SIEMENS

SIMATIC HMI

WinCC V7.5
SIMATIC HMI WinCC V7.5
Getting Started

Getting Started

Printout of the Online Help

09/2018

A5E45519800-AA

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠DANGER
indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠WARNING
indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠CAUTION
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠WARNING
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

Siemens AG
Division Digital Factory
Postfach 48 48
90026 NÜRNBERG
GERMANY

A5E45519800-AA
℗ 11/2018 Subject to change

Table of contents

Welcome 1

Welcome to WinCC Getting Started.

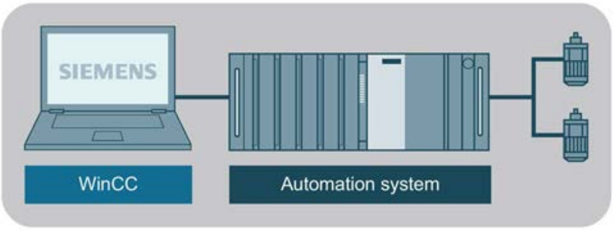
Getting Started provides a quick and precise introduction to WinCC Version 7.

SIMATIC HMI WinCC V7

WinCC is a powerful HMI system for use under Microsoft Windows or Microsoft Windows Server.

HMI stands for "Human Machine Interface", i.e. the interface between the person and the machine.

WinCC allows the operation and observance of the processes that run in a machine. The communication between WinCC and the machine takes place via an automation system.



Getting started

You will need approx. four hours to work through all subjects of this documentation and to learn the basics of WinCC configuration.

The pictorial representation of the individual configuration steps help you to orient yourself quickly in the editors.

Example project

The creation of a sample project is described in Getting Started. You will control a water treatment system with this project.

To do so, you will "configure" different objects that are necessary to operate and monitor the system, such as:

- Pictures to depict and operate the processes on the control device.
- Tags to transfer data between the operating device and the installation
- Archive to store the process data
- Messages to indicate the operating status of the system on the operating device

Getting Started consists of the following sections:

- Create a project
- Configuring communication
- Configuring the Process Pictures
- Archiving and displaying values
- Outputting values from the process archive
- Configuring messages

Installation of WinCC

WinCC Setup contains a detailed installation guide.

It also includes all programs that you will need to perform the configuration steps.

WinCC V7 know-how and training

You can find additional information on WinCC V7 on the Internet:

- SIMATIC WinCC V7 in the Online Support (https://support.industry.siemens.com/cs/ww/en/view/93906404):

  All important information relating to "WinCC V7" at a glance.
- Training:
  - SITRAIN course: WinCC V7 (basic course/system course) (https://support.industry.siemens.com/cs/ww/en/view/109758633)
  - SITRAIN advanced course: WinCC V7 and WinCC options (https://support.industry.siemens.com/cs/ww/en/view/109758660)
- Compatibility tool for automation and drive technology: (https://support.industry.siemens.com/kompatool/index.html?lang=en):

  The tool informs you about the compatibility of Siemens products.
  Other products are also covered, for example, operating system versions.

See also

Configuring messages (Page 171)

Outputting values from the process archive (Page 139)

Archiving and displaying values (Page 103)

Configuring the Process Screens (Page 41)

Configure communication (Page 17)

Creating a project (Page 13)

Icons 2

Introduction

This section provides information for the icons that are used in Getting Started.

Used icons

In order to be able to display the different instruction steps in pictures, the following icons were used when creating this documentation:

Icon	Meaning
	A click with the left mouse button
	A click with the right mouse button
	A double-click with the left mouse button
	Entering text via the keyboard
	Press and hold the left mouse button (drag-and-drop)
	Dragging with the left mouse button pressed (drag-and-drop)
	Release the left mouse button after dragging (drag-and-drop)
	Numbering of the individual action steps

Working with WinCC 3

Introduction

WinCC is a modular system:

- You use WinCC to visualize the process and configure a graphical user interface.
- You use the user interface for operator control and monitoring of the process.

Functions of WinCC

- WinCC enables you to visualize the process.

  For this purpose, the process is visualized graphically on the screen.
  The display is updated as soon as a state in the process changes.
- WinCC enables you to control the process.

  For example, you can specify a setpoint or open a valve from the user interface.
- WinCC enables you to monitor the process.

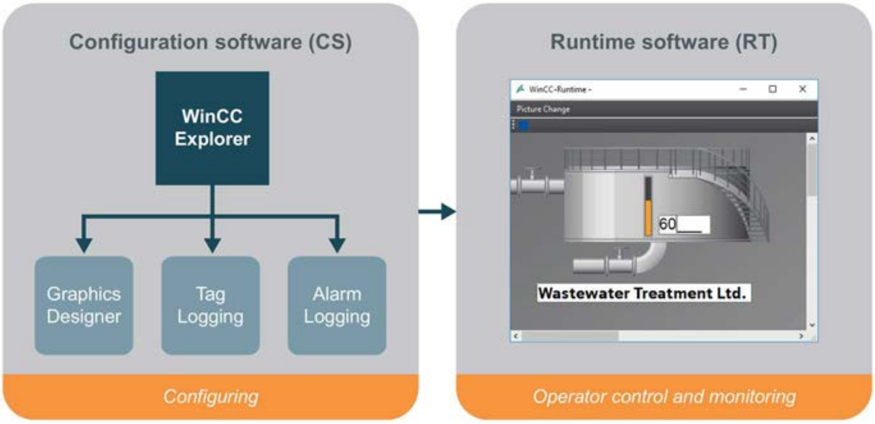
  An alarm is automatically triggered when critical process states occur. If, for example, a pre-defined value is exceeded, a message appears on the screen.
- WinCC enables you to archive the process.

  With WinCC, you can print out and electronically archive messages and process values.

  As a result, you document the process history and have access to past production data.

Components of WinCC

The basic components are the Configuration software (CS) and Runtime software (RT)



WinCC Configuration Software (CS)

WinCC Explorer forms the core of the Configuration software.

The overall project structure is displayed and the project is managed in WinCC Explorer.

You can open various editors from WinCC Explorer. Each editor belongs to a certain subsystem of WinCC.

The most important subsystems of WinCC are:

Subsystem	Editor	Function
Graphics system	Graphics Designer	Configuring pictures
Alarm logging	Alarm Logging	Configuring messages
Archive system	Tag Logging	Archiving data
Report system	Report Designer	Creating layouts
User administration	User Administrator	Administering users and user rights
Communication	Tag Management	Configuring communication

WinCC Runtime Software (RT)

WinCC Runtime runs the project in process mode. The project is then in Runtime.

WinCC Runtime enables operator control and monitoring of the processes.

In particular, WinCC Runtime has the following tasks:

- Reading the configuration data stored in the CS database
- Displaying pictures on the screen
- Communication with the automation systems.
- Archiving current Runtime data, e.g. process values and alarm events
- Controlling the process, e.g. through setpoint specification or switching on and off

Creating a project 4

4.1 Creating a project

Introduction

This chapter provides information about WinCC and a description of how to create a project in WinCC Explorer.

The project is the basis for the configuration of a user interface in WinCC. Within the project you will create and edit all objects that you will need to operate and observe the processes.

General procedure

The project will be created in WinCC Explorer. The WinCC Explorer is the configuration component of WinCC. You will use this component to manage your projects.

4.2 Creating the "Quick_Start" project

Introduction

The following steps will show you how to start WinCC and create the "Quick_Start" project.

You will create the "Quick_Start" project as a "Single-user project".

A "Single-user project" only runs on one PC. Other computers cannot access this project.

The project runs on a computer that serves as the server for data processing and as an operator station.

Starting WinCC Explorer

When you start WinCC for the first time, the "WinCC Explorer" will open. In this dialog, you will select a project type or open an existing project.

The next time WinCC is started, the last project worked on will be opened.

If the project was activated when WinCC was exited, it will be reopened in the activated state.

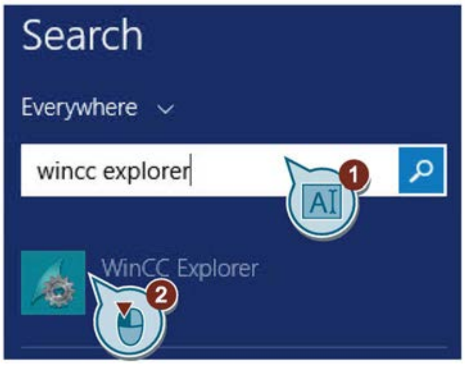
Requirement

- WinCC V7 is installed as "Typical" version at a minimum.

Procedure

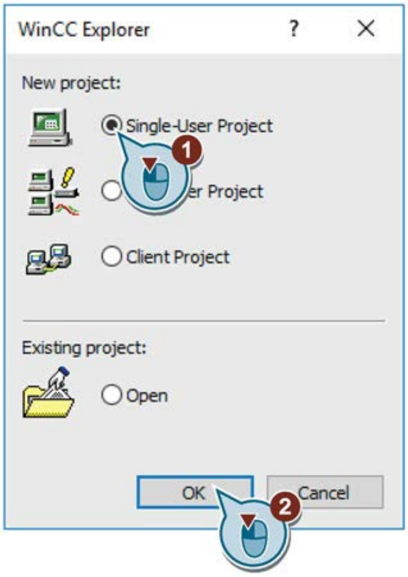
1. Start WinCC.

   If required, open the input window using <Windows+R>.



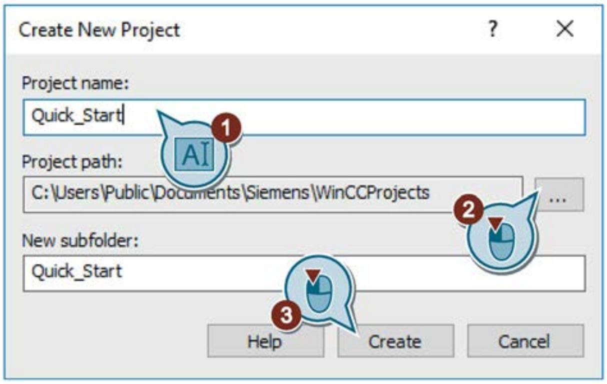
2. Select project type "Single-user project" from the "WinCC Explorer" dialog box.

   If the dialog box does not open automatically, select "File > New" on the menu bar of the WinCC Explorer.

   The "Create new project" dialog box opens.

3. Enter the project information.

   Project name: Quick_Start

   Project path: C:\Users\Public\Documents\Siemens\WinCCProjects

   New subfolder: Quick_Start

   If you do not make changes in the fields "New subfolder" and "Project path", the standard settings will be adopted.

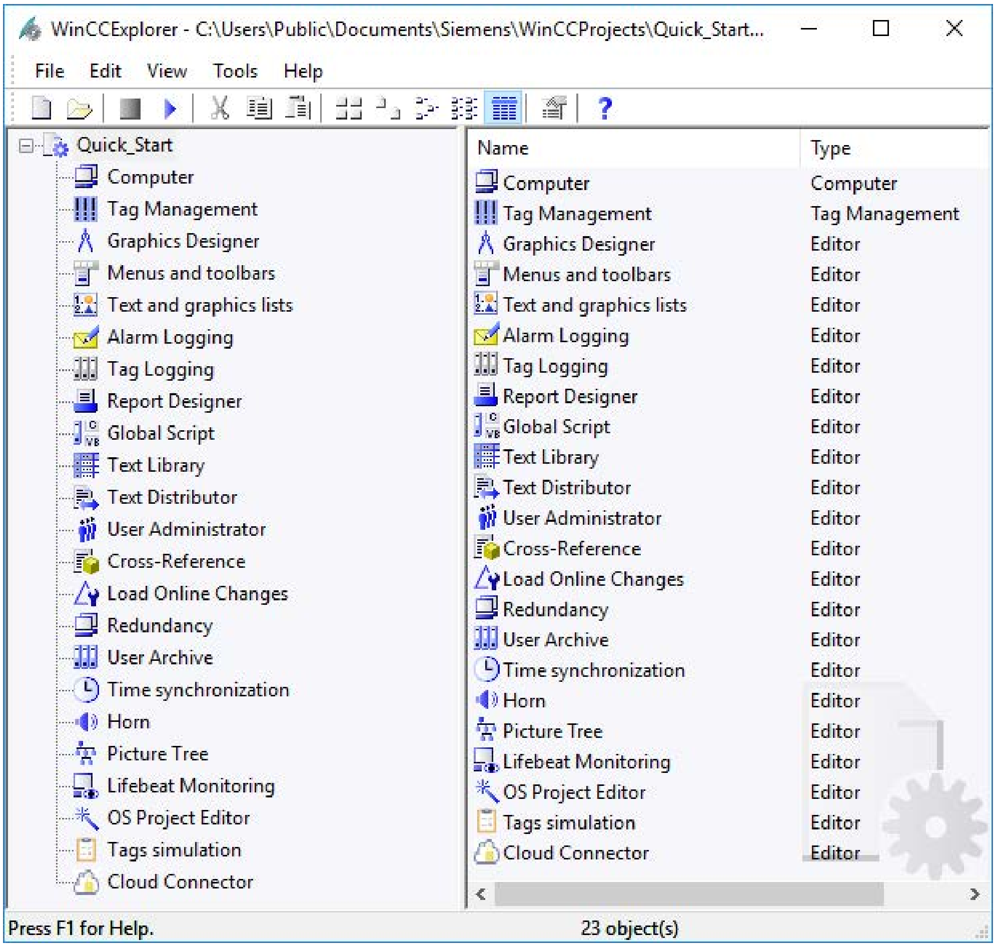
Result

You have created the "Quick_Start" project.

The project is opened in the WinCC Explorer.

The project structure with the required editors and folders is displayed in the left pane of the WinCC Explorer.

The right pane shows the items that belong to an editor or folder.


WinCCExplorer - C:\Users\Public\Documents\Siemens\WinCCProjects\Quick_Start...
File
Edit
View
Tools
Help

- Quick_Start
  - Computer
  - Tag Management
  - Graphics Designer
  - Menus and toolbars
  - Text and graphics lists
  - Alarm Logging
  - Tag Logging
  - Report Designer
  - Global Script
  - Text Library
  - Text Distributor
  - User Administrator
  - Cross-Reference
  - Load Online Changes
  - Redundancy
  - User Archive
  - Time synchronization
  - Horn
  - Picture Tree
  - Lifebeat Monitoring
  - OS Project Editor
  - Tags simulation
  - Cloud Connector

Name	Type
Computer	Computer
Tag Management	Tag Management
Graphics Designer	Editor
Menus and toolbars	Editor
Text and graphics lists	Editor
Alarm Logging	Editor
Tag Logging	Editor
Report Designer	Editor
Global Script	Editor
Text Library	Editor
Text Distributor	Editor
User Administrator	Editor
Cross-Reference	Editor
Load Online Changes	Editor
Redundancy	Editor
User Archive	Editor
Time synchronization	Editor
Horn	Editor
Picture Tree	Editor
Lifebeat Monitoring	Editor
OS Project Editor	Editor
Tags simulation	Editor
Cloud Connector	Editor

Press F1 for Help.

23 object(s)

Configure communication

5

5.1 Configure communication

Introduction

This section contains information on configuring the communication between WinCC and the automation system.

This section also describes how you create and scale tags.

Principle

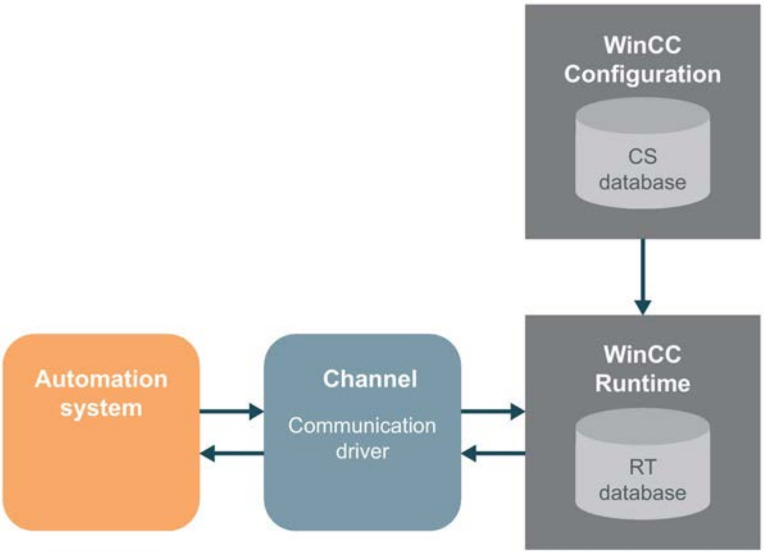
Use the "WinCC Configuration Studio" editor to configure communication.

You will need at least the following components to configure the communication:

- One channel with channel units
- One connection
- One process tag

In practice, you will achieve access to the current process values of the automation system by the configured communication.

Communication in the WinCC system



WinCC project "Quick_Start"

You do not need an automation system for the "Quick_Start" project.

In this project, the values are transported within WinCC by means of an internal tag.

The configuration of communication between WinCC and the automation system and linear scaling of the process tags is merely intended for use as practical exercise.

5.2 Check the channels and connections in WinCC

Introduction

Through the channels and connections, you clearly specify how the automation system is connected with WinCC.

The channels

The channels are specialized communication drivers.

The channels enable the supply of process tags with process values from the automation system. WinCC provides a variety of channels for connection of different automation systems.

In WinCC, you can also use channels, via which values are transferred to the automation system from WinCC. You control the process via these channels.

The channel units

The channels have different channel units for the different communication networks.

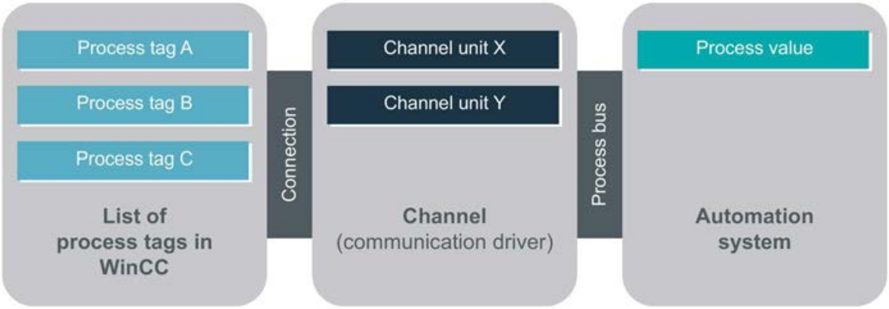
This channel unit is then used to access to a certain type of automation system.

A channel unit forms the interface to exactly one underlying hardware driver and therefore to exactly one communications processor in the PC.

The connections

You configure connections to the various automation systems under the channel units.

Each connection describes the interface to an individual, defined automation system. The data exchange takes place in Runtime via the connections.



5.3 Tags in WinCC

Introduction

The tags in WinCC represent either real values or internal values. The internal values are calculated or simulated within WinCC.

WinCC manages all communication connections and tags in Tag Management.

Use the "Tag Management" editor in "WinCC Configuration Studio" for configuration and management.

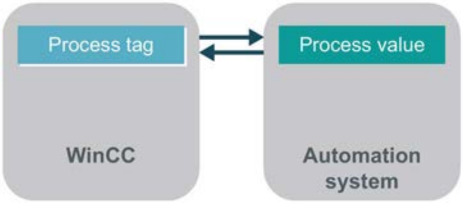
Process tags

The connecting link for the exchange of data between WinCC and the automation systems are the external tags.

Each external tag in WinCC corresponds to a certain process value in the memory of one of the connected automation systems. External tags are therefore referred to as process tags.

In Runtime, the process values of the process tags are determined and entered by WinCC.

In WinCC, you can also determine the values for the process tags. These values are transferred to the automation system via the stipulated channel. The automation system controls the process accordingly.



Internal tags

WinCC also has internal tags.

These tags are not linked to a process and only transfer values within WinCC.

Tag groups

The tag groups are components of the "Tag management" editor.

Tag groups are used to organize tags in a clear structure.

5.4 Adding a Channel

Introduction

The following steps will show you how to create a channel in WinCC.

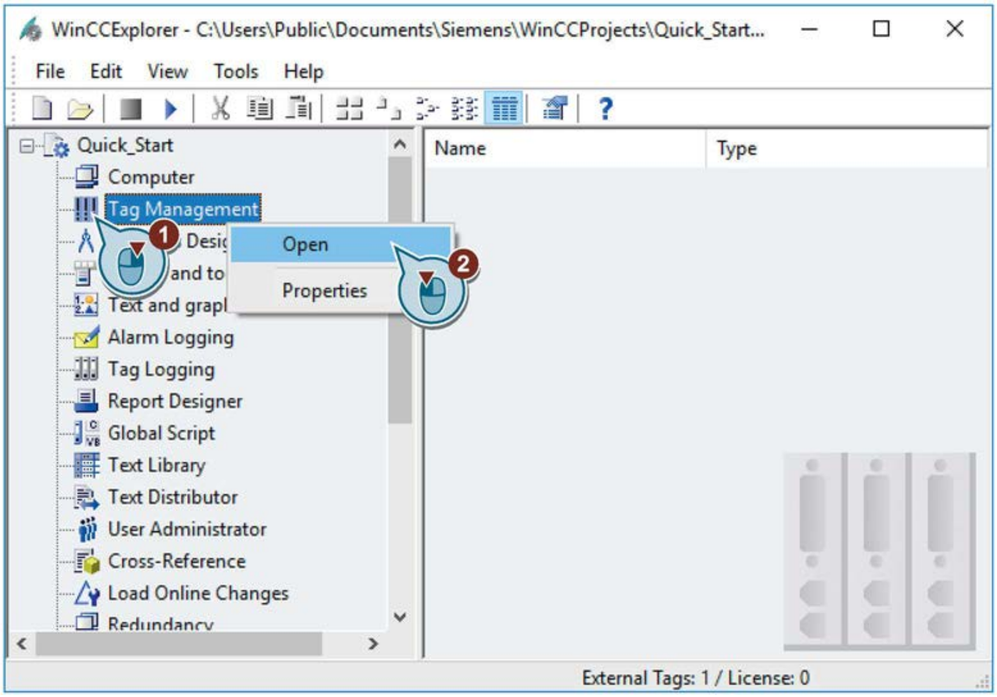
WinCC communicates with the automation system via this channel.
This also supplies process values to the process tags in WinCC.

Requirement

- The "Quick_Start" project is open.

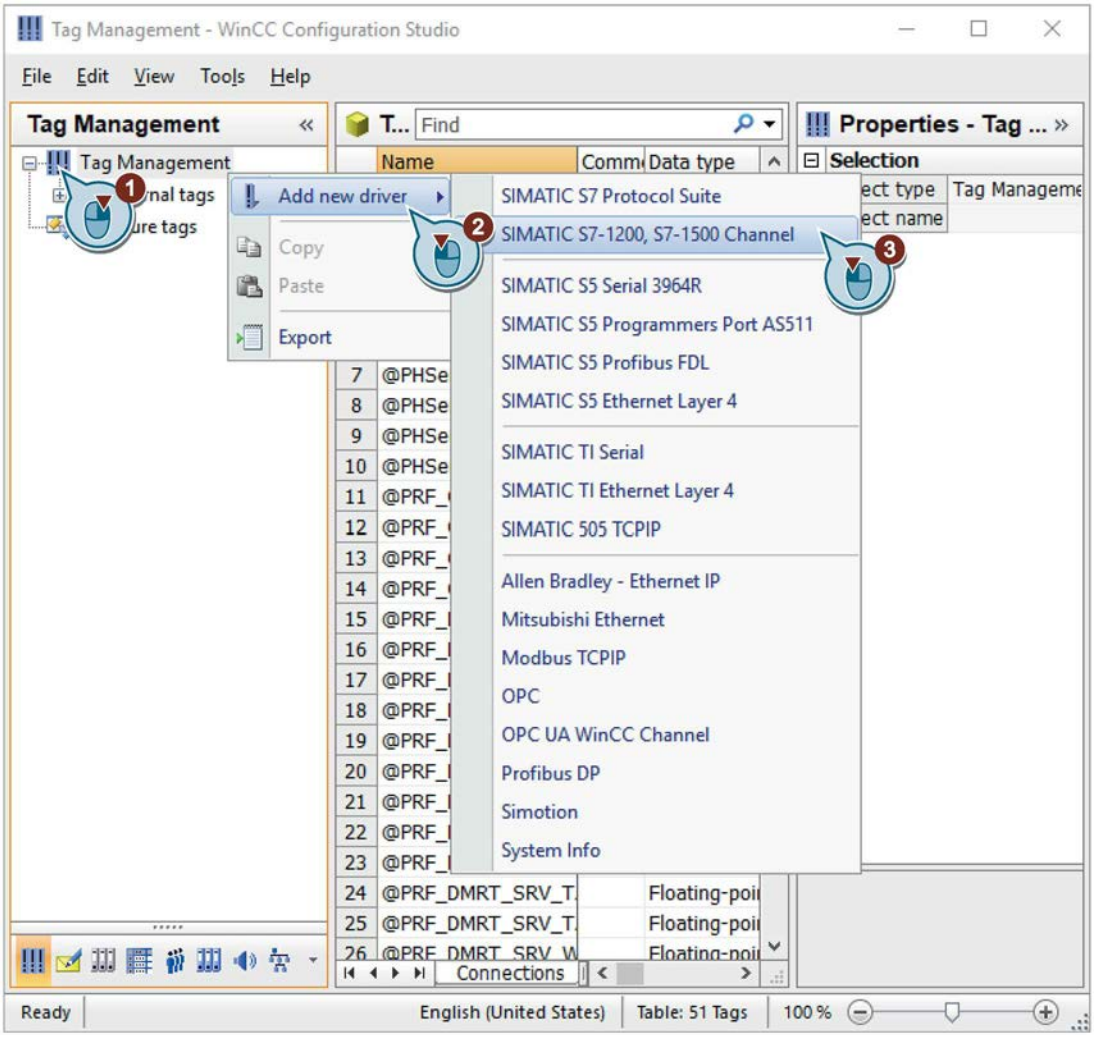
Procedure

1. Open the "Tag Management" editor.



The "Tag Management" editor opens in the WinCC Configuration Studio.

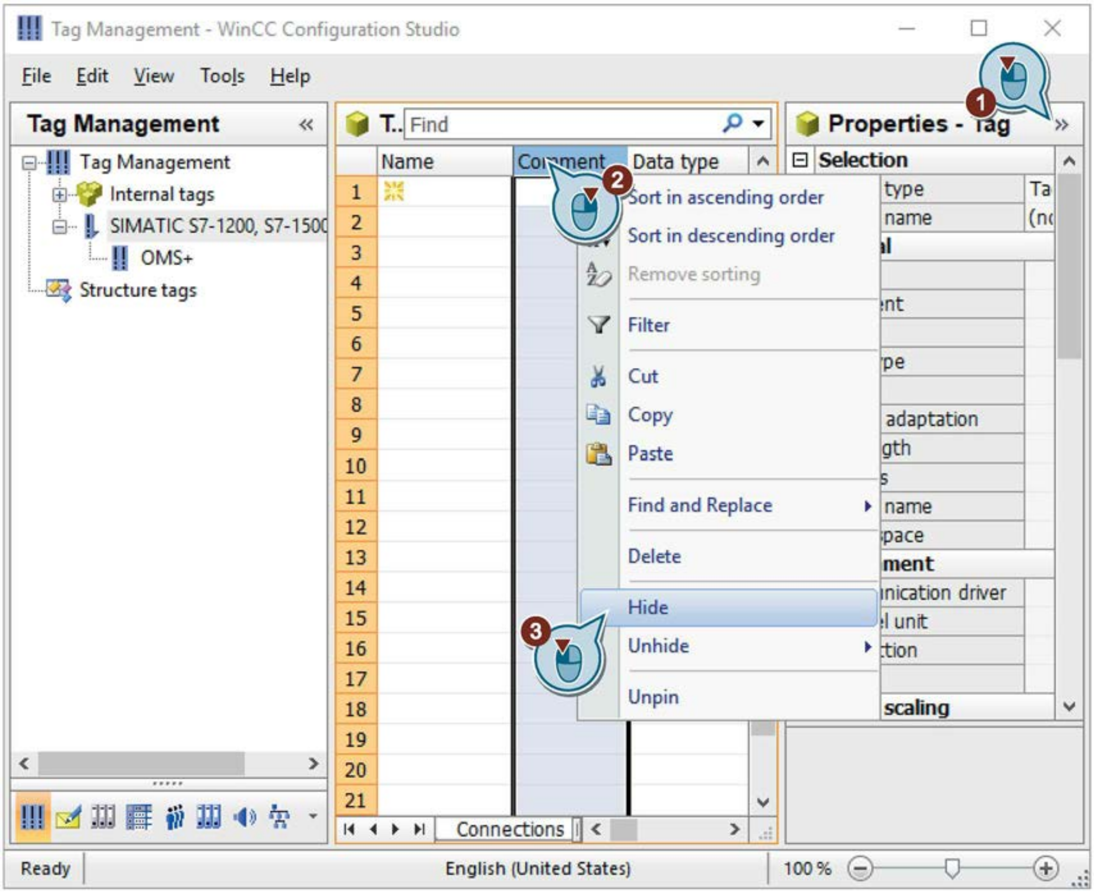
2. Insert the "SIMATIC S7-1200, S7-1500 Channel".



3. To enlarge the data area, reduce the size of the "Properties" window using the » button.

   To show the "Properties" window again, click on the « button.

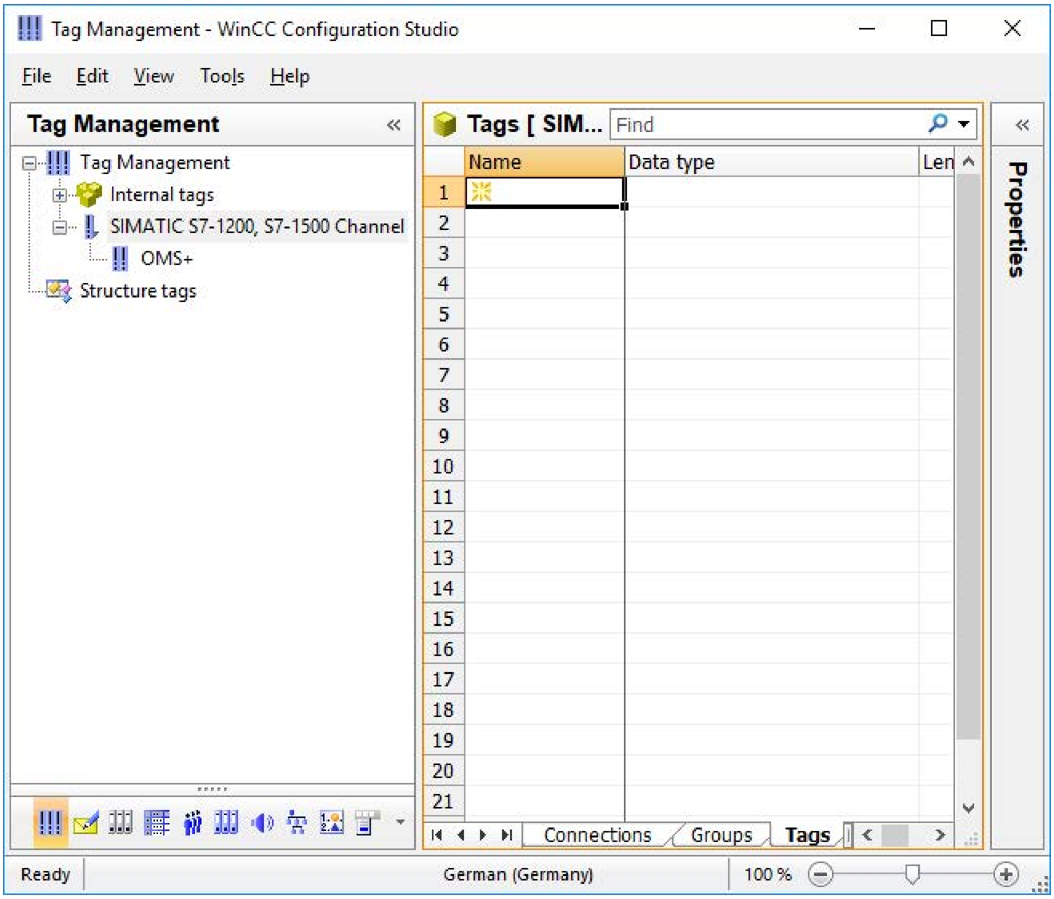
4. You can hide and show columns in the data area in the editors of the WinCC Configuration Studio.



Result

"SIMATIC S7-1200, S7-1500 Channel" is displayed in Tag Management.

In the next steps, you will create a connection to the automation system under the channel unit "OMS+".



5.5 Creating connections

Introduction

The following steps will show you how to create a connection to the automation system under the channel unit "OMS+".

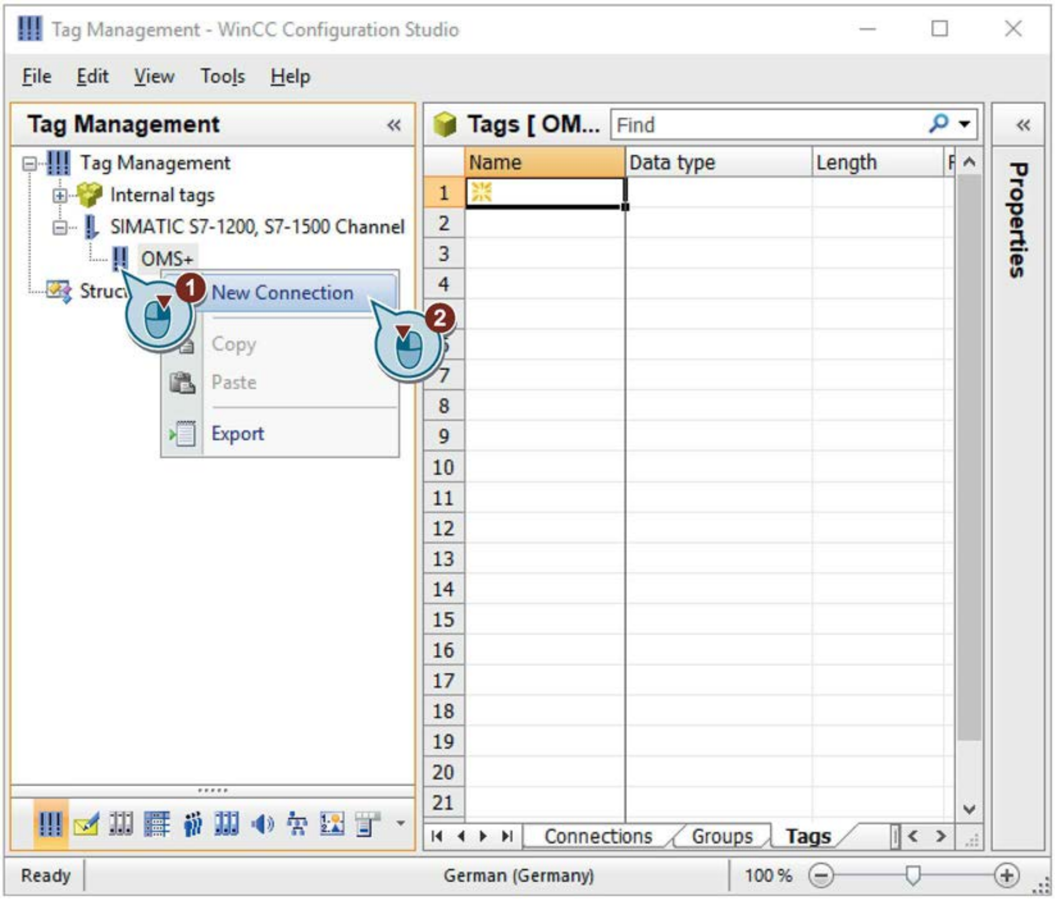
The data exchange will take place via this connection in Runtime.

Requirement

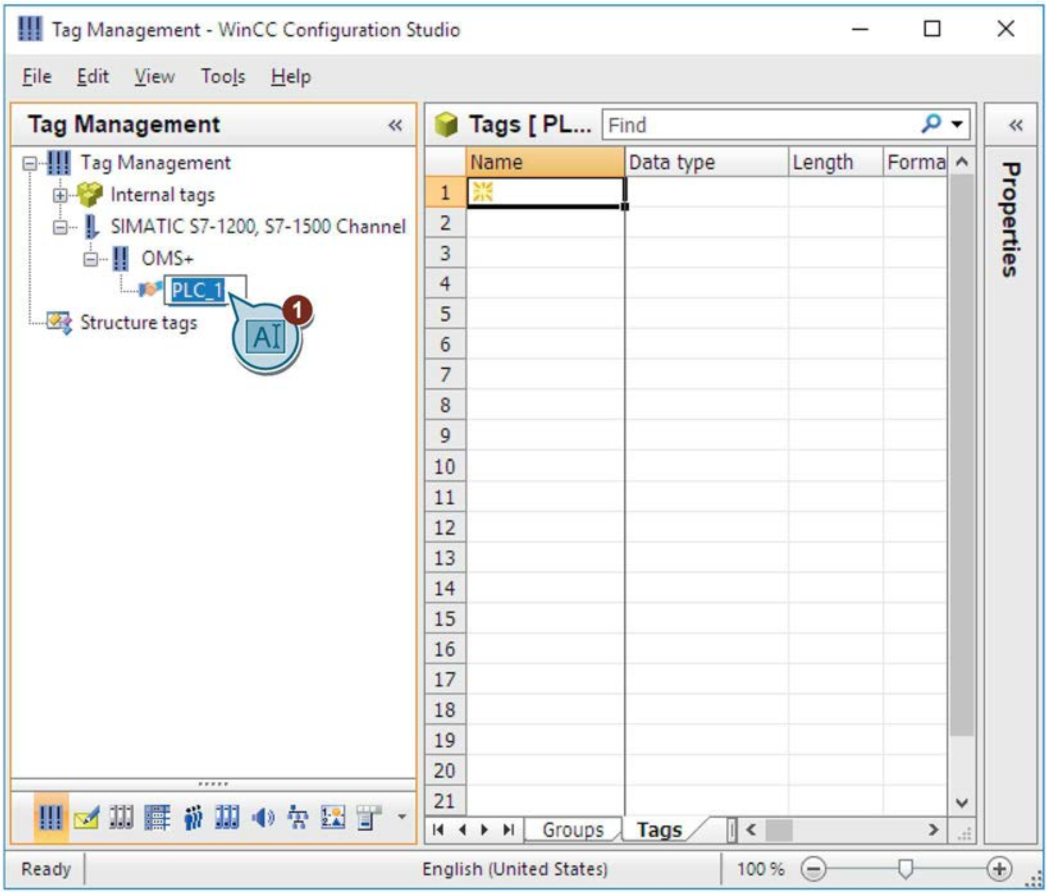
- "SIMATIC S7-1200, S7-1500 Channel" has been added to Tag Management.

Procedure

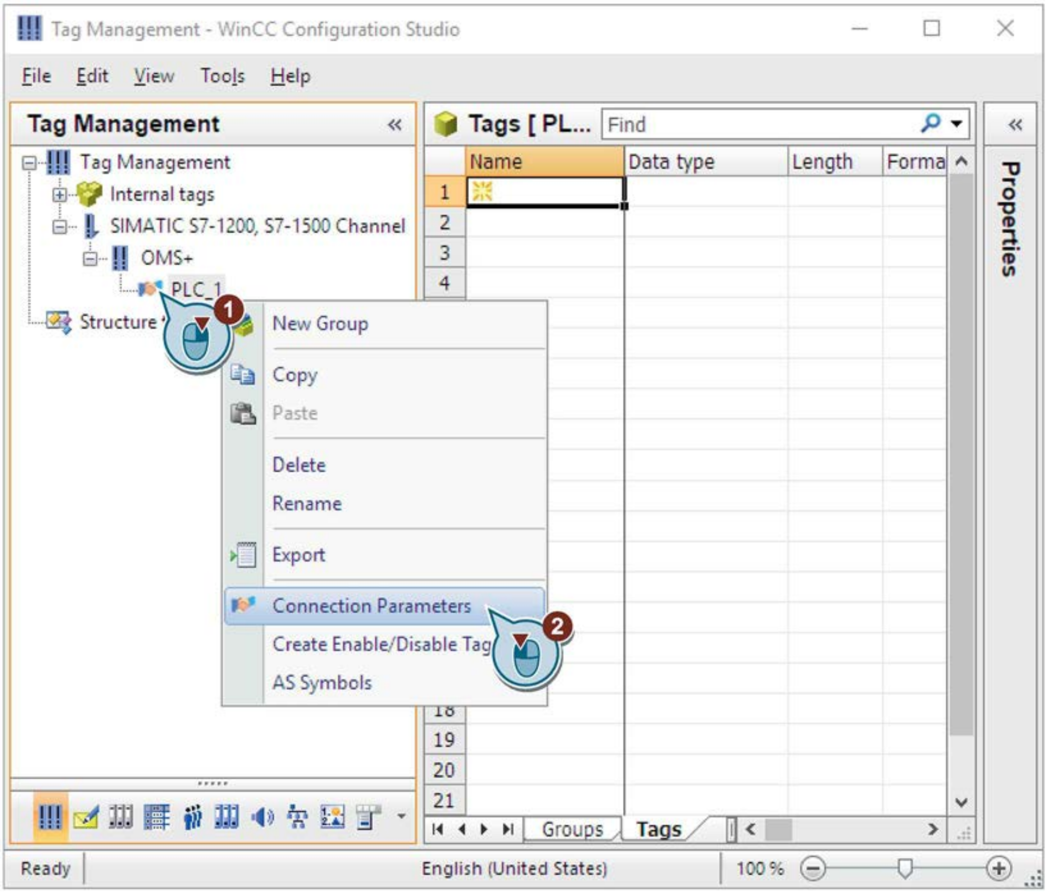
1. Create a new connection under channel unit "OMS+".



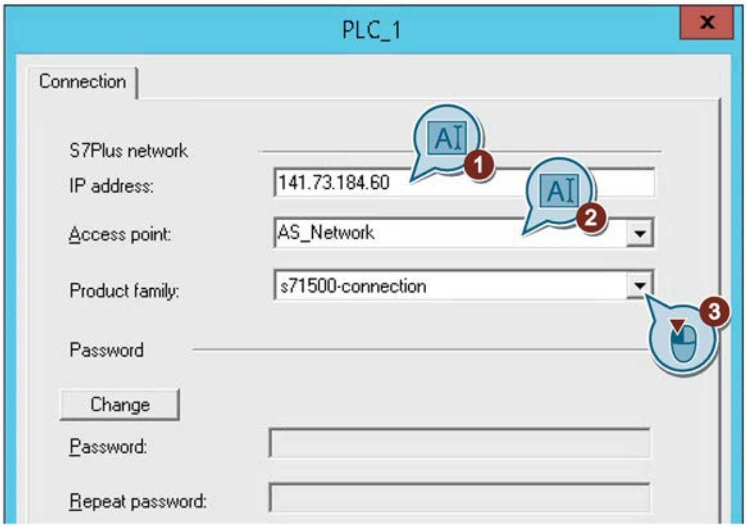
2. Enter "PLC_1" as the connection name.



3. Open the "Connection" dialog to configure the connection.



4. Enter the connection parameters.



S7Plus network

IP address: 141.73.184.60

Access point: AS_Network

Product family: s71500-connection

Password

Password:

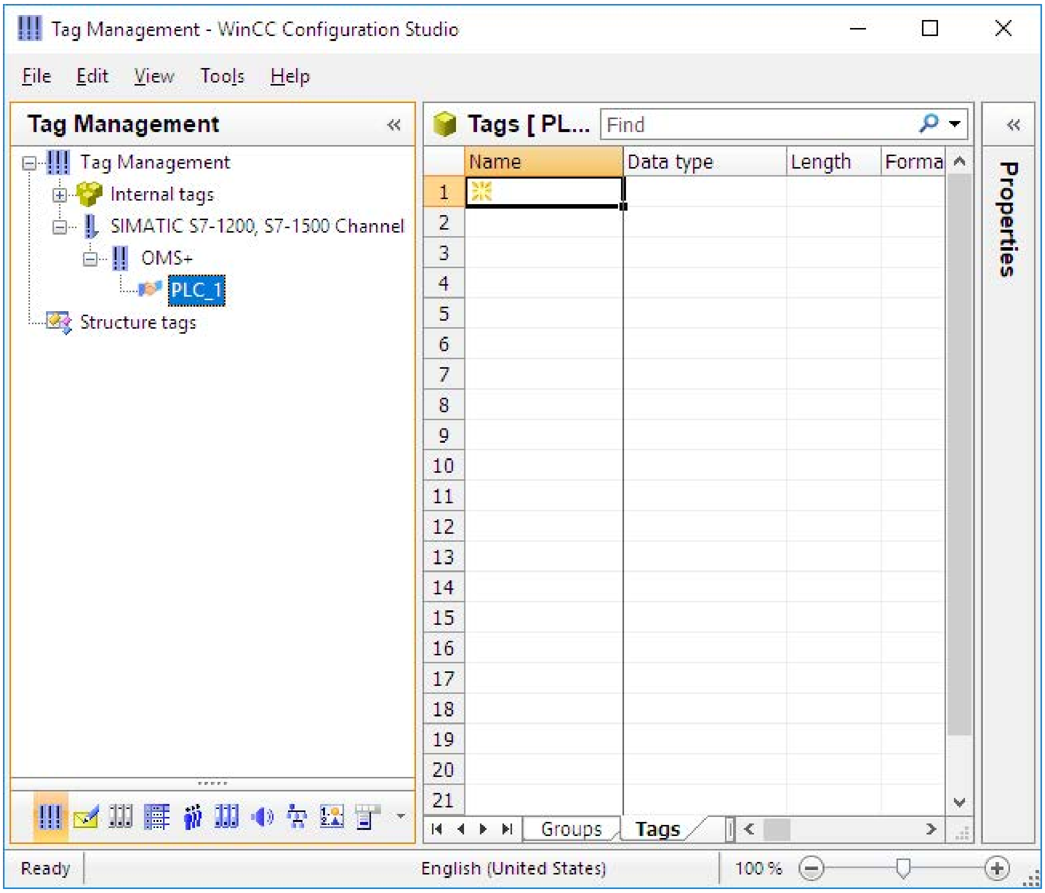
Repeat password:

5. Close the dialog with "OK".

Result

You have established the "PLC_1" connection to the automation system.
The connection is displayed in Tag Management.

In the next steps, you will create a tag group and a tag under the connection "PLC_1".



5.6 Creating process tags in a tag group

Introduction

The following steps will show you how to create a process tag in a tag group, and how to determine its properties.

The tag groups are components of the "Tag management" editor. You can sort and clearly display the structured tags using these components.

You will specify the following properties for the process tag:

- Name
- Data type

  The data type determines the data format in WinCC.

  The data type of a tag in WinCC can differ from the data type used in the automation system.
- Address

  Via the addressing, you assign a certain data range in the automation system to a process tag.

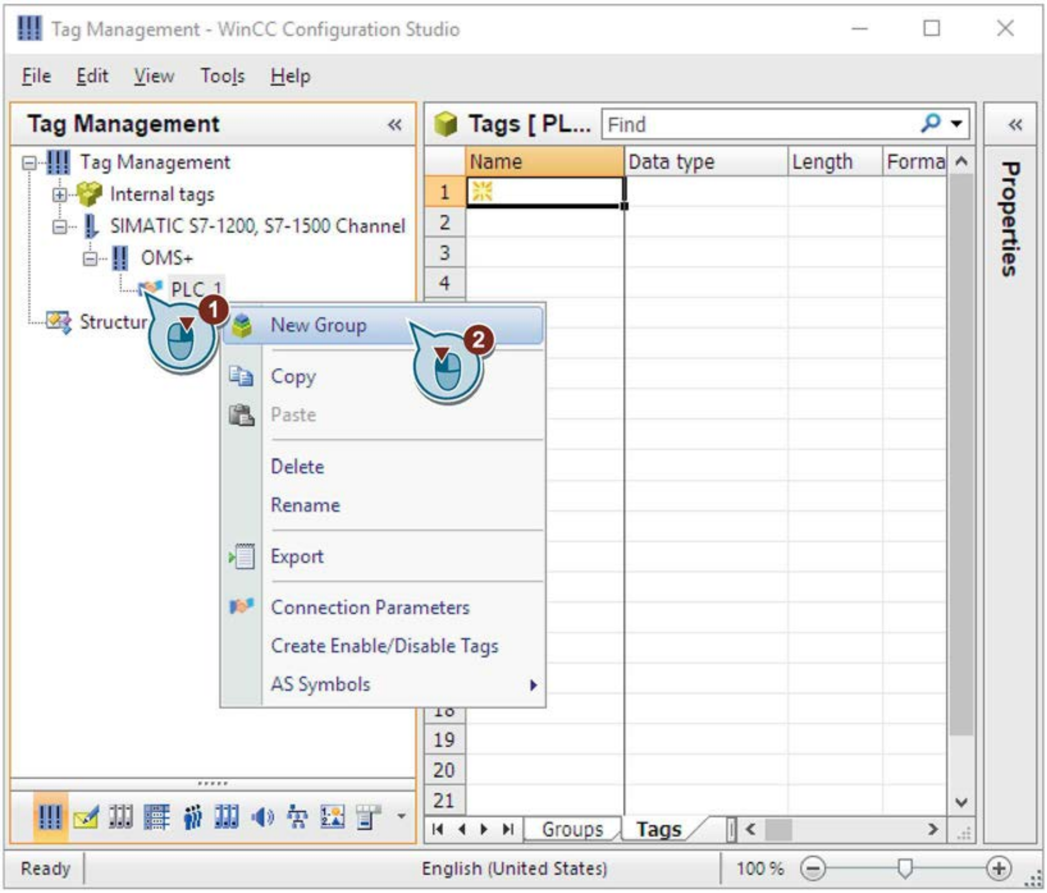
  The addressing type depends on the type of communication partner.

Requirement

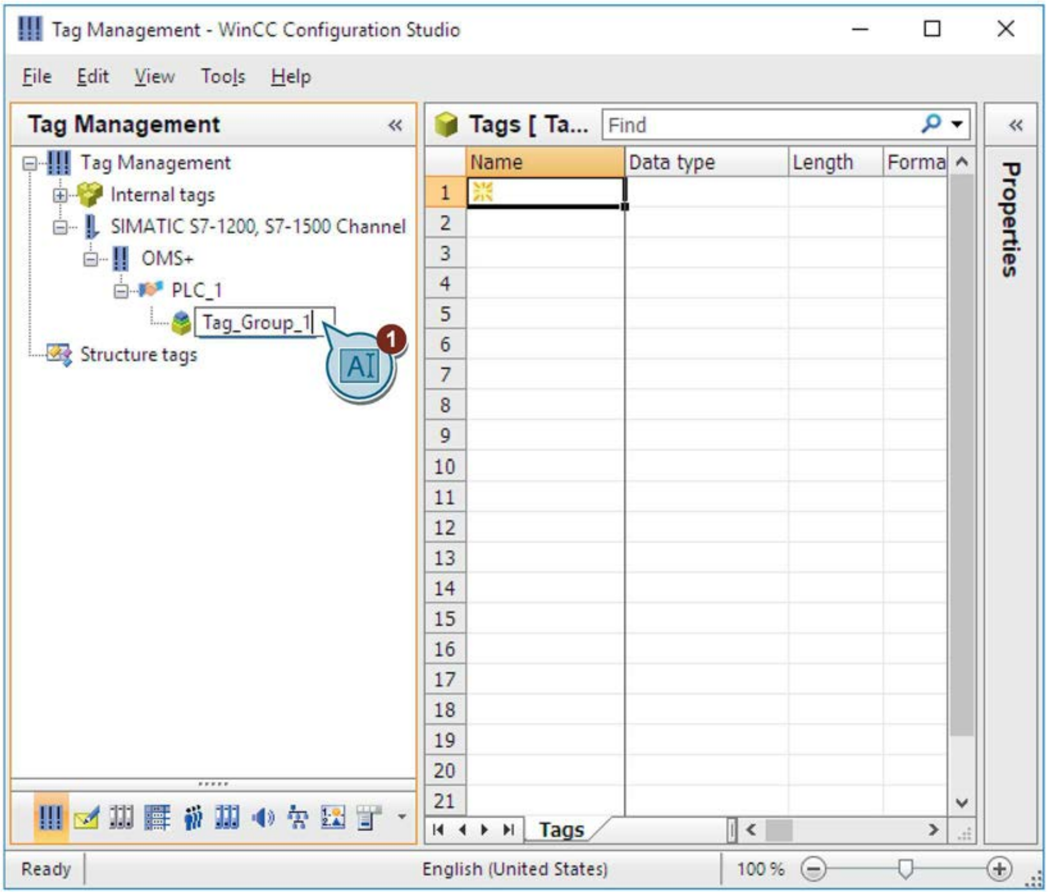
- The "PLC_1" connection is created in Tag Management.

Procedure

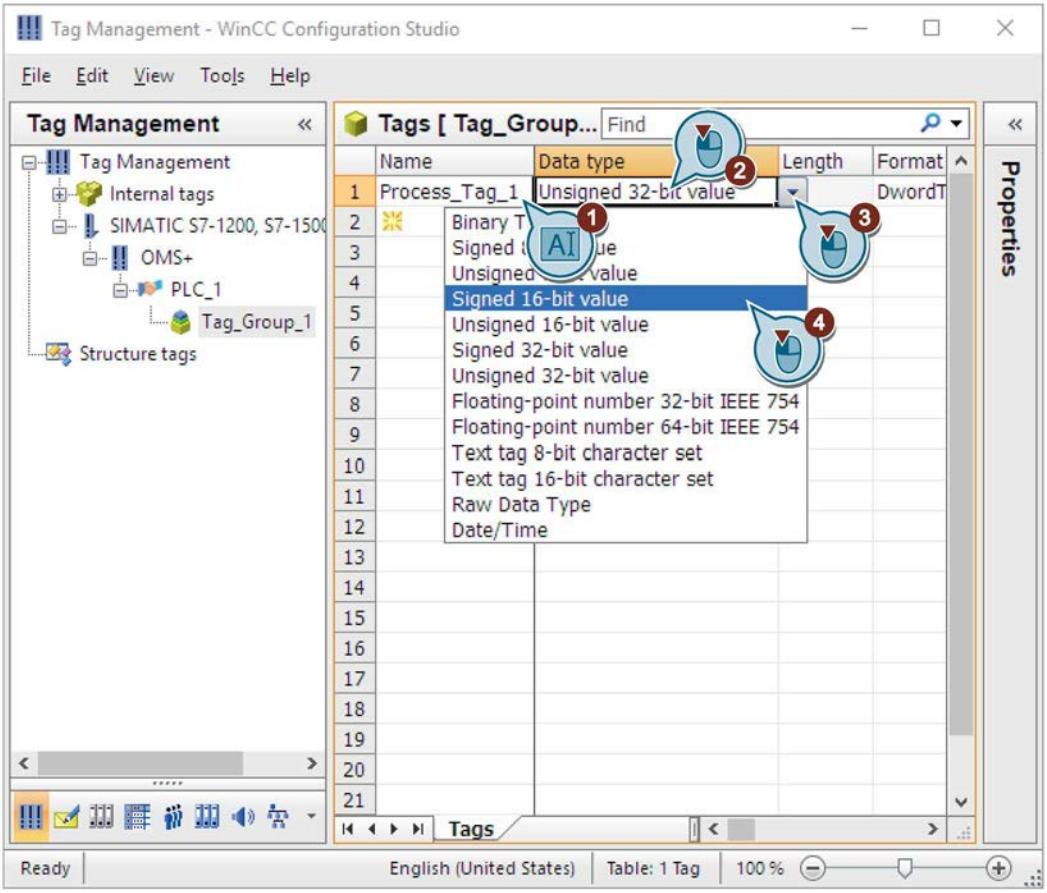
1. Create a tag group.



2. Enter "Tag_Group_1" as tag group name.



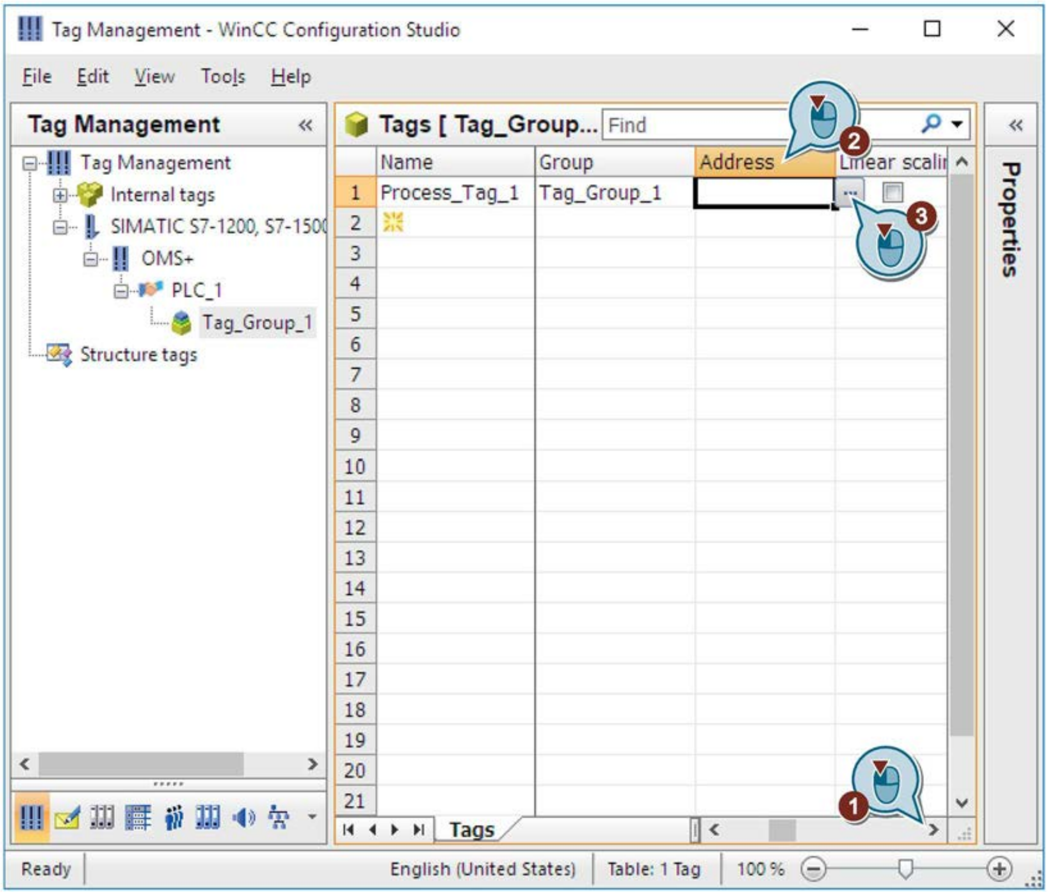
3. Enter "Process_Tag_1" as the process tag name to create a process tag in the tag group.
4. Select data type "Signed 16-bit value".



	Name	Data type	Length	Format
1	Process_Tag_1	Unsigned 32-bit value		DwordT

Binary Tag
Signed 8-bit value
Unsigned 8-bit value
Signed 16-bit value
Unsigned 16-bit value
Signed 32-bit value
Unsigned 32-bit value
Floating-point number 32-bit IEEE 754
Floating-point number 64-bit IEEE 754
Text tag 8-bit character set
Text tag 16-bit character set
Raw Data Type
Date/Time

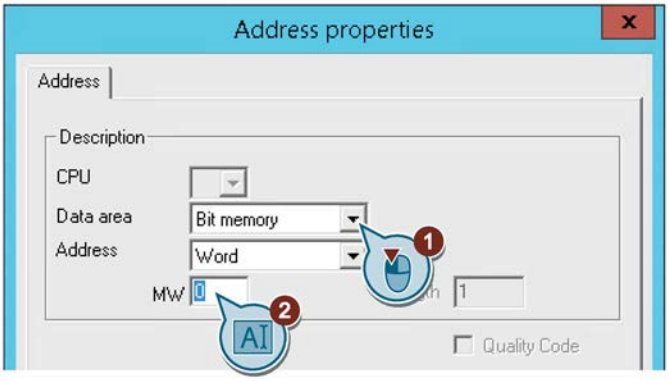
5. Click "..." in the "Address" column to specify the properties of the tag addressing.



	Name	Group	Address	Linear scali
1	Process_Tag_1	Tag_Group_1		□

The "Address Properties" dialog box opens.

6. Enter the information for the address description.



CPU
Data area: Bit memory
Address: Word
MW 0
1
□ Quality Code

7. Close the dialog with "OK".

Result

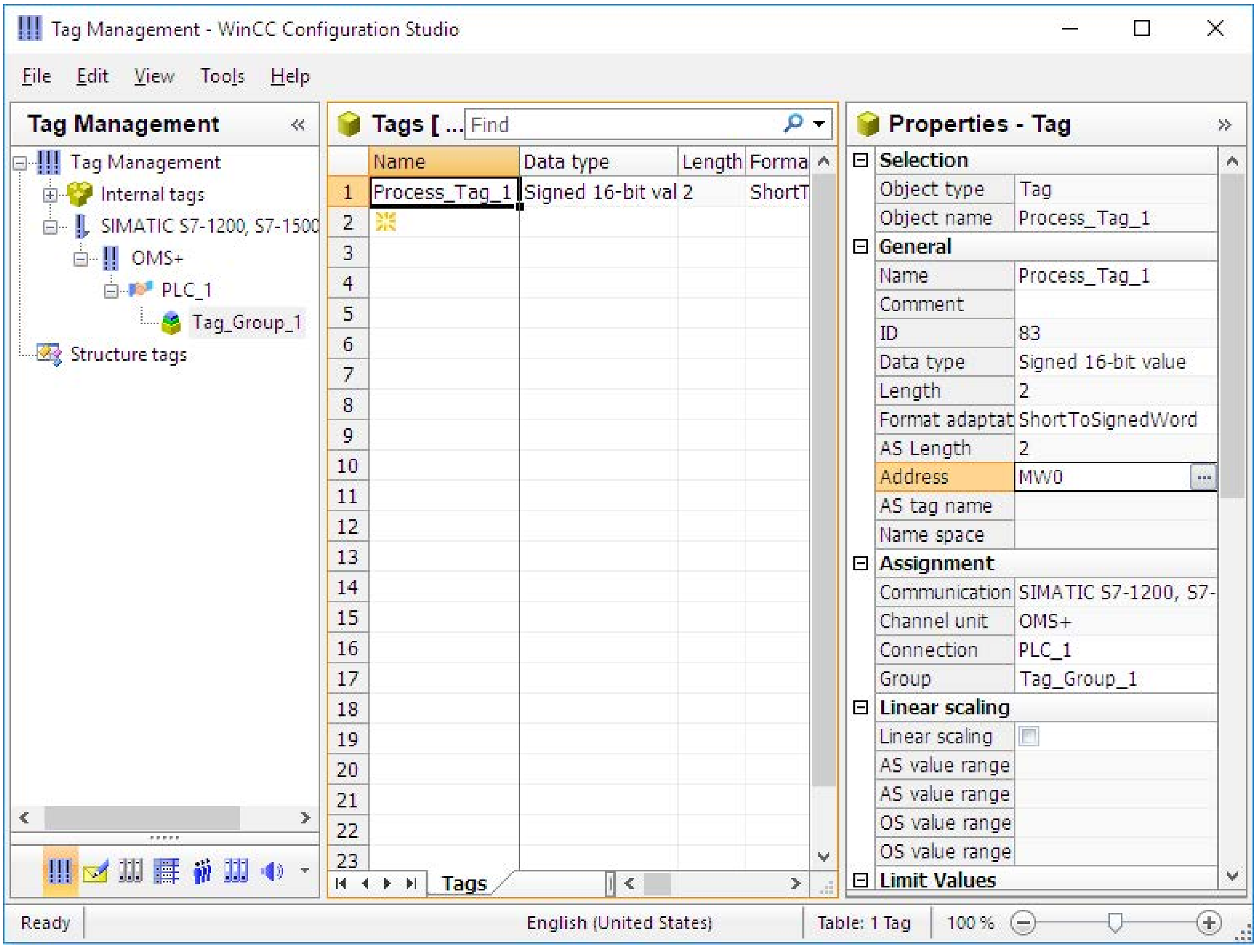
You have created the process tag "Process_Tag_1". The process tag is displayed in the table area of the "Tag Management" editor.

The "Properties - Tag" area displays all properties of the selected tag.

The type conversion can convert the data format of an automation system into a WinCC format.

The process tag was the last component needed to create the communication between WinCC and the automation system.

In order to scale process values in WinCC, you will specify the properties of the linear scaling in the next steps.



	Name	Data type	Length	Forma
1	Process_Tag_1	Signed 16-bit val	2	ShortT
2				

Selection	
Object type	Tag
Object name	Process_Tag_1
General	
Name	Process_Tag_1
Comment	
ID	83
Data type	Signed 16-bit value
Length	2
Format adaptat	ShortToSignedWord
AS Length	2
Address	MW0
AS tag name	
Name space	
Assignment	
Communication	SIMATIC S7-1200, S7-
Channel unit	OMS+
Connection	PLC_1
Group	Tag_Group_1
Linear scaling	
Linear scaling	□
AS value range	
AS value range	
OS value range	
OS value range	
Limit Values	

5.7 Scaling process tags in WinCC

Introduction

The following steps will show you how to scale process tags in WinCC.

When using linear scaling, you can map the value range of a process tag to a certain value range of a process tag in WinCC. The process value itself is not modified.

You will specify the following properties for the linear scaling:

- Set the value range of the process value in the "AS value range" columns.
- Set the value range of the process tag in WinCC in the "OS value range" columns.

Linear scaling is only available for process tags. You cannot scale internal tags.

Example:

A temperature sensor measures resistance in a system and returns the value in the unit "Ohm". Specific resistance values correspond to specific temperatures.

You can use the linear scaling function for automatic conversion of the resistance values to the temperature scale. This ensures that the measured resistance is immediately displayed as temperature in the project.

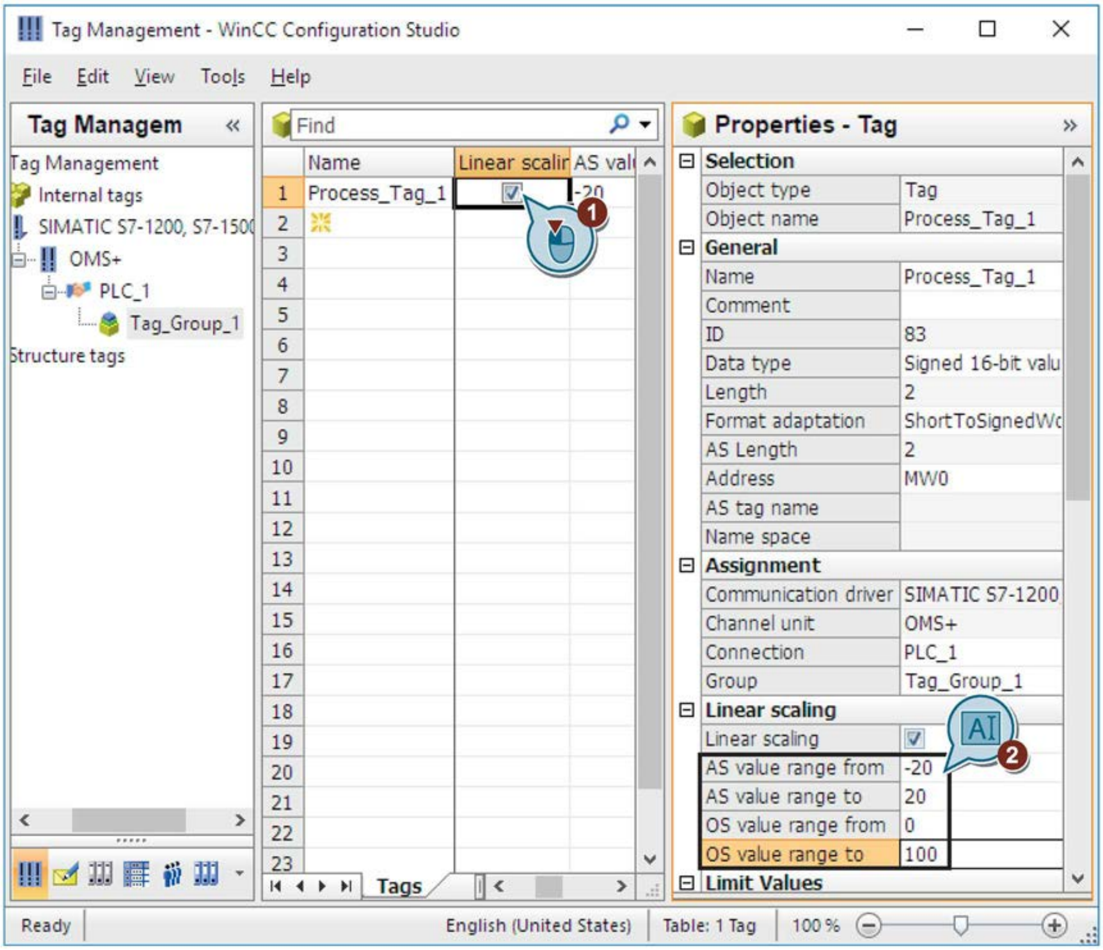
In Tag Management, the resistance value corresponds to the settings in the "AS value range" columns. The temperature corresponds to the settings in the "OS value range" columns.

Requirement

- The "Process_Tag_1" process tag has been created in Tag Management.

Procedure

1. Activate linear scaling and define the value range for the process and the tag.



Name	Linear scaling	AS value
Process_Tag_1	☑	-20

Selection	
Object type	Tag
Object name	Process_Tag_1
General	
Name	Process_Tag_1
Comment	
ID	83
Data type	Signed 16-bit valu
Length	2
Format adaptation	ShortToSignedWo
AS Length	2
Address	MW0
AS tag name	
Name space	
Assignment	
Communication driver	SIMATIC S7-1200
Channel unit	OMS+
Connection	PLC_1
Group	Tag_Group_1
Linear scaling	
Linear scaling	☑
AS value range from	-20
AS value range to	20
OS value range from	0
OS value range to	100
Limit Values	

Result

You have activated linear scaling for the "Process_Tag_1" process tag.

The value ranges for the process and the tag are set. The value range of the process value [-20...20] is displayed as value range of the process tag [0...100].

In the next steps, you will create an internal tag for the "Quick_Start" project.

5.8 Creating Internal Tags

Introduction

The following steps will show you how to create an internal tag in a tag group, and how to determine its properties.

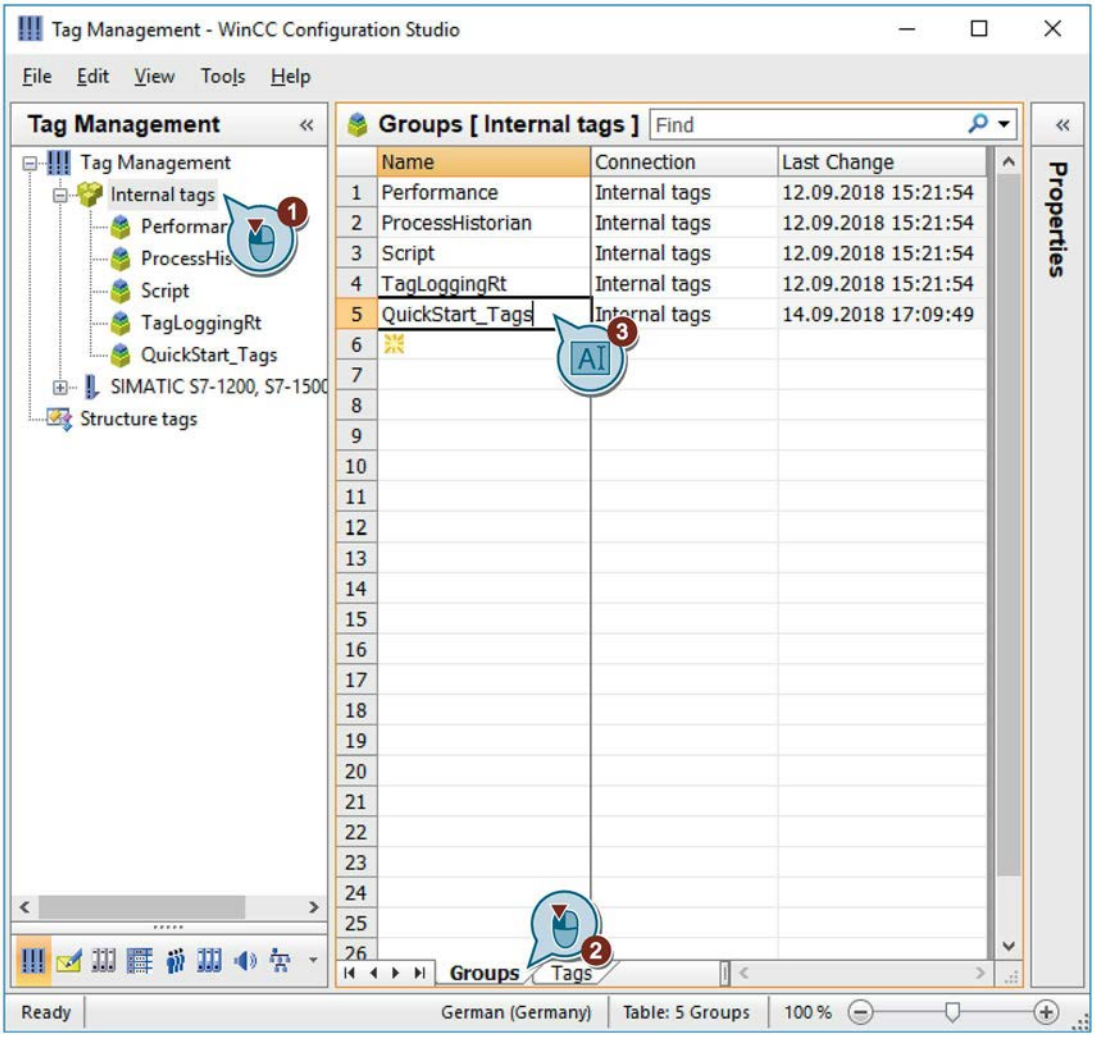
The internal tag is used to transfer values within WinCC.

Requirement

- The "Quick_Start" project is open.

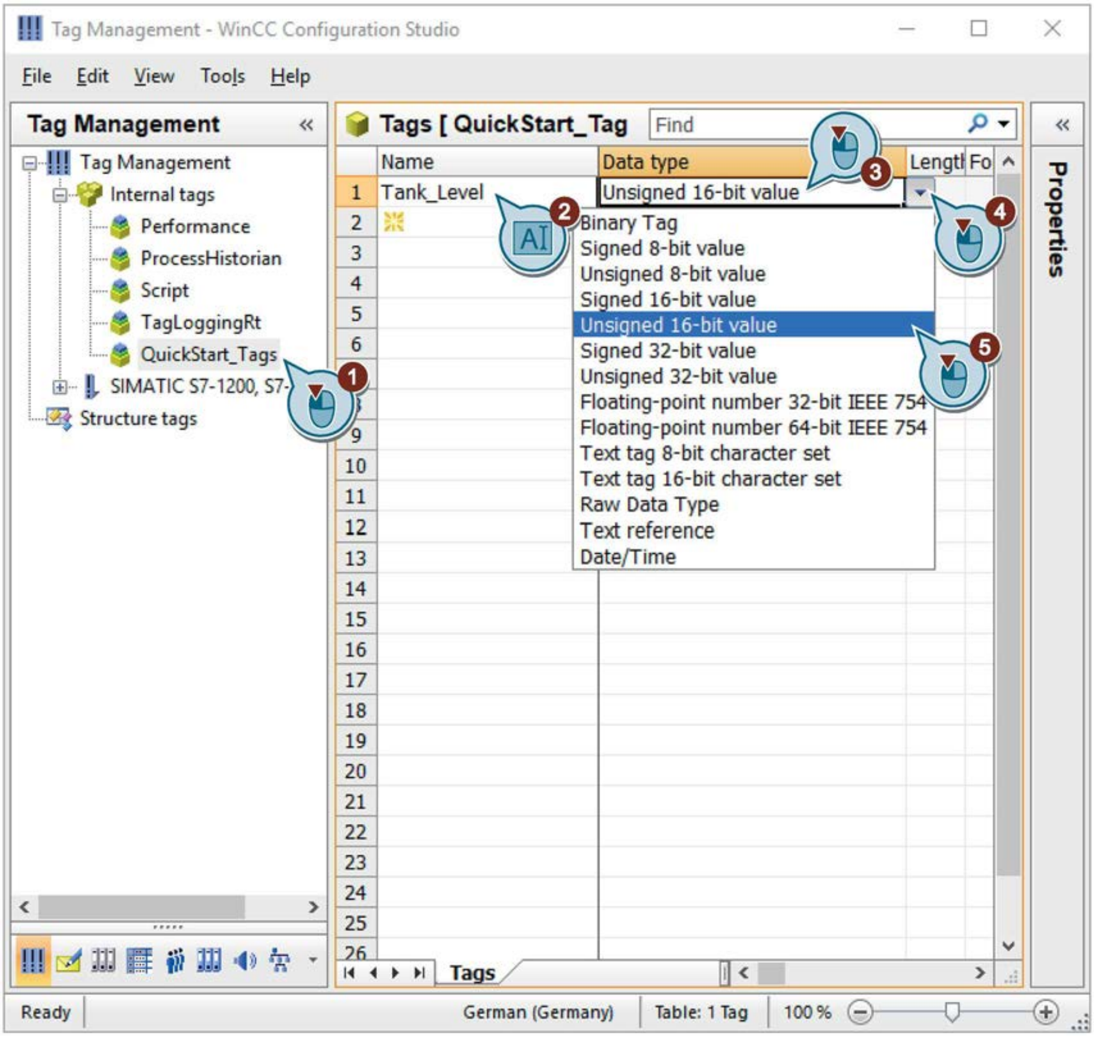
Procedure

1. Select the "Internal tags" entry in Tag Management.
2. Create the "QuickStart_Tags" tag group in the "Groups" tab.



	Name	Connection	Last Change
1	Performance	Internal tags	12.09.2018 15:21:54
2	ProcessHistorian	Internal tags	12.09.2018 15:21:54
3	Script	Internal tags	12.09.2018 15:21:54
4	TagLoggingRt	Internal tags	12.09.2018 15:21:54
5	QuickStart_Tags	Internal tags	14.09.2018 17:09:49

3. Enter "Tank_Level" as name of the internal tag to create an internal tag in the tag group.
4. Select data type "Unsigned 16-bit value".

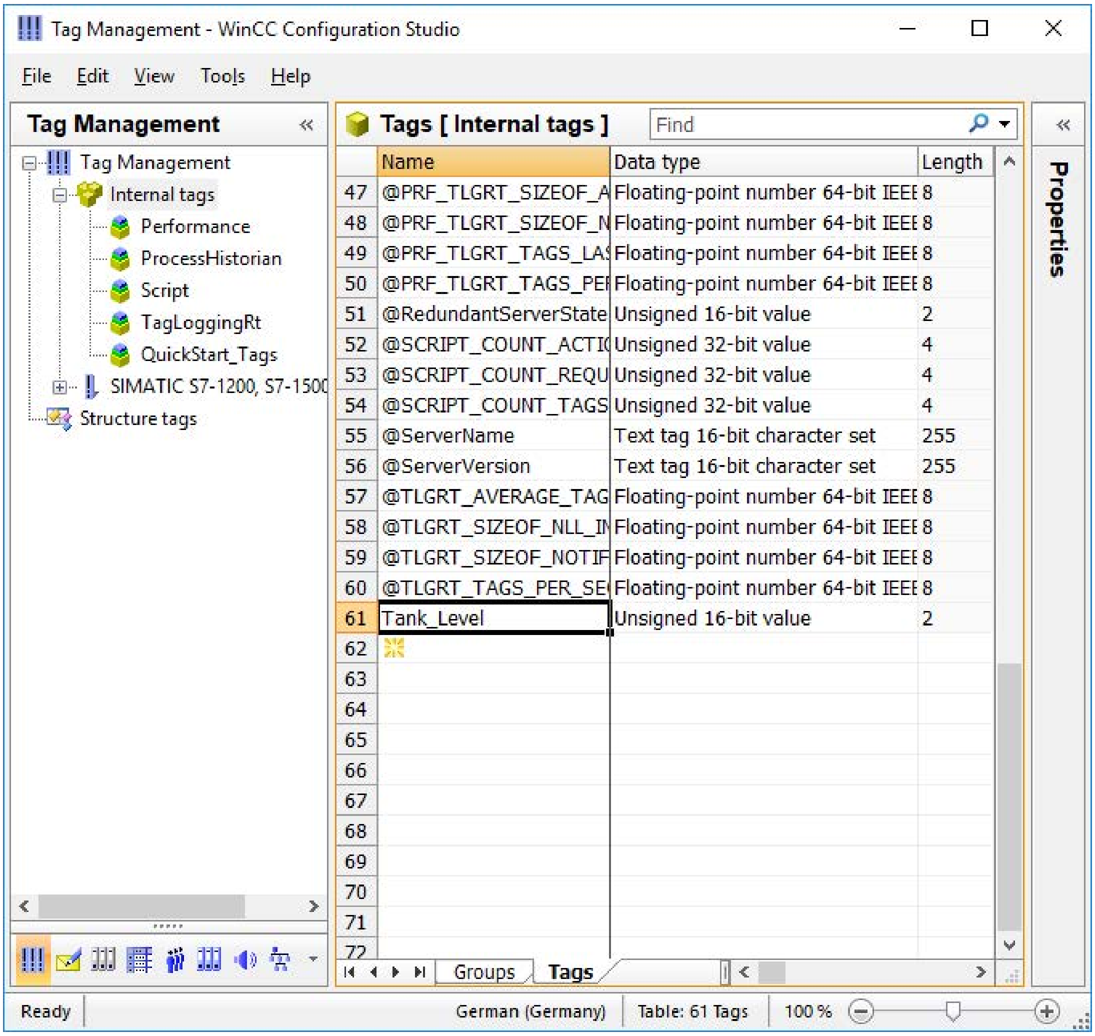


	Name	Data type
1	Tank_Level	Unsigned 16-bit value

Result

You have created the internal tag "Tank_Level" and defined its data type in the "QuickStart_Tags" tag group.

The internal tag "Tank_Level" is displayed in Tag Management.



	Name	Data type	Length
47	@PRF_TLGRT_SIZEOF_A	Floating-point number 64-bit IEEE	8
48	@PRF_TLGRT_SIZEOF_N	Floating-point number 64-bit IEEE	8
49	@PRF_TLGRT_TAGS_LAS	Floating-point number 64-bit IEEE	8
50	@PRF_TLGRT_TAGS_PEF	Floating-point number 64-bit IEEE	8
51	@RedundantServerState	Unsigned 16-bit value	2
52	@SCRIPT_COUNT_ACTI(	Unsigned 32-bit value	4
53	@SCRIPT_COUNT_REQU	Unsigned 32-bit value	4
54	@SCRIPT_COUNT_TAGS	Unsigned 32-bit value	4
55	@ServerName	Text tag 16-bit character set	255
56	@ServerVersion	Text tag 16-bit character set	255
57	@TLGRT_AVERAGE_TAG	Floating-point number 64-bit IEEE	8
58	@TLGRT_SIZEOF_NLL_IN	Floating-point number 64-bit IEEE	8
59	@TLGRT_SIZEOF_NOTIF	Floating-point number 64-bit IEEE	8
60	@TLGRT_TAGS_PER_SE(	Floating-point number 64-bit IEEE	8
61	Tank_Level	Unsigned 16-bit value	2
62	✳		
63			
64			
65			
66			
67			
68			
69			
70			
71			
72			

Configuring the Process Screens 6

6.1 Configuring the Process Screens

Introduction

This chapter provides information about the graphic system and a description of how to configure process pictures in WinCC Explorer.

The process pictures are main elements of a project. They represent a process and allow the operation and observation of this process.

Principle

You can use the "Graphics Designer" editor to configure the process pictures.
This editor is the configuration component of the graphic system in WinCC.

Each process picture is made up of several objects:

- Static objects remain unchanged in Runtime.
- Dynamic objects will change in accordance with the individual process values.

  A bar is an example of a dynamic object. The length of the bar will depend on the current temperature value.
- Controllable objects allow you to have an active influence on the process.

  These objects include buttons, sliders, or I/O fields used for entering certain process parameters (input/output field).

A project often comprises several process pictures. Each process picture shows a different process step or displays special process data.

In this section, you will create a process picture that depicts a water treatment system. The exercise involves creating a second process picture.

All objects needed for our process picture can be found in WinCC.

6.2 The Graphics System

Introduction

The graphics system is a subsystem of WinCC. This subsystem is used to configure process pictures.

The graphics system handles the following tasks:

- It displays static and operator-controllable objects, such as texts, graphics or buttons
- It updates dynamic objects, e.g. modifies the length of a bar graph in relation to a process value
- It reacts to operator input, e.g. clicking a button or entering a text into a text box

The Components of the Graphics System

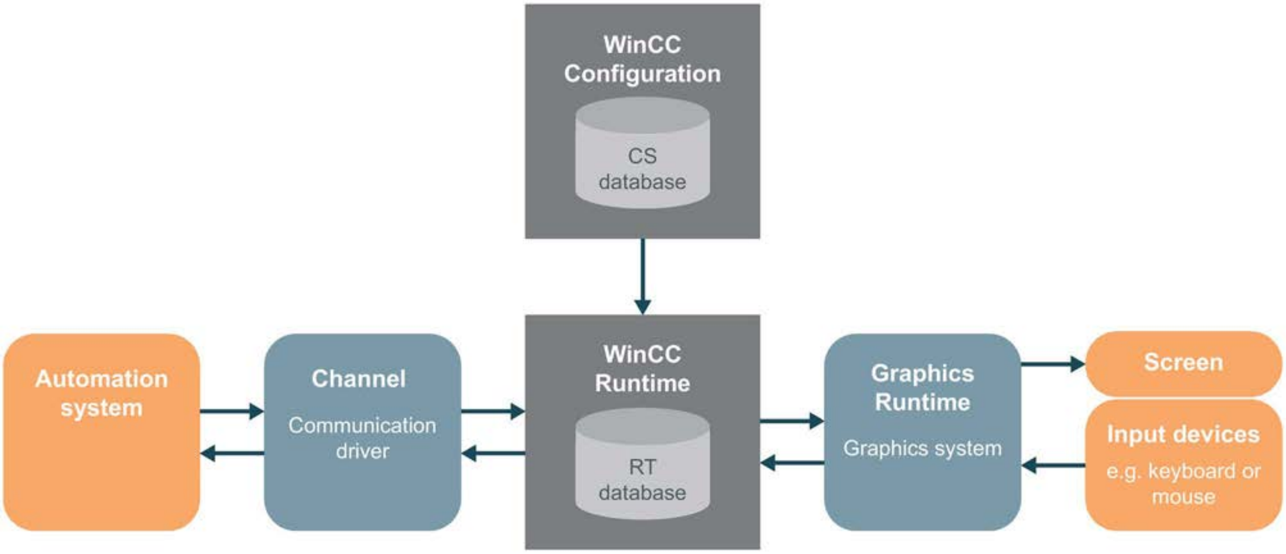
The Graphics System is made up of a configuration and a runtime component:

- The "Graphics Designer" editor is the configuration component of the graphics system.

  In this editor, you will create the process pictures for your project.
- Graphics Runtime is the runtime component of the graphics system.

  Graphics Runtime displays the pictures in Runtime and administers all inputs and outputs.

Graphics system in the WinCC system



6.3 Creating process screens

Introduction

The following steps show you how to create and rename process pictures in the WinCC Explorer.

New, empty process pictures can be created using either the "Graphics Designer" editor or the WinCC Explorer:

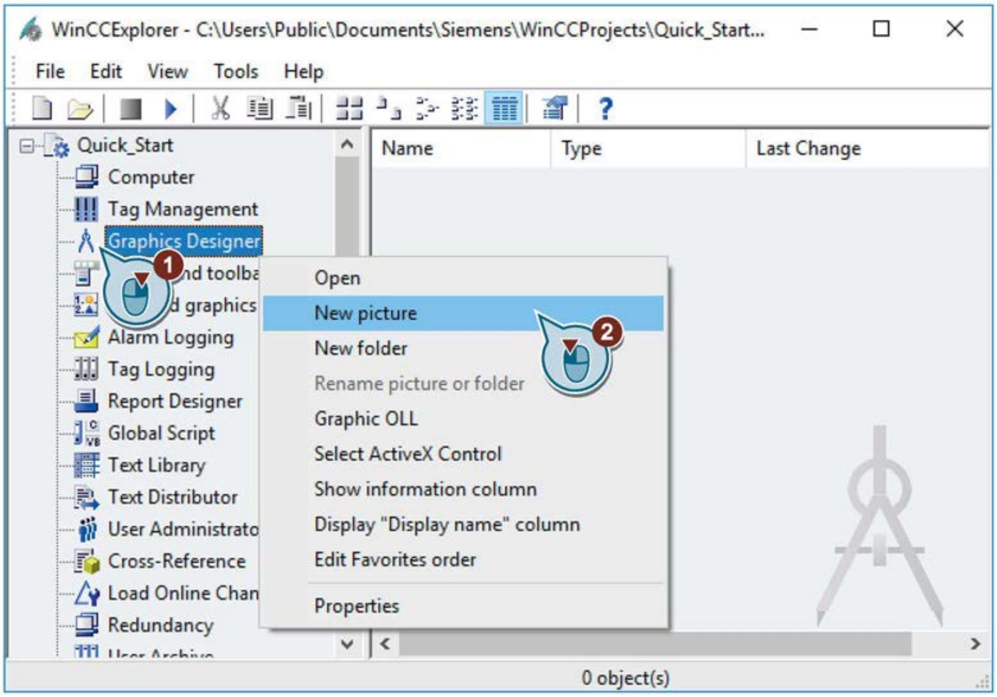
- If you wish to edit a process picture immediately, create it using the "Graphics Designer" editor.
- If you wish to create all required process pictures before you process them, we recommend that you use WinCC Explorer.

Requirement

- The "Quick_Start" project is open.

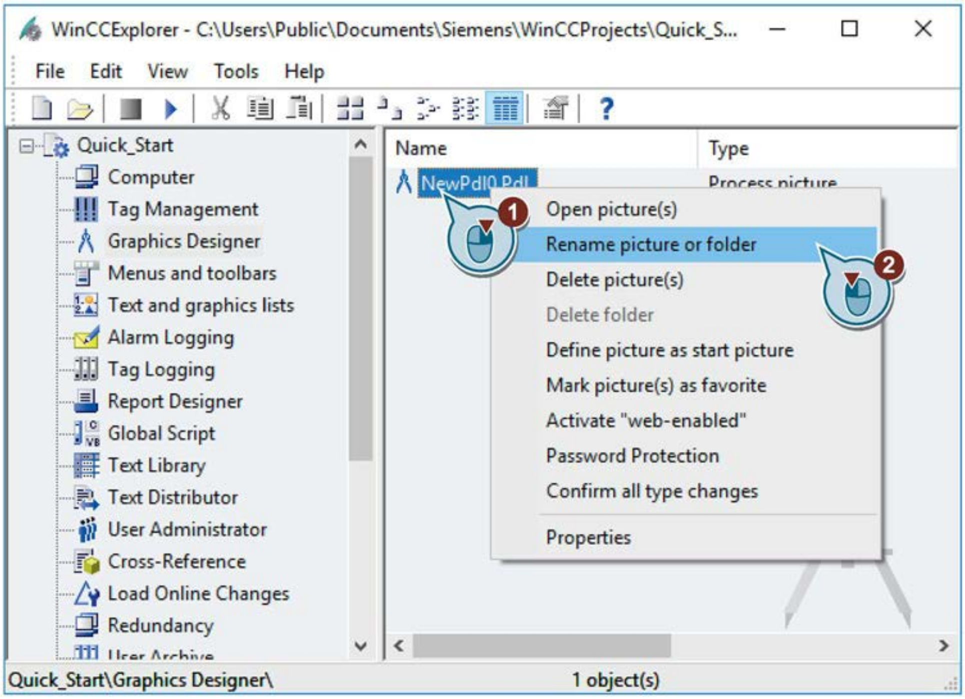
Procedure

1. Create a new process picture.



The process picture is displayed in the right pane of WinCC Explorer.

2. Rename the process picture you created to "START.pdl".



The "START.pdl" process picture is displayed in the right pane of the WinCC Explorer.

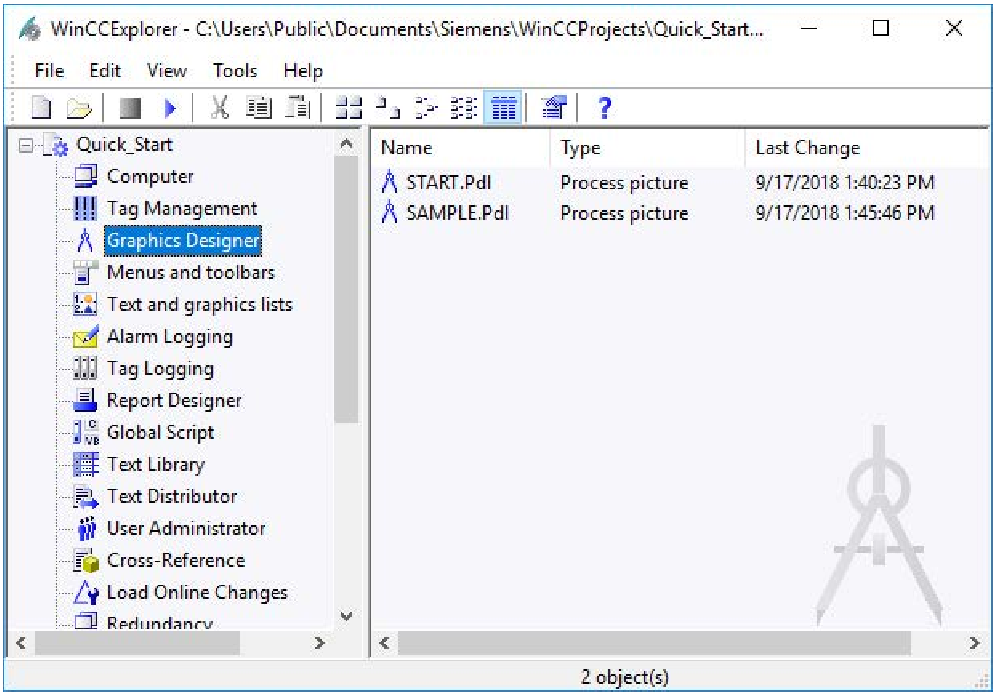
3. Create a second process picture similar to steps 1 and 2 and name it "SAMPLE.pdl".

Result

You have created the process pictures "START.pdl" and "SAMPLE.pdl".

These are displayed in the right pane of WinCC Explorer.

In order to graphically display a water treatment plant, add several objects to the "START.pdl" process picture in the next steps.



Name	Type	Last Change
START.Pdl	Process picture	9/17/2018 1:40:23 PM
SAMPLE.Pdl	Process picture	9/17/2018 1:45:46 PM

2 object(s)

6.4 Editing Process Screens

6.4.1 Editing Process Screens

Introduction

This section offers a description how to edit process pictures using the "Graphics Designer" editor.

At the end of the section, you will have the opportunity to deepen what you have learned by working on the "SAMPLE.pdl" picture on your own.

Principle

You can use the "Graphics Designer" editor to configure the process pictures. The structure of this editor is similar to a drawing program and it is also operated in a similar manner.

The "Graphics Designer" editor provides objects and tools to configure process pictures. For the "Quick_Start" project you use mainly the object palette and the library of the editor "Graphics Designer".

The object palette contains different types of objects that are frequently required for configuring process pictures.

The objects of the object palette can be added to the process pictures by dragging and dropping. Alternatively, select the object and click once with the left mouse button on the work surface of the process picture.

The object palette contains the following types of objects to configure pictures:

- Standard objects: e.g. line, polygon, ellipse, circle, rectangle, static text
- Smart objects: e.g. application window, picture window, OLE object, I/O field, bars, status display
- Windows objects: e.g. button, check box, option group, slider object
- Tube objects: e.g. polygon tube, T-piece, double T-piece, tube bend
- Controls: The most important ActiveX controls can be found in the "Controls" tab. Other controls can be linked.

The library will help you create your pictures in a particularly efficient manner. The library contains graphic objects, which you can insert into your pictures using drag-and-drop.

In the "Graphics Designer" editor you can also import graphics from external graphic programs.

6.4.2 Inserting graphic objects from the library

Introduction

The following steps show you how to insert graphic objects from the SVG library into the "START.pdl" process picture.

The SVG library is a component of the "Graphics Designer" editor.

This component is a versatile tool to store and manage graphic objects.
The library is split up into two areas:

- Global Library

  The "Global SVG library" area is structured in a directory tree.

  It offers a variety of pre-made graphic objects, such as machine and system parts, measuring devices, operator controls and buildings.

- Project Library

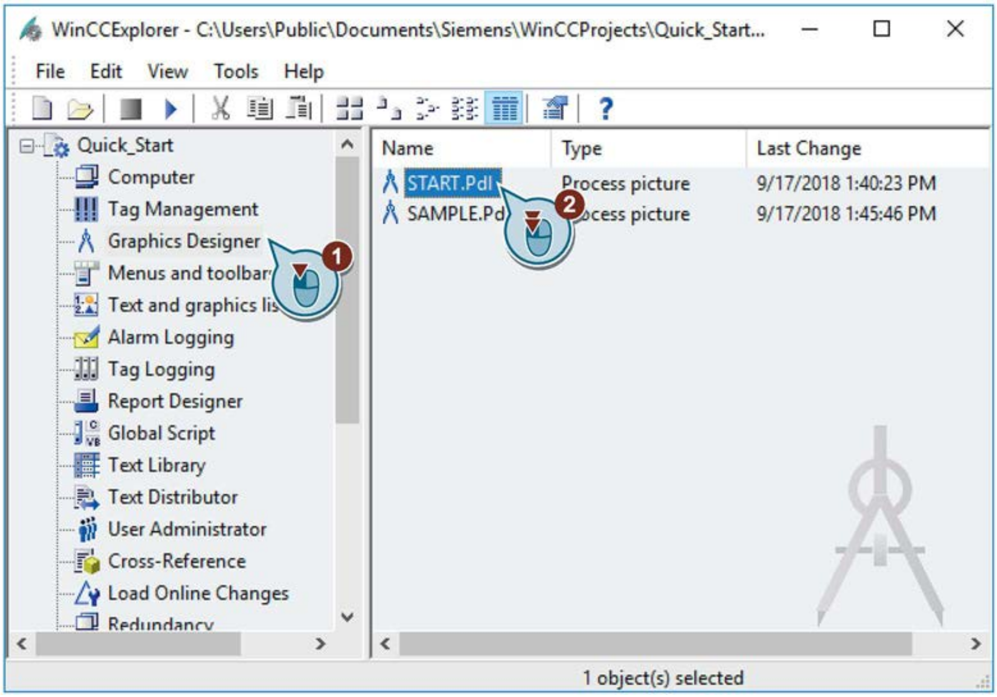
  In the "Project SVG library" area, you can store custom projects.

You will only need the graphic objects of the area "Global SVG Library" for the "Quick_Start" project.

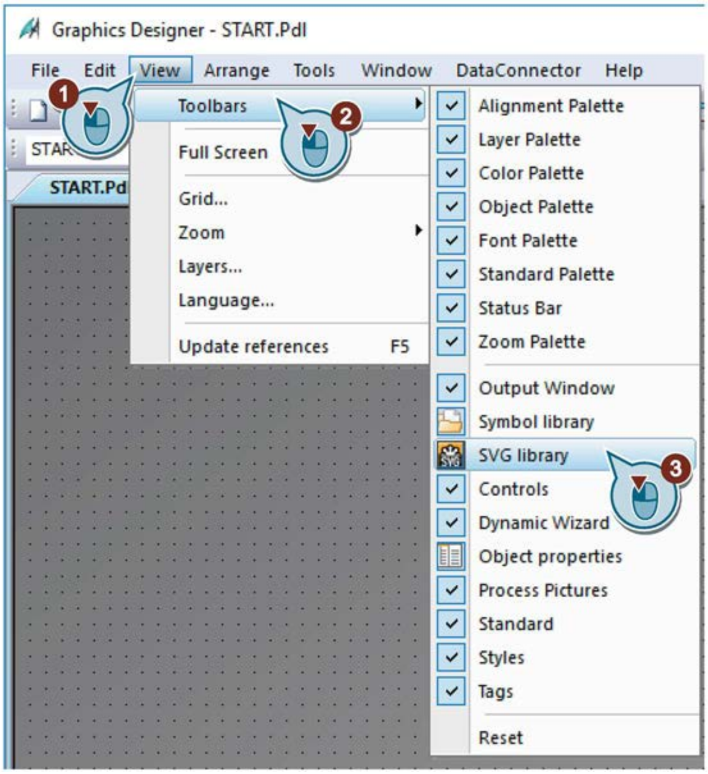
You use these objects to depict a water treatment system in the "START.pdl" process picture.

Procedure

1. Open the "START.pdl" process picture in the "Graphics Designer" editor.

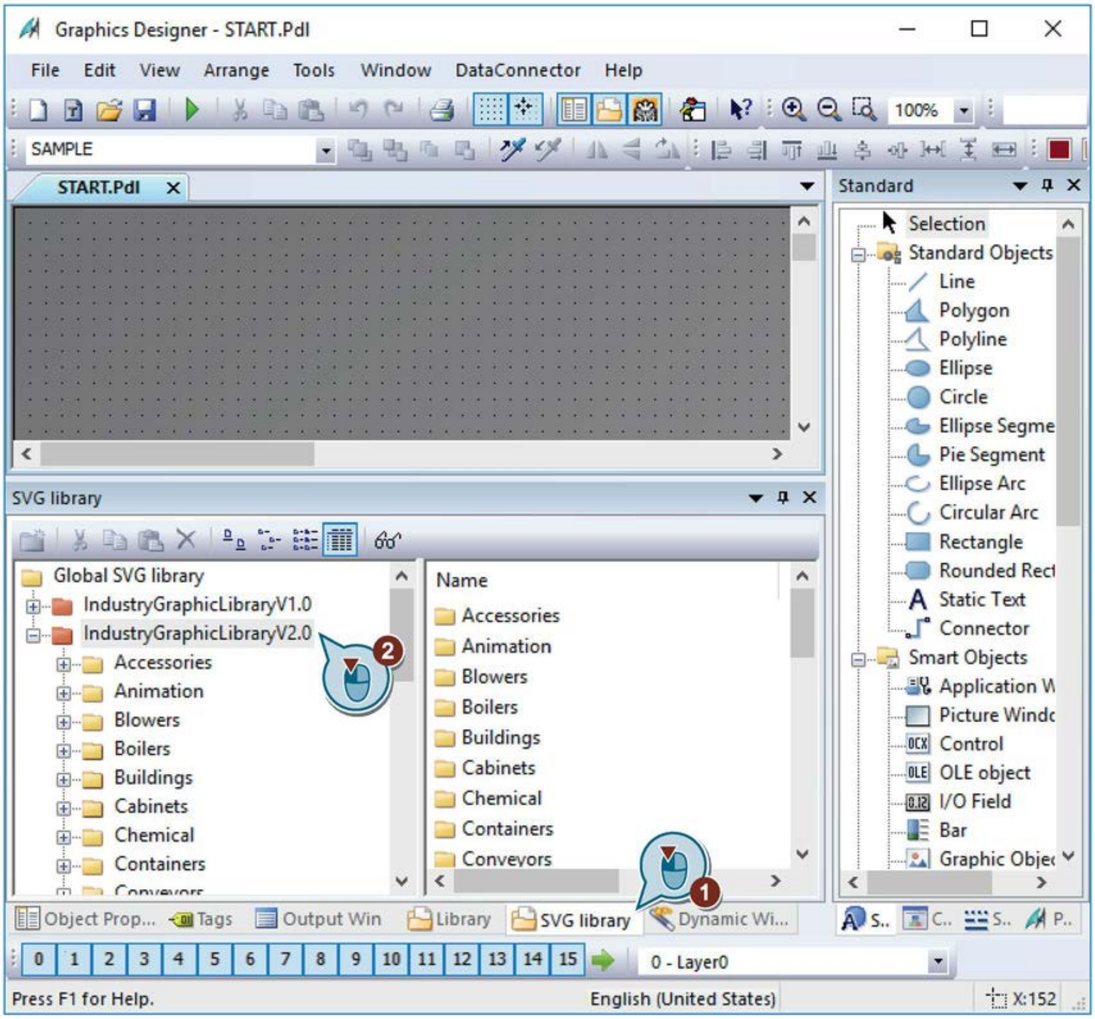


2. If the "SVG Library" window is not displayed, enable the view.



The "SVG Library" window opens.

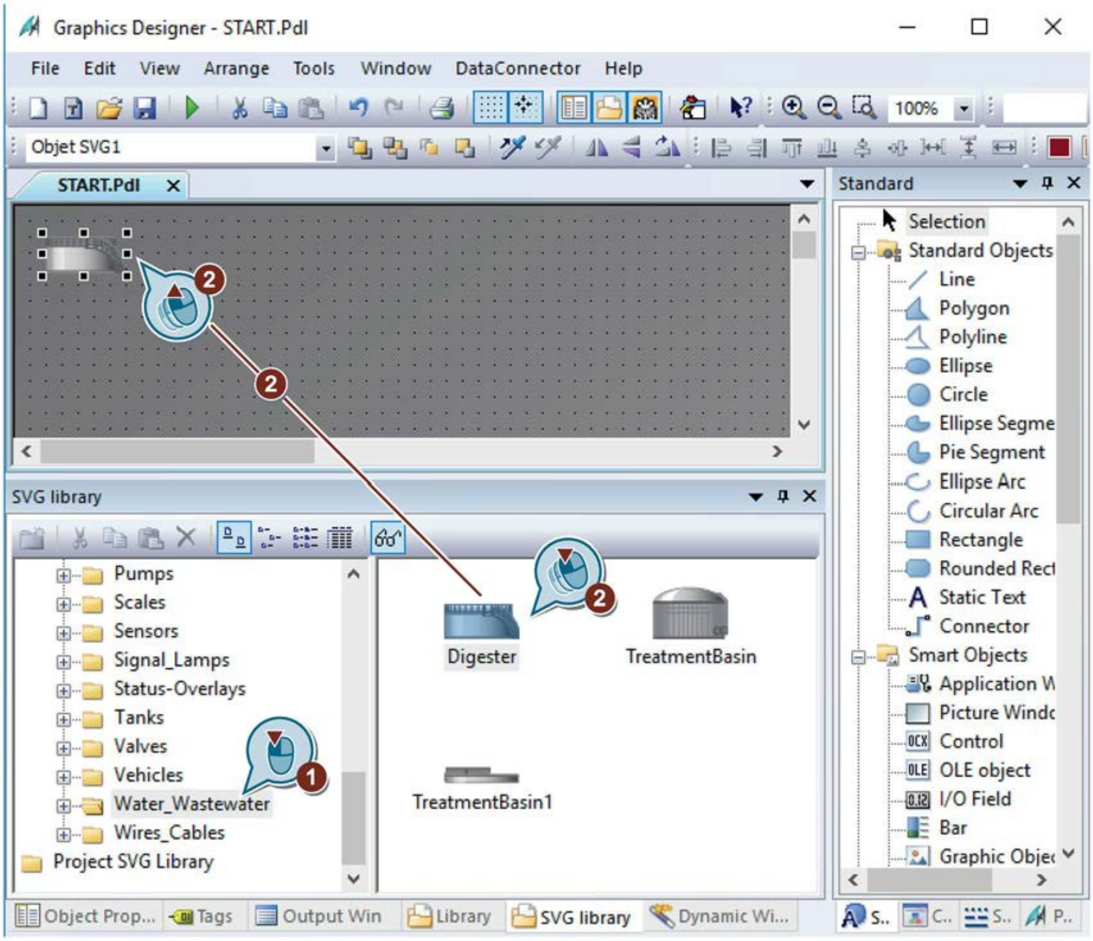
3. Select the global SVG library "IndustryGraphicLibraryV2.0" in the "SVG Library" window.



Use the button in the toolbar of the library to obtain a preview of the available objects.

You can resize the displayed symbols using the and buttons.

4. Insert the "Digester" object from the "Water_Wastewater" folder.

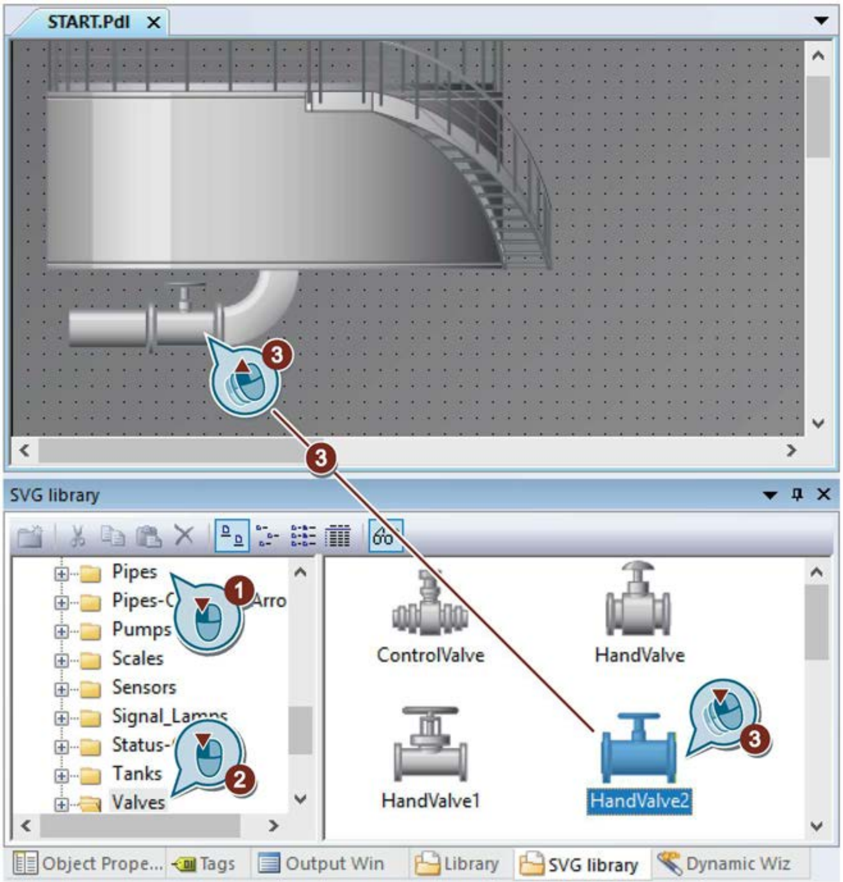


The picture of the bioconverter appears on the work surface.

Zoom in on the picture by clicking and dragging one of the displayed points with the mouse.

5. Add representations of other objects, e.g. pipelines and a valve.

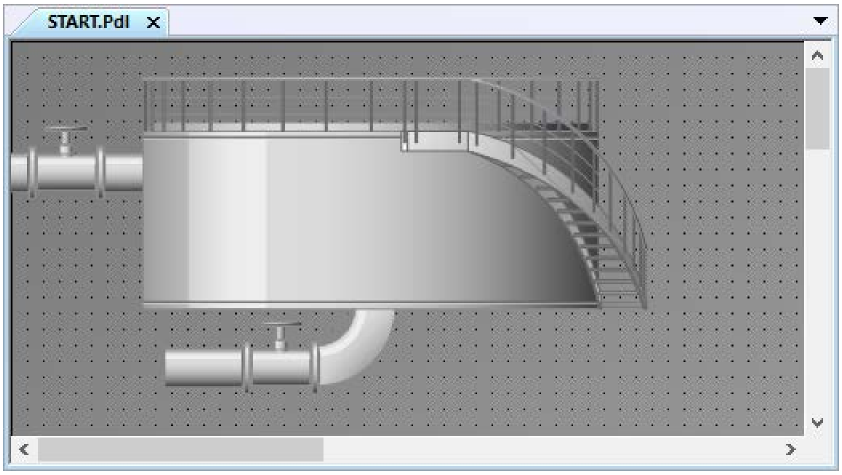
   Use the mouse or the cursor keys to move the pictures of objects on the process picture.



Result

You have now depicted the water treatment system.

In order to label the displayed process, insert the "Static text" object into the process picture in the next steps.



6.4.3 Inserting "Static text" graphic object

Introduction

The following steps will show you how to insert and edit the "Static text" object.

The object "Static text" is a text field that remains unchanged in Runtime.

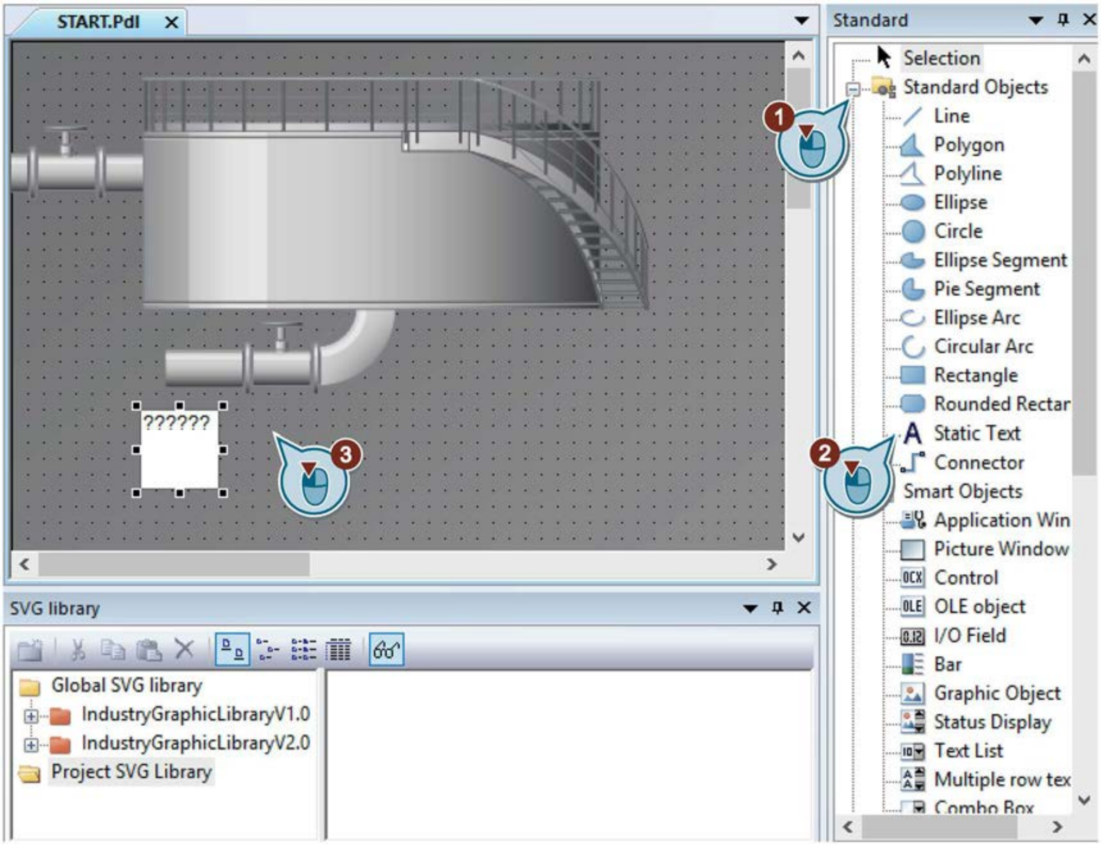
In the "Quick_Start" project you need the static text for labeling the displayed processes. Unique labeling of the displayed processes is very important when you create multiple pictures.

Requirement

- The "START.pdl" process picture is opened in the "Graphics Designer" editor.

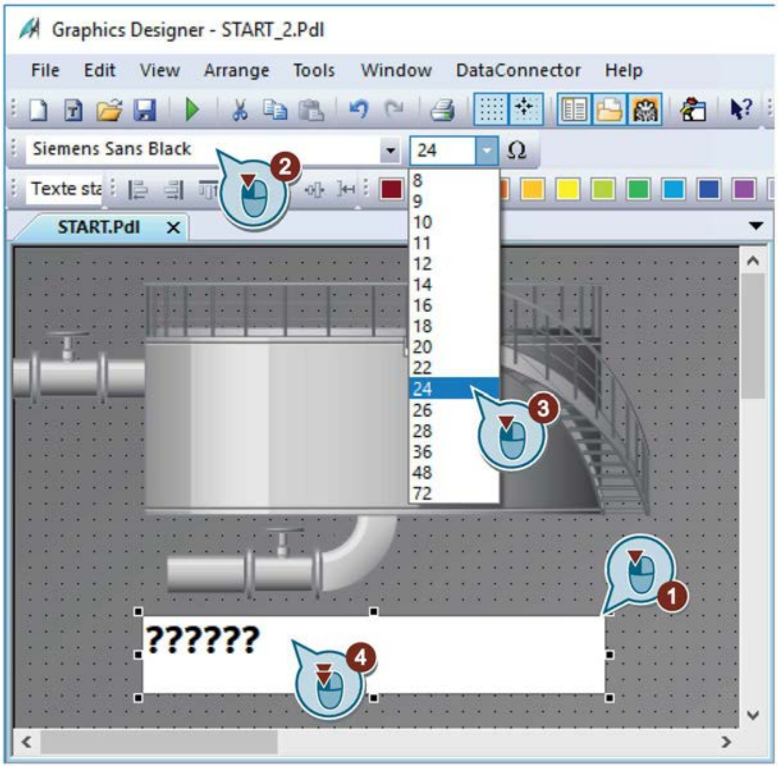
Procedure

1. To insert the "Static Text" object, click on the object in the "Standard" window and then on the process picture.



The text field is displayed on the process picture.

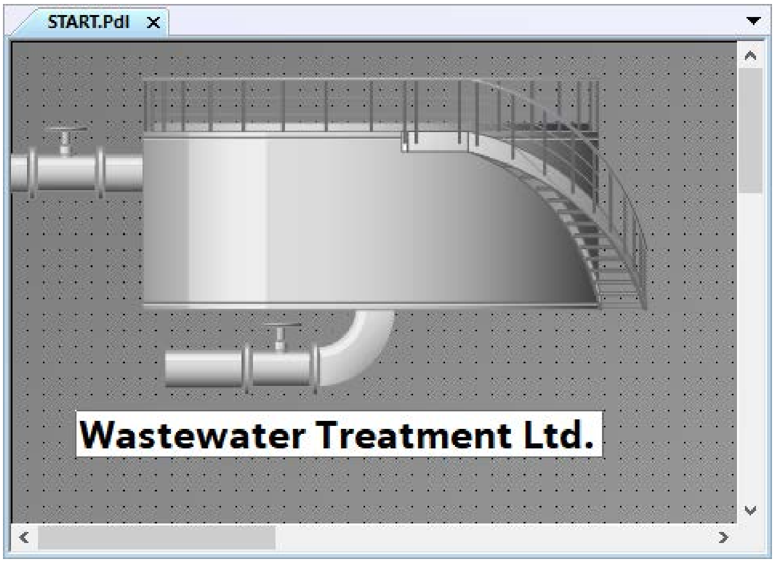
2. Drag the text box using the mouse and set the font type and size.


Graphics Designer - START_2.Pdl
File Edit View Arrange Tools Window DataConnector Help
Siemens Sans Black
24
Texte sta
START.Pdl
8
9
10
11
12
14
16
18
20
22
24
26
28
36
48
72
??????
1
2
3
4

3. Double-click the text field and enter the title, e.g. "Wastewater Treatment Ltd", using the keyboard.
4. Resize the text box to fit the text.
5. Save the "START.pdl" process picture using the 💾 toolbar button.
6. Close the process picture "START.pdl".

Result

You have added a static text field and labeled the displayed process.



6.4.4 Editing the process screen "SAMPLE.pdl"

Introduction

In the following steps you will edit the process picture "SAMPLE.pdl".

While editing, you display a process using the graphic objects in the library.

Displaying the process is a free exercise.
You do not need this step for the "Quick_Start" project.

Requirement

- The process picture "SAMPLE.pdl" has been created.
- The "Graphics Designer" editor is open.

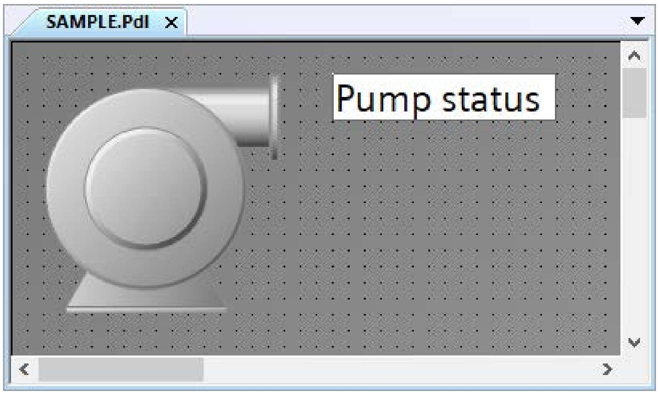
Procedure

1. Open the "SAMPLE.pdl" process picture with the 📂 button in the toolbar of the "Graphics Designer" editor.
2. Use the graphic object of the library to display any process.
3. Save the process picture "SAMPLE.pdl" with the 💾 button in the toolbar.
4. Close the process picture "SAMPLE.pdl".

Result

You have edited the process picture "SAMPLE.pdl".

In order to make the system in the "START.pdl" process picture dynamic, insert an entry field in the next steps and link it to the picture of the bioconverter via the internal tag.



See also

Inserting graphic objects from the library (Page 47)

6.5 Process picture dynamics

6.5.1 Process picture dynamics

Introduction

This section describes how to dynamize process pictures.

Principle

In the "Quick_Start" project you dynamize the "START.pdl" process picture through a direct tag connection.

Tag connection

With a direct tag connection, you connect a tag to a dynamic object of the process picture.

If the tag takes on a value in runtime, this value is transferred directly to the dynamic object. The dynamic display of the object changes in Runtime according to the tag value.

In practice, the dynamic object of a process picture is connected to a process tag. If there is a connection between WinCC and the automation system, the automation system supplies the process tag with values. The dynamic object indicates the change of process values in runtime.

In the "Graphics Designer" editor you can also configure objects that transfer values to the automation system. The automation system controls the process according to the transferred values.

Dynamization using an internal tag

You do not need an automation system for the "Quick_Start" project. In this project, you connect the internal tag "Tank_Level" to the graphic image of the bioconverter.

To specify values for the internal tag, you configure an I/O field. The I/O field is an input and output field that is used to display and change the tag values.

If you enter a value in the I/O field in runtime, this value is received by the internal tag "Tank_Level". The internal tag transfers the entered value to the graphic object that depicts the bioconverter. The fill level indicator changes according to the tag value.

Activating WinCC Runtime

WinCC Runtime is started when a project is activated.

WinCC Runtime executes a project in process mode. The project is then in Runtime.

You perform operator control and monitoring of the process in runtime.
You specify the runtime properties in WinCC Explorer.

6.5.2 Making the fill level indicator dynamic

Introduction

The following steps will show you how to make the fill level indicator of the bioconverter dynamic.

The dynamization of the fill level indicator involves the following steps:

- Connecting the graphic picture of the bioconverter with the internal tag "Tank_Level"

  The connection to the internal tag "Tank_Level" allows the transfer of tag values to the graphic object that depicts the bioconverter. The fill level indicator changes according to the tag values in Runtime.

  A link between a tag and an object is indicated in the "Object Properties" window by means of the 💡 icon and by bold font.

- Specifying the update cycle

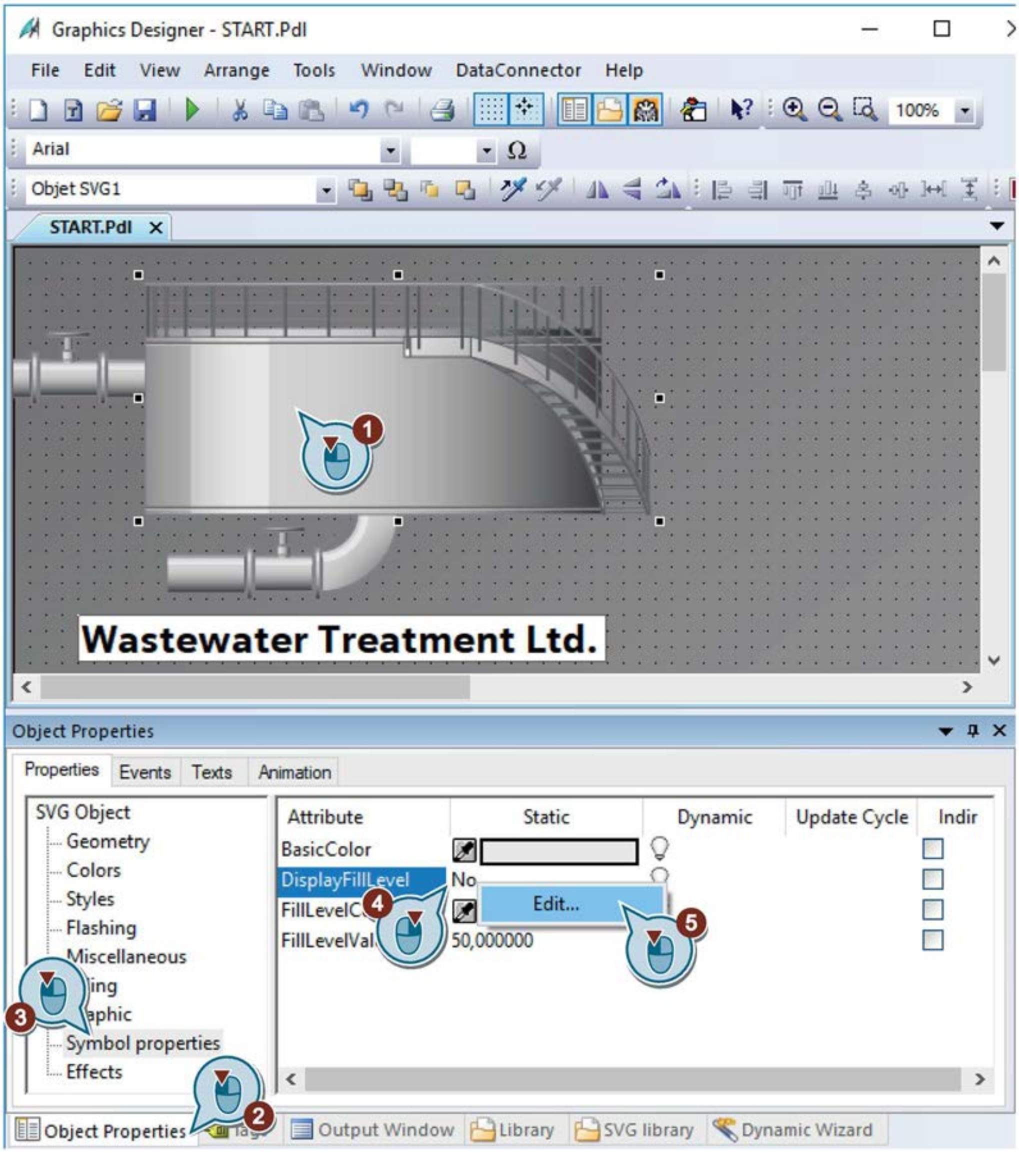
  The updating cycle determines the time interval, in which the fill level indicator is updated.

Requirement

- The process picture "START.pdl" has been created.
- The internal tag "Tank_Level" has been created.
- The SVG object "Digester" has been inserted into the "START.pdl" process picture as a graphic picture of the bioconverter.

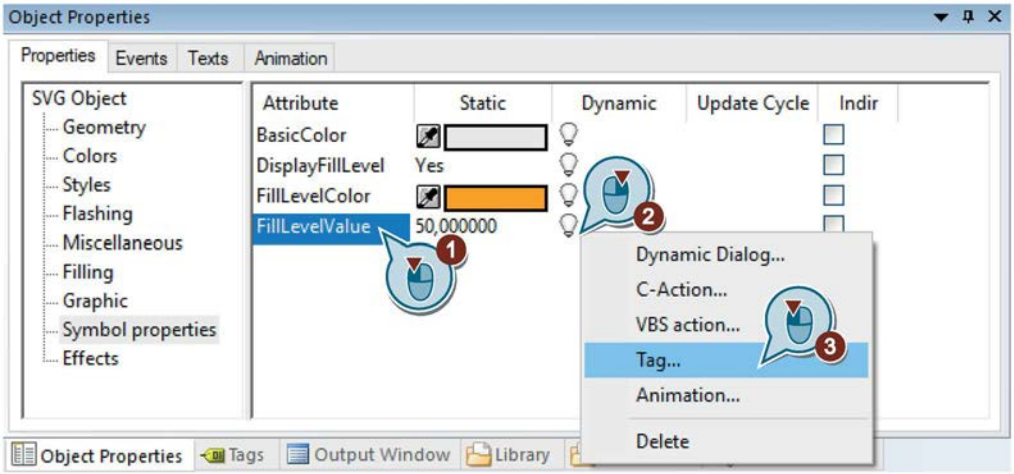
Procedure

1. Open the "START.pdl" process picture and click on the "Digester" object.
2. Open the "Symbol properties" group in the "Object Properties" window and change the "DisplayFillLevel" attribute from "No" to "Yes".



A bar graph is displayed as fill level indicator in the "Digester" SVG object.

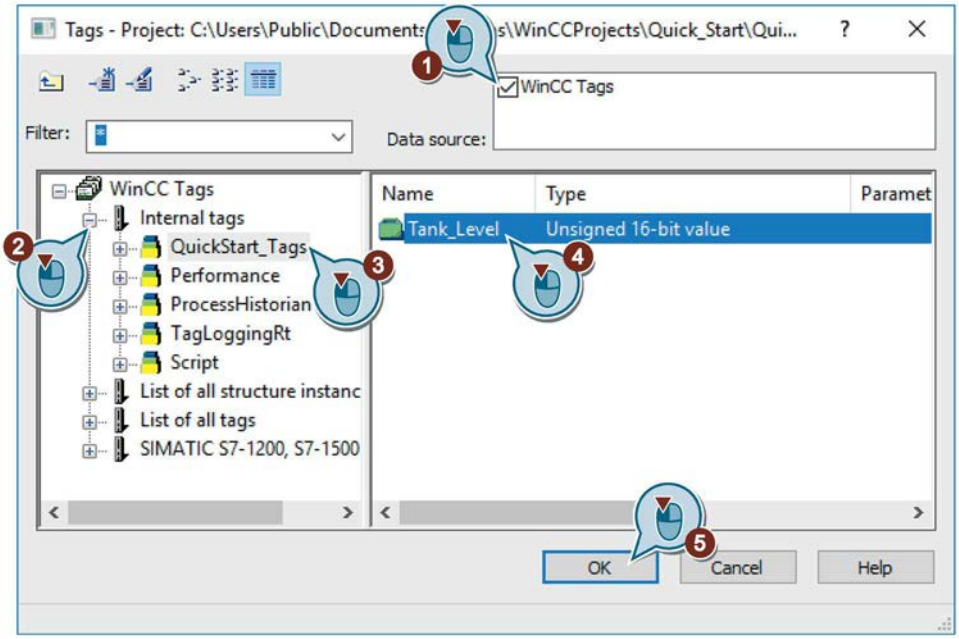
3. Open the "Tags" dialog to link the "FillLevelValue" attribute with a tag.



Attribute	Static	Dynamic	Update Cycle	Indir
BasicColor				□
DisplayFillLevel	Yes			□
FillLevelColor				□
FillLevelValue	50,000000			□

4. Select the internal tag "Tank_Level".

If needed, select the "WinCC Tags" option in the "Data source" area.



Tags - Project: C:\Users\Public\Documents\...s\WinCCProjects\Quick_Start\Qui...

Filter: *

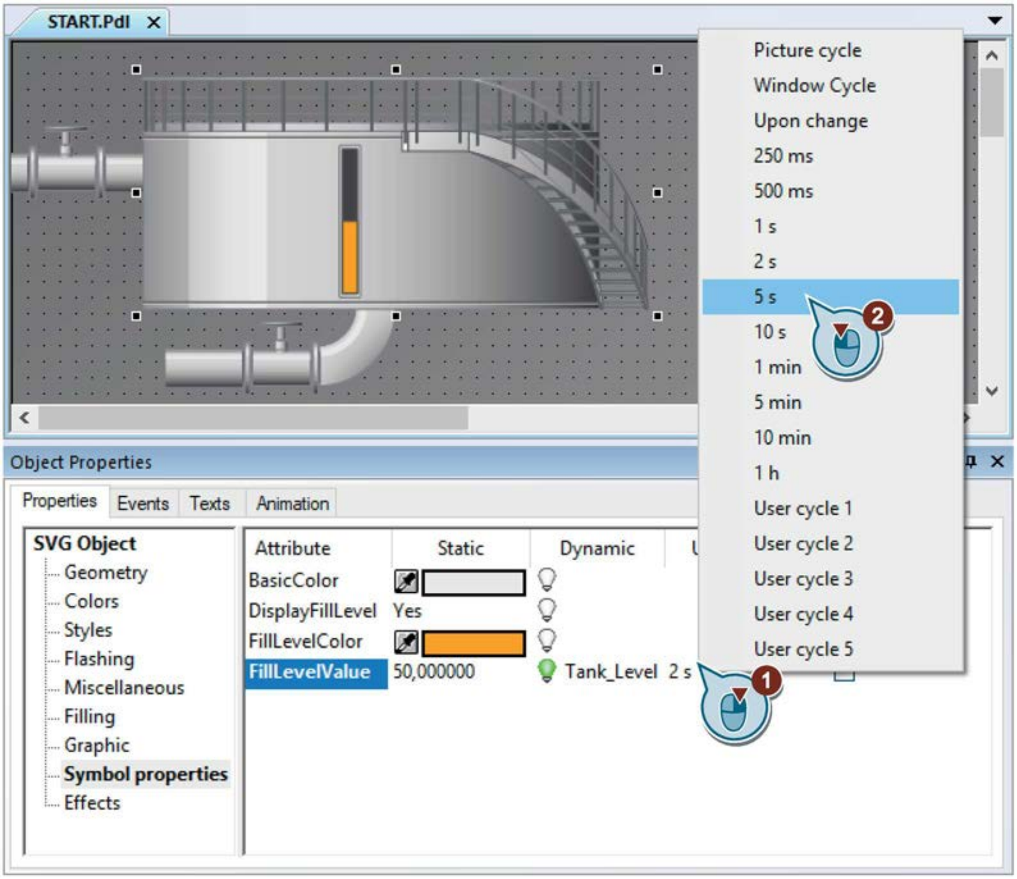
Data source: ☑ WinCC Tags

Name	Type	Paramet
Tank_Level	Unsigned 16-bit value	

The transparent light bulb in the "FillLevelValue" line will turn green.

The "Symbol properties" property and the "FillLevelValue" attribute are displayed in bold.

5. Set the value of the fill level update cycle to "5s".



Attribute	Static	Dynamic
BasicColor		
DisplayFillLevel	Yes	
FillLevelColor		
FillLevelValue	50,000000	Tank_Level 2 s

Result

You have connected the internal tag "Tank_Level" to the graphic picture of a bioconverter. This connection allows the transfer of tag values to the graphic object.

In order to enter or output values, add an I/O field in the process picture "START.pdl" in the next steps.

6.5.3 Inserting an I/O field and making it dynamic (graphics system)

Introduction

The following steps will show you how to insert an I/O field and how to make it dynamic.

The I/O field is an input/output field that is used to display and change tag values.

The dynamization of the I/O field involves the following steps:

- Connecting the I/O field with the internal tag "Tank_Level"

  You will connect the I/O field with the internal tag "Tank_Level" in the "Quick_Start" project. This will also create an indirect connection between the I/O field and the graphic picture of a bioconverter.

  If you enter a value in the I/O field in Runtime, this value is taken on by the internal tag "Tank_Level". The tag transfers the value to the graphic object that depicts the bioconverter. The fill level indicator of the bioconverter changes in Runtime according to the tag value.

- Defining update

  With the update you will define at which time intervals the display in the I/O field will be updated.

- Define attributes "Low limit value" and "High limit value"

  With the attributes "Low limit value" and "High limit value" you can limit the input into the I/O field to a certain value range. Values outside the configured value range are declined by the system and are not displayed.

Requirement

- The "START.pdl" process picture is opened in the "Graphics Designer" editor.
- The internal tag "Tank_Level" has been created.

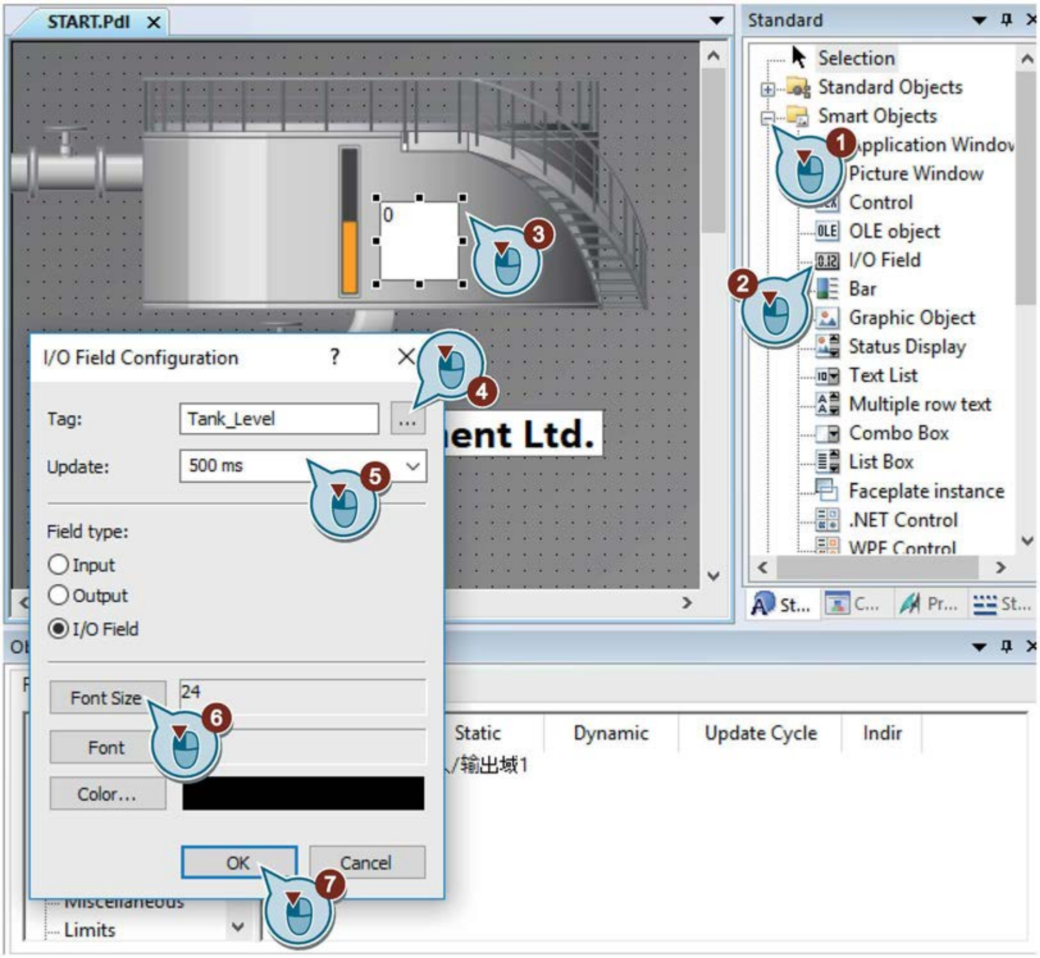
Procedure

1. To insert the "I/O Field" smart object, click on the object in the "Standard" window and then on the process picture.

   The I/O field appears on the work surface. The "I/O Field Configuration" dialog opens.

2. Link the "Tank_Level" tag with the new I/O field.

   Select 500 ms as update cycle and 24 as font size.



I/O Field Configuration

Tag: Tank_Level

Update: 500 ms

Field type:
○ Input
○ Output
● I/O Field

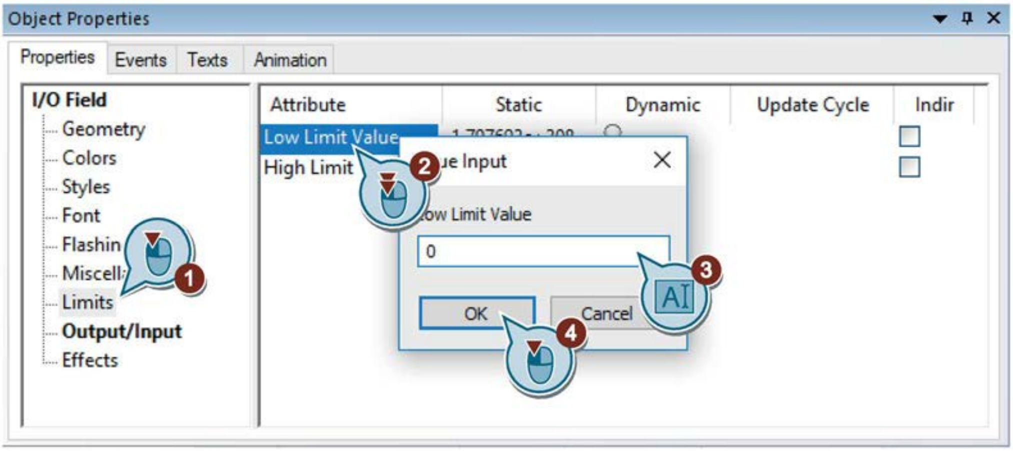
Font Size: 24

Select "Configuration Dialog" from the shortcut menu of the I/O field to reopen the "I/O field configuration" dialog.

The "Output/Input" property is displayed in bold font in the "Object Properties" window. Here, you can see that the internal tag "Tank_Level" is connected to the I/O field.

You can create the connection to a tag in the "I/O-Field Configuration" dialog as well as in the "Object Properties" window.

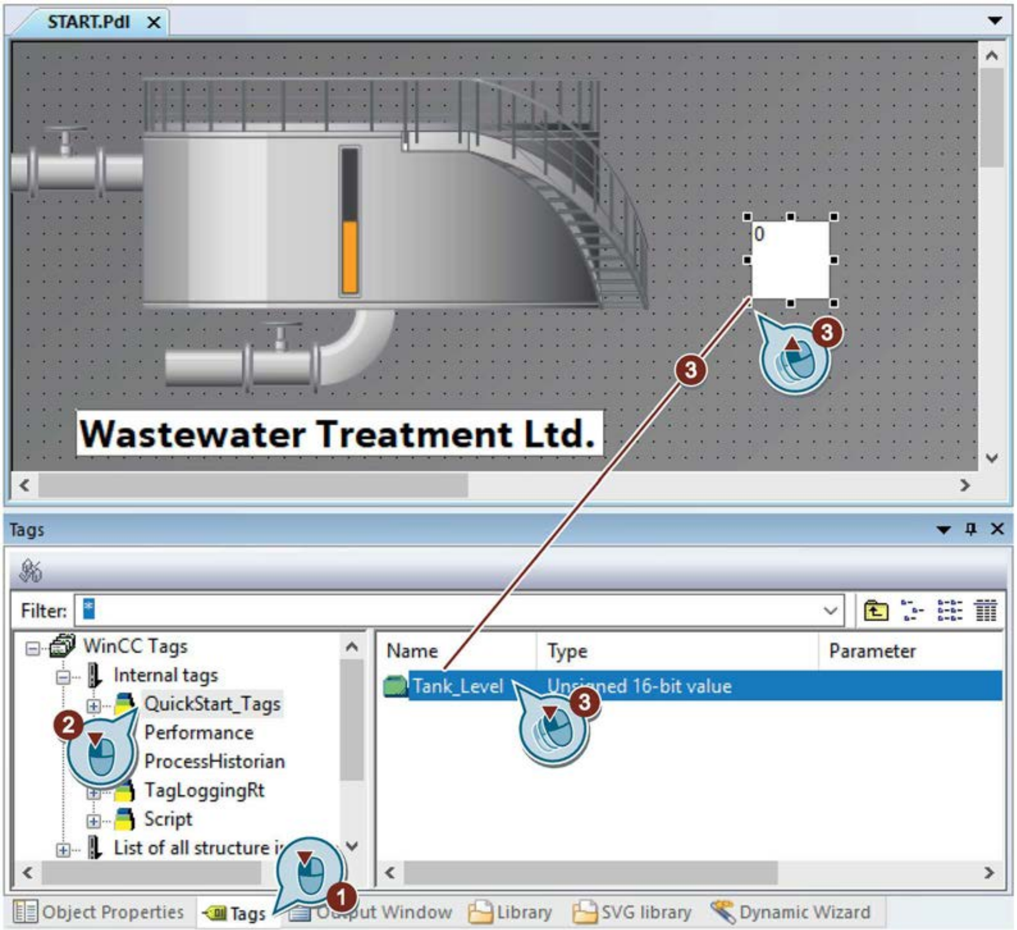
3. Open the "Limits" group in the "Object Properties" window and set the "Low limit value" to 0.



4. Similar to step 3, set 100 as a "High limit value".
5. Save the process picture "START.pdl".
6. Close the "Graphics Designer" editor.

Alternative procedure

1. Select the "Tank_Level" tag in the "Tags" window of the "QuickStart_Tags" tag group.
2. Drag-and-drop the tag into the process picture.



An I/O field is created for the selected tag. The I/O field is connected with the "Tank_Level" tag.

3. Select "Configuration Dialog" from the shortcut menu of the I/O field to open the "I/O field configuration" dialog.
4. Select 500 ms as update cycle and 24 as font size.
5. To move the I/O field to the desired position, use the mouse or the arrow keys on the keyboard (cursor keys).

   Continue with step 3 of the above procedure.

Result

You have inserted an I/O field and connected it with the internal tag "Tank_Level".

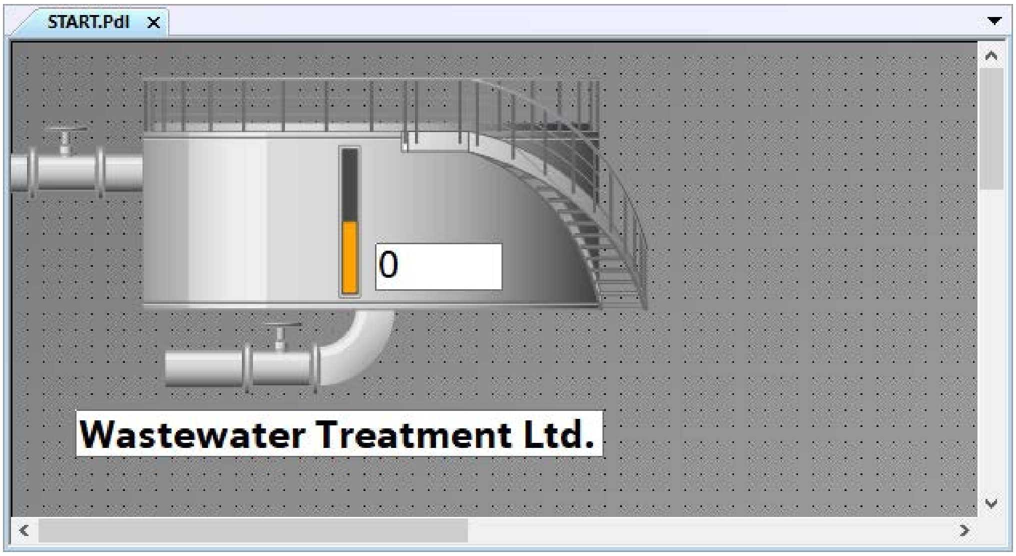
If you enter a value in the I/O field in Runtime, this value is transferred to the graphic picture of the bioconverter via the internal tag. The fill level indicator changes according to the entered value.

With the attributes "Low limit value" and "High limit value" you have defined a value range for the I/O field.

If you enter the value "0" in the I/O field in Runtime, an empty bioconverter is displayed.
If you enter the value "100" in the I/O field in Runtime, a full bioconverter is displayed.
Values outside the value range are declined by the system.

To enable you to change between configured pictures in runtime, you specify a customized menu in the next steps.

To see the dynamization of the "START.pdl" process picture, you then specify the properties of WinCC Runtime and activate the "Quick_Start" project.



6.6 Creating user-defined menus and toolbars

6.6.1 Using customized menus and toolbars

Introduction

In this section, you will find a description of how to create picture changes using customized menus and toolbars.

Principle

In the "Menus and Toolbars" editor you can configure customized menus and toolbars.

The customized menus and toolbars are saved in a configuration file, which you assign to the project in "Computer properties" in WinCC.

You connect menu items and symbols with Global Script procedures.

You can configure customized menus and toolbars as follows:

- Assigning authorizations

  The elements configured in this manner are automatically disabled if a logged in user does not have the required authorization.

- Hiding or deactivating menu commands and symbols

  If you save the modified functional scope in a new configuration file, you can also exchange the configuration file, for example, when there is a change of users in runtime.

6.6.2 Creating procedures for customized menus and toolbars

Introduction

The following steps will show you how to create procedures in a module in Global Script.

You will need two procedures in order to make the customized menus and toolbars functional:

- ActivatePicture(ByVal PictureName):

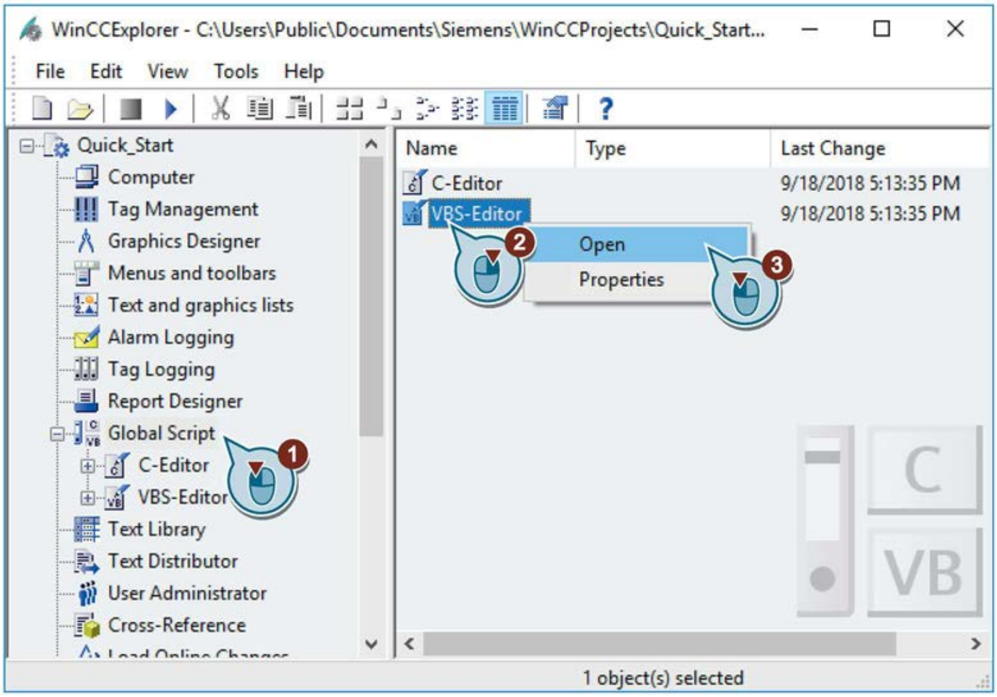
  Executes a picture change to the picture that is transferred with the "PictureName" parameter.

- StopRuntime(ByVal Item):

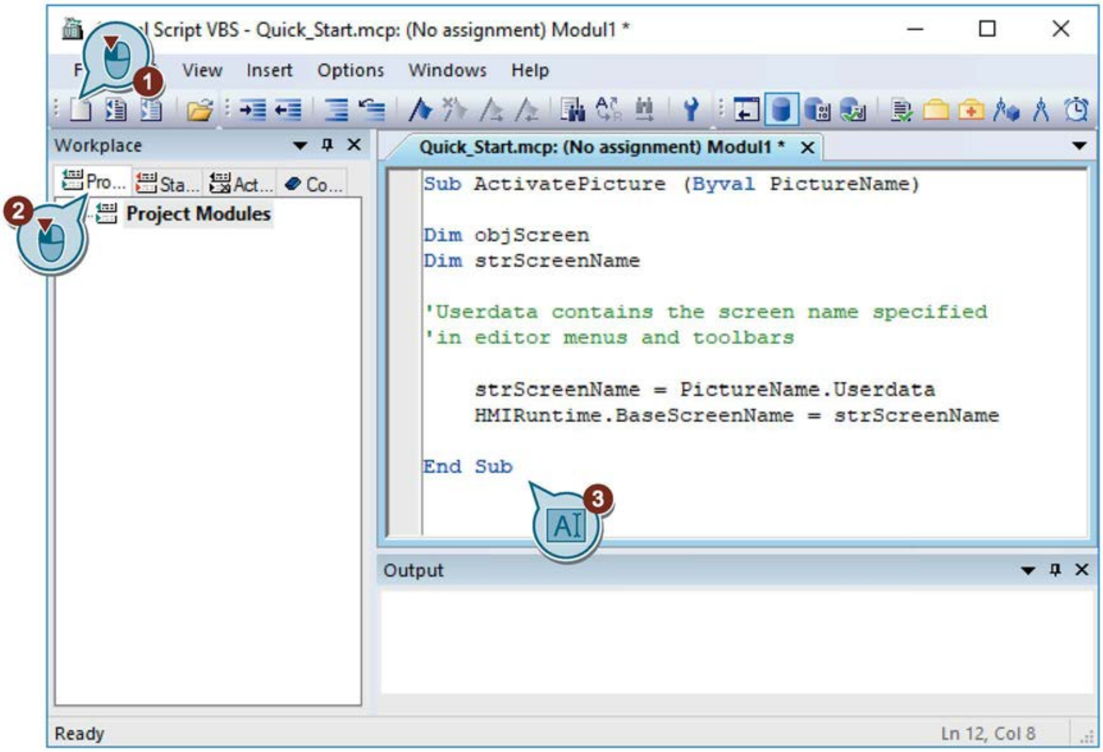
  Exits Runtime.

Procedure

1. Open the VBS editor.

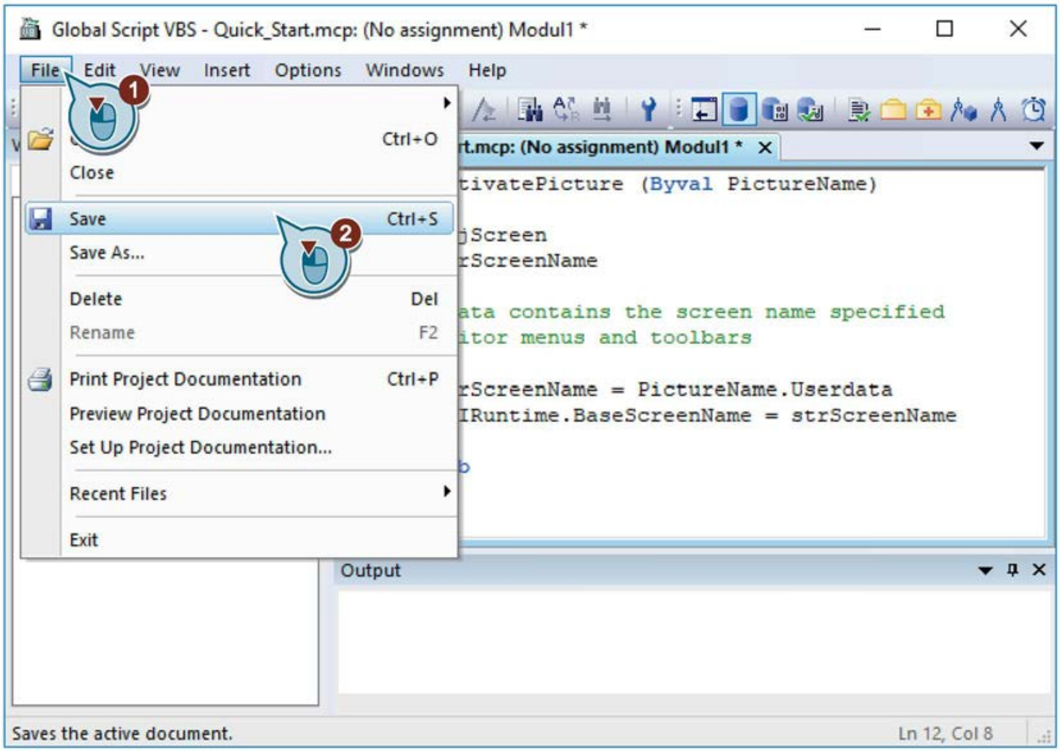


2. Select the "Project module" tab and write the following procedure code.



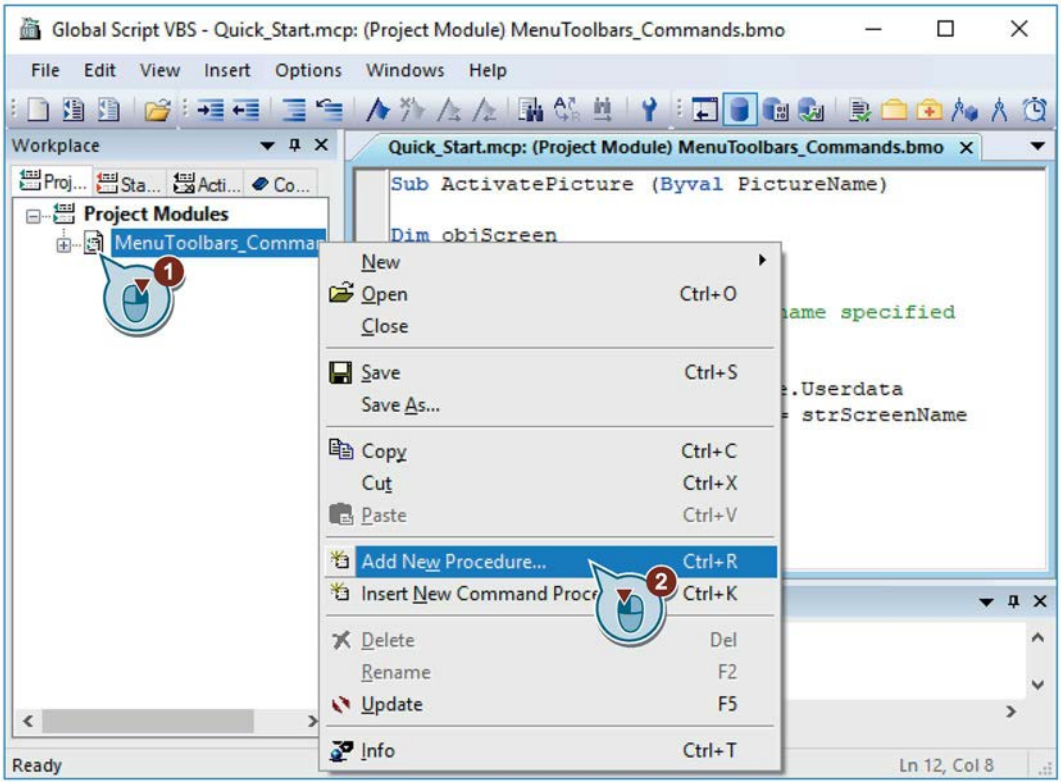
```
Sub ActivatePicture (Byval PictureName)

Dim objScreen
Dim strScreenName

'Userdata contains the screen name specified
'in editor menus and toolbars

    strScreenName = PictureName.Userdata
    HMIRuntime.BaseScreenName = strScreenName

End Sub
```

3. Save the module as the file "MenuToolbars_Commands.bmo".



Global Script VBS - Quick_Start.mcp: (No assignment) Modul1 *
File
Edit
View
Insert
Options
Windows
Help
1
Ctrl+O
Close
Save
Ctrl+S
Save As...
2
Delete
Del
Rename
F2
Print Project Documentation
Ctrl+P
Preview Project Documentation
Set Up Project Documentation...
Recent Files
Exit
t.mcp: (No assignment) Modul1 *
Output
Saves the active document.
Ln 12, Col 8

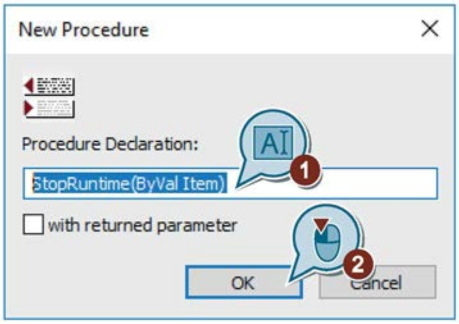
4. Insert a new procedure.



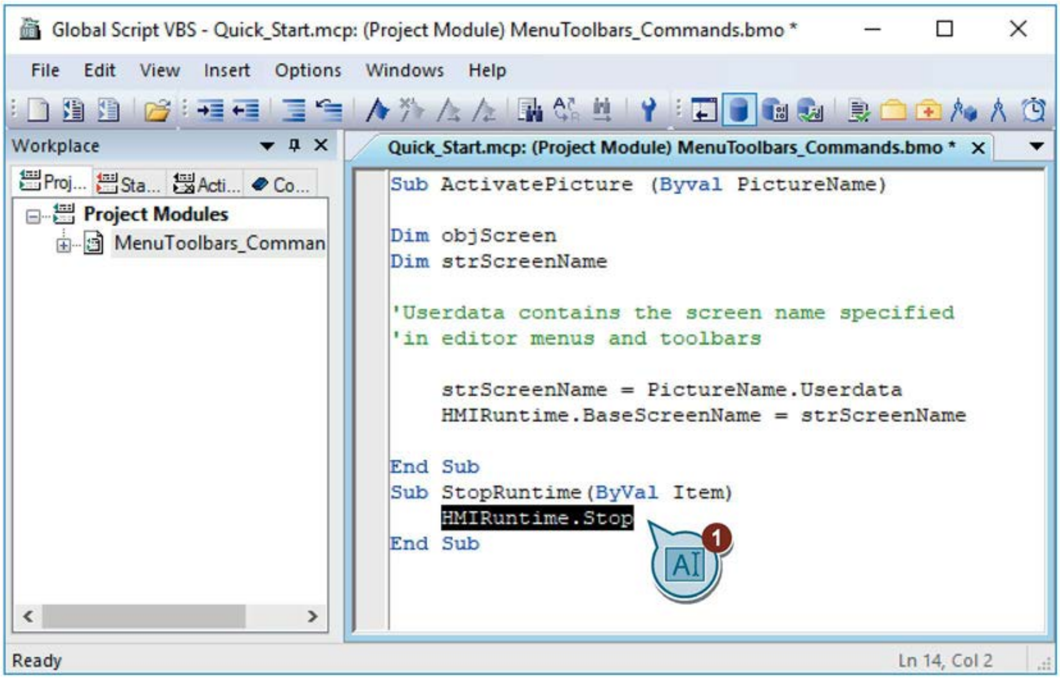
Global Script VBS - Quick_Start.mcp: (Project Module) MenuToolbars_Commands.bmo
File Edit View Insert Options Windows Help
Workplace
Proj... Sta... Acti... Co...
Project Modules
MenuToolbars_Comma
Quick_Start.mcp: (Project Module) MenuToolbars_Commands.bmo
New
Open Ctrl+O
Close
Save Ctrl+S
Save As...
Copy Ctrl+C
Cut Ctrl+X
Paste Ctrl+V
Add New Procedure... Ctrl+R
Insert New Command Proc Ctrl+K
Delete Del
Rename F2
Update F5
Info Ctrl+T
1
2
Ready
Ln 12, Col 8

```
Sub ActivatePicture (Byval PictureName)

Dim objScreen
```

5. Enter the name "StopRuntime(ByVal Item)".



6. Write the following procedure code.



Global Script VBS - Quick_Start.mcp: (Project Module) MenuToolbars_Commands.bmo *
File Edit View Insert Options Windows Help
Workplace
Proj... Sta... Acti... Co...
Project Modules
MenuToolbars_Comman
Quick_Start.mcp: (Project Module) MenuToolbars_Commands.bmo *
1
Ready
Ln 14, Col 2

```
Sub ActivatePicture (Byval PictureName)

Dim objScreen
Dim strScreenName

'Userdata contains the screen name specified
'in editor menus and toolbars

    strScreenName = PictureName.Userdata
    HMIRuntime.BaseScreenName = strScreenName

End Sub
Sub StopRuntime(ByVal Item)
    HMIRuntime.Stop
End Sub
```

7. Save the module.

8. Close the VBS editor.

Result

You have created the procedures "ActivatePicture(ByVal PictureName)" and "StopRuntime(ByVal Item)".

In the following, you will create a customized menu that executes picture changes to the pictures "START.pdl" and "SAMPLE.pdl".

You will use a customized toolbar to exit Runtime.

6.6.3 Creating a customized menu for screen changes

Introduction

The following steps show you how to create the customized menu "Picture Change" with two menu items, "Start" and "Sample".

You will link the menu entries "Start" and "Sample" with the procedure "ActivatePicture(ByVal PictureName)".

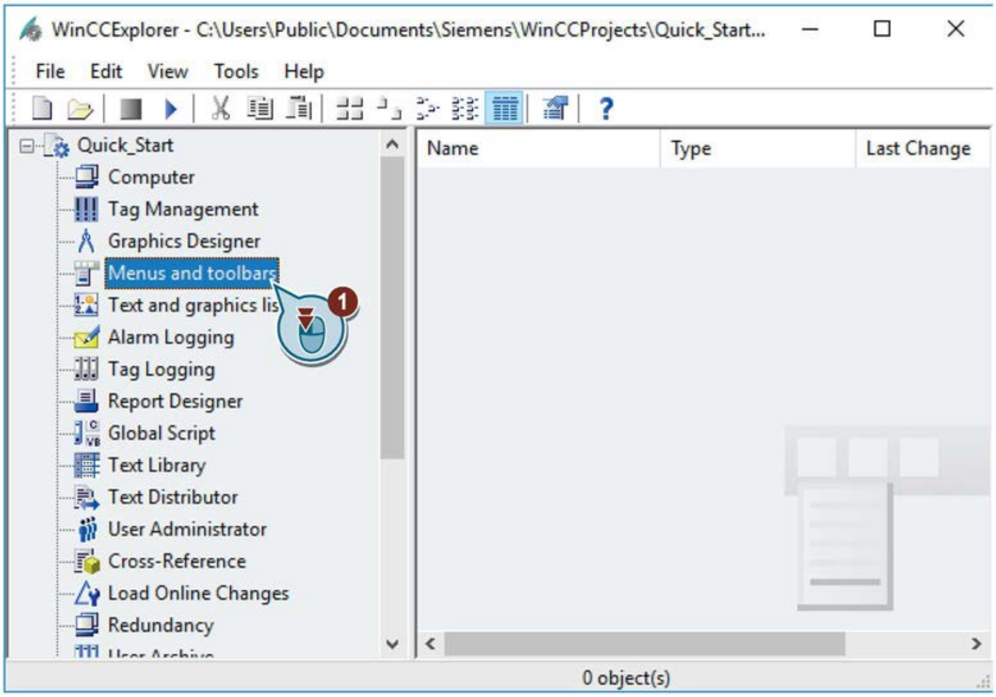
Enter the name of the process picture that you wish to change to in the "User data" box.

Requirement

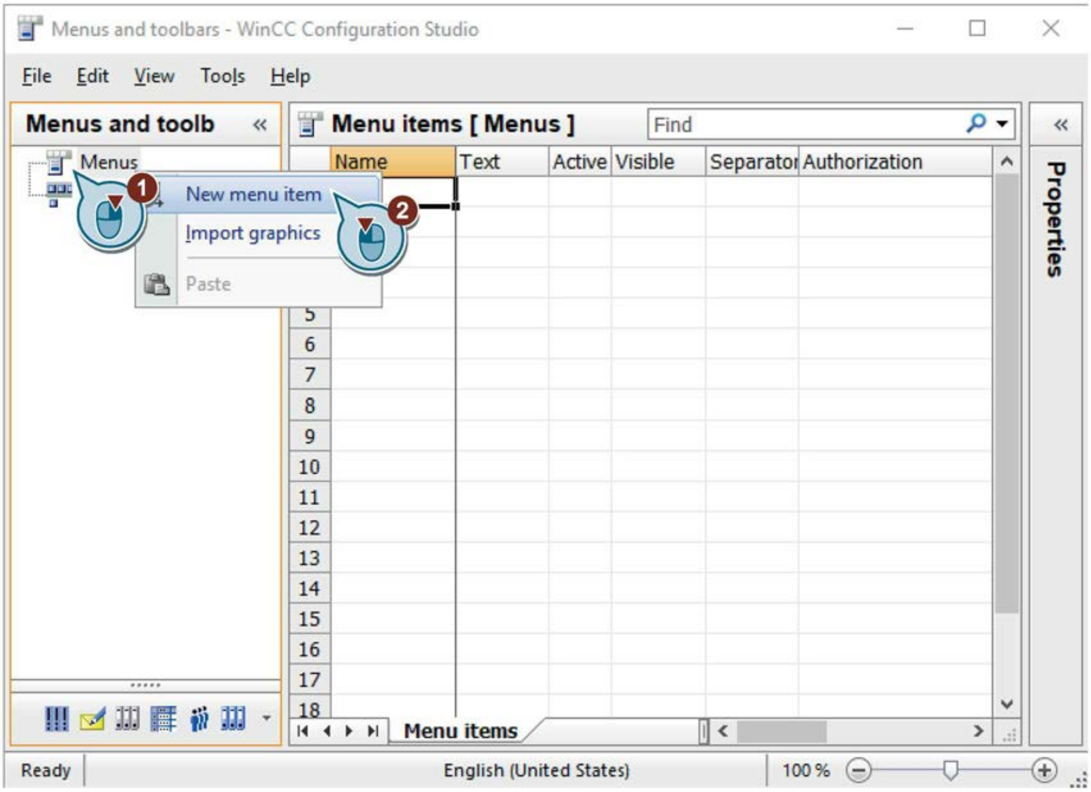
- The procedure "ActivatePicture(ByVal PictureName)" has been created.

Procedure

1. Open the "Menus and toolbars" editor.

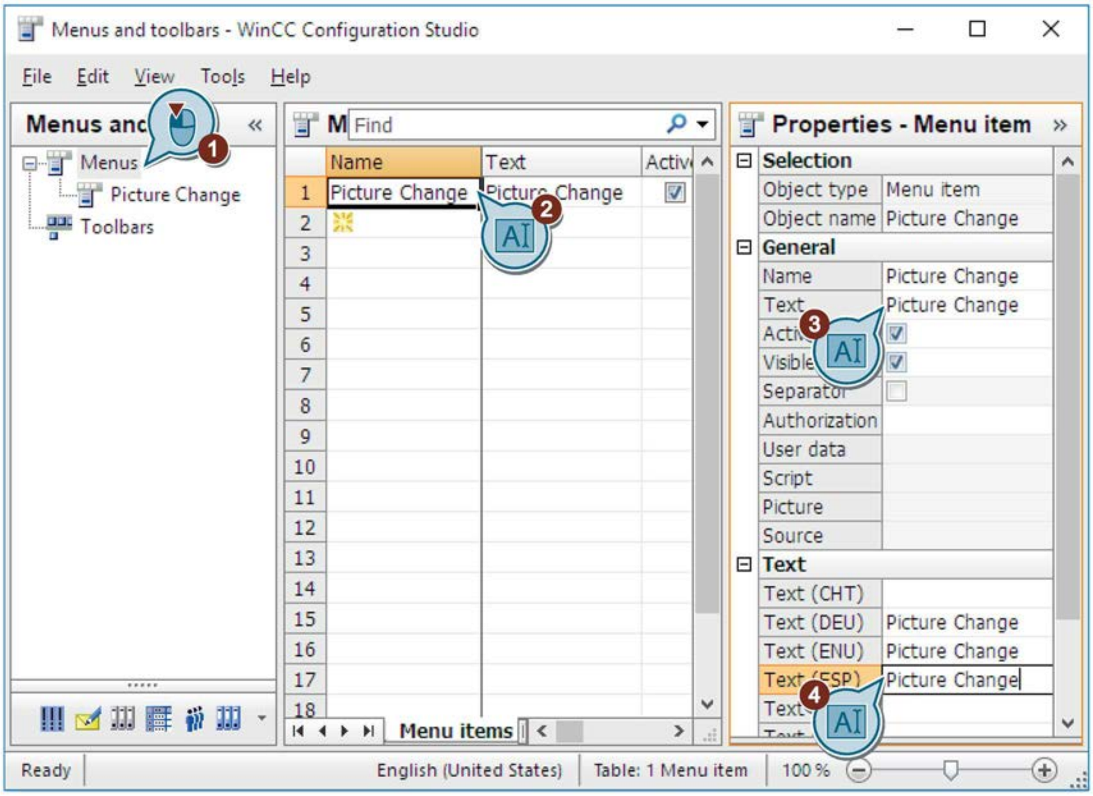


2. Create a new menu item.



3. Give the menu item the name "Picture Change".

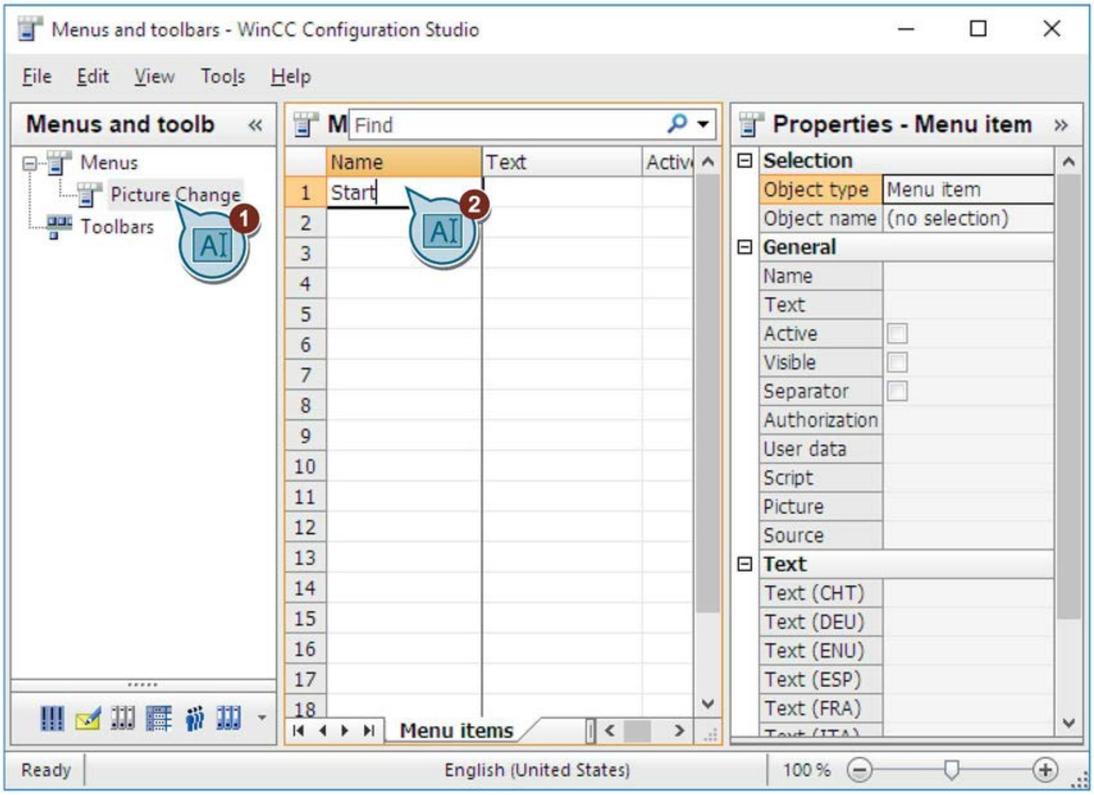
   In the "Properties" window, you can enter the name for other Runtime languages in the "Text" area.



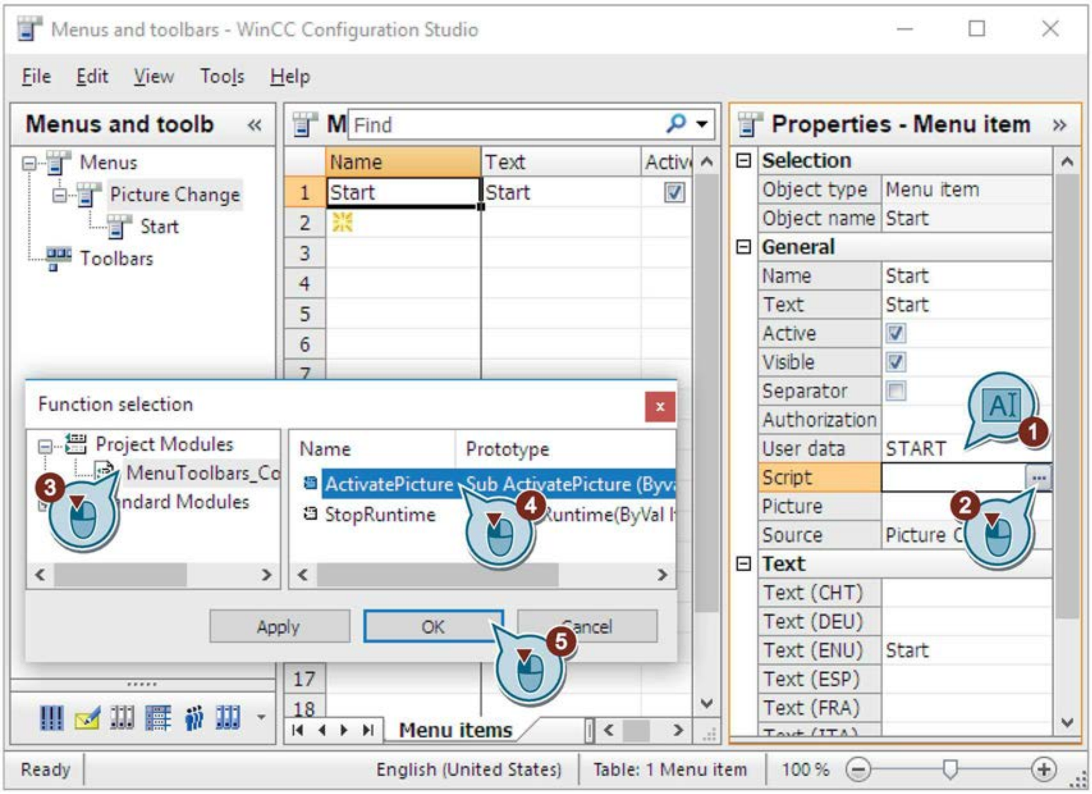
	Name	Text	Activ
1	Picture Change	Picture Change	☑
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			

Selection	
Object type	Menu item
Object name	Picture Change
General	
Name	Picture Change
Text	Picture Change
Acti	☑
Visible	☑
Separator	□
Authorization	
User data	
Script	
Picture	
Source	
Text	
Text (CHT)	
Text (DEU)	Picture Change
Text (ENU)	Picture Change
Text (ESP)	Picture Change
Text	

4. Create the "Start" menu command.



5. Configure the "Start" menu command for changing to the "START.pdl" picture.

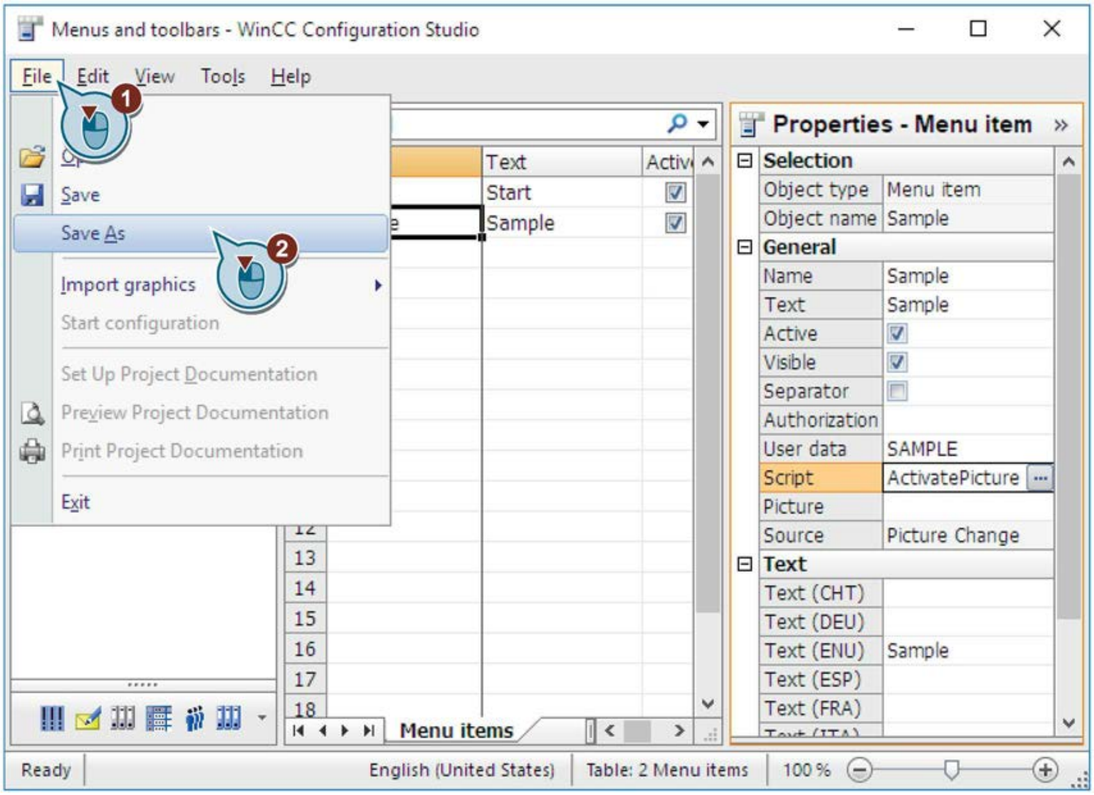


	Name	Text	Active
1	Start	Start	☑
2			
3			
4			
5			
6			
7			
17			
18			

Selection	
Object type	Menu item
Object name	Start
General	
Name	Start
Text	Start
Active	☑
Visible	☑
Separator	☐
Authorization	
User data	START
Script	
Picture	
Source	Picture C
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Start
Text (ESP)	
Text (FRA)	
Text (ITA)	

Name	Prototype
ActivatePicture	Sub ActivatePicture (Byva
StopRuntime	Runtime(ByVal I

6. Likewise, create the "Sample" menu command for changing to the "SAMPLE.pdl" picture.
7. Save the configuration file under the name "ActivatePicture".



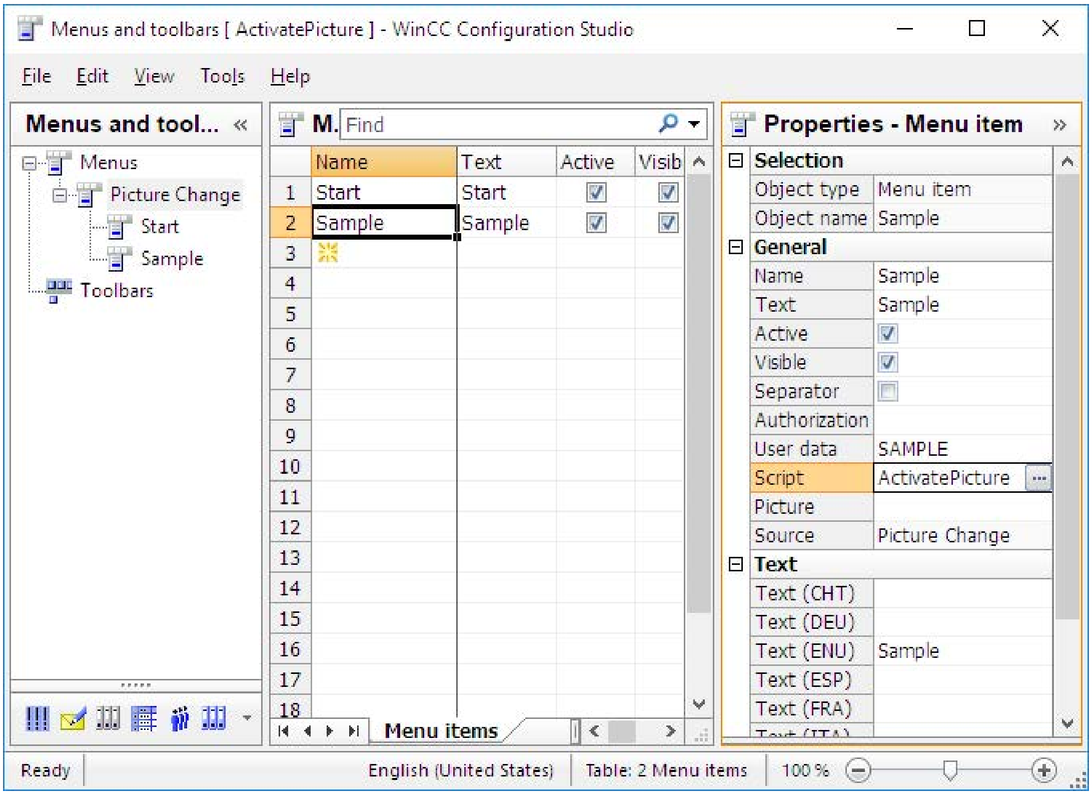
Text	Active
Start	☑
Sample	☑

Selection	
Object type	Menu item
Object name	Sample
General	
Name	Sample
Text	Sample
Active	☑
Visible	☑
Separator	☐
Authorization	
User data	SAMPLE
Script	ActivatePicture
Picture	
Source	Picture Change
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Sample
Text (ESP)	
Text (FRA)	

Result

You have created the "Picture Change" menu with two menu commands.

You can use these menu commands in Runtime to change to the "START.pdl" and "SAMPLE.pdl" process pictures.



	Name	Text	Active	Visib
1	Start	Start	☑	☑
2	Sample	Sample	☑	☑
3				

Properties - Menu item

Selection	
Object type	Menu item
Object name	Sample
General	
Name	Sample
Text	Sample
Active	☑
Visible	☑
Separator	□
Authorization	
User data	SAMPLE
Script	ActivatePicture
Picture	
Source	Picture Change
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Sample
Text (ESP)	
Text (FRA)	

6.6.4 Creating a customized toolbar to exit Runtime

Introduction

The following steps show you how to create a customized toolbar with an icon to exit Runtime.

Graphic files for symbols

Copy a graphic file to be displayed as a symbol to the following folder:

- <Project folder>\GraMT\mtimages

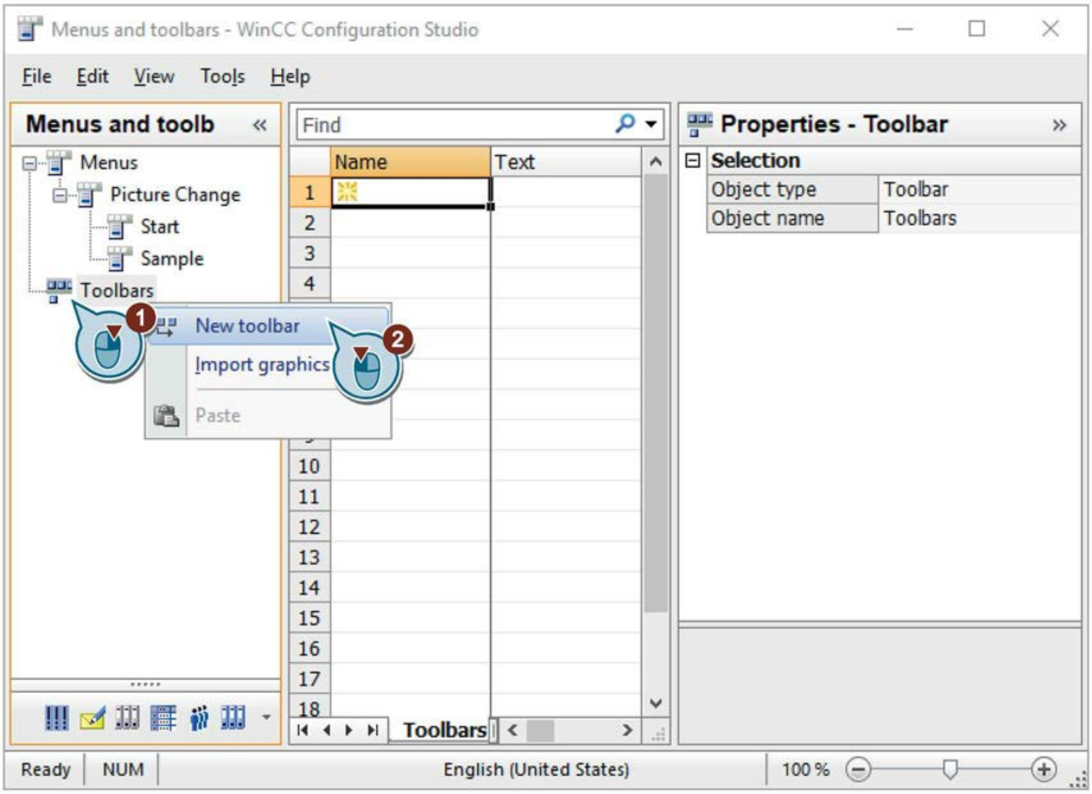
You use a graphic, e.g. in BMP, PNG, JPG or GIF format, as a symbol.

Requirements

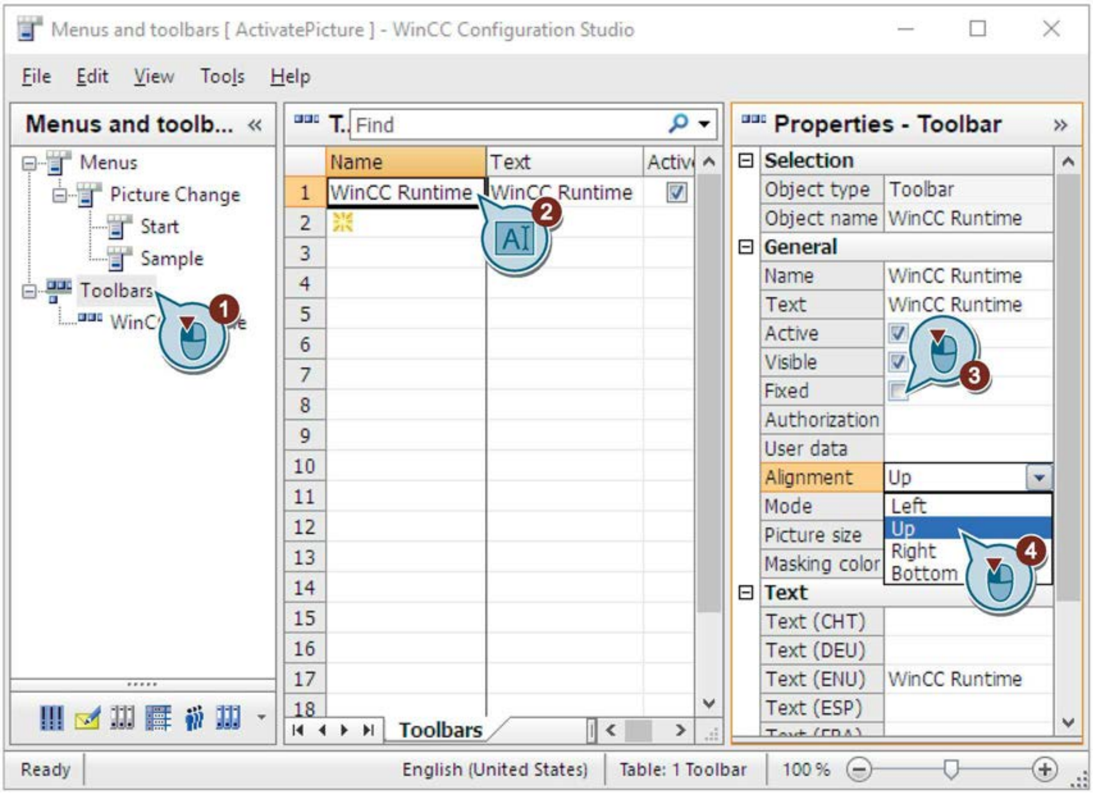
- The "Menus and toolbars" editor is open.
- The "StopRuntime(ByVal Item)" procedure has been created.
- A graphics file has been copied to the WinCC project folder as the symbol for "Exit Runtime", e.g.:
  - C:\Users\Public\Documents\Siemens\WinCCProjects\Quick_Start\GraMT\mtimages

Procedure

1. Create a new "WinCC Runtime" toolbar.



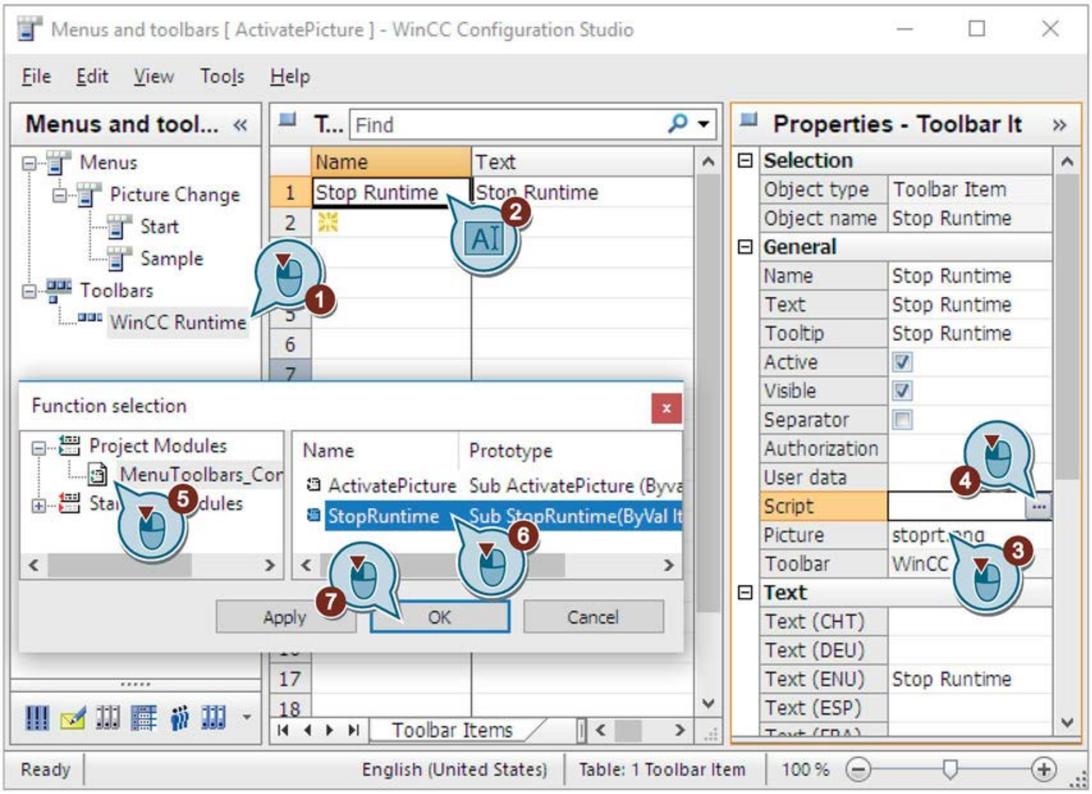
2. Configure the toolbar so that it is displayed by default at the upper edge of the picture, while allowing users to change the position.



	Name	Text	Active
1	WinCC Runtime	WinCC Runtime	☑
2			

Property	Value
Selection	
Object type	Toolbar
Object name	WinCC Runtime
General	
Name	WinCC Runtime
Text	WinCC Runtime
Active	☑
Visible	☑
Fixed	□
Authorization	
User data	
Alignment	Up
Mode	Left Up Right Bottom
Picture size	
Masking color	
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	WinCC Runtime
Text (ESP)	

3. Create a "Stop Runtime" element and configure an icon that closes Runtime.



Menus and toolbars [ActivatePicture] - WinCC Configuration Studio

Name	Text
Stop Runtime	Stop Runtime

Properties - Toolbar It

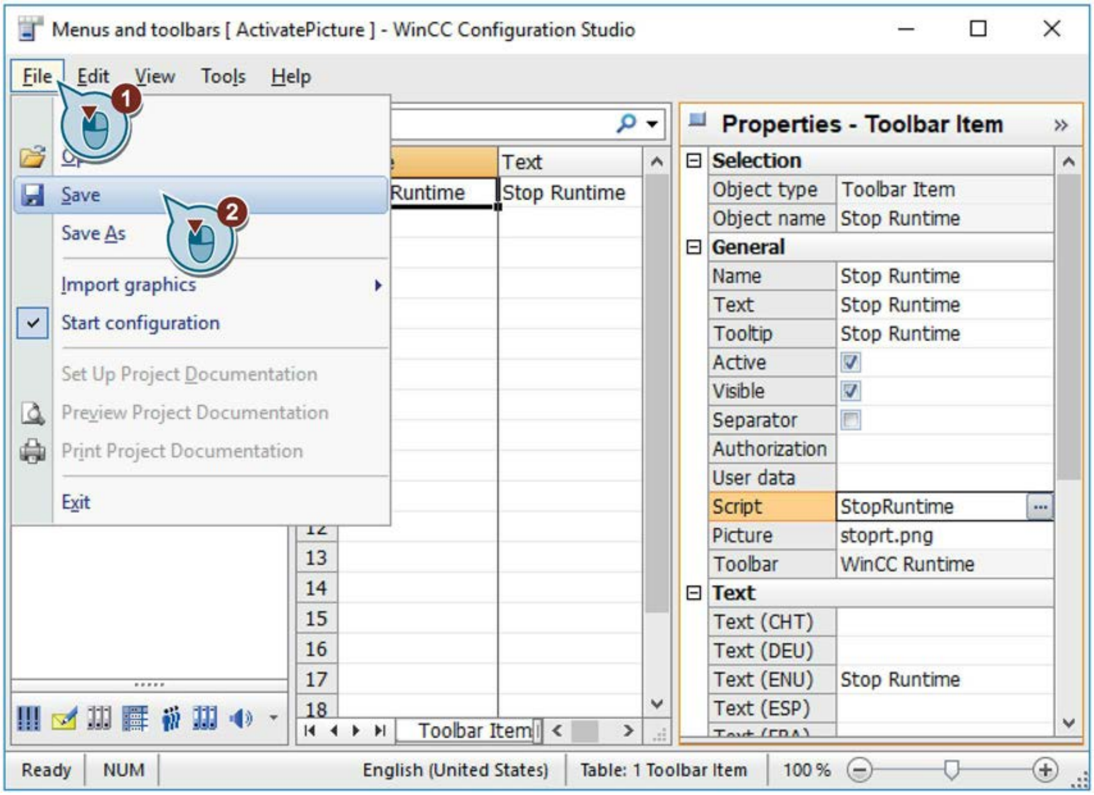
Selection	
Object type	Toolbar Item
Object name	Stop Runtime
General	
Name	Stop Runtime
Text	Stop Runtime
Tooltip	Stop Runtime
Active	☑
Visible	☑
Separator	□
Authorization	
User data	
Script	
Picture	stoprt.png
Toolbar	WinCC
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Stop Runtime
Text (ESP)	

Function selection

Name	Prototype
ActivatePicture	Sub ActivatePicture (Byva
StopRuntime	Sub StopRuntime(ByVal It

Ready | English (United States) | Table: 1 Toolbar Item | 100 %

4. Save the "ActivatePicture" configuration.


Menus and toolbars [ActivatePicture] - WinCC Configuration Studio
File
Edit
View
Tools
Help
1
Save
2
Save As
Import graphics
Start configuration
Set Up Project Documentation
Preview Project Documentation
Print Project Documentation
Exit
Text
Runtime
Stop Runtime
12
13
14
15
16
17
18
Toolbar Item
Properties - Toolbar Item

Selection	
Object type	Toolbar Item
Object name	Stop Runtime
General	
Name	Stop Runtime
Text	Stop Runtime
Tooltip	Stop Runtime
Active	☑
Visible	☑
Separator	□
Authorization	
User data	
Script	StopRuntime
Picture	stoprt.png
Toolbar	WinCC Runtime
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Stop Runtime
Text (ESP)	

Ready | NUM | English (United States) | Table: 1 Toolbar Item | 100 %

5. Close the "Menus and toolbars" editor.

Result

You have created the toolbar with an icon to exit runtime and saved the configuration.

To display the menu bar and toolbar in runtime, select the configuration file when specifying the runtime properties.

At runtime, the user-defined menus and toolbars are then displayed in each process picture.

If you generate additional process pictures in the course of the Getting Started, you can extend the menu configuration to include the additional pictures using the steps shown.

6.7 Defining Runtime properties (graphics system)

Introduction

The following steps will show you how to define the properties for WinCC Runtime.

You will define the WinCC Runtime properties in WinCC Explorer.

In this section, you will set up WinCC Runtime so that Graphics Runtime is executed when the project is activated.

Set the "START.pdl" process picture as start picture for the Runtime window.

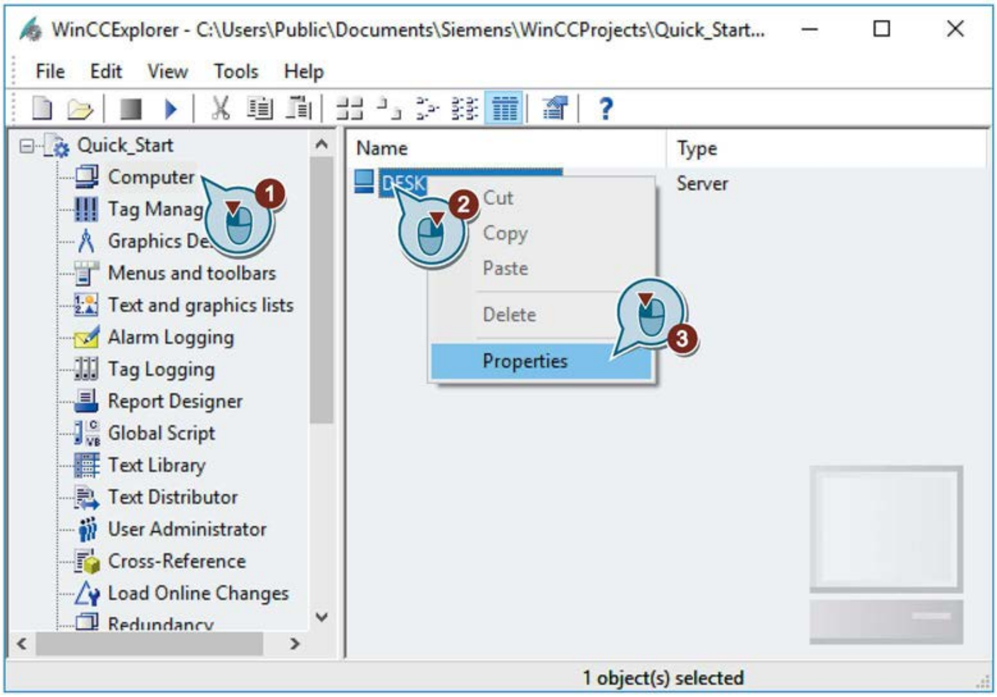
Load the created configuration file to display the user-defined menu and the toolbar in the process pictures.

Requirement

- The "Quick_Start" project is open.

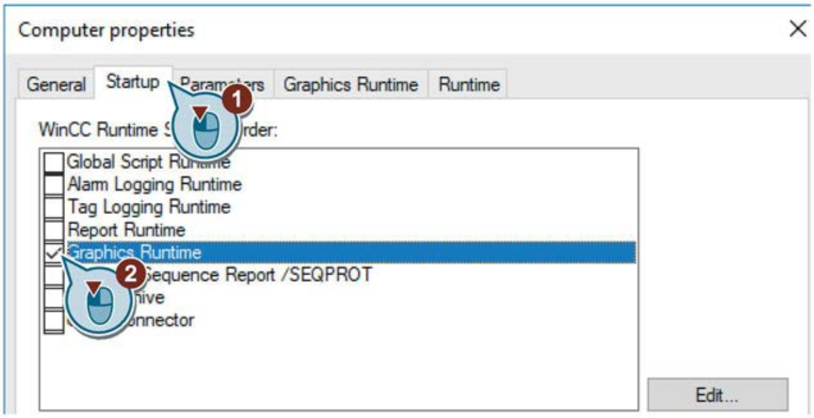
Procedure

1. Open the "Computer Properties" dialog.



The "Computer Properties" dialog opens.

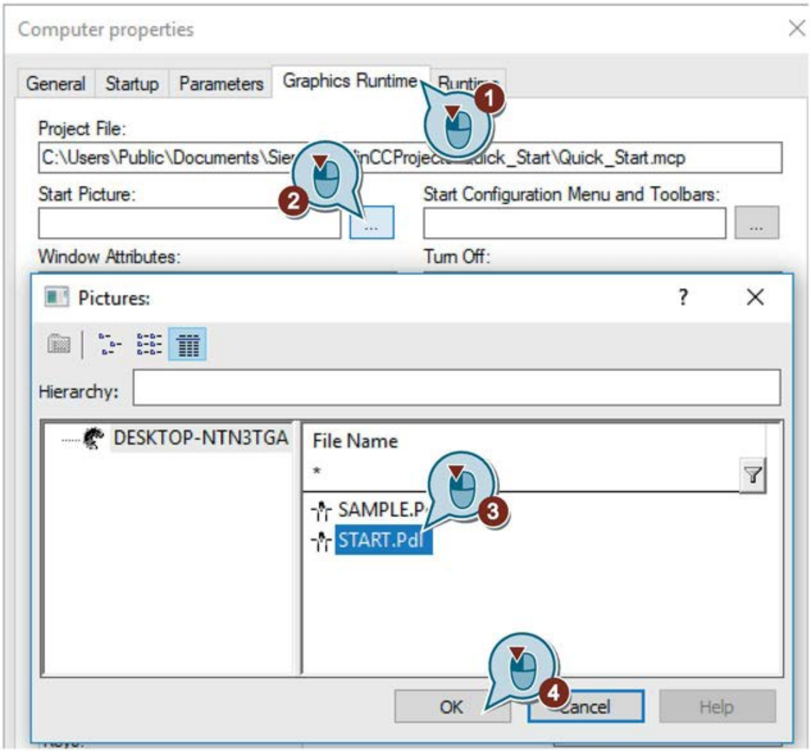
2. Click the "Startup" tab and activate the "Graphics Runtime" application.



WinCC Runtime S[...]rder:

- ☐ Global Script Runtime
- ☐ Alarm Logging Runtime
- ☐ Tag Logging Runtime
- ☐ Report Runtime
- ☑ Graphics Runtime
- ☐ Sequence Report /SEQPROT
- ☐ hive
- ☐ onnector

3. In the "Graphics Runtime" tab, define the process picture "START.pdl" as the start picture.

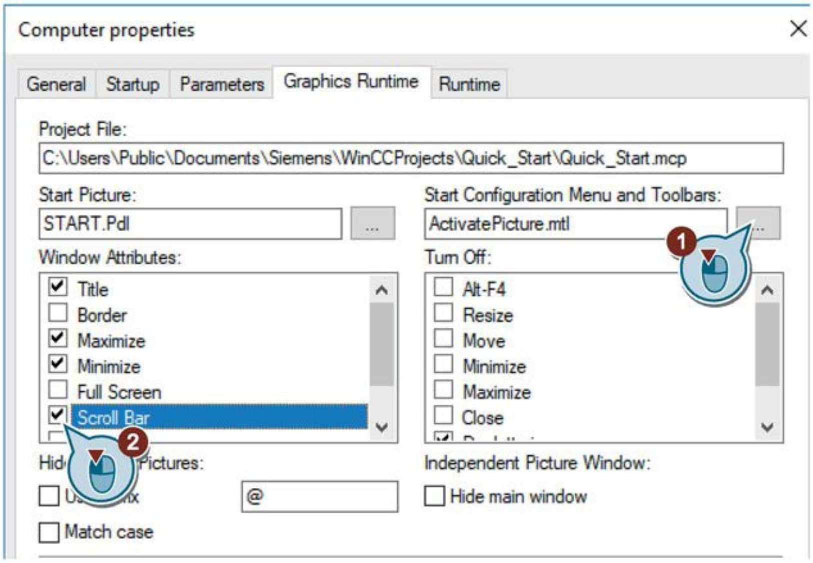


Project File: C:\Users\Public\Documents\Sie[...]nCCProjec[...]ick_Start\Quick_Start.mcp

Start Picture:

- SAMPLE.P
- START.Pdl

4. Select the configuration file for the menu and toolbars "ActivatePicture.mtl".
5. Activate the "Title", "Maximize", "Minimize", and "Scroll Bar" window attributes.



Project File:
C:\Users\Public\Documents\Siemens\WinCCProjects\Quick_Start\Quick_Start.mcp

Start Picture: START.Pdl

Start Configuration Menu and Toolbars: ActivatePicture.mtl

Window Attributes:
- ☑ Title
- □ Border
- ☑ Maximize
- ☑ Minimize
- □ Full Screen
- ☑ Scroll Bar

Turn Off:
- □ Alt-F4
- □ Resize
- □ Move
- □ Minimize
- □ Maximize
- □ Close

Hid Pictures:
□ Us x @
□ Match case

Independent Picture Window:
□ Hide main window

6. Click "OK".

Result

You have defined the WinCC Runtime properties.

When the "Quick_Start" project is activated, the "Graphics Runtime" component runs.
The "START.pdl" process picture is displayed as the start picture.

The customized menus and toolbars are displayed in every process picture to navigate and exit Runtime.

You use the window attributes to determine the additional functions of the Runtime window.

In the next steps you will activate the project "Quick_Start".

6.8 Project activation (graphics system)

Introduction

The following steps will show you how to activate the "Quick_Start" project and how to operate the dynamic process picture "START.pdl" in Runtime.

When activating the project, WinCC Runtime is started. WinCC Runtime runs the project in process mode.

In Runtime you will operate the configured I/O field and observe the changes in the fill level indicator.

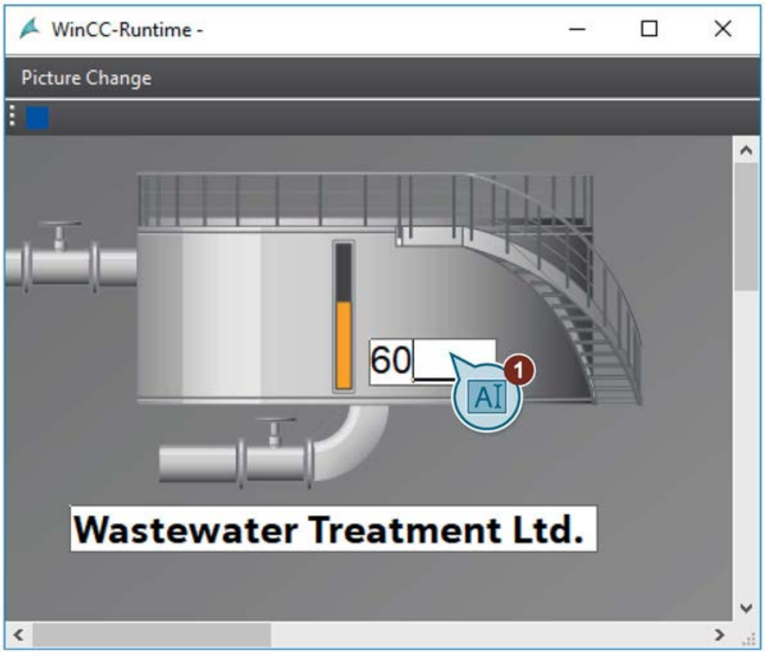
Requirement

- The "Quick_Start" project is open.
- The Runtime properties are defined.

Procedure

1. Activate the "Quick_Start" project using the ▶ toolbar button in WinCC Explorer.

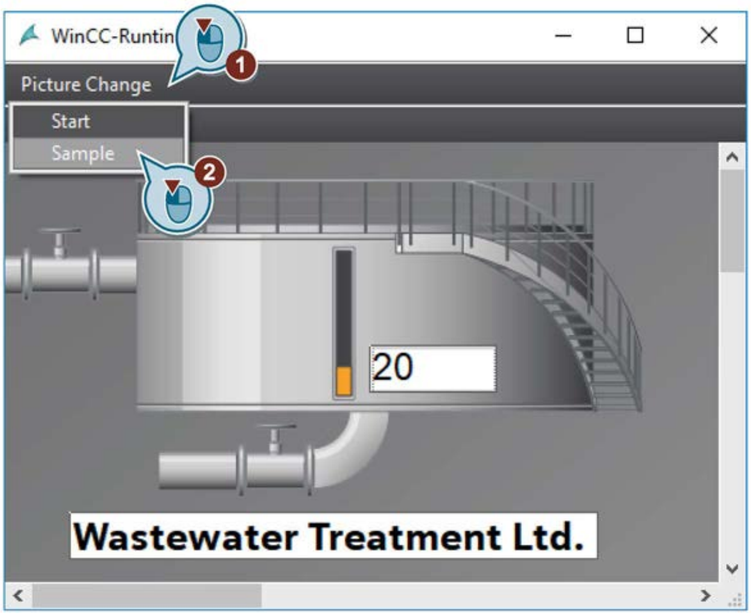
   The Runtime window will open after a short loading time. The "START.pdl" process picture is displayed.



2. Enter values between 0 and 100 in the I/O field and confirm your entry with <Return>.

   Observe the changes in the fill level indicator.

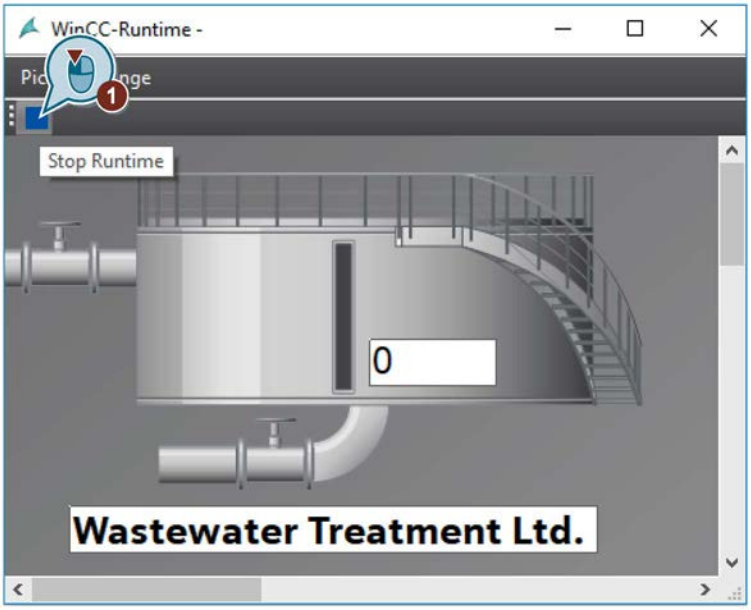
3. To switch to the "SAMPLE.pdl" process picture, click on the "Sample" command in the "Picture Change" menu.



4. To return to the "START.pdl" process picture, click on the "Start" command in the "Picture Change" menu.

5. Click the configured toolbar button to exit Runtime.

   The toolbar displays the graphic file you linked with the symbol in the "Creating a customized toolbar to exit Runtime (Page 79)" section.



Result

You have activated the "Quick_Start" project and thus started WinCC Runtime.
The process picture "START.pdl" will be displayed in the Runtime window.

If you enter a value in the I/O field, this value is transferred to the graphic picture of the bioconverter via the internal tag "Tank_Level". This will allow you to monitor the fill level indicator of the bioconverter.

In order to simulate the internal tag "Tank_Level" and to test the "Quick_Start" project, you will use the "Tag simulation" editor in the next steps.

See also

Creating a customized toolbar to exit Runtime (Page 79)

6.9 Testing the project (graphics system)

Introduction

The following steps will show you how to test the "Quick_Start" project by means of the WinCC Tag Simulator.

The WinCC TAG Simulator allows testing of a project, which is still in the development stage. During testing you will check how the project acts when connected to an automation system.

In the "Quick_Start" project, you will simulate the values of the internal tag "Tank_Level" with the WinCC Tag Simulator. You configure the simulation in the "Tag Simulation" editor in the WinCC Configuration Studio.

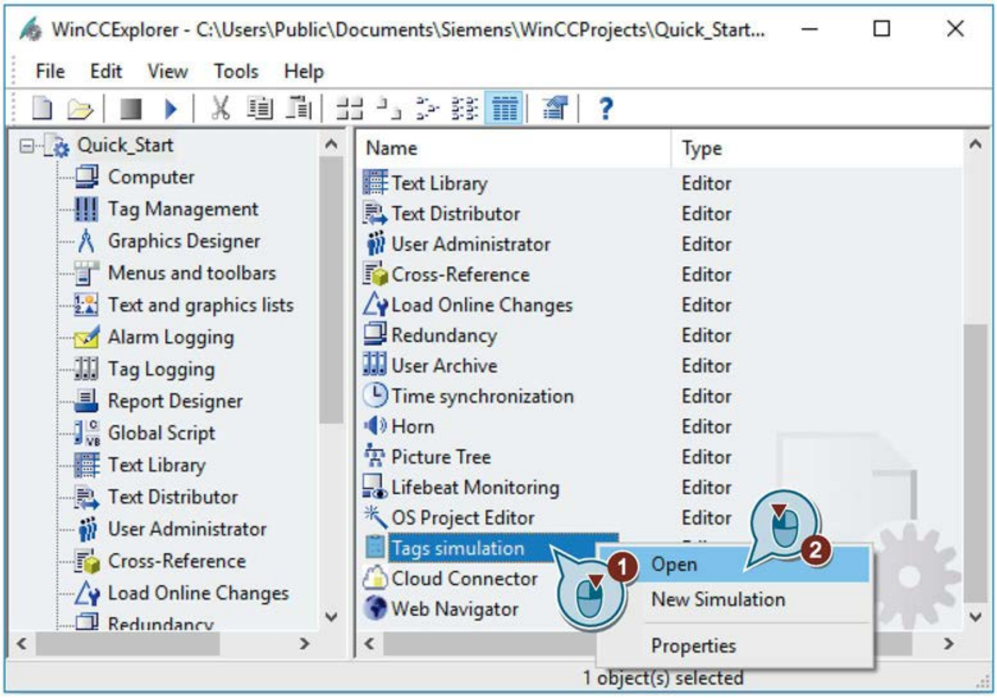
The WinCC Tag Simulator assigns different values to the internal tag "Tank_Level".
As the internal tag is connected to the graphic depiction of the bioconverter, the fill level indicator of the bioconverter will change according to the tag values.

Requirement

- The Runtime properties are defined.

Procedure

1. Start the "Tag simulation" editor.



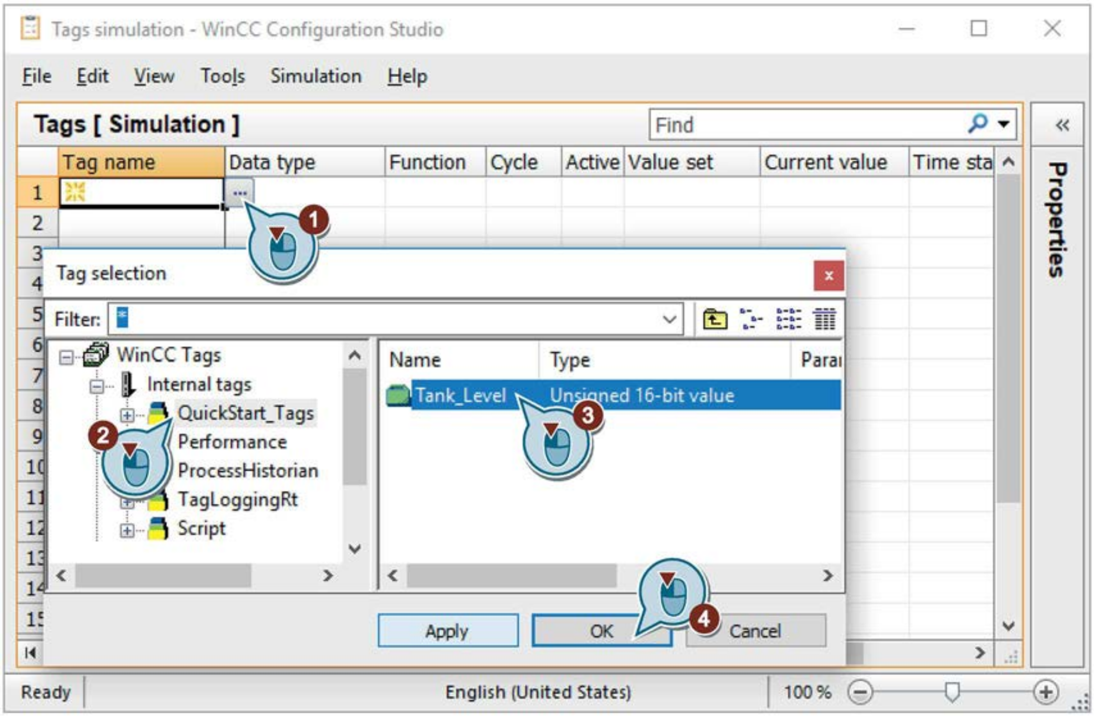
WinCCExplorer - C:\Users\Public\Documents\Siemens\WinCCProjects\Quick_Start...

Name	Type
Text Library	Editor
Text Distributor	Editor
User Administrator	Editor
Cross-Reference	Editor
Load Online Changes	Editor
Redundancy	Editor
User Archive	Editor
Time synchronization	Editor
Horn	Editor
Picture Tree	Editor
Lifebeat Monitoring	Editor
OS Project Editor	Editor
Tags simulation	
Cloud Connector	
Web Navigator	

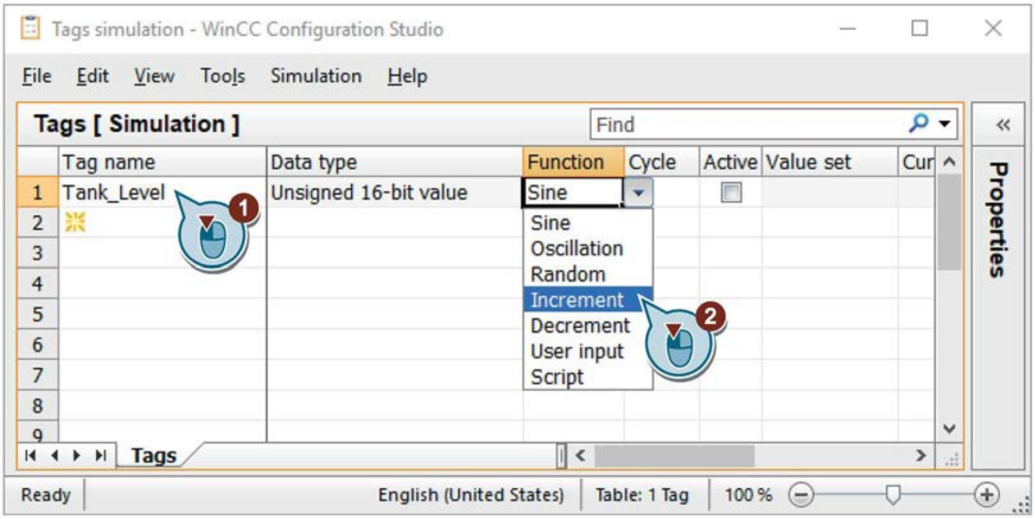
1 object(s) selected

The "Tag simulation" editor opens.

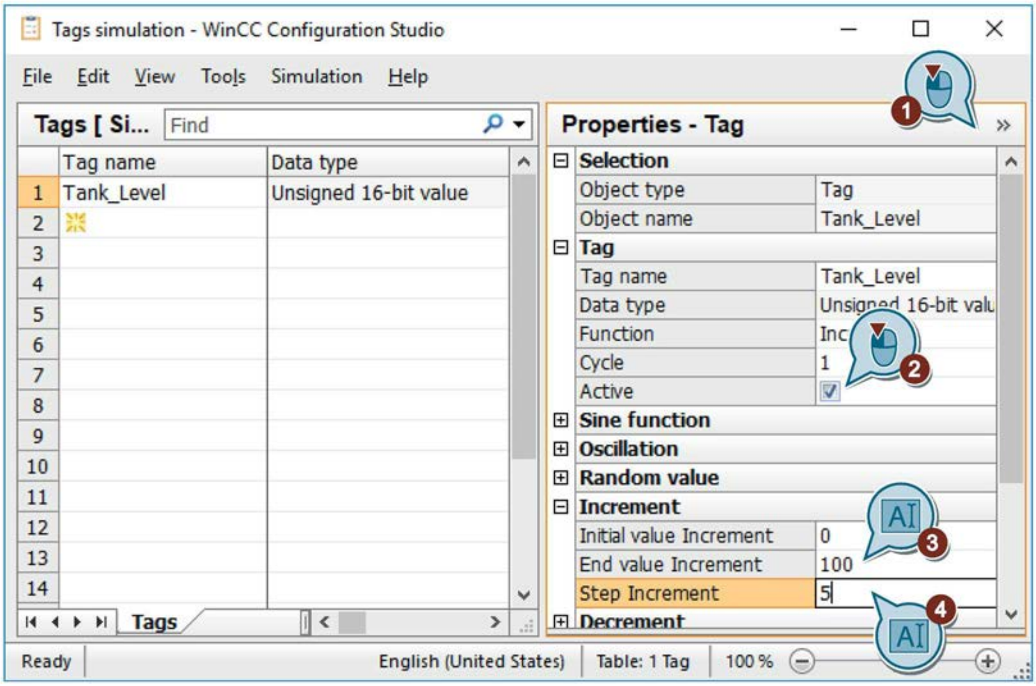
2. Open the tag selection dialog and select the internal tag "Tank_Level" from the tag group "QuickStart_Tags".



3. Select the simulation type.



4. Open the "Properties" window and define the properties of the simulation type.



	Tag name	Data type
1	Tank_Level	Unsigned 16-bit value
2		

Selection

Object type	Tag
Object name	Tank_Level

Tag

Tag name	Tank_Level
Data type	Unsigned 16-bit valu
Function	Inc
Cycle	1
Active	☑

Sine function

Oscillation

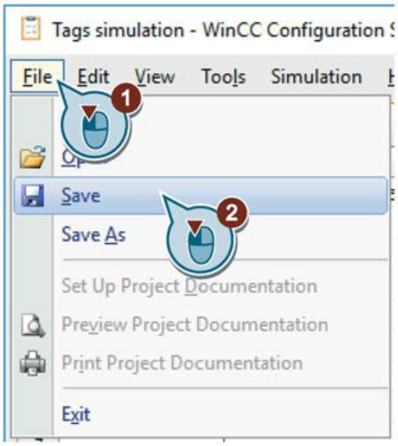
Random value

Increment

Initial value Increment	0
End value Increment	100
Step Increment	5

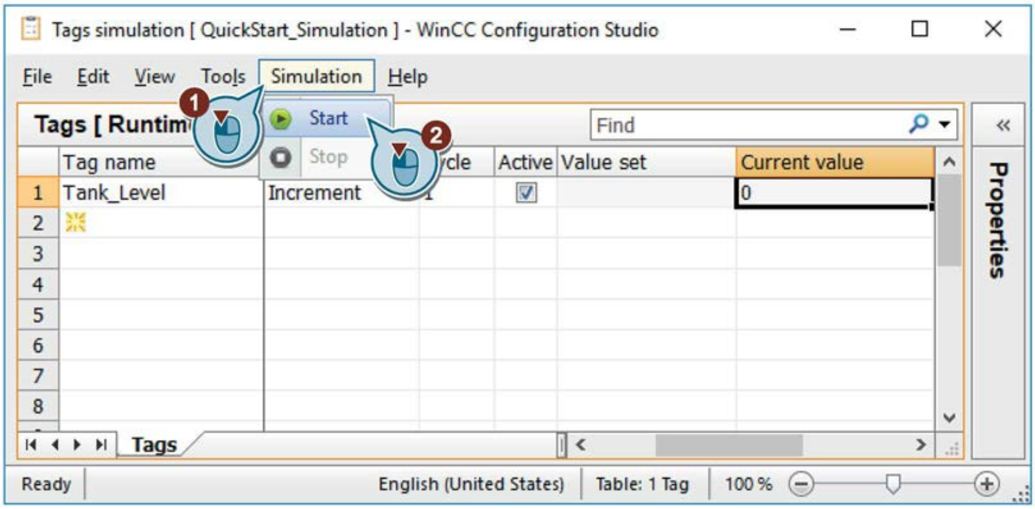
Decrement

5. Save the simulation as "QuickStart_Simulation".



Tags simulation - WinCC Configuration S
File Edit View Tools Simulation
1
Op
Save
Save As
2
Set Up Project Documentation
Preview Project Documentation
Print Project Documentation
Exit

6. Activate WinCC Runtime in the WinCC Explorer using the ▶ button.
7. Start the simulation in the "Tag Simulation" editor.



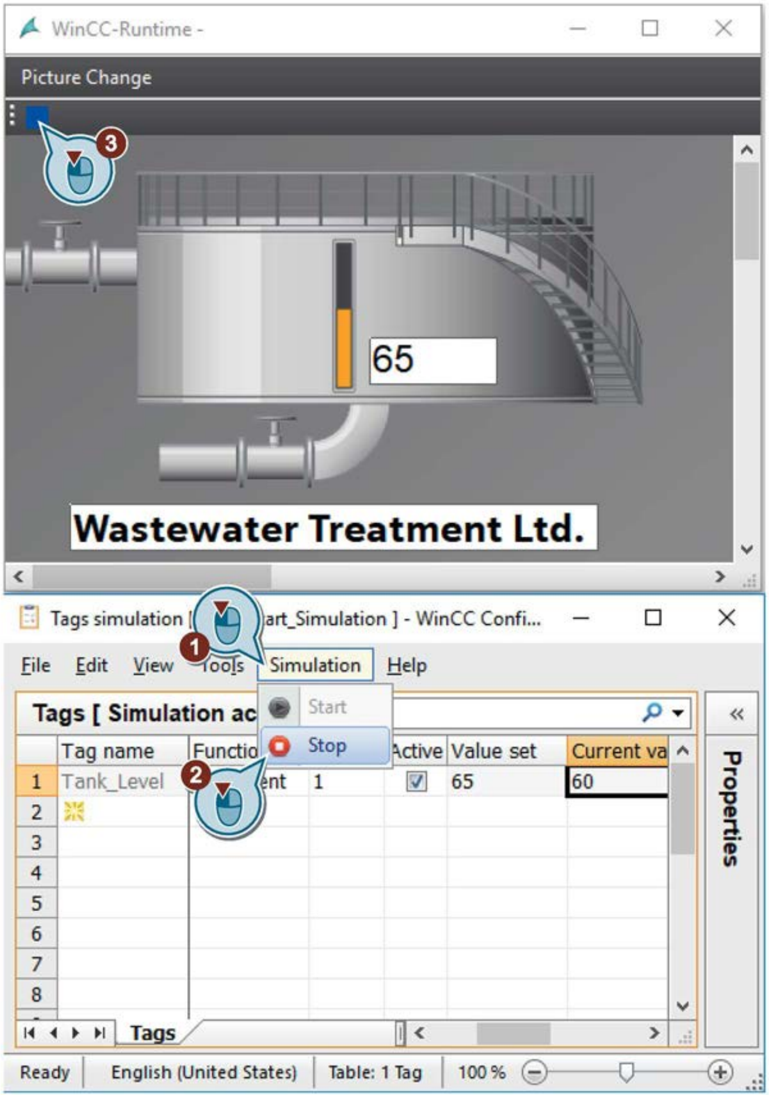
	Tag name		ycle	Active	Value set	Current value
1	Tank_Level	Increment	1	☑		0
2						
3						
4						
5						
6						
7						
8						

8. Position the "Tag Simulation" editor and the Runtime window in such a way that you can monitor both.

   Observe how the different simulation values affect the fill level indicator.

   The configured update cycles cause different display delays.

9. Exit the simulation and WinCC Runtime.



	Tag name	Functio		Active	Value set	Current va
1	Tank_Level	ent	1	☑	65	60
2						
3						
4						
5						
6						
7						
8						

Result

You have tested "Quick_Start" project by means of the WinCC TAG Simulator.

The test shows the behavior of the project when it is supplied with process values.

6.10 Using Runtime system dialogs

Introduction

The Runtime system dialogs can be used to perform actions that are frequently required in runtime. You do not need to configure the actions in the pictures.

Possible actions include:

- Close Runtime system dialogs
- Display start picture
- Display previous picture
- Display next picture
- Display favorite picture
- Select language

The following steps show you how to activate the Runtime system dialogs.

The example demonstrates the change between two pictures.

Requirement

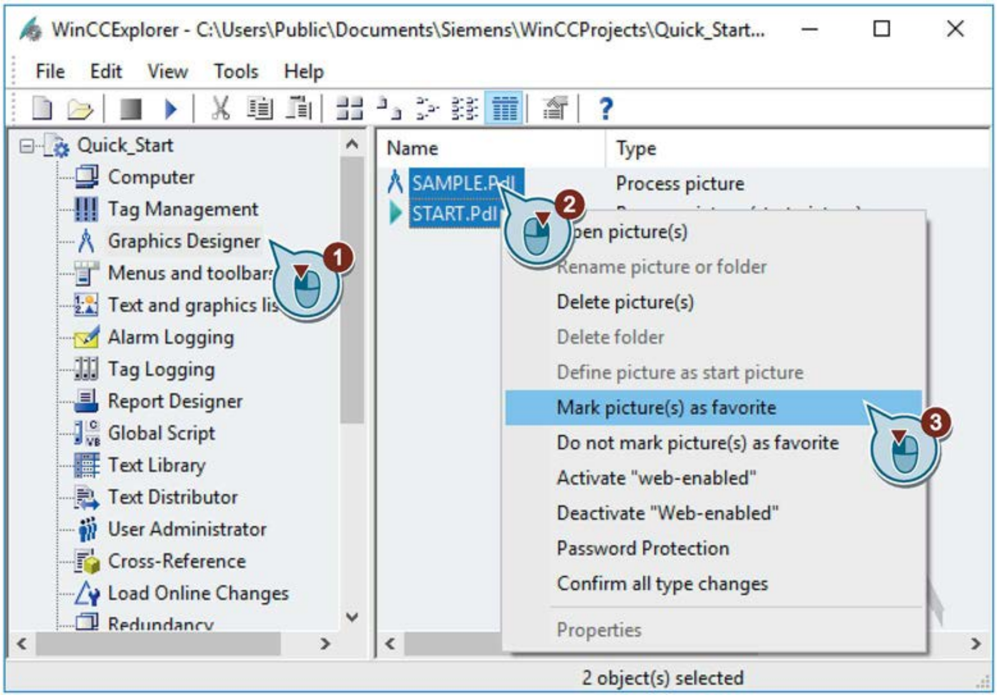
- You have created the "START.pdl" and "SAMPLE.pdl" process pictures.
- The "START.pdl" process picture is defined as start picture.

Procedure

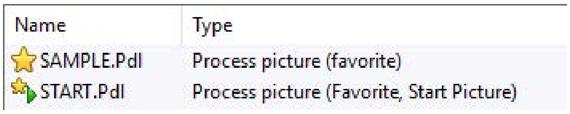
1. In WinCC Explorer, select the "START.pdl" and "SAMPLE.pdl" process pictures.

   To select both pictures, press the <Ctrl> button when clicking.

2. Select the process pictures as favorites.

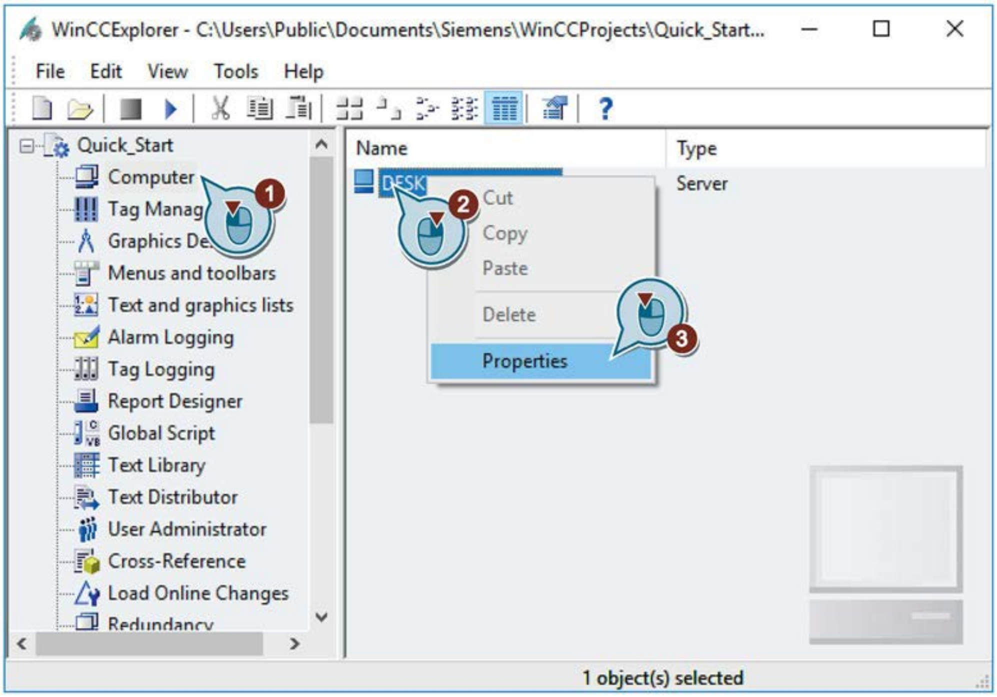


The "START.pdl" and "SAMPLE.pdl" process pictures are displayed in the right pane of WinCC Explorer as favorites.



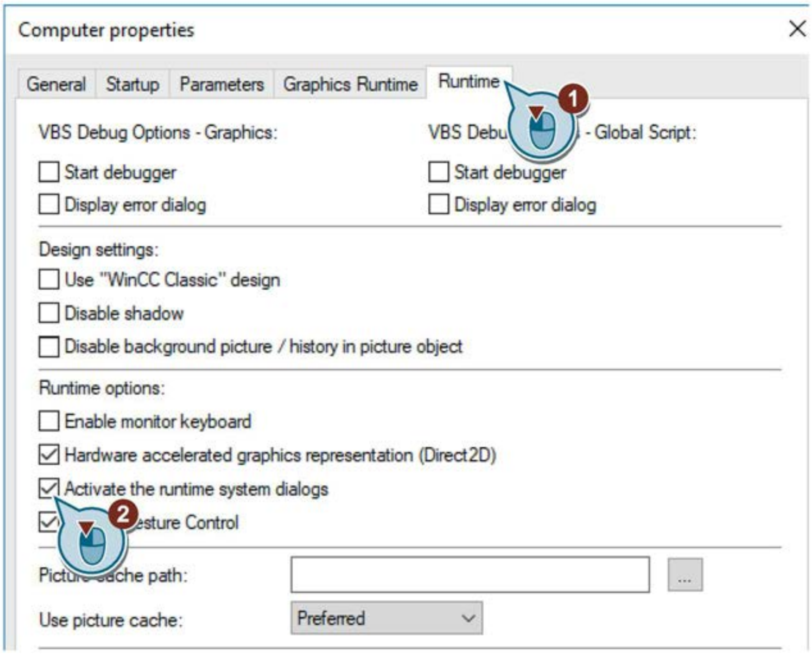
Name	Type
SAMPLE.Pdl	Process picture (favorite)
START.Pdl	Process picture (Favorite, Start Picture)

3. Open the "Computer Properties" dialog.



The "Computer Properties" dialog opens.

4. Click the "Runtime" tab and select the "Activate the runtime system dialogs" check box.



Computer properties

General | Startup | Parameters | Graphics Runtime | Runtime

VBS Debug Options - Graphics:
☐ Start debugger
☐ Display error dialog

VBS Debu - Global Script:
☐ Start debugger
☐ Display error dialog

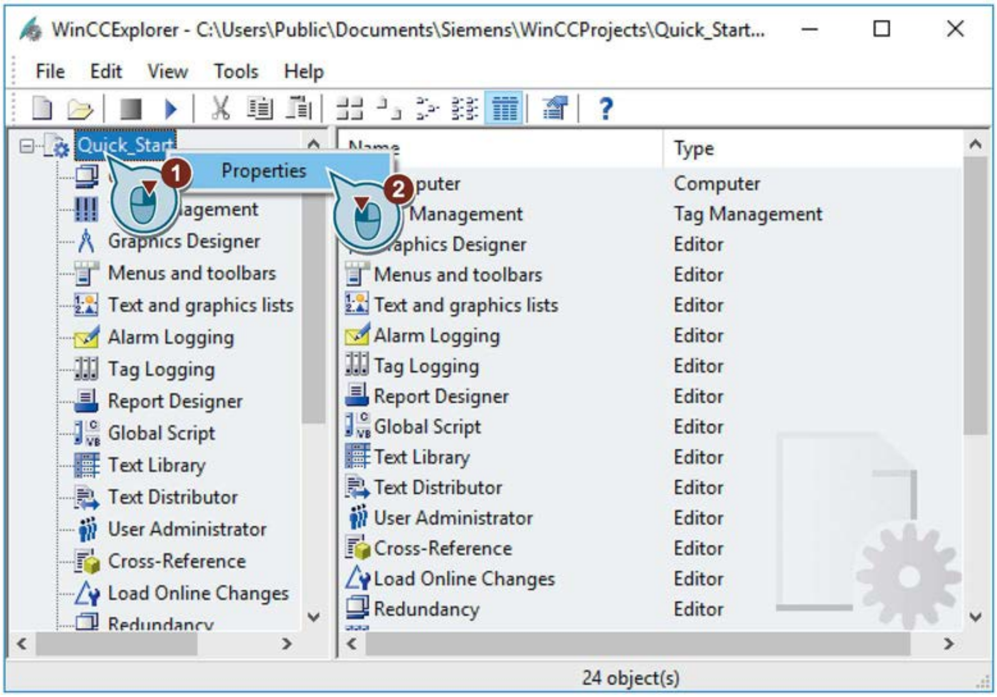
Design settings:
☐ Use "WinCC Classic" design
☐ Disable shadow
☐ Disable background picture / history in picture object

Runtime options:
☐ Enable monitor keyboard
☑ Hardware accelerated graphics representation (Direct2D)
☑ Activate the runtime system dialogs
☑ esture Control

Pictu ache path:
Use picture cache: Preferred

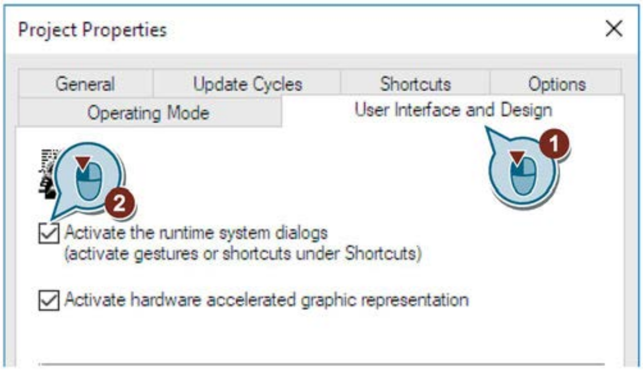
5. Click "OK" to close the dialog box.

6. Open the "Project properties" dialog.



The "Project properties" dialog opens.

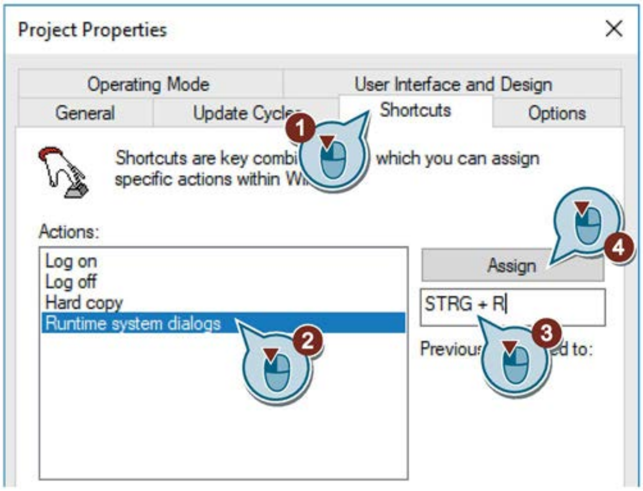
7. Click the "User Interface and Design" tab and select the "Activate the runtime system dialogs" check box.



☑ Activate the runtime system dialogs
(activate gestures or shortcuts under Shortcuts)

☑ Activate hardware accelerated graphic representation

8. Click the "Shortcuts" tab and assign a keyboard shortcut to the action "Runtime system dialogs", such as <Ctrl+R>.



Project Properties

Shortcuts are key combi... which you can assign specific actions within Wi...

Actions:
- Log on
- Log off
- Hard copy
- Runtime system dialogs

STRG + R

Previous... ...ed to:

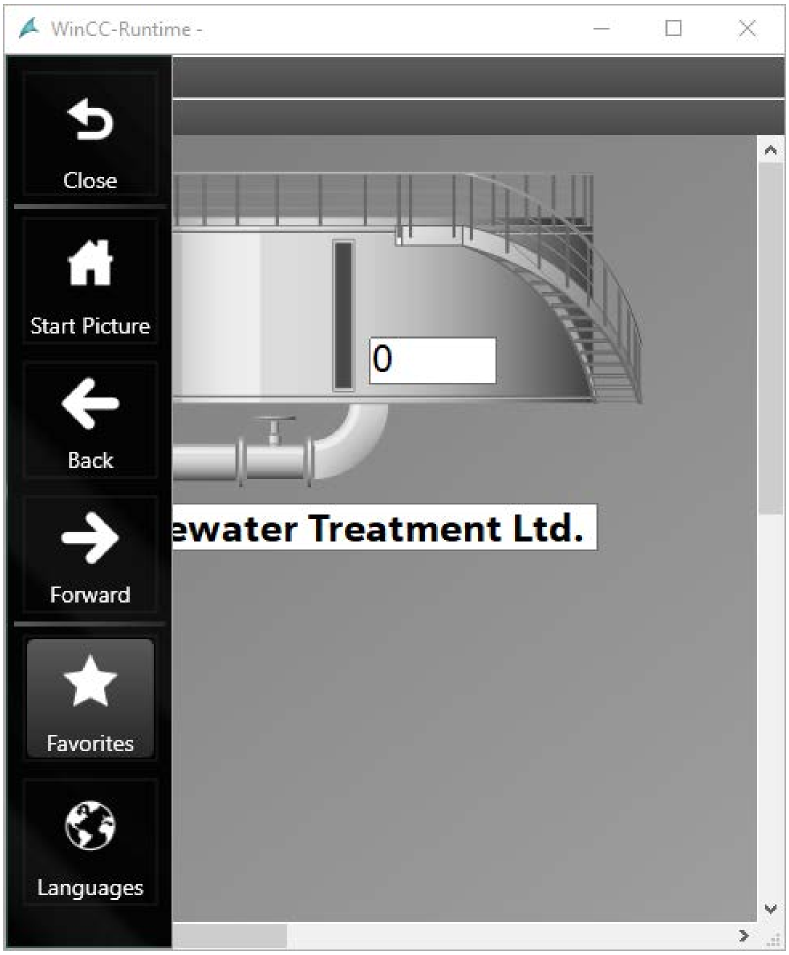
9. Click "OK" to close the dialog box.

10. Activate the "Quick_Start" project.

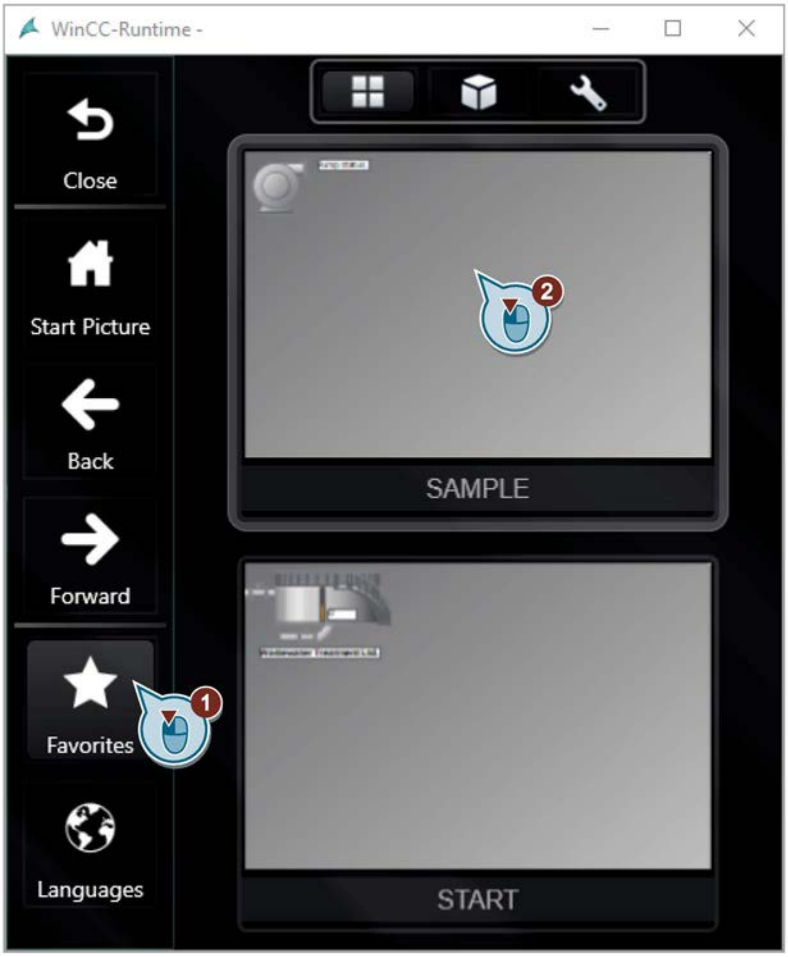
    The Runtime window will open after a short loading time.
    The "START.pdl" process picture is displayed.

11. Start the Runtime system dialog with the assigned shortcut key, e.g. <Ctrl+R>.

The Runtime window opens and displays the system menu.



12.Click "Favorites" and the "SAMPLE" process picture.



The Runtime system dialog is hidden and the "SAMPLE.pdl" process picture is displayed.

Result

You have activated and tested the Runtime system dialogs.

You can use the system dialogs to navigate between the created process pictures and change the language of WinCC Runtime.

Archiving and displaying values 7

7.1 Archiving and displaying values

Introduction

This chapter provides information about the archive system and a description of how to save values in a process value archive.

Principle

With the help of the process value archives you display the development of the process values over time, for example, as a diagram or as a table. In practice, such temporal displays are very important as they allow problems to be recognized very early on.

Having access to individual historic process values is another use of the process value archives. This application can, for example, help to determine how high certain values were at a time when production problems were experienced.

You do not need process values for the "Quick_Start" project.

Select the internal tag "Tank_Level" in this project. You will simulate the values of these tags by means of the WinCC TAG Simulator. The simulated tag values are saved in a process value archive.

The sequence of the saved values will be entered into a process picture as a trend diagram and as a table. For this you will use the controls in the "Controls" selection window of the "Graphics Designer" editor.

Observe the changes in the simulation values in the configured controls in Runtime.

7.2 The archive system

Introduction

The archive system is a subsystem of WinCC. This subsystem is used to archive process values and messages.

Components of the Archiving System

The Archive System for process values is made up of a configuration and a runtime component:

- The configuration component of the archiving system is the "Tag Logging" editor.

  In this editor, you can carry out the following tasks (among others):

  - Configuring process value archives and compressed archives
  - Defining acquisition and archiving cycles
  - Defining process values to be archived
- Tag Logging Runtime is the runtime component of the archiving system.

  Tag Logging Runtime is primarily used to perform the following tasks:

  - Writing process values into the process value archive
  - Reading archived process values from the process value archive

Archiving

Process values can be stored either on hard disk in the archive database or in the main memory of Tag Logging Runtime.

You can compress process values already archived to reduce the data volume.

Archiving Times

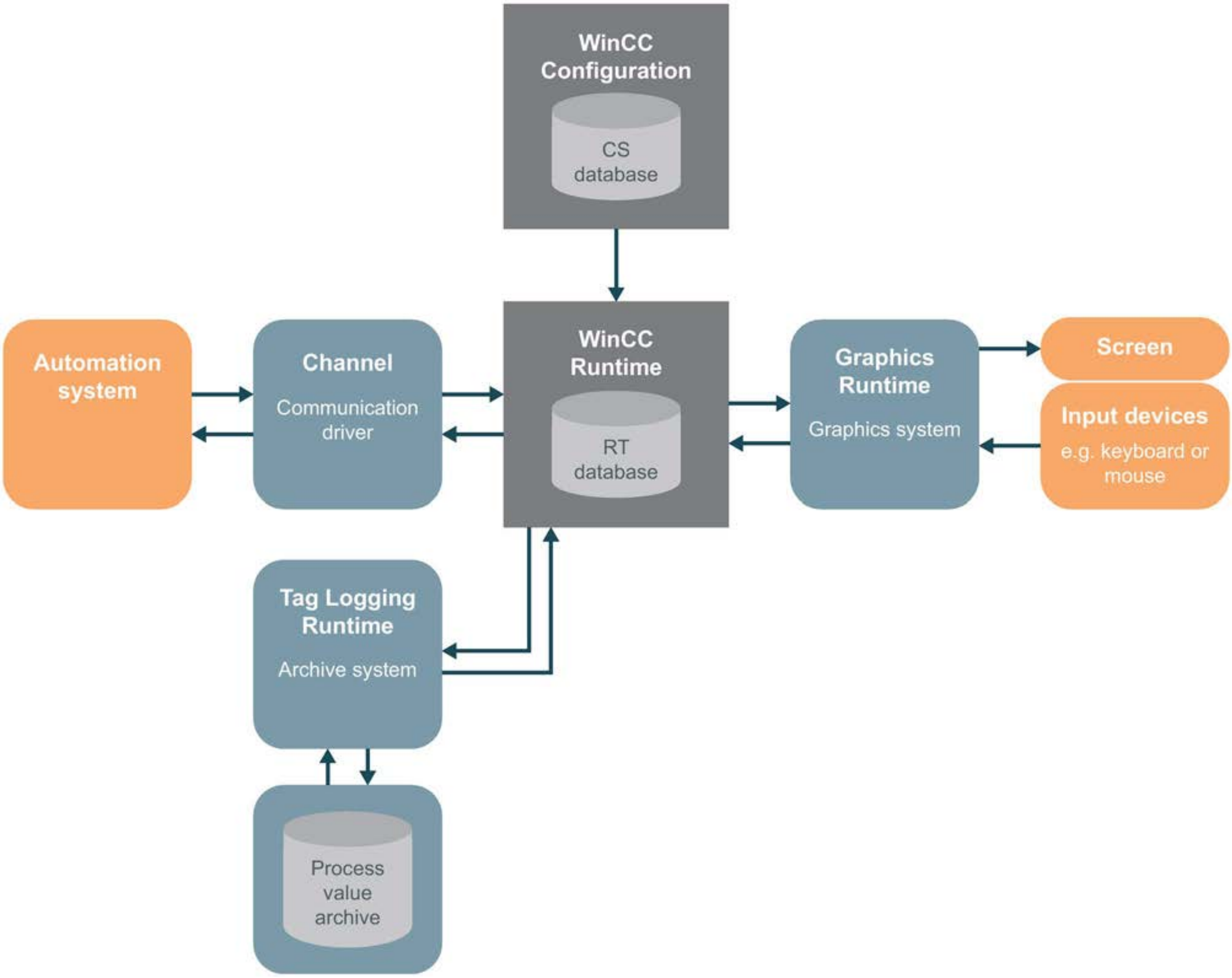
An archiving cycle and events are used to control archiving times.

Archiving of process values can be effected, for example, in constant time cycles or only when a process value changes by a certain amount or percentage.

Licensing

In the WinCC Basic System, it is possible to configure 512 archive tags without additional licensing.

Archiving in the WinCC system



7.3 Starting Tag Logging

Introduction

The following steps show how to start the editor "Tag Logging".

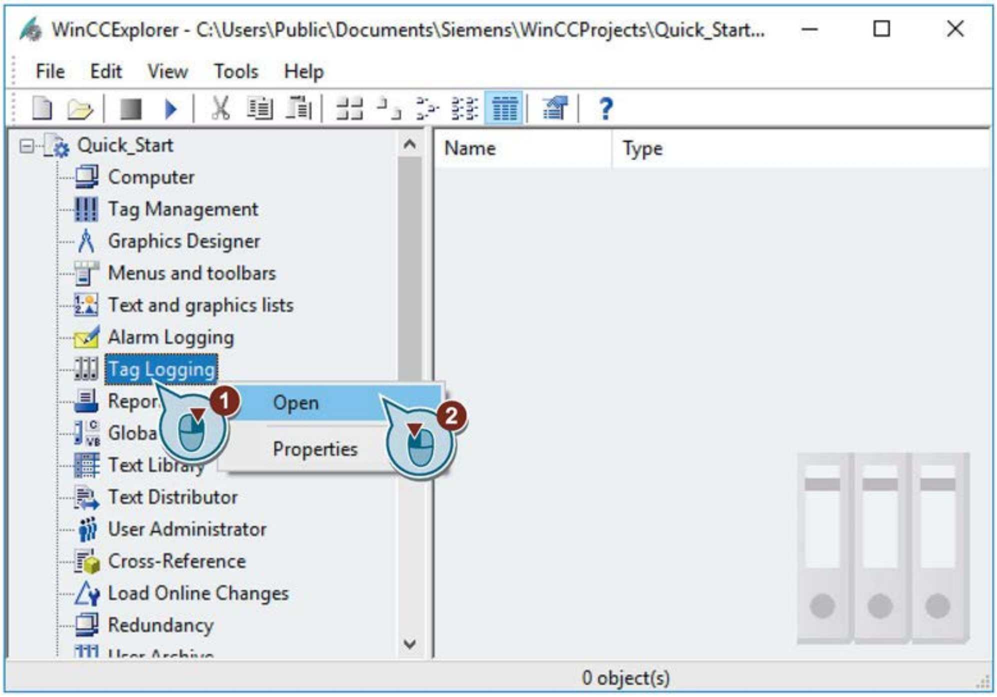
In the editor "Tag Logging" you will configure a process value archive as well as the times for the acquisition and archiving cycles.

Requirement

- The "Quick_Start" project is open.

Procedure

1. Start the "Tag Logging" editor.



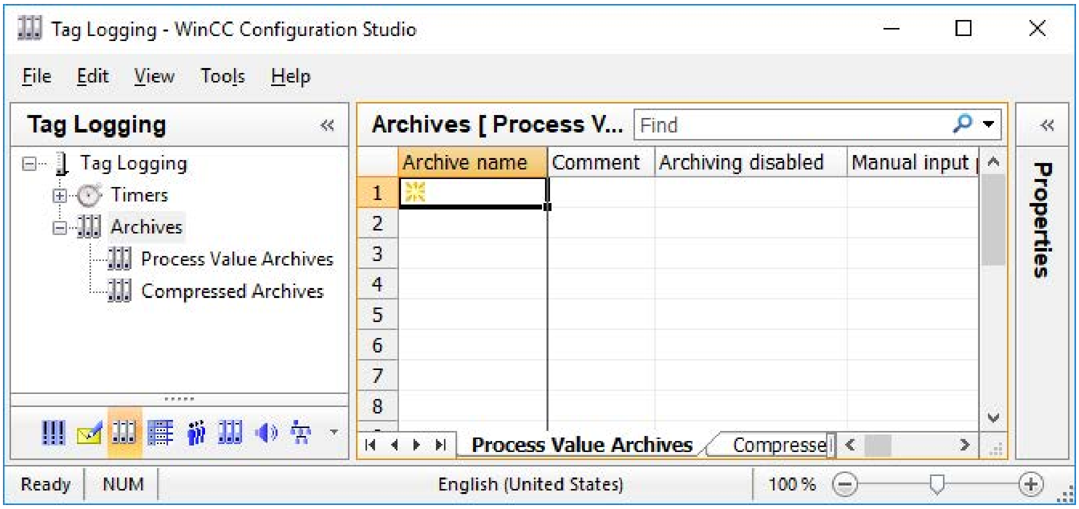
The "Tag Logging" editor opens.

Result

You have opened the "Tag Logging" editor.

In the next step you are going to use this editor to configure the acquisition and archiving cycle times. Based on the configured time, you will define the time interval for acquisition and archiving of the tag values.

You then create a process value archive in the editor.



	Archive name	Comment	Archiving disabled	Manual input
1	✳			
2				
3				
4				
5				
6				
7				
8				

7.4 Configuring Timers

Introduction

In the "Quick_Start" project, you will configure a new time for the acquisition and archiving cycles.

By this time, you will determine the time interval, in which the tag values are captured and archived.

Acquisition cycle

The acquisition cycle determines the interval at which the process value of a process tag is read.

The acquisition cycle starts as soon as WinCC Runtime is activated.

Archiving cycle

Archiving cycles are time intervals in which a process value is stored in the archive database.

- The archiving cycle is always an integer multiple of the configured acquisition cycle.
- The archiving cycle starts either when WinCC Runtime is activated or at a point in time defined by the user.

  The indication of a starting point allows the delayed archiving of the values and the distribution of the archiving load.

  The system may cause a delay between acquisition and archiving up to the length of one acquisition cycle.

The "Tag Logging" editor will offer you different standard times.

You are not permitted to change these times. If the standard times do not suffice, configure new times.

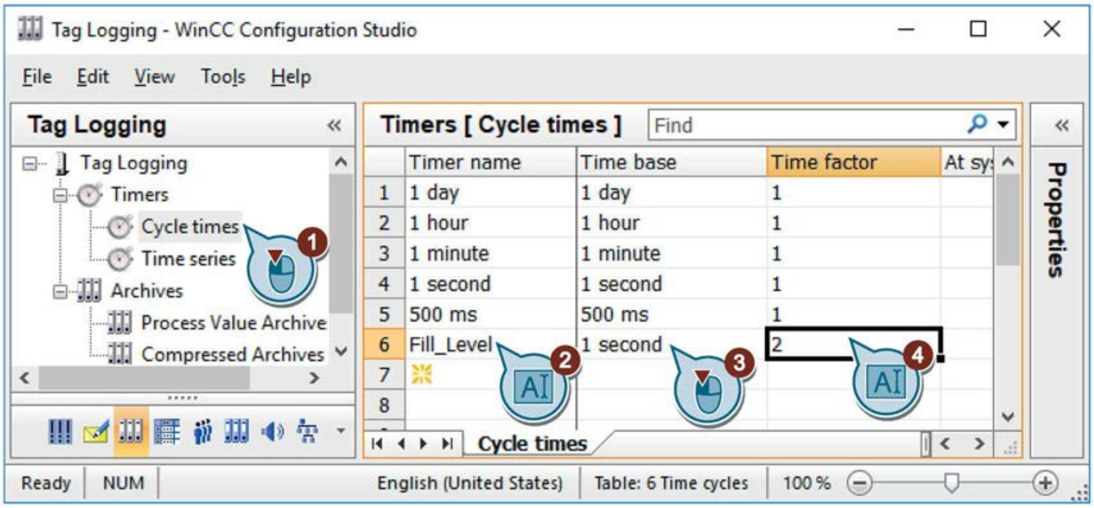
When configuring the times, you will define a time basis and a time factor. The product of the time basis and time factor determines the time distance between two archivings. For example, if you set 1 second as a time basis and 5 seconds as a time factor, the process values are archived every 5 seconds.

Requirement

- "Tag Logging" editor is open.

Procedure

1. Create the new cycle time "Fill_Level".
2. To create a new timer, click the top empty cell and enter a name in the "Timer name" column of the table pane.



	Timer name	Time base	Time factor	At sy
1	1 day	1 day	1	
2	1 hour	1 hour	1	
3	1 minute	1 minute	1	
4	1 second	1 second	1	
5	500 ms	500 ms	1	
6	Fill_Level	1 second	2	
7				
8				

Result

You have configured the new time "Fill_Level" for the acquisition and archiving cycles.

The configured time allows the acquisition and archiving of tag values every two seconds.

In order to archive the internal tags, you will create an archive in the next steps.

7.5 Creating Process Value Archive

Introduction

The following steps will show you how to create a process value archive for the "Quick_Start" project. The values of the internal tag "Tank_Level" are saved in this archive.

Archives are created in the "Tag Logging" editor.

When creating process value archives, you will also define the tags whose values are archived.

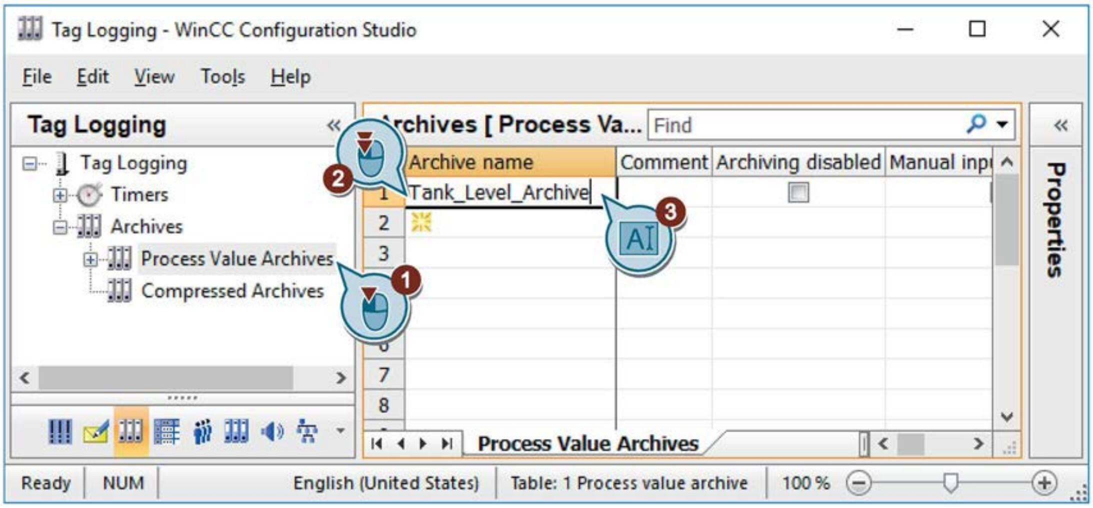
Once the tag has been defined, Tag Logging creates an archive tag in the process value archive. The values to be archived are saved in the archive tags.

Requirement

- "Tag Logging" editor is open.
- The "Tank_Level" tag is configured in tag management.

Procedure

1. In the "Tag Logging" editor navigation area, select the "Process Value Archives" folder.
2. Click in the top empty line in the "Archive name" column of the table area, and enter the name "Tank_Level_Archive".

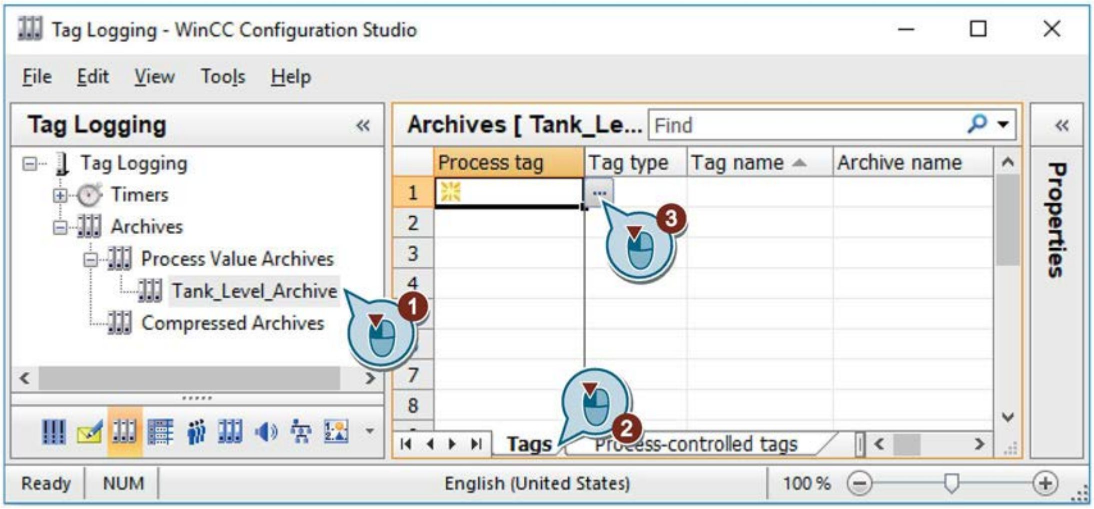


3. Select the folder of the archive in the navigation area.

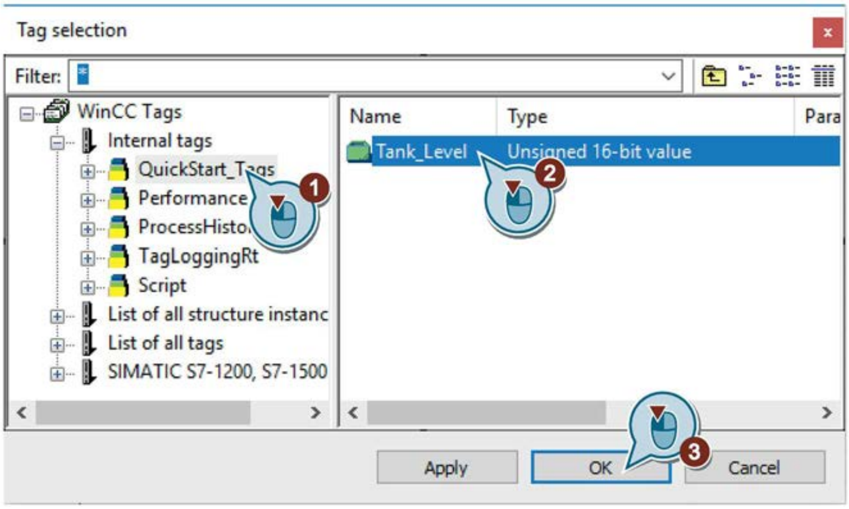
   Select the "Tags" tab in the table area.

4. Click in the top empty line in the "Process tag" column of the table and then on the "..." button.

   The dialog for selecting a tag opens.



5. Select the internal tag "Tank_Level" in the "QuickStart_Tags" tag group.



6. Close the dialog with "OK".

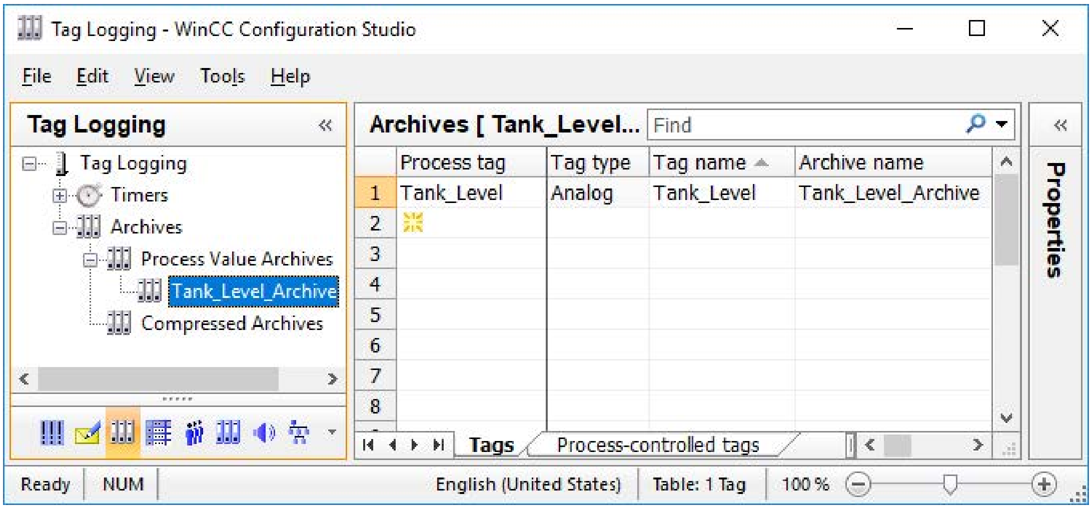
   The archive tag has been created. It adopts the name of the internal tag.

Result

You have created the "Tank_Level_Archive" process value archive.

The values of the internal tag "Tank_Level" are written to this process value archive.

In the next steps, you are going to edit the new process value archive.



	Process tag	Tag type	Tag name	Archive name
1	Tank_Level	Analog	Tank_Level	Tank_Level_Archive
2				
3				
4				
5				
6				
7				
8				

7.6 Editing the process value archive

Introduction

The following steps will show you how to edit the process value archive "Tank_Level_Archive".

The editing of the process value archive is carried out with the following steps:

- Renaming archive tag
- Assigning the configured time "Fill_Level" to the acquisition and archiving cycle
- Defining the saving location for the process value archive
- Defining the size of the process value archive

Select the main memory in the "Quick_Start" project as your saving location for the process value archive. The main memory provides the process value archives only in Runtime.

You can define the size of the process value archive by the number of data sets saved in the process value archive.

Requirement

- "Tag Logging" editor is open.
- You have created the process value archive "Tank_Level_Archive".

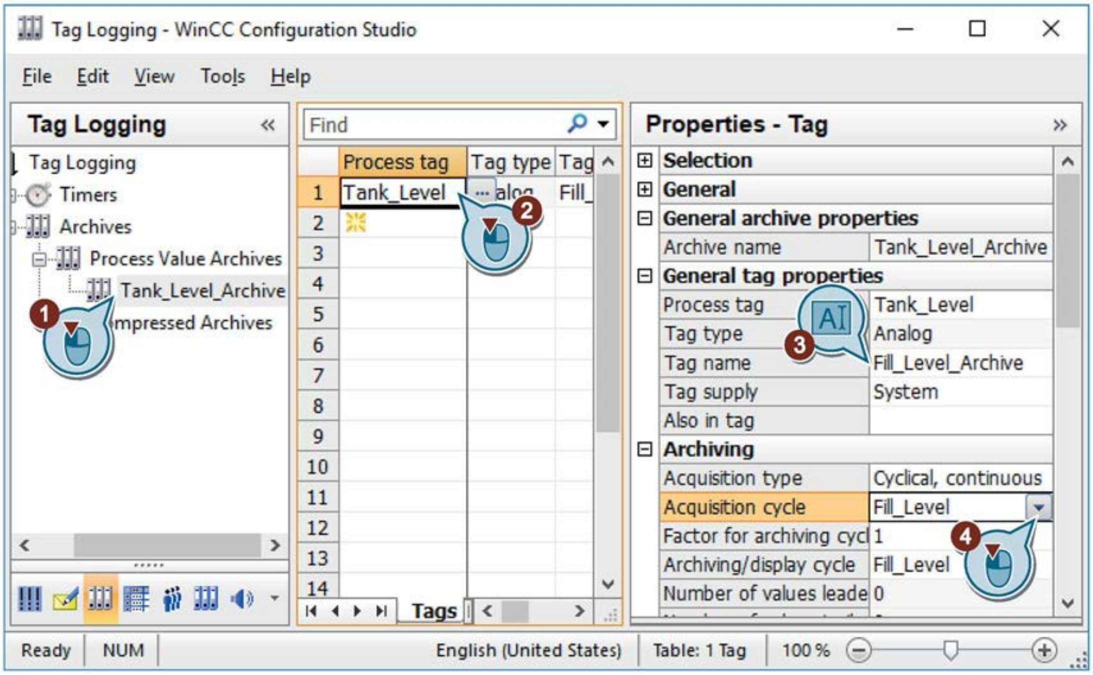
Procedure

1. Click in the table area in the line with the configured archive tag and open the "Properties" window via the « button.

   If necessary, enlarge the properties area.

2. Enter "Fill_Level_Archive" as archive tag name.

3. Assign the configured time "Fill_Level" to the acquisition and archiving cycle.



	Process tag	Tag type	Tag
1	Tank_Level	...alog	Fill_

Properties - Tag

- Selection
- General
- General archive properties

Archive name	Tank_Level_Archive

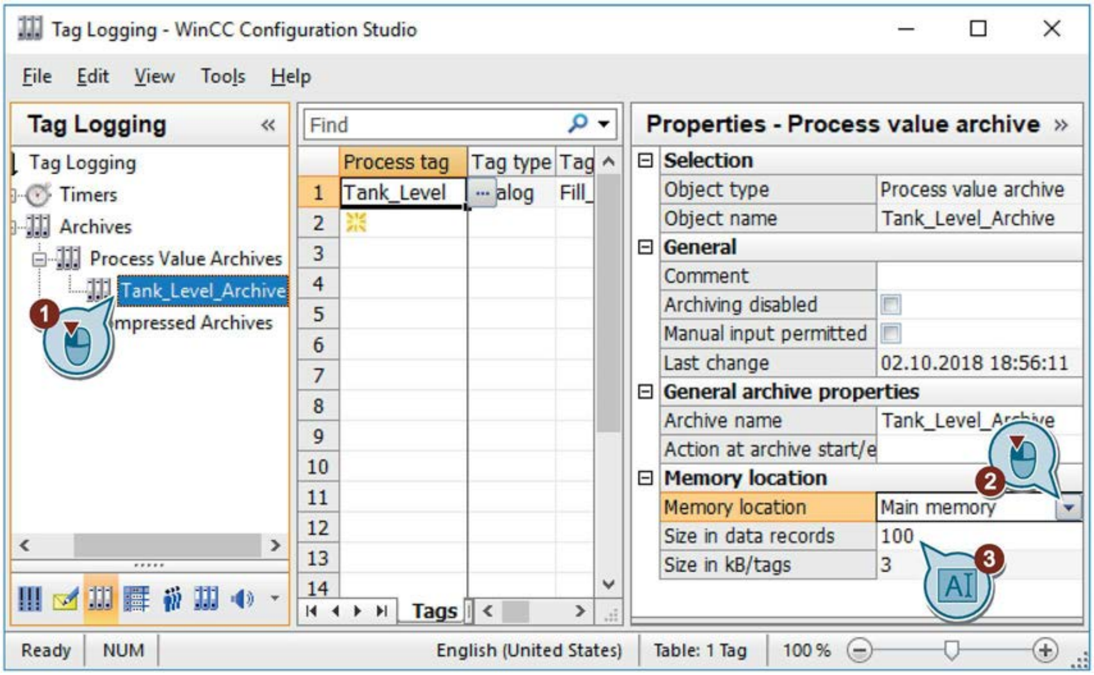
- General tag properties

Process tag	Tank_Level
Tag type	Analog
Tag name	Fill_Level_Archive
Tag supply	System
Also in tag	

- Archiving

Acquisition type	Cyclical, continuous
Acquisition cycle	Fill_Level
Factor for archiving cycl	1
Archiving/display cycle	Fill_Level
Number of values leade	0

4. Click in the navigation area on the created process value archive "Tank_Level_Archive".
5. Define the memory location and the size of the process value archive "Tank_Level_Archive".



	Process tag	Tag type	Tag
1	Tank_Level	alog	Fill_
2			

Properties - Process value archive

Selection	
Object type	Process value archive
Object name	Tank_Level_Archive
General	
Comment	
Archiving disabled	□
Manual input permitted	□
Last change	02.10.2018 18:56:11
General archive properties	
Archive name	Tank_Level_Archive
Action at archive start/e	
Memory location	
Memory location	Main memory
Size in data records	100
Size in kB/tags	3

6. Close the "Tag Logging" editor.

Result

You have edited the process value archive.

The values of the internal tag "Tank_Level" are acquired every two seconds and are saved in the archive tag "Fill_Level_Archive".

The tag values are archived in the main memory and are only available in Runtime.

In order to output the saved values as a trend in Runtime, you will configure a trend window in the "Graphics Designer" editor in the next steps.

7.7 Configuring the Process Screen

7.7.1 Configuring the process picture (archive system)

Introduction

This section offers a description how to configure a process picture, which displays the output values from the process value archive.

Principle

You configure the process picture in the "Graphics Designer" editor.

For this, you will use the following objects:

- WinCC OnlineTrendControl

  The "WinCC OnlineTrendControl" object is used to create a trend window.

  In the trend window, the values from the process value archive are output as a trend.
- WinCC OnlineTableControl

  The "WinCC OnlineTableControl" object is used to create a table window.

  In the table window, the values from the process value archive are output as a table.

Each output takes place in Runtime.

7.7.2 Configuring a trend window

Introduction

The following steps will show you how to configure a trend window.

You will configure the trend window in the editor "Graphics Designer".

For this, you will create a new process picture. Insert the object "WinCC OnlineTrendControl" into the process picture.

In the "Quick_Start" project you will connect this object with the archive tag "Fill_Level_Archive".

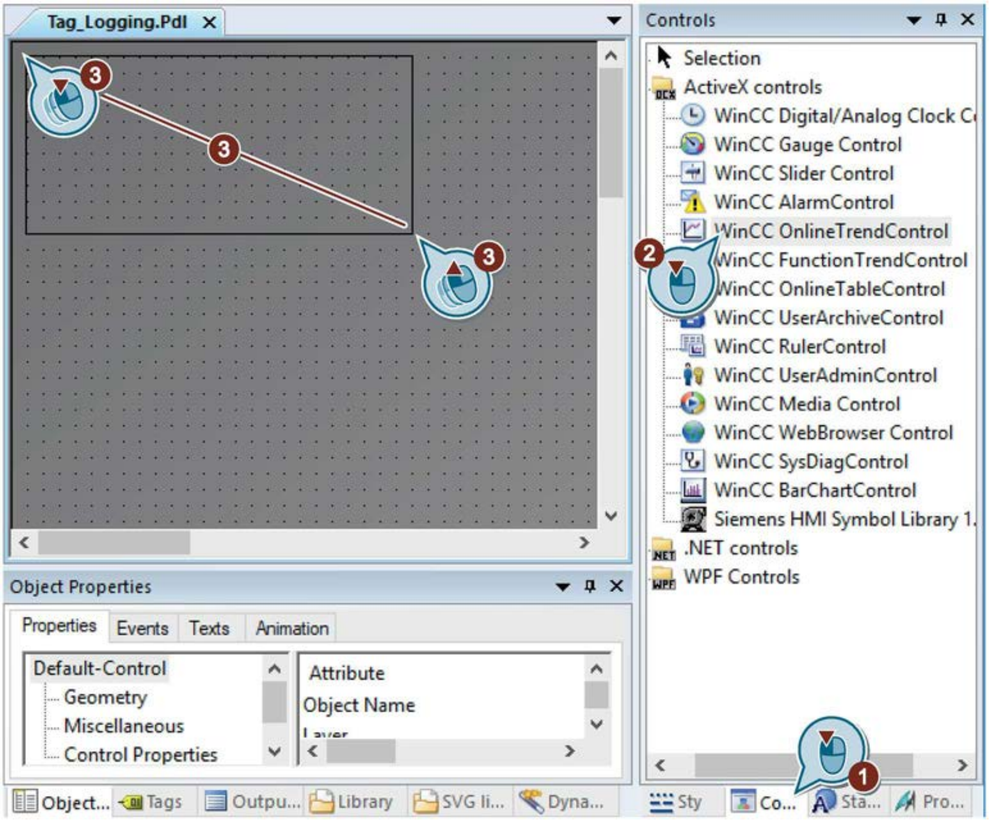
Hence, the values saved in the archive tag in Runtime are output as a trend.

Requirement

- You have created the process value archive "Tank_Level_Archive".

Procedure

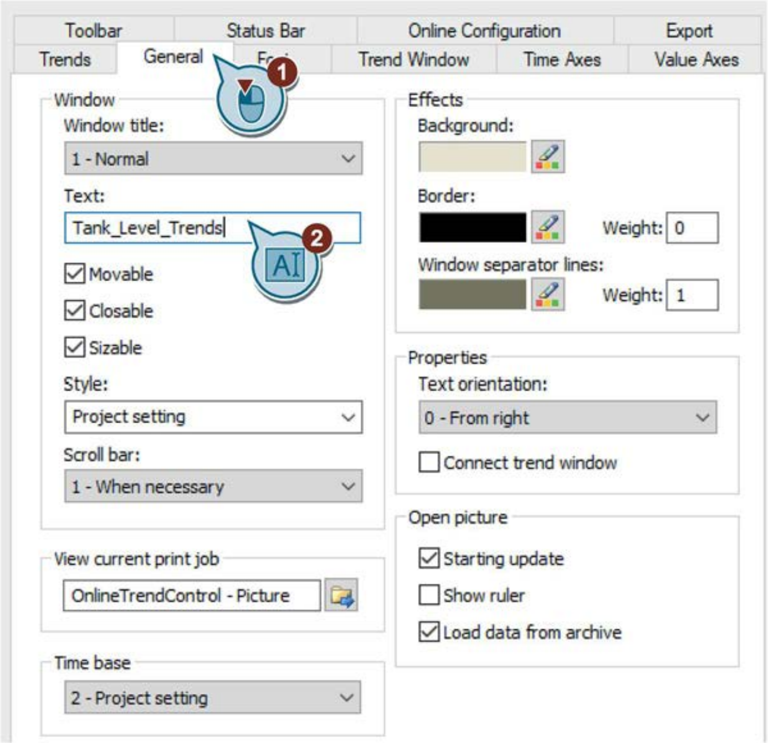
1. Create a new process picture named "Tag_Logging.pdl" and open it in the "Graphics Designer" editor.
2. From the "Controls" window, insert the "WinCC OnlineTrendControl" object into the "Tag_Logging.pdl" process picture.



The trend window will appear on the work surface in the editor "Graphics Designer".

The "Properties of WinCC OnlineTrendControl" dialog opens.

3. Enter "Tank_Level_Trends" as title for the trend window and apply the default settings.



Window

Window title: 1 - Normal

Text: Tank_Level_Trends

☑ Movable

☑ Closable

☑ Sizable

Style: Project setting

Scroll bar: 1 - When necessary

View current print job

OnlineTrendControl - Picture

Time base

2 - Project setting

Effects

Background:

Border: Weight: 0

Window separator lines: Weight: 1

Properties

Text orientation: 0 - From right

☐ Connect trend window

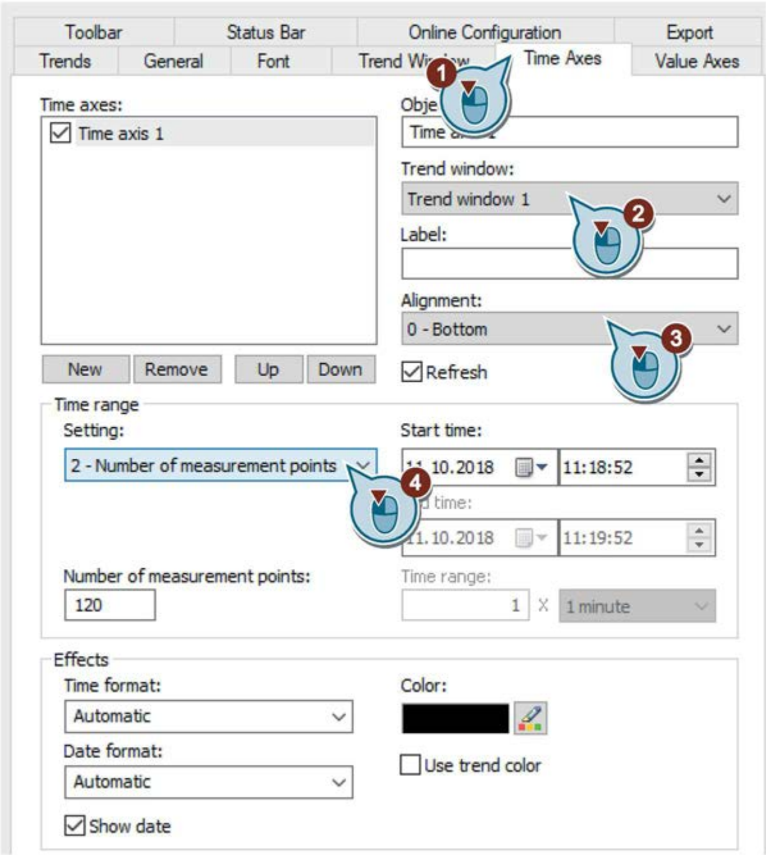
Open picture

☑ Starting update

☐ Show ruler

☑ Load data from archive

4. Define the settings for the time axes.



Time axes:
☑ Time axis 1

Obje
Time a 1

Trend window:
Trend window 1

Label:

Alignment:
0 - Bottom

☑ Refresh

Time range

Setting:
2 - Number of measurement points

Start time:
1 10.2018 11:18:52

d time:
1.10.2018 11:19:52

Number of measurement points:
120

Time range:
1 X 1 minute

Effects

Time format:
Automatic

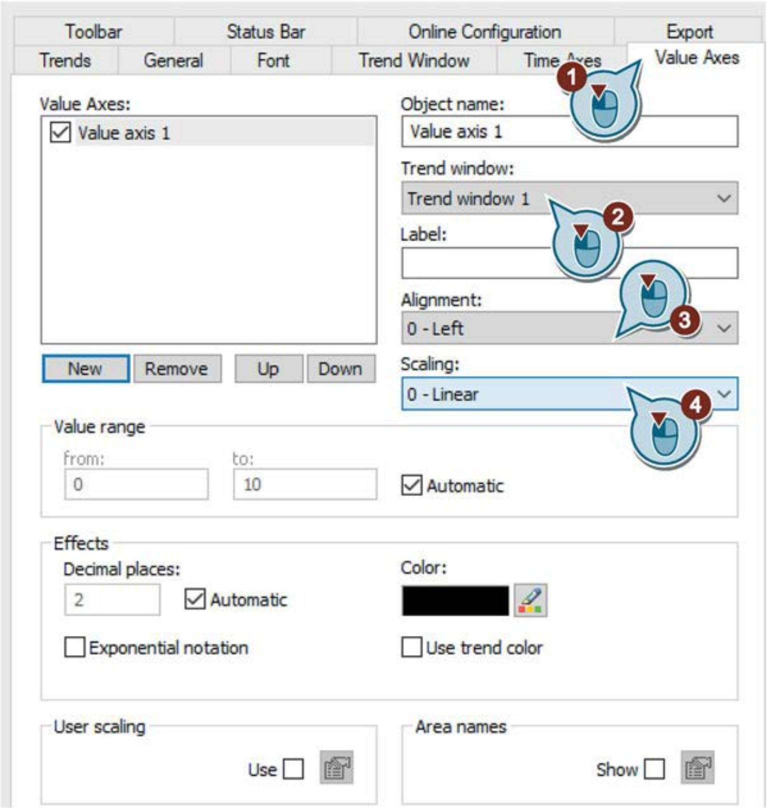
Date format:
Automatic

☑ Show date

Color:
■

□ Use trend color

5. Define the settings for the value axes.



Value Axes:
☑ Value axis 1

Object name: Value axis 1

Trend window: Trend window 1

Label:

Alignment: 0 - Left

Scaling: 0 - Linear

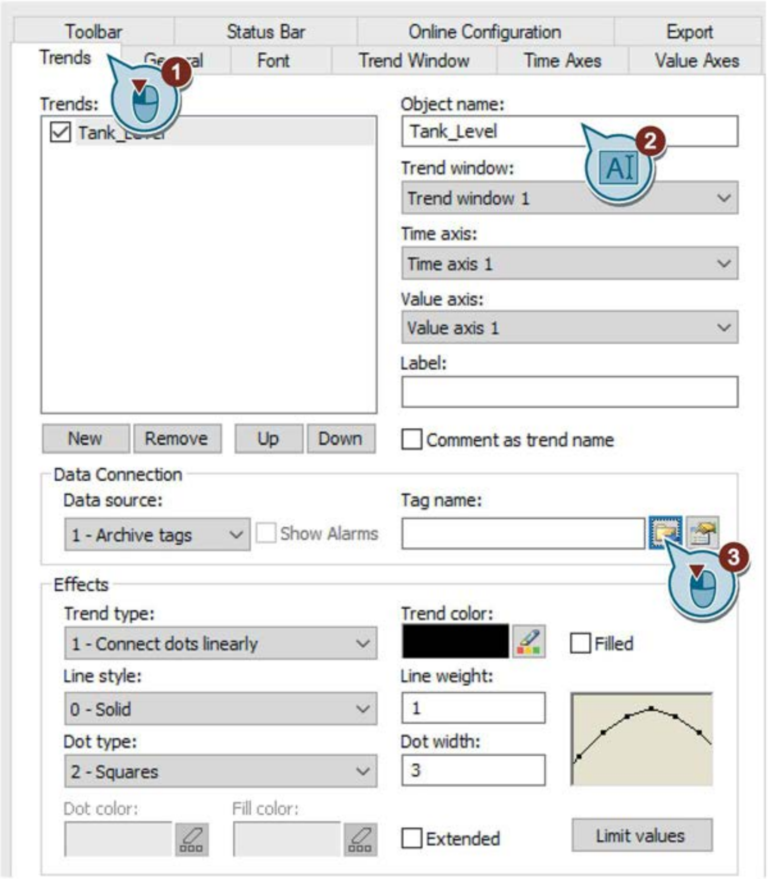
Value range
from: 0
to: 10
☑ Automatic

Effects
Decimal places: 2 ☑ Automatic
☐ Exponential notation
Color:
☐ Use trend color

User scaling
Use ☐

Area names
Show ☐

6. Enter the trend name "Tank_Level" and then click .



Trends: ☑ Tank_Level

Object name: Tank_Level

Trend window: Trend window 1

Time axis: Time axis 1

Value axis: Value axis 1

Label:

☐ Comment as trend name

Data Connection

Data source: 1 - Archive tags ☐ Show Alarms

Tag name:

Effects

Trend type: 1 - Connect dots linearly

Trend color: ☐ Filled

Line style: 0 - Solid

Line weight: 1

Dot type: 2 - Squares

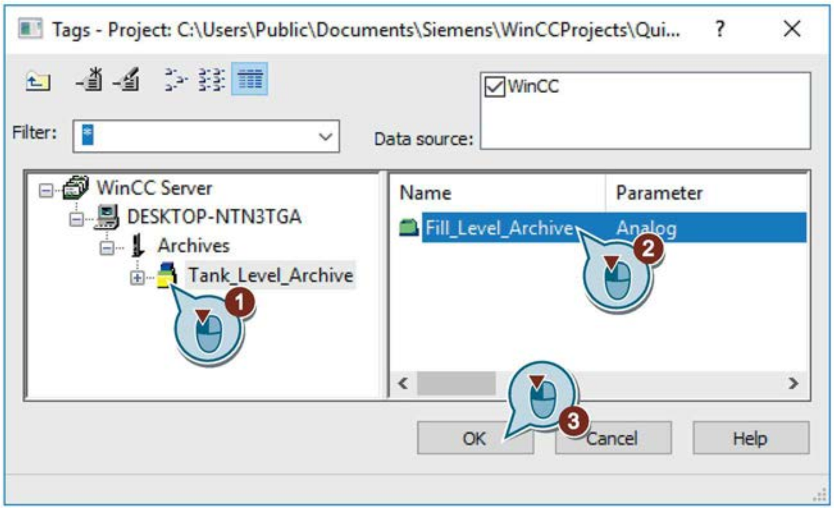
Dot width: 3

Dot color: Fill color: ☐ Extended

The dialog for selecting tags opens.

7. Select the "Fill_Level_Archive" archive tag in the "Tags" dialog.

   To display the tags, you may need to select the "WinCC Tags" option in the "Data source" area.



Tags - Project: C:\Users\Public\Documents\Siemens\WinCCProjects\Qui...

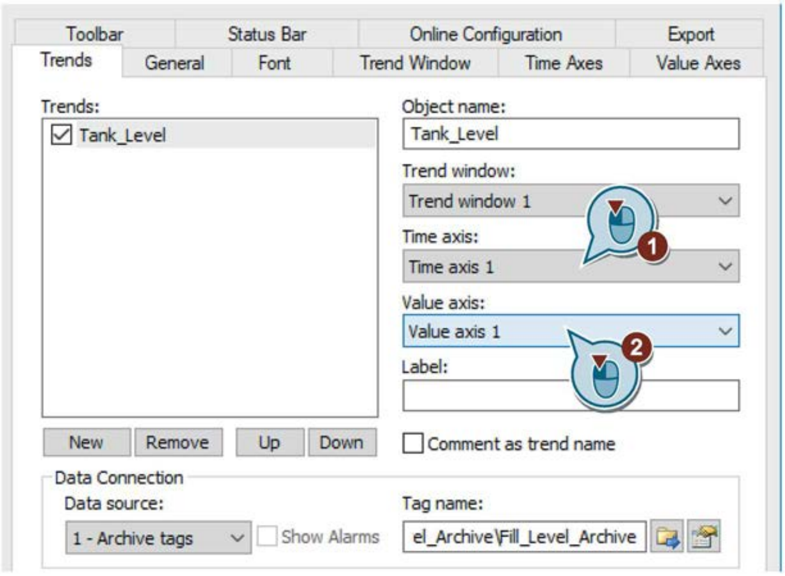
Filter: *

Data source: ☑ WinCC

WinCC Server
DESKTOP-NTN3TGA
Archives
Tank_Level_Archive

Name	Parameter
Fill_Level_Archive	Analog

8. Select a time axis and a value axis.



Trends:
☑ Tank_Level

Object name: Tank_Level

Trend window: Trend window 1

Time axis: Time axis 1

Value axis: Value axis 1

Label:

□ Comment as trend name

Data Connection

Data source: 1 - Archive tags

□ Show Alarms

Tag name: el_Archive\Fill_Level_Archive

9. Click "OK" to close the dialog box and to apply the settings.

10. Save the process picture "TagLogging.pdl".

Alternative procedure

1. Create a new process picture named "Tag_Logging.pdl" and open it in the "Graphics Designer" editor.
2. Select the line with the archive tags "Fill_Level_Archive" in the table pane of the "Tag Logging" editor.

   Move the mouse to the edge of the selection rectangle.

   The cursor changes from a "+" to a cross.
3. Keep the left mouse button pressed while you drag the tag selection to an empty area of the picture in the Graphics Designer.
4. Release the mouse button in the picture.

   A WinCC OnlineTrendControl is created.

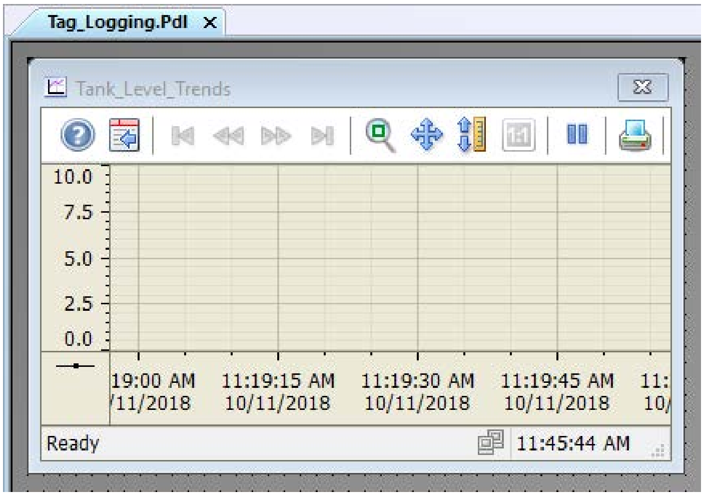
   The created Control contains a trend with the data connection of the selected archive tag "Fill_Level_Archive".
5. Continue with steps 3 to 5 and 8, as described in the above procedure.

Result

You have configured the trend window "Tank_Level_Trends".

In Runtime, this window outputs the values that are saved in the "Fill_Level_Archive" archive tag as a trend.

In order to output the values saved in the archive tag as a table in Runtime,
you will configure a table window in the "Graphics Designer" editor in the next steps.



7.7.3 Configuring a table window

Introduction

The following steps will show you how to configure a table window.

You will configure the table window in the editor "Graphics Designer".
For this, you will use the process picture "Tag_Logging.pdl".

Insert the object "WinCC OnlineTableControl" into the process picture.

In the "Quick_Start" project you will connect this object with the archive tag "Fill_Level_Archive".

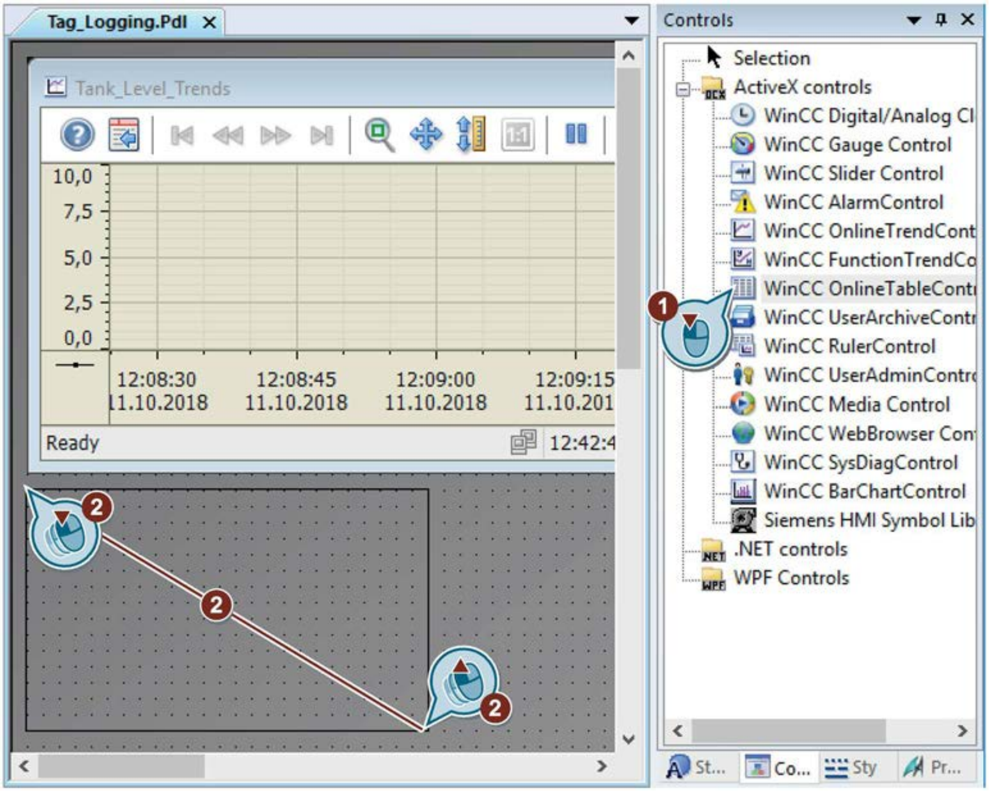
Hence, the values saved in the archive tag in Runtime are output as a table.

Requirement

- You have created the process value archive "Tank_Level_Archive".
- The process picture "Tag_Logging.pdl" is open.

Procedure

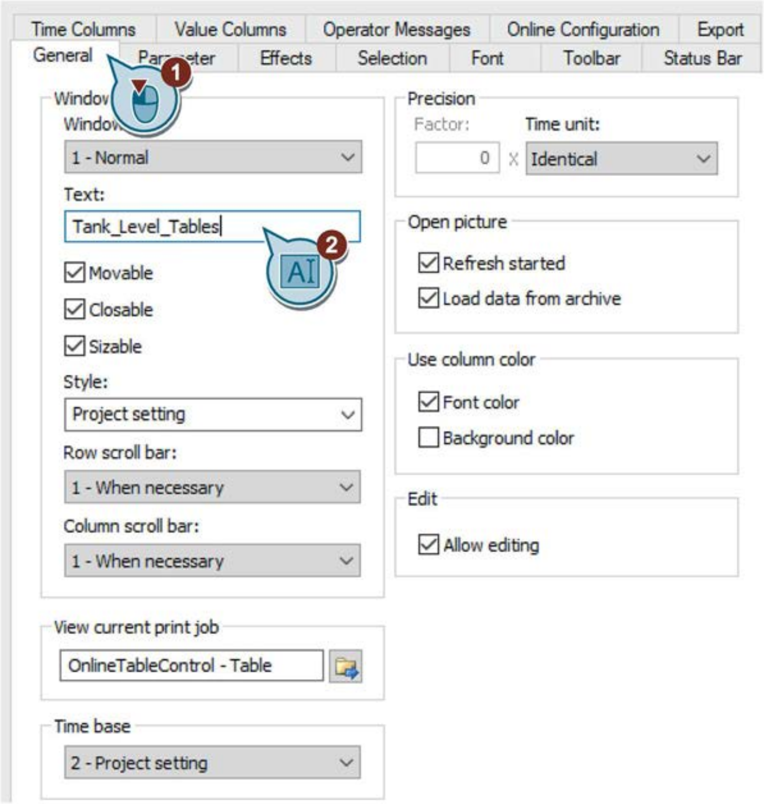
1. Insert the "WinCC OnlineTableControl" object into the "Tag_Logging.pdl" process picture.



The table window will appear on the work surface in the editor "Graphics Designer".

The "Properties of WinCC OnlineTableControl" dialog opens.

2. Enter the name "Tank_Level_Tables" for the table window.



Window
Window:
1 - Normal
Text:
Tank_Level_Tables
☑ Movable
☑ Closable
☑ Sizable
Style:
Project setting
Row scroll bar:
1 - When necessary
Column scroll bar:
1 - When necessary

View current print job
OnlineTableControl - Table

Time base
2 - Project setting

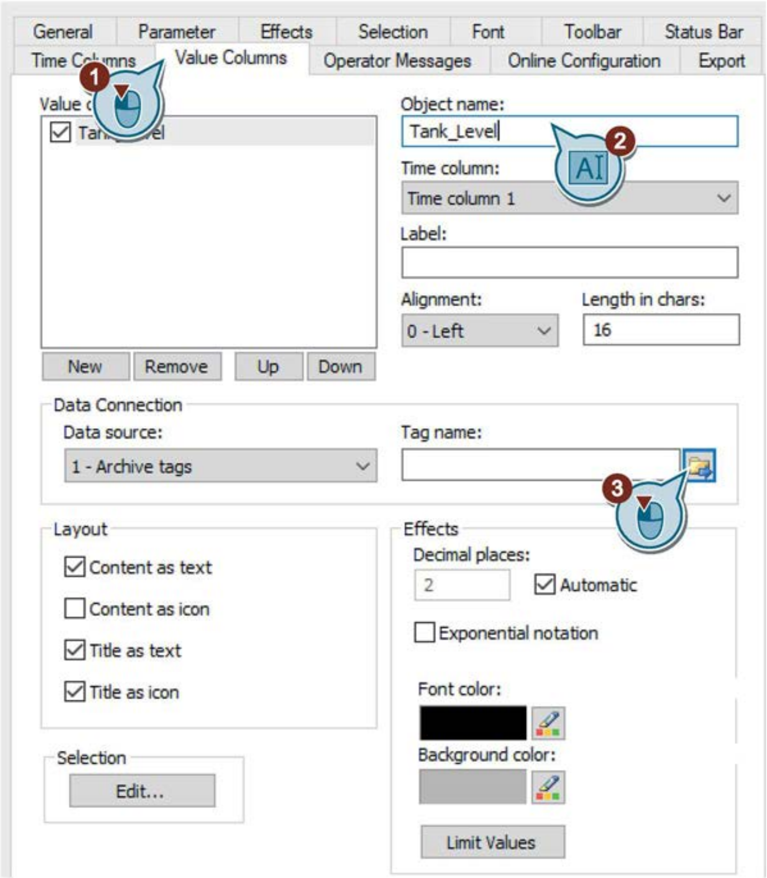
Precision
Factor: 0 X Time unit: Identical

Open picture
☑ Refresh started
☑ Load data from archive

Use column color
☑ Font color
☐ Background color

Edit
☑ Allow editing

3. Enter the name "Tank_Level" for the value column and then click .



Value columns: ☑ Tank_Level

Object name: Tank_Level

Time column: Time column 1

Label:

Alignment: 0 - Left

Length in chars: 16

Data Connection

Data source: 1 - Archive tags

Tag name:

Layout

☑ Content as text

☐ Content as icon

☑ Title as text

☑ Title as icon

Selection

Effects

Decimal places: 2 ☑ Automatic

☐ Exponential notation

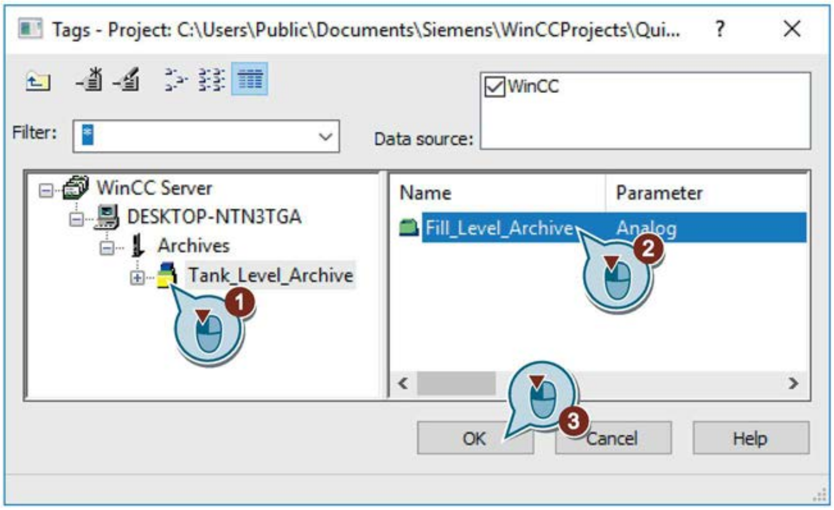
Font color: ■

Background color: ▨

The dialog for archive tag selection opens.

4. Select the "Fill_Level_Archive" archive tag in the "Tags" dialog.

   To display the tags, you may need to select the "WinCC Tags" option in the "Data source" area.



Tags - Project: C:\Users\Public\Documents\Siemens\WinCCProjects\Qui...

Filter: *

Data source: ☑ WinCC

WinCC Server
DESKTOP-NTN3TGA
Archives
Tank_Level_Archive

Name	Parameter
Fill_Level_Archive	Analog

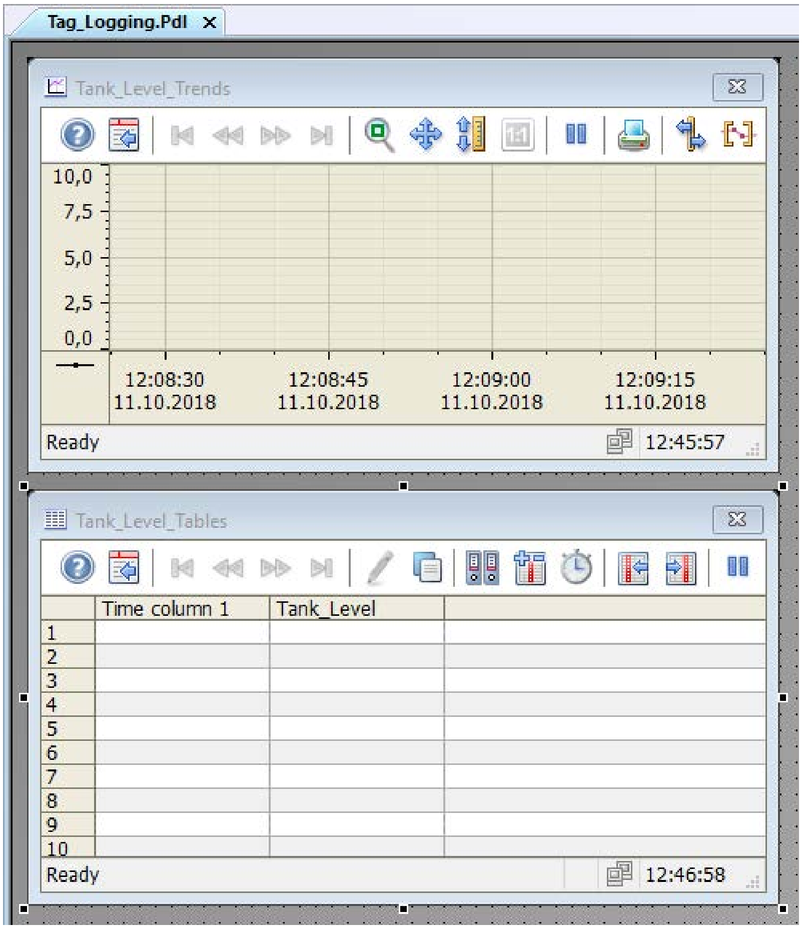
5. Click "OK" to close the "Properties of WinCC OnlineTableControl" dialog.
6. Save the process picture "Tag_Logging.pdl".
7. Close the Graphics Designer.

Result

You have configured the table window "Tank_Level_Tables".

In Runtime, this window outputs the values, which are saved in the "Fill_Level_Archive" archive tag as a table.

In order to view the output values in Runtime, you will define the properties of WinCC Runtime in the next steps.



	Time column 1	Tank_Level	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

7.8 Customizing the user-defined menu (archiving system)

Introduction

The following steps show you how to add the "Tag Logging" menu item to the customized "Picture Change" menu.

You will link the menu entry "Tag Logging" with the procedure "ActivatePicture(ByVal PictureName)".

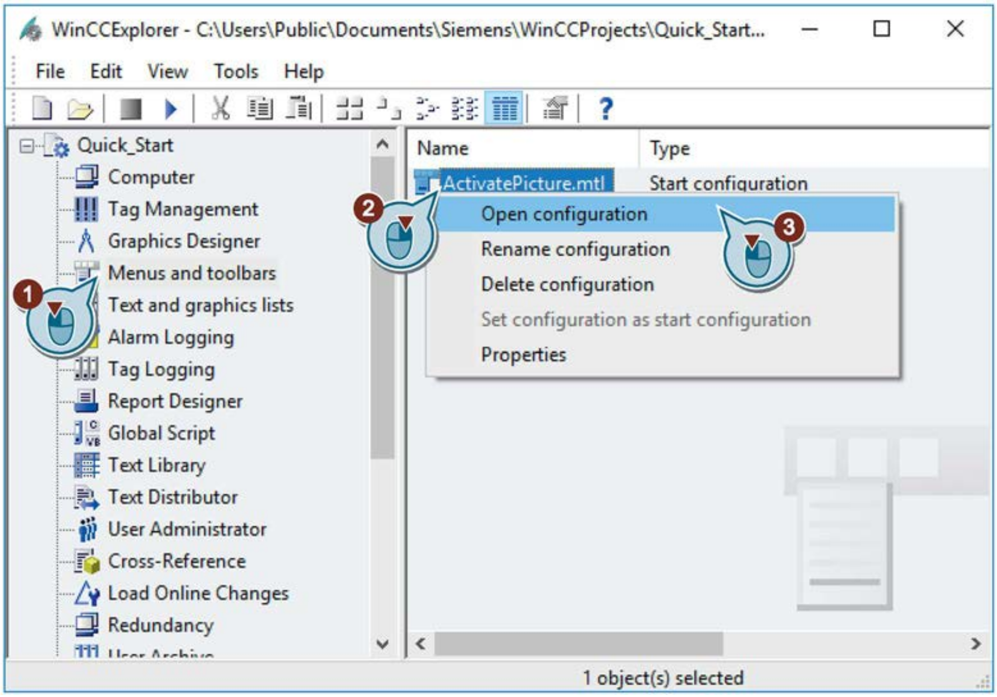
Enter the name of the process picture that you wish to change to in the field "User data".

Requirement

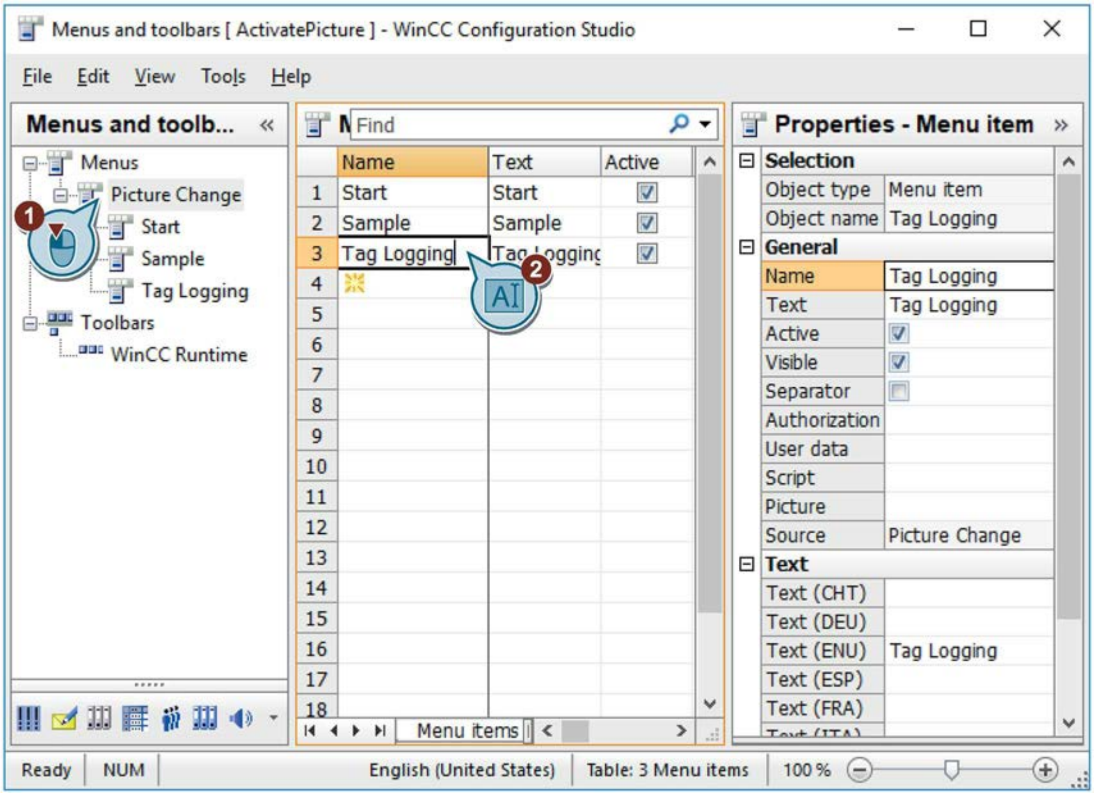
- The procedure "ActivatePicture(ByVal PictureName)" has been created.
- The customized "Picture Change" menu has been created for the process pictures "START.pdl" and "SAMPLE.pdl".

Procedure

1. Open the saved configuration "ActivatePicture.mtl" in the "Menus and toolbars" editor.



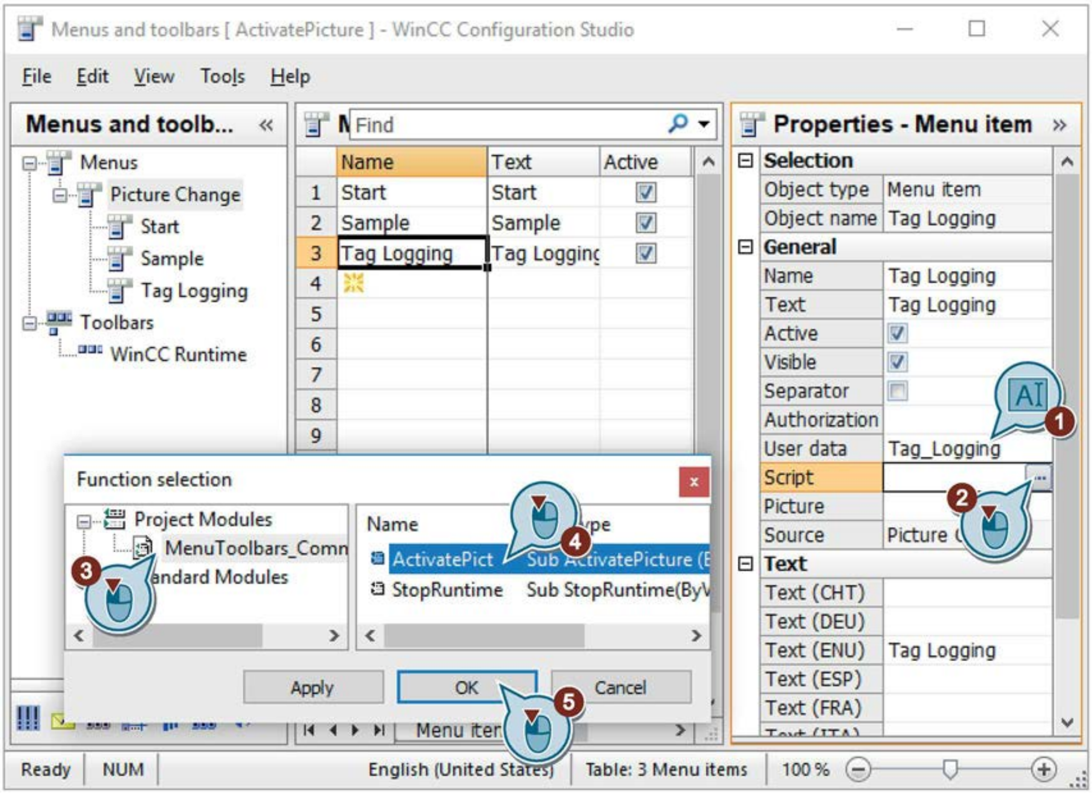
2. Create the "Tag Logging" menu command.



	Name	Text	Active
1	Start	Start	☑
2	Sample	Sample	☑
3	Tag Logging	Tag Logging	☑
4			

Property	Value
Selection	
Object type	Menu item
Object name	Tag Logging
General	
Name	Tag Logging
Text	Tag Logging
Active	☑
Visible	☑
Separator	☐
Authorization	
User data	
Script	
Picture	
Source	Picture Change
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Tag Logging
Text (ESP)	
Text (FRA)	

3. Configure the "Tag Logging" menu command for changing to the "Tag_Logging.pdl" picture.



Menus and toolbars [ActivatePicture] - WinCC Configuration Studio

File Edit View Tools Help

Menus and toolb...

- Menus
  - Picture Change
    - Start
    - Sample
    - Tag Logging
- Toolbars
  - WinCC Runtime

	Name	Text	Active
1	Start	Start	☑
2	Sample	Sample	☑
3	Tag Logging	Tag Logginç	☑
4			
5			
6			
7			
8			
9			

Properties - Menu item

Selection	
Object type	Menu item
Object name	Tag Logging
General	
Name	Tag Logging
Text	Tag Logging
Active	☑
Visible	☑
Separator	☐
Authorization	
User data	Tag_Logging
Script	
Picture	
Source	Picture (
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Tag Logging
Text (ESP)	
Text (FRA)	

Function selection

- Project Modules
  - MenuToolbars_Comm
- andard Modules

Name	ype
ActivatePict	Sub ActivatePicture (E
StopRuntime	Sub StopRuntime(ByV

Apply OK Cancel

Ready NUM English (United States) Table: 3 Menu items 100 %

4. Save the changes in the "Menus and toolbars" editor.

5. Close the "Menus and toolbars" editor.

Result

You have added the "Tag Logging" menu item to the "Picture Change" menu.

With the menu entries you can switch to the process pictures "START.pdl", "SAMPLE.pdl" and "Tag_Logging.pdl" in runtime.

7.9 Defining Runtime properties (archiving system)

Introduction

The following steps will show you how to define the properties for WinCC Runtime.

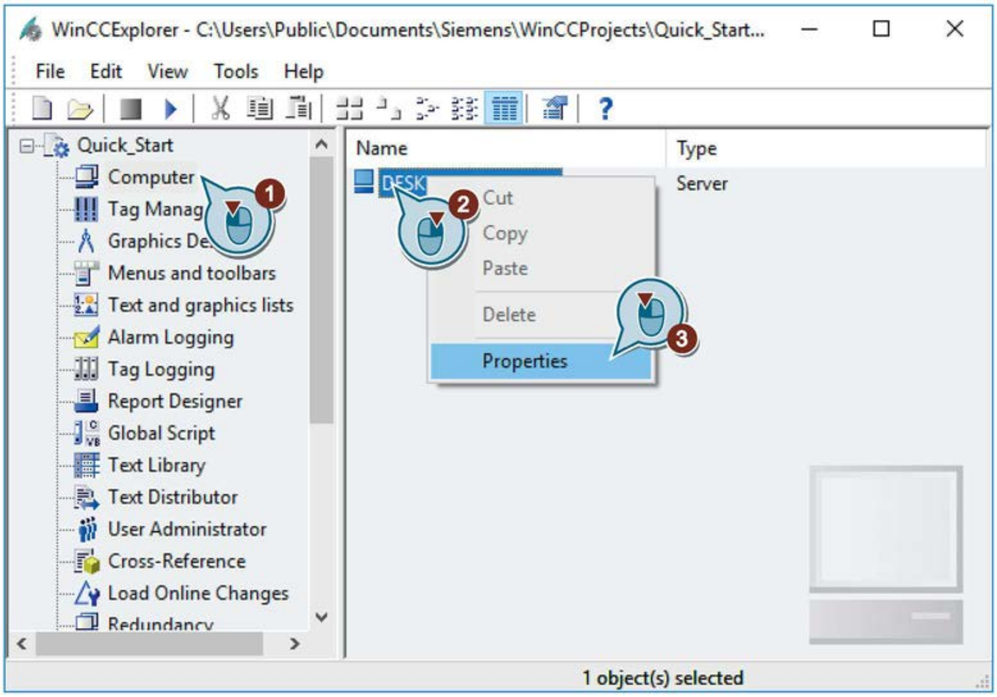
In this section, you will set up WinCC Runtime so that Tag Logging Runtime is executed when the project is activated. Set the "Tag_Logging.pdl" process picture as start picture for the Runtime window.

Requirement

- The "Quick_Start" project is open.
- The process picture "Tag_Logging.pdl" has been created.

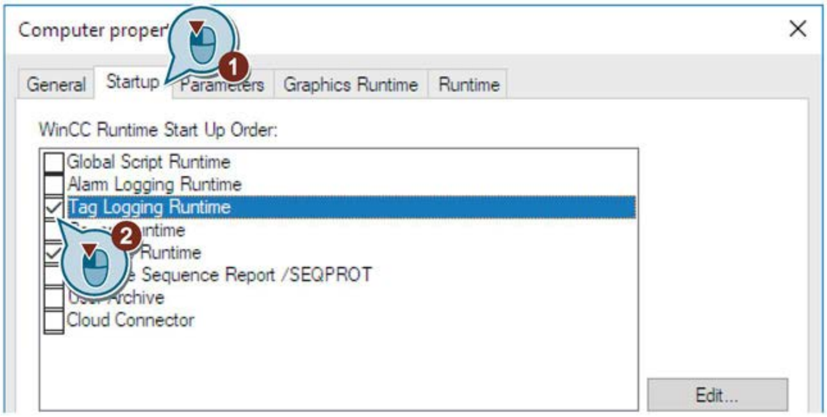
Procedure

1. Open the "Computer Properties" dialog.



The "Computer Properties" dialog opens.

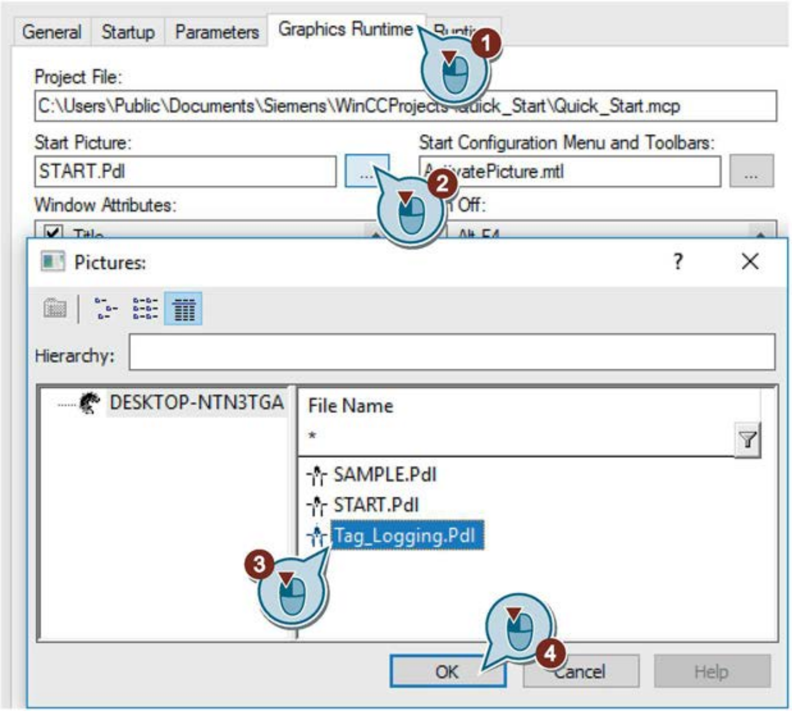
2. Click the "Startup" tab and activate the "Tag Logging Runtime" application.



WinCC Runtime Start Up Order:

☐ Global Script Runtime
☐ Alarm Logging Runtime
☑ Tag Logging Runtime
☐ ntime
☑ Runtime
☐ Sequence Report /SEQPROT
☐ User Archive
☐ Cloud Connector

3. In the "Graphics Runtime" tab, define the process picture "Tag_Logging.pdl" as the start picture.



Project File: C:\Users\Public\Documents\Siemens\WinCCProjects\Quick_Start\Quick_Start.mcp

Start Picture: START.Pdl

Start Configuration Menu and Toolbars: ActivatePicture.mtl

Window Attributes:

☑ Title

Off: Alt F4

SAMPLE.Pdl
START.Pdl
Tag_Logging.Pdl

4. Exit the "Computer Properties" dialog by clicking "OK".

Result

You have defined the WinCC Runtime properties. When activating the "Quick_Start" project, Tag Logging Runtime is executed and the process picture "Tag_Logging.pdl" will be displayed.

In the next steps you will activate and test the project "Quick_Start".

7.10 Activating and testing the project (archiving system)

Introduction

The following steps will show you how to activate and test configurations in the "Quick_Start" project.

The WinCC Tag Simulator assigns values to the internal tag "Tank_Level" in Runtime.

These values are acquired every two seconds in the "Quick_Start" project and saved in the archive tag "Fill_Level_Archive".

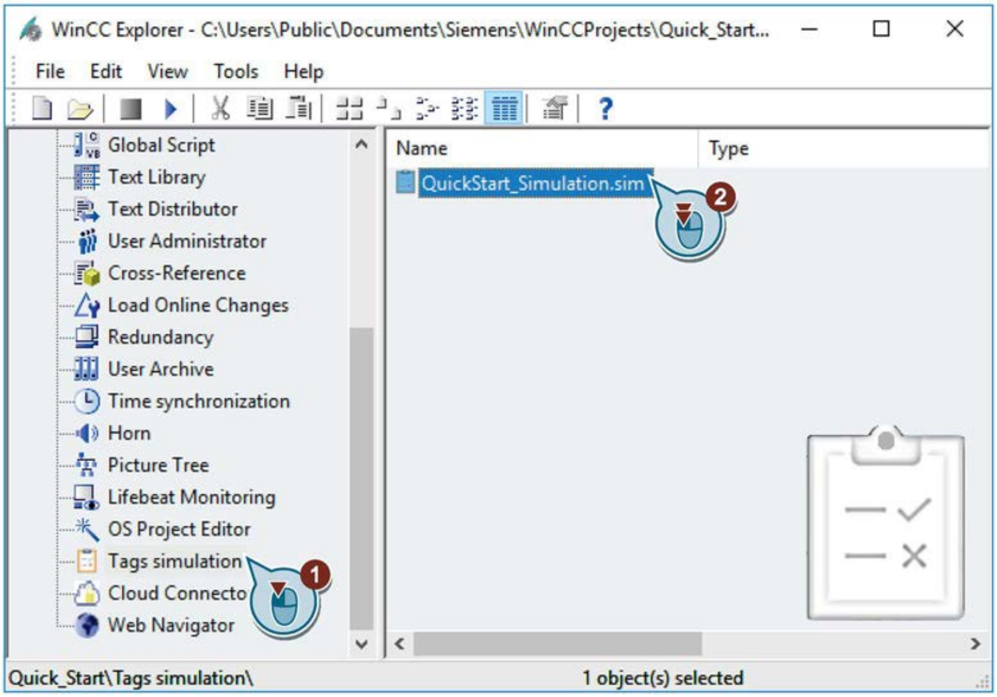
Tag Logging Runtime reads the archives values and transfers them to the trend window and the table window. The values are output as a trend and as a table.

Requirement

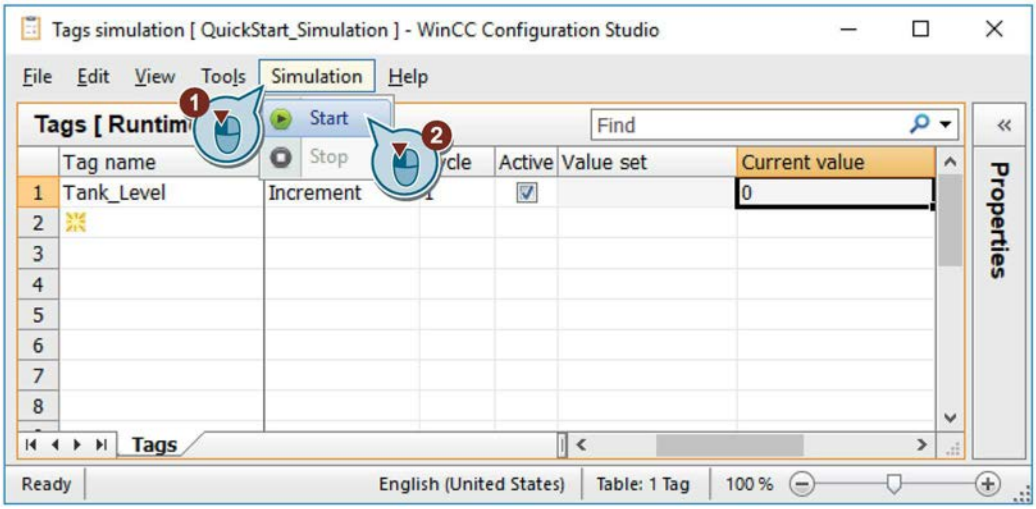
- The Runtime properties are defined.

Procedure

1. Open the "QuickStart_Simulation.sim" configuration in the "Tag Simulation" editor.

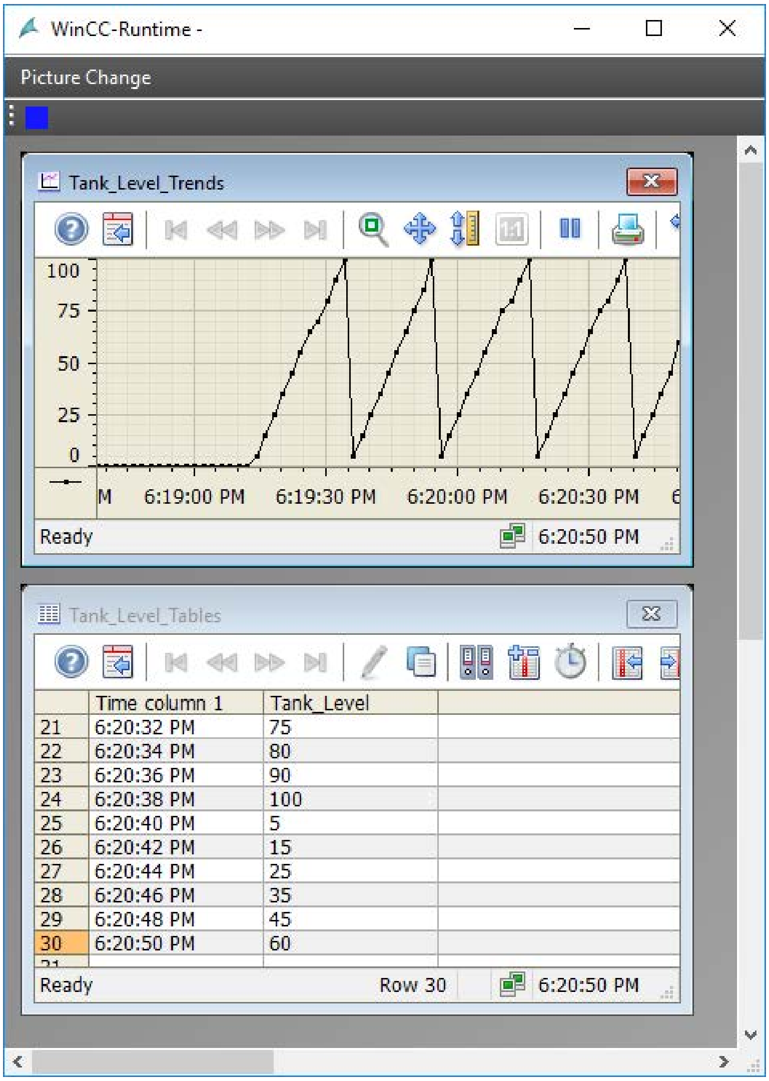


2. Activate WinCC Runtime in the WinCC Explorer using the ▶ button.
3. Start the simulation in the "Tag Simulation" editor.



	Tag name		ycle	Active	Value set	Current value
1	Tank_Level	Increment	1	☑		0
2						
3						
4						
5						
6						
7						
8						

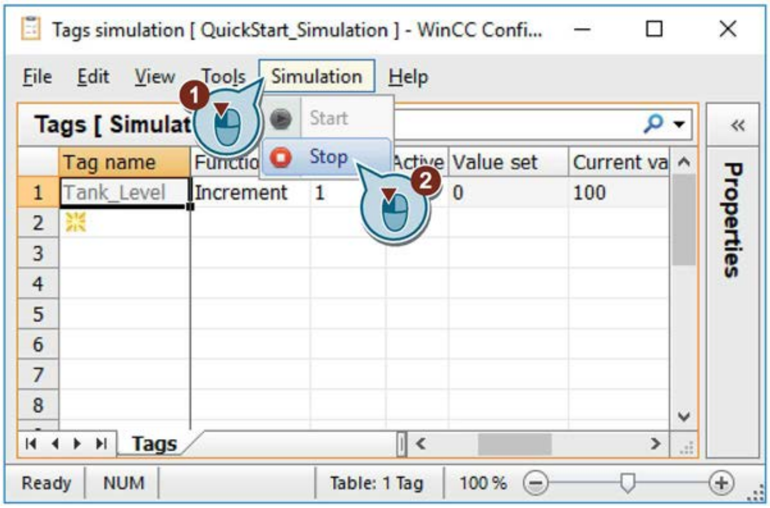
4. Observe the output of the simulation values in the process picture "Tag_Logging.pdl".



	Time column 1	Tank_Level
21	6:20:32 PM	75
22	6:20:34 PM	80
23	6:20:36 PM	90
24	6:20:38 PM	100
25	6:20:40 PM	5
26	6:20:42 PM	15
27	6:20:44 PM	25
28	6:20:46 PM	35
29	6:20:48 PM	45
30	6:20:50 PM	60

Ready Row 30 6:20:50 PM

5. Exit the simulation.



6. Exit WinCC Runtime using the ■ button in the toolbar.

Result

You have activated the "Quick_Start" project and simulated the values of the internal tag "Tank_Level".

The value sequence is displayed in the configured trend and table windows.

Outputting values from the process archive 8

8.1 Outputting values from the process archive

Introduction

This chapter provides information about the logging system and a description of how to log values from the process value archive.

Principle

The report system documents configuration and Runtime data.

- Configuration data can be plant pictures with their objects, created user groups as well as tables with the used tags.
- Runtime data can be process values from the process value archives or compressed archives as well as messages from message archives or message lists.

The documented data will be saved as a report or a log.

Either a page or a line layout is used for the reports and logs. In the layouts you configure the external appearance and data supply for output of a report.

The output of the logs and the reports are controlled by the print jobs. The following parameters are primarily defined in the print jobs:

- Time control
- Output medium
- Extent of the output

In the "Quick_Start" project you will document the values from the process value archive "Tank_Level_Archive". You will output these values in a log.

For the log, you will create a new page layout and determine the parameters of the print job.

You will link the print job with a configurable button of the table window. The output of the report is triggered in Runtime via this button.

The archive values are documented in the output log, which are displayed in the current view of the table window.

8.2 The report system

Introduction

The report system is a subsystem of WinCC which is used to document configuration and Runtime data.

Configuration data are output as reports. Configuration data can be the tags, functions or graphics used in the project.

Runtime data is output as logs. A log can contain the following runtime data, for example:

- Message sequence report: All messages that have occurred in chronological order
- Archive report: Messages from a particular message archive
- Message report: Current messages from the message list
- Values from a particular process value and compressed archive
- Data from other applications not originating in WinCC.

  There are various log objects available for integrating this kind of data in a WinCC log.

Components of the report system

The report system consists of a configuration and a runtime component.

Configuration component

The configuration component of the report system is the "Report Designer" editor.

The "Report Designer" editor contains the components "Layouts" and "Print jobs".

These components contain pre-defined standard layouts and print jobs that can be edited. You can create new layouts and print jobs in the "Report Designer" editor.

To create and edit layouts, the "Report Designer" editor provides two additional tools, the page layout editor and the line layout editor.

Runtime component

Report Runtime is the runtime component of the report system.

Report Runtime is primarily used to perform the following tasks:

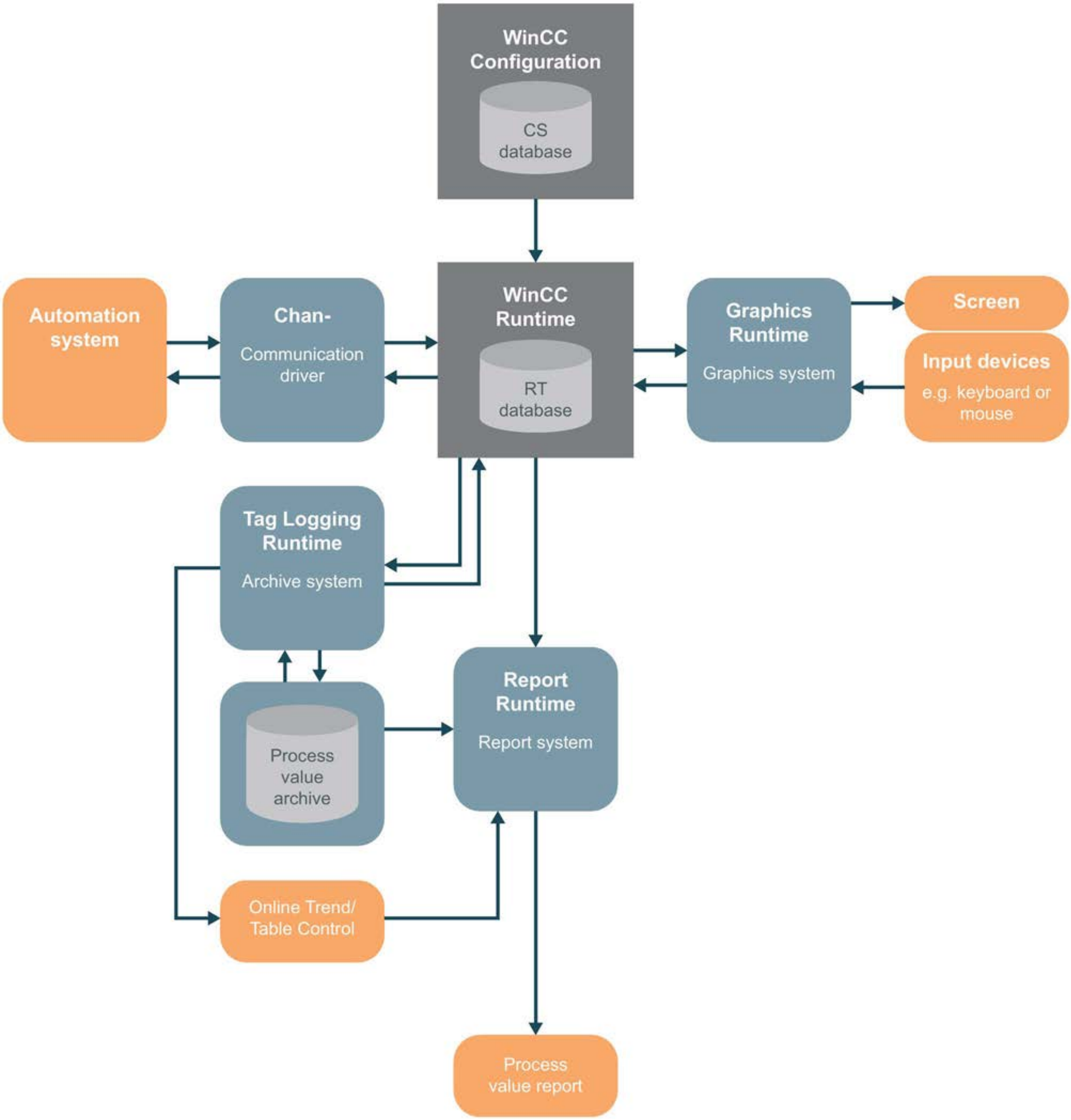
- Reading the values to be documented from archives or controls
- Controlling printer output

Output Media

The "Report Designer" editor offers the following possible outputs of reports and logs:

- To a printer
- To a file
- To the screen

Logging in the WinCC system



8.3 Creating a Page Layout

Introduction

The following steps will show you how to create and rename a page layout in WinCC Explorer.

The page layout is a template that contains different objects to output data. You will determine via the objects of the page layout which information and design features appear in a report or log.

WinCC already provides preconfigured layouts for most applications. These layouts can be edited with the "Report Designer" editor to suit your requirements. Page layouts can be language-neutral and language-dependent.

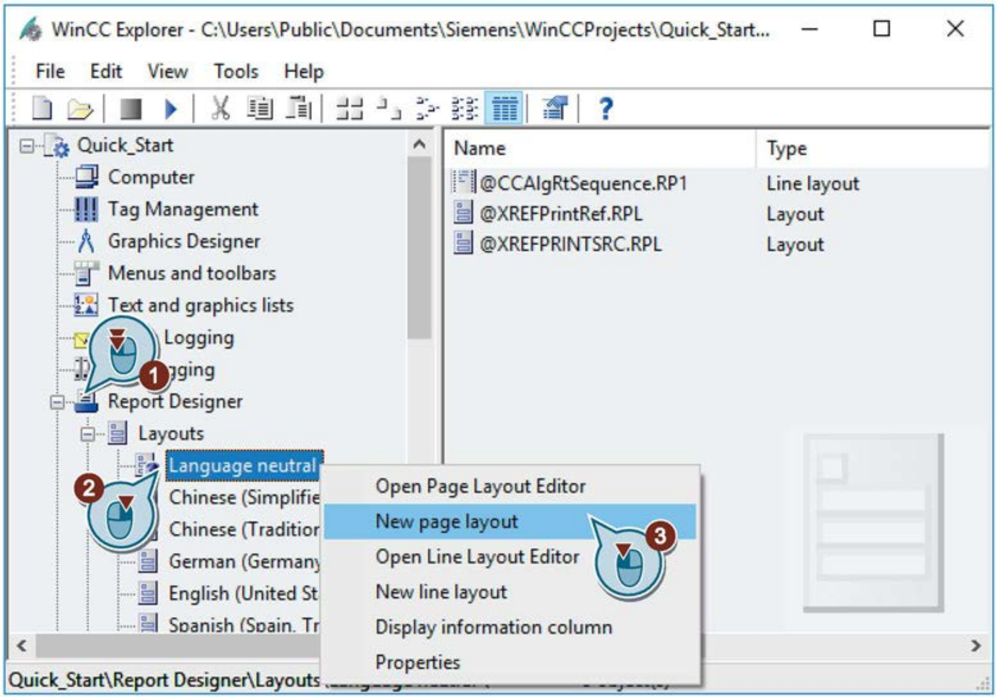
You will create a new page layout with the editor "Report Designer" for the "Quick_Start" project. You will use this page layout as a template for the report, in which the values from the process value archive are documented.

Requirement

- The "Quick_Start" project is open.

Procedure

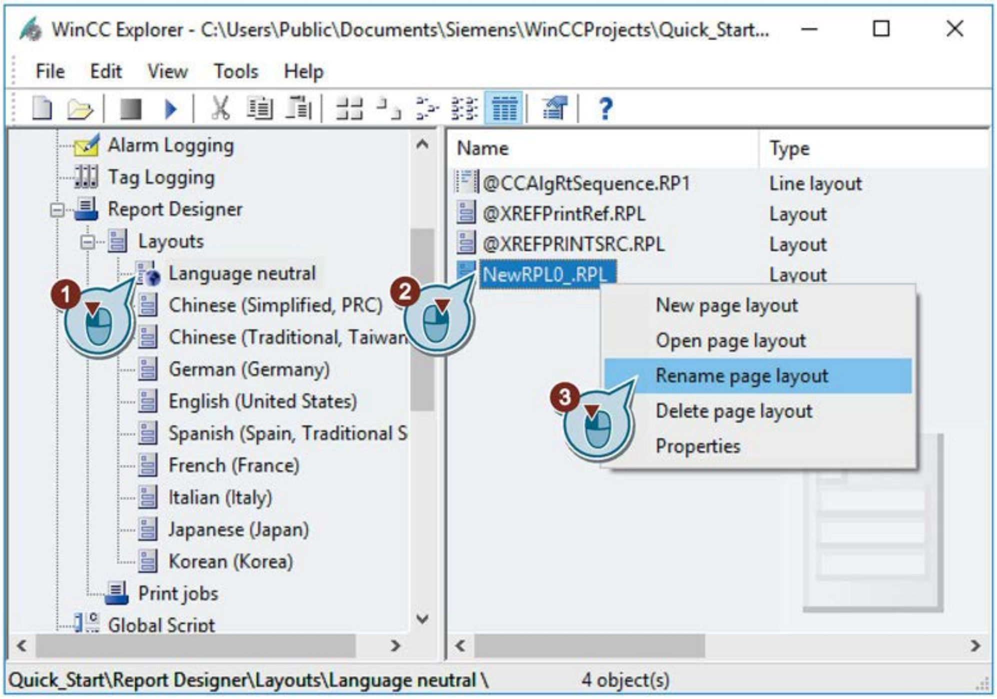
1. Create a new language-independent page layout in WinCC Explorer.



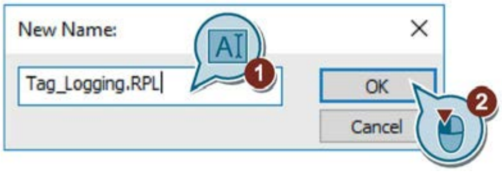
Name	Type
@CCAlgRtSequence.RP1	Line layout
@XREFPrintRef.RPL	Layout
@XREFPRINTSRC.RPL	Layout

The new layout file "NewRPL0.RPL" is created in the "Language neutral" folder.

2. Open the "New name" dialog to rename the page layout.



3. Enter "Tag_Logging.rpl" as name for the layout file.



The name of the page layout will be changed.

Result

You have created and renamed a new page layout in WinCC Explorer. In the "Quick_Start" project you will use this page layout as a template for the report, in which the values from the process value archive are documented.

In order to determine the contents and design features of the report, you will edit the page layout in the next steps.

8.4 Editing the Page Layout

8.4.1 Editing the Page Layout

Introduction

This section offers a description of how to edit a page layout using the page layout editor.

The editing of the layout is carried out with the following steps:

- Establishing properties of the entire page layout
- Deactivating the output of the cover sheet
- Determine log content
- Editing the header and footer

Principle

For a page layout, properties can be defined that will be applied to all pages of the page layout.

You define a format and the print margins for the pages of the page layout "Tag_Logging" in the "Quick_Start" project.

A page layout may have three pages:

- Cover sheet

  The cover sheet is the first page of a log or a report.

  The output of the cover sheet is preset in the page layout editor. In this section, you will change that pre-defined setting, so that the page "Cover Sheet" will not be output.

- Report contents

  On the page "Report content" you will define the setup and content of a log or a report. The output of the report content is mandatory.

  To document the values from the process value archive, use dynamic object "WinCC Control Runtime Printprovider" in the "Quick_Start" project.

  You can choose between objects "WinCC Control Runtime Printprovider Table" and "WinCC Control Runtime Printprovider Picture". The full content of the table is output in the table and the current display for the WinCC Control is output in the picture. The log output is only possible via buttons in the WinCC Control for both variants.

- Final page

  The final page is a last page of a log or a report.

  The output of the final page is not preset in the "Report Designer" editor. The output of the final page is not intended in the "Quick_Start" project.

Static and dynamic layer

Each page of the page layout contains a static layer and a dynamic layer.

- The header and footer are defined in the static level of a page layout.

  The static level serves, for example, to output the company name, the company logo, the time and the number of pages.

  In the static level, only static objects and system objects can be inserted.
- The dynamic level contains the dynamic objects for outputting the configuration and Runtime data.

  In the dynamic layer, static and dynamic objects can be inserted.

Objects in the page layout

The objects of the object palette cannot be added to the page layout by dragging and dropping. In order to insert an object from the object palette, select it and click once with the left mouse key on the working surface of the page layout.

In the "Quick_Start" project, add the system object "Project name" into the header of the page "Report content". This object is used to display the project name.

In the footer you will insert the system object "Page number". The system object "Page number" allows the page numbering in the log.

8.4.2 Establishing properties of the page layout

Introduction

The following steps will show you how to start the page layout editor and how to define the properties for the entire page layout.

The page layout editor is a component of the editor "Report Designer" and is used to create and edit page layouts. The page layout editor can only be used for the project currently open in the WinCC Explorer. The layouts are saved for the specific project.

In this section, you will use the page layout editor to edit the "Tag_Logging" page layout.

By editing the layout you will determine the setup and content of the log to be output.

For the "Quick_Start" project, define the following properties for the "Tag_Logging" page layout:

- Paper size

  The paper size shows the total area of the layout.

  The paper size determines the output format of the log.

- Print margins

  The print margins define the non-printable marginal area.

  This area is by default greyed in the page layout editor and cannot be edited.

- Output of the page "Cover Sheet"

  You will define in the "Object properties" dialog of the page layout whether the log will be output with a first (cover) page.

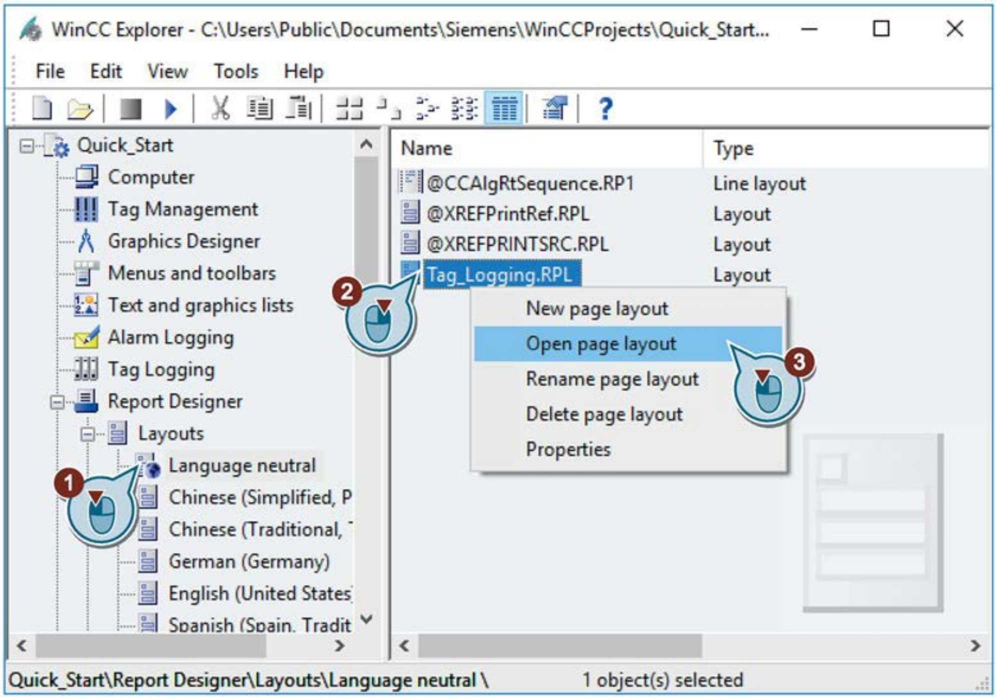
  In this section, you will deactivate the output of a "Cover Sheet".

Requirement

- The layout file "Tag_Logging.rpl" is created.

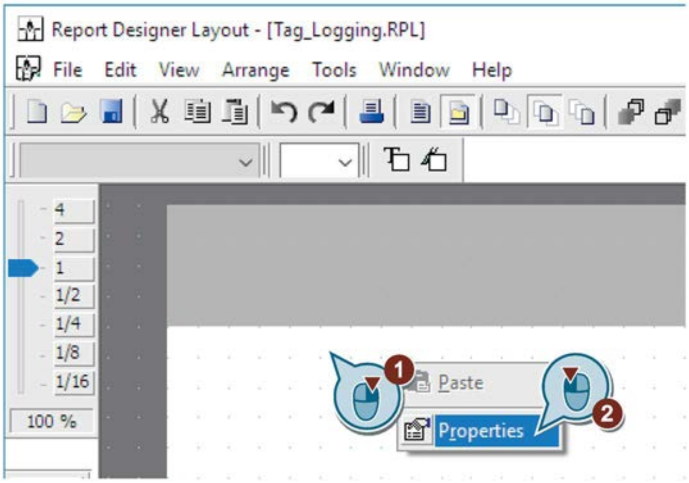
Procedure

1. Open the "Tag_Logging.rpl" layout file in the page layout editor.



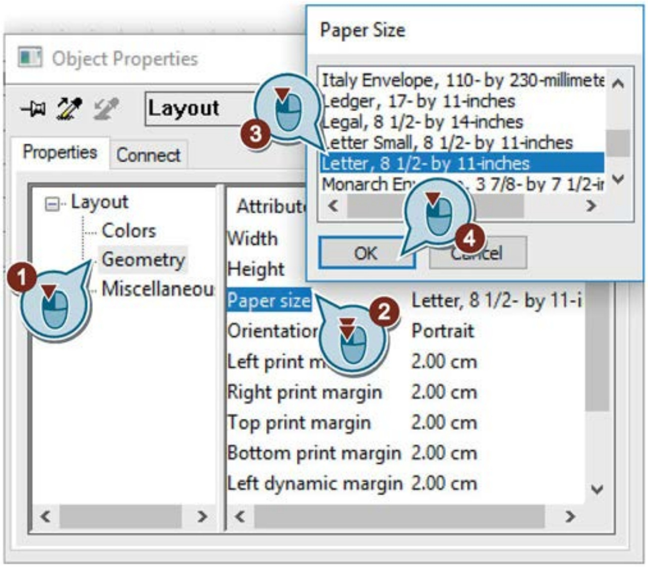
The "Tag_Logging.rpl" layout file opens in the page layout editor.

2. Open the "Object properties" dialog of the page layout.


Report Designer Layout - [Tag_Logging.RPL]
File Edit View Arrange Tools Window Help
4
2
1
1/2
1/4
1/8
1/16
100 %
Paste
Properties
1
2

The "Object properties" dialog opens.

3. Define the following values for the parameters of the property "Geometry":
   - Paper size: Letter
   - Left print margin: 2 cm
   - Right print margin: 2 cm
   - Top print margin: 2 cm
   - Bottom print margin: 2 cm


Object Properties
Layout
Properties
Connect
Layout
Colors
Geometry
Miscellaneou
Paper Size
Italy Envelope, 110- by 230-millimete
Ledger, 17- by 11-inches
Legal, 8 1/2- by 14-inches
Letter Small, 8 1/2- by 11-inches
Letter, 8 1/2- by 11-inches
Monarch En... 3 7/8- by 7 1/2-in
OK
Cancel
1
2
3
4

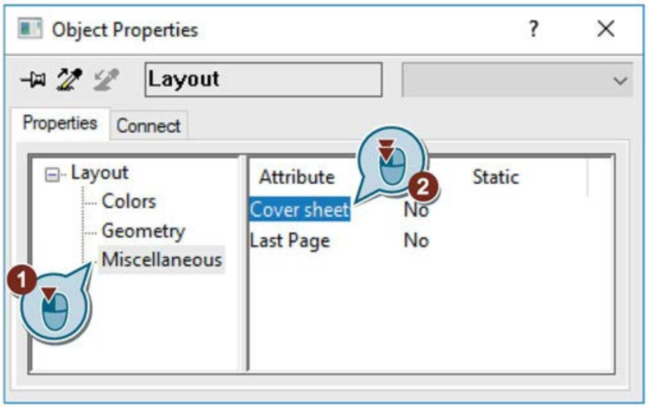
Attribut	
Width	
Height	
Paper size	Letter, 8 1/2- by 11-i
Orientation	Portrait
Left print m	2.00 cm
Right print margin	2.00 cm
Top print margin	2.00 cm
Bottom print margin	2.00 cm
Left dynamic margin	2.00 cm

4. To change the unit from "cm" to "inch", open the "Settings" dialog via the "Tools > Settings" menu.

   Select the unit "inch" on the "Units" tab in the area "Coordinates".

   Convert the indicated values from "cm" to "inch".
   The following rules apply: 1 cm = 0.3937 inches

5. Deactivate the output of the "Cover Sheet" page.



Attribute		Static
Cover sheet	No	
Last Page	No	

6. Close the "Object properties" dialog.

Result

You have defined the page format and the print margins for the "Tag_Logging" page layout.

This defines the printable and non-printable areas of the pages. The predefined output of the page "Cover Sheet" has been changed.

In order to define the log content, you will edit the page "Report content" of the page layout in the next steps.

8.4.3 Determine log content

Introduction

The following steps will show you how to define the log content.

On the page "Report content" you will define the content of the page layout.
For this you will use the objects from the object palette of the page layout editor.

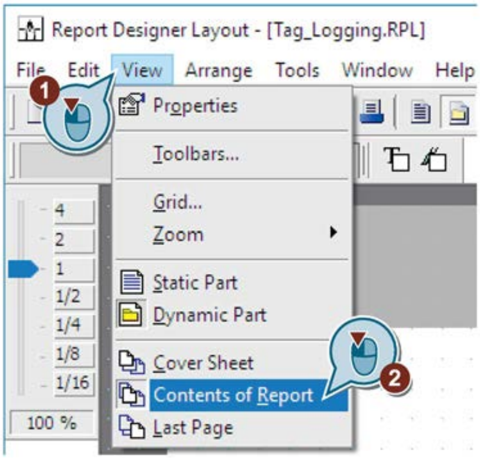
In this section, you will insert the "WinCC Control Runtime Printprovider - Table" object, which will be used for displaying the values from the process value archive.

Requirement

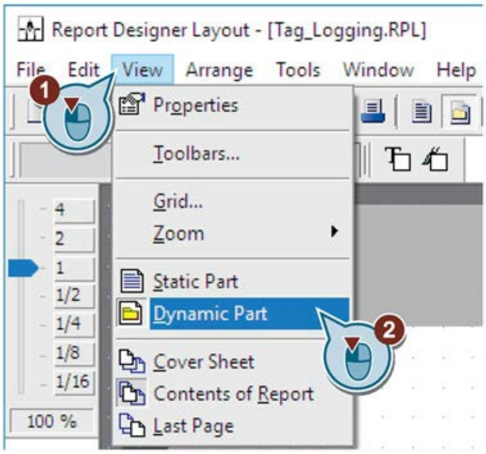
- The "Tag_Logging.rpl" layout file is open in the page layout editor.

Procedure

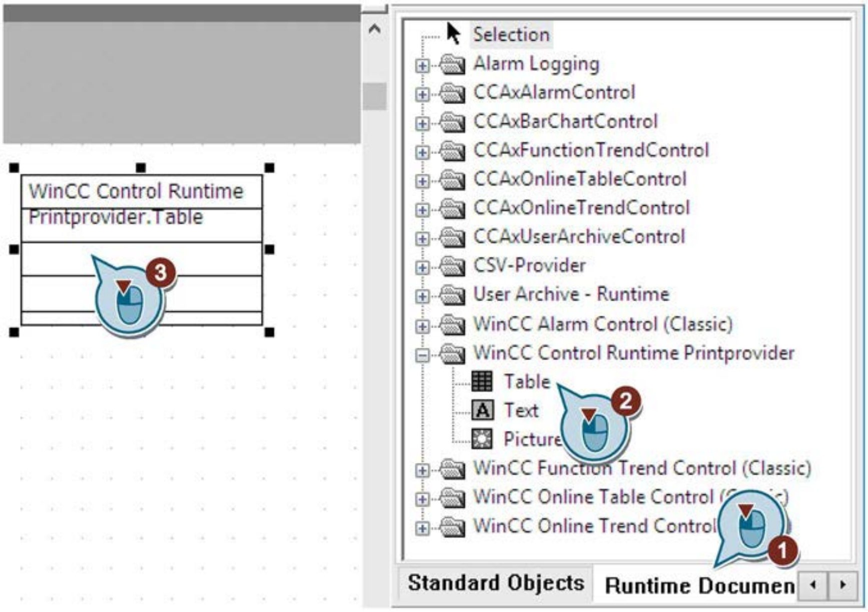
1. Open the page "Report content" of the page layout.



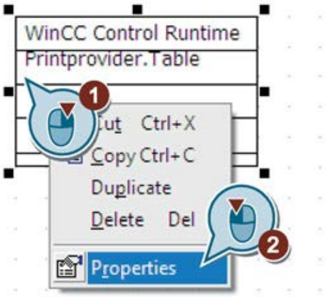
2. Change to the dynamic level of the "Report content" page.



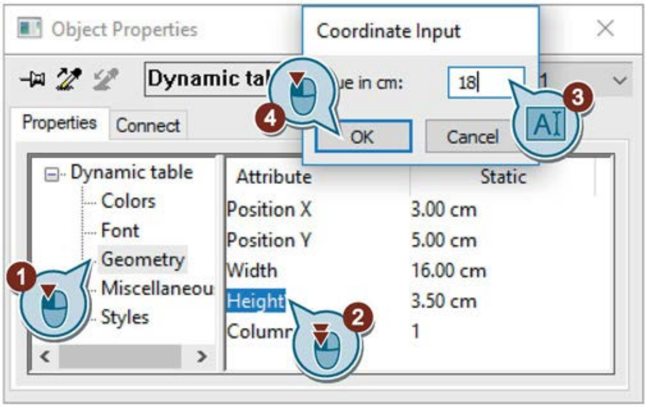
3. Insert the "WinCC Control Runtime Printprovider - Table" object into the "Tag_Logging.rpl" page layout.



4. Open the "Object properties" dialog.



5. Click the "Properties" tab and define the following values for the "Geometry" property:
   - PositionX: 3 cm
   - PositionY: 5 cm
   - Width: 16 cm
   - Height: 18 cm
   - Columns: 1



Value in cm: 18

Attribute	Static
Position X	3.00 cm
Position Y	5.00 cm
Width	16.00 cm
Height	3.50 cm
Column	1

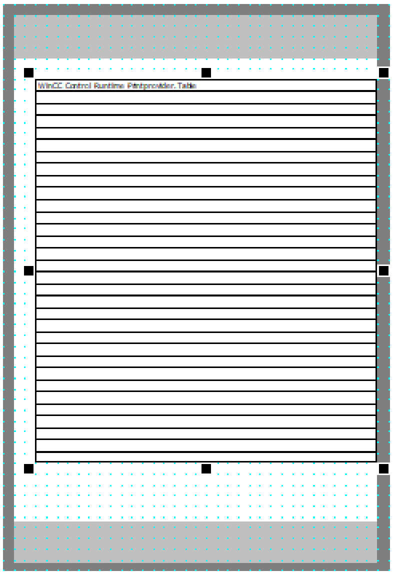
6. Close the "Object properties" dialog.

Result

You have inserted the "WinCC Control Runtime Printprovider - Table" object.

This enables the values to be read from the process value archive and documented in the log "Tag_Logging.rpl".

In order to output the project name with the log, you will edit the header of the page "Report content" in the next steps.



8.4.4 Editing the header

Introduction

The following steps will show you how to edit the header of the page "Report content".

The header is located on the static level of the page layout.

The header is defined individually for the pages "Cover Sheet", "Report content" and for the last page. In the "Quick_Start" project, you will only edit the header of the page "Report content".

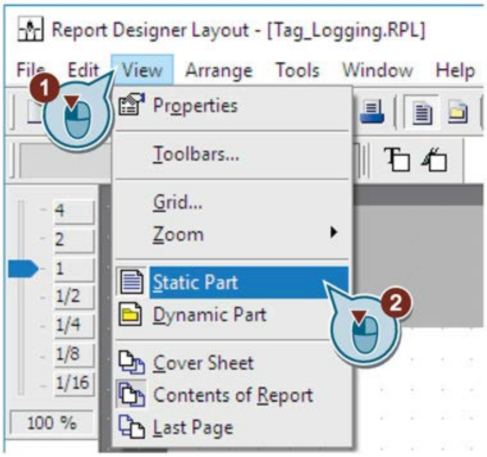
In the header you will insert the system object "Project name". This object will serve as a placeholder for the display of the project name in the log.

Requirement

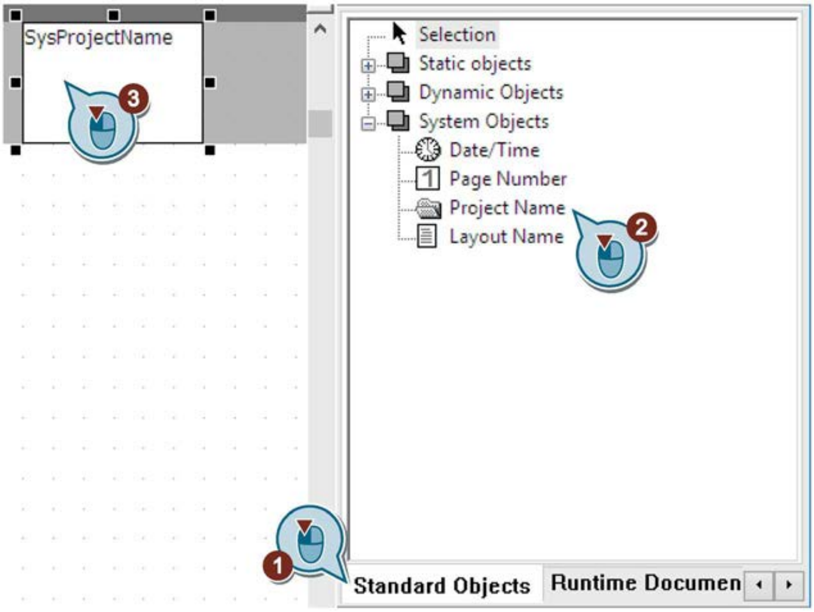
- The "Tag_Logging.rpl" layout file is open in the page layout editor.

Procedure

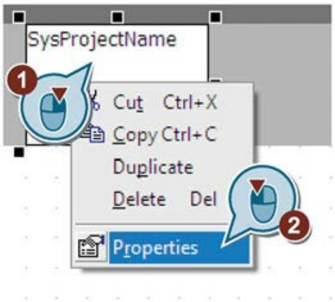
1. Open the page "Report content" of the page layout in the "View" menu.
2. Change to the static level of the "Report content" page.



3. Insert the "Project name" system object into the header.

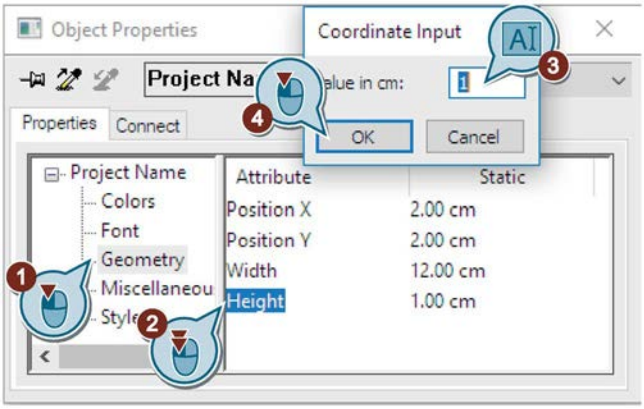


4. Open the "Object properties" dialog.



The "Object properties" dialog opens.

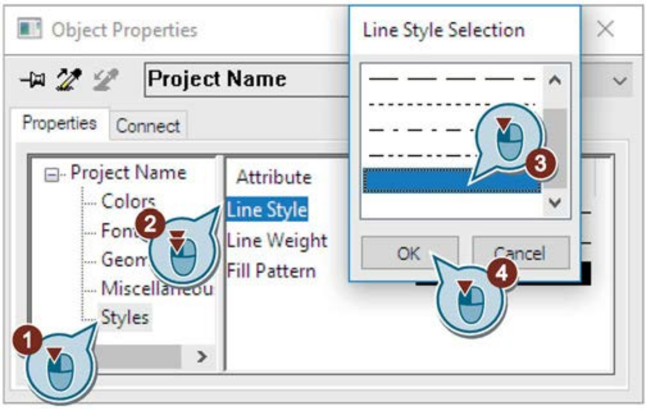
5. Define the following values for the parameters of the property "Geometry":
   - PositionX: 2 cm
   - PositionY: 2 cm
   - Width: 12 cm
   - Height: 1 cm



Attribute	Static
Position X	2.00 cm
Position Y	2.00 cm
Width	12.00 cm
Height	1.00 cm

Value in cm: 1

6. Set "No line" as the line style of the inserted object.



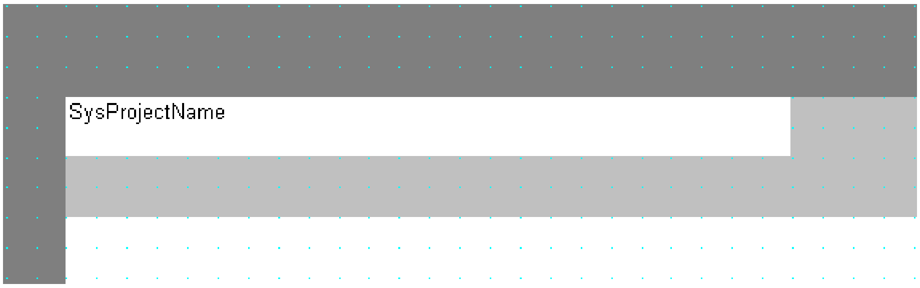
7. Close the "Object properties" dialog.

Result

You have inserted the system object "Project name" into the header of the page "Report content".

This object is used to display the project name in the log.

In order to number the pages of the log, you will edit the footer in the next steps.



8.4.5 Editing the footer

Introduction

The following steps will show you how to edit the footer of the page "Report content".

The footer is located on the static level of the page layout.

The footer is defined individually for the pages "Cover Sheet", "Report content" and for the last page. In the "Quick_Start" project, you will only edit the footer of the page "Report content".

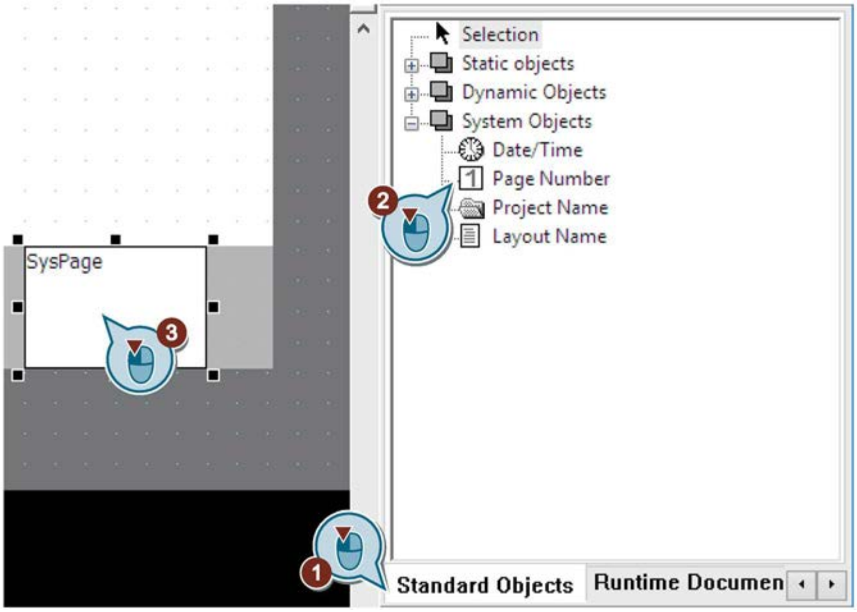
You will edit the footer by inserting the system object "Page number" from the object palette of the page layout editor. This object will serve as a placeholder for the display of the page numbers in the log.

Requirement

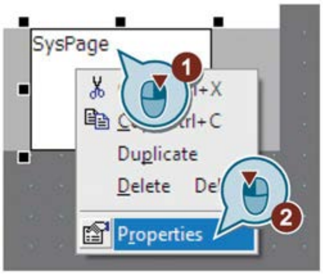
- The "Tag_Logging.rpl" layout file is open in the page layout editor.

Procedure

1. Open the page "Report content" of the page layout.
2. Change to the static level of the "Report content" page.
3. Insert the "Page number" system object into the footer.

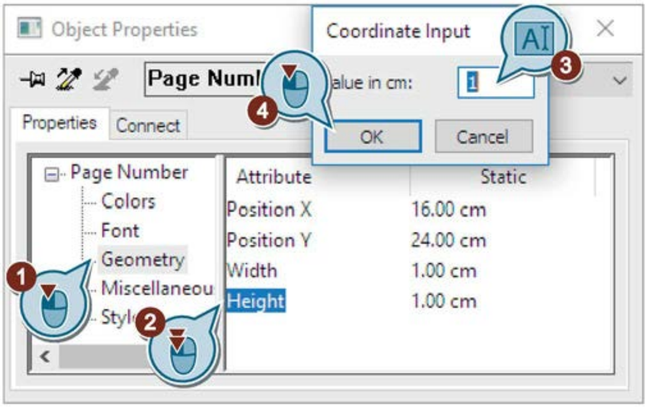


4. Open the "Object properties" dialog.



The "Object properties" dialog opens.

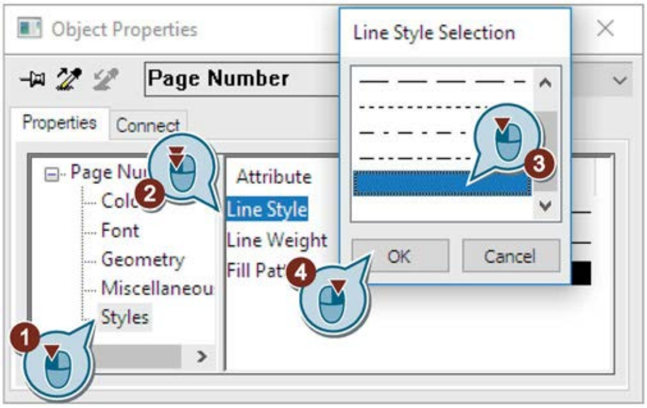
5. Define the following values for the parameters of the property "Geometry":
   - PositionX: 18 cm
   - PositionY: 24 cm
   - Width: 1 cm
   - Height: 1 cm



alue in cm: 1

Attribute	Static
Position X	16.00 cm
Position Y	24.00 cm
Width	1.00 cm
Height	1.00 cm

6. Set "No line" as the line style of the inserted object.



7. Close the "Object properties" dialog.

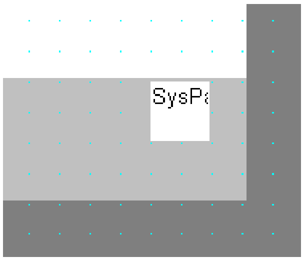
8. Save the "Tag_Logging.rpl" layout file with the button in the toolbar.

9. Close the "Report Designer".

Result

You have inserted the system object "Page number" into the footer of the page "Report content".

This object allows the numbering of the pages in the log.



8.5 Editing the print job

8.5.1 Editing the print job

Introduction

This section offers a description of how to edit a print job.

Principle

Print jobs in WinCC are of central importance to the output of project and Runtime documentation.

In the print jobs you configure the output medium, how much is to be printed, the time at which printing is to start, and other output parameters.

WinCC comes with numerous predefined print jobs. These print jobs are already associated with certain WinCC applications. Therefore, the system print jobs cannot be deleted. If necessary, you can rename the system print jobs. Only certain settings can be changed with these predefined print jobs.

Configuring a print job

For the output, each layout is linked to a print job.

You will use a predefined print job in the project "Quick_Start".

You connect this job with the "Tag_Logging" page layout.
This outputs the log with the "Tag_Logging" page layout.

You will also define the output medium for the output of the log.

Printing the log

The print job is executed via the button 🖨 in the toolbar of the table window.

8.5.2 Defining and editing the Print Job

Introduction

The following steps will show you how to define and edit a print job for the output of the log.

Use the predefined print job "@OnlineTableControl - Table" for the "Quick_Start" project. The editing of this print job is carried out with the following steps:

- Linking a print job to a page layout
- Defining the output medium

This print job is linked with the "Tag_Logging.rpl" page layout. With this, the log will adapt the design features and settings that are defined in this page layout.

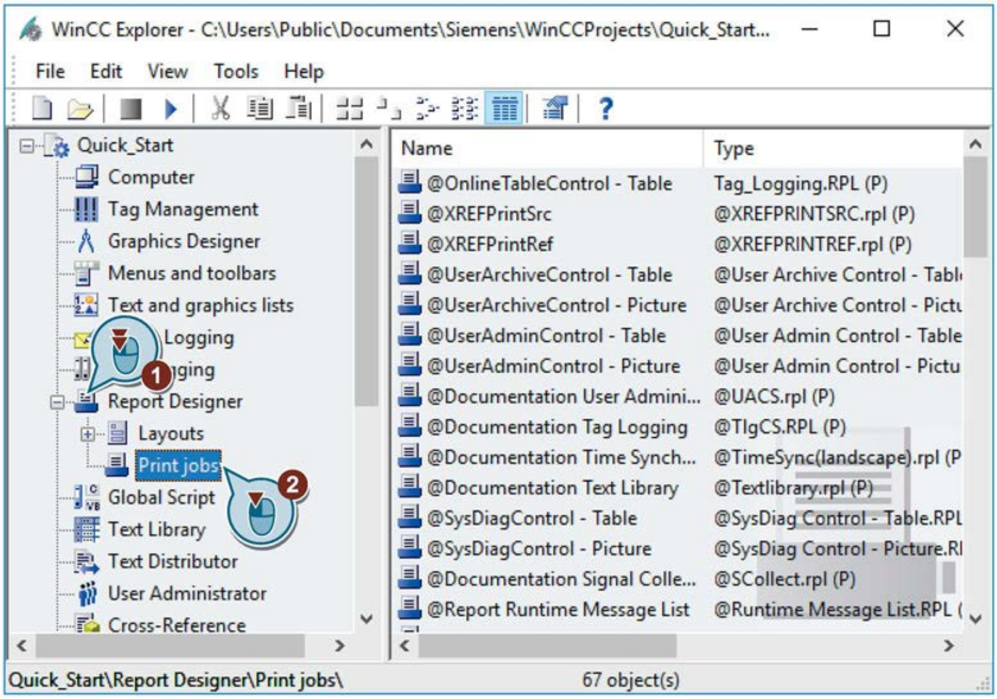
You define a printer of your choice as the output medium for the log. If you do not have a printer, you can print the log to a file. More information on this topic can be found in the "Project documentation" in section "Working with WinCC > Documentation of configuration and runtime data > Project documentation > How to create a new print job".

Requirement

- The "Quick_Start" project is open.
- The page layout "Tag_Logging.rpl" has been created.

Procedure

1. Select the "Print jobs" component of the "Report Designer" editor in WinCC Explorer.

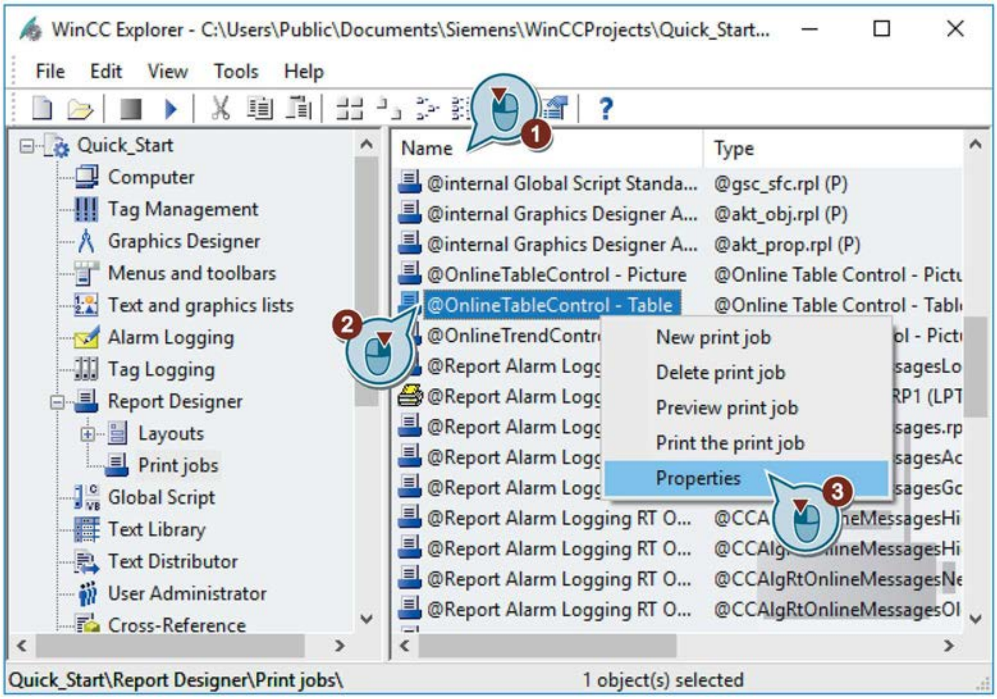


Name	Type
@OnlineTableControl - Table	Tag_Logging.RPL (P)
@XREFPrintSrc	@XREFPRINTSRC.rpl (P)
@XREFPrintRef	@XREFPRINTREF.rpl (P)
@UserArchiveControl - Table	@User Archive Control - Tabl
@UserArchiveControl - Picture	@User Archive Control - Pictu
@UserAdminControl - Table	@User Admin Control - Table
@UserAdminControl - Picture	@User Admin Control - Pictu
@Documentation User Admini...	@UACS.rpl (P)
@Documentation Tag Logging	@TlgCS.RPL (P)
@Documentation Time Synch...	@TimeSync(landscape).rpl (P
@Documentation Text Library	@Textlibrary.rpl (P)
@SysDiagControl - Table	@SysDiag Control - Table.RPL
@SysDiagControl - Picture	@SysDiag Control - Picture.RI
@Documentation Signal Colle...	@SCollect.rpl (P)
@Report Runtime Message List	@Runtime Message List.RPL (

Quick_Start\Report Designer\Print jobs\ 67 object(s)

The predefined print jobs are displayed.

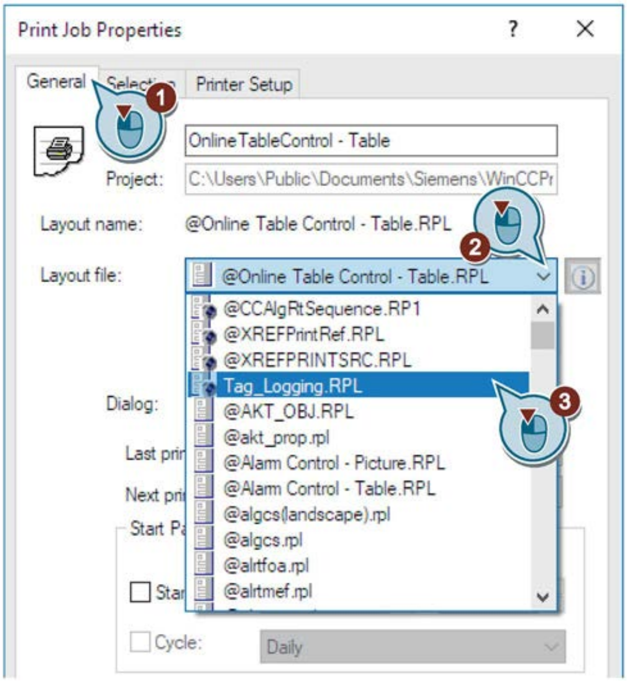
2. Select print job "@OnlineTableControl - Table" and open the "Print job properties" dialog.



Name	Type
@internal Global Script Standa...	@gsc_sfc.rpl (P)
@internal Graphics Designer A...	@akt_obj.rpl (P)
@internal Graphics Designer A...	@akt_prop.rpl (P)
@OnlineTableControl - Picture	@Online Table Control - Pictu
@OnlineTableControl - Table	@Online Table Control - Tabl
@OnlineTrendContr	ol - Pict
@Report Alarm Logg	sagesLo
@Report Alarm Logg	RP1 (LPT
@Report Alarm Logg	sages.rp
@Report Alarm Logg	sagesAc
@Report Alarm Logg	sagesGc
@Report Alarm Logging RT O...	@CCA neMessagesHi
@Report Alarm Logging RT O...	@CCAlg ineMessagesHi
@Report Alarm Logging RT O...	@CCAlgRtOnlineMessagesNe
@Report Alarm Logging RT O...	@CCAlgRtOnlineMessagesOl

Quick_Start\Report Designer\Print jobs\ 1 object(s) selected

3. Link the print job with the "Tag_Logging.rpl" layout file.



OnlineTableControl - Table

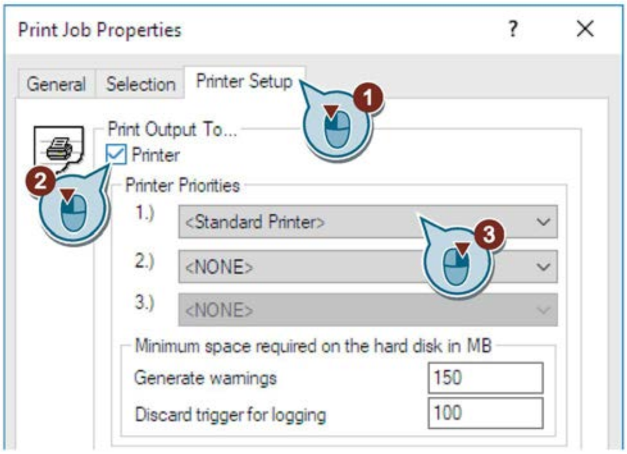
Project: C:\Users\Public\Documents\Siemens\WinCCPr

Layout name: @Online Table Control - Table.RPL

Layout file: @Online Table Control - Table.RPL

4. Click the "Select printer" tab and activate output to the "Printer".

   In the "Printer Priorities" area, select a connected printer or accept the default printer.



☑ Printer

1.) <Standard Printer>

2.) <NONE>

3.) <NONE>

Generate warnings 150

Discard trigger for logging 100

5. Click "OK".

Result

You have now defined and edited the print job for the output of the log.

The log is based on the "Tag_Logging" page layout.

The log will be output to the selected printer.

8.6 Defining Runtime properties (report system)

Introduction

The following steps will show you how to define the properties for WinCC Runtime.

In this section, you will set up WinCC Runtime so that Report Runtime is executed when the project is activated. Report Runtime reads the values from the table window "Tank_Level_Tables" and controls the printer output.

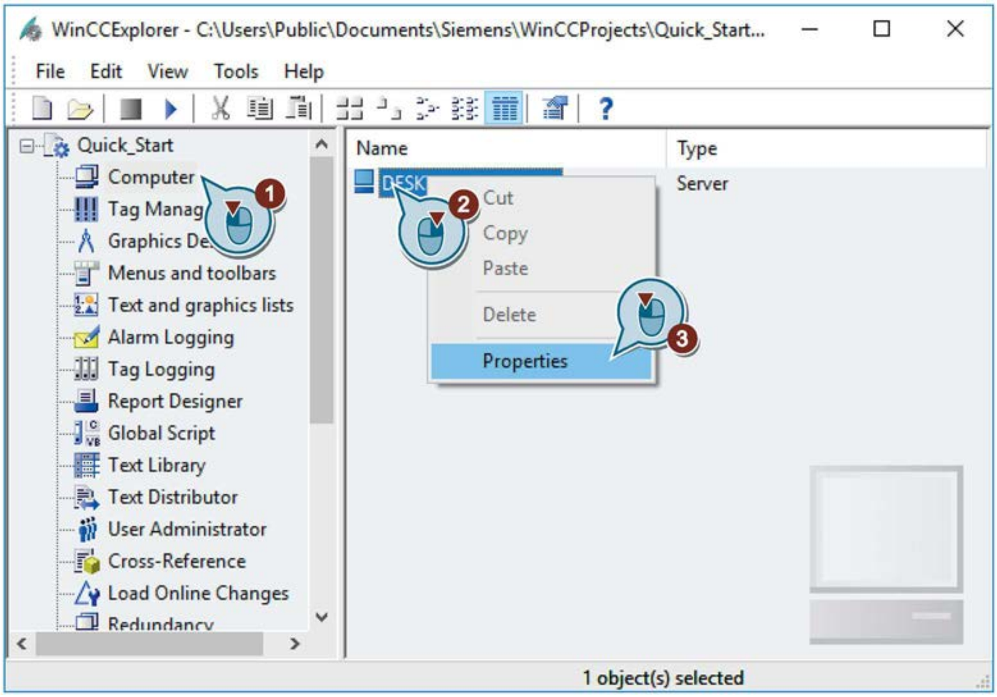
Set the "Tag_Logging.pdl" process picture as start picture for the Runtime window.

Requirement

- The "Quick_Start" project is open.
- The process picture "Tag_Logging.pdl" has been created.

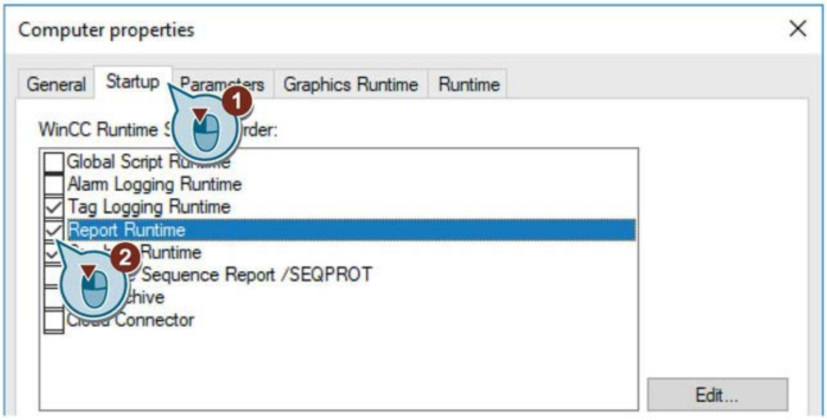
Procedure

1. Open the "Computer Properties" dialog.



The "Computer Properties" dialog opens.

2. Click the "Startup" tab and activate the "Report Runtime" application.

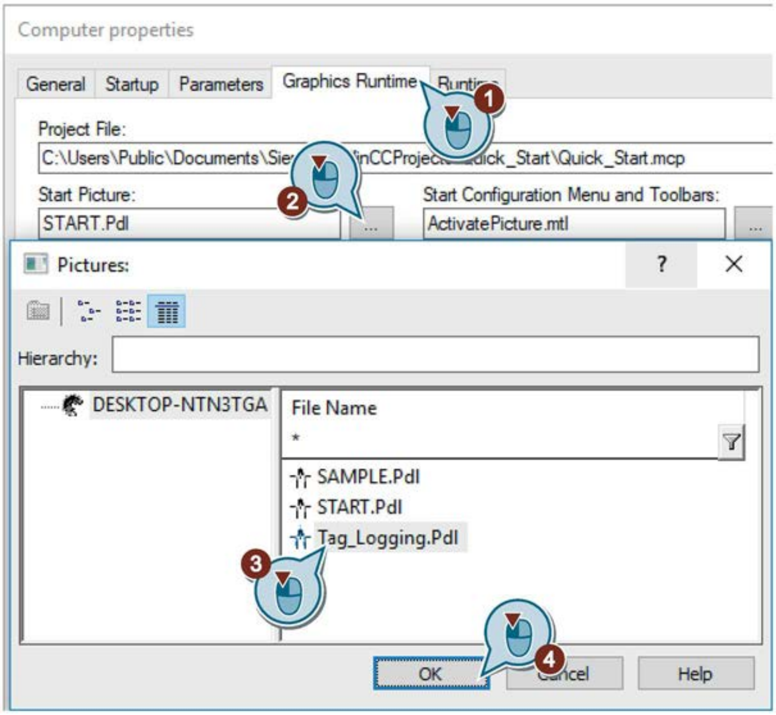


Computer properties

WinCC Runtime S... rder:

- ☐ Global Script Ru...
- ☐ Alarm Logging Runtime
- ☑ Tag Logging Runtime
- ☑ Report Runtime
- ☑ ... Runtime
- ☐ ... Sequence Report /SEQPROT
- ☐ ...chive
- ☐ ... Connector

3. In the "Graphics Runtime" tab, set the "Tag_Logging.pdl" process picture as the start picture for the Runtime window.



Computer properties

Project File: C:\Users\Public\Documents\Sie...inCCProjec...ick_Start\Quick_Start.mcp

Start Picture: START.Pdl

Start Configuration Menu and Toolbars: ActivatePicture.mtl

Pictures:

Hierarchy:

DESKTOP-NTN3TGA

File Name
*

- SAMPLE.Pdl
- START.Pdl
- Tag_Logging.Pdl

4. Exit the "Computer Properties" dialog by clicking "OK".

Result

You have defined the WinCC Runtime properties. The Report Runtime is run when you activate the "Quick_Start" project. The "Tag_Logging.pdl" process picture is displayed as the start picture.

In the next steps, you will activate the "Quick_Start" project and use the "Tag Simulation" editor.

8.7 Activating and testing the project (report system)

Introduction

The following steps will show you how to activate the "Quick_Start" project for logging.

The WinCC Tag Simulator assigns values to the internal tag "Tank_Level" in Runtime.

These values are acquired every two seconds in the "Quick_Start" project and saved in the archive tag "Fill_Level_Archive".

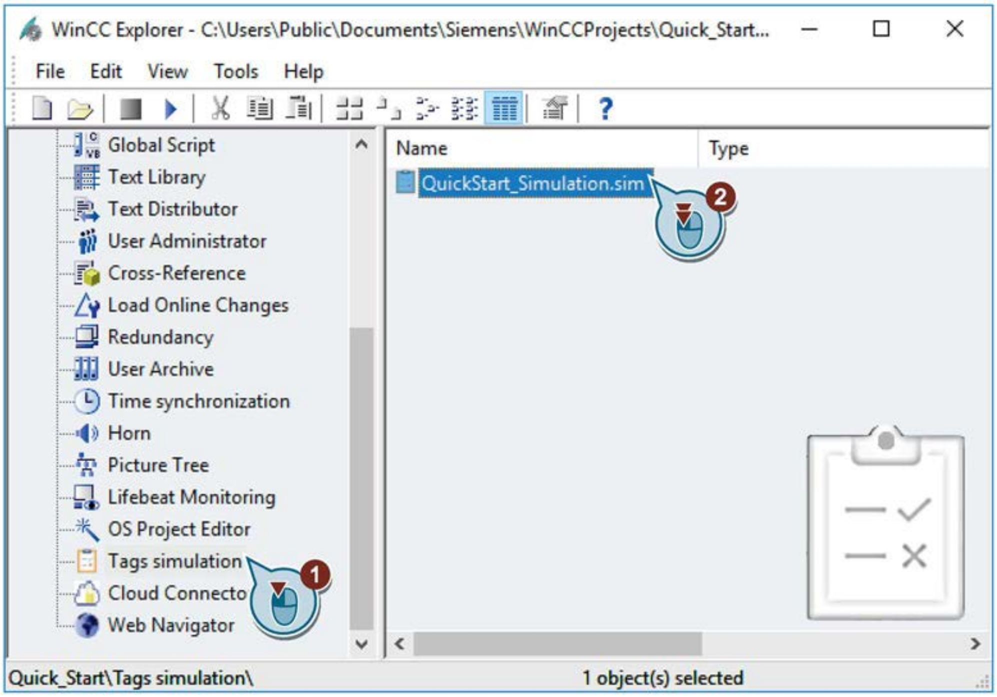
Tag Logging Runtime reads the archives values and transfers them to the trend window and the table window. The values are output as a trend and as a table.

Requirement

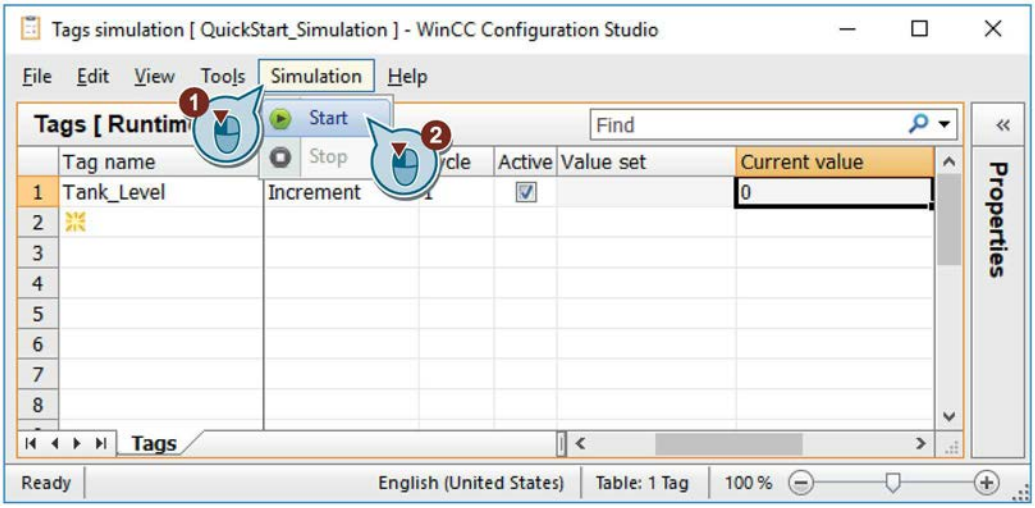
- The Runtime properties are defined.

Procedure

1. Open the "QuickStart_Simulation.sim" configuration in the "Tag Simulation" editor.



2. Activate WinCC Runtime in the WinCC Explorer using the ▶ button.
3. Start the simulation in the "Tag Simulation" editor.

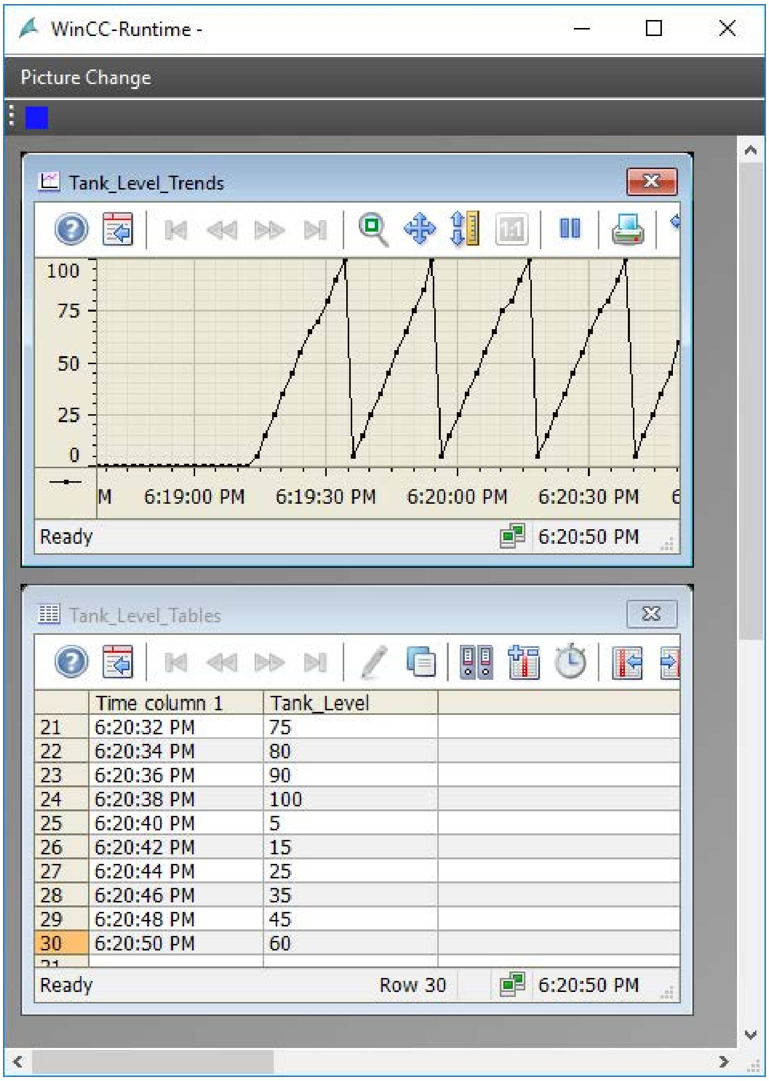

Tags simulation [QuickStart_Simulation] - WinCC Configuration Studio
File Edit View Tools Simulation Help
Tags [Runtim
Start
Stop
Find
1
2
Tag name
ycle
Active
Value set
Current value
1 Tank_Level Increment 1 ☑ 0
2
3
4
5
6
7
8
Tags
Properties
Ready
English (United States)
Table: 1 Tag
100 %

Result

You have activated the "Quick_Start" project and simulated the values of the internal tag "Tank_Level".

The course of the internal tags "Tank_Level" is displayed in the trend window and the table window.

Print a protocol in the next steps to document the values from the current view of table window.



	Time column 1	Tank_Level
21	6:20:32 PM	75
22	6:20:34 PM	80
23	6:20:36 PM	90
24	6:20:38 PM	100
25	6:20:40 PM	5
26	6:20:42 PM	15
27	6:20:44 PM	25
28	6:20:46 PM	35
29	6:20:48 PM	45
30	6:20:50 PM	60

8.8 Printing log

Introduction

The following steps will show you how to print a log.

In this section, you will print a log in which the values from the current view of the table window are documented.

This requires that you use the "Print" button 🖨 from the table window.

In order to use the button, you will stop the update of the data with the ⏸ button. The data is saved to the clipboard and added when the button is clicked again.

When the 🖨 button is pressed in Runtime, the print job "@OnlineTableControl - Table" is executed and the log is printed.

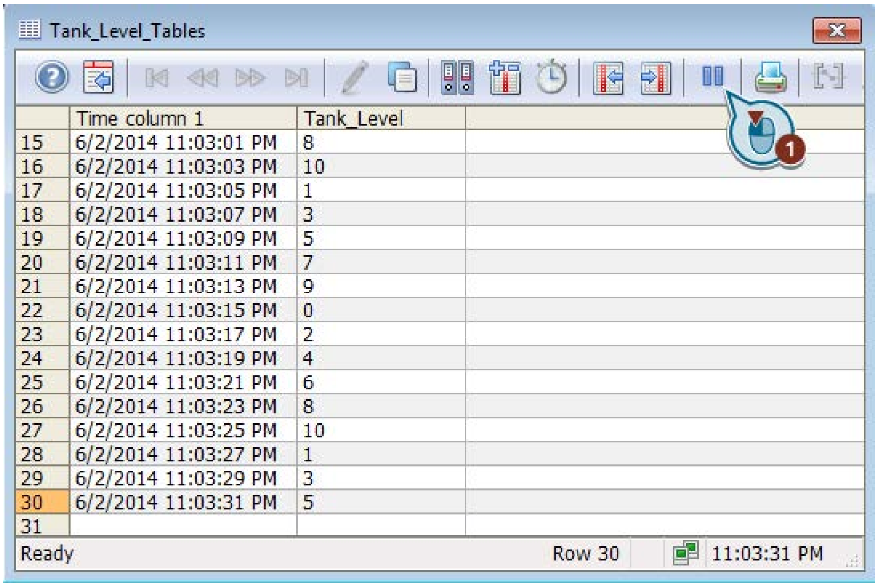
The log is based on the page layout "Tag_Logging.rpl".

Requirement

- The "Quick_Start" project is activated.
- The simulation has started in the "Tag Simulation" editor.
- The "@OnlineTableControl - Table" print job is linked with the "Tag_Logging.rpl" page layout.

Procedure

1. Stop the data update using the ⏸ button.

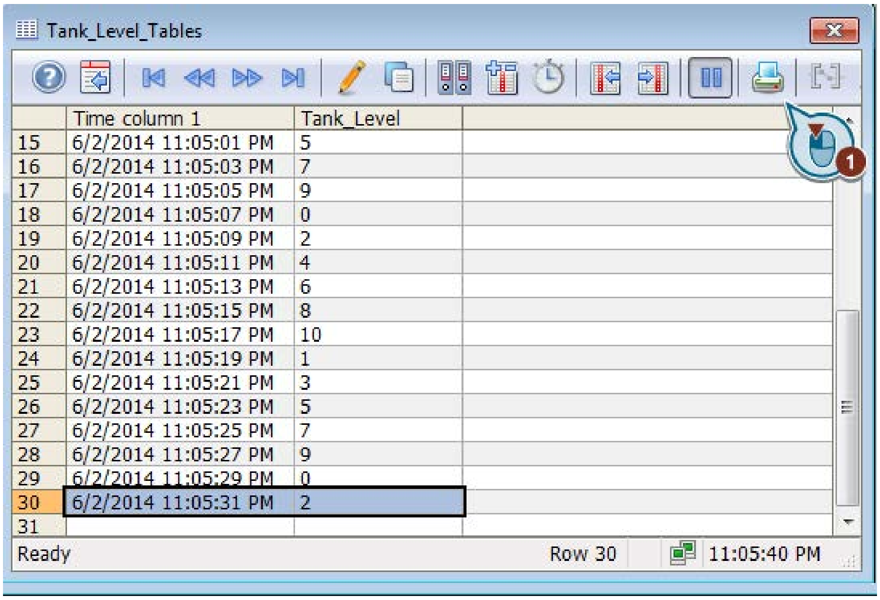


	Time column 1	Tank_Level
15	6/2/2014 11:03:01 PM	8
16	6/2/2014 11:03:03 PM	10
17	6/2/2014 11:03:05 PM	1
18	6/2/2014 11:03:07 PM	3
19	6/2/2014 11:03:09 PM	5
20	6/2/2014 11:03:11 PM	7
21	6/2/2014 11:03:13 PM	9
22	6/2/2014 11:03:15 PM	0
23	6/2/2014 11:03:17 PM	2
24	6/2/2014 11:03:19 PM	4
25	6/2/2014 11:03:21 PM	6
26	6/2/2014 11:03:23 PM	8
27	6/2/2014 11:03:25 PM	10
28	6/2/2014 11:03:27 PM	1
29	6/2/2014 11:03:29 PM	3
30	6/2/2014 11:03:31 PM	5
31		

Ready Row 30 11:03:31 PM

The data update display is stopped.

2. Click on the 🖨 button to print the log.



	Time column 1	Tank_Level
15	6/2/2014 11:05:01 PM	5
16	6/2/2014 11:05:03 PM	7
17	6/2/2014 11:05:05 PM	9
18	6/2/2014 11:05:07 PM	0
19	6/2/2014 11:05:09 PM	2
20	6/2/2014 11:05:11 PM	4
21	6/2/2014 11:05:13 PM	6
22	6/2/2014 11:05:15 PM	8
23	6/2/2014 11:05:17 PM	10
24	6/2/2014 11:05:19 PM	1
25	6/2/2014 11:05:21 PM	3
26	6/2/2014 11:05:23 PM	5
27	6/2/2014 11:05:25 PM	7
28	6/2/2014 11:05:27 PM	9
29	6/2/2014 11:05:29 PM	0
30	6/2/2014 11:05:31 PM	2
31		

Ready Row 30 11:05:40 PM

The log is printed or saved as a printable file.

3. Exit the simulation and WinCC Runtime.

Result

You have just printed a log.

The printed log consists of a page, in which the values from the current view of the table window are documented.

Configuring messages 9

9.1 Configuring messages

Introduction

This section provides information about the alarm logging and a description of how to configure messages in the "Alarm Logging" editor.

Principle

The alarm logging monitors the processes.

You can configure the following messages in the alarm logging of the "Alarm Logging" editor:

- Discrete alarms:

  Display status changes in the process.

  The discrete alarms are triggered by the PLC.

- Analog alarms:

  Show limit violations.

  The analog alarms are triggered when the set limits are violated.

In the "Quick_Start" project, you will configure messages to monitor the supply valve and the fill level of the bioconverter:

- To simulate the statuses of the supply valve, create a new internal tag.

  In the "Alarm Logging" editor you will configure discrete alarms for the different statuses of the supply valve.

  A discrete alarm is triggered when a certain bit is set in the tag value.

- You will simulate the fill level of the bioconverter in the "Quick_Start" project using the values of the internal tag "Tank_Level".

  You will set a lower and high limit for the fill level.

  If the values of the internal tag "Tank_Level" violate a limit, the corresponding analog message is triggered and displayed in Runtime.

9.2 The message system

Introduction

The message system is a subsystem of WinCC which is used to monitor the processes.

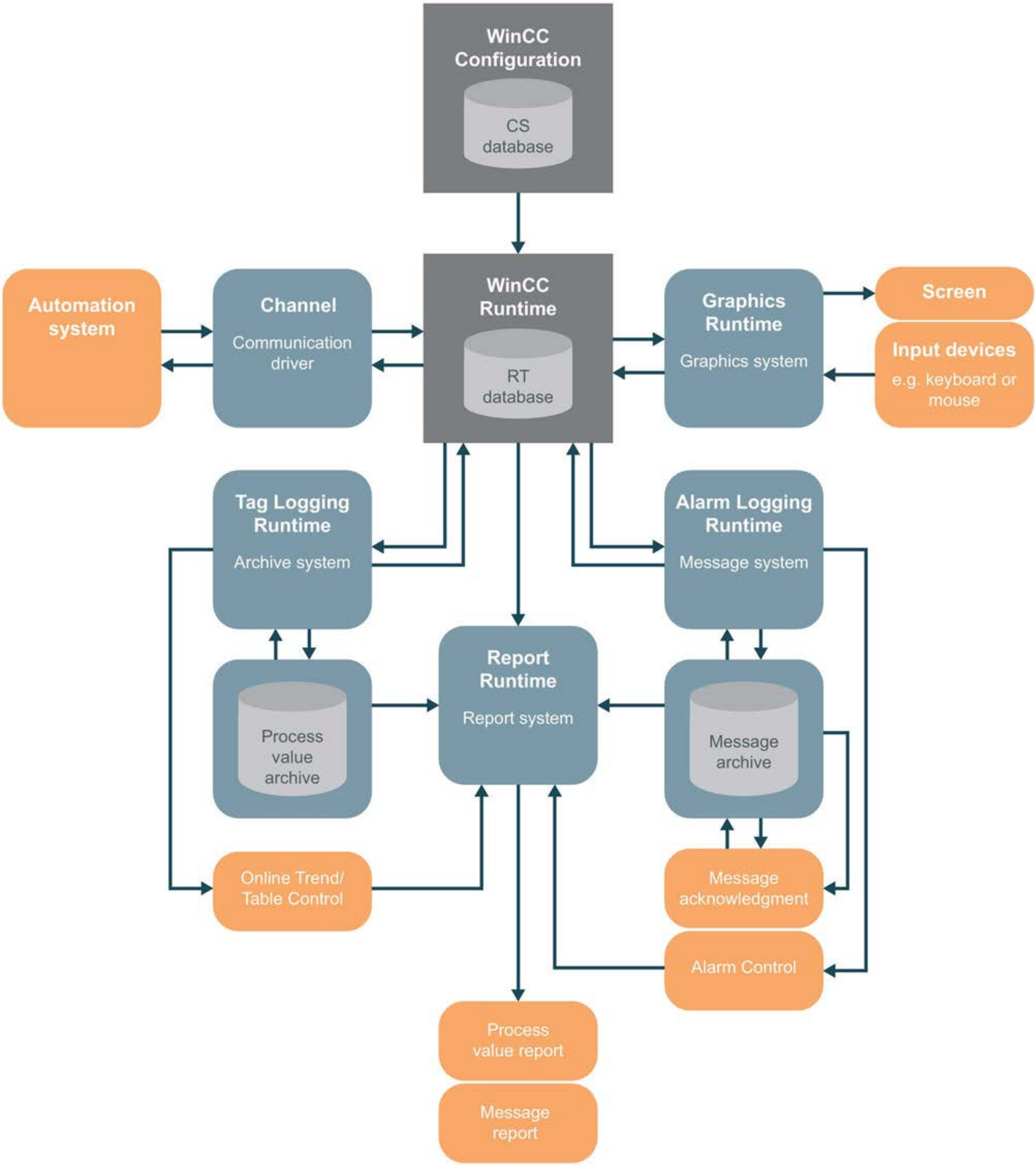
With certain statuses and changes in the process, the message system generates messages and outputs them as tables in Runtime. The messages help you to identify critical situations early so that downtimes can be avoided.

Components of the message system

The message system is made up of a configuration component and a runtime component.

- The configuration component of the message system is the "Alarm Logging" editor.
  In the "Alarm Logging" editor, you can mainly execute the following tasks:
  - Creating messages
  - Preparing messages
  - Setting limits
  - Displaying message texts and message states
  - Defining acknowledgment properties of the messages
  - Defining archiving properties of the messages
- Alarm Logging Runtime is the runtime component of the message system.
  Alarm Logging Runtime is primarily used to perform the following tasks:
  - Executing the defined monitoring
  - Controlling the message output
  - Managing acknowledgments

Message system and message archive in the WinCC system



9.3 Start alarm logging

Introduction

The following steps show how to start the editor "Alarm Logging".

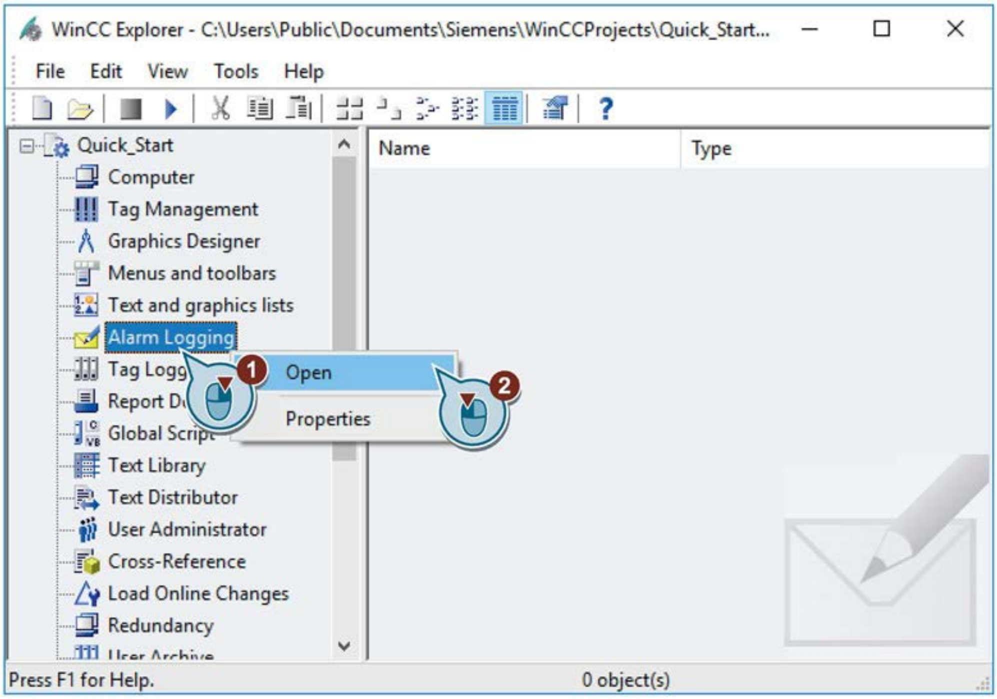
In the "Alarm Logging" editor you will configure all bit and analog messages needed for the "Quick_Start" project.

Requirement

- The "Quick_Start" project is open.

Procedure

1. Launch the "Alarm Logging" editor.

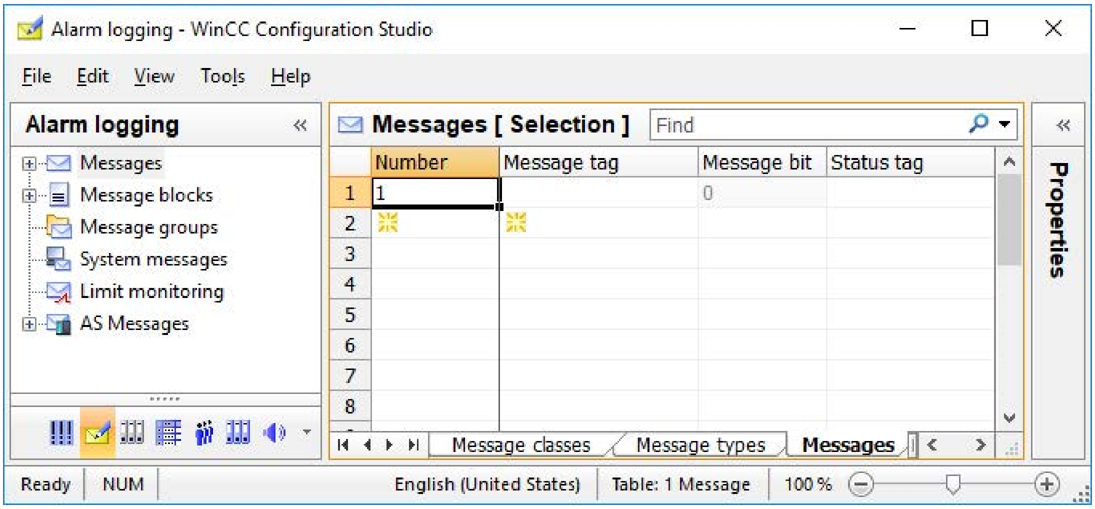


The "Alarm Logging" editor opens.

Result

You have opened the "Alarm Logging" editor.

In the next steps, you will define the message blocks and message classes.



	Number	Message tag	Message bit	Status tag
1	1		0	
2				
3				
4				
5				
6				
7				
8				

9.4 Configuring message blocks

Introduction

The following steps will show you how to configure message blocks for the messages in the "Quick_Start" project.

The messages are displayed in a table in runtime.

Message blocks

Each message is composed of information that is shown in the columns of the table.

These individual pieces of information are referred to as message blocks.
Each message block corresponds to one column in the table.

The message blocks are subdivided into three groups:

- System blocks with system data, for example, date, time, message number and status.

  System blocks are predefined.
- User text blocks with explanatory text, for example, text with information on the location and cause of a fault.

  The texts are freely customizable.
- Process value blocks are used to connect the messages with process values, for example, current fill levels, temperatures or speeds.

You can modify the properties of the message blocks for display in runtime.

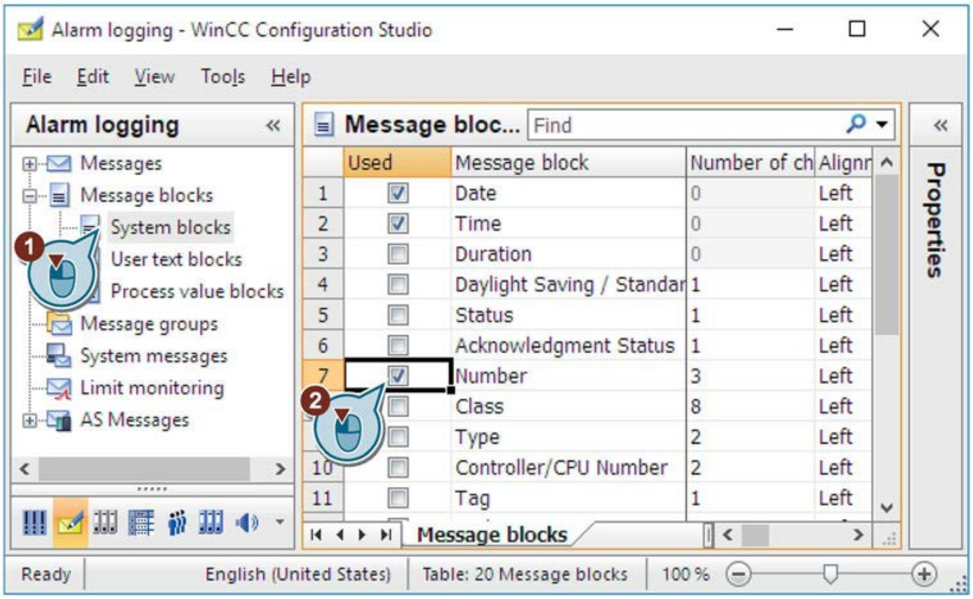
Change the length of the user text blocks used for the "Quick_Start" project.

Requirement

- The "Alarm Logging" editor is open.

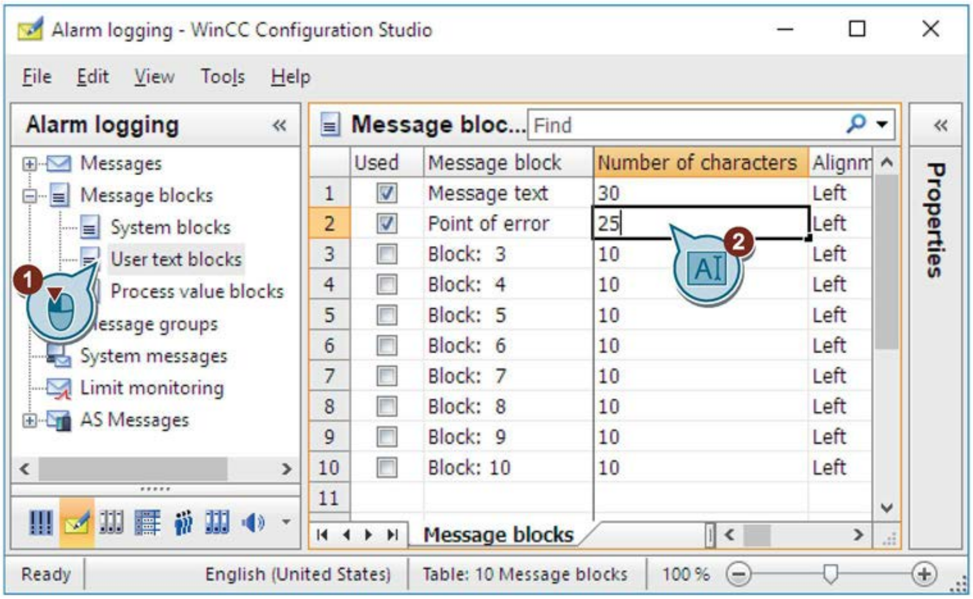
Procedure

1. In the navigation area, select the "System blocks" item in the "Message Blocks" folder.
2. Activate the system blocks that are displayed in Runtime:
   – "Date"
   – "Time of day"
   – "Number"



	Used	Message block	Number of ch	Alignr
1	☑	Date	0	Left
2	☑	Time	0	Left
3	□	Duration	0	Left
4	□	Daylight Saving / Standar	1	Left
5	□	Status	1	Left
6	□	Acknowledgment Status	1	Left
7	☑	Number	3	Left
	□	Class	8	Left
	□	Type	2	Left
10	□	Controller/CPU Number	2	Left
11	□	Tag	1	Left

3. Select the "User text blocks" item in the navigation area and activate the "Message Text" and "Point of Error" blocks.
4. Change the text length in the "Number of characters" field either in the table area or in the "Properties" window:
   - Message text: 30 characters
   - Point of error: 25 characters



	Used	Message block	Number of characters	Alignm
1	☑	Message text	30	Left
2	☑	Point of error	25	Left
3	☐	Block: 3	10	Left
4	☐	Block: 4	10	Left
5	☐	Block: 5	10	Left
6	☐	Block: 6	10	Left
7	☐	Block: 7	10	Left
8	☐	Block: 8	10	Left
9	☐	Block: 9	10	Left
10	☐	Block: 10	10	Left
11				

Result

You have defined the message blocks for the messages in the "Quick_Start" project.

In the next steps, configure three discrete alarms to monitor changes of the supply valve status.

9.5 Configuring bit messages

9.5.1 Configuring bit messages

Introduction

This section provides a description of how to configure discrete alarms in the "Alarm Logging" editor.

Overview

Each discrete alarm corresponds to the following supply valve status at the bioconverter:

- Valve_open (valve open)
- Valve_closed (valve closed)
- Valve_inop (valve failed)

If the status of the supply valve changes, a corresponding discrete alarm will be triggered and displayed in Runtime.

You will create a new internal tag to simulate the various statuses of the supply valve. You will then set this tag as a message tag for the created discrete alarms.

You define the following properties for each discrete alarm:

Message tag	The message tag is linked to the status changes in the process. If a status change takes place in the process, a bit is set in the tag value. Depending on the tag values, a discrete alarm is triggered.
Message bit	The message bit defines which bit triggers a discrete alarm.
Message text	The message text describes the status of the supply valve, for example, "Valve open" in the "Quick_Start" project.
Fault location	The fault location describes the location of the status change.

9.5.2 Creating bit messages

Introduction

The following steps show how to create discrete alarms in the editor "Alarm Logging".

For the "Quick_Start" project, create three discrete alarms in the message class "Error" and the message type "Alarm".

Requirement

- The "Alarm Logging" editor is open.
- You have created a new internal tag in Tag Management.
  - Name: "Inflow_Valve"
  - Data type: "Unsigned 16-bit value"

  Follow the steps listed in "Creating Internal Tags (Page 37)":

Procedure

1. In the "Messages" folder of the navigation area, select the "Alarm" message type under "Error".

   You can change the displayed language of message class and message type. Select the desired language in the "View > Input language" menu.

   To edit the properties of the messages, open the "Properties" window.

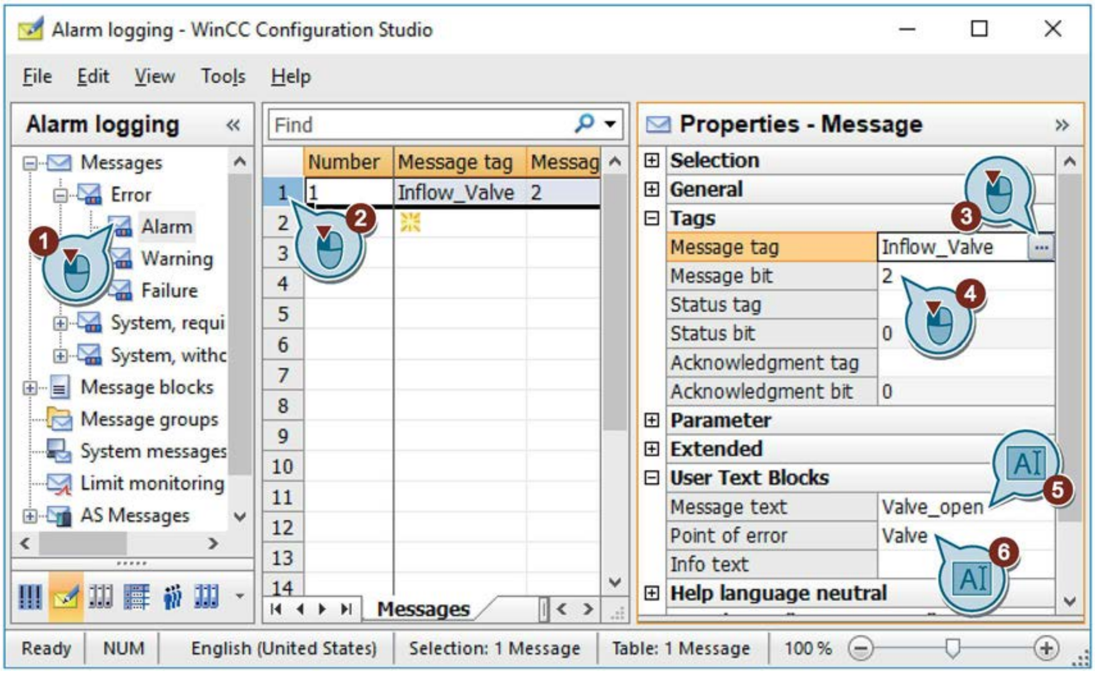
2. In the table area, select the first row and define the following properties:

   – Message tag: "Inflow_Valve"

   – Message bit: 2

   – Message text: "Valve_open"

   – Point of error: "Valve"



	Number	Message tag	Messag
1	1	Inflow_Valve	2
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

Message tag	Inflow_Valve
Message bit	2
Status tag	
Status bit	0
Acknowledgment tag	
Acknowledgment bit	0
Message text	Valve_open
Point of error	Valve
Info text	

3. Create two additional discrete alarms in the same way.

   In the table area, click on the "Number" column of the next free row in each case.

   Enter a number for the message.

4. In the "Properties - Message" area, define the following properties for the second discrete alarm:
   – Message tag: "Inflow_Valve"
   – Message bit: 3
   – Message text: "Valve_closed"
   – Point of error: "Valve"
5. You define the following properties for the third discrete alarm:
   – Message tag: "Inflow_Valve"
   – Message bit: 4
   – Message text: "Valve_inop"
   – Point of error: "Valve"

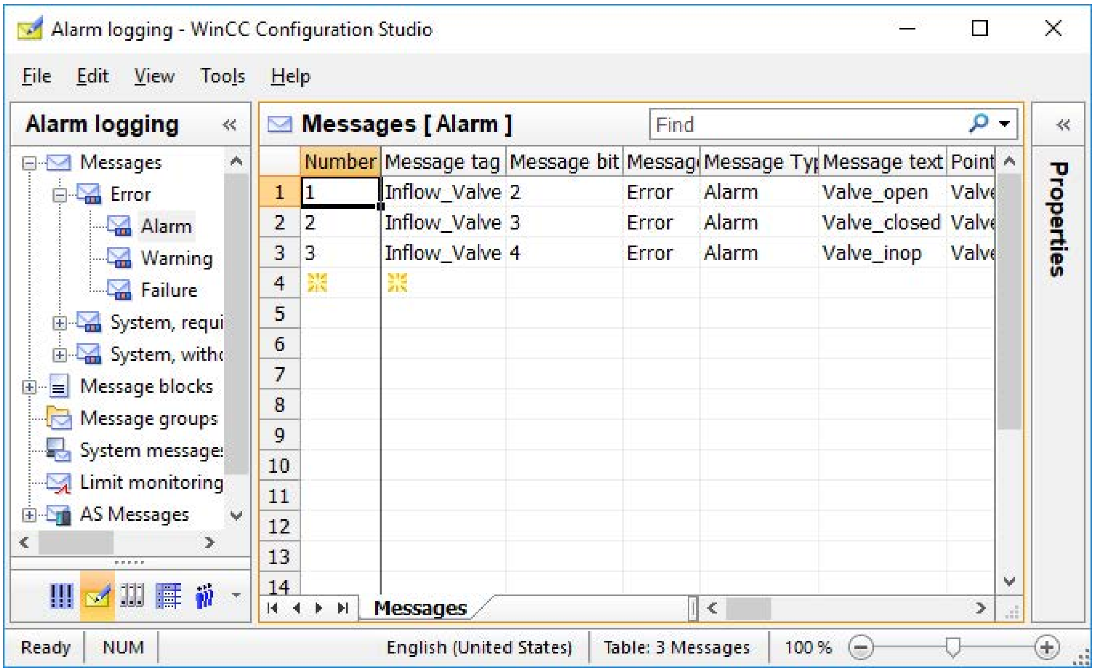
Result

You have defined the discrete alarms with the properties for the "Quick_Start" project.

The created discrete alarms are displayed in the table window of the "Alarm Logging" editor.

The output of the discrete alarms in runtime is controlled with the configuration of the messages. If, for example, the second bit from the right is set in the value of the internal tag "Inflow_Valve", the discrete alarm "Valve_open" is triggered.

Configure two analog messages in the next steps to monitor the behavior of the internal tag "Tank_Level".



	Number	Message tag	Message bit	Messag	Message Ty	Message text	Point
1	1	Inflow_Valve	2	Error	Alarm	Valve_open	Valve
2	2	Inflow_Valve	3	Error	Alarm	Valve_closed	Valve
3	3	Inflow_Valve	4	Error	Alarm	Valve_inop	Valve
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							

9.6 Configuring analog messages

9.6.1 Configuring analog messages

Introduction

This chapter provides a description of how to configure analog messages in the "Alarm Logging" editor.

Overview

The analog alarms show limit violations in Runtime.

The configuration of the analog messages in the "Quick_Start" project consist of the following steps:

1. Defining the tag to be monitored

   Define the tag to be monitored under "Limit value monitoring" in "Alarm Logging".

2. Setting limits

In the "Quick_Start" project you will monitor the behavior of the internal tag "Tank_Level". The tag values simulate the fill level of the bioconverter.

Define a high and a low limit value for the tag.

The "Alarm Logging" editor generates an analog message for each limit value defined:

- The high limit will define the maximum water volume that is permitted in the bioconverter.

  If the high limit is violated, the bioconverter is overfilled.

  The corresponding analog message is displayed in Runtime.

- The low limit defines the minimum water volume that should be in the bioconverter.

  If the low limit is violated, the fill level of the bioconverter has fallen to a dangerous level.

  The corresponding analog message is displayed in Runtime.

9.6.2 Setting Limit Values

Introduction

The following steps will show you how to define the limit values for the internal tag "Tank_Level".

Any number of limits can be set for a tag. The "Alarm Logging" editor will create an analog message for each defined limit value.

In the "Quick_Start" project you will define a upper and low limit value for the internal tag "Tank_Level".

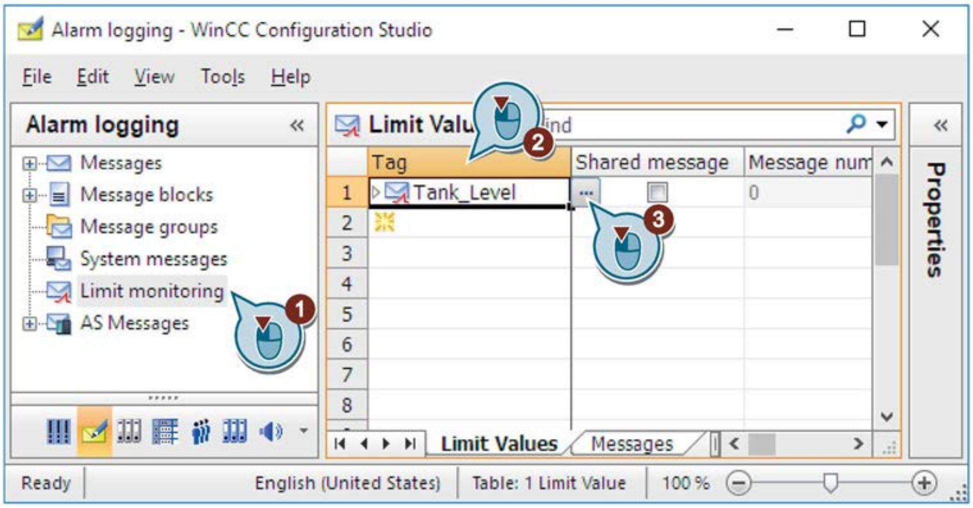
Requirement

- The "Alarm Logging" editor is open.
- The internal tag "Tank_Level" is configured.

Procedure

1. In the navigation area, select the "Limit monitoring" folder.
2. Click in the top empty line of the "Tag" column in the table area.

   Select the internal tag "Tank_Level".

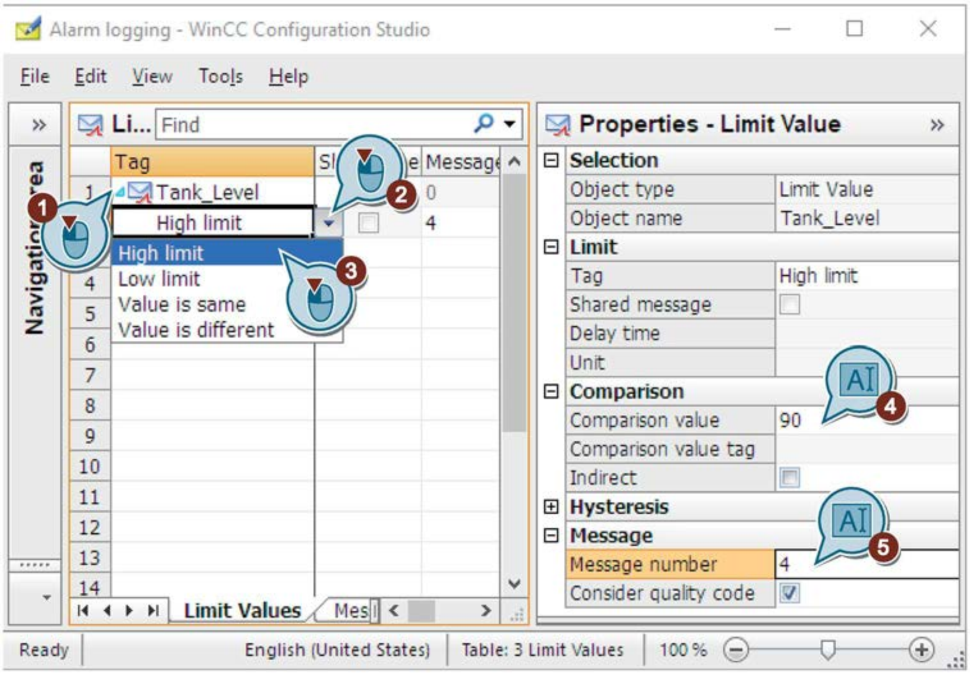


3. To open the entry, click the arrow in front of the tag name.

   Select the "High limit" entry under the tag in the table pane.

4. Enter the properties for the high limit value in the "Properties - Limit value" area or in the table area.

   Use a new, unused message number, e.g. "4".


Alarm logging - WinCC Configuration Studio
File Edit View Tools Help
Navigation area
Li... Find
1
2
3
4
5
Properties - Limit Value

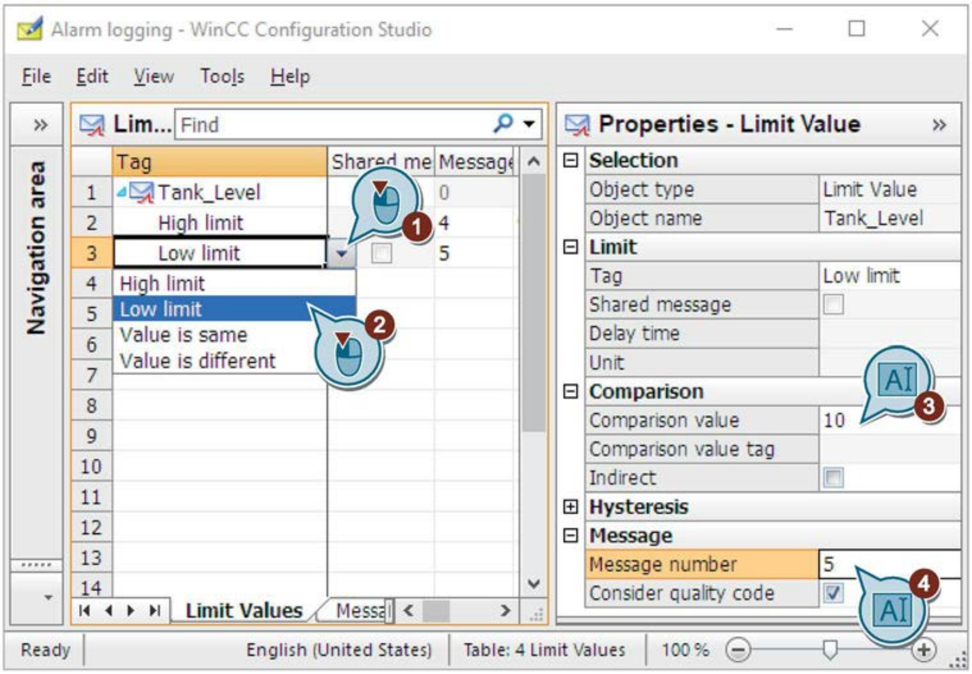
	Tag	Sh...	Message
1	Tank_Level		0
2	High limit	□	4

High limit
Low limit
Value is same
Value is different

Selection	
Object type	Limit Value
Object name	Tank_Level
Limit	
Tag	High limit
Shared message	□
Delay time	
Unit	
Comparison	
Comparison value	90
Comparison value tag	
Indirect	□
Hysteresis	
Message	
Message number	4
Consider quality code	☑

5. To enter the data for the second limit, select the "Low limit" entry in the next line under the tag.
6. Enter the properties for the low limit value in the "Properties - Limit value" area or in the table area.

   Use a new, unused message number, e.g. "5".



	Tag	Shared me	Message
1	Tank_Level		0
2	High limit		4
3	Low limit	□	5
4	High limit		
5	Low limit		
6	Value is same		
7	Value is different		
8			
9			
10			
11			
12			
13			
14			

Selection	
Object type	Limit Value
Object name	Tank_Level
Limit	
Tag	Low limit
Shared message	□
Delay time	
Unit	
Comparison	
Comparison value	10
Comparison value tag	
Indirect	□
Hysteresis	
Message	
Message number	5
Consider quality code	☑

Result

You have defined the limit values for the internal tag "Tank_Level".

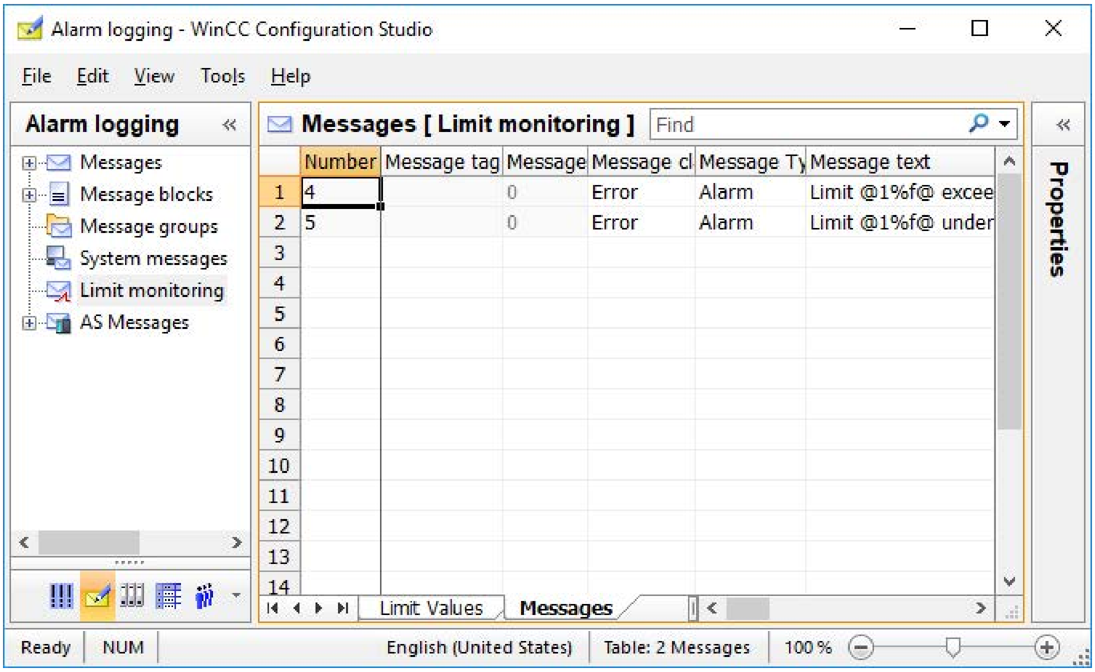
- If the tag value is greater than 90, the analog message "High limit value" is triggered and displayed in Runtime.

  This message indicates that the bioconverter fill level is exceeded.

- If the tag value is less than 10, the analog message "Low limit value" is triggered and displayed in Runtime.

  This message indicates that the fill level is below the permitted level.

Select the "Limit monitoring" entry in the navigation pane and click on the "Messages" tab to obtain an overview of the analog alarms created.



	Number	Message tag	Message	Message cl	Message Ty	Message text
1	4		0	Error	Alarm	Limit @1%f@ excee
2	5		0	Error	Alarm	Limit @1%f@ under
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						

Ready | NUM | English (United States) | Table: 2 Messages | 100 %

In the next steps, you will configure the display of limit violations in the WinCC OnlineTrendControl.

9.6.3 Displaying messages in trend windows

Introduction

The following steps show you how to display the limit monitoring messages as a tooltip in a WinCC OnlineTrendControl.

You create a trend for the "Tank Level" tag and enable the "Show Alarms" option.

The assigned messages are displayed as symbols and tooltips for trend values with limit violation in Runtime.

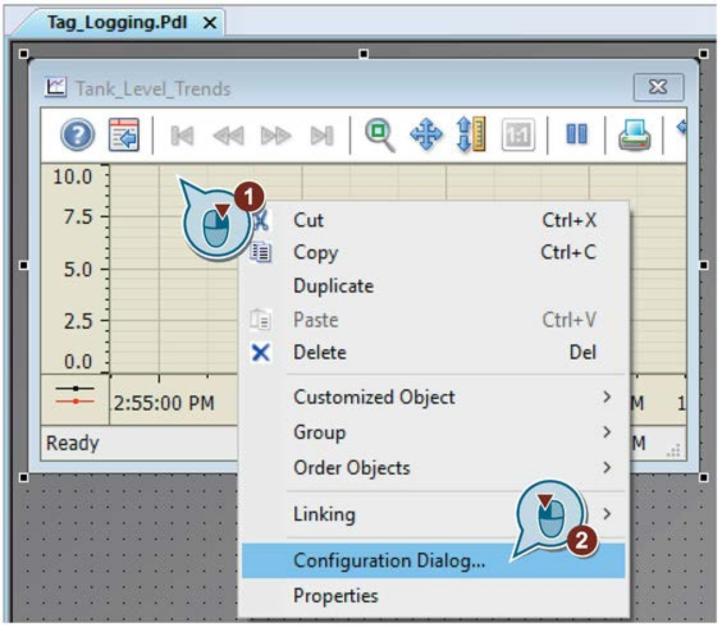
Requirement

- The "Tag_Logging.pdl" picture is open in the Graphics Designer.
- You have configured limit monitoring in Alarm Logging:

  "Setting Limit Values (Page 184)"

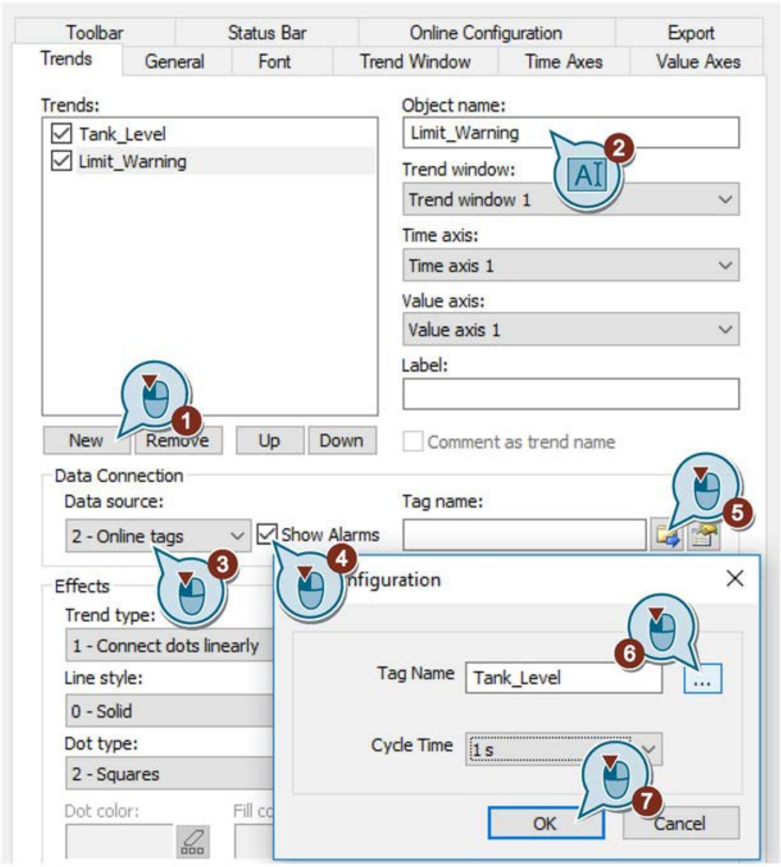
Procedure

1. Select the WinCC OnlineTrendControl "Tank_Level_Trends".
2. Open the "Properties of WinCC Online Trend Control" configuration dialog using the shortcut menu.



3. Create the "Limit_Warning" trend for internal tag "Tank_Level" and select the "Show Alarms" option.

   To display the tags in the tag selection dialog, you may need to select the "WinCC Tags" option in the "Data source" area.



Trends:
☑ Tank_Level
☑ Limit_Warning

Object name: Limit_Warning

Trend window: Trend window 1

Time axis: Time axis 1

Value axis: Value axis 1

Label:

□ Comment as trend name

Data Connection

Data source: 2 - Online tags

☑ Show Alarms

Tag name:

Effects

Trend type: 1 - Connect dots linearly

Line style: 0 - Solid

Dot type: 2 - Squares

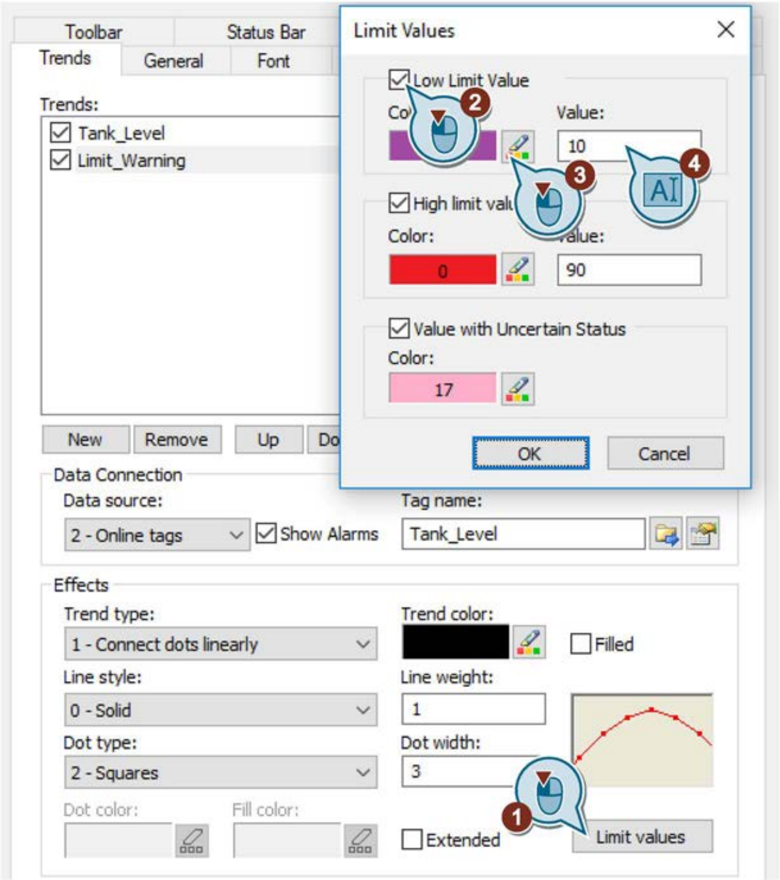
Dot color:

Fill co

Tag Name Tank_Level

Cycle Time 1 s

4. Configure a color change of the trend for the low limit.



Trends:
☑ Tank_Level
☑ Limit_Warning

☑ Low Limit Value
Co
Value: 10

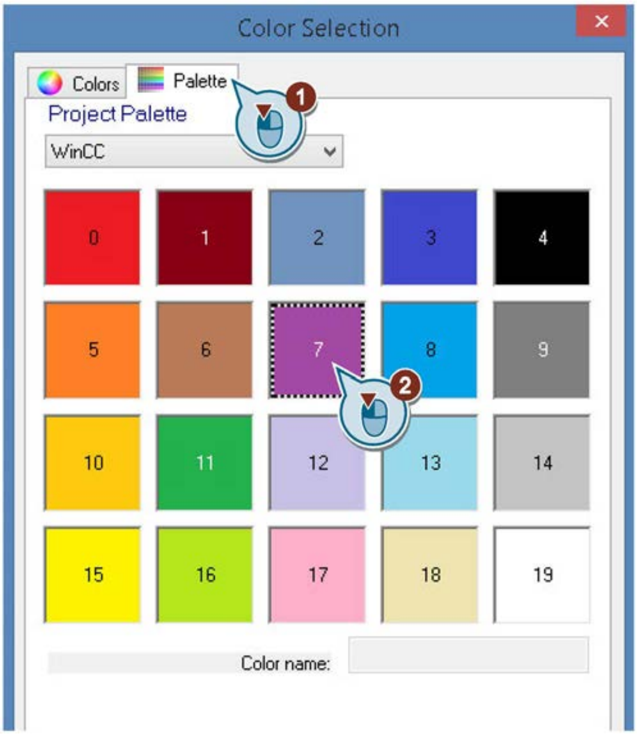
☑ High limit valu
Color: 0
alue: 90

☑ Value with Uncertain Status
Color: 17

Data Connection
Data source: 2 - Online tags
☑ Show Alarms
Tag name: Tank_Level

Effects
Trend type: 1 - Connect dots linearly
Trend color:
□ Filled
Line style: 0 - Solid
Line weight: 1
Dot type: 2 - Squares
Dot width: 3
Dot color:
Fill color:
□ Extended
Limit values

If you want to apply predefined colors, select the color palette in the "Color Selection" dialog.



5. Configure a color change of the trend for the high limit and for values with uncertain status.

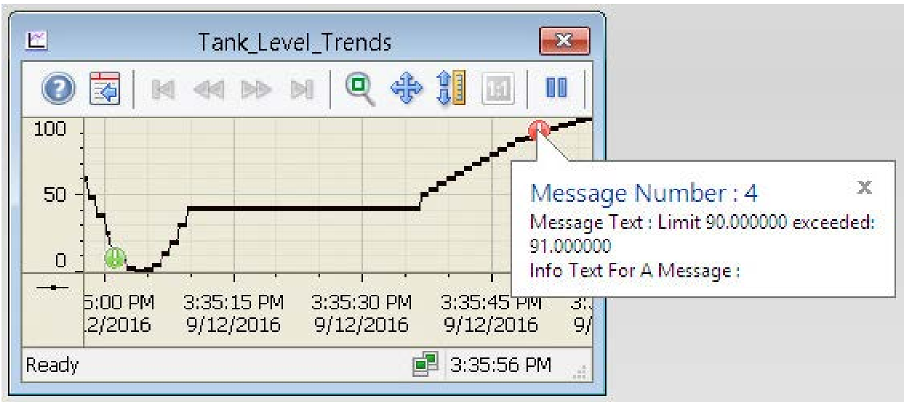
Result

You have configured the "Limit_Warning" trend for internal tag "Tank_Level" and linked it to the limit monitoring.

A limit violation will be displayed in runtime:

- A red symbol indicates that a limit has been violated.
- The tooltip shows the message text of the message.
- The trend changes color.
- When the value is back within the limits, the symbol turns green.

  The message may continue to be displayed.



Message Number : 4
Message Text : Limit 90.000000 exceeded: 91.000000
Info Text For A Message :

In the next steps, define the display colors of the message states in Runtime.

9.7 Define color of the message statuses

Introduction

The following steps will show you how to define the display colors for the different message statuses.

A distinction is made between three basic types of message status in WinCC:

- A message "came in" as long as the cause for the message exists.
- A message "went out" as soon as the cause for the message no longer exists.
- A message is "acknowledged" when the message is acknowledged by the user.

The current status of each message is displayed in different colors in Runtime. The display color of the individual message statuses is determined in the "Alarm Logging" Editor.

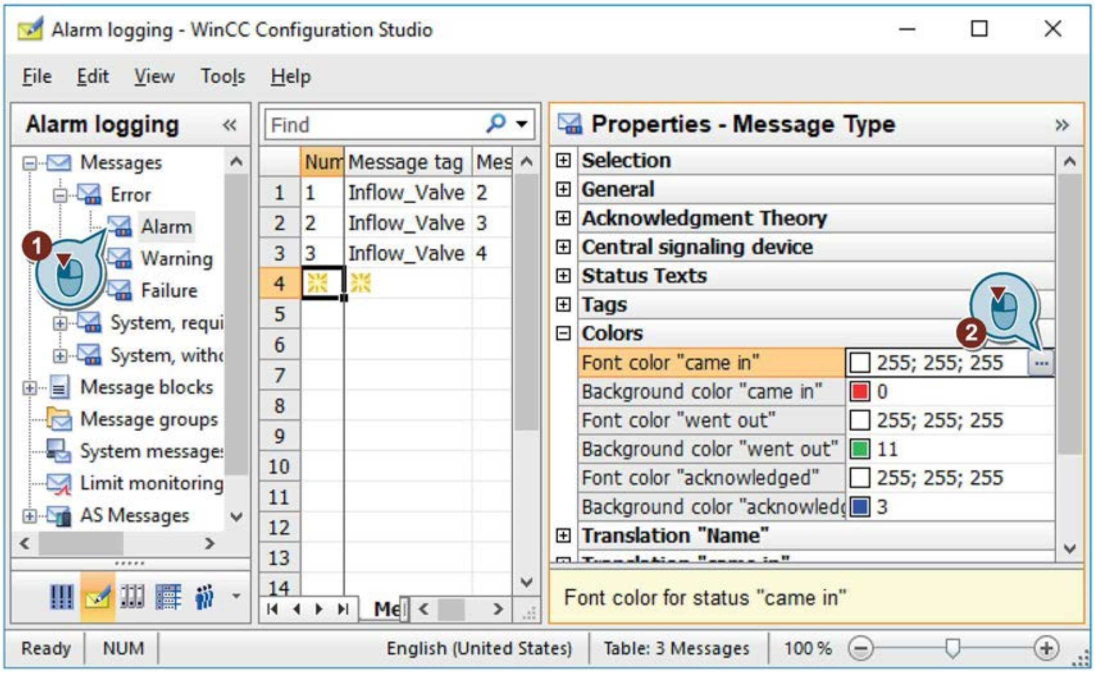
In the "Quick_Start" project, you define the different font colors and background colors for the three basic statuses. This definition is applicable to the entire message type "Alarm" of the message class "Error". This will apply the settings to all messages in the "Quick_Start" project.

Requirement

- The "Alarm Logging" editor is open.

Procedure

1. Under "Error" in the navigation area, select the folder for the "Alarm" message type.
2. Edit the colors of the message type in the "Properties" area.



	Num	Message tag	Mes
1	1	Inflow_Valve	2
2	2	Inflow_Valve	3
3	3	Inflow_Valve	4
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

Font color "came in"	□ 255; 255; 255
Background color "came in"	🟥 0
Font color "went out"	□ 255; 255; 255
Background color "went out"	🟩 11
Font color "acknowledged"	□ 255; 255; 255
Background color "acknowled(	🟦 3

Font color for status "came in"

3. Define the following properties for the message status "came in":
   - Font color: White
   - Background color: Red
4. Define the following for the message status "went out":
   - Font color: White
   - Background color: Green
5. Define the following for the message status "acknowledged":
   - Font color: White
   - Background color: Blue
6. Close the "Alarm Logging" editor.

Result

You have now defined the display color of the message statuses "came in", "went out" and "acknowledged". During runtime, the messages are displayed in the respective colors depending on their status.

In the next steps configure a process picture in the Graphics Designer Editor to display messages in a tabular view during runtime.

9.8 Configuring the Process Screen

9.8.1 Configuring the process picture (alarm logging)

Introduction

This section offers a description how to configure a process picture, which displays the output of the messages.

Principle

You configure the process picture in the "Graphics Designer" editor. For this, you will use the following objects:

- WinCC AlarmControl

  The "WinCC AlarmControl" object is used for creating an alarm window.
  The messages are displayed in a table in the alarm window.

  The output takes place in Runtime.

- Slider object

  You will use the slider object in the "Quick_Start" project to transfer analog values to the internal tag "Tank_Level".

  If the transferred values violate a defined limit value, the corresponding analog alarm is triggered.

- I/O field

  You will connect the "I/O field" object with the internal tag "Inflow_Valve" in the "Quick_Start" project.

  Enter binary values into I/O field. These values are assigned to the tag "Inflow_Valve" in Runtime.

  If a certain bit is set in the tag value, the corresponding discrete alarm is triggered.

9.8.2 Configuring an Alarm Message Window

Introduction

The following steps show you how to configure a message window.

You configure the message window in the "Graphics Designer" editor.

For this, you will create a new process picture. You insert the "WinCC AlarmControl" object in the process picture. This object is pre-configured for the display of the messages.

The properties of the WinCC AlarmControl are used to define which message blocks are to be displayed as columns in the message window.

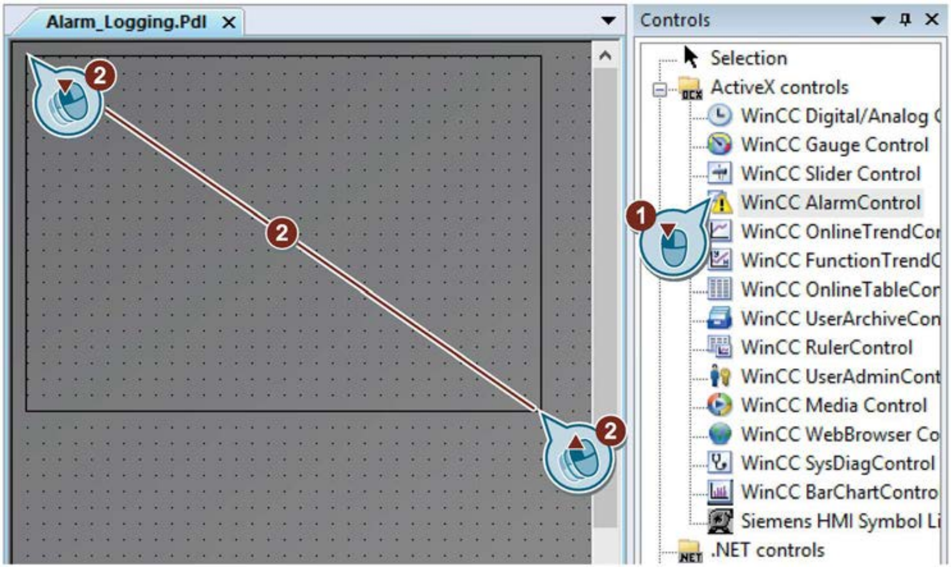
In Runtime, the messages consist of these message blocks.

Requirement

- The "Quick_Start" project is open.

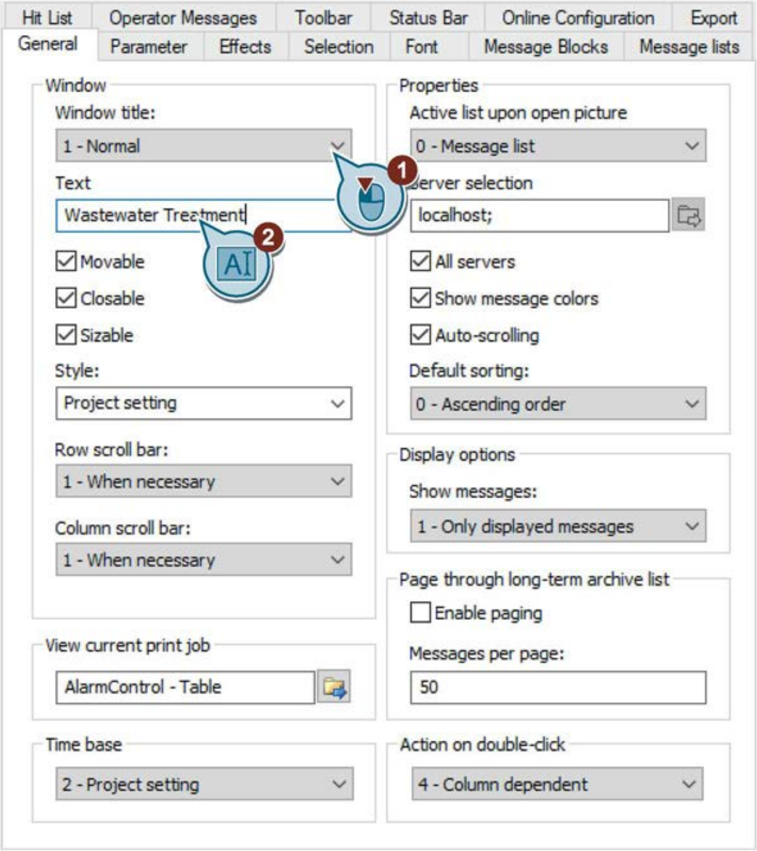
Procedure

1. Create a new process picture named "Alarm_Logging.pdl" and open it in the editor "Graphics Designer".
2. Insert the "WinCC AlarmControl" object into the process picture.



The "WinCC AlarmControl Properties" dialog opens.

3. Specify the name of the message window.



Window
Window title: 1 - Normal
Text: Wastewater Treatment
☑ Movable
☑ Closable
☑ Sizable
Style: Project setting
Row scroll bar: 1 - When necessary
Column scroll bar: 1 - When necessary

View current print job: AlarmControl - Table

Time base: 2 - Project setting

Properties
Active list upon open picture: 0 - Message list
Server selection: localhost;
☑ All servers
☑ Show message colors
☑ Auto-scrolling
Default sorting: 0 - Ascending order

Display options
Show messages: 1 - Only displayed messages

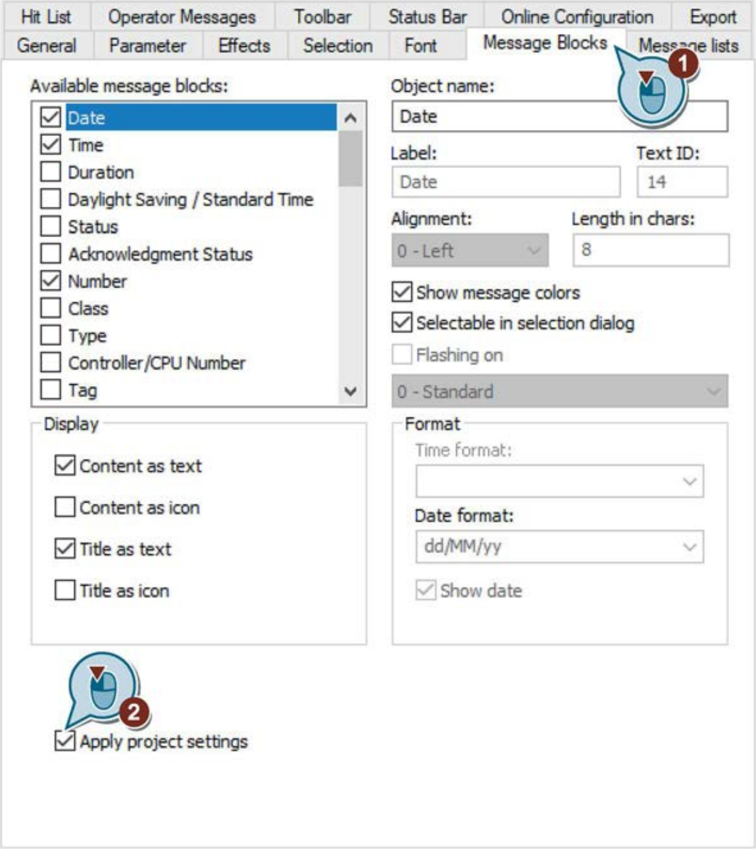
Page through long-term archive list
☐ Enable paging
Messages per page: 50

Action on double-click: 4 - Column dependent

4. Click on the "Message blocks" tab.

   Make sure that the "Apply Project Settings" setting is activated.

   This applies the configuration of the message blocks from Alarm Logging.



Available message blocks:

☑ Date
☑ Time
☐ Duration
☐ Daylight Saving / Standard Time
☐ Status
☐ Acknowledgment Status
☑ Number
☐ Class
☐ Type
☐ Controller/CPU Number
☐ Tag

Object name: Date

Label: Date

Text ID: 14

Alignment: 0 - Left

Length in chars: 8

☑ Show message colors

☑ Selectable in selection dialog

☐ Flashing on

0 - Standard

Display

☑ Content as text

☐ Content as icon

☑ Title as text

☐ Title as icon

Format

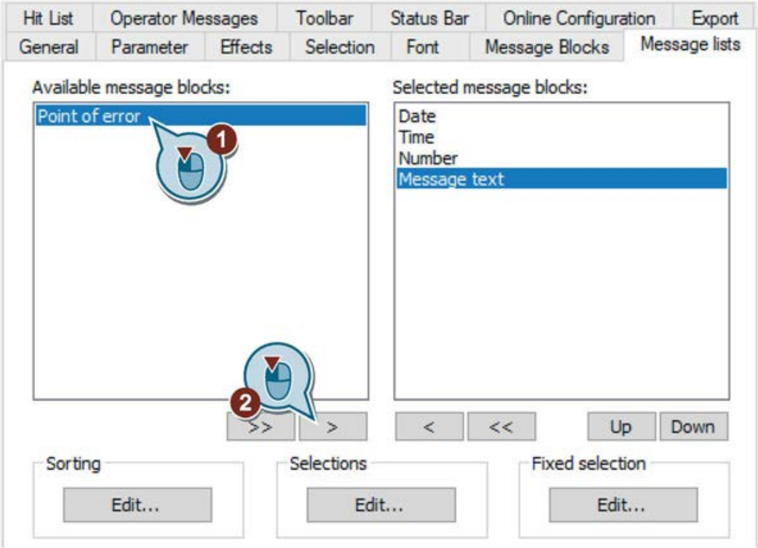
Time format:

Date format: dd/MM/yy

☑ Show date

☑ Apply project settings

5. Click the "Message lists" tab and move the "Message text" and "Point of error" user text blocks into the "Selected message blocks" field.



Available message blocks:

Point of error

Selected message blocks:

Date
Time
Number
Message text

The user text blocks "Message text" and "Point of error" are displayed in the message window.

6. Close the dialog with "OK".

   Enlarge the message window if required.

Result

You have configured the "Wastewater Treatment" message window.

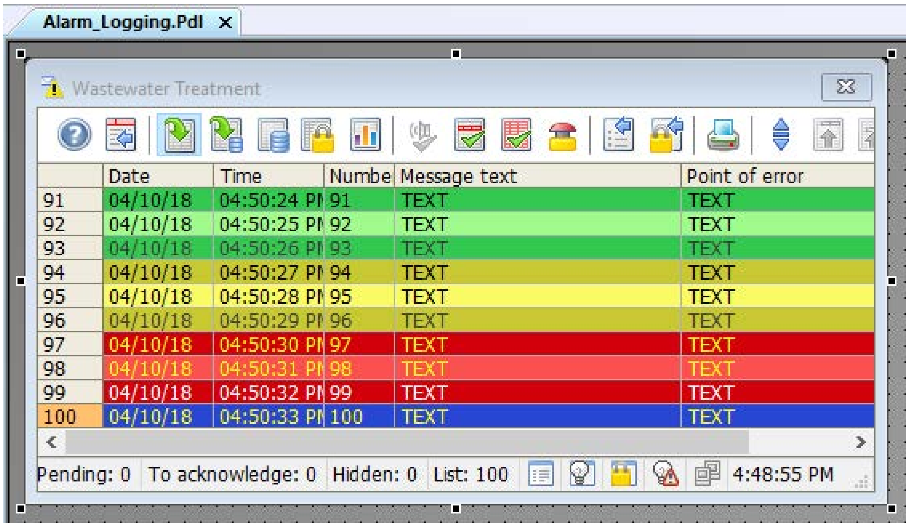
The messages you have configured for the "Quick_Start" project are displayed in this window during runtime.

The triggering of messages depends on the values of the internal tags "Tank_Level" and "Inflow_Valve". The display color of the messages changes according to the message status.

The contents of the messages consist of the following message blocks in the message window:

- System blocks: Date, time and number
- User text blocks: Message Text and Point of Error

Configure a slider object in the next steps to provide analog values to the internal tag "Tank_Level".



	Date	Time	Numbe	Message text	Point of error
91	04/10/18	04:50:24 PI	91	TEXT	TEXT
92	04/10/18	04:50:25 PI	92	TEXT	TEXT
93	04/10/18	04:50:26 PI	93	TEXT	TEXT
94	04/10/18	04:50:27 PI	94	TEXT	TEXT
95	04/10/18	04:50:28 PI	95	TEXT	TEXT
96	04/10/18	04:50:29 PI	96	TEXT	TEXT
97	04/10/18	04:50:30 PI	97	TEXT	TEXT
98	04/10/18	04:50:31 PI	98	TEXT	TEXT
99	04/10/18	04:50:32 PI	99	TEXT	TEXT
100	04/10/18	04:50:33 PI	100	TEXT	TEXT

Pending: 0 To acknowledge: 0 Hidden: 0 List: 100 4:48:55 PM

9.8.3 Inserting a slider object and making it dynamic

Introduction

The following steps will show you how to insert a slider object and how to make it dynamic.

The slider object is used for displaying and changing tag values. The connection of the slider object to a process tag allows the control of the automation system.

In the "Quick_Start" project you will insert the slider object into the process picture "Alarm_Logging.pdl".

You will make the slider object dynamic via a connection to the internal tag "Tank_Level".

When you use the slider object in Runtime, the internal tag "Tank_Level" is assigned a value. If the assigned value violates one of the defined limits, the corresponding analog alarm is displayed in the alarm window.

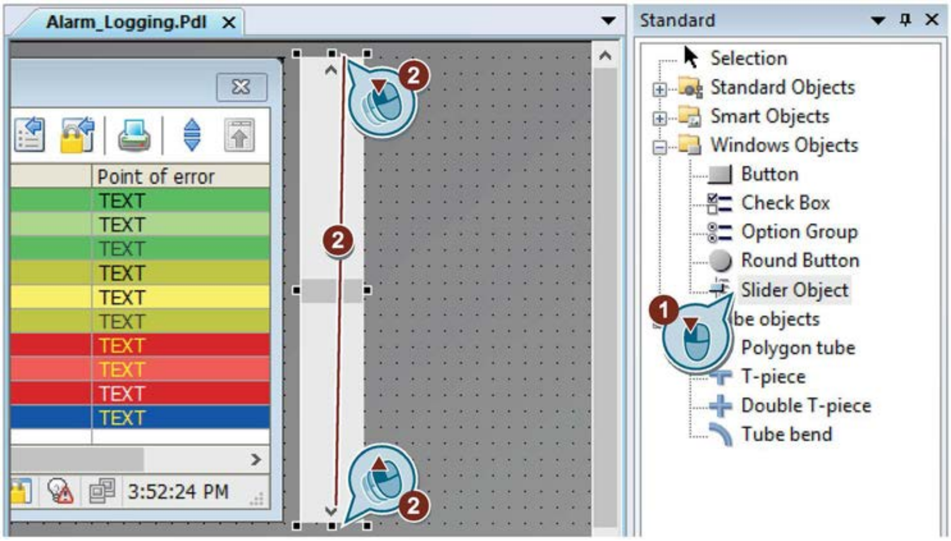
Change the preset properties of the slider object for the "Quick_Start" project: In the "Object Properties" window, enter a new name for the slider object and define its height.

Requirement

- The "Graphics Designer" editor is open.
- The process picture "Alarm_Logging.pdl" has been created.
- The internal tag "Tank_Level" has been created.

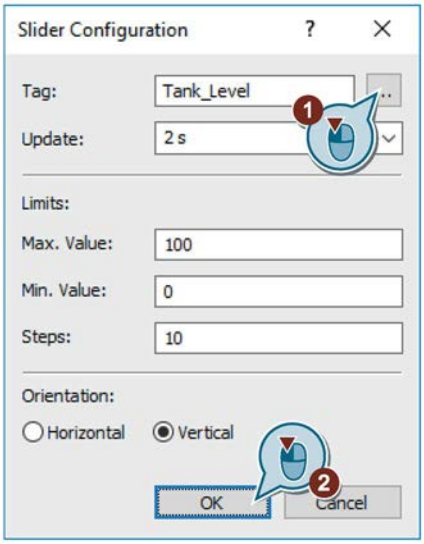
Procedure

1. Insert a slider object into the "Alarm_Logging.pdl" process picture.



The "Slider Configuration" dialog opens.

2. Link the slider object to the internal tag "Tank_Level".



Tag: Tank_Level

Update: 2 s

Limits:

Max. Value: 100

Min. Value: 0

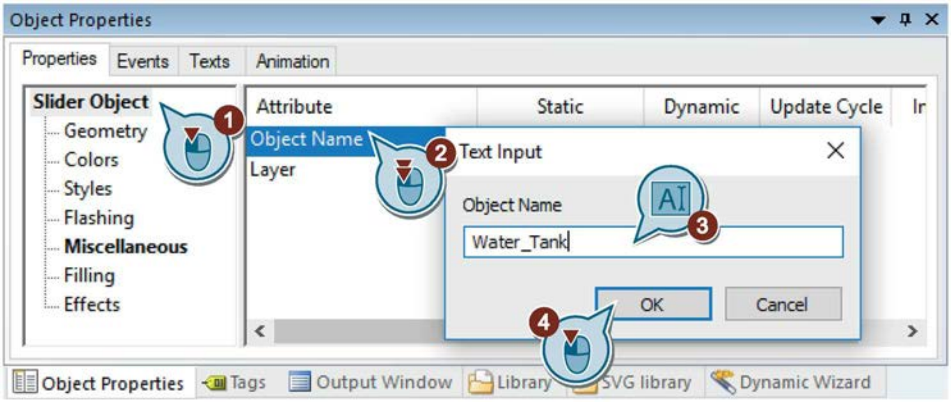
Steps: 10

Orientation:

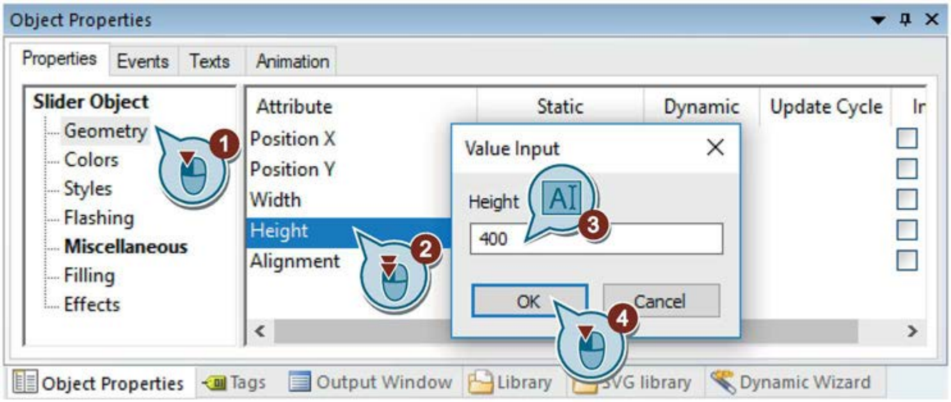
○ Horizontal ● Vertical

3. Switch to the "Object properties" window.

   Enter "Water_Tank" as name for the slider object.



4. Define "400" as the height of the slider object.



Result

You have inserted the slider object "Water_Tank" and made it dynamic.

The dynamization of the slider object allows the transfer of values to the internal tag "Tank_Level". As limit value monitoring is configured for this tag, the corresponding message is triggered when a set value is violated.

In order to facilitate the setting of values with the slider object, you will insert a scale in the next steps.

9.8.4 Inserting a scale

Introduction

The following steps will show you how to insert a scale from the library of the "Graphics Designer".

In the "Quick_Start" project you will insert the scale into the process picture "Alarm_Logging.pdl".

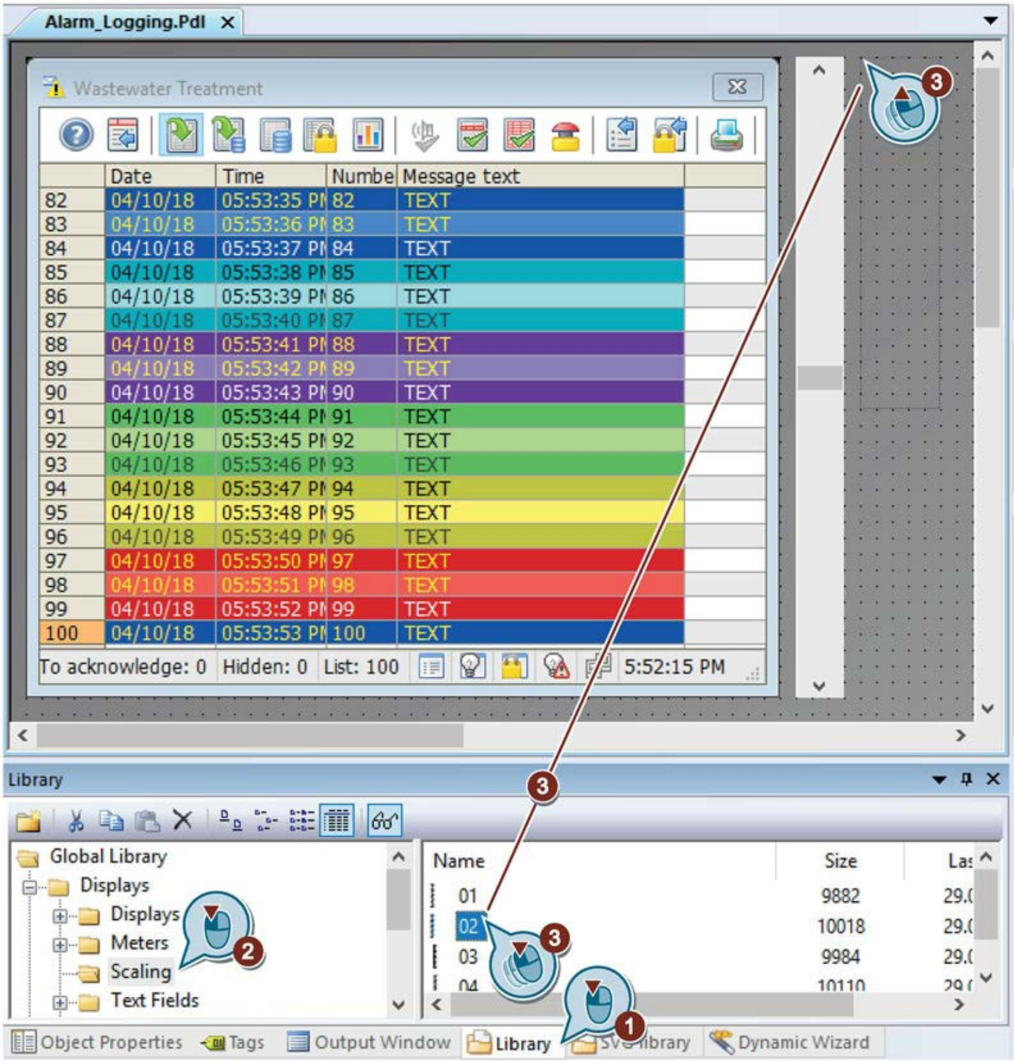
By means of this scale, you will display the values that the slider object "Water_Tank" can assume. The lines on the scale correspond to the operating steps of the slider object.

Requirement

- The process picture "Alarm_Logging.pdl" is open.
- The slider object "Water_Tank" has been inserted.

Procedure

1. Switch to the Global library.
2. Insert scale "02".



	Date	Time	Numbe	Message text
82	04/10/18	05:53:35 PI	82	TEXT
83	04/10/18	05:53:36 PI	83	TEXT
84	04/10/18	05:53:37 PI	84	TEXT
85	04/10/18	05:53:38 PI	85	TEXT
86	04/10/18	05:53:39 PI	86	TEXT
87	04/10/18	05:53:40 PI	87	TEXT
88	04/10/18	05:53:41 PI	88	TEXT
89	04/10/18	05:53:42 PI	89	TEXT
90	04/10/18	05:53:43 PI	90	TEXT
91	04/10/18	05:53:44 PI	91	TEXT
92	04/10/18	05:53:45 PI	92	TEXT
93	04/10/18	05:53:46 PI	93	TEXT
94	04/10/18	05:53:47 PI	94	TEXT
95	04/10/18	05:53:48 PI	95	TEXT
96	04/10/18	05:53:49 PI	96	TEXT
97	04/10/18	05:53:50 PI	97	TEXT
98	04/10/18	05:53:51 PI	98	TEXT
99	04/10/18	05:53:52 PI	99	TEXT
100	04/10/18	05:53:53 PI	100	TEXT

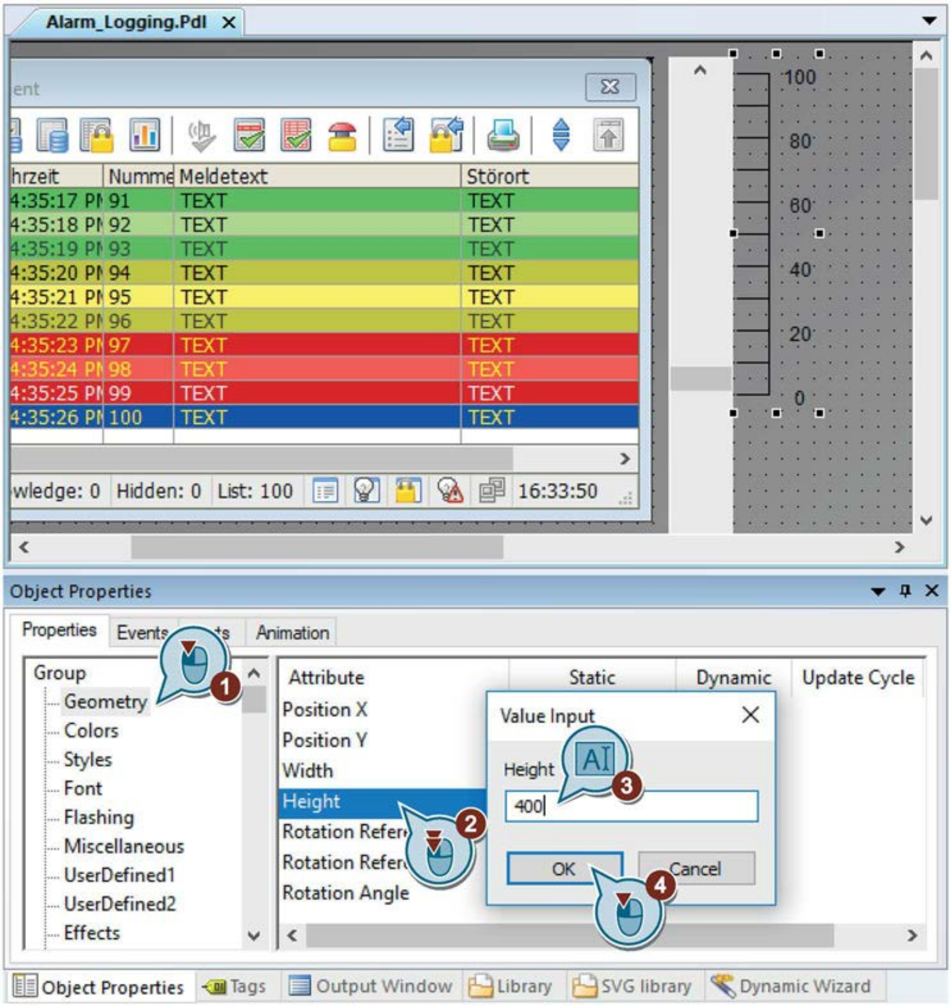
To acknowledge: 0 Hidden: 0 List: 100 5:52:15 PM

Name	Size	Las
01	9882	29.(
02	10018	29.(
03	9984	29.(
04	10110	29.(

The scale is displayed in the "Alarm_Logging.pdl" process picture.

3. Switch to "Object properties".

   Define "400" as the height of the scale.

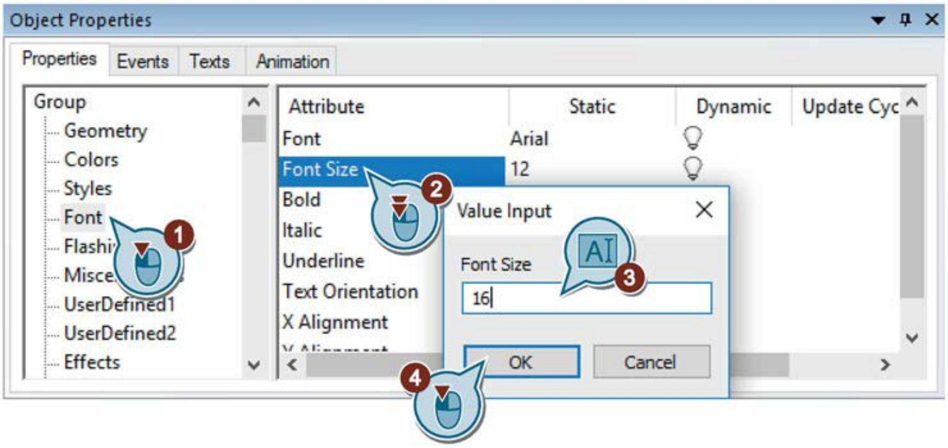


hrzeit	Numme	Meldetext	Störort
4:35:17 PI	91	TEXT	TEXT
4:35:18 PI	92	TEXT	TEXT
4:35:19 PI	93	TEXT	TEXT
4:35:20 PI	94	TEXT	TEXT
4:35:21 PI	95	TEXT	TEXT
4:35:22 PI	96	TEXT	TEXT
4:35:23 PI	97	TEXT	TEXT
4:35:24 PI	98	TEXT	TEXT
4:35:25 PI	99	TEXT	TEXT
4:35:26 PI	100	TEXT	TEXT

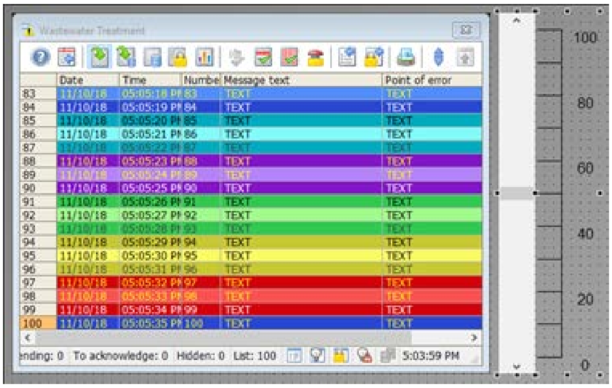
Attribute	Static	Dynamic	Update Cycle

Height: 400

4. Set "16" as the font size for the scale.



5. Align the scale and the slider object to the same horizontal line.



Result

You have inserted a scale into the process picture "Alarm_Logging.pdl".

You set the values of the slider object "Water_Tank" in runtime with this scale.

In the next steps you will insert an I/O field to supply the internal tag "Inflow_Valve" with binary values.

9.8.5 Inserting an I/O field and making it dynamic (alarm logging)

Introduction

The following steps will show you how to insert an I/O field and how to make it dynamic.

In the "Quick_Start" project you will insert the I/O field into the process picture "Alarm_Logging.pdl".

You will make the I/O field dynamic via a connection to the internal tag "Inflow_Valve".

As statuses are saved in this tag, you will define a binary output format of the values for the I/O field.

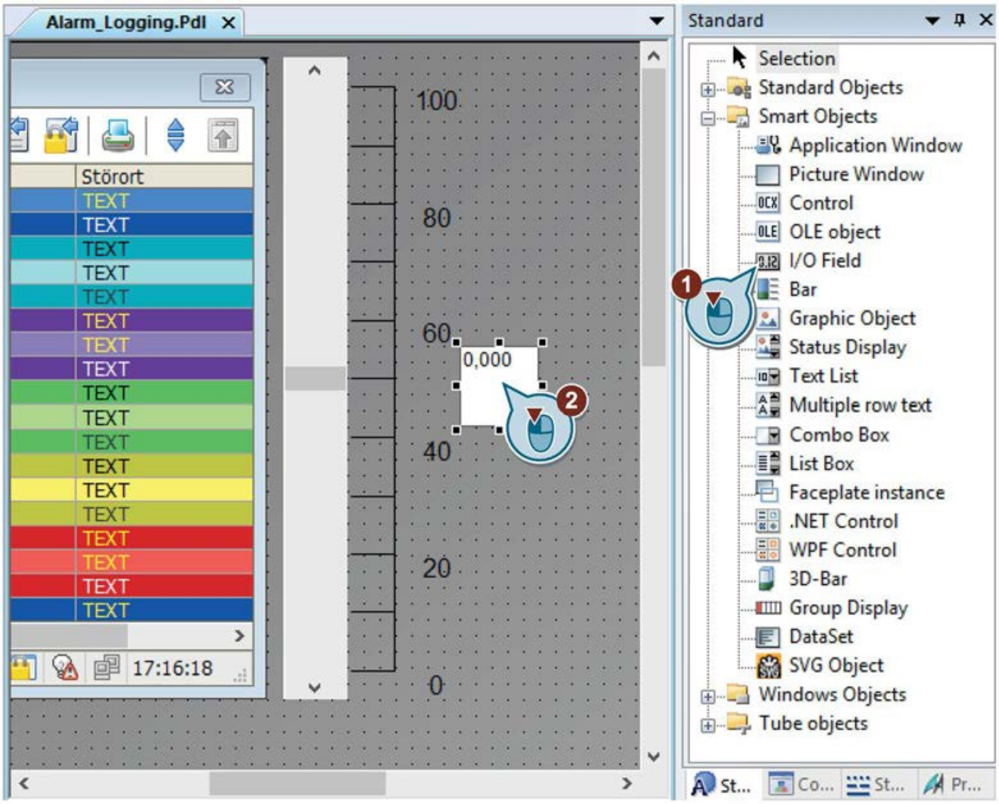
The I/O field is used to transmit binary values to the internal "Inflow_Valve" tag in Runtime.

Requirement

- The process picture "Alarm_Logging.pdl" is open.
- The internal tag "Inflow_Valve" has been created.

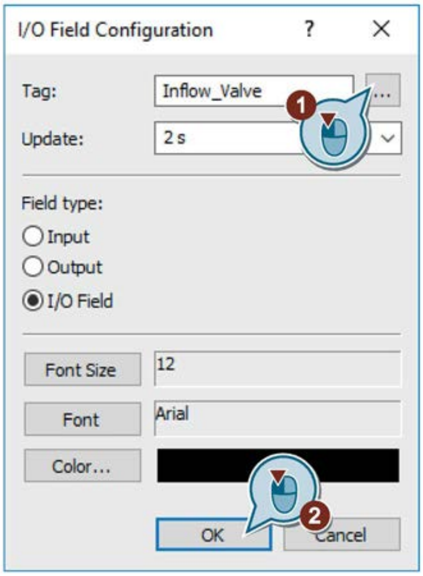
Procedure

1. To insert the "I/O Field" smart object, click on the object in the "Standard" window and then on the process picture.



The "I/O Field Configuration" dialog opens.

2. Link the I/O field with the internal tag "Inflow_Valve".


I/O Field Configuration

Tag: Inflow_Valve

Update: 2 s

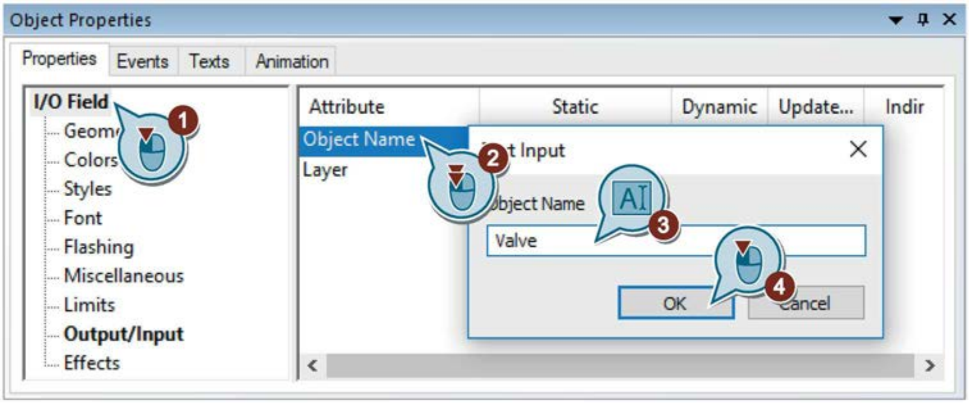
Field type:
○ Input
○ Output
● I/O Field

Font Size: 12

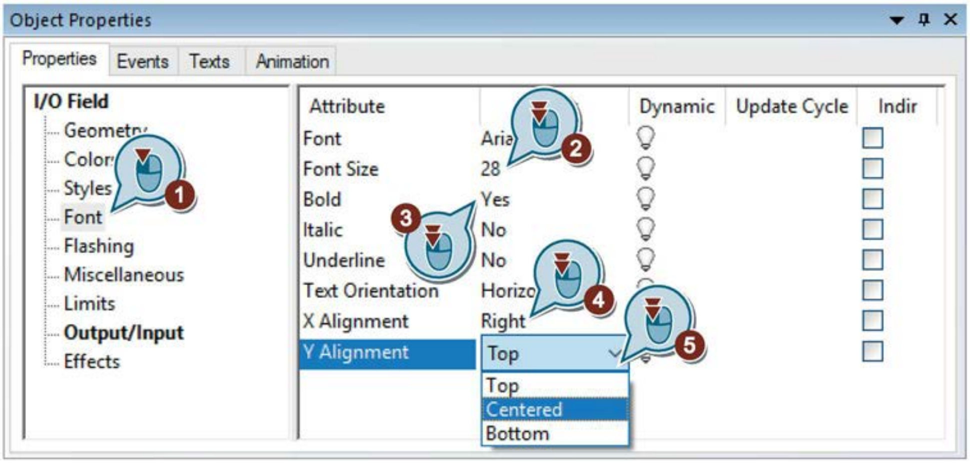
Font: Arial

3. Switch to the "Object properties" window.

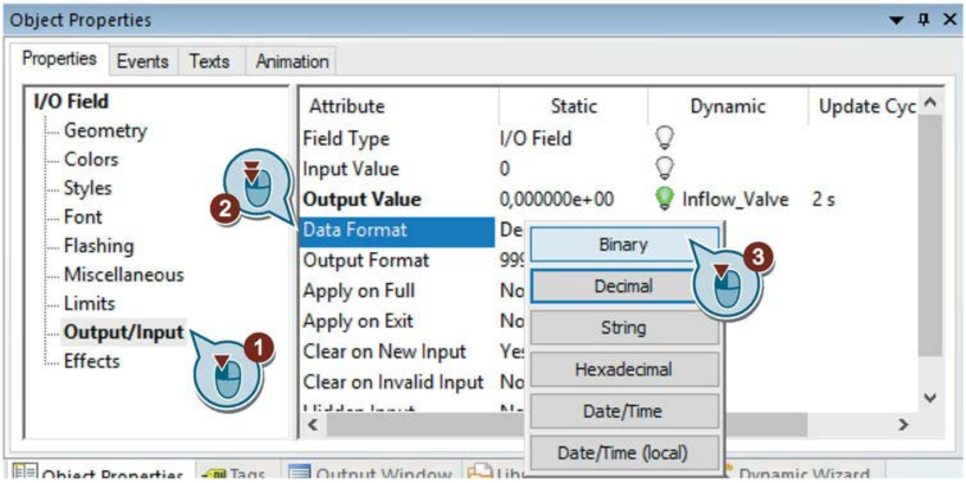
   Enter "Valve" as the name of the I/O field.



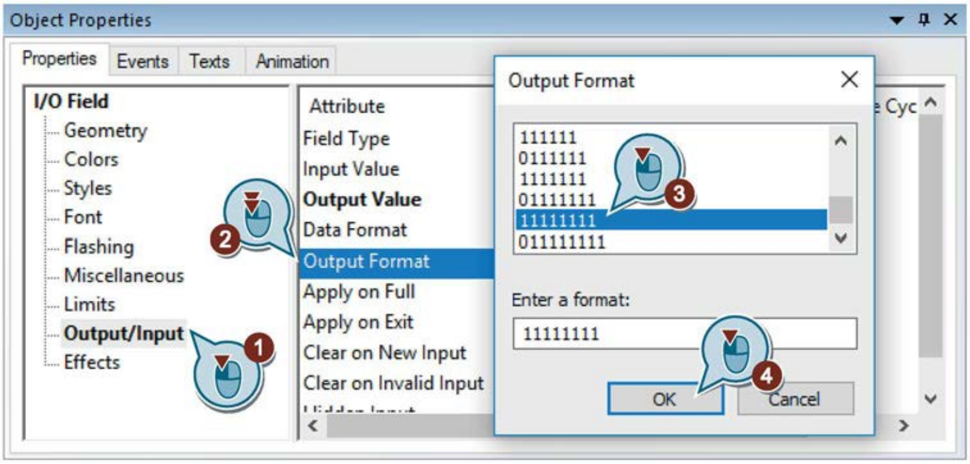
4. Define the following font properties of the I/O field:
   - Font size: 28
   - Bold: Yes
   - X-Alignment: right
   - Y-Alignment: centered



5. Define "Binary" as the output format of the I/O field.



6. Increase the number of positions from 6 to 8 for the "Output format" property: "11111111".



7. Enlarge the I/O field and save the process picture "Alarm_Logging.pdl".

8. Close the "Graphics Designer".

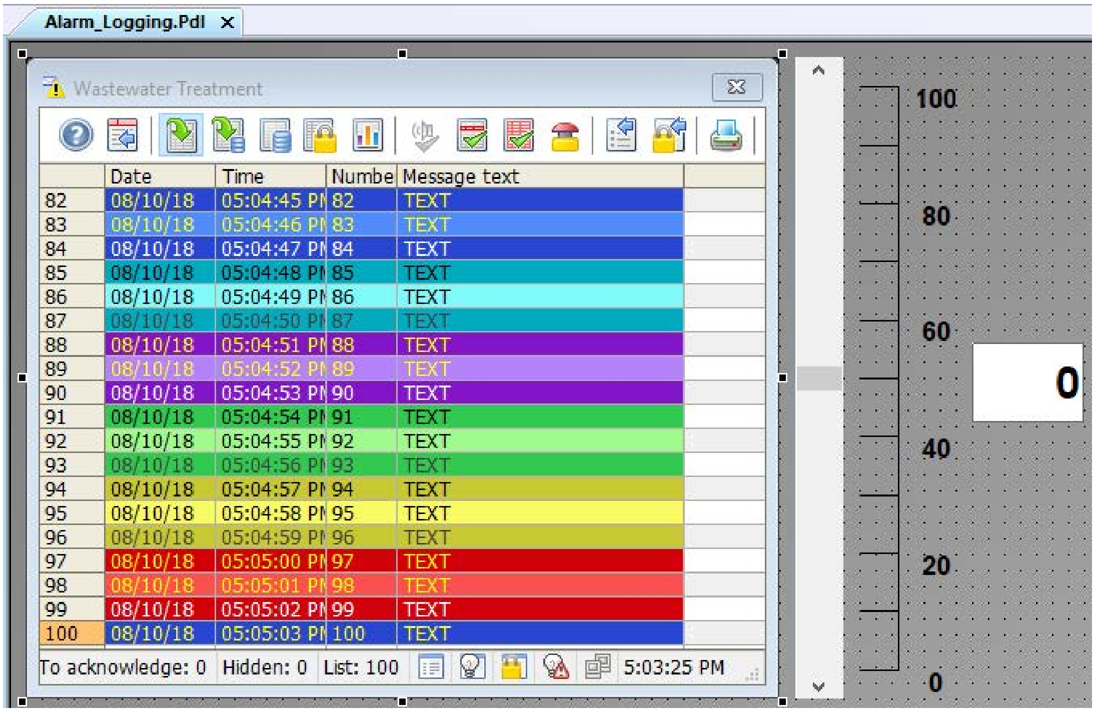
Result

You have configured the I/O field "Valve".

Enter binary values in the configured I/O field. These values will be transmitted to the internal tag "Inflow_Valve".

If a specific bit is set in the tag value, the corresponding discrete alarm is triggered and displayed in the message window. The discrete alarm "Valve_closed" is triggered, for example, when the second bit is set in the tag value.

In the next steps define the properties of WinCC Runtime to see the output of messages at runtime.



	Date	Time	Numbe	Message text
82	08/10/18	05:04:45 PI	82	TEXT
83	08/10/18	05:04:46 PI	83	TEXT
84	08/10/18	05:04:47 PI	84	TEXT
85	08/10/18	05:04:48 PI	85	TEXT
86	08/10/18	05:04:49 PI	86	TEXT
87	08/10/18	05:04:50 PI	87	TEXT
88	08/10/18	05:04:51 PI	88	TEXT
89	08/10/18	05:04:52 PI	89	TEXT
90	08/10/18	05:04:53 PI	90	TEXT
91	08/10/18	05:04:54 PI	91	TEXT
92	08/10/18	05:04:55 PI	92	TEXT
93	08/10/18	05:04:56 PI	93	TEXT
94	08/10/18	05:04:57 PI	94	TEXT
95	08/10/18	05:04:58 PI	95	TEXT
96	08/10/18	05:04:59 PI	96	TEXT
97	08/10/18	05:05:00 PI	97	TEXT
98	08/10/18	05:05:01 PI	98	TEXT
99	08/10/18	05:05:02 PI	99	TEXT
100	08/10/18	05:05:03 PI	100	TEXT

To acknowledge: 0 Hidden: 0 List: 100 5:03:25 PM

9.9 Customizing the user-defined menu (alarm logging)

Introduction

The following steps show you how to add the "Alarm Logging" menu item to the customized "Picture Change" menu.

You connect the "Alarm Logging" menu entry with the "ActivatePicture(ByVal PictureName)" procedure.

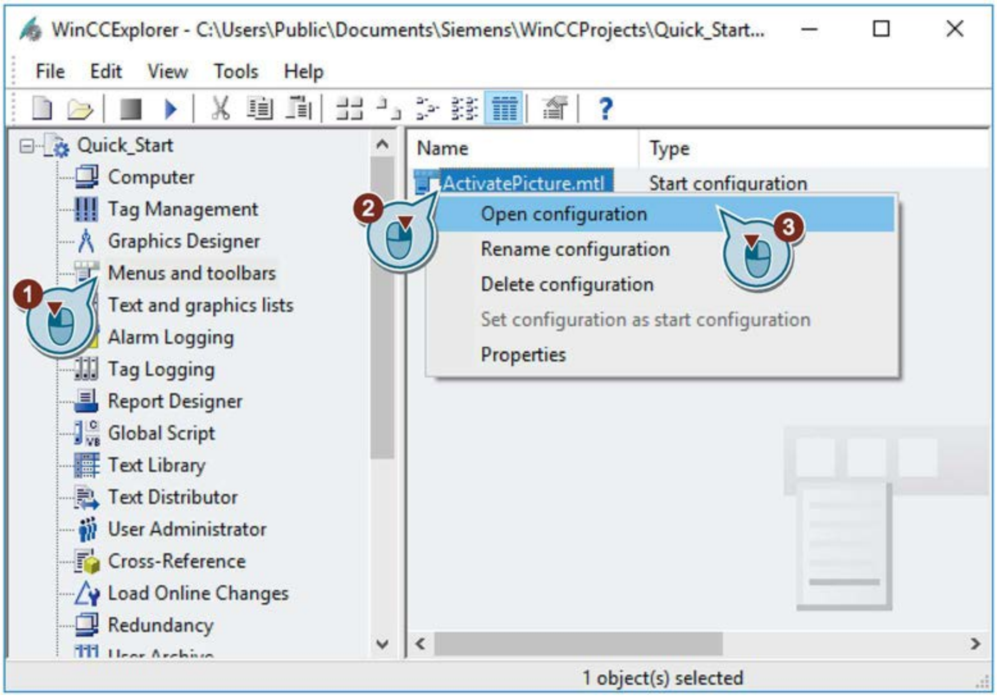
Enter the name of the process picture that you wish to change to in the field "User data".

Requirement

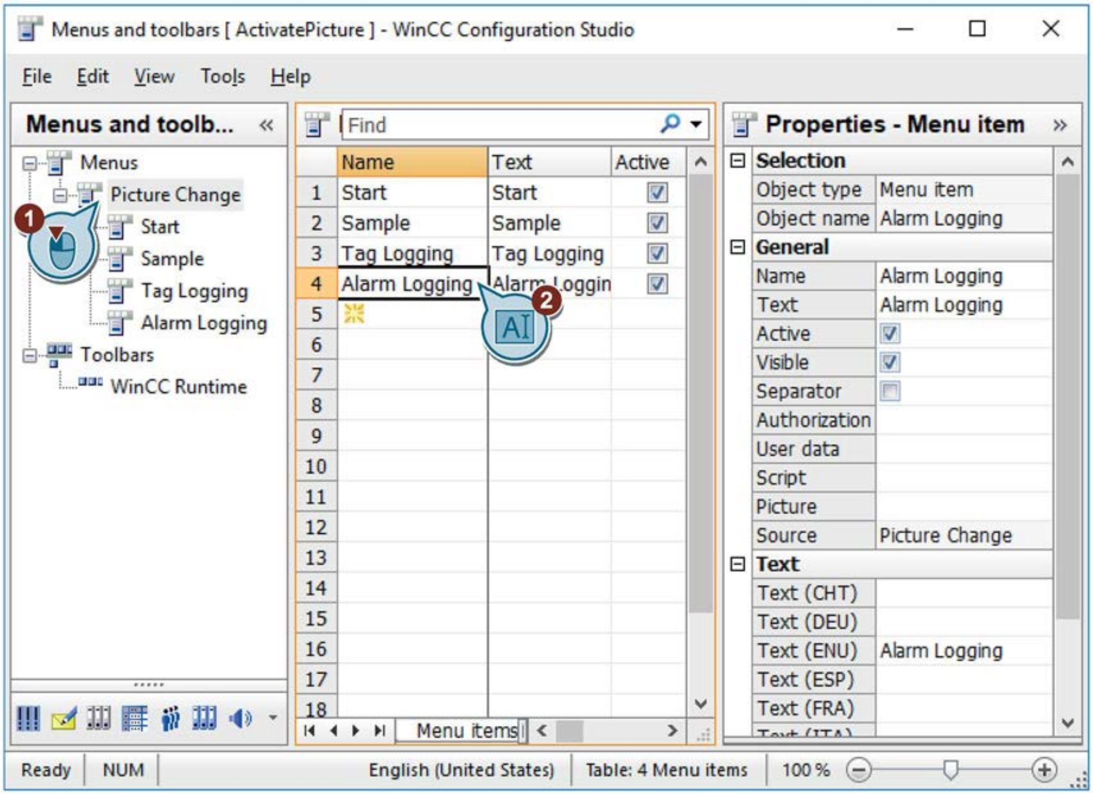
- The procedure "ActivatePicture(ByVal PictureName)" has been created.
- The customized "Picture Change" menu has been created for the process pictures "START.pdl", "SAMPLE.pdl" and "Tag_Logging.pdl".

Procedure

1. Open the saved configuration "ActivatePicture.mtl" in the "Menus and toolbars" editor.



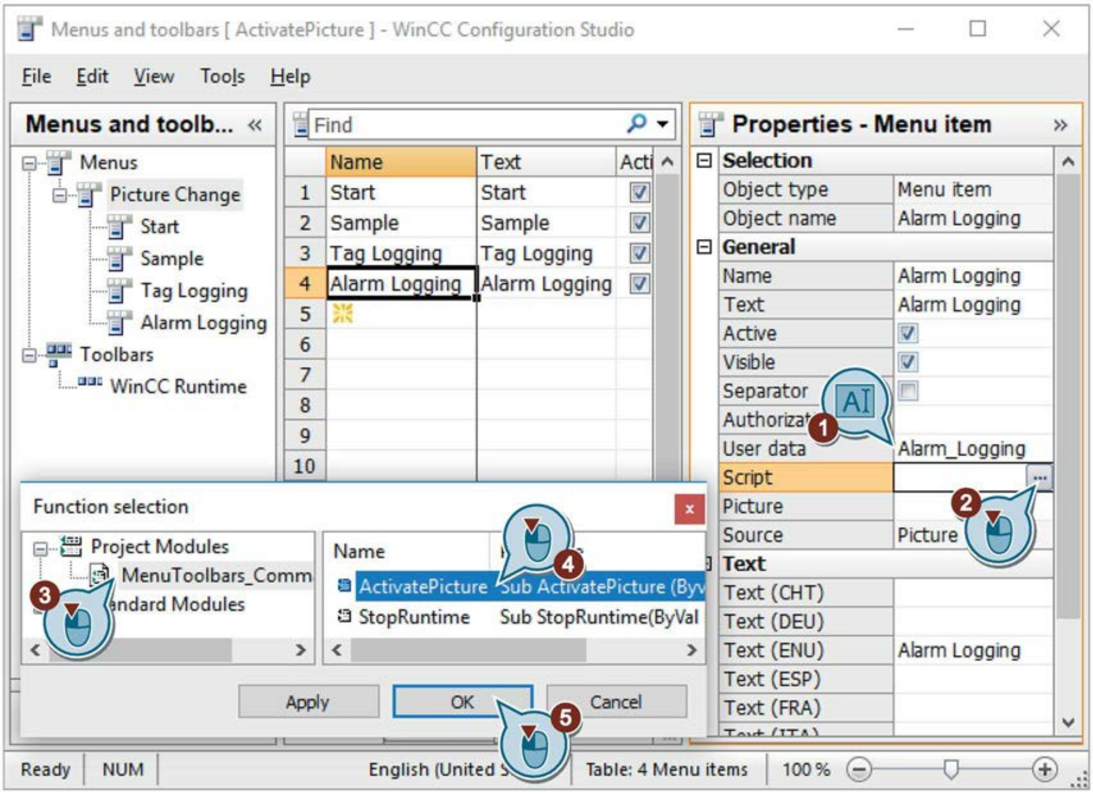
2. Create the "Alarm Logging" menu command.



	Name	Text	Active
1	Start	Start	☑
2	Sample	Sample	☑
3	Tag Logging	Tag Logging	☑
4	Alarm Logging	Alarm Loggin	☑
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			

Selection	
Object type	Menu item
Object name	Alarm Logging
General	
Name	Alarm Logging
Text	Alarm Logging
Active	☑
Visible	☑
Separator	□
Authorization	
User data	
Script	
Picture	
Source	Picture Change
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Alarm Logging
Text (ESP)	
Text (FRA)	
Text (ITA)	

3. Configure the "Alarm Logging" menu command to change to the "Alarm_Logging.pdl" picture.



	Name	Text	Acti
1	Start	Start	☑
2	Sample	Sample	☑
3	Tag Logging	Tag Logging	☑
4	Alarm Logging	Alarm Logging	☑
5			
6			
7			
8			
9			
10			

Selection	
Object type	Menu item
Object name	Alarm Logging
General	
Name	Alarm Logging
Text	Alarm Logging
Active	☑
Visible	☑
Separator	☐
Authorizat	
User data	Alarm_Logging
Script	...
Picture	
Source	Picture
Text	
Text (CHT)	
Text (DEU)	
Text (ENU)	Alarm Logging
Text (ESP)	
Text (FRA)	
Text (ITA)	

Name	
ActivatePicture	Sub ActivatePicture (ByV
StopRuntime	Sub StopRuntime(ByVal

Ready | NUM | English (United S | Table: 4 Menu items | 100 %

4. Save the changes in the "Menus and toolbars" editor.

5. Close the "Menus and toolbars" editor.

Result

You have added the "Alarm Logging" menu item to the "Picture Change" menu.

You use the menu entries in runtime to switch to process images "START.pdl", "SAMPLE.pdl", "Tag_Logging.pdl" and "Alarm_Logging.pdl".

9.10 Defining runtime properties (alarm logging)

Introduction

The following steps will show you how to define the properties for WinCC Runtime.

In this section, you will set up WinCC Runtime so that Alarm Logging Runtime is executed when the project is activated.

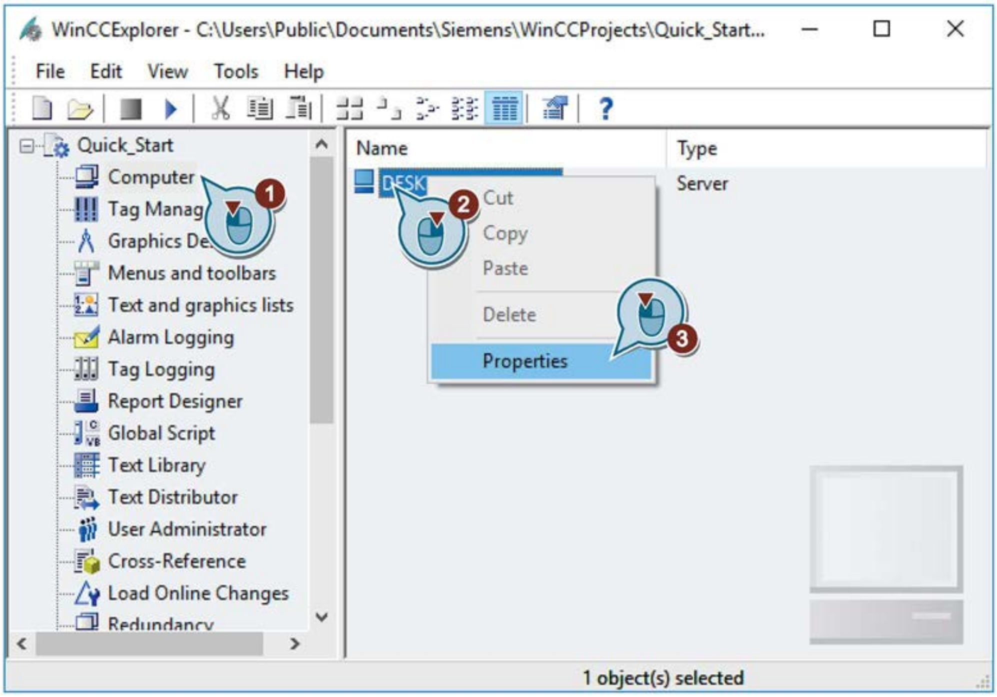
Set the "Alarm_Logging.pdl" process picture as a start picture for the Runtime window.

Requirement

- The "Quick_Start" project is open.
- The process picture "Alarm_Logging.pdl" has been created.

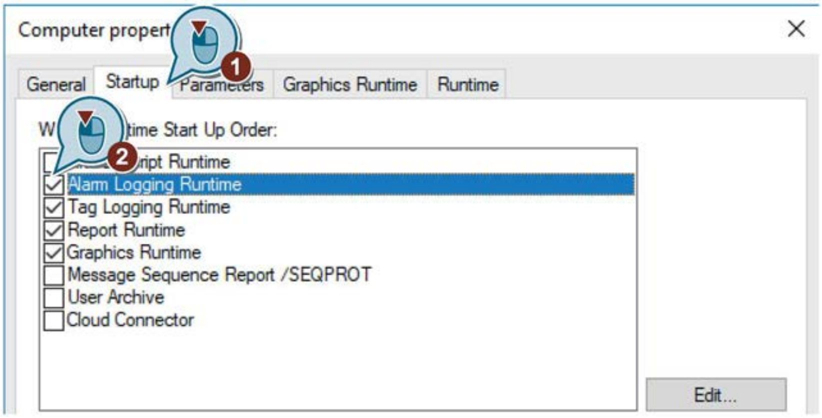
Procedure

1. Open the "Computer Properties" dialog.



The "Computer Properties" dialog opens.

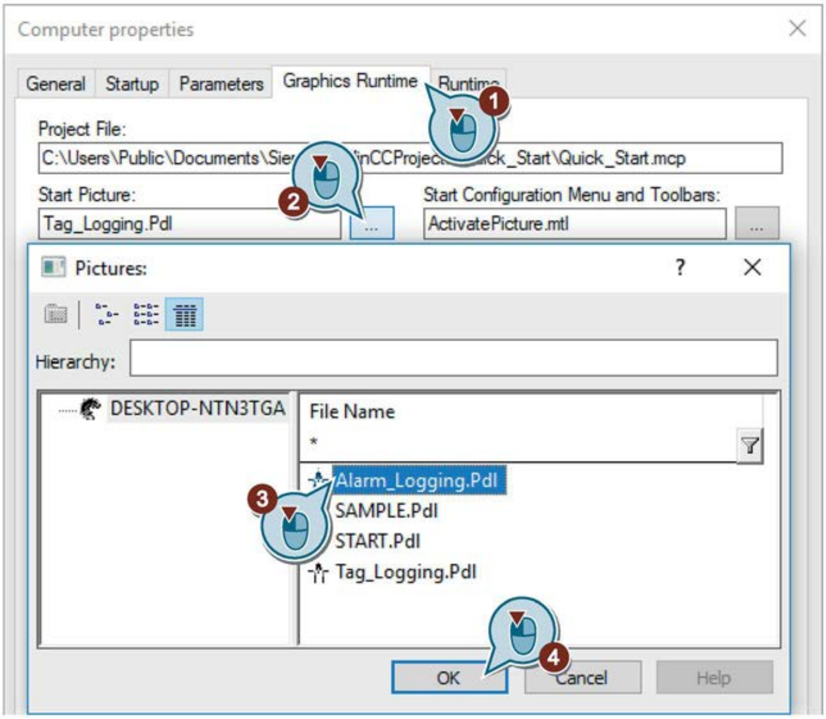
2. Click the "Startup" tab and activate the "Alarm Logging Runtime" application.



W time Start Up Order:

□ ript Runtime
☑ Alarm Logging Runtime
☑ Tag Logging Runtime
☑ Report Runtime
☑ Graphics Runtime
□ Message Sequence Report /SEQPROT
□ User Archive
□ Cloud Connector

3. In the "Graphics Runtime" tab, set the "Alarm_Logging.pdl" process picture as start picture for the Runtime window.



Project File: C:\Users\Public\Documents\Sie inCCProjec ck_Start\Quick_Start.mcp

Start Picture: Tag_Logging.Pdl

Start Configuration Menu and Toolbars: ActivatePicture.mtl

Hierarchy:

File Name
*
Alarm_Logging.Pdl
SAMPLE.Pdl
START.Pdl
Tag_Logging.Pdl

4. Exit the "Computer Properties" dialog by clicking "OK".

Result

You have defined the WinCC Runtime properties.

When activating the "Quick_Start" project, Tag Logging Runtime is executed and the process picture "Alarm_Logging.pdl" will be displayed.

In the next steps you will activate the project "Quick_Start" to view the output of the messages in Runtime.

9.11 Project activation (alarm logging)

Introduction

The following steps will show you how to activate the "Quick_Start" project and how to operate the process picture "Alarm_Logging.pdl" in Runtime.

When activating the "Quick_Start" project, WinCC Runtime is started.

The "Alarm_Logging.pdl" process picture is displayed as a start picture.

Message window in Runtime

You will operate and observe the message window in Runtime.
Use the message window via the buttons in the toolbar:

The button allows the display of the message list. The message list contains the currently pending messages.

The display color of a message in the message window changes depending on the message status.

Requirement

- The "Quick_Start" project is open.
- The Runtime properties are defined.

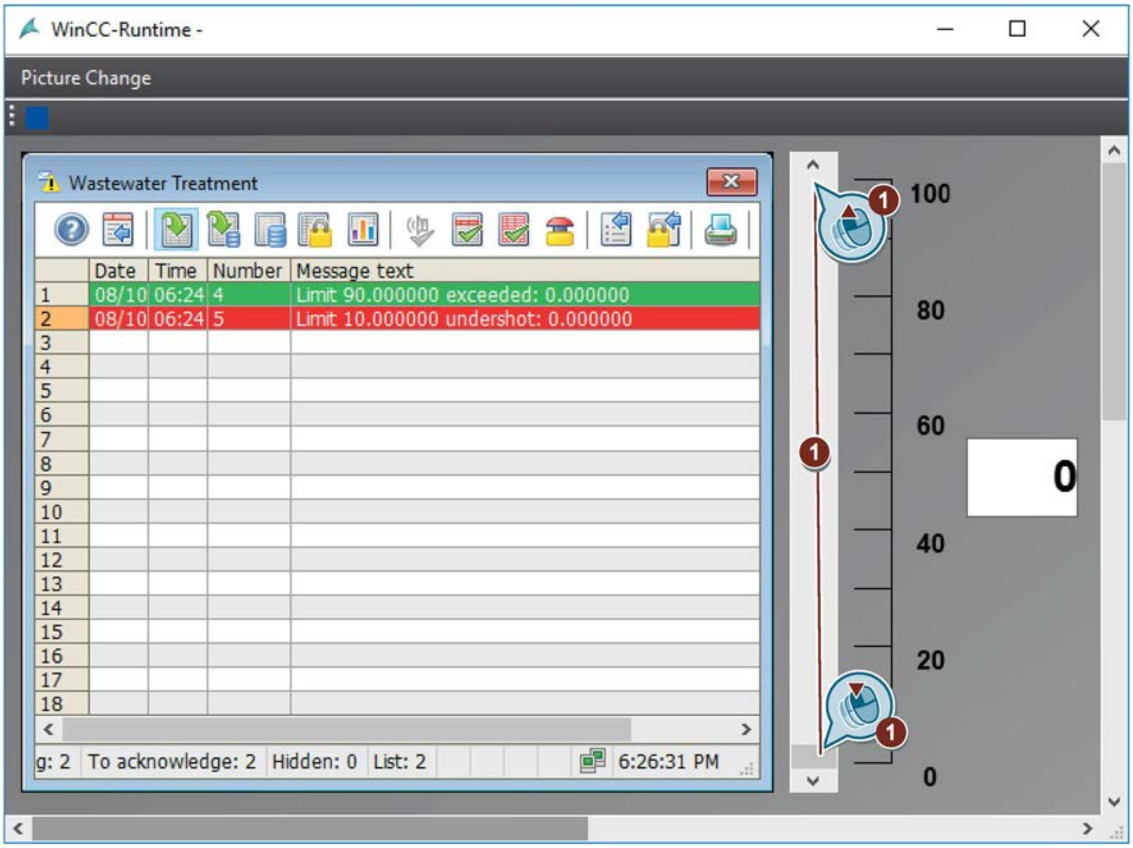
Procedure

1. Activate the "Quick_Start" project using the ▶ toolbar button in WinCC Explorer.

   WinCC runtime is started.

   The process picture "Alarm_Logging.pdl" is displayed in the Runtime window.

2. Move the controller of the "Water_Tank" slider object.



	Date	Time	Number	Message text
1	08/10	06:24	4	Limit 90.000000 exceeded: 0.000000
2	08/10	06:24	5	Limit 10.000000 undershot: 0.000000
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

g: 2 To acknowledge: 2 Hidden: 0 List: 2 6:26:31 PM

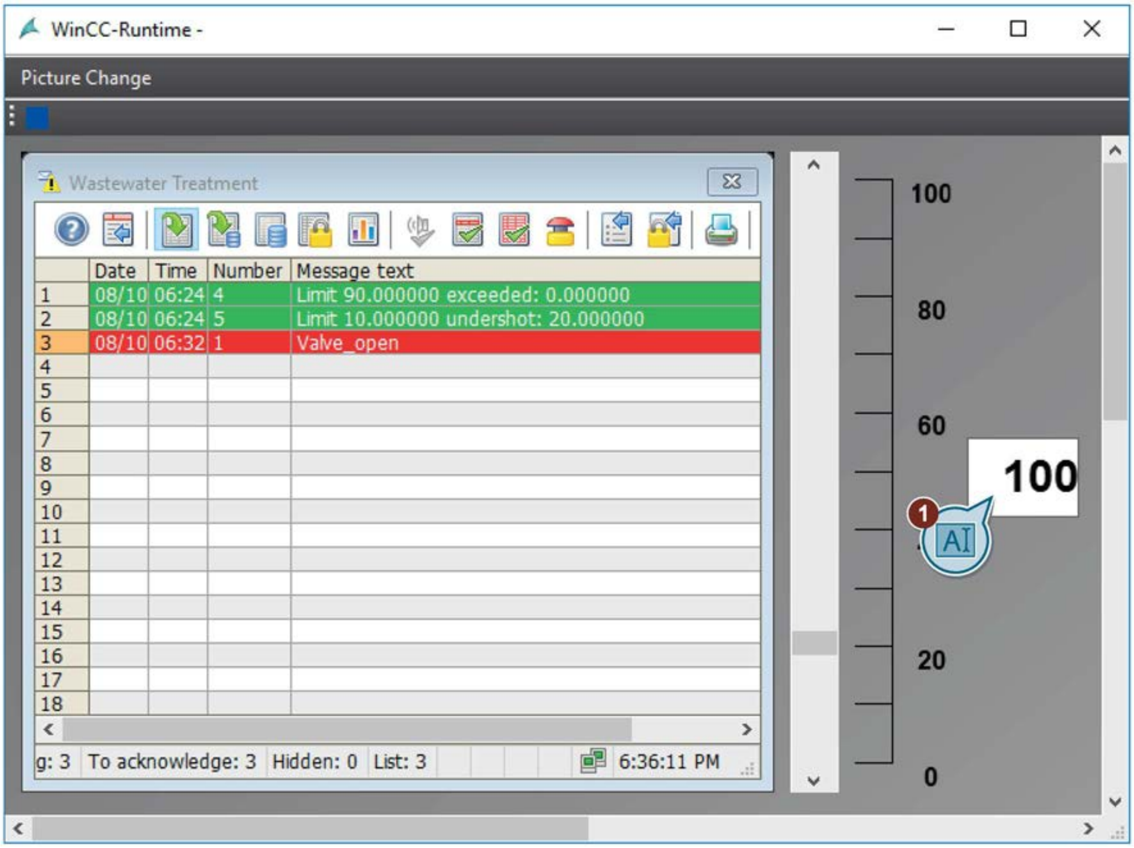
0

Depending on the position of the controller, the internal tag "Tank_Level" is assigned a value.

If this value falls below the configured low limit (10), the analog message "Low limit" is triggered.

If the high limit (90) is violated, the analog alarm "High limit" is triggered.

3. Enter the value "100" in the "Valve" I/O field and confirm the entry with <Return>.



	Date	Time	Number	Message text
1	08/10	06:24	4	Limit 90.000000 exceeded: 0.000000
2	08/10	06:24	5	Limit 10.000000 undershot: 20.000000
3	08/10	06:32	1	Valve_open
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

g: 3 To acknowledge: 3 Hidden: 0 List: 3 6:36:11 PM

The second bit in the tag value is set.

The discrete alarm "Valve_open" is displayed.

4. Enter the value "1000" in the I/O field and confirm the entry with <Return>.

   The third bit in the tag value is set.

   The discrete alarm "Valve_closed" is displayed.

5. Enter the value "10000" in the I/O field and confirm the entry with <Return>.

   The fourth bit in the tag value is set.

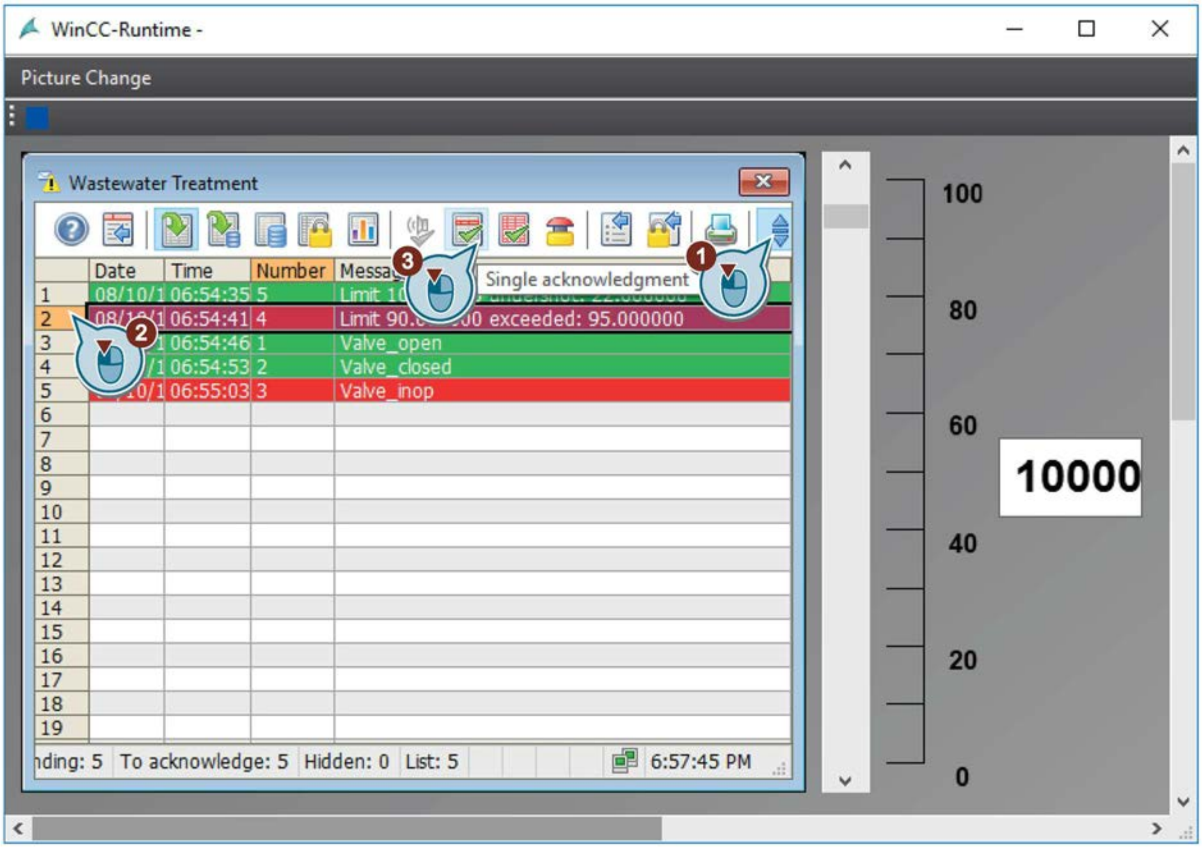
   The discrete alarm "Valve_inop" is displayed.

6. Click the ⇕ button in the toolbar of the message window to disable the "Autoscroll" function.

   In this way, you can specifically select a message.

7. Click the analog alarm "High limit value" and acknowledge the analog alarm.

   The display color of the message status changes.



	Date	Time	Number	Message
1	08/10/1	06:54:35	5	Limit 10[illegible] undershot: 22.000000
2	08/1[illegible]/1	06:54:41	4	Limit 90.[illegible]00 exceeded: 95.000000
3	[illegible]1	06:54:46	1	Valve_open
4	[illegible]/1	06:54:53	2	Valve_closed
5	[illegible]10/1	06:55:03	3	Valve_inop
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				

nding: 5 | To acknowledge: 5 | Hidden: 0 | List: 5 | 6:57:45 PM

Result

You have activated the "Quick_Start" project.

The "Alarm_Logging.pdl" process picture is displayed as a start picture of the project.

The internal tags "Tank_Level" and "Inflow_Valve" are supplied with values by manual input. These tags are monitored by the alarm logging.

Depending on the tag values, the corresponding messages are triggered and displayed in the message window.

To automatically supply the internal tags "Tank_Level" and "Inflow_Valve" with values, use the "Tag Simulation" editor in the next steps.

9.12 Testing the project (alarm logging)

Introduction

The following steps will show you how to test the "Quick_Start" project by means of the WinCC Tag Simulator.

The WinCC Tag Simulator assigns values to the internal tags "Tank_Level" and "Inflow_Valve" in Runtime.

As monitoring is configured for these tags, messages are triggered corresponding to the tag value.

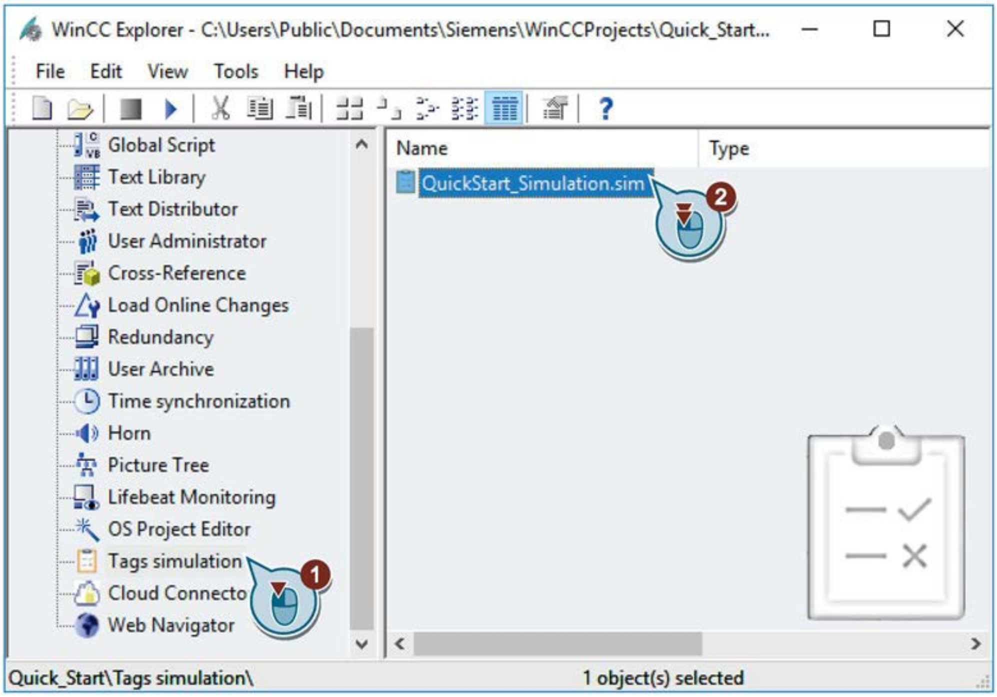
The messages are displayed in the message window. The message statuses are marked by different display colors.

Requirement

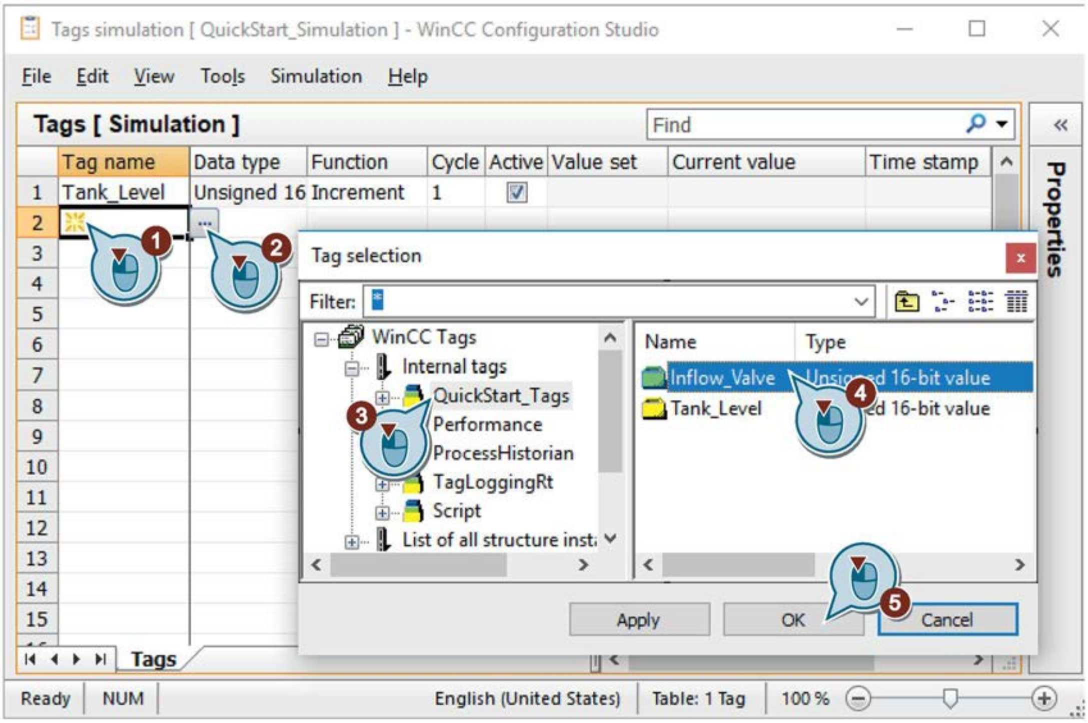
- The Runtime properties are defined.

Procedure

1. Open the "QuickStart_Simulation.sim" configuration in the "Tag Simulation" editor.



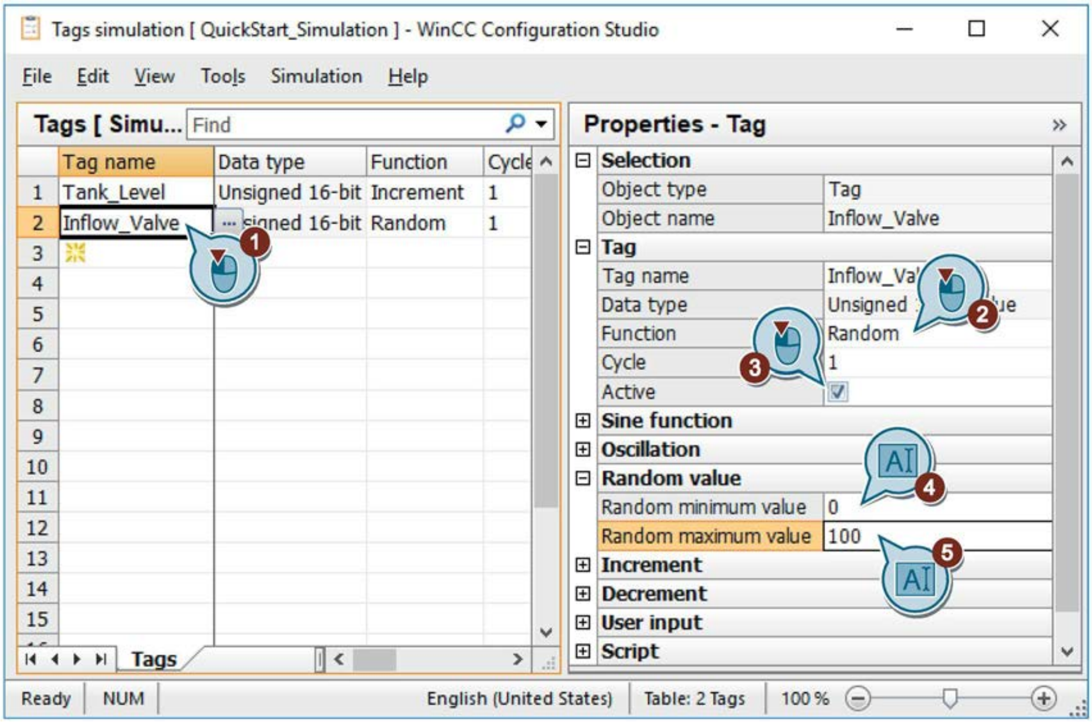
2. Open the tag selection dialog and select the internal tag "Inflow_Valve" from the tag group "QuickStart_Tags".



	Tag name	Data type	Function	Cycle	Active	Value set	Current value	Time stamp
1	Tank_Level	Unsigned 16	Increment	1	☑			
2								

Name	Type
Inflow_Valve	Unsig d 16-bit value
Tank_Level	d 16-bit value

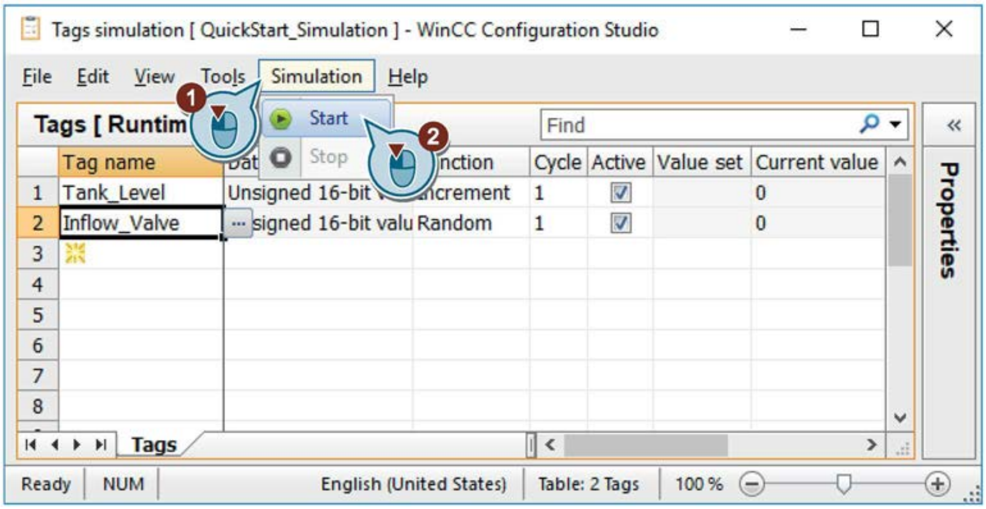
3. Select the simulation type and define the properties of the simulation type.


Tags simulation [QuickStart_Simulation] - WinCC Configuration Studio
File Edit View Tools Simulation Help
Tags [Simu...
Find
Properties - Tag
Tags
1
2
3
4
5
Ready
NUM
English (United States)
Table: 2 Tags
100 %

	Tag name	Data type	Function	Cycle
1	Tank_Level	Unsigned 16-bit	Increment	1
2	Inflow_Valve	signed 16-bit	Random	1

Selection	
Object type	Tag
Object name	Inflow_Valve
Tag	
Tag name	Inflow_Va
Data type	Unsigned ue
Function	Random
Cycle	1
Active	☑
Sine function	
Oscillation	
Random value	
Random minimum value	0
Random maximum value	100
Increment	
Decrement	
User input	
Script	

4. Save the configuration using the "File > Save" command in the menu bar.
5. Activate WinCC Runtime in the WinCC Explorer using the ▶ button.
6. Start the simulation in the "Tag Simulation" editor.



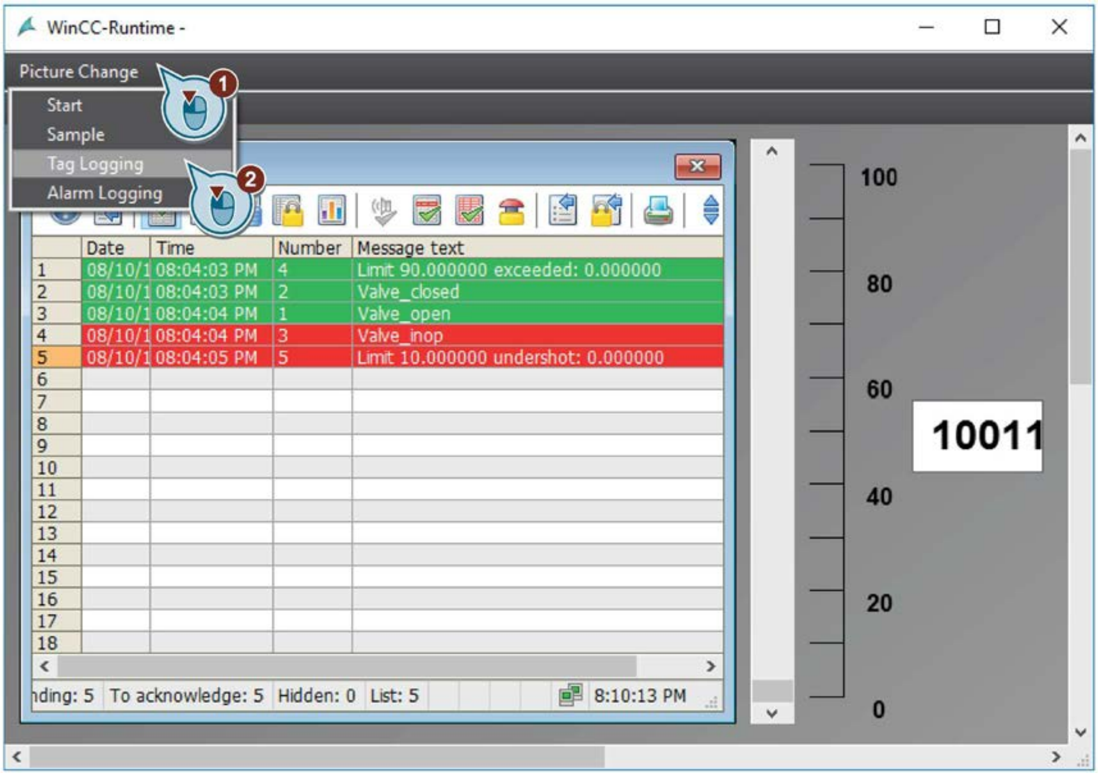
Tags simulation [QuickStart_Simulation] - WinCC Configuration Studio

	Tag name	Dat	nction	Cycle	Active	Value set	Current value
1	Tank_Level	Unsigned 16-bit v	ncrement	1	☑		0
2	Inflow_Valve	signed 16-bit valu	Random	1	☑		0
3							
4							
5							
6							
7							
8							

Ready | NUM | English (United States) | Table: 2 Tags | 100 %

7. Observe the output of the simulation values in the "Alarm_Logging.pdl" process picture.

   Observe how the different simulation values affect the message window.
8. Switch to the "Tag_Logging.pdl" process picture.

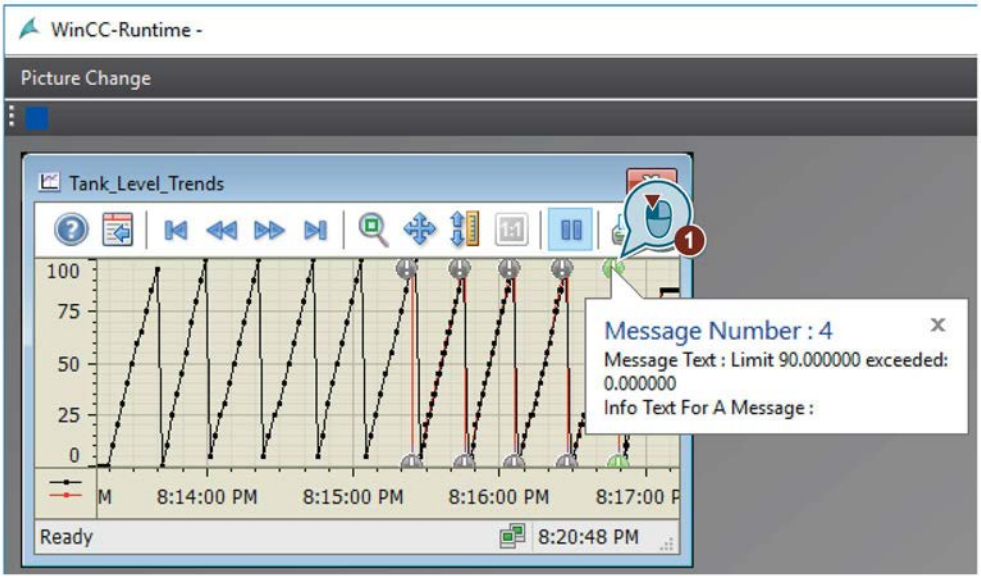


WinCC-Runtime -

	Date	Time	Number	Message text
1	08/10/1	08:04:03 PM	4	Limit 90.000000 exceeded: 0.000000
2	08/10/1	08:04:03 PM	2	Valve_closed
3	08/10/1	08:04:04 PM	1	Valve_open
4	08/10/1	08:04:04 PM	3	Valve_inop
5	08/10/1	08:04:05 PM	5	Limit 10.000000 undershot: 0.000000
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				

nding: 5 | To acknowledge: 5 | Hidden: 0 | List: 5 | 8:10:13 PM

9. Observe the extended display in the WinCC OnlineTrendControl.

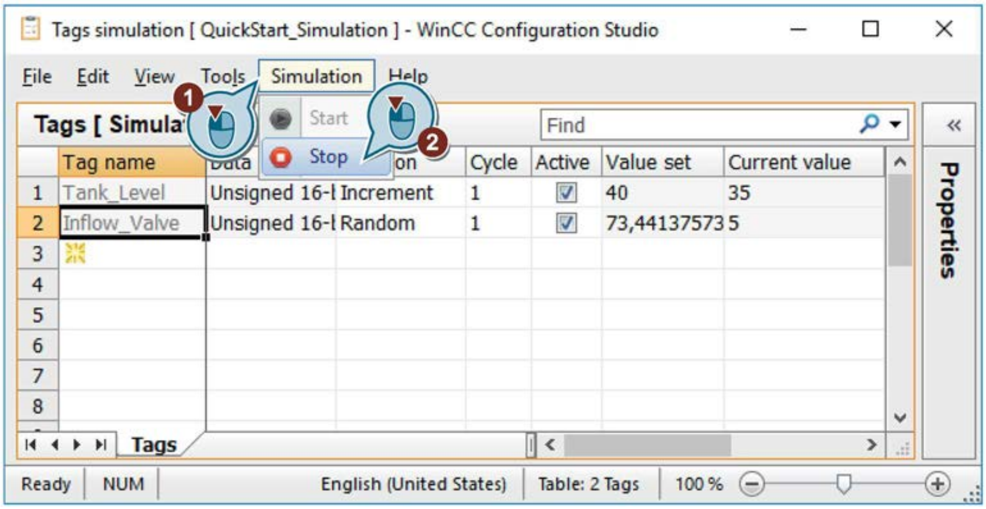


Message Number : 4

Message Text : Limit 90.000000 exceeded: 0.000000

Info Text For A Message :

10. Exit the simulation.



	Tag name	Data	on	Cycle	Active	Value set	Current value
1	Tank_Level	Unsigned 16-l	Increment	1	☑	40	35
2	Inflow_Valve	Unsigned 16-l	Random	1	☑	73,44137573	5
3							
4							
5							
6							
7							
8							

11. Exit WinCC Runtime using the ■ button in the toolbar.

Result

You have tested "Quick_Start" project by means of the WinCC TAG Simulator.

The test shows the behavior of the alarm logging when the monitored tags are continuously supplied with values.

The WinCC OnlineTrendControl displays the second trend for the "Inflow_Valve" tag. Clicking on the exclamation mark will display the triggered messages for this tag in form of a tooltip.

Glossary

Acquisition cycles

The acquisition cycle determines the interval at which the process value of a process tag is read.

The acquisition cycle starts as soon as WinCC Runtime is activated.

Alarm Logging

The "Alarm_Logging" editor is the configuration component of the alarm logging.

This editor is used to configure messages.

Alarm Logging Runtime

Alarm Logging Runtime is the runtime component of the alarm logging.
Alarm Logging Runtime is primarily used to perform the following tasks:

- Executing the defined monitoring
- Controlling the message output
- Administering acknowledgments

Analog alarm

The analog alarms show limit violations.

The analog alarms are triggered when the set limits are violated.

Archive tag

The values to be archived are saved in the archive tags.

Archiving cycles

Archiving cycles are time intervals in which a process value is stored in the archive database.

The archiving cycle is always an integer multiple of the set acquisition cycle.

The archiving cycle starts either when WinCC Runtime is activated or at a point in time defined by the user. The indication of a starting point allows the delayed archiving of the values and the distribution of the archiving load.

Button

The button enables process operation.

A button is used, for example, for acknowledging messages or for navigation in runtime.

Channel

The channels are specialized communication drivers.

They allow the communication between WinCC and the automation system.

Via the channels, the process tags in WinCC are supplied with process values from the automation system.

Channel unit

A channel unit forms the interface to exactly one underlying hardware driver and therefore to exactly one communications processor in the PC.

This channel unit is then used to access to a certain type of automation system.

Configuration Software of WinCC

The configuration software is part of WinCC.

WinCC Explorer forms the core of the Configuration software.

Configuration Studio

"WinCC Configuration Studio" contains most of the editors you need to configure WinCC, such as the "Tag Management", "Alarm Logging" and "Tag Logging" editors.

Connection

A connection describes the interface to an individual, defined automation system.

The data exchange takes place in Runtime via the connections.

The connections are configured under the channel units.

Direct tag connection

With a direct tag connection, you are connecting one tag with a dynamic object of the process picture.

If the tag takes on a value in runtime, this value is transferred directly to the dynamic object. The dynamic display of the object changes in Runtime according to the tag value.

Discrete alarm

The discrete alarms show status changes in the process and are initiated by the PLC.

Display color of the messages

The display color identifies the current status of a message.

The display colors for individual messages are determined in the "Alarm Logging" Editor.

Dynamic level of a page layout

The dynamic layer of a page layout contains the objects for outputting the configuration and Runtime data.

Dynamic objects

Dynamic objects will change in accordance with the individual process values.

A bar is an example of a dynamic object. The length of the bar will depend on the current temperature value.

Graphics Designer

The "Graphics Designer" editor is a configuration component of the graphics system.

This editor is used to configure process pictures.

Graphics Runtime

Graphics Runtime is the runtime component of the graphics system.

Graphics Runtime displays the pictures in Runtime and manages all inputs and outputs when the project is activated.

I/O field

The I/O field is an input/output field that is used to display and change tag values.

Internal tag

The internal tags do not have a process link and only carry values within WinCC.

Libraries of the "Graphics Designer" editor

The libraries of the "Graphics Designer" editor are a versatile tool to store and manage graphic objects.

In the symbol library, you manage customized objects and controls that you use to create process pictures.

In the SVG library, you manage SVG objects.

The libraries are split into two areas:

- Global Library
- Project Library

Limit monitoring

The limit value monitoring is an add-in to WinCC.

The limit value monitoring allows you to set any number of limit values for a tag. If one of these limit values is violated, a corresponding message will be triggered and displayed in Runtime.

Linear Scaling

When using linear scaling, you can map the value range of a process tag to a certain value range of a process tag in WinCC.

The process value itself is not modified.

Main memory

The main memory of a computer is the memory, in which data objects are saved and from which they can be retrieved at a later time.

The main memory is also called the working memory.

Message bit

With the property "Message bit", you can define when a discrete alarm is triggered.

Message blocks

The content of a message consists of message blocks.

Each message block corresponds to one column in the tabular display in WinCC Alarm Control.

Message classes

A message class contains messages with similar behavior.

The message classes allow a central management of individual messages.

Message report

All messages in the current message list in the message window are documented in the message report.

Message tag

The message tag is linked to the status changes in the process.

If a status change takes place in the process, a bit is set in the tag value. Depending on the tag values, a discrete alarm is triggered.

Operable objects

Controllable objects allow the operator to have an active influence on the process.

These include buttons, slider objects, or I/O fields used for entering certain process parameters (input/output field).

Page layout

In the page layouts you configure the external appearance and data supply for output of a report.

Page layout editor

The page layout editor is used to create and edit page layouts.

The page layout editor can only be used for the project currently open in the WinCC Explorer. The layouts are saved for the specific project.

Page size of a page layout

The paper size shows the total area of the layout.

The paper size determines the output format of a report.

Print job

Print jobs put out project documentation and Runtime documentation.

In the print jobs you configure the output medium, how much is to be printed, the time at which printing is to start, and other output parameters.

Print margins of a page layout

The print margins define the non-printable marginal area of a page layout.

This area is by default greyed in the page layout editor and cannot be edited.

Process picture

The process pictures are main elements of a project.

They represent a process and allow the operation and observation of this process.

You can use the "Graphics Designer" editor to configure the process pictures.

Process tag

Process tags form the link for data exchange between WinCC and the automation systems.

Each process tag in WinCC corresponds to a certain process value in the memory of one of the connected automation systems.

Process value archive

The process value archive is an archive where process values from the automation system are stored.

Process Value Blocks

The process value blocks are used to connect the messages with process values, for example, current fill levels, temperatures or speeds.

Process values

The process values are the values supplied by the automation system.

Project

The project is the basis for the configuration of a user interface in WinCC.

Within the project you will create and edit all objects that you will need to operate and observe the processes.

Report Designer

The "Report Designer" editor is the configuration component of the reporting system.

This editor is used to configure page and line layouts as well as to configure print jobs.

Report Runtime

Report Runtime is the runtime component of the reporting system.

The report Runtime fetches the data to be documented from the archives or controls, and controls the print output.

Runtime

If this option is activated, the project is in Runtime.

Single-User Project

A "Single-user project" only runs on one PC. Other computers cannot access this project.

The project runs on a computer that serves as the server for data processing and as an operator station.

Slider object

The slider object is used for displaying and changing tag values.

The slider object is made dynamic via the connection to a tag. The connection of the slider object to a process tag allows the control of the automation system.

Start picture

The start picture is the process picture that is displayed when a project is activated in the Runtime window.

Static level of a page layout

The header and footer of a layout are defined on the static level.

The static level serves, for example, to output the company name, the company logo, the time and the number of pages.

Static objects

Static objects remain unchanged in Runtime.

These objects include rectangles, circles, lines or connectors.

Static text

The object "Static text" is a static object that serves for the marking of the displayed processes or content.

System blocks

The system blocks belong to the message blocks.

They contain system data, for example, date, time, message number and status.

System blocks are predefined.

System object

System objects are used as placeholders for the system time, page number, project name and layout name.

System objects can only be inserted into the static level of a static layout.

Tag group

Tag groups are components of Tag Management.

Tag groups are used to organize tags in a clear structure.

Tag Logging

The "Tag Logging" editor is the configuration component of the archive system.

This editor is used to configure archives.

Tag Logging Runtime

Tag Logging Runtime is the runtime component of the Archiving System.
Tag Logging Runtime is primarily used to perform the following tasks:

- Writing process values into the process value archive
- Reading archived process values from the process value archive

Tag Management

Under the component "Tag management", the communication between WinCC and the automation system is configured.

In "Tag management", all tags and channels are created and managed.

Times for the acquisition and archiving cycles

The times for the acquisition and archiving cycles determine the time interval between two archivings.

Update cycle

The updating cycle determines the time interval in which the display is updated in runtime.

User text blocks

The user text blocks belong to the message blocks.

The user text blocks contain explanatory text, for example, text with information on the location and cause of a fault.

The texts in the user text blocks are freely customizable.

The length of a user text block determines the number of characters that can be entered into this block. The maximum string length is 255 characters.

WinCC AlarmControl

The "WinCC AlarmControl" object is a message window used to display message events.

WinCC Explorer

WinCC Explorer forms the core of the Configuration software of WinCC.

The overall project structure is displayed and the project is managed in WinCC Explorer.

WinCC OnlineTableControl

The "WinCC OnlineTableControl" object is used as a table window to display the process values from a process value archive.

WinCC OnlineTrendControl

The "WinCC OnlineTrendControl" object is used as a trend window to display the process values from a process value archive.

WinCC Runtime

WinCC Runtime runs the project in process mode.

WinCC Runtime enables operator control and monitoring of the processes.

WinCC TAG Simulator

The WinCC TAG Simulator allows testing of a project which is still in the development stage.

Use the "Tag Simulation" editor to configure and activate the simulation.

Index