

Innovation Days 2024

**WinCC Unified V19
Workshop 2024**



Workshop workbook

In this workbook there is a distinction between informational slides and hands-on slides.

They will be indicated as follows:

Informational slides

INFO

Hands-on slides

HANDSON

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products.
The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

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siemens.com/wincc-unified-system

VLAB Environment

<https://vlab.siemens.cloud/attend-workshop>

If you have not received an email about the VLAB Virtual machine let us know.

The workshop files can be found via the shared folder in the files explorer.

Please do not change the IP Address of the ethernet adapter of the virtual machine.

If you have any questions, let us know!

WinCC Unified V19 - Basics

Installation of ES and RT

Installation of WinCC Unified V19

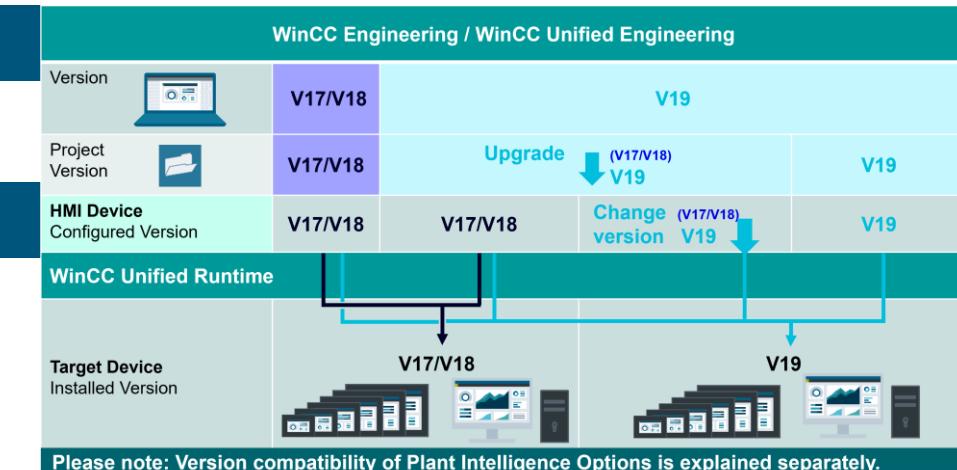
- Installation of ES is **without** RT simulation!
- SIMATIC WinCC Unified RT PC V19 Simulation & Trial - [109820988](#)

Compatibility WinCC Unified V19

- Project and RT Version compatibility “N-2”

WinCC Unified V19 Updates

- Image Downloads for HMI Operator Panels - [109746530](#)
- WinCC Updates PC Runtime and Information - [109820989](#)



New with V19! Parallel Installation of WinCC Unified and WinCC Professional

- Handle Unified RT, RT Advanced and RT Professional devices in one project increases engineering efficiency
- Install all Runtimes on one PC and operate them side by side without the need of using different PCs

WinCC Unified V19 - Basics

Tools

WinCC Unified Configuration

Tool to configure Unified PC RT and Simulation of panels.

This you can configure:

- Web UI certificates
- User Administration
- Storage location of log databases
- Storage location of Reports
- Password-protected download

Unified Configuration dialog is displayed during installation, but you can also open it after installation to change the settings and reconfigure Unified.

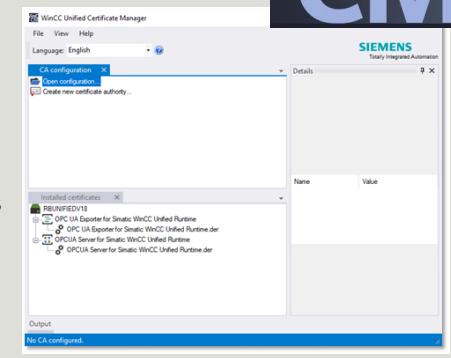


WinCC Unified Certificate manager

The Certificate Manager supports you in creating and distributing certificates for Unified components that use encrypted communication.



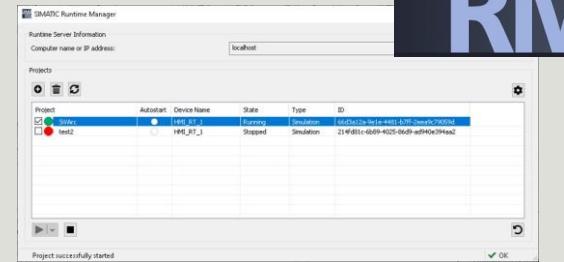
- Create a Certificate Authority
- Central creation of certificates for Unified Devices
- Encrypted export of certificates
- Import and installation of the configured certificates



SIMATIC Runtime manager

Here you manage your downloaded projects.

- Run, stop, autostart or switch projects
- Show project state
- Activate / Deactivate Debugging
- OPC UA Export
- Manage 3rd party certificates
- User Management

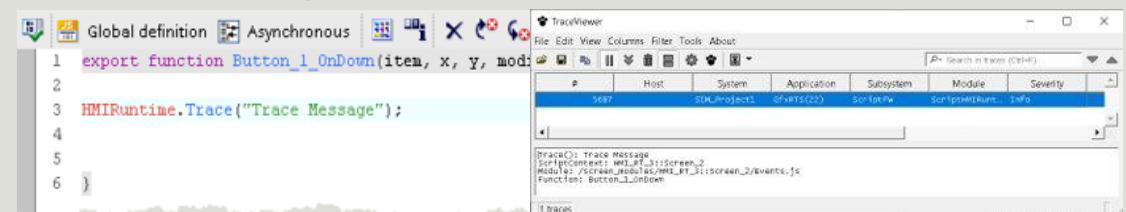


Several WinCC Unified projects can be downloaded to one PC station via TIA Portal.
Just one project at a time can be running.

RTIL Trace Viewer

Debug WinCC Unified project with traces.

- Trace Viewer displays all runtime alarms which are listed in the configurable TraceCatalog.
- Traces are displayed in tabular form and can be filtered.
- Alarms can be exported in text or CSV files.



Located at: "C:\Program Files\Siemens\Automation\WinCCUnified\bin\RTILtraceViewer.exe"

WinCC Unified V19 - Basics

Tools

Tag Simulator for SIMATIC WinCC Unified

Offers you the possibility to create variables from your project planning and to simulate them. Five different types of simulation are available for the type of simulation.

Simulate tags:

- Sine function ("Sine")
- Random values ("Random")
- Increment ("Inc")
- Decrement ("Dec")
- Slider control ("Slider")

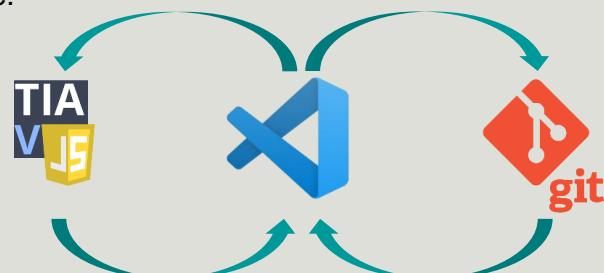
Industry Support Entry ID: [109760641](#)



WinCC Unified JS Connector

Select the files you want to work with and exchange JS files between TIA Portal and VS Code via a single button click.

Automatically set up of Unified JavaScript Style Guide and snippet support enables the usage of known functionality in VS Code.



Industry Support Entry ID: [109825899](#)



WinCC Unified Corporate Designer

Create your user defined styles based on the style library, import it in your project and assign it to your WinCC Unified device.

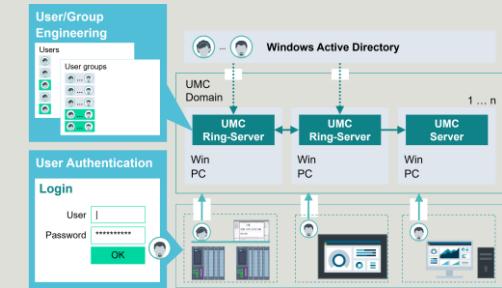
- Create custom styles
- Central color pallet and font.
- Create, export, import, edit your user defined styles centrally
- Create your custom color and font palettes once and then assign them efficiently to your elements and controls.
- The WinCC Unified Corporate Designer is independent from TIA Portal installation.

Industry Support Entry ID: [109824234](#)

User Management Component

The UMC allows the setup of a central user administration. This means you can define and manage users and user groups across software and devices.

User Management Component (UMC) enables for plant-wide central maintenance of users with optional integration with Microsoft Active Directories.

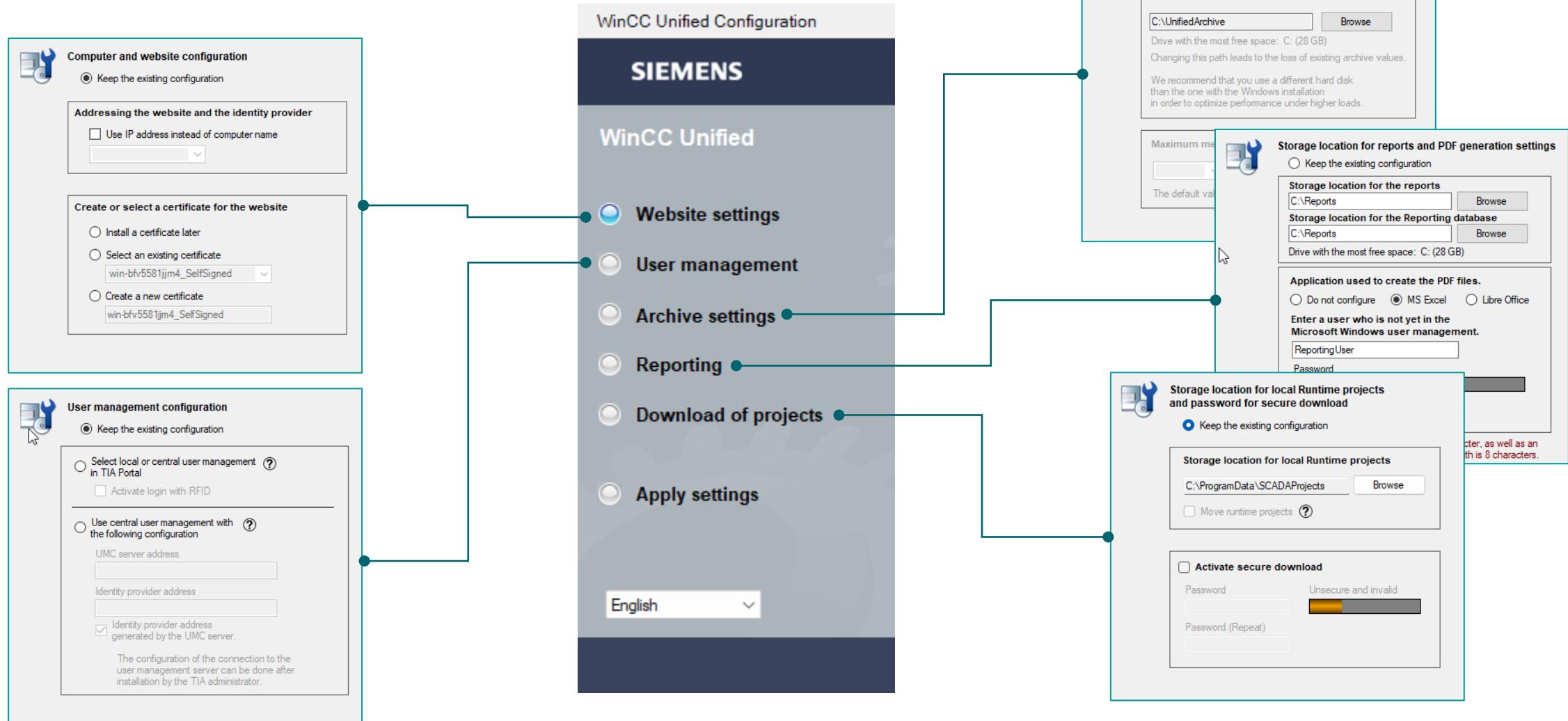


Industry Support Entry ID: [109780337](#)



WinCC Unified V19 - Basics

WinCC Unified Configuration



WinCC Unified V19 - Basics

WinCC Unified Configuration

Use the Users and Roles settings from TIA Portal

The diagram illustrates the integration of user management. On the left, a screenshot of the TIA Portal 'User management configuration' dialog shows two options: 'Keep the existing configuration' (radio button) and 'Use configuration downloaded via TIA Portal' (radio button, selected). Below it, another section shows fields for 'UMC server address' and 'Identity provider address'. A callout box states: 'Uses the UMC Server's configuration for acquiring and authenticating users'. On the right, a screenshot of the WinCC Unified 'Users and roles' configuration interface shows a table of users (Admin, OPCUser) with assigned roles (HMI Administrator, HMI Operator, HMI Monitor, HMI Monitor Client). A callout box also points to this interface.

User management configuration

- Keep the existing configuration
- Use configuration downloaded via TIA Portal.
 - Use IP address for identity provider and website.
- Use the following configuration:
 - UMC server address
 - Identity provider address
 - Identity provider address generated by the UMC
 - The configuration of the user management server can be done after installation by the TIA administrator.

Uses the UMC Server's configuration for acquiring and authenticating users

Project2 > Security settings > Users and roles

User	User name	Password	Authentication...	Maximum sess...	Comment
Admin	*****	*****	Password	30 Min	
OPCUser	*****	*****	Password	30 Min	

Assigned user groups

Assigned to	Name	Description	Maximum sess...	Comment
Admin	HMI Administrator	System-defined role "HMI Adminis..."	30 Min	User Administration, Remot...
OPCUser	HMI Operator	System-defined role "HMI Operator"	30 Min	Web Access, Operator
Admin	HMI Monitor	System-defined role "HMI Monitor"	30 Min	Web Access, monitor
OPCUser	HMI Monitor Client	System-defined role "HMI Monitor ...	30 Min	Monitor only, License requi...

Assigned roles

Assigned to	Name	Description	Maximum sess...	Comment
Admin	HMI Administrator	System-defined role "HMI Adminis..."	30 Min	User Administration, Remot...
OPCUser	HMI Operator	System-defined role "HMI Operator"	30 Min	Web Access, Operator
Admin	HMI Monitor	System-defined role "HMI Monitor"	30 Min	Web Access, monitor
OPCUser	HMI Monitor Client	System-defined role "HMI Monitor ...	30 Min	Monitor only, License requi...

UMCTest > PC-System_1 [SIMATIC PC station] > HM_RT_1 [WinCC Unified PC RT] > Runtime settings

User management

Configuration of user management

- Local user management (users are stored on this device)
- Central user management (users are taken from UMC)

UMC-Server address: <https://myumcserver>

Server id: f4695f8bcf64e1276aa426efcdb06b5c92176da6

Address of identity provider: <https://myumcserver/umc-sso>

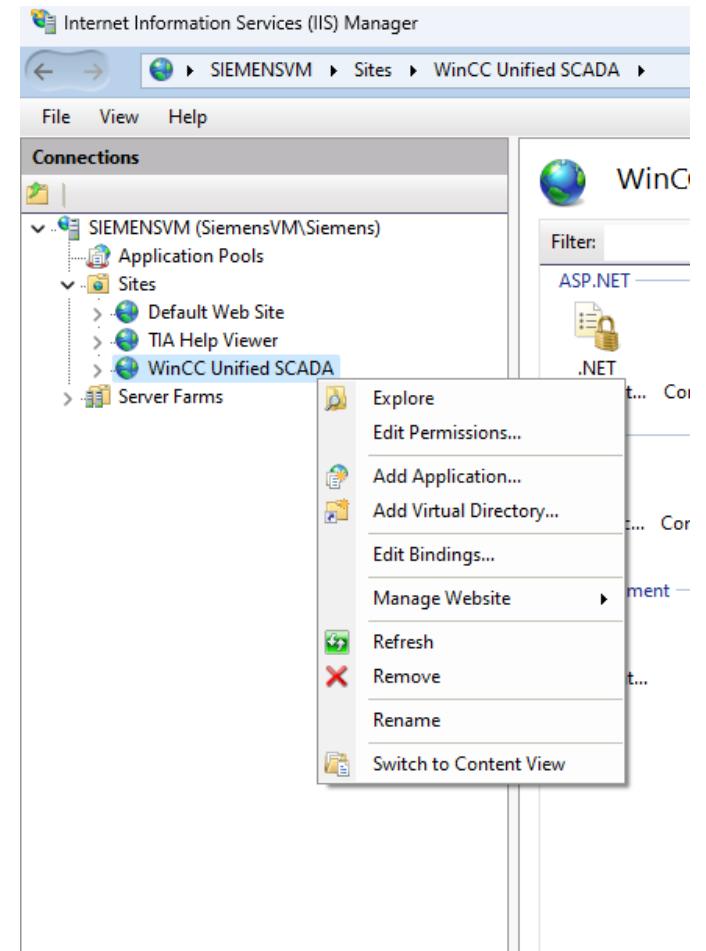
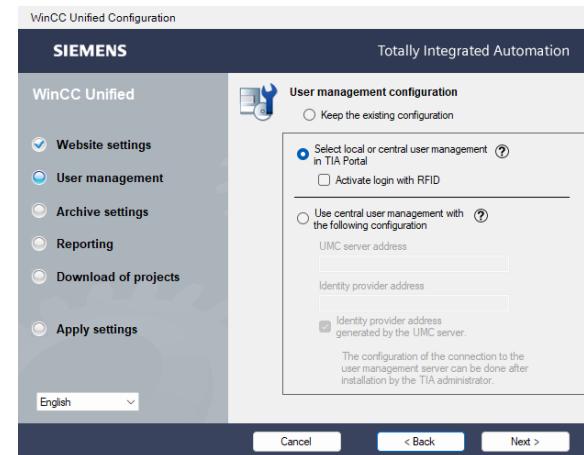
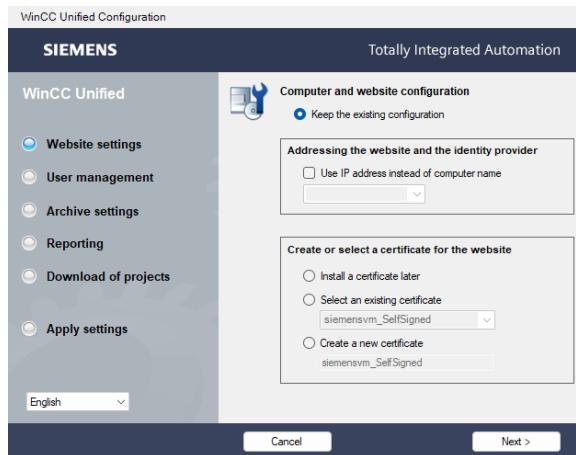
Local user management (PC/Panel configuration) OR Central user management (UMC Server)

WinCC Unified V19 - Basics

Reconfiguring WinCC Unified

To do a complete reset of WinCC Unified RT you can delete the webserver and recreate the webserver with the WinCC Unified Configurator.

1. Open the ‘Internet Information Services (IIS) Manager’.
2. Expand the ‘Sites’ folder and remove the ‘WinCC Unified SCADA’ by right clicking on it and clicking Remove.
3. Open the ‘WinCC Unified Configuration’ and go through the steps.
4. Select the existing certificate and select user management in TIA Portal.



WinCC Unified V19 - Basics

Simulating a Unified Panel

We will create a new project and simulate the HMI. As of V19 you can quickly simulate screens directly and the browser will open automatically.

1. Create a new TIA Portal project.
2. Add a MTP1200 Unified Basic Panel to the project
3. Create a new screen.

The first screen created will automatically be assigned as start screen.

4. Add some objects, elements and a control to the screen.

When drag and dropping a text label, text box or button you can directly type the text you would like to display.

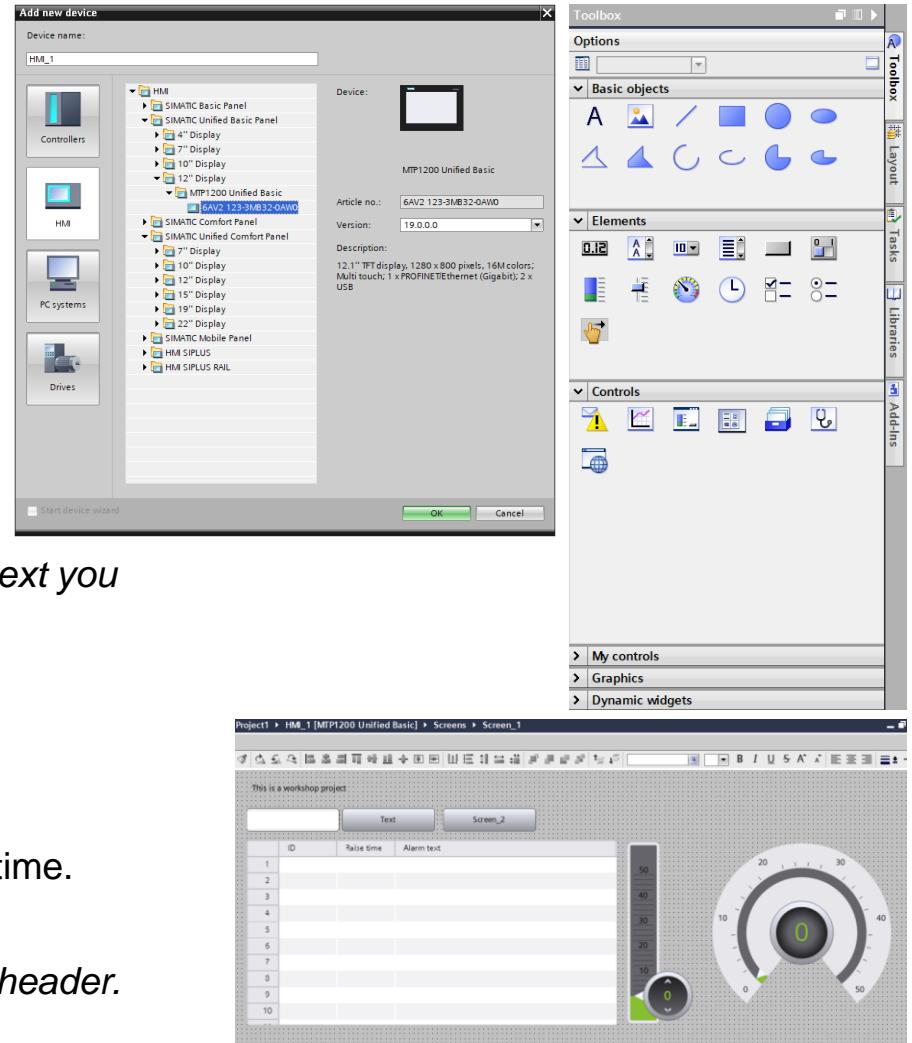
5. Uncheck the Encrypted transfer in the HMI runtime settings.

Only disable Encrypted transfer when simulating and when you are developing.

6. Simulate the HMI or screen.

Click on the screen you want to simulate or on the HMI device to simulate the runtime.

You can switch the toolbox object icons into text by pressing the button underneath the header.



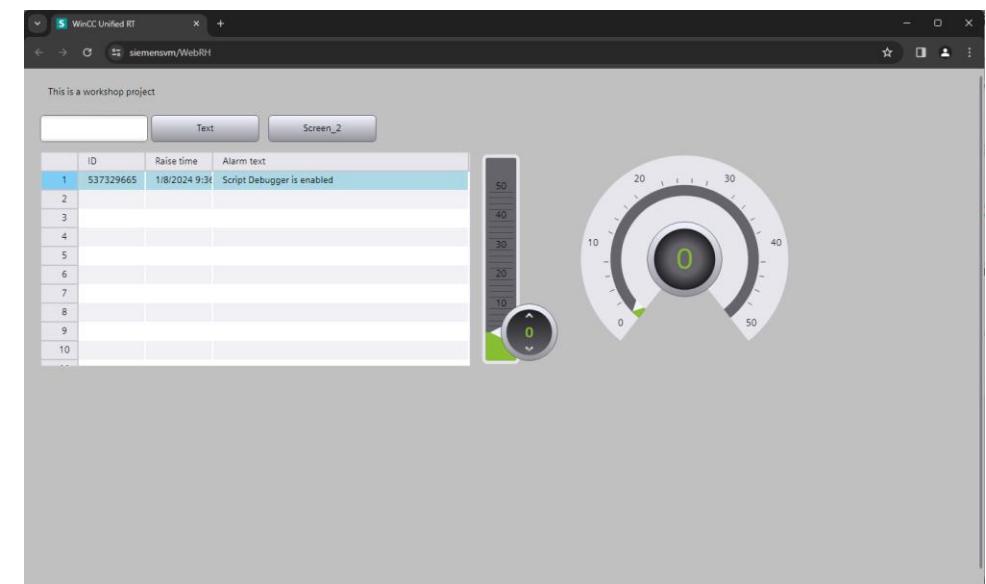
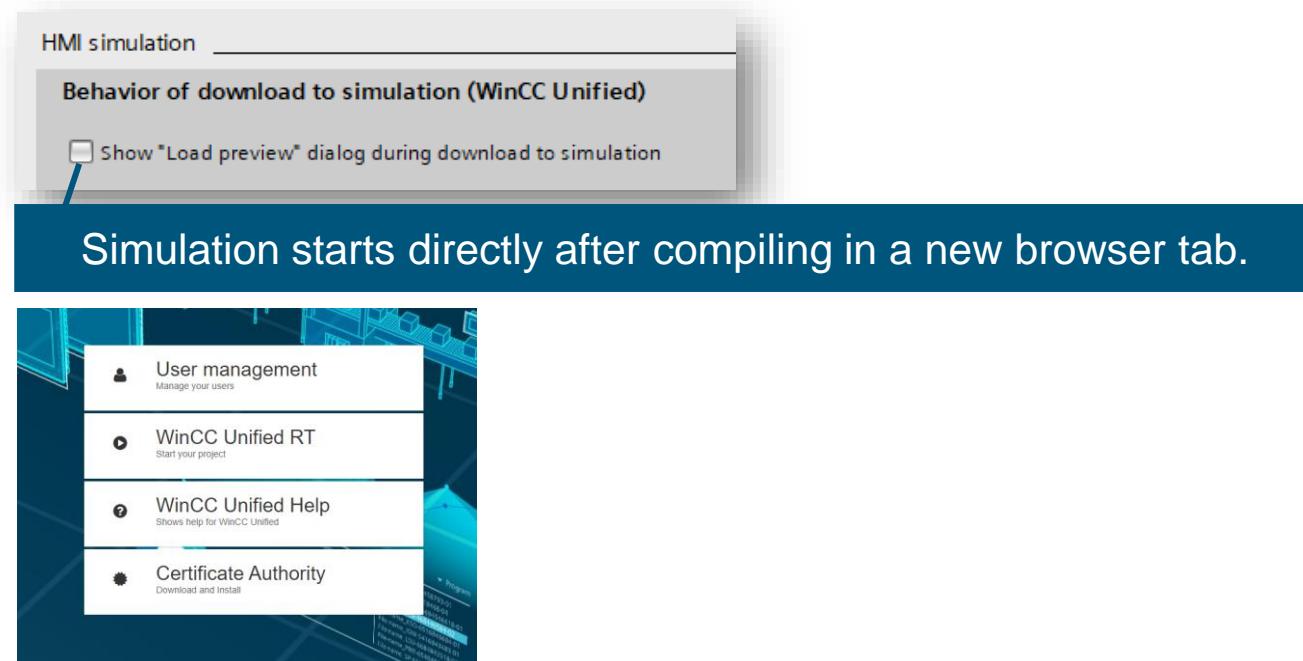
WinCC Unified V19 - Basics

Simulating a Unified Comfort Panel

With V19 a browser instance will open when simulating.

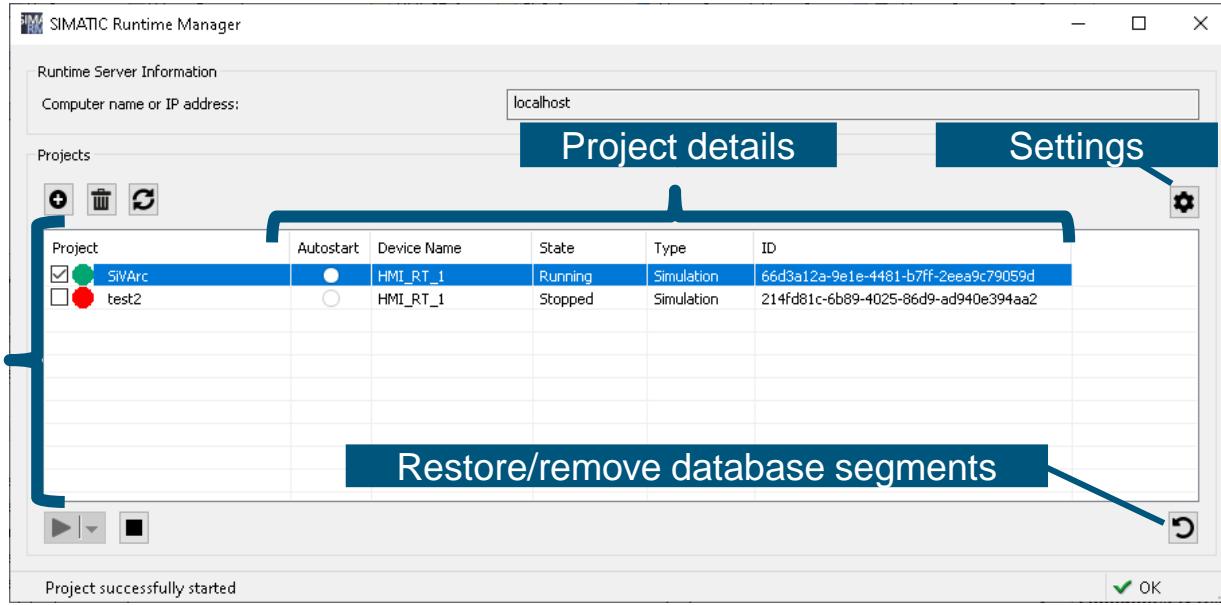
In the TIA Portal setting you are able to change it back to show the load preview before simulating.

You can also open the browser and go to the <https://localhost/>, [https://\[ipaddress\]/](https://[ipaddress]/) or [https://\[pcname\]/](https://[pcname]/) depending on the setting configured in the WinCC Unified Configuration.



WinCC Unified V19 - Basics

Runtime manager



Project list

Restore/remove database segments

Manage WinCC Unified projects

- Run, stop or switch projects
- Show project state
- Activate / Deactivate Debugging
- OPC UA Export
- Manage 3rd party certificates
- Connect logging backup segments
- User Management
- Autostart project

Several WinCC Unified projects can be downloaded to one PC station via TIA Portal.
Just one project at a time can be running.

WinCC Unified V19 - Basics

Runtime manager

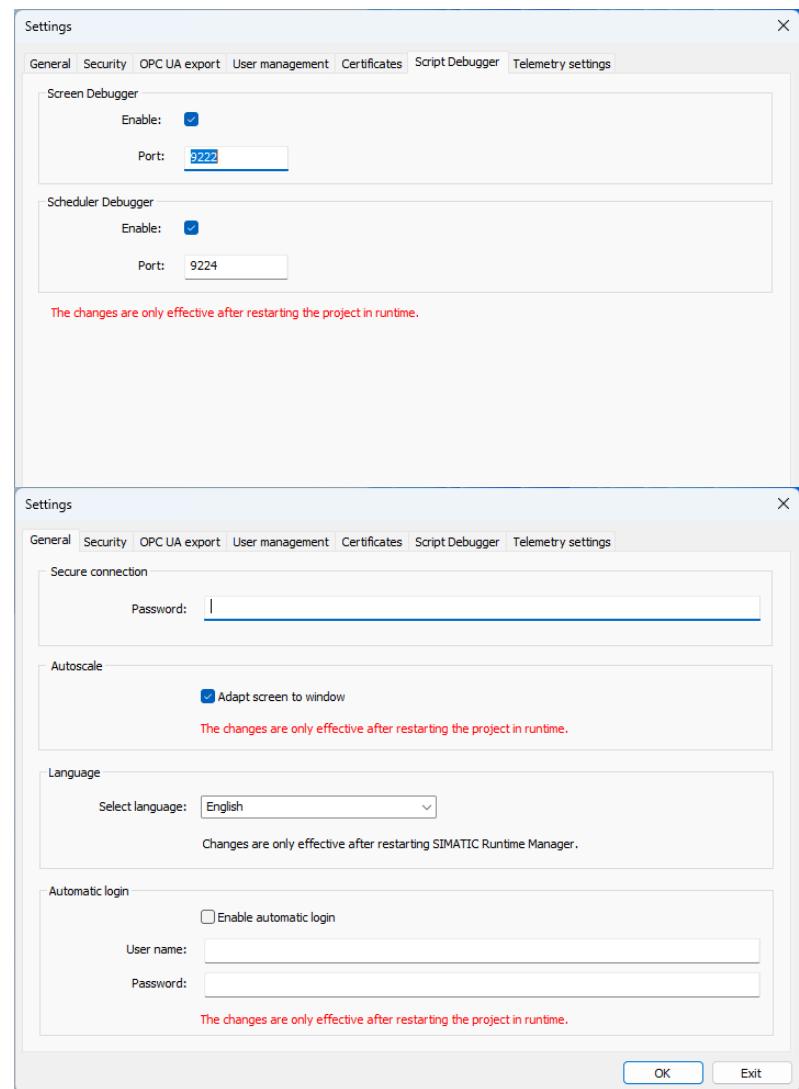
1. Start the runtime manager and see if the simulated project is running.
2. Enable the debuggers in the debugger tabs.

When the debuggers are activated, you can debug the JavaScript which is running in the runtime with Chrome DevTools and in the future via the VS Code extension.

3. Check the “Adapt screen to window” and restart the active runtime project.

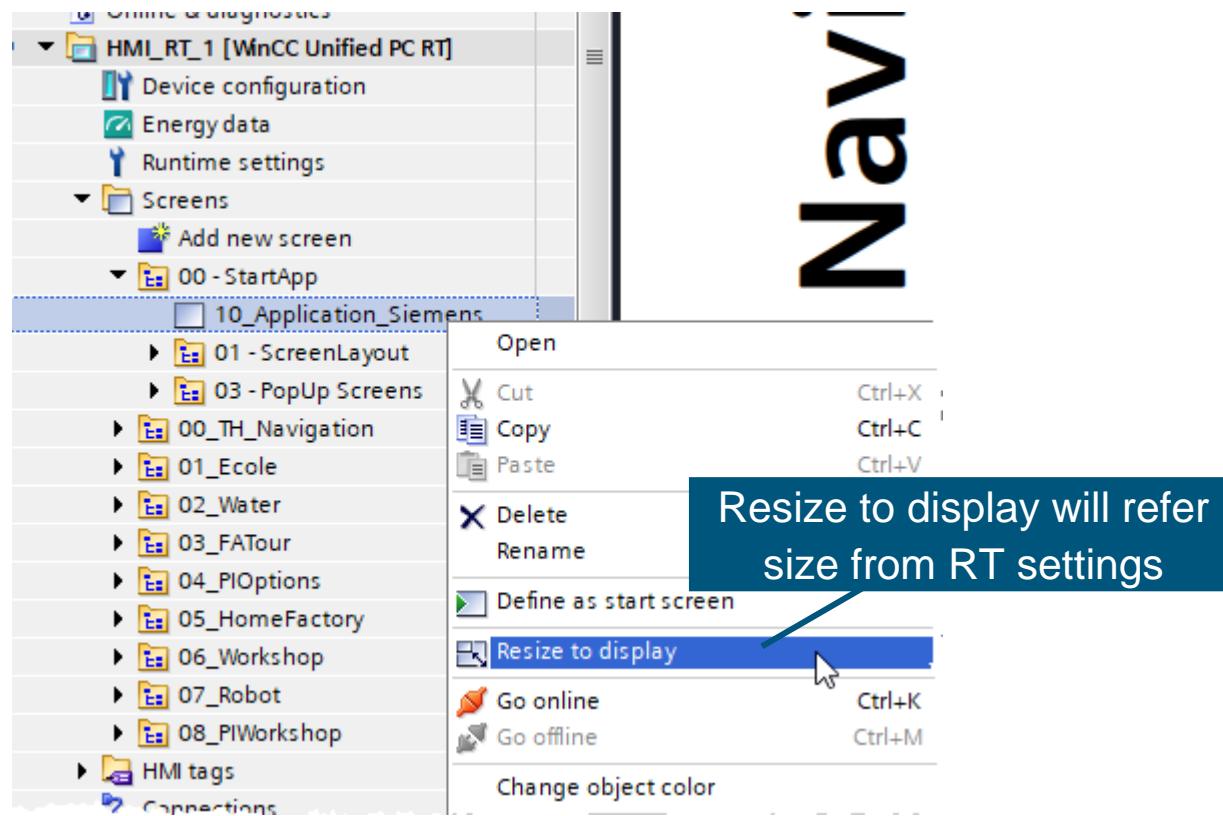
When changing the size of the chrome instance in which the runtime is running the screens adapt in size.

4. Stop and start the runtime project for the changed settings to take effect.



WinCC Unified V19 - Basics

Change device and resizing



Trigger resize screen for:

- All screens
- A group of screens
- One screen

Fonts are adjusted as per ratio calculation.

After replacing the HMI device with substantially larger or smaller variants, you should **check the appearance** of the configured screens. Changed display sizes can result, for example, in the fonts being too small or too large.

The screen size, the objects and fonts used are scaled in one step in all selected screens.

WinCC Unified V19 - Basics

Unified Basic and Comfort Panels

Unified Comfort Panel

**MTP 400**

800 x 480

4.3"

MTP 700

800 x 480

7.0"

MTP 1000

1,280 x 800

10.1"

MTP 1200

1,280 x 800

12.1"

MTP 1500

1,366 x 768

15.6"

MTP 1900

1,920 x 1,080

18.5"

MTP 2200

1,920 x 1,080

21.5"

Unified Basic Panel



(MTP = Multi-Touch Panel)



The Unified Comfort Panel Panel firmware image must be downloaded separately as of V17

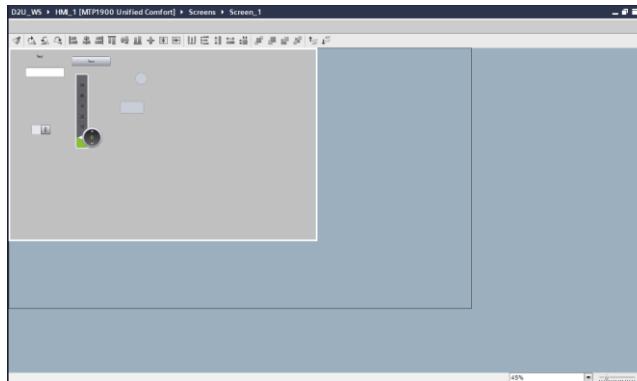
WinCC Unified V19 - Basics

Change device and resizing

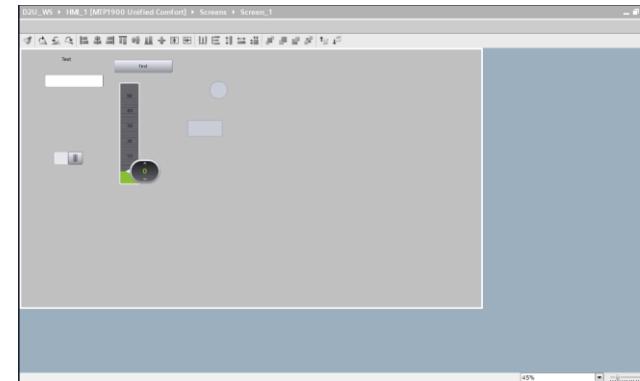
You can change from a Panel to a PC system without losing any of the engineering time. Screens and faceplates are

1. Create a couple screens with different screen items from the toolbox.
2. Right click on the HMI device and click on “Change device / version”.
3. Select ‘PC station’ under the ‘PC system’ folder.
4. Right click on the screens folder and click on “Resize display”.

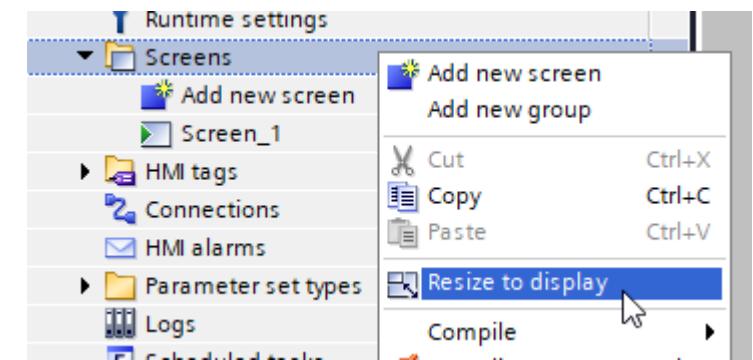
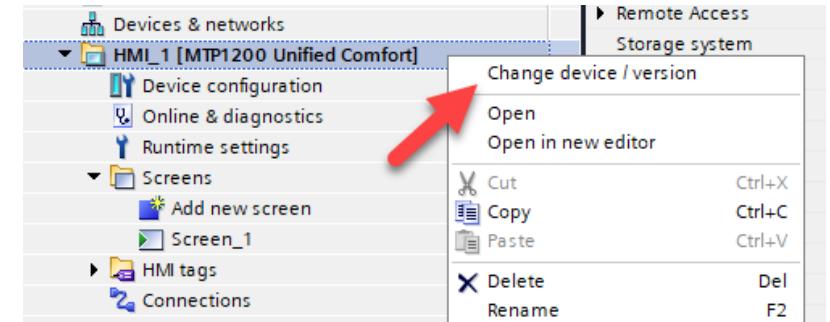
This will resize the size of the screens to the screen resolution of the device and will adjust the size properties of the objects and elements on the screen.



MTP 1200
(1280x800)



PC System
(1920x1080)



Max screen size is 20.000 x 20.000 pixels

WinCC Unified V19 - Basics

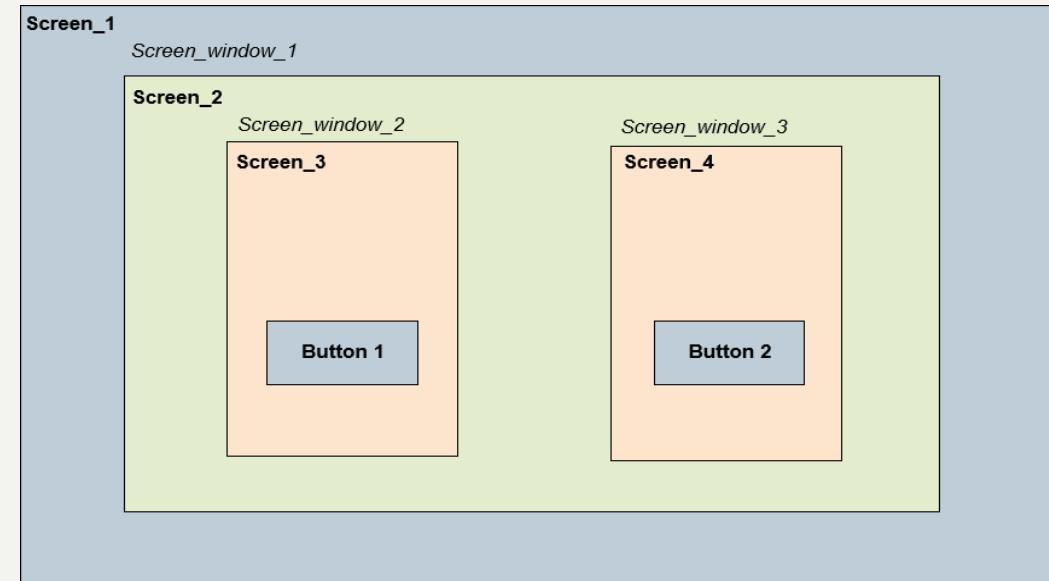
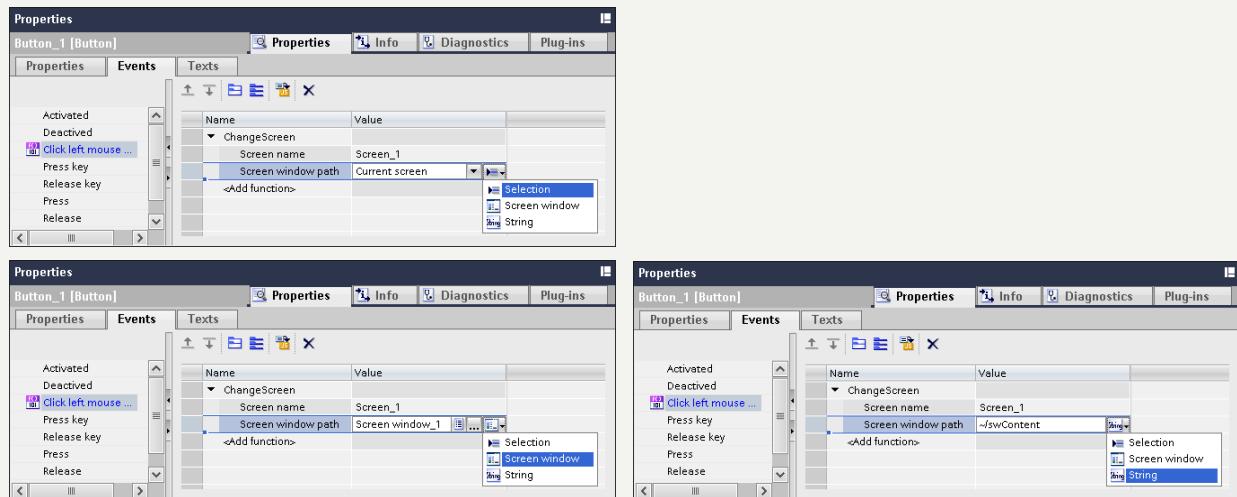
Screen navigation

To create the screen layout, screen windows are used in WinCC Unified.

Depending on the application, it may happen that several screen windows are nested.

The ChangeScreen system function can be used to change the properties of the screen window dynamically.

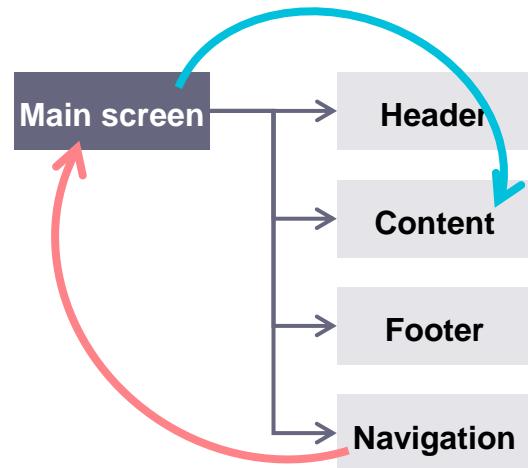
Use as Screen window path parameter to change the current screen, to change a screen of a screen window on the screen or nested screen windows.



To create the screen layout screen windows are used in WinCC Unified.

WinCC Unified V19 - Basics

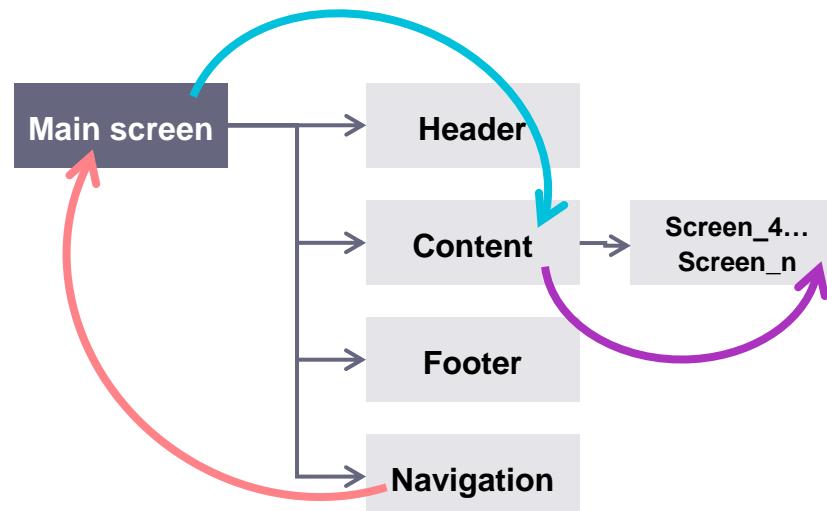
Screen navigation



The event to open a navigation window is located on Header level (screen_window_1).

The screen windows header, content, footer and navigation are adjacent screen windows, that's why the relative item path looks this way:

`./Screen_window_2`

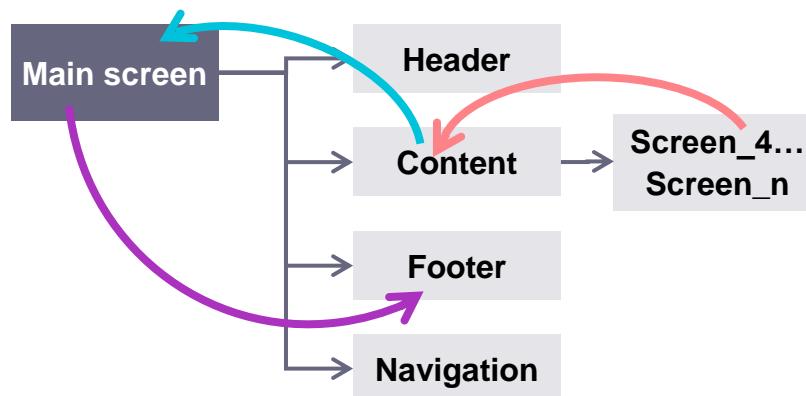
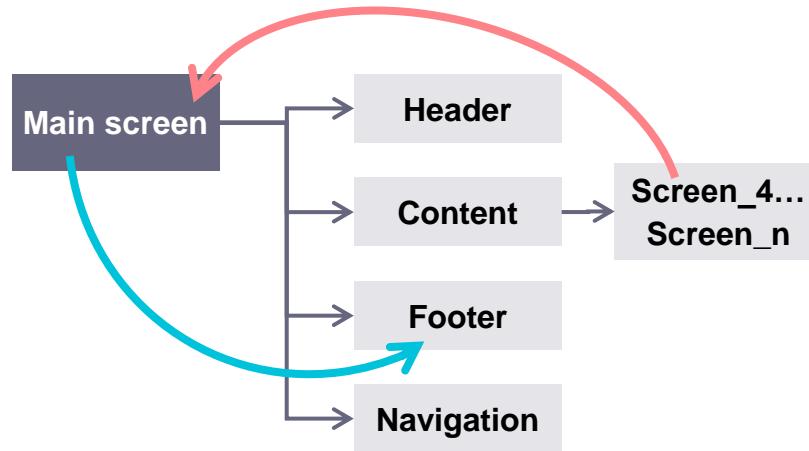


In this case the content need to be shown on the lower-level screen window, that's why the relative item path looks this way:

`./Screen_window_2/Screen_window_5`

WinCC Unified V19 - Basics

Screen navigation



In this case the content needs to be shown on the higher-level screen window, that's why the relative item path looks this way:

(„ ~ /Screen_window_3“)

or

(“ .././Screen_window_3“)

[Please note the colors!!!]

WinCC Unified V19 - Basics

Screen layout

Setting up the main screen to create a screen layout:

1. Create the following screens with the following sizes:

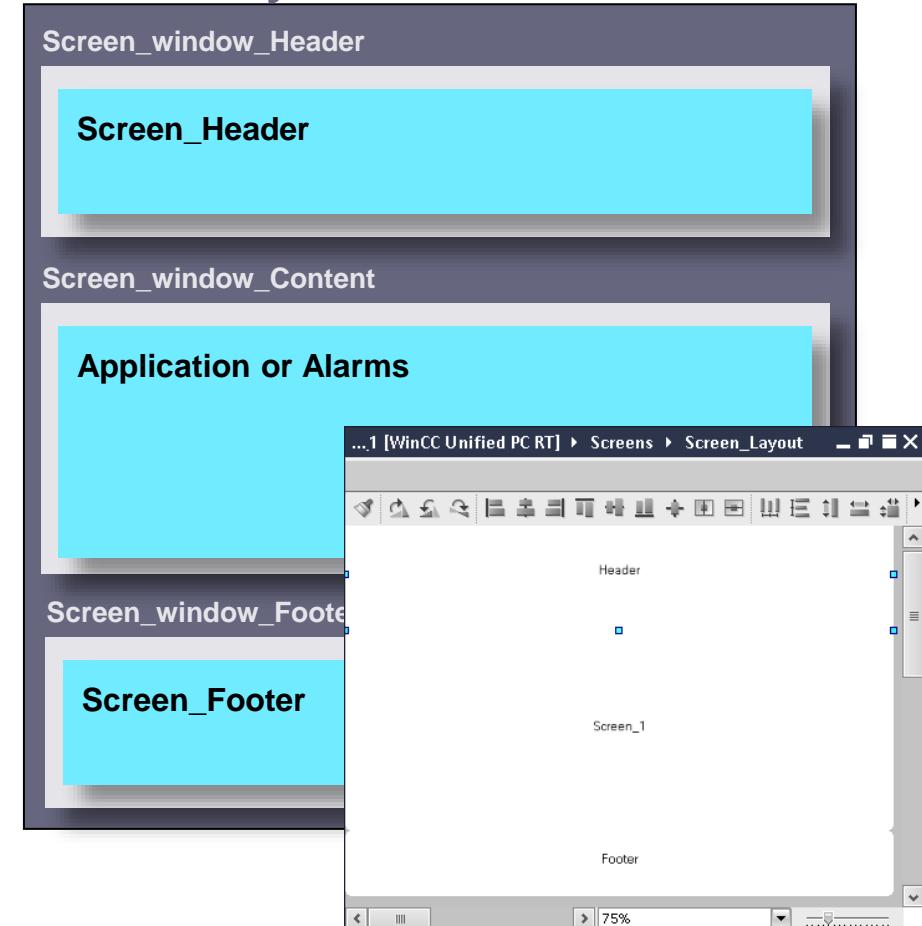
Screen name	Size
Screen_Layout	1920 x 1080
Header	1920 x 100
Application	1920 x 890
Alarms	1920 x 890
Footer	1920 x 80

2. Define the 'Screen_Layout' as the start screen.
3. Add different elements such as sliders and IO fields to the 'Application' screen and an Alarm Control on the 'Alarms' screen
4. On the 'Screen_Layout' screen add 3 Screen Window controls.
5. Define the screen property for each screen window.

You can drag & drop them from the project tree to the screen window.

The screen can also be selected at the 'Screen' property of the screen window.

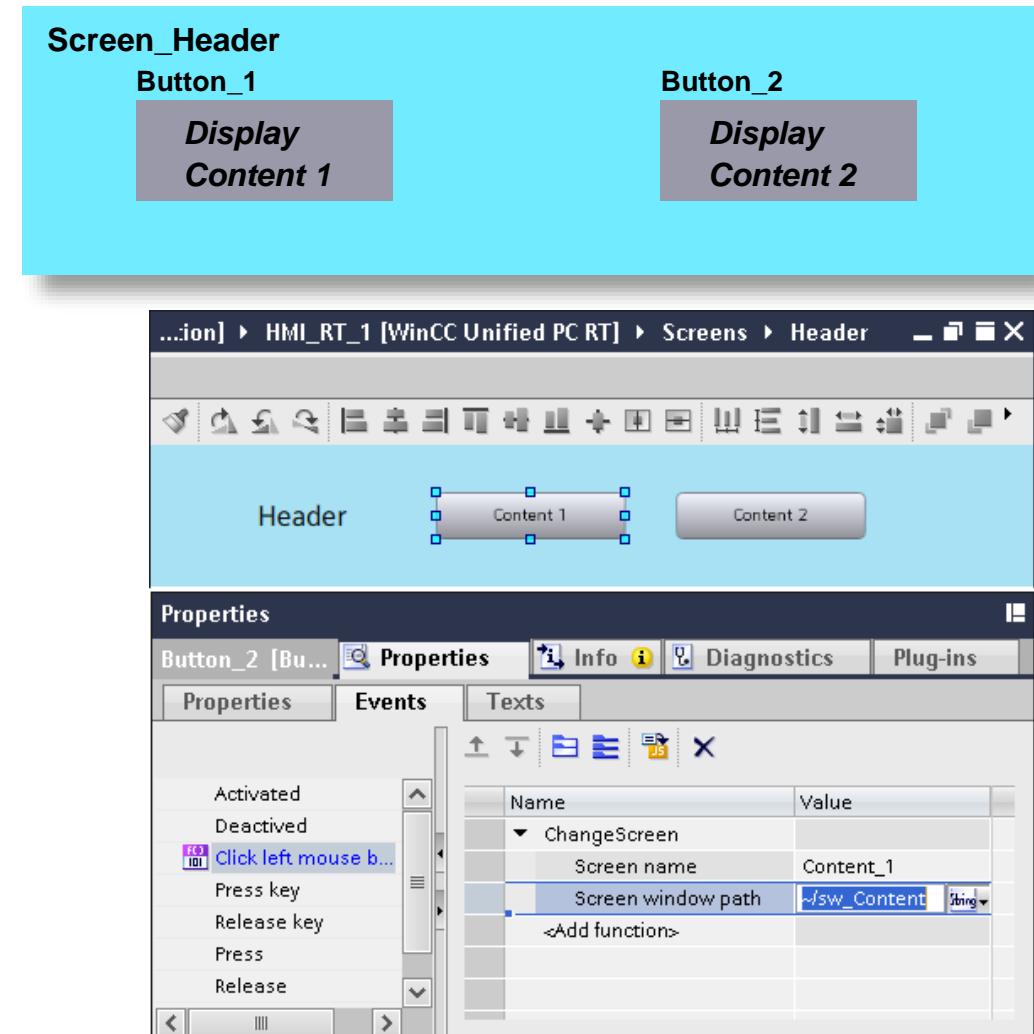
Screen_Layout



WinCC Unified V19 - Basics

Screen layout

6. Define clear names for the screen windows to refer to later.
You can define the name in the properties of the screen window or via the Layout tab.
7. In the properties of the screen windows change the 'Window settings' to 'None'.
8. Open the screen 'Header'
9. Add two buttons to the screen.
10. Use the buttons for the content change of the screen window "Content".
11. Use the system function 'ChangeScreen'.
It is possible to copy paste the system function to the other event.
12. Save, start simulation and check if your configuration works in runtime.



WinCC Unified V19 - Basics

Screen navigation popup

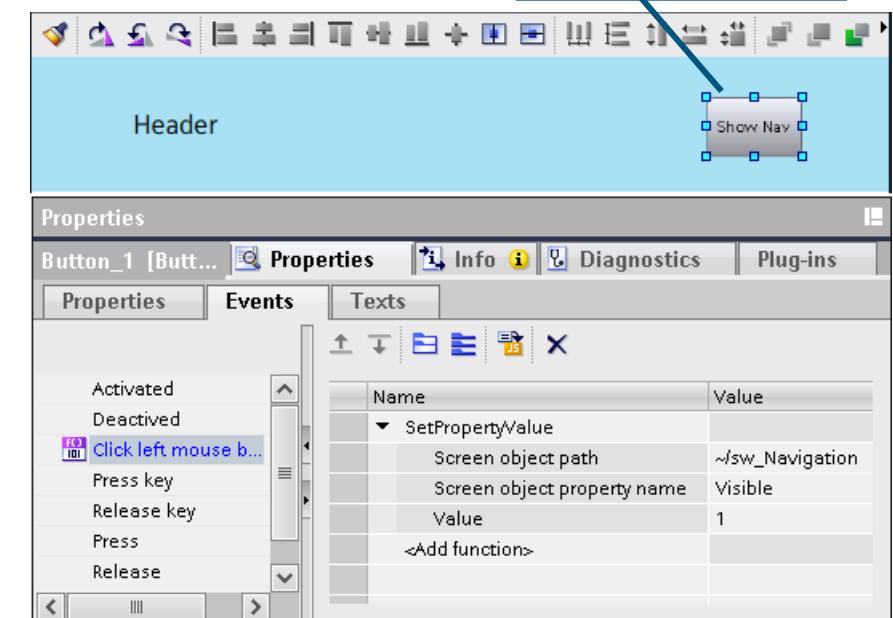
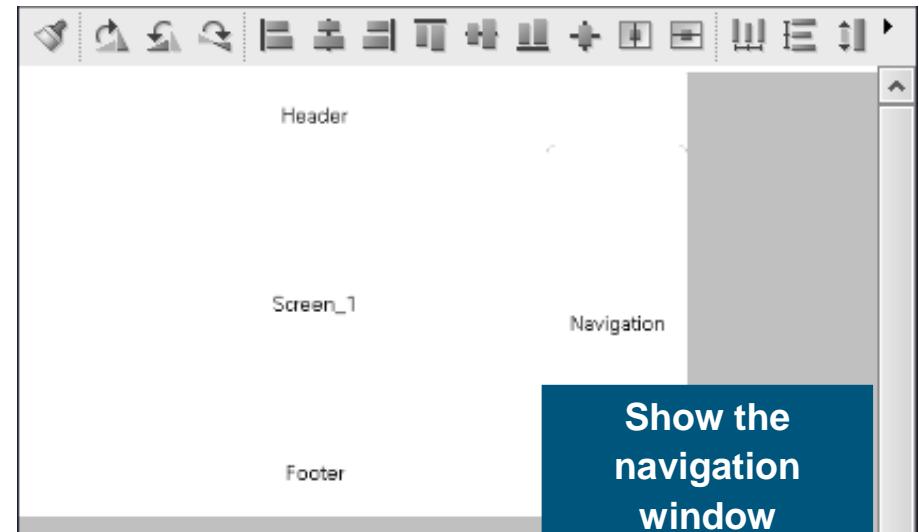
In certain project you would like to have a popup navigation instead of a static one to go to different screen.

1. Add a new screen windows for the navigation on the layout screen.
2. In the header place a new button to make the navigation visible.
3. Use the system function 'SetPropertyValue' to change the 'Visible' property of the navigation screen window.
4. Create a new screen.

Screenname	Size
Navigation	300 x 890

5. Connect the screen to the screen window.
6. Open the 'Navigation' screen.
7. Place the buttons to change the content screen.

You can copy these from the header screen.



WinCC Unified V19 - Basics

Screen navigation popup

- Place the buttons to change the content screen.

You can copy these from the header screen.

- Create a button to hide the navigation.

- Use the 'SetPropertyValue' to change 'Visible' property of the screen window via the Click event.

- Copy this system function and paste them in the other buttons which change the content.

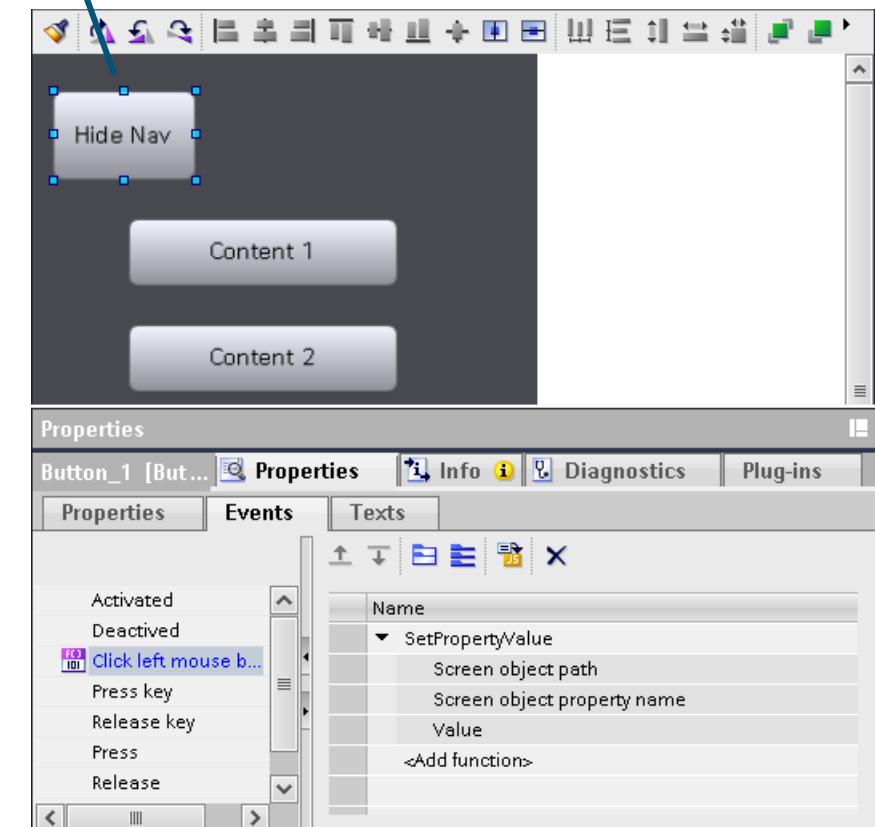
By doing this, the navigation will be hidden when you change screens.

- Save, compile and start the simulation.

- Check the application in the runtime.

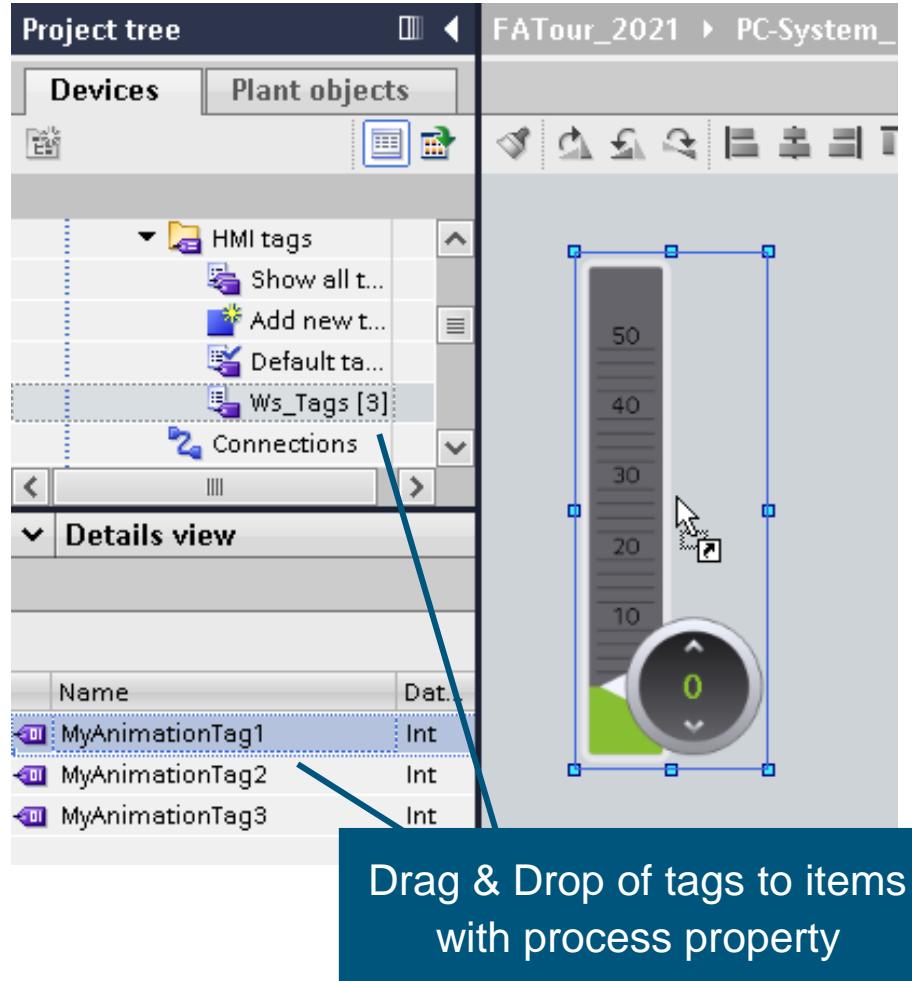
You could also try and use JavaScript to be able to open and close the navigation with one button.

Hide the
navigation
window



WinCC Unified V19 - Basics

Screen engineering - Drag & Drop



Drag & Drop Screen events

- To existing Buttons

Drag & Drop tags to object

- To Gauge, Slider, Bar, Radio button, Trend view...

Multi Drag & Drop of tags

- Create multiple IO fields and trends

Drag & Drop graphics to objects

- To Buttons & Graphic view

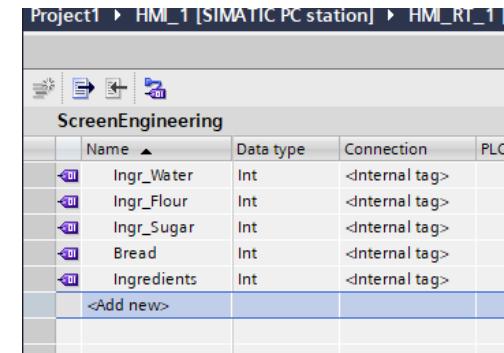
WinCC Unified V19 - Basics

Screen engineering – Tags & Elements

Working with HMI Tags and screen elements.

1. Create a new tag table and add the following HMI tags.

HMI Tag Name	Datatype	Connection
Ingr_Water	Real	<Internal tag>
Ingr_Flour	Int	<Internal tag>
Ingr_Sugar	Int	<Internal tag>
Bread	Int	<Internal tag>
Ingredients	Int	<Internal tag>



2. Place 3 sliders and 3 gauges elements on the screen one for each ingredient.

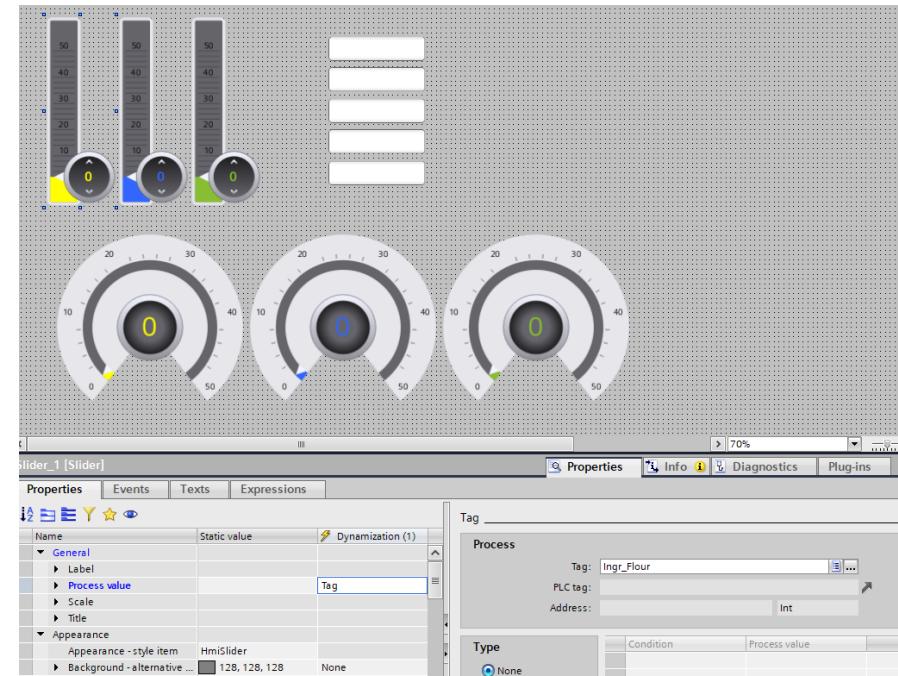
3. Adjust the color of the sliders and gauges so they are different

You can use multiselect using shift the slider and gauge and change the 'Normal range - color' property at once.

4. Connect the HMI tags to the process value.

This is possible by drag and dropping the tag from the detail view to the screen elements or by selecting it in the properties view of the elements.

5. Also Create 5 IO fields by drag and dropping all the tags from the detail view to the screen directly.



WinCC Unified V19 - Basics

Screen engineering – Tags & Elements

Adding Radio button and Checkbox elements.

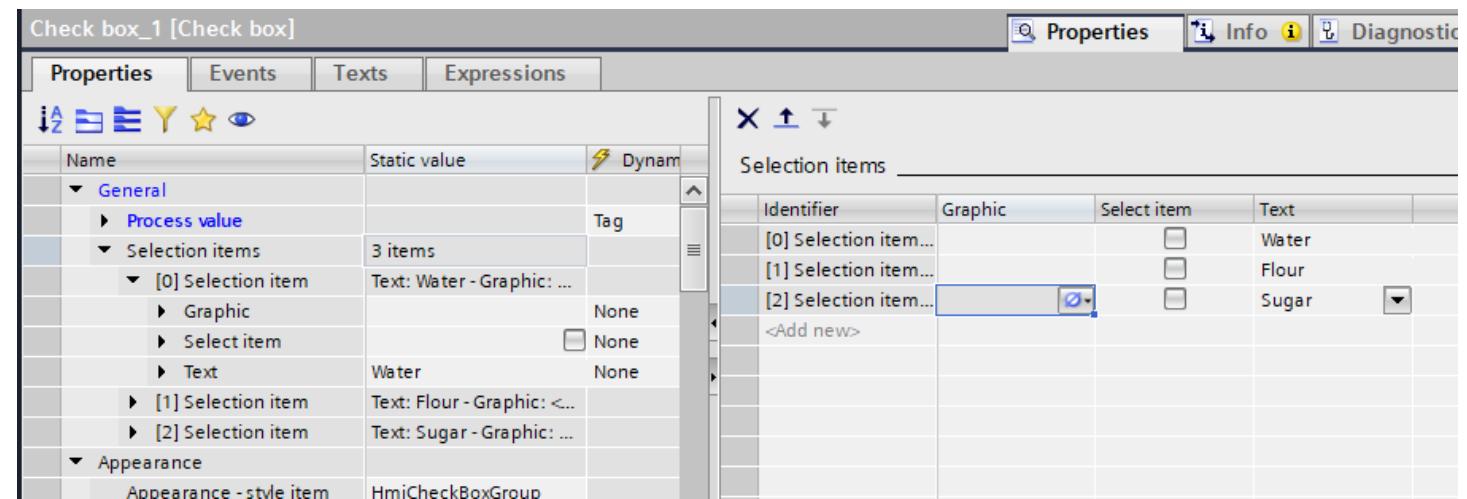
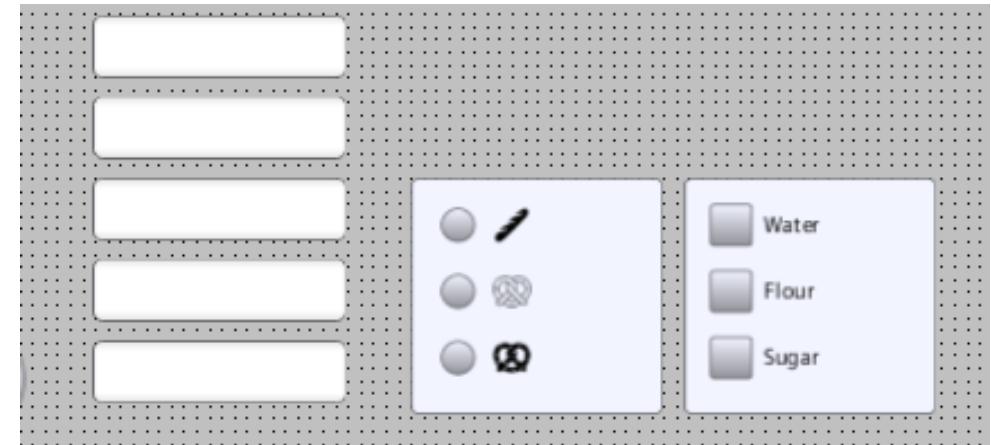
6. Place a Check box to select the ingredients
7. Place a Radio button to select the type of bread. .
8. Connect the tags 'Bread' and 'Ingredients' to the elements.
9. Click on the Selection items and configure graphics for the Checkboxes and set the text of the radio buttons via the properties.

Graphics can be found in the shared files folder.

Bread1.svg, Bread2.svg, Bread3.svg

10. Download the Runtime

11. Control the tags in runtime and check the result

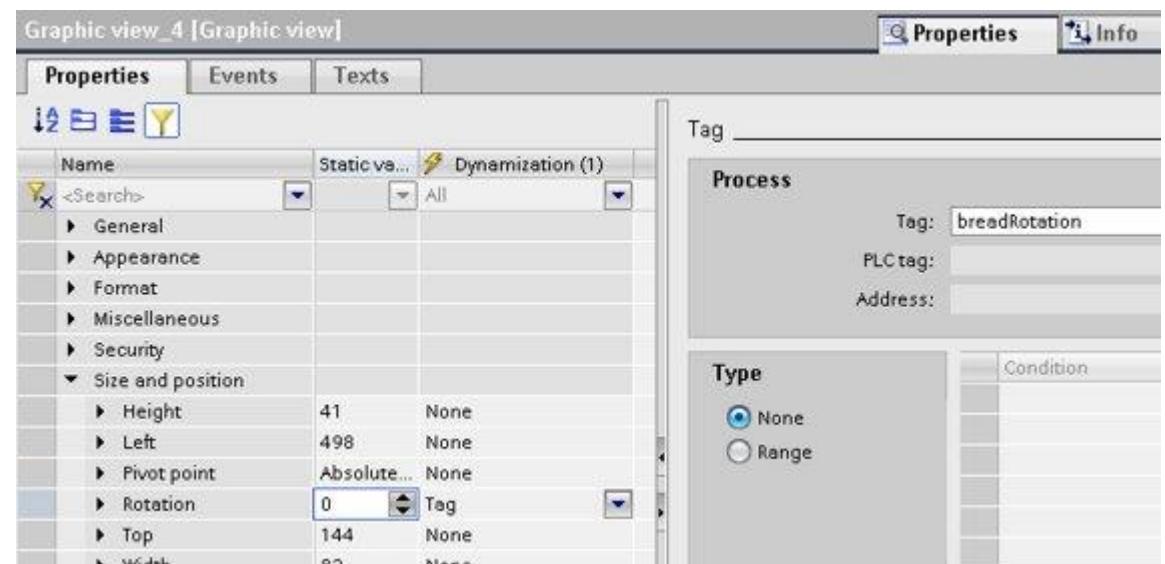


WinCC Unified V19 - Basics

Rotating objects

With WinCC Unified you can rotate all the objects and faceplates.

1. Add the 'bread.svg' graphic to the screen.
Drag and drop from the file explorer onto the screen.
2. Create a new tag for the rotation and connect it to a slider control.
3. Set the sliders maximum scale value to 360.
4. Use the tag to configure the rotation property of the bread.
5. Download the runtime and rotate the graphic.



WinCC Unified V19 - Basics

Overview Controls

Control	Description	Unified Basic Panels	Unified Comfort Panels	Unified PC Runtime
Screen Window	Screen in screen operation concepts (template Suite)	✓	✓	✓
Faceplate Container	Faceplates as enclosed graphical objects e.g. popup	✓	✓	✓
System Diagnostics	Smart and easy monitoring of the shopfloor level	✓	✓ ²	✓
Media Player	Integration of videos or camera recordings	x	✓ ^{1,2}	✓
Alarm Control	Complete overview of all kind of alarms	✓	✓	✓
Alarm Hitlist (Alarm Control)	Statistical evaluation of alarms ¹	✓	✓ ²	✓
Trend Control	Flexible evaluation of process data as trend view	✓	✓	✓
Process Control	Flexible evaluation of process data as table view	x	✗	✓
Trend Companion	Statistical evaluation of process data	x	✓ ²	✓
Function Trend Control	F(x)-Analysis of data without time-based relationship	x	✓	✓
Custom Web Control	Integration of custom web controls	x	✓	✓

✓ Available ✓ Available (limited) x Not available ✗ In work

¹ Preinstalled VLC Media Player application | ² As of V18

WinCC Unified V19 - Basics

Flexible evaluation of process data with the Trend Control



Direct evaluation of online and historical data including comparison of different time ranges e.g., shifts

¹ Number of Trends or Trend areas / Control depends on platform | ² As of V19 (for WinCC Unified PC)

Free configurable trend view of online and/or historical data e.g., multiple trend areas¹

User defined settings regarding trend appearance e.g., color, line form, single value point, background



Trend user interface e.g., number of trends¹, ruler, range, print (hardcopy), export

Simplified view² without toolbar buttons which improves handling of screen space utilization.

Add new trends in the trend control² in the runtime simply by dragging and dropping an IO Field to the trend control

Please note: [WinCC Unified PC Runtime and applicable for Client access !](#)

- Trend Area has not to be pre-configured
- [Feature for Online tags \(not for logged tags\)](#)
- Remove tag from trend control via functions of trend control
- No Runtime persistency (change is lost after screen change)

WinCC Unified V19 - Basics

Flexible evaluation of process data with the Process Control

The screenshot shows a software interface for WinCC Unified PC. At the top, there are three tabs: "Unified Basic Panel" (disabled), "Unified Comfort Panel" (disabled), and "WinCC Unified PC" (selected, indicated by a checked checkbox icon). Below the tabs is a table titled "Free configurable table view of online or historical data". The table has columns for "Time", "flow rate IN", "tank level", and "flow rate OUT". The data rows show historical measurements from November 6, 2019, at 06:36:30 to 06:36:32. Row 233 shows flow rate IN of 52,00. Row 234 shows tank level of 454,00. Row 235 shows tank level of 448,00. Row 236 shows flow rate IN of 52,00. Row 237 shows flow rate OUT of 46,00. Row 238 shows tank level of 454,00. Row 239 shows tank level of 460,00. Row 240 shows flow rate IN of 57,00. Row 241 shows flow rate OUT of 38,00. Row 242 is empty. At the bottom of the table are several control buttons: back, forward, search, print, and others. A status bar at the bottom right shows a checkbox icon.

	Time	flow rate IN	tank level	flow rate OUT	
233	06.11.2019 06:36:30			52,00	
234	06.11.2019 06:36:31		454,00		
235	06.11.2019 06:36:31		448,00		
236	06.11.2019 06:36:32	52,00			
237	06.11.2019 06:36:32			46,00	
238	06.11.2019 06:36:32		454,00		
239	06.11.2019 06:36:32		460,00		
240	06.11.2019 06:36:32	57,00			
241	06.11.2019 06:36:32			38,00	
242					

Direct evaluation of historical data

Free configurable table view
of online or historical data

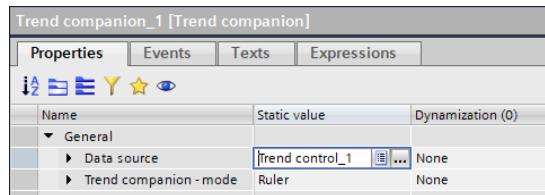
User defined settings
regarding appearance e.g. selection of columns

Process Control user interface e.g.
selection of data, range, print (hardcopy), export

WinCC Unified V19 - Basics

Trend and Process Control

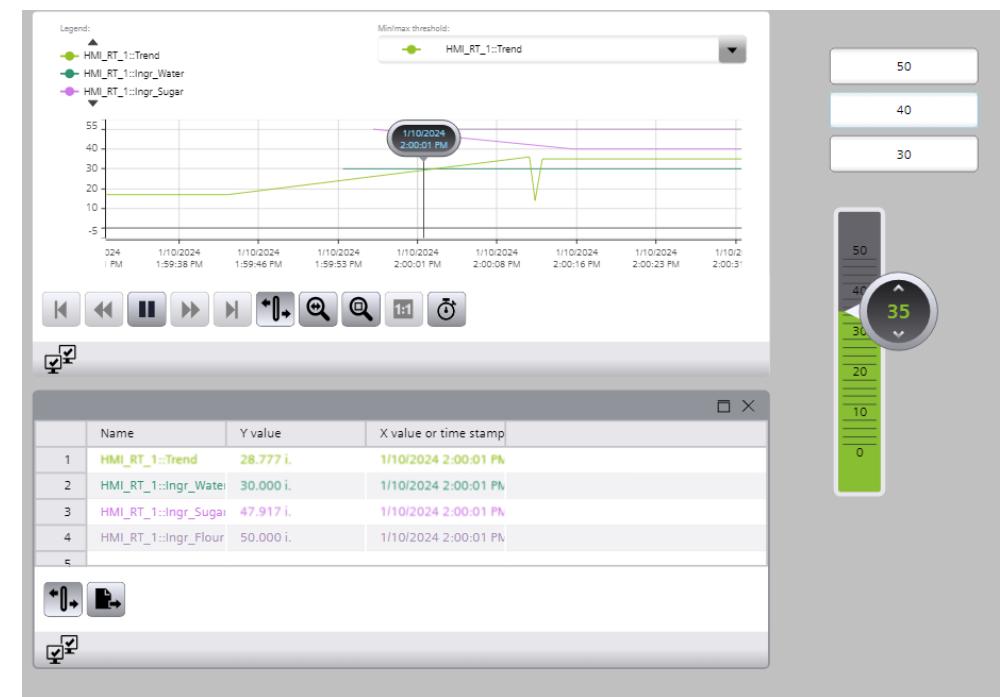
1. Create a new screen and add a slider, trend control and trend companion.
2. Add IO fields for the Sugar, Water and Flour tags created previously.
3. Drag the HMI tag from the detail view to the slider and trend control.
4. Go to the properties of the trend companion and select the trend control as 'Data source'.



5. You are able to change the appearance of the trend within the properties of the control.

Since V19 you can drag and drop IO fields to the Trend control in runtime to create trends for the connected tags (Only for PC Runtime)

6. Add a Process control and drag the created HMI tag for the trending to the process control.
7. Download the Runtime.



WinCC Unified V19 - Basics

Extensive scripting possibilities for Runtime

Unified Comfort Panel ✓ PC ✓

The screenshot shows the WinCC Unified interface. At the top, there are two status indicators: "Unified Comfort Panel ✓" and "PC ✓". Below them is a code editor window containing a JavaScript snippet. The code is a function named "Button_1_OnTapped" that reads a date and time from internal tags, builds a string to write to a file, and then writes it to "D:\MyFiles\textfield.txt" using the HMI Runtime's FileSystem.AppendFile method. It also logs the success message to the trace.

```
1 function Button_1_OnTapped(item, x, y, modifiers, trigger) {
2     let myDate = new Date(); //create a Date object
3     let strTime, strDate, tagVal, strToWrite;
4     strDate = myDate.toLocaleDateString(); //get Local date to script internal tag
5     strTime = myDate.toLocaleTimeString(); //get Local time to script internal tag
6     let tag1 = Tags('AnimationTag');
7     let tagValue1 = tag1.Read(); //read the value of tag AnimationTag
8     //Build the string to be written into file
9     strToWrite = strDate + " " + strTime + ": TagValue = " + tagValue1 + "\r\n";
10
11    //write the entry to the file
12    //in case the folder does not exist, an error will occur,
13    //if the file does not exist, it will be created
14    HMIRuntime.FileSystem.AppendFile('D:\\MyFiles\\textfield.txt', strToWrite, 'utf8').then(
15        function() {
16            HMIRuntime.Trace('Write file finished successfully');
17        }
18    )
}
```

Below the code editor is a navigation menu with the following items:

- Snippets ▶
- HMI Runtime ▶
- Logic ▶
- Alarming
- Alarm Logging
- Audit trail
- Connections
- Database access
- Data set
- File System
- Parameter Set
- Plant Model
- Screen ▶
- Tag
- Tag Logging ▶
- Trace
- GetDetailedErrorDescription

A tooltip for the "Screen" item in the menu lists several functions:

- Change screen item property in current screen
- Enable flashing of an item property in current screen
- Change flashing settings of an item property in current screen
- Change style of many screen items upon authorization
- Get names of screen items
- Get all alarm properties of the selected alarm from the alarm control
- Open faceplate in popup
- Set Language

State-of-the-art and well-known programming language **JavaScript** for local and global scripts e.g., for screen dynamization, events and scheduled tasks.

Support of global script functions

Direct access to WinCC Unified JavaScript object model e.g., access to file-system or databases

Use **Snippets** for easy programming
e.g. get all names of the current screen elements.
Can be used for mass operation like change color

Unified Comfort Panel ✓

PC ✓

Integrated Editor Support

- Syntax highlighting and in-code syntax error indicator
- Manual and background syntax check
- IntelliSense support
- Code templates for frequent scripting tasks
- Global defined user specific functions for reuse
- Browsing and picking of tags, connections, screens and screen items¹

Scripting support for

- Screen, screen item (both properties and events):
Script execution time-based and event triggered (on tag value change)
or based on specific screen item event (e.g. "click left mouse button" event)
- Scheduler:
Script execution time-based and event triggered (on tag value change / alarm state change)

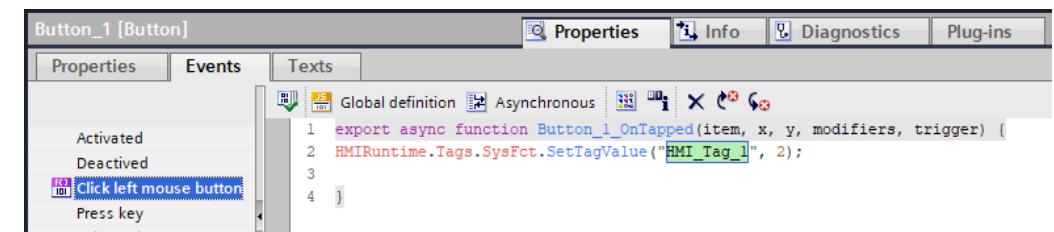
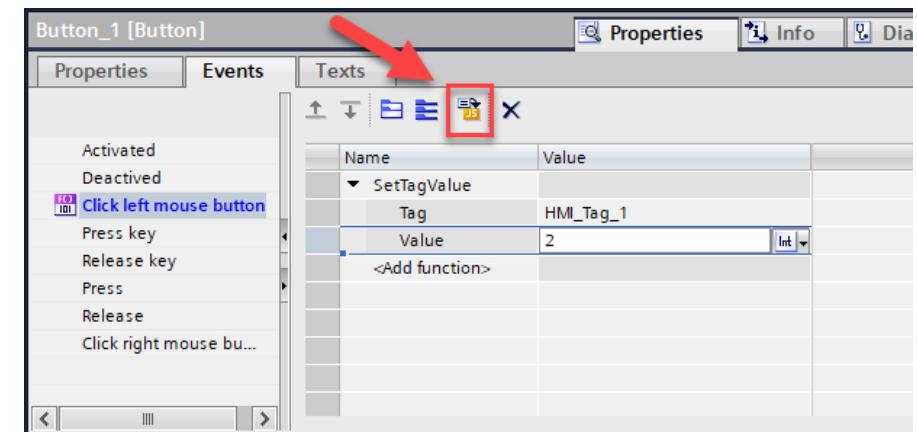
¹ as of V17

WinCC Unified V19 - Basics

JavaScripting

1. Add a button and rectangle to a HMI screen.
2. Go to the 'Events' tab of the button.
3. Add the system function 'SetTagValue' and select a tag.
4. Convert the function list to JavaScript by pressing the button.
The system function is automatically converted to JavaScript.
5. Click on the HMI Tag name in the function and press 'Ctrl + J'.
6. In the object picker select a different tag.

The object picker can be used for screens, tags, connections and screen objects. The object picker creates a link that will stay even when the name change, shown with the colored background behind the name.

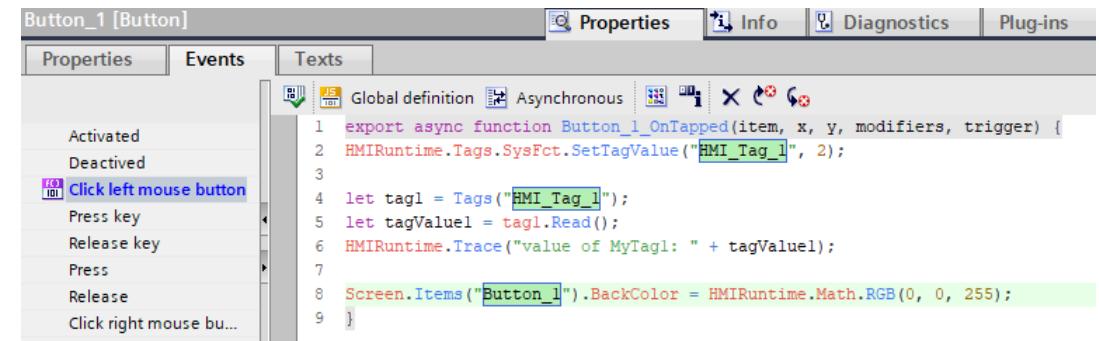


WinCC Unified V19 - Basics

JavaScripting

1. Right click in the script editor.

Here the HMI Runtime and logic snippets are available.



```

Button_1 [Button] Properties Info Diagnostics Plug-ins
Properties Events Texts
Activated Deactivated Click left mouse button Global definition Asynchronous X E C
1 export async function Button_1_OnTapped(item, x, y, modifiers, trigger) {
2 HMIRuntime.Tags.SysFct.SetTagValue("HMI_Tag_1", 2);
3
4 let tag1 = Tags("HMI_Tag_1");
5 let tagValue1 = tag1.Read();
6 HMIRuntime.Trace("value of MyTag1: " + tagValue1);
7
8 Screen.Items("Button_1").BackColor = HMIRuntime.Math.RGB(0, 0, 255);
9 }
```

2. Navigate to the 'Tag' section and click the 'Read tag' snippet.

With this snippet you are able to read the values of tags and use these in the scripts.

3. Click on the tag name in the snippet and use the object picker to select an valid tag.

4. Now navigate to the 'Screen' snippets and select the 'Change screen item property in current screen'

5. Click on the object name and use the object picker to select the right rectangle object.

This will change the color of the rectangle by a press on the button.

Besides using scripts for events, you can connect scripts to the properties.

The scripts will be invoked by a defined trigger. The return value of the script will be value of the property.

6. Try to change the text property of a button to the value of a tag by using JavaScript.

If you would like to use own libraries or extended JavaScript functions and libraries you could use the Custom Web Controls for this purpose.

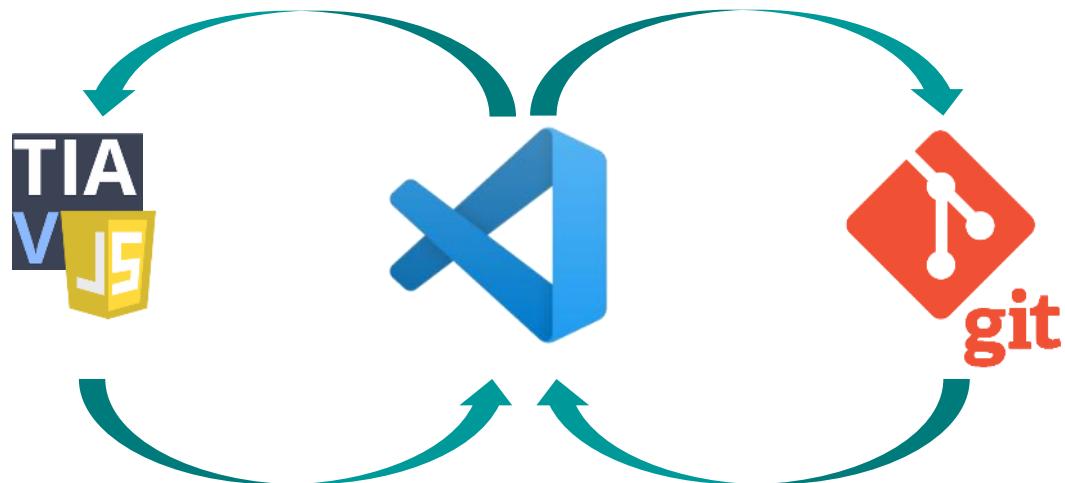
WinCC Unified V19 - Basics

Scripting efficiency

Unified Basic Panel ✓

Unified Comfort Panel ✓

WinCC Unified PC ✓



Visual Studio Code as development environment

Benefit from a powerful, modern development environment for WinCC Unified Java scripts

Unified Style Guide and Snippets

Automatically set up Unified JavaScript Style Guide and snippet support.

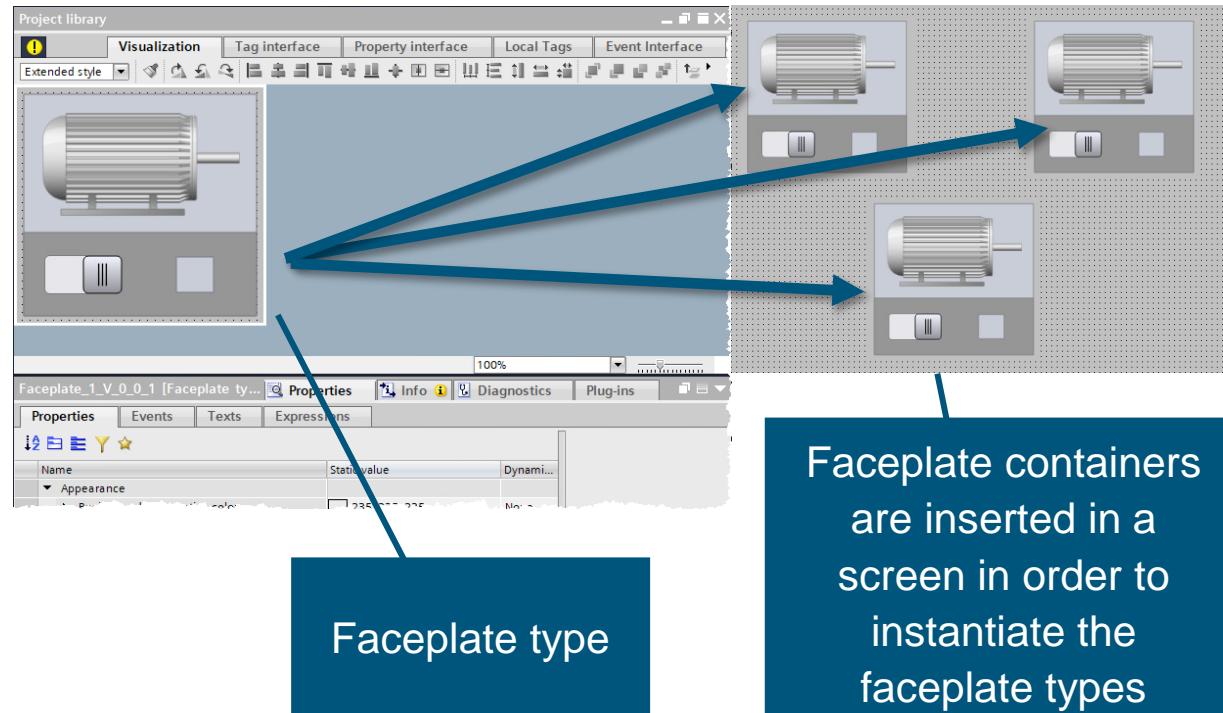
SIMATIC WinCC Unified JS Connector - Overview

1. Use Visual Studio Code as development environment for your global JavaScripts and ScriptTypes from the library
2. Fast and efficient exchange of your JavaScript source code between WinCC Unified ES and Visual Studio Code
3. Full support of WinCC Unified JavaScript runtime model
4. Use our well-known code snippets from WinCC Unified ES

Extension available via SIOS at the following ID: [109825899](#)

WinCC Unified V19 - Basics

Faceplates types and Faceplate instances



Configure once...

...use multiple times

Use the same Faceplates

for panel and PC systems using a Faceplate container control

Define Faceplates

- Interfaces – project independent (simple tag types, PLC UDT types)
- Property interface (colors, text resource lists, Integer, ...)
- Visualization for object and operation window, engineering like a screen (without advanced controls)

Use Faceplates in screens

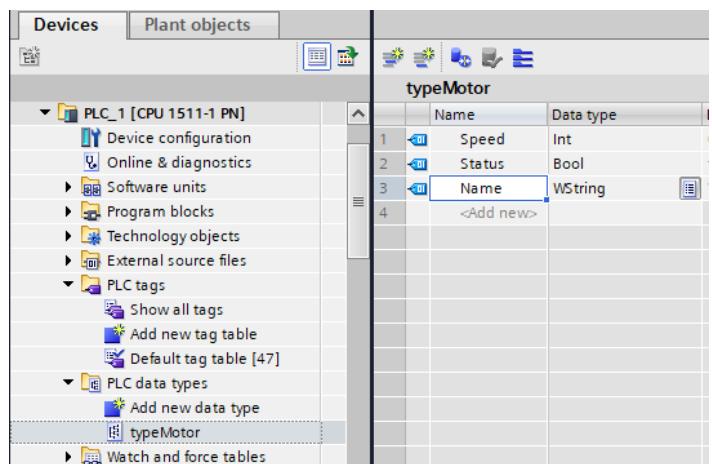
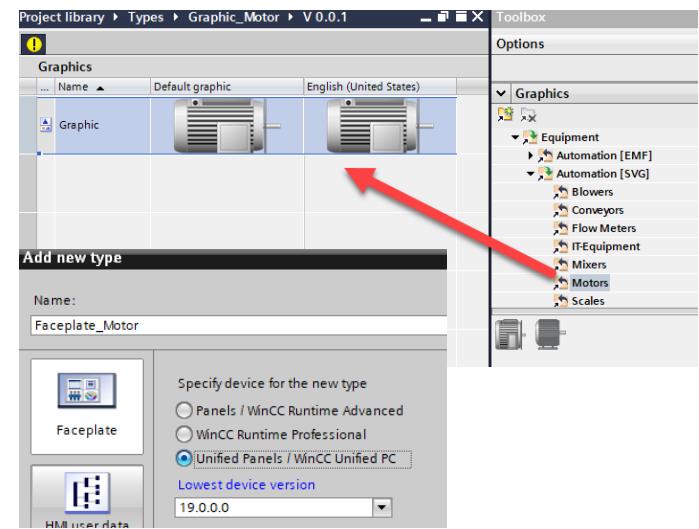
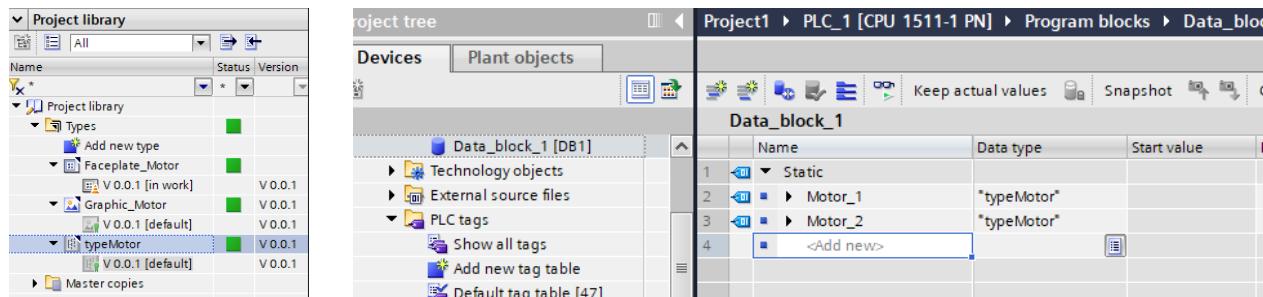
- Drag and Drop
- Assign interface and properties

WinCC Unified V19 - Basics

Faceplates

Creating a faceplate for a motor. Before we can create the faceplate, we need to have the data ready for example a user defined type and a graphic.

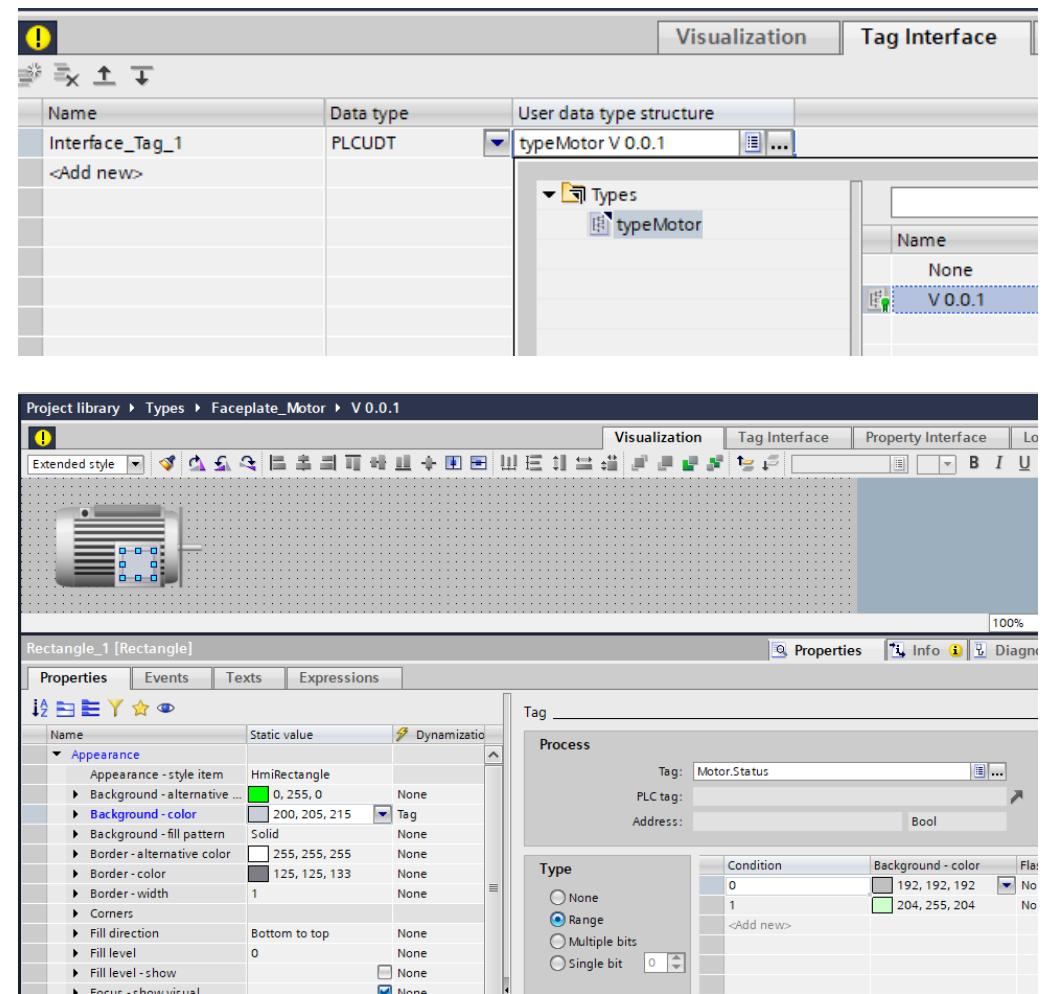
1. Add a new PLC to the project (e.g. S7-1511) and create an UDT called ‘typeMotor’ with a speed, status and name element.
2. Drag and drop the PLC data type from the project tree to the library to create a type.
The type will be used to select and connect tags to the faceplate interface.
3. Add a new Datablock to the PLC and create instances of the ‘typeMotor’.
4. Open the project library and press “Add new type” to create a Graphic type.
5. Drag and drop a motor image into the “Default graphic” and release the version.
6. Press ‘Add new type’ again to create a new Unified Faceplate name ‘fpMotor’.
7. Click on the library tab and drag the created Graphic type onto the faceplate.



WinCC Unified V19 - Basics

Faceplates

1. Resize the graphic so that it is smaller.
2. From the toolbox add a rectangle to the faceplate.
This rectangle will change color depending on the motor status.
But first we need to make the tags available in the faceplate.
3. Click on the 'Tag interface' tab in the faceplate engineering.
4. Create a new interface tag with the Data type 'PLCUDT'.
5. In the User data type structure column, you can select the 'typeMotor' UDT from the library.
6. Click on the rectangle and go to the 'Background – color' property and change the dynamization to the Tag.
7. Here you select the Status tag from the tag interface and change the color based on the condition 0 and 1.
8. Also add two IO field and connect the speed tag and name tag to the process values.



WinCC Unified V19 - Basics

Faceplates

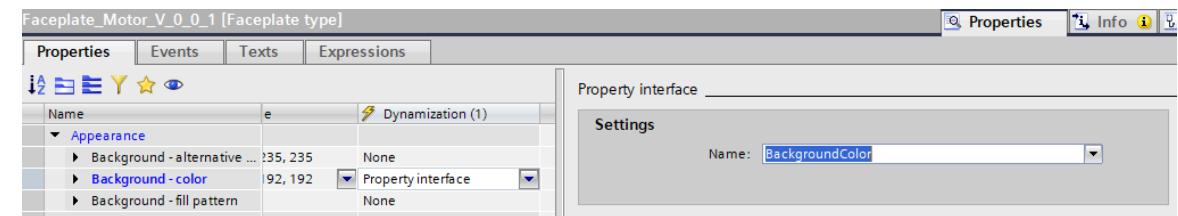
9. Go to the Property Interface of the Faceplate and add a background color property.

The property interface can be used to dynamize the faceplate without the need of PLC/HMI Tags.

10. In the Visualization tab click on the background of the faceplate.

11. In the properties view of the faceplate dynamize the background color by selecting property interface and the BackgroundColor.

12. Resize the faceplate with right clicking on the faceplate and pressing the Resize screen to content and select a margin.



13. Release the version and create a new screen to place 2 instances of the faceplate on.

By drag and drop from the library you can add a faceplate container with the right version directly to the screen.

It is also possible to add a faceplate container and selecting the faceplate in the properties.

Don't forget to edit the navigation of the project so you can access the screen.

WinCC Unified V19 - Basics

Faceplates

1. Go to the Device configuration of the 'SIMATIC PC station' and add an 'IE general' communication module.
2. In the 'Devices and networks' create an HMI connection with the PLC.
3. Open the HMI tag table and add the PLC UDT tags from the datablock.



4. On the screen connect the Motor UDT instance tags to the faceplate instances.
5. Also select a different color for each of the faceplates.

Now you have created a static faceplate, it is also possible to create a faceplate popup.

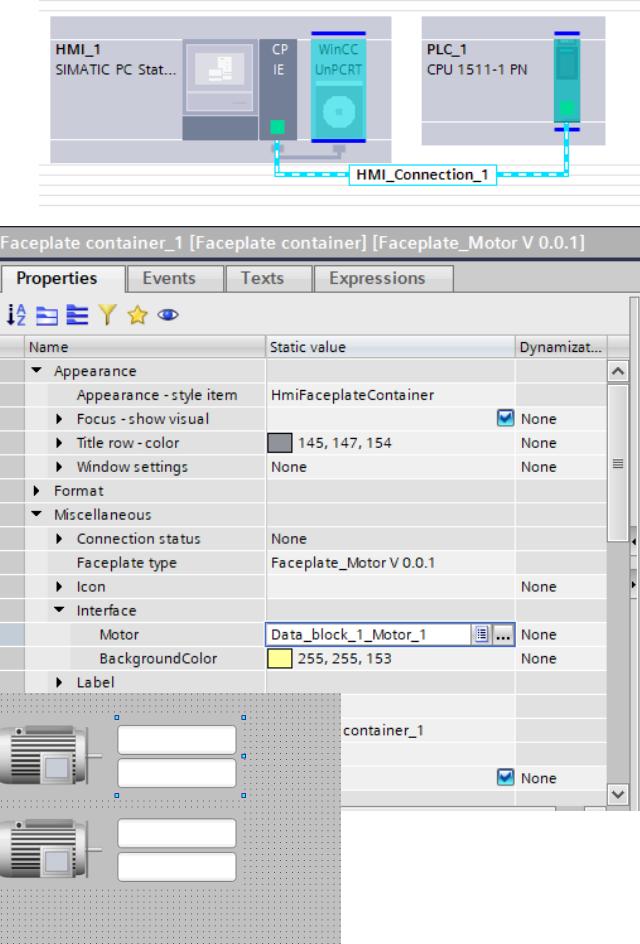
1. Add a button with a click event.
2. Convert the event to JavaScript and search for the snippet 'Open faceplate in popup'.
3. Select the created faceplate version by clicking on the template and pressing Ctrl + J.
4. Change the declaration of the data variable accordingly.

```

1 export function Button_1_OnTapped(item, x, y, modifiers, trigger) {
2     let data = {Motor:{Tag:"Data_block_1_Motor_1"}, BackgroundColor:0xfffffff};
3     // Other property types: let data = {GraphicProperty:"GraphicCollection.Left_Arrow", ResourceList_Property:"@Default.Text_list_1"};
4     // ... let data = {Long_Property:8, Boolean_Property:true, ConfigurationString_Property:"Hello World", FloatingPoint_Property:10.5};
5     let po = UI.OpenFaceplateInPopup("Faceplate_Motor_V_0_0_1", "title", data);
6     po.Left = 100;
7     po.Top = 150;
8     po.Visible = true;
9 }

```

5. Download and test the faceplates in the runtime



WinCC Unified V19 - Basics

Parameter control engineering

Unified Basic Panel ✓ Unified Comfort Panel ✓ WinCC Unified PC ✓

The screenshot shows the WinCC Unified V19 software interface for managing parameter sets. At the top, there are three tabs: 'Unified Basic Panel' (marked with a checkmark), 'Unified Comfort Panel' (marked with a checkmark), and 'WinCC Unified PC' (marked with a checkmark). Below these tabs is a navigation bar with the path: Projekt1 > PC-System_1 [SIMATIC PC station] > HMI_RT_1 [WinCC Unified Scada RT] > Parameter set types > Mixing. The main area contains two windows: one showing a table of parameter sets with columns ID, Name, Display name, Data type, Tag, Unit of measurement, and Start value; and another window titled 'Mixing [Parameter set type]' showing its properties, including General, Communication, and Information tabs, and a 'Properties' tab where 'Parameter set ID' is set to 'Automatic_PS_ID' and 'Job ID' is set to 'Automatic_Job_ID'. At the bottom, there are buttons for creating, saving, and deleting parameter sets.

Configure properties of Parameter Set Types like Display name, Start value, Unit of measurement, ...

Automate handling via Job-ID using Control tags:

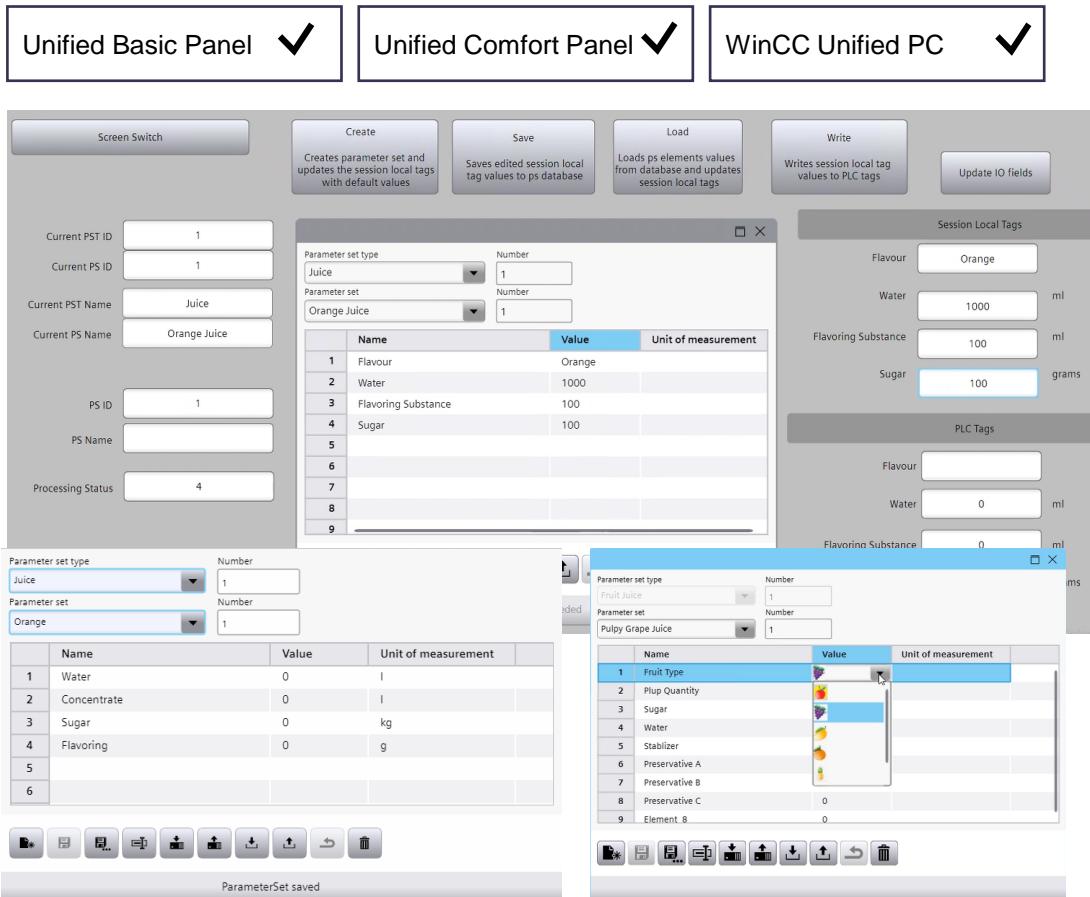
- **Read parameter set** (ID: 6) from PLC and store it in the parameter set memory
- **Load parameter set** (ID: 7) from storage and write it to PLC
- **Delete a parameter set** (ID: 8) from the parameter set memory

Configure properties of Parameter set control like “showing fixed PSType”, change “label names”, “hide details” for simplified view¹, ...

¹ As of V17

WinCC Unified V19 - Basics

Runtime – Handling of Parameter sets



1 As of V18 | **2** As of V19

Handling of Parameter sets within control or via individually configured screens¹

(Save, Create, Save As, Delete, Rename, Write to PLC, Read from PLC, Export, Import, Cancel)

- Control toolbar buttons via system functions
- Trigger toolbar buttons via external buttons²

Handle enumeration types for parameters¹

Use of text and graphic lists in parameter set types

Read/Write Parameter set from/to PLC within control

Import/Export of Parameter sets for external operation (e.g., in Excel)

Automatic activation (read/write) of Parameter sets via PLC (Job_ID) or Script

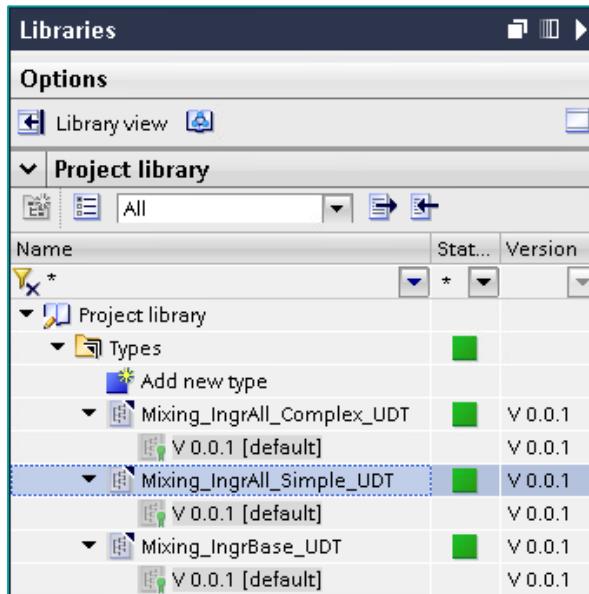
WinCC Unified V19 - Basics

Derive structure of Parameter Set Types from UDT

Unified Comfort Panel ✓

PC ✓

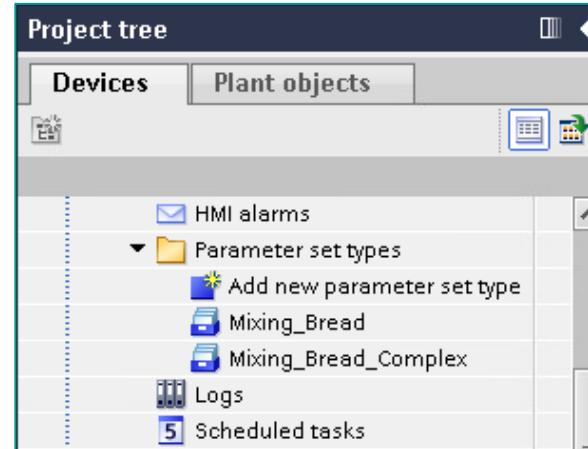
Precondition – UDTs are already created and available in the library



1

Add structure tag to exchange Parameter sets between HMI and PLC

Add new Parameter set type within project tree



2

Configure properties e.g., Display name, Unit of measurement

Assign UDT as data type to Parameter set type to derive structure from UDT

ID	Name	Display name	Data type
1	Mixing_Bread	Mixing_IngrAll_Simple_UDT ...	
	Salt	Salt	Real
	Flour	Flour	Real
	Yeast	Yeast	Real
	CornFlour	CornFlour	Real
	Sugar	Sugar	Real

- V17: Complex structure possible (UDT in UDT, Arrays of simple data types)

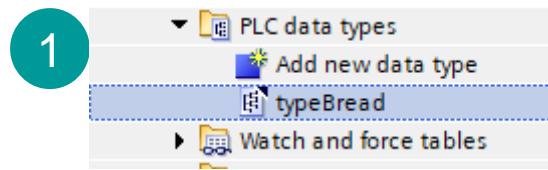
as from V17

3

Use Control tags for automatic exchange between HMI and PLC (optional)

WinCC Unified V19 - Basics

Create a parameter set UDT



2

	Name	Data type	Default value
1	flour	Int	0
2	yeast	Int	0
3	sugar	Int	0
4	salt	Int	0
5	water	Int	0
6	milk	Int	0
7	egg	Int	0
8	oil	Int	0
9	wheat	Int	0
10	corn	Int	0

3

	Name	Data type	Start value
1	Static		
2	breadParameters	"typeBread"	

Open the project for the Parameter Control which can be found in the file share.

1. Create a new PLC data type “typeBread” in the PLC.
2. Add elements as shown in the image.
3. Create a tag “breadParameters” of the data type in the “ParameterData” DB.
4. Use **Drag & Drop** the PLC data type to the library to create a new type.

4

The screenshot shows the WinCC Unified interface with the following details:

- Project tree:** Shows the project structure with 'WS_Unified_ParameterSetControl' and 'PLC_ParameterSetControl [CPU 1511-1 PN]' selected.
- Libraries:** The 'Project library' is open, showing a 'Types' folder containing 'typeBread' (version V 0.0.1).
- ParametersData [DB1]:** A table showing parameters:

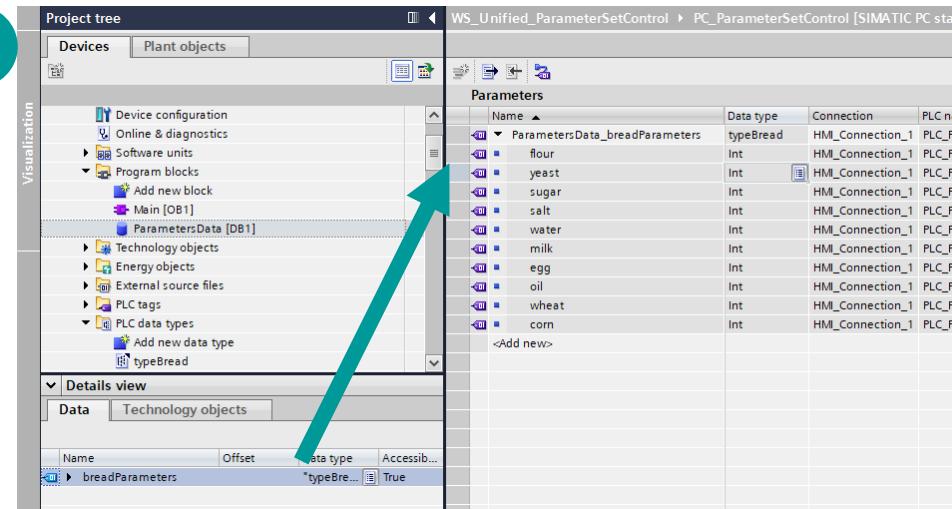
	Name	Data type	Start ...
1	Static		
2	breadParameters	"typeBread"	
- PLC data types:** A table showing existing data types:

	Name
1	typeBread
2	Watch and force tables

WinCC Unified V19 - Basics

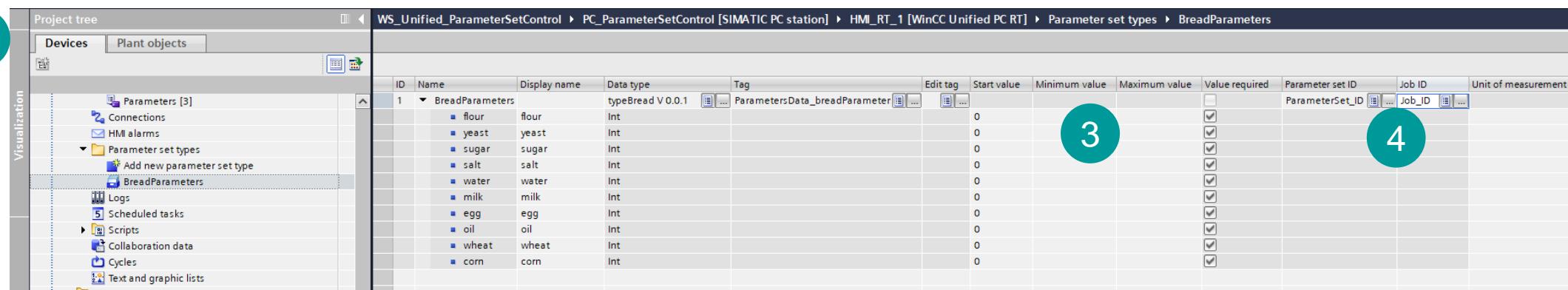
Create a parameter set type

1



1. Open the “Default tag table” of the Unified PC.
2. Connect the instance to an HMI tag by using **Drag & Drop** from the detail view to the tag table.
3. Create a new parameter set type.
4. Define in the parameter set Starting values, Minimum value, Maximum value, Unit of measurement as you would like.
5. Create tags (integers) for the „Parameter set Id“ and for the „Job Id“ and connect them to the parameter set.

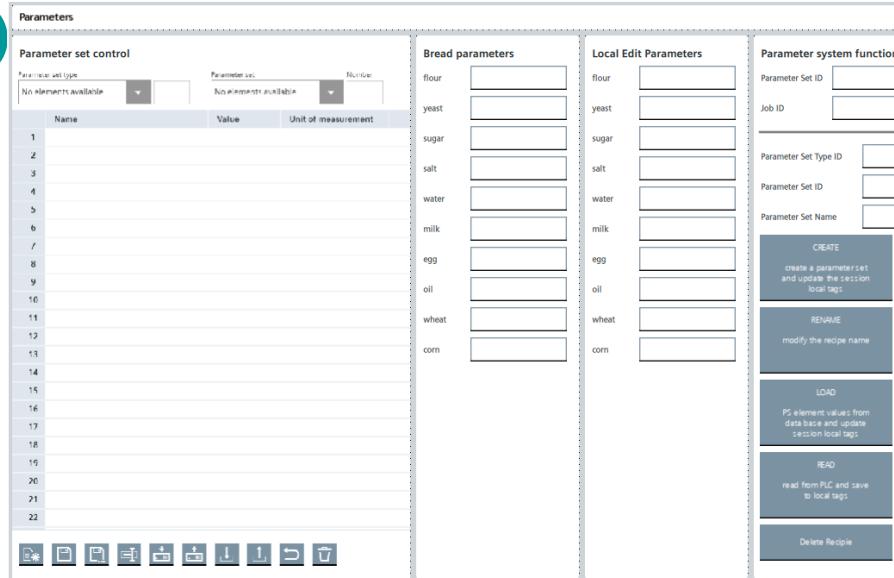
2



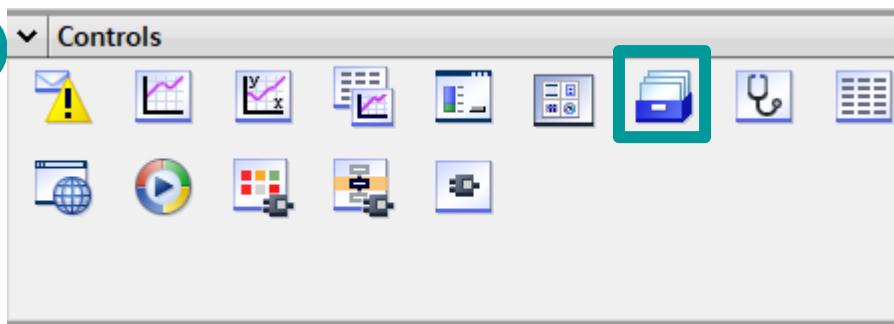
WinCC Unified V19 - Basics

Create parameter set control on screen

1

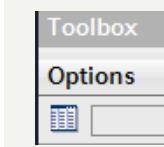


2



1. Open the screen “11_Parameters” in the editor and place a Parameter set control on the screen.
2. Resize and position the control.
3. Go to the “Appearance” properties of the control and set the “Windows settings” to None. This will make the position of the control static and remove the header and close button.
4. Connect the tag “Parameter set ID” and “Job ID” to the dedicated IO fields.

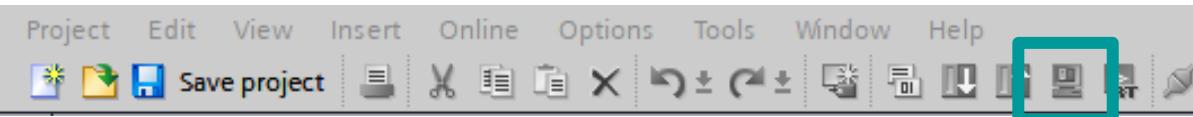
Hint: You can switch views of the toolbox by pressing the button under the options.



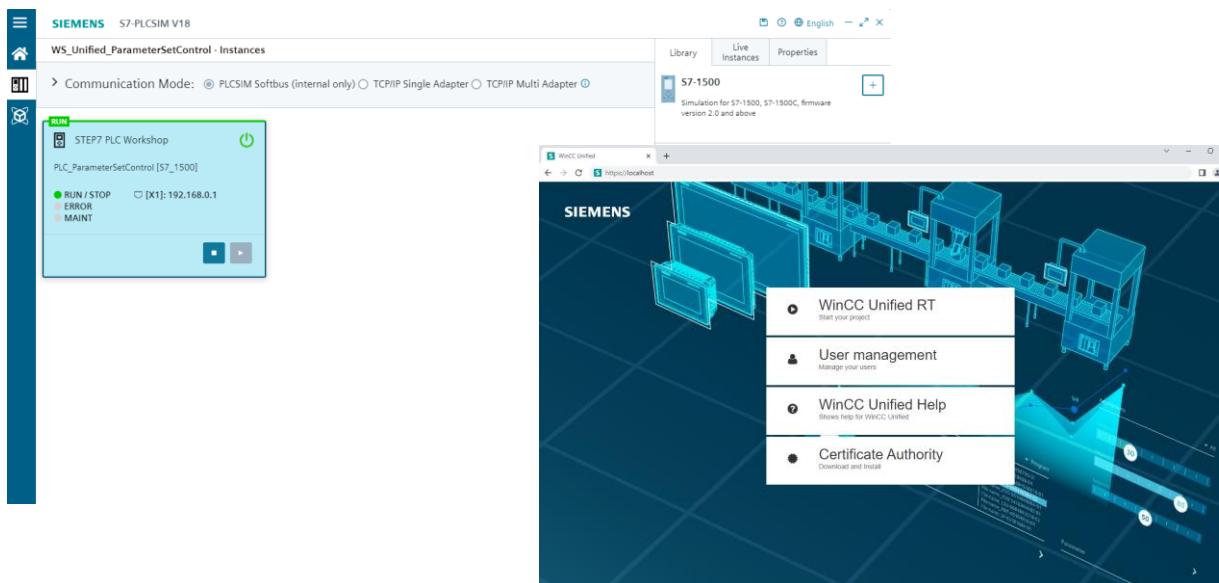
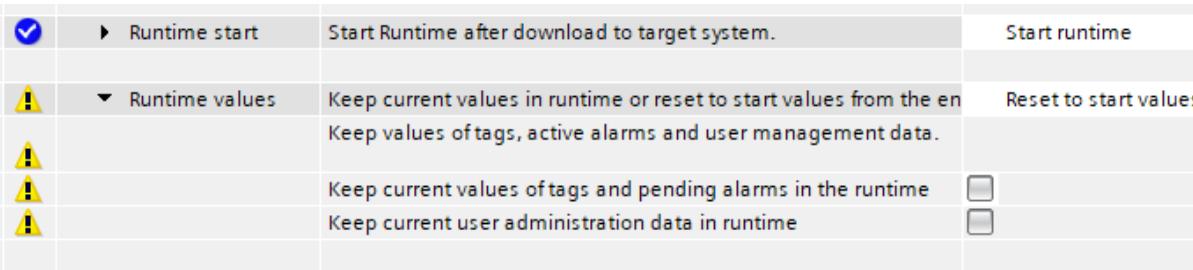
WinCC Unified V19 - Basics

Downloading the project

1



2

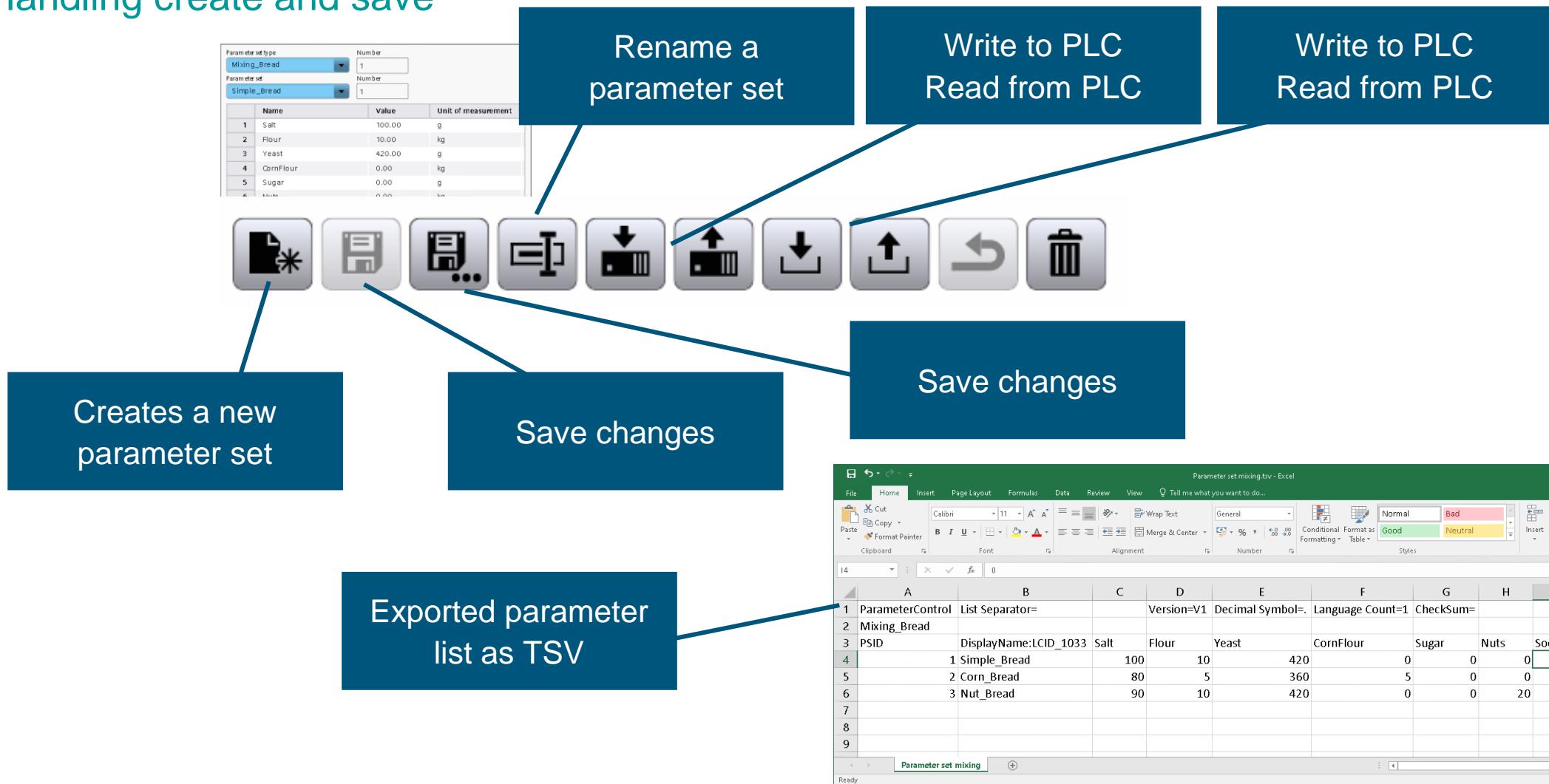


1. Simulate the PLC and download the project with access password:
 - Siemens1!
2. Simulate the WinCC Unified PC RT and during the load preview uncheck “Keep current user administration data in runtime”.
3. Open the local client in the browser with the following credentials:
 - Username: User
 - Password: Siemens1!

Hint: You can make the client go into fullscreen mode or exit fullscreen by pressing F11

WinCC Unified V19 - Basics

Handling create and save



WinCC Unified V19 - Basics

Using the parameter set control

1

Parameter set control

Parameter set type	Number	Parameter set	Number
BreadParameters	1	<- Select ->	
	Name	Value	Unit of measurement
1	flour	0	kg
2	yeast	0	g
3	sugar	0	g
4	salt	0	g
5	water	0	l
6	milk	0	l
7	egg	0	g
8	oil	0	l
9	wheat	0	kg
10	corn	0	kg
11			
12			



2

3

4

5

6

Parameter system functions

Parameter Set ID	1
Job ID	0

ID: 6 - Read parameter set
ID: 7 - Load parameter set
ID: 8 - Delete a parameter set (ID: 8)

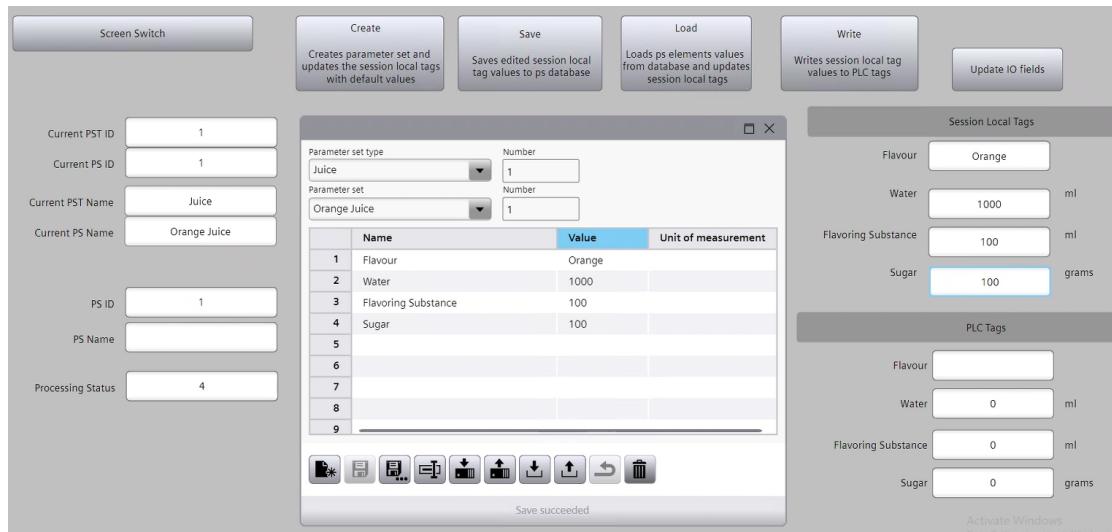
1. Select the created parameter set.
2. Create new parameter sets in Runtime
3. Save your parameter set
4. Read and write to PLC
5. Export, modify the parameter set and import it again
6. Force Jobs with the Job ID:
 - Read parameter set (ID: 6)
 - Load parameter set (ID: 7)
 - Delete a parameter set (ID: 8)

WinCC Unified V19 - Basics

Customized recipe screen

Unified Comfort Panel

PC



Customized recipe screen upon user workflow

Create recipe screen with basic screen objects (sliders, IO fields, buttons,...)

- Get Parameter Sets and Parameter Set Types via scripting
- Scripting support of Parameter Control functionality
(CreateParameterSet, SaveParameterSet, LoadParameterSet, DeleteParameterSet, RenameParameterSet, ReadParameterSet, WriteParameterSet)
- Parameter set synchronization synchronize parameter set between Parameter control

WinCC Unified V19 - Basics

Scripting improvements for recipe screen

Parameter control screen

- CreateParameterSet
- SaveParameterSet
- LoadParameterSet
- DeleteParameterSet
- RenameParameterSet
- ReadParameterSet
- WriteParameterSet

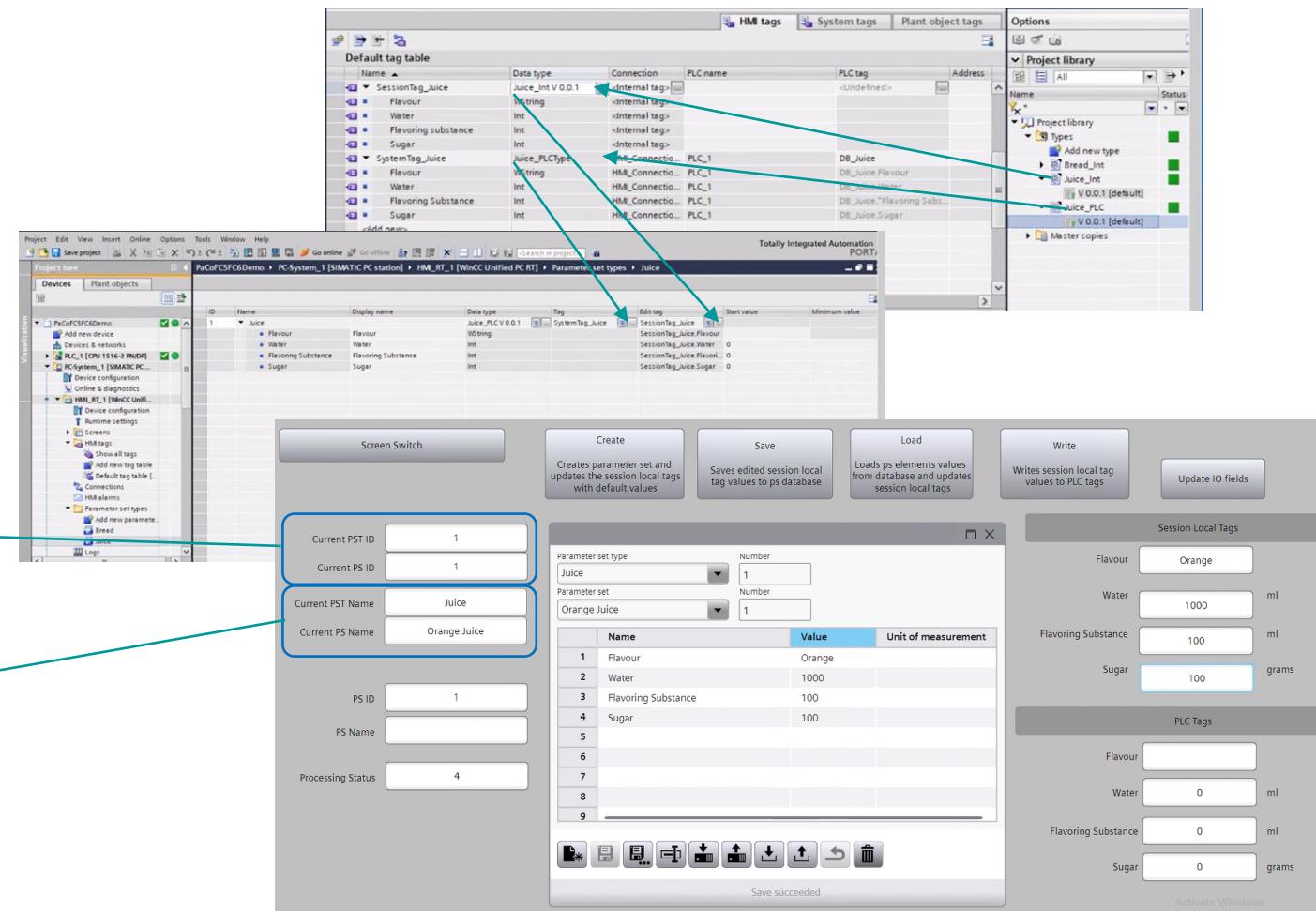
Parameter control view property

- CurrentParameterSetTypeID
- CurrentParameterSetID

Script function to get PST and PS names

- GetParameterSetNameType
- GetParameterSetName

PACO Synchronization

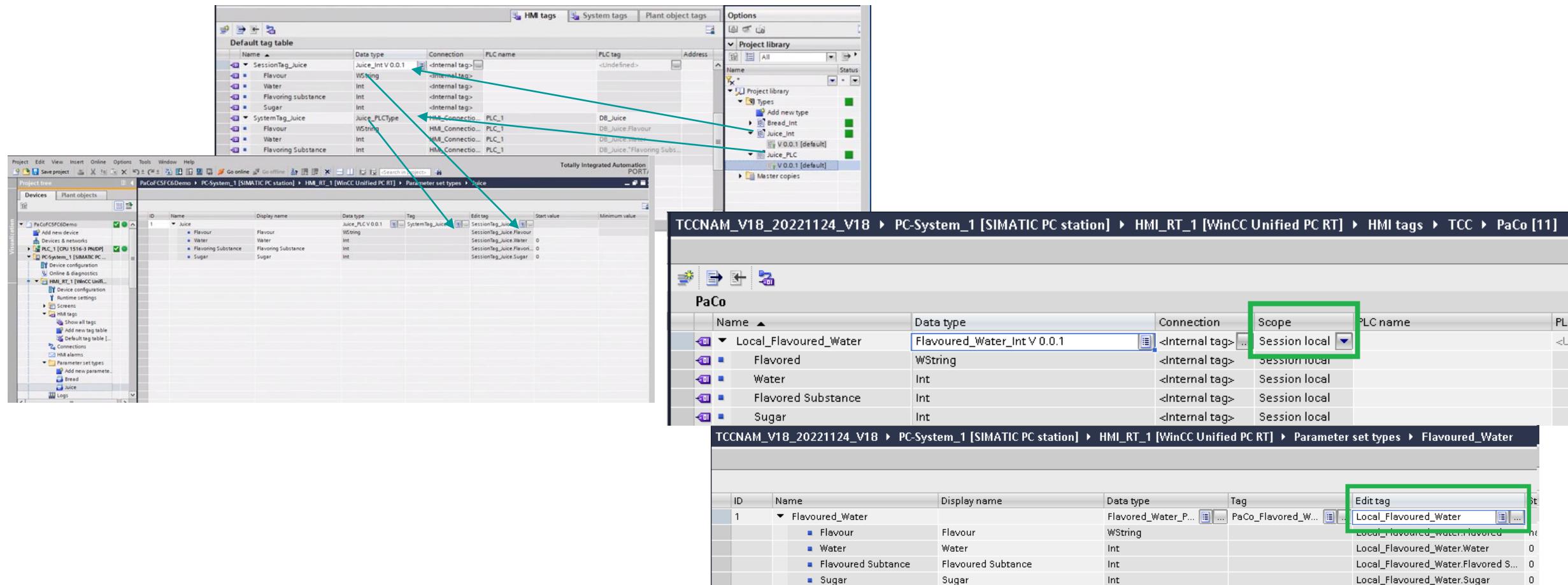


User can now perform all the PaCo operations through scripting

Restriction: can not be used when having nested UDT as Parameter control type

WinCC Unified V19 - Basics

Parameter set types configuration (optional)



Set your HMI Tag with Scope “Session local tag” in order to use it as “Edit tag” in the Parameter set Type

WinCC Unified V19 - Basics

Edit tag and local session tags

1

2

3

4

1. Create a new HMI UDT based on the PLC UDT used in the previous exercises.
2. Add a new tag to the tag table using this HMI UDT.
3. Right click the column and add the “Scope” column.
4. Set the scope of the HMI UDT on “Session Local”.

This will make it possible for the tag to have different values within every client session.

WinCC Unified V19 - Basics

Parameter set system functions

1

2

3

```

1 export function Button_10_OnTapped(item, x, y, modifiers, trigger) {
2
3     let PSID = Tags("sysFunction_ParameterSetTypeID");
4     let PSIDValue = PSID.Read();
5
6     let PSID = Tags("sysFunction_ParameterSetID");
7     let PSIDValue = PSID.Read();
8
9     let PSName = Tags("sysFunction_ParameterName");
10    let PSNameValue = PSName.Read();
11
12    let ProcessingStatus;
13    HMIRuntime.ParameterSetTypes.SysFct.CreateParameterSet(PSIDValue, PSIDValue, PSNameValue, 1, ProcessingStatus);
14
15 }
  
```

1. Configure the “Edit tag” of the parameter set type.
2. Dynamize the process value of the session local tag IO fields with the created “Local_Bread” tags.
3. Configure the paco buttons with the new Parameter set system functions (Uncomment the code).
4. Test the functions in runtime.

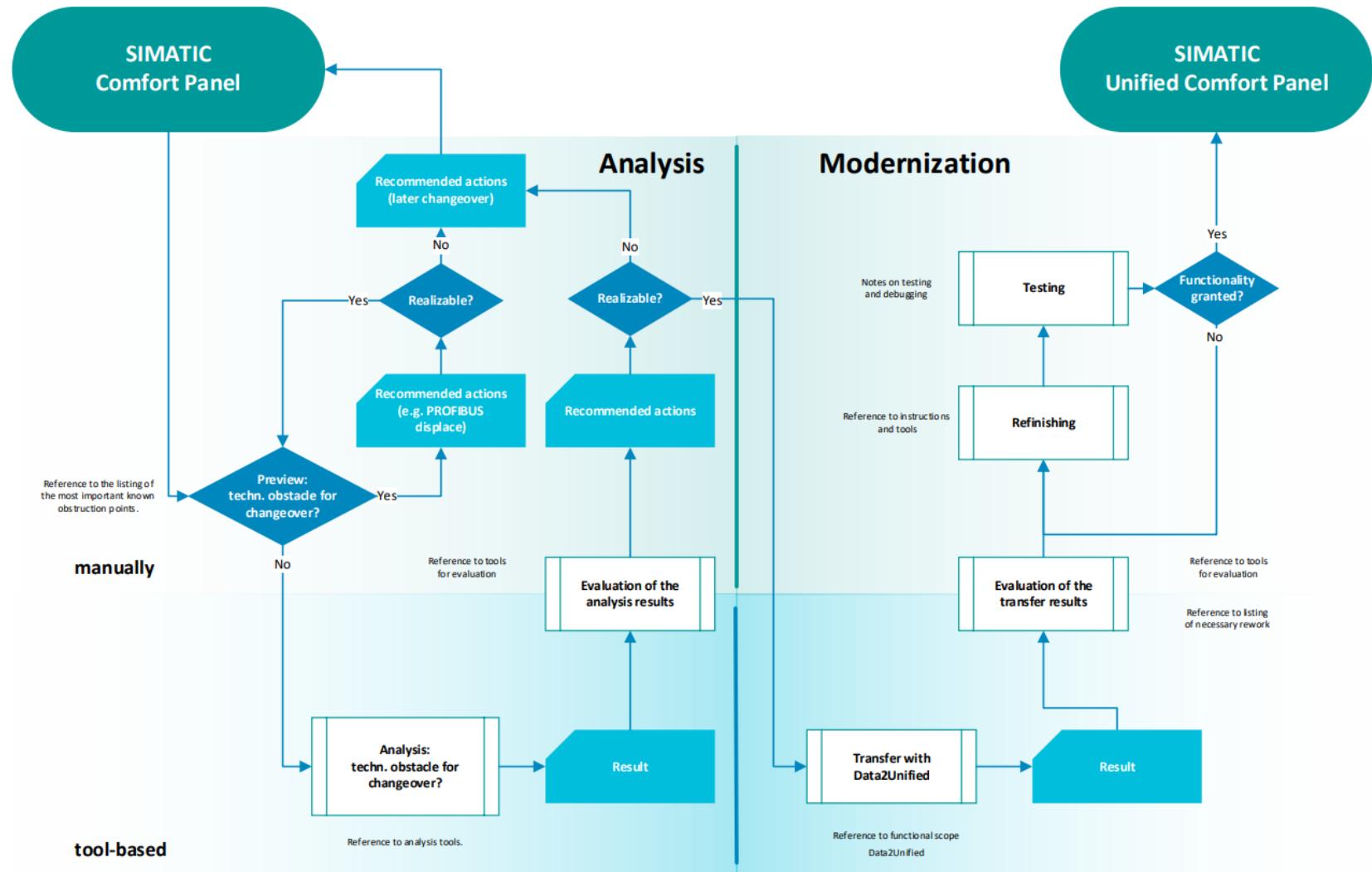
WinCC Unified Conversion

From Comfort to Unified Comfort



WinCC Unified V19 - Conversion

Analysis of the existing Comfort Panel project



WinCC Unified V19 - Conversion Modernization Checker

Before starting to switch to WinCC Unified, you should first check whether your Comfort Panel project, including its special forms PRO, INOX and SIPLUS, is suitable for modernization to a WinCC Unified Comfort Panel.

The tool "WinCC Unified Modernization Checker" can support you with the required analysis.

To start, you will need a PDF version of your WinCC project and the project library from TIA Portal.

You can upload both to the tool, then enter a project name and receive back a detailed informational report as well as the processing time once the upload is confirmed.



WinCC Unified V19 - Conversion Modernization Checker

Your result is categorized in 3 sections.

Available with new concept -

You can re-engineer your functionality in SIMATIC WinCC Unified.

Modernization/Conversion is possible.

Available with workaround - Some approaches of SIMATIC WinCC Comfort/Advanced differs to the new concept of SIMATIC WinCC Unified. Modernization/Conversion is possible by applicative solution.

Not available yet -

SIMATIC WinCC Unified currently does not support the functionality.

<https://support.industry.siemens.com/cs/ww/en/view/109820536>

Welcome to WinCC Unified modernization checker

Is your existing TIA Portal visualization ready for modernization?

Here you will be able to evaluate whether your Comfort Panel (PRO, INOX, SIPLUS, Outdoor) project is ready to be modernized to WinCC Unified Comfort Panel. All you need is to upload the PDF print out of your WinCC Comfort project and Library (optional) from TIA Portal. (see info icon below ⓘ). After the project files are checked, you will receive a report with detailed information regarding how to proceed.

While some modernization can be automated others will require extra attention which will be outlined by the report.

Upload Panel PDF ⓘ



PanelPrint.pdf
Click on perform upload & start analysis to begin the process or [Select another](#)
[Remove file](#)

Upload Library PDF ⓘ



LibPrint.pdf
File loaded successfully. [Select another](#)
[Remove file](#)

Project name
Switching Guide

Perform upload & Start analysis

WinCC Unified V19 - Conversion

Guide for switching to Unified

<https://support.industry.siemens.com/cs/document/109768002>

› Rate

Guide for switching from Comfort Panels to Unified Comfort Panels and from WinCC Runtime Advanced to WinCC Unified PC Runtime

[Entry](#) Associated product(s)

Get to know the differences between Comfort Panel/Runtime Advanced and Unified Comfort Panel/Unified PC Runtime. You will also learn how you can implement the major elements (such as pop-ups and slide-ins) in WinCC Unified.

SIMATIC WinCC Unified is the all-new visualization system from Siemens for automation applications. The SIMATIC WinCC Unified System consists of the engineering software SIMATIC WinCC Unified, SIMATIC WinCC Unified PC Runtime and the new SIMATIC HMI Unified Comfort Panels.

WinCC Unified PC Runtime thus represent the successor to the previous WinCC Runtime Advanced. Unified Comfort Panels represent the successor to the previous Comfort Panels. In addition to the new hardware, there are also numerous new features in comparison to the Comfort Panels when it comes to engineering.

This application example presents and describes essential points in order to provide a precise overview of the similarities and differences between the two generations of HMI devices.



What's new?

The documentation for switching from Comfort Panels to Unified Comfort Panels has been completely revised in the current version. In addition to an update to V18, the document is no longer just for comparison purposes, but also offers a comprehensive descriptive element that supports you on your way to upgrading to a HMI Unified Comfort Panel.

The document for switching from WinCC Runtime Advanced to WinCC Unified PC Runtime has not yet been revised to the new concept, but is still available to you in its original form.

Documentation

- [PDF 109768002_Guide_Comfort_to_UnifiedComfort_V40_DOC_en.pdf \(11,3 MB\) \(Revised version\)](#)
- [PDF Switching from WinCC Runtime Advanced to WinCC Unified PC Runtime \(2,8 MB\)](#)

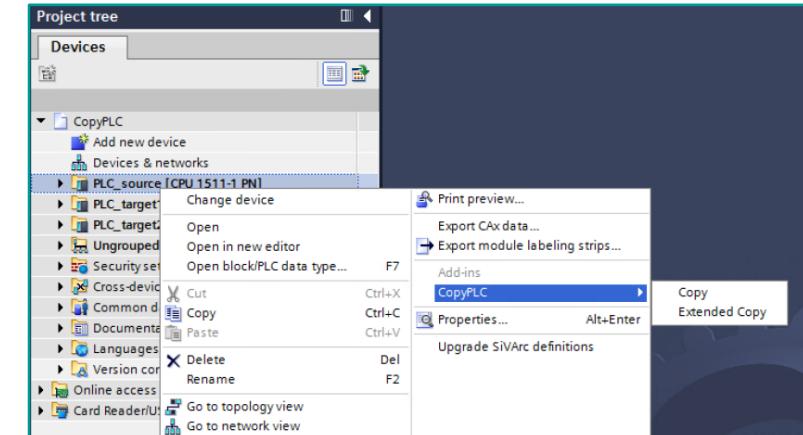
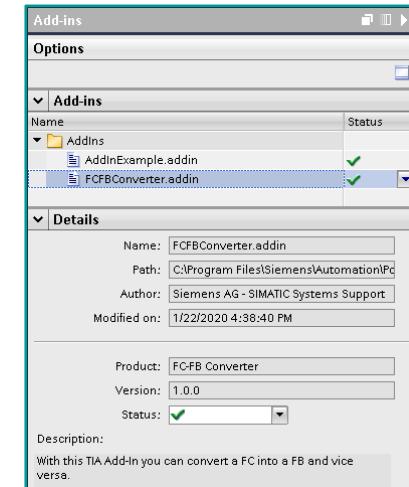
WinCC Unified V19 - Conversion

Add-ins

Add-ins give you the opportunity to expand the functionality of the TIA Portal.

Instead of running a standalone application to automate tasks in TIA Portal with TIA Openness. You are able to use the context menu within TIA Portal with TIA Add-ins.

- Add-ins integrate seamlessly into the TIA Portal environment.
- Add-ins can be run without knowledge of higher programming languages.
- Add-ins are context sensitive. This means that they only appear for the selected objects in a TIA Portal project.
- Add-ins can also perform Windows system functions, file or network operations, and interact with other applications.



SIOS - TIA Portal Add-Ins

<https://support.industry.siemens.com/cs/document/109773999>

SIOS - TIA Add-Ins Getting Started

<https://support.industry.siemens.com/cs/document/109779415>

WinCC Unified V19 - Conversion Data2Unified Add-in New functionalities

Project navigation object	V1.0.0.0	V1.1.0.0	V1.2.0.0	V1.3.0.0	V2.0.0.0	V2.1.0.0	V3.0.0.0	V3.1.0.0*	V3.2.0.0*
Screens	✗	✓	✓	✓	✓	✓	✓	✓	✓
Screen objects									
Basic objects	✗	✓	✓	✓	✓	✓	✓	✓	✓
Elements	✗	✗	✓	✓	✓	✓	✓	✓	✓
Screenmanagement									
Templates, Pop-ups, Slide in, Global screen	✗	✓	✓	✓	✓	✓	✓	✓	✓
HMI Tags									
Tags + Tag tables	✓	✓	✓	✓	✓	✓	✓	✓	✓
HMI Alarms									
Discrete alarms	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analog alarms	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dynamizations									
Animations	✗	✗	✓	✓	✓	✓	✓	✓	✓
System functions	✗	✗	✗	✗	✗	●	✓	✓	✓
Historical data									
TIA Portal V17	✗	✗	✗	✓	✓	✓	✓	✓	✓
Log area with filter (Data2Unified UI)	✗	✗	✗	✓	✓	✓	✓	✓	✓
Animations via system dialog	✗	✗	✗	✗	✗	✗	✓	✓	✓
Support Symbolic IO	✗	✗	✗	✗	✗	✗	✓	✓	✓
Support folders in Project navigation	✗	✗	✗	✗	✗	✗	✓	✓	✓
Conversion of Faceplate types incl. Screen items	✗	✗	✗	✗	✗	✗	✗	✓	✓
Further Support of project Elements	✗	✗	✗	✗	✗	✗	✗	✗	?

V3.2.0.0 - new functionalities

- Conversion of SIMATIC HMI Basic Panels to SIMATIC HMI Unified Basic Panels
- Further support of project elements
- Conversion of additional system functions
- Improved functions for the conversion of faceplate
- Several bug fixes

WinCC Unified V19 - Conversion

Data2Unified Overview of (planned) functionalities

Project navigation object	V1.0.0.0	V2.0.0.0	V3.0.0.0	V3.1.0.0	V3.2.0.0	V4.0.0.0*	V4.1.0.0*
Screens	✗	✓	✓	✓	✓	✓	✓
Screen objects							
Basic objects & elements	✗	✓	✓	✓	✓	✓	✓
Faceplates							
Types, screens & instances	✗	✗	✗	✓	✓	✓	✓
Interface & dynamization	✗	✗	✗	✗	✗	●	●
Controls	✗	✗	✗	✗	✗	●	●
Screen management							
Templates, pop-ups, slide-ins & global screens	✗	✓	✓	✓	✓	✓	✓
Permanent area	✗	✗	✗	✗	✗	✗	✓
HMI Tags	✓	✓	✓	✓	✓	✓	✓
HMI Alarms	✓	✓	✓	✓	✓	✓	✓
Dynamization + Events							
Animations	✗	●	✓	✓	✓	✓	✓
System functions	✗	●	●	●	●	●	●
Text & graphic lists							
Text lists (without formatted text)	✗	✗	✗	✗	✗	●	●
Graphic lists	✗	✗	✗	✗	✗	✗	✗
Historical Data	✗	✓	✓	✓	✓	✓	✓
Support Basic Panels	✗	✗	✗	✗	✓	✓	✓

V3.2.0.0 - new functionalities

- Support conversion of Basic Panels
- Further support of project elements
- Several bug fixes

V4.0.0.0* - planned functionalities

- Support of parts of faceplate types interfaces and dynamizations
- Support of layers
- Conversion of controls & additional system functions
- Reduce execution time

Roadmap

Planned release date	
V4.0.0.0*	01/24
V4.1.0.0*	08/24

● - partly implemented

* Changes without notification possible

WinCC Unified V19 - Conversion

Data2Unified Add-in

Device	Supported by the “Data2Unified” Add-in
Panels	
Basic Panels	✓
Comfort Panels	✓
Comfort Panels PRO	✓
Outdoor Panels	✓
Mobile Panels	✓
PC	
Runtime Advanced	✓
Runtime Professional	✗

Using the Data2Unified Add-in is Runtime Professional.

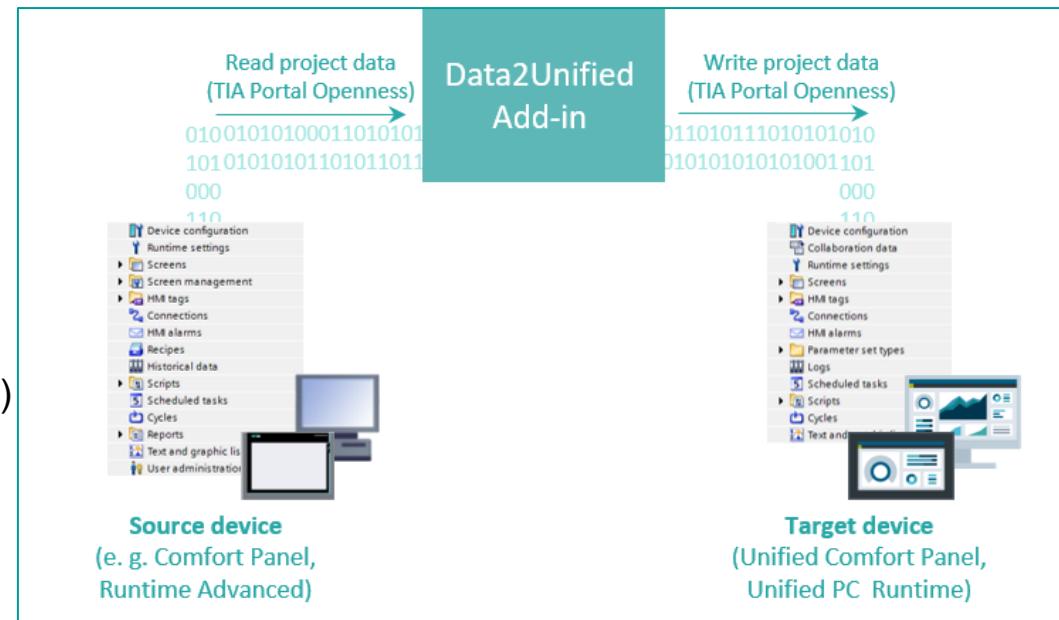
WinCC Unified V19 - Conversion

Data2Unified Add-in

Latest version V3.2.0.0

The following contents are supported for conversion:

- Screen objects of type "Basic objects" (e.g. Text box, Rectangle) and "Elements" (e.g. Button, I/O field)
- Animations on the supported screen objects
- Selected system functions on supported screen objects (as of V2.0)
- Screens
- Screen management (e.g. Templates, Pop-up screens, Slide-in Screens)
- HMI tags, except UDT structures
- HMI alarms
- Archives and archive tags (as of V2.0)



SIOS - Data2Unified Add-in

<https://support.industry.siemens.com/cs/document/109770510>

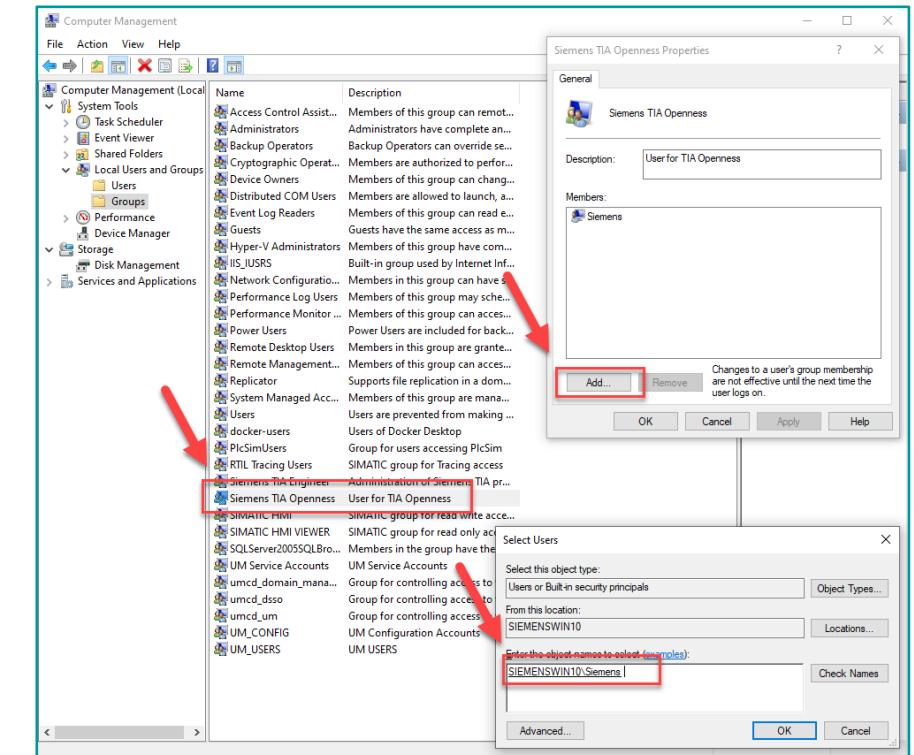
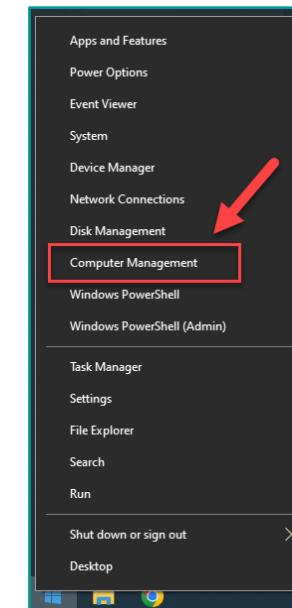
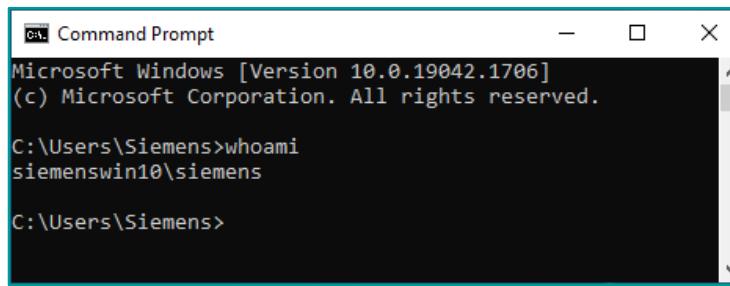
WinCC Unified V19 - Conversion

Data2Unified Add-in

Adding User to Usergroup

To use the 'Data2Unified' Add-in, the user must be added to the 'Siemens TIA Openness' Usergroup.

- Open 'Computer Management' and go to the 'Local Users and Groups'.
- Find the 'Siemens TIA Openness' group and add the user to it.
- Reboot the PC or logout and login the user.



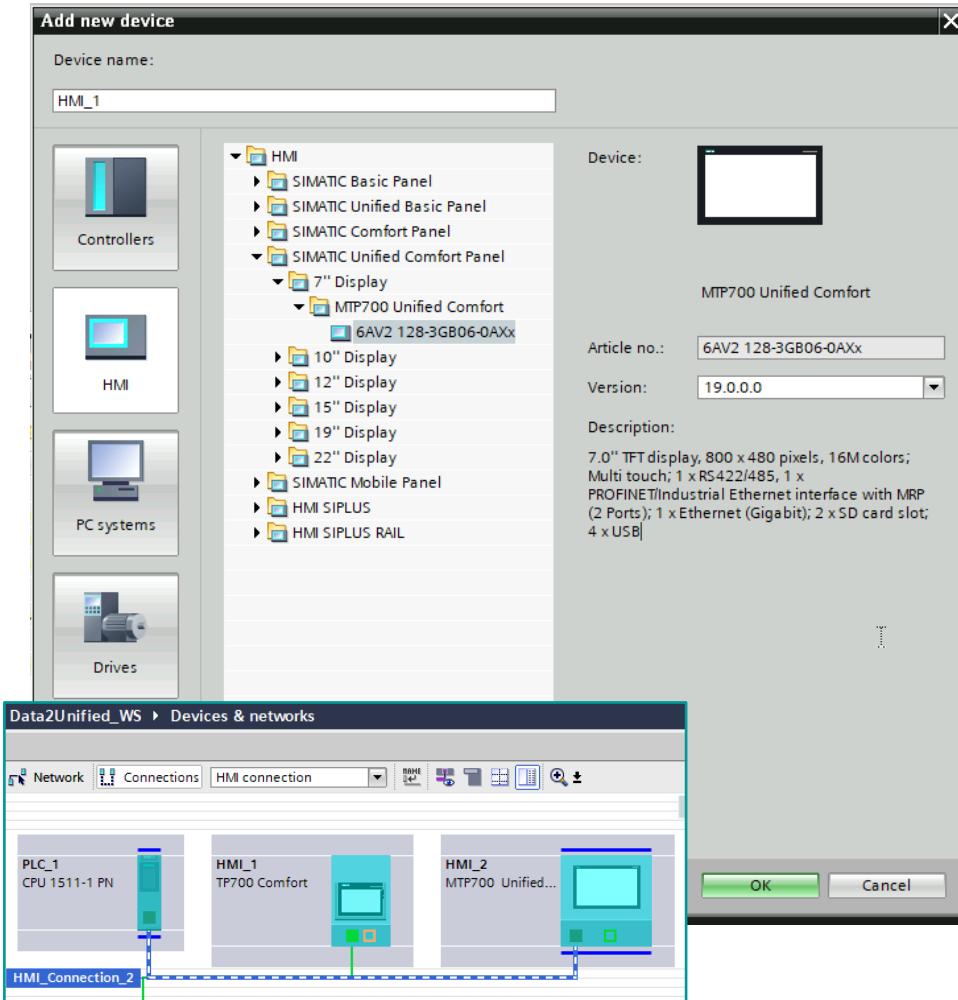
WinCC Unified V19 - Conversion

Data2Unified Add-in

Adding a Unified Comfort Panel

- Open the TIA Portal project ‘Data2Unified_WS.zap19’
- Click on ‘Add new device’ in the project tree.
- Navigate to the ‘SIMATIC Unified Comfort Panel section’.
- Select an ‘MTP700 Unified Comfort Panel’.
- Create an HMI connection between the MTP700 and the PLC.

The latest version of the panel in TIA Portal is 19.0.0.0. This is different than the latest version of the firmware of the Panel which is version 19.0.0.0.



WinCC Unified V19 - Conversion

Data2Unified Add-in

Installing the ‘Data2Unified’ Add-in.

- Click on the ‘Add-ins’ tab on the right side of TIA Portal.

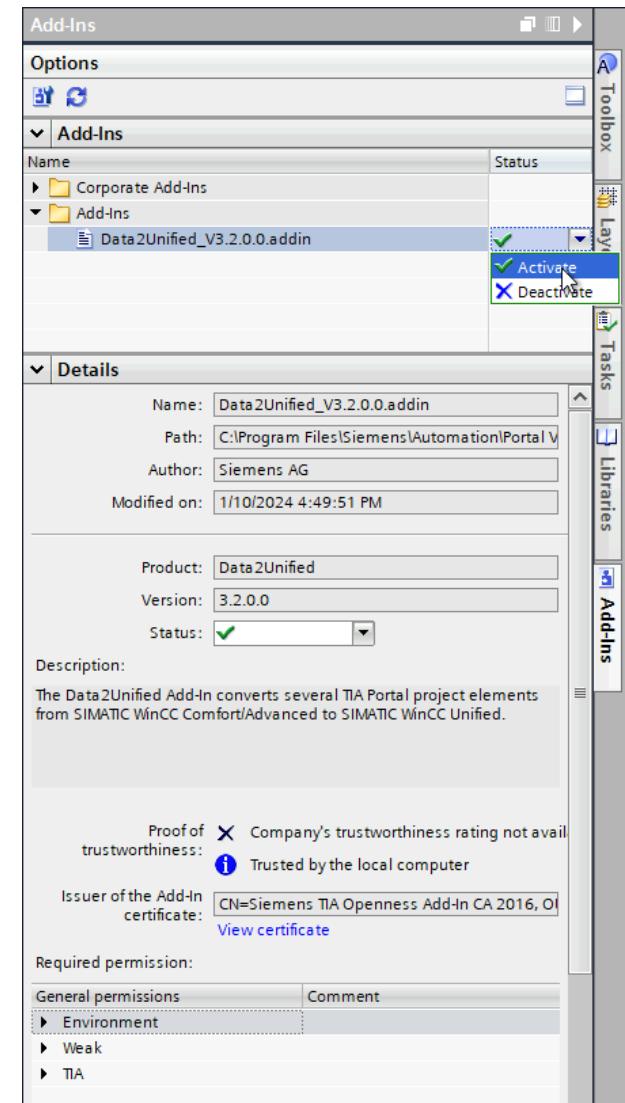
Here all the installed ‘Add-ins’ will be shown.

- Open the Add-Ins folder which can be found in the installation folder of TIA Portal.

C:\Program Files\Siemens\Automation\Portal V19\AddIns

- Copy the ‘Data2Unified_V3.2.0.0.addin’ file to this folder.
- Return to TIA Portal,
- In the ‘Add-ins’ tab you can activate the ‘Data2Unified’ Add-in for use.

When activating the Add-in you are asked to apply certain permissions.



WinCC Unified V19 - Conversion

Data2Unified Add-in

Using the ‘Data2Unified’ Add-in

- Right click on the TP700 and start the ‘Data2Unified’ Add-in.

The application will start and search for items to convert.

- Once the application found all items select the MTP700 as target.

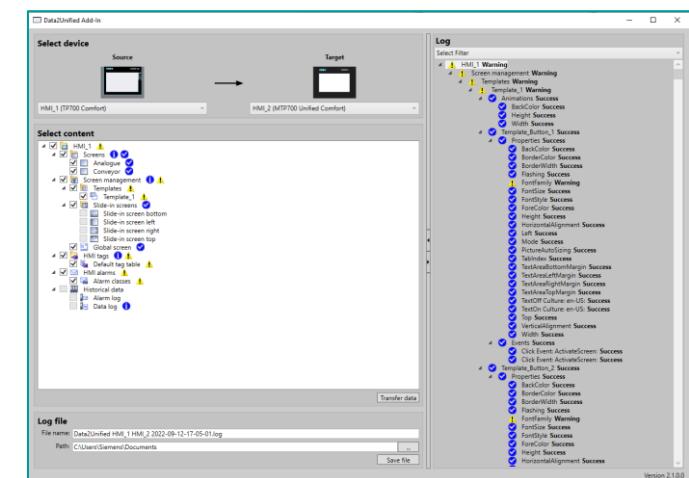
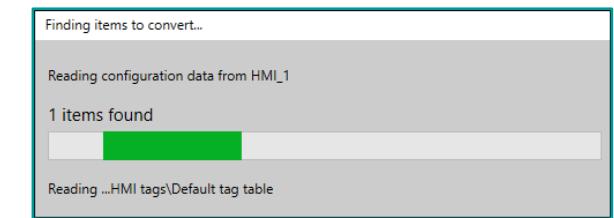
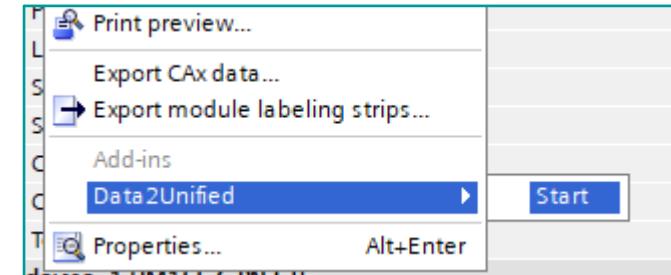
- Now select the content that you would like to convert.

- Start the data transfer by clicking on ‘Transfer data’.

This might take some time. After transferring the data you can see the log on the right hand side of all the objects.

You can also save the log file by selecting a file location and clicking in Save file.

- Save the log of the transfer to a file on the desktop.



WinCC Unified V19 - Conversion

Data2Unified Add-in

'Data2Unified' Add-in result

- In TIA Portal compile the 'MTP700'

The connection which is declared of the tags connected to the PLC is not existing.

- Sort the rows on 'Connection'.
- Select the correct connection for all the tags.

You could use the drag functionality to easily configure the connection for all tags.

Name	Data type	Connection	PLC name	PLC tag
Auto	Bool	HMI_Connection_2	PLC_1	<Enter PLC tag>
ConveyorLeft	Bool	HMI_Connection_1		<Undefined>
ConveyorRight	Bool	HMI_Connection_1		<Undefined>
H4	Bool	HMI_Connection_1		<Undefined>
InstCounterEmpty_CV	Int	HMI_Connection_1		<Undefined>
InstCounterFull_CV	Int	HMI_Connection_1		<Undefined>
InstFillTank_ET	Int	HMI_Connection_1		<Undefined>
Left	Bool	HMI_Connection_1		<Undefined>
MaintExeLeft	Bool	HMI_Connection_1		<Undefined>
MaintExeRight	Bool	HMI_Connection_1		<Undefined>
MaintReqLeft	Bool	HMI_Connection_1		<Undefined>
MaintReqRight	Bool	HMI_Connection_1		<Undefined>
Manual	Bool	HMI_Connection_1		<Undefined>
ModeA	Bool	HMI_Connection_1		<Undefined>

- Go back to the 'Add-in' and click on 'Transfer data' again.

The Data2Unified conversion is now complete, additional work is required to make the project fully functional.

Path	Description	Go to	?	Errors	Warnings
HMI_2	Hardware configuration			34	0
	Software compilation started.				
	Number of tags: 31				
	Number of PowerTags used: 31				
	The entered password confirmation does not match the password.				
	The entered password does not comply with the password secur...				
	HMI tags				
	Default tag table				
	Temperature1				
	The object "HMI_Connection_1" does not exist. Please update o...				
	Temperature2				
	The object "HMI_Connection_1" does not exist. Please update o...				
	On				
	The object "HMI_Connection_1" does not exist. Please update o...				
	Off				
	The object "HMI_Connection_1" does not exist. Please update o...				
	Manual				
	The object "HMI_Connection_1" does not exist. Please update o...				
	Auto				
	The object "HMI_Connection_1" does not exist. Please update o...				

WinCC Unified V19 - Conversion

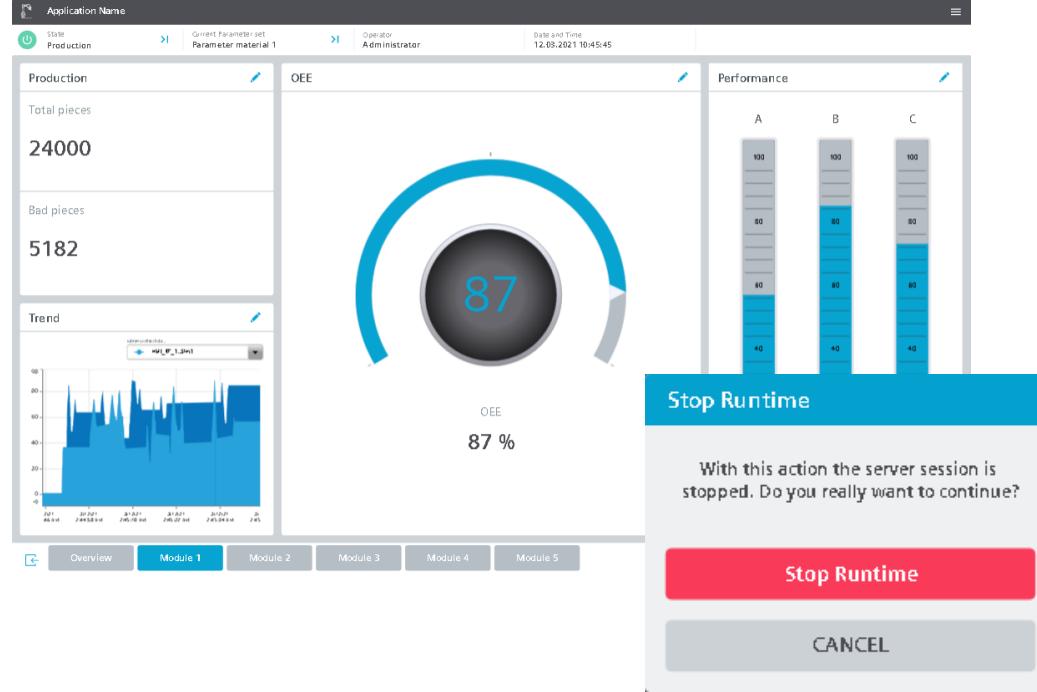
HMI Template Suite



- Layout and design are designed for smooth operation, transparency, and scalability.
- Simplify the operation of your machine and reduce operator errors.
- Uniform “look & feel” with a consistent operating concept, in addition to saving time during configuration.
- The “HMI Template Wizard” helps you create your Unified device by selecting the contents and then integrate them into your project via **TIA Openness**.
- The device contains basic navigation and operating functions.

HMI Template Suite offers you templates and ideas to make the configuration of your HMI device clear and modern.

WinCC Unified V19 - Conversion HMI Template Suite



Intuitive HMI

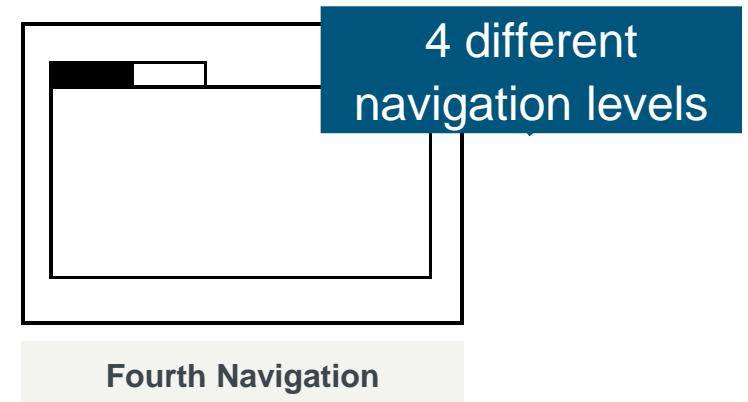
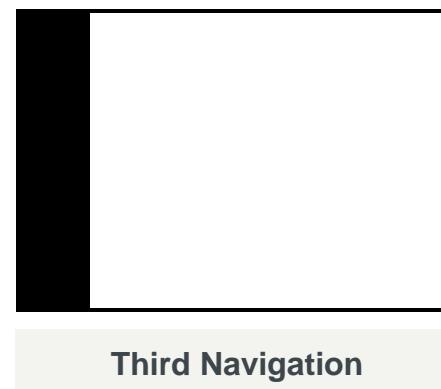
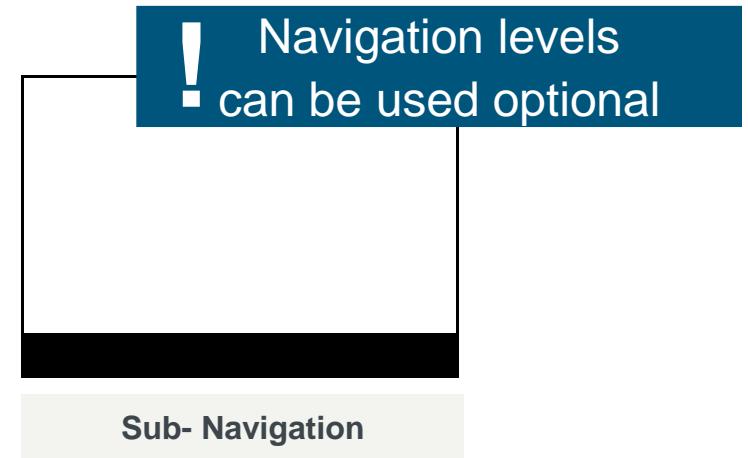
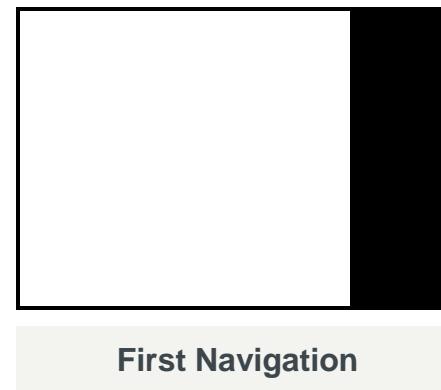
- Using the whole screen
- Hierarchy context using headlines and content boxes
- Clickable elements are easily recognizable
- Use of pop-up screens
- Easy orientation because of discreet use of color
- Consistent in all screens and devices

Available as download in [SIOS entry: 91174767](#).

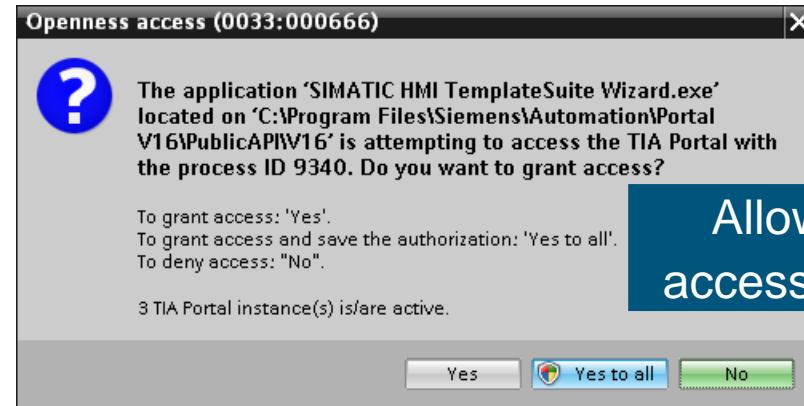
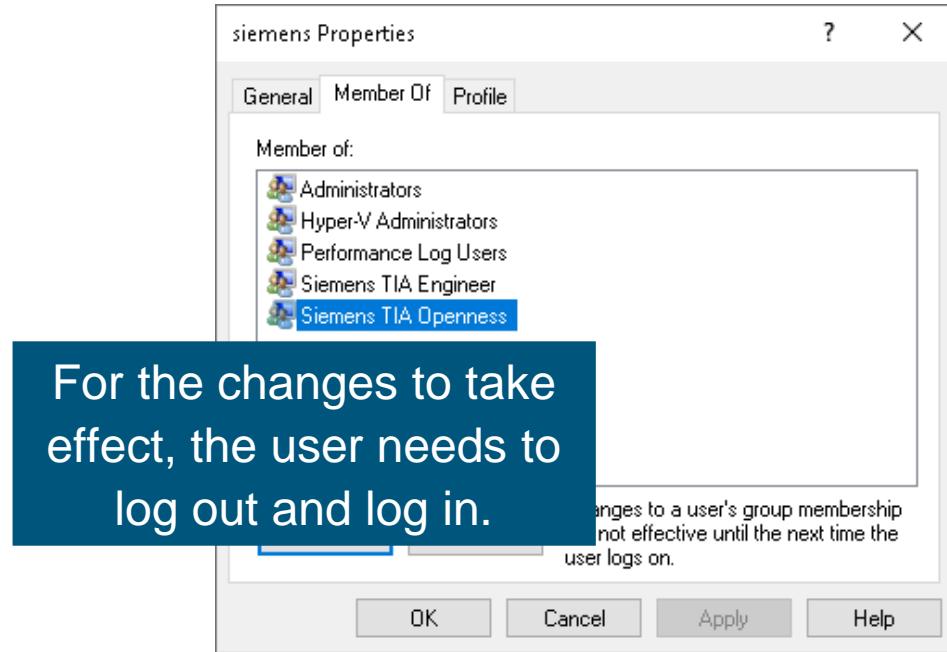
You can easily build and extend your project modularly using further HMI objects from the library.

WinCC Unified V19 - Conversion

HMI Template Suite



WinCC Unified V19 - Conversion HMI Template Suite

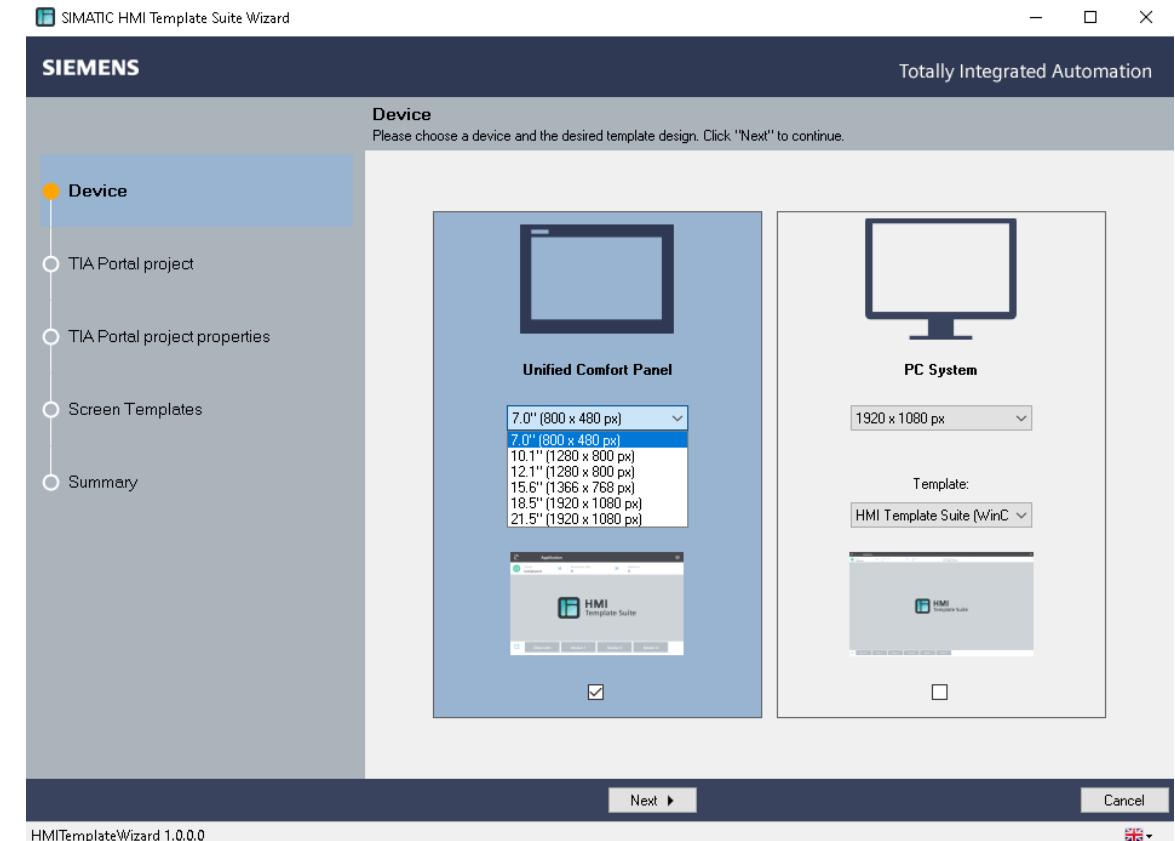


The user must be a member of “Siemens TIA Openness” group.

WinCC Unified V19 - Conversion HMI Template Suite

Using the HMI Template suite

- Unzip the Template Suite Wizard.
- Start the installation and open the program.
- Choose the navigation style.
- Select a Unified device resolution for Panel or PC.
- Connect to a running TIA Project or set the name and location for a new project.
- Click through and look at the different screens and select the ones you would like to generate for the Unified device.
- Click on ‘Finish’ and go to TIA Portal to see the generated HMI with all the selected screens.



WinCC Unified V19 - Conversion

Corporate designer



SIMATIC WinCC Unified V19 -
Corporate Design, your tool for
creating a distinctive user interface -
Quick & Easy

WinCC Unified V19 - Conversion

Corporate designer

The SIMATIC WinCC Unified Corporate Designer provides you with a graphical editor for displaying and interacting with the designed style items.

You create the projects in which you design and reuse the WinCC Unified screen objects, such as buttons, sliders or trend control, according to your own graphical requirements. Currently, you can use the Corporate Designer to **define** and **edit** the style items. You can change the reference to a rendering template by selecting that rendering template from the existing rendering templates.

You cannot change the rendering templates.

Corporate Designer does not currently provide the ability to modify system objects or system properties.

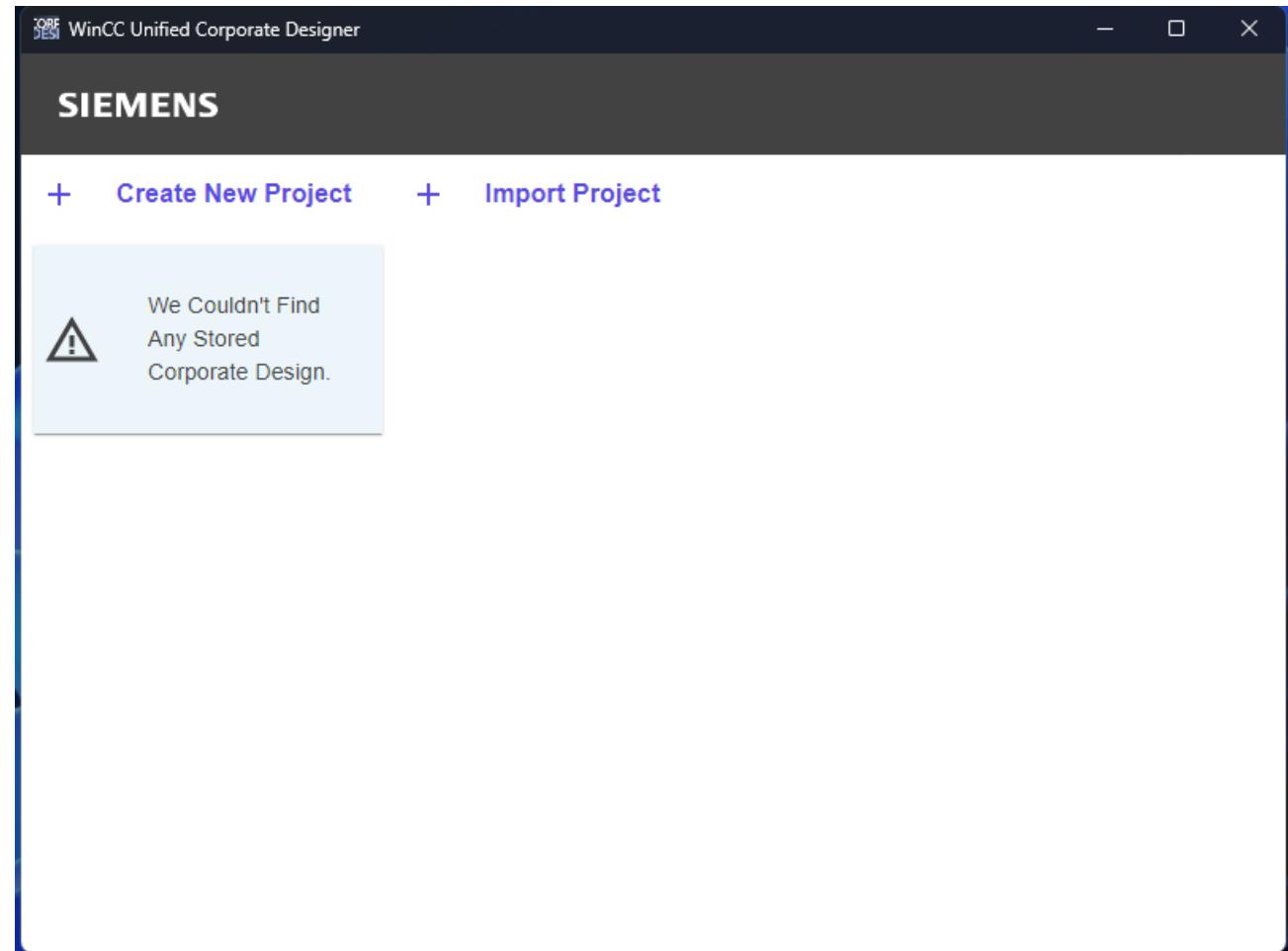
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Start the application. After starting the application, the home page is displayed:

To create a project, follow these steps:

1. Click on the + "Create New Project".



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The "Create New Project" dialog opens.

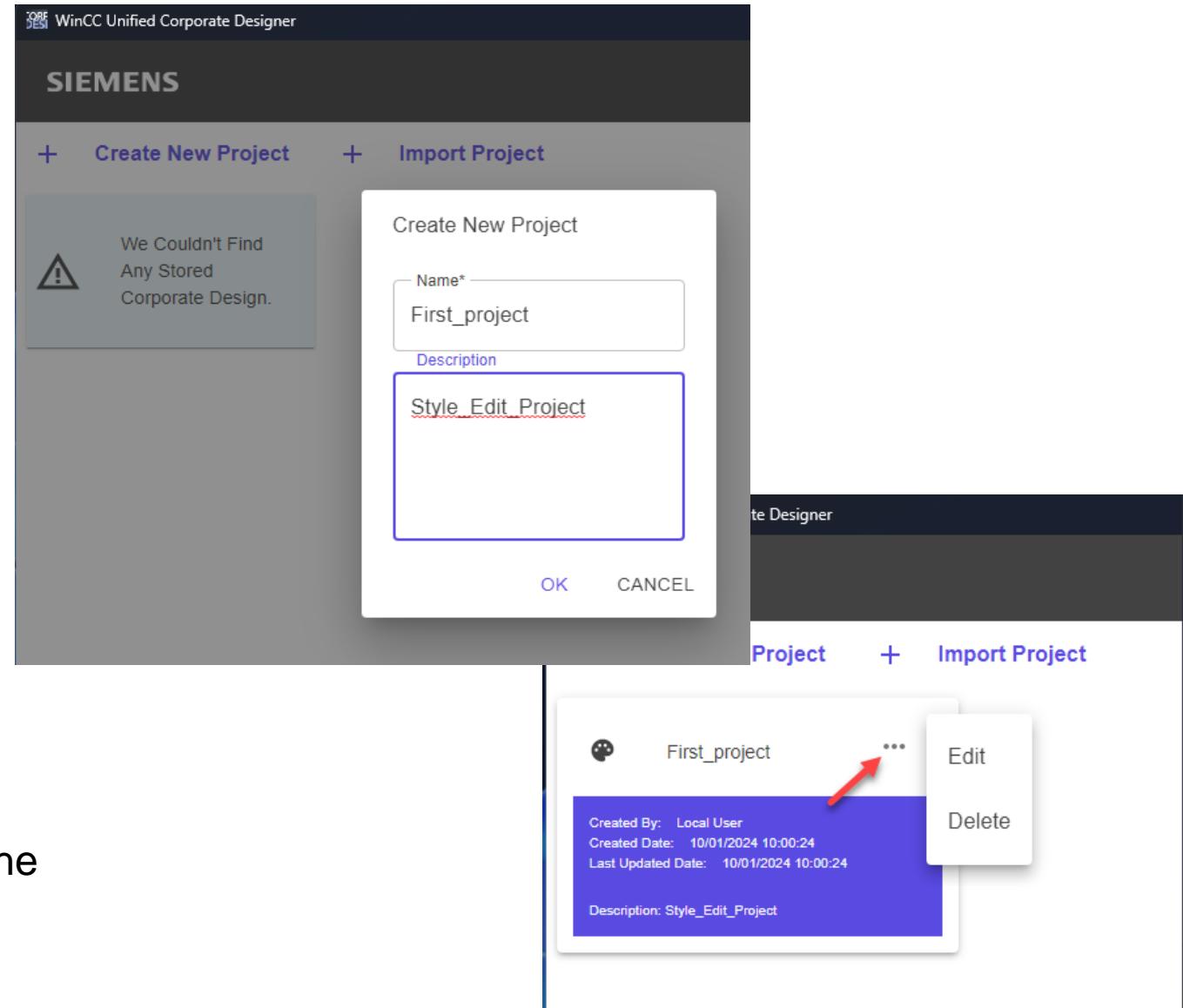
2. Give the project a unique name.
3. You can add a project description.
4. Click "OK". The project is created.

The project card displays the following data:

- User name
- Date of creation
- Last update
- Description of the project

Using the shortcut menu under the three dots on the project card, you can:

- Editing a card
- Deleting a project

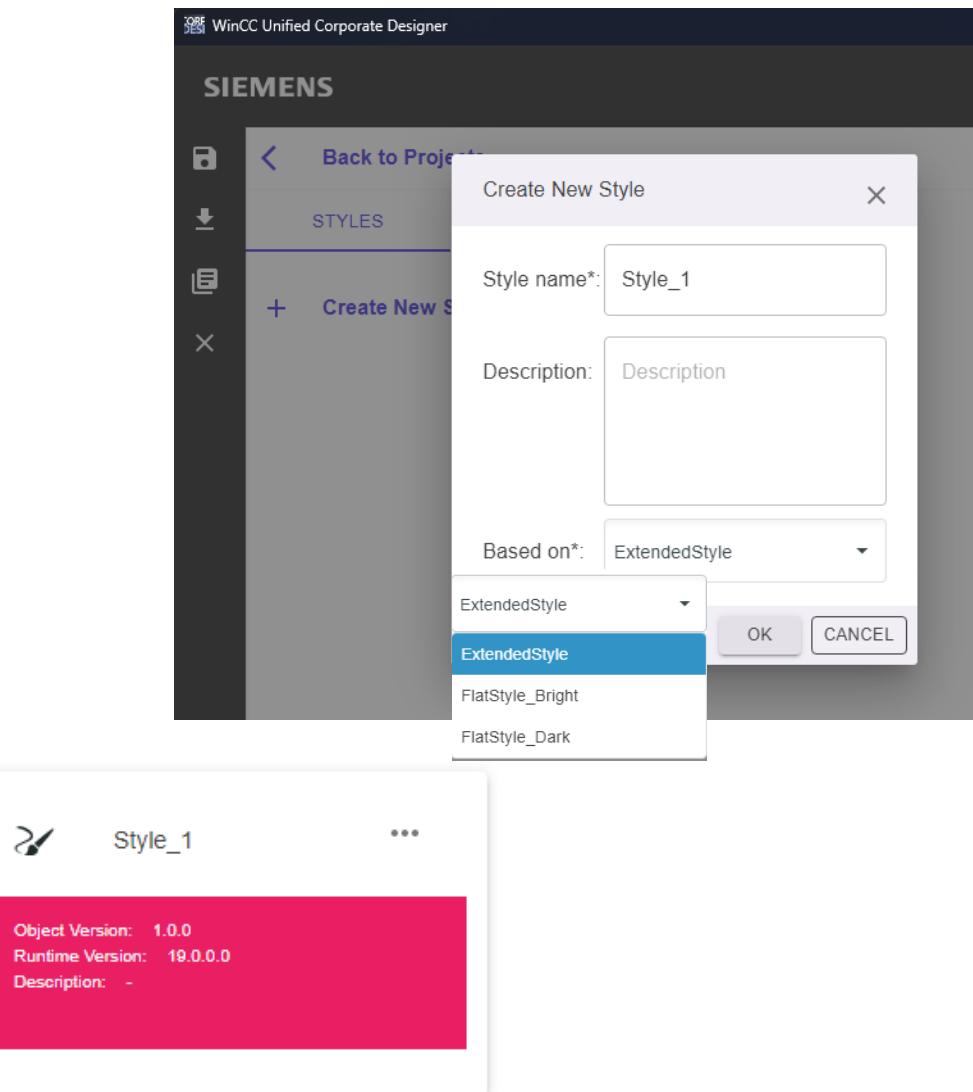


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Creating a style

1. Click the plus at "Create New Style". The "Create New Style" dialog opens.
2. Give the style a unique name. The style is loaded into the TIA Portal with this name.
4. Select a TIA Portal default style:
 - Extended style
 - Bright style
 - Dark style
- If there are already other styles in the project, the styles will also be displayed in the list. You can also use a user-defined style as the basis for the new style.
5. Click "OK". The style is created.



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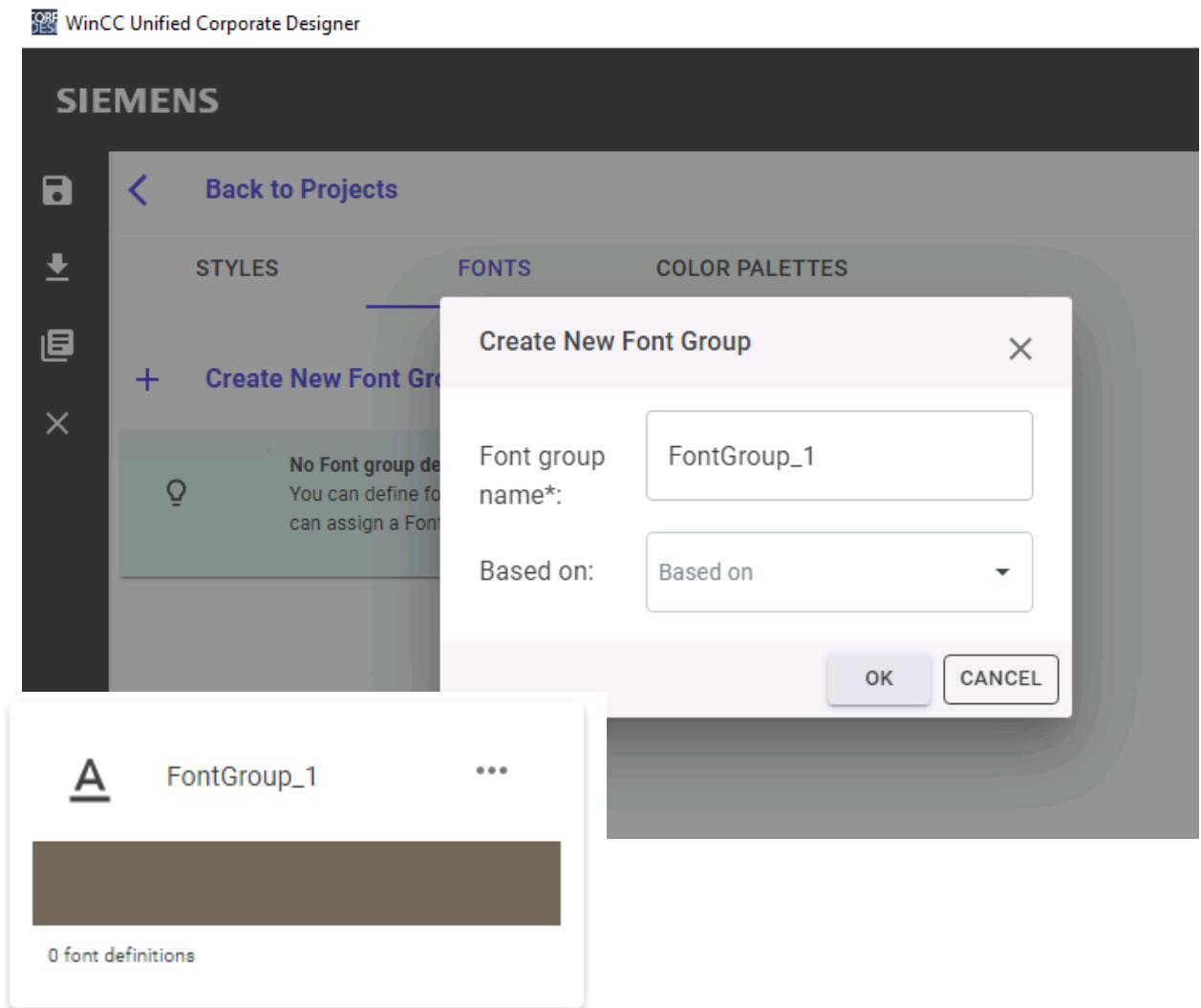
Creating a font group

To create a font group, follow these steps:

1. Click the plus sign next to "Create New Font Group List".

The "Create New Font Group" dialog opens.

2. Give the font group a unique name.
3. Select whether the font group is based on another existing font group.
4. Click "OK". The font group is created.



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Adding fonts to a font group

To add fonts to the font group, do the following:

1. Click the font group name in the Font Group card.
2. Click the plus.
3. Select a font and its properties.
4. Click "Save" to save the settings. The editor with the added fonts is displayed.

The screenshot shows the Corporate Designer interface with the 'Font' tab selected. On the left, there's a sidebar with a '+' icon and a list of font properties: Font name, Font family, Size, Weight, Italic, Underline, StrikeOut, and Example. The 'Font name' field contains 'f1'. The 'Font family' dropdown is set to 'Arial'. The 'Size' dropdown is set to '16'. The 'Weight' dropdown is set to 'Normal'. Below these settings is an 'Example' section containing the text 'The quick brown fox jump over lazy dog.' At the bottom are 'EDIT' and 'DELETE' buttons.

The screenshot shows two overlapping 'Add Font' dialog boxes. The top dialog has 'Name' set to 'f1', 'Font Family' set to 'Arial', 'Font Weight' set to 'Normal', and 'Size' set to '16'. It also includes checkboxes for 'Italic', 'Underline', and 'Strikethrough', and a preview area showing the text 'The quick brown fox jumps over lazy dog.'. The bottom dialog is identical but has 'Font Family' set to 'Bahnscrift' instead of Arial. Both dialogs have 'SAVE' and 'CANCEL' buttons at the bottom right.

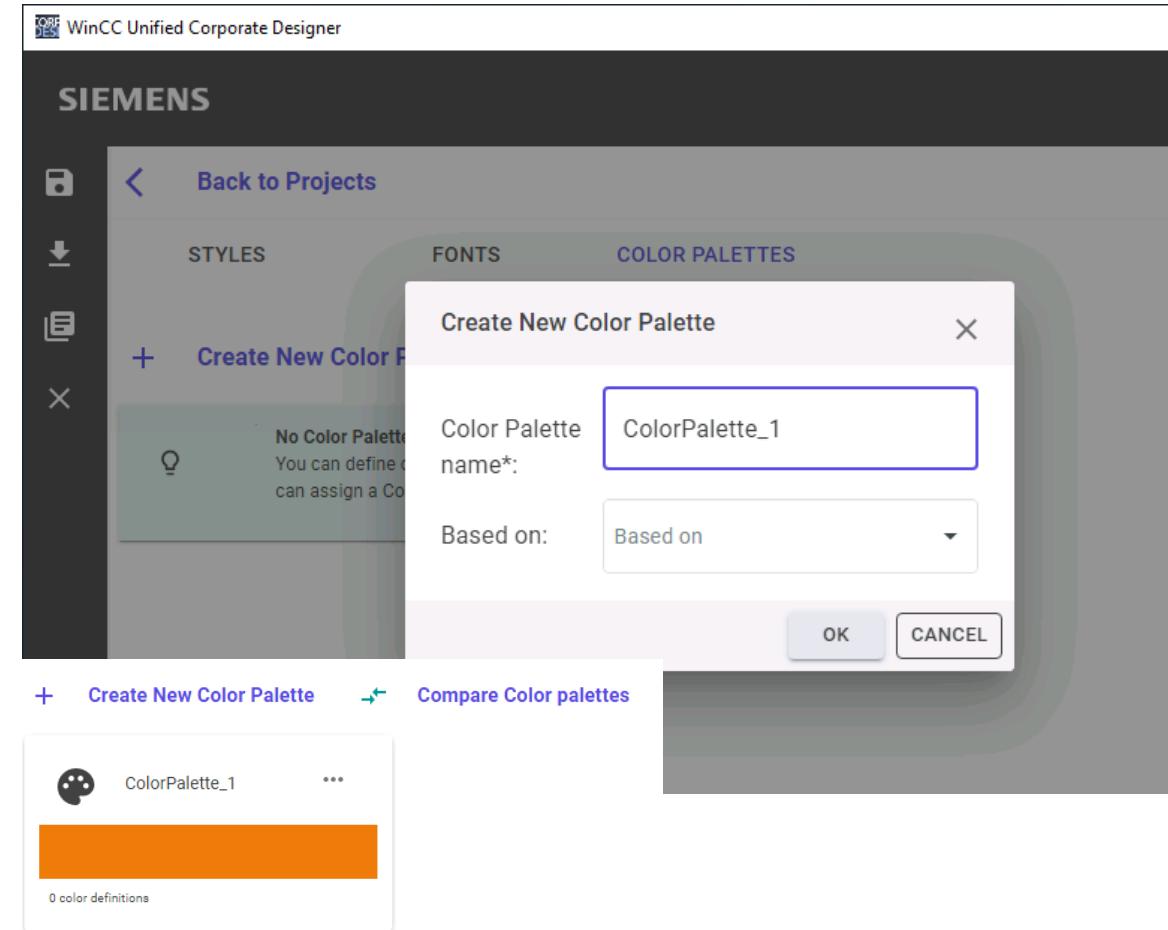
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Create a Color Palette

To create a color palette, follow these steps:

1. Click the plus sign next to "Create New Color Palette".
2. Give the color palette a unique name.
3. Select whether the color palette is based on another existing color palette.
4. Click "OK". The color palette is created.



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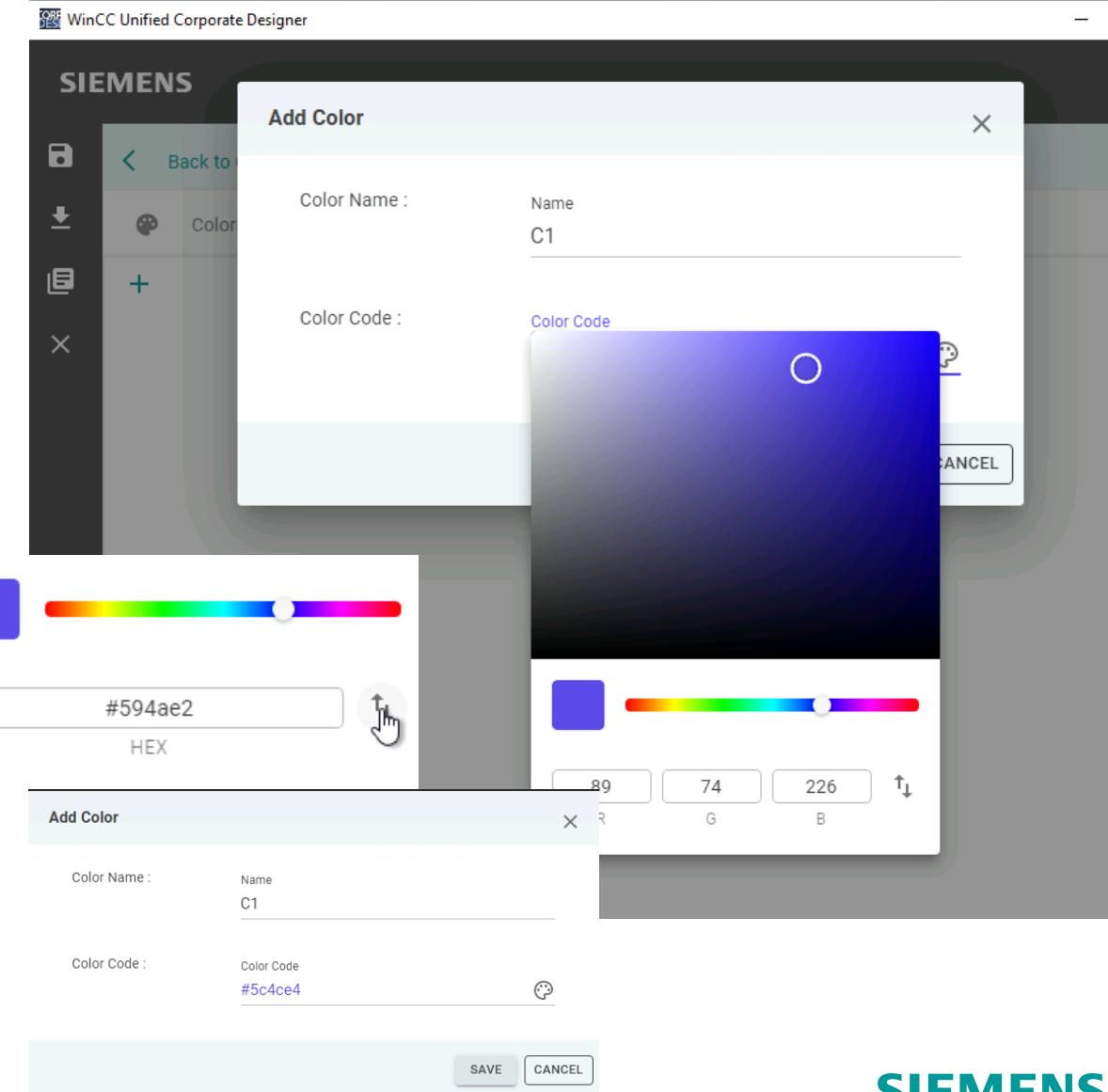
Adding colors to the Palette

To add colors to the color palette, do the following:

1. Click the color palette name in the color palette card.
2. Click the plus. The "Add Color" dialog opens.
3. Select a color.

If you click the toggle icon, you can switch between displaying the color values in RGB, HSL and hexadecimal values. You can also enter the values manually

4. To save your color selection, click in the "Add color" dialog and click "Save".



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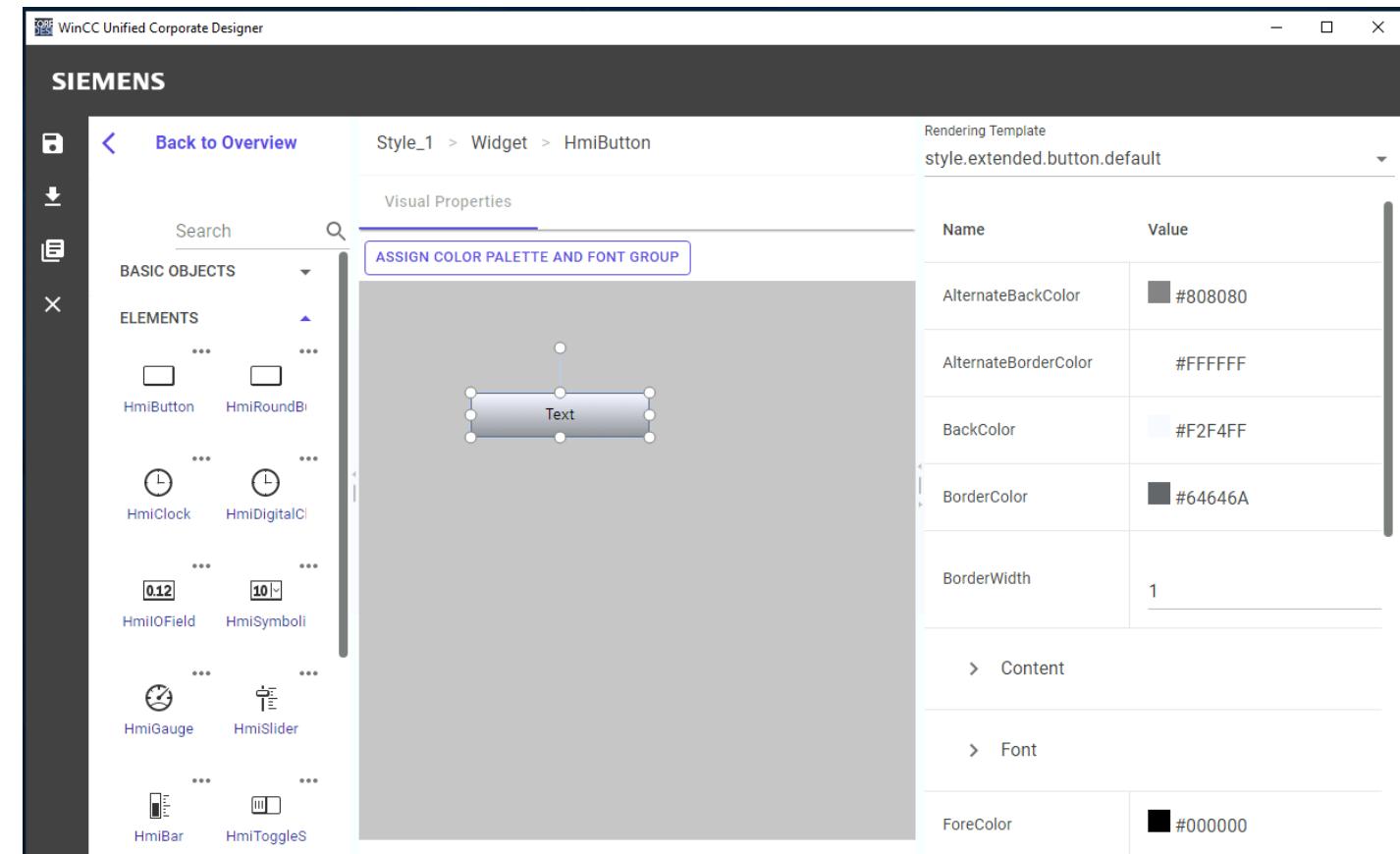
Configure style items

You have created your project in which you have defined your style, font groups, and color palettes. In this step, you design the style items in the editor.

To open the editor, follow these steps:

1. In the "Styles" tab, click on the name of the selected style. The editor opens.

You can find a style item by opening the Elements tab or using the search field.



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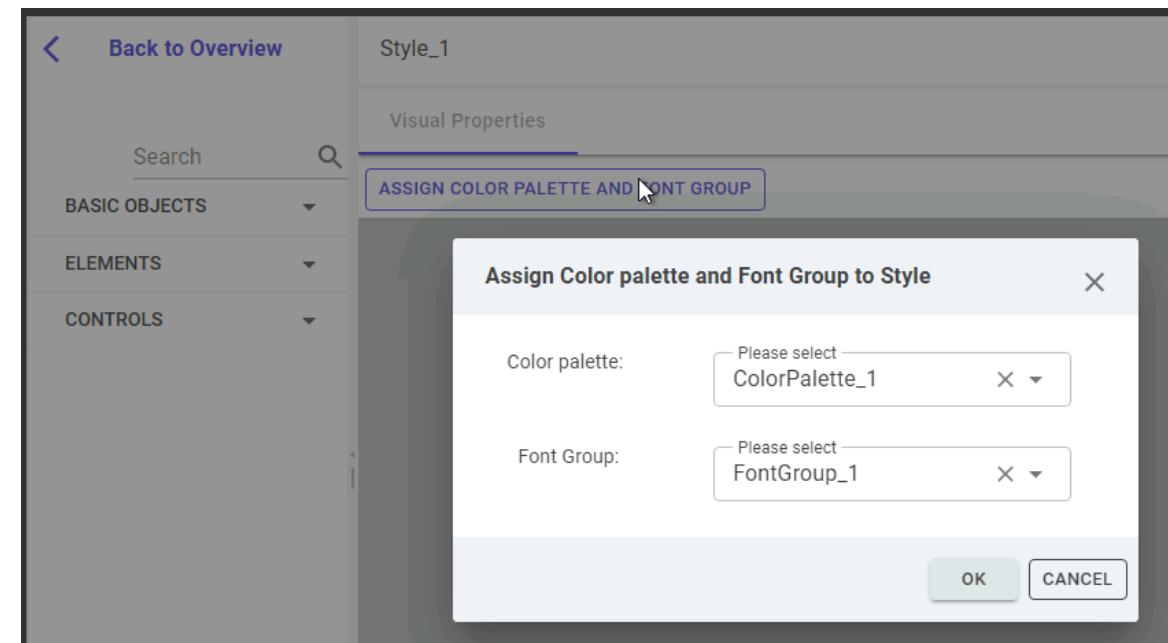
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Assigning a color palette and font group to a style

To assign a color palette or font group to a style, follow these steps:

1. In the "Styles" tab, click on the name of the selected style.
2. Click "Color Palette & Font Group" in the editor
3. You can select one of the existing color palettes.
4. You can select one of the existing font groups.

You can use the selected color palette and font group when configuring the properties of individual style items. If you do not want to assign a color palette or font group, you can leave the selection box empty.



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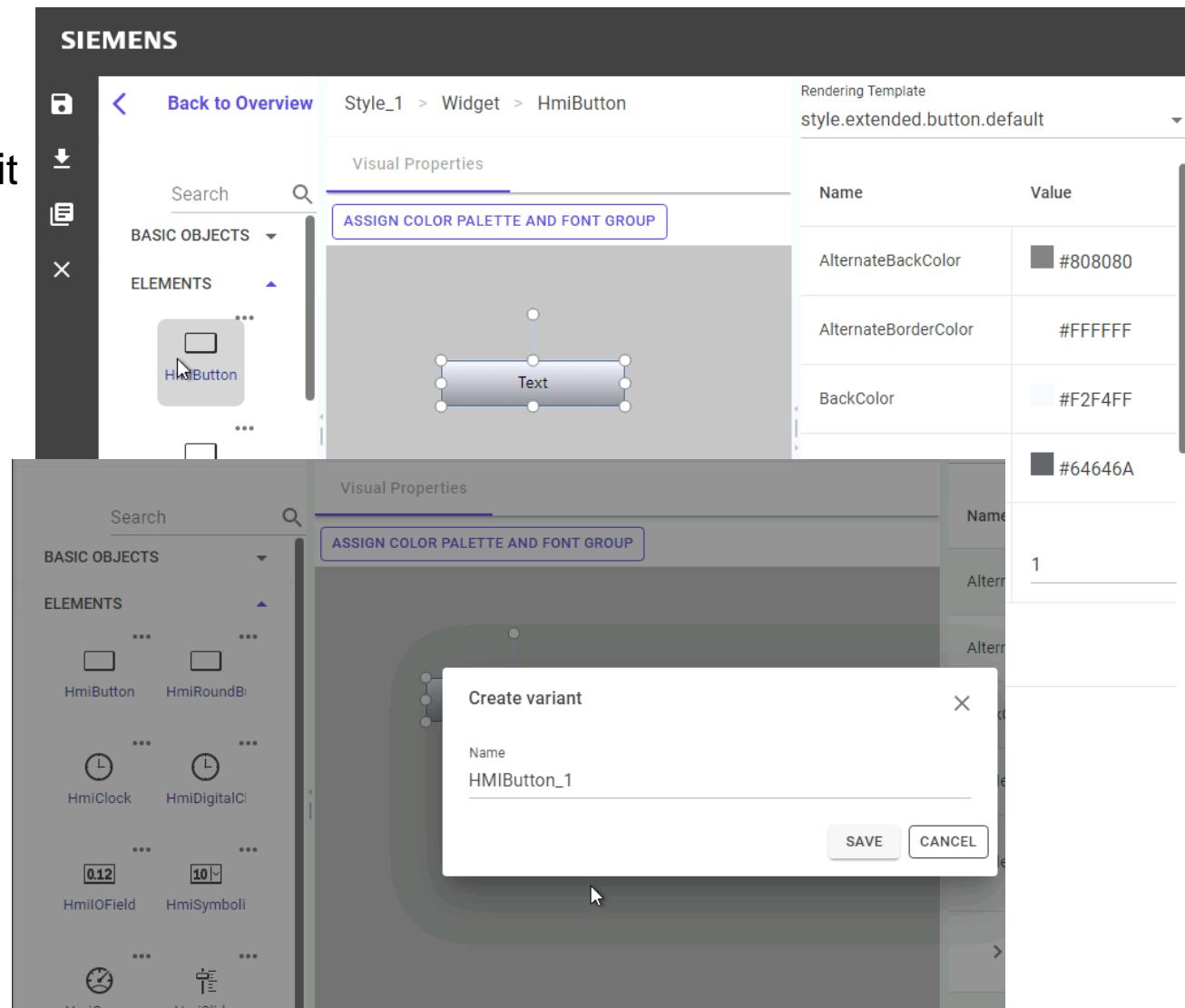
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Editing style items

You can select one style item in each case and edit it in the editor. To edit a style item proceed as follows:

First create a variant for the HMIButton Element, Using the shortcut menu under the three dots in the upper corner of the style item, and Create a variant, and name it.

1. Click the desired style item in the "Style items" area. The style item is displayed in the display area.



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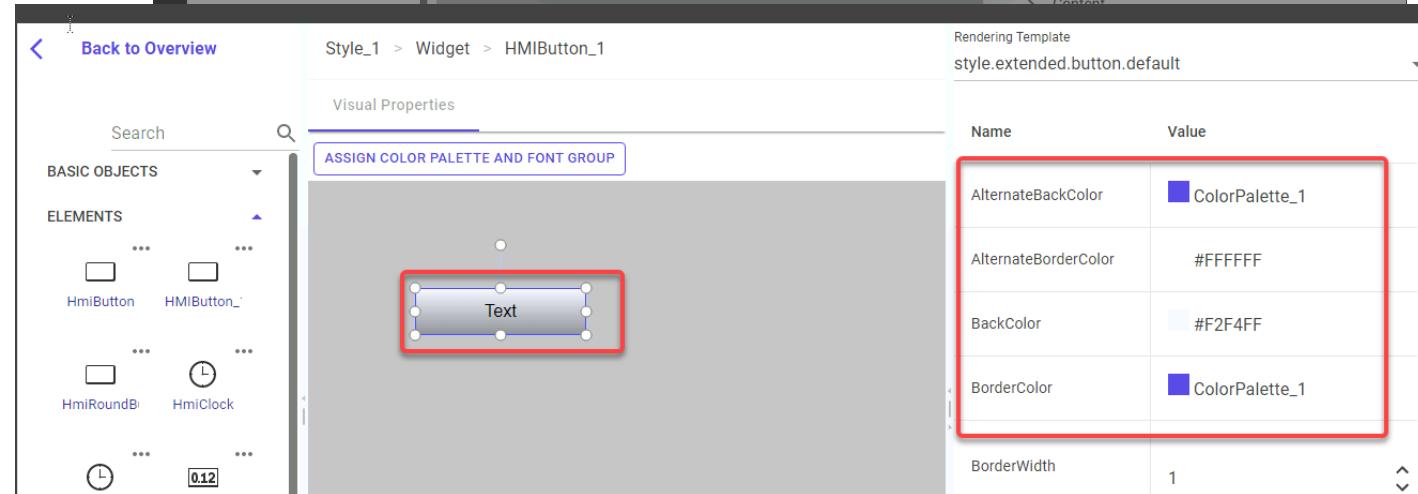
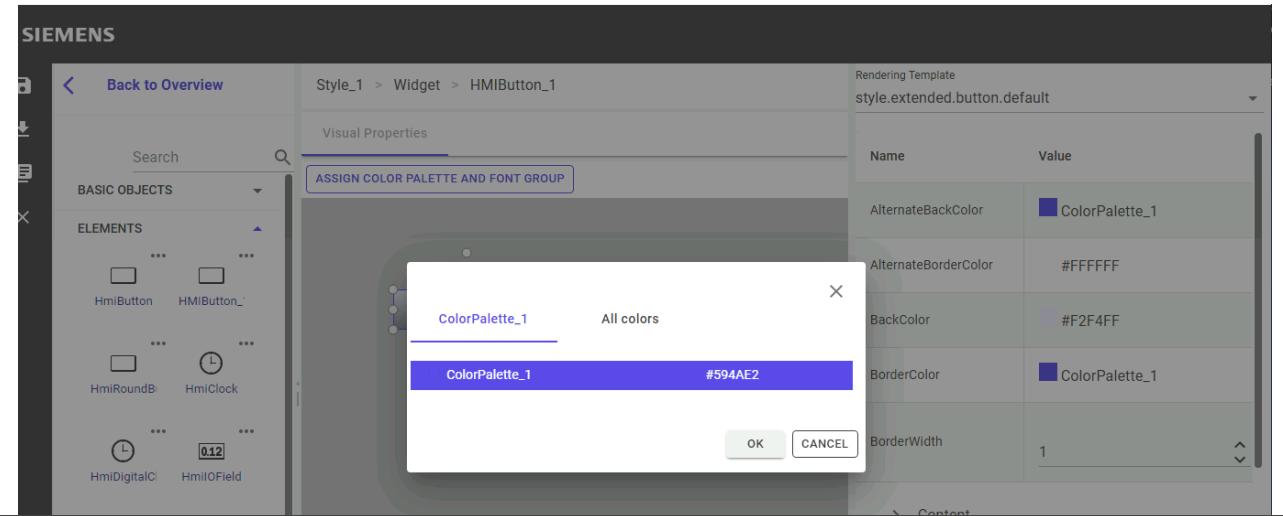
Assigning a color to the property

To assign the color to an property, proceed as follows:

1. Click on the color preview, e.g. "AlternateBackColor" and "BorderColor", in the Properties area.

The dialog for selecting the color value tabs opens:

- The color palette assigned to the style, "ColorPalette_1".
2. Assign the colors to the properties.
 3. Click "OK" to confirm the selection.

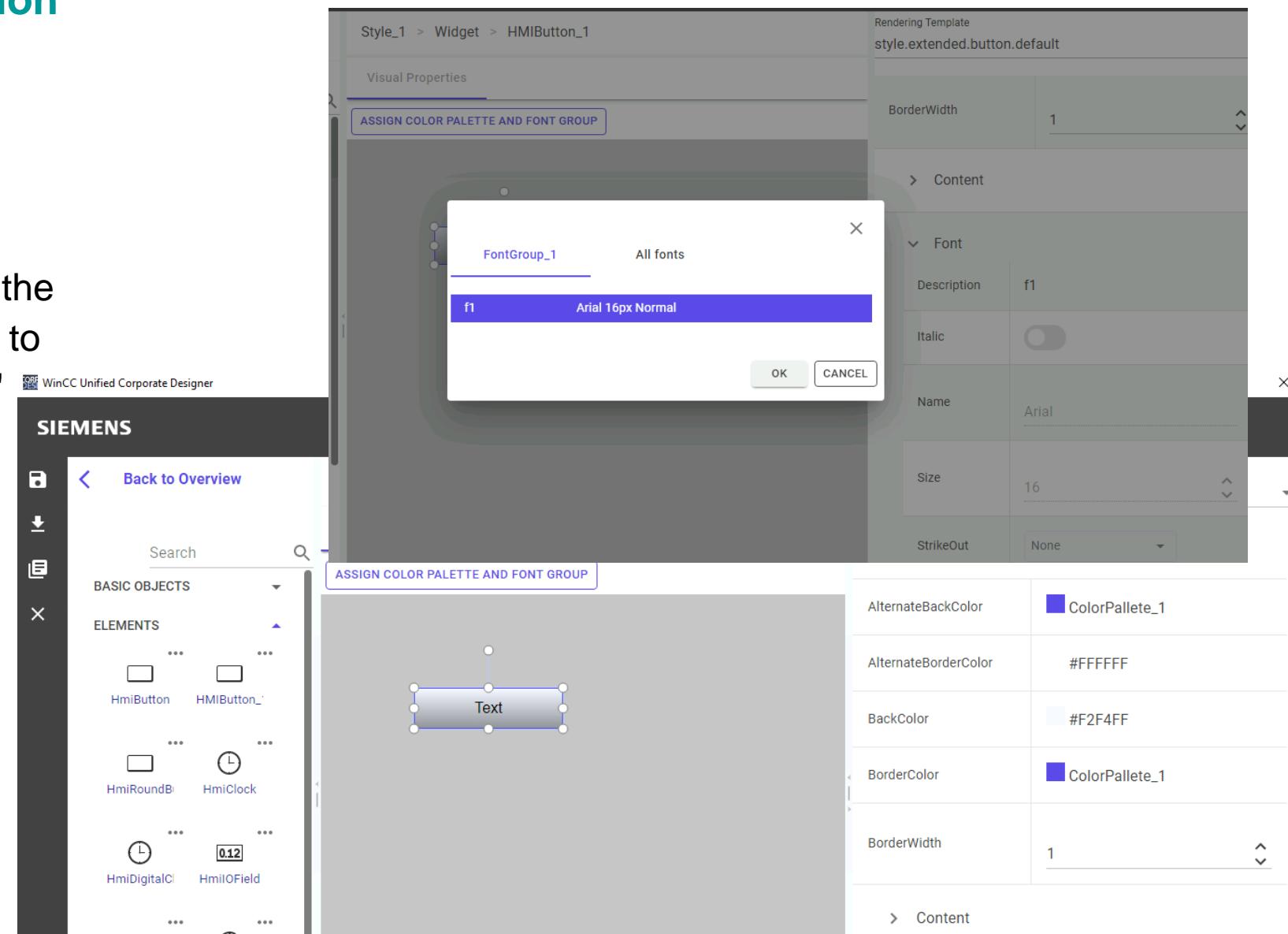


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Assign the font f1 from the created "FontGroup_1" to the Font property.

You have assigned the colors from the color palette, e.g. "ColorPallete_1", to the properties of the "HmiButton_1" button.



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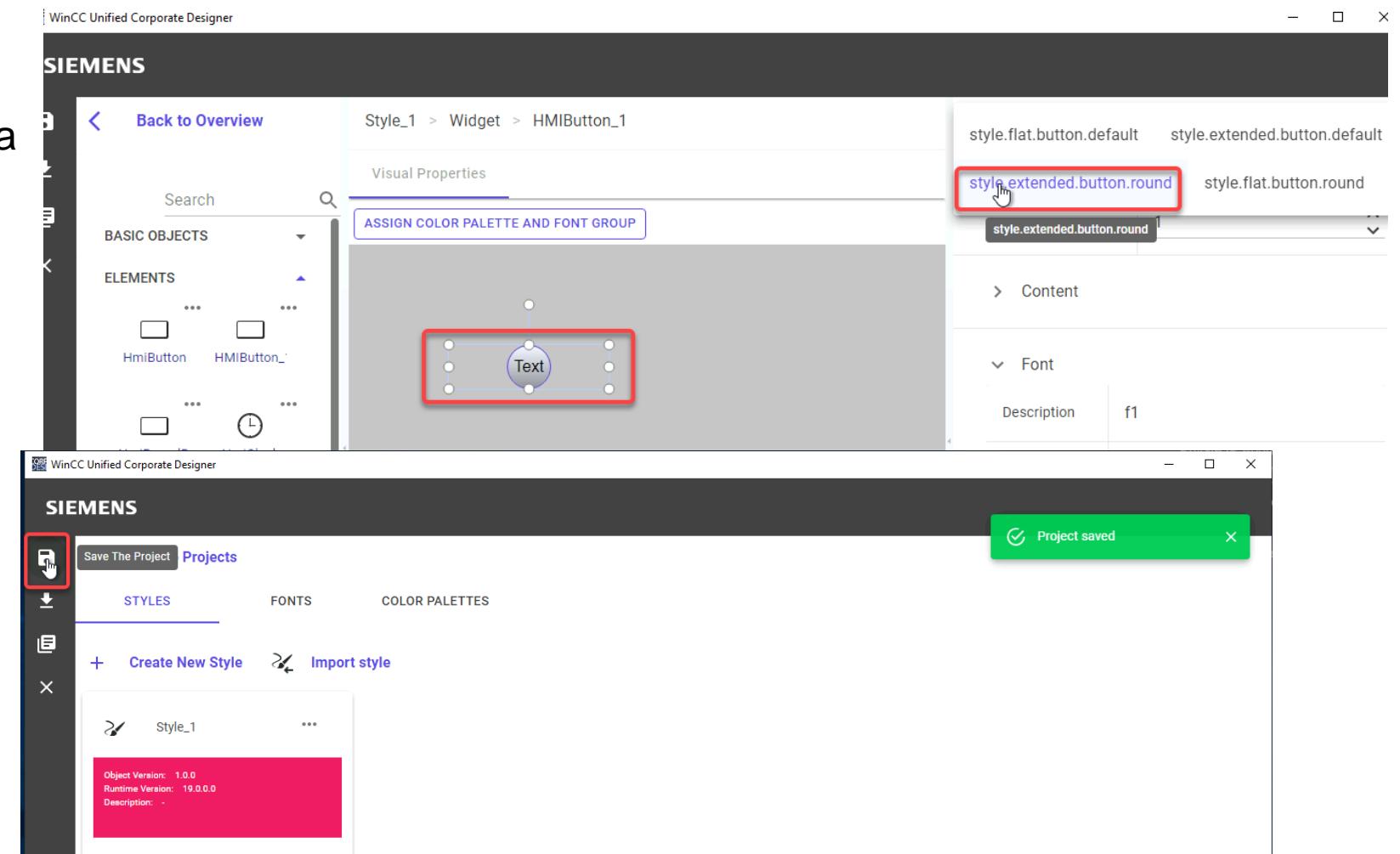
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Use rendering template

You can associate a style item with a rendering template. In the project, rendering templates are always provided by all styles that you have imported into your project.

To select a rendering template, proceed as follows:

1. Click in the "Rendering Template" area.
2. Select one of the displayed templates, for example, "style.extended.button.round".
3. Save the project



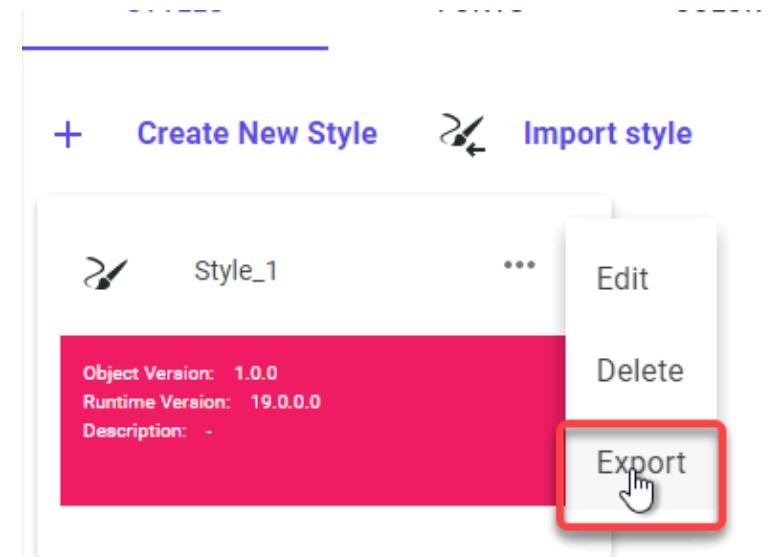
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Exporting the style

Before you can use your created style in TIA Portal you need to export it. In the Engineering System and in Runtime, the screen objects are displayed according to the style items in the style that you have created with the Corporate Designer.

1. Select the new created "Style_1" in the Corporate Designer and click on the three dots and select Export.



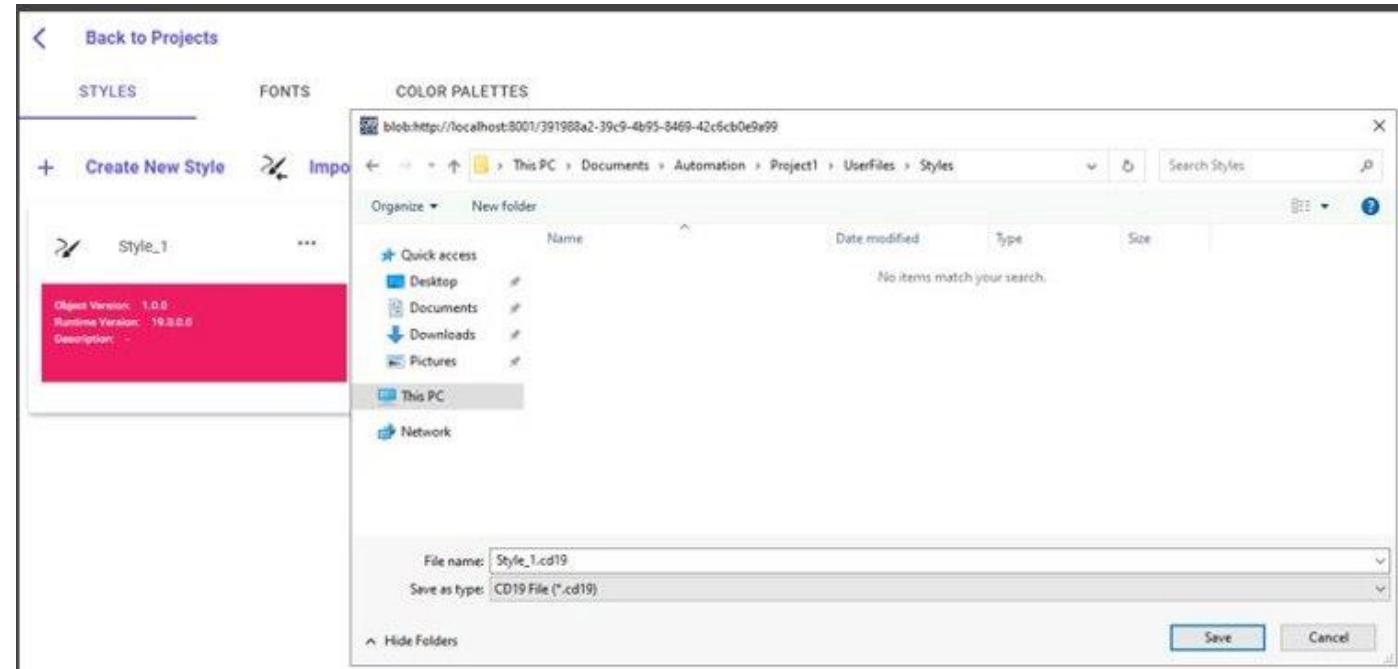
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Exporting the style

To import the file into TIA Portal, proceed as follows:

1. In your TIA Portal project, create a "Styles" subfolder in the "UserFiles" folder, e.g. "C:\Documents\Automation\Project_1\UserFiles\Styles".
2. Save the file into the folder.



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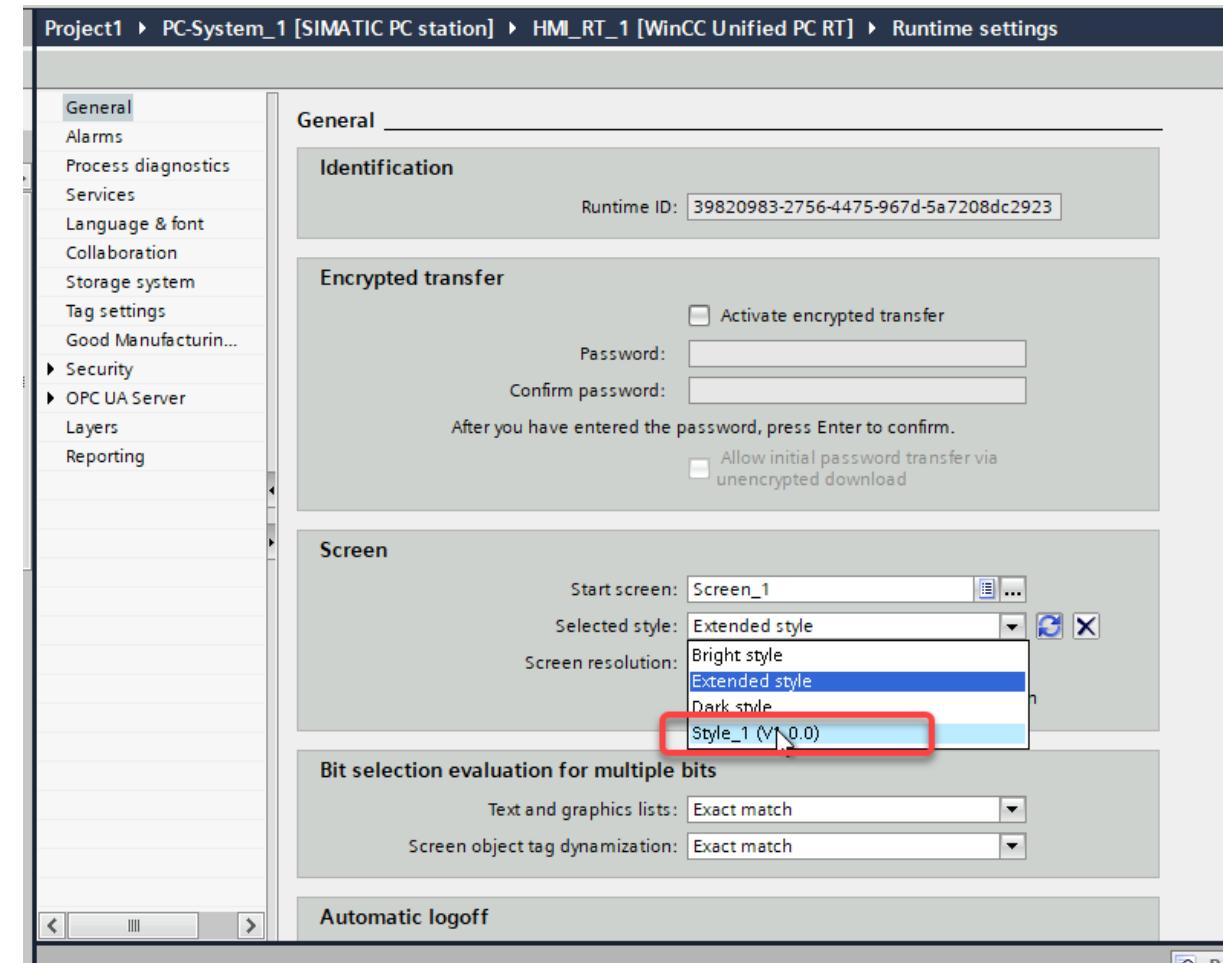
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Importing a style file into TIA Portal

To import the file into TIA Portal, proceed as follows:

Open a project or create one and add a Unified HMI device.

1. In the project tree, click "Runtime settings" of the device in which you want to use the new style. The device version must be the same or higher than the Corporate Designer version.
2. Under "General > Screen", click the refresh icon for the "Selected style". The custom style is imported into your project in TIA Portal.

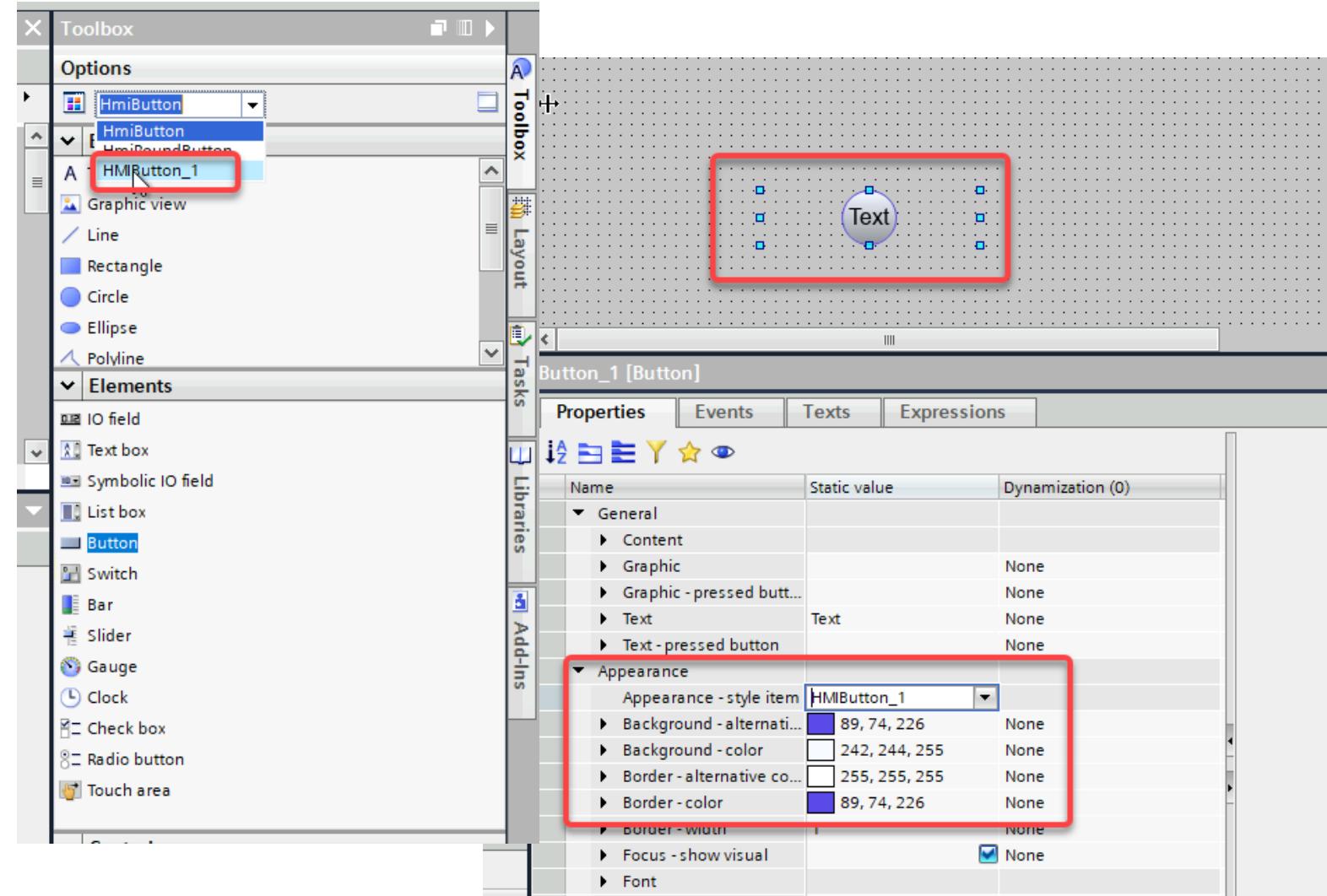


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Selecting style items

The style items that you have configured in your style in the Corporate Designer application are available when you create new screen objects in TIA Portal. You can find the style items in the "Toolbox" task card in each case under the corresponding screen object type.



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