

# JMobile Training Day 1

JM 2.8

## Agenda

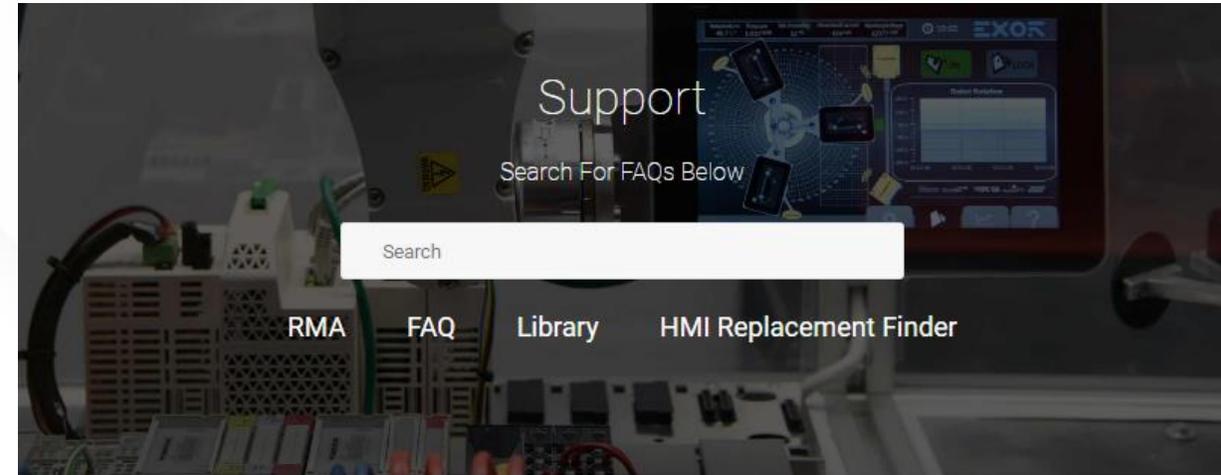
- Introduction
- HMI hardware information
- Software installation
- JMobile Studio IDE
- JMobile Features



# Introduction

# Technical Support

- Technical Support can be reached by
  - Email [support.it@exorint.com](mailto:support.it@exorint.com)  
[supporto@exorint.com](mailto:supporto@exorint.com)
  - Phone  
+39 045 8753377  
Mon-Fri, 9.00-13.00 / 14.00-18.00
- Website [www.exorint.com/support](http://www.exorint.com/support)
  - Frequently Asked Questions
  - Demo projects
  - Example projects
  - Technical Notes and cable diagram



Acquiring Capability

[HMI Replacement Finder](#)  
[FAQ](#)  
[Support for Suppliers](#)

[JMobile Training](#)

Contact Your Local Support

Italy: [support.it@exorint.com](mailto:support.it@exorint.com)  
USA: [support.us@exorint.com](mailto:support.us@exorint.com)  
India: [support.in@exorint.com](mailto:support.in@exorint.com)  
Germany:  
[support.de@exorint.com](mailto:support.de@exorint.com)  
Worldwide:  
[support.it@exorint.com](mailto:support.it@exorint.com)

Maximizing Ownership

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[Designer Updates](#)

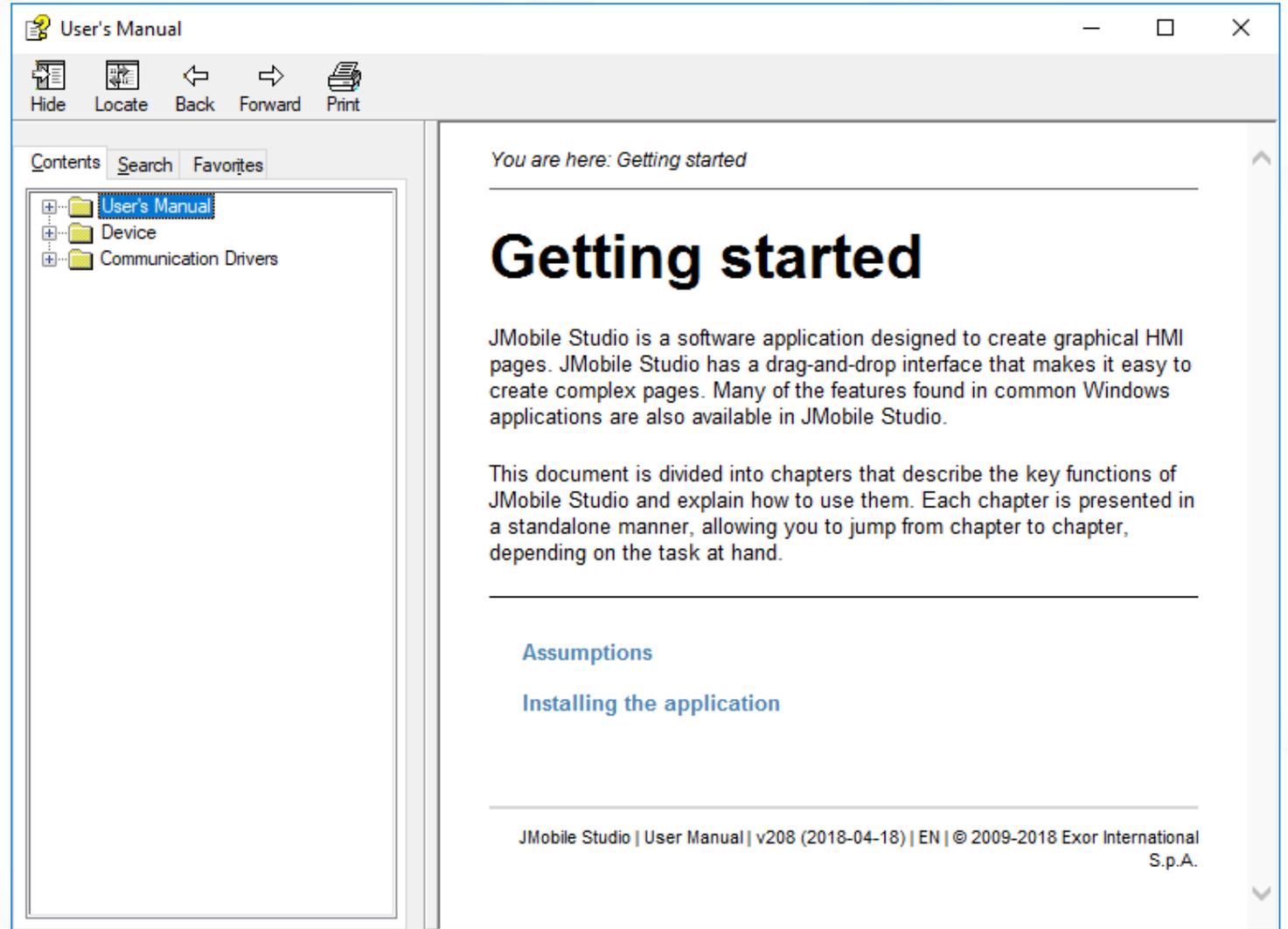
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[Documentation](#)  
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# Training and Help

- On-line Help include all topics exposed into this training
  - User's manual
  - Devices manual
  - Communication Drivers
- Explanation of features
- Technical note with information to setup communication and export variables



## What is JMobile?

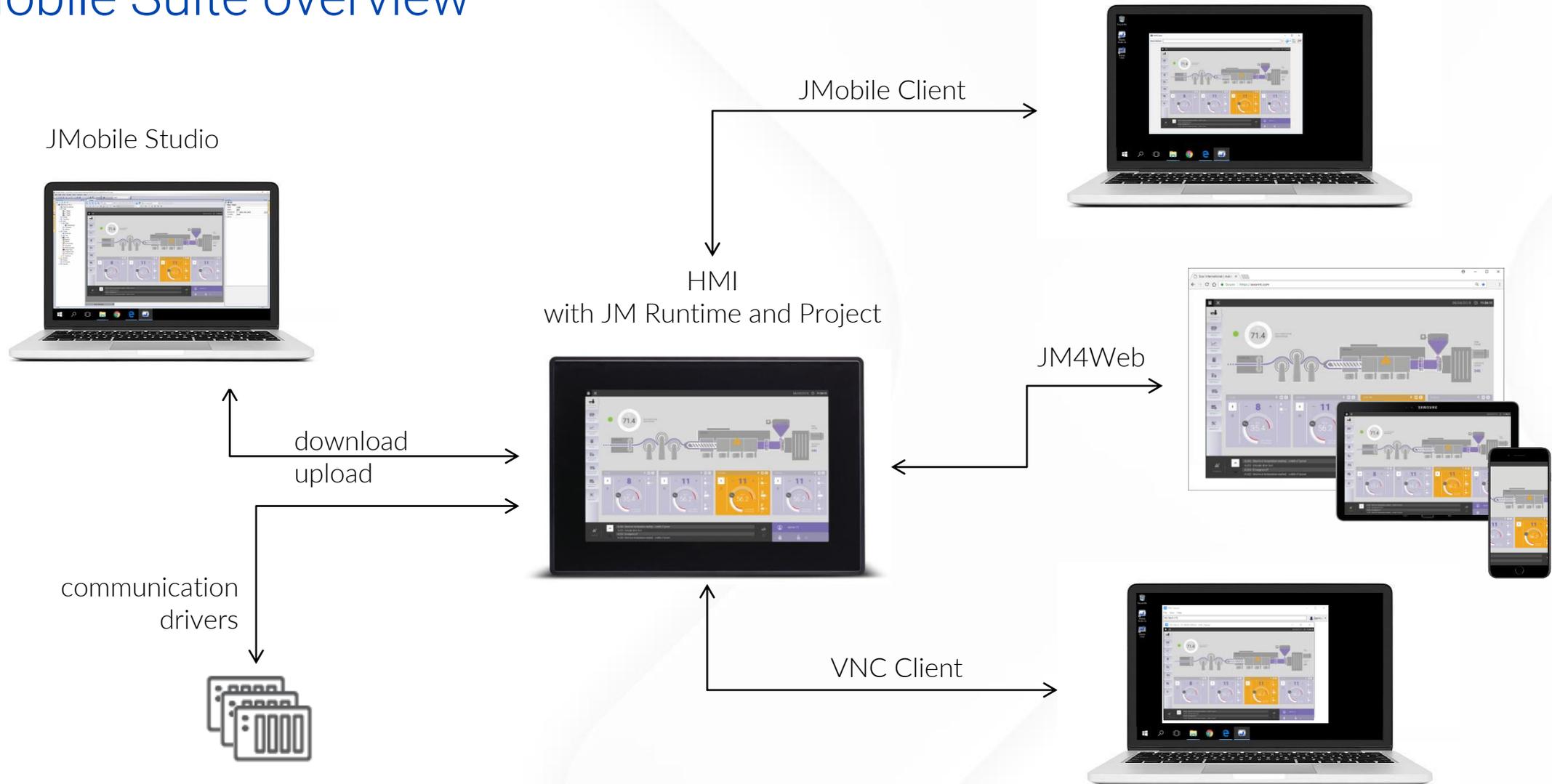
- JMobile is an HMI Software Platform
- JMobile is a Suite of software components that provides a complete solution for connecting equipment and visualizing data with Exor HMIs.



JMobile Suite software package includes:

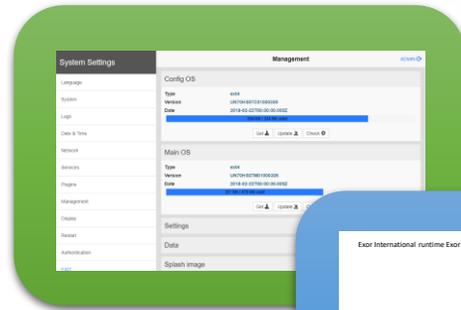
- JMobile Studio: programming software
- JMobile Runtime PC: HMI engine for industrial PC
- JMobile Client: software for remote control

# JMobile Suite overview

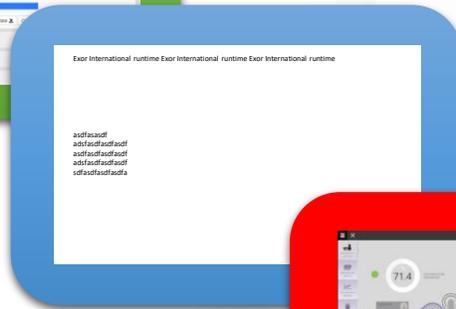


# JMobile layers overview

HMI Firmware (aka BSP)



JM Runtime



JM Project



# HMI Hardware Information

## eTOP500 series

	504	506	507	507M	510	512	513	515
Platform	WCE - UN31			WCE - UN30				
Display size	4.3" Wide	5.7" 4:3	7" Wide	7" Wide	10.4" 4:3	12.1" 4:3	13.3" Wide	15" 4:3
Display Colors	64.000							
Touchscreen	Resistive / Foil							
Ethernet	2 x 10/100 (switch)							
Serial	1 x RS-232/422/485 software programmable							
USB	1 x Host							2 x Host
Plug-in ports	1							2
SD Card	1 x SD slot							
CPU Flash/RAM	ARM A8 600MHz 128MB / 256MB			ARM A8 1GHz 256MB / 256MB				
Certifications	IP66, CE, DNV, UL, RCM							

## eTOP500G and eTOP600 series

	507G	507MG	510G	515G	605	607M	610
Platform	WCE - UN31	WCE - UN30			WCE - UN31	WCE - UN30	
Display size	7" Wide	7" Wide	10.1" Wide	15" 4:3	5" Wide	7" Wide	10.1" Wide
Display Colors	64.000						
Touchscreen	Projected Capacitive / Glass						
Ethernet	2 x 10/100 (switch)						
Serial	1 x RS-232/422/485 software programmable						
USB	2 x Host	2 x Host			1 x Host	2 x Host	
Plug-in ports	2	2			1	2	
SD Card	1 x SD slot						
CPU Flash/Ram	ARM A8 600MHz 128MB / 256MB	ARM A8 1GHz 256MB / 256MB			ARM A8 600MHz 128MB / 256MB	ARM A8 1GHz 256MB / 256MB	
Certifications	IP69K, CE, DNV, UL, RCM, ATEX				IP66, CE, DNV, UL, RCM, ATEX		

## eX700 series

	705	707	710	715	721
Platform	Linux - UN70	Linux - UN65			
Display size	5" Wide	7" Wide	10.1" Wide	15" Wide	21" Wide
Display Colors	64.000	16.000.000			
Touchscreen	Projected Capacitive / Glass with Multitouch				
Ethernet	2 x 10/100	1 x 10/100/1000, 2 x 10/100 (switch and routing configurable)			
Serial	1 x RS-232/422/485 software programmable				
USB	1 x Host	2 x Host			
Plug-in ports	1	2			
SD Card	1 x SD Slot				
CPU Flash/RAM	ARM A8 1 GHz 4GB / 512MB	ARM A9 Dual-core 800 MHz 4GB / 1GB		ARM A9 Quad-core 800 MHz 8GB / 2GB	
Certifications	CE, IP66, DNV, UL, RCM, ATEX				

## eXware series

	703	705 *	707 *	707Q *
Platform	Linux - UN70	Linux – UN71	Linux – UN65	Linux – UN65
Ethernet	2 x 10/100		1 x 10/100/1000, 2 x 10/100 (switch and routing configurable)	
Serial	1 x RS-232/422/485 software programmable	2 x RS-232/422/485 software programmable	1 x 10/100/1000, 2 x 10/100 (switch and routing configurable)	
USB	1 x Host		2 x Host	
Plug-in ports	1	No plugin. 2 Integrated CAN ports	2	
SD Card	1 x SD Slot	Not available	1 x SD Slot	
CPU Flash/RAM	ARM A8 1 GHz 4GB / 512MB	ARM A8 Dual-core 800 MHz 2GB / 256MB	ARM A9 Dual-core 800 MHz 4GB / 1GB	ARM A9 Quad-core 800 MHz 8GB / 2GB
Certifications	CE, RCM, UL	CE - EN 60945, EMC Emission and Immunity for marine applications	CE	

\* Preliminary datasheet: may change at product release

# eSMART

	04	07M	10	107
Platform	Linux - UN60			Linux – UN73
Display size	4.3" Wide	7" Wide	10.1" Wide	7" Wide
Display Colors	64.000			
Touchscreen	Resistive / Foil			
Ethernet	1 x 10/100			1 x 10/100/1000 1 x 10/100
Serial	1 x RS-232/422/485 software programmable			2 x RS-232, 2 x RS-422/485 iso 2 x CAN 2.0b iso
USB	1 x Host			2 x Host
Plug-in ports	Not available			
SD Card	Not available			
CPU/Flash/RAM	ARM A8 600MHz / 2GB / 256MB	ARM A8 1GHz / 4GB / 256MB		ARM A9 800MHz / 4GB / 1GB
Certifications	IP66, CE, UL			

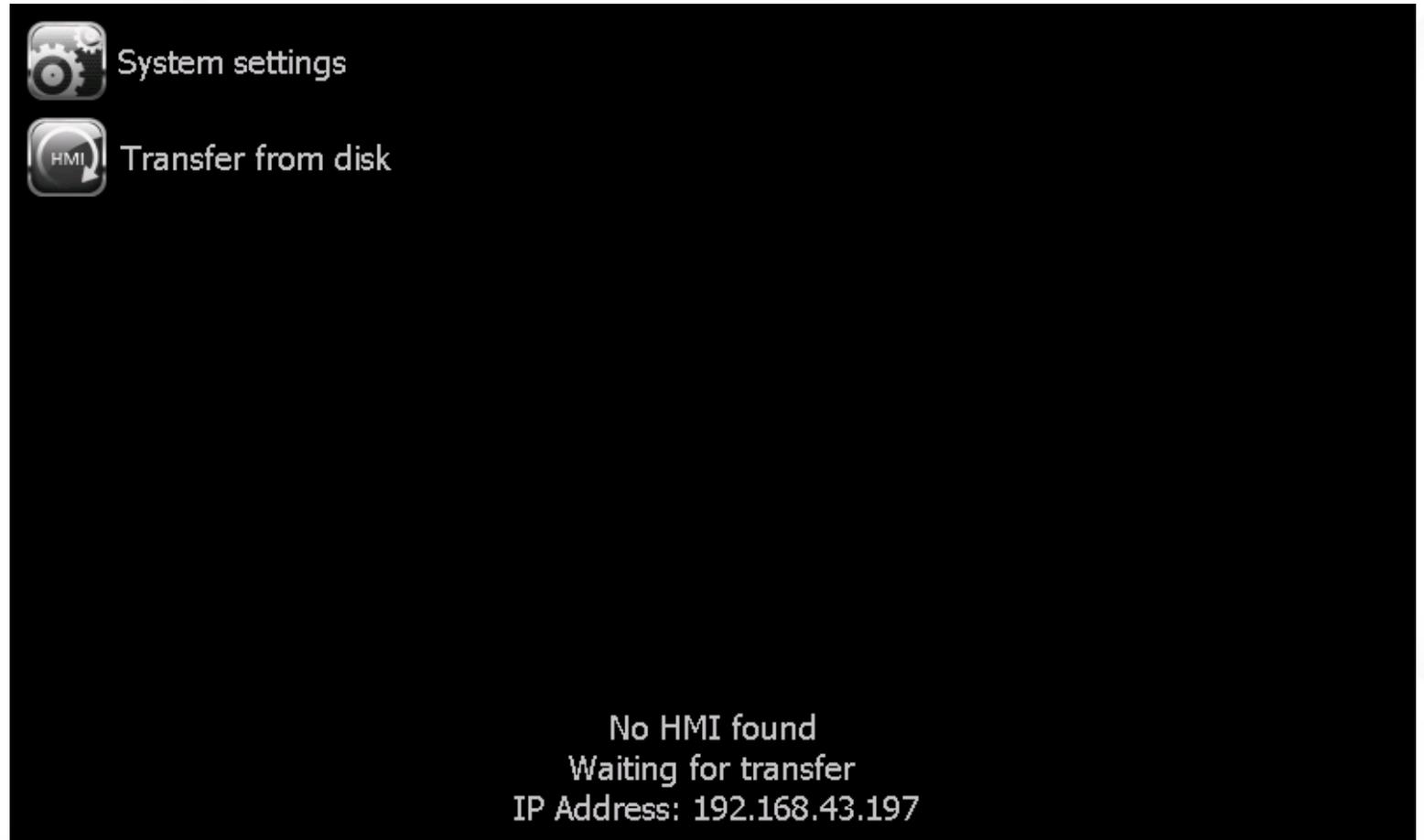
## JSmart700 series \*

	705	707	710	715	721
Platform	Linux - UN71				
Display size	5" Wide	7" Wide	10.1" Wide	15" Wide	21" Wide
Display Colors	16.000.000				
Touchscreen	Projected Capacitive / Glass with Multitouch				
Ethernet	1 x 10/100 PoE 802.3 af/at				
Serial	Not available				
USB	1 Host 2.0 (require special connector)				
Plug-in ports	Not available				
SD Card	Not available				
CPU/Flash/RAM	ARM A9 Dual-core 800 MHz/ 4GB / 1GB				
Certifications	CE – Emission EN 61000-6-4, Immunity EN61000-6-2 for installation in industrial environment				

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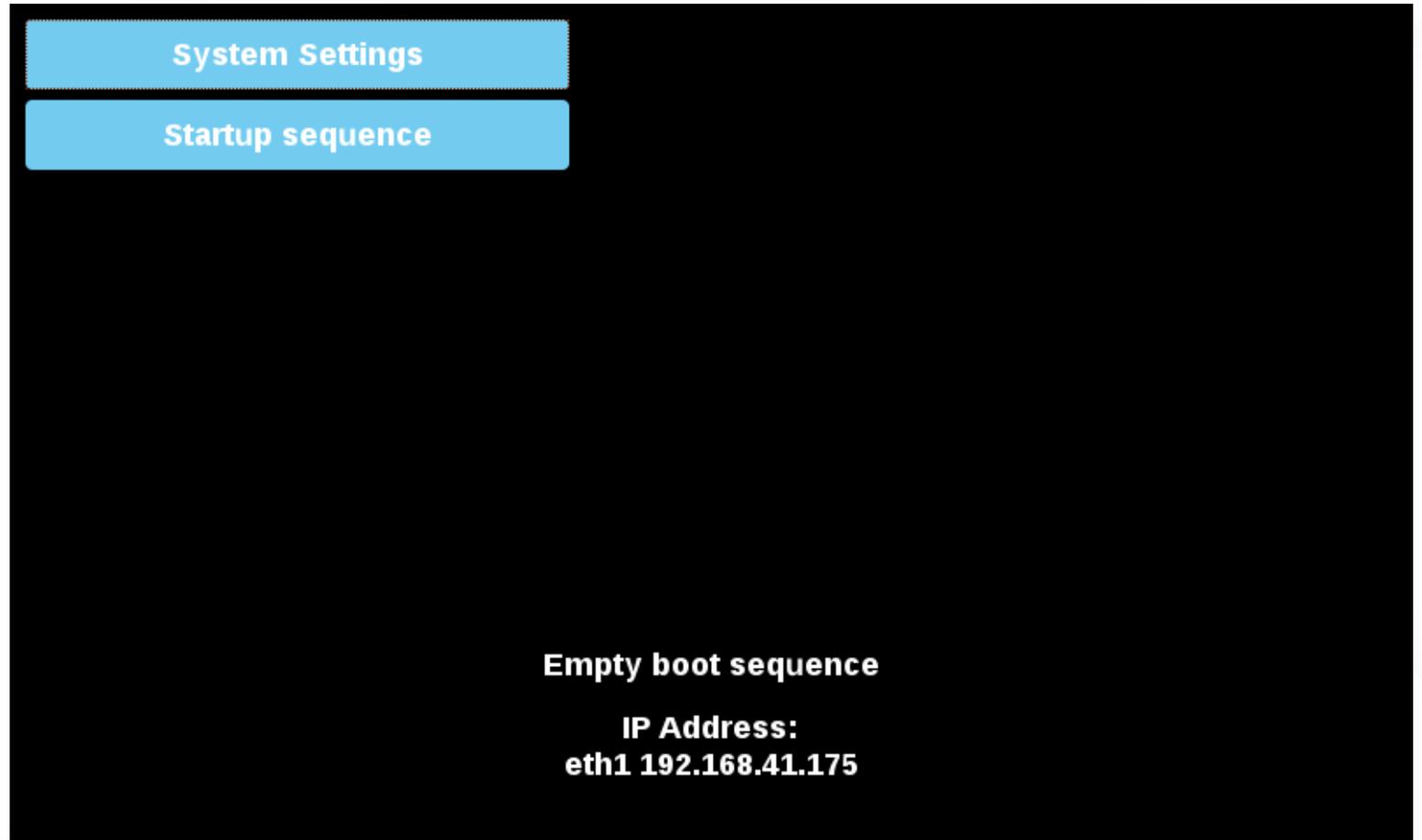
## Out of the box (WCE)

- HMIs are delivered without Runtime
- Once powered up shows the "Runtime Loader" screen
- Auto IP feature: if no DHCP server is available, HMI auto assign an IP address into the range 169.254.x.x
- Runtime can be installed
  - automatically, via Ethernet, on first project download with JMobile Studio
  - manually via USB Memory, creating an "Update Package"



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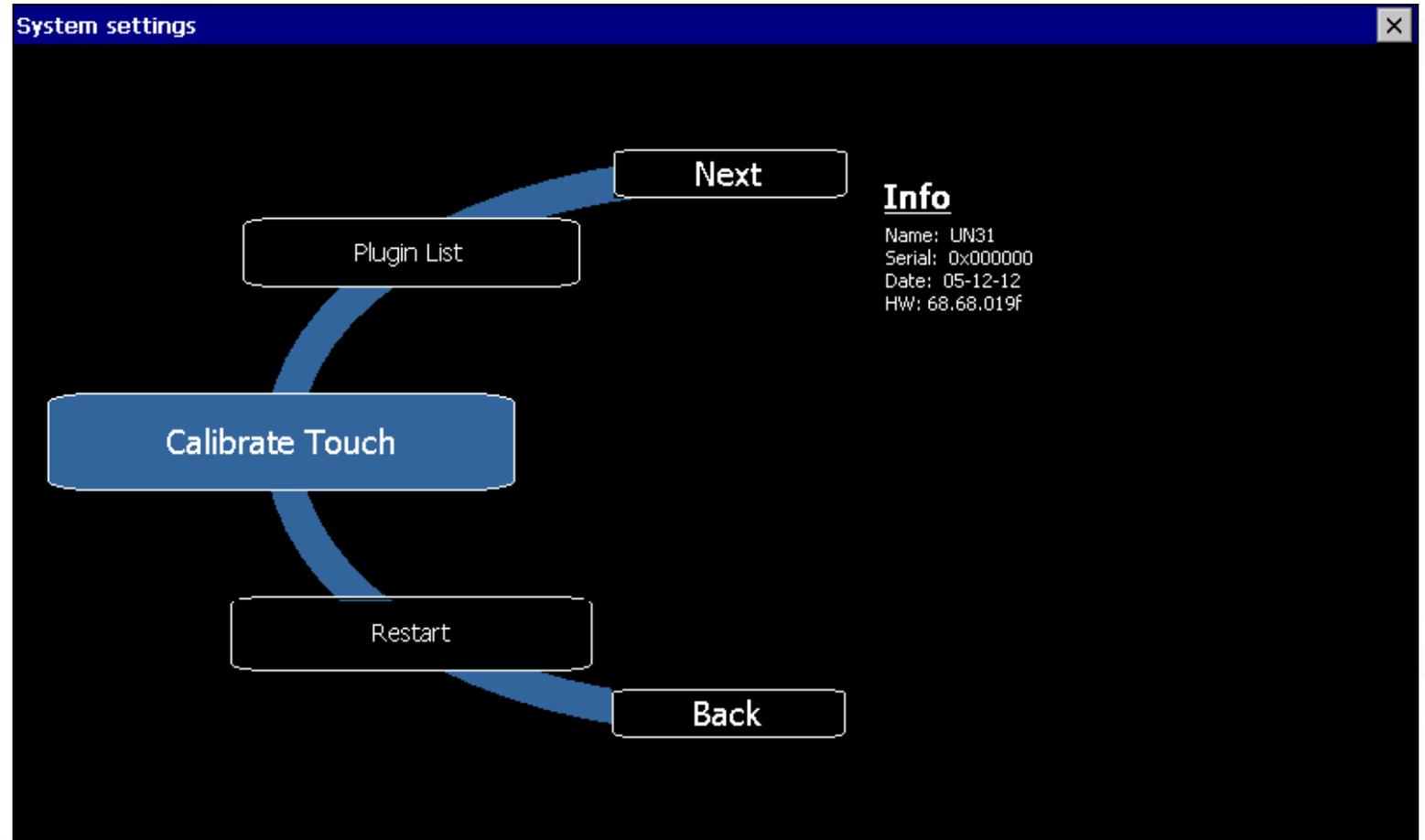
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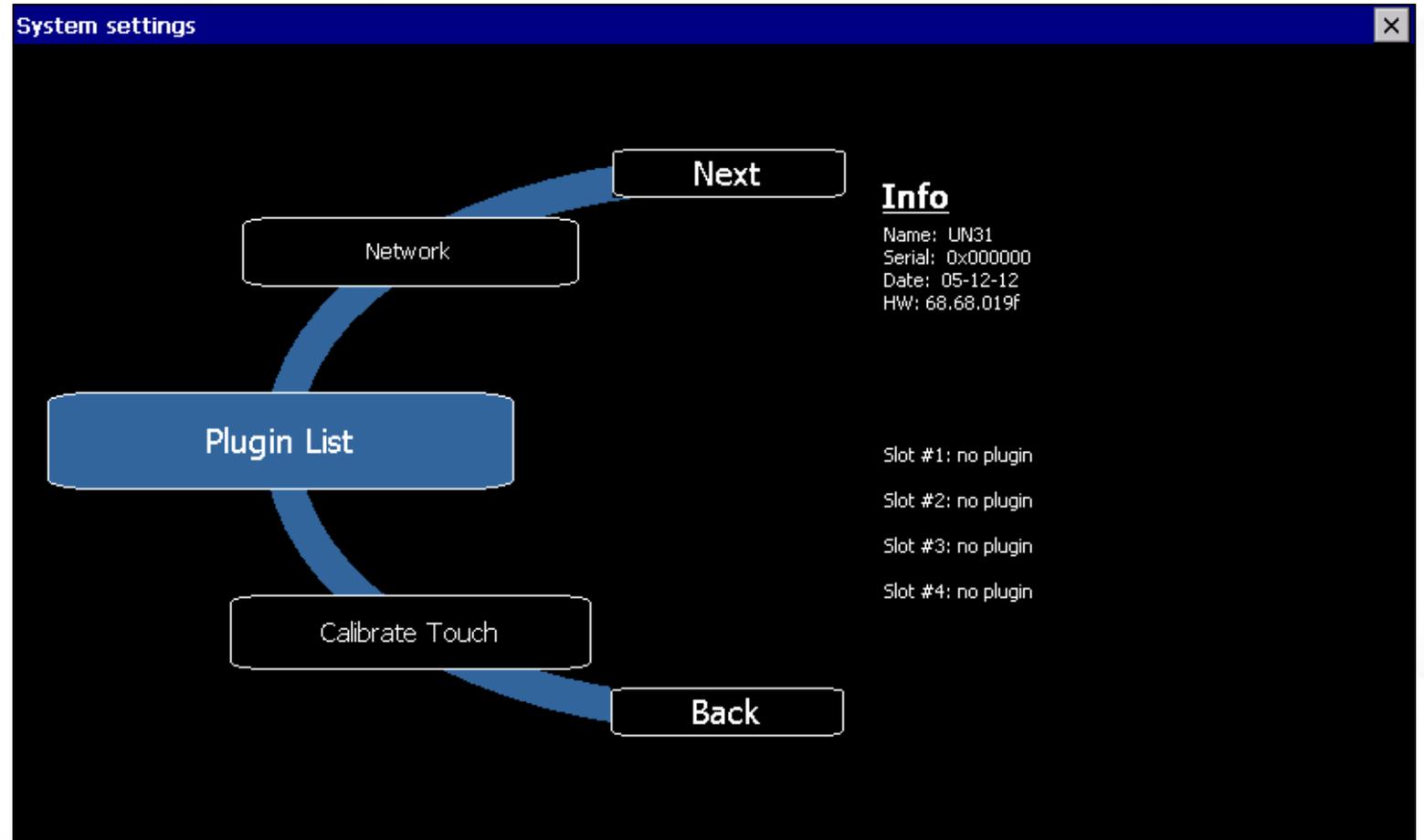
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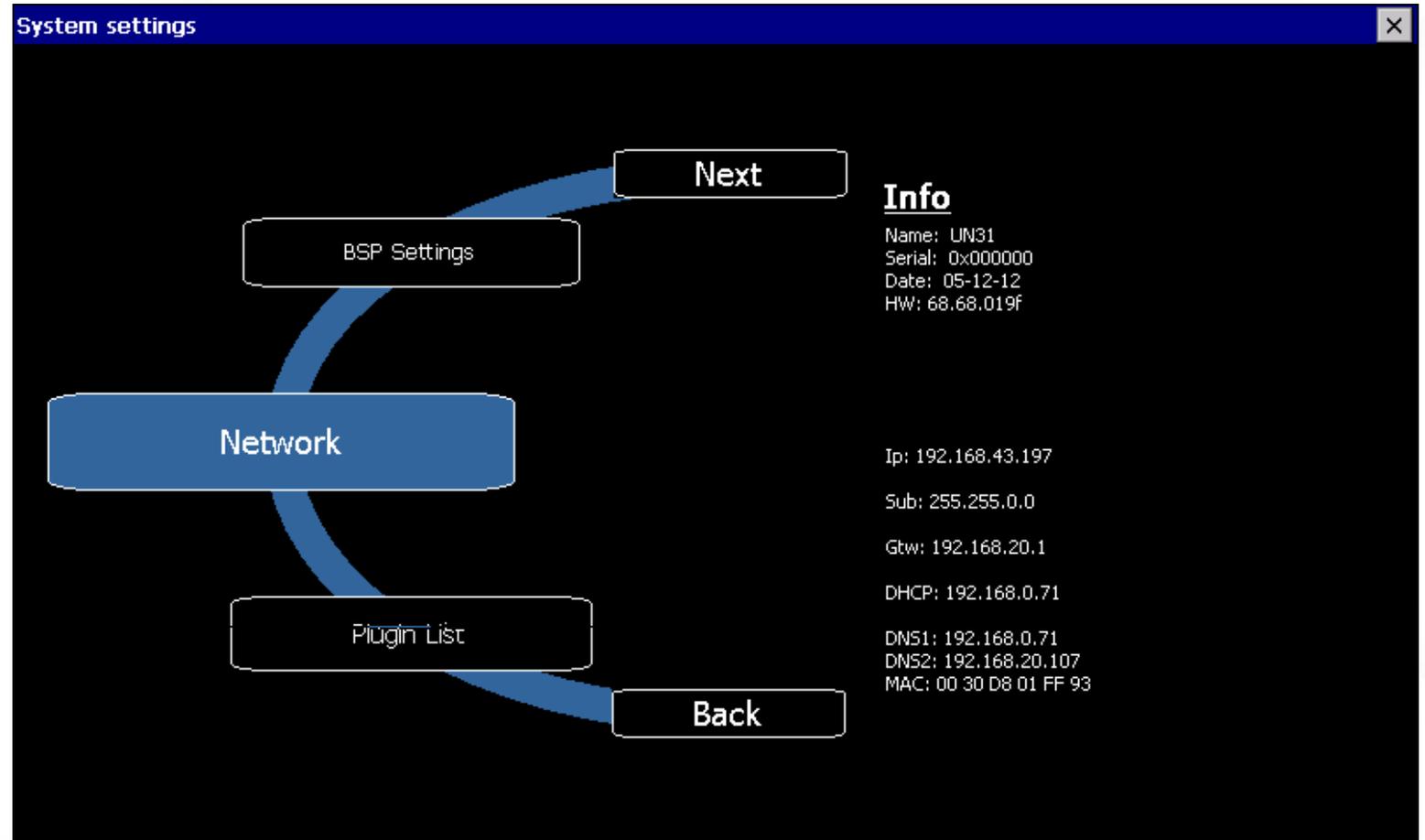
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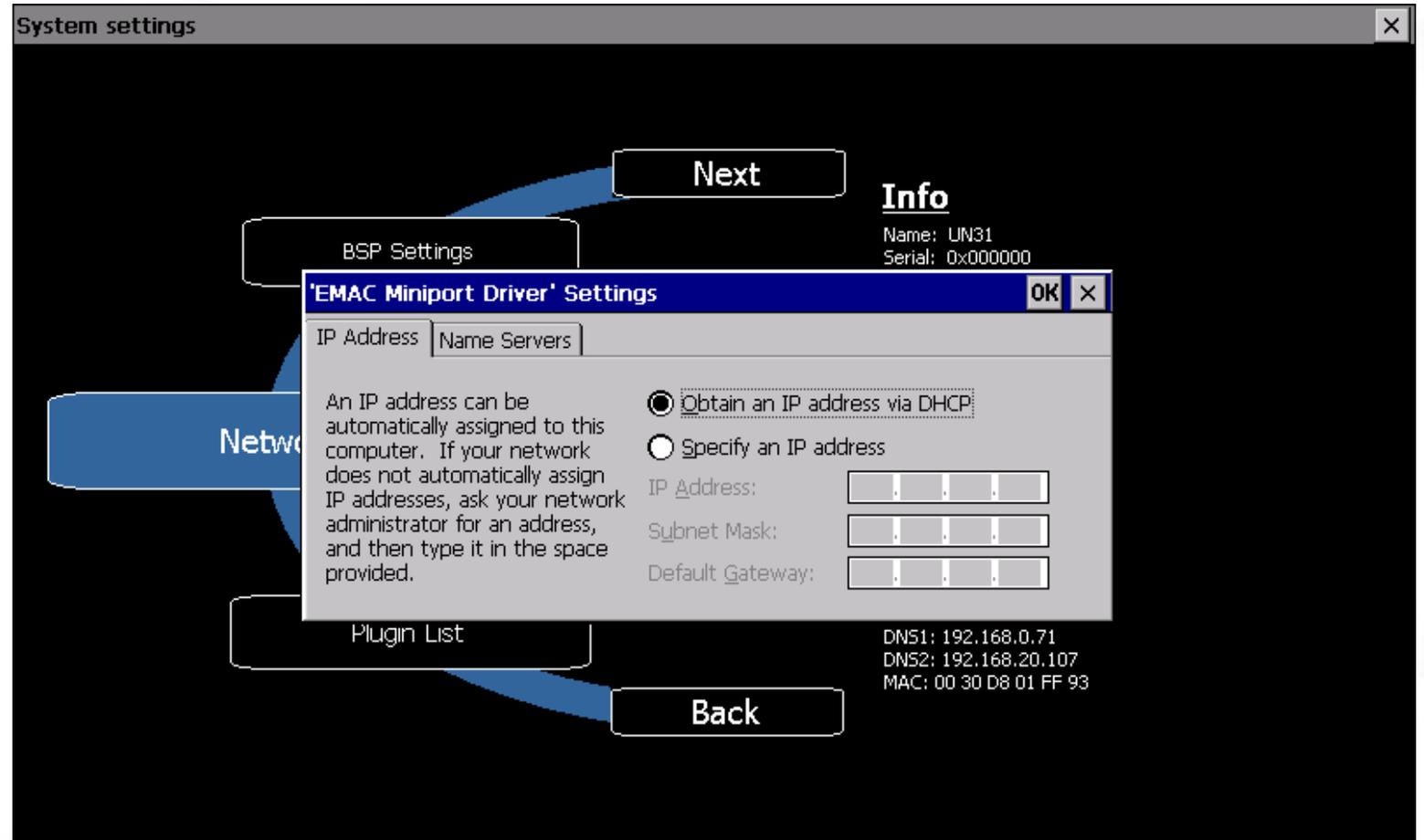
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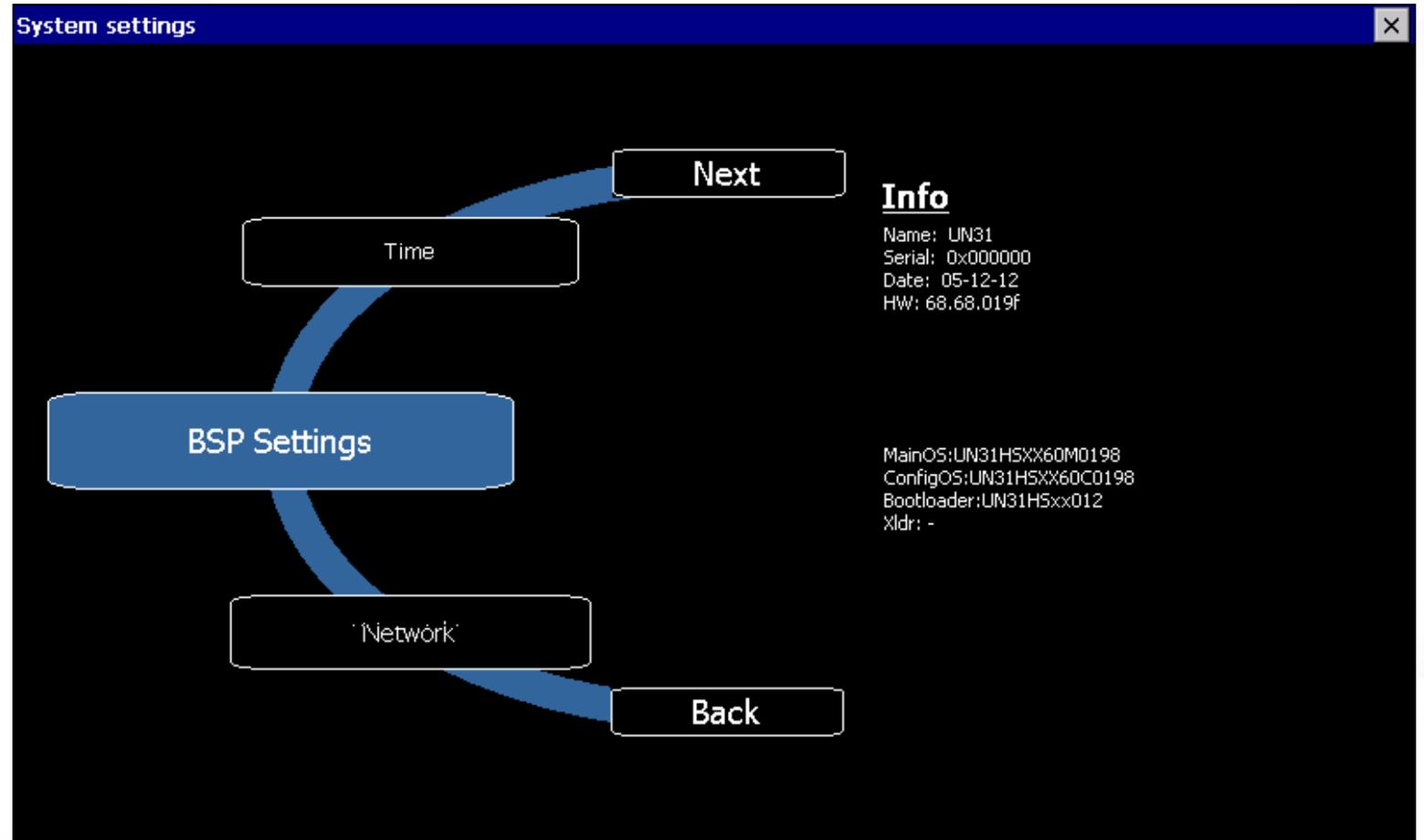
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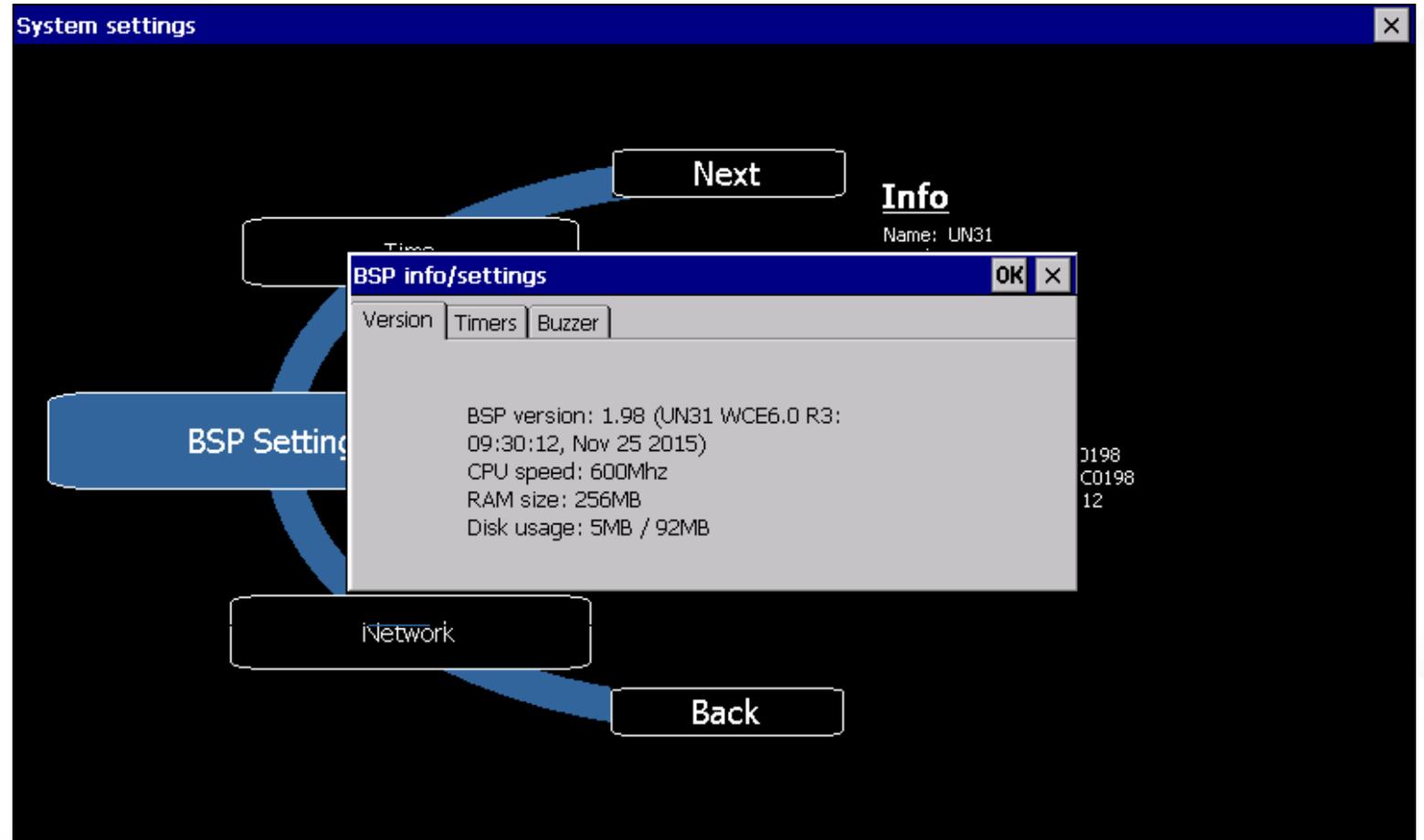
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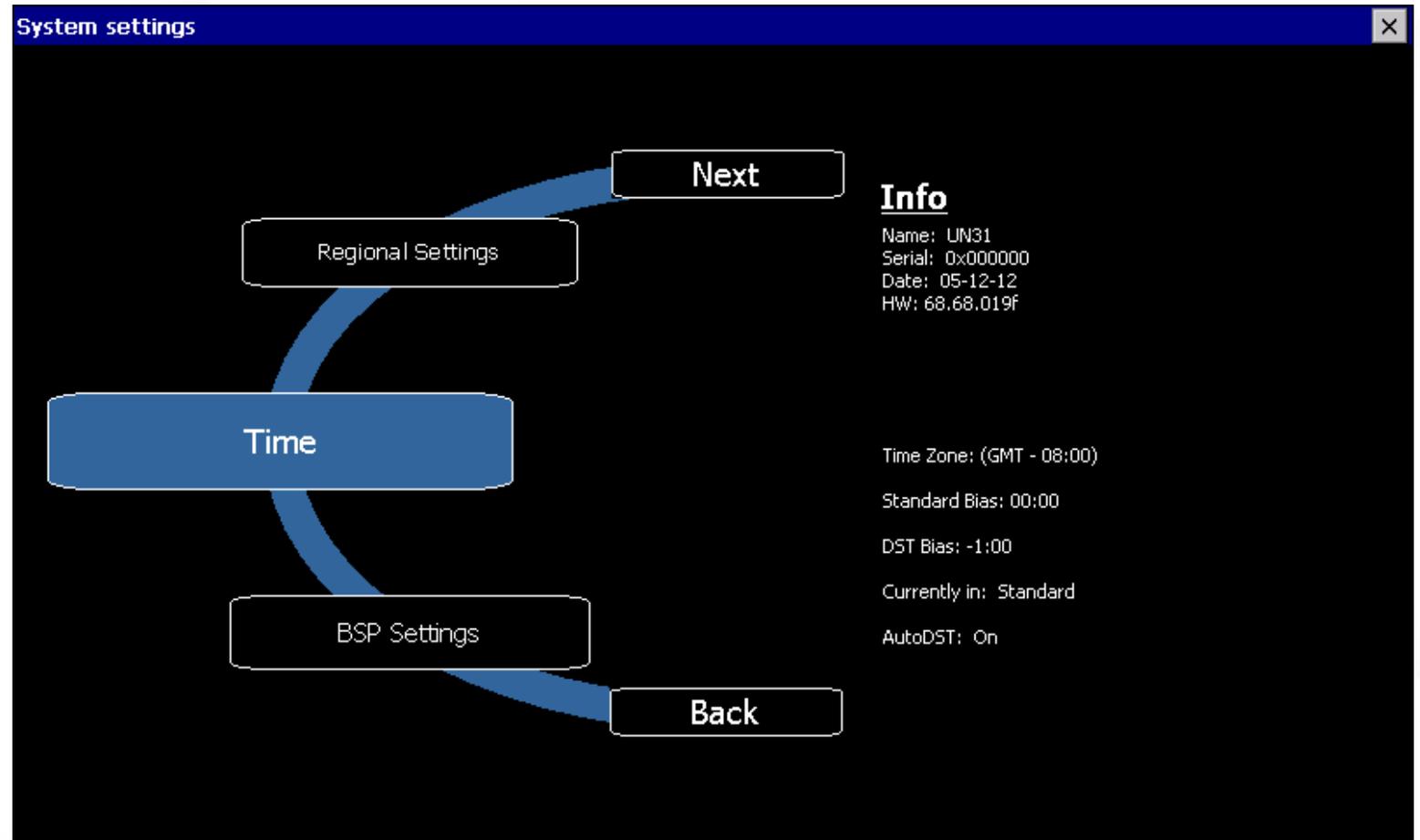
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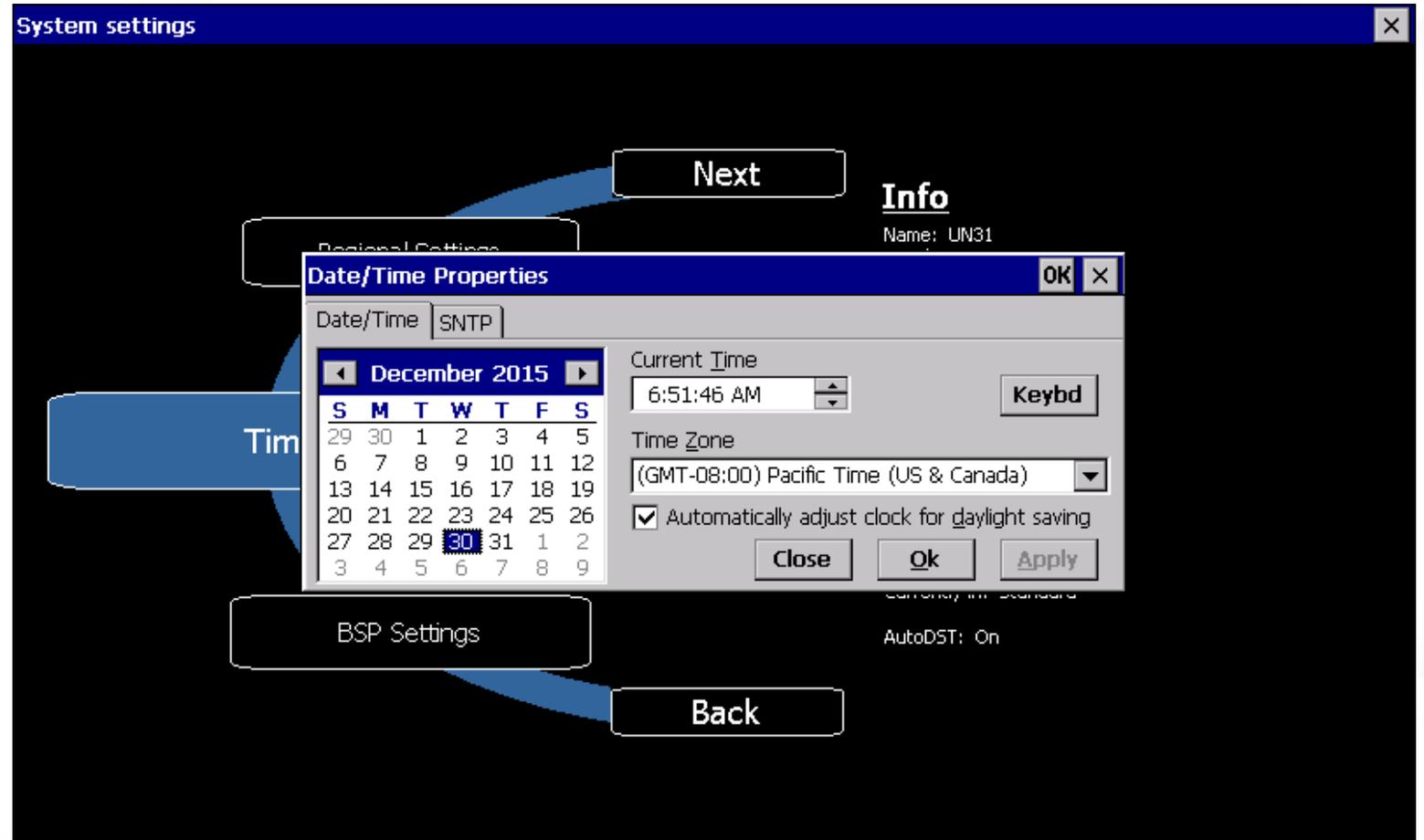
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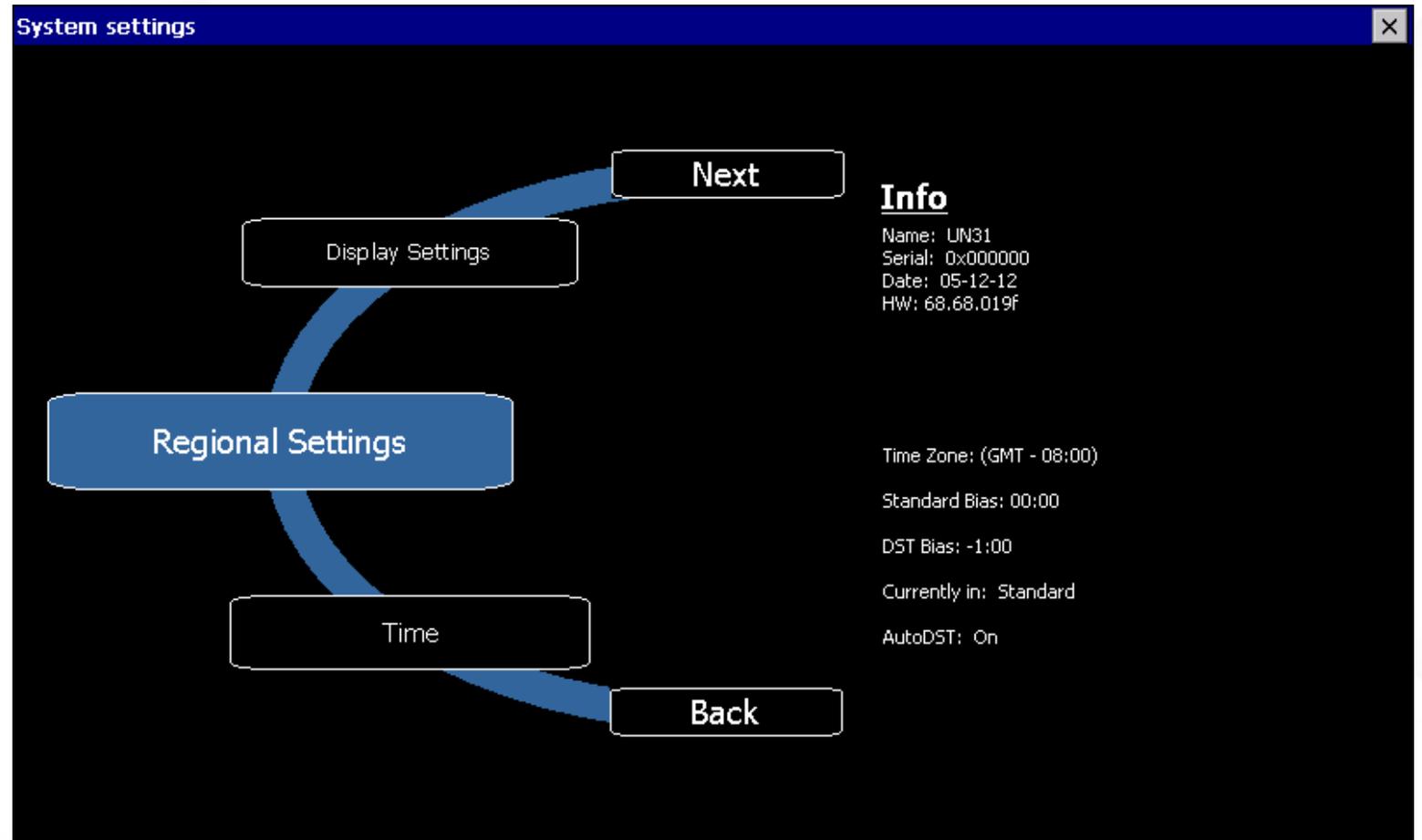
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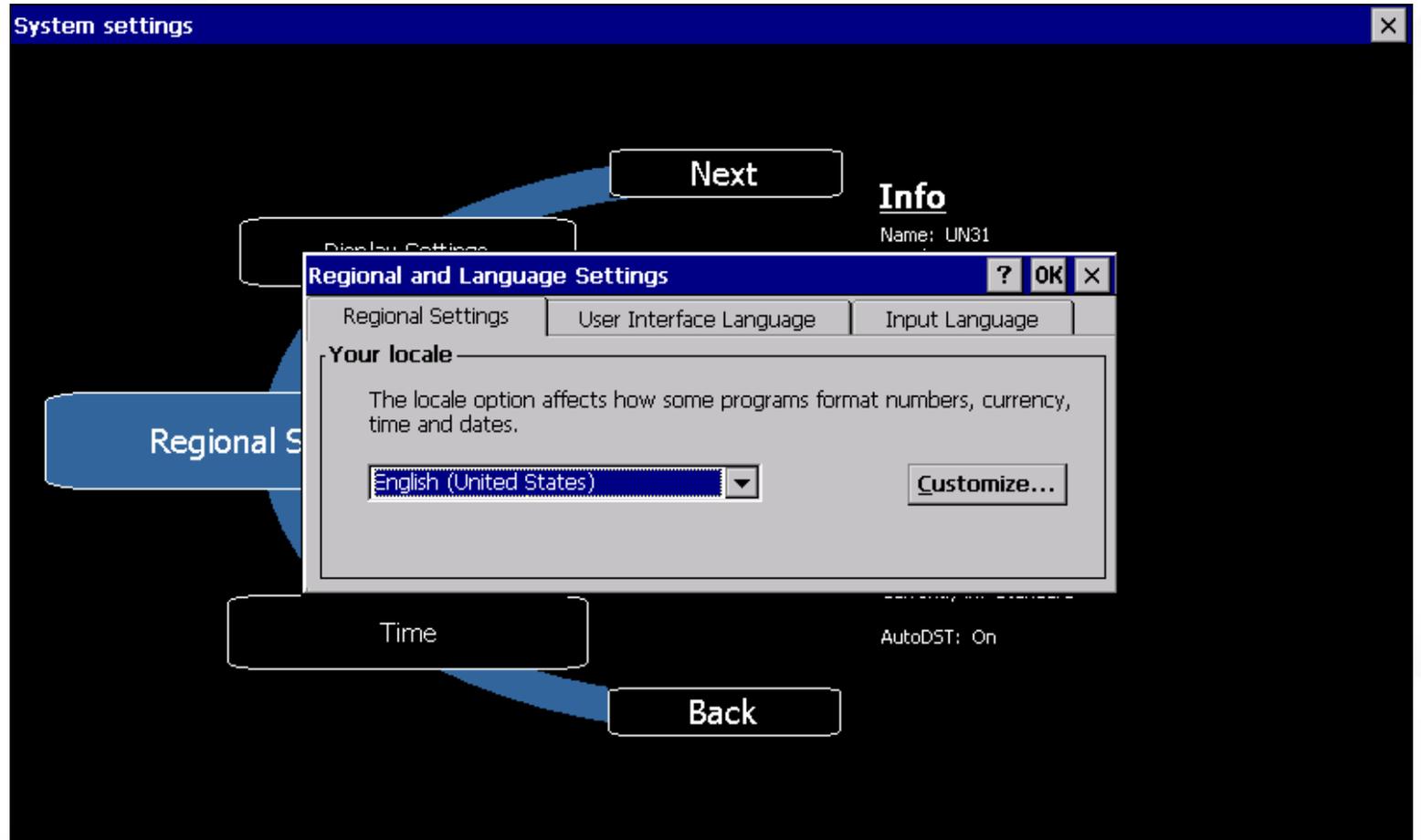
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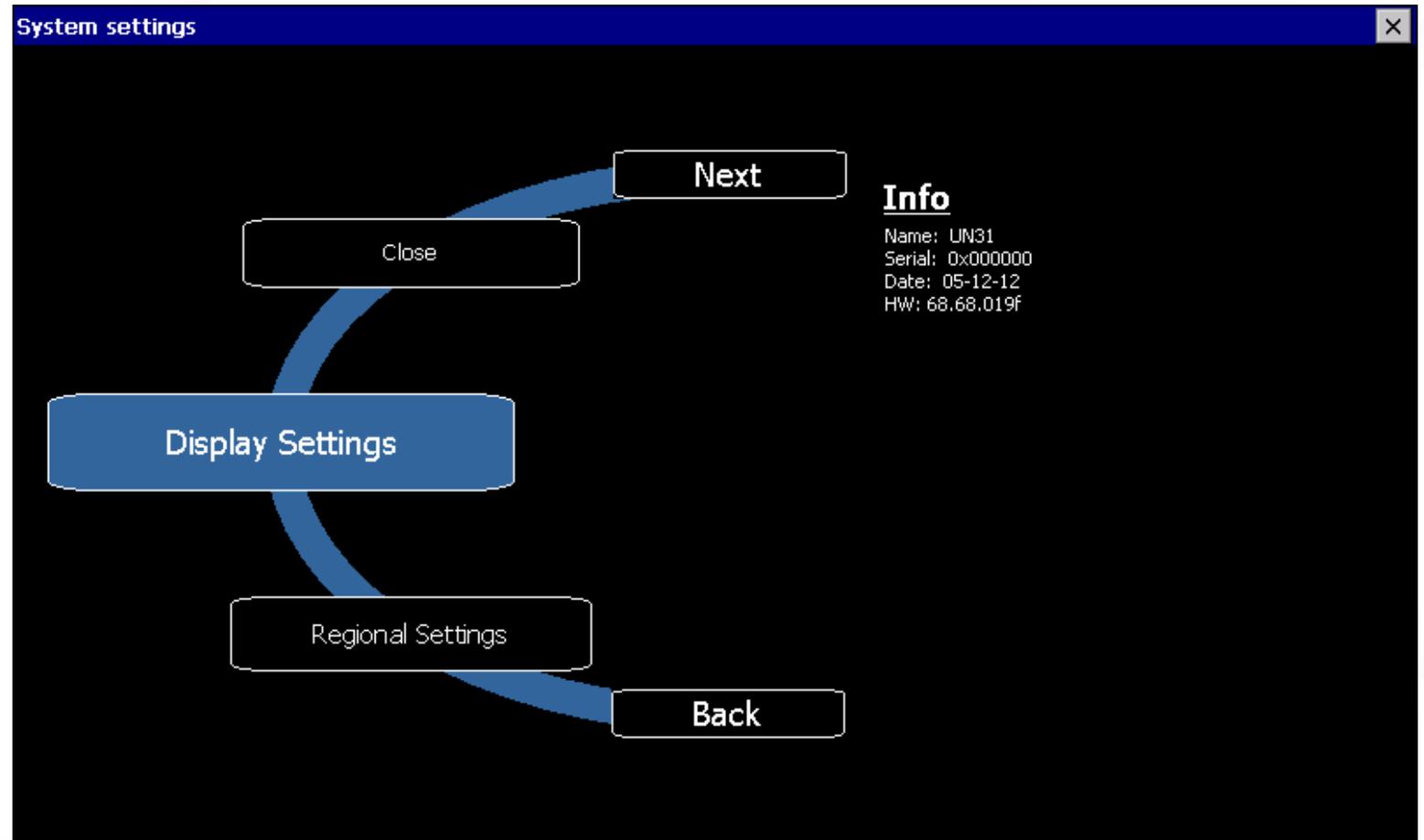
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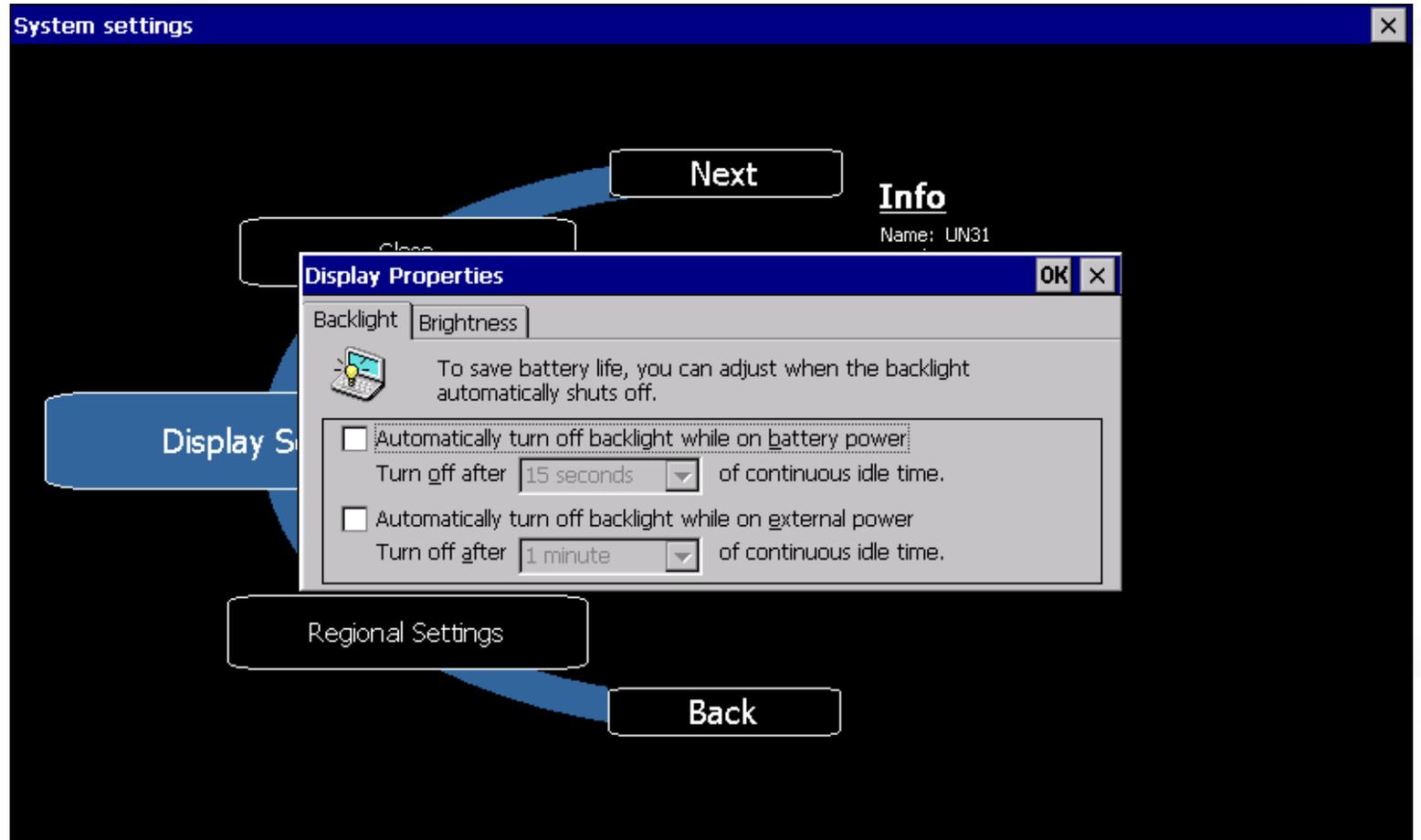
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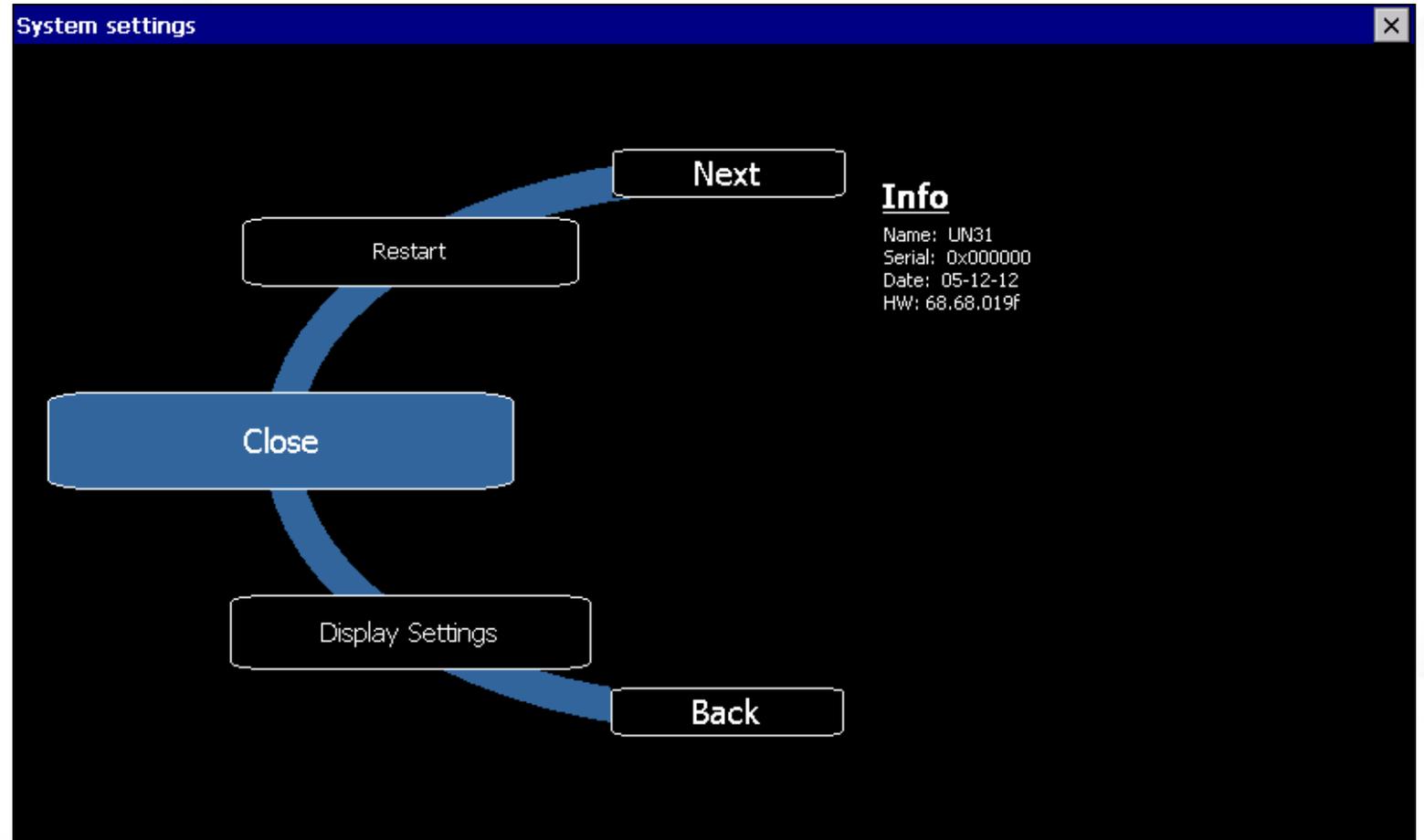
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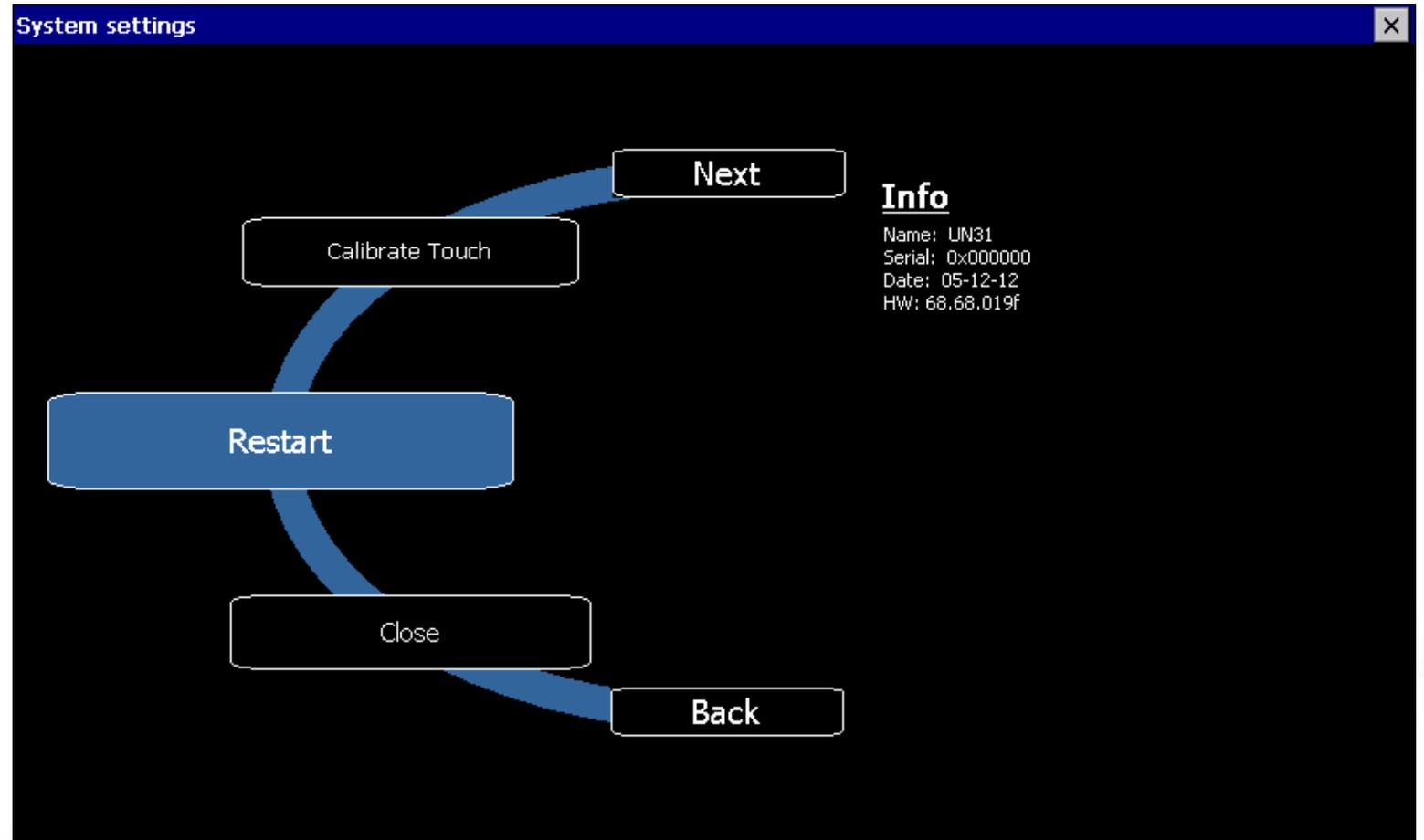
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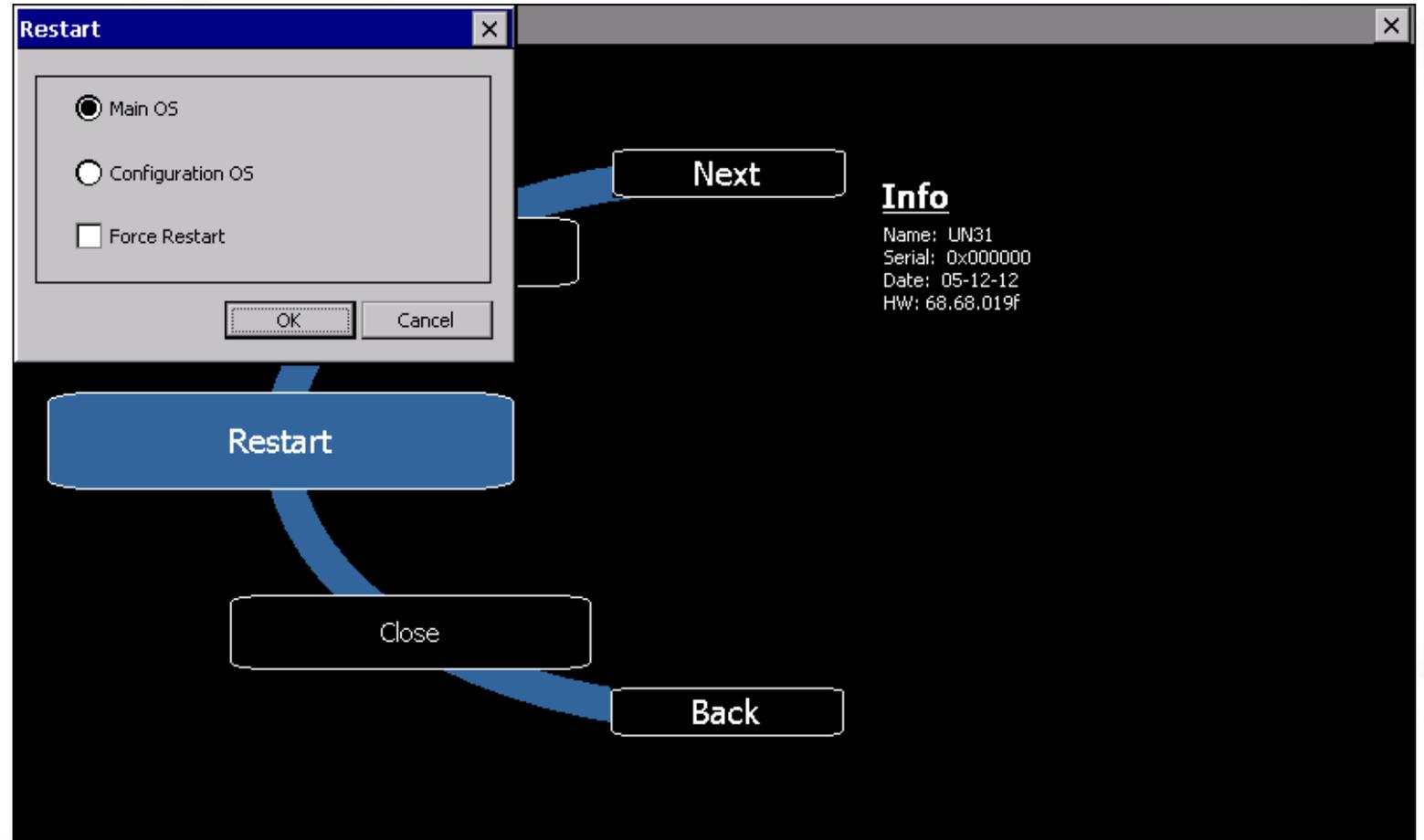
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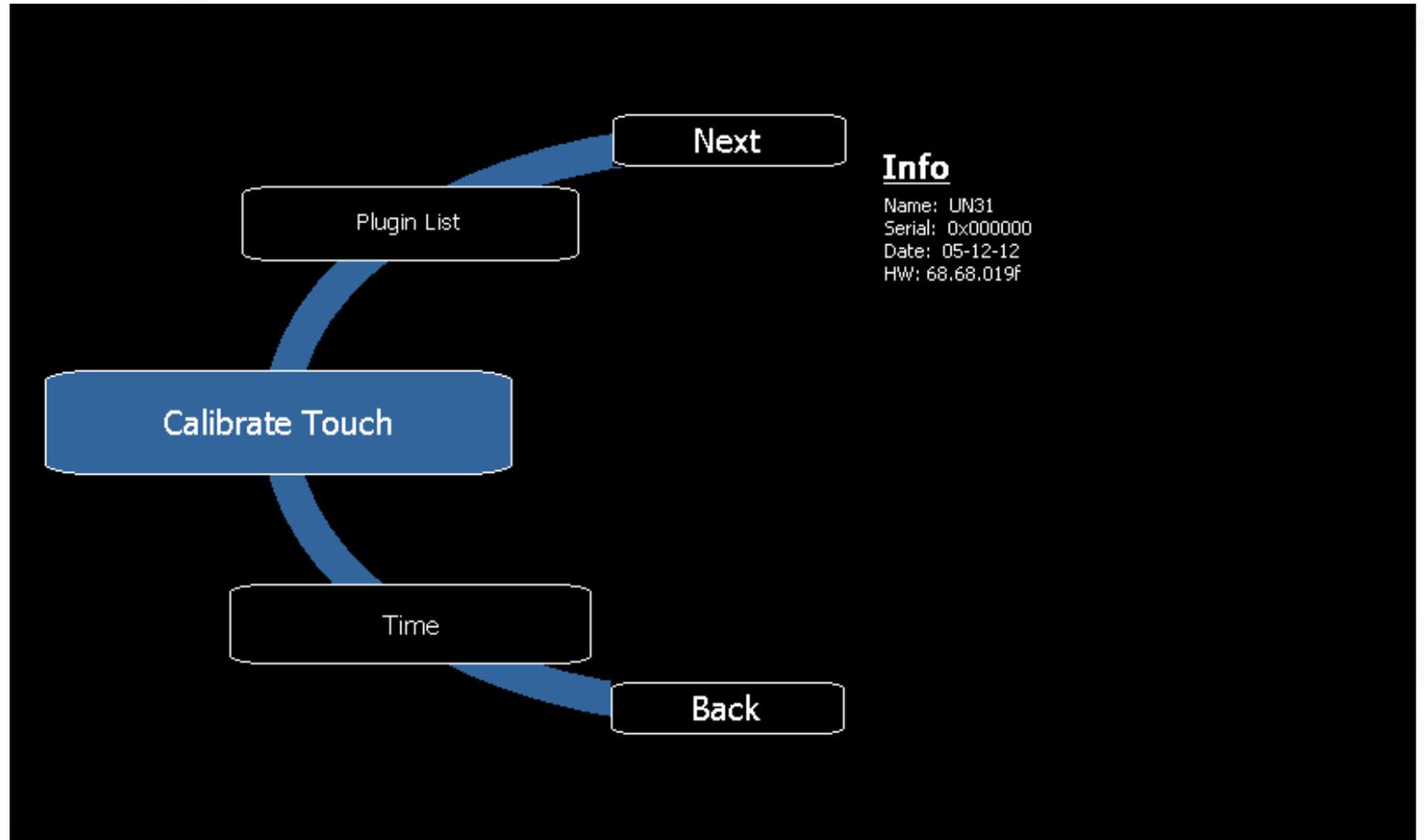
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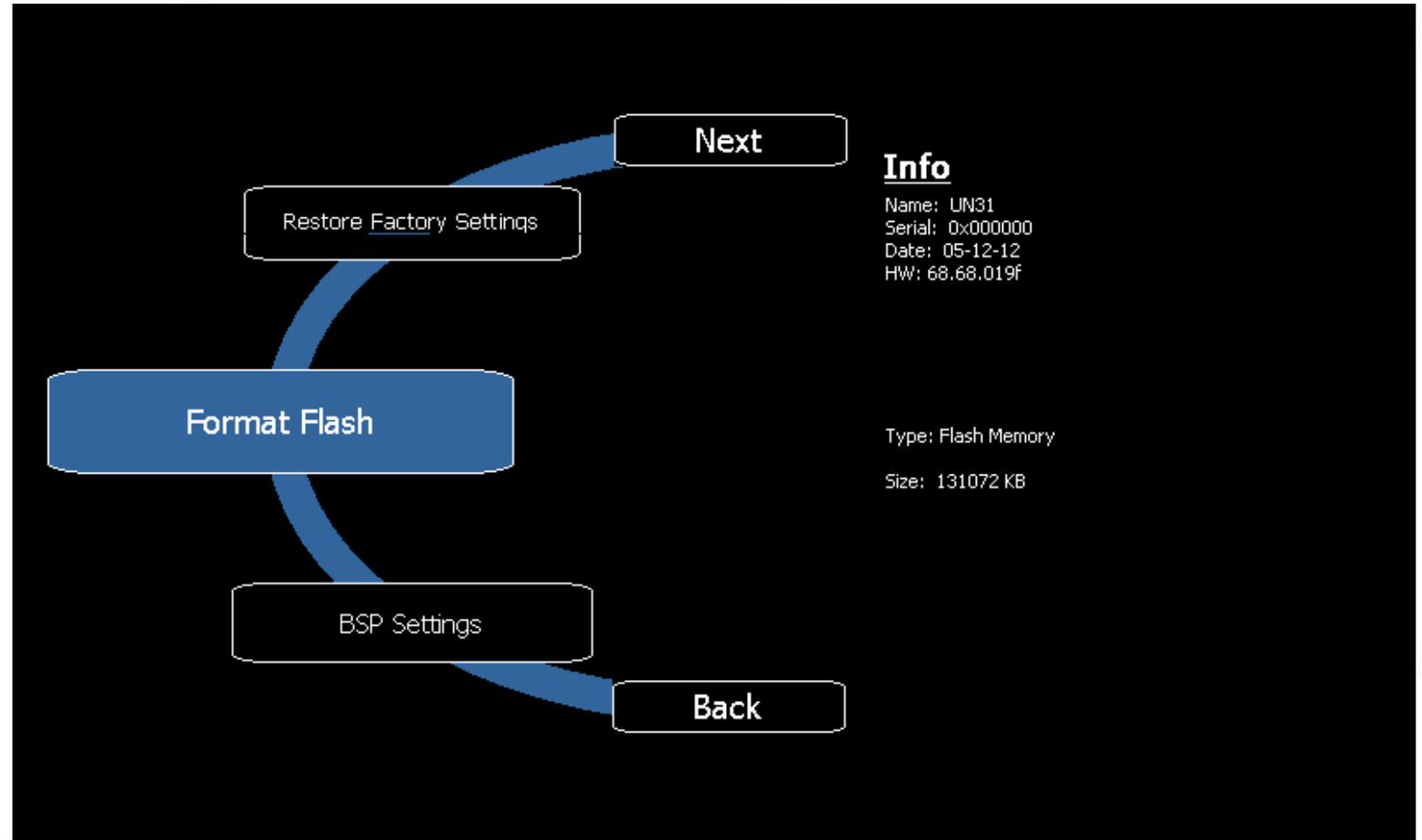
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- System Settings in System Mode (Tap-Tap / Config OS):
  - Accessible by the so-called "tap-tap procedure" at power up, or from "Restart" item in User Mode (select Configuration OS)
  - Advanced system settings (firmware update...)



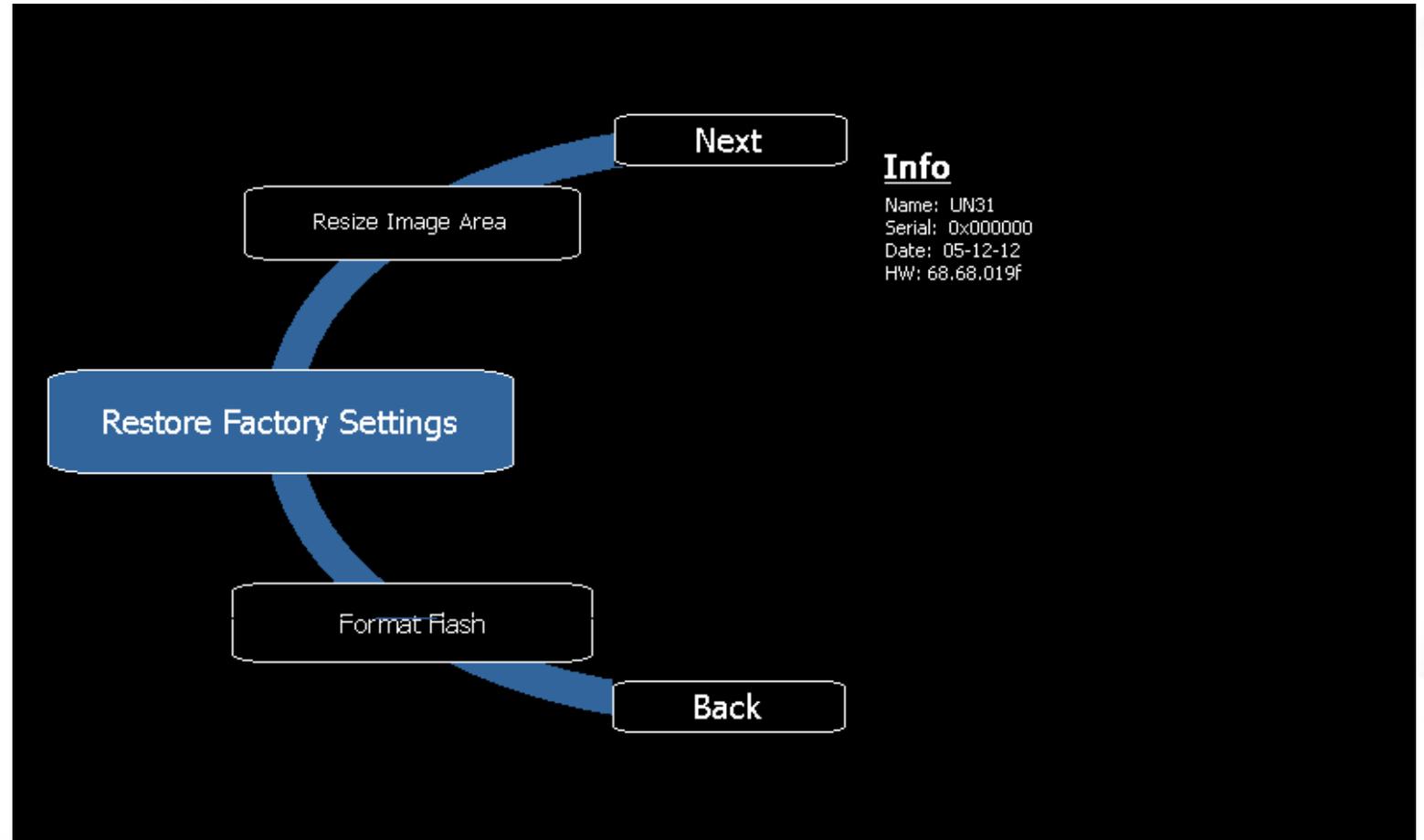
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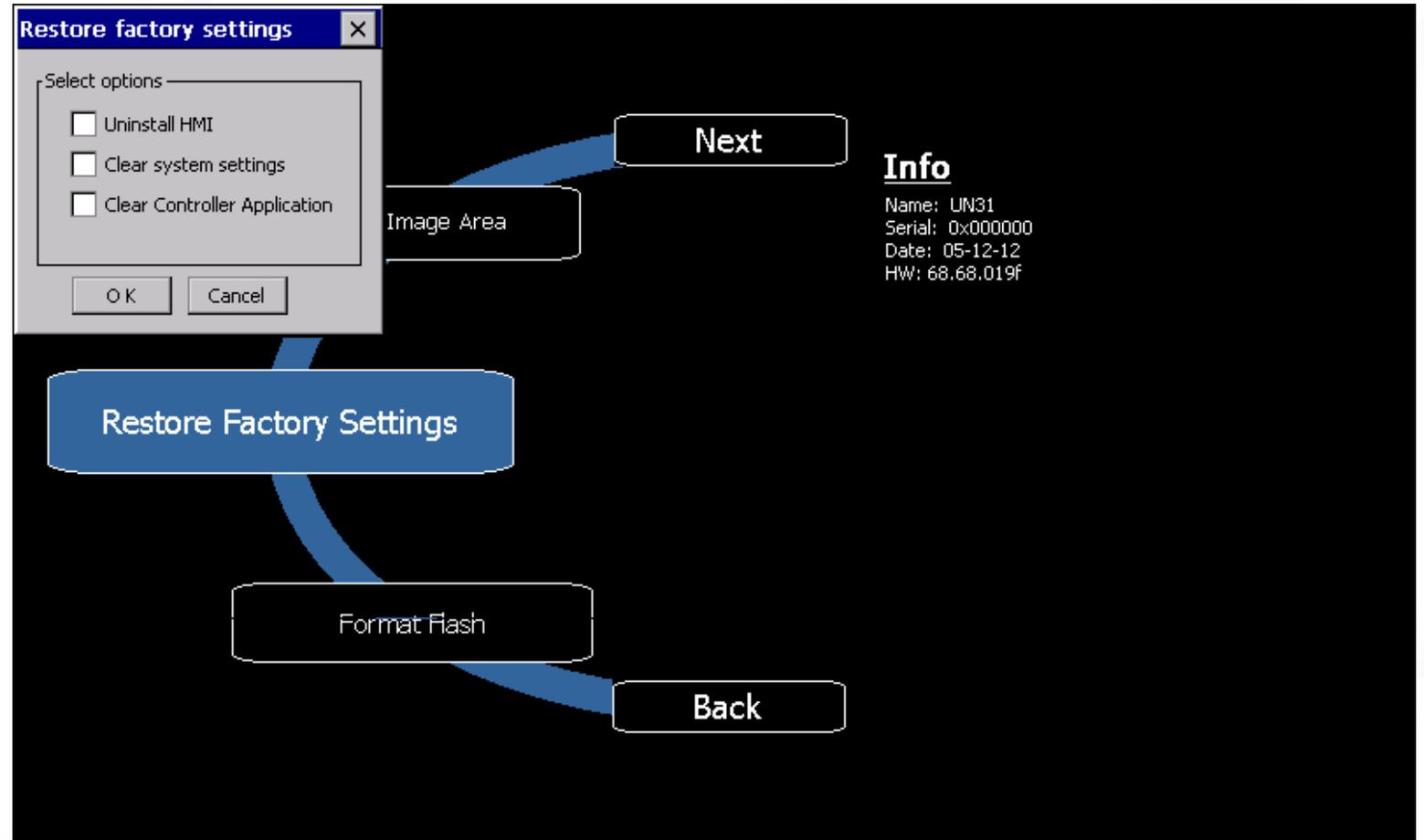
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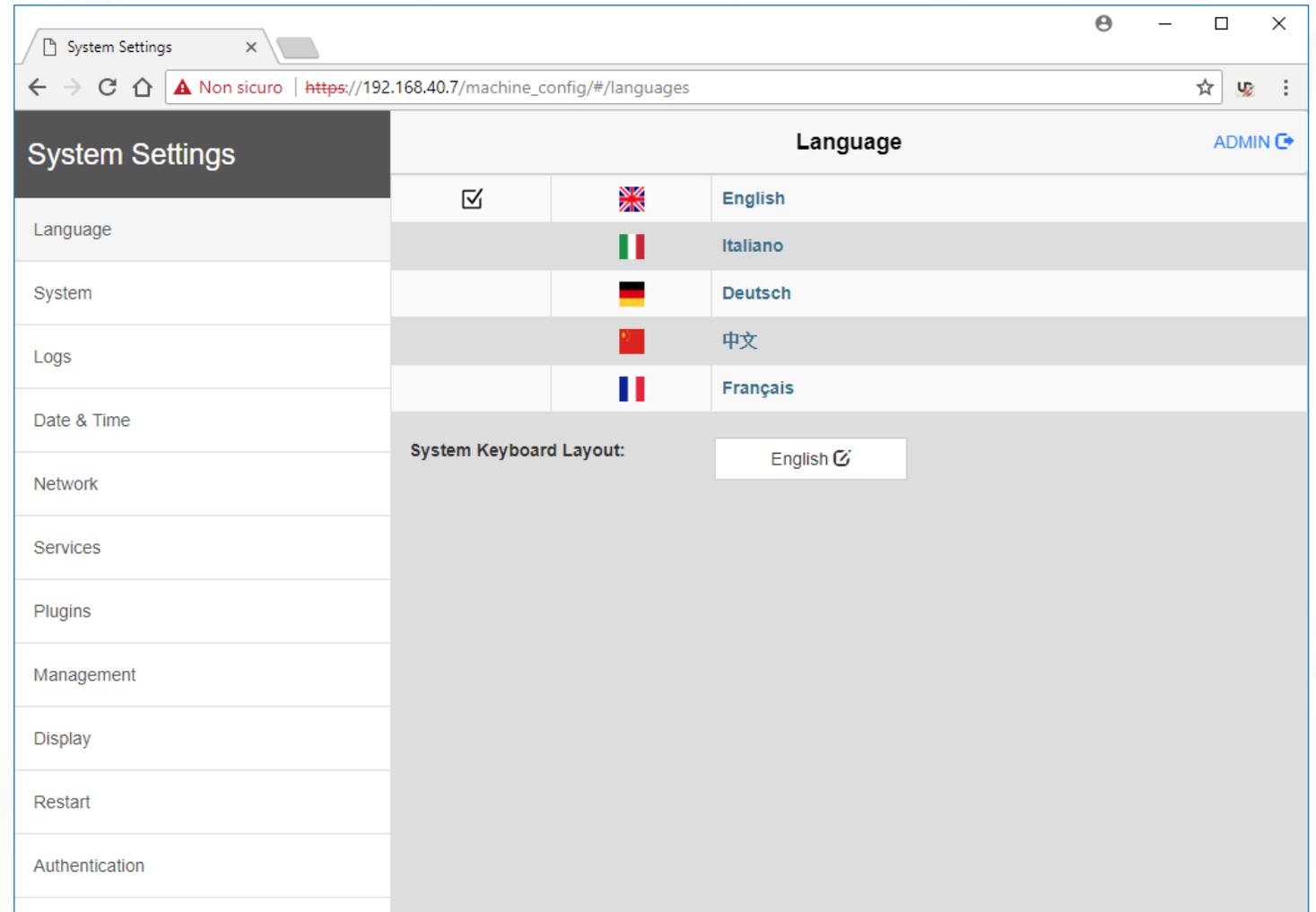
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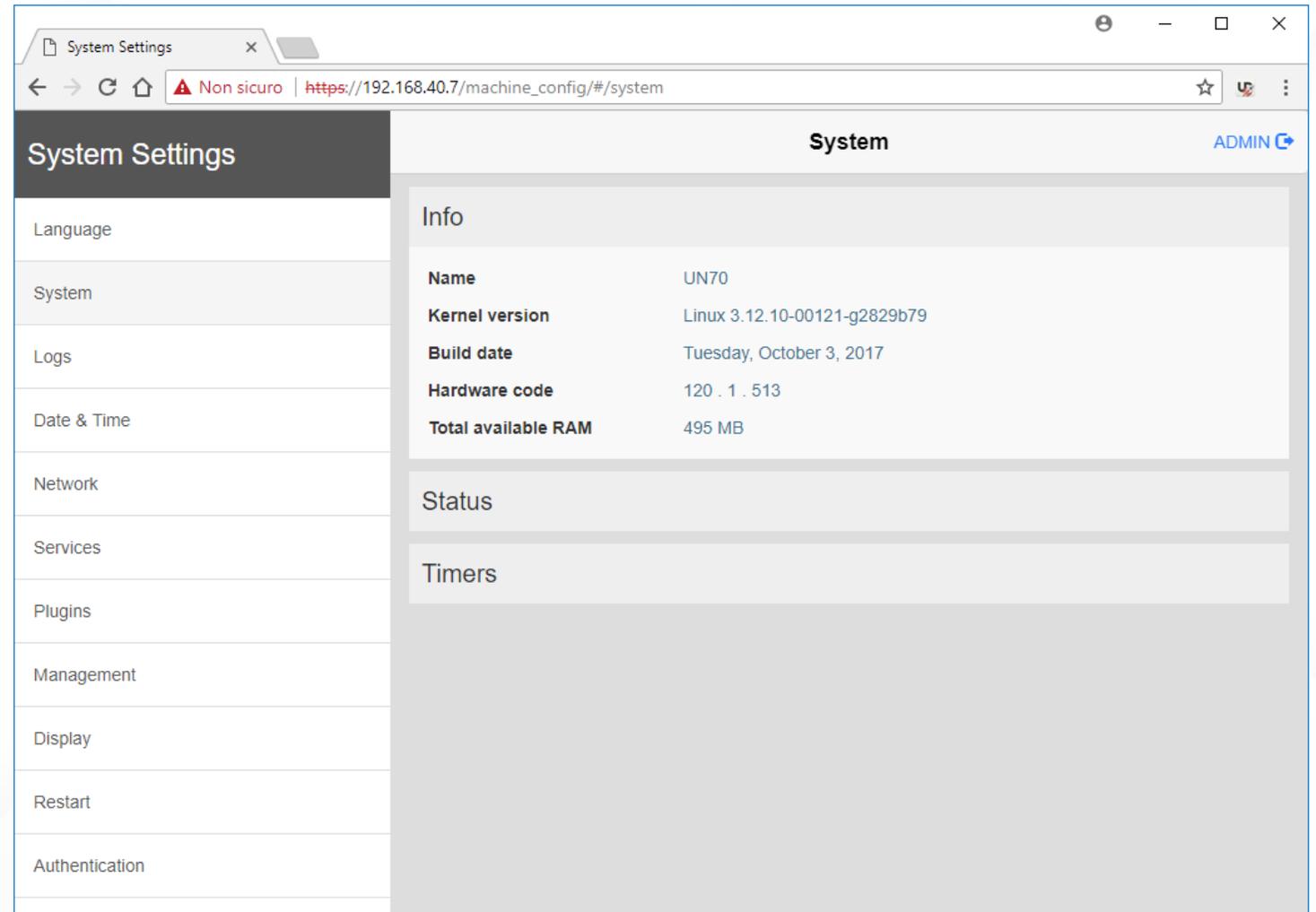
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`https://<HMI_ip>/machine_config`  
`https://<HMI_ip>/system_settings`



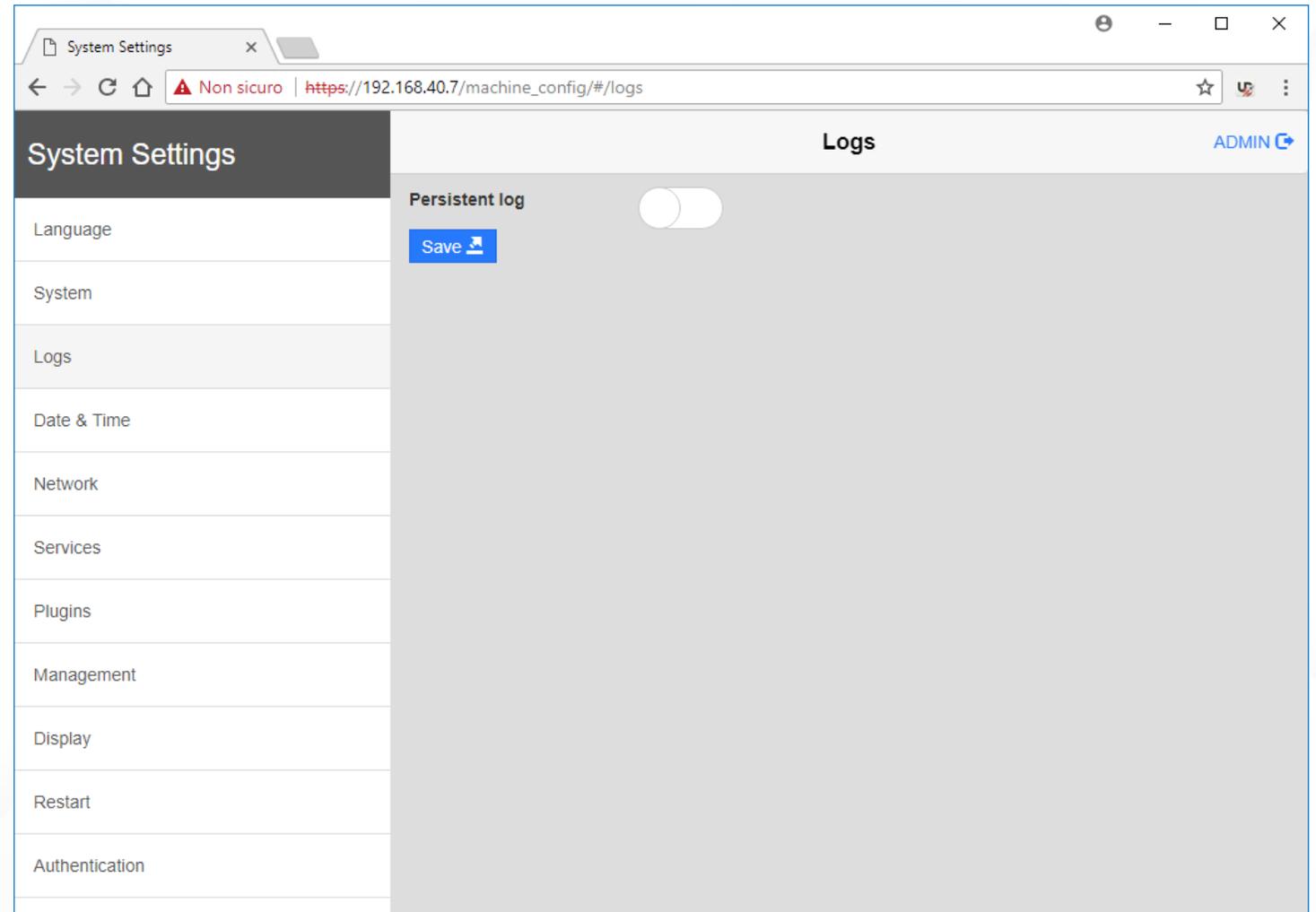
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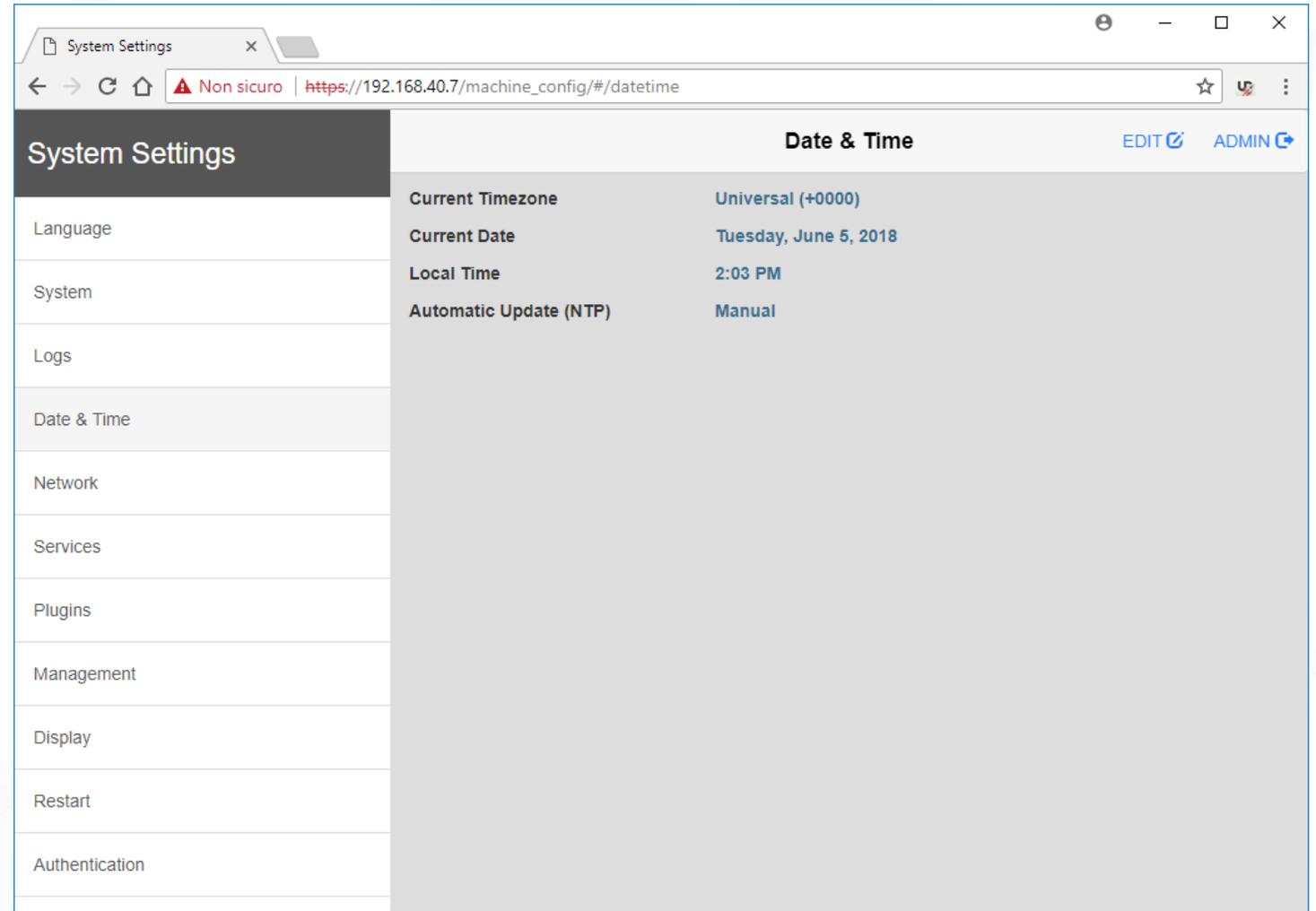
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The screenshot shows a web browser window titled "System Settings" with the URL [https://192.168.40.7/machine\\_config/#/network](https://192.168.40.7/machine_config/#/network). The page is divided into two main sections: "System Settings" on the left and "Network" on the right.

**System Settings (Left Panel):**

- Language
- System
- Logs
- Date & Time
- Network** (Selected)
- Services
- Plugins
- Management
- Display
- Restart
- Authentication

**Network (Right Panel):**

General Settings

- Hostname: HMI-ef47
- Avahi Hostname: HMI-ef47.local

Network Interfaces

Name	Label	MAC	DHCP	Address	Netmask	Gateway	Bridged
eth0	WAN	00:30:d8:04:ef:47	Enabled	192.168.40.7	255.255.0.0	192.168.20.1	
eth1	LAN1	00:30:d8:04:ef:48	Enabled				

DNS

DNS Servers

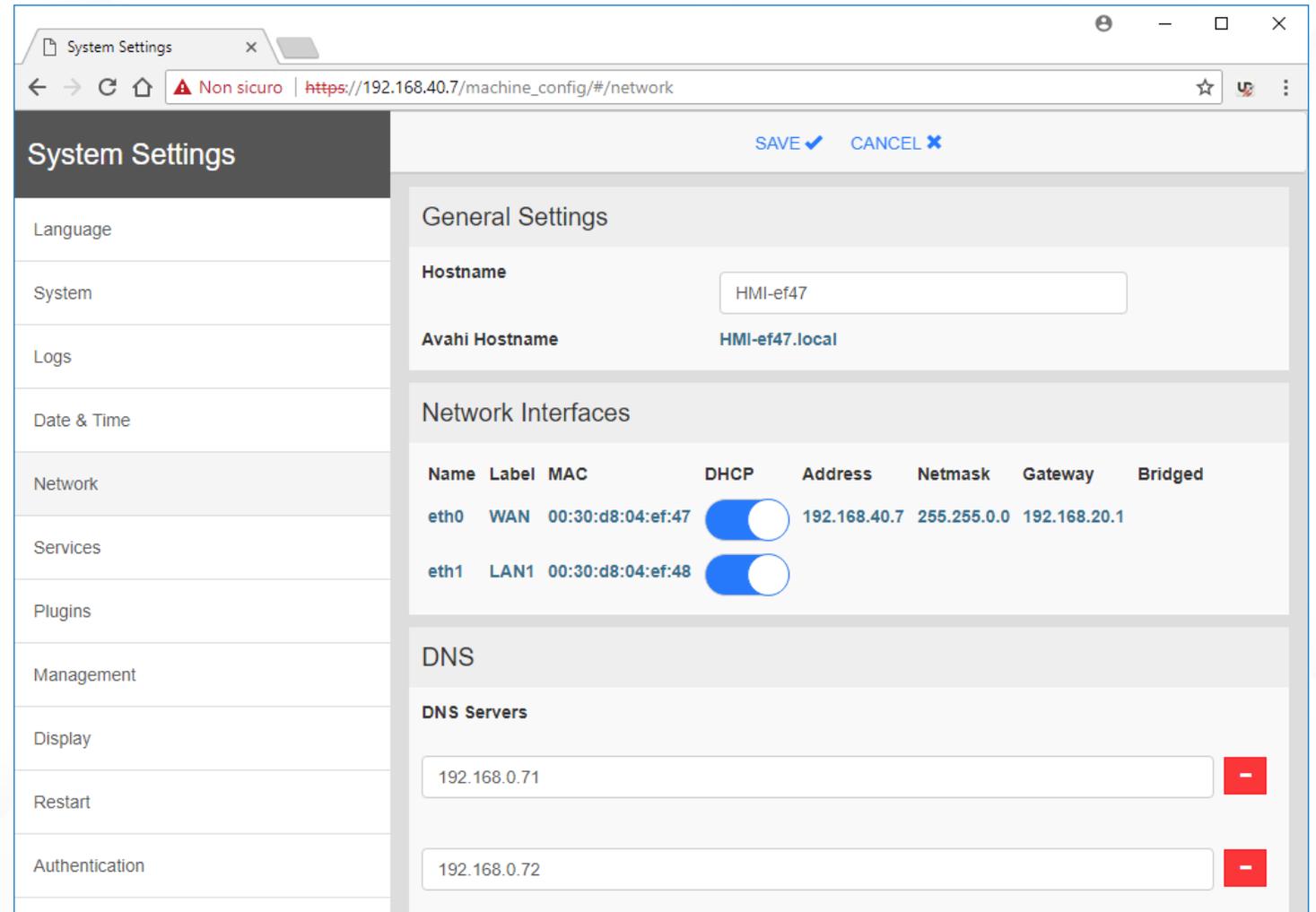
- 192.168.0.71
- 192.168.0.72

Search Domains

Restore

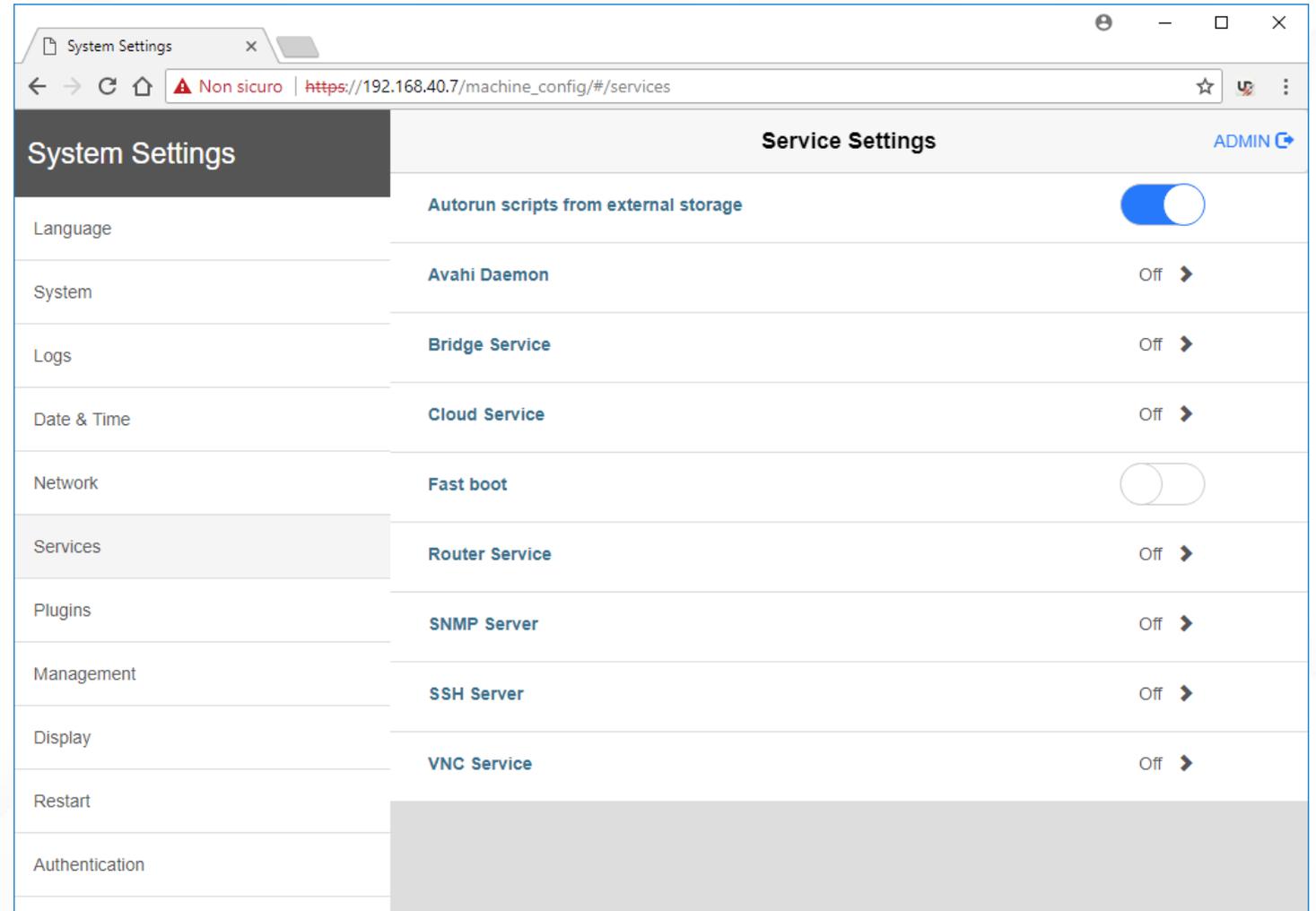
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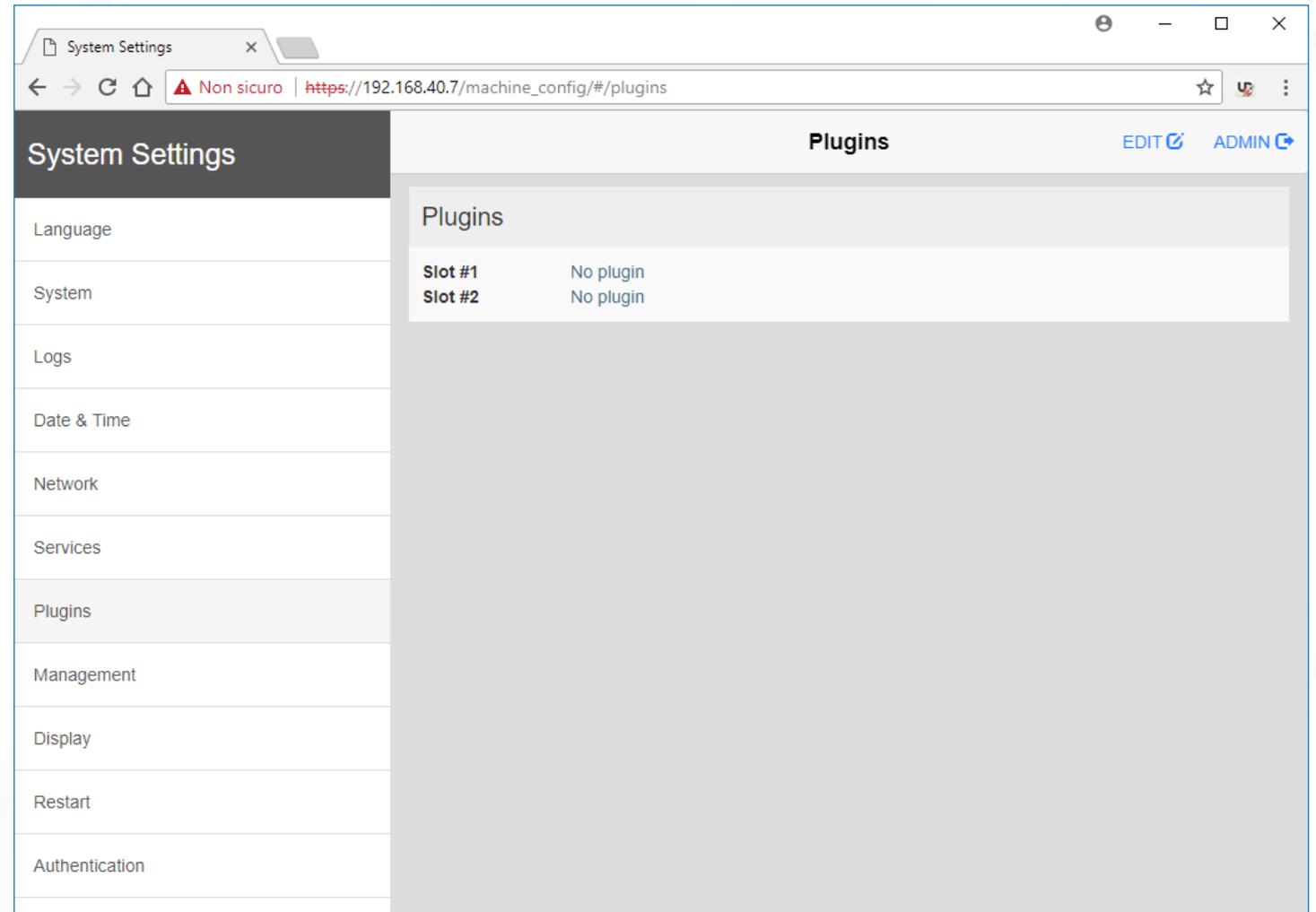
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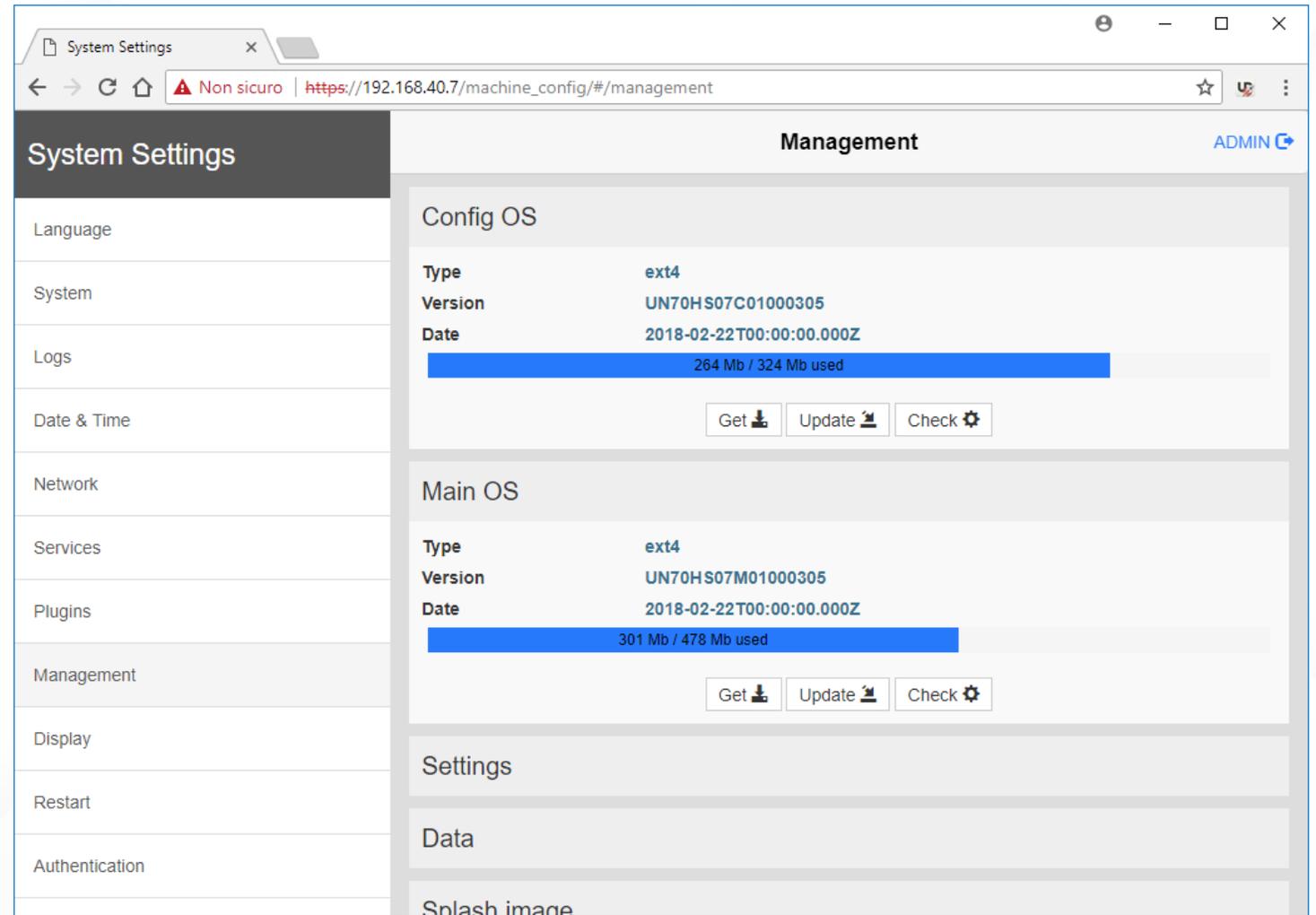
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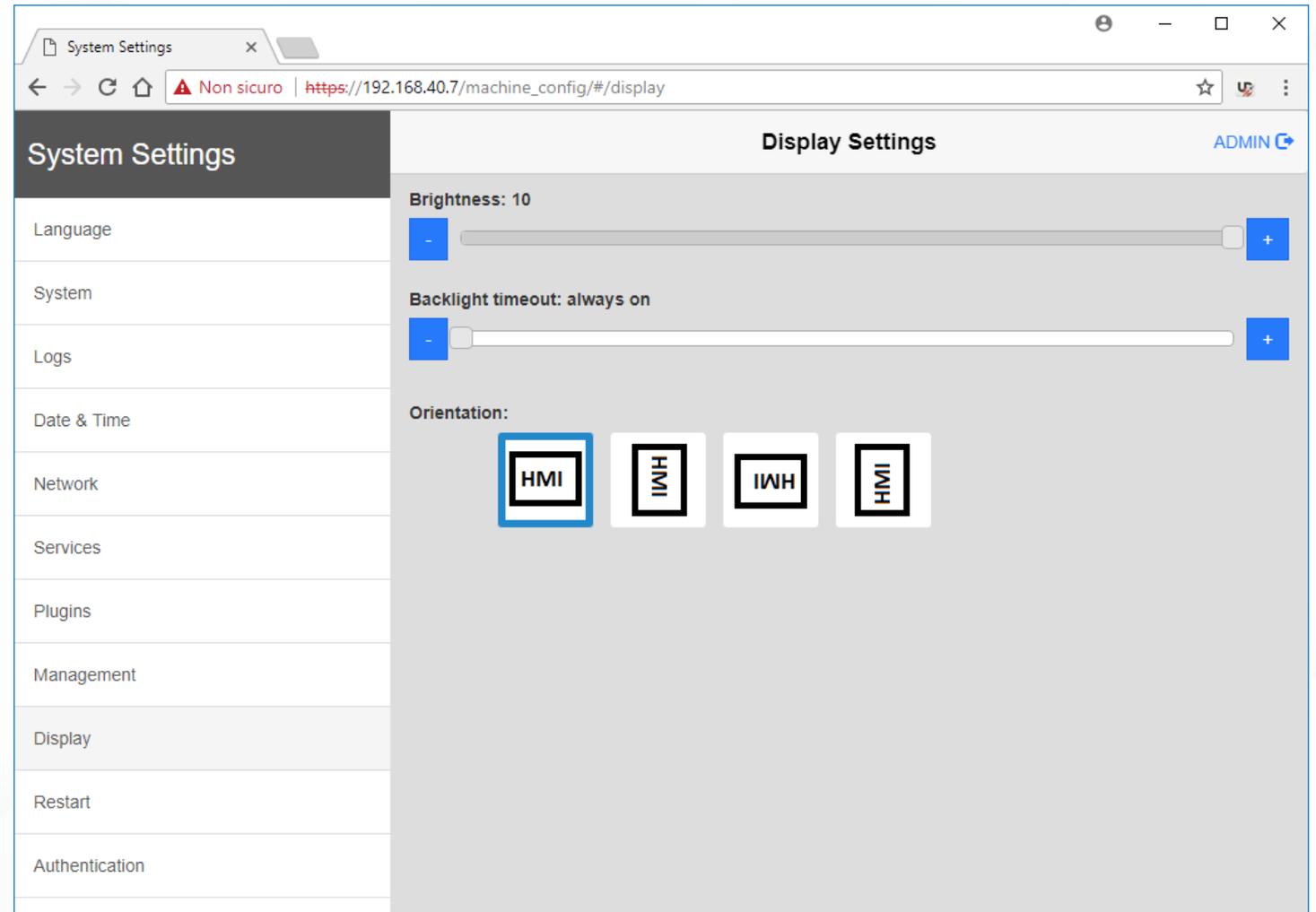
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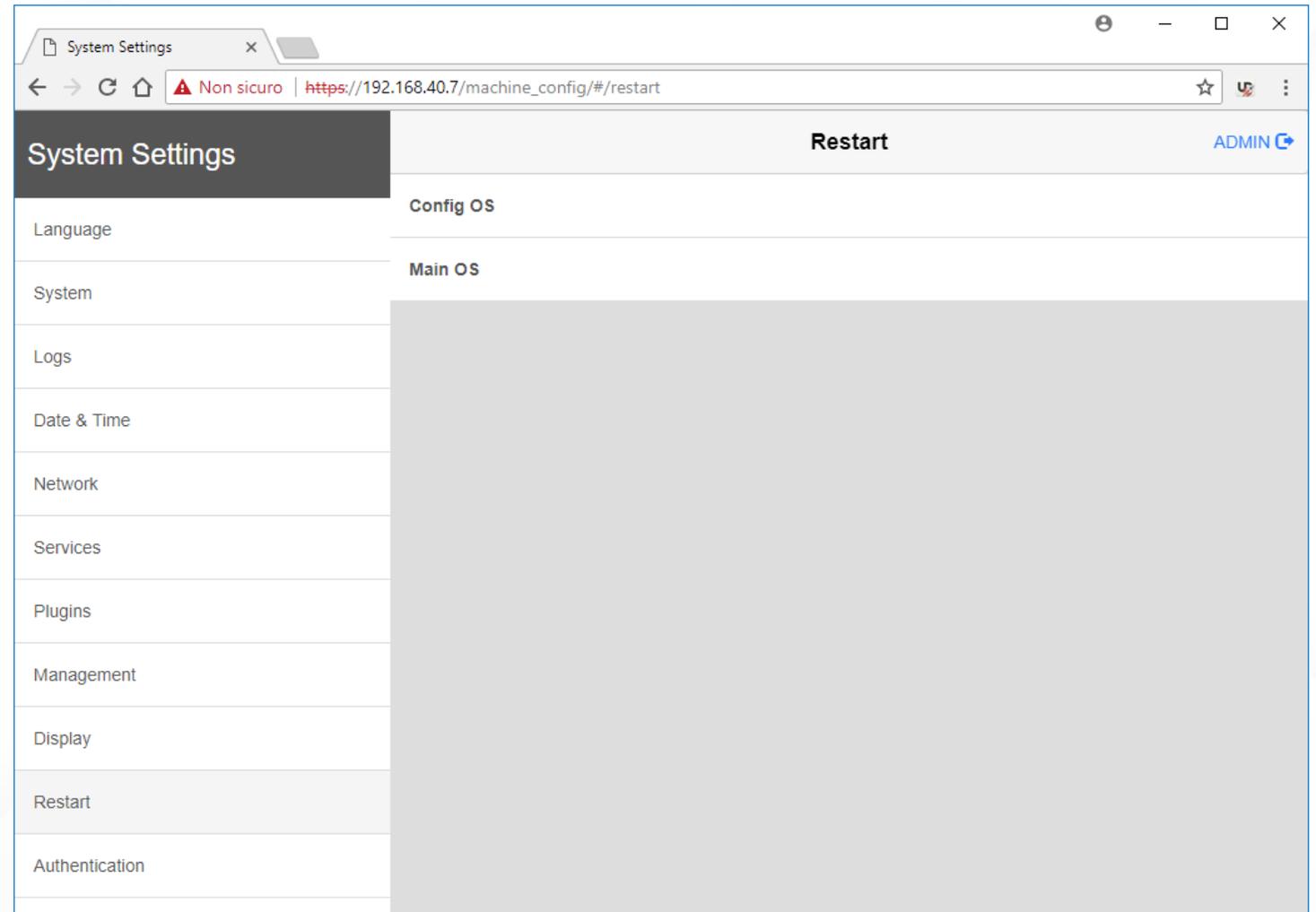
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[https://<HMI\\_ip>/system\\_settings](https://<HMI_ip>/system_settings)



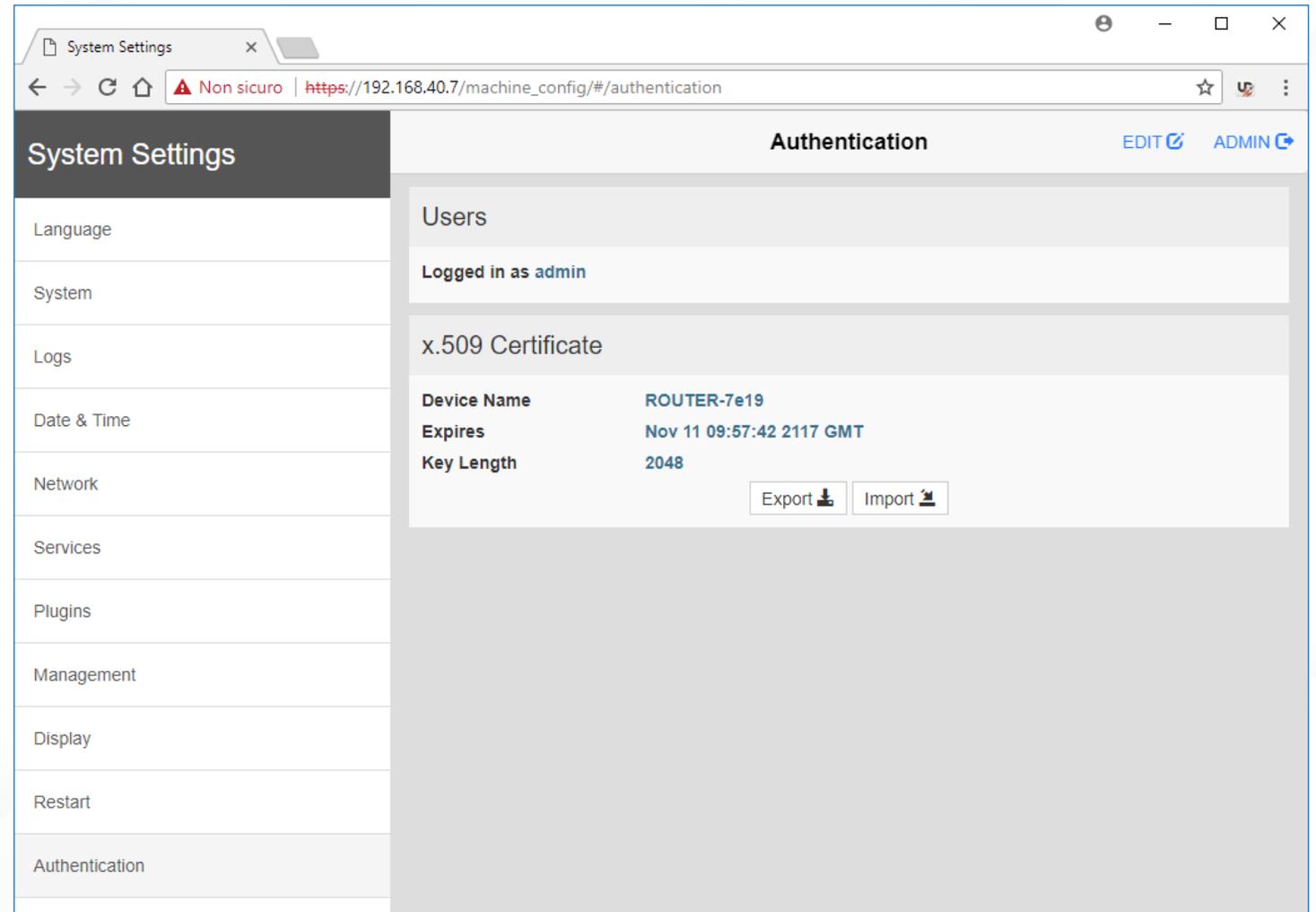
# eX700/eSMART/eXware System Settings

- System Settings in User Mode (Main OS)
  - Accessible from "System Settings" item on Runtime Loader or from Contextual Menu
  - Basic system settings
  - Can be accessed remotely with browser using URL  
[https://<HMI\\_ip>/machine\\_config](https://<HMI_ip>/machine_config)  
[https://<HMI\\_ip>/system\\_settings](https://<HMI_ip>/system_settings)



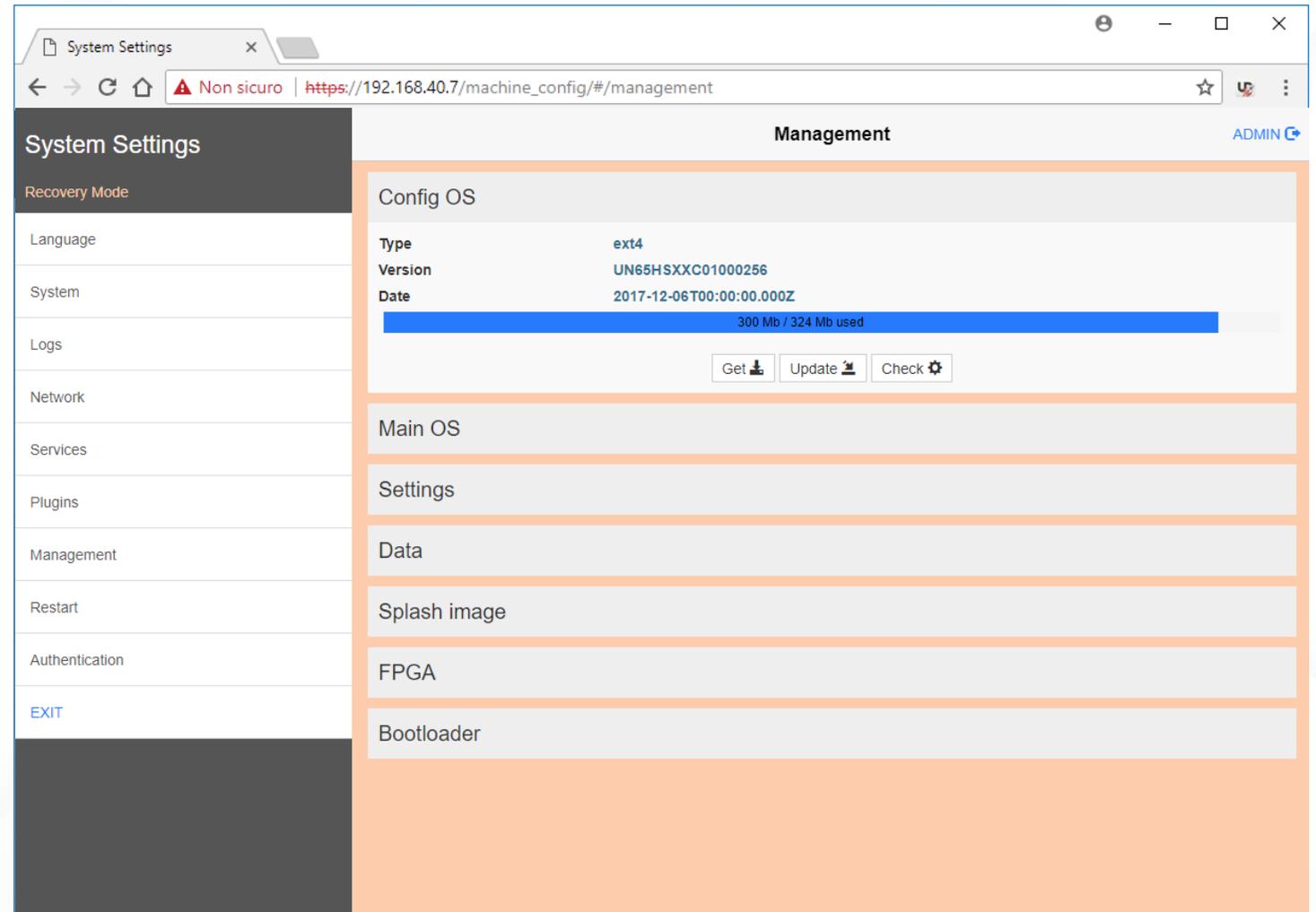
# eX700/eSMART/eXware System Settings

- System Settings in User Mode (Main OS)
  - Accessible from "System Settings" item on Runtime Loader or from Contextual Menu
  - Basic system settings
  - Can be accessed remotely with browser using URL
    - `https://<HMI_ip>/machine_config`
    - `https://<HMI_ip>/system_settings`



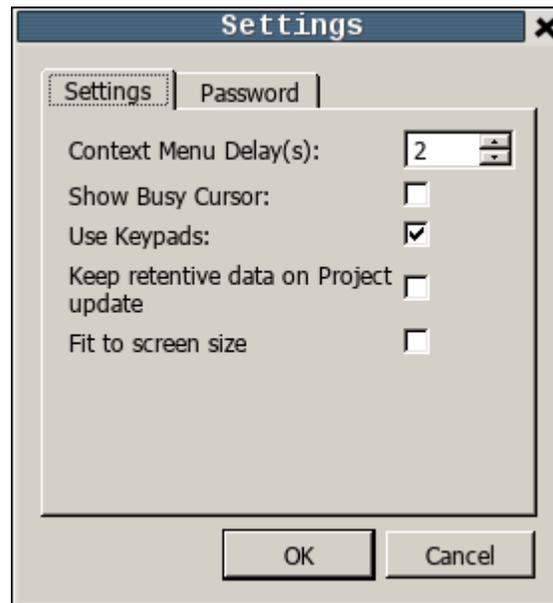
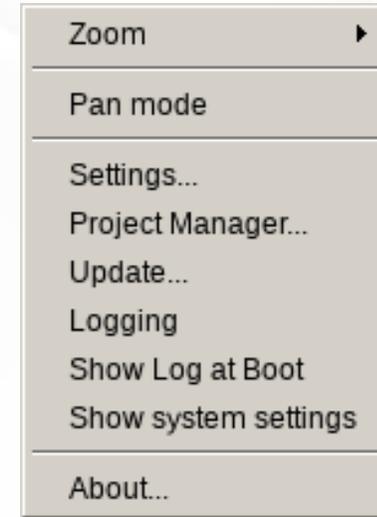
# eX700/eSMART/eXware System Settings

- System Settings in System Mode (Tap-Tap / Config OS):
  - Accessible by the so-called "tap-tap procedure" at power up or from "Restart" item in User Mode (Configuration OS)
  - Advanced system settings (firmware update...)
  - Update can be done remotely with browser using URL  
[https://<HMI\\_ip>/machine\\_config](https://<HMI_ip>/machine_config)  
[https://<HMI\\_ip>/system\\_settings](https://<HMI_ip>/system_settings)



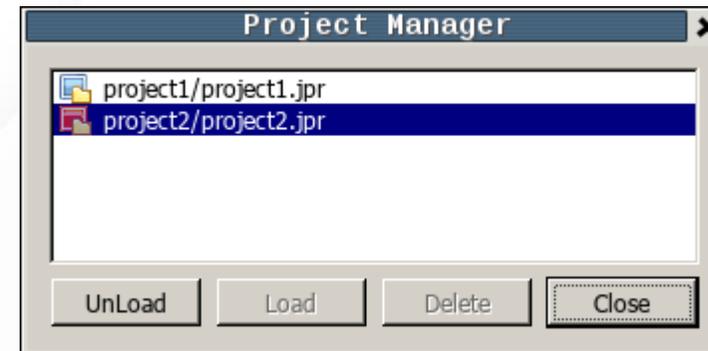
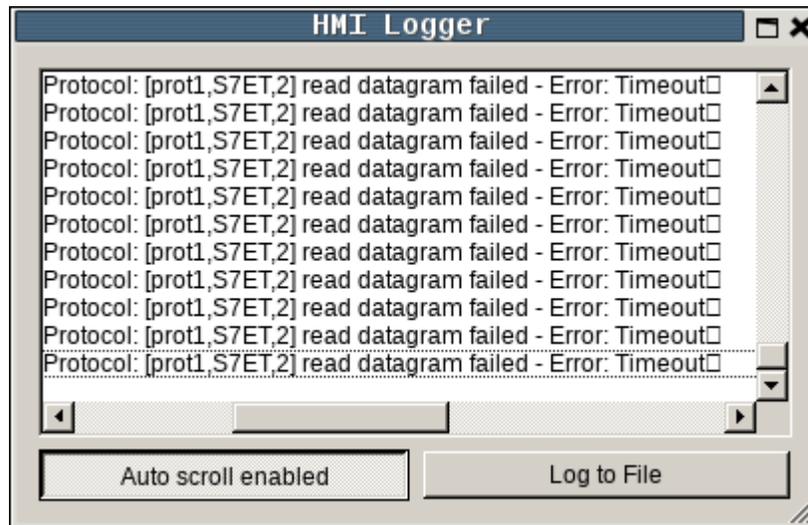
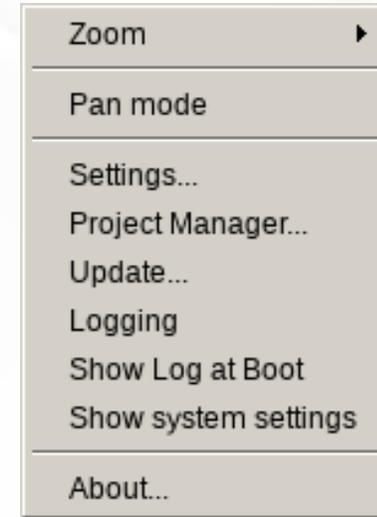
# Contextual Menu

- Available when JM Runtime is installed on HMI
- Access to some settings/operations
- Hold on the finger on touch screen for 2 seconds
  - 2 sec delay can be changed under "Settings"
  - Menu can be "secured" into JMobile Project



# Contextual Menu

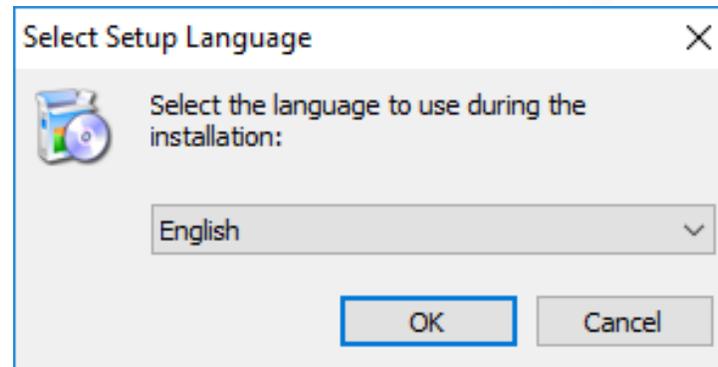
- Available when JM Runtime is installed on HMI
- Access to some settings/operations
- Hold on the finger on touch screen for 2 seconds
  - 2 sec delay can be changed under "Settings"
  - Menu can be "secured" into JMobile Project



# Software installation

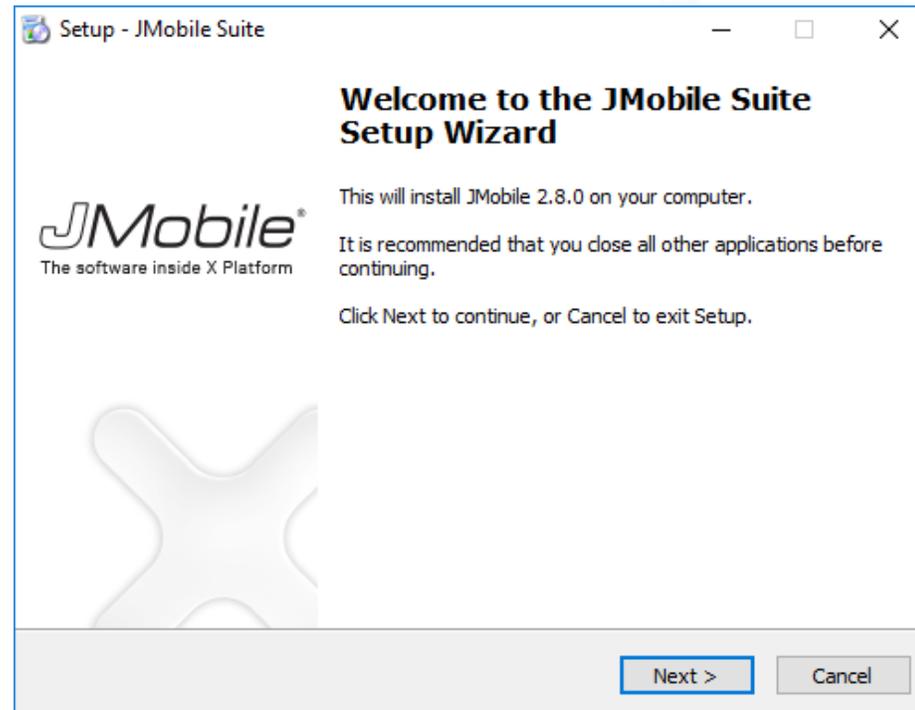
## Installation

- JMobile Suite can be downloaded from [exorint.com/product/jmobile/#downloads](http://exorint.com/product/jmobile/#downloads)
- JMobile Studio and JMobile Runtime PC have 30-days free trial fully functional, "trial period" is not allowed on Virtual Machine environment.



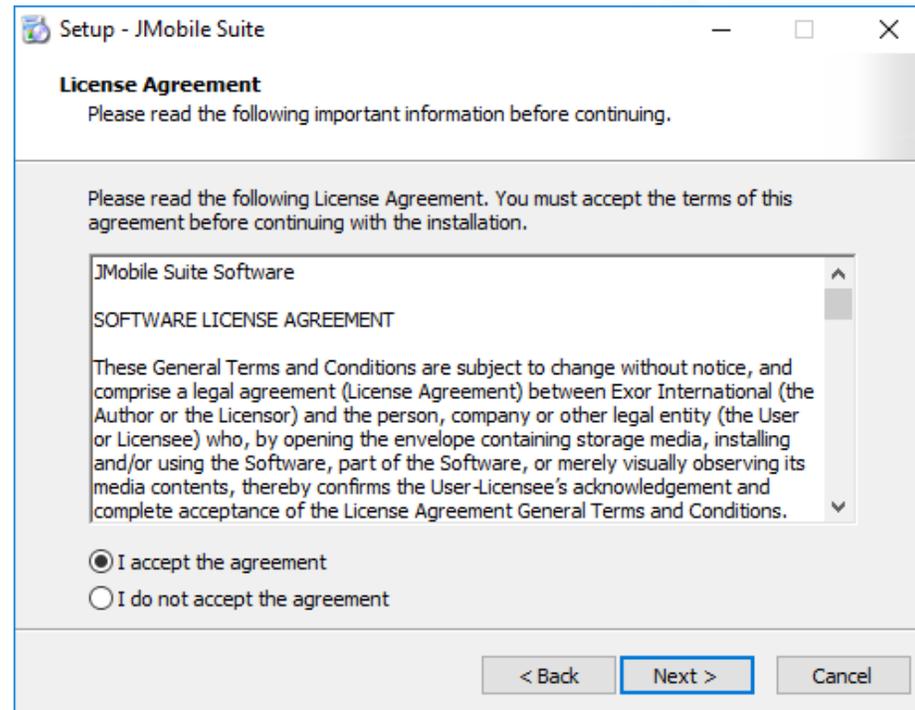
## Installation

- JMobile Suite can be downloaded from [exorint.com/product/jmobile/#downloads](http://exorint.com/product/jmobile/#downloads)
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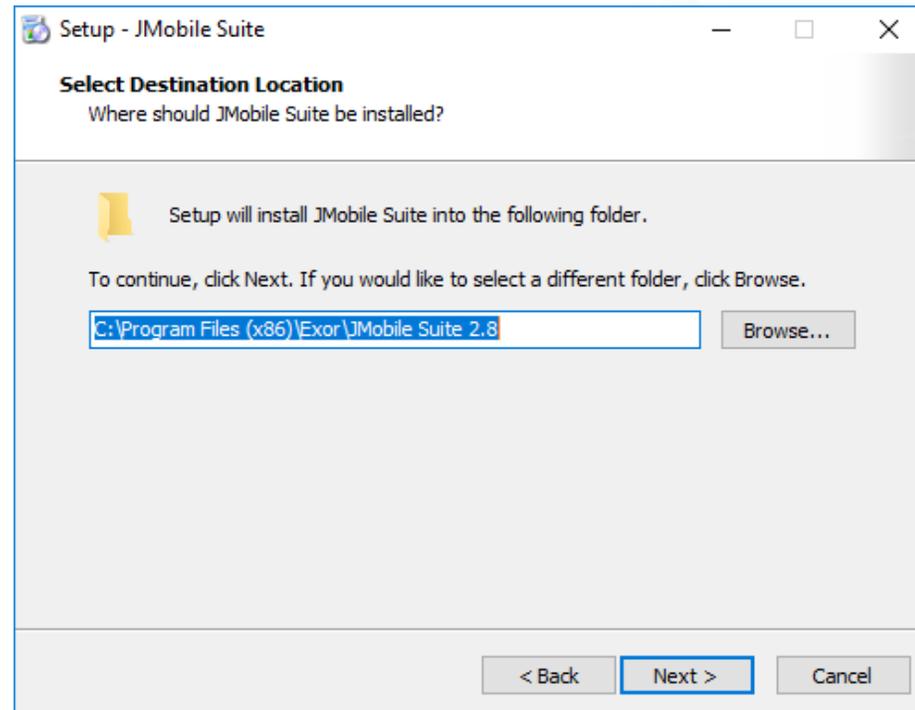
# Installation

- JMobile Suite can be downloaded from [exorint.com/product/jmobile/#downloads](http://exorint.com/product/jmobile/#downloads)
- JMobile Studio and JMobile Runtime PC have 30-days free trial fully functional, "trial period" is not allowed on Virtual Machine environment.



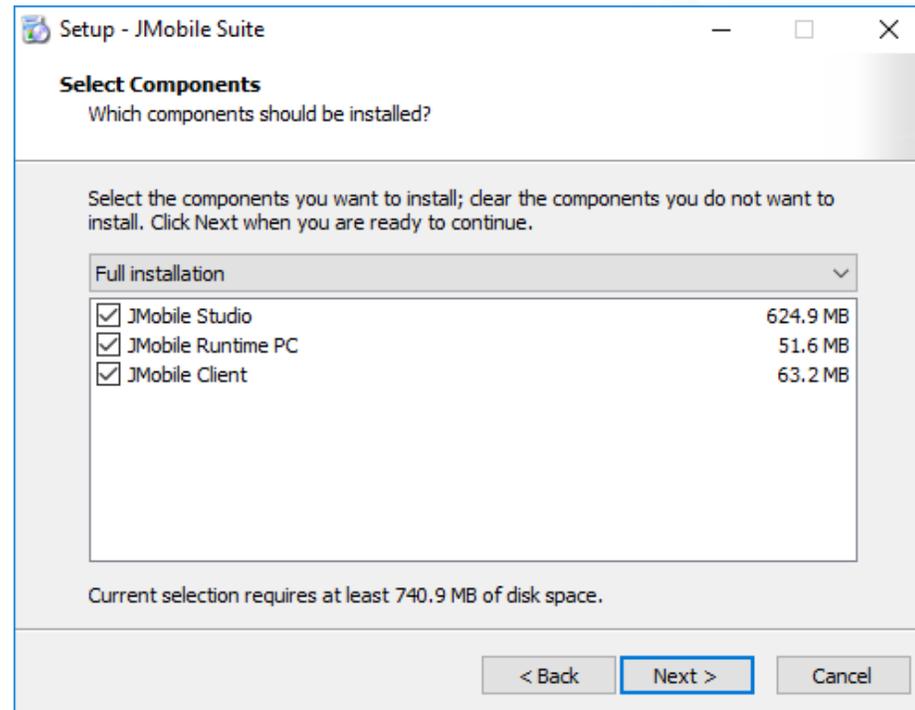
# Installation

- JMobile Suite can be downloaded from [exorint.com/product/jmobile/#downloads](http://exorint.com/product/jmobile/#downloads)
- JMobile Studio and JMobile Runtime PC have 30-days free trial fully functional, "trial period" is not allowed on Virtual Machine environment.



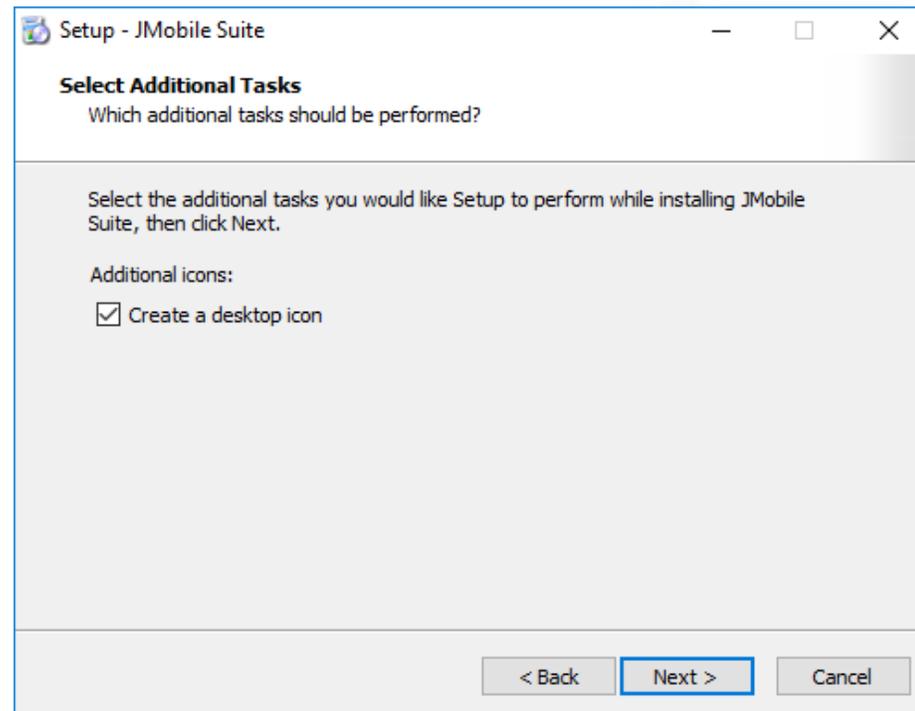
# Installation

- JMobile Suite can be downloaded from [exorint.com/product/jmobile/#downloads](http://exorint.com/product/jmobile/#downloads)
- JMobile Studio and JMobile Runtime PC have 30-days free trial fully functional, "trial period" is not allowed on Virtual Machine environment.



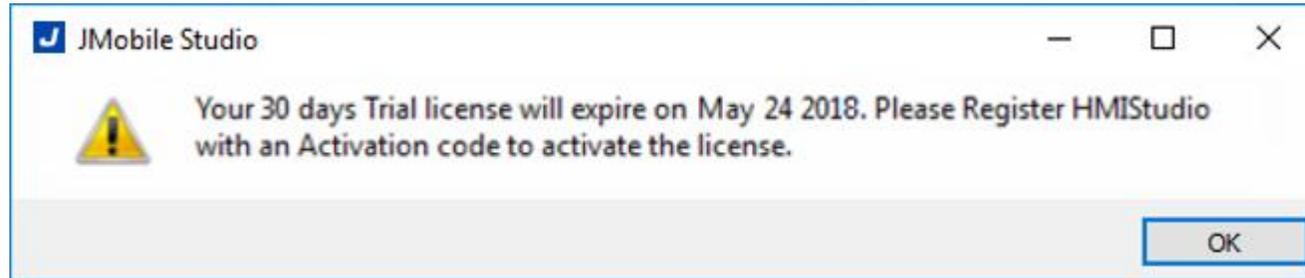
# Installation

- JMobile Suite can be downloaded from [exorint.com/product/jmobile/#downloads](http://exorint.com/product/jmobile/#downloads)
- JMobile Studio and JMobile Runtime PC have 30-days free trial fully functional, "trial period" is not allowed on Virtual Machine environment.



## Installation

- JMobile Suite can be downloaded from [exorint.com/product/jmobile/#downloads](http://exorint.com/product/jmobile/#downloads)
- JMobile Studio and JMobile Runtime PC have 30-days free trial fully functional, "trial period" is not allowed on Virtual Machine environment.



## License model

- JMobile Studio license:
  - License doesn't expire, valid for future upgrades
  - One key is valid on a single computer
  - Allow execution on JMobile Studio on VM
  
- JMobile Runtime PC license:
  - allow execution of JMobile Runtime PC on Industrial PC
  - License doesn't expire, valid for future upgrades
  - One key is valid on a single computer
  - Execution on VM not allowed even if licensed

## License activation

- Activation is done via JMobile Studio going to Help > Register
- Software must be registered filling an information form
- Is needed an active Internet connection
- If an active Internet connection is not available, JMobile Studio license can be requested by email

The screenshot shows a registration window titled 'HMIStudio'. The form includes the following fields and options:

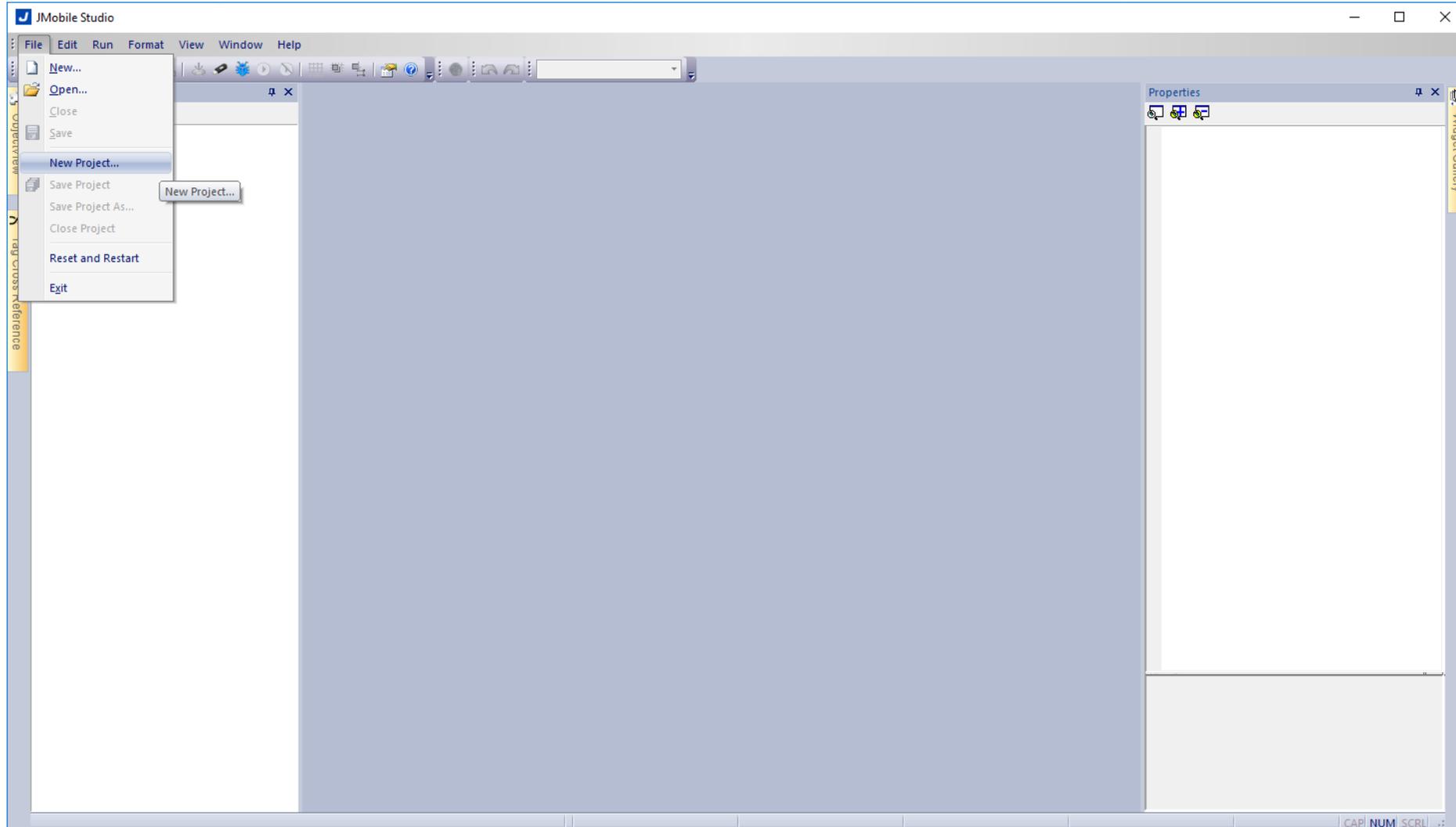
- First Name\***: Text input field
- Last Name\***: Text input field
- Job Title**: Text input field
- Company\***: Text input field
- Division or Group**: Text input field
- Industrial Sector**: Dropdown menu with 'Please choose one' selected
- Country\***: Dropdown menu with 'Please choose one' selected
- State/Province\***: Text input field
- City\***: Text input field
- Phone**: Text input field
- E-Mail\***: Text input field
- Confirm E-Mail\***: Text input field
- Terms of Service\***: Radio buttons for 'Yes' and 'No' (selected), with a '\*Required Fields' note
- Privacy Statement\***: Radio buttons for 'Yes' and 'No' (selected)
- Activation Key\***: Text input field containing a masked key: 'XXXXX-XXXXX-XXXXX-XXXXX'
- HostID**: Text input field containing a blurred host ID

At the bottom right, there are two buttons: 'Register' and 'Close'.

# JMobile Studio IDE

(Integrated Development Environment)

# Create New Project



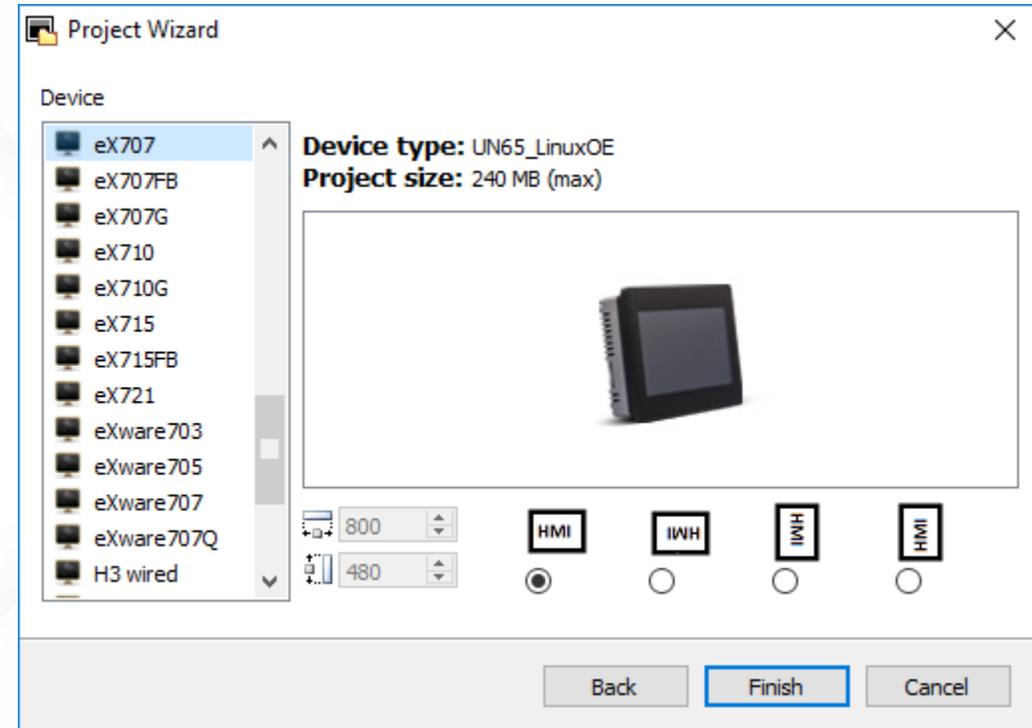
# Project Wizard

- Wizard for new project
  - Project Name and Location
  - Target device selection
  - Project/Device rotation
- Project size:
  -  • WCE = 30MB / 60 MB
  -  • Linux = 60MB / 240 MB

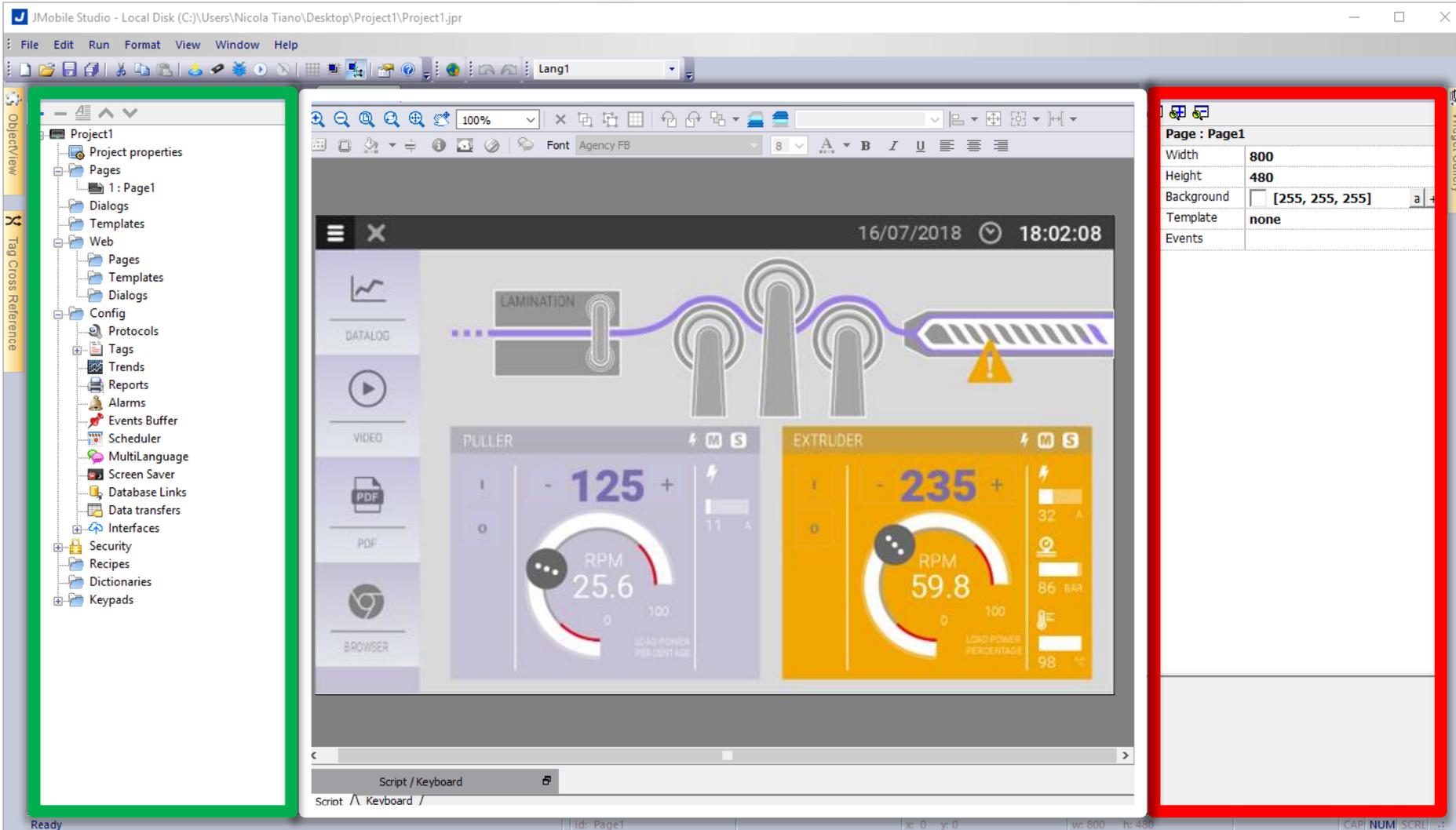


# Project Wizard

- Wizard for new project
  - Project Name and Location
  - Target device selection
  - Project/Device rotation
  - Project size:
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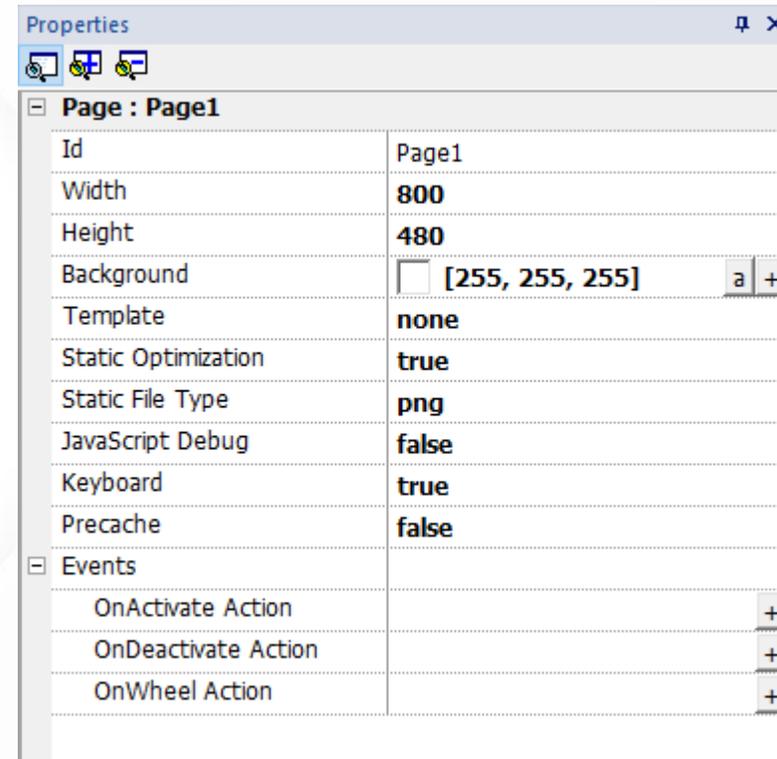


# JMobile Studio Panes



## Properties pane

- Accessible from pane on the right side
- Basic or and Advanced View
- All properties that can be attached to tag show [+] button
- Allow to:
  - Edit page or widgets properties
  - Attach property to a Tag
  - Define actions on events



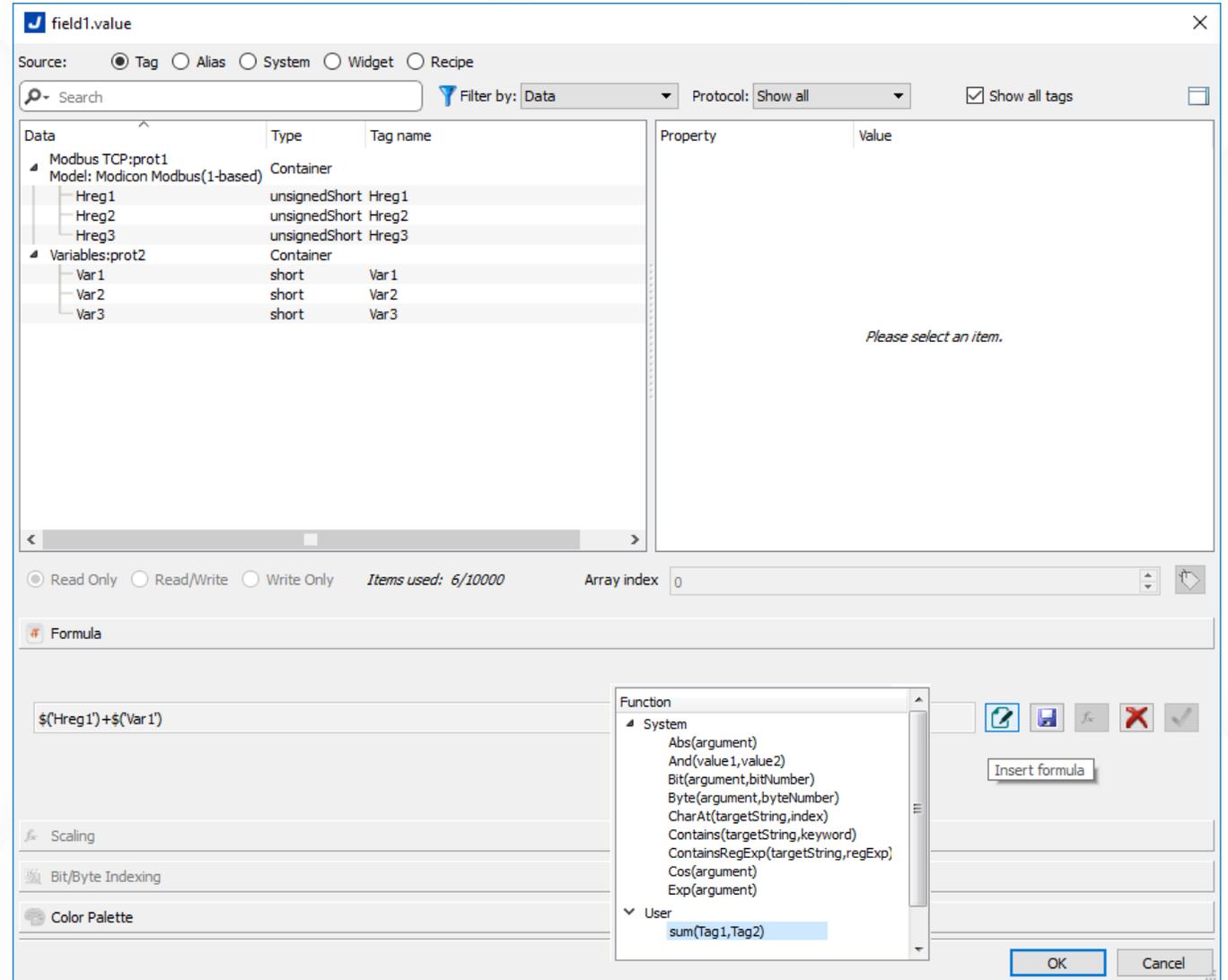
## Properties pane: Attach To

- Provides the way for attaching Tag to properties
- Allow also to show/select tags from dictionary by "Show all tags"

# Properties pane: Attach To

Expressions available for transforms associated to tags

- Using standard Javascript syntax
  - Auto Syntax check on saving
- Direct tag access: \$("Tag1")
- Option to save & reuse a formula
- Rich set of operators with helper
  - Math: (+, -, \*, /)
  - Logic: (Not, And, Or)
  - Compare (<, <=, >, >=, ==)



# Properties pane: Attach To

Apply scaling on Tag visualization

- By Formula
  - Uses linear scaling
- By Range
  - Uses Input and Output limits

field1.value

Source:  Tag  Alias  System  Widget  Recipe

Search  Filter by: Data Protocol: Show all  Show all tags

Data	Type	Tag name
Modbus TCP:prot1	Container	
Model: Modicon Modbus(1-based)		
Hreg1	unsignedShort	Hreg1
<b>Hreg2</b>	unsignedShort	Hreg2
Hreg3	unsignedShort	Hreg3
Variables:prot2	Container	
Var1	short	Var1
Var2	short	Var2
Var3	short	Var3

Property	Value
Driver	
Model	Modicon Modbus(1-based)
Protocol	Modbus TCP:prot1
Tag	
Active	false
Comment	
Data Type	unsignedShort
Default value	
Encoding	
Groups	
Max value	
Min value	
PLC tag name	
R/W	R/W
Rate	500
Scaling	None
Simulator	Variables
Tag URI	1?HREG?400002?unsignedShort

Read Only  Read/Write  Write Only *Items used: 6/10000* Array index 0

# Formula

f Scaling

By Formula  By Range

1.00 x Value + 0.00

Input: Min: 0 Max: 100 Output: Min: 0 Max: 100

Bit/Byte Indexing

Color Palette

OK Cancel

# Properties pane: Attach To

Point to specific Byte or Bit

The screenshot shows the 'field1.value' properties dialog box. At the top, there are radio buttons for 'Tag' (selected), 'Alias', 'System', 'Widget', and 'Recipe'. Below this is a search bar and a 'Filter by' dropdown set to 'Data'. The 'Protocol' dropdown is set to 'Show all', and there is a 'Show all tags' checkbox.

The left pane displays a tree view of data sources:

Data	Type	Tag name
Modbus TCP:prot1	Container	
Model: Modicon Modbus(1-based)		
Hreg1	unsignedShort	Hreg1
<b>Hreg2</b>	unsignedShort	Hreg2
Hreg3	unsignedShort	Hreg3
Variables:prot2	Container	
Var1	short	Var1
Var2	short	Var2
Var3	short	Var3

The right pane shows a table of properties:

Property	Value
Driver	
Model	Modicon Modbus(1-based)
Protocol	Modbus TCP:prot1
Tag	
Active	false
Comment	
Data Type	unsignedShort
Default value	
Encoding	
Groups	
Max value	
Min value	
PLC tag name	
R/W	R/W
Rate	500
Scaling	None
Simulator	Variables
Tag URI	1?HREG?400002?unsignedShort

At the bottom of the dialog, there are radio buttons for 'Read Only' (selected), 'Read/Write', and 'Write Only'. Next to them is 'Items used: 6/10000' and an 'Array index' field set to 0. Below these are sections for 'Formula', 'Scaling', and 'Bit/Byte Indexing'. In the 'Bit/Byte Indexing' section, 'Byte index' is checked and set to 1, and 'Bit index' is unchecked and set to 0. At the very bottom, there is a 'Color Palette' section and 'OK' and 'Cancel' buttons.

# Properties pane: Attach To

## Map colors to Tag values

- Possibility to map ranges of values



- Single Values
  - 5 > Color
- Range
  - 0-5 > Color
- List
  - 1, 5-10 > Color
  - 10-20, 30-50 > Color

field1.value

Source:  Tag  Alias  System  Widget  Recipe

Search:  Filter by: Data Protocol: Show all  Show all tags

Data	Type	Tag name
Modbus TCP:prot1	Container	
Model: Modicon Modbus(1-based)		
Hreg1	unsignedShort	Hreg1
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Hreg3	unsignedShort	Hreg3
Variables:prot2	Container	
Var1	short	Var1
Var2	short	Var2
Var3	short	Var3

Property	Value
Driver	
Model	Modicon Modbus(1-based)
Protocol	Modbus TCP:prot1
Tag	
Active	false
Comment	
Data Type	unsignedShort
Default value	
Encoding	
Groups	
Max value	
Min value	
PLC tag name	
R/W	R/W
Rate	500
Scaling	None
Simulator	Variables
Tag URI	1?HREG?400002?unsignedShort

Read Only  Read/Write  Write Only *Items used: 6/10000* Array index: 0

# Formula

f Scaling

Bit/Byte Indexing

Color Palette

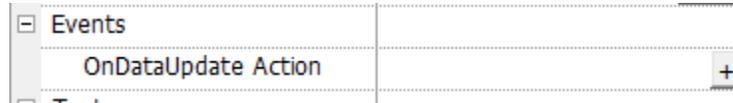
+ - ^ v X #ffffff #efefef

	Tag Value	Output Color
1	0-5	#0000ff
2	6	#ff0000
3	7-21	#ffa2e

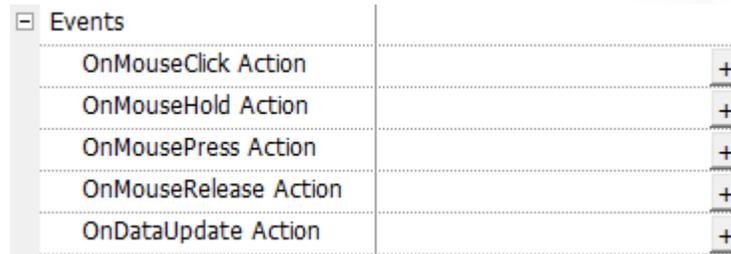
OK Cancel

# Properties pane: Events and Actions

- Fields



- Buttons



- Page

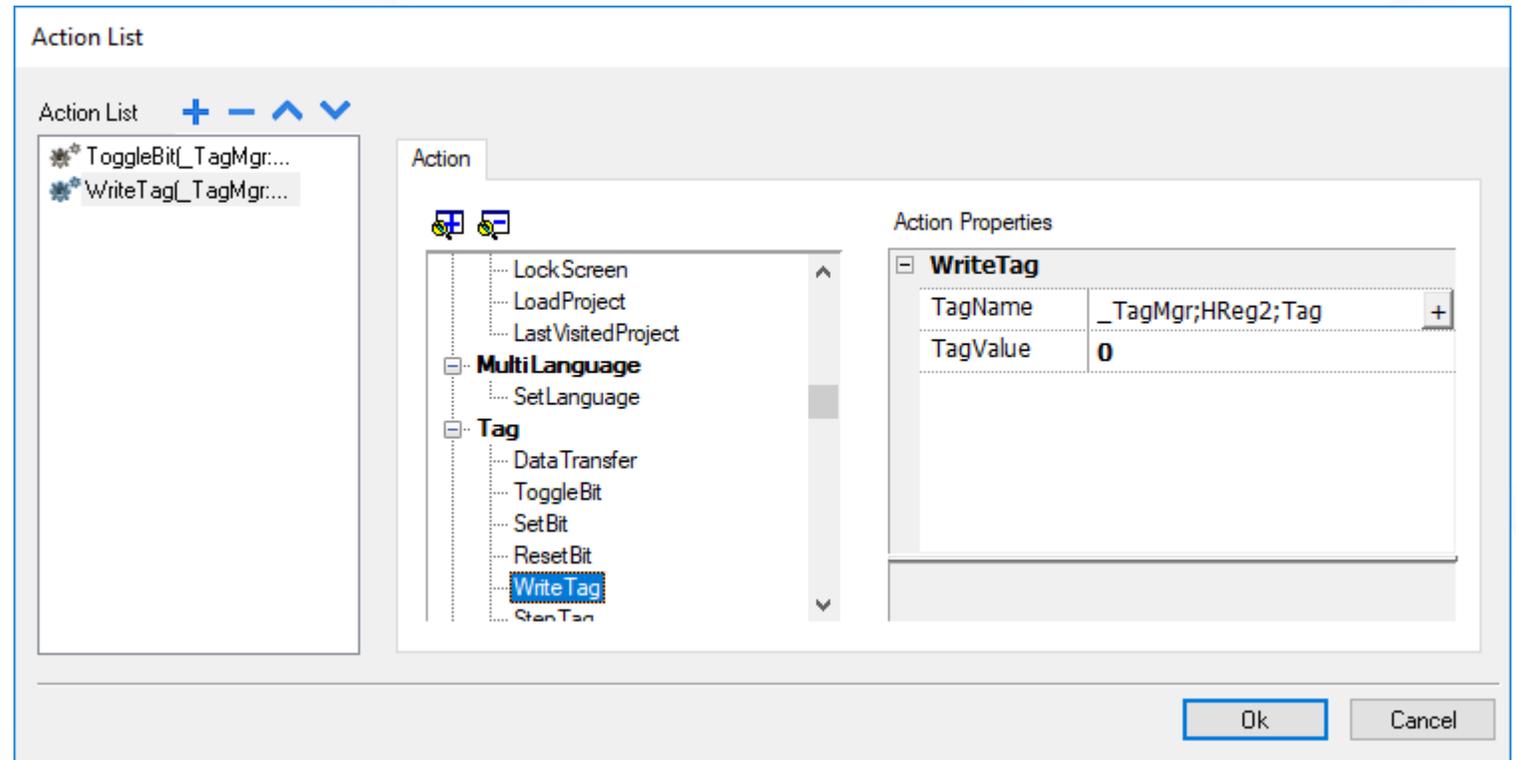


- Alarm events

- Scheduler events

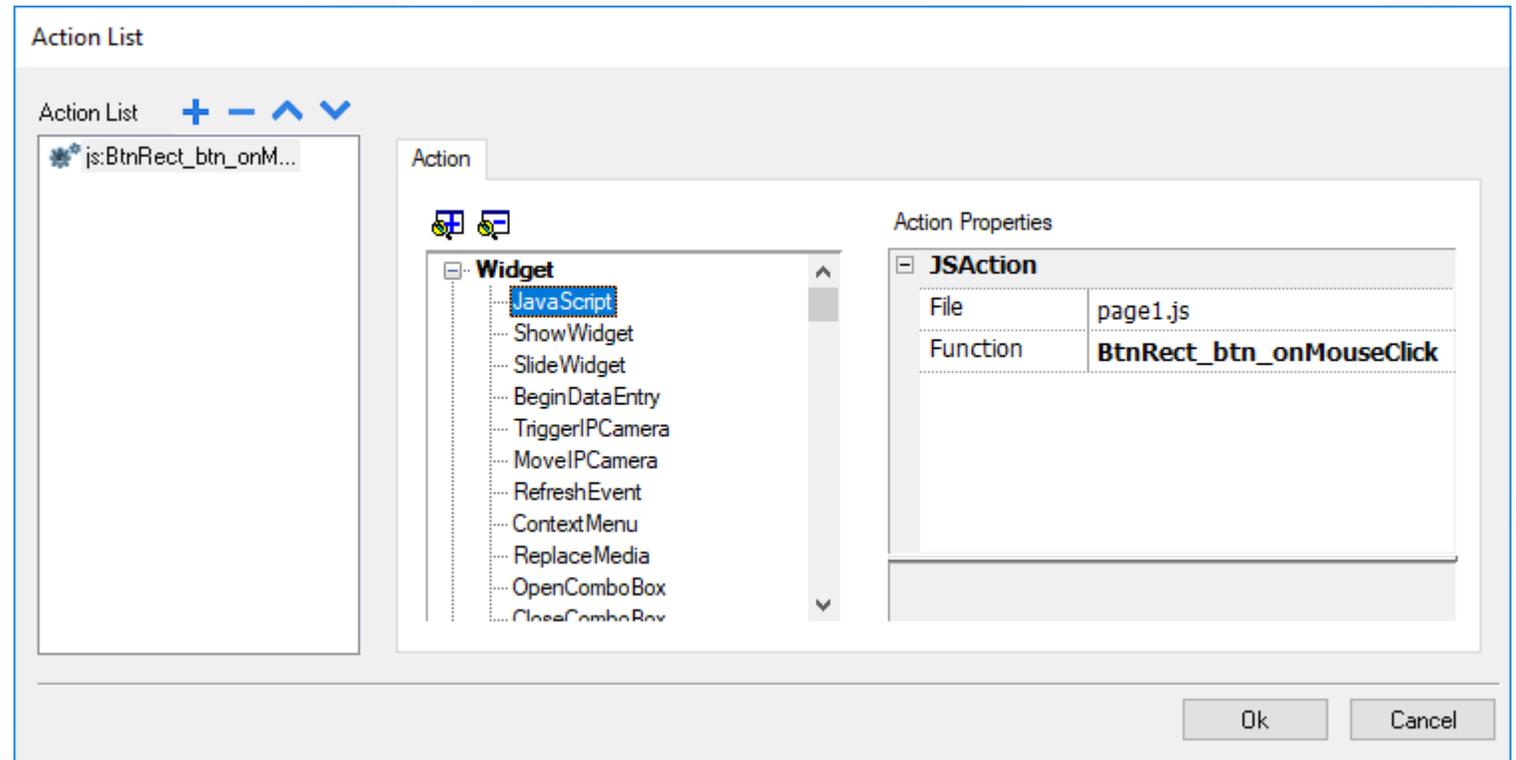
## Properties pane: Events and Actions

- Actions are executed when an Event is Triggered
- Support for Multiple actions
- List of predefined available Actions
- Custom action with scripting using Javascript



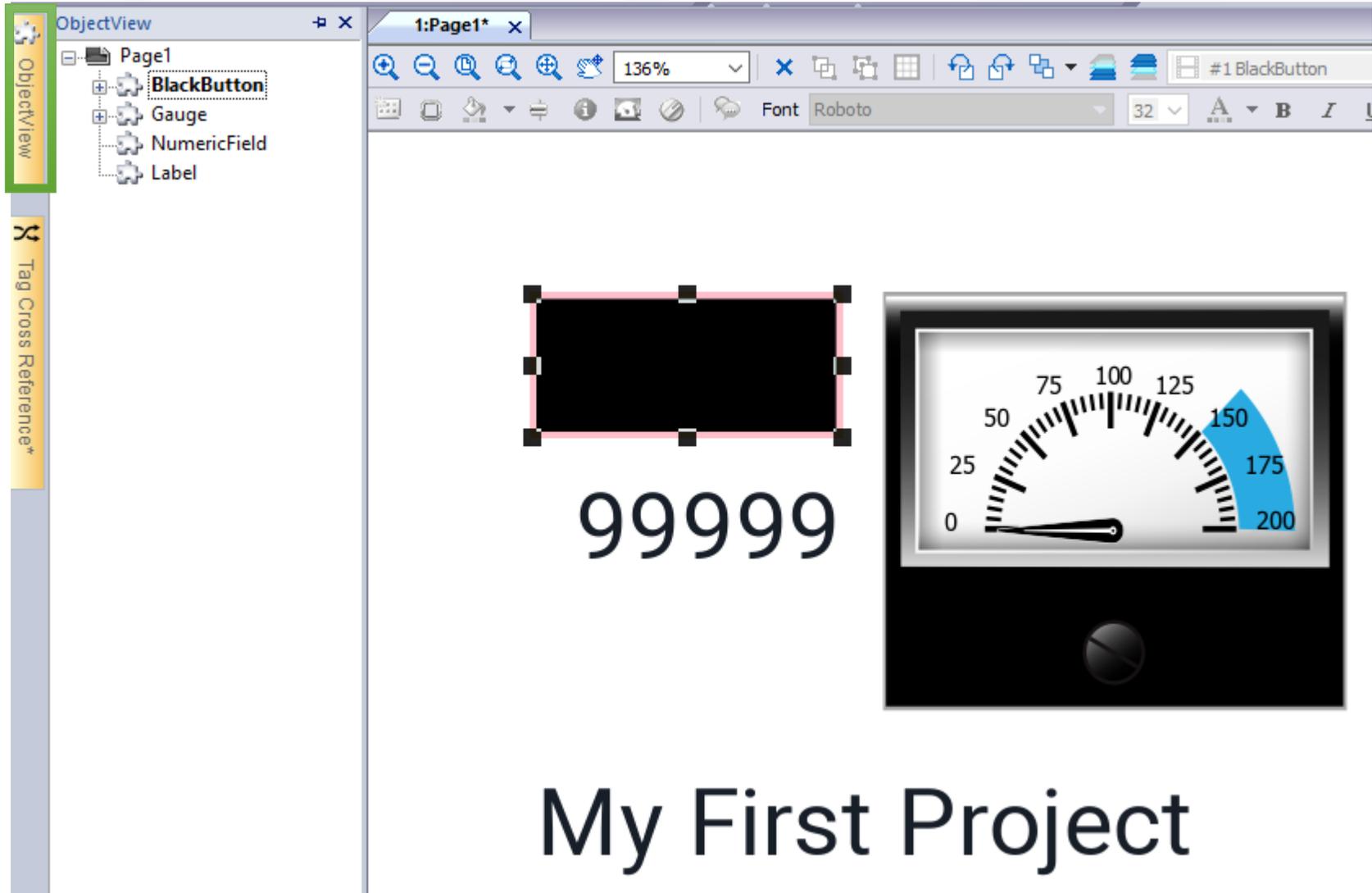
## Properties pane: Events and Actions

- Actions are executed when an Event is Triggered
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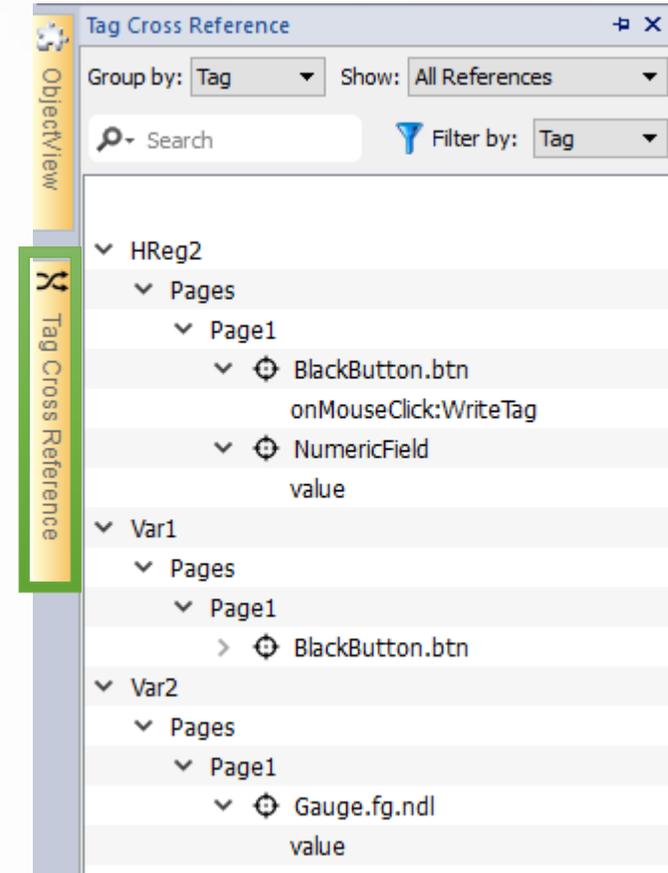
## ObjectView pane

- Accessible from slide-in pane on the left side
- Map of the objects in page
- Shows tree view of object composition in page
- Locate objects from pane to page and vice-versa



## Tag Cross Reference pane

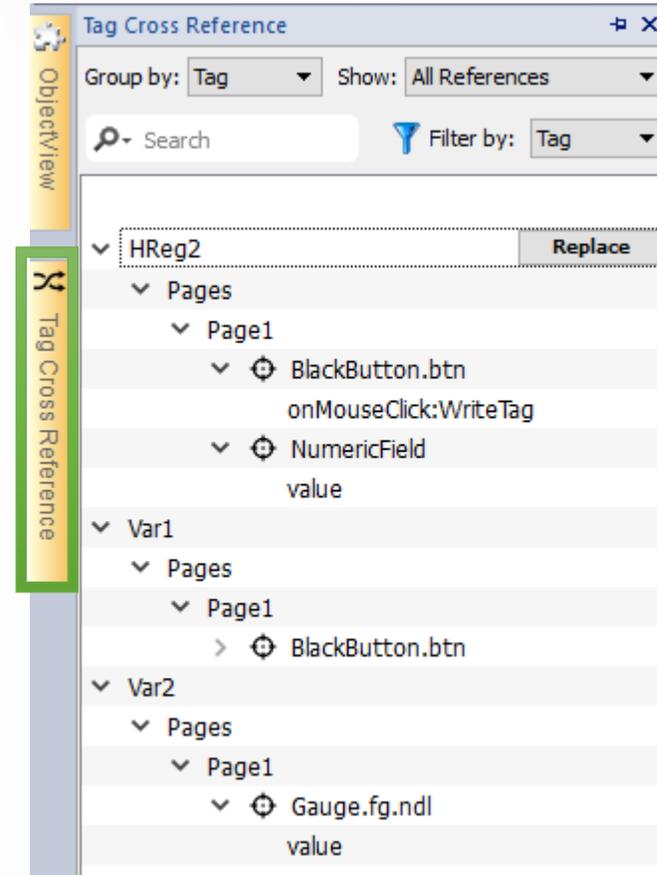
- The Tag Cross Reference displays Tags used into project, based on their location
- References can be grouped by
  - Tag: every tag is showed where it's used;
  - Location: every project location (pages, alarms...) shows which tags are used.
- Cross Reference pane, can show:
  - All References
  - Invalid Tag reference
  - Unused tags



# Tag Cross Reference pane

- Possibility to replace Tags in all occurrences

NEW  
in 2.8



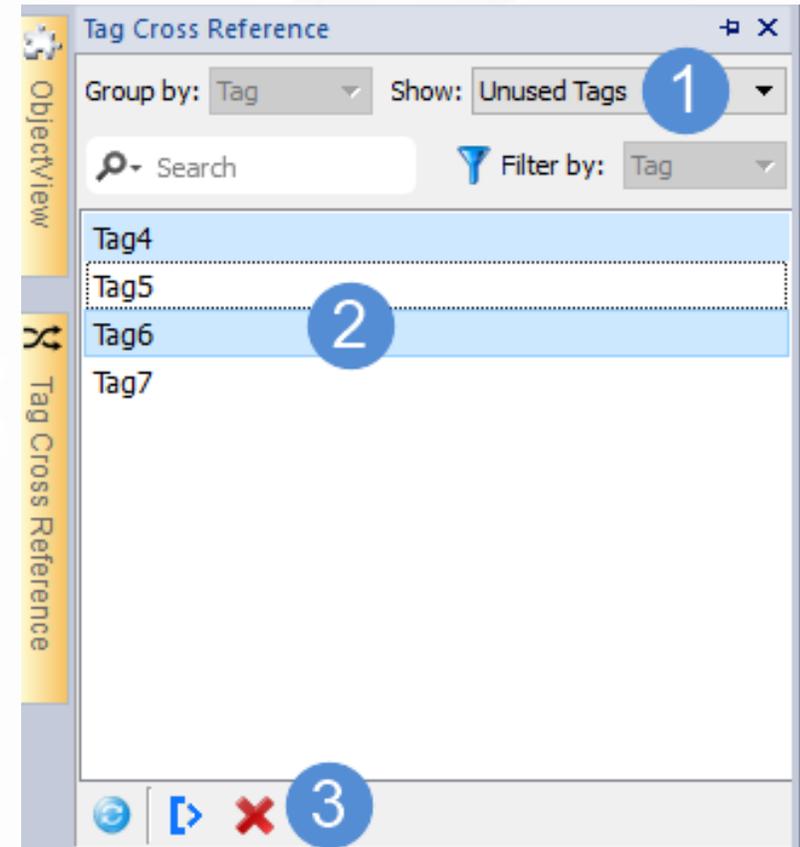
## Tag Cross Reference pane

- Unused Tags can be deleted to cleanup project in final step

NEW  
in 2.8

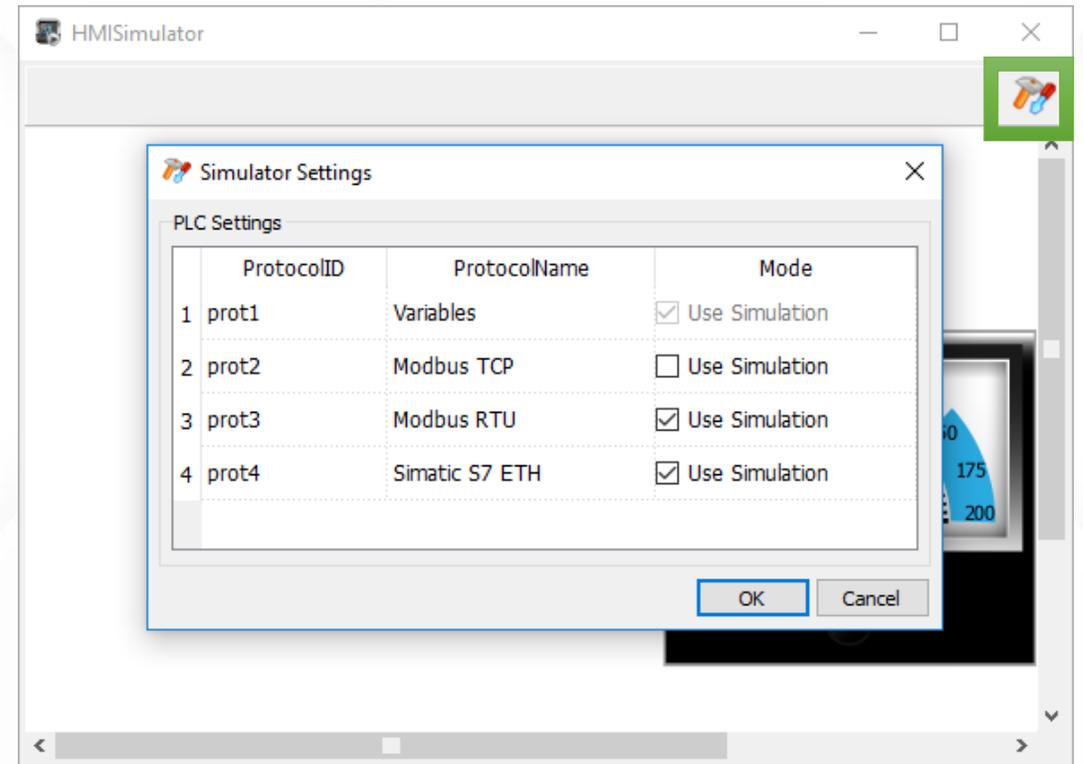
1. Filter by “Unused Tags”
2. Select Tags to be deleted
3. Press red “X” icon

*Note: Tags can be used in JavaScript by composing Tag name dynamically, within code cycles.  
Such Tags are listed as “Unused Tags”.  
Pay attention on deleting these Tags.*



# Simulator

- Allows testing projects before downloading to HMI, or if HMI is not available
- Speed up development
- Supports
  - Simulation mode: default
  - Online mode: unchecking "use simulation" for Ethernet or serial RS-232 protocols



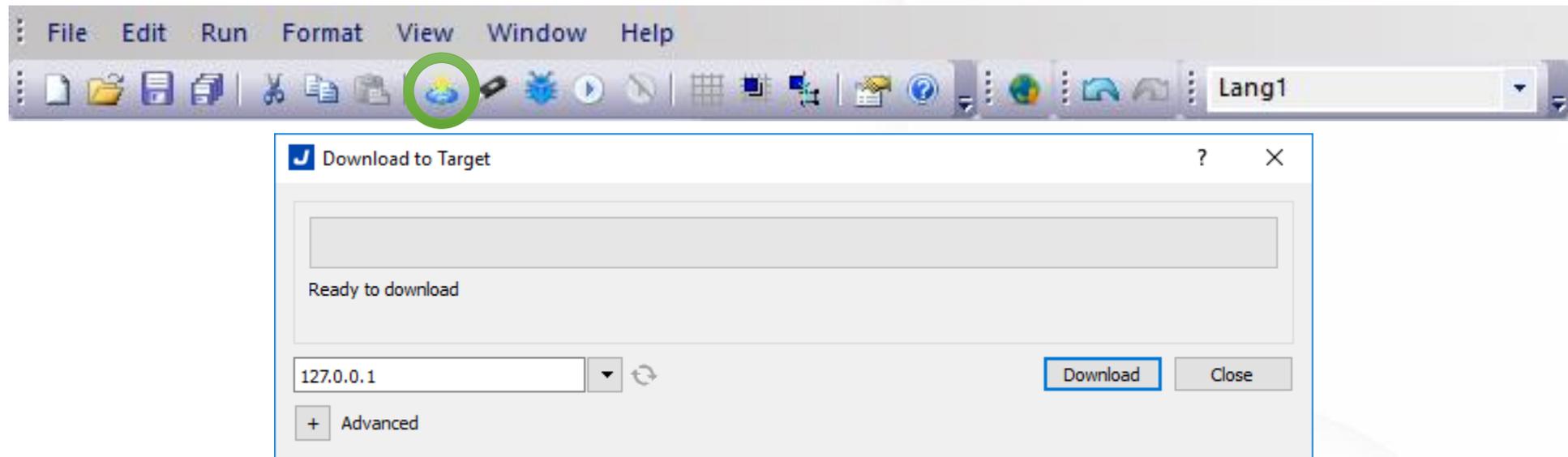
## Ethernet Project Download

- To download via network  
click on "Download to Target" icon



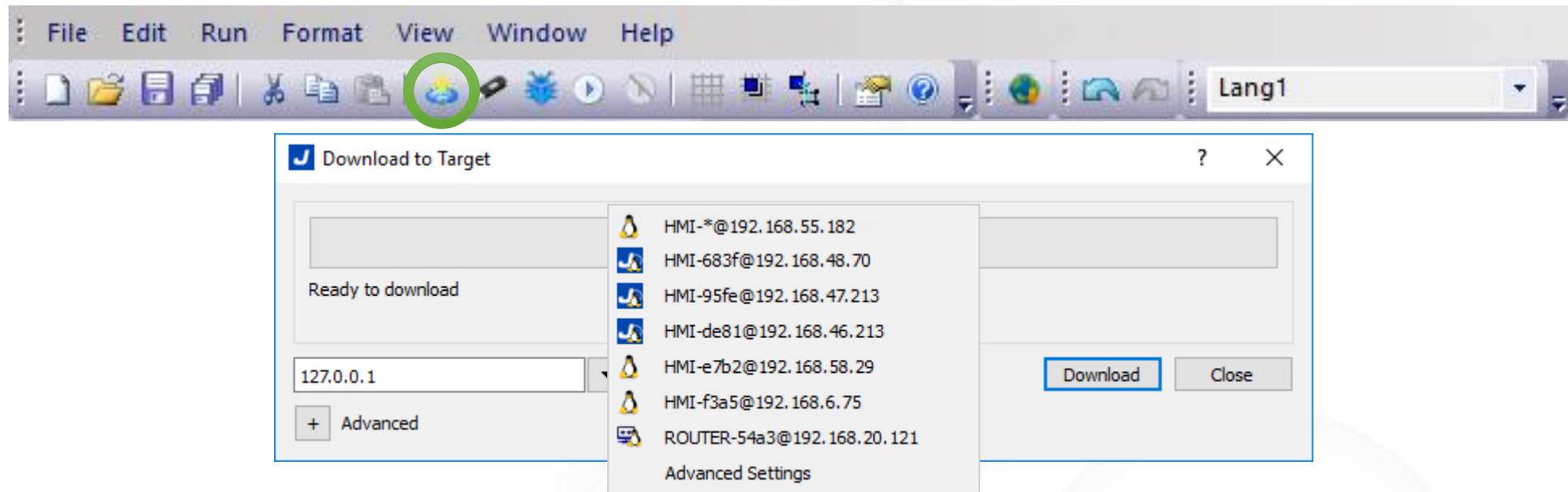
# Ethernet Project Download

- To download via network click on "Download to Target" icon



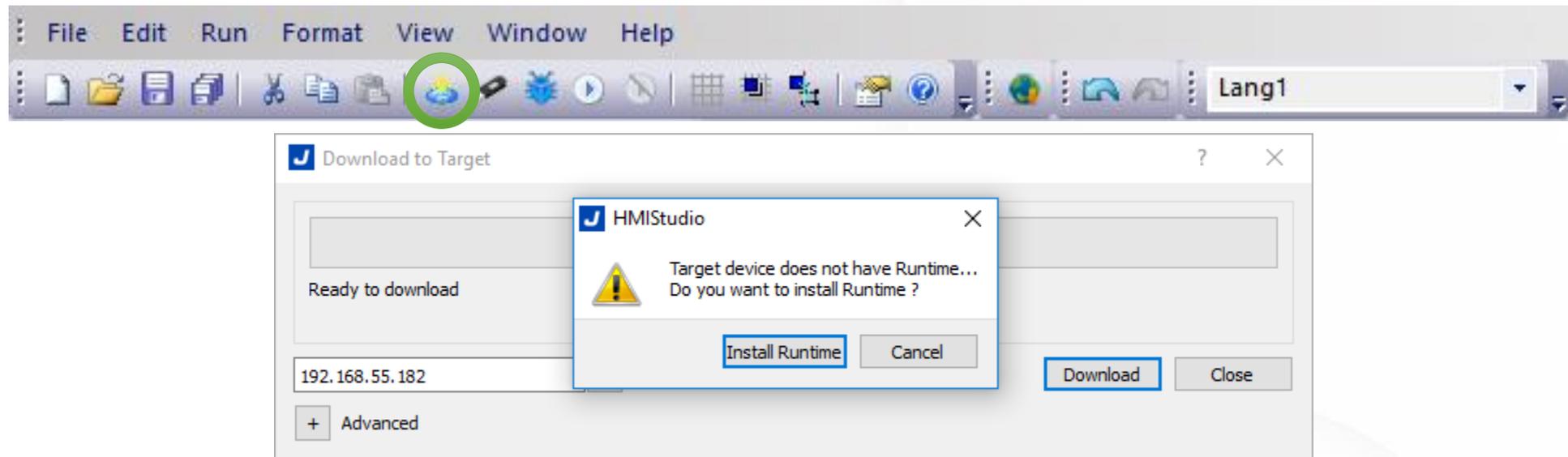
# Ethernet Project Download

- To download via network click on "Download to Target" icon



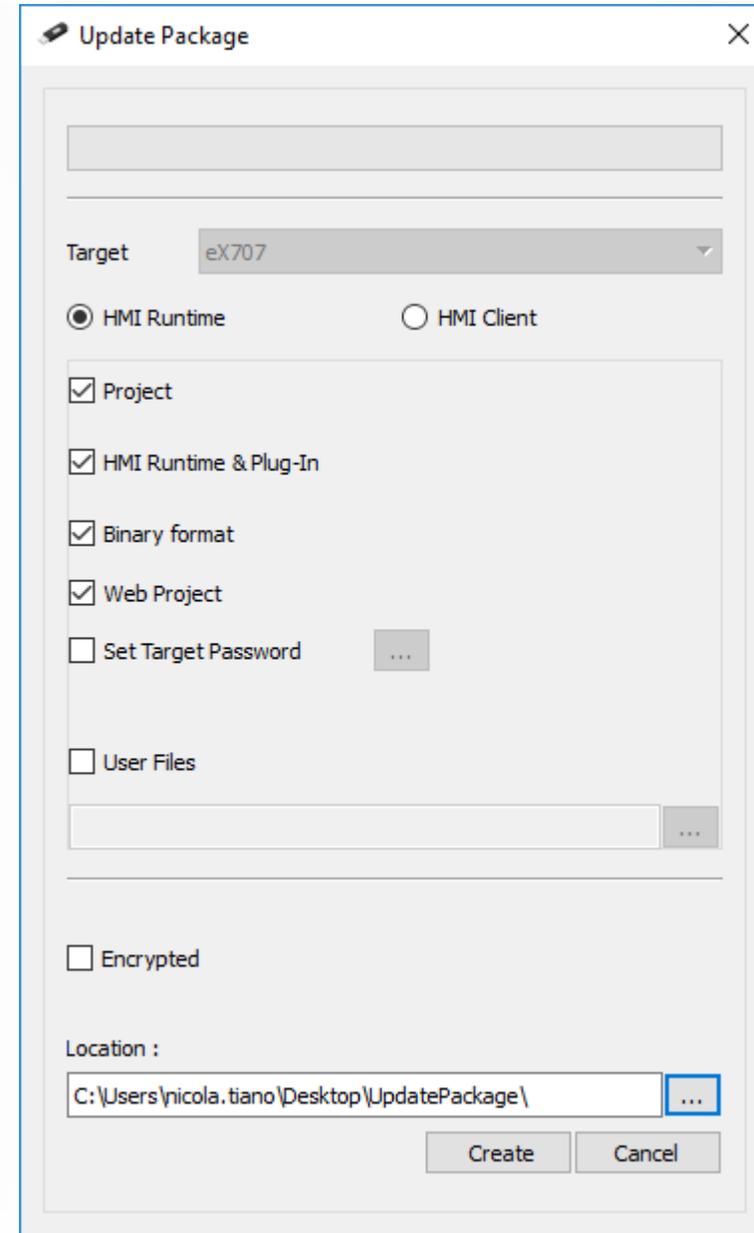
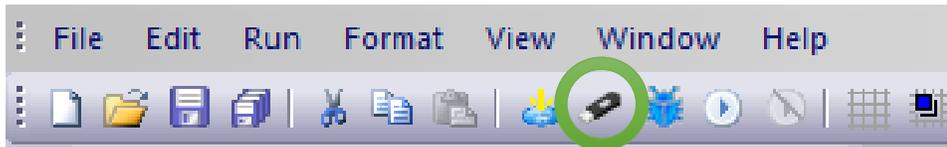
# Ethernet Project Download

- To download via network click on "Download to Target" icon



# USB Project Download

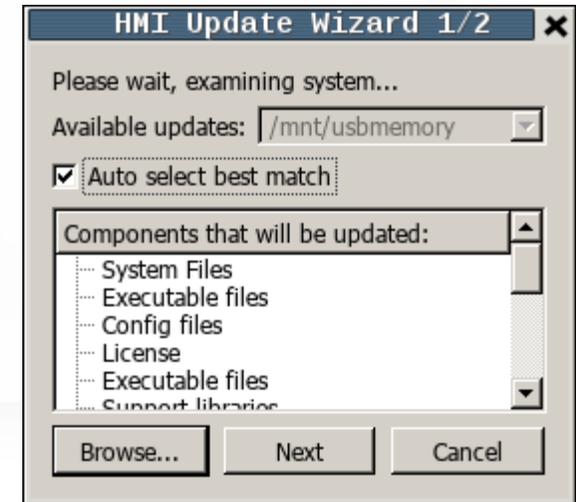
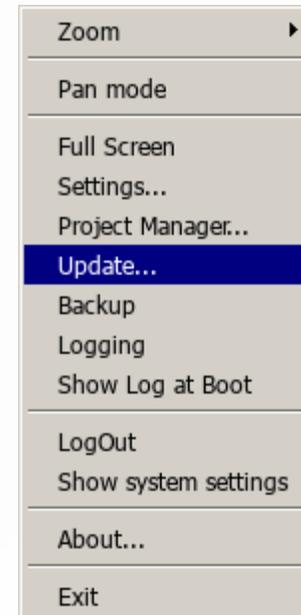
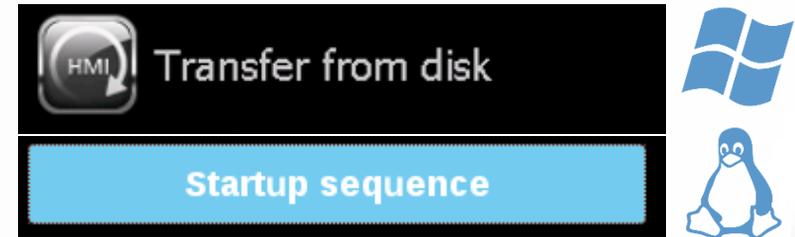
- To download via USB Memory: click on "Update Package" icon



# USB Project Download

• How to deploy "Update Package" into HMI, via USB:

1. When Runtime is NOT present:
  - Click on "Transfer from disk" (WCE)
  - Click on "Startup sequence > Install" (Linux)
  
2. When Runtime is installed on HMI:
  - Touch and hold-on the finger on screen to get the context menu
  - Select "Update..."
  - Click on "Next"



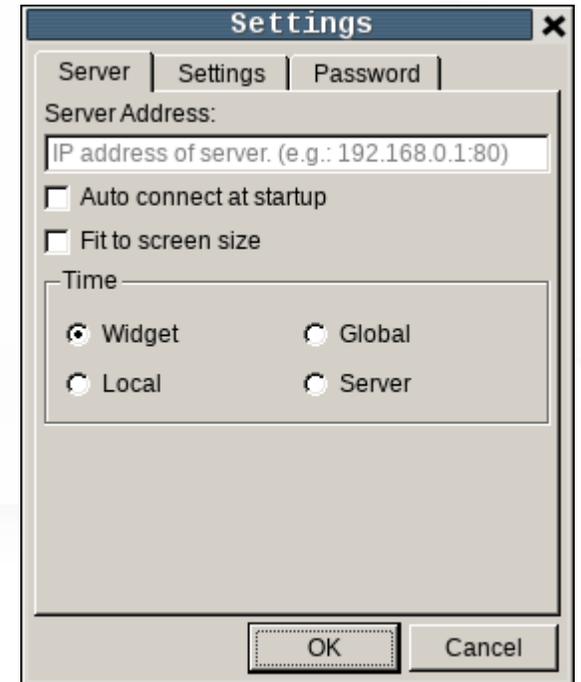
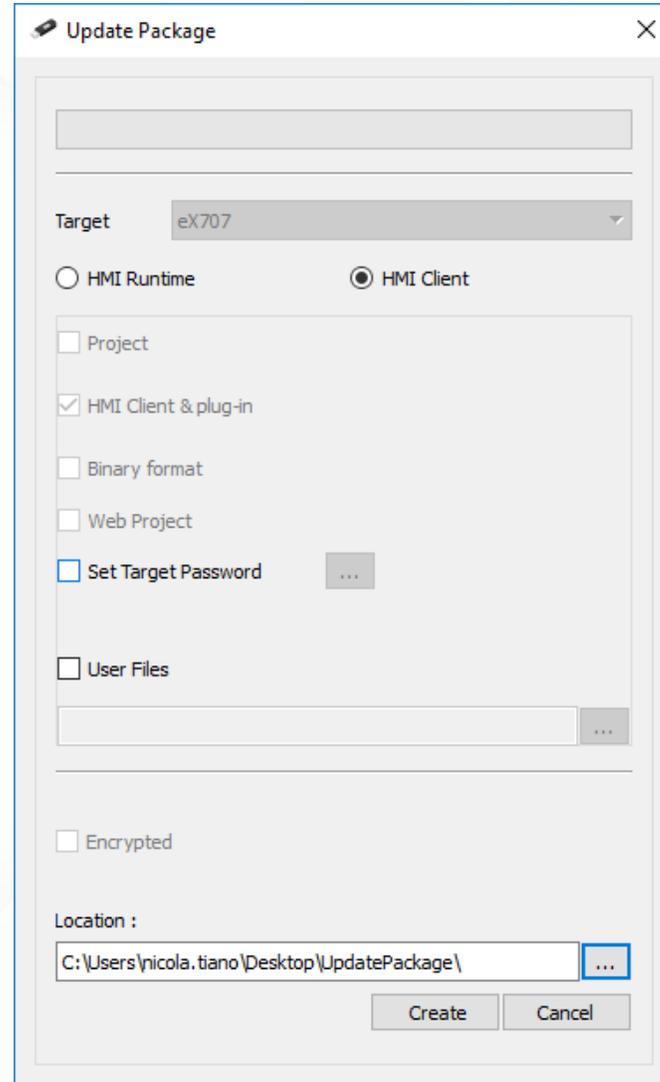
# HMI Client

- Available only on Linux HMIs



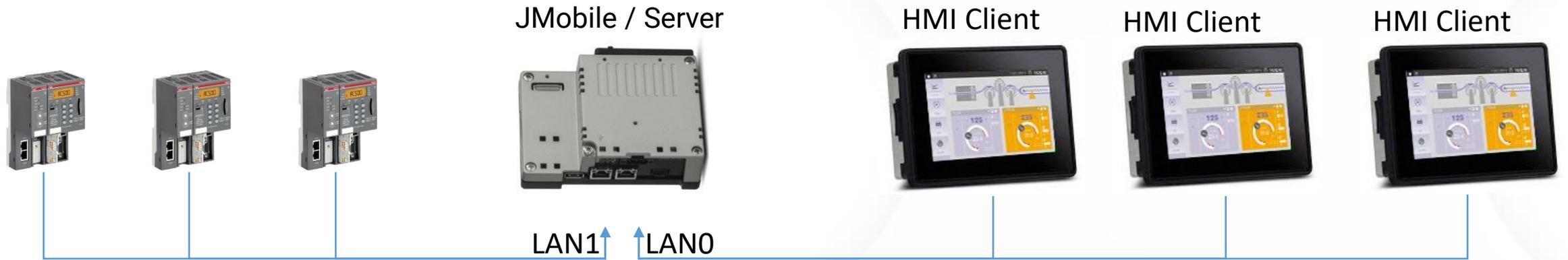
- Steps:

- Create Update Package > HMI Client
- Install it via USB
- Connect to existing HMI



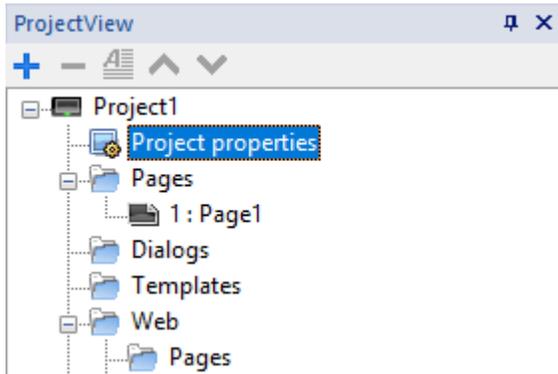
# HMI Client

- Example schema



# Project Properties

- Allow access to project settings using by the Properties Pane

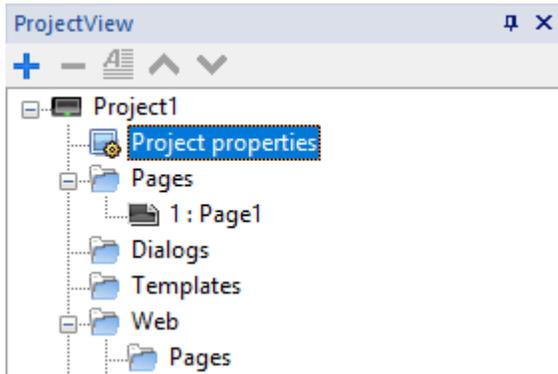


Project Widget : Project1	
Id	Project1
Full Path	C:\Users\nicola.tiano\Desktop\Project
Version	
Runtime	
Context Menu	on delay
Developer Tools	false
Buzzer on touch	false
Buzzer duration (ms)	200
Keyboard	true
JavaScript Debug	false
Allow JavaScript Remote Debugger	false
Image DB Enable	true
FreeType Font Rendering	true
Communication icon delay (ms)	0
Fastboot mode	Default
Plug-in	
WebKit	false
Text Editor	false

Project	
Home Page	Page1.jmx
PageWidth	800
PageHeight	480
Display Mode	Landscape
Project Type	eX707
Panel Memory	2GB
PageRequest	
CurrentPage	
SyncOptions	disable
Hold Time (ms)	2000
Autorepeat Time (ms)	250
Hide Project Loading at boot	false
Target zoom factor	1
Background color option	None
Signature	sha256
Gesture Passthru Enabled	true
Gesture Passthru Delay (ms)	200
Gesture Multitouch	true
On Access Denied	None
ComboBox View Mode	Context
Web	
Web Inactivity Timeout (sec)	600
Web Icon	
Refresh Time (ms)	100
Browser Optimization	true
Enable Global JavaScript for remote	both
Max Bandwidth(Kbs)	0
Web clients connection mode	Auto
WebPageRequest	
Web communication icon delay (ms)	0
Events	
OnWheel Action	

# Project Properties

- Allow access to project settings using by the Properties Pane

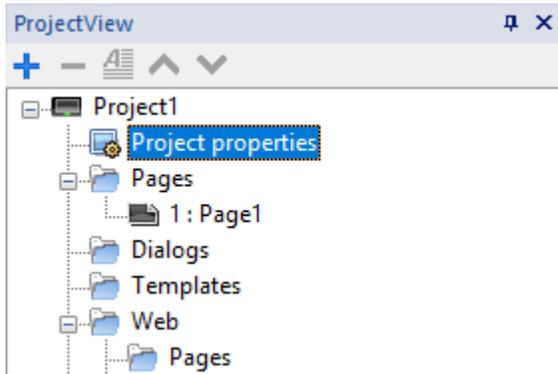


Project Widget : Project1	
Id	Project1
Full Path	C:\Users\nicola.tiano\Desktop\Project
Version	
Runtime	
Context Menu	on delay
Developer Tools	false
Buzzer on touch	false
Buzzer duration (ms)	200
Keyboard	true
JavaScript Debug	false
Allow JavaScript Remote Debugger	false
Image DB Enable	true
FreeType Font Rendering	true
Communication icon delay (ms)	0
Fastboot mode	Default
Plug-in	
WebKit	false
Text Editor	false

Project	
Home Page	Page1.jmx
PageWidth	800
PageHeight	480
Display Mode	Landscape
Project Type	eX707
Panel Memory	2GB
PageRequest	
CurrentPage	
SyncOptions	disable
Hold Time (ms)	2000
Autorepeat Time (ms)	250
Hide Project Loading at boot	false
Target zoom factor	1
Background color option	None
Signature	sha256
Gesture Passthru Enabled	true
Gesture Passthru Delay (ms)	200
Gesture Multitouch	true
On Access Denied	None
ComboBox View Mode	Context
Web	
Web Inactivity Timeout (sec)	600
Web Icon	
Refresh Time (ms)	100
Browser Optimization	true
Enable Global JavaScript for remote	both
Max Bandwidth(Kbs)	0
Web clients connection mode	Auto
WebPageRequest	
Web communication icon delay (ms)	0
Events	
OnWheel Action	

# Project Properties

- Allow access to project settings using by the Properties Pane

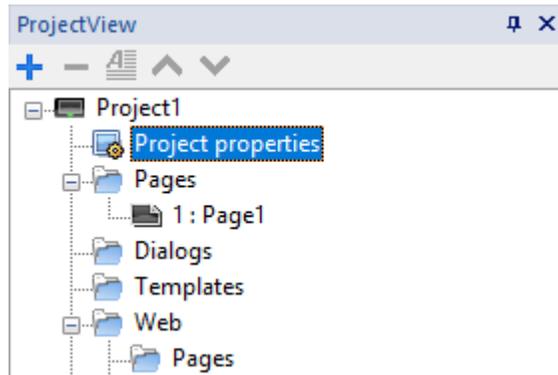


Project Widget : Project1	
Id	Project1
Full Path	C:\Users\nicola.tiano\Desktop\Project
Version	
Runtime	
Context Menu	on delay
Developer Tools	false
Buzzer on touch	false
Buzzer duration (ms)	200
Keyboard	true
JavaScript Debug	false
Allow JavaScript Remote Debugger	false
Image DB Enable	true
FreeType Font Rendering	true
Communication icon delay (ms)	0
Fastboot mode	Default
Plug-in	
WebKit	false
Text Editor	false

Project	
Home Page	Page1.jmx
PageWidth	800
PageHeight	480
Display Mode	Landscape
Project Type	eX707
Panel Memory	2GB
PageRequest	
CurrentPage	
SyncOptions	disable
Hold Time (ms)	2000
Autorepeat Time (ms)	250
Hide Project Loading at boot	false
Target zoom factor	1
Background color option	None
Signature	sha256
Gesture Passthru Enabled	true
Gesture Passthru Delay (ms)	200
Gesture Multitouch	true
On Access Denied	None
ComboBox View Mode	Context
Web	
Web Inactivity Timeout (sec)	600
Web Icon	
Refresh Time (ms)	100
Browser Optimization	true
Enable Global JavaScript for remote	both
Max Bandwidth(Kbs)	0
Web clients connection mode	Auto
WebPageRequest	
Web communication icon delay (ms)	0
Events	
OnWheel Action	

# Project Properties

- Allow access to project settings using by the Properties Pane

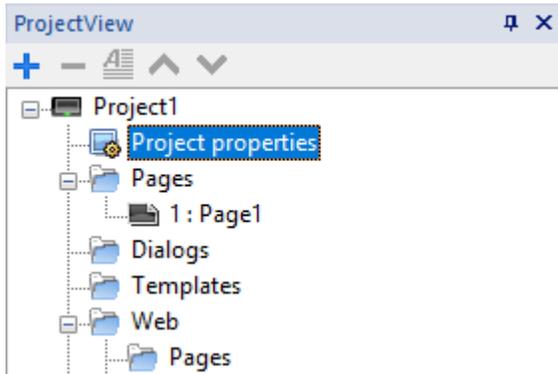


Project Widget : Project1	
Id	Project1
Full Path	C:\Users\nicola.tiano\Desktop\Project
Version	
Runtime	
Context Menu	on delay
Developer Tools	false
Buzzer on touch	false
Buzzer duration (ms)	200
Keyboard	true
JavaScript Debug	false
Allow JavaScript Remote Debugger	false
Image DB Enable	true
FreeType Font Rendering	true
Communication icon delay (ms)	0
Fastboot mode	Default
Plug-in	
WebKit	false
Text Editor	false

Project	
Home Page	Page1.jmx
PageWidth	800
PageHeight	480
Display Mode	Landscape
Project Type	eX707
Panel Memory	2GB
PageRequest	
CurrentPage	
SyncOptions	disable
Hold Time (ms)	2000
Autorepeat Time (ms)	250
Hide Project Loading at boot	false
Target zoom factor	1
Background color option	None
Signature	sha256
Gesture Passthru Enabled	true
Gesture Passthru Delay (ms)	200
Gesture Multitouch	true
On Access Denied	None
ComboBox View Mode	Context
Web	
Web Inactivity Timeout (sec)	600
Web Icon	
Refresh Time (ms)	100
Browser Optimization	true
Enable Global JavaScript for remote	both
Max Bandwidth(Kbs)	0
Web clients connection mode	Auto
WebPageRequest	
Web communication icon delay (ms)	0
Events	
OnWheel Action	

# Project Properties

- Allow access to project settings using by the Properties Pane

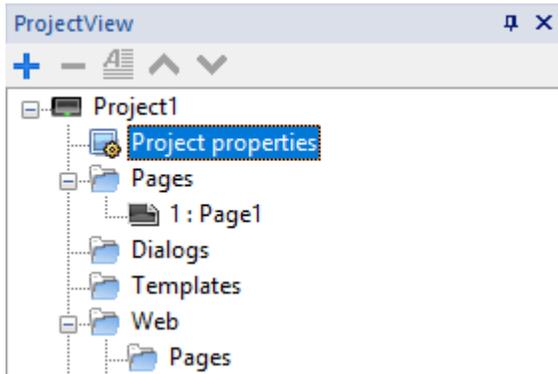


Project Widget : Project1	
Id	Project1
Full Path	C:\Users\nicola.tiano\Desktop\Project
Version	
Runtime	
Context Menu	on delay
Developer Tools	false
Buzzer on touch	false <span>a +</span>
Buzzer duration (ms)	200
Keyboard	true
JavaScript Debug	false
Allow JavaScript Remote Debugger	false
Image DB Enable	true
FreeType Font Rendering	true
Communication icon delay (ms)	0
Fastboot mode	Default
Plug-in	
WebKit	false
Text Editor	false

Project	
Home Page	Page1.jmx <span>+</span>
PageWidth	800
PageHeight	480
Display Mode	Landscape <span>+</span>
Project Type	eX707 <span>+</span>
Panel Memory	2GB <span>+</span>
PageRequest	<span>a +</span>
CurrentPage	<span>a +</span>
SyncOptions	disable
Hold Time (ms)	2000
Autorepeat Time (ms)	250
Hide Project Loading at boot	false
Target zoom factor	1
Background color option	None
Signature	sha256
Gesture Passthru Enabled	true
Gesture Passthru Delay (ms)	200
Gesture Multitouch	true
On Access Denied	None
ComboBox View Mode	Context
Web	
Web Inactivity Timeout (sec)	600
Web Icon	
Refresh Time (ms)	100
Browser Optimization	true
Enable Global JavaScript for remote	both
Max Bandwidth(Kbs)	0
Web clients connection mode	Auto
WebPageRequest	<span>a +</span>
Web communication icon delay (ms)	0
Events	
OnWheel Action	<span>+</span>

# Project Properties

- Allow access to project settings using by the Properties Pane

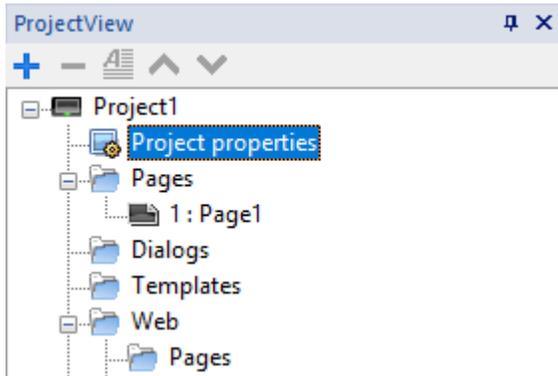


Project Widget : Project1	
Id	Project1
Full Path	C:\Users\nicola.tiano\Desktop\Project
Version	
Runtime	
Context Menu	on delay
Developer Tools	false
Buzzer on touch	false
Buzzer duration (ms)	200
Keyboard	true
JavaScript Debug	false
Allow JavaScript Remote Debugger	false
Image DB Enable	true
FreeType Font Rendering	true
Communication icon delay (ms)	0
Fastboot mode	Default
Plug-in	
WebKit	false
Text Editor	false

Project	
Home Page	Page1.jmx
PageWidth	800
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Display Mode	Landscape
Project Type	eX707
Panel Memory	2GB
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CurrentPage	
SyncOptions	disable
Hold Time (ms)	2000
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Gesture Passthru Enabled	true
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Gesture Multitouch	true
On Access Denied	None
ComboBox View Mode	Context
Web	
Web Inactivity Timeout (sec)	600
Web Icon	
Refresh Time (ms)	100
Browser Optimization	true
Enable Global JavaScript for remote	both
Max Bandwidth(Kbs)	0
Web clients connection mode	Auto
WebPageRequest	
Web communication icon delay (ms)	0
Events	
OnWheel Action	

# Project Properties

- Allow access to project settings using by the Properties Pane

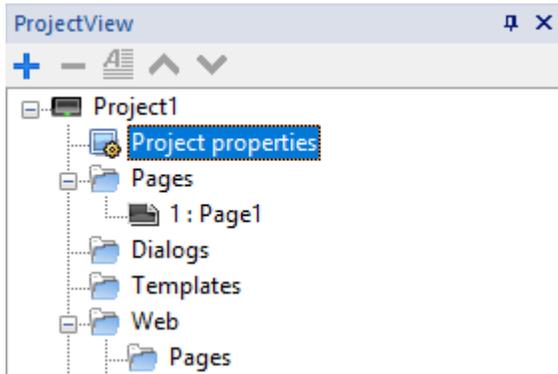


Project Widget : Project1	
Id	Project1
Full Path	C:\Users\nicola.tiano\Desktop\Project
Version	
Runtime	
Context Menu	on delay
Developer Tools	false
Buzzer on touch	false
Buzzer duration (ms)	200
Keyboard	true
JavaScript Debug	false
Allow JavaScript Remote Debugger	false
Image DB Enable	true
FreeType Font Rendering	true
Communication icon delay (ms)	0
Fastboot mode	Default
Plug-in	
WebKit	false
Text Editor	false

Project	
Home Page	Page1.jmx
PageWidth	800
PageHeight	480
Display Mode	Landscape
Project Type	eX707
Panel Memory	2GB
PageRequest	
CurrentPage	
SyncOptions	disable
Hold Time (ms)	2000
Autorepeat Time (ms)	250
Hide Project Loading at boot	false
Target zoom factor	1
Background color option	None
Signature	sha256
Gesture Passthru Enabled	true
Gesture Passthru Delay (ms)	200
Gesture Multitouch	true
On Access Denied	None
ComboBox View Mode	Context
Web	
Web Inactivity Timeout (sec)	600
Web Icon	
Refresh Time (ms)	100
Browser Optimization	true
Enable Global JavaScript for remote	both
Max Bandwidth(Kbs)	0
Web clients connection mode	Auto
WebPageRequest	
Web communication icon delay (ms)	0
Events	
OnWheel Action	

# Project Properties

- Allow access to project settings using by the Properties Pane

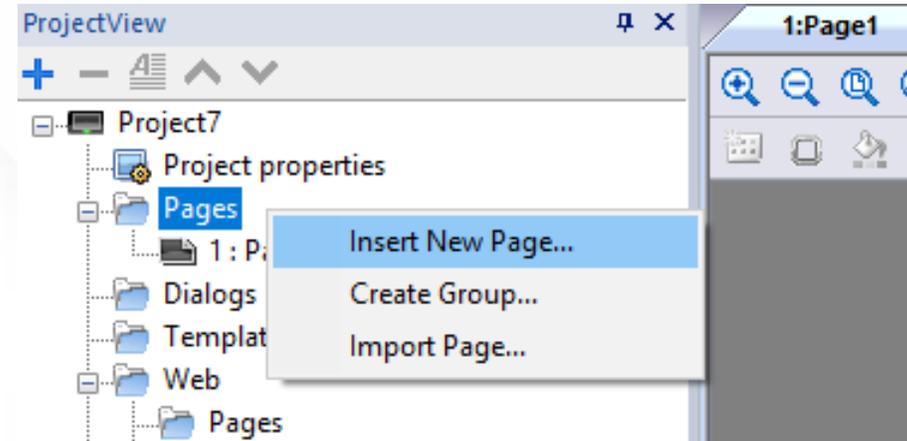


Project Widget : Project1	
Id	Project1
Full Path	C:\Users\nicola.tiano\Desktop\Project
Version	
Runtime	
Context Menu	on delay
Developer Tools	false
Buzzer on touch	false <span>a +</span>
Buzzer duration (ms)	200
Keyboard	true
JavaScript Debug	false
Allow JavaScript Remote Debugger	false
Image DB Enable	true
FreeType Font Rendering	true
Communication icon delay (ms)	0
Fastboot mode	Default
Plug-in	
WebKit	false
Text Editor	false

Project	
Home Page	Page1.jmx <span>+</span>
PageWidth	800
PageHeight	480
Display Mode	Landscape <span>+</span>
Project Type	eX707 <span>+</span>
Panel Memory	2GB <span>+</span>
PageRequest	<span>a +</span>
CurrentPage	<span>a +</span>
SyncOptions	disable
Hold Time (ms)	2000
Autorepeat Time (ms)	250
Hide Project Loading at boot	false
Target zoom factor	1
Background color option	None
Signature	sha256
Gesture Passthru Enabled	true
Gesture Passthru Delay (ms)	200
Gesture Multitouch	true
On Access Denied	None
ComboBox View Mode	Context
Web	
Web Inactivity Timeout (sec)	600
Web Icon	
Refresh Time (ms)	100
Browser Optimization	true
Enable Global JavaScript for remote	both
Max Bandwidth(Kbs)	0
Web clients connection mode	Auto
WebPageRequest	<span>a +</span>
Web communication icon delay (ms)	0
Events	
OnWheel Action	<span>+</span>

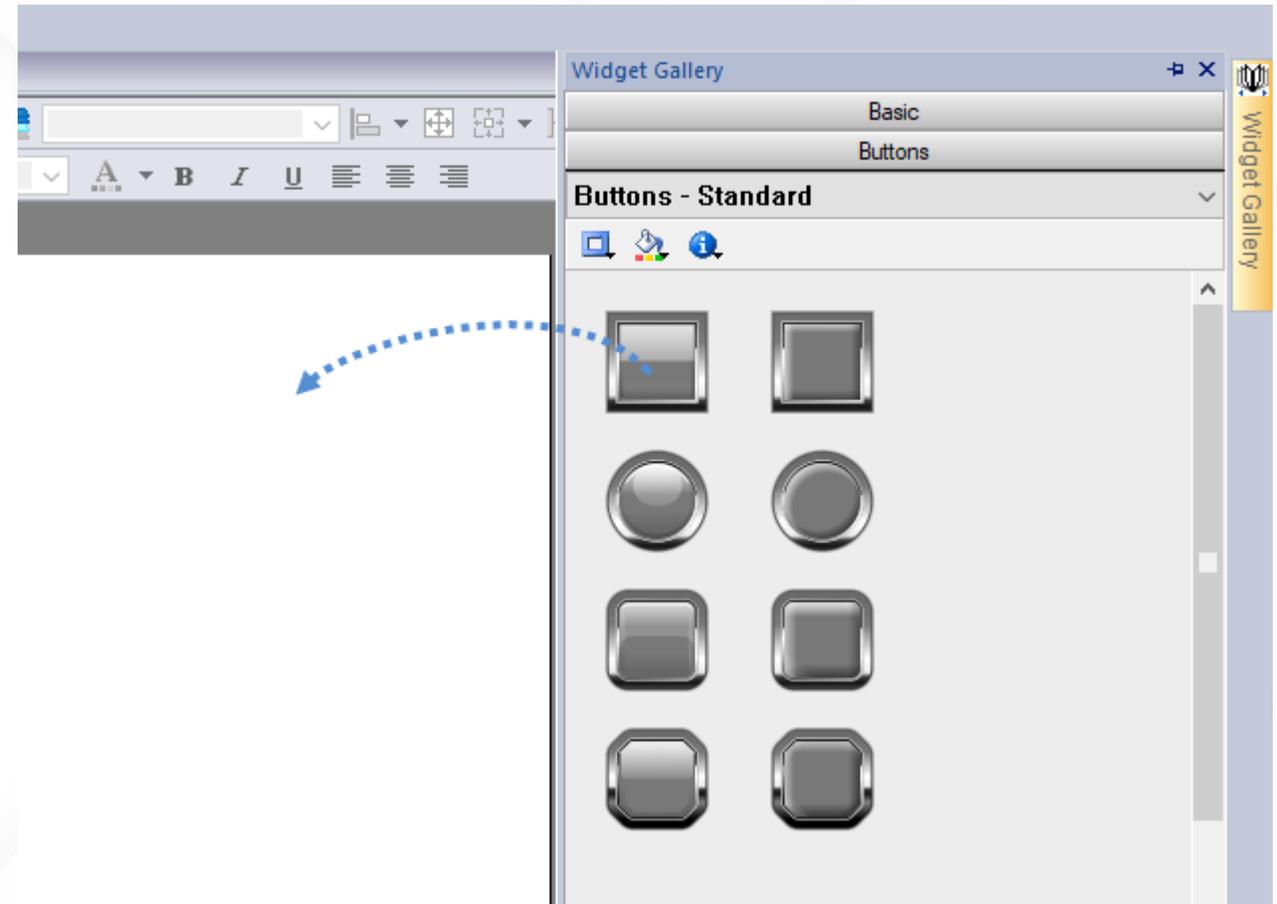
## Create Pages

- Right click on Pages folder and Insert New Page
- Possibility to organize in Groups as copy of pages in folders
- Import pages from existing project
  - Choose to keep datalinks



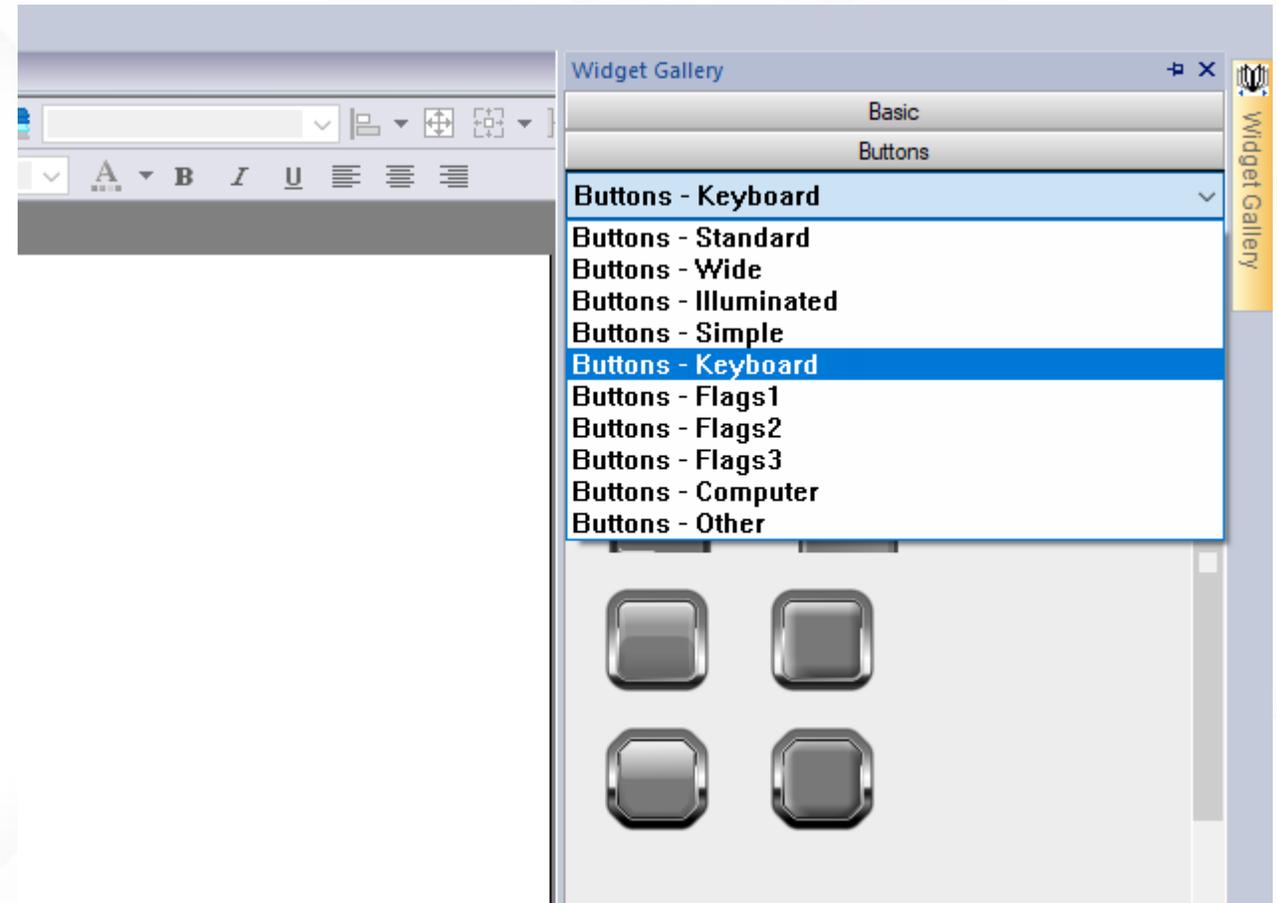
## Widget Gallery

- Drag and drop widgets in page
- Divided by category
  - and sub-categories



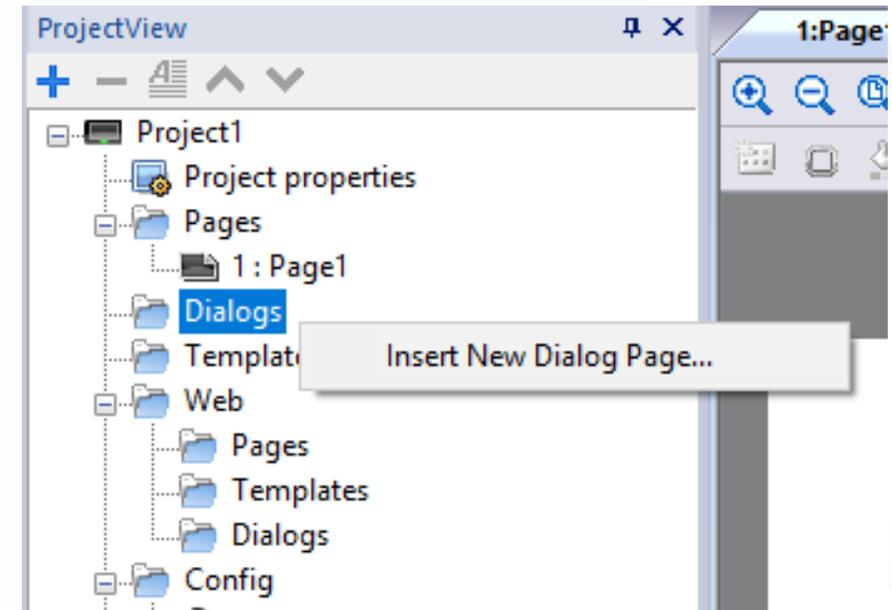
## Widget Gallery

- Drag and drop widgets in page
- Divided by category
  - and sub-categories



## Using Dialog pages

- Dialog pages are pop-up windows opened at runtime on top of the current page
- Dialog type can be:
  - Modal: the focus is only on dialog,
  - Non-Modal: user can continue to use main project window or other non-modal dialogs.
- Runtime position can be customized by default it's showed in the center
- Up to 5 dialog pages can be opened at the same time



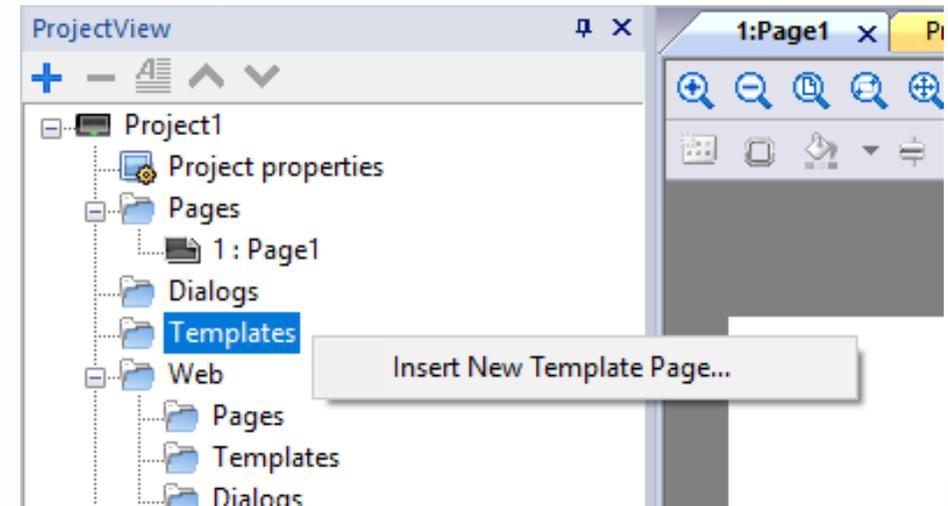
## Using Dialog pages

- Dialog pages are pop-up windows opened at runtime on top of the current page
- Dialog type can be:
  - Modal: the focus is only on dialog,
  - Non-Modal: user can continue to use main project window or other non-modal dialogs.
- Runtime position can be customized by default it's showed in the center
- Up to 5 dialog pages can be opened at the same time

Dialog : Page2	
Id	Page2
DialogType	<b>modal</b>
Width	<b>350</b>
Height	<b>300</b>
Background Color	<input type="text" value="[255, 255, 255]"/> a +
JavaScript Debug	<b>false</b>
Title Bar	<b>true</b>
Title Name	<b>Page2</b>
Runtime Position	
Runtime Positioning	<b>false</b>
X	<b>0</b> a +
Y	<b>0</b> a +
Events	
OnActivate Action	+
OnDeactivate Action	+

## Using Template pages

- Constant elements for pages like Header and Footer
- Several templates can be defined
- Different pages can have different templates



## Using Template pages

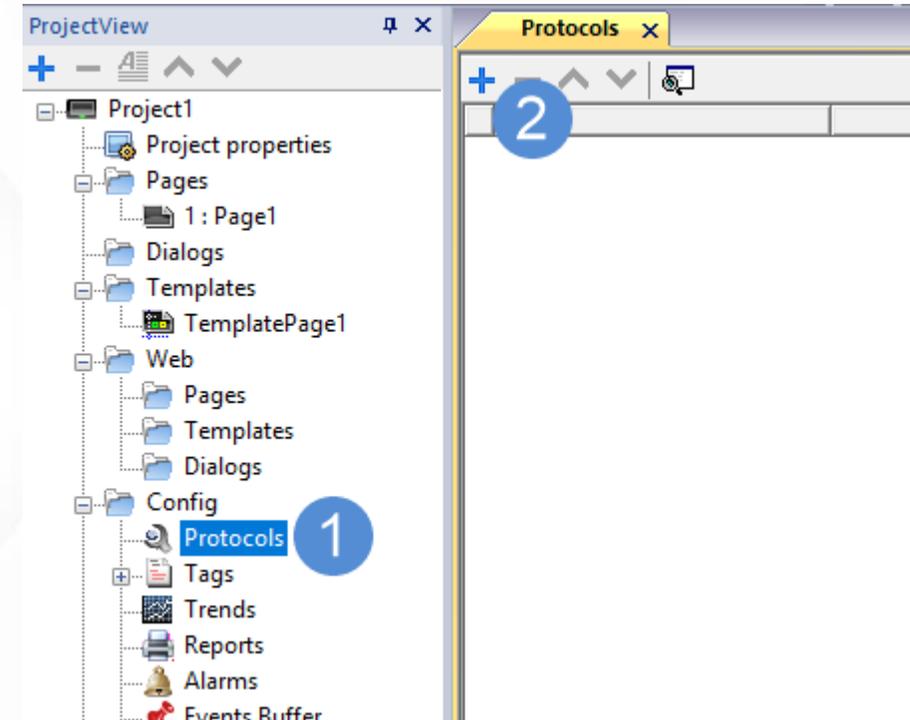
- Constant elements for pages like Header and Footer
- Several templates can be defined
- Different pages can have different templates

Page : Page1	
Id	Page1
Width	<b>800</b>
Height	<b>480</b>
Background	<input type="checkbox"/> [255, 255, 255] a +
Template	none <input type="button" value="v"/>
Static Optimization	none
Static File Type	png
JavaScript Debug	<b>false</b>
Keyboard	<b>true</b>
Precache	<b>false</b>
Events	
OnActivate Action	<input type="button" value="+"/>
OnDeactivate Action	<input type="button" value="+"/>
OnWheel Action	<input type="button" value="+"/>

# Protocols

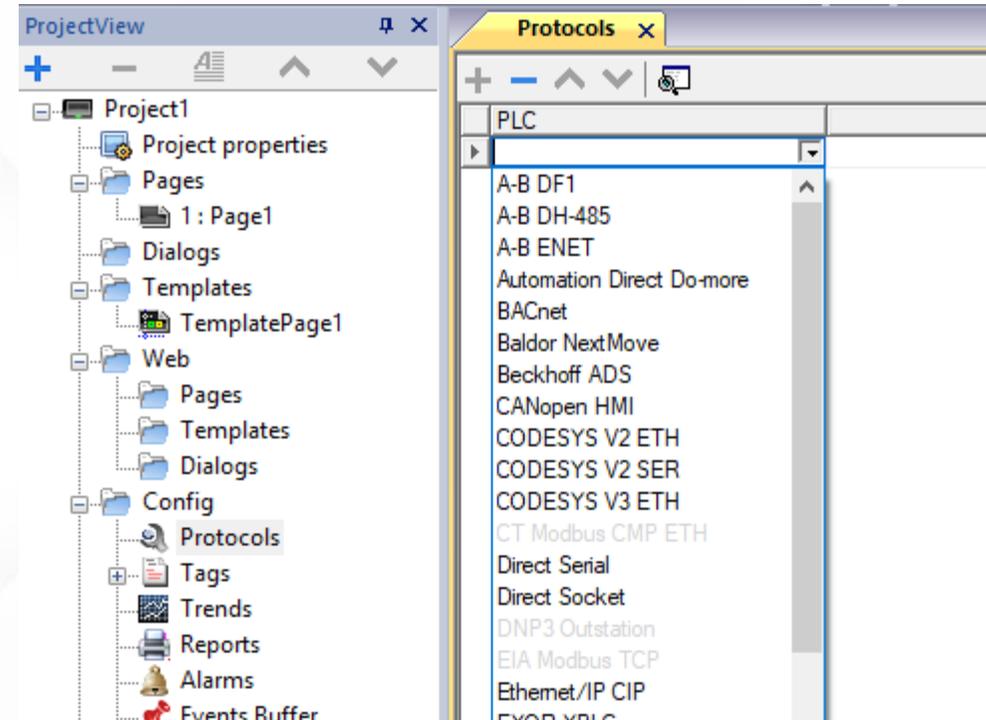
## Configuring protocol

- Open Protocol editor from ProjectView
- Add a communication driver:
  - Click [+]
  - Select from the list
  - Configure the driver
- Support up to
  - 4 protocols for single core CPU HMIs
  - 8 protocols for multicore CPU HMIs
- Virtual protocols are not counted
  - Variables
  - System Variables



## Configuring protocol

- Open Protocol editor from ProjectView
- Add a communication driver:
  - Click [+]
  - Select from the list
  - Configure the driver
- Support up to
  - 4 protocols for single core CPU HMIs
  - 8 protocols for multicore CPU HMIs
- Virtual protocols are not counted
  - Variables
  - System Variables

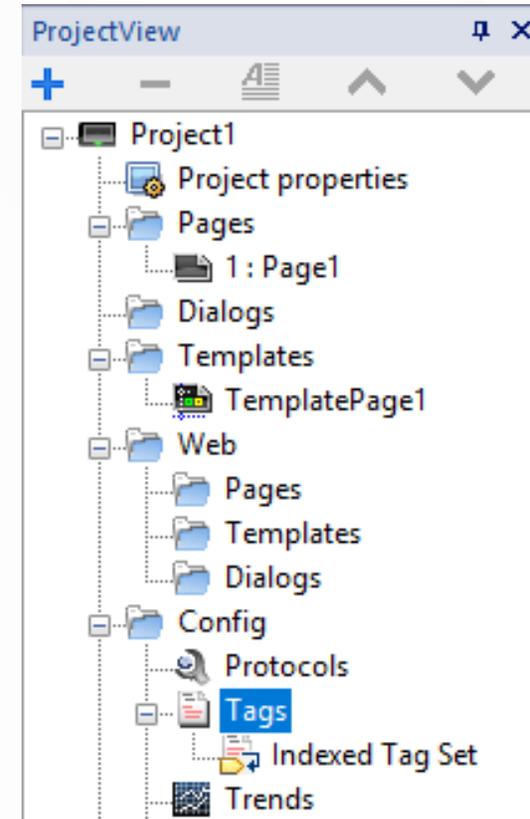


# Tags and Indexed Tag Sets

# Configuring Tags

- Open the Tag editor from ProjectView

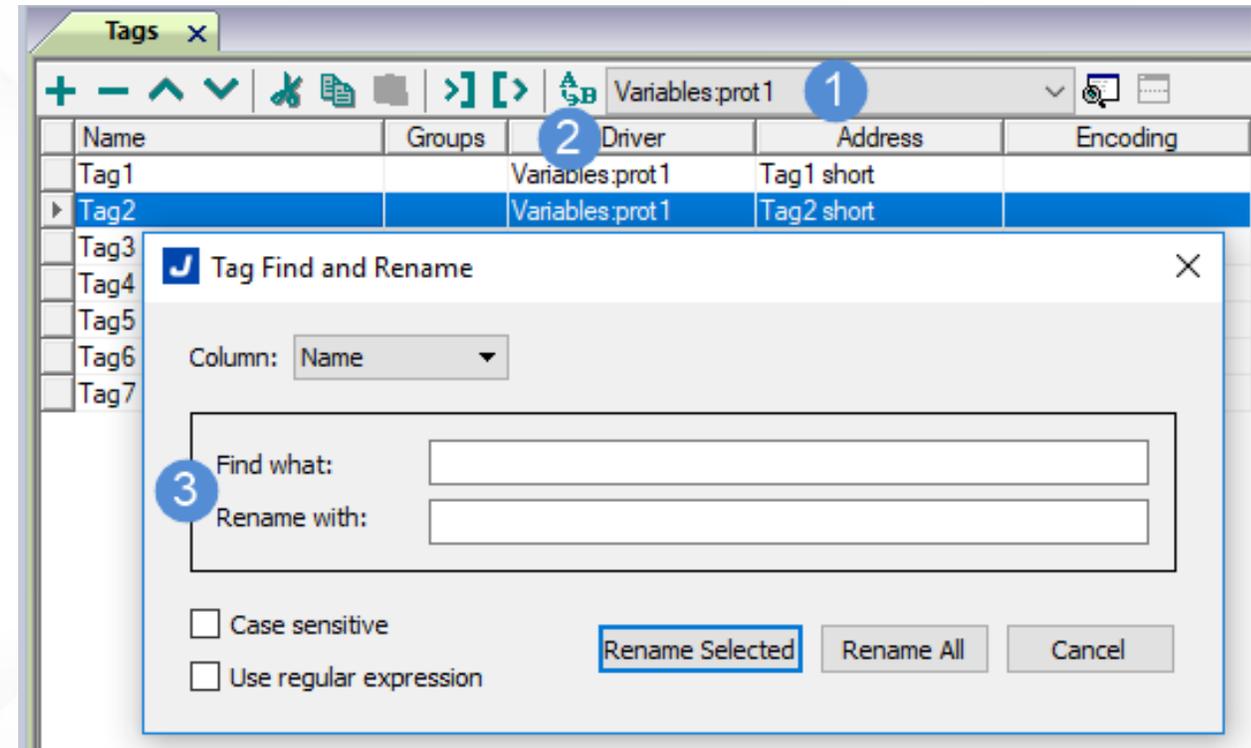
- + • Manually add Tags
  - defining: Name, Address, Encoding, Comment, Scaling
- >] • Import Tags
  - from PLC project tag exported file
- [> • Export Tags
  - export current tag database in xml format allowing to edit with excel and import back using the "Generic importer"



Tags									
Name	Groups	Driver	Address	Encoding	Comment	Simulator	Scaling		
Tag1		Modbus TCP:prot 1	192.168.12.12:502:1 HREG 400001 unsignedShort			Variables	None		

## Tag Find and Rename

- Rename many Tags at same time
  1. Select protocol
  2. Click on Find and Rename icon
  3. Choose what to find and rename
- Change common properties with one click
  - Using Column filter



# Tag data types in JMobile

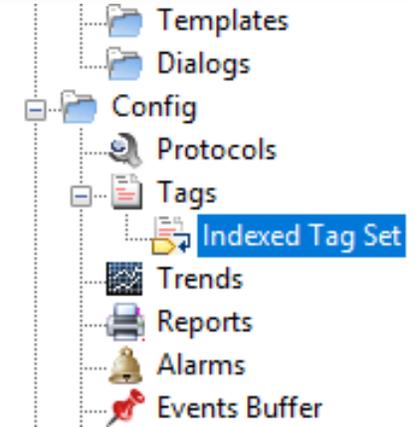
“Short” is 16-bit data  
corresponds to  
“INT” in IEC 61131 

JMobile Data Type	Limits			Memory Space
Boolean	0	...	1	1 bit data
Byte	-128	...	127	8-bit data
UnsignedByte	0	...	255	8-bit data
Short	-32768	...	32767	16-bit data
UnsignedShort	0	...	65535	16-bit data
Int	-2.1e9	...	2.1e9	32-bit data
UnsignedInt	0	...	4.2e9	32-bit data
Int64 *	-9.2e18	...	9.2e18	64-bit data
UnsignedInt64 *	0	...	1.8e19	64-bit data
Float	1.17e-38	...	3.40e38	corresponds to IEEE 754 single-precision 32-bit floating point type
Double	2.2e-308	...	1.79e308	corresponds to IEEE 754 double-precision 64-bit floating point type

\* Availability depends on specific protocol

# Indexed Tag Sets

- Allow to dynamically attach a tag using an alias
- Useful to duplicate same object but with different tags attached
- Example: we have three engines, each one have
  - rpm
  - oil



Name	Groups	Driver	Address
engine_index		Variables:prot 1	engine_index unsignedByte
engine1_rpm		Variables:prot 1	engine1_rpm unsignedShort
engine1_oil		Variables:prot 1	engine1_oil unsignedShort
engine2_rpm		Variables:prot 1	engine2_rpm unsignedShort
engine2_oil		Variables:prot 1	engine2_oil unsignedShort
engine3_rpm		Variables:prot 1	engine3_rpm unsignedShort
engine3_oil		Variables:prot 1	engine3_oil unsignedShort
dialog_opened		Variables:prot 1	dialog_opened boolean



rpm	oil
999	999

# Indexed Tag Sets

- Defining an Indexed Tag Set called "engine", driven by tag "engine\_index", allow me to "attach" the Alias "oil" or "rpm" instead of real tag
- Use one "engine widget" instead of three

Indexed Tag Set

Index Tag

Filter by:

Index Instance:  
 Alias:

	Index	rpm	oil
1	1	engine1_rpm	engine1_oil
2	2	engine2_rpm	engine2_oil
3	3	engine3_rpm	engine3_oil

field7.value

Source:  Tag  Alias  System  Widget  Recipe

- engine
  - oil
  - rpm

# Trends and Data logging

## Trends

- Configuring "Trend buffers"
  - Tags selection
  - Sampling conditions
    - Time or Trigger
  - Sampling filter
    - Mechanism to save space in memory
- Configuring "Trend widgets"
  - History trends
    - Connected to trend buffer
  - Real time trends
    - No data storing, connected to tag



# Trend Buffers

- Open the trend editor and add a trend
- Configure buffer options
  - Tags to be sampled
    - Up to 200 at same time
  - Sampling Time (s)
    - can be attached to a tag
  - Number of Samples
  - Storage Device
  - Trigger
    - Blank: disabled
    - Tag: allows to sample "on event"
  - Sampling Filter

The screenshot shows the 'Trends' editor window with the following configuration for 'Trend1':

- Buttons:** Add trend, Add PLC trend, Delete trend
- Total memory Space:** 3.3%
- Trend1:** Active, Source: engine1\_oil
- Sampling time(s):** 60
- Number of Samples:** 40000
- Storage Device:** Local (selected), USB, SD, Preferred
- Path:** Data/
- Trigger:** None, Use source timestamp (unchecked)
- Sampling Filter:**
  - Current Sample value - Previous Sample value <: 0.00
  - Current Sample value - Previous Sample value >: 0.00
- Backup Archive:**
  - Save a copy when full (unchecked)
  - .csv Time spec: Local
  - Local (selected), USB, SD, Preferred
  - Path: Data/%n/%y%M%d/%h%m%s

	Name	Tag	Comment
1	Name1	engine1_oil	

# Trend Buffers

- Automatically save a CSV file containing trend data, when trend buffer gets full
  - Save in external memory (USB or SD)
  - Specify time settings
  - Specify destination path
  - Minimum 300 samples

Total memory Space: 3.3%

Trend1  Active Source: engine1\_oil

Sampling time(s): 60 Number of Samples: 40000

Trigger: None  Use source timestamp

Sampling Filter:
   
 Current Sample value - Previous Sample value < - 0.00
   
 Current Sample value - Previous Sample value > 0.00

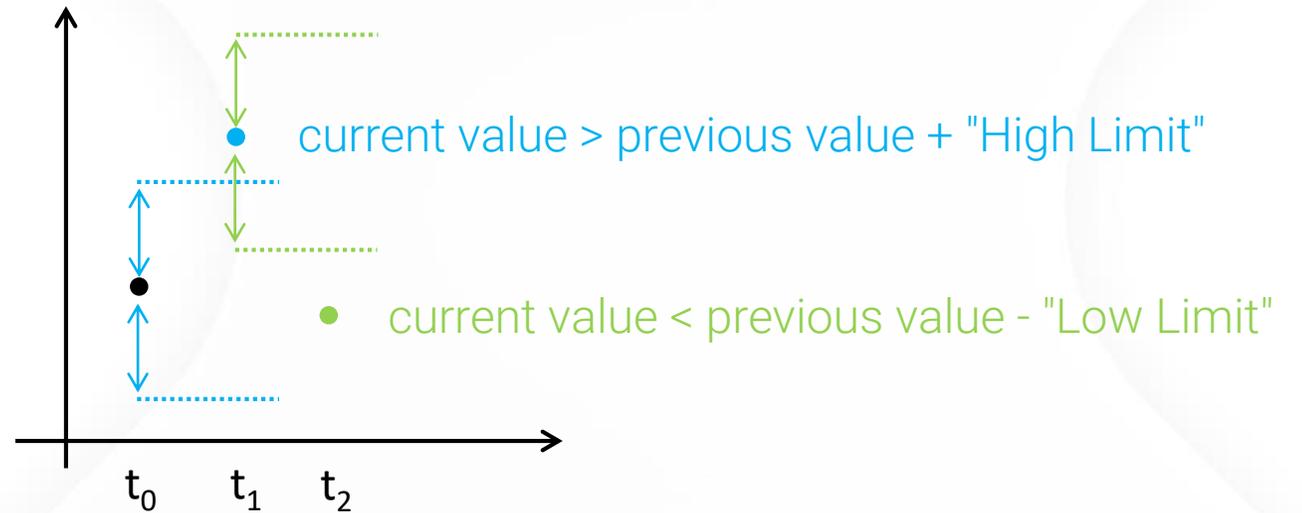
Storage Device:
   
 Local  USB  SD  Preferred
   
 Path: Data/

Backup Archive:
   
 Save a copy when full  .csv Time spec: Local
   
 Local  USB  SD  Preferred
   
 Path: USBMemory/%n/%y%M%d/%h%m%s

	Name	Tag	Comment
1	Name1	engine1_oil	

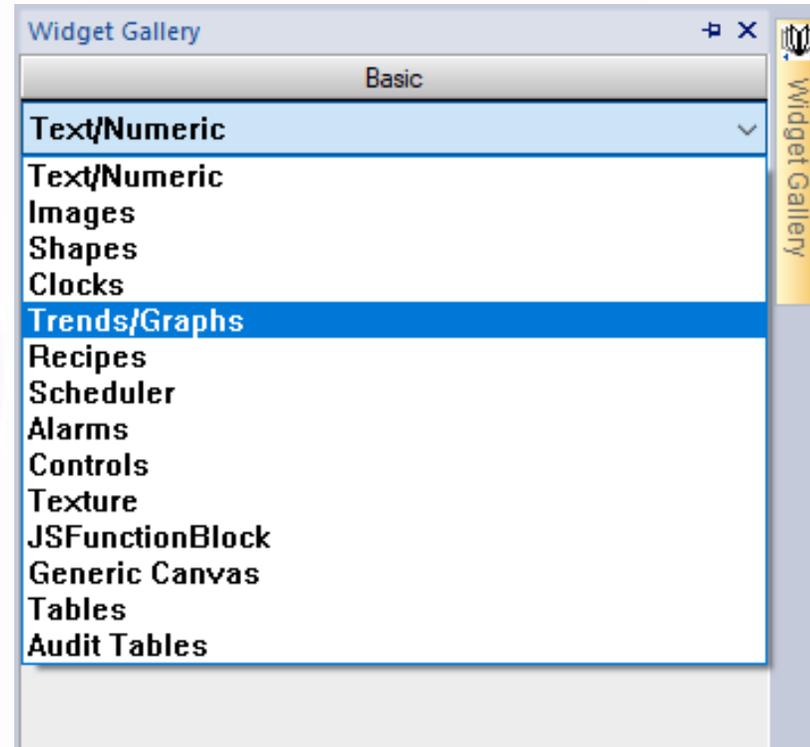
# Trend Buffer Sampling Filter

- Sampling Filter (Low and High Limits)
  - The sample is stored if
    - Current value – Previous value < "Low Limit"
    - Current value – Previous value > "High Limit"
  
- If trigger is enabled
  - Limits will be applied on Trigger



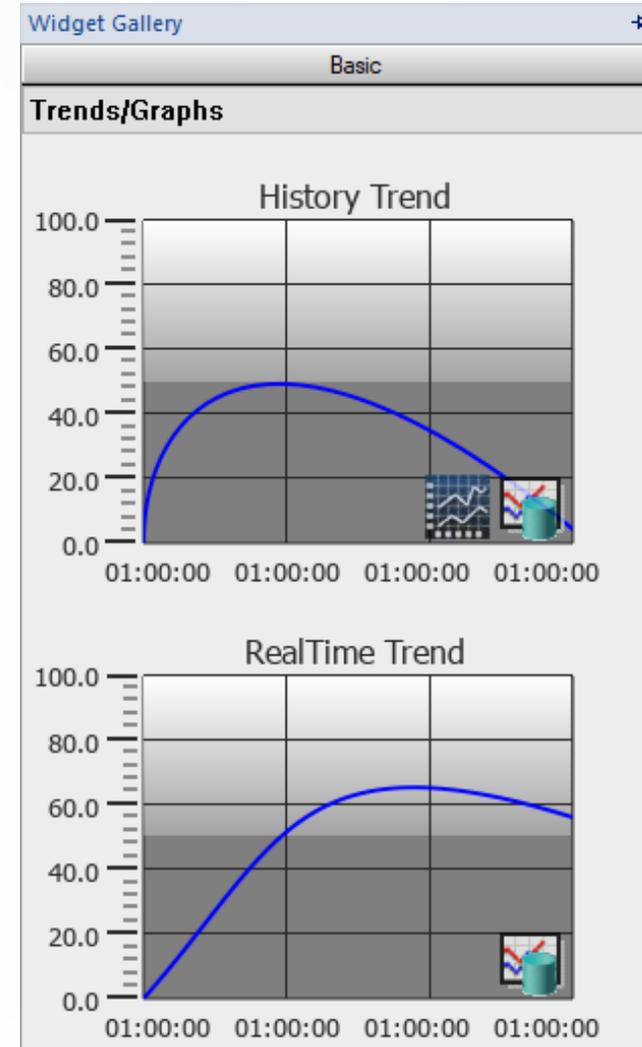
## Trend Widgets

- Basic category > Trends/Graphs
  - History Trend > attach curve to Trend buffer
  - RealTime Trend > attach curve to a Tag
- Trend widgets support gestures
  - pan to move (for all series)
  - pinch to zoom (only for multitouch series)



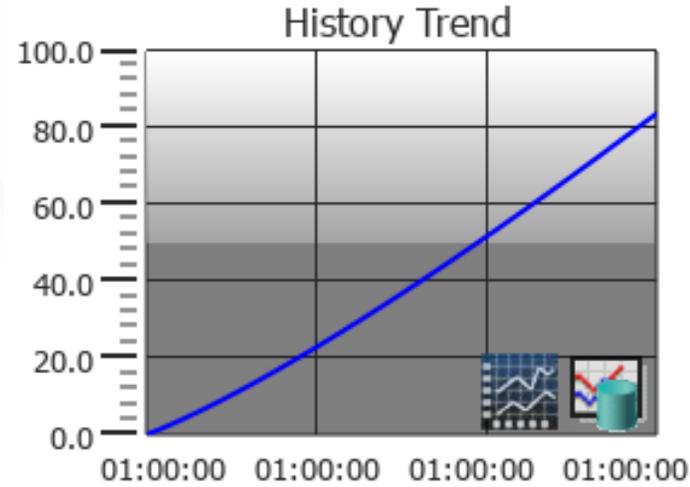
# Trend Widgets

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  - History Trend > attach curve to Trend buffer
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  - pan to move (for all series)
  - pinch to zoom (only for multitouch series)



# Trend Widgets

- Basic category > Trends/Graphs
  - History Trend > attach curve to Trend buffer
  - RealTime Trend > attach curve to a Tag
- Trend widgets support gestures
  - pan to move (for all series)
  - pinch to zoom (only for multitouch series)



This is a configuration panel for "Curve 1". It contains several rows of settings:
 

- Curve 1 Trend**: A blue header row with a small "a +" icon to its right.
- Visible**: Set to **true**.
- Request Samples**: Set to **10**.
- MinY**: Set to **0**.

 A context menu is open over the "Curve 1 Trend" row, showing two options: "Select trend" and "Attach To...".

This is a configuration panel for "HistoricTrend.buffer1.Value".
 

- Source:** Radio buttons for Tag, Alias, System, **Widget** (selected), and Recipe.
- Search:** A search bar with a magnifying glass icon.
- Name:** A tree view showing the widget's structure:
  - HistoricTrend.trend
    - Trend1
      - Name.1** (highlighted)
    - Page Duration
    - Position

## Trend Table Widgets

- Basic category > Trends/Graphs
  - Trend Table > attach curve to Trend buffer
  - Based on Table widget
  - View samples in numeric format

**Trend Table**

From: 08/02/18 - 10:06:48      Duration: 10 Mins      Refresh

To: 08/02/18 - 10:06:48

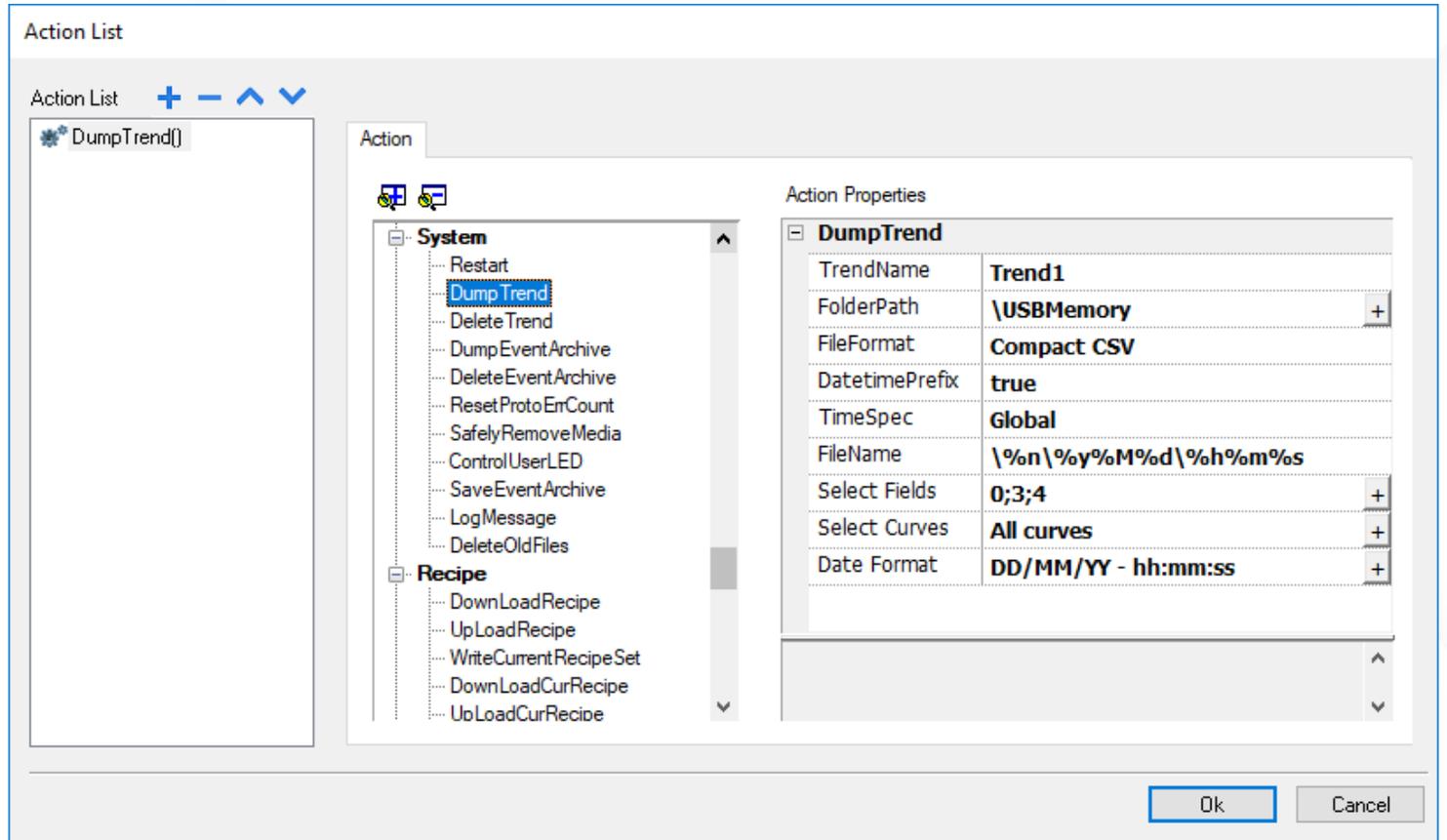
Timestamp	Name1	Name2	Name3	Name4	Name5
Data	99999	99999	99999	99999	99999



Backward      Forward

# Exporting Trend Buffer

- DumpTrend action
  - FolderPath: destination of saved file
    - External device (USB or SD Card)
    - Local memory (Flash)
    - Remote Shared Folder
  - FileFormat: preset formats
    - Binary
    - Compatibility CSV (to be compatible with older versions)
    - Compact CSV
  - DatetimePrefix: append date time to file name
  - TimeSpec: choose time of samples
  - FileName: compose specific file name
  - Select Fields: choose columns to be exported
  - Select Curves: choose data to be exported
  - Date Format: choose way to display date/time



# Exporting Trend Buffer

- Compatibility CSV and Compact CSV

CSV as per previous JMobile versions

Compatibility CSV

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
<b>1</b>	Type	Value	Time Stamp	Refresh Time	Quality	Type	Value	Quality									
2	6	5	2015-09-26T08:59:25.000Z	1000	192	6	1	192	6	100	192	6	0	192	6	2	192
3	6	15	2015-09-26T08:59:26.000Z	1000	192	6	5	192	6	100	192	6	2	192	6	7	192
4	6	26	2015-09-26T08:59:27.000Z	1000	192	6	8	192	6	100	192	6	4	192	6	13	192
5	6	36	2015-09-26T08:59:28.000Z	1000	192	6	11	192	6	100	192	6	5	192	6	18	192
6	6	45	2015-09-26T08:59:29.000Z	1000	192	6	15	192	6	100	192	6	7	192	6	22	192
7	6	54	2015-09-26T08:59:30.000Z	1000	192	6	18	192	6	100	192	6	9	192	6	27	192
8	6	63	2015-09-26T08:59:31.000Z	1000	192	6	21	192	6	100	192	6	10	192	6	31	192
9	6	70	2015-09-26T08:59:32.000Z	1000	192	6	25	192	6	100	192	6	12	192	6	35	192
10	6	77	2015-09-26T08:59:33.000Z	1000	192	6	28	192	6	100	192	6	14	192	6	38	192
11	6	84	2015-09-26T08:59:34.000Z	1000	192	6	31	192	6	100	192	6	15	192	6	42	192
12	6	89	2015-09-26T08:59:35.000Z	1000	192	6	35	192	6	100	192	6	17	192	6	44	192
13	6	93	2015-09-26T08:59:36.000Z	1000	192	6	38	192	6	100	192	6	19	192	6	46	192
14	6	96	2015-09-26T08:59:37.000Z	1000	192	6	41	192	6	100	192	6	20	192	6	48	192
15	6	98	2015-09-26T08:59:38.000Z	1000	192	6	45	192	6	100	192	6	22	192	6	49	192

# Exporting Trend Buffer

- Compatibility CSV and Compact CSV

Compact CSV

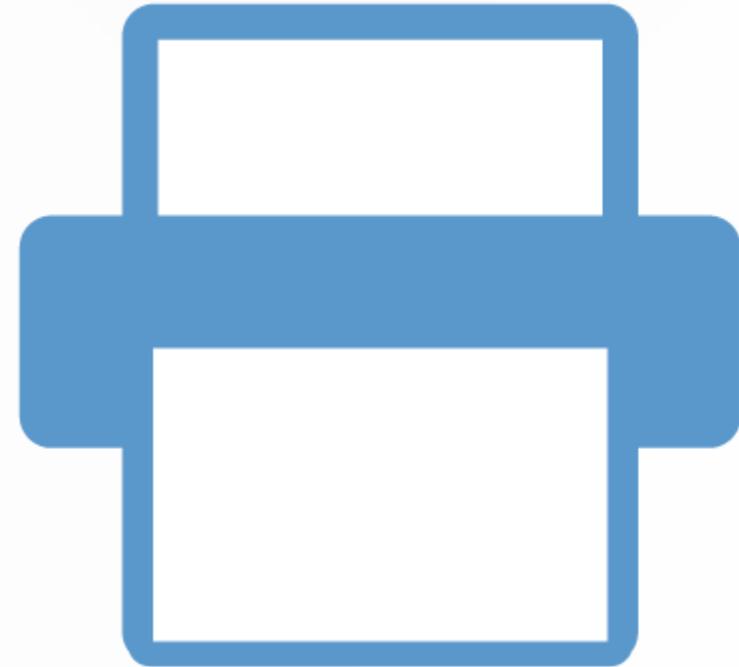
	A	B	C	D	E	F	G	H	I	J	K
1	Timestamp	Name1	6	Name2	6	Name3	6	Name4	6	Name5	6
2		Value	Quality								
3	2015-09-26T08:59:25.000Z	5	192	1	192	100	192	0	192	2	192
4	2015-09-26T08:59:26.000Z	15	192	5	192	100	192	2	192	7	192
5	2015-09-26T08:59:27.000Z	26	192	8	192	100	192	4	192	13	192
6	2015-09-26T08:59:28.000Z	36	192	11	192	100	192	5	192	18	192
7	2015-09-26T08:59:29.000Z	45	192	15	192	100	192	7	192	22	192
8	2015-09-26T08:59:30.000Z	54	192	18	192	100	192	9	192	27	192
9	2015-09-26T08:59:31.000Z	63	192	21	192	100	192	10	192	31	192
10	2015-09-26T08:59:32.000Z	70	192	25	192	100	192	12	192	35	192
11	2015-09-26T08:59:33.000Z	77	192	28	192	100	192	14	192	38	192
12	2015-09-26T08:59:34.000Z	84	192	31	192	100	192	15	192	42	192
13	2015-09-26T08:59:35.000Z	89	192	35	192	100	192	17	192	44	192
14	2015-09-26T08:59:36.000Z	93	192	38	192	100	192	19	192	46	192
15	2015-09-26T08:59:37.000Z	96	192	41	192	100	192	20	192	48	192
16	2015-09-26T08:59:38.000Z	98	192	45	192	100	192	22	192	49	192

# Reports

## Reports

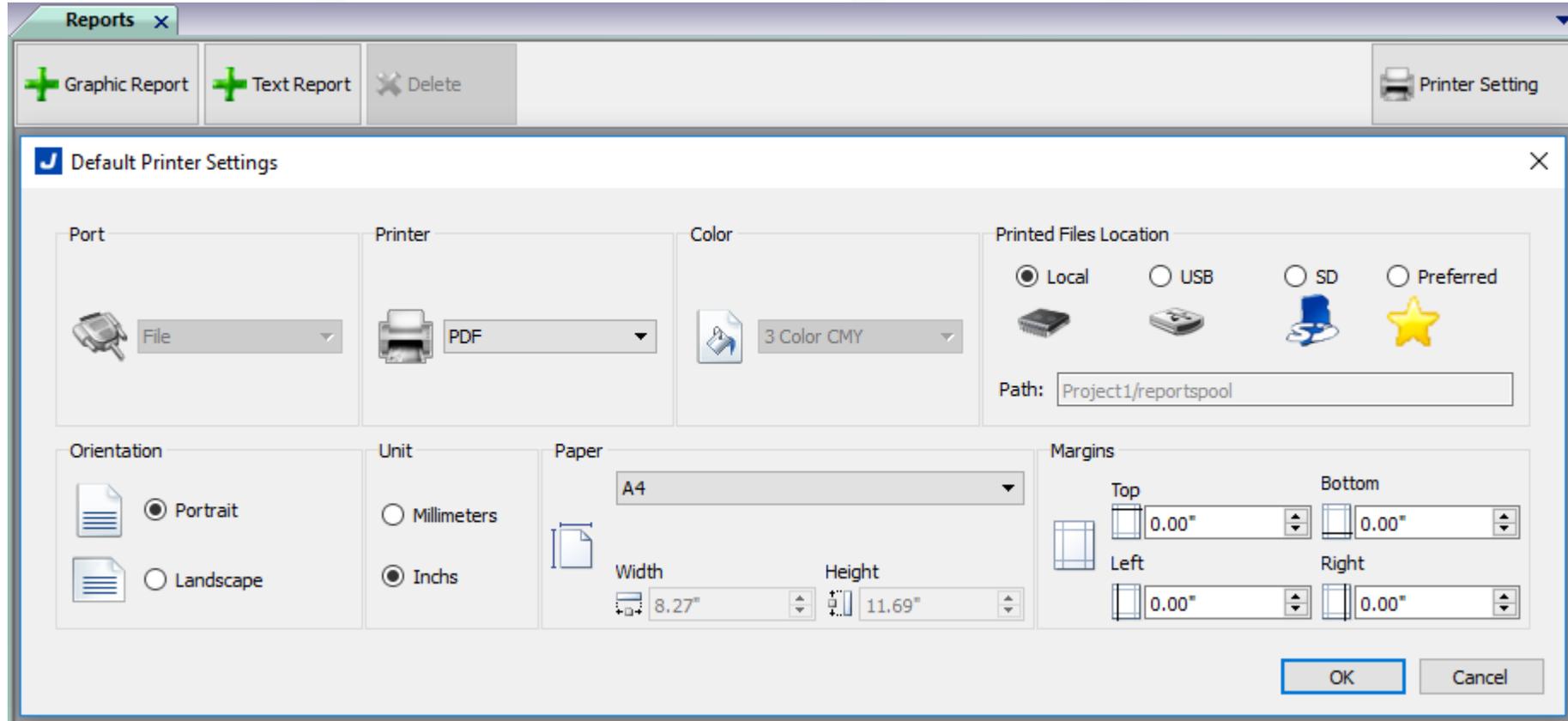
- Allow printing Reports and Alarms
- Supports USB printers \*
- Supports printing to PDF files
- Report printing with report layout editor
- Printing of Alarms on triggering continuous printing \*
- Print screen image

\* Available for WCE HMIs only



# Reports

- Reports can be defined as two types:
  - **Graphic Report** including images and screenshot
  - **Text Report** real time printing of alarm events \*

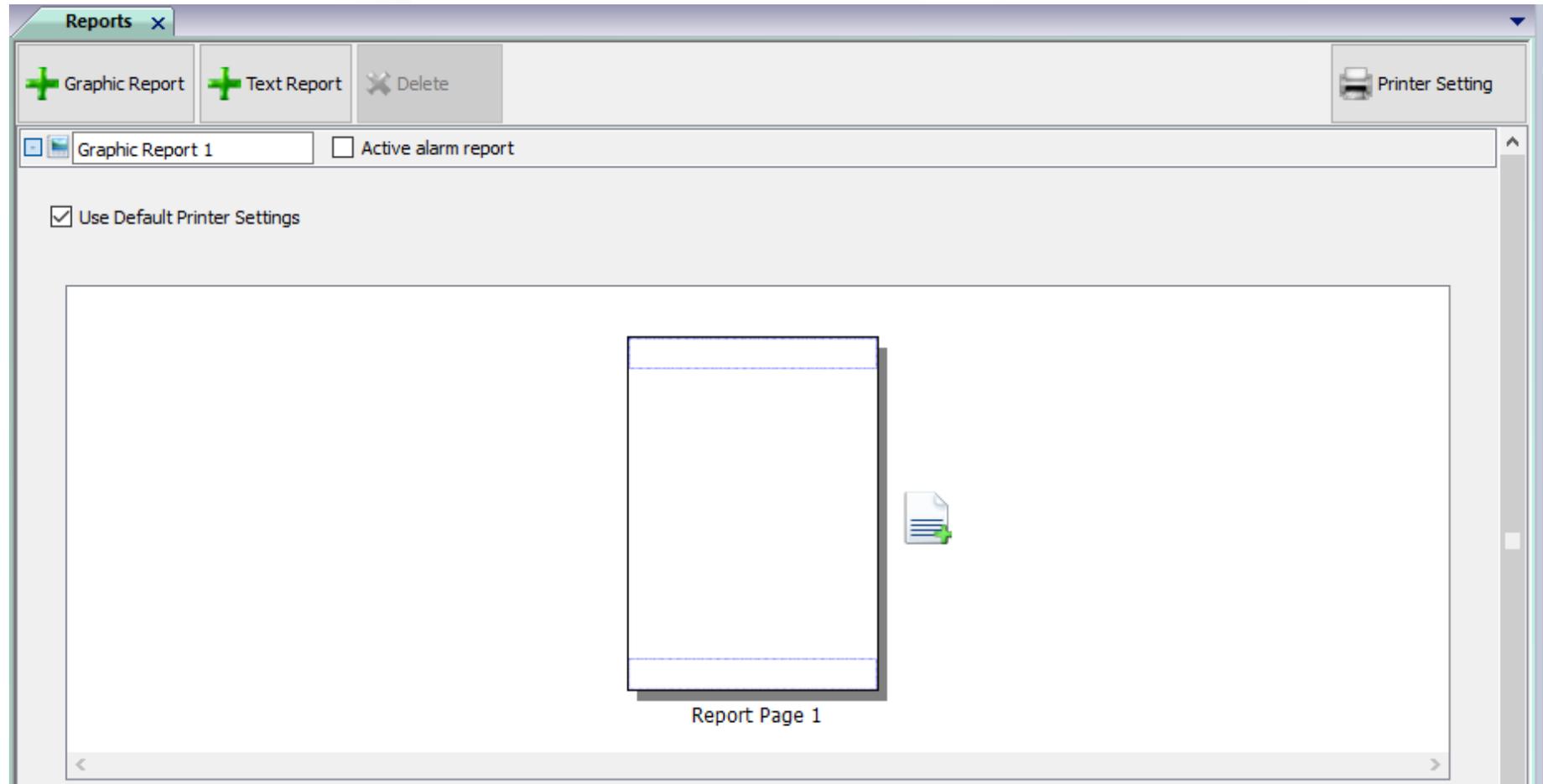


\* Available for WCE HMIs only



# Graphic Reports

- Graphic Reports can include:
  - Screenshot of current page shown on HMI
  - Images, labels and numeric fields
  - Alarm widget



# Text Reports

- Is configured by default as an “Active alarm report”
- Alarm Report cannot be printed in PDF format

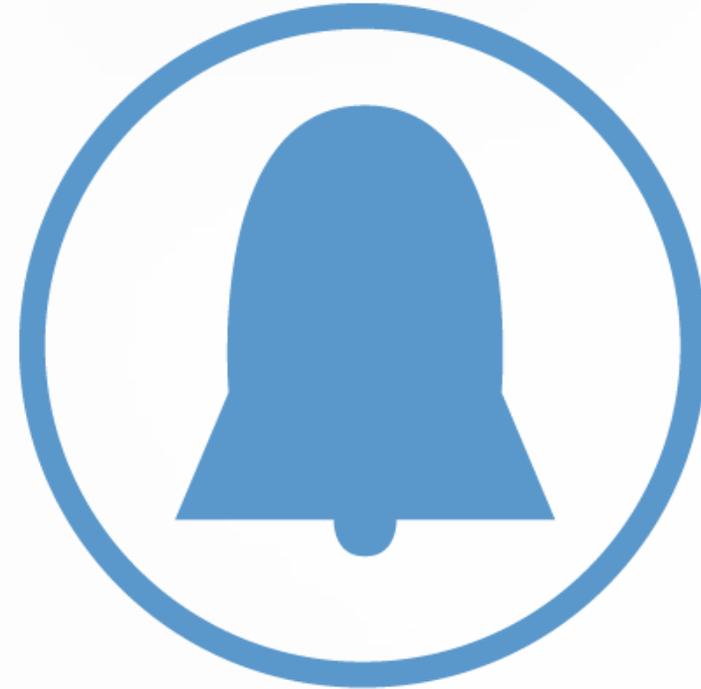
The screenshot shows the 'Reports\*' configuration window for a 'Text Report 1'. The window includes a toolbar with 'Graphic Report', 'Text Report', and 'Delete' buttons, and a 'Printer Setting' button. The report is configured as an 'Active alarm report'. The 'Port' is set to 'USB' and the 'Printer' is 'Generic Printer'. Under 'Printer options', there are three checkboxes for 'Force page flush after' with values of '1 event(s)', '1 line(s)', and '1 second(s)'. The 'Alarms Layout' section includes 'Printing options' with a 'Paper size' of '80 chars' and 'Time Spec' set to 'Global'. An 'Available fields' list includes Severity, Time, Enable, Id, Source Value, State, Description (highlighted), AddData1, AddData2, and <Spacer>. A preview table at the bottom shows columns for Time, Source Value, and Description.

Time	Source Value	Description
[Grid area for report preview]		

# Alarms

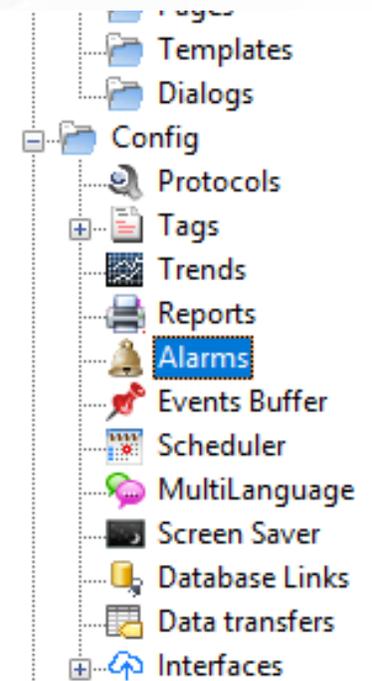
# Alarms

- Alarms concept
- Configuring Alarms
  - Triggers
  - Actions
- Alarm historical list
  - Buffers
  - Visualization of alarm history
- Exporting Historical Event List
- Live Tag values in alarm description
- Alarms can be enabled/disable at runtime



# Working with Alarms

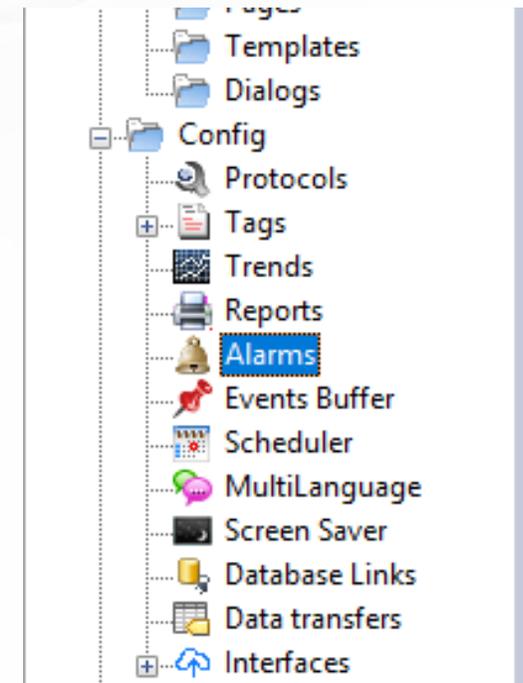
- Can be enabled / disabled
- **Ack** as mechanism to allow user to recognize alarm
- Choose to avoid the auto-**Reset** of Alarm state machine
- Use **Trigger** to choose method
- Select **Tag** to monitor as Alarm source
- Use **Remote** features to synchronize alarm status between many HMIs



Alarms <span style="float: right;">Alarms used 4/500</span>											
Name	Groups	Enable	Ack	Reset	Buffer	Trigger	Tag	Remote Enable	Remote Ack	Ack Notify	
Alam1		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	bitMaskAlarm:0	Tag1	none	none	none	
Alam2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	limitAlarm:0-75	Tag2	none	none	none	
Alam3		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	deviationAlarm:30.0 - 50	Tag3	none	none	none	
Alam4		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AlarmBuffer1	valueAlarm:50	Tag4	none	none	none	

# Working with Alarms

- Select the **Action** to perform when alarm is triggered
- Configure a **User Action** to perform by clicking on an active alarm
- Set a **Description** to be viewed in Alarm widgets
- Choose alarm **Color** based on Alarm state, or put **Blink** on Ack
- Organize alarms per **Severity**
- Manage **Events**:
  - If include alarm in Active widget or Historical widget
  - When execute action (on alarm rising edge or falling edge)
  - Select alarm information to be printed in text reports



Alarms <span style="float: right;">Alarms used 4/500</span>									
Action	User Action	Description	Custom Field 1	Custom Field 2	Color	AckBlink	Severity	Events	
		Bit 0 of Tag1 is ON. Requires ACK				<input checked="" type="checkbox"/>	3-normal	76,76,1,1	
ShowMessage		Value of Tag2 is outside boundaries: 0-75. Requires ACK				<input checked="" type="checkbox"/>	3-normal	76,76,1,1	
		Value of Tag3 is outside boundaries: 50 +/- 30%				<input type="checkbox"/>	3-normal	76,76,1,1	
		Value of Tag4 is 50				<input type="checkbox"/>	1-low	76,76,1,1	

# Configure Trigger

- Bit Mask Alarm
  - Alarm triggered on status of bit
- Limit Alarm
  - Alarm triggered when Tag value is out of "Min – Max" interval
- Deviation Alarm
  - Alarm triggered when Tag value is out of range defined by Percentage Deviation of Tag value and SetPoint
- value Alarm
  - Alarm triggered on specific Tag value

Triggers	Properties
<ul style="list-style-type: none"> <li>limitAlarm</li> <li><b>bitMaskAlarm</b></li> <li>deviationAlarm</li> <li>valueAlarm</li> </ul>	<ul style="list-style-type: none"> <li><b>bitMaskAlarm</b></li> <li>BitPositions   <b>0</b></li> </ul>

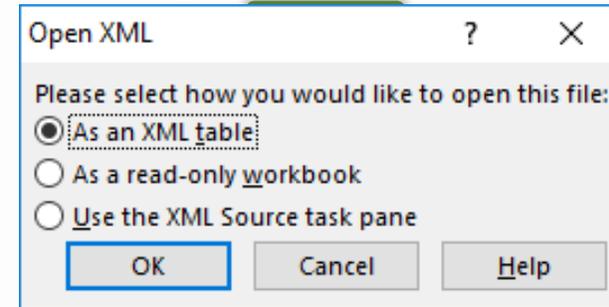
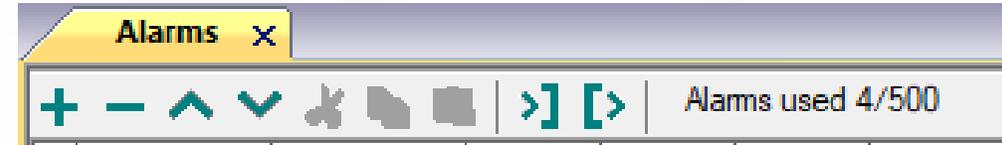
Triggers	Properties
<ul style="list-style-type: none"> <li><b>limitAlarm</b></li> <li>bitMaskAlarm</li> <li>deviationAlarm</li> <li>valueAlarm</li> </ul>	<ul style="list-style-type: none"> <li><b>limitAlarm</b></li> <li>Min   <b>0</b>   +</li> <li>Max   <b>1000</b>   +</li> </ul>

Triggers	Properties
<ul style="list-style-type: none"> <li>limitAlarm</li> <li>bitMaskAlarm</li> <li><b>deviationAlarm</b></li> <li>valueAlarm</li> </ul>	<ul style="list-style-type: none"> <li><b>deviationAlarm</b></li> <li>Deviation %   <b>50.0</b>   +</li> <li>SetPoint   <b>20.0</b>   +</li> </ul>

Triggers	Properties
<ul style="list-style-type: none"> <li>limitAlarm</li> <li>bitMaskAlarm</li> <li>deviationAlarm</li> <li><b>valueAlarm</b></li> </ul>	<ul style="list-style-type: none"> <li><b>valueAlarm</b></li> <li>Value   <b>0</b>   +</li> </ul>

# Import/Export Alarms

- New buttons for import/export
- Export made into ".xml" file format
- Easy to open/edit with Microsoft Excel
- Make your changes
- Import back into Studio



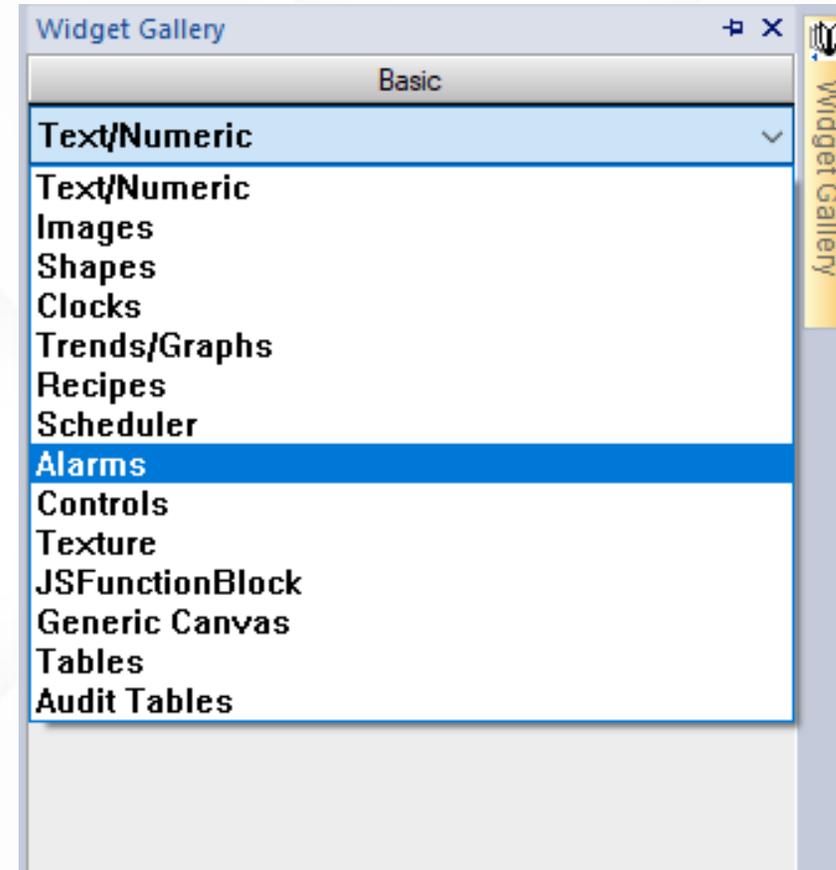
The screenshot shows the Microsoft Excel interface with a table of XML data. The table has the following columns and rows:

	eventBuffer	logToEventArchive	eventType	subType	storeAlarmInfo	name	source	alarmType	lowLim
1	n/a	TRUE	0	0	FALSE	n/a	n/a	n/a	
2	AlarmBuffer1	TRUE	14	1	TRUE	Alarm1	Tag1	bitMaskAlarm	

# Alarms Widgets

Two alarm widgets:

- Active Alarms  
displays current active alarms list
- Alarms History  
displays list of all encountered alarms



# Active Alarms

- Different level of details
  - **Lite**: displays only alarm list
  - **Acknowledge**: permits to use Ack action
  - **Full**: access to all Alarms features

Active Alarms - Lite

Name	Value	Time	Description

Active Alarms - Acknowledge

Select	Name	State	Value	T

Active Alarms

Select	Name	State	Value	T

Filter :

# Alarms History

- Points to Alarm buffer with all encountered alarms
- Contains widgets for navigation inside buffer
- Reports period of displayed widow

**Alarms History**

From : 07/30/18 - 12:46:28      Duration : 1 Min      Refresh

To : 07/30/18 - 12:46:28

Name	State	Value	Time
  			

Backward
Forward

# Alarm Widgets

- Both alarm widgets can be customized
  - enlarging/hiding Columns
  - hiding Buttons (ACK, Reset, Save...)
  - defining a second Filter (Active Alarm only)

Active Alarms

Select	Name	State	Value	T

Filter : Hide Not Triggered Check/Uncheck All Ack Reset Save

Properties

**Alarms List : ActvAlrm**

Columns	
Sorting	false
Sort Order	Descending
Sort Column	Severity
Text	
Filter	
Filter Column 1	State
Filter 1	Hide Not Triggered
DataLink	itemData:ActvAlrm.fltrcmb   R
Access Type	R/W
Filter Column 2	Select
Filter 2	
Table Antialiasing	
Header	

# Table Alarm Widgets

- Based on Table widget
- More customizable in graphic
- More efficient in performances

Active Alarms Table

Select	Name	State	Value	Time
<input type="checkbox"/>	Label	Label	Label	07/30/18 - 12:51:53

Hide Not Triggered
Toggle selection
Ack
Reset
Save

Alarms History Table

From: 07/30/18 - 12:53:22      To: 07/30/18 - 12:53:22      Duration: 2 Hours      Refresh

Column Filter: Name      99999

Timestamp	Name	State	Value	Description
Label	Label	Label	Label	Label

Backward
Forward

Scheduler

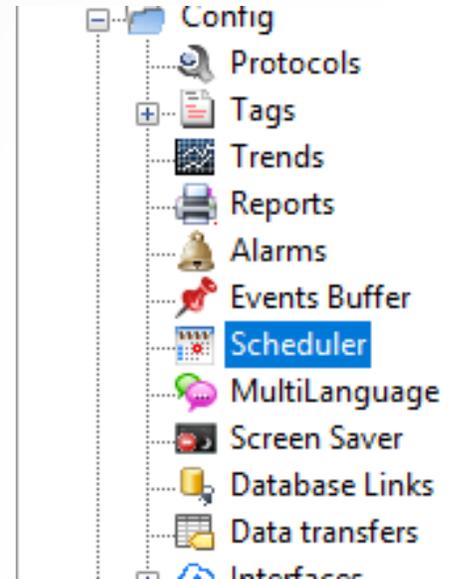
## Scheduler

- Program the execution of specific actions
  - at repeated intervals
  - on a time basis
- Feature to execute action on Sunrise or Sunset
- Parameters of the schedule are defined into Scheduler Editor
- Can be changed at run time with Scheduler widget



## Working with scheduler

- Double click on "Scheduler" to open the Scheduler editor
- Click "Add" to add a new schedule
- Give a name
- Choose the type:
  - Recurring
  - High Resolution
- Select the schedule properties



ID	Name	Type	Schedule	Action	Priority
1	StepTag	HighResolution	Every 500 msec	StepTag	Medium
2	ToggleBit	Recurring	Every, Time, 00:00:05	ToggleBit	Medium
3	ToggleBit_with_condition	Recurring	Every, Time, 00:00:05	ToggleBit	Medium
4	ShowDialog	Recurring	Weekly, Time, <...>, 14:00	ShowDialog	Medium

## Working with scheduler

- Recurring scheduler has several options
  - Type: allow to define recurrence of schedule
  - Mode: you can base recurrence on time, sunrise or sunset
  - Condition: boolean tag to activate schedule
  - Actions: action to perform
  - Enable: enable/disable (can be changed on HMI)
  - On Startup: execute also at startup of application
- High Resolution scheduler
  - Executed in cycle only, minimum resolution 100msec

**ToggleBit Properties**

Type:  Date:

Mode:  Time:

Condition:  ... Location:

Actions:  ...

Mon  
 Tues  
 Wed  
 Thurs  
 Fri  
 Sat  
 Sun

On startup  
 Enable schedule

Multilanguage

## Multilanguage

- Support for multiple languages
- Add languages to the project and defining writing system
  - Each string can have its own font
  - Depending on selected language Studio shows fonts compatible with selected writing system
  - Required fonts are downloaded with project or provided on external memory
- Export/Import of language strings
- Changing language at run time



## Working with Multilanguage

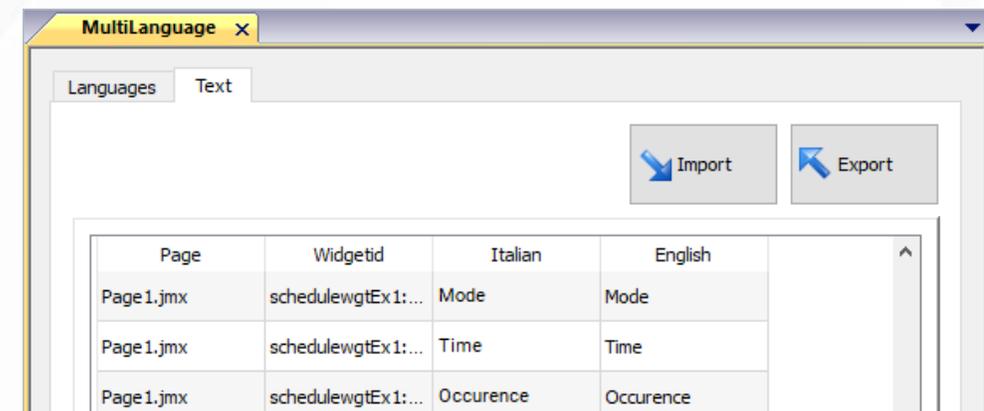
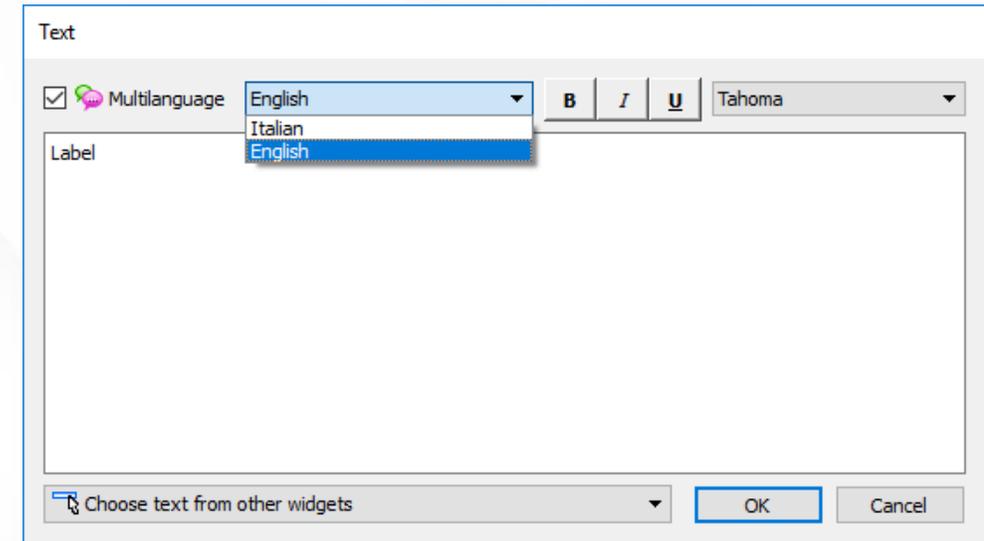
- Choose default language and set a custom name
- Set a language code ISO 639 as language code identifier
- Supports any writing system (fonts are filtered by specific selection)
- Font management: displays number of fonts used
- Possibility to use a font only on demand (saved on external device), due big size

The screenshot shows the 'MultiLanguage' application window. It has a 'Languages' tab and a 'Text' sub-tab. There are 'Add' and 'Delete' buttons on the left, and 'Save Font' and 'Default' buttons on the right. Below these is a table with the following data:

	Language Name	Language Code	Writing system	Default Font	Fonts	Size	Storage
1	<Italian>	it	Any	Roboto	3	2.07 Mb	<input type="checkbox"/> Removable
2	English	en	Any	Tahoma	1	1.72 Mb	<input type="checkbox"/> Removable

## Working with Multilanguage

- Text in different languages can be added
- Typing text directly
  - Double click to enter edit mode
  - Select the language
  - Type the text
- Using "Text Table" in Multilanguage
- Export/Import
  - Text tab
  - List of all strings
  - Export
    - Generates Unicode CSV
    - Can be edited with Microsoft Excel, save as "Unicode Text (\*.txt)"



Screen Saver

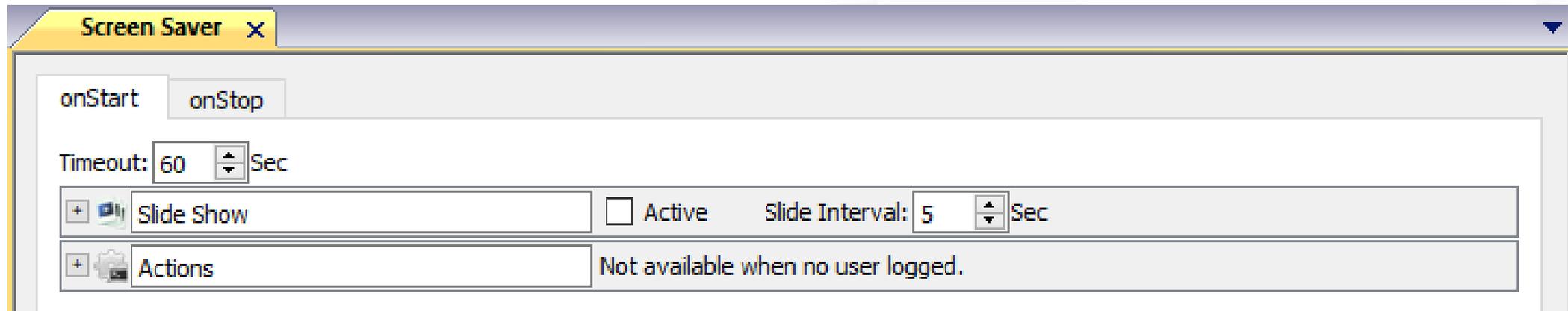
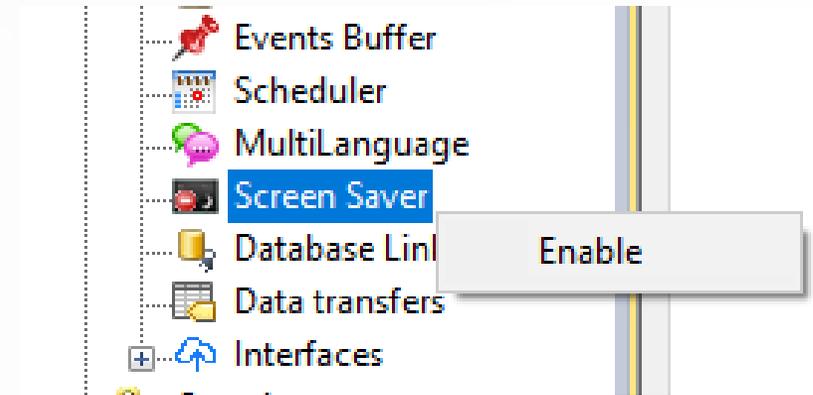
## Screen Saver

- "Screensaver" is not only a black screen. HMI can show useful information when not used
- Create slideshows to be activated as screen savers
- Images for slideshows can be resident on removable memory
- Easily configure actions or scripts to be executed upon screensaver activation and deactivation



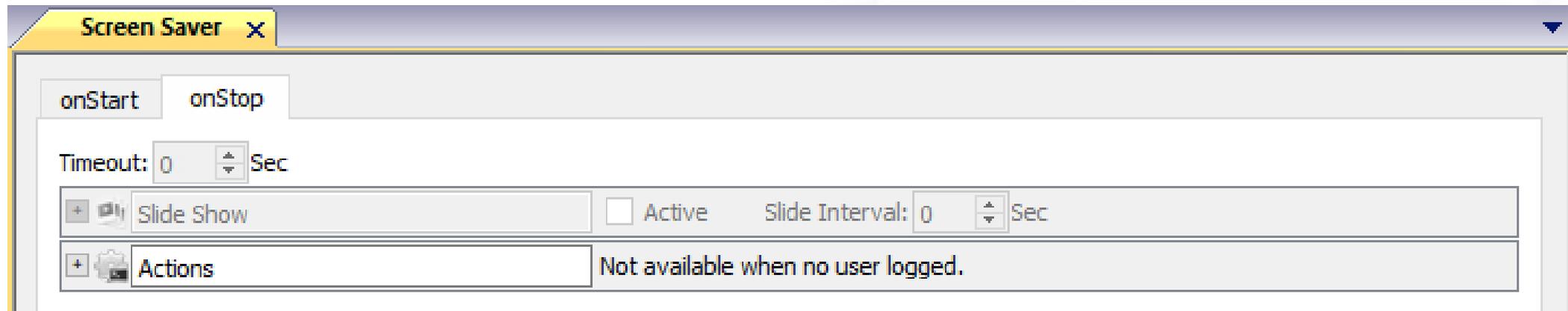
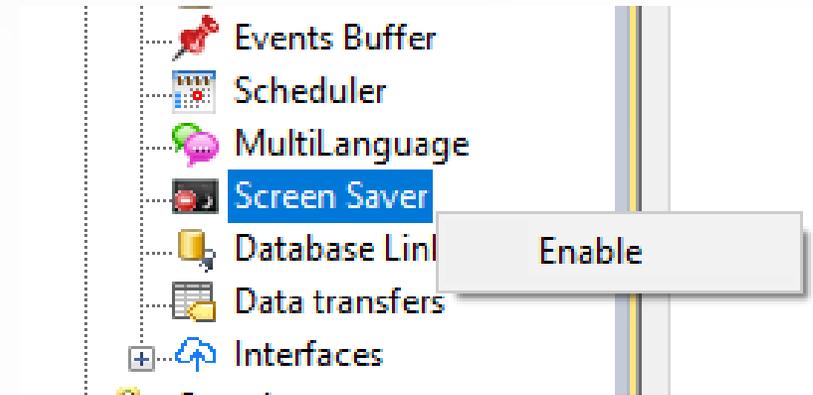
# Screen Saver

- Screen Saver must be enabled
- OnStart and OnStop event can be defined:
  - Images Slide Show
  - Actions
  - Javascript



# Screen Saver

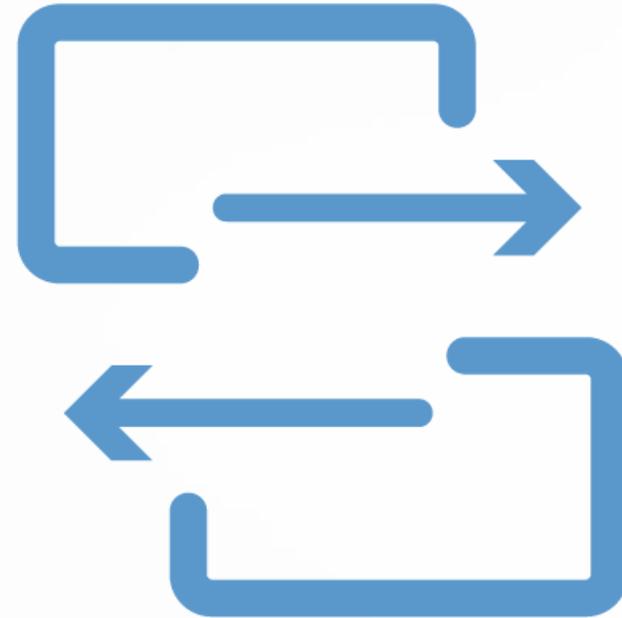
- Screen Saver must be enabled
- OnStart and OnStop event can be defined:
  - Images Slide Show
  - Actions
  - Javascript



# Data Transfers

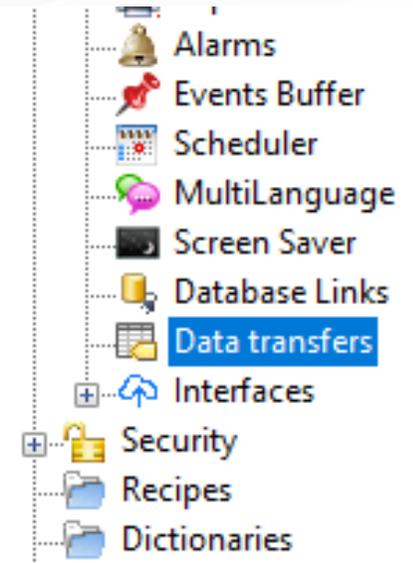
## Data Transfers

- The HMI becomes a data gateway and an element for a better system integration
- Move data between different controllers in a fully programmable way
- Bi-directional transfers can be programmed



# Data Transfers

- Data transfers can be done:
  - On update: when the value of the source tag changes
  - On trigger: when tag defined as Trigger changes with a value greater than High Limit or less than Low Limit

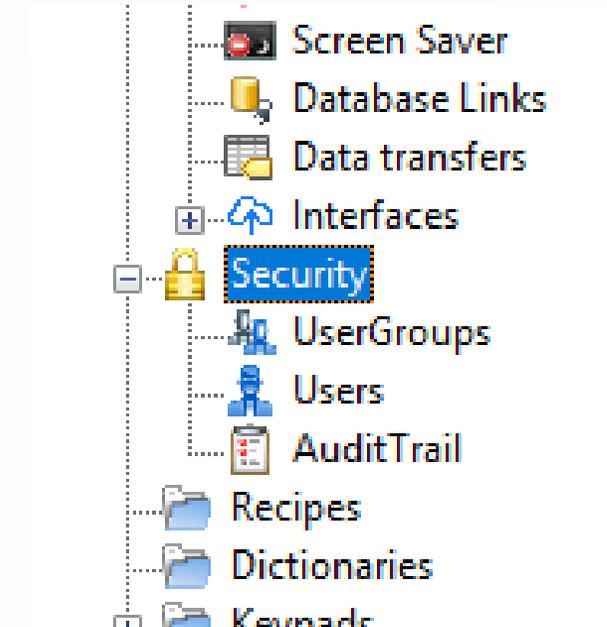


Data transfer									
<span>+</span> <span>-</span> <span>^</span> <span>v</span>   <span>&gt;]</span> <span>[&gt;</span>   <input type="text" value="Search"/>   <span>Filter by:</span> <span>Tag A</span>									
	TAG A	TAG B	Direction	Update method	Trigger	Low limit	High limit	Enable	on Startup
1	Tag1	Tag2	A->B	On update		0	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
2	Tag3	Tag4	B->A	On trigger	Tag5	0	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>

# Security and User Management

# Security and User Management

- User management
  - Groups with set of authorizations
  - Users belonging to Groups
- Users' password options:
  - Common settings
  - Change initial password
  - Auto Logout timer
  - Option for allowed passwords
- User editing at runtime
- Action Login/Logout/Switch users
- Each user has Home Page
- Option to Switch showing last visited page
- Compliant to FDA 21 CFR Part 11



# User Group Authorizations

- Define groups
- Define per each group the "base settings" authorizations
  - By widget: Hide, Read Only, Full Access
  - By Action: Allowed, Not Allowed

Name	Authorized	Home Page	Use Last Visited Page	Comments	Authorization Settings
admin	true		<input checked="" type="checkbox"/>	administrator group	adminAuth
guest	true		<input checked="" type="checkbox"/>		guestAuth
unauthorized	false		<input checked="" type="checkbox"/>		unauthorizedAuth

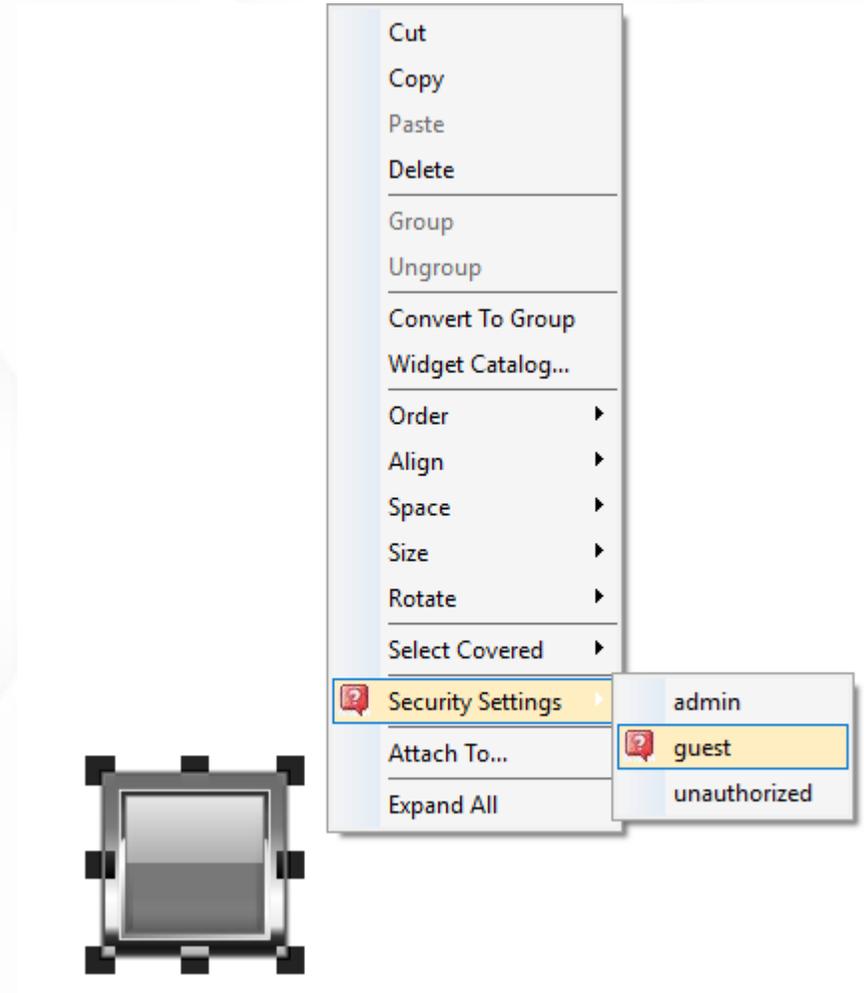
The screenshot shows a dialog box titled "admin authorizations" with a "Widget" tab selected. The dialog is divided into two main panes. The left pane shows a tree view of widgets, including "Base settings", "scheduler\_widget", "schedule2", "schedule1", "scheduler\_info", "showdialog", "Page1", "schedule3", and "TemplateExor". The right pane is a table listing various widgets and their assigned permissions, all of which are set to "Full Access".

Widget	Permission
AnalogClock	Full Access
BarGraph	Full Access
Button	Full Access
ChangePwdEdits	Full Access
ComboBox	Full Access
ControlList	Full Access
Date Time	Full Access
Dialog	Full Access
EditBox	Full Access
EventBuffer	Full Access
EventBufferGrp	Full Access
Gauge	Full Access
Grid	Full Access
Group	Full Access
HistogramGraph	Full Access
HyperLink	Full Access
IPCamera	Full Access
Image	Full Access
Indicator	Full Access
KeyButton	Full Access
KeypadEditBox	Full Access

At the bottom of the dialog, there are "OK" and "Cancel" buttons.

# Widget Authorizations

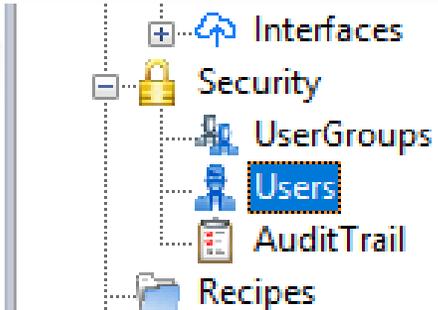
- Permissions can be set on single widget
  - Right Click
    - Security Settings
    - Select group



# Create Users

- At design time, from Users
- Common Parameters

NEW  
in  
2.8



Name	Default User	Group	Password	Logoff Time (minutes)
admin	<input checked="" type="checkbox"/>	admin		0
user1	<input type="checkbox"/>	guest		0

Common Parameters

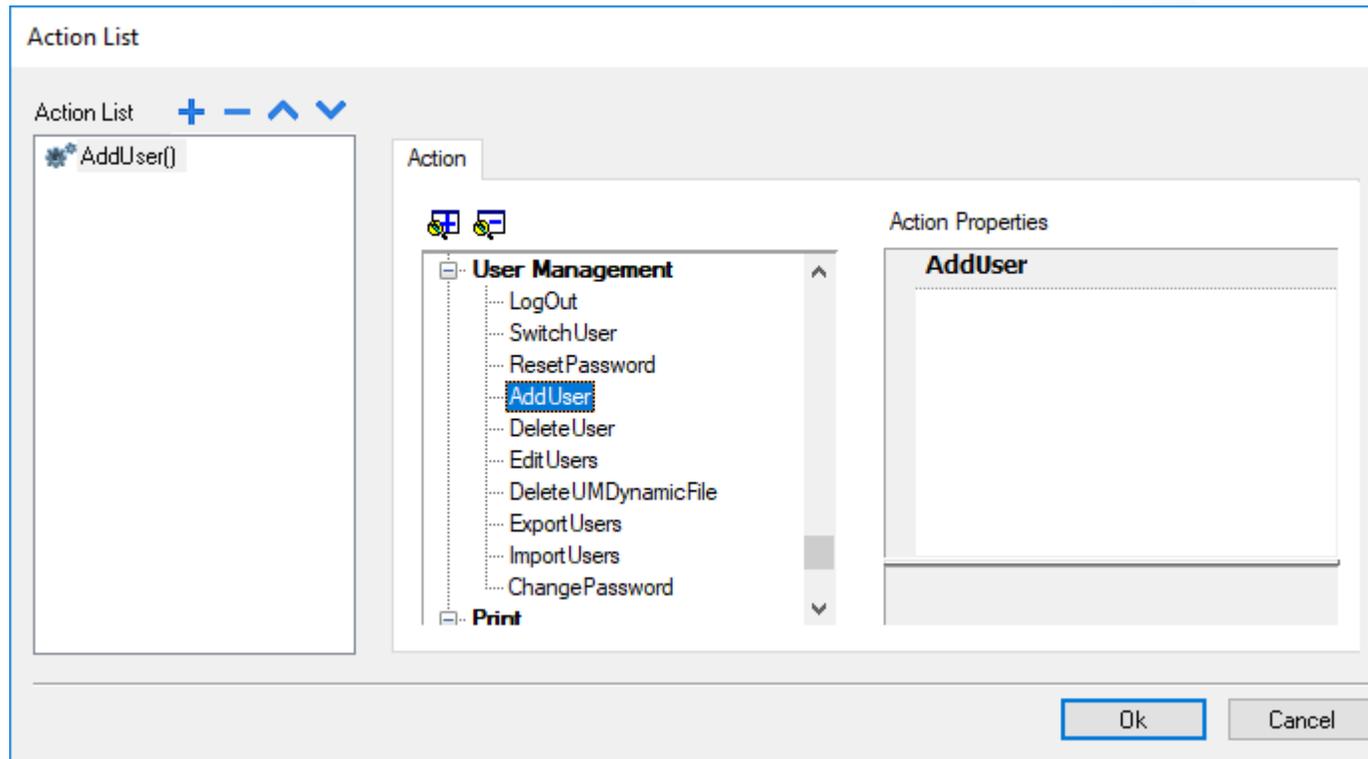
**Parameters common to all users**

- Force to change initial password
- Force log off time (min)
- Minimum Password Length (Char)
- Password must contain special characters
- Password must contain numbers
- The last three passwords cannot be reuse
- Number of weeks before force a password change
- Show warnings before password expired (day)

OK Cancel

# Create Users

- At runtime, using dedicated action




---

User name:

Password:   Show password

Group:

Comments:

---

User must change his initial password

Inactivity logoff time (Min)

---

Recipes

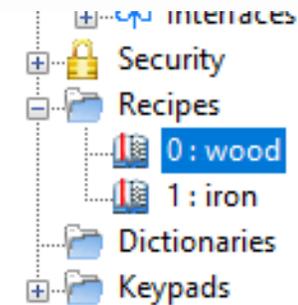
## Recipes

- Recipes concept
- Configuring recipes
  - Recipe, Element, Set
- Storing recipes data
  - Recipe data files
- Extracting data
  - FTP
  - Backup and Restore to USB
- Handling recipes at run time
  - Menu selection
  - Download/Upload
  - Add/delete recipe sets



## Working with Recipes

- Right click on "Recipes" and select "Insert Recipe"
- Double click on Recipe name to open the recipe editor
- Configure
  - Elements (rows): associate to a Tag
  - Sets (columns): predefined values for each Tag



**Recipe** x

index	Element Name	Tag	box1	box2	box3	box4	box5
0	Element1	lenght_w	10	11	12	8	5
1	Element2	width_w	20	22	24	16	10
2	Element3	height_w	30	33	36	24	15

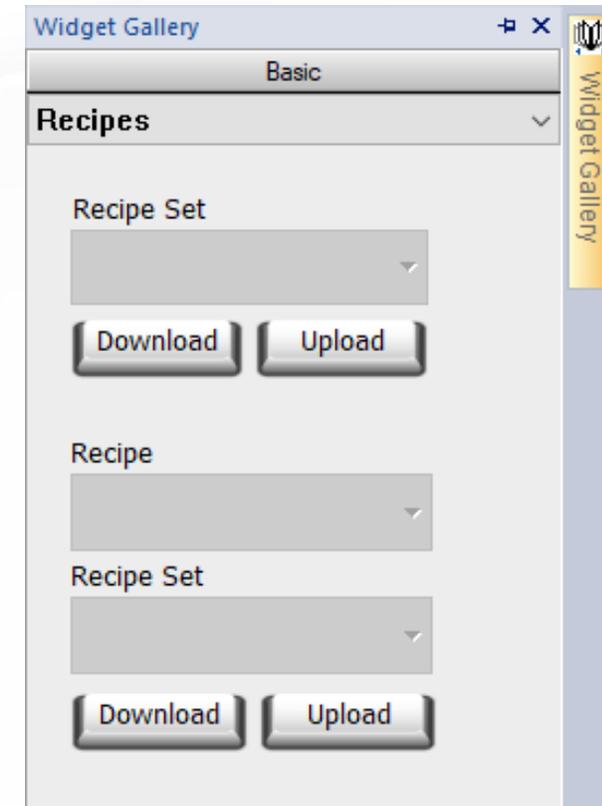
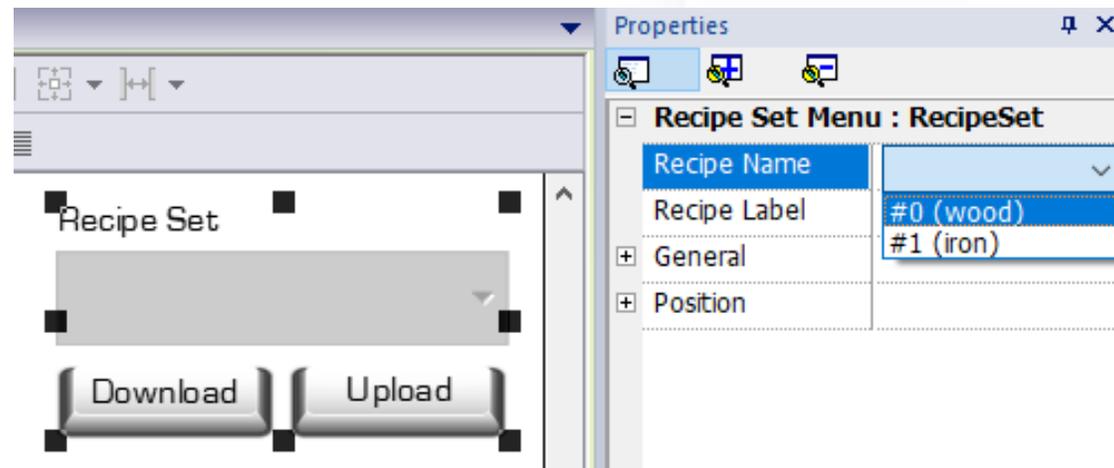
**Properties**

**Recipe : \_RecipeMgr**

Recipe Name	<b>wood</b>
Number of sets	<b>5</b>
Set 0	<b>box1</b>
Set 1	<b>box2</b>
Set 2	<b>box3</b>
Set 3	<b>box4</b>
Set 4	<b>box5</b>

## Working with Recipes

- Locate Recipe widgets in gallery
  - Basic category > Recipes
- Two different widgets:
  - Recipe Set: user can select only Set of a specific Recipe
  - Recipe Menu: user can select Recipe and Set on HMI



## Add/Remove Recipe Sets

- Number of recipe sets can be changed at runtime (add/remove)
- Recipe editor allow to move recipe sets
- Actions to Add and Delete a Set
  - RecipeName: into which recipe add/delete the set
  - CopyFrom (opt): from which set copy values
  - NewSetName: default name for the new set
- Action to Dump and Restore a Recipe
  - Restore by Replace, Match, Match and Add

index	Element Name	Tag	box1	box2	box3	box4	box5
0	Element1	length_w	10	11	12	8	5
1	Element2	width_w	20	22	24	16	10
2	Element3	height_w	30	33	36	24	15

# Recipe data on widgets

- Static link



field1.value

Source:  Tag  Alias  System  Widget  Recipe

Search

- #0 (Recipe0)
  - #0 (Set0)
    - #0 (Element0)
      - Name
      - Value
    - #1 (Element1)
    - #2 (Element2)
  - Name
  - Status



- Dynamic link
  - Data on page changes according to Recipe widget current selection

field1.value

Source:  Tag  Alias  System  Widget  Recipe

Search

- #0 (Recipe0)
  - curRecipe
  - curRecipeSet
  - curRecipeSetList
  - CurrentRecipe
    - #0 (Set0)
    - #1 (Set1)
    - #2 (Set2)
    - CurrentSelectedSet
      - #0 (Element0)
        - Name
        - Value
      - #1 (Element1)
      - #2 (Element2)

Recipe Set

Set1

Download Upload

# End of JMobile Training Day 1

Thanks for your attention  
*Technical Support Team*

**HongKe**  
虹科



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