

WinCC Unified V18

Mange nye features...



SIEMENS

Dagens værter

Kim Meyer-Jacobsen

Per Møller Hemmingsen



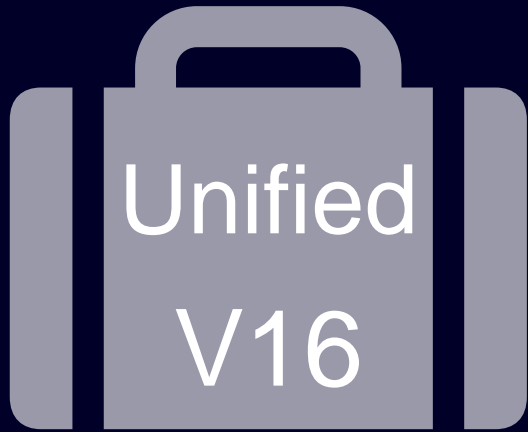
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Agenda

- WinCC Unified V18 x 310 nyheder

Et udpluk

May 2020



Based on Web Technologies

Access from everywhere

Edge enabled



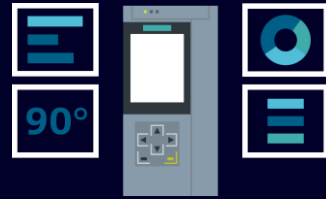
**WinCC
Unified PC
(UPC)**



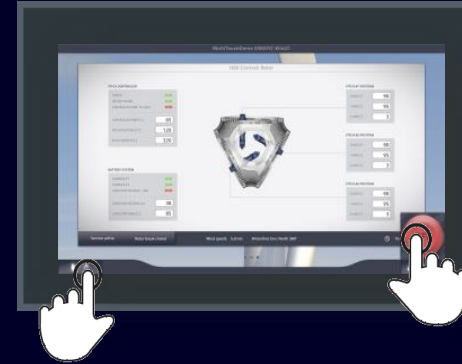
**Unified
Comfort Panel
(UCP)**



May 2021



View of Things
(VoT)



Multi-touch

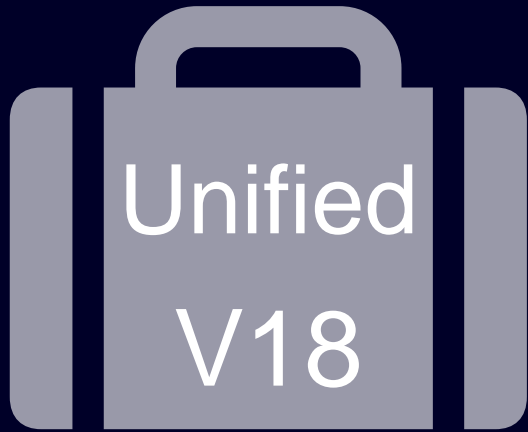


Web client (HTML5)



Styles

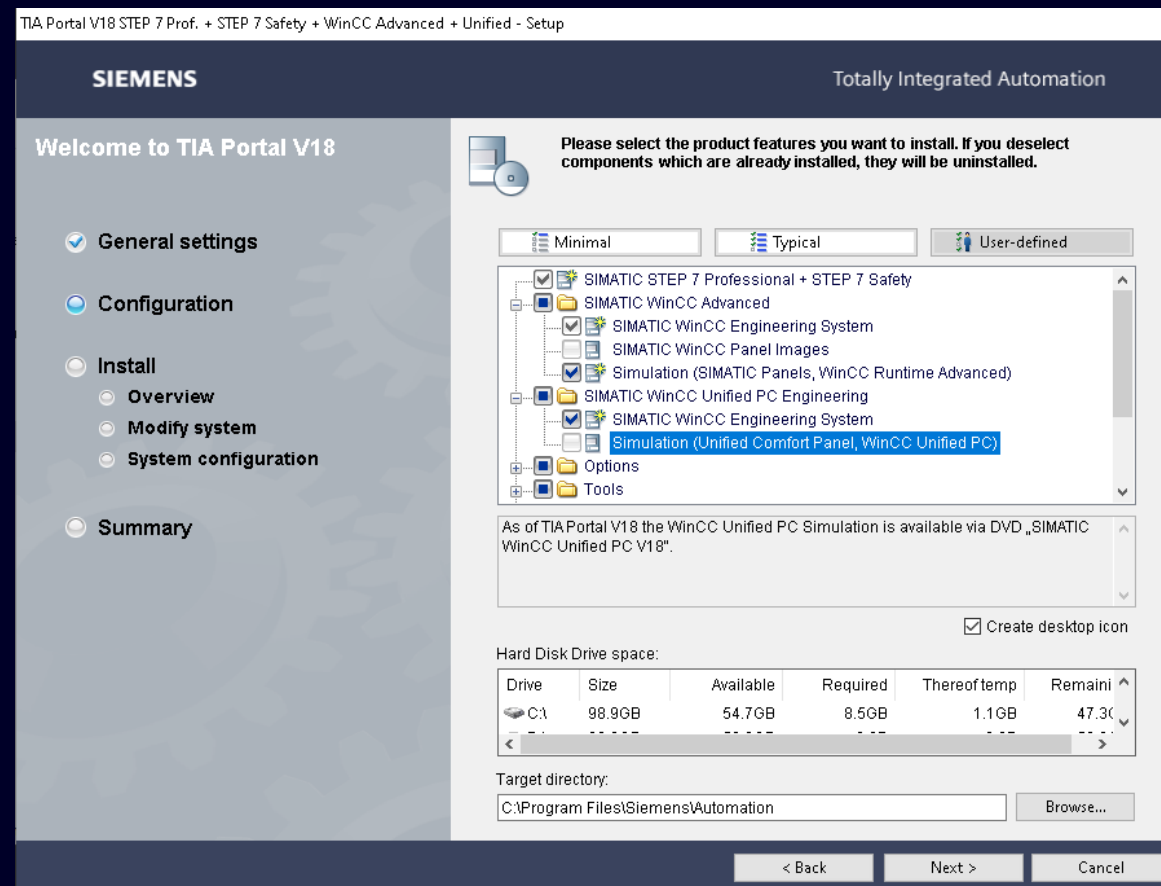
New features in Unified V18



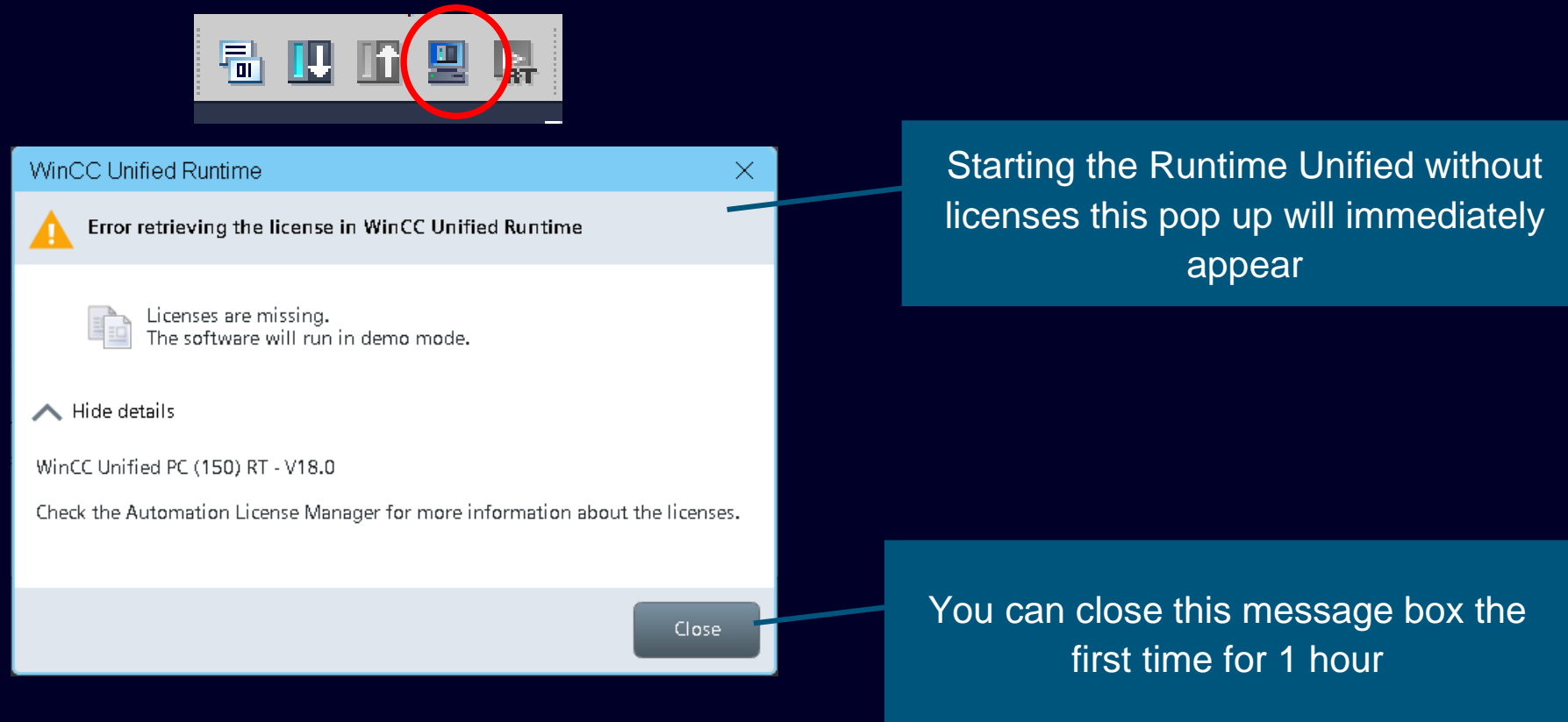
310

Hundreds of extensions and improvements to discover

Installation



Simulation of Panel and PC projects





TIA Portal V18 Grace Period Offer

SUS Download grace period offer – valid until February 28, 2023

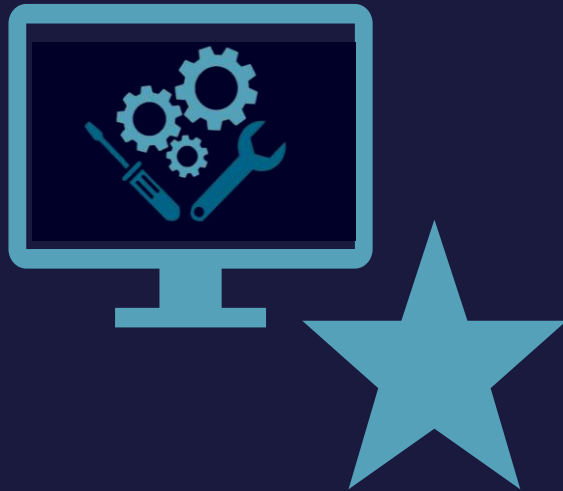
We want to make it as easy as possible for you to switch from TIA Portal V1x to V18.



Keep YOUR engineering and runtime software up-to-date.



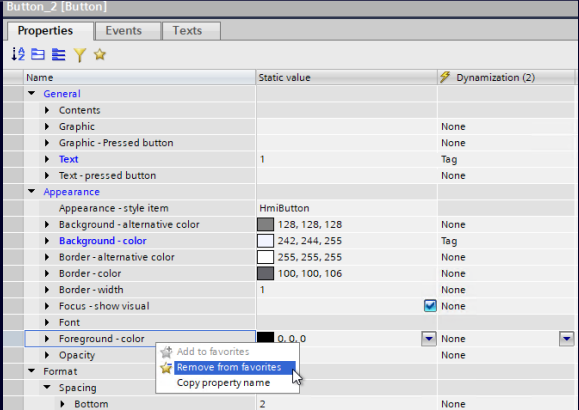
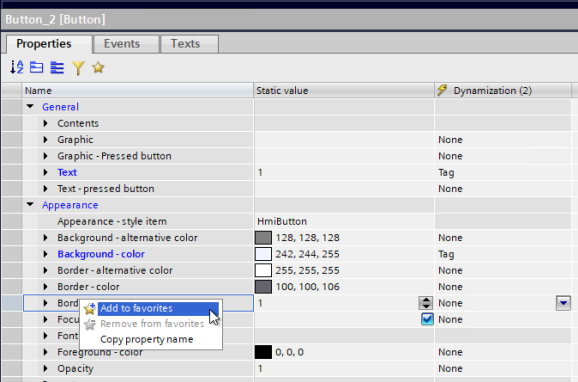
Efficient Engineering



A lot of properties !



Favorites for properties



Favorites for screen / screen object properties

- Predefined set of favorites
- Add to / remove from favorites
- Favorite settings editor



Order of properties and renaming layers



Diagram illustrating the mapping of properties between two versions of the software (V18 and V18).

V18 (Left):

- Size and position
 - Height
 - Pivot point
 - Rotation
 - Width
 - X pivot point
 - X position
 - Y pivot point
 - Y position

V18 (Right):

- Size and position
 - Position - left
 - Position - top
 - Rotation - angle
 - Rotation - pivot point
 - Rotation - pivot point X
 - Rotation - pivot point Y
 - Size - height
 - Size - width

Arrows indicate the mapping of properties from the left V18 to the right V18.

Below the diagram, a screenshot of the Siemens WinCC Graphics Designer interface is shown. The 'Project tree' on the left displays the project structure, including 'PC-System_1 [SIMATIC PC station]' and 'HMI_RT_1 [WinCC Unified PC RT]'. The 'Runtime settings' window is open, showing the 'Layers' tab. The 'Default layer names' list includes '00_BaseLayer', '01_ScreenWindowLayer', '02_PopUpLayer', '03_IntroLayer', and 'Layer_4' through 'Layer_15'. The 'Layout' window on the right shows the 'Options' tab, where the 'Layers' section lists the same default layer names.

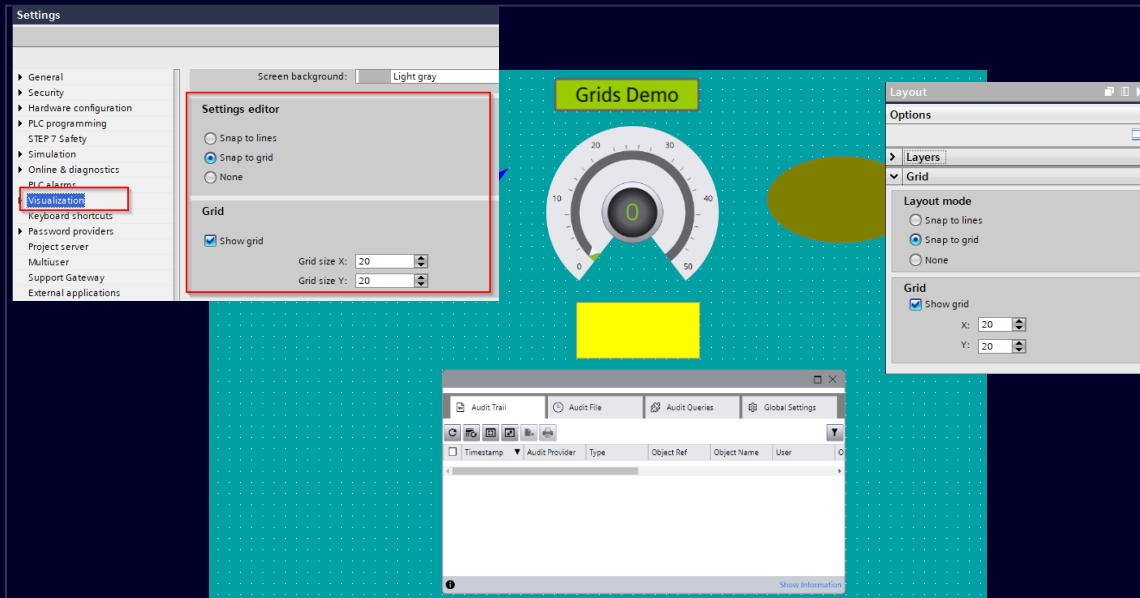
New order of properties

- Changed translation of properties
- Better grouping of related properties

Rename layers on device level

- Change default layer names in runtime settings
- Each screen will initially use the default layer names

Grid in screen

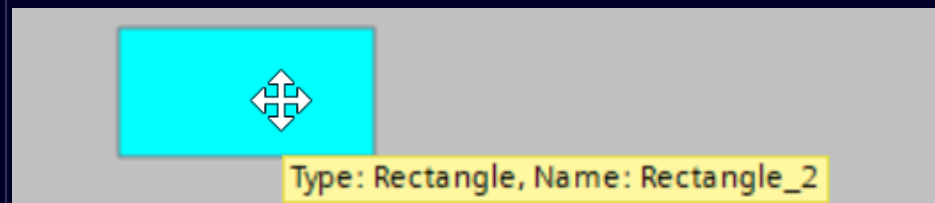


Grid in screen editor

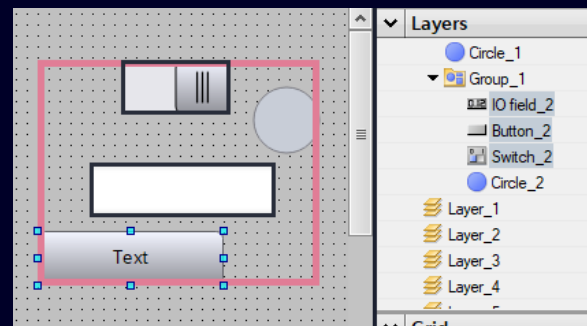
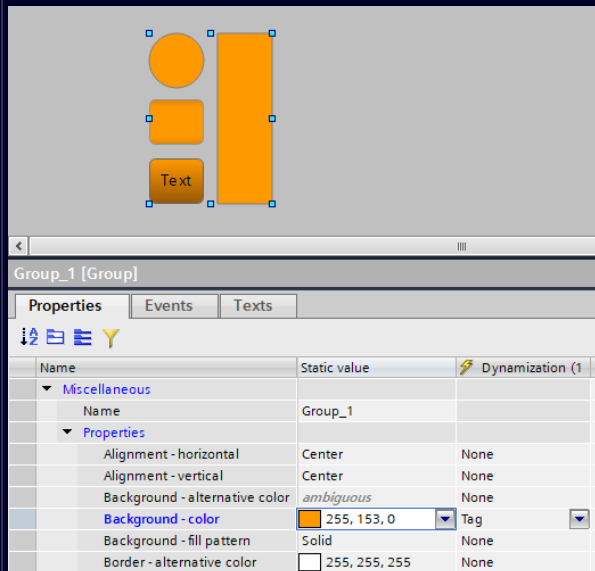
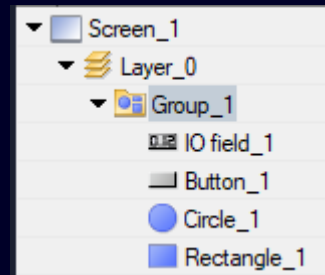
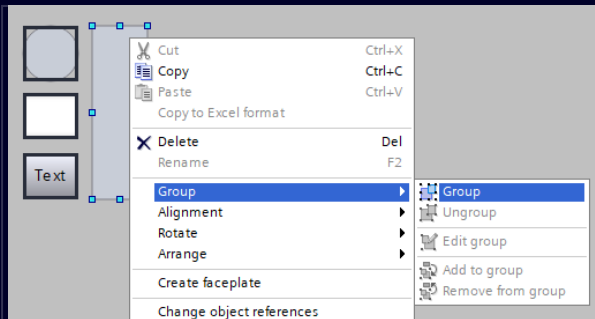
- Snap to grid functionality
- Show / hide grid
- Settings available in
 - Options / Settings / Visualization
 - Layout tab (for easy access)

Tooltip

- Show type and name of screen object



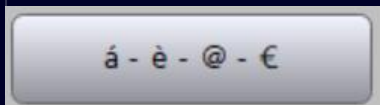
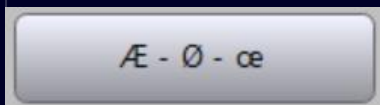
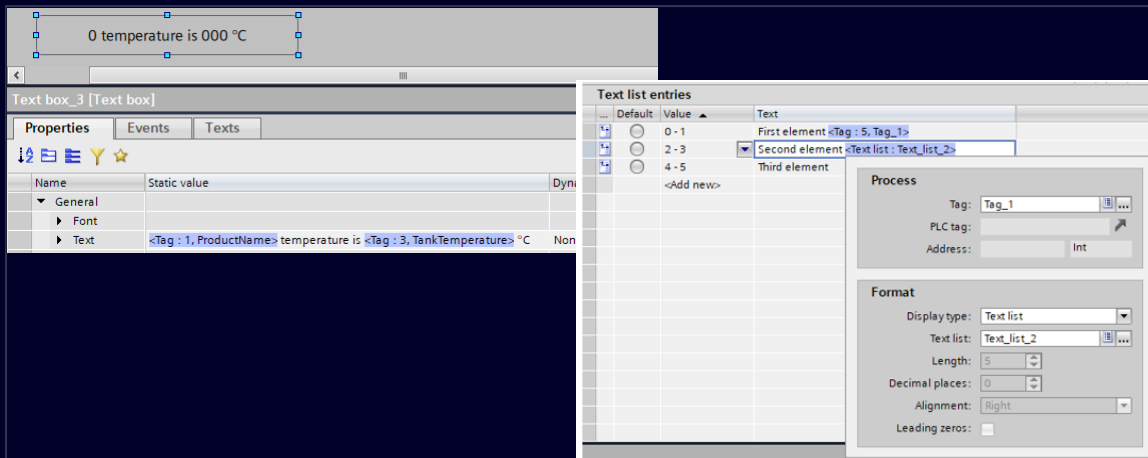
Group screen objects



Group screen items

- Group selected items
- Group in group
- Change static properties together
- Double click a group item to edit
- Group faceplate instances with other items

Formatted texts



Formatted texts

- Insert parameter fields into text properties via tags
- Insert text lists as field info text properties
 - Screen object text
 - Text list entry

Direct text input

- Support of
 - Chinese
 - Unicode characters (e.g. Alt 0198)
 - Key combinations (e.g. „´ a“)

Dynamization of screen objects



Properties

Static value

Dynamization (1)

Tag

Process

Tag: Slider_HMI_Tag_1

PLC tag:

Address:

Type

Condition

Graphic

10

20

30

40

Down_Arrow

Home

Left_Arrow

Right_Arrow

10 break;

11

12 case 20:

13 value = HMIRuntime.Resources.Graphics("GraphicCollection.Home").Name;

14 break;

15

16 case 30:

17 value = HMIRuntime.Resources.Graphics("GraphicCollection.Left_Arrow").Name;

17

Background-color

Flashing

Alternate value

Frequency

0-9

10-19

5-15

! Overlapping range values might be ambiguous in conditions of Tag Dynamization

Screens

Screen_3

Rectangle_1

The range entries of the property 'Background-color' are overlapping.

Tag

Process

Tag: myByte

PLC tag:

Address: Byte

Settings

Use indirect addressing

Read-only

Type

Bit number

Background color

Flashing

Alternative value

Frequency

0

1

2

3

4

0, 255, 0

153, 204, 0

0, 128, 0

255, 255, 153

255, 255, 0

No

No

No

No

No

255, 0, 0

255, 0, 0

255, 0, 0

255, 0, 0

255, 0, 0

Medium

Medium

Medium

Medium

Medium

Dynamization of graphic of screen objects

- Graphic properties of screen objects can be dynamized
 - Tag
 - Script

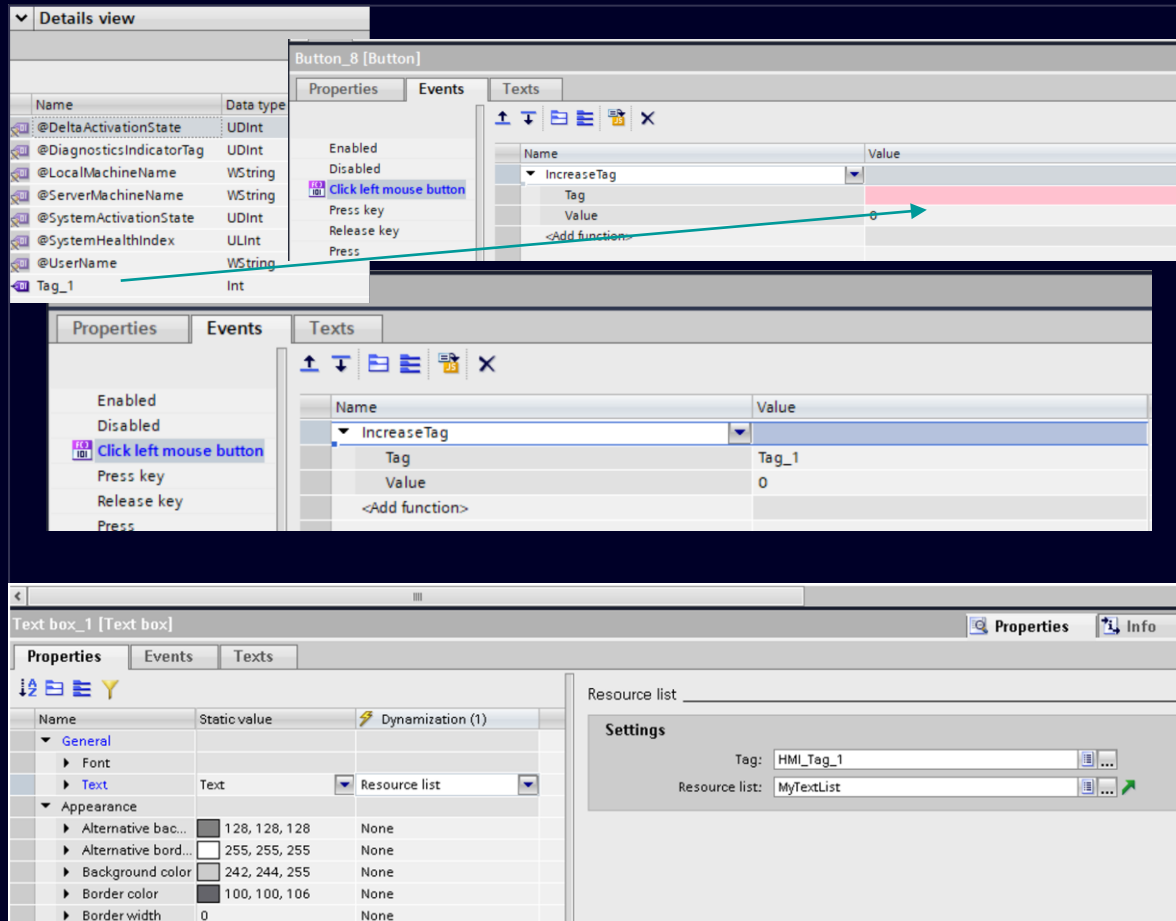
Range overlapping

- Warning for range overlapping
 - Editor warning
 - Compiler warning

Bit mask dynamization

- Use bit mask to assign a property value to each bit of a tag for dynamization

Handling of function and resource lists



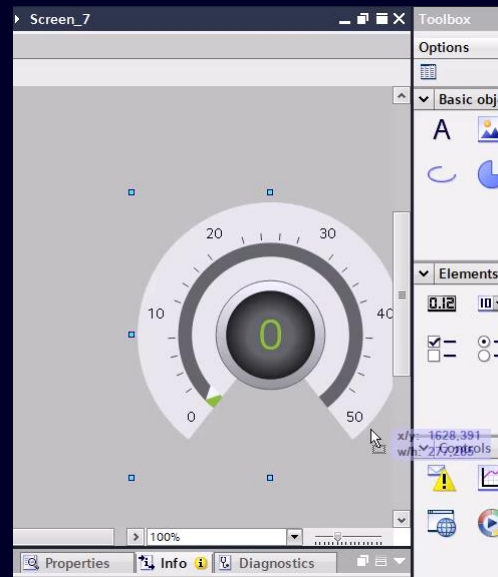
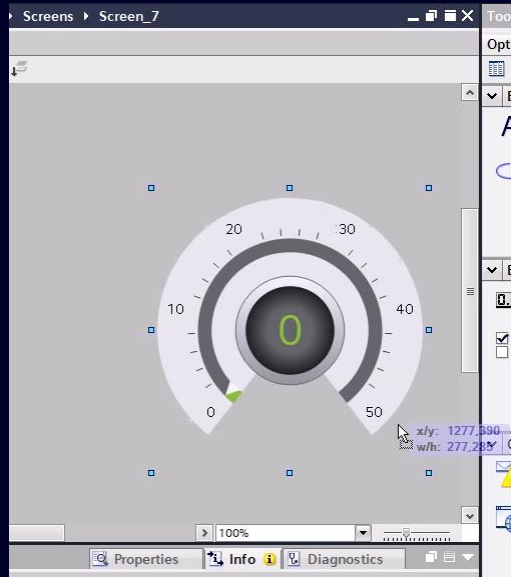
Drag and Drop of objects into function list

- Drag & drop objects from detail view
- Tags, screens, text/graphic lists

Jump to resource list

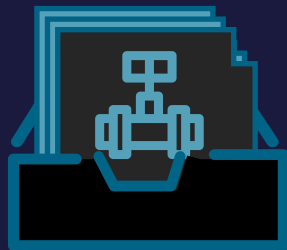
- Jump directly to the referenced resource list
- Text list / Graphic list

Screen editor auto scrolling



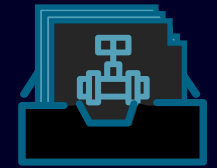
Auto scrolling

- Horizontal and Vertical auto scrolling in screen editor via mouse and keyboard arrow keys



Standardization

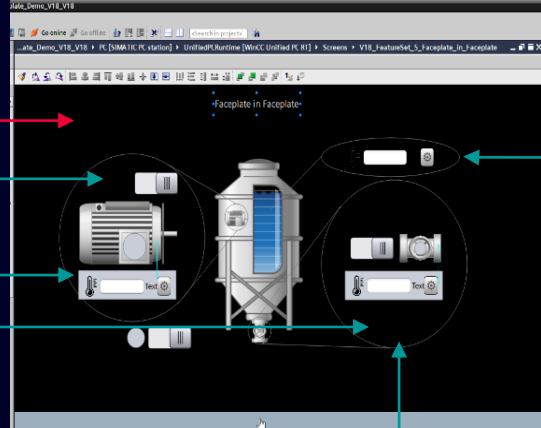
Faceplate in Faceplate



PLC UDT Structure "TANK"

	Name	Data type
1	State	Bool
2	AKZ	String
3	Motor	"Motor"
4	State	Bool
5	Temp_Sensor	"Temperature_Sens.."
6	State	Bool
7	AKZ	String
8	Temperature	Array[0..5] of Int
9	Ventil	"Ventil"
10	State	Bool
11	Temp_Sensor	"Temperature_Sens.."
12	Temp_Sensor	"Temperature_Sens.."
13	State	Bool
14	AKZ	String
15	Temperature	Array[0..5] of Int

Faceplate "TANK" with embedded Faceplates



Single Faceplates

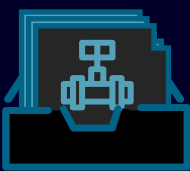


Hierarchical Faceplates

- Engineering of Faceplate in Faceplates
- Automatically connected Sub UDTs
- Central change handling via library with dependency handling
- Use case successor for „Screen in Screen“

Design nested Unified Faceplates to realize a hierarchical visualization utilizing a Data-Binding to your PLC with just a few clicks.

Faceplate in Faceplate



Faceplate “TANK” with embedded Faceplates

PLC UDT Structure “TANK”

	Name	Data type
1	State	Bool
2	AKZ	String
3	Motor	*Motor*
4	State	Bool
5	Temp_Sensor	*Temperature_Sens..
6	State	Bool
7	AKZ	String
8	Temperature	Array[0..5] of Int
9	Ventil	*Ventil*
10	State	Bool
11	Temp_Sensor	*Temperature_Sens..
12	Temp_Sensor	*Temperature_Sens..
13	State	Bool
14	AKZ	String
15	Temperature	Array[0..5] of Int

Single Faceplates

Events and internal Tags for Faceplates



Visualization			Tag interface	Property interface	Local Tags	Event Interface
Name	Data type		Description			
Event_Button_Click	Event					
ScreenName	String					
<Add New>						
<Add New>						

Event driven interaction

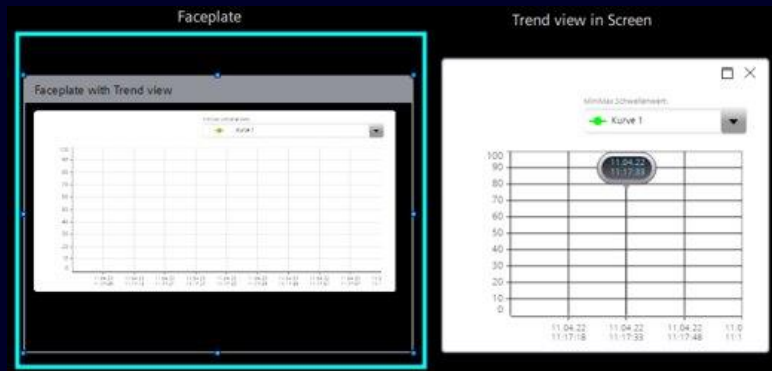
- Define Events for Faceplate types
- Use Events in Faceplates for Screen Item Events or in Scripts
- React on Events at Faceplate instances (e.g. change screen)
- Use parameters to transfer information with the events

Faceplate internal tags

- Faceplate instance specific tags
- Save data or calculations for a faceplate instance
- Use internal faceplate tags for dynamizations

Visualization			Tag interface	Property interface	Local Tags	Event Interface
Name	Data type		Description			
LokalInteger	Int					
<Add new>						

Integrate complex controls



Trend view

- Show specific Online trends in Faceplates
- Show specific historical trends in Faceplates

Alarm view

- Show specific alarms in Faceplates
- Use „configuration string properties to define an „Alarm Filter“ for Faceplate instances

Parameter Control



Parameter set type: Juice Number: 1

Parameter set: Orange Juice Number: 1

	Name	Value	Unit of measurement
1	Flavour	Orange	
2	Water	1000	
3	Flavoring Substance	100	
4	Sugar	100	
5			
6			
7			
8			
9			

Save succeeded

The Control in V16 / V17

Parameter Control



Screen Switch

Create
Creates parameter set and updates the session local tags with default values

Save
Saves edited session local tag values to ps database

Load
Loads ps elements values from database and updates session local tags

Write
Writes session local tag values to PLC tags

Update IO fields

Current PST ID: 1
Current PS ID: 1
Current PST Name: Juice
Current PS Name: Orange Juice
PS ID: 1
PS Name:
Processing Status: 4

Parameter set type: Juice
Parameter set: Orange Juice
Number: 1

	Name	Value	Unit of measurement
1	Flavour	Orange	
2	Water	1000	
3	Flavoring Substance	100	
4	Sugar	100	
5			
6			
7			
8			
9			

Session Local Tags

Flavour: Orange
Water: 1000 ml
Flavoring Substance: 100 ml
Sugar: 100 grams

PLC Tags

Flavour:
Water: 0 ml
Flavoring Substance: 0 ml
Sugar: 0 grams

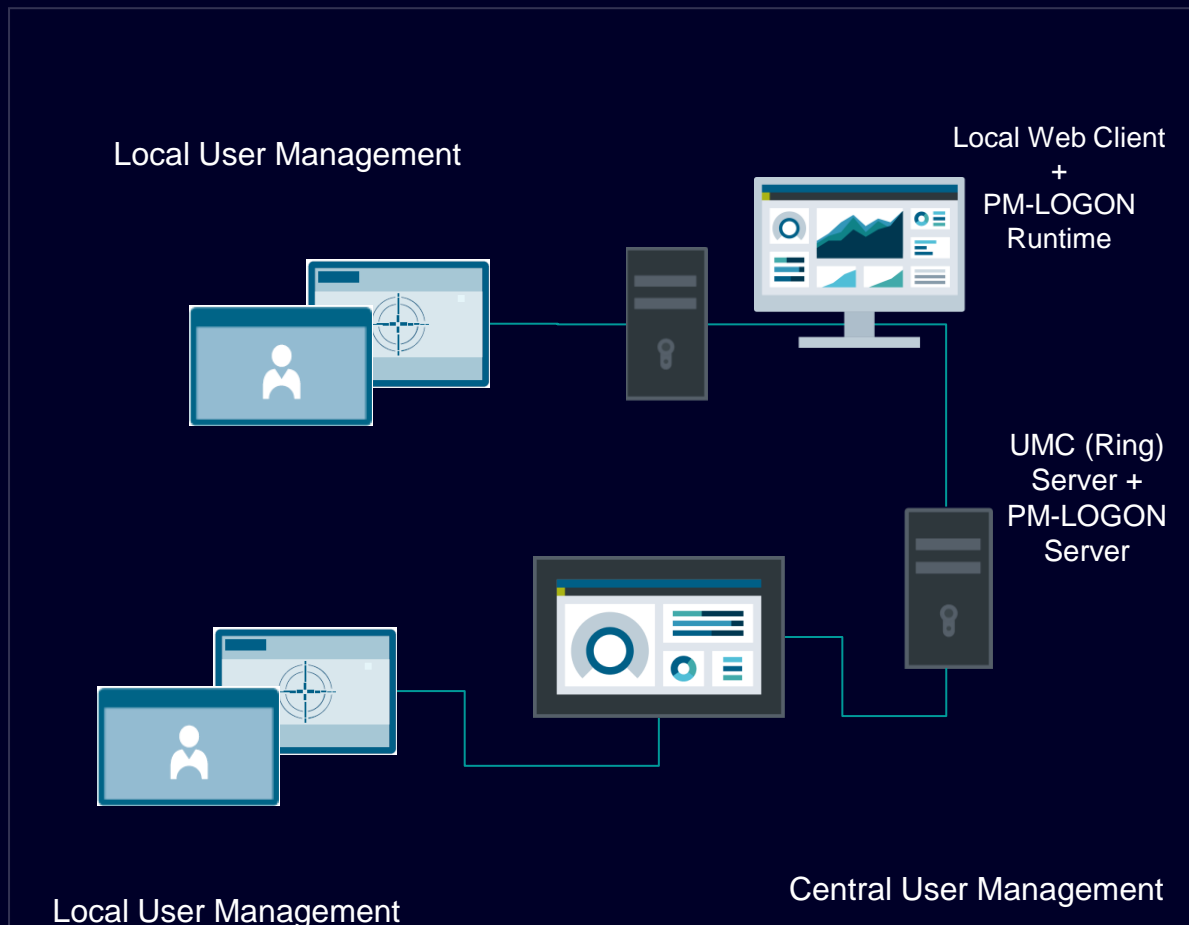
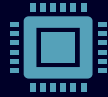
Save succeeded

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

User Management



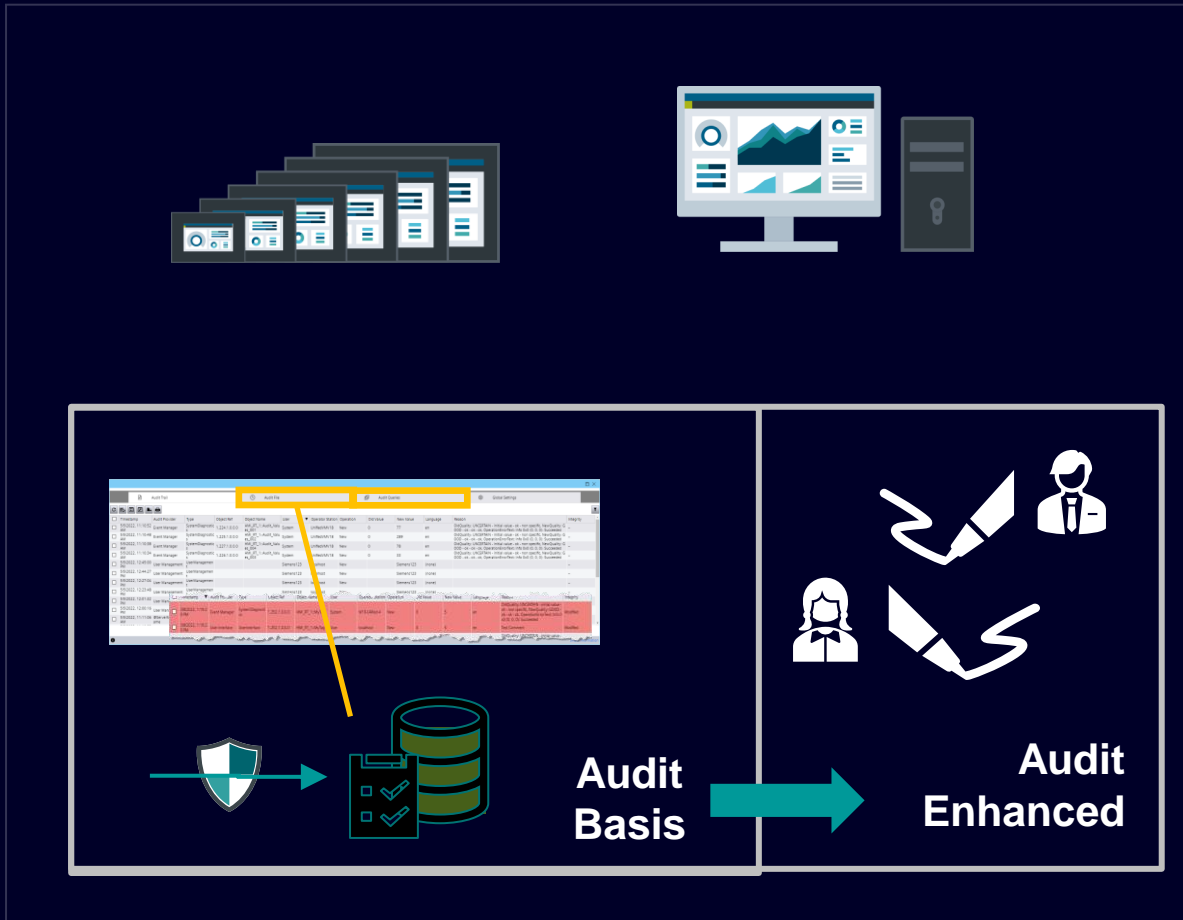
Local RFID Authentication for HMI Unified PC Runtime

- **Connect RFID Reader** to HMI Unified PC: All PM-LOGON supported RFID Readers
- **Assign cards** with PM-LOGON Configurator
- **Authenticate:** State full & state less according to configuration, push card to reader, Login w/wo additional PIN

Local RFID Authentication for HMI Unified Comfort Panel

- **Connect RFID Readers to HMI Unified Comfort Panel:** Siemens RF1040R, RF1060R, RF1070R
- **Global (PM-LOGON license required):**
 - Install and configure PM-LOGON Server & Assign cards with PM-LOGON Configurator
 - State full & state less according to configuration and reader type, Login w/wo additional PIN

Audit & Reporting



Trace process operations and GMP compliance

WinCC Unified Audit Basis (GMP compliance)

Audit Trail records for Tags, Audit Trail logs & Detection of manipulation, Audit Confirmation and Audit Trail report

- Restore Database segments, **User** management operation (Login/Logout)
- View and Analyze Audit trail (query, filter,..)
- Electronic Signature⁽¹⁾

WinCC Unified Audit Enhanced

- Double Electronic Signature⁽¹⁾

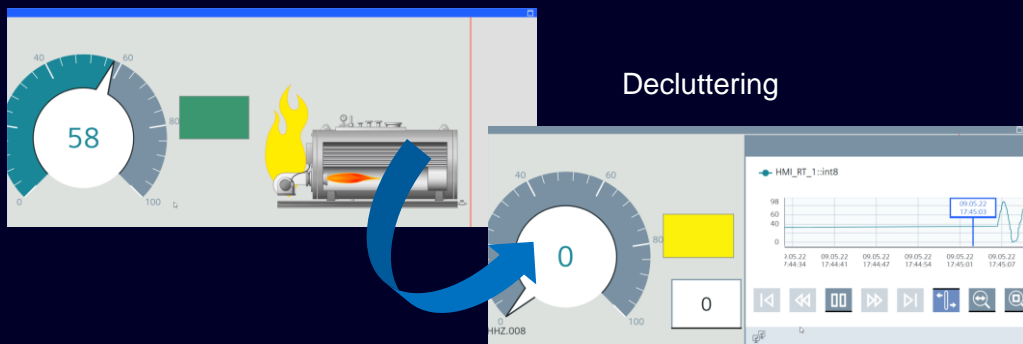
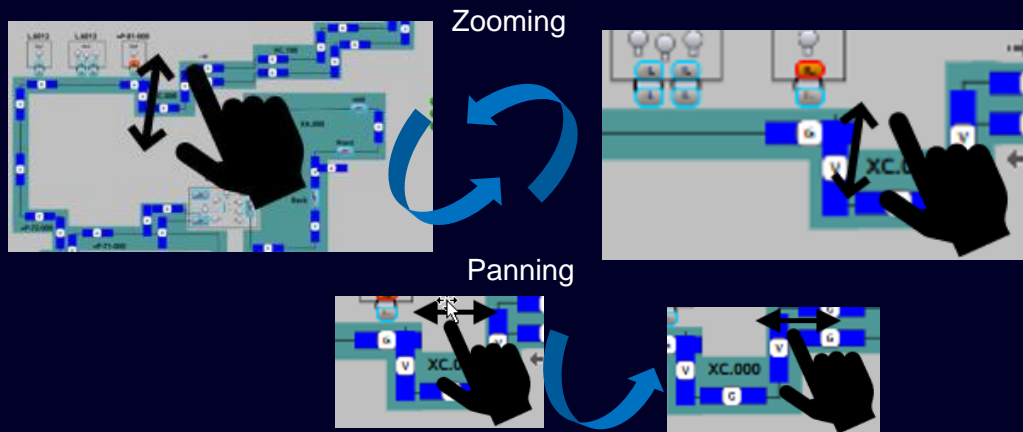
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(1) **Electronic Signature** is planned within V18 context

How did we do it ?



Zoom and Panning



Gestures enable new usage concepts to improve user experience

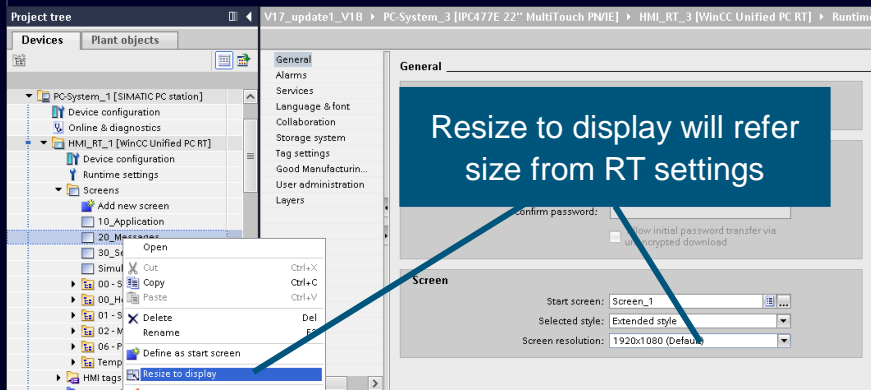
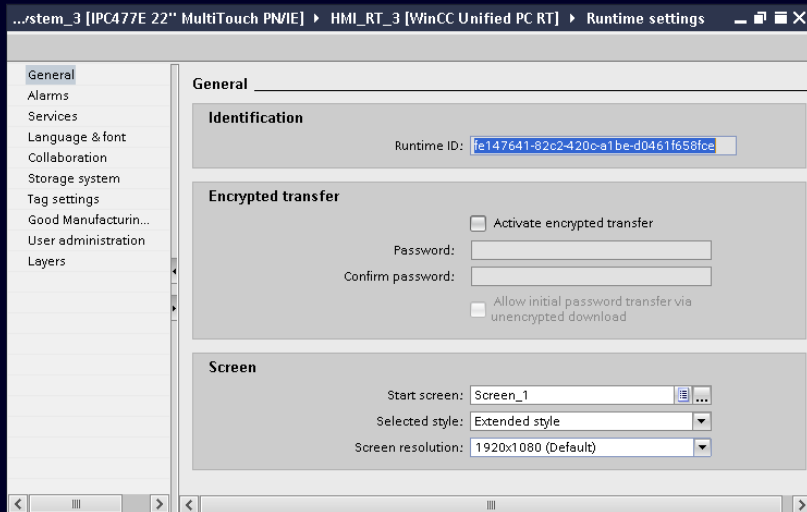
Improved user experience using gestures

- **Zoom in / out** at selected screens, in trend control,..
Effects screen windows (each screen windows separately)
- **Panning**
move zoomed area within entire screen (finger / mouse wheel)

Decluttering enables new usage concepts to improve user experience

- **Show / Hide screen layers**,
e.g. depending on process value or on zoom level all content / elements of that layer will be affected
- **Decluttering:**
show more screen details depending
on zoom factor

Efficient Engineering – Screen resolution and resize to display



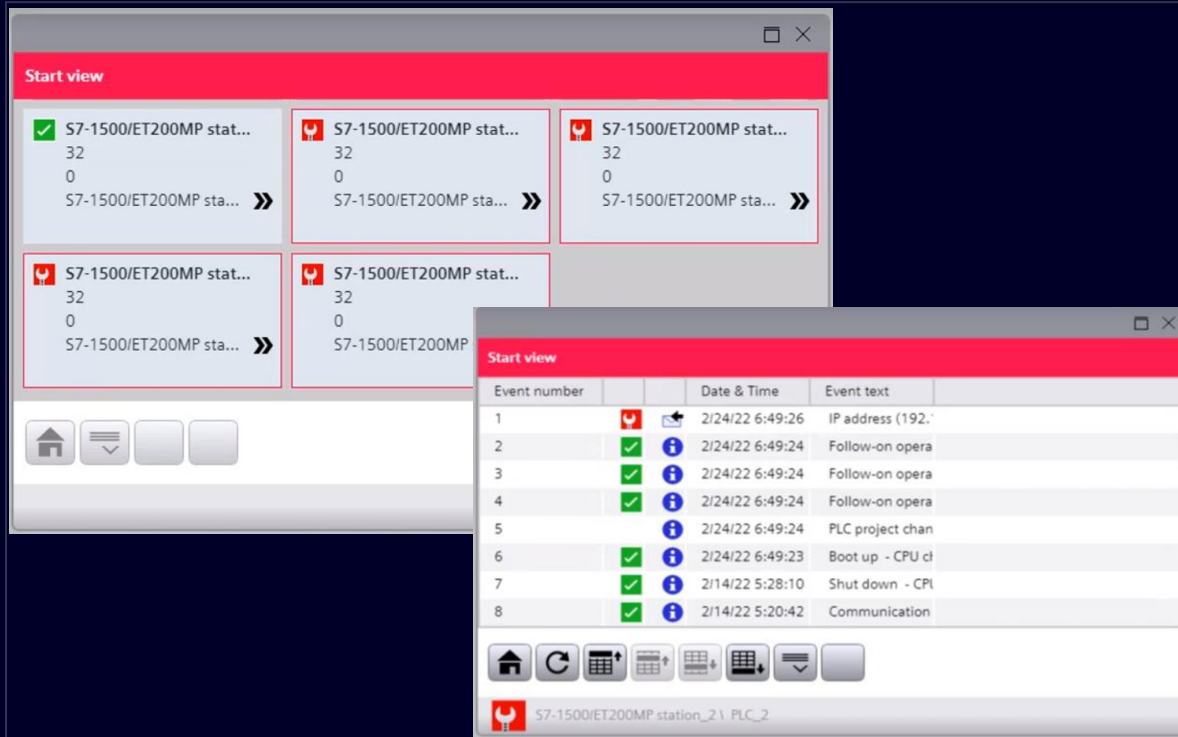
Screen resolution

- Change default screen resolution in runtime settings
- Screen resolution be applicable only for newly created screens

Resize to Display

- Configure screen resolution from runtime settings
- Resize to display will refer size from RT settings

Diagnostic



System Diagnostics

Smart and easy monitoring of the shopfloor level

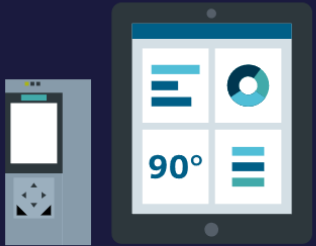
➤ Generic and automatic configured control

➤ Detailed information of

- Field bus
- I/O stations
- I/O channels
- PLC diagnostic buffer

The Family

WinCC Unified
View of Things



Unified
Comfort Panel

WinCC
Unified PC



Industrial
Edge



Clients
1 Operator
Included



Clients
1 Monitor
1 Operator
Included

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