

SIEMENS

SIMATIC HMI

WinCC V7.5 SP1 WinCC/Options for Process Control

System Manual

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Print of the Online Help

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Overview of process control system options

1.1 General Information on the Process Control System Options

Installation of the process control options together with WinCC

The process control options must be installed on all computers in a WinCC project with multiple computers. Installing the process control options only on one client computer, for example, is not permitted.

License check for chipcard reader

A license check for the chipcard reader is no longer performed as of WinCC V7. The license is no longer required.

Ability to make changes to configuration data during operation

The add-on components for process control support the downloading of changes to the configuration data in runtime ("Download Changes", synonymous with "Download OS Online Delta").

You can make changes online from a central engineering station without affecting the operation of the target systems. The user specifies the point in time for downloading the changed configuration data. You do not have to deactivate/activate or terminate/restart the project. Changes to the configuration are not immediately adopted into the operator control and monitoring system. For reasons of stability and consistency, configuration changes only take effect after a short waiting time.

The modifications to the configuration data are automatically applied on the redundant servers once the partner server has been successfully loaded.

The "Download changes" capability is lost if the configuration is changed via the engineering station and changes are also made on the PCS 7 OS.

If "Download changes" is not possible for a configuration change, a notice is displayed at an appropriate time. You are informed that the capability to download changes will be lost if this configuration change proceeds.

In the "General" tab of the OS Project Editor, you can decide whether all settings should be transferred for a complete configuration in the OS Project Editor or if only the settings for which the changes can be downloaded should be transferred.

When configuration is complete, the full runtime system and alarm system are transferred to the project again. When the OS Project Editor is started for the first time, this is the only available setting in the project. Since the ability to download changes is lost with a complete

1.1 General Information on the Process Control System Options

configuration, a notice is displayed if the project can still execute the "Download Changes" function.

Note

When migrating to a new product version, you must start the OS Project Editor on the customer project. You must subsequently make customer-specific changes to the basic data in the OS Project Editor.

You can then operate the system as before. All functions are available as usual.

1.2 Configuring in the PCS 7 environment

1.2.1 Configuring in the PCS 7 environment

Distributed systems in the PCS 7 environment

The OS Project Editor is used to create not only the basic data in server projects or WinCC client projects but also the main picture setup in their overview, working and button areas.

With PCS 7, WinCC is included in the Engineering System (SIMATIC Manager) for operator station configuration. You create the WinCC clients on the Engineering Station (ES). You introduce tags from the ES into the OS (WinCC server) with the "Transfer AS/OS connection data" function in the SIMATIC Manager. The transfer takes place only from the ES to the OS. Packages are only created on the WinCC servers. Once created, you can download the packages onto the WinCC clients.

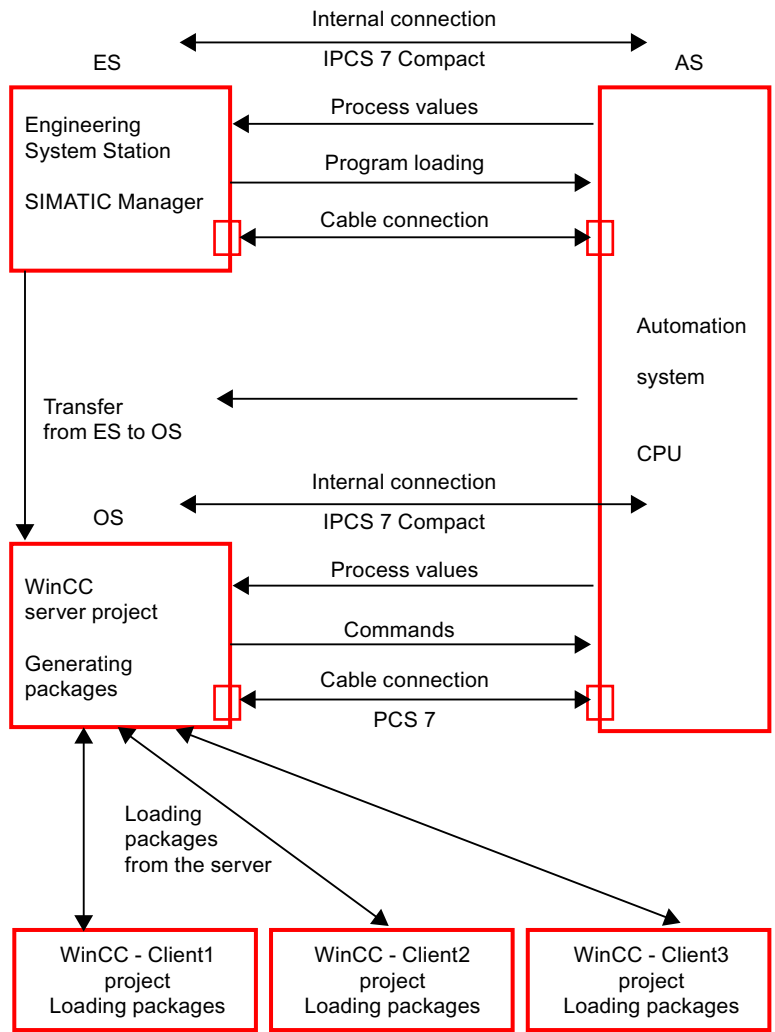


Figure 1-1 Picture: Hardware components, transfer and packages

Note

When configuration data is transferred to an OS, the data is not available on the WinCC client until the package has been generated again on the OS (WinCC server) and loaded onto the client.

See also

- WinCC Client Configuration (Page 13)
- Server configuration (Page 13)
- Notes on configuring in the PCS 7 environment (Page 14)

1.2.2 Server configuration

Overview

Distribution takes place in the PCS 7 environment according to the "Plant Hierarchy". In each server project, you configure one or more areas of the hierarchy.

The basic data are created the first time you run through the OS Project Editor.

The information in the "Picture configuration" section applies for the configuration of tags.

See also

WinCC Client Configuration (Page 13)

Configuring in the PCS 7 environment (Page 11)

Notes on configuring in the PCS 7 environment (Page 14)

1.2.3 WinCC Client Configuration

Introduction

You can create a complete PCS 7 project on the Engineering Station. You download a WinCC project to the OS using the menu command "PLC > Download" in SIMATIC Manager. To obtain identical WinCC client projects, you can create a WinCC client project on the Engineering Station and download it onto the various operator stations by changing the destination path in SIMATIC Manager.

It is not possible to configure the picture hierarchy on the WinCC client. Instead the WinCC client shows in runtime an overall view of all the hierarchies in all the server projects loaded by means of packages.

Change Package Name

Packages loaded on a WinCC client are displayed in the WinCC Explorer data window under "Server data". The package name is a symbolic computer name consisting of the project name and the computer name of the server on which the package was generated. Because the symbolic computer name is generally longer than the width of the buttons in the overview area of the runtime user interface, you should give the computer a nickname that indicates their assignment to the servers.

Procedure

1. In WinCC Explorer, select "Serverdata" and open the pop-up menu.
2. Select the "Preferred Server" command from the shortcut menu. The "Configure Preferred Server" dialog box will open.

1.2 Configuring in the PCS 7 environment

3. Click on the symbolic computer name and input a new, expressive name.
4. When you have changed the symbolic computer name and closed the "Package Properties" dialog by clicking the "OK" button, a warning dialog box is displayed. This warning dialog box advises that all configuration data that has been addressed to the old symbolic computer name is invalid. Enter the new symbolic computer name in all configuration data.

See also

- WinCC Client Configuration (Page 13)
- Configuring in the PCS 7 environment (Page 11)
- Notes on configuring in the PCS 7 environment (Page 14)

1.2.4 Notes on configuring in the PCS 7 environment

Picture Configuration

The appearance of the runtime user interface is largely governed by the settings of the layout chosen in the OS Project Editor. Various engineering tools used in Basic Process Control also define the appearance. You do not have to assign any fields, for example, in the overview or button bar. The areas in the picture hierarchy are displayed automatically for you in runtime.

The sequence of the areas on the WinCC client takes into account the sequence of the areas within the server projects. The sequence of the servers is defined on the WinCC client by the sequence of the package import. The system ensures that the hierarchy is displayed the same on all WinCC clients.

Note

You cannot include pictures from WinCC clients in the overview pictures, as they are not contained in any picture hierarchy. They can still be opened in the working area or process window using the function "Picture via name".

In order to take fullest advantage of the Basic Process Control functionality, you should only configure picture changes using the standard functions of Split Screen Manager.

Message configuration

All necessary data is created by the OS Project Editor. There is no need to configure alarm controls.

To configure "Loop In Alarm" you must use the "Loop In Alarm" function of the Split Screen Manager instead of the "OpenPicture" function.

You can find further information on this subject in the section called "Loop In Alarm Function".

User Authorizations

Configure user authorizations in the server project and in the WinCC client project.

The user authorization matrix can only be configured on the WinCC client after the packages of all server projects with configured picture hierarchies (Picture Tree) have been loaded. The areas of a server project are only displayed in the columns of the user authorization matrix on the WinCC client when the package of the server project has been loaded onto the WinCC client project.

If reconfiguration occurs within the server project at area level in the picture hierarchy, the package for the server project must be generated again. You must then load the package on the WinCC client and adjust the authorization matrix.

Behavior with a Faulty Server

The areas of all server projects are displayed in the overview of the basic data picture. If a server fails, all the areas on this server are displayed as deactivated. The order of the areas is not changed as a result of this deactivation. When the server comes back online or following a change to the redundant server, the areas are displayed as enabled once more.

Lifebeat monitoring

Lifebeat Monitoring is configured on the servers. WinCC clients can also be monitored, in addition to the OS and the AS. Manual configuration of lifebeat monitoring is not necessary on the WinCC client itself. The project only needs to be updated in the editor after loading the package. All server projects whose packages are loaded on the WinCC client are displayed in the plant configuration picture of Lifebeat Monitoring. If an OS or AS being monitored by the server project fails, this failure is displayed in the plant configuration picture of the WinCC client. When you click the OS icon of the relevant server project, the picture changes to the process picture of the server project. The operator station/PLC which has failed can be viewed there.

See also

Configuring in the PCS 7 environment (Page 11)

1.2.5 Configuring a distributed system

Introduction

The main steps for configuring a distributed system in the PCS 7 environment are described below.

Procedure

1. Create a server project with the aid of the OS Project Editor.
2. Configuring the picture hierarchy with Picture Tree
3. Configure the user authorizations in the User Administrator.
4. Configure the Lifebeat Monitoring functions.
5. Generate the packages on the server.

6. Create a WinCC client project with the aid of the OS Project Editor. Select the area view required in runtime.
 7. Download the packages
 8. Configure the Lifebeat Monitoring functions on the WinCC client.
 9. Configure the user authorizations in the User Administrator of the WinCC client.
-

Note

If you create a new project manually, you have to use the OS Project Editor to do so.

When creating an OS via the PCS 7 Engineering Station, the OS Project Editor is automatically started when the AS-OS connection data is transferred. If you want a configuration that deviates from the default setting, you must manually assign the parameters in the OS Project Editor.

1.2.6 Web client

General

You can use the Web client for basic process control and PCS 7 via the WinCC WebNavigator like a WinCC client.

The following application possibilities are offered in the WebNavigator for process control options:

- Area-specific access rights with authorization levels
- User-specific assignment of a starting picture and language
- Look&Feel of the WinCC user interface with group display and extended status display
- All message views including loop in alarm
- Support for the horn Signals can be acknowledged locally or multiple times on the web client. In the "User Administrator", you need to activate the use of the horn on the Web client.
- Supports operator input messages
- Simultaneous access to several servers
- Uses standard faceplates and custom faceplates created by the project engineer with the Faceplate Designer

The WinCC WebNavigator must be installed in order to use the Web client and documentation for the WebNavigator.

Note

The buttons for navigating the picture hierarchy are always active, even if you cannot jump to the next picture in the hierarchy.

Restrictions when using a Web client

When using a web client in connection with Basic Process Control, pay attention to the following restrictions:

Configuring the OS Project

- You may only use SIMATIC Standard Layouts and SIMATIC Server Views on the WebNavigator Server (OS project editor).
- No Multi VGA.

Web client

- No "Picture selection by name".
- No "Picture selection via measurement point".
- No "Save/Load/Delete screen composition".
- No clock synchronization.
- No lifebeat monitoring.
- No Multi VGA.
- The module symbol is not highlighted in "Loop in Alarm" from the message window.
- Summary area not grayed out during connection problems.
- Navigation keys are not grayed out if operation is rendered impossible.
- Graphic pictures not directly selectable.
- No report view or printout.
- No picture information.
- No group acknowledgment of picture in work area.
- No language switch in Runtime.
- No login input using the password key.
- User authorization cannot be selected.
- Not all ODK functions are supported.
- The "Process Screens" function in DataMonitor is not supported.

Additional information may be found in the documentation and Release Notes for WinCC/ WebNavigator.

1.3 Server-Server Communication

Introduction

Server-server communication offers the option in WinCC multi-user projects to access the data and functions of other multi-user projects. A PCS 7 OS that can view other PCS 7 OS by this means is described below as a superimposed PCS 7 OS or a superimposed server.

A superimposed server behaves like a WinCC client with regard to what it can view and distribute. The difference is that it also behaves like a server project. A superimposed server is configured in the same way as for conventional server projects in which additional packages can be loaded for other servers.

From the point of view of the WinCC client, all servers are still equal.

Effects on packages of process control system options

The possibility of configuring OS independent pictures and data has an effect on the individual packages of process control system options.

Picture Tree

The hierarchy of a superimposed WinCC project in runtime consists of the project-specific hierarchy and the hierarchy of all projects loaded by means of packages.

Group display

In group display it is possible to connect group display objects to measuring points and pictures. From the engineering viewpoint, however, you must only connect group display objects to pictures in the same project. Group display jobs, Loop In Alarm and acknowledgments are processed by routing the superimposed WinCC server project to the servers concerned.

Lifebeat monitoring

For the engineering or runtime functions of Lifebeat Monitoring nothing changes. If the superimposed WinCC server is used for workstations, configure Lifebeat Monitoring on that server as you would on any other WinCC server.

WinCC clients will still use Lifebeat Monitoring by importing packages from all servers.

Runtime functions

The runtime dialog boxes for "Configure trends online", "Picture selection via measurement point" and "Picture selection by name" behave on servers with imported packages exactly as they do on WinCC clients. The restriction that only local configuration data is offered for selection on WinCC server projects is canceled.

LTO Component List

In the runtime of the superimposed WinCC server project, the LTO component list evaluates not only the data local to the project but also the imported packages. The component information for a WinCC client is located exclusively in the packages and is read from the packages for the purpose of the runtime functions.

Authorization matrix

In the LTO specific add-ins of the User Administrator, WinCC server projects can now also take package data into account in determining area information.

1.4 Authentication of Messages

Authenticating messages

Messages can be integrated into the authorization concept without assignment to the picture hierarchy or to the PCS 7 technological hierarchy. This makes it possible to check the authorization of messages without area information. This mainly affects process control messages and function-related operator input messages

So that certain workstations can view and acknowledge process control messages that are not assigned to any area, a default area, for example, is defined on the "Message configuration" tab in the OS Project Editor. Users need authorization for this default area. This method defines which area is needed for checking the authorization of messages without area information.

The authorization of messages without area information can also be checked on an OS-independent basis in the context of server-server communication.

See also

Server-Server Communication (Page 18)

Optional "OS Project Editor" (Page 24)

1.5 Overview of the Editors of the Process Control System Options

1.5.1 Overview of the Editors of the Process Control System Options

Introduction

You can expand the performance range of the WinCC system with option packages. In order to use the individual option packs in the best way, you must install the "Basic Process Control" option package.

If you create a new project manually, you must first run the OS Project Editor. While creating an OS using PCS7 Engineering Station, the project is automatically called in the background and initialized using the default settings.

How to install optional editors of the process control system options

1. During the installation of WinCC, click "User-defined installation" in the "Setup Type" dialog box.
2. In the "Select Components" dialog box, select the "Options" check box. All the subcomponents available for installation are displayed as enabled on the right.
3. Clear the check boxes for the subcomponents that you do not want to install.
4. Then click on the "Next" button. The installation continues.

Installing the editors

The following table shows you which selection boxes you use to install which editors:

Selection Box	Installing the editors
Basic Process Control	OS Project Editor, Picture Tree, Time Synchronization, Horn, Lifebeat Monitoring, and the Component List editor.
Smart card	Chipcard functionality for user authorization

Optional editors in the WinCC system

If you select every option in the Setup dialog box, the following additional editors are provided for your use in the project navigation window.

Editor	Meaning
OS Project Editor	The OS Project Editor is used for configuring the runtime user interface and the alarm system in accordance with PCS 7 requirements. The Project Editor provides extended options for designing user-specific basic data. With the OS Project Editor, you position the buttons in the overview area and configure the order of the areas.
Picture Tree	The Picture Tree is used to manage a hierarchy of systems, subsystems and pictures of the Graphics Designer.

Editor	Meaning
Time Synchronization	You can use this feature to configure time synchronization for plants via the Industrial Ethernet bus or the Local Area Network. As the active time-master, the OS ensures that all the other OSs and ASs on the system bus are synchronized with the current time. Slaves receive the current time via the system bus in order to synchronize their internal clock.
Horn	Use the Horn option to configure the assignment of required message classes to the outputs from a signal module and/or sound card. It offers you the necessary runtime functionality for selecting and acknowledging the appropriate signaling devices when messages occur.
Lifebeat monitoring	Lifebeat monitoring ensures the continuous monitoring of individual OS and AS systems.
Component List Editor	The Component List Editor is used for the configuration of entry point pictures and the areas of measurement points.

See also

- Optional "OS Project Editor" (Page 24)
- Optional "Picture Tree" editor (Page 22)
- Optional Editor "Time Synchronization" (Page 25)
- Optional Editor "Lifebeat Monitoring" (Page 23)
- Optional Editor "Horn" (Page 23)
- Optional "Component List Editor" (Page 24)

1.5.2 Optional "Picture Tree" editor

Introduction

The Picture Tree is used to manage a hierarchy of systems, subsystems and pictures of the Graphics Designer.

The settings in the Picture Tree refer to the current WinCC project.

How to open the Picture Tree

1. Double-click the "Picture Tree" editor in WinCC Explorer. The editor is started in WinCC Configuration Manager.
2. Create or edit the hierarchy.

See also

Overview of the Editors of the Process Control System Options (Page 21)

1.5.3 Optional Editor "Lifebeat Monitoring"

Introduction

"Lifebeat Monitoring" is used for monitoring the automation and operator systems.

- The Lifebeat Monitoring function monitors the individual systems on the basis of tag connections from the WinCC data manager. You can use the "Lifebeat Monitoring" editor to define which connections are going to be monitored by Lifebeat Monitoring.
- From this, the Lifebeat Monitoring function generates the following:
 - a system configuration across all monitored connections
 - the necessary process control messages for established and relinquished connections

How to Open Lifebeat Monitoring

1. Double-click the "Lifebeat Monitoring" editor in WinCC Explorer. This starts the editor.
2. Enter all connections to be monitored.

See also

Overview of the Editors of the Process Control System Options (Page 21)

1.5.4 Optional Editor "Horn"

Introduction

The "Horn" editor is used to control optical or acoustic signaling devices or the output from audio files when messages occur.

Use the "Horn" editor to configure which signals you wish to be triggered when particular message classes/types or message priorities occur.

The horn is based on the following components:

- A component that monitors the WinCC alarm system for message-related events
- A component that is responsible for the user-configured output form

How to open the horn

Double-click the "Horn" editor in WinCC Explorer. This starts the editor.

See also

Overview of the Editors of the Process Control System Options (Page 21)

1.5.5 Optional "OS Project Editor"

Introduction

The OS Project Editor is used to configure the currently open WinCC project for use with Basic Process Control and PCS7.

The OS Project Editor offers numerous options for designing user-specific basic data and supports the generic positioning of buttons in the overview window.

When PCS 7 is used, the OS Project Editor is run automatically when the PCS 7 OS is created. The OS Project Editor therefore only has to be called from the user interface if you want a configuration that deviates from the default setting.

How to open the OS Project Editor.

Double-click the "OS Project Editor" in WinCC Explorer. This starts the editor. The default settings are shown the first time the OS Project Editor is started, the most recent settings are shown the next time it is started. A suitable layout for the runtime user interface is selected on the basis of the screen resolution and project type.

Structure

- In the "Layout" tab, you configure the appearance of the runtime user interface.
- In the "Message Configuration" tab, you configure settings for the alarm system. The basic settings correspond to the PCS 7 specifications for message configuration.
- In the "Message Display" tab, you can configure the runtime response of the message system and the display format of the messages in the message pages or group displays.
- In the "Areas" tab, you configure the arrangement of the plant sections in the area overview.
- In the "Runtime Window" tab, you configure the number and arrangement of the pre-configured picture windows.
- The "Basic Data" tab contains settings for copying the basic data. Here, you specify which modified picture files and actions you want to overwrite.
- The "General" tab contains settings for the OS Project Editor.

See also

Overview of the Editors of the Process Control System Options (Page 21)

1.5.6 Optional "Component List Editor"

Introduction

This editor is available only when installing a PCS7 OS.

Use the Component List Editor to configure entry point pictures and the area assignments of measurement points required for the runtime functions "Picture via measurement point" and "Loop in Alarm".

You can also create new measurement points, or define entry point pictures and areas for the components that have been created by AS-OS Engineering.

The Component List Editor provides a user interface for the following tasks:

- Creating new measuring points
- Editing existing blocks
- Searching for blocks

How to open the Component List Editor

Double-click the Component List Editor in WinCC Explorer. This starts the editor.

If you have created an OS but did not do so on an ES, you must first start the OS Project Editor in WinCC. After the OS Project Editor runs, you can edit the component list via the Component List Editor.

See also

Overview of the Editors of the Process Control System Options (Page 21)

1.5.7 Optional Editor "Time Synchronization"

Introduction

You can use the "Time Synchronization" editor to configure time synchronization via the Industrial Ethernet bus and the terminal bus.

Depending on the configuration, an OS acting as the active time-master, for example, can ensure that the OS and AS on the system bus are synchronized to the current time. WinCC clients are synchronized via the terminal bus.

The time master sets the current time with the aid of an optional time signal receiver. If a time master fails, a standby time master takes over the time synchronization function. Time slaves receive the current time in order to set their internal clock.

"Time Synchronization" provides the following results:

- Synchronization of all operator stations and automation systems on the system bus with the current time.
- Synchronization of the WinCC clients via the terminal bus.
- Simultaneous synchronization via the system bus and over the terminal bus by taking the Windows domain concept into account.

See also

Overview of the Editors of the Process Control System Options (Page 21)

OS Project Editor

2.1 OS Project Editor

Content

The "OS Project Editor" is used for initializing and configuring the runtime user interface and the alarm system in PCS7.

This documentation shows you the following:

- how to change the layout
- how to configure the behavior of the alarm system in runtime
- how to arrange areas
- how to arrange runtime windows
- how to configure initialized basic data
- how to log the activities of the Project Editor

2.2 General information about the "OS Project Editor"

Introduction

The OS Project Editor is used to configure the currently open WinCC project for use with Basic Process Control and PCS7.

Tasks of the OS Project Editor

The OS Project Editor inserts pre-configured pictures, script actions, and tags in the PCS 7 project. This editor also specifies the typical settings for a PCS 7 project.

When the OS Project Editor is run, the following tasks are completed:

- Creation of the PCS 7 message classes and message types
- Creation of the message blocks
- Creation of the PCS 7 messages
- Configuration of the startup list and the start screen
- Copying of the Dynamic Wizard and the actions
- Creation of tags for controlling the runtime behavior
- Copying of the screen layout
- Creation of the runtime configuration file

Behavior of the project editor

When an OS project is created in the PCS 7 ES, the OS Project Editor is called in the background and initialized with default settings. If you want a configuration other than the default configuration, start the OS Project Editor via WinCC Explorer and configure your desired project settings.

When you create a project in WinCC, you must start the OS Project Editor in WinCC Explorer. The OS Project Editor must run before the User Administrator is opened; otherwise the User Administrator will be initialized with the authorization levels of WinCC.

The first time the OS Project Editor is called, the default settings are displayed. A suitable layout for the runtime user interface is selected on the basis of the screen resolution and project type. If a suitable layout is not found, the OS Project Editor selects the first layout from the list of available layouts in the "Layout" tab.

When you open the OS Project Editor again, the current project settings are displayed. You must first confirm modified basic data picture files and actions in the "Basic Data" tab before these data are accepted in the project.

Activities when processed by project editor

In PCS 7 projects, you can change configuration data during operation using the "Download changes" function ("Online delta download"). Every configuration change via the user interface or programming interface is recognized by the runtime software and accepted during operation.

You set this behavior for the OS Project Editor in the "General" tab. If the configuration of the OS allows modification of data during operation, data that prevent a "Download changes" function are brought into the project during the initial configuration. This applies in particular for alarm configuration and the startup list. Each time the OS Project Editor is run hereafter, only those configurations that do not prevent the "Download changes" function are carried out.

In the case of a complete configuration, all settings are transferred again to the project. Changes to configuration data during operation are lost in the process. You must download the entire OS. After this, you can again switch on the delta mode of "Download changes" in the "General" tab.

Note

The project engineer may not create any tags with @ prefix. Such actions are reserved for handling in the WinCC PCS7 software. You are not allowed to manipulate these system tags. The system tags are necessary for proper functioning of the product.

Note

You must not remove applications placed in the startup list by the OS Project Editor, even if they seem unnecessary. If you do so, subsequent configuration during runtime and an online download of changes will not be possible.

See also

"OS Project Editor" (Page 30)

"General" tab (Page 70)

2.3 "OS Project Editor"

Introduction

Use the OS Project Editor to configure the runtime and alarm systems for a PCS 7 project. For instance, you can change the number and arrangement of runtime windows or assign the authorization of alarms without a specified area to an area.

Overview

In WinCC Explorer, double-click the OS Project Editor icon. This opens the editor. The setting options are summarized in the six tabs of the OS Project Editor. You can use them to enter the relevant settings.

If data have been changed, an asterisk after the identifier in the corresponding tab indicates that this tab has changed. When you click "Apply", the changes you have made are put into effect in the project. The asterisk on the tab disappears once the changes are applied to the project. Click "OK". This closes the editor. When you click "Cancel", the editor is closed without accepting the changes.

It takes some time to configure the project.

See also

"Layout" tab (Page 31)

"Message Configuration" Tab (Page 37)

"Areas" Tab (Page 51)

"Runtime window" tab (Page 58)

"Basic data" tab (Page 66)

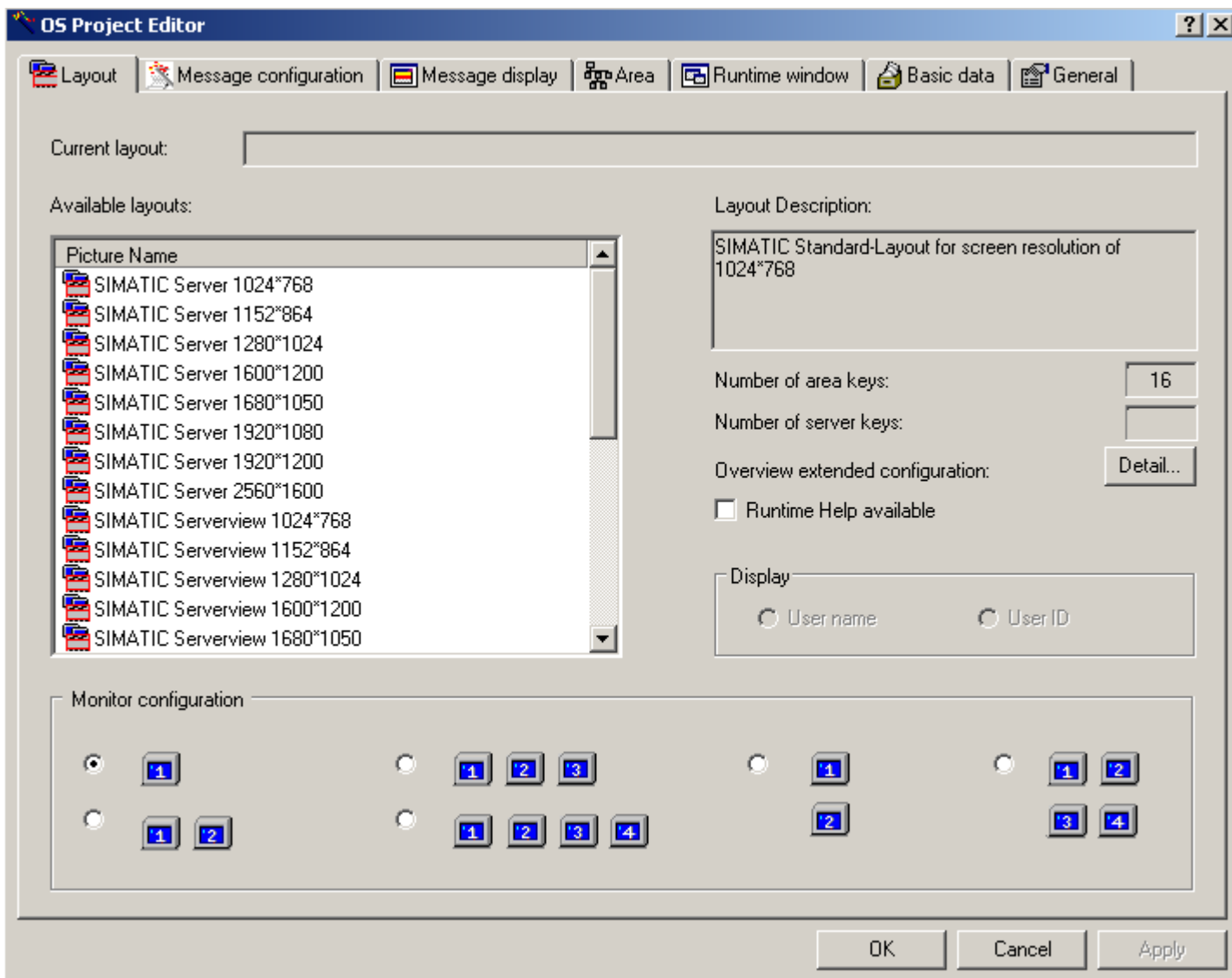
"General" tab (Page 70)

2.4 The "Layout" Tab

2.4.1 "Layout" tab

Introduction

The "Layout" tab contains settings for the layout of the runtime user interface. The basic data is organized in the layouts. A layout is defined by a configuration file.



The first time the OS Project Editor is run, the following settings are specified for the layout:

- A suitable layout is determined from the resolution of the monitor.
- If the settings for the area and server keys are missing from the configuration file and the display of areas on the WinCC client is not supported for a server, the four horizontal and vertical keys are created for each area.
- If the settings for the area and server keys are missing from the configuration file and the display of areas on the WinCC client is supported for a server, the three horizontal keys and four vertical keys are created for the area and two horizontal keys and three vertical keys are created for the server.

Available Layouts

The following layouts with different screen resolutions are available for the Runtime interface:

- SIMATIC Server: Only for server. You cannot use "SIMATIC Server" for the WebNavigator. The interface is completely unusable with the following five exceptions:
 - LOGIN input dialog field
 - Select User Administrator
 - Displaying the system picture (lifebeat monitoring)
 - Exit Runtime
- SIMATIC Standard: "SIMATIC Standard" is the default setting and can be used universally for all projects. "SIMATIC Standard" is ideal for local projects or projects with a server. If several server packages are loaded, the area buttons of all servers are displayed behind each other. The server buttons are not displayed. You can configure the number of area buttons.
- SIMATIC Serverview: "SIMATIC Serverview" is ideal for projects with several servers. You see only the area buttons of the selected server. You can configure the number of server buttons and area buttons.

The layout in screen format "2560*1600 is not approved for use with Multi-VGA. Only one monitor is supported.

The "Current layout" output box shows the name of the currently selected layout in the project. This layout is automatically selected in the "Available layouts" list. The "Description" output box provides brief information about the selected layout.

You can configure any number of layouts for runtime by selecting another available layout and changing the monitor configuration.

Monitor configuration

In the "Monitor configuration" group you can set the desired screen division for the target device in runtime. Only the supported monitor configurations can be selected for the selected layout. The settings for multi VGA must be made in the Control Panel of the operating systems before running the OS Project Editor .

Expanded Configuration of the Overview

If the layout supports the generic creation of the area buttons in the overview area, the "Detail" is enabled for "Overview extended configuration".

The "Number of area keys" and "Number of server keys" output boxes show the number of keys currently configured. If the layout does not support these functions, the fields are empty and the "Detail" button is disabled.

The "Detail" button opens a dialog box for configuring the overview area. You set the number of keys in this dialog box.

Runtime help

When you select the "Runtime help available" check box, you specify that the "Help" button is operator-controllable in the second button set of runtime.

Display

If you have installed "SIMATIC Logon Service", you can choose here to have the full user name or only the user ID of the user logged displayed in the overview area under "Login".

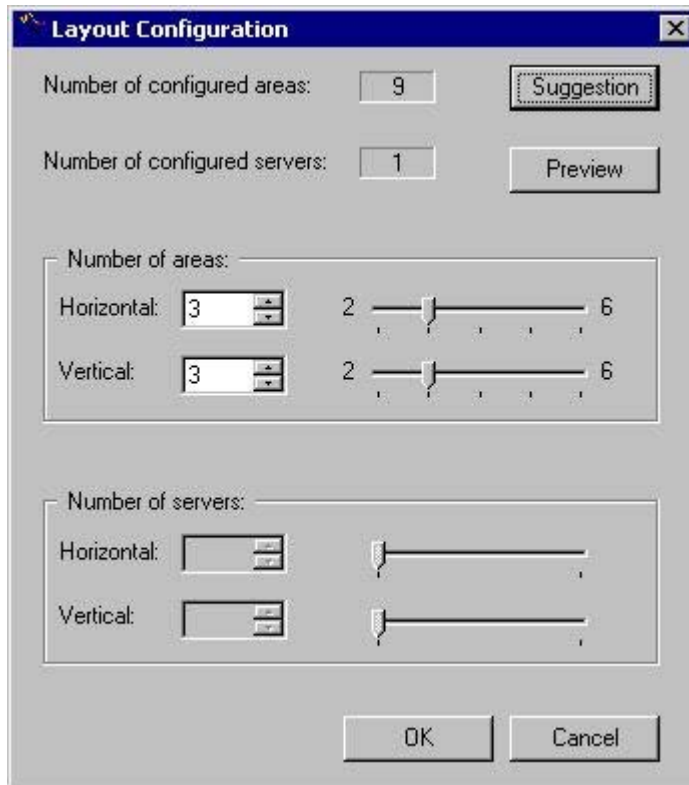
Note

The layout selection must match the monitor setting of the computer. Depending on the graphic card used, problems may occur when runtime is started if the coordinates deviate.

2.4.2 Layout configuration for the overview area

Introduction

The "Detail" button in the "Layout" tab opens the following dialog box for configuring the overview area:



The "Number of Configured Areas" output field indicates the number of plant sections currently configured in the Picture Tree. The "Number of Configured Servers" output box shows the number of servers available in the packages.

The "Suggestion" button function derives the number of area and server buttons from the configured hierarchy, if the layout so permits. The suggestion will be applied in the input fields of the "Number of Areas" and "Number of Servers" groups.

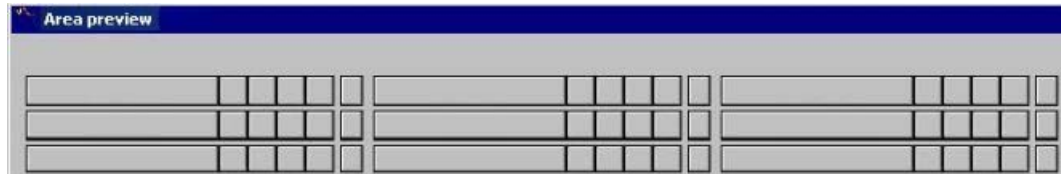
In the "Number of areas" group, you specify the number of buttons horizontally and vertically directly in the input field, with the slider or spin box. You will find the limits for input are shown alongside the slider.

For the sake of clearly labeling the area buttons it is useful to arrange more areas vertically than horizontally. You will see the difference in the area preview, if for instance you create four horizontal and three vertical area buttons or three horizontal and four vertical area buttons.

If the layout supports "Server View" and server buttons which were generated in the overview window, the "Number of Servers" group is enabled. Use this field to define the buttons in the horizontal and vertical directions for displaying servers.

Area preview

The "Preview" button opens an area preview of the configured buttons in the overview window. The generated overview is displayed schematically. The following area preview shows by way of example three area buttons in the horizontal direction and three area buttons in the vertical direction:



While the preview window is open, you can continue configuring. Each change is immediately updated in the preview.

Note

The setup options of the "Number of Areas" and "Number of Servers" are limited by layout-specific considerations. If there is no entry in the configuration file for the layout concerned, the following settings apply:

- The horizontal and vertical number is limited to between 1 and 8 areas in the "Number of Areas".
 - In "Number of Servers" the horizontal number is limited between 1 and 4 buttons, and the vertical number is limited from 1 to 8 buttons.
-

2.4.3 How to change the configured layout

Introduction

If you do not want the layout predefined by the OS Project Editor, you can change the layout.

Procedure

1. Open the OS Project Editor and select the "Layout" tab.
Select a layout from the "Available Layouts" list.
2. Check the settings in the "Basic Data" tab to avoid any unwanted data overwrites.

Note

Changes in the "Layout" tab affect settings in the "Areas", "Runtime Windows" and "Basic Data" tabs.

2.4.4 Changing the monitor configuration

Introduction

With the configuration of the monitor, you set the desired screen division for the target device in runtime.

Procedure

1. Open the OS Project Editor.
Select the corresponding monitor configuration from the "Layout" tab.
2. Check the settings in the "Basic Data" tab to avoid any unwanted data overwrites.

Note

Changes in the "Layout" tab affect settings in the "Areas", "Runtime Window" and "Basic Data" tabs.

Up to four screens are supported, each screen having one working area, one button area, one overview window and an unrestricted number of pre-configured process windows.

Before using the OS Project Editor you need to set the Multi VGA in the Windows Control Panel.

2.4.5 Adapting the overview window

Introduction

The overview window is a continuous display that offers an overview of the entire plant. Each plant area is represented by an area button in the overview area.

Procedure

1. Open the OS Project Editor. Click "Detail" on the "Layout" tab next to "Overview Extended Configuration".
This opens the dialog box for adapting the overview area.
2. Change the number of buttons.
3. Open the preview during configuration. This gives you a better idea of the configuration.
4. Check the settings in the "Basic Data" tab to avoid any unwanted data overwrites.

Note

Changes in the "Layout" tab affect settings in the "Areas", "Runtime Windows" and "Basic Data" tabs.

2.5 "Message Configuration" Tab

2.5.1 "Message Configuration" Tab

Introduction

The first time the "Message Configuration" tab is selected, the OS Project Editor reads the following data from the message system:

- Message classes
- Message types
- Message blocks
- PCS 7 messages

This takes some time. A notice indicating "Data will be read from the message system. One moment please..." is displayed.

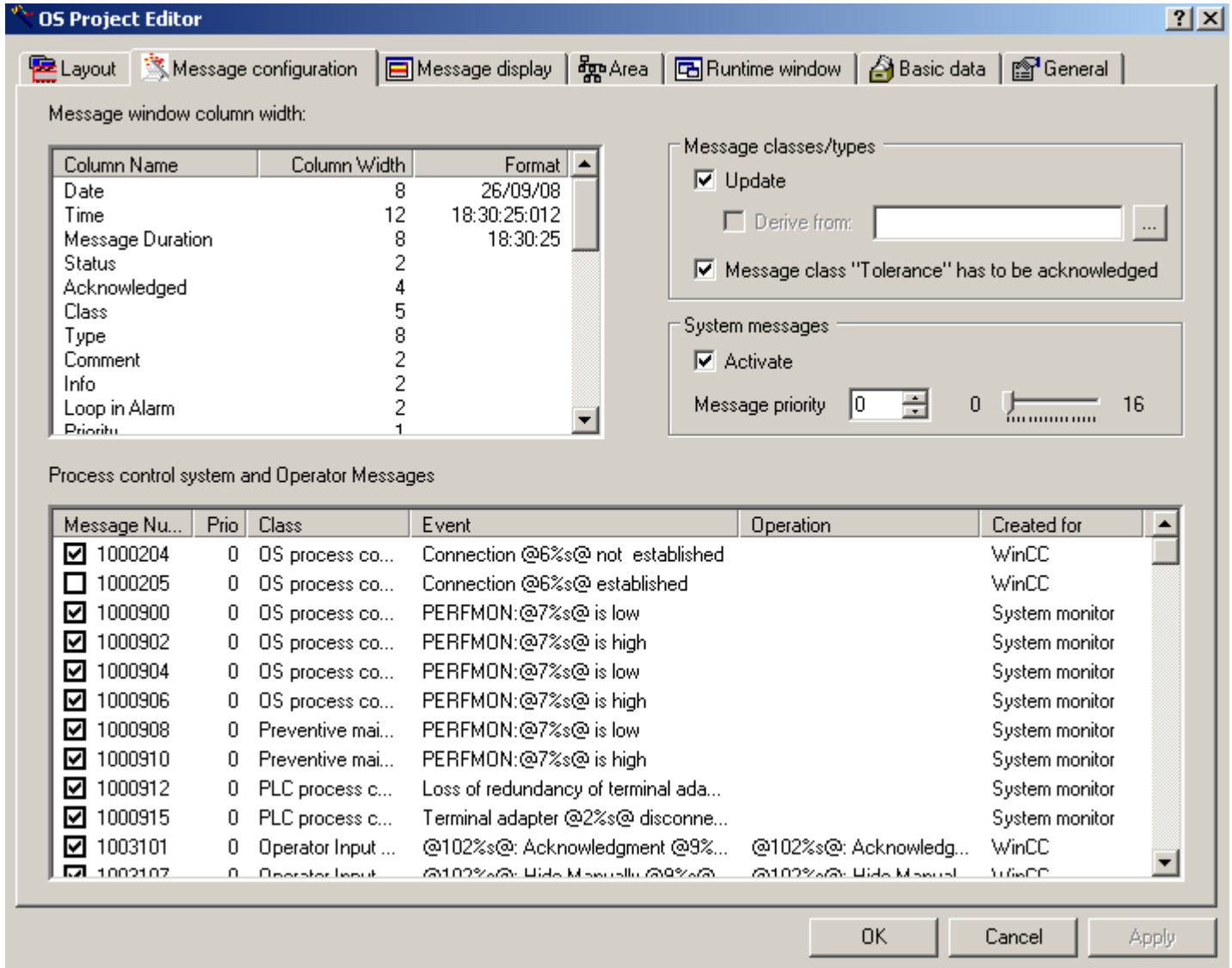
Note

Central settings in the PCS 7 Alarm Configuration Editor

You can not configure the settings for alarm logging you have made centrally in the PCS 7 Alarm Configuration Editor in the OS project editor.

Message system settings

On the "Message configuration" tab you specify how the OS Project Editor should configure the message system.



Column widths of the message window

Edit the column width of the message blocks you created in the "Column widths of message window" list. The column widths are preset according to PCS 7 guidelines. Define the desired output format in the "Date" and "Time" message blocks.

Defining the message classes and message types

The PCS 7 standard initially serves as template for the message system. The template is available as "MessageTemplate.cfg" configuration file in "Installation directory\Options\SSM". If you do not want to use the PCS 7 standard you can use this configuration file as an example for creating customized configuration file. Save the "MessageTemplate.cfg" file under a different name to a folder other than the installation directory before you start the adaptation.

Select the "Update" check box in the "Message classes/types" group if using the PCS 7 standard or if you prefer to use a customized, industry-specific standard. The "Update" option overwrites the a message class and message type configuration in Alarm Logging with the default PCS 7 settings or with the settings from your custom configuration file if their current configuration does not match. The message classes "11" to "15" you configured them in Alarm Logging remain unchanged in the PCS 7 standard, as these are not used in the PCS 7 standard.

If you only want to use the PCS 7 standard or your custom, industry-specific standard for the purpose of setting up a basic configuration for the message system in the first session of Project Editor, the "Update" check box must be cleared in all subsequent sessions of Project Editor. You can use the Alarm Logging Editor to adapt the configuration without it being overwritten by the Project Editor.

Select the "Derive from:" check box if deriving the message class and message type configuration from a custom configuration file. Use the "..." button to select the corresponding configuration file. This configuration file is copied to the project directory once and used as a template file the next time the Project Editor is opened.

The "Message class "Tolerance" has to be acknowledge" option is enabled by default in new projects as of WinCC V7.01. The messages of this message class therefore require acknowledgement. The messages that have come in flash and are also shown in the following message lists:

- Incoming alarm list
- Acknowledged alarm list
- Outgoing alarm list
- List of hidden messages and messages to be hidden
- Single line message window in overview area

Note

In WinCC versions prior to V6.2, the OS Project Editor generates the message classes "AS-process control message" and "OS-process control message" with the message types "System" and "Error" in Alarm Logging. Starting in V6.2, however, these message classes are created with "Failure" and "Error" message types.

In order to activate the name change from "System" to "Failure" in projects prior to WinCC V6.2, you must activate the "Update" check box in the "Message classes/types" group.

Activating system messages

If you activate the "Activate" check box the messages from the "LTMdata.csv" file (installation directory/WinCC/bin) are entered in the message system of the project. The "LTMdaten.csv" file contains system events from WinCC and Basic Process Control. "System, need not be acknowledged" and "Process control" are used as the message class and message type for all messages. In Runtime the messages are displayed in the control system list as non-flashing, black object on a gray background. These messages are of lower weighting and are used for information.

You can change certain the system events from "LTMdaten.csv" to process control message in the "Process control and operator input messages" list.

Specify the priority of system events in the "Message priority" input box. Either enter the value directly in the input field, or use the slider or the spin box. The input limits are predefined and are displayed alongside the slider. Reserve message priority "16" for vital messages of your plant, particularly for "Fatal event messages".

Activating process control and operator input messages

Select the system events from the "LTMdaten.csv" file to be converted into process control messages from the "Process control and operator input messages" list. You can create additional messages for PCS 7 such as "Simatic Batch" or "SFC".

Activate the check box in leading the list entry. This enables the output of specific process control and operator input messages. Click the check box again in order to clear it and thereby suppress the messages. All activated messages are created.

If you select the "Activate" check box in the "System events" group, all messages listed without a check mark are used as WinCC system events with lower priority. If you clear the "Activate" check box in the "System events" group, all messages listed without a check mark are deleted from the message system of the project.

You can change the message priority of the process control and operator input messages. Click in the cell of the "Prio" column in the line of the corresponding message number and enter the priority class. Reserve message priority "16" for vital messages of your plant, particularly for "Fatal event messages".

OS process control messages are computer-specific (instance message concept).

Note

If the OS Project Editor is started on a WinCC client project or the option "Configurations that support online delta loading only" was selected in the "General" tab, the "Column width of message window" and "Process control and operator control messages" lists and the "Activate" check box of the system events cannot be edited.

All objects with "Operator message" property generate an internal operator message in the system after the operator makes an input in runtime. This message is not visible in the "Alarm Logging" editor. The user text blocks of this message are set according to PCS 7 defaults when you run the OS Project Editor. You may not change these user text blocks, as the message is triggered by the system. In order to customize the allocation of user text blocks, you must generate a message individually using ODK. However, this message is not going to be triggered by events which are monitored by the system.

All process control messages should be activated so that maintenance personnel is informed of any control system faults.

See also

Editing message blocks (Page 41)

Overview of the Process Control Messages (Page 74)

2.5.2 Editing message blocks

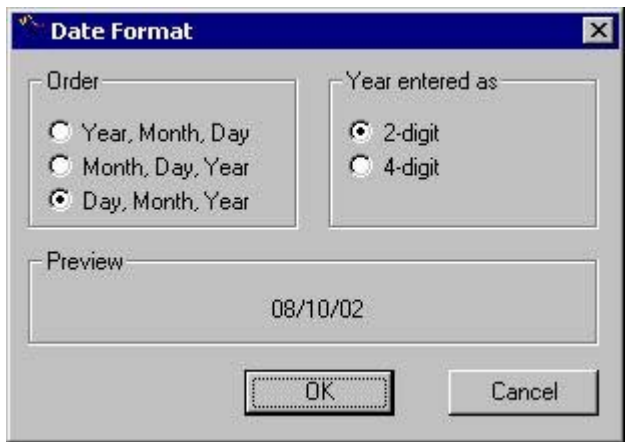
Introduction

For each message block created by the OS Project Editor, you can define the column widths entered in the "Message Window Column Width" list on the "Message Configuration" tab.

Editing

Right-click the entry in the "Column width" column. This is how you edit the column width.

In the message blocks "Date" and "Time", a dialog box opens in which you can set up the desired output format. The column width is then automatically adapted to the output format.



Note

You cannot edit the column widths of the message window if you run OS Project Editor in a WinCC client project, or if the "Online Delta Loading Configuration Only" option was selected on the "General" tab.

You cannot change the order of the columns.

See also

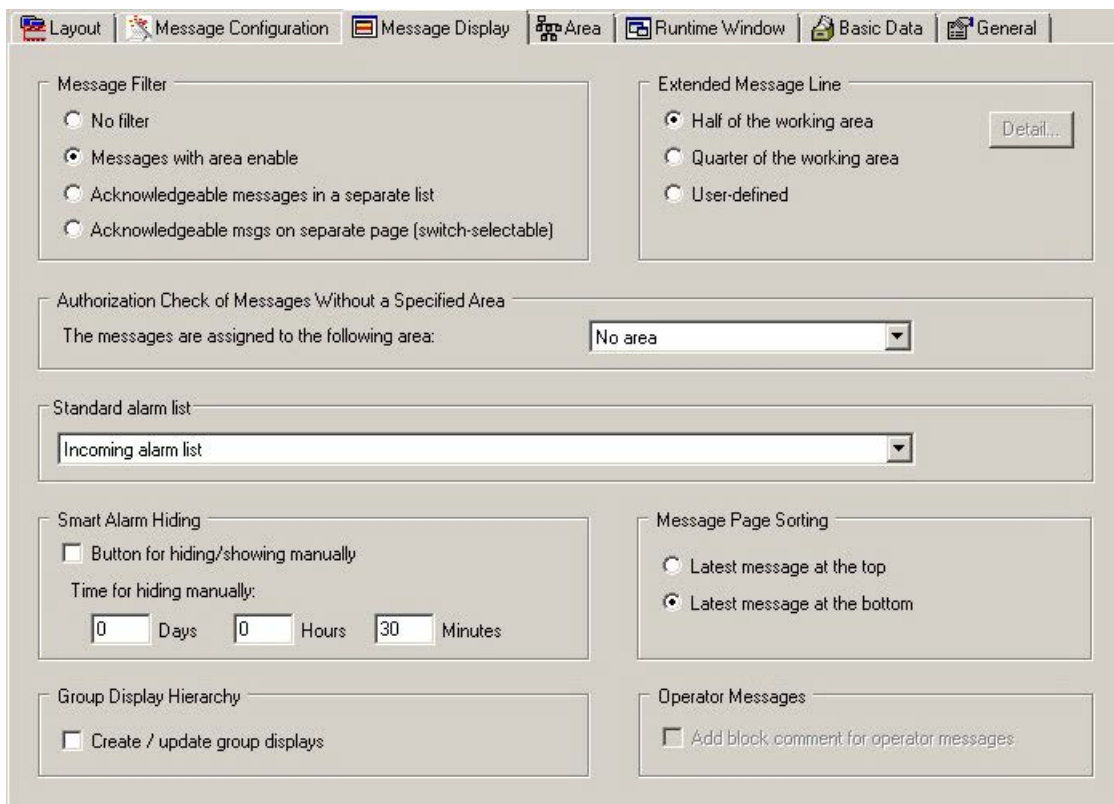
"Message Configuration" Tab (Page 37)

2.6 "Message Display" Tab

2.6.1 "Message Display" Tab

Introduction

In the "Message display" tab you can configure the runtime response of the message system and the display format of the messages in the message pages or group displays.



Message filters

You can specify how the messages are displayed in runtime in the "Message filter" group.

Filtering refers only to the display for the user who is logged in. Non-visible messages are still processed by the message server.

You can display all messages unfiltered, filter the messages according to area or display messages in separate lists.

Displaying an extended message line

You can display an extended message line via the working area if the layout supports this setting.

You can change the size by selecting the "Half of the working area" and "Quarter of the working area" radio buttons. The extended message line extends across the entire width of the screen.

If you wish to set the display format yourself, select the "User-defined" check box and click "Detail". A dialog box will open. You specify the desired settings here.

Authorization check of messages without a specified area

If messages are assigned neither to a picture hierarchy nor derived from the plant hierarchy of PCS 7, in the "Authorization check of messages without a specified area" group, specify the area for which the messages should be viewed/acknowledged. The user will need the necessary access rights to the assigned area.

If you select "No area" in the drop-down list box, all users can view and acknowledge the messages.

Standard alarm list

Here you specify which of the alarm lists will be displayed with its button in button set "1". The default setting is "Incoming alarm list".

Smart alarm hiding

In the message lists, you can use the "Hide/Unhide message" button in the toolbar to hide selected messages temporarily. This prevents minor events from being displayed during this time. It also enables you to maintain a better overview during critical phases.

Acknowledgment takes place automatically during hiding and an operation message is generated.

Requirement for hiding

The button is only available if you have, as a minimum, been assigned the authorization level "Higher process controlling" for an area.

Basic procedure

If you select the "Key for hiding/showing manually" check box, the "Hide/Unhide message" button is displayed in the toolbar.

The hidden messages are transferred to the list of hidden messages.

The operator can use the "List of hidden messages" button from the key set to access this list.

From this list, you can use the "Hide/Unhide message" button in the toolbar at any time to make hidden messages reappear.

The temporary hide function is canceled automatically as soon as a set time period defined in the OS Project Editor expires. Enter the maximum time limit for hiding messages in the input field. 30 minutes are preset. You can enter a maximum of 9 days, 23 hours and 59 minutes.

Operator message on hiding

When an operator message is triggered during hiding, the operator must give a reason for hiding.

Sorting Message Pages

You set the chronological order of the message window in the message pages.

By selecting the "Latest message at the top" radio button, the most recent message to arrive is displayed as the first message in the message window.

By selecting the "Latest message at the bottom" radio button, the most recent message to arrive is displayed as the last message in the message window.

In the extended message line the messages are sorted first by priority, then data and finally by time.

Group display hierarchy

This setting for the group display hierarchy supports you in configuring the group display if you wish to build a group display hierarchy based on the picture hierarchy.

When the "Create/update group display" check box is selected, the additional group displays are created as follows in the process pictures for forming the group display hierarchy:

- When saving the hierarchy in the Picture Tree when creating or migrating a project.
- When running the OS Project Editor for an existing project
The Project Editor calls the corresponding component of the Picture Tree. The next time it starts the group displays are no longer automatically generated since they already exist in the project. You then save all future changes in the group display hierarchy, e.g., changes to the pictures or the tree structure, in the Picture Tree.

These group displays are not seen in runtime by default. With loop in alarm via group displays from the area overview, therefore, a process picture can be opened in which no group display flashes or a group display displays another message type. However, you can navigate to the alarm sources using the Picture Tree Navigator.

If you wish to make the generated group display automatically visible, you need to adapt the "GroupDisplay" object in template picture "@CSig_Template.PDL" in the Graphics Designer. Change the property "Other/Display" to "Yes".

Check all settings of the group display object in the template picture before you execute the "Create/update group display" function. This especially applies to the properties "Display", "Group Relevant" and "Acknowledgment mask".

Define each of the desired properties in the template picture. The factory state corresponds to the PCS 7 standard.

Here is how you can use the individually configured and tested group displays from a process picture as a template:

1. Copy the individually configured and tested group displays into the template picture "@CSIG_Template.PDL".
2. Use the C action of the original "GroupDisplay" object for the new object.
3. Change the name of the original object from "GroupDisplay" to "OriginalGroupDisplay", for example.
4. Change the name of the new object to "GroupDisplay".

The PCS 7 factory setting of "3089" for the acknowledgment masks may not be suitable for individually configured group displays in your project and may need to be changed. To learn more, read the documentation section for group displays.

Controlling acknowledgment response by means of a tag (Page 292)

Since the group display objects can be interconnected independent from the picture hierarchy, a warning appears when you select the "Create/update group displays" check box.

The "Create/update group display" function deletes all group displays from process pictures which are interconnected with a picture of another system area and whose "Group Relevant" property is set to "Yes". The group display object is not deleted if the "Group Relevant" property is set to "No". Group displays that are connected to a measurement point from another plant section are not deleted regardless of the "Group Relevant" property.

Note

"Undo" function not possible

The "Create/update group display" function cannot be reversed.

Group displays automatically inserted into process pictures must be corrected manually if they do not fit.

Before using the function, you should check the property settings for the "GroupDisplay" object in the template picture, "@CSIG_Template.PDL".

Adding a block comment for operating messages

If you check this box, the relevant block comment will be added to the operation message during operator process control by means of a block from the PCS 7 library.

The block comment will not be added if:

- Operator messages that are generated as a result of messages being disabled/enabled. This applies to all blocks associated with the picture in the working area and its lower-level pictures.
- Operator messages that are generated as a result of acknowledgment in process pictures or message lists.

See also

Message filters (Page 47)

Extended message line (Page 48)

Messages (Page 268)

How to Display Message Lists (Page 273)

2.6.2 Message filters

Overview

In the "Message filter" group of the "Message Display" tab, you can specify which messages should be displayed in runtime.

You have the following setup options:

- "No filter"
Disables area-specific filtering of messages. All messages are displayed and can be acknowledged, regardless of the area to which they are assigned.
- "Messages with area enable"
All messages from an area for which an operator has the "Authorization for area" access right are displayed and can be acknowledged. If the operator has the "Higher process controlling" access right for at least one area, the "Hide message" button is available.
- "Acknowledgeable messages in separate list". The message windows have two message lists:
 - The lower list shows all messages from the area for which the operator has the access right for "Process controlling". The operator can also acknowledge messages from this list. If the operator has the "Higher process controlling" access right for at least one area, the "Hide message" button is available.
 - The upper list displays all messages from the area for which the operator has the "Authorization for area" access right, but not the access right for "Process controlling". The operator cannot acknowledge messages from this list. The message line in the overview window shows only messages which can be acknowledged with the "Process controlling" access right.
- "Acknowledgeable messages on separate page (switch-selectable)"
The operator has either the two separate message lists described above, or the message page with only one list. The message page with just one list shows only the messages from the area for which the operator has the access right for "Process controlling". The same applies to the message line in the overview area.
The operator switches the view to the message page with the respective buttons.

Note

If the chosen layout does not support the "Message filtering" setting, the buttons are disabled.

Example

Here is an example of a new list with the "Acknowledgeable messages in separate list" setting.

The operator has the following access rights:

- "Process controlling" and "Higher process controlling" in "Area1"
- "Authorization for area" in "Area2"

incoming alarm list

	Date	Time	Priorit	Source	Event	Status	Info	Comme	Batch name	Area
1	06/05/13	08:59:57.021	0	local-PC	3 - Warning High (internal)	C				Area2
2	06/05/13	08:59:57.021	0	local-PC	4 - Warning Low (internal)	C				Area2
3										
4										
5										
6										
7										
8										
9										
10										
11										

Ready Pending: 7 To acknowledge: 7 Hidden 0 List 2

	Date	Time	Priorit	Source	Event	Status	Info	Comme	Batch name	Area
1	06/05/13	08:59:57.021	0	local-PC	1 - Alarm High (internal)	C				Area1
2	06/05/13	08:59:57.021	0	local-PC	2 - Alarm Low (internal)	C				Area1
3	06/05/13	08:59:57.021	0	local-PC	5 - PLC Failure (internal)	C				
4	06/05/13	08:59:57.021	0	local-PC	6 - PLC Error (internal)	C				
5	06/05/13	08:59:57.021	0	local-PC	7 - OS Failure (internal)	C				
6										
7										

See also

- "Message Display" Tab (Page 43)
- How to Display Message Lists (Page 273)

2.6.3 Extended message line

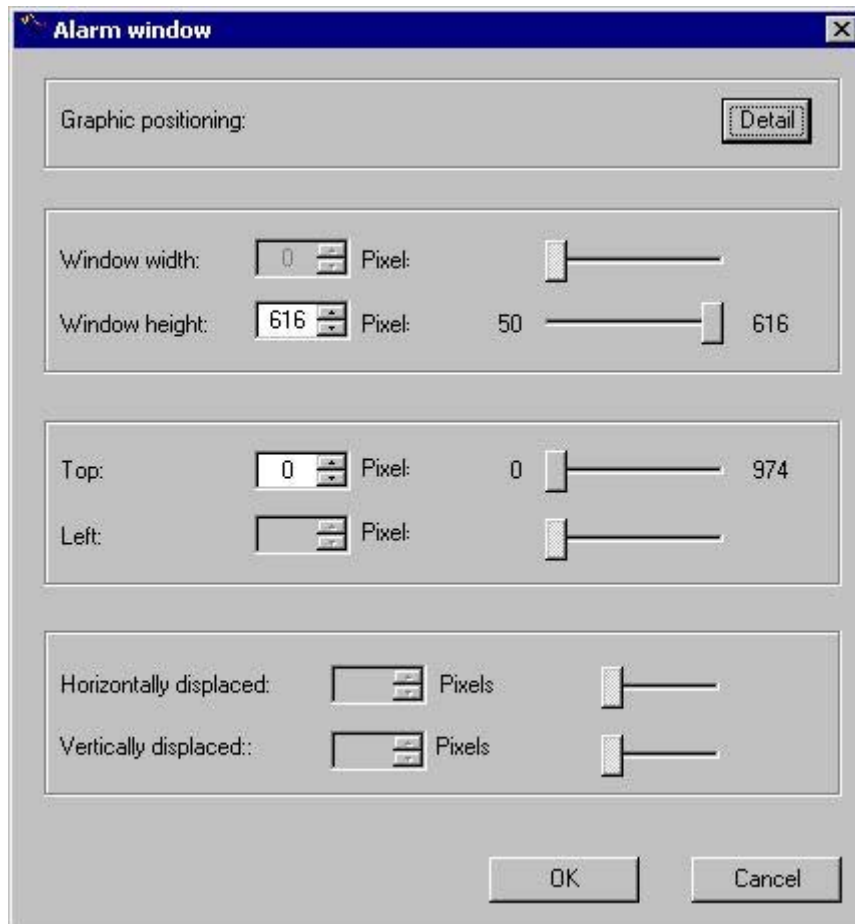
Introduction

An extended message line can be displayed via the working area if the layout supports this setting.

An extended message line is like a New list, but scaled down as appropriate. The window adapts to the size of picture being displayed. It has no scroll bars and its width cannot be changed. You can define its height, however, since the extended message line is configured as a dedicated picture in the layout.

Procedure

1. In the "Message display" tab of the "Extended message line" group, select the "User-defined" check box. The "Detail" button is now enabled.
2. Click "Detail".
The "Alarm window" dialog box opens.



3. Set up the values in the following input boxes either by entering the values straight into the input box or else by using the slider or the spin box:
 - "Window height"
 - "Position top"
Define a window position which is relative to the coordinate origin of the working area.
The window always has the same width as the working area.
The "Horizontally displaced" and "Vertically displaced" fields are disabled, since there is only one window.
4. The "Graphic positioning" field allows you to position the window with ease. To do so, click "Detail".

Note

The default setting for the extended message line is available in the configuration file the first time you open the OS Project Editor. If this entry is missing, the default setting is "Half of the working area". However, this only applies if the layout supports an extended message line.

See also

Graphic positioning of a runtime window (Page 65)

"Message Display" Tab (Page 43)

2.7 The "Areas" Tab

2.7.1 "Areas" Tab

Overview

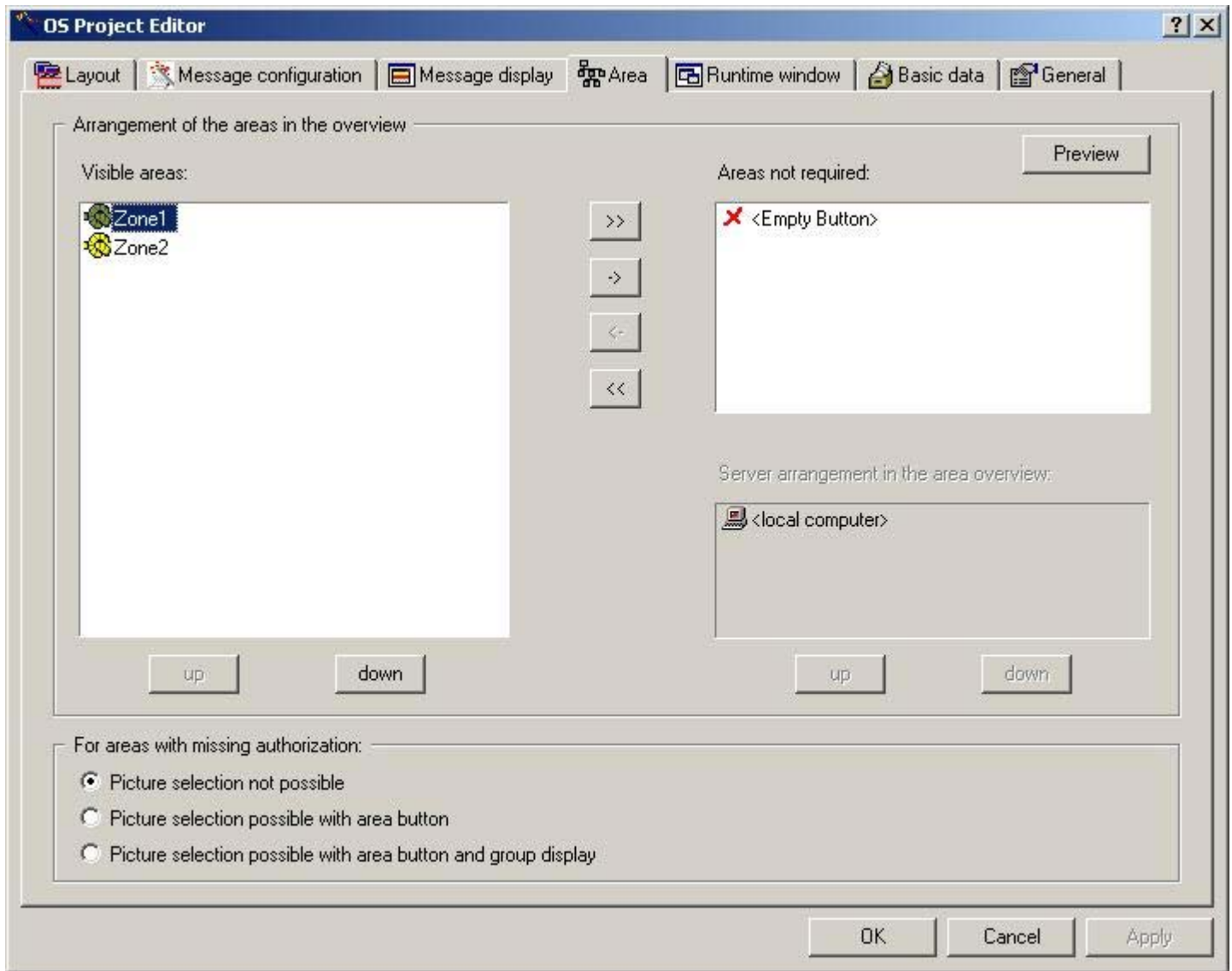
In the "Area" tab, you configure the arrangement of the area buttons and server buttons for the overview window. Here, you also specify the users' access to areas for which they have no authorization.

The area buttons result from the plant sections that you have configured in the "Picture Tree" editor, and consist of the following:

- A button to open the area
- A group display to show the group value of this area
- A button to open the Picture Tree Navigator

The server buttons are used to visualize a server in the overview window, and consist of the following:

- A button for selecting the server
- A group display to show the group value of this server



Visible areas

The list of "Visible areas" displays all the configured plant areas in the sequence in which they are displayed as area buttons in the overview area. For the standard layouts, the sequence of the buttons is from left to right and from top to bottom. To define area buttons for any future extension of the plant areas, you can insert empty area buttons as placeholders even during the project creation stage. Do this by using "empty buttons", which you include at the required position in the "Visible areas" list.

You can simultaneously select as many entries in the list as you wish, and move them with the "up" and "down" buttons. Click "->" to remove the selected entries, and click ">>" to remove all entries from the "Visible areas" list.

Areas not required

The "Areas not needed" list is used when anticipatory planning of a reserve configuration, and shows all the areas in the project that do not appear in the "Visible areas" list. The "Empty Button" entry serves as a placeholder for an area button that you intend to assign to a plant section at some future point in time.

You can select multiple entries and click "<-" to insert them in the "Visible areas" list. By clicking "<<" button you enter all entries with the exception of the entry "<Empty Button>".

Alternatively you can configure reserve areas with empty pictures assigned in the "Picture Tree" for some future extension. Examples:

- Reserve1 - Picture_Reserve1
- Reserve2 - Picture_Reserve2
- Reserve3 - Picture_Reserve3

In this case users would not receive access rights to these reserve areas in the User Administrator. You are not allowed to create areas in the "Picture Tree" editor without assigning pictures to them. To configure reserve areas, always use the OS Project Editor option "Areas not needed".

Server assignment

If the chosen layout allows the server to be displayed on the WinCC client, you can arrange the areas for the server selected in the "Server assignment in the area overview" list. If you select another server, the "Visible areas" and "Areas not needed" lists are refilled. You can arrange the selected servers by clicking "Up" and "Down".

In the case of a layout without View on a server, the "Server assignment in the area overview" list cannot be edited. The list shows only the server and the local computer. The lists "Visible areas" and "Areas not needed" then contain all the areas available for display in the overview window.

Preview

Click "Preview". A preview window showing the arrangement of the areas will open. This display shows the generated overview schematically.



While the preview window is open, you can further configure the sequence of the area and server buttons. Each change is immediately updated in the preview.

The "Preview" button can only be used when the selected layout supports the generic creation of area buttons in the overview window.

Access to areas missing authorization

In the User Administrator, you specify the area-specific access rights for users in runtime. However, you can also allow users to select pictures and group displays of areas for which they have no authorization.

Users without access rights to areas have the following access options:

- Picture selection is not possible. The user has no access to this area (standard behavior)
- The picture can be selected using area button. The user can select the pictures of these areas for monitoring purposes. Access to the group displays in the overview and Picture Tree Navigator is not permitted. Area-specific messages are not visible. Operator process controls with PCS 7 picture components are not possible, operator inputs in process pictures depends on the configuration in the pictures.
- Picture can be selected using both the area button and the group display. The user can select the pictures of these areas for monitoring purposes. Access to the group displays in the overview and Picture Tree Navigator is permitted. Area-specific messages are not visible. Operator process controls with PCS 7 picture components are not possible, operator inputs in process pictures depends on the configuration in the pictures.

Note

The first time you call the OS Project Editor, the "Visible areas" list shows all areas that were configured in the "Picture Tree" editor of the OS. The servers are listed in package import sequence.

If the sequence has already been configured and further areas or servers are added, these appear at the end of the list. If areas or servers are omitted, they are deleted from the configuration.

See also

How to change the sequence of areas (Page 55)

How to change the sequence of the servers on the WinCC client (Page 54)

How to Hide an Area (Page 56)

How to arrange "Empty buttons" (Page 56)

2.7.2 How to change the sequence of the servers on the WinCC client

Introduction

You can change the sequence and arrangement of the server keys in the overview area of the WinCC client. The servers are ordered from left to right and then from top to bottom.

Procedure

1. Open the OS Project Editor.
Select the server from the "Server arrangement in the area overview" list in In the "Areas" tab.
2. Move the server to the desired position by clicking "Up" and "Down".
3. If the layout does not support "Server View", this list is not activated. You should then select all areas of the server in the "Visible areas" list and move these to the required position by clicking "Up" and "Down".
4. Click "Preview". The "Area preview" window opens, and you can follow the configuration.
5. Check the settings in the "Basic Data" tab to avoid any unwanted data overwrites.

See also

- "Areas" Tab (Page 51)
- "Basic data" tab (Page 66)

2.7.3 How to change the sequence of areas

Introduction

You can change the sequence and arrangement of the area buttons in the overview window by moving individual areas. The areas are ordered from left to right and then from top to bottom.

Procedure

1. Open the OS Project Editor and the "Areas" tab.
Select the area from the "Visible Areas" list.
2. Click "Up" or "Down" to move this area to the required position.
3. Click "Preview". The "Area preview" window opens, and you can follow the configuration.
4. If necessary select further areas that you wish to move.
5. Check the settings in the "Basic Data" tab to avoid any unwanted data overwrites.

See also

- "Areas" Tab (Page 51)
- "Basic data" tab (Page 66)

2.7.4 How to Hide an Area

Introduction

If not all the system areas are intended for runtime operation, for example, reserve areas, you can hide the currently unneeded areas. This procedure is also practical on the WinCC clients, where not all of areas of all servers need to be operated.

Procedure

1. Open the OS Project Editor and the "Areas" tab.
Select the area from the "Visible Areas" list.
2. Move this area to the list of "Areas not needed" by clicking "->".
3. Click "Preview". The "Area preview" window opens, and you can follow the configuration.
4. Check the settings in the "Basic Data" tab to avoid any unwanted data overwrites.

See also

"Areas" Tab (Page 51)

"Basic data" tab (Page 66)

2.7.5 How to arrange "Empty buttons"

Introduction

"Empty buttons" serve as placeholders for the positioning of area buttons in the overview area. Plant areas are not assigned to these buttons until later. This method avoids having to move a number of area buttons around later. Plant operators work with a familiar area overview, even after an expansion.

Procedure

1. Open the OS Project Editor and select the "Areas" tab.
Select the "<Empty Button>" entry from the "Areas not needed" list.
2. Click "<". This entry is placed in the "Visible areas" list.
3. Click "Up" or "Down". You will move this area to the desired position.
4. Click "Preview". The "Area preview" window opens, and you can follow the configuration.
5. Check the settings in the "Basic Data" tab to avoid any unwanted data overwrites.

See also

"Areas" Tab (Page 51)

"Basic data" tab (Page 66)

Loop display and process window (Page 60)

Group display (Page 62)

Trend group display (Page 64)

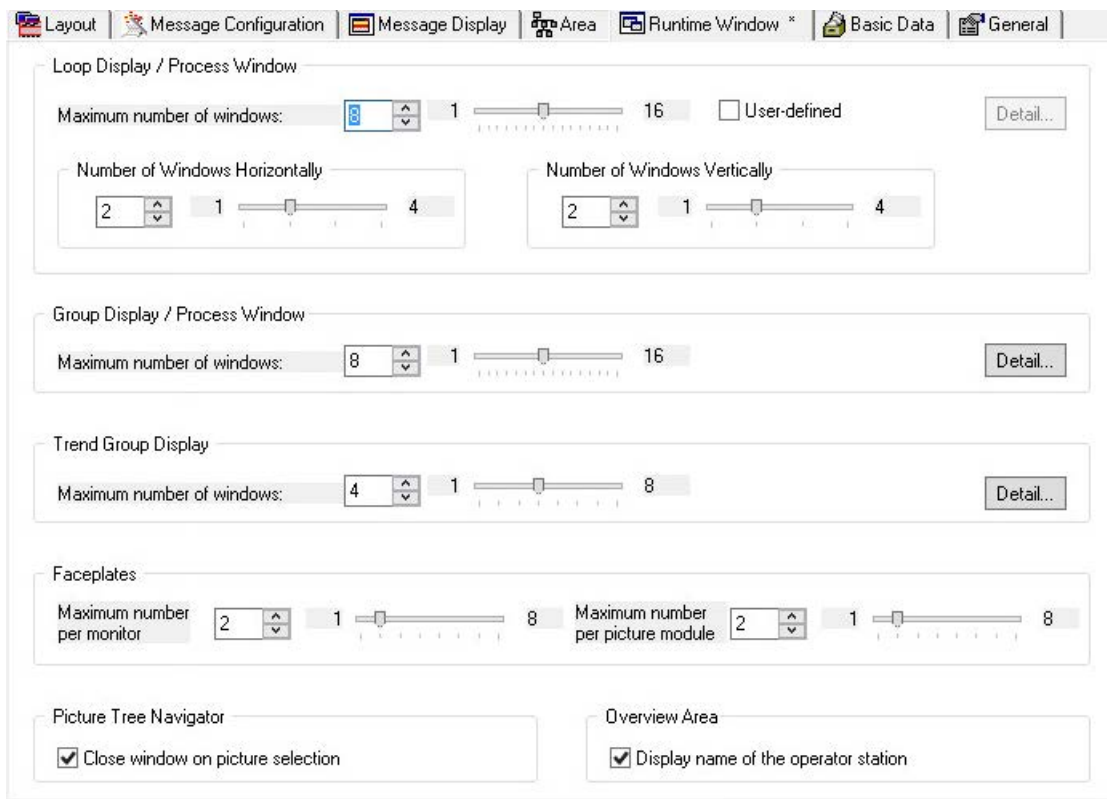
2.8 The "Runtime window" tab

2.8.1 "Runtime window" tab

Introduction

You can make the settings for the number and arrangement of the pre-configured picture windows in the "Runtime window" tab.

In runtime, pictures and faceplates will be opened and superimposed over the work area in these picture windows.



Picture window display modes

- **Loop Display / Process Window**
The picture window in the loop display and in the process window is not zoomed in or out to fit the size of the open picture.
The window has scroll bars and the size of the window can be changed.
You can choose whether you want to position the picture window in a grid or according to the group display. For grid mode, specify the "Number of windows horizontally" and the "Number of windows vertically".
If you wish to set the display format yourself, select the "User-defined" check box and click "Detail". A dialog box opens allowing you to make the desired settings.
- **Group display / Process window**
The picture window in the group display and in the process window is zoomed in or out to fit the size of the open picture.
The picture window has no scroll bars and the size of the window cannot be changed.
When you click "Detail", the "Group Display" dialog box for positioning the windows will open.
- **Trend groups**
Trend groups you configured using the "Trend online" function are displayed in a picture window which is adapted to fit the size of the open picture.
The picture window has no scroll bars and the size of the window can be changed.
The picture is scaled to match the change in size.
The configuration corresponds to the picture window configuration for the group display.

In the "Maximum Number of Windows" field, define in each case the maximum number of picture windows permitted to be displayed.

Either enter the value directly in the input field, or use the slider or the spin box.

The input limits are predefined by the layout and are displayed alongside the slider.

Note

Do not use independent picture windows

When you insert a picture window in a picture, select the setting "No" for the "Independent window" object property.

Independent picture windows are not supported when using Basic Process Control.

Faceplates in the Picture Window

In this input field, you configure the maximum number of the following faceplates in the picture window:

- Faceplates that are displayed simultaneously on each monitor
Up to four faceplates can be displayed, irrespective of the faceplate instance and of the picture window layout.
When a picture component opens and the number of open picture components exceeds the configured number, a faceplate already open is closed.
- Faceplates that are displayed simultaneously by the same instance of the faceplate
Up to four faceplates of the same instance can be displayed, irrespective of the monitor and the picture window layout.
When a faceplate opens and the number of open faceplates of the same instance exceeds the configured number, a faceplate of this instance that is already open is closed.

Picture Tree Navigator

In Runtime, click a button to open the Picture Tree Navigator window in the overview area in order to display the picture hierarchy arranged in the "Picture Tree" editor.

When you select the "Close window for picture selection" check box, the Picture Tree Navigator window closes as soon as a picture in the hierarchy is selected.

Overview area

To show the current computer name in the overview area, enable the option "Show name of operator station".

The name is displayed above the user name in the overview area.

The placement depends on the selected layout. In SIMATIC server view layouts, the name of the operator station is displayed next to the user name.

See also

Loop display and process window (Page 60)

Group display (Page 62)

Trend group display (Page 64)

2.8.2 Loop display and process window

Introduction

Loop display gives a detailed display of faceplates. Process windows display processes.

Both the loop display and the process window use windows that do not adapt to the size of picture being displayed. The windows have scroll bars and the size of the windows can be

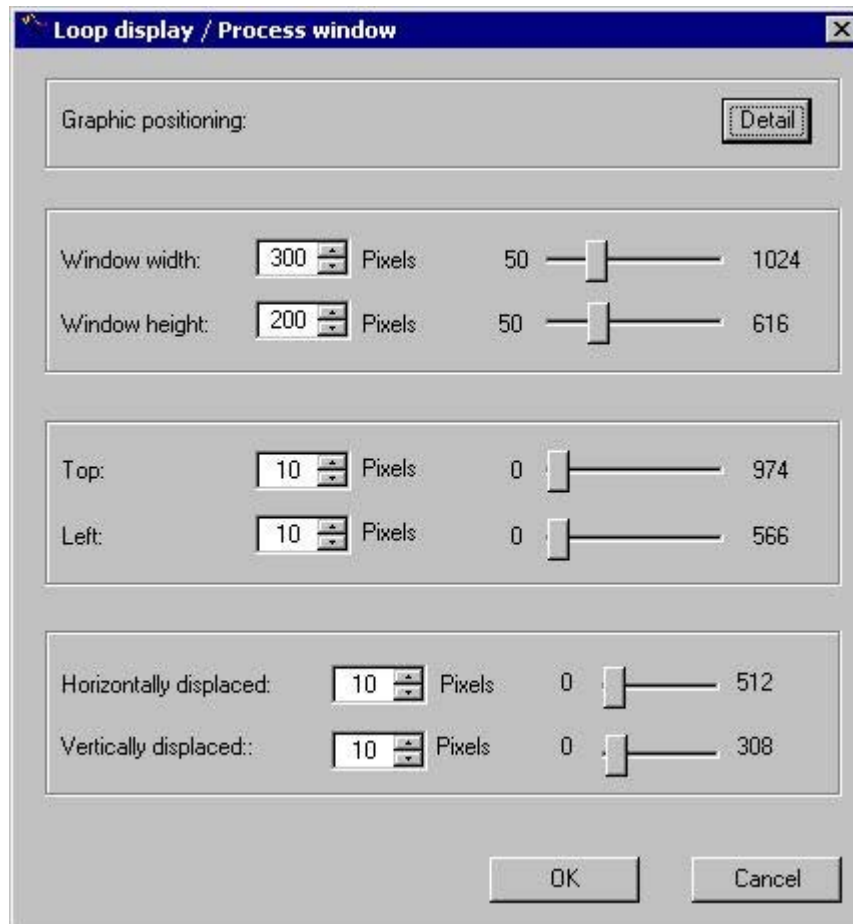
changed. The windows can be displayed either in a grid or in an arrangement similar to the group display.

Grid display

Each window has the same size and is positioned in a grid. The input boxes called "Number of windows horizontally" and "Number of windows vertically" on the "Runtime Windows" tab make dimensioning and positioning the windows in the grid an easy matter. Either enter the number straight into the input field, or else use the slider or the spin box.

User defined display

Activate the "User defined" check box on the "Runtime Windows" tab and click "Detail". The "Loop Display/Process Window" dialog box will open.



Set up the values in the following input boxes either by entering the values straight into the input box or else by using the slider or the spin box:

- "Window Width" and "Window Height"
Define the window's dimensions at these parameters.
- "Top" and "Left"
Define the position of the first window at these parameters relative to the coordinate origin of the working area.
- "Horizontally displaced" and "Vertically displaced"
Define the position of the next window relative to the previous windows at these parameters.

The "Graphic positioning" allows you to position the windows with ease. To do so, click "Detail".

Note

The settings are limited by layout-specific considerations. If nothing is specified in the configuration file, up to 16 windows are possible. Grids have from 1 to 4 fields available in both dimensions. The following settings are suggested by the OS Project Editor:

- The windows have a size of 150 x 120 pixels.
 - The position is 20 pixels from the top and 20 pixels from the left.
 - The next window is displaced horizontally and vertically by 10 pixels.
-

See also

Graphic positioning of a runtime window (Page 65)

"Runtime window" tab (Page 58)

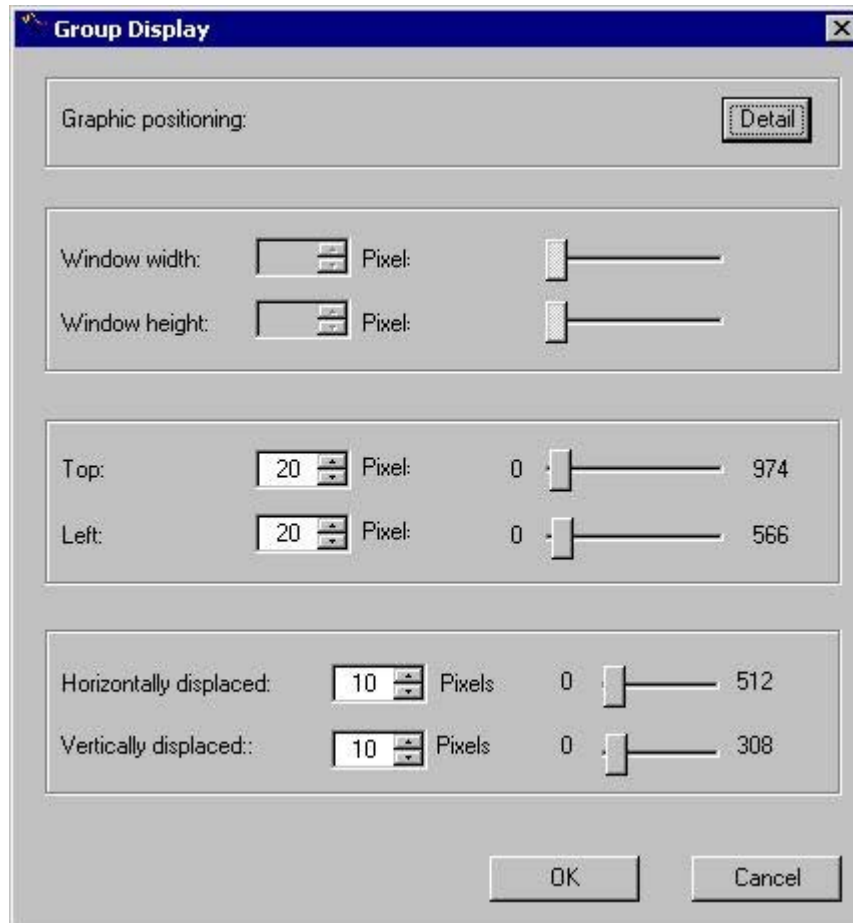
2.8.3 Group display

Introduction

Group displays provide a compressed display of picture modules and use windows that adapt to the size of picture being displayed. The windows have no scroll bars and the size of the windows cannot be changed.

Window settings

Use the "Group Display" dialog box to position windows. Since the size of the windows cannot be changed, you cannot set their width and height. However, you can specify the window position.



Set up the values in the following input boxes either by entering the values straight into the input box or else by using the slider or the spin box:

- "Top" and "Left"
Define the position of the first window at these parameters relative to the coordinate origin of the working area.
- "Horizontally displaced" and "Vertically displaced"
Define the position of the window relative to the previous window at these parameters.

The "Graphic positioning" allows you to position the windows with ease. To do so, click "Detail".

Note

The settings are limited due to layout-specific aspects. If an entry in the configuration file is missing, the following settings apply:

- The maximum number of picture windows is limited from 1 to 16.
- The window's size is adapted to fit the picture size.
- The positions of the windows are limited to a value between 0 pixels and the width or height of the working area.
- You can only move the windows within the range from 0 to 100 pixels.

The following settings are suggested by the OS Project Editor:

- The position is 20 pixels from the top and 20 pixels from the left.
 - The next window is displaced horizontally and vertically by 10 pixels.
-

See also

Graphic positioning of a runtime window (Page 65)

"Runtime window" tab (Page 58)

2.8.4 Trend group display

Introduction

Configure the trend groups generated using the "Online Trend Control" function in the same way as for "Loop display". Windows adapt to the size of the picture being displayed. They have no scroll bars and their size can be changed. When you change the size, the picture is also scaled.

See also

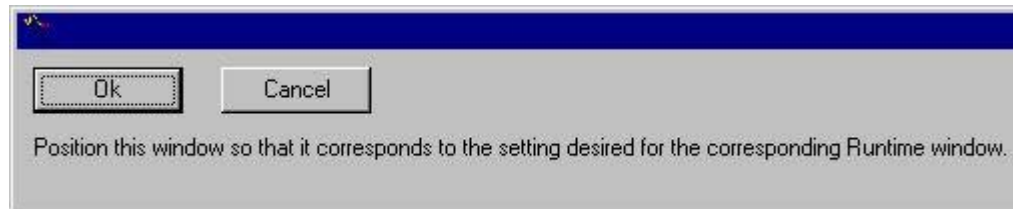
Loop display and process window (Page 60)

"Runtime window" tab (Page 58)

2.8.5 Graphic positioning of a runtime window

Introduction

In the picture window display dialog boxes, you can open a dialog box for easier positioning of the windows. To do so, click "Detail" in the "Graphic Positioning" group. The following dialog box will open.



Procedure

1. Move the window to the position you want it to occupy in runtime and drag it to the appropriate size with the mouse.
2. Click "OK".
This closes the window and enters the size and position "Window Width", "Window Height", "Top" and "Left" fields.

You cannot position the window outside the working area of the runtime user interface.

See also

"Runtime window" tab (Page 58)

2.9 "Basic data" tab

Introduction

Basic data includes picture files, actions and standard functions for the purpose of providing a suitable user interface in runtime.

The "Basic Data" tab shows which elements of the initialized basic data differ from the basic data that are local to the project.

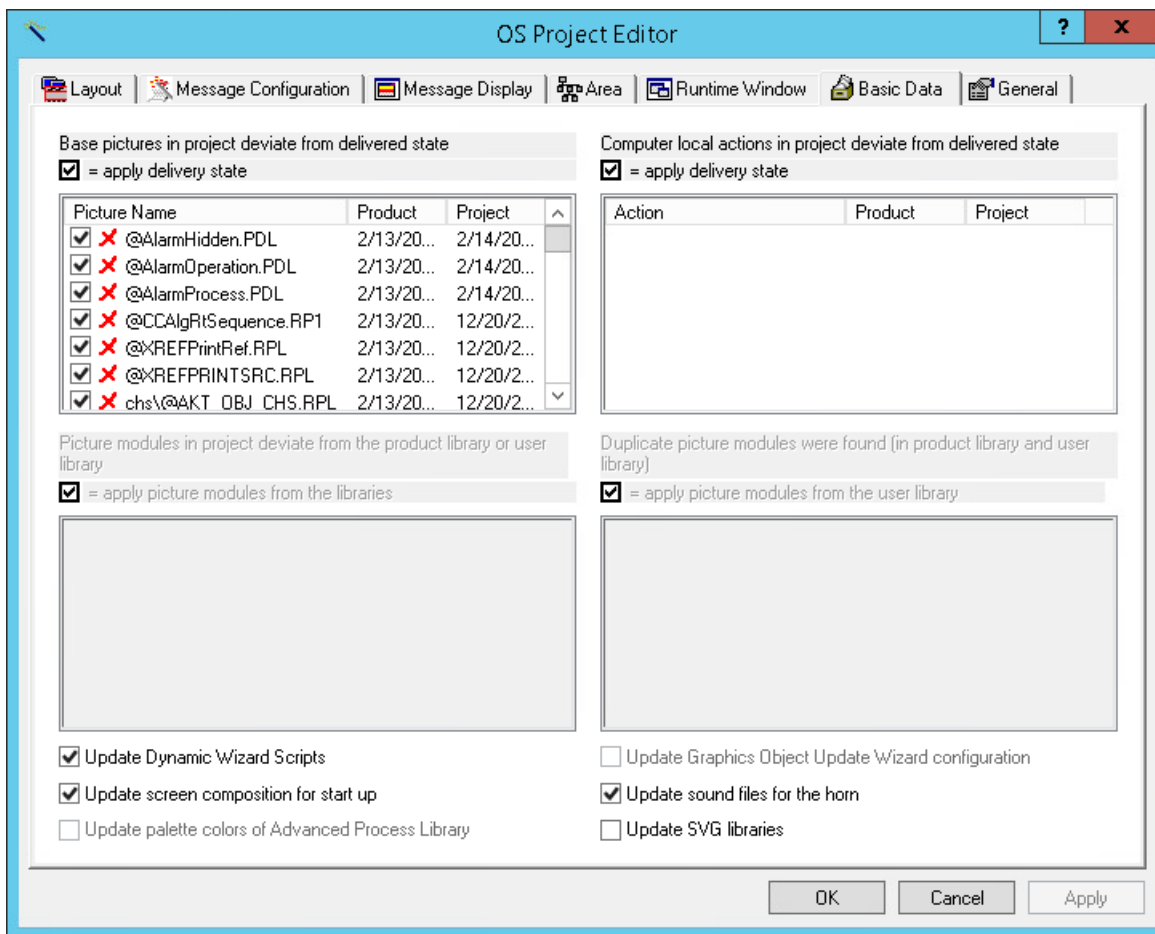
The picture settings are dependent on the layout concerned. The entries in the lists change in step with changes in the picture and script configurations.

Overwriting changed files

In this tab, you can specify which modified files of the project are to be overwritten by files in the delivery state.

However, consistent runtime operation must be ensured.

You must overwrite the list entries highlighted in red. You cannot deactivate the check boxes.



Overwriting modified files of the project

The list of picture files at the upper left shows all the basic pictures and relevant files in the project which have time stamps that do not match the files in the delivery state. This may have arisen due to a newer version of the basic data or the pictures concerned may have been configured by the user.

Entries in the "Project" column show the dates of the files in the project path.

Entries in the "Product" column show the dates of the files in the installation folder.

When a check mark is set at a list entry, the basic picture or the file is replaced in the project by the file that was supplied with the product.

Note

SIMATIC BATCH

If "BATCH Engineering" or "BATCH Client" is installed on the computer at the same time, the picture "@AlarmJournal.PDL" will be shown to differ from the originally delivered version.

Overwriting project actions that are local to the computer

The list of actions local to the computer (upper right) shows all actions with time stamps that do not match those of the actions in the delivery state. This may have arisen due to a newer version of the basic data or the actions concerned may have been configured by the user.

Entries in the "Project" column show the respective dates of the files in the project path.

Entries in the "Product" column show the respective dates of the files in the installation folder.

If there is a check mark against an entry in the list, the modified action will be replaced in the project by the action that was supplied as the product.

Overwriting picture modules in the project

These lists are available only in a PCS 7 OS. If WinCC and Basic Process Control are installed, the lists will be disabled and grayed out.

The two picture modules lists below show the picture modules with time stamps that match neither those of the picture modules in the product library in the folder "`<Product>\Options\pdl\FaceplateDesigner_V6`" nor those of the picture modules in the user library in the folder "`<Product>\Options\pdl\FaceplateDesigner`". This may have arisen due to a newer version of the basic data or the picture modules concerned may have been configured by the user.

Entries in the "Project" column show the dates of the files in the project path.

Entries in the "Product Library" column show the dates of the files in the installation folder.

If there is a check mark against an entry in the list, the picture component from the product and user libraries is adopted.

Duplicated picture modules in the product and user libraries

This list is available only in a PCS 7 OS. If WinCC and Basic Process Control are installed, the list is disabled and grayed out.

The list (lower right) shows all picture modules that are present in both the product library and the user library. This may have arisen due to a newer version of the basic data or the picture modules concerned may have been configured in the Faceplate Designer.

Entries in the "User Library" column show the dates of the files in the user library in the folder "`\<Product>\Options\pd\FaceplateDesigner`".

Entries in the "Product Library" column show the respective dates of the files in the product library in the folder "`\<Product>\Options\pd\FaceplateDesigner_V6`".

Picture components with a check mark alongside will be adopted from the user library.

The lower two lists of faceplates are interdependent. If a modified picture component that is local to the project and shown in the left-hand list is flagged not to be overwritten, it will in fact not be overwritten by a picture component from the user library.

Updating the Dynamic Wizard scripts

Use the "Update Dynamic Wizard Scripts" check box to define whether all the files associated with the Dynamic Wizard scripts will be overwritten.

You cannot select individual files.

If the check box is selected, associated files local to the project will be replaced by the files in the delivery state.

Updating the screen composition for startup

If you select the "Update screen for start up" check box, the screen that is local to the project will be overwritten. This is the special screen that is stored for all users of the project as "Default.ssm".

Thus, the users have a common start screen, which opens during logon instead of the "Welcome.pdl".

A separate start screen can be created for each user. However, this file is not overwritten.

Updating the configuration of the Graphic Object Update Wizard

The Graphic Object Update Wizard requires configuration files to be copied from the OS Project Editor to the project directory.

The configuration files make it possible to exchange instance-specific picture information and script information centrally.

If you select the "Update configuration for Graphic Object Update Wizard" check box, modified configuration files that are local to the project are replaced by the configuration files in the delivery state.

Updating the audio files for the horn

Use the check box headed "Update sound files for the horn" to define whether all the files that the horn uses for output via the sound card will be overwritten.

You cannot select individual files.

If you select the check box, the sound files local to the project will be replaced by the sound files in the delivery state.

Updating palette colors of Advanced Process Library

This function is only available in a PCS 7 OS.

If you select the check box, the color ranges of the Advanced Process Library with index > 10 are integrated in the file "V7Designs.xml".

If you have customized the color ranges of the faceplates of the Advanced Process Library for specific projects and do not want to reset them, the check box must be cleared.

You can find more information in the PCS 7 configuration manual "Operation Station".

Updating SVG libraries

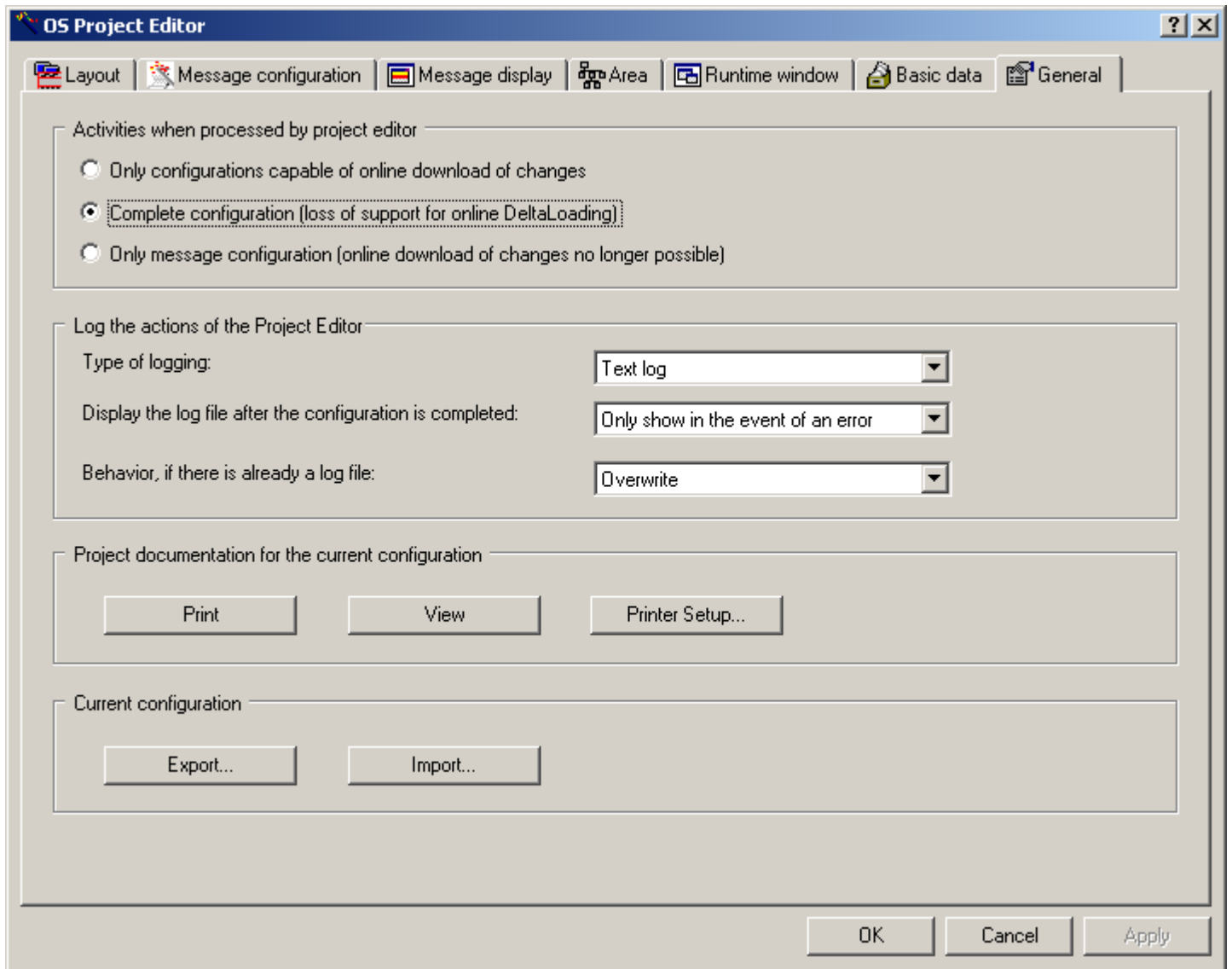
In the Graphics Designer, you can use SVG libraries in order to integrate SVG graphics in process pictures.

If you select the check box, the SVG libraries that the WinCC installation folder contains as ".zip" files in the "SVGLibrary" folder are updated for the WinCC project.

2.10 "General" tab

Introduction

The "General" tab contains settings for the OS Project Editor.



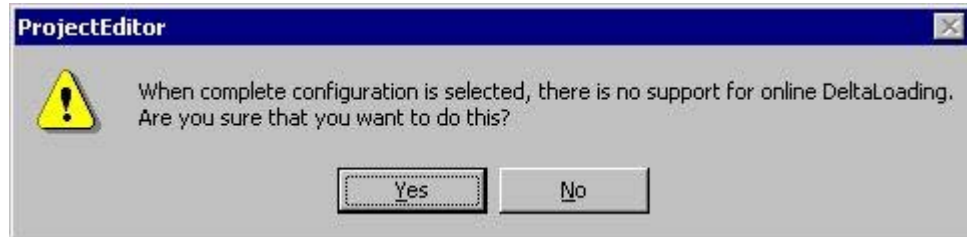
Activities During Project Editor Processing

In the "Activities during Project Editor Processing" group, you specify which of the following settings are to be transferred during processing by the OS Project Editor:

- Only the settings that allow changing data in runtime ("Load Online Changes")
- All settings
- Only the settings of the message configuration

Select the "Only configurations capable of loading online changes" radio button if you want to reconfigure all settings except for the alarm system and startup list. All OS Project Editor control fields whose settings are not sent to the project are disabled. This option is the default when the editor is not used for the first time.

When configuration is complete, the full runtime system and alarm system are transferred to the project again. When the OS Project Editor is started for the first time, this is the only available setting in the project. Since a complete configuration is associated with the loss of load online change capability, the following notice appears if the project is still capable of performing "Load Online Changes":



When you click "Yes", the settings you have made are accepted into the project. When you click "No", the operation is canceled.

If the OS Project Editor has executed a basic run once with the setting "Complete configuration (loading online changes no longer possible)", it does not mean that this project has lost the capability for load online changes forever. To restore the load online change capability, you only have to transfer the complete OS from PCS 7 ES once.

The "Message configuration only" radio button is intended for users that want to create a project with STEP 7 and transfer the configured messages to WinCC without having to use the user interface of Basic Process Control or PCS 7. All OS Project Editor control fields whose settings are not sent to the project are disabled. The basic data, such as the graphics, are not transferred into the project. The startup list and start picture are not set in the computer properties.

Note

If you add a client computer to a server project, you must afterward run the OS Project Editor with the setting "Complete configuration (loading online changes no longer possible)".

Logging the activities of the project editor

You can make the settings for the log file in the "Logging Actions of the Project Editor" group. The log file contains the most important project settings you have made in the OS Project Editor, for example, the files you have copied or the messages you have created. The log can also include entries about errors that occur.

To create a log, select one of the following options from the "Type of logging" drop-down list:

- No log
- Text log
- HTML log

The log file that is created is placed in one of the following directories:

- Text log: \<Project>\SSM\ Projecteditor.txt
- HTML log: \<Project>\SSM\Projecteditor

In the "Display the log file after the configuration is completed" drop-down list, select one of the following options:

- Do not display
- Always display
- Only display if errors occur.

The log is opened in Notepad if it is registered or in a registered browser.

In the "Behavior if there is already a log file" drop-down list you can specify whether the new log should overwrite the previous entries in the existing log file or whether it should be appended to the current entries. When the OS Project Editor is run often, the "Append" setting can result in very large files. For this reason, we recommend the "Overwrite" setting.

The log is created in the language used for the OS Project Editor. Some of the log entries come from the operating system and are displayed in language selected for the system.

Project Documentation for the Current Configuration

When you click "Print Project Documentation", you print the configuration data on the assigned printer. Printout begins immediately after you click the button.

When you click "Preview Project Documentation", you open a preview of the pages to be printed. Here, you check the Print Preview. It displays the pages as they will look when printed.

When you click "Printer Setup", you configure the print job. In the dialog box tab, you select the printer and the layout, specify the start parameters, and determine the print scope.

Current configuration

To use the same project editor configuration for several OS projects, you can export and import the data of the project editor.

If you wish to export the configuration of the project editor, the project editor must have run through the project beforehand. Click on the "Export..." button. The file selection dialog box opens. Enter the path and file name in the dialog box. The default path is that of the current WinCC project and the default file name extension is "*.exp".

Click "Import..." if you want to import configuration file from the Project Editor. Select this configuration file from the file selection dialog box. The information contained in the imported file is displayed in the project editor. To accept the imported configuration data in the project, click "OK" or "Apply".

See also

"OS Project Editor" (Page 30)

2.11 Structure of the configuration file

User-specific configuration file

Pre-configured layouts complete with their respective configuration files are available in the OS Project Editor. You do not have to change anything in the configuration files.

Experienced developers can create a configuration file of their own. For this purpose a sample file has been prepared and is held in the folder of configuration files, to which the developer should refer.

2.12 Overview of the Process Control Messages

Overview of process control system and operator messages

Message no.	Message class	Message text	Created for	Meaning
1000204	OS process control system message	Connection @6@s@ not established	WinCC	@6@s@ = Name of the connection
1000205	OS process control system message	Connection @6@s@ established	WinCC	@6@s@ = Name of the connection
1000900	OS process control system message	PERFMON:@7@s@ is low	System monitor	@7@s@ = Monitored value
1000902	OS process control system message	PERFMON:@7@s@ is high	System monitor	@7@s@ = Monitored value
1000904	OS process control system message	PERFMON:@7@s@ is low	System monitor	@7@s@ = Monitored value
1000906	OS process control system message	PERFMON:@7@s@ is high	System monitor	@7@s@ = Monitored value
1000908	Preventive maintenance	PERFMON:@7@s@ is low	System monitor	@7@s@ = Monitored value
1000910	Preventive maintenance	PERFMON:@7@s@ is high	System monitor	@7@s@ = Monitored value
1000912	PLC process control system messages	Loss of redundancy of terminal adapter @2@s@	System monitor	@2@s@ = MAC address
1000915	PLC process control system messages	Terminal adapter @2@s@ disconnected	System monitor	@2@s@ = MAC address
1003087	OS process control system message	NRMS7:@100@s@:Error while logging on to receive message	Format DLL	
1003101	Operator Input Message	@102@s@: Acknowledgment @9@s@, @8@s@ on @100@s@	WinCC	@102@s@= User @9@s@= Message class @8@s@= Message type @100@s@= Computer name
1003107	Operator Input Message	@102@s@: Hide Manually @9@s@, @8@s@ on @100@s@	WinCC	@102@s@= User @9@s@= Message class @8@s@= Message type @100@s@= Computer name
1003108	Operator Input Message	@102@s@: Show Manually @9@s@, @8@s@ on @100@s@	WinCC	@102@s@= User @9@s@= Message class @8@s@= Message type @100@s@= Computer name

Message no.	Message class	Message text	Created for	Meaning
1003109	OS process control system message	The connection to the master was interrupted	WinCC	
1009000	OS process control system message	LBMRT:Error	Lifebeat monitoring runtime	
1009999	OS process control system message	LBMRT: Tag @2@s@ does not exist	Lifebeat monitoring runtime	@2@s@ = Name of the tag of a monitored device
1011000	OS process control system message	Group display error at start up	Group display	
1011001	OS process control system message	The group display hierarchy is not up-to-date.	Group display	
1011002	OS process control system message	Group display: Connection fault in @2@s@	Group display	@2@s@ is the tag name
1011003	OS process control system message	Group display: Tag @2@s@ does not exist	Group display	@2@s@ is the tag name
1011018	Operator Input Message	@3@s@: Block is locked to @6@s@	Group display	@3@s@= User @6@s@= Computer name
1011019	Operator Input Message	@3@s@: Block is released from @6@s@	Group display	@3@s@= User @6@s@= Computer name
1011020	Operator Input Message	@2@s@: Acknowledge faults in picture @3@s@	Group display	@2@s@ = User name @3@s@ = Name of process picture
1011022	Operator Input Message	@3@s@: Acknowledgment @4@s@, @5@s@ on @6@s@	Group display	@3@s@= User @4@s@= Message class @5@s@= Message type @6@s@= Computer name
1011101	OS process control system message	PTM: Error during startup	Picture Tree	Internal error, please restart runtime. Restart WinCC if the problem persists
1011201	OS process control system message	SSM: Error during startup	Split Screen Manager	Internal error, please restart runtime. Restart WinCC if the problem persists
1011202	OS process control system message	The project drive is more than @2%d@% full.	Split Screen Manager	@2%d@% = Fill level in percentage
1011203	OS process control system message	The project was created with the wrong WinCC version	Split Screen Manager	
1011500	Operator Input Message	@2@s@@3@s@@4@s@	@PCS 7	Not used
1011501	Operator Input Message	Server "@2@s@" started	@PCS 7	@2@s@ = Name of the PCS 7 computer

2.12 Overview of the Process Control Messages

Message no.	Message class	Message text	Created for	Meaning
1011502	Operator Input Message	Server "@2%s@" stopped	@PCS 7	@2%s@ = Name of the PCS 7 computer
1011503	Operator Input Message	S2S: Server-Server link started	@PCS 7	
1011504	Operator Input Message	S2S: Server-Server link stopped	@PCS 7	
1011505	Operator Input Message	S2S: Server disturbed @2%s@@3%s@@4%s@	@PCS 7	Placeholder is not used
1011506	Operator Input Message	S2S: Server active @2%s@@3%s@@4%s@	@PCS 7	Placeholder is not used
1011507	Operator Input Message	S2S: Job disturbed @2%s@@3%s@@4%s@	@PCS 7	@2%s@ = Order reference @3%s@ = Connection status
1011508	Operator Input Message	S2S: Job active @2%s@@3%s@@4%s@	@PCS 7	@2%s@ = Order reference @3%s@ = Connection status
1011509	Operator Input Message	No license found	@PCS 7	
1011510	Operator Input Message	Login: Unknown user: "@2%s@"	@PCS 7	@2%s@ = User name
1011511	Operator Input Message	Login: incorrect password for "@2%s@"	@PCS 7	@2%s@ = User name
1012001	OS process control system message	@2%s@ switched to Master mode @3%s@	Time synchronization	@2%s@ = Device name, e.g. CP1613 @3%s@ = a) no time-master on bus b) worse time-master on bus
1012002	OS process control system message	@2%s@ cannot send time signal	Time synchronization	@2%s@ = Device name, e.g., CP1613
1012003	OS process control system message	Time reception service: Poor or failed signal	Time synchronization	
1012004	OS process control system message	@2%s@ cannot receive time signal	Time synchronization	@2%s@ = Device name, e.g., CP1613
1012005	OS process control system message	@2%s@ cannot receive time signal	Time synchronization	@2%s@ = Device name, e.g., CP1613
1012006	OS process control system message	@2%s@ no time, switching to backup device: @3%s@	Time synchronization	@2%s@ = Device name, e.g. CP1613 @3%s@ = Device name
1012007	OS process control system message	@2%s@ can send time signal properly	Time synchronization	@2%s@ = Device name, e.g., CP1613
1012008	OS process control system message	Time reception service functions properly	Time synchronization	
1012009	OS process control system message	@2%s@ can receive the time signal properly	Time synchronization	@2%s@ = Device name (Device 1)

2.12 Overview of the Process Control Messages

Message no.	Message class	Message text	Created for	Meaning
1012010	OS process control system message	@2@s@ can receive the time signal properly	Time synchronization	@2@s@ = Device name (Device 2)
1012011	OS process control system message	@2@s@ switched to Slave mode @3@s@	Time synchronization	@2@s@ = Device name, e.g. CP1613 @3@s@ = a) another time-master detected b) because <device-name> switched If two devices have been configured as master and one device switches to standby mode, the other will be forced into standby mode as well. c) lost WinCC mastership If the WinCC server is a redundant server, it is not permitted to operate as time master on the bus. It then switches its devices to standby mode.
1012012	Operator Input Message	Time synchronization deactivated	Time synchronization	
1012013	Operator Input Message	Time synchronization activated	Time synchronization	
1012014	OS process control system message	DCF77 client service has failed	Time synchronization	
1012015	OS process control system message	DCF-77 client service is working properly	Time synchronization	
1012016	OS process control system message	@2@s@ switched to Master mode @3@s@	Time synchronization	@2@s@ = Device name, e.g. CP1613 @3@s@ = a) no time-master on bus b) worse time-master on bus
1012017	OS process control system message	@2@s@ switched to Slave mode @3@s@	Time synchronization	@2@s@ = Device name, e.g. CP1613 @3@s@ = a) another time-master detected b) because <device-name> switched If two devices have been configured as master and one device switches to standby mode, the other will be forced into standby mode as well. c) lost WinCC mastership If the WinCC server is a redundant server, it is not permitted to operate as time master on the bus. It then switches its devices to standby mode.

2.12 Overview of the Process Control Messages

Message no.	Message class	Message text	Created for	Meaning
1012018	OS process control system message	@2%s@ cannot send time signal	Time synchronization	@2%s@ = Device name, e.g., CP1613
1012019	OS process control system message	@2%s@ can send time signal properly	Time synchronization	@2%s@ = Device name, e.g., CP1613
1012020	OS process control system message	@2%s@ presents the local time	Time synchronization	@2%s@ = Device name, e.g., CP1613
1012021	OS process control system message	LAN Sync: time not synchronized with PC '@2%s@'	Time synchronization	@2%s@ = Computer name
1012022	OS process control system message	LAN Sync: time synchronization set to PC '@2%s@'	Time synchronization	@2%s@ = Computer name
1012023	OS process control system message	LAN Sync: time synchronized with PC '@2%s@'	Time synchronization	@2%s@ = Computer name
1012024	OS process control system message	Configured device name for the time synchronization does not agree with PC installation	Time synchronization	
1012025	OS process control system message	LAN Sync: Cannot acquire time from the connected WinCC server	Time synchronization	
1012026	OS process control system message	Time jump - switched to permanent slave mode	Time synchronization	
1012027	OS process control system message	Time jump - Time synchronization permanently deactivated	Time synchronization	
1012028	OS process control system message	Time reception service not started	Time synchronization	
1012029	OS process control system message	Time reception service running	Time synchronization	
1012030	OS process control system message	Time synchronization is deactivated.	Time synchronization	
1012245	PLC process control system messages	RedundancyControl: Loss of serial connection	Redundancy	
1012247	PLC process control system messages	OS server (Master) @1%s@ OS server (standby) @2%s@ redundancy error	Redundancy	@1%s@ = Computer name @2%s@ = Computer name
1012249	PLC process control system messages	RedundancyControl: Connection of network card (MAC) address lost	Redundancy	

Message no.	Message class	Message text	Created for	Meaning
1012264	PLC process control system messages	communication breakdown (@8%s@)	Maintenance	@8%s@ = Name of device to which connection was lost
1012266	PLC process control system messages	current project deactivated (@8%s@)	Maintenance	@8%s@ = Name of enabled WinCC project
1012267	PLC process control system messages	AS - OS connection interrupted (@8%s@)	Maintenance	@8%s@ = Name of faulty AS/OS connection (display of AS/OS connection in Domestic Shell)
1012268	PLC process control system messages	Message synchronization for diagnostic messages is running.	Maintenance	
1012269	PLC process control system messages	There are more diagnostic messages of the type MAINTENANCE_ERROR.	Maintenance	
1012270	PLC process control system messages	There are more diagnostic messages of the type MAINTENANCE_DEMAND.	Maintenance	
1012271	Preventive maintenance	There are more diagnostic messages of the type MAINTENANCE_REQUEST.	Maintenance	
1012272	OS process control system message	Error while exporting identification data.@2%s@	Maintenance	@2%s@ = Reason. The following texts are possible (in English): - "Initialization error!" - "Failed to build the list of servers!" - "Failed to obtain project path" - "Failed to enumerate server information!" - "I/O Write error!" - "Unspecified error!"
1012273	PLC process control system messages	There are more maximum-priority diagnostic messages.	Maintenance	
1012275	PLC process control system messages	Maintenance alarm in PC stations area of Maintenance Station	Maintenance	
1012276	PLC process control system messages	Maintenance demanded in PC stations area of Maintenance Station	Maintenance	
1012277	PLC process control system messages	Maintenance alarm in network components area of Maintenance Station	Maintenance	
1012278	PLC process control system messages	Maintenance demanded in network components area of Maintenance Station	Maintenance	

2.12 Overview of the Process Control Messages

Message no.	Message class	Message text	Created for	Meaning
1012279	PLC process control system messages	Maintenance alarm in AS system area of Maintenance Station	Maintenance	
1012280	PLC process control system messages	Maintenance demanded in AS system area of Maintenance Station	Maintenance	
1012291	Operator Input Message	@2%#@ : Message system cleaned up	Maintenance	@2%#@ = User name
1012292	Operator Input Message	@2%#@ : Single export @3%#@ @4%#@ on @9%#@	Maintenance	@2%#@ = User name @9%#@ = Operator station
1012293	Operator Input Message	@2%#@ : Export of the entire identification data on @9%#@	Maintenance	@2%#@ = User name @9%#@ = Operator station
1012294	Operator Input Message	@2%#@ : Save filtered entire export @3%#@ in @4%#@ on @9%#@	Maintenance	@2%#@ = User name @3%#@ = File name @4%#@ = Path @9%#@ = Operator station
1012295	OS process control system message	Single export @3%#@ @4%#@, Error: @5%#@	Maintenance	@3%#@ = File name @4%#@ = Path @5%#@ = Reason. The following texts are possible (in English): - "save xslt file failed" - Style sheet could not be saved - "save xml file failed" - Export file could not be saved
1012296	OS process control system message	Export of the entire identification data, Error: @5%#@	Maintenance	@5%#@ = Reason. The following texts are possible (in English): - "save xslt file failed" - Style sheet could not be saved - "save xml file failed" - Export file could not be saved
1012297	OS process control system message	Save filtered entire export @3%#@ in @4%#@, Error: @5%#@	Maintenance	@3%#@ = File name @4%#@ = Path @5%#@ = Reason. The following texts are possible (in English): - "save xslt file failed" - Style sheet could not be saved - "save xml file failed" - Export file could not be saved
1012298	PLC process control system messages	OS @8%#@ is not activated	Maintenance	@8%#@ = OS name
1012299	PLC process control system messages	Redundancy loss channel @2%#@	Maintenance	@2%#@ = Channel A or B
1012301	OS process control system message	No Access to the SQL Server, Data Loss Possible.	Common archiving	

Message no.	Message class	Message text	Created for	Meaning
1012320	PLC process control system messages	OS - OS connection interrupted (@8%s@)	Maintenance	@8%s@ = OS name
1012321	PLC process control system messages	Redundancy loss of server pair @8%s@	Maintenance	@8%s@ = Computer name of faulty server
1012322	PLC process control system messages	Failure of server pair @8%s@	Maintenance	@8%s@ = Computer name of faulty server
1012323	PLC process control system messages	Inconsistent settings for the Maintenance Station detected	Maintenance	
1012324	PLC process control system messages	Status FAULT (@2%s@)	Maintenance	@2%s@ = affected application
1012325	PLC process control system messages	Status FAULT POSTPONED (@2%s@)	Maintenance	@2%s@ = affected application
1012349	PLC process control system messages	RedundancyControl: Connection of network card with MAC address lost @2%s@	Redundancy	@2%s@ = MAC address
1012351	OS process control system message	RedundancyControl: System blockage detected. Switch to Fault status.	Redundancy	
1012352	OS process control system message	RedundancyControl: System blockage detected. Restart the computer as soon as possible.	Redundancy	
1012363	OS process control system message	RedundancyControl: ERROR state reset until the partner has reached a stable state	Redundancy	
1012502	OS process control system message	PHRDY:Communication with Process Historian is not available	Process Historian	
1012503	OS process control system message	PHRDY:Communication with Process Historian disrupted	Process Historian	
1012700	PLC process control system messages	Self-diagnostics: Value @7%s@ of station @10%s@ is invalid.	Self-diagnostics	
1012701	PLC process control system messages	Self-diagnostics: Value @7%s@ of station @10%s@ violated the HIGH error limit.	Self-diagnostics	
1012702	PLC process control system messages	Self-diagnostics: Value @7%s@ of station @10%s@ violated the LOW error limit.	Self-diagnostics	
1012703	PLC process control system messages	Self-diagnostics: Value @7%s@ of station @10%s@ violated the HIGH warning limit.	Self-diagnostics	

2.12 Overview of the Process Control Messages

Message no.	Message class	Message text	Created for	Meaning
1012704	PLC process control system messages	Self-diagnostics: Value @7@s@ of station @10@s@ violated the LOW warning limit.	Self-diagnostics	
1012707	OS process control system message	Self-diagnostics: Station @10@s@ causes @2@s@.	Self-diagnostics	
1012708	OS process control system message	Self-diagnostics: @100@s@: Value @7@s@ of station @10@s@ is invalid.	Self-diagnostics	
1012730	OS process control system message	Cannot write the tag @3@s@	Libraries	
1013001	Operator Input Message	@7@s@ / @6@s@ new = @3@g@ @8@s@ old = @2@g@ @8@s@	Libraries	@7@s@ = Operator @6@s@ = Operating text @3@g@ = New value @8@s@ = Unit @2@g@ = Old value
1013002	Operator Input Message	@2@s@@3@s@@4@s@	SFC	
1013003	Operator Input Message	@7@s@ @6@s@ new = @5@g@ @8@s@ old = @4@g@ @8@s@	PCS 7	@7@s@ = Operator @6@s@ = Operating text @5@g@ = New value @8@s@ = Unit @4@g@ = Old value
1013004	Operator Input Message	@7@s@ @6@s@ new = @5@g@ @8@s@ old = @4@g@ @8@s@ on @9@s@	PCS 7, SIMATIC BATCH, libraries	@7@s@ = Operator @6@s@ = Operator text @5@g@ = New value @8@s@ = Unit @4@g@ = Old value @9@s@ = Operator station
1013005	Operator Input Message	@7@s@ @6@s@ new=@5@s@ old=@4@s@	SIMATIC BATCH	@7@s@ = Operator @6@s@ = Operating text @5@s@ = New value @4@s@ = Old value
1013007	Operator Input Message	@7@s@ @2@s@@3@s@@4@s@	SFC	
1013008	Operator Input Message	@7@s@ @4@s@@5@s@@6@s@	SFC, SIMATIC BATCH	@7@s@ = Operator @4@s@ = Free operating text @5@s@ = Continuation of free operating text @6@s@ = Continuation of free operating text
1013009	Operator Input Message	@7@s@ @6@s@ new = @5@s@ @8@s@ old = @4@s@ @8@s@	SIMATIC BATCH	@7@s@ = Operator @6@s@ = Parameter name @5@s@ = New value @8@s@ = Unit @4@s@ = Old value

Message no.	Message class	Message text	Created for	Meaning
1013010	Operator Input Message	@7%#@ @4%#@@5%#@@6%#@ on @9%#@	SIMATIC BATCH	@7%#@ = Operator @4%#@ = Operator text @5%#@ = Function name @6%#@ = Reserved @9%#@ = Operator station
1013011	Operator Input Message	@7%#@ @6%#@ @8%#@ = @4%#@ on @9%#@	PCS 7	@7%#@ = Operator @6%#@ = Operator text @8%#@ = Labeling of the "Request number" @4%#@ = Request number entered by operator @9%#@ = Operator station

2.13 Split Screen Manager

2.13.1 Picture management in the activated project

Picture management

In an activated project, the Split Screen Manager manages the screen data, the screen compositions, and the picture changes according to the picture hierarchy. You can address and retrieve the individual screen areas using the API functions of the Split Screen Manager. You can also switch the language to the languages supplied in the Text Library.

The Split Screen Manager runs in the background of the active project. It cannot be accessed via the user interface.

The important features of the Split Screen Manager are the following:

- Manages the screen data
- Saves the screen composition
- Manages the plant membership of all displayed pictures
- Supports picture changes in accordance with the picture hierarchy created in the "Picture Tree" editor.
- Manages a picture stack (Picture Memory)
- Manages a picture storage (Picture Store)

The functions of the Split Screen Manager are only available in an activated WinCC project. The basic picture of the activated project is displayed in Runtime. The upper part of the basic picture contains the overview window with the configured buttons. You call the WinCC pictures of the current project using the buttons.

The Split Screen Manager manages the screen areas of all connected monitors using a basic picture. You configure the structure of the basic picture with the aid of the OS Project Editor.

Note

The Split Screen Manager is a WinCC option and is only available to you if you have installed the "Basic Process Control" option package.

2.13.2 Managing the Pictures

Managing the picture memory



In the Split Screen Manager, each working area has a dedicated picture memory in the basic picture. The picture memory is used as a simple way to store a picture in the working area.

Such a picture can then be retrieved at any time, even more than once.

Storing a new picture will overwrite the previous picture in the picture storage.

A separate picture memory is kept for each working area in the basic picture.

Use the following keys:

	Saves the picture in the picture memory
	Calls the picture in the picture memory.



The contents of the picture memory can be retrieved, changed or deleted using the API functions of the Split Screen Manager.

Managing the picture stack

The Split Screen Manager logs each picture change in the working area and enables you to recall the pictures previously displayed.

In each working area in the basic picture there is a dedicated picture stack which stores the last eight picture names selected in each working area.

Use the following keys:

	Selects the previous picture in the picture memory.
	Selects the following picture in the picture memory

You retrieve the contents of the picture stack using the API functions of the Split Screen Manager.

Behavior in case of user change

The authorizations for the pictures in the picture memory and picture stack are user-specific. Consequently, the picture memory and picture stack of all displays are deleted in their entirety every time the WinCC user changes.

However, you can accept the currently displayed status for the new user. To do this, click on the "Switch user" button before logging on the new user.

Support for picture changes in accordance with the picture hierarchy

Prerequisite for this function is an existing system picture hierarchy that has been created with the "Picture Tree" editor.

A picture can also be changed using the API functions of the Split Screen Manager.

The Split Screen Manager will then perform the picture changes in Runtime according to the configured picture hierarchy.

Managing the system association of pictures

Every picture change is performed via the runtime component of the Split Screen Manager.

As a result, the Split Screen Manager can provide information at all times about the association of the currently displayed pictures to the system (system hierarchy).

This information is the prerequisite for system-specific user authorization checking.

System-specific user authorization checking can be activated and queried with the standard functions of Global Script and the appropriate API functions of the Split Screen Manager.

Managing the screen data

The Split Screen Manager supports up to four screens with the following areas:

- Working area
- Button area
- Overview area
- Process window (top window)
- Unrestricted number of pre-configured fields with permanently assigned pictures (special fields).

You can address and retrieve the individual screen areas using the API functions of the Split Screen Manager.

2.13.3 Notes on Multi VGA

Introduction

You need one of the following graphics cards for the multi-VGA WinCC option:

- Matrox M9120 Plus LP PCIe X16 Dual (item no. 6ES7 652-0XX04-1XE0).
- Matrox M9140 LP PCIe X16 Quad (item no. 6ES7 652-0XX04-1XE1).

You can also use other graphics cards. However, Siemens only provides support for the graphics card mentioned above.

Installing the M9120/ M9140 card

The Matrox M9120/ M9140 module is designed for operation on the PCI Express X16 slot. Following the installation of the card, the corresponding system parameters will be set automatically.

The graphics cards offer the following options:

- Digital control of monitors with a resolution of 1600x1200 pixels via DVI
- Use monitors in widescreen formats 1680x1050, 1920x1080 and 1920x1200 for multi-VGA operation.

Multi-VGA is not supported for the largest format 2500x1600 pixels.

Arranging the monitors

If you wish to configure more than one monitor for the destination device in runtime in the OS Project Editor, you need to arrange the monitors in ascending numerical order in the display properties of the Control Panel of the operating system:

- Two monitors arranged horizontally



- Two monitors arranged vertically



- Four monitors arranged horizontally



- Four monitors arranged in a cube



Note

The main monitor must always be the top left monitor.

Invisible parts of application windows

Due to the properties of the operating system, application windows must be a certain size in order for all parts of the window to be visible. This, for example, affects windows that are divided or that contain additional output fields in the status bar. Depending on the configured display resolution and the number of screens (size of the desktop), a window might have to exceed the width of a monitor in order for all window parts to be displayed.

The runtime interface is not affected by this.

Using other graphics cards

Other graphics cards may deviate from the performance characteristics of the Matrox cards. This relates, for example, to the display of notes and objects such as dialog boxes and application windows. Take into consideration the special characteristics of the cards of the various manufacturers.

The following peculiarities are known:

- An object/window to be opened always appears on Monitor 1, the priority monitor.
- An object/window to be opened is displayed over several monitors.
- An object/window to be opened appears on the monitor on which the operation was performed using the mouse.
- An object/window to be opened always appears in its most recent position.

The Runtime user interface is affected by these peculiarities as well.

Depending on the operating system and driver (driver parameter assignment), a given module can react differently. You can download the latest driver version from the manufacturer from the Internet.

Note

Online help for multi-VGA

The WinCC online help does not support multi-VGA operation.

Optimizing performance

To optimize the image painting time with several monitors, set the "WinCC Classic" design in the WinCC project properties.

2.13.4 How to Set the parameters for the M9120/9140

Introduction

To use the multi-VGA option, configure the M9120/M9140 Matrox graphics card using the Control Panel.

The following operating systems are supported:

- Windows 7
- Windows 8.1
- Windows Server 2008 R2
- Windows Server 2012 R2

The two modules "Dual" and "Quad" were tested:

- 32-bit (Windows 7, Windows 8.1):
"5.01.01.001 WDDM" driver with "wddm32_5_01_01_001_u_whql.exe"
- 64-bit (Windows 7, Windows 8.1, Windows Server 2008 R2, Windows Server 2012 R2):
"5.01.01.001 WDDM" driver with "wddm64_5_01_01_001_u_whql.exe"

The driver is available on the Web site of the manufacturer (Matrox).

Procedure

1. Download the driver for the Matrox M9120/9140 graphics card from the Matrox homepage.
2. Shut down the computer.
3. Install the graphics card and start the computer.
4. Install the graphics card driver.

5. After installation of the driver, set the required parameters for the screen settings in the Windows dialog, e.g. 4 monitors in horizontal arrangement with 1920x1200 pixels at 60 Hz.
6. Use display "1" as the primary monitor and use a numerical ascending order when arranging the monitors.

Note

Your required pixel setting can usually be found in the Windows dialog for screen settings. Then you will not have to make additional settings for multi-VGA.

In this case, do not start the Matrox Tool "Matrox PowerDesk – SE" that was automatically installed during the driver installation. Do not change any of the settings in the following dialogs:

- Multi-Display Setup...
 - Desktop Management ...
 - Desktop Divider...
 - Hotkeys...
-

2.13.5 How to configure the "Loop in Alarm" function

Introduction

The "Loop in Alarm" function is only available at a PCS 7 OS.

The "Loop In Alarm" function is used to visualize a measuring point which triggered an alarm in a loop display on the faceplate, or as process picture that has been linked in the Component List Editor.

Procedure

1. Open the "Alarm Logging" editor.
2. Select a message from the table window.
3. Select the the "Loop in Alarm" property in the "Properties" area or in the table area. By default, "Open Picture" is entered in the "Function name" property.
4. Click in the "Function name" text box and select "LoopInAlarm" function in the function browser under "Standard Functions / Split Screen Manager".
5. Click in the "Function parameter" text box and select a process tag from the tag dialog, for example, "FIC_752_003".

Note

The standard function "Open Picture" may not be used in the PCS 7 environment. A picture opened with this function overlays the standard runtime environment. Now, operator input is no longer possible.

Horn

3.1 Horn

Content

With the "Horn" editor, you configure the output of message-related events on signal modules and PC sound cards.

This documentation includes the following topics:

- Linking signal tags to messages
- Declaring signal tags
- Defining message priorities and authorizations in signal tags
- Assigning signal encoders to a signal tag
- Installing and testing signal modules

3.2 General Information About the Audio Alarm

Functionality

With the horn, you control optical or acoustic sensors. Sound files are output when messages arrive.

With the "Horn" editor, you can configure the signal that is to be triggered upon receipt of certain messages.

Signal tag

An incoming message activates a signal tag which then triggers an acoustic or optical signal in the assigned signaling device. The signal tag must be a binary tag.

Signal tags can also be activated as follows:

- With scripts
- With user actions
- With the "Central Signaling Devices" function in Alarm Logging.

If you confirm the message, the signal tag is reset and the signal is terminated.

Configuration overview

Open the "Horn" in WinCC Explorer.

The editor is integrated in the WinCC Configuration Studio with the two options "Message assignment" and "Signal assignment". You configure activation of the signal outputs by signal tags and the acknowledgment response in a client-server architecture in the two tabs.

Message assignment

You can use "Message assignment" to configure specific properties of messages for signal tags.

The following message properties act as filters to trigger a signal:

- Message class
- Priority
- User text block 1 to User text block 10

The user text blocks are displayed with the name configured in alarm logging. By default, the user text blocks 1 to 3 are supported in the horn. You can optionally use the other user text blocks.

In the "Authorization" column, you stipulate additionally whether the horn is to be triggered on a user-specific basis by messages from certain areas if the specified filter criteria are fulfilled.

Every line forms a logical "AND" with six inputs. The signal tag is only set to "1" if all six conditions have been fulfilled.

Signal assignment

You configure the signals for the incoming messages using the "Signal assignment". You assign available, physical signaling devices to the signal tags and define the acknowledgment response.

Application examples show you the configuration of the acknowledgment response in a client-server system.

Using a horn without activating a signal transmitter

You can use a horn in order to set a signal tag without activating a signal transmitter when a message arrives. After the message has been acknowledged the signal tag is reset.

In the "Message assignment" tab configure the message properties and the signal tag. Select the signal tag in the "Signal assignment" tab. Do not assign a signal module or sound file to the tag.

Runtime characteristics of the horn

If configuration is performed during runtime, please note that the horn is reinitialized.

The signal transducer is acknowledged but queued messages are triggered again. The message logging system has no influence over this response. Acknowledge the signal transducer once again.

Enabling runtime

On activating runtime, the horn is only activated after the Alarm Logging system has started up.

The standard delay is 30 seconds and can be modified in the "SSM.cfg" file of the project in the section "[RTControl]" using the "HornDelay" parameter. The value should not be less than 30 seconds. In the case of large projects, 60 seconds may perhaps be sensible.

The signal transducer behaves in different ways, depending on the delay:

- In normal operation, the signal transducer is only triggered by messages for a certain user, messages which occur chronologically after the user has logged on.
- Messages which occurred before logging on but have not yet departed are included in the new list but no longer trigger the signal transducer.
- If messages occur between booting runtime and the user logging on, the signal transducer is triggered from the past for these messages (after HornDelay has expired).

Note

The signal transducer is also triggered in runtime when the user is logged off.

Horn in case of user change

When a message is pending, a user can acknowledge the triggered horn.

However, as long as the pending message is not acknowledged, the horn is triggered again in case of a user change. This informs the new user about the pending message.

See also

Linking Signal Tags to Messages (Page 96)

Minimum Horn Configuration (Page 110)

General Information about the sound card (Page 112)

Application Examples for Acknowledgement Behavior (Page 113)

3.3 Limits on Voice Output in the Horn

Use on voice outputs

If you want to use voice outputs in the horn, note the following items when configuring:

- Keep the voice output as brief as possible.
- If possible, create small WAV files by generating the WAV files
 - in mono rather than stereo,
 - with medium, or wherever possible with a low quality (low sampling rate).
- Add up the size of all WAV files configured in the horn for each operating station and increase the RAM accordingly.
- To achieve clearly audible voice output, you must set the option "Limit number of simultaneously playing sounds" to "1" for the signal settings of the horn. The more complex the spoken text is, the worse the simultaneously occurring outputs sound. The limitation to one simultaneously playing sound means that if several messages are active only the WAV file of the highest priority is output until the horn is acknowledged. The priority is obtained from the position in the table in the "Signal Assignment" tab. Once the highest priority WAV file is acknowledged, the WAV file with the second highest priority is output, and so on. This can significantly delay the voice output.

Due to human nature, narrow limits are placed on voice output in a message system.

3.4 Linking Signal Tags to Messages

3.4.1 Linking Signal Tags to Messages

Introduction

In the "Message Assignment" tab in the horn, you create signal tags that you link with properties of messages. You also define the access rights for triggering signals for individual signal tags.

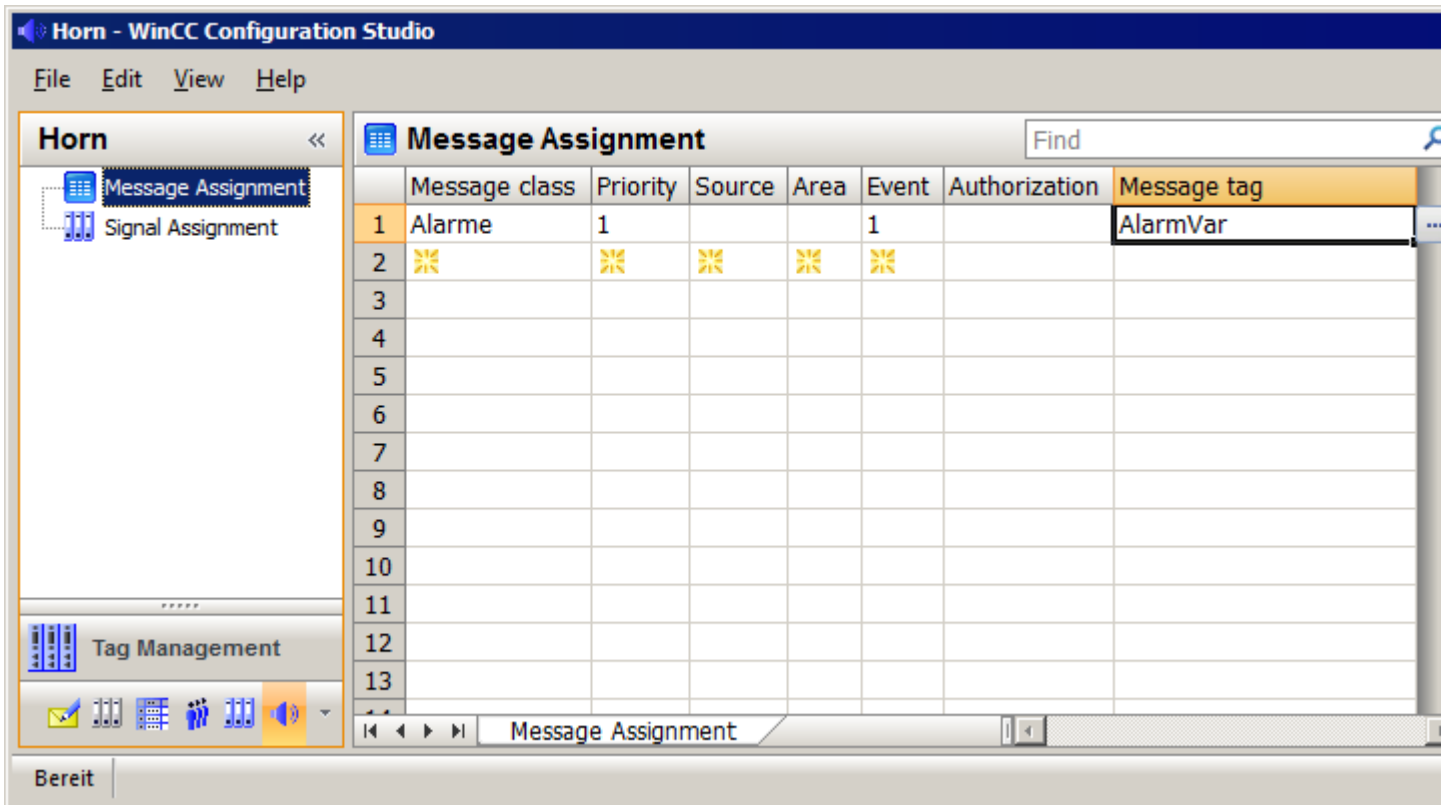
When a message comes in the signal tag of the assigned message class is set to "1".

If a message satisfies the conditions of a number of signal tags, only the first assigned signal tag is taken into consideration. This is because a message can only set one signal tag.

If you do not specify a message class, each incoming message activates the signal tag.

Procedure

1. Select the "Message Assignment" tab.



2. Click on the first free cell in the "Message class" column.
From the drop-down list, select the message class for which you want to configure a signal output. All the message classes which exist in a project are available.
You can also directly enter the message class ID. Enter the "# ID" and press "Enter". For example, "# 1" corresponds to the message class "Alarm". In WinCC Configuration Studio/ Alarm Logging, you see the assignment of IDs in the "Properties - Messages Classes" of individual messages.
3. In the "Priority" column, enter a number for the message priority.
The number specifies the relative importance of an incoming message that causes a signal tag to be activated.
4. Use the "Tag" column of the message class to assign a binary signal tag.
Click on the cell and open the tag selection dialog using "...".
Select the signal tag or enter the name of an existing tag.
You can assign several message classes or message properties to the signal tag.
5. Select the authorization from the drop-down list in the "Authorization" column.
It determines the access rights for triggering the signals.
If you do not want to specify authorizations, do not select an entry. This entry corresponds to the authorization called "Authorization for Area", which you need in order to view messages.

3.4 Linking Signal Tags to Messages

6. Specify additional filters for determining the triggering of a signal in the columns of the user text blocks.
To learn how to use the filters for the user text blocks, see page Setting Additional Filter Criteria for Messages (Page 99).
7. Click on "Message Assignment" in the navigation area to go to the message settings.
In the "Set tag" field, use the drop-down list to define the message status which will cause the signal tag to be set:
 - If the signaling device is triggered after every occurrence of an incoming message, select "For every incoming message".
 - If the signaling device is only triggered on the first occurrence of an incoming message, select "Not for incoming message without acknowledgment".
If the same message occurs again, only one signal is triggered if the previous message has already been acknowledged as "Came In" or "Went Out".
8. If needed, change the order of the message assignment by selecting the command "Move up" or "Move down" in the table via the shortcut menu of the selected line.

See also

Assigning a Message Priority to a Signal Tag (Page 98)

Setting Additional Filter Criteria for Messages (Page 99)

Specifying a Triggering Authorization for the Signal Tags (Page 102)

How to assign a signal transducer to a signal tag (Page 104)

3.4.2 Assigning a Message Priority to a Signal Tag

Introduction

In addition to and independent of the message class, the message priority allows you to determine which messages are first to trigger a signal.

You specify the priorities for single messages in Alarm Logging.

In the "Message Assignment" tab of the horn, you enter the number of the message priority in the "Priority" column. You can use the following entries:

Entry in "Priority"	Example	Meaning
No entry		Messages set the signal tag irrespective of the priority
Number	5	Exactly one priority
Number, Number, Number	5, 7, 9	Defined priorities
Number1 - Number2	5 - 9	Priorities between Number1 and Number2 inclusive
< number or > number	< 5 or > 5	Priorities less than or greater than the number
<= number or >= number	<= 5 or >= 5	Priorities less than or equal to or greater than or equal to the number
0	0	the signal tag is set at Priority "0"

A combination of entries, e.g. "1-5, 10, <50", is not possible.

Do not assign to a signal tag a combination of message priority and message class that is already being used in another signal tag. In this case, an incoming message could not set this signal tag, as the first assignment already fulfills the conditions for the triggering of the signal. The following example shows how the system behaves:

Example 1

Message class	Priority	Source	Area	Event	Authorization	Tag
Alarm					<Default>	AlarmTag
Alarm	10				<Default>	AlarmHighTag

Example 2

Message class	Priority	Source	Area	Event	Authorization	Tag
	>5				<Default>	AlarmTag
Alarm	10				<Default>	AlarmHighTag

Incoming messages of message class "Alarm" with priority "10" never activate the signal tag "AlarmHighTag". In both cases the first condition sets the "AlarmTag" signal tag and triggers the associated signal.

See also

Linking Signal Tags to Messages (Page 96)

3.4.3 Setting Additional Filter Criteria for Messages

Introduction

In addition to the message class and the message priority, you can determine user text blocks as filters for the triggering of the signal.

By default, the first three user text blocks of a message are available with the following default setting:

To show additional user text blocks, select the entry "Show" in the shortcut menu of a table heading and then the desired user text block.

WinCC project

User text block	Designation	Language-dependent	Text editing
User text block 1	Message text	No	Yes
User text block 2	Fault location	Yes	No
User text block 3	Block: 3	No	Yes

PCS 7 project

User text block	Designation	Language-dependent	Text editing
User text block 1	Source	No	Yes
User text block 2	Area	Yes	No
User text block 3	Event	No	Yes

Configuring language dependency

If the user text blocks are language-dependent, the texts are stored in the text library.

The language-specific text is then used as filter criterion in runtime.

You configure the language dependency for all message assignments in the "Properties - Settings" window.

In the "Setting for language dependency" area, select the message blocks that are to be translatable.

Show translations from the Text Library

As user text block, you can transfer the text of an existing user text block from the Text Library:

1. Click the message assignment in the table area.
2. In the "Properties - Message Configuration" window, select the area "Translation" of the user text block.
A row is displayed for each language that is created in the Text Library.
3. Enter the text in the table cell in the "User text block" column.
If the text library contains the text with the same spelling, the text ID and the translations are displayed in the properties window.
Alternatively, you enter the text ID of the Text Library in the first row. The existing languages of the Text Library are displayed when you exit the field.

Create new texts

If you want to use a text in the user text block that has not yet been created in the Text Library, you can create new texts:

1. For the user text block, enable the property "Allow creation of new texts" in the "Properties - Settings" window.
2. Click the message assignment in the table area.
3. Enter the text in the table cell in the "User text block" column.
A new text ID is stored for the text in the Text Library.
Alternatively, enter the desired text in the "Translation" area in the "Properties - Message Configuration" window.
You can create the translations via the Text Library or directly in the horn.

Language dependency in the PCS 7 project.

A PCS 7 project has the following default setting:

The text in the "Source" and "Event" columns is valid for all languages in WinCC-Runtime.

If the Runtime language is being changed, source and event of the messages may receive new values. The specified filter texts are then no longer effective.

Compared with this, the area names of the messages are adapted to the Runtime language so that the filter evaluation works correctly.

Texts as filter criteria

You need to consider the following for texts in the user text blocks:

- For the message properties for which the "Allow creation of a new text" option is not selected, only inputs from existing texts in the text library are accepted.
The option is useful to avoid input errors for certain message properties.
For example, with PCS 7 projects the information in the "Area" column must exactly match the area names configured in the "Picture Tree" editor. A random text in this column would be pointless in most cases.
- For the filter evaluation, the text must match exactly.
- No distinction is made between upper and lower case.
- If the line is empty, every text ("") is taken into account.
- You can use the following wildcards:
 - "?": Finds any one character
 - "*": None, one or multiple characters
- The "!" character at the beginning of a filter criterion negates the criterion in a user text block.
For example, "!*warning*" means a signal is only triggered when the user text block does not contain the text "warning".

Procedure

1. WinCC project: Enter the text that is to be used as a filter for the message text in the respective rows of the "Message text" column.
PCS 7 project: In the "Origin" column, use the tag selection dialog to select the instance of a structure tag or enter text in the rows.
2. WinCC project: Enter the location from where the message originated in the respective rows of the "Fault location" column.
PCS 7 project: In the "Area" column, use the drop-down list to select the area of the message as a filter criterion.
You can only select areas that were created in the "Picture Tree" editor and that are available locally or from the imported packages.
3. WinCC project: In the "Block: 3" column, enter a text in the rows that is to be used as an additional filter in each case.
PCS 7 project: In the "Event" column, enter text in the lines which determine the event description of the message as a filter.

4. If you want to use other user text blocks for filtering, you must display the respective columns.
Right-click on a column header to open the shortcut menu. Select the columns of the user text blocks from the "Unhide" menu. Then you can enter the text.
5. If you want to change the language dependency of a user text block, click on "Message assignment" in the navigation area.
In the settings for language dependency, you can then activate language dependency for each user text block.
If no translations have yet been created for the user text block in Alarm Logging, a new text entry is created in the Text Library. You then need to translate this text entry into the languages used.

See also

Linking Signal Tags to Messages (Page 96)

3.4.4 Specifying a Triggering Authorization for the Signal Tags

Introduction

In the "Authorization" column in the "Message Assignment", you specify whether the signal tag is to be triggered user-specific by selecting an authorization level. The authorizations of a logged in user are applied on the basis of the User Administrator configuration.

In addition to the configured trigger permission, the audible indicator also checks in runtime if the user has the "Authorization for area" access right. Only when the user receives the actual messages on which they are based does it make sense to trigger signals for the user.

For example, you have "Watch" permission for the "WarnVar" signal tags. If a message meets the specified filter criteria and comes from an area for which the user has "Watch" permission, the signal tag "WarnVar" is set and the corresponding signal is triggered.

Procedure

1. Go to the "Authorization" column in the "Message Assignment" tab .
2. Select the authorization from the drop-down list. You can use any of the authorizations defined in the User Administrator. If you do not want to specify authorizations, do not select an entry. This entry corresponds to the authorization called "Authorization for Area", which you need in order to view messages.
3. The settings are saved when you exit the WinCC Configuration Studio.

Deactivating the default authorization check "Authorization for area"

Deactivate the authorization check for "Authorization for area" if you do not want to filter the messages in runtime based on the area in the project. For this you can use the message filter setting "No filter" in the OS Project Editor.

When the default authorization check is deactivated, only the configured trigger authorization in addition to the filter criteria are assessed before allowing signals to be triggered in runtime.

1. Click on "Message Assignment" in the navigation area to go to the message settings.
2. Deactivate the "Authorization for area" check box in the "Authorization check" field if this option is selected.

Note

If you change the authorizations in the WinCC Configuration Studio/User Administrator after configuring the horn, you must adapt the affected assignments for the horn signal manually. The same applies if you alter any of the message classes.

Note

The signal transducer is also triggered in runtime when the user is logged off.

See also

Linking Signal Tags to Messages (Page 96)

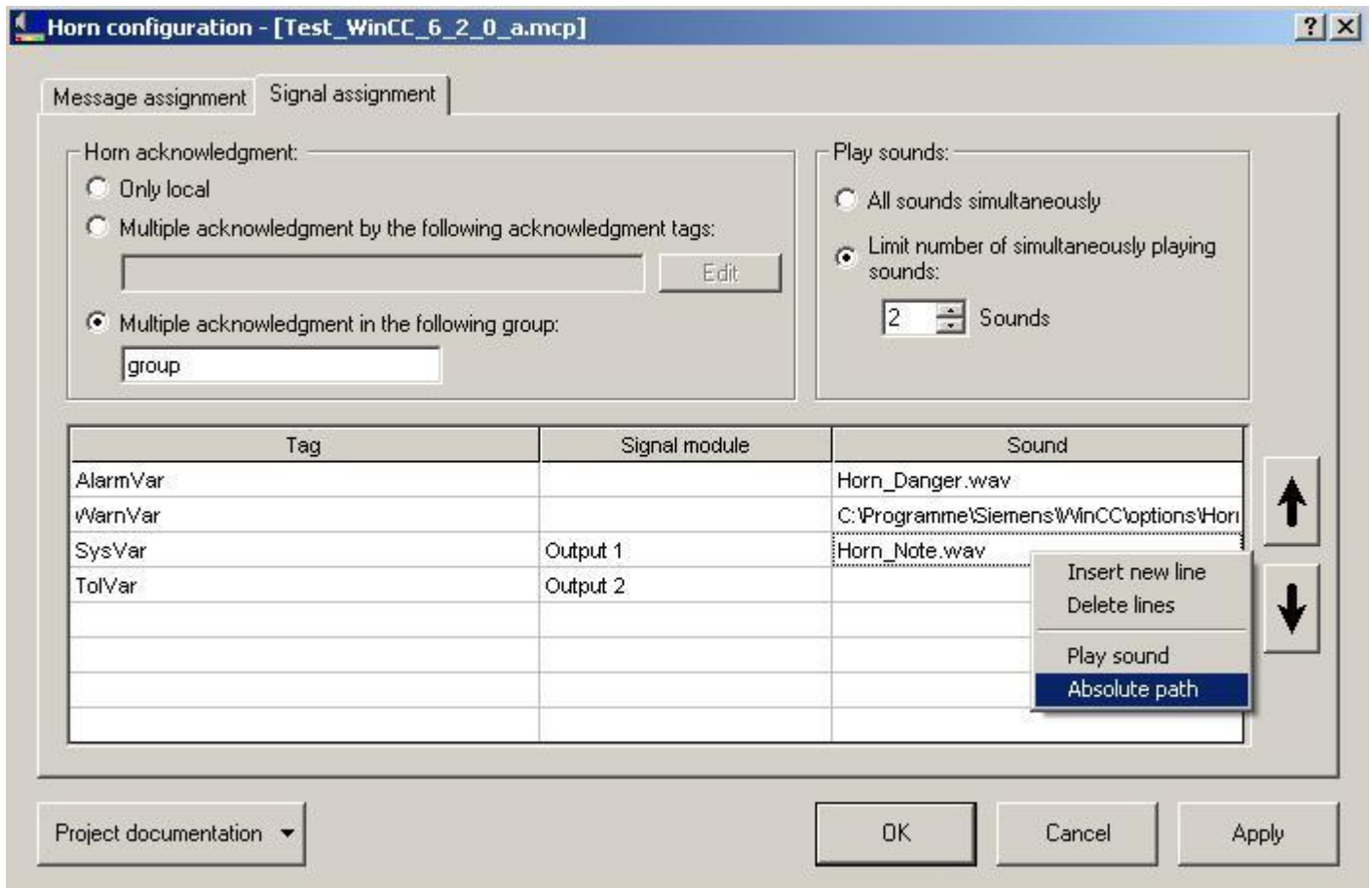
3.5 How to assign a signal transducer to a signal tag

Introduction

In the "Signal Assignment" tab, you assign signal outputs to the tags. This can be outputs of a signal module or sound files. Several signal tags can be assigned to the same outputs of a signal module or the same sound files. You can combine an output of the signal module with a sound file.

Procedure

1. Go to the "Signal Assignment" tab in the horn.



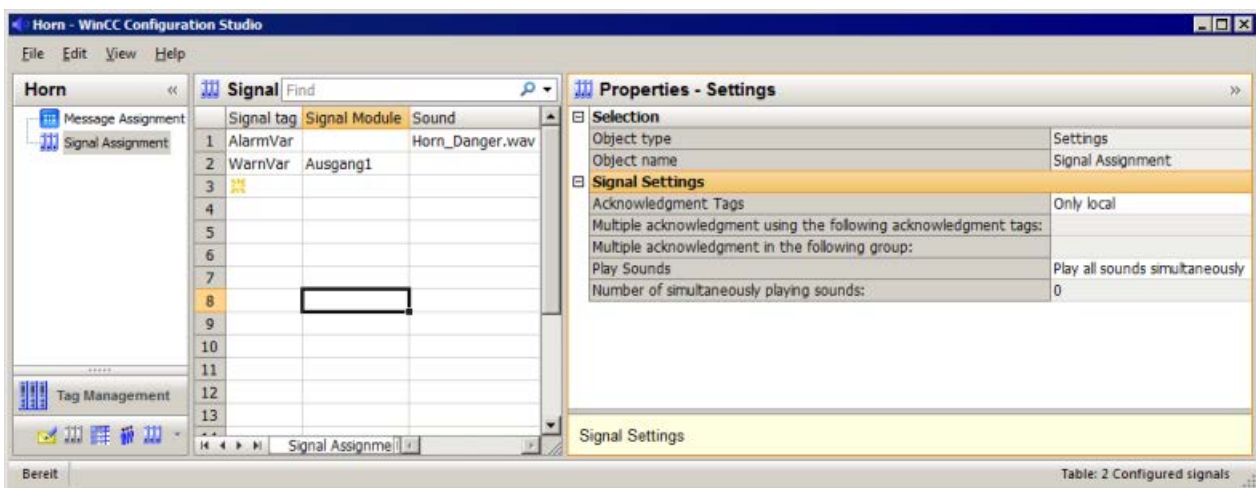
2. Select the tag from the "Signal tag" column. Open the tag selection dialog using "..." and select the signal tag. You can also directly enter the name of an existing tag.
3. If you want to assign the output of a signal module to the tag, select an output in the "Signal module" column from the drop-down list. The signal devices "Output 1", "Output 2" and "Output 3" of an installed signal module are available.
4. If you want to assign a sound file to the tag, open the file selection dialog using "..." in the "Sound" column. Select the desired sound file in WAV format. Note that client computers use the same configuration as server computers. This is why the paths for the sound files must also be accessible from server computers as well as from client computers.

5. If you do not want to assign a signal module and a sound file to the tags, you do not require any entries in the "Signal module" and "Sound" columns.
6. The settings are saved when you exit the WinCC Configuration Studio.

Playing sounds

If several messages are queued, the sounds are not played for each individual signal tag; they are played simultaneously for all set signal tags. You can limit the number of sounds to be played at the same time. For example, in order for a voice output to be clearly audible, it makes sense to play only one sound.

If several messages are queued and the output of sounds is limited, the order of the entries in the "Sound" column determines which sound is played.



See also

- How to Configure the Acknowledgment Behavior of the Audio Alarm (Page 106)
- Linking Signal Tags to Messages (Page 96)
- Application Examples for Acknowledgement Behavior (Page 113)
- General Information about the sound card (Page 112)

3.6 How to Configure the Acknowledgment Behavior of the Audio Alarm

Introduction

In the "Signal Assignment" tab, you configure the acknowledgment behavior of the horn in the signal settings.

The horn can either be acknowledged separately for one computer or in a coordinated manner for multiple computers.

When you click the "Acknowledge signaling device" button in the web client in runtime, a dialog opens where you can specify the acknowledgement behavior that the horn adopts.

Local acknowledgment of the horn

The horn is acknowledged using a "@HornReset" tag on a separate, independently acting OS. This tag is acknowledged locally or directly.

When a user acknowledges the horn, the acknowledgment tag, and thus all signal tags, are reset.

This deactivates the signaling devices.

Multiple acknowledgment of the horn by a group

In a coordinated client-server system, you specify multiple acknowledgment by means of a group of computers.

If a user acknowledges the horn on one computer of the group, a multicast communication causes the horn to be acknowledged on all computers of this group and all signal transmitters to be deactivated.

Multiple acknowledgment by a group is possible for all WinCC project types.

Any combination of letters and numbers can be used for the group name.

If a computer forming part of the client-server system is unable to communicate beyond the router limits using Multicast, you will need to bypass the router by configuring a "Multicast proxy" in the "Simatic Shell" dialog box.

Multiple acknowledgment of the horn by an acknowledgment tag

Multiple acknowledgment by a group is the preferred configuration. Multiple acknowledgment by acknowledgment tags is retained for compatibility reasons.

If you have connected an acknowledgment button for the horn with a binary tag in the AS, you must configure the multiple acknowledgment using one or several acknowledgment tags.

The acknowledgment tags must already be configured on the server of the WinCC client or on other servers.

You must interconnect the acknowledgment button so that the corresponding tag in WinCC is set to "0" when acknowledgment occurs .

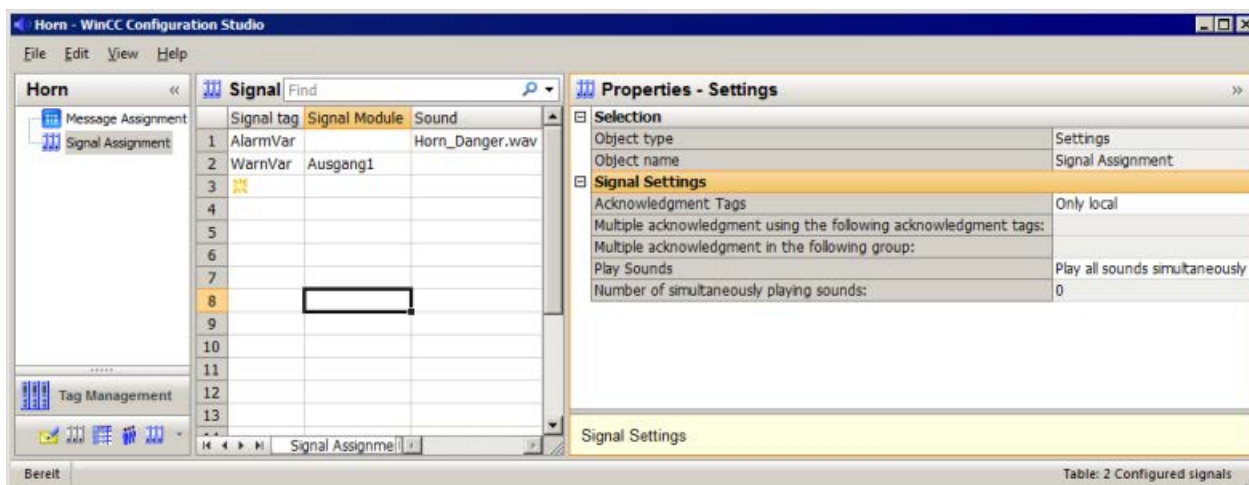
The additional acknowledgment tags are synchronized with the local @HornReset tag.

3.6 How to Configure the Acknowledgment Behavior of the Audio Alarm

When a signal has been activated, as soon as an acknowledgment tag is acknowledged and thus deactivated, the local @HornReset tag is acknowledged, thereby deactivating all signaling devices.

Procedure

1. Click the "Signal Assignment" option in the navigation area of the horn.
Make the following settings in the right data area under "Signal settings".



2. If you just want to acknowledge the acoustic alarm on a separate computer, select the "Only local" check box for "Type of acknowledgment" in the drop-down list.
3. If you want to configure multiple acknowledgment by means of a group, select the "Multiple acknowledgment in the group" option from the drop-down list.
 - Enter any group name in the "Multiple acknowledgment in the following group" input field.
 - Enter the same name for the computers that belong to a group under in the horn. This setting is case-sensitive.
4. If you want to configure multiple acknowledgment by means of acknowledgment tags, select the "Multiple acknowledgment by tags" option from the drop-down list.
 - Click "..." in the "Multiple acknowledgment using the following acknowledgment tags:" entry field.
 - You specify the acknowledgment tags in the tag selection dialog.
 - Click "OK".
The tags are displayed separated by semicolons.

Note

If a preferred server is entered on a client with a view to a redundant server pair, you cannot configure the central acknowledgment tag on this server pair as the internal tag for the horn.

Help:

- Use an external tag
 - Do not configure a preferred server for this server pair
 - Configure the acknowledgment tag on a non-redundant server
 - When using a signal module, link it externally
-

See also

How to assign a signal transducer to a signal tag (Page 104)

3.7 Tags for controlling runtime

Tag definitions

Additional tags are defined to control the runtime of the horn.

You use the `@HornSettingTagsActive` and `@HornTriggeringSignalsActive` tags to temporarily deactivate or activate the respective horn components. The two tags are defined with the start value "1". After runtime of the horn is activated, the components "Alarm sets signal tag" and "Signal tag sets signaling device" are activated by default.

The `@RestartHorn` tag controls the restart of the horn components. Following a configuration change, you can restart the runtime of the horn. Normally this is not necessary, since each change of configuration is applied automatically.

The binary tag `@HornReset` controls the way signaling devices and signal tags behave following an acknowledgment. Separate OSs or WinCC clients use a local reset tag for this purpose. WinCC clients and/or servers acting in unison use one or more additional reset tags.

Tag	Meaning
<code>@HornSettingTagsActive</code>	The "Alarm sets signal tag" component is activated if the value "1" is set at the binary tag. The component pauses and no alarms activate the assigned signal tag if the value "0" is set at the binary tag.
<code>@HornTriggeringSignalsActive</code>	The "Signal tag sets signaling device" component is activated if the value "1" is set at the binary tag. The component pauses and no signal tags activate the assigned signal generator if the value "0" is set at the binary tag. All signaling devices are shut down. Only the synchronization of additional reset tags remains active.
<code>@RestartHorn</code>	The binary tag defines whether the "Alarm sets signal tag" and "Signal tag sets signaling device" components are reactivated. If you set the value of the tag "1", both components reload the configuration data. The signal tags and signal generators are reset. The binary tag is set to "0" at the start of runtime.
<code>@HornReset</code>	The binary tag determines the acknowledgment behavior of the signal generators. The tag is set to "1" if the signal generators are active. The tag is reset to "0" after the signal generator was acknowledged. This behavior applies accordingly to the additional reset tags.

Note

The project engineer may not create any tags with `@` prefix. Such actions are reserved for handling in the WinCC PCS7 software. You are not allowed to manipulate these system tags. The system tags are necessary for proper functioning of the product.

3.8 Minimum Horn Configuration

Introduction

The following minimum horn configuration is recommended for the PCS7:

Assignment of message classes to the signal tags

Assign the following message classes to the corresponding signal tags:

Message class	Priority	Source	Area	Event	Authorization	Tag
Alarm						Alarm_Tag
Warning						Warning_Tag
PLC-PCS message						PLC_PCS_Tag
OS_PCS message						OS_PCS_Tag

If the user is allowed to view messages and no authorization has been specified, there is also a check as to whether a signal is triggered.

Assignment of signaling devices to the signal tags

If a signal module is installed, configure the following assignment between signal tags and the signal module:

Tag	Signal module	Sound
Alarm_Tag	Output 1	
Warning_Tag	Output 2	
PLC-PCs_Tag	Output 3	
OS_PCS_Tag	Output 3	

If the signals are to be output through a sound card, configure the following assignment between signal tags and the audio file:

Tag	Signal module	Sound
Alarm_Tag		Horn_Danger.wav
Warning_Tag		Horn_Attention.wav
PLC-PCs_Tag		Horn_Note.wav
OS_PCS_Tag		Horn_Note.wav

Signal triggering behavior

If a message comes in that already exists and has not yet been acknowledged with the status "Came In" or "Went Out", the signal is not triggered again.

Behavior of the signals on acknowledgment

You only acknowledge the signals locally. You do not configure any additional reset tags for synchronizing behavior with connected computers following acknowledgment.

See also

[Linking Signal Tags to Messages \(Page 96\)](#)

[How to assign a signal transducer to a signal tag \(Page 104\)](#)

[How to Configure the Acknowledgment Behavior of the Audio Alarm \(Page 106\)](#)

3.9 General Information about the sound card

Functionality

You use commercially available sound cards in order to output messages acoustically. In this case, a WAV audio file created using commercially available software is played back and repeated until the message is acknowledged.

If several messages from different message classes come in, the assigned sounds are played back simultaneously.

In order to access multimedia hardware, the sound card communicates via the DirectSound component of the standard operating system component "DirectX". "DirectX" takes advantage of all the properties that the sound card driver supports, and emulates those properties which the driver does not support but which are nonetheless needed. Thus, the sound card implementation is independent of the hardware.

To configure the sound card, select "Start > Settings > Control Panel". Double-click "Sounds and Multimedia" to open the dialog box.

The sounds of the WAV files must support the Pulse Code Modulation format. Both mono and stereo are supported.

Corresponding to the three channels of the signal module, three audio files are supplied for the sound card.

3.10 Application Examples for Acknowledgement Behavior

3.10.1 Application Examples for Acknowledgement Behavior

Overview of application examples

The following application examples explain the options available for using the horn, in particular with regard to the acknowledgement behavior:

- Standalone WinCC clients with signaling devices that independently monitor the servers, trigger signals and acknowledge their signaling devices.
- WinCC clients acting in unison, having signaling devices. Each WinCC client can acknowledge the signaling devices of all WinCC clients because they are in a group.
- WinCC clients acting in unison, having signaling devices. Each WinCC client can acknowledge the signaling devices of all WinCC clients using common acknowledgement tags.

See also

Example 1: Automatically acting WinCC clients with signal transducer (Page 113)

Example 2: WinCC Clients with Multiple Acknowledgment in a Group (Page 114)

Example 3: WinCC Clients with Multiple Acknowledgment by Tags (Page 115)

3.10.2 Example 1: Automatically acting WinCC clients with signal transducer

Introduction

The following example shows the configuration of standalone WinCC clients that have signaling devices and that are networked with multiple servers.

Requirement

- Each WinCC client is in a separate room.
- The WinCC clients have one signaling device each, the servers have none.

Requirement

WinCC clients monitor the servers and use their signaling devices in accordance with their access rights.

When a WinCC client receives a message, a signal is triggered or acknowledged independently of the other WinCC clients.

This does not affect the other WinCC clients.

Procedure

1. Configure the Horn message and signal assignment on every WinCC Client.
2. Select "Only local" in the signal settings of the "Type of acknowledgment" in the "Signal Assignment" tab.

Runtime behavior

The horn runs on each WinCC client.

The signaling devices of individual WinCC clients are triggered by a message independently of one another.

Each WinCC client acknowledges its own signaling device.

Its own signal tag is reset and the signal is deactivated.

See also

Application Examples for Acknowledgement Behavior (Page 113)

3.10.3 Example 2: WinCC Clients with Multiple Acknowledgment in a Group

Introduction

The following example shows you the configuration of two WinCC clients in a group whose signaling devices are deactivated in a coordinated manner.

Requirement

- The WinCC clients have one signaling device each.
- The servers do not have a signaling device.

Requirement

Because the WinCC clients are in a group, one WinCC client acknowledges all signaling devices of the WinCC clients.

Procedure

1. Configure the message and signal assignment of the horn on both of the WinCC clients.
2. Select "Multiple acknowledgment in the group" in the signal settings of the "Type of acknowledgment" in the "Signal Assignment" tab.
3. Enter the same group name each time in the "Multiple acknowledgment in the following group" input field, for example, "Horn_Group1".
This entry is case-sensitive.

Runtime behavior

The horn runs on the WinCC clients.

When one WinCC client acknowledges the horn, the local "@HornReset" tag is reset and the signaling devices are deactivated.

Because the other WinCC client is in the same group ("Horn_Group1"), this WinCC client recognizes the acknowledgment and resets its local "@HornReset" tag.

This causes its signaling devices to be deactivated.

Note

When configuring a shared acknowledgment, you must be aware that users with different authorizations can be logged on to the WinCC clients.

When a message comes in it is possible for, say, WinCC client 1 to see this message and trigger the horn.

WinCC client 2 is not authorized to see this message and trigger a signal.

However, WinCC client 2 can acknowledge the signaling device on WinCC client 1 at any time, even though it does not see any messages and its signaling device is deactivated.

See also

Application Examples for Acknowledgement Behavior (Page 113)

3.10.4 Example 3: WinCC Clients with Multiple Acknowledgment by Tags

Introduction

The following example shows you the configuration of two WinCC clients acting in unison whose signaling devices are deactivated using acknowledgment tags.

The configuration of the multiple acknowledgment using acknowledgment tags is retained for compatibility reasons.

Requirement

- The WinCC clients have one signaling device each.
- The servers do not have a signaling device.
- A server has a common acknowledgment tag for both WinCC clients.

Requirement

Since the WinCC clients act in unison, the acknowledgment tag acknowledges all the signaling devices on the WinCC clients.

Procedure

1. On the "S1" server, create the binary acknowledgment tag "HornResetMC" with project-wide updating in the WinCC Configuration Studio/Tag Management.
2. Configure the message and signal assignment of the acoustic alarm on both of the WinCC clients.
3. Select "Multiple acknowledgment using tags" in the signal settings of the "Type of acknowledgment" in the "Signal Assignment" tab.
4. Click "..." in the "Multiple acknowledgment using the following acknowledgment tags:" entry field.
5. Select the acknowledgment tag "S1::HornResetMC" in the tag selection dialog box. Click "OK".
6. The tag is displayed in the input field.

Runtime behavior

The horn runs on the WinCC clients.

Each WinCC client sets its own signal tags.

When a WinCC client acknowledges the signaling device, this automatically resets tag "S1::HornResetMC".

The other WinCC client detects this and resets its local "@HornReset" tag.

This causes its signal tags to be reset and the signals to be deactivated.

Note

When configuring a shared acknowledgment, you must be aware that users with different authorizations can be logged on to the WinCC clients.

When a message comes in it is possible for, say, WinCC client 1 to see this message and trigger the horn.

WinCC client 2 is not authorized to see this message and trigger a signal.

However, WinCC client 2 can acknowledge the signaling device on WinCC client 1 at any time, even though it does not see any messages and its signaling device is deactivated.

See also

Application Examples for Acknowledgement Behavior (Page 113)

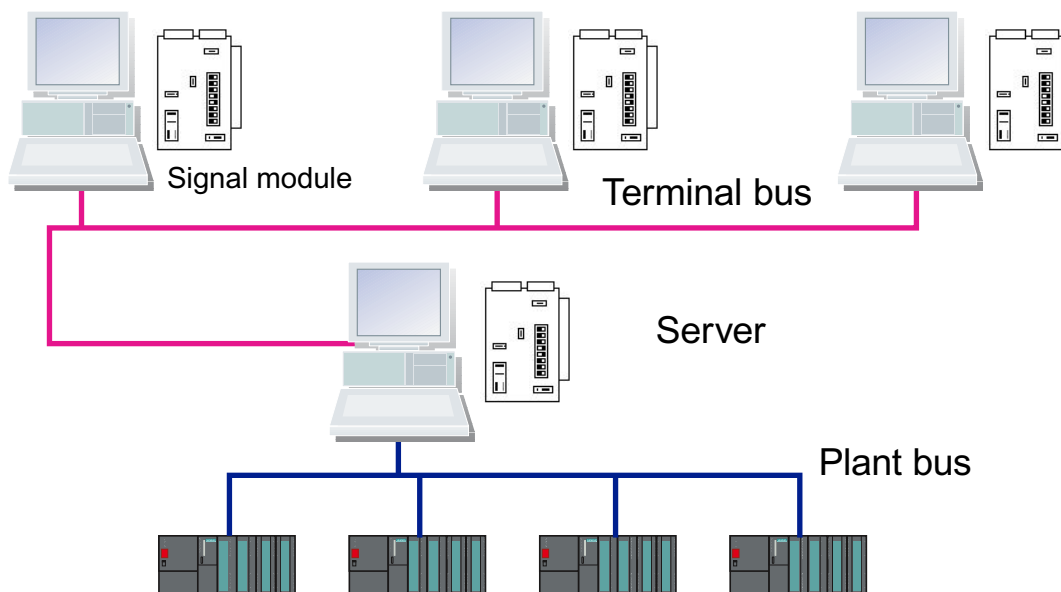
3.11 Signal module

3.11.1 General Information about the Signal Module

Introduction

The signal module is used to control up to three different messaging devices (horn, buzzer, lights, etc.) with an option to connect to a hardware-based acknowledgment button used for acknowledging externally. It also includes a hardware timer (watchdog). It is triggered cyclically by WinCC Runtime via a API call driver. An alarm is triggered if an error, such as a computer failure, occurs so that retriggering no longer takes place. The module also possesses 3 additional binary inputs. The signal module is a PC module that has been specially developed for use in the OS with a 32-bit PCI bus interface (MLFB no.: 6DS 1916-8RR). You need a 5V PCI slot to operate the signal module with PCI bus interface. It is not possible to operate it in a 3.3V PCI slot.

The signal module is a hardware option to the WinCC system that is offered as an option pack. In the following figure, you can see the general structure of a system and the installation options for the signal module within a system.



If the server operator stations have multiple client operator stations, each terminal can be equipped with a signal module.

Note

The signal module is configured separately for each computer. You need to configure each computer. When you use the project duplicator, the settings are not copied.

See also

Function Characteristics of the Signal Module (Page 118)

PCI Bus Signal Module (Page 119)

Installing the Signal Module (Page 122)

Pin Assignment of the External Interface (Page 125)

Testing the Signal Module (Page 123)

3.11.2 Function Characteristics of the Signal Module

Functionality

The signal module performs the following functions:

- Control of three acoustic or optical sensors
- Watchdog
- Three binary inputs
- Acknowledgment/resetting of the audible signals through software control or external acknowledgment

A 25-pin and a 9-pin Sub-D-plug are located at the front of the module. The watchdog and signaling device functions are carried through the 25-pin Sub-D-plug. The 9-pin plug is not used.

Via the Basic Process Control option pack, the group signal or the group audible indicator is controlled by a logical OR.

When control is through the software, the three signal outputs are reset. When acknowledgment is carried out externally, for instance using keystrokes, all assigned signal tags are set to 0 and the signal outputs are reset at the same time.

All signals sent through the two plugs are isolated and implemented as relay contacts or optical couplers. The 24 V DC supply voltage, which is provided externally by the relay contacts or optical couplers of the signal module, must be 1 A protected by the customer.

See also

General Information about the Signal Module (Page 117)

Testing the Signal Module (Page 123)

Installing the Signal Module (Page 122)

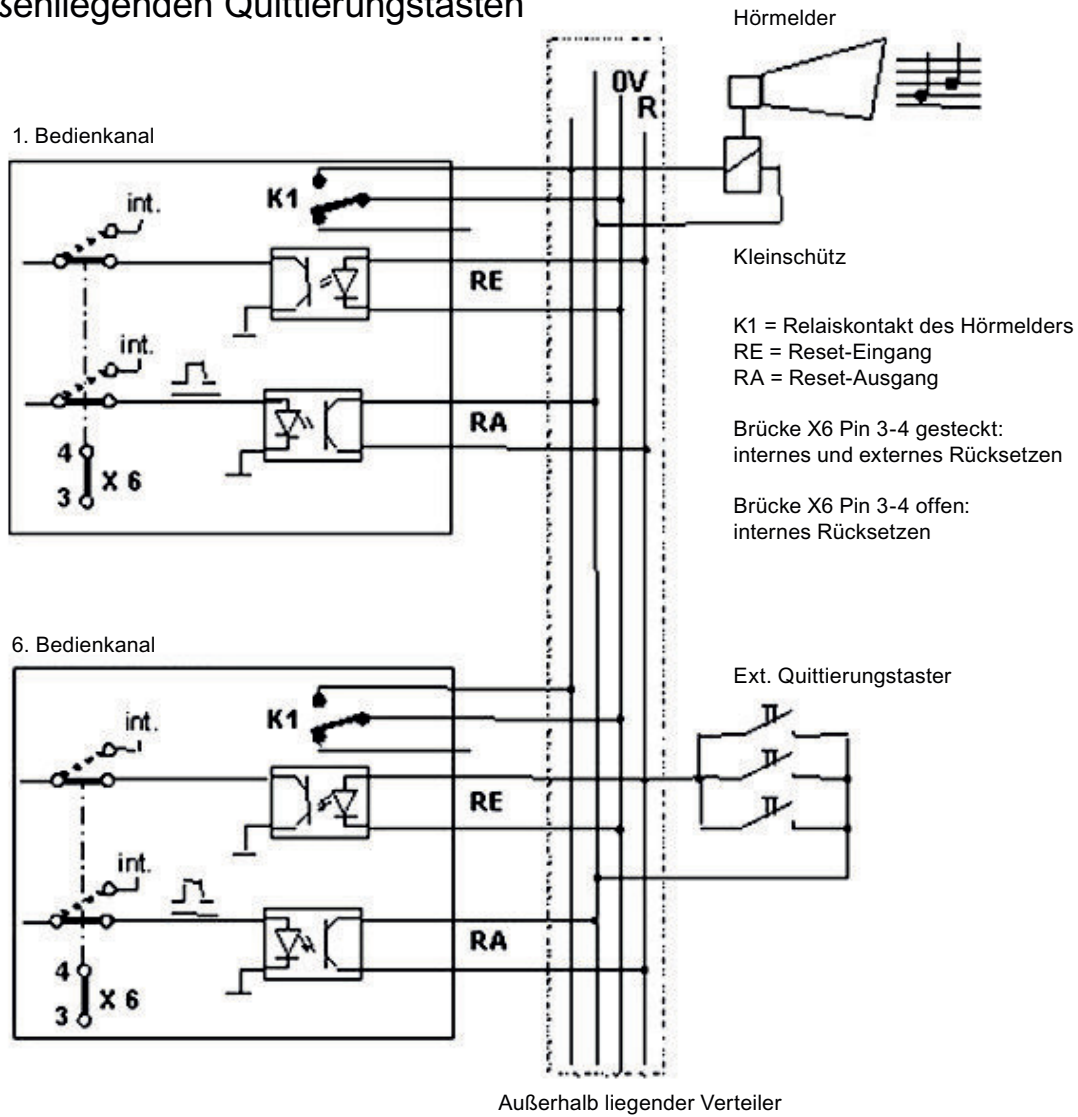
3.11.3 PCI Bus Signal Module

The signal module is a PCI bus card for PCs. It is used for controlling up to three external signaling devices and possesses three binary inputs.



Insert the signal module into the motherboard of the operator station PC. Check whether a PCI slot is available.

Zusammenschalten mehrerer Bedienkanäle mit außenliegenden Quittierungstasten



Note

You can only use a PCI card as a signal module if it has a product status ≥ 4 (see self-adhesive label, e.g. ES4).

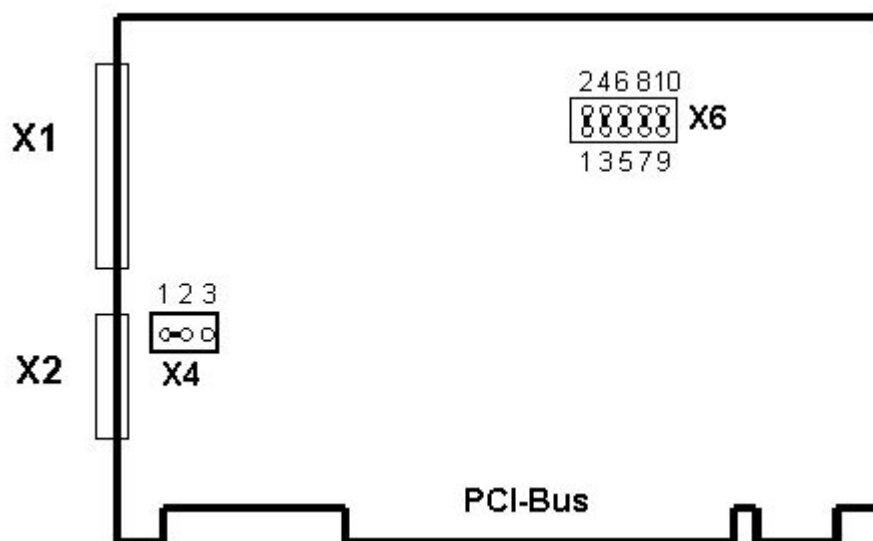
See also

Structure of the Switches and Jumpers with the PCI Bus (Page 121)

3.11.4 Structure of the Switches and Jumpers with the PCI Bus

Overview

The following simplified representation of the signal module with 32-Bit PCI bus interface shows the physical arrangement and the pin numbering of the switches and jumpers. Their use is explained below.



The image shows the factory settings of the jumpers and the default switch positions.

Configuration / meaning of the jumpers / switches / interfaces

The functions of signal generators, watchdogs, plug control and addressing are set using plug-in jumpers.

Slot	Jumper	Meaning
X6	1-2 jumpered*)	Signal generator function on
	3-4 open*)	Signal generators can only be acknowledged by software
	3-4 jumpered	Signal generator acknowledgment is possible by means of software and externally wired pushbutton
	5-6 open*)	Watchdog function normal
	5-6 jumpered	Watchdog function inverted
	7-8 open	Event-triggered release of the signal generator relay
	7-8 jumpered*)	Event-triggered activation of the signal generator relay
	9-10 open	Watchdog function off
	9-10 jumpered*)	Watchdog function on
	X4	1-2 jumpered*)
2-3 jumpered		Insertion check activated by means of +5 V signal from printer

Slot	Jumper	Meaning
X1		25-pin watchdog and signal generator interface
X2		9-pin hardcopy interface

All X6 jumpers are inserted in delivery state. The X4 jumper "1-2" is inserted in delivery state. The jumper settings marked with *) represent the standard configuration for use with PCS7-OS and **do not correspond with the delivery state**.

Note

If several modules are interconnected by way of external wiring it is mandatory that jumper 3-4 at slot X6 is in the same position at all modules. The jumper is usually inserted on all modules.

See also

PCI Bus Signal Module (Page 119)

3.11.5 Installing the Signal Module

Procedure

The installation is broken down into multiple steps. Follow these steps:

1. Hardware Installation:
Insert the signal module card into the OS motherboard. The card requires a free PCI slot in the OS. If the OS is a server OS with several client OS's, each client can contain an additional signal module.
2. Hardware Setup:
Once you have installed the signal module card, you can test its functionality using the operating system's "Control Panel". To do so, double-click "Signal Unit Configuration" within the "Control Panel". The "Signal Unit Hardware Setup" dialog box will open. Perform the hardware setup for the signal module plug-in card via this dialog box.

Note:

- When you close the dialog box, you must wait approx. 4 seconds before opening it again once the icon comes into focus again.
- Before activating Runtime, you have to close the "Signal Unit Hardware Setup". The horn is not triggered by message events otherwise.

3. Configuring signal tags:
 - Assign the messages to signal tags in the "Message Assignment" tab of the horn. The access rights are taken into account here.
 - Assign available physical signals to the signal tags in the "Signal Assignment" tab for the horn. In the "Sensor" column, you assign outputs from an installed signal module to the tags by double-clicking in the subsequent dialog box. The available signal outputs are "Output 1", "Output 2" and "Output 3".
4. Testing the signal module:
 - The updated driver with version 1.1.0 is used in all operating systems for the "6DS1916-8RR" signal module as of WinCC V7.0 SP1 / PCS7 V7.1. You can find the driver on your computer in the installation directory <WinCC>\Options\Drivers.

PCI signal module under Windows Server 2012 R2 (64-bit version)

Install the PCI signal module as follows:

1. Open the device manager in Windows.
2. Under the category "Other devices" you will find the signal module "System DMA Controller" you want to install.
3. Open the installation dialog with a right mouse-click and select "Update driver software".
4. Select the option "Browse my computer for driver software > Browse here for driver software > Browse".
5. Navigate to the storage location of the driver installation "Siemens\WinCC\Options\Drivers". Confirm with "Next". Use the file "HMPCI64.INF".
6. Finish the installation with "Close".

The "Signal Unit PCI Adapter" device now appears in the device manager under the "PCS 7" group.

See also

Testing the Signal Module (Page 123)

3.11.6 Testing the Signal Module

Introduction

In order to test the installed signal module, proceed as follows:

Procedure

1. Select "Start > Settings > Control Panel".

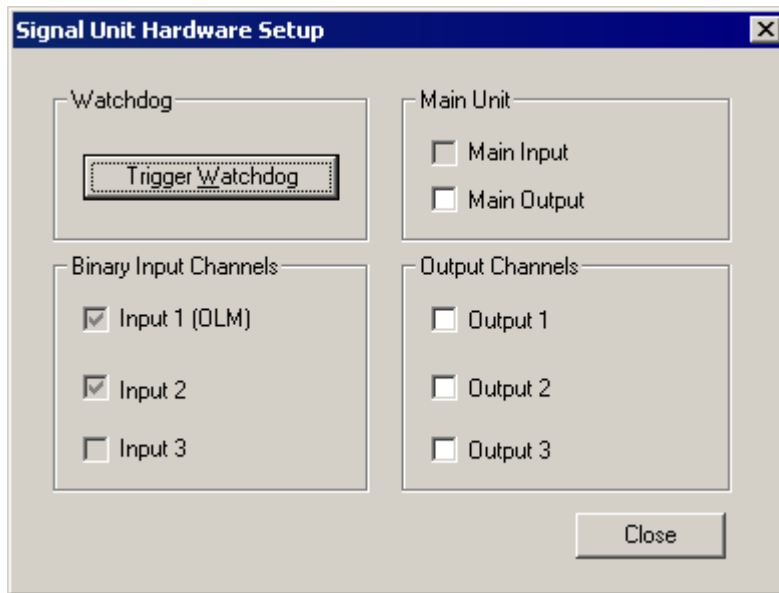


2. Double-click this icon to open the "Signal Unit Hardware Setup" dialog box.
3. You can now test the signal module in the "Signal Unit Hardware Setup" dialog box.

Note:

- After having closed the dialog box, you must wait approx. four seconds after the icon is focused again before you re-open the dialog box.
- Close the "Signal Unit Hardware Setup" dialog box before activating Runtime. The horn is not triggered by message events otherwise.

Structure of the dialog box "Signal Unit Hardware Setup".



Activate "Output 1" to "Output 3" check boxes in the "Output Channels" group in order to immediately test the functions of the signal module and connected signal generators.

Dialog boxes

The dialog box settings are defined as follows:

Field name	Meaning
Trigger Watchdog	The watchdog is triggered once when you click this button. (Test)
Main Unit	You can only activate the "Main Output" check box in the "Main Unit" group (group message).

Field name	Meaning
Main Output	After you activated this check box, the connected sensor is activated at the output of the group signal.
Binary Input Channels	Displays the status of binary inputs 1, 2 and 3.
Output Channels	A corresponding relay is activated if you select an output. The outputs are controlled in system runtime by means of the permanently assigned tags.
Close	Use this button to close the Setup dialog box.

Note

The previous "Auto-Trigger Watchdog" option is no longer available, as the PCI version of the signal module does not support auto-triggering of the watchdog.

See also

Installing the Signal Module (Page 122)

3.11.7 Pin Assignment of the External Interface

Pin Assignment Watchdog and Horn Signal Interface (X1)

The sensor output and the channel outputs are directly connected externally. Each contact controls a signaling device. In the event of an error message, the main contact and the assigned detail contact are set. An acknowledgment results in the control software resetting the main contact and all detail contacts. The acknowledgment is triggered externally via the acknowledgment input or by the software.

The following table shows the wiring of a 25-pin Sub-D plug which is used for connecting external devices (lights, buzzers, bells, buttons, etc.).

Pin	Signal	Description	Connection
*H	*S		
1	Signaling device M	Relay center contact	
2	+	Reset output	Optocoupler
3	-	Reset output	Optocoupler
4	+	Reset input	Optocoupler
5	-	Reset input	Optocoupler
6	Signaling device R	Relay, normally closed contact	
7	Signaling device A	Relay, front contact	
8	Watchdog M	Relay center contact	
9	Watchdog R	Relay, normally closed contact	
10	Watchdog A	Relay, front contact	
11	+	BI 1 *BI	
12	-	BI 1 *BI	

3.11 Signal module

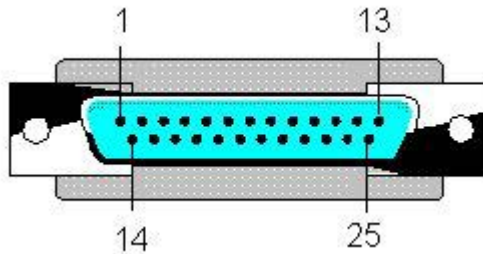
Pin	Signal	Description	Connection
13	+	BI 2 *BI	Optocoupler
14	+	BI 3 *BI	
15	-	BI 3 *BI	
16	Output 1 M	Relay center contact	
17	Output 1 A	Relay, front contact	
18	Output 1 R	Relay, normally closed contact	
19	Output 2 M	Relay center contact	
20	Output 2 A	Relay, front contact	
21	Output 2 R	Relay, normally closed contact	
22	Output 3 M	Relay center contact	
23	Output 3 A	Relay, front contact	
24	Output 3 R	Relay, normally closed contact	
25	-	BI 2 *BI	

*H = Housing

*S = Shield

*BI = Binary Inputs

25-pin subminiature plug connector (pin connector with screw locking)



Comments

Wire the main signaling device (horn, signal lamp, etc.) to the main contact of the signal module. The main signaling device responds every time a detail contact is set, that is, each time an alarm is reported at the signal module.

You can connect the detail contacts to signal devices such as lamps or buzzers.

You can wire a device which is activated if the relevant signal module is no longer triggered to the watchdog alarm output. This event is triggered by a failure of the corresponding OS.

You must choose whether to reset the signal module using the control software (driver) or an external acknowledgment button.

Take the following measures to use both variants in parallel:

- You can interconnect pins 3 and 4 at jumper X6 of the PCI card to enable acknowledgment by means of external pushbutton. You can find related topics in the section "Configuration of switches and jumpers on the PCI bus".

Wire an external pushbutton to the reset input. Wire the reset output accordingly in parallel to this button.

Horn interface (X2)

The module also features a 9-pin hardcopy interface (X2) which is not used for WinCC/PCS7.

See also

PCI Bus Signal Module (Page 119)

Structure of the Switches and Jumpers with the PCI Bus (Page 121)

Time Synchronization

4.1 General Information on Time Synchronization

Introduction

Time synchronization is a WinCC application that controls the time synchronization throughout the system using the SIMATIC method. The NTP method is not used.

You configure time synchronization with the "Time Synchronization" editor. The time can be synchronized as follows:

- Via the local area network/terminal bus for the operator station
- Via the system bus/Industrial Ethernet Bus for WinCC servers with a link to the automation systems

If an AS is used as the time master, the synchronization interval there should be set to one second. We do not recommend this operating mode because the time will be lost with a memory reset on the AS.

User Rights in Windows

The user logged on under Windows must have the user right "Change the system time."

If the "Time synchronization via terminal bus (Slave)" function should be used, the user accounts of the respective partner stations must be set up on all the computers on which the users log on to the partner stations.

The Master/Slave Principle

A computer or a specialized device, such as Siclock, acts as a master clock. The master sends the time to all other devices, the slaves. Only a master can be active in the network and it generally has an external time signal receiver.

The slaves can use two different techniques to synchronize the time with the master:

- A master is active and sends the time message frames to the bus. The slaves receive the time message frames and synchronize their time based on them. Multiple devices can be configured as masters if they support the standby mode. The masters in standby mode are slaves as long as the active master continues to send time message frames. If a standby master does not detect any time message frames it assumes the function of the active master and starts to broadcast time message frames. The devices that communicate over the system bus use the "master broadcast" technique.
- The slaves are active and periodically query the master for the time for synchronization. Every slave must indicate what device is the master. If a master fails, the slaves cannot take over the functions of the master. The slaves therefore require a list of masters that take over if the original master fails. Computers on the local area network use this "polling" technique.

Time Synchronization in Runtime

Time synchronization is entered in the computer startup list in the case of the following events and is activated when runtime starts:

- when running the OS Project Editor
- after configuration in the "Time Synchronization" editor

After running the OS Project Editor, you must still configure the time synchronization.

Once runtime starts, the time synchronization is activated after three minutes, maximum.

Preventing jumps in the time of day

Time jumps on the master are not sent to the system. WinCC does the following to prevent this:

- If the synchronization is performed via the terminal bus or an access point in the system bus is configured as master and another access point is configured as slave, the time synchronization is permanently disabled. A process control message to this effect is sent.
- If the synchronization is performed via the system bus and the access points in the system bus are configured as master, the access points are switched to "slave" mode. The master of another computer takes over the time synchronization and synchronizes the time of the affected computer. A process control message to this effect is sent.

Note

Greenwich Mean Time (GMT) or winter time is used on all devices on the system bus for user data and time message frames. You could only upgrade V5 projects to WinCC V5 online if the "V5-compatible communication mode" check box was activated in the "Parameters" tab of the "Computer Properties" dialog box in the WinCC Explorer. The following default setting is enabled for this option:

- for newly created projects as of WinCC V6: check box is deactivated.
- for projects migrated from WinCC V5: check box is activated.

Note

Up to Version WinCC V 5.1, clock synchronization on the PROFIBUS was supported. This function is no longer directly available as of WinCC V 6.0. For questions concerning this problem, please contact Customer Support.

See also

Hardware Support of Time Synchronization (Page 148)

The "Time Synchronization" editor (Page 131)

How to configure the synchronization through the system bus/CP1613 A2 and CP1623 (Page 135)

How to configure the synchronization over the Local Area Network (Page 142)

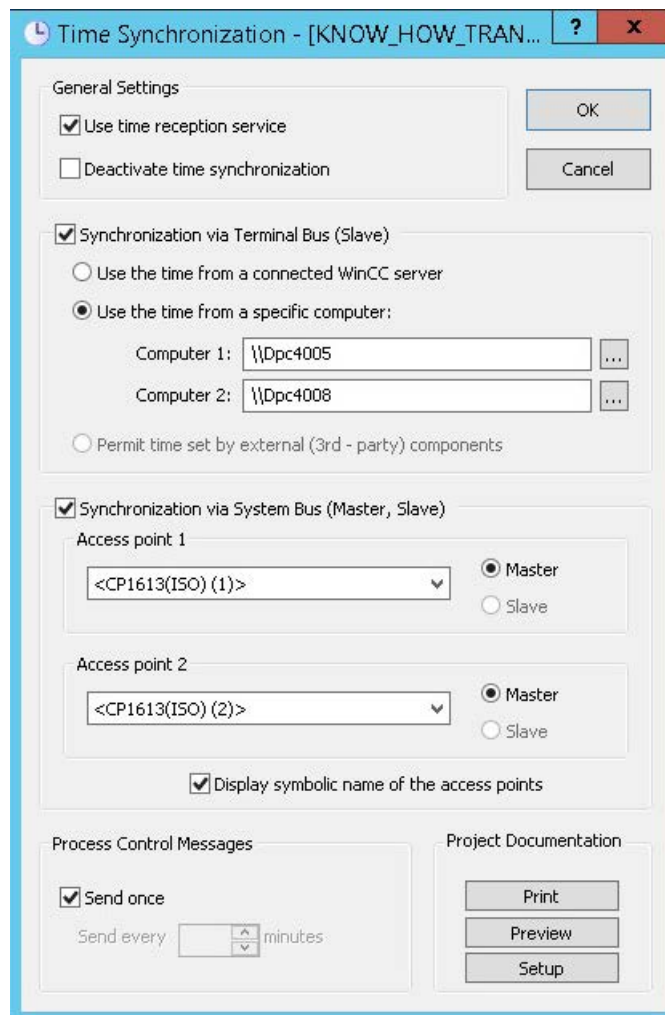
Simultaneous use of Time Synchronization over System Bus and Local Area Network (Page 145)

4.2 The "Time Synchronization" editor

Introduction

Open the "Time Synchronization" editor by double clicking on it in the WinCC Explorer.

You specify the required settings in the configuration dialog box:



Use time reception service

The time reception service is activated by activating the "Use time reception service" check box.

If used on the system bus the time synchronization checks now whether the time reception service is deactivated in slave mode and activated in master mode.

Disable time reception service in slave mode in order to prevent the station time from being set in parallel by the time synchronization and by the time reception service.

Disabling time synchronization

Time synchronization is deactivated by activating the "Deactivate time synchronization" check box.

The time message frames are no longer transferred and/or the local time is not going to be set.

Time synchronization is only deactivated after you activated the check box and confirmed this setting by clicking "OK".

A corresponding operating message is output in Runtime each time you activate / deactivate time synchronization.

Synchronization settings

Synchronization can be configured via the system bus, Industrial Ethernet bus, or LAN.

Activate the corresponding check boxes. You can also use both options in parallel.

Synchronization via terminal bus

Time synchronization via terminal bus / LAN is available in WinCC Server projects and on WinCC Clients.

You have three optional configurations:

- The station time is received automatically from an interconnected WinCC Server. This corresponding service packages must be loaded.
- The time is received from one of the network stations you entered in the "Computer 1" and "Computer 2" input boxes.
- The time is set by means of an external third-party component.

Synchronization via system bus

Time synchronization via system bus / Industrial Ethernet is only available in WinCC Server projects. The selection boxes are disabled if the station to be configured is a client.

You can use a BCE network adapter or up to two CP1613 A2 or CP1623 for the time synchronization.

The "Access point 1" and/or "Access point 2" selection list shows all devices or network cards installed on the station which support time synchronization via Industrial Ethernet Bus. Select the device from the drop-down list box to configure it for operation in master or slave mode. Activate the corresponding check box to specify the device mode.

You can also view the access points whose symbolic names are enclosed by "< >" brackets in order to configure time synchronization at an ES. Activate the corresponding check box. These names are assigned to the physical name of the access points during startup of the target station in runtime.

If you are using two access points with CP1613 A2 or CP1623, the following modules are assigned to the symbolic names in SIMATIC NET:

Symbolic name	"Set PG/PC Interface" dialog box	"Set PC Station" dialog box
<CP1613 A2 (1)>	CP1613 A2(ISO)	CP1613 A2
<CP1613 A2 (2)>	CP1613 A2(ISO)<Board 2	CP1613 A2(2)
<CP1623 (1)>	CP1623(ISO)	CP1623
<CP1623 (2)>	CP1623(ISO)<Board 2	CP1623(2)

The symbolic name "<Softnet (1)>" or "<Softnet (2)>" is used for the BCE network card.

The internal tags "@TimeSyncDevice1State" and "@TimeSyncDevice2State" are used for both access points. These tags display the status of the access points and are used for diagnostics functions in runtime. Possible values are "Slave", "Standby master", "Active master" and "Deactivated".

Note

The project engineer may not create any tags with @ prefix. Such actions are reserved for handling in the WinCC PCS 7 software. You are not allowed to manipulate these system tags. The system tags are necessary for proper functioning of the product.

Settings for process control system messages

The system outputs PCS messages in Runtime if problems occur during synchronization. You can define how often to display the cyclic process control system messages 1012002-1012005, 1012018, 1012021 and 1012028 in runtime by corresponding settings in the "Process control system messages" field.

Activate the "Send once" check box to display a process control system message only once.

Deactivate the "Send once" check box to output the process control system message several times during runtime. Enter the required value directly in the "Send every ... minutes" input box or use the rotary controller.

Creating project documentation

Click "Print Project Documentation" to immediately print the configuration data on the assigned printer. Click "Preview" to open a preview of the pages to be printed. You can view the pages as they will be printed and check them.

Click "Setup" you configure the print job. The dialog box tabs provide the following options:

- Selecting the printer.
- Selecting the layout.

- Defining start parameters.
 - Selecting the print scope.
-

Note

Time synchronization takes effect a few minutes after its activation in Runtime. Synchronize the local PC clocks before you activate Runtime if precise time synchronization is required during startup. This may be necessary, for example, in order to receive the PCS messages in the correct sequence.

See also

How to configure the synchronization through the system bus/CP1613 A2 and CP1623 (Page 135)

How to configure the synchronization over the Local Area Network (Page 142)

Simultaneous use of Time Synchronization over System Bus and Local Area Network (Page 145)

Effects of the Time Reception Service (Page 153)

4.3 How to configure the synchronization through the system bus/CP1613 A2 and CP1623

Introduction

You can use up to two devices to synchronize the time over the system bus.

If only one device is being configured, always use "access point 1".

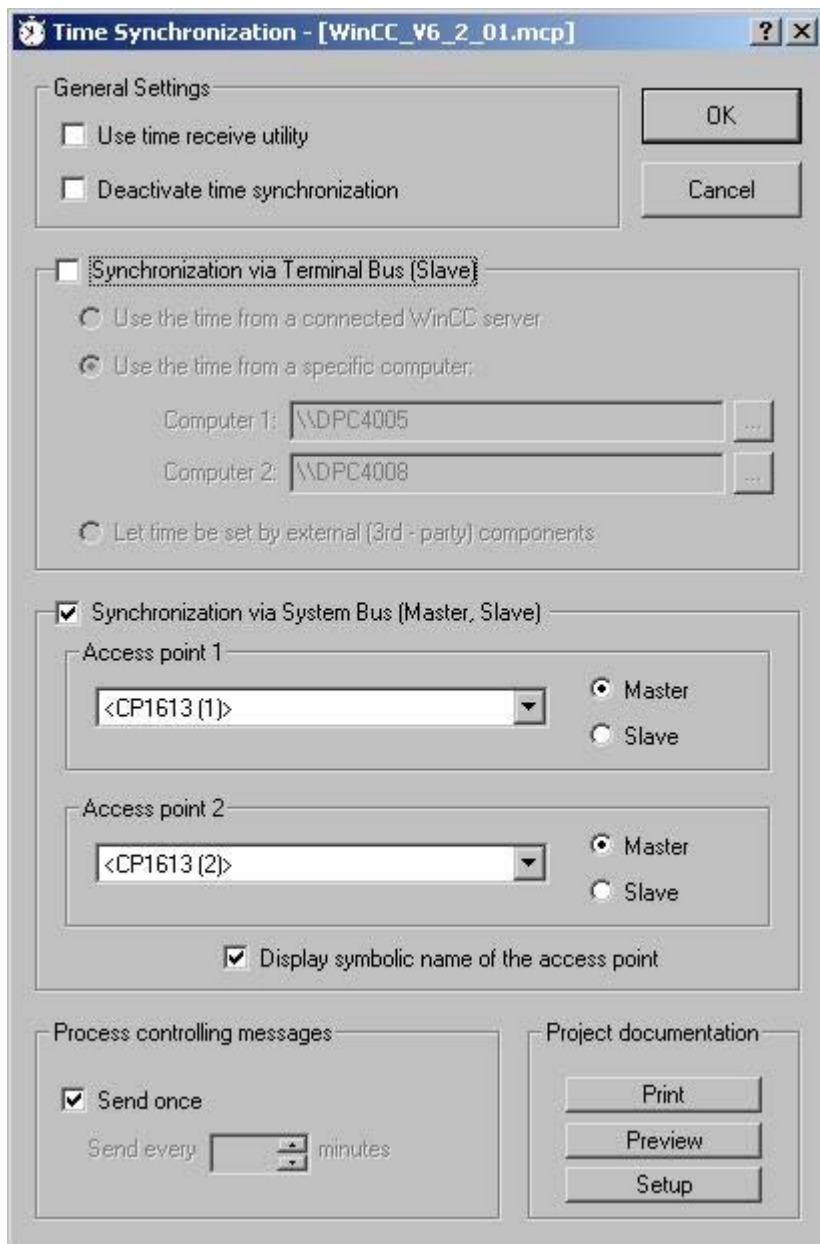
With "Access point 2", you have the option of configuring the following tasks:

- Implement one device redundantly
- Synchronize two system buses over a type of "bridge"
- Synchronize two system buses as simultaneous masters

Due to a system feature in connection with the interplay between AS417-4H and CP443-1EX11 (Industrial Ethernet), the time synchronization on the redundant System Bus is only possible as from CP443-1EX11 Firmware Version 2.3.

Procedure

1. Activate option "Synchronization via System Bus (Master, Slave)".



2. Select the desired device from the drop down list box of "Access point 1" and "Access point 2."
The drop down list boxes show all devices installed on the computer which support time synchronization via system bus.

4.3 How to configure the synchronization through the system bus/CP1613 A2 and CP1623

3. Activate the corresponding check box to define the device as master or slave.
4. The installed access points are unknown if you configure station time synchronization on a different computer. For this reason, it is possible to display symbolic names of access points enclosed with "< >", e.g. "<CP1613 A2 (1)>" or "<CP1623 (1)>".
If you want to use symbolic names for access points, activate the "Display symbolic name of the access point" check box.
The symbolic names of the access points are assigned to the physical names of the access points during startup in Runtime.
If two access points such as two CP1613 A2 cards are configured on the same computer, the combination of functionality returns the following behavior:

Access point 1	Access point 2	Behavior
Slave	Slave	The computer always operates in slave mode. This combination is used if a redundant bus is available. The system bus whose master receives the time from an external time signal receiver is used to synchronize the local time of the station.
Master	Master	The station operates as cooperative master at both access points and bus systems. Either the masters transfer the time message frames to both bus systems, or operate in standby mode as slave on both bus systems. Note that after changing the active master to standby mode on one device, the partner device automatically changes to standby mode. The transmitted time message frames contain information from the master pertaining to the quality of external synchronization. If an access point changes to a different state, the functionality of the active master is forced at the standby master if its external synchronization is operating properly. This ensures that the master with the best external synchronization transmits the time message frames on the bus.
Master	Slave	This setup results in a "bridge" function. The station synchronizes itself with the time message frames received on bus 2 (access point 2) and acts as a master on bus 1 (access point 1). Access point 1 always operates as active master and acts as though it is handling external synchronization, regardless of whether it really handles external synchronization. This prevents a standby master from taking over the role of the active master. Synchronization between the two bus systems would be split in this case. The station would receive two different times from the two bus systems. Access point 1 assumes the active master function if another master is activated on bus 1 during startup of the station.
Slave	Master	Acts as the master/slave combination in reverse.

Note

The selection boxes are disabled if the station to be configured is WinCC Client.

See also

The "Time Synchronization" editor (Page 131)

Simultaneous use of Time Synchronization over System Bus and Local Area Network
(Page 145)

4.4 How to Configure the Synchronization through the System bus/BCE

Introduction

You can use a BCE network card to synchronize the time over the system bus.

If only one device is being configured, always use "access point 1".

With the option "Access point 2", you can configure the following tasks:

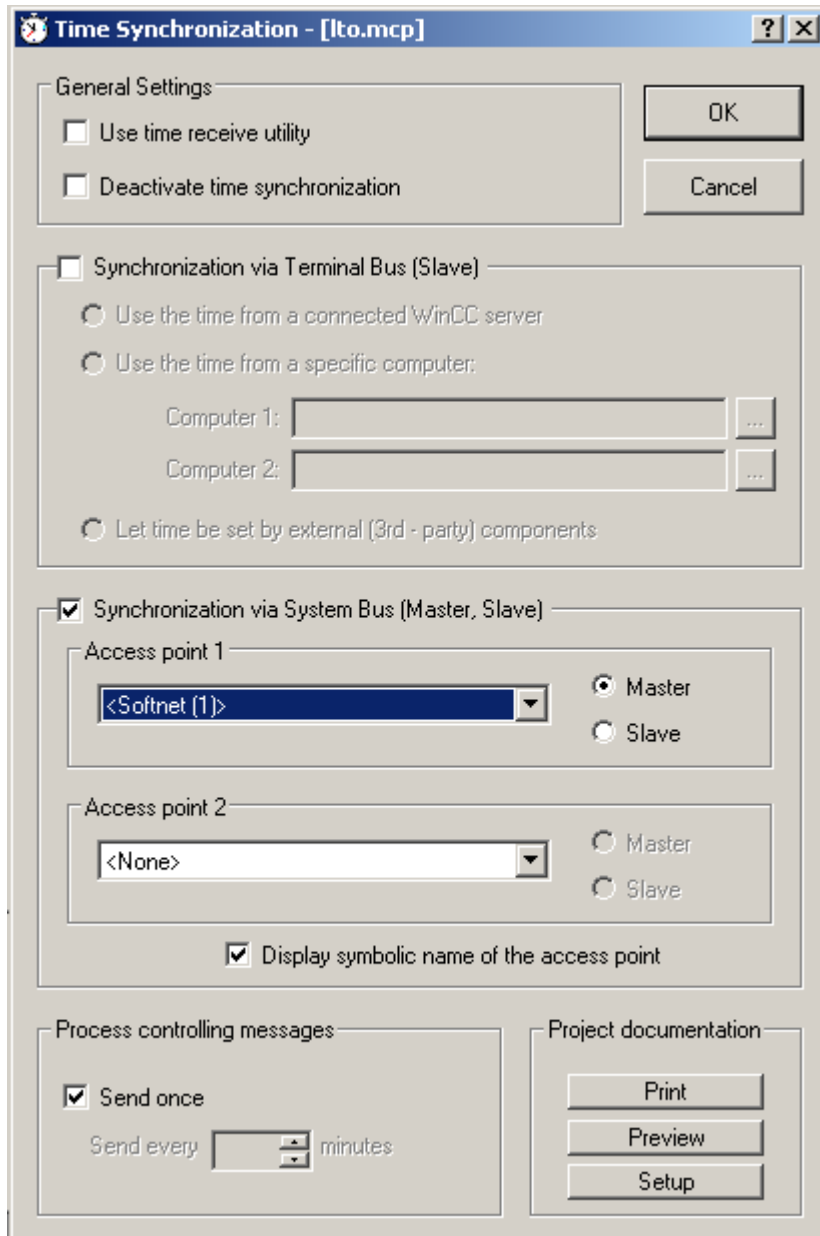
- Use a second access point with a CP1613 A2 or CP1623 card
- Synchronize two system buses over a type of "bridge"
- Synchronize two system buses as simultaneous masters

Requirement

- Only one BCE network card can be used for time synchronization on an OS.
- The ISO log must be installed and activated for the network card.
- The BCE network card can be used for up to eight connections.
- The time synchronization via a BCE network card cannot be used redundantly.
- A 1 - 10 second grid must be set on the external time transmitter.
- The following target address is used for Multicast with a BCE/CP1612 A2 network adapter:
Address 09-00-06-01-FF-EF.
- Broadcast must not be used.

Procedure

1. Activate option "Synchronization via System Bus (Master, Slave)".



2. The drop down list for "Access point 1" shows all of the network cards and devices installed on the computer. Choose the BCE network card, suitable for time synchronization via the system bus, from the drop down list.
3. The installed access points are unknown if you configure station time synchronization on a different computer. The symbolic name of access points may be displayed in brackets "< >" for this reason, for example, "<Softnet (1)>". If you want to use symbolic names for access points, activate the "Display symbolic name of the access point" check box. The symbolic names of the access points are assigned to the physical names of the access points during startup in Runtime.

4.4 How to Configure the Synchronization through the System bus/BCE

4. Activate the corresponding check box to define the device as master or slave.
5. Optionally choose a CP1613 A2 or CP1623 card as a second access point.
If two access points such as a BCE network adapter and a CP1613 A2 card are configured on the same computer, the combination of functionality results in the following behavior:

Access Point 1	Access Point 2	Behavior
Slave	Slave	The computer always operates in slave mode. This combination is used if a redundant bus is available. The system bus whose master receives the time from an external time signal receiver is used to synchronize the local time of the station.
Master	Master	The station operates as cooperative master at both access points and bus systems. Either the masters transfer the time message frames to both bus systems, or operate in standby mode as slave on both bus systems. Note that after changing the active master to standby mode on one device, the partner device automatically changes to standby mode. The transmitted time message frames contain information from the master pertaining to the quality of external synchronization. If an access point changes to a different state, the functionality of the active master is forced at the standby master if its external synchronization is operating properly. This ensures that the master with the best external synchronization transmits the time message frames on the bus.
Master	Slave	This setup results in a "bridge" function. The station synchronizes itself with the time message frames received on bus 2 (access point 2) and acts as a master on bus 1 (access point 1). Access point 1 always operates as active master and acts as though it is handling external synchronization, regardless of whether it really handles external synchronization. This prevents a standby master from taking over the role of the active master. Synchronization between the two bus systems would be split in this case. The station would receive two different times from the two bus systems. Access point 1 assumes the active master function if another master is activated on bus 1 during startup of the station.
Slave	Master	Acts as the master/slave combination in reverse.

Note

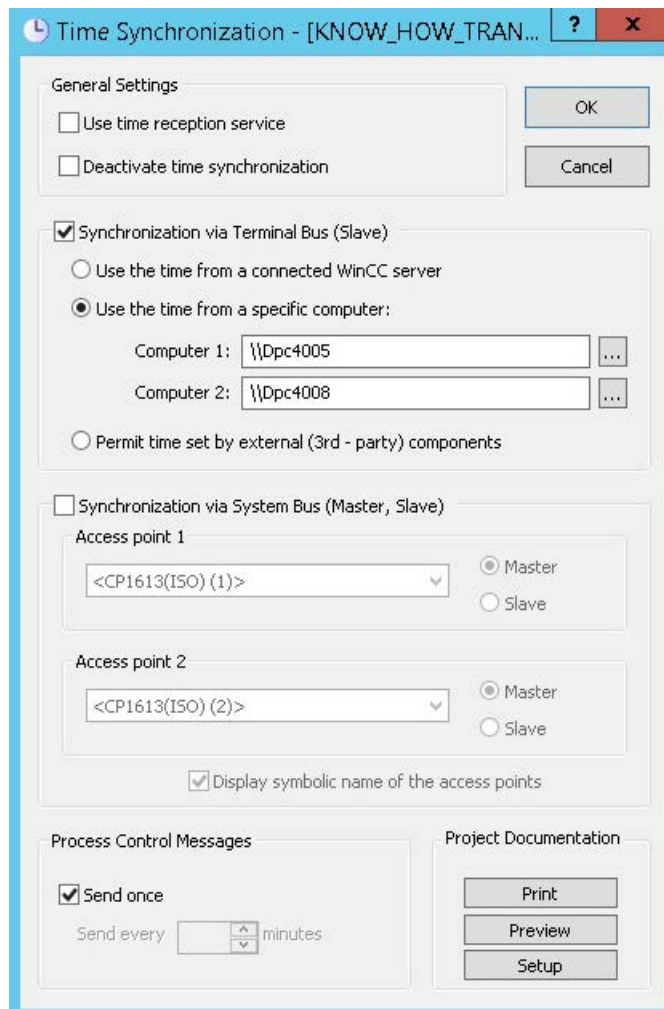
The selection boxes are disabled if the station to be configured is WinCC Client.

4.5 How to configure the synchronization over the Local Area Network

Introduction

There are three types of time synchronization over the Local Area Network/terminal bus:

- The computer is synchronized automatically via a connected WinCC server.
- The time is imported from one of the permanently defined computers in the network.
- The time is set by a 3rd party component.



The WinCC client queries the computer for its time and synchronizes its time with this time. The following options for setting are available.

- Import Time from a Connected WinCC Server
- Import Time from Permanently Defined Computers
- Setting time over an external (third-party) component

Client computers are integrated into time synchronization via routers. UTC is used as the time base.

If the client computer is located in a different time zone, it will automatically switch to the local time zone for display and output purposes.

Import Time from a Connected WinCC Server

WinCC clients and servers with their own project can use the WinCC servers whose packages they have loaded.

If the server that was named as master fails, the WinCC client selects another server from the list of packages. A WinCC server must be in runtime mode to be able to detect a client as the time master.

Only the active WinCC master can be the time master for a redundant server pair.

Import Time from Permanently Defined Computers

When you select the "Import Time from permanently defined computers" radio button is selected, the "Computer 1" and "Computer 2" input fields can be edited.

Enter the names of the specified computers from which the time will be imported. Use "Computer 1" as long as it remains available. Then use "Computer 2". The status of the WinCC project on the defined computers is not taken into account. Only the operating system must be fully functional.

The computer name can be a Windows computer name, such as "\\kh19074d", or a qualified domain name if a DNS server is available. A complete name is something like "kh19074d.khe.siemens.de" or "kh19074d", if the slave is in the same DNS domain as the master.

WinCC does not have to be installed on the specified computer.

If both specified computers are not available, the time synchronization will be lost.

Setting time over an external (third-party) component

When you select this radio button, you are specifying that the time will be set by an external component.

"Time Synchronization" must not set the time on the computer.

Synchronizing a client without its own project

To synchronize a client without its own project from a server, you will have to enter the application "ccTMTIMEsync.EXE" in its startup list.

4.5 How to configure the synchronization over the Local Area Network

In this case, no additional synchronization may be active on the default client (e.g.: DCF77 Client Service or other 3rd Party Software, which provides the local PC time).

Note

DCF-77 Time Reception Service

If the DCF-77 time reception service is used, the "Allow time to be set by external (third-party) component" radio button must not be activated.

Instead the "Use time reception service" check box must be activated.

See also

The "Time Synchronization" editor (Page 131)

Simultaneous use of Time Synchronization over System Bus and Local Area Network (Page 145)

4.6 Simultaneous use of Time Synchronization over System Bus and Local Area Network

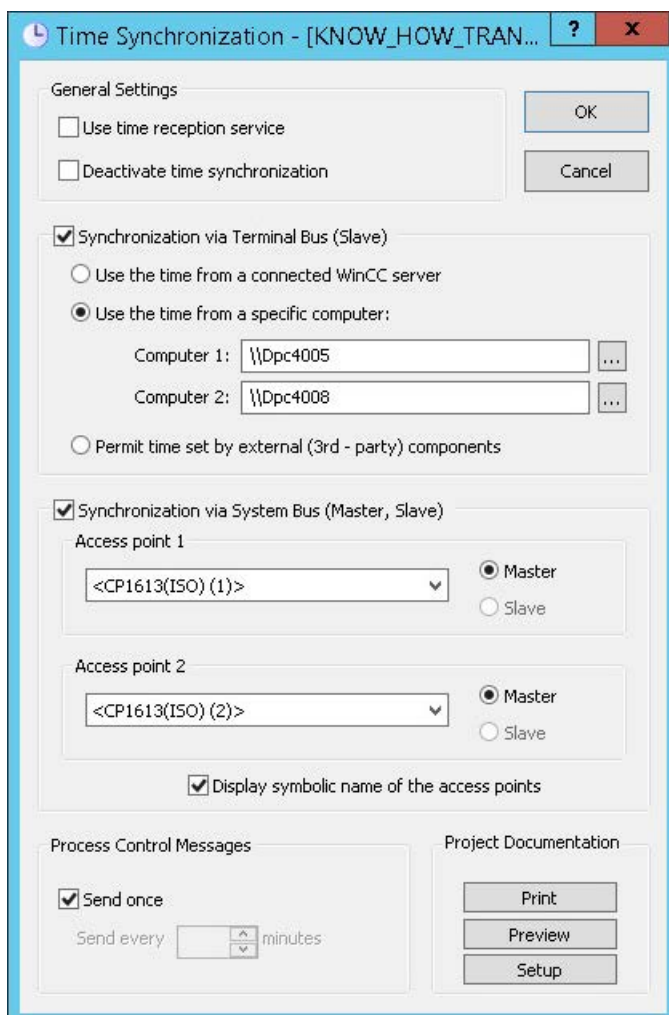
Introduction

The time can be synchronized simultaneously over the system bus and the Local Area Network. The local computer time in this case will always be synchronized with that of the Local Area Network. The access points on the system bus can only be configured as masters to forward the time received from the Local Area Network to the system bus.

Configure time synchronization on one computer of a Windows domain

The computer must be synchronized with the domain time to function normally in the domain. Because the Windows synchronization only guarantees a time synchronization of ± 2 seconds, you must configure the synchronization with permanently defined computers.

1. Enter the primary domain controller as "Computer 1".
2. Optionally, enter an additional Primary Domain Controller as "Computer 2", if one is available.
3. Configure the access points on the plant bus as masters by enabling the relevant check boxes. Even if you are operating in standby mode, never set the local time.



Note

If the WinCC servers belong to a Windows domain and a specialized device, such as Siclock, operates as the time master on the system bus, the Siclock and the domain must have the same time. We recommend equipping both with an external time receiver.

Synchronization via system bus is not allowed if the "Use the time from a connected WinCC server" check box is activated. This is because it makes no sense to import the time from a server connected to the system bus and then to send this time back to the system bus.

4.7 Hardware Support of Time Synchronization

4.7.1 Hardware Support of Time Synchronization

Industrial Ethernet with automation systems

Time synchronization must have access to the Industrial Ethernet Bus with which the AS communicates. Special hardware boards include the function of sending and receiving time message frames. The following Industrial Ethernet devices support time synchronization:

- CP1613 A2 hardware board
The software is integrated onboard.
- SoftNet/BCE Hardware/Software solution
A software driver emulates the hardware.

The two devices have the following properties:

- They have an internal clock.
- They can operate as slaves. They detect when the time message frames are not being received.
- They can operate as active or standby masters.
- The synchronization interval is permanently set at 10 seconds and cannot be configured.

Local Area Network with operator station

The operator station synchronizes its local time over the Local Area Network. All network adapters that support Windows can be used.

External time reception station

The DCF 77 or GPS time signal receivers at the serial port operate with the "DCF77 reception service" program as an external reception station. The reception station synchronizes the internal time of the computer using the received radio waves. The time synchronization cooperates with the time reception service. The software is activated if the computer is an active master and it is deactivated if the computer is a slave. This enables the time synchronization alone to set the internal computer clock.

An external receiver must be available on both redundant WinCC stations.

See also

Time signal receiver (Page 149)

General Information on the Time Reception Service (Page 152)

4.7.2 Time signal receiver

Introduction

The following time signal receivers are supported WinCC:

- DCF77 receiver DCFRS
- WINGPS GPS receiver

Note

Assignment of the COM interfaces

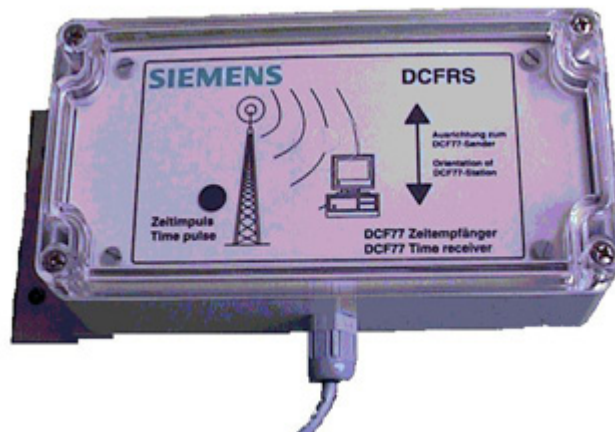
During plant configuration, note that several applications are assigned to the COM interfaces, for example:

- WinCC redundancy / redundant batch server
- Time receiver (DCF77/GPS)

It may not be possible to run all applications simultaneously as standard computers are equipped with only two COM ports.

DCF77 receiver DCFRS

The DCF77 receiver is an external receiver station for time signals used for synchronizing the computer clock. The receiver is connected to the COM2 serial port.



The signals are received from the long-wave transmitter DCF77, which has been transmitting time signals in coded form on the 77.5 kHz frequency for over 20 years.

Because of its central location in Central Europe (Mainflingen is located near Frankfurt) and its extensive range of up to 2000 km, this transmitter is significant far beyond Germany.

DCF77 driver

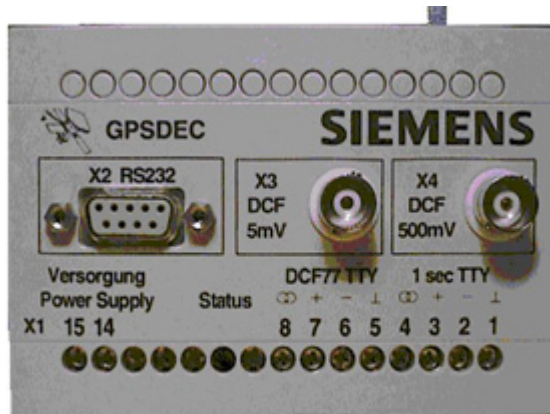
A driver is supplied for the DCF77 receiver.

It must be loaded before the DCFRS receiver is put into operation.

The driver and the description are included in the scope of delivery for the DCFRS.

WINGPS GPS receiver

The GPS receiver is a receiving station for satellite signals for synchronizing the computer connected externally to the COM2 serial port.



WINGPS driver

A driver is included with the WINGPS receiver.

It must be loaded before the WINGPS receiver is put into operation.

The driver and the description are included in the scope of delivery for the WINGPS.

4.8 General Information on the Time Reception Service

4.8.1 General Information on the Time Reception Service

The DCF-77 time reception service

The DCF77 long-wave transmitter transmits time information in coded form on the 77.5 kHz frequency. Because of its central location in Central Europe and its extensive range up to 2000 km, this transmitter is significant far beyond Germany. The time information that is broadcast is picked up by the two atomic clocks CS1 and CS2 of the "Physikalisch-technische Bundesanstalt" in Mainflingen near Frankfurt, Germany, and represents the official time according to the Time Law of 1978 of the Federal Republic of Germany. It corresponds to central European time or central European daylight-saving time and is derived directly from the internationally accepted "Universal Time Coordinated" scale.

Note

After having installed the DCF77 receiving service you start it using either the Windows system management or you restart the PC.

The software "DCF77 reception service", Version 2.01, is used for the connected DCF77 radio receiver or the GPS satellite receiver. Check the version by clicking the DCF77 icon in the station's Control Panel. Click the About button in the dialog box.

If you choose "UTC" as time reference for the "DCF77 Reception Service" dialog, you may not configure any "GMT" time shift for "SICLOCK GPSDEC".

With the exception of the FIFO buffer, the Windows default setting for the COM interface is maintained. Deactivate the "Use FIFO buffer" option at "Advanced settings".

Dialog box for opening time synchronization

You can assign time synchronization parameters on the DCF-77 object in the Control Panel. Open the required dialog box as follows:

1. Select "Start > Settings > Control Panel". This opens the "Control Panel".
2. In the "Control Panel" folder, double-click "DCF-77". This opens the "DCF77 Reception Service" dialog box.
3. You configure all required settings within this dialog box.

Structure of the dialog box

Input Box	Meaning
Signal Source	The entry "Serial" is shown in this input box by default. You cannot edit this input box
Connection	Enter the COM port to which the external DCF77 or GPS receiver is connected. The recommended default is COM2.

Input Box	Meaning
Signal Shape	The entry "DCF77 demodulated" is shown in this input box by default. You cannot edit this input box.
Time reference	In this dialog box, you specify the desired time reference. The following time references can be set: UTC, local time or CET/CEST.
Check CET/CEST time zone	When this check box is enabled, the setting of the CET/CEST time zone is checked in the Control Panel. The result is saved in the event log. If a different time zone is set in the control panel, the check is not made.
Suppress Synchronization	If this check box is enabled, the system time is not synchronized.
Balance Deviations Smoothly	If this check box is enabled, the system time is smoothly balanced to the current time if the deviation is below the maximum permissible value ("tolerance"). The internal timing is slowed down or accelerated accordingly by 1 ms per second or 60 ms per minute.
First update after	In this input box, you specify how many correctly decoded time message frames (= minutes) must occur before the system time is updated for the first time.
Update Interval	In this input box, you specify how many time message frames (= minutes) must occur following the initial update before a renewed comparison to the system time or, where appropriate, a correction of the system time is made.
Permitted Deviation	In this input box, you specify the maximum permissible time difference in ms that can occur before the system time is updated.
Event Log	The events are recorded in the event log. How to open this event log: Select the "Start > Programs > Management (General) > Event Display" command.
Time Comparisons	When this check box is enabled, all time comparisons are entered in the event log.
Every Valid Time Message Frame	When this check box is activated, every valid time message frame is entered in the event log.
Changes in Signal Quality	When this check box is activated, every change of signal quality is entered in the event log.

See also

Effects of the Time Reception Service (Page 153)

4.8.2 Effects of the Time Reception Service**Introduction**

If the "Use time reception service" check box is enabled in the "Time Synchronization" editor, the time synchronization uses the time reception service to set the computer time. This prevents other processes from setting the internal time.

Effects on a computer in slave mode

If the computer is operating as a slave, the time synchronization deactivates the time reception service with a software setting. Otherwise the time synchronization and time reception service would set the local time.

Effects on a computer in active master mode

If the computer is operating as an active master, the time synchronization activates the time reception service and allows it to set the local time. If the active master, e.g. as a result of failure, becomes a passive master, the time reception service deactivates itself internally. The checkmark in the check box remains set, so if the computer becomes an active master again the time reception service is automatically activated.

Effects on a computer in standby master mode

If the computer is operating in standby master mode, the time synchronization deactivates the time reception service. It continues to check that the external synchronization functions correctly. If the incoming time message frames are sent by a master without external synchronization, the standby master takes on the role of the active master. It then sends its own time message frames.

See also

General Information on the Time Reception Service (Page 152)

Lifebeat Monitoring

5.1 Lifebeat Monitoring

Content

The "Lifebeat Monitoring" editor serves to monitor all servers, clients and automation devices that can be reached across PC and industrial networks.

Note

The simultaneous utilization of Lifebeat Monitoring and Asset Management is not supported.

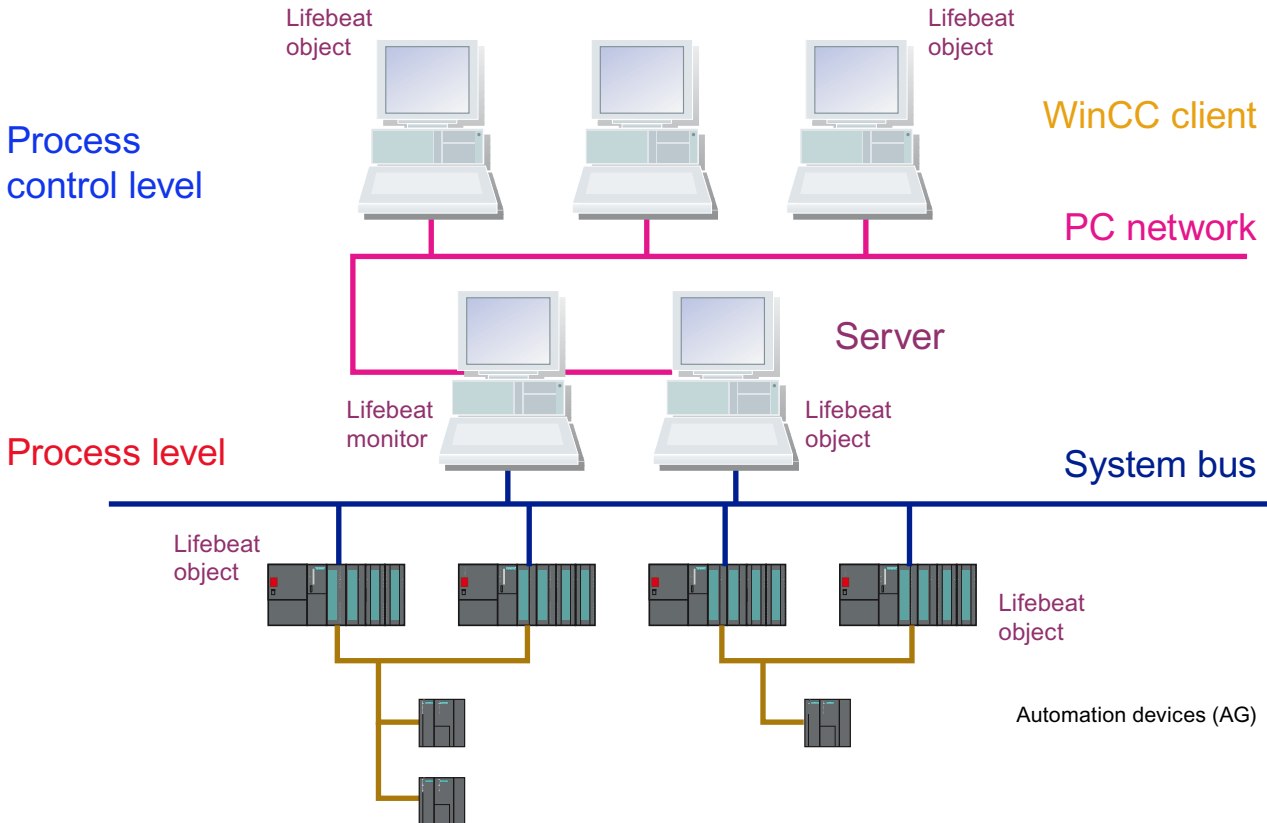
This documentation shows you the following:

- how Lifebeat Monitoring works
- how to configure Lifebeat Monitoring
- how to configure Lifebeat Monitoring with OPC connection.

5.2 General Information About Lifebeat Monitoring

Functionality

Lifebeat monitoring monitors WinCC stations and automation devices that are accessible over PC and industrial networks.



The above sketch illustrates as an example the structure of a lifebeat monitoring system with the computers of the command level and the subordinate process level.

You can configure lifebeat monitoring only via Industrial Ethernet and PROFIBUS connections of the "SIMATIC S7 PROTOCOL SUITE" or via an OPC connection between WinCC stations. NetDDE is not supported.

See also

How to configure Lifebeat Monitoring with an OPC connection (Page 159)

Visualizing the Lifebeat Monitoring in Runtime (Page 161)

5.3 Function Principle of Lifebeat Monitoring

Introduction

Lifebeat Monitoring monitors servers, clients, and automation devices. In general, Lifebeat Monitoring runs on a central WinCC client. It provides a view of the lifebeat objects associated with a project and of automation devices and operator stations of other projects. To this end, all plant parts must be connected to a shared network.

Tasks of the Servers

The servers have the following tasks:

- The servers record the data for the process images and messages from the automation devices. To this end, the servers are connected via industrial networks, e.g. PROFIBUS, to the automation devices.
- The servers provide the process data for the WinCC clients and record processing states.

Tasks of the WinCC Clients

The WinCC clients have the following tasks:

- The WinCC clients are used for inter-server operator control and monitoring of the entire system. By double-clicking on the picture of the server, the WinCC client can see all the way to the automation device.
- The WinCC clients obtain the states of the respective servers over the network.

Tasks of the Automation Devices

The automation devices have the following tasks:

- The automation devices perform on-site measurement, control and regulating tasks.

Requirements for monitoring

The following operating states are relevant to monitoring:

- Connection established.
- Connection not established
- Faulty

Monitoring Cycle

You set the monitoring cycle to the values 5 s, 10 s, or 1 minute in the "Lifebeat Monitoring" dialog box. A default monitoring cycle of 10 seconds is preset.

Project

The following is assigned to a project:

- a group of automation devices
- or a standalone computer
- or Server computer with one or more WinCC client computers

Note

The project engineer may not create any tags with @ prefix. Only the WinCC PCS7 software can do this. You are not allowed to manipulate these system tags. The system tags are required for proper functioning of the product.

While configuring AS and OS monitoring by means of Lifebeat Monitoring, device names should not be identical to pictures in the Picture Tree or like internal tags with the @ name prefix.

5.4 How to configure Lifebeat Monitoring with an OPC connection

Introduction

The communication between WinCC and specific types of automation systems is established over a channel. For AS monitoring, you can use Industrial Ethernet and PROFIBUS connections of the "SIMATIC S7 PROTOCOL SUITE". The OPC connection must be used to monitor WinCC stations. Monitoring via the OPC connection is limited to WinCC stations.

Since the software for the OPC-DA server and the OPC-DA client is included in the WinCC basic system, you can use WinCC simultaneously as an OPC-DA server and OPC-DA client. As a WinCC client, the computer can be simultaneously connected to several servers.

Note the following points for the configuration of the lifebeat monitoring in a distributed system or a distributed redundant system:

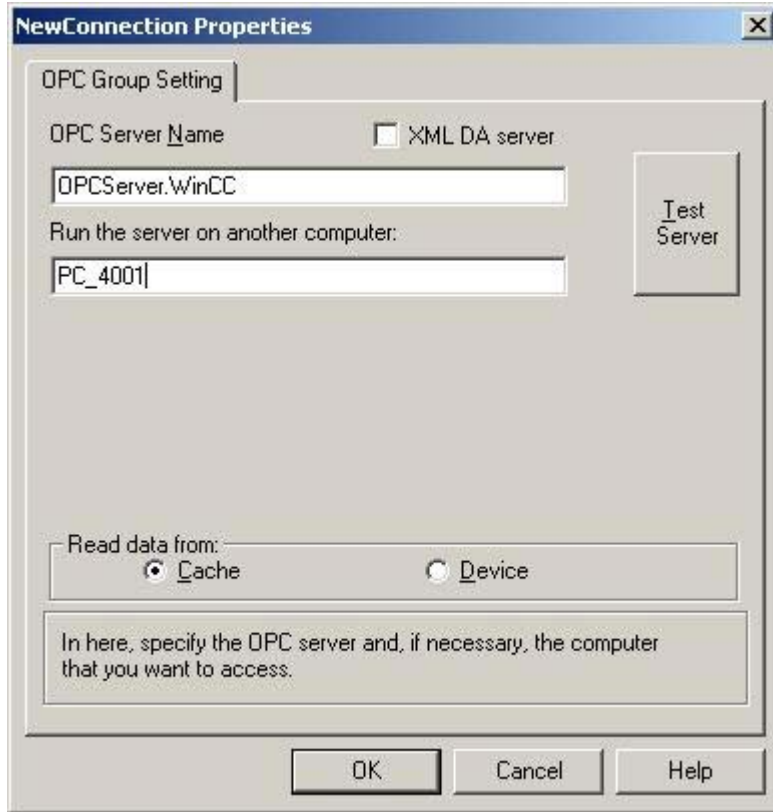
- The lifebeat monitoring of a server pair monitors its subordinate automation devices.
- Configure the monitoring of all WinCC clients in the network either only from the standard server pair or distribute the monitoring of the WinCC clients over several server pairs.

The OPC-DA client channel uses one channel unit. The channel unit does not require general configuration.

Procedure

1. Start WinCC and enter a new "OPC.CHN" driver in the tag management.
2. Select "OPC Unit #1".
Open the shortcut menu. Select the "New Connection" command.
A connection is created.

3. Select the "Properties" command from the shortcut menu of the new connection. Click "Properties" in the "General" tab.



4. Enter the name "OPCServer.WinCC" in the "OPC Server Name" box.
5. Enter the name of the computer to be monitored in the "Run the server on this computer" box.
6. Click "Test Server" to determine if the corresponding OPC connection can be established.

Note

Note that OPC connections must be correctly configured and fully operational to enable monitoring of PC stations (WinCC station, PCS 7 OS).

5.5 Visualizing the Lifebeat Monitoring in Runtime

General

Note the following when visualizing the Lifebeat Monitoring:

- To call the visualization of the plant configuration, configure, for example, buttons with picture selection on "@Config.PDL".
- When the OS Project Editor is run, pre-configured basic data are created in the current project. This means that the picture selection is already on the system configuration for a button in the key set.
- With a WinCC client project, the connections to the server as well as the status of the lifebeat objects to be monitored by the server is displayed.
- When you click the system configuration, the configuration of the server whose packages have been loaded is displayed. This is not possible if the server has failed. In the "Disturbed" state, the disturbed Lifebeat objects can be displayed.

Note

You have to open and update the "Lifebeat Monitoring" editor on all participating servers in order to create the internal "@LBMRTConfigState" tag. Otherwise, the non-updated server in the "@Config.PDL" of the WinCC client will be shown with the "Disturbed" state in Runtime. The diagnostic window of the GlobalScript shows a non-existent tag.

See also

Function Principle of Lifebeat Monitoring (Page 157)

Practical Example of Lifebeat Monitoring (Page 165)

5.6 How to Design the System Configuration Picture

Introduction

The following possibilities are available for designing the system configuration picture "@Config.PDL":

- Automatically generating the system configuration picture
- Specifying custom positions of the lifebeat objects
- Inserting graphic objects into the system configuration picture
- Specifying custom display sizes of the lifebeat objects
- Specifying custom display forms of the lifebeat objects

Automatically generating the system configuration picture

1. In the "Device positioning in the system configuration" selection box, select the setting "Automatic".
Lifebeat Monitoring will be updated.

Note

If the "Device positioning in the system configuration" option is set to "Automatic", the objects are tiled in the picture as of a certain number, depending on their size. If you do not wish this, then select "User-defined" and position the objects with the Graphics Designer.

Specifying custom positions of the lifebeat objects

You can change the positions of the lifebeat objects at any time using the "Graphics Designer" editor. An existing system configuration picture is a requirement.

1. Click "Edit picture".
The system configuration picture @Config.PDL opens in the "Graphics Designer" editor.
2. Change the positions of the lifebeat objects and close the Graphics Designer.

Note

If you want to receive the lifebeat object changes, update Lifebeat Monitoring. To do so, select the setting "User-defined" in the "Device positioning in the system configuration" selection box. New lifebeat objects configured in the Lifebeat Monitoring are inserted at the specified positions in the system configuration picture during updating.

Inserting additional graphic objects into the system configuration picture

1. Click "Edit picture".
The system configuration picture @Config.PDL opens in the "Graphics Designer" editor.
2. In the Graphics Designer insert additional graphic objects, e.g., standard, smart, or Windows objects, into the system configuration picture and then close the Graphics Designer.

Note

If you want to receive the lifebeat object changes, update Lifebeat Monitoring. To do so, select the setting "User-defined" in the "Device positioning in the system configuration" selection box. You cannot manually insert objects from the typical @@ConfigTypicals.PDL into the system configuration picture.

Specifying display sizes of the lifebeat objects in the system configuration picture

Several display sizes for each lifebeat object are saved in the typical picture @@ConfigTypicals.PDL and @ConfigTypicals.PDL. The Lifebeat Monitoring uses the lifebeat object with the object property "type" = "<device type>/1" as the default for updating the system configuration picture.

1. Open the system configuration picture @Config.PDL in the "Graphics Designer" editor.
2. Select the device type whose display size you wish to change, e.g., "OS".
Open the object properties in the shortcut menu of the device type.
3. Change the entry for the "type" object property from "OS/1" to "OS/2". The name of device type including the backslash may not be changed.
Close Graphics Designer.
4. If you want to receive the lifebeat object changes, update Lifebeat Monitoring. To do so, select the setting "User-defined" in the "Device positioning in the system configuration" selection box.

Note

On a PCS 7 OS, you can also make the display changes using the Graphic Object Update Wizard, "Update the picture objects". Select the desired typical picture and the configuration file "LBMOjects.cfg".

Specifying display form of the lifebeat objects in the system configuration picture

If the supplied display forms for lifebeat objects available in the typical picture "@@ConfigTypicals.PDL" are insufficient, you will need to create your own typical picture.

1. Save the typical picture "@@ConfigTypicals.PDL" as a copy under the name "@ConfigTypicals.PDL". You must not change the "@@ConfigTypicals.PDL" typical file.
2. Create a copy of the existing display forms for the device type for which you wish to generate a new display form.
3. Enter a new identifier after the backslash for the "type" object property of the new object. The name of device type including the backslash may not be changed.

5.6 How to Design the System Configuration Picture

4. Now you can change the display form in the new object. Note that you may not delete any of the existing object properties.
Close Graphics Designer.
5. If you want to receive the lifebeat object changes, update Lifebeat Monitoring. To do so, select the setting "User-defined" in the "Device positioning in the system configuration" selection box.

If the file @ConfigTypicals.PDL exists, Lifebeat Monitoring uses this file as the typical picture. Now the variants in the "@ConfigTypicals.PDL" typical file are available to you for designing the system configuration picture.

Note

You must not open the "Graphics Designer" editor while you are updating Lifebeat Monitoring.

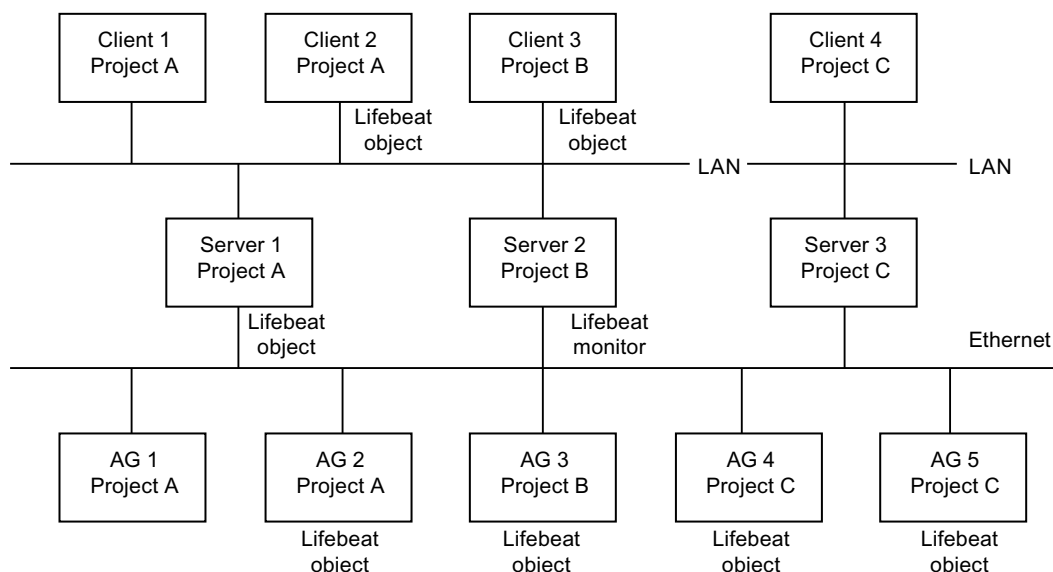
See also

How to Design the System Configuration Picture (Page 162)

5.7 Practical Example of Lifebeat Monitoring

Introduction

In the figure below, you can see a WinCC operator control and monitoring system in which Lifebeat Monitoring is performed.



Monitoring of Several Projects

The Lifebeat Monitor is Server2, configured for project B. The monitor monitors Client3 and AS3, which belong to the same project B, as well as Server1, Client2 and AS2, which belong to project A.

The monitor also monitors AG4 and AG5 by means of the existing PROFIBUS connection. Server3 and Client4 cannot be monitored, as there is no PC network connection to them.

Error-Free Monitoring Operation

The Lifebeat objects are monitored via the internal tags created by the "Lifebeat Monitoring" Editor. The Lifebeat Monitor Server2 sends the status of these tags to all configured Lifebeat objects according to the set cycle time e.g. every 10 seconds. In error-free operation, the activated Lifebeat objects reply to Lifebeat Monitor Server2 every time. From the tag status, the Lifebeat Monitor detects error-free operation of all the configured Lifebeat objects belonging to Lifebeat Monitoring.

Failure of Server1

An error occurs in Server1, for example, due to a power failure. After the Lifebeat Monitor (Server2) has sent the status of the tags to Server1, a return message is missing due to the error in Server1. The Lifebeat Monitor Server2 detects this. The appropriate message is sent to Client3, which is configured to Server2.

See also

How to configure Lifebeat Monitoring with an OPC connection (Page 159)

Device List of Lifebeat Monitoring (Page 169)

5.8 Dialog box of the Lifebeat Monitoring

5.8.1 Dialog box of the Lifebeat Monitoring

Dialog box

The picture below shows you the structure of the "Lifebeat Monitoring" dialog box.

Device List:

...	Device Name	Device Type	Connection
▶ 1	Device1	AS	connection_1
2	Device2	OS	connection_2
3	Device3	AS	connection_3
4	Device4	OS	connection_4

System Configuration:

Device Positioning in the System Configuration
 Automatic User-defined

Monitoring Cycle
 5 s 10 s 1 min

Priority:

Close
Update
Add
Delete
Print
Preview
Printer Setup
Edit Picture

Procedure

Perform the following steps to open the "Lifebeat Monitoring" dialog box:

1. Double-click "Lifebeat Monitoring" in WinCC Explorer.
The "Lifebeat Monitoring" dialog box opens.
Create or edit the configuration in this dialog box.

In this dialog box, you configure the complete Lifebeat Monitoring.

Structure of the dialog box

The dialog box is divided into the following areas:

- **Device list**
The name of the Lifebeat object is derived from the device name. All of the connections to the lifebeat objects that are to be monitored are entered in the device list. As standard, the device list contains five lines. You can change the number of input lines by clicking "Add" and "Delete".
In a WinCC client project, the number of lines in the device list corresponds to the number of loaded server packages. The device name and device type are pre-defined at the WinCC client.
You cannot add any new input lines or delete any input lines.
- **Buttons**
The buttons are used to insert, delete, print, etc., the devices in the device list. You launch the "Graphics Designer" editor by clicking "Edit picture". In the Graphics Designer, you edit the system configuration picture. The "Add" and "Delete" buttons can not be enabled for the WinCC client.
- **System configuration**
All configured connections are displayed within this area as a schematic system configuration. This system configuration is created automatically when you click "Update".
- **Monitoring cycle**
You use these radio buttons to set the monitoring cycle of the connection. The default setting is 10 seconds.
- **Position devices in the system configuration**
You use these radio buttons to define whether Lifebeat Monitoring should specify fixed positions and display forms for the lifebeat objects, or whether user-defined positions and display forms should be retained during updates.
- **Priority:** This input box allows you to specify a message priority for the process control messages of the lifebeat monitoring. You can enter a number from "0" to "16".

Entering a lifebeat object (only for single-user and multi-user projects)

1. Open the Lifebeat Monitoring editor and make the following entries:
2. Enter the name of the lifebeat object at "Device name".
3. Select an entry from the list at "Device type".
4. Select the previously created connection under "Connection".
5. Click "Update" to generate the system configuration.

The information from the loaded packages is not available for configuration of the lifebeat.

After the configuration, the corresponding tag is entered for each device at the corresponding connection.

Note

Completely fill in the device list, consisting of device name, device type, and connection. A notice will appear if the list is not complete.

If you create or change a connection in the tag management, you must reassign the connection in the "Lifebeat Monitoring" editor.

No configuration in the "Lifebeat Monitoring" editor is possible on the WinCC client. Instead, an overview of all Lifebeat objects of the installed server project packages is displayed on the WinCC client.

If you can no longer open the lifebeat monitor, check whether the temporary file "Lbmcs.tmp" is available in the WinCC project folder. If yes, delete this file. Start the lifebeat monitor.

See also

Buttons of Lifebeat Monitoring (Page 171)

System Configuration of Lifebeat Monitoring (Page 171)

General Information About Lifebeat Monitoring (Page 156)

Practical Example of Lifebeat Monitoring (Page 165)

5.8.2 Device List of Lifebeat Monitoring

Introduction

Lifebeat Monitoring is configured using the device list. Each device name is stored as a tag within the Tag Management of WinCC. The tag name has the structure "@<Device name>". For the device name "Server12", for example, the tag "@Server12" is created. The data type of the tags is of no significance to the lifebeat monitoring, as only the status of the tags is queried.

Note

For lifebeat monitoring, a tag "@<Devicename>" is created for each device name. For the Picture Tree, for each picture that contains a group display, a tag called "@<Bildname>" is stored. This can cause conflicts with identical names. To prevent such conflicts, the picture name must not be the same as the device name or system tags with the "@" name prefix.

A message is displayed when this type of conflict occurs. The tag names that cause a name conflict are listed in log file "LifebeatMonitoringCS.log" in the "Diagnosis" folder of the installation directory. Change the device name to resolve the name conflict.

Note

After you have deleted an S7 connection on the engineering station and performed an OS compile, the connection and the LBM tags in the WinCC tag management are deleted. However, the configured connection in the "Lifebeat Monitoring" editor is retained. You yourself must delete the relevant connection in the editor and save the new plant picture via the "Update" function. If the connection has not been deleted from Lifebeat Monitoring the runtime message "1009999" outputs the text "LBMRT: Tag '...' does not exist".

Structure of the device list

Field name	Meaning
Device name	Enter a unique device name in this input field. The device name may not exceed a length of 21 characters. The device names are set by default in a WinCC Client project. The symbolic station name is entered as the device name which can be longer than 21 characters.
Device type	Specify the device type in this input field. Double-click this input box to open a selection list. The following device types are available: <ul style="list-style-type: none">• OS• OS-OP• OS-PC• OS/Client• AS-4xx• AS-3xx• AS-2xx• AS• Client The device type is set by default in a WinCC Client project. Enter the OS status as the device type.
Connection	Double-click in this input box to open a selection list. Select your configured connection from this list.

See also

Device List of Lifebeat Monitoring (Page 169)

System Configuration of Lifebeat Monitoring (Page 171)

General Information About Lifebeat Monitoring (Page 156)

5.8.3 Buttons of Lifebeat Monitoring

Overview

Button	Meaning
Close	Use this button to close the dialog box.
Print	Use this button to print the feedback messages from the device list.
Printer Setup	Use this button to set up the current printer.
Preview	Use this button to output a print preview of the feedback from the device list to the screen.
Add	Use this button to create a new empty line within the device list. This function is not available in WinCC Client projects.
Delete	Use this button to delete a line within the device list. Pay attention to the following: <ul style="list-style-type: none"> • The device name is only deleted from the device list. It is not deleted from the tag list of the corresponding connection in WinCC Explorer. Reason: Other modules of the WinCC system can access this tag. • Select a line and then click "Delete" to delete the entire line. Click the button with the device number to select a line. • When you click "Delete", you will not be asked whether you really want to delete the selected line. • You can only delete single lines. You can not select a group of lines in order to delete this group. This function is not available in WinCC client projects.
Update	Use this button to create/update the system configuration. The system configuration is created by default with the name "@CONFIG.PDL" and saved to the project-specific picture folder. The geometry of the picture is based on the settings that were made in OS Project Editor. The "Graphics Designer" editor cannot be opened during the update.
Edit Picture	Open Graphics Designer directly with this button in order to edit the plant configuration picture "@Config.PDL". You can only operate this button if the plant configuration picture exists.

See also

Device List of Lifebeat Monitoring (Page 169)

Buttons of Lifebeat Monitoring (Page 171)

General Information About Lifebeat Monitoring (Page 156)

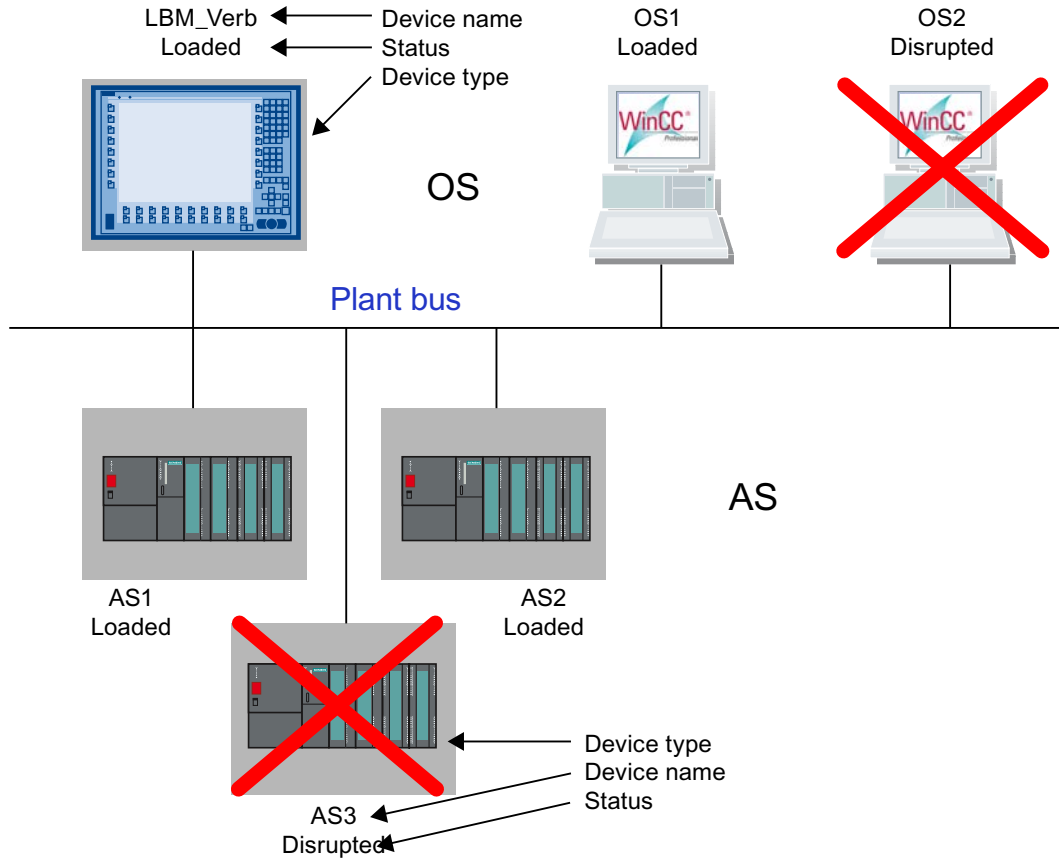
5.8.4 System Configuration of Lifebeat Monitoring

Introduction

Within the system configuration, all of the components to be monitored are shown as graphics. Components that are currently not ready to function, due to a fault, for example, are crossed out in the graphic with a red line.

Graphical structure of a system configuration

In this picture, you see an example of a system configuration "@Config.PDL":



If a number of automation systems (AS) are connected to an OS, they are shown in series.

The servers in the system configuration are represented as follows on a client:

- Disturbed - A device monitored by the server has failed.
- Failed - The server itself has failed.
- Established - The connection to the server has been established.



See also

Device List of Lifebeat Monitoring (Page 169)

Buttons of Lifebeat Monitoring (Page 171)

System Configuration of Lifebeat Monitoring (Page 171)

Practical Example of Lifebeat Monitoring (Page 165)

Picture Tree

6.1 Overview of Picture tree

Overview

You use picture tree create and manage a hierarchy of plants and plant sections.

When you create a WinCC project, you should ideally also create a picture hierarchy with the plant pictures of the Graphics Designer.

The following functionality is available:

- Creation and viewing of a hierarchy
- Support during the defining of systems and subsystems
- Assignment of the plant pictures of the Graphics Designer to the hierarchy areas. You can only assign a picture to a system once.
- Support for picture selection in runtime via the navigation in the hierarchy tree.
- Export and import of the hierarchy to and from other WinCC projects for reuse

Actions across projects, such as copying/moving pictures and systems, are not possible across multiple projects.

Note

Requirement: OS Project Editor

Picture Tree is a WinCC option that is only available after the installation of "Basic Process Control".

The WinCC project must first run through the OS Project Editor so that the menu items are displayed.

Picture Tree is not fully functional until the OS Project Editor has been run.

If the OS Project Editor is not run, only the hierarchy information will be written to the database on saving.

WinCC client

You cannot configure a picture hierarchy on the WinCC client.

Instead you see an overall view of the hierarchies of the server projects that were loaded with packages on the WinCC client in runtime.

Supplement or delete process pictures

When new pictures are created in the Graphics Designer and saved in the corresponding directory of the current project, the table of the available pictures in the Picture Tree is updated.

If you delete pictures from the directory, the pictures will also be removed from the Picture Tree.

Structure of the "Picture tree" editor

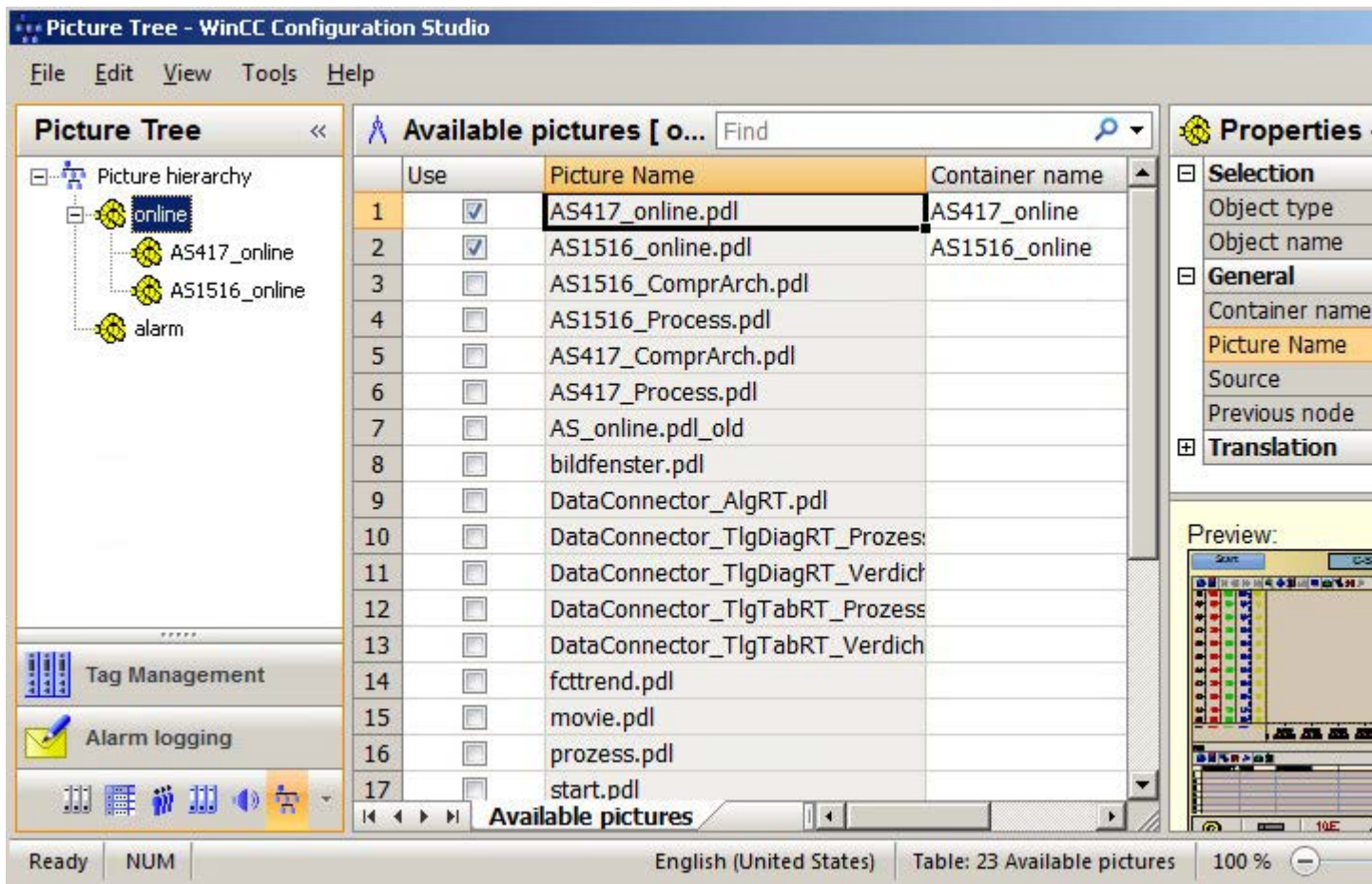
You open the "Picture tree" editor with the WinCC Explorer.

Picture Tree is integrated in the WinCC Configuration Studio. If you have already opened another editor in the WinCC Configuration Studio, you can change to the Picture tree with the editor selection on the bottom left.

You can learn how to generally operate the Configuration Studio under: "Working with WinCC > Working with Projects > The WinCC Configuration Studio"

User interface

- The hierarchy window displays the hierarchy of the systems created and is displayed as a tree.
- The data area contains all available pictures of the WinCC project that are not yet assigned to the levels of the hierarchy.
When a node in the hierarchy window is selected, only the direct sub-nodes are displayed with the available pictures.
- You see the properties of the selected container in the property view.
If you click the picture name, the "What's this?" window displays the picture preview below the properties.
- Use the special menu entries for Picture Tree from the menu bar:
 - "File > Save" to save the configuring hierarchy
 - "File > Project Documentation Group Display", to set up or print the print job for the group display.
 - "File > Project Documentation", to set up or print the print job for the hierarchy.
 - "Options > Completely Recalculate Group Display Hierarchy When Saving" to activate the new calculation.
 - "Options > Delta Save", to enable Delta Save



Handling Tags with Picture Tree

Picture Tree creates a tag with the name "@<Picture name>" in the "Group Signals" tag group for each hierarchy node.

Therefore the same limitations apply for the use of special characters in picture names as for tag names.

If the "Completely recalculate group display hierarchy when saving" option is selected, all tags in this group are deleted and created again.

For this reason, you are not permitted to create tags within the tag group "Group Signals".

Naming conflicts for "@Tag names

Picture Tree creates tags with the name @<Picture name>.

For heartbeat monitoring, a tag with "@<Device name>" is created for each device name.

This means that conflicts due to identical names are possible.

To prevent identical tag names, the picture name must not be the same as the device name or system tags with the "@" name prefix.

You may not create any tags with @ prefix.

Diagnostics and Troubleshooting

The tag names that cause a name conflict are listed in the log file "PictureTreeManagerCS.log".

By changing the picture name, you resolve the name conflict.

You cannot change picture names in the Picture Tree.

Rename the pictures in the WinCC Explorer. Then insert the modified picture into the hierarchy.

Completely Recalculate Group Display Hierarchy When Saving

If the option "Completely Recalculate Group Display Hierarchy When Saving" has been selected, the group display hierarchy of all WinCC pictures will be recalculated completely every time the Picture Tree Manager is saved.

To enable faster saving, you can disable the option, provided that no group displays are used in the project.

If WinCC detects that the group display hierarchy is no longer up to date during startup, the process control message "The group display hierarchy is not updated..." is displayed.

The data is updated again by saving the picture hierarchy with the option selected.

Delta Save

When the "Delta Save" option is selected, only the project changes are taken into account every time a save is conducted in the Picture Tree.

The creation of pictures for the Picture Tree Navigator is accelerated.

The pictures whose assigned area of the hierarchy has not changed are no longer created again.

Note

Save hierarchy information first

After the OS Project Editor has been run, the "Delta Save" option is disabled.

The complete configured hierarchy information must always be saved initially.

After the first save operation, you can enable "Delta Save" and then save only the project changes.

See also

General information on the hierarchy (Page 179)

6.2 General information on the hierarchy

General information

The hierarchy of a plant consists of areas of the plant or plant section to which plant pictures are assigned.

The structure of the hierarchy is not limited with regard to the height or width of the hierarchy. Note that only the first 256 ranges can be configured for user authorization in the User Administrator. Messages or modules that are assigned to a range extended beyond this limit in the ES or OS cannot be selected in Runtime.

After configuration of a hierarchy, the hierarchy information is stored in various OS engineering data, such as in the alarm system, User Administrator and component lists. You must therefore define and retain the OS hierarchy at an early stage in the configuration process.



The changes to the hierarchy affect all applications that are in runtime as Picture Tree clients. If the "Completely recalculate group display hierarchy when saving" option is selected, the changes affect the group display.

The subsequent changes to a hierarchy at the area level requires manual corrections in the following places:

- Correction of hierarchy data in the messages
- Edit the user authorizations in the User Administrator.
- Generation of new packages for the connected WinCC clients

Picture Tree Containers

The areas or the hierarchy levels are displayed in the Picture Tree as containers. You must assign a picture of the Graphics Designer or create a picture in the Picture Tree for each container.

Symbol	
	Picture Tree Containers
	Containers without linked picture

You can give the containers any names but no two containers may have the same name. If you derive the picture tree from the plant hierarchy, the complete path with separator characters is entered as the container names. Only the last part of the container name is displayed during runtime. In multi-user systems, the container names in the projects of the various WinCC servers must be unique. In this way you ensure error-free filtering and display of messages by areas.

Note

Do not configure any container without picture assignment as placeholder.

Do not configure containers without picture assignment as placeholders for a future expansion of the system areas. This would result in faulty navigation through the picture tree. The OS Project Editor has a convenient way to configure empty area buttons.

See also

How to create a hierarchy (Page 181)

Overview of Picture tree (Page 175)

6.3 How to create a hierarchy

Introduction

At the start of the hierarchy configuration the hierarchy window contains on the root node in which you insert the hierarchy levels.

The root node has the following properties:

- You cannot insert a node before or after the root node.
- You cannot move or delete the root node.
- You cannot assign a picture to the root node.

When you create a new hierarchy, two procedures are possible:

- You create the hierarchy by adding empty containers, as is no or only a few plant pictures are configured in the Graphics Designer.
After the creation of the hierarchy you must assign an available picture to each empty container or create a new picture.
- You create the hierarchy by assigning the available plant pictures to the hierarchy levels.
All "PDL" pictures created in the project are available for this.

You must save the hierarchy after it has been created and edited.

The container names are available in the text library in all existing languages.

Creating hierarchy: Adding empty containers

1. Select the root node "Picture hierarchy" in the hierarchy window.
2. Select the "New node > insert in node" command in the context menu.
Picture Tree inserts the containers the uppermost hierarchy level.
3. Rename the container if necessary.
You can also change the name later using the shortcut menu command "Rename".
If the "Display name" object property is configured for the picture, not the container name but the display name is displayed in Runtime.
You change the display name of the picture in Graphics Designer.
In the "Display name" field, the object property is displayed in the configuration language of the editor.
4. Select the inserted container in order to add additional containers.
Select one of the entries in shortcut menu command "New nodes", depending on whether you want to insert the new container in front of, behind, or below the selected container.
Inserting a new container into an existing node expands the hierarchy by one level.
5. If you want to assign an already available picture for a container, you must select the higher-level node.
In the "Available pictures" table, you must select an available picture in the "Picture name" column using the drop-down list.

6. If no suitable picture is available for a container, a picture with container name is created and assigned to the container using the shortcut menu command "Create picture".
You can open the picture in the designer graphic and edit it with the shortcut menu "open picture".
7. With the menu command "File > Save", you save the created hierarchy of the containers.

Creating hierarchy: Assign available process pictures

1. If you want to add containers to the uppermost hierarchy level, select the root node "Picture hierarchy" in the hierarchy window.
2. Select the check boxes of the pictures that you want to assign to this hierarchy level in the "Available pictures" table in the "Use column".
Picture Tree inserts the containers in the hierarchy level.
3. If you enter containers below the level, select the container in the hierarchy window.
 - Activate the check boxes for the images that you want to sign below the level.
 - Picture Tree inserts the containers below the hierarchy level.

If you want to rename a container, select the "Rename" shortcut menu.

If the "Display name" object property is configured for the picture, not the container name but the display name is displayed in Runtime.

You change the display name of the picture in Graphics Designer.

In the "Display name" field, the object property is displayed in the configuration language of the editor.

4. With the menu command "Datei > Save", you save the created hierarchy of the containers with the assigned pictures.

How to modify the hierarchy

You can modify the hierarchy by moving individual containers or complete sections of the hierarchy with drag-drop operation.

In doing so, you can move the nodes within one level or between the levels.

Delete Container

Select the short cut menu command "Delete" to remove a container from the hierarchy.

The assigned picture is again available for other containers.

If you want to delete pictures from the Picture Tree, you must remove the pictures from the picture directory of the current project.

See also

General information on the hierarchy (Page 179)

6.4 Effects on other applications

6.4.1 Effects on the User Administrator

Hierarchy change

If you change the hierarchy in the Picture Tree, you must open the User Administrator after saving the changes.

The assignment of the authorizations for the hierarchy is updated as a result.

New Containers have been inserted in the hierarchy.

The User Administrator does not have the required information on the user authorizations for newly created containers.

After you save the hierarchy, the new systems sections are available in the User Administrator for configuration.

Containers sheet deleted from hierarchy.

The containers or areas that you have removed from the hierarchy are removed from the memory of the hierarchy also in the User Administrator.

By removing of the container, all corresponding information contained in the User Administrator is also lost.

Distributed systems: Container name

On a WinCC client, the container names are displayed with the corresponding server prefix.

6.4.2 Effects on the Group Display

Introduction

The pictures with group displays must be available in the hierarchy to receive and relay messages:

- The pictures from which messages are received must be in the hierarchy on or below the level of the corresponding group object.
- The pictures to which messages are forwarded must be in the hierarchy on or above the level of the corresponding group object.

Construct a group display hierarchy according to the picture hierarchy. The OS Project Editor supports you in configuring the group display hierarchy. By selecting the "Create / update group displays" the option "Message Display" tab, the group displays in the area overview are

automatically integrated in the picture hierarchy. However, you can also interconnect the group display objects independent of the picture hierarchy.

6.4.3 Effects on the Text Library

Introduction

The container names are administered in the text library.

When the picture tree is saved the texts are saved in all languages available in the text library. Only the text specified as the current language is used as the text.

If the name already existed in the text library, the existing text is used.

Switch language

After a language switch, all container names are displayed in the selected language. Container names for which there is no corresponding name in the selected language are displayed in the language in which they were created.

If you change languages in runtime, all non-compiled containers are named "Container<Text-ID>".

Renaming a container name

When a text in the picture hierarchy is renamed, it is only renamed in the current configuration language.

If the container name is renamed in the text library in a language that is not the configuration language, the name is not changed when the picture hierarchy is saved. This is the case, for example, when translations are entered in the text library.

Adding a language

When you add a new language in the text library, the texts of the picture tree do not exist in this language. After adding the language, you must save the picture hierarchy or run the "Compile OS" function so that the texts of the picture hierarchy are entered for this language.

Note

A number of WinCC applications store their texts in the text library. Identical texts are only stored once. When a text is changed, e.g. by changing the name of the container, the text also changes at the positions of the WinCC applications that use an identical text.

6.4.4 Effects on the Alarm Logging

Introduction

In Alarm Logging, you can assign areas of the created hierarchy to the individual messages.

The prerequisite for a message assignment is a picture hierarchy that was created in the Picture Tree or by data transfer to the OS. A user text block with the name "Area" must be available in Alarm Logging.

If an area name, such as "Container1", is assigned for a message, the message is only displayed if authorization for this area exists. If no area name is specified for a message, the message will always appear.

Assignment of the message to the area

1. In Alarm Logging select a message that you want to assign to a specific area.
You can find the "Area" property in the "Properties" area under "User text blocks".
2. Enter the area name.

Graphic Object Update Wizard

7.1 Graphic Object Update wizard

Content

With the "Graphic Object Update Wizard" editor, you export, import or update dynamic user objects from WinCC pictures.

This documentation includes the following topics:

- Creating object templates
- Exporting user object templates
- Importing WinCC pictures
- Updating WinCC pictures
- Changing user object interconnections
- Working with configuration files

7.2 Functionality of the Graphic Object Update Wizard

Functionality

You use the Graphic Object Update wizard to export, import or update dynamic user objects from WinCC pictures in the Graphics Designer. The interconnection with the assigned tags is retained. This wizard functionality is only available in a PCS 7 OS.

With the Graphic Object Update wizard, you update existing objects in WinCC pictures on the basis of a new template.

To change dynamic information, you export it into a Microsoft Excel spreadsheet. Thereafter, you re-import the dynamic information.

With the Graphic Object Update wizard, you edit dynamic WinCC pictures as follows:

1. You copy the dynamic WinCC pictures.
2. You change the interconnection in the exported Microsoft Excel spreadsheet, e.g., for another unit.
3. You re-import the dynamic WinCC pictures.

Alongside the interconnection information of the process pictures, you can also update the instances of scripts and triggers when importing and updating the objects. The expanded functionality can be executed by means of a configuration file.

Note

When the import/export wizard is used, it is assumed that the process pictures for valves, motors, controls, etc., are available in WinCC in the form of user objects.

The selection of faceplates for process control remains user-specific: You use either standard OCX, e.g., from the technological library of PCS 7, or specific user objects/WinCC operating pictures.

In order to be able to use the functionality of the wizard, the OS Project Editor must run first. This enables you to copy the dynamic wizard scripts and the configuration files into the project.

See also

Dynamic Wizard of the Graphics Designer (Page 191)

Structure of the configuration files (Page 196)

File Format of the Export/Import File (Page 203)

7.3 Example: Creation of Object Templates

Introduction

You need object templates for central storage of user objects, in which you save the user objects created.

Example:

There is a common template for all valves in the mimic diagrams of a project. You must change this template centrally, if necessary.

This object template is called a "template picture". The name of the template picture has to start with the symbol "@". During the import process, the user object templates are copied to the respective process pictures with connection information.

This is only possible if the user objects present in a process picture do not have to be adapted on an instance-specific basis. Otherwise the import causes the loss of object information. Only the tag connection is adapted on an instance-specific basis. For example, if you need a script to call a specific faceplate, it must be identical for all user objects of one type. You achieve this when the script automatically accesses the connection information when you click the user object (= AS block name) and derives the name of the faceplate from it.

The user objects must have the "type" object property. In this property, the customized object type is entered, e.g. "VALVE". This entry in the "type" object property is the identifier for the object.

Give a unique identifier to the newly created objects. The "tag" object property exists for this purpose. If this object property is present, the current text is also exported into the "tag" column of a Microsoft Excel file during the export. You can then change the entries in Microsoft Excel. For the next import, these values are then entered in the "tag" object property for the corresponding customized object. The optional "trend" object property is available. This object property is intended for trend group call-ups or other texts specific to user objects. The existing text is exported or imported into/from the "Trend" column of the export file.

Template pictures "Create / update block symbols" Create / update block symbols" function

The "Create / update block symbols" function uses the following template pictures

- Template pictures from "@@PCS7Typicals"
- The ten template pictures, maximum, created by the project engineer. These template pictures begin with "@PCS7Typicals".

The function opens all pictures and determines the priority of the pictures alphabetically based on their names.

Priority 1: "@PCS7Typicals*", of which the last picture in alphabetical order.

Priority 2: "@PCS7Typicals"

Priority 3: "@@PCS7Typicals"

The pictures of the highest priority are inserted.

7.3 Example: Creation of Object Templates

The "Create/update diagnostic pictures" function uses the template pictures from "@@MaintenanceTypicals" correspondingly.

Note

The descriptions of the object properties only match if the supplied Template Control is used. If you have named the descriptions of the object properties in the configuration file yourself, these object properties are used.

See also

Structure of the configuration files (Page 196)

File Format of the Export/Import File (Page 203)

Functionality of the Graphic Object Update Wizard (Page 188)

Dynamic Wizard of the Graphics Designer (Page 191)

7.4 Dynamic Wizard of the Graphics Designer

7.4.1 Dynamic Wizard of the Graphics Designer

Functionality

The Graphic Object Update Wizard provides the following Dynamic Wizards for the exchangeability of process symbols:

Dynamic Wizard "Exporting Picture Objects"

This Wizard exports all user objects with type identification contained in the current WinCC picture or project into a Microsoft Excel spreadsheet in CSV format. The object type and connection information are exported, among other things.

The Wizard can recognize the object type from the entry in the object property that you have configured as the identifier of the user object. For the supplied TemplateControl, the object property is "type".

Dynamic Wizard "Importing Picture Objects"

The Wizard imports user objects into WinCC pictures that you have previously exported with the "Export Picture Objects" Dynamic Wizard. When importing, the customized objects specified in the file/Microsoft Excel spreadsheet will be recreated. Here, template objects that must be stored in the template picture are accessed.

Dynamic Wizard "Updating Picture Objects"

The Wizard updates all of the user objects with type identifier in the current WinCC picture or in the project. The Wizard can recognize the object type from the entry in the object property that was configured as the identifier of the user object. Here, template objects that must be stored in the template picture are accessed.

Dynamic Wizard "Changing the Connection of the Customized Object"

This Wizard is used for the later change of individual connections of customized objects in WinCC pictures, e.g. connection to another AS block instance.

See also

How to export user object templates (Page 192)

How to import WinCC pictures (Page 193)

How to update WinCC pictures (Page 194)

How to change the user object interconnection (Page 195)

7.4.2 How to export user object templates

Use the "Export Picture Objects" wizard to export user object templates from a WinCC picture to a CSV file (ASCII file).

To import these user objects as templates into a WinCC picture, use the Dynamic Wizard "Import Picture Objects".

Settings

Scope of export

Select whether the export file is to be generated only from the picture currently opened in the Graphics Designer or from all WinCC pictures of the project.

In general, do not export any template pictures with user object templates and PCS 7 system pictures. You can identify files of this type by the prefix "@...".

Configuration files

The OS Project Editor creates the configuration files for the export in the WinCC project folder "WScripts".

You can find additional information on the configuration files under "Structure of the configuration files (Page 196)".

Splitting the tag names

This option makes sense particularly for PCS 7 users who work with the plant hierarchy (PH) of SIMATIC Manager.

In this case, the tag name is separated by the separator "/" into up to six individual names, which provides more options to edit the export file.

If you use block names that consist only of the hyphen "-" or end with the hyphen, the hyphens are not included in the tag name during import.

To correctly reassemble the tag names from the block columns during import, select the "ConsiderHyphenForBlockName" option. To do this, edit the configuration file for the standard behavior, e.g. "TemplateControl.cfg".

Requirement

- The corresponding WinCC picture is opened in the Graphics Designer.

Procedure

1. In the Graphics Designer, select the Dynamic Wizard "Exporting Picture Objects" from the "Picture Functions" group.
The Dynamic Wizard leads you through a series of dialog boxes to create the export file.
2. Select whether you want to export the user objects of all pictures or only from the active picture.
3. Specify the name of the export file.
"Export.csv" in the folder of the current project is suggested as the default name.

4. Specify the name of the configuration file.
The "TemplateControl.cfg" file in the "WScripts" folder of the current project is suggested as default value.
5. Select whether the tag names are to be split.
6. To create the export file, close the wizard with "Finish".

See also

Dynamic Wizard of the Graphics Designer (Page 191)

7.4.3 How to import WinCC pictures

Requirement

To import a WinCC picture, open the WinCC picture in the Graphics Designer into which the picture stored in the Microsoft Excel file is to be imported. Create a back-up copy of the pictures to be imported because you cannot undo this procedure.

Procedure

1. Before the import, all objects that have an entry in the object property "type" and also are present in the template picture are deleted in the pictures to be imported (column 1 of the Microsoft Excel spreadsheet). Therefore, export the current version before you import a picture. The name of your template picture has to start with the symbol "@".
2. Open the "Import Picture Objects" Dynamic Wizard in the "Picture Functions" tab and import the objects.
3. When doing so, make the following settings:
 - Specify the name of the import file.
Specify the name of the import file here. "Export.csv" in the folder of the current project is suggested as the default name.
 - Specify the name of the template picture.
Here, specify the name of the template picture containing the template objects.
"@TEMPLATE.pdl" in the directory "GraCS" of the current project is proposed.

If the import file contains objects that are not found in the template picture, a warning message is displayed. These "unknown" objects will not be imported. If objects have been added to the import file by copying existing lines, they will be regenerated.

The WinCC tag names of the import file will not be checked for their validity or presence in WinCC Tag Management.

Note

The descriptions of the object property "type" only match if the supplied TemplateControl is used. If you have named the description of the object property in the configuration file yourself, this object property is used.

See also

Structure of the configuration files (Page 196)

Dynamic Wizard of the Graphics Designer (Page 191)

7.4.4 How to update WinCC pictures

Requirements

If you do not have to post-process the export file, use the "Updating Picture Objects" Wizard instead of exporting and then importing the picture objects. Open the relevant picture in the Graphics Designer. Create a back-up copy of the picture because you cannot undo this procedure.

Procedure

1. Update the objects with the "Update Picture Objects" Dynamic Wizard. Open the Wizard in the "Picture Functions" tab.
2. Make the following settings:
 - Select whether to only update the active picture that is open in the Graphics Designer or all of the pictures in the project. In general, do not update any template pictures with user object templates and no PCS 7 system pictures. Files of this type can be identified by the prefix "@...".
 - Specify the name of the template picture containing the template objects. "@TEMPLATE.pdl" in the directory "GraCS" of the current project is proposed.
 - Specify the name of the configuration file in which the information about the updated picture object is retained.

This Wizard replaces the following picture objects with those from the template picture

- Picture objects that have an object property to identify the object, e.g. "type"
- Picture objects that are present in the template picture.

In the process, no export file is created. If the export file is not required for editing purposes, this makes sense.

See also

Structure of the configuration files (Page 196)

Dynamic Wizard of the Graphics Designer (Page 191)

7.4.5 How to change the user object interconnection

Introduction

With this Wizard, you change the dynamic connection on a user object. In doing so, you replace the instance name in the tag in front of the period. Dynamics with internal tags are not affected by this.

Procedure

1. Open the picture in the Graphics Designer and select the user object.
2. Open the Dynamic-Wizard "Replace User Object Connection" in the "Picture Functions" tab to edit the object.
3. Specify the new instance name or select one. If you do not specify a name here, the instance name is deleted from the tag connections.

See also

Dynamic Wizard of the Graphics Designer (Page 191)

7.5 Configuration files

7.5.1 Structure of the configuration files

Configuration files in the "WScripts" folder

When the OS Project Editor is running, the following configuration files are copied to the "<Project Directory>\WScripts" folder of the open project:

Configuration file	Use
@@ConfigTypicals.cfg	Updating lifebeat monitoring
@@MaintenanceTypicals.cfg	Create/update diagnostic screens
@@PCS7Typicals.cfg	Create/update block icons
ChangeOCXtoUdo.cfg	Migration of the PCS 7 Library V5 to the PCS 7 Library V6 with the Dynamic Wizard
CSIG.cfg	Configuration of the group display object with the Dynamic Wizard
LBMObjects.cfg	Configuration of the plant configuration picture with the Dynamic Wizard
TemplateControl.cfg	Default characteristics

Configuration files "@@..."

The first three configuration files are automatically selected by the system.

You can create your own configuration file for each function.

Copy the custom files to the same folder under the following names:

- @ConfigTypicals.cfg
- @MaintenanceTypicals.cfg
- @PCS7Typicals.cfg

If the custom configuration files "@..." are found, these files are used.

Editing configuration files

Normally, a user does not need to change the configuration files provided by the system.

With a configuration file, you can replace all instance-specific picture and script information centrally. In this file, you configure up to 100 properties for the objects that are newly copied to the template picture.

You specify the entries locally for each project.

Applying a modified configuration file

If you change a configuration file, you must apply the change in the OS Project Editor:

1. Open the OS Project Editor in the WinCC project.
2. Activate the option "Update Graphics Object Update Wizard configuration" on the "Basic Data" tab.

3. To run the OS Project Editor, click "OK".
4. Edit the configuration file in a text editor, such as Notepad.
5. Save the file.

Structure of the configuration files

The configuration files are structured like INI files and divided into several sections.

The following sections show the structure using the example of the "TemplateControl.CFG" file.

Section 1: "AnalyzedObjects"

The editable object types are specified in the first section of the configuration file.

Disable any objects that are not required in order to increase performance.

```
[AnalyzedObjects]
Customized_Object = 1
OCX_Objects = 0
AdvancedStateDisplay_Objects = 0
AdvancedAnalogDisplay_Objects = 0
CSIG_Objects = 0
```

Entry	Object type	Default
Customized_Object	Customized objects	1 = Enabled
OCX_Objects	ActiveX Controls (OCX)	0 = Disabled
AdvancedStateDisplay_Objects	Extended status display	0 = Disabled
AdvancedAnalogDisplay_Objects	Extended analog display	0 = Disabled
CSIG_Objects	Group display object	0 = Disabled

Section 2: "Trace"

In the second section of the configuration file, you specify whether a log file should be output.

```
[Trace]
Logfile = 0; no log file
```

The default setting is "0".

If you enter the value "1", a log file is created.

Section 3: "General"

In the third section of the configuration file, you specify what happens during exchanges.

```
[General]
ChangeTag = 0
ChangeLink = 0
```

```
ConsiderZoomFactor = 1  
ConsiderHyphenForBlockName = 1
```

Entry "ChangeTag"

The "ChangeTag" entry enables tag replacement.

The default setting is "0". The Wizard only replaces the tag interconnections of dynamic object properties.

When you enter the value "1", all used tags in C scripts, triggers and the content of the "tagname" object property for faceplates are updated.

Entry "ChangeLink"

With the "ChangeLink" entry, you specify the tag replacement type of the tag connections.

The default setting is "0". The wizard replaces the tag connections of dynamic display object properties with the structure instance information of the tag connection. The structure instance name does not have to appear in the tag.

When you enter the value "1", the tag connections are replaced according to the structure instance names.

Entry "ConsiderHyphenForBlockName"

The "ConsiderHyphenForBlockName" entry is relevant if you select the "Split tag names" option.

The default setting is "0". If a block name consists only of the hyphen "-" or ends with the hyphen, the corresponding column is interpreted as empty during import.

If you use block names that consist only of the hyphen "-" or end with the hyphen, enter the value "1". During import, the tag names with hyphens as last character are also correctly reassembled from the block columns.

Section 4: "IdentifierObjecttype"

In the fourth section of the configuration file, you specify the unique identifier of the object that is indicated in the "Object type" column of the export/import file.

A maximum of 10 entries are permitted in ascending order without blank lines.

```
[IdentifierObjecttype]  
Objecttype0 = tagtype  
...  
Objecttype9= type
```

These entries are compared sequentially with the properties of the object to be edited.

When a match is found, the wizard accepts this property as an identifier.

Configuration file "CSIG.cfg"

A property of the group display objects can be entered as identifier in the configuration file "CSIG.cfg".

"CSIG.cfg" contains "UserValue1" by default.

Section 5: "Columns"

In the fifth section of the configuration file, you specify the columns of the export/import file.

The descriptions of the columns are located in the first line of the export/import file.

A maximum of 100 entries are permitted in ascending order without blank lines.

The data type of the associated object property is specified. Only the following data types are allowed:

- Numerical = 3
- Alphanumerical = 8
- Binary (Boolean) = 11

```
[Columns]
```

```
Column00 = X-Pos
```

```
Type00 = 3
```

```
Column01 = Y-Pos
```

```
Type01 = 3
```

```
Column02 = Tag
```

```
Type02 = 11
```

The names are compared with the settings of the configuration file during import.

If the import and configuration files do not match, the import is aborted.

Configuration file "CSIG.cfg"

In the configuration file "CSIG.cfg", the column for the collective value is referred to as "CollectValue".

Instead of the data type, a link identifier is specified:

- "0" for the static value of the "Collective value" property.
- "1" for the tag name of the "Collective value" property.

For example, "Link02 = 1" means that the dynamic value is written into the export/import file via the tag name.

Section "Column0x"

In the next sections of the configuration file, you specify the assignment of the object properties to the columns of the export/import file.

You can assign several entries to each column defined in the fifth section "Columns".

A maximum of 10 entries are permitted in ascending order without blank lines.

```
[Column00]
```

```
Property0 = Left
```

```
Property1 = PosX
```

```
[Column01]
```

```
Property0 = Top
```

These entries are compared sequentially with the properties of the object to be edited.

As soon as a match is found, the Wizard links this property to the corresponding column.

See also

Application of the configuration file (Page 200)

How to exchange script- and instance-specific picture information (Page 201)

7.5.2 Application of the configuration file

Introduction

After configuring a custom, project-specific configuration file, the Graphic Object Update Wizard compares the user objects.

Exporting the picture objects

During export of a picture object, the Graphic Object Update Wizard creates an export file.

In addition, the Wizard saves the configuration file under the name of the export file in CFG format. In the course of a subsequent import you can interpret the export file in accordance with the settings of the original configuration file.

The picture objects with the object properties created accordingly are then determined from the picture or pictures.

The data are written to a file that can be edited with Microsoft Excel. The structure corresponds to the settings of the configuration file used.

Importing the picture objects

The picture objects named in the export file are copied from the template picture into the pictures of the project.

The configuration corresponds to the settings of the export file.

When importing the objects, the wizard reads the configuration from the file "<Name of the export file>.cfg". If this file does not exist, the import takes place via the project-specific file.

Updating the picture objects

If the export file does not have to be edited, the "Update the picture objects" Wizard basically uses the project-specific file to replace the objects changed in the template picture.

See also

Structure of the configuration files (Page 196)

7.5.3 How to exchange script- and instance-specific picture information

Introduction

When objects are imported and updated, alongside the tag connections of dynamic object properties, the structure instance names of the following tags are also recognized and exchanged:

- Tags used in C scripts
- Tags used in triggers
- The content of the object property "tagname" of the faceplates

Prerequisite

Observe the following restrictions:

In the case of scripts, the tag is defined in the declaration, e.g.:

```
// WINCC:TAGNAME_SECTION_START
#define TagNameInAction "Tag1.ui"
// WINCC:TAGNAME_SECTION_END
```

Tags which are stored directly in the code are ignored.

The tag of the object in the template picture has a structure instance name that is specified for each object property for a tag interconnection of the object, e.g.:

Correct: `#define TagName "Tag1.ui"`

The structure instance is "Tag1".

Incorrect: `#define TagName ".ui"`

The structure instance is missing. The structure instance is not entered in the template picture of the picture object.

Procedure

The structure instance with picture object in the template picture is determined on the basis of a user-specific object property of a tag interconnection. The tag information can not be replaced if neither an object property of this kind, nor a structure instance for this object property are available. The structure instance must be the same for all object properties of the tag interconnection, for otherwise it is selected at random.

Replacement of the structure instance works according to the following principle:

- A structure instance name entered as a whole is also replaced as a whole; for example, `#define TagNameInAction "Instance1" > #define TagNameInAction "Instance2"`.
- The instance-specific part is replaced at all tag databases which access a part of the structure instance name, for example, `#define TagNameInAction "Instance1.ui" > #define TagNameInAction "Instance2.ui"`.

The scripts you edited are recompiled if the instance-specific part of the tag file is replaced.

Configuring the replacement process

Structure instance information on the objects is provided only on a limited basis for extended replacements. You can configure the replacement behavior of the Graphic Object Update. Corresponding settings can be made in the "[General]" section of the configuration file.

```
[General]
ChangeTag = 0
ChangeLink = 0
```

The "ChangeTag" entry enables tag replacement. The default setting is "0". The Wizard only replaces the tag interconnections of dynamic object properties. By entering the value "1" you update all used tags in C scripts, triggers and the content of the "tagname" object property at faceplates.

The "ChangeLink" entry is used to specify how the tag interconnections are to be replaced. The default setting is "0". The tag interconnections of dynamic object properties are replaced by the structure instance information of the tag interconnection, similar to the previous version,. The structure instance name does not have to appear in the tag. By entering the value "1" you replace the tag interconnections according to the structure instance names. The replacement also takes place for tags in the scripts, however, not for tags in Trigger. The structure instance name must always appear at the tags.

This results in the following replacement options:

ChangeTag	ChangeLink	Replacement
0	0	Only the structure instance information in the tag interconnections is replaced. The structure instance name does not have to appear at the tag. All tags of dynamic object properties are interconnected with the new structure instance, independent of which structure instance in the object in the template picture is entered at the tag interconnection. The Wizard works as in the previous version.
0	1	The structure instance information in the tag interconnections and in the scripts is replaced, however not in for Trigger. The structure instance name must be defined at the tags and have the same structure instance.
1	0	The structure instance is replaced at all tag files. The structure instance name must be defined at the tags and have the same structure instance. The structure instance only has to appear once at the tag interconnections. If the structure instance appears several times the structure instance must always be the same. The configuration in the Wizard is not favorable with these settings.
1	1	The structure instance is replaced in all tag files in accordance with the settings described above: The structure instance name is always defined at the tags and must have the same structure instance.

7.6 File Format of the Export/Import File

Introduction

The export/import file contains the following columns in this order:

- Picture Name
- Object Type
- Link1 to Link6
- Object name
- Individually configured columns from the configuration file

Example of an export and import file

The Export Wizard generates a file in the *.csv format as illustrated below. You can change or expand the file as needed. The Import Wizard regenerates objects, e.g. motors or valves with this file.

Picturename	Object type	Link1	Link2	Link3	Segment4
MyPic.Pdl	MOTOR	-	-	MAIN	TYPICALS
MyPic.Pdl	MOTOR	-	-	MAIN	TYPICALS
MyPic.Pdl	VALVE	-	MAIN	BEF	DT1BA1
MyPic.Pdl	VALVE	-	MAIN	BEF	DT1BA1
MyPic.Pdl	VALVE	-	MAIN	BEF	DT1BA1
MyPic.Pdl	VALVE	-	MAIN	BEF	DT1BA1

Continuation of the Table

Segment5	Segment6	Objectname	X-Pos	Y-Pos	Tag (Identifier)	Trend
SD0001	SDRIVE	MOTOR	200	120	SD0001	Trend_2
SD0003	SDRIVE	MOTOR	190	230	SD0003	Trend_3
Y71	SVALVE	VALVE	20	20	Y71	Trend_6
Y78	SVALVE	VALVE	20	70	Y78	Trend_xxx
Y78	SVALVE	VALVE	710	90	Y78	Trend_test
Y79	SVALVE	VALVE	20	20	Y79	Trend_test2

Comment: The name of a tag consists of the columns "Link1" to "Link6".

Example of line 1: HAUPT/TYPICALS/SA0001/SANTRIEB.

The names in the table must not have blank spaces.

See also

Functionality of the Graphic Object Update Wizard (Page 188)

Component List Editor

8.1 General Information About the Component List Editor

Introduction

You can use the Component List Editor, for example, to configure the properties of the measurement points that are needed for the PCS 7 OS runtime.

- Type
- Entry point picture (Loop In Alarm)
- Area assignments

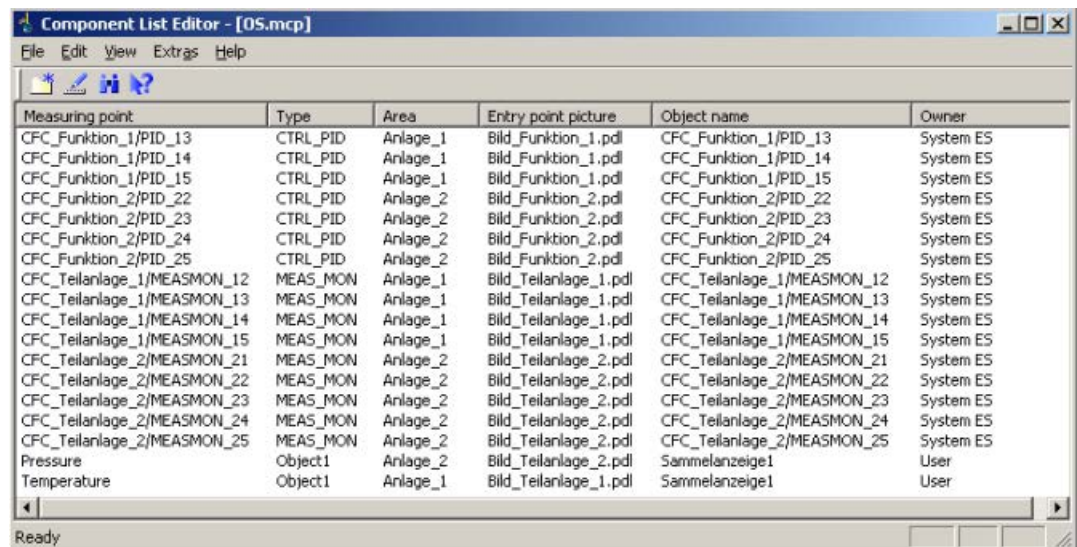
The function is only available in one PCS 7-OS.

Overview

The component list is usually derived from the PCS 7 ES configuration in the course of the AS-OS engineering ("Compile OS"). The AS-OS engineering distributes all relevant runtime properties of the measurement point in the WinCC configuration data, such as data manager, alarm logging, and the component list. Following configuration changes in the PCS 7 ES, you can use the AS-OS engineering to ensure that specific data on the OS remains consistent.

You can create new measurement points yourself using the Component List Editor. The editor shows you all the information of the component list regardless of the source. However, you can only change data in the editor that you have entered with the editor. You cannot change data derived from the PCS 7 ES, recognized by the label "System ES" in the "Owner" column in the Component List Editor

Open the Component List Editor by double-clicking it in the WinCC Explorer.



Measuring point	Type	Area	Entry point picture	Object name	Owner
CFC_Funktion_1/PID_13	CTRL_PID	Anlage_1	Bild_Funktion_1.pdl	CFC_Funktion_1/PID_13	System ES
CFC_Funktion_1/PID_14	CTRL_PID	Anlage_1	Bild_Funktion_1.pdl	CFC_Funktion_1/PID_14	System ES
CFC_Funktion_1/PID_15	CTRL_PID	Anlage_1	Bild_Funktion_1.pdl	CFC_Funktion_1/PID_15	System ES
CFC_Funktion_2/PID_22	CTRL_PID	Anlage_2	Bild_Funktion_2.pdl	CFC_Funktion_2/PID_22	System ES
CFC_Funktion_2/PID_23	CTRL_PID	Anlage_2	Bild_Funktion_2.pdl	CFC_Funktion_2/PID_23	System ES
CFC_Funktion_2/PID_24	CTRL_PID	Anlage_2	Bild_Funktion_2.pdl	CFC_Funktion_2/PID_24	System ES
CFC_Funktion_2/PID_25	CTRL_PID	Anlage_2	Bild_Funktion_2.pdl	CFC_Funktion_2/PID_25	System ES
CFC_Teilanlage_1/MEASMON_12	MEAS_MON	Anlage_1	Bild_Teilanlage_1.pdl	CFC_Teilanlage_1/MEASMON_12	System ES
CFC_Teilanlage_1/MEASMON_13	MEAS_MON	Anlage_1	Bild_Teilanlage_1.pdl	CFC_Teilanlage_1/MEASMON_13	System ES
CFC_Teilanlage_1/MEASMON_14	MEAS_MON	Anlage_1	Bild_Teilanlage_1.pdl	CFC_Teilanlage_1/MEASMON_14	System ES
CFC_Teilanlage_1/MEASMON_15	MEAS_MON	Anlage_1	Bild_Teilanlage_1.pdl	CFC_Teilanlage_1/MEASMON_15	System ES
CFC_Teilanlage_2/MEASMON_21	MEAS_MON	Anlage_2	Bild_Teilanlage_2.pdl	CFC_Teilanlage_2/MEASMON_21	System ES
CFC_Teilanlage_2/MEASMON_22	MEAS_MON	Anlage_2	Bild_Teilanlage_2.pdl	CFC_Teilanlage_2/MEASMON_22	System ES
CFC_Teilanlage_2/MEASMON_23	MEAS_MON	Anlage_2	Bild_Teilanlage_2.pdl	CFC_Teilanlage_2/MEASMON_23	System ES
CFC_Teilanlage_2/MEASMON_24	MEAS_MON	Anlage_2	Bild_Teilanlage_2.pdl	CFC_Teilanlage_2/MEASMON_24	System ES
CFC_Teilanlage_2/MEASMON_25	MEAS_MON	Anlage_2	Bild_Teilanlage_2.pdl	CFC_Teilanlage_2/MEASMON_25	System ES
Pressure	Object1	Anlage_2	Bild_Teilanlage_2.pdl	Sammelanzeige1	User
Temperature	Object1	Anlage_1	Bild_Teilanlage_1.pdl	Sammelanzeige1	User

Using the editor

The Component List Editor is only available WinCC single-user projects and multi-user projects. The configured component list of the loaded server packages is used on the WinCC client.

You apply the settings made in the dialog boxes of the Component List Editor by double-clicking the "OK" button. The settings are always based in the currently opened WinCC project.

You sort the entries in the Component List Editor as follows:

- When you click one of the column headers, the entries in this column are sorted in ascending order.
- When you click this column header again, the entries are sorted in descending order.

Requirements for using the Component List Editor

If you have created a PCS 7 OS but did not do so on a PCS 7 ES, you must first run the OS Project Editor in WinCC. The OS Project Editor defines the basic properties of the component list. You will not be able to edit the component list in the Component List Editor unless you have gone via the OS Project Editor.

Effect in Runtime

Use the "LoopInAlarm" function for active alarms. You can configure an entry point picture for each measuring point using the Component List Editor. Measuring points for which no entry point picture is configured, are displayed as a loop at the corresponding faceplate by the "LoopInAlarm" function.

The "Picture via measuring point" is usually used for informational purposes in runtime. Only the measuring points that are entered in the Component List Editor are entered in the runtime dialog box. You can select among five display formats:

- Process picture in working area
- Process picture as window
- Group display
- Loop display in working area
- Loop display as window

If no entry point picture is configured, the default setting is "Loop display in working area".

8.2 Functionality of the Component List

Introduction

The component list offers a storage system for the following important runtime properties of the measuring point in the PCS 7 OS and allows them to be edited:

- Measurement point name
- Block type
- Area location
- Entry point picture
- Name of the block icon in the entry point picture

Generating the component list

The component list derives the project-specific data from the PCS 7 ES configuration in the course of the AS-OS engineering ("Compile OS").

For measuring points entered by the user in the Component List Editor, the entry point picture and the name of the block icon are generated (if they do not already exist) from the calculation of the group display hierarchy of the Picture Tree for the area. If the owner is neither the user nor AS-OS engineering, the project-specific data is updated.

If a picture configuration exists already, the entry point picture is determined for the "LoopInAlarm" function. If a block instance is in several pictures, the system selects one of the pictures as the entry point picture. However, if you wish to designate a specific picture as the entry point picture, you must change the entry point picture for the measuring point in the Component List Editor.

The entries in the component list receive an owner which serves to establish the origin of the data. The owners have the following properties:

- In the entries created by AS-OS engineering, they can change the entry point picture. These entries have the owner "System ES".
- You can change and delete properties of the entries you yourself have created. These entries have the owner "User".

Updating the entries in the component list

AS-OS engineering after editing the component list guarantees the update of entries. The existing entries are deleted and newly created ones are assigned the "System ES" as the owner. If the entry point picture resulted from calculation of the group display hierarchy, the entry point picture is determined once again.

If another owner deletes a measuring point in the component list or renames the entry point picture, the name of the previous measuring point or the original entry point picture remains in the component list following the AS-OS engineering.

If you change the entry point picture to a module, you must also change the object name accordingly. You must save the group display hierarchy again in the "Picture Tree" editor or load the project.

During delta compilation, the "Type" and "Area" properties of deleted or renamed measuring points are individually deleted. The entry point picture created from the group display, the measuring point name and the object name of the previous measuring point remain in the component list.

The measuring point name continues to be shown in the "Picture via measuring point" dialog box although the "old" measuring point no longer has properties.

You clean up the component list using the "Options > Garbage Collection" menu command. The deleted or "old" measuring points are then removed from the "Picture via measuring point" dialog box.

Meaning of the "Owner" column

The entries in the component list are generated by several methods and internally identified by different Creator IDs. The Component List Editor only contains one entry in the "Owner" column. This entry comes from the owner who created the measuring point and can read as follows:

- no entry when a measuring point has yet to be created
- "System ES" when at least one property has been entered by the "Compile OS" function
- "user" when a property has been manually edited or entered by the calculation of the group display (complete or delta)

The project documentation distinguishes the component list based on the creator of the properties. "System ES", "User" or "Group display" can be entered as the creator of a property.

See also


General Information About the Component List Editor (Page 205)

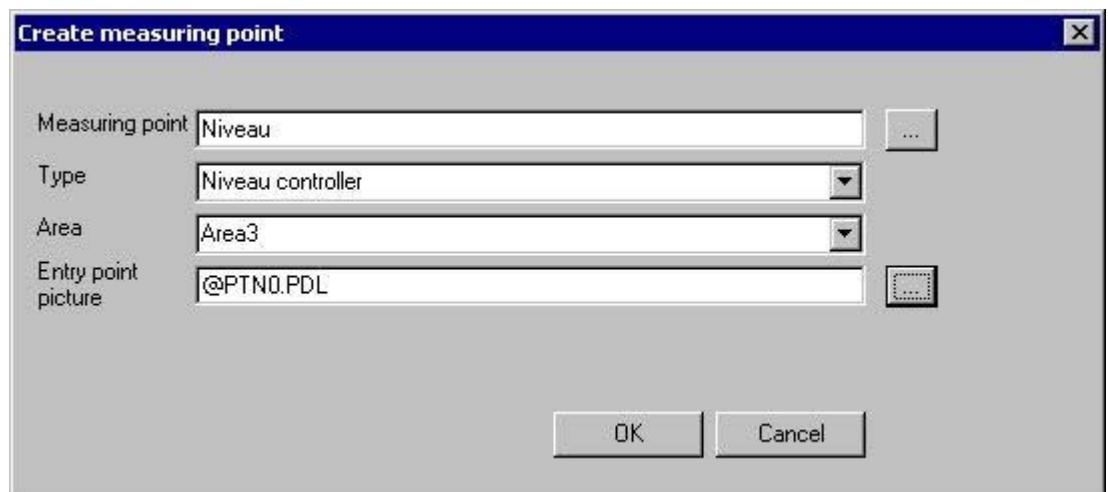
8.3 How to create a new measurement point

Requirement



A new measuring point in the Component List Editor can always be created if no AS-OS engineering has been performed in the ES. In this case you can configure the necessary data in the Component List Editor and create a new measuring point.

Procedure

1. Select the "Edit > Create New Measuring Point" menu command.
2. Click the  button in the toolbar, or double-click in a blank line of the Component List Editor. The following dialog box opens:



3. Configure the data in the four input boxes. You can select the text from the options provided or enter a text using the keyboard:


Field	Definition/Action
Measuring point	Click the  button to open the dialog box for selecting tags. Select a configured WinCC tag. Click "OK". The selection is saved.
Type	Select the block type you want to assign to the specified measuring point from the drop down list box. Only the types configured as structure tags are offered for selection.
Area	Select the hierarchy area you want to assign to the specified measuring point from the drop down list box. The areas configured in the "Picture Tree" editor are offered for selection.
Entry point picture	Click the  button to open the dialog box for selecting the entry point picture. Select the picture. Click "Open".
OK	Use this button to save your settings and close the dialog box.
Cancel	Use this button to close the dialog box. Your entries are not saved.

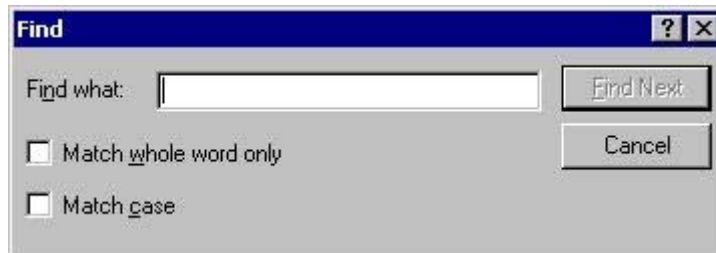
Note

If using the Component List Editor or AS-OS engineering to create measuring points the consistency is not checked against the Tag Management of the data manager. The project engineer is responsible for consistent configuration. If a measuring point exists, the calculation of the group display hierarchy updates the missing attributes, for example, area, entry point picture and name of the block icon only if these have not been created or changed by the user.

8.4 How to find a measuring point

Procedure

1. Select the "Edit > Find measuring point" command, or click the toolbar button . The following dialog box opens:



2. Configure the search criteria:

Field	Definition/Action
Find what:	Enter the search criterion in this input box.
Match whole word only	If the "Match whole word only" check box is activated, only whole words are included in the search for measuring points.
Match case	If you enable the "Match case" check box, the search only covers measuring points whose lower and upper case lettering match the specification at "Find what:".
Find Next	Click this button to start the search.
Cancel	Click this button to exit the dialog box. The search function is canceled.

8.5 How to edit a measuring point

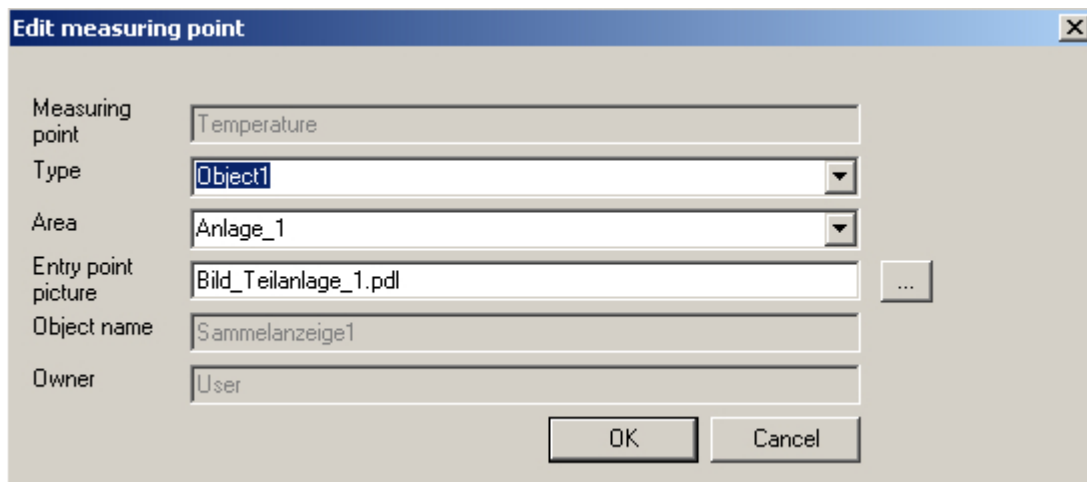
Requirement

You can edit data in the Component List Editor under the following conditions:


- You can only change the entry point picture for measuring points created by the owner "System ES" using AS-OS engineering.
- You can change the entry point picture, the type and the area at measuring points created by the owner "User".

Procedure

1. Select a measuring point.
2. Select the "Edit > Edit measuring point" command, or double-click in the line which contains the selected measuring point.
The following dialog box opens:



3. Configure the edit settings: You can select the text from the options provided or enter a text using the keyboard:

Field	Definition/Action
Measuring point	Displays the measuring point to be edited.
Type	This is where you can edit the block type. Only the "User" owner can change the block type.
Area	Select the hierarchy area you want to assign to the specified measuring point from the drop down list box. The areas configured in the "Picture Tree" editor are offered for selection.
Entry point picture	In order to change the entry point picture, click the  button The entry point picture selection dialog box opens. Select the picture. Click "Open".
Object name	Shows the name of the block icon in the entry point picture. The object name cannot be changed.
Owner	Indicates the data origin of the selected measuring point. The owner cannot be changed.

Field	Definition/Action
OK	Save your changes and close the dialog box by clicking this button.
Cancel	Click this button to close the dialog box. Your entries are not saved.

You can also select and edit a number of measuring points in the editor window. The entry "<various>" is displayed in the input boxes. Configured changes are valid for all selected measuring points. However, only the entry point picture is changed at measuring points created by the owner "System ES".

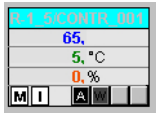
Note

If you change the entry point picture the existing object name is deleted from the component list. The new object name is derived from the new entry point picture. If a suitable block icon is found, its object name is entered in the component list. The first of several block icons found in the same entry point picture is used.

8.6 How to Select a Picture via the Measurement Point

Introduction

The tag selected in the measuring point list represents a measuring point that is highlighted according to the configured display format. Example:

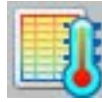


Prerequisite

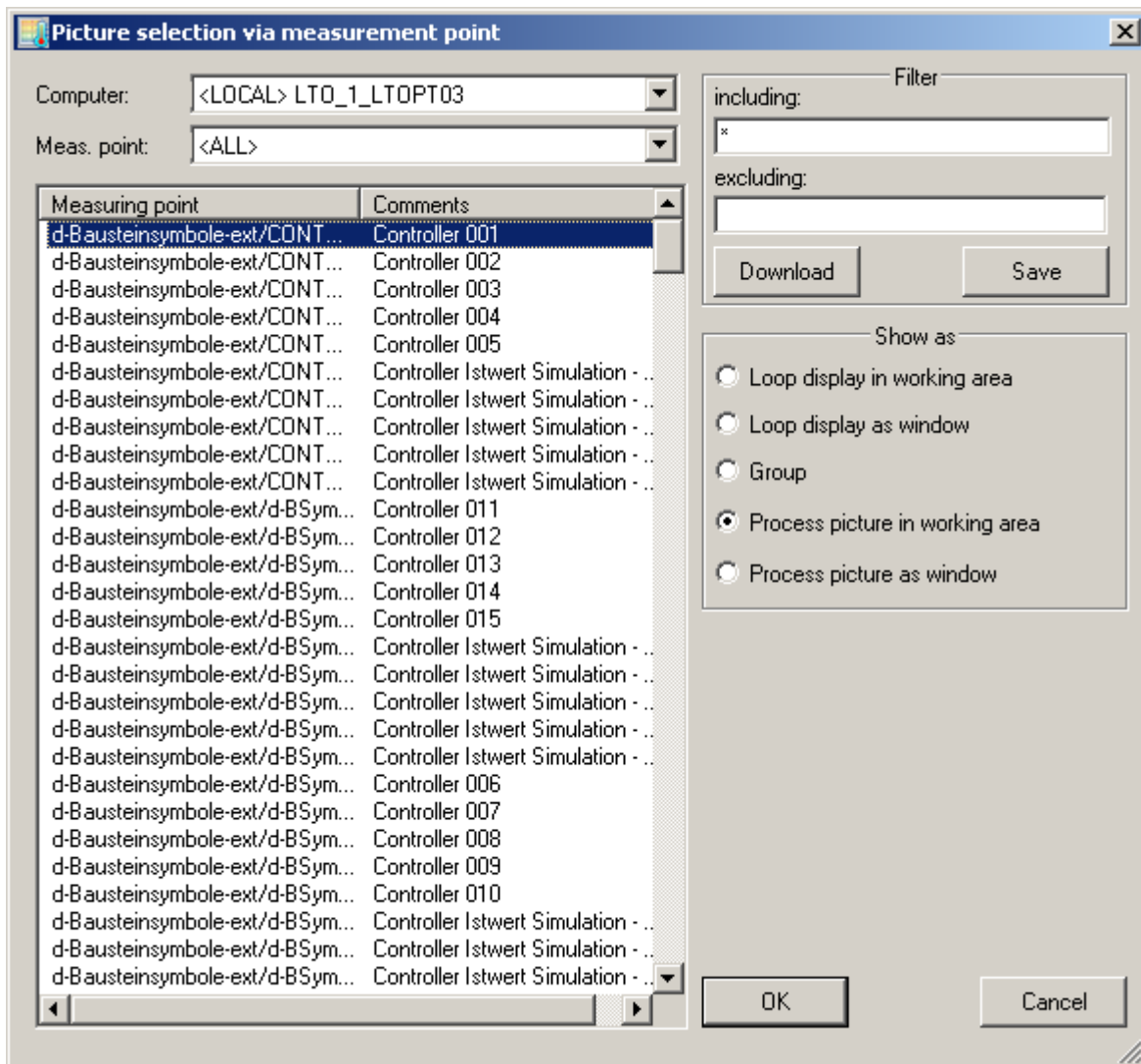
Appropriate area authorizations must be assigned in the User Administrator to the logged on user.

Procedure

1. Click the "Picture via measurement point" button in runtime within button set 1.



The "Picture selection via measurement point" dialog box opens. Any block comment of the measuring point is also displayed in the table beside the measuring point. The block comment is also displayed in the window bar of the faceplate which can be opened by clicking the block icon. The comment originates from the "#comment" block structure/tags and is configured at the block in CFC.



2. Make the required settings here:

8.6 How to Select a Picture via the Measurement Point

Field	Definition/Action
Computer	This drop down list box is only active if the dialog box is opened from within a WinCC client project. In addition, you must have downloaded the package from the selected server to the WinCC client.
Measuring point	Select the measuring points to be displayed from this drop-down list box. "<All>" is displayed by default.
including	In the filter function, you can enter a filter criterion. Then only the measurement points that comply with the filter criterion are displayed.
excluding	You can use the negative filter to exclude measurement points from the display. The list displays only measurement points that comply with the filter criterion and that do NOT comply with the negative filter criterion. If you enter e.g. "*" in the "including" field and "b*" in the "excluding" field, all measurement points that do not begin with a "b" are displayed.
Load	Loads the current filter.
Save	Saves the current filter.
Representation	<p>You can select one of five display formats from the Show as area. The default setting is "Process picture in working area"</p> <p>Process picture in the working area: The measuring point is visualized as a process picture in the working area.</p> <p>Process picture as window: The measuring point is visualized as a window.</p> <p>Loop display in working area: The measuring point is visualized as loop display in the working area.</p> <p>Loop display as window: The measuring point is visualized as loop display window.</p> <p>Group display: The measuring point is visualized as group display.</p>

Note

Measurement points for which the area is unknown do not possess any operator authorization.

If the measuring point selection fails, check in the Component List Editor to determine whether the measuring point has been assigned an area. There, specify the area for which the user has authorization.

If no entry point picture is configured, the faceplate for which the measuring point was configured is displayed. The default setting of the display mode is then "Loop display in working area". The first two radio buttons in the Show as area are then disabled.

8.7 How to configure the "Loop in Alarm" function

Introduction

The "Loop in Alarm" function is only available at a PCS 7 OS.

The "Loop In Alarm" function is used to visualize a measuring point which triggered an alarm in a loop display on the faceplate, or as process picture that has been linked in the Component List Editor.

Procedure

1. Open the "Alarm Logging" editor.
2. Select a message from the table window.
3. Select the the "Loop in Alarm" property in the "Properties" area or in the table area. By default, "Open Picture" is entered in the "Function name" property.
4. Click in the "Function name" text box and select "LoopInAlarm" function in the function browser under "Standard Functions / Split Screen Manager".
5. Click in the "Function parameter" text box and select a process tag from the tag dialog, for example, "FIC_752_003".

Note

The standard function "Open Picture" may not be used in the PCS 7 environment. A picture opened with this function overlays the standard runtime environment. Now, operator input is no longer possible.

Process control runtime

9.1 Process control runtime

Content

This documentation provides an overview of the runtime functionality in PCS 7.

This chapter shows you the following:

- how to use the key and button functions
- how to navigate the picture hierarchy
- how to display message lists
- how to work with graphic pictures
- how to show alarm sources in the group display

9.2 Product Overview

About the Manual

The operating manual provides operating personnel with a guide to operating and monitoring a process. The operating manual provides information about the system structure and describes possible operations.

In addition to these functions, WinCC allows the user to configure new, user-specific operations. These operations are not described in this manual.

Due to the large number of options available during picture configuration, the pictures or picture components used for your installation may be completely different. The operations described here are examples using the existing base data.

Due to differences in screen resolution and/or product developments or runtime changes, any of the pictures of user interface elements shown in the manual (menus, windows, dialog boxes) may differ (in content or scale, etc). from the pictures actually displayed on the screen. These pictures are intended as examples only and claim neither to represent the original nor to be complete.

In its delivered state, the "Libraries" product includes certain complex operating elements of conventional technology such as controllers, motors, valves, or operating and display elements. This package has been designed for use with SIMATIC S7 components.

Assumption

The functions described in this user manual assume that you have used the optional Basic Process Control package to configure your plant.

Usage

The runtime system is used to monitor and guide automatic processes.

The well-arranged graphical user interface with windows technology gives the user a fast overview of the entire plant down to detail level. The user is supported in this task by function-oriented operation and extensive help functions.

Group displays for the alarm and warning functions in the different system areas, together with the "Loop in alarm" function in respect of messages, help to ensure for the user fast reaction and sharply focused intervention.

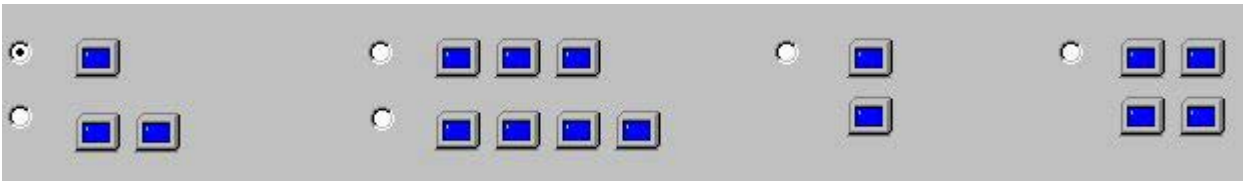
9.3 System Structure

Overview

WinCC Runtime is an operator system for central operating and monitoring. The following system configurations are possible:

- WinCC computer with one screen
- WinCC computer with up to four screens through a Multi-VGA card

The following screen arrangements are supported:



OS Project Editor configures the screen arrangement and screen resolutions (1024x768, 1280x1024, 1152x864 or 1600x1200 pixels) for the WinCC computers.

Project

A "project" is a consistent database which contains the configuration data for executing the entire Runtime.

Working on multiple screens with a mouse and keyboard

To work with the screens, you require only a keyboard and a mouse.

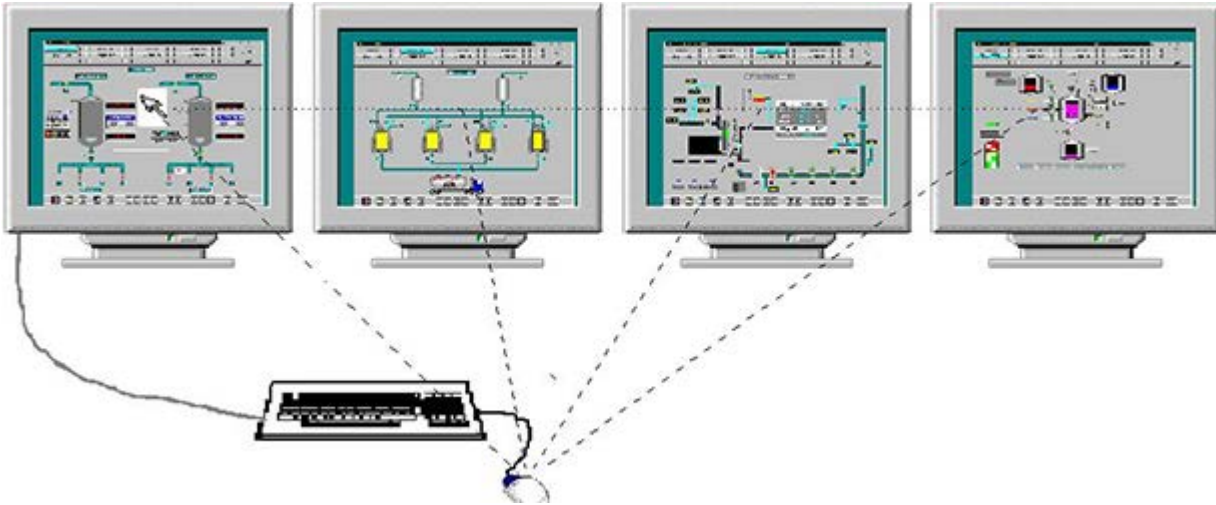
How to work with the mouse:

- Put the mouse pointer onto any screen and move it out of the screen area. The direction of the permitted cursor movement depends on the screen arrangement (left/right, up/down, diagonal). The mouse pointer moves to the next screen.
- You can use the mouse to activate all functions on the screen selected in this way, just as you would on any of the other connected screens.

A single keyboard may be used for all entries on any of the screens.

Example:

This example shows four screens arranged in a row. The user can move the cursor freely from left to right and vice versa.



9.4 How to set up and load the project

Introduction

This chapter describes how to select and set up a new project and then activate it for runtime.

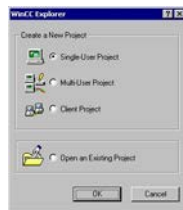
Overview

When you have created a project, you may wish to load it into the runtime system. To do this, perform the following steps.

- Selecting a project
- Assign a computer to the project.
- Configure and initialize the runtime interface with the aid of the OS Project Editor.
- Set up the message system with the standard default values via the OS Project Editor.

Procedure

1. When you have started WinCC for the first time, the following dialog box is displayed:



Alternatively, open the dialog in WinCC Explorer via the menu command "File > New".

2. Select the "Open an existing project" check box and then click "OK".
The file selection dialog box opens.
3. Double-click the "<Name>.mcp" file in the file selection dialog box to display the selected project in WinCC Explorer.
4. If you already started WinCC and want to download a project, select the "File > Open" menu command:

Selecting a computer

If the computer is not entered in the computer list for the opened project, use the following procedure to add the computer to the project:

- Single-user project
 - Right-click "Computer" in WinCC Explorer to open the shortcut menu.
 - Select the "Properties" menu command.

The "Properties" dialog box opens.

- Enter your computer name.
- Multi-user project
 - Modify a configured computer, or add your own computer as an additional operator station.

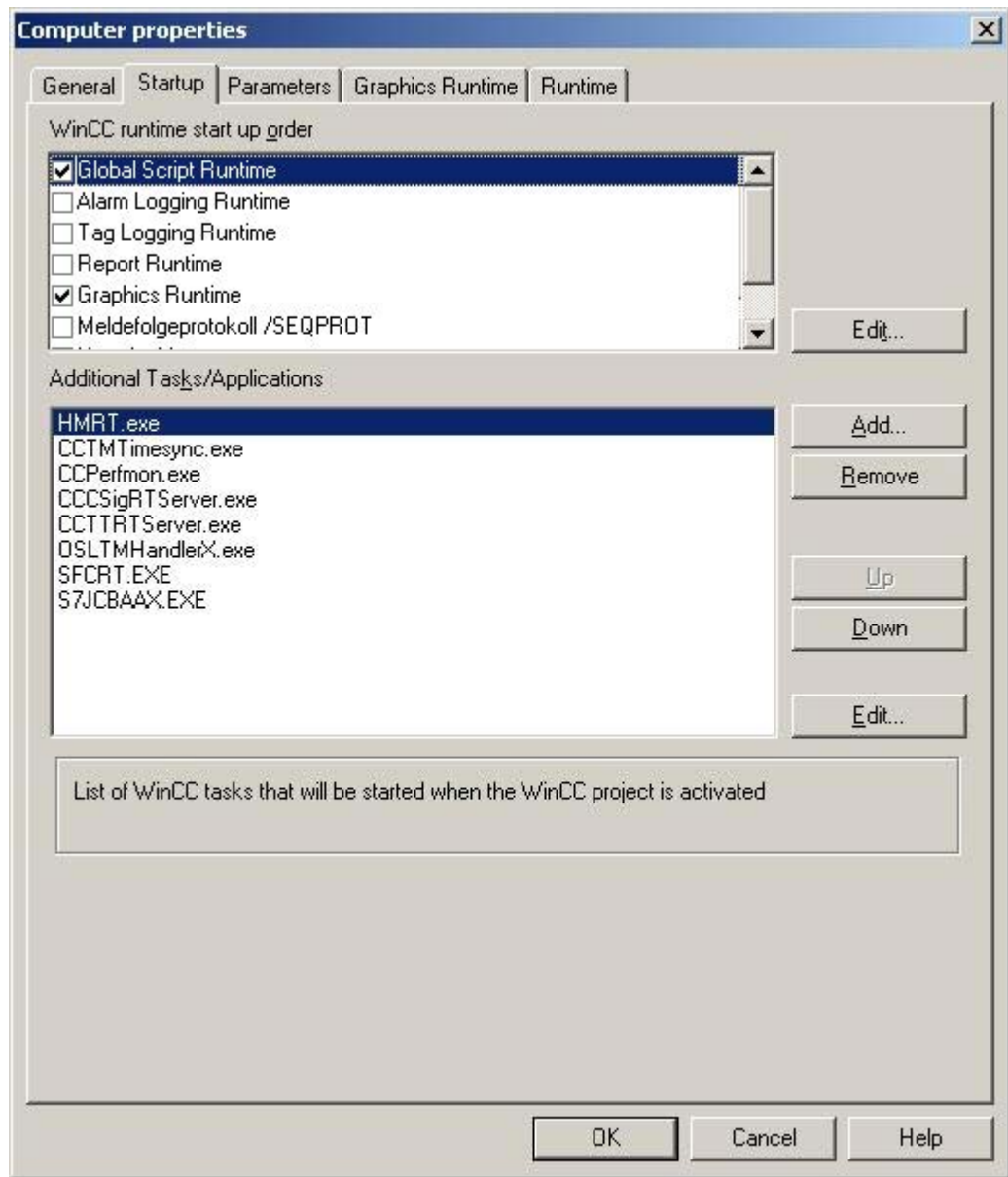
You set the properties of the computer on which the project is to run in the "Computer Properties" dialog box:

1. Click on "Computer" in WinCC Explorer and double click on the appropriate computer name in the "Name" column.

The following dialog box opens:



2. Specify your settings for your computer configuration in the "General" tab.
3. Switch to the "Startup" tab:



If the Basic Process Control optional package is being used, the entries shown above are made in the "Additional Tasks/Applications" list of the OS Project Editor.

Note

The OS project editor automatically activates the startup applications Alarm Logging Runtime, Global Script Runtime and Graphics Runtime in the "Startup" tab. In addition the application "CCCSigRTServer" is automatically linked.

See also

How to activate a project for Runtime operation (Page 228)

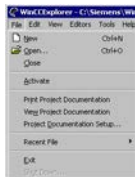
9.5 How to activate a project for Runtime operation

Introduction

Activate the project after having completed all preparations.

Procedure

1. Click on "File" in the WinCC Explorer.
The "File" menu opens:



2. Select the "Activate" menu command.
WinCC Runtime starts.

9.6 Overview of the button functions in Runtime











The table below lists all buttons which are available in runtime and their functionality:

Button set 1:





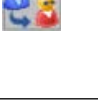


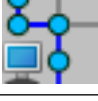















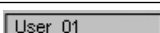





Button set 2:
















Functionality	Key	Explanation
Button set 2		Displays button set 2.
Change Button Set		Displays button set 1.
System control elements		
Password		Open the LOGIN dialog box (authorization required: none).
Exit Runtime		Exits runtime in a defined manner (authorization required: system change).
Switch language		Changes to a different language (authorization required: monitoring).
PCS 7 Tag Browser		Open the PCS 7 Tag Browser to display process tags with selected states (required authorization: authorization for area).
Online Help		Opens the online help. (required authorization: none).
Display the Plant Picture		Displays lifebeat monitoring (authorization required: none).
Save screen composition		Saves the current composition of displayed pictures on all screens (authorization required: authorization for area).
Restore screen composition		Displays the saved screen composition again (authorization required: authorization for area).














9.6 Overview of the button functions in Runtime

Functionality	Key	Explanation
Delete screen composition		Deletes the saved screen composition (authorization required: authorization for area).
Reports		Displays an overview of all report jobs (authorization required: authorization for area).
Picture information		Displays information on the currently displayed picture (authorization required: none).
Activate BATCH		Starts "BATCH " (authorization required: none).
Change user		The current view of the images and windows is remembered as a screen composition. When the new user logs on, the remembered screen composition is restored.
User authorization		Select User Administrator (authorization required: User Administration).
SFC Visualization		Visualization and setup/change of SFC charts (authorization required: none).
Route Control Center		Starts "Route Control Center" (authorization required: none).
Lock messages		The lock applies to all blocks of the picture in the working area and to all child pictures of a parent picture (authorization required: process control elements).
Free alarms		The release applies to all blocks of the picture in the working area and to all nested pictures of the picture (authorization required: process control elements).
Group acknowledgment		Process pictures: Acknowledges all group display objects and faceplates created accordingly in the picture (authorization required: none). Message list: Acknowledges all unacknowledged messages (authorization required: none). The signaling devices are automatically acknowledged.
Overview Area		
Area Selection Button		Select area. Displays the area identified on this button (authorization required: depends on the setting in the "Areas" tab of OS Project Editor pertaining to the picture selection in areas with missing authorization).
Server Selection Button		Select server area. Displays the server package identified by the name on this button (authorization required: none).



Functionality	Key	Explanation
Group display		All messages of an area are interconnected with the display by means of logical "OR function" (authorization required: depends on the setting in the "Areas" tab of OS Project Editor pertaining to the picture selection in areas with missing authorization).
Select Alarm Source (Open Picture)		Displays a picture with the alarm source if an alarm is active and if you press one of the four buttons (authorization required: depends on the setting in the "Areas" tab of OS Project Editor pertaining to the picture selection in areas with missing authorization).
Acknowledge message		Acknowledges the message displayed in the message line (authorization required: none).
Layout of the plant overview		Displays the Picture Tree Navigator (authorization required: none).
Extended Message Line		Displays the list of entered messages (required authorization: none).
Loop in alarm		Selects the picture showing the alarm source (required authorization: none).
Messages to be hidden and locked messages		Show number of hidden and locked messages. You open the list of messages to be hidden and the lock list using the buttons in the displayed window.
Highest priority messages		Display of the list of highest priority messages. This button flashes if a priority "16" message was activated. (required authorization: none). The function is only available on a PCS 7 OS.
Logon		Selects the logon dialog box (authorization required: none).
Redundancy monitoring		If packages are loaded on the client, a green or red button representing the status of the connected servers will appear in the area overview. If you click this button, then a window will open listing all connected servers in the working area. The function is only available at one PCS 7 client.
Screen Dump		Prints the screen content to the default printer (authorization required: none). For screen formats "16:9" and "16:10", use printers with adjustable margin shift or print position.
Pictures		
Picture by name		Selects a picture by means of the picture name (authorization required: none).
Picture via measuring point		Selects a picture via measuring point (authorization required: none). The function is only available on a PCS 7 OS.
Store Picture		Saves the current picture (authorization required: none).

9.6 Overview of the button functions in Runtime

Functionality	Key	Explanation
Recall picture		Displays the saved picture again (authorization required: none).
Previous picture		Displays the process picture which is saved to the picture stack before the current process picture in the working area (required authorization: none).
Next picture		Displays the process picture that is stored in the picture stack after the current process picture in the working area (authorization required: none).
Navigate in the picture tree		
Detail screen		Switches from the area level or sublevel to the next lower level (authorization required: none).
Picture up		Change to the next higher area level or sublevel (authorization required: none).
Picture left		Changes to the next sublevel of the current level (authorization required: none).
Picture right		Changes to the next sublevel of the current level (authorization required: none).
Messages / Alarms		
Previous graphics picture		Exits message system (authorization required: none).
Message system Incoming alarm list		Displays the message system with the associated button set. The incoming alarm list is displayed immediately (authorization required: none).
Incoming alarm list, acknowledgeable		Displays the acknowledgeable incoming alarm list, provided that separate acknowledgeable alarm lists are to be displayed (authorization required: none).
Acknowledged alarm list		Displays the acknowledged alarms list (authorization required: none).
Acknowledged alarm list, acknowledgeable		Displays the acknowledged alarm list, provided that separate acknowledgeable message lists are to be displayed (authorization required: none).
Outgoing alarm list		Displays the outgoing alarm list (authorization required: none).

Functionality	Key	Explanation
Outgoing alarm list, acknowledgeable		Displays the acknowledgeable outgoing alarm list, provided that separate acknowledgeable message lists are to be displayed (authorization required: none).
List of active messages		Displays the list of active messages (authorization required: none).
Acknowledgeable list of active messages		Displays the acknowledgeable list of active messages, provided that separate acknowledgeable message lists are to be displayed (authorization required: none).
Process alarm list		Displays the process alarm list (authorization required: none).
Operation list		Displays the operation list (authorization required: none).
Journal list		Displays the journal list (authorization required: none).
Hidden list		Displays the hidden list of alarms (authorization required: none).
List of hidden messages (split)		Displays the list of hidden messages, provided that separate acknowledgeable message lists are to be displayed (authorization required: none).
List of messages to be hidden		Display list of messages to be hidden (authorization required: none).
List of messages to be hidden (split)		Displays the list of messages to be hidden, provided that separate acknowledgeable message lists are to be displayed (authorization required: none).
Lock list		Displays the lock list (authorization required: none).
Print message sequence report		Prints a chronological list of messages (authorization required: none).
Signaling device / Horn (acoustic alarm)		
Acknowledgement for signaling device		Acknowledges a signaling device (authorization required: none).

9.6 Overview of the button functions in Runtime

Functionality	Key	Explanation
Acknowledgement for signaling device (web client)		<p>Acknowledges a signaling device (authorization required: none).</p> <p>Web client</p> <p>A dialog opens for acknowledgment in the web client. You specify in the dialog whether you acknowledge the horn locally on the web client only or whether all computers involved in the group acknowledge the horn using multiple acknowledgement.</p> <p>If you select the "Make this setting the default setting" option, the dialog will no longer be opened in the future. The specified acknowledgement behavior is then carried out by clicking the button. The setting is reset once you dial into the web client again.</p> <p>The dialog can be opened again by right-clicking the button.</p>
Trend system		
Recall / compile trend groups		<p>Recalls and displays trend groups online (authorization required: none).</p> <p>The function is only available on a PCS 7 OS.</p>

Note

Buttons for installed options

The "SFC Visualization", "BATCH flexible", and "Route Control Center" buttons are only displayed in button set 2 in runtime if the corresponding optional packages have been installed.

Each of these optional packages must be ordered separately from the "WinCC Basic Process Control" optional package.

9.7 User Interface

9.7.1 User Interface

Overview

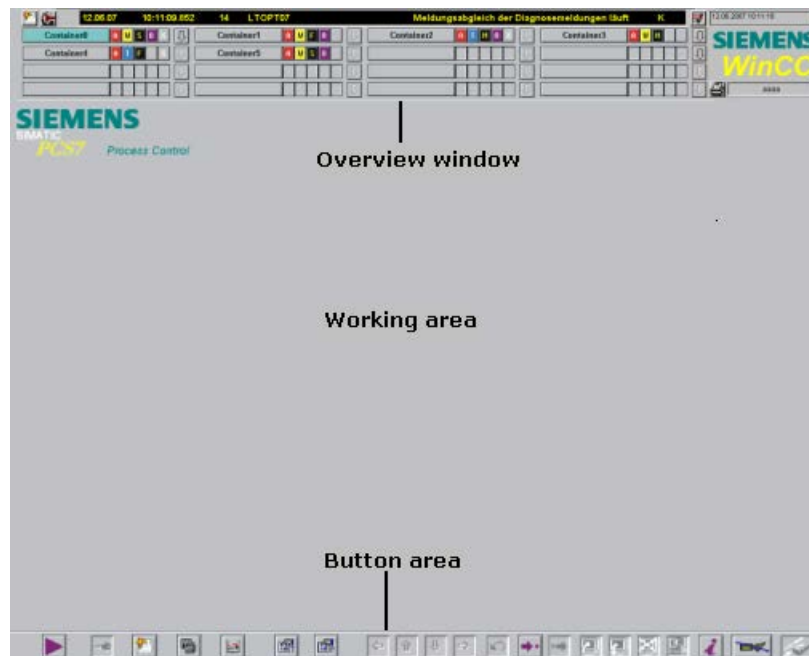
This section describes the layout of the user interface and the basic control elements of WinCC Runtime.

Requirement

The optional "Basic Process Control" package was used during configuration.

WinCC Runtime

After the project has been activated, the following startup screen is displayed:



User Interface

The user interface is divided into three areas:

- Overview Area
- Working Area
- Button area

See also

- Overview Area (Page 236)
- Working Area (Page 241)
- Button Area (Page 242)

9.7.2 Overview Area

Introduction

The overview window is a continuous display that provides an overview of the entire plant.

Each plant area is represented by an area selection button in the overview window. With an area selection list, the user can select the top process picture in the picture hierarchy.



The Picture Tree Navigator and certain key combinations support the user during navigation in the picture tree.









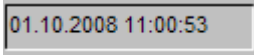
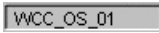
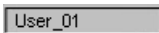

Description of elements

This example overview window includes the following elements:

Functionality	View
Message line: Displays the most recent incoming message of the highest priority	
Extended message line: Opens a list displaying all incoming messages.	
Loop-in-alarm (alarm source picture selection): Selects the picture with the alarm source	
Hidden and locked messages: Opens a window in which the number of hidden and locked messages is displayed. Click the buttons in the window to display the list of messages to be hidden or the lock list.	

<p>Button for the "Highest priority messages" list:</p> <ul style="list-style-type: none"> • The button is only available during the installation of a PCS 7 OS. This button flashes if a priority "16" message was activated. The button also flashes after the message was acknowledged. The button disappears when the message is gone. • The "Highest priority messages" list appears when the button is clicked. Displays the list of all activated messages, including the activated and acknowledged messages of priority "16". • An additional message which is not assigned to a specific area is generated if diagnostics functions are used in the PCS 7 project and a priority "16" message is assigned to the "Diagnostics" area. The message which is not assigned to an area is generated as soon as at least a highest priority message was activated. This message is deactivated after the highest priority messages were cleared from the "Diagnostics" area. The highest priority message is therefore visible to users who are not granted access to the "Diagnostics" area. • Message classes with the configuration "without status went out" will be handled separately. The messages disappear from the "Highest priority messages" list after acknowledgement. • The settings for the message filter also apply to the "Highest priority messages" list. Make sure that you apply message classes requiring acknowledgement to an acknowledgeable message list. • Hidden messages with priority "16" do not cause the button to flash and are not shown in the list. 	
<p>Message acknowledgment button:</p> <p>Acknowledges the currently displayed message</p>	

9.7 User Interface

<p>Visualization of redundancy monitoring in the area overview: The status of all redundant server pairs and non-redundant servers that were loaded by means of packages is displayed in the right section of the area overview:</p> <ul style="list-style-type: none"> • Green button: <ul style="list-style-type: none"> – The servers monitored are in Runtime and their status is "OK". • Red button: <ul style="list-style-type: none"> – Not all monitored servers are in Runtime. – Not all monitored servers have the status "OK". – Not all monitored servers have a fault-free network connection. • Yellow button: <ul style="list-style-type: none"> – Fault on one or more servers. The servers are still available to the clients.¹⁾ • Button with arrows: <ul style="list-style-type: none"> – The archives of the redundant server pairs are performing synchronization. • No button: <ul style="list-style-type: none"> – The "CCEmergencyWatchRTServer.exe" process is missing in the startup list on the client. – No packages are loaded on the client. <p>This functionality is available for PCS 7 server and for PCS 7 OS. To use the server status for WinCC server, proceed as follows:</p> <ol style="list-style-type: none"> 1. Run the OS Project Editor. 2. Select the "Startup" tab in the computer properties of the WinCC server. 3. In the "Additional tasks/applications" area, add the following entry using "Add": <ul style="list-style-type: none"> – CCEmergencyWatchRTServer.exe 	 
<p>Area selection button: Displays the area picture in the working area. The button labels correspond to the container names of the picture configured in the top level of the "Picture Tree" editor.</p>	
<p>Loop in alarm (alarm source picture selection for group display): Selects the picture with the alarm source</p>	
<p>Group display</p>	
<p>Opens the process window of the Picture Tree Navigator. The button is only enabled when there is a hierarchy below the area.</p>	
<p>Current date and time: Shows the date and time in digital format</p>	
<p>Name of the operator station: Displays the computer name of the current operator station</p>	
<p>Login: Shows the name of the current user</p>	
<p>Screen hardcopy: Prints out the contents of the current screen on the computer's standard printer. For screen formats "16:9" and "16:10", use printers with adjustable margin shift or print position.</p>	

¹⁾ If a server partner is off or faulty and the second server partner also develops a fault, the second server partner will initially remain available to the connected clients. The second server

partner will not disconnect the clients until the first server partner can run again and has been compared with the second server partner. This ensures that the clients at least have a connection to this server pair even if there is a fault on each of the server partners.

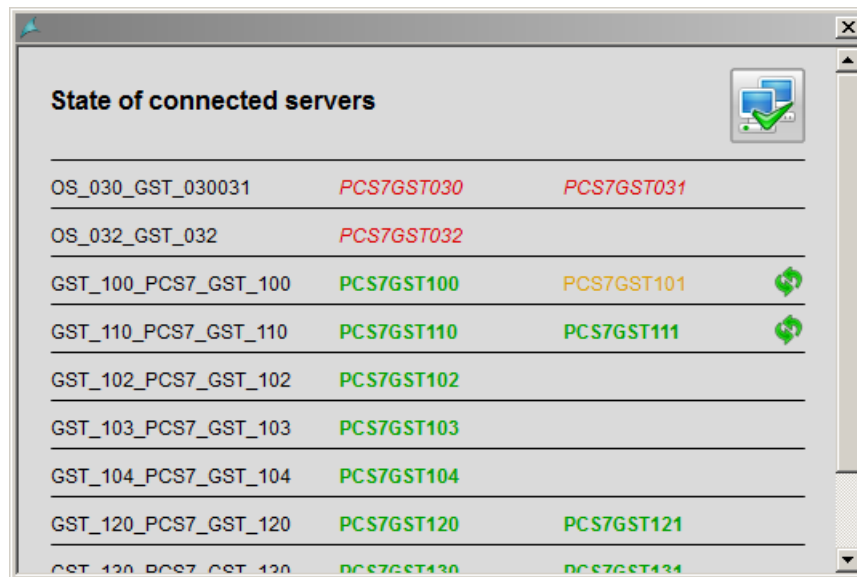
Redundancy monitoring in the area overview

The functionality is only available at one PCS 7 client.

If packages are loaded on the client, a colored button representing the status of the connected servers will appear in the area overview. If the state of a server worsens, the button begins to flash.

If you click this button, then a window will open listing all connected servers in the working area. The table shows the server pairs and non-redundant servers with their symbolic computer names and the corresponding computer names for master and standby.

The servers with problems are displayed at the top in red and italics. This is followed by the servers with faults in yellow and by servers without any problems in green. The arrow symbol indicates that this server is currently performing synchronization.



When a user is logged in, he can confirm the current status of the servers using the acknowledge button in the top right-hand corner.

The button stops flashing in the overview area on the operated client.

The button in the overview area can flash under the following conditions:

Flashing	Meaning
Yes	The client has just activated runtime and not all the servers have the status "OK". Because the status of the servers was confirmed on the client, the status of some of the servers has changed from "OK" to "Not OK".
No	The current status of the servers was confirmed using the acknowledge key. Because the status of the servers was confirmed on the client, the status of some of the servers has changed from "Not OK" to "OK".

SIMATIC Process Historian server

When you use the SIMATIC Process Historian, the status of the Process Historian system is checked as well.

In case of a redundant Process Historian System, the status is displayed by master (principal) and standby (mirror):

- Green button:
The monitored Process Historian Servers are active. The server status is "OK".
- Red button:
Open the detail view and check the entries in the row "Process Historian".
When a Process Historian Server is red, check the operating state and the redundancy status in the management console on the "Process Historian Management" dashboard.
If red is displayed for the active servers of master and standby, the witness server has failed.

WinCC uses the following system tags for monitoring the status:

- @PHServer_Principal_State
- @PHServer_Mirror_State

The following system tags contain additional information that is not evaluated by WinCC:

- @PHServer_Principal_Details
- @PHServer_Mirror_Details

Picture Tree Navigator

Clicking this button opens the process window of the Picture Tree Navigator, which displays the hierarchy assembled in the "Picture Tree" editor for this area:



The Picture Tree Navigator allows you to select the individual pictures in the area.



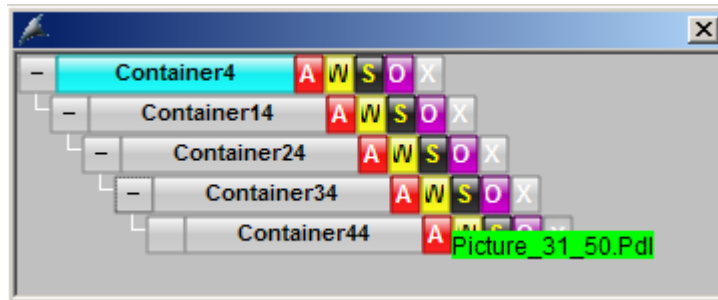
You can also select pictures in the hierarchy using the keyboard.

If you are using multiple screens with multi VGA, the screen selection with the keyboard always acts on the first screen.

Key / Key combination	Meaning
<Picture up>	Moves one picture up in the current hierarchy level, for example from Container 7 to Container 6
<Picture down>	Moves one picture down in the current hierarchy level
<Shift + Picture up>	Moves up one hierarchy level, for example from Container 9 to Container 7
<Shift + Picture down>	Moves down one hierarchy level

When you right-click an icon in the Picture Tree Navigator, the name of the picture containing the message source is displayed.

Each icon can refer to a different message source.



See also

User Interface (Page 235)

Working Area (Page 241)

Button Area (Page 242)

9.7.3 Working Area

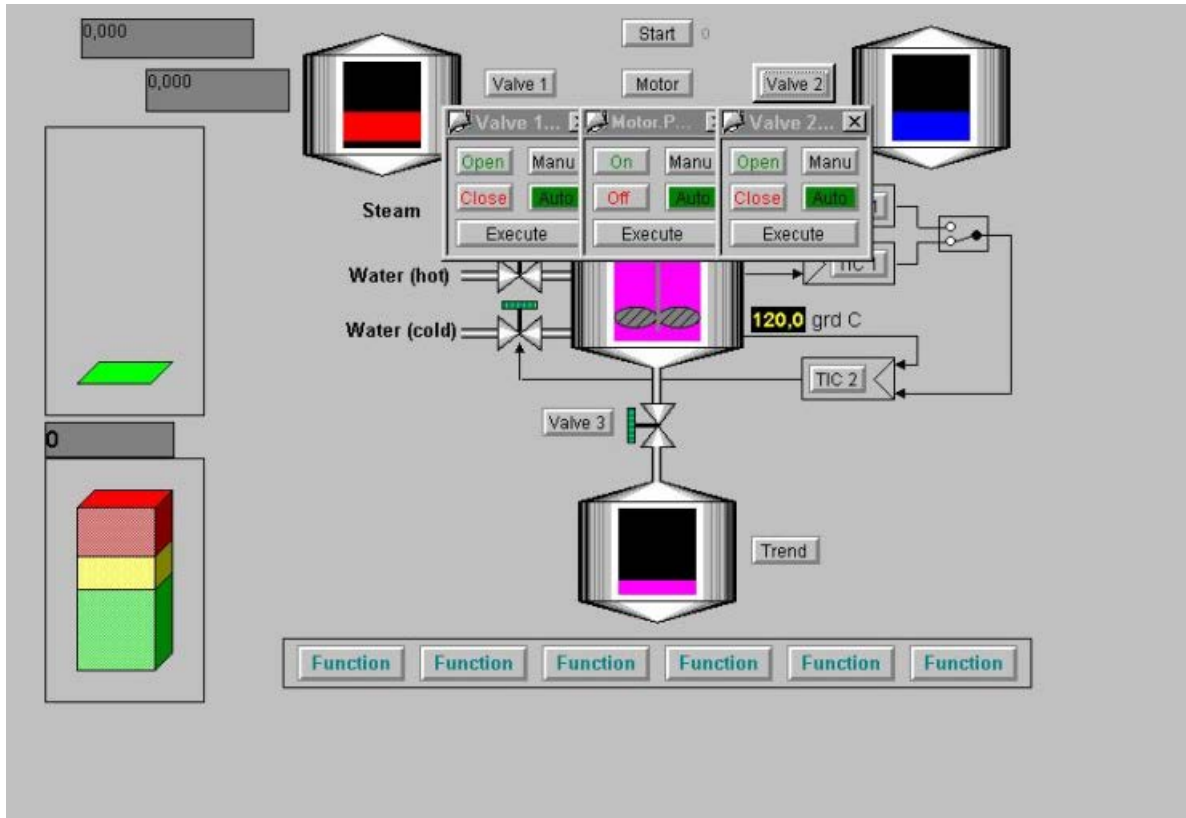
Overview

Individual pictures of the various areas of a plant are displayed in the working area. The process is displayed, controlled and operated in the working area.

You have the following options for displaying a picture in the working area:

- You select the picture in the overview area.
- You use the navigation buttons of the picture hierarchy.

- You use picture selection dialog boxes.
- You use configured picture changes.



See also

- User Interface (Page 235)
- Working Area (Page 241)
- Button Area (Page 242)
- Process Controlling, Graphic Pictures (Page 293)

9.7.4 Button Area

Introduction

Displayed in the button area are buttons that trigger operator activity.

Button sets

Two button sets are defined in runtime.

Button set 1



Button set 2



Switching between the button sets

With these buttons, you switch between the two button sets.



Colored button display

There are two color display modes for individual buttons:

- Shaded:
The buttons are not active. These buttons cannot be used.
- Colored:
The buttons are active. These buttons may be used.

Operation

When you move the cursor over a button, a What's This? help item with the button description will be displayed.

When you click the button, the corresponding function is executed.

You can find an overview of the buttons and their functions under "Overview of the button functions in Runtime (Page 229)"

See also

User Interface (Page 235)

Working Area (Page 241)

Overview Area (Page 236)

Overview of the button functions in Runtime (Page 229)

9.7.5 Runtime Window

Introduction

The runtime user interfaces contain the following different window types:

- Pre-configured picture windows containing pictures that overlay the working area. These top windows are pictures in a process window or faceplates in loop display and group display mode.
- Pre-configured picture windows containing only one picture that overlays the working area. These "special fields" include such items such as warning boxes or information windows.
- Picture Tree Navigator that displays the hierarchy of the plant pictures.

Top window

The behavior of the top window can be configured in the OS Project Editor. If the default behavior is not to your liking, then use that editor to change the behavior of the window.

The "Runtime Window" tab in the OS Project Editor offers you the following configuration options:

- Loop display mode for picture components.
The windows are automatically adapted to fit the size of the picture on opening. Their size cannot be changed.
You can configure the number and position of the windows. With the "Detail" button, you open a configuration dialog in which you set up the position of the first window and the position of the other windows relative to the previous one.
- Group display mode for picture components and for windows in the function "Picture by Name".
The windows open with predefined dimensions which can be changed.
If you activated the "User defined" check box, you can use the "Detail" button to open a configuration dialog box in which you configure the number, position and size of the windows.
Alternatively, you can display the windows in a grid. For example, with a 2x2 grid, each window takes up one quarter of the working area. Sets of two windows opened next to each other and one below the other.
- Trend group display for windows configured with the "Trend online" function.
The windows open to fit the size of the picture. Their size can be changed.
The trends are displayed using pre-configured pictures which you dimension in the Graphics Designer.
The configuration options are the same as for the loop display mode.

Special fields

"Special fields" are picture windows that you assign to a particular picture during configuration, for example a warning notice.

You configure the default settings in the "@1001.pdl" picture.

In runtime, the picture is placed in the configured position each time it is opened.

Number of faceplates in the picture window

In the "Runtime Window" tab of the OS Project Editor you can set the maximum number of faceplates in the picture window that can be simultaneously displayed on each monitor or by the same instance.

Up to four faceplates can be displayed.

When you open a faceplate, and the number of open faceplates exceeds the configured number, a faceplate already open is closed.

Picture Tree Navigator

The Picture Tree Navigator is opened in runtime at the pre-configured position and in the maximum picture size.

The size of the window can be changed. However, if the picture tree is large, the window is not larger than the working area; otherwise the user cannot select the lower ranks of the hierarchy.

You can close the Picture Tree Navigator after opening a picture from the Picture Tree Navigator.

You can specify the response of the Picture Tree Navigator after opening a picture in the "Runtime Window" tab of the OS Project Editor.

See also

Process Controlling, Graphic Pictures (Page 293)

9.8 System operator input

9.8.1 System control elements

Overview

The following functions are described in this section:

- Logon in Runtime: Logon to the system with smart card or password
- Cursor, keys, picture information: General explanations
- Exiting runtime
- Acknowledging signaling devices/alarms
- Switch language
- Displaying the Content of the Picture Stack
- "BATCH" selection
- "SFC Visualization" selection
- "Route Control Center" selection
- Displaying the system configuration picture (lifebeat monitoring)
- Selecting the plant area
- Navigation through the picture hierarchy
- Screen composition
- Displaying reporting jobs
- Selecting the User Administrator
- Locking and releasing messages
- Displaying process tags with selected states in the PCS 7 Tag Browser

See also

How to log on in runtime (Page 247)

Basic control elements in Runtime (Page 248)

How to exit runtime (Page 249)

Acknowledging Signaling Devices and Alarms (Page 250)

How to switch languages (Page 251)

"BATCH" selection (Page 252)

"SFC Visualization" selection (Page 252)

"Route Control Center" selection (Page 252)

Displaying the System Configuration Picture (Lifebeat Monitoring) (Page 252)

- How to select the plant section (Page 254)
- Navigation through the picture hierarchy (Page 301)
- How to Display the Content of the Picture Stack (Page 251)
- How to save the screen composition (Page 256)
- How to display reporting jobs (Page 261)
- How to call the User Administrator (Page 262)
- Disabling and enabling messages (Page 263)

9.8.2 How to log on in runtime

Overview

You have the following options for logging on in runtime:

- You enter a logon name and password in the logon dialog box.
- If a chip card reader is connected, you can use a chip card.

If a user has not been created in the User Administrator, runtime can be operated by all users.

Procedure

1. Click on the logon field in the overview area.
Alternatively click on this key in the key set 1:



The "System Login" dialog box opens.



2. Enter your "login" name and the "password".
You are then authorized to operate runtime.

User change

To accept the currently displayed screen composition when changing users, use the "Change user" key.

Procedure

1. Click on the "Change user" key in the key set 2:



The current view of the images and windows is remembered as a screen composition. A corresponding message is displayed.


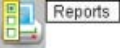

2. Leave this message window open
The message window is automatically closed after you log on.
3. Log on as a new user.
You can select all the usual methods:
 - Logon dialog
 - Chip card
 - Function "Tag Logon"
 - SIMATIC Logon

Result

The remembered screen composition is displayed to the new user.

9.8.3 Basic control elements in Runtime

In the following table, the basic operations are listed:

Function	Button	Description
Cursor in runtime		When the cursor assumes the shape of a lightening bolt, you can activate a function (button or input) or enter process information. If the lightening bolt cursor is not displayed, you cannot make any entries.
Button functionality		When you move the cursor over a button and let it hover there, a What's this? help item with the button functionality is displayed.
Picture information		<p>The picture information displays information about the complete picture currently being displayed. When the complete picture changes, the picture information is updated, as well.</p> <p>Click the button shown to display the picture information:</p> <div data-bbox="533 646 1353 1200" data-label="Image"> </div> <p>Note The picture information displayed always refers to the picture in the working area, not to a picture displayed in the process window.</p>

9.8.4 How to exit runtime




Overview

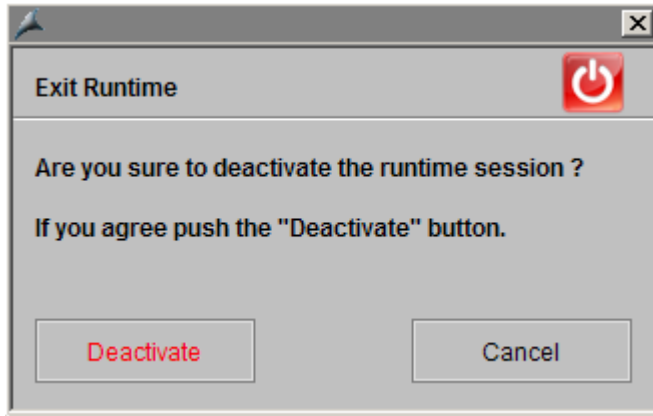
You exit runtime using the "Exit runtime" icon in button set 2.

Procedure

1. Switch to button set 2, if this button set has not yet been set.



2.  Click this button.
A message dialog box opens:



3. Click "Deactivate".
Runtime will be deactivated.

9.8.5 Acknowledging Signaling Devices and Alarms



With this button, you acknowledge the signaling device, e.g., a horn, but not the triggering alarm.



With this button, you acknowledge the alarms or messages displayed on the screen. The signaling devices are automatically acknowledged.

If the message system is open, all messages visible in the message window will be acknowledged.

If the message system is not open, all alarms pending in the working area will be acknowledged, e.g., in group displays and faceplates. Messages associated with lower-level pictures are not acknowledged.

9.8.6 How to switch languages



Overview

In runtime, you can change the language currently set up for process controlling and for all runtime functions. The language will change immediately.

Procedure

1. Click this button in button set 2.
The "Change Language" dialog box will open, displaying the available languages:



2. Select the check box with the desired language.
The language will change.

9.8.7 How to Display the Content of the Picture Stack



You can use the "Previous picture" button to have the process picture that is stored before the current process picture in the picture stack displayed in the working area.



You can use the "Next picture" button to have the process picture that is stored after the current process picture in the picture stack displayed in the working area.

9.8.8 "BATCH" selection



You can start one of the displayed applications of BATCH by means of this dialog box. The buttons of the respective components are activated only if they were installed correctly.

For related topics, consult the PCS 7 *BATCH* manual.

9.8.9 "SFC Visualization" selection



Use this dialog box to visualize, program or edit SFC charts. The buttons of the corresponding components are only activated if properly installed.

You can find related information in the PCS 7 manual "SFC Visualization".

9.8.10 "Route Control Center" selection



You can use this dialog box to start "Route Control Center". The buttons of the respective components are activated only if they were installed correctly.

You can find related information in the PCS 7 manual "Route Control Center".

9.8.11 Displaying the System Configuration Picture (Lifebeat Monitoring)



Overview

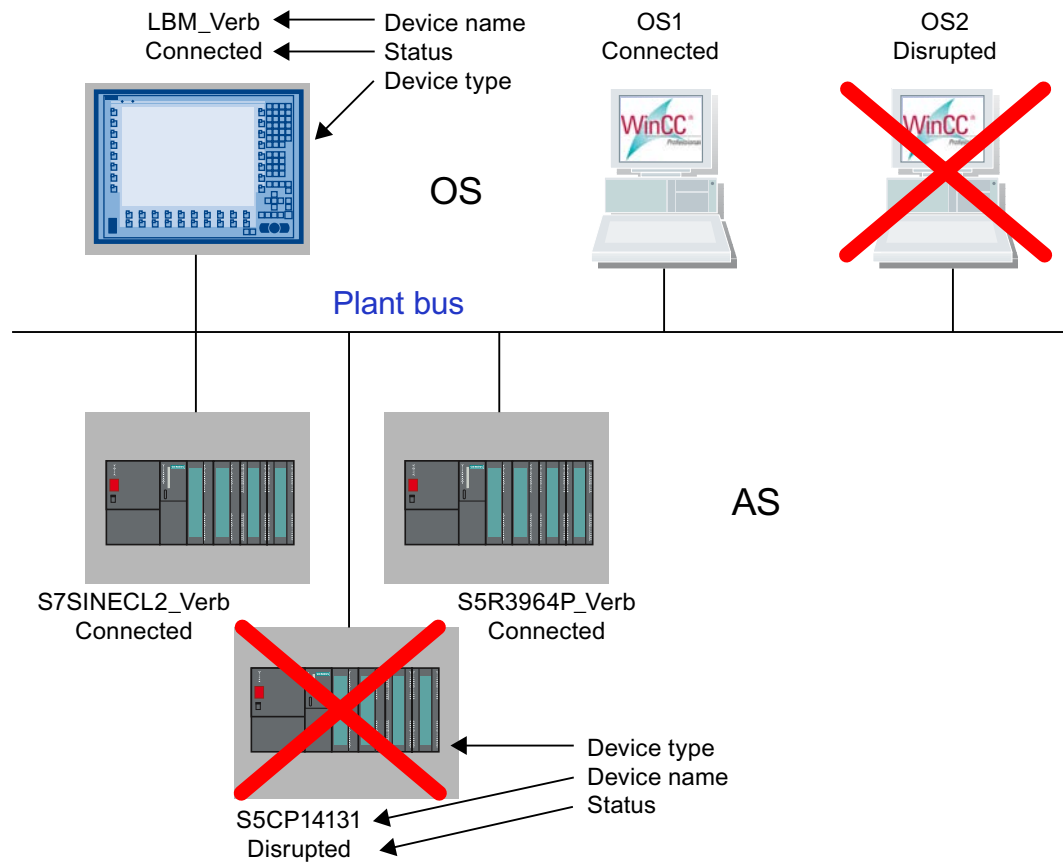
Lifeline monitoring is responsible for continuously monitoring the individual systems, OS and AS, and generating the process control message. The horn is triggered if you have configured the horn in the process control message and installed a signal module or sound card.

The monitoring of the configured components is automatically initiated following a restart and is repeated cyclically. If a component fails to answer after repeated attempts, a message is generated.

Structure of a system picture

In runtime, all monitored components are displayed graphically. Components that are currently not functional, for instance due to a fault, are shown struck through in the graphic.

The following figure shows an example of a process representation:

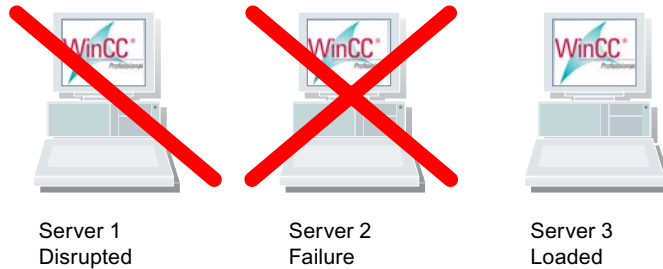


If a number of automation systems (AS) are connected to an OS, they are shown in series.

9.8 System operator input

The servers in the system configuration are represented as follows on a client:

- Disturbed - A device monitored by the server has failed.
- Failed - The server itself has failed.
- Established - The connection to the server has been established.



Procedure

1. Click this button.



This displays the current process picture.

2. Click this button to exit the process picture.



9.8.12 How to select the plant section

Overview

The pictures of the individual plant sections are displayed in the work area. You can select the pictures in the overview area.

Button Display

There are three color display modes for the area buttons:

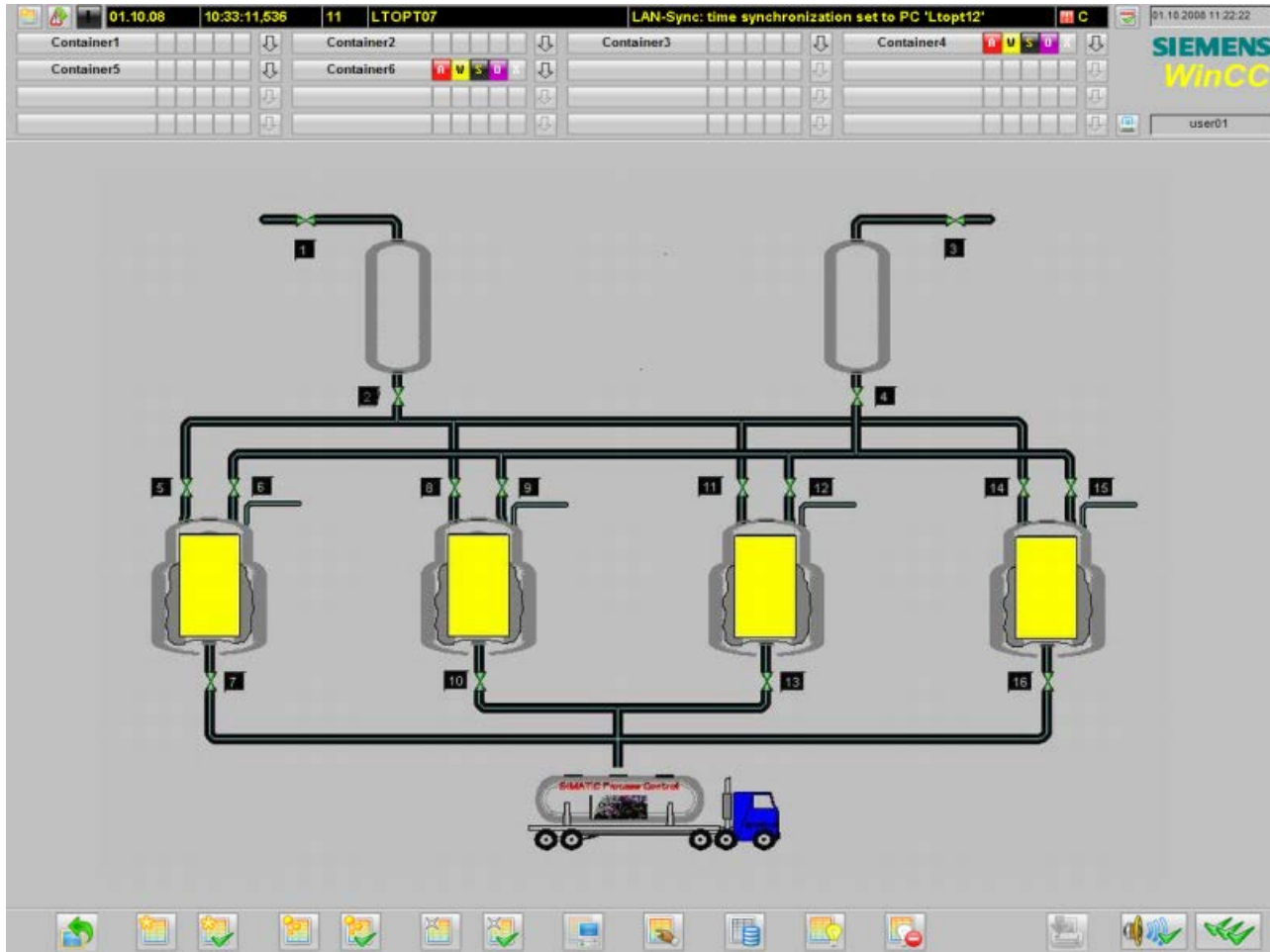
- No color (gray):
The button is not active. No pictures can be selected. This is the case if the user currently logged on does not possess the "Authorization for Area".
- Black lettering on gray background:
The buttons are active. You can select the area picture.
- Black lettering on cyan-colored background:
The picture displayed in the working area is located in the plant area of the hierarchy tree, within the area picture that is represented by the button.

Procedure

1. Click the relevant button to display the plant area:

Example:

When you click **Container4**, the process picture associated with the process picture is displayed:






9.8.13 How to save the screen composition

Overview

The Split Screen Manager manages the user-defined screen composition.

The following keys are enabled in the key area when a user is logged on:

	Save the screen composition
	Load the screen composition
	Delete screen composition

Screen compositions

When saving, the screen compositions are assigned to the currently logged on user.

Each user can save any number of screen compositions.

The user-defined plant view can be recalled while in runtime or after a restart of runtime.

"Default" screen composition

Every logged on user can save a screen composition under the name "Default".

This screen composition is opened automatically when the user logs on, which means it is the personal start picture of the user.

Requirement

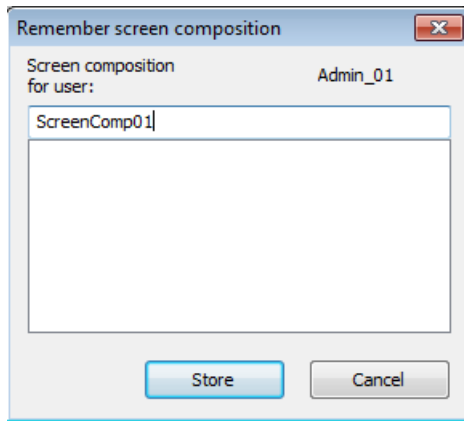
- A user is logged on.
A screen composition is always stored, called or deleted depending on the user.

Procedure

1. Click this button:



The "Remember screen composition" dialog box opens:



If the user who is logged on has already saved screen compositions, these screen compositions are displayed in the list. Screen compositions of other users are not displayed.

2. Enter a name for the screen composition or select an existing screen composition in order to delete it.
3. Click on the "Store" button. All currently displayed pictures on all screens are saved.

Behavior in case of user change

You can apply the currently displayed screen composition for the new user:

Procedure

1. Click on the "Change user" key in the key set 2:



The current view of the images and windows is remembered as a screen composition. A corresponding message is displayed.

2. Leave this message window open
The message window is automatically closed after you log on.
3. Log on as a new user.
You can select all the usual methods:
 - Logon dialog
 - Chip card
 - Function "Tag Logon"
 - SIMATIC Logon

Result

The remembered screen composition is displayed.

Changes made after opening the message window will not be restored.

If, for example, you want to open other windows after the message is displayed and apply this view, close the message window. After the required windows have been composed, click the button again.

See also

How to recall the screen composition (Page 260)

How to delete the screen composition (Page 261)

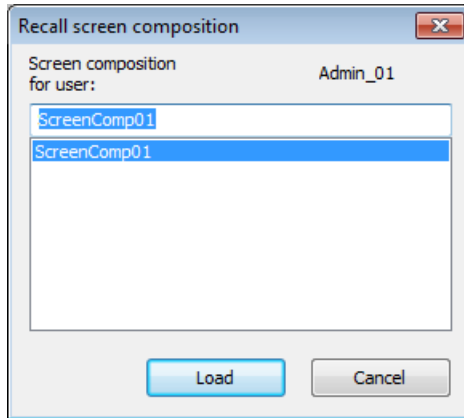
9.8.14 How to recall the screen composition

Procedure

1. Click this button.



The "Recall screen composition" dialog box opens:



If the user who is logged on has already saved screen compositions, these screen compositions are displayed in the list. Screen compositions of other users are not displayed.

2. From the list, select one of the displayed screen compositions.
3. Click "Load".
All the pictures that were saved are displayed again on all screens.

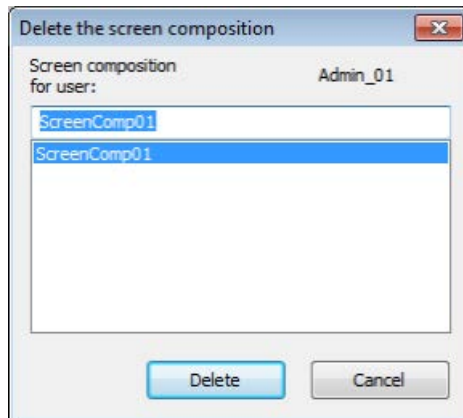
9.8.15 How to delete the screen composition

Procedure

1. Click this button.



The "Delete screen composition" dialog box opens:



If the user who is logged on has already saved screen compositions, these screen compositions are displayed in the list. Screen compositions of other users are not displayed.

2. From the list, select one of the displayed screen compositions.
3. Click "Delete".
All the pictures selected on all screens are deleted.


9.8.16 How to display reporting jobs

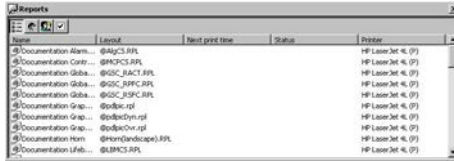


Overview

An overview of all reporting jobs belonging to the project currently started is displayed.

Procedure

1.  Click this button.
This displays the "Reports" window:



2. Select a report job to print it or display a print preview.
3. Exit the window with the standard acknowledgment procedure.

9.8.17 How to call the User Administrator

Overview

You manage and supervise user access rights in the User Administrator. The main task of the User Administrator in runtime is to monitor system login and access rights.

If you have not set up any user authorizations in your project because no users have yet been configured, all operating options are available to all users at all times.

On the other hand, if you have set up users for the project, restricted operations will only be available to those users who possess the required authorizations.

Authorization

Only the user who has authorization for the User Administration level also has the authorization to start the User Administrator.

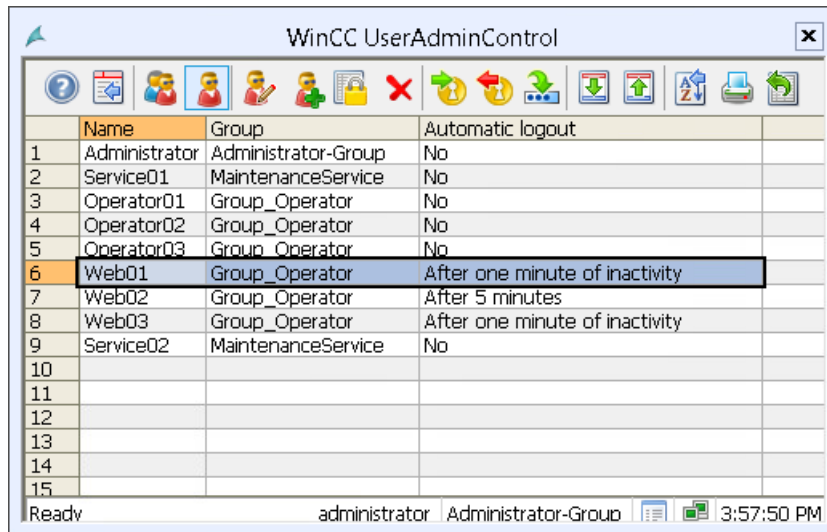
All changes to user authorizations take immediate effect in runtime.

Procedure

1. Click on the "User authorization" button:



WinCC UserAdminControl opens.



	Name	Group	Automatic logout
1	Administrator	Administrator-Group	No
2	Service01	MaintenanceService	No
3	Operator01	Group_Operator	No
4	Operator02	Group_Operator	No
5	Operator03	Group_Operator	No
6	Web01	Group_Operator	After one minute of inactivity
7	Web02	Group_Operator	After 5 minutes
8	Web03	Group_Operator	After one minute of inactivity
9	Service02	MaintenanceService	No
10			
11			
12			
13			
14			
15			

Ready administrator Administrator-Group 3:57:50 PM

2. Use the icons of the control to manage, delete, or create users and groups.

Managing users and groups

You can find additional information in the WinCC Information System under "Working with WinCC > Configuration of the User Administration" as well as in the online help of the control.

9.8.18 Disabling and enabling messages

Lockin g/unlocking messages from specific measuring points of an area

It may be useful in certain process phases to lock messages and enable them again at a later time. Locking affects all measuring points in the working area and the lower-level measuring points in the group display hierarchy of the area.

The operator can disable and re-enable all messages of group-relevant measuring points with a single action. The measuring points can be disabled and re-enabled separately in any area.

The operator must have the "Process controlling" access right.

Procedure



Clicking on this button opens a dialog where the operator can specify detailed information for locking. The text entry is limited to a maximum of 255 characters; an empty string is also possible. The text is displayed in the operator message in the "Comment" message block and cannot be changed there. Click the button in the dialog to confirm the locking of messages.

When messages are disabled

- the measuring point stops reporting
- a corresponding operator message is entered to indicate the disabled state of reporting at a measuring point
- the disabled state is displayed at the measuring points
- the disabled state is displayed in the group display of the higher-level group display hierarchy and the area overview.



Click this button of the second button to enable the messages for

- all measuring points of the working area
- the sublevel measuring points in the group display hierarchy of an area

When messages are re-enabled

- the measuring point starts reporting again
- a corresponding operator message is entered to indicate the enabled state of reporting of a measuring point
- the display of the disabled state at the measuring points is reset
- the display of the disabled state in the group display of the higher-level group display hierarchy and of the area overview is reset if no other messages are disabled in the hierarchy

Disabling/enabling messages of a measuring point

Enable and disable the messages of a specific measuring point in the faceplate belonging to the measuring point. Click the message disable or enable buttons which correspond to the buttons of the second key set.

9.8.19 To view process tags with selected states

Using the PCS 7 Tag Browser, you can view the states of process tags in a table in runtime.



You have the following options to limit the process tags to be displayed:


- By selecting areas of the plant
- By selecting the states to be displayed from the possible states of the process tags

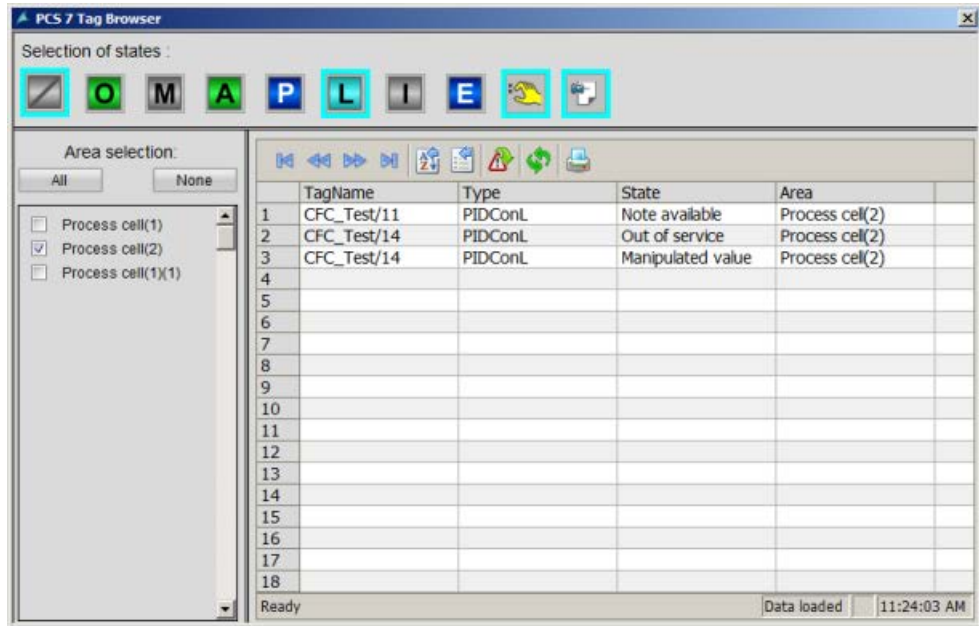
The number of possible states may vary depending on the product installation. You can find a description of the states and icons in the documentation on the PCS 7 libraries.

Using the table

Icon	Description
	"First line" This button shows the first process tag of the selection in the table.
	"Previous line" This button shows the previous process tag of the selection in the table.
	"Next line" This button shows the next process tag of the selection in the table.
	"Last line" This button shows the last process tag of the selection in the table.
	"Sort dialog" Opens a dialog for setting user-defined sort criteria for the displayed table columns.
	"Selection dialog" Defines selection criteria for the columns to be displayed in the table.
	"Loop-in-alarm" Jumps to the process image containing the selected process tag.
	"Update process tags states" Information about the states of the process tags of the process cell is collected again. This may take some time depending on the size of the process cell. The process tags of the selected areas are then are displayed in the table with the updated states.
	"Print" Starts the printout of the table with the displayed process tags.

Procedure

1. Click the  button.
The PCS 7 Tag Browser opens.
When you open the browser, information is gathered about all the states of all process tags in the process cell. Collecting the data may take some time depending on the size of the process cell. "Data loaded" is displayed in the status bar. The first area selected is that of the current process image.



2. Under "Selection of the states", click the state icons of the process tags whose states you want to display in the table.
3. Select additional areas for which you want to view the status of the process tags. You cannot select areas shown in gray, because there is no authorization for these areas. To select all the areas, click the "All" button. If you click the "None" button, the selected areas are disabled.

Result

The table shows the process tags present in the selected areas of the process cell and with the selected states.

9.9 Message system

9.9.1 Message system

Introduction

This section shows how to display and edit messages in runtime.

Function of the Message System

The control and monitoring system records the messages from the automation system and writes these in chronological order to the message log. The messages can be viewed in various message lists in the message window. The message lists contain a selection of all messages in the log.

The following different message types exist:

- **Process messages** report events that occur during the automated process. Process events include, for example, limit violations of measured values or status information.
- **Process control messages** are error messages caused or detected by SIMATIC PCS 7 components. With process control messages, events ranging from a component failure to a wire break message from a connected I/O are reported.
- **Operator input messages** are generated during operation of process variables, such as a controller mode change.
- **System messages** are generated by WinCC.

Line-based message sequence report on page-oriented printer

The message list button set features a button for printing a message sequence report which can be used to print a line-based message sequence report. You can find additional information under "How to Output Online Data with the Message Sequence Report" in "Printing the Message Sequence Report in Page Layout".

Printing the message sequence log with a client without its own project

The message sequence report can be configured in WinCC either only on the server or only on one client.

To use a message sequence log on one of the clients you need to enter the parameter "/ CLIENT" in the upper case in the "Report Runtime" startup list.

See also

How to Display Message Lists (Page 273)

9.9.2 Messages

Structure of a message

A message consists of system information and various parameters that are displayed as columns in a table. In WinCC these columns are called message blocks.

The message blocks consist of three sections:

- **System blocks** contain system data issued by Alarm Logging. These data include date, time, or report ID.
- **Process value blocks** contain the values returned by the process, e.g. critical fill levels or temperatures.
- **User text blocks** are texts that contribute to general information and understanding, e.g. information about messages, fault locations, or causes of messages.

Whereas the system blocks are permanently associated with the message, the user may add process value blocks and user text blocks to a message.

During configuration in Alarm Logging CS, you configure each individual message in one line.

Example of a message line



	Date	Time of Day	Priority	Source	Event	Status	Info	Co
1	05/03/08	08:01:47.042	0	WINCC2008	Group display error at start up	C	X	

Message state

In a message, a distinction is made between the state of the message source (process value 0/1) and the acknowledgment status (not acknowledged/acknowledged).

As a result the message status is a combination of the state of the message source and the acknowledgment status.

Depending on the acknowledgment concept, a message may have up to four acknowledgment statuses:

- Came in
- Came in, acknowledged
- Came in, went out, not acknowledged
- Came in, went out, acknowledged

The current status of the message is indicated as follows:

- The color/flashing of the elements
- The text in text elements
- The time stamps in the message line

Messages and their acknowledgment

The following table shows the acknowledgment concept of the available message classes.

Message class	Message type	Acknowledgment
Alarm	AlarmHigh, AlarmLow	incoming, flashing on
Warning	WarningHigh, WarningLow	incoming, flashing on
Tolerance *	ToleranceHigh, Tolerance-Low	No acknowledgment, no flashing Option as of V7.01: incoming, flashing on
PLC process control messages	Fault, Faults	incoming, flashing on
OS Process control system messages	Fault, Faults	Came in, flashing on, without state went out
Preventive maintenance	Maintenance (maintenance request)	incoming, flashing on
Process message	Process message	incoming, flashing on
Operational message	Process message	No acknowledgment, no flashing
Request for Operator Input	Request for Operator Input	No acknowledgment, no flashing
Operator Message	Operator Message	No acknowledgment, no flashing, without cleared state
Status message	Status AS, Status OS	No acknowledgment, no flashing, without cleared state
System, requires acknowledgment	Process control, system messages	Not used in the Basic Process Control and PCS 7
System, does not require acknowledgment	Process control, operator messages	No acknowledgment, no flashing, without cleared state

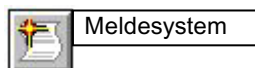
* Configured by default for new projects as of WinCC V7.0 SP1. The option for acknowledgment response for the "Tolerance" message class is enabled in the OS project editor.

See also

"Message Display" Tab (Page 43)

How to Display Message Lists (Page 273)

9.9.3 Message Window



Meldesystem

Overview

Messages are displayed in message windows in runtime. You can restrict the content of the message window with freely definable filters.

You can move around inside the table in the message window using preconfigured icons. With a PCS7 OS, you can call an entry point picture that shows the message cause for each message (Loop in alarm). You can configure the entry point picture in the component list editor.

9.9 Message system

The message archive enables you to archive messages on a suitable mass storage device such as a hard disk.

Select messages

You can display and edit lists with messages in runtime. The messages displayed in the lists refer exclusively to the current project.

Message selection

The following message lists are offered for a better overview:


Message List	Content	Message classes	Access to
Incoming alarm list	Messages that have not yet been acknowledged	Alarm, Warning, Tolerance*, PLC process control message, OS process control system message, Preventive maintenance, Process message, Operator prompt	Current messages
Acknowledged alarm list	Acknowledged messages that have not yet exited	Alarm, Warning, Tolerance*, PLC process control message, OS process control message, Preventive maintenance, Process message.	Current messages
Outgoing alarm list	Unacknowledged messages that have gone out	Alarm, Warning, Tolerance*, PLC process control message, Preventive maintenance, Process message	Current messages
List of active messages	Acknowledged and unacknowledged messages that have not yet gone out	Alarm, Warning, Tolerance*, PLC process control message, OS process control system message, Preventive maintenance, Process message, Operator prompt	Current messages
Process alarm list	Process control system messages	AS process control message, OS process control message, Preventive maintenance, System message, no acknowledgment required - Process control message	Message Archive
Operation list	Operator input messages	Operator input message, System message, no acknowledgment required - Operator input message	Message Archive
Journal list	Messages, besides operator input messages	Alarm, Warning, Tolerance, PLC process control message, OS process control message, Preventive maintenance, Process message, Operating message, Status message	Message Archive


Message List	Content	Message classes	Access to
List of hidden messages	Hidden messages that have not exited	Alarm, Warning, Tolerance*, PLC process control message, Preventive maintenance, Process message, Operator prompt	Current messages
List of messages to be hidden	Hidden messages that have gone out	Alarm, Warning, Tolerance*, PLC process control message, Preventive maintenance, Process message, Operator prompt	Current messages
Lock list	All messages that are locked	Alarm, Warning, Tolerance*, PLC process control message, OS process control system message, Preventive maintenance, Process message, Operator prompt	Current messages

* Configured by default for new projects as of WinCC V7.01. The option for acknowledgment response for the "Tolerance" message class is enabled in the OS project editor.

You can display the journal list, process alarms, and operation list again with the "Update" button and the "F5" key.

Determine the selection of messages with user filters

 Using the "Set user filters" button, you can restrict the selection of messages in the message lists with one or more filters by selecting or clearing the filters.

 Use the "Disable all user filters" button to deactivate all active user filters with one click. The settings for each message list are reset to the PCS7 default.

Note

If messages come in and go out several times without having been acknowledged, the older messages are removed from the incoming alarm list. The journal list (archive) contains all messages.

The single-line message window in the overview window does not display messages of the classes "Operator prompt", "Tolerance", and "Operation message", as messages in these classes cannot be acknowledged. Otherwise, a message that cannot be acknowledged would eclipse all other messages, including those with higher priority, until it is changed to the "Went Out" status or a new message is received. Messages of message class "Tolerance" are shown in the single line message window, if the option "Message class Tolerance requires acknowledgement" is activated.

See also

How to Display Message Lists (Page 273)

9.9.4 Message behavior

Introduction

You can configure a different message behavior in the message window in runtime. Depending on the authorization held by a user, the user can either be restricted to viewing messages only, or may also be able to acknowledge messages.

- Message windows which allow acknowledgment display all messages which may be acknowledged by a currently logged in user who has the "Process controlling" authorization. If the operator has the "Higher process controlling" access right for at least one area, the "Hide message" button is available.
- Message windows which allow messages to be viewed display all messages which may be viewed but not acknowledged by a currently logged in user who has the "Authorization for area" authorization.

You can set the message behavior in the OS Project Editor. The properties of the message window can be set in the "Message filter" group of the "Message Display" tab.

In runtime, users who can view messages but not acknowledge them need message windows with two message lists. In one of these message lists the user with the "Process controlling" authorization can acknowledge messages in the areas. In the other message list the user is able only to view messages in areas with the "Authorization for area" authorization. The message line in the Overview window shows only the messages which can be acknowledged.

The option "Acknowledgeable messages on separate page (switch-selectable)" enables a user to switch between the double window display and the message window which allows acknowledgment.

Example

Here is an example of a new list with the "Acknowledgeable messages in separate list" setting.

The operator has the following access rights:

- "Process controlling" and "Higher process controlling" in "Area1"
- "Authorization for area" in "Area2"

incoming alarm list

	Date	Time	Priorit	Source	Event	Status	Info	Comme	Batch name	Area
1	06/05/13	08:59:57.021	0	local-PC	3 - Warning High (internal)	C				Area2
2	06/05/13	08:59:57.021	0	local-PC	4 - Warning Low (internal)	C				Area2
3										
4										
5										
6										
7										
8										
9										
10										
11										

Ready Pending: 7 To acknowledge: 7 Hidden 0 List: 2

	Date	Time	Priorit	Source	Event	Status	Info	Comme	Batch name	Area
1	06/05/13	08:59:57.021	0	local-PC	1 - Alarm High (internal)	C				Area1
2	06/05/13	08:59:57.021	0	local-PC	2 - Alarm Low (internal)	C				Area1
3	06/05/13	08:59:57.021	0	local-PC	5 - PLC Failure (internal)	C				
4	06/05/13	08:59:57.021	0	local-PC	6 - PLC Error (internal)	C				
5	06/05/13	08:59:57.021	0	local-PC	7 - OS Failure (internal)	C				
6										

See also

How to Display Message Lists (Page 273)

9.9.5 How to Display Message Lists

Procedure

Click the following button in button set "1". The incoming alarm list and a new button set will be displayed.






In the default setting, the button for the "Incoming alarm list" is displayed.

You can specify which of the following alarm lists is displayed with its button in button set "1" on the "Message Display" tab of the OS Project Editor.

If you want separate lists of messages that can be acknowledged to be displayed, the appropriate buttons are displayed in the button set.

The user displays the individual lists with the following buttons:

Key	Message list
	Incoming alarm list
	Incoming alarm list, acknowledgeable
	Acknowledged alarm list
	Acknowledged alarm list, acknowledgeable
	Outgoing alarm list
	Outgoing alarm list, acknowledgeable
	List of active messages
	Acknowledgeable list of active messages
	Process alarm list
	Operation list
	Journal list
	List of hidden messages
	List of hidden messages (split)
	List of messages to be hidden

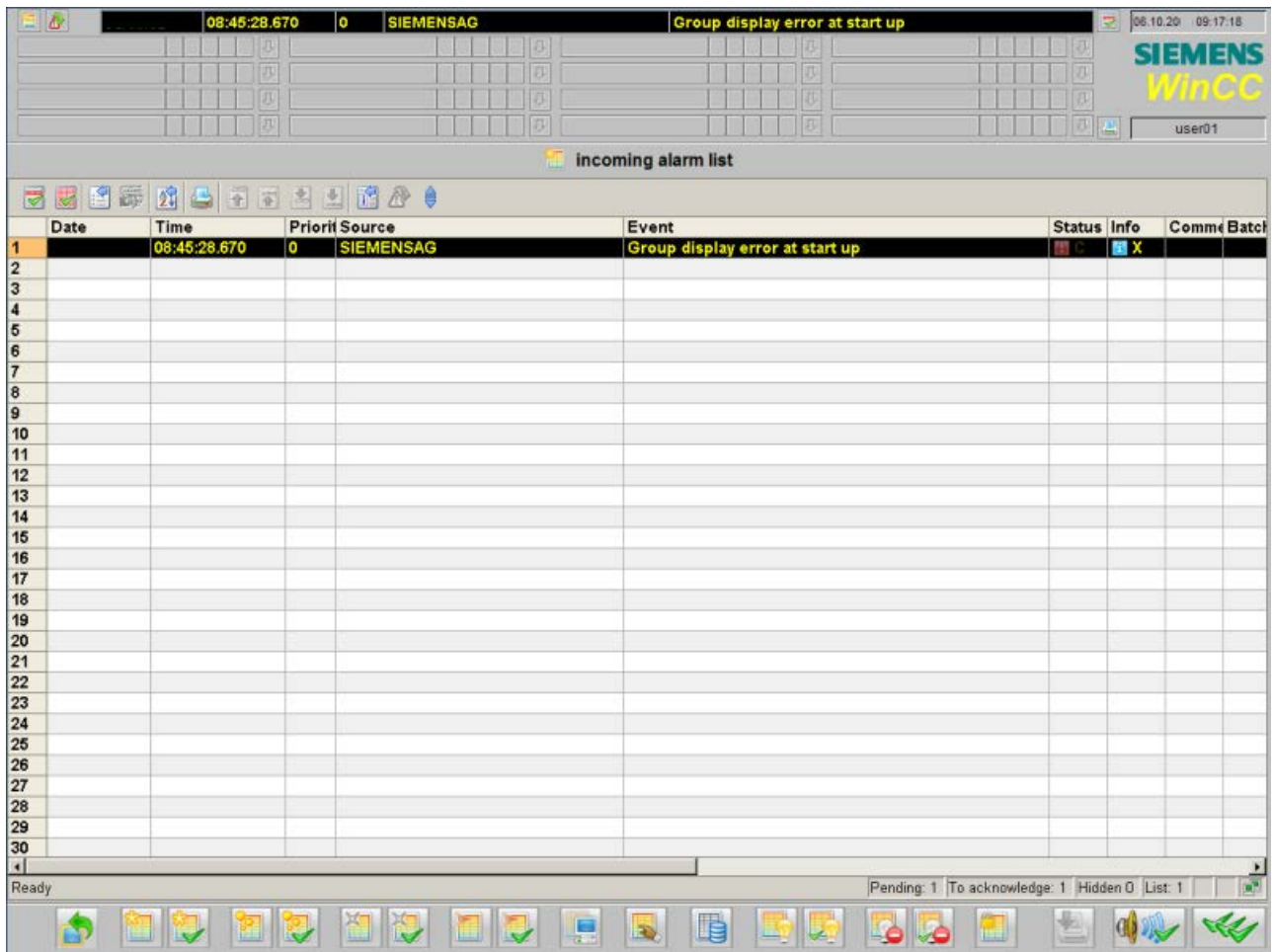
Key	Message list
	List of messages to be hidden (split)
	Lock list
	Previous graphics picture. Exits the message system, opens the last displayed process picture and shows button set 1.

Example

In button set 1 the user clicks the "Incoming alarm list" button:



When the user has selected the "Incoming alarm list" function the following window, for example, is displayed:



Overview Area

The overview area contains the following optional keys:

Key	Explanation
	Extended message line: Displays the list of incoming messages
	Acknowledge message: Acknowledge currently displayed message
	Loop in alarm: Select the picture with the alarm source
	Messages to be hidden and locked messages: Show number of hidden and locked messages You open the list of messages to be hidden and the lock list using the buttons in the displayed window.
	Highest priority messages: Display the list of highest priority messages This button flashes if a priority "16" message came in.

Content of the message line



The following table shows the meaning of the individual columns (message blocks) in a message line:

Terminology	Explanation
Date	Date for Incoming, Outgoing, and Acknowledged. For hidden messages, the journal list shows the date on which that message was hidden.
Time	Every time the status of the message changes, the associated time element (time stamp of the status change) is displayed.
Priority	Displays the priority of the message.
Source	Technological assignment of the message source: Plant ID, consisting of the hierarchy, chart name and block name, input as placeholder. Location ID (LID) for driver components.
Event	Contains a user-definable message text for technological blocks. In the case of driver blocks, contains a message text with integrated associated values for line/rack/slot or error identifier/block number/relative address.
Message duration	Length of time a message was queued.
State	State of acknowledgment: <ul style="list-style-type: none"> • K = Message came in • G = Message went out • QS = Message acknowledged by operator • KG = Message came in/went out • QuitSystem = Message acknowledged by system In certain scenarios, "QS" is displayed although no operator has acknowledged, for example when AS or CPU has been stopped and started again or after a warm restart. Status in the list of messages to be hidden: <ul style="list-style-type: none"> • Hide - System = Message hidden automatically • Hide - Operator = Message hidden manually
Info	You can configure an information text for each message.
Comment	The operator can subsequently add a comment to any message.
Batch name	Contains the batch ID, batch name, and consecutive step number entered by means of associated values.
Area	Area ID
Loop in alarm	When this check box is selected, Loop in Alarm is configured for this message.
Type	Message types, e.g., Alarm High or Tolerance High.
Operation	Operator message with logged on user who performed the operation, including the type of operation.

Operator input in the message lists

The following table shows how you can navigate in the message lists and edit individual messages.

Function	Icon	Explanation
Single acknowledgement		Acknowledges an individual message
Group acknowledgement		Acknowledges all visible messages in the message window that are queued and require acknowledgment, unless they require individual acknowledgment.
Long-term archive list		Shows the archived messages from the long-term archive list in the journal list.
Hit list		Shows statistical information for the messages in additional columns in the journal list.
Set user filters		Opens a dialog box for selecting messages. Set one or more filters with selection criteria in the dialog. All messages that do not meet the criteria of the active filter are not displayed (but are archived).
Disable all user filters		Deactivates all active user filters and resets the settings for each message list to the PCS 7 default.
Sort dialog		Opens a dialog box for customizing the sorting of displayed messages, for example, based on priority.
Printing		Creates a paper documentation.
First message		Shows the start of the list. The cursor moves to the first list element. You must first switch off the autoscroll.
Previous message		Cursor moves to the previous list element. You must first switch off the autoscroll.
Next message		Cursor moves to the next list element. You must first switch off the autoscroll.
Last message		Shows the end of the list. The cursor moves to the last list element. You must first switch off the autoscroll.
Info Text		Opens a window for displaying pre-configured, supplemental message texts.
Loop in Alarm		Shows a picture for the selected message or triggers a script.
Autoscroll On/Off		Activates or deactivates automatic scrolling for the latest message. If the function is not activated, you can scroll manually. This function is only available if the "Latest message at bottom" option was set in the "Message display" tab of OS Project Editor.
Refresh		Updates all messages in the process list, operation list and journal list. The messages are displayed again.
Comment		Opens a dialog where the user can retroactively enter a comment for a message in the process list, operation list and journal list.

Function	Icon	Explanation
Hide message		Hides the selected message from the message list and enters it in the list of hidden messages. The user must have the "Higher process controlling" access right for at least one area.
Display alarm help		Displays the help texts that were configured in the property of a message. The "Help" option must be selected in the parameters of the message.

See also

Messages (Page 268)

"Message Display" Tab (Page 43)

Message Window (Page 269)

Message behavior (Page 272)

Message filters (Page 47)

9.10 Trend system

9.10.1 Configuring, Saving and Loading Trend Groups

Introduction

The following rules apply to the configuration, saving and loading of trend groups:

- Trends which were configured in online mode are persistent.
- The user is always offered all trend groups that are not labeled as "private". This also includes trend groups that were created by other users.
- Trend groups that are labeled as "private" are only offered to the person who created them.
- On a WinCC client you can display tags configured on a server in trends. Precondition is the loaded packages of the relevant server.
- Trend groups configured on a server in a "Multi-user project" project form are always stored locally on this computer. You can load these trend groups only on this computer.
- If you have configured trend groups on a WinCC client in the "Client project", you have the following options of saving and calling up these trend groups:
 - Standard server configured for Split Screen Manager
Configuration data of the trend groups are automatically saved to the standard server if a standard server was configured for the Split Screen Manager in the shortcut menu of "Server data" on the WinCC client. Other WinCC clients can specify this server as the standard server for Split Screen Manager. The trend groups are also available to these WinCC clients. The trend groups created on the clients cannot be called from the server. The trend group data on a redundant server is automatically synchronized with the data on its redundancy partner. If the redundant standby station has assumed master mode the WinCC clients are still be able to load all configured trend groups.
 - No standard server configured for Split Screen Manager
The configured trends are saved locally on a WinCC client which does not contain a configured standard server for Split Screen Manager. Other WinCC clients cannot display these trend groups in WinCC OnlineTrendControl. Likewise, these trend groups cannot be displayed on the actual server and on its connected clients.

Note

If you are configuring online tags for "Trends Online" on a client with its own project, you may not use any local tags of the client if a default server has been configured for "SSM" under "Server data".

See also

"New Trend Group" Dialog Box (Page 283)

Configuring Online Trends (Runtime) (Page 281)

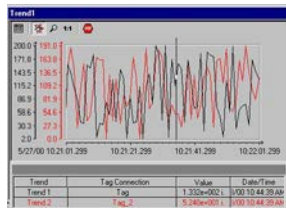
9.10.2 Configuring Online Trends (Runtime)

Introduction

The "Online Trends" dialog box can be used to select tags from Tag Management in WinCC Runtime and to visualize these in a WinCC Online Trend Control. A distinction is made between online tags and archive tags.

The functionality is only available at one PCS 7-OS. The "Trend online" button can only be accessed if a picture is open and originates from an area for which the logged on user has been assigned authorization level "2" (allowing selective access) or a general authorization.

History values cannot be displayed because online tags are not saved to the database. As long as it is open, the trend control will buffer the values itself for the duration of the time configured in WinCC Online Trend Control.



Archive tags, however, are saved to the database so that you can also page to older values using the function buttons in the curve control.



Note

The "Load/Configure Trend Groups" function is available in WinCC Runtime.

The trend traces are not displayed in the Tag Logging application window. An archive of trend values is no longer created in Tag Logging.

See also

"New Trend Group" Dialog Box (Page 283)

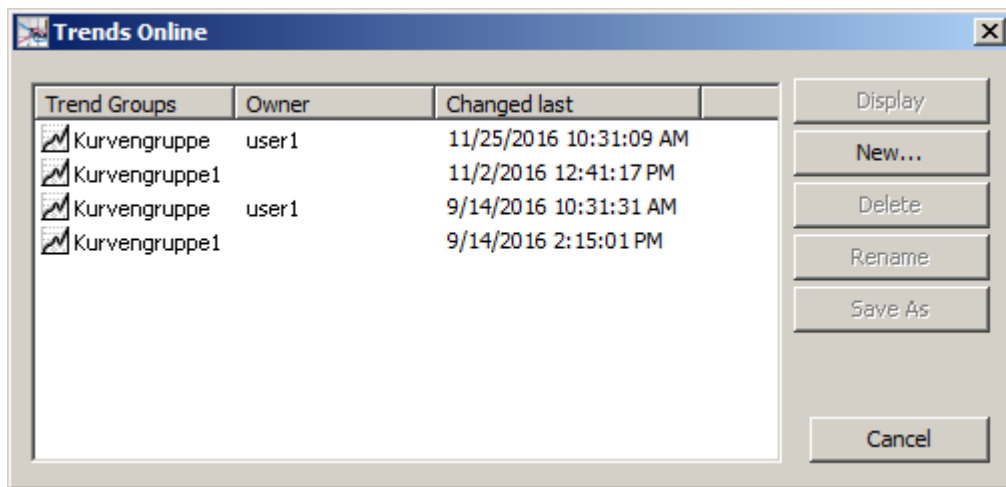
Configuring, Saving and Loading Trend Groups (Page 280)

9.10.3 "Online Trends" dialog box



Requirement

Users require the "Authorization for area" authorization for the picture window in the working area to open the "Trend Online" dialog box. Click "Load/configure trend groups" in button set 1 WinCC Runtime to open the "Online Trends" dialog box:



This dialog box displays all last created trend groups, including their contents and the date/time of the last change.

Dialog Description

Functionality	Explanation
Show	Displays the selected trend group in WinCC Online Trend Control.
New	Opens the "New Trend Groups" dialog box. In this dialog box, you configure the settings for a new trend group.
Removing	Deletes the selected trend group. You can also delete several trend groups.
Rename	Opens the "New Trend Group Name" dialog box, in which you can enter a new name for the selected trend group. This button is only active if you have selected a trend group.
Save as	Creates a copy of the selected trend group.
Cancel	Closes the dialog box without saving the changes.

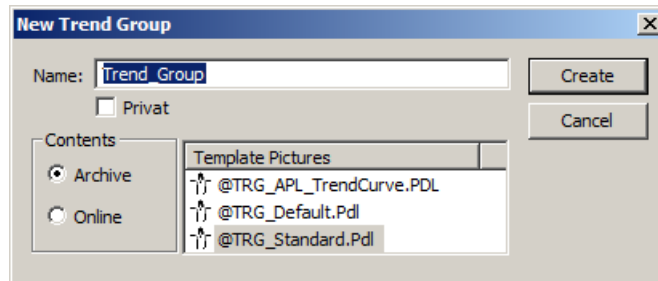
See also

- "New Trend Group" Dialog Box (Page 283)
- Configuring Online Trends (Runtime) (Page 281)
- Configuring, Saving and Loading Trend Groups (Page 280)

9.10.4 "New Trend Group" Dialog Box

Introduction

You open the "New Trend Group" dialog box by clicking "New..." in the "Online Trends" dialog box:



Dialog Description

Functionality	Explanation
Name	Name of new trend group. Special characters and spaces are not allowed. The default setting of the input box is "Unnamed".
private	Specifies that the trend group will be offered only to the person who created it. The setting can also be changed using the functions in the "Trends Online" dialog box.
Content	Specifies whether archive tags or online tags are visualized as trends in WinCC Online Trend Control. Activate the required check box.
Template pictures	<p>Displays the available template pictures. The system will deliver the following template pictures:</p> <ul style="list-style-type: none"> "@TRG_Default.Pdl" for WinCC Online Trend Control in WinCC V7.0 or earlier. "@TRG_Standard.Pdl" for the new WinCC OnlineTrendControl in WinCC V7.0 or higher. <p>Use one of these template pictures to visualize trends in runtime. In WinCC V7.0 and higher we recommend the new standard template picture "@TRG_Standard.Pdl".</p> <p>To create a customized template picture, generate a copy of the product template pictures and then rename it. In order for this template picture to be identified as such its name must start with the "@TRG_" prefix.</p> <p>Perform this procedure on each server and client, as the template pictures are always saved locally.</p> <p>You can insert any of the objects provided in Graphics Designer into user-defined template pictures and interconnect these.</p>
Create	Closes the "New Trend Group" dialog box and opens the "Properties of WinCC Online" dialog box.
Cancel	Closes this dialog box without saving the changes.

See also

Configuring Online Trends (Runtime) (Page 281)

Configuring, Saving and Loading Trend Groups (Page 280)

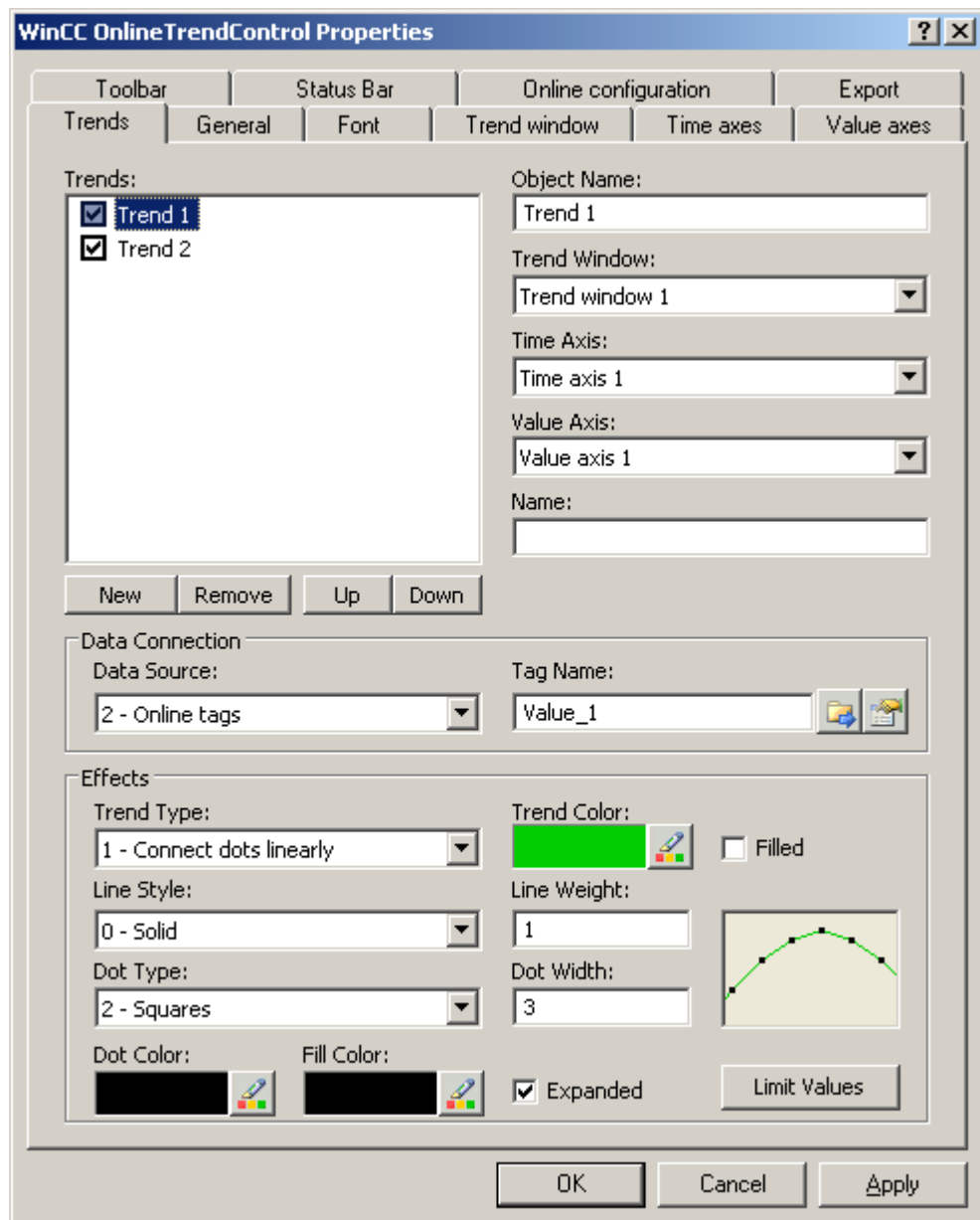
9.10.5 "Properties of WinCC Online Trend Control" dialog box

Introduction

The "Properties of WinCC OnlineTrendControl" dialog box is used to assign either an archive tag or an online tag to each trend. The system saves all settings made in the configuration dialog box persistently.

Procedure

1. Use the "New" button to define the desired number of trends.
2. Define the data source for the selected trend under "Data connection".



Click "?" in the title bar to view additional information on configuration options in WinCC OnlineTrendControl.

See also

Configuring Online Trends (Runtime) (Page 281)

"New Trend Group" Dialog Box (Page 283)

Configuring, Saving and Loading Trend Groups (Page 280)

9.11 Group display

9.11.1 Group display

Introduction

Group displays are used to visualize process states (message states) in compressed graphical format. There are 16 different message types. The group display object is triggered by a tag which represents the message status. You can use this tag to display the group display states in the other WinCC components . Other types of dynamization are not possible.

The response of the group display can be freely configured using the object properties. This allows you to assign individual buttons to message types and configure texts, colors, flashing and acknowledgment display of the buttons.

The effect of the group display default setting is described below.

Displaying process, process control system and operating displays

The group display object is visualized in the area overview, the Picture Tree Navigator, the faceplate and by group displays in the process picture. The display varies with the global design setting.

The group displays in the area overview and in the picture tree navigator are always only related to the system area (picture tree) in which it is displayed.

- General Display in the overview area and the Picture Tree Navigator.



- Differentiated display in the process picture:



- Display in the PCS7 faceplate:



Process displays

A Alarm	white on red	flashing = activated quiet = acknowledged
W Warning	black on yellow	flashing = activated quiet = acknowledged
T Tolerance *	white on blue	quiet (no acknowledgment required)

* Configured by default for new projects as of WinCC V7.01. The option for acknowledgment response for the "Tolerance" message class is enabled in the OS project editor.

Process alarm display

S Fault	yellow on black	flashing = activated quiet = acknowledged
F Error	yellow on black	flashing = activated quiet = acknowledged
MR maintenance request (Maintenance request)	yellow on black	flashing = activated quiet = acknowledged

Operator displays

OR Operator prompt	white on dark magenta	quiet (no acknowledgment required)
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Disable displays

X Measuring point locked	white on gray	quiet
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The disable display can also be seen if the loading of the AS is not yet complete during loading of the changes. For example, a newly added message point does not yet exist on the AS.

Priorities of message types

Three of the five buttons of the group display object are assigned several functions. The status with the highest priority is displayed if various states are active simultaneously at a button due to the value of its linked tags. The table below defines the corresponding rules.

9.11 Group display

It contains all default message types and the priorities of multiple functions (top to bottom in descending order).

Message type	Display	Priority
Alarm High Alarm Low		"High" overrides "Low", however "not acknowledged" always overrides "acknowledged"
Warning High Warning Low Tolerance High Tolerance Low		<p>1. "Warning" overrides "Tolerance", regardless of the acknowledgment status.</p> <p>2. "Warning High" overrides "Warning Low", however, "not acknowledged" always overrides "acknowledged".</p> <p>3a. For interconnection with process values: "Tolerance High" overrides "Tolerance Low", however, "not acknowledged" always overrides "acknowledged".</p> <p>3b. For interconnection with nested pictures: "Tolerance High" overrides "Tolerance Low", regardless of the acknowledgment state. For more information, refer to the section "Influencing acknowledging response via @EventQuit tag"</p> <p>Caution: In the PCS 7 context, "Tolerance" can require acknowledgment as an option in new projects as of PCS 7.1.</p>
AS Control System Fault AS process control error Maintenance request		"AS Control System Fault" overrides "AS process control error", which in turn overrides "Maintenance request", however "not acknowledged" overrides "acknowledged".
Operator request		No multiple function assignment
Measuring point locked		<p>No multiple function assignment</p> <p>Response similar to V6.0 if the "Display disabled state" property is activated.</p>

Notes on the group display

Note the following when using a group display:

- The group displays in the area overview are derived by means of a logical OR from the sum of all group displays that belong to the pictures associated with the area.
- In the PCS 7 Context, the assignment of the module-related error messages to the corresponding message types of the group display are stipulated and cannot be amended.

- "Alarm", "Warning" and process control message require acknowledgment. The messages based on these displays in the PCS 7 context also trigger a configured signal generator. With new projects as of WinCC V7.01, you can configure messages of the "Tolerance" message class to require acknowledgement by default. The option is enabled in the OS project editor.
- The list of message classes that can be assigned to the group display is available in the WinCC Information System:
Working with WinCC > Creating Process Pictures > Working with Objects > Working with Smart Objects > How to Insert a Group Display

Note

It takes around 50 seconds from the time Runtime is activated until the group display is updated in the area overview.

Note

With WinCC V6.0 SP3 (PCS7 V6.1), the "S" for "OS Process Control Message" is replaced by "M" or "MR" for "Maintenance request." For projects migrated to WinCC V6.0 SP3 (PCS7 V6.1), group displays in process pictures continue to show "S" for "OS process control message". The new "M" for "Maintenance request" is displayed in the area overview and in the Picture Tree Navigator. The new group displays inserted in process pictures based on WinCC V6.0 SP3 (PCS7 V6.1) have the same default setting as before the migration.

See also

How to display the alarm source via the group display (Page 289)

Influencing the Acknowledgement Behavior via the @EventQuit Tag (Page 292)

9.11.2 How to display the alarm source via the group display

Alarm Source

Alarm events are displayed in a field of the group display. The operator can view the picture in which the alarm has occurred.

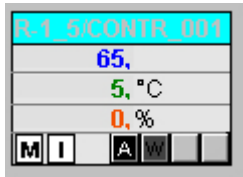
Procedure

How to call the picture with the alarm source:



9.11 Group display

1. Click on the button for the group display that is showing an alarm whose source you wish to view.
The picture is displayed with the alarm source. If it is not possible to uniquely identify this picture because the same event is queued in several sources, the first picture in the search results is displayed. The affected measurement point is highlighted, for example:



2. Right-click the group display button to open a message which indicates the picture from which a message originated.

Note

If there is no connection to a WinCC tag, or the configuration is faulty, the buttons of a group display object appear dark gray in a picture and cannot be operated.

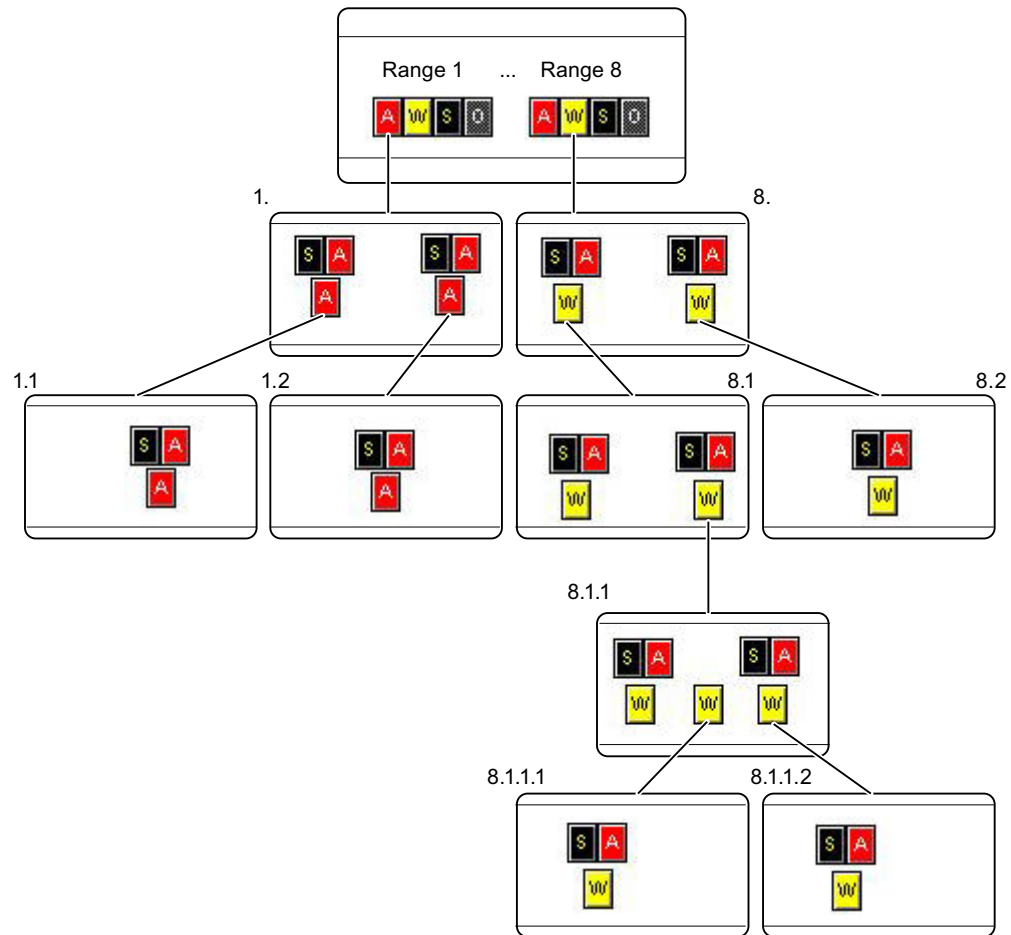
These buttons if in "pressed" state are visualized in light gray color in the group displays of the overview area.

Hierarchy of the Group Displays

The group display usually consists of several individual displays associated with an area or subarea. This generates a kind of hierarchy for group displays. When bringing up the alarm source, the picture shown will always be the one of the lowest level that still permits an association with a particular alarm.

The OS Project Editor supports you in configuring the group display hierarchy. By selecting the "Create / update group displays" check box in the "Message Display" tab, the group displays in the area overview are automatically integrated in the picture hierarchy. You can also interconnect the group display objects independent of the picture tree.

The figure below shows a possible hierarchy of the group messages.



Explanation of the shown group display hierarchy

The figure shows how the alarm source for a warning is displayed by clicking on the group display.

A warning is shown for Area 8. We examine the warning for Area 8.1.

The warning originates in Areas 8.1.1.1 and 8.1.1.2



Select the warning by clicking in area 8.

The alarm source in Area 8.1.1 is displayed.

Reason: It is impossible in area 8.1.1 to determine to which of the sublevel areas the warning belongs.

If for instance there is no warning in Area 8.1.1.2, the picture for Area 8.1.1.1 will be displayed.

See also

Group display (Page 286)

Influencing the Acknowledgement Behavior via the @EventQuit Tag (Page 292)

9.11.3 Influencing the Acknowledgement Behavior via the @EventQuit Tag

Overview

The events "ToleranceLow", "ToleranceHigh", "Operator prompt" and "Measuring point disable" are not acknowledgeable events in the PCS 7 environment. Using the "@EventQuit" tag and the "Acknowledgment mask" attribute in the group display in Runtime, these events are automatically indicated as acknowledged to prevent flashing during the calculation of the group displays and the display of the area overview. The start value of the attribute is 0x00000011 (17) by default. The value of the "Acknowledgment mask" attribute should be identical for all group display objects, extended analog display and extended status display, and for the "@EventQuit" tag.

The "@EventQuit" tag is created directly by Basic Process Control as a signed 32-bit value under "Internal tags."

You can set the acknowledgment response for "Tolerance" in the OS Project Editor.

You can set further acknowledge tags to ensure that other events are also automatically identified as acknowledged when group displays are being calculated.

When group acknowledgment is carried out via the "Group Acknowledgment" button, all acknowledgement bits for the measurement points in the picture concerned that require acknowledgment are set to 65535.

For technical reasons it is necessary to delete all the status bits of the measurement points requiring acknowledgment for the group acknowledgment.

If you do not want the status bits to be deleted following acknowledgment, the bits in the status word (most significant word) of the "@EventQuit" tag must be set (0xFFFF). When combined with the acknowledgement bits (least significant word) this gives the start value 0xFFFF0C11, which means -62447 for a signed 32-bit value or 4294904849 for an unsigned 32-bit value.

In projects prior to WinCC V7.01, the events "ToleranceLow", "ToleranceHigh", "Operator prompt" and "Measuring point disable" are not acknowledgeable events in the PCS 7 environment. By default, the tag has the start value 0x00000C11 (3089). These are precisely the acknowledgment bits for "ToleranceLow", "ToleranceHigh", "Operator prompt" and "Measuring point disabled."

See also

Group display (Page 286)

How to display the alarm source via the group display (Page 289)

9.12 Process controlling and graphic pictures

9.12.1 Process Controlling, Graphic Pictures

Introduction

With the configured graphic system, you can control and monitor process events during process control.

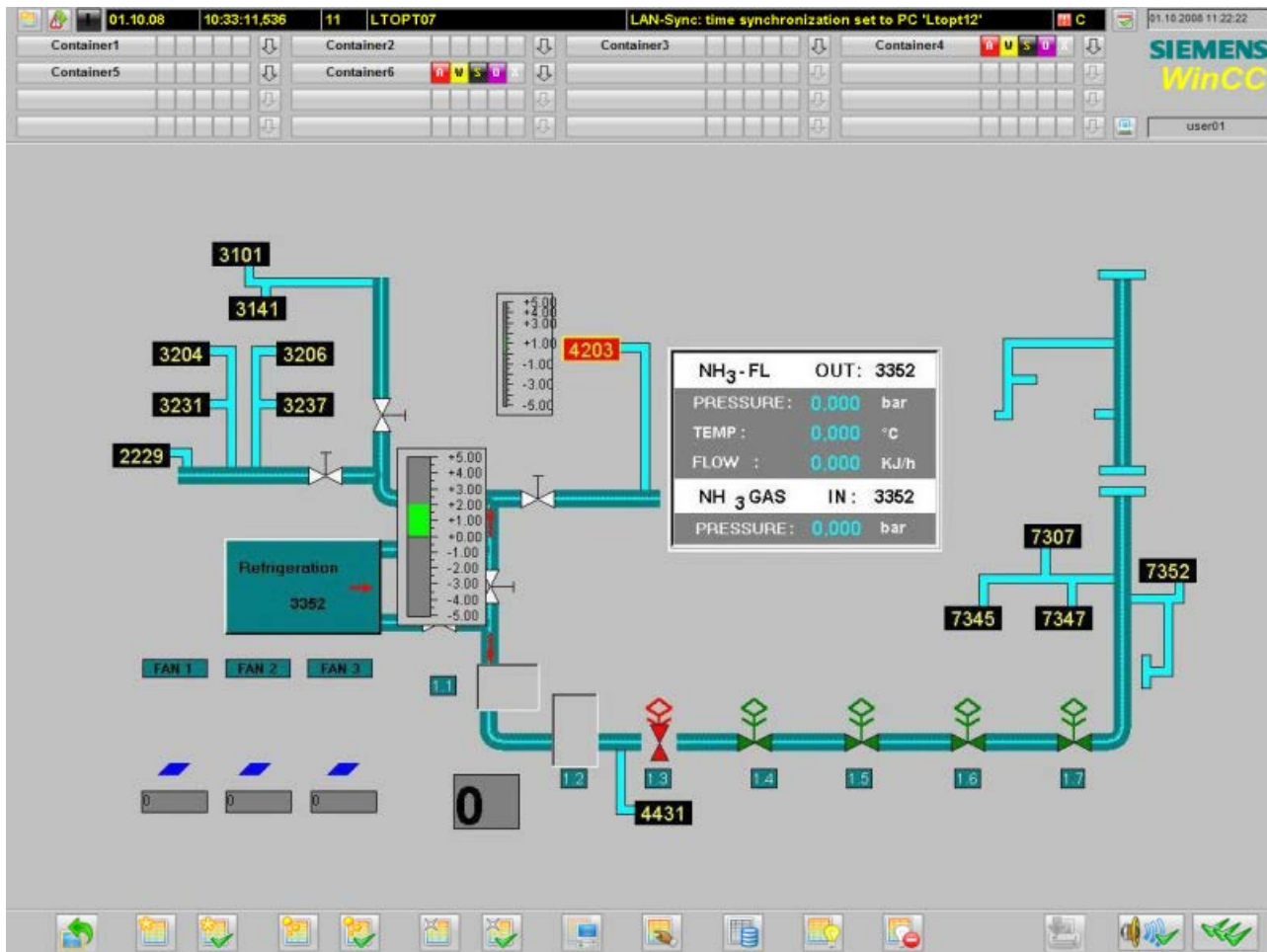
Process control takes place in the working area. The graphics system has the following tasks:

- Displaying the plant in a plant overview
- Displaying process pictures in the working area
- Operating the process and system
- Displaying the status of alarms

Graphic pictures

Graphic pictures are freely configured pictures, which generally display plant or plant components, and enable process actions and events to be operated.

Graphic pictures are displayed in the working area.



Elements in Graphic Pictures

Graphic pictures consist of static and dynamic picture elements:

- Static picture elements do not change in representation.
- Dynamic picture elements display process values or statuses and their change during the process.

This includes the following picture elements:

- Numeric values
- Bar
- 3D-Bar
- Output and input texts
- Status displays
- Status and analog displays

Note

Do not use independent picture windows

You can insert a picture window in a graphic picture; a second graphic picture is displayed in this picture window.


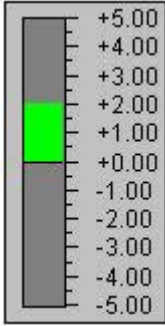
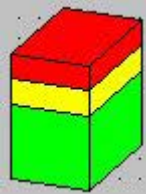
This picture window adopts the positioning and behavior of the graphic picture.

Independent picture windows are not supported when using Basic Process Control.

Select the setting "No" for the "Independent window" object property.

Dynamic picture elements

Depending on the configuration, both the static and the dynamic picture elements may allow user interactions.

Process values	Explanation
<p>Numeric value</p>	<p>Numeric values from the process are displayed in the form of numeric output. A unit can be displayed next to the numeric value.</p> <p>Numeric value input is used for setting setpoint values or other parameters.</p> <p>Numeric values can be distinguished according to their display format:</p> <ul style="list-style-type: none"> • Integer (whole numbers with 2 to 9 places) • Fixed point numbers (fixed position of the decimal point, preceded by between 2 and 9 digits and followed by 0 to 5 digits) • Floating point numbers (variable position of the decimal point depending on the value, preceded by 2 to 8 digits and followed by 1 to 7 digits) • Exponential number <p>Limit value violations, for example, can be displayed by changing the background color or pattern.</p> <p>Example:</p> 
<p>Bar</p>	<p>Bar graphs display process values in analog form. The current value is visualized by a scalable bar.</p> <p>The object properties of the bar are user-definable.</p> <p>Limit value violations can be displayed by changing the color.</p> <p>Example:</p> 
<p>3D-Bar</p>	<p>The Basic Process Control option pack provides you with a 3D-Bar graph for graphically displaying values relative to an upper and lower limit value.</p> <p>The three-dimensional representation is user-definable.</p> <p>Limit value violations can be displayed by changing the color.</p> <p>Example:</p> 

Process values	Explanation
Input text	Input texts are dynamic texts which you enter into a field of predetermined length (number of characters). Areas of the text box which remain blank are padded with filler characters as specified by the engineer. Characters not permitted during configuration are not displayed on the screen.
Output text	Output texts are dynamic texts which are output in a field of predefined length (number of characters). You can display process states in the form of plain text, for example, or display context-dependent operator prompts. Users can edit multiline texts.
Trends	The output of trends allows users to monitor the runtime of current or archived processes.
Status display	Status displays are small images (icons) which can be shown in pictures. You can use the status displays to track process or plant states. A status display may be a valve icon, for example, which changes its color and position depending on the valve status. Status displays may consist of different icons or of the same icon with different colors/patterns.
Extended status display	The extended status display lets you display the status of a tag in runtime with the aid of configured pictures. Tag status can also be displayed in connection with an alarm status. The alarm status results from the evaluation of the group value. All standard graphic file types are supported.
Extended analog display	The extended analog display lets you display the contents of a tag in runtime in connection with an alarm status in different foreground and background colors. The alarm status results from evaluating the group value.

See also

Working Area (Page 241)

Runtime Window (Page 244)

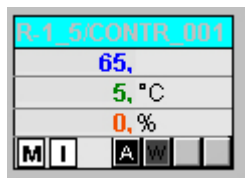
The "Runtime window" tab (Page 58)

9.12.2 How to Select a Picture via a Measurement Point

Introduction

In a PCS 7 OS, you can also change a picture via the measurement point.

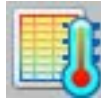
The tag selected in the measurement point list represents a measurement point that is displayed highlighted in the selected display format.



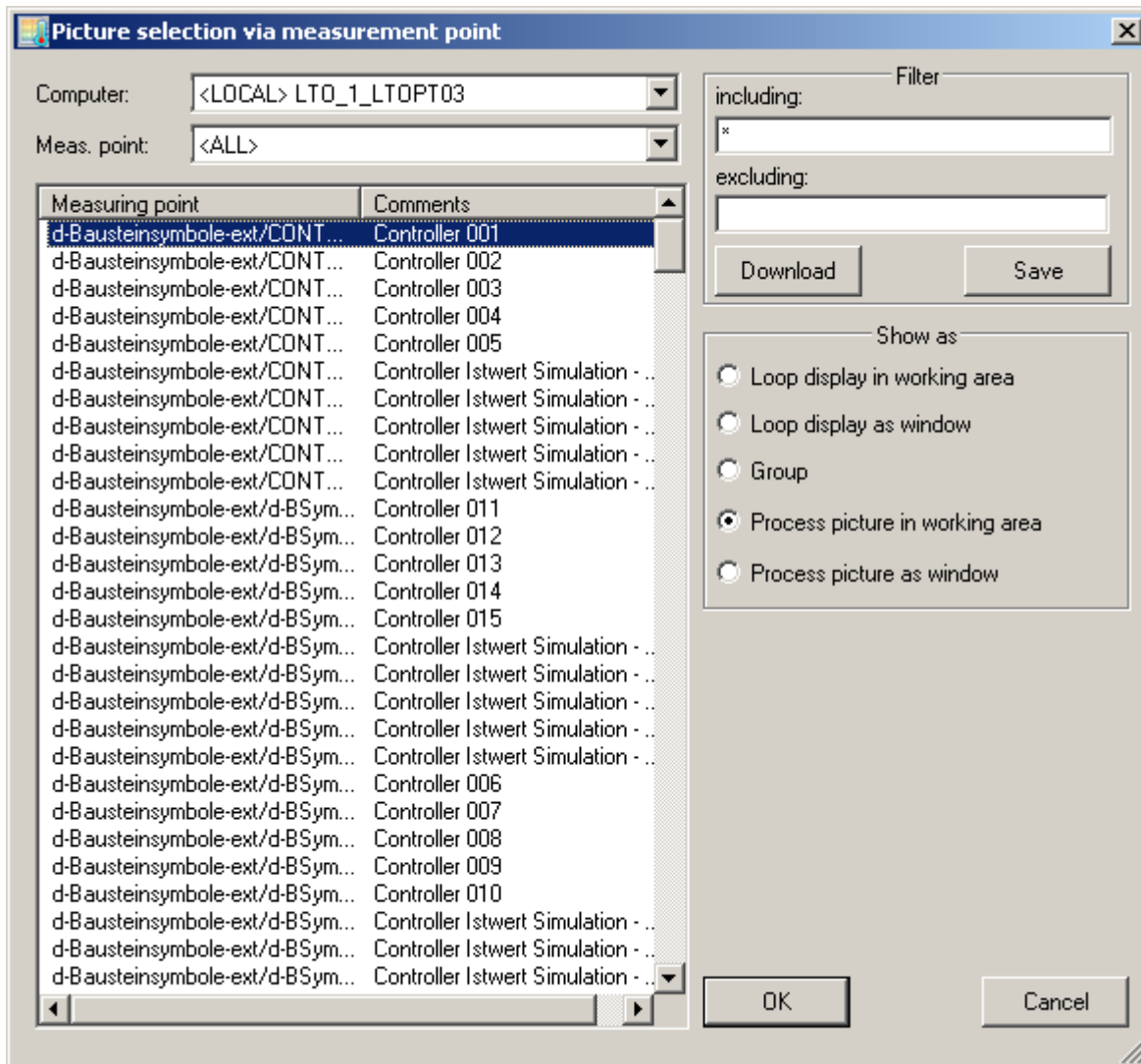
Prerequisite

Appropriate area authorizations must be assigned in the User Administrator to the logged on user. This function is only available in a PCS 7 OS.

Procedure



Click "Picture via measurement point" in runtime in button set 1. The "Picture selection via measurement point" dialog box opens. Any block comment of the measuring point is also displayed in the table beside the measuring point. The block comment is also displayed in the window bar of the picture component, which can be opened by clicking the block icon. The comment originates from the "#comment" block structure/tags and is configured at the block in CFC.



Dialog Description

Functionality	Description
Computer	This drop down list box is only active if the dialog box is opened from within a WinCC client project. In addition, you must have downloaded the package from the selected server to the WinCC client.
Measuring point	Select the measuring points to be displayed from this drop-down list box. "<All>" is displayed by default.
including	In the filter function, you can enter a filter criterion. Then only the measurement points that comply with the filter criterion are displayed.
excluding	You can use the negative filter to exclude measurement points from the display. The list displays only measurement points that comply with the filter criterion and that do NOT comply with the negative filter criterion. If you enter e.g. "*" in the "including" field and "b*" in the "excluding" field, all measurement points that do not begin with a "b" are displayed.
Load	Loads the current filter.
Save	Saves the current filter.
Representation	The "Display mode" group provides five display modes for the measurement points to be displayed. The default setting is "Process picture in working area". <ul style="list-style-type: none"> • Loop display in working area • Loop display as window • Group display • Process picture in working area • Process picture as window

Note

Measurement points for which the area is unknown do not possess any operator authorization.

If the measurement point selection fails, check in the Component List Editor to determine whether the measuring point has been assigned an area. If necessary, specify the area for which the user has authorization.

If no entry point picture is configured, the picture component for which the measurement point was configured is displayed. The default setting of the display mode is then "Loop display in working area". In this case, the last two display mode options cannot be selected.+

9.12.3 How to Select a Picture via the Name

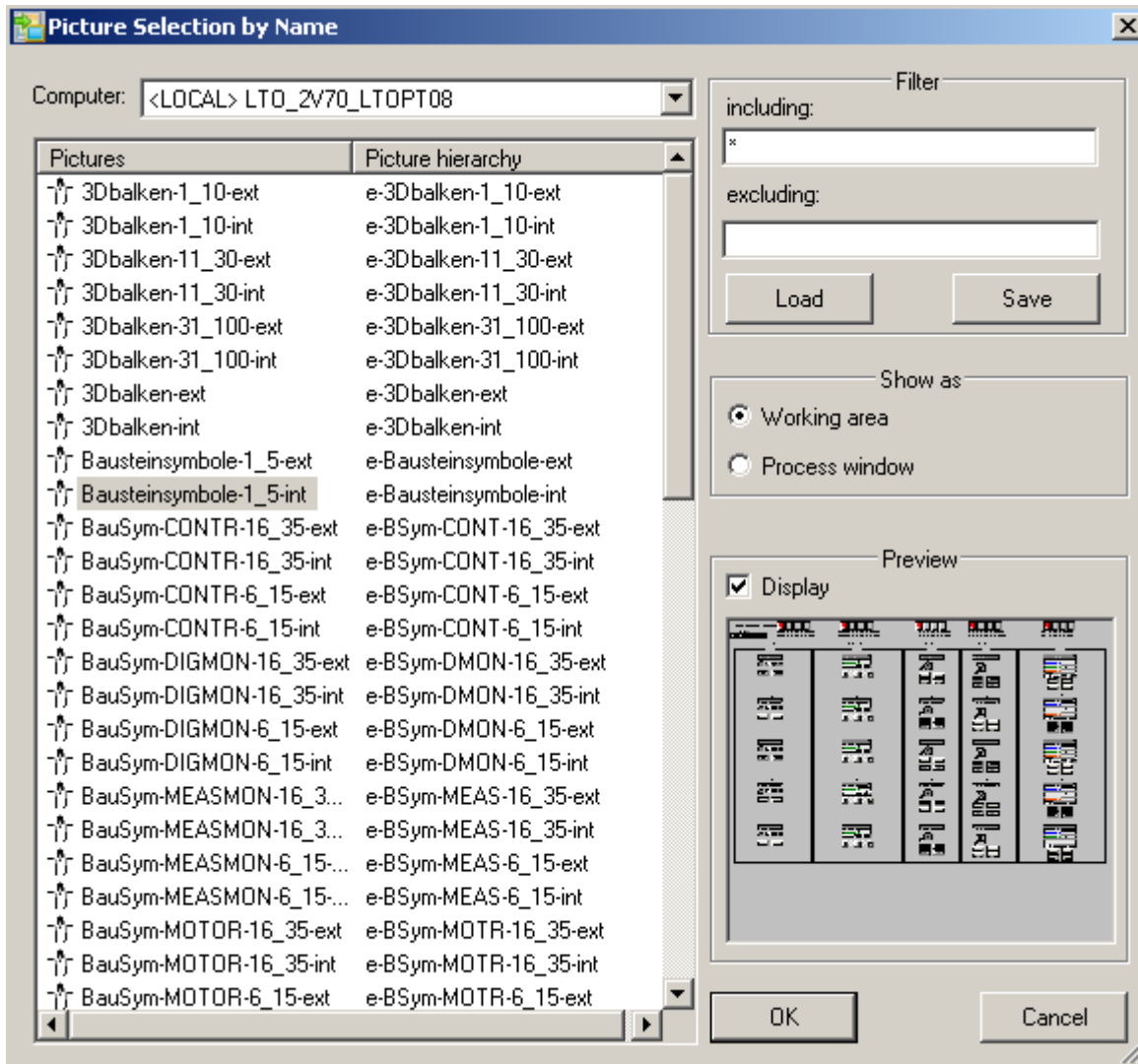
Introduction

From a list of all graphic pictures that belong to the current project and are stored in the project folder, pictures can be selected and displayed in the working area or in a process window. During the selection, a check will determine whether the area authorizations assigned in the User Administrator are present.

Procedure



Click "Picture via name" in runtime in button set 1. The "Picture Selection by Name" dialog box opens. If you created a plant hierarchy with the "Picture Tree" editor and have assigned pictures to the containers, the associated picture hierarchy is also displayed next to the picture names in the table.



Dialog description

Functionality	Description
Computer	This drop down list box is only active if the dialog box is opened from within a WinCC client project. In addition, you must have downloaded the package from the selected server to the WinCC client.
including	In the filter function, you can enter a filter criterion. Only the pictures satisfying the filter criterion will then be displayed.
excluding	You can use the negative filter to exclude pictures from the display. The list displays only pictures that comply with the filter criterion and that do NOT comply with the negative filter criterion. If you enter e.g. "*" in the "including" field and "b*" in the "excluding" field, all pictures that do not begin with a "b" are displayed.
Loading	Loads the current filter.
Save	Saves the current filter.
Representation type	The "Display mode" group provides two display modes for the picture to be displayed: Display in the working area Display in the process window
Preview	If the "Display" check-box is activated, the picture to be displayed is shown in the preview window.

9.12.4 Navigation through the picture hierarchy



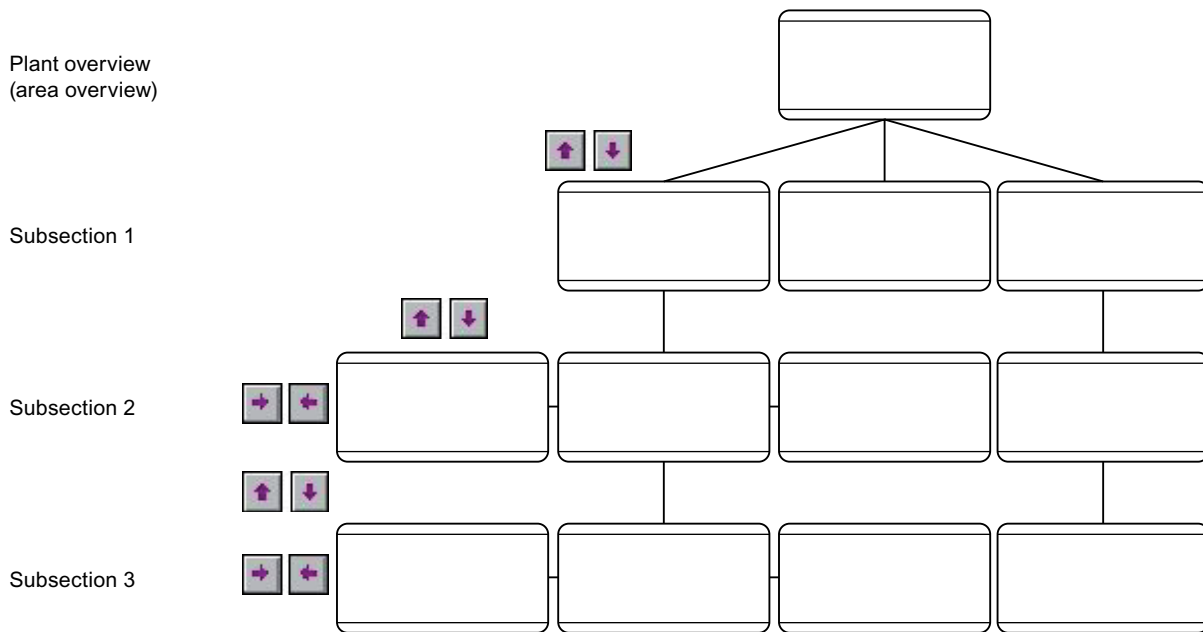
Selecting a Subsection

If a selected section has further subsections, you can select them via the buttons shown above. Highlighted arrows indicate that additional subsections can be accessed.

Navigating through the Picture Hierarchy

A section and its subsections exhibit the structure that you have selected. You can navigate through this plant hierarchy.

The following picture uses the plant hierarchy shown to show how the user moves around in the plant hierarchy in runtime:



Changes from one area level or subsection to another subsection level, e.g., from subsection level 1 to subsection level 2.



Changes within a subsection level to the pictures contained within this subsection level, e.g. in subsection level 1, from picture 1 to picture 2 and back.

9.12.5 Selecting Graphic Pictures Directly

Introduction

There are various ways in which you can select graphic pictures directly.

Selecting graphic pictures via the picture stack

The Split Screen Manager logs every picture change in the working area.

This enables you to select pictures that have been displayed previously.

In each working area in the basic picture there is a dedicated picture stack which stores the last eight picture names selected in each working area.

	Use this key to select the picture that is stored in the picture stack before the current process picture.
	Use this key to select the picture that is stored in the picture stack after the current process picture.

Selecting graphic pictures from the picture memory

The picture memory is used as a simple way to store a picture from the working area.

The picture in the picture memory can be called at any time (also multiple times).

When you save a new picture, the original picture in the picture memory is overwritten.

A separate picture memory is kept for each working area of the basic picture.

	Use this key to save the picture to the picture memory.
	Use this key to display the picture in the picture memory. You can be in any plant view.

Behavior in case of user change

The authorizations for the pictures in the picture memory and picture stack are user-specific.

Consequently, the picture memory and picture stack of all displays are deleted in their entirety every time the WinCC user changes.

However, you can apply the currently displayed status for the new user. To do this, click on the "Switch user" button before logging on the new user.

9.12.6 Operator Activity in Graphic Pictures

Overview



When the cursor takes on the form shown here, you can operate an object, for example, you can enter values.

The following types of operations exist:

- **System operator input**, which change the display in the graphic window. They have no effect on the process. They affect only the OS and permit the handling of pictures and dialog boxes. System operations include selecting further pictures/dialog boxes and repositioning pictures in their window.
- **Operator process controls**, which affect the sublevel control. They adjust values such as setpoints or valve positions in the automation system.

Chip card Reader

10.1 General Information About the Chip Card Reader

The WinCC component "Chip Card Reader" is used to integrate a chip card reader into the WinCC environment.

WinCC User Administrator supports the use of chip cards when a chip card reader is connected. Only one chip card may be inserted into a PC at a time in Runtime.

You can find out which devices are supported under "Chip card reader: Supported devices (Page 306)".

Installing a chip card reader

A chip card reader is an external device for reading and writing to chip cards.

Connect the chip card reader via the USB port.

To connect and set up a chip card reader, follow the manufacturer specifications.

SIMATIC Logon

Do not confuse the "WinCC Chip Card Reader" option with "SIMATIC Logon".

Information on SIMATIC Logon:

- "Working with WinCC > Structure of the User Administration > Central user administration with SIMATIC Logon"

See also

How to write to a chip card (Page 307)

Chip card reader in runtime (Page 308)

10.2 Chip card reader: Supported devices

A chip card reader is an external device for reading and writing to chip cards.

Supported chip card readers

The WinCC component "Chip Card Reader" supports all devices that meet the following requirements:

- PC/SC v1.0 Specification
- ISO 7816 Standard

Usually, chip card readers use the CCID protocol supported by Windows.

Any additional drivers required must be supplied by the manufacturer.

Chip card and software

The software of the card reader types is compatible. Each chip card reader can read chip cards that were written on a different type.

The chip card readers read and write to chip cards with the following operating systems:

- TCOS 3.0
- TCOS 2.0
- TCOS 1.2
- MTCOS 1.1

Chip card readers up to WinCC V7.5

Only the following chip card readers were supported up to WinCC V7.5:

- Omnikey "CardMan Desktop serial 3111"
- Omnikey "CardMan Desktop USB 3121"
- Omnikey "B1 CardMan 9010/9011"
- Siemens Nixdorf "ifc B1"
- Smart Solutions "CT B1 Snuggle"

See also

General Information About the Chip Card Reader (Page 305)

How to write to a chip card (Page 307)

Chip card reader in runtime (Page 308)

10.3 How to write to a chip card

Introduction

The User Administrator provides functions for controlling a chip card read/write device.

Write to chip card

In the User Administrator you write the data of the corresponding user to a chip card.

- When you write to a chip card, all data on the card are deleted.
- The user name and the password are stored on the card.

Check Chip Card

The User Administrator also offers the option to check the chip card.

This allows you to determine, for example, whether the chip card contains valid user data or whether it is damaged.

Note

Runtime must be deactivated

The "Write to Chip Card" shortcut menu is disabled in Runtime because the functions can only be used in the configuration system.

Requirement

- Users are created in the User Administrator.
- A chip card reader is connected and a chip card is inserted.

You do not need administrator rights to operate WinCC, write to chip cards, or use the chip cards in Runtime.

Procedure

1. Select a user in the navigation area of the User Administrator.
2. Select the "Write to Chip Card" command from the shortcut menu.
User Administrator transfers the data to the chip card .
If several chip card readers are connected, a dialog for selection is displayed.
3. To check the validity of a chip card, select the entry "User Administrator" in the navigation area.
In the shortcut menu, select the entry "Check Chip Card".

See also

Chip card reader: Supported devices (Page 306)

General Information About the Chip Card Reader (Page 305)

10.4 Chip card reader in runtime

Using the chip card

To log on to the operator control and monitoring system, insert your chip card in the chip card reader.

The required data are read out.

Note

Runtime: Only one chip card allowed

Even if several readers are connected to one PC, only one chip card may be inserted in Runtime.

Requirement

- The "Use in Runtime" option is enabled for the user in the User Administrator.

You do not need administrator rights to operate WinCC, write to chip cards, or use the chip cards in Runtime.

Behavior in Runtime

- You are logged on to the system until you remove the card from the reader.
- When a card is inserted in the chip card reader, it is not possible to log on to the system manually.
- The automatic logoff is disabled.

Procedure in case of an error message

If when you are reading or writing to a chip card a message appears on the screen telling you that the "card is inserted incorrectly or is defective", proceed as follows:

1. Remove the chip card.
2. Close the dialog box with the message.
3. Slowly reinsert the chip card into the chip card reader.

Always make sure to insert or withdraw the chip card smoothly.

See also

Chip card reader: Supported devices (Page 306)

General Information About the Chip Card Reader (Page 305)

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