# WinCC Unified V18

Mange nye features...





## Dagens værter

Kim Meyer-Jacobsen Per Møller Hemmingsen







• WinCC Unified V18 x 310 nyheder

# Et udpluk







WinCC Unified PC (UPC)



Unified Comfort Panel (UCP)



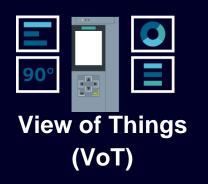
**Based on Web Technologies** 

Access from everywhere

Edge enabled











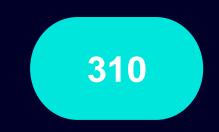
Web client (HTML5)





### New features in Unified V18

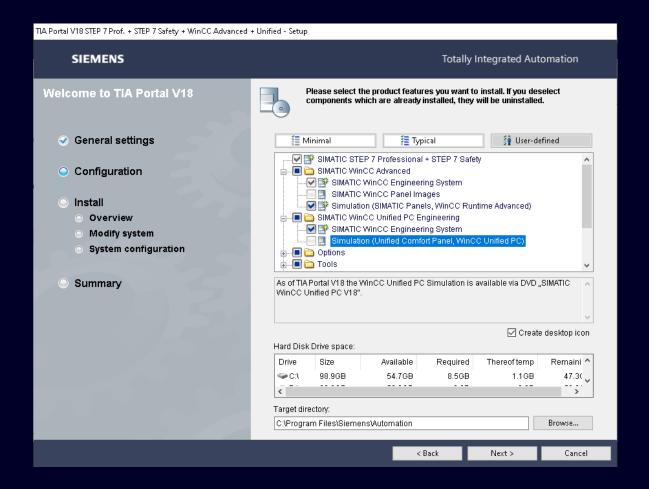




Hundreds of extensions and improvements to discover

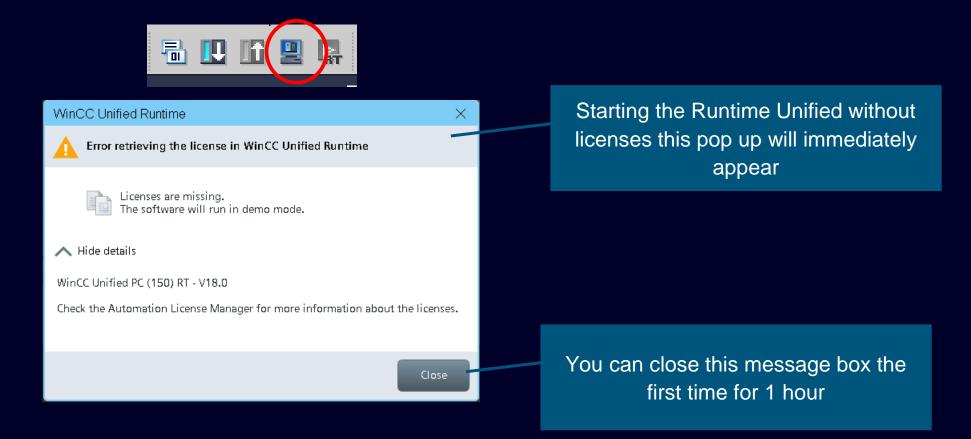


### Installation





### Simulation of Panel and PC projects







### TIA Portal V18 Grace Period Offer

SUS <u>Download</u> 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.

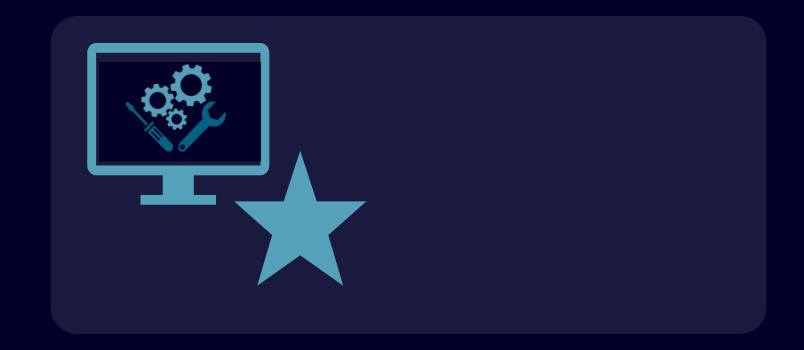


Keep YOUR engineering and runtime software up-to-date.





### Efficient Engineering





### A lot of properties !





### Favorites for properties



Button_2 [Button]											
Properties Events	Texts										
i2 E E Y ☆											
Name Static value 💋 Dynamization (2)											
<ul> <li>General</li> </ul>											
<ul> <li>Contents</li> </ul>											
<ul> <li>Graphic</li> </ul>			None								
<ul> <li>Graphic - Pressed but</li> </ul>	itton		None								
Text		1	Tag								
Text - pressed buttor	ı		None								
<ul> <li>Appearance</li> </ul>											
Appearance - style it	em	HmiButton									
<ul> <li>Background - alterna</li> </ul>	ative color	128, 128, 128	None								
Background - color		242, 244, 255	Tag								
<ul> <li>Border - alternative</li> </ul>	color	255, 255, 255	None								
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Bord Add to favo	rites	1	None 💌								
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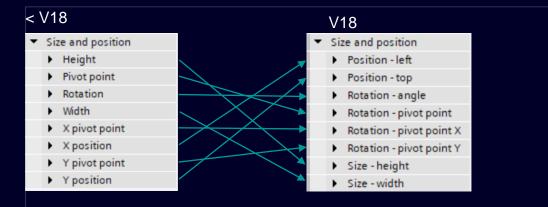
Button_2 [Button]		
Properties Events Texts		
i2 🖻 🖿 Y 😭		
Name	Static value	Dynamization (2)
▼ General		
Contents		
<ul> <li>Graphic</li> </ul>		None
<ul> <li>Graphic - Pressed button</li> </ul>		None
Text	1	Tag
Text - pressed button		None
<ul> <li>Appearance</li> </ul>		
Appearance - style item	HmiButton	
<ul> <li>Background - alternative color</li> </ul>	128, 128, 128	None
Background - color	242, 244, 255	Tag
Border - alternative color	255, 255, 255	None
Border - color	100, 100, 106	None
Border - width	1	None
Focus - show visual		None None
Font		
Foreground - color	0.0.0	None 💌
<ul> <li>Opacity</li> <li>Add to fav</li> </ul>		None
<ul> <li>Format</li> <li>Format</li> </ul>		
<ul> <li>Spacing</li> <li>Copy prop</li> </ul>	erty name h	
Bottom	2	None

orite Properties			
ws the favorite configurati	ion of screen item controls. System-defined favorites and User-define	d favorites can be imported and exported under Options > Set	ttings > General > Import/Export
tings	,		
e:			
he '(+)' symbol in Ver-defi	ined favorites indicates new favorite property is added.		
he '(-)' symbol in User-defir	ned favorites indicates favorite property is removed from System-def	ned favorites.	
Screen object	System-defined favorites	User-defined favorites	
Alarm control	Alarm control.Columns, Function bar.Elements, Alarm source, Fi		^
Bar	Process value indicator - mode, Scale, Process value, Bar mode, L		
Button	Text, Background - color, Position - left, Position - top, Graphic,	(+) Spacing.Position - top	
Check box	Selection items, Process value, Font, Size - width, Size - height, N.		=
Circle	Background - color, Border - color, Radius, Center X, Center Y, Vi		
Circle segment	Angle - start, Angle - range, Radius, Background - color, Center X		
Circular arc	Angle - range, Angle - start, Line - width, Radius, Center X, Cente		
Clock	Clock face - mode, Hand - show seconds, Hand - show minutes,		
Custom control	Size - width, Size - height, Name, Interface		
Dynamic SVG	Size - width, Size - height, Name, Interface		
Parameter set control	Fixed parameter set type, Function bar.Elements, Parameter vie		
Ellipse	Background - color, Border - color, Radius X, Radius Y, Center X,		
Ellipse segment	Angle - start, Angle - range, Radius X, Radius Y, Background - col		
Elliptical arc	Angle - range, Angle - start, Line - width, Radius X, Radius Y, Cen		
Faceplate container	Size - width, Size - height, Name, Interface		
Function trend control	Function trend - areas, Function bar.Elements, Size - width, Size		
Gauge	Scale, Process value indicator - mode, Process value, Normal ran.		
Graphic view	Granhic Size - width Size - height Visibility Rotation - angle Po		~
			Reset to default

#### **Favorites for screen / screen object properties**

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

### Order of properties and renaming layers



Project tree	III ◀ myV18Project ▸ PC	-System_1 [SIMATIC PC station]  HMI_RI	[_1 [WinCC Unified PC RT]   Runtime settings	_ • •	
Devices Plant objects					
24) 24)	General	Lavers			
	Alarms	Layers			
Add new device	Services	Default layer names			
Devices & networks	Language & font	Name			
<ul> <li>PC-System_1 [SIMATIC PC station]</li> </ul>	Collaboration	1 00_BaseLayer	Layout	- □ •	Т
Pevice configuration	Storage system	2 01_ScreenWindowLayer	Layout		
Online & diagnostics	Tag settings	3 02_PopUpLayer	Options		A
🕴 🔻 📄 HMI_RT_1 [WinCC Unified PC RT]	Good Manufacturin	4 03_IntroLayer	options		-11
Device configuration	User administration	5 Layer_4			1 001000
📍 Runtime settings	Layers	6 Layer_5			
🔻 📄 Screens		7 Layer_6	✓ Layers		
💕 Add new screen		8 Layer_7			7
Screen_1		9 Layer_8	Creen_9		1
Screen_2		10 Layer_9	g 00_BaseLayer	2 👁	
Screen_7		11 Layer_10	Ø1_ScreenWindowLayer		12
Group_1		12 Layer_11			Luyout
🕨 🔚 HMI tags		13 Layer_12	Ø2_Pop Up Layer		
😋 Connections		14 Layer_13	🥌 03_IntroLayer		
🖂 HMI alarms		15 Layer_14	≝ Layer_4		11
Parameter set types		16 Layer_15			lle.
Logs			≝ Layer_5	•	E
5 Scheduled tasks		>	≝ Layer_6	•	
💌 📴 Seriete			S Layer_7		

#### New order of properties

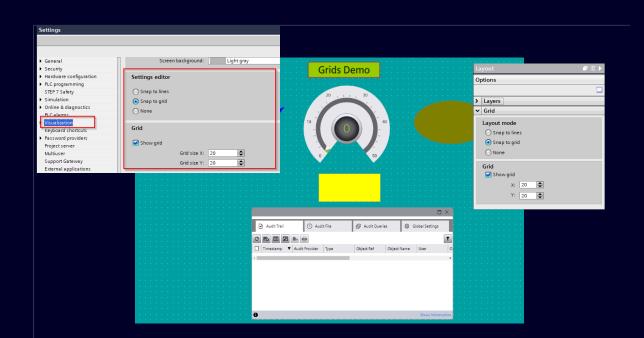
- Changed translation of properties
- Better grouping of related properties

#### **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)

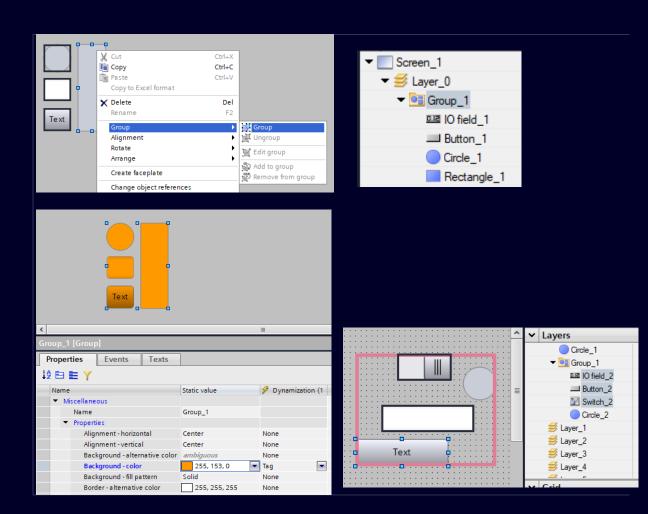
#### **Tooltip**

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



**SIEMENS** 

• 0 te	emperature is C	000 °C	1											
	0		ı											
<						Т	xt list e	ntries						
Text box_3 [Tex	kt box]					_		Value 🔺	Te	vt.				
Properties	Events	Texts				1		0-1		st element <ta< th=""><th>ag:5,Tag 1&gt;</th><th></th><th></th><th></th></ta<>	ag:5,Tag 1>			
12 E 🖿 Y	~					-	ŏ	2 - 3			<text :="" list="" text_lis<="" th=""><th>t_2&gt;</th><th></th><th></th></text>	t_2>		
						1	0	4 - 5	Th	ird element				
Name	Static value	2			D	/ni		<add new=""></add>			Process			
<ul> <li>General</li> </ul>												Tag:	Tag_1	0
Font											1	PLC tag:		
Text	<tag 1,="" :="" pr<="" th=""><th>oductName&gt; ten</th><th>perature is <tag< th=""><th>: 3, TankTempera</th><th>ature&gt; °C N</th><th>on</th><th></th><th></th><th></th><th></th><th>A</th><th>ddress:</th><th></th><th>Int</th></tag<></th></tag>	oductName> ten	perature is <tag< th=""><th>: 3, TankTempera</th><th>ature&gt; °C N</th><th>on</th><th></th><th></th><th></th><th></th><th>A</th><th>ddress:</th><th></th><th>Int</th></tag<>	: 3, TankTempera	ature> °C N	on					A	ddress:		Int
											Format			
												ay type :	Text list	
														1
													Text_list_2	1
												Length:		
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and the second s														
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#### **Formatted texts**

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

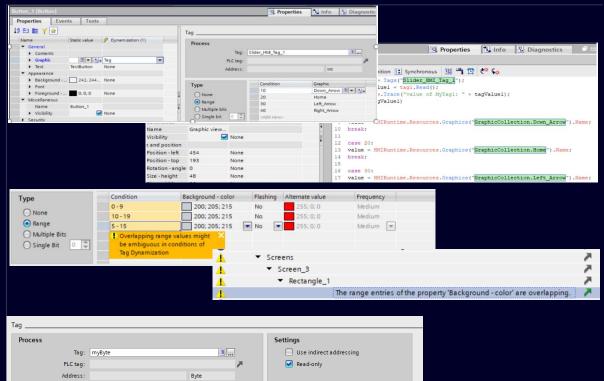
#### **Direct text input**

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

### Dynamization of screen objects



SIEMENS



P	Tag: U LC tag:					Use indirect addressing Read-only		
Ac	ddress:		Byte					
Гуре		Bit number	Background color	Flashing	Alternative value	Frequency		
		0	0, 255, 0	No	255, 0, 0	Medium		
O None		1	153, 204, 0	No	255, 0, 0	Medium		
Range		2	0, 128, 0	No	255, 0, 0	Medium		
💽 Bit mask		3	255, 255, 153	No	255, 0, 0	Medium		
Single bit	1	4	255, 255, 0	No	255, 0, 0	Medium		
		2	are and a			11 B	>	

#### **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



SIEMENS

~	Details view																	
		1	Button_8	Button														
			_			_	_											
	Name	Data type	Propertie	es Eve		Texts			- 1									
	@DeltaActivationState	UDInt			-    -	t Ŧ		E	à X									
·	@DiagnosticsIndicatorTag	UDInt	Enable	ed		Nam	ne						Value					
	@LocalMachineName	WString	Disabl	ed				aseTag				-	Volue					
	@ServerMachineName	WString		eft mouse bu	itton		Ta	ig -										
20	@SystemActivationState	UDInt	Press					alue					0					
	@SystemHealthIndex	ULInt	Releas	е кеу			<add< th=""><th>functio</th><th>12</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></add<>	functio	12									
	@UserName	WString	TTESS															
-	Tag_1	Int																
	Descetion	Events	Tauda	_			_				-					_		_
	Properties	Events	Texts															
			<u>↑</u> ∓	E 🖹 🖁	诸 🗙													
	Enabled																	_
			Nam	e								alue						
	Disabled	1.00	<b>•</b> •	ncreaseTa	9					-								
	Click left mous	e button		Tag							Т	ag_1						
	Press key			Value							0	)						
	Release key			<add functi<="" th=""><th>ion&gt;</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></add>	ion>													
	Press																	
<u>.</u>																		
<			_		_	_	-	_	_	_		_		-		_	-	
Te>	t box_1 [Text box]													10	Vroper 🕻	ties	1	nfo
P	roperties Events	Texts																
12								Res	ource lis	:t								
	Name	Static value	1	🖲 Dynamiza	ation (1)			S	ettings									
	<ul> <li>General</li> </ul>							J	econgs									
	Font		_			_	-11					HMI_Tag_1						
		Text	F F	lesource list		-	-11			Resource li	ist:	MyTextList					/	*
	<ul> <li>Appearance</li> <li>Alternative bac</li> </ul>	128, 128, 1					-11											_
	<ul> <li>Alternative bac</li> <li>Alternative bord</li> </ul>	255, 255, 2		lone lone														
	<ul> <li>Background color</li> </ul>			None														
	Border color	100, 100, 1		None														
		0		lone														

#### **Drag and Drop of objects into function list**

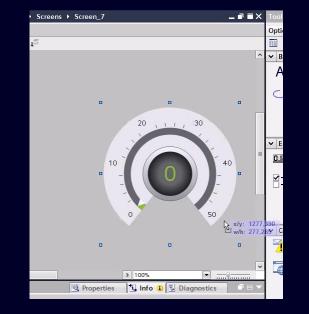
- Drag & drop objects from detail view
- Tags, screens, text/graphic lists

#### 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

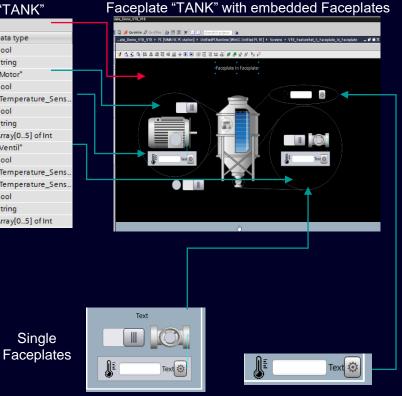


### Faceplate in Faceplate



#### PLC UDT Structure "TANK" Tank Name Data type -00 State Bool String -001 \*Motor Bool -"Temperature\_Sens -Sensor Bool -State -00 AKZ String Temperature Array[0..5] of Int "Ventil ) - 💷 Bool "Temperature Sens. Temp Sensor \*Temperature Sens. 2 🕣 Temp Sensor State Bool 3 - 100 4 📶 AKZ String 15 📶 🔹 🕨 Temperature Array[0..5] of Int

Sinale



#### **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"

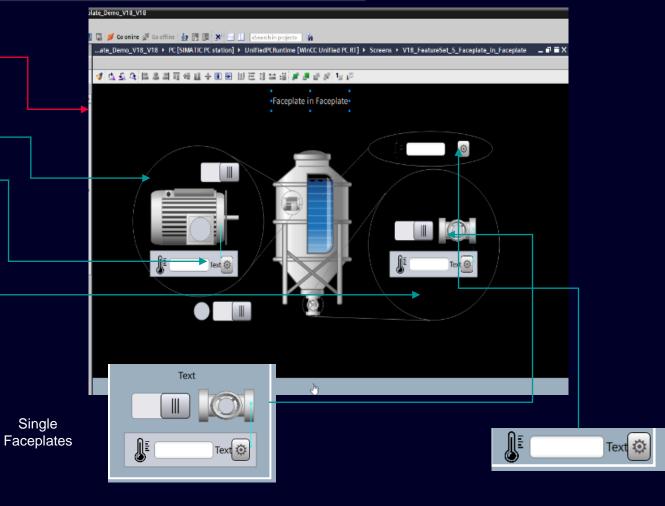
Design nested Unified Faceplates to realize a hierarchical visualization utilizing a Data-Binding to your PLC with just a few clicks.

### Faceplate in Faceplate



#### Faceplate "TANK" with embedded Faceplates

			PLC UDT Structure "TAN	K"
	Tai	nk		
_		Name		Data type
1		St	ate	Bool
2	-00	Ak	Z	String
з	-00	▼ M	otor	"Motor"
4	-00	•	State	Bool
5	-00	• •	Temp_Sensor	"Temperature_Sens
6	-00		State	Bool
7	-00		AKZ	String
8	-00		Temperature	Array[05] of Int
9	-00	▼ Ve	entil	"Ventil"
10	-00	•	State	Bool
11	-00	• •	Temp_Sensor	"Temperature_Sens
12	-00	▼ Te	mp_Sensor	"Temperature_Sens
13	-00	•	State	Bool
14	-00	•	AKZ	String
15	-	• •	Temperature	Array[05] of Int





### **Events and internal Tags for Faceplates**



(	Visualization	Tag interface	Property interface	Local Tags	Event Interface
-	≣x ± ∓				
	Name	Data type	Descript	tion	
	<ul> <li>Event_Button_Click</li> </ul>	Event			
	ScreenName	String			
	<add new=""></add>				
	<add new=""></add>				
	<add new=""></add>				

		Visualization	Tag interface	Property interface	Local Tags	Event Interface
	Name 🔺	Data type				
-	Lokalinteger	Int				
	<add netwo<="" td=""><td></td><td></td><td></td><td></td><td></td></add>					

#### **Event driven interaction**

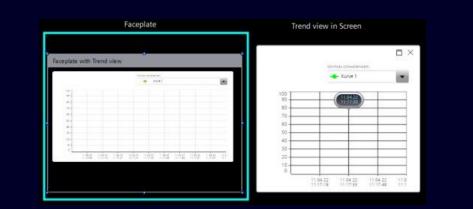
- Define Events for Faceplate types
- Use Events in Faceplates for Screen Item Events or in Scripts
- React on Events at Faceplate instances (e.g. change screen)
- Use parameters to transfer information with the events

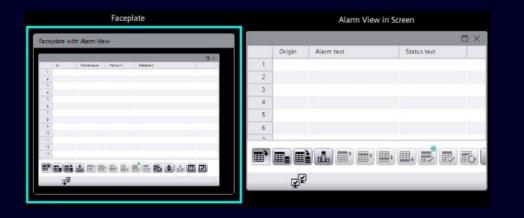
#### **Faceplate internal tags**

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

### 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



**SIEMENS** 

arameter	set type	Number		
Juice	luice 👻			
arameter set		Number		
Orange	Juice	• 1		
	Name		Value	Unit of measurement
1	Flavour		Orange	
2	Water		1000	
з	Flavoring Substance		100	
4	Sugar		100	
5				
6				
7				
8				
9				

#### The Control in V16 / V17

### Parameter Control



Scree	en Switch	Creates pa updates the	Create arameter set and e session local tags default values	Save Saves edited sess tag values to ps o		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						×	Session Local Tags	
Current PS ID	1	Parameter Juice	set type	Number			Flavour	Orange	
Current PST Name	Juice	Parameter : Orange J		Number			Water	1000	ml
Current PS Name	Orange Juice		Name		Value	Unit of measurement	Flavoring Substance	100	ml
		1	Flavour Water		Orange 1000		Sugar	100	grams
PS ID	1	3	Flavoring Substance	l.	100			_	
PS Name		4	Sugar		100			PLC Tags	
		6					Flavour		
Processing Status	4	7					Water	0	ml
		9					Flavoring Substance	0	ml
		*	₿₿₽₽		<del>د</del> ±	â	Sugar	0	grams
				Save su	ceeded			Activate Windo	ws

#### 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





#### **Iocal 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
     SIEMENS

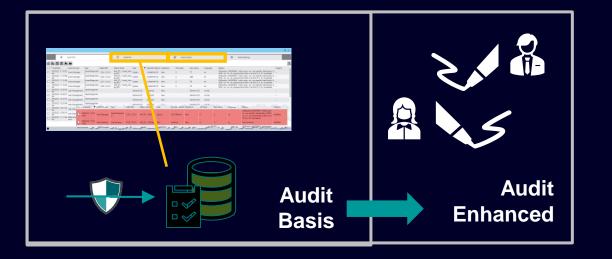


Central User Management

### 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<sup>(1)</sup>

#### WinCC Unified Audit Enhanced

Double Electronic Signature<sup>(1)</sup>

(1) Electronic Signature is planned within V18 context

### How did we do it ?





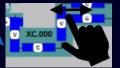
### Zoom and Panning

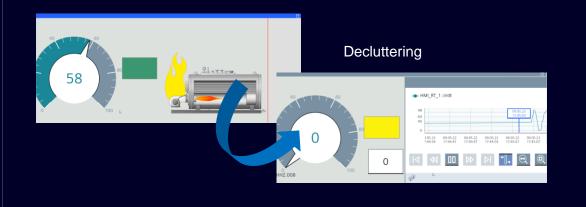




Panning







### 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

/stem_3 [IPC477E 22" Mu	ItiTouch PN/IE] → HMI_RT_3 [WinCC Unified PC RT] → Runtime settings 🛛 🗕 🖬 🗮 🗙
General	Seneral
Alarms	
Services	Identification
Language & font	Runtime ID: fe147641-82c2-420c-a1be-d0461f658fce
Collaboration	
Storage system	
Tag settings	Encrypted transfer
Good Manufacturin	Activate encrypted transfer
User administration	Password:
Layers	
-	Confirm password:
	Allow initial password transfer via
-	unencrypted download
	Screen
	Start screen: Screen_1
	Selected style: Extended style
	Screen resolution: 1920x1080 (Default)
<	
Project tree	□
Devices Plant objects	a vi/_apualet_vib / resystem_s (rearrie zz match ouch rivit) / mm_kt_s (vince on rive rekt) / kandine
1 Mile Sujeco	General General
	Alarms General
<ul> <li>PC-System_1 [SIMATIC PC station]</li> </ul>	J Services Language & font
Device configuration	
<ul> <li>Conine &amp; diagnostics</li> <li> <ul> <li>Image: Second Se</li></ul></li></ul>	Collaboration Storage system Resize to display will refer
Device configuration	- Tag settings
Y Runtime settings	Good Menufacturin Size from RT settings
<ul> <li>Screens</li> <li>Add new screen</li> </ul>	Layers
10_Application	Low initial password transfer via
20_Messanes Open	un norypted download
Simul X Out	Ctrl+X
🕨 📴 00 - S 🏥 Copy	Ctrl+C Screen
▶ 100_H 11 Paste	Ctrl+V Start screen: Screen_1
<ul> <li>1 - S X Delete</li> <li>2 - M Rename</li> </ul>	Del Selected style: Extended style
🕨 🔚 06 - P 💕 Define as sta	Screen resolution: 1920x1080 (Default)
Ear Temp     Resize to disp	

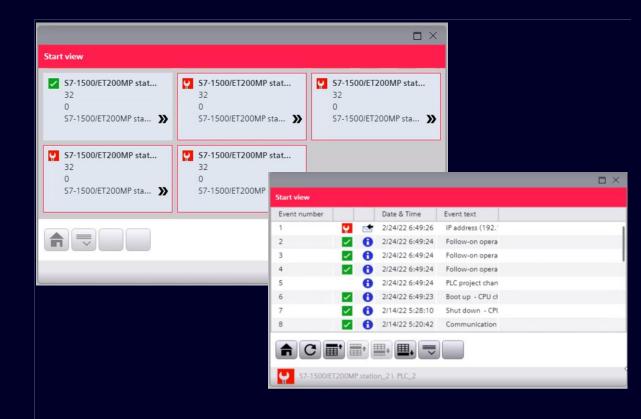
#### **Screen resolution**

- 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**

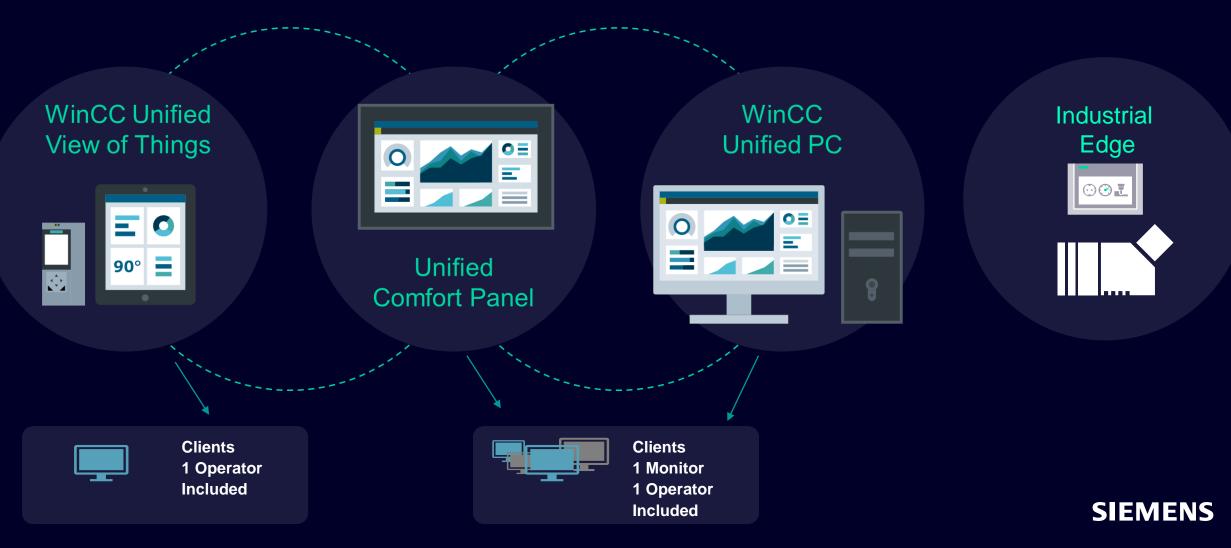
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### The Family



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