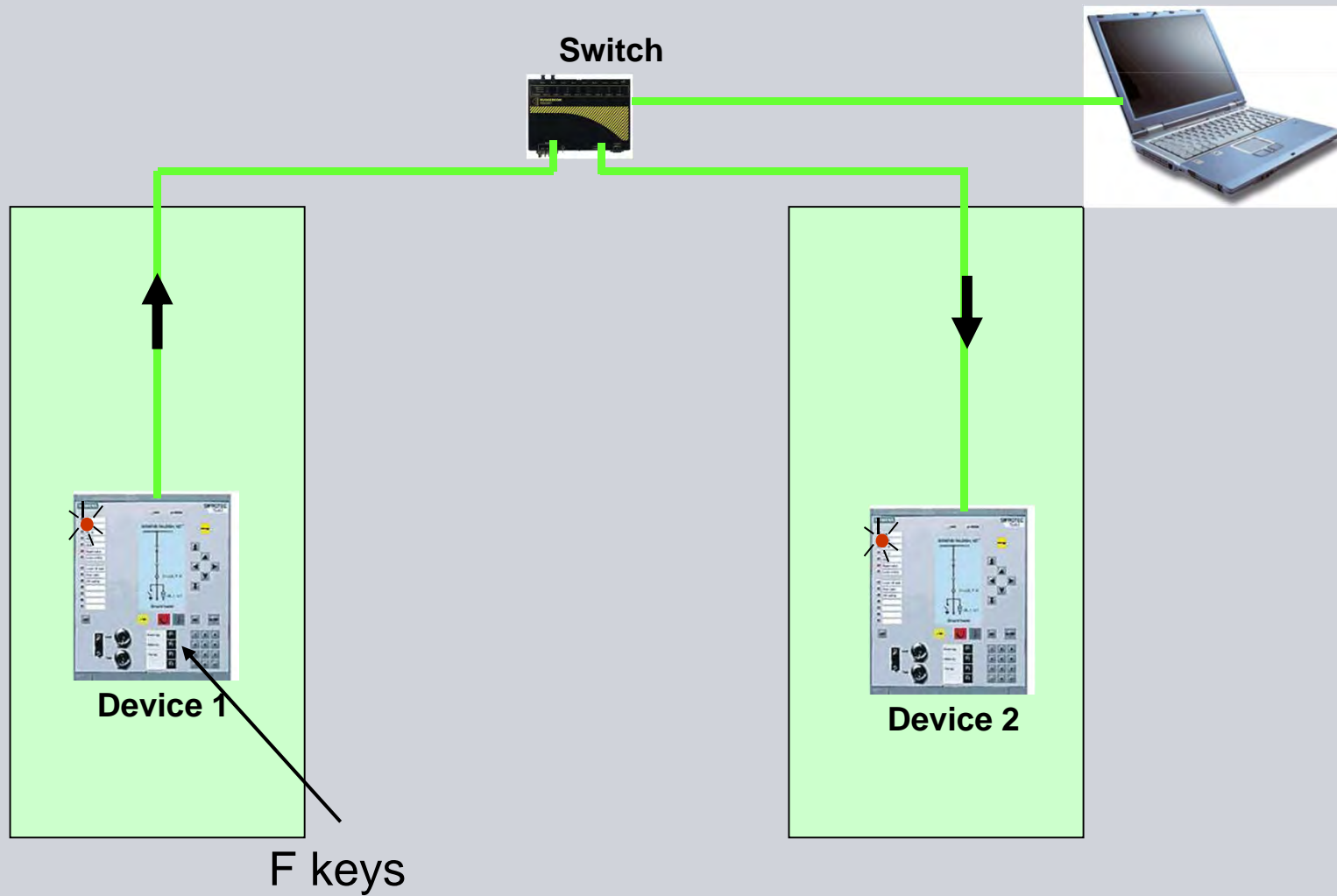
This signal has to be transmitted to the other device via the IEC 61850 station bus.

If function key 2 is pressed, the signal will be reseted.

Field device Siprotec 4







Settings to configure an IEC61850 Station

Indication of IED names to identify them by the DIGSI manager
Allocation of IP – Addresses to all network participants

- The address must be unique for each component
- In the Sub-Network the allocation of the address is without any restrictions
You should configure a private network

IP-Addresses: 192.168.0.1 – 192.168.0.254 SubNetMask: 255.255.255.0

If there is an external communication link, please insert the settings of the default-gateway.

IP – Addressing of bay devices in DIGSI

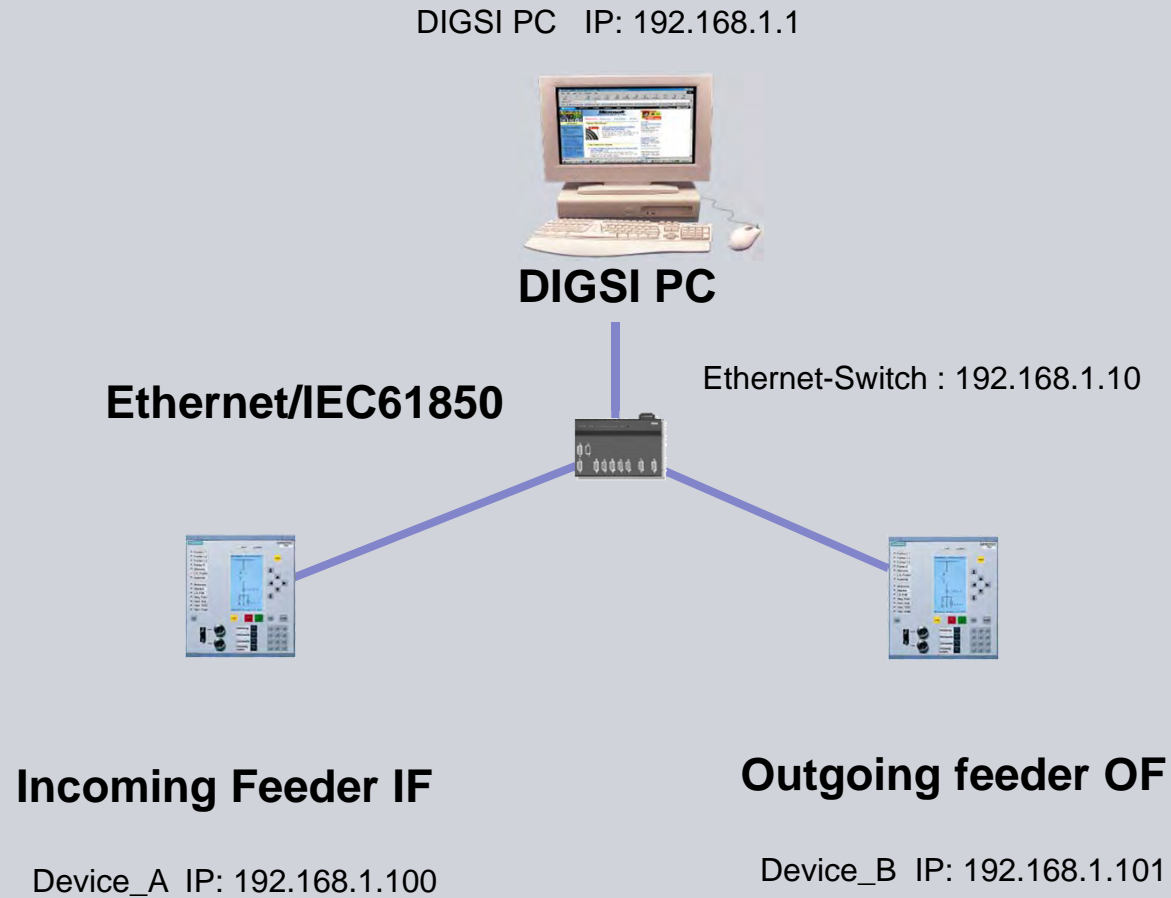
IP – Addressing of central unit / DIGSI – PC

IP – Addressing of switches via Telnet / Terminalprogramm

IP – Addressing of SNTP – servers to synchronize the time of the devices

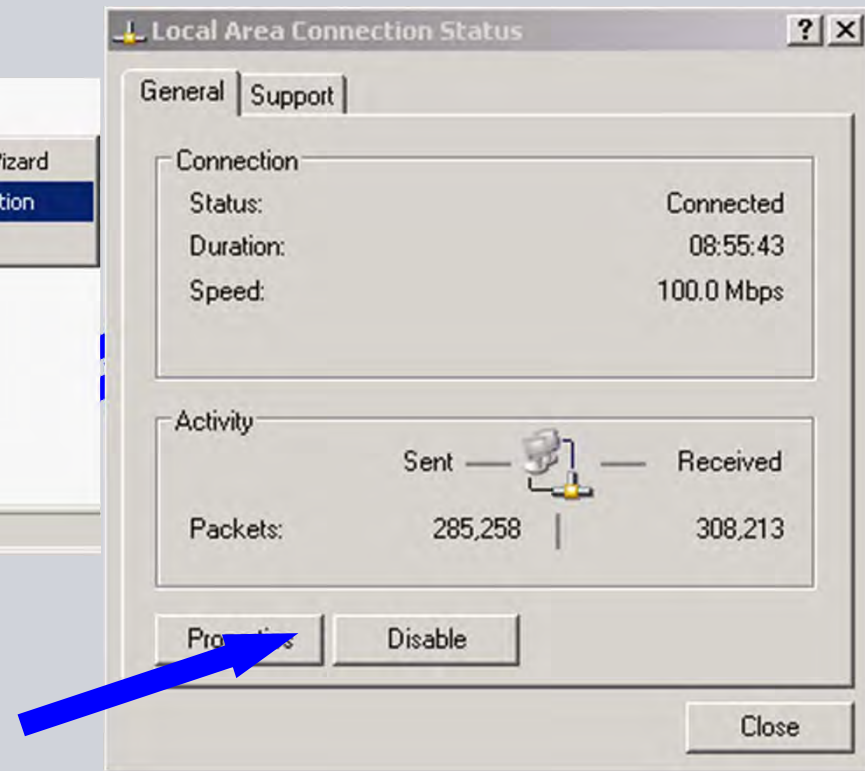
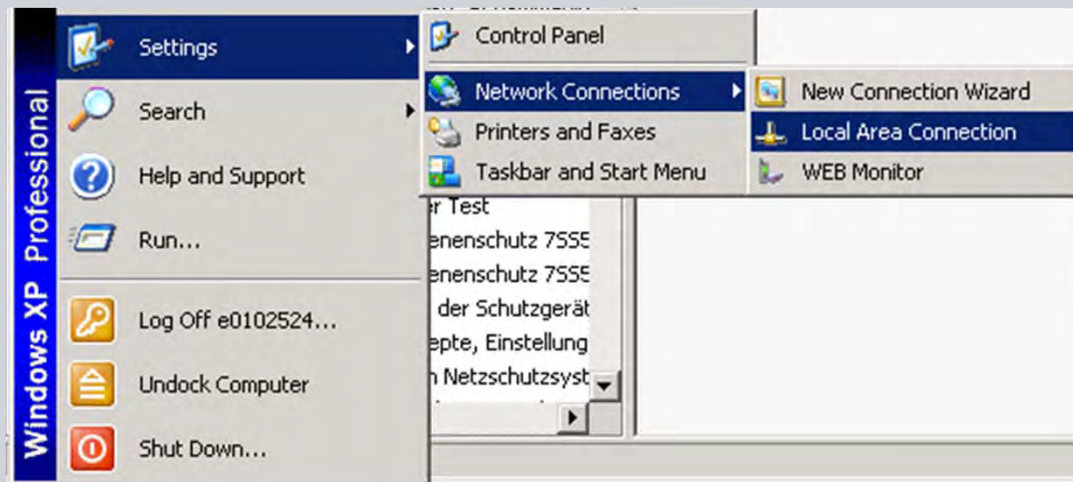
IP – Addressing of other participants with their own programs (Serial Hub, Router, etc.) -> Often browserbased.

Example

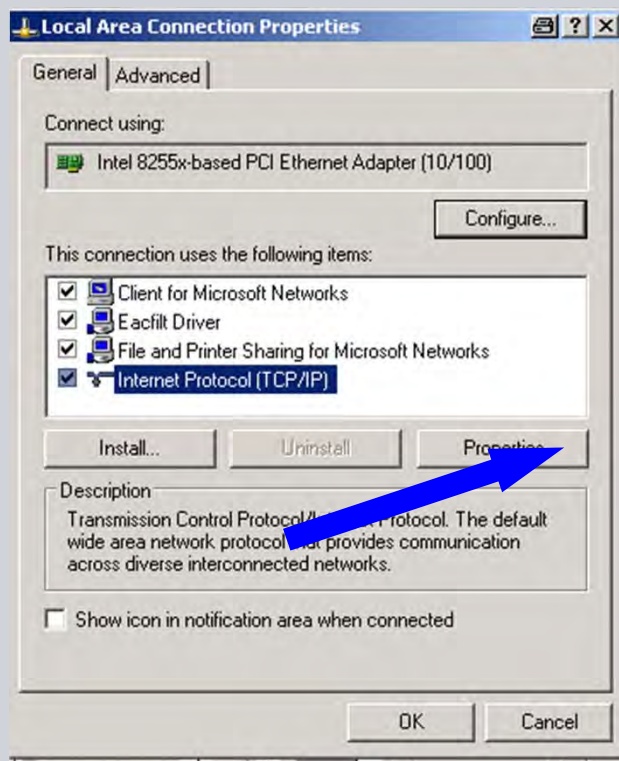


Settings to configure an IEC61850 Station

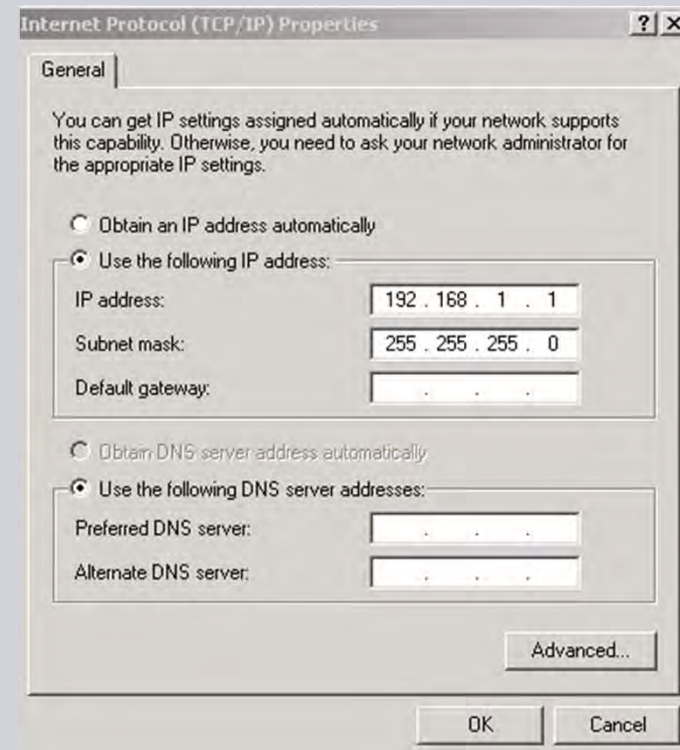
1.) Define the IP address of the DIGSI PC under properties of local area connection



Settings to configure an IEC61850 Station



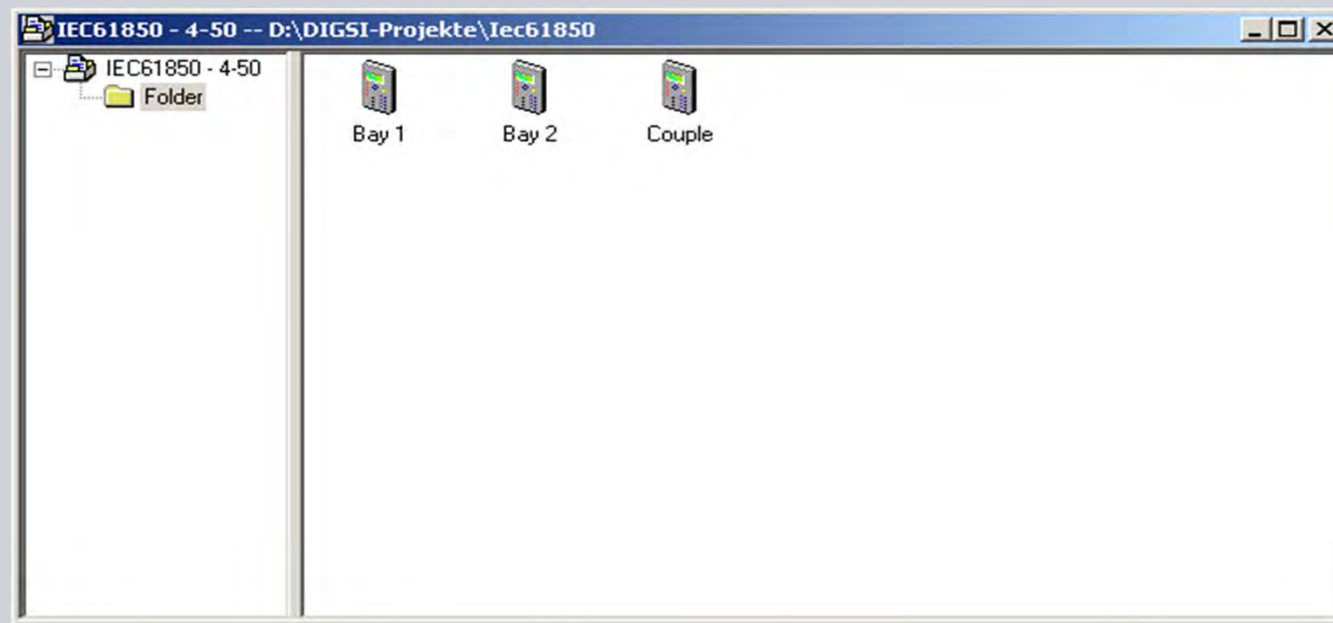
2.) Do the settings under the properties of TCP/IP and provide the IP-address manually 192.168.1.1



IEC61850: Starting in the DIGSI manager

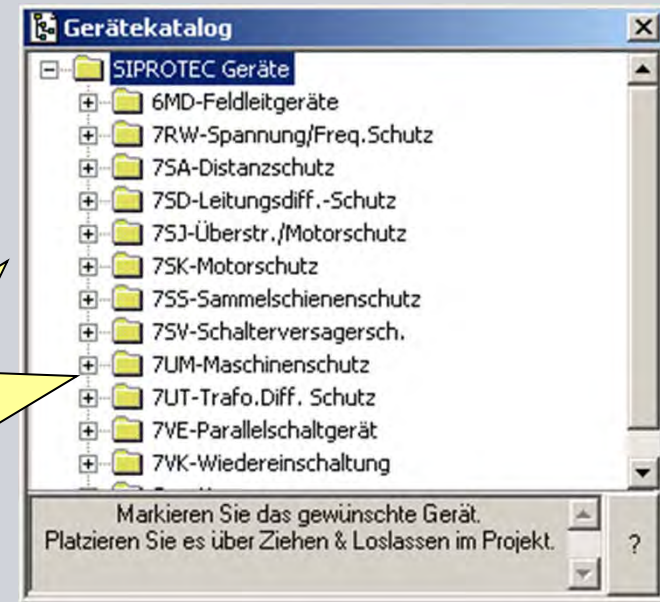
As with all other devices, also those suitable for IEC 61850 are added from the device catalog to the project via drag & drop.

Devices using other protocols for communication can, of course, also be included in the same project and thus in the same system.



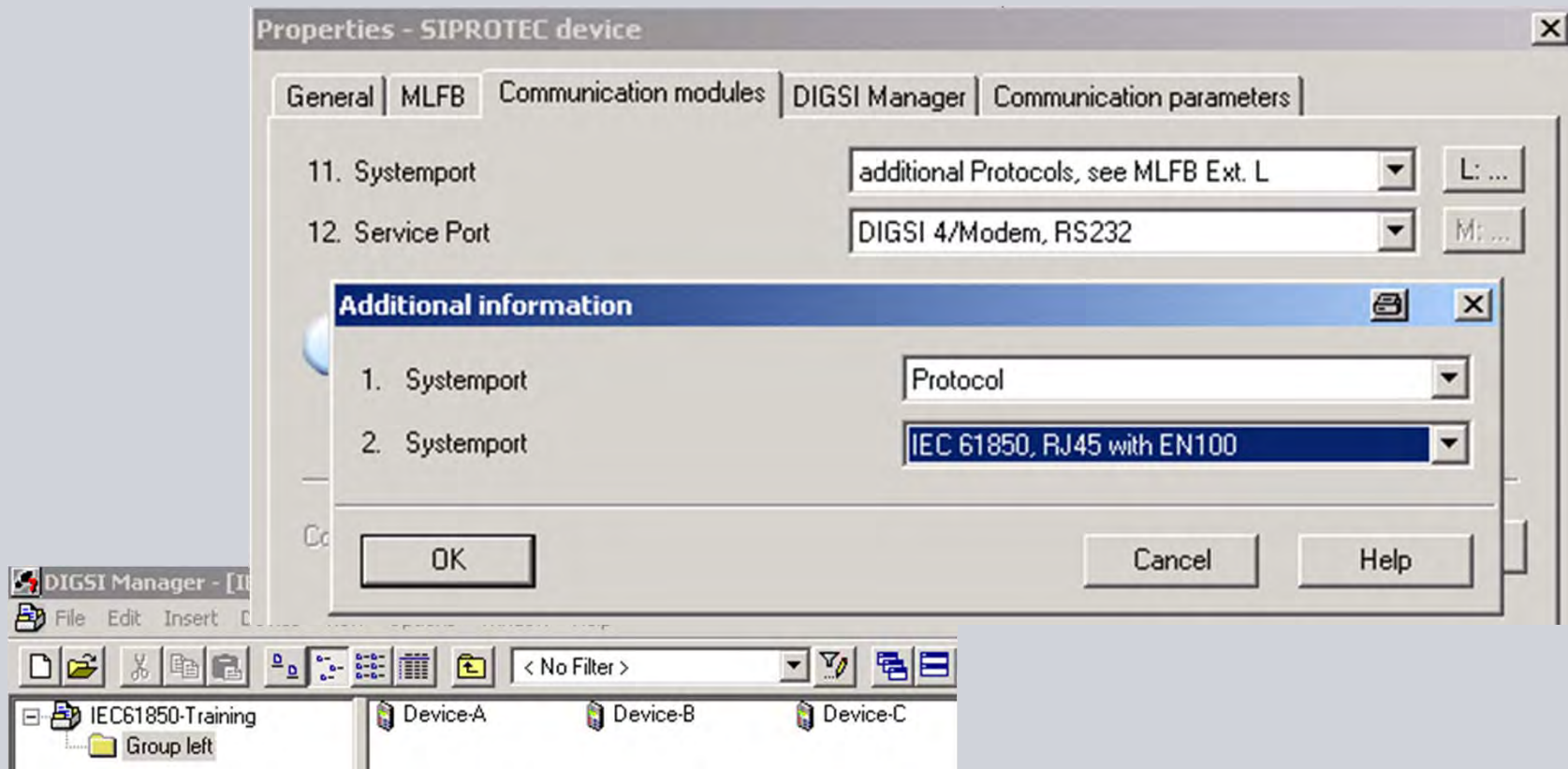
Settings to configure an IEC61850 Station

Create 2 parameter sets in accordance with the ordering code MLFB.
 If the MLFB is similar, it is sufficient to create one set and then use copy & paste.



Settings to configure an IEC61850 Station

Check the settings of the system port by the SIPROTEC device properties



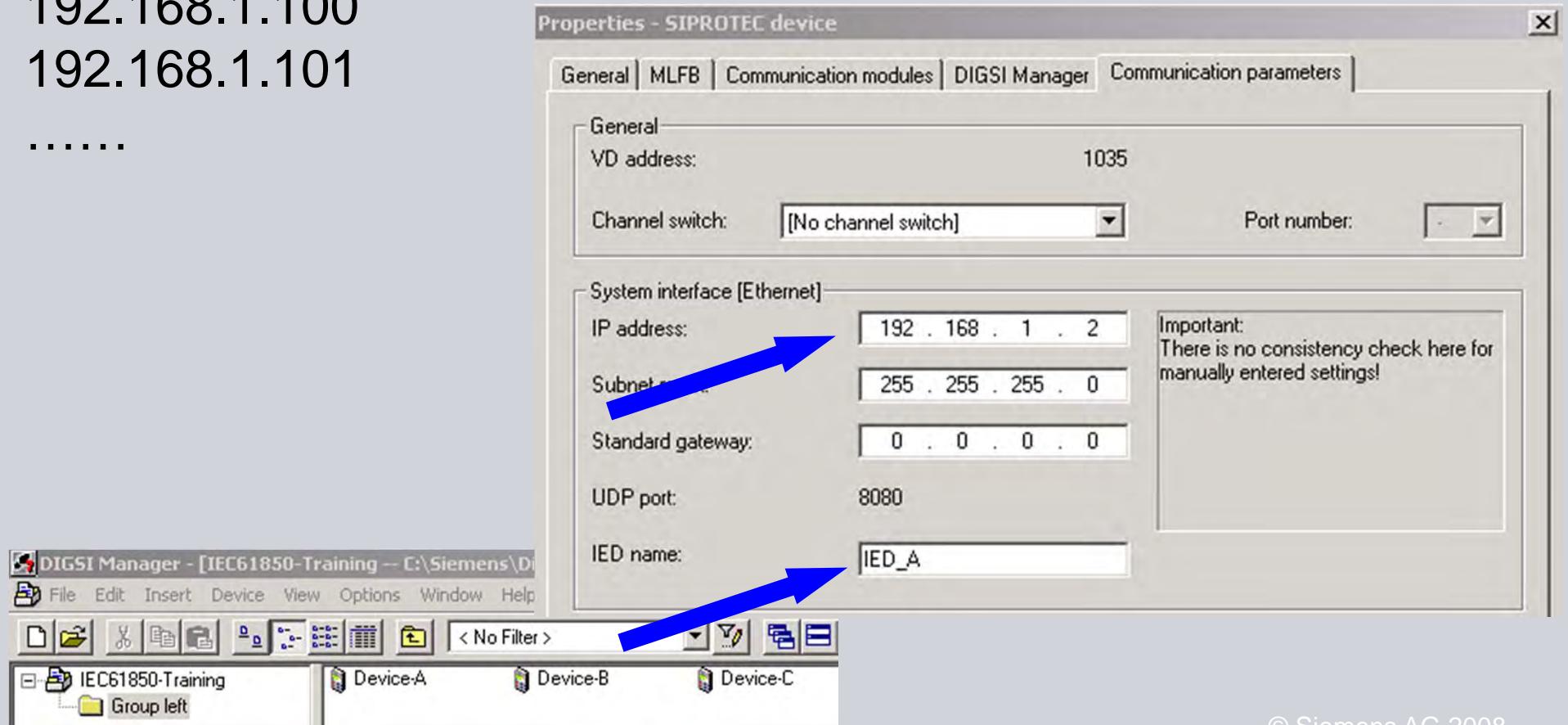
Settings to configure an IEC61850 Station

Define the IP address of each communication component and provide an IED name for each Device A,B e.g.

192.168.1.100

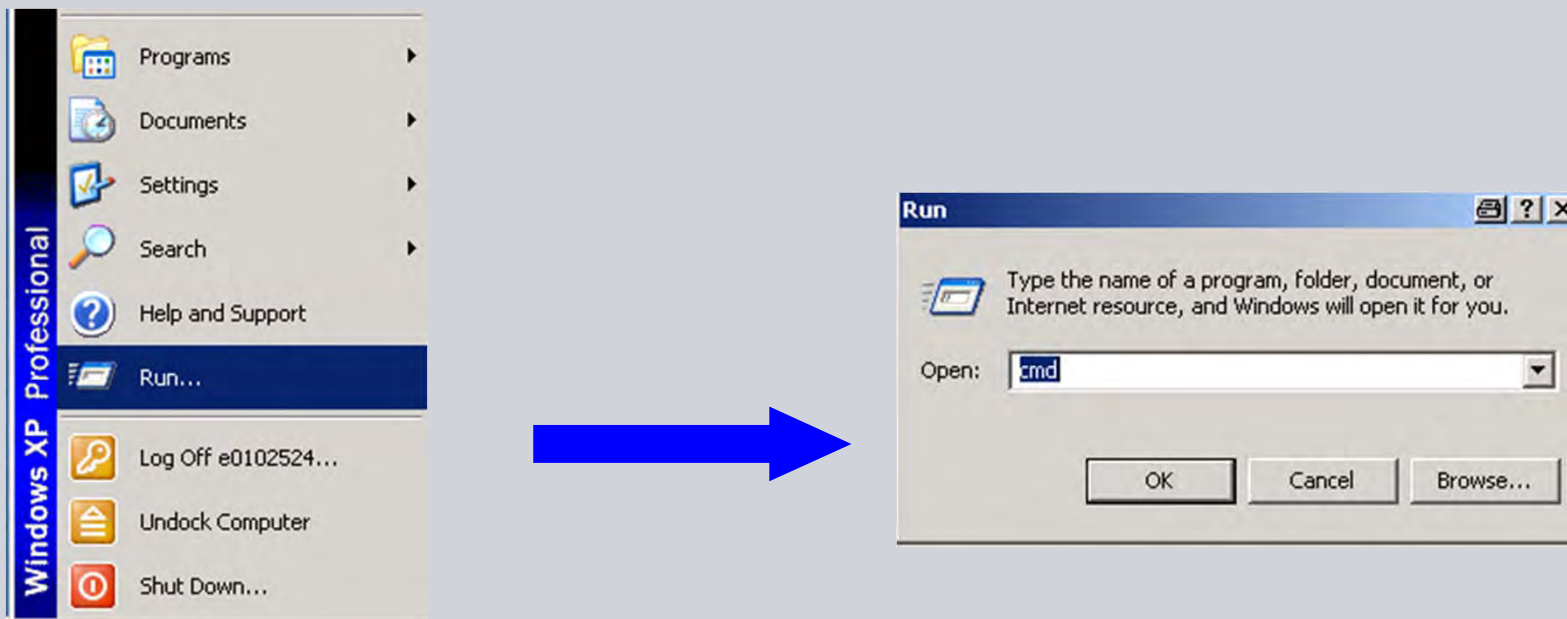
192.168.1.101

.....



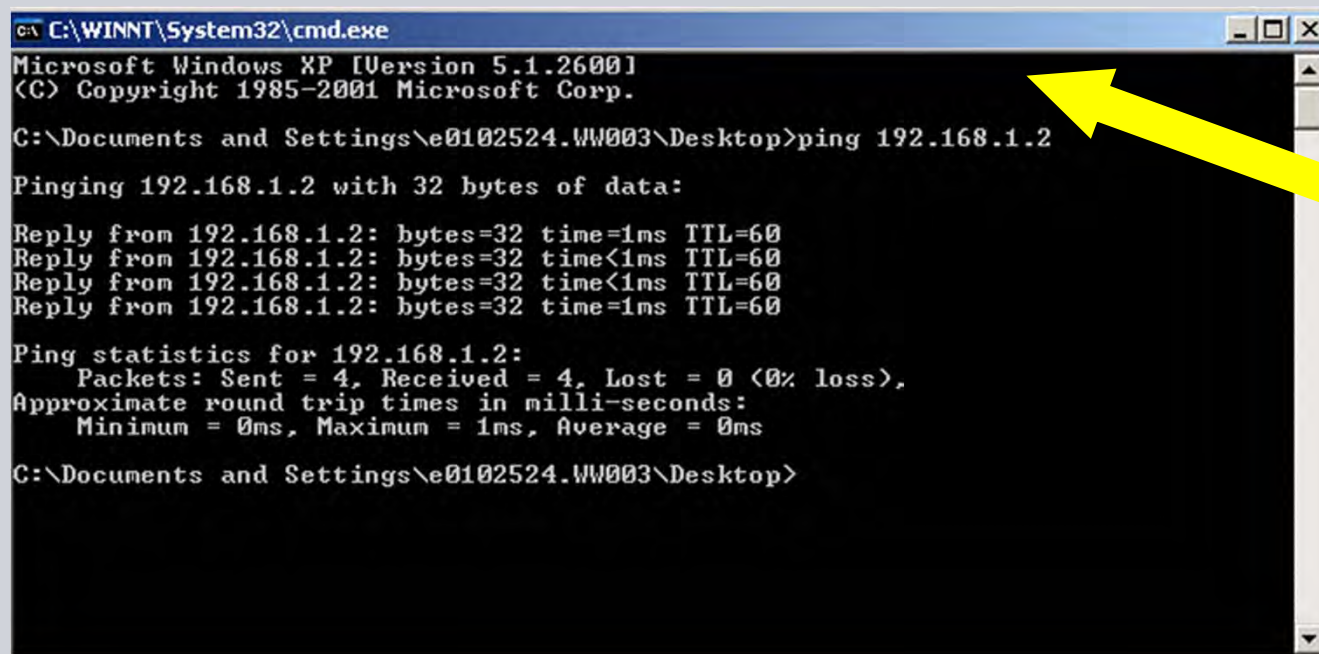
As first step, it has to be checked that the communication between DIGSI and the devices via the Industrial Ethernet is functional.

For that, please use the ping-command function using the operation system



Just enter the IP-addresses and check the communication

192.168.1.1	PC
192.168.1.100	Device A
192.168.1.101	Device B
192.168.1.10	switch



```

C:\WINNT\System32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\...WW03\Desktop>ping 192.168.1.2

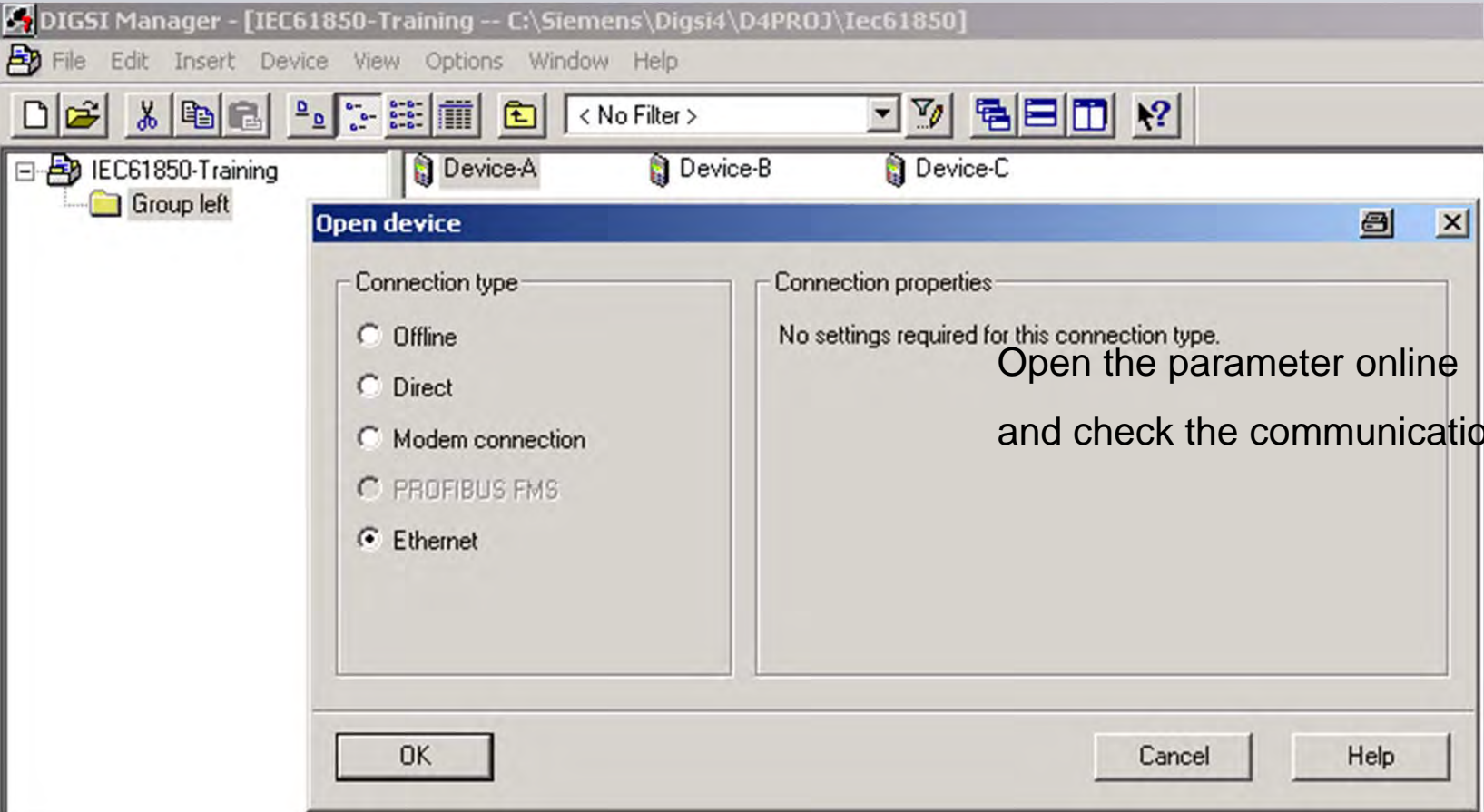
Pinging 192.168.1.2 with 32 bytes of data:

Reply from 192.168.1.2: bytes=32 time=1ms TTL=60
Reply from 192.168.1.2: bytes=32 time<1ms TTL=60
Reply from 192.168.1.2: bytes=32 time<1ms TTL=60
Reply from 192.168.1.2: bytes=32 time=1ms TTL=60

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\Documents and Settings\...WW03\Desktop>
  
```

DEVICE A



Open the parameter online
and check the communication

Allocation of an indication to check the IEC61850-communication

DEVICE A

Open the parameter set off-line.

Create

- 2 pieces of internal single-point indication intSP for the function key and
- 1 piece of single-point indication SP for the transmission via the IEC61850 station

Allocate

the 2 pieces of internal single-point indication to the source function key F1,F2 and destination CFC

- the piece of single-point indication to the source CFC and destination LED1 and system interface S

Allocation of an indication to check the IEC61850-communication

DEVICE A

The new signal from the source CFC is now allocated to LED and interface S

DIGSI - [Settings - Masking I/O (Configuration Matrix) - IEC61850-Training / Group left / Device-A/75J631]

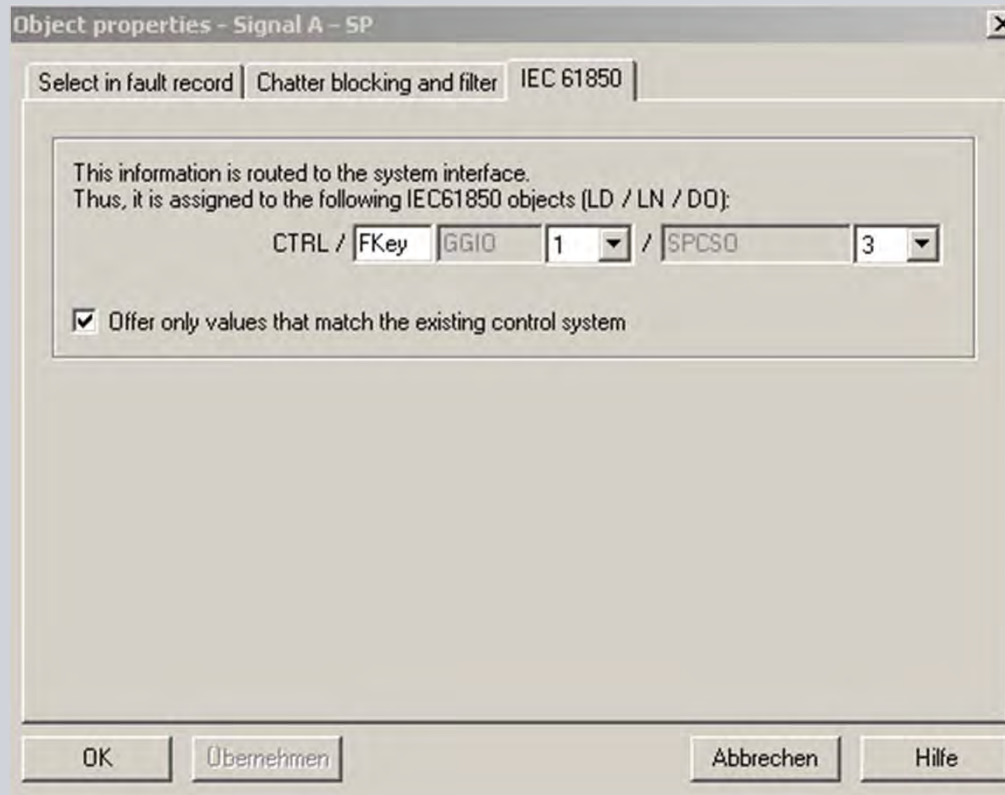
File Edit Insert Device View Options Window Help

Indications only No filter

No.	Information			Source		Destination																					
	Display text	Long text	Type	BI	F	S	C	LEDs														B	S	X	C	D	CM
								1	2	3	4	5	6	7	8	9	10	11	12	13	14						
Device						x	x									x											
EN100-Modul 1																											
IEC61850	F1-ON	F1-ON	IntSP		1																			X			
	F2-OFF	F2-OFF	IntSP		2																			X			
P.System Data 1	Signal A	Signal of Device A	SP				X		U															X			

Allocation of an indication to check the IEC61850-communication

DEVICE A

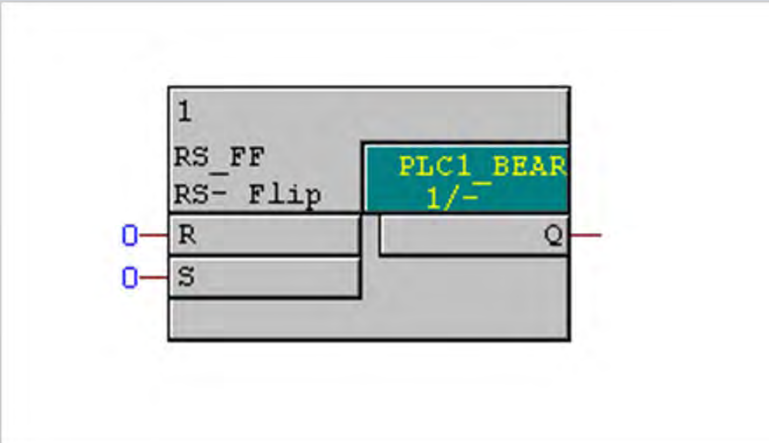


After the selection of destination S, a setting window appears for the allocation of the IEC61850 object: A name has to be assigned for the LN (logical node). The information then appears in the IEC61850 station under this structure.

Allocation of an indication to check the IEC61850-communication

DEVICE A

The function keys are interconnected in the CFC with the help of an RS flipflop module so that the ON and OFF state can be presented permanently.



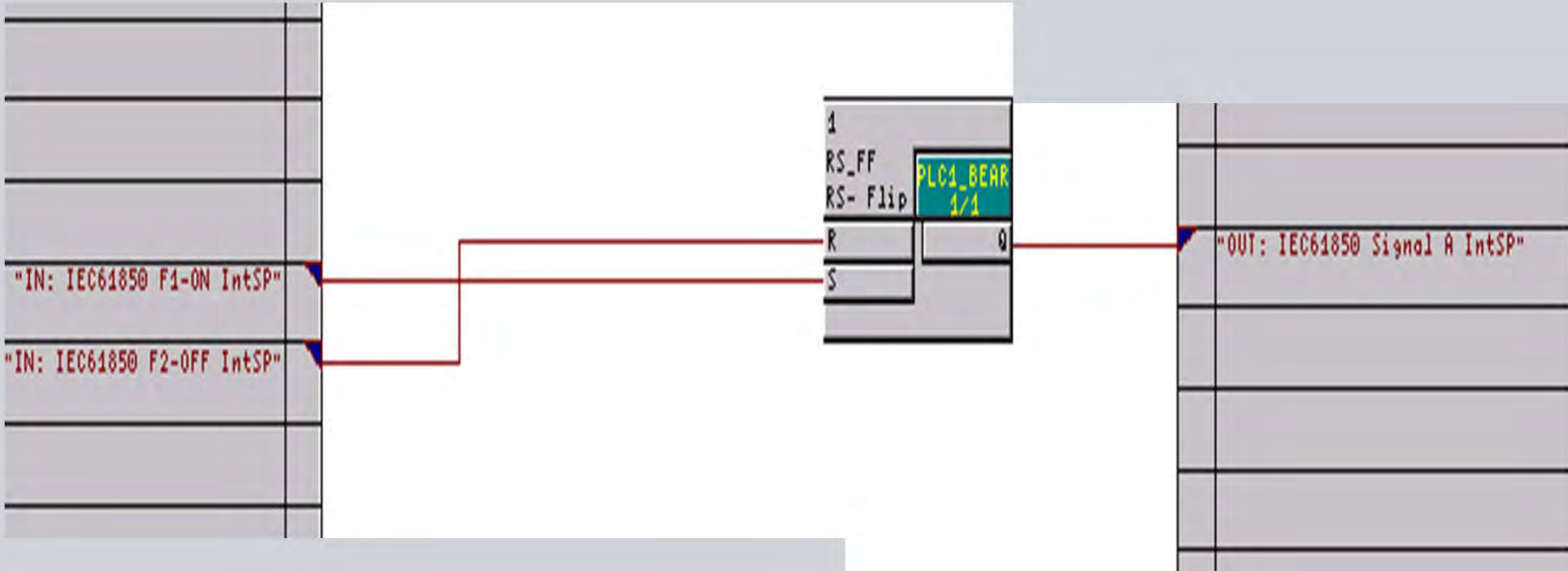
Work in accordance with the CFC standard recipe!

1. Allocate to CFC
2. Save the allocation matrix
3. Insert a CFC plan
4. Draw the plan
5. Check and optimize the running sequence
6. Compile the plan
7. Save the parameter set

Allocation of an indication to check the IEC61850-communication

DEVICE A

Insert a new CFC-Chart 'communication check'



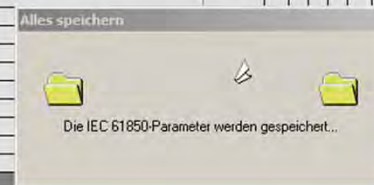
Allocation of an indication to check the IEC61850-communication



DEVICE A

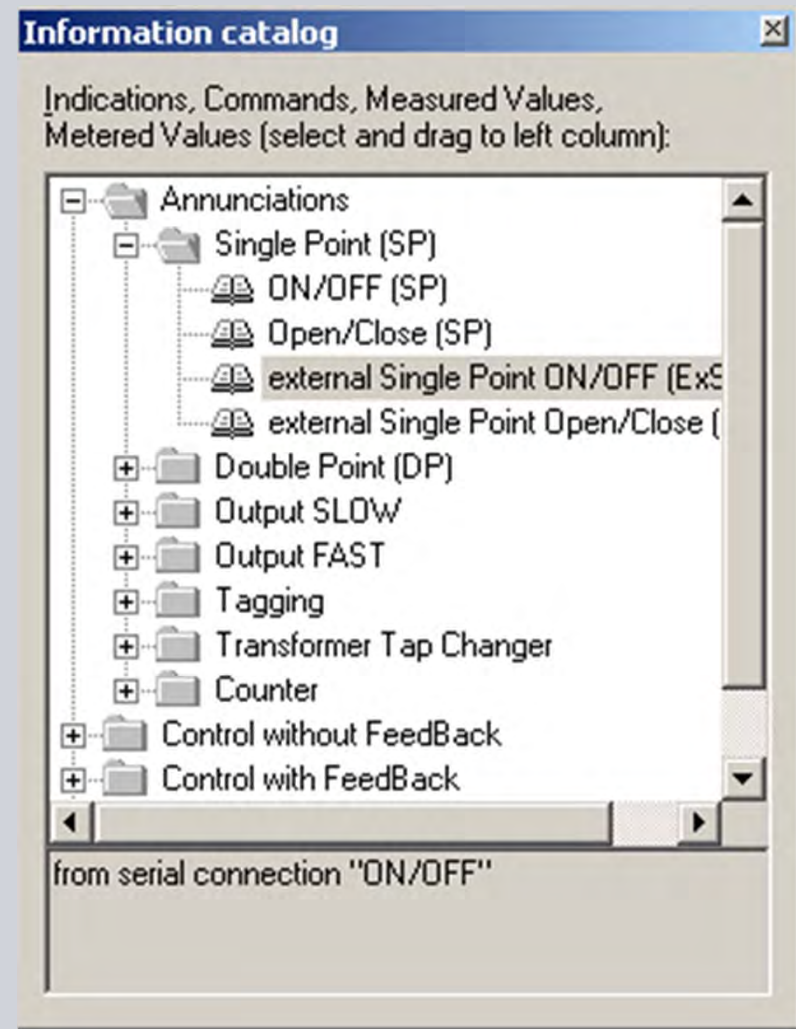
After compilation you have to save the parameter set by clicking onto the disk symbol.

	Information		Typ	Quelle			Ziel																						
	Nummer	Displaytext		Langtext	BE	F	S	C	LED														Puffer		S	X	C	B	ST
																							B	E					
Gerät								1	2	3	4	5	6	7	8	9	10	11	12	13	14	B	E	N	W	A	G		
EN100-Modul 1						X	X															X		X	X	X			
IEC61850	F1 EIN	F1 EIN	F1 EIN	IE	1																	KG				X			
	F2 AUS	F2 AUS	F2 AUS	IE	2																		KG		X	X			
	SIGNAL	SIGNAL von Gerät 1	SIGNAL von Gerät 1	EM		X		U															KG		X				
Anlagendaten 1						X																X							
Störschreibung																						X							
Anlagendaten 2																						X							
U/AMZ																						X							
ger.U/AMZ																						X							
Spannungsschutz																						X							
Messwertüberw.																						X							
Fehlerorter																						X							
Ort/Modus																						X							
Schaltobjekte							X	X														X			X	X	X		
Prozessmeldung																						X							
Messwerte																						X							
Mittelwerte																						X							
Min/Max/Werte																						X							
Grenzwerte																						X							
Energiezähler																						X							
Statistik																						X							
Statistik/Grenz																						X							
Protokolle																						X							
SW-Umschalter																						X					*		



DEVICE B

In the device B, the SIGNAL information from device A is received from source S. With the help of the type external single-point indication from the information catalog (type:ExSP), an information is created in the matrix and allocated to source S and destination LED1.



DEVICE B

	Information				Source				Destination																	
	Number	Display text	Long text	Type	BI	F	S	C	BO	LEDs														Buffer		
										1	2	3	4	5	6	7	8	9	10	11	12	13	14	O	S	T
Device						x	x												x		x					
EN100-Modul 1																				x		x				
IEC61850		Signal A	Signal of device A	ExSP		X			U											00						
P.System Data 1																				x						
Osc. Fault Rec.																				x		x				
P.System Data 2																				x		x				
Overcurrent																				x						
Directional O/C																				x		x				
Measur. Superv																				x						
Fault Locator																				x		x				
Cntrl Authority																				x						
Control Device																				x						
Process Data																										
Measurement																				x	x					
Demand meter																				x						

Object properties - Signal A - ExSP

IEC 61850

This information is routed to the system interface.
 Thus, it is assigned to the following IEC61850 objects (LD / LN / DO):

CTRL / Fkey /

Offer only values that match the existing control system

DEVICE B

The name of the LN does not have to be identical with the name of the LN of device 1. Nevertheless, for reasons of clarity, it is advisable to assign the same names to be able to find the corresponding information in the IEC61850 station easier.

Object properties - Signal A - IntSP

Interlocking | Default selection | Select in fault record | IEC 61850

This information is routed to the system interface.
Thus, it is assigned to the following IEC61850 objects (LD / LN / DO):

CTRL / Fkey GGIO 1 / SPCSO 1

Offer only values that match the existing control system

Among the object properties of the parameter set, the following entries can be found:

IP-address

Subnet mask

Standard gateway

IED name

Properties - SIPROTEC device

General | MLFB | Communication modules | DIGSI Manager | **Communication parameters**

General

VD address: 1029

Channel switch: [No channel switch] Port number: []

System interface [Ethernet]

IP address: 192 . 168 . 1 . 1

Subnet mask: 255 . 255 . 255 . 0

Standard gateway: 0 . 0 . 0 . 0

UDP port: 8080

IED name: IED_B

Important:
There is no consistency check here for manually entered settings!

OK Cancel Help

These settings are relevant if DIGSI communicates with the protection device directly via Ethernet. The IEC61850 station is then unnecessary.

For this example, the communication parameters are entered in the IEC61850 station and accepted.

Properties - SIPROTEC device

General | MLFB | Communication modules | DIGSI Manager | **Communication parameters**

General

VD address: 1029

Channel switch: [No channel switch] Port number: []

System interface [Ethernet]

IP address: 192 . 168 . 1 . 1

Subnet mask: 255 . 255 . 255 . 0

Standard gateway: 0 . 0 . 0 . 0

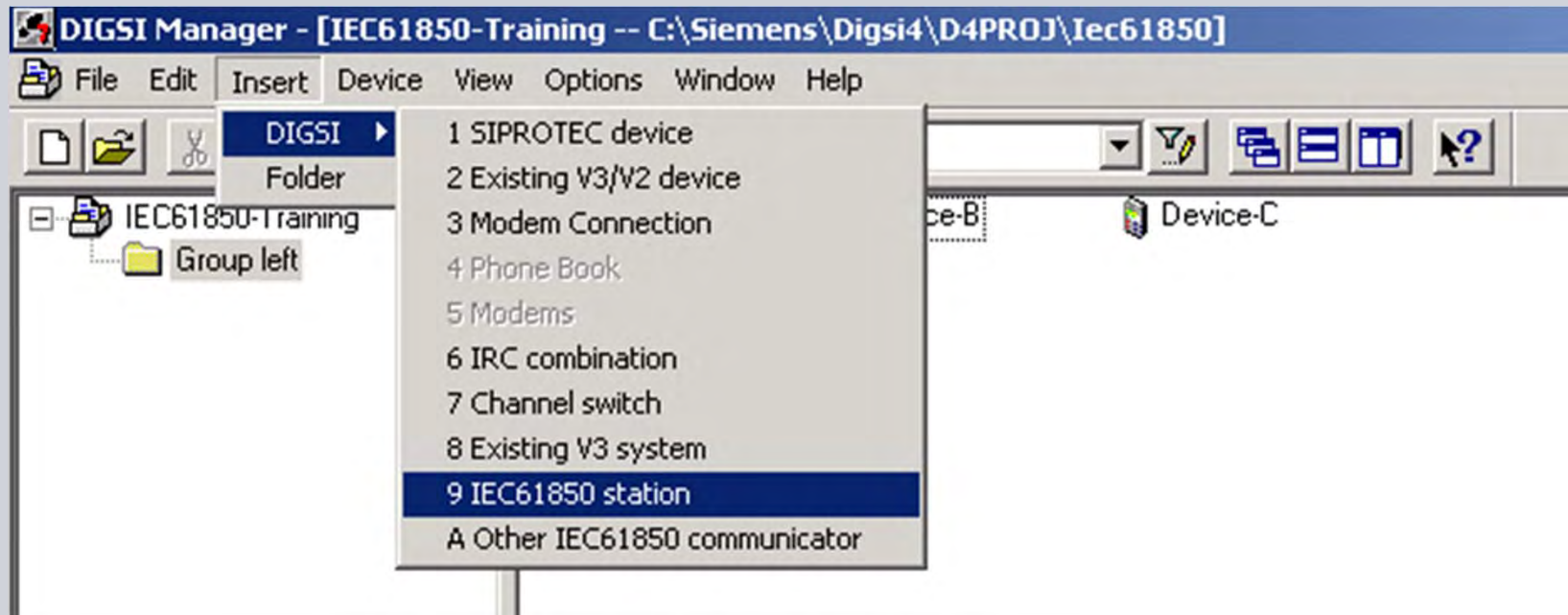
UDP port: 8080

IED name: IED_B

Important:
There is no consistency check here for manually entered settings!

OK Cancel Help

Creating an IEC61850 station



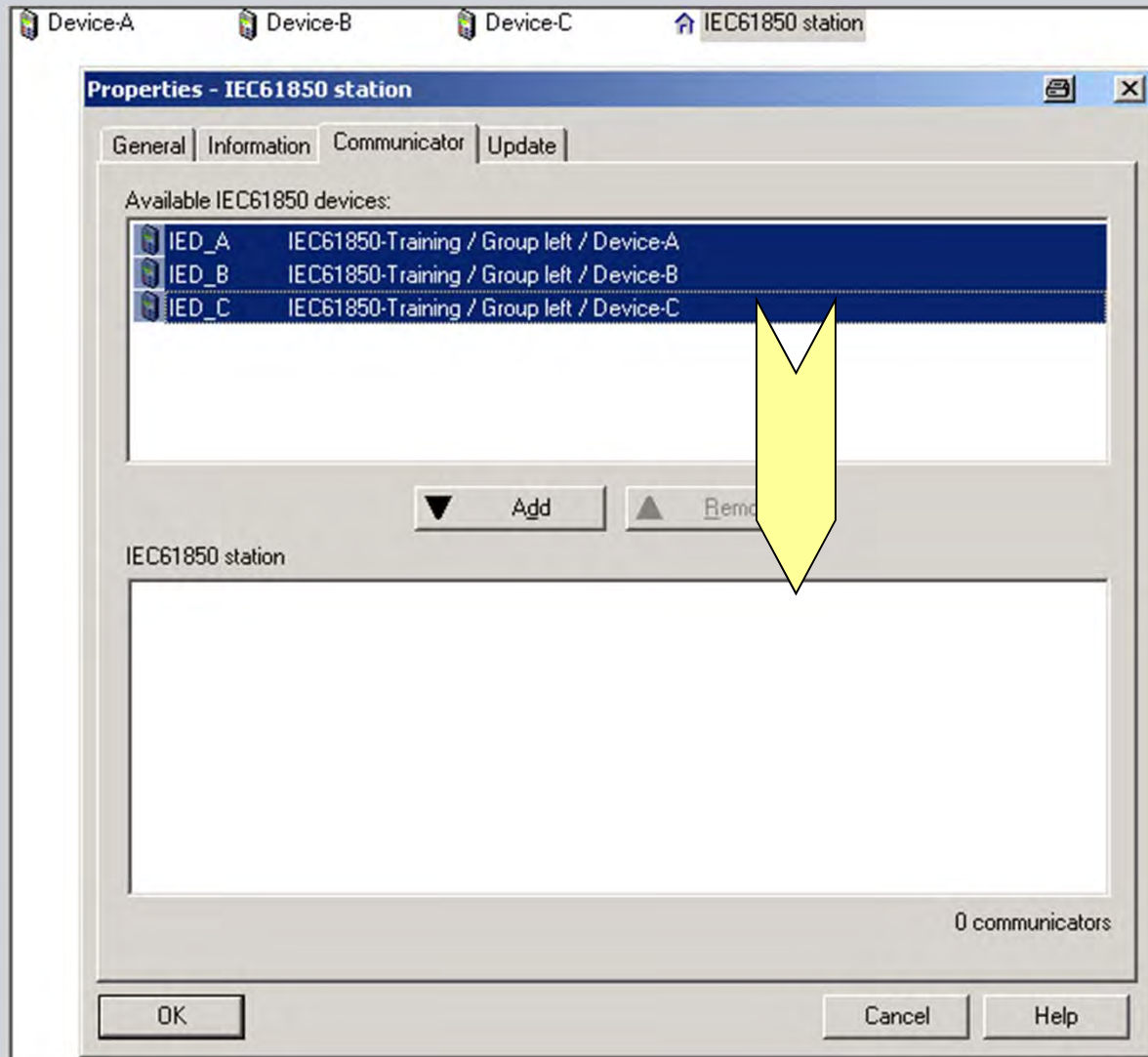
New in DIGSI 4 is the IEC 61850 station, which is added to the project via the context menu, for example. Such a station combines several devices communicating with each other via Ethernet in accordance with IEC61850.

Creating an IEC61850 station

Object properties of the IEC61850 station:

Selection of the users

Important: Only potential users whose parameter sets have been opened at least once before are offered here.



The IEC61850 station can now be opened.



The **network** area shows the current network structure. Subnets ... users ... IP addresses - all basic information at a glance! If you are interested in details, the properties window helps. It immediately provides the appropriate information independent of the selected element.

The screenshot shows the DIGSI system configurator interface. The main window displays a tree view of network elements under 'Subnets'. A yellow arrow points to the 'Subnet1' entry. The 'Properties' window on the right displays configuration details for 'Subnet1'.

Name	Text	IP address
IEC61850 station		
New devices		
Subnet1		
IED_A	Device-A	192.168.1.2
IED_B	Device-B	192.168.1.3
IED_C	Device-C	192.168.1.4

Identification	
Name	Subnet1
Description	
Comment	
Type	Subnet

Parameter	
IP start address	192.168.1.2
Subnet mask	255.255.255.0
Standard gateway	Not configured
Baud rate [Mbits/s]	100
Type	8-MMS/TCP

DIGSI system configurator - IEC61850-Training / Group left / IEC61850 station

Station Edit Insert View Help

Network Link

Subnets

Name	SIPROTEC text	IP address
IEC61850 station		
New devices		
Subnet1		
IED_A	Device-A	172.16.0.1
IED_B	Device-B	172.16.0.2
IED_C	Device-C	172.16.0.3

Device-C

Properties

Identification

Name	Subnet1
Description	
Comment	
Type	Subnet

Parameter

IP start address	192.168.1.2
Subnet mask	255.255.255.0
Standard gateway	Not configured
Baud rate [Mbits/s]	100
Type	8-MMS/TCP

Define the Start-IP address first....

DIGSI system configurator - IEC61850-Training / Group left / IEC61850 station

Station Edit Insert View Help

Network Link

Subnets

Name	SIPROTEC text	IP address
IEC61850 station		
New devices		
Subnet1		
IED_A	Device-A	172.16.0.1
IED_B	Device-B	172.16.0.2
IED_C	Device-C	172.16.0.3

Properties

Identification

Name	Subnet1
Description	
Comment	
Type	Subnet

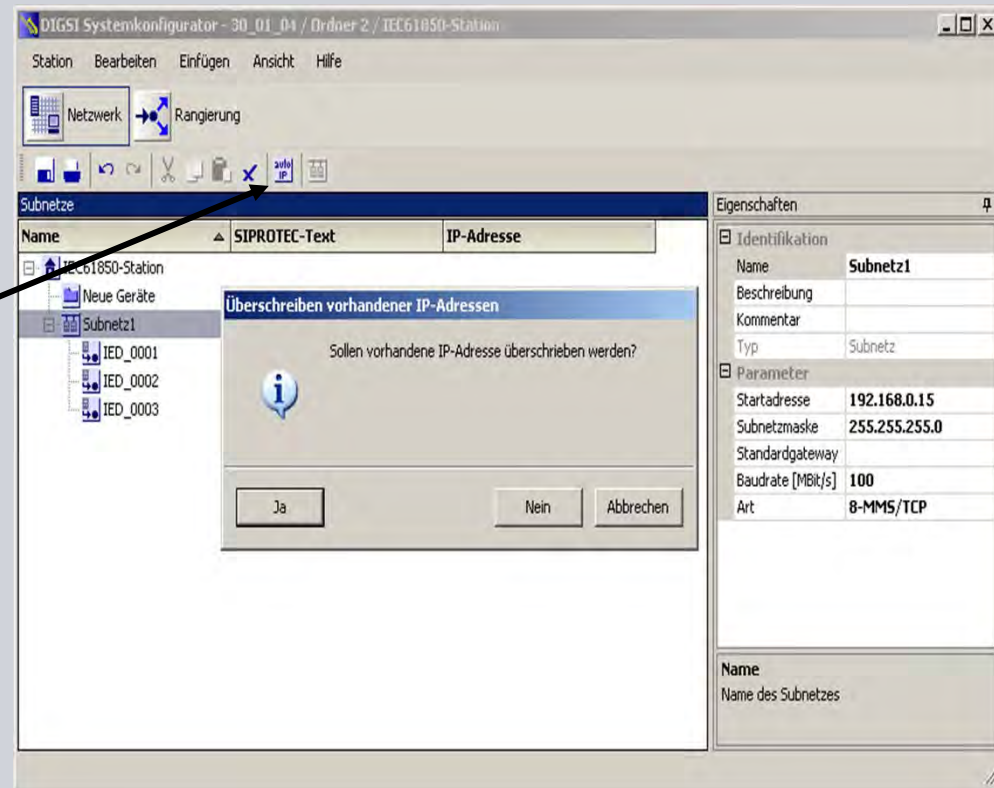
Parameter

IP start address	192.168.1.2
Subnet mask	255.255.255.0
Standard gateway	Not configured
Baud rate [Mbits/s]	100
Type	8-MMS/TCP

....and second actualize the others automatically

pay attention:

Overwriting all IP-
addresses automatically
possible



In the **interconnections** area, you determine the scope of the data exchange between the users of an IEC61850 station. For that, you interconnect data objects of two (or more) users.

The screenshot shows the DIGSI system configurator interface for an IEC61850 station. The main window is titled "DIGSI system configurator - IEC61850-Training / Group left / IEC61850 station". The menu bar includes "Station", "Edit", "Insert", "View", and "Help". The toolbar contains icons for "Network" and "Link", with a yellow arrow pointing to the "Link" icon. Below the toolbar is a "Filter" dropdown set to "No filter".

The central area is divided into two main sections: "Applications" on the left and "Interconnections" in the center. The "Applications" tree shows a hierarchy: "IEC61850 sta..." containing "Subnet1" and "GOOS...". The "Interconnections" table has the following structure:

	Source	SIPROTEC text	Destination	SIPROTEC text

At the bottom, there are two panels: "Sources" and "Destinations". Both panels have an "Add source" or "Add target" button and a table of data objects:

Name	SIPROTEC text
IED_A	Device-A
IED_B	Device-B
IED_C	Device-C

On the right side, the "Properties" panel is open, showing the "Identification" section for "GOOSE application1":

Name	GOOSE application1
Description	
Comment	
Type	Siemens GOOSE applicati...
Application Id	0

Below the "Properties" panel, there is a "Name" section with the label "Name of the application".

Interconnection of sources and destinations from catalogues

The screenshot displays the 'DIGSI system configurator' window for 'IEC61850 - 4-50 / Folder / IEC61850 station'. The main area shows an 'Interconnections' table with columns for 'Source' and 'Destination'. Below this, two panels are visible: 'Quellen' (Sources) and 'Ziele' (Destinations). Both panels show hierarchical tree structures of data objects. The 'Add source' button in the 'Quellen' panel and the 'Add target' button in the 'Ziele' panel are circled in orange. A tooltip for the 'Add source' button reads 'Add source to interconnection list.'.

Source	Destination
SIPROTEC text	

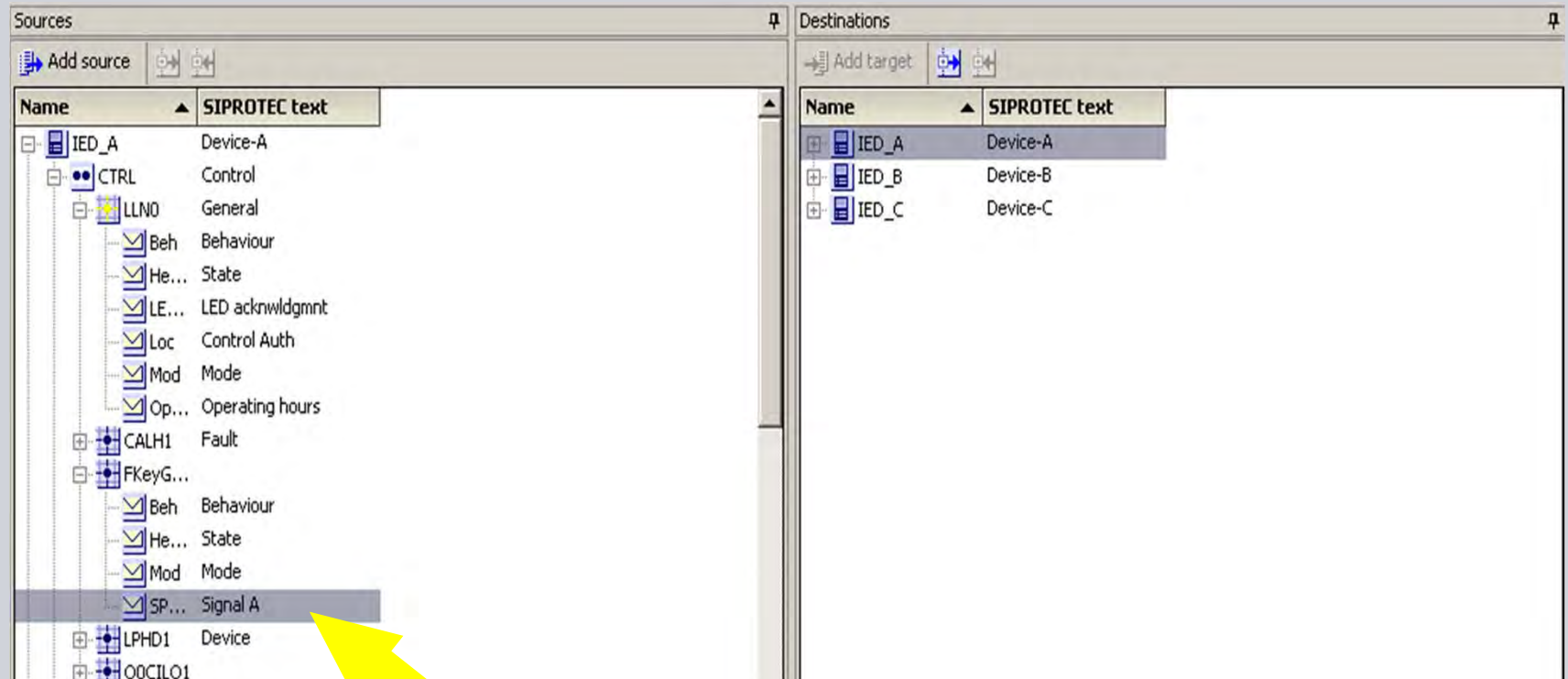
Name	SIPROTEC text
Bay 1	
CTRL	
LN0	Allgemein
CALH1	Stoerung
FeedbackGGIO1	
SPCS03	CplClosed
SPCS04	Bay1Cpled
LN001	Control

Name	
IED_0001	
IED_0002	
IED_0003	
Bay 2	
Couple	

For that, select a data object of user **A** as the source and interconnect it with a data object of user **B** as the destination. The source and destination objects are clearly arranged in separate windows in the form of hierarchical tree structures (catalogues).

Add source to interconnection list.

Select the source information first by double clicking the desired information



Afterwards the source information will be displayed....

The screenshot shows the DIGSI system configurator interface. The main window title is "DIGSI system configurator - IEC61850-Training / Group left / IEC61850 station". The menu bar includes "Station", "Edit", "Insert", "View", and "Help". Below the menu bar are icons for "Network" and "Link". A toolbar contains various editing tools and a "Filter" dropdown set to "No filter".

The "Interconnections" table is the central focus, with a yellow arrow pointing to the "Source" column. The table has the following data:

Source	SIPROTEC text	Destination	SIPROTEC text
IED_A/CTRL/FKeyG...	Device-A/Control/ - /Signa...		

Below the main window, there are two panels: "Sources" and "Destinations".

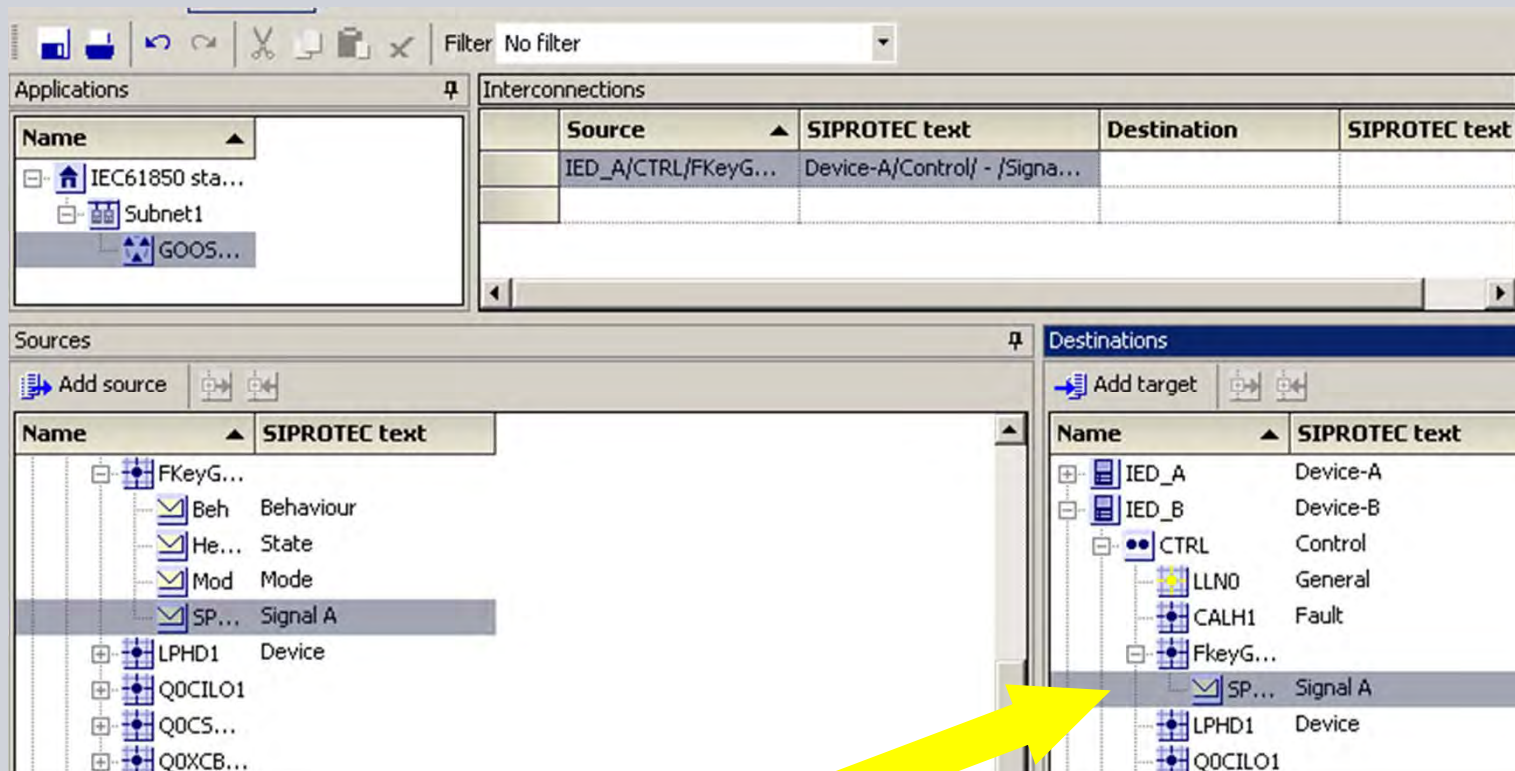
The "Sources" panel shows a tree view of the source information:

- Name: FKeyG...
- Beh: Behaviour
- He...: State
- Mod: Mode
- SP...: Signal A

The "Destinations" panel shows a list of destination information:

Name	SIPROTEC text
IED_A	Device-A
IED_B	Device-B
IED_C	Device-C

Second you have to select the destination information by double clicking within the destination window



The destination information is now displayed....

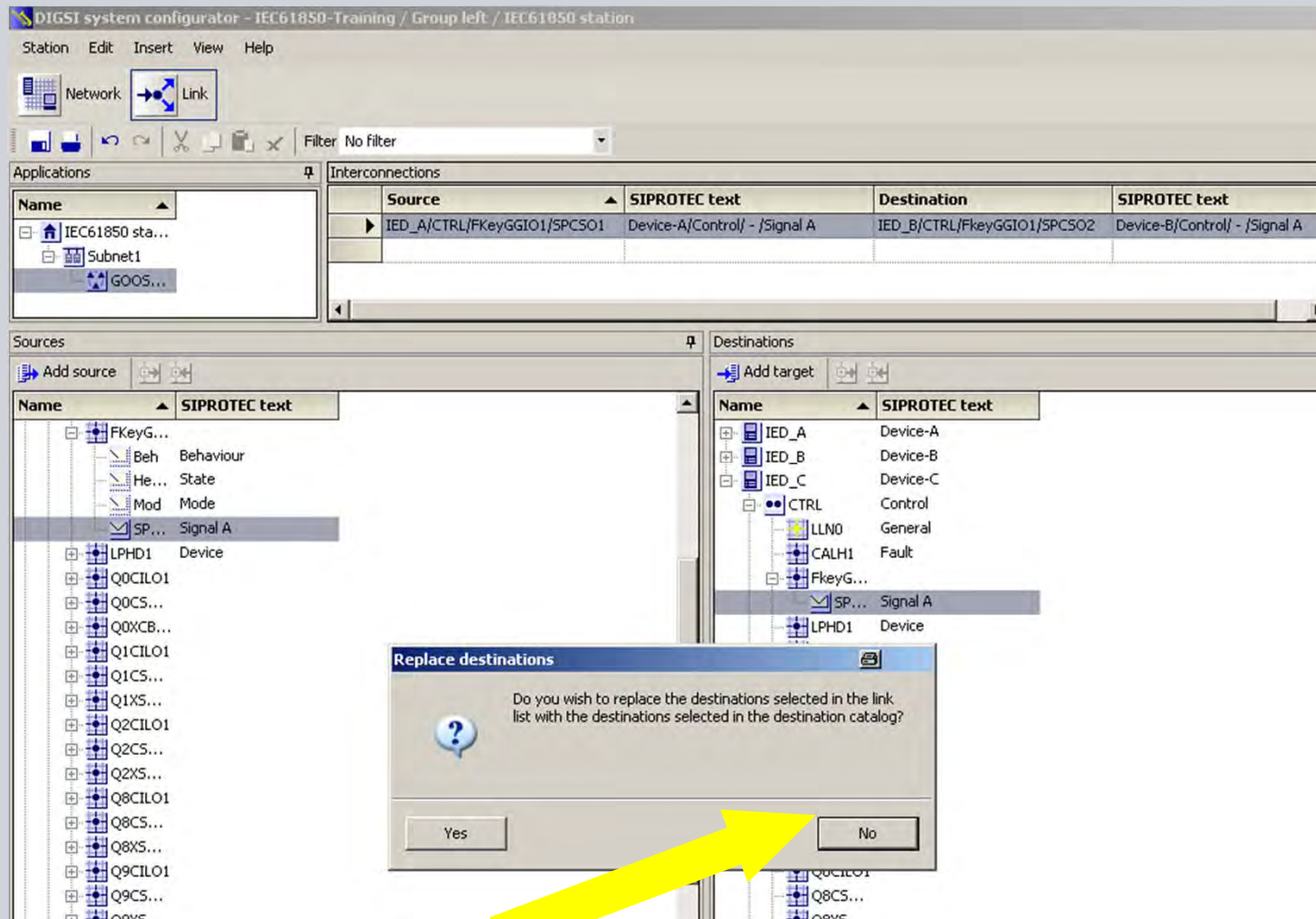
The screenshot shows the DIGSI system configurator interface. The main window title is "DIGSI system configurator - IEC61850-Training / Group left / IEC61850 station". The menu bar includes "Station", "Edit", "Insert", "View", and "Help". Below the menu is a toolbar with icons for "Network" and "Link". A filter dropdown is set to "No filter".

The "Interconnections" table is the central focus, displaying the following data:

Source	SIPROTEC text	Destination	SIPROTEC text
IED_A/CTRL/FkeyGGIO1/SPCSO1	Device-A/Control/ - /Signal A	IED_B/CTRL/FkeyGGIO1/SPCSO2	Device-B/Control/ - /Signal A

A yellow arrow points to the "Destination" column of the first row. Below the table are two panels: "Sources" on the left and "Destinations" on the right. The "Sources" panel shows a tree view with "SP..." (Signal A) selected. The "Destinations" panel shows a tree view with "SP..." (Signal A) selected.

Just repeat it for additional devices, if available/necessary



Just repeat it for additional devices, if available/necessary

The screenshot shows the DIGSI system configurator interface. The main window is titled "DIGSI system configurator - IEC61850-Training / Group left / IEC61850 station". The interface includes a menu bar (Station, Edit, Insert, View, Help), a toolbar with icons for Network and Link, and a Filter dropdown set to "No filter".

The central "Interconnections" table is as follows:

Source	SIPROTEC text	Destination	SIPROTEC text
IED_A/CTRL/FkeyGGIO1/SPCSO1	Device-A/Control/ - /Signal A	IED_B/CTRL/FkeyGGIO1/SPCSO2	Device-B/Control/ - /Signal A
		IED_C/CTRL/FkeyGGIO1/SPCSO1	Device-C/Control/ - /Signal A

A yellow arrow points from the "SIPROTEC text" column of the first row to the "SIPROTEC text" column of the second row.

The "Sources" panel on the left shows a tree view with "SP..." selected under "Signal A". The "Destinations" panel on the right shows a tree view with "SP..." selected under "Signal A".

Interconnection of sources and destinations from catalogues

The screenshot displays the DIGSI system configurator interface for a 'Bombardeira / SE / IEC61850 station'. The main window is divided into several panes:

- Applications:** A tree view on the left showing 'IEC61850 station' with sub-items 'Subnet1', 'GOOSE application1', 'GOOSE application2', and 'GOOSE application3'. 'GOOSE application1' is circled in orange.
- Interconnections:** A central table listing connections between sources and destinations.
- Properties:** A right-hand pane showing details for 'GOOSE application1', including its name, description, type, and various parameters like Application Id (1), Communication profile (High priority), and VLAN settings.
- Destinations:** A bottom pane listing individual destination objects with their names and descriptions.

Source	Description	Destination	Desc
AT_IBA/CTRL/GGIO1/SPCSO3	753642_P505A/Control/GGIO1/DSL TENS CICLO	AT_TP1A/CTRL/GGIO1/SPCSO26	75364
		AT_TP2A/CTRL/GGIO1/SPCSO26	75364
		MT1_TP1/CTRL/GGIO3/SPCSO60	75364
		MT1_TP2/CTRL/GGIO3/SPCSO60	75364
AT_IBA/CTRL/GGIO1/SPCSO6	753642_P505A/Control/GGIO1/PARALELO BARR...	AT_TP1A/CTRL/GGIO1/SPCSO1	75364
		AT_TP2A/CTRL/GGIO1/SPCSO1	75364
		MT1_TP1/CTRL/GGIO3/SPCSO62	75364
AT_IBB/CTRL/GGIO1/SPCSO23	753642_P505B/Control/GGIO1/D+R U OFF	AT_TP1A/CTRL/GGIO2/SPCSO43	75364
		AT_TP2A/CTRL/GGIO2/SPCSO43	75364
AT_IBB/CTRL/GGIO1/SPCSO3	753642_P505B/Control/GGIO1/DSL TENS CICLO	AT_L03A/CTRL/GGIO1/SPCSO2	75364
		AT_TP1A/CTRL/GGIO1/SPCSO37	75364
		AT_TP2A/CTRL/GGIO1/SPCSO37	75364
		MT1_TP1/CTRL/GGIO3/SPCSO61	75364
		MT1_TP2/CTRL/GGIO3/SPCSO61	75364
AT_IBB/CTRL/GGIO1/SPCSO6	753642_P505B/Control/GGIO1/PARALELO BARR...	AT_L03A/CTRL/GGIO1/SPCSO40	75364
		AT_TP2A/CTRL/GGIO1/SPCSO2	75364
		MT1_TP1/CTRL/GGIO3/SPCSO63	75364
AT_L03A/CTRL/GGIO1/SPCSO4	753645_P503/Control/GGIO1/PAINEL ENSAIO	AT_L03B/CTRL/GGIO1/SPCSO6	75A52
AT_TP1A/CTRL/GGIO1/SPCSO4	753645_P504/Control/GGIO1/PAINEL ENSAIO	AT_TP1B/CTRL/GGIO1/SPCSO9	7UT61

Name	Description
AT_IBA	753642_P505A
AT_IBB	753642_P505B
AT_L03A	753645_P503
AT_L03B	75A522_P503
AT_TP1A	753645_P504
AT_TP1B	7UT613_P504
AT_TP2A	753645_P507
AT_TP2B	7UT613_P507
MT1_BC1A	753642_P111
MT1_BC1B	753612_P111B
MT1_BC1C	753612_P111C
MT1_BC2A	753642_P120
MT1_BC2B	753612_P120B
MT1_BC2C	753612_P120C
MT1_IB	753642_P114
MT1_L01	753642_P101
MT1_L02	753642_P102
MT1_L03	753642_P103
MT1_L04	753642_P104

Interconnections are always combined in applications. This is ideal to keep the overview even in the case of a huge amount of inter-connected information.

Standard and SIPROTEC text

DIGSI system configurator - IEC61850 - 4-50 / Folder / IEC61850 station

Station Edit Insert View Help

Network Configuration

Filter No filter

Source	SIPROTEC text	Destination	SIPROTEC text
IED_0001/CTRL/FeedbackGGIO1/SPCSO4	Bay 1/ - / - /Bay1Cpled	IED_0003/CTRL/FeedbackGGIO1/SPCSO4	Bay 3/ - / - /Bay1Cpled
IED_0002/CTRL/FeedbackGGIO1/SPCSO5	Bay 2/ - / - /Bay2Cpled	IED_0003/CTRL/FeedbackGGIO1/SPCSO5	Bay 3/ - / - /Bay2Cpled
IED_0003/CTRL/FeedbackGGIO1/SPCSO3	Couple/ - / - /CplClosed	IED_0001/CTRL/FeedbackGGIO1/SPCSO3	Bay 1/ - / - /CplClosed

We pick up the user in his/her usual world:
 Apart from the standard text, he/she also sees the text of the assigned SIPROTEC object or at least a text in accordance with the SIPROTEC language world.

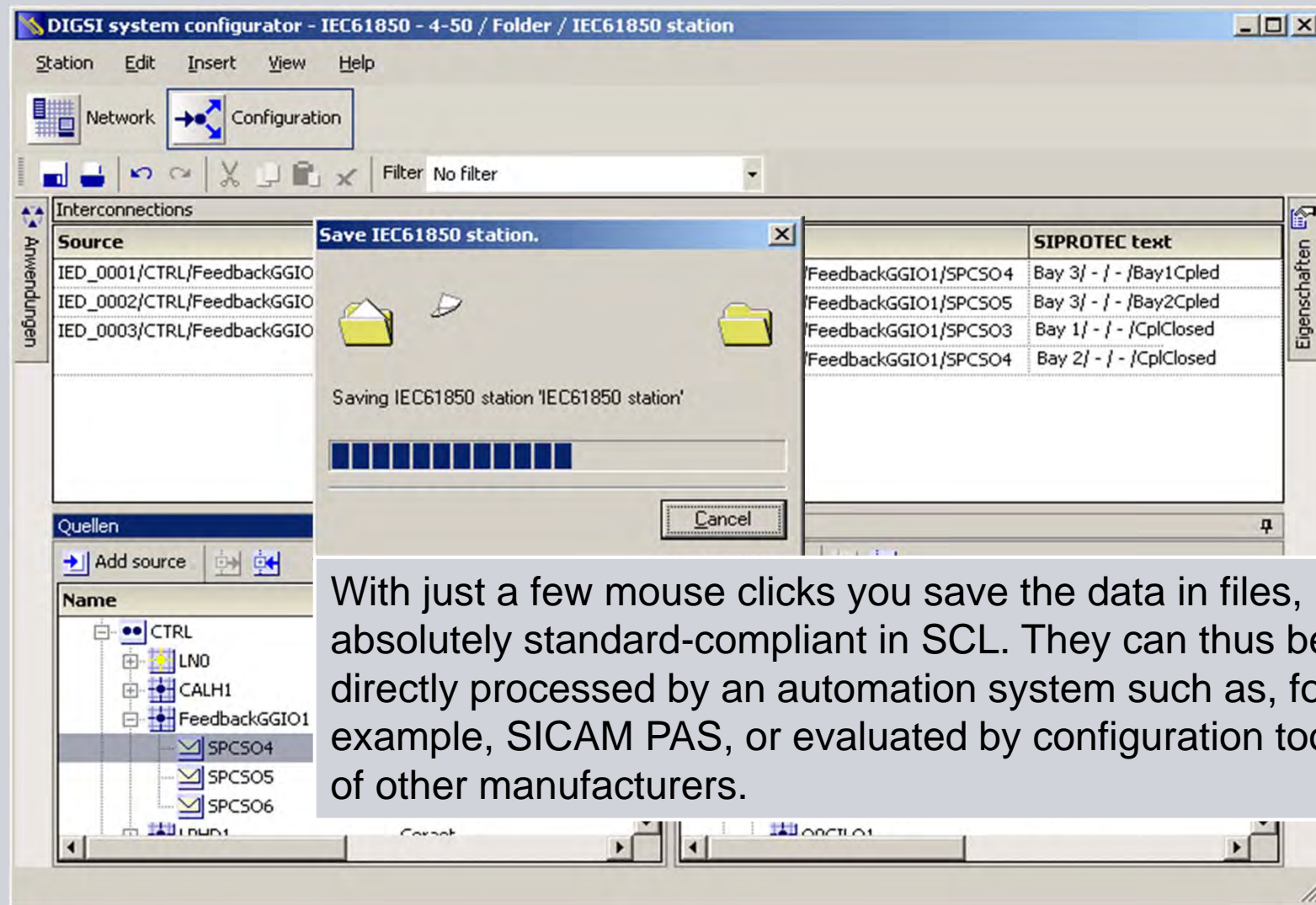
Quellen

Add source

Name	
CTRL	
LN0	Allgemein
CALH1	Stoerung
FeedbackGGIO1	
SPCSO4	Bay1Cpled
SPCSO5	Bay2Cpled
SPCSO6	CplClosed
LNPH1	Geraet

Name	
IED_0003	
CTRL	
LN0	Couple
CALH1	Allgemein
FeedbackGGIO1	Stoerung
LPHD1	Geraet
LuefterCCGR1	Luefter
LNCTO1	

At the end of work: Exporting in SCL

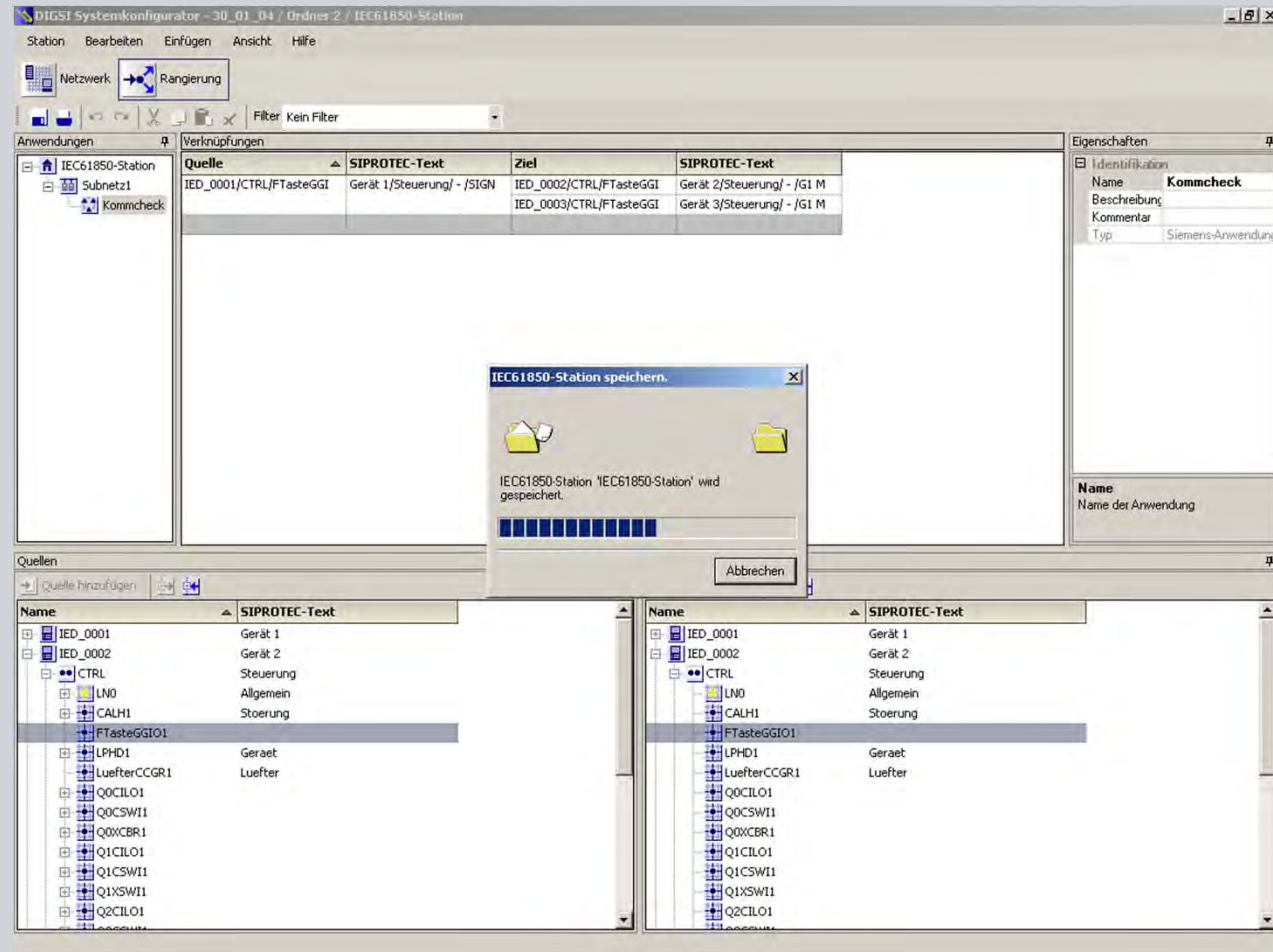


With just a few mouse clicks you save the data in files, absolutely standard-compliant in SCL. They can thus be directly processed by an automation system such as, for example, SICAM PAS, or evaluated by configuration tools of other manufacturers.

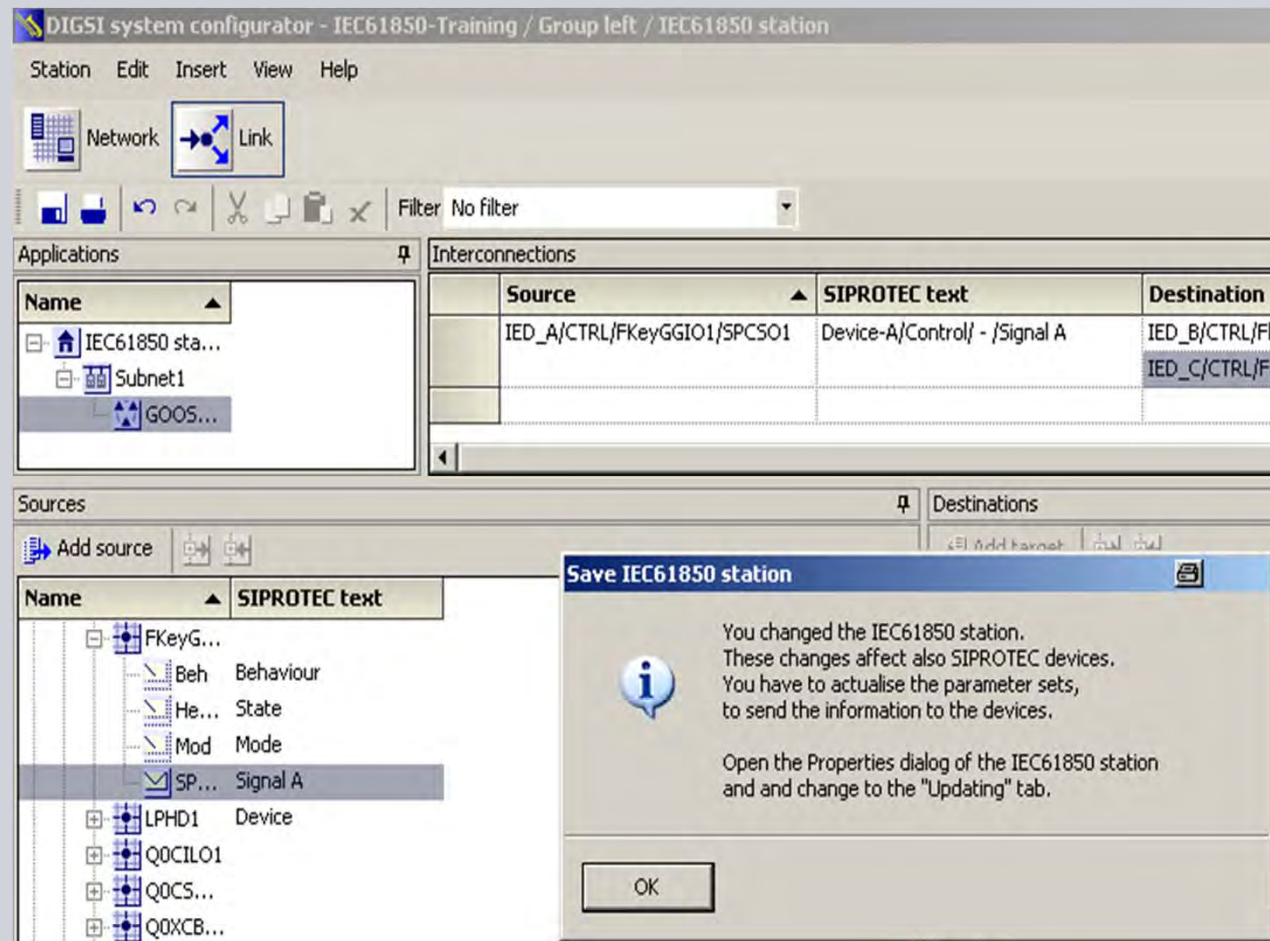
Usability in the system configurator

- You can adapt the layout of the DIGSI system configurator user interface exactly to your needs: You can determine the size and position of the individual windows yourself, or you can combine different windows to a single one.
- If required, you can change from the static view to the dynamic one: Partial windows such as the properties are only displayed when the cursor is moved across.
- Of course, your personal user interface layout is saved while exiting the system configurator.
- Opened catalogue paths are memorized.
- You can undo every action, also several actions consecutively.
- beginning with DIGSI 4.81 a „detailed representation“ view for IEC61850 parameters is possible

Saving is carried out automatically when exiting the system configurator.

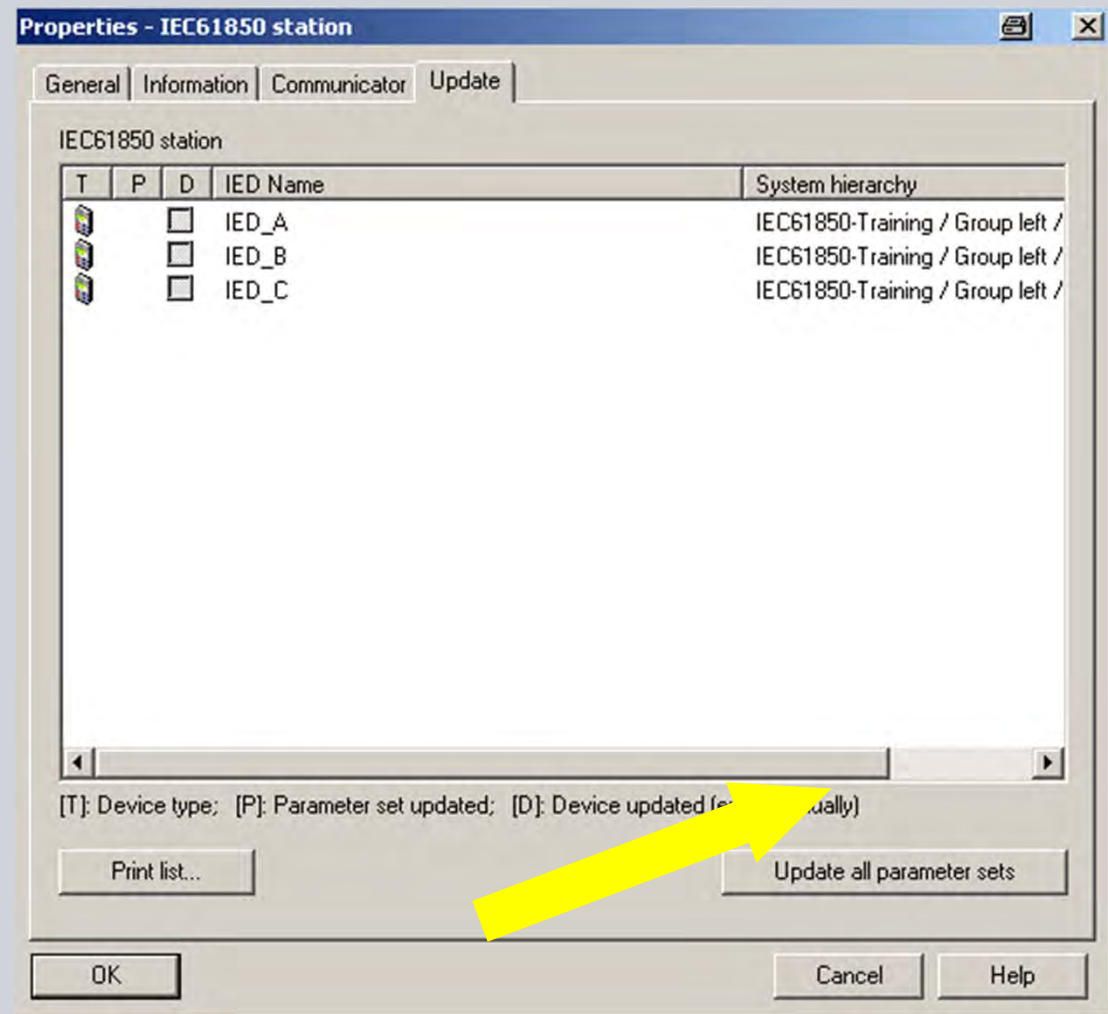


Saving is carried out automatically when exiting the system configurator.



Updating an IEC61850 station

within the object properties of the IEC61850 station

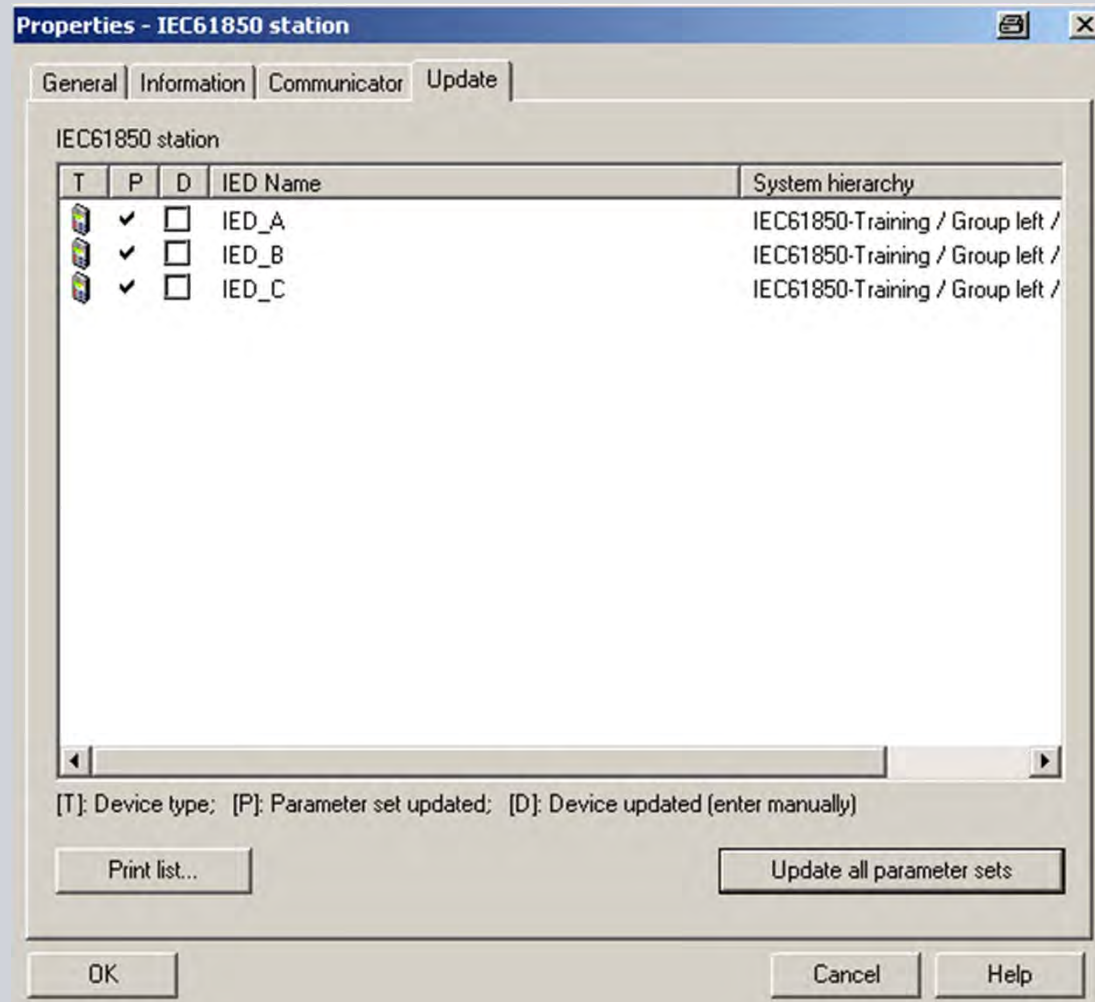


Updating an IEC61850 station

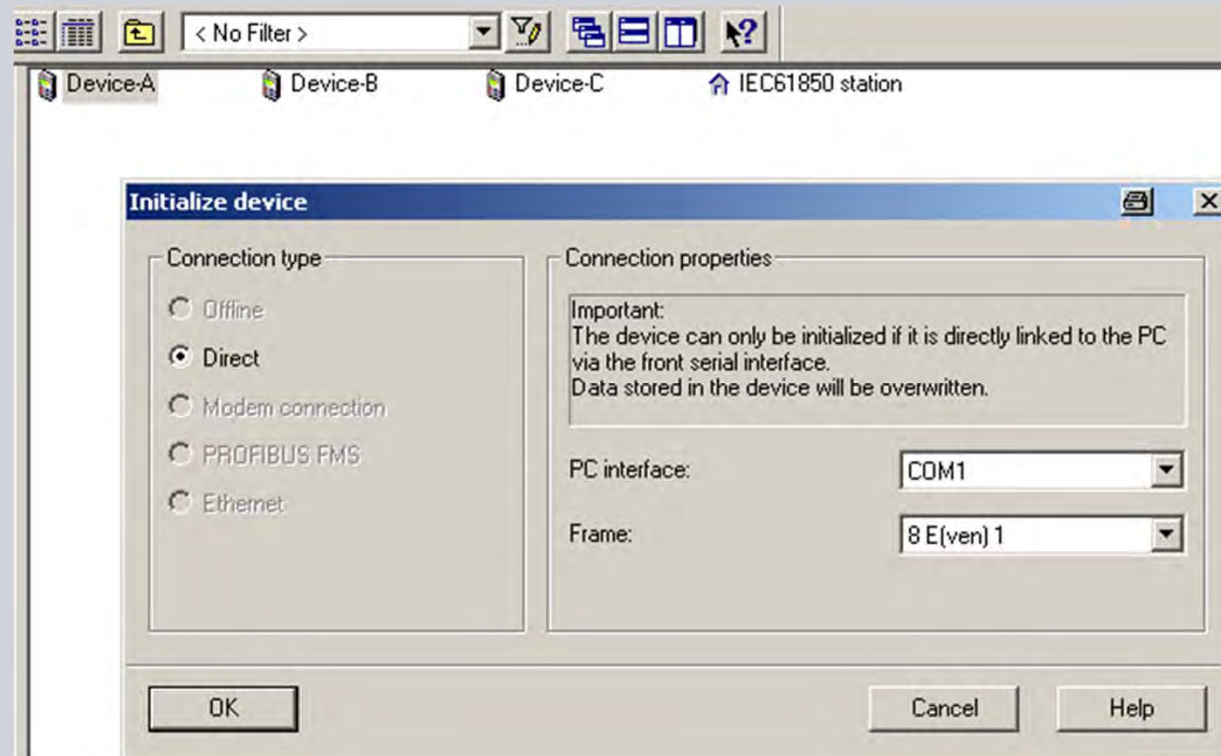
Report

Indications	Date	Time
Updating parameter sets of IEC61850 station: : IEC61850 sta...	23.09.2004	11:21:12
Parameter set was updated: 'IEC61850-Training / Group...	23.09.2004	11:21:25
Parameter set was updated: 'IEC61850-Training / Group...	23.09.2004	11:21:35
Parameter set was updated: 'IEC61850-Training / Group...	23.09.2004	11:21:45
Parameter sets were updated - 0 fault, 0 warning(s)	23.09.2004	11:21:46

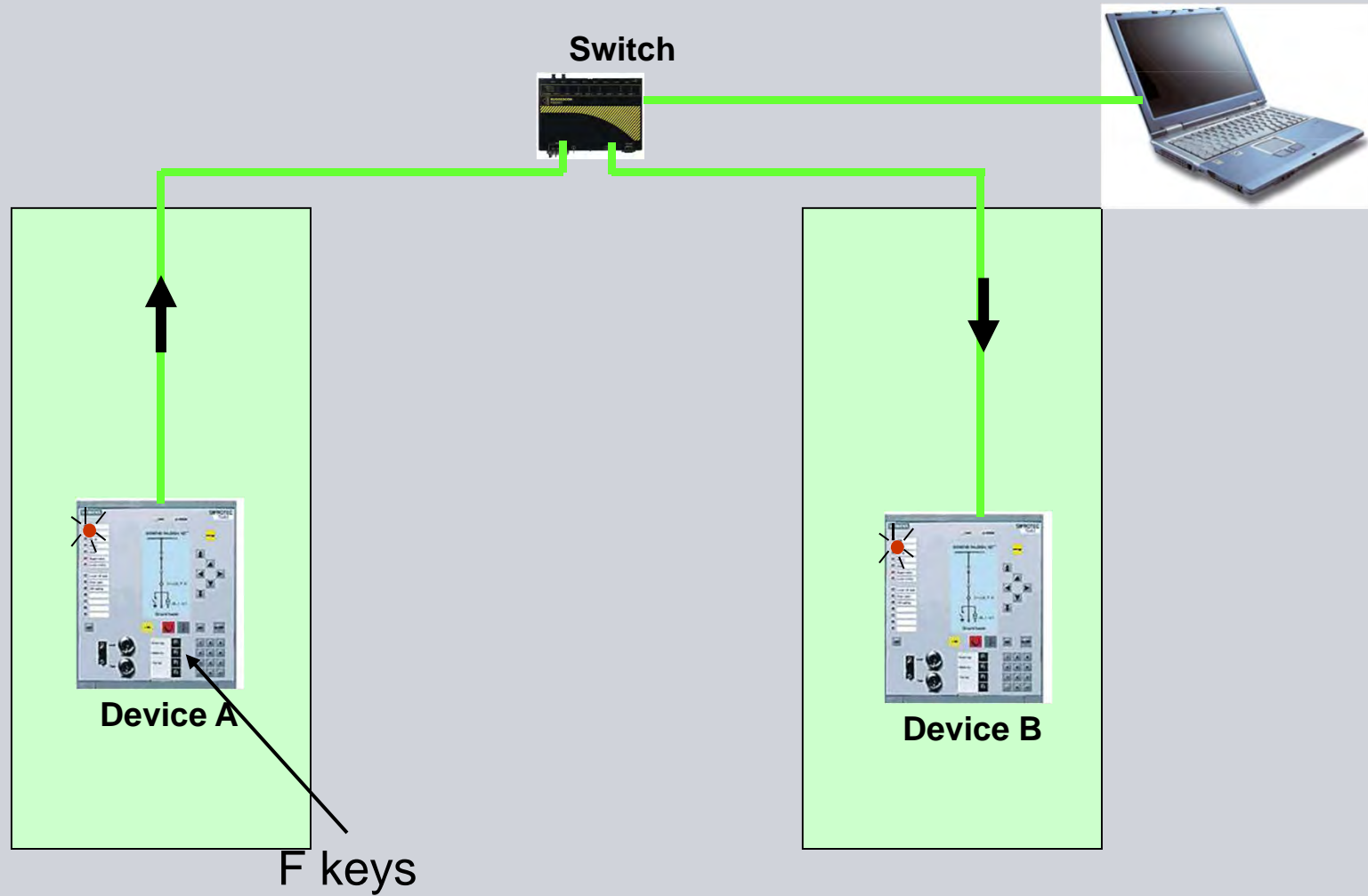
Updating an IEC61850 station



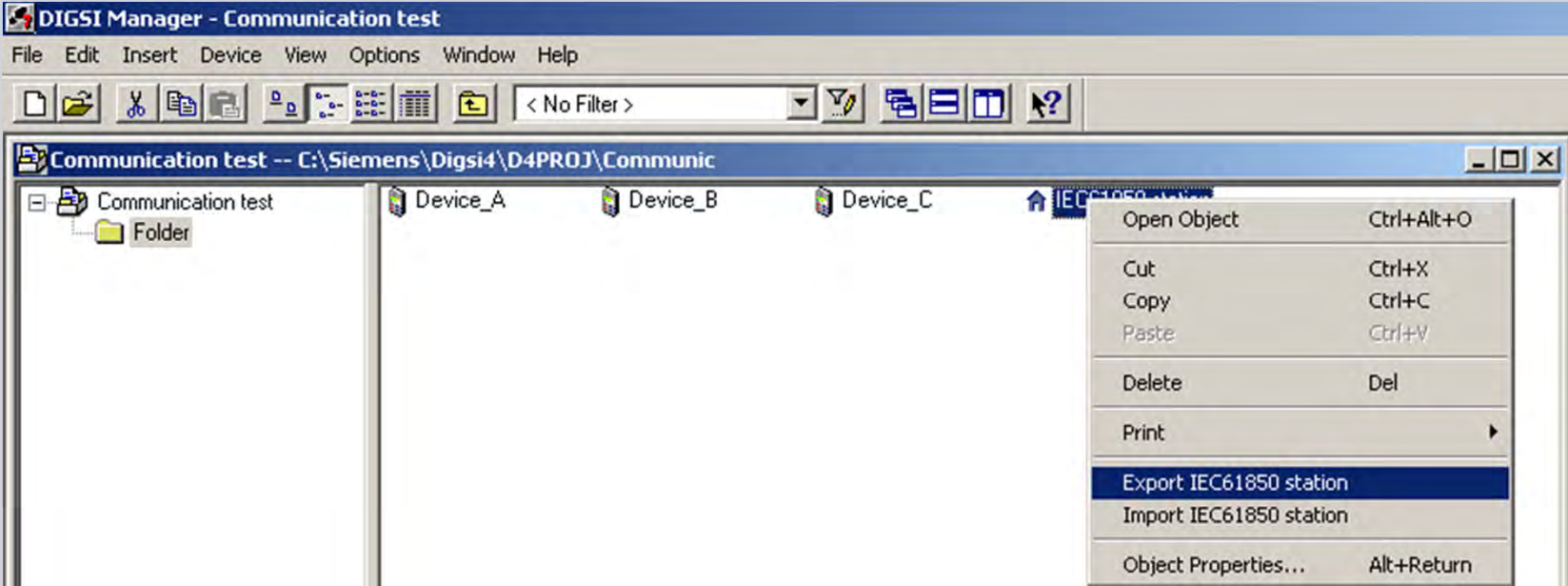
At the end, the individual parameter sets have to be transmitted to the protection devices



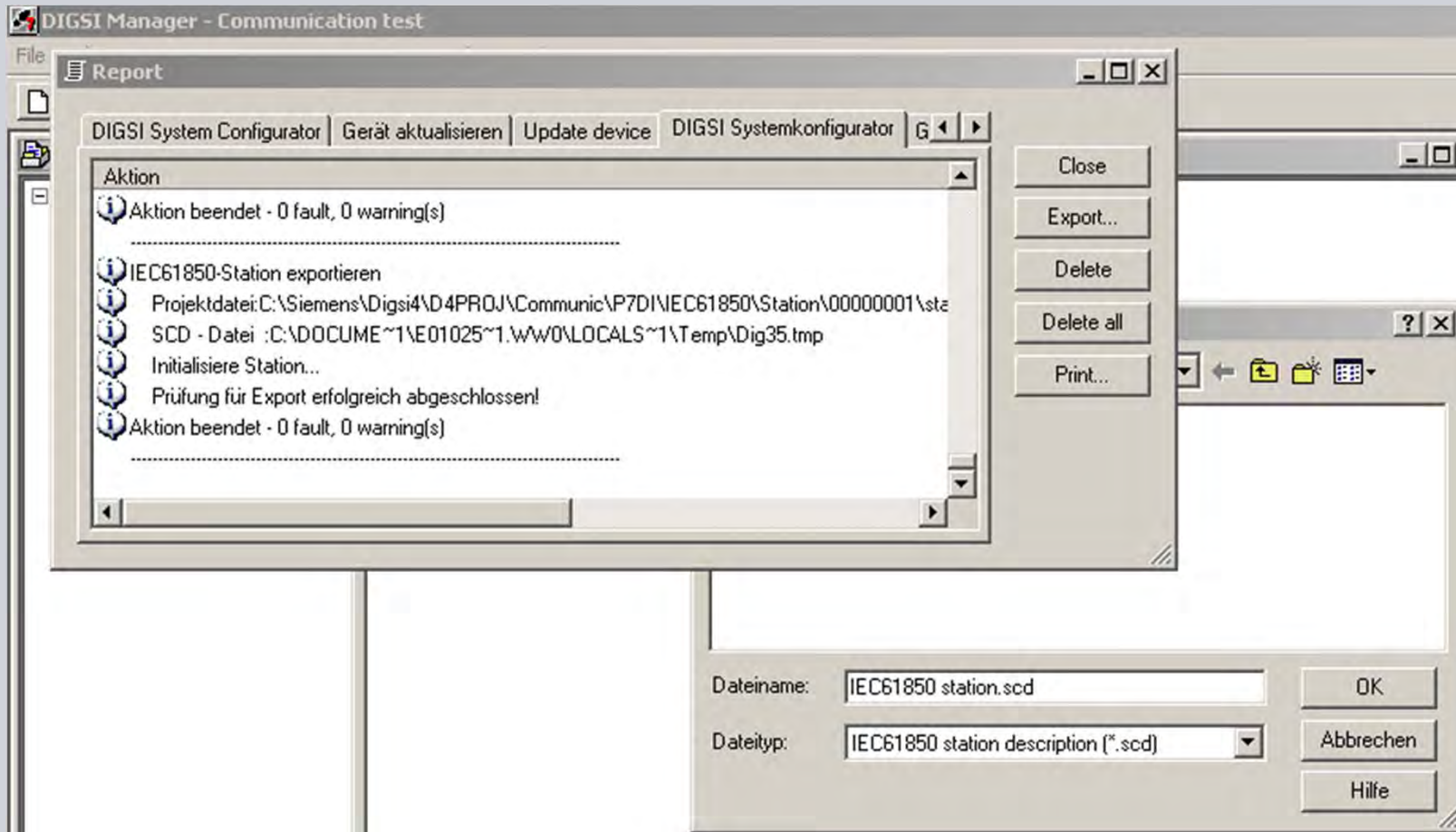
Checking the communication...



Exporting an IEC61850 station



Exporting an IEC61850 station, Report



Indication of the quality of the LAN connection

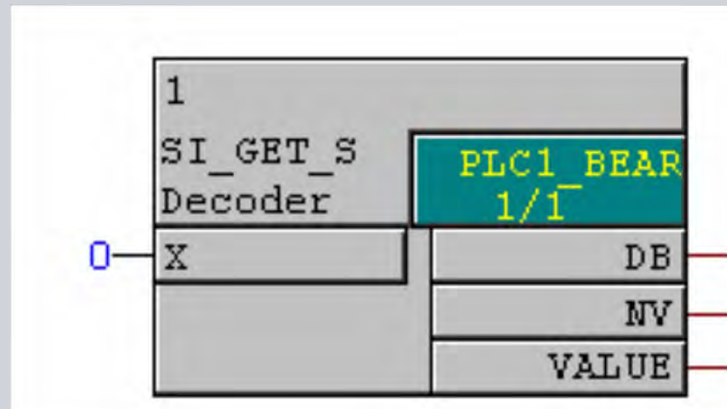
Extended the example: Check the LAN-connection by using the quality-information of the received GOOSE message in device B

Information				Source					Destination																	
No.	D	Long text	Type	BI	F	S	C	BO	LEDs														B	S	X	
									1	2	3	4	5	6	7	8	9	10	11	12	13	14				
Anwenderdef.		Fkey LED	ExSP			X			U																	X
		LAN ok	IntSP				X		U																X	
Device																										
EN100-Modul 1																										
P.System Data 1																										
Osc. Fault Rec.																										
P.System Data 2																										
Overcurrent																										
Measur em. Superv																										
Cntrl Authority																										
Control Device																										
Process Data																										
Measurement																										
Set Points[MV]																										

Indication of the quality of the LAN connection

Interrogation of the message status in CFC

The status of the IEC61850 annunciation obtained from the system interface is checked in CFC. For this purpose the logic module SI_GET_STATUS is provided.



The module SI_GET_STATUS decodes the status of a single point indication, whereby the structure of the single point indication routed to input X is decoded to the VALUE of the signal and the following status information:

I/O assignment:

	Name	Data type	Comment	Default selection
Inputs:	X	SIST	Single point indication with status	(0)
Outputs:	DB	BOOL	Chatter Blocking Chatter block is active (binary input is blocked).	0
	NV	BOOL	Not updated The value is not current. E.g. after start-up, communication failure, not configured (or configured to a non-existing or defective module).	0
	VALUE	WORD	Single point indication	16#0000

The output NV generates a signal NV=1, when the annunciation is no longer updated (update at second intervals). The signal from the NV output can then be routed to a LED or output contact. The module SI_GET_STATUS can be applied in all process layers.

At this point it is worth mentioning that the status of double point indications can also be interrogated in CFC. For this purpose CFC provides the module DI_GET_STATUS.

Result:

As long as the communication is functioning between the devices, the present state of the bus release annunciation can be obtained without ambiguity. A communication failure results in the appearance of the status NV message via CFC.

Thank you very much for your attention.