SIEMENS

# SIMATIC HMI

# WinCC Unified
# "WinCC Unified" Getting Started - First-Time Users

**System Manual**

Online documentation


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**04/2023**
Online documentation

## Legal information

### Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

**⚠ DANGER**

indicates that death or severe personal injury **will** result if proper precautions are not taken.

**⚠ WARNING**

indicates that death or severe personal injury **may** result if proper precautions are not taken.

**⚠ CAUTION**

indicates that minor personal injury can result if proper precautions are not taken.

**NOTICE**

indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

### Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

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We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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# Welcome

1

## Welcome to Getting Started

This Getting Started shows you the first steps in configuration of the user interface for an HMI device and basic procedures in WinCC Unified. You will become familiar with the most important configuration steps:

- Creating a project
- Adding an HMI device and controller
- Configuring hardware settings
- Creating an HMI connection
- Creating tags
- Configuring screens
- Configuring a screen change
- Manage users and roles
- Downloading and simulating the project

While working on Getting Started, you will create a small project that will be expanded with each completed chapter. You can find the complete project at the Siemens Industry Online Support (SIOS) (https://support.industry.siemens.com/cs/ww/en/view/109813335) website under Entry ID: 109813335

## Requirements for working with Getting Started

To be able to work with the Getting Started, installation of the following software is required:

- TIA Portal V18, especially WinCC Unified.

To be able to test your project in simulation, installation of the following software is required:

- WinCC Unified Runtime V18

To be able to test your project on an HMI device, a Unified Comfort Panel is required.

**Note**

When installing the various TIA Portal products, ensure you use the same versions of service packs and updates.

## Getting Started guide for WinCC Unified

The Getting Started guide (https://www.siemens.com/global/en/products/automation/simatic-hmi/wincc-unified/getting-started.html) for WinCC Unified supports you in getting started with or migrating to WinCC Unified.

In compact form, you will receive tips on the optimal use of WinCC Unified as well as information on restrictions and free downloads.

# Creating a project

# 2

The project is the basis for the configuration of the user interface. Projects contain data and programs that are created during the creation of an automation solution.

The data summarized in a project includes, for example:

- Hardware configuration data and parameter assignment data for modules
- Configuration data for communication over networks
- Configuration data for devices

In the project, you create and configure basic objects that are required to operate and monitor a plant, e.g.:

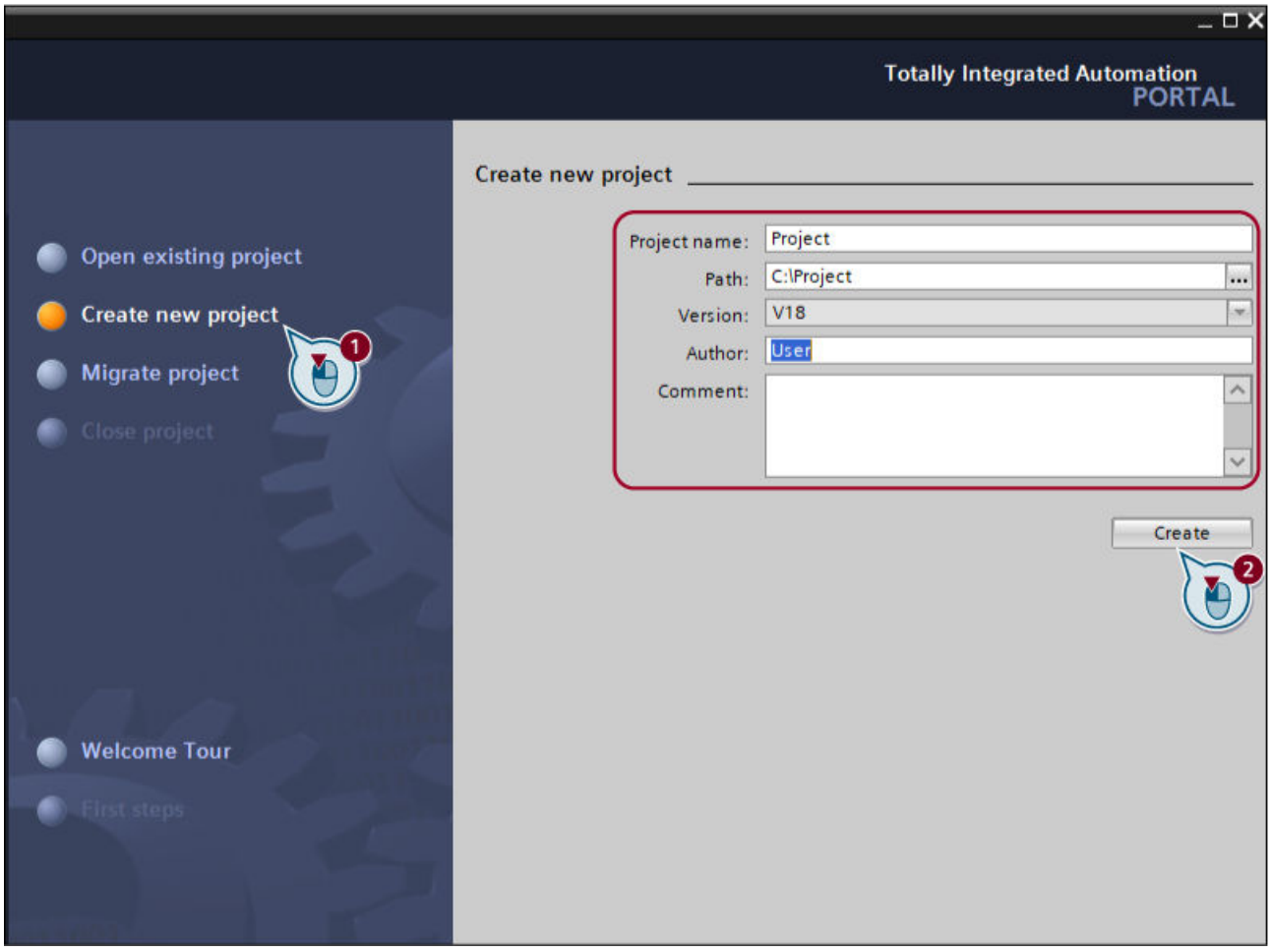
- Screens for representing and operating a plant
- Tags to temporarily store data or to transfer data between the HMI device and the plant.
- Alarms for displaying errors on the HMI device

## Creating a new project

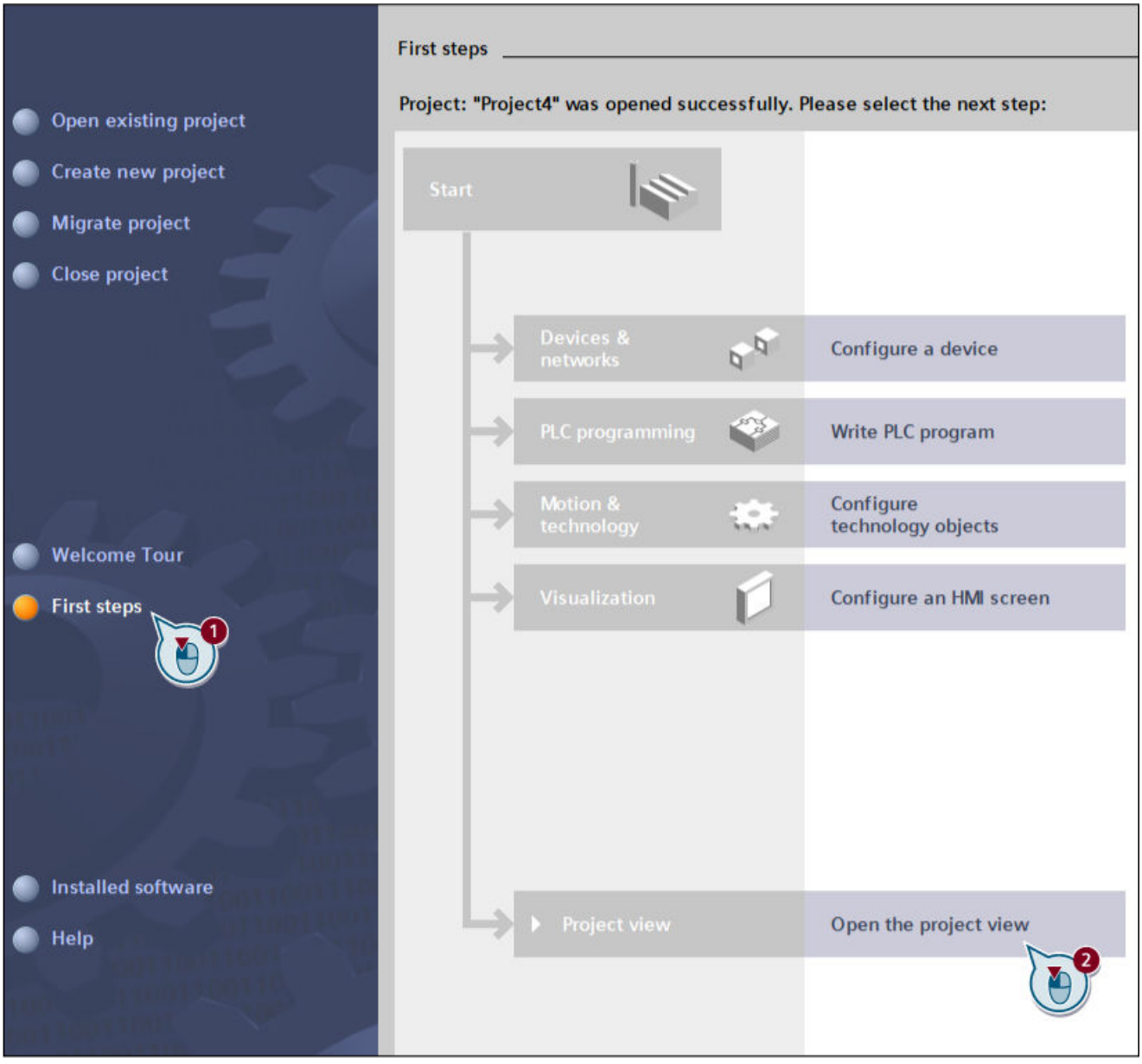
Create a new project for the example project.

1. Start TIA Portal V18. The Portal view opens. Create, open and migrate projects in the Portal view.
2. Click "Create new project".

3. Enter important information about your project in the "Create new project" area:
   - Assign the project name.
   - Specify a folder, e.g. C:\Project, where the project is to be stored.
   - Optionally, enter the author.
   - Optionally, add a comment that helps to understand the documentation of your project, for example.
   - Click the "Create" button.




4. Open the Project view for the further steps.
   - Click "Getting started".
   - Click "Open the project view"




**Note**

You can reopen a created project at any time via "Open existing project".

# The Project view

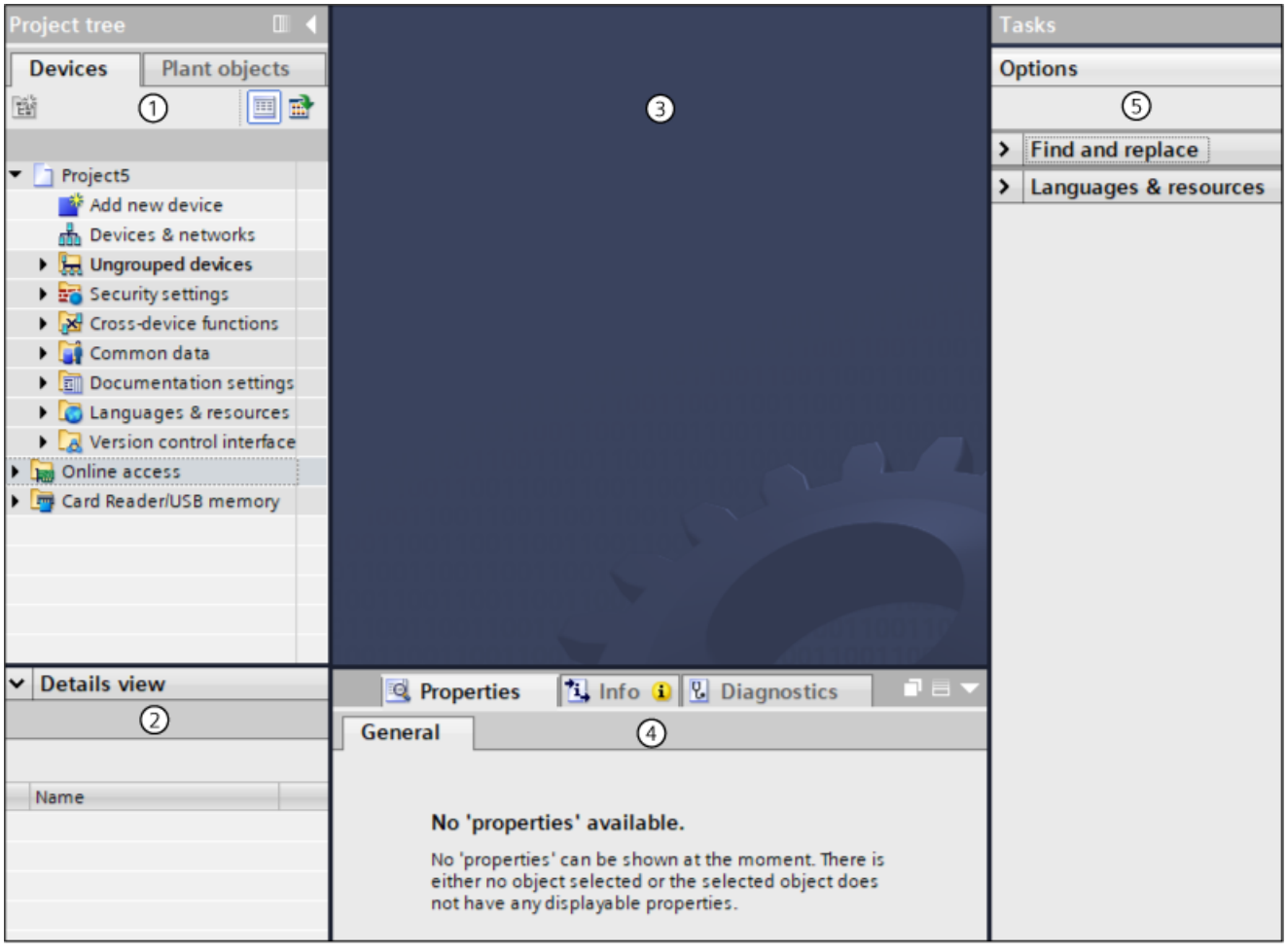
3

The Project view is a structured view of all components of the project.

## Project view

The Project view contains the following areas:

- Project tree
- Detail view
- Work area
- Inspector window
- Task cards



① Project tree

In the project tree, you can see your entire project arranged hierarchically. The project tree provides you access to all components and project data. You can perform the following actions in the project tree, for example:

- Add new components.
- Edit existing components.
- Query and modify the properties of existing components.
- Add folders to clearly group your project data. Note that this is not possible in every area.

② Detail view

In the Detail view, certain contents of a selected object are displayed in the overview window or in the project tree. Contents might be, for example, text lists or tags.

③ Work area

The work area displays the objects that you open for editing. These objects are, for example:

- Editors and views
- Tables

④ Inspector window

The Inspector window shows additional information about a selected object or about performed actions.

- You can view or change properties of a selected object.
- You can get information about performing actions, e.g. compiling the project.

⑤ Task cards

Depending on the edited or selected object, task cards are available for you to perform further actions, e.g.:

- Select objects from a library or from the hardware catalog.
- Find and replace objects in the project.
- Drag pre-defined objects to the work area.

More complex task cards are divided into palettes. The functions available to you depends on the installed products.

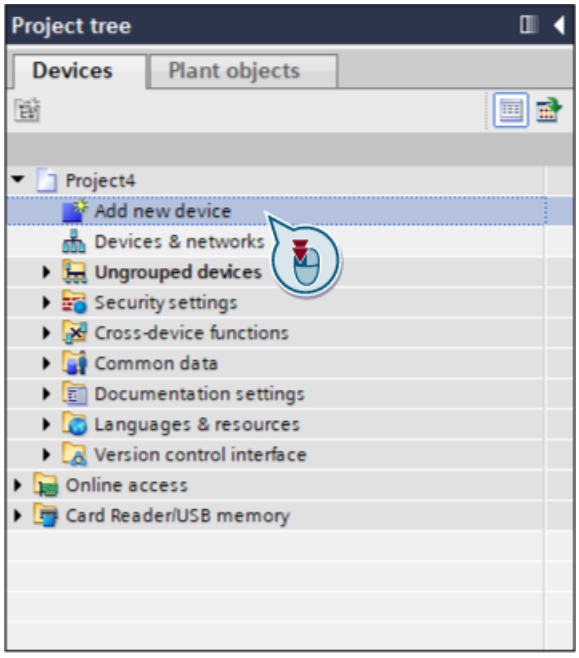
# Adding a controller

4

You add a controller to the project.

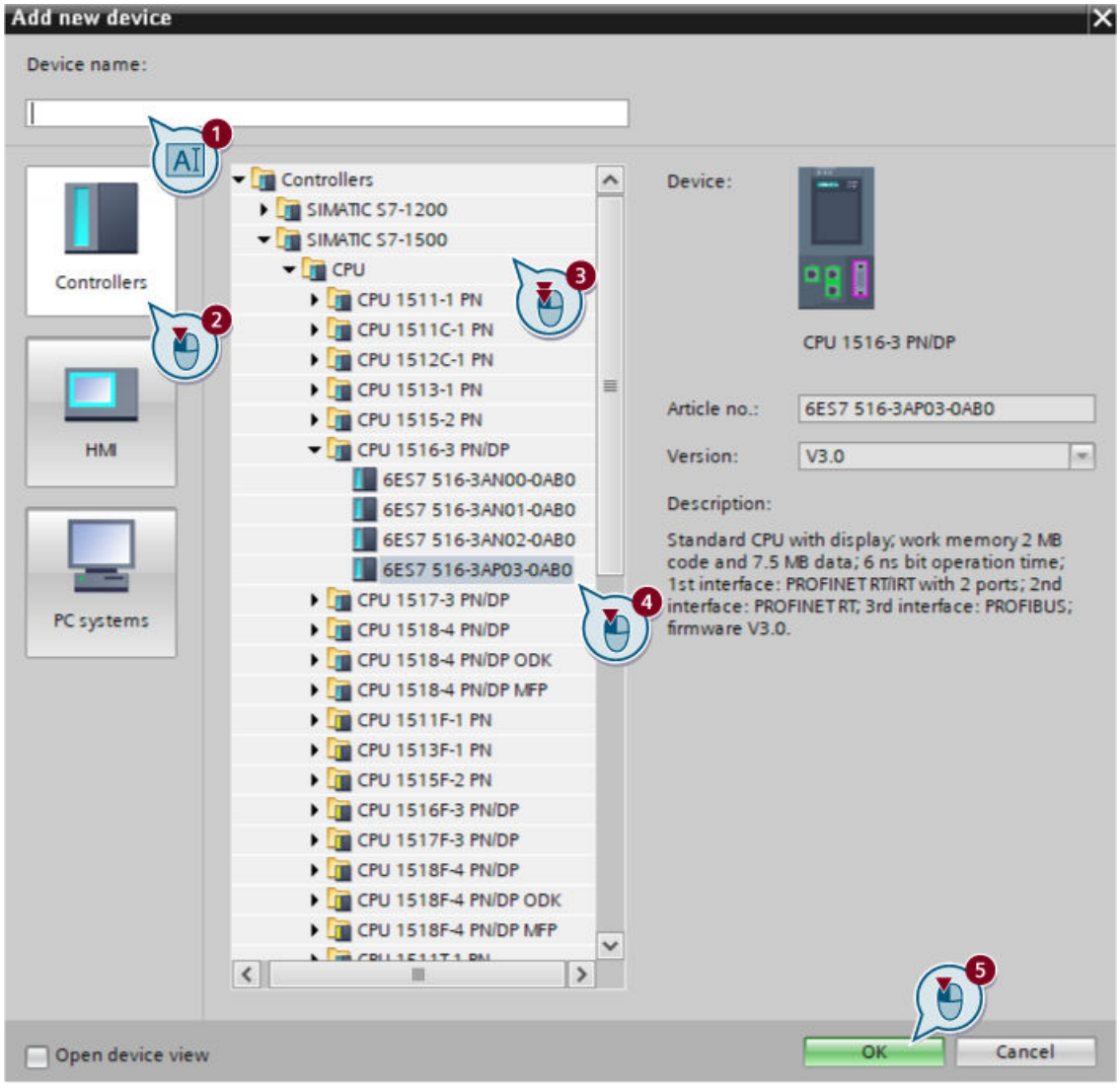
## Adding a controller

1. Double-click "Add new device" in the project tree.




   The "Add new device" dialog opens.

2. Enter the device name "PLC_1".
   - Click "Controller".
   - Double-click on the following folders: "SIMATIC S7-1500", "CPU" and "CPU 1516-3 PN/DP".
   - Click on the "6ES7 516-3AP03-0AB0" device. Pay attention to the desired article number and version.
   - Confirm your selection with "OK".

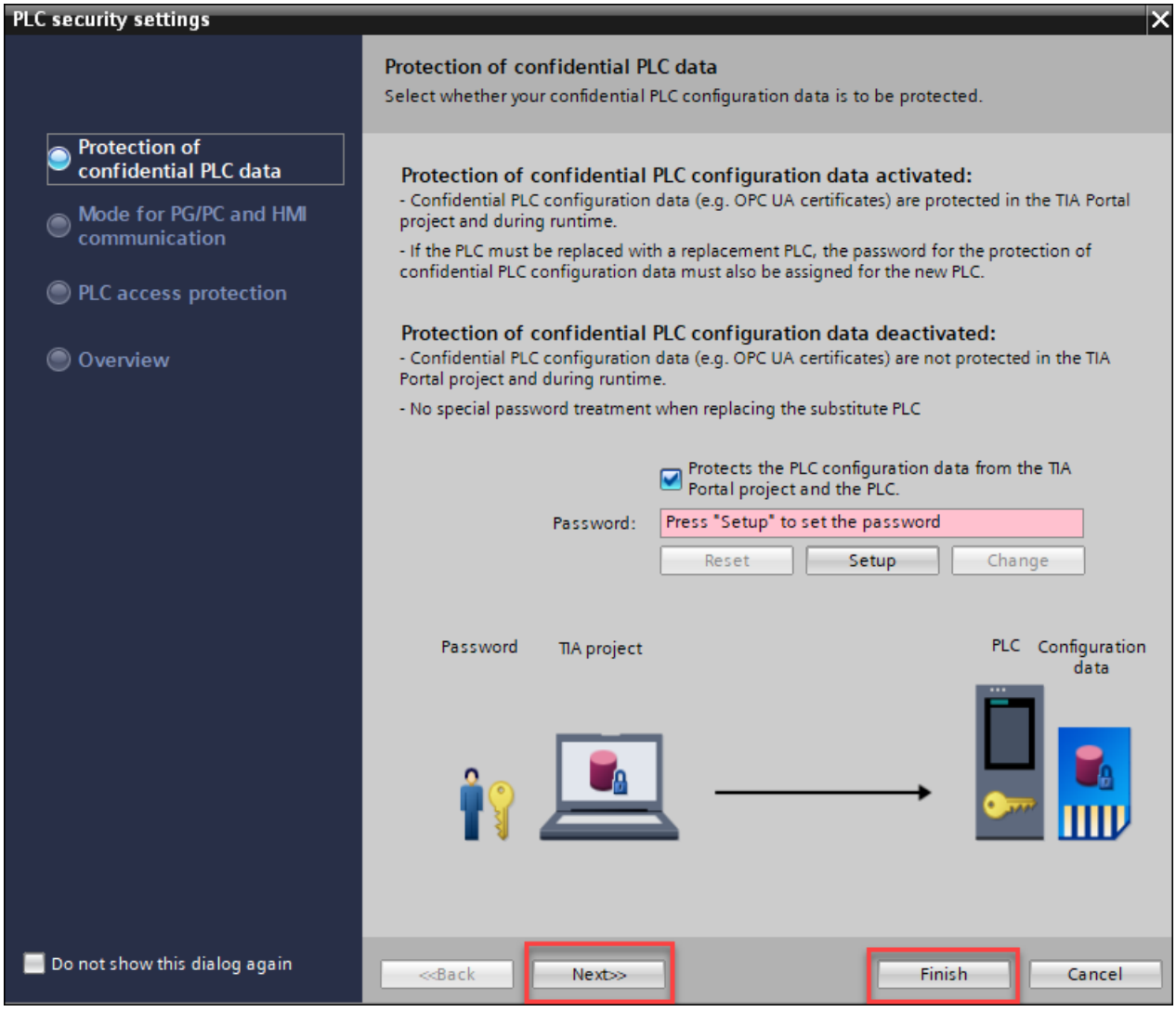



**Note**

If you have SIMATIC controller other than the "CPU 1516-3 PN/DP" configured here, select your device and version. It has no influence on the further configuration.

The wizard for configuring the PLC Security Settings is opened.

3. To set the protection level and protection class for the controller, follow the instructions of the wizard. Use the "Next>>" button for this. When you have defined all settings, close the wizard with the "Finish" button.


PLC security settings
Protection of confidential PLC data
Mode for PG/PC and HMI communication
PLC access protection
Overview
Protection of confidential PLC data
Select whether your confidential PLC configuration data is to be protected.
Protection of confidential PLC configuration data activated:
- Confidential PLC configuration data (e.g. OPC UA certificates) are protected in the TIA Portal project and during runtime.
- If the PLC must be replaced with a replacement PLC, the password for the protection of confidential PLC configuration data must also be assigned for the new PLC.
Protection of confidential PLC configuration data deactivated:
- Confidential PLC configuration data (e.g. OPC UA certificates) are not protected in the TIA Portal project and during runtime.
- No special password treatment when replacing the substitute PLC
Protects the PLC configuration data from the TIA Portal project and the PLC.
Password:
Press "Setup" to set the password
Reset
Setup
Change
Password
TIA project
PLC
Configuration data
Do not show this dialog again
<<Back
Next>>
Finish
Cancel

# Adding an HMI device

# 5

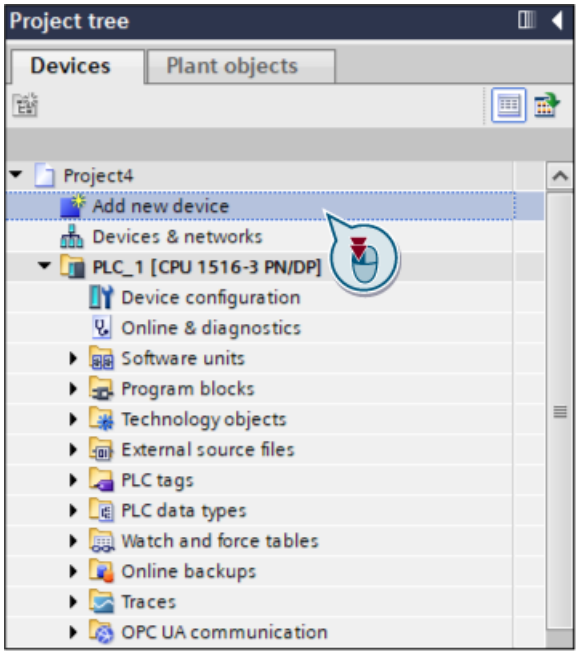
You add an HMI device to the project.

If you already have a Unified Comfort Panel, ensure that the article number of your device matches the article number of the configured device. If you do not know the article number, you have two options:

- You can read the article number on the back of the Unified Comfort Panel.
- You can query the article number in the operating system of the Unified Comfort Panel.

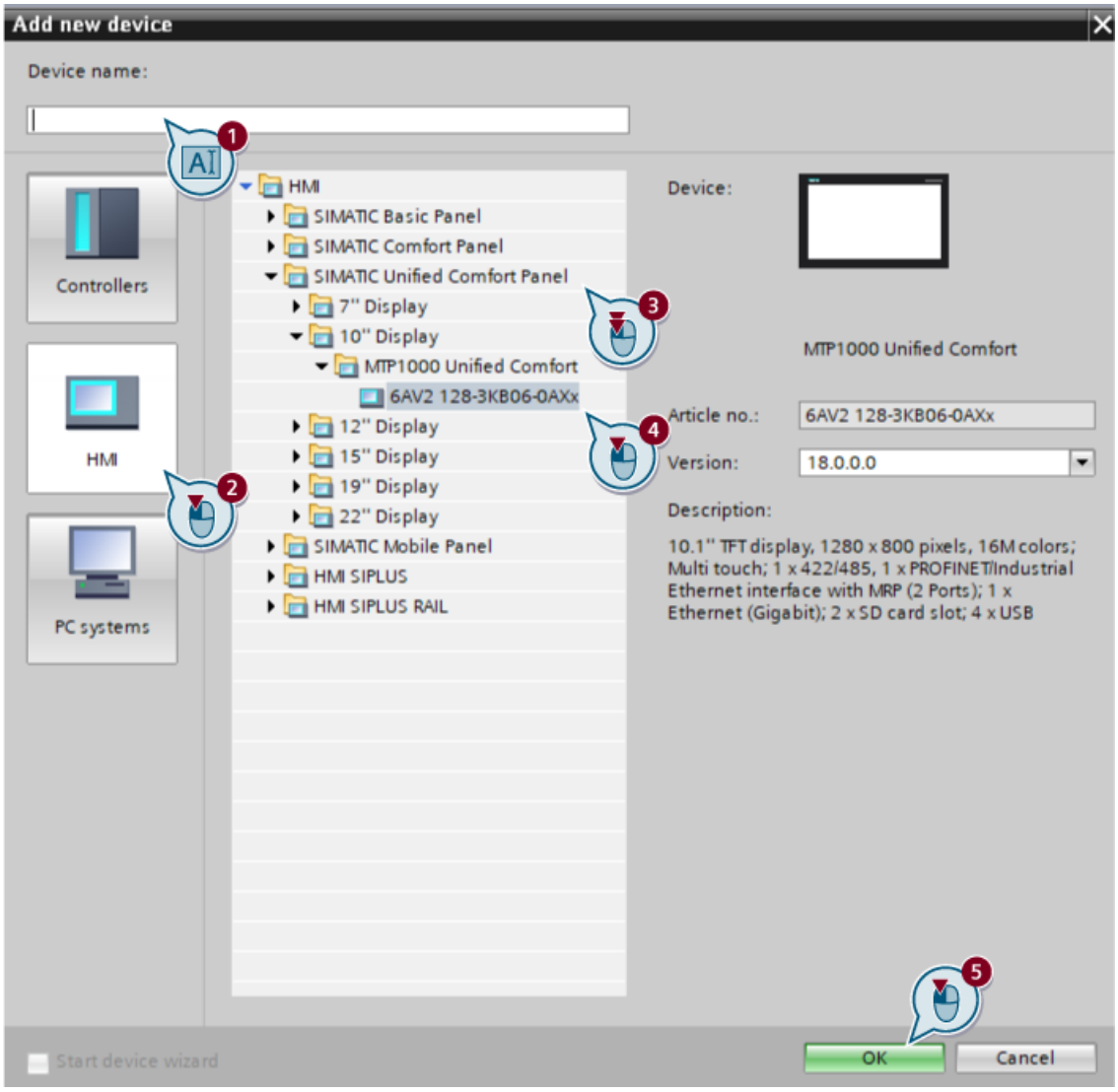
## Adding an HMI device

1. Double-click "Add new device" in the project tree.




   The "Add new device" dialog opens.

2. Enter the device name "HMI_1".
   - Click "HMI".
   - Double-click on the following folders: "SIMATIC Unified Comfort Panel", "10" Display" and "MTP1000 Unified Comfort"
   - Click on the "6AV2 128-3KB06-0AXx" device. Pay attention to the article number and the Runtime version.
   - Confirm your selection with "OK".

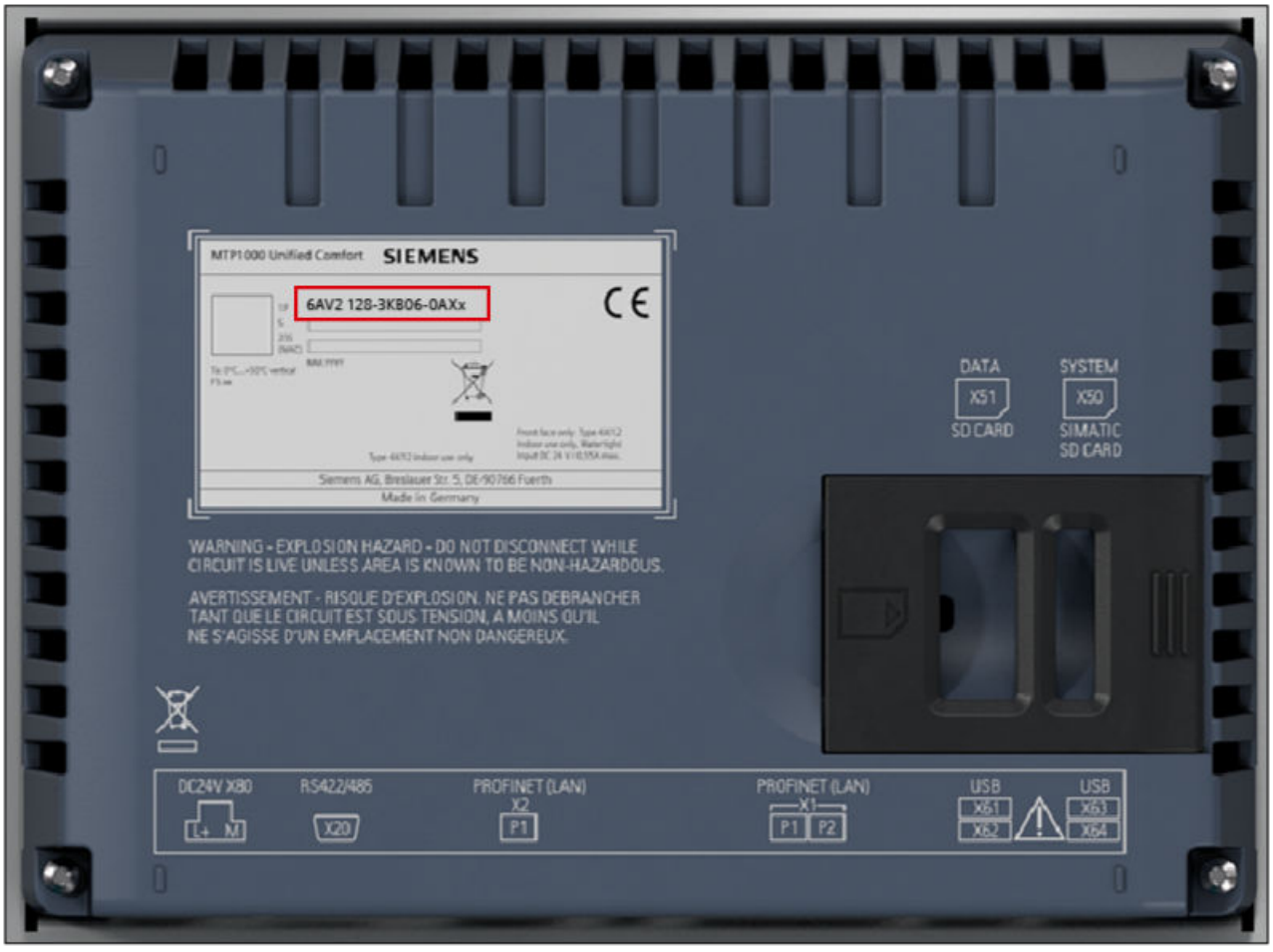



**Note**

If you have a Unified Comfort Panel other than the "MTP1000 Unified Comfort" configured here, select your device and Runtime version. It has no influence on the further configuration.

### Article number on the back of the enclosure

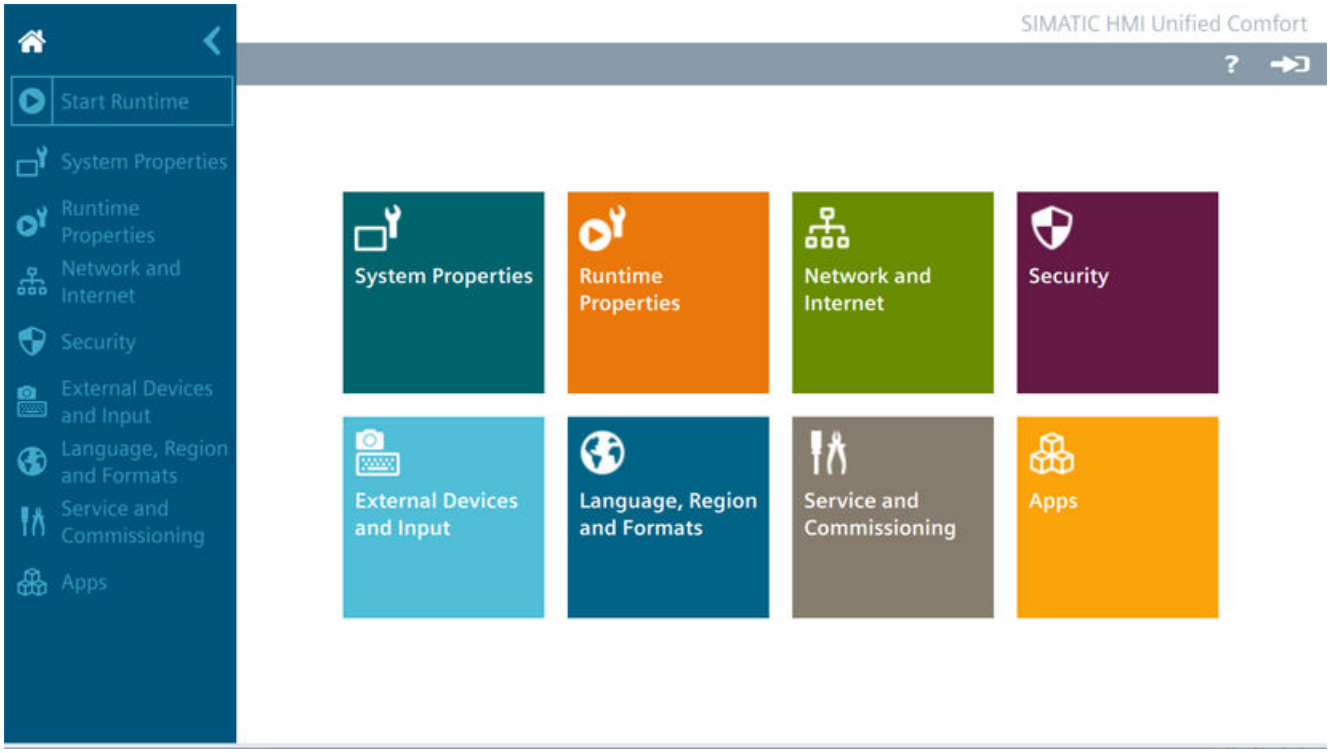
1. Read the article number from the label on the back of the Unified Comfort Panel.



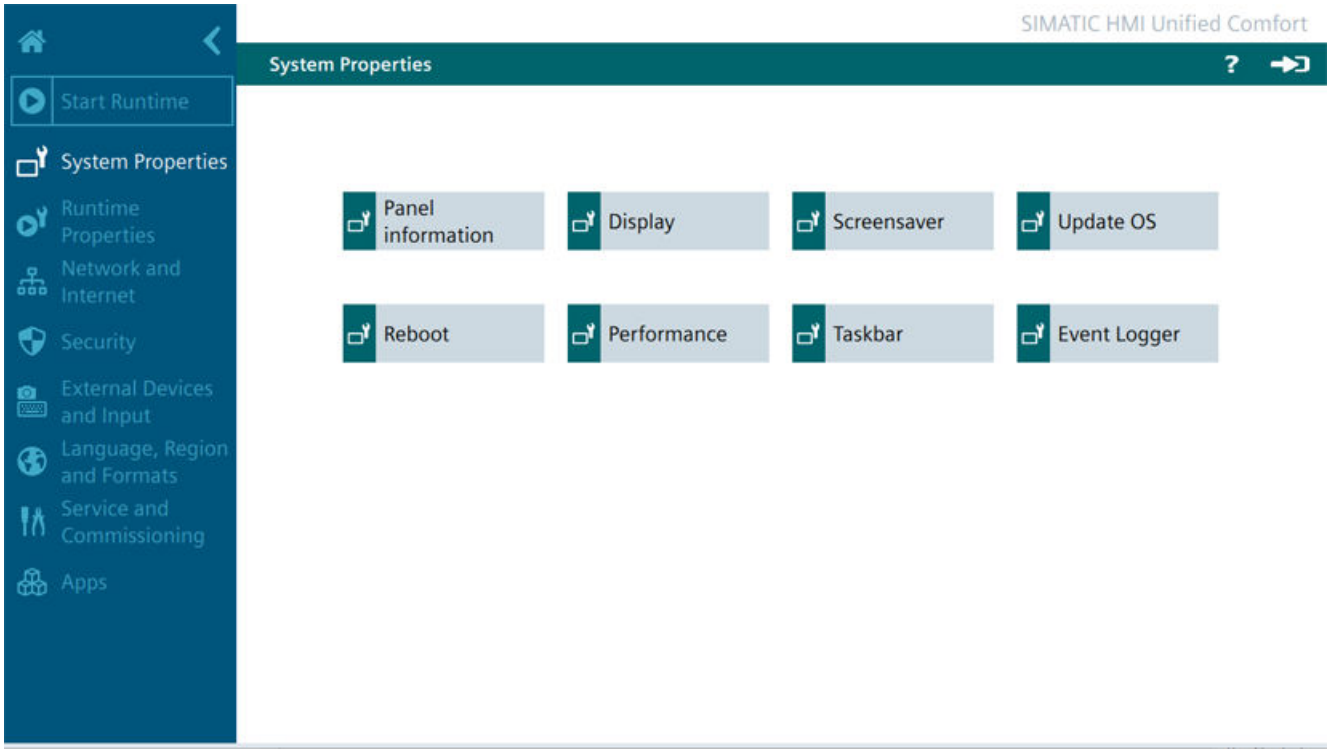

### Article number and Runtime version in the operating system

1. Switch on the HMI device.
2. Open the Control Panel.

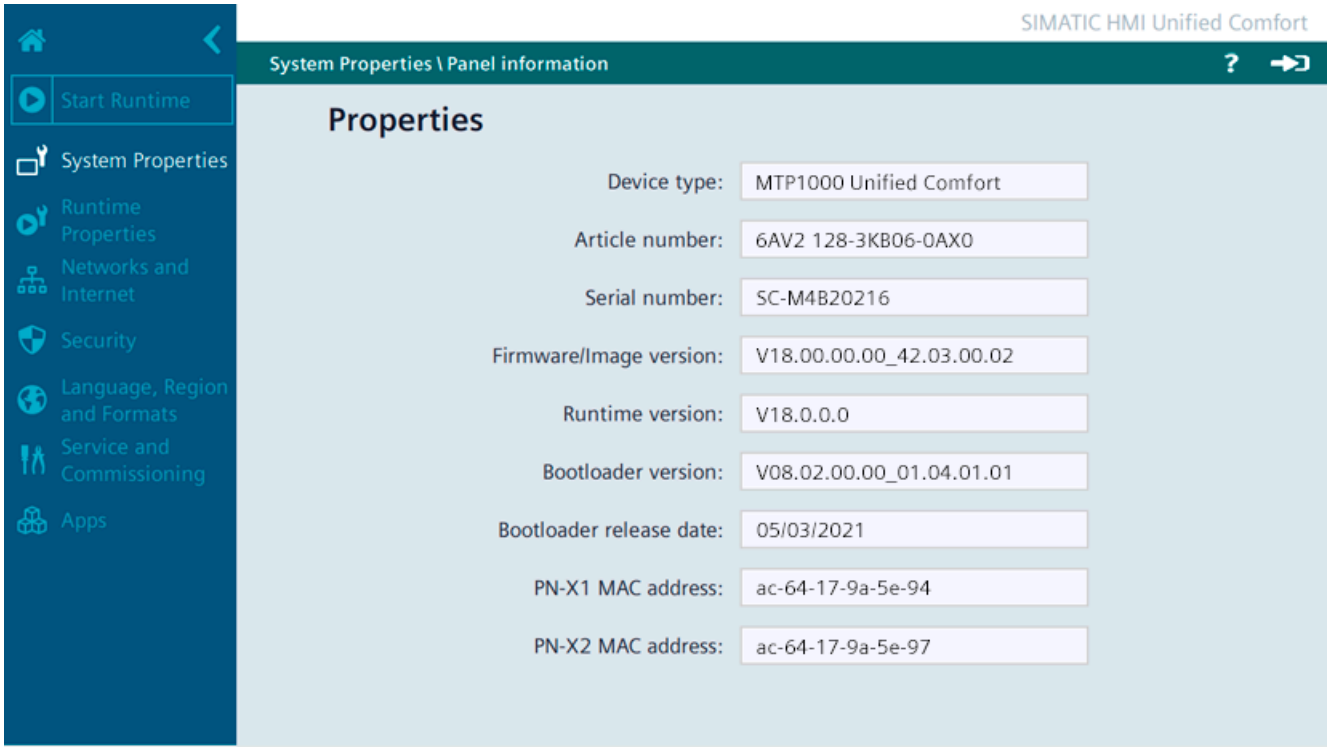
3. Click "System Properties".




4. Click "Panel information".




You can see specific information about your device in the overview.


SIMATIC HMI Unified Comfort
System Properties \ Panel information
Start Runtime
System Properties
Runtime Properties
Networks and Internet
Security
Language, Region and Formats
Service and Commissioning
Apps
Properties
Device type: MTP1000 Unified Comfort
Article number: 6AV2 128-3KB06-0AX0
Serial number: SC-M4B20216
Firmware/Image version: V18.00.00.00_42.03.00.02
Runtime version: V18.0.0.0
Bootloader version: V08.02.00.00_01.04.01.01
Bootloader release date: 05/03/2021
PN-X1 MAC address: ac-64-17-9a-5e-94
PN-X2 MAC address: ac-64-17-9a-5e-97

# Configuring hardware settings

# 6

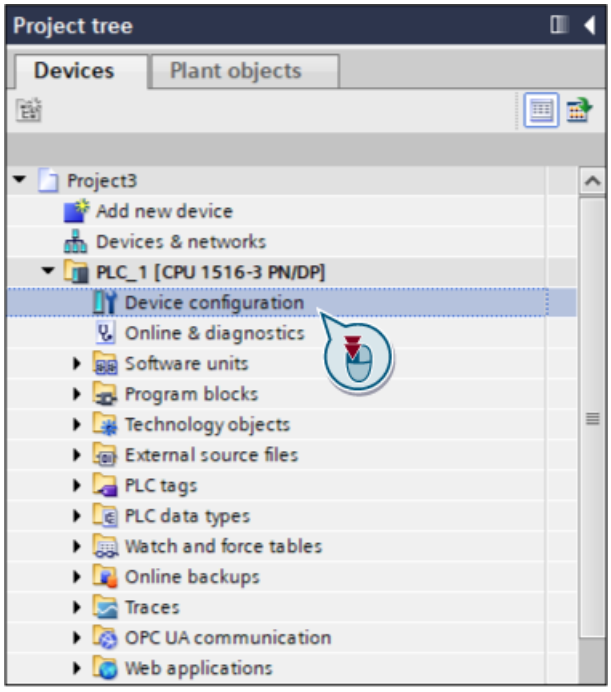
You configure the basis for downloading your project to the HMI device. You configure the hardware settings that are required for the project. Settings for the IP addresses and network structure are important here.

**Note**

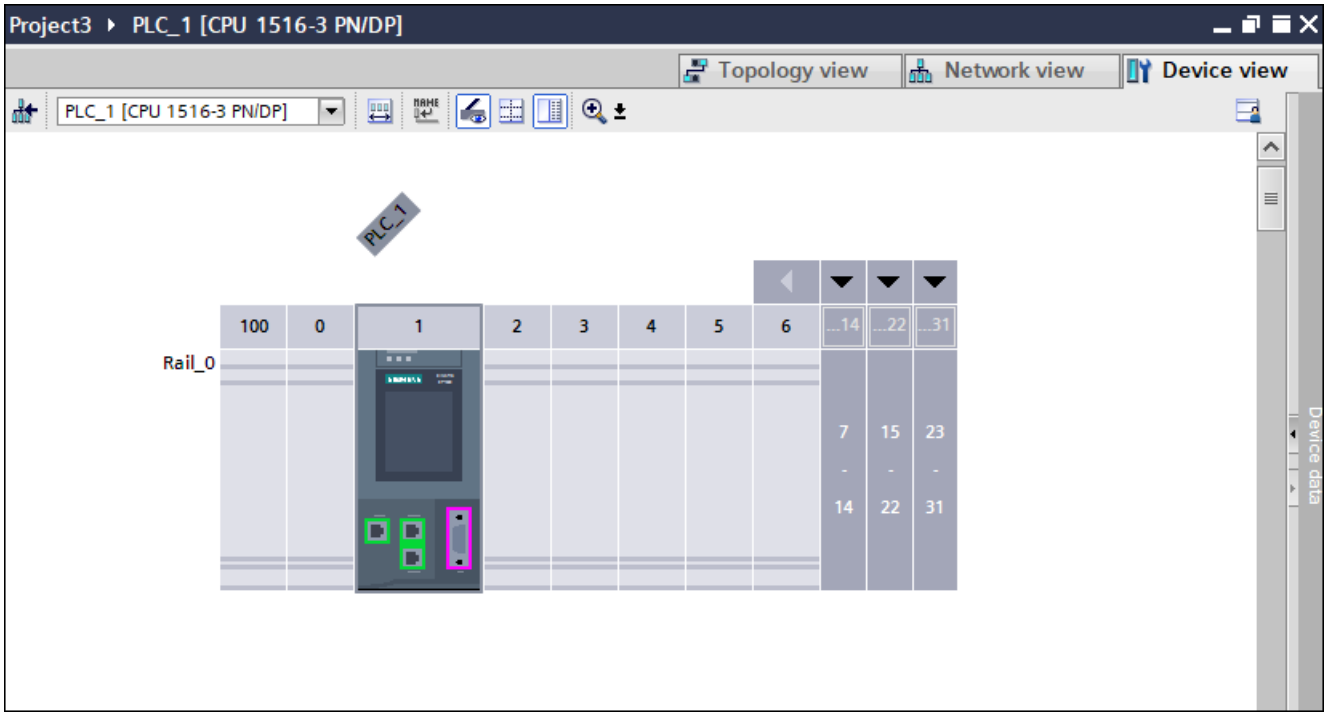
In order for the computer, the HMI device and the controller to be able to establish a connection later, their IP addresses must be within the same network.

## Configuring the controller

1. Double-click "Device configuration" under "PLC_1" in the project tree.

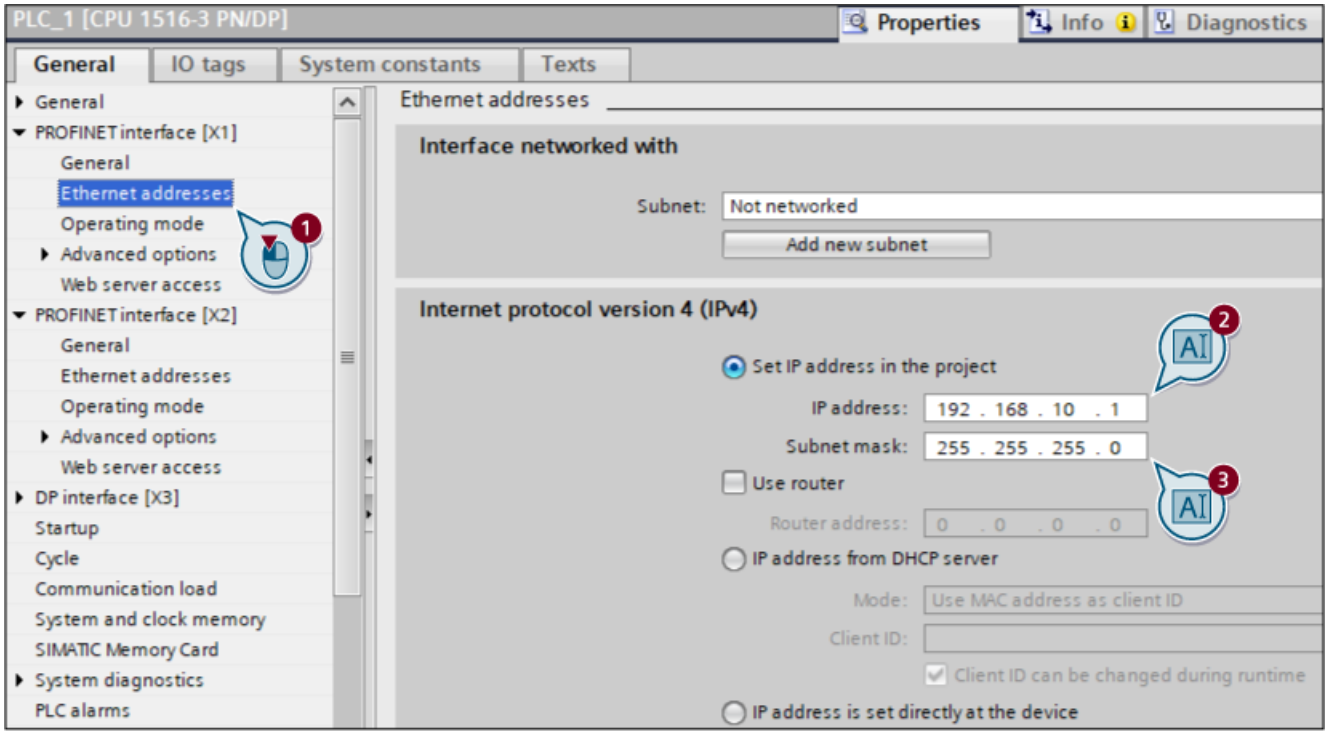



The Device view is opened in the work area.



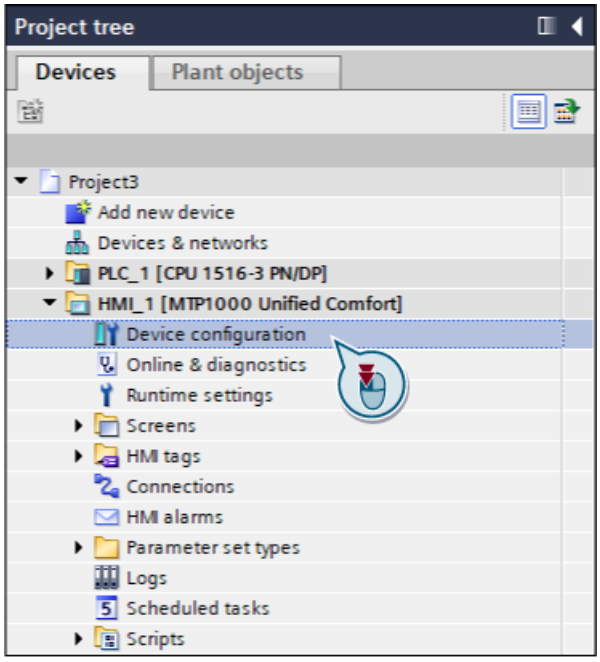

2. Click "Ethernet addresses" in the Inspector window.
   – In the "Internet protocol version 4 (IPv4)" area, enter an IP address, e.g. "192.168.10.1".

– In the "Internet protocol version 4 (IPv4)" area, enter the subnet mask of the one in which your computer is also located, e.g. "255.255.255.0"



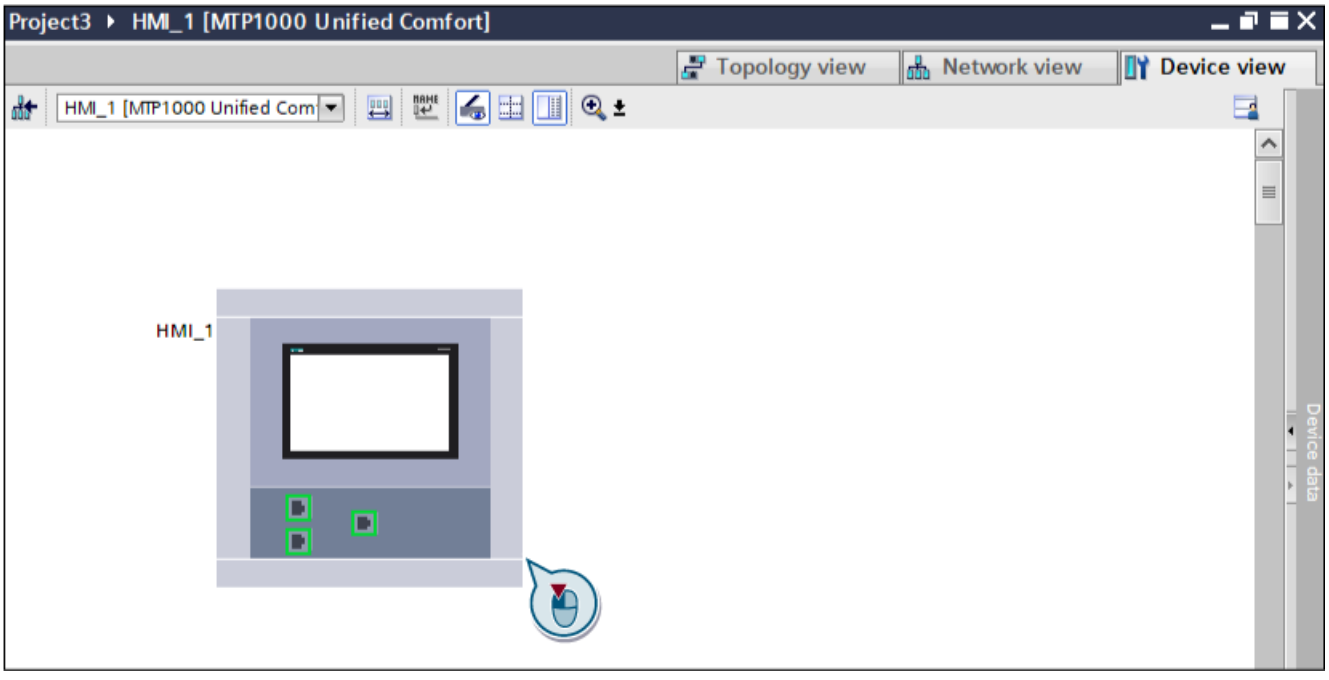
## Configuring an HMI device

1. Double-click "Device configuration" under "HMI_1" in the project tree.



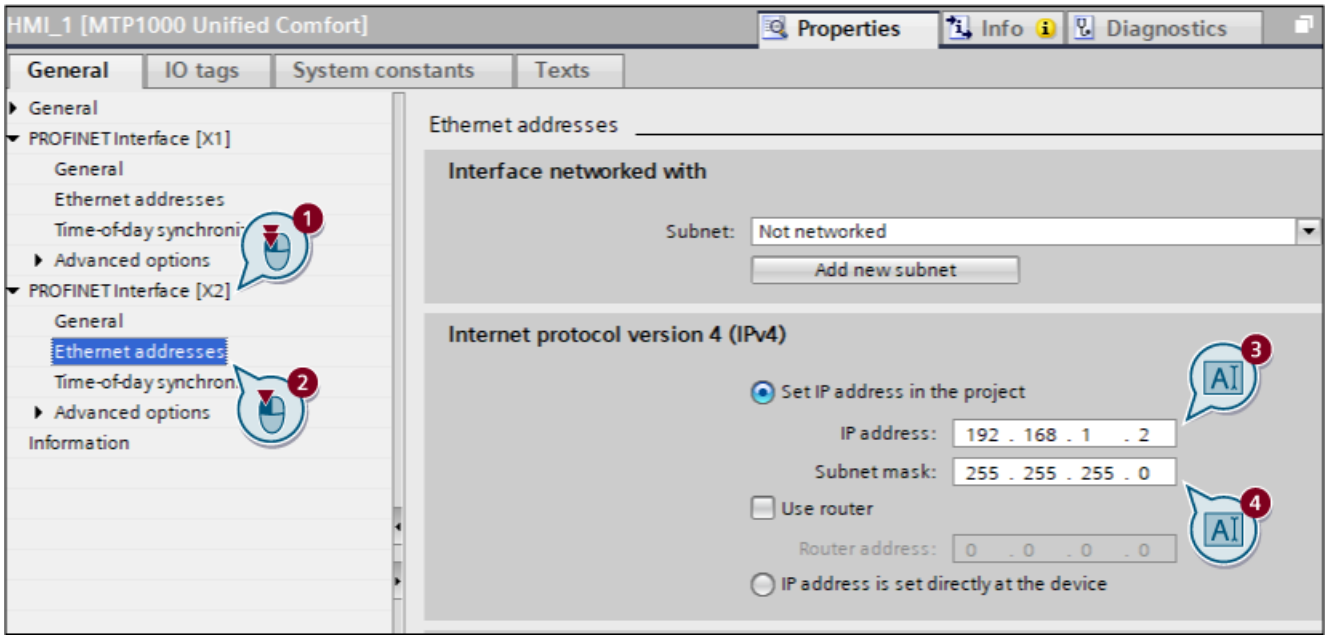

   The Device view is opened in the work area.

2. Click on the HMI device in the Device view.




3. In the Inspector window, double-click "PROFINET interface [X2]".
   – Click "Ethernet addresses".

- In the "Internet protocol version 4 (IPv4)" area, enter an IP address, e.g. "192.168.1.2".
- In the "Internet protocol version 4 (IPv4)" area, enter this subnet mask of the one in which your computer is located, e.g. "255.255.255.0"

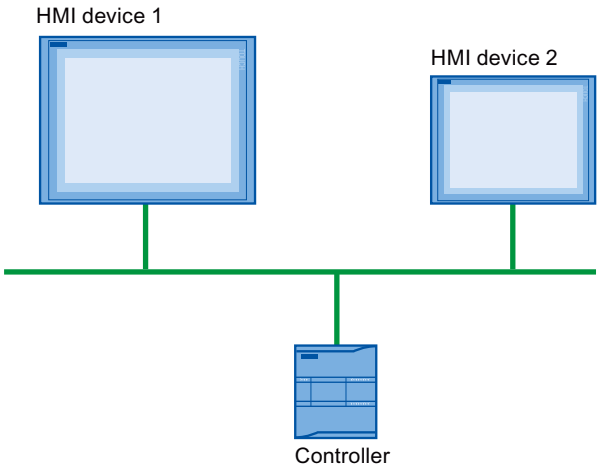


# Creating an HMI connection

7

You configure a connection between the HMI device and the controller.

The data exchange between two devices is known as communication. The devices can be interconnected directly or via a network. The networked devices in communication are referred to as communication partners.




A connection defines a logical assignment of the communication partners for performing communication services.

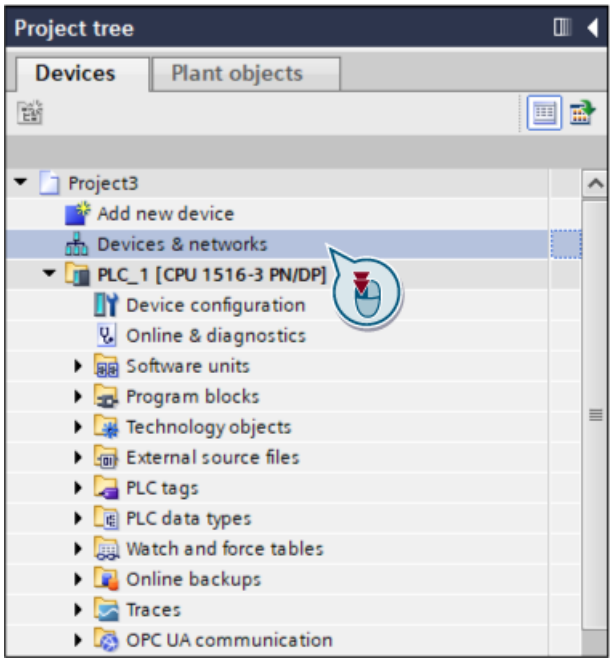
A connection specifies the following:

- Communication partner involved
- Type of connection (e.g. HMI connection)
- Special properties, e.g. whether a connection remains established only temporarily
- Connection path

Each HMI connection is assigned a name that is unique within the project.

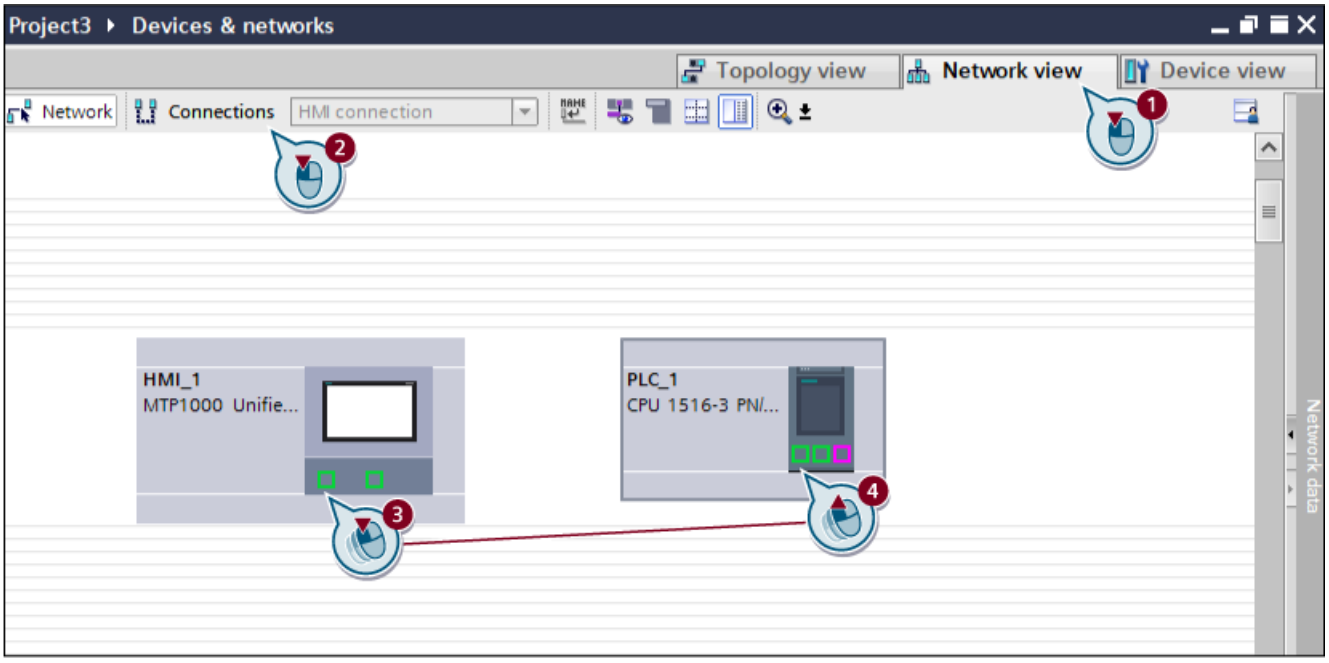
## Creating an HMI connection

1. Double-click "Devices & networks" in the project tree.




   The "Devices & networks" work area opens.

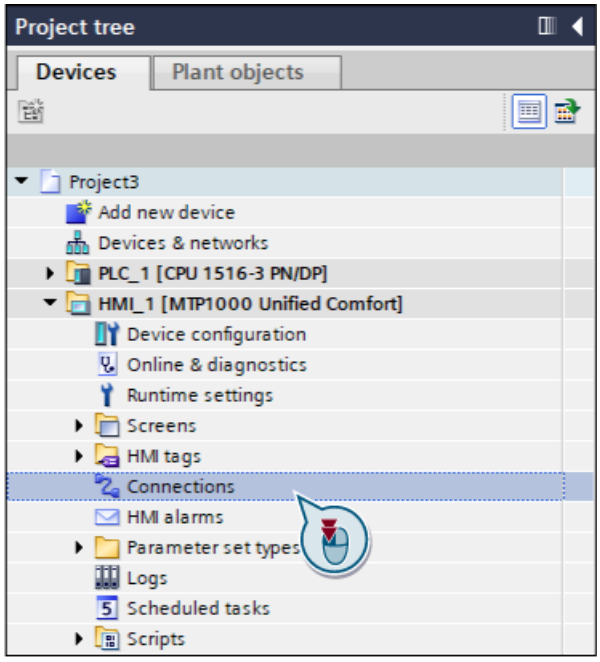
2. Click "Network view".
   - Click "Connections". The devices are highlighted in turquoise. Make sure that the "HMI connection" connection type is selected.
   - Click one of the green squares in the "HMI_1" device and drag a connection to one of the green squares in the "PLC_1" controller.
   - Release the mouse pointer over the selected green square.



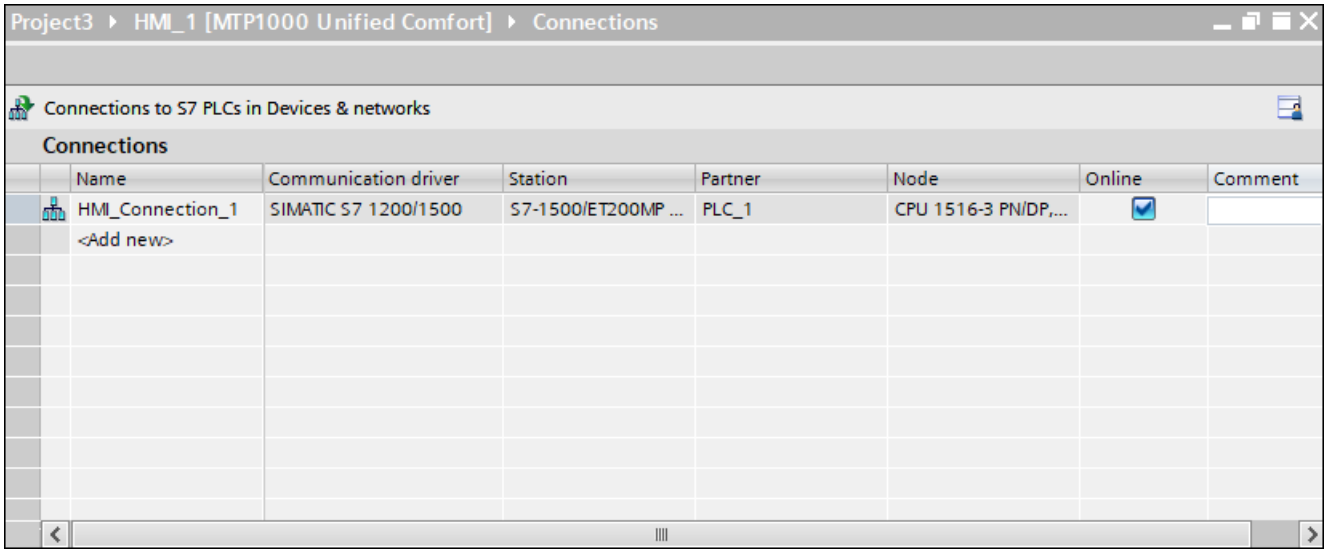

The connection is created. A correctly created HMI connection between both devices is highlighted in blue.

## Connections in the HMI device

1. Double-click "Connections" in the project tree.




The work area for connections opens.




Each table row represents a connection to a controller with its respective properties. If you create a connection in "Devices & networks", it is an integrated connection. The communication parameters are automatically filled correctly.
You also create new connections via "<Add>". You have to configure the communication parameters of these connections yourself.

# Creating tags

# 8

You configure one PLC tag and several HMI tags.

WinCC Unified distinguishes between two types of tags:

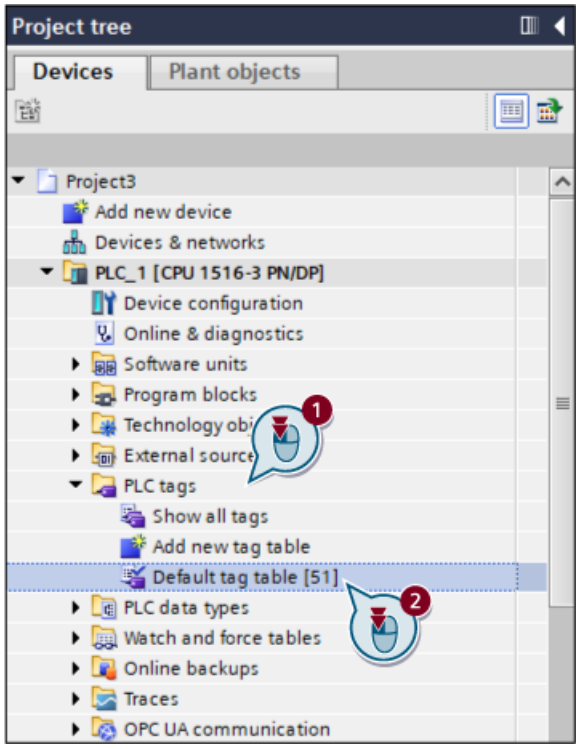
- External tags are the link between WinCC and the automation systems. The external tag reads the process value of the PLC tags from the memory of the automation system or writes a new process value back into the memory of the automation system. For external tags, the properties of the tags are used to define the connection that WinCC uses to communicate with the automation system and how the data exchange takes place.
- Internal tags have no process connection; they are not connected to the automation system and only transport values within the HMI device. The internal tag values are only available in Runtime. For internal tags, "<Internal tag>" is displayed in the "Connection" property instead of a connection. For internal tags, you have to define at least the name and the data type.

## Creating a PLC tag

1. Double-click "PLC tags" in the project tree.
   – Double-click "Default tag table".

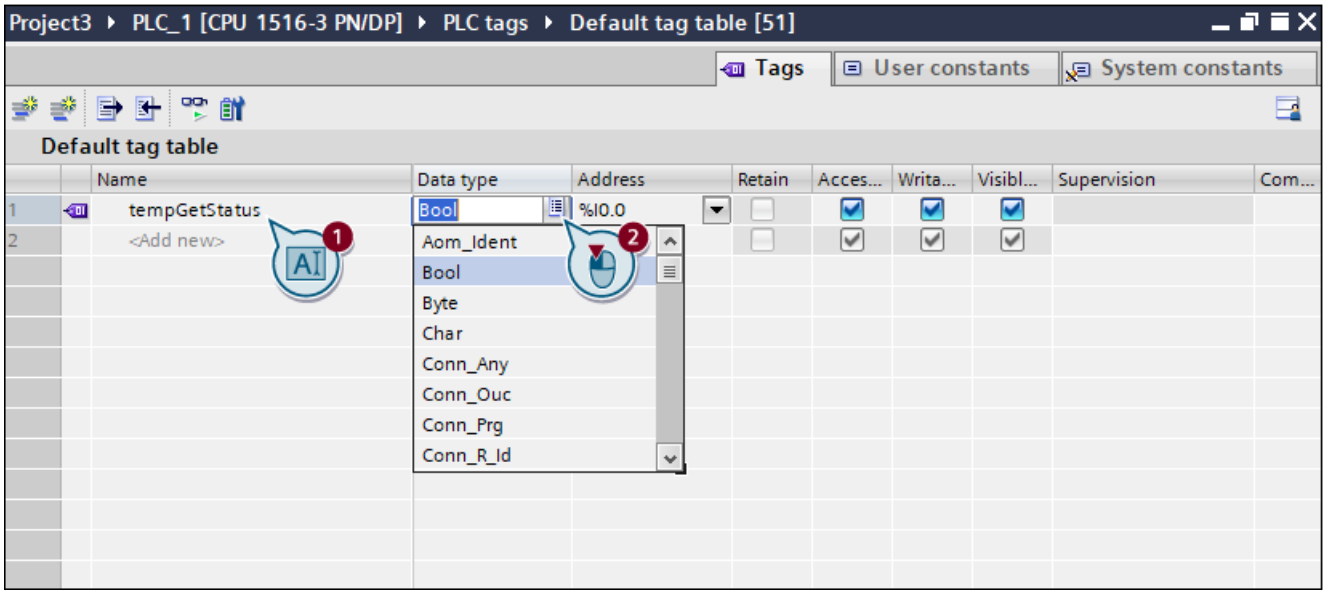
   **Note**

   The name of the default tag table depends on the language in which a project was created.




   The work area for tag tables opens.

2. Double-click "<Add>" in the work area.
   – Assign the name "tempGetStatus".
   – Click in the Data type column.
   – Select the "Bool" data type.

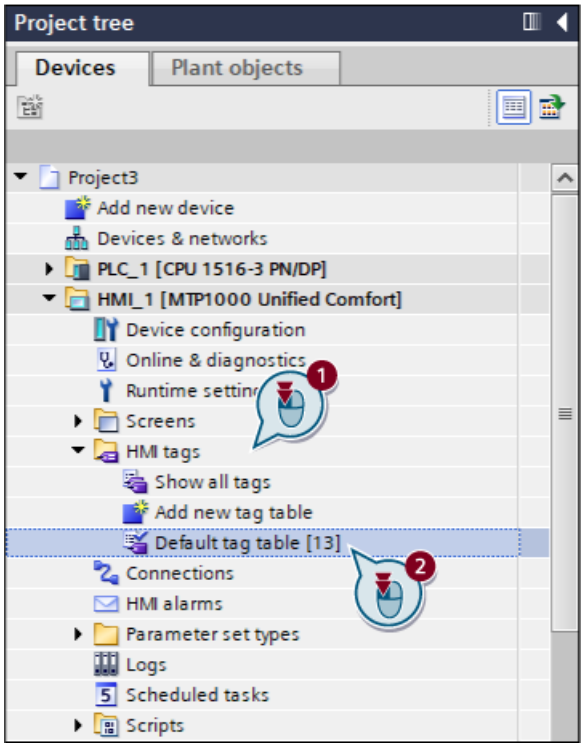

Project3 ▸ PLC_1 [CPU 1516-3 PN/DP] ▸ PLC tags ▸ Default tag table [51]
Tags
User constants
System constants
Default tag table
Name
Data type
Address
Retain
Acces...
Writa...
Visibl...
Supervision
Com...
1
tempGetStatus
Bool
%I0.0
2
<Add new>
Aom_Ident
Bool
Byte
Char
Conn_Any
Conn_Ouc
Conn_Prg
Conn_R_Id
1
2

## Creating an HMI tag

1. Double-click "HMI tags" in the project tree.
   – Double-click "Default tag table".

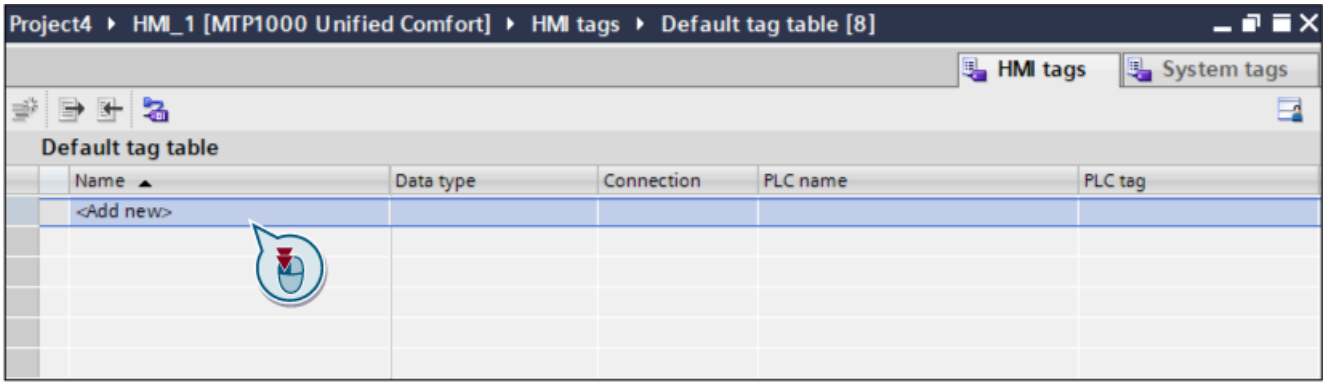
**Note**

The name of the default tag table depends on the language in which a project was created.

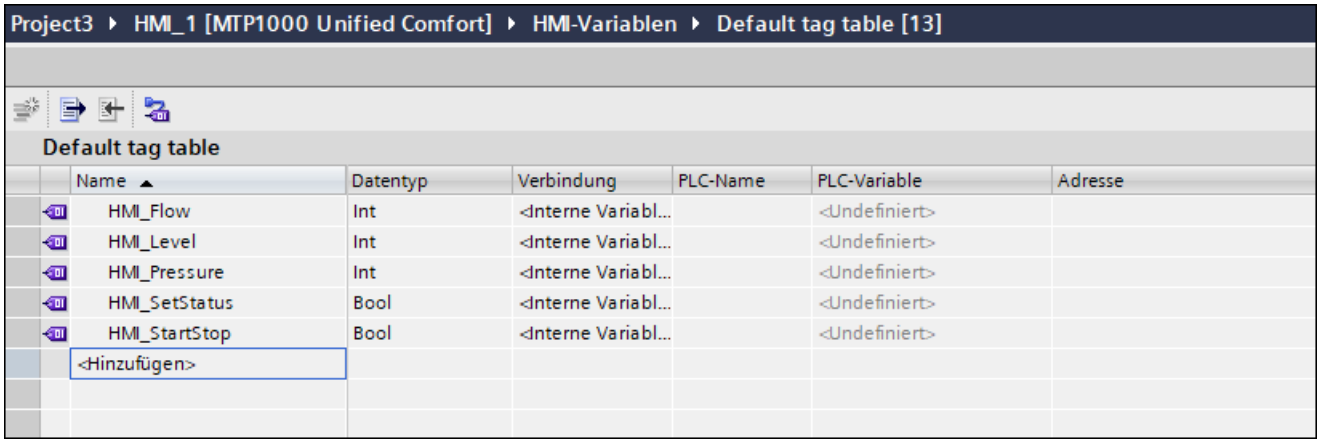



The work area for tag tables opens.

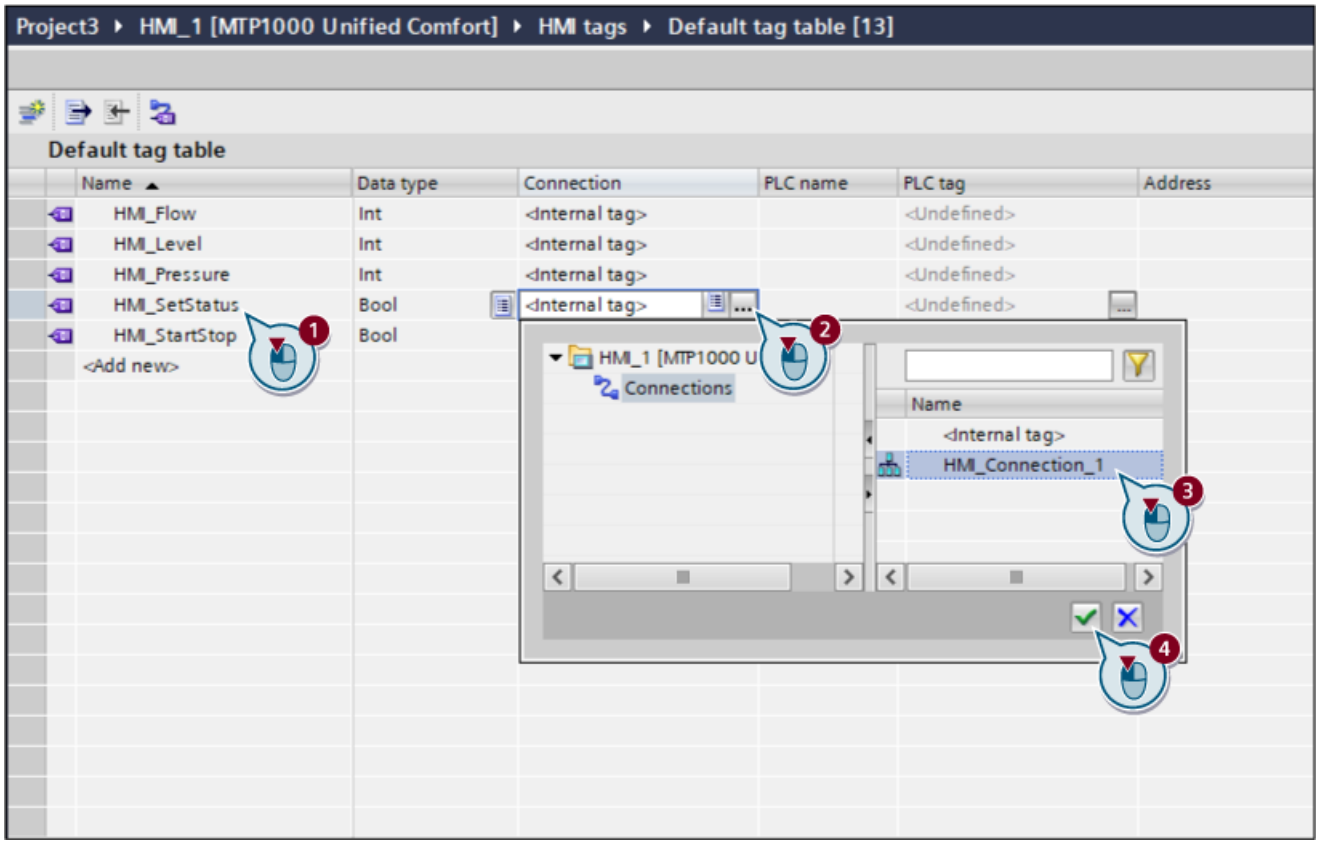
2. Double-click "<Add>" in the work area.



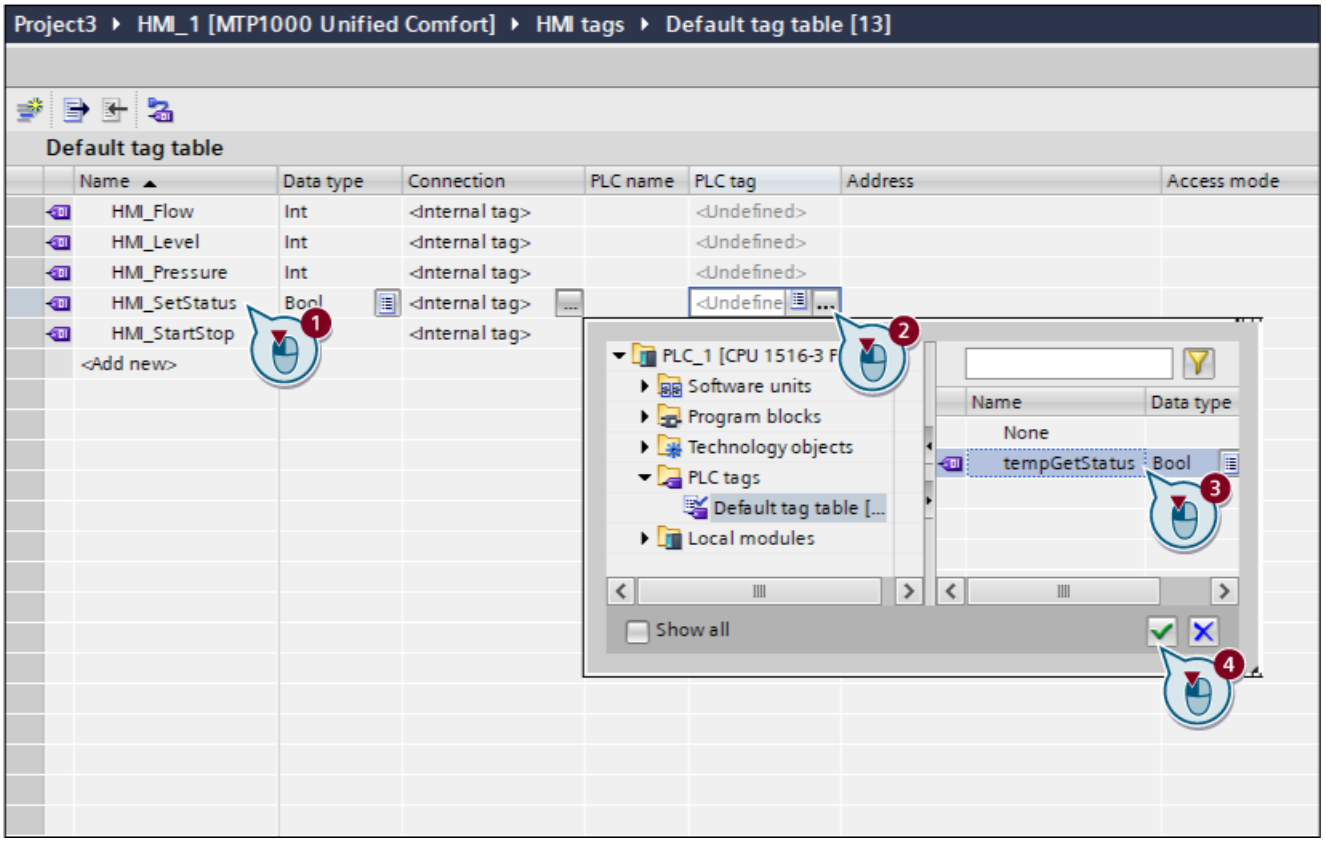
3. Create a total of five HMI tags. Assign a name for each tag. Select their data type as follows:
   - The "HMI_Flow", "HMI_Level" and "HMI_Pressure" tags the "Int" type. You use these tags to cache process values that you want to use on the HMI device.
   - The "HMI_SetStatus" tag is of the "Bool" type. You link this tag with a PLC tag.
   - The "HMI_StartStop" tag is of the "Bool" type. You use this tag to cache the state of a switch.



4. Click the "HMI_SetStatus" tag.
   - Click ... in the "Connection" column.
   - Select the HMI connection "HMI_Connection_1".
   - Confirm your selection with the green check mark.




5. Click the "HMI_SetStatus" tag.
   - Click ... in the "PLC tag" column.
   - Select "PLC_Tags > Default tag table > tempGetStatus".
   - Confirm your selection with the green check mark.




The PLC tag "tempGetStatus" is linked to the HMI tag "HMI_SetStatus". The HMI tag "HMI_SetStatus" acts as an external tag due to the link and forwards its state to the controller.

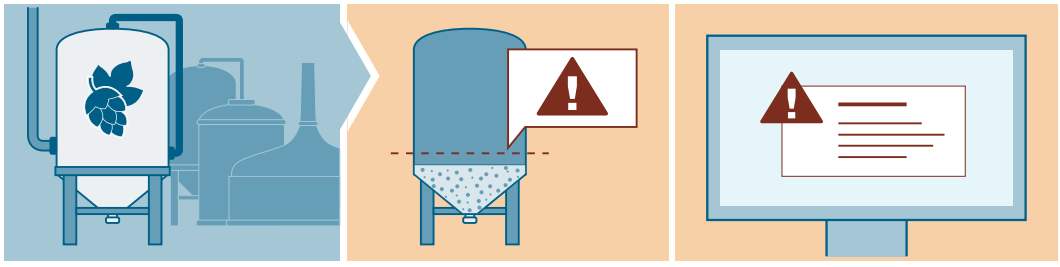
# Configuring alarms/messages

# 9

## 9.1 Alarms/messages

WinCC ensures that all events, operating states or faults that occur in your plant are recorded. Deviations from the process flow are visualized as an alarm to the plant operator. Alarms can be used, for example, for diagnostic purposes during troubleshooting and they help you locate the cause of the fault immediately. You can adjust your processes through targeted intervention so that compliant products continue to be produced despite the fault, or the process is stabilized, and the fault only causes a minimal loss of production.

WinCC supports complete traceability when processing the cause of an error. An alarm contains the traceable state of the error processing with time stamping. An alarm occurs, for example, when the fill level of a storage tank falls below a limit.



### Discrete alarms/bit messages

Discrete alarms are also called bit messages and indicate status changes in a plant. A discrete alarm is triggered when the value of a specific bit of a tag changes.

Example: The status of a valve is to be monitored. The state of the valve can be either "open" or "closed". A discrete alarm is configured for each state of the valve. If the state of this valve changes, an alarm is output on the HMI device containing, for example, the following alarm text: "Valve closed".

### Analog alarms/analog messages

Analog alarms are also called analog messages and indicate limit violations. You define a limit for the trigger tag and the trigger mode. Depending on which mode you have defined, an analog alarm is triggered in Runtime when the defined value is exceeded or not reached. The analog alarm is shown in an alarm control.

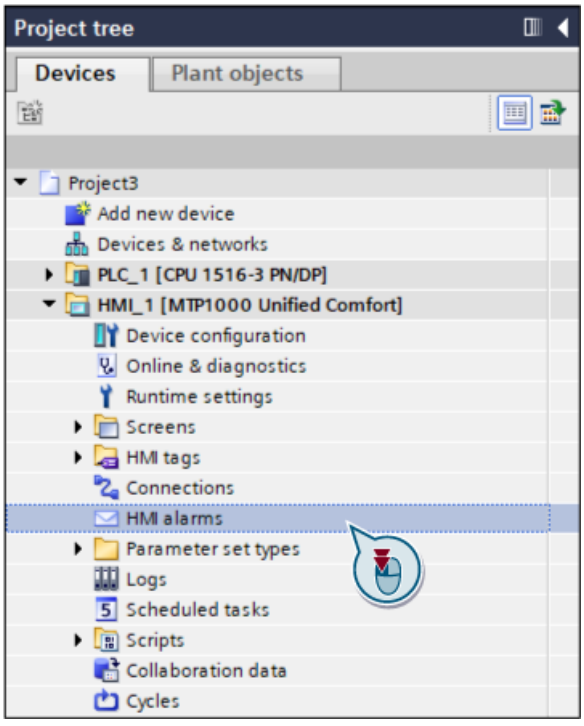
Example: The speed of a motor must not be too high or too low. To monitor the speed of the motor, configure two analog alarms. If the high limit or low limit for the speed of the motor is violated, an alarm is generated on the HMI device containing, for example, the following alarm text: "Motor speed too low."

## 9.2 Configuring analog alarms

In this example, you create an analog alarm of the "Warning" alarm class, which is triggered when a tag exceeds a limit. When creating alarms, you assign an alarm class to each alarm. The alarm class defines the appearance and the acknowledgment model of the alarm. An alarm of the "Warning" alarm class is displayed with a yellow background and has to be acknowledged.

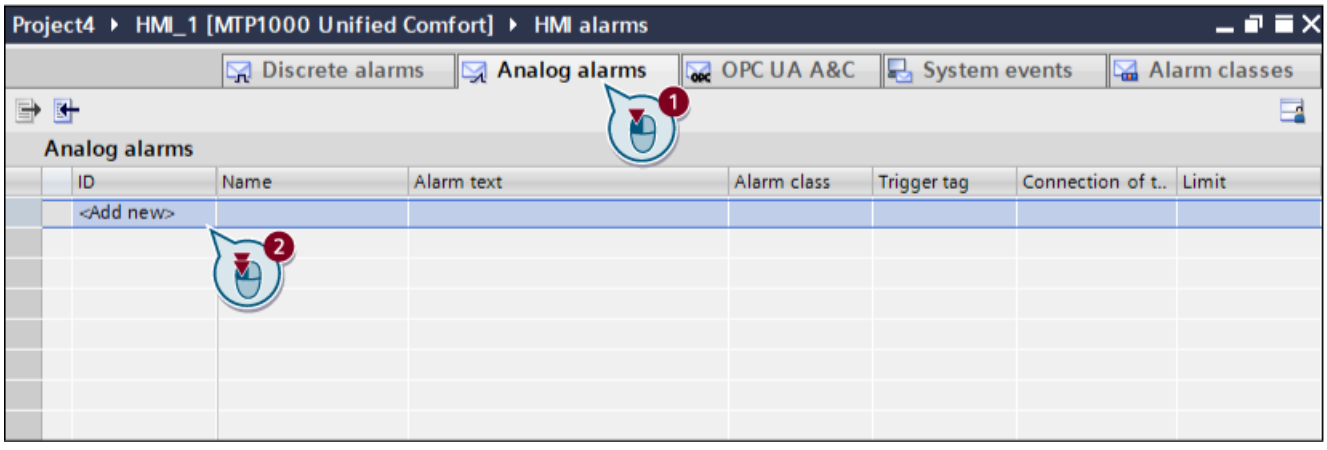
## Configuring analog alarms

1. Double-click "HMI messages" in the project tree.

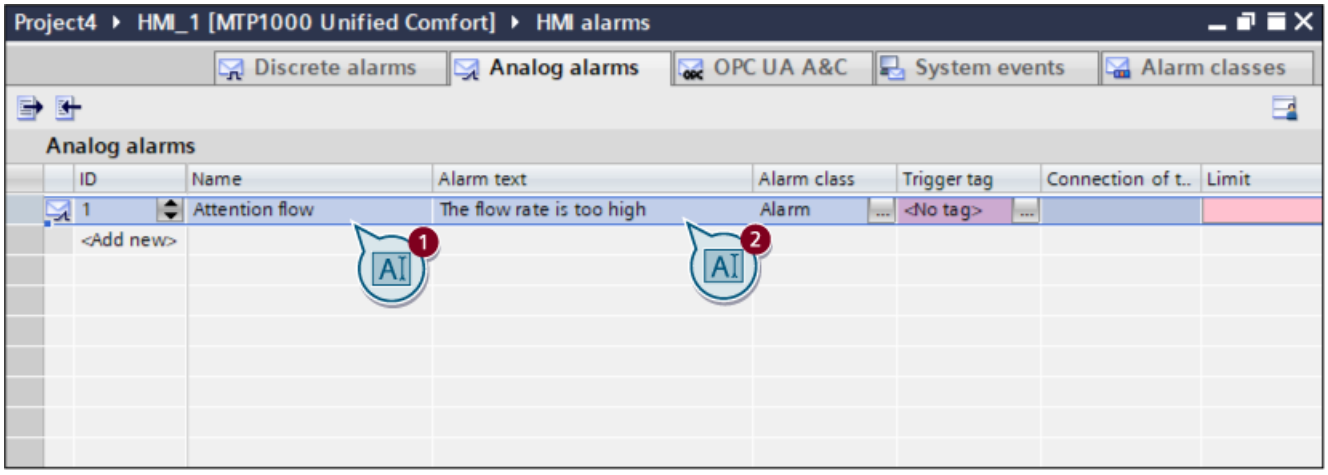



   The work area for alarms opens.

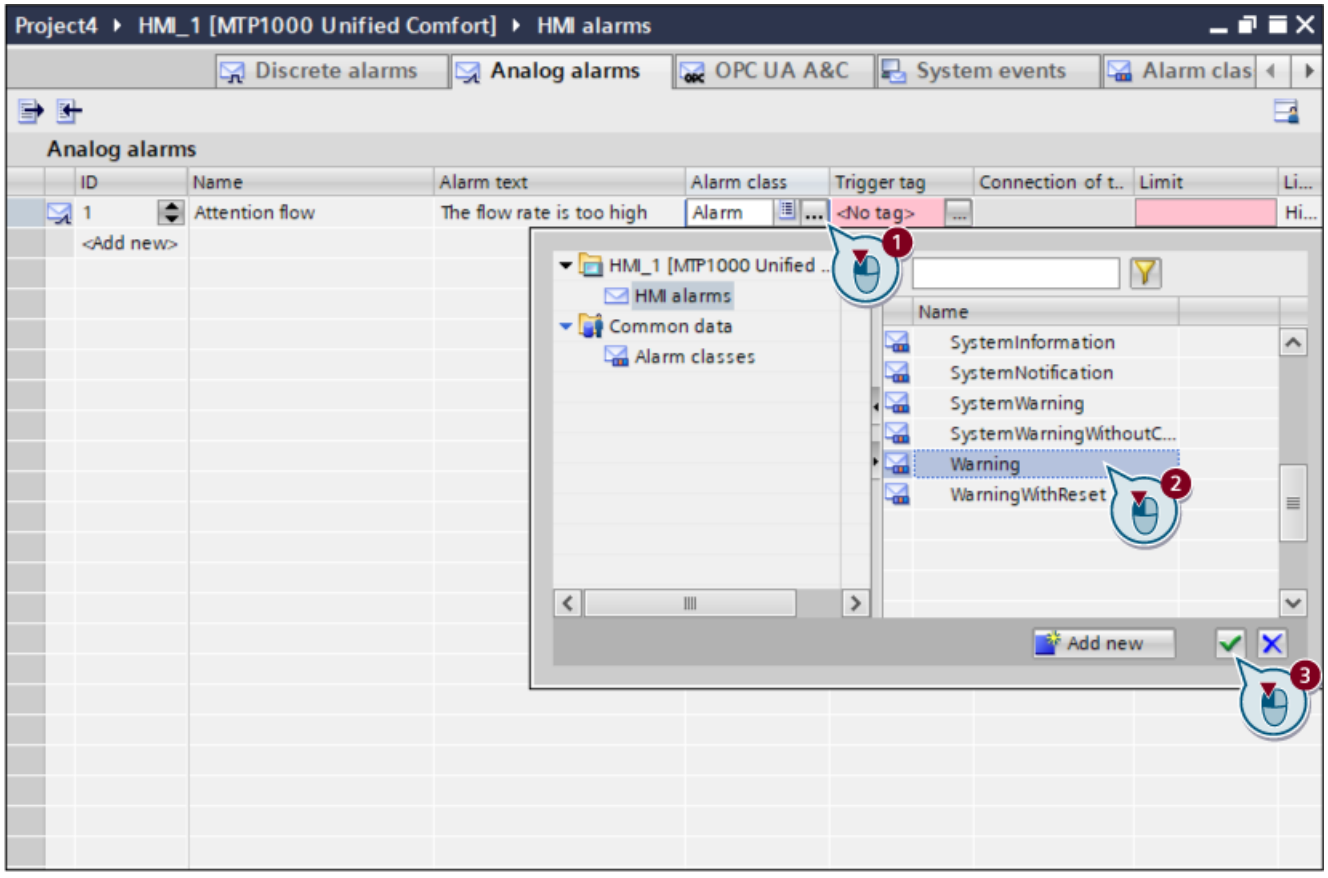
2. Create an analog alarm.
   - Click "Analog alarms".
   - Double-click "<Add>".



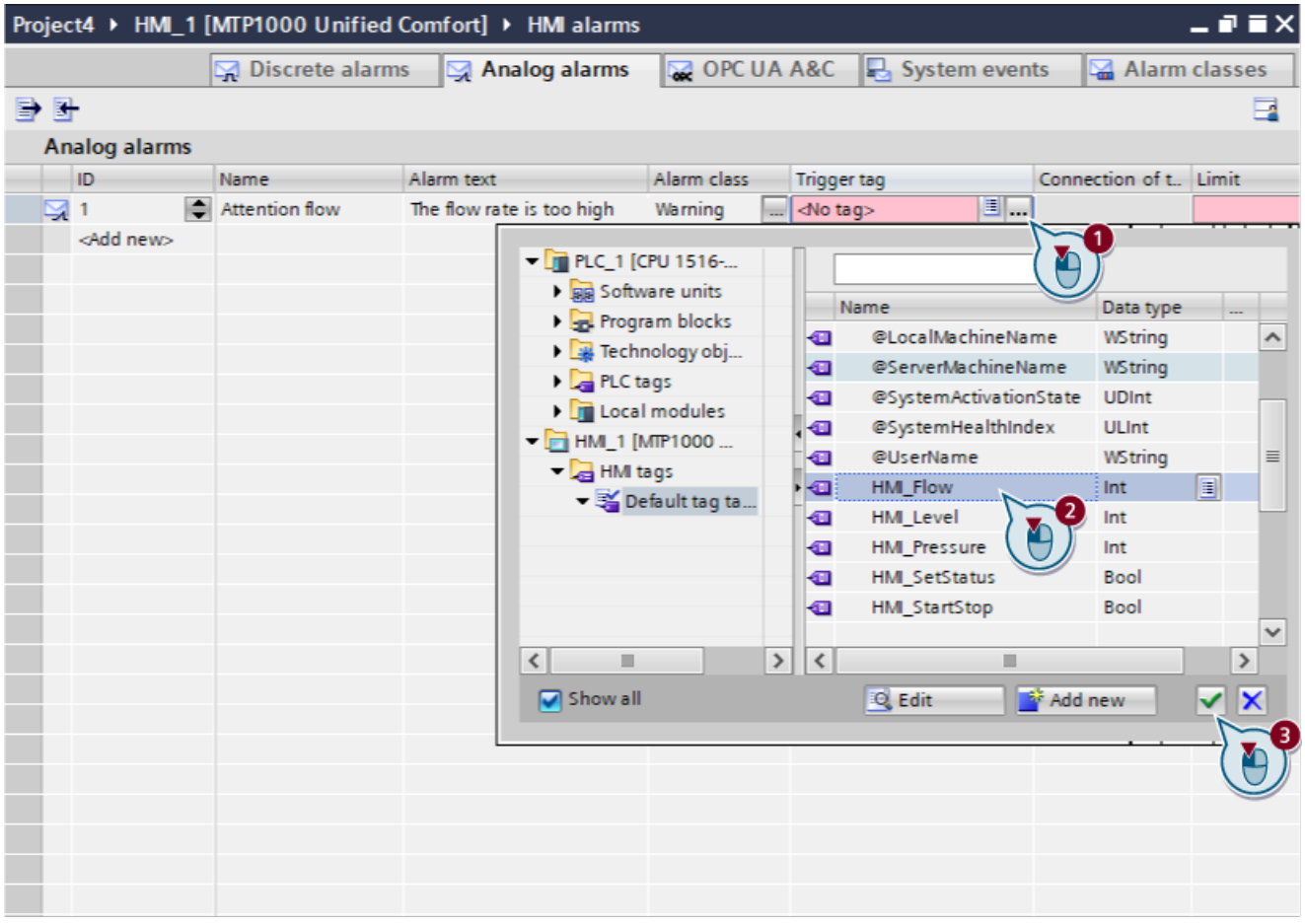

   - Enter "Attention_Flow" as the name of the alarm.
   - Enter the text "The flow rate is too high" in the "Message text" column.



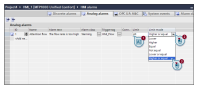

3. Set the "Warning" alarm class.
   - Click ... in the "Message class" column.
   - Click the "Warning" alarm class under "HMI messages".
   - Confirm your selection with the green check mark.



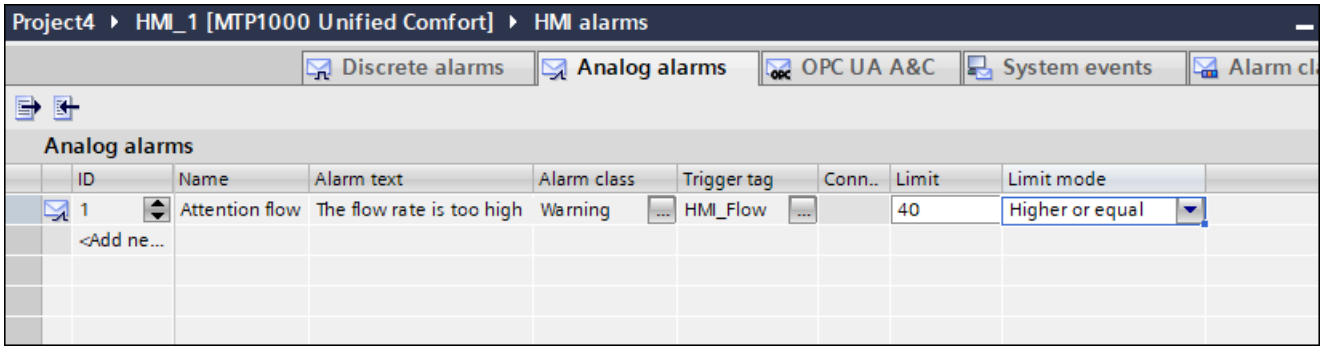
4. Select the tag to be monitored.
   - Click ... in the "Trigger tag" column.
   - Click the "HMI_Flow" tag under "HMI_1 > HMI tags > Default tag table".
   - Confirm your selection with the green check mark.




5. Set the limit at which the alarm is triggered.
   - Enter "40" as the limit.
   - For "Limit mode", select the "Higher or equal".



You have created an analog alarm that is triggered when the limit of the "HMI_Flow" tag is exceeded.

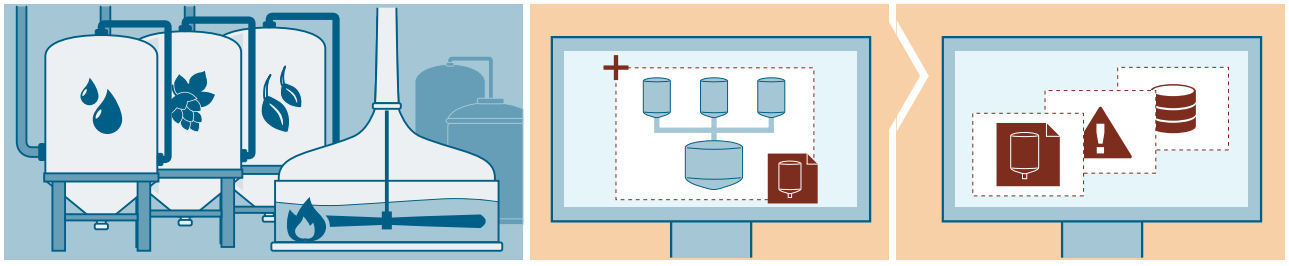

Project4 ▸ HMI_1 [MTP1000 Unified Comfort] ▸ HMI alarms
Discrete alarms
Analog alarms
OPC UA A&C
System events
Alarm cl
Analog alarms
ID
Name
Alarm text
Alarm class
Trigger tag
Conn..
Limit
Limit mode
1
Attention flow
The flow rate is too high
Warning
HMI_Flow
40
Higher or equal
<Add ne...

# Configuring screens

# 10

## 10.1 Screens

An HMI screen represents the user interface of an operator control and monitoring station. A plant or a process is visualized with pre-defined screen objects in the HMI screen. Operators interact with the process via the HMI screen.



### Static and dynamic screen objects

A screen consists of static and dynamic screen objects:

- Static screen objects do not depend on the process. Static screen objects include, for example, labels and diagrams.
- Dynamic screen objects change in line with the process. Dynamic screen objects typically visualize process values such as fill levels. Operators interact with the process via dynamic screen objects.

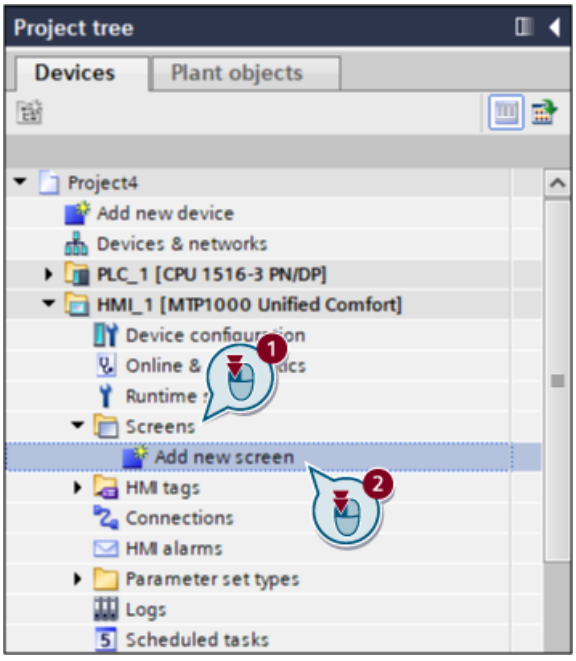
## 10.2 Creating screens

In this example, you create one screen as the start screen and another three screens. You insert different screen objects into the screens and dynamize these objects. In Runtime, the objects display the values of tags, change color based on the value of a tag, or can be operated by you.

The start screen is the screen that is displayed when the project is started in Runtime. Operators navigate to other screens from the start screen. The start screen is indicated by a green triangle in the project tree. To compile a project, you need to set a screen as the start screen in the project.

## Creating the start screen

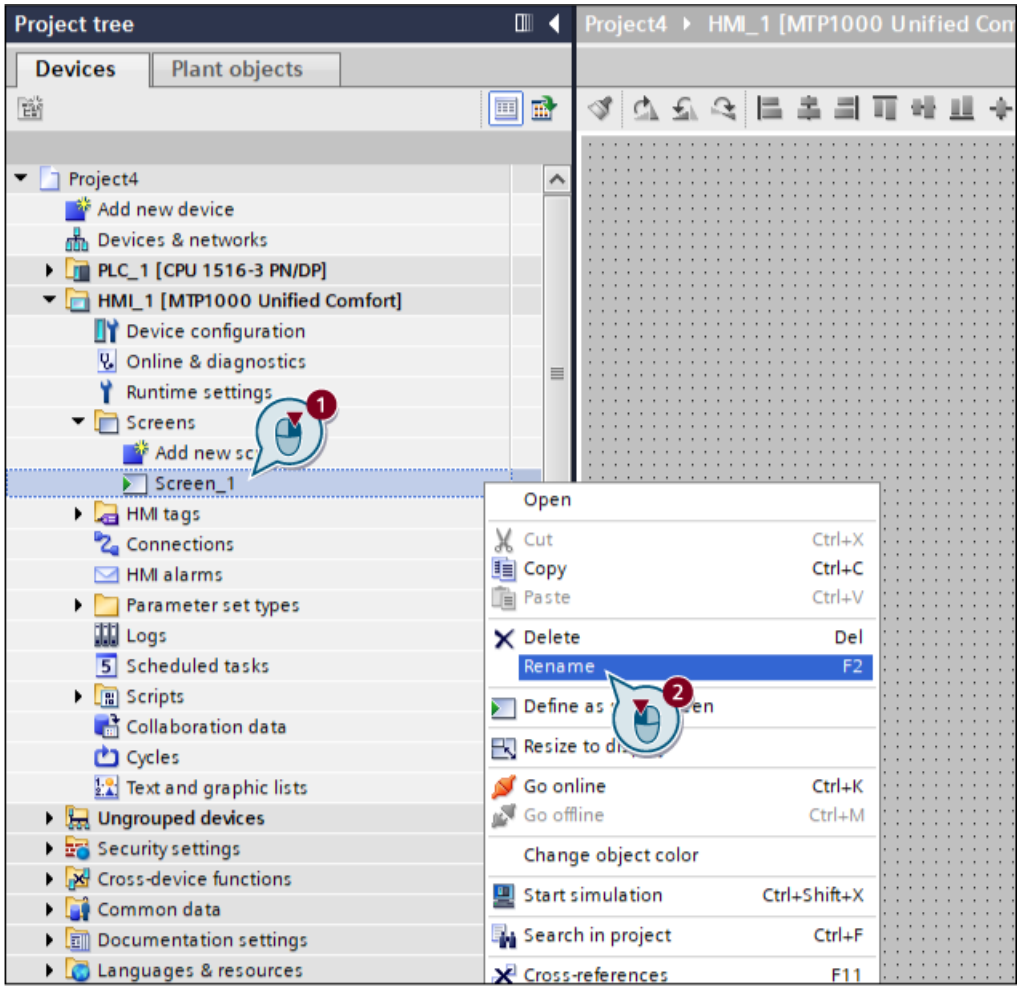
1. Create a screen. The first screen that you have configured in a device is set as the start screen for Runtime.
   - Double-click "Screens" in the project tree.
   - Double-click "Add new screen".




   The screen editor for the "Screen_1" opens.

2. Rename the screen.
   - Right-click "Screen_1". The shortcut menu opens.

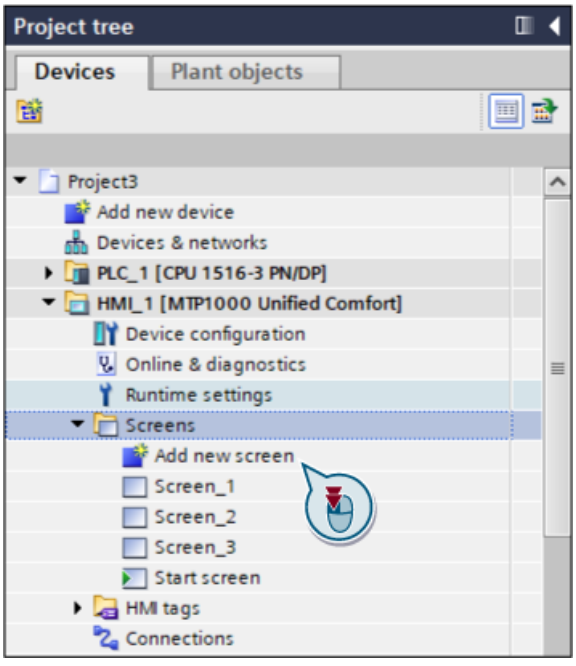
– Click "Rename".




– Enter the name "Start screen".

### Configuring additional screens

1. Create three additional screens.
   - Double-click "Add new screen".
   - Name the screens "Screen_1", "Screen_2" and "Screen_3".




## 10.3 Configuring a start screen

Insert the "Text box", "Circle" and "Switch" objects from the "Tools" task card into the start screen and dynamize these objects with tags.

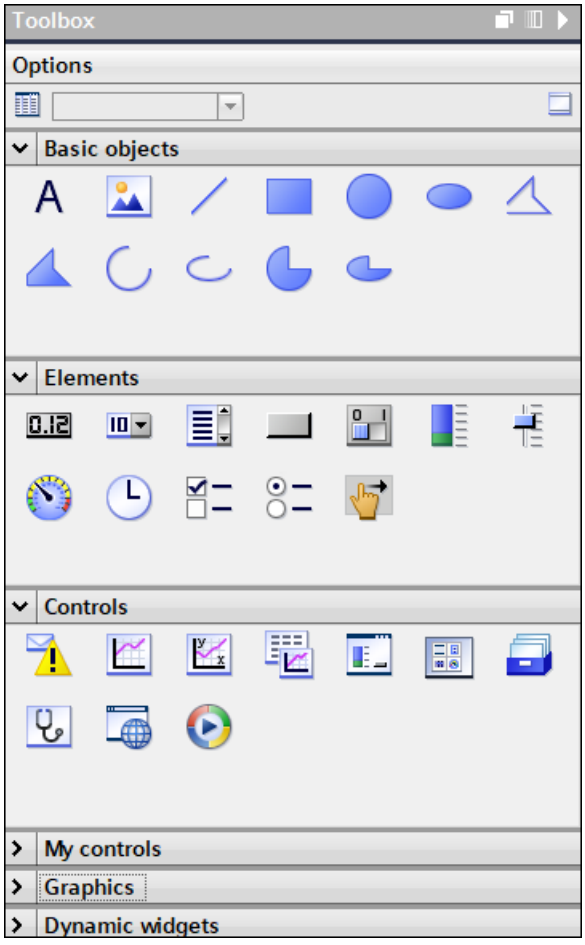
When operators press the switch in Runtime, the switch state is stored in the tag. The tag controls the color of the circle. When the switch is set to "Stop", the circle is red. When the switch is set to "Start", the circle is green.

### "Tools" task card

You can find the objects in the "Tools" task card in the following palettes:

- Basic objects
- Elements
- Controls
- My controls
- Graphics
- Dynamic widgets

You can switch between the Symbol view and the List view in the "Tools" task card. In the Symbol view, you can switch the labeling of the objects on or off in the shortcut menu.




You insert objects from the palettes into the screens using drag-and-drop or a double-click. The selection of objects depends on the HMI device you are currently configuring.

If you hover the mouse pointer over the object, the name of the object is displayed in a tooltip.

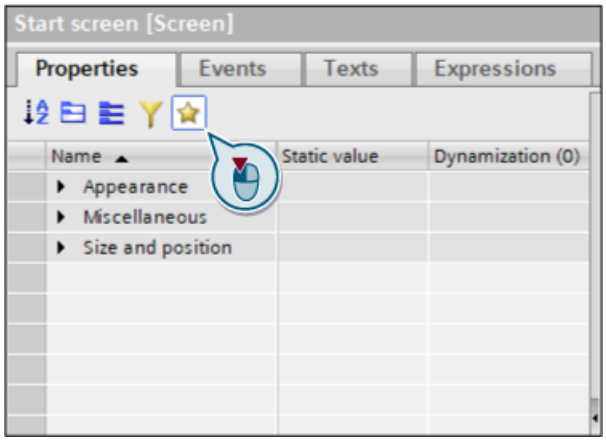
## Editing properties efficiently

The properties of an object are displayed in the property list in the Inspector window. Here you can edit the properties, e.g. change the size and position of an object, or dynamize objects. Two functions are available in the Inspector window that allow you to efficiently edit properties:

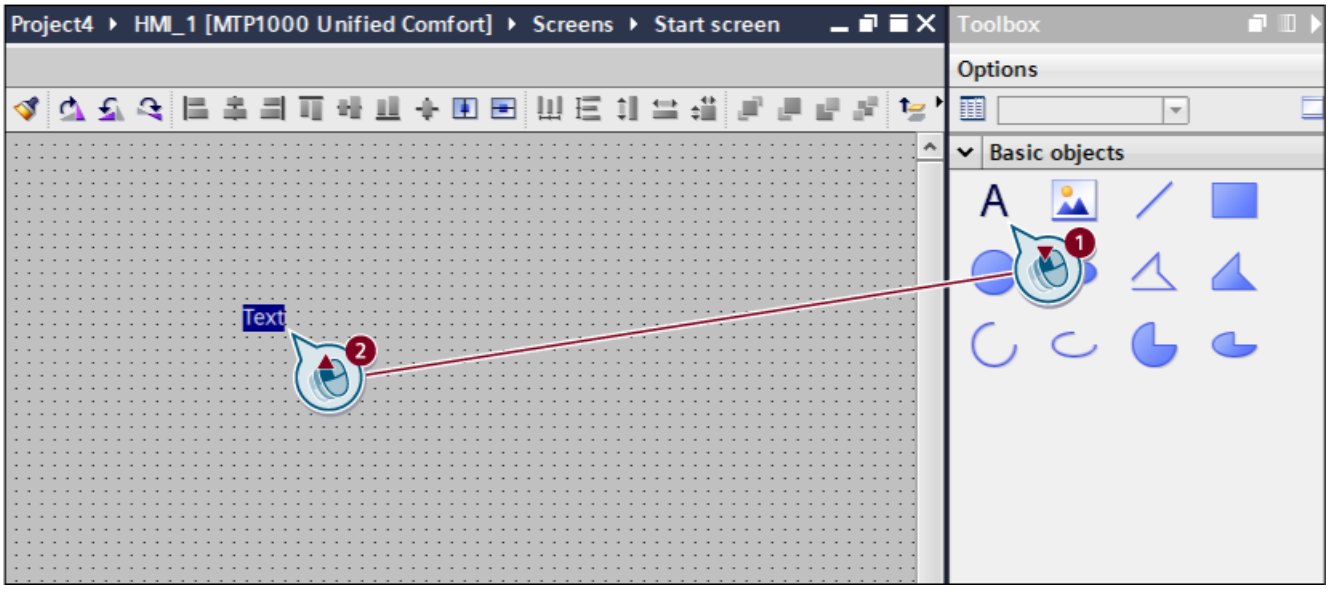
- If Filter is enabled, type the name or parts of the name in the search field. Only the properties that meet the search criterion are displayed.
- If Favorites is enabled, only selected, frequently used properties are displayed.

### Inserting objects into the start screen

1. Click ☆ in the Inspector window.

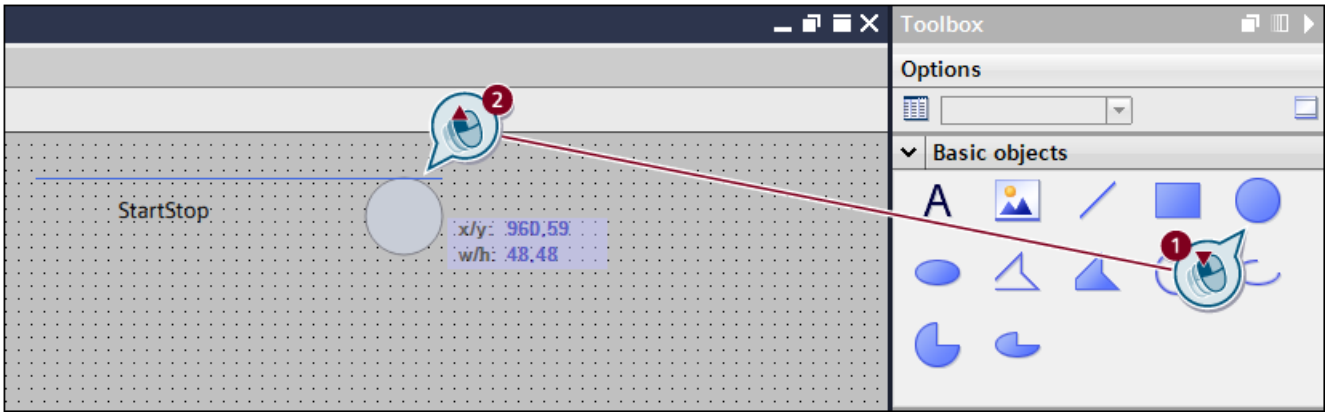



2. Insert a text box into the start screen.
   - Double-click on the start screen in the project tree. The screen editor opens.
   - Drag-and-drop or double-click the text box onto the start screen.

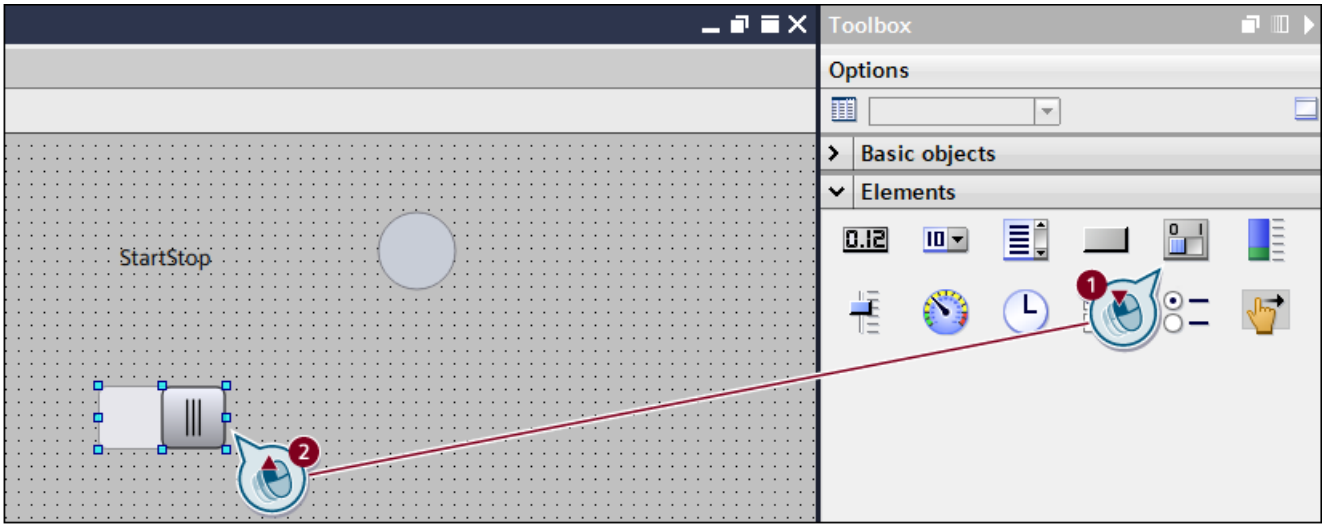



3. Enter the label "Start/Stop".

4. Insert a circle into the start screen.
   - Drag-and-drop the circle onto the start screen. Blue guide lines appear while you insert the circle.
   - Use the guides to position the circle to the height of the text box.

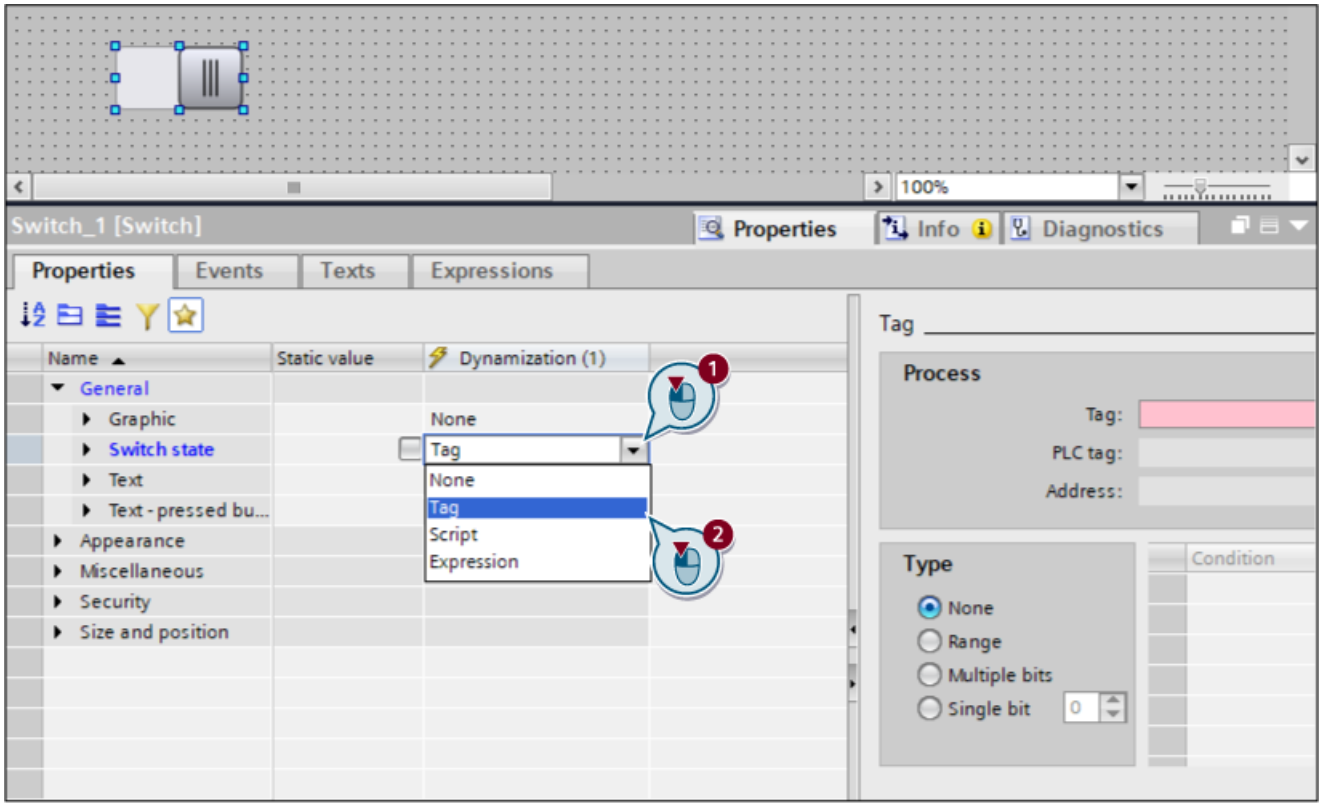



5. Insert a switch into the start screen.
   - Drag-and-drop the switch onto the start screen.
   - Position the switch under the text box. The text box serves as a label for the switch.



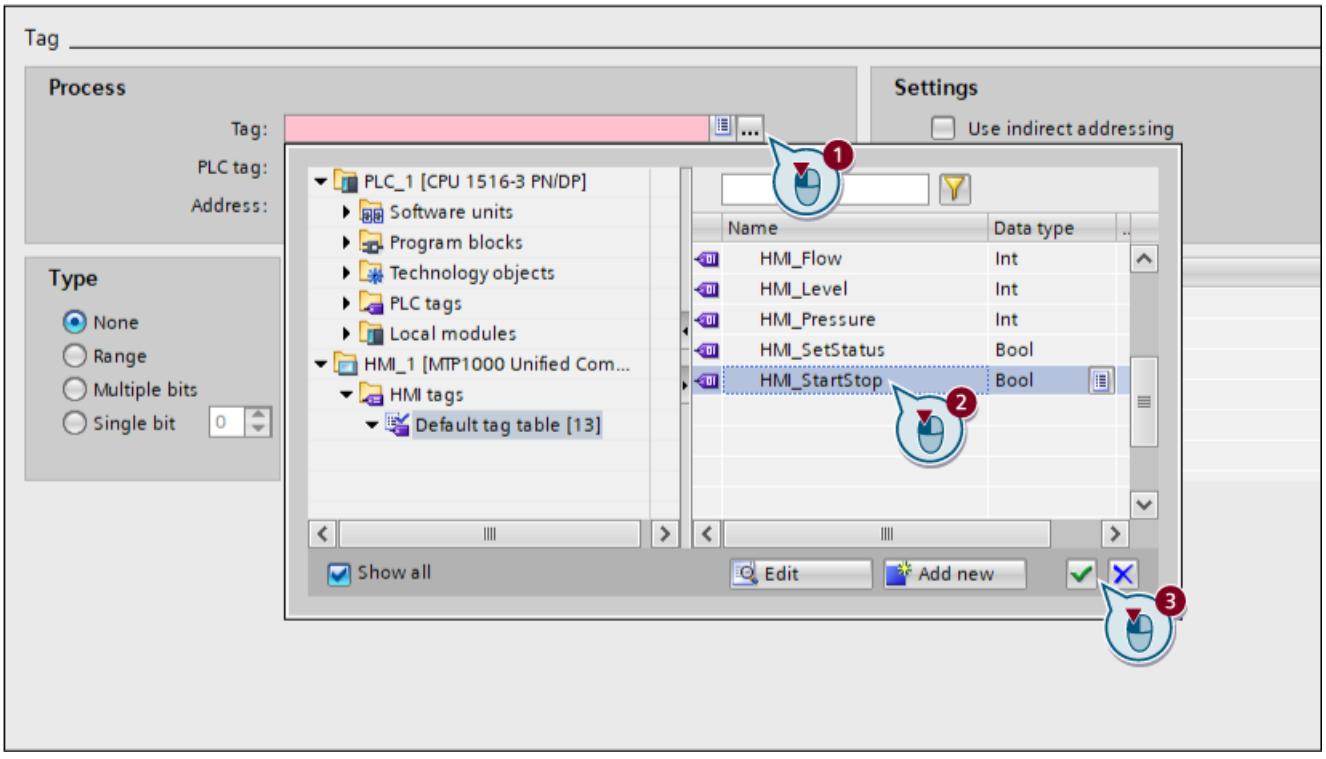
### Dynamizing a switch in the start screen

1. Click on the switch.
   - In the Inspector window, click ▼ for the "Switch state" property in the "Dynamization" column.
   - Select "Tag".



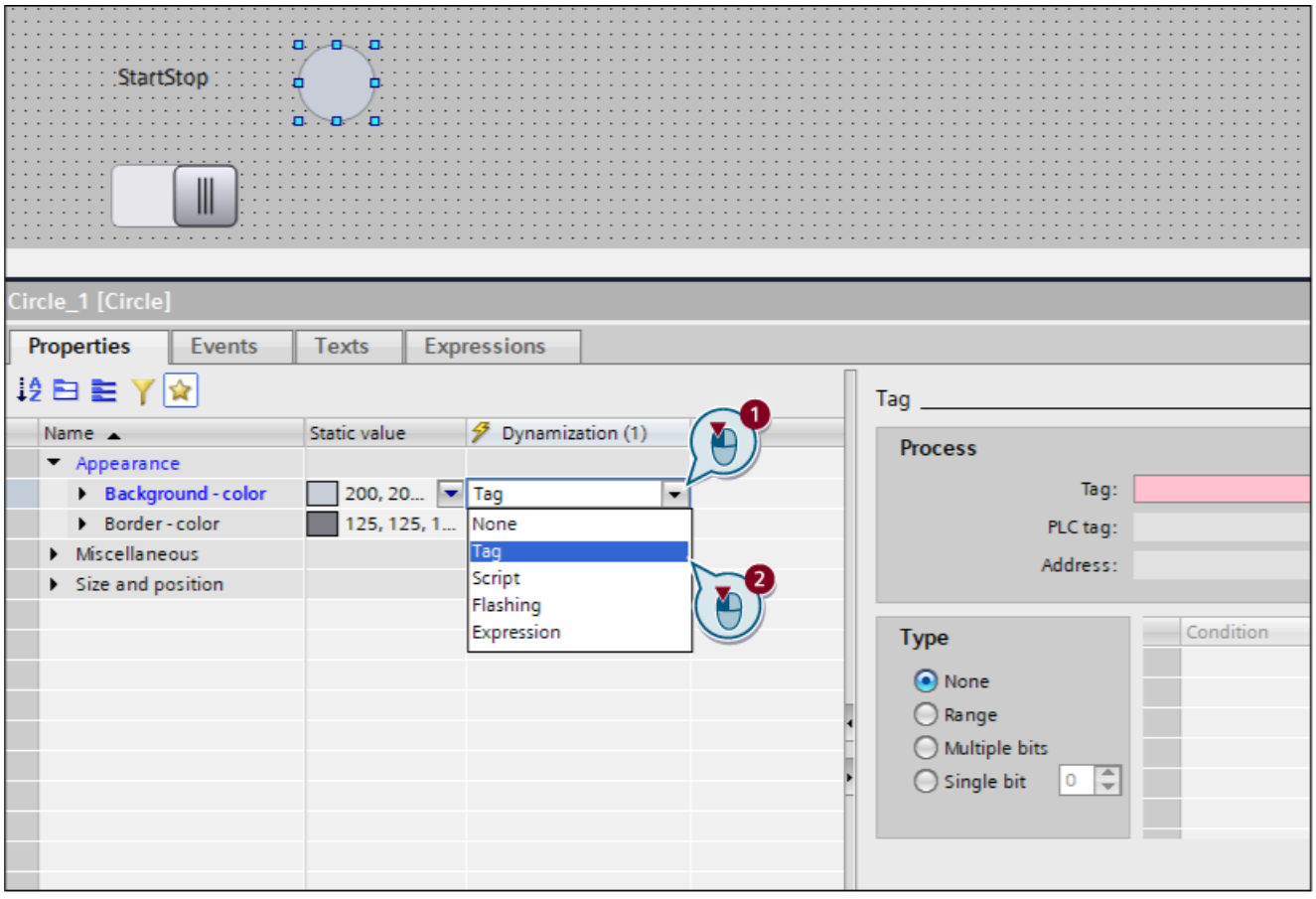

   The tag selection range opens.

2. Set the tag to be used for dynamization.
   - In the "Tag > Process" area, click on ...
   - Click the "HMI_StartStop" tag.
   - Confirm your selection with the green check mark.


Tag
Process
Tag:
PLC tag:
Address:
Settings
Use indirect addressing
Type
None
Range
Multiple bits
Single bit
0
PLC_1 [CPU 1516-3 PN/DP]
Software units
Program blocks
Technology objects
PLC tags
Local modules
HMI_1 [MTP1000 Unified Com...
HMI tags
Default tag table [13]
Name
Data type
HMI_Flow
Int
HMI_Level
Int
HMI_Pressure
Int
HMI_SetStatus
Bool
HMI_StartStop
Bool
Show all
Edit
Add new
1
2
3

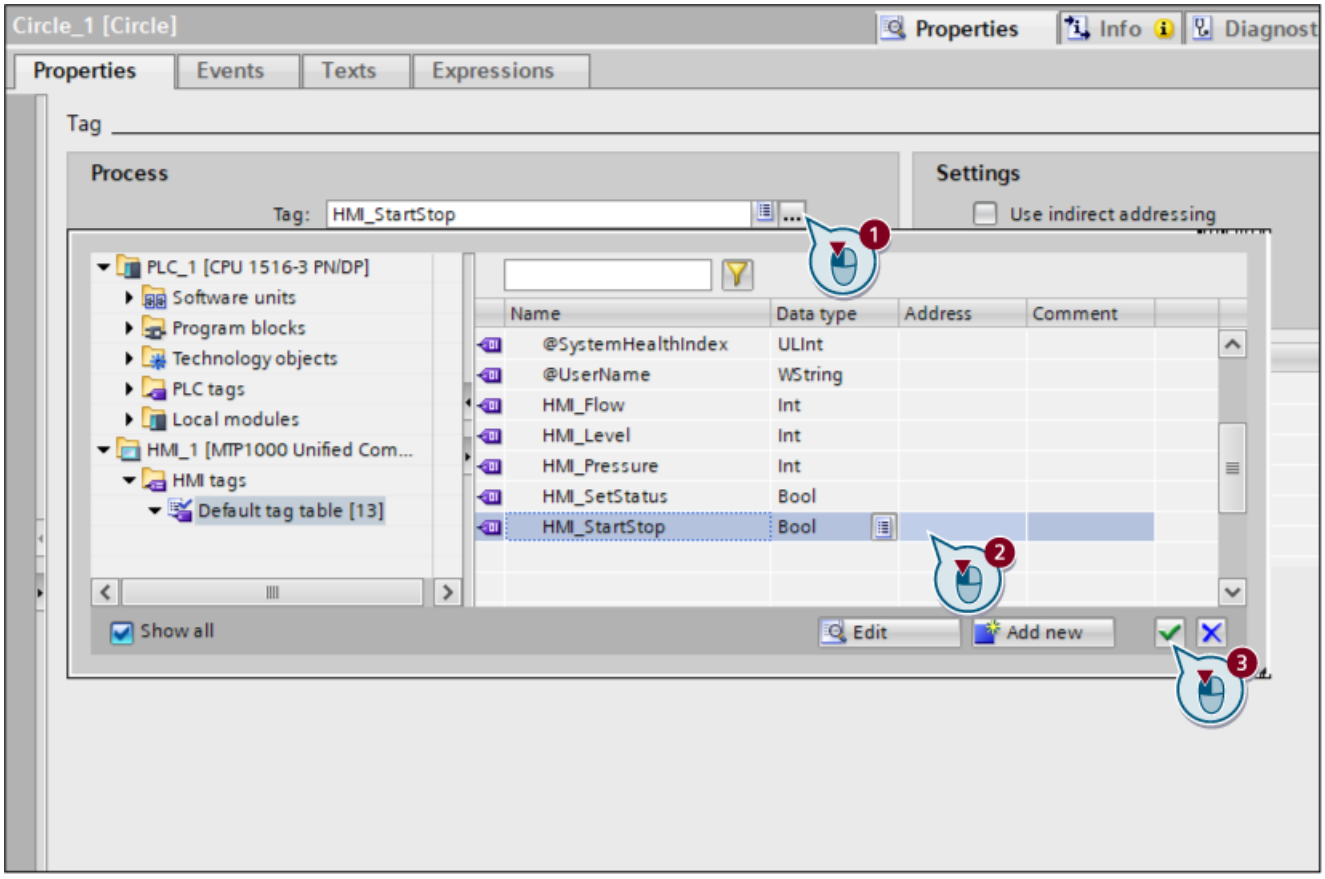
### Dynamizing a circle in the start screen

1. Click on the circle.
   - In the Inspector window, click the "Background - color" property.
   - Click in the "Dynamization" column.
   - Select "Tag".

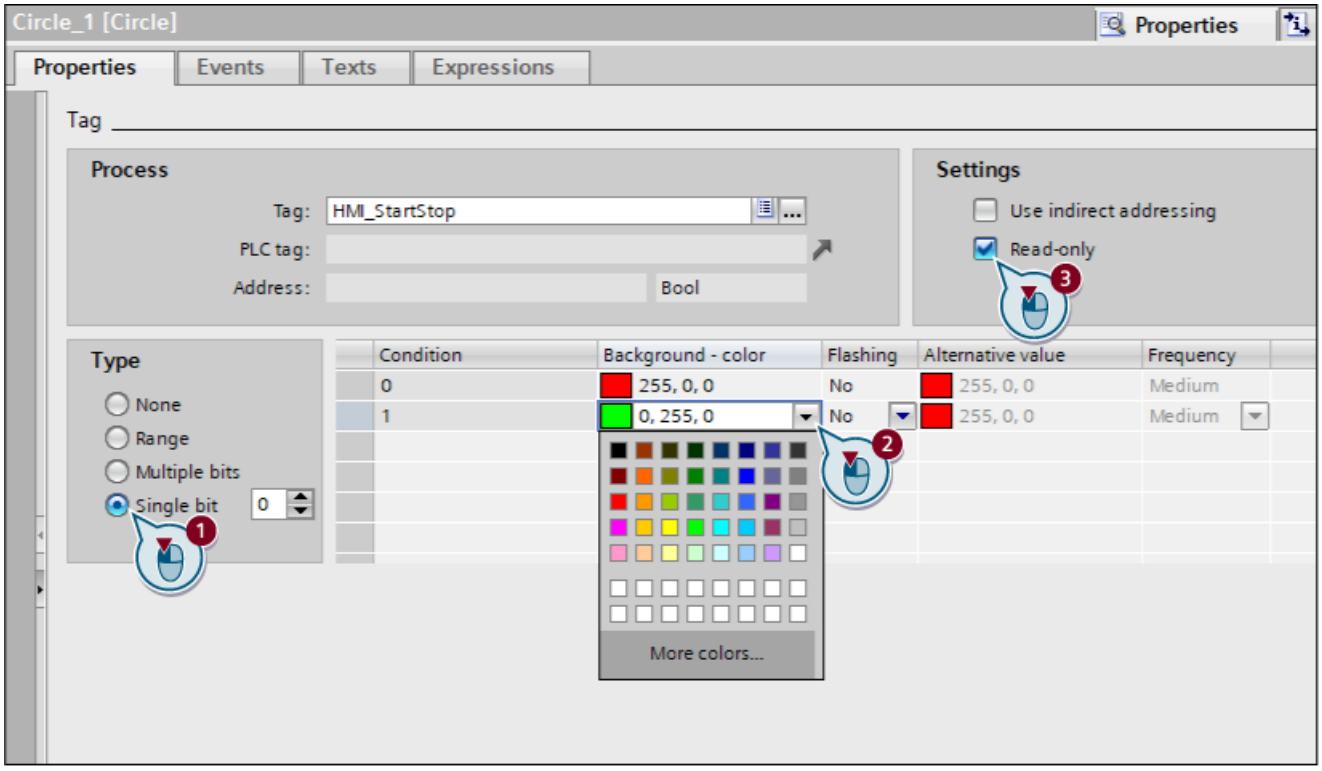



   The tag selection range opens.

2. Set the tag to be used for dynamization.
   - In the "Tag > Process" area, click on ...
   - Click the "HMI_StartStop" tag.
   - Confirm your selection with the green check mark.




3. Specify how the tag is to be evaluated.
   - Select the "Single bit" option in the "Tag > Type" area. The possible values in the "Condition" column are entered automatically.
   - Select red as the background color for the "0" condition and green for the "1" condition.
   - Select the "Read only" option under "Tag > Settings".



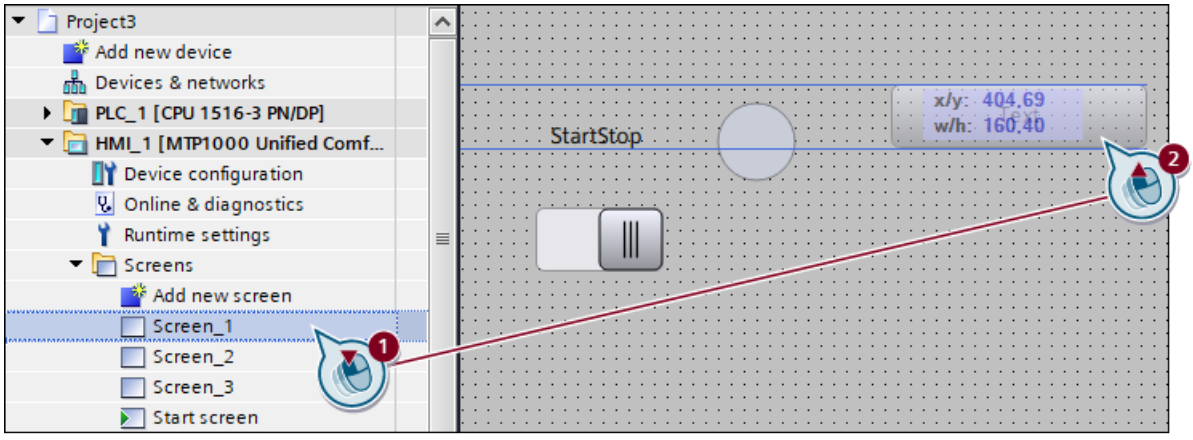

## 10.4 Configuring a screen change

You configure the buttons for the screen change between the start screen and "Screen_1", "Screen_2" and "Screen_3".

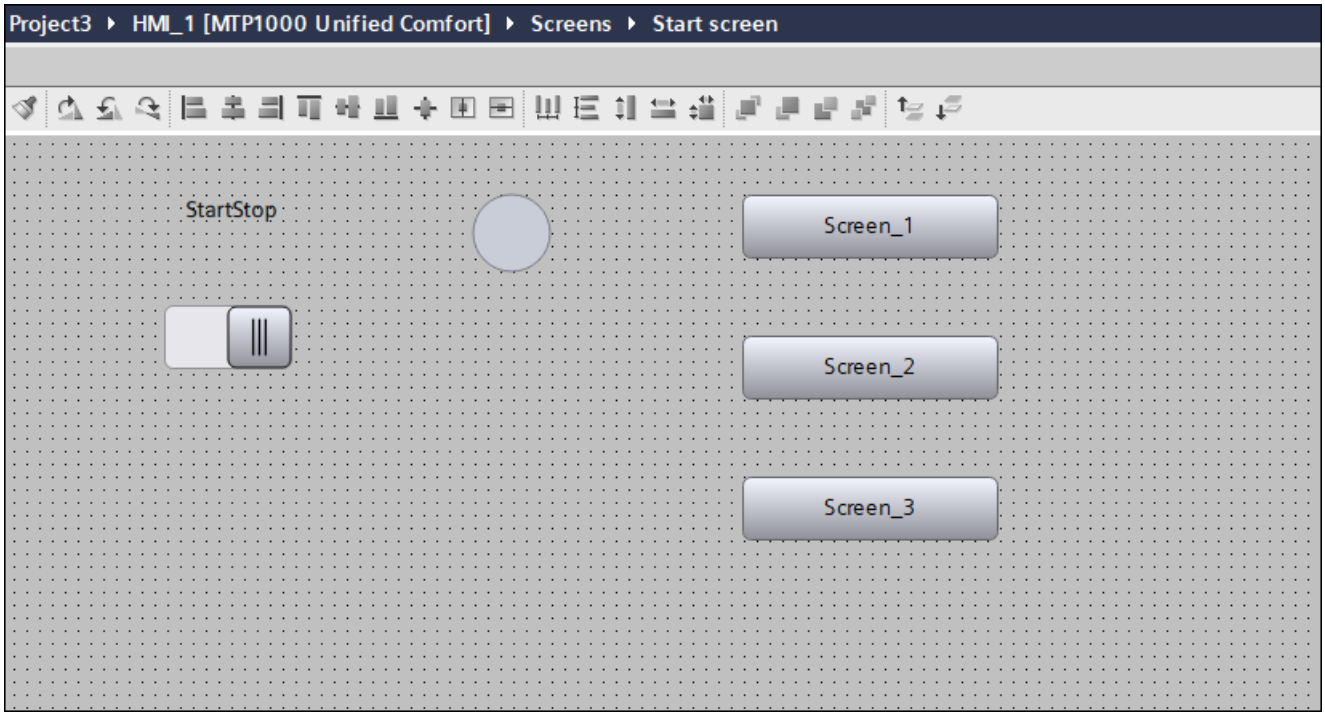
In Runtime, the operators use these buttons to switch between the screens.

## Configuring the screen change in the start screen

1. Double-click "Start screen" in the project tree. The screen editor opens.
   - Drag-and-drop the "Screen_1" from the project tree onto the start screen.
   - When the mouse is in the work area, a button is displayed at the mouse pointer. Blue guide lines appear during the insertion.
     Position the button to the height of the circle using the guide lines.
     When you drag-and-drop a screen into another screen, a button is created and labeled with the name of the screen. The button is dynamized using a system function so that the screen change is executed in Runtime when you release the button.
   - Drag-and-drop the "Screen_2" onto the start screen.
   - Drag-and-drop the "Screen_3" onto the start screen.




You have created three buttons for the screen change in the start screen.



### Configuring the screen change for the start screen

1. Double-click "Screen_1" in the project tree.
   – Drag-and-drop "Start screen" from the project tree onto "Screen_1".
2. Double-click "Screen_2" in the project tree.
   – Drag-and-drop "Start screen" from the project tree onto "Screen_1".
3. Double-click "Screen_3" in the project tree.
   – Drag-and-drop "Start screen" from the project tree onto "Screen_1".

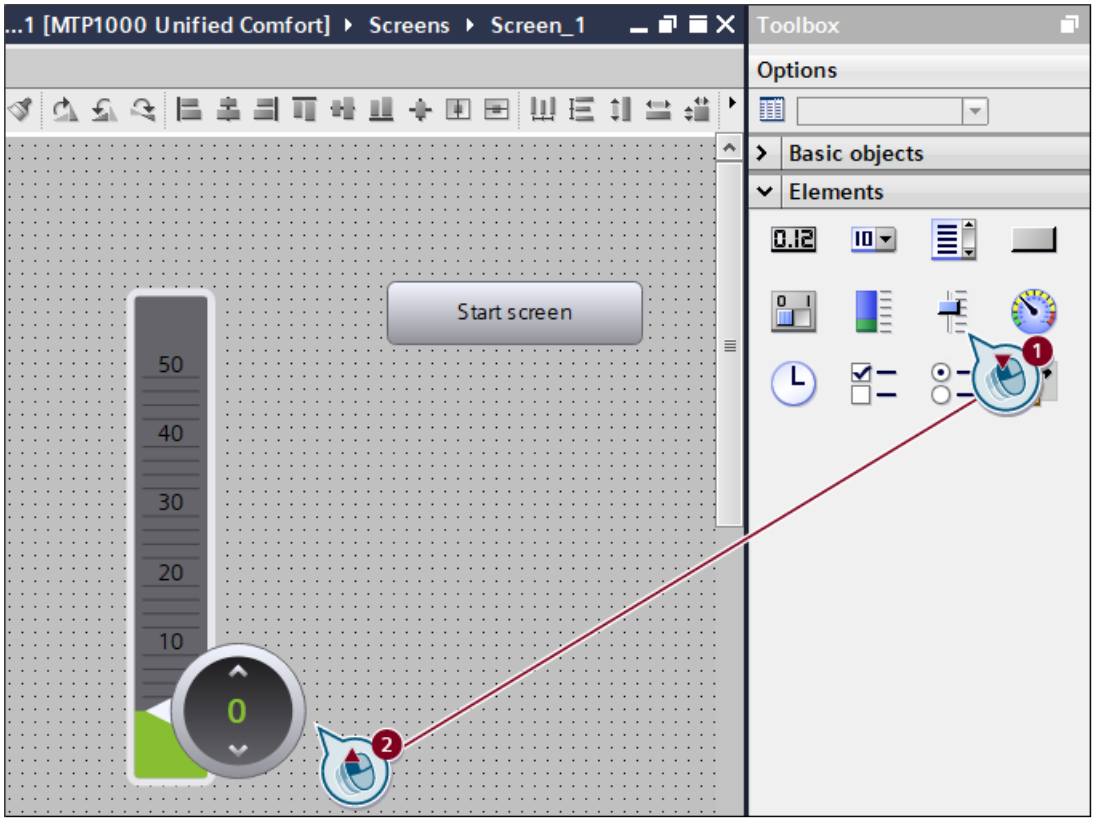
## 10.5 Displaying tag values in Runtime

You configure the "Slider" and "I/O field" objects in the "Screen_1". You dynamize these objects with the "HMI_Flow" tag.

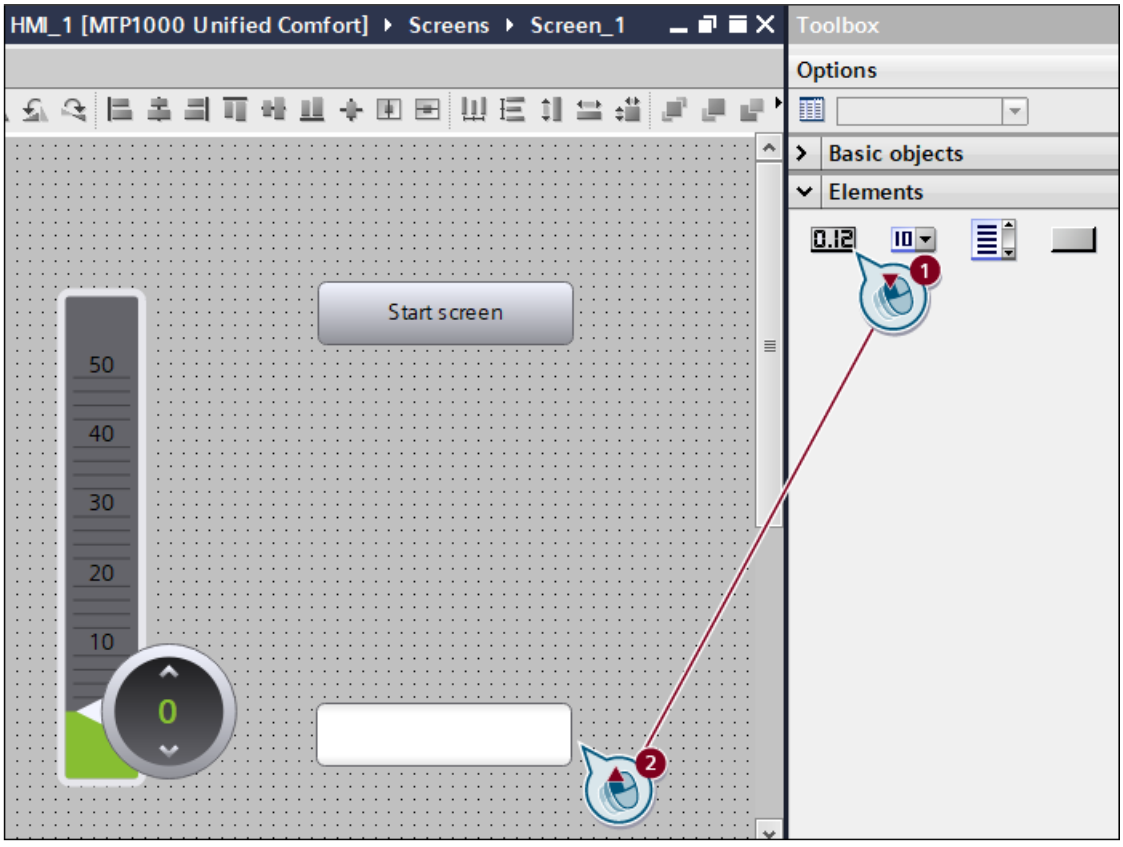
In Runtime, these objects read the value of the tag and visualize it. The slider represents the value graphically, the I/O field represents it numerically. Operators in Runtime write a new value to the tag by moving the slider. The new value is also visualized in the I/O field.

### Inserting a slider and I/O field into the "Screen_1"

1. Double-click "Screen_1" in the project tree. The screen editor opens.
   – From the "Elements" palette, drag-and-drop the slider onto the screen.

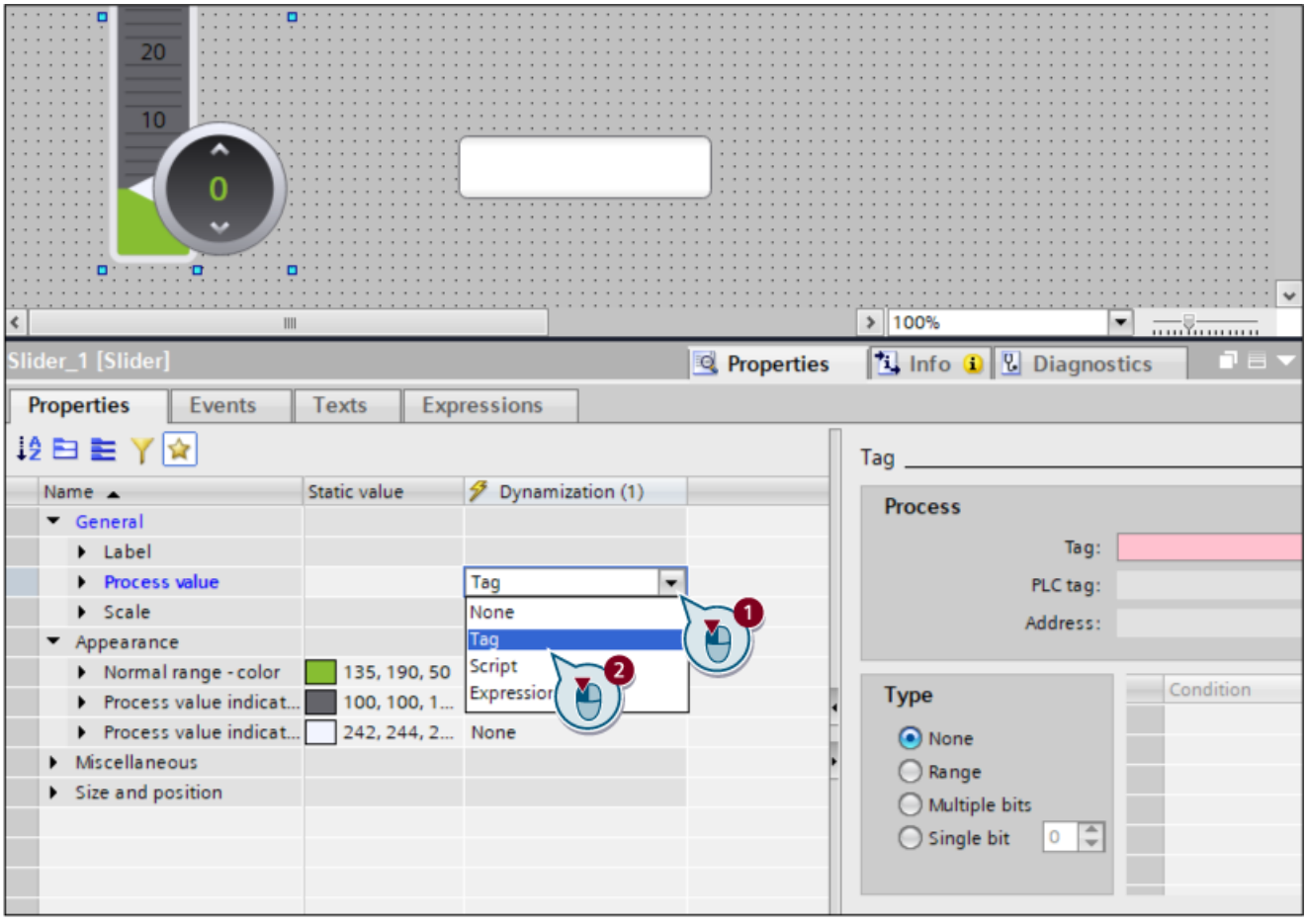



   – Drag-and-drop the I/O field from the "Elements" palette onto the screen.


HMI_1 [MTP1000 Unified Comfort] ▸ Screens ▸ Screen_1
Toolbox
Options
Basic objects
Elements
Start screen
50
40
30
20
10
0
1
2

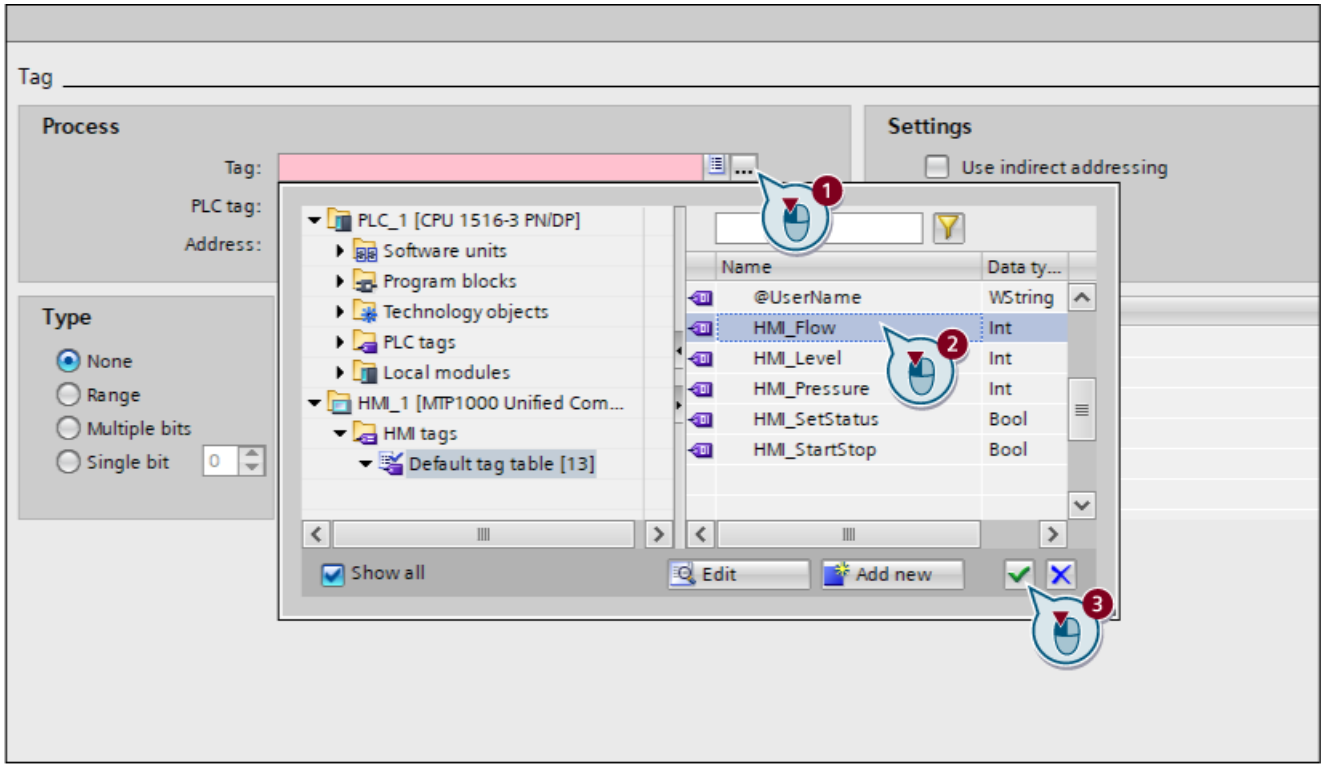
### Dynamizing a slider and I/O field in "Screen_1"

1. Click on the slider.
   - In the Inspector window, click for the "Process value" property in the "Dynamization" column.
   - Select "Tag".



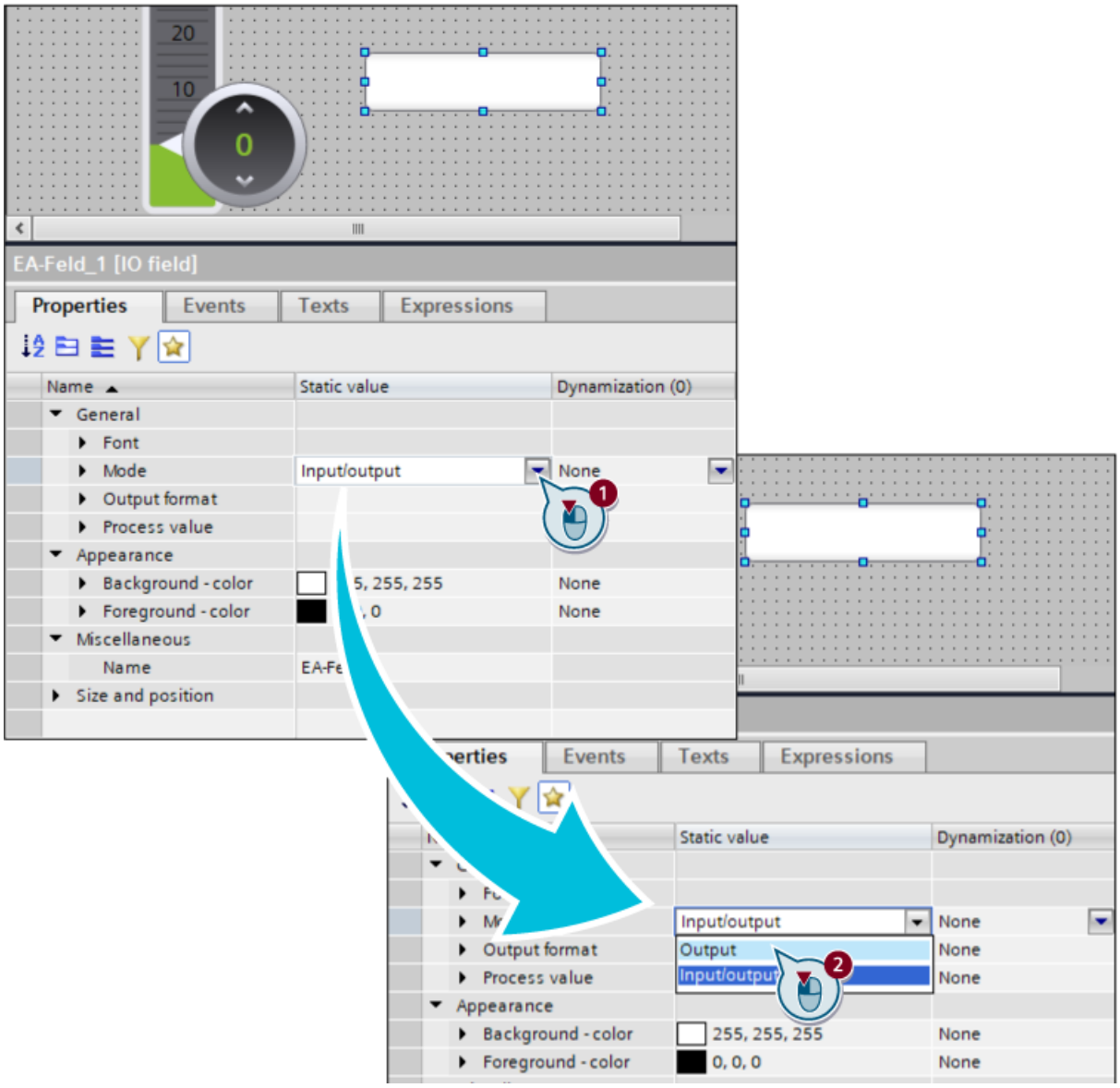

The tag selection range opens.

2. Set the tag to be used for dynamization.
   - Click ... in the "Tag" area.
   - Click the "HMI_Flow" tag.
   - Confirm your selection with the green check mark.



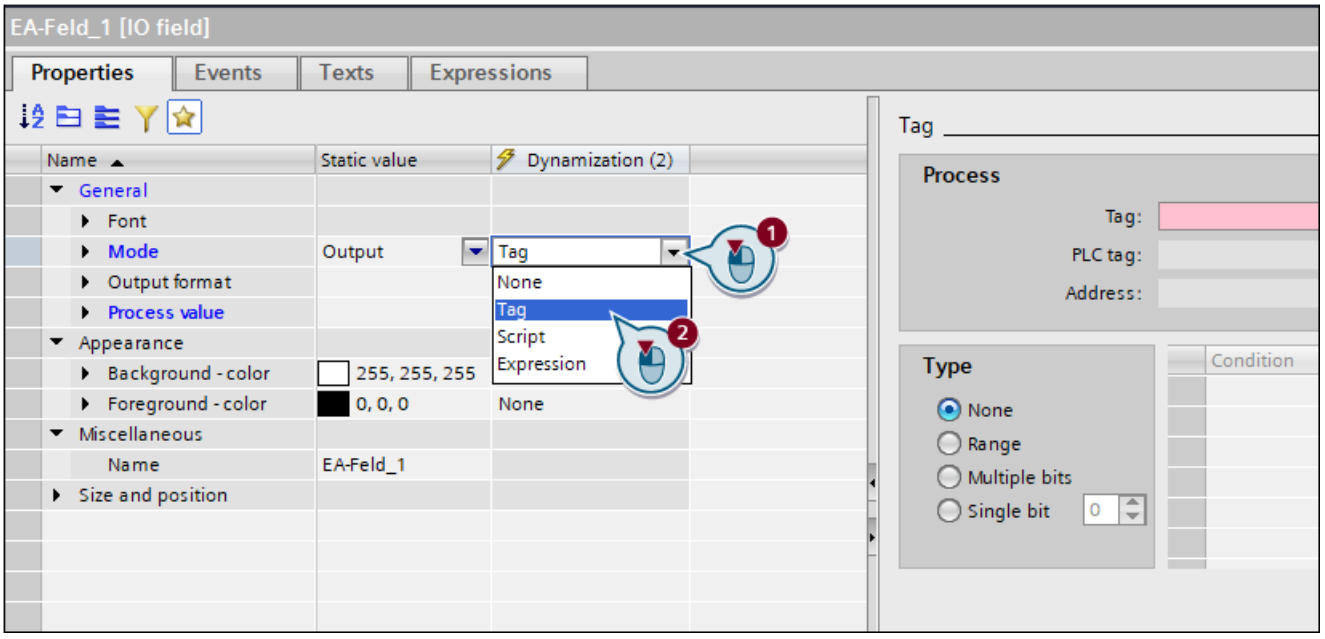

3. Click on the I/O field.
   - In the Inspector window, click the "Input/Output" text for the "Mode" property in the "Static value" column.
   - Click .

– Select "Output".

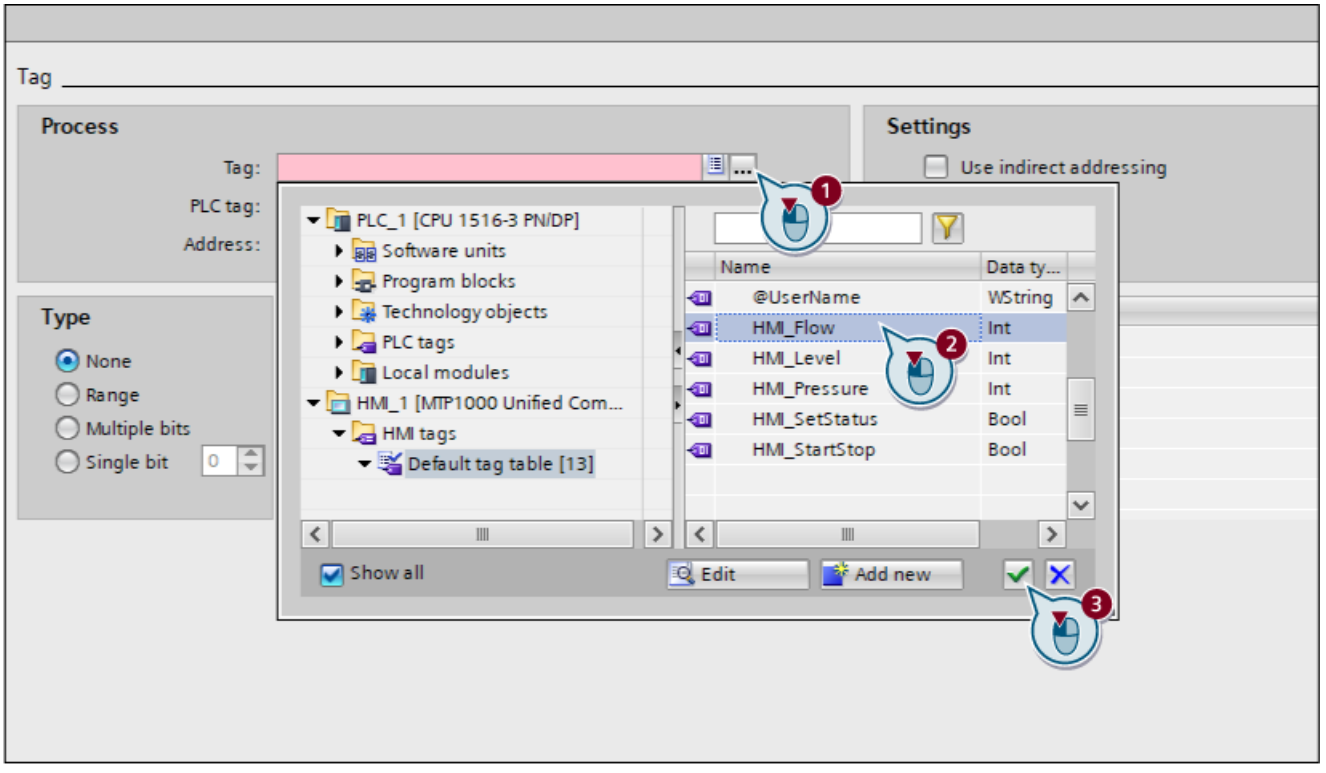



– In the Inspector window, click ▼ for the "Process value" property in the "Dynamization" column.

– Select "Tag".




– Click ... in the "Tag" area.
– Click the "HMI_Flow" tag.
– Confirm your selection with the green check mark.



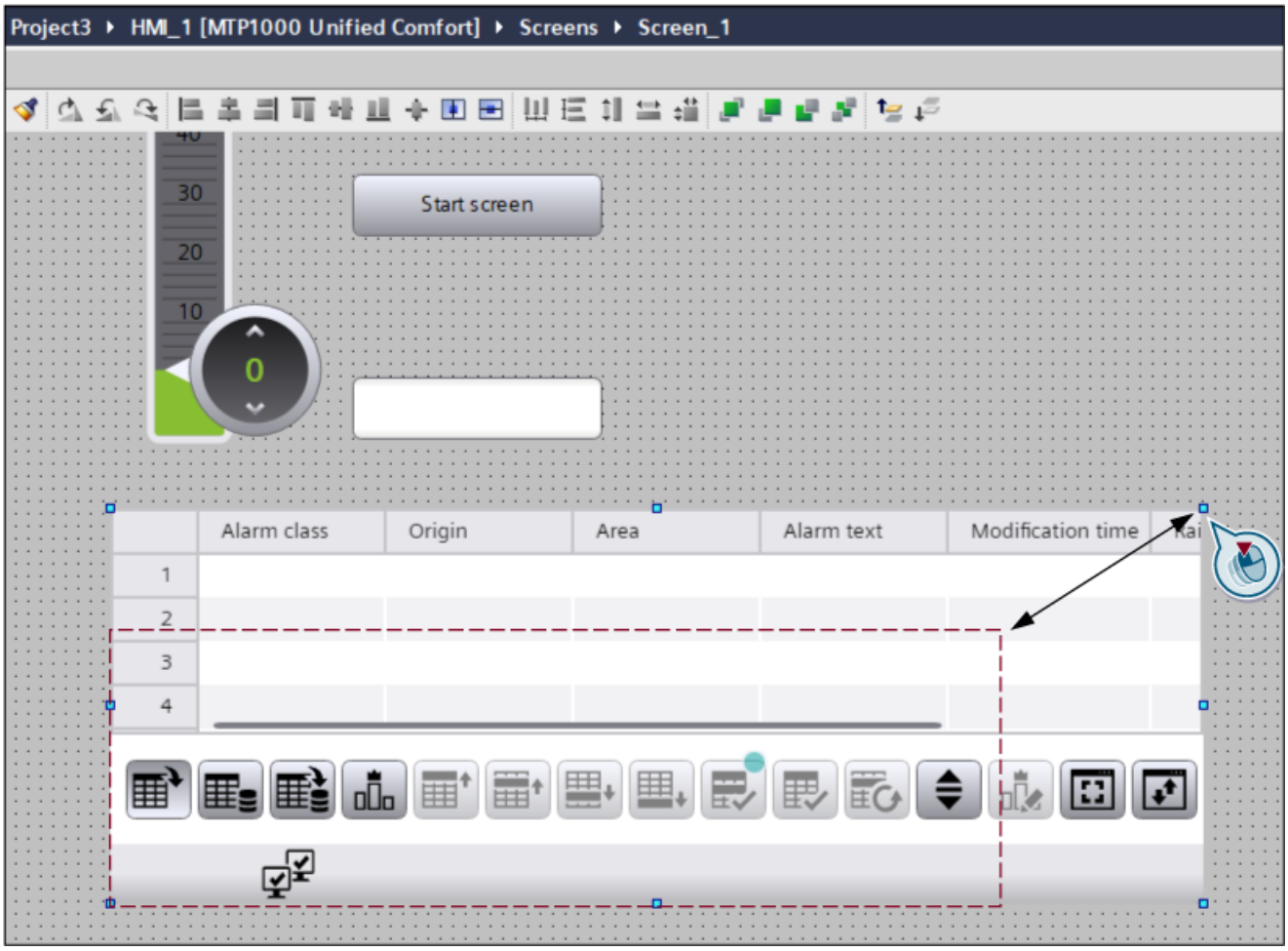
## 10.6 Generating alarms

You configure the "Alarm control" object in "Screen_1".

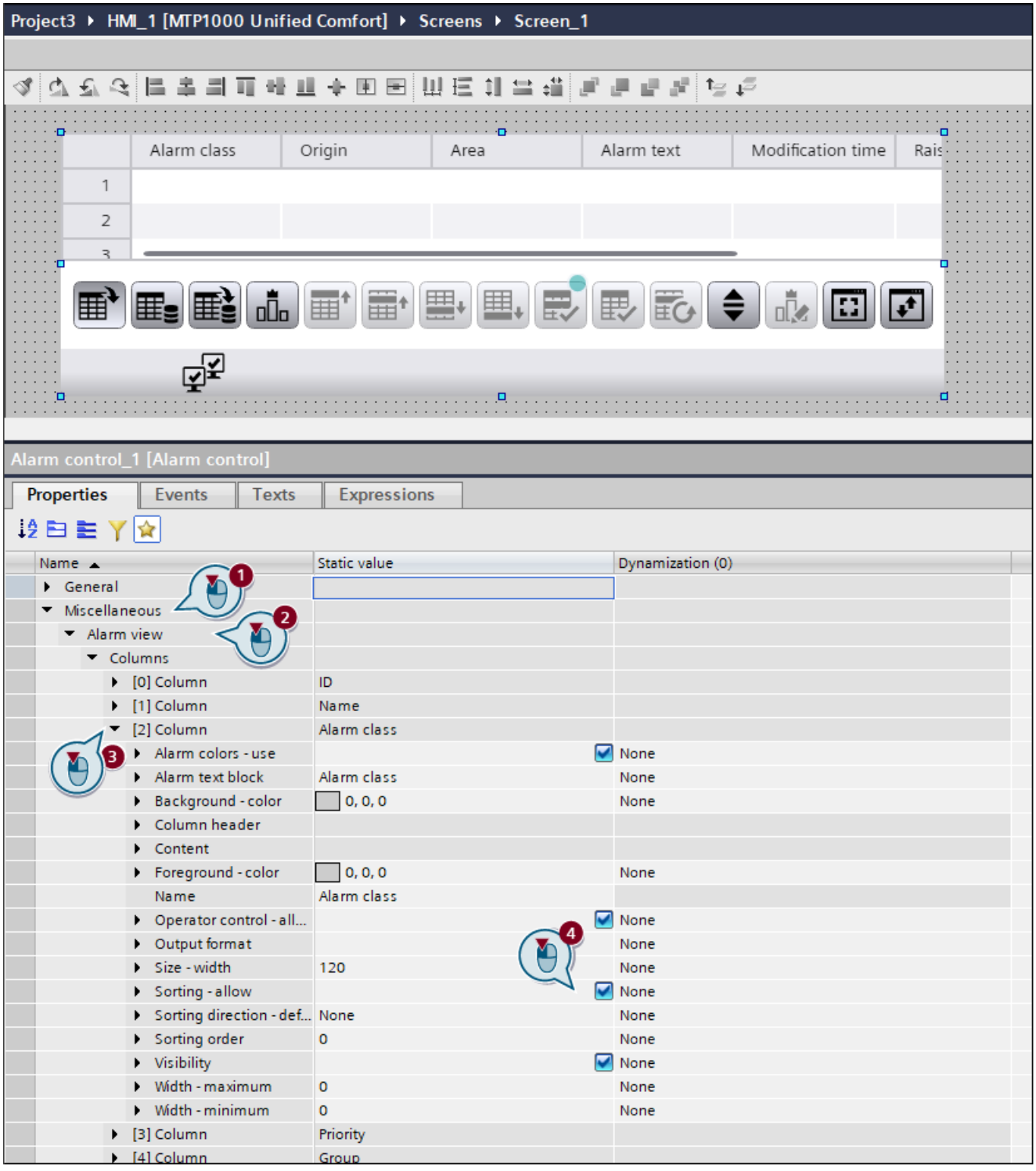
In Runtime, extraordinary operating states are reported to the operators in the alarm control. Operators acknowledge an alarm using "Single acknowledgment" button. The number of unacknowledged alarms is displayed in the green circle on the button.

### Inserting an alarm control into "Screen_1"

1. Double-click "Screen_1" in the project tree. The screen editor opens.
   - Drag-and-drop the alarm control from the "Controls" palette onto the screen. Position the alarm control under the slider and the I/O field.
   - Drag one of the blue drag points in the object-enclosing rectangle to adjust the size of the Alarm view.




2. Click on the alarm control.
   - Click ▸ for "Miscellaneous > Alarm control".
   - Click ▸ for "Columns".
   - Click ▸ for "[2] Column" .
   - For "Visibility" in the "Static value" column, click ☑ to disable the visibility of the "Message class" column.


Project3 ▸ HMI_1 [MTP1000 Unified Comfort] ▸ Screens ▸ Screen_1
Alarm class
Origin
Area
Alarm text
Modification time
Alarm control_1 [Alarm control]
Properties
Events
Texts
Expressions
Name
Static value
Dynamization (0)
General
Miscellaneous
Alarm view
Columns
[0] Column
ID
[1] Column
Name
[2] Column
Alarm class
Alarm colors - use
None
Alarm text block
Alarm class
None
Background - color
0, 0, 0
None
Column header
Content
Foreground - color
0, 0, 0
None
Name
Alarm class
Operator control - all...
None
Output format
None
Size - width
120
None
Sorting - allow
None
Sorting direction - def...
None
None
Sorting order
0
None
Visibility
None
Width - maximum
0
None
Width - minimum
0
None
[3] Column
Priority
[4] Column
Group
1
2
3
4

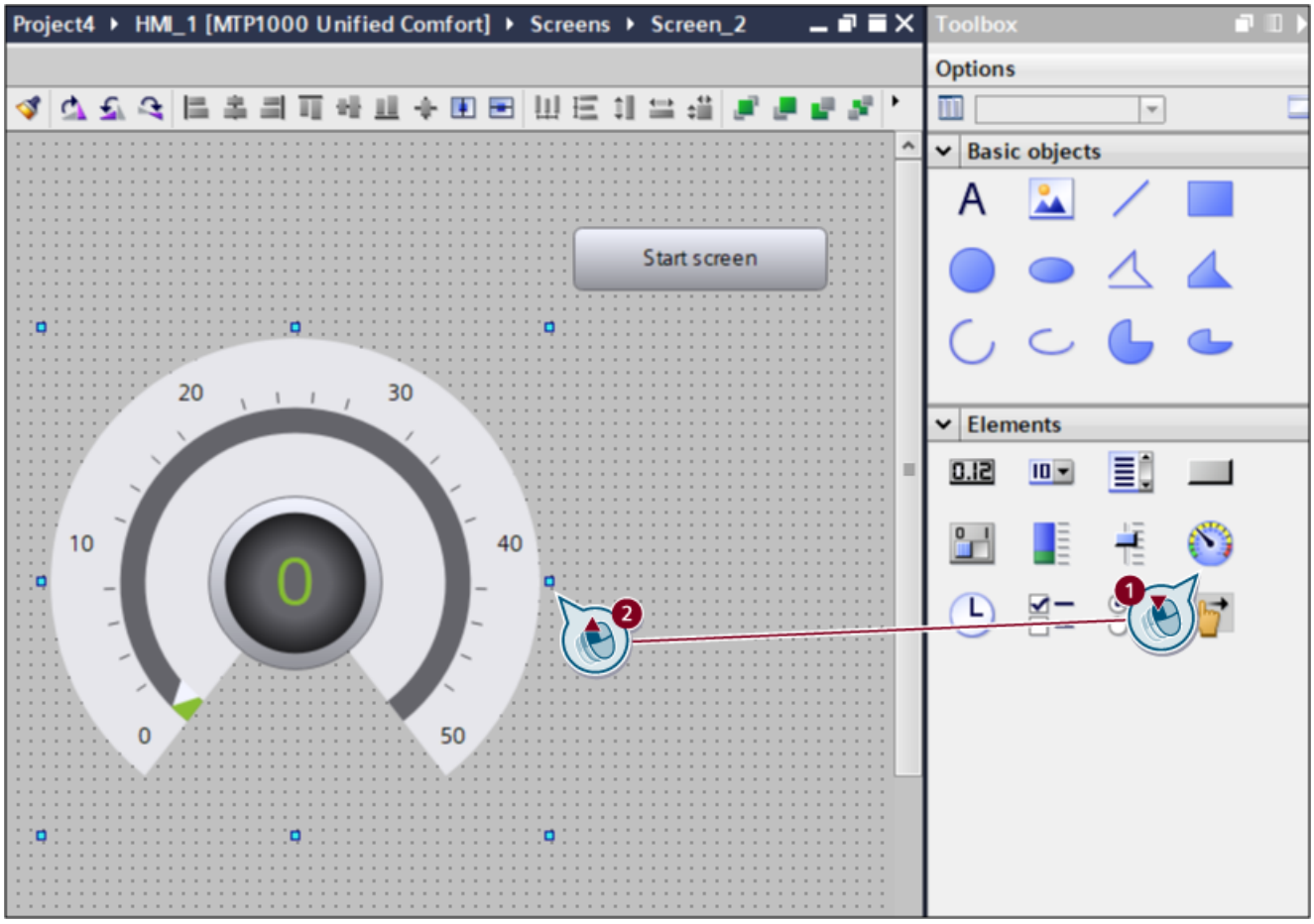
## 10.7 Limit inputs

You configure the "Gauge" and "I/O field" objects in "Screen_2". You dynamize these objects with the "HMI_Pressure" tag. You define a value range from 0 to 50 for the tag. In this way, you match the value range of the I/O field and the gauge.

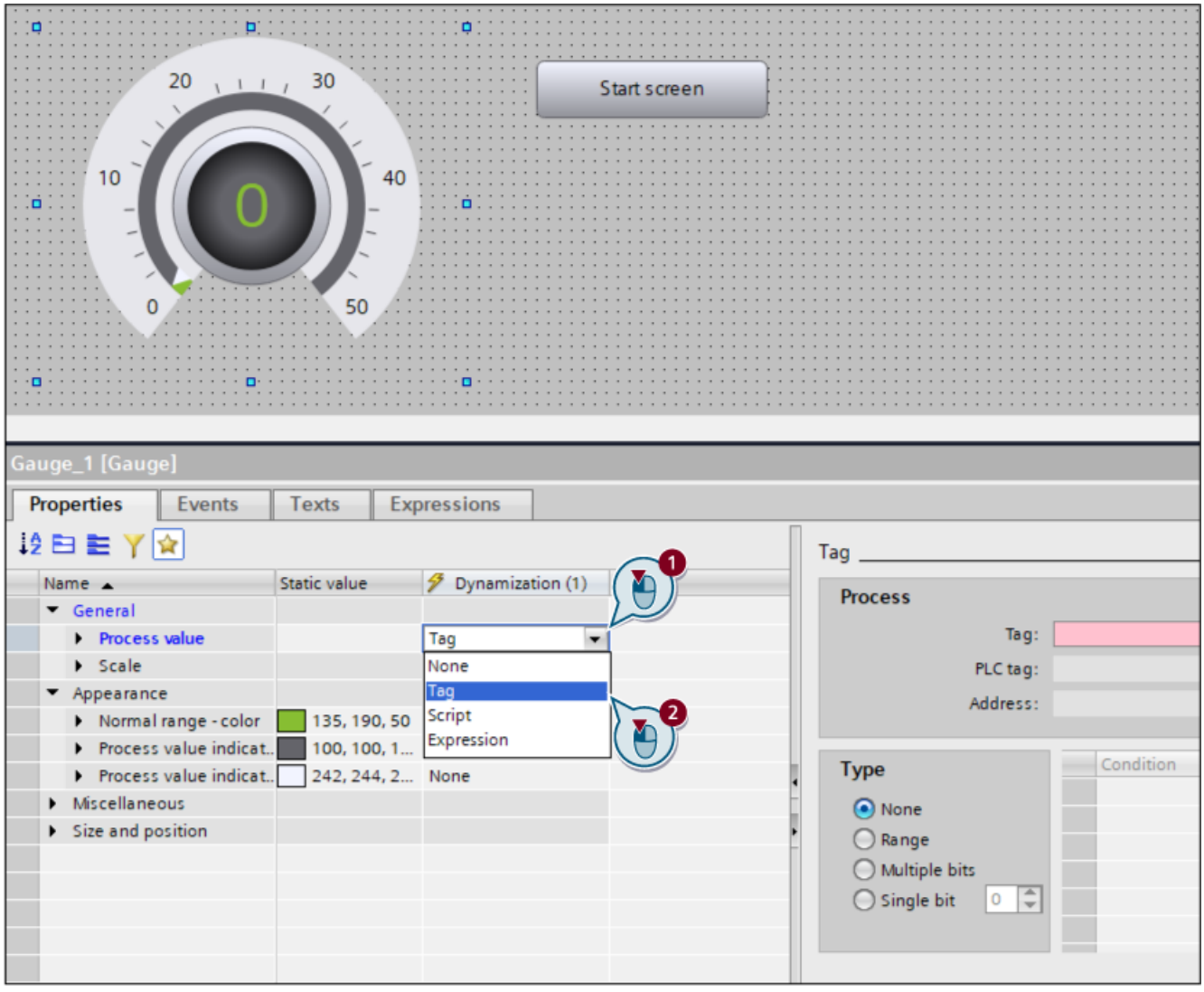
In Runtime, the values entered into the I/O field are displayed in the gauge. Operators cannot enter values outside the value range in the I/O field.

### Inserting a gauge and I/O field into "Screen_2"

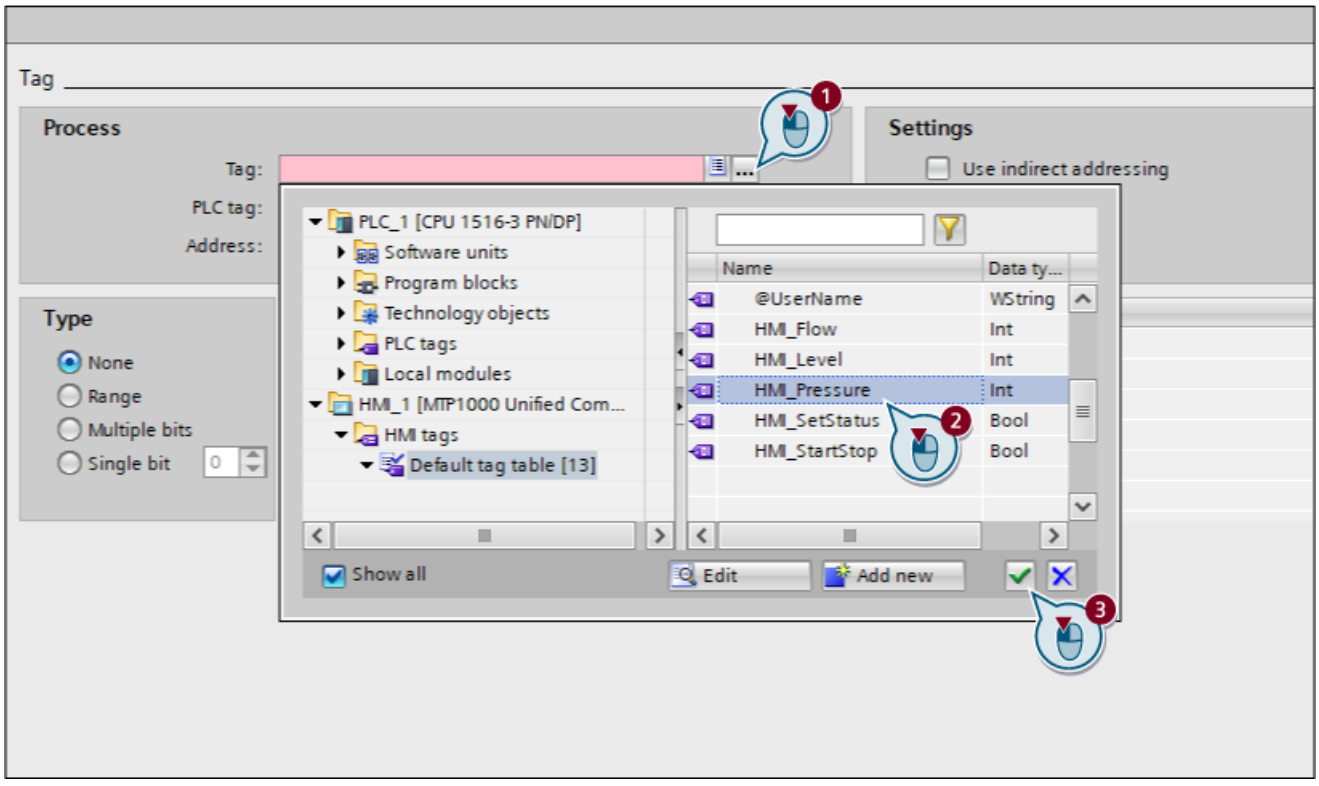
1. Double-click "Screen_2" in the project tree. The screen editor opens.
   - Drag-and-drop the gauge from the "Elements" palette onto the screen.



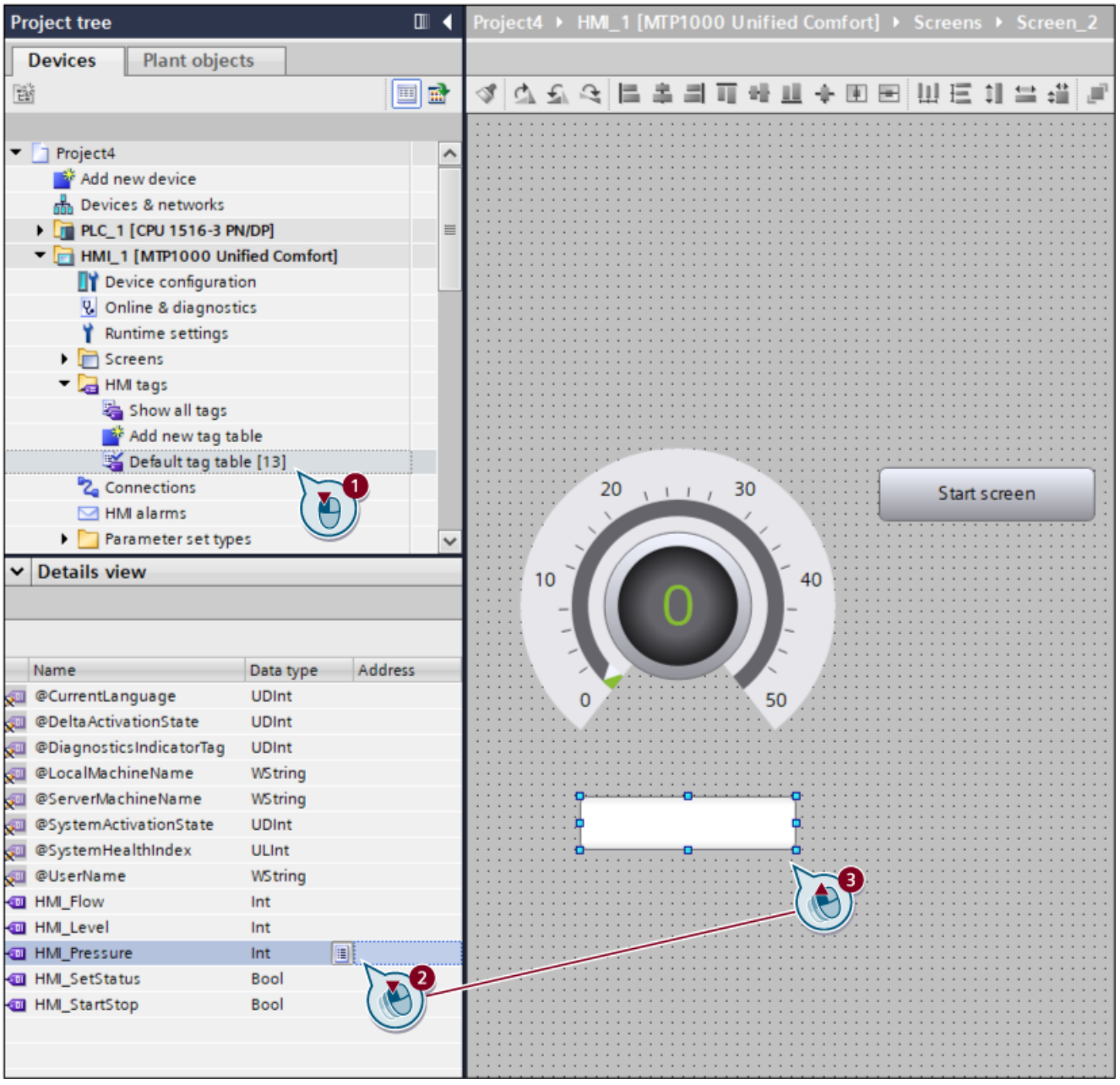

   - In the Inspector window, click ▾ for the "Process value" property in the "Dynamization" column.
   - Select "Tag".




2. Set the tag to be used for dynamization.
   - Click ... in the "Tag" area.
   - Click the "HMI_Pressure" tag.
   - Confirm your selection with the green check mark.

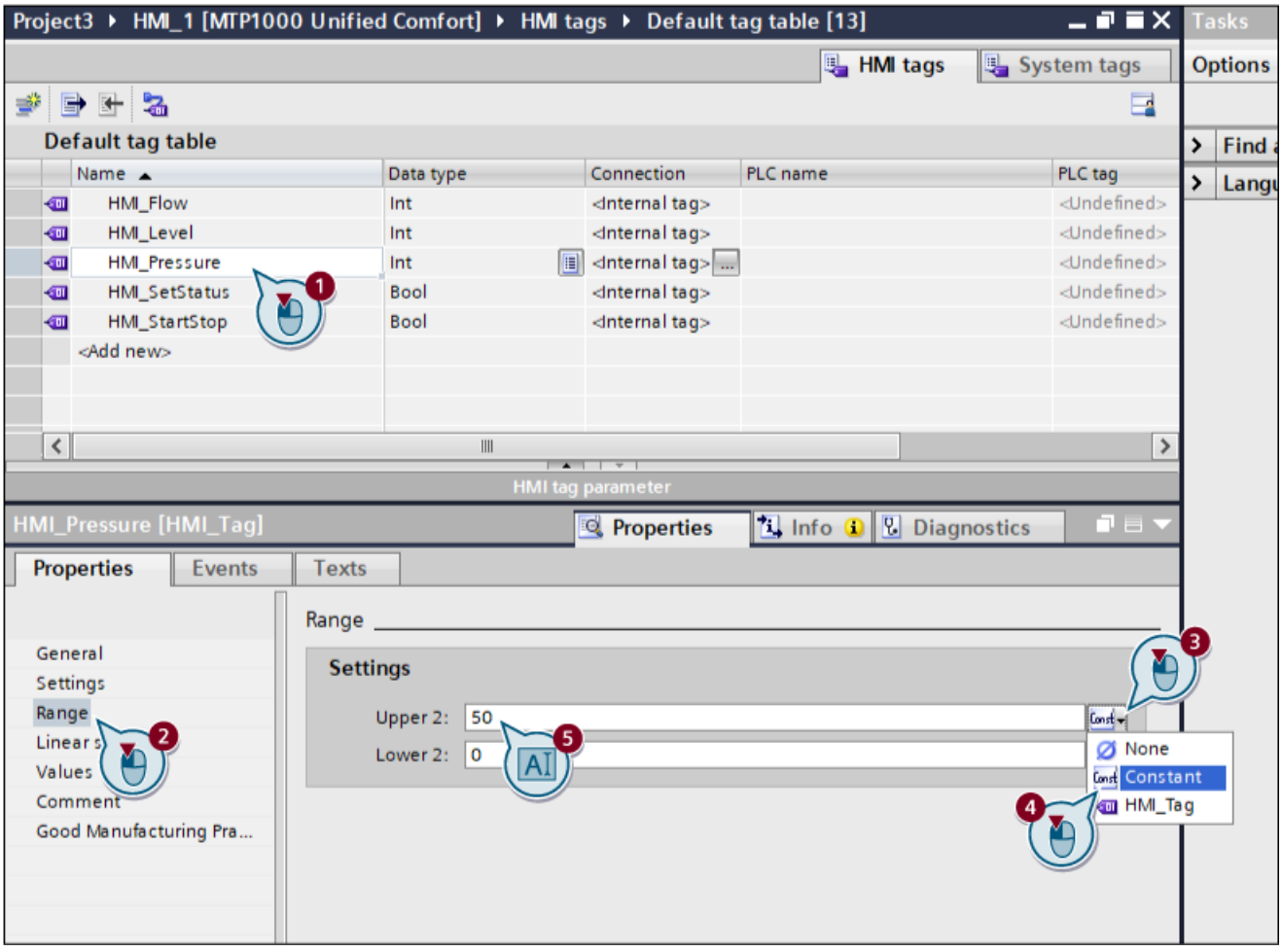



3. Create an I/O field.
   - Click "Default tag table" in the project tree.
   - From the Detail view of the default tag table in the project tree, drag-and-drop the "HMI_Pressure" tag onto the screen.
     When you drag-and-drop a tag onto a screen, an I/O field is created and linked to the tag.

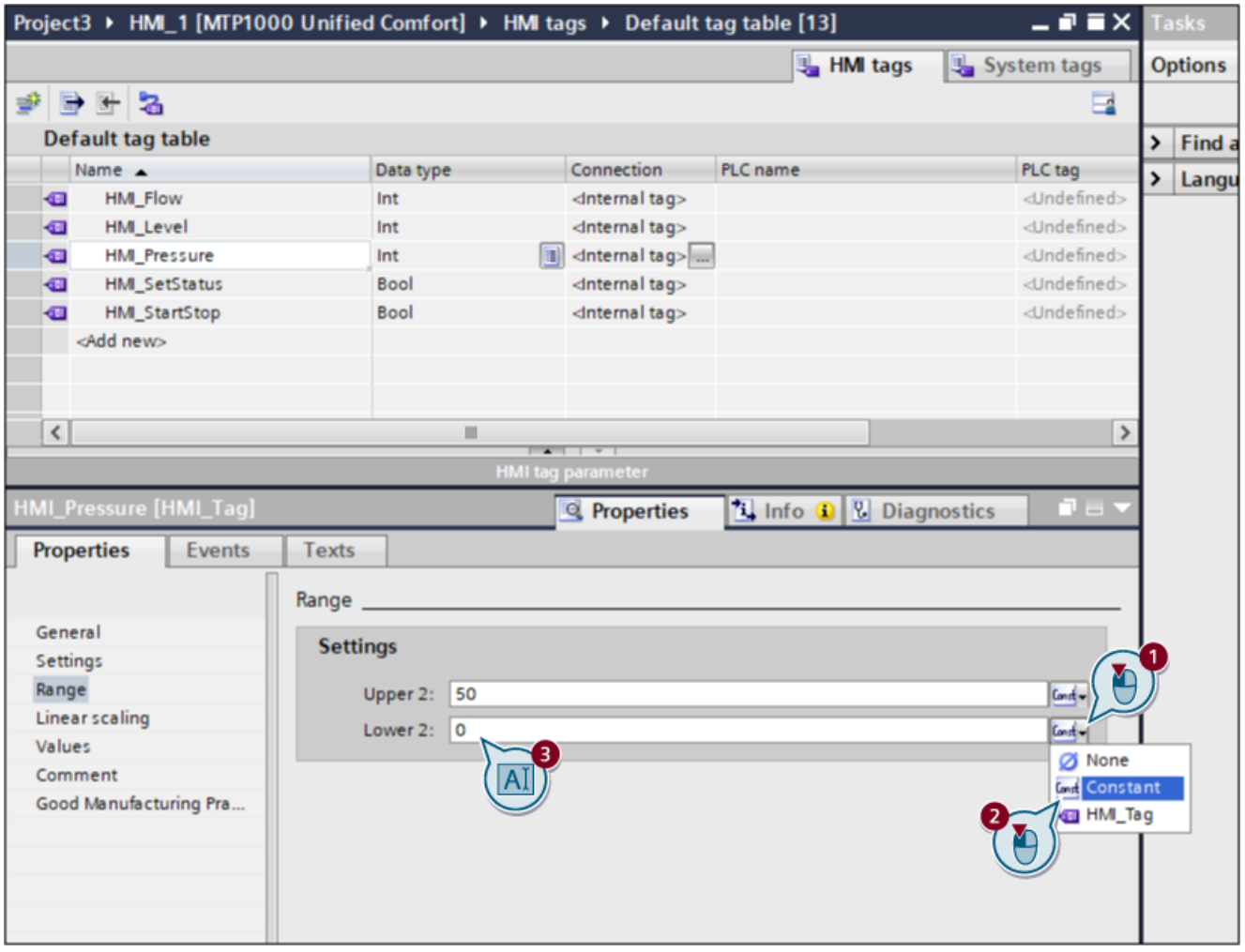

Project tree
Devices
Plant objects
Project4
Add new device
Devices & networks
PLC_1 [CPU 1516-3 PN/DP]
HMI_1 [MTP1000 Unified Comfort]
Device configuration
Online & diagnostics
Runtime settings
Screens
HMI tags
Show all tags
Add new tag table
Default tag table [13]
Connections
HMI alarms
Parameter set types
Details view
Name
Data type
Address
@CurrentLanguage UDInt
@DeltaActivationState UDInt
@DiagnosticsIndicatorTag UDInt
@LocalMachineName WString
@ServerMachineName WString
@SystemActivationState UDInt
@SystemHealthIndex ULInt
@UserName WString
HMI_Flow Int
HMI_Level Int
HMI_Pressure Int
HMI_SetStatus Bool
HMI_StartStop Bool
Project4 ▸ HMI_1 [MTP1000 Unified Comfort] ▸ Screens ▸ Screen_2
Start screen
0
10
20
30
40
50
1
2
3

### Limiting the value range of the input

1. Double-click the "Default tag table" under "HMI tags" in the project tree.
2. Click the "HMI_Pressure" tag.
   - Click "Range" under "Properties" in the Inspector window.
   - Click Const. Select the "Constant" option.
   - Enter "50" as the high limit.




   - Click Const. Select the "Constant" option.
   - Enter "0" as the low limit.




## 10.8 Configuring SVG graphics

WinCC provides large number graphics and symbols for industrial automation. These include motors, pumps, valves, tanks, as well as technical components for numerous industrial sectors. You can find these graphics in the "Graphics" and "Dynamic widgets" palettes in the "Tools" task card.

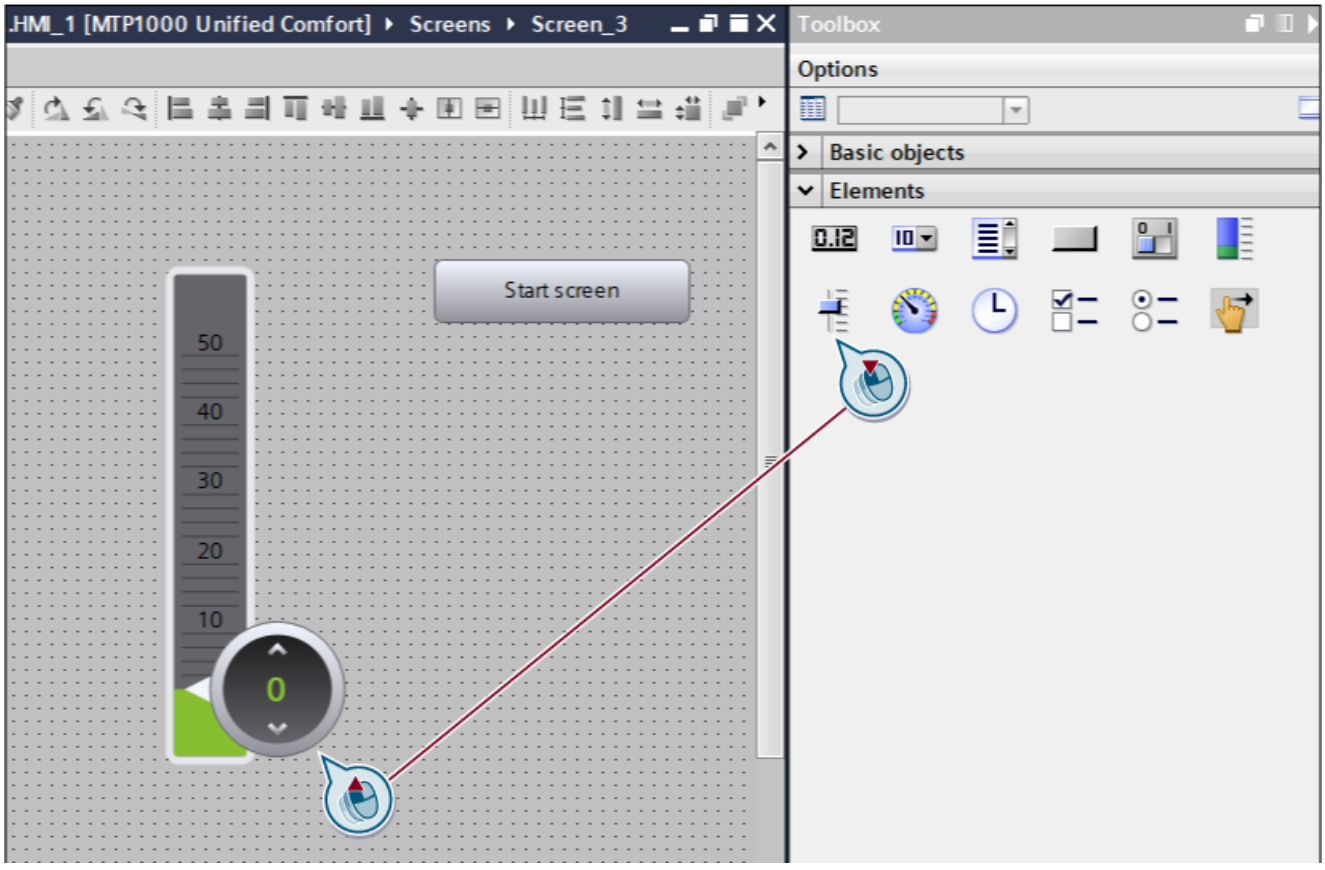
- The "Graphics" palette contains graphics and symbols in various formats, such as *.svg, *.wmf, *.png.
- The "Dynamic widgets" palette contains dynamic SVG graphics. Dynamic SVG graphics have an interface for changing pre-defined properties of the graphic, such as colors or levels.

You configure the "Slider" object and the graphic for lauter tank of a brewery in "Screen_3". You dynamize these objects with the "HMI_Level" tag.

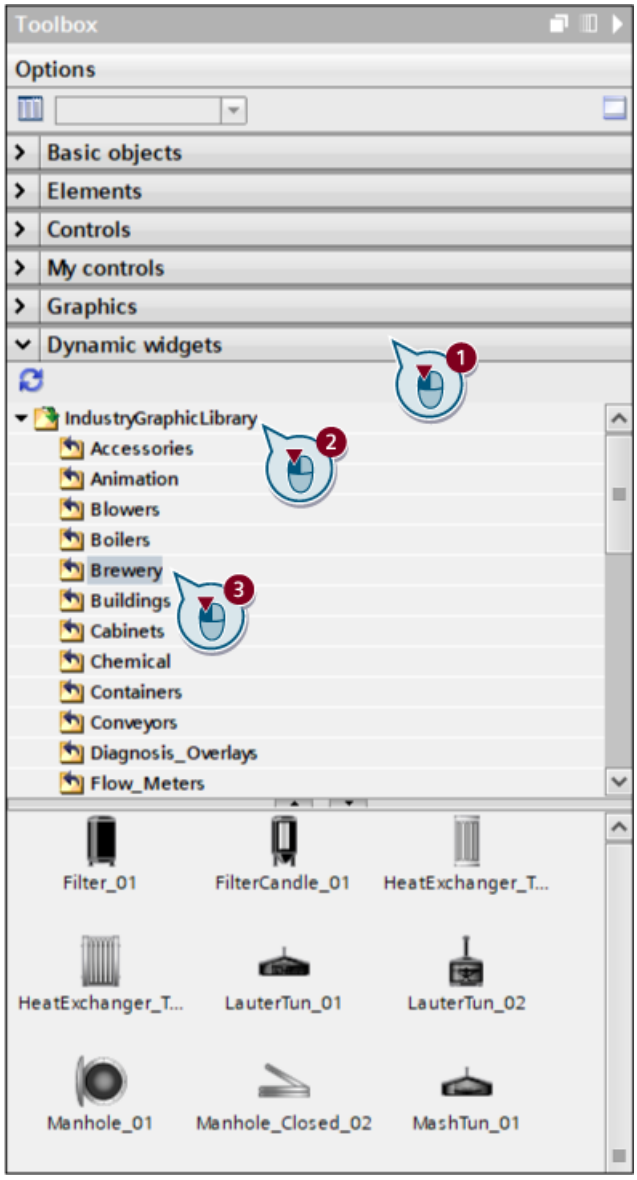
In Runtime, these objects read the value of the tag and visualize it. Operators in Runtime write a new value to the tag by moving the slider. The new value is displayed as the fill level in the lauter tank.

### Inserting screen objects into "Screen_3" screen

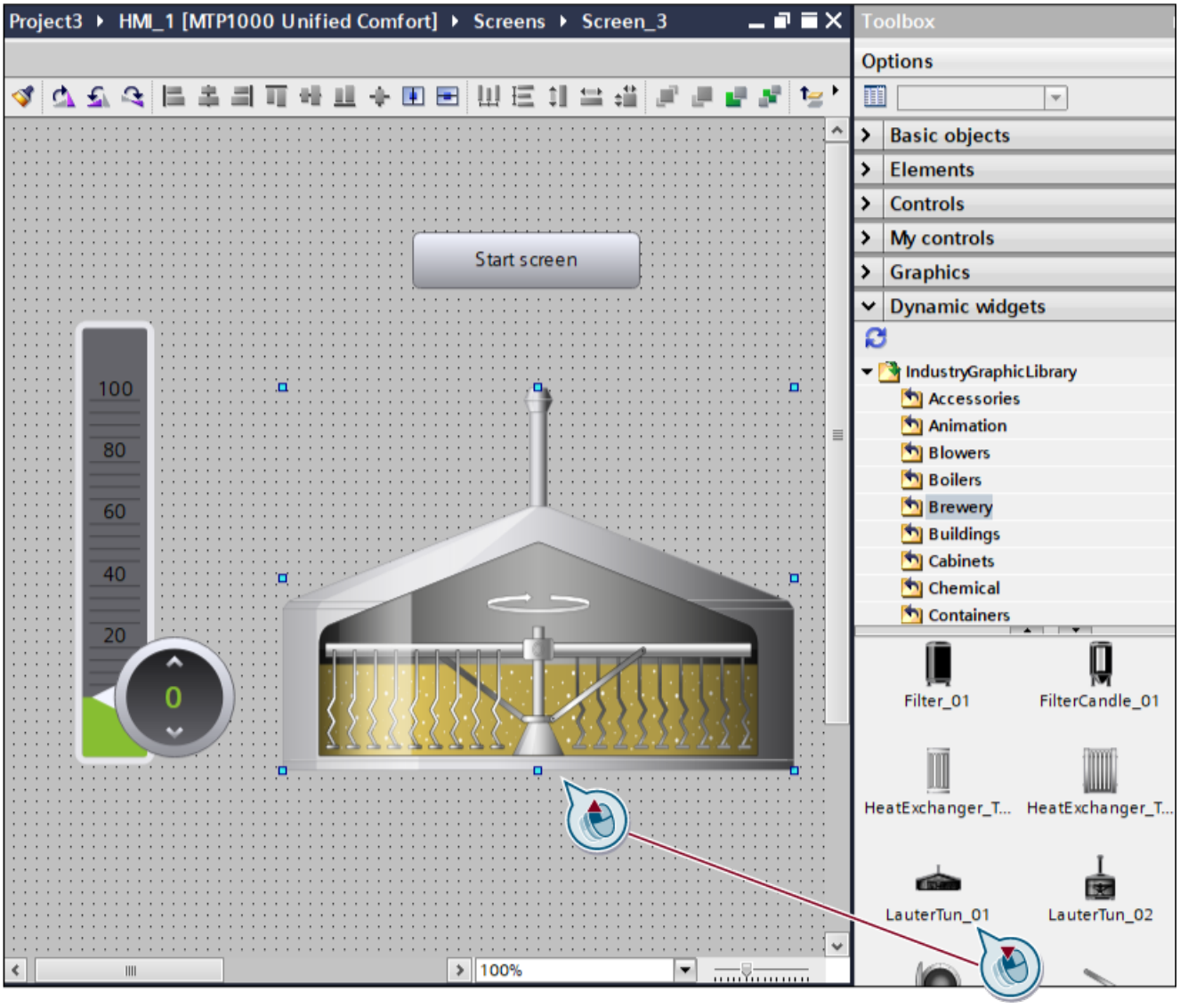
1. Double-click "Screen_3" in the project tree. The screen editor opens.
   – From the "Elements" palette, drag-and-drop the slider onto the screen.




2. Click on the "Dynamic widgets" palette.
   – Click "IndustryGraphicLibrary".
   – Click "Brewery".

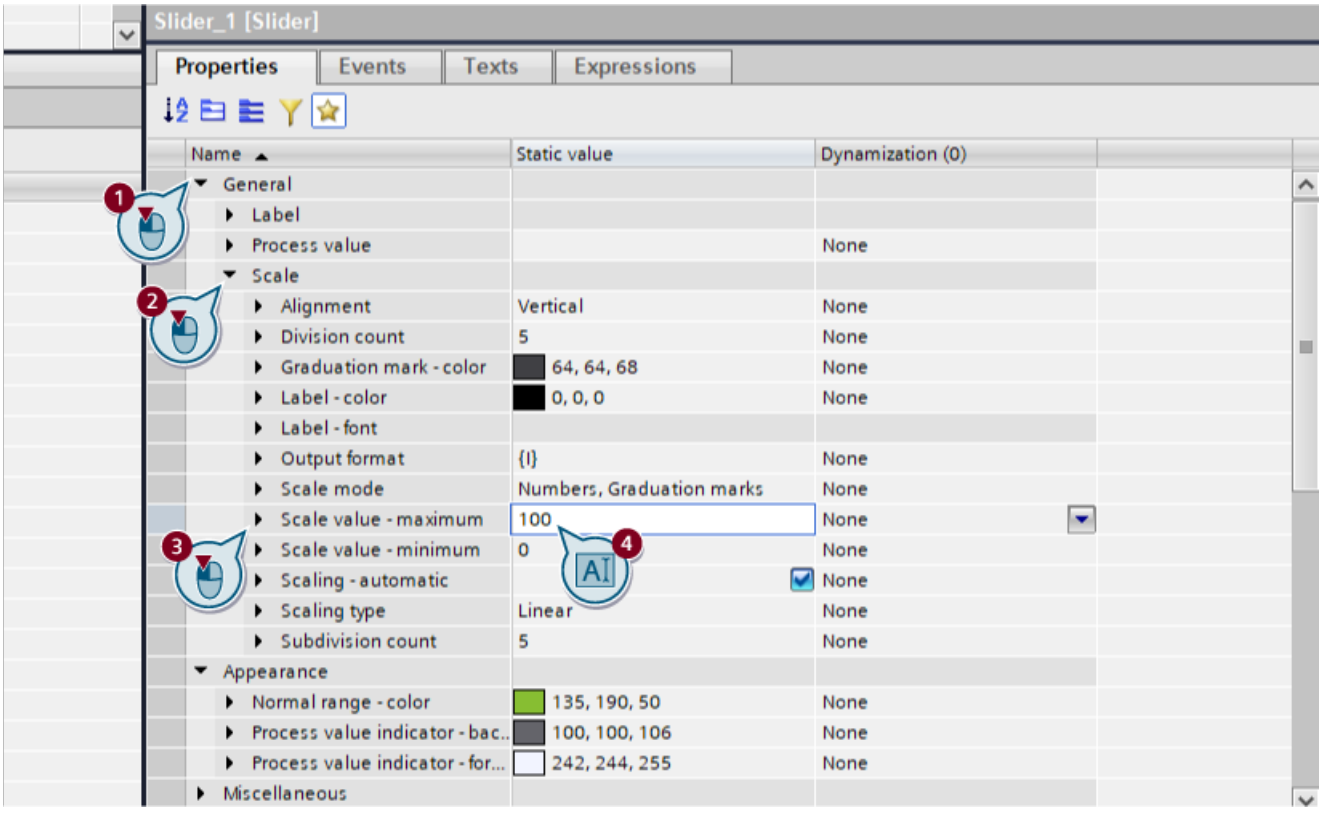



3. Paste into the lauter tank.
   - Drag-and-drop "LauterTun_01" onto "Screen_3".
   - Drag one of the blue drag points in the object-enclosing rectangle to adjust the size of the lauter tank.

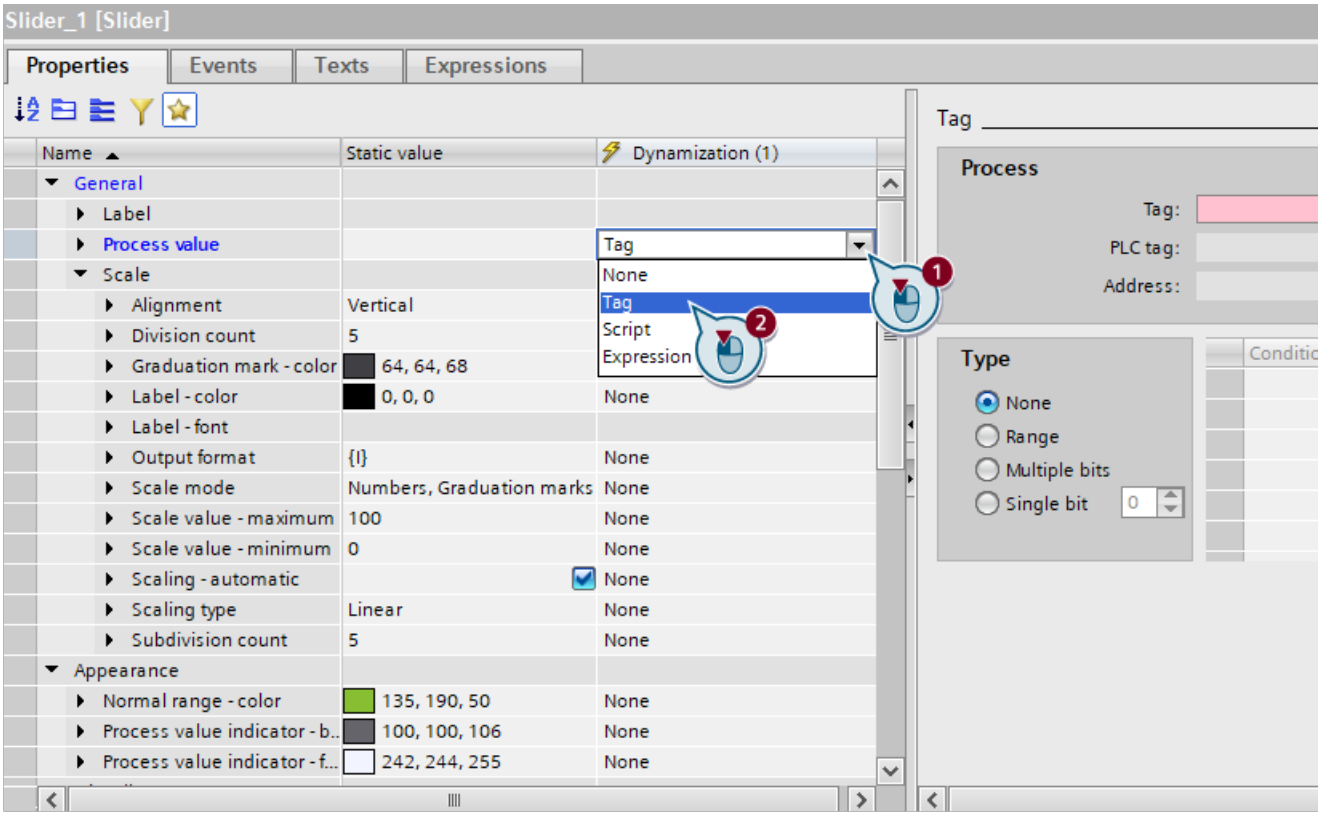

Project3 ▸ HMI_1 [MTP1000 Unified Comfort] ▸ Screens ▸ Screen_3
Start screen
100
80
60
40
20
0
100%
Toolbox
Options
Basic objects
Elements
Controls
My controls
Graphics
Dynamic widgets
IndustryGraphicLibrary
Accessories
Animation
Blowers
Boilers
Brewery
Buildings
Cabinets
Chemical
Containers
Filter_01
FilterCandle_01
HeatExchanger_T...
HeatExchanger_T...
LauterTun_01
LauterTun_02

## Dynamizing a slider

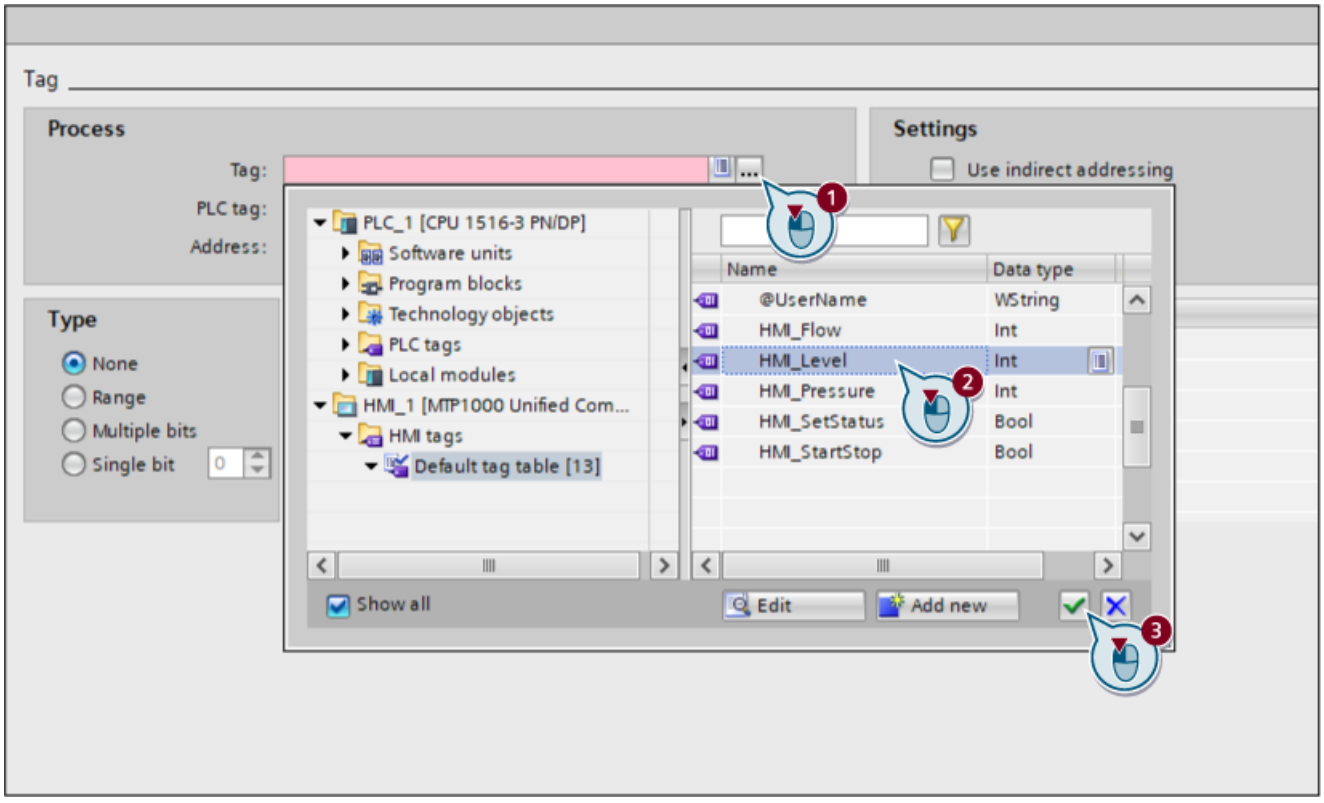
1. Click on the slider.
   - In the Inspector panel, click "General > Scale".
   - For the "Scale value - maximum" property, click the field in the "Static value" column.
   - Enter the value "100".
     This input causes the slider to output values up to 100.




2. Set the tag to be used for dynamization.
   - In the Inspector window, click ▾ for the "Process value" property in the "Dynamization" column.
   - Select "Tag".

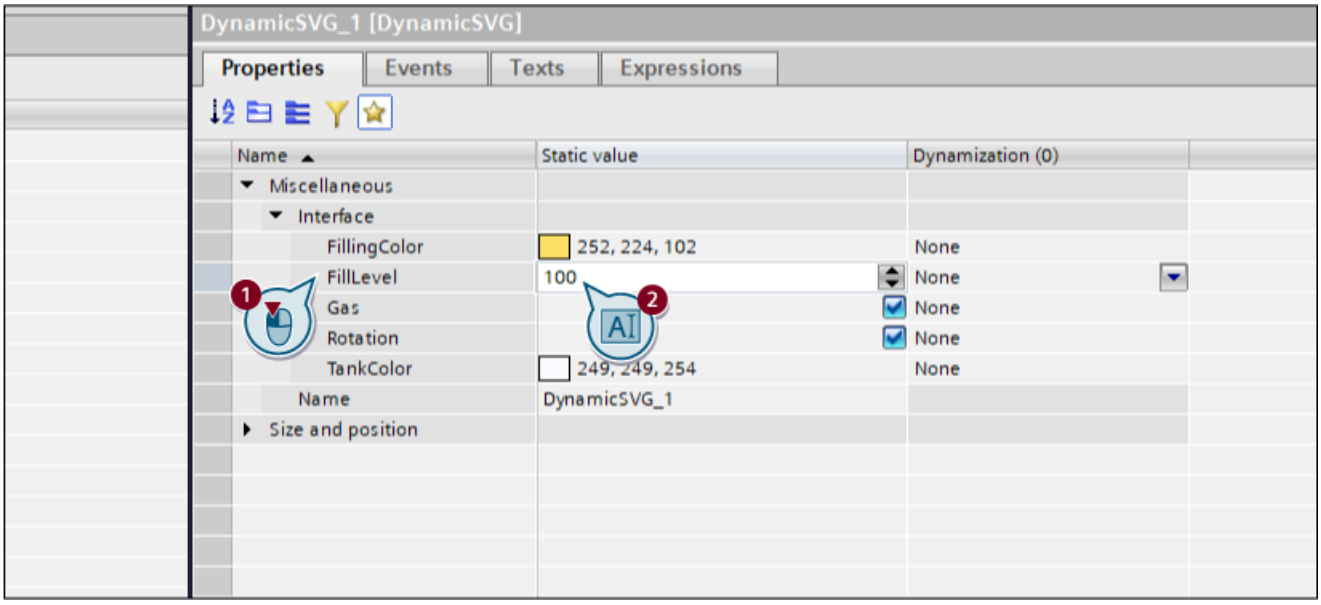



3. Click ... in the "Tag" area.
   - Click the "HMI_Level" tag.
   - Confirm your selection with the green check mark.


Tag
Process
Tag:
PLC tag:
Address:
Settings
Use indirect addressing
Type
None
Range
Multiple bits
Single bit
0
PLC_1 [CPU 1516-3 PN/DP]
Software units
Program blocks
Technology objects
PLC tags
Local modules
HMI_1 [MTP1000 Unified Com...
HMI tags
Default tag table [13]
Name
Data type
@UserName
WString
HMI_Flow
Int
HMI_Level
Int
HMI_Pressure
Int
HMI_SetStatus
Bool
HMI_StartStop
Bool
Show all
Edit
Add new
1
2
3

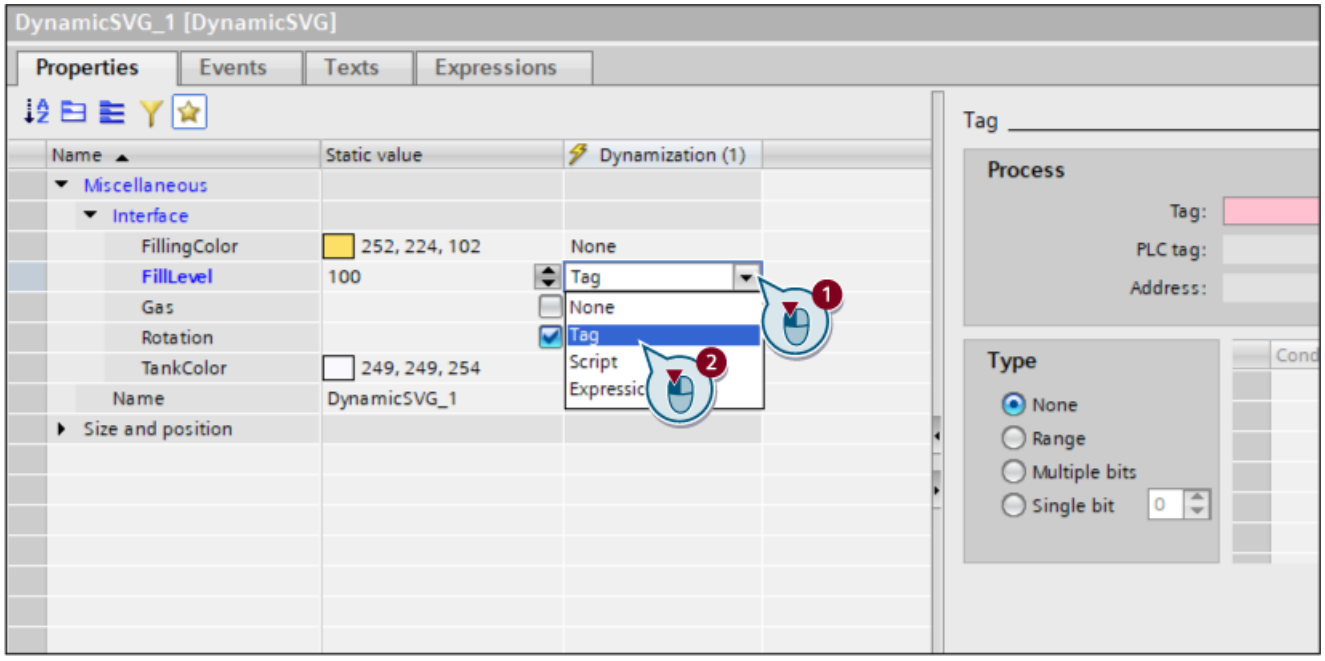
## Dynamizing a lauter tank

1. Click on the lauter tank.
   - In the Inspector window, click ▸ for "Interface".
   - For the "FillLevel" property, click the field in the "Static value" column.
   - Enter the value 100. The value of the fill level corresponds to the scale value of the slider.

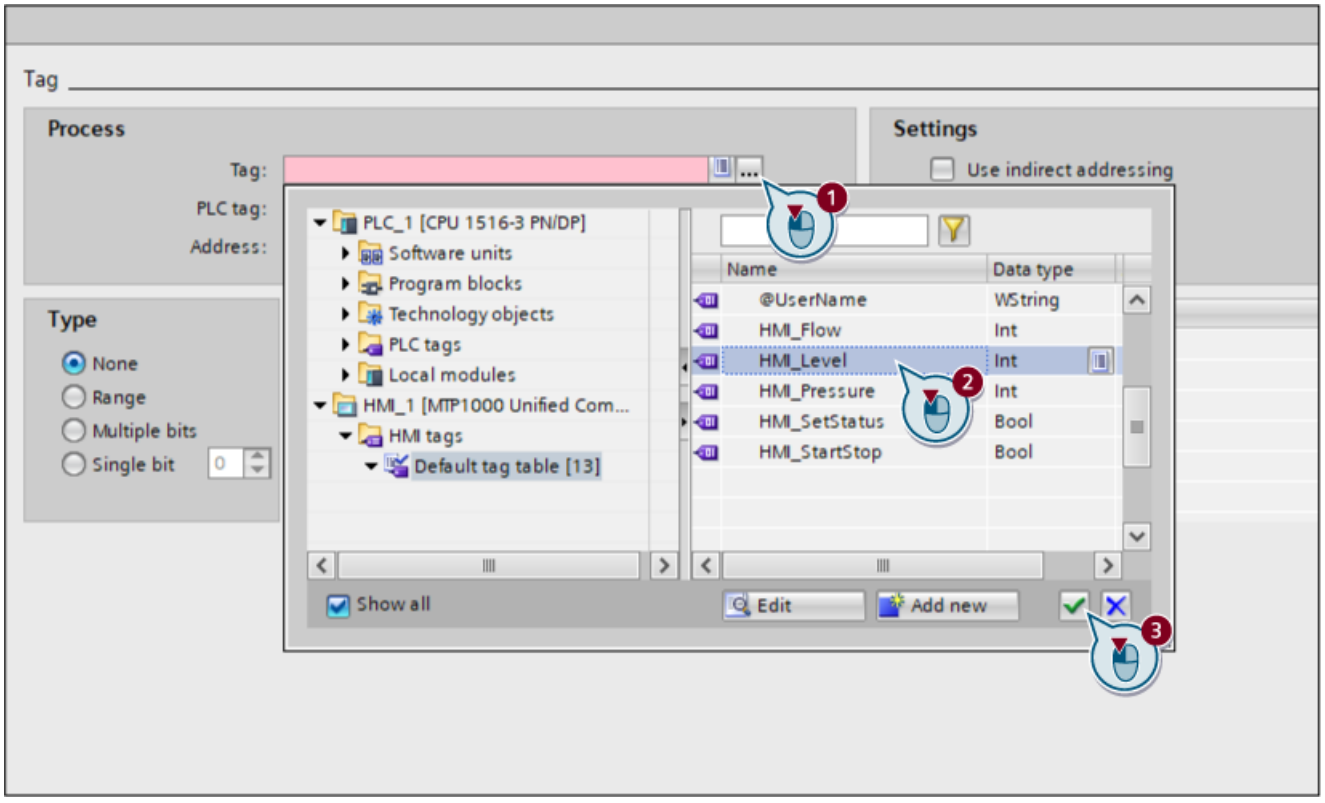



With this setting, the maximum fill level of the lauter tank corresponds to the maximum value of the slider.

2. Set the tag to be used for dynamization.
   - Click ▾ for the "FillLevel" property in the "Dynamization" column.
   - Select "Tag".




3. Click ... in the "Tag" area.
   - Click the "HMI_Level" tag.
   - Confirm your selection with the green check mark.



# User management

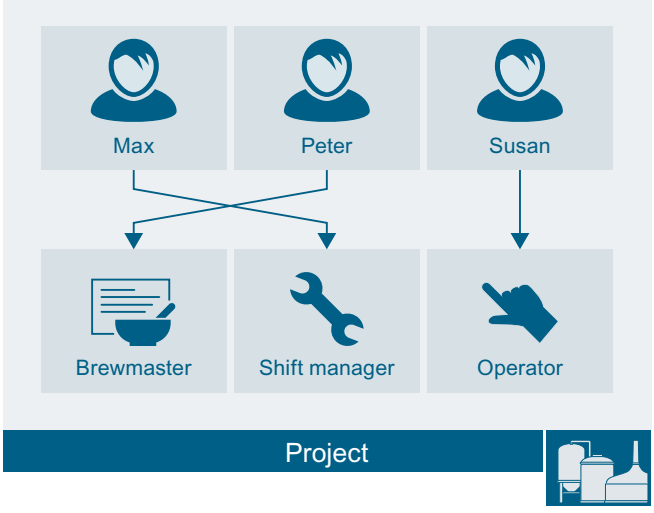
# 11

## 11.1 User management

User management enables you to manage users centrally throughout the plant. The user management forms the basis for an efficient and integrated management of personalized access rights in the plant. The person-specific assignment of roles and rights minimizes the maintenance work and reduces security risks.

### Basics

Only local user management is considered in the context of this Getting Started. You configure the local user management in the project. You create users, define the rights of the individual roles and assign the users their roles.




WinCC allows you to restrict security-relevant operator actions to certain users. In this way, you protect data and functions in Runtime from unauthorized access.

- You set up the users and assign roles to them.
- Each role has specific rights.
- You configure the rights required for operation on security-relevant objects.
- The users have to identify themselves by entering user name and password in Runtime.

**Note**

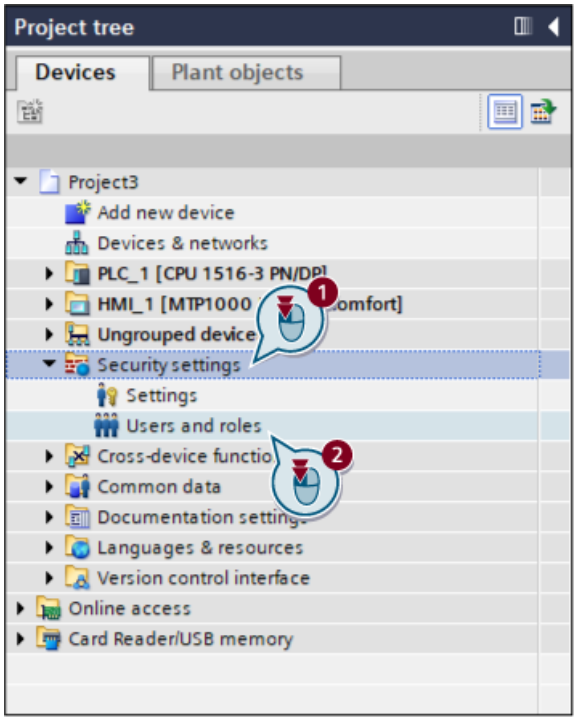
You must create at least one user in WinCC to be able to simulate your project or operate it in Runtime.

## 11.2 Configuring a local user management

In this example, you configure the local user management. You create a user and assign a role to it.

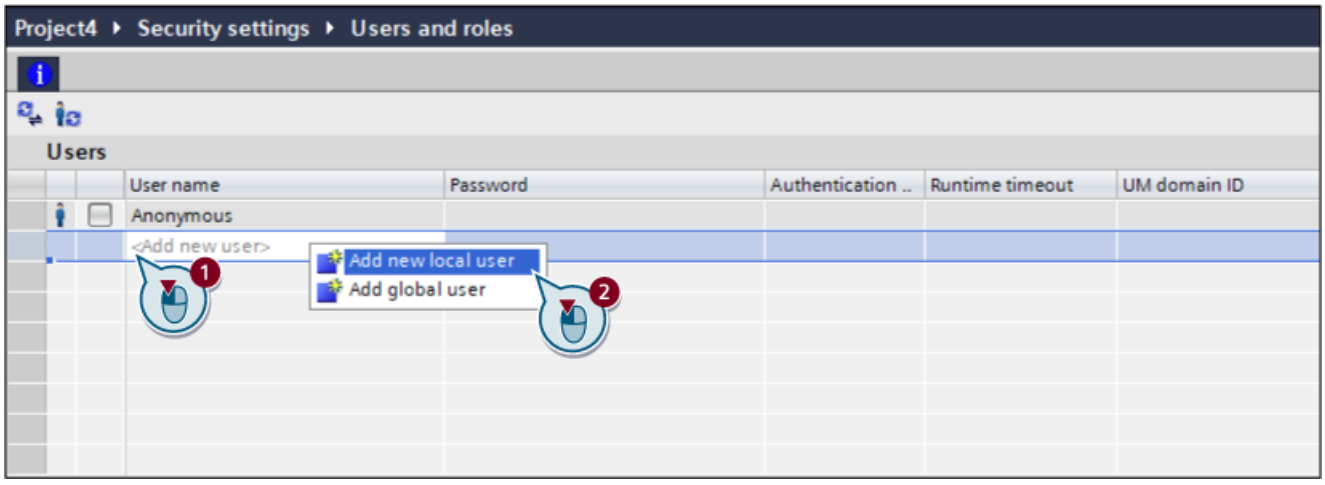
## Creating a local user

1. Create a local user.
   - Double-click "Security settings".
   - Double-click "Users and roles".

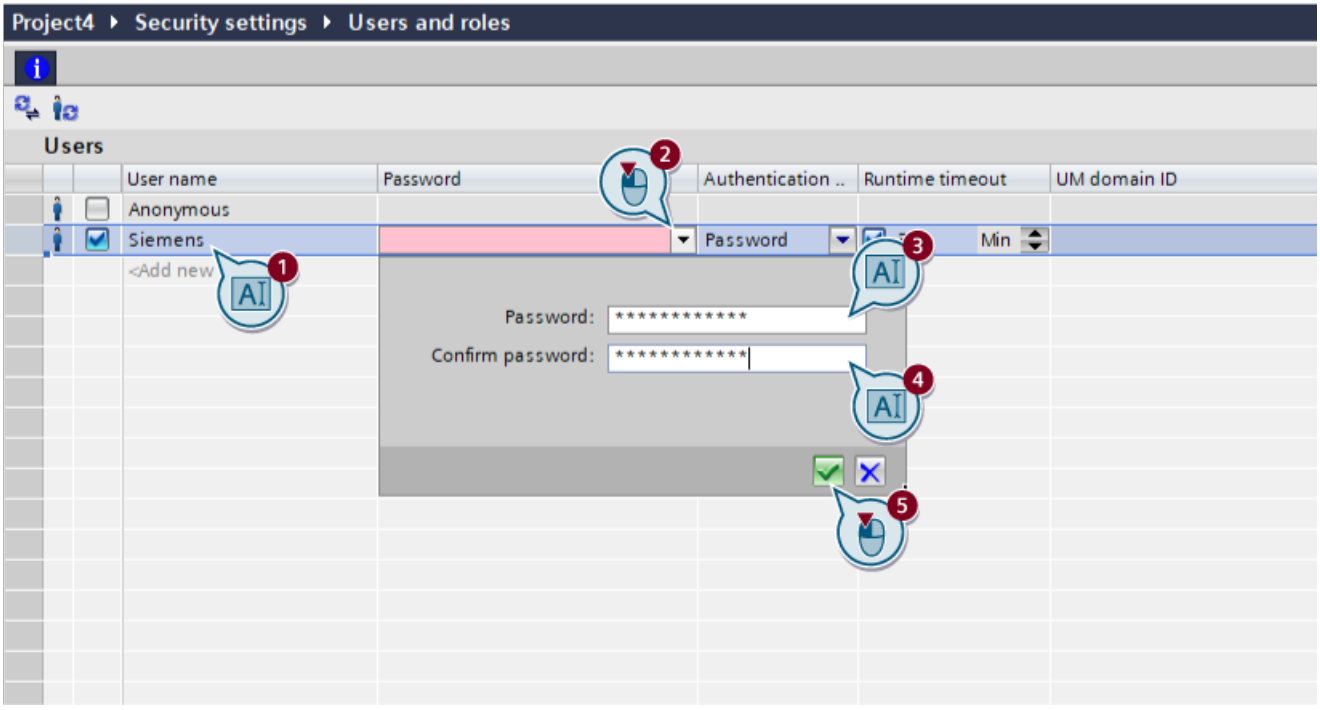



The "Users and roles" work area opens.

- Close the information window in the upper part of the work area by clicking .
- Double-click "Add new user".
- Select "Add new local user".

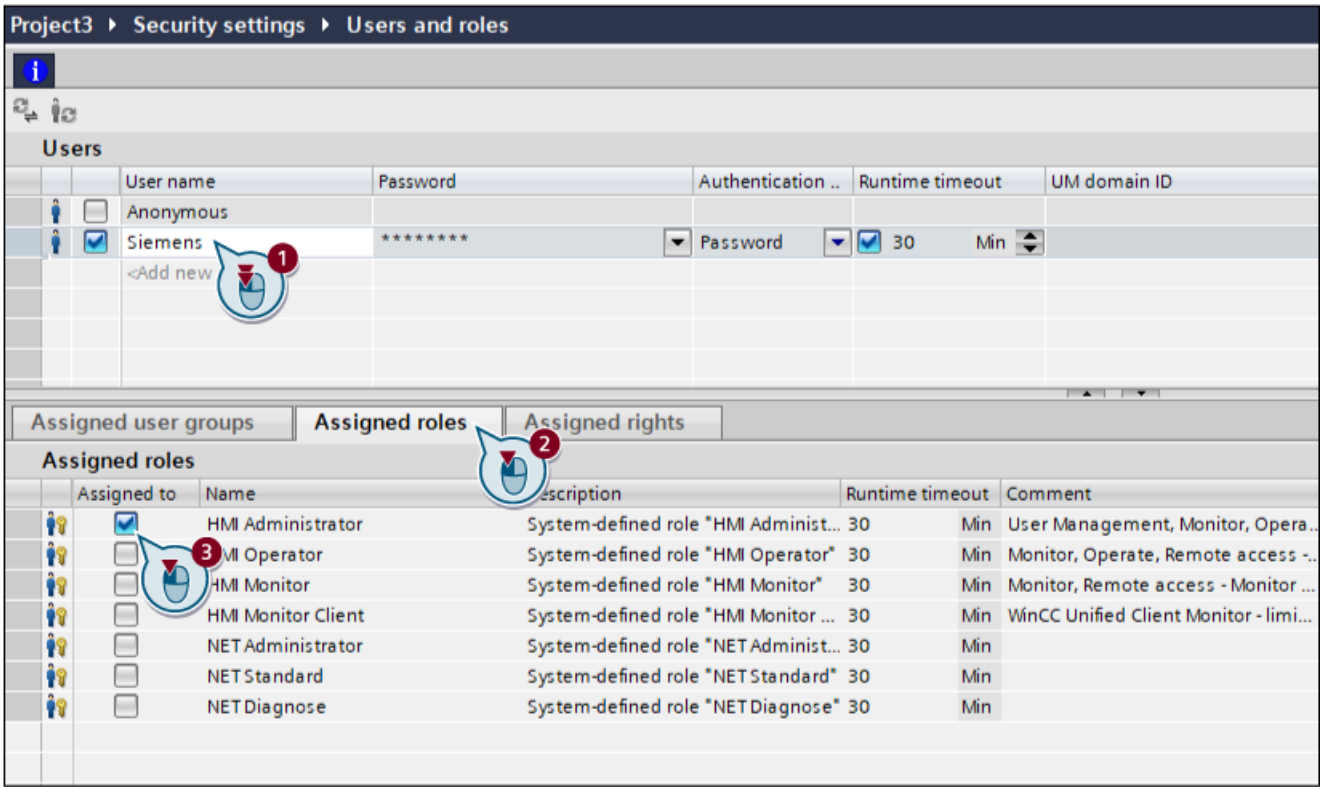


– Enter "Siemens" as the user name.
– Click in the "Password" column. The dialog for entering the password opens.
– Enter "Siemens1234*" as the password and press "<Return>".
– Enter "Siemens1234*" as the password confirmation and press "<Return>".
– Confirm your entries with the green check mark.

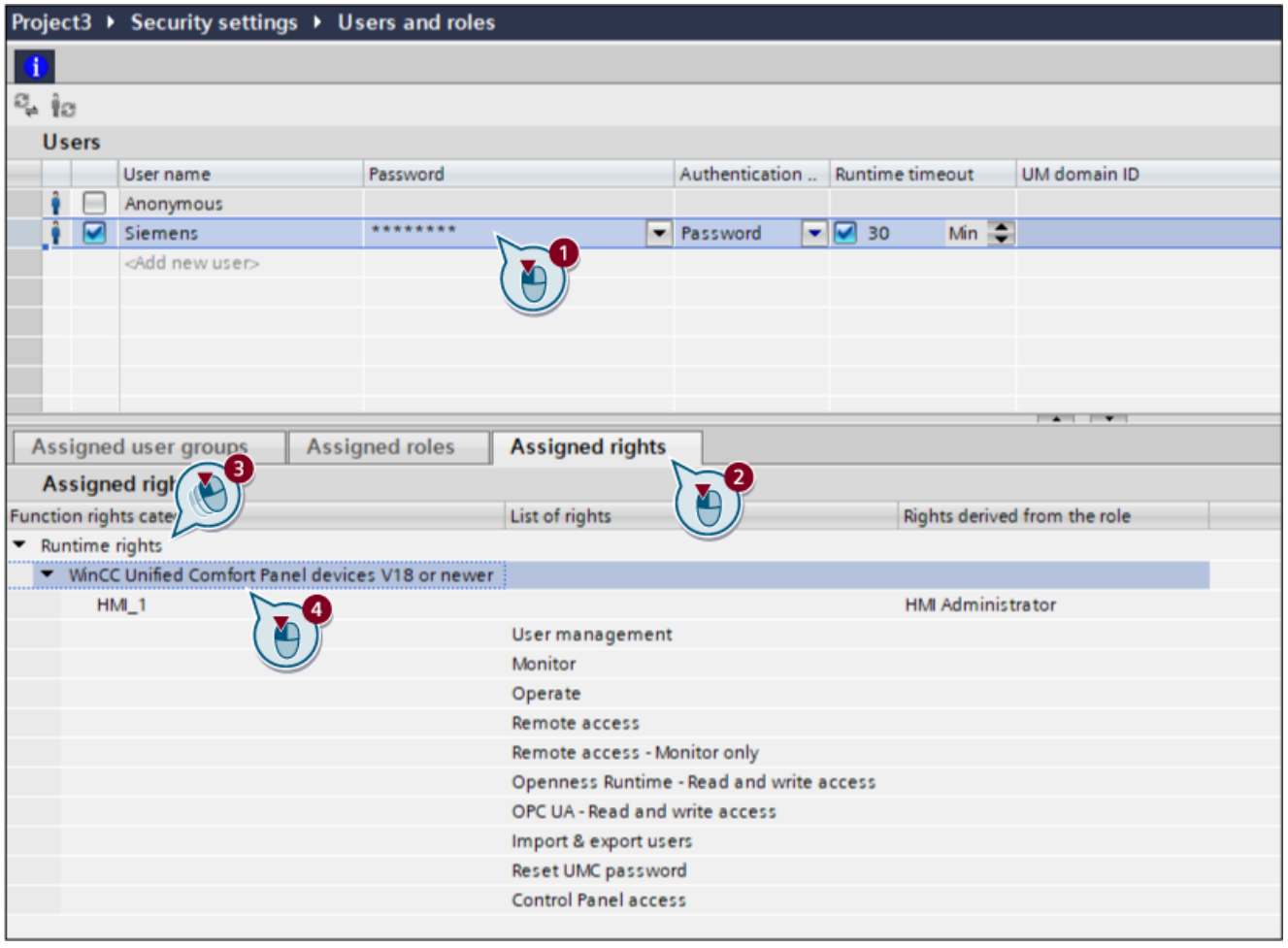


## Assigning a role

1. Click "Assigned roles."
   – Assign the role "Siemens" to the user "HMI Administrator".




2. There are specific rights associated with each role. Click "Assigned rights".
   – Click ▸ for "Runtime rights".
   – Click ▸ for "WinCC Unified Comfort Panel".

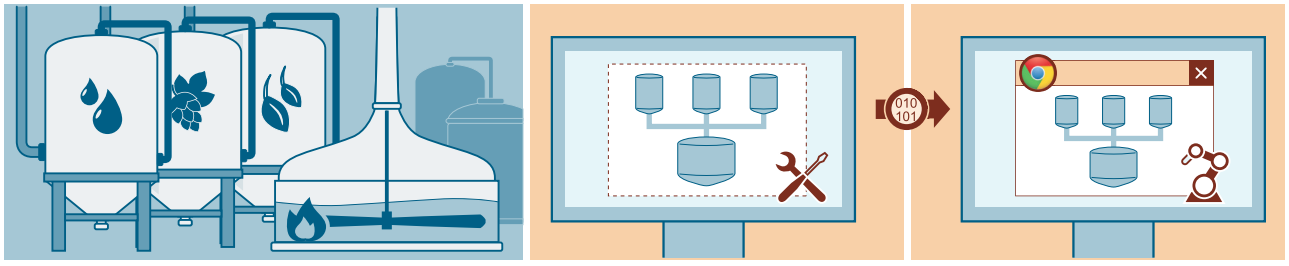

Project3 ▸ Security settings ▸ Users and roles
Users
User name
Password
Authentication ..
Runtime timeout
UM domain ID
Anonymous
Siemens
********
Password
30
Min
<Add new user>
1
Assigned user groups
Assigned roles
Assigned rights
Assigned rig
3
2
Function rights cate
List of rights
Rights derived from the role
Runtime rights
WinCC Unified Comfort Panel devices V18 or newer
HMI_1
HMI Administrator
4
User management
Monitor
Operate
Remote access
Remote access - Monitor only
Openness Runtime - Read and write access
OPC UA - Read and write access
Import & export users
Reset UMC password
Control Panel access

# Compiling, simulating and loading 12

## 12.1 Function test

The environment for operator control and monitoring your plant is referred to as "Runtime". To generate a Runtime project from the configuration data of an HMI device, you need to compile the device.

Regardless of the configured HMI device, WinCC offers the possibility to test the configuration in a simulation. After the successful test, you transfer the Runtime project to the HMI device.




### Requirements for compiling, downloading and simulating the project

The following requirements must be met to successfully compile or download a project to the device:

- The setting for encrypted transfer is configured identically in Unified Runtime and the engineering system.

The following requirements must be met to simulate a compiled project:

- WinCC Unified Runtime is installed.
- The setting for encrypted transfer is configured identically in Unified Runtime and the engineering system.

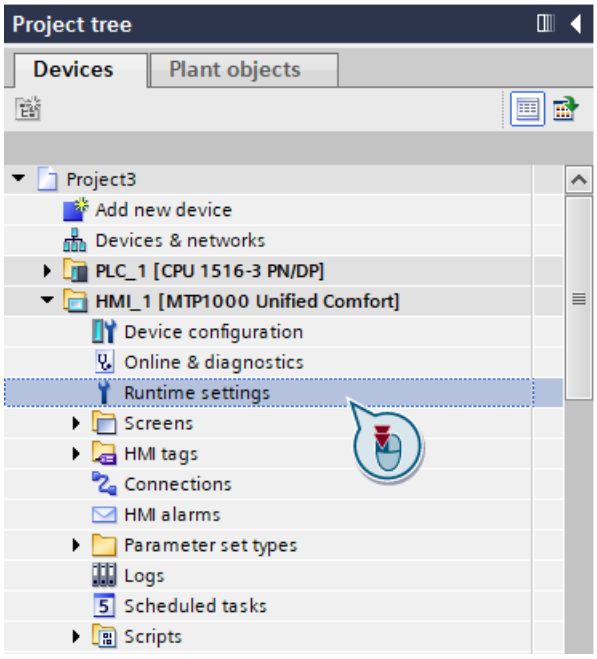
## 12.2 Configuring encrypted transfer

You can select encrypted transfer to protect the data of the executable Runtime project during transfer. A password you assign is used as the key. The transfer type and password must be configured and match both on the HMI device and in engineering. The executable Runtime project is also transferred during simulation. In this case, the transmission mode and the password must be configured in WinCC Unified Runtime as well as in engineering and must match.

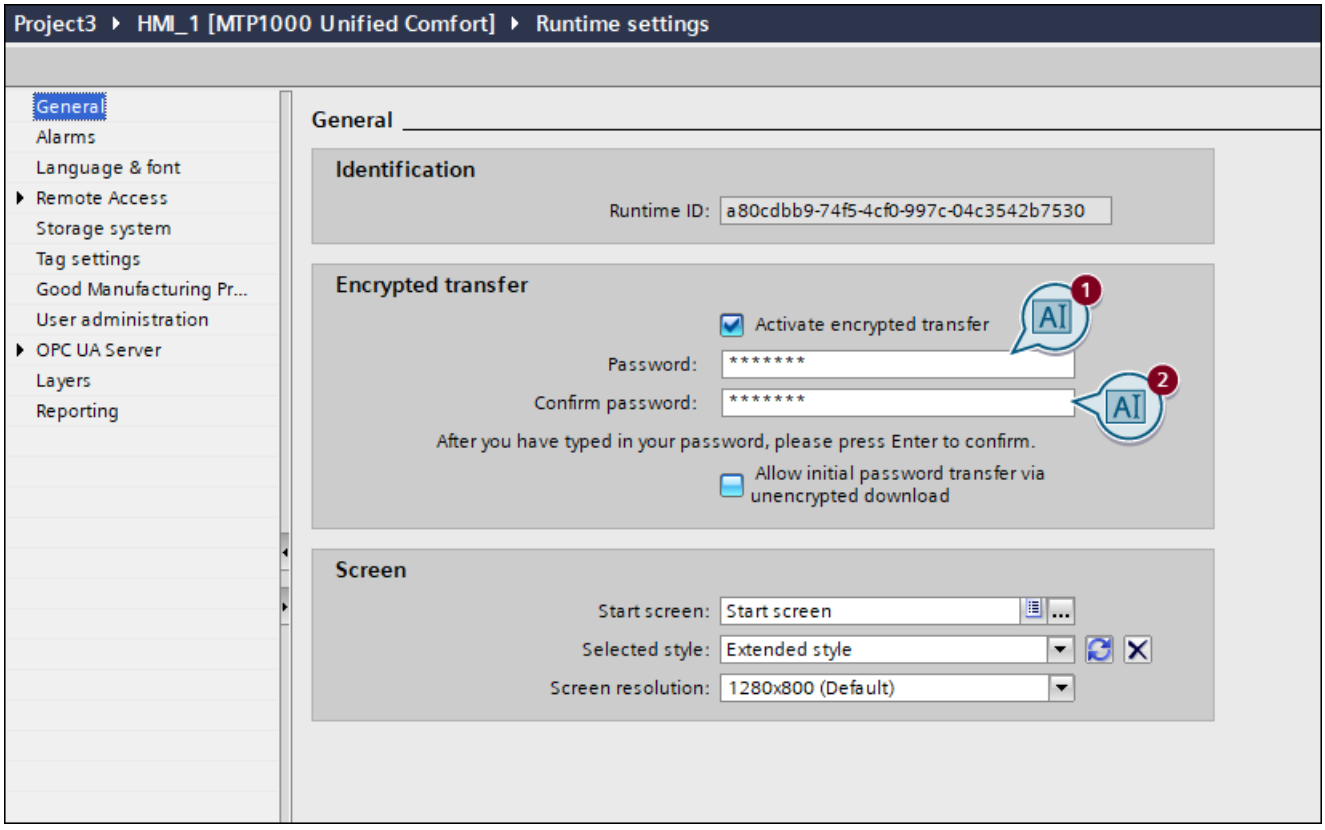
How you configure the encrypted transfer on a Unified Comfort Panel is explained when transferring the project to the panel.

### Enabling encrypted transfer in WinCC Unified

1. Double-click "Runtime settings" in the project tree.
   The work area opens.



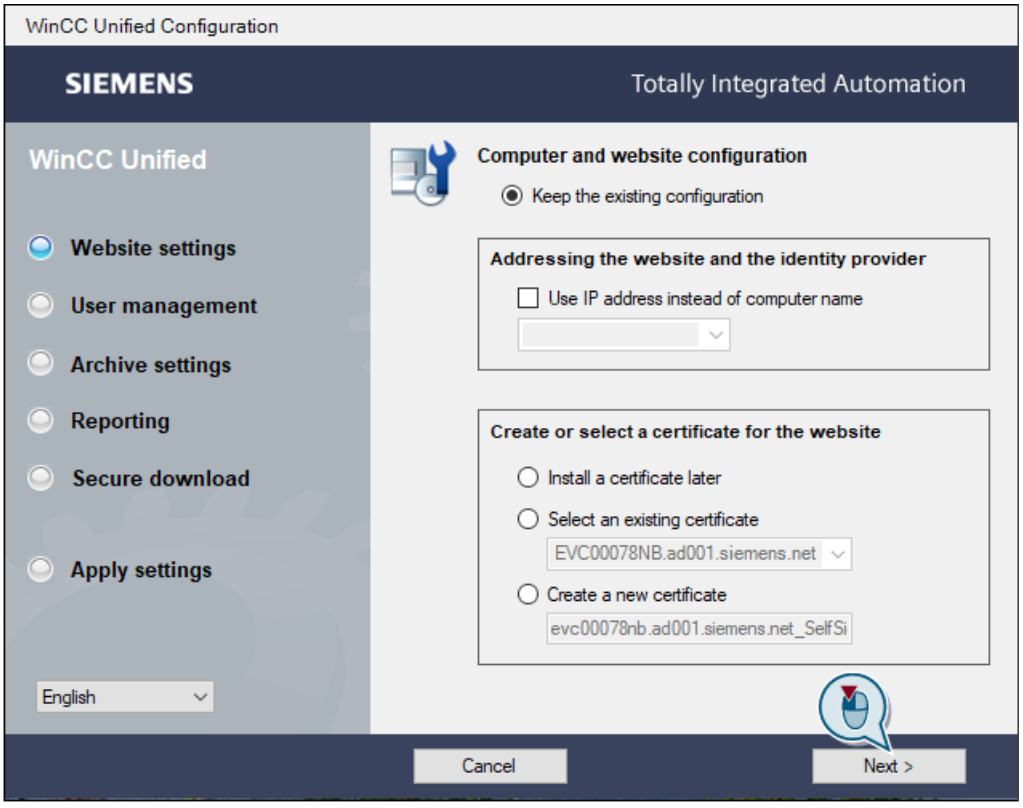

2. It is recommended to enable encrypted transfer for plant operation. Encrypted transfer is therefore enabled by default. The setting and password you select must match the settings in WinCC Unified Runtime.
   - Enter the password. Confirm your entries with <Return>.
   - Enter the password again for "Confirm password". Confirm your entries with <Return>.


Project3 ▸ HMI_1 [MTP1000 Unified Comfort] ▸ Runtime settings
General
Alarms
Language & font
Remote Access
Storage system
Tag settings
Good Manufacturing Pr...
User administration
OPC UA Server
Layers
Reporting
General
Identification
Runtime ID:
a80cdbb9-74f5-4cf0-997c-04c3542b7530
Encrypted transfer
Activate encrypted transfer
Password:
*******
Confirm password:
*******
After you have typed in your password, please press Enter to confirm.
Allow initial password transfer via unencrypted download
Screen
Start screen:
Start screen
Selected style:
Extended style
Screen resolution:
1280x800 (Default)

## Enabling encrypted transfer in WinCC Unified Runtime

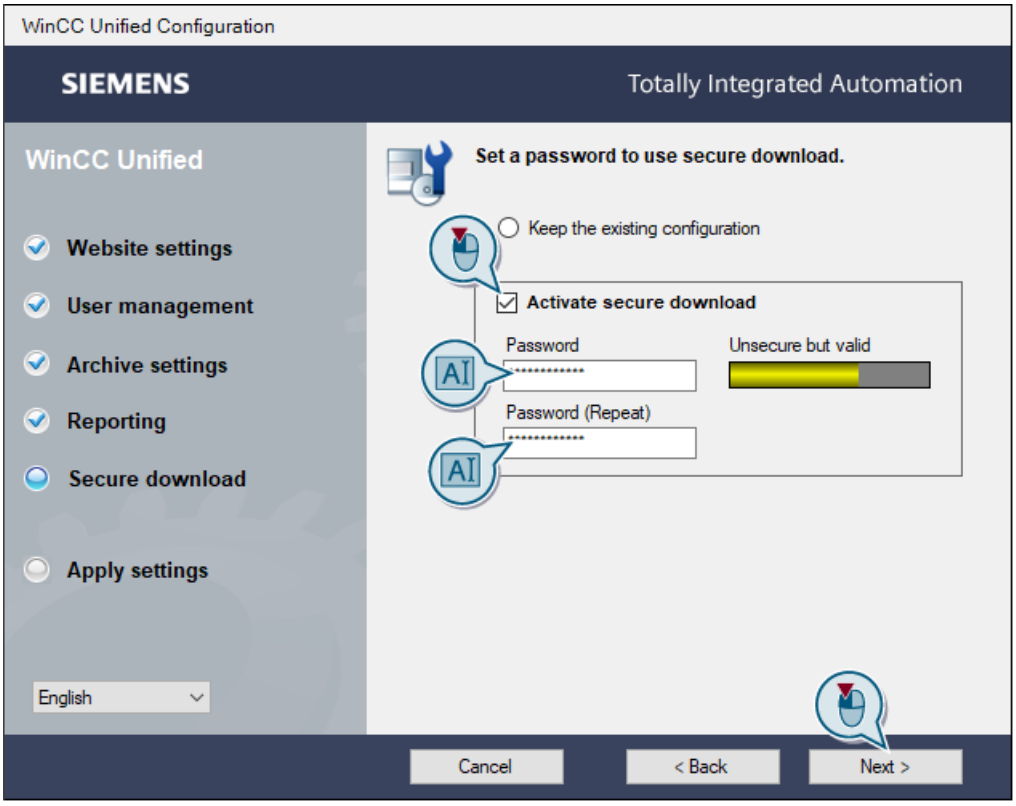
The setting for encrypted transfer and the password to be used for this were defined during the installation of WinCC Unified Runtime. If you do not know the setting or the password, do the following:

1. Start "WinCC Unified Configuration".
   WinCC Unified Configuration opens.

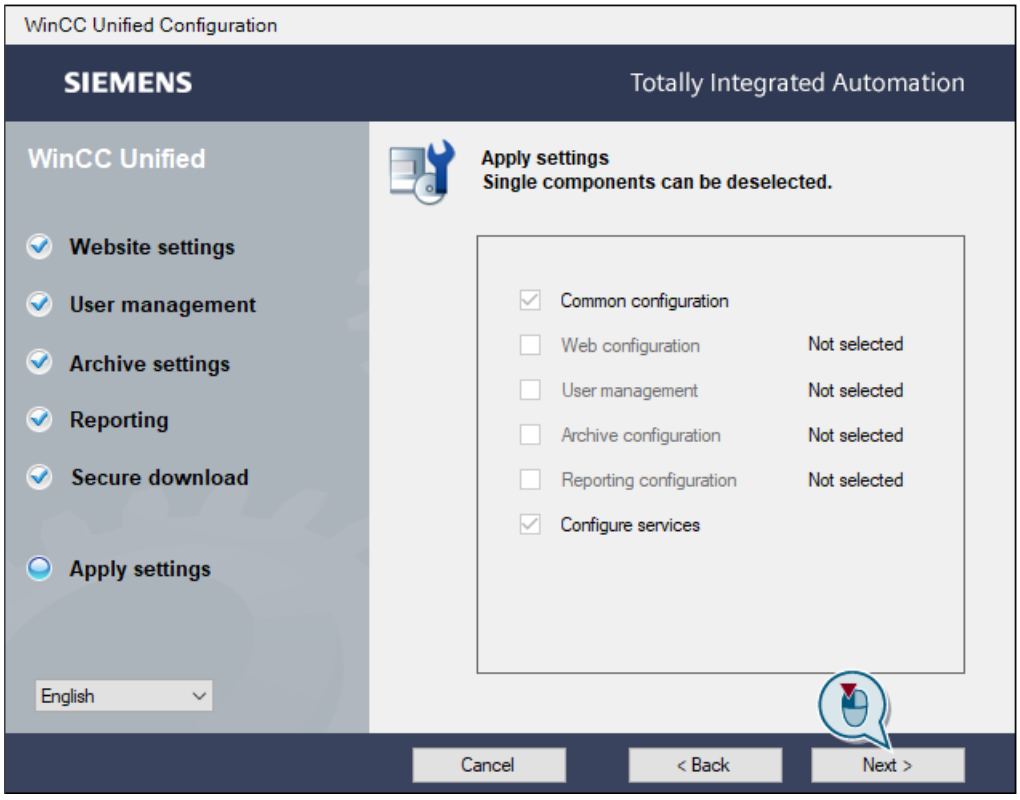



2. Click the "Next >" button on the "Website settings" page.
3. Click the "Next >" button on the "User management" page.
4. Click the "Next >" button on the "Archive settings" page.

5. Click the "Next >" button on the "Reporting" page.
   - On the "Secure download" page, set the usage and password for encrypted transfer.
   - On the "Secure download" page, press the "Activate secure download" button. Enter the password.
   - Enter the password for "Password (Repeat)".
   - Click the "Next >" button.




6. Click the "Apply" button on the "Apply settings" page.




## 12.3 Compiling a project

During compiling, the configuration data is converted so that it can be processed by Runtime of the target device.

The following configuration data must be compiled before downloading:

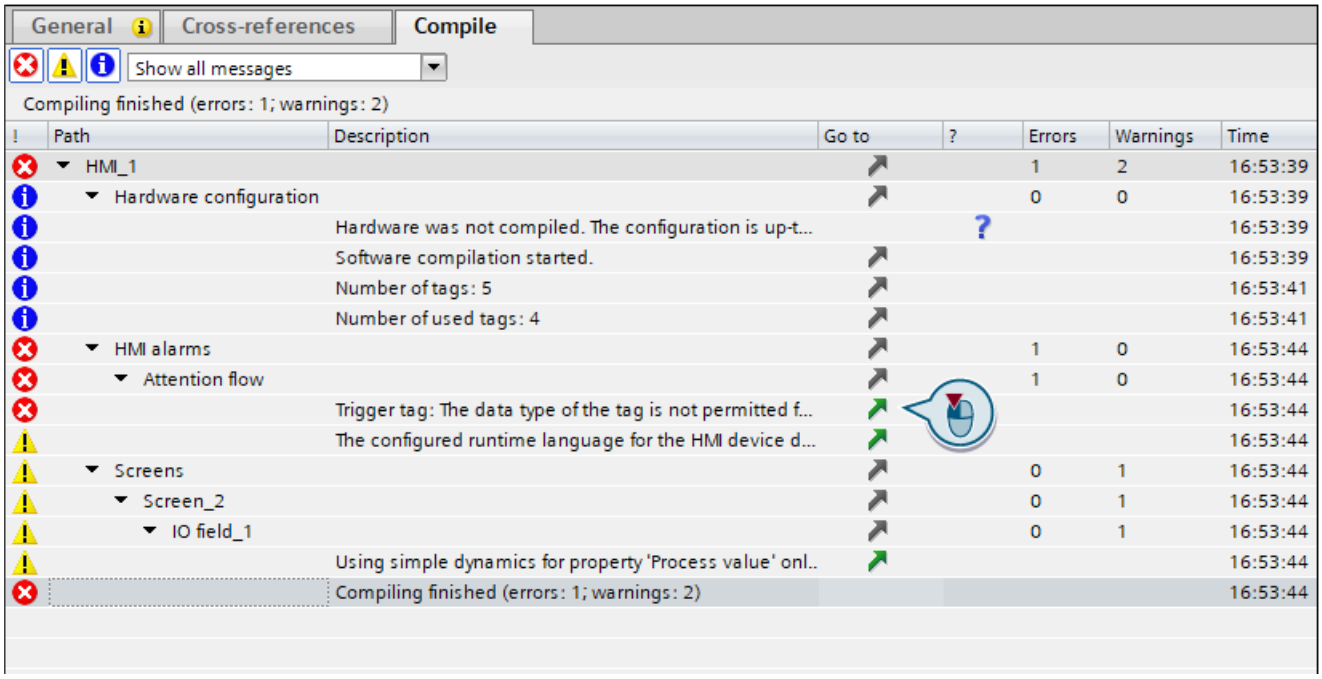
- Hardware project data, e.g. configuration data of devices or networks and connections
- Software project data, e.g. program blocks or process screens

Hardware and software project data can be compiled separately or together.

If your project has not been compiled without errors, you receive corresponding messages in the Inspector window.

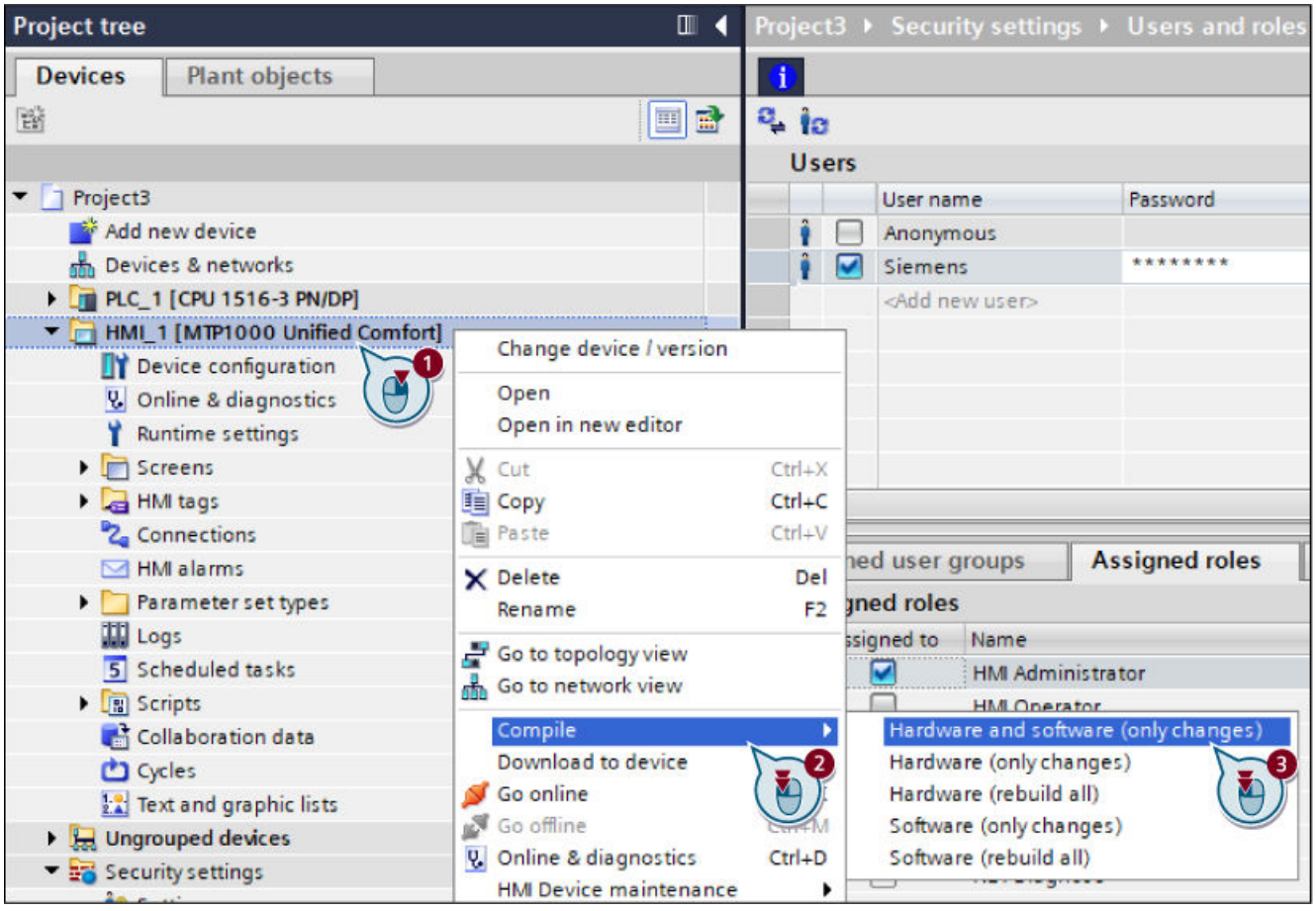
You can use a link to go directly to the object that triggered the message. After you have corrected the error, you have to compile the project again.

- Errors must be corrected.
- Warnings should be corrected. However, the project can be simulated with warnings or loaded into the device.

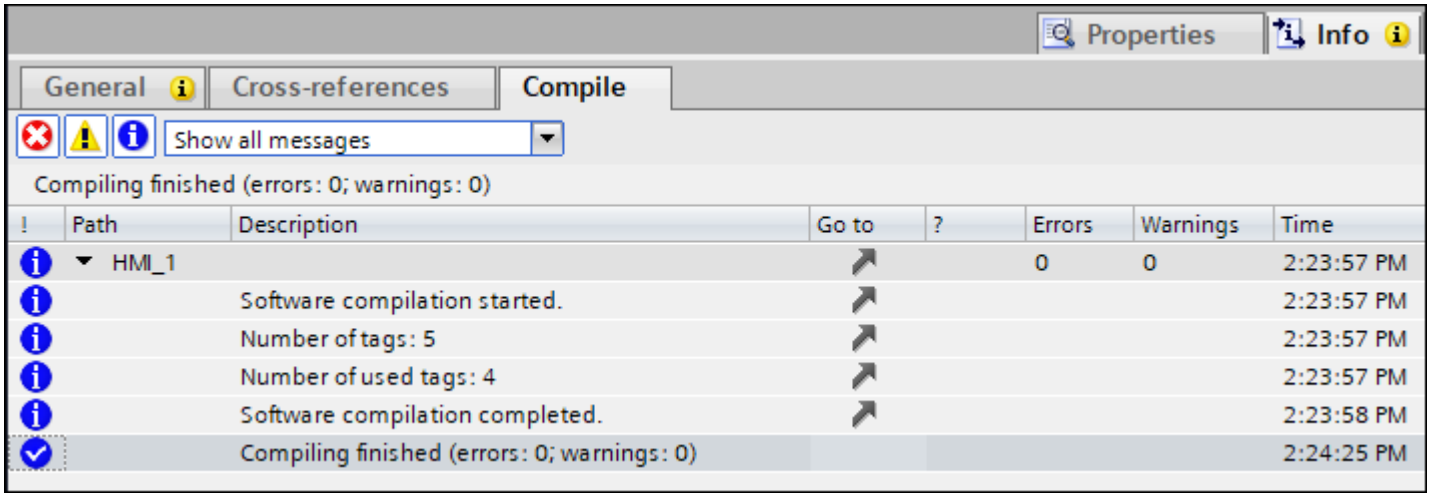

General
Cross-references
Compile
Show all messages
Compiling finished (errors: 1; warnings: 2)
! Path Description Go to ? Errors Warnings Time
HMI_1 1 2 16:53:39
Hardware configuration 0 0 16:53:39
Hardware was not compiled. The configuration is up-t... 16:53:39
Software compilation started. 16:53:39
Number of tags: 5 16:53:41
Number of used tags: 4 16:53:41
HMI alarms 1 0 16:53:44
Attention flow 1 0 16:53:44
Trigger tag: The data type of the tag is not permitted f... 16:53:44
The configured runtime language for the HMI device d... 16:53:44
Screens 0 1 16:53:44
Screen_2 0 1 16:53:44
IO field_1 0 1 16:53:44
Using simple dynamics for property 'Process value' onl.. 16:53:44
Compiling finished (errors: 1; warnings: 2) 16:53:44

## Compiling a device

1. Right-click "HMI_1" in the project tree.
2. Select the "Compile > Hardware and software (only changes)" command in the shortcut menu.




3. The result of the compiling is displayed in the Inspector window:



## 12.4 Simulating a project

In the simulation, you test the behavior of your project on the configuration PC. This allows you to quickly locate any logical configuration errors before productive operation. You can also see whether the design of your screens suits this device or needs to be adapted. For the simulation, the project is compiled and downloaded to the Runtime installed on the configuration PC.

Access to the web server of WinCC Unified is made with HTTPS. The first time you connect, you may receive a warning "Your connection is not private" because no valid certificate has been installed yet. You have the option to install a valid certificate on your device after the initial access. To do this, follow the steps in Chapter 6 of the "SIMATIC WinCC Unified SCADA Certificate Manager".

### Requirement

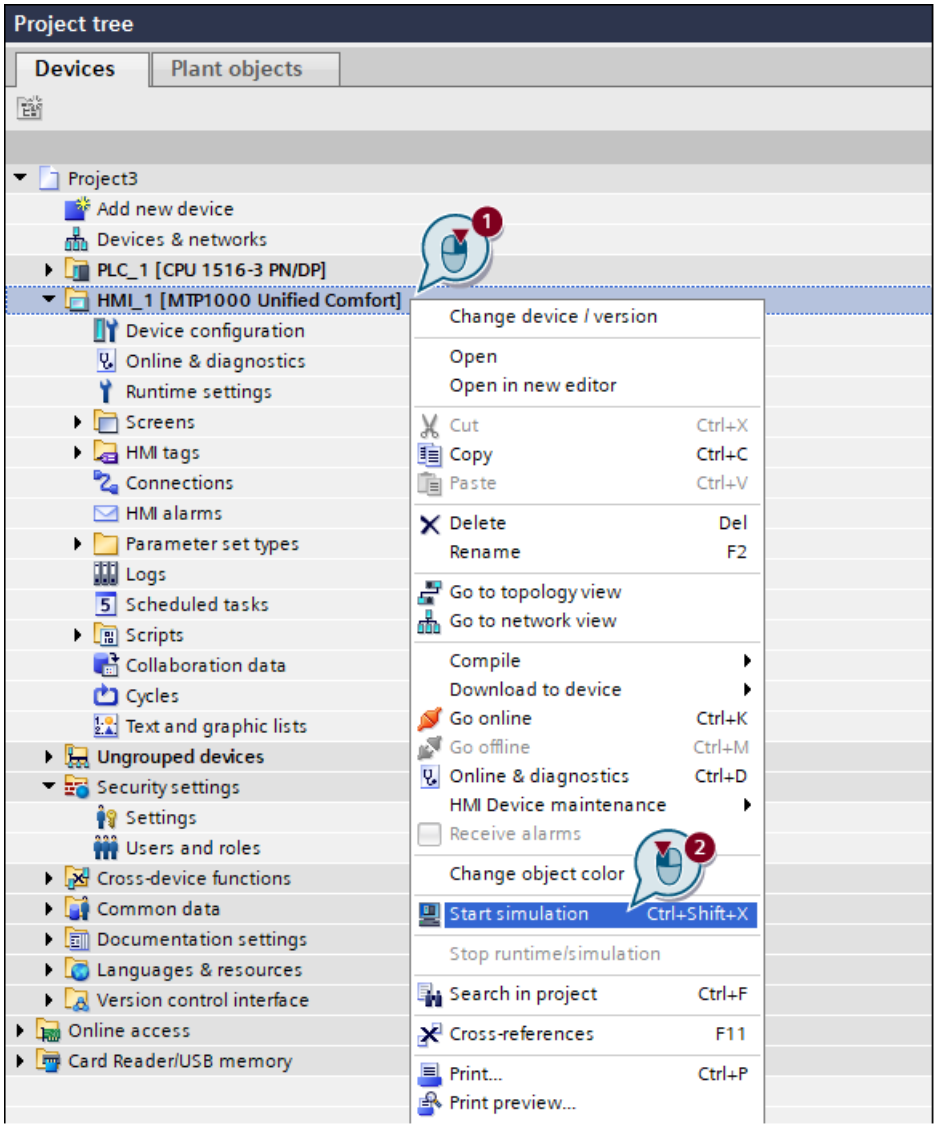
- The device is compiled without error.
- WinCC Unified Runtime is installed
- The setting for encrypted transfer is configured identically in Unified Runtime and the engineering system.

### SIMATIC WinCC Unified SCADA Certificate Manager

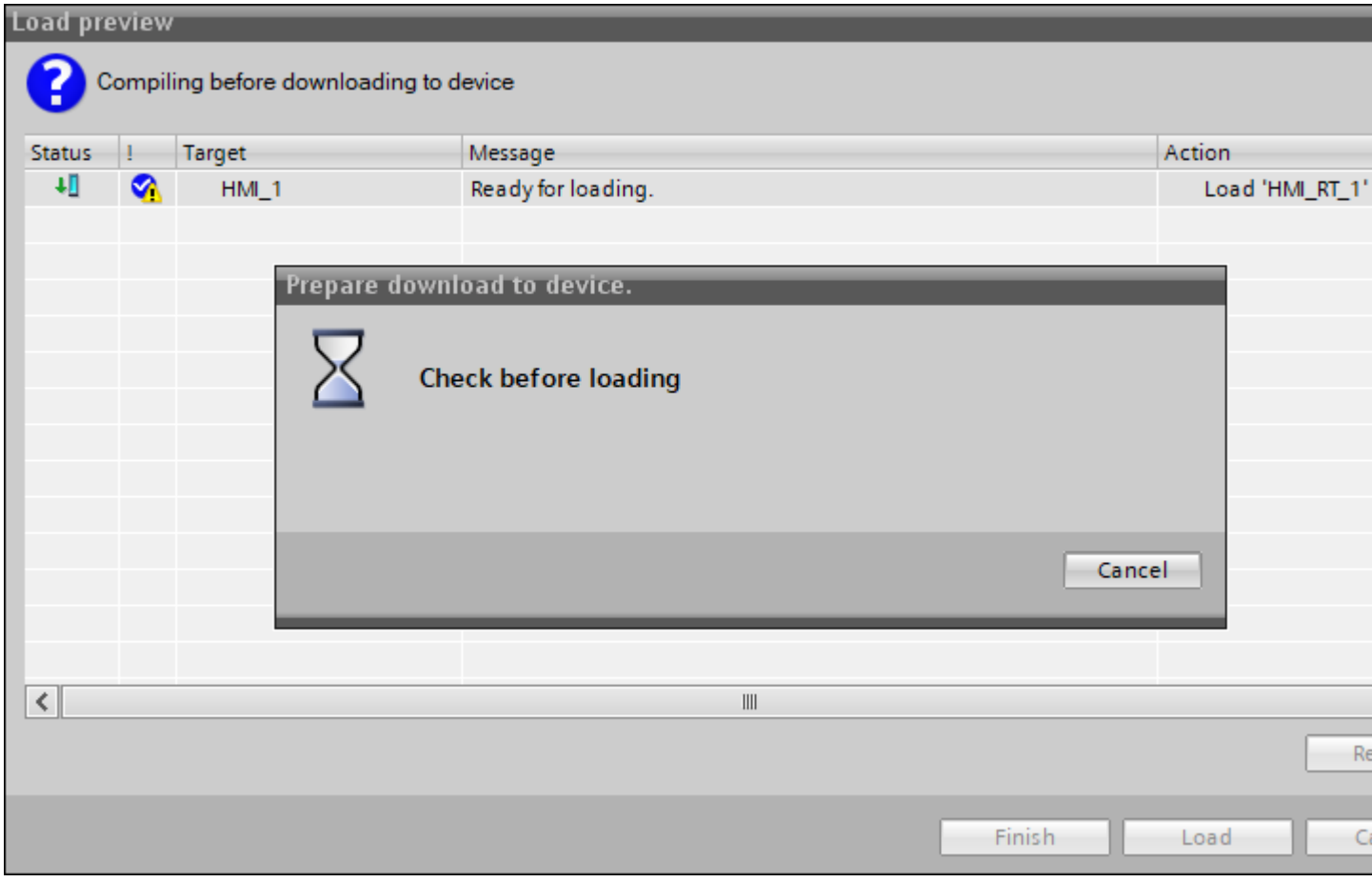
You can find information and explanations about installing root certificates in the browser in Chapter 6 of the manual "SIMATIC WinCC Unified SCADA Certificate Manager (https://support.industry.siemens.com/cs/ww/en/view/109779117)". You can find this at the Siemens Industry Online Support (SIOS) website under the Entry ID: 109779117

### Simulating a device

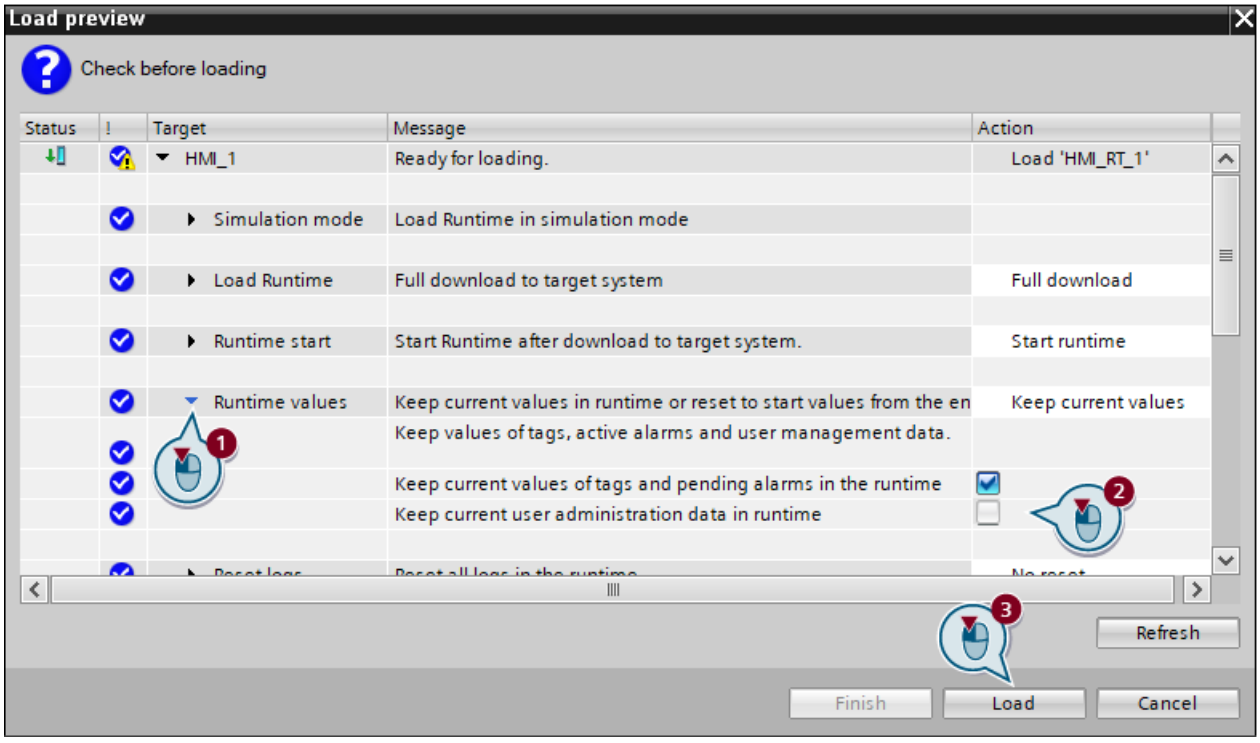
1. Right-click "HMI_1" in the project tree.
2. Select the command "Compile > Start simulation" in the shortcut menu.




The "Load preview" dialog opens. The simulation is prepared.


Load preview
Compiling before downloading to device
Status
!
Target
Message
Action
HMI_1
Ready for loading.
Load 'HMI_RT_1'
Prepare download to device.
Check before loading
Cancel
Finish
Load

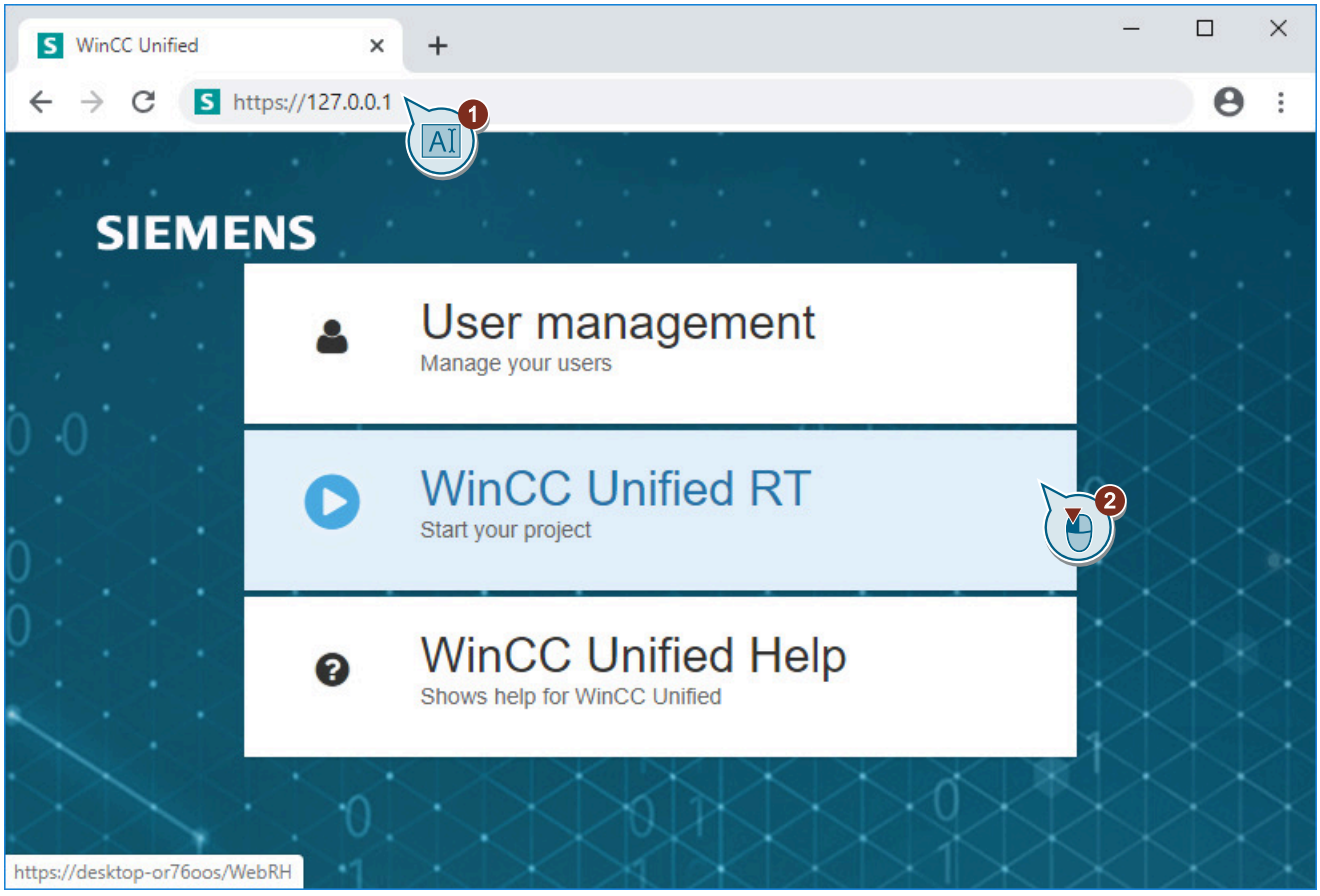
3. When the preparations are complete, configure the download for simulation.
   - Click the ▸ symbol in front of "Runtime values".
   - Disable "Keep current user administration data in runtime" during initial download for the new user settings to take effect.
   - Click the "Load" button.



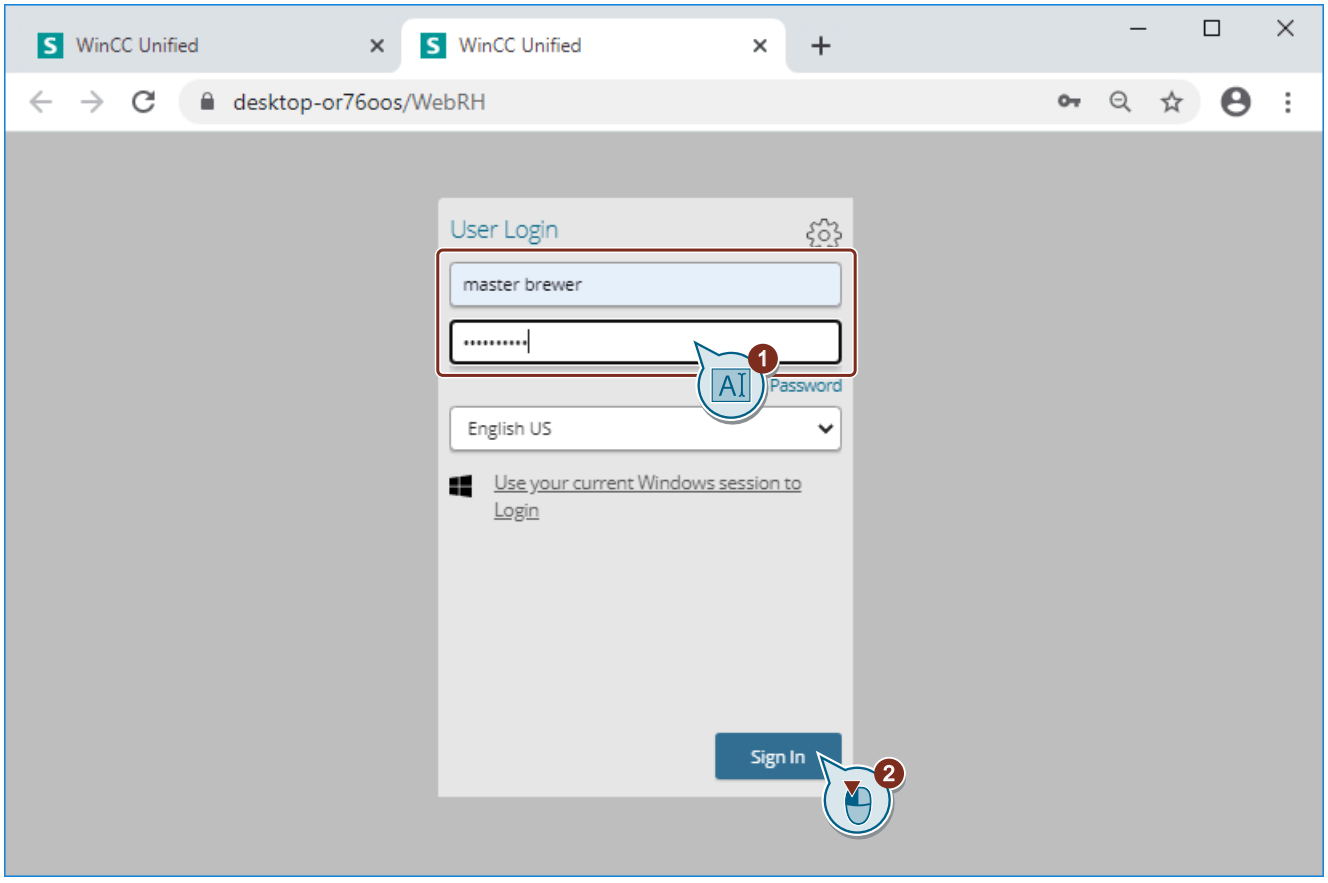

4. When loading is complete, open your browser.
5. Enter "https://127.0.0.1" in the URL bar of your browser and confirm with <Return>.


6. If you get the message "Your connection is not private", click the "Advanced" button. In the Advanced view, click the "Proceed to" button.
7. The Runtime view opens.

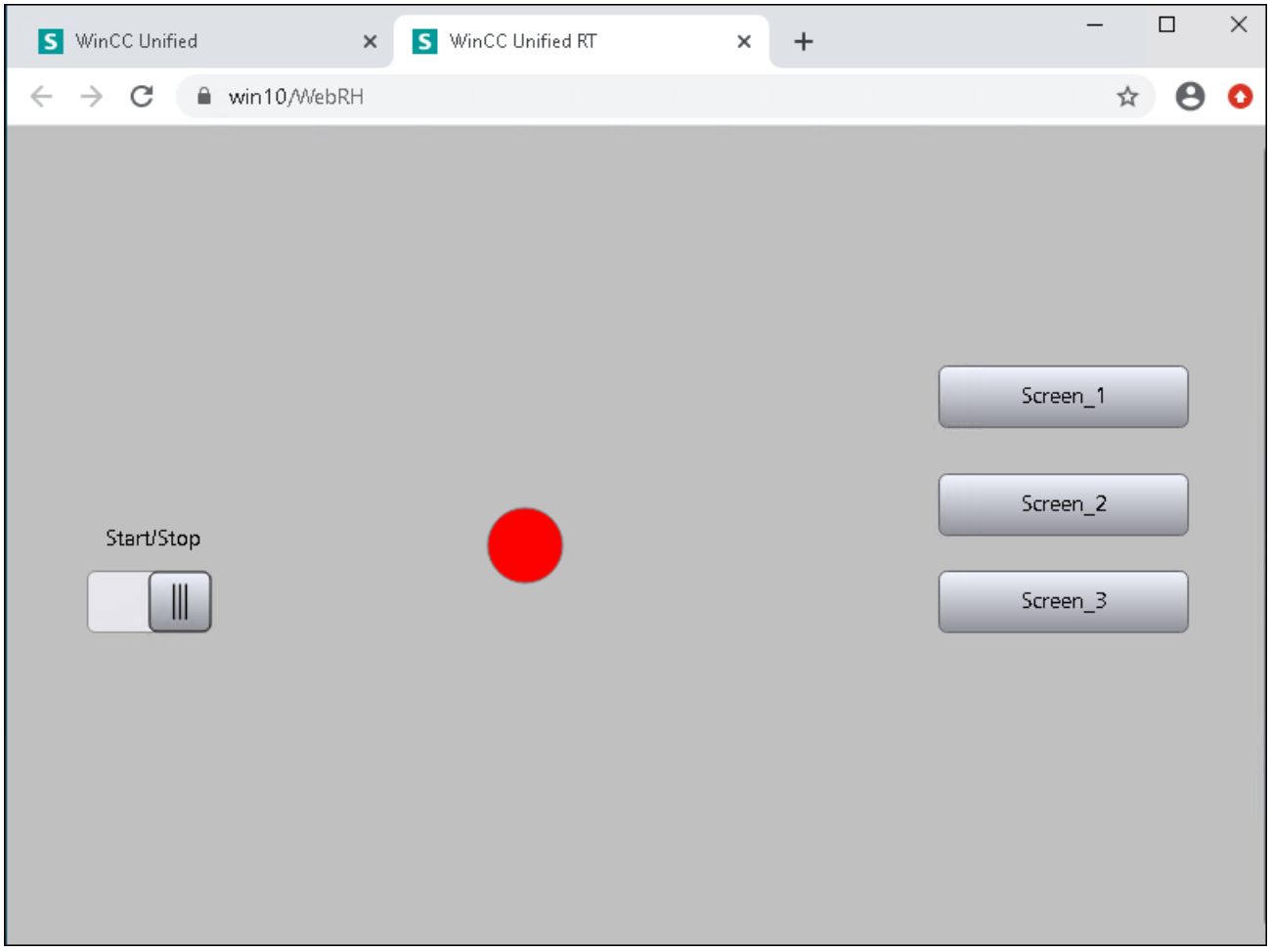
8. Click the "WinCC Unified RT" button.



9. Log on to Runtime:
   - Enter the user name "Siemens" and the password "Siemens1234*".
   - Click the "Sign in" button.




10. You see the start screen of your project and can now test your project.




## 12.5 Downloading the project

With a download, the data of the Runtime project generated during compilation is loaded into the device. The first time download load all the project data. Subsequent downloads only loads changes. You can also load the project data to memory cards.

You have the following options for downloads to an HMI device:

- Software (only changes)
  If there are differences between the online and offline versions, only the changes to the configuration are loaded into the target device. Values for tags and pending messages are always retained.
- Software (all)
  The complete configuration including all screens, data types, scripts, etc. are loaded into the target device. During the configuration of the download, you determine if the values of tags and pending messages are to be retained.

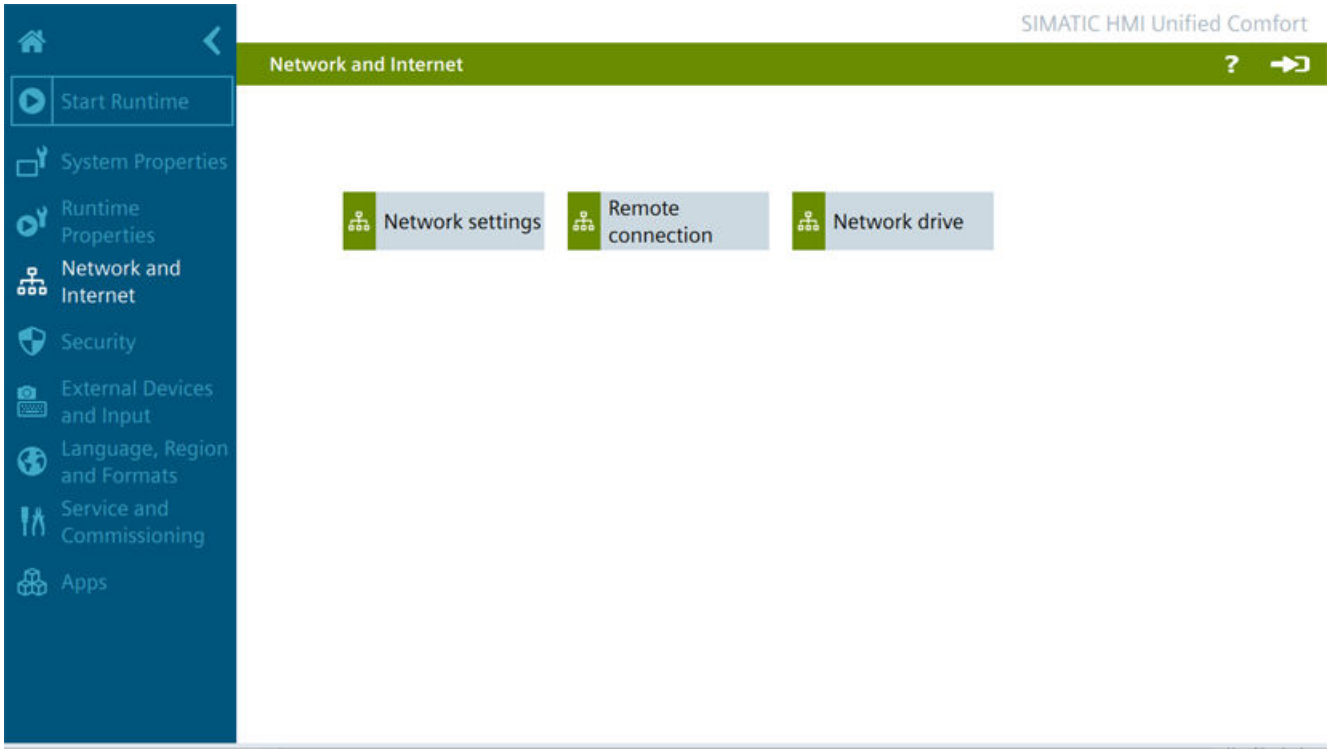
### Requirement

- The device is compiled without error.
- The Unified Comfort Panel is connected to the engineering system via the X2 interface with the highest bandwidth.
  You can find detailed information on commissioning a Unified Comfort Panel in the operating instructions. This can be found at the Siemens Industry Online Support (SIOS) website under Entry ID 109810754. (https://support.industry.siemens.com/cs/ww/en/view/109810754)
- The same IP addresses are configured in the engineering system and on the panel.
- The setting for encrypted transfer is configured identically in Unified Runtime and the engineering system.

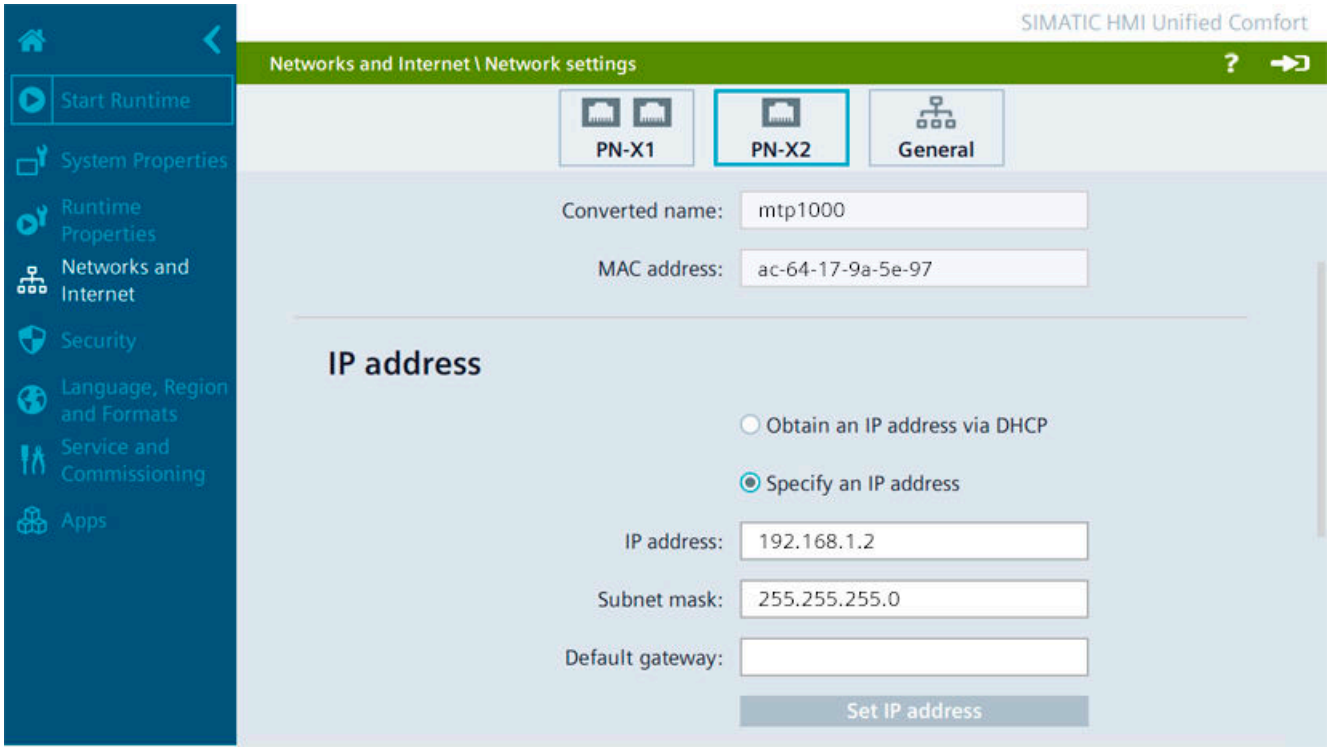
### Settings on the panel

Make the following settings on the panel. If a desired setting is not visible, scroll in the input area.

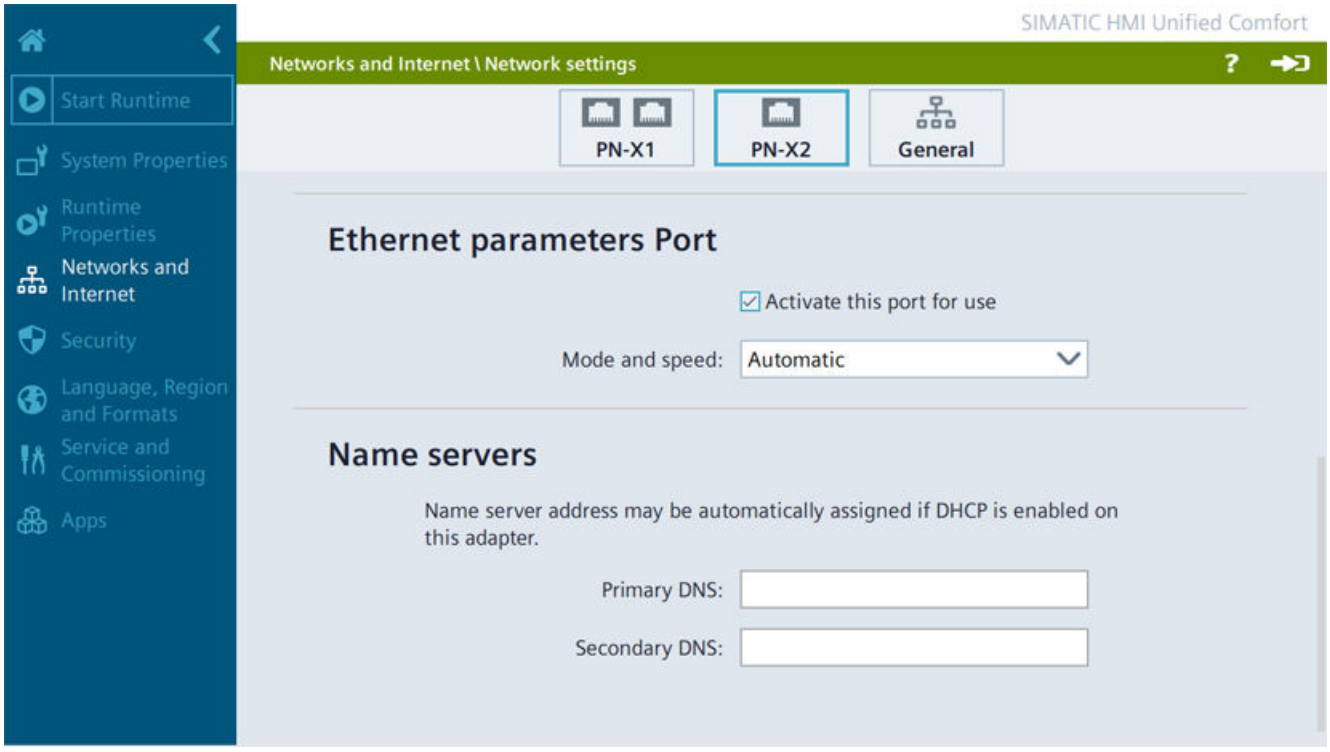
1. Click "Network and Internet" in the control panel of the HMI device.
   - Click "Network settings".



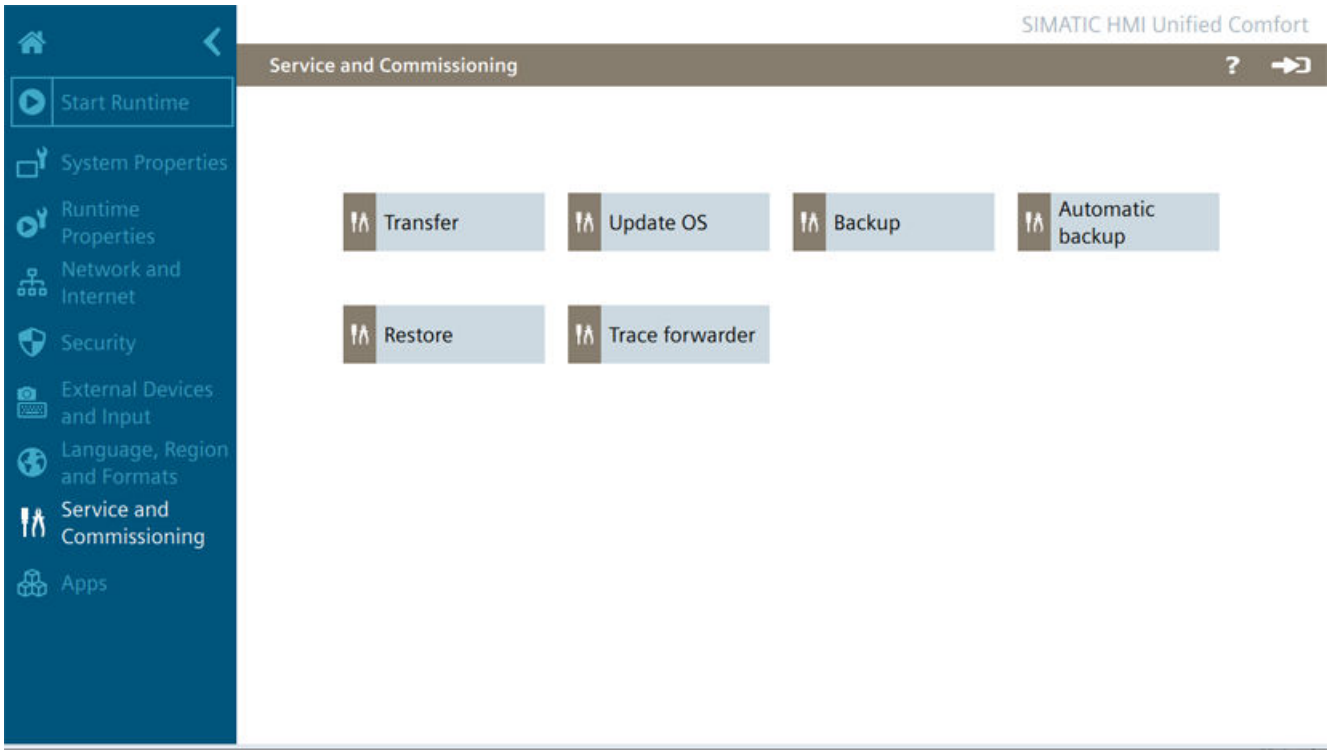

2. Click the "PN-X2" button and scroll down to the "IP address" area.
   - Select "Specify an IP address".
   - Enter the "192.168.1.2" for the "IP address".
   - Enter the value "255.255.255.0" for "Subnet mask".
   - Click "Set IP address".



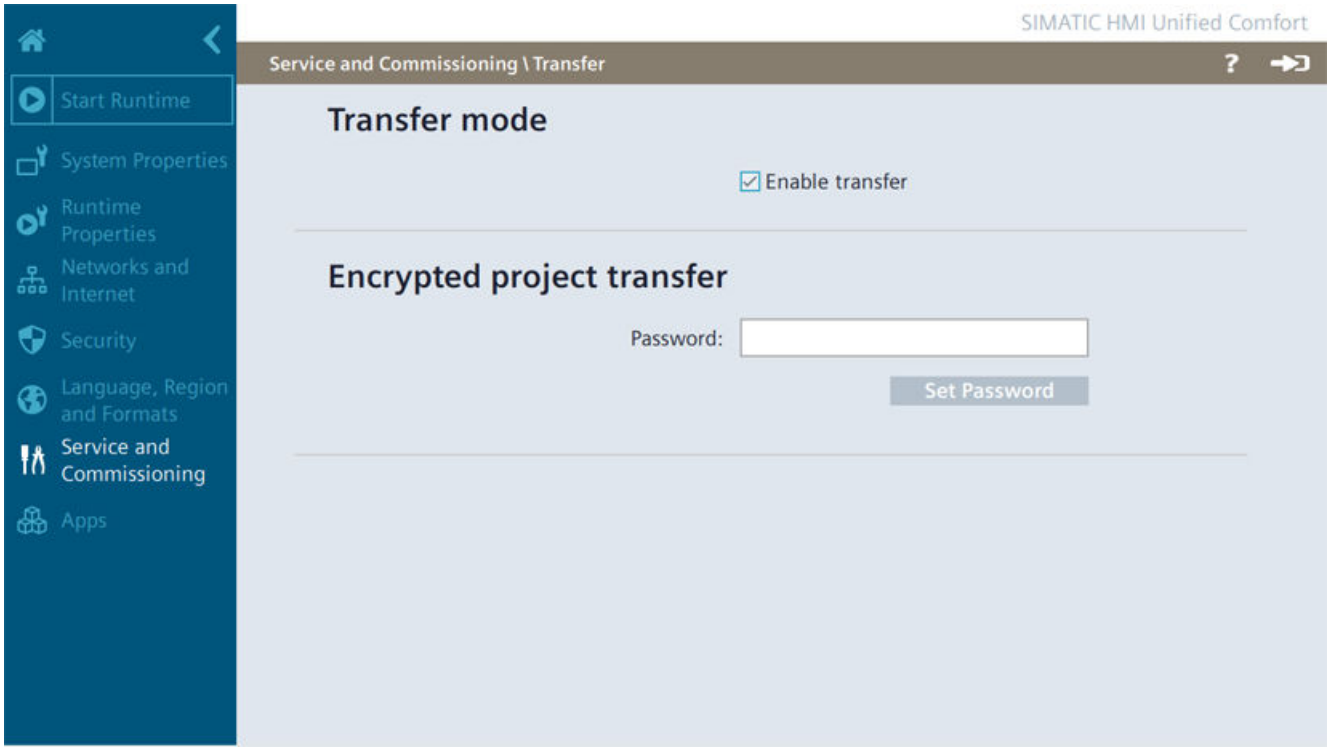

3. Scroll down to the "Ethernet parameters Port" area.
   – Make sure that "Activate this port for use" is selected.



4. Click "Service and Commissioning > Transfer" in the control panel of the HMI device.
   – Click "Transfer".

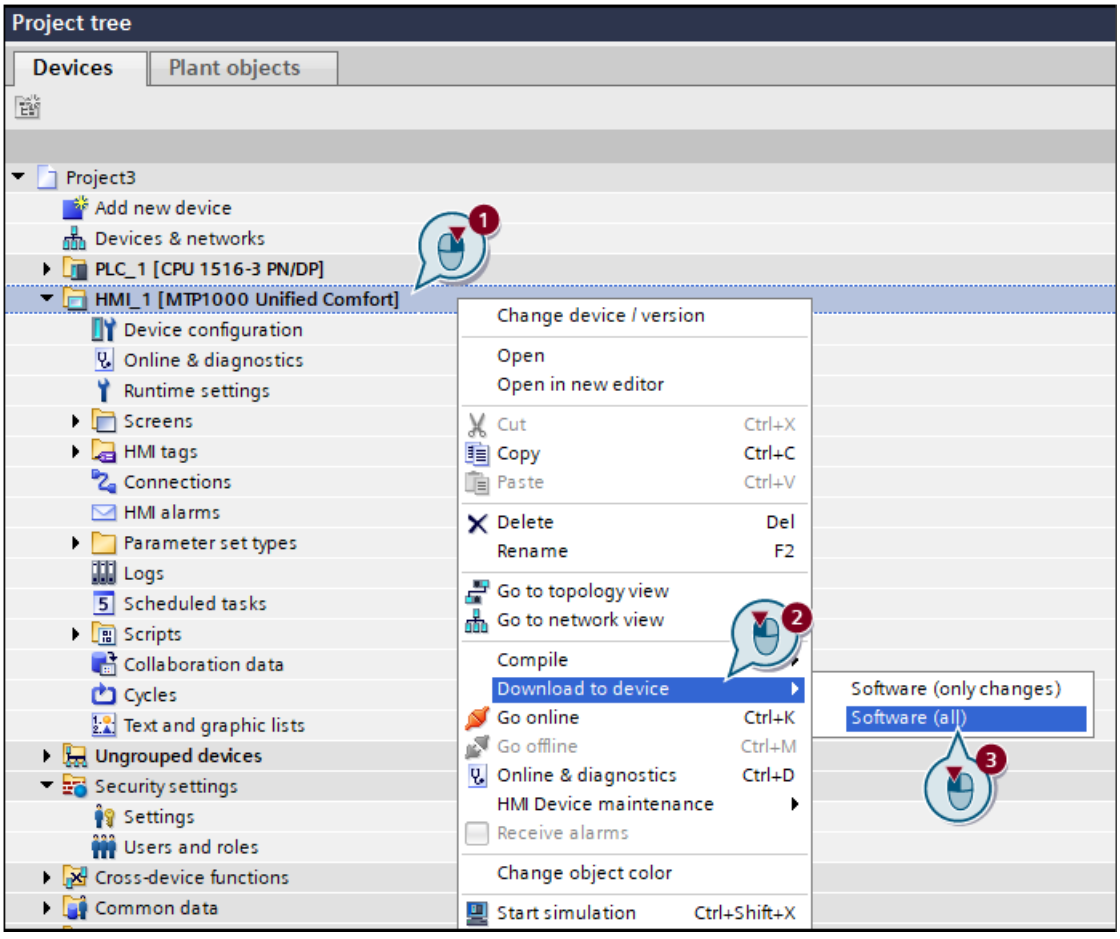



5. Select "Enable Transfer".
   – If the transfer is to be encrypted, enter the password that you have also configured in engineering and click "Set Password".

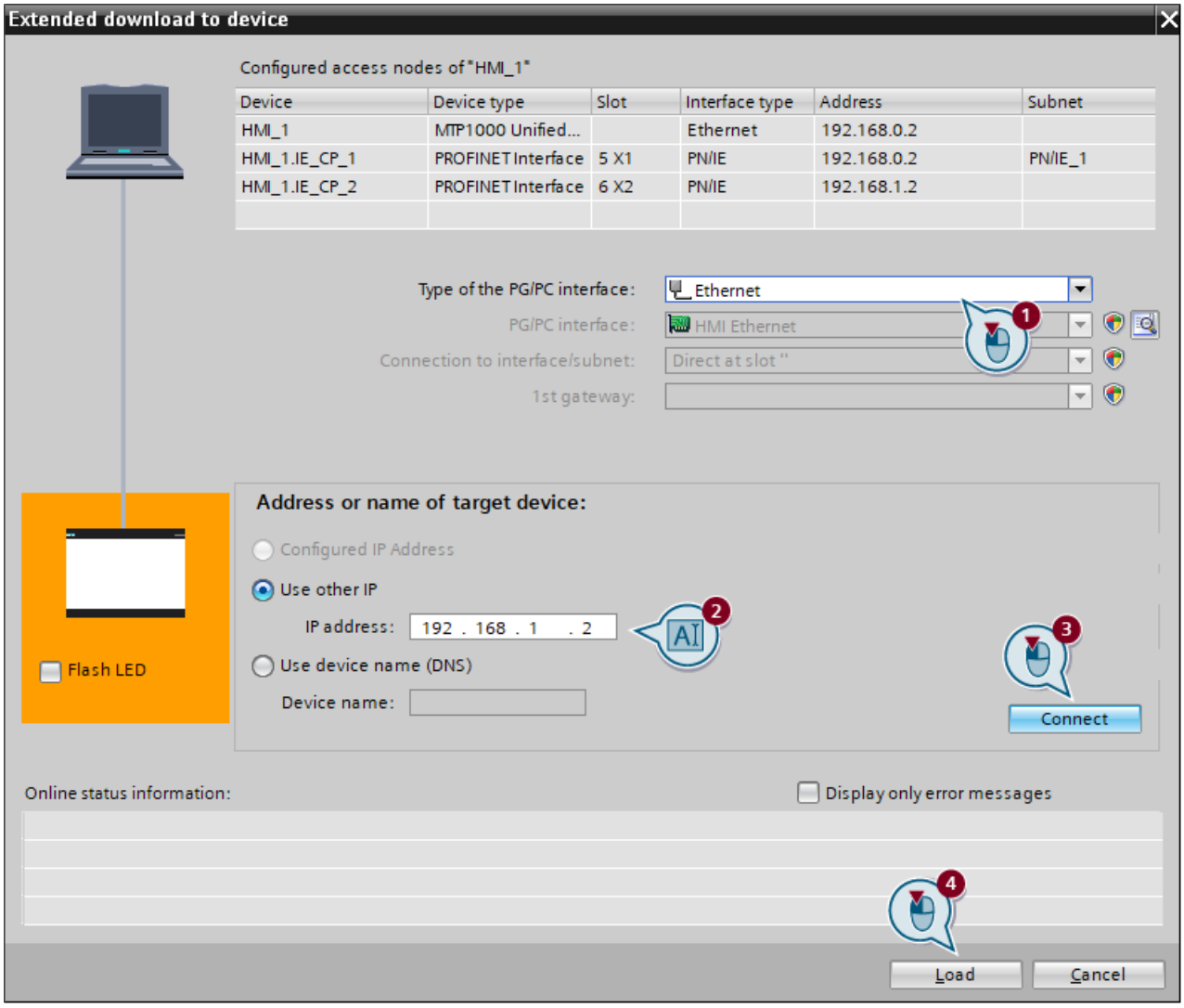

SIMATIC HMI Unified Comfort
Service and Commissioning \ Transfer
Start Runtime
System Properties
Runtime Properties
Networks and Internet
Security
Language, Region and Formats
Service and Commissioning
Apps
Transfer mode
Enable transfer
Encrypted project transfer
Password:
Set Password

## Downloading the project

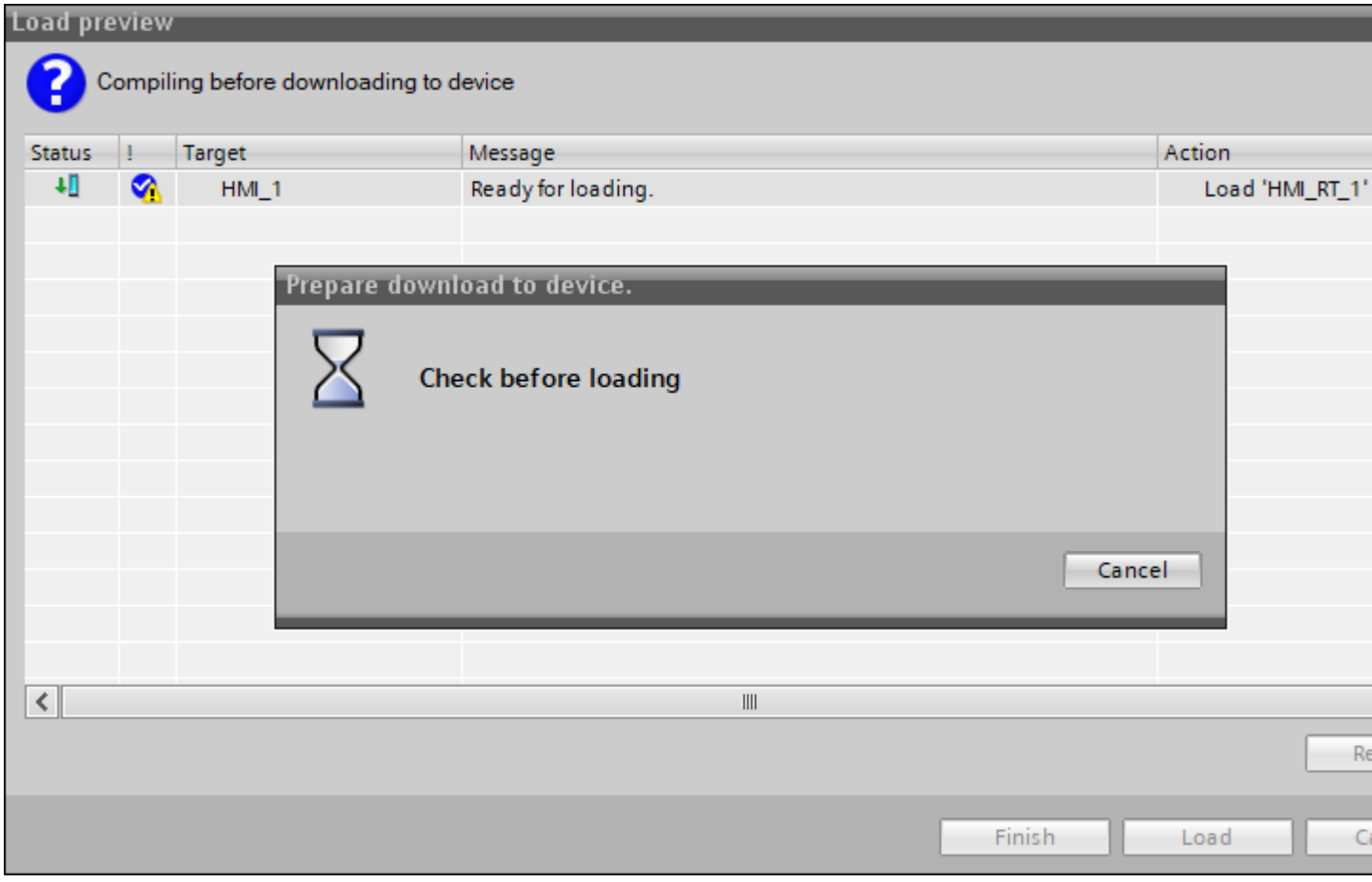
1. Right-click "HMI_1" in the project tree.
2. Select the command "Download to device > Software (all)" in the shortcut menu.



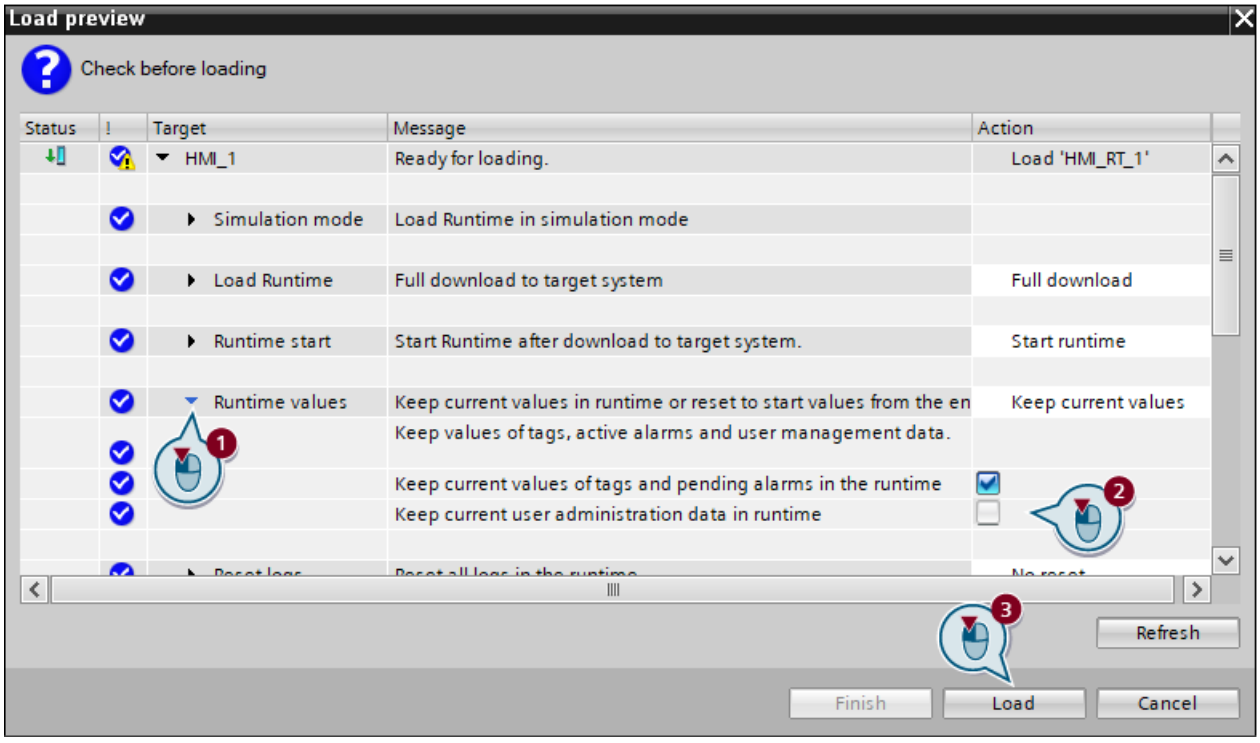
3. If there is no connection to the HMI device yet, the "Extended download to device" dialog opens.
   - Select the type of PG/PC interface to "Ethernet".
   - Select "Configured IP address".
   - Click "Connect".
   - Click "Load".




The "Load preview" dialog opens. The transfer is prepared.


Load preview
Compiling before downloading to device
Status
!
Target
Message
Action
HMI_1
Ready for loading.
Load 'HMI_RT_1'
Prepare download to device.
Check before loading
Cancel
Finish
Load

4. When the preparations are complete, configure the load to the device.
   - Click the ▸ symbol in front of "Runtime values".
   - Disable "Keep current user administration data in runtime" during initial download for the new user settings to take effect.
   - Click the "Load" button.




The project is transferred to the HMI device If errors or warnings occur during the transfer, corresponding alarms are displayed under "Info > Load" in the Inspector window. After the successful transfer, the message "Loading complete (Error: 0; Warnings: 0)" is displayed.

5. Protect the device from unintentional transfer.
   - Open "Service and Commissioning > Transfer" in the control panel of the HMI device.
   - Disable "Enable Transfer".

# Useful information

# 13

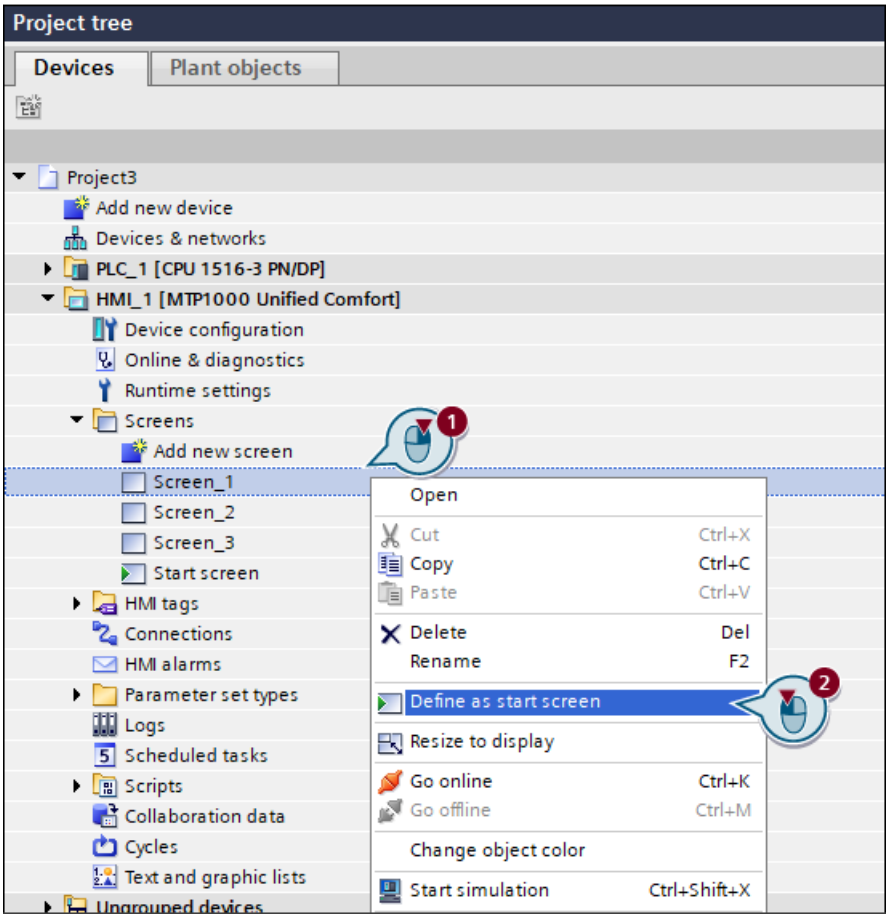
## 13.1 Changing the start screen

The first screen you configure in a device is set as the start screen for Runtime. You have the following options to change the start screen:

- In the project tree
- In the Runtime settings

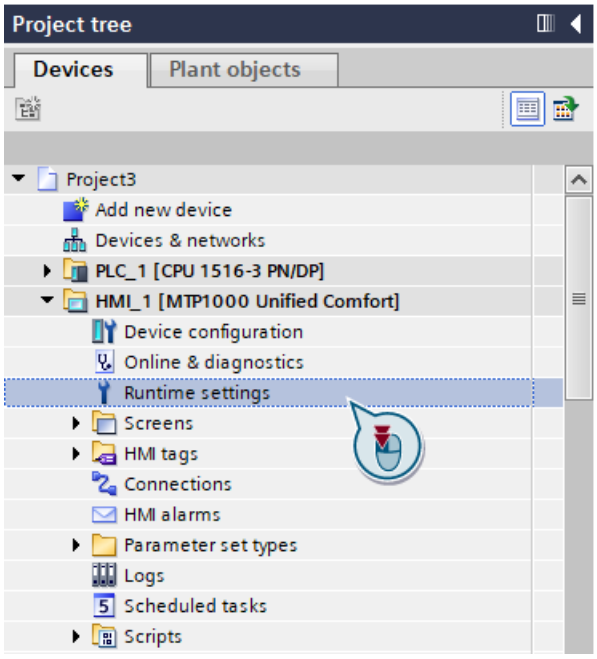
### Changing the start screen in the project tree

1. Right-click "Screen_1" in the project tree. The shortcut menu opens.
   – Click "Define as start screen".



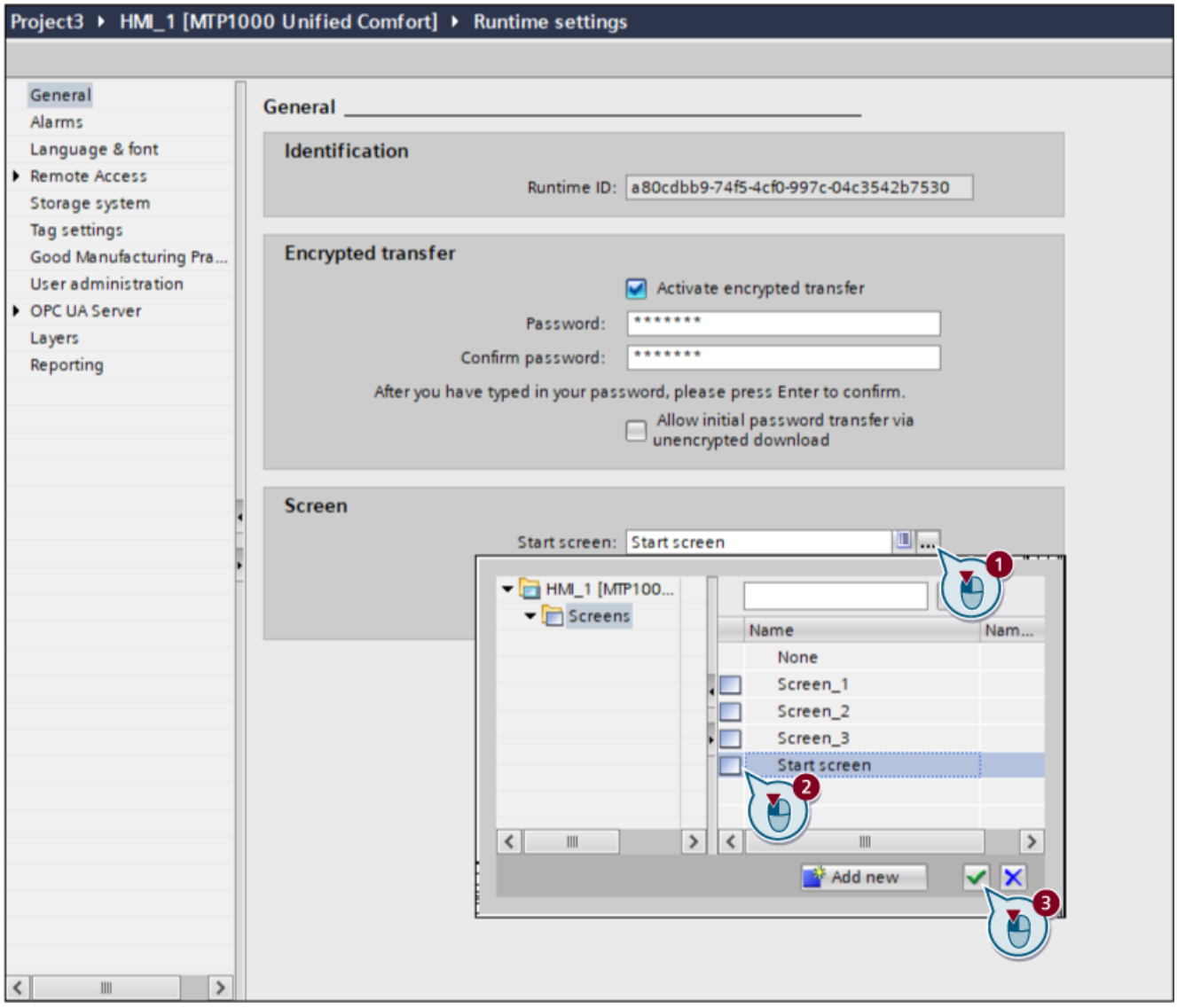
### Changing the start screen in the Runtime settings

1. Double-click "Runtime settings" in the project tree.




   The work area opens with the "General" page.

2. Click ... in the "Screen" plant complex.
   - In the selection list, select the screen you want to use as the new start screen.
   - Confirm your selection with the green check mark.




## 13.2 Configuring in multiple languages

A distinction is drawn between two different language levels in WinCC:

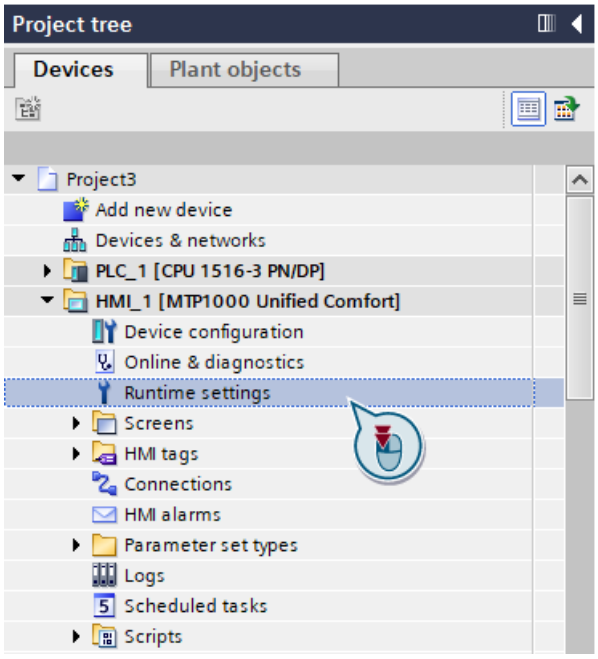
- User interface language
  The texts in the menus and dialogs of WinCC are displayed in the user interface language during configuration. The labels of the operating objects or the parameters of the system functions are also displayed in the interface language.
- Project languages
  A project contains language-dependent texts such as labels or messages. In a multilingual project, these texts must be compiled. Project languages are all languages that exist in a project.

The following languages are differentiated within the project languages:

- Reference language
  During configuration, you select one of the project languages as the reference language. You create the project in this language. The reference language is the basis for compiling the project texts.
- Editing language
  Once you have created your project in the reference language, you can compile the texts into the remaining project languages. Select one project language at a time as the editing language. Edit the texts for this language. You can change the editing language at any time.
- Runtime languages
  The Runtime languages are the project languages that are transferred to the HMI device. Depending on the requirements of your project, you decide which of the project languages are to be transferred to the HMI device.

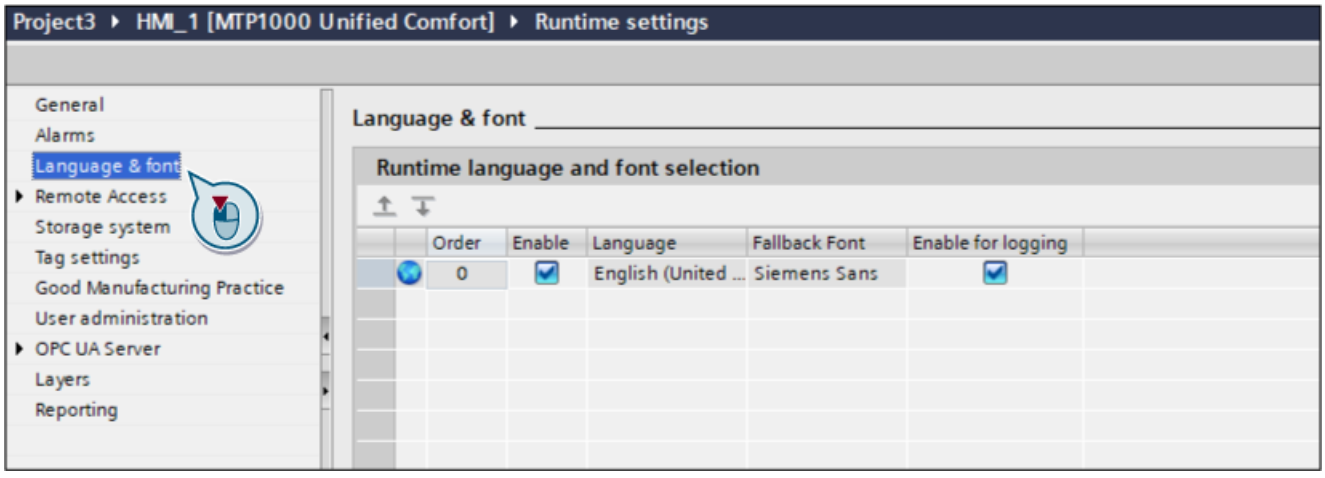
## Creating project languages

1. Double-click "Runtime settings" in the project tree.



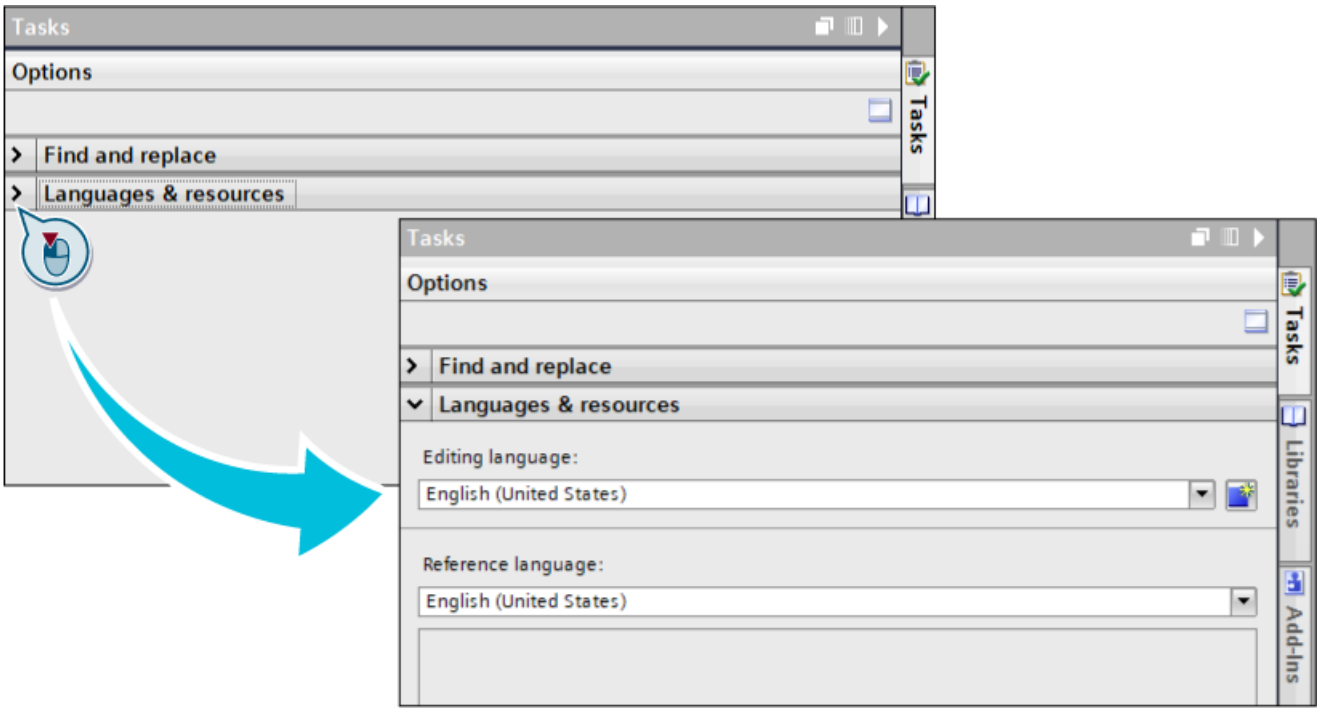

   The work area opens with the "General" page.

2. Click "Language & font".



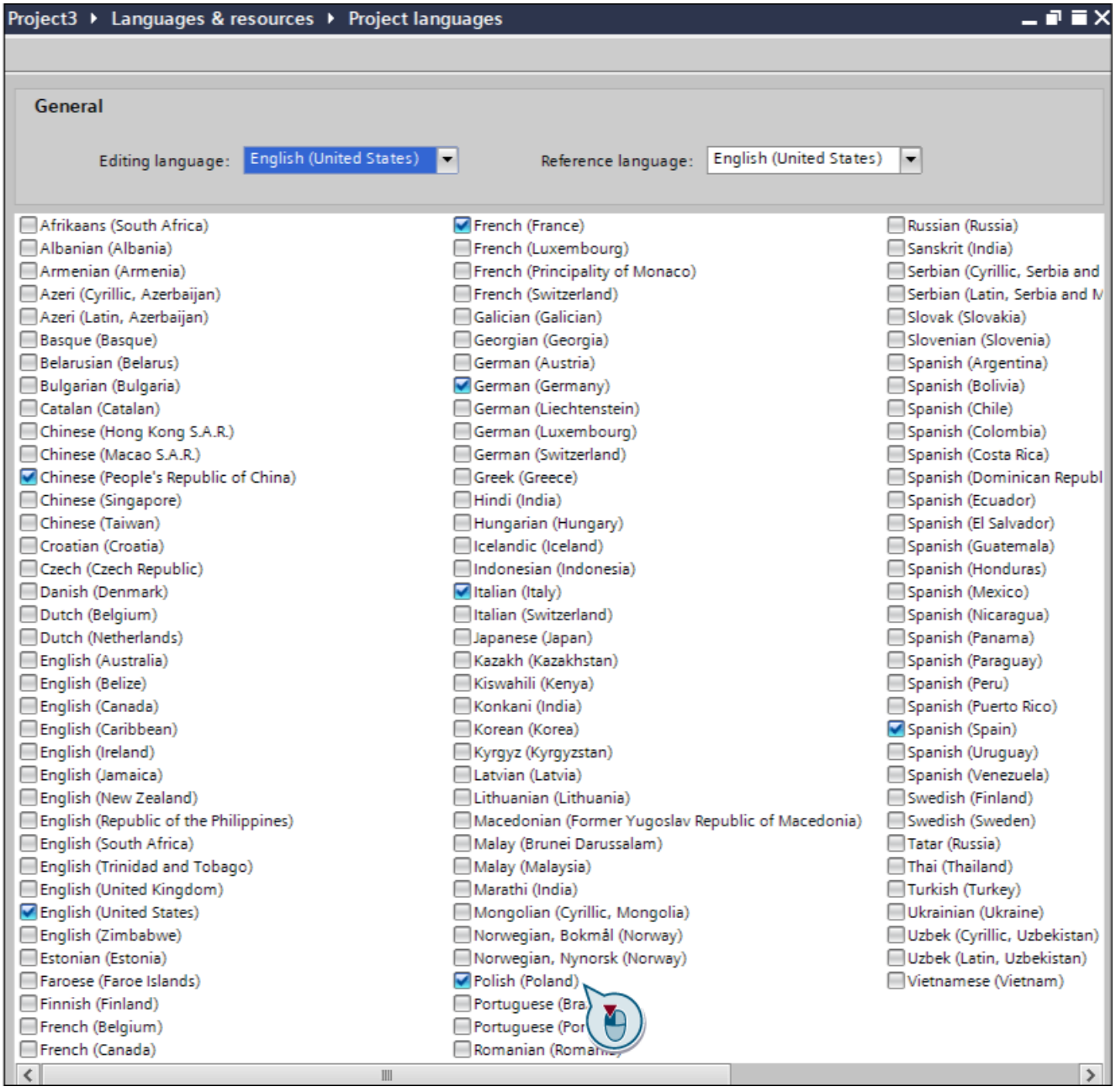

   The table of Runtime languages is displayed.

3. Click "Languages & resources" in the "Tasks" area.
   – Click on  .

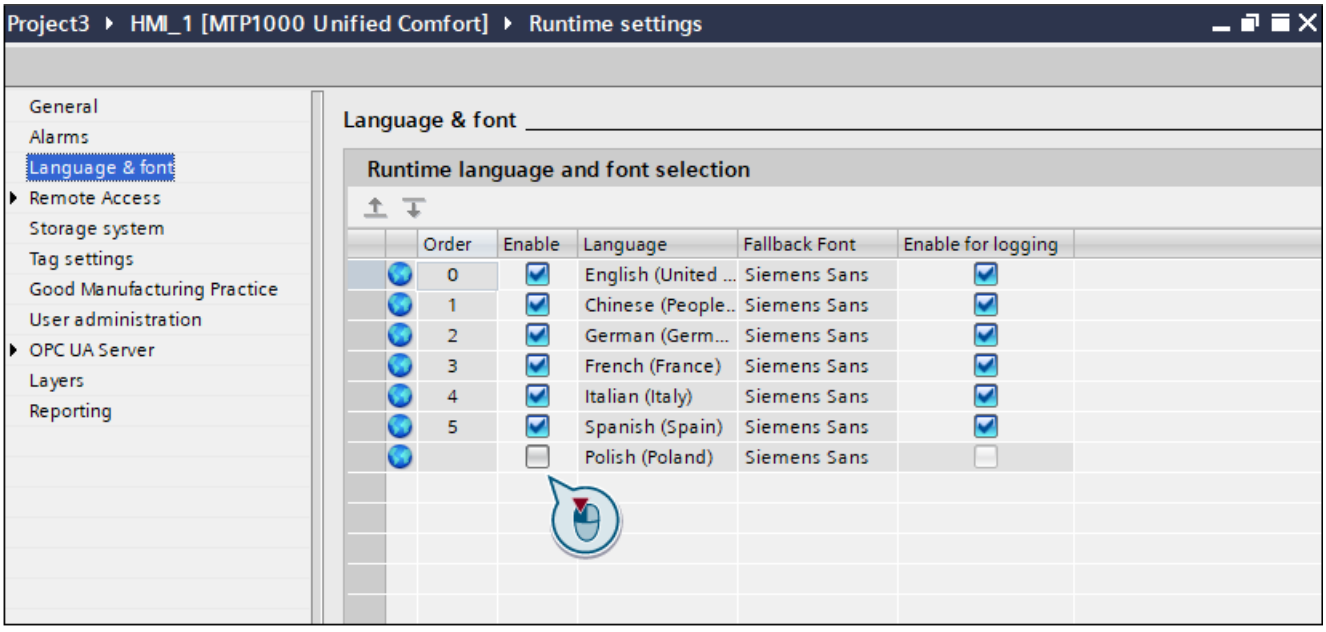



The work area for project languages opens.

4. Select all the languages you want to add as project languages, for example, Polish.

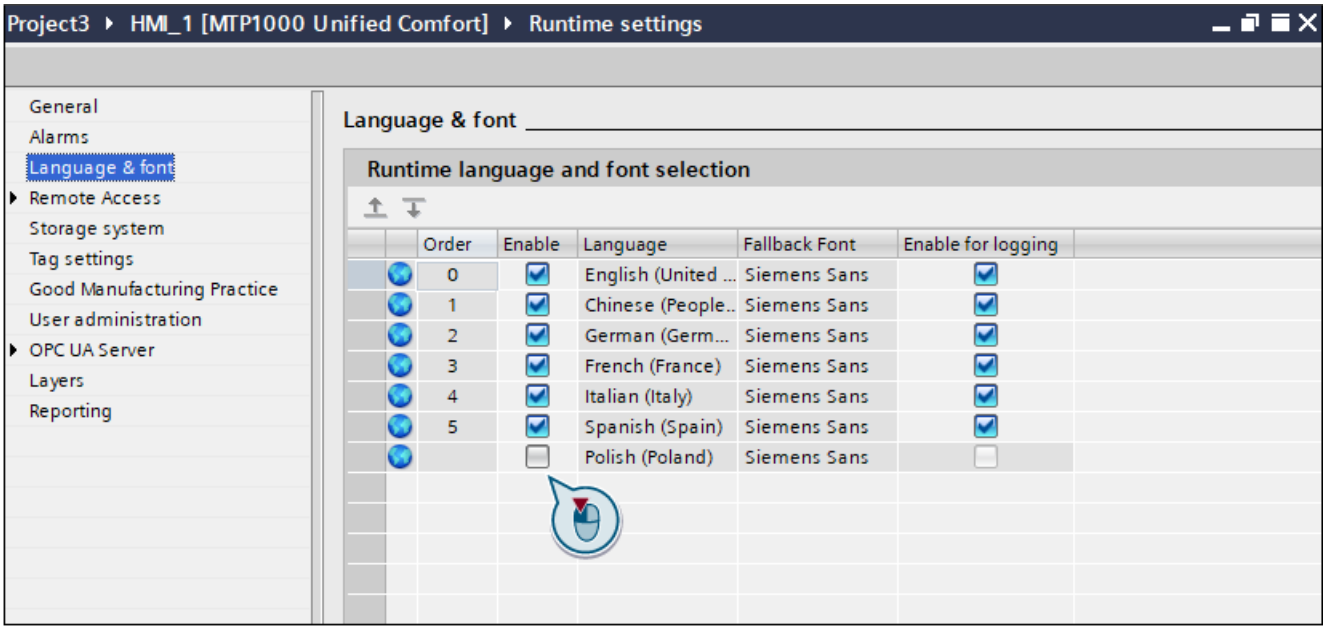



5. Click ✕. The work area for project languages closes.
   Select the languages to be loaded on the device.
   - Set the order of the language using the ↑ ↓ buttons. Order 0 defines the language with which Runtime is started.



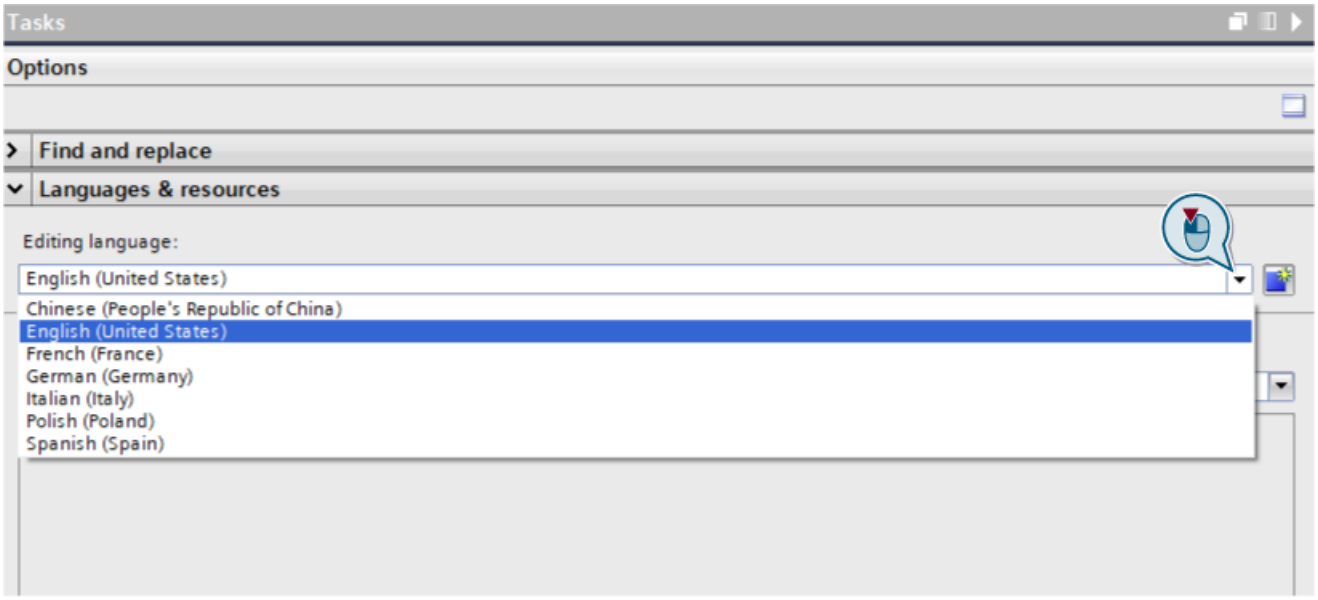

## Setting Runtime languages

1. Select the languages to be loaded on the device.
2. Set the order of the language using the buttons. Order 0 defines the language with which Runtime is started.



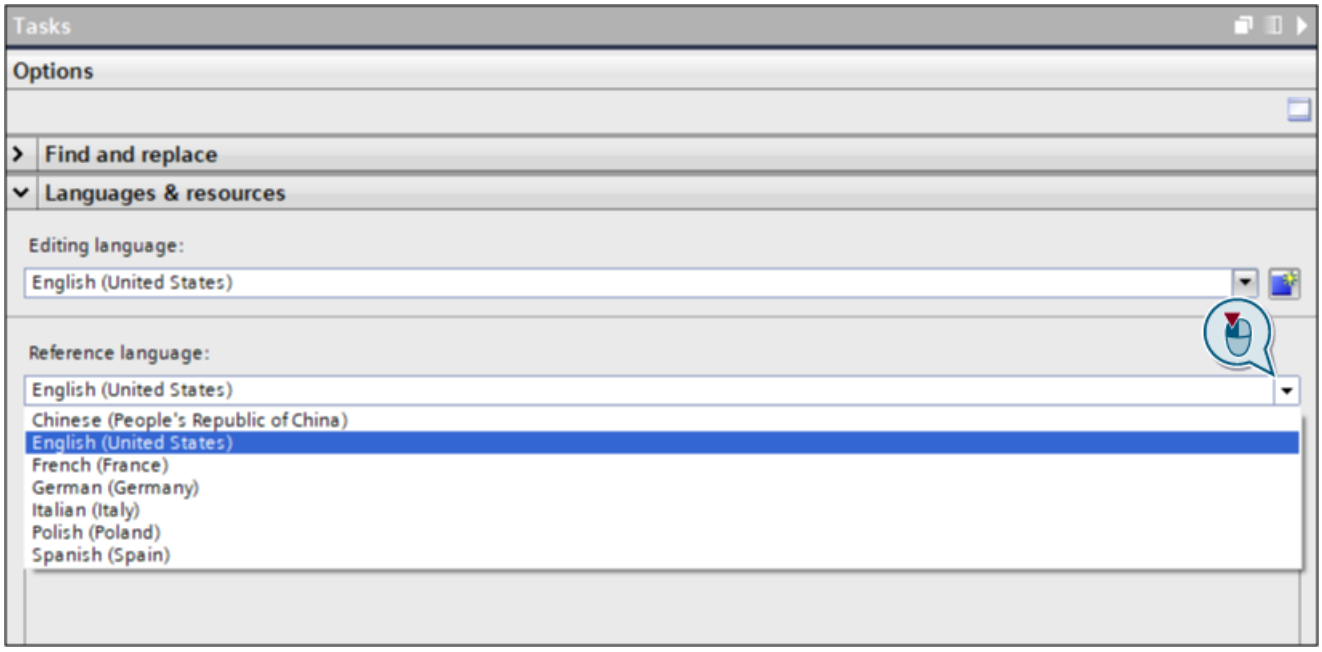
### Setting the editing language

1. In the "Tasks" area, click the ▼ under "Languages & resources > Edit language".
   – Select the new editing language from the list.




### Setting the reference language

1. In the "Tasks" area, click the ▼ under "Languages & resources > Reference language".
   – Set the reference language.

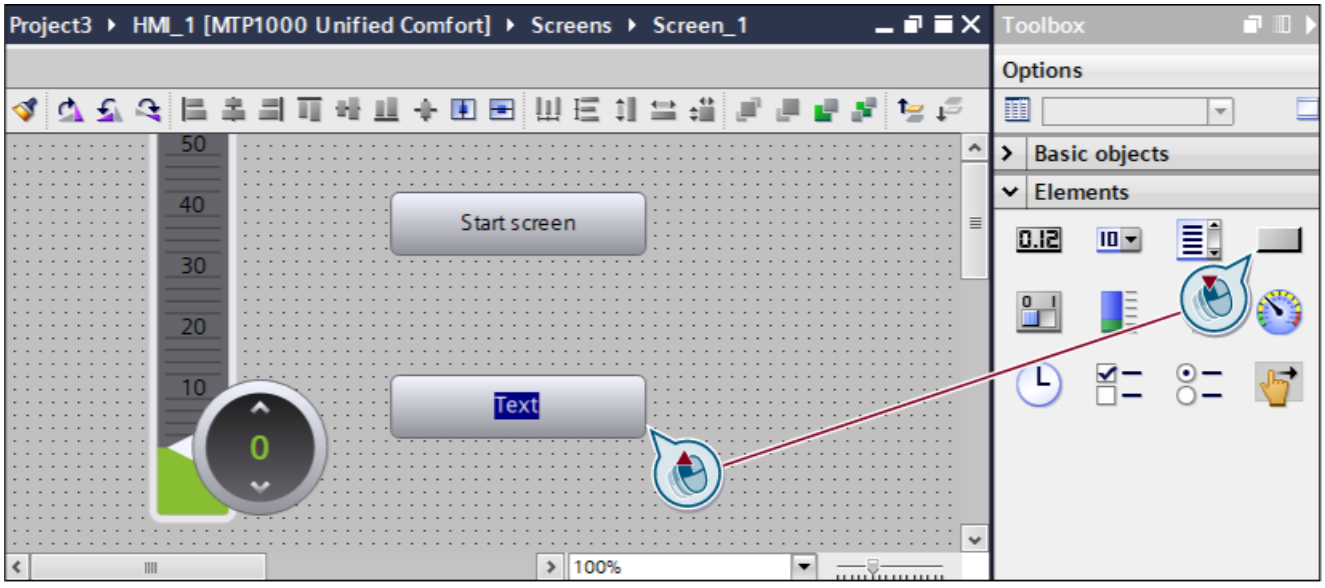


## 13.3 Configuring language switching

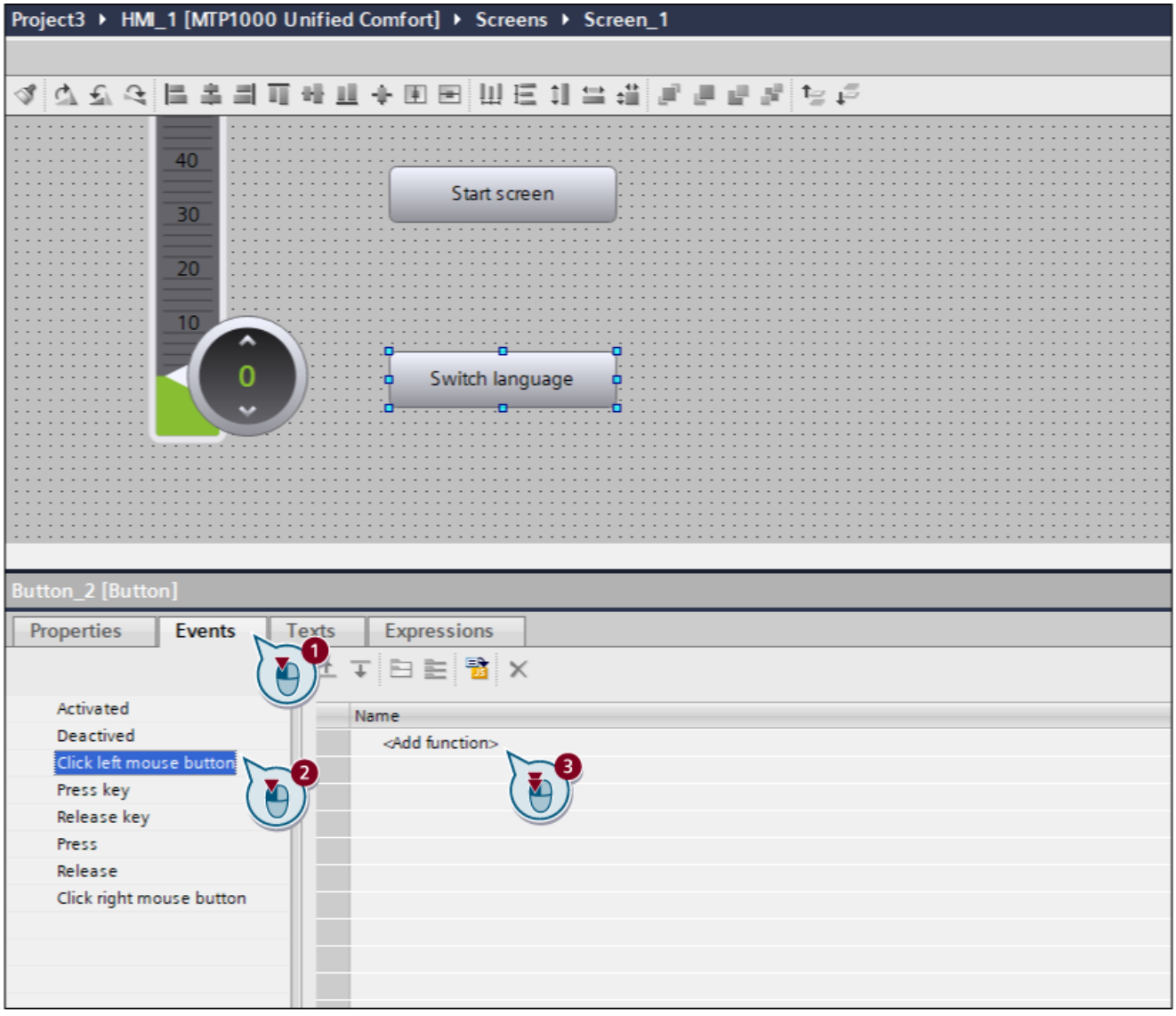
If you have created a project with several Runtime languages, you must give the operator in Runtime a way to switch between the Runtime languages.

### Configuring language switching:

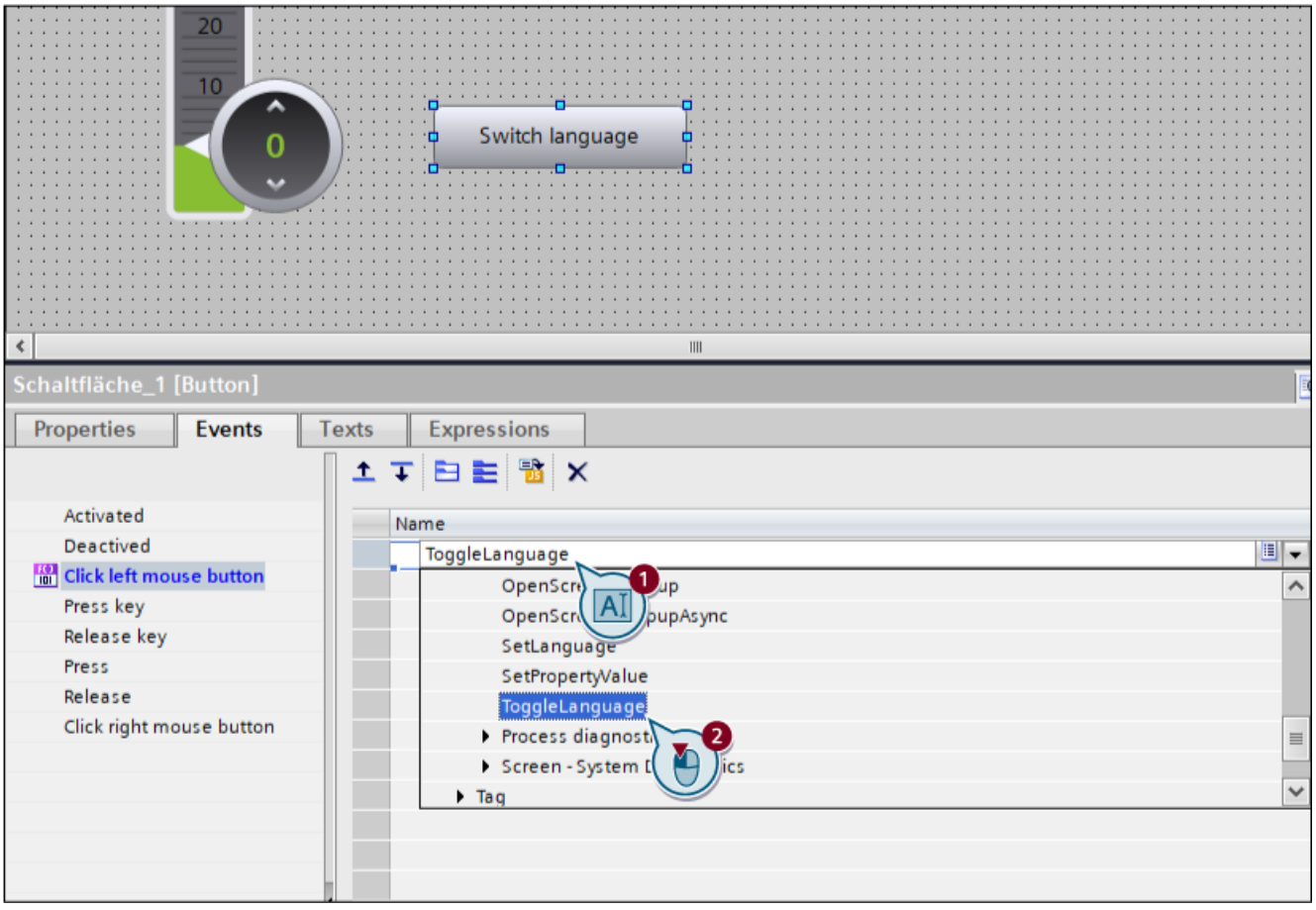
1. Double-click: on "Screen_1". The screen editor opens.
   - From the "Elements" palette, drag-and-drop a slider onto the screen.
   - Write the text "Toggle language" in the "Text" highlighted in blue.




2. Click "Events" in the Inspector window.
   - Click "Click left mouse button".
   - Double-click "<Add function>".




3. Enter the text "ToggleLanguage".




The "ToggleLanguage" system function does not require any further parameters. It toggles through the Runtime languages according to the sequence defined in the Runtime settings.

# Keyword

# 14

By transferring the project to the HMI device, you have successfully completed the steps in Getting Started and created an executable project.

If you want to further deepen your experience with WinCC Unified, you can use "WinCC Runtime Unified" Getting Started. The document uses the example of a medium-sized brewery to show you how to implement operator control and monitoring solutions for the brewing.

You will learn the following configuration steps in "WinCC Runtime Unified" Getting Started:

- Configuring the visualization of the brewing process
- Monitoring and logging the brewing process
- Configuring parameter sets
- Configuring user management
- Configuring screen navigation
- Testing functions in Runtime

You can find "WinCC Runtime Unified Getting Started (https://support.industry.siemens.com/cs/ww/en/view/109783212)" at the Siemens Industry Online Support (SIOS) website under the Entry ID: 109801175.