

Customizing WinCC Controls

SIMATIC WinCC

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SIMATIC Customizing WinCC Controls

Customizing WinCC Controls

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Warranty and liability

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1 Automation Task

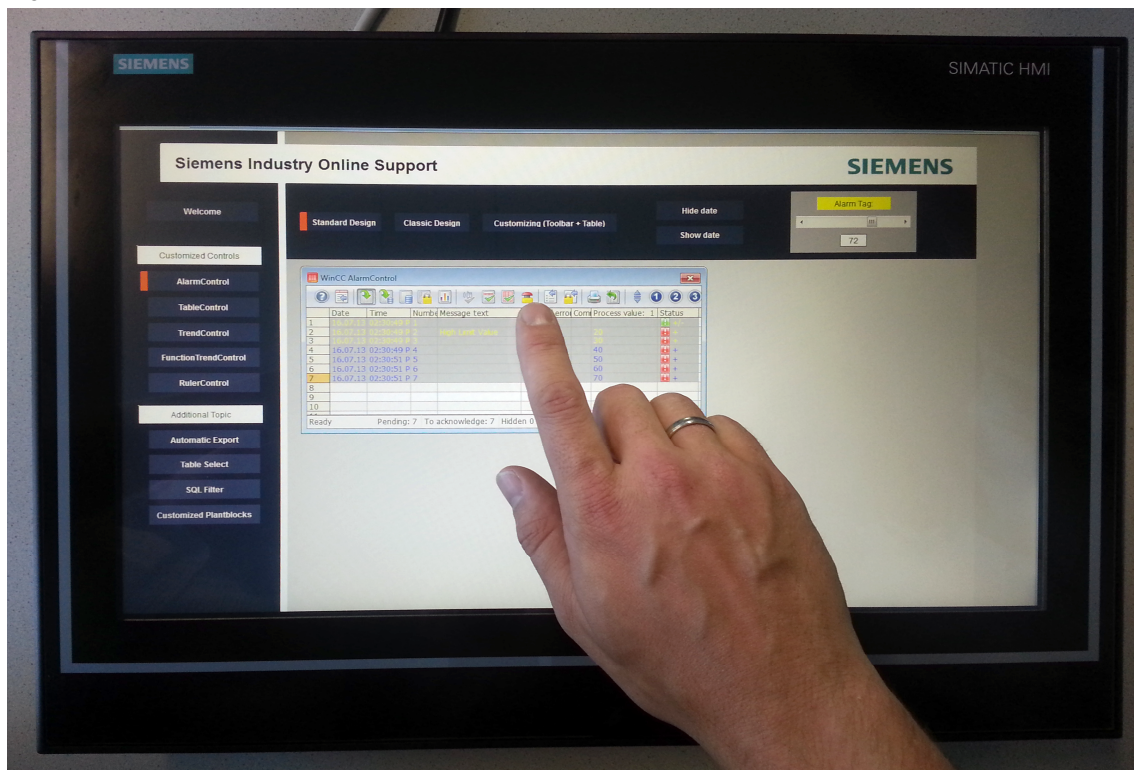
1.1 Requirement

Customizing WinCC controls according to individual requirements is frequently required. Touch screen operation can be taken as an example, where the standard control buttons are too small.

It is often desirable to adapt the appearance of the controls to the individual project layout.

Figure 1-1 shows symbolically that the standard buttons are too small for touch screen input.

Figure 1-1



2 Automation Solution

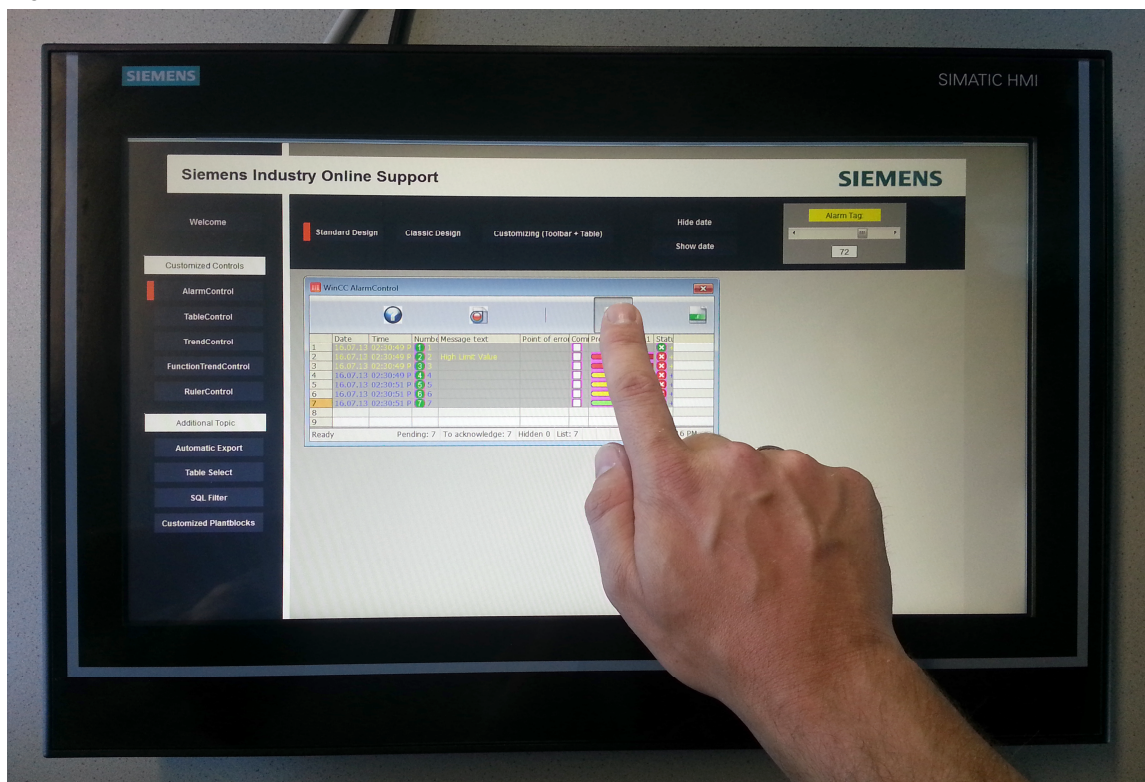
2.1 Overview of customizing options

This document facilitates the customization of WinCC controls. You thus have the option to customize the following properties of the controls:

- Buttons (size and layout)
- Grids, e.g. in AlarmControl (individual icons, also dependent on values)
- Scrollbar (style)

In Figure 2-1, however, the buttons have been customized, facilitating their operation through a larger representation

Figure 2-1



Delimitation

This application does not include a description of the operation and use of WinCC.

2.2 Required hardware and software components

This application was generated with the following components:

Standard software components

Table 2-1

Component	No.	Order number	Note
WinCC V7.2 (RC)	1	6AV63.1-....7-2...	

Sample files and projects

The following list includes all files and projects that are used in this example.

Table 2-2

Component	Note
WinCC_Control_customizing.doc	This document.
OriginalIcons.zip	The standard WinCC icons.
Customizing.zip	Newly created sample icons.
ProjectCustomizedControls.zip	WinCC sample project

3 Configuration

3.1 Customizing the toolbar

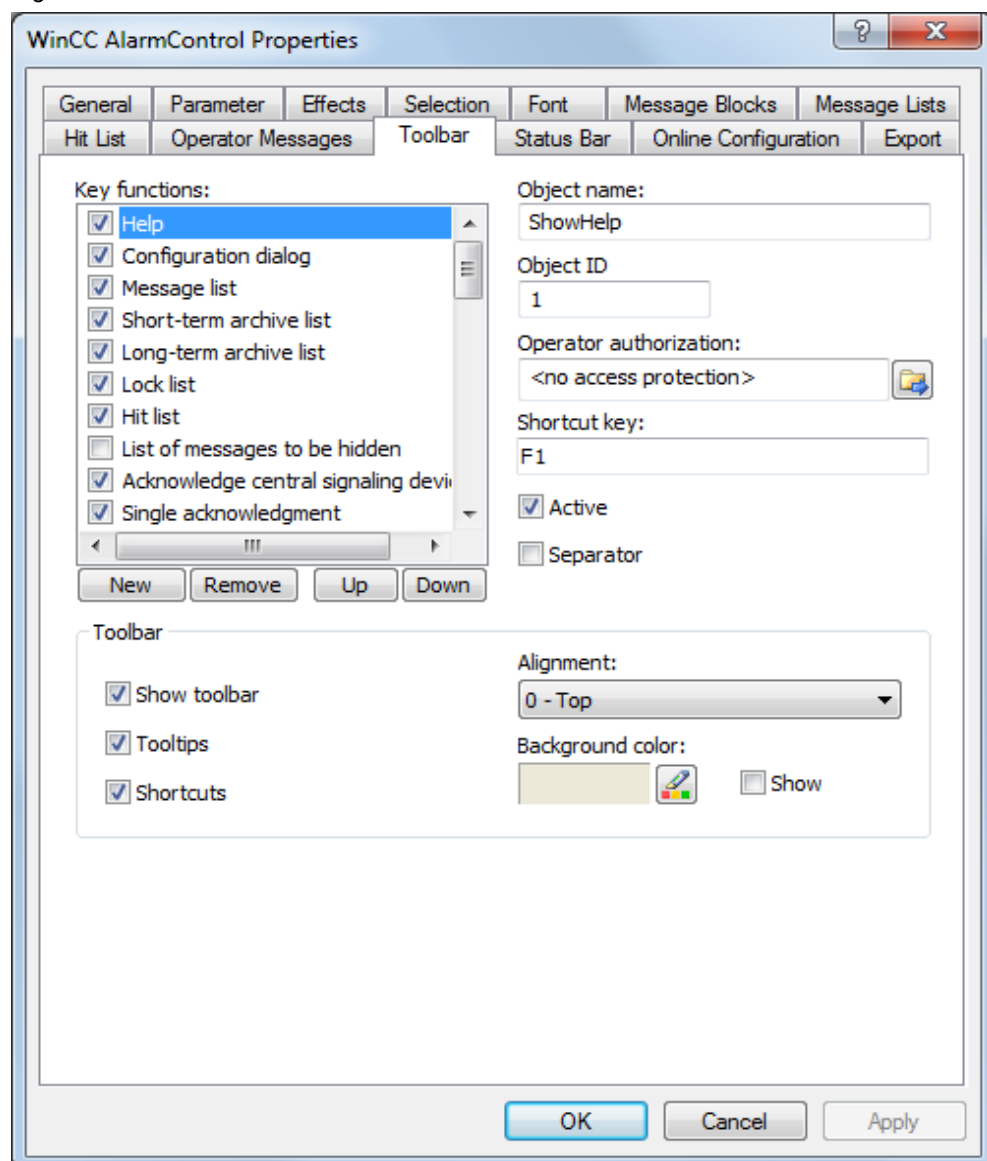
General

The operation and customization of the toolbar is the same for all WinCC controls.

Standard configuration

In the standard configuration, various buttons can be selected and their order be arranged. Moreover, hotkeys can be assigned, via which the functions connected with the buttons are called. It is possible to create user-defined buttons that trigger certain events when being clicked on.

Figure 3-1



In the standard configuration, the toolbar graphics cannot be modified. The user-defined buttons only have numbers and therefore have no significance to the user.

3.1 Customizing the toolbar

The size of the buttons is much too small for use on displays that are operated manually via a touch screen. In the standard configuration, this size cannot be modified.

Creating a subfolder for individual layouts

The standard WinCC installation creates the folder "CCAxControlSkins" in the directory "C:\Programs (x86)\Common Files\Siemens\bin\".

Within this folder, a separate folder with the name of the control must be created for each control the toolbar buttons of which are to be changed. For AlarmControl, the folder is named "AlarmControl".

Create a subfolder at the above-mentioned path ("NewButton"), in which the individual layouts for the toolbar can be stored.

Note Generally, please note that the "CCAxControlSkins" folder is PC-based and is therefore not necessarily available on the WinCC client. This must be taken into account especially when using multi-user systems or the "WebNavigator" option.

Note The file and folder names stated in the following must be precisely adhered to so that the icons are displayed correspondingly by the controls.

In the description, the data format "png" is used as an example. The "gif" and "jpg" formats are also permissible.

Note Basically, it is not necessary to create all of the mentioned graphic files when creating a new layout. For all files that are not available, the standard control settings will be used.

Overview of the subfolders for the various controls

Table 3-1

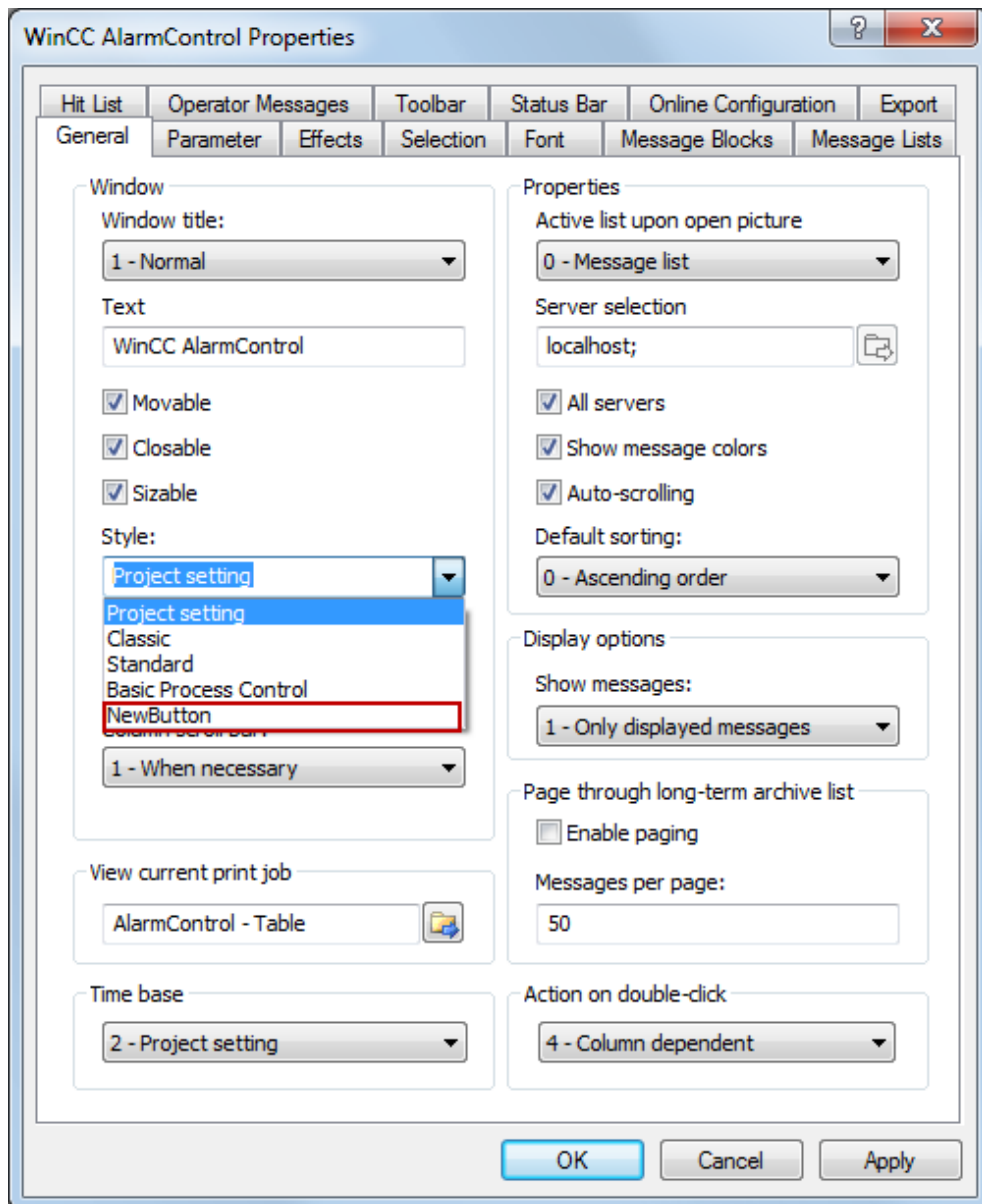
No.	Control
1.	AlarmControl
2.	FunctionTrendControl
3.	OnlineTableControl
4.	OnlineTrendControl
5.	Scrollbar
6.	TrendRulerControl

Selecting the modifications

In order to visualize the effects of the modifications made, the selection of the layout has to be changed via the configuration dialog of the control (in this case, AlarmControl).

Once the "NewButton" folder has been created in the above-mentioned directory, its name is stated in the list of layouts.

Figure 3-2



3.1.1 Customizing the size of the buttons

The "IconsBackground.png" file defines the size of the buttons. Since the toolbar buttons are square, the maximum of the side lengths is read out of "IconsBackground.png" and set as the height and length of the buttons. The thus set size is fixed and cannot be changed through other graphics.

With this customization, you can set the size of the buttons according to your needs.

Figure 3-3



3.1.2 Customizing the button graphics

Basic procedure

In order to customize the graphics, the "IconsNormal.png" file must be created in the "Toolbar" folder. In this file, the individual graphics of the buttons must be inserted successively (see the following figure). (The file for disabled buttons is "IconsDisabled.png".)

Figure 3-4



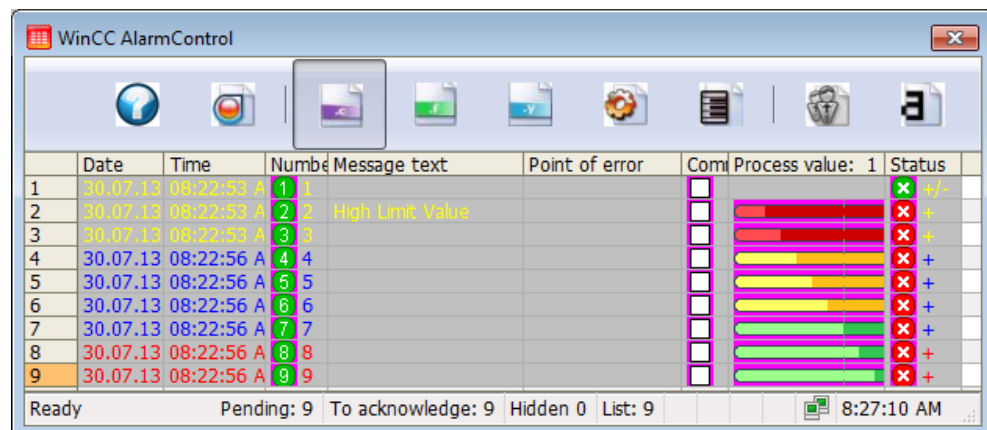
The "IconsNormal.png" file can be customized as desired and replaced with new graphics for the buttons. To use new graphics, the files "IconsNormal.png" and "IconsDisabled.png" must be customized. This customization of the graphics can be implemented with any graphic program.

The control then loads the file, cuts it into the single graphics, and displays the cut parts on the buttons.

Example of customized button graphics

In order to display enlarged buttons, the graphics "IconsNormal.png" and "IconsDisabled.png" must be enlarged.

Figure 3-5



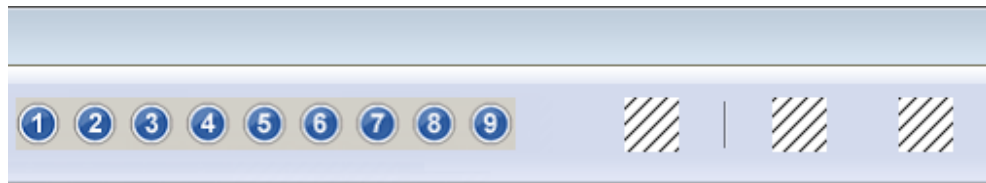
3.1.3 Modifying user-defined buttons

The user-defined buttons are only provided with graphics that are numbered from one through to nine. The numbers have no significance for the user. Moreover, only nine user-defined buttons can be created, after that only dashed boxes will be displayed.

3 Configuration

3.2 Customizing grids

Figure 3-6



Customized graphics of the user-defined buttons are created in the same manner as the standard buttons described before.

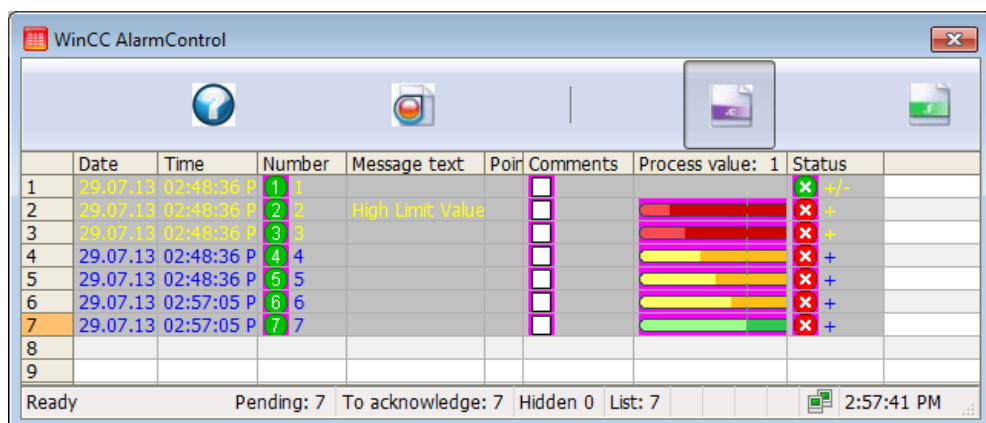
After having created and renamed the files, store them in the "Toolbar" folder.

3.1.4 Customizing the divider/dividing space

The divider and the left space before the buttons start can also be customized. In order to modify the space around the divider, create the "Space.png" file and store it in the "Toolbar" folder.

The width of this graphic is used as width of the dividing space. To modify the left margin, you can create the "Left.png" file. A margin as wide as "Left.png" will be created to the left of the start of the buttons.

Figure 3-7



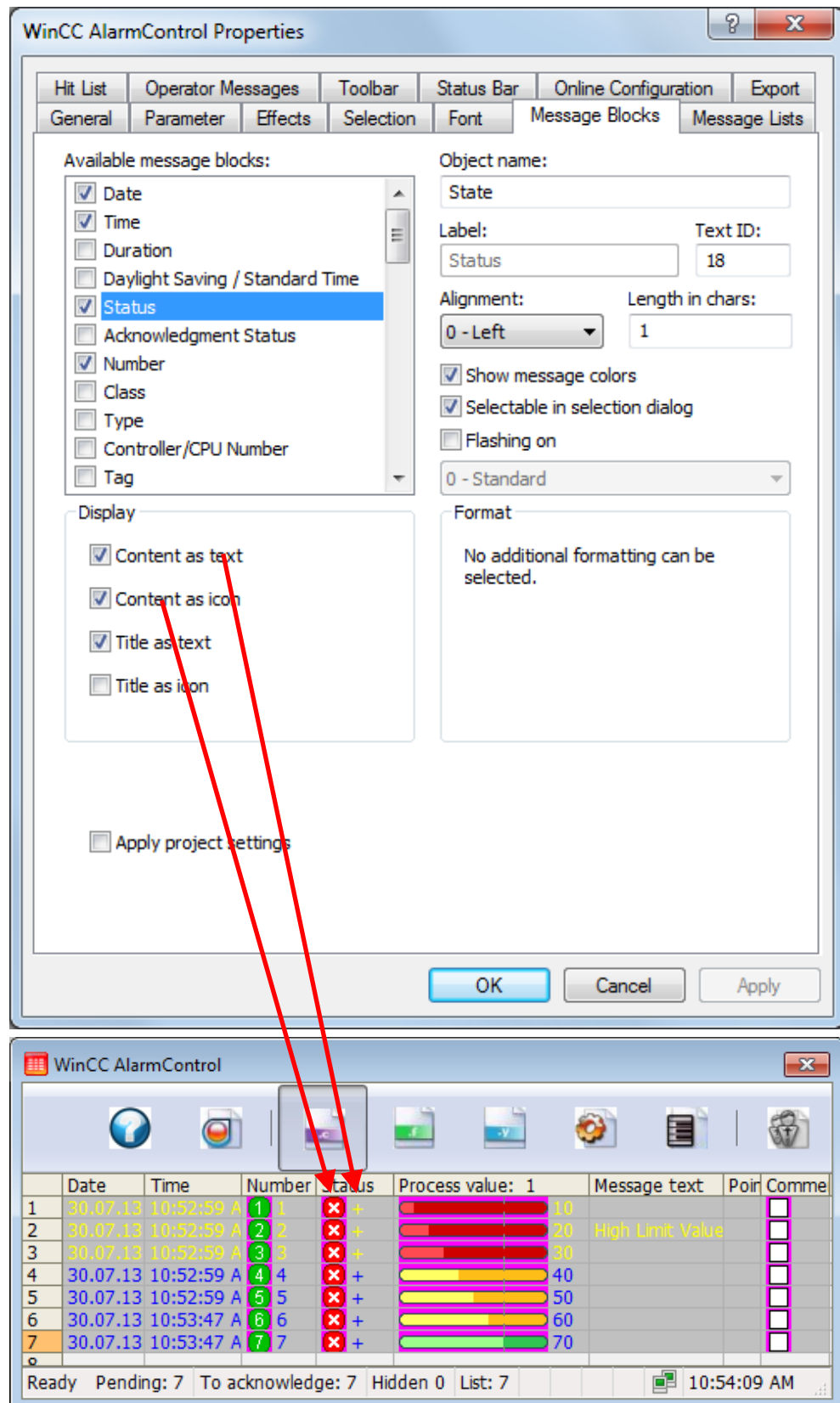
3.2 Customizing grids

The grid (table element) can be customized for AlarmControl. In standard layout, text and in certain columns also icons are displayed in the cells.

Basically, for each control with a table, you can determine in the configuration dialog for each column whether the content is to be displayed as a text or as an icon.

The selection for AlarmControl is shown in the following figure. In this case, the status is displayed as a text and as an icon.

Figure 3-8



The status content is displayed both as text and as icon. If there are any comments, there is also an icon displayed.

Modifying the standard icons

By way of customizing it is possible to display different icons in the cells dependent on the values.

For that purpose, analogous to the modification of the toolbar appearance, a folder with the name of the new layout must be created in "CCAxControlSkins". In this example, the "TableIcons" folder is created.

In this folder, a subfolder for the control (here: "AlarmControl") and in that the folder "GridIcons" must be created. In "GridIcons", separate folders are created for each column of the table in which icons are to be displayed.

The name of the folder is the same as the object name of the message block¹. To activate the new icons, the "TableIcons" layout is selected in the configuration dialog.

In this example, the Status column icons included in the standard layout are replaced. The "State" folder is created for that purpose. This folder must include graphics with the respective status names² (in English). For states having a corresponding graphic in this folder, the new icon is displayed in the table cell when this state occurs.

Figure 3-9

The screenshot shows the WinCC AlarmControl window. At the top is a toolbar with various icons. Below it is a table with the following columns: Date, Time, Number, Message text, Point of error, Com, Process value, and Status. The table contains 9 rows of data. The Status column contains custom icons: a green plus sign, a red cross, and a red cross with a plus sign. The bottom status bar shows 'Ready', 'Pending: 9', 'To acknowledge: 9', 'Hidden 0', 'List: 9', and the time '8:27:10 AM'.

	Date	Time	Number	Message text	Point of error	Com	Process value: 1	Status
1	30.07.13	08:22:53 A	1 1		Tank			+
2	30.07.13	08:22:53 A	2 2	High Limit Value	Tank			x
3	30.07.13	08:22:53 A	3 3		Tank			x
4	30.07.13	08:22:56 A	4 4		Tank			x
5	30.07.13	08:22:56 A	5 5		Tank			x
6	30.07.13	08:22:56 A	6 6		Motor			x
7	30.07.13	08:22:56 A	7 7		Motor			x
8	30.07.13	08:22:56 A	8 8		Motor			x
9	30.07.13	08:22:56 A	9 9		Motor			x

It is not possible to display icons in the Date and Time columns.

To assign icons to message numbers, each numerical value can be assigned a graphic. For example, the respective number is highlighted in a certain color. The graphic names (in the "Number" folder) for five are then "5.png", for example. If an icon is defined for a specific interval rather than for a single value, the graphic name for an interval, for example 50 to 100, is "50_100.png", the limits being included in the interval.

Since the graphic icons are highly flexible it might make sense to display the icons only, without any text, for example to visualize a filling level. For cells containing text, for example Point of error, a graphic file has to be defined for each text that can be displayed. The Point of error column provides the option to visualize to the user at which points in the plant an error message occurred. If an error occurs in the tank, for example, a tank icon can be displayed; if it occurs in a valve, a corresponding valve component can be displayed.

¹ An overview of all message blocks and their object names is provided in the Appendix.

² An overview of all values that Status and further columns can take is provided in Appendix.

Figure 3-10

	Date	Time	Number	Message text	Point of error	Com	Process value: 1	Status
1	30.07.13	08:22:53 A	1	1	Tank			+
2	30.07.13	08:22:53 A	2	High Limit Value	Tank			+
3	30.07.13	08:22:53 A	3		Tank			+
4	30.07.13	08:22:56 A	4		Tank			+
5	30.07.13	08:22:56 A	5		Tank			+
6	30.07.13	08:22:56 A	6		Motor			+
7	30.07.13	08:22:56 A	7		Motor			+
8	30.07.13	08:22:56 A	8		Motor			+
9	30.07.13	08:22:56 A	9		Motor			+

Ready Pending: 9 To acknowledge: 9 Hidden 0 List: 9 8:27:10 AM

3.3 Customizing the scrollbar

You can customize the scrollbar of the WinCC controls. For this purpose, the graphic files the scrollbar is composed of must be replaced.

In the following, first of all the standard scrollbar is shown, which is displayed if no modifications have been made.

Figure 3-11



Analogous to toolbar customization, a "Scrollbar" folder is created in the directory "C:\Programs\Common Files\Siemens\BIN\CCAxControlSkins\NewButton", for customizing the scrollbar. There, the folders "horizontal" and "vertical" folders are created.

Within these folders, numerous individual files must be created or customized, of which the scrollbar is composed at runtime. One example of a customized scrollbar is shown in the following figure.

Figure 3-12



4 Appendix

4.1 Layout structure AlarmControl

Toolbar graphics

Table 4-1

Values (name of the graphic)	Description
IconsBackground.png	Size of the toolbar icons
IconsDisabled.png	Disabled icons
IconsDisabledEx.png	Disabled user-defined icons
IconsNormal.png	Icons
IconsNormalEx.png	User-defined icons
Left.png	Left margin in the toolbar
Space.png	Space between the icons

Assignment of the toolbar buttons

Table 4-2

Function	Object ID (sequence in IconsNormal.png)
Help	1
Configuration dialog	2
Message list	3
Short-term archive list	4
Long-term archive list	5
Blocked items list	6
Hit list	7
List of alarms to hide	8
Acknowledgement of central detectors	9
Single acknowledgement	10
Group acknowledgement	11
AutoScroll	12
Selection dialog	13
Display option dialog	14
Blocked items dialog	15
Print	17
Emergency acknowledgement	18
First alarm	19
Previous alarm	20
Next alarm	21
Last alarm	22
Infotext dialog	23
Comment dialog	24
Loop In Alarm	25

Function	Object ID (sequence in IconsNormal.png)
Block alarm	26
Release alarm	27
Hide alarm	28
Show alarm	29
Sorting dialog	30
Time base dialog	31
Copy lines	32
Connect backup	33
Disconnect backup	34
Export data	35
First page	36
Previous page	37
Next page	38
Last page	39

Assignment of the user-defined toolbar buttons

Table 4-3

Function	Object ID (sequence in IconsNormalEx.png)
User-defined 1	1001
User-defined 2	1002
User-defined X	100X

Table 4-4

Folder (object name in message block)	Values (name of the graphic)	Description
Date	No icons possible	
Time	No icons possible	
Duration	No icons possible	
SumWin	No icons possible	
State	Come	Received
	ComeQuit	Received and acknowledged
	Go	Present
	Info	Information
	Lock	Blocked
Quitstate	Quit	Acknowledgement
	QuitEmergency	Emergency acknowledgement
	QuitHorn	Horn acknowledgement
	QuitSystem	System acknowledgement
Number		Numerical value as name of the graphic (e.g., "1.png", "5.png")

Folder (object name in message block)	Values (name of the graphic)	Description
Class	Error	Error
	Unknown	Unknown
	System	System
Type	Error	Error
	Warning	Warning
	Alarm	Alarm
AGCPU	No icons possible	Name of the displayed variable as name of the graphic
Tag		
Reporting	Yes	Logging available
	No	No logging available
Comment	Yes	Comment available
	No	No comment available
Infotext	Yes	Infotext available
	No	No infotext available
LoopInAlarm	Yes	Loop In Alarm available
	No	No Loop In Alarm available
Computername		Displayed computer name as name of the graphic
Username		Displayed user name as name of the graphic
Priority		Numerical value as name of the graphic (e.g., "1.png", "5.png")
Text1 to Text 10		Displayed text as name of the graphic
Value1 to Value10		Numerical value as name of the graphic (e.g., "1.png", "5.png")

4.2 Layout structure FunctionTrendControl

Toolbar graphics

Table 4-5

Values (name of the graphic)	Description
IconsBackground.png	Size of the toolbar icons
IconsDisabled.png	Disabled icons
IconsDisabledEx.png	Disabled user-defined icons
IconsNormal.png	Icons
IconsNormalEx.png	User-defined icons
Left.png	Left margin in the toolbar
Space.png	Space between the icons

Assignment of the toolbar buttons

Table 4-6

Function	Object ID (sequence in IconsNormal.png)
Help	1
Configuration dialog	2
Ruler	3
Zoom section	4
Zoom +/-	5
Zoom x axis	6
Zoom y axis	7
Shift trend range	8
Shift axis range	9
Original view	10
Select data connection	11
Select trends	12
Select time range	13
Previous trend	14
Next trend	15
Start / Stop	16
Print	17
Connect backup	18
Disconnect backup	19
Export data	20

Assignment of the user-defined toolbar buttons

Table 4-7

Function	Object ID (sequence in IconsNormalEx.png)
User-defined 1	1001
User-defined 2	1002
User-defined X	100X

Grid

There is no grid available.

4.3 Layout structure OnlineTableControl

Toolbar graphics

Table 4-8

Values (name of the graphic)	Description
IconsBackground.png	Size of the toolbar icons
IconsDisabled.png	Disabled icons

Values (name of the graphic)	Description
IconsDisabledEx.png	Disabled user-defined icons
IconsNormal.png	Icons
IconsNormalEx.png	User-defined icons
Left.png	Left margin in the toolbar
Space.png	Space between the icons

Assignment of the toolbar buttons

Table 4-9

Function	Object ID (sequence in IconsNormal.png)
Help	1
Configuration dialog	2
First data set	3
Previous data set	4
Next data set	5
Last data set	6
Edit	7
Copy lines	8
Select data connection	9
Select columns	10
Select time range	11
Previous column	12
Next column	13
Start / Stop	14
Print	15
Define statistics range	16
Calculate statistics	17
Connect backup	18
Disconnect backup	19
Export data	20

Assignment of the user-defined toolbar buttons

Table 4-10

Function	Object ID (sequence in IconsNormalEx.png)
User-defined 1	1001
User-defined 2	1002
User-defined X	100X

Grid

Display of icons not possible.

4.4 Layout structure OnlineTrendControl

Toolbar graphics

Table 4-11

Values (name of the graphic)	Description
IconsBackground.png	Size of the toolbar icons
IconsDisabled.png	Disabled icons
IconsDisabledEx.png	Disabled user-defined icons
IconsNormal.png	Icons
IconsNormalEx.png	User-defined icons
Left.png	Left margin in the toolbar
Space.png	Space between the icons

Assignment of the toolbar buttons

Table 4-12

Function	Object ID (sequence in IconsNormal.png)
Help	1
Configuration dialog	2
First data set	3
Previous data set	4
Next data set	5
Last data set	6
Ruler	7
Zoom section	8
Zoom +/-	9
Zoom time axis	10
Zoom value axis	11
Shift trend range	12
Shift axis range	13
Original view	14
Select data connection	15
Select trends	16
Select time range	17
Previous trend	18
Next trend	19
Start / Stop	20
Print	21
Define statistics range	22
Calculate statistics	23
Connect backup	24
Disconnect backup	25
Export data	26
Relative axis	27

Assignment of the user-defined toolbar buttons

Table 4-13

Function	Object ID (sequence in IconsNormalEx.png)
User-defined 1	1001
User-defined 2	1002
User-defined X	100X

Grid

Display of icons not possible.

4.5 Layout structure RulerControl**Toolbar graphics**

Table 4-14

Values (name of the graphic)	Description
IconsBackground.png	Size of the toolbar icons
IconsDisabled.png	Disabled icons
IconsDisabledEx.png	Disabled user-defined icons
IconsNormal.png	Icons
IconsNormalEx.png	User-defined icons
Left.png	Left margin in the toolbar
Space.png	Space between the icons

Assignment of the toolbar buttons

Table 4-15

Function	Object ID (sequence in IconsNormal.png)
Help	1
Configuration dialog	2
Ruler window	3
Statistics range	4
Statistics	5
Print	6
Export print	7

Assignment of the user-defined toolbar buttons

Table 4-16

Function	Object ID (sequence in IconsNormalEx.png)
User-defined 1	1001
User-defined 2	1002
User-defined X	100X

Grid

Display of icons not possible.

5 References

5.1 Bibliography

This list is not complete and only represents a selection of relevant references.

Table 51

	Subject	Title
/1/	STEP7	Automatisieren mit STEP7 in AWL und SCL □ (Automating with STEP7 in STL and SCL) Hans Berger Publicis MCD Verlag ISBN 3-89578-341-2
/2/		

5.2 Internet links

This list is not complete and only represents a selection of relevant information.

Table 52

	Subject	Title
\1\	Reference to the entry	http://support.automation.siemens.com/WW/view/en/48398362
\2\	Siemens I IA/DT Customer Support	http://support.automation.siemens.com
\3\		

6 History

Table 61

Version	Date	Modifications
V1.0	xx.xx.20xx	First version
V1.1	07.12.2009	Corrected headers and footers
V2.1	13.06.2013	New version WinCC 7.2