

Learn-/Training Document

Siemens Automation Cooperates with Education (SCE) | As of Version V9 SP1

PA Module P01-07 SIMATIC PCS 7 – Importing plant design data

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- SIMATIC PCS 7 Software Package V9.0 (set of 6) Order No.: 6ES7650-0XX58-2YS5
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Importing plant design data

1 Goal

Students learn to identify recurring structures and to design templates. They know the difference between a process tag type and a model. They can create and implement both. This allows the students to implement many similar process tag types or units in *PCS* **7**. They become familiar with the process object view and can use it to display parameters system-wide and change them if needed.

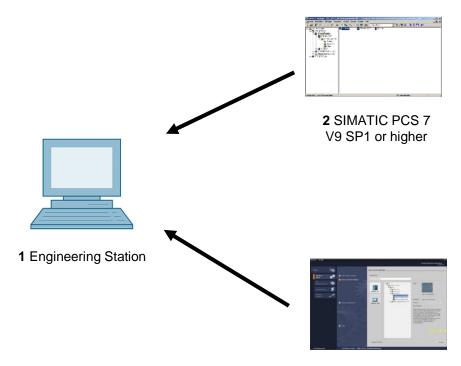
2 Prerequisite

This chapter builds on chapter 'Control loop and other control functions'. To implement this chapter, you can use an existing project from the previous chapter or the archived project 'p01-06-exercise-r1905-en.zip' provided by SCE. The download of the project(s) is stored on the SCE Internet for the respective module.

The (optional) simulation for the SIMIT program can be retrieved from the file 'p01-04-plantsimv10-r1905-en.simarc'. It can be run in Demo mode.

3 Required hardware and software

- 1 Engineering station: Requirements include hardware and operating system (for further information, see Readme on the PCS 7 installation DVD)
- 2 SIMATIC PCS 7 software V9 SP1 or higher
 - Installed program packages (contained in SIMATIC PCS 7 Software Trainer Package):
 - Engineering \rightarrow PCS 7 Engineering
 - Engineering \rightarrow BATCH Engineering
 - Runtime \rightarrow Single Station \rightarrow OS Single Station
 - Runtime \rightarrow Single Station \rightarrow BATCH Single Station
 - Options \rightarrow SIMATIC Logon
 - Options \rightarrow S7-PLCSIM V5.4 SP8
- 3 Demo Version SIMIT Simulation Platform V10



3 SIMIT V10 or higher

4 Theory

4.1 Theory in brief

In a process plant, you will find recurring objects and structures that have identical behavior, are integrated identically in the control technology and are to be represented identically in the visualization.

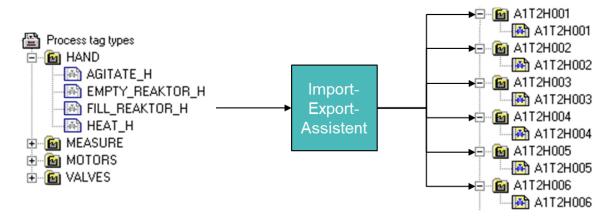


Figure 1: From the process tag type to replicas

Such an object can be stored in the project library as a process tag type. A process tag type is a single CFC. As shown in Figure 1, it is possible to use the Import/Export Assistant to create a large number of process tags as a copy of a process tag type in a single operation. This process is controlled by an import file. The process tags then have to be further manually adapted and interconnected according to the specific automation tasks.

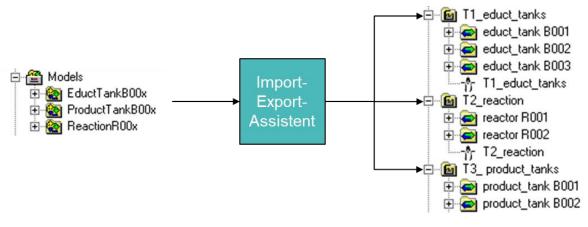


Figure 2: From the model to replicas

With *models* you define more complex functions than with process tag types (up to complete units). A model consists of hierarchy folders with CFC/SFCs, pictures, reports and additional documents. The entire structure can be stored in the project library as a reusable template. It is possible to use the Import/Export Assistant to create a large number of replicas based on an import file as a copy of a model in a single operation (see Figure 2). The replicas are then adapted to the specific requirements of the respective automation task.

The **PCS 7** libraries contain extensive *templates*. If a template is to be used multiple times, it is copied from the **PCS 7** library to the project library, adapted as required and copied using the Import/Export Assistant based on an import file.

4.2 Project structuring

When designing an automation system with PCS 7, well-proven general design principles for complex systems can be used [1]. The three most important principles are:

- Principle of hierarchical structuring
- Principle of modularization
- Principle of reuse

The principle of hierarchical structuring was already used in the structuring of the plant in chapter 'Plant hierarchy'. Through structuring into subsystems that can be processed largely independent of each other, a design problem that initially seemed unmanageable is broken down into manageable and plannable sub-tasks.

According to the principle of modularization, a system to be designed is to be made up of components (here: blocks, CFCs, SFCs) that have the following characteristics:

- The scope is manageable and easy to understand
- Largely autonomous functions that can be separately checked
- As few references to other components as possible
- Defined interfaces to other components

This results in two rivaling complexity aspects when an automation solution is broken down into individual components:

- Low inner complexity of components: The more components, the smaller and more manageable the individual components.
- High exterior complexity of components: The more components, the greater the number of connections between the components.

Hierarchical structuring and modularization are inter-dependent. While hierarchical structuring is determined more by the process plant, modularization is dominated by the process control implementation. Due to the opposing complexity aspects mentioned above and the high dependency on the specific process and automation problem at hand, early coordination of both disciplines is advantageous.

Through the plant hierarchy, *PCS* **7** supports the principle of hierarchical structuring. The principle of modularization and reuse is realized in *PCS* **7** in the import of plant design data.

In larger projects or in the case of recurring similar projects, a large number of identical or at least very similar objects and structures must often be monitored. To save configuration time and expense, it is recommended that a targeted search for suitable, recurring objects and structures be included in the concept development and design phase of an automation project. Once such objects and structures are identified, the next step is to test and implement generic solutions. It is then possible to use these generic solutions for a large number of identical or similar objects and structures. The additional effort that the preparation of the generic solution (here also called a type or template) entails should lead to considerable time and cost savings over the life of the project due to the following factors:

- A type can be implemented multiple times, which means it has multiple replicas.
- By using a type in more than one replica, multiple tests are performed at the same time.
- If errors occur or changes become necessary, the user only has to adapt the generic solution and update all replicas.

Moreover, objects and structures that are available from earlier projects and libraries can be reused. Their advantage is that they have been tried and are largely free of errors. Through the reuse of proven components, the reliability of a new automation solution also generally increases.

4.3 Process tag type

The process tag type is used as a generic solution when a project contains many similar process tags [2].

First, a CFC is prepared that contains all internal blocks and their interconnections. All input and output parameters are defined clearly as parameters or signals. This CFC with all generally valid parameters is used to generate a process tag type. The process tag-specific parameters in which the replicas differ are specified in an "import file".

During the import, the Import/Export Assistant generates the replicas of the process tag type in the specified hierarchy folders. If the hierarchy does not yet exist, it is created as well. Each replica is an instance of the process tag type and has its properties.

In **PCS 7**, the process tags (replicas) generated in this way can be specifically adapted by adding, for example, various interlocking mechanisms. Under certain preconditions, these are not overwritten even in the case of a new import.

Properties CFC chart	×
General Process Tag Type Advanced Version	_,
Name of the process tag type: Motor_Lean	
Path to process tag type : SCE_PCS7_Lib\Process tag types\\Motor_Lean	
Process tags:	
SCE_PCS7_Prj\A1_multipurpose_plant\T1_educt_tanks\educt_tank B001\\A1T1S001 SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\reactor R001\\A1T2S001 SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\reactor R001\\A1T2S003	
Clear	
OK Cancel Help	

Figure 3: Replica A1T2H003 of FILL_REACTOR_H

The following must not be changed when process tags are generated:

- Specific adaptations to the block inputs/outputs for which parameters are assigned via the import file. When a new import takes place, these adaptations will be overwritten with the parameters defined in the import file.
- Changes to the block names _

Subsequent changes can be made easily with process tag types by implementing the changes in the process tag type and the import file. The modified data is then transferred to all generated process tags by performing another import. Possible changes include:

- Addition of a parameter and assignment of this parameter via the import file.
- Deletion of all generated process tags of a process tag type (without manual deletion in the plant hierarchy)
- Addition of a block I/O and parameter assignment of the block I/O via the import file.

4.4 Model

The model is used as a generic solution when similar structures occur in the project.

As a rule, a plant is structured by breaking it down into smaller functional units whose interfaces, behavior and logic can be clearly described; for example, a tank with its instrumentation. Instead of implementing new functional units each time, there is the option to create a set of preassembled functional units (models).

So that a single version of a model can be used project wide, all models should be stored centrally in the master data library and adapted prior to generating replicas.

A model consists of hierarchy folders that contain the following elements:

- CFC/SFCs
- OS pictures
- OS reports
- Additional documents

Once a model has been configured and assigned an import file, replicas can be generated by means of an import. The following steps are executed automatically:

Step 1: The hierarchy path is read from the 'Hierarchy' column of the first row of data in the import file. A check is made to determine whether this path already exists. Additional actions depend on the result of the check:

- If the hierarchy folder exists and is already a replica of the model, the parameter settings from the import file are applied to the existing replica.
- If the hierarchy folder exists and is suitable as a replica of the model, it is made into a replica of the model with its CFC and assigned parameters based on the import file.
- If a hierarchy folder does not exist, it is created and a replica of the model is created and assigned parameters as appropriate.

Step 2: The following elements are inserted into the footer of the charts, if the columns are present:

- Function identifier (FID)
- Location identifier (LID)
- CFC name
- Chart comment

Step 3: Texts and values of the parameter descriptions and the interconnection descriptions (signals) are written to the corresponding block or chart I/Os of the replicas.

Notes:

- An interconnection is deleted when the signal name (symbol or textual interconnection) consists of the code word "---" (three dashes).
- An interconnection remains unchanged, if no interconnection name (symbol or textual interconnection) is specified.

Step 4: The data types of the I/Os for signals are determined and assigned to the interconnections.

Note:

The following applies to interconnections with shared addresses: If the 'Include signal in the symbol table' option is set, the names can be found in the symbol table of the resource of the model.

For **PCS 7** it is recommended that this option not be used because these entries are made in *HW Config* when the hardware is configured.

Observe the following rules:

- The symbol name is present in the symbol table:

The data type must be identical, and the symbol name must be unique. The data type parameters are assigned based on the block/chart I/O. The absolute address is overwritten, and the symbol comment is entered for the symbol (if present in the import file). Only the information that has changed will be overwritten, existing attributes are retained.

- The symbol name is not present in the symbol table:

The interconnection is created, and the data type parameters are assigned based on the I/O. The absolute address and the symbol comment are entered for the symbol (if present in the import file).

Step 5: The message text is imported for each message.

Then, steps 1 to 5 are repeated for each row of the import file.

If a hierarchy folder containing several models was selected, the list contains the import files, each with the model. This list can be edited if required. Finally, the import operation, as described above, is carried out for all models in the list.

4.5 Parameters and signals

In order for process tag types and models to be successfully created, it is important to define all inputs and outputs of a CFC as a parameter or signal. Only I/Os that are defined as a parameter or signal can be included as a column in the import file and assigned parameters.

4.6 Process object view

In the process object view, all basic automation data project-wide can be displayed in a process control-oriented view. Project-wide means that, in a multiproject, the data of all the projects contained in it is collected.

The structure of the process object view is similar to that of the plant view:

- The left section of the window displays the plant hierarchy as a tree structure (hierarchy window). The possible operations offered here are identical. The hierarchy window also displays the CFCs, SFCs, pictures, reports and additional documents.
- The right section displays a table of the lower-level objects with their attributes (content window). The content window has the tabs shown in Table 1 and offers different views of the project data.

Tab	Use
General	Display of all lower-level process objects (process tags, CFCs, SFCs, OS pictures, OS reports or additional documents) with their general information for the plant unit currently selected in the tree view.
Blocks	Display of the block properties of the blocks of all lower-level CFCs for the plant unit currently selected in the tree view. In this context, SFC instances are also referred to as blocks.
Parameters	Display of the I/O points that were explicitly selected for editing in the process object view (S7_edit = para) for all the process tags and CFCs displayed in the "General" tab.
Signals	Display of the I/O points that were explicitly selected for editing in the process object view (S7_edit = signal) for all the process tags and CFCs displayed in the 'General' tab.
Messages	Display of the associated messages for all the process tags, CFCs and SFCs displayed in the 'General' tab.
Picture objects	Display of the picture interconnections present in WinCC (if required) for all the process tags and CFCs displayed in the 'General' tab.

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Tab	Use
Archive tags	Display of the existing interconnected WinCC archive tags with their attributes for all the process tags, CFCs and SFCs displayed in the 'General' tab. Only those attributes that are relevant for PCS 7 (subset of all attributes defined in Tag Logging).
Hierarchy folder	Display of the hierarchy folders of the plant unit selected in the tree view (one line per hierarchy folder).
Equipment properties	Here, the equipment properties are displayed for the project selected in the tree view.
	These equipment properties are instances of equipment property types that have been configured in the shared declarations (one line for each equipment property). The attributes are applied to the instance when a type is changed.
Shared declarations	Here, you can edit the attributes of the types, enumerations, units of measure and equipment properties contained in the multiproject.

Table 1: Tabs of the process object view

4.7 References

- [1] Lauber, R. and Göhner, P. (1999): Prozessautomatisierung 2., Springer Verlag

5 Task

PCS 7 is a software that provides users with many tools for efficient programming of large plants and copying of program sections.

In this task, charts and hierarchy structures will be created as library objects. There is then the option to use them multiple times. The Import/Export Assistant and the process object view are aids for this.

The chart of the 'A1T2X001' valve is to be used here as a process tag template. All other inflow valves for the reactors are to be created using this process tag.

For the model, you take educt tank B001 and generate all other educt tanks from it.

6 Planning

The level sensors in educt tank B001 are used in the same way in educt tanks B002 and B003. The same applies to the valves and pumps located between the educt tank and reactor.

A process tag type will be created based on valve A1T2X001 and then copied for all similar valves (A1T2X002 to A1T2X006).

Block	I/O	Туре
FbkOpen	PV_In	Signal
FbkClose	PV_In	Signal
Output	PV_Out	Signal
CMP_Interlock	In1	Parameter
Permit	In01	Parameter
Protect	In01	Parameter
Valve block	OpenLocal	Parameter
Valve block	CloseLocal	Parameter
Valve block	LocalLi	Parameter

The following symbols and parameters are relevant for this:

In the second part, a complete structure will be created as a model based on educt tank B001 and then duplicated.

The following symbols and parameters are relevant for this:

CFC	Block	I/O	Туре	
A1T1L001	LSA+	PV_In	Signal	
A1T1L001 LSA-		PV_In	Signal	
A1T1S001 FbkRun		PV_In	Signal	
A1T1S001	OutStart	PV_Out	Signal	
A1T1S001	CMP_Interlock	ln1	Parameter	

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A1T1S001	CMP_Interlock	In2	Parameter
A1T1S001	OR_Local	In1	Parameter
A1T1S001	OR_Local	In2	Parameter
A1T1S001	Pump block	LocalLi	Parameter
A1T1X004	FbkOpen	PV_In	Signal
A1T1X004	FbkClose	PV_In	Signal
A1T1X004	Output	PV_Out	Signal
A1T1X004	OR_Local	In1	Parameter
A1T1X004	OR_Local	In2	Parameter
A1T1X004	Valve block	LocalLi	Parameter

Figure 54 provides an overview of the new blocks to be created by importing plant design data.

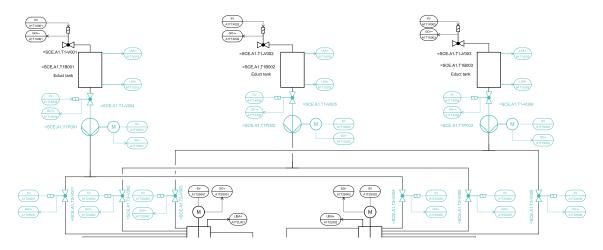


Figure 54: Portion of the P&ID flow chart to be programmed

7 Learning objective

In this chapter, students learn the following:

- Import of plant design data using the Import/Export Assistant
- Process object view
- Duplication of charts by creating process tags
- Duplication of folder structures by creating models

8 Structured step-by-step instructions

8.1 Creating a process tag type

To duplicate a previously created and tested chart, a process tag is created from it. In this example, take the valve 'A1T2X001'. Because this chart already belongs to the 'Valve_Lean' process tag type, you must first clear the connection in the object properties. (→ A1T2X001 → Object Properties)

SIMATIC Manager - SCE_PCS7_MP file Edit Insert PLC View Options Wi	ndow Help				_ [] >
D 🛩 🏭 🛲 👗 🖻 🖻 🕍 🛛	9 <u>9 9 </u>	🗄 🖽 🗈 <	No Filter >	💽 🏹 🞇 📾	🖷 🗏 🔟 🕴
😼 SCE_PCS7_MP (Plant View) C:\Prog			SCE_PCS7_MP\S	CEMP	
⊡ 😼 SCE_PCS7_MP	A1T2H001				
🖻 🎒 SCE_PCS7_Prj	A1T2L001	A1T2S001	A1T2SO	03 🌇 🙀 🖓 🖓	
Shared Declarations	A1T2X001		er la dia e		
⊡ 🗃 A1_multipurpose_plant		Open Object	Ctrl+Alt+O		
⊡ 🖻 T1_educt_tanks		Cut	Ctrl+X		
educt_tank B001		Сору	Ctrl+C		
🖻 🖻 educt_tank B002		Paste	Ctrl+∀		
⊡⊶ 🔂 educt_tank B003 ⊡⊸ 🔂 T2_reaction					
eactor R001		Delete	Del		
teactor R002		PLC	•		
⊡ i i i i i i i i i i i i i i i i i i i					
		Access Protection	•		
⊡ 🛅 product tank B002		Print	•		
⊡ 📴 T4_rinsing					
		Charts	•		
É		Plant Hierarchy	•		
🗄 💼 Shared Declarations		Process Tags	•		
- 🚰 Models		Rename	F2		
Process tag types		Object Properties	Alt+Return		
	1 1				
plays properties of the selected object for ed	liting				

2. In the 'Process tag type' tab, select the row with the valve and then click 'Clear'. The valve is removed from the list (\rightarrow Process Tag Type \rightarrow A1T2X001 \rightarrow 'Clear' \rightarrow 'OK')

Properties CFC chart X	Properties CFC chart
General Process Tag Type Advanced Version	General Process Tag Type Advanced Version
Name of the process tag type: Valve_Lean	Name of the process tag type: Valve_Lean
Path to process tag type : SCE_PCS7_Lib\Models\\Valve_Lean	Path to process tag type : SCE_PCS7_Lib\Models\\Valve_Lean
Process tags: SCE_PCS7_Pt/A1_multipurpose_plant/T1_educt_tanks/educt_tank B001//A1T1X004 SCE_PCS7_Pt/A1_multipurpose_plant/T2_reaction/reactor R001//A1T2X001 SCE_PCS7_Pt/A1_multipurpose_plant/T3_product_tanks/product_tank B001//A1T3X001	Process tags: SCE_PCS7_Pr\A1_multipurpose_plant\T1_educt_tanks\educt_tank B001\\A1T1X004 SCE_PCS7_Pr\A1_multipurpose_plant\T3_product_tanks\product_tank B001\\A1T3X001
Clear	Gear
OK Cancel Help	Cancel Help

You can then create a process tag type from 'A1T2X001' by clicking on 'Process tags' in the shortcut menu and then on 'Create/Modify Process Tag Type...'. (→ A1T2X001 → Process Tags → Create/Modify Process Tag Type...)

SIMATIC Manager - SCE_PCS7_MP							
File Edit Insert PLC View Options Window Help							
🗋 🗅 😅 🏭 🐖 👗 🗈 🛍 💼 😨	º= º= 📴 🕮 🏛 💶 <1	No Filter > 💽 🎲 🎇 🎯 🖶 🖽 🕅					
SCE_PCS7_MP (Plant View) C:\Program	m Files (x86)\\STEP7\S7Proj\S	5CE_PC57_MP\5CEMP					
📄 🗁 SCE_PCS7_Prj 🙀	CutOutCopyOutPasteOutDeleteDeletePLCAccess ProtectionPrintOutChartsPlant HierarchyProcess Tags	A1T2H008 A1T2H011 A1T2S003 A1T2T001 Ctrl+Alt+O Ctrl+X Ctrl+C Ctrl+Y Del Create/Change Process Tag Type F2 Update Alt+Return Assign/Create Import File					
		Import Export					
Starts the dialog for creating or editing the process tag type //							

4. The Create/Modify Process Tag Type dialog opens. (\rightarrow Next)

Process tags: Create process tag ty	pe - SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\reactor R0.	×
		1 (2)
	Assistant: Create/Modify Process Tag Type With the assistant, you can: Create process tag type from an existing CFC chart. Modify an existing process tag type; in other words, add or remove I/Os or messages. Check existing process tags for deviations from the process tag type. The existing process tags are compared with the process tag type and adapted to eliminate any discrepancies. The result is a process tag type that is stored in the master data library. Master data library: SCE_PCS7_Lib Image: Process tags are displayed in the SIMATIC Manager with this icon Image: Process tags are displayed in the SIMATIC Manager with this icon	
Back Next	Cancel Help	

5. First, the name of the process tag type is generalized to 'ReactorDeliveryValve' and the comment to 'Valve inlet reactor R00x from educt tank B00x'.

Process tags: Create pro	cess tag type - S	SCE_PCS7_Prj\A	1_multipurp	ose_pla	nt\T2_r	eaction\re	actor	R0 X
🌾 Which I/Os do you	want to assign to the	e process tag type?	,					2 (2)
Process tag type ReactorDeliveryValve No process tags of this type are available.								
Comment: Zuflussv	entil Reaktor R00x a	aus Edukttank B00	c					*
I/Os in the chart of the prod	cess tag type	I/O points for para	meters/signals					
A1T2X001 CMP_Interlock For FokClose FokOpen For For For For For For For For	->	Parameter/sig	sages:	Class		Cate	gory	Chart B
Back Finish		Open Chart	Print		C	Cancel	H	Help

6. Next, the parameters and signals that are to be changed for the individual replicas of the process tag type must be selected on the left side of the window. (FbkClse_A1T2X001 \rightarrow

****				ipurpose_plant\T2_reac	
Which I/O	s do you want to assign	n to the	process tag type ?		2 (2)
Process tag type	ReactorDeliveryValve		No process tags of this typ	e are available.	
Comment:	Zuflussventil Reaktor	R00x a	us Edukttank B00x		* *
I/Os in the chart (of the process tag type		I/O points for parameters/s	ignals	
FbkClos	In Slv mQB mQBSlv /alueAct ture.Bit0 ture.Bit1 ture.Bit2 ture.Bit3 ture.Bit4 ture.Bit5		Parameter/signal Parameter/signal I/O points for messages: Chart Block Subnum	Process tag connector	Category Chart E

Note:

 $PV \ln \rightarrow \xrightarrow{->}$

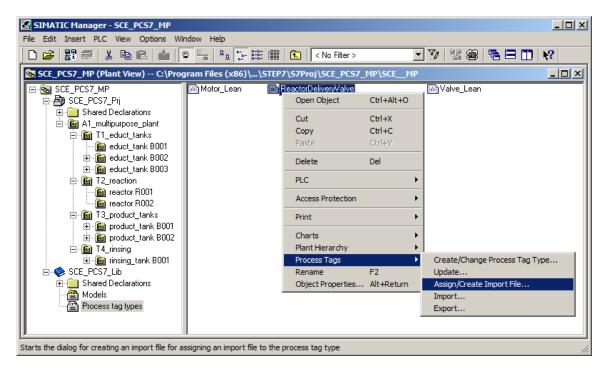
- With the 'Open Chart' button, the associated CFC can be displayed to get a better overview. (
 → Open Chart)
- 7. Now, add all signals and parameters that represent the input and output interconnections of the CFC. Signals are input and output signals and parameters are interconnections between charts. You must add the signals and parameters shown here for the inflow valves of the reactors. Then the process tag type can be finished. (→ Finish)

	Parameter/signal	Process tag connector	Category	Chart	Block	I/O name	I/O comment	Data type	I/O	Block type
1	Parameters	CMP_Interlock.In1		A1T2X001	CMP_Interlock	ln1	Analogue Value 1	STRUCT	IN	CompAn02
2	Signal	FbkClose.PV_In		A1T2X001	FbkClose	PV_In	Input value	BOOL	IN	Pcs7Diln
3	Signal	FbkOpen.PV_In		A1T2X001	FbkOpen	PV_In	Input value	BOOL	IN	Pcs7Diln
4	Signal	Output.PV_Out		A1T2X001	Output	PV_Out	Output value	BOOL	OUT	Pcs7DiOu
5	Parameters	Permit.In01		A1T2X001	Permit	In01	Input 01	STRUCT	IN	Intlk02
6	Parameters	Protect.In01		A1T2X001	Protect	In01	Input 01	STRUCT	IN	Intlk02
7	Parameters	valve_A1T2X001.OpenLocal		A1T2X001	valve_A1T2X001	OpenLocal	1=Open Local:Field Open	STRUCT	IN	VlvL
8	Parameters	e_A1T2X001.CloseLocal		A1T2X001	valve_A1T2X001	CloseLocal	1=Close Local: Field Close	STRUCT	IN	VlvL
9	Parameters	valve_A1T2X001.LocalLi	<u>l</u>	A1T2X001	valve_A1T2X001	LocalLi	1=Local Mode: Local oper	STRUCT	IN	VlvL

Which I/Os do you want to assign to the process tag type? 2 (2) Process tag type ReactorDeliveryValve No process tags of this type are available. Comment: Zuflussventil Reaktor R00x aus Edukttank B00x Image: Comment tags of this type are available.								
VOs in the chart of the process tag type V/O points for parameters/signals ManModLi.ST Image: State of the process tag connector Category Chart Block I/O name V/O comment Date Image: State of the process tag type Image: State of the process tag connector Category Chart Block I/O name V/O comment Date Image: State of the process tag connector Category Chart Block I/O name V/O comment Date Image: State of the process tag connector Category Chart Block I/O name I/O comment Date Image: State of the process tag connector Category Chart Block I/O name I/O comment Date Image: State of the process tag connector Category Chart Block I/O name I/O comment Date Image: State of the process tag connector Category Chart Block Altr valv LocalLi Il-Local Image: State Image: State								

8.2 Creating an import file

 After the process tag type is finished, it is located in the plant view in the project library under 'Process tag types'. You must now create an import file for the process tag type just created.
 (→ Process tag types → ReactorDeliveryValve → Process Tags→ Assign/Create Import File)



2. Confirm the first dialog with 'Next'. (\rightarrow Next)

Process tags: Assign/Create Import File - SCE_PCS7_Lib\Process tag types\\ReactorDeliveryValve							
K Introduction		1 (2)					
Image: state	Assistant: Assign the Import File to the Process Tag Type With the assistant, you can: Assign an import file to a process tag type. Check the assignment of the import file to the process tag type. Create a template of the import file for the process tag. All process tag types are stored in the master data library Master data library: SCE_PCS7_Lib Image: SCEC chart is stored in the master data library as a process tag.						
Back Next	Cancel Help	,					

3. First, open the chart. (\rightarrow Open Chart)

Process tags: Assign/Create Impo	rt File - SCE_PCS7_Lib\Process tag tyj	pes\\ReactorDeliveryValve						
Which import file do you want to assign to the process tag type?								
Import file: <pre>< no import file assigned ></pre> Create File Template								
		Open File						
		Other File						
Undefined I/O points in import file:	I/O points of the process tag type for parame	eters/signals:						
P Column title	1 P CMP_Interloc ✓ CMF 2 S FbkClose.PV ✓ FbkClose.PV 3 S FbkOpen.PV ✓ FbkClose.PV 4 S Output.PV_Out ✓ Output.Fbc. 5 P Permit In01 ✓ Permit In01 ✓ Messages of the process tag type: ✓	Dess tag connector Category C ▲ P_Interlock.In1 F Close.PV_In F Open.PV_In F out.PV_Out F mit In01 F						
▲ ►	Column title Importing Chart Bl	ock I/O name Subnumber Class E						
Back Finish	Open Chart Print	Cancel Help						

4. Confirm the following message. (\rightarrow Yes)

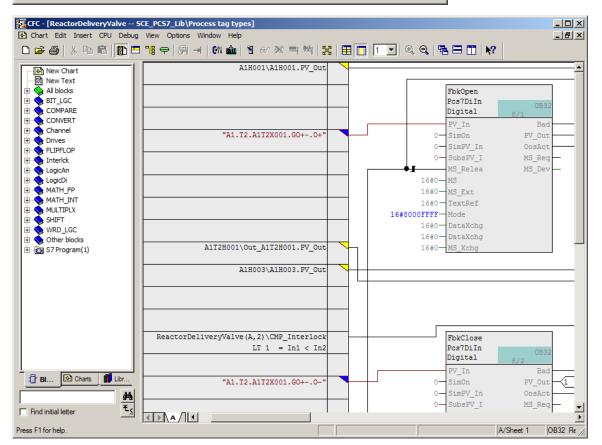
Open chart (242:831)						
Â	Do you want to start CFC and open the chart 'ReactorDeliveryValve' with block 'CMP_Interlock' and connection 'In1'?					
(Yes	No					

 You can see that all cross-chart connections are created as textual interconnections and all input and output signals with their symbolic names. You can then close the chart again. (→ Close)

Note:

- The textual interconnection A1H001\A1H001.PV_Out is structured as follows:
- A1H001 Name of the CFC
- \ Separator
- A1H001 Name of the block in the CFC
- . Separator
- PV_Out I/O of the block that is to be connected

Insert Textual Interconnection	×
Textual interconnection:	
A1T2H001\Out_A1T2H001.PV_Out	
OK	Cancel Help



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6. Next, create a new file template. (\rightarrow Create File Template...)

Process tags: Assign/Create Impo	ort File - SCE_PCS7_Lib	Process ta	g types\\Reactor[eliveryValve X
Which import file do you want to	assign to the process tag	type?		2 (2)
Import file: <a>	ed >		•	Create File Template
Undefined I/O points in import file:	I/O points of the process	ag type for pa	arameters/signals:	Other File
P Column title	P Column title P CMP_Interloc S FbkClose.PV S FbkOpen.PV 4 S Output.PV_Out F P Messages of the process		Process tag connect CMP_Interlock.In1 FbkClose.PV_In FbkOpen.PV_In Output.PV_Out Parmit In01	or Category C
4 •			t Block I/O name	Subnumber Class E
Back Finish	Open Chart	Print	Ca	ncel Help

 Assign the name p01-07-reactor-delivery-valve00-r1905-en.iea to the import file and select a memory location. (→ OK)

🛃 Create File Templat	e					×
STEP	P7 ▼ S7Proj ▼ SCE_PCS7 ▼	SCE_Lib 🔻 Global 👻	🔻 🐼 Search	n Global		2
Organize 🔻 New fold	ler				•	?
Name *		Date modified	Туре	Size		
퉬 addinfo		10.04.2019 10:32	File folder			
퉲 s7prj		04.03.2019 12:25	File folder			
						_
-	p01-07-reactor-delivery-valve	e00-r 1905-en liea				<u> </u>
Save as type:	Import/export files (*.IEA)					_
Hide Folders			S	ave	Cancel	

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8. The next step is to select the general columns that are to be displayed in the import file. (\rightarrow General \rightarrow Assigned CPU \rightarrow Chart comment \rightarrow Block name \rightarrow Block comment)

Create File Template X								
General Parameters Signals Messages								
Columns for the general and chart column group								
PH comment PH author	(PHComment) (PHAuthor)							
Assigned CPU	(CPU)							
 Function identifier Location identifier 	(FID) (LID)							
Chart name	(ChName) (ChComment)							
Chart author	(ChAuthor) (ChCycle)							
Block name Block comment Block comment	(BlockName) (BlockComment)							
Block icon Block group	(BlockIcon) (BlockGroup)							
ОК	Cancel Help							

 Then the columns to be displayed for the parameters and the signals in the import file are selected. (→ Parameters → I/O comment → Textual interconnection → Signals → I/O comment → Symbol name → OK)

Crea	te File Template	×	Cre	eate File Template		×
Ger	neral Parameters Signals Messag	es		General Parameters Signals Mess	ages	
Г	Columns for parameters column groups	·		Columns for signal column groups —		-
	Value	(Value)		☐ Value	(Value)	
	I/O comment	(ConComment)		I/O comment	(ConComment)	
	Textual interconnection	(TextRef)		Symbol name	(SymbolName)	
	ldentifier	(S7_shortcut)		Symbol comment	(SymbolComment)	
	🗖 Unit	(S7_unit)		Absolute address	(AbsAddr)	
	Text 0	(S7_string_0)		☐ Identifier	(S7_shortcut)	
	Text1	(S7_string_1)			(S7_unit)	
	Enumeration	(S7_enum)		Text 0	(S7 string 0)	
	🗖 Invisible	(S7_visible)		Text1	(S7 string 1)	
	MES relevant	(S7_mes)			(S7 enum)	
	Archiving	(S7_archive)			(S7_visible)	
	Chart I/O name	(RefName)		MES relevant	(S7_mes)	
	ОК С	ancel Help		ОК	Cancel Help	

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8.3 Editing the import file

1. The import file created in this way is then opened. (\rightarrow Open File)

Process tags: Assign/Create Import File - SCE_PCS7_Lib\Process tag types\\ReactorDeliveryValve								
Which import file do you want to assign to the process tag type? 2 (2)								
Import file: C:\Program Files (x86)\SIEMENS	\STEP7\S7Proj\SCE_PCS7_MP\SCE_LI	b\Global\p01-07-reactor-delivery-v		te File Template Open File Other File				
Undefined I/O points in import file: P Column title	1 P CMP_Interloc ✓ 2 S FbkClose.PV ✓ 3 S FbkOpen.PV ✓ 4 S Output.PV_Out ✓	-	egory Chat Block I/O name Rea CMP In1 Rea Pbk PV_In Rea Pbk PV_In Rea Output PV_Out Reas Permit In01	I/O comment Analogue Val Input value Input value Output value Input ∩1 ►				
1)		t Block I/O name Subnumber	Class Event Block type					
Back Finish	Open Chart Print		Cancel	Help				

 Now, duplicate the first row by right- clicking it and selecting menu command 'Duplicate row...'. (→ Duplicate Row...)

			- C:\Program Files (x8	5)\SIEMENS	\STEP7\S7Proj	\SCE_PCS7_MP\SCE	Lib\Global\p01-07-reactor-delivery	-valve00-r1905-de.iea				
File Ed	File Edit View Window Help											
€ °C:\	Program Files (x	86)\SIEME	NS\STEP7\S7Proj\SCE	_PCS7_MP\9	5CELib\Globa	al\p01-07-reactor-d	elivery-valve00-r1905-de.iea					
1	Project	Hierarchy			CPU	ChName	ChComment	TextRef				
2		nierarchy					Chart					
3	Prj		H/		AS		CI					
4	SCE_PCS7_Prj	A1_multipu	Undo	Ctrl+Z	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B0	Dx A1T2L001\Level_A1T2	L001.PV_Out			
			Redo	Ctrl+R								
			Cut	Ctrl+X								
			Сору	Ctrl+C								
			Insert	Ctrl+V								
			Insert Rows									
			Duplicate Row									
			Find/Replace	Ctrl+F3								
			Optimum Column Width									
					,							
Press F1	L for help							CAPS				

3. In the window that now opens, enter the number of rows. In this case, 5 rows are to be duplicated because the reactors have 6 inflow valves that are to be edited/created using this process tag type. (\rightarrow 5 \rightarrow OK)

Duplicate Rows	×									
Number of duplicated rows										
5 -										
OK Cancel Help										

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BAA.54	IEA File Editor: Editing IEA Files - [C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7\SCE_Lib\Global\p01-07-reactor-delivery-valve00-r1905-en.iea]										
🕼 File Edit View Window Help											
1	Project	Hierarchy	CPU	ChName	ChComment	TextRef					
2	Tiojeci	Therarcity	Cro		Chart						
3	Prj	H\	AS		CI						
4				ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x	A1T2L001\Level_A1T2L001.PV_(
5	SCE_PCS7_Prj	A1_multipurpose_plant\T2_reaction\reactor R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x	A1T2L001\Level_A1T2L001.PV_(
6	SCE_PCS7_Prj	A1_multipurpose_plant\T2_reaction\reactor R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x	A1T2L001\Level_A1T2L001.PV_(
7			S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x	A1T2L001\Level_A1T2L001.PV_(
8	SCE_PCS7_Prj	A1_multipurpose_plant\T2_reaction\reactor R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x	A1T2L001\Level_A1T2L001.PV_(
9	SCE_PCS7_Prj	A1_multipurpose_plant\T2_reaction\reactor R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R00x from educt tank B00x	A1T2L001\Level_A1T2L001.PV_(
•											
Press F1	for help					NUM //					

4. In the duplicated rows, enter the specific properties for each valve. Start with the hierarchy, ChName and ChComment.

IEA I	File Editor: Editi	ng IEA Files - [C:\Program Files (x86)\SIEMEN	IS\STEP7\S7Pi	oj\SCE_PCS	57\SCELib\Global\p01-07-reactor-deliv	very-valve00-r190 🔲 🗙					
(출 File Edit View Window Help) ×											
1	Project	Hierarchy	CPU	ChName	ChComment	TextRef					
2	riojeci	Theraichy	CIU		Chart						
3	Prj	H/	AS		CI						
4	SCE_PCS7_Prj	A1_multipurpose_plant\T2_reaction\reactor R001\	S7 Program(1)	A1T2X001	Valve inlet reactor R001 from educt tank B001	A1T2L001\Level_A1T2L001.PV_(
5			S7 Program(1)		Valve inlet reactor R001 from educt tank B002						
6	SCE_PCS7_Prj	A1_multipurpose_plant\T2_reaction\reactor R001\	S7 Program(1)	A1T2X003	Valve inlet reactor R001 from educt tank B003	A1T2L001\Level_A1T2L001.PV_(
7		A1_multipurpose_plant\T2_reaction\reactor R002\	S7 Program(1)		Valve inlet reactor R002 from educt tank B001						
		A1_multipurpose_plant\T2_reaction\reactor R002\			Valve inlet reactor R002 from educt tank B002						
9	SCE_PCS7_Prj	A1_multipurpose_plant\T2_reaction\reactor R002\	S7 Program(1)	A1T2X006	Valve inlet reactor R002 from educt tank B003	A1T2L001\Level_A1T2L001.PV_(
•											
Press F1	for help					NUM ///					

 Next, you must set the correct parameters and signals for each row. This can be accelerated by finding and replacing by rows. In row 2, for example, you can replace 'A1T2X001' with 'A1T2X002'.

C:	Program Files (x	(86)\SIEMENS\S	TEP7\S7Proj\SCE_PCS7_MP\S	5CELib\Glob	al\p01-07-reactor-d	elivery-valve00-r1905-de.iea				
	Project	Hierarchy		CPU	ChName	ChComment	TextRef			
	1	riiorarony				Chart				
	Prj		H/	AS		CI				
			plant\T2_reaction\reactor R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R001 from educt tank B00				
	SCE POST Pa		plant\T2_reaction\reactor R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R001 from educt tank B00				
	Undo			S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R001 from educt tank B00				
	Redo		plant\T2_reaction\reactor R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R002 from educt tank B00				
-	Cut			S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R002 from educt tank B00				
	Сору	Ctrl+C	plant\T2_reaction\reactor R001\	S7 Program(1)	ReactorDeliveryValve	Valve inlet reactor R002 from educt tank B00	3 A1T2L001\Level_A1T2L001.PV_0			
	Insert	Ctrl+V								
	Insert Rows									
	Duplicate Row									
	Find/Replace	Ctrl+F3								
L	Optimum Column V									
	Optimum Column v	viath								

Find/Replace		2	×				
Find what:	Replace	Replace with:					
A1T2×001	A1T2X0	A1T2X002					
Search	O By columns	C All					
Match case							
Find Repl.	ace Replace All	Close Help					

6. Now, edit the rows of the file as shown below. You should place the input signals (SymbolName column) inside quotation marks (") because they will otherwise not be found. You should enter the output signals (SymbolName column) as an absolute address or correct the CFCs afterwards.

😥 IEA File Editor: Editing IEA Files - [C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PC37\SCE_Lib\Global\p01-07-reactor-delivery-valve00-r1905-en.iea]												
🛟 File	🕼 File Edit View Window Help											
1	Project	TextRef	ConComment	BlockName	BlockComment	SymbolName	ConComment	BlockName	BlockComment			
2	nojeci		CMP_Interlo	ock.ln1			FbkClose.PV	ln				
3	Prj		PI			SI						
4	SCE	A1T2L001\Level_A1T2L001.PV_Out	Analogue Value 1	CMP_Interlock	Comparator for two analog values	"A1.T2.A1T2X001.GO+O-"	Input value	FbkClose	Digital input driver			
5	SCE	A1T2L001\Level_A1T2L001.PV_Out	Analogue Value 1	CMP_Interlock	Comparator for two analog values	"A1.T2.A1T2X002.GO+O-"	Input value	FbkClose	Digital input driver			
6	SCE	A1T2L001\Level_A1T2L001.PV_Out	Analogue Value 1	CMP_Interlock	Comparator for two analog values	"A1.T2.A1T2X003.GO+O-"	Input value	FbkClose	Digital input driver			
7	SCE	A1T2L002\Level_A1T2L002.PV_Out	Analogue Value 1	CMP_Interlock	Comparator for two analog values	"A1.T2.A1T2X004.GO+O-"	Input value	FbkClose	Digital input driver			
8	SCE	A1T2L002\Level_A1T2L002.PV_Out	Analogue Value 1	CMP_Interlock	Comparator for two analog values	"A1.T2.A1T2X005.GO+O-"	Input value	FbkClose	Digital input driver			
9	SCE	A1T2L002\Level_A1T2L002.PV_Out	Analogue Value 1	CMP_Interlock	Comparator for two analog values	"A1.T2.A1T2X006.GO+O-"	Input value	FbkClose	Digital input driver			
•									Þ			
Press F1 for help												

IEA 💽	File Edit	or: Editing IEA Files - [C:\P	rogram Files	(x86)\SIEM	ENS\STEP7\S7Pro	j\SCE_PCS7\S	CELib\Globa	al\p01-07-re	eactor-delivery-va	lve00-r1905-en.iea]	_ []	x
🕸 File Edit View Window Help												×
1	Project	SymbolName	ConComment	BlockName	BlockComment	SymbolName	ConComment	BlockName	BlockComment	TextRef	ConComme	nt
2	riojeci		FbkOpen.PV	İn	•	Output.PV_Out				Permit.lr		
3	Prj		SI					SI	PI			
4	SCE	"A1.T2.A1T2X001.GO+O+"	Input value	FbkOpen	Digital input driver	Q 1.4	Output value	Output	Digital output driver	A1H001\A1H001.PV_Out	Input 01	
5	SCE	"A1.T2.A1T2X002.GO+O+"	Input value	FbkOpen	Digital input driver	Q 1.5	Output value	Output	Digital output driver	A1H001\A1H001.PV_Out	Input 01	
6	SCE	"A1.T2.A1T2X003.GO+O+"	Input value	FbkOpen	Digital input driver	Q 1.6	Output value	Output	Digital output driver	A1H001\A1H001.PV_Out	Input 01	
7	SCE	"A1.T2.A1T2X004.GO+O+"	Input value	FbkOpen	Digital input driver	Q 1.7	Output value	Output	Digital output driver	A1H001\A1H001.PV_Out	Input 01	
8	SCE	"A1.T2.A1T2X005.GO+O+"	Input value	FbkOpen	Digital input driver	Q 2.0	Output value	Output	Digital output driver	A1H001\A1H001.PV_Out	Input 01	
9	SCE	"A1.T2.A1T2X006.GO+O+"	Input value	FbkOpen	Digital input driver	Q 2.1	Output value	Output	Digital output driver	A1H001\A1H001.PV_Out	Input 01	
											F	
Press F1	for help										NUM	//.

IEA File Editor: Editing IEA Files - [C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7\SCE_Lib\Global\p01-07-reactor-delivery-valv <u>- 🗆 ×</u> File Edit View Window Held _ 8 × ConComment BlockName BlockComment Protect.In01 TextRef ConComment BlockName BlockComment TextRef TextRef Project Prj PI PI A1H001\A1H001.PV_Out input 01 A1H003\A1H003.PV_Out A1H003\A1H003.PV_Out A1H003\A1H003.PV_Out A1H003\A1H003.PV_Out A1H003\A1H003.PV_Out Permit Interlock with 2 inputs Interlock with 2 inputs Interlock with 2 inputs Interlock with 2 inputs A1H002\A1H002.PV Out Input 0 Protect Interlock with 2 inputs A1H002VA1H002PV_Out input 01 Permit Permit Permit Protect Protect Interlock with 2 inputs Interlock with 2 inputs SCE SCE.. SCE... Protect Interlock with 2 inputs Interlock with 2 inputs Interlock with 2 inputs with 2 inputs SCF Permi Protect Interlock Perm Protec A1H003\A1H003.PV_Out 9 \mathbf{F} NUM Press F1 for h

IEA File Editor: Editing IEA Files - [C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7\SCE...

63	File Edit	View Window Help			_ 8 ×								
Ľ													
1	Project	TextRef	ConComment	BlockName	BlockComm								
2	i i i i jeci	valve_A1T2X001.LocalLi											
3	Prj		PI										
4	SCE	A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	valve_A1T2X001	Valve - Large								
5		A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	valve_A1T2X002	Valve - Large								
6	SCE	A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	valve_A1T2X003	Valve - Large								
7		A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	valve_A1T2X004	Valve - Large								
8	SCE	A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	valve_A1T2X005	Valve - Large								
9	SCE	A1H003\A1H003.PV_Out	1=Local Mode: Local operation by field signal	valve_A1T2X006	Valve - Large								
◀					Þ								
Pres	s F1 for help	0			NUM //								

 Finally, change the parameter of the manual control as shown here. The character '-' in front of the textual interconnection means 'invert'. This character must be placed inside quotation marks (" ").

💦 IEA	File Edit	or: Editing IEA Files - [C:\Program	m Files (x86)\SIEMENS\STEP7	\S7Proj\SCE_PCS7\SCELib\Globa	l\p01-07-reactor						
🧳 File	🐮 File Edit View Window Help										
1	Project	TextRef	ConComment	TextRef	ConComment						
2	riojeci	valve_A1T2X00	1.OpenLocal	e_A1T2X001.	CloseLocal						
3	Prj	PI		PI							
4		A1T2H001\Out_A1T2H001.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H001\Out_A1T2H001.PV_Out	1=Close Local: Field Close Signal						
5		A1T2H002\Out_A1T2H002.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H002\Out_A1T2H002.PV_Out	1=Close Local: Field Close Signal						
6	SCE	A1T2H003\Out_A1T2H003.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H003\Out_A1T2H003.PV_Out	1=Close Local: Field Close Signal						
7		A1T2H004\Out_A1T2H004.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H004\Out_A1T2H004.PV_Out	1=Close Local: Field Close Signal						
8		A1T2H005\Out_A1T2H005.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H005\Out_A1T2H005.PV_Out	1=Close Local: Field Close Signal						
9	SCE	A1T2H006\Out_A1T2H006.PV_Out	1=Open Local:Field Open Signal	"-"A1T2H006\Out_A1T2H006.PV_Out	1=Close Local: Field Close Signal						
•											
Press F1	for help				NUM ///						

8. After all changes have been made, save the file. (\rightarrow File \rightarrow Save \rightarrow Close)

🔁 IEA File Editor: Editing IEA Files - C:\Pr	rogram Files	(x86)\SIEMENS\S	TEP7\S7Proj\SCE_PCS7_MP\S	SCELib\Global\p01-07-reactor-de	livery-valve00-r1905-de.iea	_ 🗆 🗡			
File Edit View Window Help									
New Open	Ctrl+N Ctrl+O	£	R T						
Close		SCE_PCS7_MP\SCI	E_PCS7_MP\SCELib\Global\p01-07-reactor-delivery-valve00-r1905-de.iea						
Save	Ctrl+S		ConComment	TextRef	ConComment				
Save As		valve_A1T2X00	1.OpenLocal	e_A1T2X001.	CloseLocal				
Print Print Preview Print Setup 1 p01-07-reactor-delivery-valve00-r1905-d Exit	Ctrl+P e	PI A1T2H001.PV_Out A1T2H002.PV_Out A1T2H003.PV_Out A1T2H004.PV_Out A1T2H005.PV_Out A1T2H006.PV_Out	1=Open Local:Field Open Signal 1=Open Local:Field Open Signal 1=Open Local:Field Open Signal	PI 	1=Close Local: Field Close Signal 1=Close Local: Field Close Signal 1=Close Local: Field Close Signal 1=Close Local: Field Close Signal				
Saves the active document.					N				

9. The creation and assignment of the import file will now be finished. (\rightarrow Finish)

Process tags: Assign/Create Import File - SCE_PCS7_Lib\Process tag types\\ReactorDeliveryValve										
Which import file do you want to assign to	the process tag type?					2 (2)				
Import file: C:\Program Files (x86)\SIEMEN	S\STEP7\S7Proj\SCE_PCS	7_MP\SCEI	_ib\Global\p01-07-reactor-deliv	rery-valve00-r1	905-en.iea 💌	Create File Template				
						Open File				
						Other File				
Undefined I/O points in import file:	I/O points of the process	tag type for p	arameters/signals:							
P Column title	P Column title	Importing	Process tag connector	Category (Chart Block I/O	name I/O comment 🔺				
	1 P CMP_Interloc		CMP_Interlock.In1		Rea CMP In1	Analogue Val				
	2 S FbkClose.PV.		FbkClose.PV_In		Rea Fbk PV_	In Input value				
	3 S FbkOpen.PV.	🗹	FbkOpen.PV_In		Rea Fbk PV_	In Input value				
	4 S Output.PV_O		Output.PV_Out		Rea Output PV_					
	5 P Pamit In01		Pamit In01	1	Raa Parmit In()	1 Input 01				
	Messages of the proces	s tag type:								
	Column title Im	porting Cha	rt Block I/O name Subnur	mber Class	Event Block ty	pe				
	1									
Back Finish	Open Chart Print				Ca	ancel Help				

8.4 Importing process tags

1. The import of the created process tag type can now be started. (\rightarrow ReactorDeliveryValve \rightarrow Process Tags \rightarrow Import...)

SIMATIC Manager - SCE_PCS7_MP						
File Edit Insert PLC View Options Wi						
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SCE_PCS7_MP (Plant View) C:\Pro			_MP\SCEMP	<u>-0×</u>		
E-B SCE_PCS7_MP	Motor_Lean	ReactorDeliveryValve		🖓 Valve_Lean		
📔 📄 🎒 SCE_PCS7_Prj		Open Object	Ctrl+Alt+O			
🕀 📄 Shared Declarations		Cut	Ctrl+X			
🖻 🖻 🎦 🖾 🖾		Сору	Ctrl+C			
⊡ ⊡ T1_educt_tanks ⊡ educt_tank B001		Paste	Ctrl+V			
Elect_tank B001 ⊕ ⊡ i educt_tank B002						
E B educt tank 8002		Delete	Del			
⊡… 📴 T2_reaction		PLC	•			
in reactor R001		Access Protection	•			
⊡ 💼 T3_product_tanks		Print	•			
⊡⊡ product_tank B001 ⊡⊡ product_tank B002		Charts	•			
□ <u> </u>		Plant Hierarchy	+			
± 🖻 rinsing_tank B001		Process Tags	۱.	Create/Change Process Tag Type		
📔 🖻 💖 SCE_PCS7_Lib		Rename	F2	Update		
🔛 👝 Shared Declarations		Object Properties	. Alt+Return	Assign/Create Import File		
Models				Import		
Process tag types				Export		
	1					
Creates process tags from the process tag type and assigns parameters to the copies ///						

2. Confirm the first step of the dialog with 'Next'. (\rightarrow Next)

Import/Export Assistant Process tags: Import - SCE_PCS7_Lib\Process tag types\\ReactorDeliveryValve 🔀					
K Introduction	1 (3)				
	<text><text><text><text><text></text></text></text></text></text>				
Back Next	Cancel Help				

In the next dialog box, select the 'Close textual interconnections' option and then click 'Next'.
 (→ Close textual interconnections → Next)

Import/Export Assistant Process tags: Import - SCE_PCS7_Lib\Process tag types\\ReactorDeliveryValve	×
Which settings do you want to use for import ?	2 (3)
Include signal in the symbol table Ir Close textual interconnections Import file <> Process tag type	
Import C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7_MP\SCE_Lub\Global\p01-07+reactor-delivery-valve00+1905-en.iea ReactorDeliveryValve	Open File Other File
Back Next (Cancel Help

- 4. The import can now be started by selecting 'Finish'.
 - $(\rightarrow Finish)$

Import/Export	Assistant Process tags: Import - SCE_PCS7_Lib\Process tag types\\ReactorDeliveryValve	×
🌂 Do you w	vant to finish the import ?	3 (3)
Only show e	rrors and warnings in log	
Import log:		
Object	Action Log text	
		F
<u></u>		
Log file:	C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7_MP\SCE_Lib\Global\p01-07-reactor-delivery-valve00+1905-en.	LOG Other File
Back	Enish Open Object Print	Cancel Help

5. After conclusion of the import, the log is displayed. (\rightarrow Exit)

Import/Export Assistant Process tags: Import - SCE_PCS7_Lib\Process tag types\\ReactorDeliveryValve			x
C Do you want to finish the import ?			3 (3)
Only show errors and warnings in log			
Import log:			
Object	Action	Log text	
SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\Permit.In01 SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\Protect.In01 SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\Protect.In01 SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\Protect.In01 SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\Protect.In01 SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.LocalLi SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.LocalLi SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.LocalLi SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.LocalLi SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.LocalLi SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.LocalLi SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.CoseLocal SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.CoseLocal SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.CoseLocal SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\veactor R002\A1T2X006\vert_A1T2X001.CoseLocal Tme C.\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7_MP\SCE_Lib\Global\p01-07-reactor-delivery-valve00r1	OK OK OK OK OK K K K K K M End	Block comment "Interlock with 2 inputs' alree (Textual) interconnection 'A1H002VA1H002 Block name 'Protect' already exists. Block comment 'Interlock with 2 inputs' alree (Textual) interconnection 'A1H003VA1H003 Block name 'valve_A1T2X006' witten. Block comment 'Valve - Large' already exist Interconnection 'A1T2H006'Vott_A1T2H00 Attributes for parameter 'e_A1T2X001.Clos 00:00:11 Hr:Min:Sec Import completed successfully.	.i .i s 6 6
			-
Log file: C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7_MP\SCE_Lib\Global\p01-07-reactor-de	elivery-va	ive00+1905-en LOGOther File	
Back Exit Open Object Print		Help	

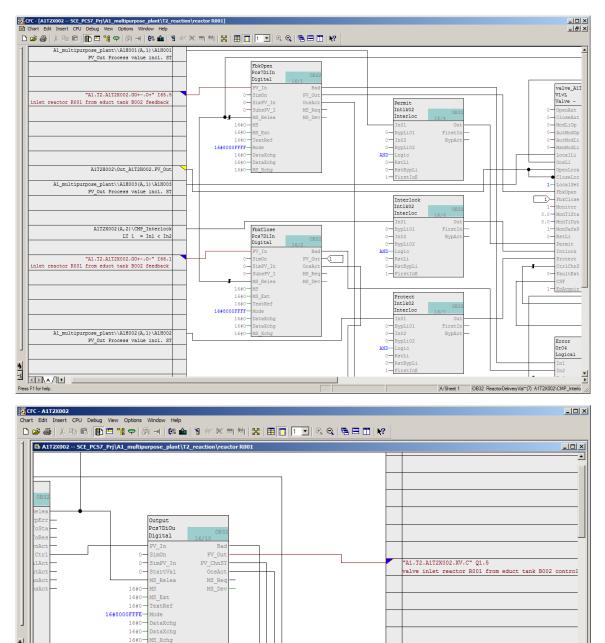
6. The newly imported CFCs are now located in the Reactor R001 hierarchy level. In this manner, a large number of charts can be created quickly and efficiently. The interesting aspect of this method is that the changes to the charts are not made individually but in the form of a table via the import file. Nevertheless, each individual chart can be viewed and changed with the CFC editor afterwards.

SIMATIC Manager - SCE_PCS7_MP		
File Edit Insert PLC View Options Wir	ndow Help	
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🔁 SCE_PCS7_MP (Plant View) C:\Prog	ram Files (x86)\\STEP7\S7Proj\SCE_PCS7_MP\SCI	E_MP _OX
SCE_PCS7_MP SCE_PCS7_Prj SCE_PCS7_Prj A1_multipurpose_plant A1_multipurpose_plant G1_educt_tank B001 G1_educt_tank B002 G1_educt_tank B003 G1_educt_tank B003 G1_educt_tank B003 G1_educt_tank B003 G1_educt_tank B003 G1_educt_tank B003 G1_educt_tank B001 G1_educt_tank B001	A1T2H001	03 🙀 A1T2T001
Press F1 to get Help.]	PC internal.local.1

SIMATIC Manager - SCE_PCS7_MP File Edit Insert PLC View Options Win	dow Help	_O×
	P P P	V 12 0 1 1 1 1 1
SCE_PCS7_MP (Plant View) C:\Prog	ram Files (x86)\\STEP7\S7Proj\SCE_PCS7_MP\SCE_	
SCE_PCS7_MP SCE_PCS7_Pri A1_multipurpose_plant A1_multipurpose_plant G_G T1_educt_tank B001 G_G educt_tank B002 G_G educt_tank B003 G_G T2_reaction G_G reactor R001 G_G reactor R002 G_G T3_product_tank B001 G_G T4_rinsing G_G rinsing tank B001 G_S SCE_PCS7_Lib G_G Shared Declarations Models Process tag types	A1T2X004 A1T2X005 A1T2X006	
Press F1 to get Help.		PC internal.local. 1

8.5 Check of the imported CFCs

1. Open the newly created CFCs and check the input and output signals and the block names. Textual interconnections to existing CFCs should already be closed.



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p01-07-importing-plant-design-data-v9-tud-0719-en.docx

×1 <

Press F1 for help

Ē

OB32 ReactorDeliveryVal~(7) A1T2X002\CMP_Interlo

A/Sheet 1

Note:

If you have placed the output signals inside quotation marks, the original output linked in the process tag type must still be deleted manually. Alternatively, the address linked at the output can also be deleted in the process tag type and then newly imported.

	FC - A112X002 t Edit Insert CPU Debug View Options Window Help		<u>- </u>
	같음 사 타 타 [E] 프 '레 우 중 네 6% 🎪 'N & * X =	1941 🔀 🎛 🛅 🔽 🔍 🔍 🖬 🚍 🛅 🎌	
1	A1T2X002 SCE_PCS7_Prj\A1_multipurpose_plant\T2_reaction\react	or R001	
		interlock for valve A1T2X002 (prevent reactor R001 from overflow)	
		CMP_Interlock CompAnO2 Comparat	
	\reactor R001\\A1T2L001(A,1)\Level_A1T2L001	In1 GT	
	PV_Out Process value incl. ST	1000.0 In2 GE	
-			/
*			
*			▼ ▶
Press	F1 for help.	A/Sheet 2	OB32 Rt //

 Another method for making changes in multiple existing charts without having to open them is the process object view. (→ View → Process Object View)

SIMATIC Manager - SCE_PCS7_MP			
File Edit Insert PLC View Options Window Help			
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SCE_PCS7_MP (Pla Process Object View	- \\STEP7\S7Proj\SCE_PCS7_MP\SCE_	MP	
Process Object View □- SCE_PCS7_MP Technological list editor	A1T2X005		
SCE_PCS7_	GATE		
⊕ Shared [✓ Omine ⊖ Shared [✓ Omine ⊖ Shared [✓ Online			
E I Large Icons			
Details			
Filter			
Define Columns			
🕀 🖓 👔 👔 Hide All Levels 🛛 Num-			
⊡ 📴 T4_r ⇒ 🔁 🗸 Toolbar			
E I I I I I I I I I I I I I I I I I I I			
🗄 🧰 Shared 🕻 Update F5			
Process tag types	-		
Changes to the Process Object View.			li.

3. By setting a filter for the I/O 'MonTiDynamic' in the 'Parameters' tab, the user can change the value of a parameter for several CFCs, for example. Only the elements located below the hierarchy level selected in the left side of the window that correspond to the filter criteria are displayed. Change the value here for all displayed I/Os to '10.0'. (→ A1_multipurpose_plant → Parameters → Filter by column: I/O name → Display: MonTiDynam → Value → 10.0)

e Edit Insert PLC View Option			- D-D		N. Dh		7. I 99 (S)				
) 🍃 🎛 🛲 X 🖻 🛍 I				1 0	No Filter >		9 🔡 🕮		N Y		
SCE_PCS7_MP (Process Object	View) C	:\Program	Files (x86)\\STEP	7\S7Proj\SCE_P	CS7_MP\SC	EMP				
🔂 SCE_PCS7_MP ⊡ 🖓 SCE_PCS7_Prj	General	Charts B	locks 🏑 F	arameters	Signals Messa	ges Picture (objects Archiv	ve tags Hiera	rchy folder Ed	quipment pi	roperties S
E _ Shared Declarations	Filter by	column:	D	isplay:			Filter gene	aral:			
A1_multipurpose_plant	I/O na			Mon Ti Dynar	n						¥ 6 04
⊡⊡ Ein T1_educt_tanks	100110						1				•••
⊡ ⊡⊠ T2_reaction ⊕ ⊡⊠ reactor R001		Hierarchy	Chart	Chart	Block	Block com	I/O name	I/O comment	Process tag	Category	Value
⊞ reactor R001 ⊞ ⊡ ⊡ ∎	1	A1_multi	A1T1S001	Motor	pump_A1T1S001	Motor - Lar	MonTiDyna	Monitoring	MMON-TDYN		10.0
⊕ Barreactor Hooz	2	A1_multi	A1T1X004	Valve	valve_A1T1X004	Valve - Lar	MonTiDyna	Monitoring ti	VMON-TDYN		10.0
	3	A1_multi	A1T2S003	Motor	pump_A1T2S003	Motor - Lar	MonTiDyna	Monitoring	MMON-TDYN		10.0
- A1H001	4	A1_multi	A1T2S001	Motor	stirrer_A1T2S001	Motor - Lar	MonTiDyna	Monitoring	MMON-TDYN		10.0
A1H002	5	A1_multi	A1T2X003	Valve	valve_A1T2X003	Valve - Lar	MonTiDyna	Monitoring ti			10.0
A1H003	6	A1_multi	A1T2X002	Valve	valve_A1T2X002	Valve - Lar	MonTiDyna	Monitoring ti			10.0
- Picture(2)	7	A1_multi	A1T2X001	Valve	valve_A1T2X001	Valve - Lar	MonTiDyna	Monitoring ti			10.0
🕎 Global labeling field	8	A1_multi	A1T2X004	Valve	valve_A1T2X004	Valve - Lar	MonTiDyna	Monitoring ti			10.0
🗄 🧇 SCE_PCS7_Lib	9	A1_multi	A1T2X006	Valve	valve_A1T2X006	Valve - Lar	MonTiDyna	Monitoring ti			10.0
	10	A1_multi	A1T2X005	Valve	valve_A1T2X005	Valve - Lar	MonTiDyna	Monitoring ti			10.0
	11	A1 multi	A1T3X001	Valve	valve A1T3X001	Valve - Lar	MonTiDyna	Monitoring ti	VMON-TDYN		10.0
								-			
					-1						• •

 By utilizing the 'Parameters' or 'Signals' tabs, extensive changes can be made quickly in the CFCs. In this example, however, everything is to remain unchanged and you return to the plant view. (→ View → Plant View).

SIMATIC Manager - SCE_PCS7_N	1P										
File Edit Insert PLC View Option	s Window	i Help									
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SCE PCS7 MP (Process Object	View) C	:\Program Fi	les (x8	6)\\STEP7	\S7Proj\S	SCE PCS7	MP\SCE I	мр			_ 🗆 ×
B-B SCE_PCS7_MP		· · ·	1			1		r.	5	5	
🔄 🎒 SCE_PCS7_Prj	General	Charts Bloc	ks 🛛 🎷	Parameters	🎷 Signal:	s Messa	ges Picture of	objects Archiv	e tags Hierard	hy folder Equipment prope	ertie 💶 🕨
🗄 📄 Shared Declarations	Filter by	column:	[Display:				Filter general:			
🖻 🖆 A1_multipurpose_plant	Chart		-	A1T2X						T	<u>n</u> 🖂
⊡ 🛅 T1_educt_tanks	1 annual							'			· · · ·
⊡ ⊡ T2_reaction		Chart 🛆	Chart	. Block	Block	I/O name	I/O comment	Process tag	Value	Signal	Si
iteactor R001 iteactor R002	1	A1T2X001	Valve .	. FbkClose	Digital	PV_In	Input value	FbkClose.P		A1.T2.A1T2X001.GO+O-	va
	2	A1T2X001	Valve .	FbkOpen	Digital	PV_In	Input value	FbkOpen.P		A1.T2.A1T2X001.GO+O+	va
	3	A1T2X001	Valve .	Output	Digital	PV_Out	Output value	Output.PV	0	A1.T2.A1T2X001.XV.C	va
- 🙀 A1H001	4	A1T2X002	Valve .	. FbkClose	Digital	PV_In	Input value	FbkClose.P		A1.T2.A1T2X002.GO+O-	sv
A1H002	5	A1T2X002	Valve .	FbkOpen	Digital	PV_In	Input value	FbkOpen.P		A1.T2.A1T2X002.GO+O+	va
- 🛺 A1H003	6	A1T2X002	Valve .	. Output	Digital	PV_Out	Output value	Output.PV	0	A1.T2.A1T2X002.XV.C	sv
Picture(2)	7	A1T2X003	Valve .	FbkClose	Digital	PV_In	Input value	FbkClose.P		A1.T2.A1T2X003.GO+O-	sv
🗍 🗍 Global labeling field	8	A1T2X003	Valve .	. FbkOpen	Digital	PV_In	Input value	FbkOpen.P		A1.T2.A1T2X003.GO+O+	va
🗄 🍫 SCE_PCS7_Lib	9	A1T2X003	Valve .	Output	Digital	PV_Out	Output value	Output.PV	0	A1.T2.A1T2X003.XV.C	sv
-	10	A1T2X004	Valve .	. FbkClose	Digital	PV_In	Input value	FbkClose.P		A1.T2.A1T2X004.GO+O-	va
	11	A1T2X004	Valve .	. FbkOpen	Digital	PV_In	Input value	FbkOpen.P		A1.T2.A1T2X004.GO+O+	va
	12	A1T2X004	Valve .	. Output	Digital	PV_Out	Output value	Output.PV	0	A1.T2.A1T2X004.XV.C	va 🔪 🖌
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ess F1 to get Help.							PC i	nternal.local.1			

 Before finally creating a model for the educt tank, if you have not already done so, complete the interlocking of the pump A1T1S001 with the valve A1T2X004 created from the process tag type as shown below.

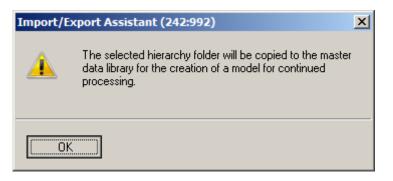
	┥┥ 0% ‱ 1 0 & ∞ ≈ = ∞ 2 2 1 1 2 2 2 2 2 2
A1T1S001 SCE_PCS7_Prj\A1_multipur	rpose_plant\T1_educt_tanks\educt_tank B001
	interlock of pump A1T1S001 (do not work against closed valves
	and do not drain)
tank B001\\A1T1X004(A,1)\FbkOpen	
PV_Out Process value incl. ST	OR_Interlock
	Or04 Logical OB32
	5/4
actor R001\\A1T2X001(A,1)\FbkOpen PV Out Process value incl. ST	In1 Out
-	In2
actor R002\\A1T2X004(A,1)\FbkOpen PV Out Process value incl. ST	0- In3
PV_OUC Process value incl. Si	0 In4
	-

8.6 Creating a model

 Educt tank B001 with all its CFCs will be used as a model. First, delete Picture(4) and then create a model. (→ Educt tank B001 → Models → Create/Modify Model...)

SIMATIC Manager - SCE_PCS7_MP File Edit Insert PLC View Options					
🛛 🕞 🔡 🐖 🕹 🛍 💼	<u>•</u>	5- 🖽 🗐 (No Filter >	- 🏹 🔡 🎟	1ª ⊟ 🗊 🕴
SCE_PCS7_MP (Plant View) C:\I		\\STEP7\S7P	roj\SCE_PCS7_MP\SCEM	P	
SCE_PCS7_MP Borner State Declarations Borner Shared Declarations Borner Shared Declarations Double Shar	Report(5)	₩A1T1S00	01 ∰A1T1X004	-∱- Picture(4)	
educt_tank B00	Cut	Ctrl+X			
🔤 educt_tank B00	Сору	Ctrl+C			
🖻 🙆 T2_reaction	Paste	Ctrl+V			
eactor R001	Delete	Del			
⊡ 📴 T3_product_tanks	Insert New Object	•			
🙆 product_tank B(- 🙆 product_tank B(Access Protection	•			
⊡… 📴 T4_rinsing ⊡… 🔯 rinsing_tank B0(_	Print	•			
SCE_PCS7_Lib	Charts	•			
🗄 📄 Shared Declarations	Plant Hierarchy	•			
	Process Tags	+			
Process tag types	Models	+	Create/Modify Model		
	Rename	F2	Import		
1	Object Properties	Alt+Return	Export		
	nodels				

2. Confirm the message that follows with 'OK'. (\rightarrow OK)



3. Confirm the introductory screen of the dialog assistant with 'Next'. (\rightarrow Next)

Import/Export Assistant: Create/M	odify Model - SCE_PCS7_Lib\Models\educt_tank B001\	×
K Introduction		1 (4)
	Assistant: Create/Modify Models With the assistant, you can: Create a model from existing CFC/SFC charts. Modify an existing model, in other words add or remove I/Os or messages. Check the consistency of the model with the assigned import file. Check replicas for changed IEA flag. The result will be a model saved to the master data library of the multiproject. Each selected I/O and message is assigned a column in the import file. Following this, the import can be started. Master data library: SCE_PCS7_Lib Imager with this icon.	
Back Next	Cancel Hel	>

 In the next step, specify which parameters (blue) and signals (green) will be displayed in the Import/Export Assistant. Select the parameters/signals shown below. (→ IEA parameter → IEA signals → Next)

	Hierarchy	Chart	Block	Block comment	I/O name	I/O comment	IFA pa	rameter	IFA	V
1	Models\educt tank B001\			level monitoring educt t	PV In	Input value			V	
2	Models\educt_tank B001\				PV In	Input value		=	- -	
3	Models\educt tank B001\			Digital input driver	PV In	Input value		-	<u> </u>	
4	Models\educt tank B001\			2 I	_	Output value			V	
5	Models\educt tank B001\				PV In	Input value	i	-	v	
6	Models\educt tank B001\				PV In	Input value	i			
7	Models\educt tank B001\					Output value	i		v	
8	Models\educt_tank B001\	A1T1S001	AND Interlock	Logical AND with 4 inputs	In2	Input 2	i	-		i l
9	Models\educt_tank B001\	A1T1S001	OR_Interlock	Logical OR with 4 inputs	In1	Input 1		<u>র</u> ব		i
10	Models\educt_tank B001\	A1T1S001	OR_Interlock	Logical OR with 4 inputs	In2	Input 2		~		
11	Models\educt_tank B001\	A1T1S001	OR_Local	Logical OR with 4 inputs	In1	Input 1		~		
12	Models\educt_tank B001\	A1T1S001	OR_Local	Logical OR with 4 inputs	In2	Input 2		~		
13	Models\educt_tank B001\	A1T1X004	OR_A1T1X004	collects manual local in	In1	Input 1		~		
14	Models\educt_tank B001\	A1T1X004	OR_A1T1X004	collects manual local in	In2	Input 2		~		
15	Models\educt_tank B001\	A1T1L001	A1T1L001_LSA+	level monitoring educt t	EN					
16	Models\educt_tank B001\	A1T1L001	A1T1L001_LSA+	level monitoring educt t	PV_InSlv	Input value of slave ch				
17	Models\educt_tank B001\	A1T1L001	A1T1L001_LSA+	level monitoring educt t	ProImQB	Qualitybit from Processi				
18	Models\educt_tank B001\	A1T1L001	A1T1L001_LSA+	level monitoring educt t	ProImQ	Qualitybit from Processi				
19	Models\educt_tank B001\	A1T1L001	A1T1L001_LSA+	level monitoring educt t	ChValue	reserved				
20	Models\educt_tank B001\				Feature	Status of various features				
ין וּ	Medally advect seals pontly	A1T11 001	A1T1001 LCA.	1	F	DJ				

The messages that will be displayed in the Import/Export Assistant are then defined. (→ IEA message → Next)

Import	Export Assistant: Create	/Modify M	odel - SCE_PCS7	_Lib\Models\educt_ta	ank B001\				×
*	Which blocks do you want to	import messa	ages for?						3 (4)
	Hierarchy		Block	Block comment	IEA message				
1	Models\educt_tank B001\				<u> </u>	VIvL Mett	CFC		
2	Models\educt_tank B001\	A111S001	pump_A111S001	Motor - Large		MotL	CFC		
								<u> </u>	
Ba	ack Next		Open Chart	Print				Cancel	Help

8.7 Creating an import file

1. Now create a file template. (\rightarrow Create File Template...)

nport file: <pre>< no import file a</pre>	ssigned >									eate File	Template.
Check replicas for changed I	EA flags.									Oper	n File
port data:		Mode	ما ما م							Other	File
P Column title			P	a. Column title	Hierarchy	Chart	Block	I/O name	I/O comment	1/0	Data typ
F Column title		1	г S	Column title	Models\edu	A1T1L001	A1T	PV In	Input value	IN	BOOL
		2	s		Models\edu	A1T1L001	A1T	PV In	Input value	IN	BOOL
	>	3	s		Models\edu	A1T1S001	Fbk	PV In	Input value	IN	BOOL
		4	S		Models\edu	A1T1S001	Out	PV_Out	Output value	OUT	BOOL
		5	S		Models\edu	A1T1X004	Fbk	PV_In	Input value	IN	BOOL
	<	6	S		Models\edu	A1T1X004		PV_In	Input value	IN	BOOL
	<<	7	S		Models\edu	A1T1X004		PV_Out	Output value	OUT	BOOL
		8	Ρ			A1T1S001	AND		Input 2	IN	STRUC
		9	P			A1T1S001	OR		Input 1	IN	STRUC'
		10	P P			A1T1S001	OR		Input 2	IN IN	STRUC'
		12	P			A1T1S001 A1T1S001	OR OR		Input 1 Input 2	IN	STRUC STRUC
		13	P			A1T1X004	OR		Input 1	IN	STRUC
		14	P			A1T1X004	OR		Input 2	IN	STRUC
d l						A1T1V004		Mgattalat	inpor 2		

2. Name the file template 'p01-07-educt-tank00-r1905-en.iea'. (\rightarrow Save)

🛃 Create File Template					x
STEP7 + S7Proj + SCE_PCS7 +	SCE_Lib 🔻 Global 👻	🝷 🛃 Search	Global		2
Organize 🔻 New folder				-	0
Name ^	Date modified	Туре	Size		
鷆 addinfo	10.04.2019 10:32	File folder			
\mu s7prj	04.03.2019 12:25	File folder			
🐉 p01-07-reactor-delivery-valve00-r 1905-en	09.05.2019 10:50	S7jiea Document	1 KB		
File name: p01-07-educt-tank00-r 1905-	en.iea				-
Save as type: Import/export files (*.IEA)					•
Hide Folders		Si	ave	Cancel	
					 //.

3. The next step is to select the columns that will be displayed generally in the import file and for the parameters. (→ Tab: General → PH comment → Assigned CPU → Chart name → Chart comment → Block name → Block comment → Tab: Parameters → I/O comment → Textual interconnection)

Create File Template		Create File Template	×
General Parameters Signals Me	ssages	General Parameters Signals Messages	
Columns for the general and char	column group	Columns for parameters column groups	_
PH comment	(PHComment)	Value (Value)	
PH author Assigned CPU	(PHAuthor) (CPU)	✓ I/O comment (ConComment) ✓ Textual interconnection (TextRef)	
Assigned OS	(OS)	Identifier (S7_shortcut)	
Function identifier Location identifier	(FID) (LID)	Unit (S7_unit) Text 0 (S7_string_0)	
Chart name	(ChName)	Text1 (S7_string_1) Enumeration (S7_enum)	
Chart comment	(ChComment) (ChAuthor)	☐ Invisible (S7_visible)	
Sampling time	(ChCycle)	MES relevant (S7_mes) Archiving (S7_archive)	
Block name	(BlockName) (BlockComment)	Chart I/O name (RefName)	
Block icon	(Block Icon)		
Block group	(BlockGroup)		
Include SFC charts			
ОК	Cancel Help	OK Cancel H	lelp

 The columns that will be displayed for the signals and the messages in the import file are selected here. (→ Tab: Signals → I/O comment → Symbol name → Tab: Messages → Event → OK)

Create File Template	Create File Template	×
General Parameters Signals Messages	General Parameters Signals Messages	
Columns for signal column groups Value (Value) Value (ConComment) Symbol name (SymbolName) Symbol comment (SymbolComment) Absolute address (AbsAddr) Identifier (S7_shortcut) Unit (S7_unit) Text 0 (S7_string_0) Text1 (S7_enum) Invisible (S7_visible) MES relevant (S7_mes)	Columns for message column groups Priority (Priority) Info text (Info Text) Origin (Origin) OS area (OsArea) Event (Event) Batch ID (BatchID) Operator input (OperatorInput) Free text 1 (Free Text1) Free text 2 (Free Text2) Free text 3 (Free Text3) Free text 4 (Free Text4) Free text 5 (Free Text5) Reaction time (Reaction time) Description (Description) Cause (Cause) Operator action (Operator actio) Consequence (Consequence)	=) on)
OK Cancel Help	OK Cancel	Help

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8.8 Editing the import file

1. Now open the created file. (\rightarrow Open File)

nport file: C:\Program		MENS	S\ST	EP7	\S7Proj\SCE_P	CS7_MP\SCE_	_Lib\Global\p	01-07-ed	luct-tank00-r	190! Cre		Template n File
nport data:		N	Node	l dat	a:						Other	File
Column title		Γ		P	Column title	Hierarchy	Chart	Block	I/O name	I/O comment	1/0	Data typ
		ŀ	1	S	A1T1L001\A	Models\edu	A1T1L001	A1T	PV In	Input value	IN	BOOL
		ŀ	2	S	A1T1L001\A		A1T1L001		PV In	Input value	IN	BOOL
	[.	-> [3	S	A1T1S001\F		A1T1S001	Fbk	PV In	Input value	IN	BOOL
	-	- I H	4	S	A1T1S001\O	Models\edu	A1T1S001	Out	PV Out	Output value	OUT	BOOL
		-1	5	S	A1T1X004\F	Models\edu	A1T1X004	Fbk	PV In	Input value	IN	BOOL
		< -	6	S	A1T1X004\F		A1T1X004	Fbk		Input value	IN	BOOL
		_ i	7	S	A1T1X004\O	Models\edu	A1T1X004	Output	PV Out	Output value	OUT	BOOL
		~	8	Ρ	A1T1S001\A	Models\edu	A1T1S001	AND	In2	Input 2	IN	STRUC'
	-		9	Ρ	A1T1S001\O	Models\edu	A1T1S001	OR	In1	Input 1	IN	STRUC'
		ľ	10	Ρ	A1T1S001\O	Models\edu	A1T1S001	OR		Input 2	IN	STRUC'
			11	Ρ	A1T1S001\O	Models\edu	A1T1S001	OR		Input 1	IN	STRUC'
		ľ	12	Ρ	A1T1S001\O	Models\edu	A1T1S001	OR	In2	Input 2	IN	STRUC'
			13	Ρ	A1T1X004\O	Models\edu	A1T1X004	OR		Input 1	IN	STRUC'
		ľ	14	P	A1T1X004\O	Models\edu	A1T1X004	OR		Input 2	IN	STRUC
			+ <u></u> ↓	M	A1T1V004\	MUDDLAY CO.	A1T1V004		Mpathalas			

Note:

- As an alternative, the supplied import file 'p01-07-educt-tank00-r1905-en.iea' can be used. To do so, instead of 'Open File', select the 'Other File' button and select the file 'p01-07-educt-tank00-r1905-en.iea'. With that file, the steps below can be skipped. Continue now with step 51.
- The first row is duplicated again as many times as models are needed.
 (→ Duplicate Row)

File Ed	dit View Win	ndow Help				?\SCELib\Gk	obal\p01-0	7-educt-tank00-r1905-en.iea	<u>_ ×</u>
👯 C: \	Program File	s (x86)\SIEMENS\ST	TEP7\S7Proj\S	CE_PCS7_MP\SCELi	ib\Global\p01-07-educ	t-tank00-r190)5-en.iea		. <u> </u>
1	Project	Hierarchy			PHComment	CPU	ChName	ChComment	ChNan
2	-	Thordrony						A1T1X004	
3	Prj		H/		TC	AS		Cl	
4	SCE_PCS7	Undo	Ctrl+Z	ks\educt_tank B001\	educt tank with educt 1	S7 Program(1)	A1T1X004	Valve: Single Drive and Dual Feedback with Interlock	A1T19
		Redo	Ctrl+R						
		Cut	Ctrl+X						
		Сору	Ctrl+C						
		Insert	Ctrl+V						
		Expand Column Grou	JD						
		Insert Rows							
		Duplicate Row							
		Find/Replace	Ctrl+F3						
		Optimum Column Wid	dth						
	-			_					
•									•
ess F1	L for help							NUM	

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3. Set the number of duplicated rows to '2' and confirm with 'OK'. (\rightarrow 2 \rightarrow OK)

Duplicate Ro	vs	×			
Number of du	plicated rows				
2 .	1				
	-				
ОК	Cancel	Help			
File Edit View Window		SIEMENS\STEP7\S7Proj\SC	E_PC	S7_MP\SCELib\Gl	S7_MP\SCELib\Global\p01-07-educt-tank00-r1905-
			3		
C:\Program Files (x	B6)\SIEMENS\STEP7\S7Proj\SCE_PC	CS7_MP\SCELib\Global\p	01-07-ed	luct-tank00-r19	
Project	Hierarchy	PHComme	nt	СРО	CPU ChName ChComment
3 Prj	H\ A1 multipurpose plant\T1 educt tanks\e		FC with educt 1	AS S7 Program(1)	
5 SCE PCS7 Pri	A1_multipurpose_plant\T1_educt_tanks\e	educt_tank B001\ educt tank	with educt 1	S7 Program(1)	S7 Program(1) A1T1X004 Valve: Single Drive and Dr
6 <u>SCE PCS7 Pr</u>	A1 multipurpose plant\11 educt tanks\e	educt_tank_B001_leduct_tank	with educt	1 [S7 Program(1)	1 S7 Program(1) A1T1X004 Valve: Single Drive and D
Press F1 for help					

4. Next, change the general information in the Hierarchy and PHComment columns. Then change the ChName and ChComment of the CFCs. For the signals and parameters, you must adapt the SymbolName (inside quotation marks for input signals and as an absolute address for output signals), the BlockName or BlockComment and TextRef.

🚺 IEA	File Editor: Editi	ng IEA Files - [C:\Program Files (x86)\SIEMENS\S	STEP7\S7Proj\SCE_PCS7\S	CELib\Globa	al\p01-07-e	duct-tank00-r1905-en.iea]		<u>- 🗆 ×</u>				
🛟 File	e Edit View W	indow Help						_ 8 ×				
1	Project	Hierarchy	PHComment	CPU	ChName	ChComment		ChName				
2	Tiojoci	Thorarony	ATTIX004									
3	Prj	H/	TC	AS	1	CI						
4	SCE_PCS7_Prj	A1_multipurpose_plant\T1_educt_tanks\educt_tank B0	01\ educt tank with educt 1	S7 Program(1)	A1T1X004	Valve: Single Drive and Dual Feedb	ack with Interlock					
5	SCE_PCS7_Prj	A1_multipurpose_plant\T1_educt_tanks\educt_tank B002\ educt tank with educt 2 S7 Program(1) A1T1X005 Valve: Single Drive and Dual Feedback with Interlock										
6	SCE_PCS7_Prj	A1_multipurpose_plant\T1_educt_tanks\educt_tank B0	03\ educt tank with educt 3	S7 Program(1)	A1T1X006	Valve: Single Drive and Dual Feedb	ack with Interlock	A1T1S00				
								 •				
Press F1	L for help						NUM	<i>li</i> .				
💦 IEA	File Editor: Editi	ng IEA Files - [C:\Program Files (x86)\SIEMENS\S	STEP7\S7Proj\SCE_PCS7\S	CELib\Globa	al\p01-07-e	duct-tank00-r1905-en.iea]		<u>- 0 ×</u>				
🤣 File	e Edit View W	indow Help						<u>- 8 ×</u>				
1	Project	ChName ChComment	ChName ChComment		SymbolName	ConComment	BlockName	BlockCom				

CI

CI SI Speed and Single Direction A1T1L001 level monitoring educt tank B001 "A1.T1.A1T1L001LSA+.SA+" Input value A1T1L001_LSA+ Speed and Single Direction A1T1L002 level monitoring educt tank B002 "A1.T1.A1T1L002.LSA+.SA+" Input value A1T1L002_LSA+ Speed and Single Direction A1T1L003 level monitoring educt tank B003 "A1.T1.A1T1L003.LSA+.SA+" Input value A1T1L003_LSA+

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A1T1S001 Motor: Single A1T1S003 Moto

Press F1 for help

Learn-/Training Document | PA Module P01-07, Edition 02/2020 | Digital Industries, FA

🜔 IEA	File Editor: Editi	ng IEA Files - [C:\Program	Files (x86)\S	IEMENS\STEP7\S	7Proj\SCE_PCS7\SCE_Lib\Global\p01-07-	educt-tank00-r1905-en.ie			
📢 File	Edit View Wi	indow Help						_ 5	2×
	• 🖬 🎒 👗		<u>a</u>	1 🗶 🗜					
1	Project	SymbolName	ConComment	BlockName	BlockComment	SymbolName	ConComment	BlockName	Blo
2	TOJOCI		A1T1	L001\A1T1L001_L	SAPV_In	A	1T1S001\FbkR	un.PV_In	
3	Prj			SI			S		
4			Input value	A1T1L001_LSA-	level monitoring educt tank B001 switchpoint low	"A1.T1.A1T1S001.SO+.O+"	Input value	FbkRun	Dig
5			Input value	A1T1L002_LSA-			Input value	FbkRun	Dig
6	SCE_PCS7_Prj	"A1.T1.A1T1L003.LSASA-"	Input value	A1T1L003_LSA-	level monitoring educt tank B001 switchpoint low	"A1.T1.A1T1S003.SO+.O+"	Input value	FbkRun	Dig
•							-		►
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🧳 File	Edit View Wi	ndow Help								_	Ð×	
1	Project	SymbolName	ConComment	BlockName	BlockComment	SymbolName	ConComment	BlockName	BlockComment	SymbolName	Conl	
2	riojoci		A1T1S001\	OutStart.PV_0	Out	A1T	1X004\FbkClos	se.PV_In		A1	T1X00	
3	Prj			SI			SI					
4	SCE_PCS7_Prj	Q 3.0	Output value	OutStart	Digital output driver	"A1.T1.A1T1X004.GO+O-"	Input value	FbkClose	Digital input driver	"A1.T1.A1T1X004.GO+O+"	Inpu	
5	SCE_PCS7_Prj	Q 3.1	Output value	OutStart	Digital output driver	"A1.T1.A1T1X005.GO+O-"	Input value	FbkClose	Digital input driver	"A1.T1.A1T1X005.GO+O+"	Inpu	
6	SCE_PCS7_Prj	Q 3.2	Output value	OutStart	Digital output driver	"A1.T1.A1T1X006.GO+O-"	Input value	FbkClose	Digital input driver	"A1.T1.A1T1X006.GO+O+"	Inpu	
•							-				F	
Press F1	for help									NUM		

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🤣 File	Edit View W	'indow Help									_ 8	×
	• 🖬 🎒 👗	B ₿ <u>∽ ∼ </u> <u>∦</u> ,	<u> </u>	M 37	t 🚽							
1	Project	SymbolName	ConComment	BlockName	BlockComment	Symbol Na	. ConComment	BlockName	BlockComment	TextRef		Cor
2	Troject	A1T	1X004\FbkOpe	n.PV_ln			A1T1X004	Output.PV_C	lut		1	A1T
3	Prj		SI					SI				
4	SCE_PCS7_Prj	"A1.T1.A1T1X004.GO+O+"	Input value	FbkOpen	Digital input driver	Q 0.3	Output value	Output	Digital output driver	A1T1X004\FbkOpen.P	√_Out	Inp
5	SCE_PCS7_Prj		Input value	FbkOpen	Digital input driver	Q 0.4	Output value	Output	Digital output driver	A1T1X005\FbkOpen.P	√_Out	Inp
6	SCE_PCS7_Prj	"A1.T1.A1T1X006.GO+O+"	Input value	FbkOpen	Digital input driver	Q 0.5	Output value	Output	Digital output driver	A1T1X006\FbkOpen.P	√_Out	Inp
◄							-					▶
Press F1	for help									NUM		11.

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🤣 File	Edit View W	indow Help								. B ×			
1	Project	TextRef	ConComment	BlockName	BlockComment	TextRef	ConComment	BlockName	BlockComment	- I			
2	riojeci		A1T1S001\AND	_Interlock.In2		A	1T1S001\OR_	Interlock.In1					
3	Prj		P				PI						
4		A1T1X004\FbkOpen.PV_Out				A1T2X001\FbkOpen.PV_Out		OR_Interlock	Logical OR with 4	inputs			
		A1T1X005\FbkOpen.PV_Out				A1T2X002\FbkOpen.PV_Out		OR_Interlock	Logical OR with 4	inputs			
6	SCE_PCS7_Prj	A1T1X006\FbkOpen.PV_Out	Input 2	AND_Interlock	Logical AND with 4 inputs	A1T2X003\FbkOpen.PV_Out	Input 1	OR_Interlock	Logical OR with 4	inputs			
•										Þ			
Press F1	for help								NUM				

IEA IEA	😢 IEA File Editor: Editing IEA Files - [C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PC57\SCE_Lib\Global\p01-07-educt-tank00-r1905-en.iea]									
🤣 File	Bile Edit View Window Help									<u>I</u>
1	Project	TextRef	ConComment	TextRef	ConComment	BlockName	BlockComment	TextRef		С
2	TOJOCI	A1T1S001\OR_Interlo	ock.ln2	A11	1S001\OR_Lo	cal.In1		A1T1S001\OR_Local.ln2		
3	Prj	PI			PI				PI	
4	SCE_PCS7_Prj	A1T2X004\FbkOpen.PV_Out	Input 2	A1T2H001\Out_A1T2H001.PV_Out	Input 1	OR_Local	Logical OR with 4 inputs			
5		A1T2X005\FbkOpen.PV_Out		A1T2H002\Out_A1T2H002.PV_Out			Logical OR with 4 inputs			
6	SCE_PCS7_Prj	A1T2X006\FbkOpen.PV_Out	Input 2	A1T2H003\Out_A1T2H003.PV_Out	Input 1	OR_Local	Logical OR with 4 inputs	A1T2H006\Out_A1	T2H006.PV_O	ut In
Press F1	Press F1 for help									

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🤣 File	🐉 File Edit View Window Help 📃 🗗								
1	Project	TextRef	ConComment	TextRef	ConComment	BlockName	BlockComment	TextRef	
2	Tojoor	A1T1S001\OR_Local.lr	12	A1T1X004\OR_A1T1X004.ln1				A1T1X004\OR_	
3	Prj	PI		PI				PI	
		A1T2H004\Out_A1T2H004.PV_Out		A1T2H001\Out_A1T2H001.PV_Out	Input 1	OR_A1T1X004	collects manual local input	A1T2H004\Out_A1T2H004	
		A1T2H005\Out_A1T2H005.PV_Out		A1T2H002\Out_A1T2H002.PV_Out	Input 1	OR_A1T1X005	collects manual local input	A1T2H005\Out_A1T2H005	
6	SCE_PCS7_Prj	A1T2H006\Out_A1T2H006.PV_Out	Input 2	A1T2H003\Out_A1T2H003.PV_Out	Input 1	OR_A1T1X006	collects manual local input	A1T2H006\Out_A1T2H006	
•							-	Þ	
Press F1	for help							NUM //,	

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(할 File Edit View Window Help) 관 ×									
1	Project	TextRef	ConComment	BlockName	BlockComment	TextRef	ConComment		
2	noject	A11	1X004\OR_A1	T1X004.ln1	A1T1X004\OR_A1T1X004.ln2				
3	Prj		PI			PI			
		A1T2H001\Out_A1T2H001.PV_Out				A1T2H004\Out_A1T2H004.PV_Out			
		A1T2H002\Out_A1T2H002.PV_Out				A1T2H005\Out_A1T2H005.PV_Out			
6	SCE_PCS7_Prj	A1T2H003\Out_A1T2H003.PV_Out	Input 1	OR_A1T1X006	collects manual local input	A1T2H006\Out_A1T2H006.PV_Out	Input 2		
•						1	Þ		
Press F1	for help						NUM //.		

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p01-07-importing-plant-design-data-v9-tud-0719-en.docx

5. Finally, leave the messages unchanged. Save the file and close the editor. (\rightarrow Save \rightarrow X)

💦 IEA	🔁 IEA File Editor: Editing IEA Files - [C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7\SCE_Lib\Global\p01-07-educt-tank00-r1905-en.iea]									
🐉 File Edit View Window Help 📃 🖪										
1	Project	Event	BlockName	BlockComment	Event	Event				
2	riojeci	A1T1X004\valve_A1T1	X03_1		A1T1X004\valve_A1T1X004.MsgEvId1:SIG_2	A1T1X004\valve_A1T1X004.MsgEvId1:SIG_3				
3	Prj	M	l		M	M				
4	SCE_PCS7_Prj	\$\$BlockComment\$\$ Fehler Rückmeldung	valve_A1T1X004	Valve - Large	\$\$BlockComment\$\$ Externer Fehler aufgetreten	\$\$BlockComment\$\$ Externe Meldung 1				
5	SCE_PCS7_Prj	\$\$BlockComment\$\$ Fehler Rückmeldung	valve_A1T1X005	Valve - Large	\$\$BlockComment\$\$ Externer Fehler aufgetreten	\$\$BlockComment\$\$ Externe Meldung 1				
6	SCE_PCS7_Prj	\$\$BlockComment\$\$ Fehler Rückmeldung	valve_A1T1X006	Valve - Large	\$\$BlockComment\$\$ Externer Fehler aufgetreten	\$\$BlockComment\$\$ Externe Meldung 1				
•										
Press F1 for help										

6. The Assistant is exited with 'Finish'. (\rightarrow Finish)

mport/Export Assistant: Create/Modify Model - SCE_PCS7_Lib\Models\educt_tank B001\							×					
Which import data do you want to a	issign to	o whi	ch ma	odel data ?								4 (4)
Import file: C:\Program Files (x86)\SI	EMENS	S\STE	EP7\	S7Proj\SCE_PC	S7_MP\SCEL	.ib\Global\p01	-07-eduo	ttank00-r1	905-en iea 💌	Creat	e File Templa	te
Check replicas for changed IEA flags.											Open File	
Import data:		Mod	el dat	ta:							Other File	
P Column title	1		P	Column title	Hierarchy	Chart	Block	I/O name	I/O comment	1/0	Data type	-
	-	1	S	A1T1L001\A	Models\edu	A1T1L001	A1T	PV In	Input value	IN	BOOL	-7
		2	S	A1T1L001\A	Models\edu	A1T1L001	A1T	PV_In	Input value	IN	BOOL	
	->	3	S	A1T1S001\F	Models\edu	A1T1S001	Fbk	PV_In	Input value	IN	BOOL	
		4	S	A1T1S001\O	Models\edu	A1T1S001	Out	PV_Out	Output value	OUT	BOOL	
		5	S	A1T1X004\F	Models\edu	A1T1X004	Fbk	PV_In	Input value	IN	BOOL	
	<	6	S	A1T1X004\F	Models\edu	A1T1X004	Fbk	PV_In	Input value	IN	BOOL	
		7	S	A1T1X004\O	Models\edu	A1T1X004	Output	PV_Out	Output value	OUT	BOOL	
	<<	8	Ρ	A1T1S001\A	Models\edu	A1T1S001	AND	In2	Input 2	IN	STRUCT	
	_	9	Ρ	A1T1S001\O	Models\edu	A1T1S001	OR	In1	Input 1	IN	STRUCT	
		10	Ρ	A1T1S001\O	Models\edu	A1T1S001	OR	In2	Input 2	IN	STRUCT	
		11	Ρ	A1T1S001\O	Models\edu	A1T1S001	OR	In1	Input 1	IN	STRUCT	
		12	Ρ	A1T1S001\O	Models\edu	A1T1S001	OR	In2	Input 2	IN	STRUCT	
		13	Ρ	A1T1X004\O	Models\edu	A1T1X004	OR	In1	Input 1	IN	STRUCT	
		14	Ρ	A1T1X004\O	Models\edu	A1T1X004	OR		Input 2	IN	STRUCT	
	1	1	I.M	A1T1V004\	Manager and	A1T1V004	· !	Martinat	1		1	•
	1											
Back Finish		Oper	n Cha	rt Print					0	ancel	Help	þ

7. The newly created model is located in the project library in the Models folder. Here, the created model is renamed to 'EductTank'.

SIMATIC Manager - SCE_PCS7_MP File Edit Insert PLC View Options Wi	ndow Help	
		☑ ⅔ @ 🐂 🖬 🕅 K?
	gram Files (x86)\\STEP7\S7Proj\SCE_PCS7_MP\SCEMP	_ D ×
SCE_PCS7_MP SCE_PCS7_Prj Sce_PCS7_Prj A1_multipurpose_plant Gamma A1_multipurpose_plant Gamma A1_m	EductTank]	
Press F1 to get Help.		PC internal.local. 1

8.9 Importing a model

 Before starting the import, you must delete the hierarchy folders B001 to B003 including the CFCs they contain. (→ educt_tank B00x → Delete)

SIMATIC Manager - SCE_PCS7_MP					
File Edit Insert PLC View Options	Window Help				
🔡 🗅 😅 🎛 🛲 X 🖻 💼 1	1 0 ° 1 ° 0	:- 🗄 🏛 🕻	No Filter >	- 🏹 🔡 📾	1 🖷 🖿 🕅 🕅
SCE_PCS7_MP (Plant View) C:\P				_MP	
SCE_PCS7_MP SCE_PCS7_Pri Stared Declarations Stared Declarations Sta	A1T1L001	₩A1T1S00	I ∰A1T1×004	∱- Picture(4)	
educt_tank B002	Cut	Ctrl+X			
📔 educt_tank B003	Сору	Ctrl+C			
E 🙆 T2_reaction	Paste	Ctrl+∀			
in reactor R001	Delete	Del			
T3_product_tanks	Insert New Object	•			
i product_tank B0	Access Protection	•			
⊡ ⊡ ⊡ T4_rinsing ⊡ ⊡ ⊡ rinsing_tank B00'	Print	•			
E SCE_PCS7_Lib E C Shared Declarations E C Models	Charts Plant Hierarchy Process Tags	*			
Process tag types	Models	+			
	Rename	F2			
	Object Properties	Alt+Return			
Deletes the selected objects.					1.

2. Confirm the warning with 'Yes'. (\rightarrow Yes)

Delete (256:128)							
	This procedure cannot be undone! Do you really want to delete the selected objects 'educt_tank B001' ?						
Yes	No						

3. After the deletion, the plant hierarchy looks like this.

SIMATIC Manager - SCE_PCS7_MP File Edit Insert PLC View Options Wir	den Ude	
	😨 🚝 ₽₀ 🐩 📰 🏢 🕒 < No Filter >	✓ ½ % @ < < < < < < < < < < < < < < < < < <
	pram Files (x86)\\STEP7\S7Proj\SCE_PCS7_MP\SCE_	MP _ D X
SCE_PCS7_MP SCE_PCS7_Pri A1_multipurpose_plant A1_multipurpose_plant GT2_reaction GT2_reaction GT2_reactor R001 GT3_product_tanks GT3_product_tank B001 GT4_rinsing	↑ [Picture(3)]	
Press F1 to get Help.		PC internal.local.1

4. You can then start the import of the model. (\rightarrow EductTank \rightarrow Models \rightarrow Import...)

SIMATIC Manager - SCE_PCS7_MP File Edit Insert PLC View Options Window	Help	
🗌 🗅 😂 🎇 🐖 👗 🖻 🕄 🕍 🔍	🖳 🕒 🔛 🏥 🇰 主 🔍 < No Fil	ter> 🔽 🏏 👯 🌚 🖻 🗖 🕅
SCE_PCS7_MP (Plant View) C:\Program		57_MP\SCEMP
SCE_PCS7_MP SCE_PCS7_Pri A1_multipurpose_plant A1_multipurpose_plant Figure reactor R001 Figure reactor R002 Figure reactor R002	uctTank Cut Ctrl+X Copy Ctrl+C Paste Ctrl+V Delete Del Insert New Object Access Protection Print Charts Plant Hierarchy Process Tags Models Plant Types Rename F2 Object Properties Alt+Return	Create/Modify Model Create/Modify Model Import Export
Creates replicas of the model and assigns parameters	to the copies	

5. Confirm the start screen of the Import/Export Assistant with 'Next'. (\rightarrow Next)

Import/Export Assistant Models: Im	nport - SCE_PCS7_Lib\Models\EductTank\	x
K Introduction		1 (3)
RAN TAH TAH	Assistant: Import Models With the assistant, you can create replicas of models and import the data from the import files to the replicas. In a multiproject, the model is copied from the master data library to the specified target projects as a replica and the data is imported subsequently. Afterwards, you have a replica for each line of an import file. The data of the import files are written to the relevant I/Os or blocks of the replicas.	
	The hierarchy folder of the replica is displayed in the SIMATIC Manager with this icon.	
Back Next	Cancel Help	

6. Select the 'Close textual interconnections' check box and click 'Next'. (\rightarrow Close textual interconnections \rightarrow Next)

Import/Export Assistant Models: Import - SCE_PCS7_Lib\Models\EductTank\		×
Which settings do you want to use for import ?		2 (3)
□ Include signal in the symbol table		
Import file <> Model		
Import C:\Program Files (x86)\SIEMENS\STEP7\S7Proj\SCE_PCS7_MP\SCE_Lib\Global\p01-07-educt+ank00r1905-en.iea	Model Models\EductTank\	Open File
		Other File
4	[) [
Back Next	Ca	ncel Help

7. The assistant is now finished and the import is started. (\rightarrow Finish)

Import/	Export Assistant Models: Im	port - SCE	PCS7_Lib\Models\EductTank\	×
× 1	Do you want to finish the import ?			3 (3)
🔲 Only	v show errors and warnings in log			
Import le	og:			
Objec	t	Action L	og text	
Log file:	C:\Program Files (x8	6)\SIEMENS	\STEP7\S7Proj\SCE_PCS7_MP\SCE_Lib\Global\p01-07-educt+ank00+1905-en.LOG	Other File
Ba	ck Finish	Oper	i Object Print	ancel Help

8. The import log is created again and the result is displayed. (\rightarrow Exit)

bort log:		Action	Log text
		OK	Logion
	pose_plant\T1_educt_tanks\educt_tank B003\\A1T1X006\valve_A1T1X004 pose_plant\T1_educt_tanks\educt_tank B003\\A1T1X006\valve_A1T1X004	OK	Message text is empty (column title Message text is empty (column title
	pose_plant\T1_educt_tanks\educt_tank B003\\A1T1X006\valve_A1T1X004	OK	Message text is empty (column title Message text is empty (column title
	pose_plant\T1_educt_tanks\educt_tank B003\\A1T1X006\valve_A1T1X004	OK	Message text is empty (column title
	pose_plant\T1_educt_tanks\educt_tank_B003\\A1T1X006\valve_A1T1X004	OK	Message text is empty (column title
	pose plant\T1 educt_tanks\educt_tank B003\\A1T1X006\valve_A1T1X004	OK	Message text is empty (column title
	pose_plant\T1_educt_tanks\educt_tank B003\\A1T1X006\valve_A1T1X004	ÖK	Message text is empty (column title
	pose plant/T1 educt tanks/educt tank B003//A1T1X006/valve_A1T1X004	ÖK	Message text is empty (column title
	pose plant/T1 educt tanks/educt tank B003//A1T1X006/valve A1T1X004	ÖK	Block name 'valve A1T1X006' writ
	pose plant/T1 educt tanks/educt tank B003//A1T1X006/valve A1T1X004	ÖK	Block comment 'Valve - Large' alrea
me		OK	00:01:56 Hr:Min:Sec
:\Program Files (x86)\SIEM	ENS\STEP7\S7Proj\SCE_PCS7_MP\SCE_Lib\Global\p01-07-educt+ank00-r1905-en.ie	a End	Import completed successfully.
		End	

9. The imported models are now present in the plant hierarchy.

SIMATIC Manager - SCE_PCS7_MP File Edit Insert PLC View Options W	indow Help	
🔄 🗅 🛩 🏭 🛲 👗 🖻 🛍 🕍	[] 😨 🖳 ₽ <u>□</u> 🔛 🔠 €. < No Filter >	🔽 🏹 💥 🕲 🖷 🚍 🗂 📢
	gram Files (x86)\\STEP7\S7Proj\SCE_PCS7_MP\SCE_	
	₩A1T1L003 ₩A1T1S003 ₩A1T1X006	-∱- Picture(4)(2)
Press F1 to get Help.		PC internal.local. 1

10. Check to see if the textual interconnections with the existing CFCs are closed.

Input:	Textual interconnection:	Inverted
MotL.Pumpe_A1T1S001.LocalLi	A1H003\A1H003.PV_Out	No
Intlk02.Permit.In01	A1H001\A1H001.PV_Out	No
Intlk02.Protect.In01	A1H002\A1H002.PV_Out	No
Or04.Or_Interlock.In1	A1T2X001\FbkOpen.PV_Out	No
Or04.Or_Interlock.In2	A1T2X004\FbkOpen.PV_Out	No
Or04.Or_Local.In1	A1T2H001\Out_A1T2H001.PV_Out	No
Or04.Or_Local.In2	A1T2H004\Out_A1T2H004.PV_Out	No

Table 2: Textual interconnections in chart 'A1T1S001'

Input:	Textual interconnection:	Inverted
VlvL.Ventil_A1T1X004.LocalLi	A1H003\A1H003.PV_Out	No
Intlk02.Permit.In01	A1H001\A1H001.PV_Out	No
Intlk02.Protect.In01	A1H002\A1H002.PV_Out	No
Or04.Or_Local.In1	A1T2H001\Out_A1T2H001.PV_Out	No
Or04.Or_Local.In2	A1T2H004\Out_A1T2H004.PV_Out	No

Table 3: Textual interconnections in chart 'A1T1X004'

Input:	Textual interconnection:	Inverted
Or08.Or_A1T2H001.In7	A1T1L001\A1T1L001_LSAPV_Out	Yes

Table 4: Textual interconnections in chart 'A1T2H001'

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8.10 Checklist – step-by-step instruction

The following checklist helps students to independently check whether all steps of the step-bystep instruction have been carefully completed and enables them to successfully complete the module on their own.

No.	Description	Checked
1	Process tag type ReactorDeliveryValve created	
2	Process tag type ReactorDeliveryValve successfully imported	
3	Imported valve CFCs successfully tested (optional)	
4	Interlocking of pump A1T1S001 complete (no textual interconnections)	
5	EductTank model created	
6	EductTank model successfully imported	
7	Textual interconnections in imported models are closed	
8	Imported models successfully tested (optional)	
9	Project successfully archived	

Table 5: Checklist for step-by-step instructions

9 Exercises

In the exercises, you apply what you learned in the theory section and in the step-by-step instructions. The existing multiproject from the step-by-step instructions (p01-07-project-r1905en.zip) is to be used and expanded for this. The download of the project is stored as zip file "Projects" on the SCE Internet for the respective module.

The tasks in this exercise will add all the objects not implemented so far to the plant. It is up to you where you want to utilize the tools for importing plant design data. Effective utilization of the import of plant design data not only depends on the plant structure but also on the mapping of this structure in the plant hierarchy. With some practice, you will deepen your knowledge regarding useful plant designations and the structure of the plant hierarchy.

Note:

 The generated import files are stored in zip file 'p01-07-files-r1905-en.zip'. However, these files may not work if there are discrepancies in the created process tag type or model.

9.1 Tasks

- 1. Complete the following CFCs in Reactor R001:
- A1T2H002 and A1T2H003
- A1T2H013 and A1T2H015
- A1T2X007.
- 2. Check open textual interconnections between the manual controls in the reactor and other CFCs in Reactor R001. To do so, you can also use the 'Close textual interconnections' function under Options in the CFC Editor, because it will show you the interconnections that could not yet be closed. Double-click or use the 'Go to' button to select an interconnection that is still open and correct it manually.

Note:

- Not all open textual interconnections can be closed here. Most important are the connections within Reactor R001.
- Now, create a model of Reactor R001. Delete the Reactor R002 folder and import the model. Reactor R001 is automatically skipped because the folder already exists. If you delete the folder, it will also be generated from the model.
- 4. Next, create a model of Product Tank B001. Delete at least the product_tank B002 folder and import the model.

- 5. Now create the missing CFCs for the rinsing tank:
- A1T4L001
- A1T4S001
- A1T4X001, A1T4X002, A1T4X003 and A1T4X004.
- 6. Interconnect the manual control for rinsing in such a way that the rinsing water flows from the rinsing tank into the reactor and then directly back into the rinsing tank.
- 7. Check whether textual interconnections are still open and close them if necessary.
- 8. Finally, check all CFCs for correct designations and correct connections. For the former, it is best to utilize the process object view. Always select one CFC in the left window while you check the name of the blocks in the 'Blocks' tab in the right window. To look for errors, however, you should use the simulation.

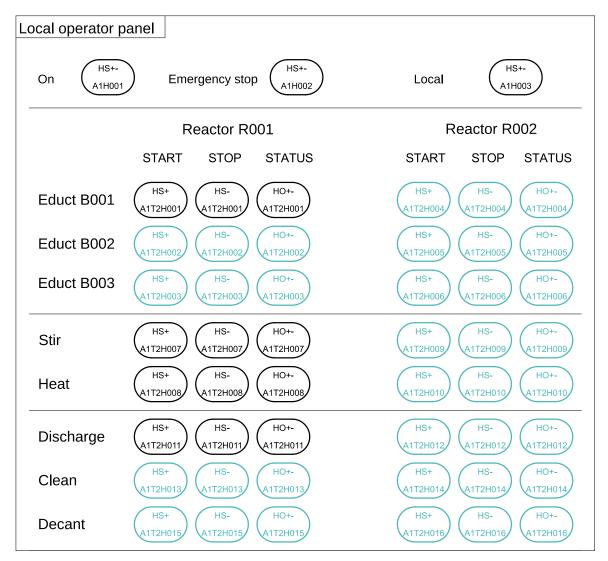


Figure 5: Excerpt from the local operator station

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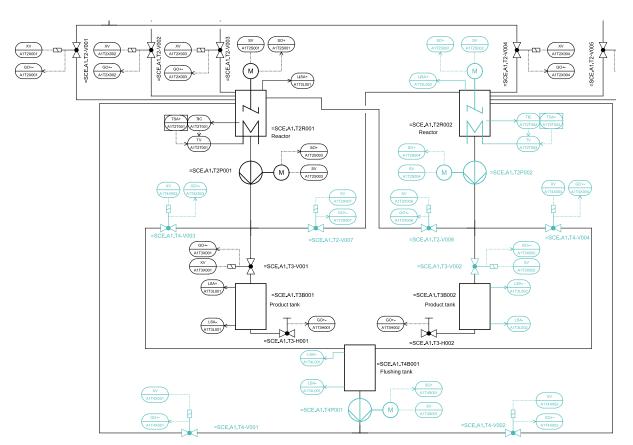


Figure 6: Excerpt from P&ID flowchart

9.2 Checklist – exercise

The following checklist helps students to independently check whether all steps of the exercise have been carefully completed and enables them to successfully complete the module on their own.

No.	Description	Checked
1	CFCs for A1T2H002, A1T2H003, A1T2H013, A1T2H015, A1T2X007 in 'reactor R001' complete	
2	Open textual interconnections in CFCs in 'reactor R001' checked	
3	CFCs in 'reactor R002' complete	
4	CFCs in 'product_tank B002' complete	
5	CFCs for A1T4L001, A1T4S001, A1T4X001, A1T4X002, A1T4X003, A1T4X004 in 'rinsing_tank B001' complete	
6	Manual control for rinsing correct	
7	Open textual interconnections all closed	
8	Block names in all CFCs correct	
9	Blocks successfully tested (optional)	
10	Project successfully archived	

Table 6: Checklist for exercises

10 Additional information

More information for further practice and consolidation is available as orientation, for example: Getting Started, videos, tutorials, apps, manuals, programming guidelines and trial software/ firmware, under the following link:

siemens.com/sce/pcs7

Preview "Additional information"

Getting Started, Videos, Tutorials, Apps, Manuals, Trial-SW/Firmware

- SIMATIC PCS 7 Overview
- SIMATIC PCS 7 Videos
- > Getting Started
- > Application Examples
- > Download Software/Firmware
- SIMATIC PCS 7 Website
- SIMATIC S7-400 Website

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