SIEMENS

SIMATIC

WinCC V7.0 Getting started

Printout of the Online Help

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Safety Guidelines

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

with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.

CAUTION

without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.

NOTICE

indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

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 device/system may only be set up and used in conjunction with this documentation. Commissioning and operation of a device/system may only be performed by **qualified personnel**. Within the context of the safety notes in this documentation qualified persons are defined as persons who are authorized to commission, ground and label devices, systems and circuits in accordance with established safety practices and standards.

Prescribed Usage

Note the following:

⚠WARNING

This device may only be used for the applications described in the catalog or the technical description and only in connection with devices or components from other manufacturers which have been approved or recommended by Siemens. Correct, reliable operation of the product requires proper transport, storage, positioning and assembly as well as careful operation and maintenance.

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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.

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℗ 05/2008

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Getting started

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Contents

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

It does not contain a comprehensive list of all possible functions, but includes all necessary information to use WinCC's main features.

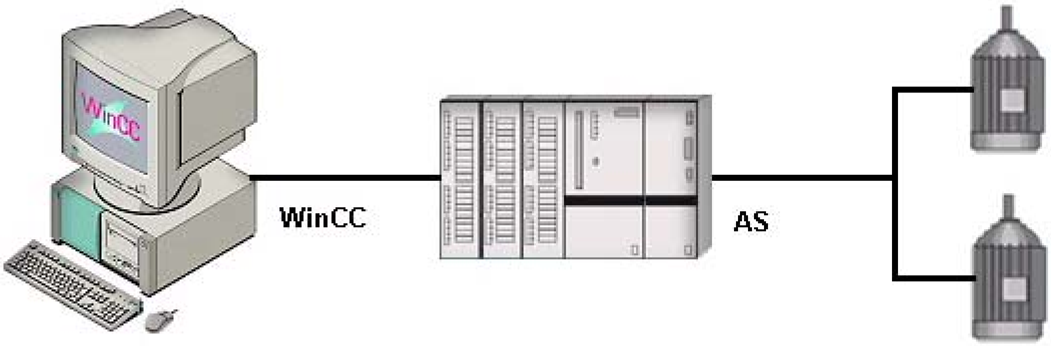
Welcome 2

Welcome to WinCC Getting Started.

Getting Started uses an sample project to show you how easy it is to work with WinCC.

You will need less than 4 hours to work through all subjects of this documentation and to learn the basics of WinCC configuration. The extent of the documentation is based on the picture display of the different configuration steps.

WinCC is a powerful HMI system for use under Microsoft Windows XP, Windows Vista and Microsoft Windows Server 2003. 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.



The creation of a sample project is described in Getting Started. You will control a water supply system with this project. For this, you will "configure" different objects that are necessary to operate and monitor the system, such as:

- Screens 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
- Alarms to indicate the operating status of the system on the operating device

Getting Started consists of the following chapters:

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

There is a detailed installation guide on the enclosed WinCC DVD. This DVD also includes all programs that you will need to execute the configuration steps.

See also

Configuring messages (Page 175)

Outputting values from the process archive (Page 141)

Archiving and displaying values (Page 97)

Configuring the Process Screens (Page 43)

Configure communication (Page 19)

Creating a project (Page 13)

Icons

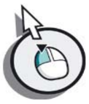
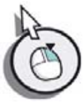
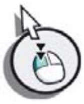
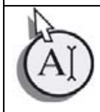
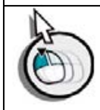
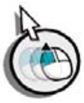
3

Introduction

This chapter provides information for the symbols that are used in Getting Started.

Used symbols

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

Icon	Significance
	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-hand mouse button
	Releasing the left mouse button
	Dragging with the left mouse button pressed
	Numbering of the individual action steps

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 Working with WinCC

Introduction

WinCC is a modular system. WinCC is used to visualize the process and configure a graphic user interface. You will use the user interface to operate and observe the process. WinCC offers the following possibilities:

- WinCC allows you to observe the process. The process is displayed graphically on the screen. The display is updated each time a status in the process changes.
- WinCC allows you to operate the process. For example, you can indicate a setpoint from the user interface or you can open a valve.
- WinCC allows you to monitor the process. An alarm will automatically signal in the event of a critical process status. If, for example, a predefined value is exceeded, a message will appear on the screen.
- WinCC allows you to archive the process. When working with WinCC, process values can either be printed or electronically archived. This facilitates the documentation of the process and allows subsequent access to past production data.

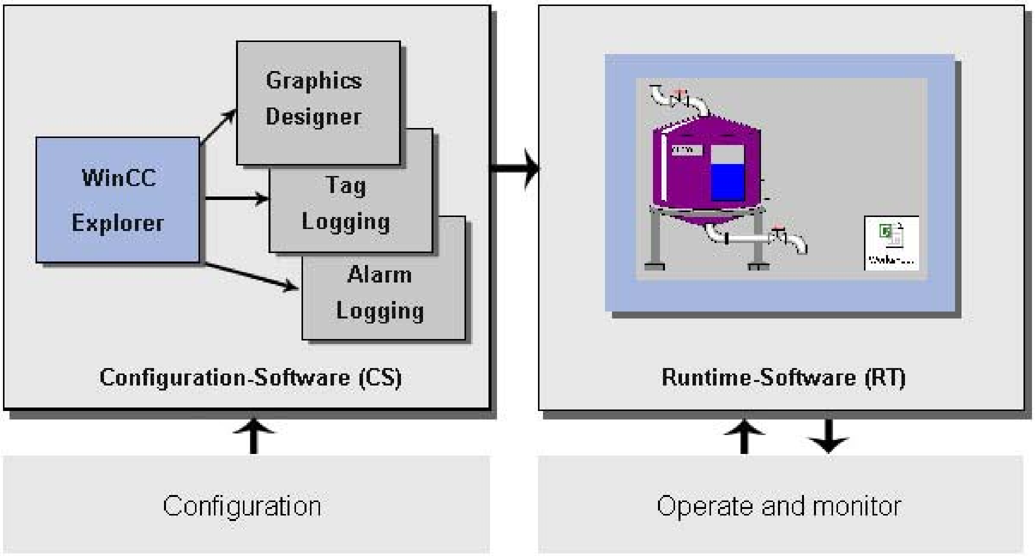
Components of WinCC

Its basic components are the Configuration Software (CS) and Runtime Software (RT)

- WinCC Explorer forms the core of the Configuration software. The entire project structure is displayed in WinCC Explorer. The project is also administered here.
  You can retrieve different editors from the WinCC Explorer. Each editor belongs to a certain partial system of WinCC.
  The most important partial systems of WinCC are:

process unit	Editor	Function
Graphics System	Graphics Designer	Configuring Screens
Signaling system	Alarm Logging	Configuring messages
Archiving system	Tag Logging	Archiving data
Report system	Report Designer	Create layouts
User Administration	User Administrator	Administering users and user rights
Communication	Tag management	Configure communication

- You execute the project in process mode in WinCC Runtime. The project will then be in Runtime.
  WinCC Runtime allows the operation and observation of the processes. WinCC Runtime has the following specific tasks:
  – Reading the configuration data that has been saved in the CS database
  – Displaying screens on the monitor
  – It communicates with the automation systems
  – Archiving current Runtime data, e.g. process values and message events
  – Controlling the process, e.g. through setpoint input or switching ON and OFF



4.3 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".

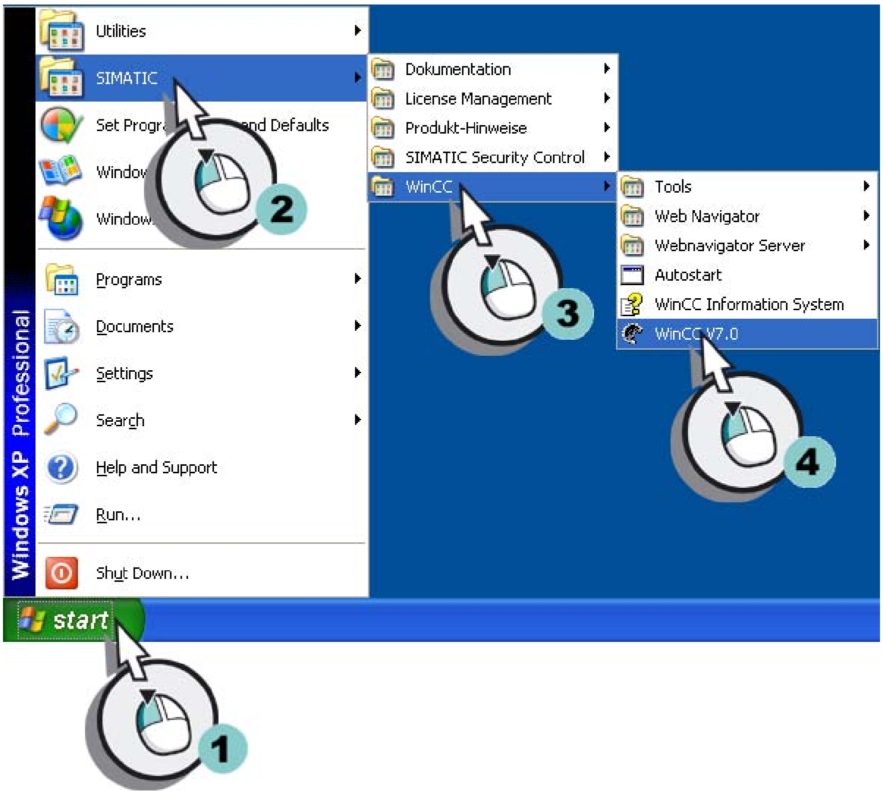
A "Single-user project" only runs on one computer. Other computers cannot access this project. The project runs on a computer that serves as the server for data processing and as an operating station.

Requirement

WinCC V7 is installed.

Procedure

1. Start WinCC:

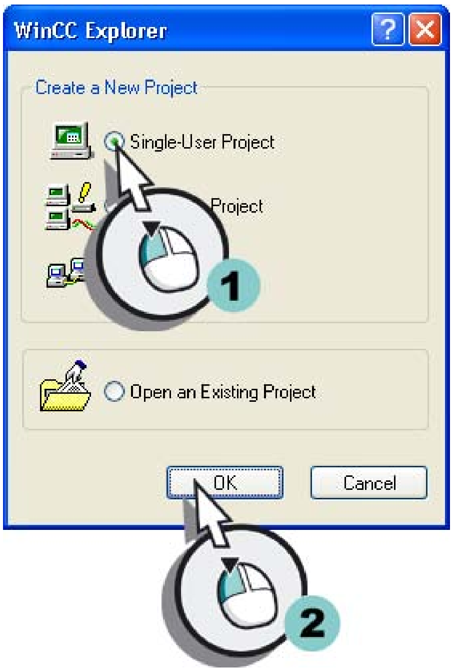


When you start WinCC for the first time, the "WinCC Explorer" will open. In this dialog, you will select a project type or open an existing project.

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.

You can open "WinCC Explorer" dialog by selecting the entry "New" in the "File" menu.

2. Select the project type "Single-user project":



WinCC Explorer

Create a New Project

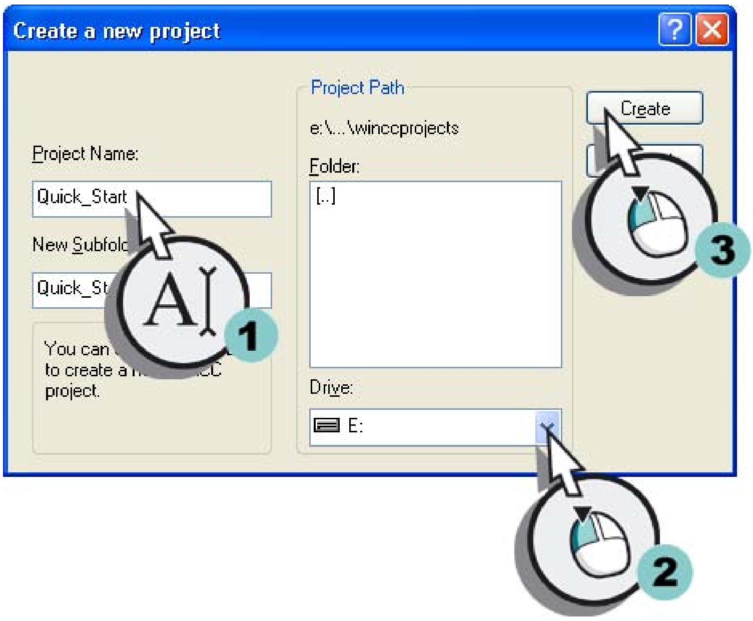
○ Single-User Project

Project

○ Open an Existing Project

The "Create new project" dialog box opens.

3. Then enter the information on the project:



Create a new project

Project Name: Quick_Start

New Subfold Quick_St

You can to create a project.

Project Path

e:\...\winccprojects

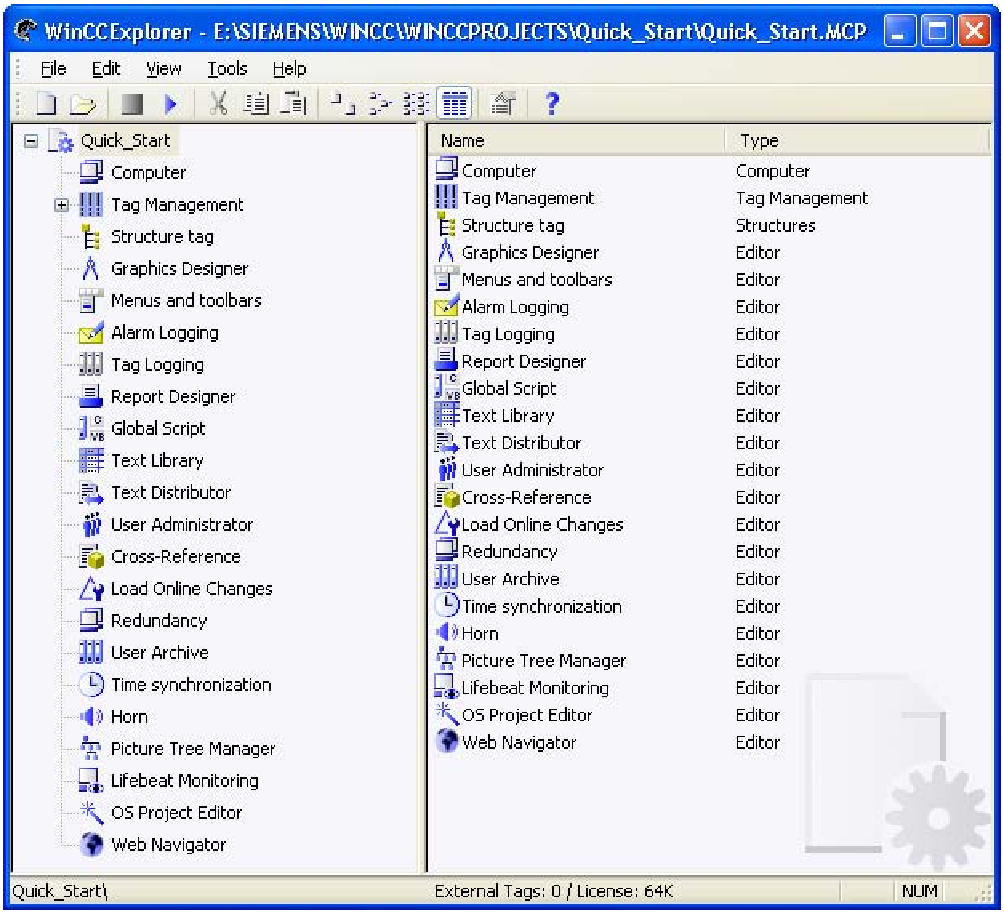
Folder: [..]

Drive: E:

If you do not make changes in the fields "New subdirectory" 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 necessary editors and directories is displayed in the left partial window of the WinCC Explorer. The right partial window shows the elements belonging to an editor or directory.


WinCCExplorer - E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start.MCP
File
Edit
View
Tools
Help

- Quick_Start
  - Computer
  - Tag Management
  - Structure tag
  - Graphics Designer
  - Menus and toolbars
  - 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 Manager
  - Lifebeat Monitoring
  - OS Project Editor
  - Web Navigator

Name	Type
Computer	Computer
Tag Management	Tag Management
Structure tag	Structures
Graphics Designer	Editor
Menus and toolbars	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 Manager	Editor
Lifebeat Monitoring	Editor
OS Project Editor	Editor
Web Navigator	Editor

Quick_Start\ External Tags: 0 / License: 64K NUM

Configure communication 5

5.1 Configure communication

Introduction

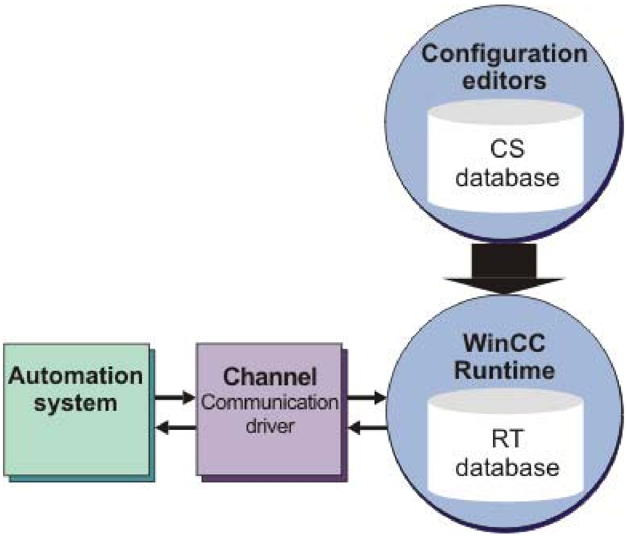
This chapter contains information on configuring the communication between WinCC and an automation system. This chapter also describes how you create and scale tags.

General procedure

Use the editor "Tag management" to configure the 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.



You do not need an automation system for the "Quick_Start" project. In this project, the values are transported via an internal tag within WinCC.

The configuration of the communication between WinCC and the automation system as well as the linear scaling of the process tags are only intended as exercises for practice.

5.2 Check the channels and connections in WinCC

Introduction

Via the channels and connections you will determine clearly, how the automation system is connected to WinCC.

The channels

The channels are specialized communication drivers. The channels allow the supply of process values from the automation system to the process tags. WinCC provides a variety of channels to connect different automation systems.

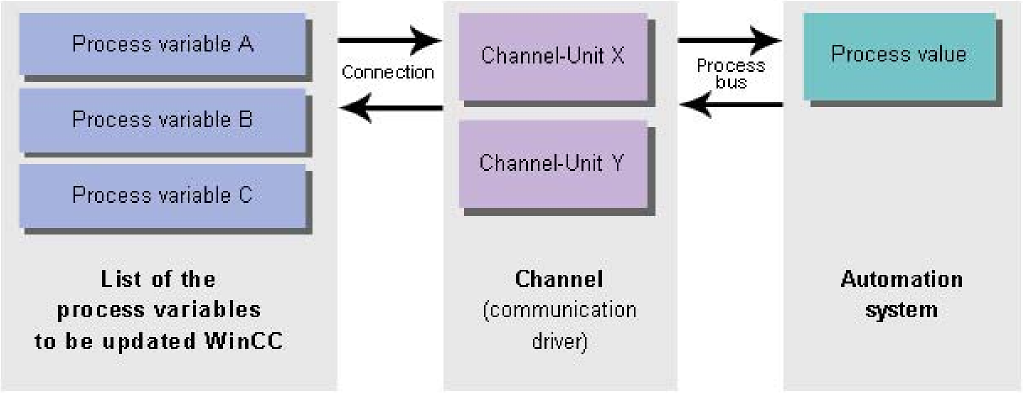
In WinCC, you can also use channels, via which values are transferred to the automation system from WinCC. You will control the process via these channels.

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 serves as an interface with exactly one underlying hardware driver and therefore to exactly one communication processor in the computer.

The connections

In channel units, you will configure connections to the various automation systems. Each connection describes the interface to an individual, defined automation system. The data exchange will take place via the connections in Runtime.



5.3 Tags in WinCC

Introduction

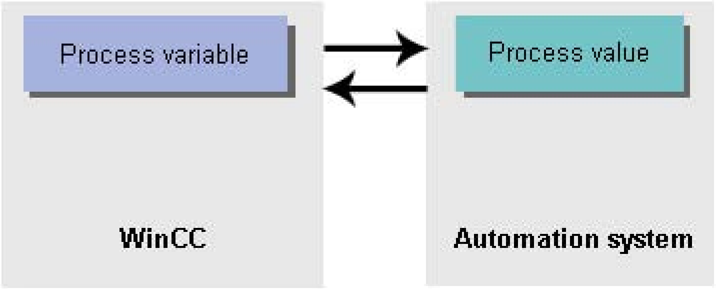
The tags in WinCC represent either real values or internal values. The internal values are calculated or simulated within WinCC. WinCC manages all tags in the "Tag management" editor.

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 variables. These tags do not have a process link and only carry values within WinCC.

Tag groups

The tag groups are components of the "Tag management" editor. The tag groups are used to organize tags clearly.

5.4 Adding a Channel

Introduction

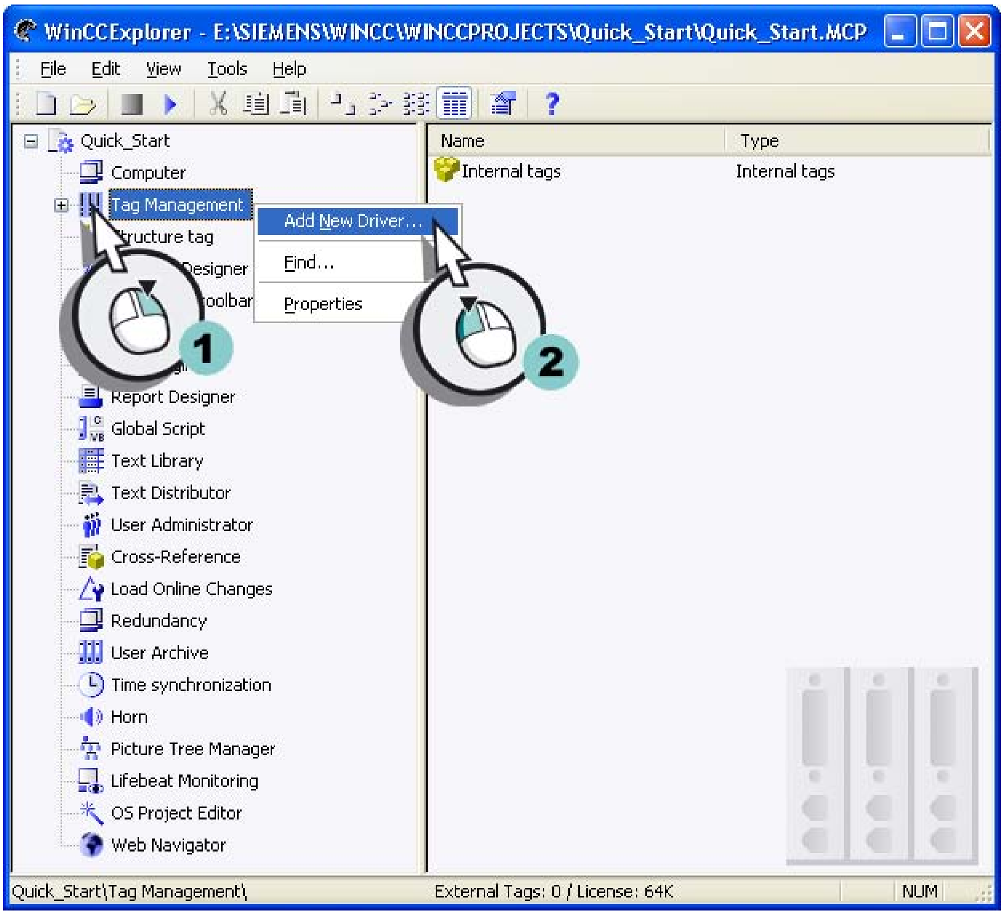
The following steps will show you how to create a channel in WinCC. WinCC communication with the automation system via this channel. This also supplies process values to the process tags in WinCC.

Requirement

The "Quick_Start" project is open.

Procedure

1. Open the "Add new driver" dialog to add a channel:



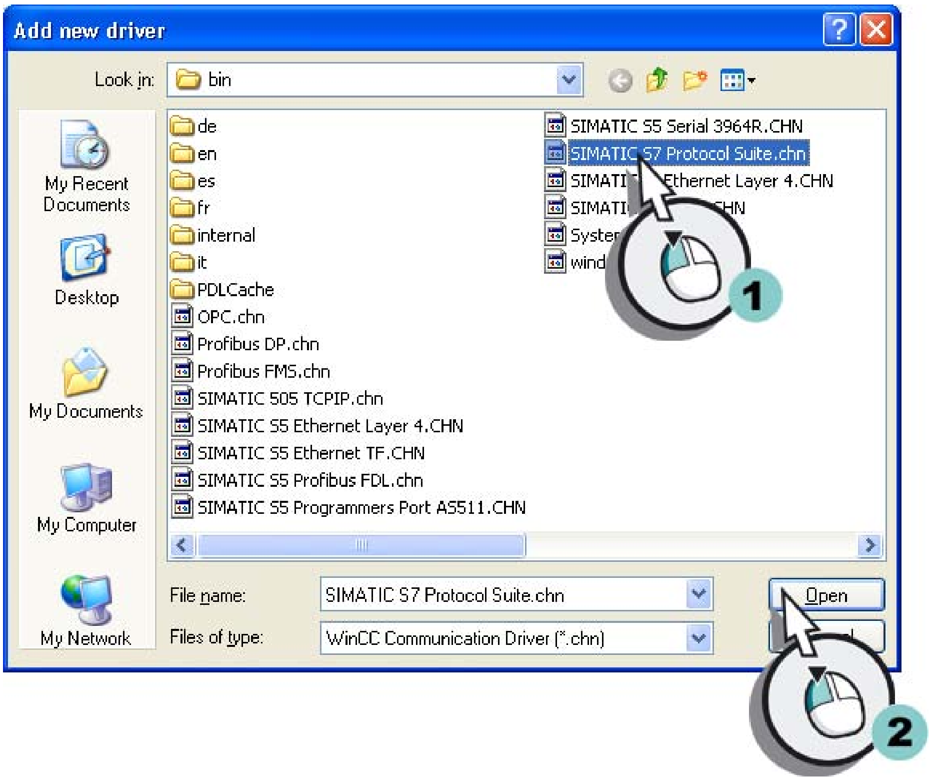
WinCCExplorer - E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start.MCP

Quick_Start\Tag Management\ | External Tags: 0 / License: 64K | NUM

Name	Type
Internal tags	Internal tags

The "Add new driver" dialog is opened.

2. Select the channel "SIMATIC S7 Protocol Suite.chn":



Add new driver
Look in: bin
My Recent Documents
Desktop
My Documents
My Computer
My Network
de
en
es
fr
internal
it
PDLCache
OPC.chn
Profibus DP.chn
Profibus FMS.chn
SIMATIC 505 TCPIP.chn
SIMATIC S5 Ethernet Layer 4.CHN
SIMATIC S5 Ethernet TF.CHN
SIMATIC S5 Profibus FDL.chn
SIMATIC S5 Programmers Port AS511.CHN
SIMATIC S5 Serial 3964R.CHN
SIMATIC S7 Protocol Suite.chn
SIMATI Ethernet Layer 4.CHN
SIMATI HN
Syster
wind
1
2
Open

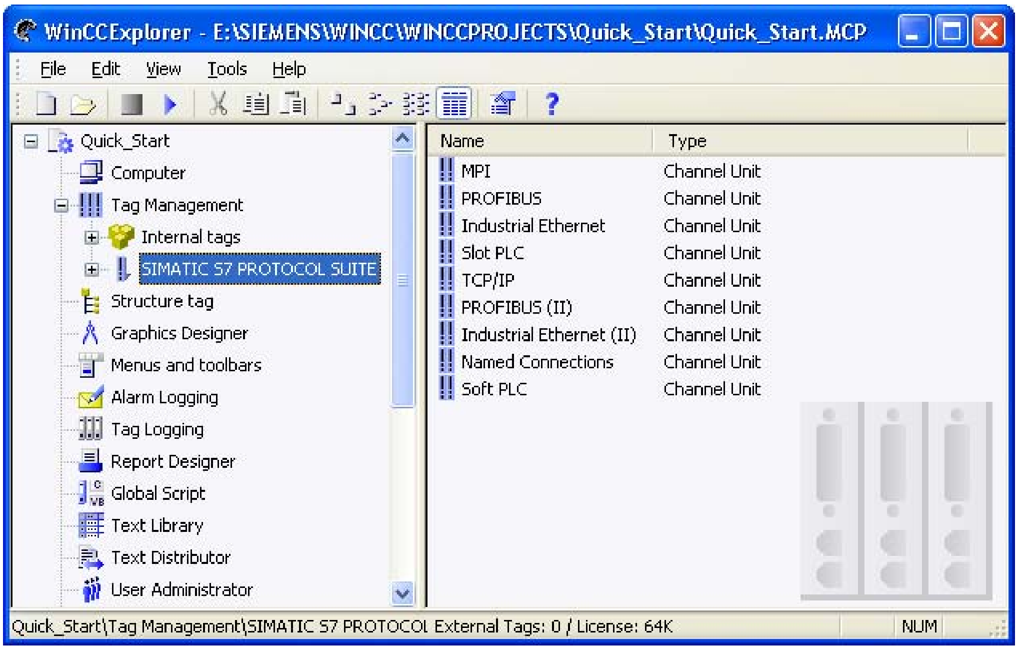
File name: SIMATIC S7 Protocol Suite.chn

Files of type: WinCC Communication Driver (*.chn)

Result

You have added the "SIMATIC S7 Protocol Suite" channel and it will be displayed in WinCC Explorer. The "SIMATIC S7 Protocol Suite" channel has several channel units for the different communication networks. You will use the channel unit "MPI" in the "Getting Started" project.

You will create a connection to the automation system in the next steps under the channel unit "MPI".



Name	Type
MPI	Channel Unit
PROFIBUS	Channel Unit
Industrial Ethernet	Channel Unit
Slot PLC	Channel Unit
TCP/IP	Channel Unit
PROFIBUS (II)	Channel Unit
Industrial Ethernet (II)	Channel Unit
Named Connections	Channel Unit
Soft PLC	Channel Unit

Quick_Start\Tag Management\SIMATIC S7 PROTOCOL External Tags: 0 / License: 64K NUM

5.5 Creating connections

Introduction

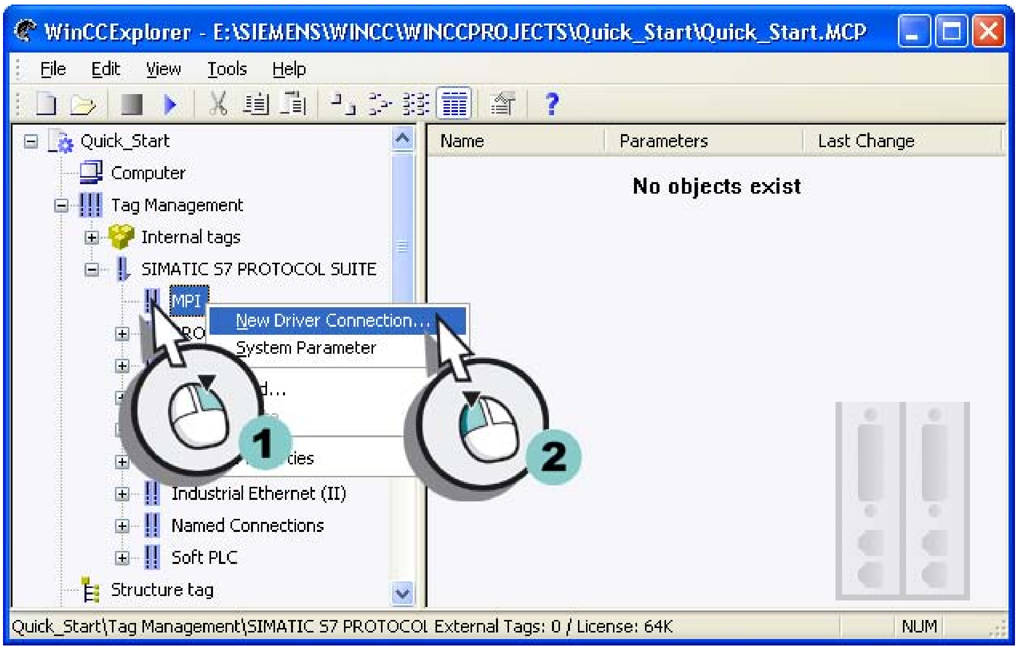
The following steps will show you how to create a connection to the automation system under the channel unit "MPI". The data exchange will take place via this connection in Runtime.

Requirement

The channel "SIMATIC S7 Protocol Suite" is integrated in WinCC Explorer.

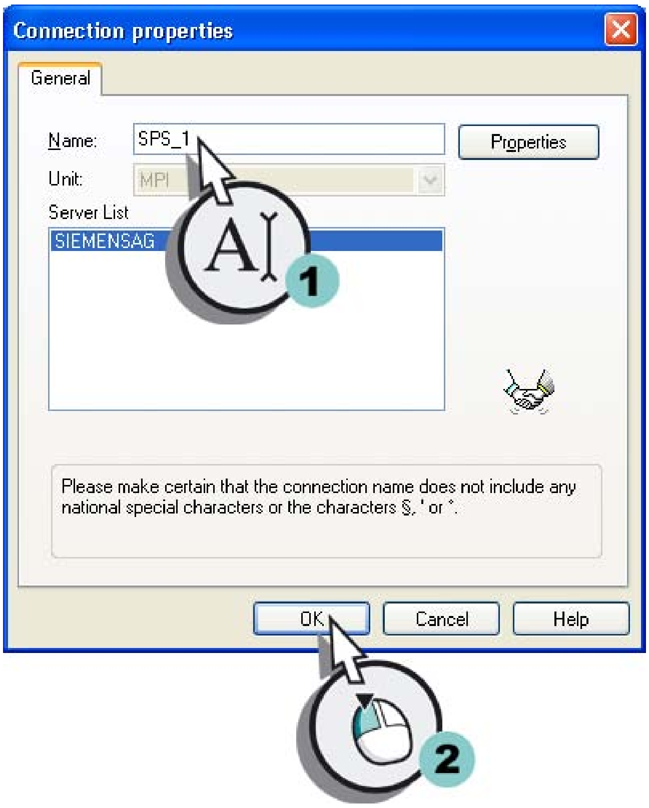
Procedure

1. Create a new connection under the channel unit "MPI":



The "Connection Properties" dialog is opened.

2. Enter the "SPS_1" as the name for the connection:

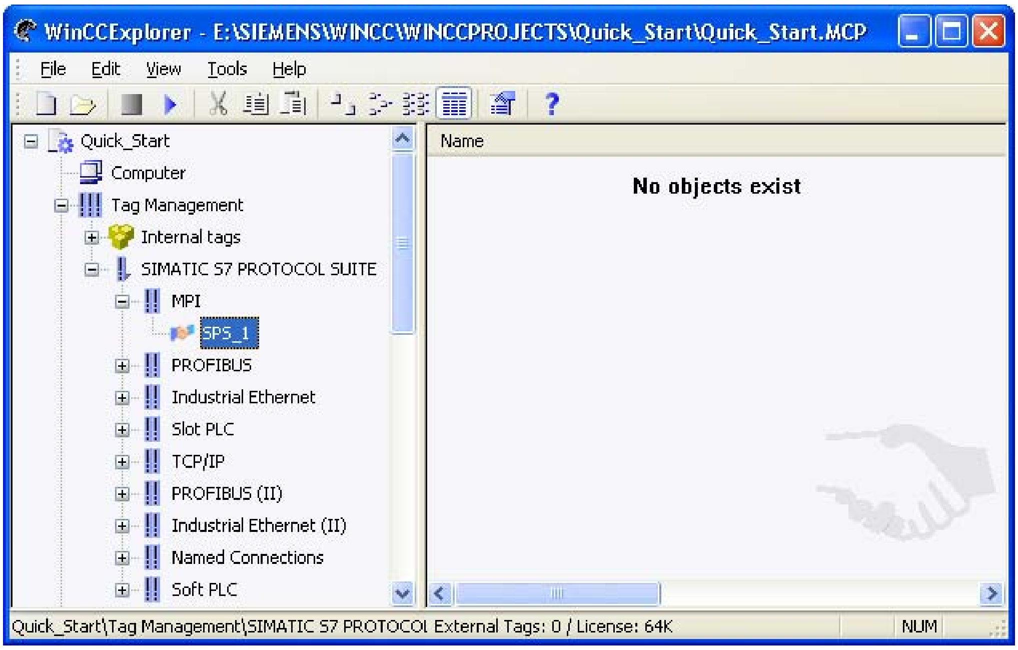


Please make certain that the connection name does not include any national special characters or the characters §, ' or ".

Result

You have established the connection "SPS_1" to the automation system. The connection is displayed in WinCC Explorer.

In the next steps you will create a tag group under the connection "SP_1". This tag group is displayed in a the right partial field as an object.



No objects exist

Quick_Start\Tag Management\SIMATIC S7 PROTOCOL External Tags: 0 / License: 64K NUM

5.6 Creating tag group

Introduction

The following steps will show you how to create a tag group.

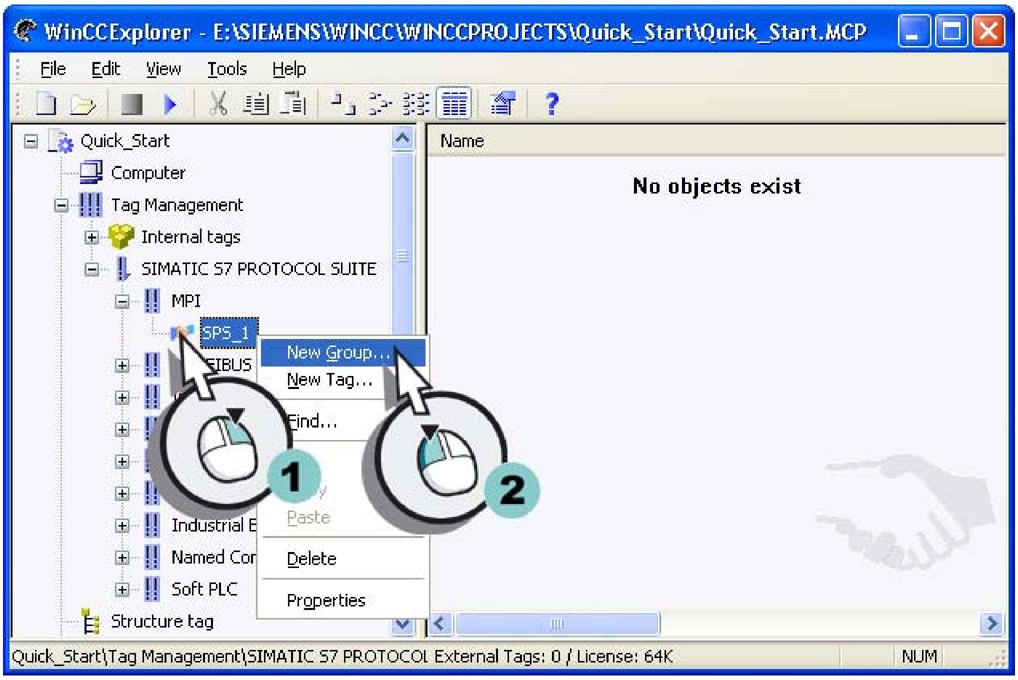
The tag groups are components of the "Tag management" editor. By means of these components you will a achieve a structured sorting of the tags.

Requirement

The connection is "SPS_1" is created in WinCC Explorer.

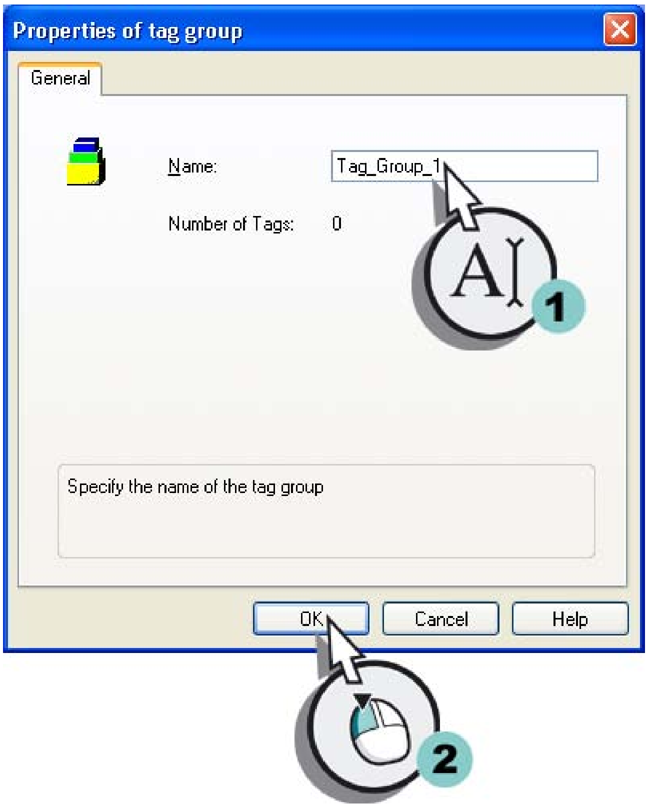
Procedure

1. Create a tag group:


WinCCExplorer - E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start.MCP
File Edit View Tools Help
Quick_Start
Computer
Tag Management
Internal tags
SIMATIC S7 PROTOCOL SUITE
MPI
SPS_1
New Group...
New Tag...
Find...
Paste
Delete
Properties
Industrial E
Named Cor
Soft PLC
Structure tag
Name
No objects exist
1
2
Quick_Start\Tag Management\SIMATIC S7 PROTOCOL External Tags: 0 / License: 64K
NUM

The "Tag Group Properties" dialog box opens.

2. Enter "Tag_Group_1" as the name for the tag group.



Properties of tag group

General

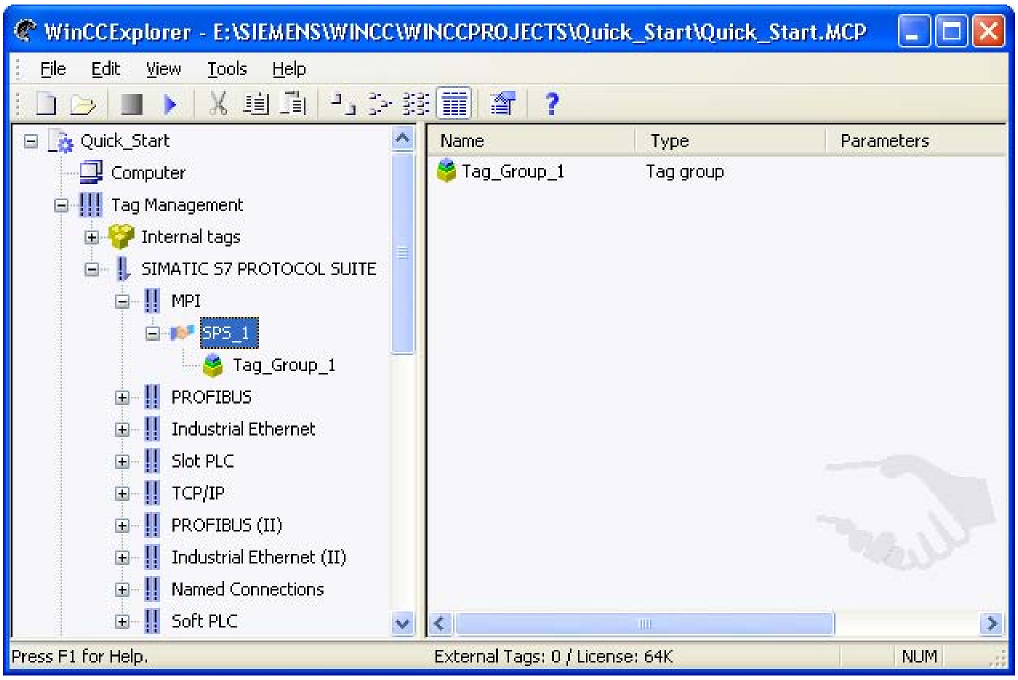
Name: Tag_Group_1

Number of Tags: 0

Specify the name of the tag group

Result

You have created the tag group "Tag_Group_1". The tag groups are displayed in WinCC Explorer. You will create a process tag under this tag group in the next steps.



Name	Type	Parameters
Tag_Group_1	Tag group	

Press F1 for Help. External Tags: 0 / License: 64K NUM

5.7 Creating a process tag

Introduction

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

You will specify the following properties for the process tag:

- Name
- Data type
- Address
- Type Conversion
- Linear Scaling

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.

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

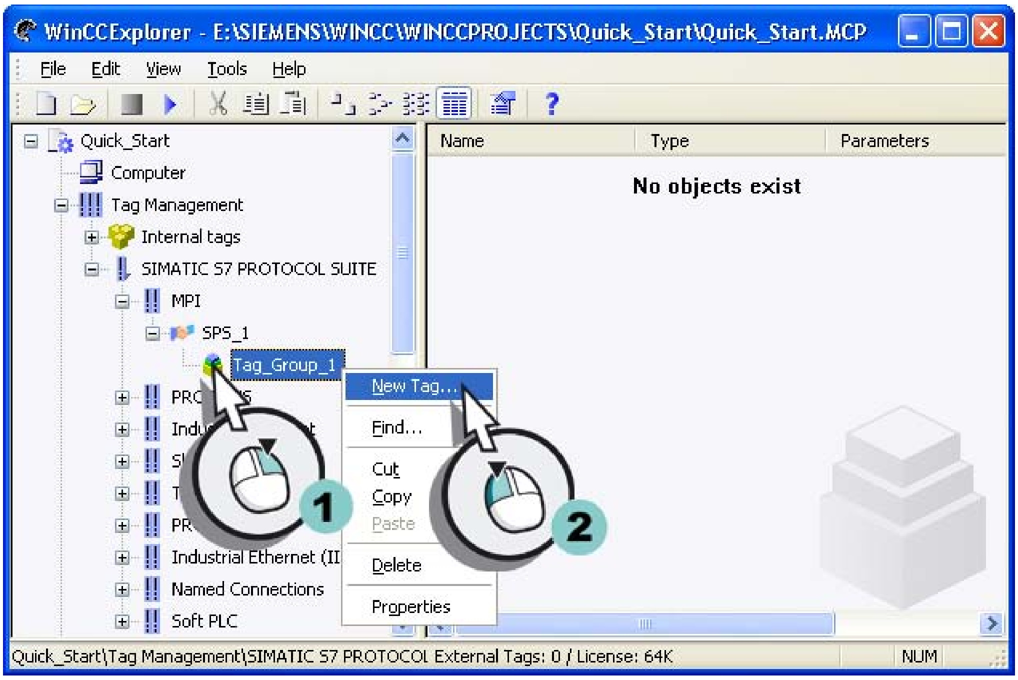
Via the addressing, you assign a certain data range in the automation system to a process tag. The addressing type depends on the type of communication partner.

Requirement

The tag group "Tag_Group_1" is created in WinCC Explorer.

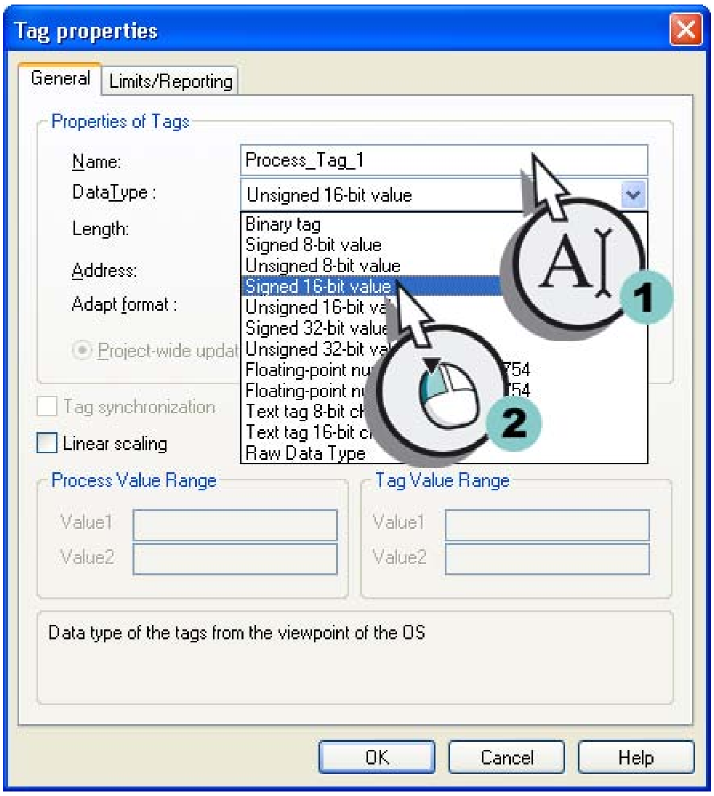
Procedure

1. Create a new process tag:



The "Tag Properties" dialog opens.

2. Enter "Process_Tag_1" as a name for the process tag and select the data type "signed 16-bit value".



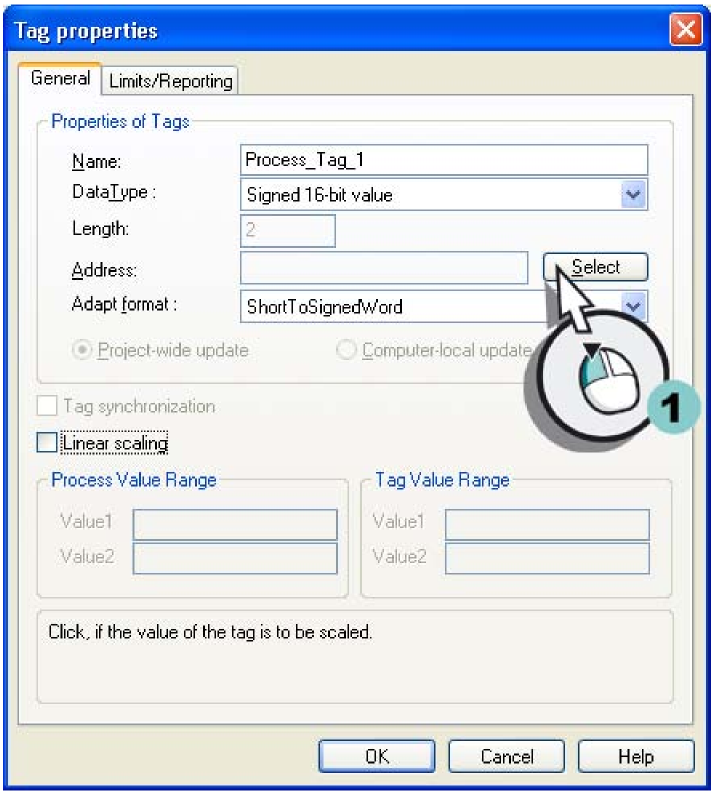
Tag properties

Name: Process_Tag_1

DataType : Unsigned 16-bit value

Data type of the tags from the viewpoint of the OS

3. Click "Select" to specify the properties of the tag addressing:



Name: Process_Tag_1

DataType : Signed 16-bit value

Length: 2

Address:

Adapt format : ShortToSignedWord

● Project-wide update ○ Computer-local update

□ Tag synchronization

□ Linear scaling

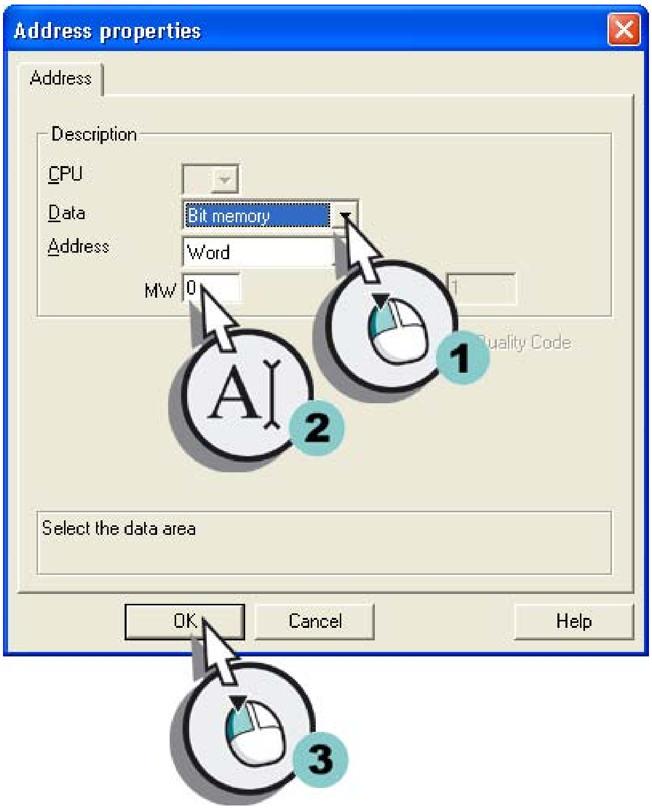
Value1

Value2

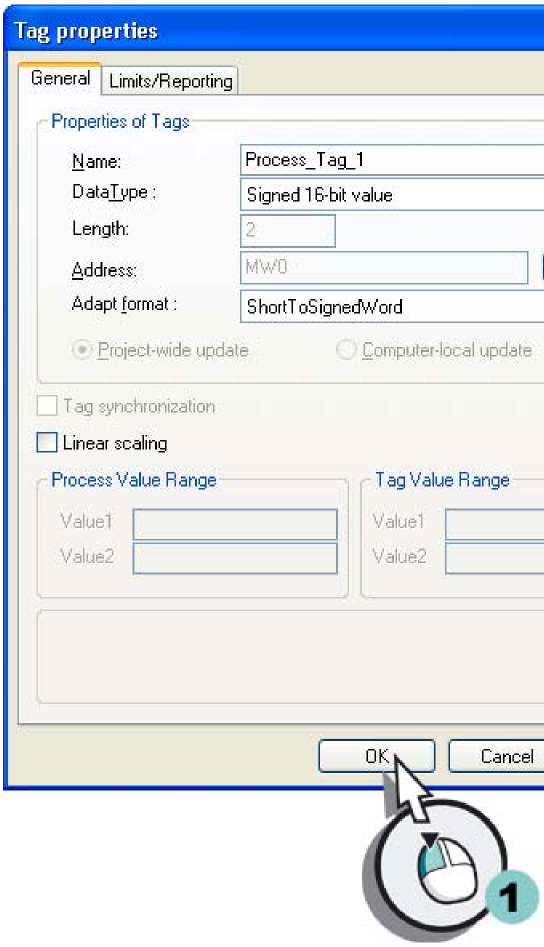
Click, if the value of the tag is to be scaled.

The "Address Properties" dialog box opens.

4. Enter the information on the address description:



5. Close the "Tag properties" dialog.



Tag properties

Properties of Tags

Name: Process_Tag_1

DataType : Signed 16-bit value

Length: 2

Address: MW0

Adapt format : ShortToSignedWord

● Project-wide update ○ Computer-local update

□ Tag synchronization

□ Linear scaling

Process Value Range

Value1

Value2

Tag Value Range

Value1

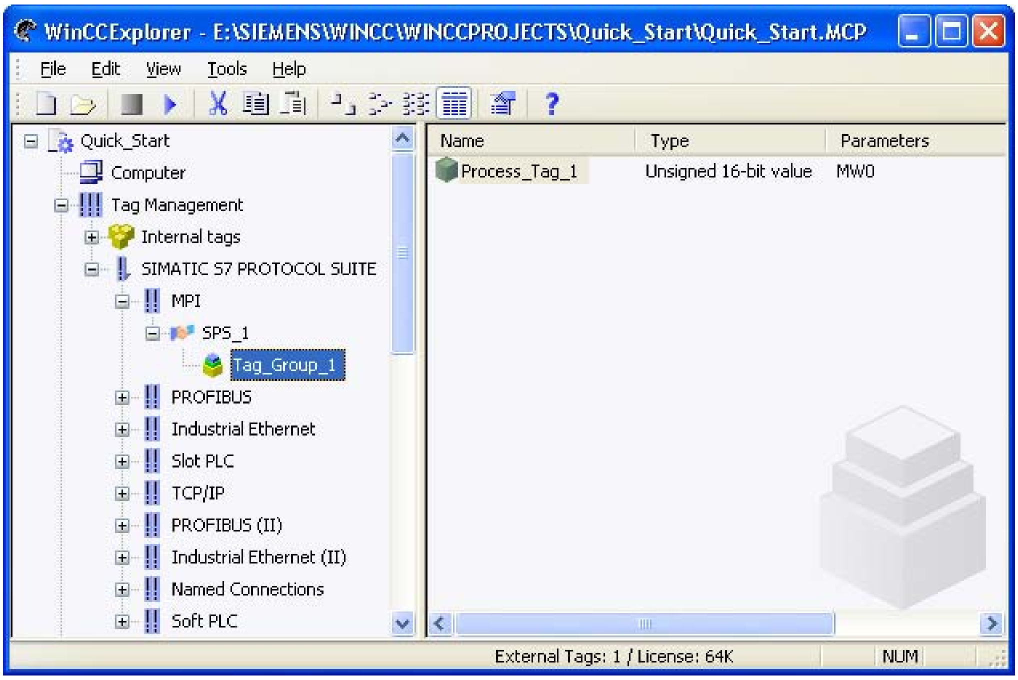
Value2

Result

You have created the process tag "Process_Tag_1". The process tag is displayed in the right partial window of the WinCC Explorer.

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	Type	Parameters
Process_Tag_1	Unsigned 16-bit value	MW0

External Tags: 1 / License: 64K

5.8 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:

- Value1 and Value2 of the process: determine the value range of the process value
- Value1 and Value2 of the process tag: determine the value range of the process tag in WinCC

Linear scaling is only available for process tags. Internal tags cannot be scaled.

Example:

A temperature sensor measures the resistance in a system and transfers the value in the unit "Ohms". Certain resistance values correspond to specific temperatures. When using linear scaling, you can automatically convert the resistance values to the temperature scale. This ensures that the measured resistance is immediately displayed as a temperature in the project.

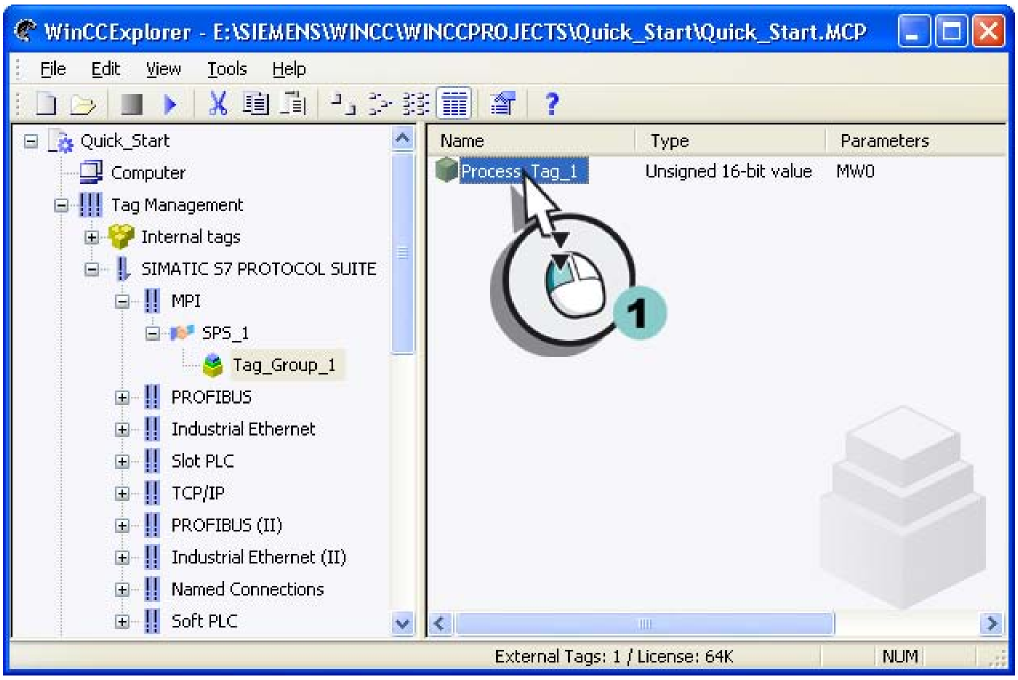
In the "Tag Properties" dialog box, this resistance value corresponds to the details at "Process value range". The temperature corresponds to the details at "Tag value range".

Requirement

The process tag "Process_Tag_1" is created in WinCC Explorer.

Procedure

1. Open the "Tag properties" dialog:



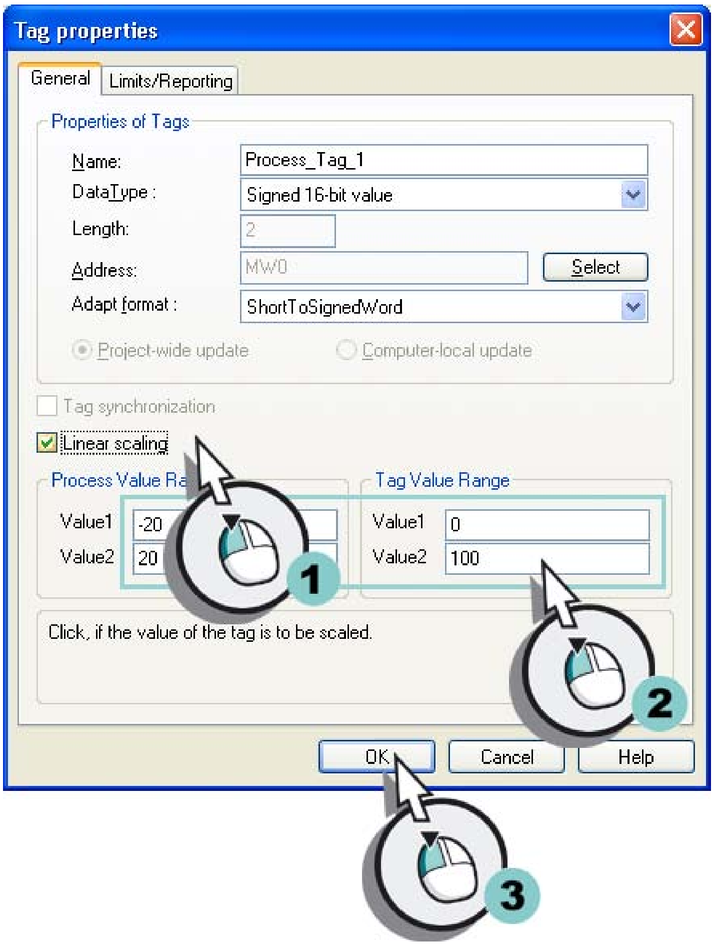
WinCCExplorer - E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start.MCP

Name	Type	Parameters
Process_Tag_1	Unsigned 16-bit value	MW0

External Tags: 1 / License: 64K

The "Tag Properties" dialog is opened.

2. Activate the linear scaling and set the value ranges for the process and the tag:



Tag properties

General | Limits/Reporting

Properties of Tags

Name: Process_Tag_1

DataType : Signed 16-bit value

Length: 2

Address: MW0

Adapt format : ShortToSignedWord

● Project-wide update ○ Computer-local update

□ Tag synchronization

☑ Linear scaling

Process Value Ra

Value1 -20

Value2 20

Tag Value Range

Value1 0

Value2 100

Click, if the value of the tag is to be scaled.

Result

You have activated the linear scaling for the process tag "Process_Tag_1". This value ranges for the process and the tag have been set. The value range of the process value [-20...20] is displayed as a value range for the process tag [0...100].

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

5.9 Creating Internal Tags

Introduction

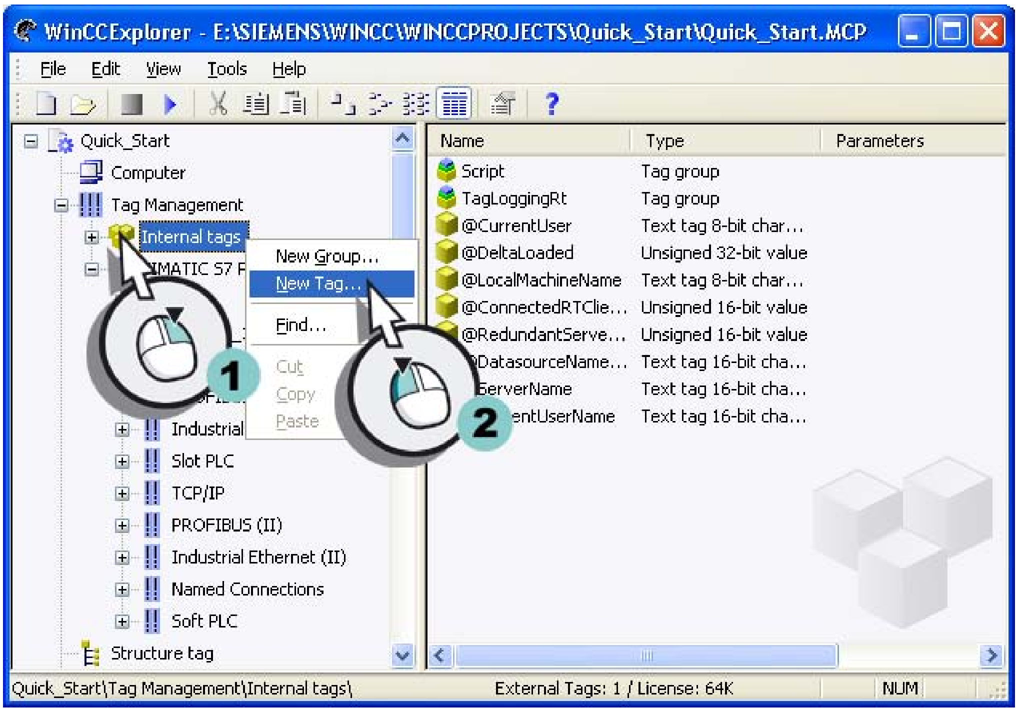
The following steps will show you how to create an internal tag and determine its properties. The internal tag is used to transfer values within WinCC.

Requirement

The "Quick_Start" project is open.

Procedure

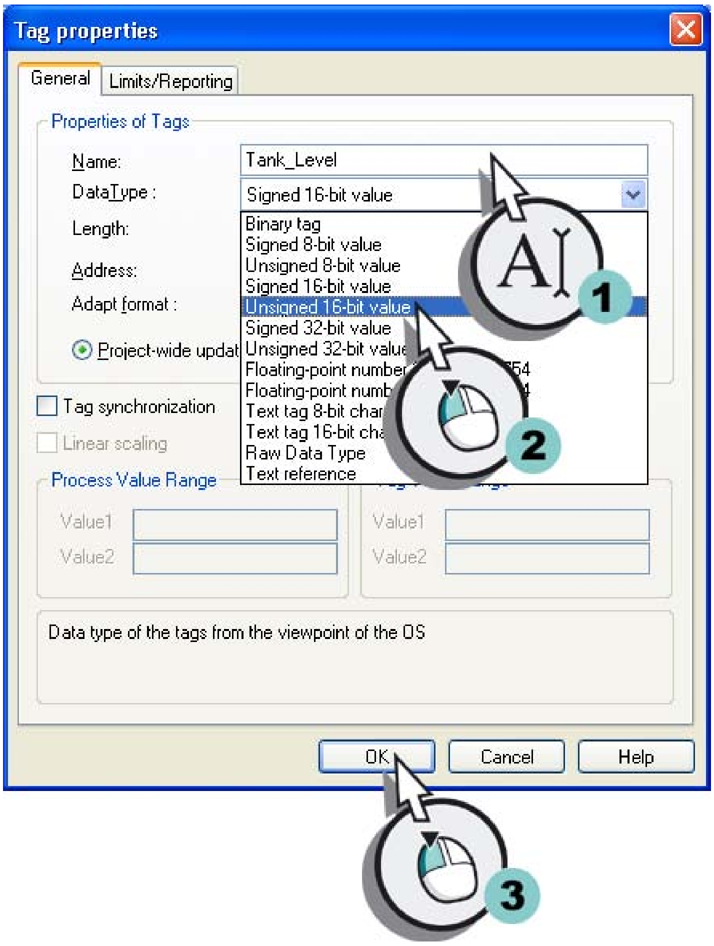
1. Create an internal tag:



Name	Type	Parameters
Script	Tag group	
TagLoggingRt	Tag group	
@CurrentUser	Text tag 8-bit char...	
@DeltaLoaded	Unsigned 32-bit value	
@LocalMachineName	Text tag 8-bit char...	
@ConnectedRTClie...	Unsigned 16-bit value	
@RedundantServe...	Unsigned 16-bit value	
DatasourceName...	Text tag 16-bit cha...	
ServerName	Text tag 16-bit cha...	
entUserName	Text tag 16-bit cha...	

The "Tag Properties" dialog is opened.

2. Enter "Tank_Level" as a name for the internal tag and choose the data type "Unsigned 16 bit value".



Tag properties

Properties of Tags

Name: Tank_Level

DataType : Signed 16-bit value

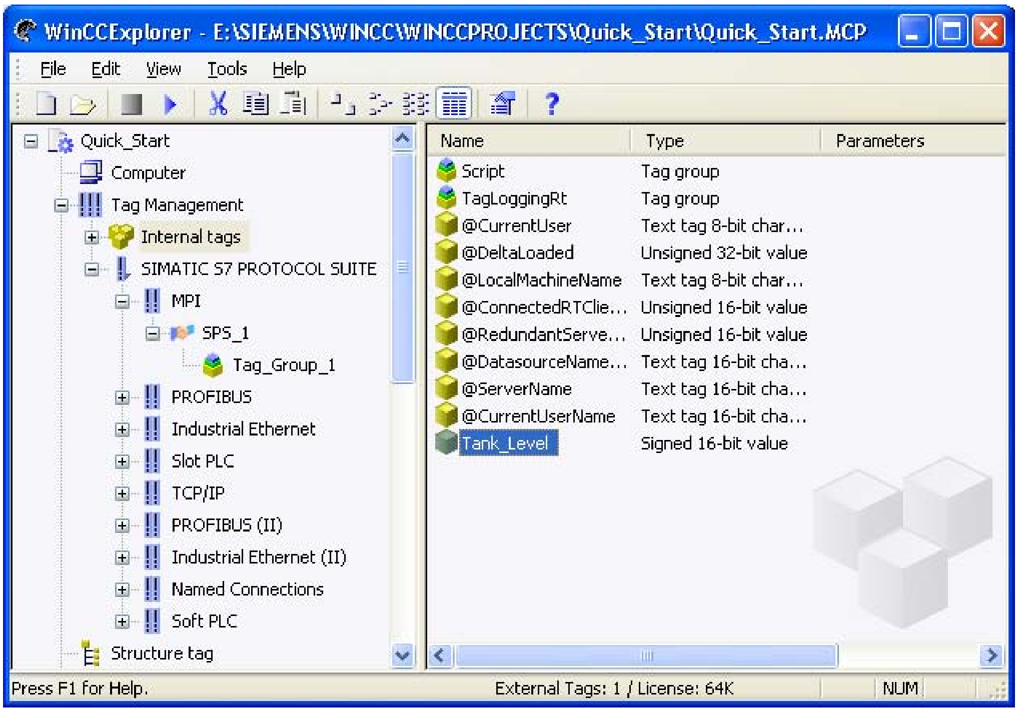
☐ Tag synchronization

☐ Linear scaling

Data type of the tags from the viewpoint of the OS

Result

You have created the internal tag "Tank_Level" and have determined its data type. The internal tag "Tank_Level" is displayed in WinCC Explorer.



Name	Type	Parameters
Script	Tag group	
TagLoggingRt	Tag group	
@CurrentUser	Text tag 8-bit char...	
@DeltaLoaded	Unsigned 32-bit value	
@LocalMachineName	Text tag 8-bit char...	
@ConnectedRTClie...	Unsigned 16-bit value	
@RedundantServe...	Unsigned 16-bit value	
@DatasourceName...	Text tag 16-bit cha...	
@ServerName	Text tag 16-bit cha...	
@CurrentUserName	Text tag 16-bit cha...	
Tank_Level	Signed 16-bit value	

Press F1 for Help. External Tags: 1 / License: 64K NUM

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 screens in WinCC Explorer.

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

General procedure

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

Each process screen is made up of several objects:

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

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

In this chapter you will create a process screen that depicts the water supply of Atlanta. The creation of a second process screen is the exercise.

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

6.2 The Graphics System

Introduction

The graphic system is a partial system of WinCC. This partial system is used to configure process screens.

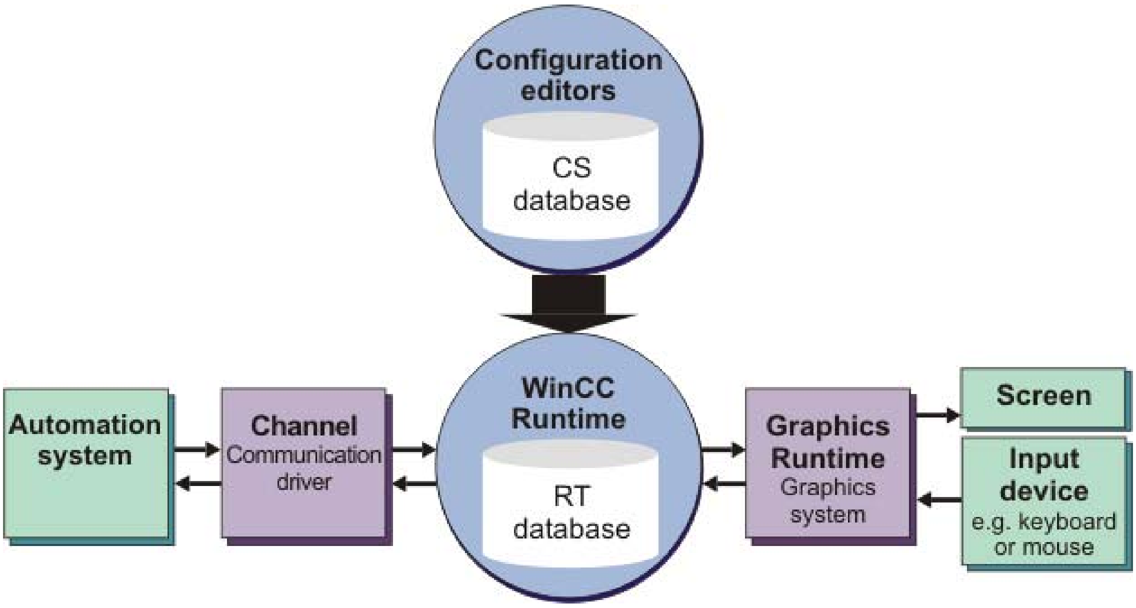
The Graphics System handles the following tasks:

- 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. the clicking of a button, or the entry of a text in an input field

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 screens for your project.
- Graphics Runtime is the runtime component of the Graphics System. Graphics Runtime displays the screens in Runtime and administers all inputs and outputs.



6.3 Creating process screens

Introduction

The following steps will show you how to create and rename process screens in WinCC Explorer.

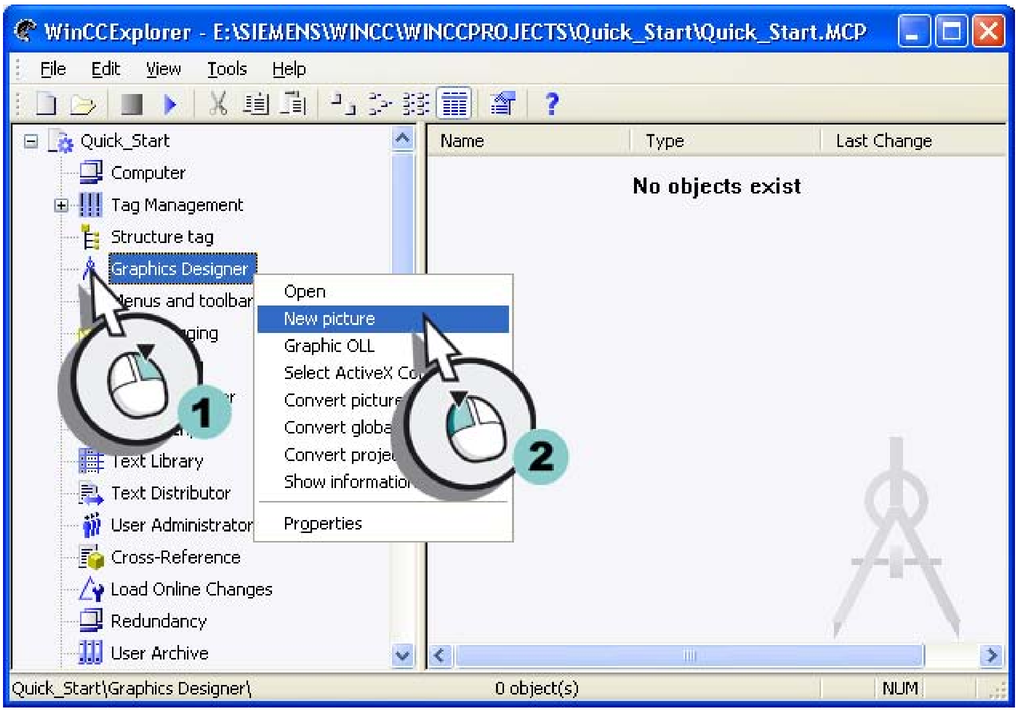
New screens, which are still blank, can either be created using the "Graphics Designer" or WinCC Explorer. If you wish to process a screen immediately, create it using the "Graphics Designer" editor. If you wish to create all required process screens before you process them, we recommend that you use WinCC Explorer.

Requirement

The "Quick_Start" project is open.

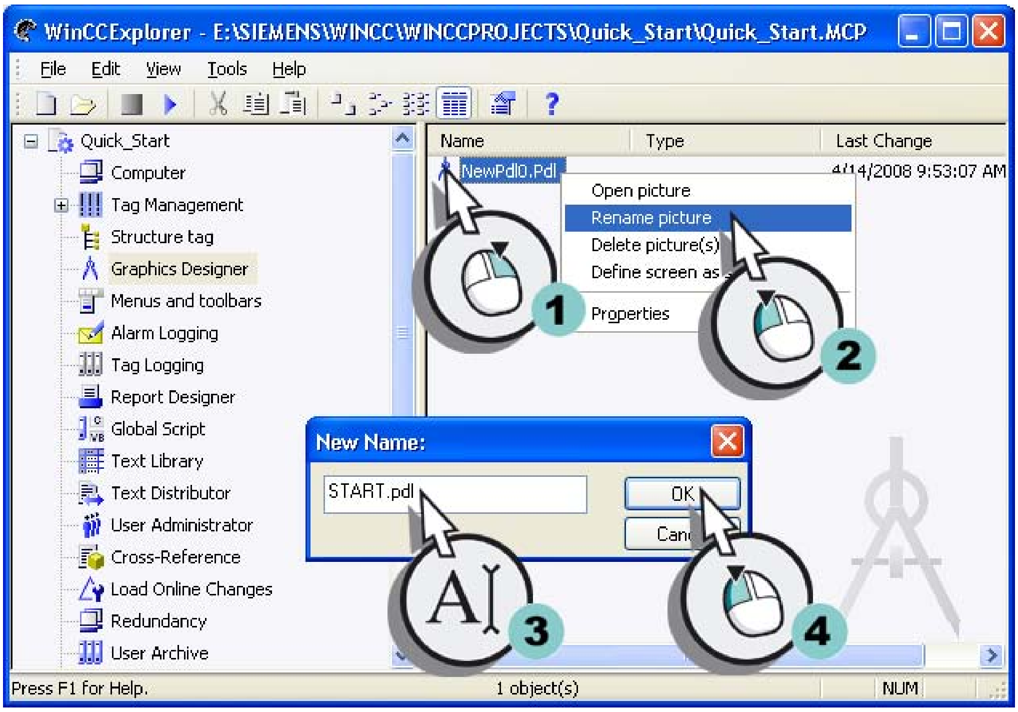
Procedure

1. Create a new process screen:



The process screen is displayed in the right partial window of the WinCC Explorer.

2. Rename the created process screen:



The process screen "START.pdl" is displayed in the right partial window of the WinCC Explorer.

3. Create a second screen analog to steps 1 and 2 and name it "SAMPLE.pdl".

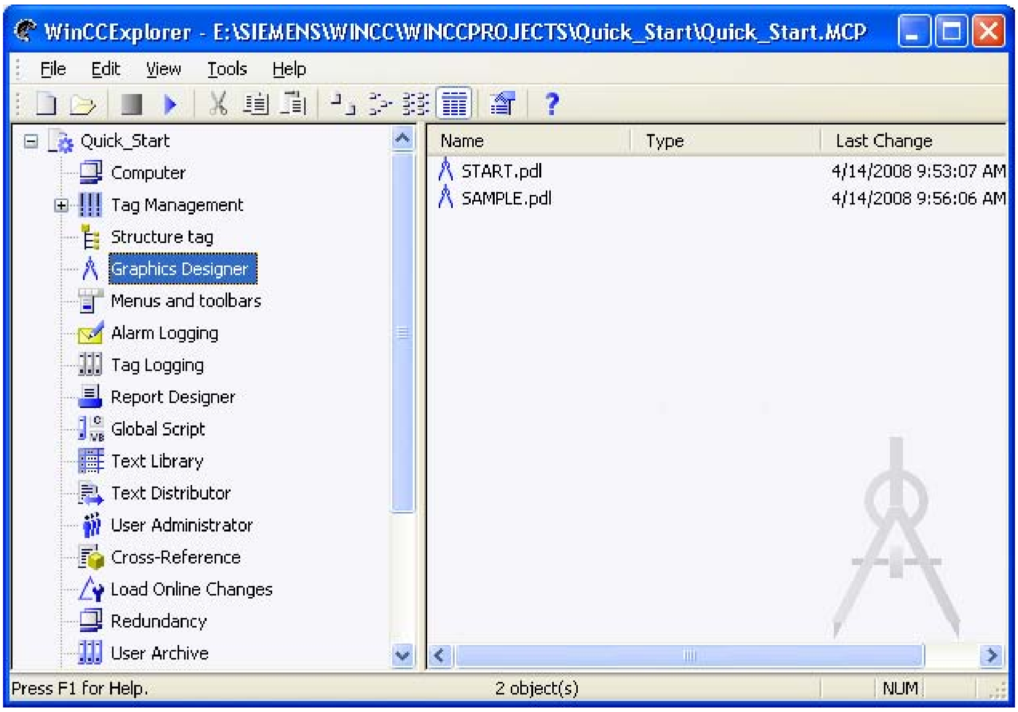
Note

If you rename a screen in WinCC Explorer, only use a picture name one time. The software does not check whether the name already exists. Duplicate pictures names can lead to conflicts during access via VBA or during dynamization.

Result

You have created the process screens "START.pdl" and "SAMPLE.pdl". These are displayed in the right partial window of the WinCC Explorer.

In order to graphically display the water supply of Atlanta, add several objects to the process screen "START.pdl" in the next steps.



Name	Type	Last Change
START.pdl		4/14/2008 9:53:07 AM
SAMPLE.pdl		4/14/2008 9:56:06 AM

6.4 Editing Process Screens

6.4.1 Editing Process Screens

Introduction

This chapter offers a description how to edit process screens using the "Graphics Designer" editor. At the end of the chapter you will have the opportunity to deepen what you have learned by working on the screen "SAMPLE.pdl" on your own.

General procedure

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

The "Graphics Designer" provides objects and tools to configure process screens. 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 screens.

The objects of the object palette cannot be added to the process screens by dragging and dropping. In order to insert an object, select it and click once with the left mouse button on the working surface of the process screen.

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

- 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: for example, 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 that you can insert by drag&drop into your screens.

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 will show you how to insert graphic objects from the library into the process screen "START.pdl".

The 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
- Project Library

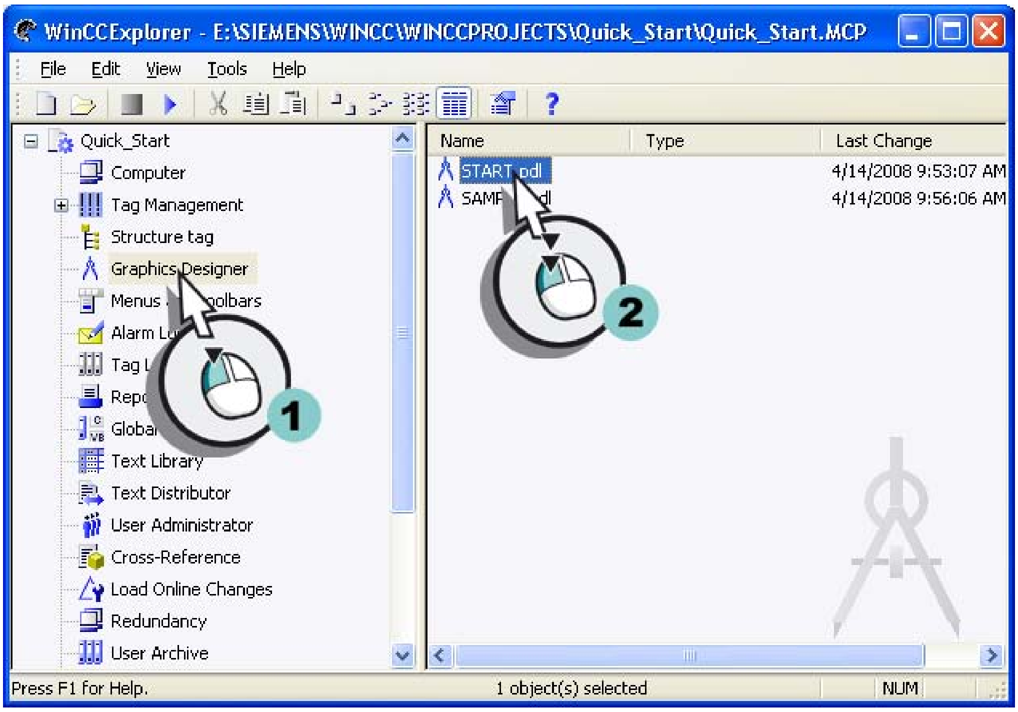
The area "Global library" is structured in a directory tree. It offers a variety of premade graphic objects, such as machine and system parts, measuring devices, operating controls and buildings.

In the area "Project library" you can store self-made projects.

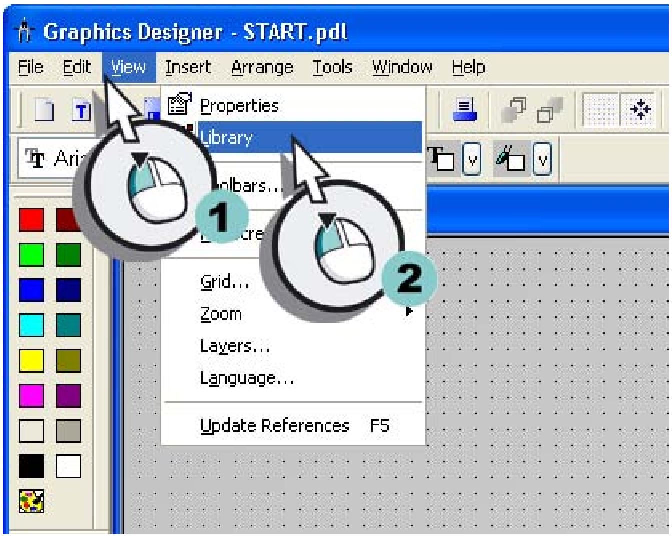
You will only need the graphic objects of the area "Global library" for the "Quick_Start" project. With these objects you will depict the system for the water supply of Atlanta in the process screen "START.pdl".

Procedure

1. Open the process screen "START.pdl" in the "Graphics Designer":



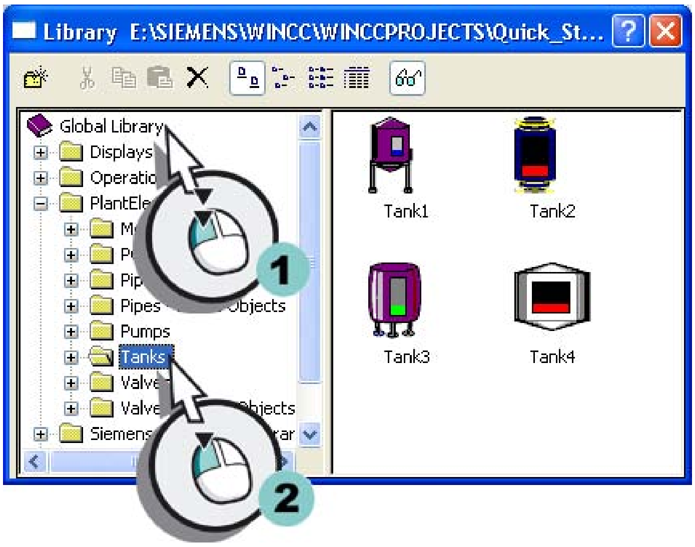
2. Open the "Library" dialog.



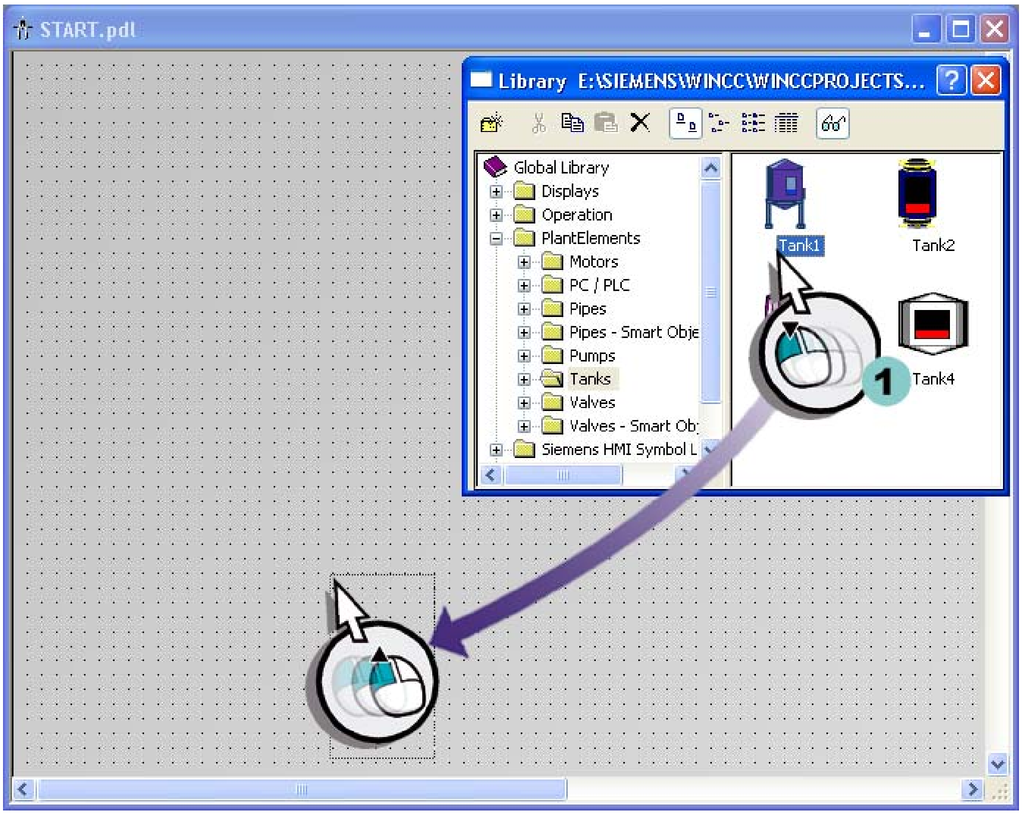
The "Library" dialog is opened.

You will get a preview of the available objects with the button in the toolbar of the library. The size of the displayed symbols can be changed via the buttons and .

3. Open the folder "Plant Components" of the "Global library" area.

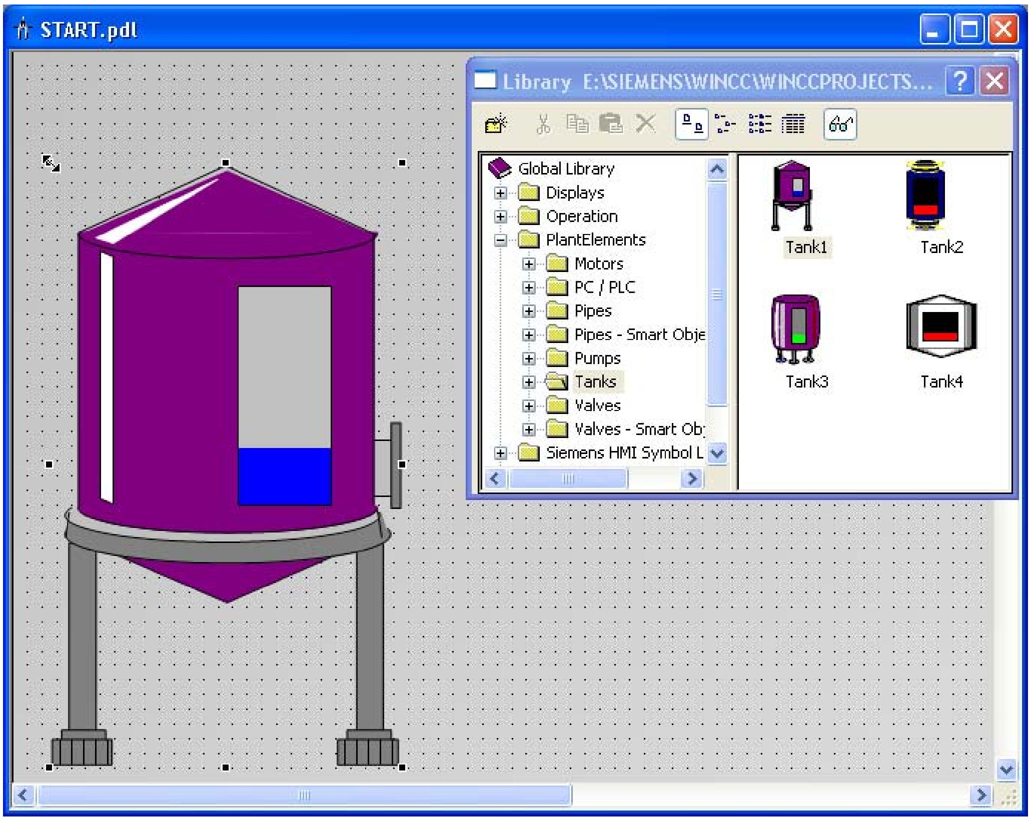


4. Insert the picture of a water tank:

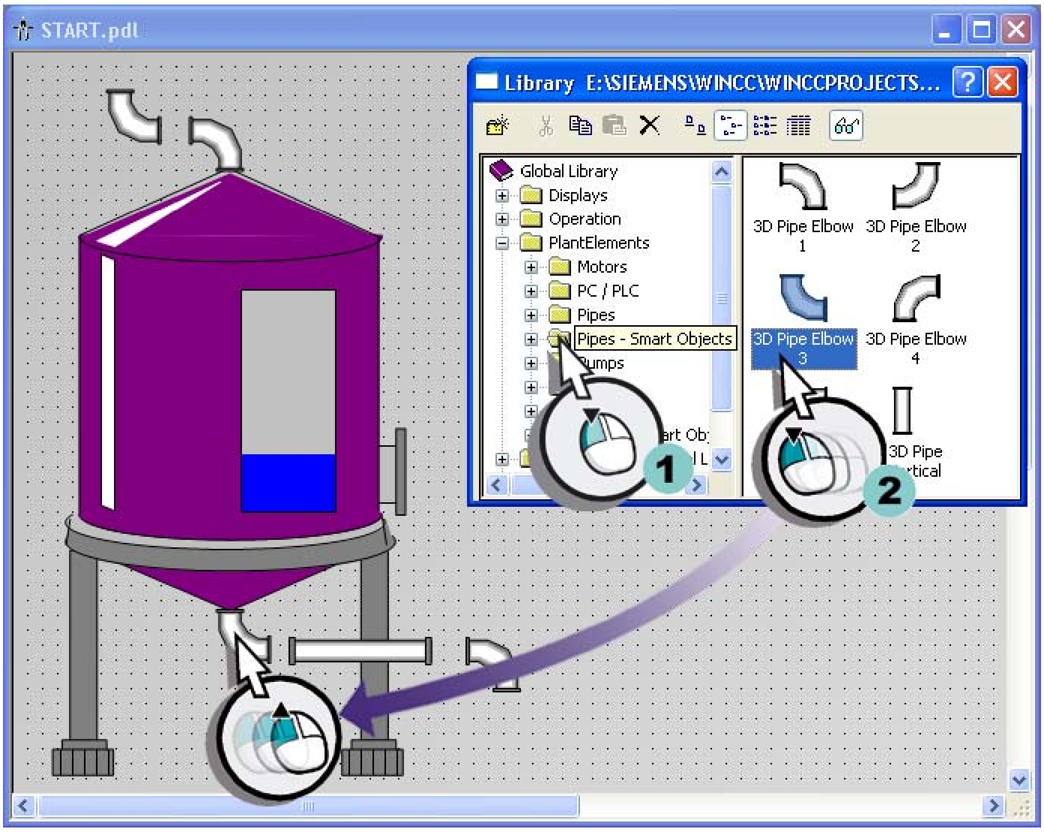


The picture of the water tanks appears on the work surface.

5. Enlarge the picture of a water tank.

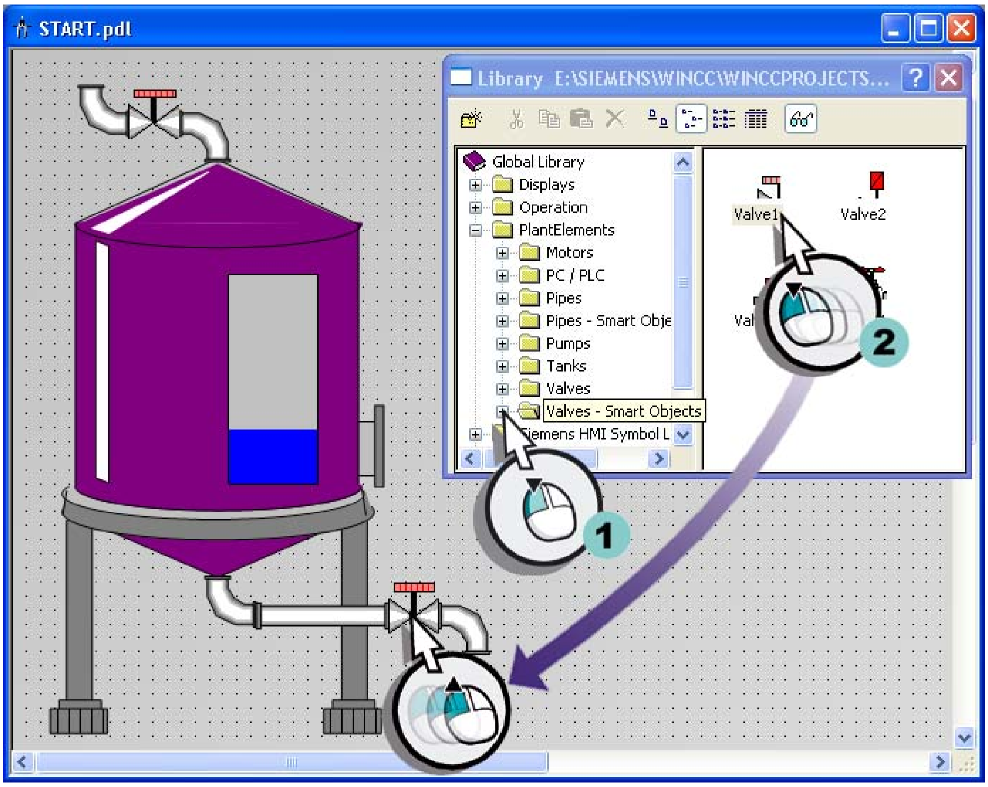


6. Insert the pictures of the required pipes:



The pictures of the pipes appear on the work surface.

7. Insert the pictures of the required valves:



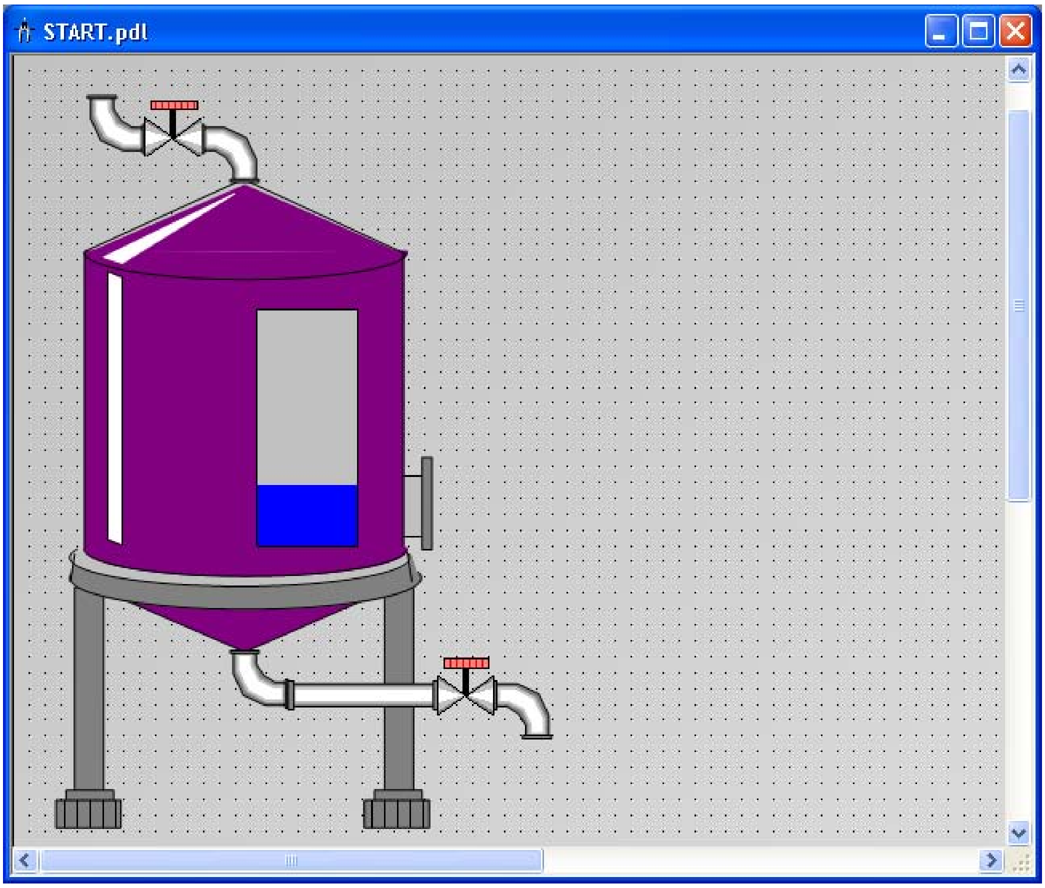
The pictures of the valves appear on the work surface.

8. Close the "Library" dialog.

Result

You have now depicted the system for the water supply in Atlanta.

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



6.4.3 Inserting "Static text"

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.

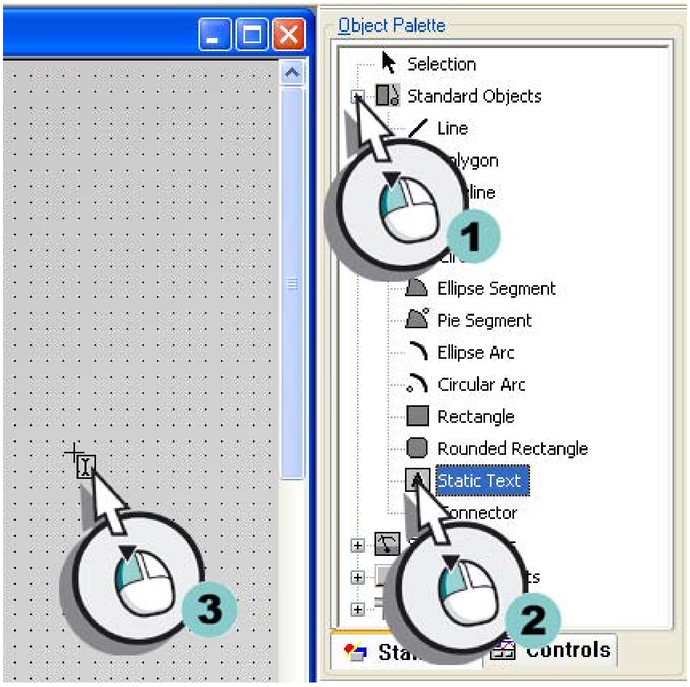
Unique labeling of the displayed processes is very important when you create multiple pictures.

Requirement

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

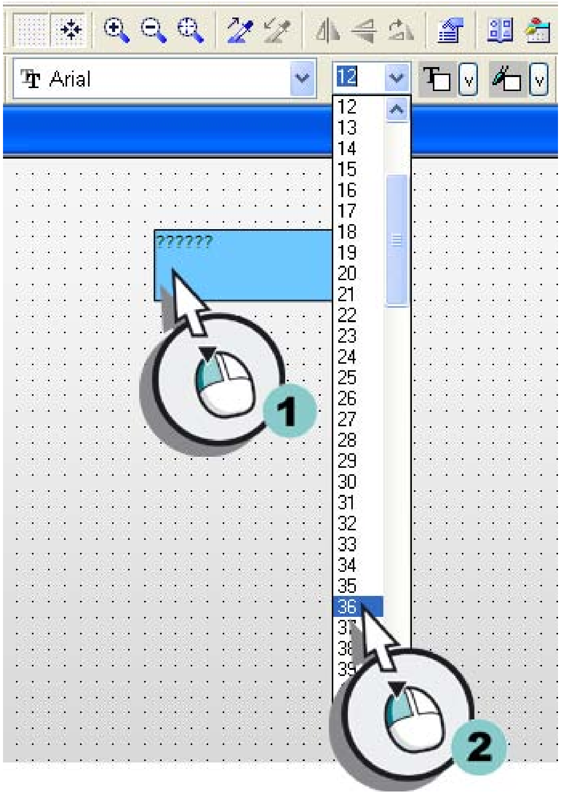
Procedure

1. Add the "Static Text" object:



The text field is displayed on the process picture.

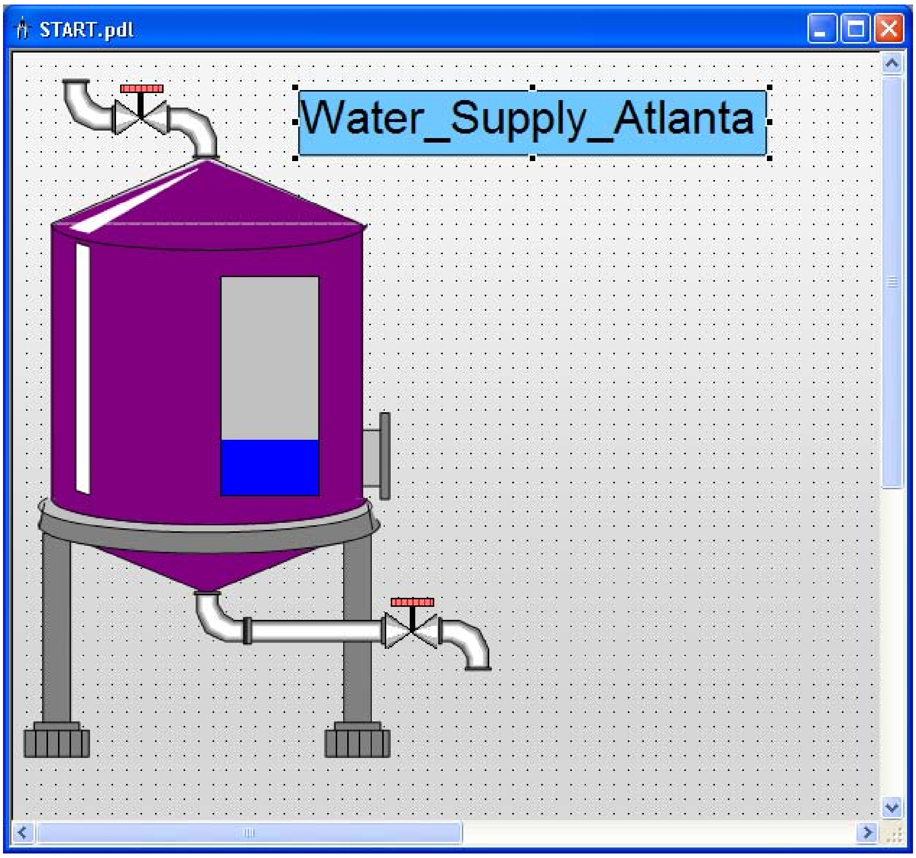
2. Select the text field and set the font size to 36pt:



3. Double-click the text field and enter the title "Water_Supply_Atlanta" using the keyboard.
4. Adjust the size of the text field to the text.
5. Save the process picture "START.pdl" using the 💾 button in the toolbar.
6. Close the process screen "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 screen "SAMPLE.pdl".

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

The displaying of the process a free exercise. You do not need this step for the "Quick_Start" project.

If you are uncertain about the execution of these steps, use the following teaching aids:

- Inserting graphic objects from the library

Requirement

The process screen "SAMPLE.pdl" has been created.

The "Graphics Designer" editor is open.

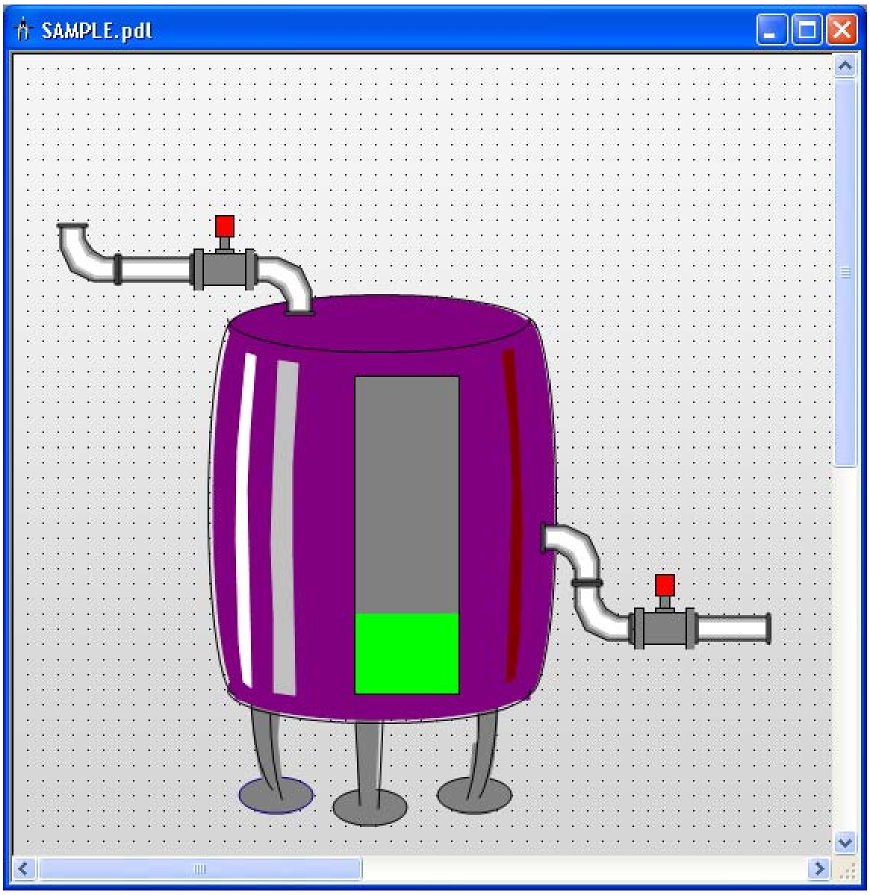
Procedure

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

Result

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

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



See also

Inserting graphic objects from the library (Page 48)

6.5 Using customized menus and toolbars

6.5.1 Using customized menus and toolbars

Introduction

In this chapter you will find description how to create screen changes usind customized menus and toolbars.

General procedure

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 using procedures from Global Script.

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 entries and symbols

  You can also exchange the configuration file, for e.g. in case of user change during runtime, if you save the modified functional scope in a new configuration file.

6.5.2 Creating procedures for customized menus and toolbars

Introduction

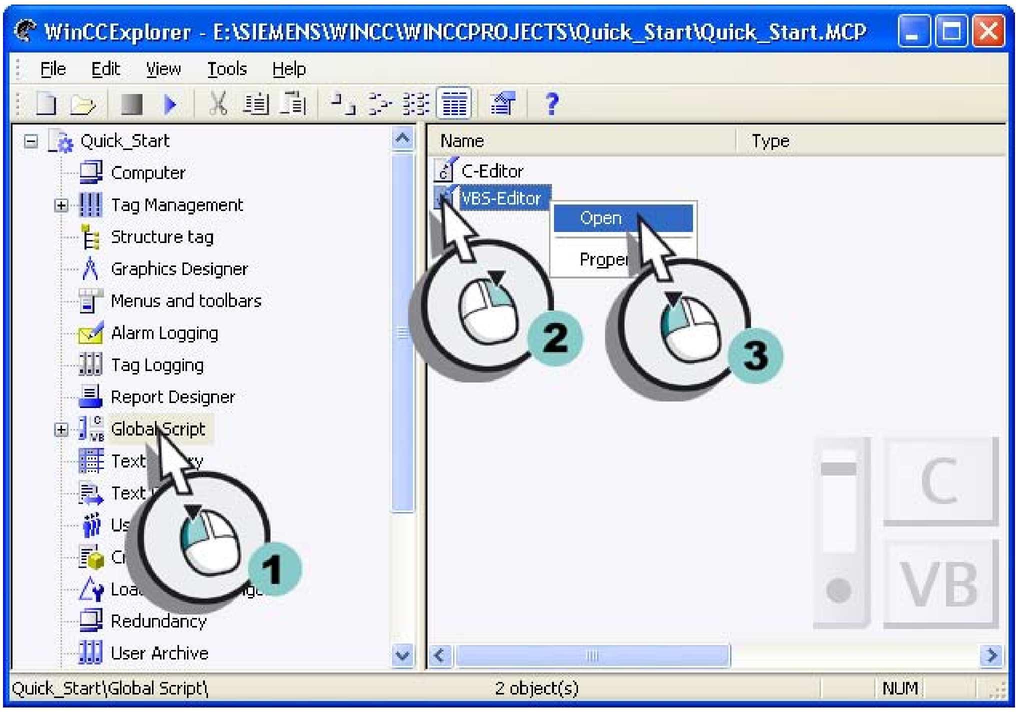
The following steps will show you how to create procedures in a module in Global Script.

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

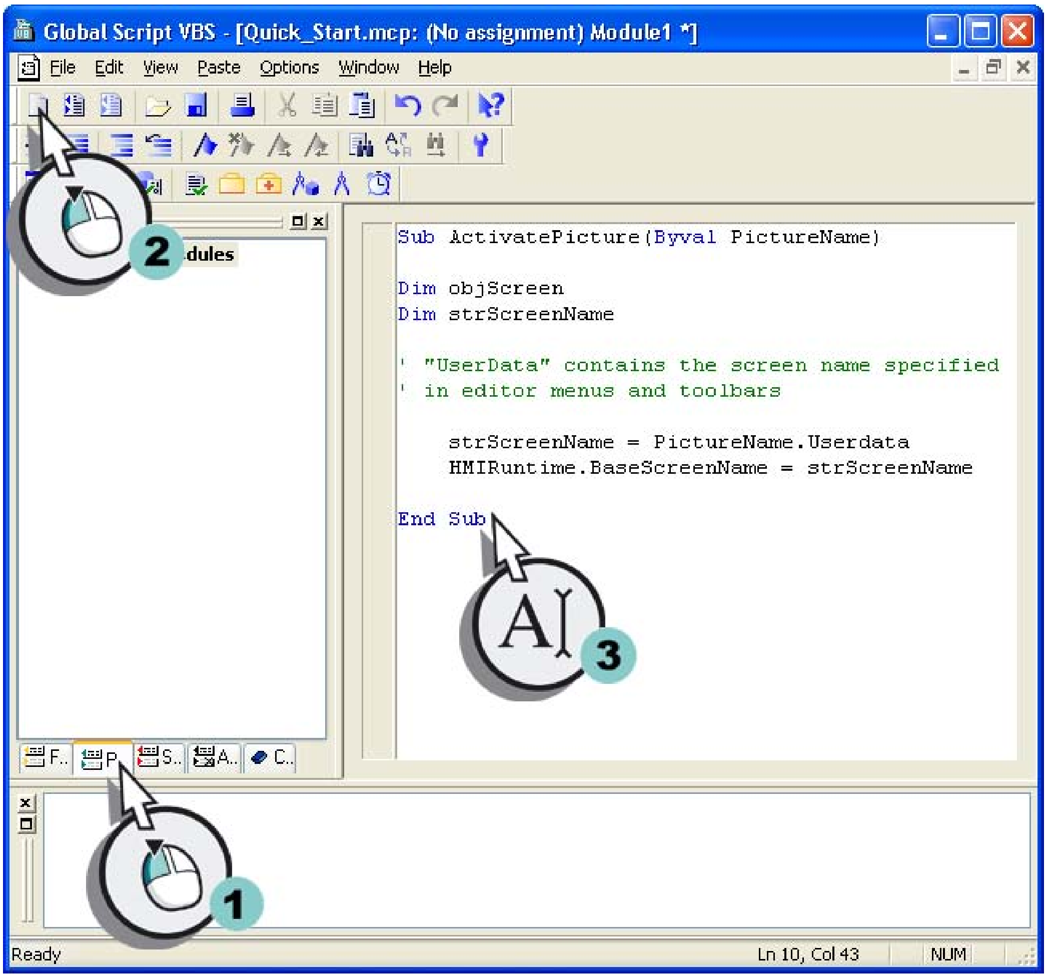
- ActivatePicture(ByVal PictureName): Executes a screen change to the screen that is transferred with the parameter "PictureName".
- StopRuntime(ByVal Item): Exits Runtime.

Procedure

1. Open the VBS editor:



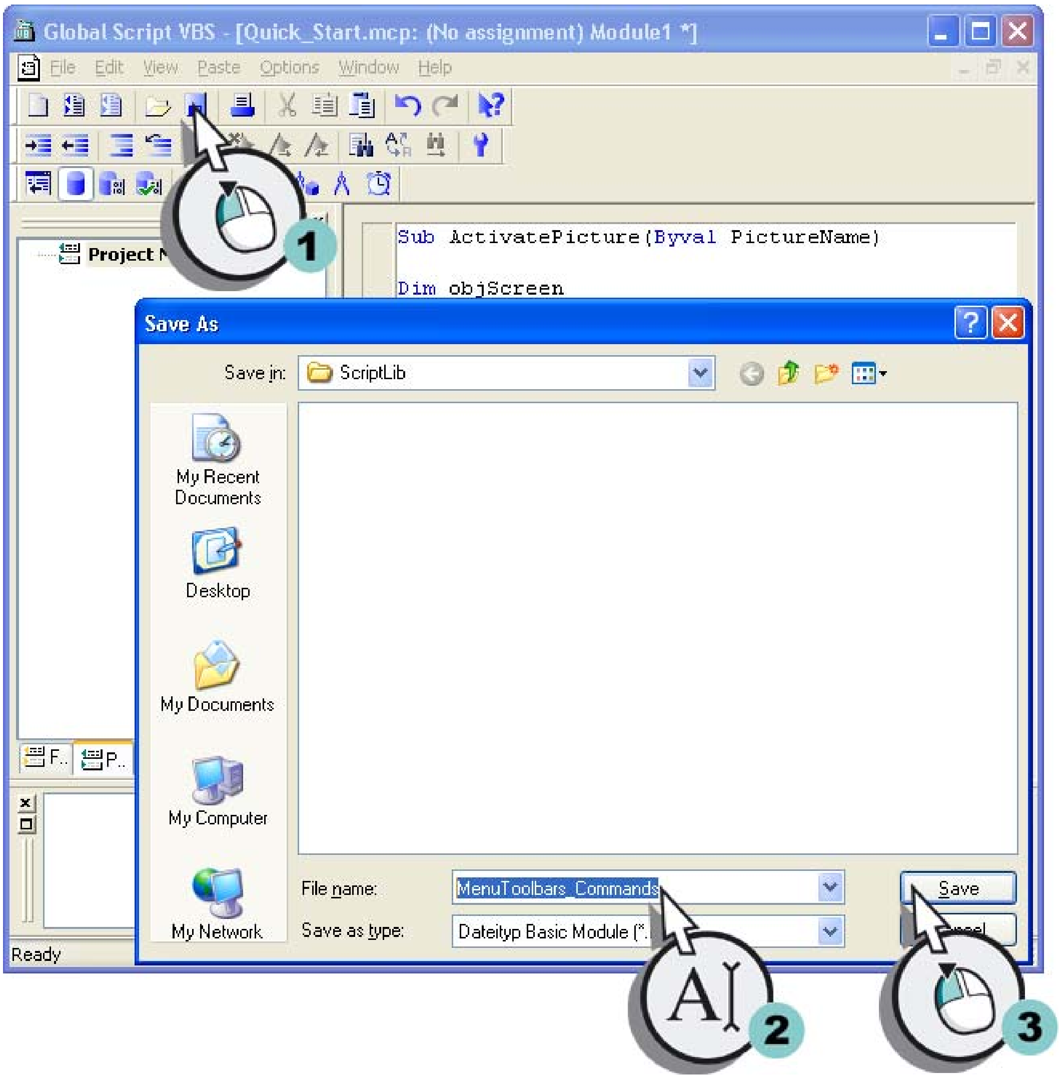
2. Select tab "Project module" and write the following procedure code:



Global Script VBS - [Quick_Start.mcp: (No assignment) Module1 *]
File Edit View Paste Options Window Help
dules
F..
P..
S..
A..
C..
Ready
Ln 10, Col 43
NUM
1
2
3

```
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:



Global Script VBS - [Quick_Start.mcp: (No assignment) Module1 *]
File Edit View Paste Options Window Help
Project
Ready
1
2
3

```
Sub ActivatePicture(Byval PictureName)

Dim objScreen
```

Save As

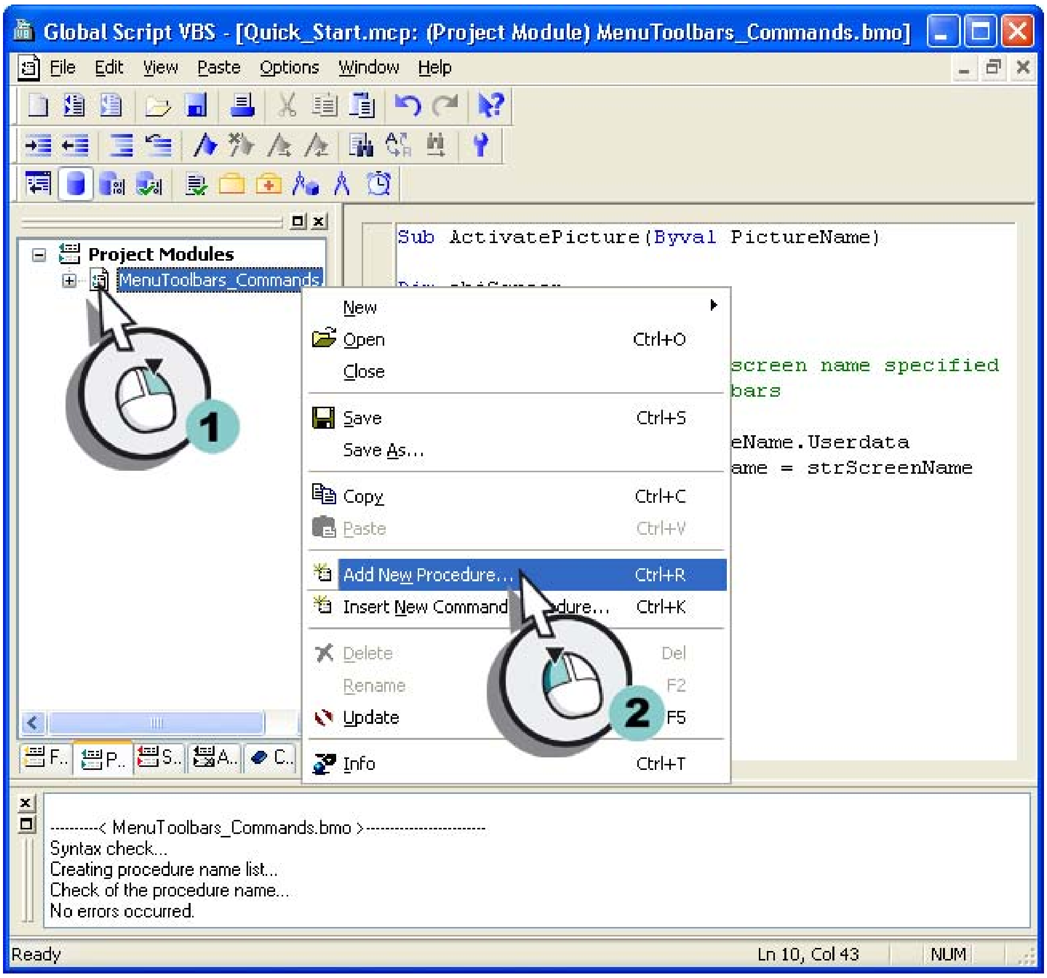
Save in: ScriptLib

My Recent Documents
Desktop
My Documents
My Computer
My Network
Save
Cancel

File name: MenuToolbars_Commands

Save as type: Dateityp Basic Module (*.

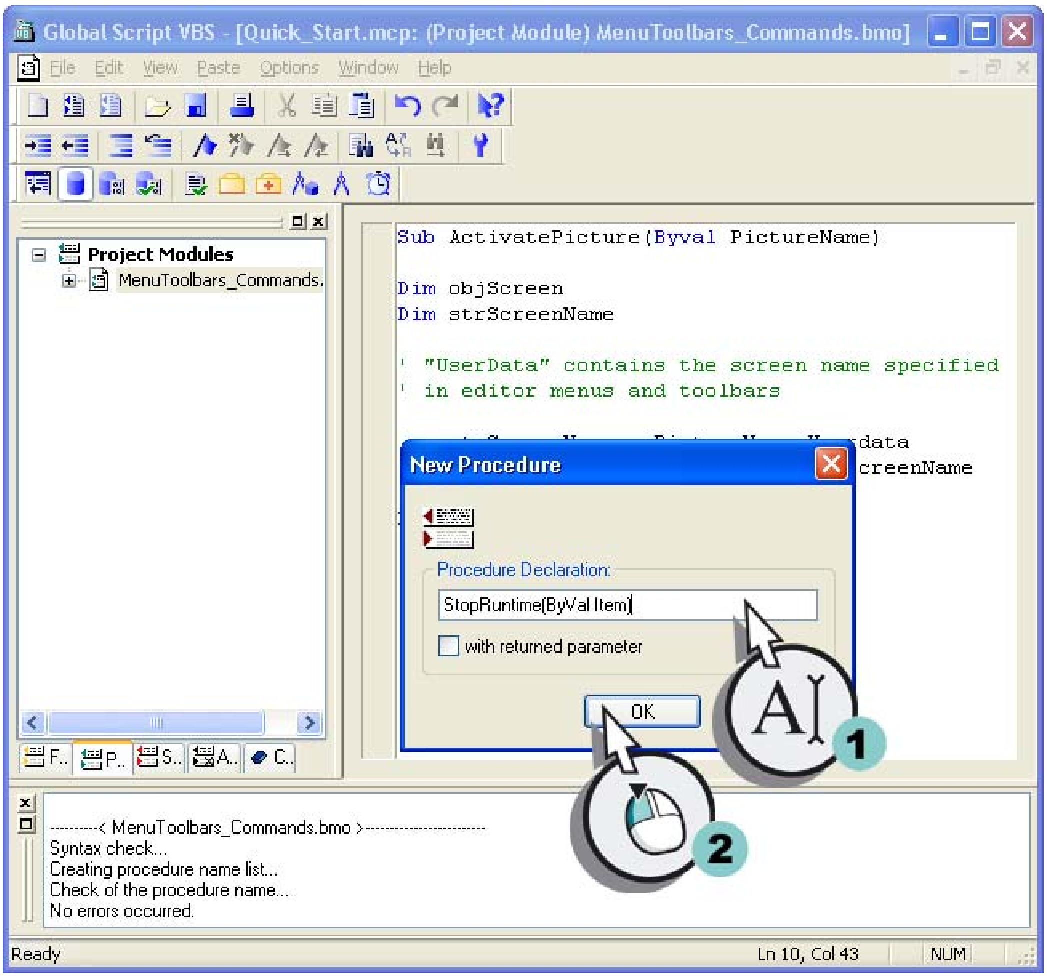
4. Insert a new procedure:


Global Script VBS - [Quick_Start.mcp: (Project Module) MenuToolbars_Commands.bmo]
File Edit View Paste Options Window Help
Project Modules
MenuToolbars_Commands
New
Open Ctrl+O
Close
Save Ctrl+S
Save As...
Copy Ctrl+C
Paste Ctrl+V
Add New Procedure... Ctrl+R
Insert New Command ...dure... Ctrl+K
Delete Del
Rename F2
Update F5
Info Ctrl+T
1
2
F.. P.. S.. A.. C..
Ready
Ln 10, Col 43
NUM

```
Sub ActivatePicture(Byval PictureName)

                                        screen name specified
                                        bars

                                        eName.Userdata
                                        ame = strScreenName
```

```
---------< MenuToolbars_Commands.bmo >-----------------------
Syntax check...
Creating procedure name list...
Check of the procedure name...
No errors occurred.
```

5. Enter a name:



```
Sub ActivatePicture(Byval PictureName)

Dim objScreen
Dim strScreenName

' "UserData" contains the screen name specified
' in editor menus and toolbars
```

New Procedure

Procedure Declaration:

StopRuntime(ByVal Item)

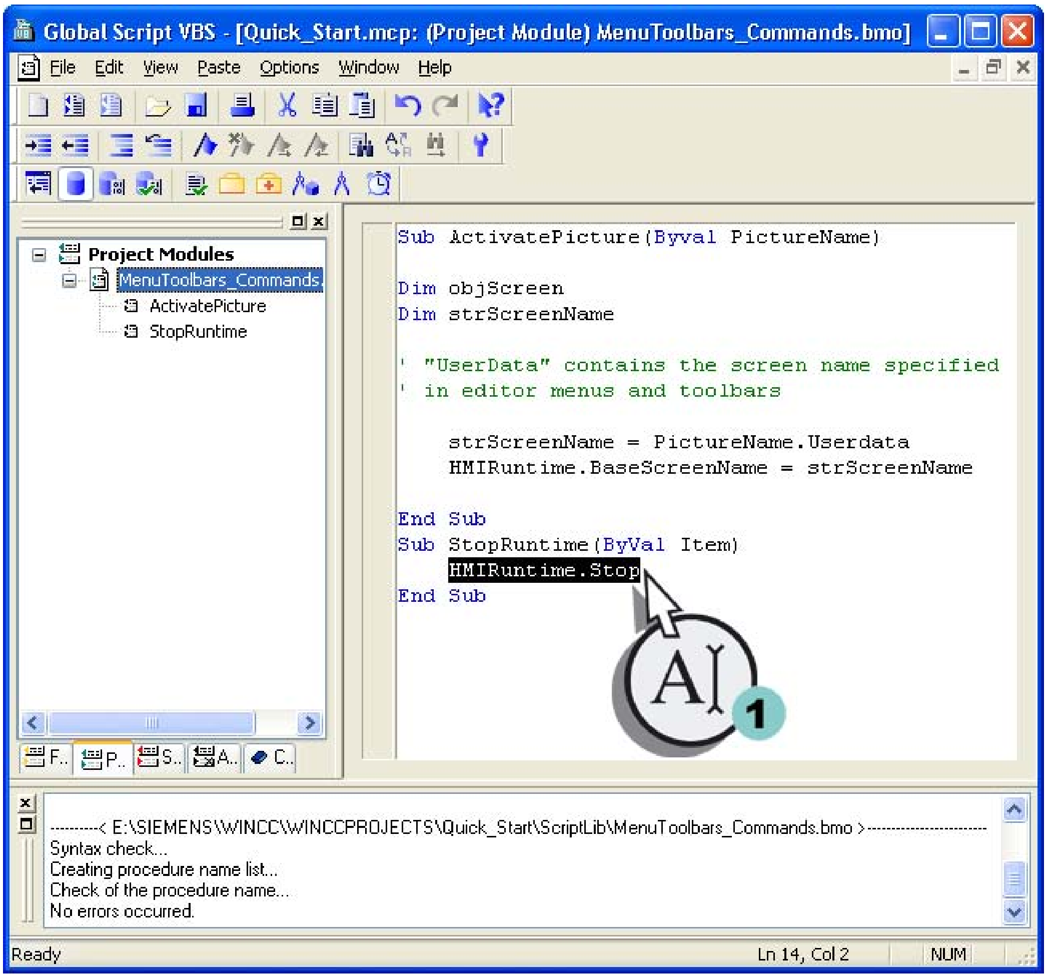
□ with returned parameter

OK

```
----------< MenuToolbars_Commands.bmo >--------------------
Syntax check...
Creating procedure name list...
Check of the procedure name...
No errors occurred.
```

Ready   Ln 10, Col 43   NUM

6. Write the following procedure code:



Global Script VBS - [Quick_Start.mcp: (Project Module) MenuToolbars_Commands.bmo]
File Edit View Paste Options Window Help
Project Modules
MenuToolbars_Commands
ActivatePicture
StopRuntime
F.. P.. S.. A.. C..
1
Ready
Ln 14, Col 2
NUM

```
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
```

```
---------< E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\ScriptLib\MenuToolbars_Commands.bmo >-----------------------
Syntax check...
Creating procedure name list...
Check of the procedure name...
No errors occurred.
```

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 screen changes to the screens "START.pdl" and "SAMPLE.pdl". You will use a customized toolbar to exit Runtime.

6.5.3 Creating a customized menu for screen changes

Introduction

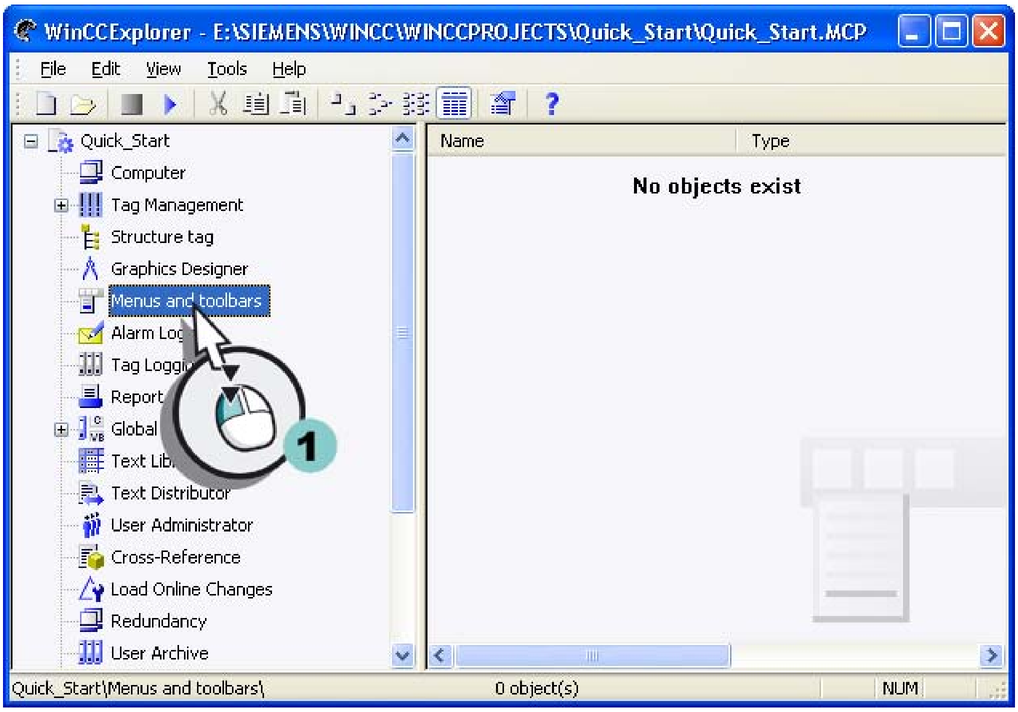
The following steps will show you how to create the customized menu "Screen change" with two menu entries "Start" and "Sample". You will link the menu entries "Start" and "Sample" with the procedure "ActivatePicture(ByVal PictureName)". Enter the name of the process screen that you wish to change to in the field "User data".

Requirement

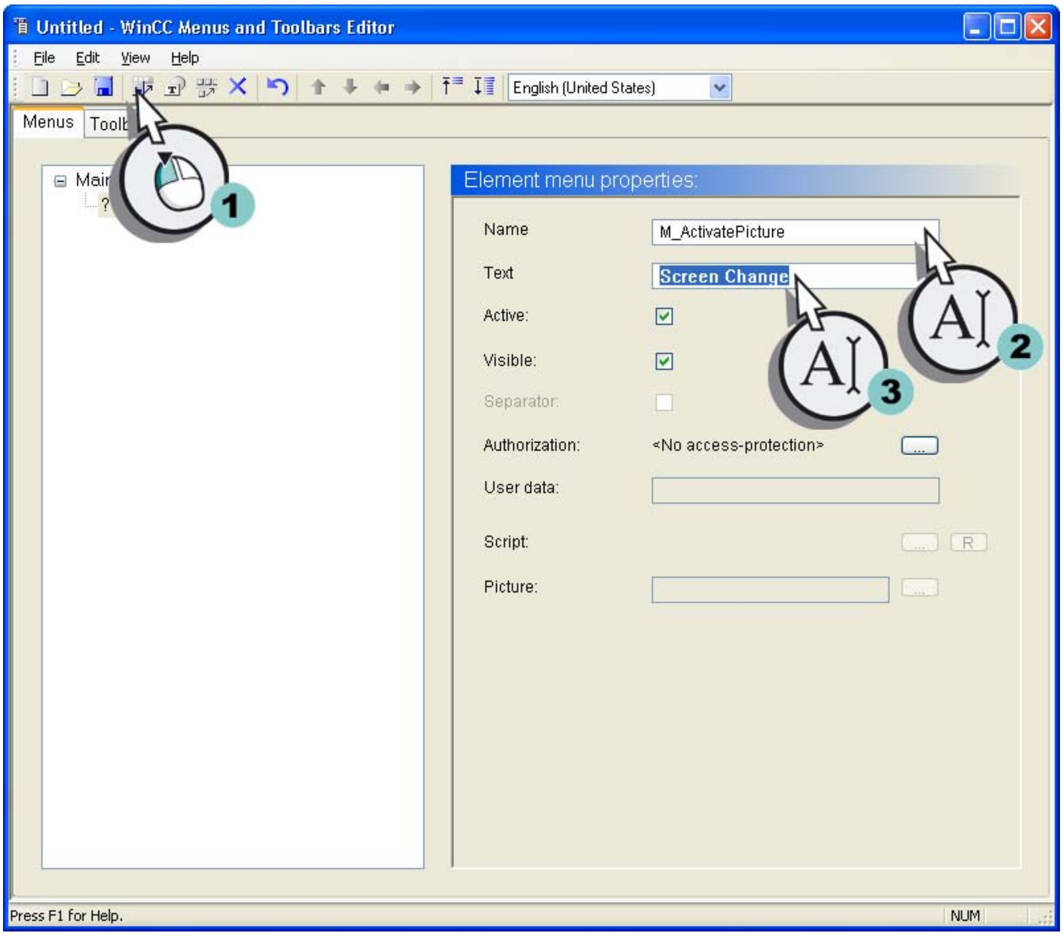
The procedure "ActivatePicture(ByVal PictureName)" has been created.

Procedure

1. Open the "Menus and toolbars" editor:



2. Create the menu "Screen change":



Untitled - WinCC Menus and Toolbars Editor

Element menu properties:

Name: M_ActivatePicture

Text: Screen Change

Active: ☑

Visible: ☑

Separator: □

Authorization: <No access-protection>

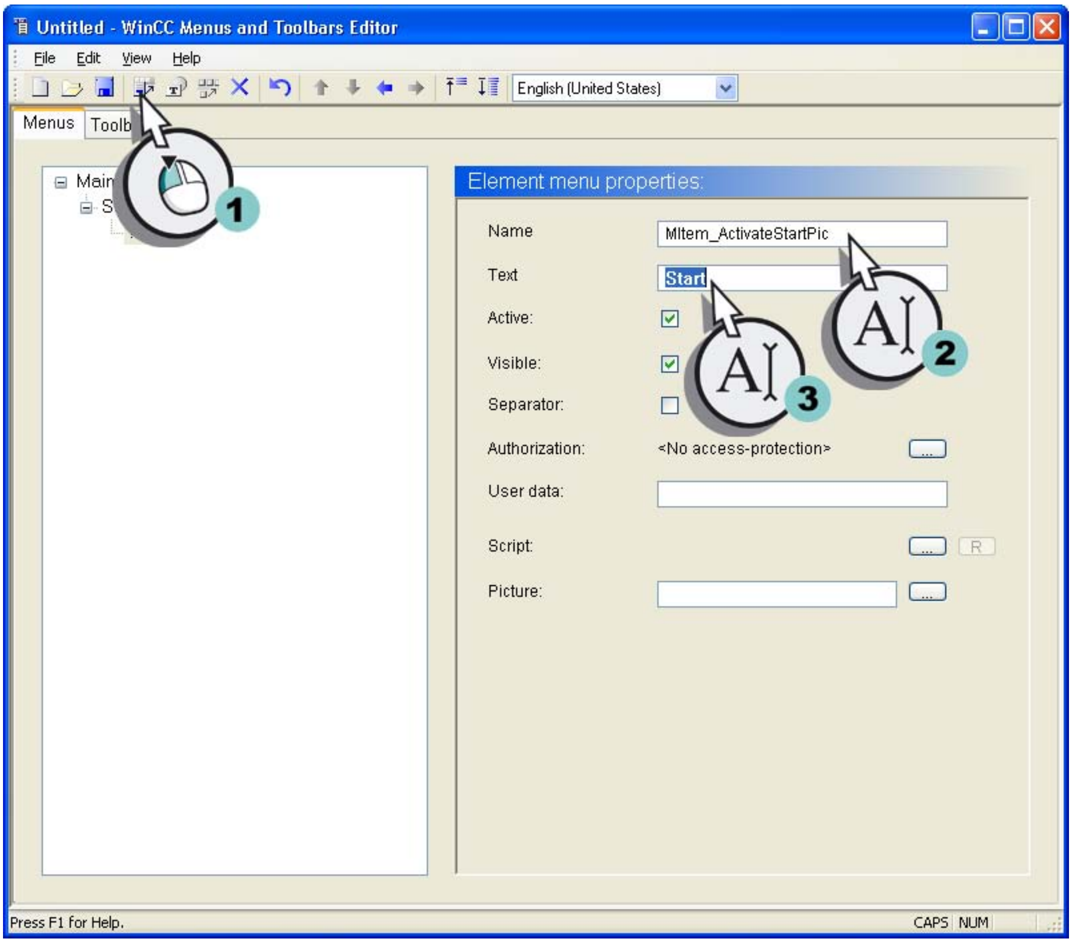
User data:

Script:

Picture:

Press F1 for Help.

3. Create the menu entry "Start":



Element menu properties:

Name: MItem_ActivateStartPic

Text: Start

Active: ☑

Visible: ☑

Separator: □

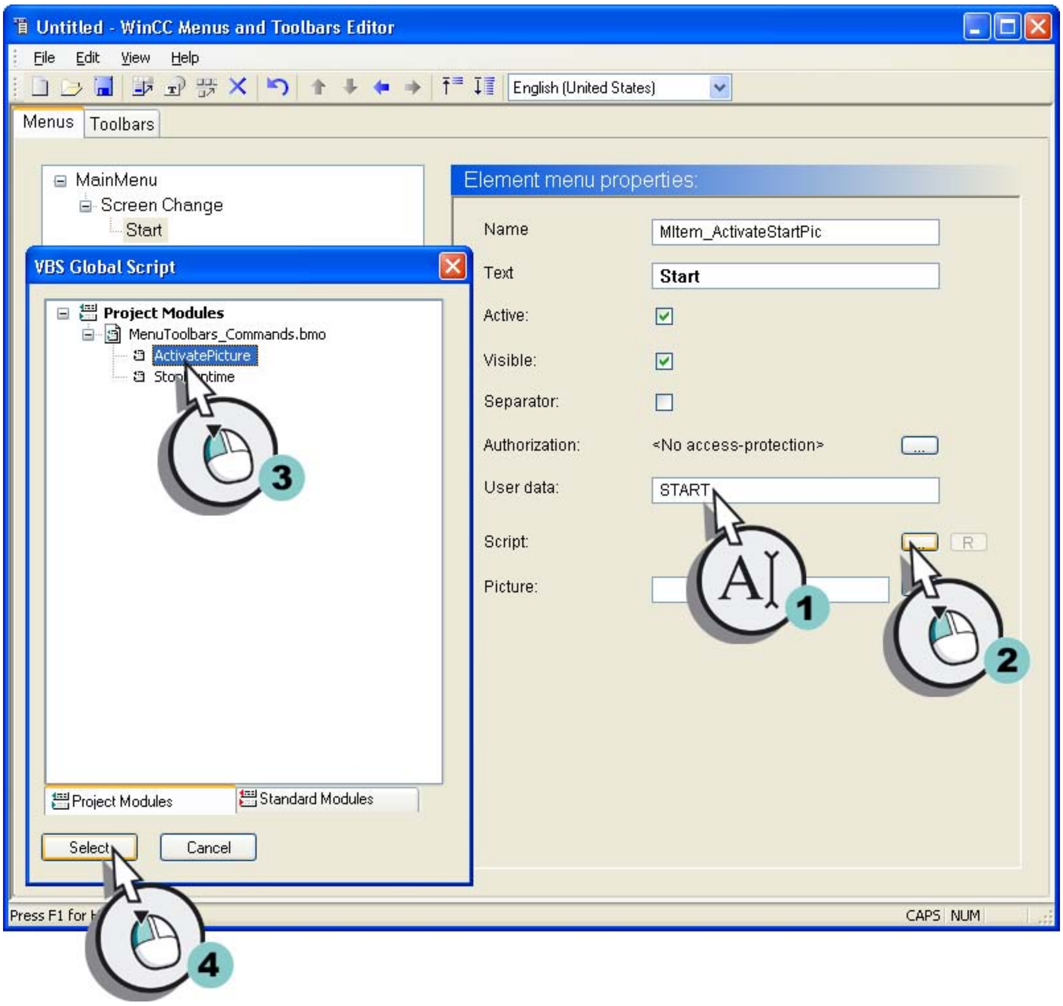
Authorization: <No access-protection>

User data:

Script:

Picture:

4. Configure the menu entry "Start" so that a screen change to the screen "START.pdl" is executed:



Element menu properties:

Name: MItem_ActivateStartPic

Text: Start

Active: ☑

Visible: ☑

Separator: □

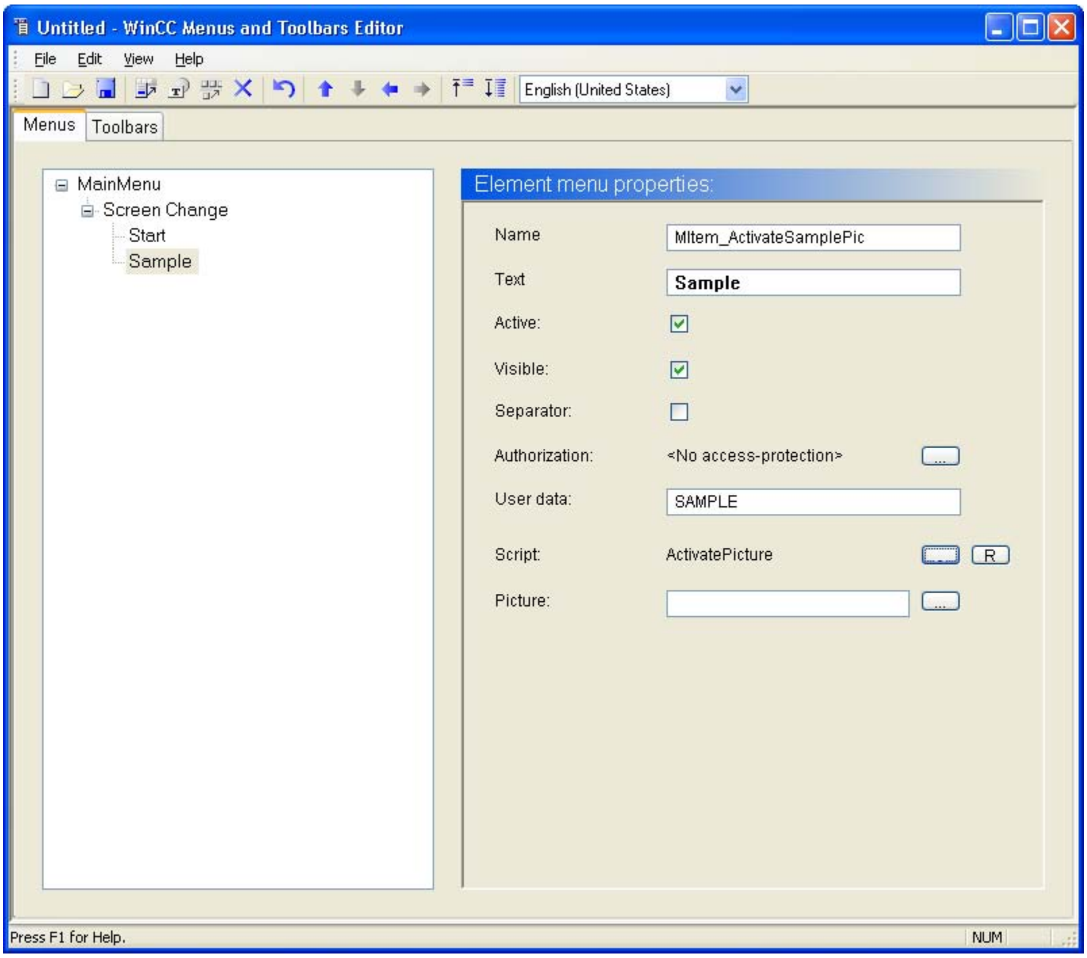
Authorization: <No access-protection>

User data: START

5. Create the menu entry "Sample" the same wayso that a screen change to the screen "SAMPLE.pdl" is executed.

Result

You have created the menu "Screen change" with two menu entries. With the menu entries you can switch to the process screens "START.pdl" and "SAMPLE.pdl" in Runtime.



Name: MItem_ActivateSamplePic

Text: Sample

Active: ☑

Visible: ☑

Separator: □

Authorization: <No access-protection>

User data: SAMPLE

Script: ActivatePicture

Picture:

6.5.4 Creating a customized toolbar to exit Runtime

Introduction

The following steps will show you how to create a customized toolbar with a symbol to exit Runtime.

You can choose any picture in bitmap format (e.g. BMP) to use as a picture for the symbol. You can create this picture e.g. with "Paint" and save it in the WinCC project directory.

Preconditions

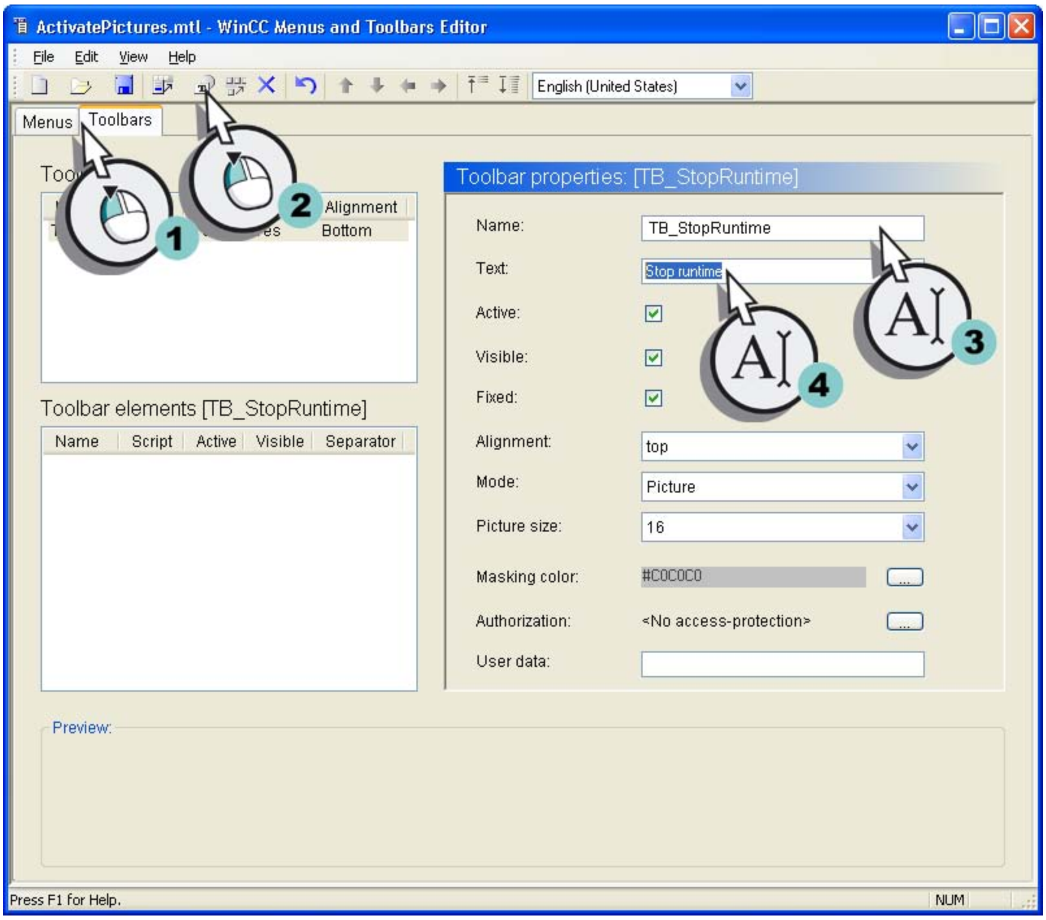
The "Menus and toolbars" editor is opened.

The procedure "StopRuntime(ByVal Item)" has been created.

Symbol for "Exit Runtime" has been created.

Procedure

1. Create a new toolbar:



Toolbar elements [TB_StopRuntime]

Name	Script	Active	Visible	Separator

Preview:

Toolbar properties: [TB_StopRuntime]

Name: TB_StopRuntime

Text: Stop runtime

Active: ☑

Visible: ☑

Fixed: ☑

Alignment: top

Mode: Picture

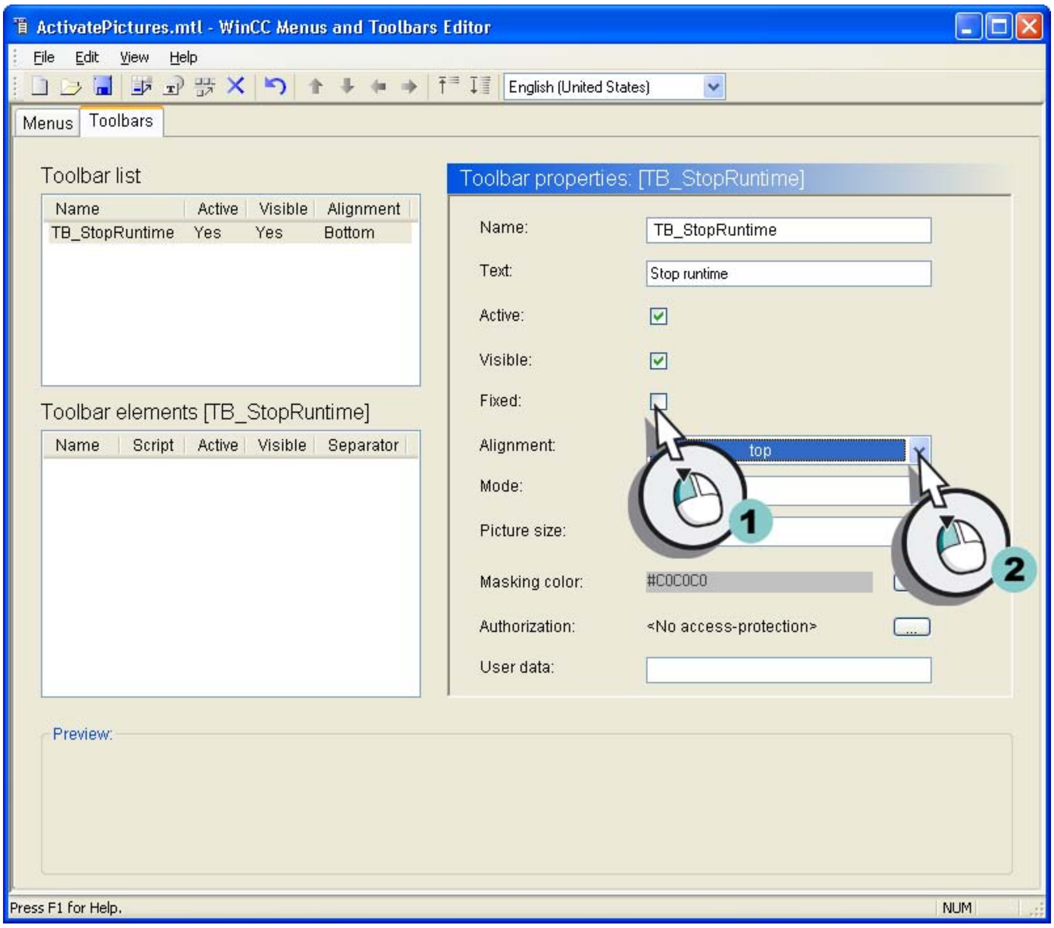
Picture size: 16

Masking color: #C0C0C0

Authorization: <No access-protection>

User data:

2. Configure the toolbar in such a way that it is displayed by default in the upper border of the picture; however the user can position it wherever required:



Toolbar list

Name	Active	Visible	Alignment
TB_StopRuntime	Yes	Yes	Bottom

Toolbar elements [TB_StopRuntime]

Name	Script	Active	Visible	Separator

Toolbar properties: [TB_StopRuntime]

Name: TB_StopRuntime

Text: Stop runtime

Active: ☑

Visible: ☑

Fixed: □

Alignment: top

Mode:

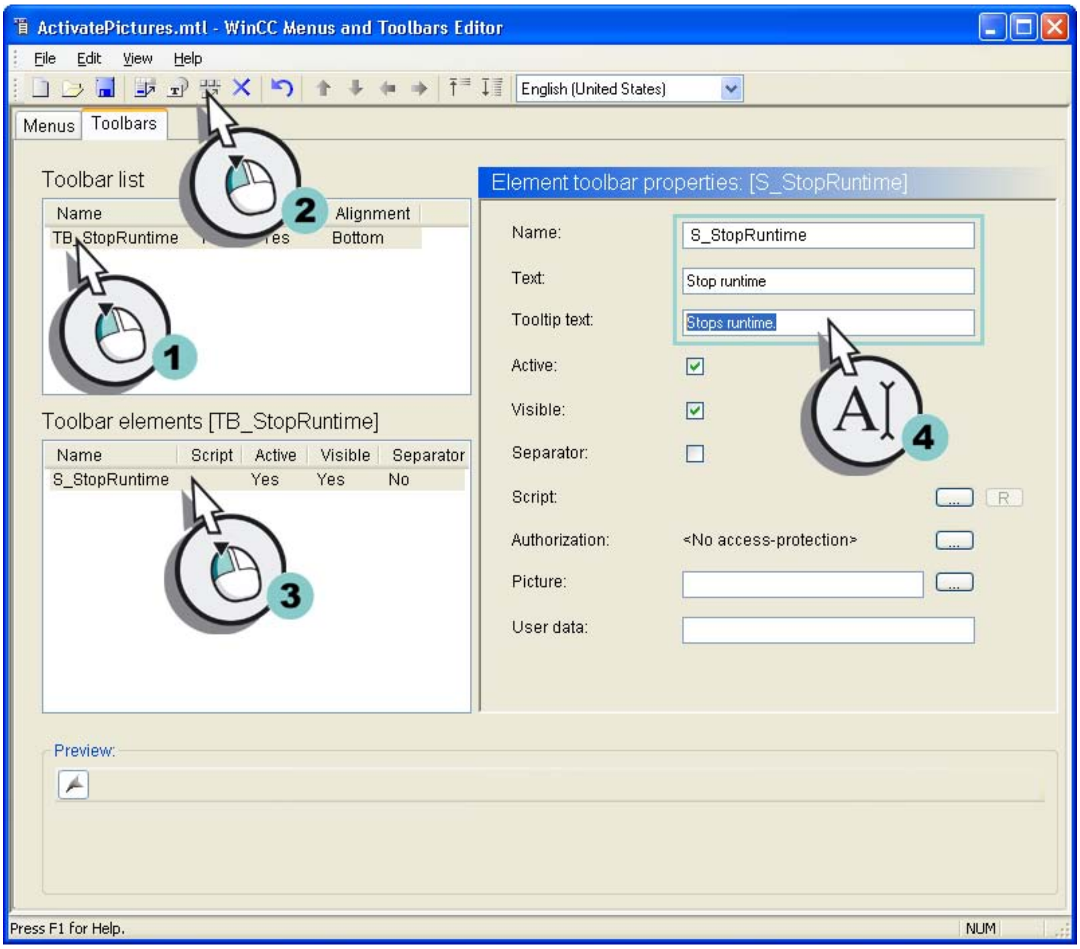
Picture size:

Masking color: #C0C0C0

Authorization: <No access-protection>

User data:

3. Add a new icon to the toolbar:



Toolbar list

Name			Alignment
TB_StopRuntime		Yes	Bottom

Toolbar elements [TB_StopRuntime]

Name	Script	Active	Visible	Separator
S_StopRuntime		Yes	Yes	No

Element toolbar properties: [S_StopRuntime]

Name: S_StopRuntime

Text: Stop runtime

Tooltip text: Stops runtime.

Active: ☑

Visible: ☑

Separator: □

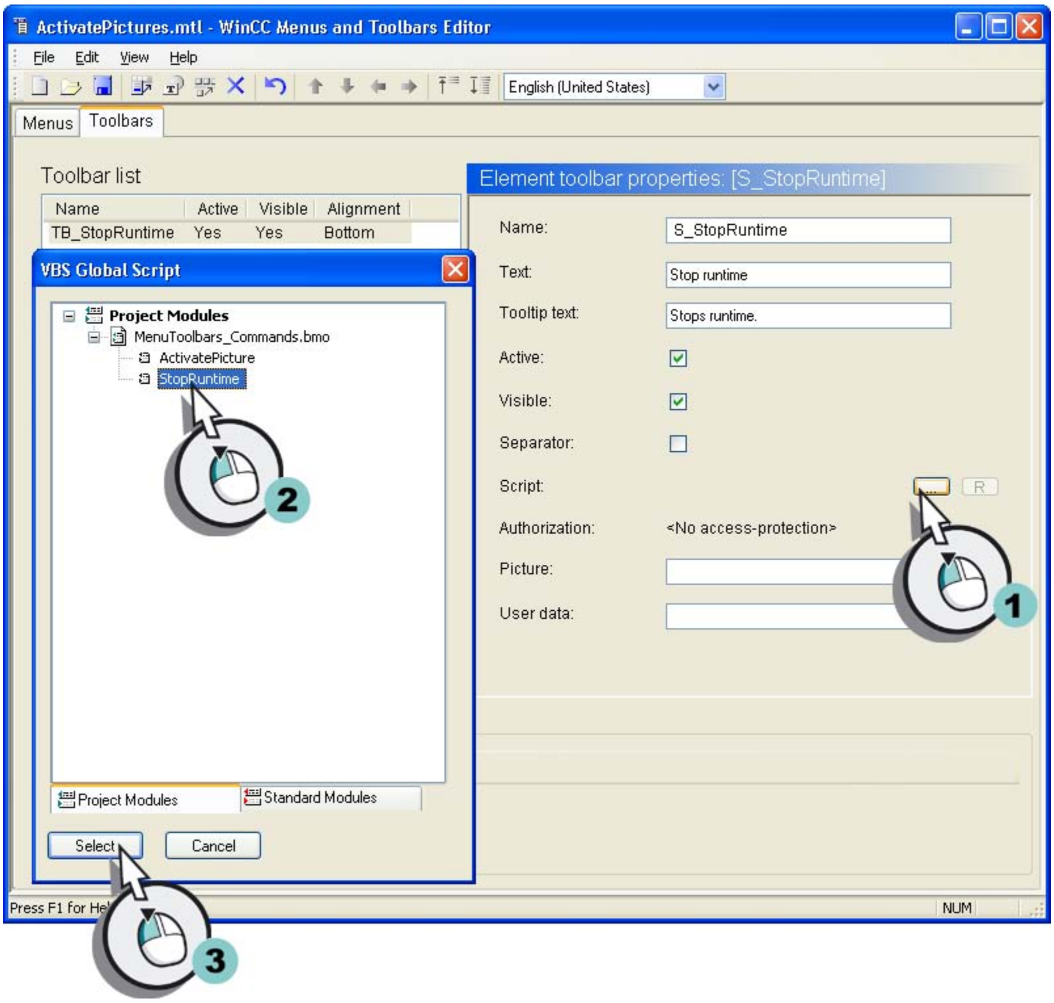
Script:

Authorization: <No access-protection>

Picture:

User data:

4. Configure the icon in such a way that runtime is exited:



Toolbar list

Name	Active	Visible	Alignment
TB_StopRuntime	Yes	Yes	Bottom

Element toolbar properties: [S_StopRuntime]

Name: S_StopRuntime

Text: Stop runtime

Tooltip text: Stops runtime.

Active: ☑

Visible: ☑

Separator: □

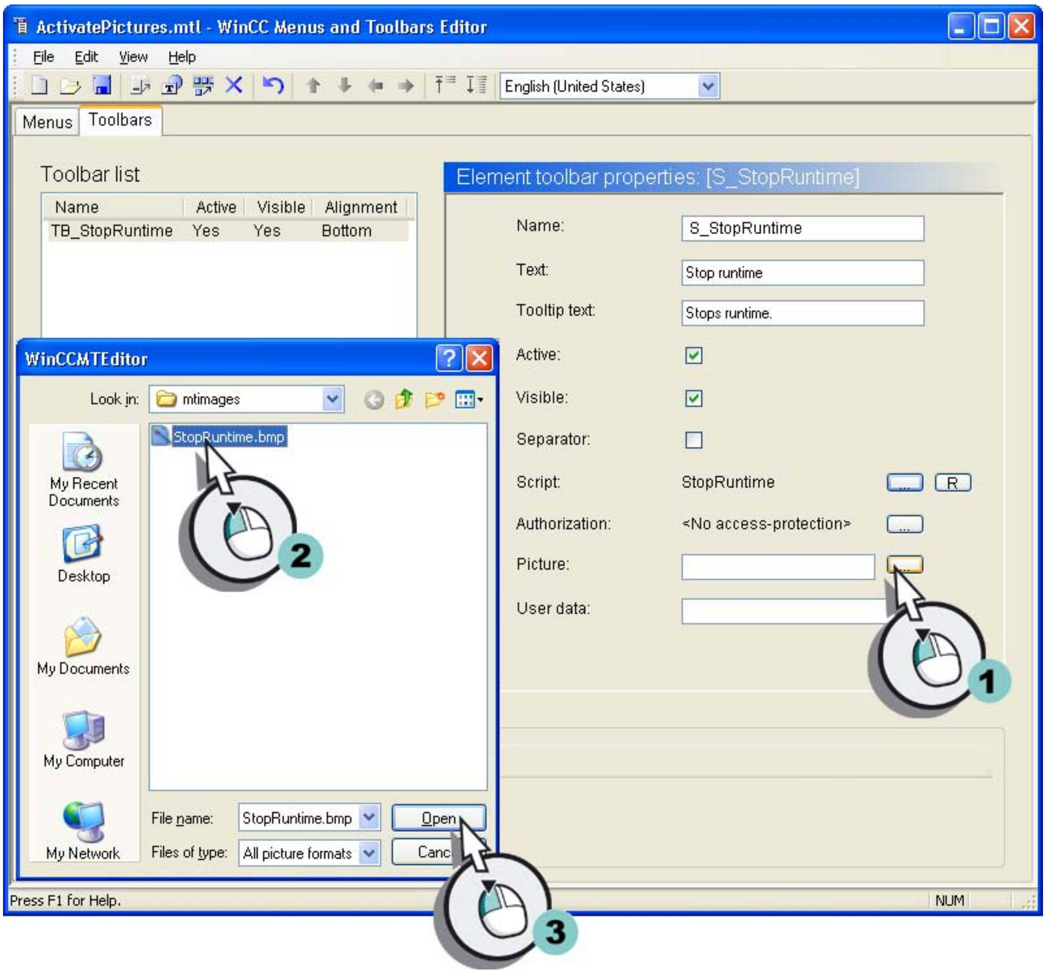
Script:

Authorization: <No access-protection>

Picture:

User data:

5. Select the picture where the icon is to be displayed.



ActivatePictures.mtl - WinCC Menus and Toolbars Editor

Toolbar list

Name	Active	Visible	Alignment
TB_StopRuntime	Yes	Yes	Bottom

Element toolbar properties: [S_StopRuntime]

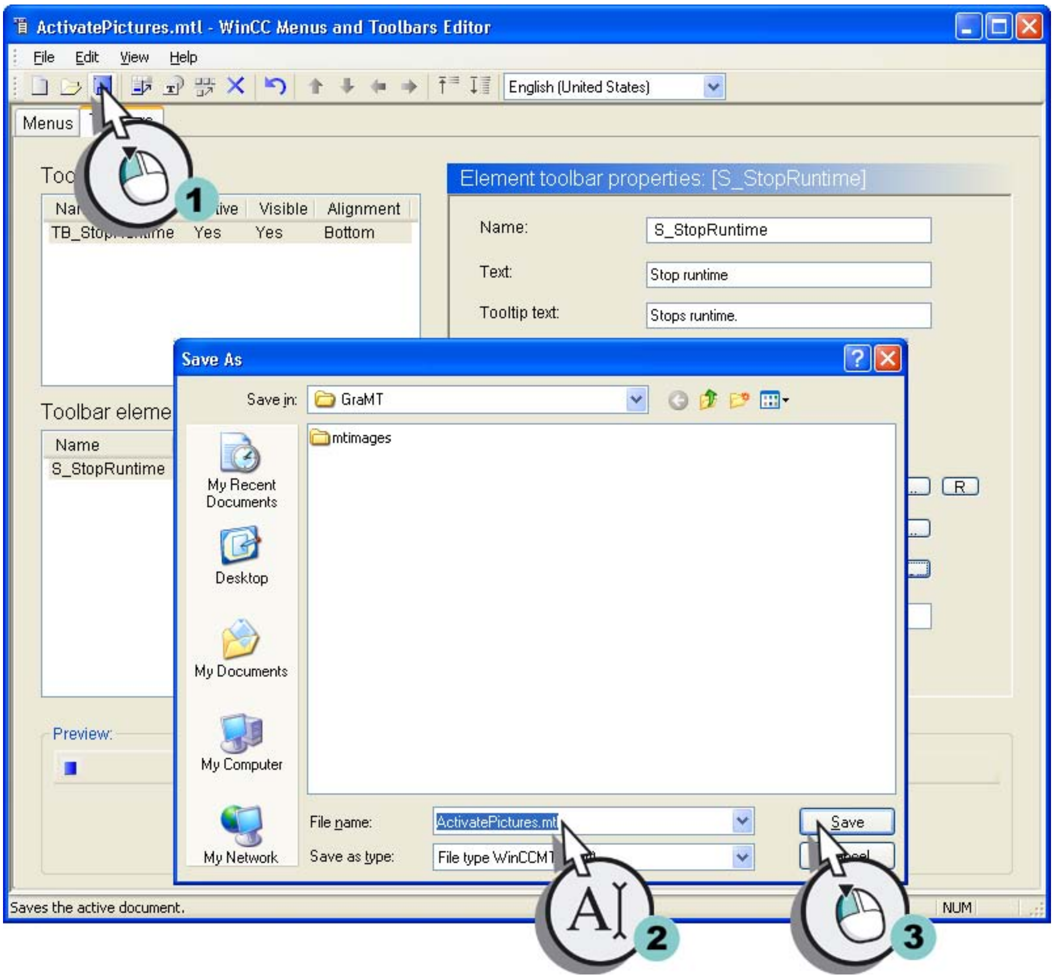
Name: S_StopRuntime
Text: Stop runtime
Tooltip text: Stops runtime.
Active: ☑
Visible: ☑
Separator: □
Script: StopRuntime
Authorization: <No access-protection>
Picture:
User data:

WinCCMTEditor

Look in: mtimages
StopRuntime.bmp
File name: StopRuntime.bmp
Files of type: All picture formats

Press F1 for Help.

6. Then save the configuration:



ActivatePictures.mtl - WinCC Menus and Toolbars Editor

Name	Active	Visible	Alignment
TB_StopRuntime	Yes	Yes	Bottom

Element toolbar properties: [S_StopRuntime]

Name: S_StopRuntime

Text: Stop runtime

Tooltip text: Stops runtime.

Toolbar elements: S_StopRuntime

Save As

Save in: GraMT

File name: ActivatePictures.mtl

Save as type: File type WinCCMT

Saves the active document.

7. Close the "Menus and toolbars" editor.

Result

You have created the toolbar with an icon to exit runtime and saved the configuration. In the course of Getting Started you will also assign the configuration file to the project.

At runtime, the user-defined menus and toolbars are then displayed in each process picture. If you can generate additional process images in the course of Getting Started, then you can extend the menu configuration to include the additional pictures using the steps shown.

6.6 Process picture dynamics

6.6.1 Process picture dynamics

Introduction

This chapter offers a description how to make process screens dynamic and how to activate the "Quick_Start" project.

General procedure

In the "Quick_Start" project you will make the process screen "START.pdl" dynamic by a direct tag connection.

With a direct tag connection, you are connecting one tag with a dynamic object of the process screen. 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 screen is connected to a process tag. If there is a connection between WinCC and the automation system, the automation systems supplies values to the process tag. The dynamic object shows the changes of process values in Runtime.

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

You do not need an automation system for the "Quick_Start" project. In this project you will connect the internal tag "Tank_Level" to the graphic picture of a water tank. Configure an I/O field to define values for the internal tag. The I/O field is an input/output field that is used to display and change tag values. If you enter a value in the I/O field in Runtime, this value is taken on by the internal tag "Tank_Level". The internal tag transfers the entered value to the graphic object that depicts the water tank. The fill level indicator of the water tank changes according to the tag value.

When activating a project, WinCC Runtime is started. WinCC Runtime will execute a project in process mode. The project is then in Runtime. You will operate and observe the process in Runtime. You will define the Runtime properties in WinCC Explorer.

6.6.2 Making the fill level indicator dynamic

Introduction

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

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

- Connecting the graphic picture of the water tank with the internal tag "Tank_Level"
- Specifying the update cycle
- Defining maximum and minimum values

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

If there is a connection between a tag and an object, this will be displayed in the "Object properties" dialog by the symbol 💡 and by bold font.

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

The maximum value corresponds to the maximum water capacity of the water tank in the "Quick_Start" project. If the tag "Tank_Level" takes on the maximum value, a full water tank is displayed on the process screen.

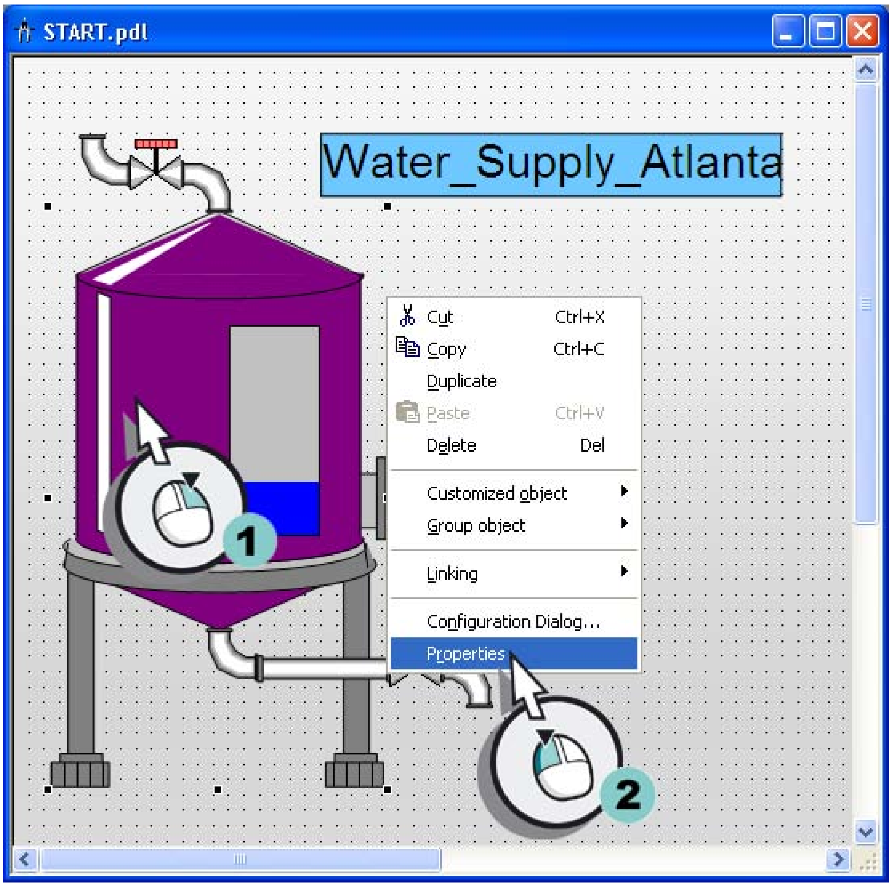
The minimum value corresponds to an empty water tank in the "Quick_Start" project. If the tag "Tank_Level" takes on the minimum value, an empty water tank is displayed on the process screen.

Requirement

- The process screen "START.pdl" has been created.
- The internal tag "Tank_Level" has been created.
- The graphic picture of the water tank has been inserted into the process screen "START.pdl".

Procedure

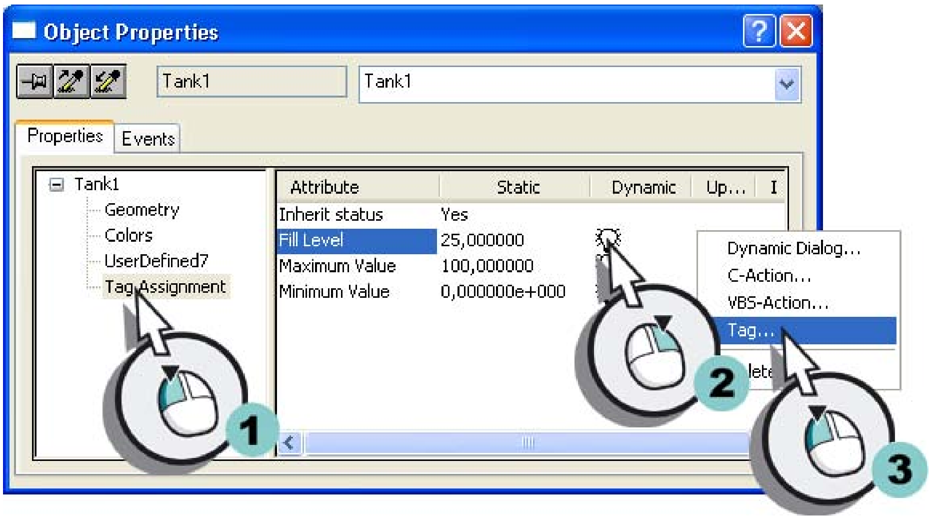
1. Open the process screen "START.pdl".
2. Open the "Object properties" dialog:



The "Object Properties" dialog is opened.

You can fix the "Object properties" dialog via the button . This function leaves the dialog open when another object is retrieved and shows the properties of the current object. You can exit the fixation via the button .

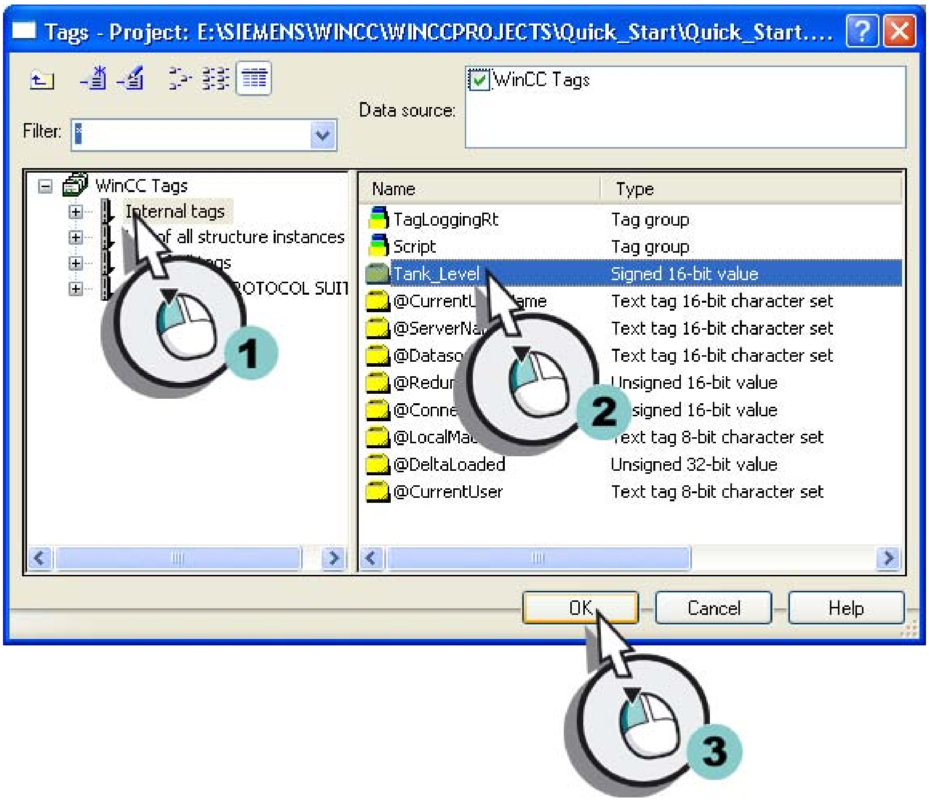
3. Open the dialog "Tag project" to link the attribute "Fill level" with a tag:



Attribute	Static	Dynamic	Up...	I
Inherit status	Yes			
Fill Level	25,000000			
Maximum Value	100,000000			
Minimum Value	0,000000e+000			

The "Tag project" dialog opens.

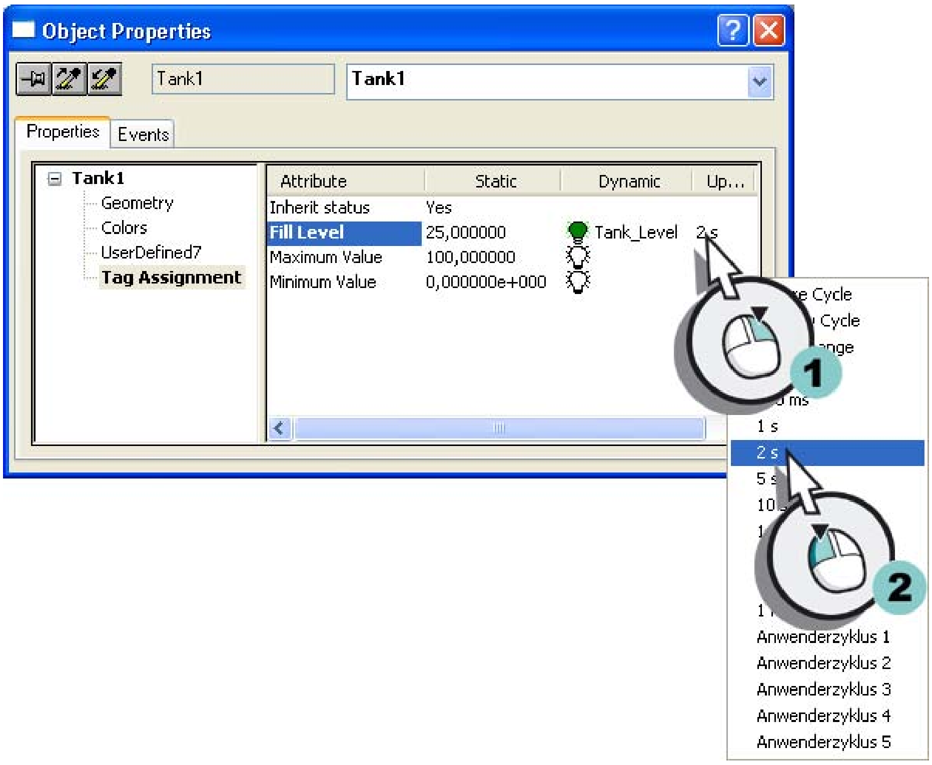
4. Select the internal tag "Tank_Level":


Tags - Project: E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start....
Filter:
Data source:
☑ WinCC Tags
WinCC Tags
Internal tags
...of all structure instances
...ags
...ROTOCOL SUIT
OK
Cancel
Help
1
2
3

Name	Type
TagLoggingRt	Tag group
Script	Tag group
Tank_Level	Signed 16-bit value
@CurrentU...ame	Text tag 16-bit character set
@ServerNa...	Text tag 16-bit character set
@Dataso...	Text tag 16-bit character set
@Redur...	Unsigned 16-bit value
@Conne...	...signed 16-bit value
@LocalMa...	...ext tag 8-bit character set
@DeltaLoaded	Unsigned 32-bit value
@CurrentUser	Text tag 8-bit character set

The transparent light bulb in the "Fill level" line will turn green. The "Process connection" property and the attribute "Fill level" are displayed in bold.

5. Set the value "2s" for the update cycle of the fill level.



Object Properties

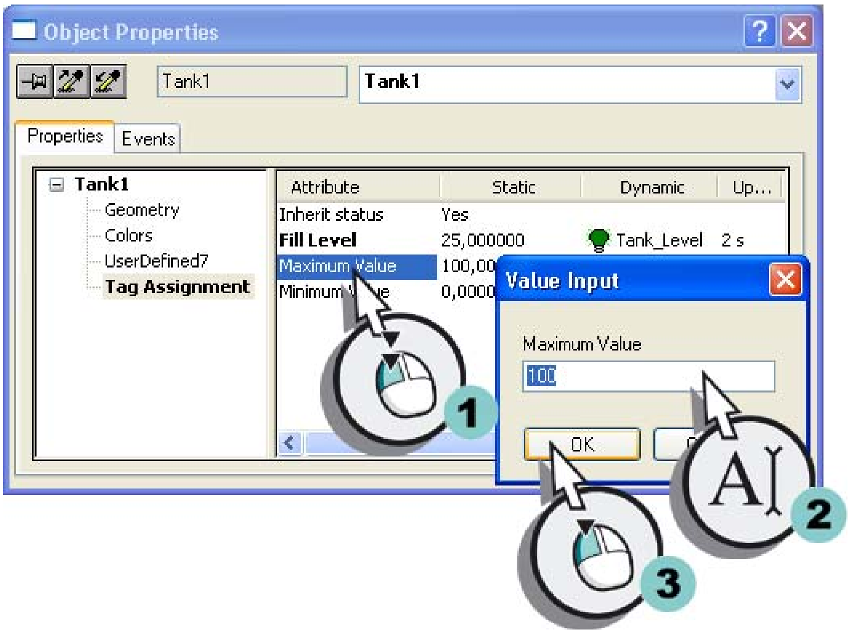
Tank1 | Tank1

Properties | Events

- Tank1
  - Geometry
  - Colors
  - UserDefined7
  - **Tag Assignment**

Attribute	Static	Dynamic	Up...
Inherit status	Yes		
Fill Level	25,000000	Tank_Level	2 s
Maximum Value	100,000000		
Minimum Value	0,000000e+000		

6. Set 100 as the "Maximum value":



Object Properties

Tank1 | Tank1

Properties | Events

- Tank1
  - Geometry
  - Colors
  - UserDefined7
  - **Tag Assignment**

Attribute	Static	Dynamic	Up...
Inherit status	Yes		
Fill Level	25,000000	Tank_Level	2 s
Maximum Value	100,00		
Minimum Value	0,0000		

Value Input

Maximum Value: 100

7. Analog to step 6, set 0 as a "Minimum value".

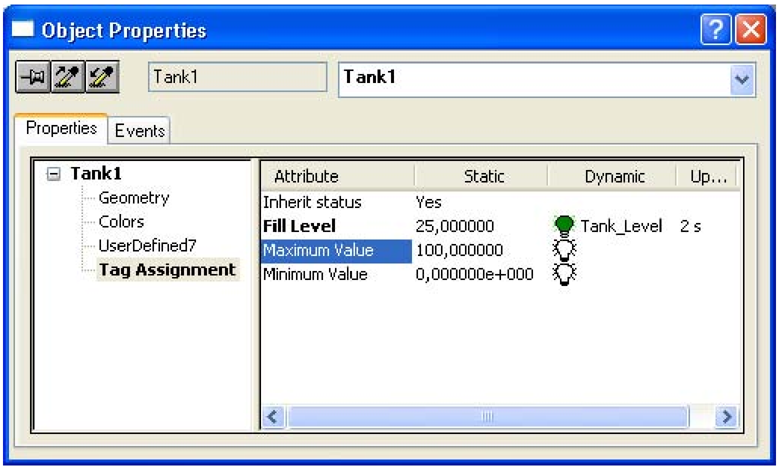
8. Close the "Object properties" dialog box.

Result

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

By using the maximum and minimum values, you have set the display of the full and empty water tank.

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



Tank1 | Tank1

- Tank1
  - Geometry
  - Colors
  - UserDefined7
  - **Tag Assignment**

Attribute	Static	Dynamic	Up...
Inherit status	Yes		
Fill Level	25,000000	Tank_Level	2 s
Maximum Value	100,000000		
Minimum Value	0,000000e+000		

6.6.3 Inserting an I/O Field and Making it Dynamic

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

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 water tank. 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 water tank. The fill level indicator of the water tank changes according to the tag value in Runtime.

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

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.

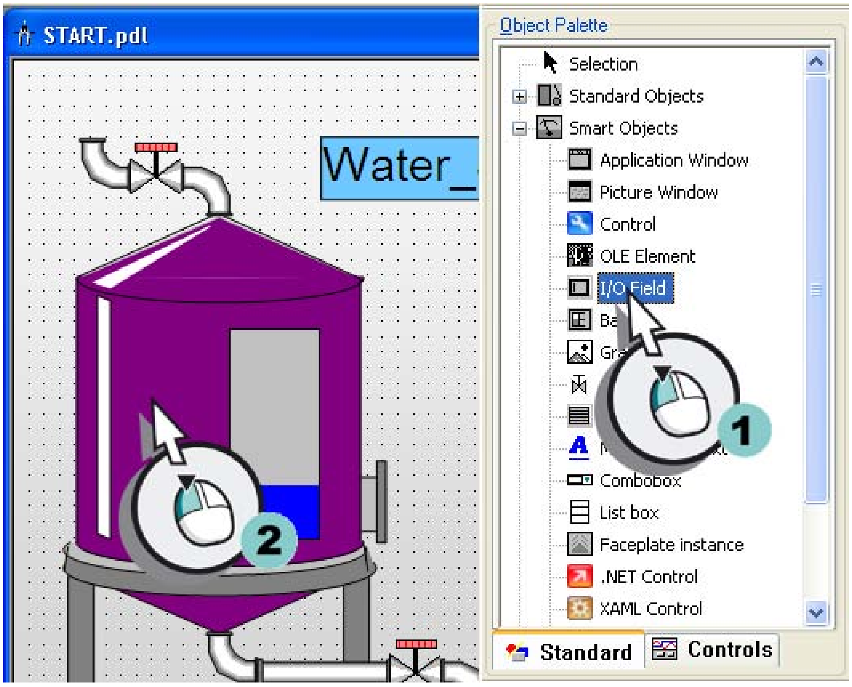
Requirement

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

The internal tag "Tank_Level" has been created.

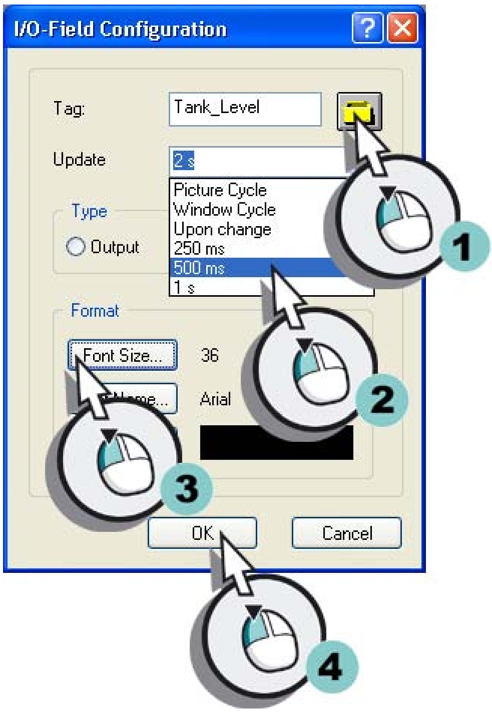
Procedure

1. Insert an I/O field:



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

2. Connect the tag "Tank_Level" to the created I/O field:



I/O-Field Configuration

Tag: Tank_Level

Update: 2 s

Type: ○ Output

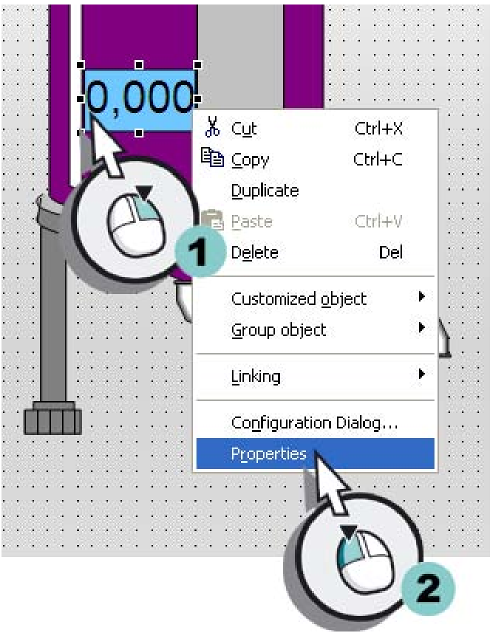
Format

Font Size... 36

Font Name... Arial

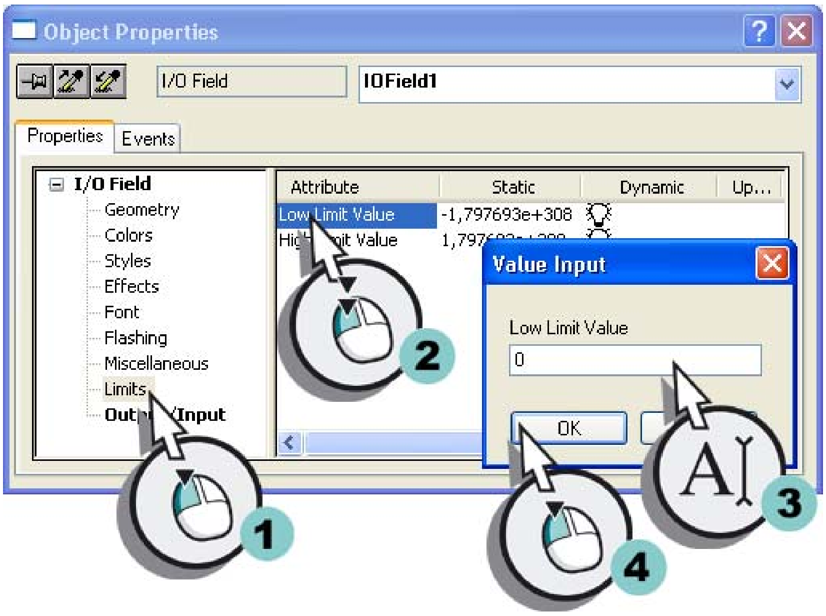
You can open the dialog "I/O-Field Configuration" once again by clicking on the I/O field with the right mouse button and selecting "Configuration dialog" in the shortcut menu.

3. Open the "Object properties" dialog:



The "Object Properties" dialog opens.

4. Set 0 as the "Low limit value":



The property "Output/Input" is in bold in the "Object properties" dialog. 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 dialog "I/O-Field Configuration" dialog as well as in the dialog "Object properties".

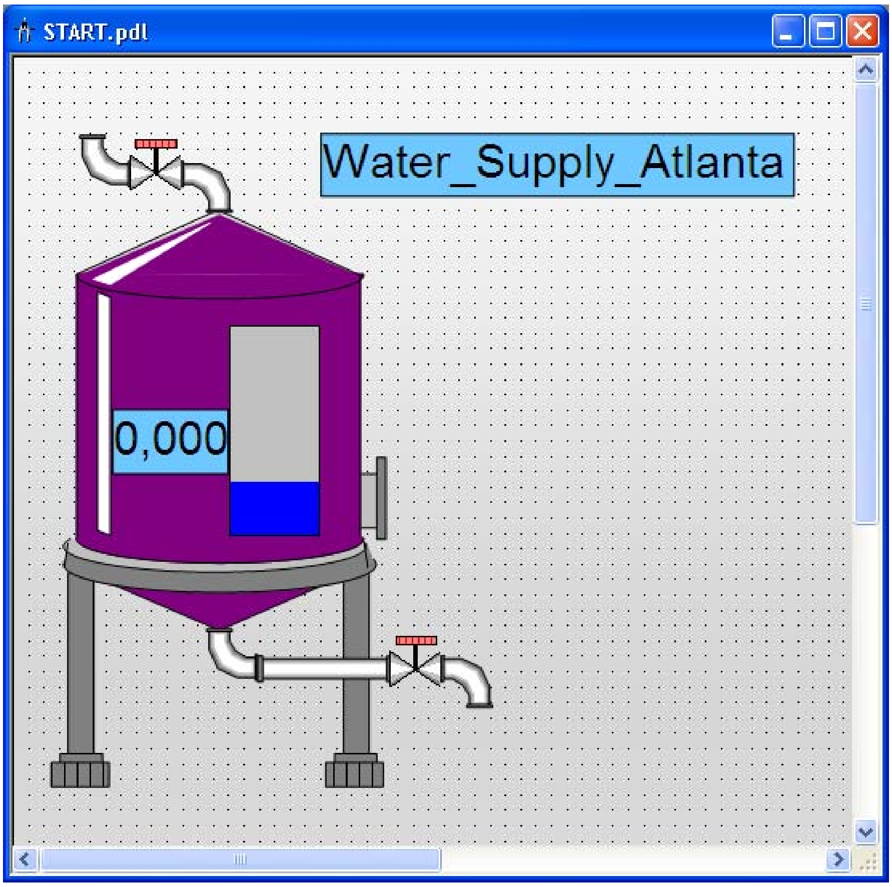
5. Analog to step 4, set 100 as a "High limit value".
6. Close the "Object properties" dialog box.
7. Save the process screen "START.pdl".
8. Close the Graphics Designer.

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 of the water tank via the internal tag. The fill level indicator of the water tank 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. This value range corresponds to the capacity of the water tank. If you enter the value 0 in the I/O field in Runtime, an empty water tank is displayed. If you enter the value 100 in the I/O field in Runtime, a full water tank is displayed. Values outside the value range are declined by the system.

In order to see the dynamization of the process screen "START.pdl", you will define the properties of WinCC Runtime and activate the "Quick_Start" project in the next steps.



6.7 Defining the Runtime Properties

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.

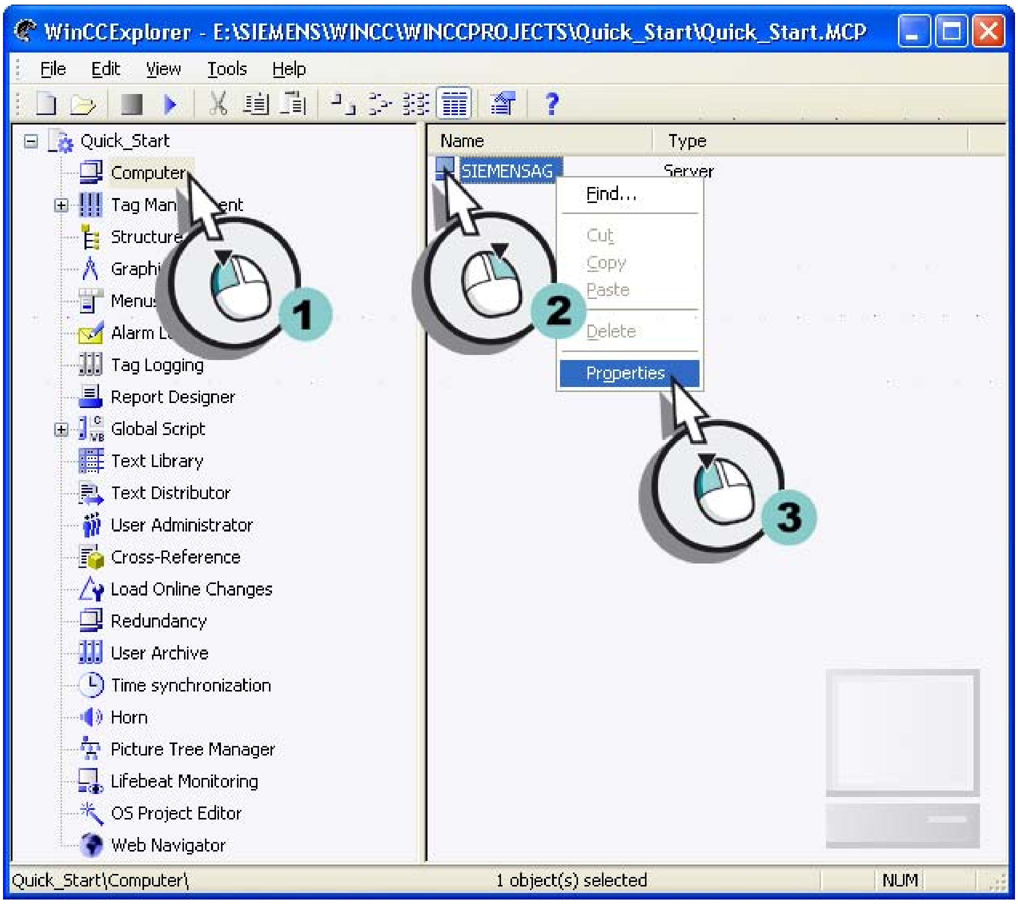
In this chapter you will set up WinCC Runtime so that Graphics Runtime is executed when the project is activated. Choose the process screen "START.pdl" as a start screen for the Runtime window.

Requirement

The "Quick_Start" project is open.

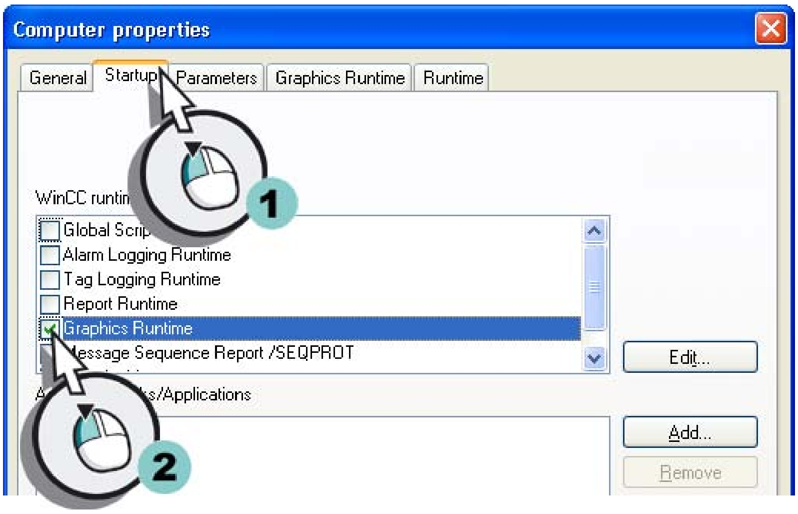
Procedure

1. Open the "Computer properties" dialog:

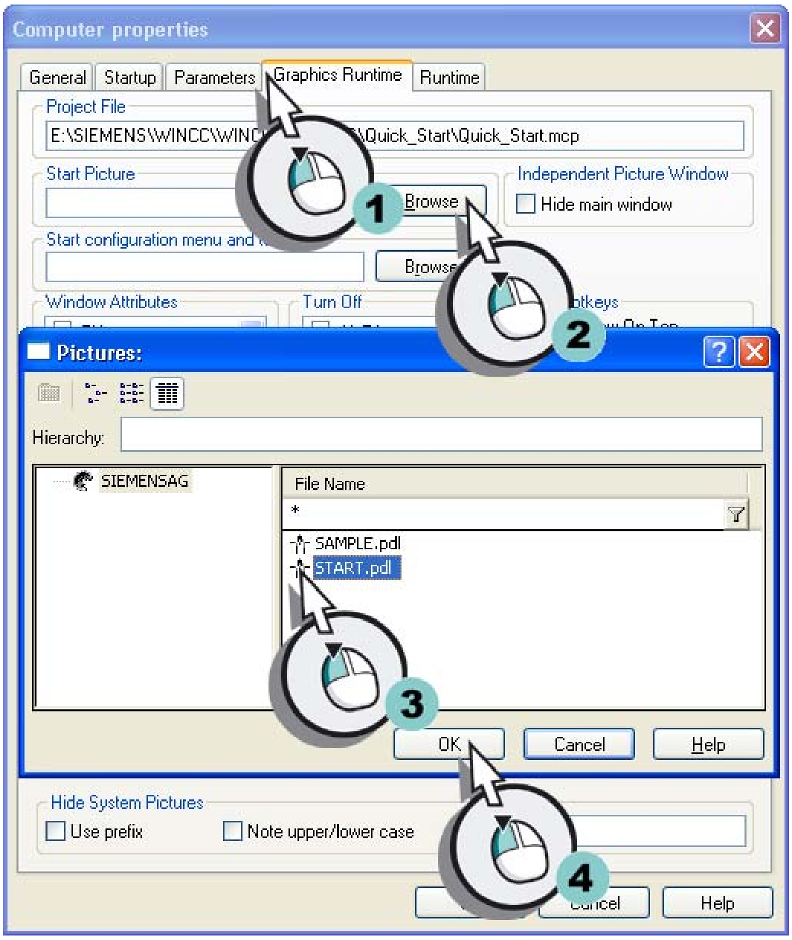


The "Computer Properties" dialog opens.

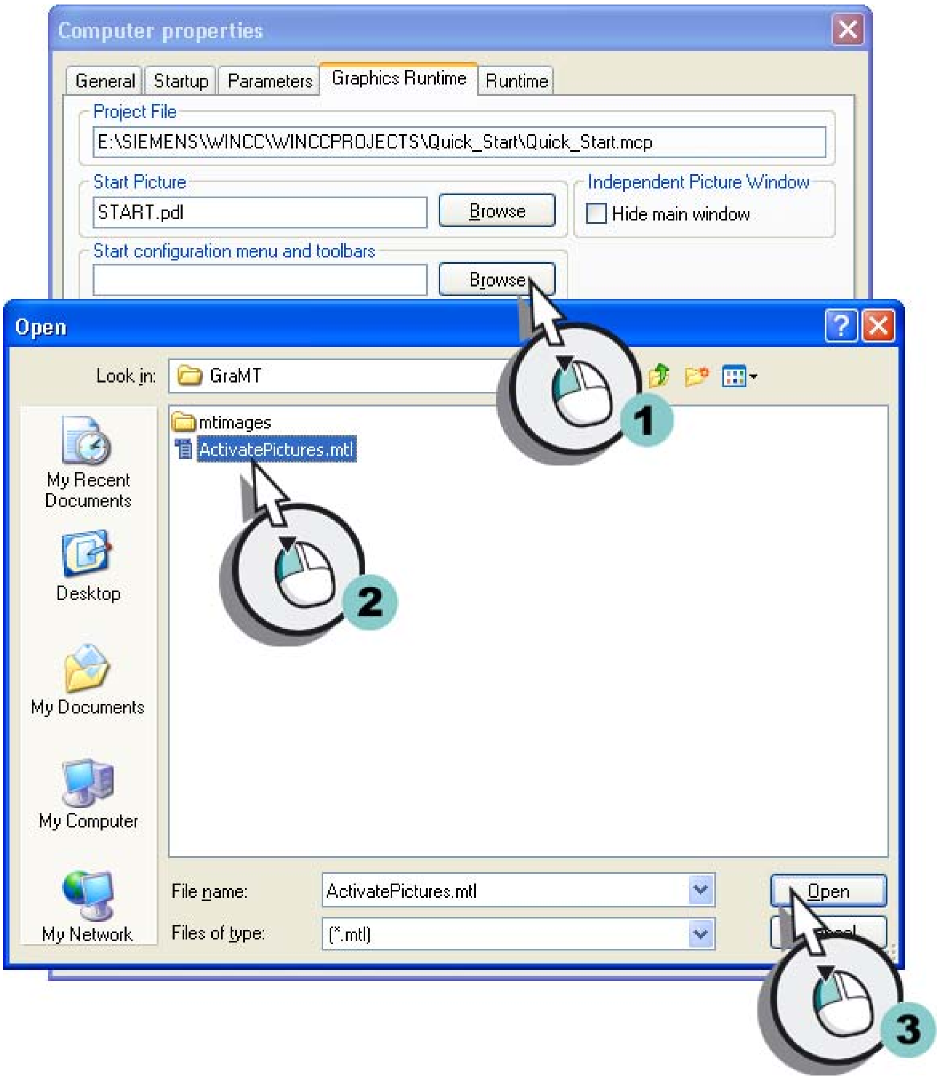
2. Click the "Startup" tab and activate the application "Graphics Runtime" in the corresponding checkbox:



3. Set the process screen "START.pdl" as the startup screen:



4. Select the configuration file for the screen navigation:



Computer properties

Project File: E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start.mcp

Start Picture: START.pdl

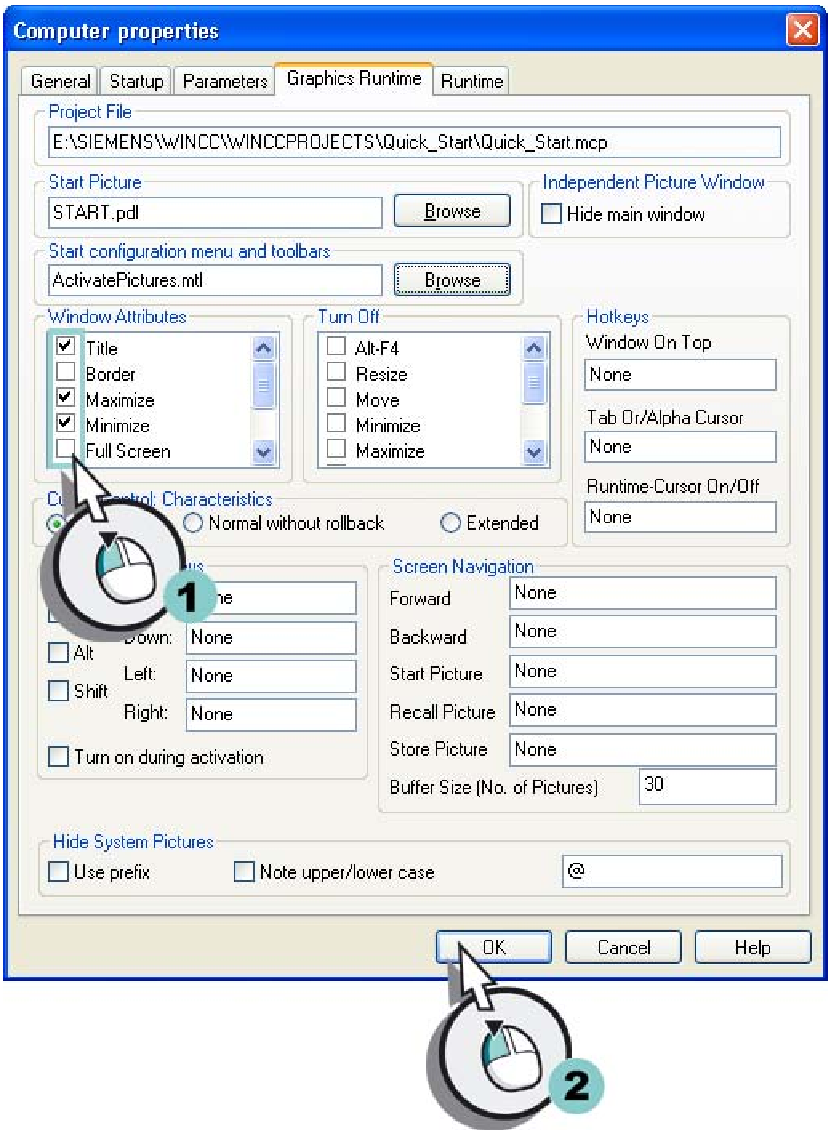
Independent Picture Window: □ Hide main window

Look in: GraMT

File name: ActivatePictures.mtl

Files of type: (*.mtl)

5. Activate the window attributes "Title", "Maximize", "Minimize" and "Adapt Picture":



Project File: E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start.mcp

Start Picture: START.pdl

Independent Picture Window: □ Hide main window

Start configuration menu and toolbars: ActivatePictures.mtl

Window Attributes: ☑ Title, □ Border, ☑ Maximize, ☑ Minimize, □ Full Screen

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

Hotkeys: Window On Top: None; Tab Or/Alpha Cursor: None; Runtime-Cursor On/Off: None

Cursor Control: Characteristics: ● ○ Normal without rollback ○ Extended

Down: None; Left: None; Right: None; □ Alt; □ Shift; □ Turn on during activation

Screen Navigation: Forward: None; Backward: None; Start Picture: None; Recall Picture: None; Store Picture: None; Buffer Size (No. of Pictures): 30

Hide System Pictures: □ Use prefix; □ Note upper/lower case; @

Result

You have defined the WinCC Runtime properties. Upon activating the "Quick_Start" project, Graphics Runtime will be run. The process screen "START.pdl" is displayed as the start screen.

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

You used these window attributes to determine which additional functions the Runtime window will feature.

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

6.8 Activating the project

Introduction

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

When activating the project, WinCC Runtime is started. You execute the project in process mode in WinCC Runtime. In Runtime you will operate the configured I/O field and observe the changes in the fill level indicator.

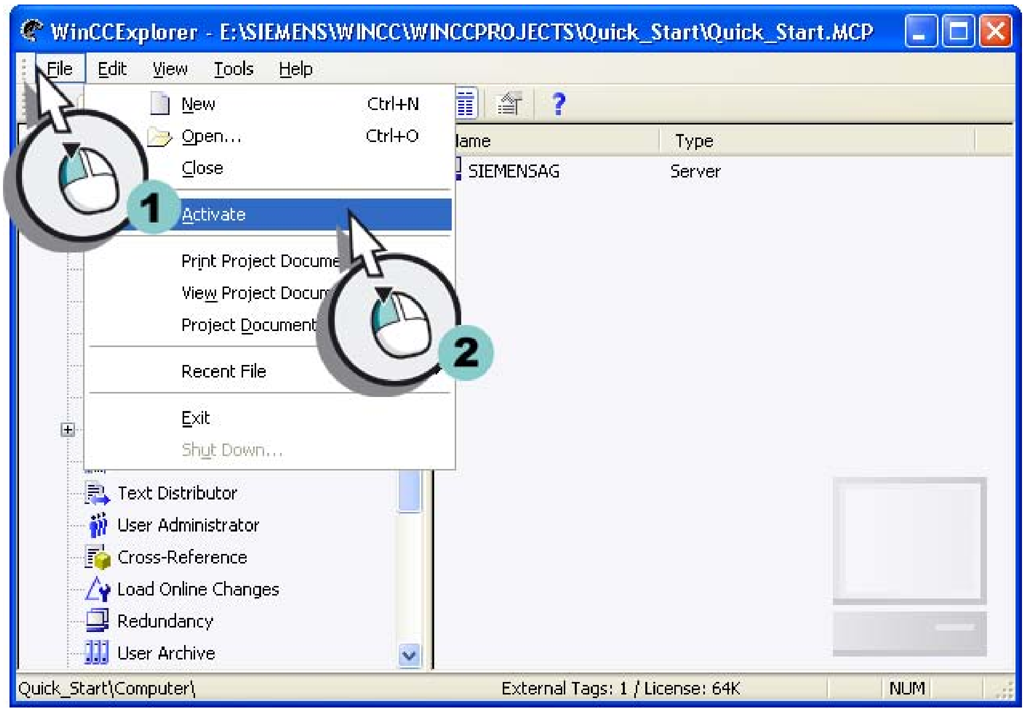
Requirement

The "Quick_Start" project is open.

The Runtime Properties are defined.

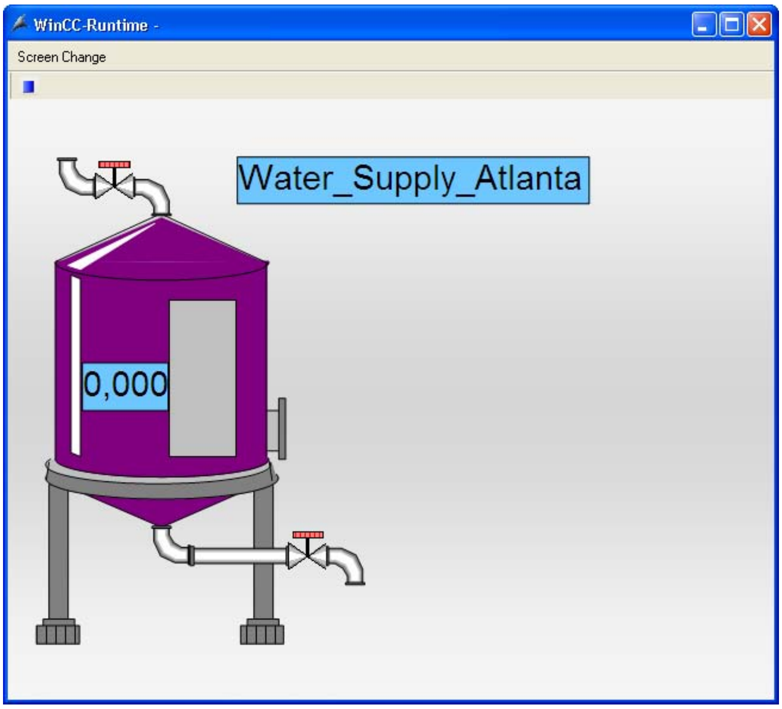
Procedure

1. Activate the project "Quick_Start":



As an alternative, you can also activate a project via the button ▶ in the toolbar of the WinCC Explorer.

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



2. Enter values between 0 and 100 in the I/O field. Observe the changes in the fill level indicator.
3. Click on the "SAMPLE" instruction in the "Change picture" menu to switch to the process screen "SAMPLE.pdl".
4. Click on the "Start" instruction in the "Change picture" menu to switch back to the process screen "START.pdl".
5. Click on button ■, to exit the editing mode.

Note

The button is shown with the symbol that you have created in section "Using custom menus and toolbars".

You can position the toolbar for the button ■ anywhere in the picture.

Result

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

If you enter a value in the I/O field in Runtime, this value is transferred to the graphic of the water tank via the internal tag "Tank_Level". This will enable you to observe the fill level indicator of the water tank.

In order to simulate the internal tag "Tank_Level" and to test the "Quick_Start" project, you will use the WinCC TAG Simulator in the next steps.

6.9 Test project

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

Requirement

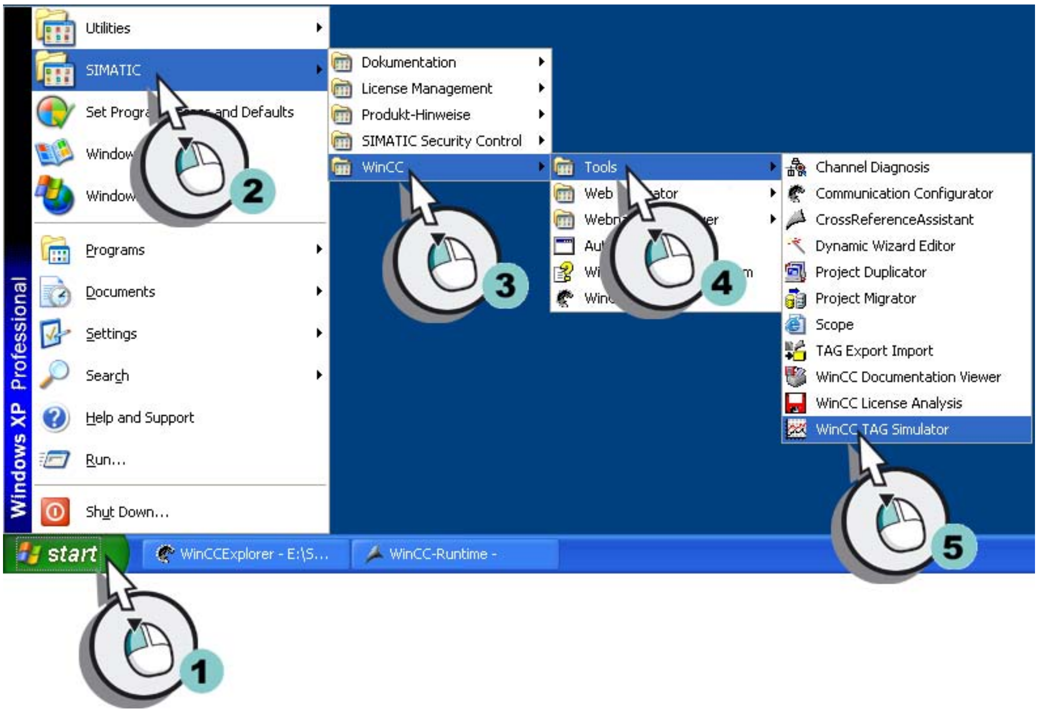
The WinCC TAG Simulator is installed.

The Runtime Properties are defined.

The "Quick_Start" project is activated.

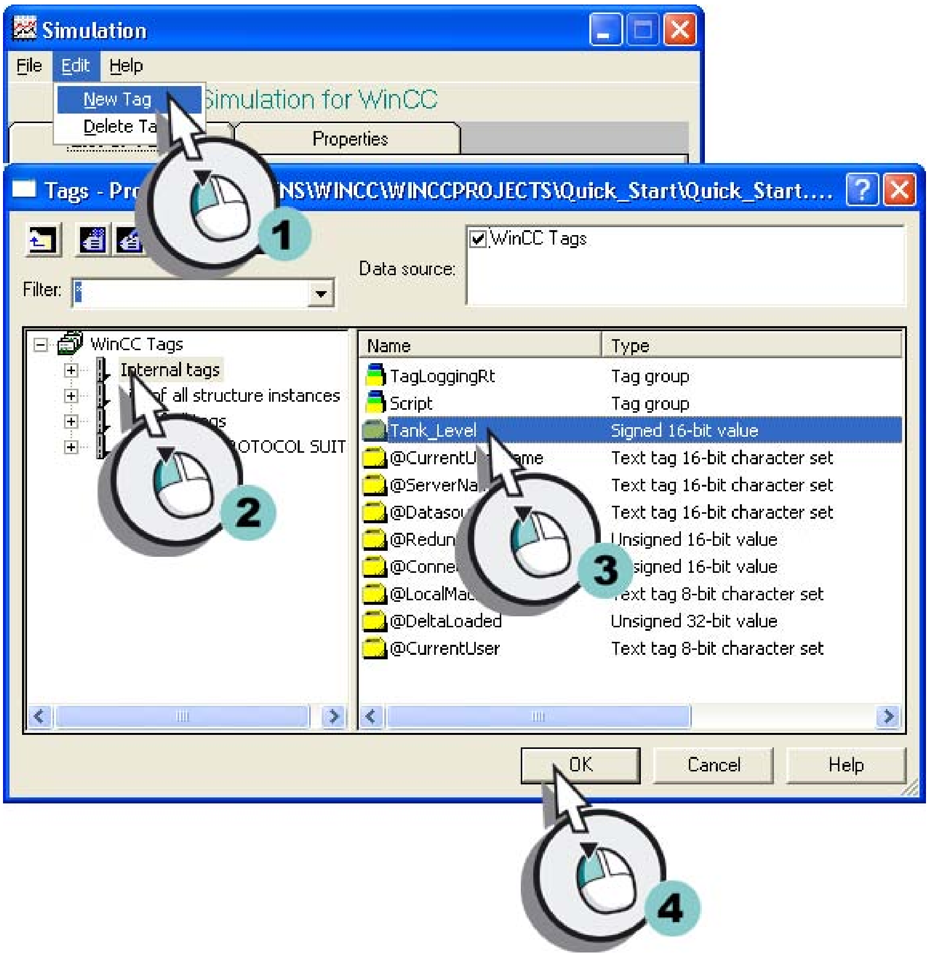
Procedure

1. Start the WinCC Tag Simulator:



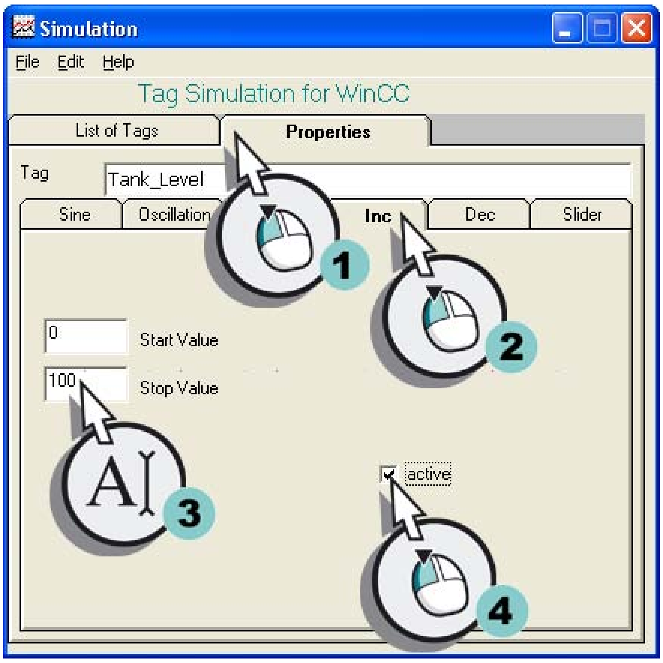
The "Simulation" dialog is opened.

2. Open the "Tags - project" dialog and select the internal tag "Tank_Level":



Name	Type
TagLoggingRt	Tag group
Script	Tag group
Tank_Level	Signed 16-bit value
@CurrentU me	Text tag 16-bit character set
@ServerNa	Text tag 16-bit character set
@Datasou	Text tag 16-bit character set
@Redun	Unsigned 16-bit value
@Conne	signed 16-bit value
@LocalMac	ext tag 8-bit character set
@DeltaLoaded	Unsigned 32-bit value
@CurrentUser	Text tag 8-bit character set

3. Define the properties of the simulation type:



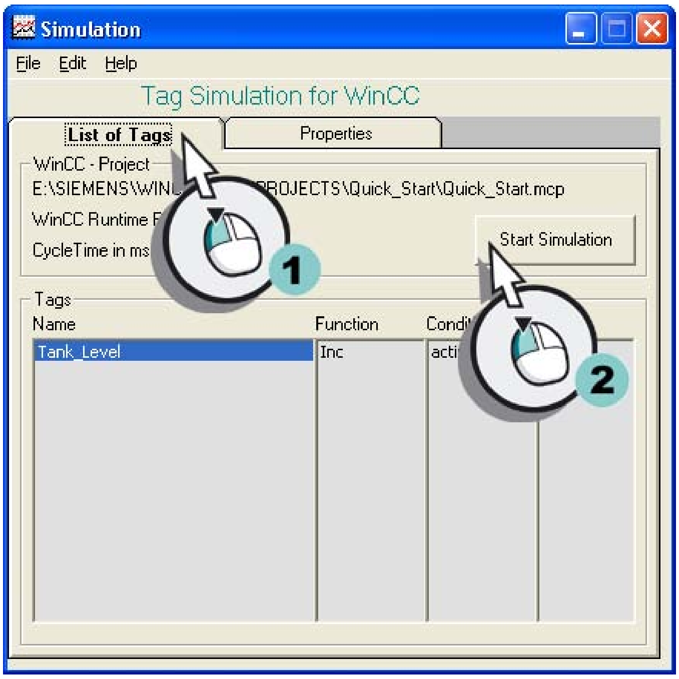
Tag: Tank_Level

0 Start Value

100 Stop Value

☑ active

4. Start WinCC TAG Simulator:



WinCC - Project
E:\SIEMENS\WINC... PROJECTS\Quick_Start\Quick_Start.mcp

WinCC Runtime F...

CycleTime in ms

Tags

Name	Function	Condi...
Tank_Level	Inc	acti...

5. Position the dialog "Simulation" and the Runtime window next to one another.
6. Observe how the different simulation values affect the fill level indicator.
7. Close the "WinCC Tag Simulator" after ending the simulation.

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 Deactivating a project

Introduction

The following steps will show you how to deactivate the "Quick_Start" project.

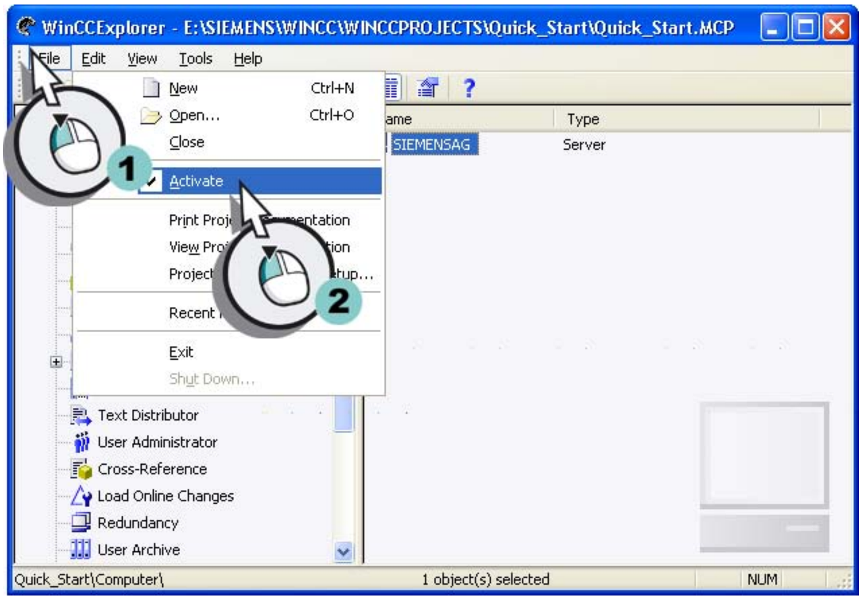
You will deactivate the project "Quick_Start" in WinCC Explorer. Upon deactivating the project, the execution of the Runtime software will be terminated. The Runtime window closes.

Requirement

The "Quick_Start" project is activated.

Procedure

1. Deactivate the project "Quick_Start":



The Runtime window will close after a short time.

You can also deactivate a project via the button ■ in the toolbar of the WinCC Explorer.

Result

You have deactivated the "Quick_Start" project.

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.

General procedure

By means of the process value archives you will display the timeline development of the process values, e. g. 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 screen as a trend diagram and as a table. For this you will use the controls in the object palette of the "Graphics Designer" editor. Observe the changes in the simulation values in the configured controls in Runtime.

7.2 The archive system

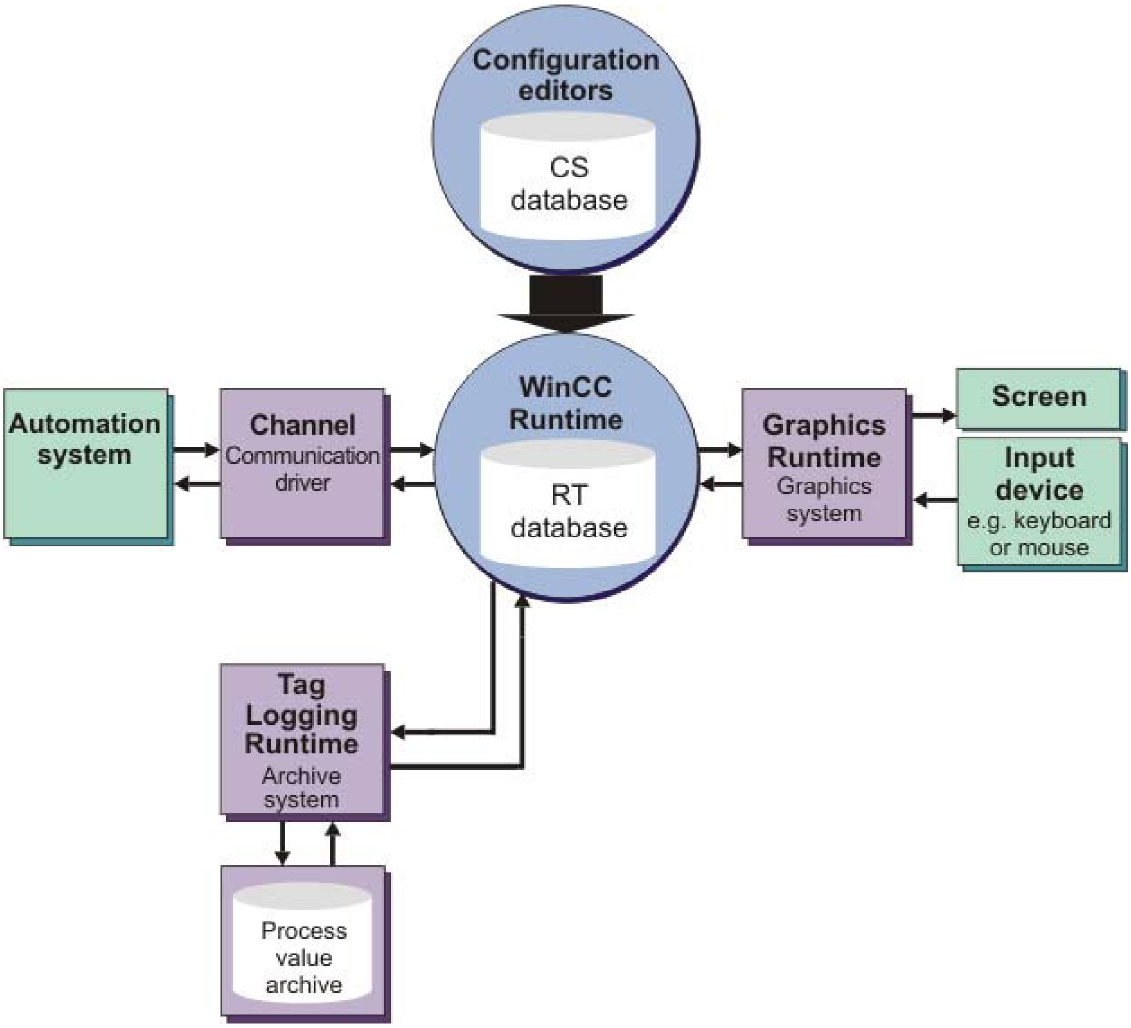
Introduction

The archive system is a partial system of WinCC. This partial system is used to archive process screens 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
  - Define process values to be archived
- Tag Logging Runtime is the runtime component of the Archiving System. Tag Logging Runtime is primarily used to execute 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. The archiving of process values can, for example, be effected in constant time cycles or only when a process value changes by a certain amount or percentage.

Software Requirements

In the WinCC Basic System, it is possible that 512 archive tags are already configured without additional licensing.

7.3 Starting Tag Logging

Introduction

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

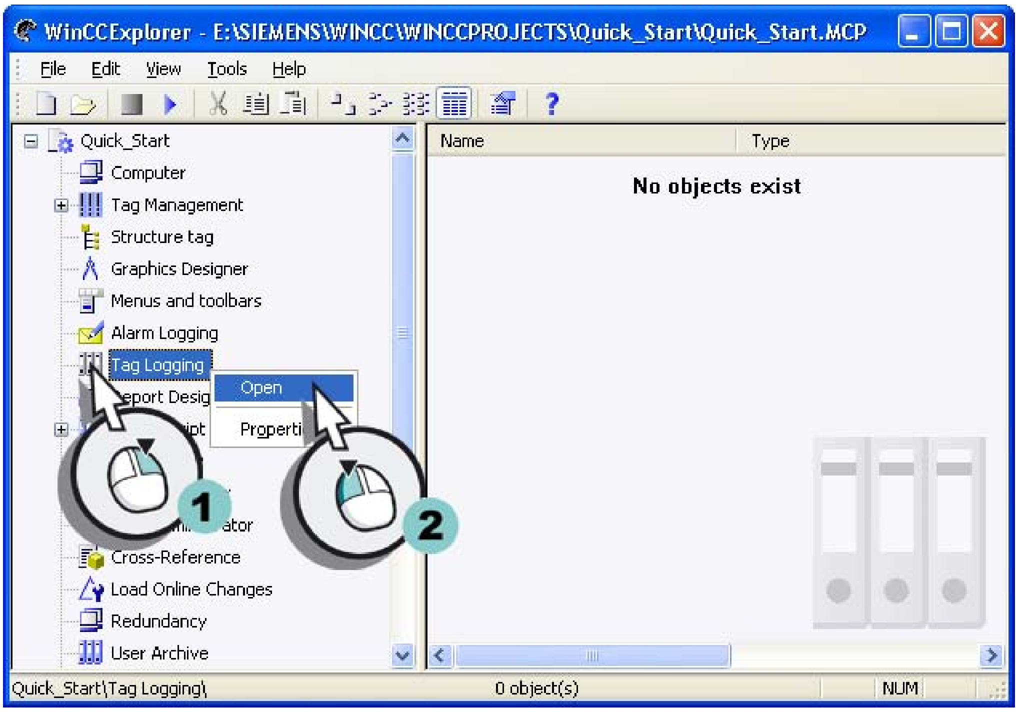
In the editor "Tag Logging" you will configure a process value archive as well as the times for the acquisition and archiving cycles.

Requirement

The "Quick_Start" project is open.

Procedure

1. Start the "Tag Logging" editor:

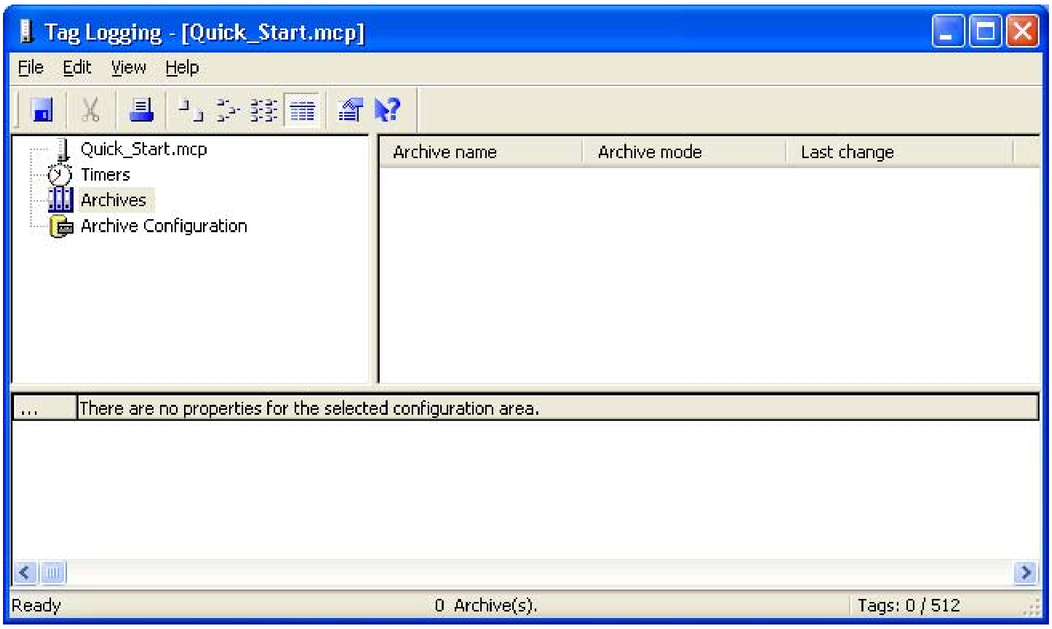


The "Tag Logging" editor will open.

Result

You have opened the "Tag Logging" editor.

In this editor, you will configure the times for the acquisition and archiving cycles in the next steps. You will determine the time interval, in which the tag values are captured and archived by means of the configured time.



There are no properties for the selected configuration area.

7.4 Configuring Timers

Introduction

The following steps will show you how to configure times for the acquisition and archiving 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.

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 the WinCC Runtime 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. There might be a system delay of up to the length of an acquisition cycle between acquisition and archiving.

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. So, if you set 1 second as a time basis and 5 seconds as a time factor, the process values are archived every 5 seconds.

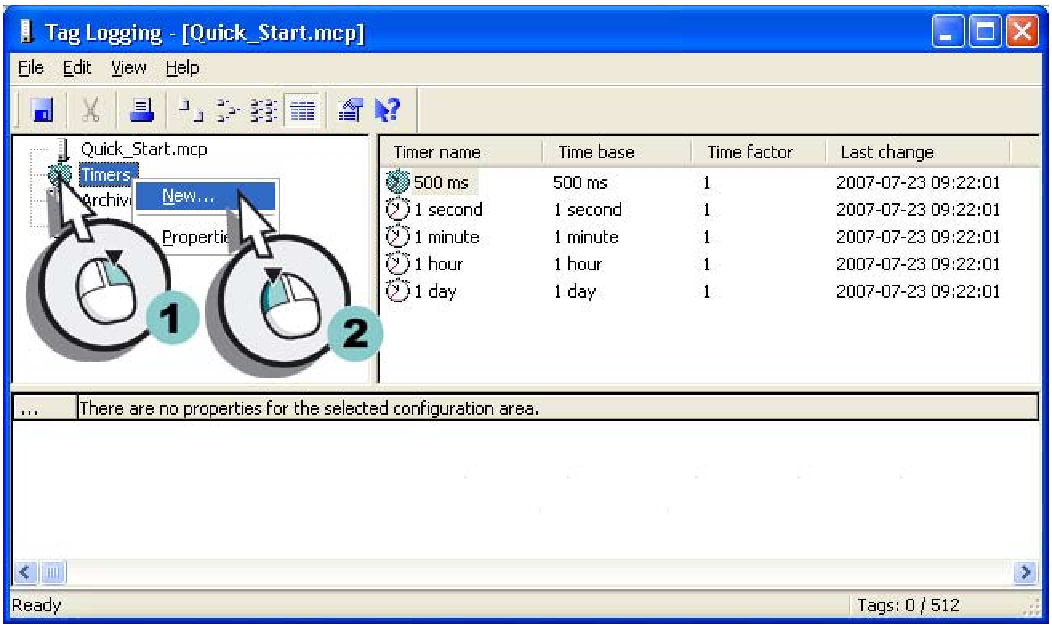
In the "Quick_Start" project, you will configure a new time for the acquisition and archiving cycles. By this time, you will determine the time interval, in which the tag values are captured and archived.

Requirement

"Tag Logging" editor is open.

Procedure

1. Create a new time:

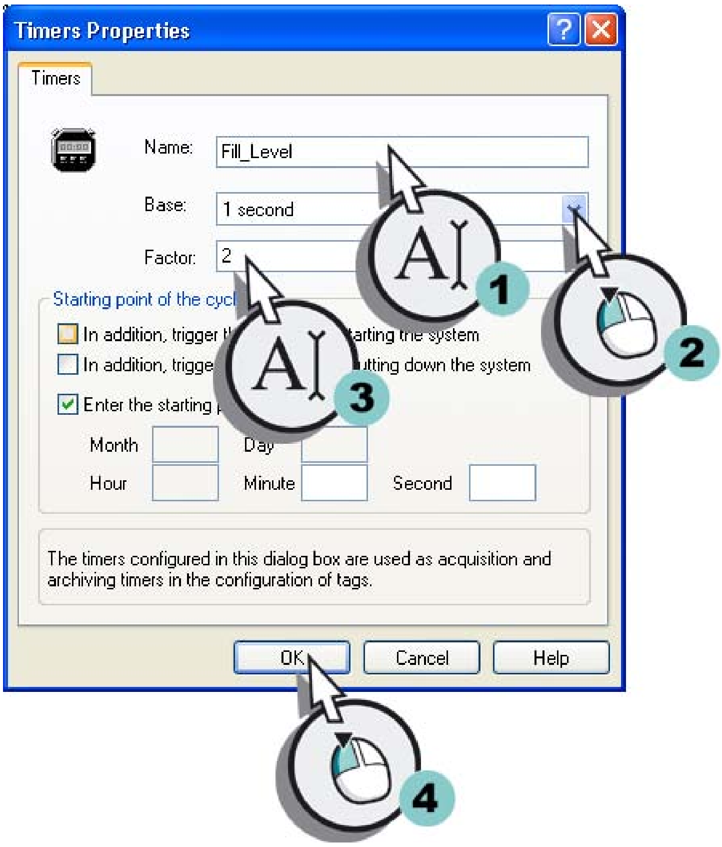


Timer name	Time base	Time factor	Last change
500 ms	500 ms	1	2007-07-23 09:22:01
1 second	1 second	1	2007-07-23 09:22:01
1 minute	1 minute	1	2007-07-23 09:22:01
1 hour	1 hour	1	2007-07-23 09:22:01
1 day	1 day	1	2007-07-23 09:22:01

There are no properties for the selected configuration area.

This will open the "Timers Properties" dialog.

2. Define the properties of the new time:



Timers Properties

Name: Fill_Level

Base: 1 second

Factor: 2

Starting point of the cycl

□ In addition, trigger t … tarting the system

□ In addition, trigge … utting down the system

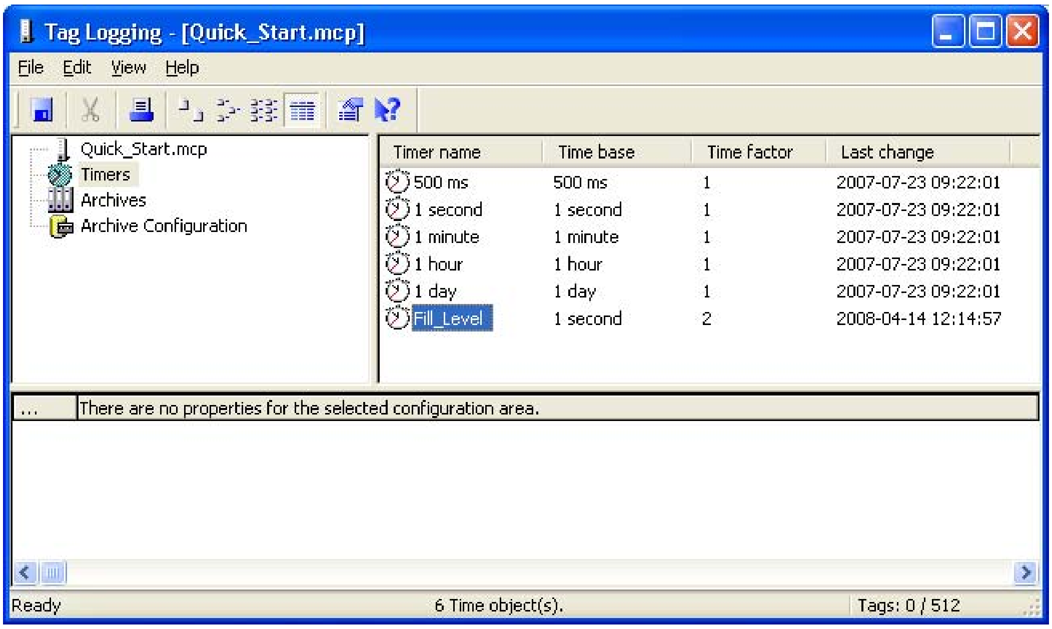
☑ Enter the starting

The timers configured in this dialog box are used as acquisition and archiving timers in the configuration of tags.

Result

You have configured a new time for the acquisition and archiving cycles. The configured time allows the acquisition and archiving of tag values every 2 seconds.

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



Timer name	Time base	Time factor	Last change
500 ms	500 ms	1	2007-07-23 09:22:01
1 second	1 second	1	2007-07-23 09:22:01
1 minute	1 minute	1	2007-07-23 09:22:01
1 hour	1 hour	1	2007-07-23 09:22:01
1 day	1 day	1	2007-07-23 09:22:01
Fill_Level	1 second	2	2008-04-14 12:14:57

... There are no properties for the selected configuration area.

Ready 6 Time object(s). Tags: 0 / 512

7.5 Creating Process Value Archive

Introduction

The following steps will show you how to create a process value archive.

Archives are created in the "Tag Logging" editor by means of the Archive Wizard. The Archive Wizard offers an automated and simple method of creating an archive. With the Archive Wizard, you specify the name and type of archive. When creating process value archives, you will also define a tag whose values are archived. Once the tag has been defined, the Archive Wizard will create an archive tag in the process value archive. The values to be archived are saved in the archive tags.

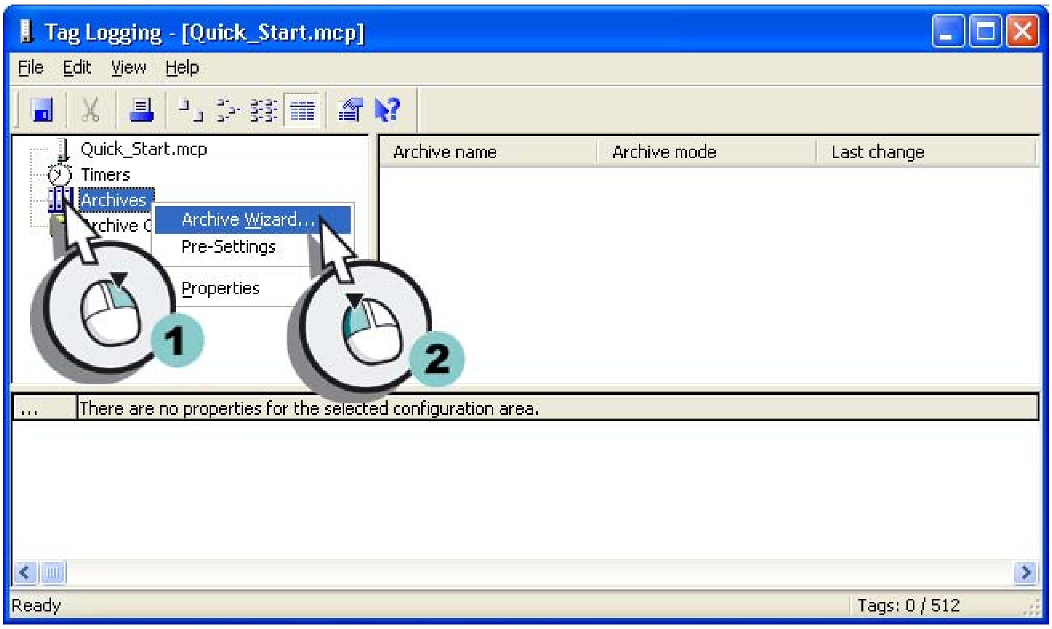
You will create a process value archive for the "Quick_Start" project. The values of the internal tag "Tank_Level" are saved in this archive.

Requirement

"Tag Logging" editor is open.

Procedure

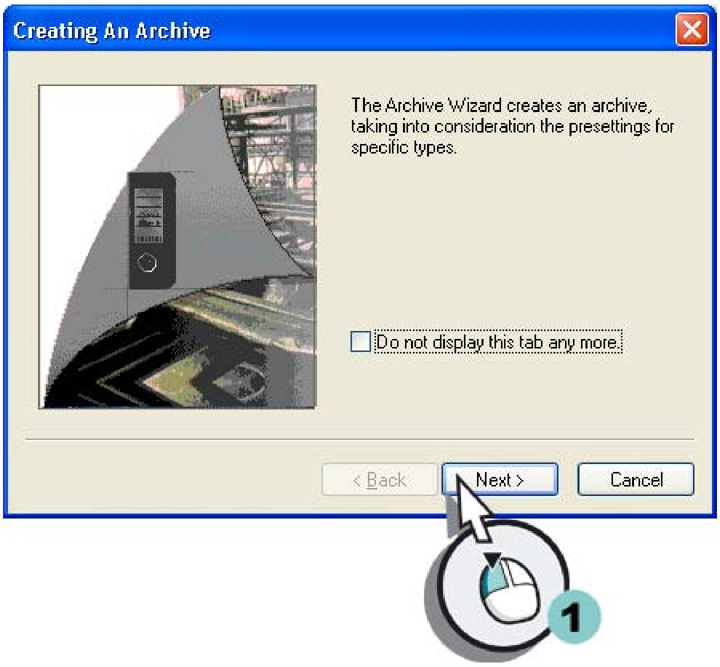
1. Start the Archive Wizard:



There are no properties for the selected configuration area.

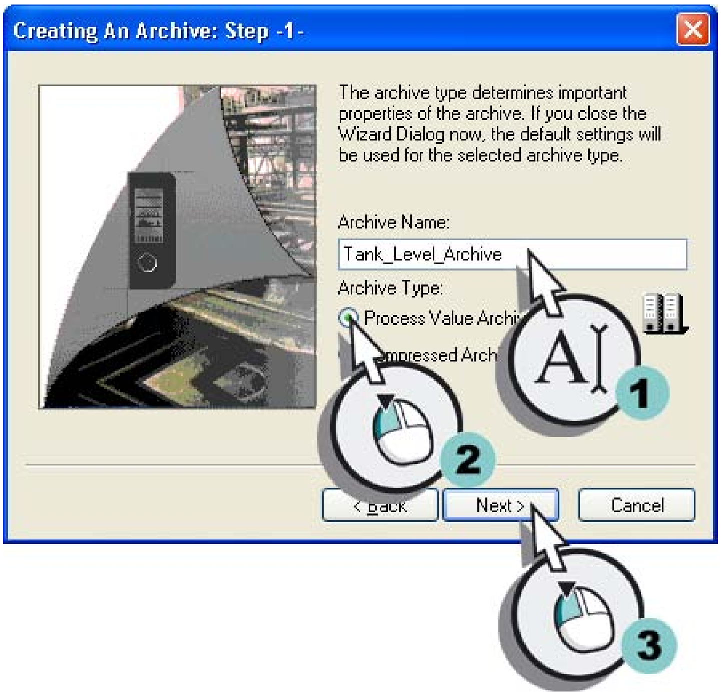
This starts the Archive Wizard. The "Create archive" dialog box opens.

2. Click "Continue":



The Archive Wizard creates an archive, taking into consideration the presettings for specific types.

3. Enter "Tank_Level_Archive" as a name for the archive and choose the archive type "Process value archive".



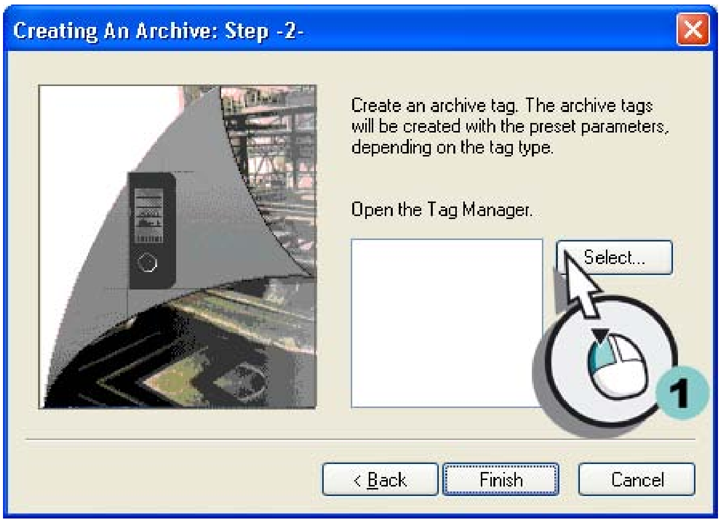
Creating An Archive: Step -1-

The archive type determines important properties of the archive. If you close the Wizard Dialog now, the default settings will be used for the selected archive type.

Archive Name:
Tank_Level_Archive

Archive Type:
● Process Value Archi
mpressed Arch

4. Select the internal tag "Tank_Level":

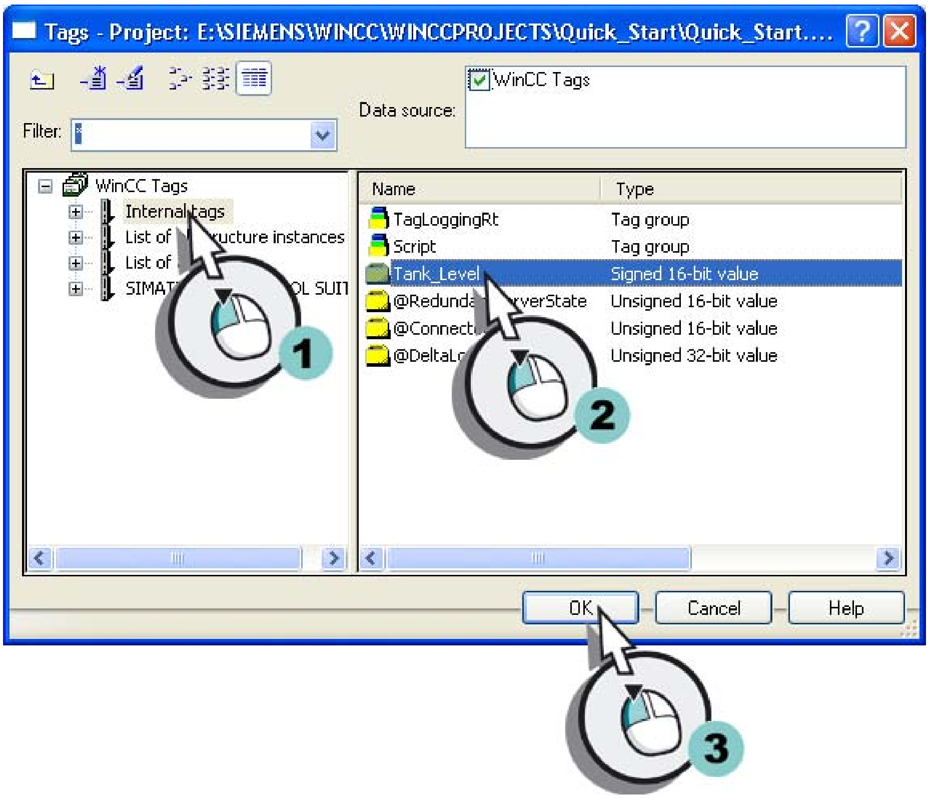


Creating An Archive: Step -2-

Create an archive tag. The archive tags will be created with the preset parameters, depending on the tag type.

Open the Tag Manager.

5. The "Tag project" dialog opens.



Tags - Project: E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start....

Filter: *

Data source: ☑ WinCC Tags

- WinCC Tags
  - Internal tags
  - List of ...ucture instances
  - List of
  - SIMAT...OL SUIT

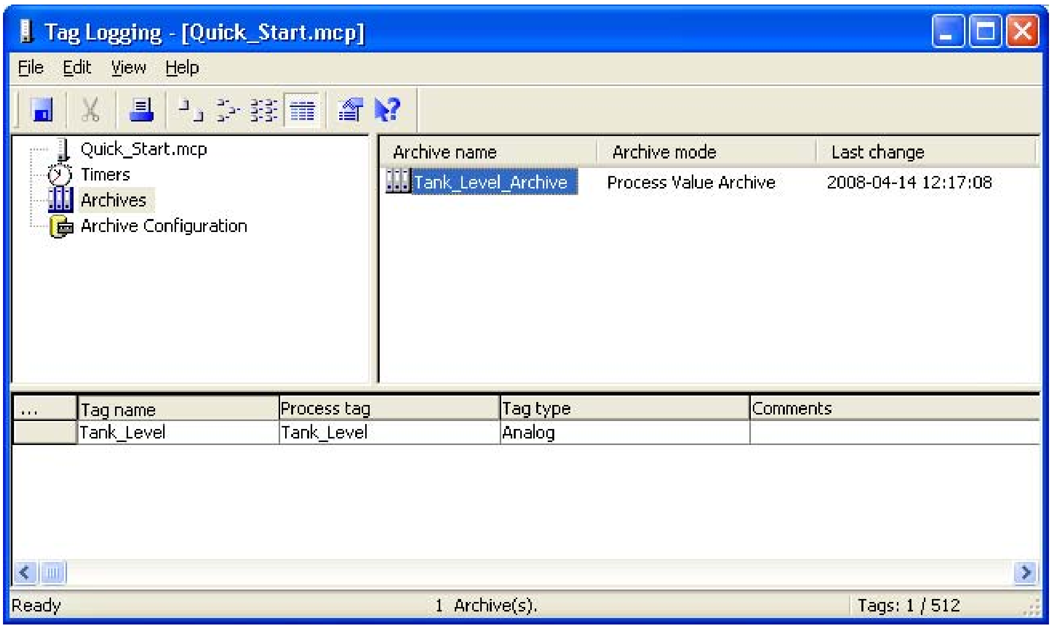
Name	Type
TagLoggingRt	Tag group
Script	Tag group
Tank_Level	Signed 16-bit value
@Redunda...rverState	Unsigned 16-bit value
@Connect...	Unsigned 16-bit value
@DeltaL...	Unsigned 32-bit value

6. Exit the dialog "Create archive: Step -2- " via the "Apply" button.

Result

You have created the process value archive "Tank_Level_Archive". The values of the internal tag "Tank_Level" are archived in this process value archive.

In the next steps you will edit the created process value archive.



Archive name	Archive mode	Last change
Tank_Level_Archive	Process Value Archive	2008-04-14 12:17:08

...	Tag name	Process tag	Tag type	Comments
	Tank_Level	Tank_Level	Analog	

Ready 1 Archive(s). Tags: 1 / 512

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.

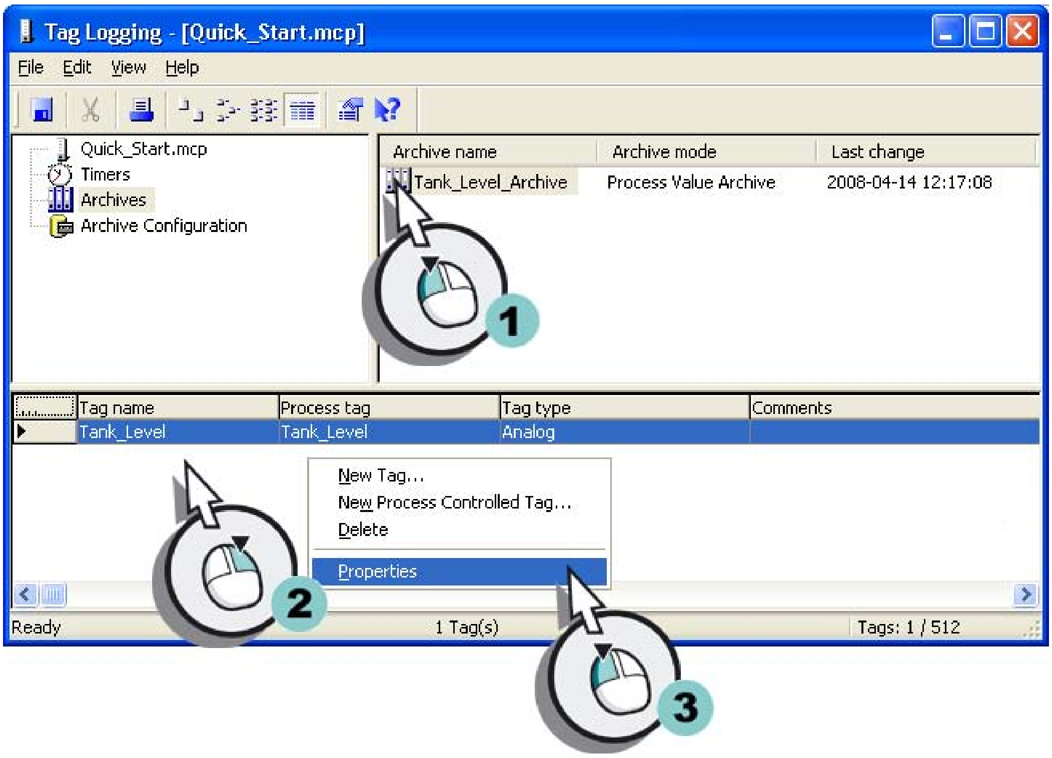
Requirement

"Tag Logging" editor is open.

You have created the process value archive "Tank_Level_Archive".

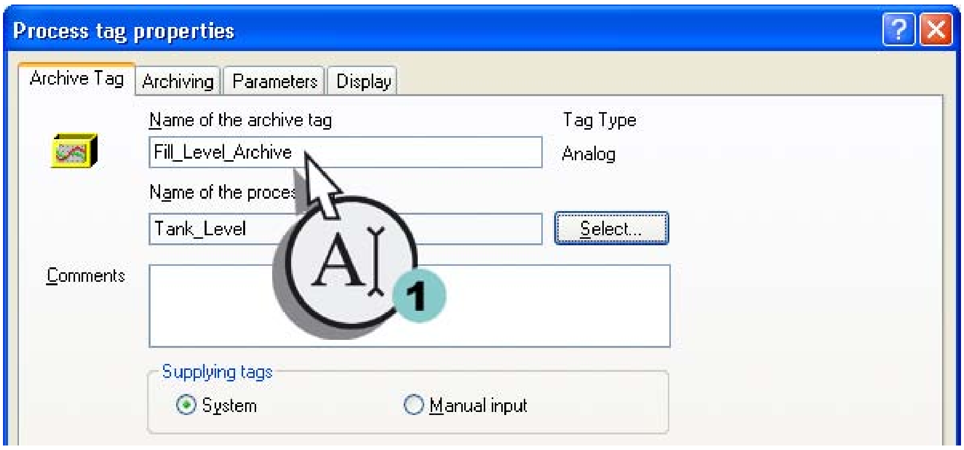
Procedure

1. Open the "Process tag properties" dialog:



This will open the "Process tag properties" dialog.

2. Enter "Fill_Level_Archive" as the name for the archive tag:



Name of the archive tag: Fill_Level_Archive

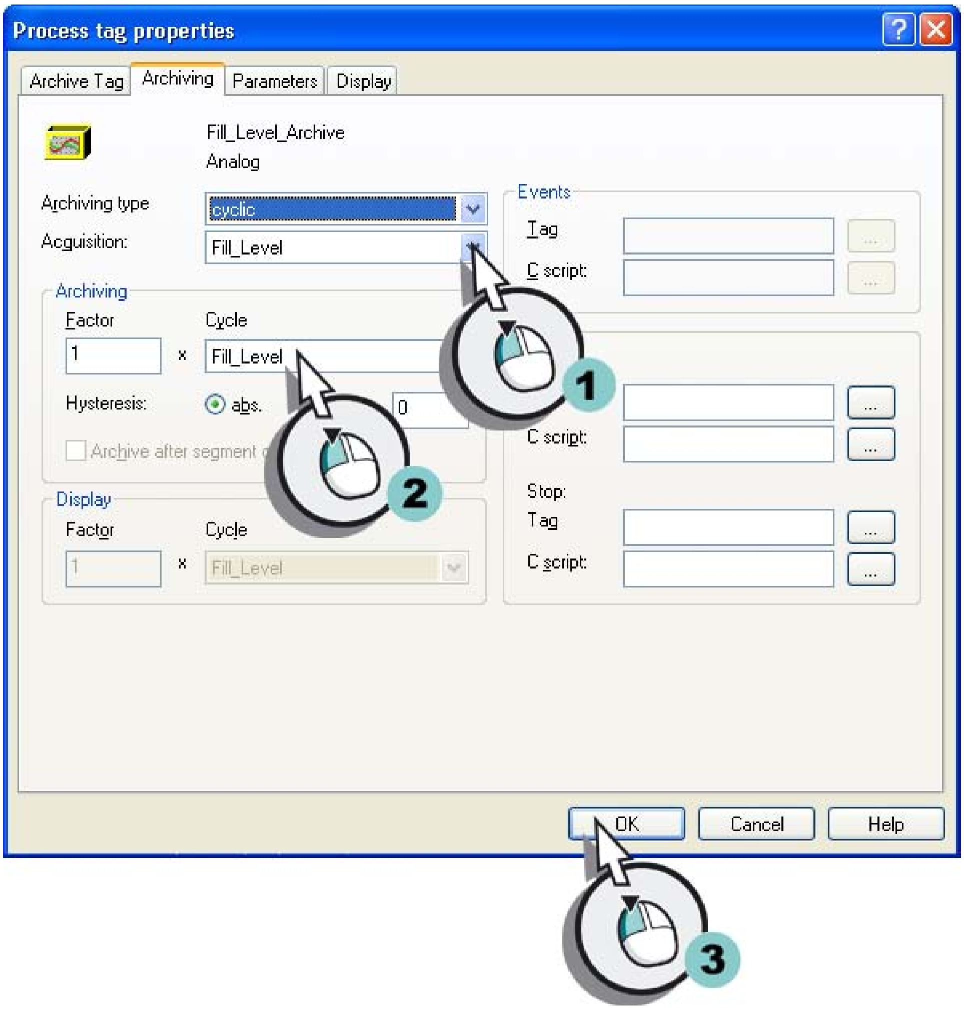
Tag Type: Analog

Name of the proces: Tank_Level

Comments

○ System ○ Manual input

3. Click the "Archiving" tag and assign the configured time "Fill_Level" to the acquisition and archiving cycle:



Fill_Level_Archive
Analog

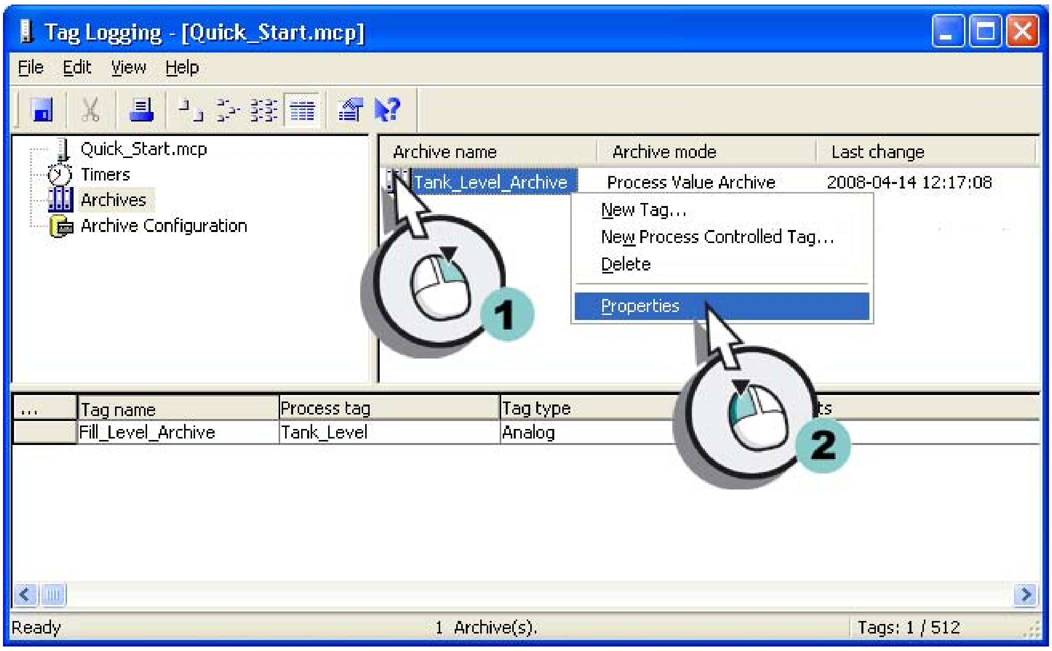
Archiving type: cyclic
Acquisition: Fill_Level

Archiving
Factor: 1 × Cycle: Fill_Level
Hysteresis: ● abs. 0
□ Archive after segment c

Display
Factor: 1 × Cycle: Fill_Level

Events
Tag
C script:
C script:
Stop:
Tag
C script:

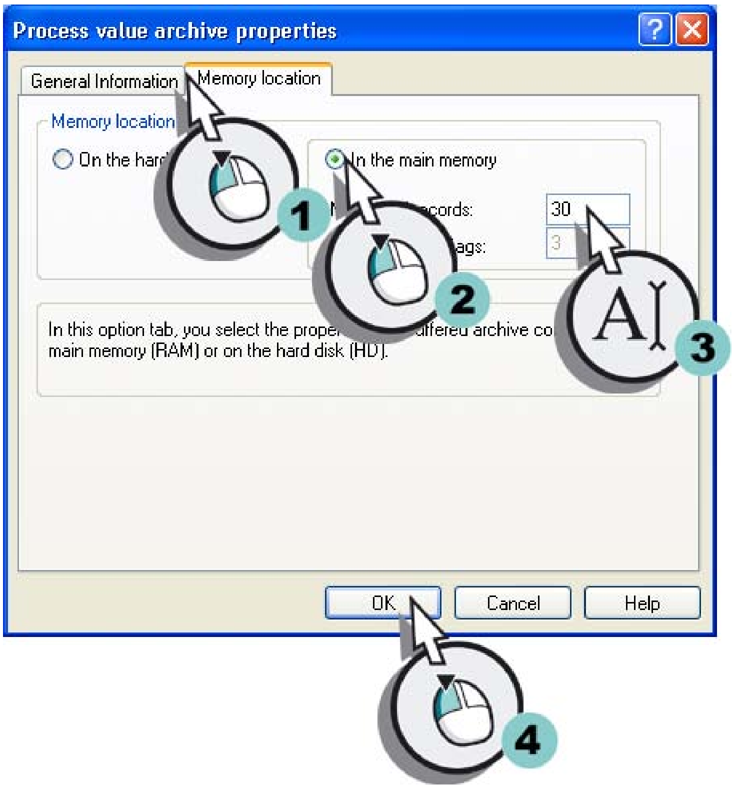
4. Open the "Process value archive properties" dialog:



Archive name	Archive mode	Last change
Tank_Level_Archive	Process Value Archive	2008-04-14 12:17:08

...	Tag name	Process tag	Tag type	ts
	Fill_Level_Archive	Tank_Level	Analog	

5. Define the saving location and the size of the process value archive "Tank_Level_Archive".



○ On the hard
● In the main memory
N...ecords: 30
...ags: 3

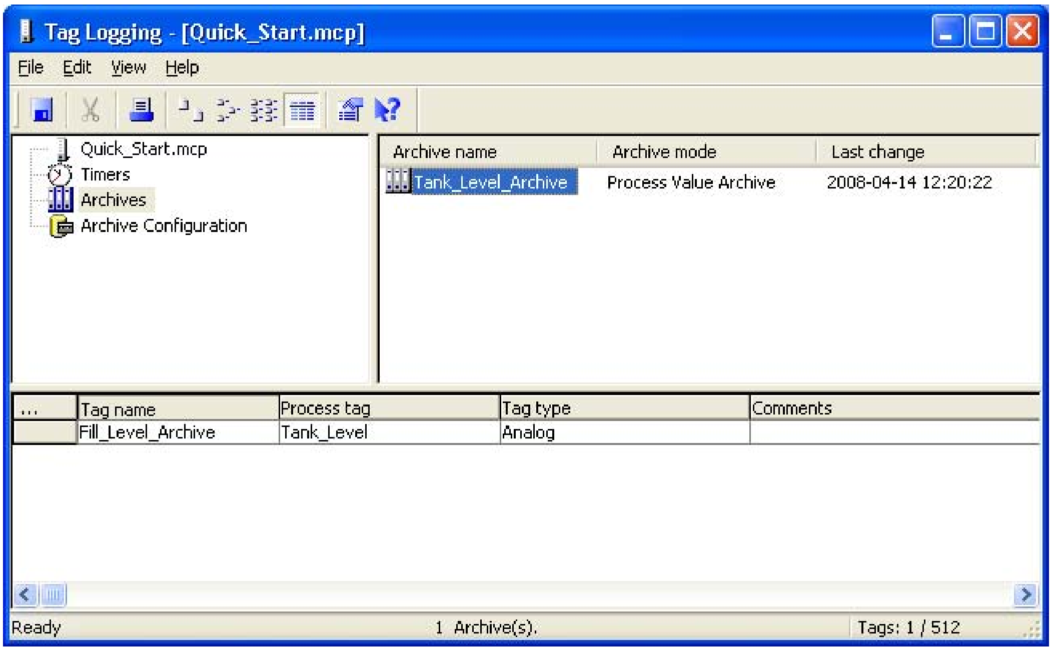
In this option tab, you select the prope... ...ifferent archive co... main memory (RAM) or on the hard disk (HD).

6. Save the process value archive via the button 💾 in the toolbar.
7. Close the "Tag Logging" editor.

Result

You have edited the process value archive. The values of the internal tag "Tank_Level" are acquired every 2 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.



Archive name	Archive mode	Last change
Tank_Level_Archive	Process Value Archive	2008-04-14 12:20:22

...	Tag name	Process tag	Tag type	Comments
	Fill_Level_Archive	Tank_Level	Analog	

Ready 1 Archive(s). Tags: 1 / 512

7.7 Configuring the Process Screen

7.7.1 Configuring the Process Screen

Introduction

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

General procedure

You will configure the process screen in the editor "Graphics Designer". For this, you will use the following objects:

- WinCC OnlineTrendControl
- WinCC OnlineTableControl

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. The output takes place in Runtime.

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. The 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.

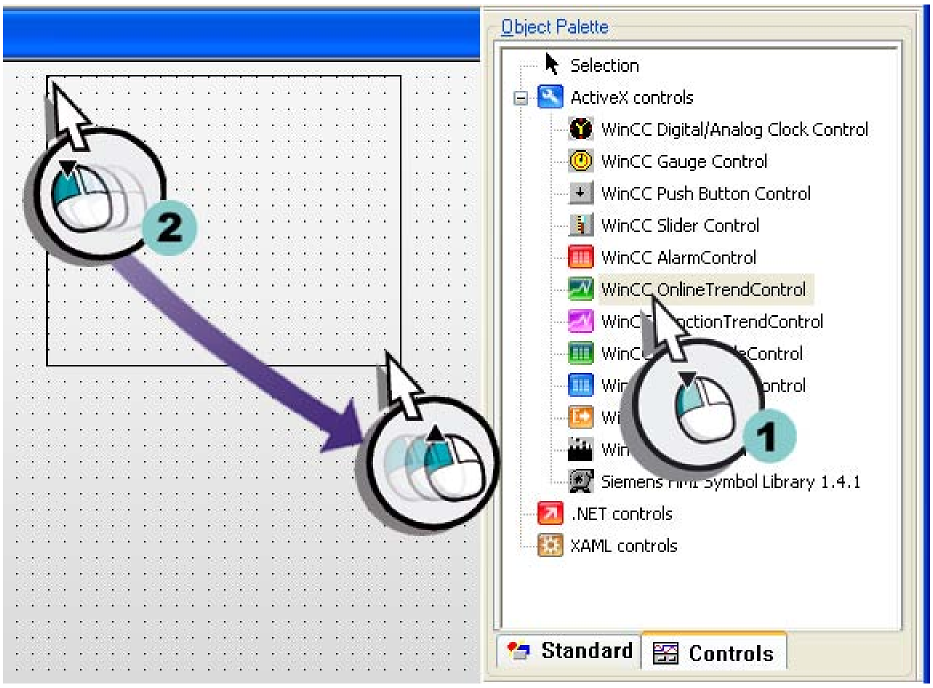
You will configure the trend window in the editor "Graphics Designer". For this, you will create a new process screen. Insert the object "WinCC OnlineTrendControl" into the process screen. In the "Quick_Start" project you will connect this object with the archive tag "Fill_Level_Archive". Hence, the values saved in the archive tag in Runtime are output as a trend.

Requirement

You have created the process value archive "Tank_Level_Archive".

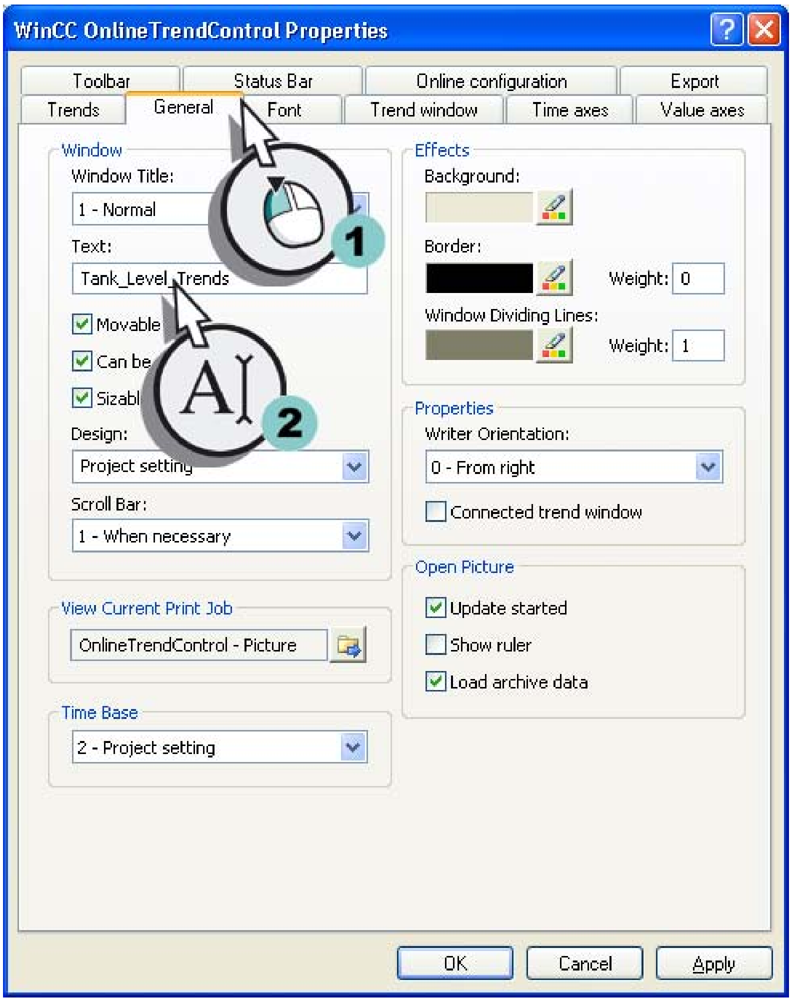
Procedure

1. Create a new process screen named "Tag_Logging.pdl" and open it in the editor "Graphics Designer".
2. Insert the object "WinCC OnlineTrendControl" into the process screen "Tag_Logging.pdl":



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_Archive" as a window title for the trend window and apply the standard settings.



WinCC OnlineTrendControl Properties

Toolbar | Status Bar | Online configuration | Export
Trends | General | Font | Trend window | Time axes | Value axes

Window
Window Title: 1 - Normal
Text: Tank_Level_Trends
☑ Movable
☑ Can be
☑ Sizabl
Design: Project setting
Scroll Bar: 1 - When necessary

View Current Print Job
OnlineTrendControl - Picture

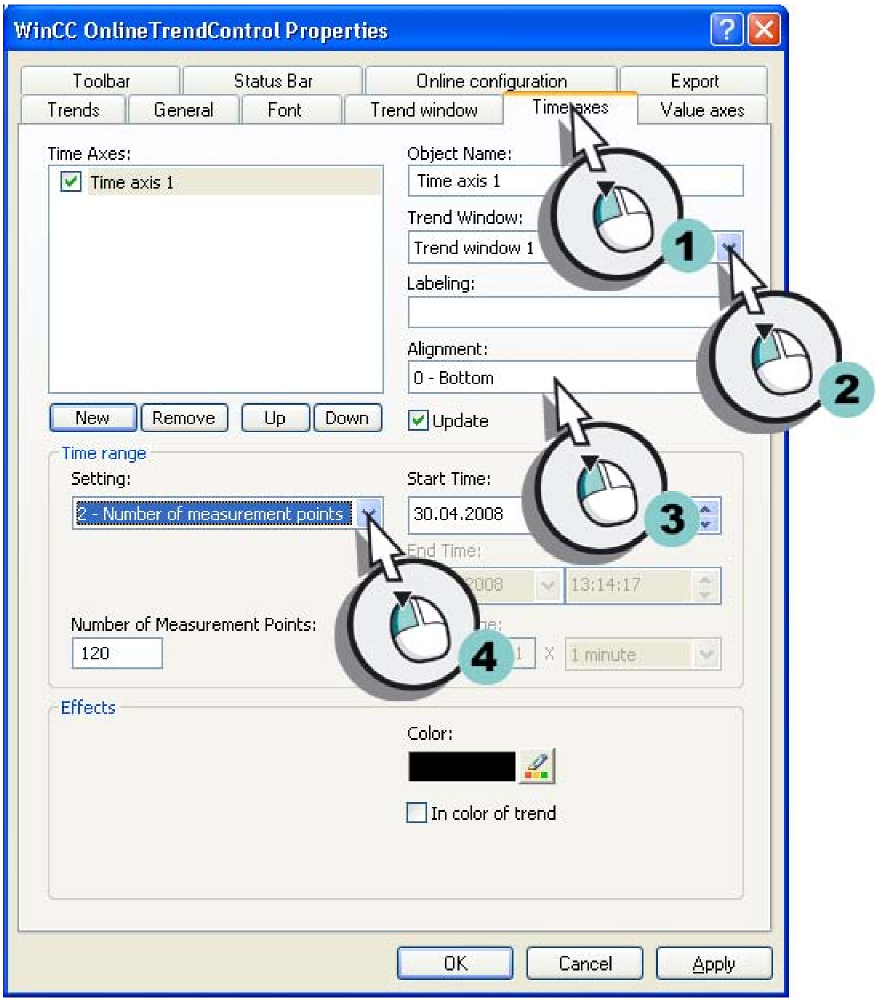
Time Base
2 - Project setting

Effects
Background:
Border: Weight: 0
Window Dividing Lines: Weight: 1

Properties
Writer Orientation: 0 - From right
☐ Connected trend window

Open Picture
☑ Update started
☐ Show ruler
☑ Load archive data

4. Make the settings for the time axes:



WinCC OnlineTrendControl Properties

Time Axes:

☑ Time axis 1

Object Name: Time axis 1

Trend Window: Trend window 1

Labeling:

Alignment: 0 - Bottom

☑ Update

Time range

Setting: 2 - Number of measurement points

Start Time: 30.04.2008

End Time: 2008 13:14:17

Number of Measurement Points: 120

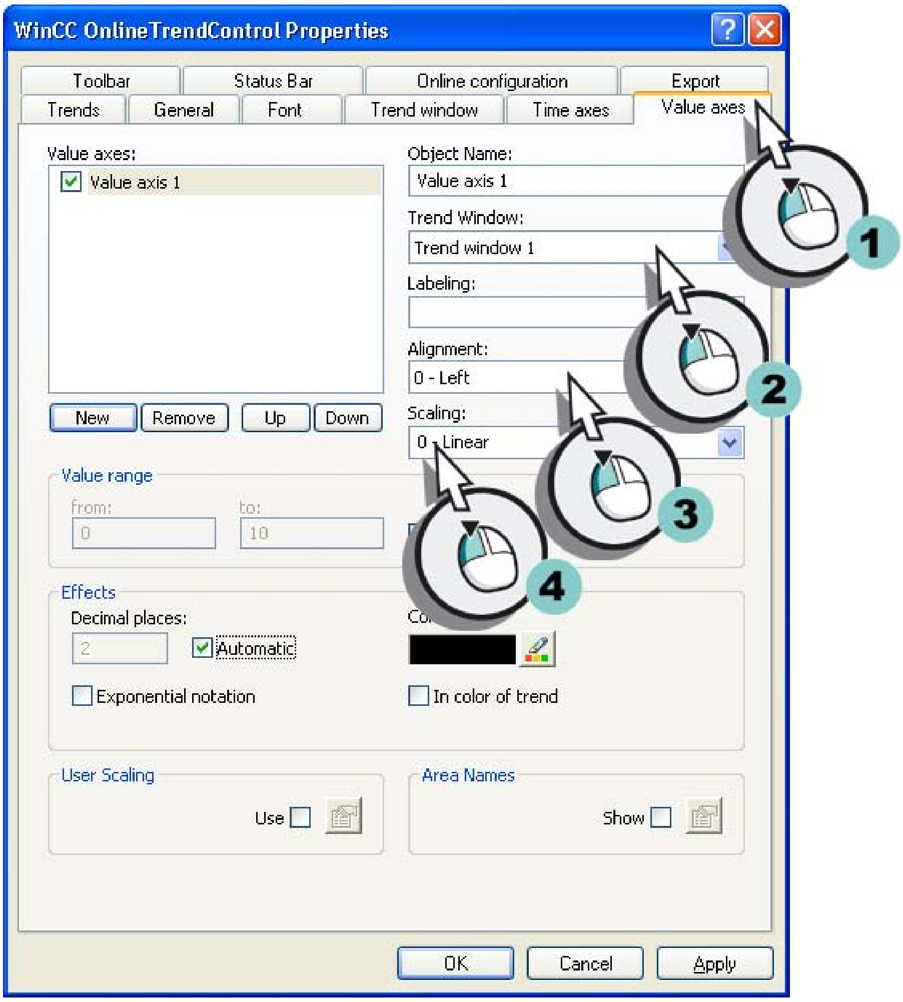
1 X 1 minute

Effects

Color:

□ In color of trend

5. Make the settings for the value axes:



Value axes:
☑ Value axis 1

Object Name: Value axis 1

Trend Window: Trend window 1

Labeling:

Alignment: 0 - Left

Scaling: 0 - Linear

Value range

from: 0

to: 10

Effects

Decimal places: 2 ☑ Automatic

□ Exponential notation

□ In color of trend

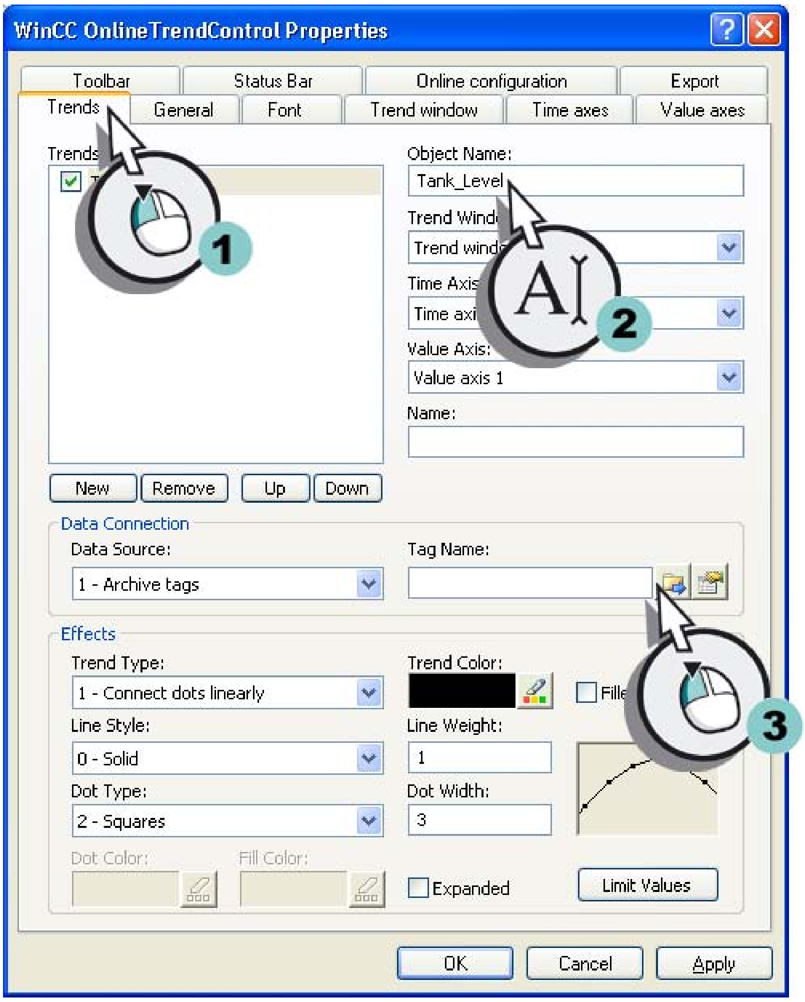
User Scaling

Use □

Area Names

Show □

6. Enter "Tank_Level" as a name for the trend and click on the button :


WinCC OnlineTrendControl Properties

Object Name: Tank_Level

Trend Window: Trend window

Time Axis: Time axis

Value Axis: Value axis 1

Name:

Data Connection

Data Source: 1 - Archive tags

Tag Name:

Effects

Trend Type: 1 - Connect dots linearly

Line Style: 0 - Solid

Dot Type: 2 - Squares

Line Weight: 1

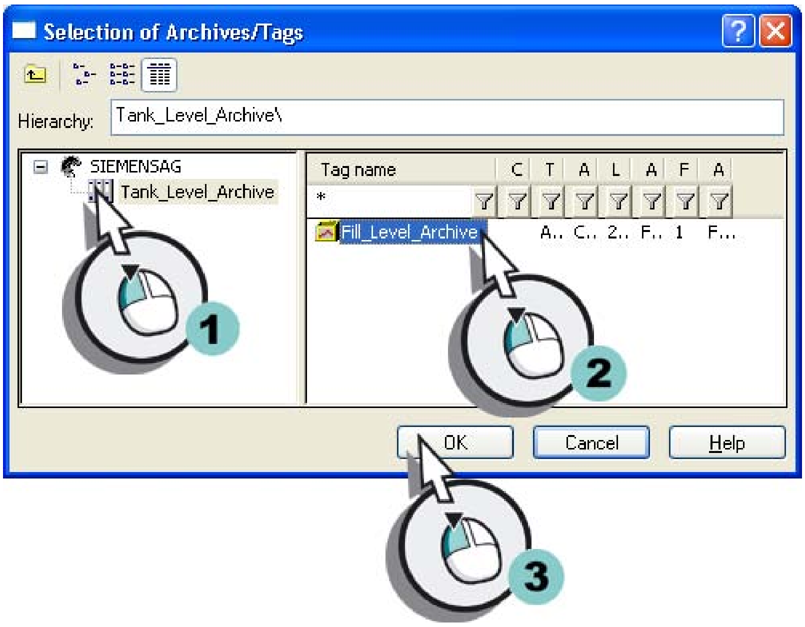
Dot Width: 3

☐ Filled

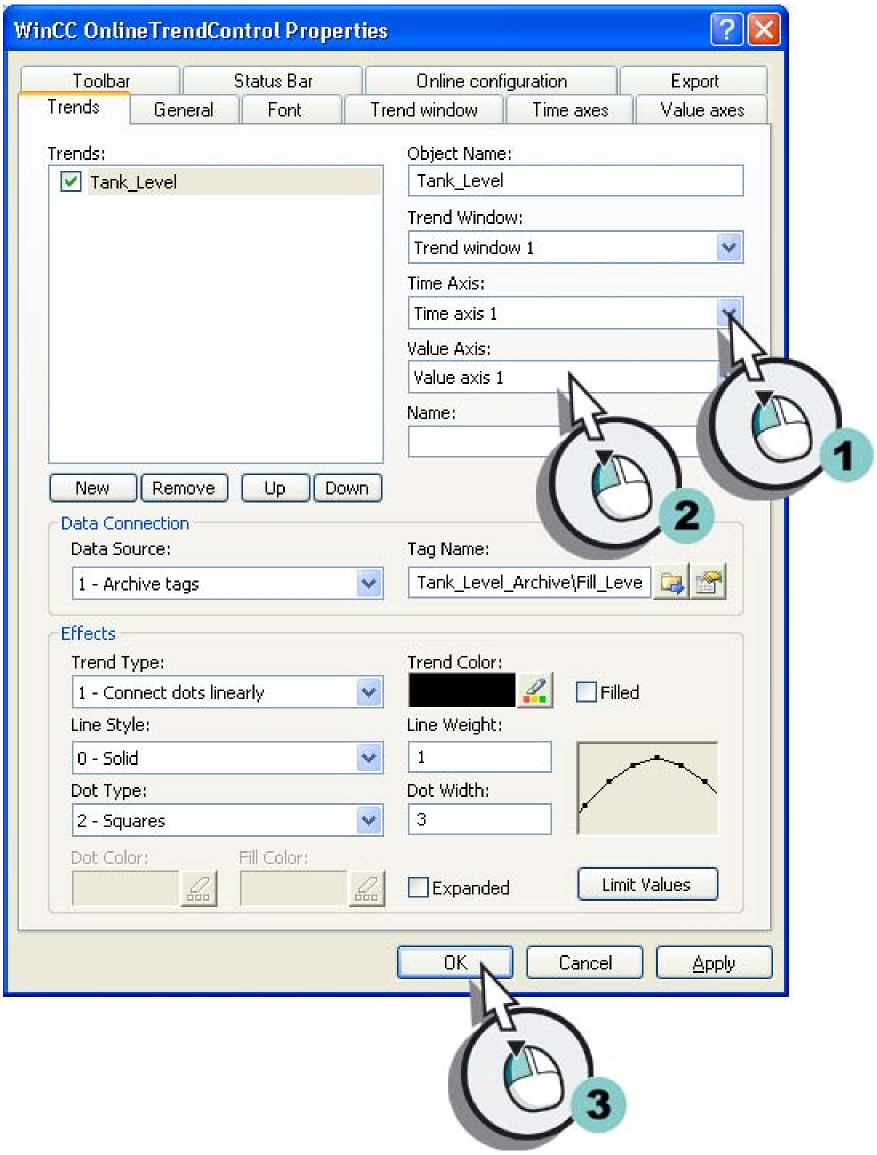
☐ Expanded

The "Selection of Archives/Tags" dialog will open.

7. Choose the archive tag "Fill_Level_Archive" in the dialog "Selection of Archives/Tags".



8. Select a time and a value axis.



WinCC OnlineTrendControl Properties

Tabs: Toolbar, Status Bar, Online configuration, Export, Trends, General, Font, Trend window, Time axes, Value axes

Trends:
- ☑ Tank_Level

Object Name: Tank_Level

Trend Window: Trend window 1

Time Axis: Time axis 1

Value Axis: Value axis 1

Name:

Data Connection

Data Source: 1 - Archive tags

Tag Name: Tank_Level_Archive\Fill_Leve

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:

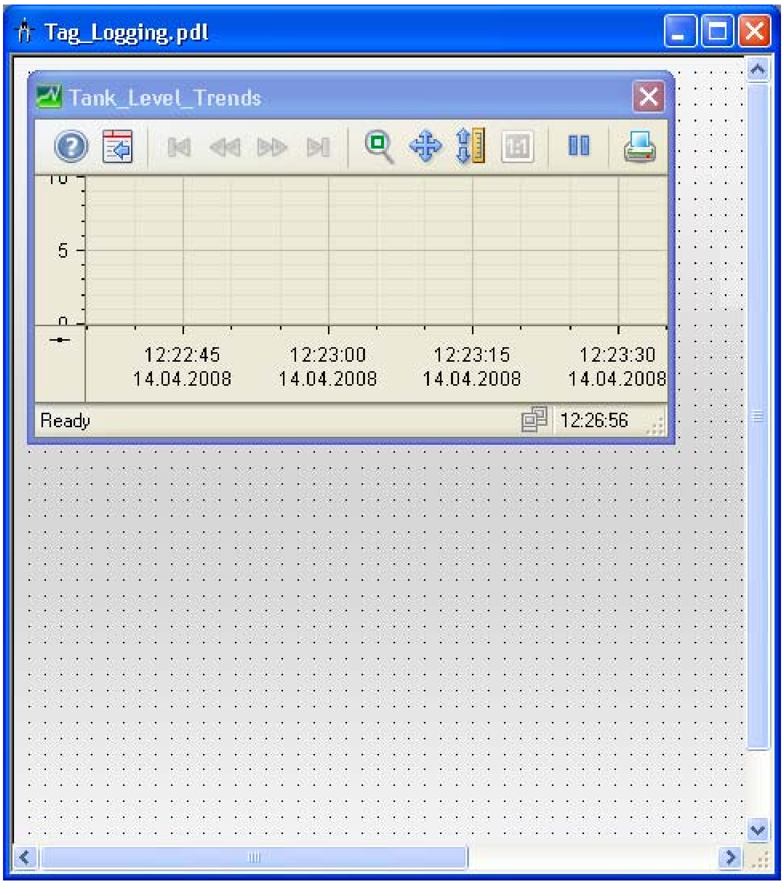
☐ Expanded

9. Save the process screen "TagLogging.pdl".

Result

You have configured the trend window "Tank_Level_Trends". In Runtime, this window outputs the values as a trend which are saved in the archive tag "Fill_Level_Archive".

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 screen "Tag_Logging.pdl". Insert the object "WinCC OnlineTableControl" into the process screen. 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.

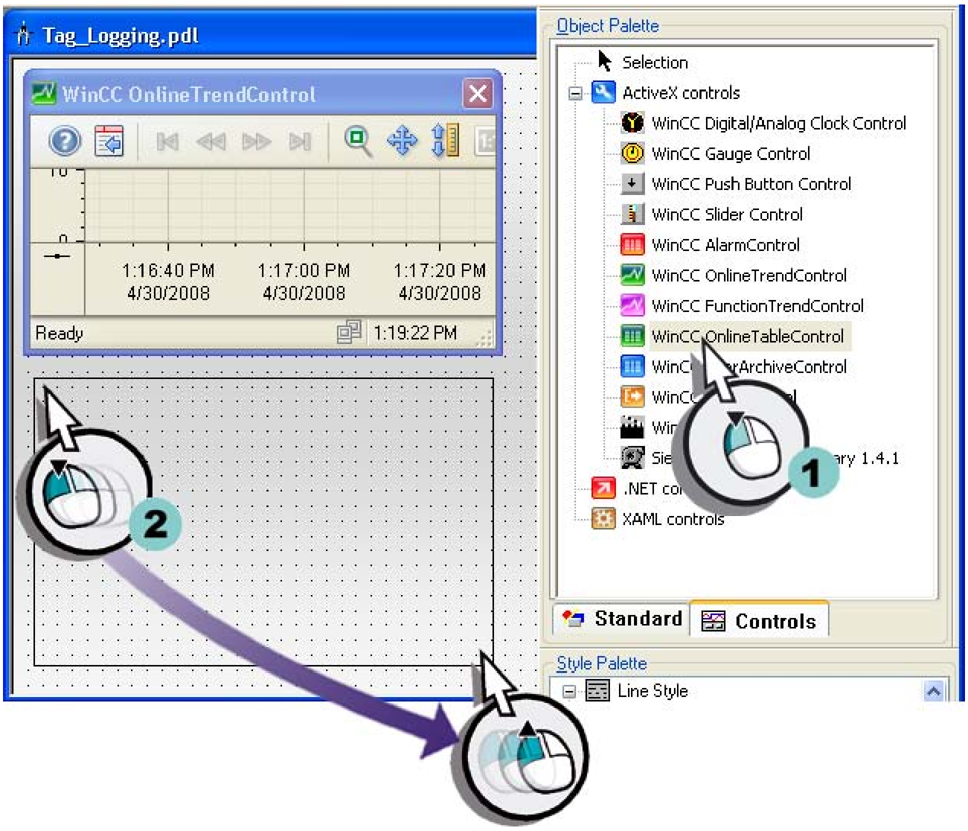
Requirement

You have created the process value archive "Tank_Level_Archive".

The process screen "Tag_Logging.pdl" is open.

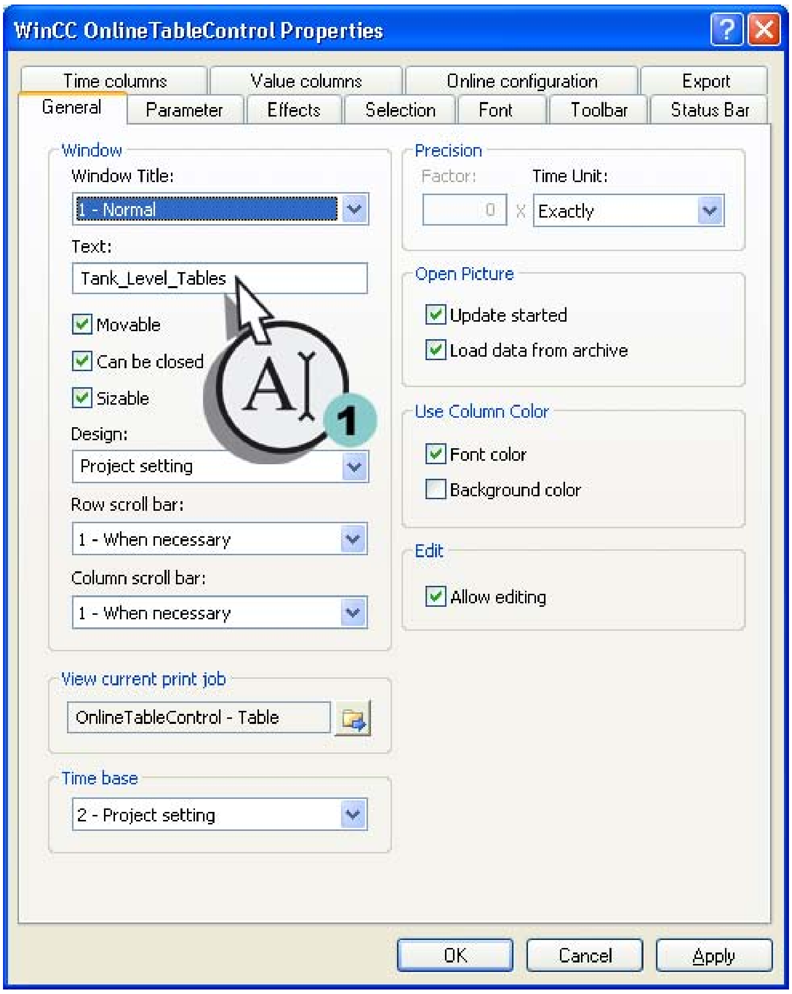
Procedure

1. Insert the object "Control" into the process screen "Tag_Logging.pdl":



The table window will appear on the work surface in the editor "Graphics Designer". The "Properties of WinCC OnlineTableControl" dialog opens.

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



WinCC OnlineTableControl Properties

Window
Window Title: 1 - Normal
Text: Tank_Level_Tables
☑ Movable
☑ Can be closed
☑ Sizable
Design: 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

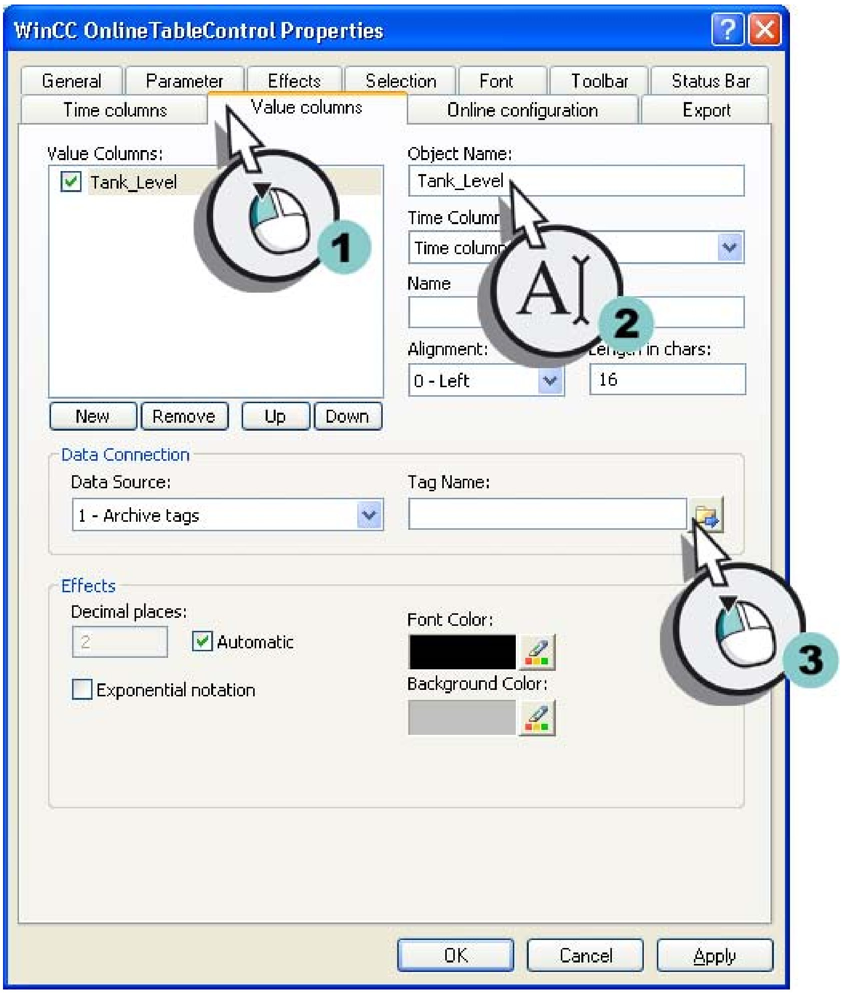
Precision
Factor: 0 x Time Unit: Exactly

Open Picture
☑ Update started
☑ Load data from archive

Use Column Color
☑ Font color
☐ Background color

Edit
☑ Allow editing

3. Enter "Tank_Level" as a name for the value column and click on the button 📂:



WinCC OnlineTableControl Properties

Value Columns: ☑ Tank_Level

Object Name: Tank_Level

Time Column: Time column

Alignment: 0 - Left

Length in chars: 16

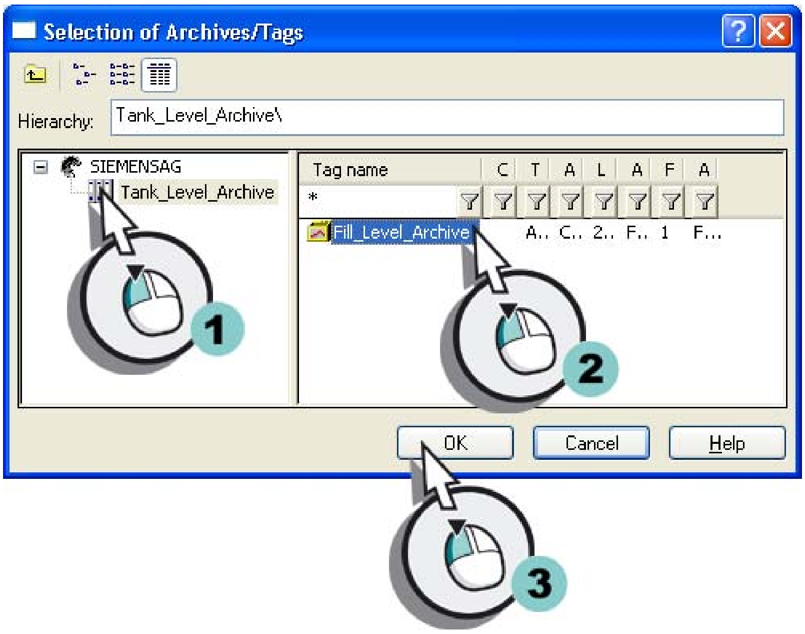
Data Source: 1 - Archive tags

Decimal places: 2 ☑ Automatic

□ Exponential notation

The "Selection of Archives/Tags" dialog will open.

4. Choose the archive tag "Fill_Level_Archive" in the dialog "Selection of Archives/Tags".

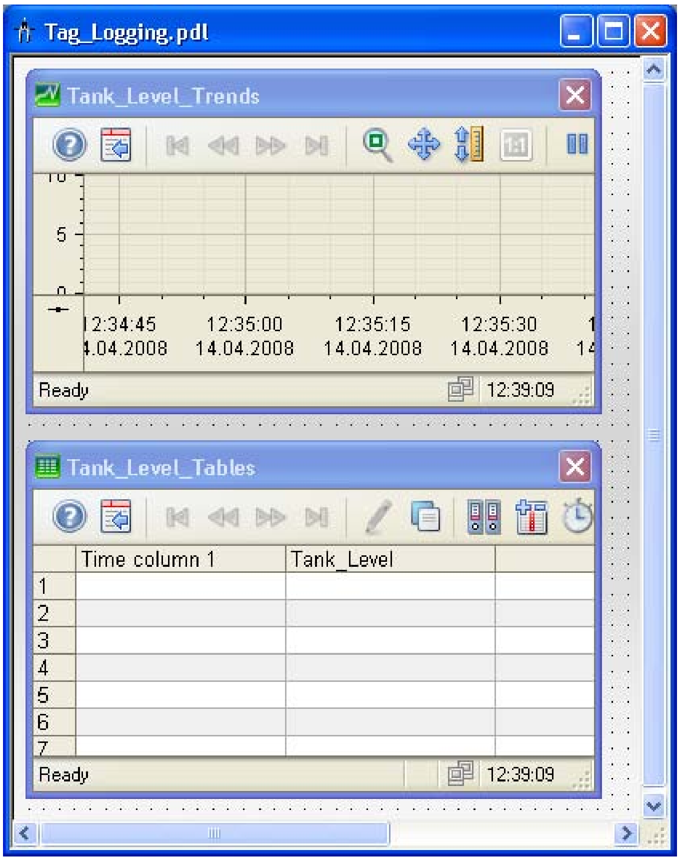


5. Click "OK" to close the "Properties of WinCC OnlineTableControl" dialog.
6. Save the process screen "Tag_Logging.pdl".
7. Close the Graphics Designer.

Result

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

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			

7.8 Modifying a customized menu for screen changes

Introduction

The following steps will show you how to expand the custom menu "Picture change" with menu entry "Tag Logging". You will link the menu entry "Tag Logging" with the procedure "ActivatePicture(ByVal PictureName)". Enter the name of the process screen that you wish to change to in the field "User data".

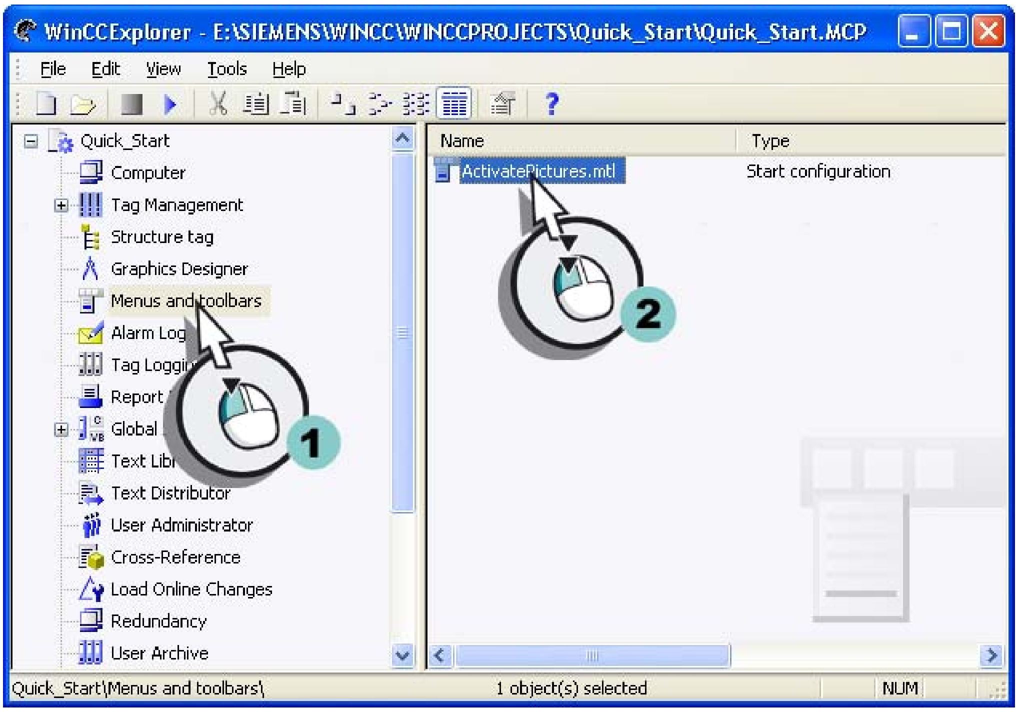
Requirement

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

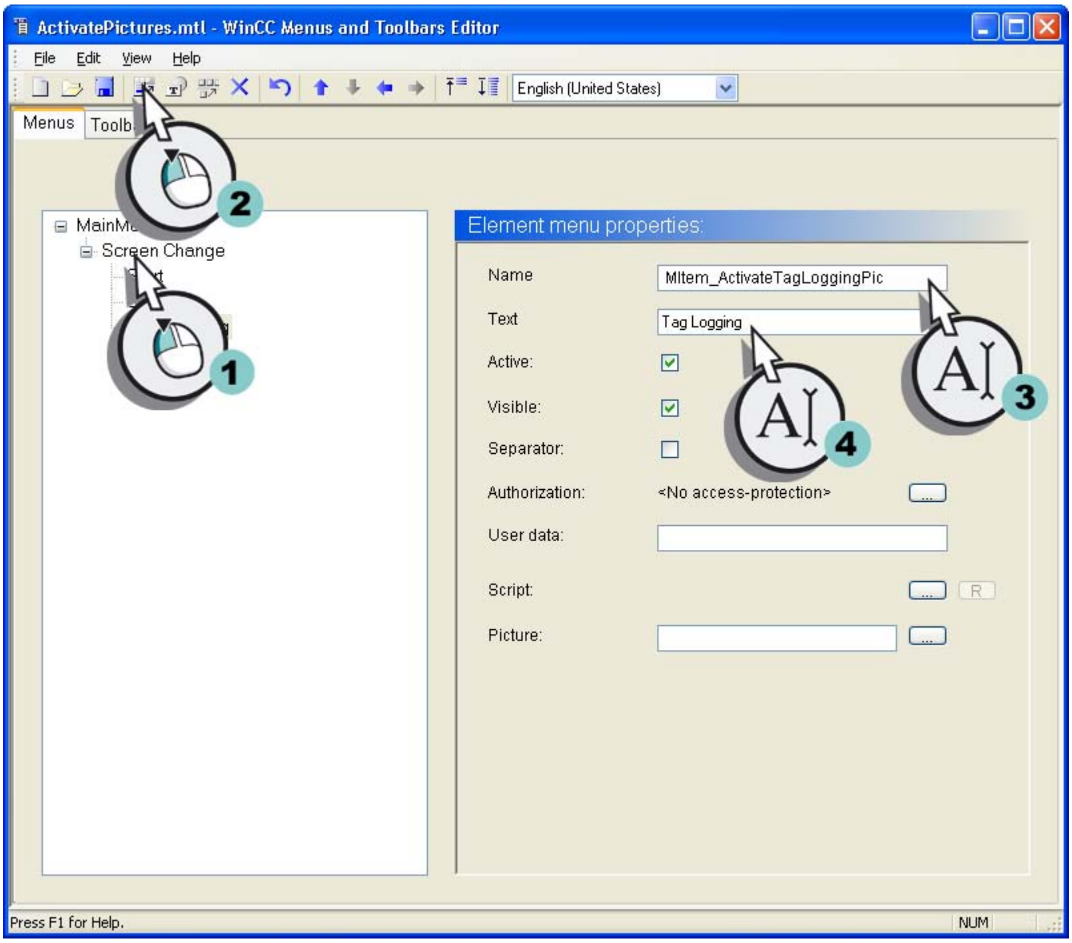
The custom menu "Picture change" is created for process pictures "START.pdl" and "SAMPLE.pdl".

Procedure

1. Open the "Menus and toolbars" editor:



2. Create the menu entry "Tag Logging":



Name: MItem_ActivateTagLoggingPic

Text: Tag Logging

Active: ☑

Visible: ☑

Separator: □

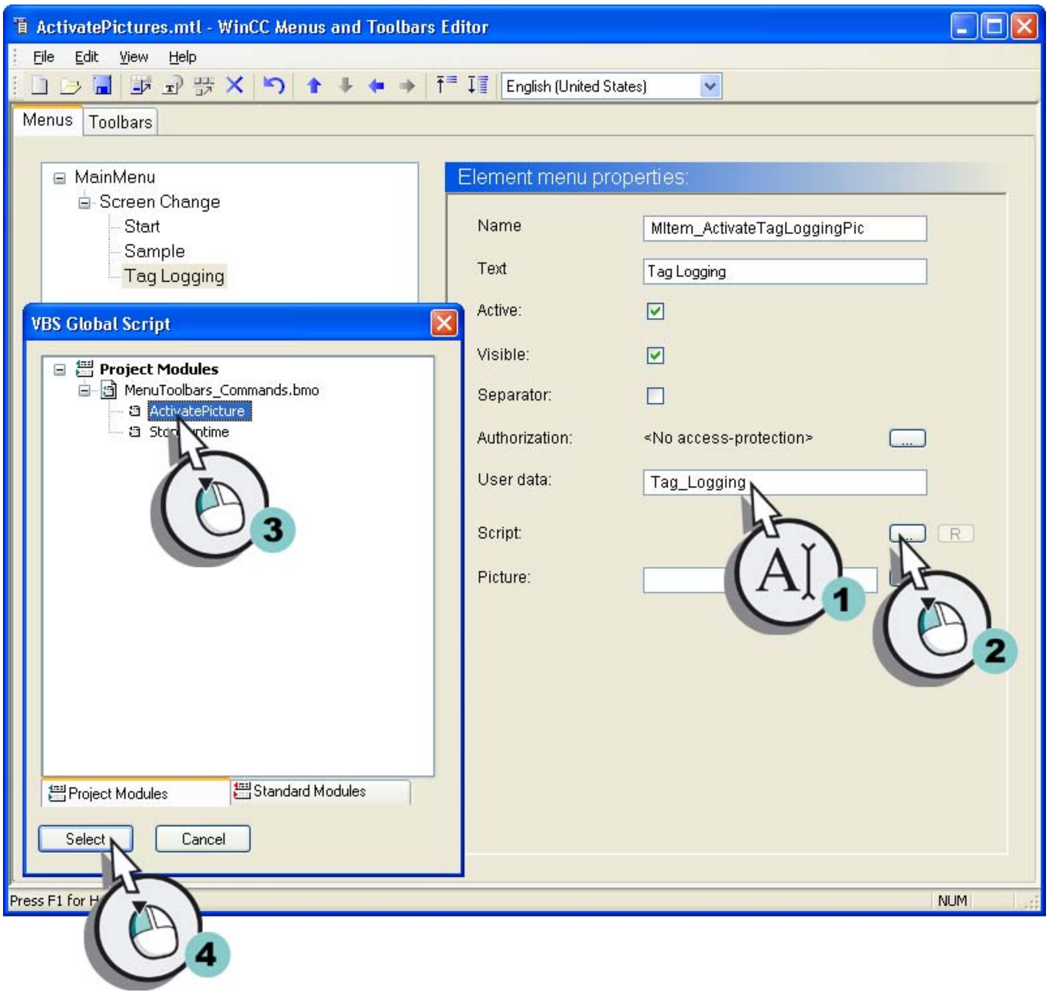
Authorization: <No access-protection>

User data:

Script:

Picture:

3. Configure the menu entry "Tag Logging" so that a screen change to the screen "Tag_Logging.pdl" is executed:



ActivatePictures.mtl - WinCC Menus and Toolbars Editor

Element menu properties:

Name: MItem_ActivateTagLoggingPic

Text: Tag Logging

Active: ☑

Visible: ☑

Separator: □

Authorization: <No access-protection>

User data: Tag_Logging

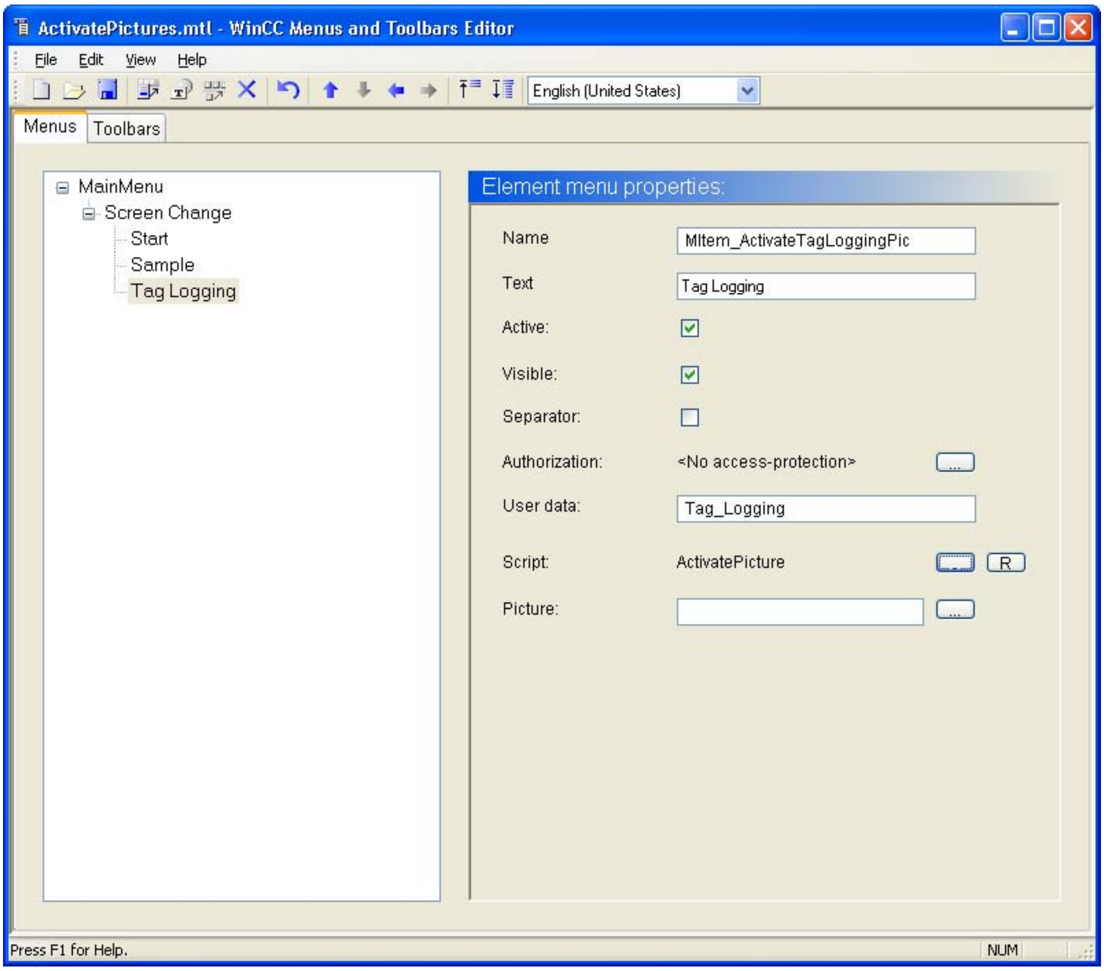
Script:

Picture:

4. Save the changes that you have made in the "Menus and Toolbars" editor.
5. Close the "Menus and toolbars" editor.

Result

You have expanded the "Picture change" menu with the "Tag Logging" menu entry. With the menu entries you can switch to the process screens "START.pdl", "SAMPLE.pdl" and "Tag_Logging.pdl" in runtime.



Name: MItem_ActivateTagLoggingPic

Text: Tag Logging

Active: ☑

Visible: ☑

Separator: ☐

Authorization: <No access-protection>

User data: Tag_Logging

Script: ActivatePicture

Picture:

7.9 Defining the Runtime Properties

Introduction

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

In this chapter we will set up WinCC Runtime so that Tag Logging Runtime is executed when the project is activated. Choose the process screen "Tag_Logging.pdl" as a start screen for the Runtime window.

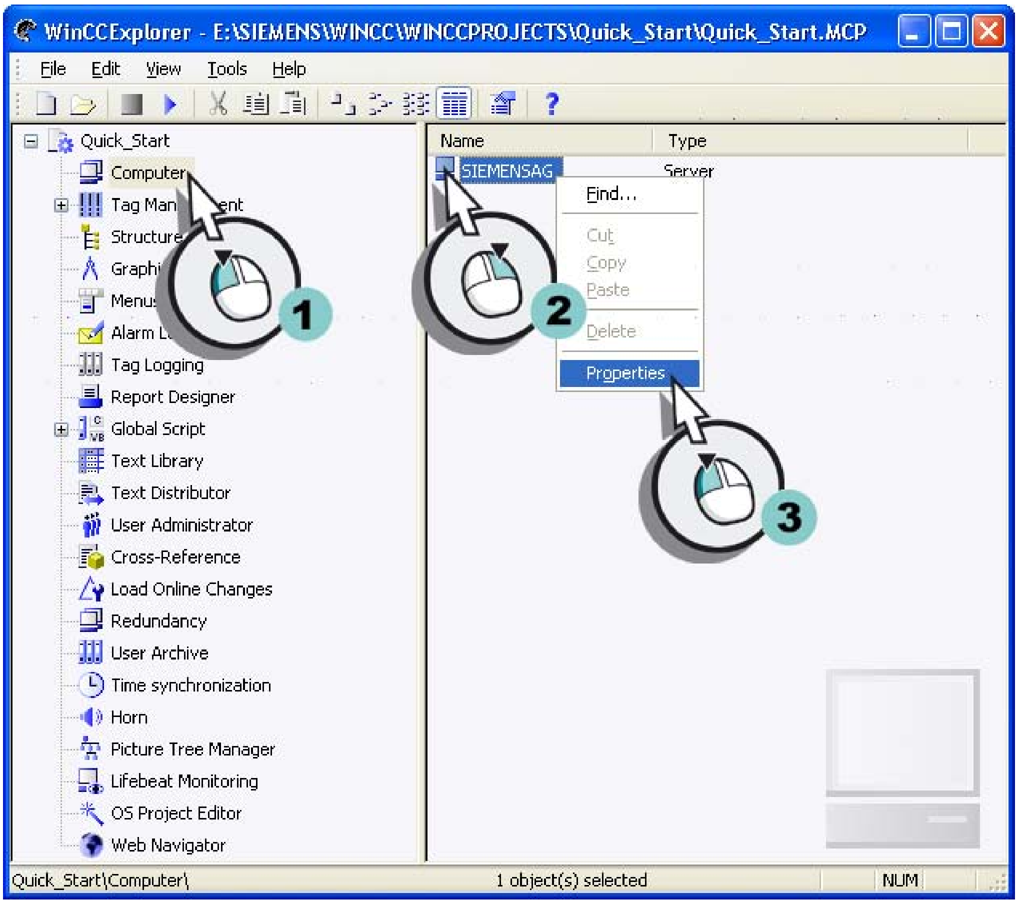
Requirement

The "Quick_Start" project is open.

The process screen "Tag_Logging.pdl" has been created.

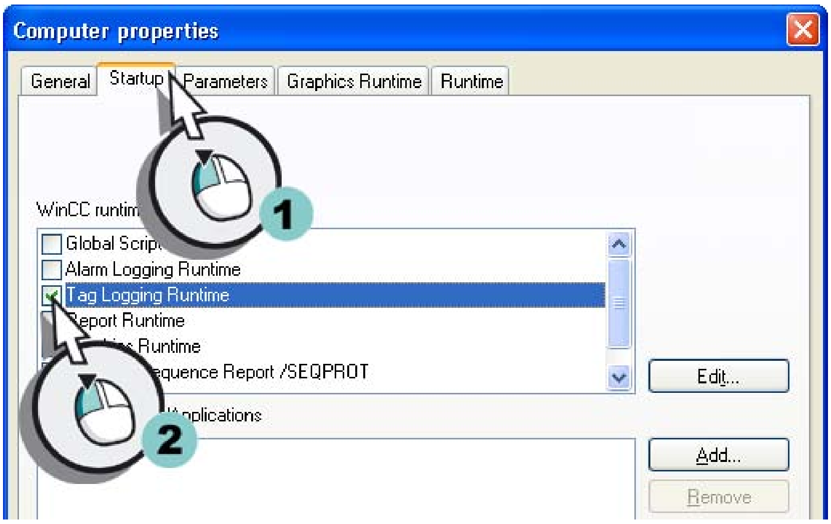
Procedure

1. Open the "Computer properties" dialog:



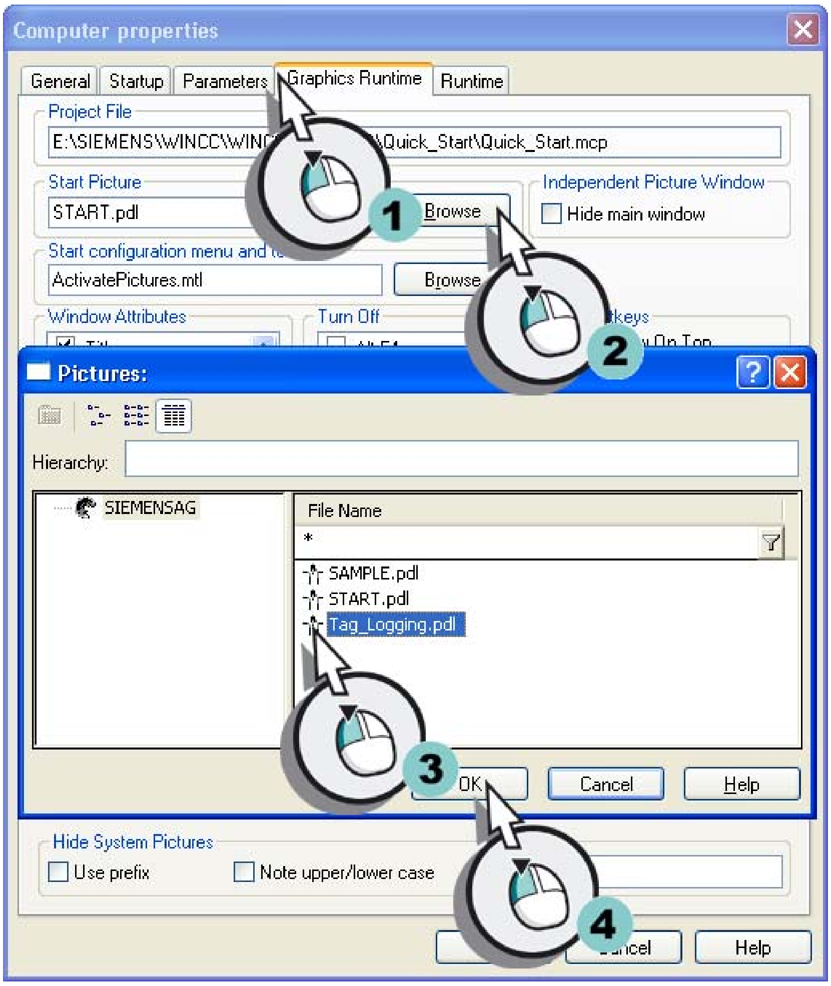
The "Computer Properties" dialog is opened.

2. Click the "Startup" tab and activate the application "Tag Logging Runtime" in the corresponding checkbox:



□ Global Scrip
□ Alarm Logging Runtime
☑ Tag Logging Runtime
Report Runtime
Runtime
equence Report /SEQPROT

3. Define the process screen "Tag_Logging.pdl" as a start screen:



Project File: E:\SIEMENS\WINCC\WIN...\Quick_Start\Quick_Start.mcp

Start Picture: START.pdl [Browse]

Independent Picture Window: □ Hide main window

Start configuration menu and t...: ActivatePictures.mtl [Browse]

Window Attributes

Turn Off

Hierarchy:

SIEMENSAG

File Name: *

- SAMPLE.pdl
- START.pdl
- Tag_Logging.pdl

[OK] [Cancel] [Help]

Hide System Pictures: □ Use prefix □ Note upper/lower case

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 screen "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

Introduction

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

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

The WinCC Tag Simulator assigns values to the internal tag "Tank_Level" in Runtime. These values are acquired every 2 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

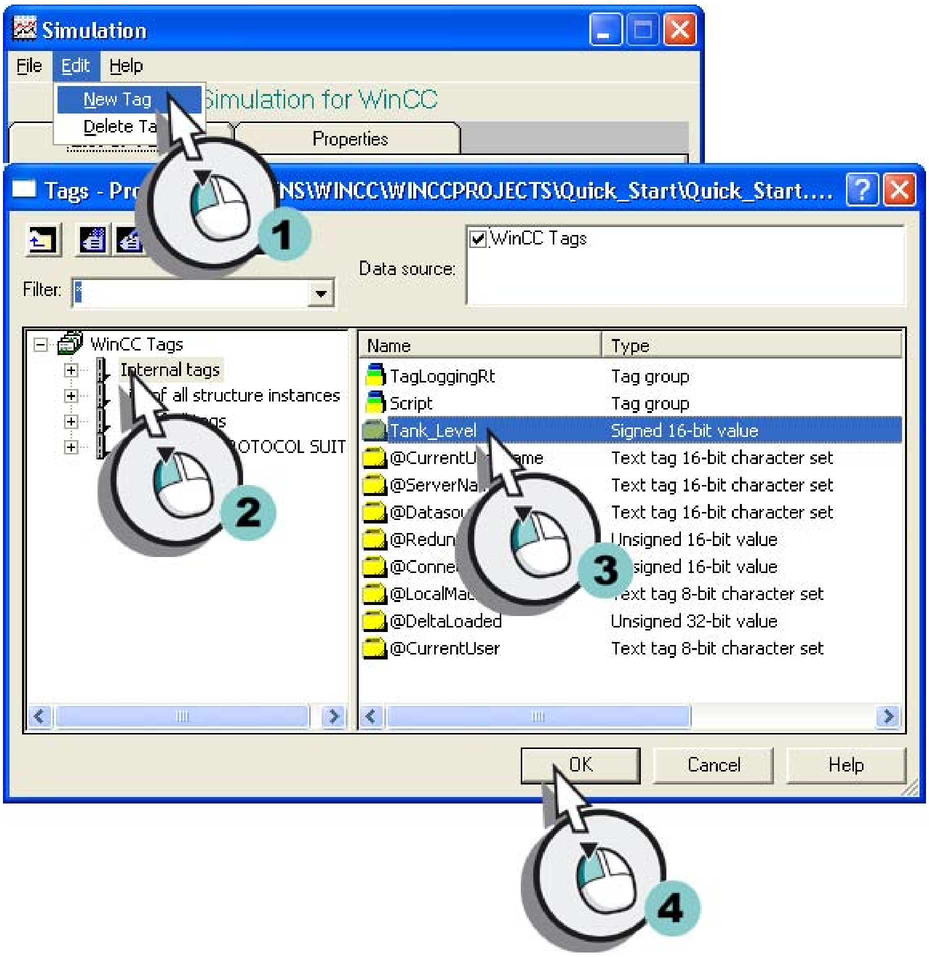
The WinCC TAG Simulator is installed.

The "Quick_Start" project is open.

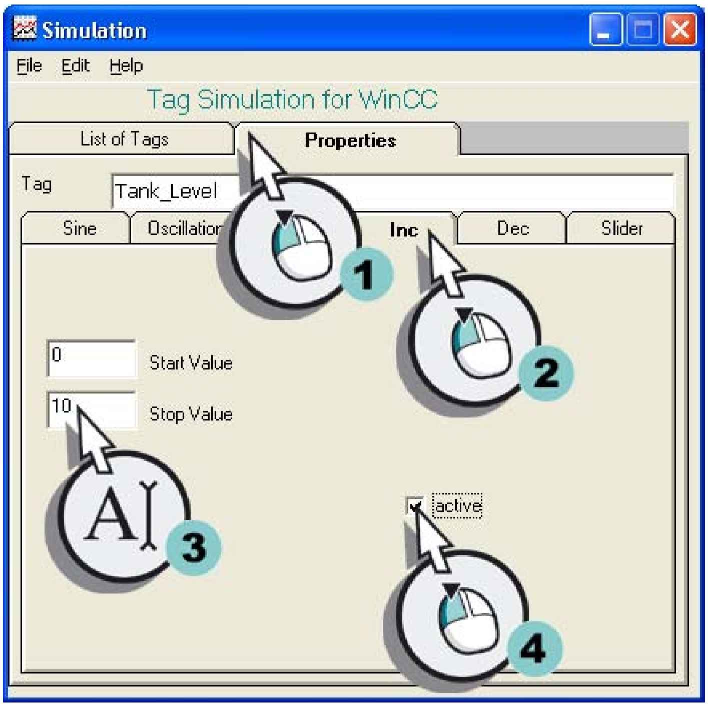
The Runtime Properties are defined.

Procedure

1. Activate the "Quick_Start" project via the button ▶ in the toolbar of the WinCC Explorer.
2. Start the WinCC Tag Simulator.
3. Open the "Tags - project" dialog and select the internal tag "Tank_Level":



4. Define the properties of the simulation type:



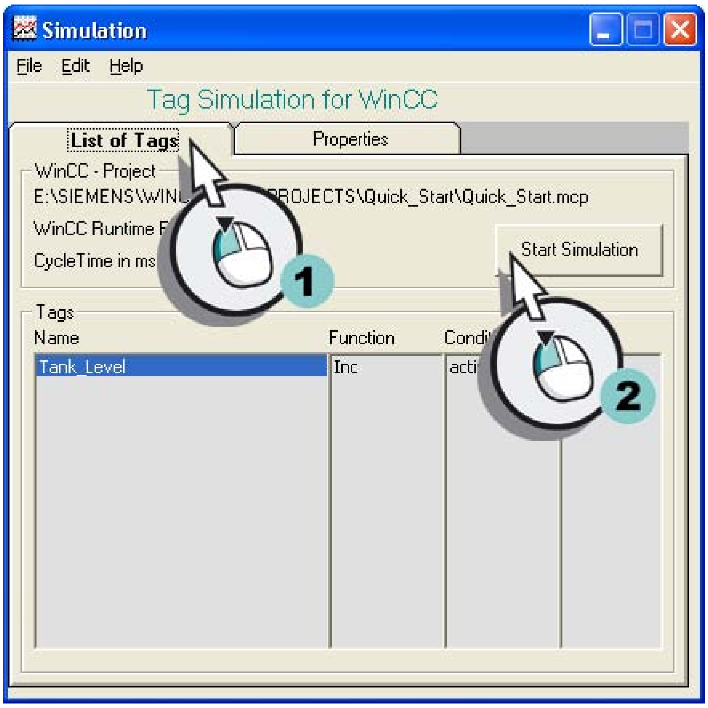
Tag: Tank_Level

0 Start Value

10 Stop Value

☑ active

5. Start the WinCC Tag Simulator:



WinCC - Project
E:\SIEMENS\WIN...PROJECTS\Quick_Start\Quick_Start.mcp
WinCC Runtime F...
CycleTime in ms...

Tags

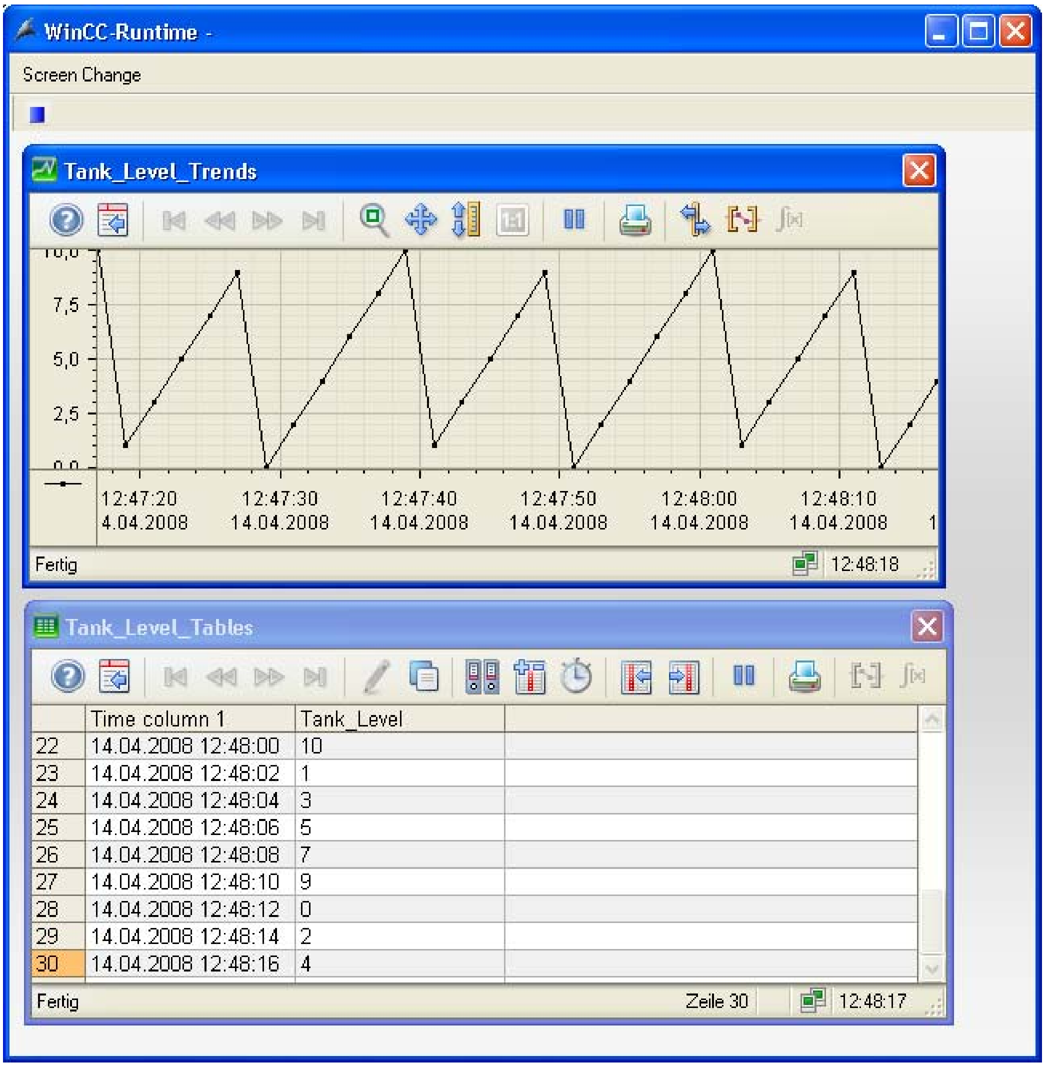
Name	Function	Condi...
Tank_Level	Inc	acti...

6. Observe the output of the simulation values in the process screen "Tag_Logging.pdl".

7. Close the "WinCC Tag Simulator" after ending the simulation.
8. Deactivate the "Quick_Start" project via the button ■ in the toolbar of the WinCC Explorer.

Result

You have activated the "Quick_Start" project and simulated the values of the internal tags "Tank_Level". The value sequence is displayed in the configured trend and table windows.



	Time column 1	Tank_Level
22	14.04.2008 12:48:00	10
23	14.04.2008 12:48:02	1
24	14.04.2008 12:48:04	3
25	14.04.2008 12:48:06	5
26	14.04.2008 12:48:08	7
27	14.04.2008 12:48:10	9
28	14.04.2008 12:48:12	0
29	14.04.2008 12:48:14	2
30	14.04.2008 12:48:16	4

Outputting values from the process archive 8

8.1 The message report system

Introduction

The message report system is a partial system 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 are output as reports. A report can contain the following Runtime data:

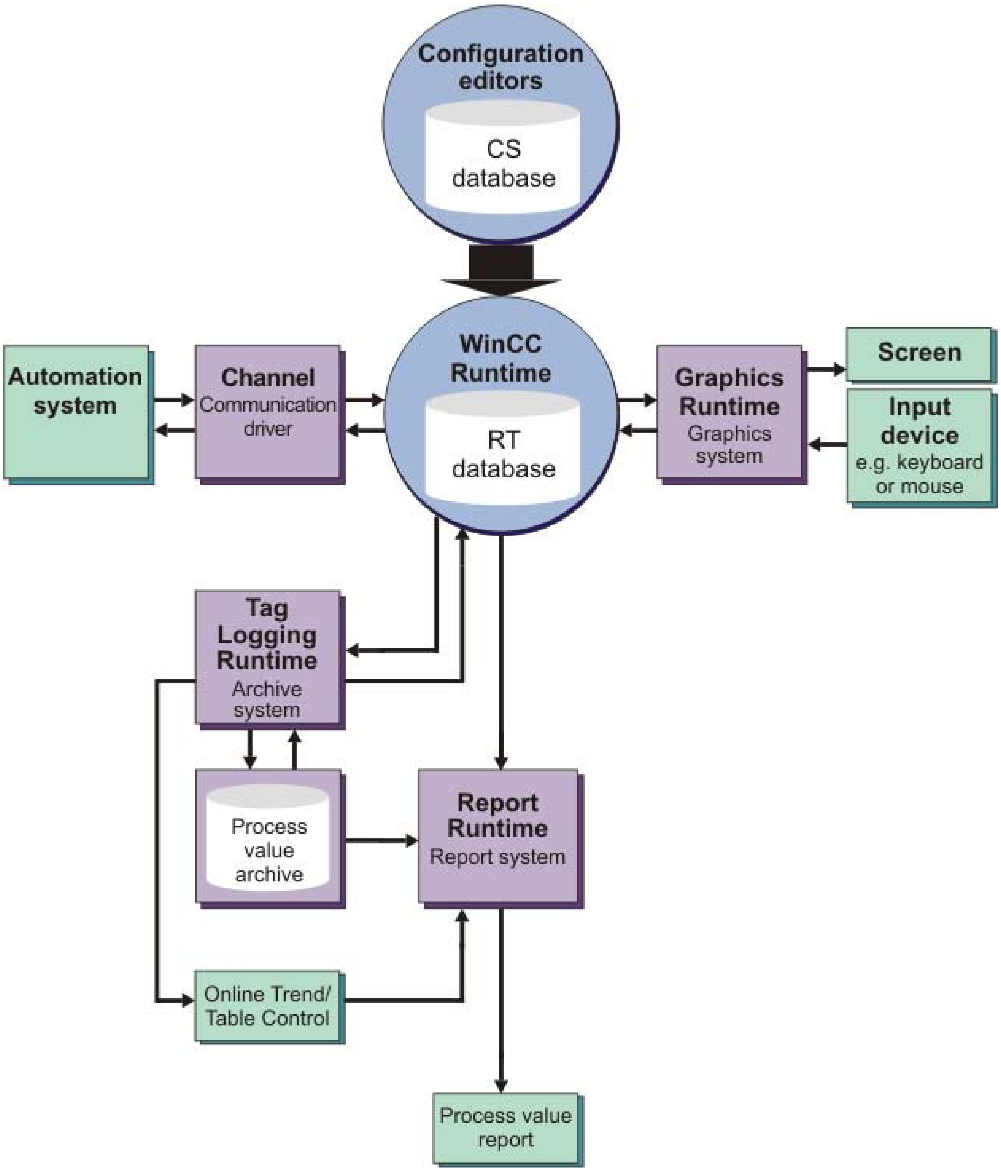
- All occurred messages in chronological order - message sequence report
- Messages from a particular message archive - archive report
- Current messages from the message list - message report
- Messages from a particular process value and compressed archive
- Data from other applications not originating 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 is made up of a configuration and a Runtime 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 predefined standard layouts and print jobs that can be edited. In the editor "Report Designer" you can create new layouts and print jobs.
  The editor "Report Designer" provides two additional tools to create and edit the layouts. These are the page layout editor and the line layout editor.

- Report Runtime is the runtime component of the Report System. Report Runtime is primarily used to execute the following tasks:
  - Reading the values to be documented from archives or controls
  - Controlling printouts



Output Media

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

- A printer
- A file
- The screen

8.2 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.

General procedure

The logging system documents configuration and Runtime data.

Configuration data can be system screens 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.

8.3 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.

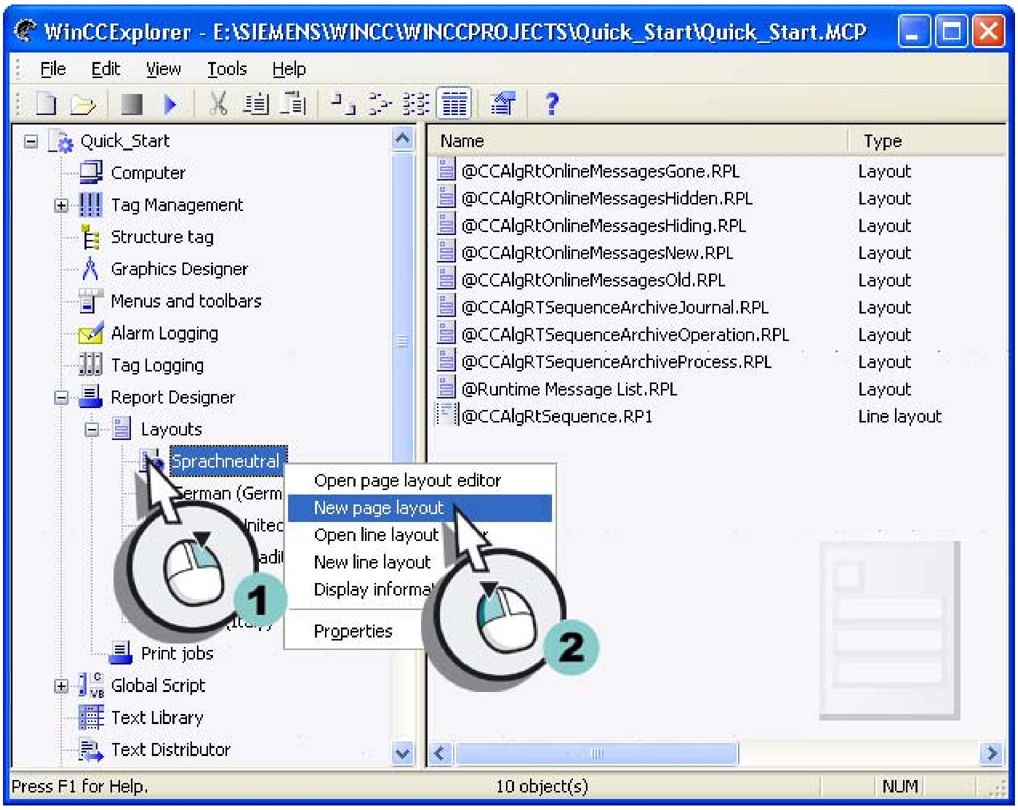
You will create a new page layout with the editor "Report Designer" for the "Quick_Start" project. You will use this page layout as a template for the message report, in which the values from the process value archive are documented.

Requirement

The "Quick_Start" project is open.

Procedure

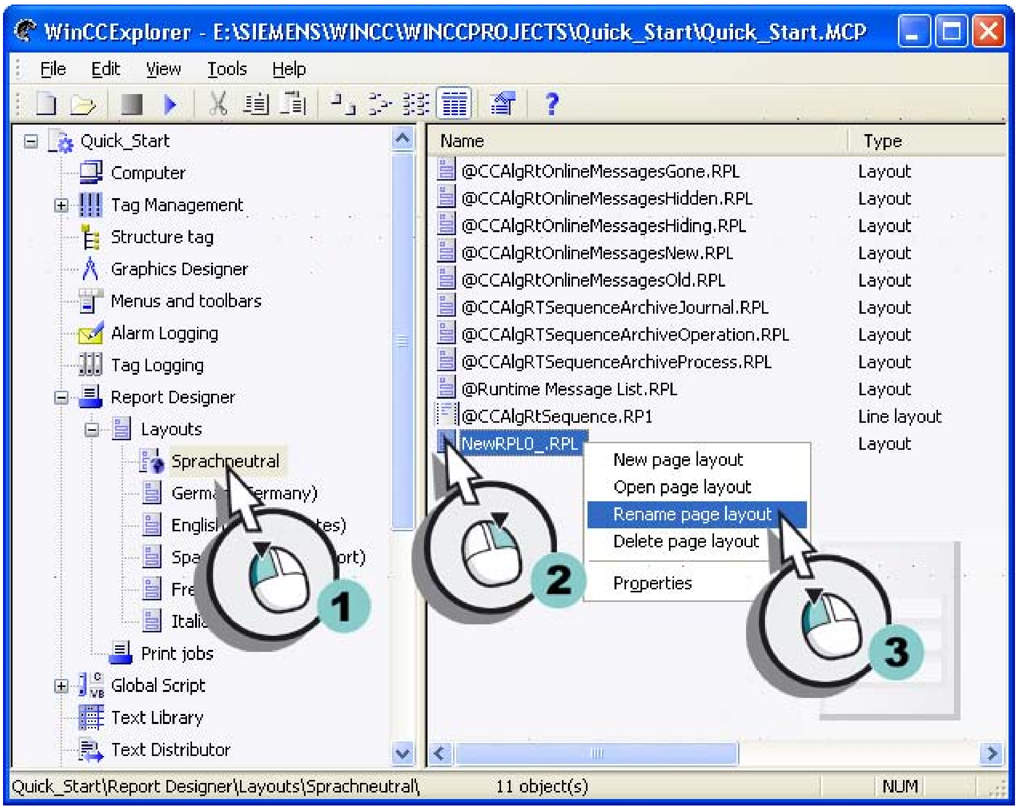
1. Create a new language-neutral page layout in the WinCC Explorer:



Name	Type
@CCAlgRtOnlineMessagesGone.RPL	Layout
@CCAlgRtOnlineMessagesHidden.RPL	Layout
@CCAlgRtOnlineMessagesHiding.RPL	Layout
@CCAlgRtOnlineMessagesNew.RPL	Layout
@CCAlgRtOnlineMessagesOld.RPL	Layout
@CCAlgRTSequenceArchiveJournal.RPL	Layout
@CCAlgRTSequenceArchiveOperation.RPL	Layout
@CCAlgRTSequenceArchiveProcess.RPL	Layout
@Runtime Message List.RPL	Layout
@CCAlgRtSequence.RP1	Line layout

The new layout file "NewRPL0.RPL" is stored and shown in the "Language neutral" directory.

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

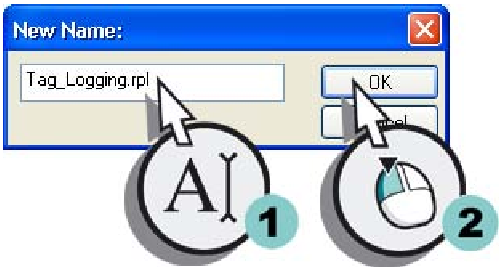


WinCCExplorer - E:\SIEMENS\WINCC\WINCCPROJECTS\Quick_Start\Quick_Start.MCP

Name	Type
@CCAlgRtOnlineMessagesGone.RPL	Layout
@CCAlgRtOnlineMessagesHidden.RPL	Layout
@CCAlgRtOnlineMessagesHiding.RPL	Layout
@CCAlgRtOnlineMessagesNew.RPL	Layout
@CCAlgRtOnlineMessagesOld.RPL	Layout
@CCAlgRTSequenceArchiveJournal.RPL	Layout
@CCAlgRTSequenceArchiveOperation.RPL	Layout
@CCAlgRTSequenceArchiveProcess.RPL	Layout
@Runtime Message List.RPL	Layout
@CCAlgRtSequence.RP1	Line layout
NewRPL0_.RPL	Layout

Quick_Start\Report Designer\Layouts\Sprachneutral\ 11 object(s) NUM

3. As the name of the layout file "Tag_Logging.rpl", enter:



New Name:

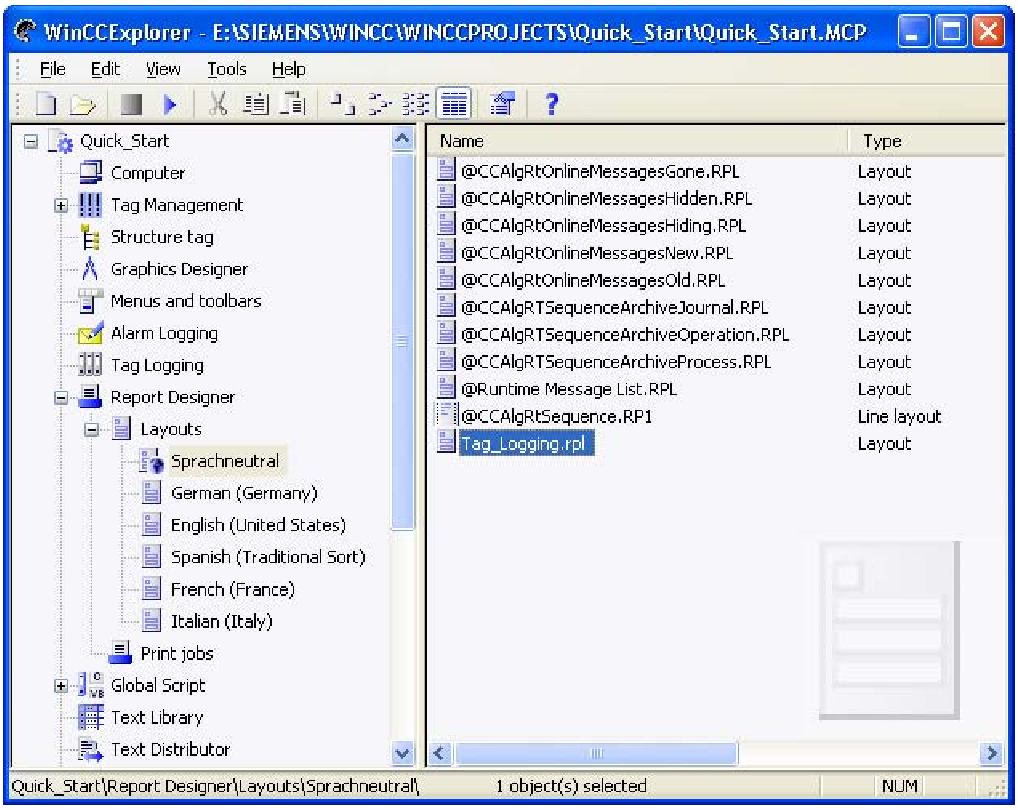
Tag_Logging.rpl

The name of the page layout will be changed.

Result

You have a 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 message report, in which the values from the process value archive are documented.

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



Name	Type
@CCAlgRtOnlineMessagesGone.RPL	Layout
@CCAlgRtOnlineMessagesHidden.RPL	Layout
@CCAlgRtOnlineMessagesHiding.RPL	Layout
@CCAlgRtOnlineMessagesNew.RPL	Layout
@CCAlgRtOnlineMessagesOld.RPL	Layout
@CCAlgRTSequenceArchiveJournal.RPL	Layout
@CCAlgRTSequenceArchiveOperation.RPL	Layout
@CCAlgRTSequenceArchiveProcess.RPL	Layout
@Runtime Message List.RPL	Layout
@CCAlgRtSequence.RP1	Line layout
Tag_Logging.rpl	Layout

Quick_Start\Report Designer\Layouts\Sprachneutral\ 1 object(s) selected NUM

8.4 Editing the Page Layout

8.4.1 Editing the Page Layout

Introduction

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

The editing of the page layout consists of 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

General procedure

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.

Each page layout consists of three pages:

- Cover sheet
- Contents of Report
- Final page

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 chapter you will change that predefined setting, so that the page "Cover Sheet" will not be output.

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.

The final page is a last page of a log or a report. The output of the final page is not preset in the editor "Report Designer". The output of the final page is not intended in the "Quick_Start" project.

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 to output the company name, the company logo, the time and the number of pages. The dynamic level contains the dynamic objects for outputting the configuration and Runtime data.

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

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 are the basis of their projects.

You will use the page layout editor to edit the "Tag_Logging" page layout in this chapter.

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
- Print margins
- Output of the page "Cover Sheet"

The paper size shows the total area of the layout. The paper size determines the output format of the log.

The print margins define the non-printable marginal area. This area is by default greyed in the page layout editor and cannot be edited.

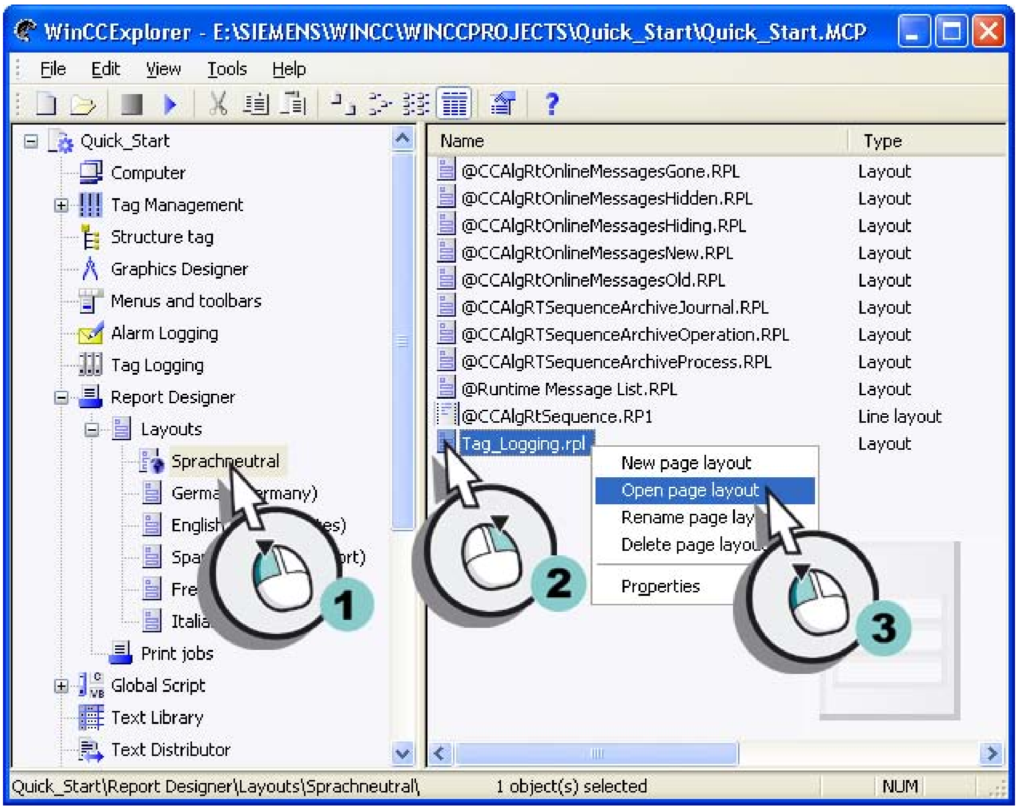
You will define in the "Object properties" dialog of the page layout whether the log will be output with a first (cover) page. In this chapter you will deactivate the output of a Cover Sheet.

Requirement

The layout file "Tag_Logging.rpl" is created.

Procedure

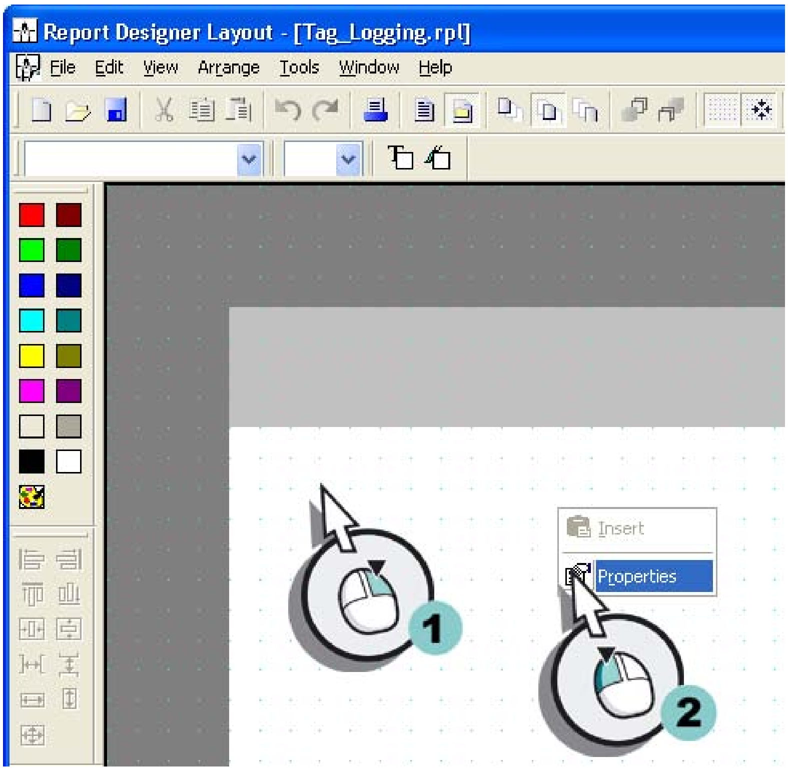
1. Open the "Tag_Logging.rpl" layout file in the page layout editor:



Name	Type
@CCAlgRtOnlineMessagesGone.RPL	Layout
@CCAlgRtOnlineMessagesHidden.RPL	Layout
@CCAlgRtOnlineMessagesHiding.RPL	Layout
@CCAlgRtOnlineMessagesNew.RPL	Layout
@CCAlgRtOnlineMessagesOld.RPL	Layout
@CCAlgRTSequenceArchiveJournal.RPL	Layout
@CCAlgRTSequenceArchiveOperation.RPL	Layout
@CCAlgRTSequenceArchiveProcess.RPL	Layout
@Runtime Message List.RPL	Layout
@CCAlgRtSequence.RP1	Line layout
Tag_Logging.rpl	Layout

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

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

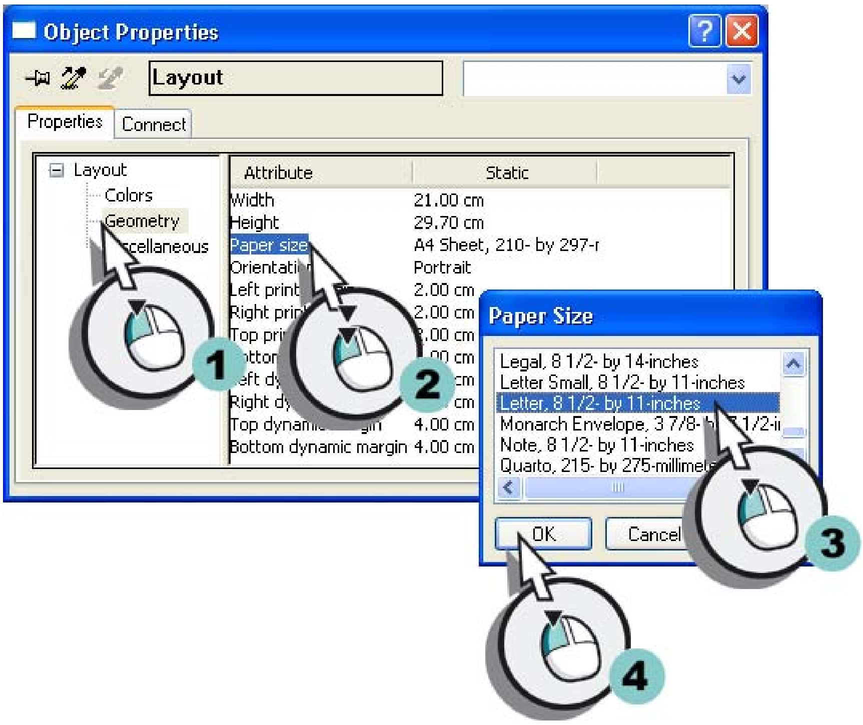

Report Designer Layout - [Tag_Logging.rpl]
File Edit View Arrange Tools Window Help
Insert
Properties
1
2

   The "Object Properties" dialog is opened.

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

Note

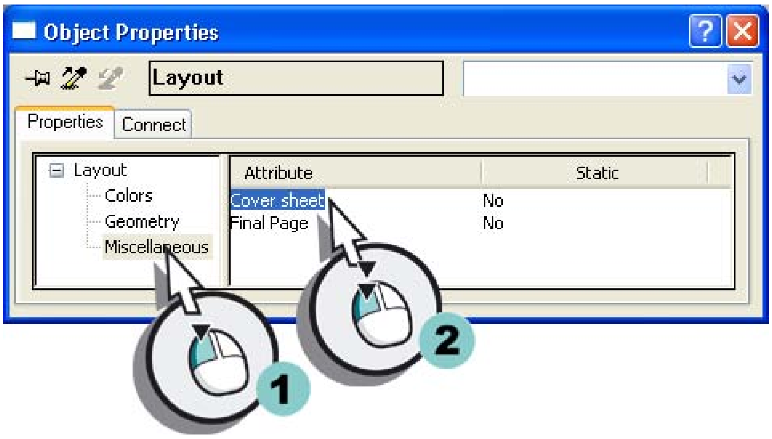
The units can be changed from "cm" to "inch" using the Report Designer settings. Open the "Settings" dialog via the "Tools ->Settings" menu. Select the unit "inch" on the "Units" tab in the area "Coordinates". Convert the indicated values from "cm" to "inch". The following rules apply: 1cm = 0,3937 Inch.



Attribute	Static
Width	21.00 cm
Height	29.70 cm
Paper size	A4 Sheet, 210- by 297-r
Orientati	Portrait
Left print	2.00 cm
Right prin	2.00 cm
Top pri	.00 cm
...ttor	.00 cm
...eft dy	cm
Right dy	cm
Top dynam...gin	4.00 cm
Bottom dynamic margin	4.00 cm

Legal, 8 1/2- by 14-inches
Letter Small, 8 1/2- by 11-inches
Letter, 8 1/2- by 11-inches
Monarch Envelope, 3 7/8- b... 1/2-i
Note, 8 1/2- by 11-inches
Quarto, 215- by 275-millime...

4. Deactivate the output of the page "Cover Sheet":



Attribute	Static
Cover sheet	No
Final Page	No

5. 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" of the page layout you will define the content of the message report. For this you will use the objects from the object palette of the page layout editor.

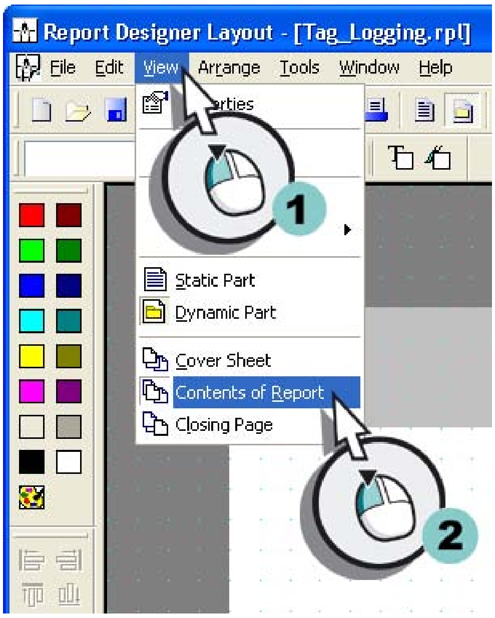
You will insert the "WinCC Control Runtime Provider Table" object, which will be used for displaying the values from the process value archive.

Requirement

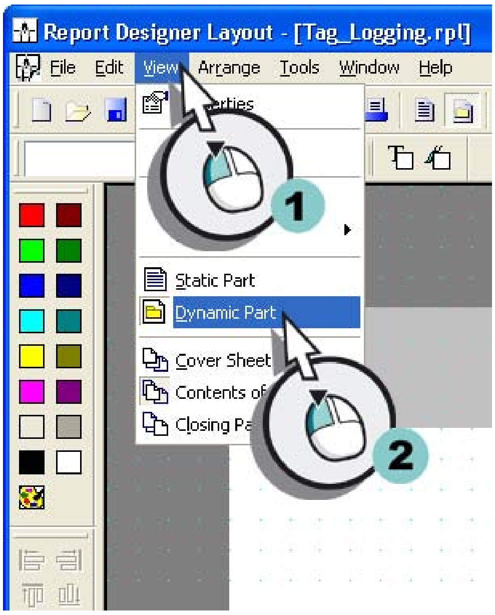
The "Tag_Logging.rpl" layout file opens in the page layout editor.

Procedure

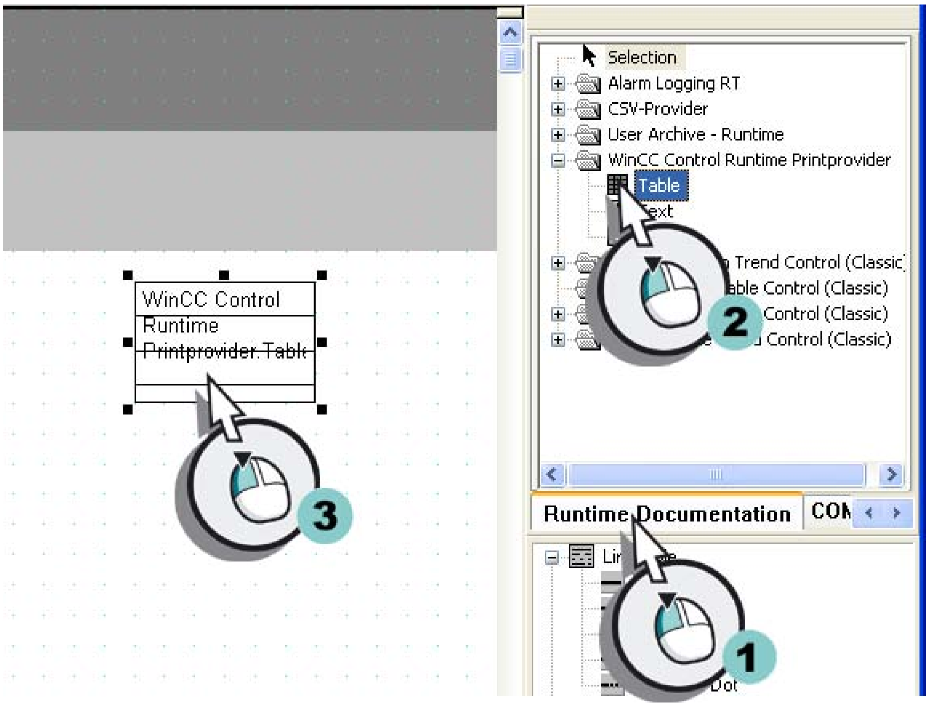
1. Open the page "Report content" of the page layout:



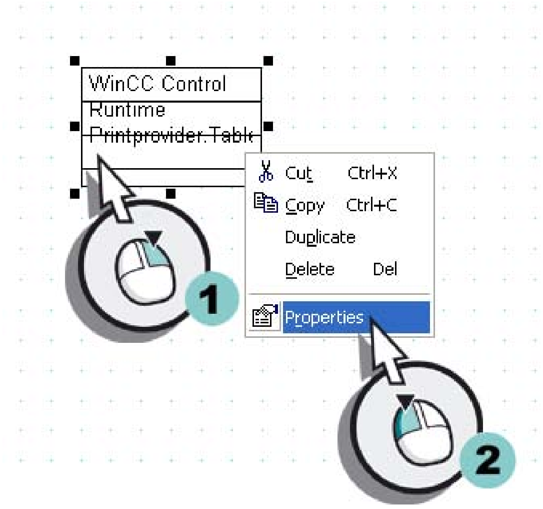
2. Change to the dynamic level of the page "Report content":


Report Designer Layout - [Tag_Logging.rpl]
File Edit View Arrange Tools Window Help
Static Part
Dynamic Part
Cover Sheet
Contents of
Closing Pa
1
2

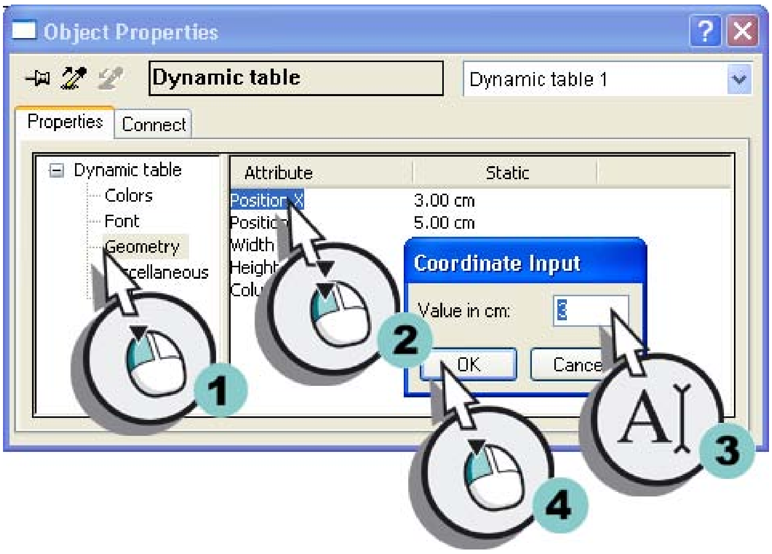
3. Insert the "WinCC Control Runtime Provider Table" object into the "Tag_Logging.rpl" page layout:



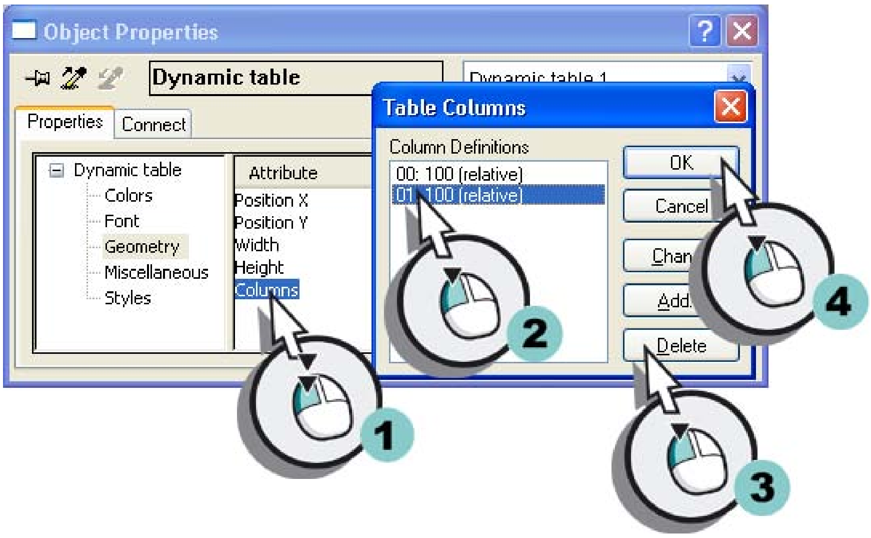
4. Open the "Object Properties" dialog:



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



6. Occupy the attribute "Column" with the value "1" for the "Geometry" property.

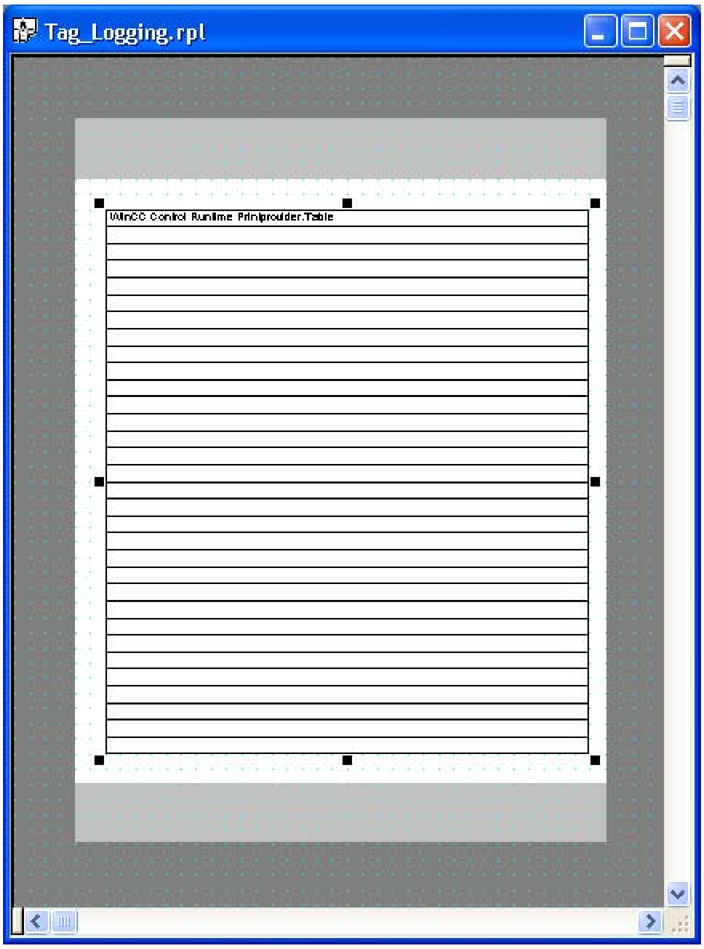


7. Close the "Object Properties" dialog box.

Result

You have inserted the "WinCC Control Runtime Provider Table" object. This enables the values to be read from the process value archive and are 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".

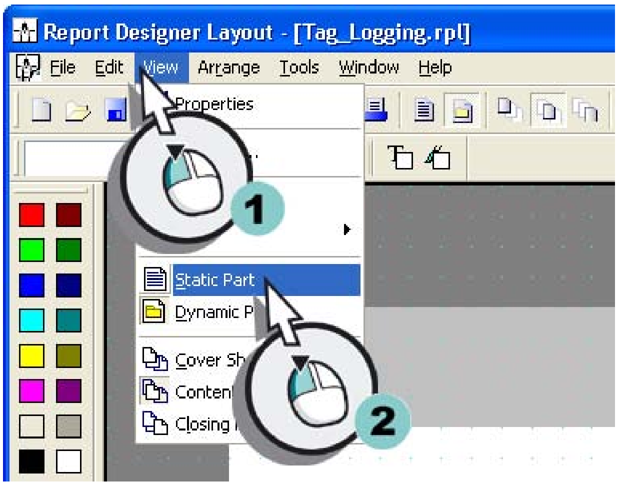
In the header you will insert the system object "Project name". This object will serve as a wildcard for the display of the project name in the log.

Requirement

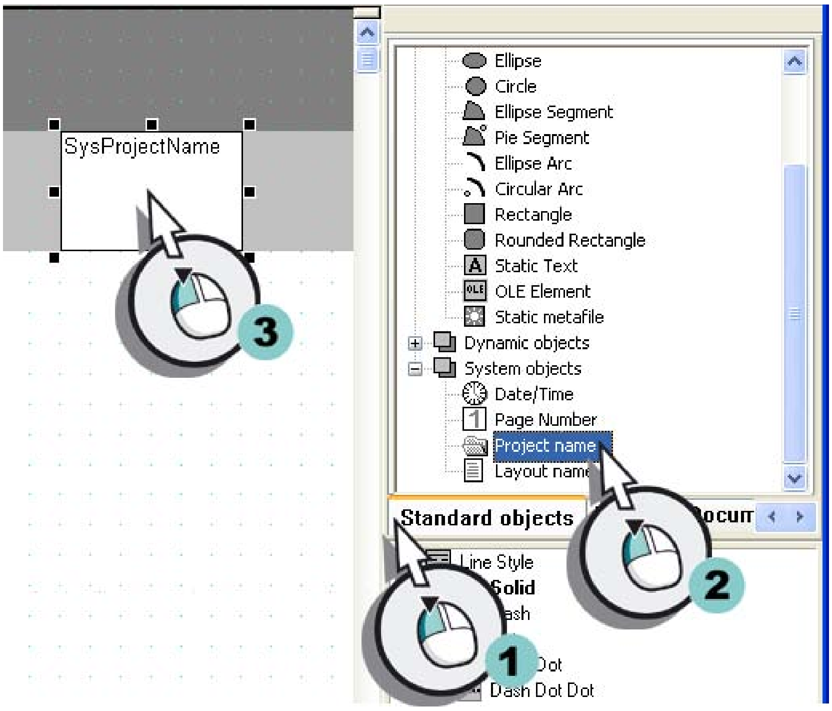
The "Tag_Logging.rpl" layout file opens in the page layout editor.

Procedure

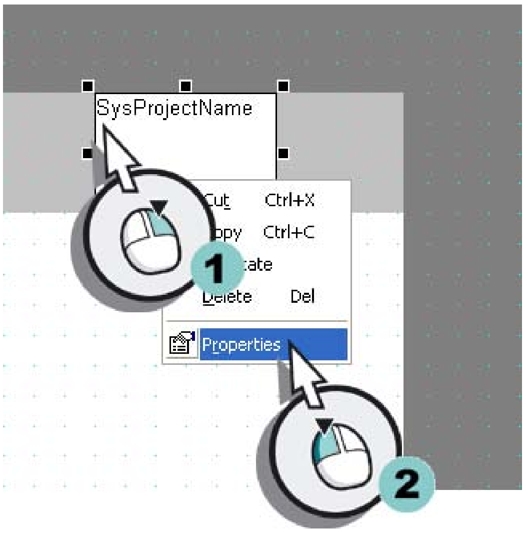
1. Open the page "Report content" of the page layout in the "View" menu.
2. Change to the static level of the page "Report content":



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



4. Open the "Object Properties" dialog:



The "Object Properties" dialog is opened.

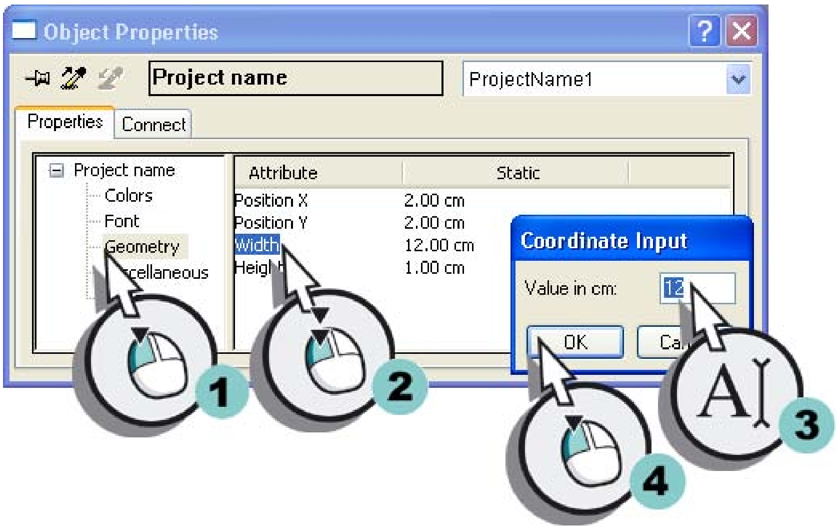
5. Define the following values for the parameters of the property "Geometry":

   – Width: 12 cm

   – Height: 1 cm

   – PositionX: 2 cm

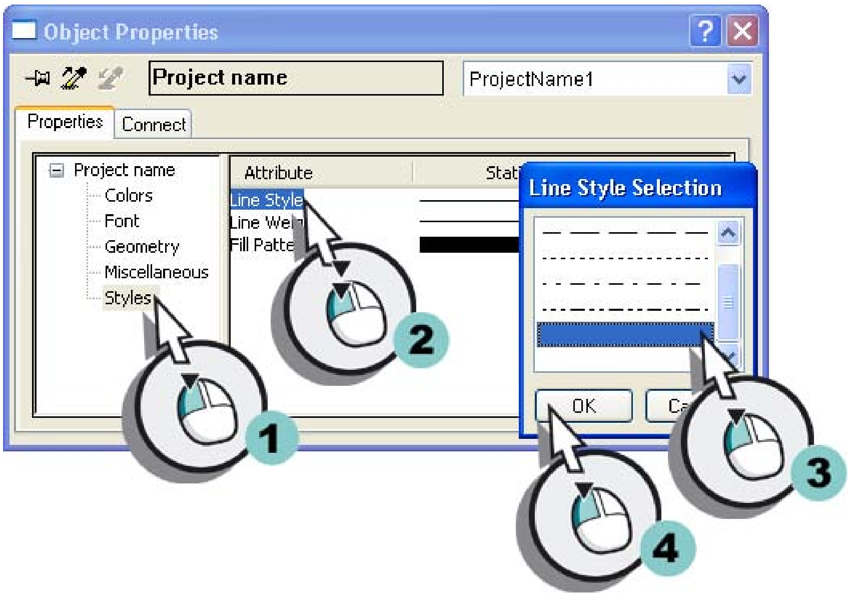
   – PositionY: 2 cm



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

Value in cm: 12

6. Define "No line" as the line style of the inserted object:

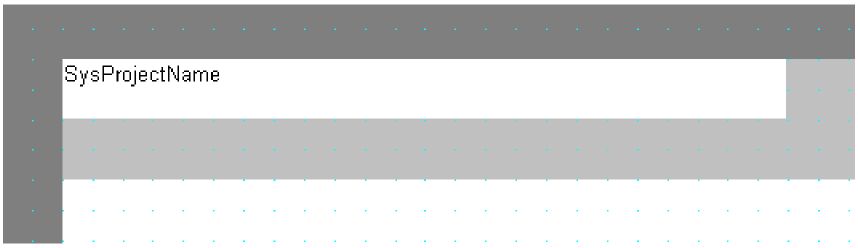


7. Close the "Object Properties" dialog box.

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".

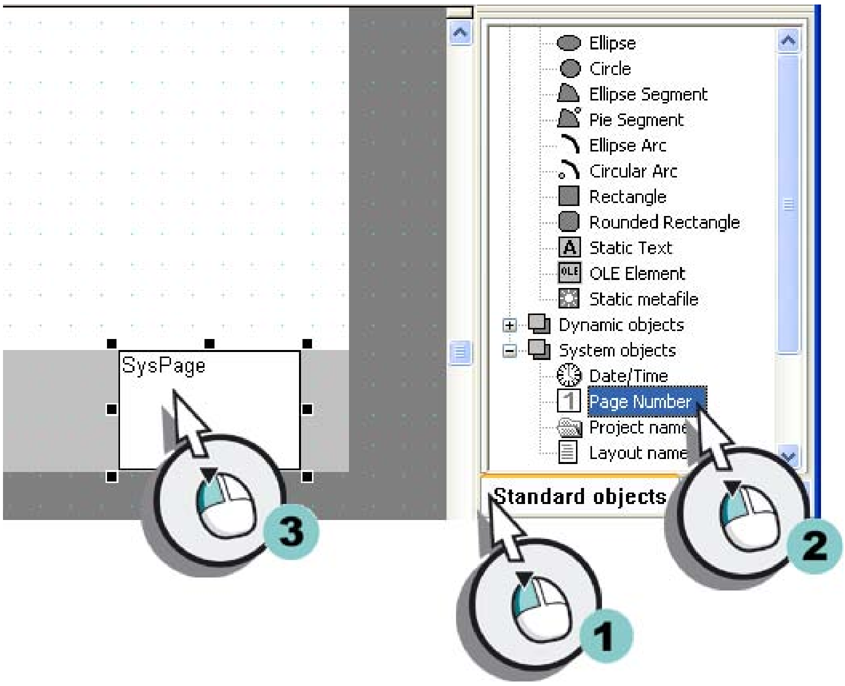
You will edit the footer by inserting the system object "Page number" from the object palette of the page layout editor. This object will serve as a wildcard for the display of the page numbers in the log.

Requirement

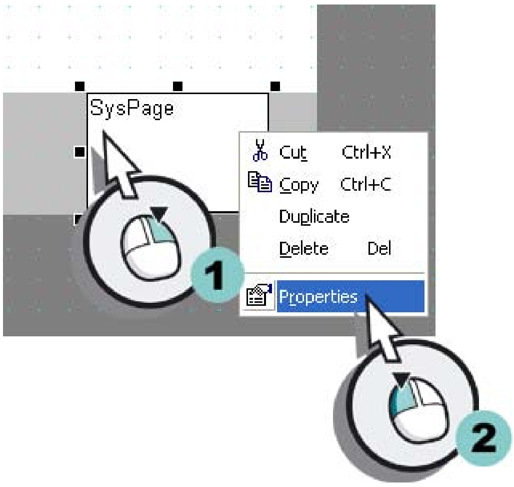
The "Tag_Logging.rpl" layout file opens in the page layout editor.

Procedure

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

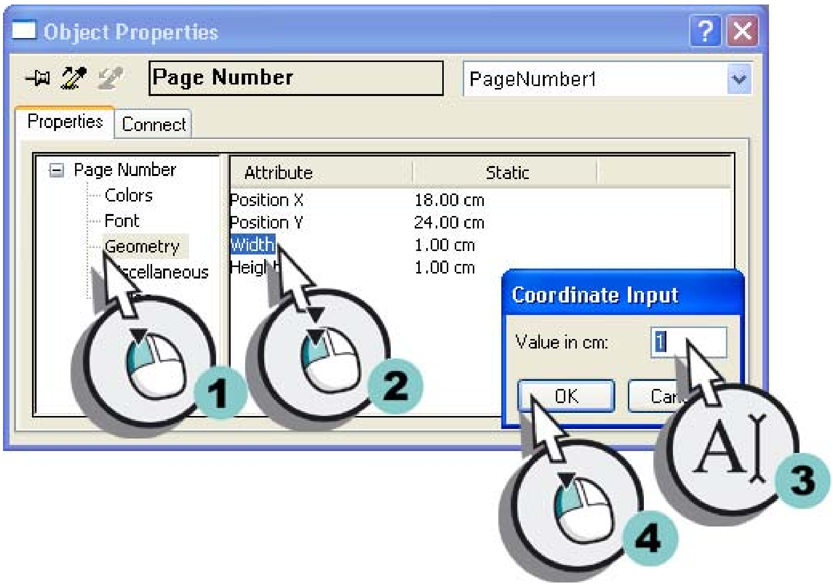


4. Open the "Object Properties" dialog:



The "Object Properties" dialog is opened.

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



Object Properties

Page Number | PageNumber1

Properties | Connect

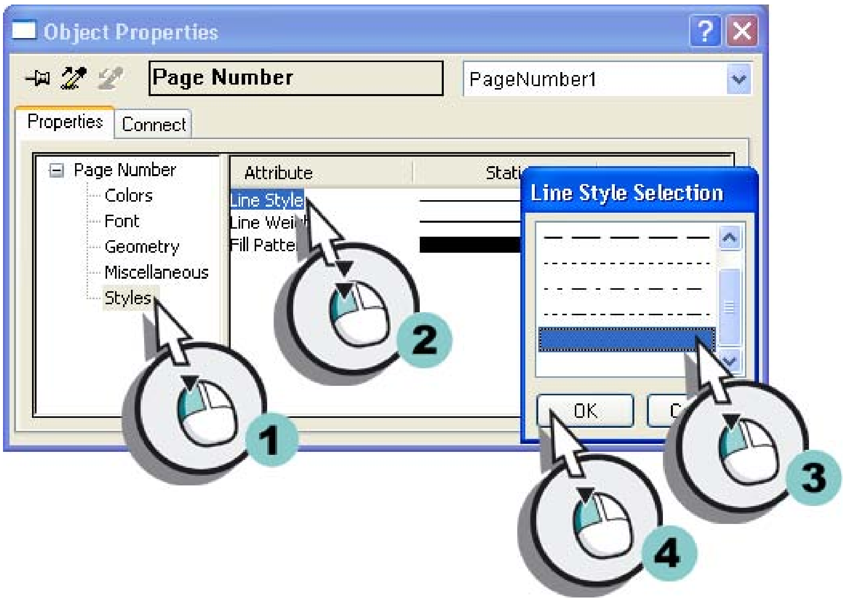
- Page Number
  - Colors
  - Font
  - Geometry
  - Miscellaneous

Attribute	Static
Position X	18.00 cm
Position Y	24.00 cm
Width	1.00 cm
Height	1.00 cm

Coordinate Input

Value in cm: 1

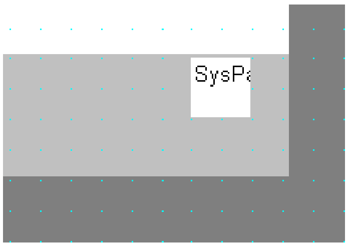
6. Define "No line" as the line style of the inserted object:



7. Close the "Object Properties" dialog box.
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 chapter offers a description how to edit a print job.

General procedure

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.

For the output, each layout is linked to a print job. WinCC comes with numerous predefined print jobs. These print jobs are already associated with certain WinCC applications. Therefore, these predefined print jobs can be neither deleted nor renamed. Only certain settings can be changed with these predefined print jobs.

You will use a predefined print job in the project "Quick_Start". This instruction is connected with the "Tag_Logging" page layout. This outputs the lot with the "Tag_Logging" page layout. You will also define the output medium for the output of the log.

The print job is executed via the button 🖨 in the toolbar of the table window. In order to link this button with the desired print job, you will edit the table window "Tank_Level_Tables" in the "Quick_Start" project.

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 will define any printer 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 chapter "Working with WinCC > Documentation on configuration and runtime data > Project documentation > How to set up a new print job".

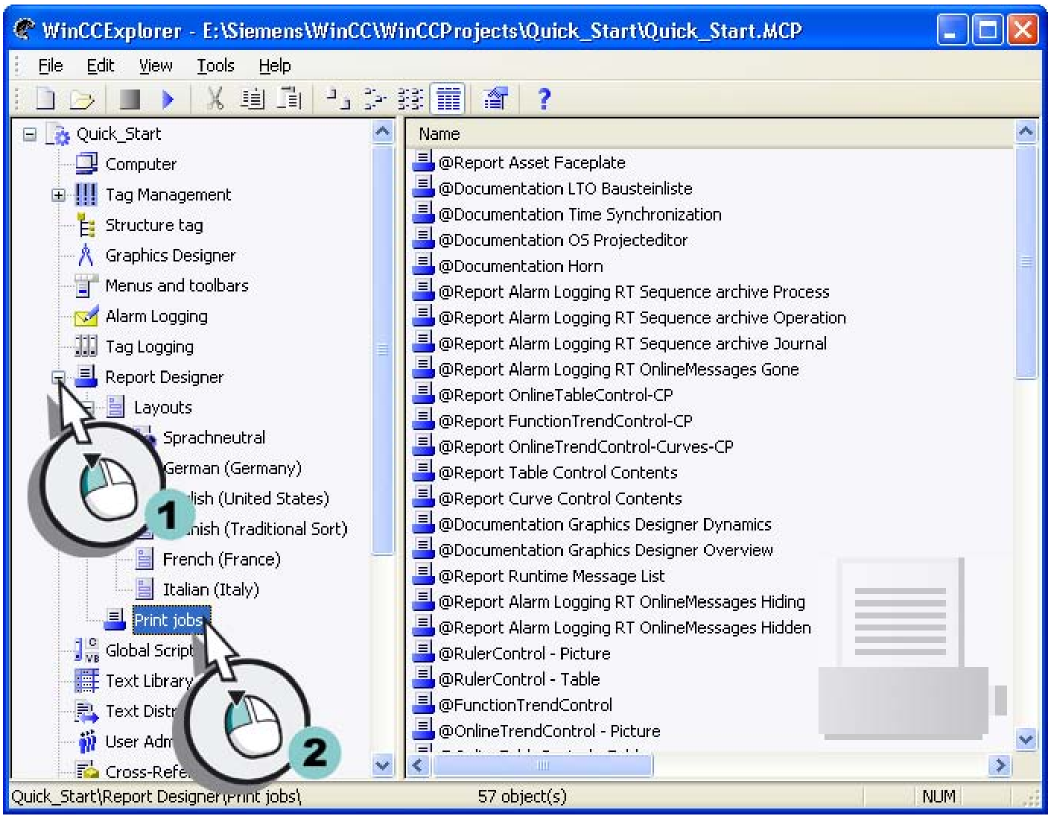
Requirement

The "Quick_Start" project is open.

The page layout "Tag_Logging.rpl" has been created.

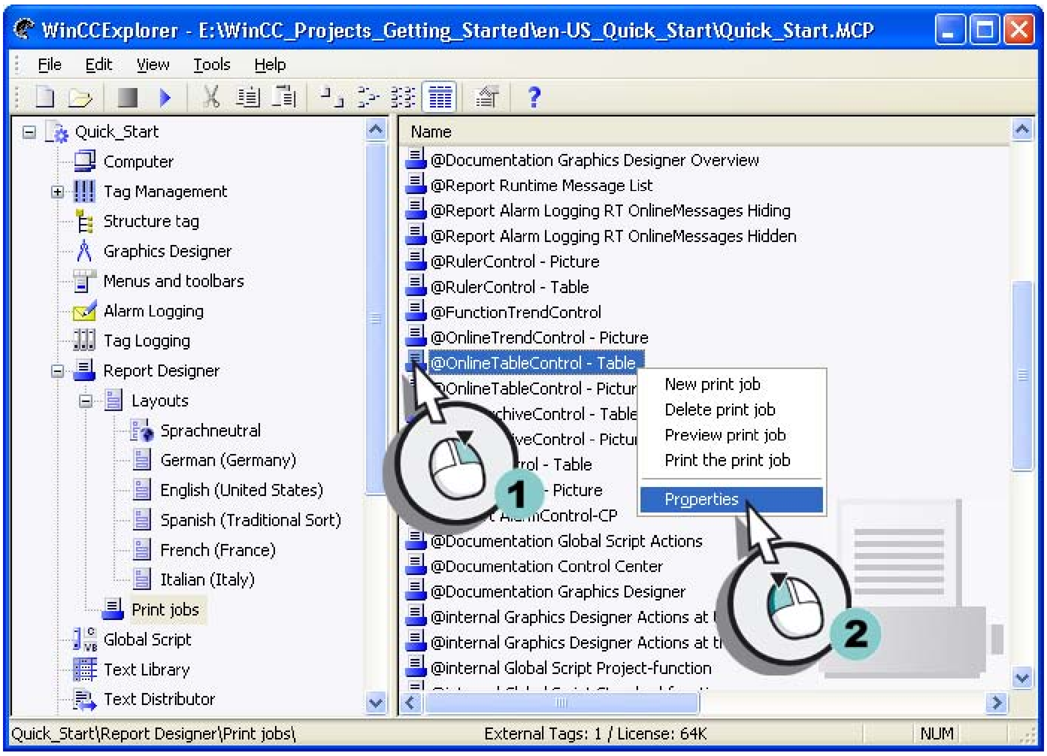
Procedure

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

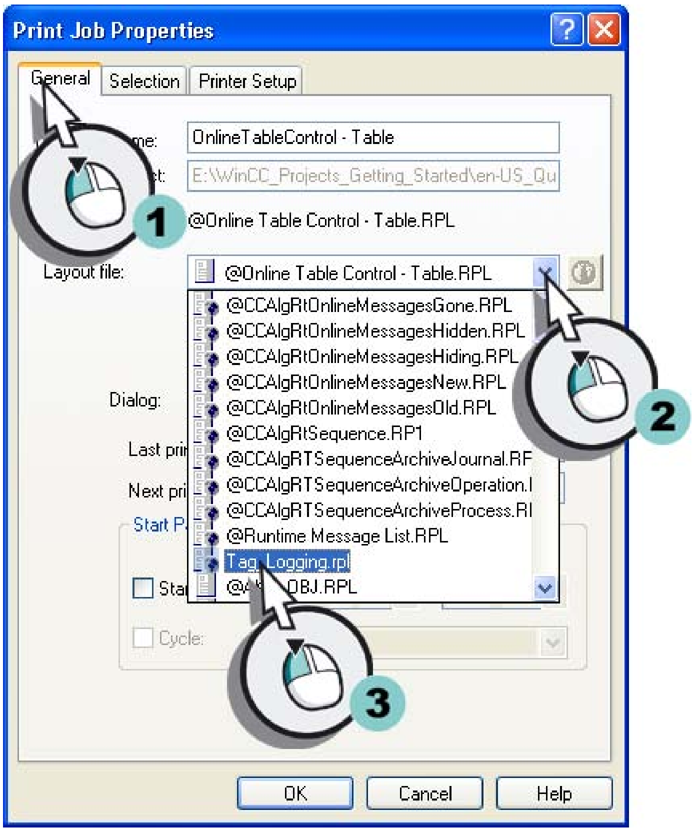

WinCCExplorer - E:\Siemens\WinCC\WinCCProjects\Quick_Start\Quick_Start.MCP
File
Edit
View
Tools
Help
Quick_Start
Computer
Tag Management
Structure tag
Graphics Designer
Menus and toolbars
Alarm Logging
Tag Logging
Report Designer
Layouts
Sprachneutral
German (Germany)
lish (United States)
nish (Traditional Sort)
French (France)
Italian (Italy)
Print jobs
Global Script
Text Library
Text Distr
User Adm
Cross-Refe
1
2
Name
@Report Asset Faceplate
@Documentation LTO Bausteinliste
@Documentation Time Synchronization
@Documentation OS Projecteditor
@Documentation Horn
@Report Alarm Logging RT Sequence archive Process
@Report Alarm Logging RT Sequence archive Operation
@Report Alarm Logging RT Sequence archive Journal
@Report Alarm Logging RT OnlineMessages Gone
@Report OnlineTableControl-CP
@Report FunctionTrendControl-CP
@Report OnlineTrendControl-Curves-CP
@Report Table Control Contents
@Report Curve Control Contents
@Documentation Graphics Designer Dynamics
@Documentation Graphics Designer Overview
@Report Runtime Message List
@Report Alarm Logging RT OnlineMessages Hiding
@Report Alarm Logging RT OnlineMessages Hidden
@RulerControl - Picture
@RulerControl - Table
@FunctionTrendControl
@OnlineTrendControl - Picture
Quick_Start\Report Designer\Print jobs\
57 object(s)
NUM

The predefined print jobs are displayed.

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


WinCCExplorer - E:\WinCC_Projects_Getting_Started\en-US_Quick_Start\Quick_Start.MCP
File
Edit
View
Tools
Help
Quick_Start
Computer
Tag Management
Structure tag
Graphics Designer
Menus and toolbars
Alarm Logging
Tag Logging
Report Designer
Layouts
Sprachneutral
German (Germany)
English (United States)
Spanish (Traditional Sort)
French (France)
Italian (Italy)
Print jobs
Global Script
Text Library
Text Distributor
Name
@Documentation Graphics Designer Overview
@Report Runtime Message List
@Report Alarm Logging RT OnlineMessages Hiding
@Report Alarm Logging RT OnlineMessages Hidden
@RulerControl - Picture
@RulerControl - Table
@FunctionTrendControl
@OnlineTrendControl - Picture
@OnlineTableControl - Table
@OnlineTableControl - Pictur
chiveControl - Table
iveControl - Pictu
rol - Table
- Picture
mControl-CP
@Documentation Global Script Actions
@Documentation Control Center
@Documentation Graphics Designer
@internal Graphics Designer Actions at
@internal Graphics Designer Actions at t
@internal Global Script Project-function
New print job
Delete print job
Preview print job
Print the print job
Properties
1
2
Quick_Start\Report Designer\Print jobs\
External Tags: 1 / License: 64K
NUM

3. Connect the print job with the "Tag_Logging.rpl" layout file:



Print Job Properties

General | Selection | Printer Setup

me: OnlineTableControl - Table

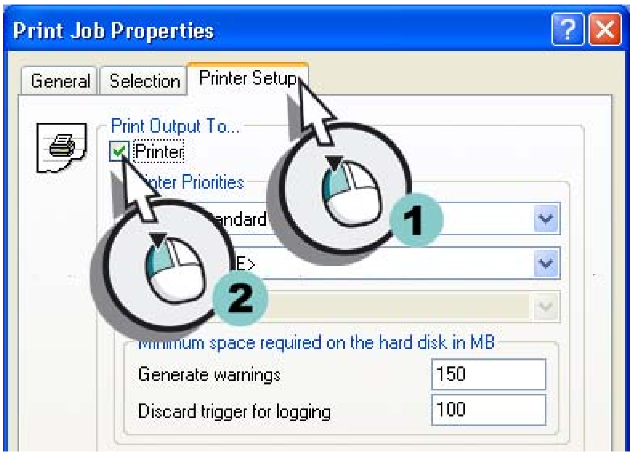
t: E:\WinCC_Projects_Getting_Started\en-US_Qu

@Online Table Control - Table.RPL

Layout file: @Online Table Control - Table.RPL

@CCAlgRtOnlineMessagesGone.RPL
@CCAlgRtOnlineMessagesHidden.RPL
@CCAlgRtOnlineMessagesHiding.RPL
@CCAlgRtOnlineMessagesNew.RPL
@CCAlgRtOnlineMessagesOld.RPL
@CCAlgRtSequence.RP1
@CCAlgRTSequenceArchiveJournal.RF
@CCAlgRTSequenceArchiveOperation.I
@CCAlgRTSequenceArchiveProcess.RI
@Runtime Message List.RPL
Tag_Logging.rpl
@A OBJ.RPL

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



Print Job Properties

General | Selection | Printer Setup

Print Output To...

☑ Printer

nter Priorities

ndard

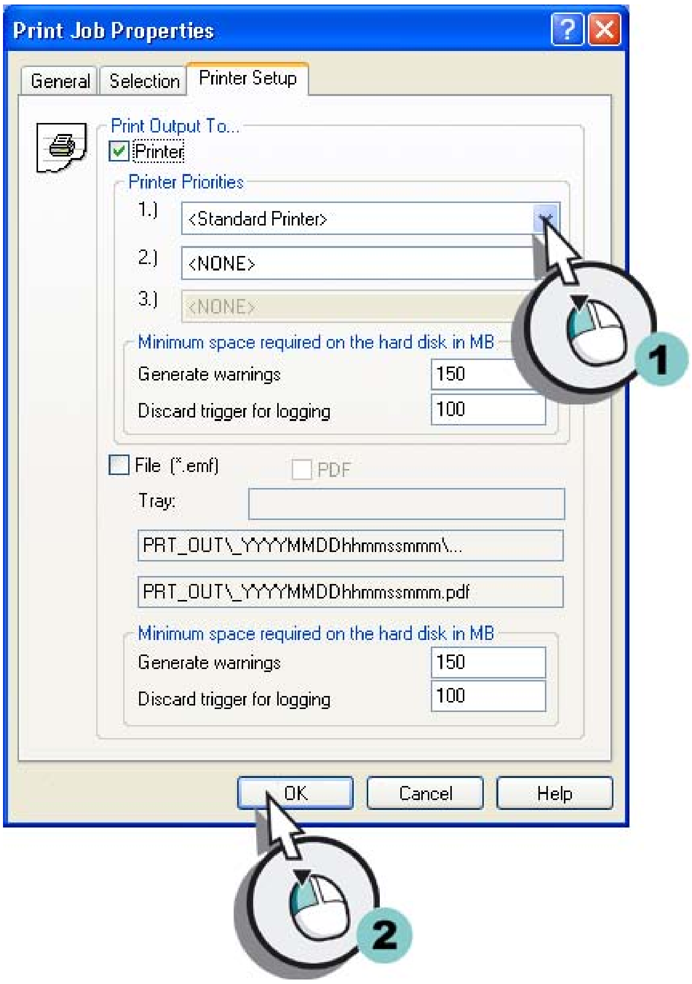
E>

nimum space required on the hard disk in MB

Generate warnings: 150

Discard trigger for logging: 100

5. Link the print job to an available printer:



Print Job Properties

General | Selection | Printer Setup

Print Output To...

☑ Printer

Printer Priorities

1.) <Standard Printer>

2.) <NONE>

3.) <NONE>

Minimum space required on the hard disk in MB

Generate warnings 150

Discard trigger for logging 100

□ File (*.emf) □ PDF

Tray:

PRT_OUT_YYYYMMDDhhmmssmmm\...

PRT_OUT_YYYYMMDDhhmmssmmm.pdf

Minimum space required on the hard disk in MB

Generate warnings 150

Discard trigger for logging 100

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 on the printer.

In order to execute the print job in Runtime, you will link a button in the table window with the print job in the next steps.

8.6 Defining the Runtime Properties

Introduction

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

Choose the process screen "Tag_Logging.pdl" as a start screen for the Runtime window.

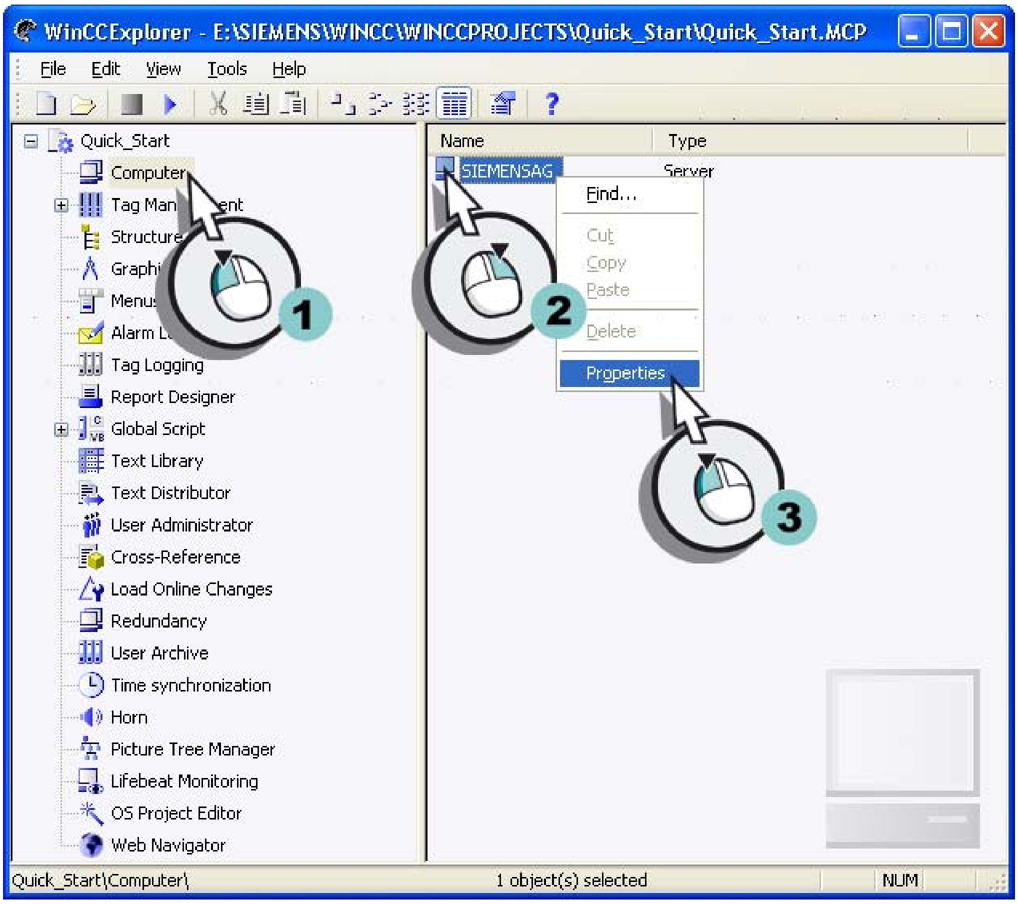
Requirement

The "Quick_Start" project is open.

The process screen "Tag_Logging.pdl" has been created.

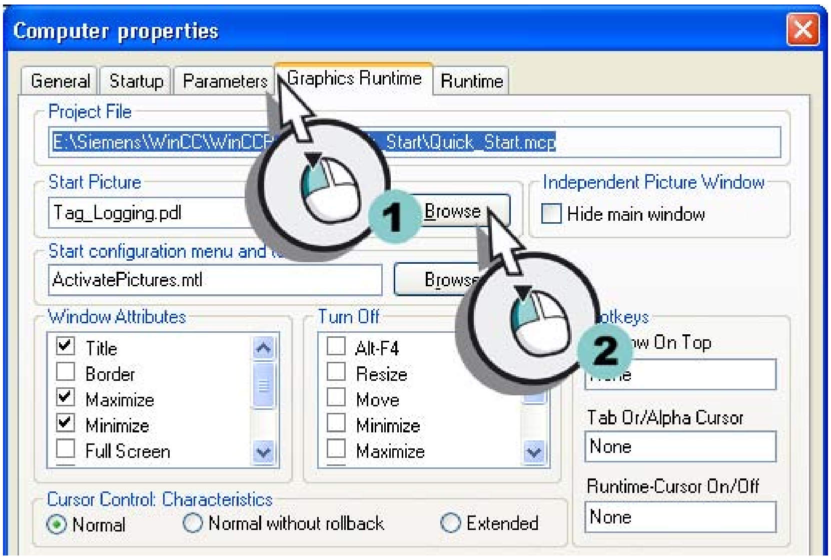
Procedure

1. Open the "Computer properties" dialog:



The "Computer Properties" dialog is opened.

2. Define the process screen "Tag_Logging.pdl" as a start screen for the Runtime window:



Project File: E:\Siemens\WinCC\WinCCP ... Start\Quick_Start.mcp

Start Picture: Tag_Logging.pdl

Independent Picture Window: □ Hide main window

Start configuration menu and ...: ActivatePictures.mtl

Window Attributes: ☑ Title □ Border ☑ Maximize ☑ Minimize □ Full Screen

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

...otkeys: ...w On Top

Tab Or/Alpha Cursor: None

Runtime-Cursor On/Off: None

Cursor Control: Characteristics: ● Normal ○ Normal without rollback ○ Extended

3. 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 process screen "Tag_Logging.pdl" is displayed as the start screen.

You will activate the "Quick_Start" project in the next steps and use the WinCC TAG Simulator.

8.7 Activating and testing the project

Introduction

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

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

The WinCC Tag Simulator assigns values to the internal tag "Tank_Level" in Runtime. These values are acquired every 2 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

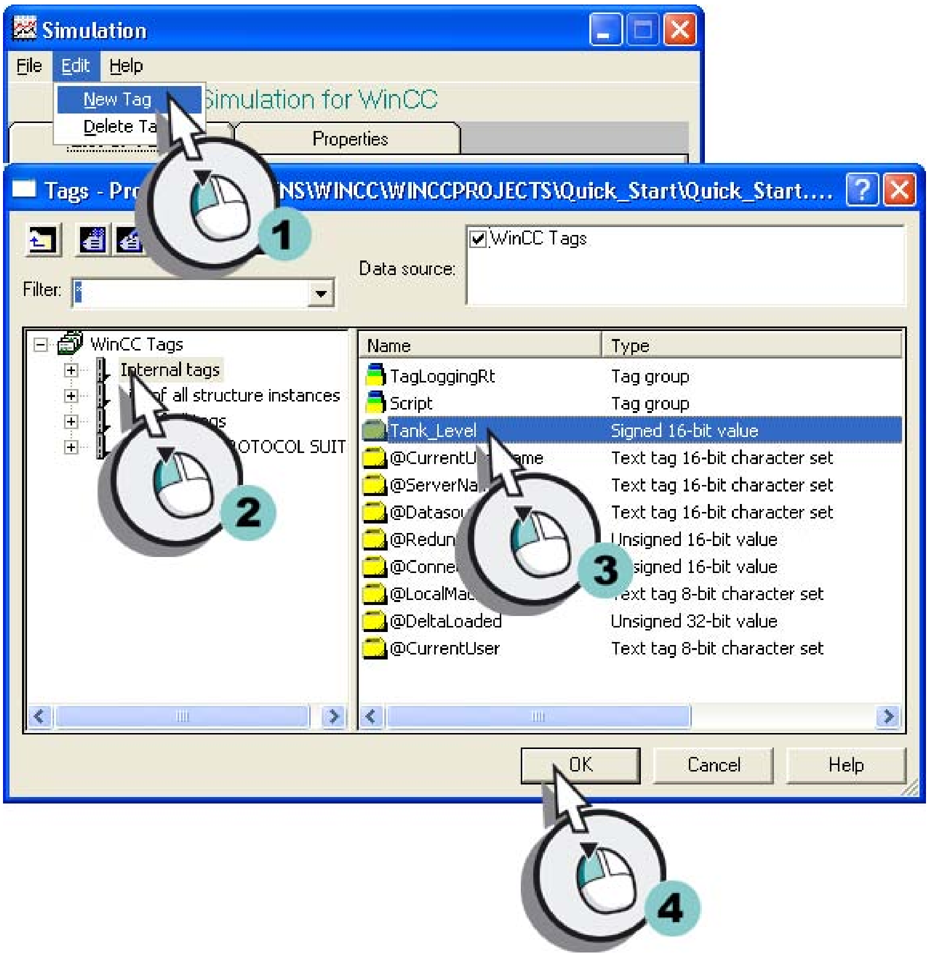
The WinCC TAG Simulator is installed.

The "Quick_Start" project is open.

The Runtime Properties are defined.

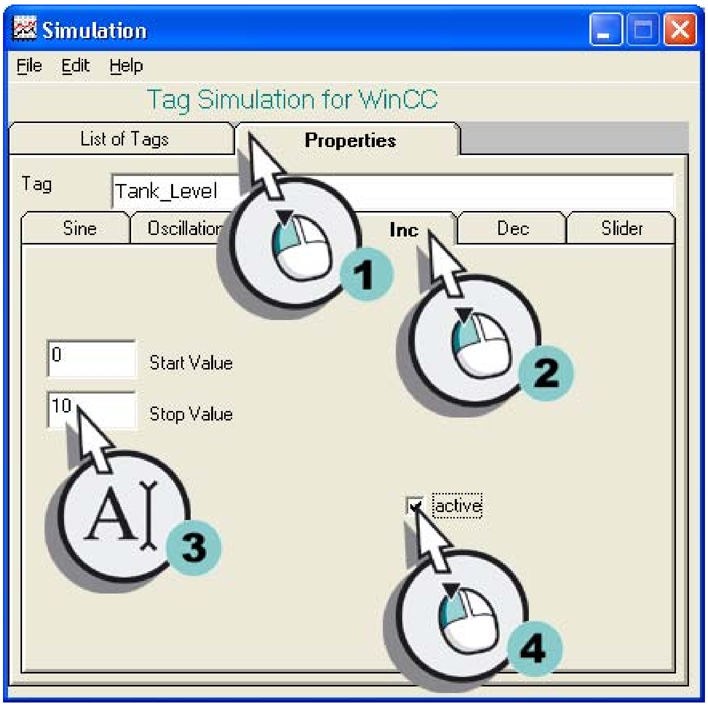
Procedure

1. Activate the "Quick_Start" project via the button ▶ in the toolbar of the WinCC Explorer.
2. Start the WinCC Tag Simulator.
3. Open the "Tags - project" dialog and select the internal tag "Tank_Level":



Name	Type
TagLoggingRt	Tag group
Script	Tag group
Tank_Level	Signed 16-bit value
@CurrentU...me	Text tag 16-bit character set
@ServerNa...	Text tag 16-bit character set
@Datasou...	Text tag 16-bit character set
@Redun...	Unsigned 16-bit value
@Conne...	...signed 16-bit value
@LocalMac...	...ext tag 8-bit character set
@DeltaLoaded	Unsigned 32-bit value
@CurrentUser	Text tag 8-bit character set

4. Define the properties of the simulation type:



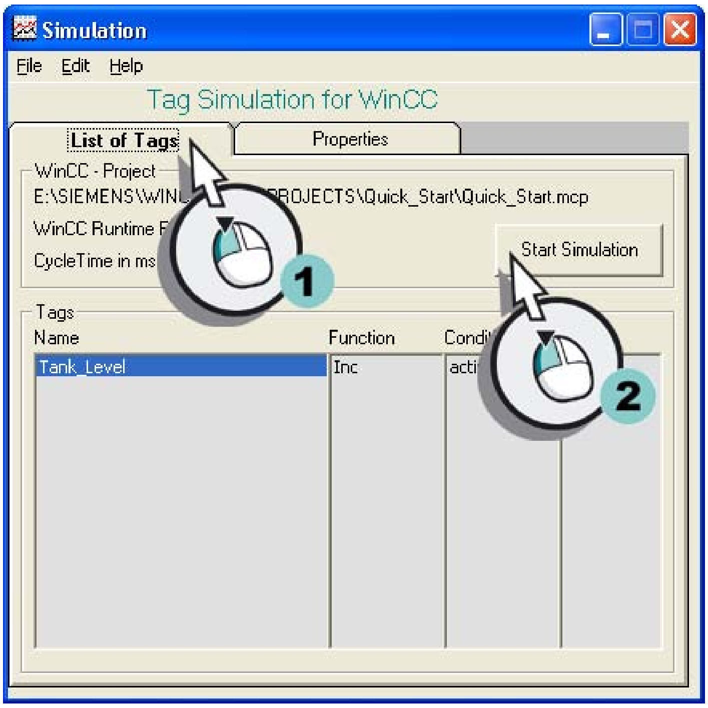
Tag: Tank_Level

Start Value: 0

Stop Value: 10

☑ active

5. Start the WinCC Tag Simulator:



WinCC - Project
E:\SIEMENS\WINC...PROJECTS\Quick_Start\Quick_Start.mcp
WinCC Runtime F...
CycleTime in ms...

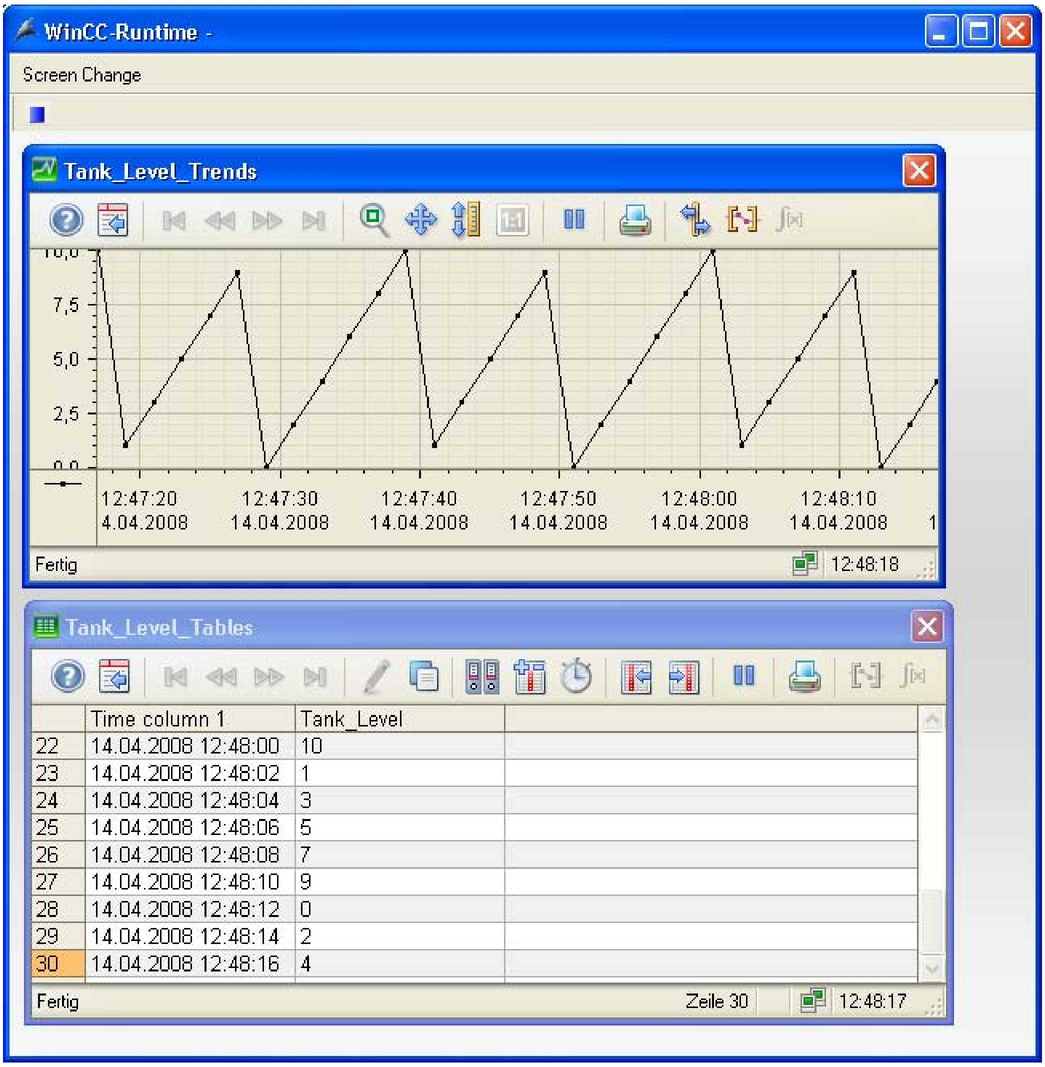
Tags

Name	Function	Condi...
Tank_Level	Inc	acti...

Result

You have activated the "Quick_Start" project and simulated the values of the internal tags "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
22	14.04.2008 12:48:00	10
23	14.04.2008 12:48:02	1
24	14.04.2008 12:48:04	3
25	14.04.2008 12:48:06	5
26	14.04.2008 12:48:08	7
27	14.04.2008 12:48:10	9
28	14.04.2008 12:48:12	0
29	14.04.2008 12:48:14	2
30	14.04.2008 12:48:16	4

8.8 Printing log

Introduction

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

In this chapter 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 button "Print" 🖨 from the table window. In order to use the button, you will stop the update of the data via the button ⏸. The data is saved to the clipboard and added when the button is clicked again.

By actuating the "Print log" button 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

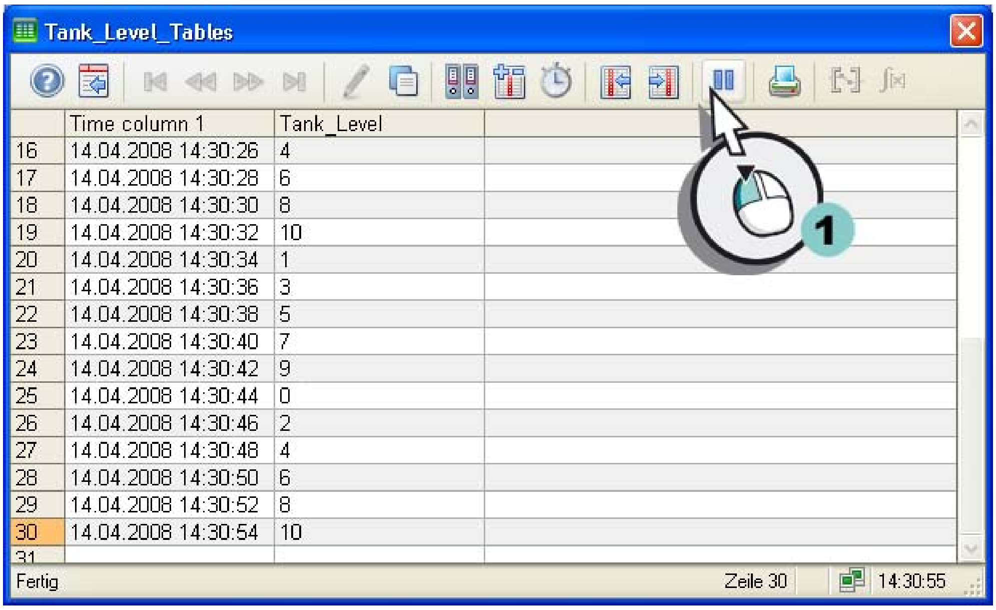
The "Quick_Start" project is activated.

The WinCC TAG Simulator is started.

The "@ OnlineTableControl - Table " print job is connected with the "Print" button.

Procedure

1. Stop the data update via the button ⏸:



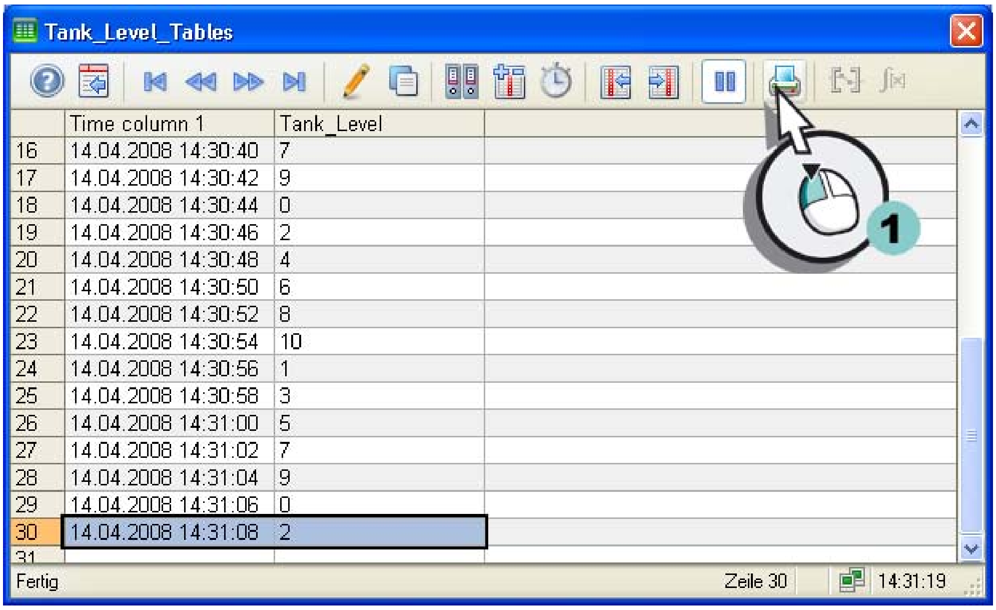
Tank_Level_Tables

	Time column 1	Tank_Level
16	14.04.2008 14:30:26	4
17	14.04.2008 14:30:28	6
18	14.04.2008 14:30:30	8
19	14.04.2008 14:30:32	10
20	14.04.2008 14:30:34	1
21	14.04.2008 14:30:36	3
22	14.04.2008 14:30:38	5
23	14.04.2008 14:30:40	7
24	14.04.2008 14:30:42	9
25	14.04.2008 14:30:44	0
26	14.04.2008 14:30:46	2
27	14.04.2008 14:30:48	4
28	14.04.2008 14:30:50	6
29	14.04.2008 14:30:52	8
30	14.04.2008 14:30:54	10
31		

Fertig Zeile 30 14:30:55

The data update display is stopped.

2. Click on the "Print" button to print the log out.



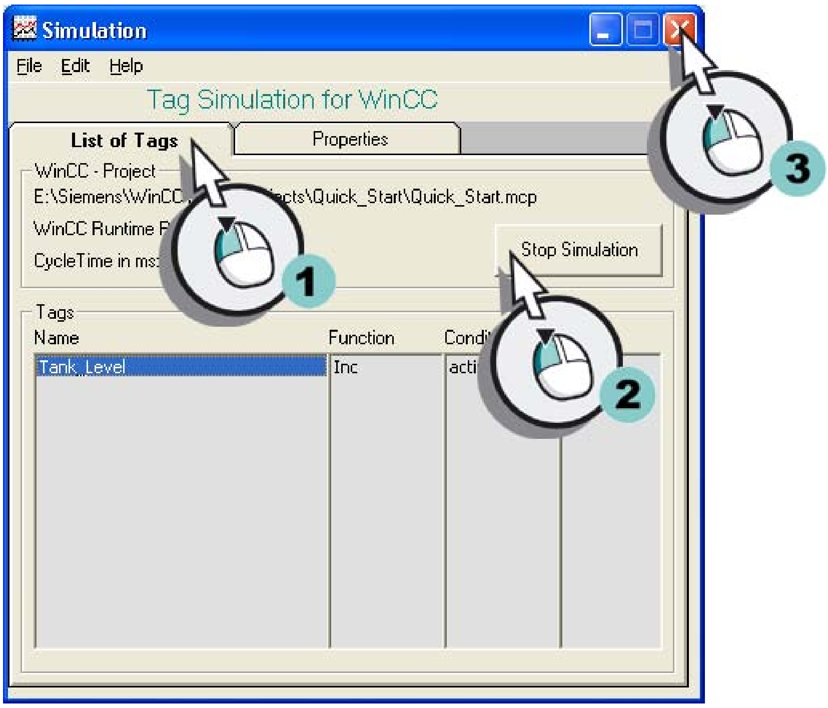
Tank_Level_Tables

	Time column 1	Tank_Level
16	14.04.2008 14:30:40	7
17	14.04.2008 14:30:42	9
18	14.04.2008 14:30:44	0
19	14.04.2008 14:30:46	2
20	14.04.2008 14:30:48	4
21	14.04.2008 14:30:50	6
22	14.04.2008 14:30:52	8
23	14.04.2008 14:30:54	10
24	14.04.2008 14:30:56	1
25	14.04.2008 14:30:58	3
26	14.04.2008 14:31:00	5
27	14.04.2008 14:31:02	7
28	14.04.2008 14:31:04	9
29	14.04.2008 14:31:06	0
30	14.04.2008 14:31:08	2
31		

Fertig Zeile 30 14:31:19

The log is printed.

3. End the simulation:



Simulation

File Edit Help

Tag Simulation for WinCC

List of Tags | Properties

WinCC - Project
E:\Siemens\WinCC...cts\Quick_Start\Quick_Start.mcp
WinCC Runtime F...
CycleTime in ms:

Stop Simulation

Tags

Name	Function	Condi...
Tank_Level	Inc	acti...

4. Deactivate the "Quick_Start" project via the button ■ in the toolbar of the WinCC Explorer.

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 chapter provides information about the message system and a description of how to configure messages in the "Alarm Logging" editor.

General procedure

The message system monitors the processes.

In the "Alarm Logging" editor of the message system you can configure the following message types:

- Bit messages: Display status changes in the process. The bit messages are triggered by the PLC.
- Analog messages: Show two trangressions or non-achieved limit values. The analog messages are triggered when the set limit values are exceeded or not met.

In the "Quick_Start" project, you will configure messages to monitor the fill level and the supply valve of the water tank.

You will simulate the fill level of the water tank in the "Quick_Start" project by 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.

In order to simulate the status of the supply valve, create a new internal tag in WinCC Explorer. In the "Alarm Logging" editor you will configure bit messages for the different statuses of the supply valve. A bit message is triggered when a certain bit is set in the tag value.

9.2 The message system enables the following:

Introduction

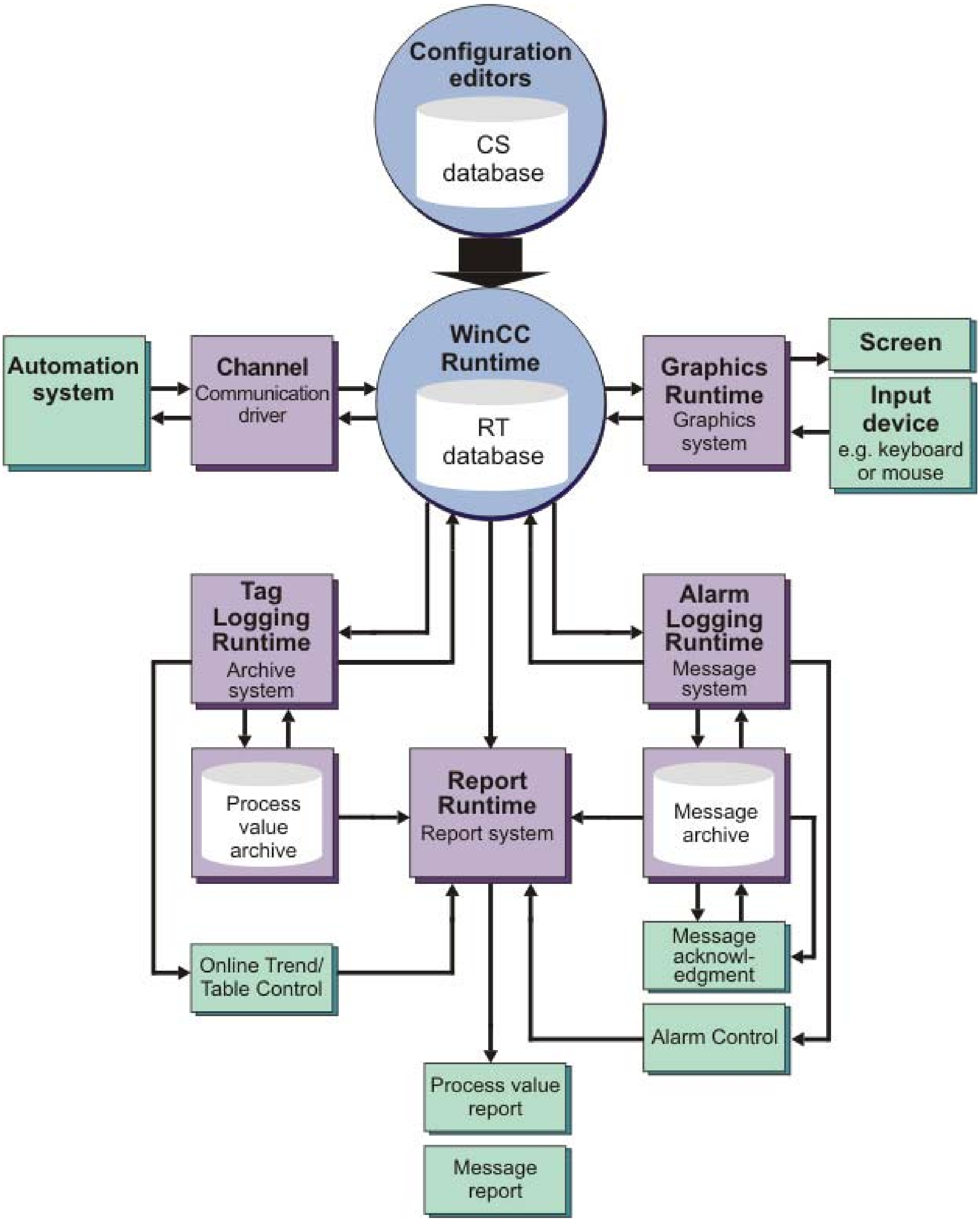
The message system is a partial system of WinCC, which is used to monitor the processes.

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

Components of the Alarm System

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

- The configuration component of the message system is the "Alarm Logging" editor. In the "Alarm Logging" editor you can execute the following tasks:
  - Creating alarms
  - Preparing messages
  - Setting Limit Values
  - Message text and message status display
  - Define acknowledgment properties of the messages
  - Define archiving properties of the messages
- Alarm Logging Runtime is the runtime component of the message system. Alarm Logging Runtime is primarily used to execute the following tasks:
  - Execution of the defined monitors
  - Controlling the message output
  - Administering acknowledgments


Configuration editors
CS database
WinCC Runtime
RT database
Automation system
Channel
Communication driver
Graphics Runtime
Graphics system
Screen
Input device
e.g. keyboard or mouse
Tag Logging Runtime
Archive system
Alarm Logging Runtime
Message system
Process value archive
Report Runtime
Report system
Message archive
Message acknowl-edgment
Online Trend/ Table Control
Alarm Control
Process value report
Message report

9.3 Start alarm logging

Introduction

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

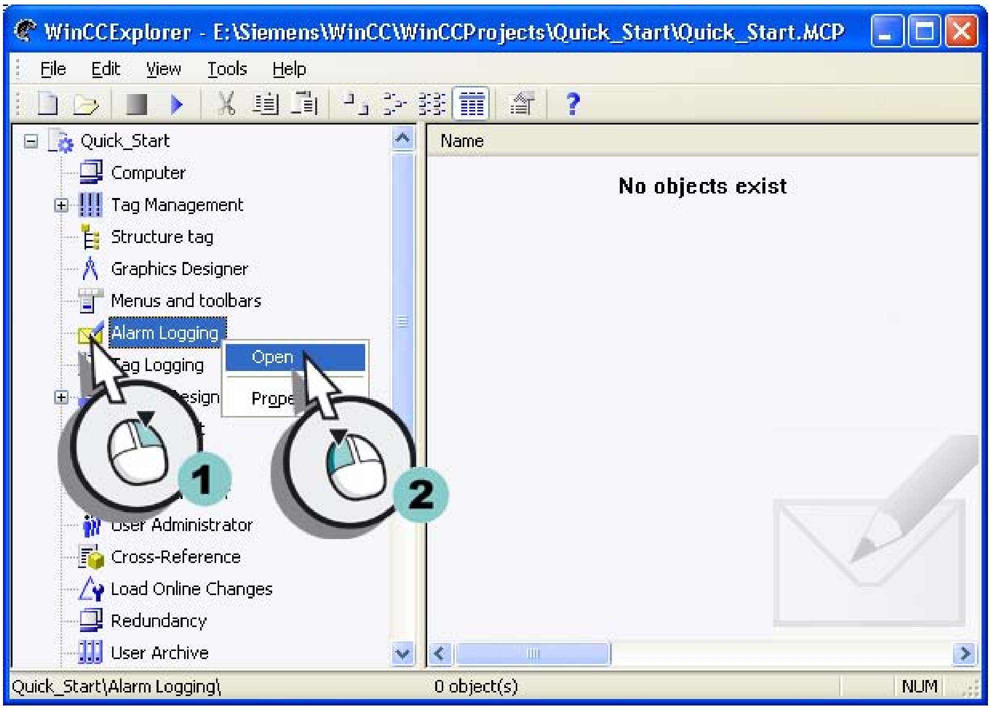
In the "Alarm Logging" editor you will configure all bit and analog messages needed for the "Quick_Start" project.

Requirement

The "Quick_Start" project is open.

Procedure

1. Start the "Alarm Logging" editor:

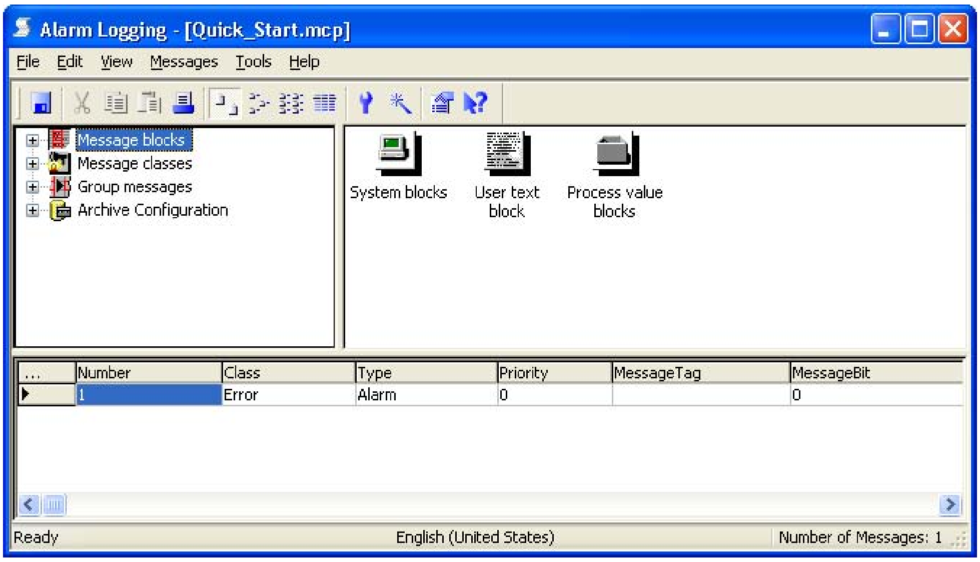


The "Alarm Logging" editor will open.

Result

You have opened the "Alarm Logging" editor.

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



...	Number	Class	Type	Priority	MessageTag	MessageBit
	1	Error	Alarm	0		0

Ready English (United States) Number of Messages: 1

9.4 Setting message blocks and message classes

Introduction

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

The messages are displayed in a table in runtime. 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 texts, for example, the message text containing information on the location and cause of a fault The texts are freely customizable.
- Process value blocks are used to link the messages to process values, for example current fill levels, temperatures or speeds.

Messages with similar behavior can be allocated to a message class. The message classes allow a central management of individual messages.

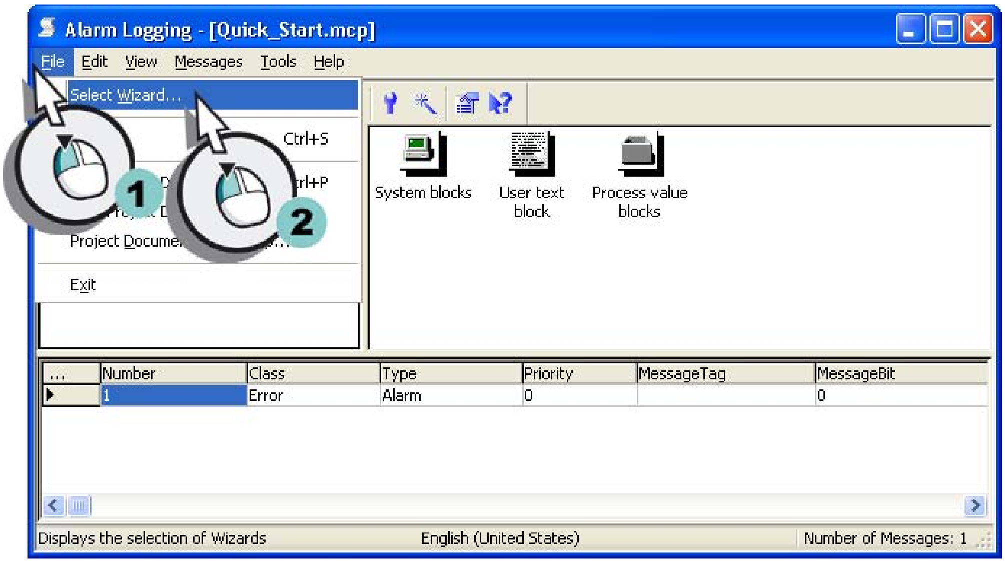
The message blocks and messages classes are defined in the "Quick_Start" project using the System Wizard. The System Wizard offers an automated and simple method of defining message blocks and message classes.

Requirement

"Alarm Logging" editor is open.

Procedure

1. Open the "Select wizard" dialog:

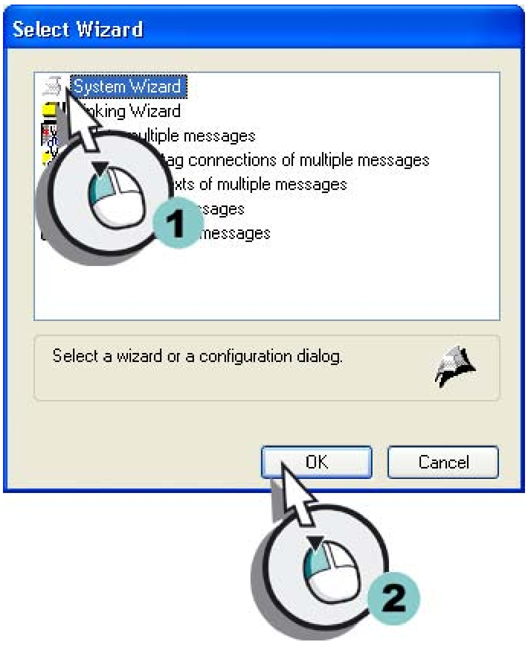


...	Number	Class	Type	Priority	MessageTag	MessageBit
▶	1	Error	Alarm	0		0

Displays the selection of Wizards English (United States) Number of Messages: 1

The "Select Wizard" dialog is opened.

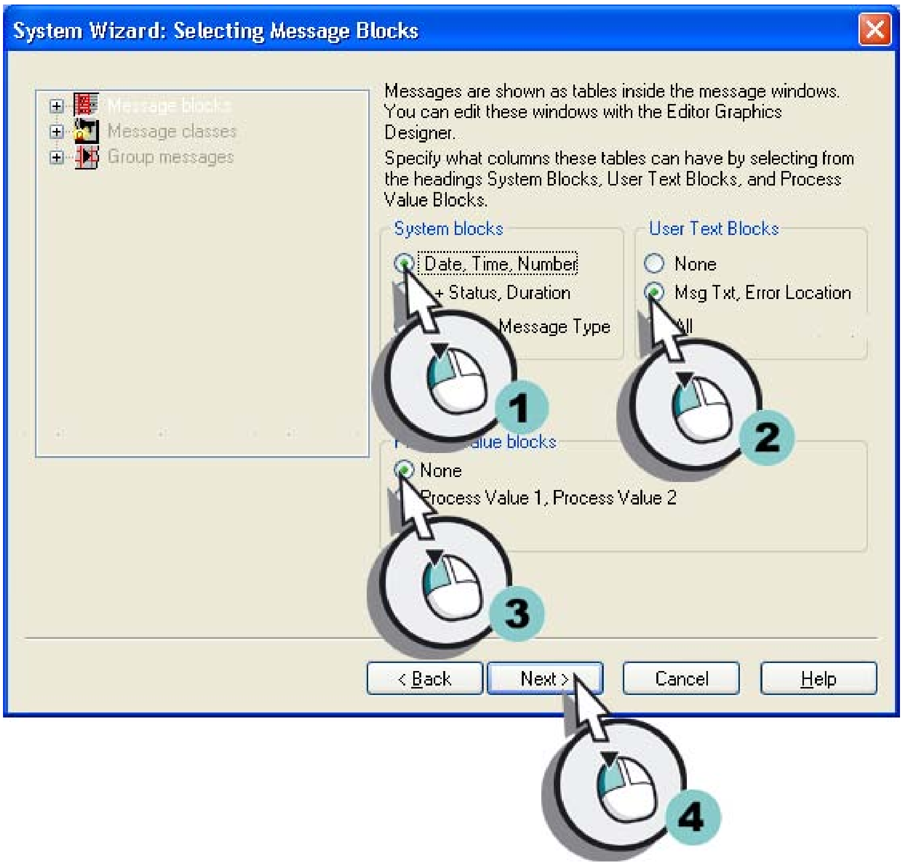
2. Select the "System Wizard" entry.



Select a wizard or a configuration dialog.

The "System Wizard" dialog is opened.

3. Click the "Next" button in the first dialog-box.
4. Define the message blocks that are to be displayed at runtime.



System Wizard: Selecting Message Blocks

Messages are shown as tables inside the message windows. You can edit these windows with the Editor Graphics Designer.

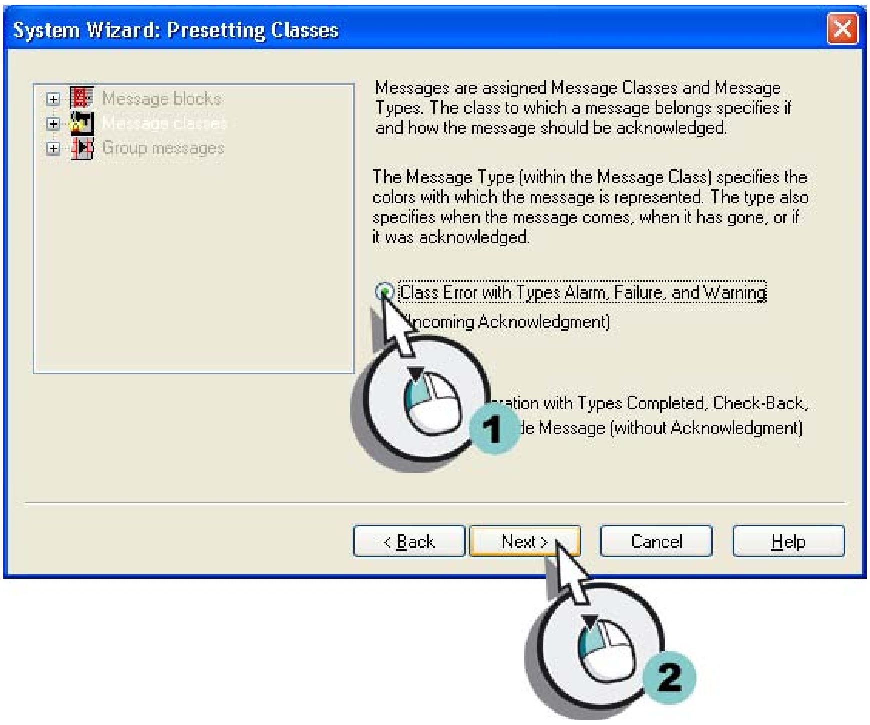
Specify what columns these tables can have by selecting from the headings System Blocks, User Text Blocks, and Process Value Blocks.

System blocks
● Date, Time, Number
+ Status, Duration
Message Type

User Text Blocks
○ None
● Msg Txt, Error Location
ll

alue blocks
● None
Process Value 1, Process Value 2

5. Define a message class for the messages in the "Quick_Start" project:



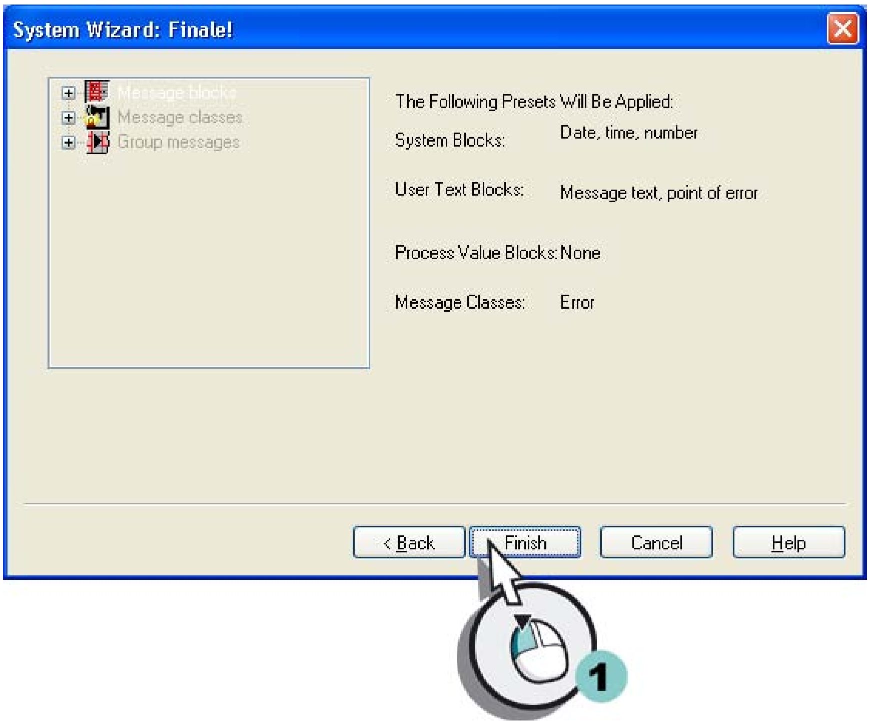
Messages are assigned Message Classes and Message Types. The class to which a message belongs specifies if and how the message should be acknowledged.

The Message Type (within the Message Class) specifies the colors with which the message is represented. The type also specifies when the message comes, when it has gone, or if it was acknowledged.

○ Class Error with Types Alarm, Failure, and Warning
(Incoming Acknowledgment)

...ation with Types Completed, Check-Back,
...de Message (without Acknowledgment)

6. Confirm the settings you have done by clicking the "Apply" button:



The Following Presets Will Be Applied:

System Blocks:	Date, time, number
User Text Blocks:	Message text, point of error
Process Value Blocks:	None
Message Classes:	Error

Result

You have defined the message blocks for the messages in the "Quick_Start" project. The messages are compiled from the following message blocks at runtime:

System blocks:	Date, time, number
User text blocks:	Message Text, Fault Location
Process value blocks:	none

You have also defined a message class using the System Wizard. The messages in the "Quick_Start" project belong to the Error message class.

Change the length of the user text blocks in the next steps to enter longer texts in the user text blocks.

9.5 Changing the length of the user text blocks

Introduction

The following steps show you how to change the length of the user text blocks.

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.

In the "Quick_Start" project you will define a length of 30 characters for the user text block "Message text". The length of the user text block "Point of error" is 25 characters in the "Quick_Start" project.

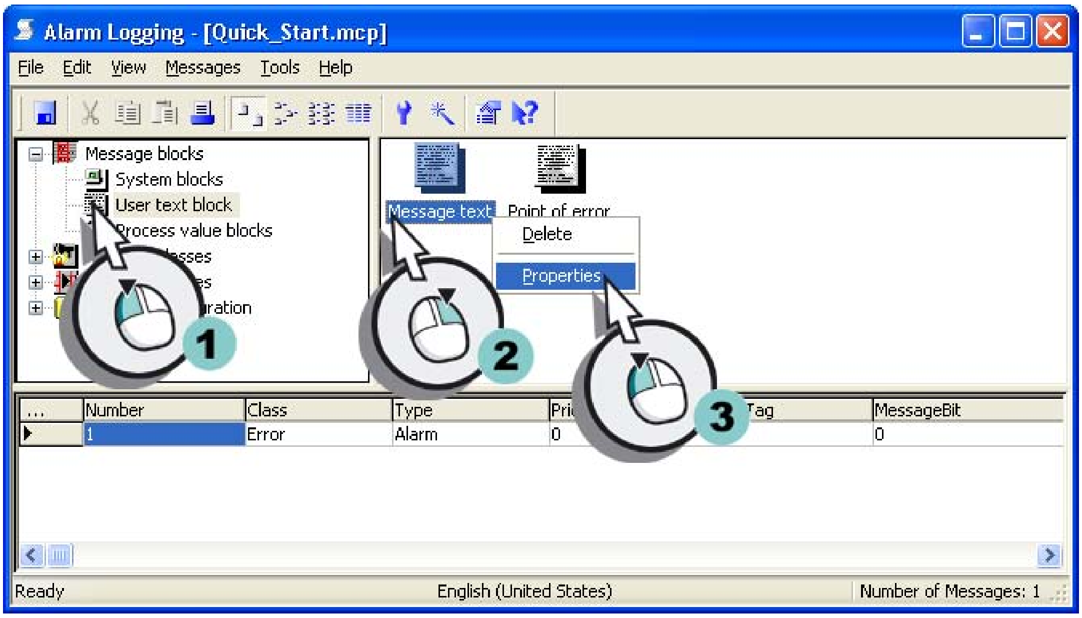
Requirement

"Alarm Logging" editor is open.

The user text blocks "Message Text" and "Point of Error" have been created.

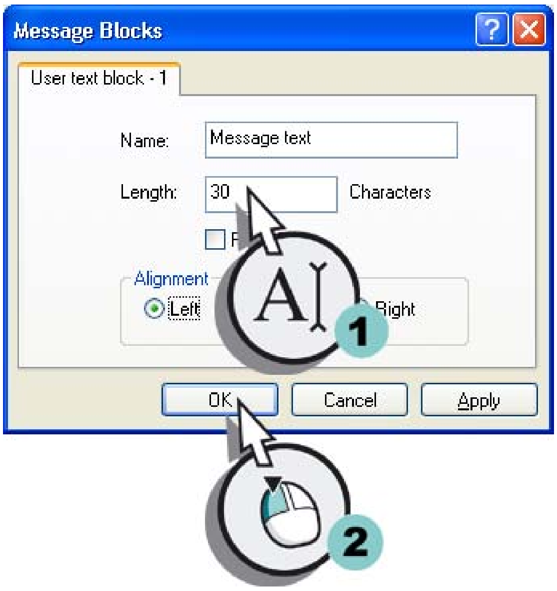
Procedure

1. Open the "Message blocks" dialog:



The "Message blocks" dialog is opened.

2. Change the specified length of the user text block "Message text" to 30 characters:



3. Change the length of the user text block "Fault Location" to 25 characters by following the instructions in steps 1 and 2.

Result

You have changed the length of the user text blocks "Message Text" and "Fault Location". The user text block "Message Text" contains maximum 30 characters. The maximum number of characters in the user text block "Fault Location" is 25 characters.

In the next steps configure the 3 bit messages to monitor the status changes of the supply valve.

9.6 Configuring bit messages

9.6.1 Configuring bit messages

Introduction

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

General procedure

The bit messages show status changes in the process and are initiated by the PLC.

You will create three bit messages in the "Alarm_Logging" editor for the "Quick_Start" project. Each bit message corresponds to a certain status of the supply valve at the water tank. If the status of the supply valve changes, a corresponding bit message will be triggered and displayed in Runtime.

Which bit message is triggered with what status of the supply valve is determined during the editing of the bit messages. You will define specific properties for each bit message.

9.6.2 Creating bit messages

Introduction

The following steps show how to create bit messages in the editor "Alarm Logging".

You will need three bit messages for the "Quick_Start" project. Through these messages, the following statuses of the supply valve are displayed in Runtime.

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

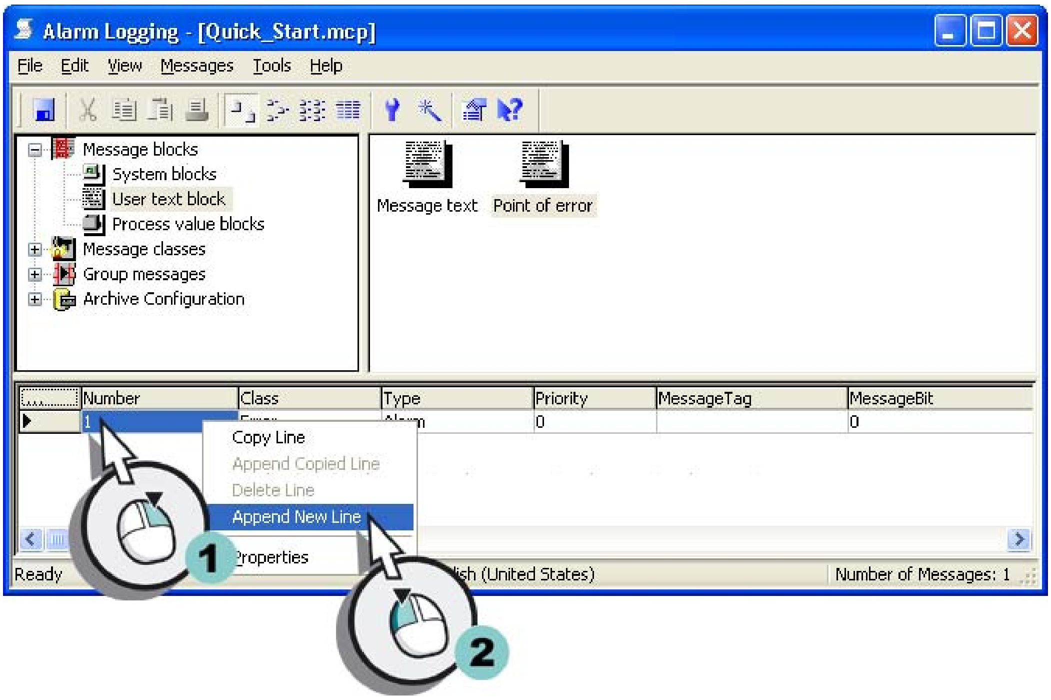
As the first bit message was automatically created by the "Alarm Logging", you will only create two bit messages. The bit messages are automatically numbered in the "Alarm_Logging" editor.

Requirement

"Alarm Logging" editor is open.

Procedure

1. Create a new bit message in the "Alarm_Logging" editor:



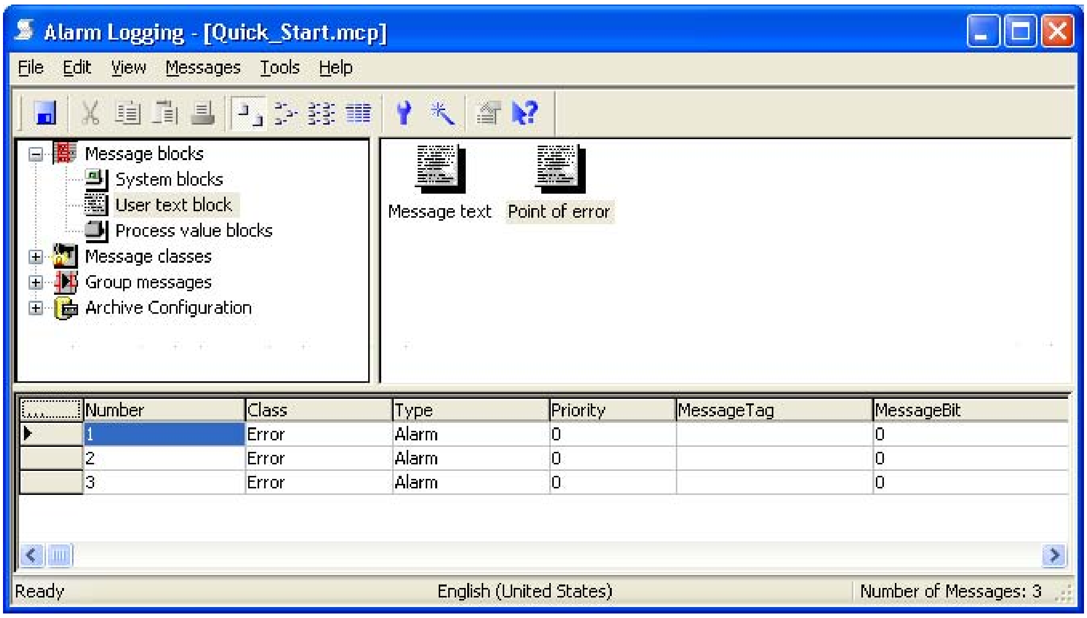
   The new bit message is displayed in the "Alarm_Logging" editor.

2. Analog to step 1, create another bit message in the "Alarm_Logging" editor.

Result

You have created the bit messages in the "Alarm Logging" editor that you will need for the "Quick_Start" project. The created bit messages are displayed in the table window of the "Alarm_Logging" editor.

In order to determine the behavior and the content of the bit messages in Runtime, you will define the properties of the bit messages in the next steps.



	Number	Class	Type	Priority	MessageTag	MessageBit
▶	1	Error	Alarm	0		0
	2	Error	Alarm	0		0
	3	Error	Alarm	0		0

9.6.3 Editing bit messages

Introduction

The following steps show you how to define the properties of the bit messages in the editor "Alarm Logging".

In the "Quick_Start" project you will define the following properties for each bit message:

- Message tag
- Message bit
- Message text
- Point of error

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 bit message is triggered.

In the "Quick_Start" project, you will create a new internal tag to simulate the different statuses of the supply valve. You will set this tag as a message tag for the created bit messages. One of the bit message is triggered when a certain bit is set in the tag value. You can define which bit triggers a bit message by means of the property "Message bit".

The message text describes the status of the supply valve, e.g. "Valve open" in the "Quick_Start" project.

The point of error describes the location of the status change.

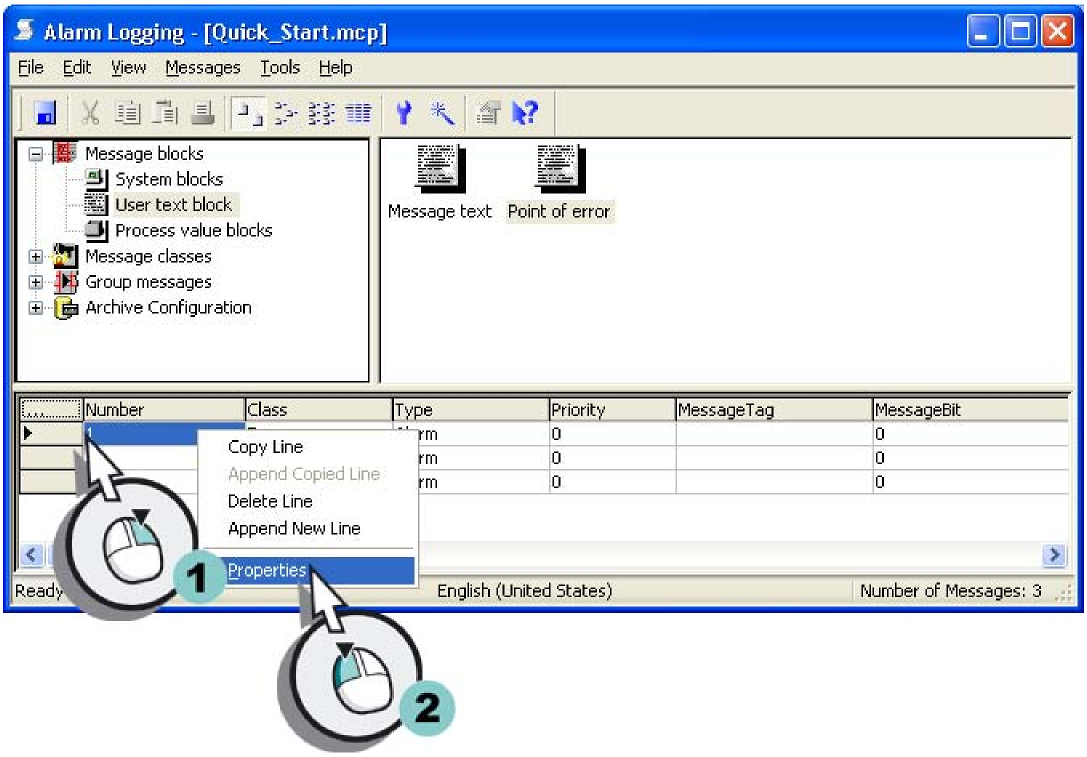
Requirement

The "Quick_Start" project is open.

"Alarm Logging" editor is open.

Procedure

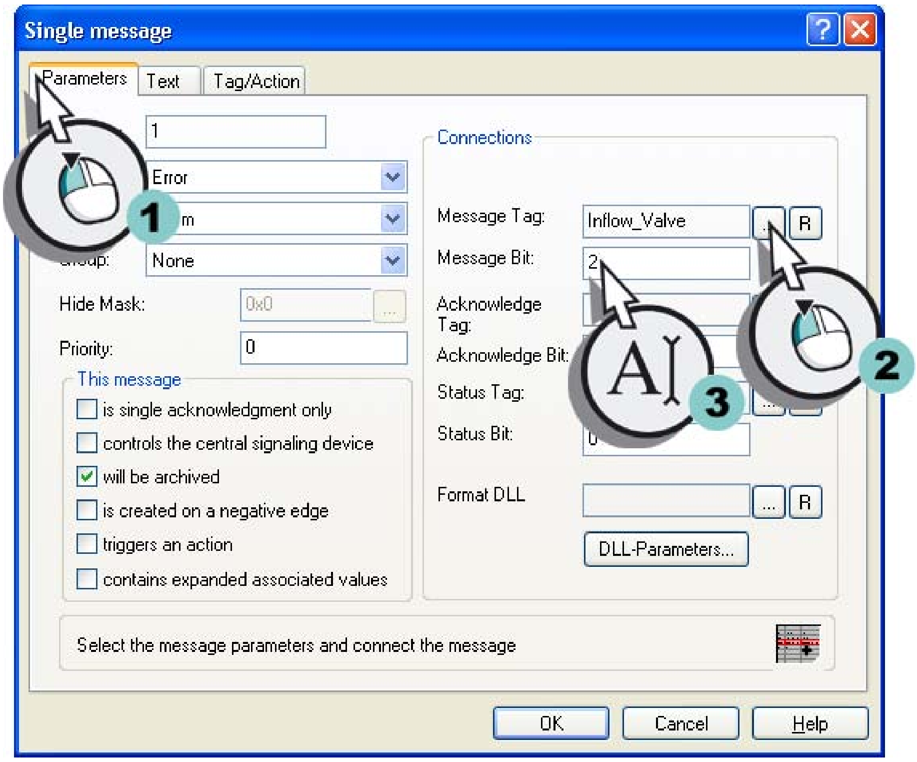
1. Create a new internal tag in the WinCC Explorer. Enter "Inflow_Valve" as a name for the tag and choose the data type "Unsigned 16 bit value".
2. Open the "Single message" dialog to define the properties of the first bit message:



Number	Class	Type	Priority	MessageTag	MessageBit
1		rm	0		0
		rm	0		0
		rm	0		0

The "Single Message" dialog is opened.

3. Define the "Message tag" and "Message bit" properties:



Single message

Parameters | Text | Tag/Action

1

Error

m

oup: None

Hide Mask: 0x0

Priority: 0

This message

- ☐ is single acknowledgment only
- ☐ controls the central signaling device
- ☑ will be archived
- ☐ is created on a negative edge
- ☐ triggers an action
- ☐ contains expanded associated values

Connections

Message Tag: Inflow_Valve

Message Bit: 2

Acknowledge Tag:

Acknowledge Bit:

Status Tag:

Status Bit: 0

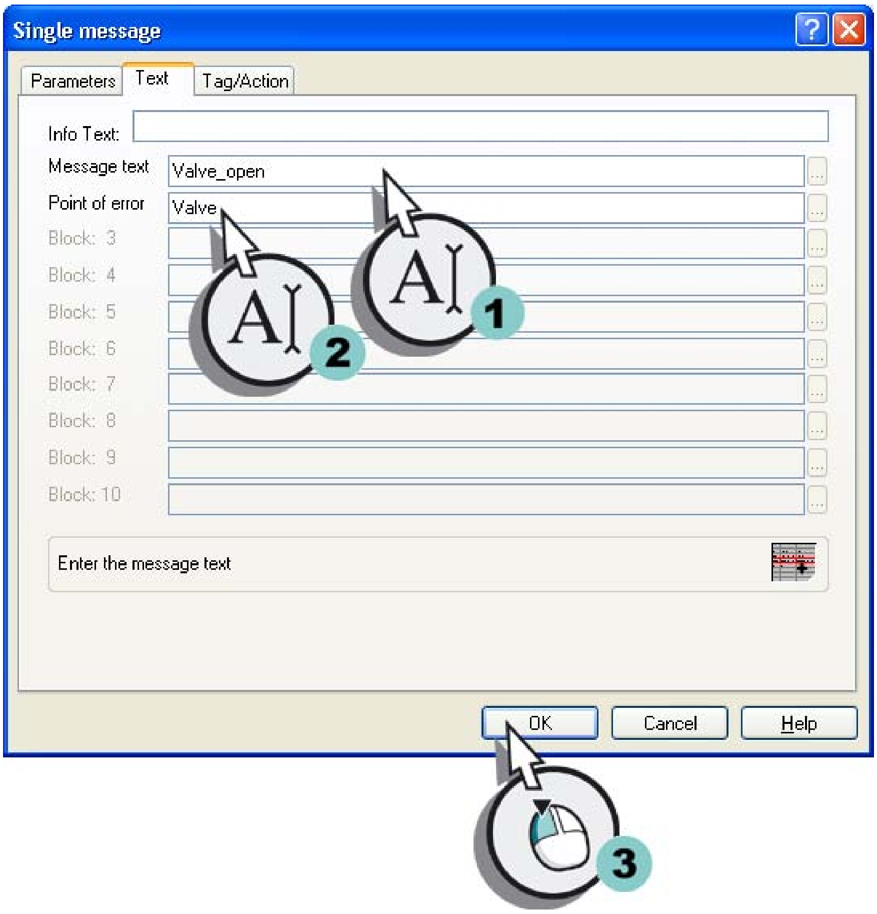
Format DLL

DLL-Parameters...

Select the message parameters and connect the message

OK | Cancel | Help

4. Click the "Texts" tab and define the properties "Message text" and "Point of error":



Single message

Parameters | Text | Tag/Action

Info Text:

Message text: Valve_open

Point of error: Valve

Block: 3

Block: 4

Block: 5

Block: 6

Block: 7

Block: 8

Block: 9

Block: 10

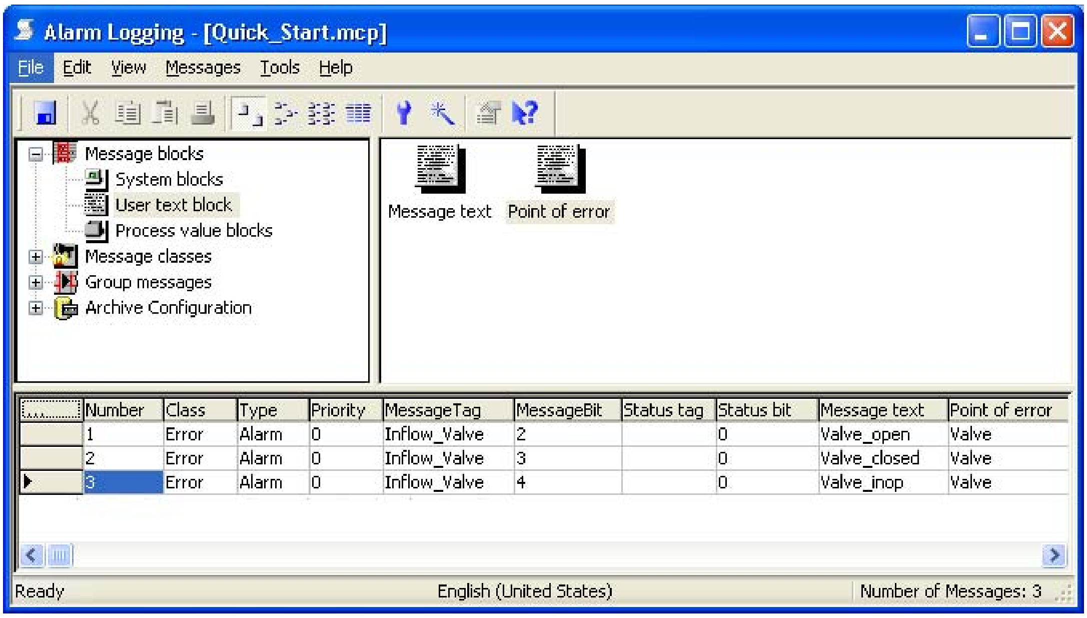
Enter the message text

5. Analog to step 2, create the following properties for the second bit message:
   - Message tag: "Inflow_Valve"
   - Message bit: 3
   - Message text: "Valve_closed"
   - Point of error: "Valve"
6. Analog to step 2, create the following properties for the third bit message:
   - Message tag: "Inflow_Valve"
   - Message bit: 4
   - Message text: "Valve_inop"
   - Point of error: "Valve"
7. Save the settings via the button 💾 in the toolbar.

Result

You have defined the properties of the bit messages for the "Quick_Start" project. This controls the output of the bit messages in Runtime. If the second bit from the right is set in the value of the internal tag "Inflow_Valve", the bit message "Valve_open" is triggered.

In order to monitor the behavior of the internal tag "Tank_Level", you will configure two analog messages in the next steps.



	Number	Class	Type	Priority	MessageTag	MessageBit	Status tag	Status bit	Message text	Point of error
	1	Error	Alarm	0	Inflow_Valve	2		0	Valve_open	Valve
	2	Error	Alarm	0	Inflow_Valve	3		0	Valve_closed	Valve
▶	3	Error	Alarm	0	Inflow_Valve	4		0	Valve_inop	Valve

9.7 Configuring analog messages

9.7.1 Configuring analog messages

Introduction

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

General procedure

The analog messages show trangressions of or non-achieved limit values in Runtime.

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

- Integrating limit value monitoring
- Defining the tag to be monitored
- Setting Limit Values

The limit value monitoring is an add-in to WinCC. The limit value monitoring is not automatically provided in the "Alarm_Logging" editor. As you will need this extension for the "Quick_Start" project, you integrate it into the "Alarm_Logging" editor.

You will define tag to be monitored under the limit value monitoring. In the "Quick_Start" project you will monitor the behavior of the internal tag "Tank_Level". You will set a lower and high limit for this tag. The "Alarm Logging" editor will create an analog message for each defined limit value. If a limit value is violated, the corresponding analog message will be triggered and displayed in Runtime.

9.7.2 Integrating limit value monitoring

Introduction

The following steps show you how to integrate the limit value monitoring into the editor "Alarm Logging" and how to define the tag to be monitored.

You can control the behavior of the internal tag "Tank_Level" with the limit value monitoring. The values of these tags simulate the fill level of the water tank.

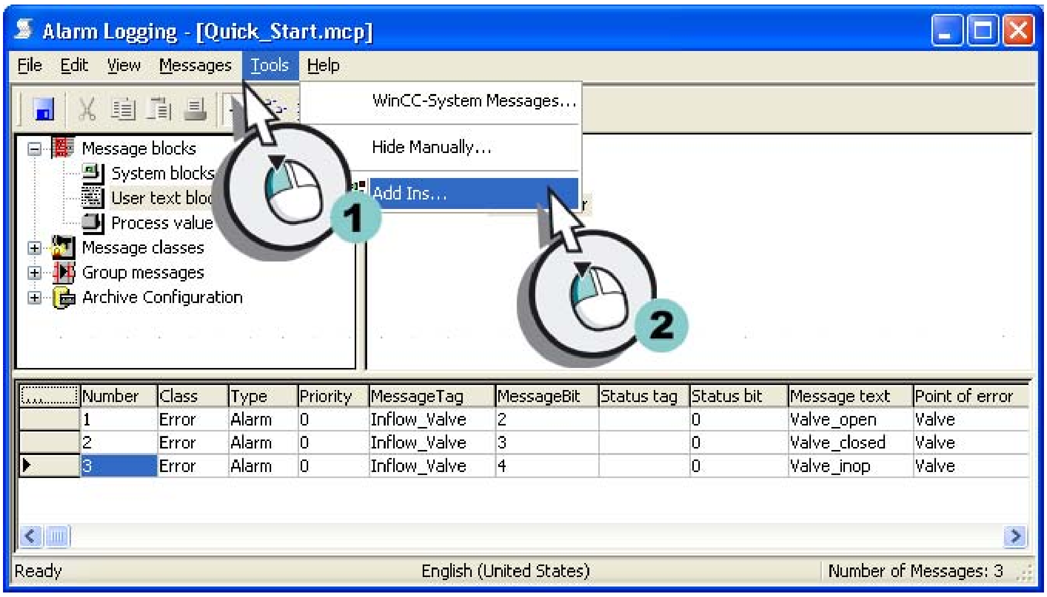
Requirement

"Alarm Logging" editor is open.

The internal tag "Tank_Level" has been created.

Procedure

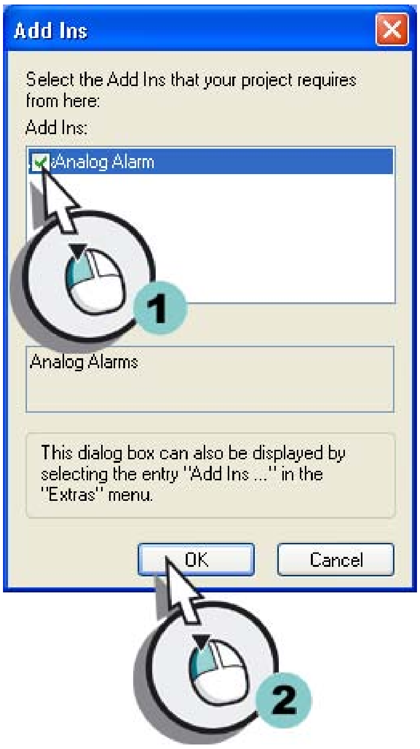
1. Open the "Enhancements" dialog:



Number	Class	Type	Priority	MessageTag	MessageBit	Status tag	Status bit	Message text	Point of error
1	Error	Alarm	0	Inflow_Valve	2		0	Valve_open	Valve
2	Error	Alarm	0	Inflow_Valve	3		0	Valve_closed	Valve
3	Error	Alarm	0	Inflow_Valve	4		0	Valve_inop	Valve

The "Enhancements" dialog is opened.

2. Select the entry "Limit value monitoring".



Select the Add Ins that your project requires from here:

Add Ins:

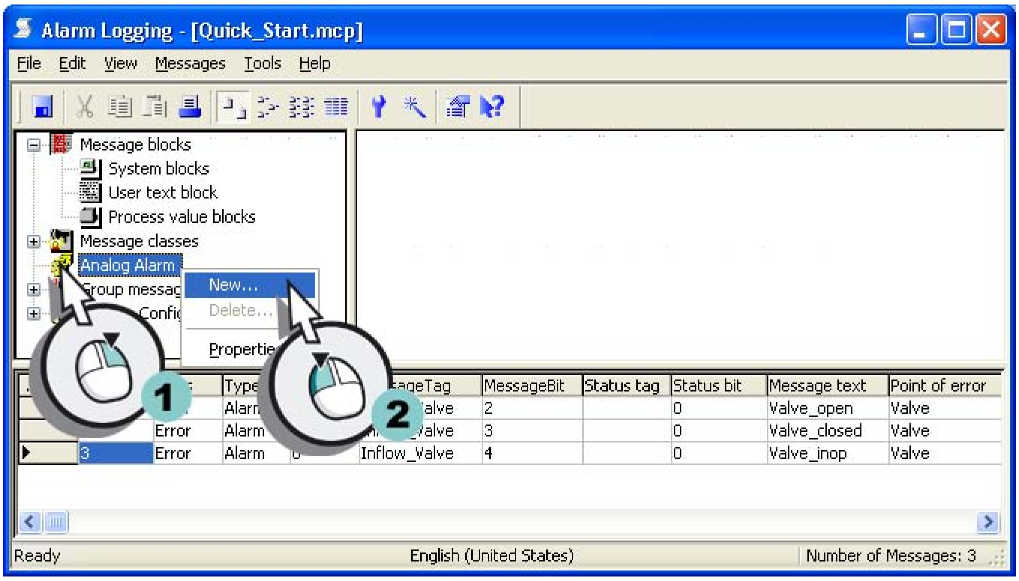
☑ Analog Alarm

Analog Alarms

This dialog box can also be displayed by selecting the entry "Add Ins ..." in the "Extras" menu.

The enhancement "Limit value monitoring" is displayed in the "Alarm_Logging" editor.

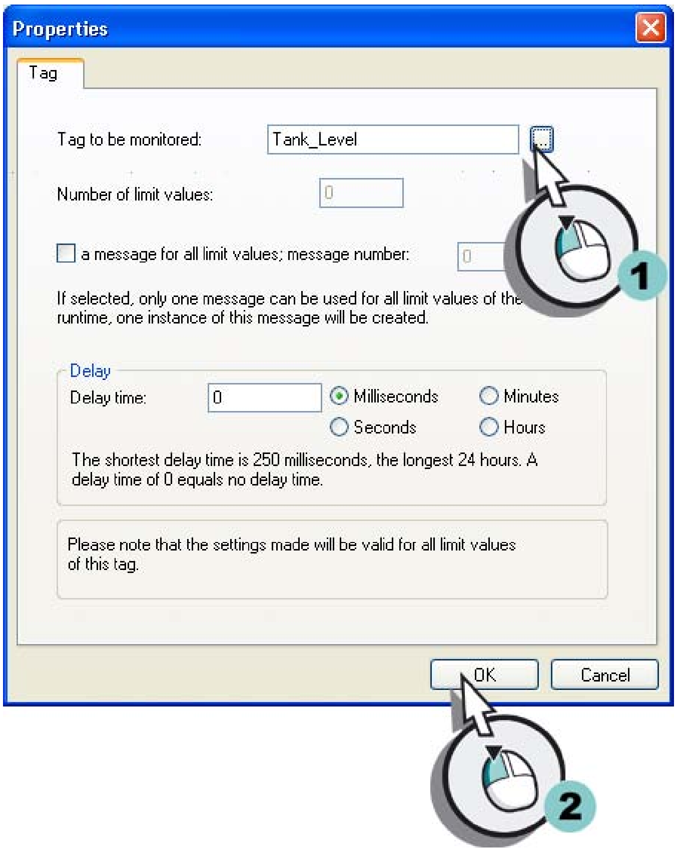
3. Open the "Properties" dialog to define the tag to be monitored:



		s	Type		ageTag	MessageBit	Status tag	Status bit	Message text	Point of error
			Alarr		alve	2		0	Valve_open	Valve
		Error	Alarm		Valve	3		0	Valve_closed	Valve
▶	3	Error	Alarm	0	Inflow_Valve	4		0	Valve_inop	Valve

Ready | English (United States) | Number of Messages: 3

4. Select the internal tag "Tank_Level":



Tag to be monitored: Tank_Level

Number of limit values: 0

☐ a message for all limit values; message number: 0

If selected, only one message can be used for all limit values of the runtime, one instance of this message will be created.

Delay

Delay time: 0 ● Milliseconds ○ Minutes ○ Seconds ○ Hours

The shortest delay time is 250 milliseconds, the longest 24 hours. A delay time of 0 equals no delay time.

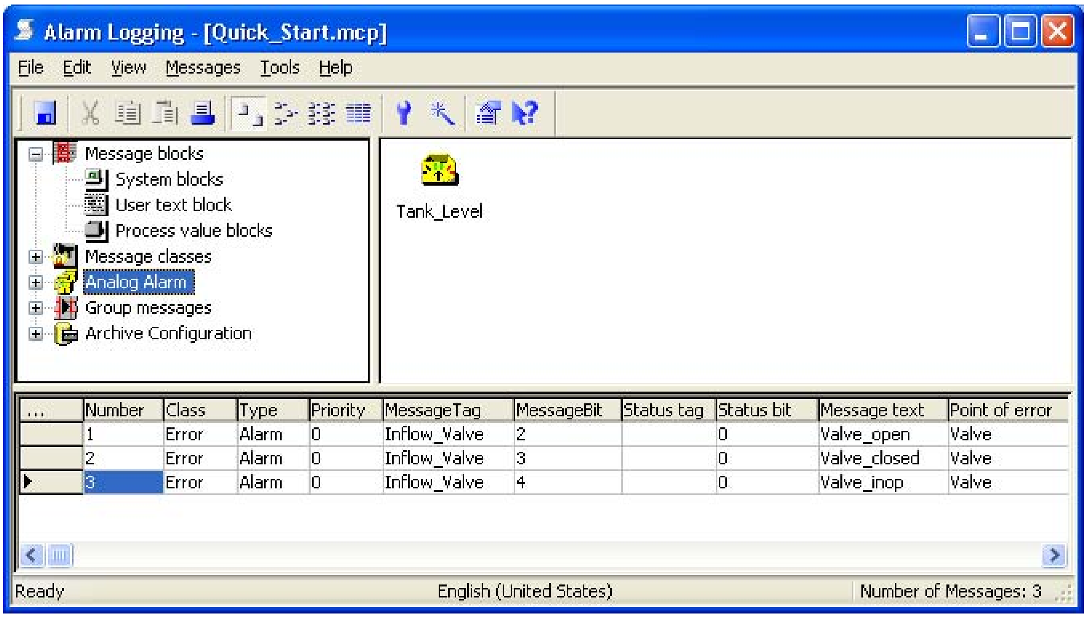
Please note that the settings made will be valid for all limit values of this tag.

The internal tag "Tank_Level" is displayed in editor "Alarm Logging".

Result

You have integrated the enhancement "Limit value monitoring" in the "Alarm_Logging" editor. You monitor the behavior of the internal tag "Tank_Level" with this enhancement. The values of the internal tag simulate changes in the fill level of the water tank.

With these limit values you will determine which fill level of the water tank an analog message is triggered in the next steps.



...	Number	Class	Type	Priority	MessageTag	MessageBit	Status tag	Status bit	Message text	Point of error
	1	Error	Alarm	0	Inflow_Valve	2		0	Valve_open	Valve
	2	Error	Alarm	0	Inflow_Valve	3		0	Valve_closed	Valve
▶	3	Error	Alarm	0	Inflow_Valve	4		0	Valve_inop	Valve

9.7.3 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 limit values can be set for a tag. The "Alarm Logging" editor will create an analog message for each defined limit value. The created analog messages are displayed in the table window of the "Alarm_Logging" editor after a restart. You define the properties of the analog messages in the table window.

In the "Quick_Start" project you will define a upper and low limit value for the internal tag "Tank_Level". You will use analog messages to monitor these limit values.

The high limit value will define the maximum water volume that is permitted in the water tank. If the high limit value is exceeded, the water tank is overfilled. The corresponding analog message is displayed in Runtime.

The low limit value will define the minimum water volume that is supposed to be in the water tank. If the low limit value is not reached, the fill level of the water tank has sunk to a dangerous level. The corresponding analog message is displayed in Runtime.

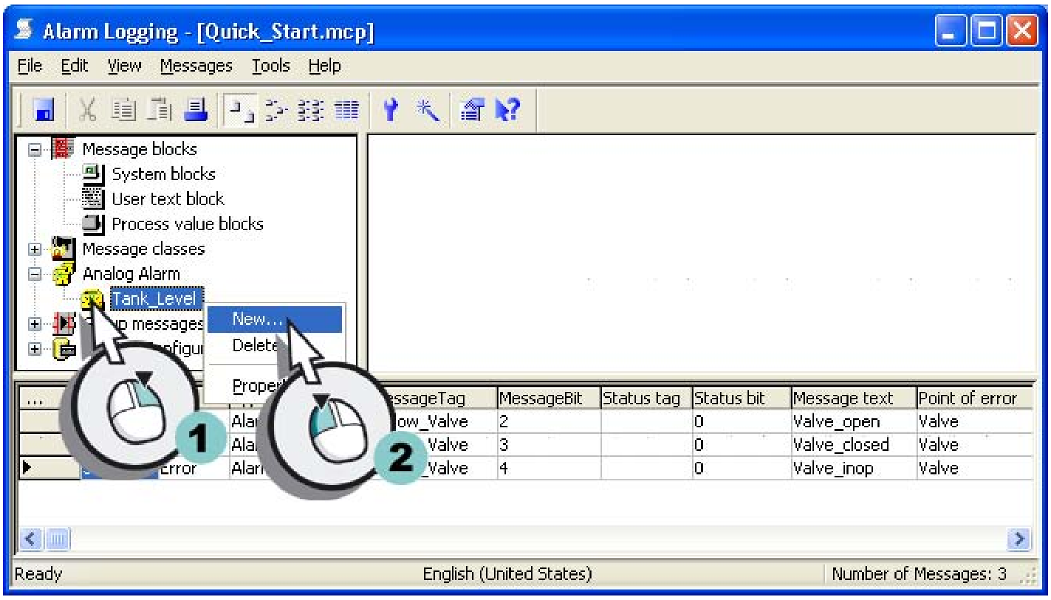
Requirement

"Alarm Logging" editor is open.

The limit value monitoring for the internal tag "Tank_Level" has been configured.

Procedure

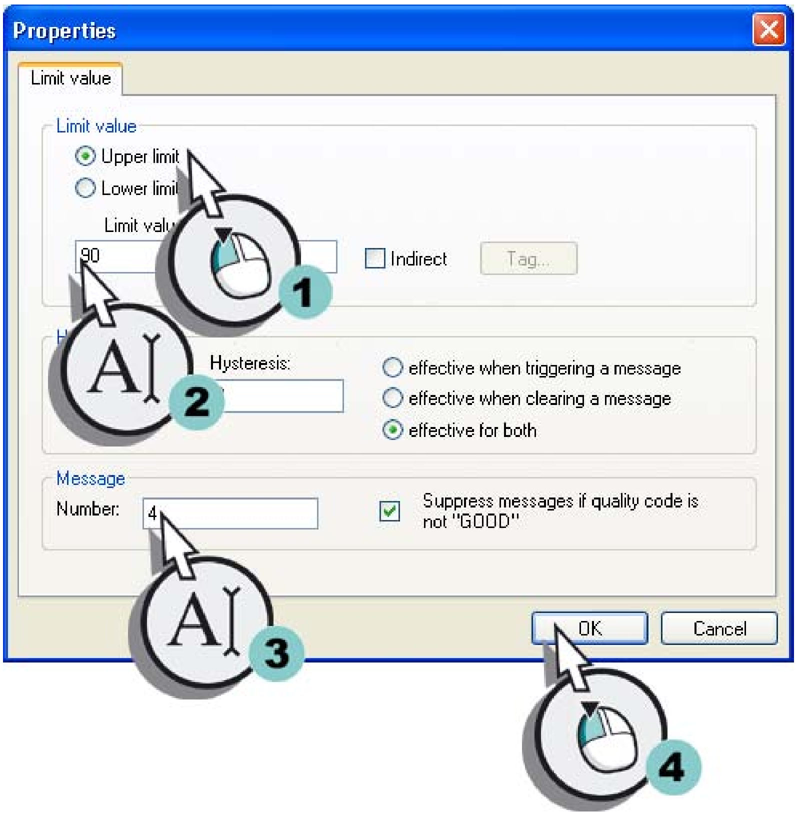
1. Insert a limit value:



...				...ssageTag	MessageBit	Status tag	Status bit	Message text	Point of error
			Ala...	...ow_Valve	2		0	Valve_open	Valve
			Ala...	...Valve	3		0	Valve_closed	Valve
▶		...rror	Alar...	..._Valve	4		0	Valve_inop	Valve

This will open the "Properties" dialog.

2. Activate the limit value "High limit" and define the properties of the limit value:



Properties

Limit value

Limit value

● Upper limit

○ Lower limit

Limit valu

90

□ Indirect

Tag...

Hysteresis:

○ effective when triggering a message

○ effective when clearing a message

● effective for both

Message

Number: 4

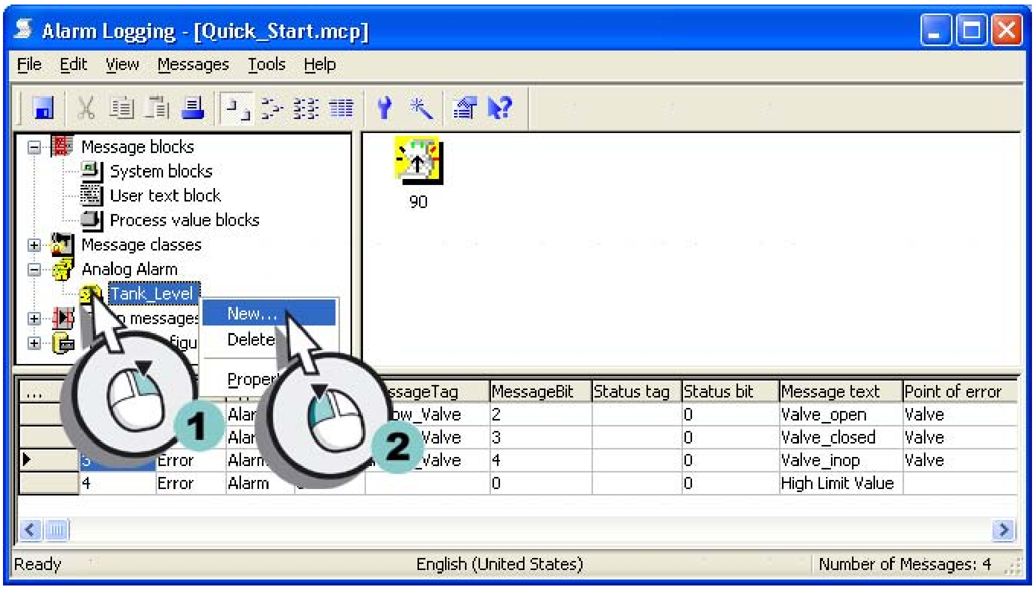
☑ Suppress messages if quality code is not "GOOD"

OK

Cancel

The high limit value will be displayed in the "Alarm_Logging" editor.

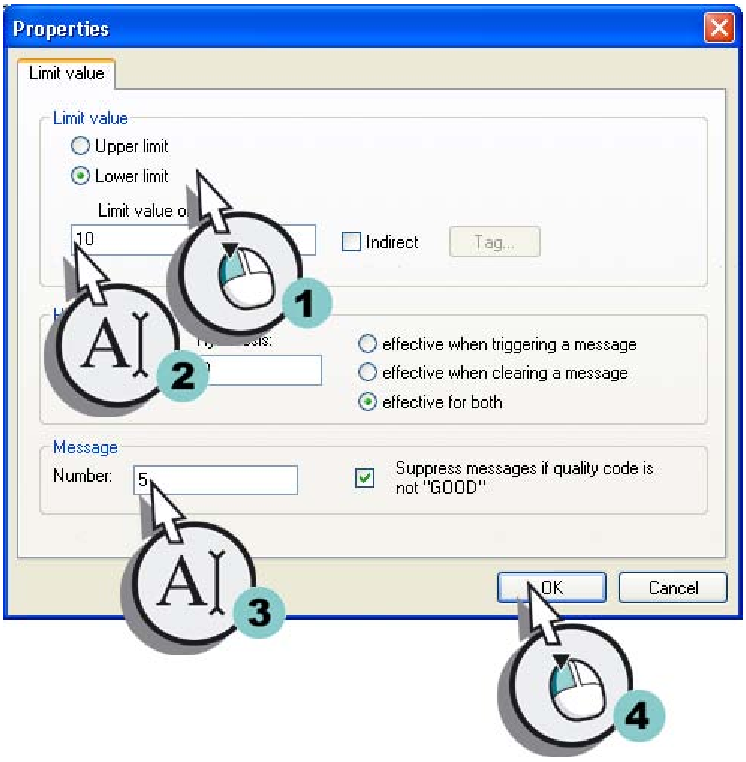
3. Insert a second limit value:



...				ssageTag	MessageBit	Status tag	Status bit	Message text	Point of error
			Alar	ow_Valve	2		0	Valve_open	Valve
			Alar	Valve	3		0	Valve_closed	Valve
	3	Error	Alarm	Valve	4		0	Valve_inop	Valve
	4	Error	Alarm		0		0	High Limit Value	

Ready English (United States) Number of Messages: 4

4. Activate the limit value "Low limit" and define the properties of the limit value:



Limit value

○ Upper limit

● Lower limit

Limit value o 10 □ Indirect Tag...

H

Hy...sis:

○ effective when triggering a message

○ effective when clearing a message

● effective for both

Message

Number: 5 ☑ Suppress messages if quality code is not "GOOD"

The low limit value will be displayed in the "Alarm_Logging" editor.

5. Save the settings via the button 💾 in the toolbar.

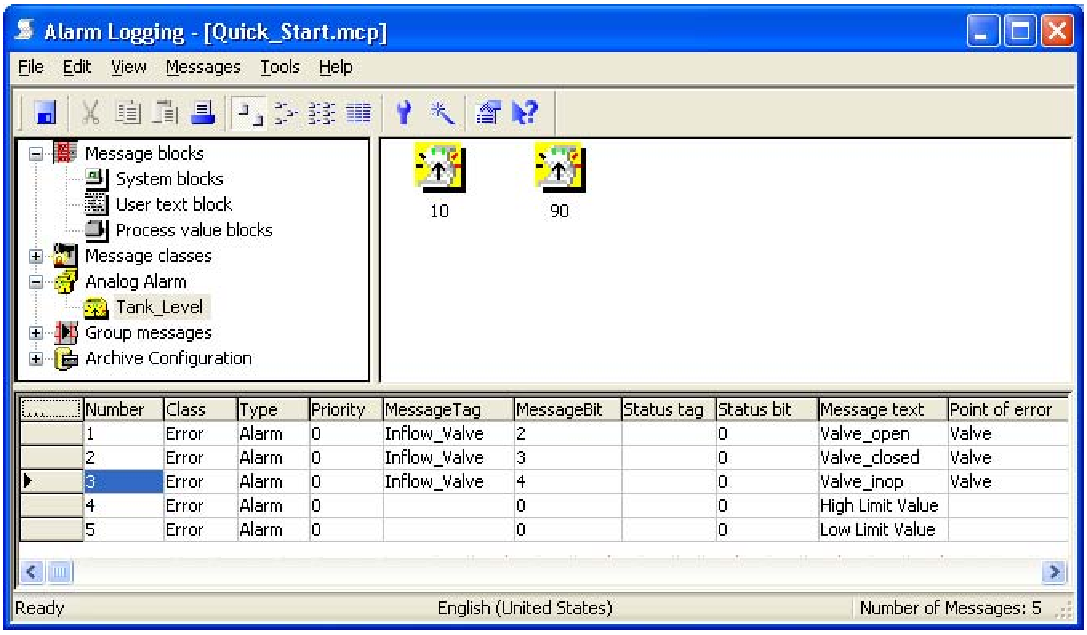
Result

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

If the tag value is larger than 90, the analog message "High limit value" is triggered and displayed in Runtime. This message shows that the water tank is overfilled.

If the tag value is smaller than 10, the analog message "Low limit value" is triggered and displayed in Runtime. This message shows that the fill level of the water tank has sunk below the permitted level.

In the next steps you will define the display colors of the message statuses in Runtime.



	Number	Class	Type	Priority	MessageTag	MessageBit	Status tag	Status bit	Message text	Point of error
	1	Error	Alarm	0	Inflow_Valve	2		0	Valve_open	Valve
	2	Error	Alarm	0	Inflow_Valve	3		0	Valve_closed	Valve
▶	3	Error	Alarm	0	Inflow_Valve	4		0	Valve_inop	Valve
	4	Error	Alarm	0		0		0	High Limit Value	
	5	Error	Alarm	0		0		0	Low Limit Value	

9.8 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 has "arrived" as long as the cause for the message exists.
- A message has "been sent" 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 will define different text colors and background colors for the three basic statuses. This definition is applicable to the entire message type "Alarm" of the message class "Fault". This will apply the settings to all messages in the "Quick_Start" project.

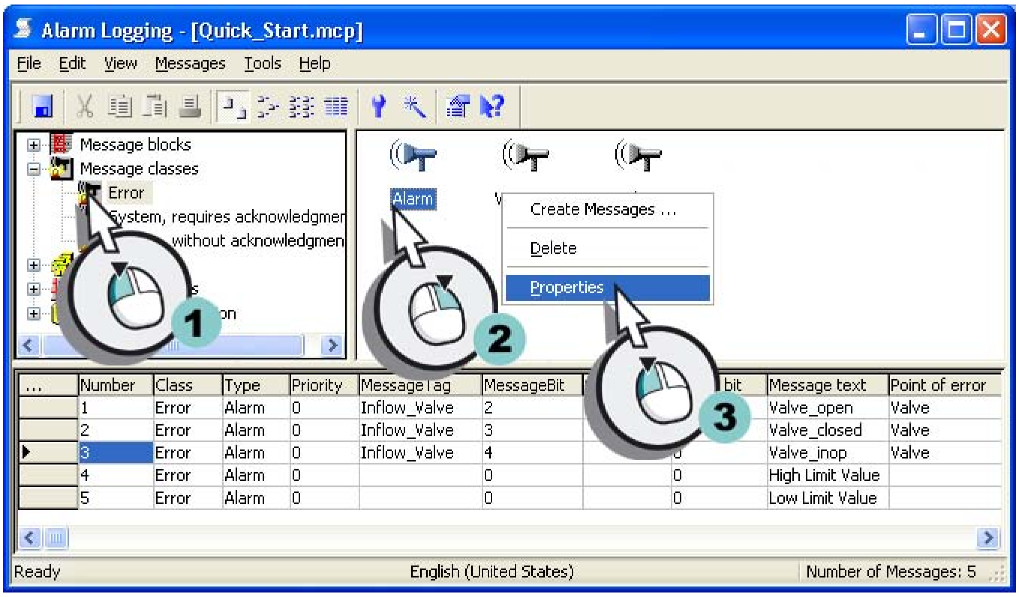
Requirement

"Alarm Logging" editor is open.

The message classes are defined for the "Quick_Start" project.

Procedure

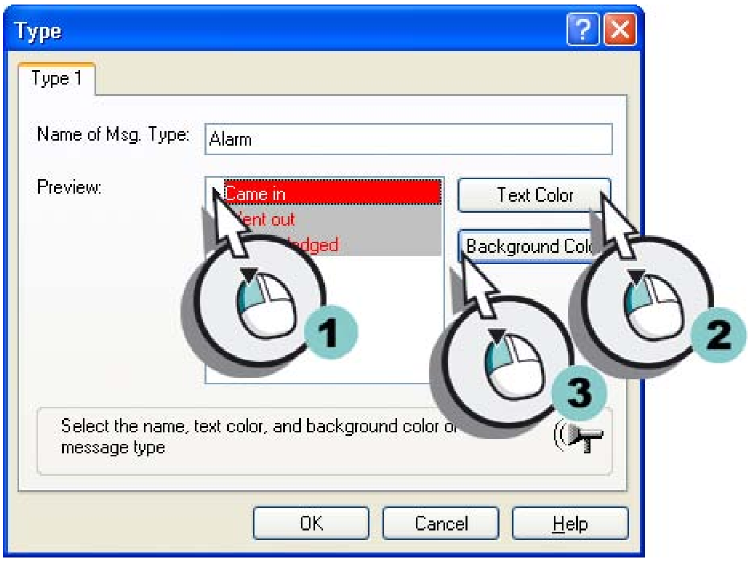
1. Open the "Type" dialog:



...	Number	Class	Type	Priority	MessageTag	MessageBit		bit	Message text	Point of error
	1	Error	Alarm	0	Inflow_Valve	2	[illegible]	[illegible]	Valve_open	Valve
	2	Error	Alarm	0	Inflow_Valve	3	[illegible]	[illegible]	Valve_closed	Valve
▶	3	Error	Alarm	0	Inflow_Valve	4	[illegible]	0	Valve_inop	Valve
	4	Error	Alarm	0		0		0	High Limit Value	
	5	Error	Alarm	0		0		0	Low Limit Value	

The "Type" dialog is opened.

2. Define the following properties for the message status "received":
   - Text color: White
   - Background color: Red



3. Follow the instructions in step 2 to define the following properties of the message status "sent":
   - Text color: White
   - Background color: Green
4. Follow the instructions in step 2 to define the following properties of the message status "acknowledged":
   - Text color: White
   - Background color: Blue
5. Exit the "Type" dialog by clicking the "OK" button.
6. Save the settings using the 💾 button in the toolbar.
7. Close the "Alarm Logging" editor.

Result

You have now defined the display color of the message statuses "received", "sent" 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.

9.9 Configuring the Process Screen

9.9.1 Configuring the Process Screen

Introduction

This chapter offers a description how to configure a process screen, which displays the output of the messages.

General procedure

You will configure the process screen in the editor "Graphics Designer". For this, you will use the following objects:

- WinCC AlarmControl
- Slider object
- I/O field

The "WinCC AlarmControl" object is used for creating a message window. The messages are displayed in a table in the message window. The output takes place in Runtime.

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 message is triggered.

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 bit message is triggered.

9.9.2 Configuring an Alarm Message Window

Introduction

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

You will configure the message window in the editor "Graphics Designer". For this, you will create a new process screen. You insert the "WinCC AlarmControl" object in the process picture. This objected is preconfigured for the display of the messages.

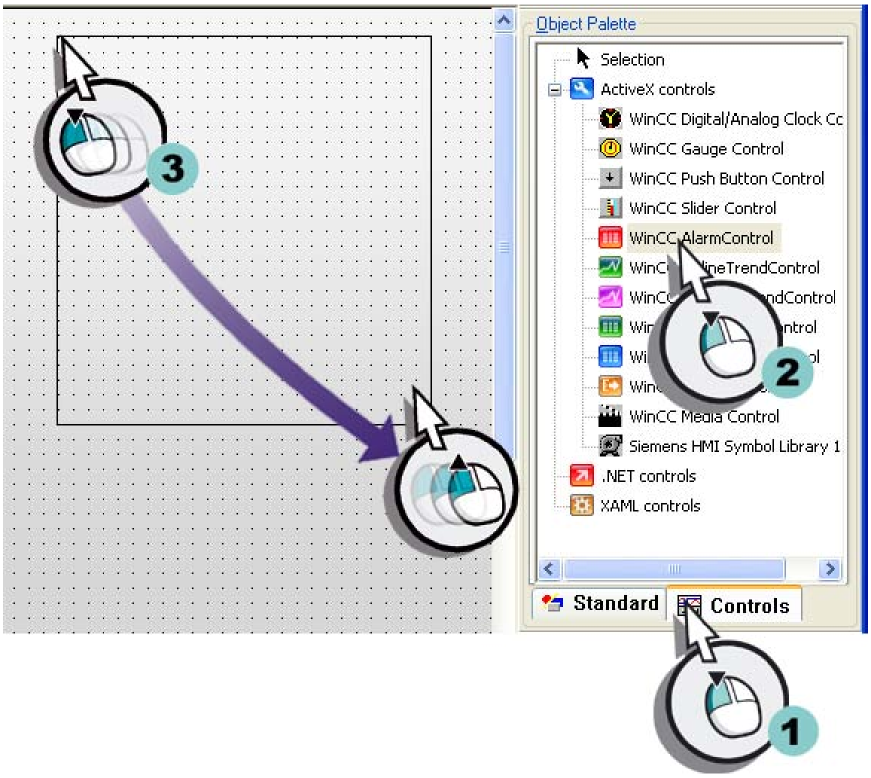
The properties of the WinCC AlarmControl are used to define which messages blocks are to be displayed as columns in the message window. In Runtime, the messages consist of these message blocks.

Requirement

The "Quick_Start" project is open.

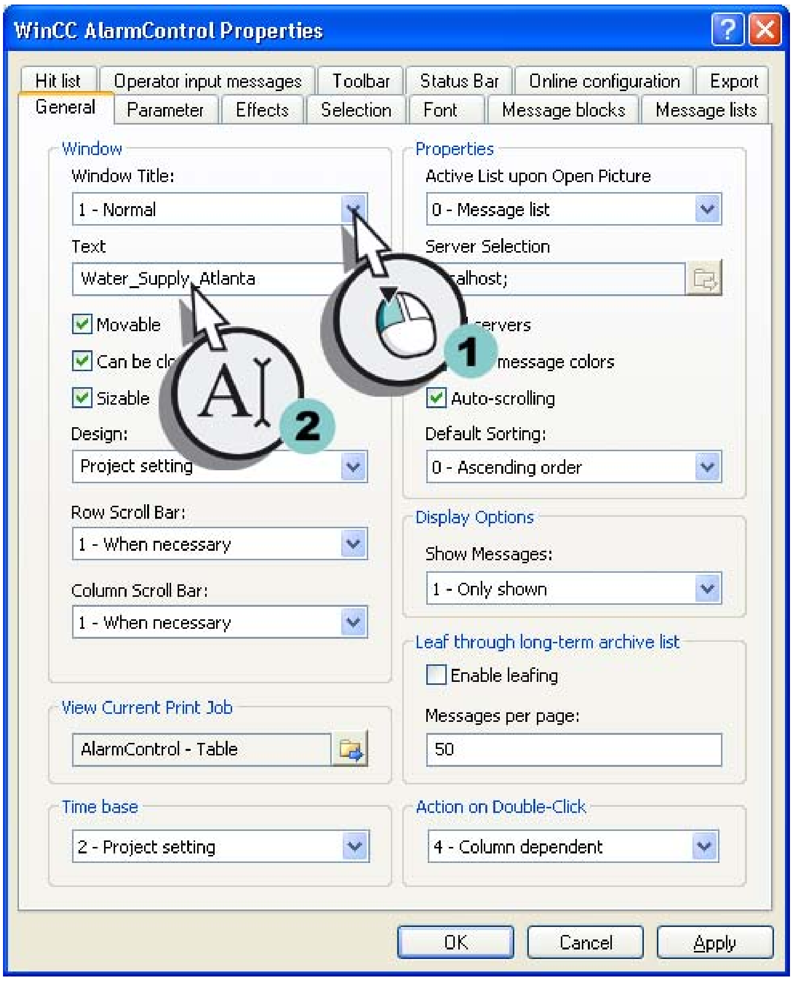
Procedure

1. Create a new process screen named "Alarm_Logging.pdl" and open it in the editor "Graphics Designer".
2. Insert the "WinCC AlarmControl" object in the process picture:



The "WinCC AlarmControl Properties" dialog opens.

3. Define the window title of the "WinCC AlarmControl" object:



Window

Window Title: 1 - Normal

Text: Water_Supply_Atlanta

☑ Movable

☑ Can be cl

☑ Sizable

Design: 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: alhost;

ervers

message colors

☑ Auto-scrolling

Default Sorting: 0 - Ascending order

Display Options

Show Messages: 1 - Only shown

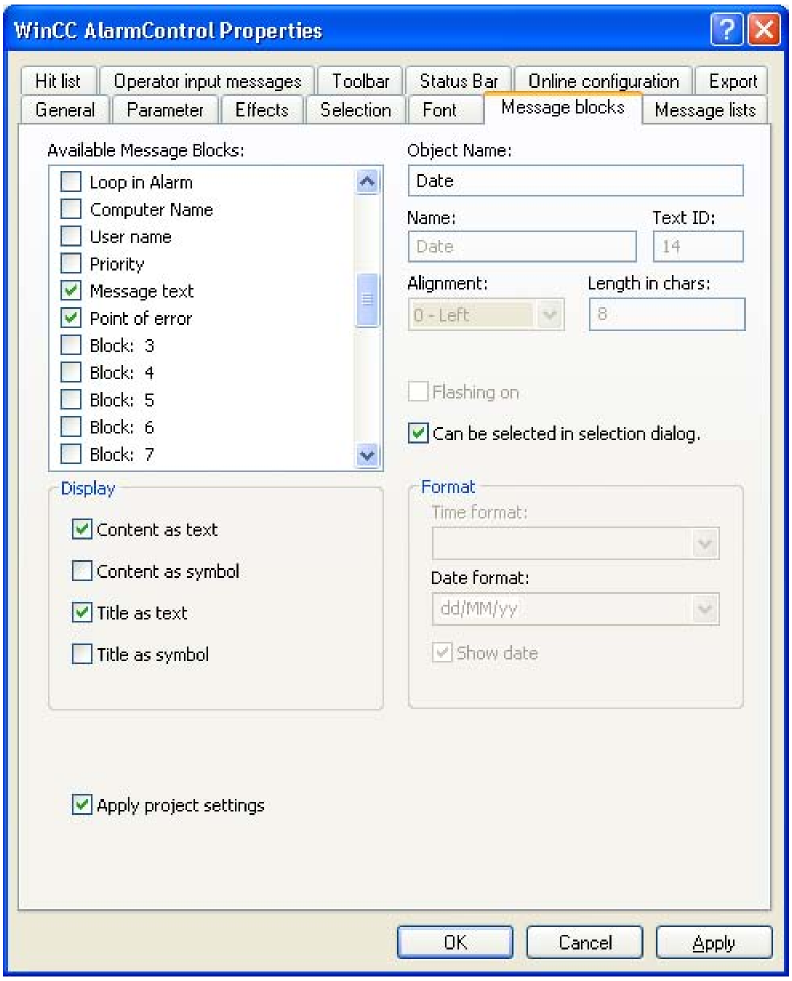
Leaf through long-term archive list

☐ Enable leafing

Messages per page: 50

Action on Double-Click: 4 - Column dependent

4. Click on the "Message blocks" tab. The "Apply Project Settings" setting is activated. This applies the configuration of the message blocks from Alarm Logging.



Available Message Blocks:

- □ Loop in Alarm
- □ Computer Name
- □ User name
- □ Priority
- ☑ Message text
- ☑ Point of error
- □ Block: 3
- □ Block: 4
- □ Block: 5
- □ Block: 6
- □ Block: 7

Object Name: Date

Name: Date

Text ID: 14

Alignment: 0 - Left

Length in chars: 8

□ Flashing on

☑ Can be selected in selection dialog.

Display

- ☑ Content as text
- □ Content as symbol
- ☑ Title as text
- □ Title as symbol

Format

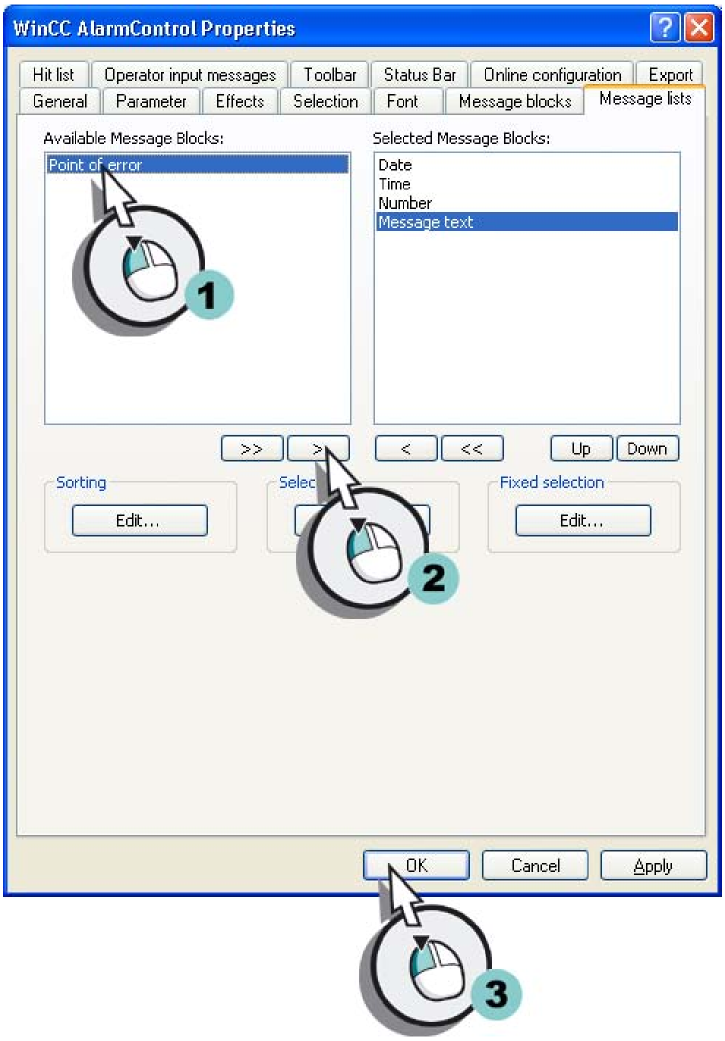
Time format:

Date format: dd/MM/yy

☑ Show date

☑ Apply project settings

5. Click the "Message Lists" tab and activate the user text blocks "Message Text" and "Fault Location" in the 'Selected Message Blocks' field.



The user text blocks "Message Text" and "Fault Location" are displayed in the message window.

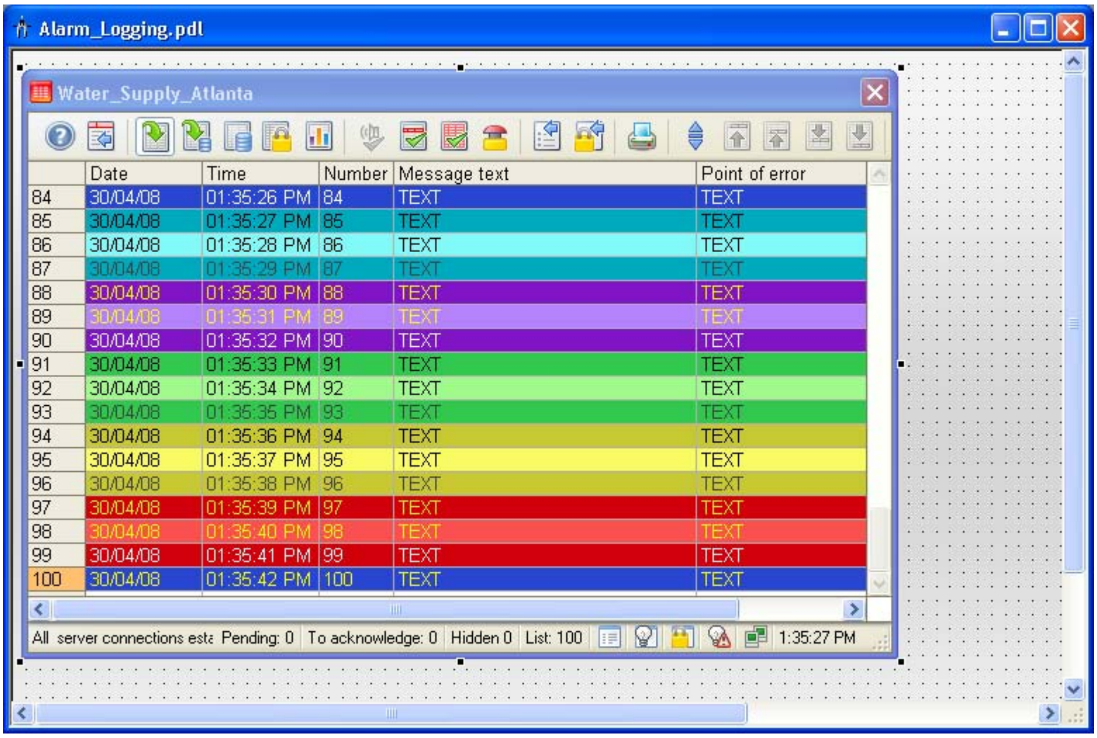
6. Enlarge the message window.

Result

You have configured the message window "Water_Supply_Atlanta". 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 consists of the following message blocks in the message window:

- System blocks: Date, time and number
- User text blocks: Message Text and Fault Location

Configure a slider object in the next steps to provide analog values to the internal tag "Tank_Level".



	Date	Time	Number	Message text	Point of error
84	30/04/08	01:35:26 PM	84	TEXT	TEXT
85	30/04/08	01:35:27 PM	85	TEXT	TEXT
86	30/04/08	01:35:28 PM	86	TEXT	TEXT
87	30/04/08	01:35:29 PM	87	TEXT	TEXT
88	30/04/08	01:35:30 PM	88	TEXT	TEXT
89	30/04/08	01:35:31 PM	89	TEXT	TEXT
90	30/04/08	01:35:32 PM	90	TEXT	TEXT
91	30/04/08	01:35:33 PM	91	TEXT	TEXT
92	30/04/08	01:35:34 PM	92	TEXT	TEXT
93	30/04/08	01:35:35 PM	93	TEXT	TEXT
94	30/04/08	01:35:36 PM	94	TEXT	TEXT
95	30/04/08	01:35:37 PM	95	TEXT	TEXT
96	30/04/08	01:35:38 PM	96	TEXT	TEXT
97	30/04/08	01:35:39 PM	97	TEXT	TEXT
98	30/04/08	01:35:40 PM	98	TEXT	TEXT
99	30/04/08	01:35:41 PM	99	TEXT	TEXT
100	30/04/08	01:35:42 PM	100	TEXT	TEXT

All server connections est: Pending: 0 To acknowledge: 0 Hidden 0 List: 100 1:35:27 PM

9.9.3 Inserting a slider object and making it dynamic

Introduction

The following steps will show you how to insert slider object and how to make it dynamic.

The slider object is used for the display and changing of tag names. 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 screen "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 limit values, the corresponding analog message is displayed in the message window.

You will change the preset properties of the slider object for the "Quick_Start" project. In the "Object properties" dialog, you will define a new name for the slider object and you will specify its height and color.

Requirement

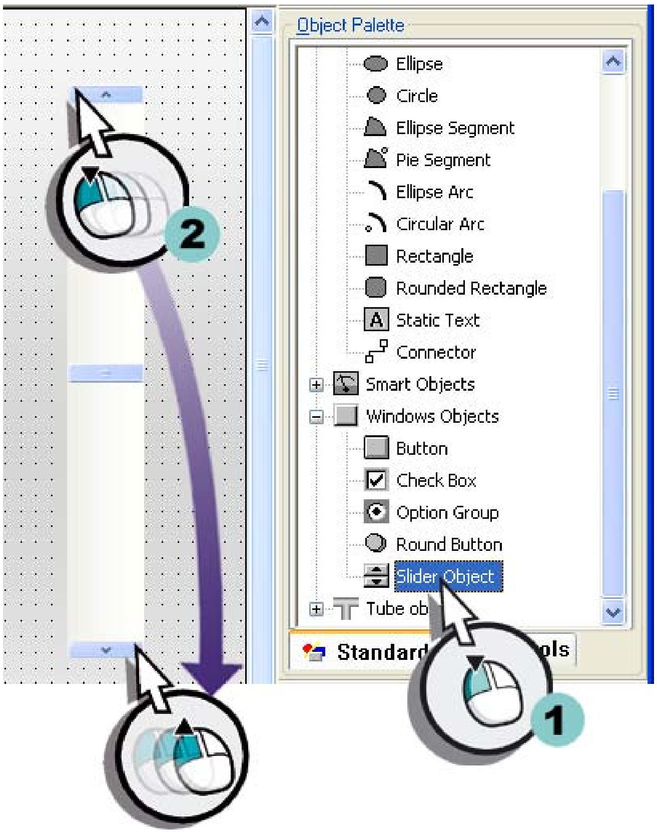
The "Graphics Designer" editor is open.

The process screen "Alarm_Logging.pdl" has been created.

The internal tag "Tank_Level" has been created.

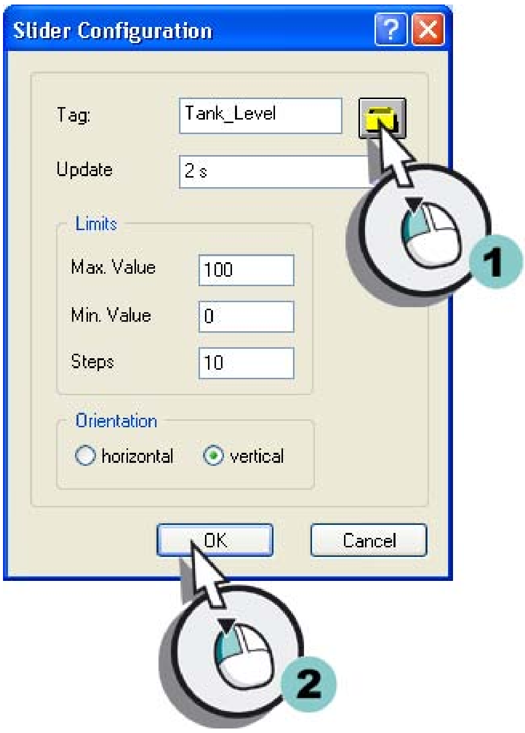
Procedure

1. Insert a slider object into the process screen "Alarm_Logging.pdl":



The "Slider Configuration" dialog opens.

2. Link the slider object to the internal tag "Tank_Level".



Slider Configuration

Tag: Tank_Level

Update 2 s

Limits

Max. Value 100

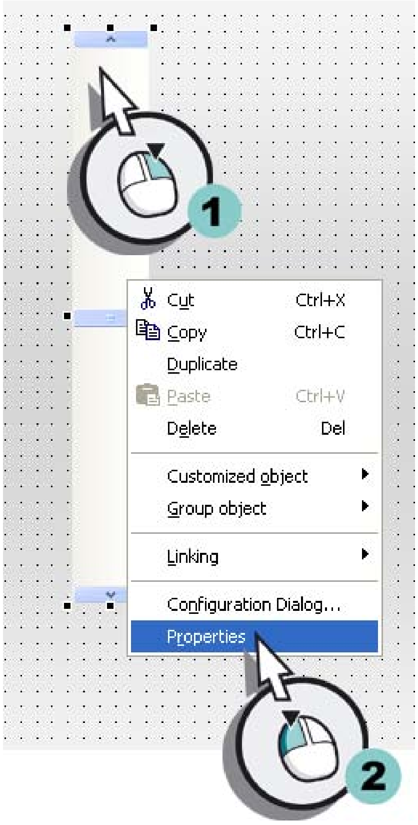
Min. Value 0

Steps 10

Orientation

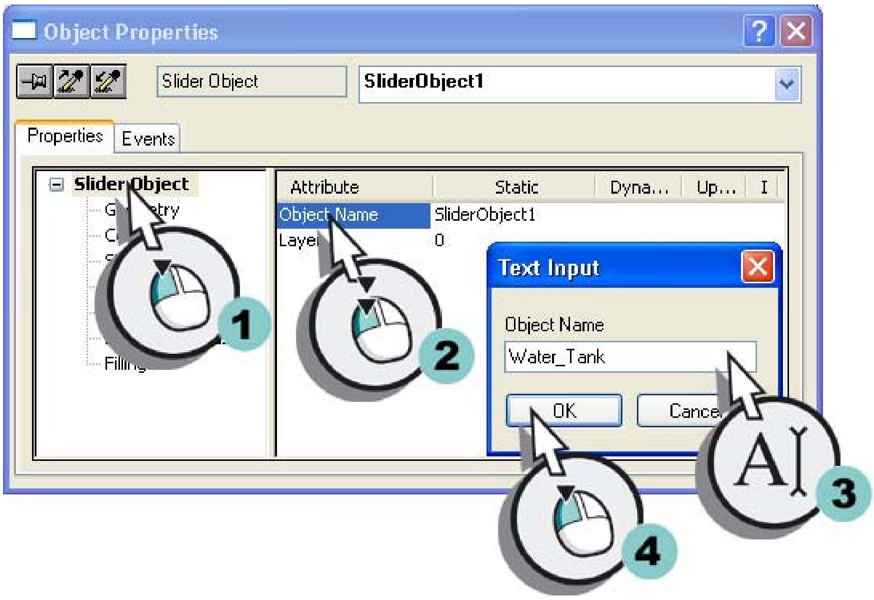
○ horizontal ● vertical

3. Open the "Object Properties" dialog:



The "Object Properties" dialog is opened.

4. Enter "Water_Tank" as a name for the slider object:



Object Properties

Slider Object | SliderObject1

Properties | Events

Slider Object

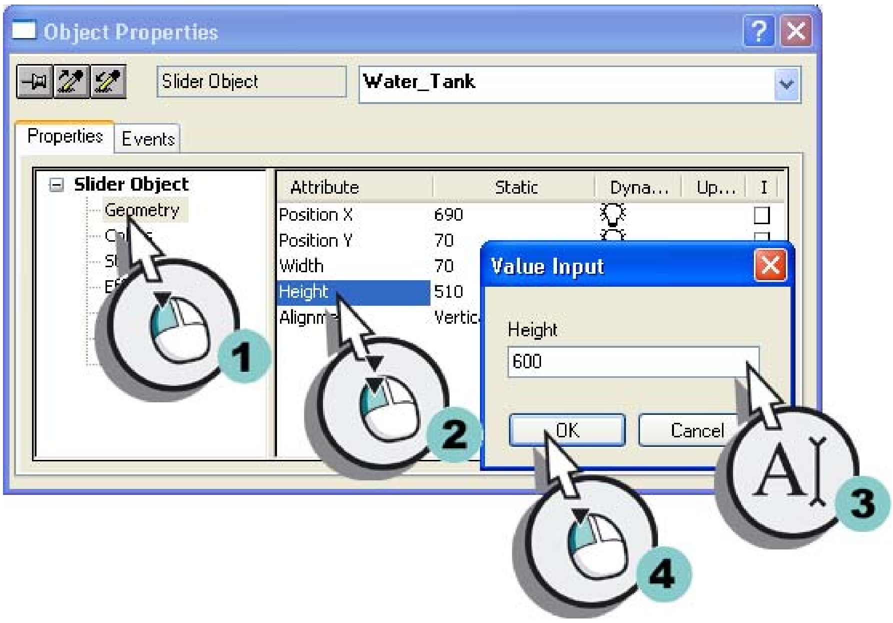
Attribute	Static	Dyna...	Up...	I
Object Name	SliderObject1			
Layer	0			

Text Input

Object Name: Water_Tank

OK | Cancel

5. Define "600" as the height for the slider object:



Object Properties

Slider Object | Water_Tank

Properties | Events

Slider Object
Geometry

Attribute	Static	Dyna...	Up...	I
Position X	690			□
Position Y	70			□
Width	70			
Height	510			
Alignment	Vertic			

Value Input

Height: 600

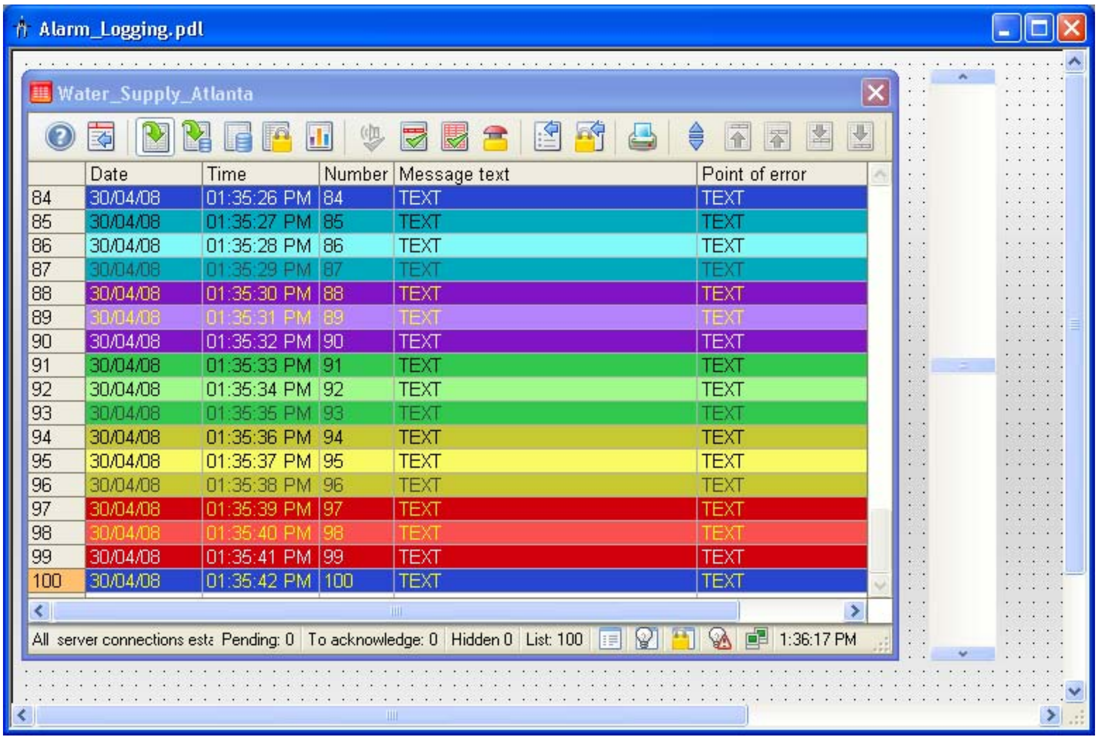
OK | Cancel

6. Close the "Object properties" dialog box.

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.



	Date	Time	Number	Message text	Point of error
84	30/04/08	01:35:26 PM	84	TEXT	TEXT
85	30/04/08	01:35:27 PM	85	TEXT	TEXT
86	30/04/08	01:35:28 PM	86	TEXT	TEXT
87	30/04/08	01:35:29 PM	87	TEXT	TEXT
88	30/04/08	01:35:30 PM	88	TEXT	TEXT
89	30/04/08	01:35:31 PM	89	TEXT	TEXT
90	30/04/08	01:35:32 PM	90	TEXT	TEXT
91	30/04/08	01:35:33 PM	91	TEXT	TEXT
92	30/04/08	01:35:34 PM	92	TEXT	TEXT
93	30/04/08	01:35:35 PM	93	TEXT	TEXT
94	30/04/08	01:35:36 PM	94	TEXT	TEXT
95	30/04/08	01:35:37 PM	95	TEXT	TEXT
96	30/04/08	01:35:38 PM	96	TEXT	TEXT
97	30/04/08	01:35:39 PM	97	TEXT	TEXT
98	30/04/08	01:35:40 PM	98	TEXT	TEXT
99	30/04/08	01:35:41 PM	99	TEXT	TEXT
100	30/04/08	01:35:42 PM	100	TEXT	TEXT

All server connections est Pending: 0 To acknowledge: 0 Hidden 0 List: 100 1:36:17 PM

9.9.4 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 screen "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.

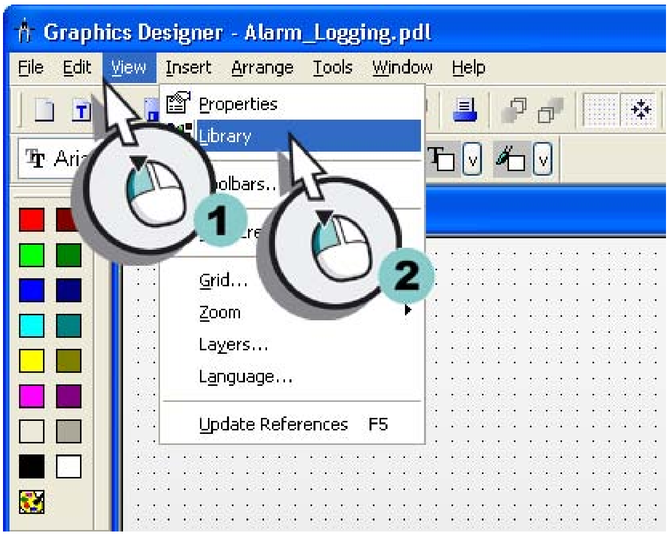
Requirement

The process screen "Alarm_Logging.pdl" is open.

The slider object "Water_Tank" has been inserted.

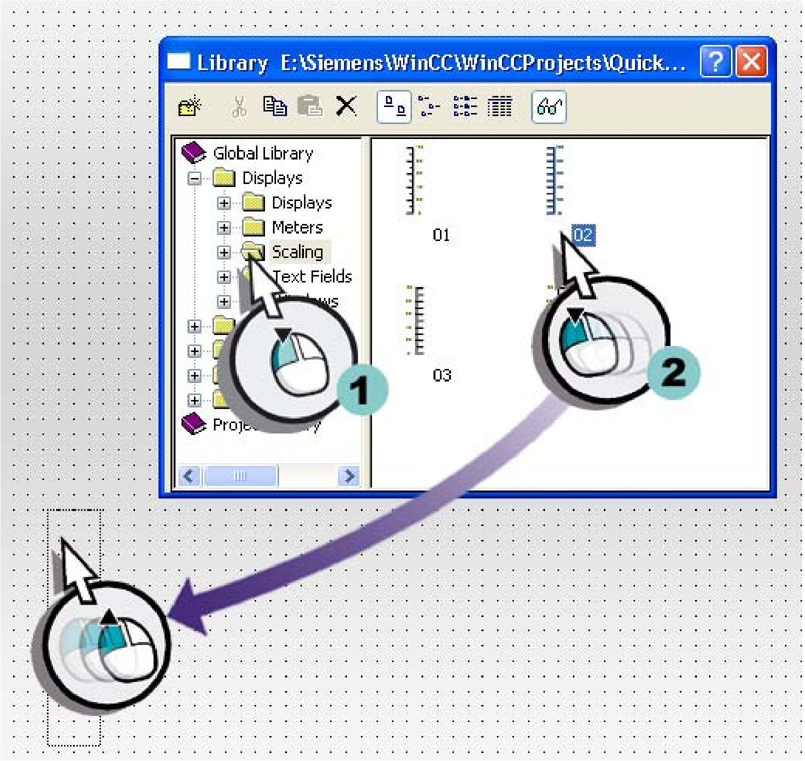
Procedure

1. Open the library:


Graphics Designer - Alarm_Logging.pdl
File Edit View Insert Arrange Tools Window Help
Properties
Library
Toolbars...
Grid...
Zoom
Layers...
Language...
Update References F5
1
2

The "Library" dialog is opened.

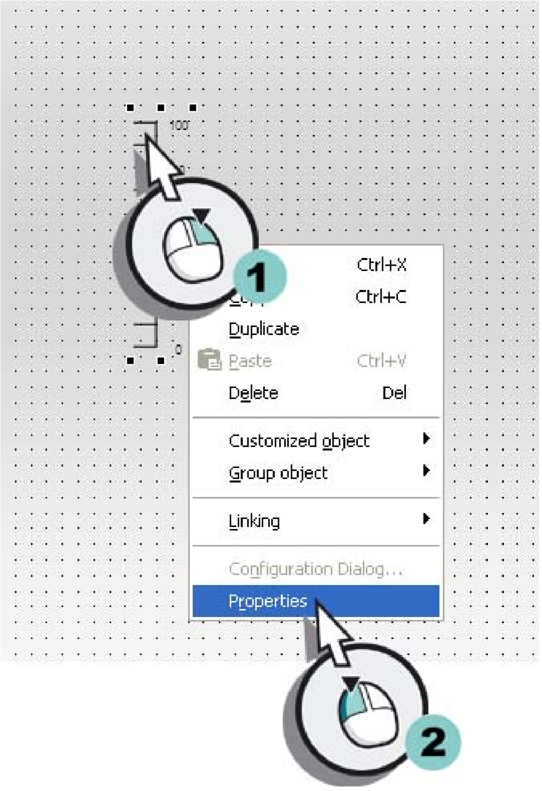
2. Insert the scale "02":



The scale is displayed in the "Alarm_Logging.pdl" process picture.

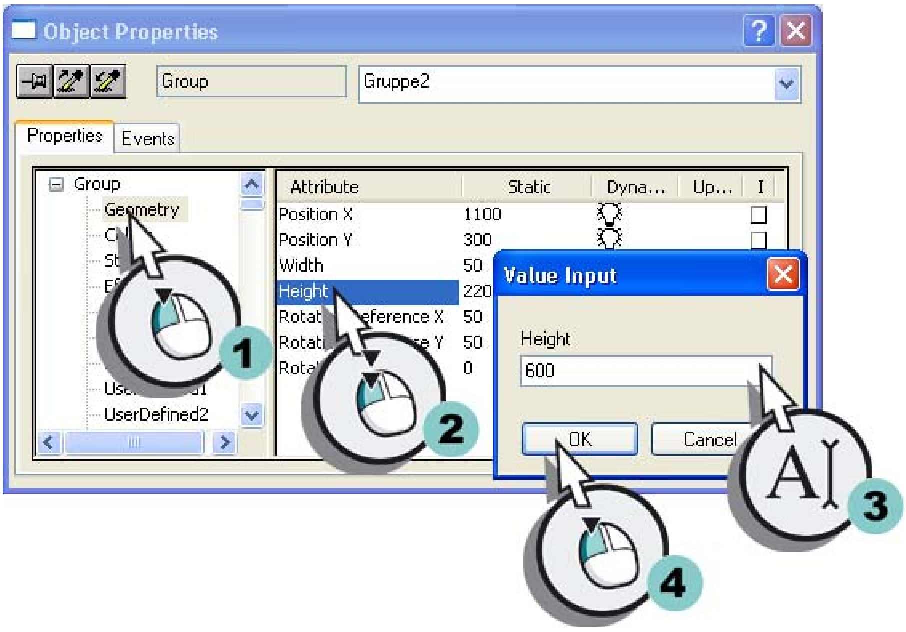
3. Close the library.

4. Open the "Object Properties" dialog:



The "Object Properties" dialog is opened.

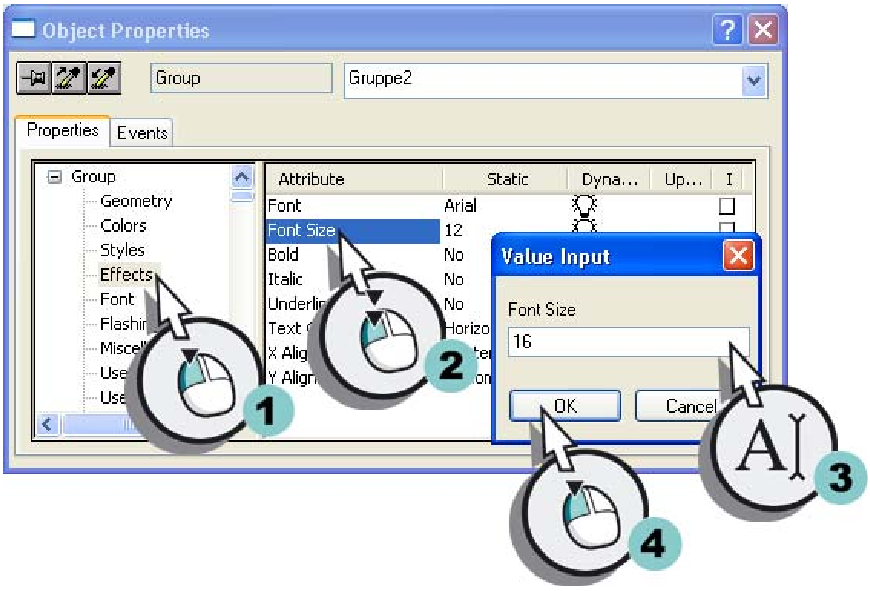
5. Set "600" as the scale height:



Attribute	Static	Dyna...	Up...	I
Position X	1100			□
Position Y	300			□
Width	50			
Height	220			
Rotat... eference X	50			
Rotati... e Y	50			
Rota...	0			

Height: 600

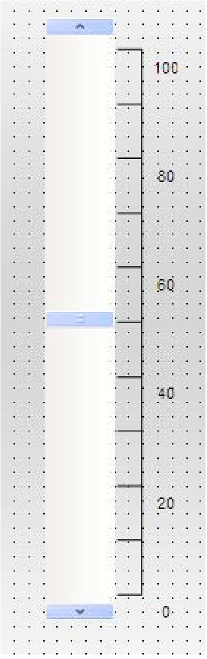
6. Specify the following font properties of the scale:
   - Font size: 16
   - Bold: yes



Font: Arial
Font Size: 12
Bold: No
Italic: No
Underlin: No
Font Size: 16

7. Close the "Object properties" dialog box.

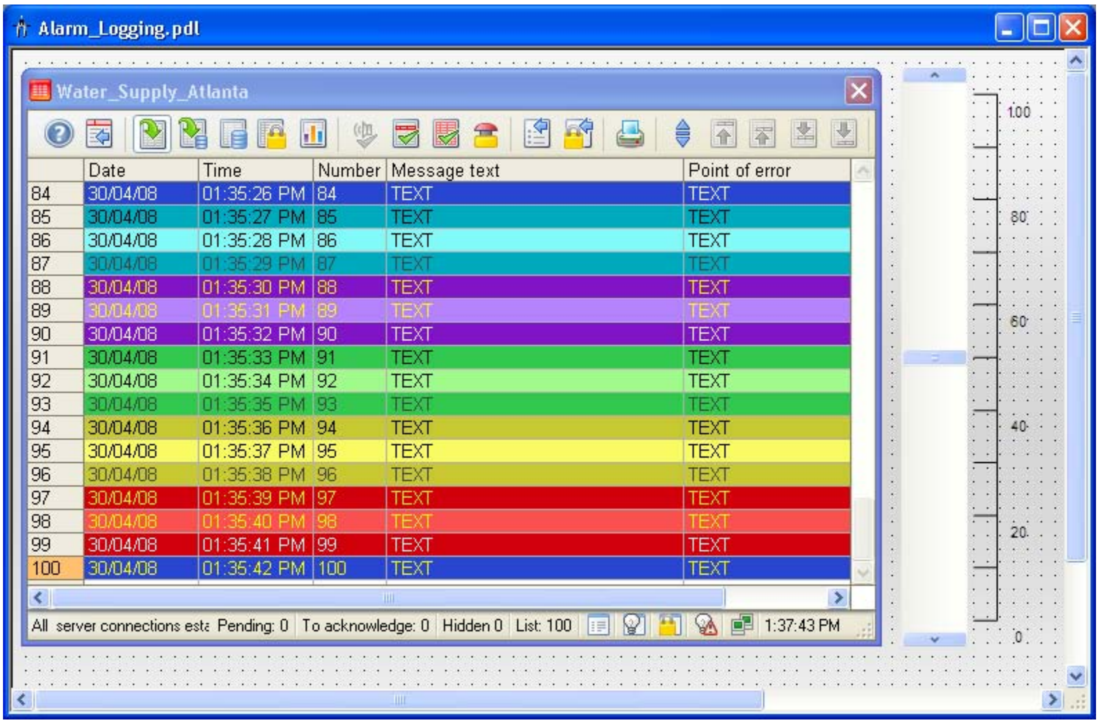
8. Position the scale next to the slider object so that both objects are on the same horizontal line:



Result

You have inserted a scale into the process screen "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.



	Date	Time	Number	Message text	Point of error
84	30/04/08	01:35:26 PM	84	TEXT	TEXT
85	30/04/08	01:35:27 PM	85	TEXT	TEXT
86	30/04/08	01:35:28 PM	86	TEXT	TEXT
87	30/04/08	01:35:29 PM	87	TEXT	TEXT
88	30/04/08	01:35:30 PM	88	TEXT	TEXT
89	30/04/08	01:35:31 PM	89	TEXT	TEXT
90	30/04/08	01:35:32 PM	90	TEXT	TEXT
91	30/04/08	01:35:33 PM	91	TEXT	TEXT
92	30/04/08	01:35:34 PM	92	TEXT	TEXT
93	30/04/08	01:35:35 PM	93	TEXT	TEXT
94	30/04/08	01:35:36 PM	94	TEXT	TEXT
95	30/04/08	01:35:37 PM	95	TEXT	TEXT
96	30/04/08	01:35:38 PM	96	TEXT	TEXT
97	30/04/08	01:35:39 PM	97	TEXT	TEXT
98	30/04/08	01:35:40 PM	98	TEXT	TEXT
99	30/04/08	01:35:41 PM	99	TEXT	TEXT
100	30/04/08	01:35:42 PM	100	TEXT	TEXT

All server connections estɛ Pending: 0 To acknowledge: 0 Hidden 0 List: 100 1:37:43 PM

9.9.5 Inserting an I/O Field and Making it Dynamic

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 screen "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. By means of the I/O field, binary values are transferred to the internal tag "Inflow_Valve" in Runtime.

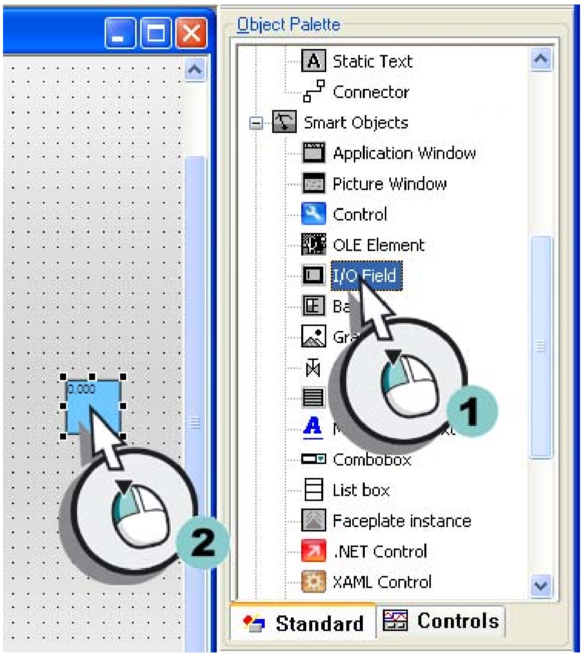
Requirement

The process screen "Alarm_Logging.pdl" is open.

The internal tag "Inflow_Valve" has been created.

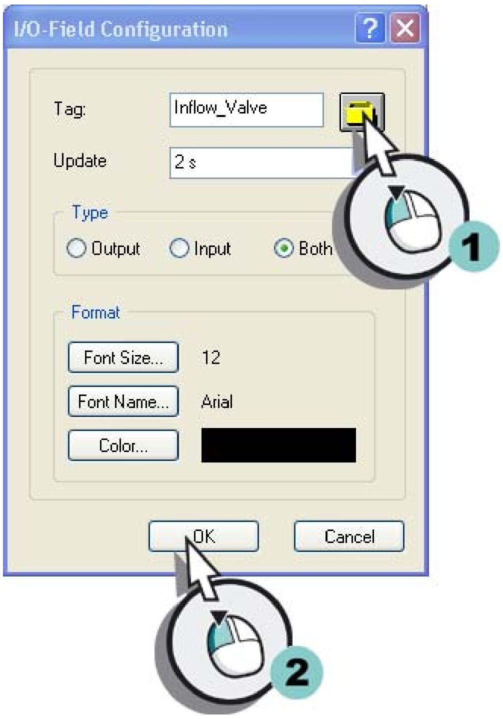
Procedure

1. Insert an I/O field into the process screen "Alarm_Logging.pdl":



The "I/O Field Configuration" dialog is opened.

2. Connect the IO field with the internal tag "Inflow_Valve":


I/O-Field Configuration

Tag: Inflow_Valve

Update: 2 s

Type: ○ Output ○ Input ● Both

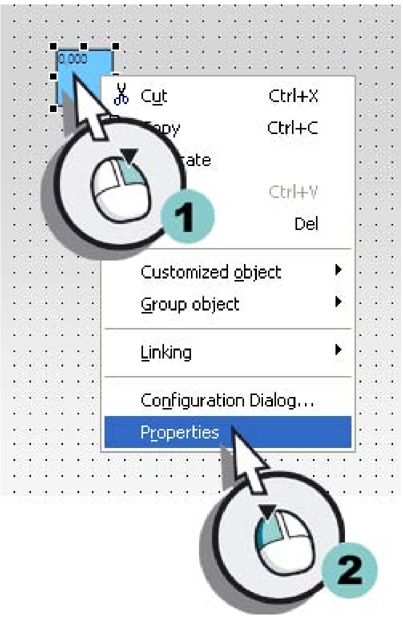
Format

Font Size... 12

Font Name... Arial

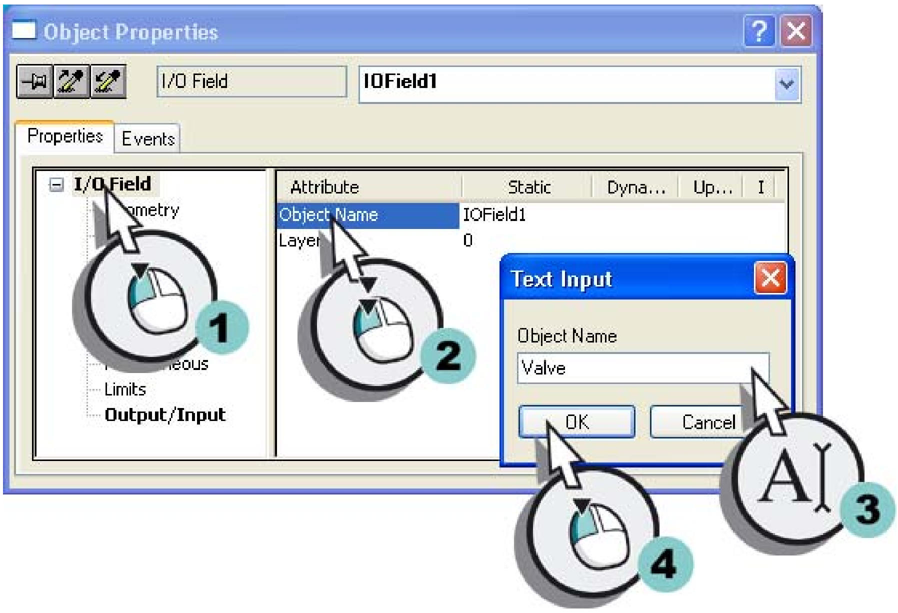
Color... ■

3. Open the "Object Properties" dialog:

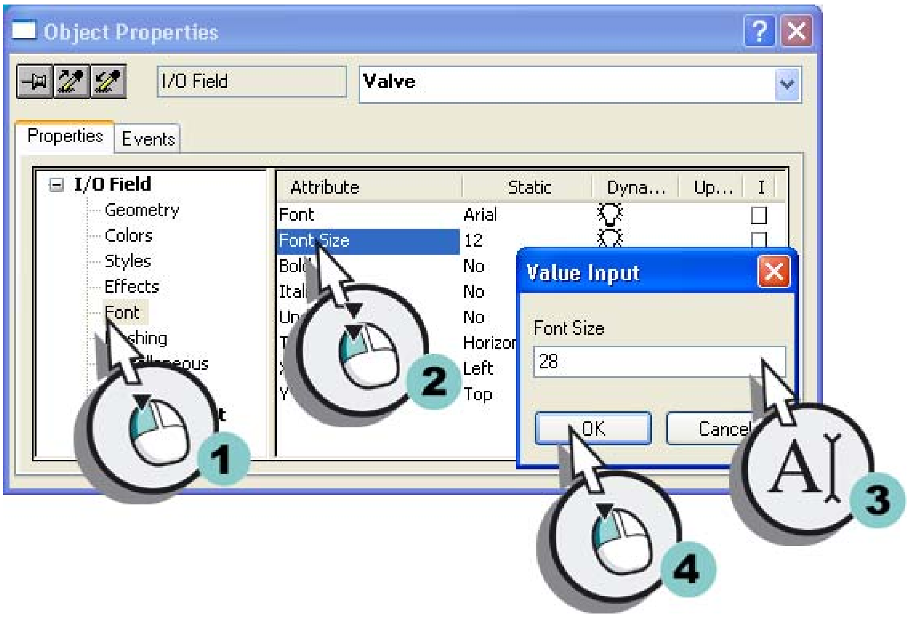


The "Object Properties" dialog is opened.

4. Enter "Valve" as the name of the I/O field:

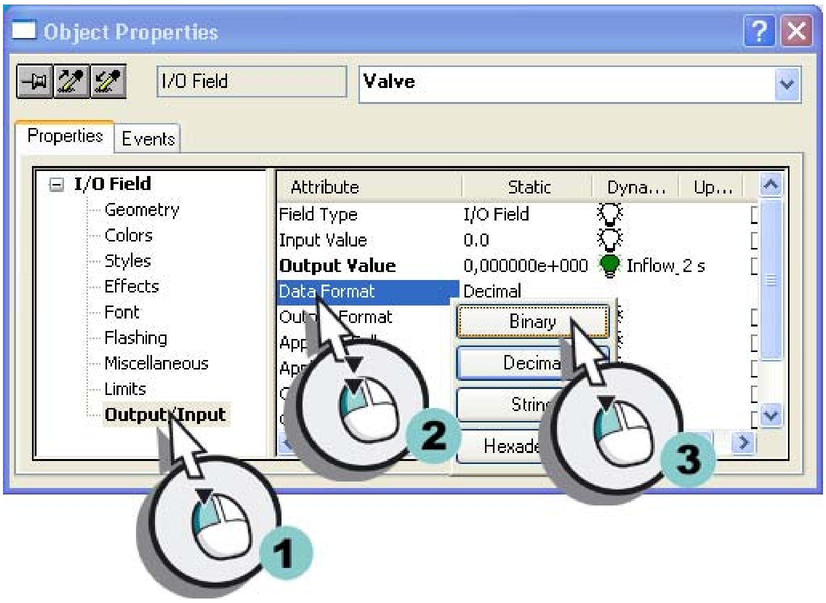


5. Define the following font properties for the I/O field:
   - Font size: 28
   - Bold: yes
   - X-Alignment: right
   - Y-Alignment: centered



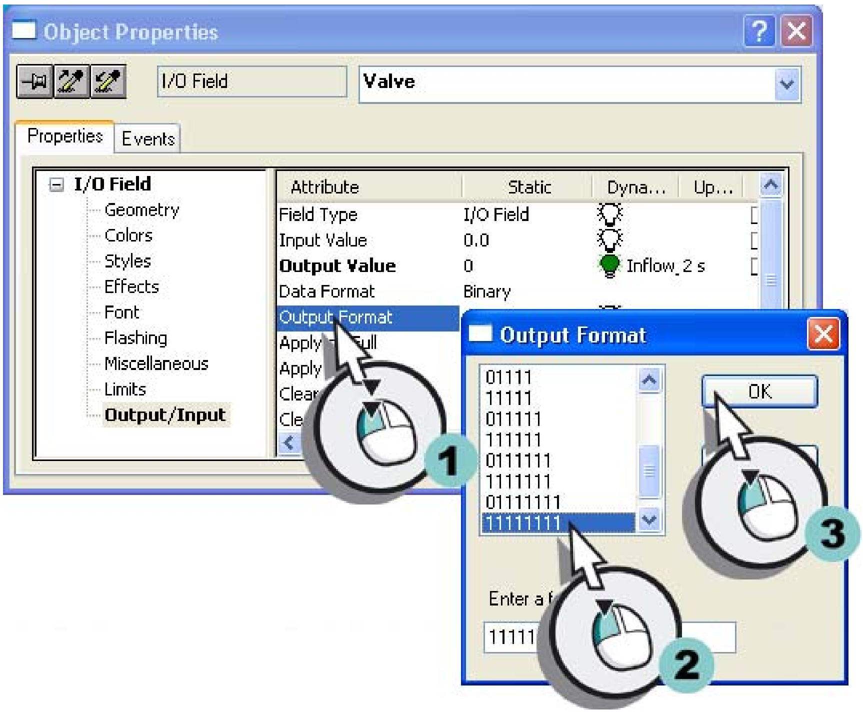
Font Size
28

6. Define "Binary" as the output format of the I/O field:



Attribute	Static	Dyna...	Up...
Field Type	I/O Field		
Input Value	0.0		
Output Value	0,000000e+000	●	Inflow, 2 s
Data Format	Decimal		

7. Increase the number of positions from 6 to 8 for the "Output format" property. "11111111".



Attribute	Static	Dyna...	Up...
Field Type	I/O Field	💡	
Input Value	0.0	💡	
Output Value	0	💡 Inflow_2 s	
Data Format	Binary		
Output Format			

8. Close the "Object properties" dialog box.

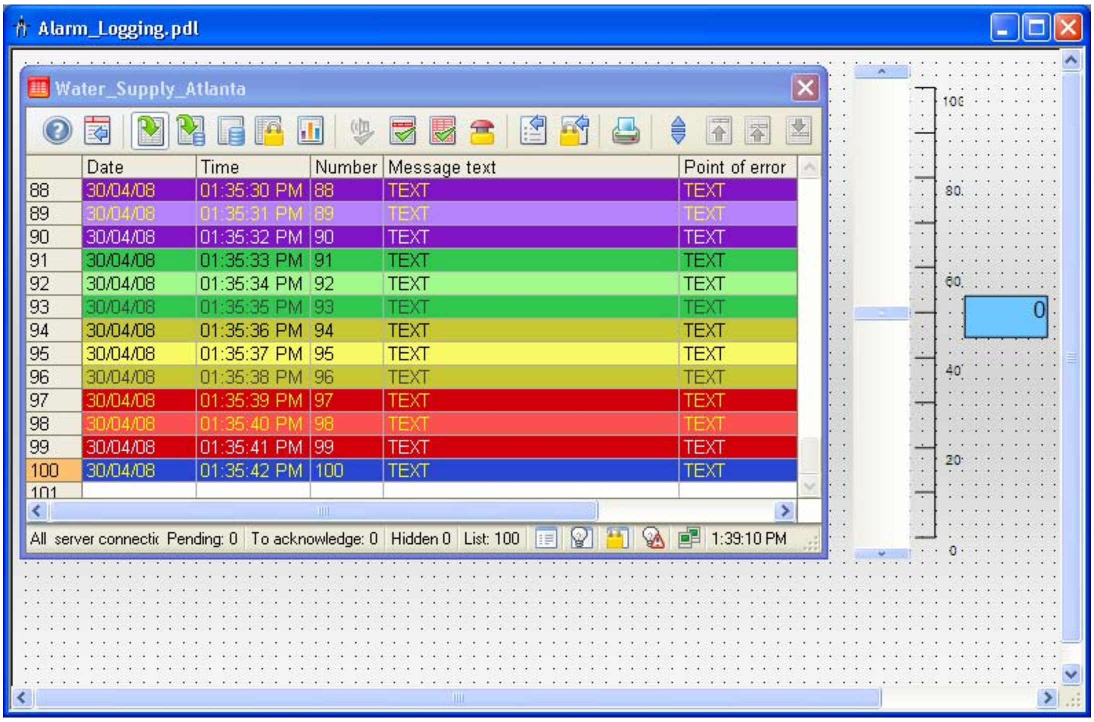
9. Enlarge the I/O field and save the process picture "Alarm_Logging.pdl".

10. 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 variable value, the corresponding bit message is triggered and displayed in the message window. For e.g. the bit message "Valve_closed" is triggered when the second bit has been 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	Number	Message text	Point of error
88	30/04/08	01:35:30 PM	88	TEXT	TEXT
89	30/04/08	01:35:31 PM	89	TEXT	TEXT
90	30/04/08	01:35:32 PM	90	TEXT	TEXT
91	30/04/08	01:35:33 PM	91	TEXT	TEXT
92	30/04/08	01:35:34 PM	92	TEXT	TEXT
93	30/04/08	01:35:35 PM	93	TEXT	TEXT
94	30/04/08	01:35:36 PM	94	TEXT	TEXT
95	30/04/08	01:35:37 PM	95	TEXT	TEXT
96	30/04/08	01:35:38 PM	96	TEXT	TEXT
97	30/04/08	01:35:39 PM	97	TEXT	TEXT
98	30/04/08	01:35:40 PM	98	TEXT	TEXT
99	30/04/08	01:35:41 PM	99	TEXT	TEXT
100	30/04/08	01:35:42 PM	100	TEXT	TEXT
101					

All server connecti | Pending: 0 | To acknowledge: 0 | Hidden 0 | List: 100 | 1:39:10 PM

9.10 Adapting the User-defined Menu for a Picture Change

Introduction

The following steps show how you expand the user-defined menu "Picture change" with the "Alarm Logging" menu entry. You connect the "Alarm Logging" menu entry with the "ActivatePicture(ByVal PictureName)" procedure. Enter the name of the process screen that you wish to change to in the field "User data".

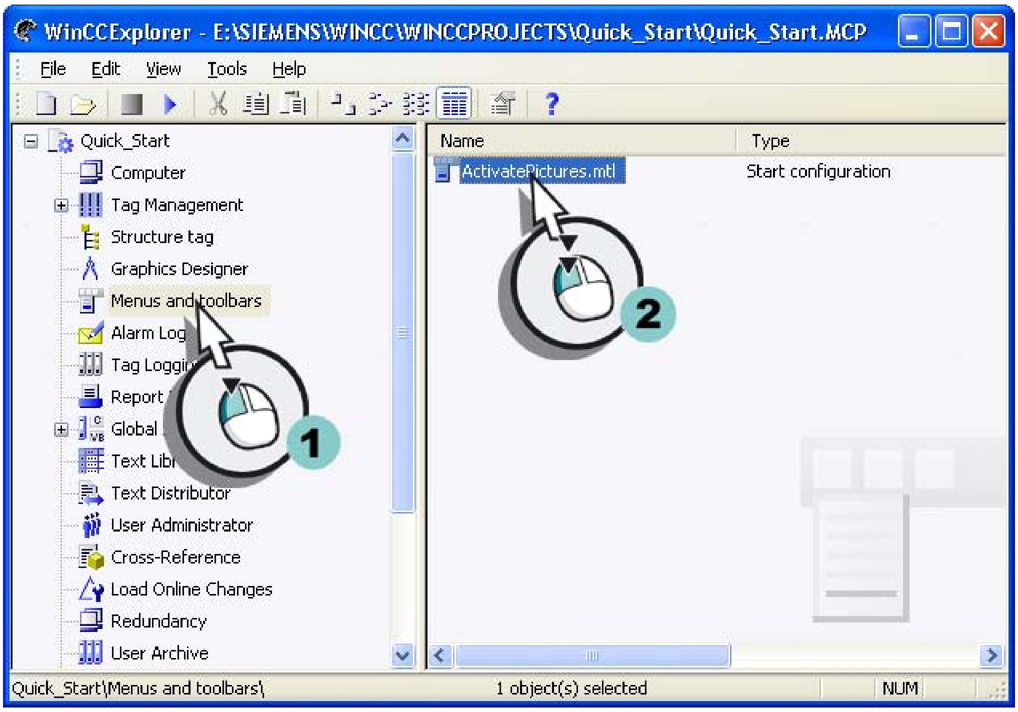
Requirement

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

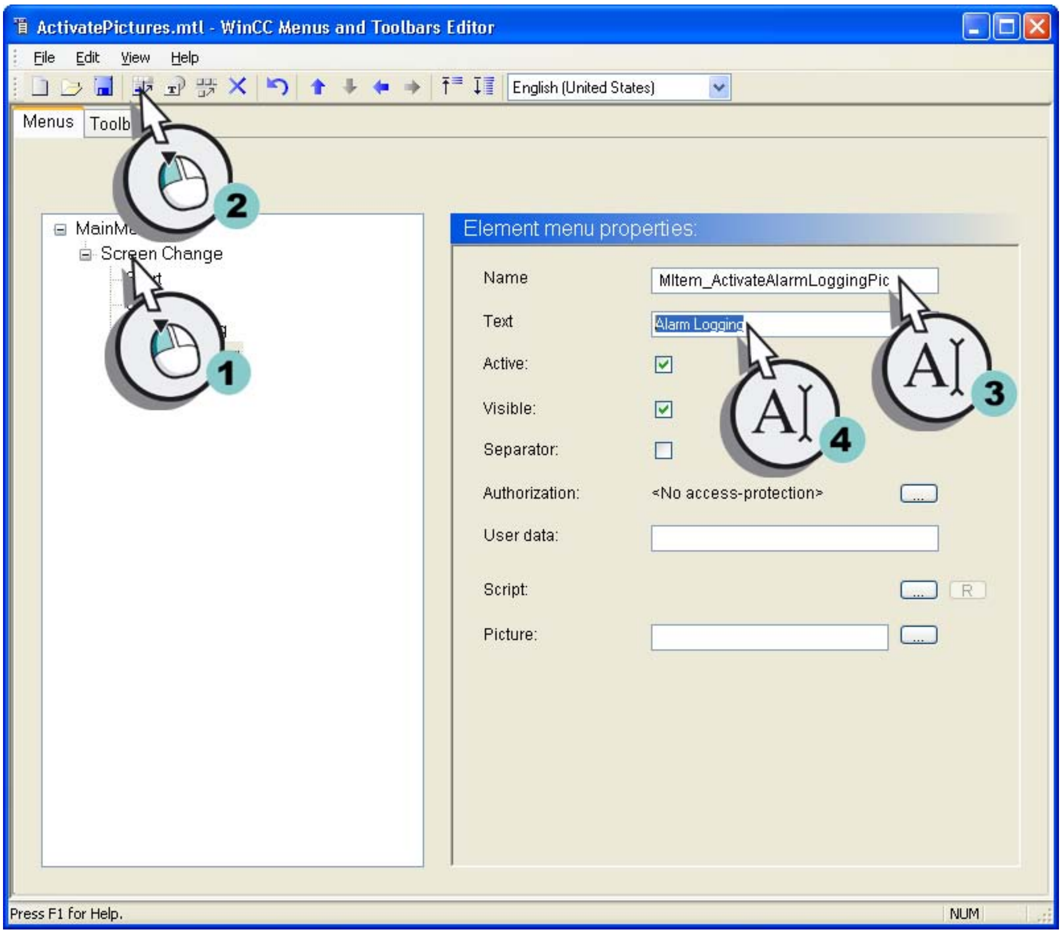
The user-defined menu "Picture change" is created for process pictures "START.pdl", "SAMPLE.pdl" and "Tag_Logging.pdl".

Procedure

1. Open the "Menus and toolbars" editor:



2. Create menu entry "Alarm Logging":



Element menu properties:

Name: MItem_ActivateAlarmLoggingPic

Text: Alarm Logging

Active: ☑

Visible: ☑

Separator: ☐

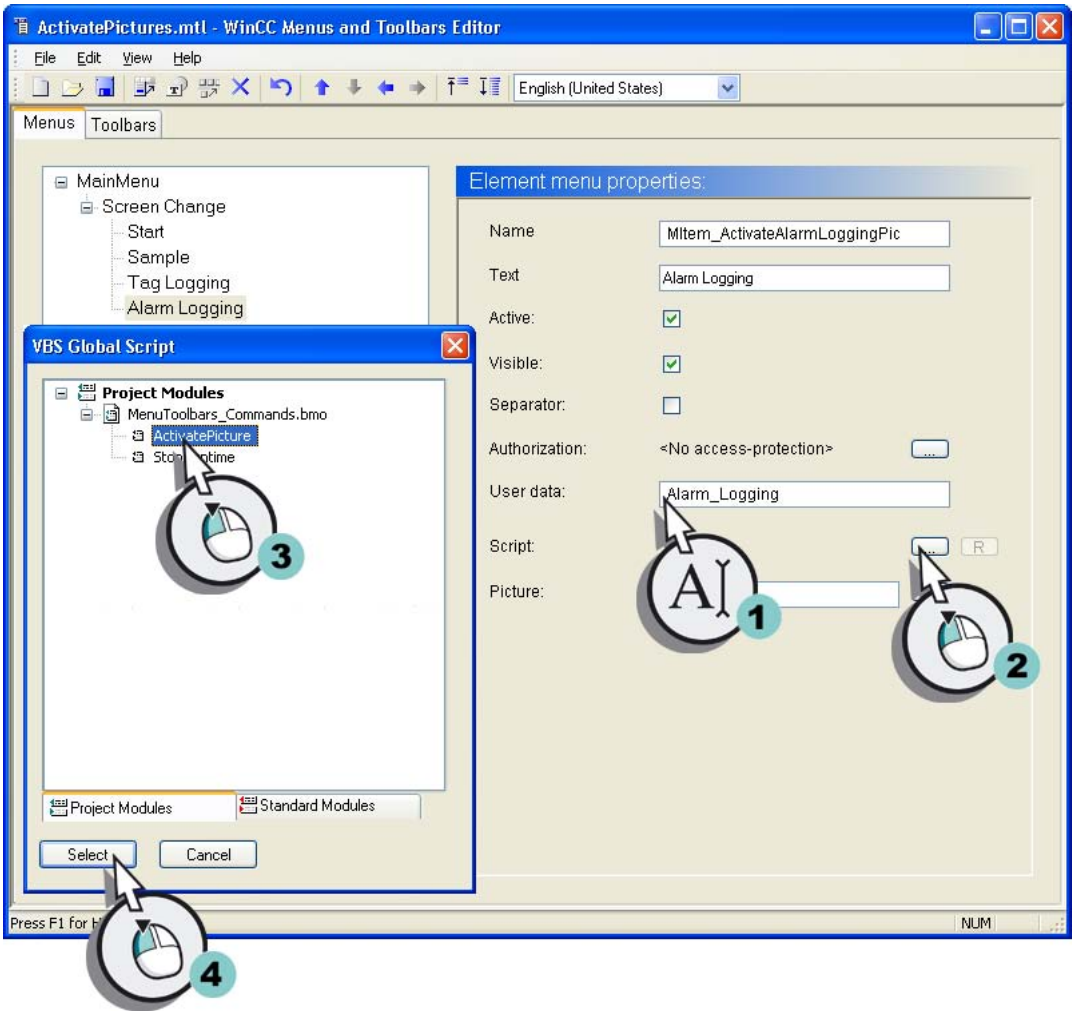
Authorization: <No access-protection>

User data:

Script:

Picture:

3. Configure the menu entry "Alarm Logging" so that a picture change is made to picture "Alarm_Logging.pdl":



Element menu properties:

Name: MItem_ActivateAlarmLoggingPic

Text: Alarm Logging

Active: ☑

Visible: ☑

Separator: □

Authorization: <No access-protection>

User data: Alarm_Logging

Script:

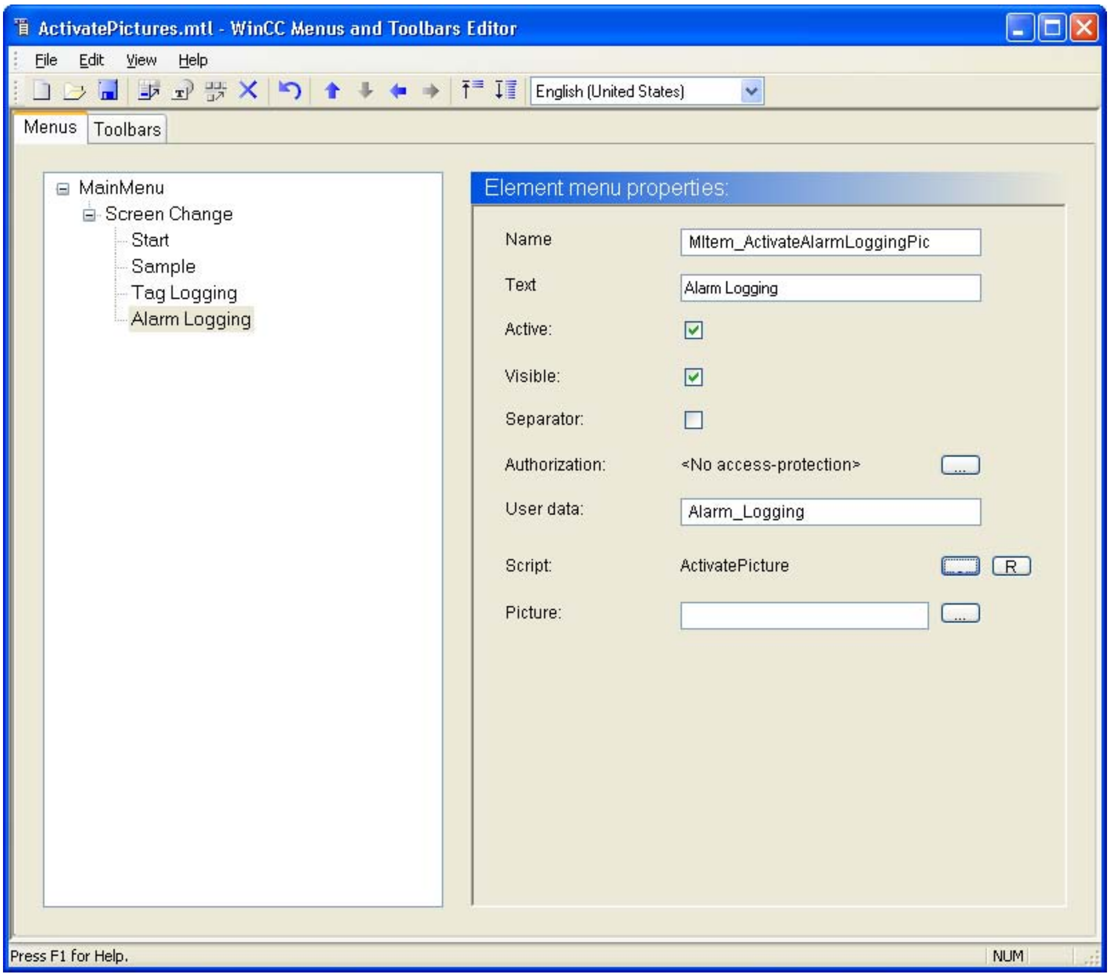
Picture:

4. Save the changes that you have made in the "Menus and Toolbars" editor.

5. Close the "Menus and toolbars" editor.

Result

You have expanded the "Picture change" menu with the "Alarm Logging" menu entry. You use the menu entries in runtime to switch to process images "START.pdl", "SAMPLE.pdl", "Tag_Logging.pdl" and "Alarm_Logging.pdl".



Name: MItem_ActivateAlarmLoggingPic

Text: Alarm Logging

Active: ☑

Visible: ☑

Separator: □

Authorization: <No access-protection>

User data: Alarm_Logging

Script: ActivatePicture

Picture:

9.11 Defining the Runtime Properties

Introduction

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

In this chapter we will set up WinCC Runtime so that Alarm Logging Runtime is executed when the project is activated. Choose the process screen "Alarm_Logging.pdl" as a start screen for the Runtime window.

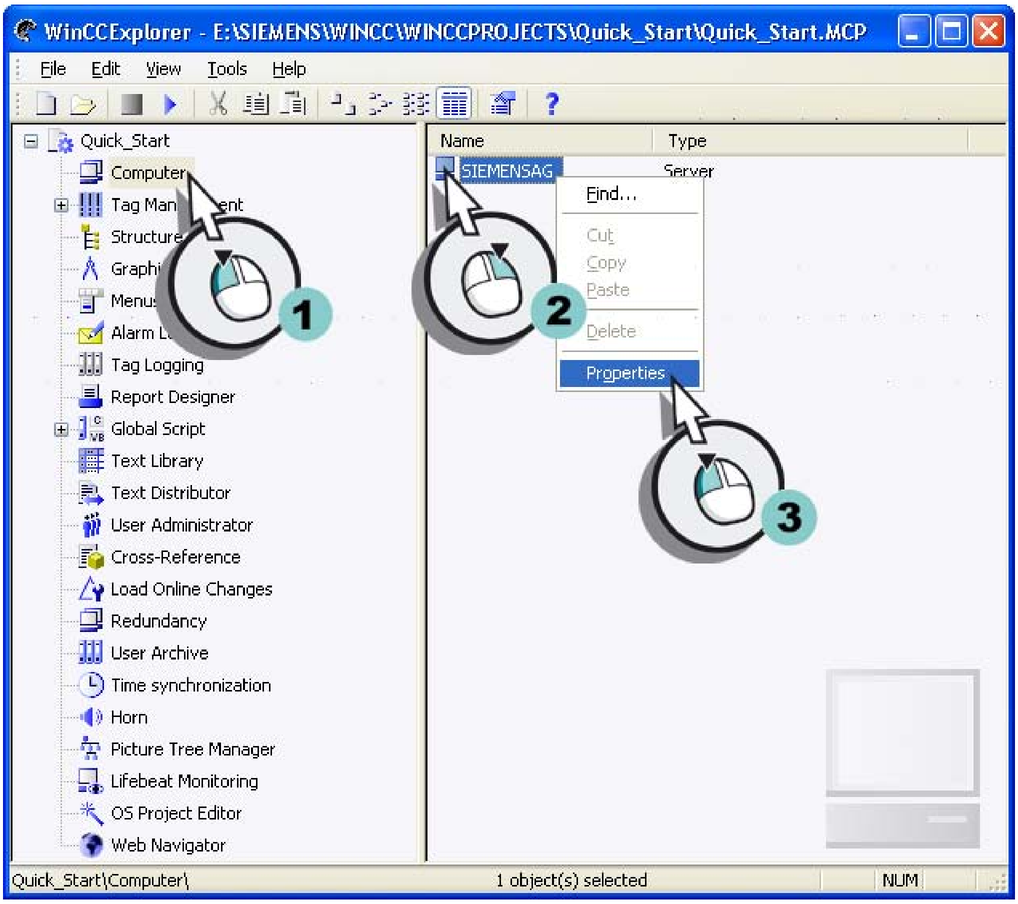
Requirement

The "Quick_Start" project is open.

The process screen "Alarm_Logging.pdl" has been created.

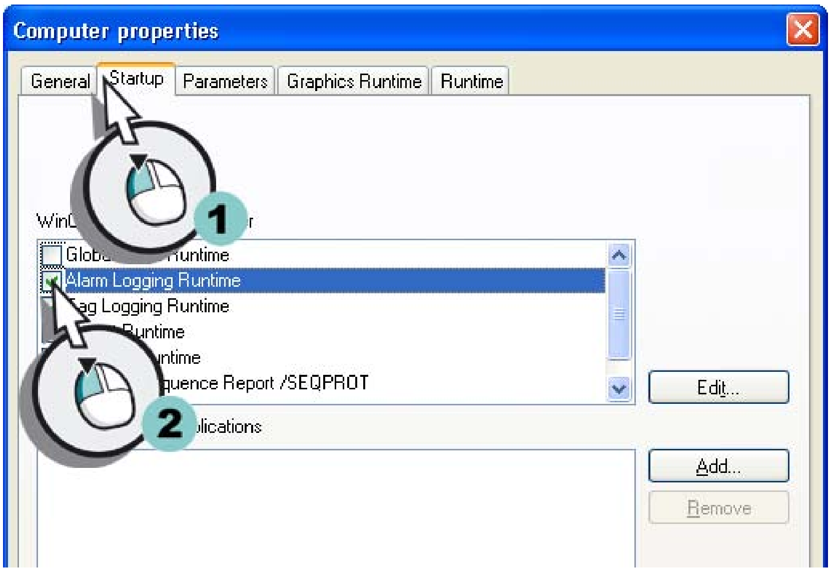
Procedure

1. Open the "Computer properties" dialog:



The "Computer Properties" dialog opens.

2. Click the "Startup" tab and activate the application "Alarm Logging Runtime" in the corresponding checkbox:

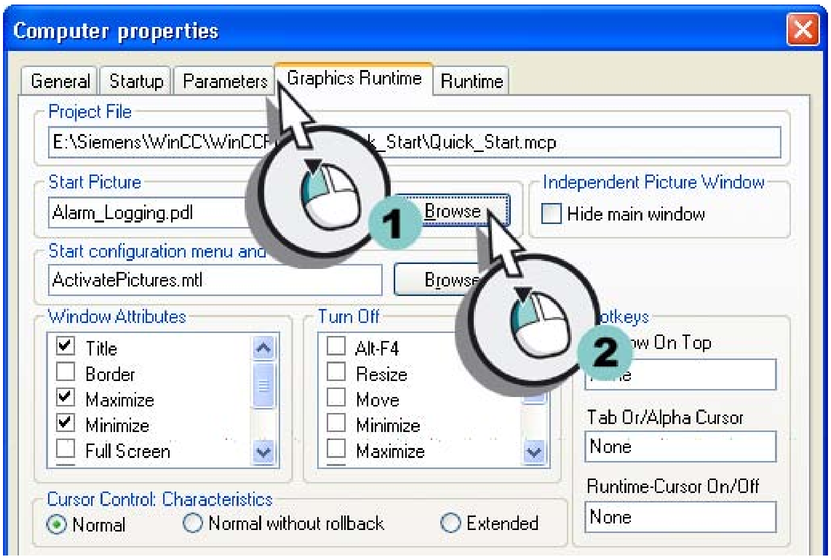


WinC... r

□ Glob... Runtime
☑ Alarm Logging Runtime
...ag Logging Runtime
...Runtime
...ntime
...quence Report /SEQPROT

...lications

3. Define the process picture "Alarm_Logging.pdl" as starting screen for the runtime window:



Project File: E:\Siemens\WinCC\WinCCP... k_Start\Quick_Start.mcp

Start Picture: Alarm_Logging.pdl

Independent Picture Window: □ Hide main window

Start configuration menu and ...: ActivatePictures.mtl

Window Attributes: ☑ Title □ Border ☑ Maximize ☑ Minimize □ Full Screen

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

...otkeys: ...w On Top ...e

Tab Or/Alpha Cursor: None

Runtime-Cursor On/Off: None

Cursor Control: Characteristics: ● Normal ○ Normal without rollback ○ Extended

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 screen "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.

9.12 Activate the project

Introduction

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

When activating the "Quick_Start" project, WinCC Runtime is started. The process screen "Alarm_Logging.pdl" is displayed as a start screen. 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 the messages in the message window changes depending on the message status.

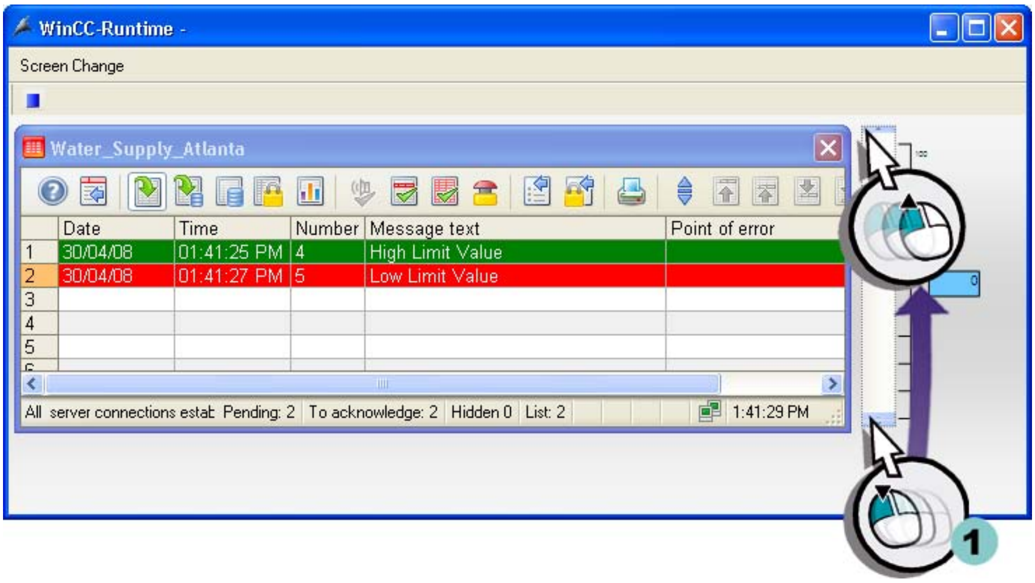
Requirement

The "Quick_Start" project is open.

The Runtime Properties are defined.

Procedure

1. Activate the "Quick_Start" project via the button ▶ in the toolbar of the WinCC Explorer.
2. WinCC runtime is started. The process screen "Alarm_Logging.pdl" is displayed in the Runtime window.
3. Move the knob of the slider object "Water_Tank".

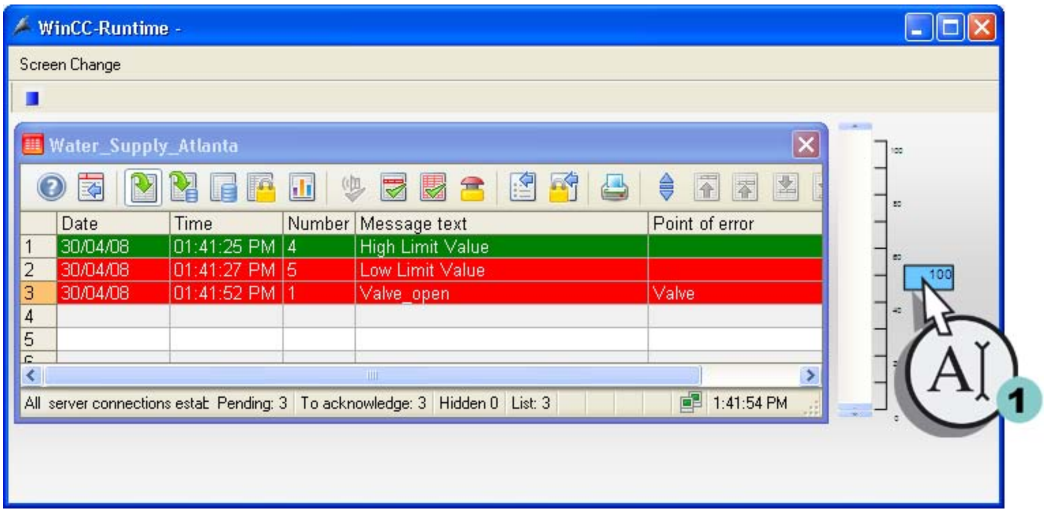


	Date	Time	Number	Message text	Point of error
1	30/04/08	01:41:25 PM	4	High Limit Value	
2	30/04/08	01:41:27 PM	5	Low Limit Value	
3					
4					
5					

All server connections estat Pending: 2 To acknowledge: 2 Hidden 0 List: 2 1:41:29 PM

Depending on the position of the knob, the internal tag "Tank_Level" is assigned a value. If this value does not reach the configured low limit (10), the analog message "Low limit value" is triggered. If the high limit value (90) is exceeded, the analog message "High limit value" is triggered.

4. Enter the value "100" into the I/O field "Valve":

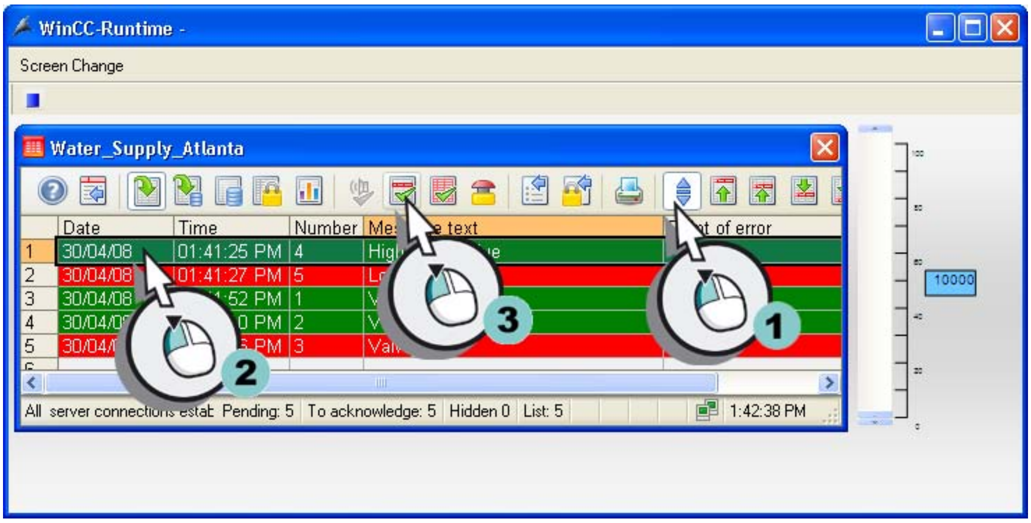


	Date	Time	Number	Message text	Point of error
1	30/04/08	01:41:25 PM	4	High Limit Value	
2	30/04/08	01:41:27 PM	5	Low Limit Value	
3	30/04/08	01:41:52 PM	1	Valve_open	Valve
4					
5					

All server connections estat Pending: 3 To acknowledge: 3 Hidden 0 List: 3 1:41:54 PM

The second bit in the tag value is set. The bit message "Valve_open" is displayed.

5. Enter the value "1000" into the I/O field.
6. The third bit in the tag value is set. The bit message "Valve_closed" is displayed.
7. Enter the value "10000" into the I/O field:
8. The fourth bit in the tag value is set. The bit message "Valve_inop" is displayed.
9. Click on the ⇕ button in the toolbar of the message window, select analog message "High limit value" and acknowledge the analog message:



	Date	Time	Number	Mes e text	t of error
1	30/04/08	01:41:25 PM	4	High e	
2	30/04/08	01:41:27 PM	5	Lc	
3	30/04/08	1:52 PM	1	V	
4	30/04/0	0 PM	2	V	
5	30/04/	PM	3	Val	

All server connections estat Pending: 5 To acknowledge: 5 Hidden 0 List: 5 1:42:38 PM

Result

You have activated the "Quick_Start" project. The process screen "Alarm_Logging.pdl" is displayed as a start screen of the project. The internal tags "Tank_Level" and "Inflow_Valve" are supplied with values by manual input. These tags are monitored by the message system. Depending on the tag values, the corresponding messages are triggered and displayed in the message window.

In order to automatically supply the internal tags "Tank_Level" and "Inflow_Valve" with values, you will use the WinCC TAG Simulator in the next steps.

9.13 Test project

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

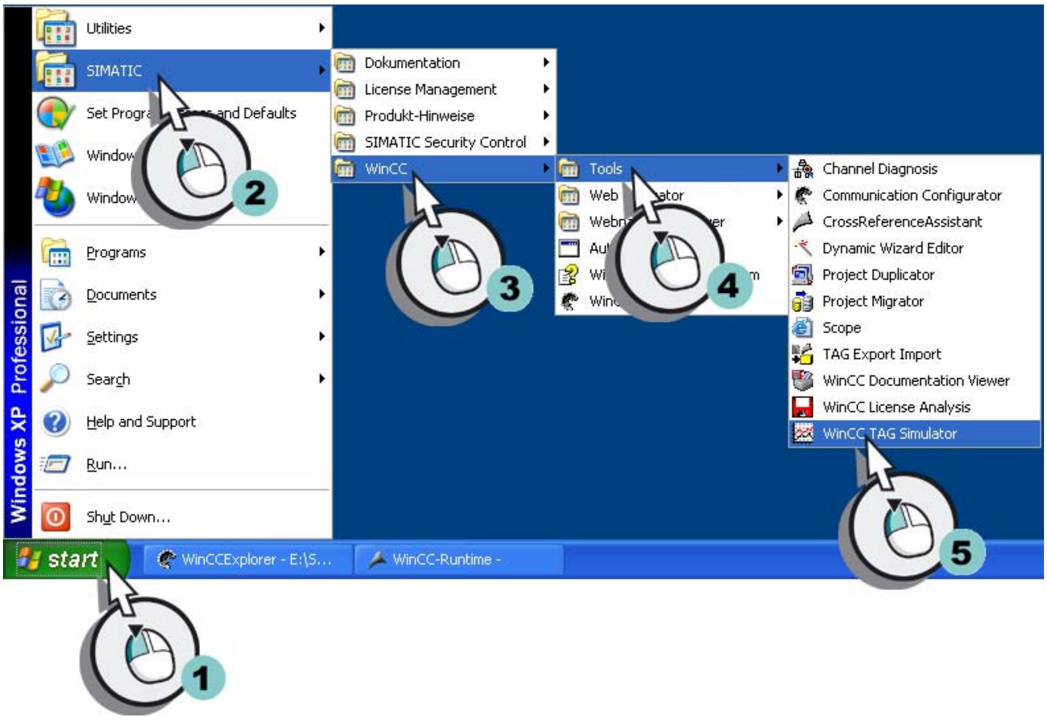
The WinCC TAG Simulator is installed.

The Runtime Properties are defined.

The "Quick_Start" project is activated.

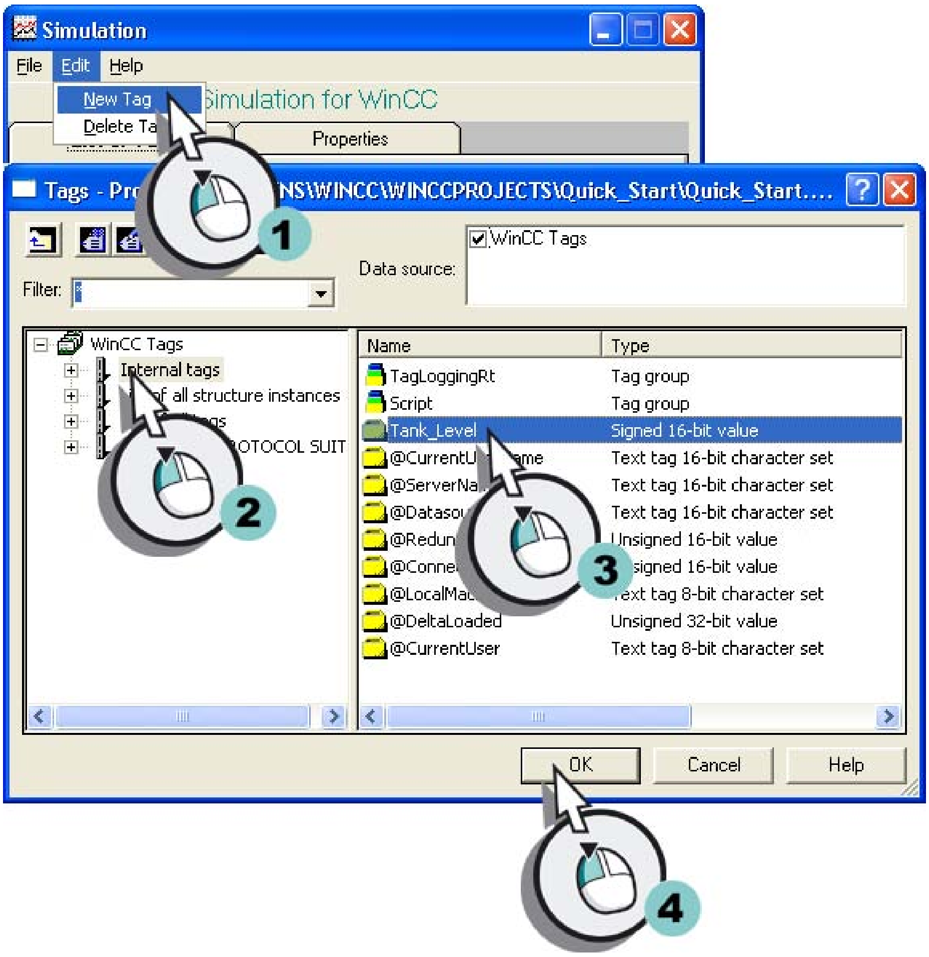
Procedure

1. Start the WinCC Tag Simulator:



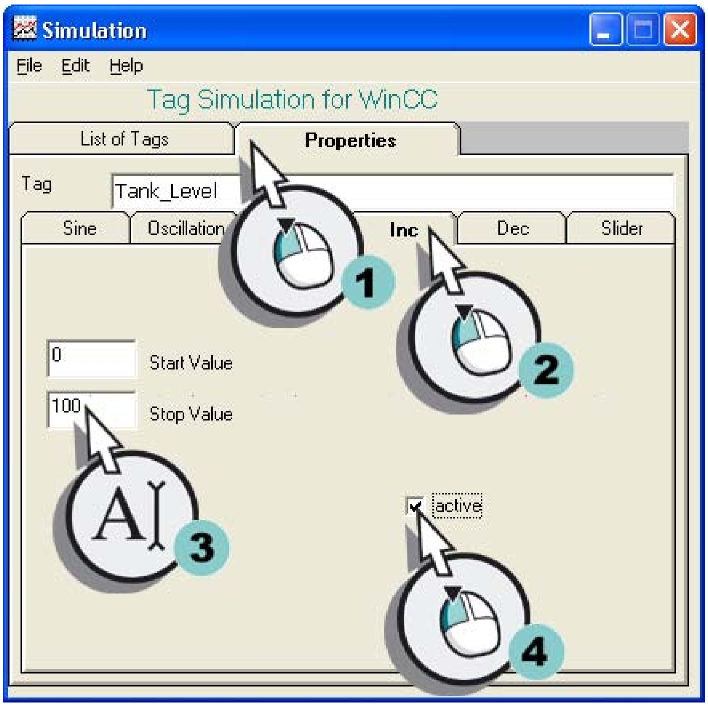
The "Simulation" dialog is opened.

2. Open the "Tags - project" dialog and select the internal tag "Tank_Level":



Name	Type
TagLoggingRt	Tag group
Script	Tag group
Tank_Level	Signed 16-bit value
@CurrentU ame	Text tag 16-bit character set
@ServerNa	Text tag 16-bit character set
@Datasou	Text tag 16-bit character set
@Redun	Unsigned 16-bit value
@Conne	signed 16-bit value
@LocalMac	ext tag 8-bit character set
@DeltaLoaded	Unsigned 32-bit value
@CurrentUser	Text tag 8-bit character set

3. Define the properties of the simulation type for the internal tag "Tank_Level":



Tag Tank_Level

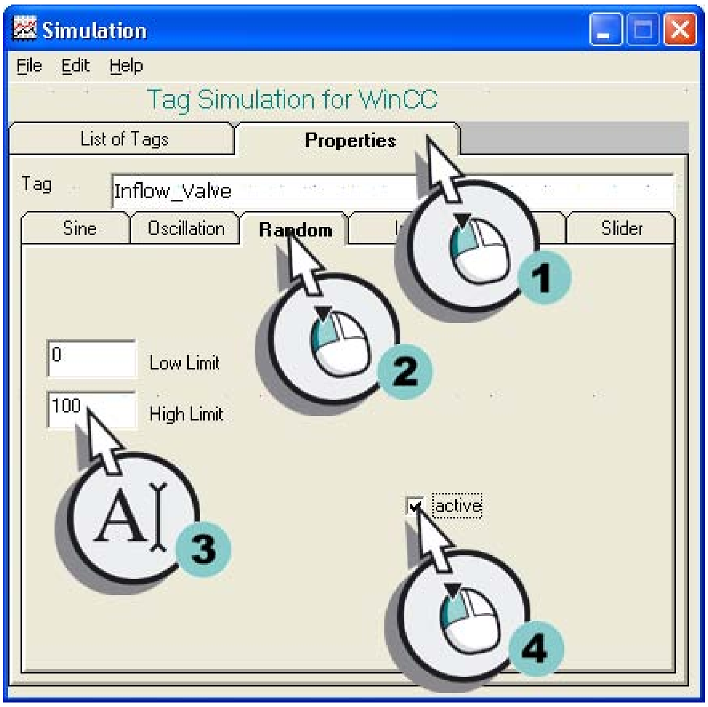
0 Start Value

100 Stop Value

☑ active

4. Click on the "Tags" tab to confirm the settings you defined.
5. Analog to step 2, open the "Tags - project" dialog and select the internal tag "Inflow_Valve":

6. Define the properties of the simulation type for the internal tag "Tank_Level":



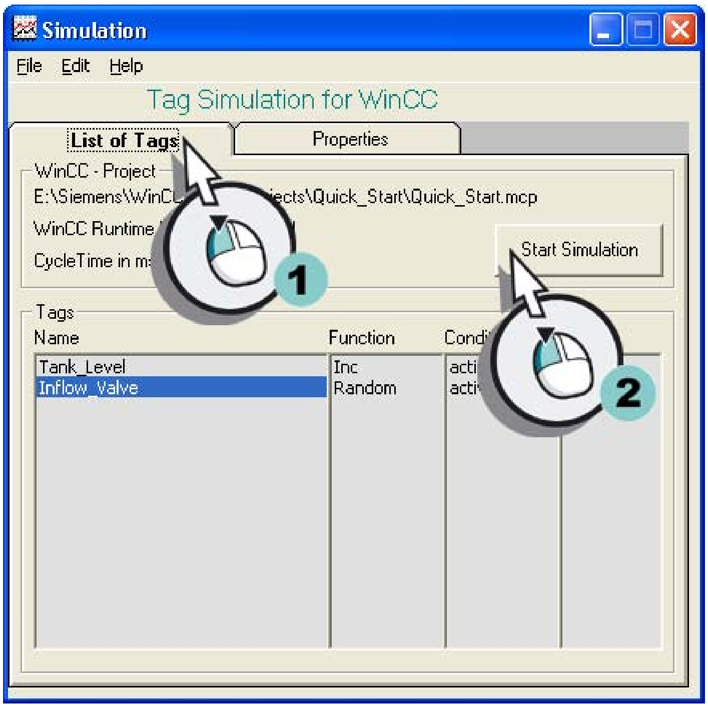
Tag: Inflow_Valve

Low Limit: 0

High Limit: 100

☑ active

7. Start the WinCC Tag Simulator:



E:\Siemens\WinCC...jects\Quick_Start\Quick_Start.mcp

Name	Function	Condi
Tank_Level	Inc	acti
Inflow_Valve	Random	acti

8. Observe how the different simulation values affect the message window.
9. Close the "WinCC Tag Simulator" after ending the simulation.
10. Deactivate the "Quick_Start" project with the button

■ in the toolbar of the WinCC Explorer.

Result

You have tested "Quick_Start" project by means of the WinCC TAG Simulator. The test shows the behavior of the message system when the tags to be monitored are continuously supplied with values.

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 message system. This editor is used to configure messages.

Alarm Logging Runtime

Alarm Logging Runtime is the runtime component of the message system. Alarm Logging Runtime has the following main tasks:

- Executing the defined monitoring

- Controlling the message output

- Manage acknowledgement

Analog alarm

The analog messages show two trangressions or non-achieved limit value. The analog messages are triggered when the set limit values are exceeded or not met.

Archive tag

The values to be archived are saved in the archive tags.

Archive Wizard

The Archive Wizard offers an automated and simple method of creating an archive. With the Archive Wizard, you specify the name and type of archive. When creating a process value archive, you will also define a tag whose values are archived. Once the tag has been defined, the Archive Wizard will create an archive tag in the process value archive.

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 the WinCC Runtime 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 such actions as 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 serves as an interface with exactly one underlying hardware driver and therefore to exactly one communication processor in the computer. 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.

Connection

A connection describes the interface to an individual, defined automation system. The data exchange will take place via the connections in Runtime. 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 screen. 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 alarms

The bit messages 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 the configuration component of the graphic system. This editor is used to configure process screens.

Graphics Runtime

Graphics Runtime is the runtime component of the Graphics System. Graphics Runtime displays the screens in Runtime and administers 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.

Library of the editor "Graphics Designer"

The library of the editor "Graphics Designer" is a versatile tool to store and manage graphic objects. The library is split up into two areas:

- Global Library
- Project Library

Limit Value 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 bit message 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 bit message is triggered.

Operable objects

The controllable objects allow you 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 are the basis of their projects.

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 screens are main elements of a project. They represent a process and allow the operation and observation of this process. You can use the editor "Graphics Designer" to configure the process screens.

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

Process value blocks are used to link the messages to 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 "Graphics Designer" editor is the configuration component of the reporting system. This editor is used to configure page and linen layouts as well as the configuration of 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 computer. Other computers cannot access this project. The project runs on a computer that serves as the server for data processing and as an operating station.

Slider object

The slider object is used for the display and changing of tag names. 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 screen

The start screen is the process screen that is displayed when a project is activated in the Runtime window.

Static level of a page layout

The header and footer are defined in the static level of a page layout. The static level serves to output the company name, the company logo, the time and the number of pages.

Static objects

Statistic 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 wildcards for the system time, the current page number and the project and layout names. System objects can only be inserted into the static level of a static layout.

Tag group

The tag groups are components of the "Tag management" editor. The tag groups are used to organize tags clearly.

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 has the following main 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. The "Tag Management" is located in the navigation window of WinCC Explorer.

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 in Runtime is updated.

User Text Blocks

The user text blocks belong to the message blocks. The user text blocks contain explanatory texts, for example, the message text containing 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 Alarm Control

The object "WinCC Alarm Control" is used as a message window for the display of message events.

WinCC Explorer

WinCC Explorer forms the core of the Configuration software of WinCC. The entire project structure is displayed in WinCC Explorer. The project is also administered here.

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

You execute the project in process mode in WinCC Runtime. WinCC Runtime allows the operation and observation of the processes.

WinCC Tag Simulator

The WinCC TAG Simulator allows testing of a project, which is still in the development stage.

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