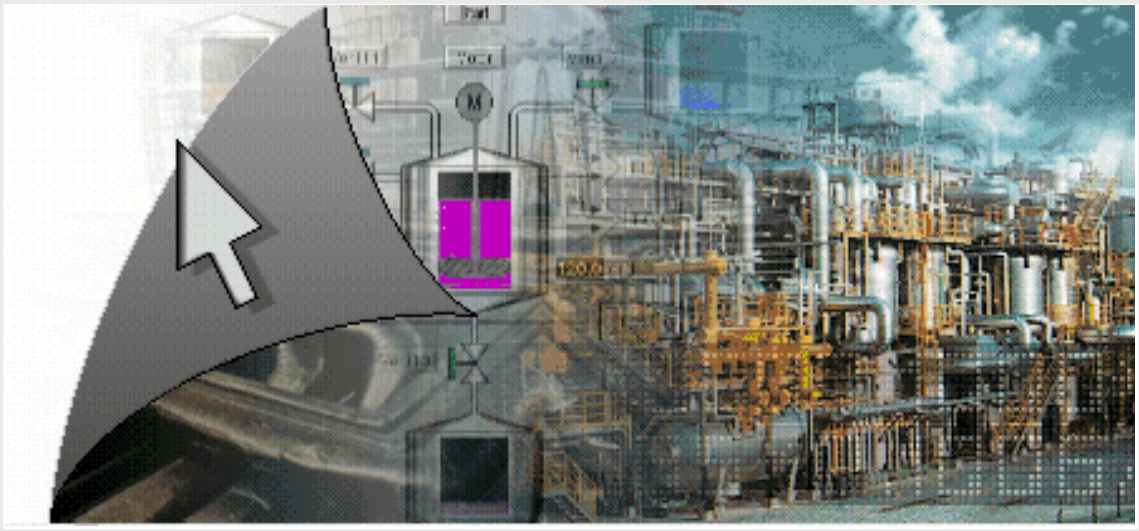
SIEMENS

Migration TELEPERM M - SIMATIC PCS 7

PCS 7/TM

Technical Description



Migration TELEPERM M - SIMATIC PCS 7

PCS 7/TM

Reference Manual

C79000-T8076-C740-17

Safety Notes

This Manual contains information you must observe to ensure your personal safety and to avoid damage to the equipment. The notes for your personal safety are marked by a warning triangle. Notes on damage to equipment only are without a warning triangle. Depending on the degree of the hazard they are represented as follows:

Danger

means that there **will** be death, serious injuries or significant damage to equipment if the corresponding precautions are not taken.

Warning

means that there **may** be death, serious injuries or significant damage to equipment if the corresponding precautions are not taken.

Caution

with a warning triangle means that slight injuries may occur if the corresponding precautions are not taken.

Caution

without a warning triangle means that damage to equipment may occur if the corresponding precautions are not taken.

Notice

means that unwanted events or states may happen if the corresponding note is not observed.

Qualified staff

Commissioning and operation of the unit may only be performed by **qualified staff**. Within the safety-related notes, qualified staff stands for persons who are authorized to put units, systems and circuits into operations, ground them and mark them according to the standards of safety technology.

Intended use

Please observe the following points:

Warning

The unit may only be used for the applications mentioned in the catalogue and in the technical description, and only in conjunction with third-party units and components that are recommended by Siemens.

Faultless and safe operation of the product requires proper transport, proper storage, setup and installation, and careful handling and maintenance.

Brand names

TELEPERM ®, SIMATIC ® and SINEC ® are registered brand names of Siemens AG. The other names in this document may be brand names whose utilization by third parties may infringe the rights of the owner.

Exclusion of liability

Although we have checked the contents of this document for agreement with the described hardware and software, there may still be deviations so that we cannot guarantee a complete agreement. The specifications in this document are checked on a regular basis and necessary corrections will be contained in the subsequent versions. We are grateful for any suggestions on improving the document.

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Automation and Drives
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Siemens Aktiengesellschaft

Order No. C79000-T8076-C740-17

Preface

Purpose of the description

This description provides you all the information you need for utilizing ***PCS 7/TM***. These are primarily

- A product overview with a brief description of the functions, the system requirements, the interfaces and the delivery form
- The installation and application of the TELEPERM M channel DLL
- The acceptance of configuration data from PROGRAF AS into the *WinCC* data manager and the entry of TELEPERM M messages in the *WinCC* signaling system, using the programming tool TM_Manager
- The peculiarities that must be observed when using *WinCC*

The listed tools help the user to simplify and optimize the TELEPERM-M-specific configuration in *WinCC*.

The standard control displays - (NORA)/OCX blocks - as the basis of trade-specific libraries are described in a separate document.

Readers

This description is aimed at people who work in the configuration of I&C systems.

Requirements

Working knowledge of the general handling of personal computers and the work with *PCS 7/TM* is required.
Furthermore, the reader must be familiar with the TELEPERM M process control system, in particular with PROGRAF AS+ and the OS operator communication and visualization systems.
Several Reference Manuals are available for further information (see Applicable Documents in Appendix B).

Standard

The *PCS 7/TM* software is based on the international standards DIN EN 61131-3 (IEC 1131-3) for programming languages.

Guide through the Manual

This Manual is subdivided into the following topics:

- Chapter 1 contains a system overview with general information about structure, functions, system requirements, interfaces, and delivery form.
- Chapter 2 describes the TELEPERM M channel DLL.
- Chapter 3 describes the programming tool "TM Manager".
- Chapter 4 describes the Double Channel Functionality.
- Chapter 5 describes the Time Synchonization
- Chapter 6 describes the Online Delta Loading
- Chapter 7 describes the special features
- The Appendix contains a list of the abbreviations used in the document, and the list of applicable documents.

Conventions

References to other documents are made by means of numbers enclosed by /.../ slash marks. Use this number with the list of applicable documents at the end of this Manual to find the exact title of the document.

Additional support

We offer courses that are intended to facilitate your entry into the PCS 7/TM and/or SIMATIC PCS 7 system. Please contact your local Training Center, or the Central Training Center in:

1. D-90327 Nürnberg, phone xx49-911 / 895 3202, FAX: xx49-911 / 895 3252.
2. D-78187 Karlsruhe, phone xx49-721 / 595 2917, FAX: xx49-721 / 595 6087.

Contents

Product Overview

1

Overview

This Chapter gives you an overview of ***PCS 7/TM***.

In this Chapter

This Chapter deals with the following topics:

1.1 What can *PCS 7/TM Do?*

Usage

The *WinCC* operator communication and visualization system can be used for accessing data from the TELEPERM M automation systems via the TELEPERM M channel DLL.
Because *WinCC* is a highly flexible and open system, the system does not support configurations specific to TELEPERM M (of an OS 2xx or an OS 52x, for example).
Compared with PROGRAF AS+ or OS 525, this situation involves more programming work.

The ***PCS 7/TM*** tools are provided to reduce this work and the complexity of TELEPERM M-specific programming.

WinCC in combination with TELEPERM M can fully replace older OS systems 252 and 265 which are used for operator control and monitoring of AS 220, AS 23x and AS x88 automation systems.

1.2 *PCS 7/TM Product Structure*

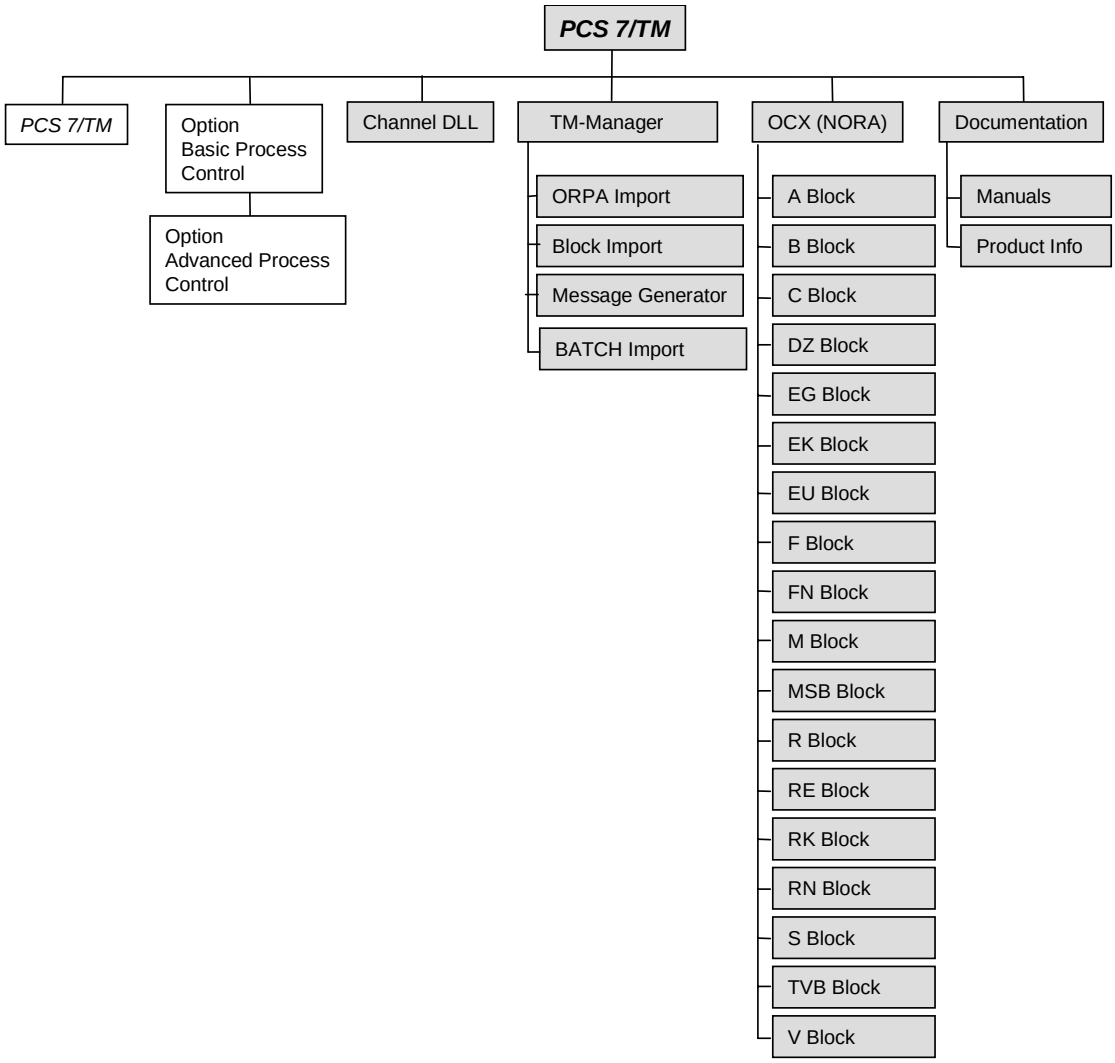


Figure 1-2 *PCS 7/TM* block diagram

Brief description

The following configuration tools and standard control displays OCX (NORA) are available:

- Bus-specific channel DLL for handling communication between the automation system and *WinCC*.
- The programming tool "TM Manager" can be used for generating project data for the *WinCC* data manager based on PROGRAF AS+ data and TELEPERM M messages for the *WinCC* message system.
- Standard operator system interfaces OCX (NORA) as the basis of trade-specific libraries (layout similar to TELEPERM M and partly to PCS 7, also symbolic presentation).

- Optional Basic Process Control package
  - for configuring and initializing the monitor and image settings;
  - for managing a hierarchy of area names and images;
  - for configuring and initializing the message system.
- Optional Advanced Process Control package
- Image selection via process tag
- Online trending

1.3 Functions

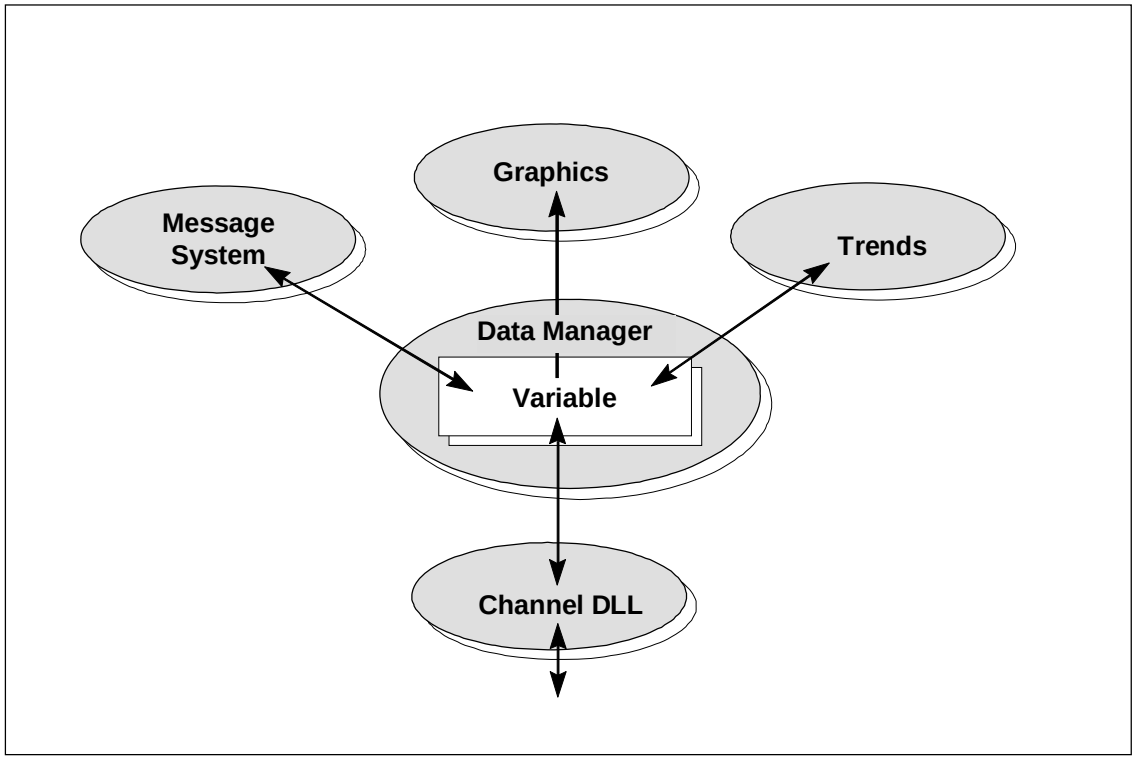


Figure 1-2 Basic structure of *WinCC*

The tools and standard operator control screens described below are related to the integration (and configuration) of the TELEPERM-specific variables into the data manager.
The *WinCC* online functionality remains unchanged, including its optional packages.

Notes on configuration change

In *WinCC*, any change in the database involves the deletion and recreation of the relevant data. This also applies to derived structures, for example, block instances or messages. Messages associated with the variables must be deleted before the variable itself is deleted.

The effect of any changes in project data on the AS should **first** be determined in WinCC, and after the delta download to the AS you also need to adapt the OS data.

1.3.1 Channel DLL

From the *WinCC* perspective, the TELEPERM M channel DLL represents a bus-specific communication driver for accessing data of TELEPERM M (standard) automation systems. Depending on the selection made during Setup, the user has read/write access to the following data by means of this driver:

- AS 230, AS 235, AS 388/TM, AS 488/TM
- AS 215
- AG 150/ 155U
- AS 220 S

In addition to this selection, it may be required to install an authorization.

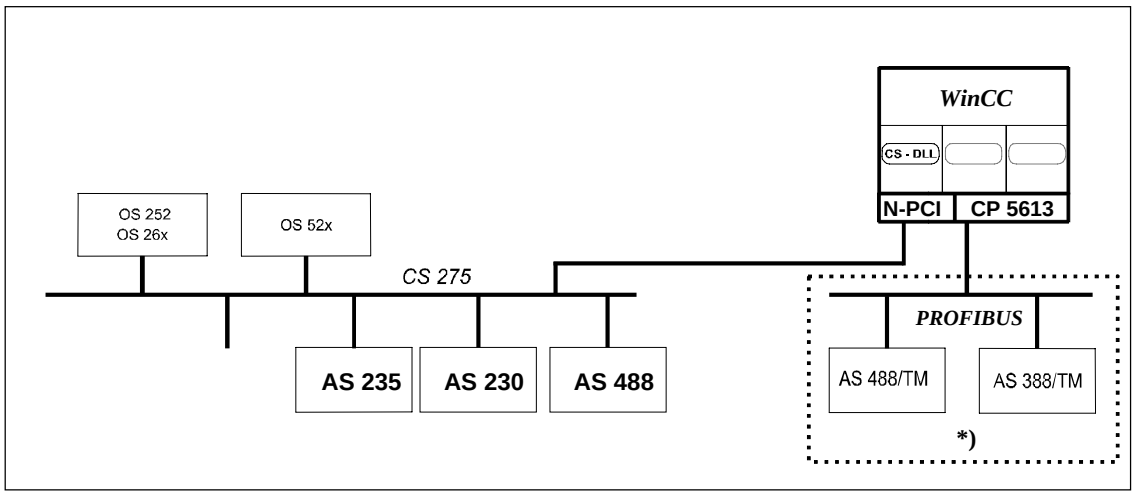


Figure 1-3 Connecting *WinCC* to TELEPERM M

Notice:
*) Parallel operation of CS 275 and PROFIBUS-TM is not possible.

1.3.2 TM Manager

The new *WinCC* tool was designed to minimize programming work for the TELEPERM M database, and to assist the user in the import of blocks from the PROGRAF AS+ engineering system which are required for the database.

PROGRAF AS+ is available in TELEPERM M as an intelligent programming tool for AS systems and provides an export interface to PROGRAF OS, which is also used for the communication with *WinCC*. A data record from an AS must therefore first be mapped in the PROGRAF AS+ database.
This is the case for the systems AS 230 and AS 235 as well as AS 388/TM and AS 488/TM.

Because PROGRAF AS+ data are not provided in a single homogeneous data record, the functions for importing the structures and the blocks instances have been distributed to several tools.

At the AS side, the full parameter description for all function blocks is maintained in "ORPAs" (original parameter record). These ORPAs form the copy template when the block instances are generated in the AS.

ORPA import

Because all data configured in the AS is contained in the PROGRAF AS+ export data, a special filter is used to import ORPA data. This filter can be used to define the parameters for operator control and monitoring.

Block import

Based on the data that has been generated during the import of the ORPA information, the block instances created in the AS may also be imported to *WinCC*.

A data filtering function is also available for the block import.

Create link

This tool creates the connections and the relevant variables.

Note:

Creating the import data by means of PROGRAF AS+ is described in Appendix E.

1.3.3 Format DLL/ Message System

Operation of the *WinCC* message system in combination with the TELEPERM M channel DLL requires a PMC-S7 format DLL.

The name of this format DLL is "NrmTelpm.nll".
To enable its communication with the channel, a special variable must be configured in the database. This is a "raw data variable" type, named "TM_MELD_RDV". It can be linked any one of the TELEPERM M channels, but must be unique.

The TM-Manager creates a pseudo link (i.e. a pseudo AS with bus and device number 0/0) for the definition of that variable.

The pseudo AS, with name MELD, is created with all necessary variables when creating a connection.

1.3.4 Message Generator

The configuration of messages in *WinCC* is basically detached from the block context. This makes it a highly flexible and system-independent function. However, its use with TELEPERM M involves greater engineering effort and a high risk of error. A message generator is available for reducing these negative effects and the complexity of message configuration. Its tasks include:

- Creating individual messages with
  - automatically generated message ID
  - message text to be entered by the user
  - associated for S16
  - date/time from the AS
  - alarm class
  - a relevant format DLL (for acknowledgements)
  - block instance name in "Free5" and origin
  - Message texts and service texts can be imported by a CSV file
  - Alarm Hiding masks can be imported by a CSV file
- Entering the message number into the *WinCC* variable database (defining default .EventRaw in the variable database).
  The block mapper assigns suitable default values to these fields of the standard blocks.
  The function indicates delta configurations in the default block messages.

Note:
Restrictions: The message system can not be configured in online mode.
For exception see chapter 6 ("Online Delta Loading").

1.3.5 Standard Operator Control Displays OCX (NORA)

OCX shall be used to replace control panels or at least NORA.
TELEPERM M provides by default approx. 20 operator controllable accessible block types.
Some of these blocks are used in different process-related contexts (the A block, for example, is used for valves and motors). Earlier versions of OS systems contain separate NORA representations for each of these applications. Different standard operator control displays will therefore also be required in the *WinCC* context.

Using suitable development tools such as VB 5.0 or 6.0, objects of the same type can be developed for the representation of user function blocks.

Note:
The PCS 7/TM-OCX (NORA) that have been implemented for WinCC are described in the Technical Description, Order No. C79000-T8076-C741 /41/.

1.4 Requirements, Interfaces and Delivery Form

Requirements

A PG/PC with the following system environment is required for using the tools described earlier:

- *WinCC* Version 5.0 or later (with the Basic Process Control and Advanced Process Control options, if used as OS), including PCS 7/TM-CS 275 or PCS 7/TM-PROFIBUS.
- PROGRAF AS+, Version 3 or later.
- A DOS- or Windows-based text editor for editing the filter files.

Interfaces

The interfaces are determined by *WinCC* and the TELEPERM M channel DLL.

Delivery form

The TELEPERM M channel DLL and the configuration tool TM Manager are components of the PCS 7/TM-CS 275 or PCS 7/TM-PROFIBUS software. They are supplied on a separate CD for installation on the destination computer.
A separate authorization must be installed for these products.

1.5 Brief Installation Instructions

The practical example in this chapter demonstrates the installation of the TELEPERM tools. After this setup, the PC is ready for programming.

Recommended PC configuration:

For this information, please refer to the information <..>\Siemens\PCS7**pcs7-readme.wri**.

File structure

The following figure shows you the *WinCC* hierarchy of the TELEPERM tool files:

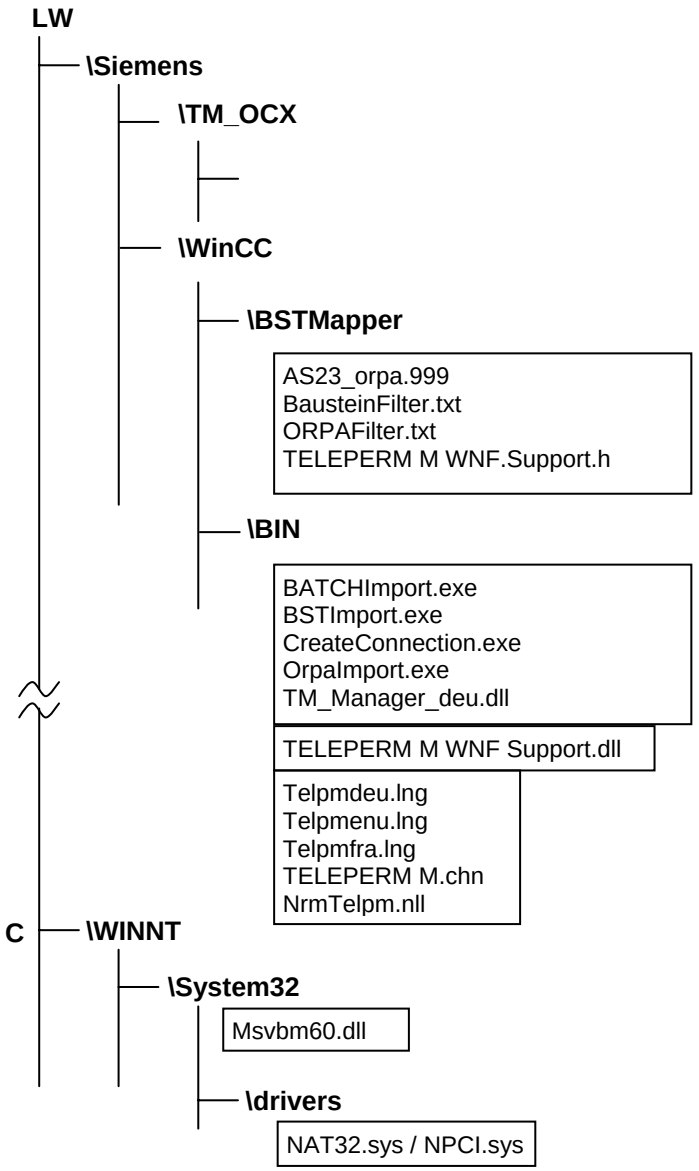


Figure 1-4 WinCC file structure for TELEPERM M programs

Installation of the channel DLL

The channel DLL files and all necessary software components (driver N-AT/N-PCI and communication service TM_Server) are installed via own installation programs.

Installation of TM Manager

The TM Manager files are installed according to the file structure specified above.

Installation of standard operator control displays

The installation of PCS 7/TM-OCX(NORA) is described in the Technical Description, Order No. C79000-T8076-C741 **/41/**.

Channel DLL 2

Overview

This Chapter describes installation and utilization of the TELEPERM M channel DLL.

In this Chapter

This Chapter deals with the following topics:

2.1 Integration in *WinCC*

Communication drivers for *WinCC* represent an integral component of *WinCC* and must fulfill system standards. This user guide therefore does not cover general system aspects, but brings the special features of a TELEPERM M process control system to the user's attention.

WinCC system conventions require the communication driver (also referred to as "**channel**" in this manual) to be available at all times during programming and for the RT mode of *WinCC*.
Four steps are necessary for installing the channel:

a) Installation of a driver N-AT/N-PCI

b) Installation of the communication service TM_Server (TMSS)

c) Authorization for the channel

d) Integration of the channel into the current *WinCC* project by download to the variable database.
This procedure is described in **Chapter 5.3 of the User's Manual "Control Center + Global Scripts + Useradministrator", Volume 1, C79000 - G8200 - C036** /301/.
While the channel is loaded, it is shown as "**TELEPERM M.CHN**" in the list of the available communication drivers.

2.2 Channel Parameterization

2.2.1 Hardware Requirements

The *WinCC* channel concept in theory allows each communication channel to be operated simultaneously on any number of communication paths which are based on the same communication mechanisms. These various paths are, for the most part, represented by separate hardware connections or bus systems, and are referred to in the channel context as **"Links**" ("**Units**").

Two **"Links"** have currently been implemented for the TELEPERM M channel DLL, i.e. the connection via the PROFIBUS-TM plant bus and the local bus CS 275.

Notice:

Parallel operation of CS 275 and PROFIBUS-TM is not possible.

A CP 5613 communication processor must be installed and assigned the relevant bus parameters on the PC operating the *WinCC* system in order to allow a connection via PROFIBUS-TM, and requires to be loaded with the firmware after startup of the operating system. A local bus interface N-AT or N-PCI and a compatible driver software (see Chapter 2.2.3) must be installed to run the CS 275 local bus under Windows 2000 / 2003 / XP.

2.2.2 System Requirements

Time Synchronization

Time synchronization on the bus system is an imperative measure for ensuring the correct display of the date/time-of-day in AS messages. All incoming AS messages will otherwise show the current time of the transmitting AS, but the incorrect date 01.01.1972. For more information, refer to Chapter 5.

2.2.3 Authorization

The channel for the connection to the TELEPERM M process control system is a part of the standard *WinCC* system, and can be installed from there. Its operation requires a separate authorization on the hard disk of the computer that contains the *WinCC* base system. This authorization and the relevant setup program are included in the scope of delivery. To install the authorization, please run the Automation License Manager.
The further procedure is menu-controlled and self-explanatory. It is here of importance that you select the destination hard disk that contains *WinCC* and the channel DLL.

Note

Please read the notes in "readme.txt" on the floppy disk before you install the authorization, and pay particular attention to the section explaining the restrictions in handling your hard disk after the authorization has been installed.

2.2.4 Setting up the Connections (Units)

The channel for linking the TELEPERM M systems supports two bus architectures:

- PROFIBUS-TM via CP 5613 with FDL protocol (L2)
- CS 275 via local bus interface N-AT or N-PCI

After the channel has been loaded into a current project, it appears as follows in the "**Tag Management**" branch:

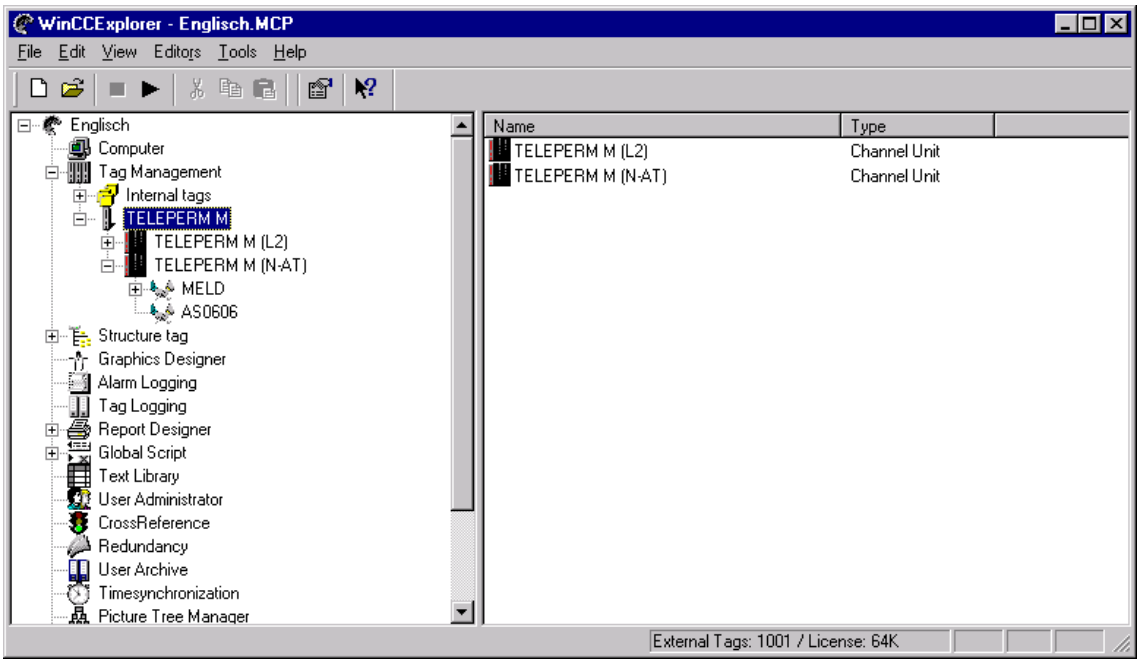


Figure 2-1 View of the channel in *WinCC*

CS 275 address (L2 unit)

To enable the channel's functions on the PROFIBUS-TM system bus, its local CS address must be set in the corresponding link (unit). This address applies only to the L2 unit, because it is selected in the CS 275 context by setting switches on the N-AT bus interface.

The bus type "L2" and the CS address are set in the TMSS.ini file; see description TM_Server_en.pdf, chapter 2

Click the unit of the TELEPERM M communication driver in the tag management dialog. Right-click, and select "**System parameters**" and a dialog box appears. Bus and device addresses are always 0.

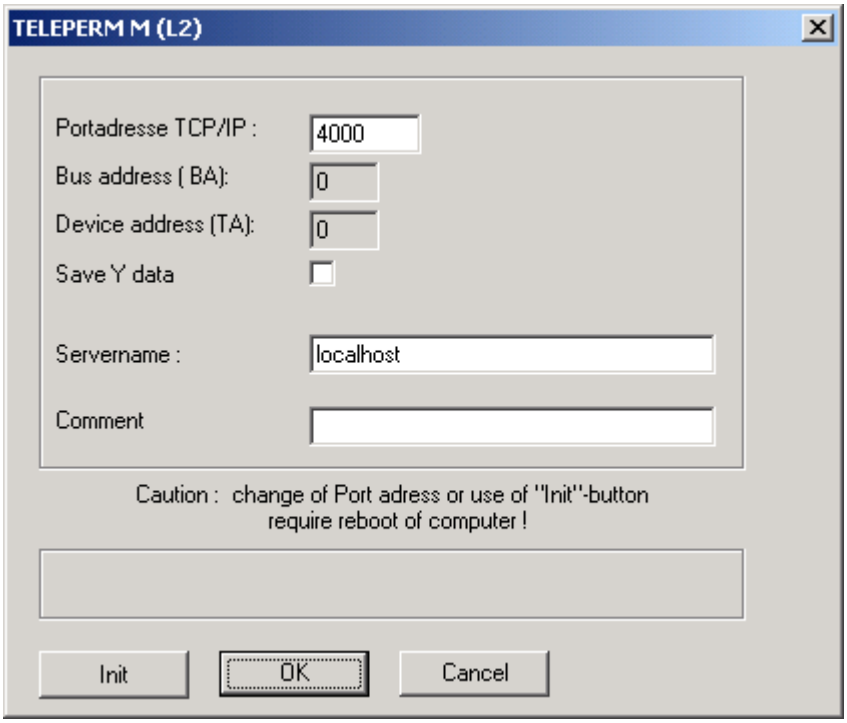


Figure 2-2 Dialog box System parameters L2

Save Y data

This check box is irrelevant.

Server name

The name "localhost" in this box may not be modified.

N_AT (CS 275 unit) port address

The N-AT/N-PCI driver must be installed to be able to operate the CS 275 unit under Windows 2000 / 2003 / XP (see Chapter 1.5). For a direct CS 275 connection to the N-AT interface, the N-AT port address (not for N-PCI !) must be selected and the corresponding software configured in the same window. After you have entered a valid address, reset and restarted the computer, and then press **"Init"** in this window. After successful initialization, the DIP switch settings on the N-AT or N-PCI interface appear in the "Bus Address" and "Node Address" fields.

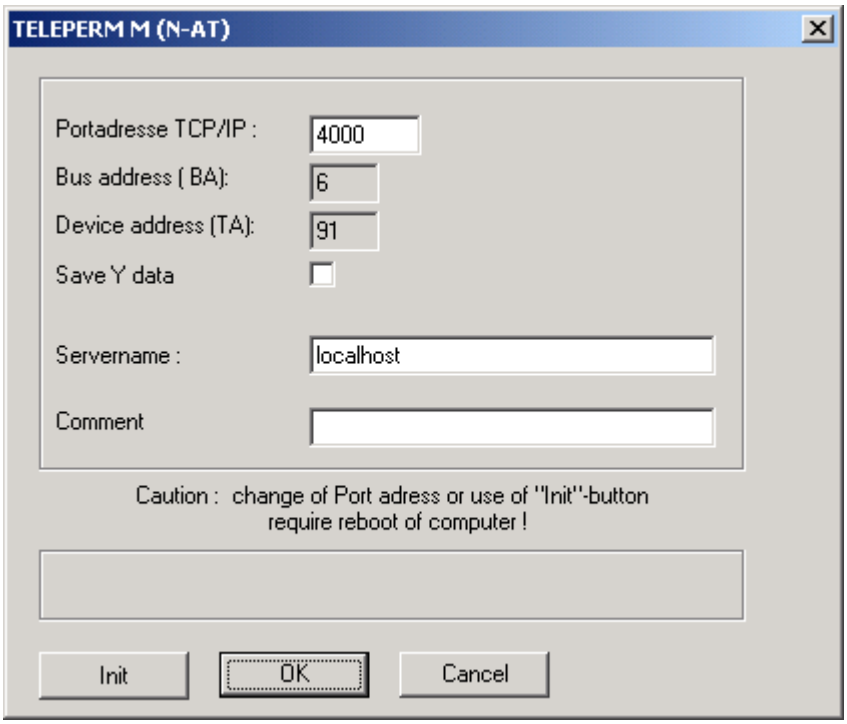


Figure 2-3 Dialog box for the selection of the port address (CS 275)

Saving Y data

This option is irrelevant.

Servername

The name "localhost" in this box may not be changed.

Logical connections

Before you can configure the data of a real AS TELEPERM M in *WinCC*, you must first create the "**logical connections**" in the channel. This connection represents an automation system on the bus. In *WinCC*, a logical connection is created by means of the TM Manager.

Note:
All the configuration steps described below should be performed by means of the TM Manager described in Chapter 3.

Note:
It is imperative to fill out the "**CS 275**" tab for the TELEPERM M, CS 275 and PROFIBUS-TM configuration, because this determines the bus and node address of the AS whose data are to be configured in *WinCC*. These settings also have to be made for AS 388/TM and AS 488/TM systems directly connected to the PROFIBUS-TM!

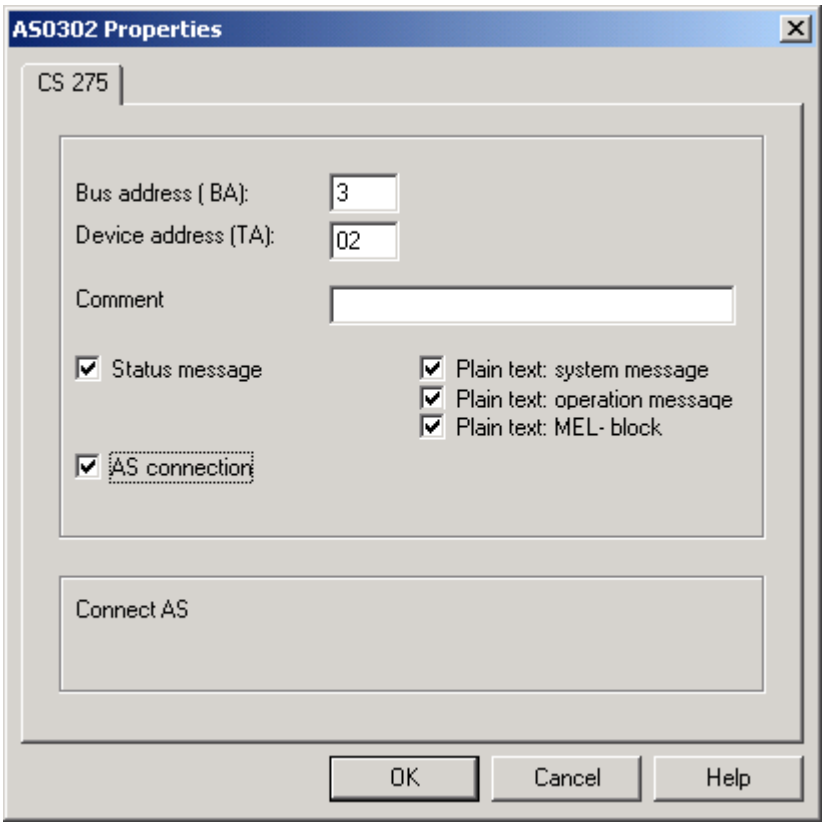


Figure 2-4 CS 275 tab – Parameters

Status frames

For each unit (i.e. for each AS) you can specify whether status message frames shall be received from the corresponding AS or not.

Plaintext system messages

For each unit (i.e. for each AS) you can specify whether system messages shall be received from the corresponding AS or not.

Plaintext operator communication messages

For each unit (i.e. for each AS) you can specify whether or not operator control messages shall be received from the corresponding AS.
Operator control messages are stored in the "operator control messages" class.

Plaintext MEL messages

For each unit (i.e. for each AS) you can specify whether or not messages from the MEL blocks shall be received from the corresponding AS. MEL messages are stored in the "TELEPERM M/MEL messages" class.

Accessing an AS

Each connection, i.e. the link to an AS, can be established or shut down selectively.
For information on opening and ending connections by means of variable control, please refer to the next Section "Link-specific internal variables of the TELEPERM M channel", paragraph "@...@ForceConnectionState".

The procedures described in the "Logical connections" section must be performed for each new connection.

Internal connection-specific variables of the TELEPERM M channel

The connections are controlled by connection-specific internal variables, which are created by means of a wizard. Their name is formed by the name of the corresponding connection and an identifier. A "@" prefix identifies the connection name as system variable.
Example: "@connectionname@identifier".
All internal connection-specific internal variables are combined in the variable group "@connectionname".

These variables are created by means of the TM Manager (see chapter 3).

@...@ConnectionState

Meaning:	Connection status
Type:	DWORD
Access:	Read
Default:	0 = "Error"

This variable can be used to determine the current connection status:

0 = Error
1 = Connection is ready

@...@ConnectionError

Meaning: Cause of error
Type: DWORD
Access: Read
Default value: 0 = "No error"

The variable identifies the error that has caused the connection shutdown. Default value = 0, i.e. the connection has not been established yet, or there is no error. The variable is loaded with 0 (no error) when the connection is re-established. The channel stores the error code here.

0 = No error

<> 0 = Error code

@...@ConnectionError String

Meaning: Error cause as string
Type: TEXT8 [128]
Access: Read
Default value: "" = "No error"

The variable contains an error string that describes the cause of the connection shutdown. The string is output in the currently selected language. Default value = ""; i.e. the connection has not been established yet and/or there is no error.

"" = No error
"Error hhhh" = The error hhhh has occurred (hhhh = hexadecimal error code)

@...@ConnectionError Count

Meaning: Counter for link errors
Type: DWORD
Access: Read
Default value: 0 = "No error"

Whenever a connection ends, the value of this variable is incremented by one count. The counter restarts at 0 after an overflow.

@...@ForceConnection State

Meaning: Preferred connection status
Type: DWORD
Access: Write
Default value: 1 = "Established"

This variable can be used to report the preferred connection status to the channel. Its value is a logical 1 under "normal circumstances", i.e. the channel is trying to connect. The channel disconnects when this variable is reset to 0.

Writing to this variable has the following effect:
0 = Preferred connection status: Not connected
→ If connected, then disconnect
1 = Preferred connection status: Connected
→ If not connected, then connect

@MELD@Connection BATA

Local bus / station address in hexadecimal format (e.g. 653 = bus 6, station 83).

@MELD@Cache S16AT	Meaning	Read S16 string (AT) once during startup
	Type:	DWORD
	Access:	read/write
	Default:	0 = read on demand

This variable tells the channel to read the process-related names (S16) from the AS on demand ("0") or out of the internal cache ("1"); this cache is read once at start up and actualized by OS writings.

@MELD@CacheS32	Meaning	Read S32 string once during startup
	Type:	DWORD
	Access:	read/ write
	Default:	0 = read on demand

This variable tells the channel to read the S32 strings of the interface blocks of SIMATIC BATCH from the AS on demand ("0") or out of the internal cache ("1"); this cache is read once at start up and actualized by OS write operations.

Warning: In case of redundant servers this cache may not be used!

More variables concerning Time Synchronization see chapter 5.

2.3 Configuration of TELEPERM M Variables

Variables of a TELEPERM M AS must be created on block instance level in the *WinCC* variable database by means of TM_Manager. To save as much time as possible in the variable configuration dialog, it is imperative to adhere to the following naming conventions for variables to be updated by means of the TELEPERM M channel DLL.

a) The variable name must always consist of these elements:

- Prefix (**P**R)
- Block type name (**B**T)
- Block instance name (**B**NR)
- Access type internal / external (**Z**T)
- Parameter type (**P**T)
- Parameter number (**P**NR)

b) These elements must be specified in a fixed sequence in the following format: **P**R_**B**T_**B**NR.**Z**T_**P**T_**P**NR

The elements of structured variables used by means of the structure editor are:

- BT = Name of the structure
- BNR = Instance of the structured variable
- ZT_PT_PNR = Name of the structure member

The prefix is optional and is only required for creating unambiguous variable names in the *WinCC* database. It does not need to be defined at the time the structure is created, and may be user-specific, because the channel does not evaluate this element of the variable name. However, the user must ensure that each variable name begins with a letter and is unique throughout the *WinCC* database.
The separators "**_**" between PR, BT and BNR and "**.**" between BNR and ZT are mandatory.

Likewise, a user-specific name may be assigned to the structure, but should generally reflect the block that is mapped by the structure.

Example of naming a TELEPERM M variable:
If the actual value of the RN block 34 in the AS with BATA 1/25 shall be accessed, the corresponding WinCC variable may be called, for example, **AS125_RN_34.EXT_EA_18**.
Any variable that does not comply with these conventions is rejected by the channel during the RT startup, and is not updated.

2.3.1 Conversion of Variable Names ("Aliasing")

To connect PCS 7/TM to SIMATIC BATCH (from V6.0) the block and variable names must be converted to meet PCS 7 conventions ("Aliasing"). This means that quasi-physical parameter names such as EXT_EA_1 must be replaced with a technological parameter name according to PCS 7 conventions, for example BA_EN. The conversion of technological to quasi-physical names required for operation with TELEPERM M-AS takes place within the channel.

In PCS 7/TM version 3.0 and later, the "Parameter" column in the *WinCC* variable database contains three consecutive entries:
1. Parameter short name within the AS block
2. Quasi-physical parameter name (TELEPERM M)
3. Technological parameter name (PCS 7)

The first and third entries are identical in TELEPERM M function blocks which contain the quasi-physical parameter name.

An exception are here the field blocks, i.e. FA, FB, FSA, GA, GB, GM and GT. These have a @ prefix, followed by the block type and a consecutive number. The third entry corresponds with the second.

Note

This conversion is allowed only for function blocks operating with SIMATIC BATCH from V6.0.

2.4 Special Conventions for TELEPERM M

To be able to process the data of a TELEPERM M process control system in *WinCC*, the following marginal conditions must be adhered to when configuring operator control and monitoring (OCM) data:

2.4.1 Status Displays

The status displays in *WinCC* do not offer the degree of flexibility and performance as those of TELEPERM M. Generally, the AS data for these image objects must first be converted into *WinCC*-compliant internal variables by means of user-specific C scripts, and are then logically linked with the status displays in the images.

2.4.2 Defining the Data Types for *WinCC*

You must always define the data type of the variables you configure for your *WinCC* database. The channel DLL then converts the AS values into the default *WinCC* format.

Notice:
Creating the variables in *WinCC* in a format that is expedient for the data in the TELEPERM M AS lies within the user's responsibility.
The TELEPERM M data types and their formats can be found in the manual "System software AS235", C79000-G8076-C416 /1/.

2.4.3 Access to Variables by Means of Standard Control Displays OCX (NORA)

In the *WinCC* context, the standard control displays represent the counterpart of the TELEPERM M control panels. The structured instance assigned to the standard operator control display represents the data interface between the standard control displays and the *WinCC* data base. Naming conventions must be adhered to when configuring TELEPERM M PCS data, i.e. the member name of the structured variable must represent a text-based description of the parameter address in the AS. This method minimizes efforts required for programming data records in *WinCC*. If a standard control display is used for accessing a specific block type that exists in different AS types, the text-based address of the relevant parameters must be identical for these systems.

Note:
Structures cannot be modified later if the database already contains instance files for these types!

2.4.4 Configuration Guidelines for TML Blocks

The configuration rules laid down in the corresponding TELEPERM M manuals always apply to the configuration of TELEPERM M variables. We explicitly want to point out here that parameters from TML blocks must always be assigned the "**INT**" access type. Where TML blocks are concerned, technical reasons cause external parameters to be discarded by the channel and not to be updated during startup. All other blocks from the standard functionality spectrum may be assigned external or internal parameter IDs (even if these are not operator-controllable function blocks).

2.4.5 AKS Blocks

In contrast to all the other blocks, parameters can not be read from the AKS block. The channel processes only the (maximum 28) analog values of the block's message frame. In the structure, these values must be structured as the parameters 1 EA through 28 EA. If other parameters are created, they return random values to the data manager.

2.4.6 BKS Blocks

In contrast to all the other blocks, parameters can not be read from the BKS block. The channel processes only the (maximum 128) binary values of the block's message frame. In the structure, these must be structured as the parameters 1 EB through 128 EB, or 1 ID through 8ID for word access. If other parameters are created, they return random values to the data manager.

2.4.7 MKS Blocks

Because MKS bits are merely intended for creating messages, this block type is an exceptional feature in *WinCC* processing. In contrast to the BKS block, the individual MKS bits are not configured, and only the *WinCC* block status with the .EventState, .EventTrans# and .EventRaw# member variables is processed. For details on the function of these variables, refer to the description of the status word evaluation in Chapter 2.4.11.

2.4.8 Field Blocks (GA, GB, FSA, etc)

All fields are generated with the maximum of length by the TM Manager. The channel gets the real length of the block instance.

Possible lengths are from 1 through 256.

2.4.9 S4 Strings

The "S" type parameters partially used in AS 23x systems are handled like S4 strings, i.e. only four characters are processed. From parameters of that type in TML blocks only the first character can be read.

2.4.10 Lifebeat Monitoring

This function is a standard component of a channel DLL. When a logical link is applied, the channel automatically monitors the relevant system in each scan cycle by means of the TELEPERM M lifebeat message frames, irrespective of whether variables have been configured in this connection or not. From the *WinCC* perspective, the result of this function is reflected in the status of the logical connection. It is therefore possible to monitor all systems at TELEPERM M by means of the channel DLL when you apply a corresponding logical link. The graphic view of the system configuration can be created in *WinCC* by means of the "Lifebeat Monitoring" editor. Third-party systems (with KSN-AT, for example) are not monitored.

2.4.11 Status Word Processing

TELEPERM M status words can not be processed directly for the output of alarms in images and in the message system. They are mapped in the channel to the **.EventState** variable members which are known both in *WinCC* and SIMATIC S7. For information on the configuration of essential alarm data and structures, refer to the S7-300/400 System Software Reference Manual **/300/**.

The following configuration rules apply to TELEPERM M standard blocks:

WinCC block status and TELEPERM M status word

Message and alarm processing in *WinCC* and the corresponding process control engineering software packages is based on the S7 PMC concept that has been developed for the OCM system. Users of the *WinCC* software and its corresponding optional packages must conform with the following rules when configuring an OCM system.

The structure of each block that has an alarm response assigned in *WinCC* must satisfy stringent conventions. Besides the parameters that are configured by the user for the OCM functions, certain message processing parameters must be applied. These are in detail:

- .EventState (LONG)
- .EventRaw#1 (LONG)
- .EventRaw#2 (LONG)
- .EventRaw#3 (LONG; MKS only)
- .EventRaw#4 (LONG; MKS only)
- .EventTrans#1 (LONG)
- .EventTrans#2 (LONG)
- .EventTrans#3 (LONG; MKS only)
- .EventTrans#4 (LONG; MKS only)

The notation shown above is obligatory, because the TELEPERM M channel identifies the variables by means of their member name!

Functions of the member variables in particular:

1. .EventState – Standardized block status / WinCC status

To provide a uniform view of the alarm status of configured blocks in all applications, the type-dependent alarms of the blocks are assigned default alarm bits in this standardized block status. The double word bits 31 to 16 indicate the standardized alarm status, and bits 15 to 0 the associated acknowledgement status. For details on the various bits, refer to the "System Software for S7-300/400" Reference Manual **/300/**. Original alarm information is routed to the standardized status based on the data entered in the .EventTrans# member variables. The TELEPERM M process control system either derives the alarm information from the individual block states, or it is transferred by means of MCS. Standard blocks have a fixed relationship between the TELEPERM M status word and the standardized block status in *WinCC*. This relationship is represented in the routing information of the .EventTrans# member variable (see there).

2. .EventTrans# - routing information for standardized block status

The message concept of *WinCC* and PCS 7 allows the assignment of any alarm class to an alarm bit. This is done by routing the alarm bit to the location of the standardized block status that belongs to the alarm class. This routing rule is specific to the block and the application, and must be configured as default by means of the corresponding properties dialog in *WinCC*. *WinCC* assumes that any alarm information received from an AS does not contain more than 8 alarm bits. Complete mapping of the alarm bits in the standardized block status requires a double word for each one of these alarm bytes. Because every status word in TELEPERM M consists of 10 status bits plus an additional acknowledgement bit, you must configure two member variables for each operator-controllable block, plus four for the MKS member variables. The sequence of the member variables corresponds to a right alignment of the alarm bits in the TELEPERM M status word (i.e. .EventRaw#1 = routing information for bits 0 - 7 of the TELEPERM M status word, .EventRaw#2 for bits 8 - 9).
The channel DLL handles the acknowledgement bit separately. The table on the next page shows which default start values must be entered in the variable database for the various block types of the standard TELEPERM M spectrum.

3. .EventRaw# - raw data from TELEPERM M status word

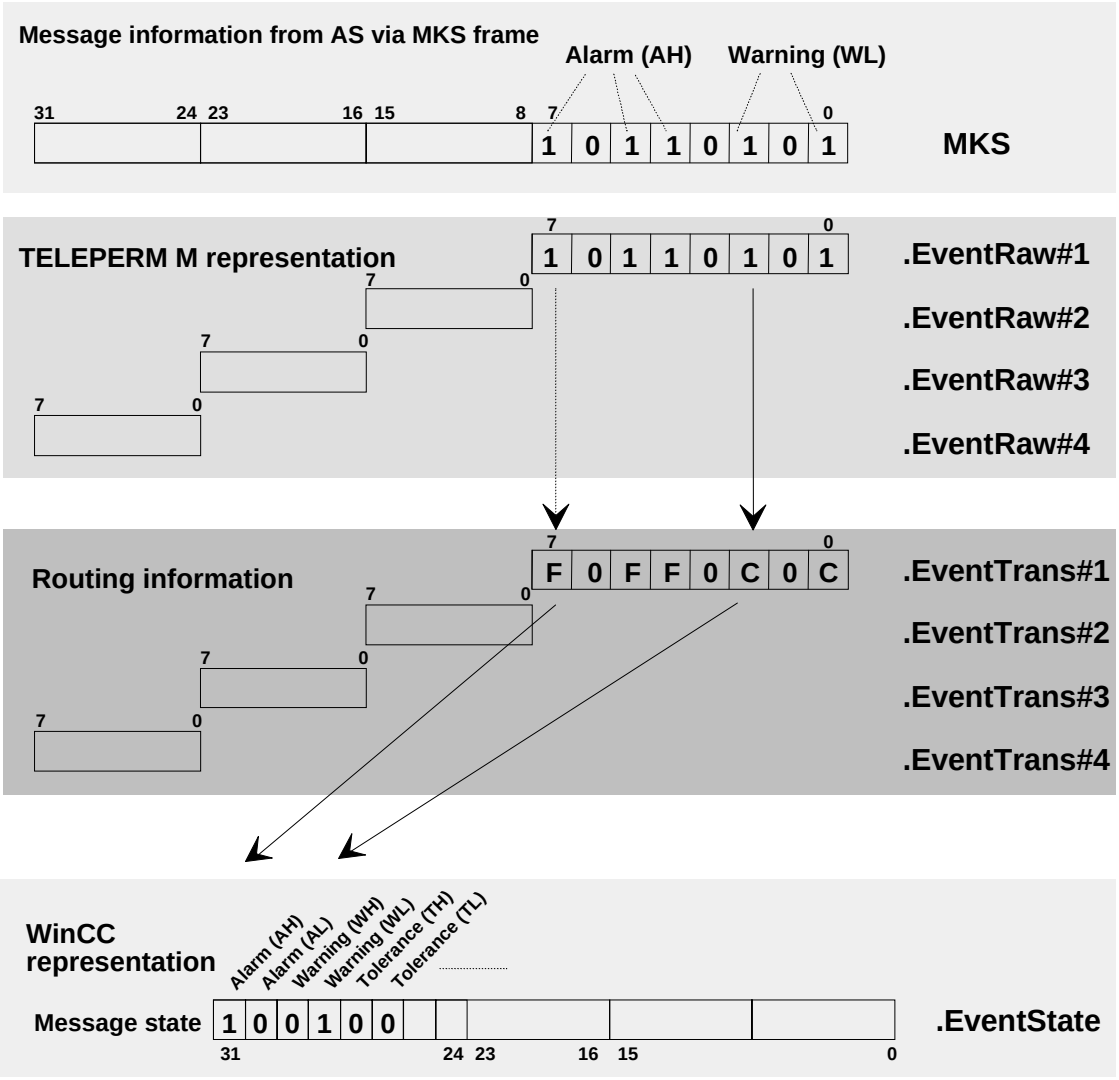
In the *WinCC* context, this member variable fulfils two functions. During system startup, this variable reports the valid alarm message numbers to the channel for the alarms. Based on this message number, the *WinCC* message package determines which message texts are to be output in RT mode. For information on how to generate a message number that is unambiguous throughout the system, refer to the System Software for S7-300/400 Reference Manual **/300/**.
After the message number has been accepted, the TELEPERM M channel stores the original status word from TELEPERM M in these variables in a left-aligned format. Like in the .EventTrans# members, the first member contains the alarm bits 0 - 7, the second member the remaining bits.

Table 2-1 Description of the routing information for TELEPERM M standard blocks

Block	. EventTrans#1	. EventTrans#2
A	0	9
B	0	9
C	0	0
DZ	-1.728.053.248	9
EG	-1.728.053.248	9
EK	-1.879.048.192	9
EM	39.168	9
EU	36.864	9
EV	-1.728.053.248	9
F	16.777.200	0
FN		
WAF = Error (tolerance)	11.250.603	9
WAF = Warning	13.487.565	9
WAF = Alarm	15.724.527	9
G	-1.728.053.248	0
GK	-1.728.053.248	0
M	12.246.270	9
MSB	-1.879.048.192	9
R	12.246.270	9
RE	36.864	0
RK		
WAF = Error (tolerance)	12.226.560	9
WAF = Warning	14.454.784	9

Table 2-1 Continuation

Block	. EventTrans#1	. EventTrans#2
WAF = Alarm	16.683.008	9
RN	12.246.270	9
RSKB	12.311.806	9
S	1.073.741.824	9
T	47.802	0
TVB	9.437.184	9
V	0	9
TML	19.423	9



1. The AS sends messages to the OS in the MKS frame.
2. In WinCC, the information is stored in .EventRaw#.
3. The routing information provides the assignment to the WinCC representation:
   - All alarms (bit 7, 5, 4 in MKS frame) must land in bit 31 in .EventState.
     This is why the routing information F hexa (16th bit in the .EventState high word) is in the related .EventTrans# for alarms.
   - All warnings (bit 2, 0 in MKS frame) must land in bit 28 in .EventState.
     This is why the routing information C hexa (13th bit in the .EventState high word) is in the related .EventState for warnings.
4. If all other digits of the example are unused (0), the following value results as the default value of .EventTrans#1 (must be entered manually:

   F0FF0C0C hexa; a negative decimal number due to the leading 1

   Complement : 0F00F3F3 hexa
   + 1 : 0F00F3F4 hexa
   decimal : 251720692 dec.
   negated : - 251720692 dec. value that is to be entered

Figure 2-9 Example for routing information .EventTrans# with messages in the MKS

2.5 Printer Output Diversion

The printer output of the OS 252 and OS 26x operator control and monitoring systems can be diverted to PCS 7/TM. This requires the following measures:

- In WinCC: Establish a "connection" in the corresponding channel to this OS, and set the "Plain text: operator control messages" checkbox. Do not define any further variables below.
- In OS 252 or OS 26x: Enable printer deviation.

TM Manager 3

Overview

This chapter provides you with information about the creation of the variable database and the configuration of messages by means of the TM Manager.

This Chapter

This chapter deals with the following topics:

3.1 Introduction

A defined variable database in the currently relevant project is prerequisite for structured programming in *WinCC*.
All the process parameters to be used in any application are declared in this variable database, in the context of *WinCC* and of the connected TELEPERM M automation systems. Same as with TELEPERM M automation systems, the initial step is here to form the basic structures for each block type, and to use copies of these as templates for the creation of block instances. The data of a block structure must contain all the parameter definitions required for the corresponding block type. The user may create any number of basic structures for a block type, each with different program code.

In PCS 7/TM-OS V3.0 and later, the *WinCC* variable database and messages are configured by means of the tool **TM Manager**.

TM Manager contains the following components

- ORPA Import
- Block Import
- Create Connection
- Message Generator
- BATCH Import

Input data for TM Manager are based on the following AS export data of the PROGRAF AS+ Engineering System:

- AS-independent ORPA data for the standard function blocks (A23_orpa.999)
- AS-specific ORPA data for user function blocks (AS_orp.xyy)
- AS-specific library files (Belxyy.dat)
  (x = bus address, yy = device address)
- Including the filter files for ORPA data and function blocks

Please look at Appendix E: Create Import Data for PCS 7/TM-OS from PROGRAF AS+

Note:
In a project only one ORPA filter and only one block filter for each connection (AS) is allowed. Delta parts must be added to existing filter files. Separate delta runnings, i.e. with subsets of ORPA or block filters, are not allowed.

Generally a project contains several connections (AS). Once such a connection has been configured including variables, it should not be deactivated during the block import of a following TM manager session if the variables have to remain in the Tag Management as well as in the result data (*.map) of TM manager.

The TM Manager components save their settings and results data to the **teleperm** folder of the *WinCC* project (TM_settings.txt und *.map).

Note:
The program paths of the source computer set in the TM_settings.txt file are retained when you copy a project to another PC. This also applies when *WinCC* or SIMATIC tools are used. These must be adapted for further processing on the destination computer.
A changed project name (e.g. *WinCC* project duplicator) must also be adapted.

You can currently start TM Manager by running the program **ORPAImport.exe** from the subdirectory **<...>\Siemens\WinCC\bin**, or by selecting the **Start → Programs → TM_Manager → ORPAImport** command. You can also run the various TM Manager components separately by means of their own executable files. After completion of a component the following component will be initiated automatically. Exception: Message Generator and BATCH Import do not have successor components.

Note:
We advise the use of the filter files for importing ORPA data and blocks when selecting ORPA types and block instances, and also to refrain from manipulation over and above that, except in special situations.

Manual operations with *WinCC* Explorer can cause inconsistencies of the Tag Management and the configuration of the Alarm Logging.

3.1.1 Description of the CSV Configuration Files

Configuring service texts during block import and additional variables and message texts during message generator through the manual method may also be done via a CSV configuration file in CSV format.

This configuration file has the following construction:

Die CSV configuration file starts with a heading line that's contains the description of the columns or an empty line. The following lines look as follows:

		← max 80 characters →	← max 50 characters →	← max 63 characters →
AS description Block type, block name	Bit number	Additional variable (Free4)	Message text	Service text

AS description: Block type/name as defined in *WinCC* Tag Management
Bit number: Bit number in status word
Additional variable: Freely configurable variable for message block „Free4"
Message text: Freely configurable static text for message block „Event"
Service text: Freely configurable static text for internal variable <block instance>.SERVICETEXT
As separating character only semicolon (;) has to be used.

Importing the service texts during block import only the columns
- AS description
- Bit number (must be empty)
- Service text

are evaluated.

Importing the additional variables and message texts during message generator only the columns
- AS description
- Bit number (0 … 31)
- Additional variable
- Message text

are evaluated.

For each block instance the file may contain several entries as may be seen in the following example

Example of a CSV configuration file (extract):

```
VARIABLE; BITNUMBER; ADDIT. VARIABLE; MESSAGE TEXT; SERVICE TEXT;
AS01_M_10;;;Service text for M10;
AS01_M_10;0;AS01_M_10.EXT_EA_11; Temperature too deep  @7%g@;;
AS01_M_10;1;AS01_M_10.EXT_EA_12; Temperature too high  @7%g@;;
AS01_M_10;2;AS01_M_10.SERVICETEXT; Temperature deep  @7%s@;;
AS01_M_10;3;AS01_M_10.SERVICETEXT; Temperature high  @7%s@;;
AS01_M_10;4;AS01_M_10.SERVICETEXT; Temperature rising  @7%s@;;
AS01_M_10;5;AS01_M_10.SERVICETEXT; Temperature falling  @7%s@;;
AS01_M_10;8;AS01_M_10.SERVICETEXT; @7%s@;;
```

Explanation:

The first line contains the heading line which describes the columns. The second line describes the content of the service text which will be allocated to the block instance during block import (see also chapter 3.3 Block Import).
Line 3 to 9 describe the additional variable which has to be read after the message had raised as well as the message text which may be supplemented by this additional variable (see chapter 3.5 of Message Generator).

CSV configuration files with message classes/types/priorities and Alarm Hiding masks

Configuring message parameters and/or Alarm Hiding masks during Message Generator is done via a CSV configuration file in CSV format.
This CSV file is generated with an EXCEL macro. Therefore it is not necessary to give a description of its structure. Details are described in chap. 3.5.3.

3.2 ORPA Import

The ORPA Import program is used to import all the required function block structures, i.e. the ORPA data, to the *WinCC* variable database.
The ORPA Import function processes the ORPA filter and allows, over and above that, the implementation of additional function blocks and further function block parameters.

Note:
The function blocks EM1B, IEOP, IEPH, TR1B and UNIB are reserved for SIMATIC BATCH applications and may never be implemented in the *WinCC* variable database from other applications.

Block structures of the type IEOP, IEOP_*, IEPAR_*, IEPH, IEPH_* and TAG_COLL are reserved exclusively for SIMATIC BATCH applications.

3.2.1 Description of the Filter File

Each ORPA data record consists of the block type name in the AS (e.g. "RN") and of the description of the various parameters of this block. The filter definitions for the ASCII file used for an ORPA import must be specified accordingly. Up to four lines can be defined in the filter file for each imported block type:

- Block type name
  Consists of a maximum of four characters and must be terminated with **":"**.
- Description of parameters to be applied
  These entries are arranged based on the order of the I/Os and have the following syntax:
  "Type" = {parameter number}
  The notation of the "Type" is **E** for the inputs and **A** for the outputs of standard function blocks, and for the user blocks "type" you always select **I**. The parameter numbers can be separated by comma, or defined as a range by means of the **"-"** character. Each filter file line may contain up to 255 characters. A separate line is created for each parameter type.

Example:

RN:
A = 1, 3
E = 1-9, 11, 13-16, 96
S = STATUS

This filter definition has the effect that, based on the ORPA file, a RN block structure is created that contains the outputs 1 and 3 and the inputs 1 to 9, 11, 13 to 16 and 96.
The string parameters of a blocks must be declared as "input" parameter type.

- Status information

  A further entry covering the standard blocks with status word and the TML blocks is required in the filter file. Its identifier is "S = STATUS", and it is entered below the type name same as the other definitions.
  Because the system always imports the internal parameters for the TML blocks, it is here not necessary to differentiate between inputs and outputs. In the filter file, all parameters required are therefore defined as internal inputs.

Entries in the filter file that are temporarily not required can be disabled with the "**;**" character if this character is the **first** character in a line.

Independent of the filter file text references with the names of <block instance>.#areaname, <block instance>.#blocktype and <block instance>.#comment are created for each block type. The default value of <block instance>.#blocktype is the block type name and that of <block instance>.#comment is the block comment (independent of an instance); they are shown after instancing the block. Besides, for each block type the internal variable <block instance> .SERVICETEXT is generated.

3.2.2 Selecting the ORPA Filter Dialog Box

When the ORPA import is initially started in a *WinCC* project, the "Select PROGRAF import file" window shows the PROGRAF AS file A23_ORPA.999 by default (all standard function blocks), the "Select PROGRAF library import file" window is blank, and the "Disable import of PROGRAF file data" and "Use filter file" are disabled:

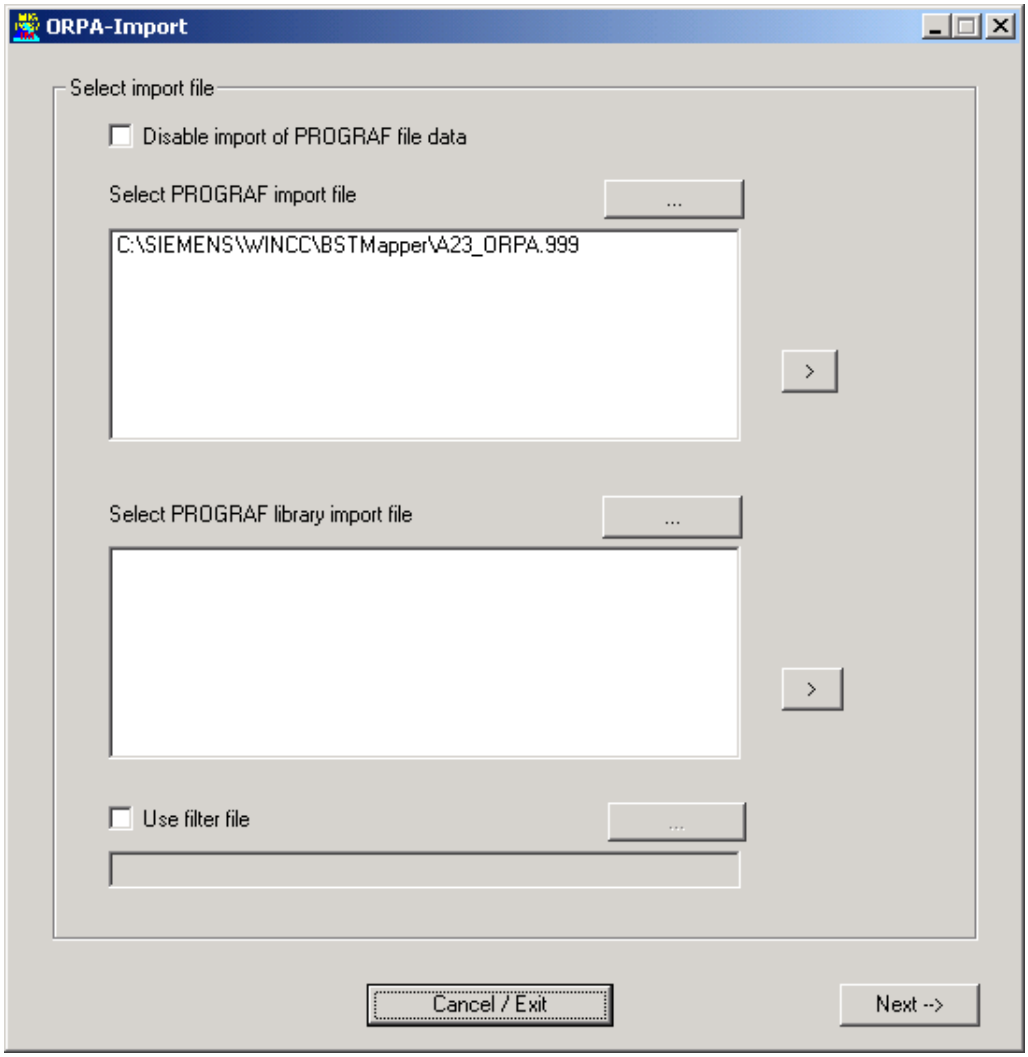


Figure: Initial run of the ORPA Import

You select the ORPA files to be processed by clicking "....", next to "Select PROGRAF import file". Hereby: A23_ORPA.999 or AS_ORP.999 contain the ORPA files of the standard function blocks, and AS_ORP.xyy (xyy = bus/device ID) contains the ORPA files of the user function blocks (TML). All ORPA data for the project are selected in this step. You can cancel a selection by clicking ">".

Note:
If the ORPA Import gets files containing different definitions for the same block type only the last recognized will be used.

You select the library file BELxyy.DAT for each AS (= connection in the context of *WinCC*) to be configured by clicking "...", next to "Select PROGRAF Library File". It is strongly advised to rename the BEL.DAT library files used for the various AS systems in the Windows Explorer, in order to assign an unambiguous file name that shows the bus/device IDs, for example BEL604.DAT. You can cancel a selection by clicking ">".
An import of ORPA data and of blocks is not possible if these library files do not exist.

A common ORPA filter file can be selected by selecting the "Use filter file" check box. If you choose not to select this option, all parameters of all the function blocks in the PROGRAF-ORPA files are imported to the *WinCC* variable database.

Simply press "next →" if you do not wish to make any changes to the ORPA structures, in contrast to a previous editing run.

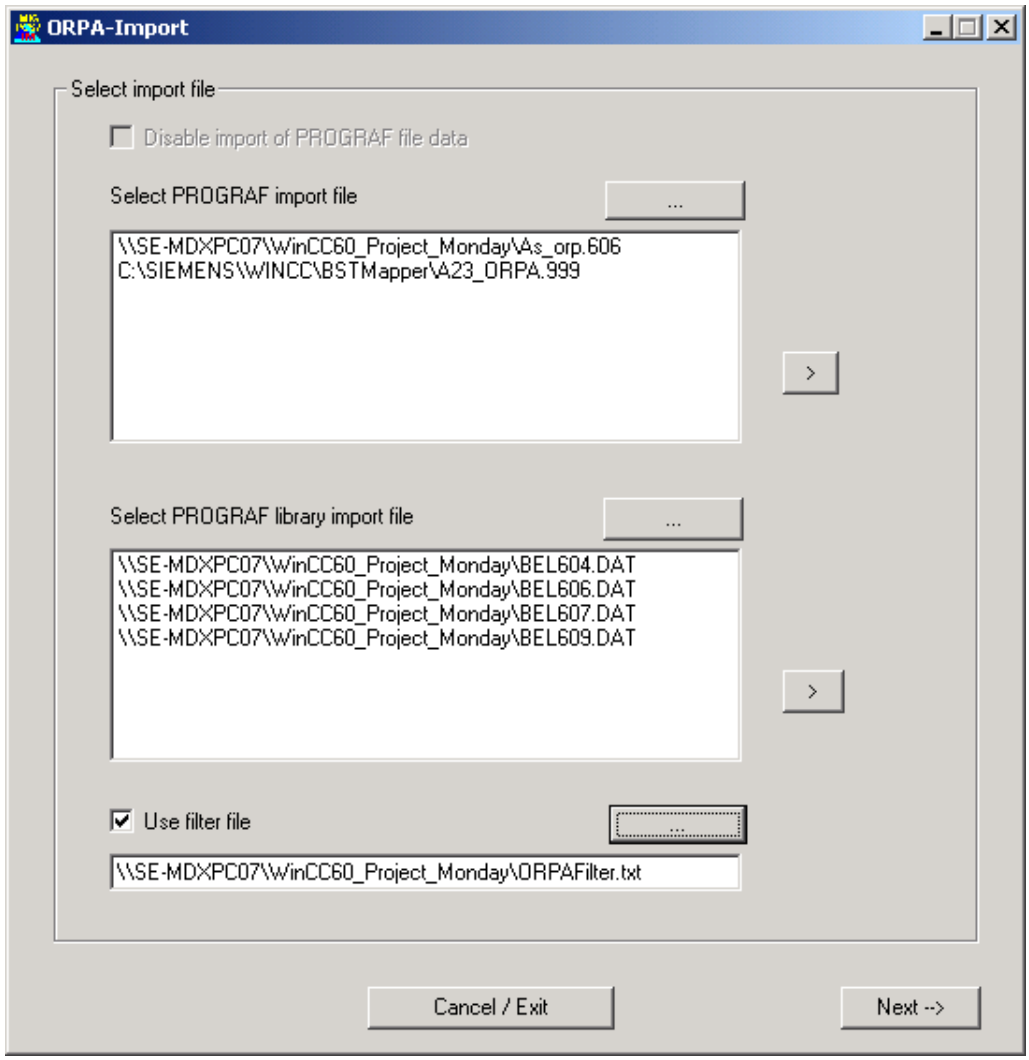


Figure: Initial run with input of file paths

This figure shows the configuration of 4 AS, AS 606 contains user-defined function blocks. The AS 604, 607 and 609 contain standard function blocks only. One ORPA filter is used.

Click "Next →" to fetch the ORPA structures from the configured files and to prepare them in project-specific files (as_orpa-standard.map or as_orpa_userdef.map). These files are necessary for further operation with TM Manager and the channel. In the next step, you change to the "Select ORPA Parameters " screen form.

After the initial run, all the block instances have been created in *WinCC* and the "Disable import of PROGRAF file data" check box is set, provided no further modifications are required. Because the configured files are not read in again in this case, the data are fetched from the project-specific map files instead. If new types should be added (eg. change of an ORPA filter) the check box has to be reset.

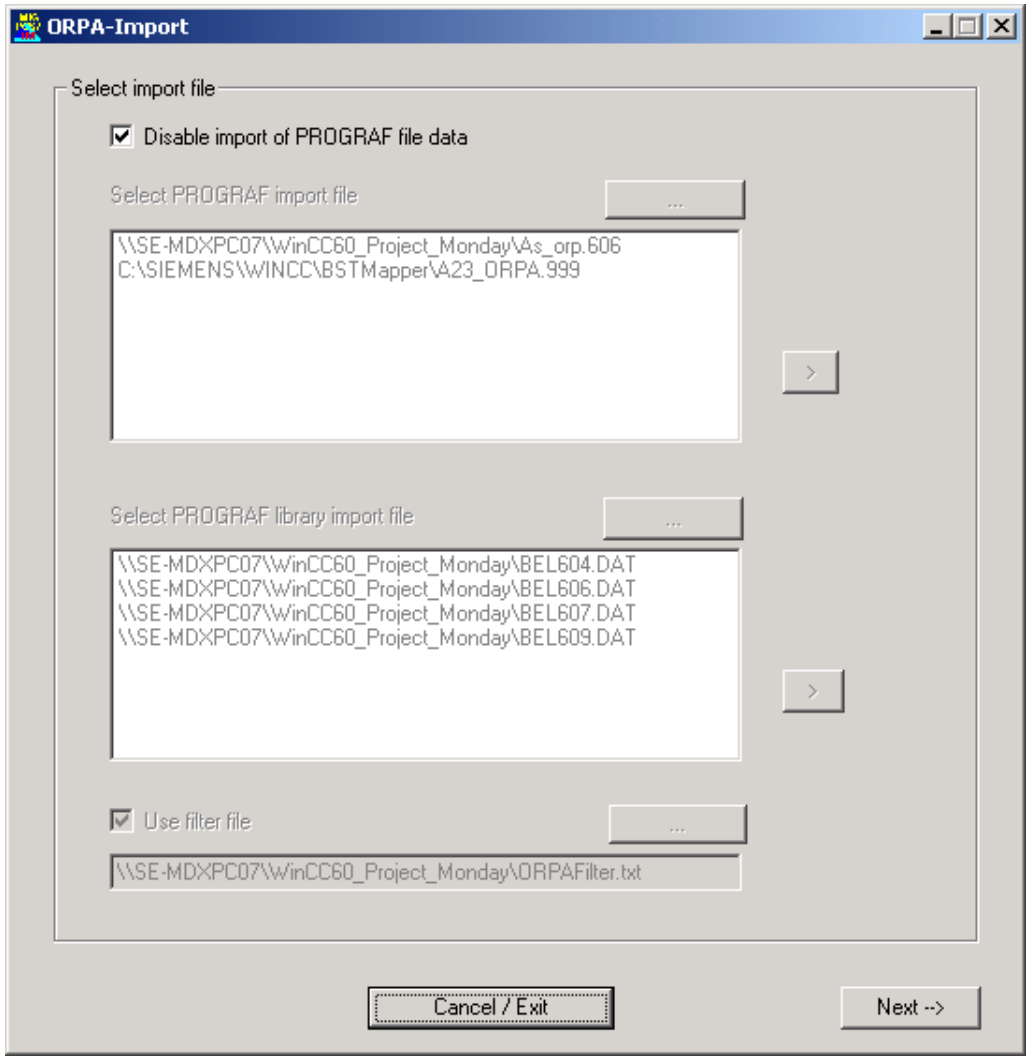


Fig.: ORPA Import after the run

Click "Next →" to go to the "Select ORPA Parameters" dialog box.

If the SRAH block resp. the WinCC structure STATEREP is used for Alarm Hiding then it must be pointed out that the structure STATEREP is not generated by the ORPA-Import. It has to be created in advance in a PCS 7 configuration session. More details are described in chap. 3.2.4.

If ORPA-Import recognizes a SRAH block in a PROGRAF AS import file, and the structure STATEREP isn't yet created in WinCC then ORPA-Import displays a corresponding message:

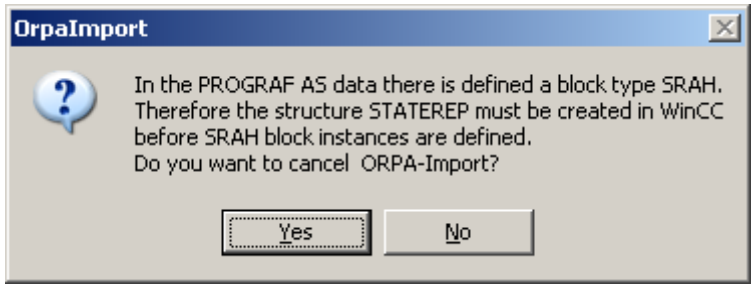


Fig: Message to missing STATEREP structure

3.2.3 The "Select ORPA Parameters" Screen Form

All the function blocks in the PROGRAF ORPA files are displayed on the left window of the "Select ORPA Parameters" dialog box. The two columns contain the function block names as stored in the AS, and their name in the *WinCC* variable database. The content of both columns is identical, with the exception of the SIMATIC BATCH function blocks.
The corresponding check box is selected for blocks included in the ORPA filter. By selecting the check box with a mouse click, the parameters selected in the ORPA filter are displayed on the right-hand window in the "Parameter" column. The "Comment" column shows the physical name of each parameter, while the "WinCC Parameter Name" column shows its name from the *WinCC* variable database. The contents of both columns are identical save for the SIMATIC BATCH function blocks.
An active check box on a gray background indicates that a structure already exists for the relevant function block in the *WinCC* variable database.
In addition to the filter definitions, you can select further blocks and add parameters to existing blocks. If you cancel the selection of a parameter, you receive a corresponding warning box.
When you add a function block, you are prompted to include status information for this block type. You can only confirm this option if the function block generates a status word in the AS.

On the left window, click "Tag all" to select all parameters, or click "Untag all" to select none.

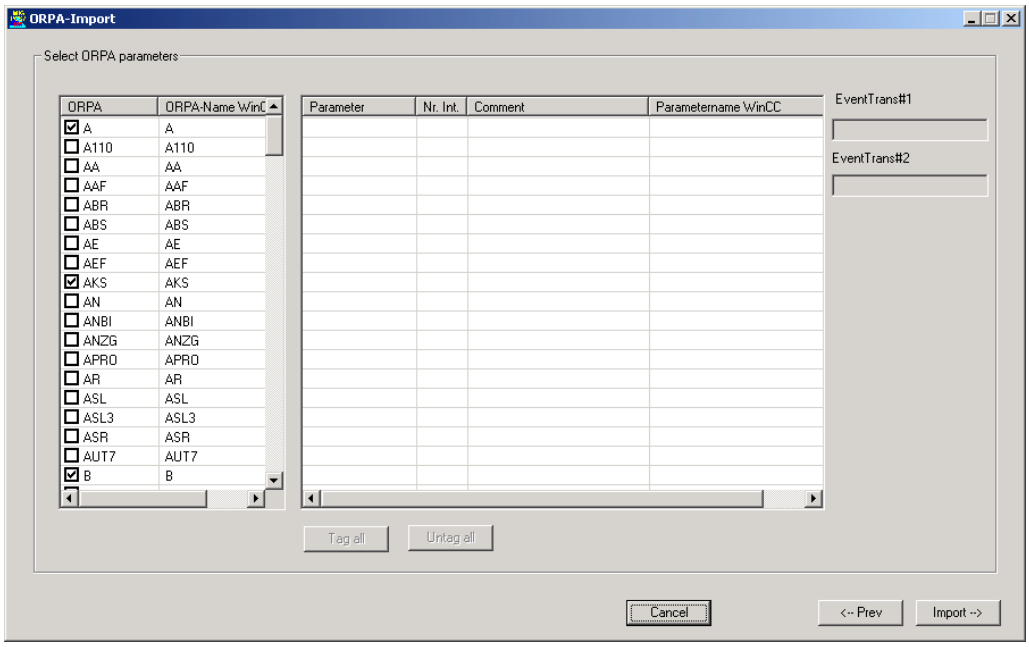


Figure: Screen form that appears when you click "Next" in the ORPA file selection dialog

The right-hand side of the dialog box contains two boxes showing you the default values of the EventTrans#1 und EventTrans#2 variables for blocks with status word. These values are enabled and can be modified type-specific for the user function blocks and standard function blocks. If the values of the EventTrans variables for standard function blocks are changed then there is abandoned on the TELEPERM arrangements of the TELEPERM M status bits. By clicking a button the modified values can be reset to the original default values if the block type is not yet generated in *WinCC*.
For further information, refer to the "Block Import" section.

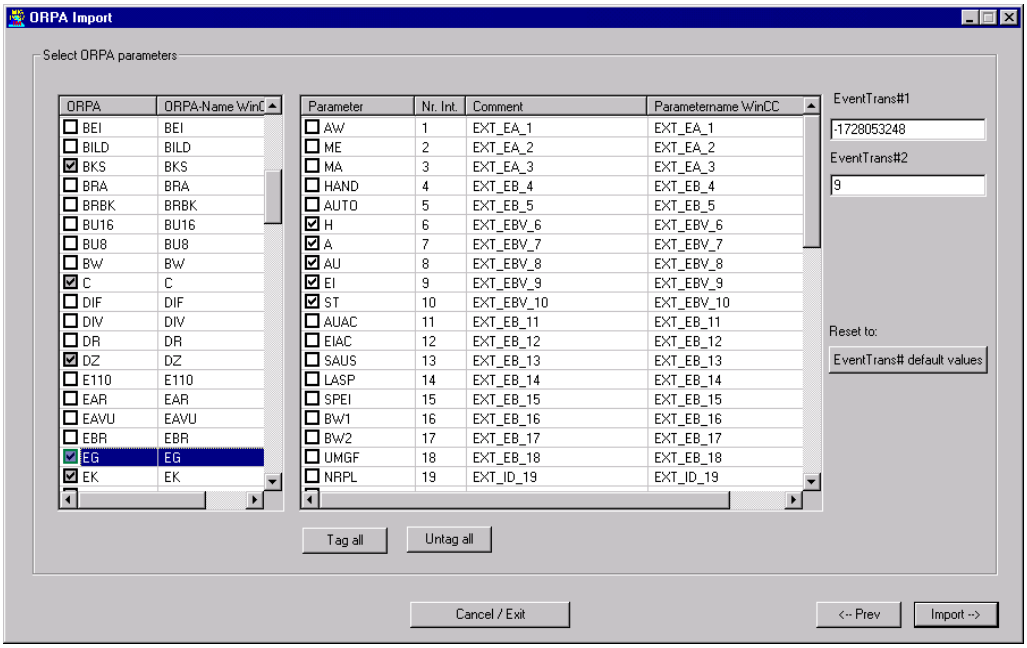


Figure: Screen form with shown button „Reset to EventTrans default values“ for the SFB “EG“

Note:
The OCX image blocks in TELEPERM M NORA representation don’t use “EventTrans” but they access directly to “EventRaw” resp. “EventState”. Therefore if the arrangements of the status bits were changed the standard delivered OCX cannot be applied anymore. In contrast the OCX in a PCS 7-similar representation show the modified range state.

Note:
As described already above the check boxes for the ORPA parameters are activated if the parameters are selected in the ORPA filter file. But a check box doesn’t get a grey background if the parameter is already created as an element of a type structure in the WinCC database. The really created elements in a WinCC type structure, which present the ORPA parameters, can only be read by the WinCC Explorer.

Note:
Existing (ORPA) structures can only be deleted by means of the *WinCC* tools (by removing them from the variable database/structure types).

On the left window, click "Tag all" to select all the parameters of your selected function block, or click "Untag all" to select none:

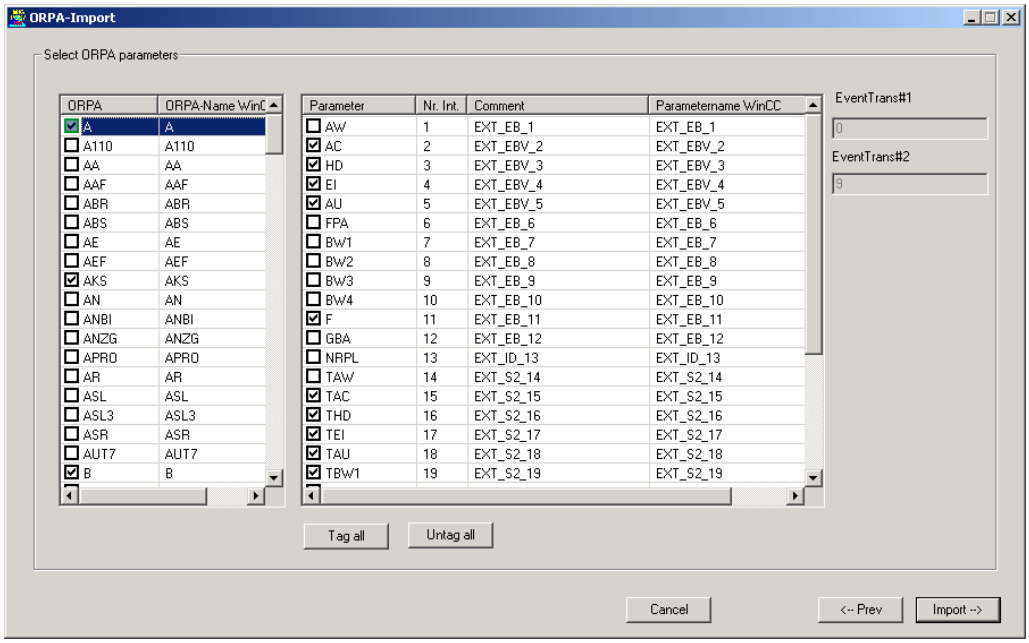


Figure: View of the selected ORPA parameters

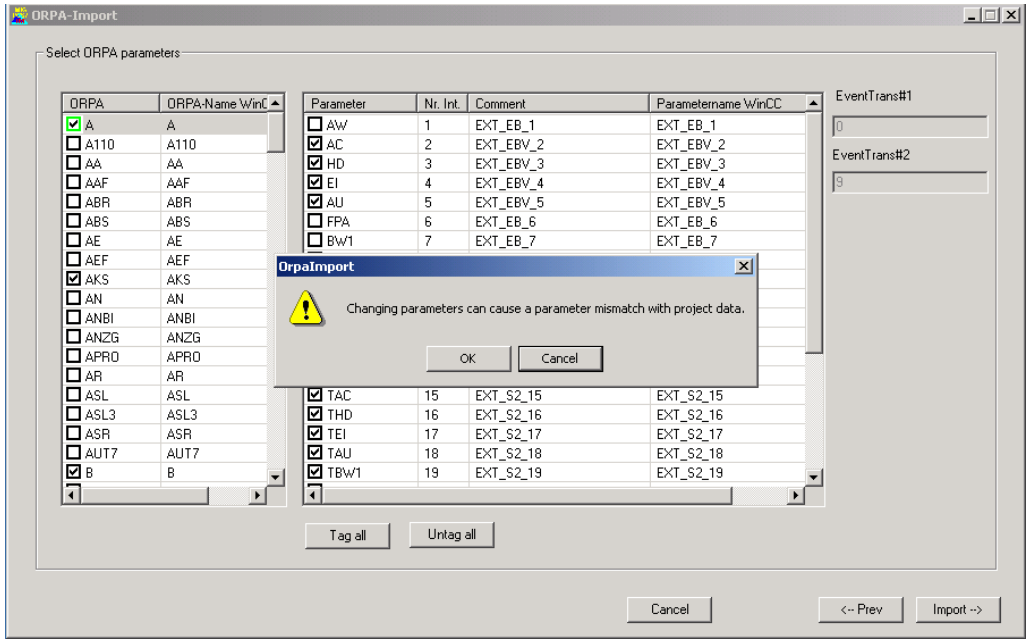


Figure: Warning box that appears when you click "Untag all"

Click "Import →" to create the ORPA structures in the *WinCC* variable database. In the next step you go to the Block Import dialog.

Note:
The imported ORPA structures are prepared in the files as_orpa_standard.map or as_orpa_userdef.map, stored in the "teleperm" folder of the *WinCC* project path. Users may not modify these files, for otherwise a proper import of data import can not be guaranteed.

3.2.4 Special case: Using SRAH block for alarm hiding

The new WinCC function „Alarm Hiding“ is also supported by PCS 7/TM-OS.
For this the AS block named SRAH (Status Representation for Alarm Hiding) has to be reloaded and configured. This block is delivered as loading sequence as well as Prograf library (please look at \PCS7_Version_7\Siemens\TM_Werkzeuge\AlarmHiding\SRAH.zip on the CD).

The SRAH block has following features:
32 binary inputs where the state of a process cell (unit) can be set by the user program. The selected unit state will be written as integer value 0-32 at the QSTA output (AAD). If more than one of the binary inputs is set the binary output QERR will be set to 1B (and QSTA = 0).

For each alarm group only one SRAH block instance is needed on each AS. To this alarm group both TM blocks and PCS 7 blocks from several AS can be assigned.

If the SRAH block resp. the WinCC structure STATEREP is used for alarm hiding then please note that the WinCC structure is not created by ORPA-Import. It must be created in advance in a PCS 7 configuring session.

If a double channel WinCC is configured and the PCS 7 block for alarm hiding is already mapped to the WinCC structure STATEREP then the TM Manager uses the same structure for mapping the SRAH blocks into the WinCC Tag Management.

In all other cases the WinCC structure STATEREP is generated with the CFC library TM_Muster. This library is enclosed with the delivery CD „PCS 7/TM-OS“ from Version 4.0. The setup program copies the library into the folder <...>\Programme\Siemens\TM_Werkzeuge\AlarmHiding.

For generating the structure STATEREP into the WinCC application of a PCS 7/TM-OS project, the following procedure is proposed.

a) Start the SIMATIC Manager and select **File** > **Retrieve ...** master library TM_Muster.zip from the <...>\Siemens\TM_Werkzeuge\AlarmHiding or <...>\Siemens\TM_Werkzeuge\Batch folder and unpack it to the <..>\Siemens\Step7**S7LIBS** folder.

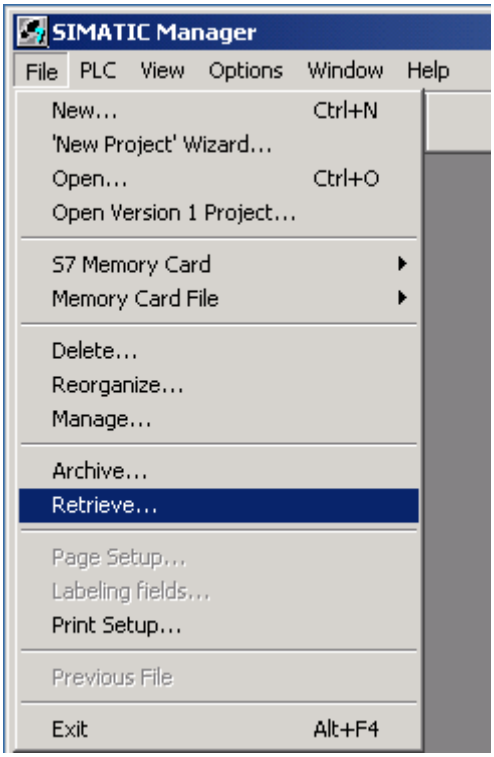


Figure: Retrieve the master library

After the file has been unpacked, the sample project is opened:

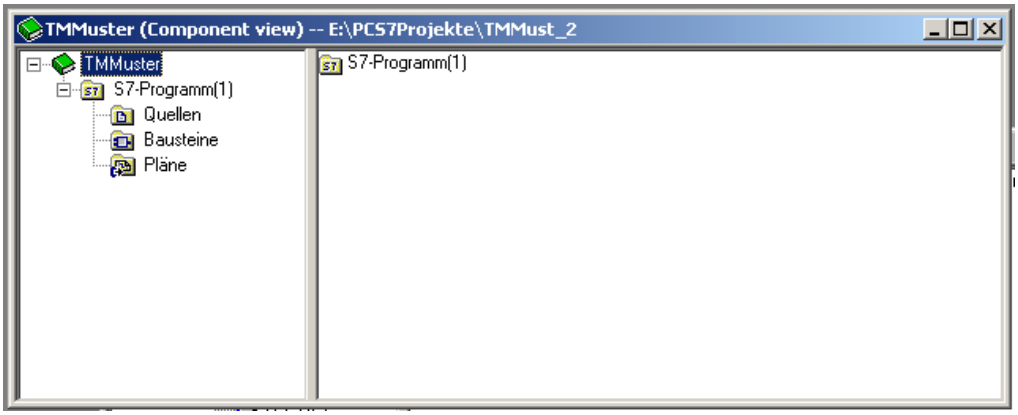


Figure: Unpacked master library

The charts container contains a CFC with a STATEREP block:

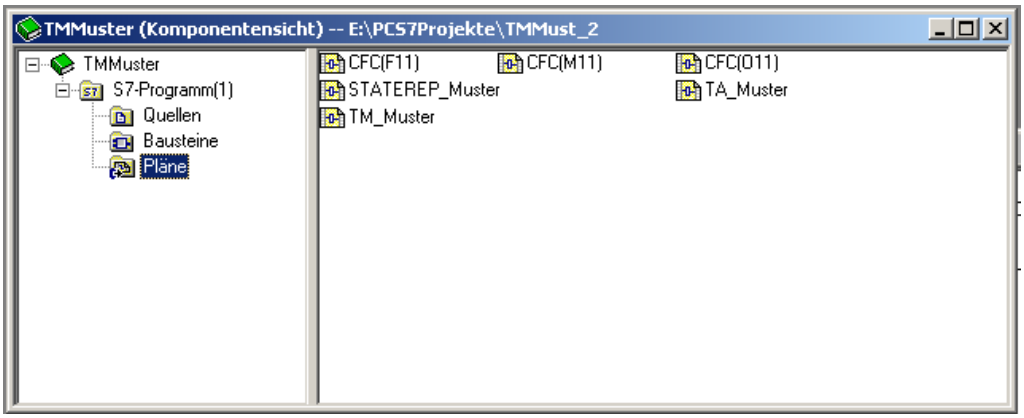


Figure: Charts container with CFC STATEREP-Muster

b) Open the own PCS 7 project with the WinCC project, which has to be worked and open there the charts container of the S7 program (of a virtual SIMATIC AS). After it the CFC STATEREP_Muster of the master library has to be copied into the charts container of the S7 program.

Note:
If the PCS 7 project doesn't contain a SIMATIC 400 AS then such a station has to be added temporarily to this PCS 7 project. After the Block Import session is finished, i.e. one STATEREP structure variable is generated by the Block Import, the SIMATIC AS can be deleted again.

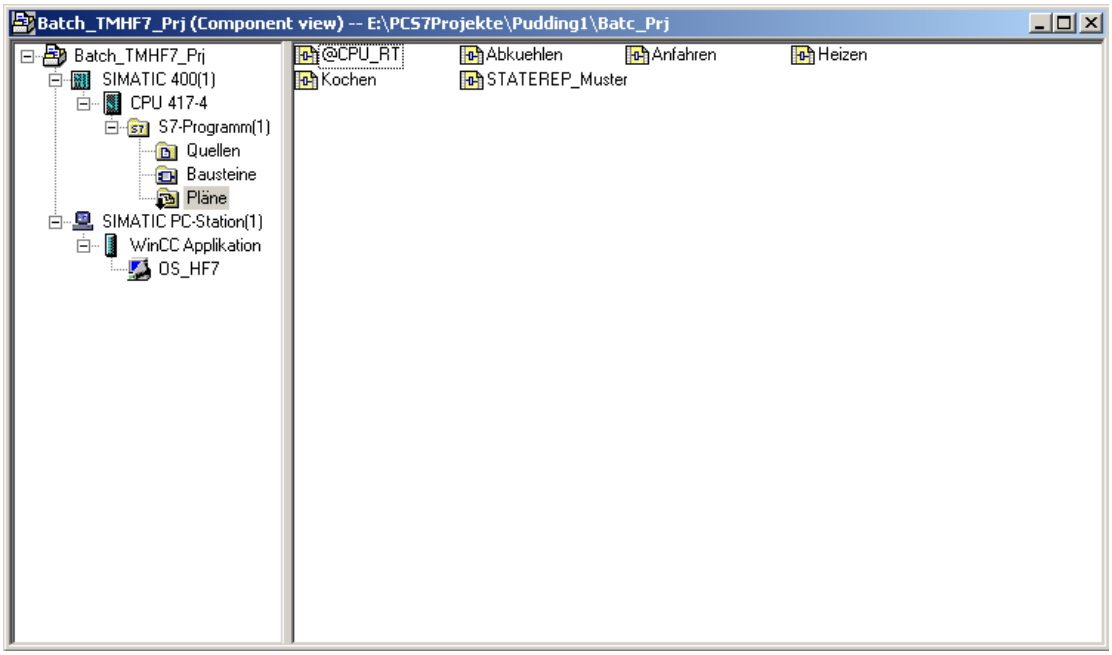


Figure: Charts container contains a CFC STATEREP_Muster

c) Finally the charts have to be compiled newly: Select the charts container → Press the right mouse button → Select menu ‘Compile’:

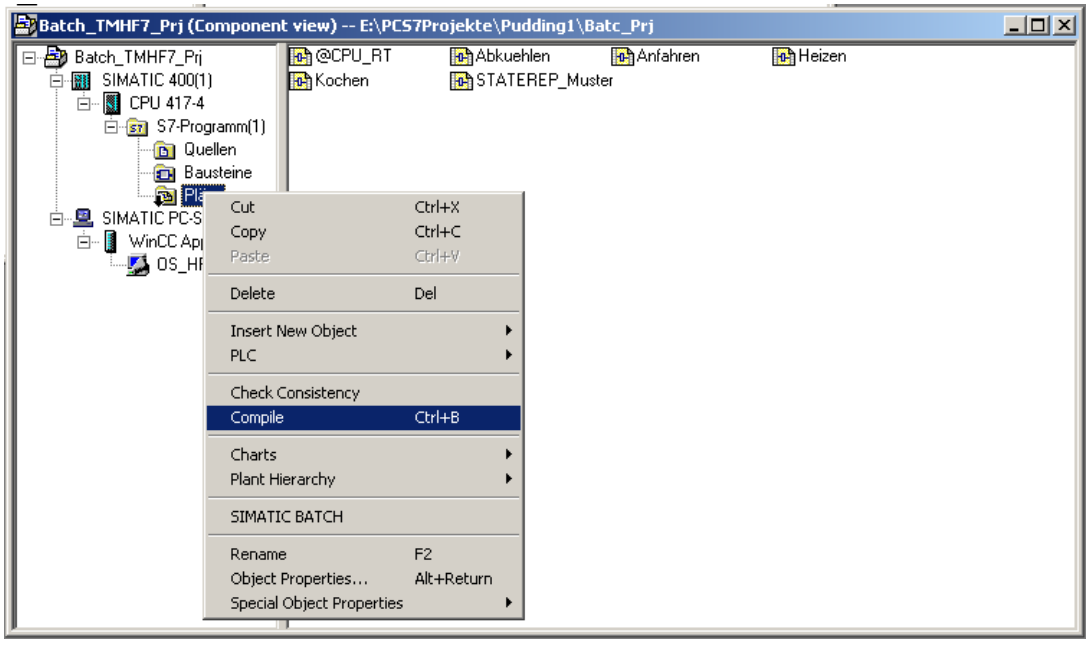


Figure: Charts container and menu point ‚Compile’ are selected

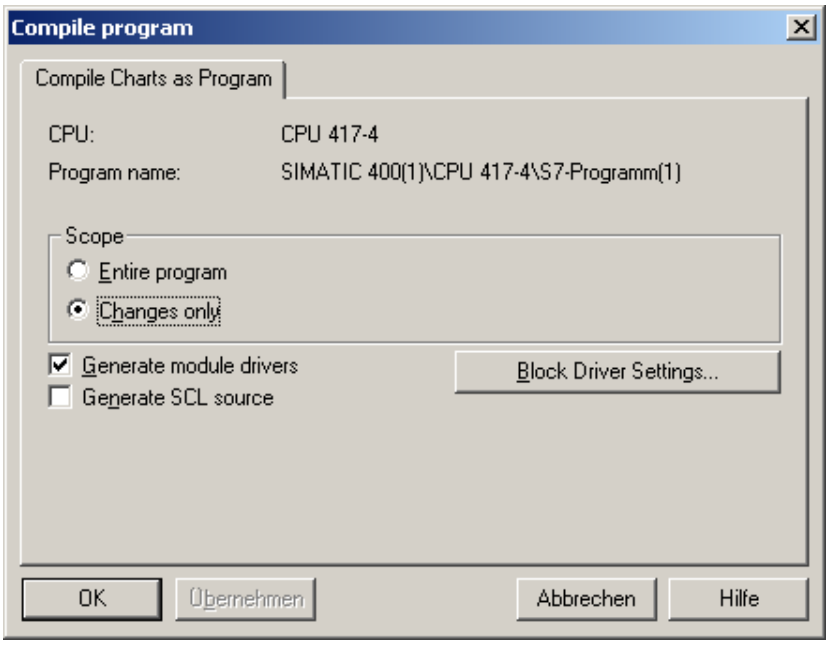


Figure: Dialog box for compiling charts

d) Having compiled the charts then the WinCC application has to be compiled: Select WinCC-Applikation → Click the right mouse button → Select menu point ‘Compile’.

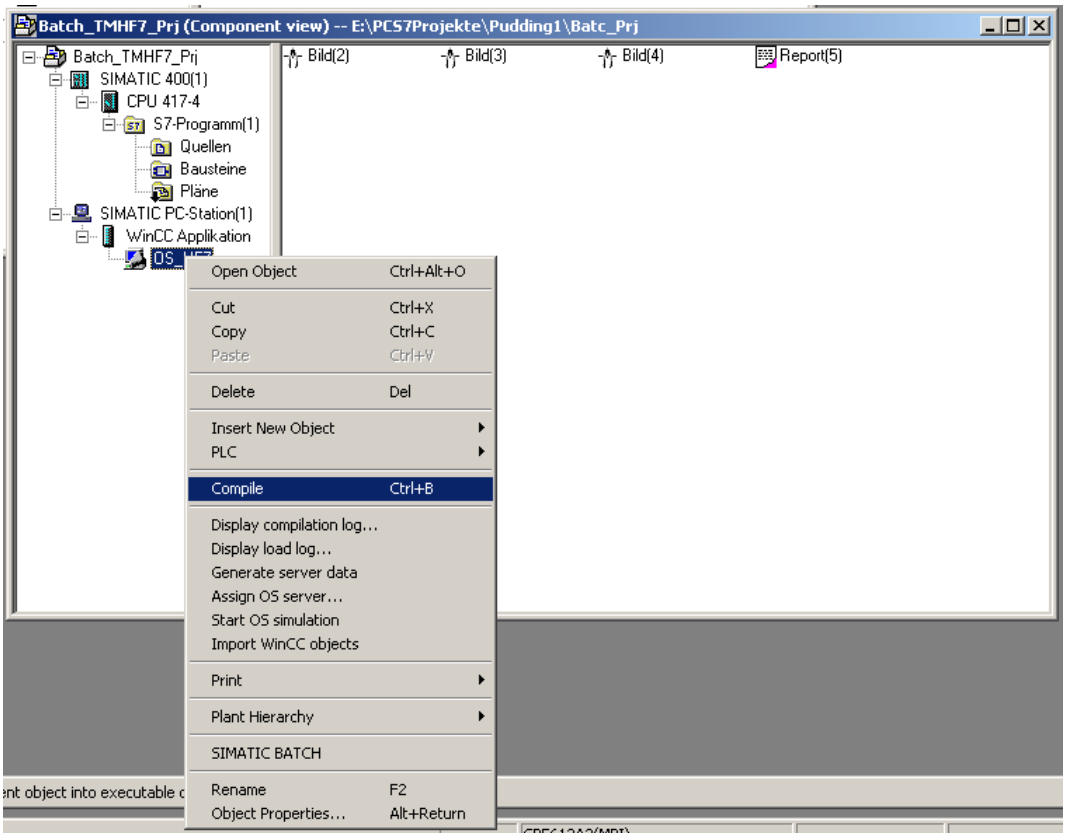


Figure: Selecting menu point ‚Compile’ WinCC

For the virtual SIMATIC AS no connection is defined in the following dialog box.

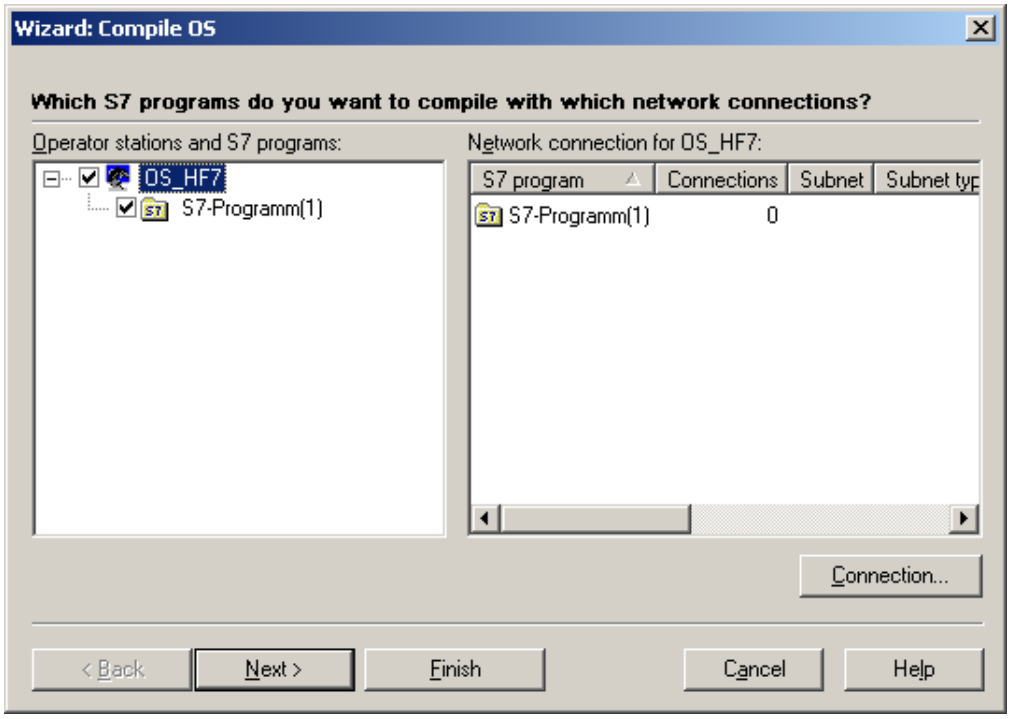


Figure: Select S7 Program which you want to compile

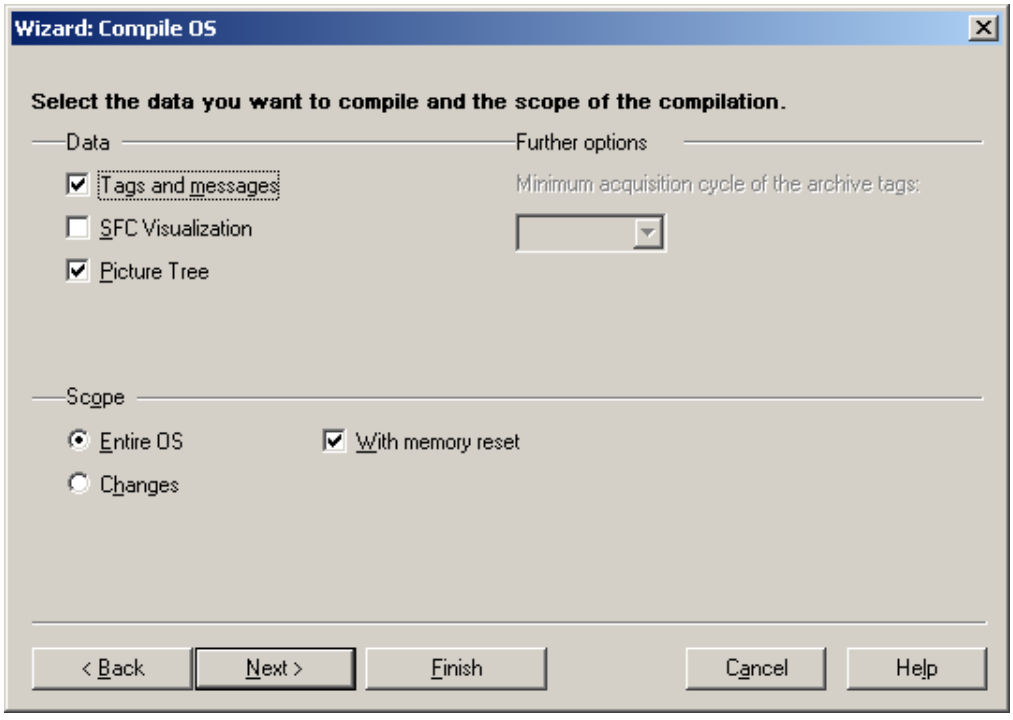


Figure: Determination of data and scope of the compilation

When the button ‚Finish' is pressed then the OS is compiled and among other things the structure type STATEREP is generated.

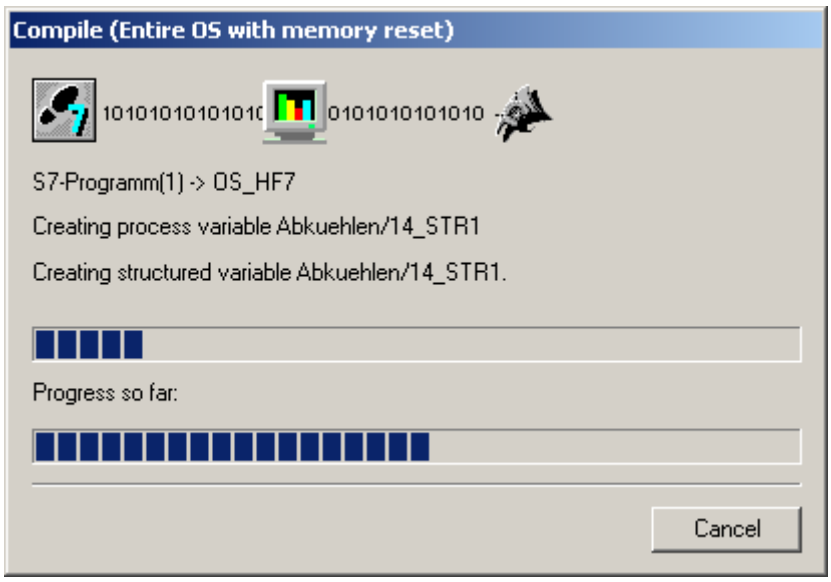


Figure: Compilation of OS is running

After the compilation of the OS the structure type STATEREP and a corresponding instance for a temporary SIMATIC AS is generated.

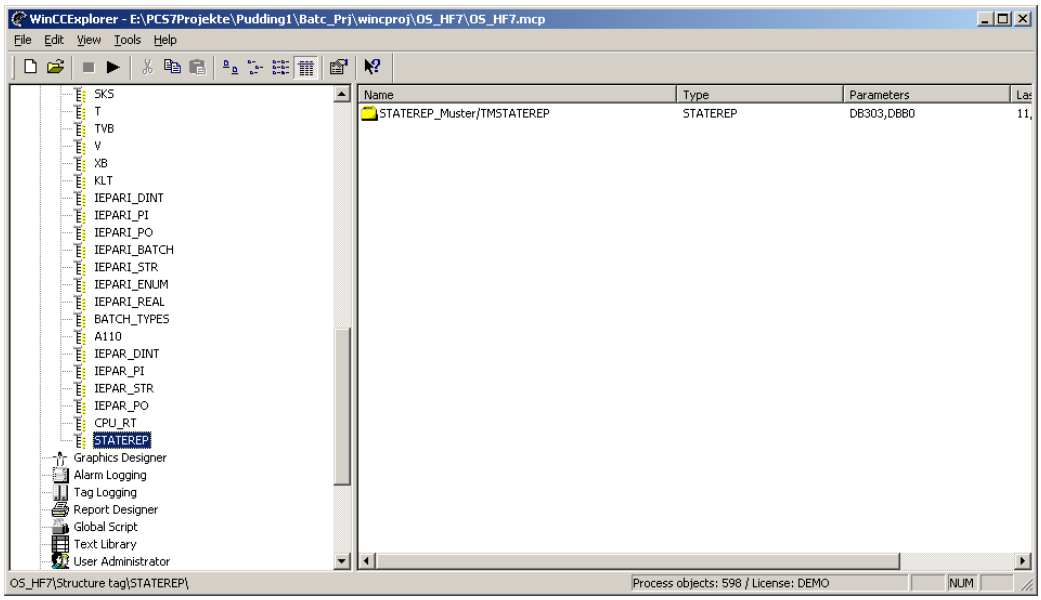


Figure: WinCC with structure type STATEREP

Now ORPA Import can recognize the structure STATEREP and Block Import can create variables of this type. If the Block Import has created at least such a variable, then the temporarily created SIMATIC AS can optionally be deleted again. After the OS is compiled newly the STATEREP for the virtual SIMATIC AS will be also deleted.

3.3 Block Import

Prerequisite for the Block Import is that the PROGRAF AS+ library file BELxyy.DAT and a corresponding block filter file is selected for each connection (=AS).

3.3.1 Description of the Filter Definition

To achieve the highest possible flexibility while maintaining a minimum programming effort, we have implemented a parser for "regular expressions" as filtering function for the Block Import.

A regular expression consists of several parts. Each part consists of an atomic element, followed by the specification of the number of permitted (or required) atomic elements. An atomic element describes a character as shown in the table below:

Atomic element	Matches
`.'	Any character
`[`<range>']'	Any character of this range
`[`^<range>']'	Any character outside this range
Any character	Any character, precisely

<Range> is a string. The `-` character may be used to define an area in the context of the word, i.e. [f-i] is a shortcut for [fghi]. A `^' prefix inverts the entire range. [^ga-c] matches all characters except `a', `b' `c' and `g'.

The permitted number of recursive atomic elements is shown in the table below:

Character	Meaning
`*'	Any number (also zero characters)
`+'	At least once
`?'	Exactly zero, or once

If the atomic element is not followed by any of these characters, it must exist at least once.

Regular expressions are not case-sensitive. Several regular expressions can be logically ORed, by enclosing the element partitions in a parenthesis and separating them by means of the `|' character. The pipe can also be used for logical OR operations with atomic elements.

Examples:

The DOS wildcard `*' corresponds with the regular expression `.*'
(any character, and any number thereof)

`ab[cde]f' matches `abcf', `abdf' or `abef', but not `abcdf'

`abc?f' matches `abcf' or `abf', but not `abccf'

`ab|cd' matches only `acd' and `abd'

`ab*|(cd)' matches `abbb' or `a' o `acd', but not `abcd'

Filtering single block instances

If a block instance which is a subset string of a other block instances should be filtered, this instance must be covered by the string sequence ^ nr $.

Example: A block type has the instances 111, 1111, 1112 etc. Configuring the block filter with "111" causes an import of the instances 111, 1111, 1112. If you wish to import the instance 111 only you have to configure the block filter with the sequence "^111$".

These definitions for the imported blocks describe the filter conditions for an ASCII file:

1. Block name

Consists of up to four characters and must be terminated with **":"**.

2. Description of the imported block instances

The structure of these entries must be conforming to the rules laid down earlier for regular expressions.

A declaration line may contain up to 255 characters. If the block type entry contains several lines, the specified filter criteria are automatically ORed.

Up to 10 expressions can be ORed, i.e. up to 10 lines, if these lines do not contain an OR operation.

In a filter file, a name of a block type may occur only once.

At the end of a declaration line there are not allowed commas.

Example:

A:

.*2.*

In this example, the function imports all blocks of the type "A" which contain the character "2".

Example:

A:
1226, 123[0-9], 1240

The blocks A 1226, 1230, 1231, ……, 1239, 1240 are selected.

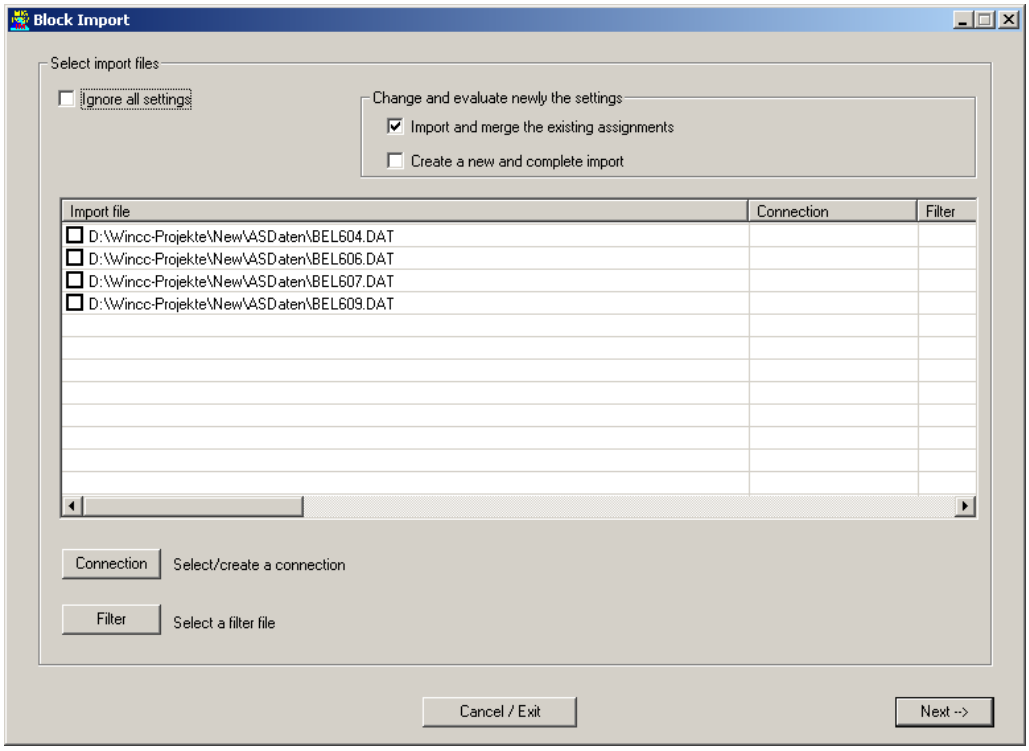


Figure: Block Import

The "Import File" window of the "Block Import" dialog box provides one line for each read PROGRAF library file.
You define the AS connection and its associated block filter in each one of these lines. This is done explicitly for each selected import file (PROGRAF library file) after the line is selected, by clicking "Connection" (Select/Create Connection) or "Filter" (Select Filter File).

The options contained in the "Change and evaluate newly the settings" frame concern only projects which have functionality together with SIMATIC BATCH or Alarm Hiding:

- "Create a new Import and merge the existing assignments" means that during a repeated session of the Block Import a prior configured assignment of block instances to a process cell ("UNIT block") or configurations for alarm hiding should be kept.

- "Create a new and complete import" means that during a repeated session of the Block Import a prior configured assignment of block instances to a process cell ("UNIT block") or configurations for alarm hiding should be cancelled and created newly.

Click "Connection" to open the "Connection Import“ dialog box.

Note:
The TELEPERM M channel must be added manually to the variable database by means of the *WinCC* Explorer.

3.3.2 Create Connections

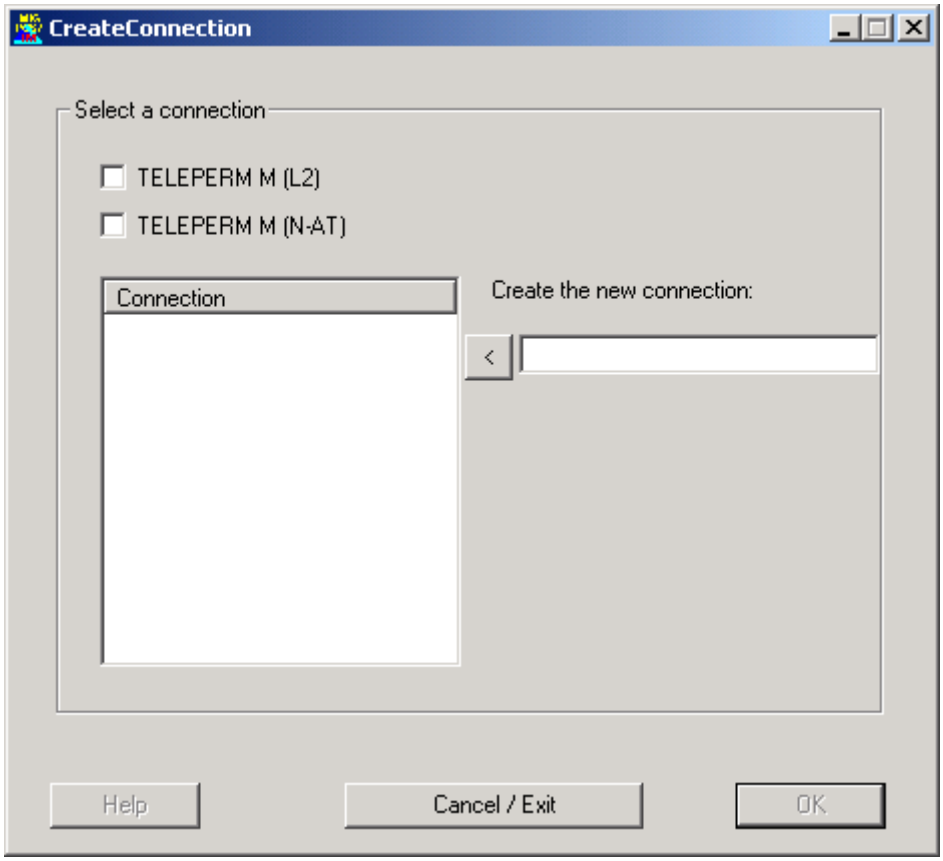


Figure: Select a connection type

This dialog box appears if a connection has not been configured yet, and the corresponding L2 or N-AT check box is blank. After you have selected one of these check boxes, enter the name of the new connection in the "Create New Connection" box and generate it by clicking "<". In the next dialog box, configure the bus/device addresses and the access options for this AS.
After you have selected L2 or N-AT, this setting can not be changed anymore.

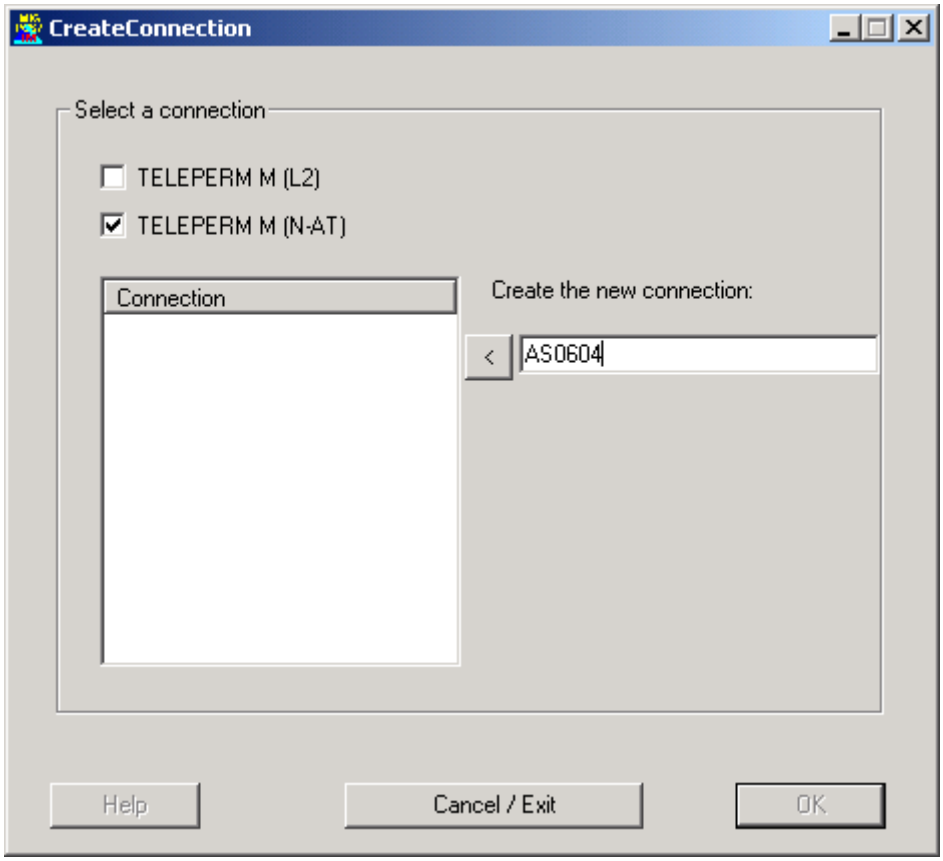


Figure: Entering a new connection name

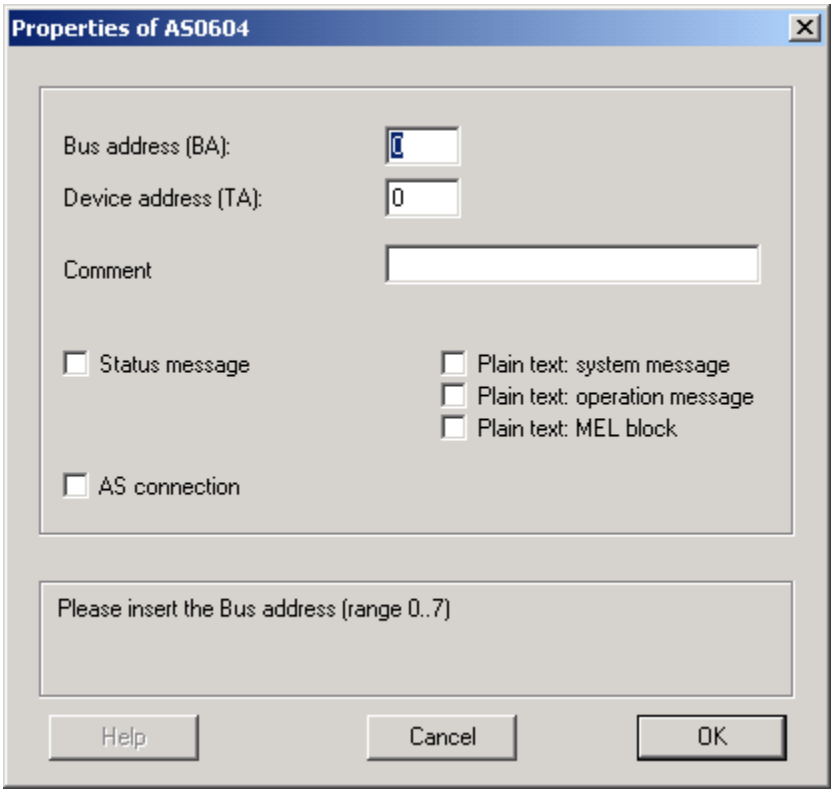


Figure: Setting connection data

If any connections exist, select one of these from the corresponding box, and confirm with OK to enter this connection in the corresponding column of the Block Import dialog box.

Note:
Existing connections can only be deleted by means of the *WinCC* tools.

When a new connection is created, the function also adds internal variables required for the channel to the *WinCC* variable database.

For information on the various options, refer to Chapter 2.

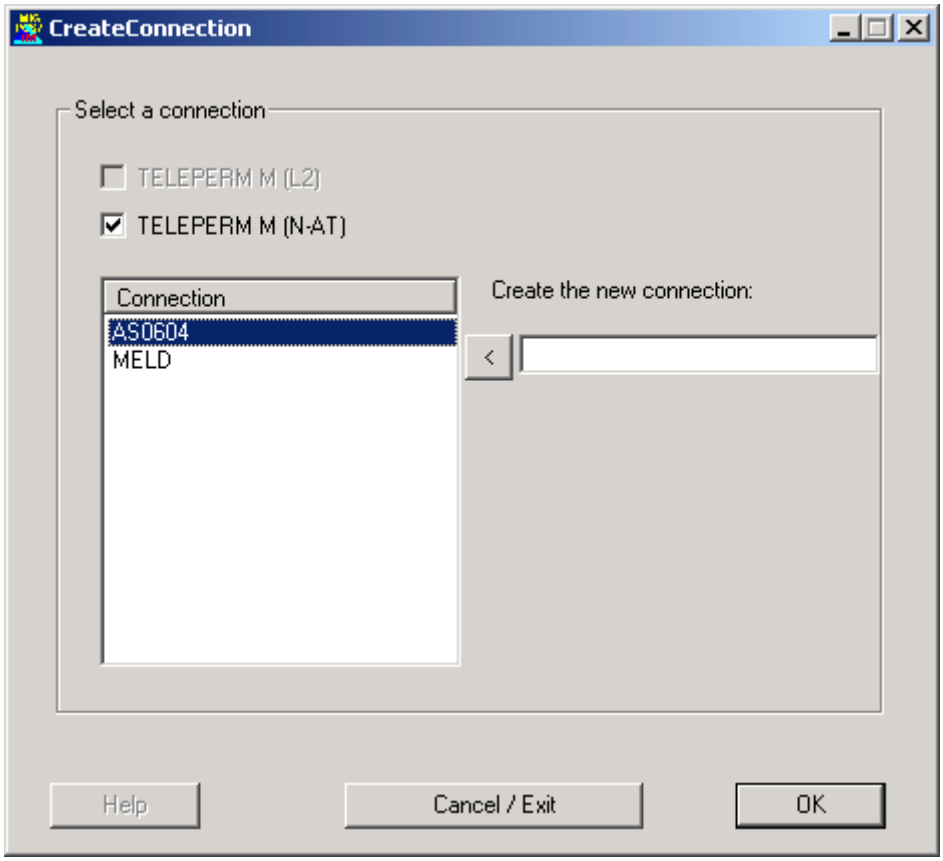


Figure: Select a connection

After you have selected a connection type (L2 or N-AT) and created nested connections, you can not create the corresponding complementary connection type anymore.

Click the corresponding button to select and assign the required filter file.

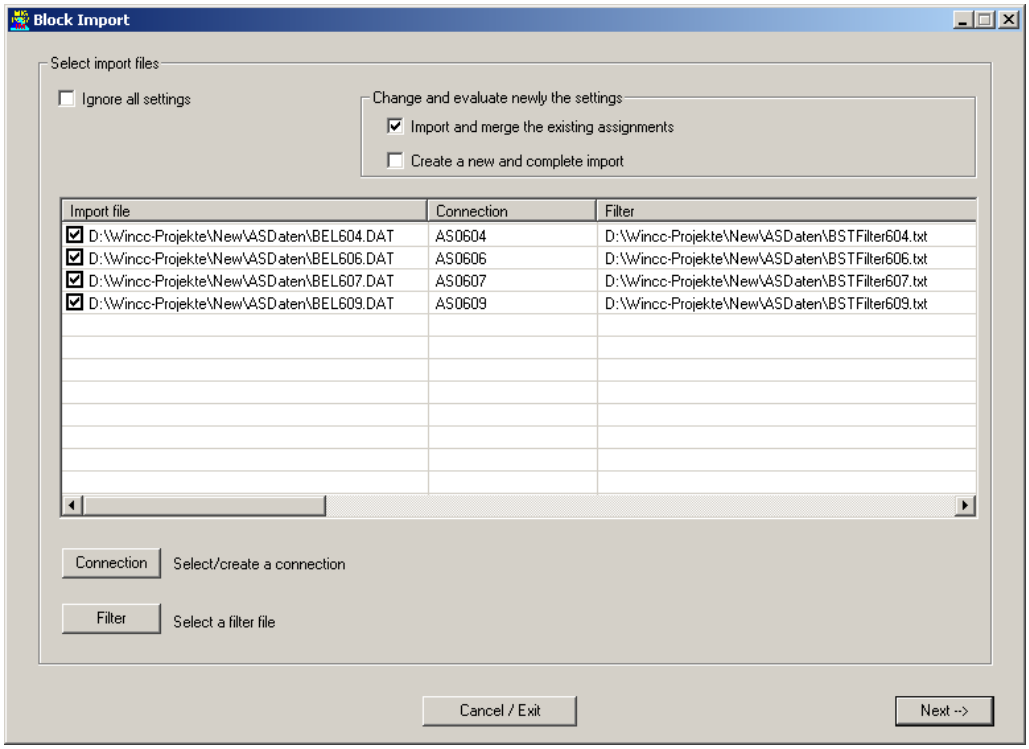


Figure: Assigning connections and filters to the import files

Click "Next→" to prepare the project-specific map file (as_bst.map).

After the initial run, the block instances have been created in *WinCC*. You can now select the "Ignore Settings" check box, provided no further modifications are required. Because the configured files are not read in again in this case, the data are fetched from the project-specific map file instead (as_bst.map).

The options contained in the "Change and evaluate newly the settings" frame concern only projects which have functionality together with SIMATIC BATCH or Alarm Hiding:

- "Create a new Import and merge the existing assignments" means that during a repeated session of the Block Import a prior configured assignment of block instances to a process cell ("UNIT block") or configurations for alarm hiding should be kept.

- "Create a new and complete import" means that during a repeated session of the Block Import a prior configured assignment of block instances to a process cell ("UNIT block") or configurations for alarm hiding should be cancelled and created newly.

Simply click "Next →" if you do not want to modify the block instances as you may have done previously.

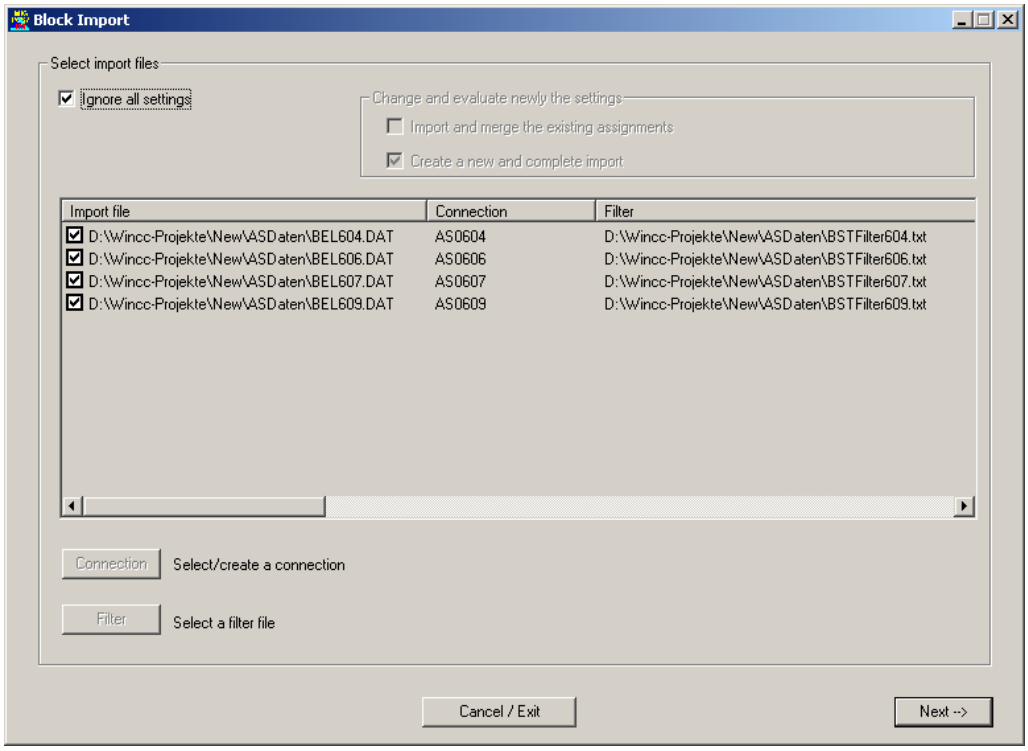


Figure: A block import has been performed already

Note:

If in this state of configuration one or more connections are deactivated their variables which were already created will not be included in the result data (*.map) of TM Manager after finishing the block import. They should be deleted in a following step of the block import (see "Dialog box for deleting instances and messages").

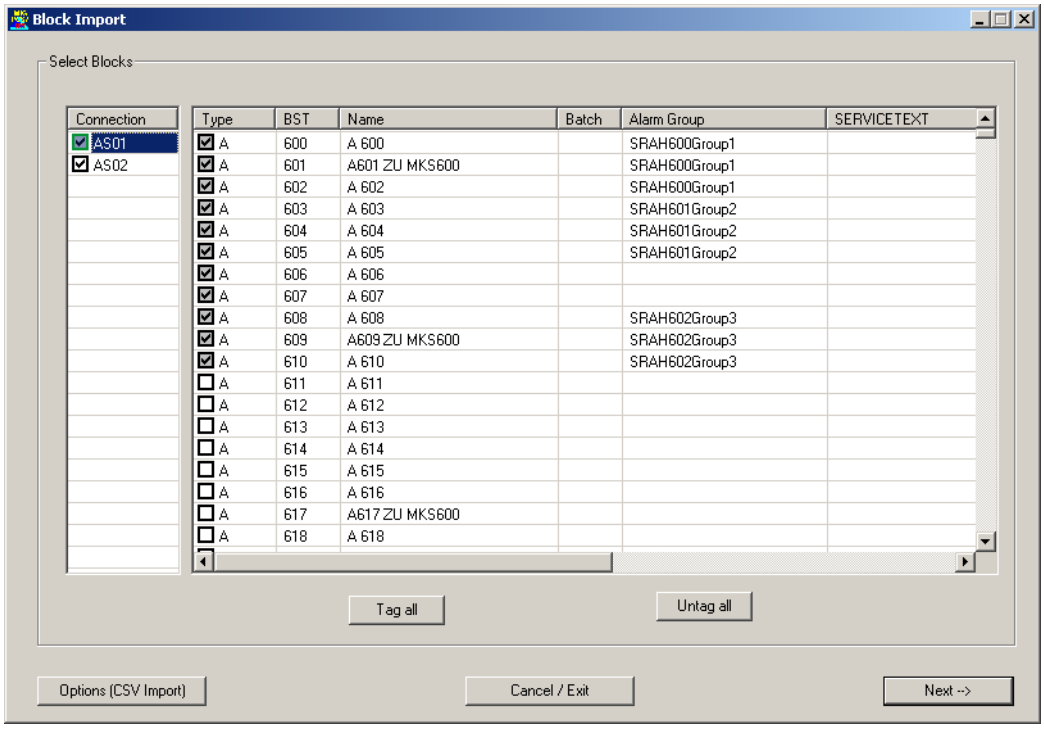


Figure: View of the selected connection (the boxes with gray background indicate that the corresponding function block already exists)

The left-hand window of the "Select Block Instances" dialog box shows the configured connections, while the right-hand window indicates all the block instances in ORPA data; and the block instances entered in the map file are enabled by selecting the check box. The S16 (AT) strings configured in the PROGRAF data are output in the Name column.
At this point, you can select the check box to add block instances missing from the block filter or map files.
Click "All" to select all block instances, or click "None" to select none.

Click the **"Batch" column** to open a box in which you can assign UNIB block instances for SIMATIC BATCH applications. This is only of relevance for SIMATIC BATCH applications, and is therefore described in a separate documentation.

Click the **„Alarm Group“ column** for a block instance of type SRAH opens a box in which the name of a new alarm group can be defined. That means the name may not be used till now.

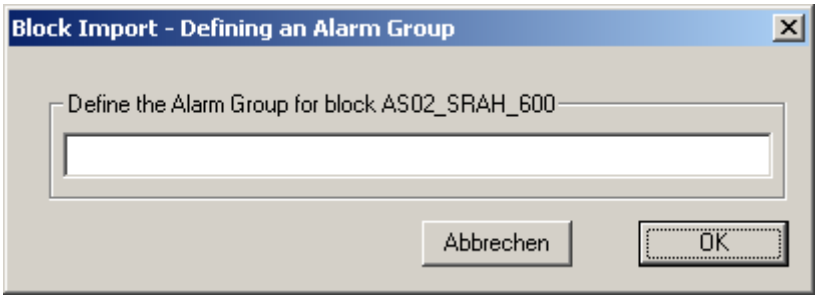


Figure: Definition of the name of a new Alarm group

If a SRAH block doesn't have an assignment to an alarm group then a message box is displayed when the NEXT button is clicked.

Click the „Alarm Group" column for a block instance with alarms opens a box in which an alarm group can be assigned to the block. The box lists all alarm groups which exist in the project or which are configured in the actual session. If an alarm group is selected then this name is entered in the column.

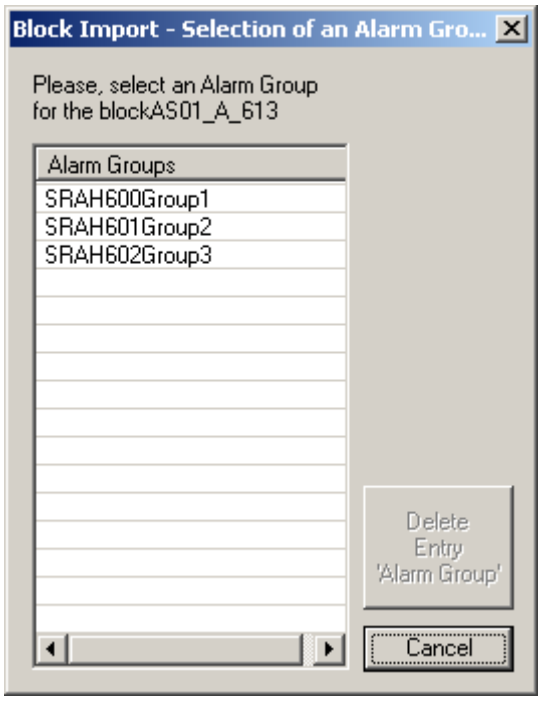


Figure: Selection of an alarm group

In double channel projects the list in the box contains alarm groups which are assigned to a SRAH blocks or which are defined in the PCS 7 channel.

If a block is assigned already to an alarm group, then the box is also opened; in this case it is possible to change or delete the selection.

Note:
Existing Alarm Groups can only be deleted by means of *WinCC* tools (by removing them in Alarm Logging).

Click the **"SERVICETEXT" column** opens a box in which any max. 63 characters long text may be entered. This text will be written into the internal variable <block instance>.SERVICETEXT as starting value.

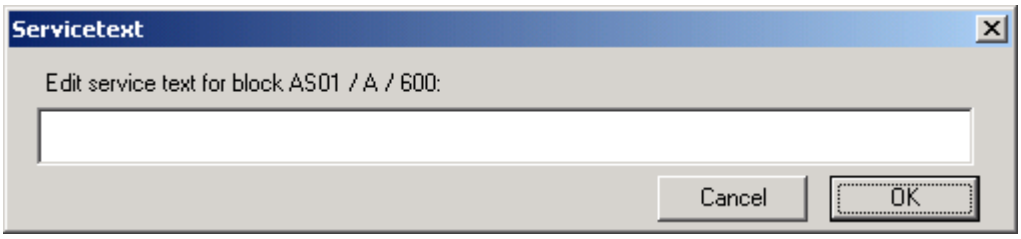


Figure: Box for direct entry of the service text

This text alternatively may be configured due to the CSV configuration file described in chapter 3.1.1. Selecting this file can be done after pressing the button "Options (CSV Import)" which opens a input box:

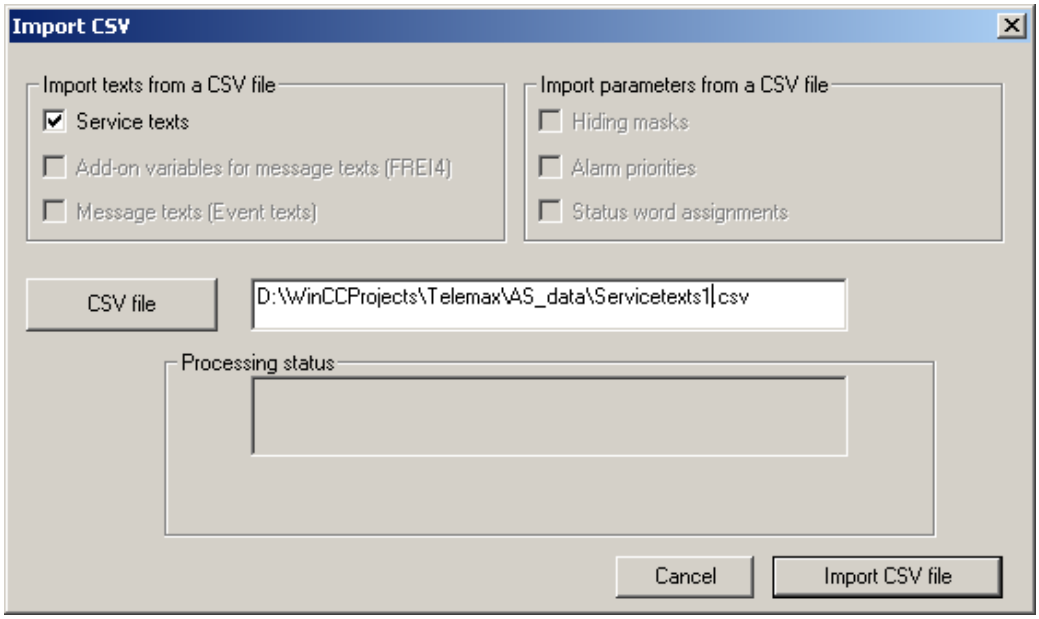


Figure: Input box for selecting the CSD configuration file.

Deactivating the option "Service text" in this input box generates a box with an error hint.

Note:

The service text of a block instance which already has been generated may only be modified by changing the internal variable in *WinCC* Explorer. A modification made in the input box later on does not effect the content of the variable.
If the internal variable does not exist no entry of the text can be made.

Note:
The states configured at the WAF parameters of the FN and RK standard function blocks are processed as far as possible and written to the block instance variable .EventTrans#1. These data should be verified once again after the block import, because the message class/type is derived from this information during a message import.

Block instances found in the *WinCC* Tag Management and cancelled from the selection are listed in the "Delete Instances And Messages“ dialog box. All block instances of non-selected connection are also listed. Here you can choose to delete these block instances from the variable database, the messages in *WinCC*-Alarm Logging and possibly the entries in the Tag Table by clicking "Delete".

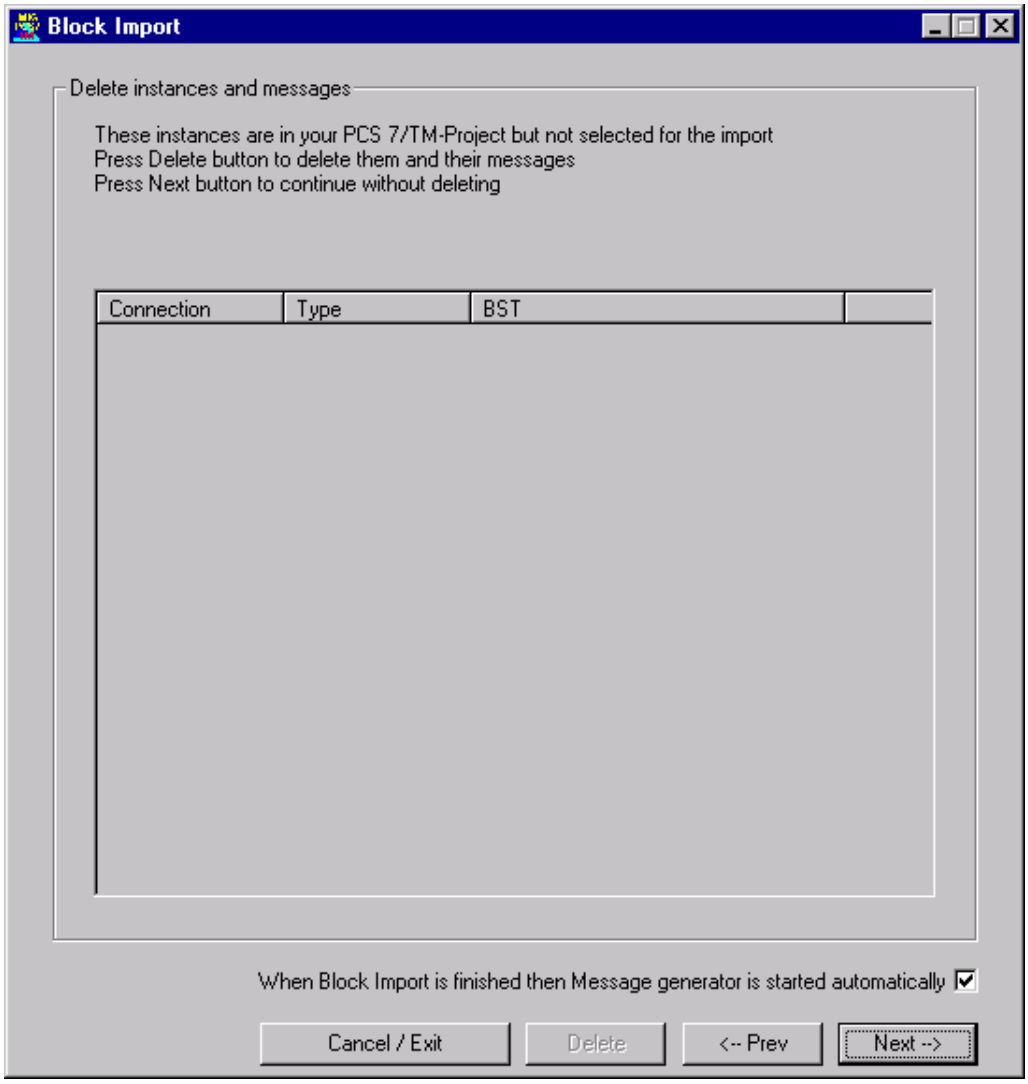


Figure: Dialog box for deleting instances and messages

Note:
Deleting the variables doesn’t work when the WinCC project is activated (W_6000).

Note:
Not to delete the instances effects that the variables (block instances) remain in the Tag Management but are not included in the result data (*.map) of TM Manager. You should avoid this.

Note:
If a block instance specific block comment does exist then a type specific block comment in the local parameter #comment is overwritten with this parameter.

3.4 Creating Connections

The "Create Connections" editor is called explicitly in the course of connection assignment within the Block Import function. Explicit calls other than in this context are hardly of any use. For details, refer to Chapter 3.3.

3.5 Message Generator

3.5.1 General

Separate from the block concept, the *WinCC* message system represents a highly flexible feature for programming process alarms and process control messages.
Hence, this manual does not cover any general message programming rules, but rather the conventions specific to TELEPERM M.
While conforming with these conventions, the user can create a message system that precisely suits his special requirements (also refer to the Channel DLL Manual, Simatic Process Control PCS 7).
Prerequisite for the functionality described below is the installation of a standardization DLL for your TELEPERM M messages in the *WinCC* binaries folder ../bin. This file is named "**NrmTelpm.nll**" and is installed during the setup of PCS 7/TM.
Because you normally have to enter project data in the project database as well as in the message system, you would generate considerable programming effort and the risk of creating faulty data if you were to do so manually.
The message generator described below helps you to overcome these disadvantages.

3.5.2 Communication Channel – Message System

To link the channel DLL to the message system, a special variable of the "**Raw data type**" must be installed in the *WinCC* TELEPERM M database.
This variable **must** be named **TM_MELD_RDV**, and must be configured in a fail-safe, virtual logical connection.
This logical connection can be named "**MELD**" and must be assigned the CS 275 address "**BA=0**" and "**TA=0**".
Further attributes may not be assigned to this variable in addition to its name and type specified earlier. The variable name must be entered in uppercase letters.
These variables and the virtual logical connection are generated implicitly when you create a connection.

To allow the receiving of messages in plain text, the Message Generator defines a corresponding variable of the type KLT for each connection:

- Operator control messages PR_KLT_BED
- MEL messages PR_KLT_MEL
- System messages PR_KLT_SYS

PR corresponds to the prefix specified earlier in Chapter 2.3. KLT, BED, MEL, SYS are fixed elements.

These variables and the local Teleperm M message class are generated implicitly.

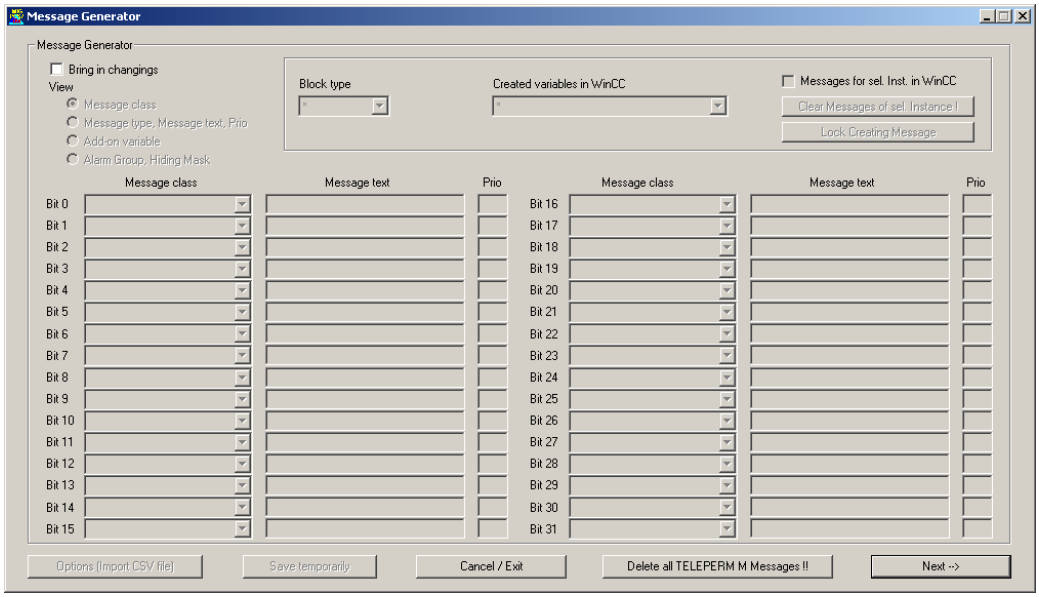
3.5.3 Communication Channel – Message System Configuration

The message generator provides fixed defaults for all function blocks. If these do not require modification, you can click "Next→" to continue the Message Generator. This generates messages for all the function block instances with status processing which you have configured in the *WinCC* variable database.
The Message Generator derives the messages for each user function block and for the FN and RK standard function blocks from EventTrans#1 or 2.
All other standard function blocks have a default setting for the status bit, message class/type and message text.

By means of the *WinCC* Picture Tree Manager, the variable processing area is determined for each block instance and entered in the "Area" message block. At the same time, the picture name is entered in the corresponding message block within this area as "Loop-in-Alarm" picture.
The procedure is here as follows: The program searches for block instance variables of configured pictures in the Picture Tree, starting at the top level hierarchy of the first area, and ending at the lowest nesting level of the last area. The last picture found and its area are entered as result and default value in these message blocks. If several pictures are found in the Picture Tree then this setting can still be modified in the window "Area and Picture for Loop-in-Alarm".

Note:
Because you cannot configure the Picture Tree and all its corresponding pictures unless you have created the function block structures and block instances in the *WinCC* variable database, you should not call the Message Generator until you have completed the picture configuration, in order to ensure that the "Area" and "Loop-in-Alarm" message blocks are assigned by the generating function.

Note:
TM_Loopinalarm.fct will be used as Loop-in-Alarm function. You find this function on delivery CD under PCS7_Version_7\Siemens\WinCC\Winccprojects\TELEPERM M\library; it must be copied from there into the project directory\library. After copying you have to execute the function "Generate Header" in Global Script.



Picture: Message Generator without changes

User-defined modification options

Instance-specific Message Classes, Types and Priorities

Message class, message type and message priority can be configured for all blocks
- block type specific or
- block instance-specific.

To do so, select the block type and/or the block instance.

With these message classes/types new EventTrans values will be calculated.

Note:
The OCX image blocks in TELEPERM M NORA representation don’t use “EventTrans” but they access directly to “EventRaw” resp. “EventState”. Therefore if the arrangements of the status bits were changed the standard delivered OCX cannot be applied anymore. In contrast the OCX in a PCS 7-similar representation show the modified range state.

Individual Message Texts

After the "Message type" option is selected, the message texts can be configured
- block type specific or
- block instance-specific.

To do so, select the block type and/or the block instance.

Inserting an Additional Variable

It is possible to define an additional variable which can be read at the moment of the arising of the message and can be inserted at a configured place. The configuration of this additional variable has to be done in message block “Free2”, the read value will be written into process value 7. This process value may be inserted into any message block preferably into “Event”.

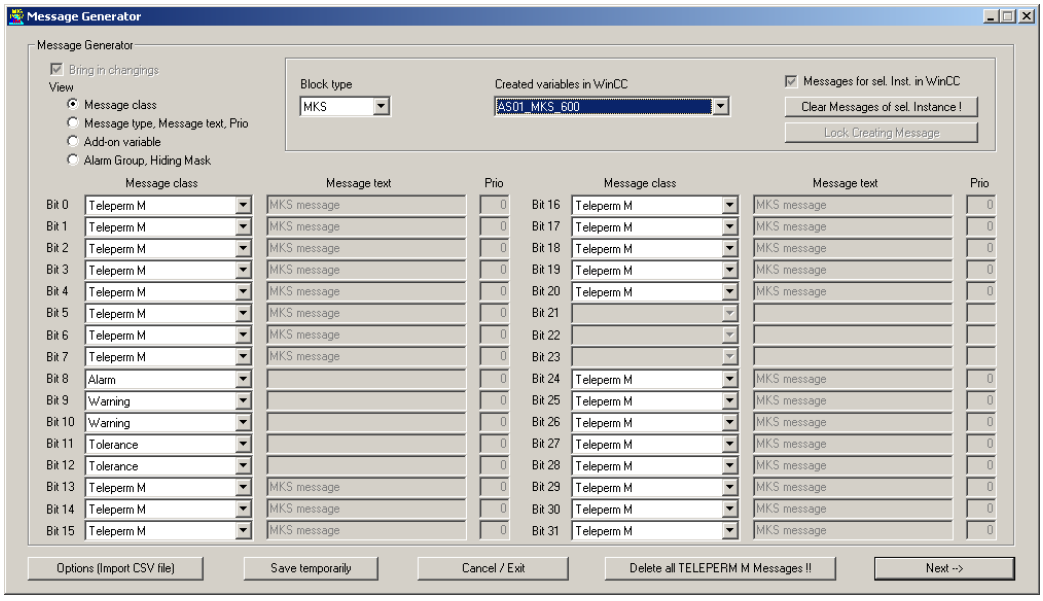


Figure: Message Generator with block instance-specific configuration of message classes

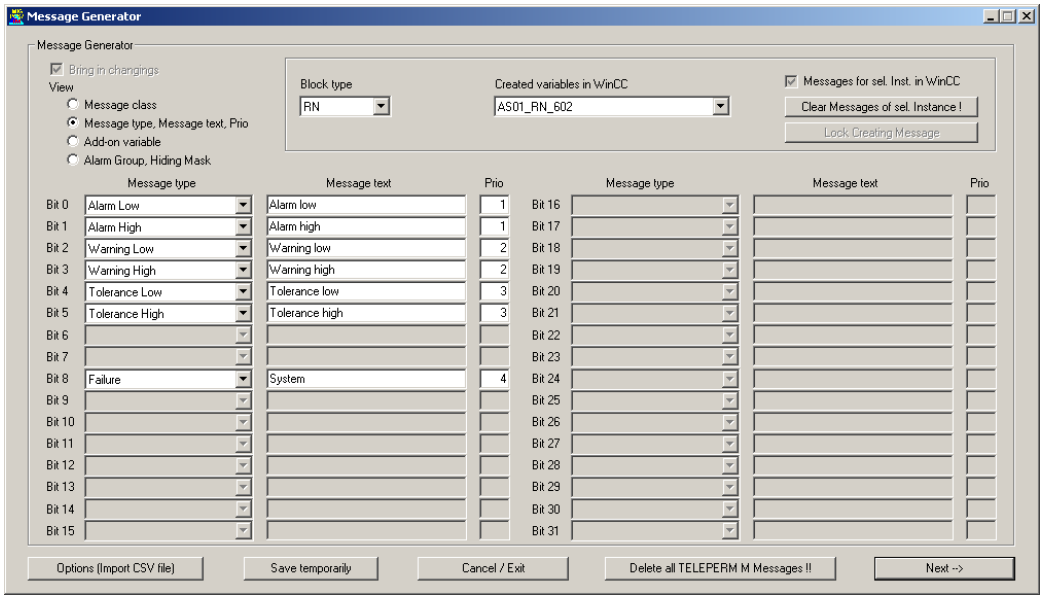


Figure: Message Generator with block instance-specific configuration of message types, message texts and message priorities

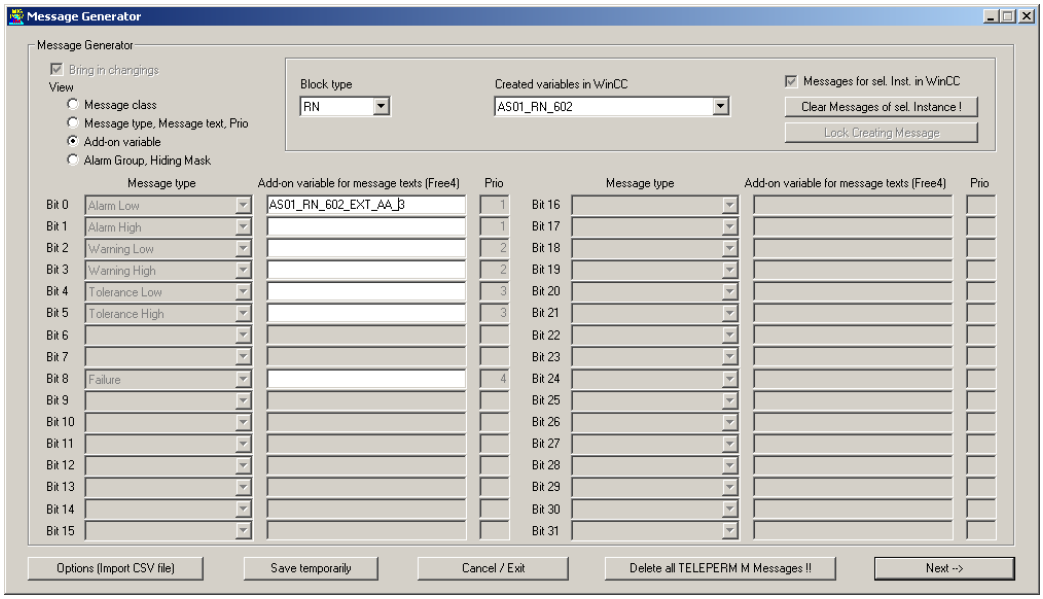


Figure: Message Generator with block message-specific configuration of the additional variable

The selected "Messages for sel. Instance" check box next to the block instance indicates that messages have already been created for this block instance in *WinCC* Alarm Logging. You can click "Clear Messages for sel. Instance", to delete the messages for this block instance from *WinCC* Alarm Logging.

Click "Lock Creating Messages", to prevent the block generator from generating any further messages for this block instance or all block instances of this block type which are existing at this session in future sessions.
In case that there is a "*" in the field "Created Variables in WinCC" all block instances of this type are locked. If some messages have already been locked separately the rest of these block instances has to be locked separately too.
If this button is shown deactivated the corresponding block instance has been locked in a prior session or has been selected for locking in the present session.

Any changes to this configuration must be saved with "Save".

Click "Delete All TELEPERM M Messages", to delete all TELEPERM M messages created in *WinCC* Alarm Logging and to close the program.

Note:
The first number of a function block message stream is stored as start value in .EventRaw#1. After the message of a function block is deleted, this value is 0, i.e. the status definition = no message generated. If you select the option "Lock Creating Message" then the interlock “-1” mark will be entered here. This interlock mark can only be replaced manually with 0.

Click the option “Add-on variable” in order to enter a variable per message type (of a block instance) which will be read after arising of the message. This variable can be internal (i.e. <block instance>.#SERVICETEXT) or external. This configuration, i.e. the address of the variable, will be written into the message block “Free4”. This variable which will be read at

runtime will be written into process value 7 and typically may be transferred into the message block “event” using customary statements, f.e. @7%s@.

Note:
Message block “Free” may only contain one variable. Each text in this message block will be interpreted as variable by the channel and may cause a time-out.

This variable address alternatively may be configured due to the CSV configuration file described in chapter 3.1.1. Selecting this file can be done after pressing the button “Options (Import CSV file)” which opens an input box:

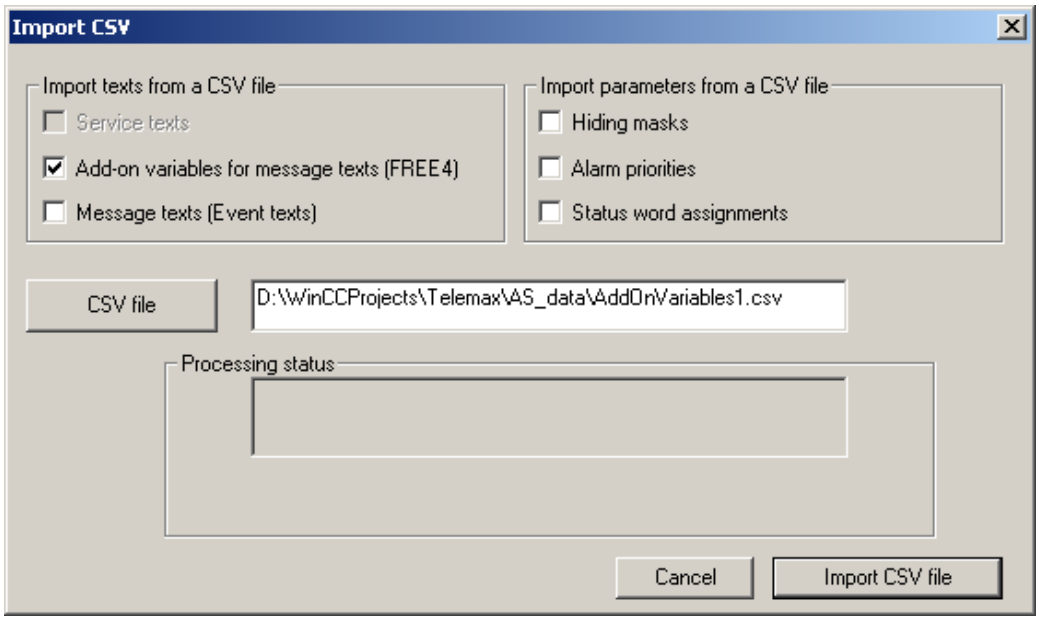


Figure: Input box

In this input box the option “Add-on variables for message texts” and/or “Message texts (Event texts”) can be activated.

Note:
Reading variables, especially external ones, explicitly after arising of the message effects on the reaction of the channel and should not be used excessively.

Note:
During the channel startup (process coupling) all variables which are read in this way have the value 0.

Alarm Hiding

Should be assigned alarm groups and alarm hiding masks for messages then these masks are imported in the Message Generator by a CSV file. The Message Generator displays the configured alarm groups and hiding masks, and writes them into the corresponding columns of the Alarm Logging when it creates or modifies the messages.

Already in a Block Import session an alarm group can be assigned for each block instance. At first the hiding masks are defined for every message in an EXCEL table, and then the table has to be exported in a CSV file.

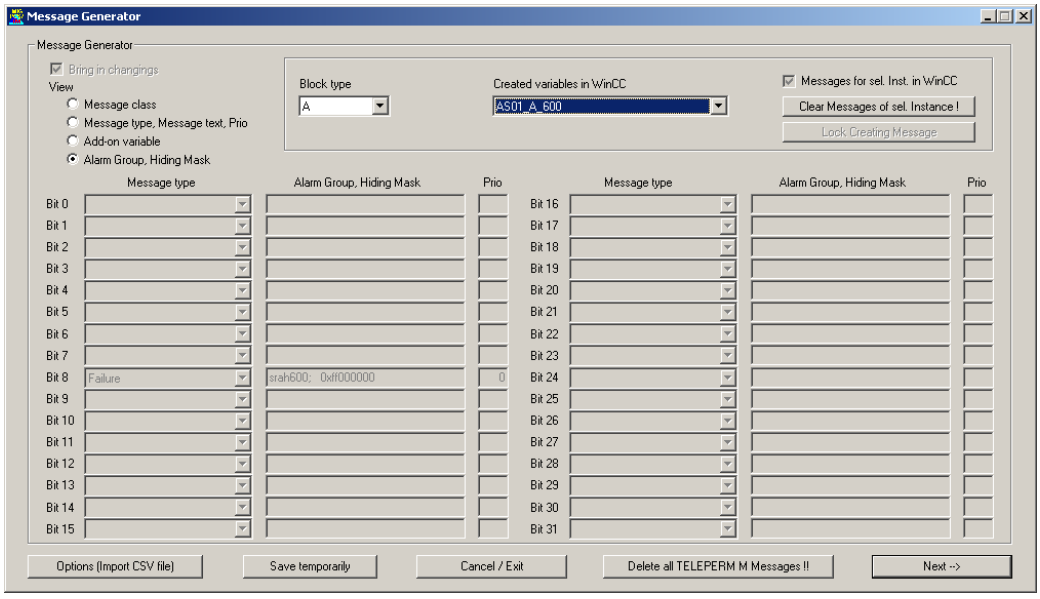


Figure: Message Generators can display alarm groups and hiding masks for each block instance

Import of Message Classes, Types and Priorities

Should message class, type and/or priority be modified for messages then these values can be imported in the Message Generator by a CSV file. The Message Generator displays the configured messages classes, types and priorities, and writes them into the corresponding columns of the Alarm Logging when it creates or modifies the messages.

At first the message classes, types and priorities are defined for every message in an EXCEL table, and then the table has to be exported in a CSV file.

For defining the hiding masks and/or message classes/types/priorities the following steps are possible:

1) **First session with Message Generator:** After the Block Import session is completed the Message Generator is run through without having done an import of a CSV file that contains hiding masks. In this program run there are already written the alarm groups into the Alarm Logging.

2) **Session with AlarmLogging:** Open Alarm Logging in WinCC-Explorer and export the messages into a text file (Menu Messages → Export single Messages → Configure file name and path → Export run). For all messages the exported TXT file contains also the message parameters, the alarm groups and the already present hiding masks. In this way it has been reached that the alarm groups, which are defined in Block Import and the existing hiding masks are used.

3) **EXCEL Session:** Open the EXCEL sheet „AlarmHiding.XLS" in the folder …\TM_Werkzeuge\AlarmHiding and click the button „Import Alarm Logging CSV file". When name and path of the exported TXT file is selected then the macro imports all TELEPERM messages in a further EXCEL table („AlarmHidingTemplate1.XLS"). In this table for each message is printed always a column for the instance name, the message bit number, the message class, the message type, the message priority, the message text, the add-on variable (Free4) and the alarm group as well as 32 columns for the hiding mask.
If only the hiding masks should be defined the message parameters (class/type/priority) can be taken unmodified. Otherwise the desired values can be set for each message.
For each message it can be defined an alarm hiding mask by entering the letter "X" in the columns S1 until S32, provided the message is already assigned to an alarm group.
If all desired message parameters and alarm hiding masks are defined then the EXCEL table must be stored and now it is possible to start the export of the EXCEL data into two CSV files by pressing the button "Export CSV file". With the given file name a CSV file will be created which contains the message parameters as well as the alarm groups and hiding masks. With this file name and an appended "_T" a second CSV file will be created which contains the message texts and add-on variables. This file can also be used for setting the service texts (see chapter 3.1.1). Example: Setting the name "Messages_AS402" will create both files "Messages_AS402.csv" and "Messages_AS402_T.csv".

4) **Second session with Message Generator:** After a restart of the Message Generator the import from a CSV file is activated by clicking the button OPTIONS („Import CSV file"). At this dialog can be selected if the alarm hiding masks, the message priorities and/or the status word routing (i.e. message classes/types) will be imported.
Now if the NEXT button is clicked then the Message Generator writes newly the defined alarm hiding masks and the message parameters into the Alarm Logging.

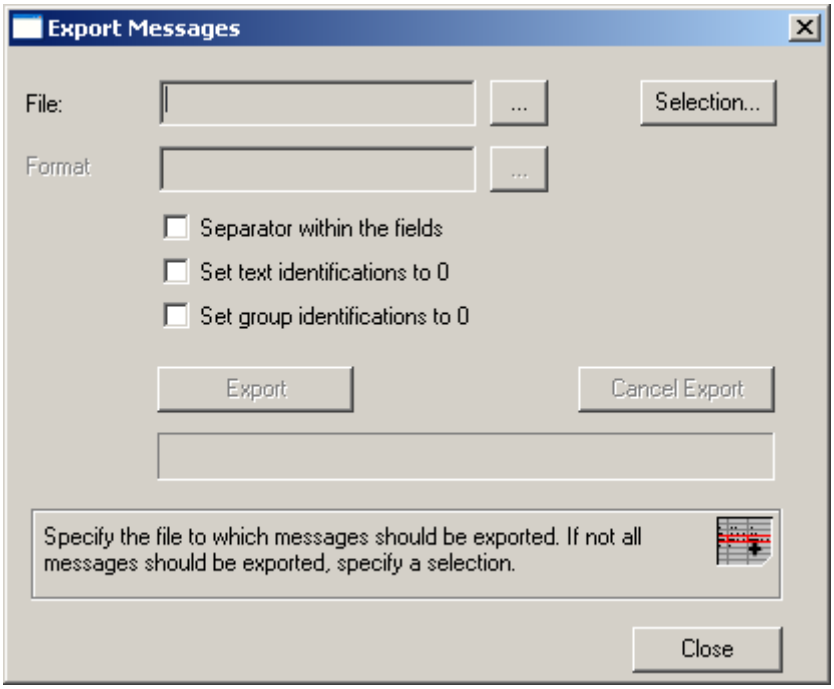


Figure: Alarm Logging – Export messages into a text file (Step 2)

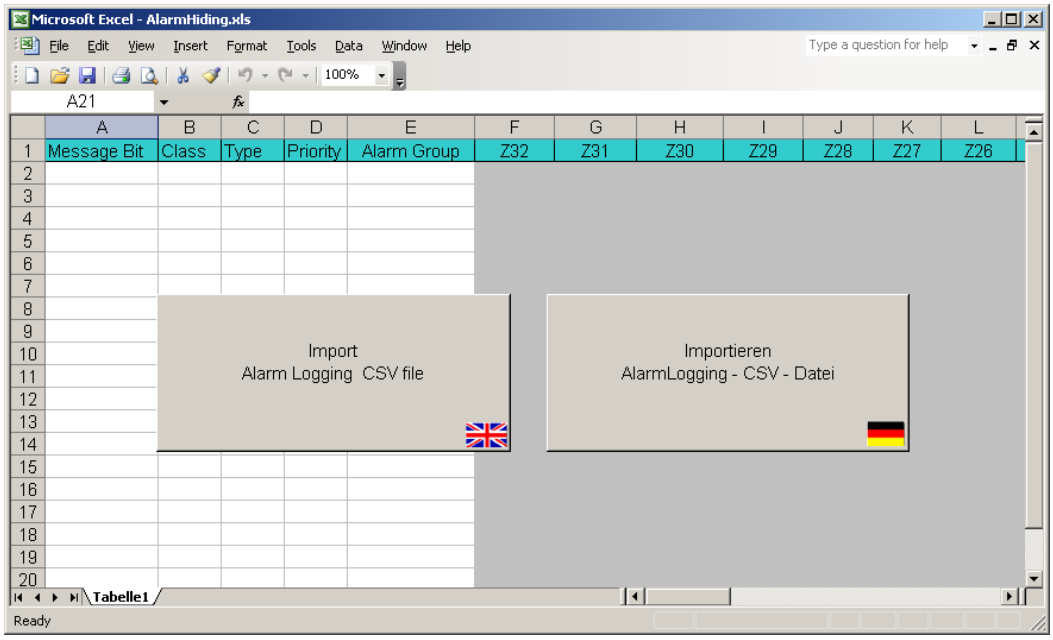
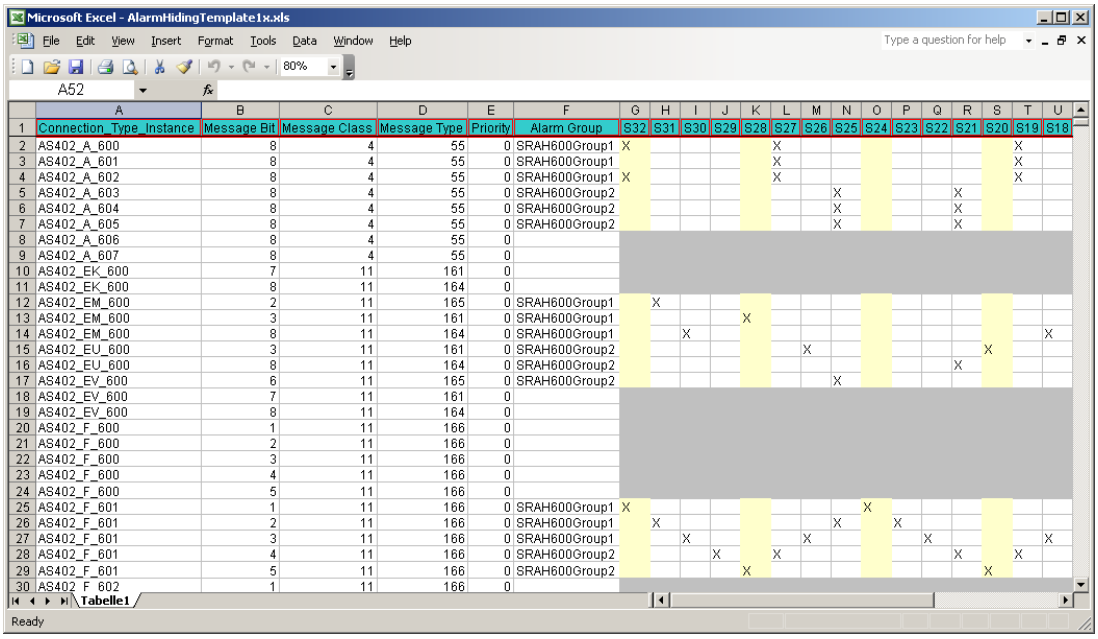


Figure: EXCEL table for importing an Alarm Logging CSV file (Step 3)



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1	Connection_Type_Instance	Message Bit	Message Class	Message Type	Priority	Alarm Group	S32	S31	S30	S29	S28	S27	S26	S25	S24	S23	S22	S21	S20	S19	S18
2	AS402_A_600	8	4	55	0	SRAH600Group1	X					X								X	
3	AS402_A_601	8	4	55	0	SRAH600Group1						X								X	
4	AS402_A_602	8	4	55	0	SRAH600Group1	X					X								X	
5	AS402_A_603	8	4	55	0	SRAH600Group2								X				X			
6	AS402_A_604	8	4	55	0	SRAH600Group2								X				X			
7	AS402_A_605	8	4	55	0	SRAH600Group2								X				X			
8	AS402_A_606	8	4	55	0																
9	AS402_A_607	8	4	55	0																
10	AS402_EK_600	7	11	161	0																
11	AS402_EK_600	8	11	164	0																
12	AS402_EM_600	2	11	165	0	SRAH600Group1		X													
13	AS402_EM_600	3	11	161	0	SRAH600Group1					X										
14	AS402_EM_600	8	11	164	0	SRAH600Group1			X												X
15	AS402_EU_600	3	11	161	0	SRAH600Group2							X						X		
16	AS402_EU_600	8	11	164	0	SRAH600Group2												X			
17	AS402_EV_600	6	11	165	0	SRAH600Group2								X							
18	AS402_EV_600	7	11	161	0																
19	AS402_EV_600	8	11	164	0																
20	AS402_F_600	1	11	166	0																
21	AS402_F_600	2	11	166	0																
22	AS402_F_600	3	11	166	0																
23	AS402_F_600	4	11	166	0																
24	AS402_F_600	5	11	166	0																
25	AS402_F_601	1	11	166	0	SRAH600Group1	X								X						
26	AS402_F_601	2	11	166	0	SRAH600Group1		X						X		X					
27	AS402_F_601	3	11	166	0	SRAH600Group1			X				X				X				X
28	AS402_F_601	4	11	166	0	SRAH600Group2				X		X						X		X	
29	AS402_F_601	5	11	166	0	SRAH600Group2					X								X		
30	AS402_F_602	1	11	166	0																

Figure: EXCEL table for defining the Alarm Hiding Masks (Step 3)

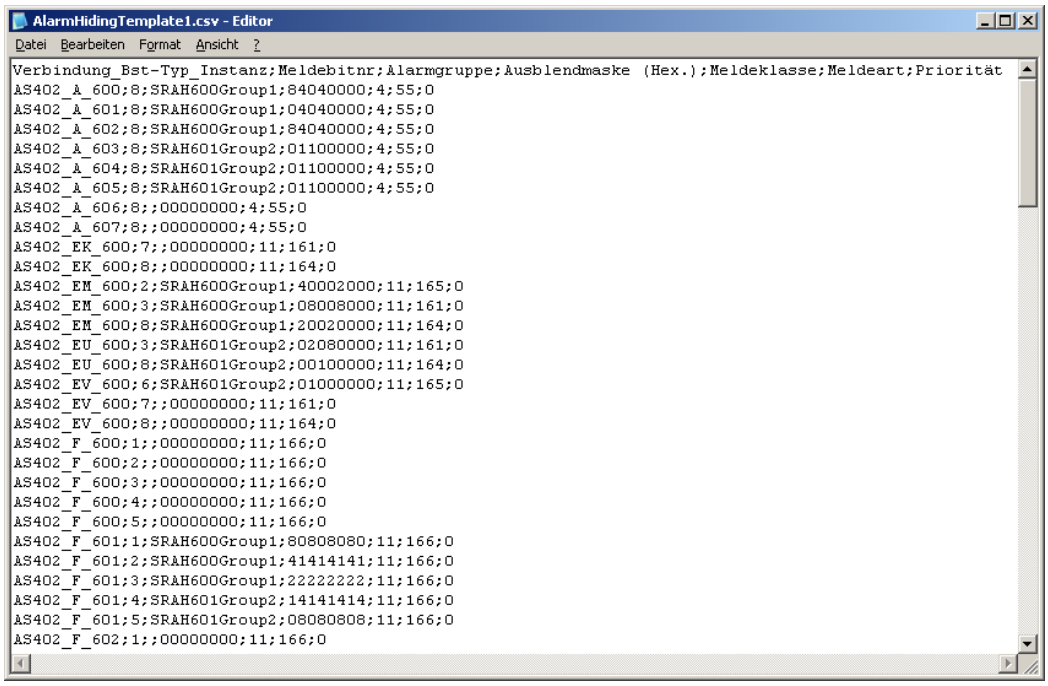


Figure: CSV file with Alarm Groups and Hiding Masks (Step 3)

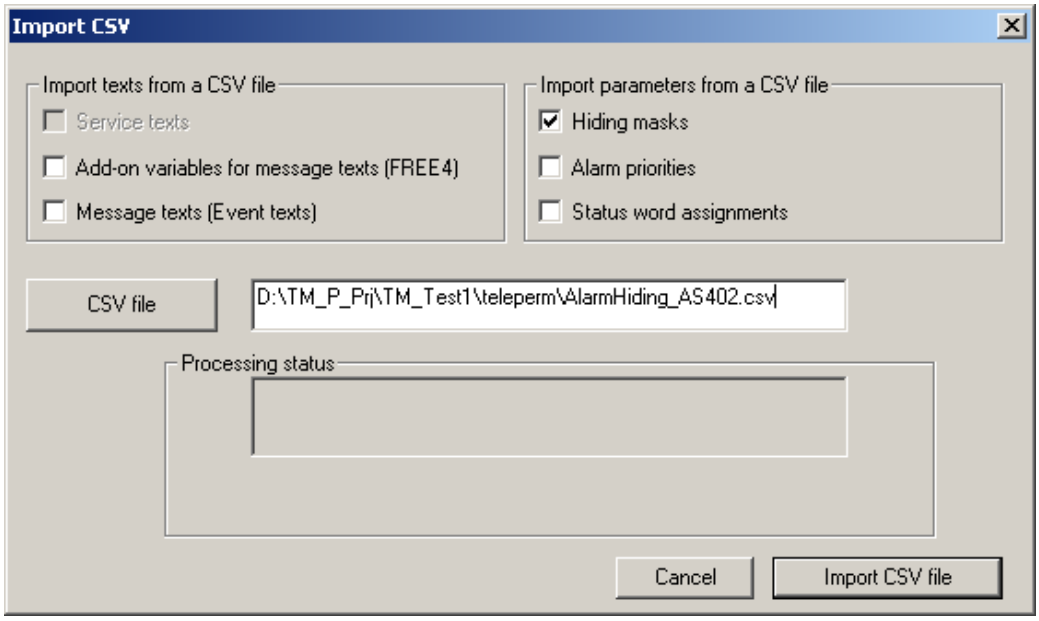


Figure: Selecting a CSV file with Alarm Hiding masks in Message Generator (Step 4)

Selection of Area and "Loop-in-Alarm" picture

After clicking the „Next" button at first it is asked whether the configuration for Picture Tree is finished and the entries for area and „Loop-in-Alarm" picture should be taken over:

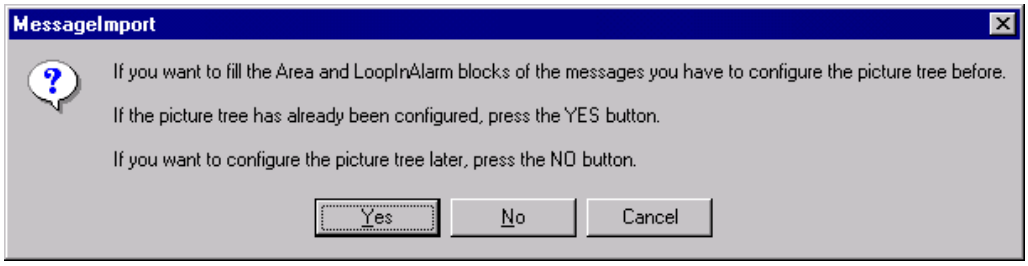


Figure: Ask for evaluation of „Picture Tree"

At positive answer a table is created with all found entries. In this table the variables are arranged alphabetically to block types:

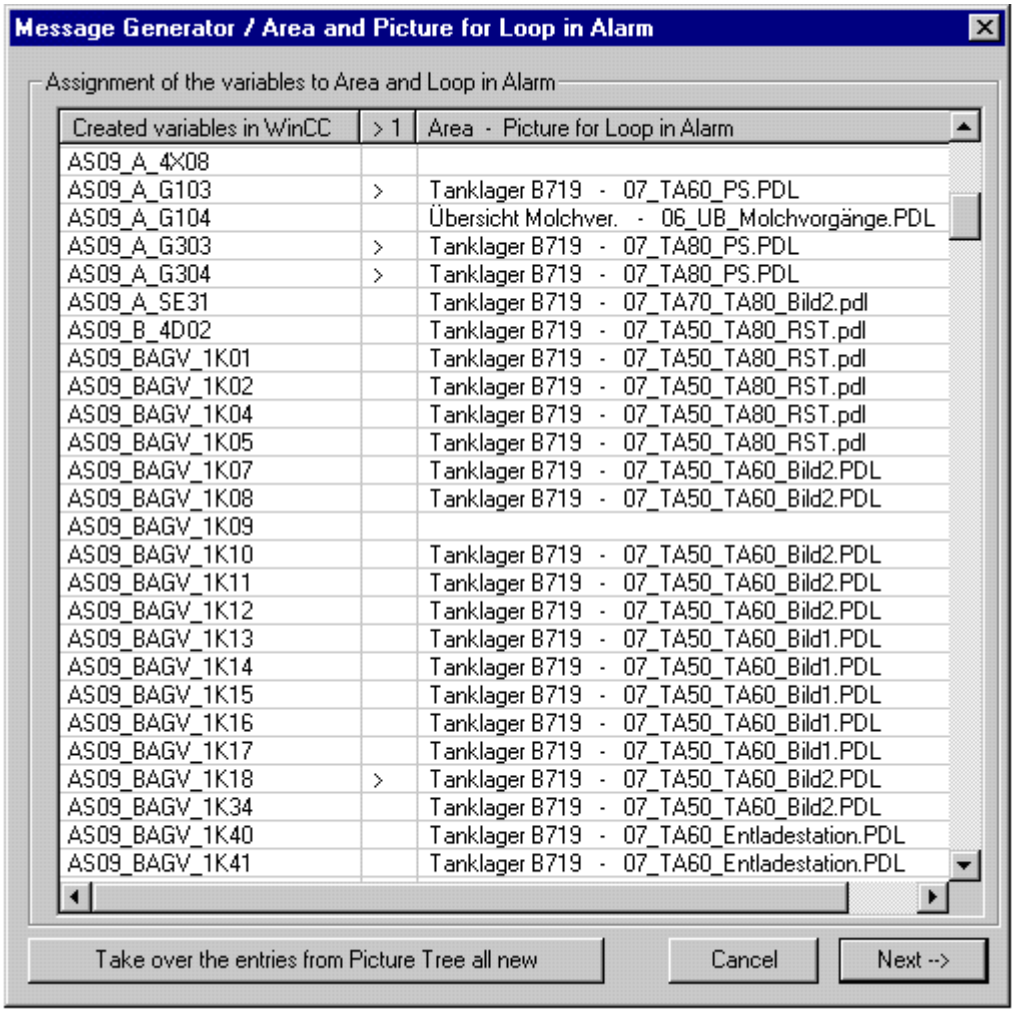


Figure: Area and pictures for „Loop-in-Alarm”

In the above dialog box the columns have the following contents:

Column	**Meaning**
Created variables in WinCC	An EventState is created for the listed variable.
> 1	The character ‚>’ is displayed if the listed EventState variable was found in several pictures or the entries in Picture Tree and Alarm Logging are different. In this case a new window is opened if the row is clicked; this window lists all found pictures for selection.
Area and Picture for „Loop-in-Alarm“	For the listed variable the stated area and picture is selected; these data are transferred to the Alarm Logging, if this entry isn’t already available there.

In the case of clicking in column ‘Area – Picture for Loop in Alarm’ of a row of the table a new dialog box is opened. It contains the found entries of the block which are arranged alphabetically. In this dialog box another selection of the picture can be done:

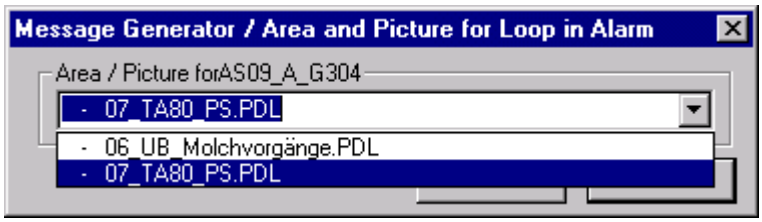


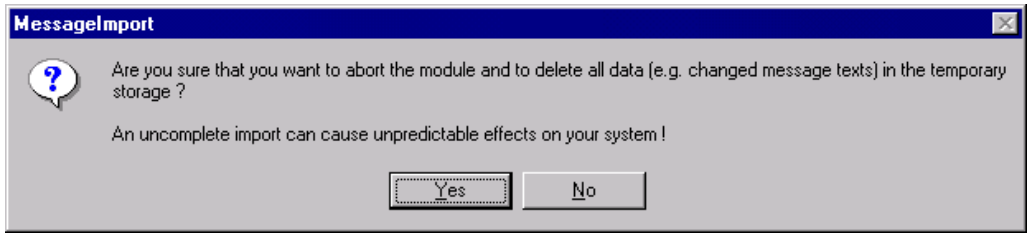
Figure: Selection of an area and a „Loop-in-Alarm“ picture

At first the selected „Loop-in-Alarm“ picture is entered in an internal list of the Message Generator; it can be changed once more in the running session.

If all entries in Alarm Logging are to be reset to the default values then this can be achieved with the button „Take over the entries from Picture Tree all new”. For all listed block instance variables this function searches all pictures and that picture is set as default value which was found in the lowest nesting level of the last area in the Picture Tree. If in Picture Tree no picture is found for a block instance variable then the associated column in the displayed list is empty or a possible existing entry in Alarm Logging remains fixed.

When clicking the „Next“ button, then creating and changing the messages are started; in doing so, all selected pictures which are shown in the window and all entries which have be done in the main window of the Message Generator are written in the Alarm Logging now.

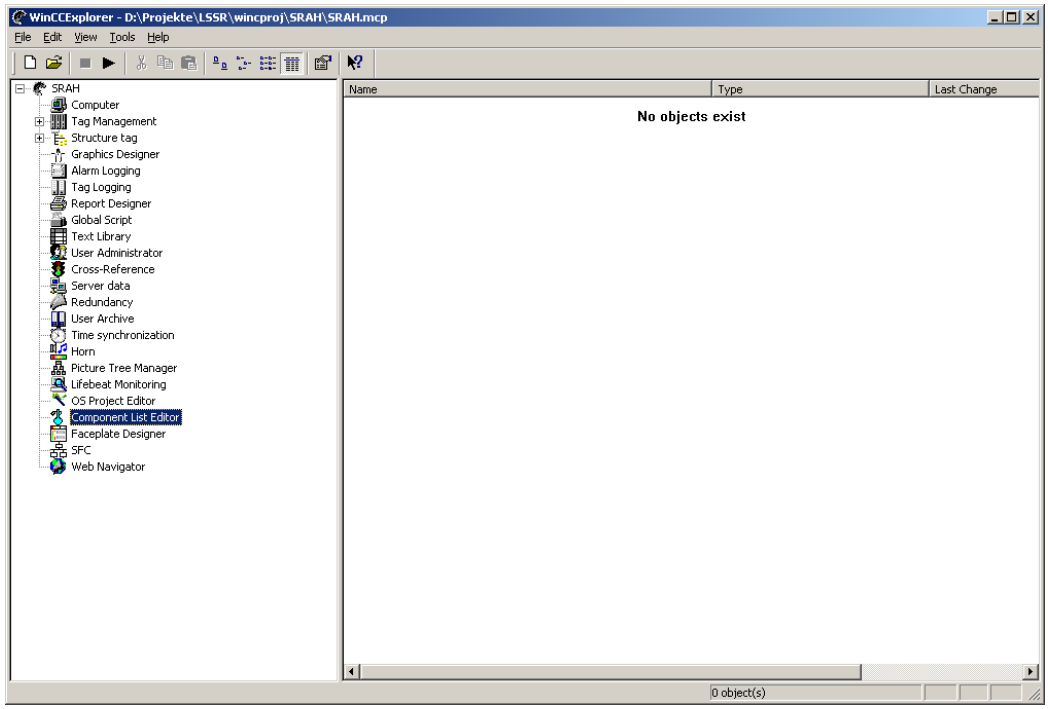
If the „Cancel“ button is clicked and confirmed afterwards then all entries and changes which have be done in the Message Generator session are deleted. All entries in Alarm Logging remain unchanged.

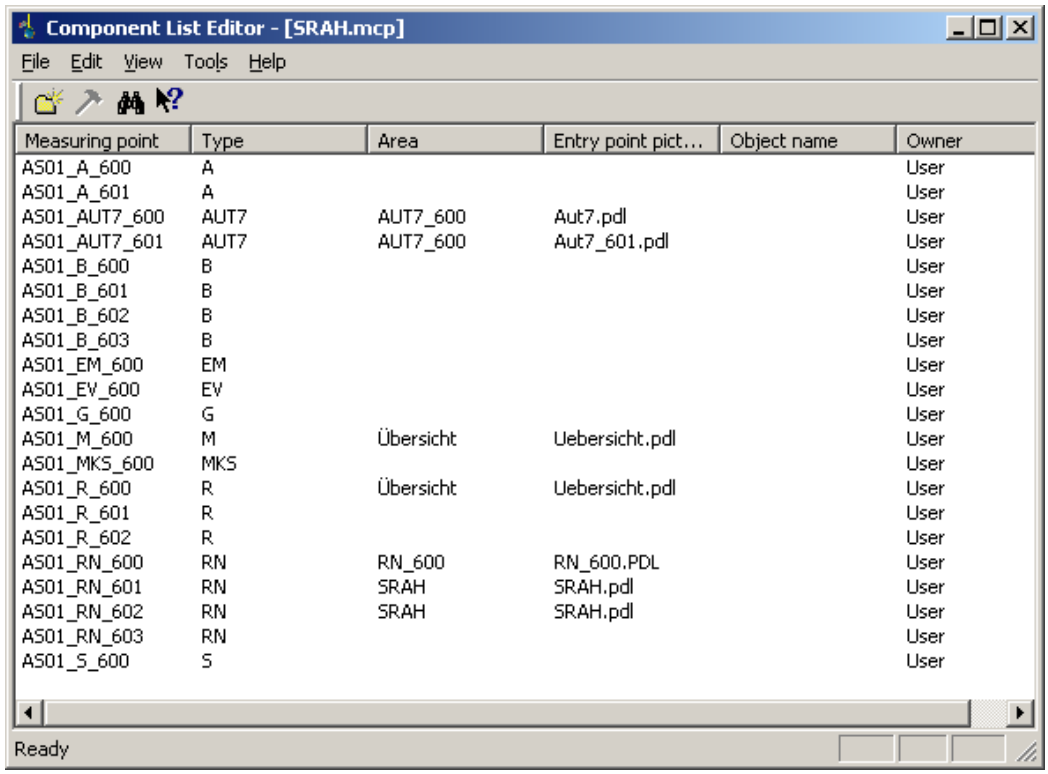


Note:
If further changes in ‚Picture Tree’ or in pictures are carried out after a Message Generator session then the existing entries in Alarm Logging are not changed automatically. The changes which have been carried out must be updated in a new Message Generator session.

3.5.4 Entries in Tag Table resp. Component List

The Message Generator inserts every block instance, which generates messages, as measuring point into the Component List (Tag Table).





Measuring point	Type	Area	Entry point pict...	Object name	Owner
AS01_A_600	A				User
AS01_A_601	A				User
AS01_AUT7_600	AUT7	AUT7_600	Aut7.pdl		User
AS01_AUT7_601	AUT7	AUT7_600	Aut7_601.pdl		User
AS01_B_600	B				User
AS01_B_601	B				User
AS01_B_602	B				User
AS01_B_603	B				User
AS01_EM_600	EM				User
AS01_EV_600	EV				User
AS01_G_600	G				User
AS01_M_600	M	Übersicht	Uebersicht.pdl		User
AS01_MKS_600	MKS				User
AS01_R_600	R	Übersicht	Uebersicht.pdl		User
AS01_R_601	R				User
AS01_R_602	R				User
AS01_RN_600	RN	RN_600	RN_600.PDL		User
AS01_RN_601	RN	SRAH	SRAH.pdl		User
AS01_RN_602	RN	SRAH	SRAH.pdl		User
AS01_RN_603	RN				User
AS01_S_600	S				User

Depending whether the Message Generator should take over the entries from Picture Tree or not, the following parameters are inserted into the Component List:

- Block instance name (Measuring Point)
- Block type
- Area (if Picture Tree contains a correspondent entry)
- Entry point picture (if Picture Tree contains a correspondent entry)
- The Message Generator doesn't use a separate owner figure but uses the figure of the user.

If the Message Generator recognizes that area or entry point picture were changed for a block instance, then all parameters of the existing entry for the measuring point are newly written into the Component List. Possibly at the same time, manually carried out entries for this measuring point are deleted in the Component List. Also the object names, inserted by the Picture Tree Manager, are deleted; but they are entered again when the project is being loaded.

At deleting the messages of a block instance or at deleting the complete block instance by the BlockImport the correspondent entry in the Component List is removed also.

3.5.5 Filter for I&C Alarms (Bus Messages)

A file in csv format, that must be configured, can be used for filtering unwanted bus messages (see appendix C) out of the signalling system. The file must be called **TM_ChnMsgFilter.csv** and be in the <...>\WinCC\bin directory.
A separate line must be configured for each message that shall be suppressed. The line contains a part of or the complete string of the message that shall be suppressed. After the string a semicolon is to set and after the character # a comment can be written.

Example:

Indicator 0x9802;	All messages that contain the text "Indicator 0x9802" will not be entered into the signalling system.
Indicator 0x9806 from BATA 6/14;	All messages that contain the text "Indicator 0x9806 from BATA 4/14" will not be entered into the signalling system.
Indicator 0x9802; #Indicator 0x9802 are not to enter in signalling system	All messages that contain the text "Indicator 0x9802" will not be entered into the signalling system.

Please note that filtered messages will irrevocably be lost.

3.6 BATCH Import

A BATCH import is only of significance for projects in conjunction with SIMATIC BATCH, and is therefore described in a separate documentation (PCS 7_TM_BF_en.pdf).

Double-Channel Functionality 4

Overview

This chapter explains the special aspects involved when configuring the double-channel functionality PCS 7/TM-OS DC.

Chapter Overview

This chapter covers the following topics:

4.1 General

4.1.1 Brief Description

Figure: Screenshot of the WinCC Explorer with Two Channels

Double-channel functionality allows the simultaneous operation of the two channels TELEPERM M (CS 275 bus) with the automation systems of TELEPERM M and SIMATIC PROTOCOL SUITE with the programmable controllers of PCS 7.

An OS equipped with these two channels is known as **PCS 7/TM-OS DC** (DC=Double Channel). There is an example of a plant configuration in section 4.5.

4.1.2 Versions

To operate with double-channel functionality, a channel DLL TELEPERM M V2.3 or higher and PCS 7 V5.2 SP2 (Channel DLL SIMATIC PROTOCOL SUITE) are necessary.
The PCS 7 plant bus is interfaced over IE with the TCP/IP or ISO protocol.

4.1.3 Requirements

In addition to the requirements listed on page III of the Preface, this chapter assumes knowledge of PCS 7 and, in particular, the SIMATIC Manager.

4.1.4 The Way to the PCS 7/TM-OS DC Project

This section describes the way in which a PCS 7-OS and a PCS 7/TM-OS can be combined to form a PCS 7/TM-OS DC.

TELEPERM M provides its own tools to generate the tag management, the structure definitions, blocks, and messages. PCS 7 provides the transfer program PLC-OS Engineering for transferring configuration data created in the ES to the data storage of the OS.

Depending on the configuration status of operator stations to be "fused" together to form a common PCS 7/TM-OS DC, you can choose one of three methods. All methods involve porting the PCS 7/TM-OS to the SIMATIC Manager.

I. **Extension of the PCS 7/TM-OS Project with the PCS 7 Component**
(see Section 4.4.1)
The PCS 7/TM-OS project already exists. The PCS 7 part will be configured after integration of the PCS 7/TM-OS into PCS 7.

II. **Extension of the PCS 7 Project with the TM Component**
(see Section 4.4.2)
The PCS 7 OS and project exist and the TELEPERM M component will be added using TM tools.

III. **Merging of the PCS 7/TM and PCS 7 Project**
(see Section 4.4.3)
Two existing OS projects (PCS 7, TELEPERM M) will be put together to form one PCS 7/TM-OS.

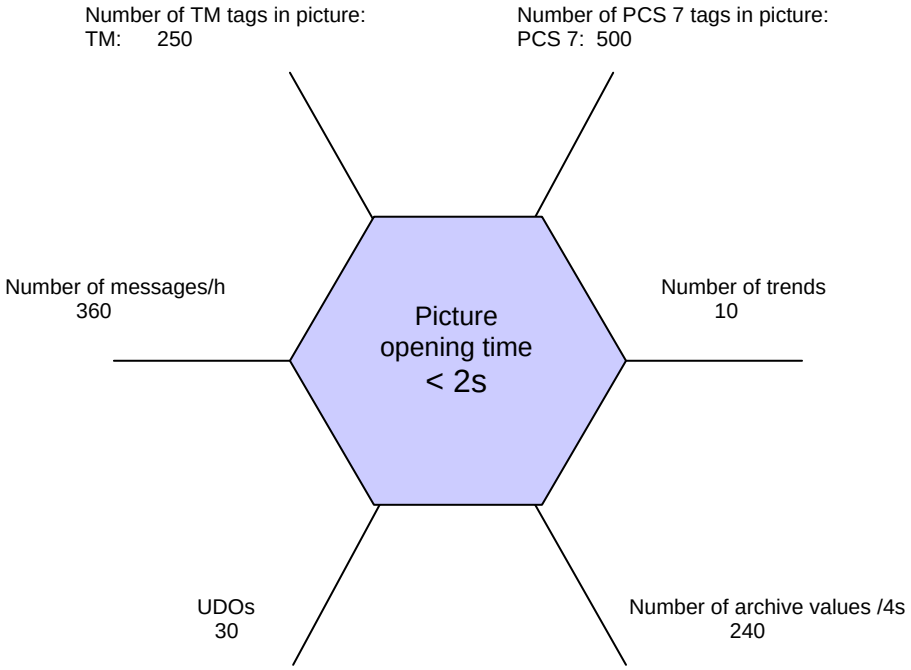
This method is essentially the same as method II except that individual data objects of the PCS 7/TM-OS (pictures, user scripts) can be copied to the PCS 7-OS. Data that are part of the database (structure types, block instances, messages, etc.) cannot be copied to the database of PCS 7. These are generated using the TM tools in the PCS 7 project.

Note
The individual steps of the configuration are explained in this section but this description is no substitute for the procedures and guidelines in the documentation specific to SIMATIC S7 and WinCC.

4.2 Rate of Tag Transfer

The rate of tag transfer possible with PCS 7/TM-OS DC V3.0 or higher is as follows:

	PCS 7/TM-OS DC as of V2.3
PCS 7 channel	1200 tags/sec
TELEPERM M channel	600 tags/sec



Note

TM tags	: WinCC tags (no process control engineering)
PCS 7 tags	: WinCC tags (no process control engineering)
UDO	: User defined object of average size (8 tags/2 scripts) These tags are included under "Number of TM tags in picture".
Number of trends	: Selection of a trend group with 10 trends
Number of archive values	: Short-term (cyclic) archive in database

4.3 Naming Conventions

Before merging a PCS 7/TM and a PCS 7 project into a PCS 7/TM-OS DC project, the following name conflicts must be resolved:

4.3.1 Name Conflicts Involving OS-relevant Tags and Structure Types

The tag management of TELEPERM M and the tag management of PCS 7 merge together in PCS 7/TM-OS DC to form one tag management.
Regardless of the channel in which they are used (Teleperm M, SIMATIC S7), tag names can only occur once. You must therefore make sure that there are no two identical tag names throughout the entire project in both PCS 7/TM and PCS 7.
Solution: If identical tag names exist in TELEPERM M and PCS 7, the name must be changed either in PCS 7 or in PCS 7/TM. This renaming must be undertaken before mapping.

A structure type name can only be created once. You must therefore make sure that structure type names do not occur both in TELEPERM M and in PCS 7.
Solution: If identical structure type names exist in TELEPERM M and PCS 7, the name of the corresponding block must be changed either in PCS 7 or in PCS 7/TM. This renaming must be undertaken before mapping.

4.3.2 Name Conflicts in the GraCS Folder WinCC (Pictures)

The PDL pictures of PCS 7/TM and PCS 7 are stored in a common path (for example C:\Siemens\Step7\S7proj\"PCS 7_Projectname"\wincproj\"OS_Name"\GraCS) in PCS 7/TM-OS. Pictures with the same name in PCS 7/TM and PCS 7 can therefore not co-exist in PCS /TM-OS.
Solution: If identical PDL picture names exist in PCS 7/TM and PCS 7, the name of the PDL must be changed either in PCS 7 or in PCS 7/TM. This renaming must be undertaken before mapping.

4.3.3 Name Conflict in the Library Folder WinCC (Scripts)

User scripts of PCS 7/TM and PCS 7 are stored in a common path (for example C:\Siemens\Step7\S7proj\"PCS 7_Projectname"\wincproj\"OS_Name"\Library) in PCS 7/TM-OS. User scripts with the same name in PCS 7/TM and PCS 7 can therefore not coexist in PCS 7/TM-OS.

Solution: If user scripts with the same names exist both in PCS 7/TM and in PCS 7, they must be renamed either in PCS 7 or in PCS 7/TM.
This renaming must be undertaken before mapping.

4.4 Configuring

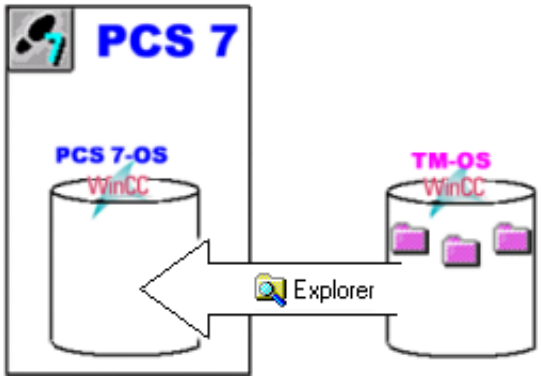
When configuring in the following WinCC applications, there are no specific restrictions or special features affecting double-channel operation.

- Report Designer
- User Administrator
- User Archive
- Lifebeat Monitoring
- Storage

4.4.1 PCS 7/TM-Project as Basis

Requirement: PCS 7/TM-OS configuration exists.
This project must be extended by adding a PCS 7 application.

A PCS 7/TM-OS configuration is put into an empty PCS 7-OS.

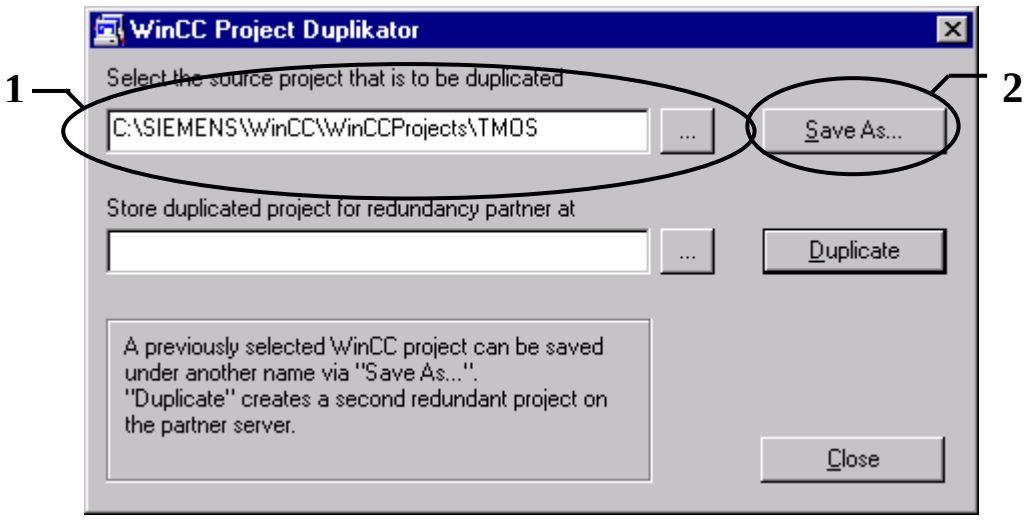


Steps in Configuration

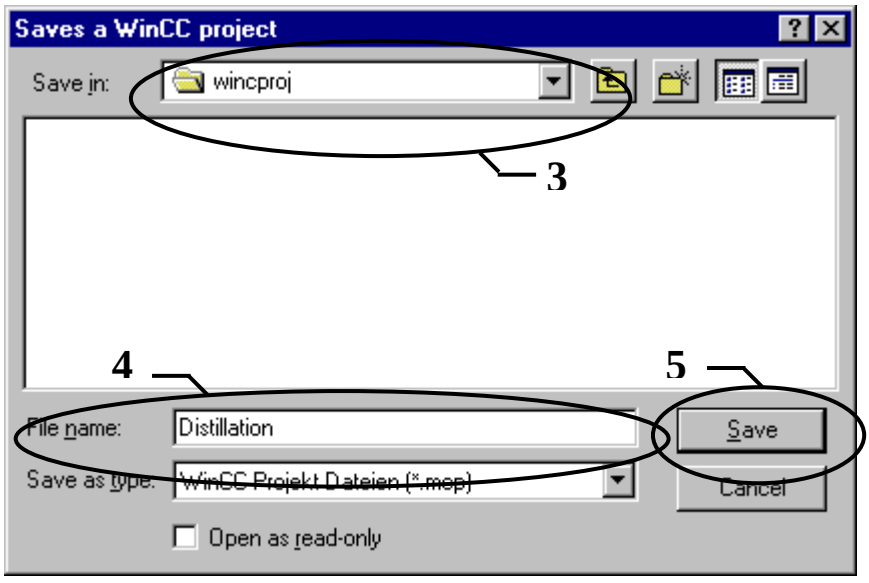
In PCS 7, it is only possible to map PLC configuration data for operator control and monitoring within the data management of operator stations created in the PCS 7 project. This means that to integrate a PCS 7/TM project in PCS 7, you must create a PCS 7 user project with a new OS object and then replace this with the PCS 7/TM-OS.

1. Create the user project
   - Start the SIMATIC Manager on the ES.
   - Create the user project in PCS 7.
   - Configure the hardware (you can also do this later).
   - Insert a new OS in the component view.
   - Give the OS a name, for example "Distillation".
   - (open and close the OS)
   - Create SIMATIC PC station and insert WinCC application
   - Close the PCS 7 user project.

2. Copy the PCS 7/TM-OS to the SIMATIC PCS 7/WinCC folder
   - Delete the folder of the PCS 7-OS ("Distillation") in the PCS 7 project path using the Windows Explorer (for example, path DR:\.....PCS 7 project path.....\wincproj\ "Distillation").
   - Start the WinCC Project Duplicator (Start > SIMATIC > WinCC > Tools >).
   - Browse to the PCS 7/TM-OS project (1) and save with the "Save As" (2) button



   - Browse to the folder (3) of the PCS 7-OS (DR:\{PCS 7 project path}\wincproj\...) and save the project under the name (4) of the OS ("Distillation") created in PCS 7 with the "Save" button (5).



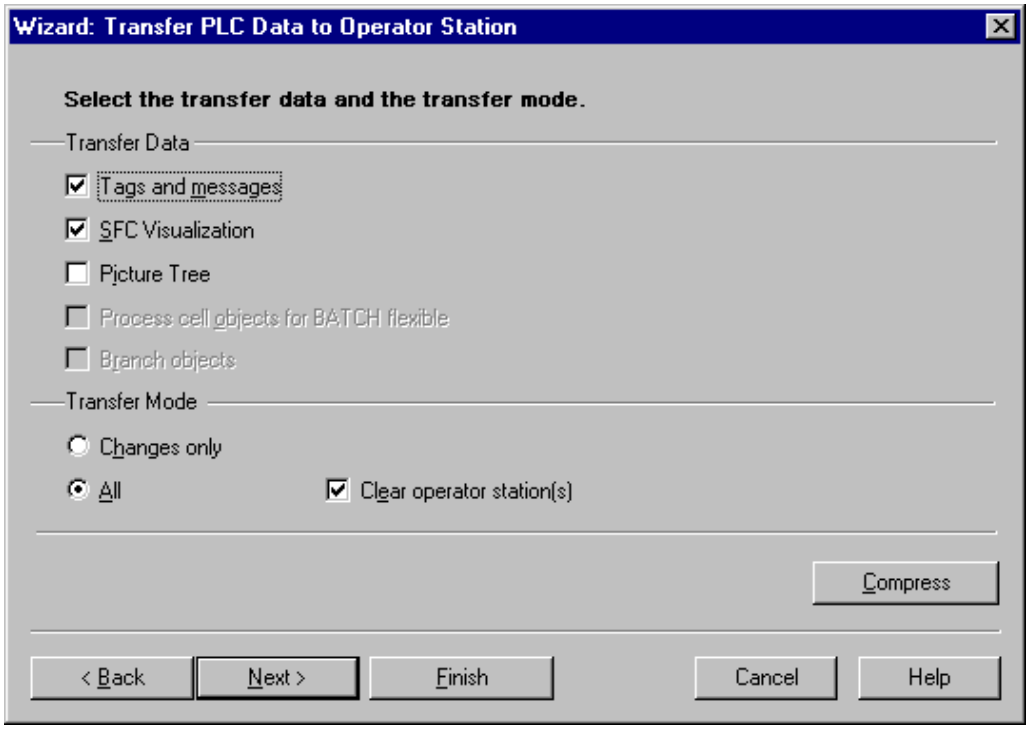
   - After saving the project, close the Project Duplicator with the "Close" button.

3. Check the duplication
   - Start the SIMATIC Manager.
   - Open the PCS 7 user project.
   - Open the PCS 7/TM-OS in the SIMATIC Manager. If the PCS 7/TM-OS integrated in PCS 7 opens, the duplication was successful.

4. Create the S7 program

Note
Continue again at point 5 of this section after you have created the configuration in the SIMATIC Manager and want to transfer the data relevant to OS to the OS.

5. Transfer PCS 7 data
   - PLC-OS data transfer
     Start the PLC-OS transfer program in the SIMATIC Manager with the "Options > PLC-OS Connection Data > Transfer" menu command and transfer the S7 program configured on the ES to the "Distillation" OS.
     - Assign the S7 program to the OS ("Distillation").
     - Select the program and the network connection
     - Select the transfer data and transfer mode as follows:



Note
In the >Picture Tree< transfer mode, the picture hierarchy configured in the PCS 7/TM-OS will be overwritten with the hierarchy stored in the plant view of the SIMATIC Manager!

The PCS 7/TM-OS configuration has now been extended by the PCS 7 application and integrated in PCS 7 to form a PCS 7/TM-OS DC.

4.4.2 PCS 7 Project as Basis

Requirement: PCS 7/OS configuration exists.
This project must be extended by a TELEPERM M application.

PCS 7/TM-OS extensions must be configured for an existing PCS 7 configuration. The TM part is inserted in the PCS 7 project using tools belonging to TM.

Steps in Configuration

To integrate the PCS 7/TM-OS component in a PCS 7 project, the TM parts (messages, tags and structure types) are inserted in the existing PCS 7-OS using TM tools.

1. Install channel DLL (TELEPERM M)

   Versions required for double-channel OS : V2.3 or higher
   (for description of installation, see Chapter 2)

2. Create logical connections (PLCs)

   Create the logical connections (PLCs) required in the PCS 7/WinCC Project. The pseudo connection MELD is also created. For this integration, you use the tool "TM Manager > Create Connections".
   e.g. AS001
   AS002
   AS003
   (for a description, see Chapter 3)

3. Create the TM structures (block definitions)

   Create the TM block definitions required in the PCS 7/WinCC project.
   For this integration, you use the " TM Manager > ORPA Import" tool.
   (for a description, see Section 3)

4. Integrate the TM blocks

   Create the TM blocks required in the PCS 7/WinCC project.
   For this integration, you use the " TM Manager > Block Import" tool.
   (for a description, see Section 3)

5. Integrate the TM messages

   Create the TM messages required in the PCS 7/WinCC project.
   For this integration, you use the " TM Manager > Message Generator" tool.
   (for a description, see Chapter 3)

6. Picture Tree

   Addition of the hierarchy folder for the required areas of TELEPERM M in the plant view of the SIMATIC Manager and assignment of the process pictures to the hierarchy folders. In the data transfer PLC-OS, the Picture Tree is structured in WinCC according to the plant view of the SIMATIC Manager.

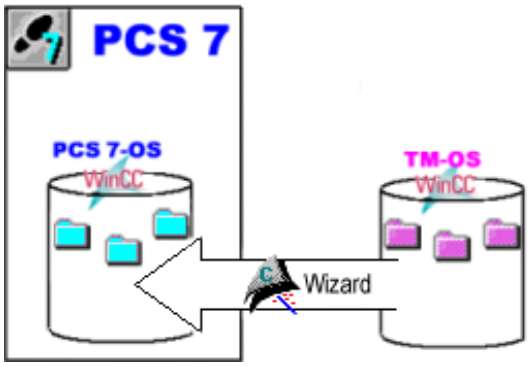
Note
Instead of configuring the pictures in the plant view of the SIMATIC Manager, the pictures can also be configured in the Picture Tree.
Remember, however, in this case that there must be no data transfer in the "Picture Tree" transfer mode, otherwise the picture hierarchy extended in the Picture Tree would be lost!

The PCS 7/TM-OS extension is now included in the existing PCS 7 project.

4.4.3 PCS 7 and PCS 7/TM Project as Basis

Requirement: PCS 7/OS configuration exists.
PCS 7/TM-OS configuration exists.

You want to integrate an existing PCS 7/TM-OS project in an existing PCS 7 configuration.



Steps in Configuration

Before merging a PCS 7 project and a PCS 7/TM-OS, the name conflicts described in Section 4.3 must be resolved.

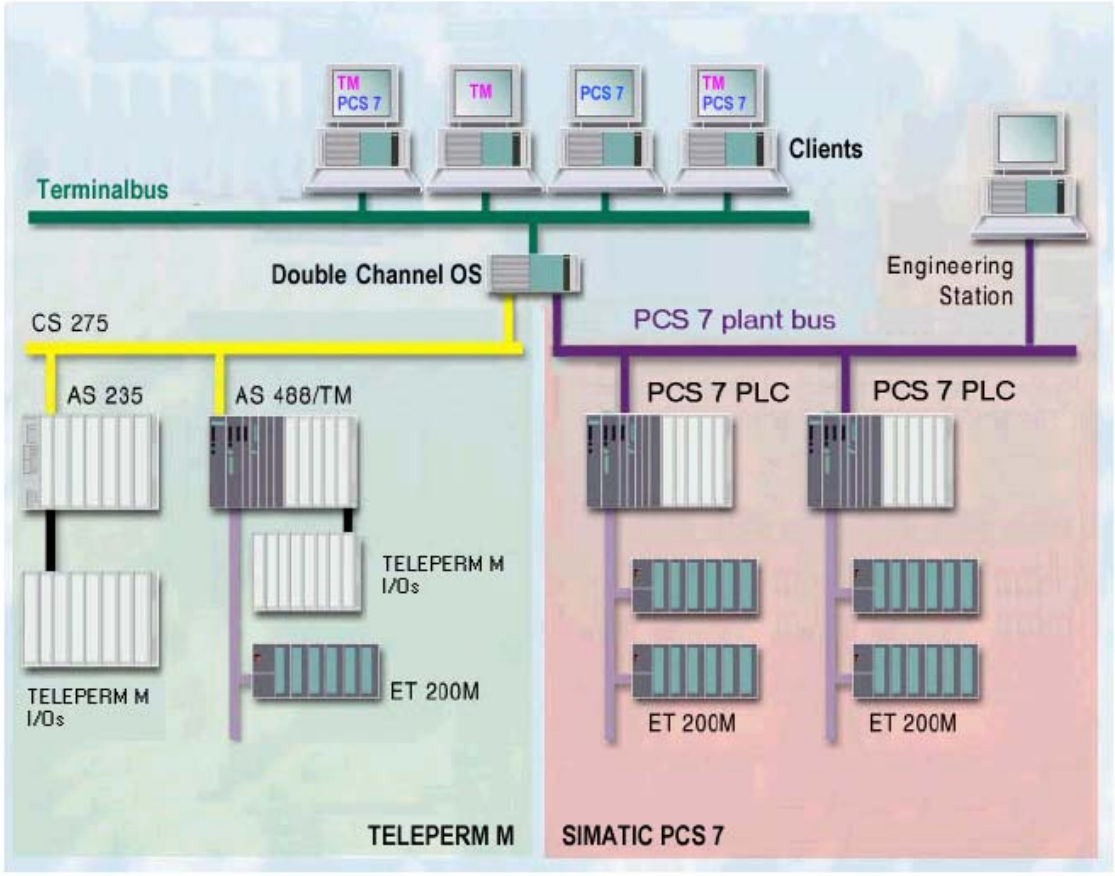
The six steps described in section 4.4.2 apply in the present case. Additional following steps must be resolved.

1. Global script

   Copy the user scripts configured in PCS 7/TM from the library folder of the PCS 7/TM project to the library folder of the PCS 7 project with the Windows Explorer.

2. Copy the configured pictures (PDLs in the GraCS folder of the PCS 7/TM OS project) to the GraCS folder of the PCS 7 OS project with the Windows Explorer.

4.5 Example of a Plant Configuration



Note on Client Configurations

← Pictures with tags from the TM plant section

← Pictures with tags from the PCS 7 plant section

← Pictures with tags from the TM and PCS 7 plant section

Time Synchronization 5

Overview

This chapter explains the special aspects involved when configuring time-of-day synchronization.

Chapter Overview

This chapter covers the following topics:

5.1 Introduction

PCS 7/TM-OS V2.3 and higher allows time-of-day synchronization of the TELEPERM M plant bus and PCS 7 plant bus Industrial Ethernet with a failure strategy. The central time-of-day synchronization in TELEPERM M with PCS 7/TM-OS can be handled by a single workstation system or a server on the TELEPERM M plant bus.

If there is a double-channel server in the system, this must be configured as the time-of-day master.

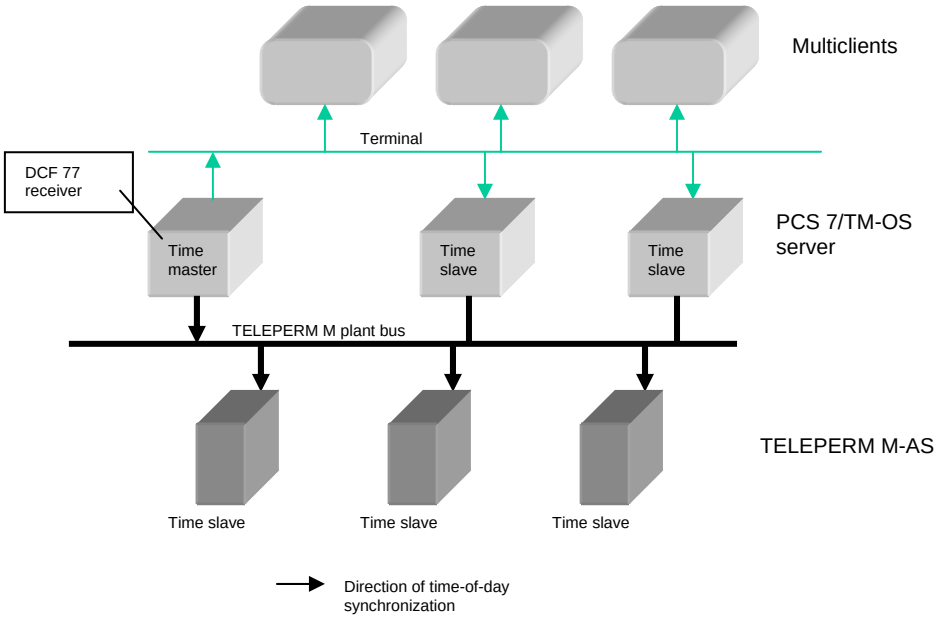


Figure 1-1 Principle of Time-of-Day Synchronization on TELEPERM M Plant Bus

Note
All PCS 7/TM operator stations must be synchronized by a time transmitter over the terminal bus. The connection to Terminal Bus always uses TCP/IP and Ethernet.

The connection to PCS 7 Industrial Ethernet uses TCP/IP with the CP 1613.

5.2 Time Synchronization on the TELEPERM M Plant Bus

In TM plants with PCS 7/TM-OS, one PCS 7/TM-OS server is always time master on the TELEPERM M plant bus. If there is a double-channel server, this must be configured as the time master. Two operator stations (for example a redundant pair) should always be declared as time masters (primary and secondary). The coordination ensuring that only one time master is active and responsible for synchronization on the plant bus is handled automatically based on the configurable failure strategy. The transmitted time is taken from the PC clock. If the active time master fails, the other can then automatically take over the synchronization function.

Note
Older operator control and monitoring systems (for example OS26x, OS52x,...) and N-UHR, and other time transmitters on the plant bus that do not back off as time master after receiving time-of-day frames are not permitted.

The failure strategy is specified in the configuration of the operator stations. There are three synchronization types.

5.2.1 Primary Time Master

Configuration: Set variable @MELD@UZMasterRank to the value 1. Only one primary time master is permitted.
The primary time master is forced to be the time master on the TELEPERM M plant bus. As soon as it starts up, it starts sending time-of-day frames.
A double-channel operator station should always be configured as the primary time master.
If the primary time master receives time-of-day frames, it tries to claim the master role again by sending further time-of-day frames at defined intervals. (See Section 5.6)

5.2.2 Secondary Time Master

Configuration: Set variable @MELD@UZMasterRank to the value 2, 3, 4, or 5. Operator stations with time master functions should be configured as secondary time masters.
The number 2 to 5 sets the priority for taking over the master role, for example after failure of the primary time master: (secondary 2 before secondary 3 before secondary 4 before secondary 5).
A secondary time master starts up as a time slave. If it does not receive a time-of-day frame for 3 minutes, it takes over the master role.

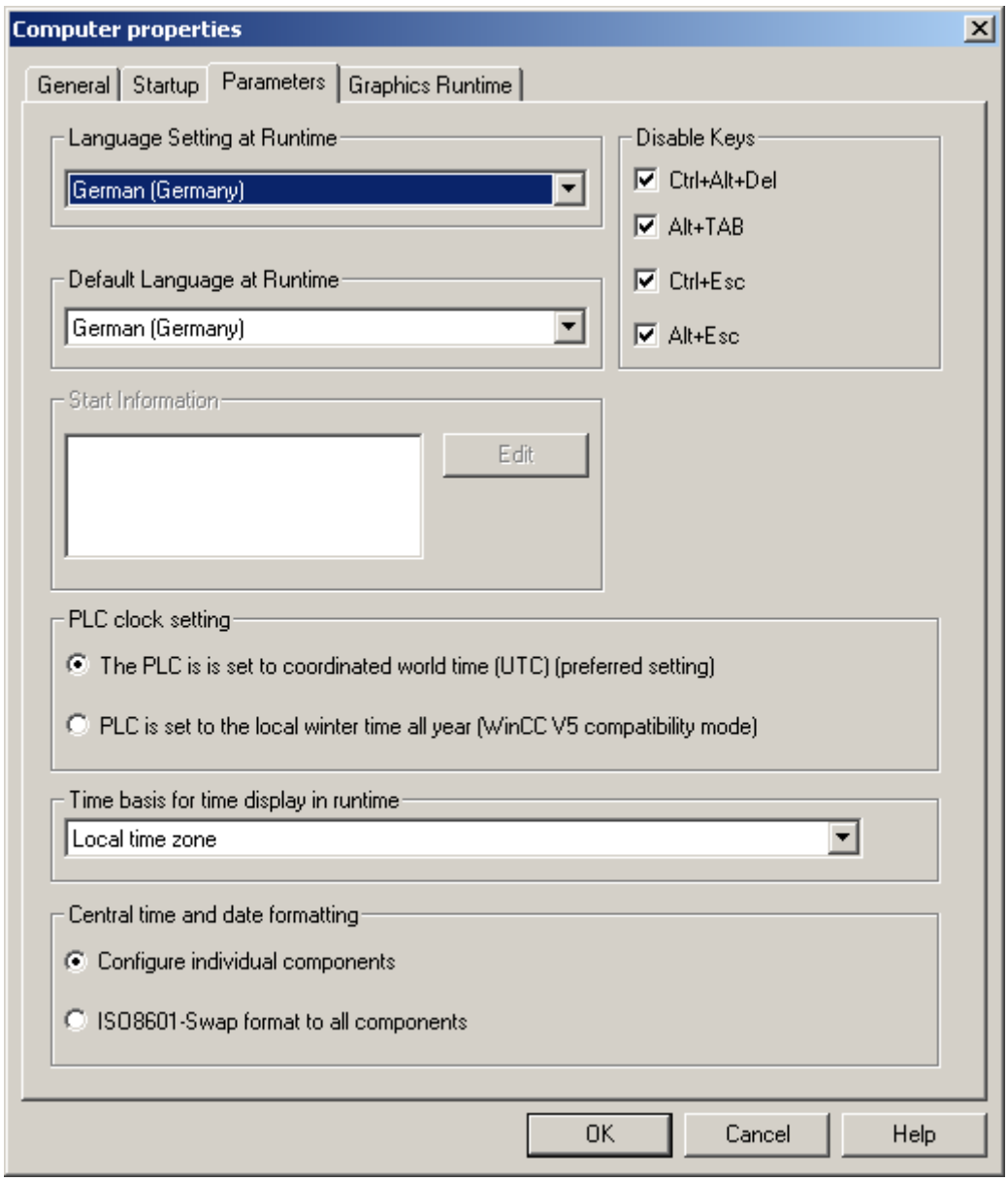
5.2.3 Time Slave

Configuration: Set variable @MELD@UZMasterRank to the value 0. A time slave does not have master functionality at any time. It always takes its time from the time-of-day frame.

5.3 Time Synchronization on the Terminal Bus

To ensure that there is a consistent time within the process control system, the time on all multiclients and PCS 7/TM-OS stations must be synchronized. Synchronization takes place over the terminal bus. PCS 7 provides the "DCF77 Receiver Service" for this purpose.
After installing the program, click the "DCF 77" icon in "Settings > Control Panel". The name of the computer that will operate as the time master on the terminal bus must be entered in the "Connection" box.

5.3.1 Hint to configuring the time parameter (as of PCS 7/TM-OS, version 3.1)



When setting the parameter for the computer (WinCC-Explorer → Computer → Properties → Parameter) in WinCC Explorer then it is necessary to set parameter UTC for „PLC clock setting“. Finally the value “Local time zone” is required for parameter “Time basis for time display in runtime”.

The TM channel operates basically with these stated settings. The TM channel doesn’t recognize other settings; therefore other settings induce an incompatibility to the WinCC time functions and an incorrect behavior.

5.4 Time Synchronization with a Double-Channel Server

This section illustrates a plant configuration with a double-channel server on the TELEPERM M plant bus and PCS 7 Industrial Ethernet. The double-channel server is implemented redundantly.

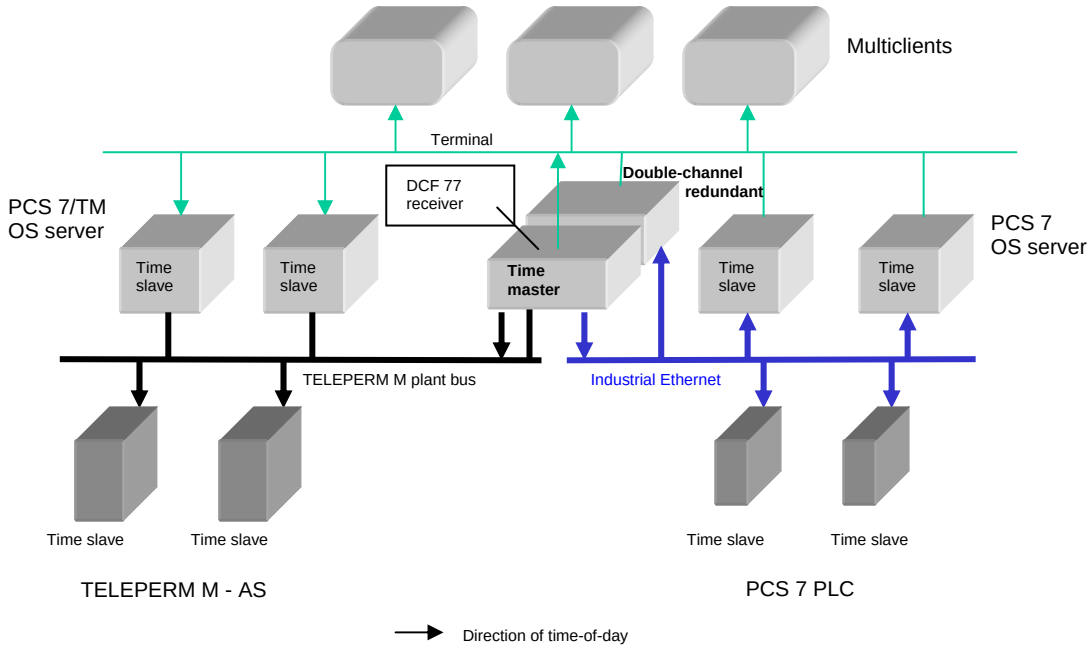


Figure 1-2 Time-of-Day Synchronization with a Redundant Double-Channel Server

→ TELEPERM M plant bus:
On the TELEPERM M plant bus, the double-channel server is always the primary time master.
Its redundant partner is the secondary master (@MELD@UZMasterRank = 2).

→ Industrial Ethernet:
As a result of the configuration in "TimeSynchronization", the double-channel server also takes over synchronization of the PCS 7-OS and PCS 7 PLCs on Industrial Ethernet.

→ Terminal Bus:

The double-channel server is also time transmitter on the terminal bus; in other words, other PCS 7/TM-OS stations and the multiclients fetch the PC time of the double-channel server using the "DCF77 reception service".

5.5 Status/ and Control Variables, Process Control Messages

Variables and OS process control messages indicate the status of the time synchronization. These variables can be used for optical representation of the status in the flow diagram.

5.5.1 Status/ and Control Variables

The "TM Manager > Create Connection" tool creates these variables for the MELD connection in the @MELD variable group.

Variable	Meaning
@MELD@UZMasterRank	= 0 ; Operator station is time slave = 1 ; Operator station is primary master = 2 .. 5 ; Operator station is secondary master with priority 2 to 5 identical priorities are not allowed This variable can be written during run time.
@MELD@UZMasterState	= 0 ; Operator station is not time master = 1 ; Operator station is active time master
@MELD@UZSynchronized	= 0 ; Operator station is not synchronized = 1 ; Operator station is synchronized

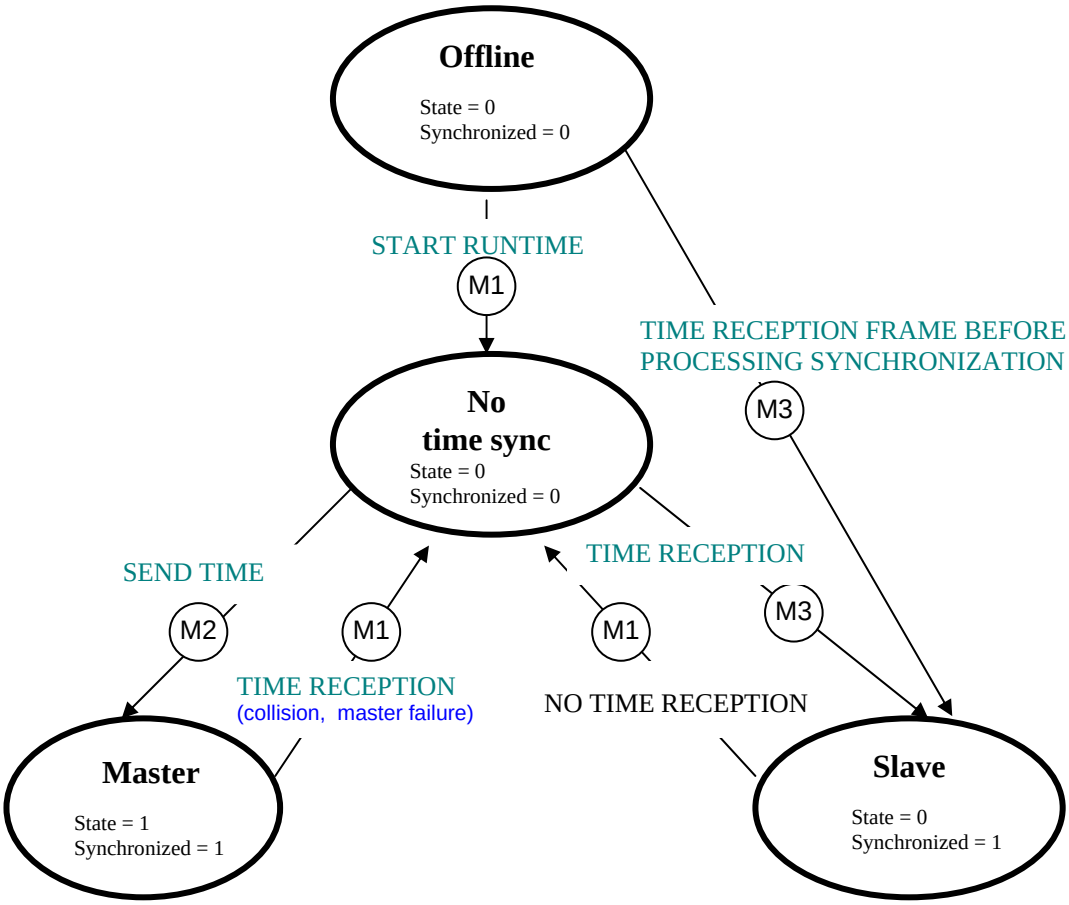
5.5.2 Process Control Messages

Message	Meaning
"CS275: No time sync"	During Startup: No time-of-day frame received Otherwise: No time master on the bus
"CS275: New time sync"	OS is synchronized
"CS275: Master time sync"	OS is time master

5.6 State Diagram

The state diagram describes the states of the time synchronization of an OS in terms of tags and OS process control messages.

The simplified state diagram shown here illustrates the states of an OS along with the actions that cause state changes. Each state transition is logged using process control message. When the message M1: "CS275: no time sync" is generated, the @MELD@UZSynchronized variable is set to 0 if there has been no previous synchronization (just after startup) or when the time master fails for a longer time (approximately 5 minutes) after synchronization had already been established. If time-of-day synchronization fails briefly (for example, due to the master role being taken over by another OS) a slave remains in the slave state.



State changes are indicated by messages:

M1 = PCM: "CS 275:No time sync"

M2 = PCM: "CS 275:Master time sync"

M3 = PCM: "CS 275:New time sync"

5.7 Error Situations

5.7.1 More than One Primary Time Master on the Bus

If there is more than one primary time master on the bus, each attempts to take over the master role cyclically on every full hour. The time master role is assigned at random.

5.7.2 More than One Secondary Time Master with the same Priority on the Bus

Secondary time masters are configured with a priority (2 to 5) so that priority 2 wins against priority 3 and adopts the master role. Masters with the same priority are not permitted. In such a case the master role is assigned at random but does not change again afterwards.

5.7.3 N-UHR on the Bus

Operation of N-UHR or time masters that do not back off after receiving the time-of-day frame is not permitted. A primary master continues to attempt to take over the master role on the full hour despite receiving time frames.

Online Delta Loading

6

Overview

This Chapter informs about the possibilities to load changes of configuration data into an OS at runtime.

In this Chapter

This Chapter deals with the following topics:

6.1 Online Delta Loading

Requirements for Delta Loading

The requirement for the functionality Delta Loading at runtime is that the PCS 7/TM project has been defined within a PCS 7 project in SIMATIC Manager (ES).
The real configuration of the tag management etc is made using the tools of TM Manager (see chapter 3).
After having finished configuration the project is loaded into the OS from SIMATIC Manager / Component View using the function "Load target system". When loading the first time only the whole project can be loaded.

Loading additive configuration data

In addition to a provisionally complete project which has been loaded into the OS some more block instances including messages and pictures may be configured (added or deleted) in the ES. The number of these block instances is limited to 10. Configuring more then these inhibits Delta Loading.

In SIMATIC Manager / Component View the additional configured data is loaded into the OS which is in runtime. Only the function " Delta loading" is activated.

Delta Loading will be prevented if
- a structure of at least 1 block instance is added
- more than 10 function blocks are changed.

If more than 10 function blocks should be changed this has to be done in several sessions.

Loading Field Blocks (GA, GB, FSA, etc.)

The value presentation of field block variables is not active if the variables were loaded via Delta Loading. For such variables it is necessary to restart the runtime.

Special Features

7

Overview

This Chapter informs about the peculiarities that must be observed when using *WinCC* V 5.0, or higher.

In this Chapter

This Chapter deals with the following topics:

7.1 Special Features of the WinCC Versions

Filter functions for message configuration

The filter for the selection of variables that is currently used in *WinCC* does not support wildcards in strings. Therefore, all member variables of a block are always itemized in the variable list.

Message data configuration

Changes that were made using the message generator are sometimes not visible in the windows of the Alarm Logging Editor if *WinCC* has not be restarted.

Abbreviations

A

AS	Automation system
AKS	Analog linking transmitter block (AS function block)
OC&V	Operator communication and visualization...
BKS	Binary linking transmitter block (AS function block)
DB	Database
DC	Double Channel
DLL	Dynamic Link Library
CS 275	TELEPERM M bus system
HW	Hardware
Channel DLL L2/CS 275	Communication software for the connection of WinCC to the PROFIBUS-TM / CS 275 bus system
MKS	Message linking transmitter block (AS function block)
N-AT, N-PCI	Local bus interface modules
NORA	Standardized displays (standard control displays) (graphic representation of a function block)
OCX	Object Control Active X (separate interactive graphic element / application block)
ORPA	Original parameter block (data structure of a function block)
OS	Operating system (operator communication and visualization system of TELEPERM)

PC	Personal computer
PCS	Process control system (PCS 7)
PG	Programmer (Programming device)
PMC S7	Process monitoring and control system for *SIMATIC S7*
PROGRAF AS+	Graphic configuration system for TELEPERM M automation systems
RT mode	Runtime mode
SW	Software
WinCC	Windows Control Center (operator communication and visualization system for process control and automation systems)

Applicable Documents

B

You can order the following Manuals and Instructions from your sales partner:

Number	Title	Order from	Order No.
/1/	Manual TELEPERM M Automation system AS 235 System software Variant G	KA	C79000-G8076-C416
/2/	Description TELEPERM M "Bridge CS-L2"	KA	C79000-T8076-C707
/3/	Description TELEPERM M Interface Modules TPM 478 and TBX 478	KA	C79000-T8076-C708
/4/	Description TELEPERM M Migration Carrier for AS 488/TM and Bridge CS-L2	KA	C79000-T8076-C710
/6/	Description TELEPERM M IBS Terminal for Local Commissioning and Diagnosis of the AS x88/TM	KA	for SIEMENS-internal use; upon request
/7/	Manual SIMATIC M7 M7-300 for the Utilization in S7-300		6ES7038-0AA00-8BA0
/8/	Manual SIMATIC M7 M7-400 for the Utilization in S7-400		6ES7048-0AA00-8BA0
/12/	Manual TELEPERM M Automation System AS 235		C79000-G8076-C295
/30/	Manual TELEPERM M Notes and Guidelines for Planning, Installation and Operation		C79000-G8076-C417
/41/	Reference Manual Migration TELEPERM M - SIMATIC PCS 7 *PCS 7/TM-OCX*		C79000-T8076-C741
/300/	Reference Manual System Software for S7-300/400 System and Standard Functions		6ES7810-4CA06-8BR0

Number	Title	Order from	Order No.
/301/	Manual *SIMATIC WinCC V5 Configuration Manual* Volume 1, 2, 3		6AV6392-1CA05-0AB0
/302/	Manual: *SIMATIC WinCC V6* Volume 1/2, 2/2		6AV6392-1XA06-0AB0
/303/	Manual *SIMATIC HMI Options (WinCC V6)*		6AV6392-1DA06-0AB0
/304/	Manual *WinCC V6 Getting Started*		6ZB5370-0CM02-0BA5

Channel Messages

C

I&C message

Meaning

L2: Waiting for time synchronization

The channel waits for a time synchronization message frame from the CS 275 / PROFIBUS-TM system bus.

L2: Start without time synchronization

The channel waited for 150 seconds without receiving a time message frame.
The channel starts without a current date.

L2: Begin of start up

The channel begins with the startup.

Device type xx for BATA 6/07

(e. g. bus address = 6 / device address = 07)
This enables the user to recognize devices that participate in the WinCC startup.

Device type →	Device	Device type →	Device
32 →	AS 220	69 →	AS 488
65 →	AS 230	96 →	OS 252
66 →	AS 235	160 →	AS 215
67 →	AS 235 H	176 →	OS 262
68 →	AS 388	224 →	OS 265

L2: End of start up

Startup is terminated. The values in the process images are updated from now on.

BATA 6/07 established

The device with BATA 6/07 has been connected.

BATA 6/07 disconnected

Device 6/07 has been logged off; communication is terminated.

BATA 6/07 connection lost

Communicating with device 6/07 is interrupted.

OS is overloaded

Too many variables are requested. Message frames are lost.

Flag i at logging xKS

Message upon logon of AKS/BKS:

i = 0: Entered correctly
1: Block does not (no longer) exist.
2: Max. number of devices (n=6) is exceeded.
3: Device is logged off/deleted (even if device has not been logged on).
4: Incorrect linking mode

Init timeout for BATA 6/07
A configured node was not present during the startup.

BATA 7/11 W for RN_4711 failed
The W startup to block RN 4711 could not be performed.

Flag mm01 of BATA 6/07
Redundancy flag (S630): Bus B is active, bus A is OK

Flag mm02 of BATA 6/07
Redundancy flag (S620): Bus A is active, bus B is OK

Flag mm05 of BATA 6/07
Redundancy flag (S631): Bus B is active, bus A is faulty or does not exist

Flag mm06 of BATA 6/07
Redundancy flag (S621): Bus A is active, bus B is faulty or does not exist

Flag nn01 of BATA 6/07
Corresponds to S389: high received load from BATA 6/07

Flag nn02 of BATA 6/07
Corresponds to S388: device failed

Flag nn40 of BATA 6/07
Corresponds to S383: receive data block disabled or does not exist

Flag nn80 of BATA 6/07
Corresponds to S382: EAB in EAL not found

Flag nn20 of BATA 6/07
Corresponds to SS384: receive data block too small

Flag nn10 of BATA 6/07
Corresponds to S385: No write protection in receive data block

Flag nn08 of BATA 6/07
Corresponds to S386: Local bus interface faulty

Flag nn04 of BATA 6/07
Corresponds to S387: Bus faulty, transmission error

mm = 98
nn = 00 or 91

Log Entries of TM Manager

D

The following categories of entries are defined::

S_nnnn	-	Serious error; execution of TM Manager will be terminated.
E_nnnn	-	Error; TM Manager has detected errors concerning the present user data, settings or installation. Configuration session will be continued if possible.
W_nnnn	-	Warning, configuration session will be continued.
I_nnnn	-	Information concerning the configuration session.

ORPA Import:

Serious errors:

S_1000: Exception error occurred at writing ORPA map file. Execution has been interrupted.

Errors:

E_1000: Error at reading the (complete) description of a member variable which belongs to a structured variable.

E_1001: System error at reading the types of all structured variables. Additional error information see log file message.

E_1002: System error at generating the mentioned type of a structured variable. For additional error information see log file message. If the type already exists this message is given as warning.

E_1003: Error at opening the mentioned ORPA filter file.

E_1004: System error at opening the COM library, which is used to check if locking the delta loading is necessary.

E_1005: The next step of processing has been started without having entered a PROGRAF import file.

E_1006: Automatic start of Block Import by ORPA Import has failed. Please check the installation of TM Manager modules.

E_1007: Error at creating backup data of ORPA map files.

E_1008: Error at opening the map files for standard or user ORPAs.

E_1009: Error at opening the mentioned ORPA import file.

E_1010: Error at opening the mentioned PROGRAF import file.

E_1011: Comment to an input parameter of the mentioned ORPA could not be generated.

E_1012: Comment to an output parameter of the mentioned ORPA could not be generated.

E_1013: Error at reading the state of the mentioned ORPA; the parameter list is empty.

E_1014: An EM1B ORPA has been found; in this case an SKS ORPA has to be configured too. This one has not been found.

E_1015: At creating internal variables, which are created according to PCS7 convention, an error is occurred when a text element (Text Library) is generated.

E_1016: For the specified structure type the UserTypeGDO interface couldn't be created.

E_1017: For the specified structure type the object interface couldn't be found.

E_1018: The specified structure type couldn't be created because there was no COM connection.

E_1019: For the specified structure type the TagGDO interface couldn't be created.

E_1020: For the specified structure elements the object interface couldn't be found.

E_1021: For a structured variable a structure element couldn't be created.

Warnings:

W_1000: Parameter is in ORPA filter file, but not in PROGRAF import file.

W_1001: Unknown parameter type found in mentioned ORPA. The entry remains disregarded.

W_1002: For a parameter type in mentioned ORPA no entry in the ORPA import list could be made. The entry remains disregarded.

W_1003: Unknown parameter type found in mentioned ORPA. The entry remains disregarded.

W_1004: Generating an entry for a parameter in the mentioned ORPA produced an internal memory error. The entry remains disregarded.

W_1005: ORPA with empty parameter list found.

W_1006: In the ORPA import list a parameter could not be read; empty parameter are detected.

W_1007: In AS there is a SRAH block, but for it in WinCC the required structured variable STATEREP is not generated.

W_1008: The specified structure type couldn't be changed, i.e. the object already exists.

Information:

I_1000: The mentioned type of a structured variable has been created newly.

I_1001: An ORPA Import session has been opened.

I_1002: ORPA Import has set on mentioned WinCC project path.

I_1003: The ORPA Import session has been closed.

I_1004: The ORPA Import session has been interrupted by the customer; no import functions have been made.

I_1005: The mentioned batch type could not be found or read in the WinCC Tag Management.

I_1006: In AS there is a SRAH block, but for it in WinCC the required structured variable STATEREP is not generated.

Block Import:

Serious Errors:

S_2000: Error at creating a pipe connection to the module „CreateConnection“. Operation has been interrupted.

Errors:

E_2000: Error at reading data for a configured logical connection:
- o No connection to data manager.

E_2001: Error at creating the mentioned structured variable. For additional error information see log file message. If the instance already exists, this message is given as warning.

E_2002: Error at creating the mentioned structured variable: License limit has been reached.

E_2003: System error at listing the names of all variables. For additional error information see log file message.

E_2004: Error at creating the mentioned structured variable. Possible causes:
- o No connection to data manager.
- o Object to be created is already existing.

E_2005: Error at opening the mentioned block filter file. Check name and path.

E_2006: System error at opening the COM library, which is used for checking whether locking the delta loading is necessary.

E_2007: Automatic start of message generator by Block Import has failed. Check name and path of TM Manager modules.

E_2008: Start of the module „CreateConnections“ by Block Import has failed. Please check the installation of TM Manager modules.

E_2009: Error at opening the mentioned PROGRAF data files. Check name and path.

E_2010: Start of the module „ORPA Import“ by Block Import has failed.
Check name and path.

E_2011: Block Import did not find a type description;
ORPA import list is not consistent.

E_2012: The PROGRAF import file contains a too long text for the ENR1 parameter (Control strategy) of the mentioned instance of the EM1B batch block. The value remains disregarded.

E_2013: The PROGRAF import file contains text with blanks for the ENR1 parameter (Control strategy) of the mentioned instance of the EM1B batch block. The value remains disregarded.

E_2014: The PROGRAF import file contains an improper value for parameter ANSW (number of setpoints) of the mentioned instance of the EM1B batch block. The value remains disregarded; instead the maximum value 6 has been set.

E_2015: The PROGRAF import file contains instance names for EM1B or TR1B batch blocks which are not unequivocal, too short or do not end with ‚0’.
The instance remains disregarded. Checking the instance names and correction necessary.

E_2016: The SKS block which refers to the indicated instance of the EM1B batch block has not been found.

E_2017: The PROGRAF import file contains an instance name of the mentioned UNIB batch block which is too short or does not terminate on ‘0’ or has improper characters. The instance remains unregarded. Please check instance name and correct it.

E_2018: The value (string) of the FTYP parameter of the mentioned block is too long and has not been accepted.

E_2019: The value (string) of the FTYP parameter of the mentioned block contains blanks and has not been accepted.

E_2020: For the specified variable the text element couldn’t be created.

E_2021: The specified CSV file couldn’t be opened.

E_2022: For the specified structured variable the TagGDO interface couldn’t be created.

E_2023: For the specified structured variable the object interface couldn’t be found.

E_2024: For modifying the specified structrue element the TagGDO interface couldn’t be created.

E_2025: The specified structure element couldn’t be modified.

E_2026: For modifying the specified structrue element the object interface couldn’t be found.

E_2027: At removing an entry in the Tag Table an error is occurred.

Warnings:

W_2000: A service text for an unknown variable has been found.

W_2001: The alarm hiding mask for an unknown variable has been found.

W_2002: It wasn't possible to create the specified variable instance.

W_2004: At creating the specified variable instance an error is occurred.

W_2005: At creating the specified structure type an error is occurred.

W_2006: At creating the specified structure type an error is occurred.

Information:

I_2000: Delta loading has been locked by TM Manager – only entire loading possible. Either more than 10 blocks or batch blocks have been defined.

I_2001: The mentioned variable has been defined in Tag Management of WinCC.

I_2002: A Block Import session has been opened.

I_2003: Block Import has set on mentioned WinCC project path.

I_2004: Block Import session has been closed.

I_2005: Block Import session has been closed without starting the Message generator. The customer must take care that the TM channel as well as Alarm Logging of WinCC gets the necessary configuration data to allow a correct functioning of alarm logging system.

I_2006: The Block Import session has been interrupted by the operator; no import functions have been done.

I_2007: Flag that Block Import session has been terminated without starting the Message Generator. The customer must take care that the TM channel as well as Alarm Logging of WinCC gets the necessary configuration data to allow a correct functioning of alarm logging system.

I_2008: The Block Import session has been interrupted by the operator; no import functions have been done.

I_2009: On demand of the operator all block instances of the mentioned connection have been deleted.

I_2010: For the mentioned instance of the EM1B batch block no limits have been entered in the concerning GF block.

I_2011: For the mentioned instance of the EM1B batch block the referenced GF block has not been defined. Limits cannot be imported.

I_2012: For the mentioned instance of the EM1B batch block no GF block with limits has be referenced.

I_2013: For the mentioned instance of the EM1B batch block no setpoints have been entered in the referenced GA block.

I_2014: For the mentioned instance of the EM1B batch block the referenced GA block has not been defined. Setpoints cannot be imported.

I_2015: For the mentioned instance of the EM1B batch block no GA block with setpoints has been referenced.

I_2016: Information of Block Import, how many variables have been defined or modified during the past session.

I_2017: Information of Block Import, that during defining variables an upper limit (10 at the moment) has been exceeded and therefore delta loading is not possible any longer.

I_2018: A variable has been defined or modified whereas a reference to a UNIB batch block has been defined. Because of this reference delta loading of WinCC is not possible any longer.

I_2019: At least one batch block has been created newly or modified. So in WinCC the function delta loading is not possible any longer.

I_2020: For the specified variable a service text was imported.

I_2021: The specified CSV file was opened.

I_2022: The specified CSV file was closed.

I_2023: For the specified hiding variable the alarm group has been created.

I_2027: The specified entry in the Tag Table has been deleted.

Create Connections:

Errors:

E_3000: System error at configuring the mentioned connection. Possible reasons:
- o No connection to data manager.
- o Object to be configured is already existing.

E_3001: System error at opening the COM library, which is used for checking whether locking delta loading is necessary.

E_3002: System error at reading the present installed connections for the TELEPERM channel in WinCC.

Information:

I_3000: The mentioned connection has been created newly.

I_3001: A session for creating an AS connection has been opened.

I_3002: The module „CreateConnection“ informs about the detected WinCC project path.

I_3003: The session for creating an AS connection has been closed.

I_3004: A new connection for the TELEPERM channel has been created. As consequence delta loading of WinCC has been locked. Only entire loading possible.

Message Generator:

Serious Errors:

S_4000: Error at opening/ reading the MESSAGE.MAP file.
Operation has been interrupted.

Errors:

E_4000: Message for the mentioned variable cannot be created or modified, because:
- o No connection to Alarm Logging CS.
- o Wrong or invalid project.
- o One of the interface parameters is wrong. In the following information message I_4000 the parameters which have been handed over by TM Manager will be listed:
  - Parameter 1: Flags (attachments, overwrite, delete)
  - Parameter 2: Message number
  - Parameter 3: Status
  - Parameter 4: Message class
  - Parameter 5: Message type
  - Parameter 6: Text number of message text
  - Parameter 21: Alarm Group

  The wrong value will be named. In most cases message class or message type has to be checked.

E_4001: System Error at reading the messages:
- o No connection to Alarm Logging CS.
- o Wrong or invalid project.
- o No data found.

E_4002: At reading the mentioned variables the following error appeared:
- o No connection to data manager of WinCC.
- o Variable not found.

E_4003: At creating or checking the mentioned variables an error appeared:
- o No connection to data manager.
- o Object to be created already exists.

E_4004: System Error at getting the data of the root of a hierarchy.
For additional error information see log file message.

E_4005: System Error at logging in the configuration system of the "Picture Tree Manager". For additional error information see log file message.

E_4006: System Error at logging off the configuration system of the "Picture Tree Manager". For additional error information see log file message.

E_4007: Error at (unvisible) opening a picture:
- o Mentioned picture has already been opened.
- o Picture does not exist.

E_4008: System Error at closing the mentioned picture:
- o Picture does not exist (any more).

E_4009: System Error at reading the objects of a picture:
- o Picture does not exist.

E_4010: System Error at getting the relevant information of the project like path data etc.
For additional error information see log file message.

E_4011: Error at opening the Text Library data base:
- o Error at logging in data base.
- o A data base table has not been found.
- o TEXTBIB.EXE is already running; opening not allowed.
- o Wrong project name.

E_4012: System Error at reading the languages which are configured in Text Library:
- o Callback function returned FALSE.
- o Data base not yet opened.
- o Wrong project name.

E_4013: System Error at logging off theText Library data base.

E_4014: System Error at reading a string in the Text Library data base:
- o The mentioned TextID could not be found.
- o The mentioned language could not be found.
- o The data base has not yet been opened.
- o Invalid language entered.
- o Wrong project name.

E_4015: System Error at modifying a string in the Text Library, whereas the text has been identified by an ID:
- o Text already existing.
- o The mentioned TextID could not be found.
- o The mentioned language could not be found.
- o The data base has not yet been opened.
- o Invalid language entered.
- o Wrong project name.

E_4016: System error at generating a new entry into the Text Library.
Possible errors are:
- o The TextID could not be generated.
- o The mentioned language could not be found.
- o The data base has not yet been opened.
- o Invalid language entered.
- o A new record could not be generated (AddRecord produced an error).
- o Wrong project name.

E_4017: System error at detecting the used configuration language:
- o No connection to data manager of WinCC.

E_4018: System error at copying the text to an ID to a new text element.

E_4019: System error at closing Alarm Logging CS; connection had been lost.

E_4020: System error at opening the project in Alarm Logging Configuration System; for additional error information see log file message.

E_4021: System error at creating a message class. Possible errors:
- o No connection to Alarm Logging CS.
- o Wrong or invalid project.
- o Wrong parameter; number of wrong parameter is named.

E_4022: System error at reading all configured message classes. Possible errors:
- o No connection to Alarm Logging CS.
- o Wrong or invalid project.
- o No data found.

E_4023: System error at reading the message classes.

E_4024: System error at creating the message class „TELEPERM M“.

E_4025: Automatic start of Batch Import from Message Generator has failed. Check installation of the modules of TM Manager.

E_4026: Automatic start of Block Import from Message Generator ordered by ‚back' button, has failed. Check installation of the modules of TM Manager.

E_4027: For the mentioned block some messages could not be created (Pass1).

E_4028: For the mentioned block some messages could not be created (Pass2).

E_4029: Error at reading/ opening the MESSAGE.MAP file.

E_4030: Error at creating a backup file for the MESSAGE.MAP file.

E_4031: Error at initialization of the DCOM/COM interface.

E_4032: Error at writing a message text into the text library.

E_4033: Error at deleting an entry from the Tag Table.

E_4034: An entry in the Tag Table couldn't be deleted.

E_4035: While Pass3 an entry for the Tag Table couldn't be created.

E_4036: An alarm priority > 16 was found when reading the CSV file.

Warnings:

W_4000: Error at reading the properties of an object in the mentioned picture.

W_4001: Message Generator could not find the specified connection of the TELEPERM channel of WinCC.

W_4002: Message Generator has detected block type IEPH or IEOP in WinCC, but did not find the block type EM1B.

W_4003: Message Generator has detected block type IUNIT_BLOCK in WinCC, but did not find the block type UNIB.

W_4004: Message Generator cannot find the mentioned block type.

W_4005: Message Generator cannot find the mentioned block instance.

Information:

I_4000: Contains faulty parameter value as additional information concerning error message E_4000.

I_4001: Message with given message number has been deleted.
(Note: This message can also be given by Block Import.)

I_4002: Text Library data base has been closed successfully.

I_4003: A Message Generator session has been opened.

I_4004: Message Generator informs about the detected WinCC project path.

I_4005: The Message Generator session has been closed.

I_4006: The Message Generator session has been interrupted by the operator.

I_4007: Message Generator received the order by the operator to delete all variables.

I_4008: Generation of messages has been locked for given block instance (EventRaw = -1).

I_4009: For the mentioned block all messages could be created (Pass1).

I_4010: For the mentioned block all messages could be created or modified (Pass2).

I_4011: For the specified block an additional text has been imported from the CSV file.

I_4012: For the specified block a message (event) text has been imported from the CSV file.

I_4013: For the specified block a message (event) text has been imported from the CSV file. The message text was identical with the former text.

I_4014: For the specified block an alarm hiding mask has been imported from the CSV file.

I_4015: For the specified measuring point there has been created an entry in the Tag Table (Pass3).

I_4016: For the specified measuring point there has been removed an entry from the Tag Table.

BATCH Import:

Serious Errors:

S_5000: Error at opening the mentioned EQM file.
Operation has been interrupted.

Errors:

E_5000: Error at deleting the PCC_BATCH.EQM file appeared.
The file could not be deleted.

E_5001: The BATCH.EQM file of SIMATIC BATCH could not be found. Without this file operation by Batch Import is impossible.

E_5002: Neither the BATCH.EQM file of SIMATIC BATCH has been found nor any TELEPERM M settings which may have be done. Operation has been interrupted.

E_5003: Batch Import did not find the project folder at the PCC interface to SIMATIC BATCH. Operation has been interrupted.

E_5004: The given PCell name has not been found. Perhaps checking lower and uppercase writing necessary.

E_5005: Addressing PCell folder generated a servere internal error. Operation has been interrupted.

E_5006: Not all instances could be read in the imported EQM file. For additional error information of the PCC interface to SIMATIC BATCH see log file message.

E_5007: Deleting the unused objects generated a servere internal error. Operation has been interrupted.

E_5008: Result message of Batch Import: The BATCH.EQM file of SIMATIC BATCH has not been found, all earlier TELEPERM M settings have been accepted and all instances of the AS structures have been inserted into the internally hold data structure. Now they may be handled within the post-work dialog of SIMATIC BATCH.

E_5009: The PCC_BATCH.EQM file could not be written (Get Root Error). For additional error information see log file message.

E_5010: Due to the fact that the plausibility check has been closed with an error or warning only a temporary EQM file PCC_BATCH.EQM has been written.
For additional error information see log file message.

E_5011: The PCC_BATCH.EQM file could not be written because of any reasons.
For additional error information see log file message.

E_5012: When addressing the PCell folder of the parameter list an error of the internal or configured data structure has been detected.

E_5013: An error occurred at opening the EQM file. Operation has been interrupted.

E_5014: An error occurred at closing the EQM file.

E_5015: A syntax error has been detected in the mentioned line of the EQM file.

E_5016: The length of the mentioned instance name of a batch block is unequal 4. The block will not be accepted.

E_5017: The last character of the mentioned instance name of a batch block is unequal 0. The block will not be accepted.

E_5018: The first character of the mentioned instance name of an IEPH block which describes the hierarchy is unequal 0 and 1. The block will not be accepted.

E_5019: The parameter / block with the mentioned instance name and runtime name could not be created. For additional error information of the PCC BATCH interface see log file message.

E_5020: Empty object list detected. Error in the internal or configured data structure.

E_5021: Object with given runtime name could not be deleted. Perhaps object does not exist. For additional error information of the PCC BATCH interface see log file message.

E_5022: Internal error: No parameter for PCell found. Error in the internal or configured data structure.

E_5023: The definition of the function type of BATCH contains parameters which have not been defined in Block Import (AS_BST.MAP). Function type, runtime names, parameter indexes and names are listed.

Warnings:

W_5000: The PCC_BATCH.EQM file could not be deleted because the set path is empty.

W_5001: The post-work dialog should have been started without having read the EQM file by an operator request before.

W_5002: The post-work dialog could not be issued. For additional error information see log file message.

W_5003: The plausibility check has been terminated without error but with warning; writing the EQM file PCC_BATCH.EQM has been terminated with warning. For additional error information see log file message.

W_5004: An object could not be found in the BATCH data base. For additional error information see log file message.

W_5005: An instance could not be found in the BATCH data base. For additional error information see log file message.

W_5006: During enumeration of the instances of IEPAR an object of the type IEPH has been found. This object is not allowed in this context.

W_5007: During enumeration of the instances of IEPAR an object of the type IEOP has been found. This object is not allowed in this context.

W_5008: During enumeration of the instances of IEPAR an object of the type TAG_COLL has been found. This object is not allowed in this context.

W_5009: During enumeration of the instances of IEPAR an object of the type UNIT_FOLDER has been found. This object is not allowed in this context.

W_5010: For the listed batch block the value 0 has been entered as number of setpoints. The block has been accepted, the number of setpoints has been set to 0.

W_5011: The listed parameter has been defined in Block Import but has not been found in the listed batch type. Function type, runtime names, parameter indexes and names are listed here.

W_5012: Internal Error: During conversion of the runtime name of a block into a mnemomic the OS name could not be found in the internal OS name list. The default value XXX has been set.

Information:

I_5000: A Batch Import session has been opened.

I_5001: Batch Import informs about the setting of the WinCC project path.

I_5002: The Batch Import session has been closed.

I_5003: The default settings for Batch Import have been written into the file „TM_Settings.txt“.

I_5004: Batch Import informs about the setting of the (plausibility) WinCC project path.

I_5005: Batch Import has read the AS_BST.MAP file.

I_5006: Batch Import has not found the default setting of the path for the BATCH.EQM file.

I_5007: Batch Import has found the mentioned path for the BATCH.EQM file in the default settings.

I_5008: Batch Import has written the mentioned path for the BATCH.EQM file into the default file „TM_Settings.txt“.

I_5009: The module Batch Import has been terminated.

I_5010: On operator request the PCC_BATCH.EQM file has been deleted.

I_5011: In the mentioned path the PCC_BATCH.EQM file with entries of TELEPERM M data has not been found.

I_5012: Batch Import has found the project folder in the interface PCC to SIMATIC BATCH.

I_5013: Batch Import has found the mentioned project folder.

I_5014: All instances have been read in the given EQM file.

I_5015: All instances of the EQM file which have not been found or have to be ignored have been deleted. The number of the deleted objects is listed as information.

I_5016: Because several OS stations are used the default names of UNIB and TR1B have been defined algorithmically.

I_5017: The number of instances which have been written into the EQM file has been listed.

I_5018: Result message of Batch Import: The BATCH.EQM file of SIMATIC BATCH has been read, all earlier TELEPERM M settings have been ignored and all instances of the AS structures have been inserted into the internally hold data structure. Now they may be handled within the post-work dialog of SIMATIC BATCH.

I_5019: Result message of Batch Import: The BATCH.EQM file of SIMATIC BATCH has not been found, all earlier TELEPERM M settings have been accepted and all instances of the AS structures have been inserted into the internally hold data structure. Now they may be handled within the post-work dialog of SIMATIC BATCH.

I_5020: The post-work dialog has been opened and closed.

I_5021: Via the PCC interface to SIMATIC BATCH the root object has been detected.

I_5022: The plausibility check has been terminated without errors and warnings; writing the EQM file PCC_BATCH.EQM has been terminated without error.

I_5023: Batch Import session has been closed.

I_5024: End of enumerating the objects in the PCC-BATCH data base.
The number of found objects has been listed as information.

I_5025: End of enumerating the instances of IEPAR in the BATCH data base.
The number of found parameters has been listed as information.

I_5026: The option „Ignore previous built data“ has been changed by the operator. The new value has been listed in the log file message.

I_5027: The mentioned number of parameters has been detected for the block with the listed instance name and runtime name.

I_5028: The object with the mentioned runtime name has been deleted as consequence of the option „Delete previous EQM file“.

I_5029: The object with mentioned runtime name has been deleted.

I_5032: The selected package has been recorded in the file TM_Settings.txt.

Common Components (used in different modules of TM Manager):

Serious Errors:

S_6000: Error at opening the mentioned map file appeared.

Operation has been interrupted.

S_6001: Error at creating the file „TM_Settings.txt“ with default settings. Operation has been interrupted.

S_6002: Error at opening or reading the file „TM_Settings.txt“ with default settings. Operation has been interrupted.

S_6003: Error at opening or reading the file „MESSAGE.MAP“ with default settings. Operation has been interrupted.

S_6004: Error at creating or opening or reading the file „ MESSAGE_DEFAULT.MAP “ with default settings. Operation has been interrupted.

S_6005: Error at opening or reading the mentioned map file for standard ORPAs. Operation has been interrupted.

S_6006: Error at opening or reading the mentioned map file for user ORPAs. Operation has been interrupted.

S_6007: Error at creating a connection to the data manager of WinCC appeared. Operation has been interrupted.

S_6008: No opened WinCC project has been found. Operation has been interrupted.

S_6009: More than one opened WinCC project has been found. TM Manager does not allow this. Operation has been interrupted.

S_6010: Error at detecting project path of WinCC appeared („bin“ path). Operation has been interrupted.

S_6011: Error at checking the connection between TM Manager and WinCC. Operation has been interrupted.

S_6012: Error at opening or reading the mentioned block import file (PROGRAF AS file). Operation has been interrupted.

Errors:

E_6000: Error at detecting the used configuration language. English has been set as default configuration language.

E_6001: System error at synchronizing the channel. The synchronization file could not be created or access has not been possible.

E_6002: System error at reading the log file.

E_6003: At creating the block import list the mentioned block instance has already been found. The entry has been ignored.

E_6004: At creating a backup file of the mentioned file a system error appeared.

E_6005: Error at opening / reading the MESSAGE.MAP file appeared.

E_6006: System error at creating a backup file for the MESSAGE.MAP file appeared.

E_6007: Improper entries found at reading the MESSAGE.MAP file.

E_6008: Error at removing a text from the text library.

E_6009: An error is occurred at reading the machine name.

E_6010: An error is occurred at determining all alarm groups.

E_6011: At creating the specified alarm group an error is occurred.

E_6012: At initialization the DCOM/COM interface an error is occurred.

E_6013: An error is occurred at opening the GDO interface.

E_6014: An error is occurred at closing the GDO interface.

E_6015: An error is occurred at determing the existing structure types, because there was no connection to the DmGDO interface.

E_6016: An error is occurred at initialization of the ATL library.

E_6017: At inserting an entry into the Tag Table an invalid parameter transfer is occurred.

E_6018: At inserting an entry into the Tag Table an error is occurred.

E_6019: At inserting an entry into the Tag Table an error is occurred at the GDOTT interface. For the specified measuring point no object interface has been found.

E_6020: An error is occurred at creating an entry into the Tag Table.

E_6021: An error is occurred at removing an entry from the Tag Table.

E_6022: An error is occurred at safe removing an entry from the Tag Table.

Warnings:

W_6000: Error at deleting the mentioned variable. For additional error information see log file message.

W_6001: System error at destructing a connection to the Data Manager of WinCC. There has been no connection to the Data Manager.

Information:

I_6000: The mentioned variable has been deleted.

I_6001: Information of TM Manager, in which folder the file „TM_Settings.txt“ with the presettings of TM Manager is expected.

I_6002: The file „TM_Settings.txt“ with the presettings of TM Manager could not be opened/read.

I_6003: The file „TM_Settings.txt“ with the presettings of TM Manager has been created and initalized.

I_6004: The file „TM_Settings.txt“ with the presettings of TM Manager has been closed after initialization.

I_6005: For the file „TM_Settings.txt“ with the presettings of TM Manager an entry has been prepared.

I_6006: For the file „ TM_Settings.txt“ with the presettings of TM Manager the listed entry has been imported.

I_6007: An error occurred when generating an entry into the the file „TM_Settings.txt“ with the presettings of TM Manager. Perhaps there is an other error message in the log file.

I_6008: An entry for the file „TM_Settings.txt“ with the presettings of TM Manager has been denied because it already exists.

I_6009: Error at opening / accessing the mentioned block import file. Configuring with TM Manager may be continued.

I_6010: The connection between project and a GDO interface has been disconnected and closed.

I_6011: Number of PO’s which have been created in the BlockImport session.

Note:
Messages with the identity X_n999 are generated by TM Manager in case the modules have been created in debug mode. Using release versions they are not generated.

Create Import Data for PCS 7/TM-OS from PROGRAF AS+

E

Reading-in and decompilation of AS RAM

After starting Prograf AS+ :

Menu „Automation System → Select…“

Menu „Options → AS Coupling…“ → Set Bus Number and Station Address of the AS

Button „AS Data Transfer“

Button „AS->PC / AS RAM Transfer“

Menu „Options → Coupling Path“ → AS RAM via Bus or from Disk

If AS RAM not yet read → Button „Read and Decompile“

or if already read → Button „Decompile AS RAM“.

Create Import Data for WinCC

After starting Prograf AS+ :

Button „HW-Chart Import / Data Export“

Menu „Options“ → Select Export Drive

Button „Export Data“

By this a folder „AS_DATEN.OS_“ will be created on the selected drive, which contains the needed import data for WinCC:

- AS_ORP.999 Structure information for all standard blocks
- AS_ORP.632 Structure information of the user blocks on this AS (e.g. with address 6/32)

Create Import Data for TM_Manager

After starting Prograf AS+ :

Button „Libraries / Import“

Menu „Library → Create New…“ → Select path and library name, then Exit

Button „Transfer Out…“

Select object type → Total System

Select AS Objects → OK

Select library → Transfer Out

Exit

By this a folder *.BY will be created under the select library *.BIB, which contains the needed file for the TM_Manager, e.g.:

- D:\Libraries\AS632.BIP\AS632.BY\BEL.DAT

This file BEL.DAT should be renamed AS specific before using in TM_Manager (e.g. BEL632.DAT).