Training Document for Comprehensive Automation Solutions Totally Integrated Automation (T I A)

MODULE E10

Component Based Automation (CBA)

with

2x CPU 315F-2 PN/DP

and

iMAP

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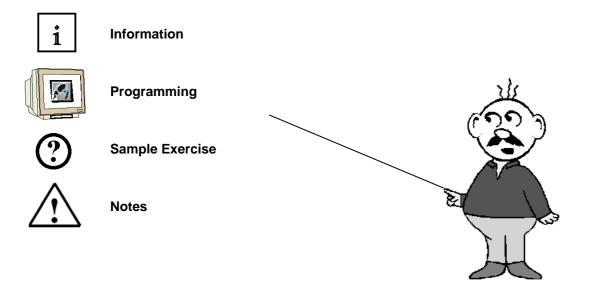
We would like to thank the following: Michael Dziallas Engineering, the teachers at vocational schools, and all others who helped to prepare this document.

T I A Training Document Issued: 02/2008

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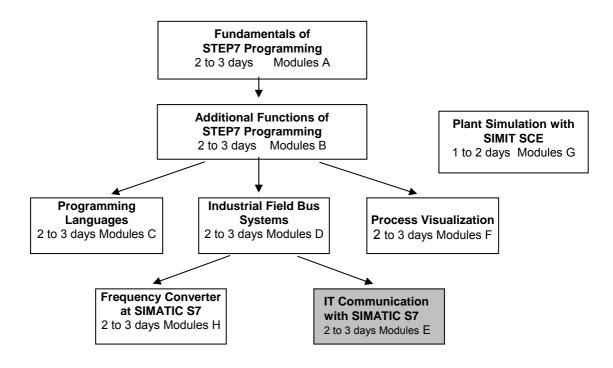
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The following symbols are provided as a guide through Module E10:



1. PREFACE

In terms of its contents, Module E10 is part of the teaching unit entitled '**IT Communication with SIMATIC S7**'.



Learning Objective:

In Module E10, the reader learns networked how two stations can be generated as CBA components, in order to be networked with IMap into an overall project. The two stations CPU 315F-2 PN/DP are used as PLCs. They are interconnected by means of PROFINET. Module E10 shows the method in principle, using a brief example.

Prerequisites:

To successfully work through Module E10, the following knowledge is assumed:

- Knowledge in handling Windows
- Fundamentals of PLC programming with STEP 7 (for example, Module A3 'Startup' PLC Programming with STEP 7)
- Fundamentals of network engineering (for example, Appendix V Basics of Network Engineering)

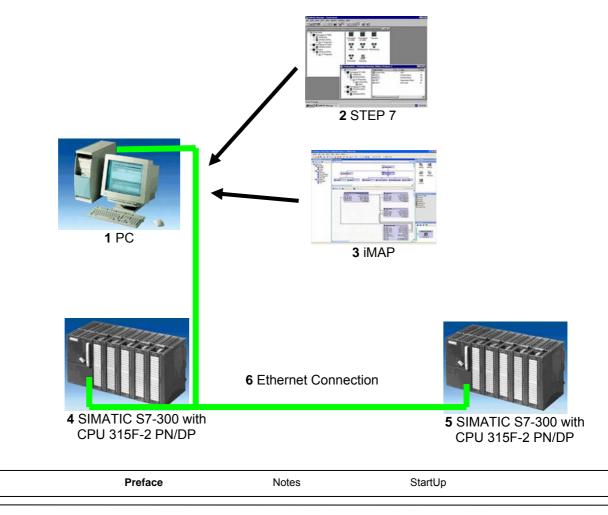
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Hardware and software required

- 1 PC, operating system Windows 2000 Professional starting with SP4/XP Professional starting with SP1/Server 2003 with 600MHz and 512RAM, free hard disk storage 650 to 900 MB, MS Internet Explorer 6.0 and network card
- 2 Software STEP7 V 5.4
- 3 Software iMAP V3.0
- 4 PLC SIMATIC S7-300 with CPU 315F-2 PN/DP and at least one digital input and output module

Sample configuration:

- Power supply: PS 307 2A
- CPU: CPU 315F-2 PN/DP
- Digital inputs: DI 16x DC 24V
- Digital outputs: DO 16x DC 24V/0.5A
- **5** PLC SIMATIC S7-300 with CPU 315F-2 PN/DP and at least one digital input and output module:
 - Sample configuration:
 - Power supply: PS 307 2A
 - CPU: CPU 315F-2 PN/DP
 - Digital inputs: DI 16x DC 24V
 - Digital outputs: DO 16x DC 24V/0.5A
- 6 Ethernet connection between PC and CPUs 315F-2 PN/DP



NOTES ON USING THE CPU 315F-2 PN/DP 2.

i

The CPU 315F-2 PN/DP is a CPU that is shipped with 2 integrated interfaces.

The first interface is a combined MPI/PROFIBUS-DP interface that can be used on the PROFIBUS DP as master or as slave for connecting distributed IO/field devices with very fast response timing.

In addition, the CPU can be programmed here by means of MPI or PROFIBUS DP.

- The second interface is an integrated PROFINET interface. It allows for using the CPU as a PROFINET IO controller for operating distributed IO on the PROFINET. Also, the CPU can be programmed by means of this interface!
- Fault tolerant IO devices can also be used on both interfaces.

Notes:

- In Module E10, the CPU 315F-2 PN/DP is used as controller in a CBA component on the PROFINET.
- To operate this CPU, a micro-memory card is required!
- The addresses of the input and output modules can be parameterized at this CPU.

3. NOTES ON COMPONENT BASED AUTOMATION (CBA) AND IMAP



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4. STARTING UP A CBA-PROJECT WITH 2X CPU 315F-2 PN/DP



Below, the startup of a CBA project with two stations is described. A CPU 315F-2 PN/DP is used in both stations as controller.

To test the configuration, a program is written in which from each station, the application can be started and stopped also in the other station.

A started application is indicated here representatively with a lamp.

Assignment List Station1:

10.0	S11_Start	Button Plant(s) Start1
I 0.1	S12_Stop	Button Plant(s) Stop1 (break contact)
O 4.0	P11_Start	Display Plant1 started

Assignment List Station2:

10.0	S21_Start	Button Plant(s) Start2
I 0.1	S22_Stop	Button Plant(s) Stop2 (break contact)
O 4.0	P21_Start	Display Plant2 started



 The central tool in STEP 7 is the 'SIMATIC Manager'. It is called here with a double click. (→ SIMATIC Manager)



 STEP7 programs are managed in projects. We are now setting up such a project. (→ File → New)

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Beenden	Alt+F4		



The project is now assigned the 'Name' 'CPU315F_CBA_iMAP' (→ CPU315F_CBA_iMAP → OK)

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4. Highlight your project and insert an 'Industrial Ethernet Subnet' (→ CPU315F_CBA_iMAP → Insert → Subnet → Industrial Ethernet).

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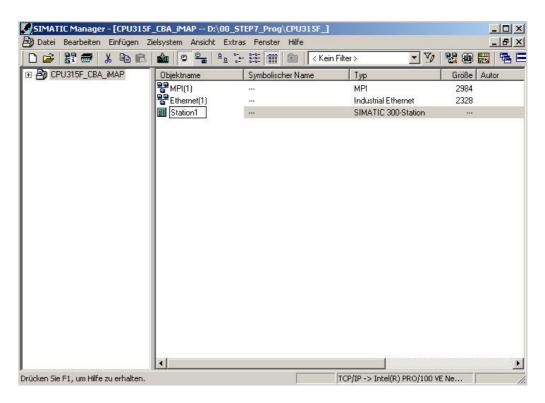
SIEMENS



5. Then, a 'SIMATIC 300 Station' is inserted. (\rightarrow Insert \rightarrow Station \rightarrow SIMATIC 300 Station)

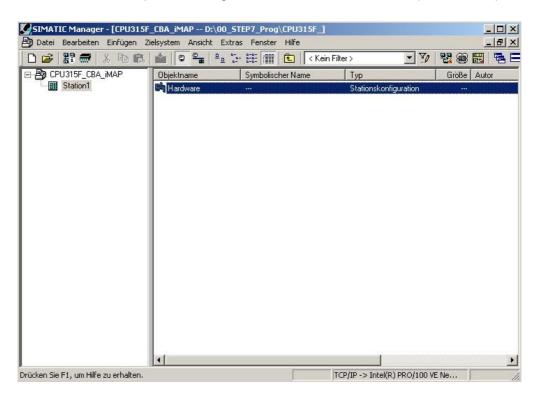
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	WinCC flexible R	т 🕨					

6. Change the name of the station to '**Station1**'. (\rightarrow Station1)



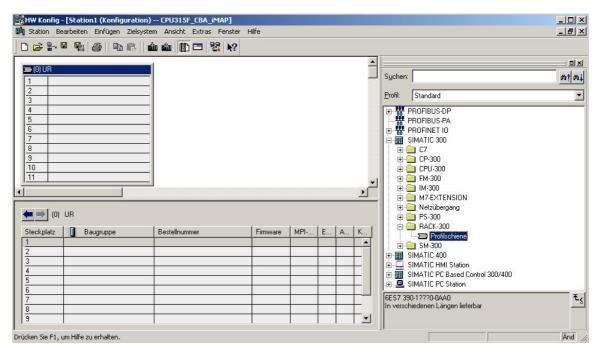
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7. With a double click, open the configuration tool for the 'Hardware'. (\rightarrow Hardware)



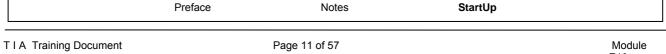
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8. Open the hardware catalog by clicking on . (→). (→).
There, arranged in the following directories:
PROFIBUS DP, PROFIBUS PA, PROFINET IO, SIMATIC 300, SIMATIC 400, SIMATIC PC Based Control, and SIMATIC PC Station, all racks, modules and interface modules are provided for configuring your hardware. Insert 'Rail' with a double click. (→ SIMATIC 300 → RACK 300 → Rail).





Note: After that, a configuration table is displayed automatically for configuring Rack 0.

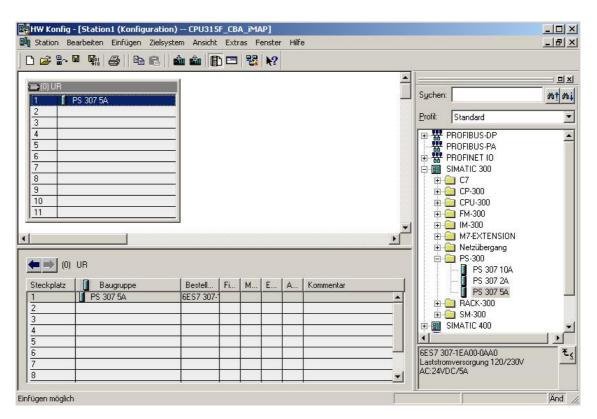




9. From the hardware catalog, you can now select all modules that are also in your real rack, and insert them in the configuration table.

To this end, click on the name of the respective module, hold the mouse key and drag the module to a line in the configuration table.

We are starting with the power unit 'PS 307 2A'. (\rightarrow SIMATIC 300 \rightarrow PS-300 \rightarrow PS 307 5A)





Note: If your hardware differs from the one displayed here, simply select the corresponding modules from the catalog and insert them in your rack. The order numbers of the individual modules -that are also indicated on the components- are displayed in the footer of the catalog.

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10. Next, we are dragging the 'CPU 315F-2 PN/DP' to the second slot. The order number and the version of the CPU can be read off the front of the CPU. $(\rightarrow$ SIMATIC 300 \rightarrow CPU-300 \rightarrow CPU 315F-2 PN/DP \rightarrow 6ES7 315-2FH13-0AB0 \rightarrow V2.6)

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11. When entering the CPU, the window below appears. In this window, do the following: Assign an 'IP Address' to the CPU 315F-2 PN/DP, specify the 'Subnet Screen Form', and select the 'Ethernet' network that has already been generated. Optional: a 'Router Address' can also be selected for network-overreaching communication.

Confirm your input with 'OK' (\rightarrow IP Address: 192.168.0.1 \rightarrow Subnet screen form: 255.255.255.0 \rightarrow Ethernet(1) \rightarrow Don't use a router \rightarrow OK)

		Bei Anwahl eines Subnetz nächsten freien Adressen	
IP-Adresse: Subnetzmaske:	192.168.0.1 255.255.255.0	Netzübergang Keinen Router verwe Router verwenden Adresse: 192.168	
Subnetz: nicht vernetzt Ethernet(1)	••		Neu
interner(n)			Eigenschaften
			Löschen



Notes on Networking on the Ethernet (additional information is provided in Appendix V of the training document):

MAC Address:

The MAC address consists of a permanent and a variable part. The permanent part ("Basis MAC Address") identifies the manufacturer (Siemens, 3COM, ...). The variable part of the MAC address differentiates the different Ethernet stations, and should be assigned uniquely world-wide. On each module, a MAC address specified by the factory is imprinted.

Value range for the IP address:

The IP address consists of 4 decimal numbers from the value range 0 to 255 which are separated by a period; for example 141.80.0.16

Value range for the subnet screen form:

This screen form is used in order to recognize whether a station or its IP address is part of the local subnet, or can be accessed only by means of a router.

The subnet screen form consists of 4 decimal numbers from the value range 0 to 255 which are separated by a period; for example, 255.255.0.0

In their binary representation, the 4 decimal numbers of the subnet screen form have to contain from the left a series of gapless values "1" and from the right a series of gapless values "0".

The values "1" determine the area of the IP address for the network number. The values "0" determine the area of the IP address for the station address.

Example:

Correct values:	255.255.0.0 decimal = 1111 1111.1111 1111.0000 0000.0000 0000 binary
	255.255.128.0 decimal = 1111 1111.1111 1111.1000 0000.0000 0000 binary
	255.254.0.0 decimal = 1111 1111.1111 1110.0000 0000.0000.00
Incorrect value:	255.255.1.0 decimal = 1111 1111.1111 1111.0000 000 <i>1</i> .0000 0000 binary

Value range for the address of the network transition (Router):

The address consists of 4 decimal numbers from the value range 0 to 255 which are separated by a period; for example, 141.80.0.1.

Relationship of IP addresses, router address, and subnet screen form:

The IP address and the address of the network transition may differ only in positions that have a "0" in the subnet screen form.

Example:

You entered: for the subnet screen form 255.255.255.0; for the IP address 141.30.0.5, and for the router address 141.30.128.1.

The IP address and the address for the network transition are to have a different value only in the 4th decimal number. In the example, however, the 3rd position already differs.

In the example, you have to change alternatively:

- the subnet screen form to: 255.255.0.0 or
- the IP address to: 141.30.128.5 or
- the address of the network transition to: 141.30.0.1

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12. Next, we are dragging the input submodule for 16 inputs to the 4th slot. The order number of the submodule can be read off the front. (\rightarrow SIMATIC 300 \rightarrow DI-300 \rightarrow SM 321 DI16xDC24V).

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<u>X2F1</u>	Fixet 1				2045*			6ES7 32	1-18H01-04A0	
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4	DI16xDC24V	6ES7 321-18H01-0AA0			01		-	16		
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infügen möglich										Änd



Note: Slot 3 is reserved for the interface modules and remains empty for that reason. The order number of the module is shown in the footer of the catalog.

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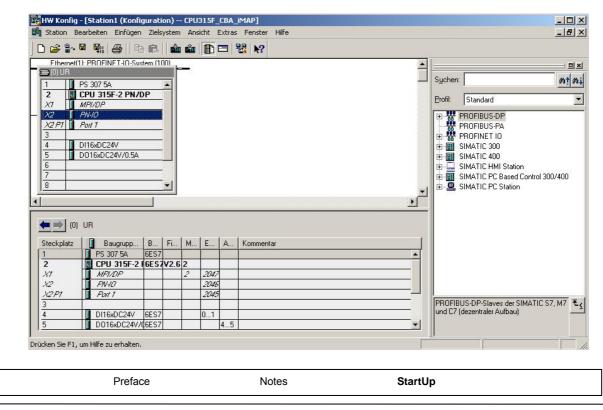
 Now we are dragging the output submodule for 16 outputs to the 5th slot. The order number of the submodule can be read off the front. (→ SIMATIC-300 → DO-300 → SM 322 DO16xDC24V/0.5A).

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Steckplatz	Baugruppe	Bestellnummer	Firmware	MPI	E-Adresse	A-Adresse	Kom			16xUC24/48V	
1	PS 307 5A	6ES7 307-1EA00-0AA0	- IIIIIIIII		2110000	11110000				32xAC120-230V/1/	
2	CPU 315F-2 PN/DP	6ES7 315-2FH13-0A	V2.6	2						32xAC120V/1A 32xDC24V/0.5A	
	MFI/DF		1	2	2047*					4xDC15V/20mA, E 🖕	4
X2	FN-10				2046*				5191 322 00	4xDCT3V720IIA, E 🖕	1
X2P1	First 1				2045*						
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l Finfügen möglich	1							D		Änd	-



Note: The order number of the module is shown in the footer of the catalog.

14. Now, the PROFINET interface has to be parameterized for CBA. With a double click, select '**PN** IO'. (\rightarrow PN IO)

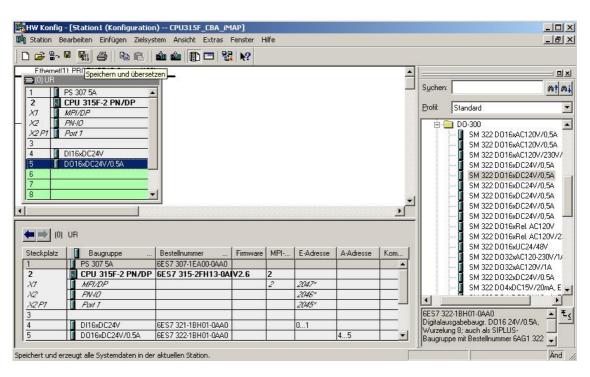




15. Under the tab '**PROFINET**', activate 'CBA Communication'. (\rightarrow PROFINET \rightarrow CBA-Communication \rightarrow OK)

Igemein Adressen PROFINET Synchronisation	Uhrzeitsynchronisation	1
Sendetakt:	1.000 💌	ms
-10-Kommunikation Kommunikationsanteil (PROFINET IO):	0.0	%
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Kommunikationsanteil (PROFINET CBA):	100.0	%
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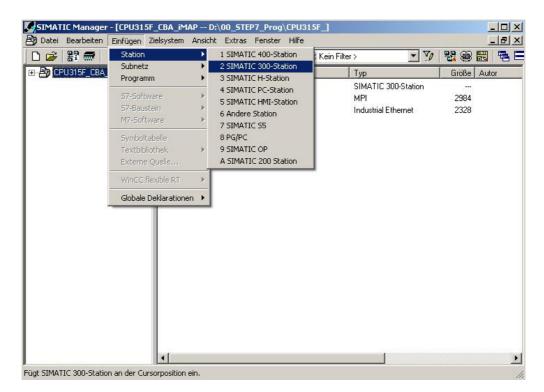
16. By clicking on (\mathbb{R}) , the configuration table is saved and compiled. (\rightarrow



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17. Then, an additional 'SIMATIC 300 Station' is inserted. (\rightarrow Insert \rightarrow Station \rightarrow SIMATIC 300 Station)



18. Change the name to '**Station2**'. (\rightarrow Station2)

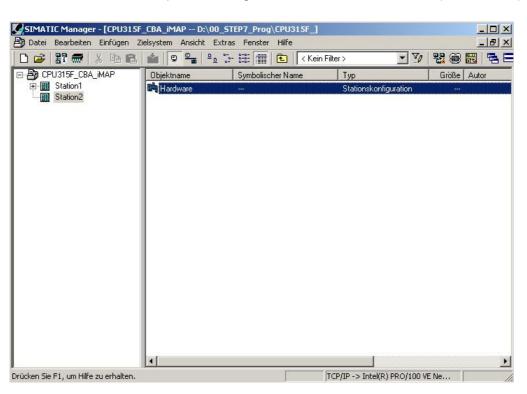
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100 CONTRACTOR 100	Station1		SIMATIC 300-Station	
	MPI(1)	3.000	MPI	2984
	Ethernet(1)		Industrial Ethernet	2328
	🔛 Station2		SIMATIC 300-Station	
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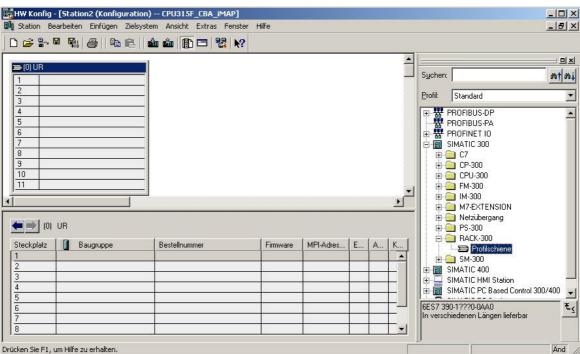


19. With a double click, open the configuration tool for the 'Hardware'. (\rightarrow Hardware)



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20. Open the hardware catalog by clicking on the symbol $\frac{1}{20}$, $(\rightarrow \mathbb{D})$ There, arranged in the following directories: PROFIBUS DP, PROFIBUS PA, PROFINET IO, SIMATIC 300, SIMATIC 400, SIMATIC PC Based Control, and SIMATIC PC Station, all racks, modules and interface modules are provided for configuring your hardware. Insert 'Rail' with a double click (\rightarrow SIMATIC 300 \rightarrow RACK 300 \rightarrow Rail).



Drücken Sie F1, um Hilfe zu erhalten



Note: After that, a configuration table for configuring Rack 0 is displayed automatically.

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21. From the hardware catalog, you can now select all modules that are also in your real rack, and insert them in the configuration table.

To this end, click on the name of the respective module, hold the mouse key and drag the module to a line in the configuration table.

We are starting with the power unit 'PS 307 2A' (\rightarrow SIMATIC 300 \rightarrow PS-300 \rightarrow PS 307 5A)

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Einfügen möglich							Laststromversorgung 120/230V AC:24VDC/5A	Änd //



Note: If your hardware differs from the one displayed here, simply select the corresponding modules from the catalog and insert them in your rack. The order numbers of the individual modules -that are also indicated on the components- are displayed in the footer of the catalog.

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22.Next, we are dragging the 'CPU 315F-2 PN/DP' to the 2nd slot. The order number and the version of the CPU can be read off the front of the CPU.

 $(\rightarrow \text{SIMATIC 300} \rightarrow \text{CPU-300} \rightarrow \text{CPU 315F-2 PN/DP} \rightarrow \text{6ES7 315-2FH13-0AB0} \rightarrow \text{V2.6})$

WHW Konfig - [Station2 (Konfigurati Wij Station Bearbeiten Einfügen Ziels		r Hilfe						<u>- 미×</u> - 리×
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>0) UR 1 F PS 307 5A 2 3 3 4 5 6 7 8 9 10 111 11					•		Standard CPU 313 CPU 313C CPU 313C-2 DP CPU 313C-2 PP CPU 313C-2 PP CPU 314 IFM CPU 314 C-2 DP CPU 314C-2 DP CPU 314C-2 PP CPU 315-2 DP	≥ <u> </u>
(0) UR Steckplatz Baugruppe 1 PS 307 5A 2 3 3 4 5 5 6 7 7 8 8	Bestellnummer 6ES7 307-1EA00-0AA0	Firmware	MPI-Adres	E A 	K	6ES7 31 Arbeitssp PROFINI	CPU 315-2 PN/DI CPU 315-2 PN/D	DP 110-0480 113-0480 w; • ₹.

23. When entering the CPU, the window below appears. In this window, do the following: Assign an 'IP Address' to the CPU 315F-2 PN/DP, specify the 'Subnet Screen Form', and select the 'Ethernet' network that has already been generated.

Optional: a '**Router Address**' can also be selected for network-overreaching communication. Confirm your input with '**OK**' (\rightarrow IP Address: 192.168.0.2 \rightarrow Subnet screen form: 255.255.255.0 \rightarrow Ethernet(1) \rightarrow Don't use a router \rightarrow OK)

llgemein Parameter	
	Bei Anwahl eines Subnetzes werden die nächsten freien Adressen vorgeschlagen
P-Adresse: 192.168.0.2 Subnetzmaske: 255.255.0	Netzübergang
	C Router verwenden Adresse: 192.168.0.2
nicht vernetzt	
Subnetz: nicht vernetzt Ethernet(1)	Adresse: 192.168.0.2

Preface	Notes	StartUp	



Notes on Networking on the Ethernet (additional information is provided in Appendix V of the training document):

MAC Address:

The MAC address consists of a permanent and a variable part. The permanent part ("Basis MAC Address") identifies the manufacturer (Siemens, 3COM, ...). The variable part of the MAC address differentiates the different Ethernet stations, and should be assigned uniquely world-wide. On each module, a MAC address specified by the factory is imprinted.

Value range for the IP address:

The IP address consists of 4 decimal numbers from the value range 0 to 255 which are separated by a period; for example 141.80.0.16

Value range for the subnet screen form:

This screen form is used in order to recognize whether a station or its IP address is part of the local subnet, or can be accessed only by means of a router.

The subnet screen form consists of 4 decimal numbers from the value range 0 to 255 which are separated by a period; for example, 255.255.0.0

In their binary representation, the 4 decimal numbers of the subnet screen form have to contain from the left a series of gapless values "1" and from the right a series of gapless values "0".

The values "1" determine the area of the IP address for the network number. The values "0" determine the area of the IP address for the station address.

Example:

Correct values:	255.255.0.0 decimal = 1111 1111.1111 1111.0000 0000.0000 0000 binary
	255.255.128.0 decimal = 1111 1111.1111 1111.1000 0000.0000 0000 binary
	255.254.0.0 decimal = 1111 1111.1111 1110.0000 0000.0000.00
Incorrect value:	255.255.1.0 decimal = 1111 1111.1111 1111.0000 000 <i>1</i> .0000 0000 binary

Value range for the address of the network transition (Router):

The address consists of 4 decimal numbers from the value range 0 to 255 which are separated by a period; for example, 141.80.0.1.

Relationship of IP addresses, router address, and subnet screen form:

The IP address and the address of the network transition may differ only in positions that have a "0" in the subnet screen form.

Example:

You entered: for the subnet screen form 255.255.255.0; for the IP address 141.30.0.5, and for the router address 141.30.128.1.

The IP address and the address for the network transition are to have a different value only in the 4th decimal number. In the example, however, the 3rd position already differs.

In the example, you have to change alternatively:

- the subnet screen form to: 255.255.0.0 or
- the IP address to: 141.30.128.5 or
- the address of the network transition to: 141.30.0.1

	Preface	Notes	StartUp	
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24. Next, we drag the input submodule for 16 inputs to the 4th slot. The order number of the submodule can be read off the front. (\rightarrow SIMATIC 300 \rightarrow DI-300 \rightarrow SM 321 DI16xDC24V).

HW Konfig - [Station2 (Konfigurati Station Bearbeiten Einfügen Ziels		110	Hilfe						×
			T III C						
	0.07 (A.Sannia, U.S 577 - 577	NY .				(and	<u></u>		
Ethernet(1): PROFINET-IO-Sustem (1) (0) UR						-		¥	크고
1 PS 307 5A	1						Suchen:		mt mi
2 CPU 315F-2 PN/DP							-	1	
X1 MPI/DP							Profil:	Standard	-
X2 PN-10-1								🗄 🦲 DI-300	
X2 P1 Port 1									DI16xAC120/230
3									DI16xAC120V
4 DI16xDC24V									DI16xAC120V
6]								DI16xDC24V DI16xDC24V
7									DI16xDC24V
8	1								DI16xDC24V
	-1					- + -		- 🚺 SM 321	DI16xDC24V
								10 11 🔛 🔤	DI16xDC24V
🗲 🔿 (0) UR									DI16xDC24V -
									DI16xDC24V, Alar DI16xDC24V, Alar
Steckplatz Baugruppe .	Bestellnummer	Firmw	MPI-Ad	E-Adresse	A-Adresse	Ko			DI16xDC24V, Alar DI16xDC24V, Alar
1 🚺 PS 307 5A	6ES7 307-1EA00-0AA0								DI16xDC48-125V
2 CPU 315F-2 PN/D	P 6ES7 315-2FH13-0A	V2.6	2						DI16xDC48-125V
XT NFV/DF			2	204,7*				- SM 321	DI16xNAMUR 🔍
X2 FN+I0-1	-	-		2046*			4	1 1 1	
<u>X2F1 I</u> Part 1 3		-		2045*			6ES7 32	1-1BH01-0AA0	.
4 DI16xDC24V	6ES7 321-18H01-0AA0		-	01		_	Digitaleir	ngabebaugr. DI16 24	V, Wurzelung
5	00011021-101101-0440			01		-	16		_
		1					J		
ügen möglich									Änd

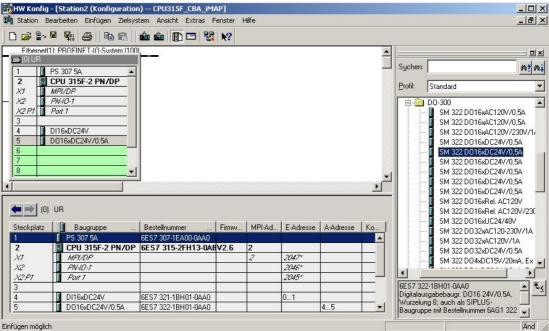


Note: Slot 3 is reserved for interface modules and remains empty for that reason. The order number of the module is shown in the footer of the catalog.

	Preface	Notes	StartUp	
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- 25. Next, we are dragging the output submodule for the 16 outputs to the 5th slot. The order number of the submodule can be read off the front.
 - $(\rightarrow \text{SIMATIC-300} \rightarrow \text{DO-300} \rightarrow \text{SM 322 DO16xDC24V}/0.5\text{A}).$

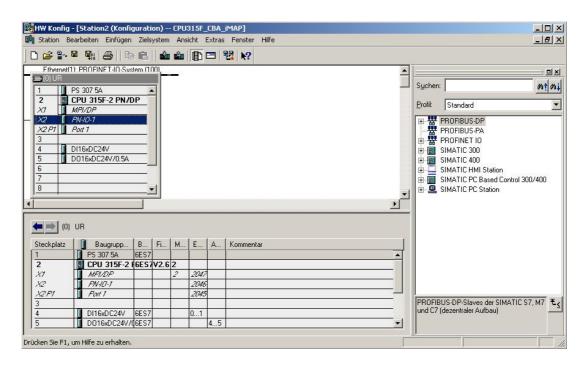






Note: The order number of the module is displayed in the footer of the catalog.

26. Now, the PROFINET interface for CBA has to be parameterized. With a double click, select '**PN-IO**'. (→ PN-IO)



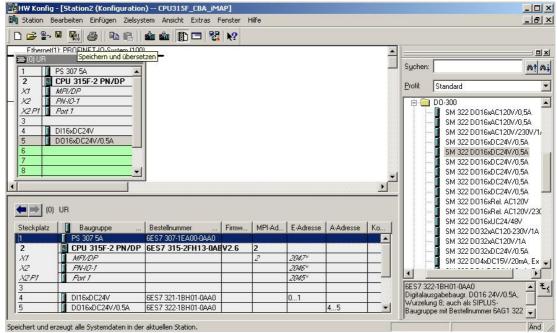
	Preface	Notes	StartUp	
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27. Under the tab '**PROFINET**', activate '**CBA Communication**'. (\rightarrow PROFINET \rightarrow CBA Communication \rightarrow OK)

emein Adressen PROFINET Synchronisation	Uhrzeitsynchronisatior	ו
Sendetakt:	1.000 💌	ms
IO-Kommunikation		
Kommunikationsanteil (PROFINET IO):	0.0 💌	%
CBA-Kommunikation		
Diese Baugruppe für PROFINET CBA-Kommun	ikation verwenden	
Kommunikationsanteil (PROFINET CBA):	100.0	%
Möglicher QoS bei zyklischen Verschaltungen:	10 - 1000	ms
🗖 0B 82 / PeripheralFaultTask - Aufruf bei Komm	nunikationsalarm	

28. By clicking on 1, the configuration table is saved and compiled. (\rightarrow



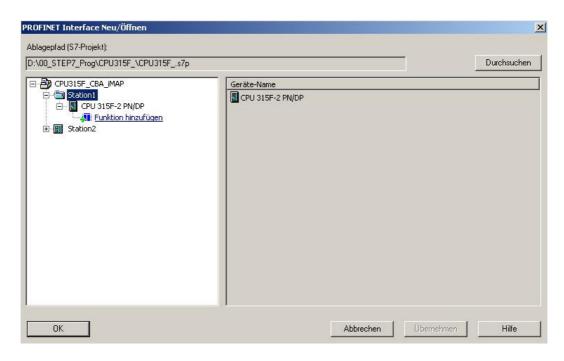
Preface Notes StartUp



29. To make communication of Station1 with other stations by means of CBA possible, we have to generate a PROFINET interface 'Generate PROFINET Interface'. (→ Station1 → Generate PROFINET Interface)

SIMATIC Manag	SIMATIC Manager - [CPU315F_CBA_iMAP D:\00_STEP7_Prog\CPU315F_]							
🞒 Datei Bearbeite	en Einfügen Zielsystem Ansicht	t Extras Fenster Hilfe		_ & ×				
🗅 😅 🎛 🛲	X 🖻 🖻 🏙 🔍 🐾	P b b b b b b b b b b b b b b b b b b b	› 💽 🏹	11 (10 11 11 11 11 11 11 11 11 11 11 11 11 1				
🖻 🎒 CPU315F_CB	BA_iMAP Objektname	Symbolischer Name	Тур	Größe Autor				
⊡ <mark>₩ Station1</mark> ⊕ <mark>N</mark> CPI	Objekt öffnen	Ctrl+Alt+O	Stationskonfiguration CPU					
i≐⊶i∰ Station. i±⊶i∭ CPI	Ausschneiden	Ctrl+X						
	Kopieren	Ctrl+C						
	Einfügen	Ctrl+V						
	Löschen	Del						
	Zielsystem	۲						
	Drucken	•						
	Pläne							
	Umbenennen	F2						
	Objekteigenschaften	Alt+Return						
	PROFINET-Interface erstellen							
	PROFINET-Komponente erstellen							
	•			•				
PROFINET-Interface (erstellen			11				

30. Select the 'Add function'. (\rightarrow Add function)



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E10

31. Click on the right mouse key, and select '**Rename function**'. (\rightarrow Rename function)

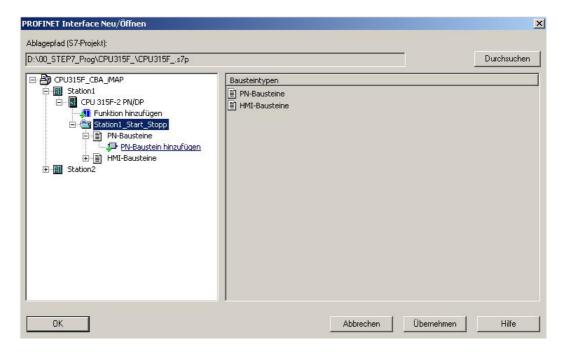
PROFINET Interface Neu/	'Öffnen				x
Ablagepfad (S7-Projekt):					
D:\00_STEP7_Prog\CPU3	15F_\CPU315Fs7p				Durchsuchen
CPU315F_CBA_IMA Station1 CPU 315F-2 Funktio Trunktio Trunktio Trunktio	2 PN/DP n hinzufügen	ien			
ОК			Abbrechen	Übernehmen	Hilfe

32. Rename the station 'Station1_Start_Stop'. (\rightarrow Station1_Start_Stop)

PROFINET Interface Neu/Öffnen				×
Ablagepfad (S7-Projekt):				
D:\00_STEP7_Prog\CPU315F_\CPU315Fs7p				Durchsuchen
CPU315F_CBA_IMAP Station1 CPU 315F-2 PN/DP Station1 Start_Stopp Station1 Start_Stopp HN-Bausteine Station2	Bausteintypen			
ОК		Abbrechen	Übernehmen	Hilfe

	Preface	Notes	StartUp	
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33. Then select 'Add PN block'. (\rightarrow Add PN block)



34. Assign 'DB10' as name und, as shown, a 'Symbolic name' and 'Symbol comment'. (\rightarrow DB10 \rightarrow OK)

Name und Typ:	DB10	Global-DB	•	Ŧ
Symbolischer Name:	CBA_Start_Stopp			
Symbolkommentar:	Start-Stopp-Vernetzu	ung zwischen	den Stationen	
Erstellsprache:	DB			
Projektpfad:				
Speicherort des Projekts	D:\00_STEP7_Prog	NCPU315F_		
Erstellt am:	Code 04.03.2008 22:45:00	í.	Schnittstelle	
Zuletzt geändert am:	04.03.2008 22:45:00	i.	04.03.2008 22:45:00	
Kommentar:				4

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	Dama 20 of 57		Madula

35. Highlight '**DB10**', and by clicking on the arrow pointing up, assign a block ('**Baustein zuordnen**'). (→ DB10)

PROFINET Interface Neu/Öffnen						×
Ablagepfad (S7-Projekt):						
D:\00_STEP7_Prog\CPU315F_\CPU315Fs7p						Durchsuchen
E-B CPU315F_CBA_IMAP	Zugeordnet	e PN-Bausteine				
Station1 CPU 315F-2 PN/DP Station1 Funktion hirzufügen Station1_Start_Stopp Station1_Busteine PN-Baustein hirzufügen HML-Bausteine	Baustein	Symbolischer Name	Zugehöri	ger FB akt	IV PROFIN	ET-Eigenschaft
E Station2			•	.		Öffnen
	Verfügbare I		Baustein z	uordnen		
	Baustein	Symbolischer Name	zugenon	yer rojakt		ET-Eigenschaft
	- DB10	CBA_Start_Stopp			J	
ОК			Abbrechen	Überne	hmen	Hilfe

36. After '**DB10**' is entered as assigned PN block ('**Zugeordneter PN- Baustein**'), '**Open**' it. (→ DB10 → Öffnen)

PROFINET Interface Neu/Öffnen					×
Ablagepfad (S7-Projekt):					
D:\00_STEP7_Prog\CPU315F_\CPU315Fs7p					Durchsuchen
CPU315F_CBA_IMAP		PN-Bausteine			
E Station1	Baustein	Symbolischer Name	Zugehöriger FB	aktiv PROF	FINET-Eigenschaft
CPU 315F-2 PN/DP	DB10	CBA_Start_Stopp			
Station1_Start_Stopp					
PN-Bausteine					
DB10	1				
HMI-Bausteine 					Öffnen
			1 -	1	
	_ Verfügbare B	austeine			
	Baustein	Symbolischer Name	Zugehöriger FB	aktiv PROF	FINET-Eigenschaft
6 S					
			12 M		
ОК		Abb	orechen Ü	bernehmen	Hilfe

	Preface	Notes	StartUp	
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37. Now, declare the variables '**PN_Input**', '**IN_Start**' and '**IN_Stop**' in the format '**Bool**'. (\rightarrow IN_Start \rightarrow IN_Stop)

) 🚅 📕 👗 🖻 🔁 🗳 :						
erface - Normal	and a second support of the second second second second	FINET Interface-I				Station1_Start_Stopp
PROFINET Interface-DB	Name IN Start	Datentyp Bool	Adresse 0.0	Verschaltbar HM		IN_Start BOOL UI1 Lifestate
PN_Input PN_Output	IN_Stopp	Bool	0.0	✓✓		IN_Stopp BOOL
		BUUI	0.1			
- Nicht_zugeordnet						
par Michic_20georanec					- 11	
					- 11	
					- 11	
					- 11	
					- 11	

38. Then, declare the variables '**PN_Output**', '**OUT_Start**' and '**OUT_Stop**' in the format '**Bool**'. (\rightarrow OUT_Start \rightarrow OUT_Stop)

PROFINET Interface-Editor - [PF		B10 CPU313	5F_CBA_iMAP\	Station1\CPU 315F	-2 PN/DP]		
📕 Datei Bearbeiten Ansicht Fens							_ 8 :
D 🗲 🖬 👗 🖻 🛍 🚳 🕷	≥						
Interface - Normal	Inhalt von: 'PROF	INET Interface-	DB\PN_Output'			Station1 Start Stopp	
	Ilame	Datentyp Bool	Adresse 2.0	Verschaltbar H		IN Stopp BOOL BOOL OUT	
IN_Start	1 OUT_Stopp	Bool	2.1		Ī	UI1 Life	
□ IN_Stopp □ PN_Output □ PN_Output □ OUT_Start □ OUT_Start □ ST_Variable □ Nicht_zugeordnet	1				×		

	Preface	Notes	StartUp	
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39. 'Save' the interface and check CBA consistency by clicking on the symbol ' $^{\circ}$ '. (\rightarrow)

	inhalt von: 'PROF	NET Tebevéses f	DIDN Output			- X.	2.4
erface - NSpeichern	Name	Datentyp	Adresse	Verschaltbar HM		Station1_S	
E IP PN_Input	1 OUT_Start	Bool	2.0		•	IN_Start BOOL IN_Stopp BOOL	BOOL OUT_Start BOOL OUT_Stopp
IN_Start	🔚 OUT_Stopp	Bool	2.1				UI1 Lifestate
IN_Stopp							
E I PN_Output							
B OUT_Start							
UT_Stopp							
D- Nicht zugeordnet							
Par Anche_zagooranoe							

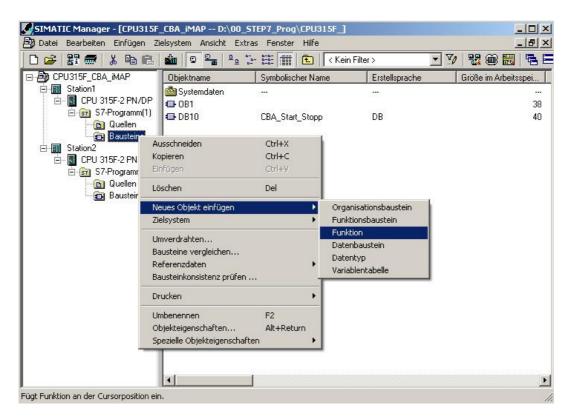
40. If the consistency check has been completed without error, close the window by clicking on ' $\underline{\times}$ '. (\rightarrow OK \rightarrow $\underline{\times}$)

Interface - Normal		NET Interface.	DRIDNL Output		
Interface - Normal PROFINET Interface-DB PROFINET IN_Start PN_output OUT_Start OUT_Start OUT_Stopp ST_Variable Nicht_zugeordnet	Inhalt von: 'PROF Itame I OUT_Start OUT_Stopp PROFINET Inte OK	Datentyp Bool Bool	Adresse 2.0 2.1 (319:417)	Verschaftbar HMI	

<<PROFINET Interface Editor (319-417) CBA consistency check of all active CBA PN blocks completed without fault>>

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41. Now, generate your user program by inserting a 'Function' in the folder 'Blocks' as a 'New object'. (→ Blocks → Insert new object → Function)



42. Assign 'FC1' as name, and as shown, a 'Symbolic Name' and 'Symbol comment'. (\rightarrow FC1 \rightarrow OK)

jenschaften - Funktion		
Allgemein - Teil 1 Allgeme	ein - Teil 2 Aufrufe Attribute	
Name:	FC1	
Symbolischer Name:	FC_Betriebsarten	
Symbolkommentar:	FC Betriebsarten Start / Stopp	
Erstellsprache:	FUP	
Projektpfad:		
Speicherort des Projekts:	D:\00_STEP7_Prog\CPU315F_	
Erstellt am:	Code 04.03.2008 22:52:36	Schnittstelle
Zuletzt geändert am:	04.03.2008 22:52:36	04.03.2008 22:52:36
Kommentar:		<u> </u>
		X
OK		Abbrechen Hilfe

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43. With a double click, open the 'Symbol' table in the folder 'S7 Program(1)'. (\rightarrow S7 Program(1) \rightarrow Symbols)

) 😅 🔡 🛲 👗 🖻 🖪		ktras Fenster Hilfe हि-हि:हि:हि: कि: ि € € € € € € € € € € € € € € € € € €	Filter > 👻 🏹	<u>_61_</u> 22 @ # 22
B CPU315F_CBA_IMAP	Objektname	Symbolischer Name	Тур	Größe Autor
🗄 🎆 Station1	🛅 Quellen		Quellordner	
🖻 - 🚺 CPU 315F-2 PN/DP	🔁 Bausteine	1975) 1975)	Bausteinordner offline	1000
⊡ 🔄 S7-Programm(1) ⊡ 🕞 Quellen	Symbole Symbole		Symboltabelle	1348
Bausteine				
⊡ 🚮 Station2				
🖻 📓 CPU 315F-2 PN/DP				
🗄 🛐 S7-Programm(2)				
🔤 Quellen				
🛄 🔂 Bausteine				
	4			

44. As shown below, enter the symbols for this station and 'Save' them. (\rightarrow \blacksquare \rightarrow \bowtie)

Spe	eichern Symbol	Adresse	Datentyp	Kommentar
1	CBA_Start_Stopp	DB 10	DB 10	Start-Stopp-Vernetzung zwischen den Stationen
2	FC_Betriebsarten	FC 1	FC 1	FC Betriebsarten Start / Stopp
3	S11_Start	E 0.0	BOOL	Taster Anlage(n) Start
4	S12_Stopp	E 0.1	BOOL	Taster Anlage(n) Stopp
5	P11_Start	A 4.0	BOOL	Anzeige Anlage gestartet
6				

	Preface	Notes	StartUp	
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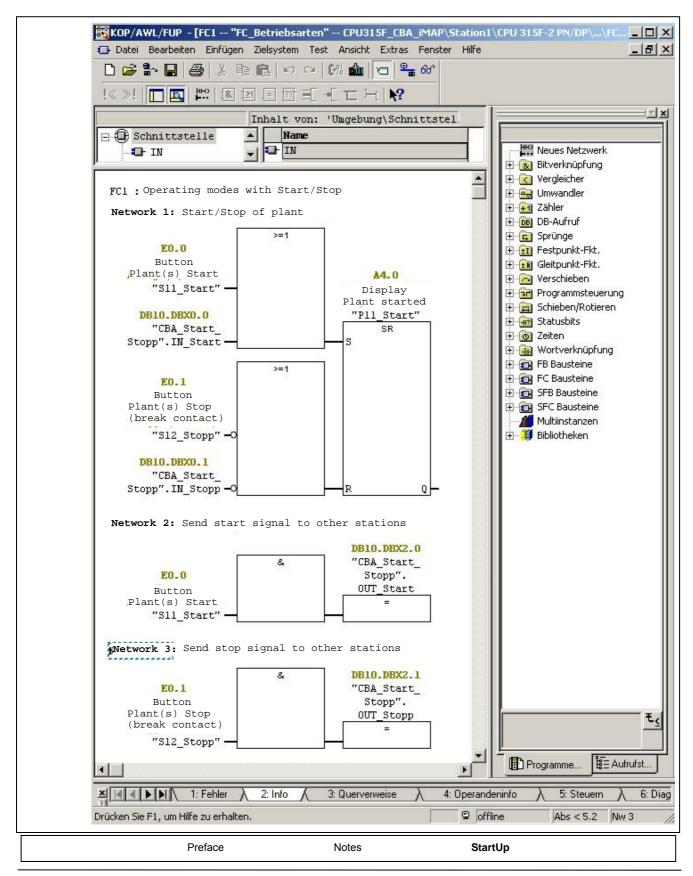
SIEMENS

🖻 Datei Bearbeiten Einfügen Zie		Fenster Hilfe	· • •	×ם۔ 5 🗗 🚟 🎯 📽
⊡ 🖉 🚡 🐨 a 🖼 🔤	Objektname	Symbolischer Name		Größe im Arbeitsspei
🖻 🔚 Station1	Systemdaten			
È-67 S7-Programm(1) ────────────────────────────────────	FC1	FC_Betriebsarten	FUP	38
Bausteine Station2 CPU 315F-2 PN/DP System System CPU 315F-2 PN/DP System CPU 315F-2 PN/DP System Syste	■ DB10	CBA_Start_Stopp	DB	40
	•			

45. Now, with a double click, open the '**FC1**' in the folder '**Blocks**'. (\rightarrow Blocks \rightarrow FC1)

Preface	Notes	StartUp

46. Generate FC1 as shown here, and 'Save' it. The variables in the PN block DB10 can be accessed using their symbolic name. (\rightarrow)



TIA Training Document

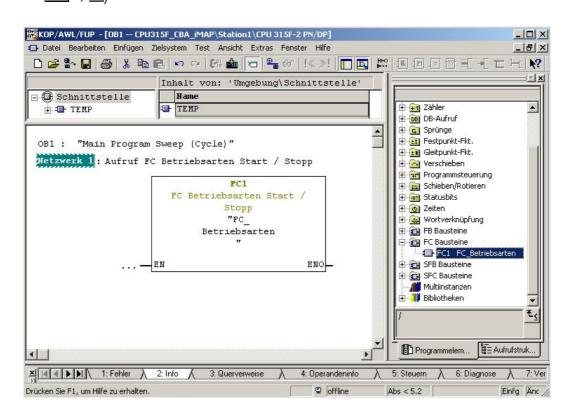
- SIMATIC Manager [CPU315F_CBA_iMAP -- D:\00_STEP7_Prog\CPU315F_] - O × 🎒 Datei Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe _ 8 × 🗋 🧀 🔡 🛲 👗 🛍 💼 🏜 😰 🏪 🏪 🏪 🏢 🔁 🛛 < Kein Filter > - 🏹 🔡 📾 📆 🖷 🚍 E B CPU315F_CBA_iMAP Objektname Symbolischer Name Erstellsprache Größe im Arbeitsspei. Station1 🚵 Systemdaten 🗄 📲 CPU 315F-2 PN/DP - OB1 38 S7-Programm(1) - FC1 FC Betriebsarten FLIF 84 🛅 Quellen 40 🖬 DB10 CBA_Start_Stopp DB 💼 Bausteine E Station2 🗄 🔲 CPU 315F-2 PN/DP S7-Programm(2) 🛅 Quellen 💼 Bausteine + Drücken Sie F1, um Hilfe zu erhalten. TCP/IP -> Intel(R) PRO/100 VE Ne...
- 47. With a double click, open 'OB1' in the folder 'Blocks'. (\rightarrow Blocks \rightarrow OB1)

48. As programming language, select '**FBD**' and confirm with '**OK**'. (\rightarrow FBD \rightarrow OK)

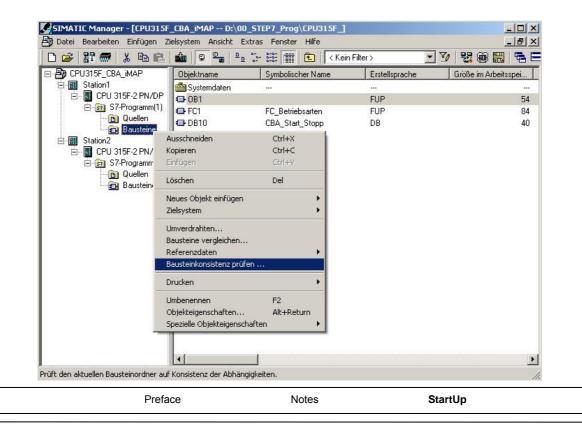
genschaften - Organisa	tionsbaustein	<u>i</u>
Allgemein - Teil 1 Allgeme	ein - Teil 2 Aufrufe Attribute	
Name:	OB1	
Symbolischer Name:		
Symbolkommentar:		
Erstellsprache:	FUP	
Projektpfad:	ſ	
Speicherort des Projekts:	D:\00_STEP7_Prog\CPU315F_	
Fistellt am	Code 04.03.2008.21:36:24	Schnittstelle
Zuletzt geändert am:	07.02.2001 15:03:43	15.02.1996 16:51:12
Kommentar:	"Main Program Sweep (Cycle)"	<u>*</u>
		<u>.</u>
OK		Abbrechen Hilfe

	Preface	Notes	StartUp	
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49. Generate OB1 also as shown here, and 'Save' it. Close the application by clicking on X. (\rightarrow

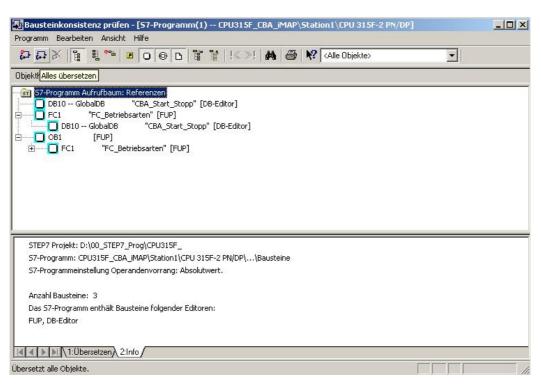


50. If DB10 is generated as PN interface, and all other program blocks are written also, check the block consistency \rightarrow . (\rightarrow Blocks \rightarrow Check block consistency)





51. By clicking on the symbol '	', select 'Compile everything'. (\rightarrow)
---------------------------------	---	--	---



52. Close all other applications that could access your blocks and confirm with 'OK'. (\rightarrow OK)

Alles Übe	ersetzen (316:4)	×
!	alle Editoren (z nachfolgender	n "Bausteinkonsistenz prüfen" verwend z.B. KOP/AWL/FUP) exklusiv für den n Übersetzungslauf. Bitte schließen Sie die bearbeiteten Quellen in den Editorer	alle
01	<	Abbrechen Hilfe	

<<The application "Check block consistency" uses all editors (for example, LAD/STL/FBD) exclusively for the following compilation run. Please close all editors or the edited sources in the editors.>>

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53. Errors and warnings of the compilation run are indicated. Now close the window. ($\rightarrow \bowtie$)

Bausteinkonsistenz prüfen - [57-Programm(1) CPU315F_CBA_iMAP\Station1\CPU 315F-2 PN/DP]	
Programm Bearbeiten Ansicht Hilfe	-
S7-Programm Aufrufbaum: Referenzen DB10 GlobalDB "CBA_start_Stopp" [DB-Editor]	
FC1 FC_Betriebsarten" [FUP]	
DB10 GlobalDB "CBA_Start_Stopp" [DB-Editor]	
OB1 [FUP] FC1 "FC Betriebsarten" [FUP]	
Start Übersetzungslauf, alles Übersetzen	
Bausteine werden übersetzt	
DB10 [DB-Editor]	
FC1 [FUP]	
OB1 [FUP]	
Generiere 57-PDIAG Objekte	
Generiere WebSDB Bausteine	
0 Fehler, 0 Warnung(en)	
1:Ubersetzen/2:Info/	
Drücken Sie F1, um Hilfe zu erhalten.	

54. Now, we have to generate the PROFINET component for '**Station1**', '**Generate PROFINET** component'. (→ Station1 → Generate PROFINET component)

CPU315F_CBA_iMAP Objekt anne Symbolischer Name Typ Größe Autor Station Imilian Ctrl+Alt+O Stationskonfiguration Imilian Imilian </th <th></th> <th>DA MAD</th> <th>i ≞≞ 📴 🏥 🏢 🔁 < Ke</th> <th>in Filter > 💽 🏹</th> <th></th>		DA MAD	i ≞≞ 📴 🏥 🏢 🔁 < Ke	in Filter > 💽 🏹	
Objekt öffnen Ctrl+Alt+O CPU Ausschneiden Ctrl+X Kopieren Ctrl+X Kopieren Ctrl+Y Löschen Del Zielsystem Image: Statum			Symbolischer Name		
Ausschneiden Ctrl+X Kopieren Ctrl+C Einfügen Ctrl+V Löschen Del Zielsystem • Pläne • Umbenennen F2 Objekteigenschaften Alt+Return PROFINET-Interface erstellen			Ctrl+Alt+O	Second and a second sec	
EINFügen Ctrl+V Löschen Del Zielsystem • Drucken • Pläne • Umbenennen F2 Objekteigenschaften Alt+Return PROFINET-Interface erstellen	E 57	Ausschneiden	Ctrl+X		
Image: Station Image: Station Image: Station Image: Sta		Kopieren	Ctrl+C		
Zielsystem > Drucken > Pläne > Umbenennen F2 Objekteigenschaften Alt+Return PROFINET-Interface erstellen	🖃 🎆 Station	Einfügen	Ctrl+∀		
Zielsystem Drucken Pläne Umbenennen F2 Objekteigenschaften Alt+Return	🗄 - 🚺 CP	Löschen	Del		
Pläne + Umbenennen F2 Objekteigenschaften Alt+Return PROFINET-Interface erstellen	57	Zielsystem	•		
Umbenennen F2 Objekteigenschaften Alt+Return PROFINET-Interface erstellen	L.	Drucken	•		
Objekteigenschaften Alt+Return PROFINET-Interface erstellen		Pläne	+		
PROFINET-Interface erstellen			F2		
		Objekteigenschaften	Alt+Return		
PROFINET-Komponente erstellen		PROFINET-Interface erstellen			
	1	PROFINET-Komponente erstelle	en la		

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55. When making the settings for the component, you can/have to assign the name of the component, the device name, and the version in the first window '**General**'. (\rightarrow General)

PROFINET-Komp	onente erstellen	
Allgemein Kompon	ententyp Funktionen Ablageorte Zusatzeigenschaften	
Komponente bilden	aus	
 der Station: 	<station1></station1>	
O einem Slave:		
Eigenschaften der K	Componente	
Name:	Station1_Start_Stopp	
Gerätename:	CPU 315F-2 PN_DP	
Version:	0.0.0	
Kommentar:	Kommentar	
Identifikation:	O Beibehalten Anzeigen	
	• Neu	10
ок	Abbrechen Hilf	3

56. In the second window, assign the following settings for the **'Component type'**. (→ Component type)

Allgemein	Komponententyp	Funktionen Ablageort	e Zusatzeigenschaften	
-Kompon	ententyp			
 Star 	ndard-Komponente			
۲	ohne Proxy-Funkti	onalität		
c	mit Proxy-Funktion	alität		
	jleton-Komponente			
- Aktualisi	erung des PN-Interf	aces n (Copy-Bausteine)		
O per	Anwenderbrogramm			
	Anwenderprogramm omatisch (am Zyklus			
				3.0

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57. The name of the function with the interface block DB10 is then displayed under the tab **'Functions'**. (\rightarrow Functions)

lgemein Komponer	tentyp Funktionen	Ablageorte Zus	atzeigenschaften
unktionen der Komp	onente und zugehöri	ge Bausteine	
Funktion	Baustein	Bausteintyp	zugehöriger FB
Station1_Start	DB10	PN-Baustein	2002

58. Under the tab '**Storage locations**', the directory for storing the component is selected. (\rightarrow Storage locations)

PROFINE	T-Komponente e	erstellen			
Allgemein	Komponententyp	Funktionen	Ablageorte	Zusatzeigens	chaften
Komponer	nte speichern in				
O Zielbib	liothek				
Dateis	ystem				
C Zielbib	liothek und Dateisy	stem			
SIMATIC i	Map-Zielbibliothek:				
c:\progra	m files\siemens\ima	p\libs\stdlib\s	tdlib, cbl	Du	irchsuchen
Ablageort d:\00_ima	im Dateisystem:			D.	ırchsuchen
<u></u>				Abbrechen	1 Hilfe

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59. Under 'Supplementary Properties', the paths for the display files are specified. Accept the component with 'OK'. (\rightarrow Supplementary Properties \rightarrow OK)

Ilgemein Komponententyp Funktionen Ablageorte Zusatze	eigenschaften
Komponenten-Icon:	
C:\Program Files\Siemens\Step7\S7data\s7cbac1x\Step7Com	Durchsuchen
Geräte-Icon:	
C:\Program Files\Siemens\Step7\S7data\s7cbac1x\Step7Dev	Durchsuchen
	Durchsuchen

60. Accept the message regarding the cycle load that may possibly be displayed with 'OK'. (\rightarrow OK)

	_CBA_iMAP D:\00_STEP7_Prog\CPU315F_] Tielsystem Ansicht Extras Fenster Hilfe		×
	💼 😨 📲 🖭 🔚 🔣 < Kei	in Filter > 💽 🏹	8885
CPU315F_CBA_iMAP	Objektname Symbolischer Name Hardware CPU 315F-2 PN/DP PROFINET Komponentenerstellung (317:4043 CPU 315F-2 PN/DP Der CPU-Parameter Zyklusbelastun Kommunikation'ist kleiner als der u Wert. Sie können den Parameter e Register Zyklus/Taktmerker' des CPU-Eigenschaftsdialoges. Wollen Stations-Name: Station1 Zyklusbelastung durch Kommunika Ja Nein	ing durch inten dargestellte instellen im i Sie fortfahren?	Größe Autor
Drücken Sie F1, um Hilfe zu erhalten.		TCP/IP -> Intel(R) PRO/100 VI	E Ne

<<The CPU parameter 'Cycle load through communication' is less than the value shown below. You can set the parameter under the tab 'Cycle/Clock Flag' in the CPU property dialog box. Do you want to continue?>>

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- 61. Repeat items 29. to 60. for Station2 with the component name: "station2_start_stop".
- 62. Now you have set up, in the selected path, the two components for both stations. Below, these are wired, parameterized, and started up with SIMATIC iMAP.

😑 🥪 Local Data Carrier (D:)
Contraction Contra
🖂 🚞 00_іМар
station1_start_stopp-{18152b9b-7c5f-4a57-85f5-e80d4cc52026}-0.0.0.0
station2_start_stopp-{5d16d0c5-e8c9-4d2f-821e-3c56f48a2b6d}-0.0.0.0
🗉 🛅 00_STEP7_Prog
Contraction Contractica Contra

63. Wit a double click, open the software 'SIMATIC iMAP' from your desktop. (\rightarrow SIMATIC iMAP)



64. First, we have to import the previously generated components **'Import components'** to the **'Project Library'** (→ Project Library → Import component)

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Arbeitsbereich	🕅 Bibliotheken 🛛 🕹
A Plansicht	Projekt-Bibliothek
	Komponente importieren
🛅 Anlagenplan	Einfügen
	Alles markieren Strg+A
	stdlib Nicht verwendete Komponenten markieren
<u> I </u>	Kyorse Ansicht
III. Anlagensicht III. Netzsicht	Automatisch Anordnen
	Eigenschaften
Tinfo Ausgaben Diagnose X	
Z Allgemein 🖉 Generieren 🖌 Online-/Offline-Vergleich 🛛 📱 Auslastung	
Referenzobjekt Zeitpunkt	
Importiert eine PROFINET-Komponente in die aktuelle Bibliothek	

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65. Select the path for the components of the first station. (\rightarrow station1_start_stop {...})

Komponente imp	ortieren				? ×
Suchen in:	🗀 00_iMap		•	+ 🗈 💣 📰 •	
Zuletzi verwendete D Desktop Eigene Dateien Arbeitsplatz				80d4cc52026}-0.0.0. c56f48a2b6d}-0.0.0.	
Netzwerkumgeb ung	Dateiname: Dateityp:	Komponente (*.xi	nl)	•	Üffnen Abbrechen Hilfe

66. Select the component and then confirm the selection with '**Open**'. (\rightarrow Station1_Start_Stop \rightarrow Open)

Komponente imp	ortieren			<u>?</u> ×
Suchen in:	C station1_start	_stopp-{18152b9b-7c5f-4a57-85 💌	🗢 🗈 💣 🎫	
Zuletzt verwendete D	Station1_Start	_Stopp		
Desktop				
Eigene Dateien				
Arbeitsplatz				
	Dateiname:	Station1_Start_Stopp	-	Öffnen
Netzwerkumgeb	Dateityp:	Komponente (*.xml)	•	Abbrechen
ung				Hilfe

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67. Select the path for the component of the 2nd station. (\rightarrow station2_start_stop {...})

Komponente imp	ortieren				<u>? ×</u>
Suchen in:	00_iMap		•	+ 🗈 📸 🖬 -	
Zuletzt verwendete D. Desktop				80d4cc52026}-0.0.0.0 c56f48a2b6d}-0.0.0.0	
Eigene Dateien Arbeitsplatz Netzwerkumgeb	Dateiname: Dateityp:	Komponente (*.xm	d)	•	Üffnen Abbrechen
ung					Hilfe

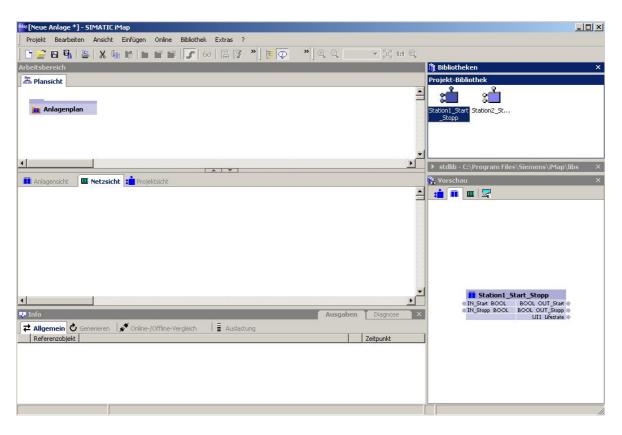
68. Select the component and confirm the selection with '**Open**'. (\rightarrow Station2_Start_Stop \rightarrow Open)

Komponente imp	ortieren			? ×
Suchen in:	Constation2_st	tart_stopp-{5d16d0c5-e8c9-4d2f-82 💌	🗢 🗈 💣 🎫	
Zuletzt verwendete D Desktop	말]Station2_St	art_Stopp		
) Eigene Dateien				
Arbeitsplatz				
	Dateiname:	Station2_Start_Stopp	•	Öffnen
Netzwerkumgeb	Dateityp:	Komponente (*.xml)	•	Abbrechen
ung				Hilfe

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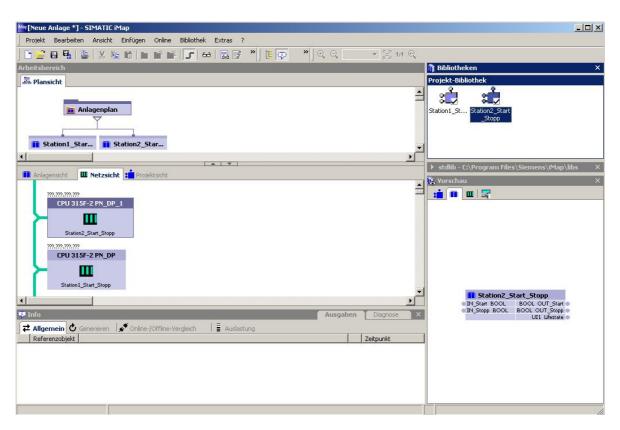
E10

69. If you now select a component in the 'Project Library', you can view its properties in the window 'Preview'. With 'Drag&Drop', drag the desired components to the 'System Plan' in the 'Plan **View'**. (\rightarrow Station1 Start Stop \rightarrow Anlagenplan)



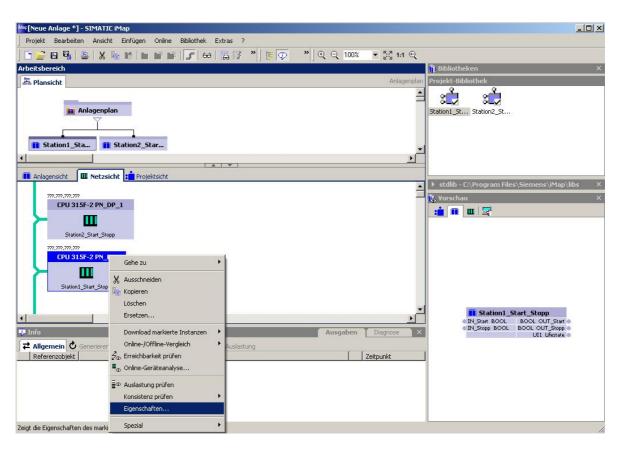
Preface	Notes	StartUp	

70. In our sample project, arrange the components 'Station1_Start_Stop' and 'Station2_Start_Stop' below the system plan. (→ Station2_Start_Stop)



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71. A few properties still have to be set for the components that are now connected to each other. To this end, with the right mouse key click first on 'Station1_Start_Stop' in the network view and select '**Properties**'. (\rightarrow Station1_Start_Stop \rightarrow Eigenschaften)



72. In the properties, under 'Addresses', assign the 'IP Address' and the 'Subnet screen form' for the controller contained in the component. (\rightarrow Addresses \rightarrow 192.168.0.1 \rightarrow 255.255.255.0)

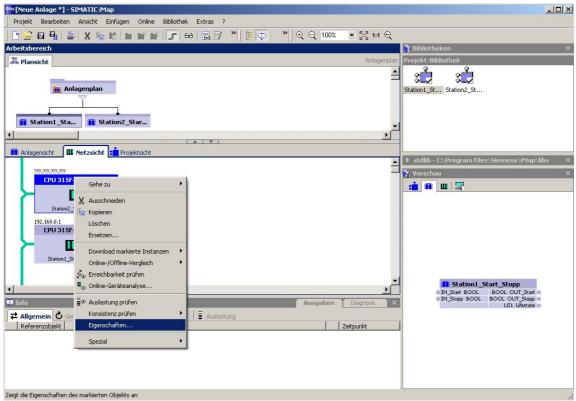
	Preface	Notes	StartUp	
	OK Abbrechen Obernehmen	Hilfe		
PROFIBUS-Adresse(n) DP-Mastersystem-Nam				
	innerhalb seines eigenen Subnetzes erreichbar.			
, Netzübergang: ☐ Router verwenden	Achtung: Ohne gültige Routeradresse ist das Ger innerhalb seines eigenen Subnetzes erreichbar.	ät nur		
Subnetzmaske:				
192.168.0.				
IP-Adresse:				

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73. Under the tab 'Internal IE devices', assign the 'Device names' and 'IP Addresses' for the IO devices that may be contained in the component. (\rightarrow Internal IE Devices \rightarrow OK)

Adressen vo	n PROFINET	IO-Geräten	ieräte Kompone	ano 1	
	0-Systemnam				
P192-168-0		j ∨ _iNa	ame automatisch v	vergeben	
	0-Controller:				
Name				IP-Adresse	
PN-IC	I.IP192-168-00	0-001		192.168.0.1	
PROFINET	0-Devices:				
Name				IP-Adresse	
_					
				1	1
				Adressen vorschlage	n

74. Now, with the right mouse key, click on 'Station2_Start_Stop' in the network view and select 'Properties'. (\rightarrow Station2_Start_Stop \rightarrow Properties)



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75. In the Properties, assign under 'Addresses' the 'IP Address' and the 'Subnet screen form' for the controller contained in the component. (\rightarrow Addresses \rightarrow 192.168.0.2 \rightarrow 255.255.255.0)

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Arbeitsbereich	s ne 24 ne szo tri ierizi tri teri en tri teri en tri teri en triz v teri teri. Mi£igenschaften	?X iotheken ×
Andersoaredun	Instanz Anschlüsse Adressen Interne IE-Geräte Komponente	t-Bibliothek
	Ethernet-Adressen	
📠 Anlagenplan	192.168.0.2	L_St Station2_St
Station1_Sta	Subnetzmaske: 255 . 255 . 255 . 0	
•	Netzübergang:	
Anlagensicht III Netzsicht Projektsicht	Chitung: Ohne gültige Routeradresse ist das Gerät nur innerhalb seines eigenen Subnetzes erreichbar.	iib - C:\Program Files∖Siemens∖iMap\libs ×
77777777777777777777777777777777777777	PROFIBUS-Adresse(n)	schau ×
	DP-Mastersystem-Name: Adresse:	
Station2_Statt_Stopp 192.168.0.1 CPU 315F-2 PN_DP		
Station1_Start_Stopp		
		Station1_Start_Stopp IN_Start BOOL BOOL OUT_Start IN_Stopp BOOL BOOL OUT_Stopp
Info		UI1 Lifestate
Referenzobjekt		
	OK Abbrechen Übernehmen H	life

76. Under the tab 'Internal IE Devices', assign the 'Device names' and 'IP Addresses' for the IO devices that may be contained in the component. (\rightarrow Internal IE Devices \rightarrow OK)

Plansicht Instanz Anschlüsse Adressen Interne IE-Geräte Komponente EBibliothek Imagenplan Adressen von PROFINET IO-Systemname: PROFINET IO-Systemname: PROFINET IO-Systemname: Station2_St PROFINET IO-Systemname: PROFINET IO-Controller: Name automatisch vergeben Station2_St PROFINET IO-Systemname: PH00-11P192-168-000-002 IP-Adresse Station2_St	Mu [Neue Anlage *] - SIMATIC iMap		
Arbeitsbereich Instanz Instanz Instanz Instanz Instanz Instanz </th <th></th> <th></th> <th></th>			
Arbeitsbereich Instanz Instanz Instanz Instanz Instanz Instanz </th <th> 🗅 🚅 🖯 🗛 🏝 X 📭 🖬 🖿 🖬 👘</th> <th>E ↔ E = > = = > + ⊖ 100% ▼ 57 1.4 ⊕</th> <th>1</th>	🗅 🚅 🖯 🗛 🏝 X 📭 🖬 🖿 🖬 👘	E ↔ E = > = = > + ⊖ 100% ▼ 57 1.4 ⊕	1
Belansicht Initiatral_Anschlusse Adlessen von PROFINET II-Gerähen PROFINET II-Controller IName PROFINET II-Controller PROFINET II-Controller IName PROFINET II-Controller PROFINET II-Controller PROFINET II-Controller <th>Arbeitsbereich</th> <th>*Eigenschaften</th> <th>iotheken ×</th>	Arbeitsbereich	*Eigenschaften	iotheken ×
PROFINET ID-Systemane: PROFINET ID-Controler: PROFINET ID-Co	A Plansicht	Instanz Anschlüsse Adressen Interne IE-Geräte Komponente	t-Bibliothek
Image: station_stat. Istation_stat. Image: station_stat. Istation_stat. Image: station_stat. Image: station_stat. <th></th> <th>Adressen von PROFINET IO-Geräten</th> <th>h</th>		Adressen von PROFINET IO-Geräten	h
Image: Station 1_Stat. If 12:168:00:002 If Name automatisch vergeben PROFINET 10-Controller: Name PROFINET 10-Device: Name PROFINET 10-Device: Name IP:Adresse PROFINET 10-Device: Name IP:Adresse II:2:168:0.1 Station 1_Stat_Stopp II:2:168:0.1 Station 1_Stat_Stopp II:2:168:0.1 Station 1_Stat_Stopp II:2:168:0.1 Station 1_Stat_Stopp II:2:168:0.1 II:2:168:0.1 Station 1_Stat_Stopp II:2:168:0.1 II:2:168:0.2 II:2:168:0.1 II:2:168:0.1 II:2:168:0.1 II:2:168:0.1 II:2:168:0.2 II:2:168:0.1 II:2:168:0.2 II:2:168:0.1	tolagennian		
iii Station1_Sta iii Station2_Star iiii Anlagensich: iii: Anlagensich: iii: Anlagensich: ii: Anlagensich: ii: Anlagensich: ii: Anlagensich: ii: Anlagensich: ii: Anlagensich: ii: CPU 315F-2 PN_DP1 ii: Station2_Start_Stopp ii: Station2_Start_Stopp ii: Station1_Start_Stopp ii: Station1_Start_Stopp Adressen vorschlagen ii: Station1_Start_Stopp II: Station1_Start_Stopp II: Station1_Start_Stopp II: Station1_Start_Stopp II: Station1_Start_Stopp II: Station1_Start_Stopp II: Station1_Start_Stopp II: Station1_Start_Stopp		P192-168-000-002 Vame automatisch vergeben	L_bt btationz_bt
Statuoni_stat. Statuoni_stat. Anlagensich: IN Netzsicht Projektsicht IP-Addresse Station_Stat.Stopp ID-C:\Program Files\Stemens\Map\lbs Info ID-C:\Program Files\Stemens\Map\lbs ID-C:\Program Files\Stemens\Map\Lbs ID-C:\Program Files\Stemens\Map\Lbs ID-C:\Program Files\Stemens\Map\Lbs ID-C:\Program Files\Stemens\Map\Lbs ID-C:\Program Files\Stemens\Map\Lbs ID-C:\Program Files\Stemens\Map\Lbs ID-C:\Program Files\Stemens\Map\Lbs ID-C:\Program Files\Stemens\M		PROFINET IO-Controller:	
Image: scholar and scho	Station1_Sta Station2_Star		
Image: static		PN-IU-1.IP192-168-000-002 192.168.0.2	
Image: Constraint start Station 1 Station 2 Station 2		PROFINET ID-Devices:	
CPU 315F-2 PN_DP_1 Image: Station2_State_Stopp 152:168.0.1 CPU 315F-2 PN_DP Image: Station1_State_Stopp Station1_State_Stopp Addressen worschlagen Image: Station1_State_Stopp Image: Station1_State_Stopp Addressen worschlagen Image: Station1_State_Stopp Image: State Stopp	Anlagensicht Metzsicht Projektsicht	Name IP-Adresse	lib - C:\Program Files\Siemens\iMap\libs ×
Station2_Start_Stopp 192.168.0.1 CPU 31 SF-2 PN_DP Station1_Start_Stopp Station1_Start_Stopp Station1_Start_Stopp Adressen vorschlagen Plagemein @ Generieren * Online-/Offline Referenzobjekt			schau X
Station2_State_Stopp 122_ISS.0.1 CPU 315F-2 PN_DP Image: Station1_State_Stopp Station1_State_Stopp Addressen vorschlagen P. Info Addressen vorschlagen Image: Station1_State_Stopp Addressen vorschlagen Image: Station1_State_Stopp Addressen vorschlagen Image: Station1_State_Stopp	CPU 315F-2 PN_DP_1		
192.158.0.1 CPU 31 SF-2 PN_0P Image: Station 1_Start_Stopp Station 1_Start_Stopp Adressen vorschlagen Image: Station 1_Start_Stopp Image: Station 1_Start_Stopp <th></th> <th></th> <th></th>			
CPU 31 SF-2 PN_DP Station_1_Stat_Stopp Adressen vorschlagen Station_1_Stat_Stopp Station_1_Stat_Stopp Station_1_Stat_Stopp Station_1_Stat_Stopp	Station2_Start_Stopp		
Station1_Stat_Stopp Adressen vorschlagen Image: Station1_Stat_Stopp Adressen vorschlagen Image: Station1_Stat_Stopp Image: Station1_Stat_Stopp Image: Station1_Stat_Stopp Image: Station1_State Image: Station1_State Image: Station1_State Image:			
Station1_Start_Stopp Station1_Start_Stopp Addressen vorschlagen Info ************************************	CPU 315F-2 PN_DP		
Adressen vorschlagen Adressen vorschlagen Station1_Start_Stopp N Stat BOOL BOOL BOOL BOOL BOOL OUT Store IN Stopp BOOL BOOL OUT Store UII Lifestate UII Lifestate	≻ ш		
Info IN Stat BOOL BOOL OUT State Info IN State BOOL BOOL OUT State IN State BOOL BOOL OUT State IN State BOOL BOOL OUT State IN State BOOL BOOL BOOL BOOL BOOL BOOL BOOL BOO	Station1_Start_Stopp		
In Stat BOOL BOOL BOOL BOOL BOOL OUT State ● IN State BOOL BOOL OUT State ● IN Stopp BOOL BOOL OUT State ● UII biestate ● UII biestate ●		Adressen vorschlagen	
Info			Station1_Start_Stopp
UII Lifestate. ◆ VII Lifestate. ◆ VII Lifestate. ◆ UII Lifestate. ◆			IN_Start BOOL BOOL OUT_Start
Referenzobjekt			UI1 Lifestate
OK Abbrechen Übernehmen Hilfe	Referenzobjekt		
OK Abbrechen Übernehmen Hilfe			
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			1
			//

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77. Now, change to the '**Plant View**', in order to graphically program the interconnections between the stations. (→ Anlagensicht)

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Anlagenplan Anlagenplan	Projekt-Bibliothek
Anlagenplan	Station1_St Station2_st
Anlagensicht Metzsicht Anlagenplan	
A	stdlib - C:\Program Files\Siemens\iMap\libs X
Image: Station 1_Start_Stopp BOOL OUT_Start_0 Image: Stopp BOOL BOOL OUT_Stopp 0 UTI Lifestate_0 UTI Lifestate_0	🐮 Vorschau X
Station2_Start_Stopp IN_Start BOOL BOOL OUT_Start IN_Stopp BOOL BOOL OUT_Stopp UIT Lifestate	T Station1_Start_Stopp
Tinfo Ausgaben Diagnose X	IN_Start BOOL BOOL OUT_Start IN_Stopp BOOL BOOL OUT_Stopp
Zt Allgemein & Generieren Auslastung Referenzobjekt Zettpunkt Zettpunkt 	UII Ufestate 🗢
	Neue Verschaltungen: azyklisch, mittel (500 ms) ///
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78. By clicking first on the OUT variable and then on the IN variable, you are connecting the'OUT Variables' of one station with the 'IN Variables' of the other station. The data type has to match. (for example, → OUT_Start → IN_Start)

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	Neue Verschaltungen: azyklisch, mittel (500 ms)

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79. Now, wire the two stations in our sample project as shown below. Then, click on a wired connection with the mouse, and select its properties (→ Properties)

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80. Here, you can change the speed and the failure mode of this connection. Do this for all interconnections in our project, corresponding to the figure. (→ Transmission type cyclical mean value (50ms) → Substitute value: User defined value False → OK)

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81. Save your project by clicking on the symbol ' \Box '. (\rightarrow \Box)

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82. Select a path and assign a name to the iMAP project. (\rightarrow CPU315F_CBA_iMAP \rightarrow Save)

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- SIEMENS
 - 83. By clicking on ' $\mathbf{\overline{H}}$ ', generate your project ('**Projekt generieren**'). (\rightarrow $\mathbf{\overline{H}}$)

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84. The status of generation is indicated.



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85. If your project was generated successfully -which is indicated in the 'Info' window- all devices ('Instances') can be loaded to the station simultaneously. (→ Online → Download all instances → All...)

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 - 86. The signal characteristics can be **'monitored' 'online'** in the System View. (\rightarrow Online \rightarrow Beobachten)

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