JMobile Training Day 1

JM 2.8

Agenda

- Introduction

- HMI hardware information

- Software installation

- JMobile Studio IDE

- JMobile Features

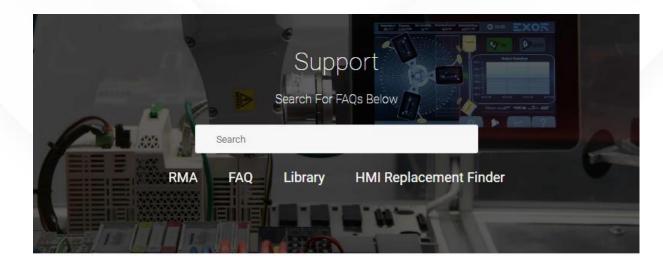# Introduction

Technical Support

- Technical Support can be reached by
  - Email   support.it@exorint.com
            supporto@exorint.com

  - Phone
            +39 045 8753377
            Mon-Fri, 9.00-13.00 / 14.00-18.00

- Website www.exorint.com/support

  - Frequently Asked Questions
  - Demo projects
  - Example projects
  - Technical Notes and cable diagram

Support

Search For FAQs Below

[Search]

RMA   FAQ   Library   HMI Replacement Finder

Acquiring Capability

HMI Replacement Finder
FAQ
Support for Suppliers

JMobile Training

Contact Your Local Support

Italy: support.it@exorint.com
USA: support.us@exorint.com
India: support.in@exorint.com
Germany:
support.de@exorint.com
Worldwide:
support.it@exorint.com

Maximizing Ownership

JMobile
Documents and Download
Check your ticket
Check your license

UniOP Designer
Documents and Download
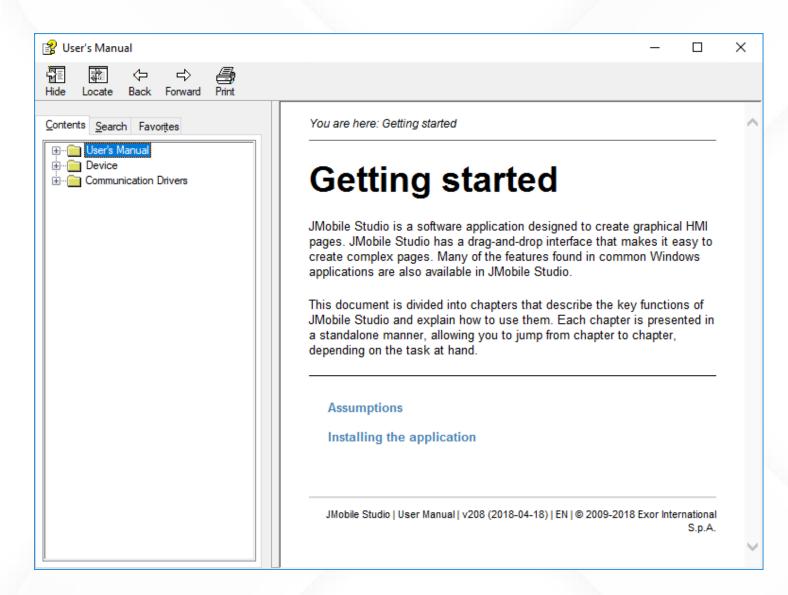Designer Updates

Industrial PC
Documents and Download

Repair Service
RMA
FAQ

Documentation
Library

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.
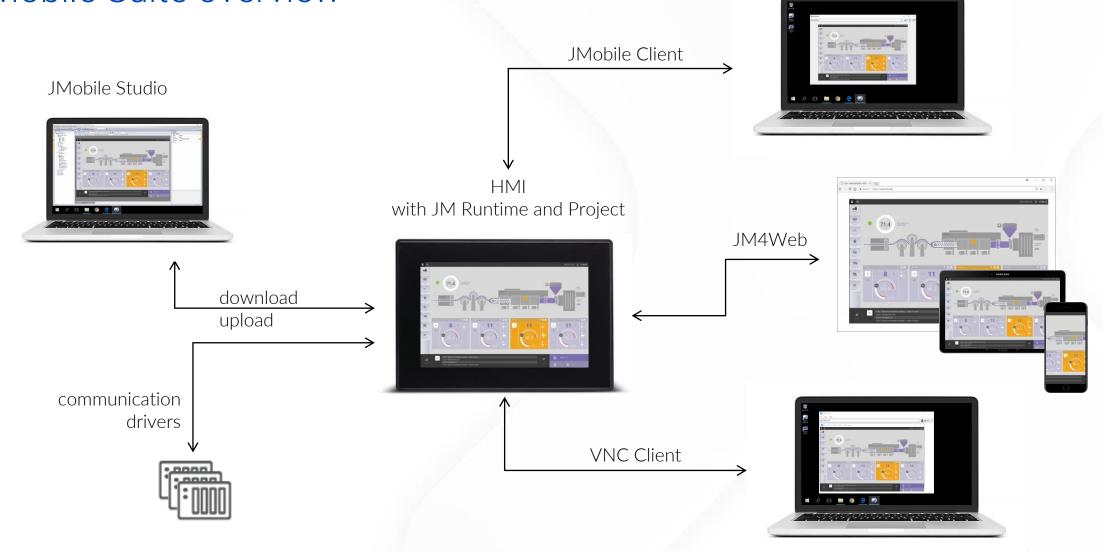
JMobile Suite software package includes:
- JMobile Studio: programming software
- JMobile Runtime PC: HMI engine for industrial PC
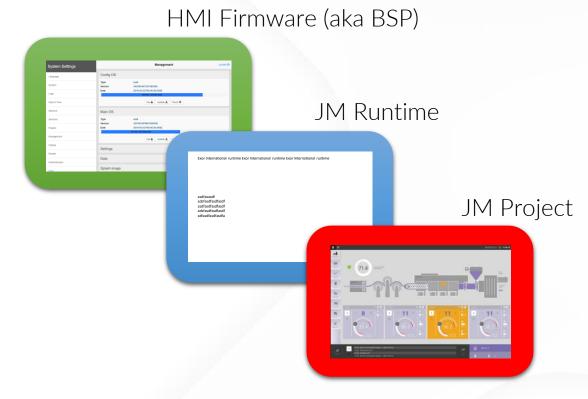- JMobile Client: software for remote control

JMobile Suite overview

JMobile Client

JMobile Studio

HMI
with JM Runtime and Project

JM4Web

download
upload

communication
drivers

VNC Client

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 indistrial environment				

* Preliminary datasheet: may change at product release

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"

System settings

Transfer from disk

No HMI found
Waiting for transfer
IP Address: 192.168.43.197

Out of the box (Linux)

- 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"

System Settings

Startup sequence

Empty boot sequence

IP Address:
eth1 192.168.41.175

eTOP500/500G/600 System Settings

- System Settings in User Mode (Main OS)
  - Accessible from "System Settings" item on Runtime Loader or from Contextual Menu
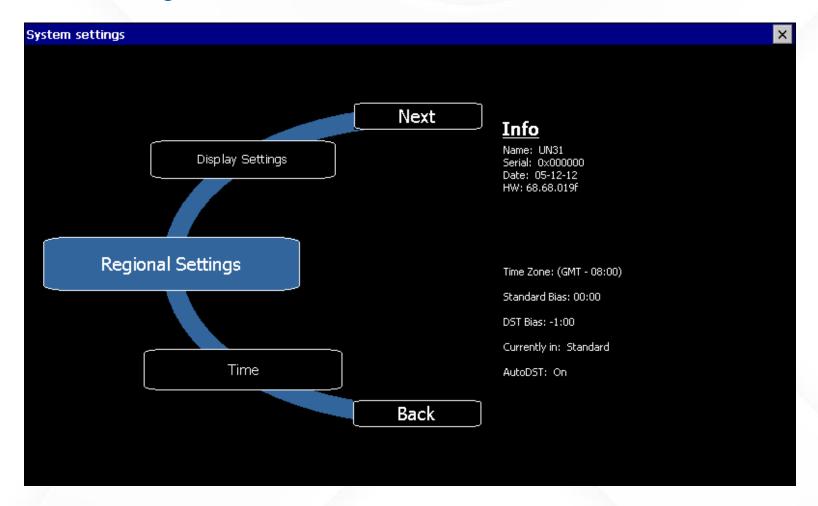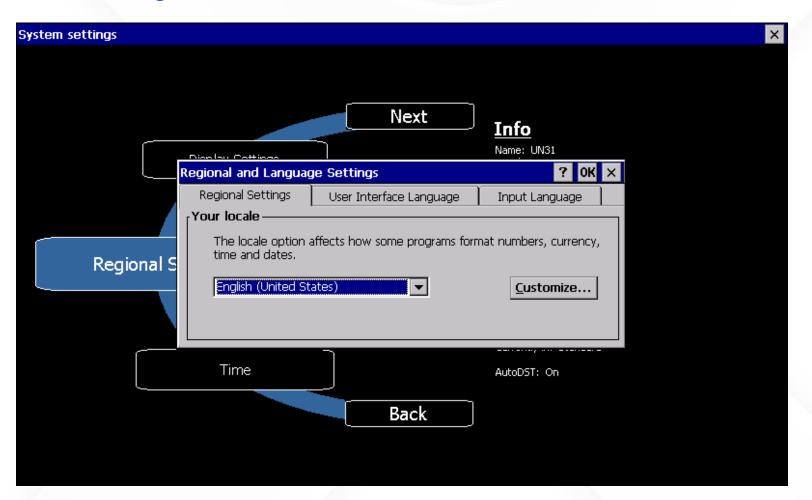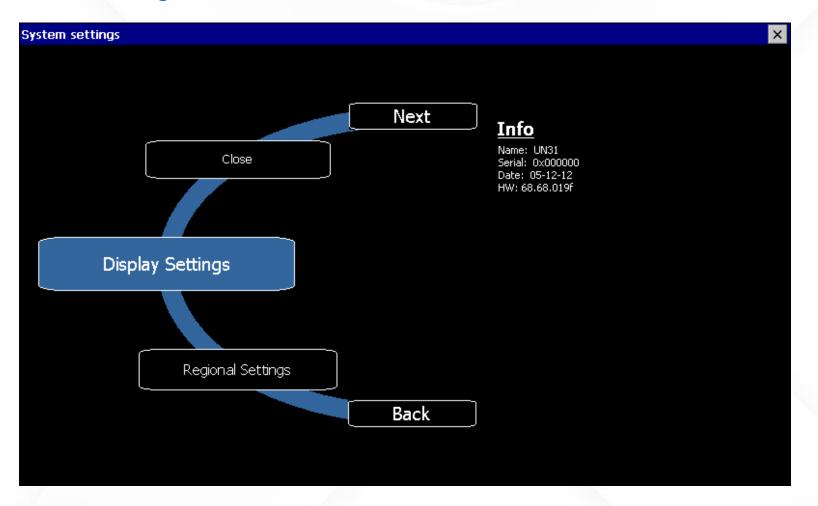 - Basic system settings

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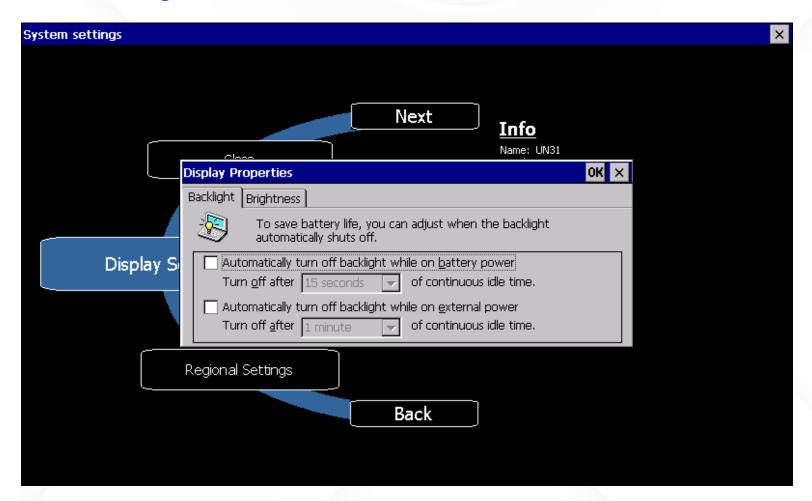 - Basic system settings

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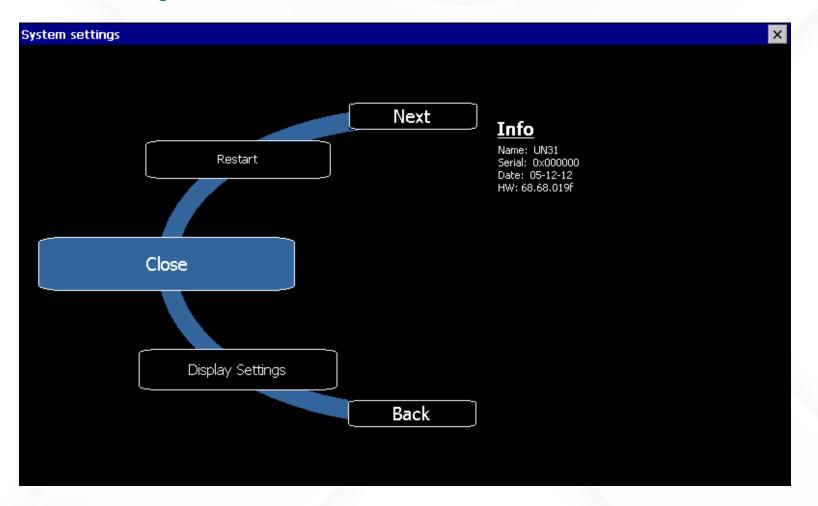 - Basic system settings

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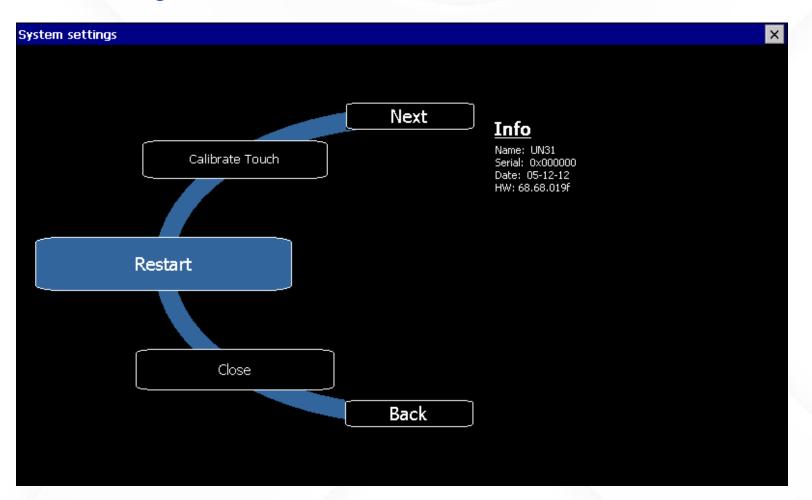
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15

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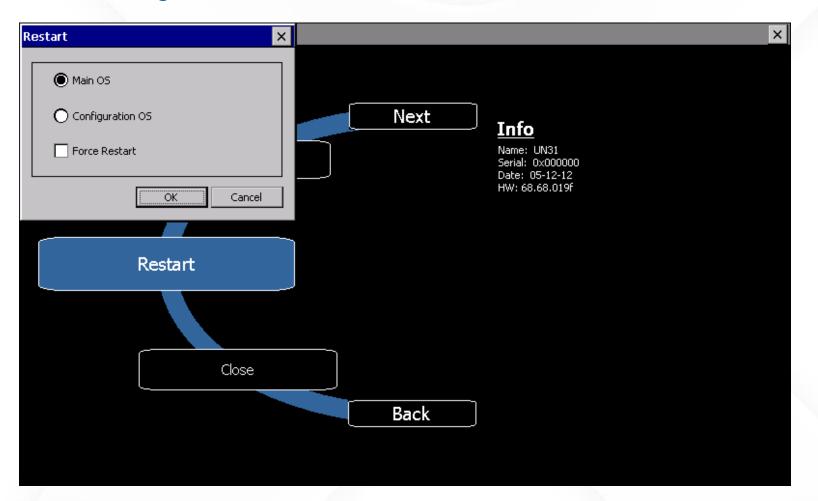 - Basic system settings

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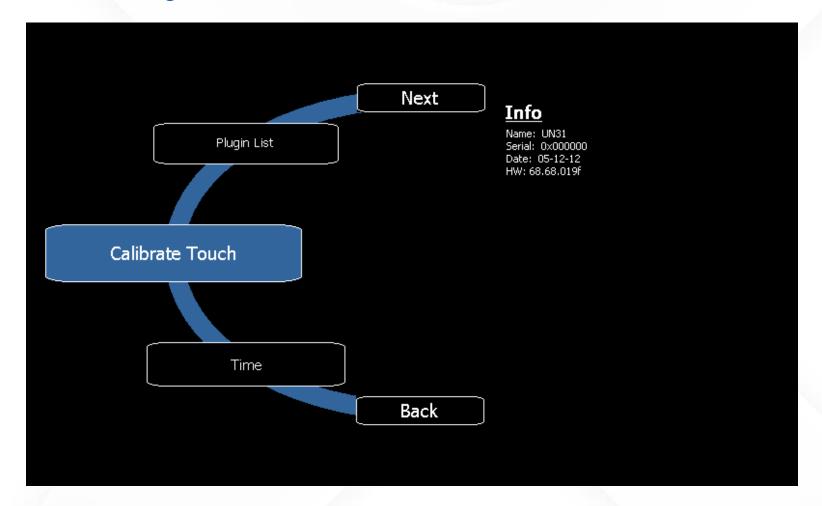 - Basic system settings

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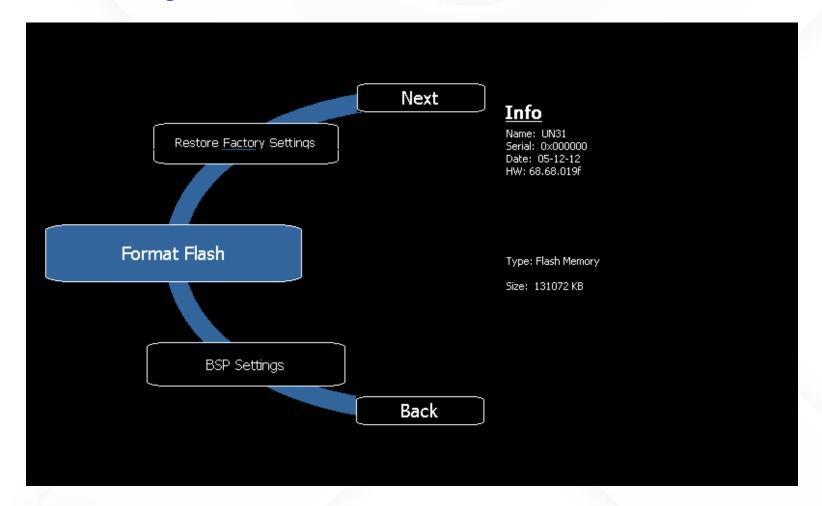 - Basic system settings

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eTOP500/500G/600 System Settings

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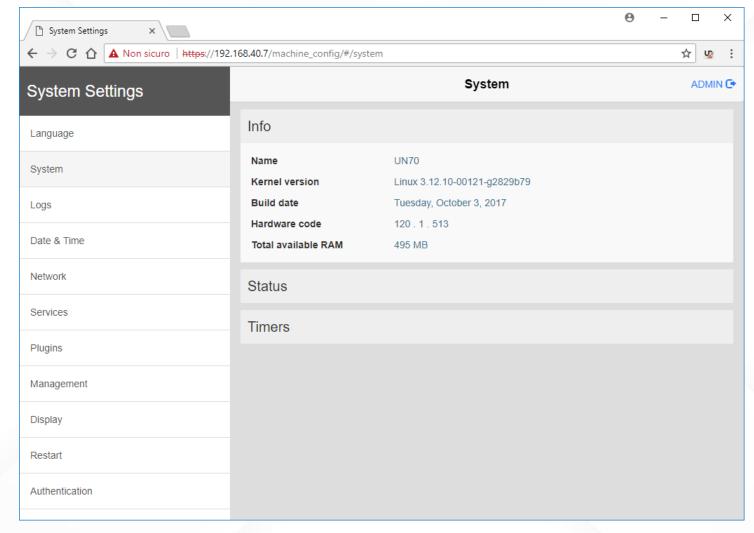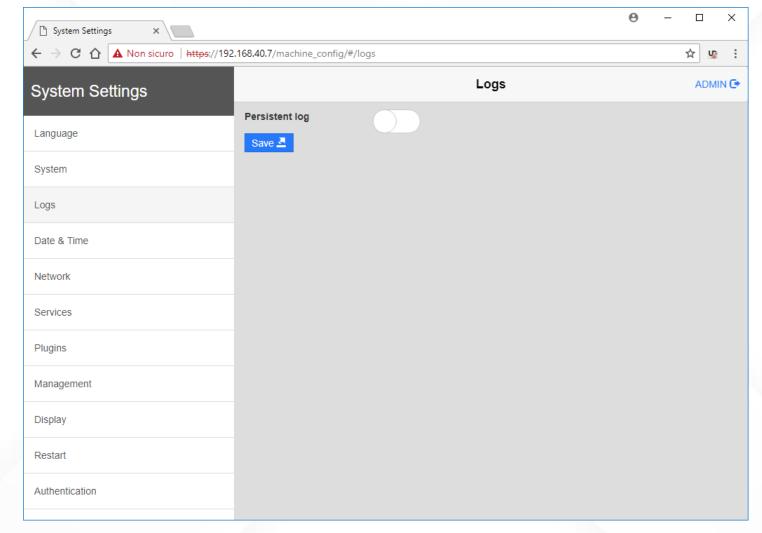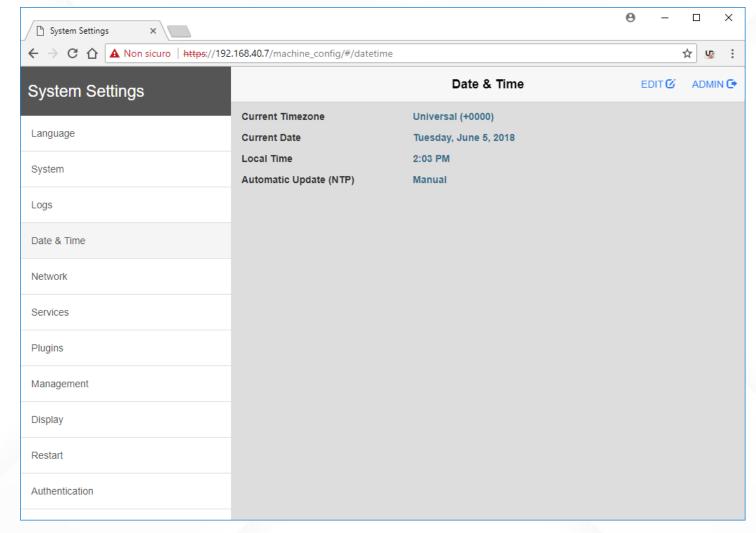 - Advanced system settings (firmware update…)

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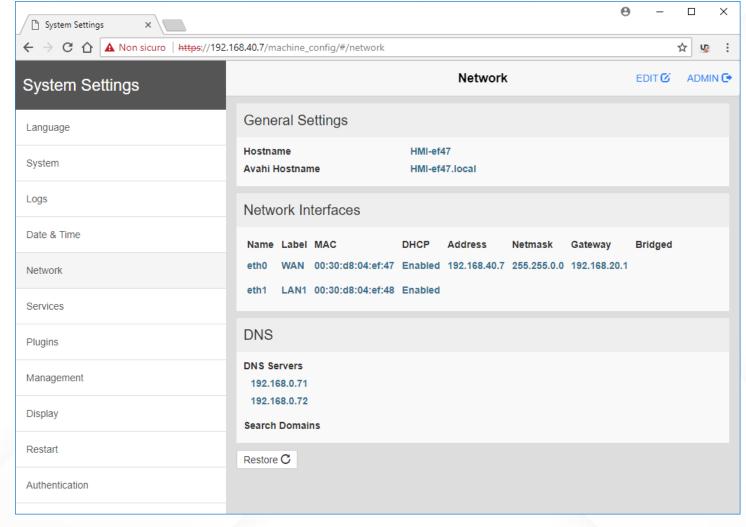
eX700/eSMART/eXware System Settings

- **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
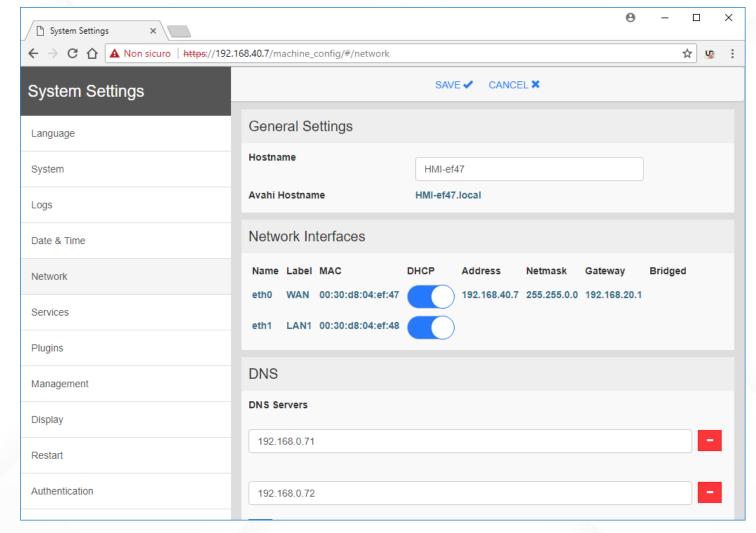   https://<HMI_ip>/machine_config
    https://<HMI_ip>/system_settings
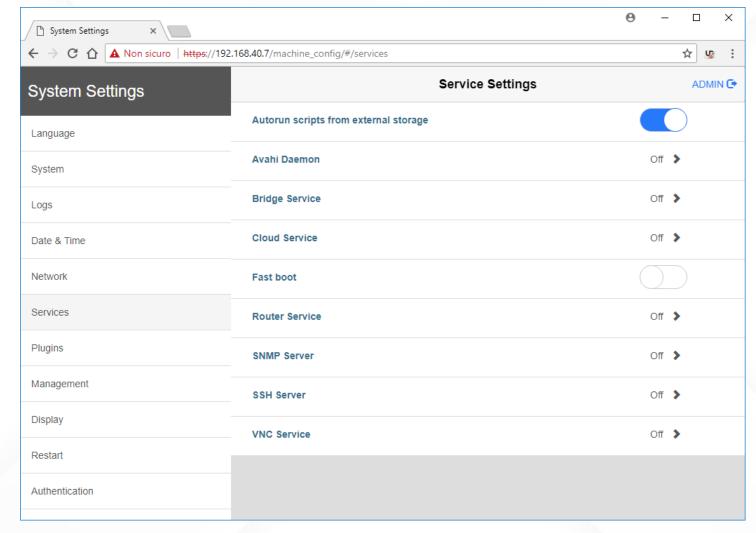
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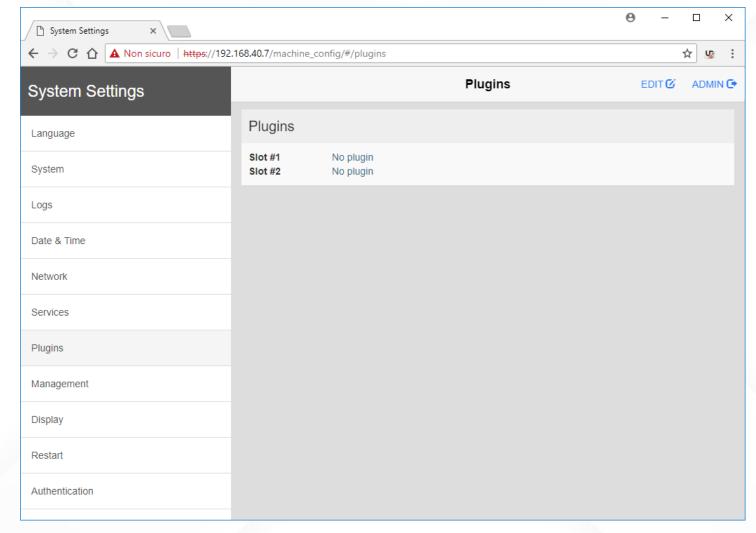 https://<HMI_ip>/machine_config
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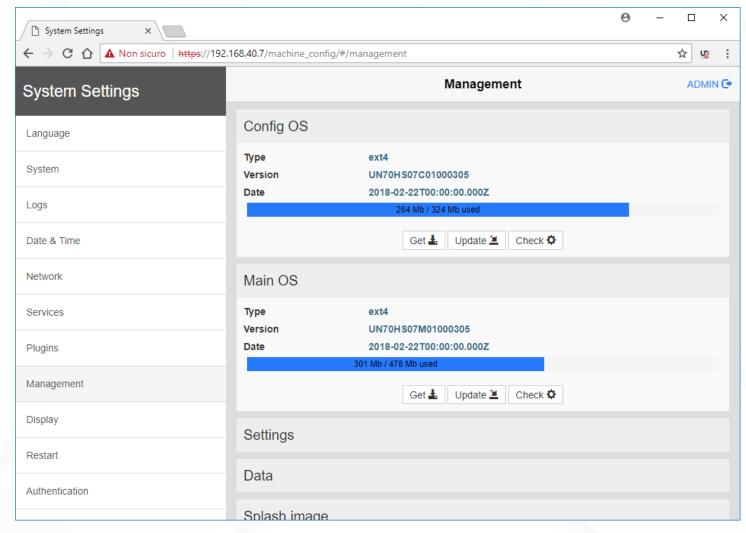 https://<HMI_ip>/machine_config
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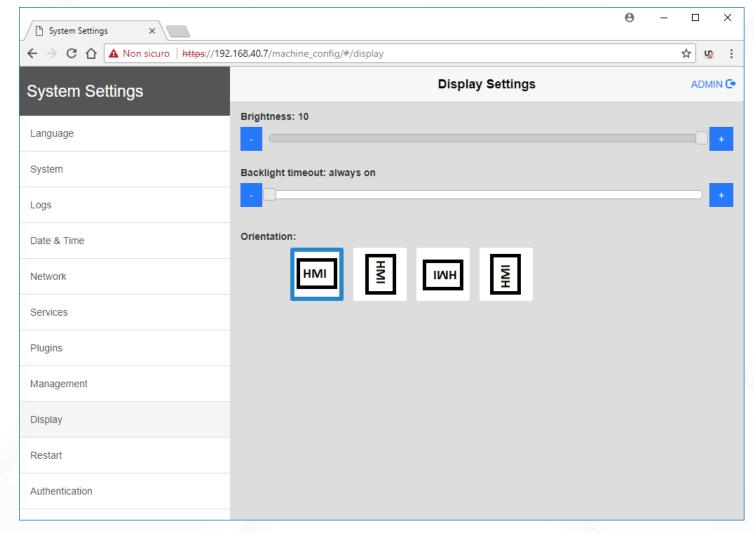   https://<HMI_ip>/machine_config
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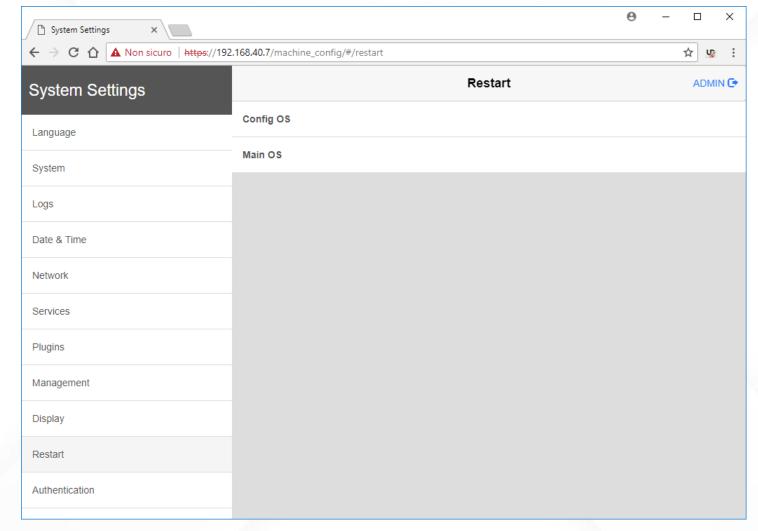   https://<HMI_ip>/machine_config
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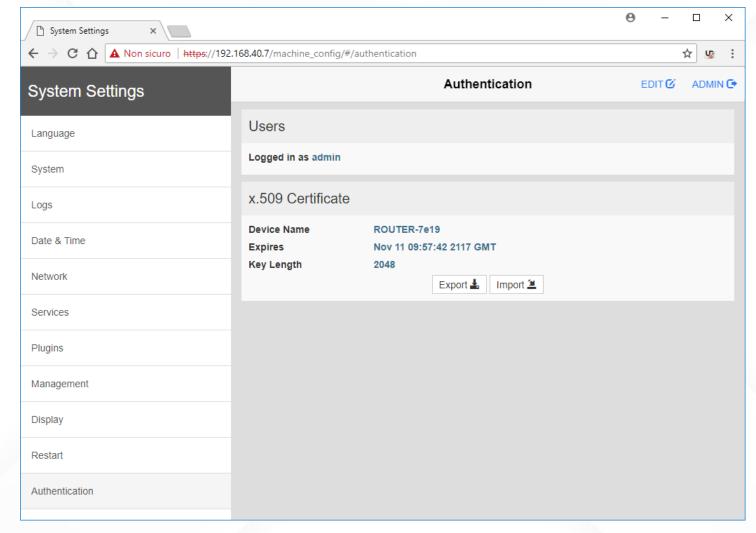
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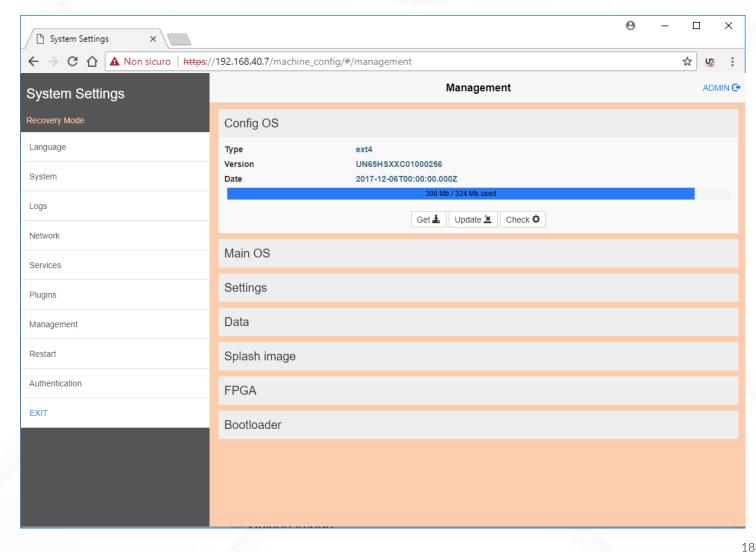
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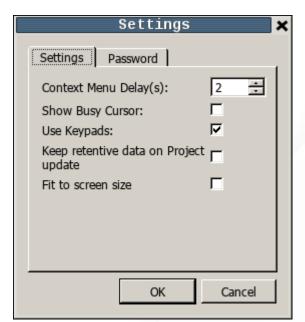 https://<HMI_ip>/machine_config
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- System Settings in
  System Mode
  (Tap-Tap / Config OS):

  - Accessible by the so-called
  "tap-tap procedure" at power up
  or from "Restart" item in
  User Mode (Configuration OS)

  - Advanced system settings
  (firmware update…)

  - Update can be done remotely
  with browser using URL
  https://<HMI_ip>/machine_config
  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"
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Software installation
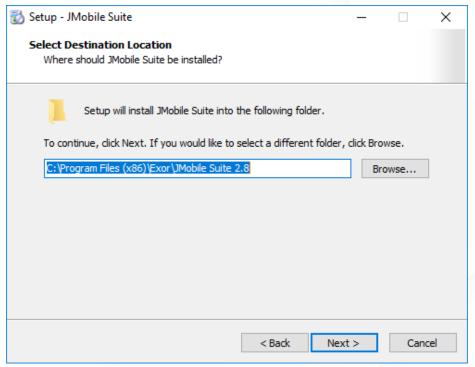
Installation

- JMobile Suite can be downloaded from 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.
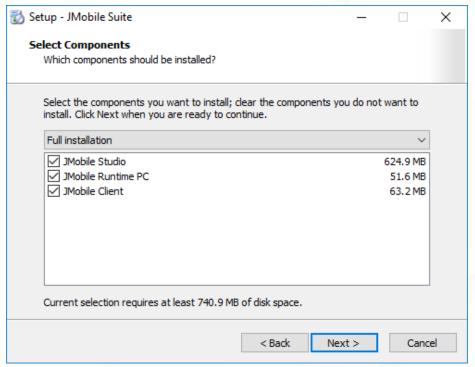
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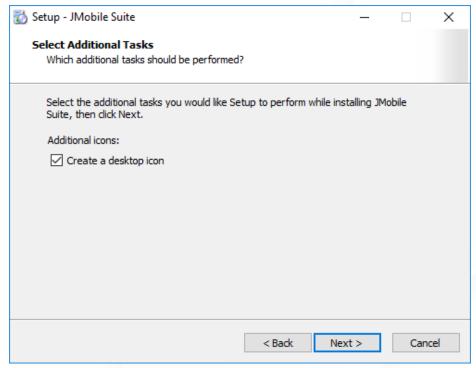
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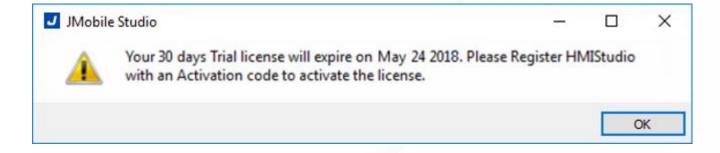
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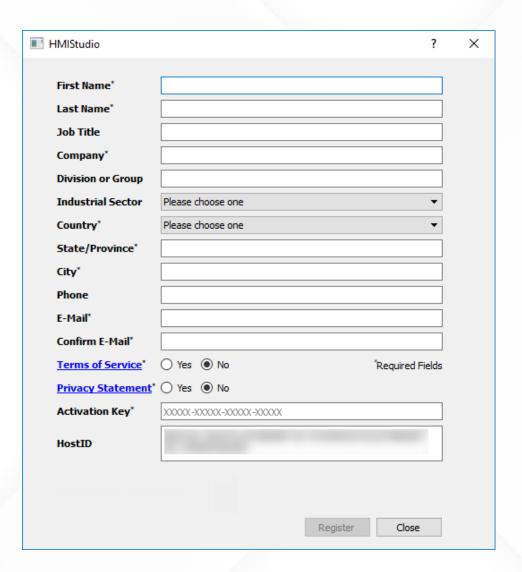
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License model

- 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

JMobile Studio IDE

(Integrated Development Environment)
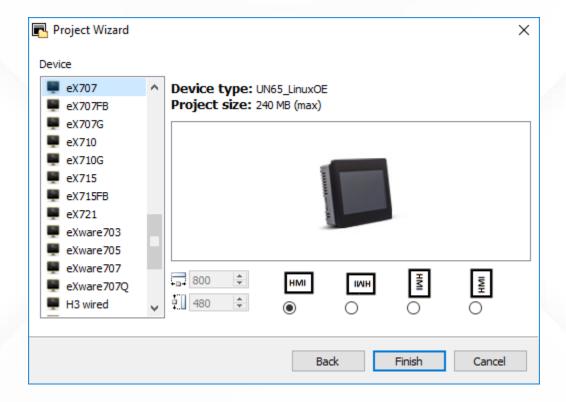
Create New Project

Project Wizard

- Wizard for new project
  - Project Name and Location

  - Target device selection

  - Project/Device rotation

  - Project size:
    - WCE = 30MB / 60 MB
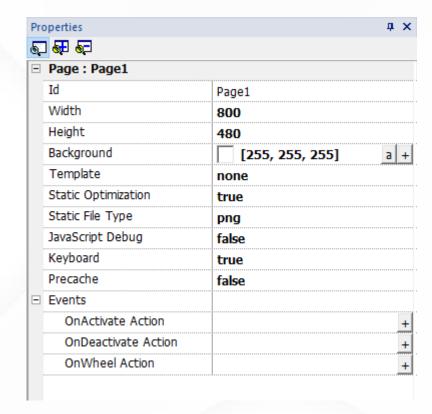   - Linux = 60MB / 240 MB

Project Wizard

- Wizard for new project
  - Project Name and Location

  - Target device selection

  - Project/Device rotation

  - Project size:
    - WCE = 30MB / 60 MB
    - Linux = 60MB / 240 MB

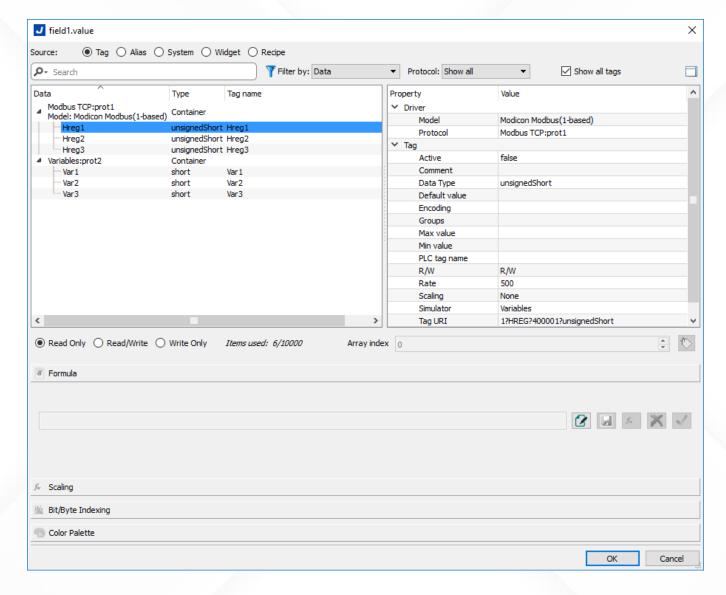# JMobile Studio Panes

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"
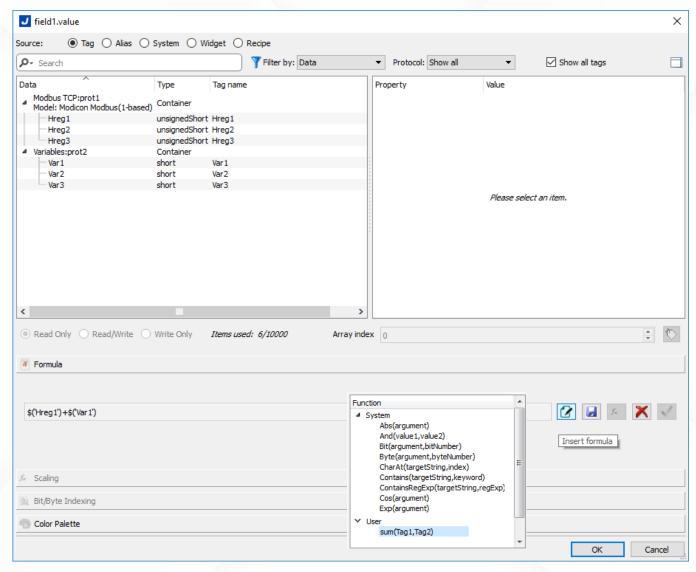
Properties pane: Attach To

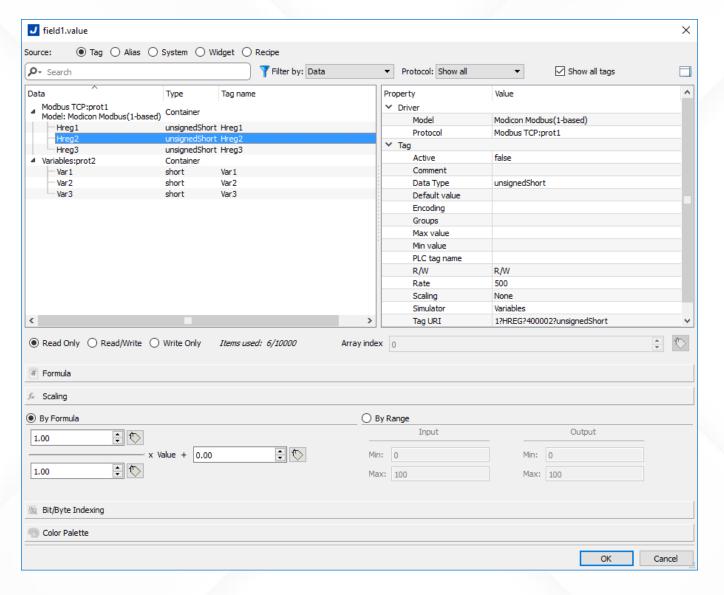Expressions available for transforms associated to tags

- 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: (+, -, *, /)
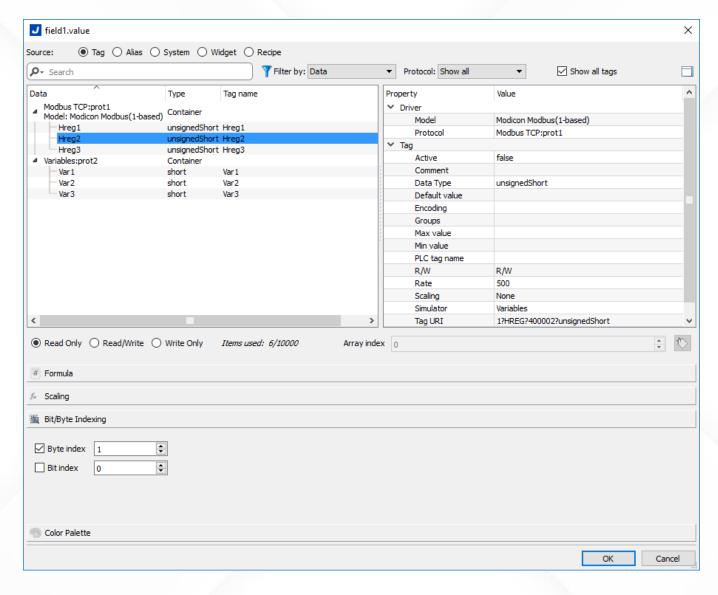 - Logic: (Not, And, Or)
  - Compare (<, <=, >, >=, ==)

Properties pane: Attach To

Apply scaling onTag visualization
- By Formula
  - Uses linear scaling
- By Range
  - Uses Input and Output limits

Properties pane: Attach To
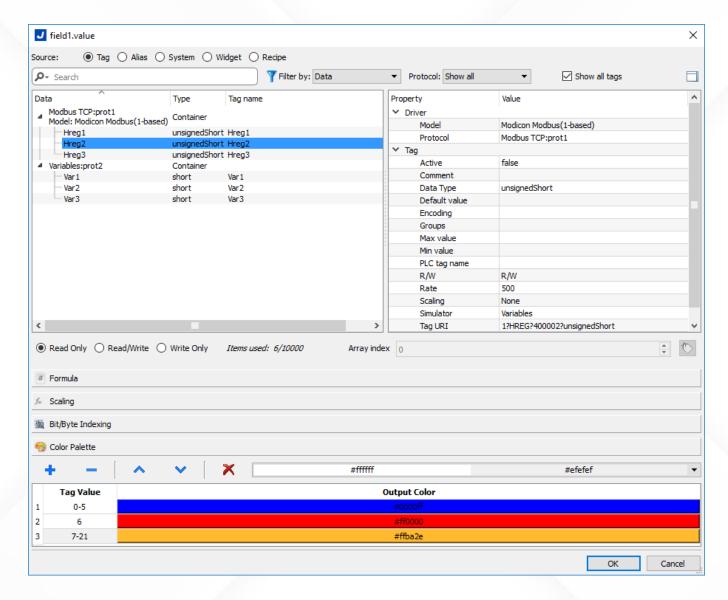
Point to specific Byte or Bit

Properties pane: Attach To

Map colors to Tag values

- Possibility to map ranges of values

NEW in 2.8

- Single Values
  - 5 > Color

- Range
  - 0-5 > Color

- List
  - 1, 5-10 > Color
  - 10-20, 30-50 > Color

Properties pane: Events and Actions
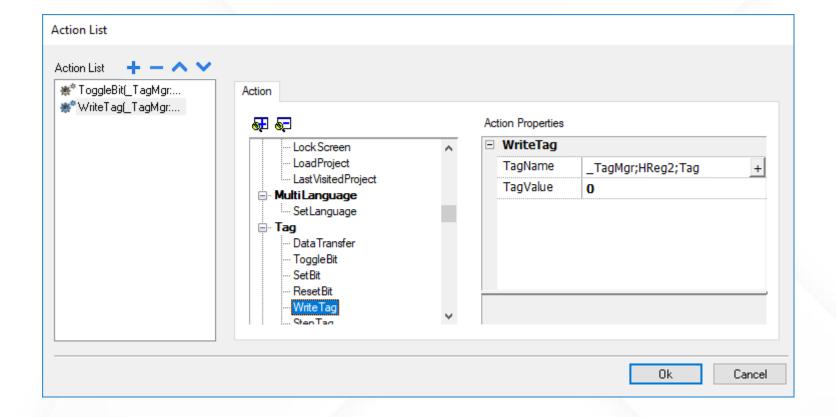
- Fields

-     Buttons

-         Page

- Alarm events

- Scheduler events
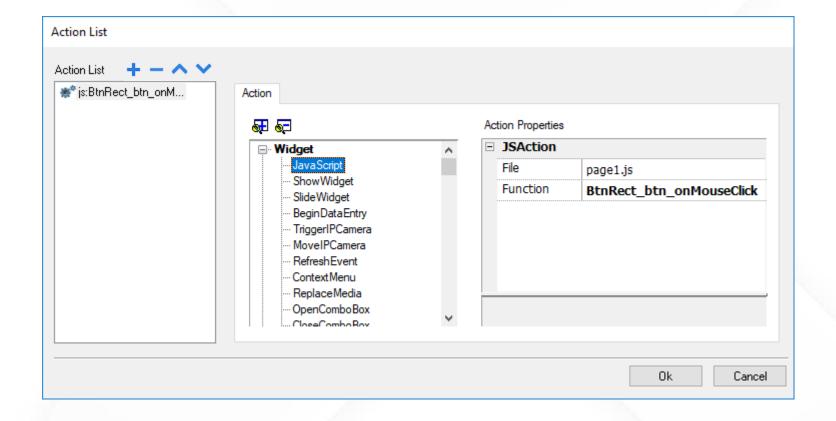
Properties pane: Events and Actions

- Actions are executed when an Event is Triggered

- Support for Multiple actions

- List of predefined available Actions

- Custom action with scripting using Javascript
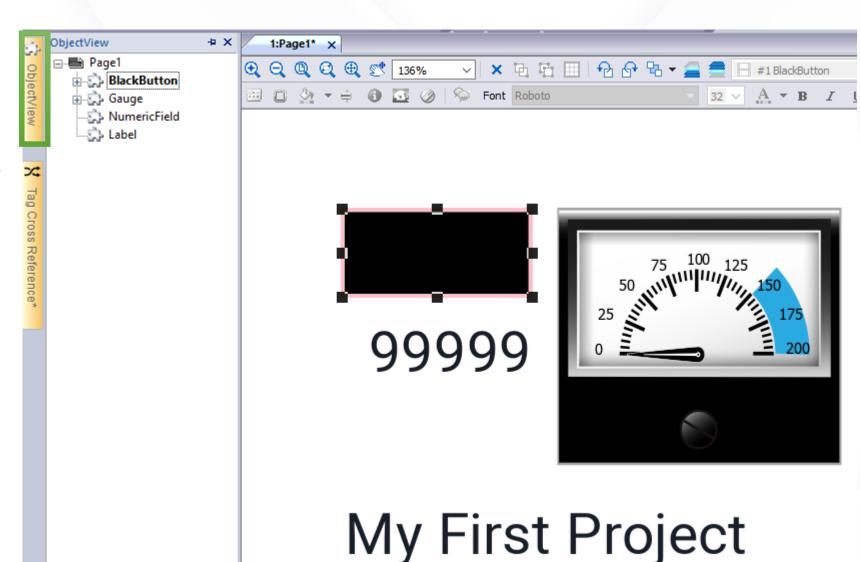
Properties pane: Events and Actions

- Actions are executed when an Event is Triggered

- Support for Multiple actions

- List of predefined available Actions

- Custom action with scripting using Javascript
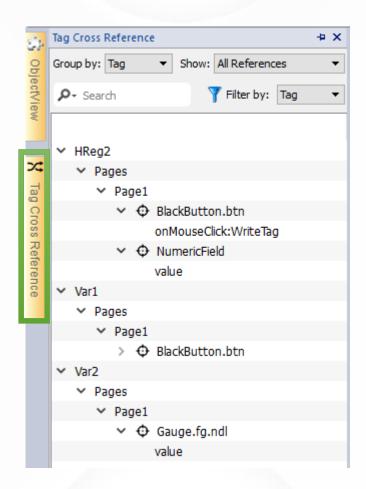
ObjectView pane

- 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
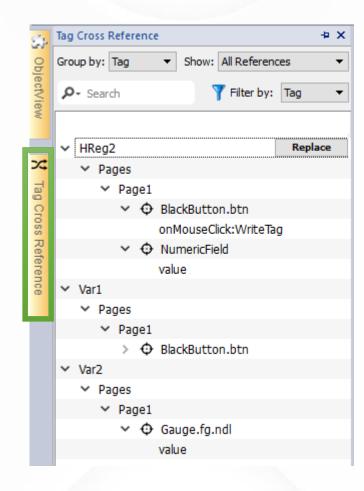 - Invalid Tag reference
  - Unused tags

Tag Cross Reference pane
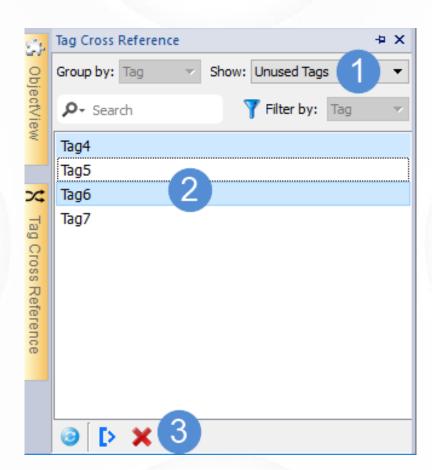
- Possibility to replace Tags
  in all occurrences

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".
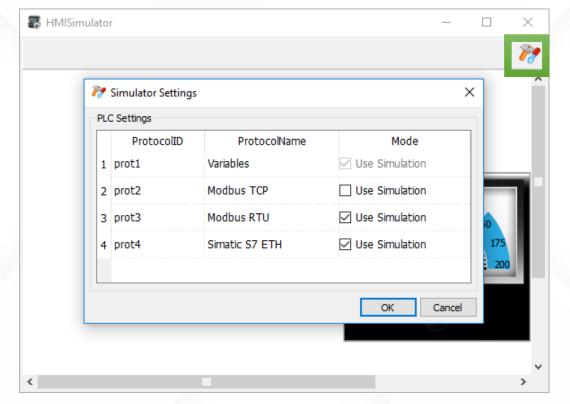*Pay attention on deleting these Tags.*

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
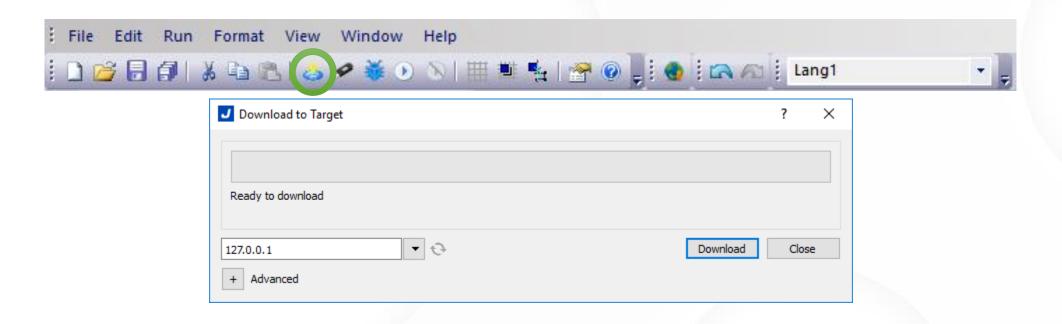
Ethernet Project Download

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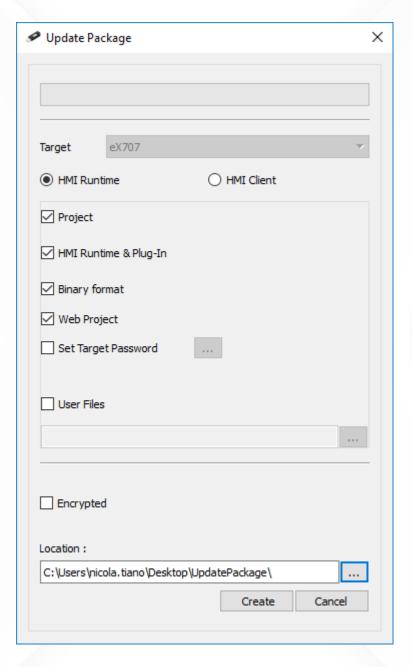
- To download via network
  click on "Download to Target" icon

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
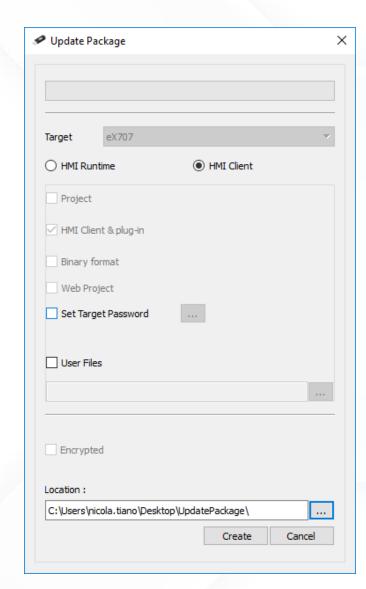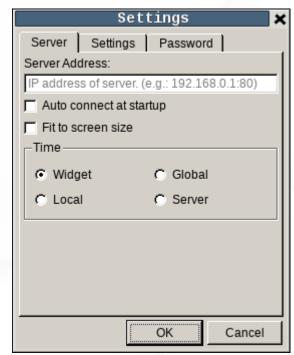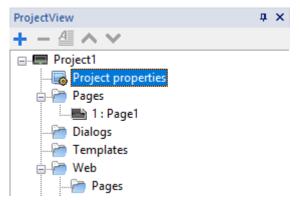
- Example schema

JMobile / Server

HMI Client   HMI Client   HMI Client

LAN1   LAN0

Project Properties

- Allow access to project settings using by the Properties Pane

ProjectView

- Project1
  - Project properties
  - Pages
    - 1 : Page1
  - Dialogs
  - Templates
  - Web
    - Pages

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

ProjectView 📌 ✕

+ − 📝 ⌃ ⌄

- 🖥 Project1
  - ⚙ Project properties
  - 📁 Pages
    - 📄 1 : Page1
  - 📁 Dialogs
  - 📁 Templates
  - 📁 Web
    - 📁 Pages

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

ProjectView

- Project1
  - Project properties
  - Pages
    - 1 : Page1
  - Dialogs
  - Templates
  - Web
    - Pages

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

ProjectView	

- Project1
  - **Project properties**
  - Pages
    - 1 : Page1
  - Dialogs
  - Templates
  - Web
    - Pages

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

ProjectView			
Project1			
▸ Project properties			
▸ Pages			
1 : Page1			
Dialogs			
Templates			
Web			
Pages			

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**	a +
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		a +
CurrentPage		a +
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		a +
Web communication icon delay (ms)	**0**	
Events		
OnWheel Action		+

Project Properties

- Allow access to project settings using by the Properties Pane

ProjectView			🔲 ✕
➕ ➖ 🔤 ∧ ∨			

- 🖥 Project1
  - 🖼 Project properties
  - 📁 Pages
    - 📄 1 : Page1
  - 📁 Dialogs
  - 📁 Templates
  - 📁 Web
    - 📁 Pages

⊟ 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

ProjectView

- Project1
  - Project properties
  - Pages
    - 1 : Page1
  - Dialogs
  - Templates
  - Web
    - Pages

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

ProjectView

- Project1
  - Project properties
  - Pages
    - 1 : Page1
  - Dialogs
  - Templates
  - Web
    - Pages

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

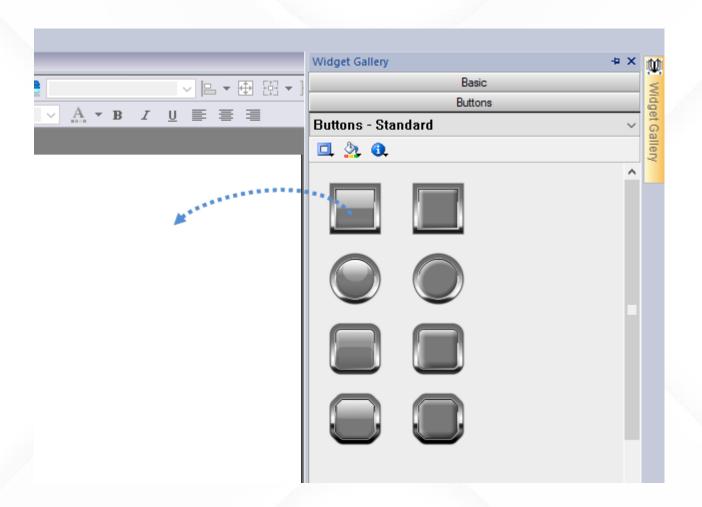| **Project**	
Home Page	Page1.jmx
PageWidth	**800**
PageHeight	**480**
Display Mode	Landscape
Project Type	eX707
Panel Memory	2GB
PageRequest	
CurrentPage	
SyncOptions	**disable**
Hold Time (ms)	**2000**
Autorepeat Time (ms)	**250**
Hide Project Loading at boot	**false**
Target zoom factor	**1**
Background 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	

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
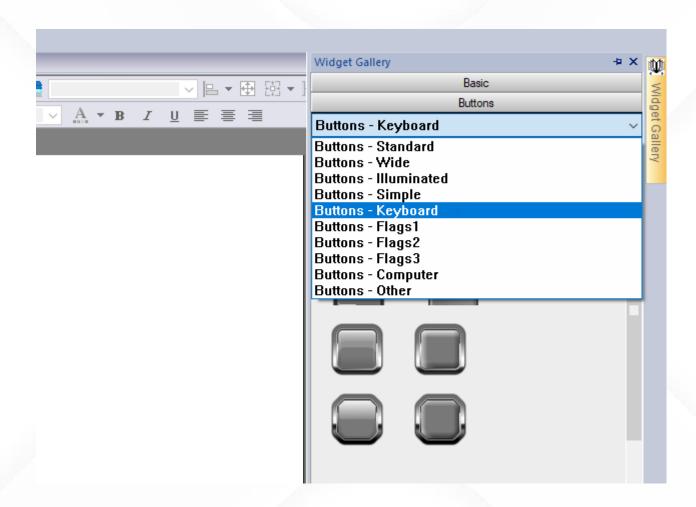 - Choose to keep datalinks

Widget Gallery

- Drag and drop widgets in page

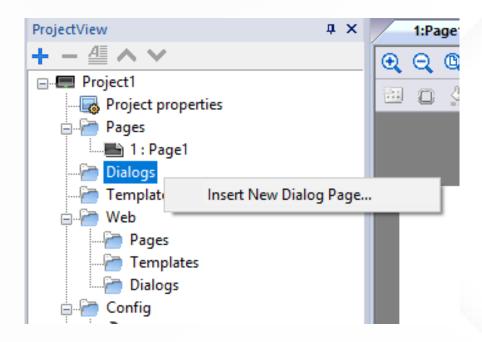- Divided by category
  - and sub-categories

Widget Gallery

- Drag and drop widgets in page

- Divided by category
  - and sub-categories
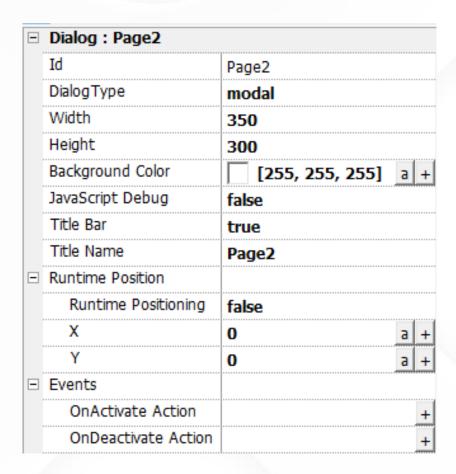
Using Dialog pages

- 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
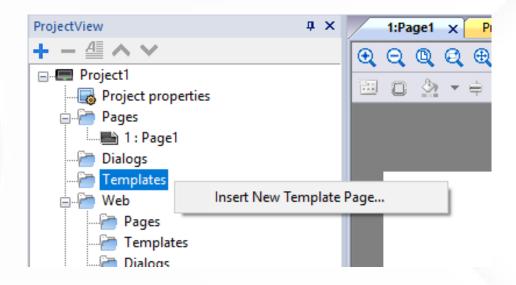
Using Dialog pages

- 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

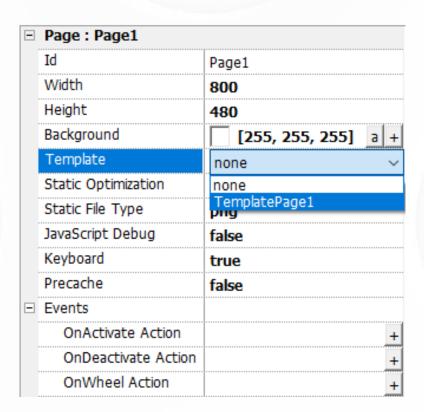| Dialog : Page2	
Id	Page2
DialogType	**modal**
Width	**350**
Height	**300**
Background Color	**[255, 255, 255]** a +
JavaScript Debug	**false**
Title Bar	**true**
Title Name	**Page2**
Runtime Position	
Runtime Positioning	**false**
X	**0** a +
Y	**0** a +
Events	
OnActivate Action	+
OnDeactivate Action	+

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
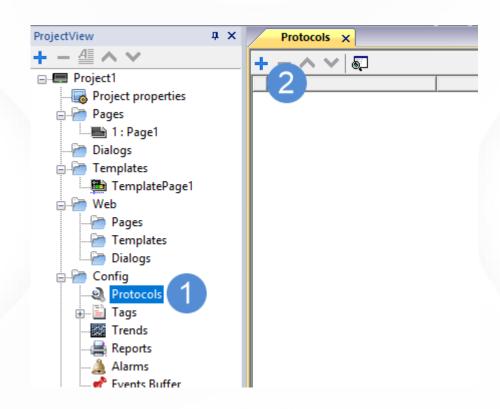

Page : Page1	
Id	Page1
Width	**800**
Height	**480**
Background	[255, 255, 255] a +
Template	none ⌄
Static Optimization	none
Static File Type	TemplatePage1
	png
JavaScript Debug	**false**
Keyboard	**true**
Precache	**false**
Events	
OnActivate Action	+
OnDeactivate Action	+
OnWheel Action	+

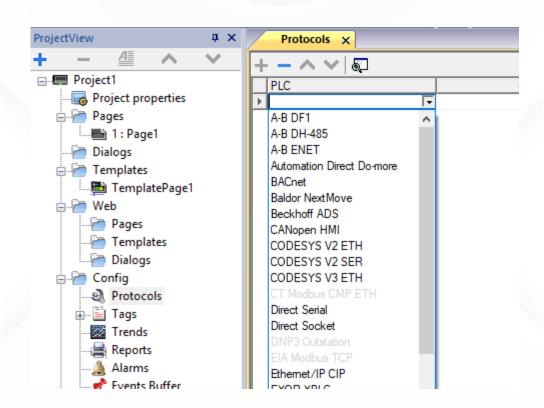# Protocols

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
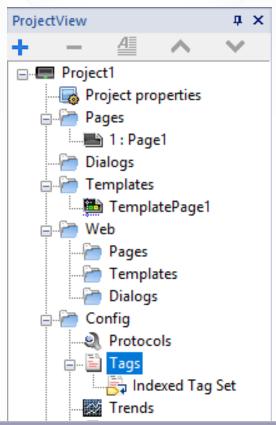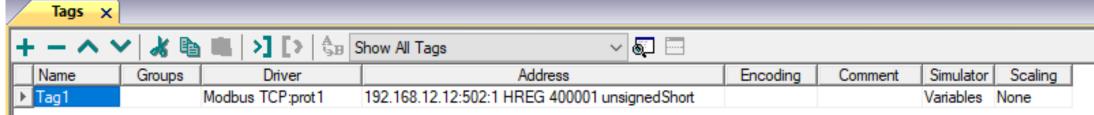 - Variables
  - System Variables

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
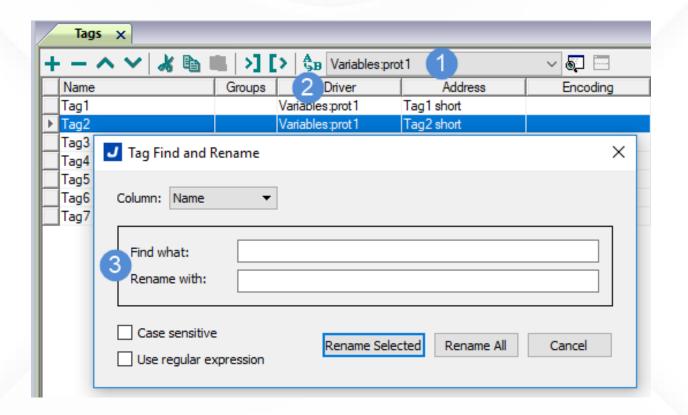 - export current tag database in xml format allowing to edit with excel and import back using the "Generic importer"

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
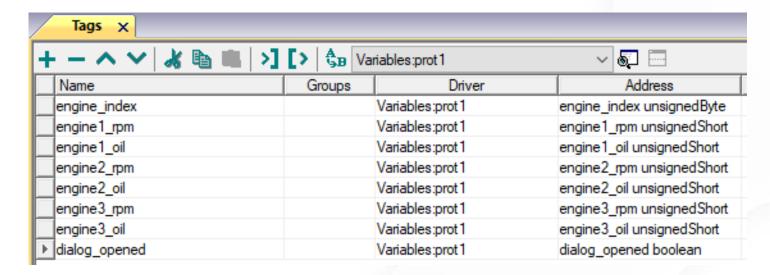
"Short" is 16-bit data corresponds to "INT" in IEC 61131 →

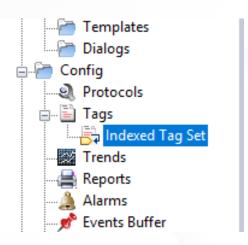| JMobile Data Type	Limits		Memory Space
Boolean	0	... 1	1 bit data
Byte	-128	... 127	8-bit data
UnsignedByte	0	... 255	8-bit data
Short	-32768	... 32767	16-bit data
UnsignedShort	0	... 65535	16-bit data
Int	-2.1e9	... 2.1e9	32-bit data
UnsignedInt	0	... 4.2e9	32-bit data
Int64 *	-9.2e18	... 9.2e18	64-bit 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
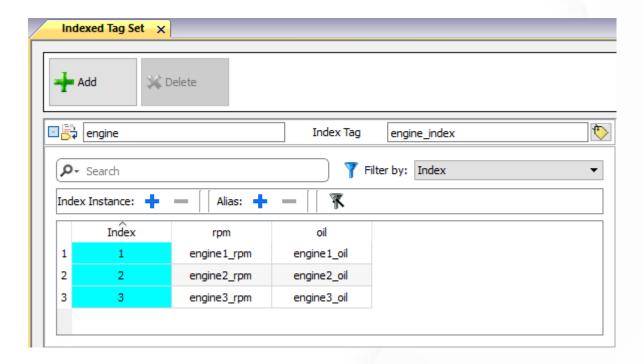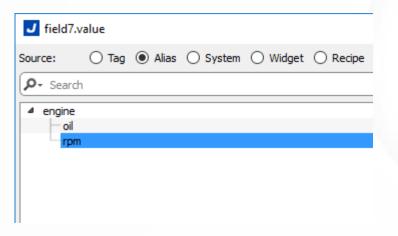 - rpm
  - oil

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

Trends and
Data logging
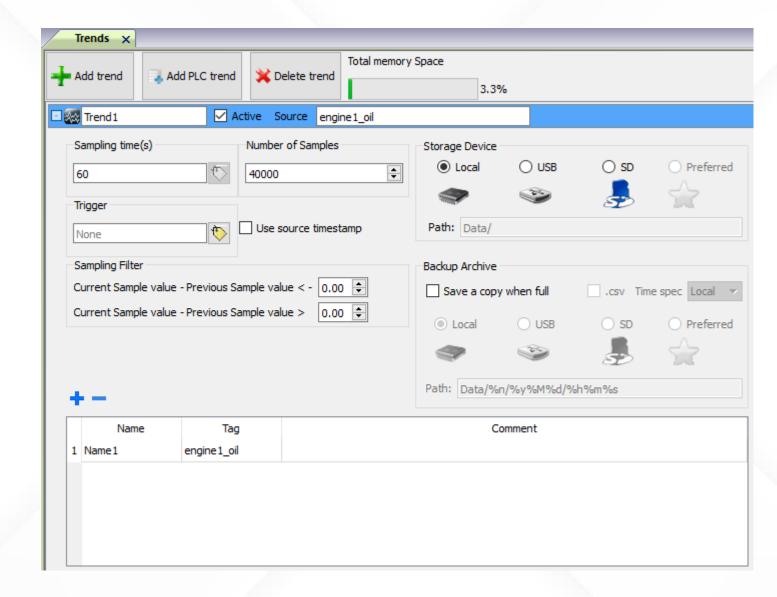
Trends

- 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"
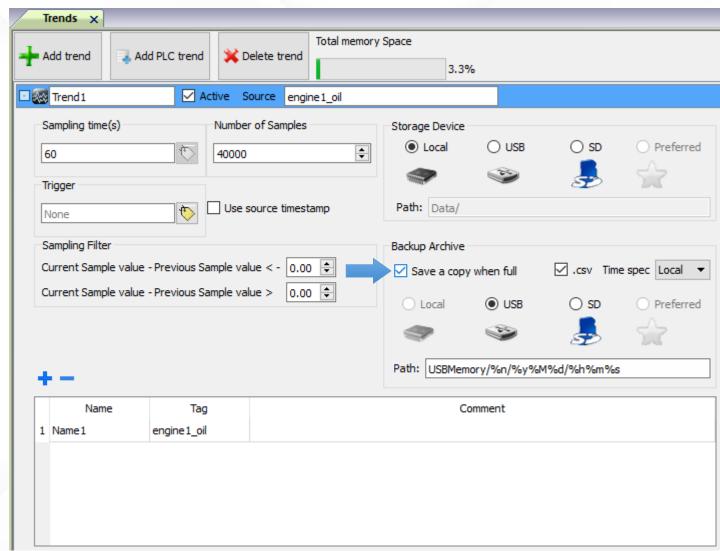 - Sampling Filter

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

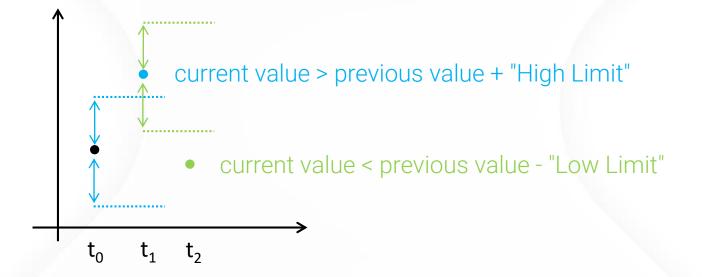 - Specify destination path

  - Minimum 300 samples

Trend Buffer Sampling Filter

- Sampling Filter (Low and High Limits)
  - The sample is stored if
    - Current value – Previous value < "Low Limit"
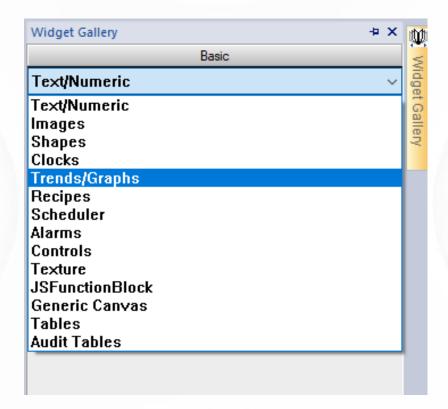   - Current value – Previous value > "High Limit"

  - If trigger is enabled
    - Limits will be applied on Trigger

current value > previous value + "High Limit"

current value < previous value - "Low Limit"

t_0 t_1 t_2
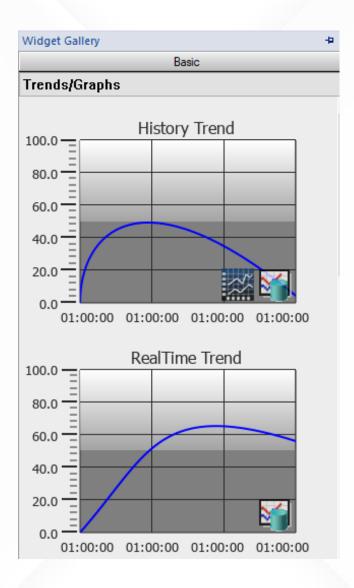
Trend Widgets

- 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)

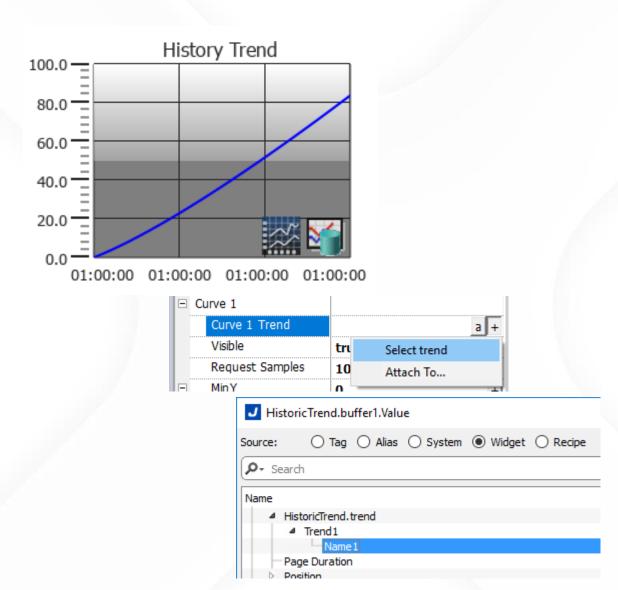 - pinch to zoom (only for multitouch series)

Trend Widgets

- Basic category > Trends/Graphs

  - History Trend > attach curve to Trend buffer

  - RealTime Trend > attach curve to a Tag

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Trend Widgets

- Basic category > Trends/Graphs

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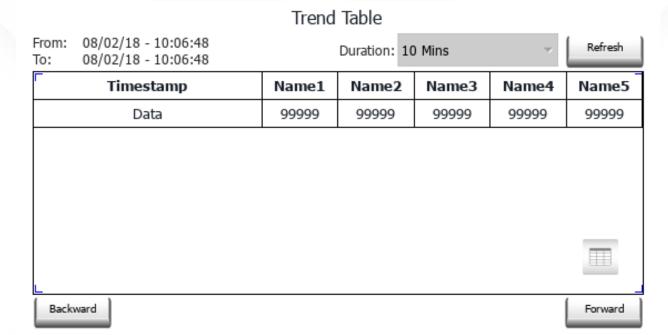
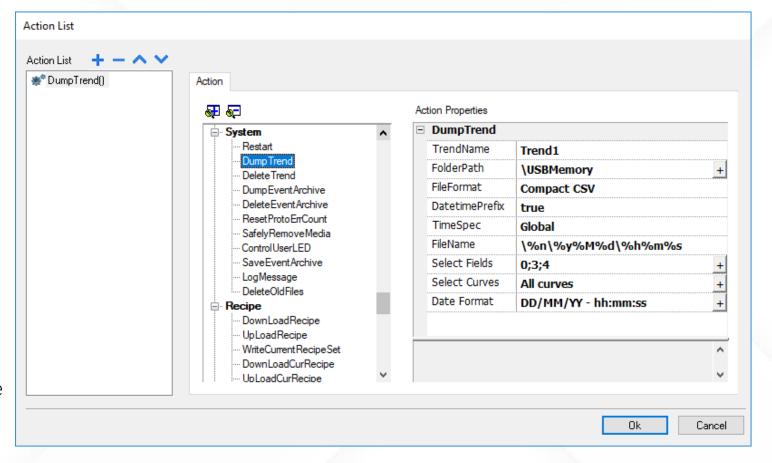 - pinch to zoom (only for multitouch series)

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

Duration: 10 Mins

Refresh

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

Backward

Forward
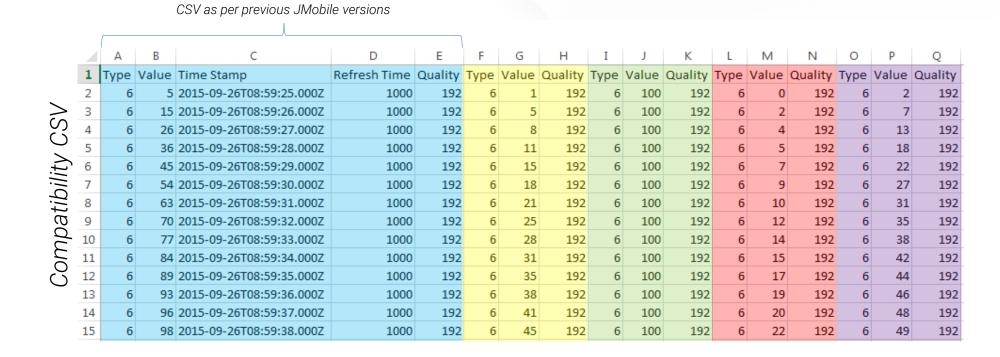
Exporting Trend Buffer

- 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

Exporting Trend Buffer

- Compatibility CSV and Compact CSV

Compact CSV

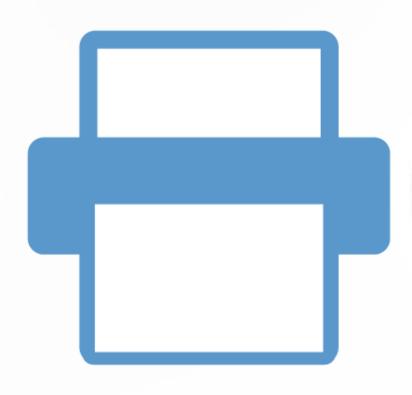|	A	B	C	D	E	F	G	H	I	J	K
1	Timestamp	Name1	6	Name2	6	Name3	6	Name4	6	Name5	6
2		Value	Quality	Value	Quality	Value	Quality	Value	Quality	Value	Quality
3	2015-09-26T08:59:25.000Z	5	192	1	192	100	192	0	192	2	192
4	2015-09-26T08:59:26.000Z	15	192	5	192	100	192	2	192	7	192
5	2015-09-26T08:59:27.000Z	26	192	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

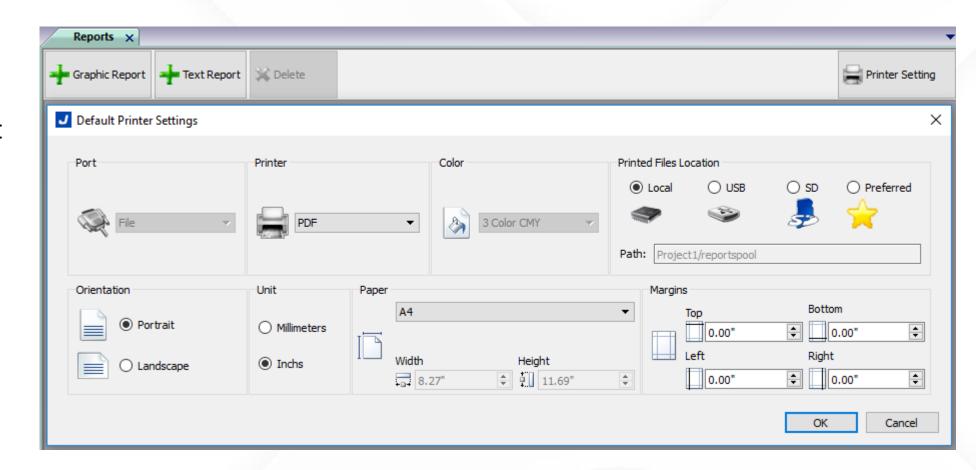- Printing of Alarms on triggering continuous printing *

- Print screen image

* Available for WCE HMIs only

Reports

- Reports can be defined as two types:

  - **Graphic Report** including images and screenshot
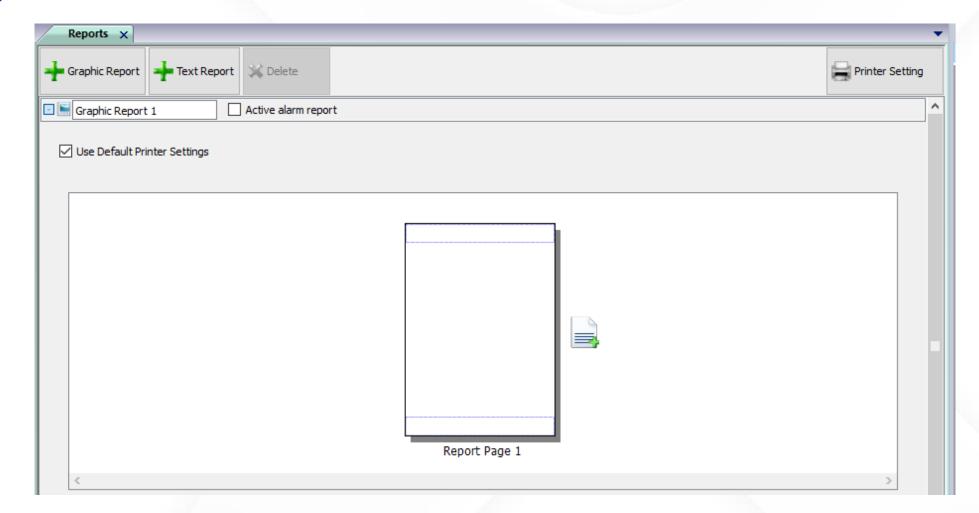
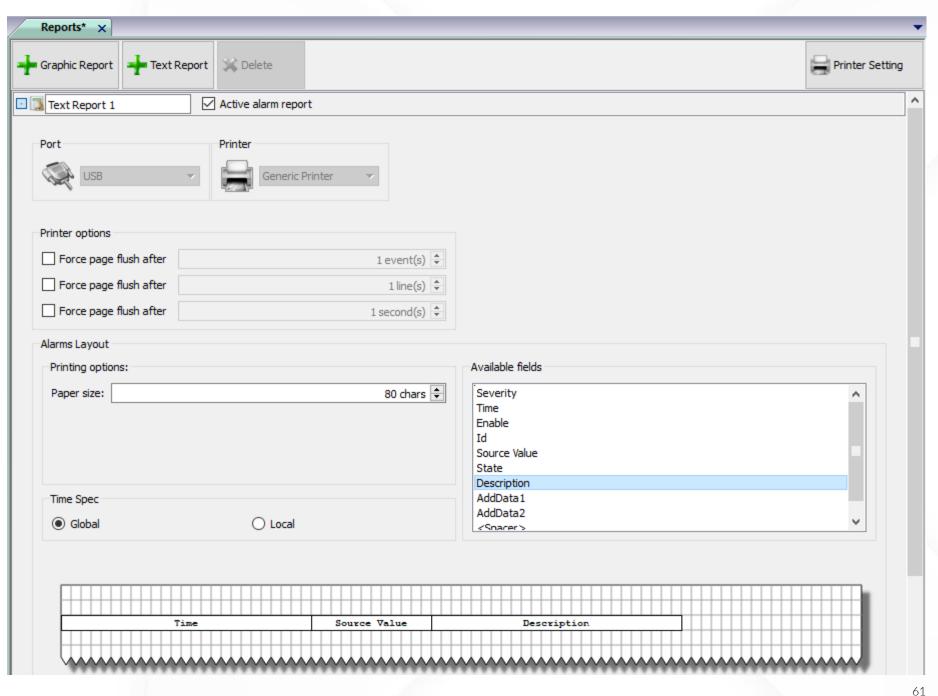 - **Text Report** real time printing of alarm events *

* 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"
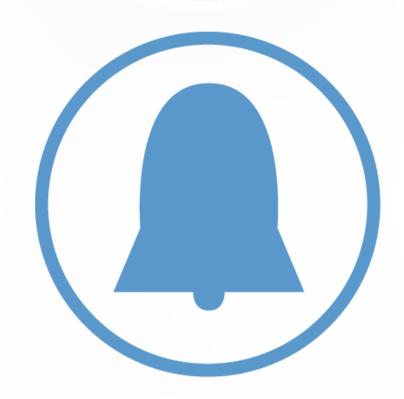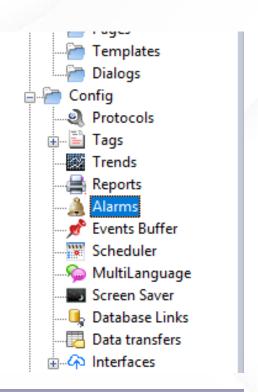
- Alarm Report cannot be printed in PDF format

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
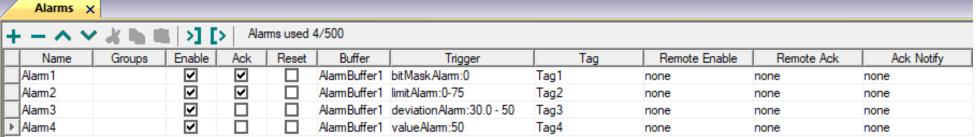- Alarms can be enabled/disable at runtime

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
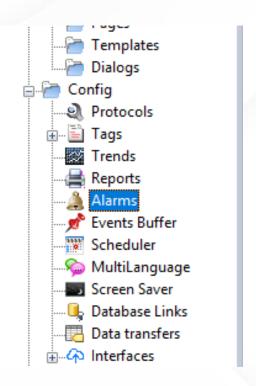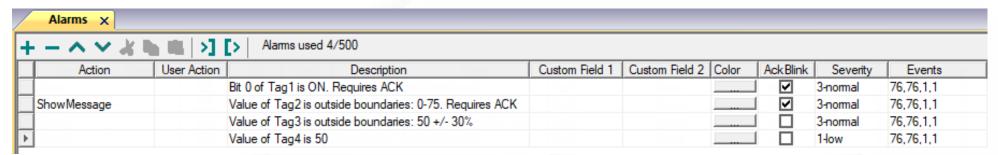- Use **Remote** features to synchronize alarm status between many HMIs

	Name	Groups	Enable	Ack	Reset	Buffer	Trigger	Tag	Remote Enable	Remote Ack	Ack Notify
	Alarm1		☑	☑	☐	AlarmBuffer1	bitMaskAlarm:0	Tag1	none	none	none
	Alarm2		☑	☑	☐	AlarmBuffer1	limitAlarm:0-75	Tag2	none	none	none
	Alarm3		☑	☐	☐	AlarmBuffer1	deviationAlarm:30.0 - 50	Tag3	none	none	none
▶	Alarm4		☑	☐	☐	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

	Action	User Action	Description	Custom Field 1	Custom Field 2	Color	Ack Blink	Severity	Events
			Bit 0 of Tag1 is ON. Requires ACK				☑	3-normal	76,76,1,1
	ShowMessage		Value of Tag2 is outside boundaries: 0-75. Requires ACK				☑	3-normal	76,76,1,1
			Value of Tag3 is outside boundaries: 50 +/- 30%				☐	3-normal	76,76,1,1
▶			Value of Tag4 is 50				☐	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 <u>out of</u> "Min – Max" interval

- Deviation Alarm
  - Alarm triggered when Tag value is <u>out of range</u> defined by Percentage Deviation of Tag value and SetPoint

- value Alarm
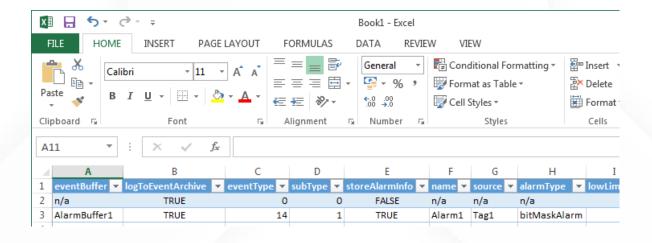 - Alarm triggered on specific Tag value

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

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

Alarms History

- Points to Alarm buffer with all encountered alarms

- Contains widgets for navigation inside buffer

- Reports period of displayed widow

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.fltrcmbo|R,	-
Access Type	R/W	
Filter Column 2	Select	
Filter 2		a +
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
☐	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

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

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

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:
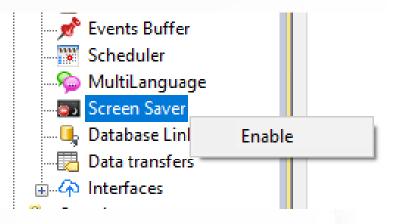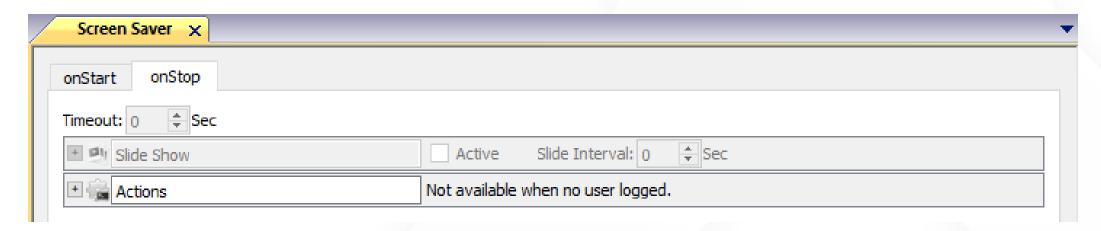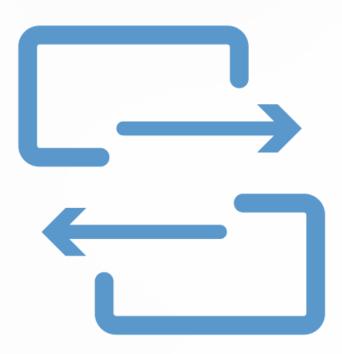 - Images Slide Show
  - Actions
  - Javascript

Screen Saver

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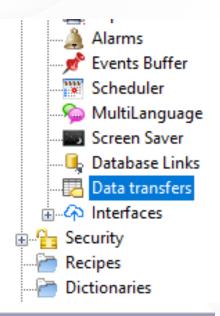 - Javascript

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
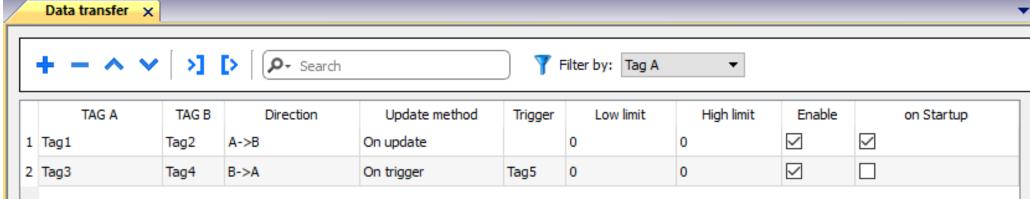
- Bi-directional transfers can be programmed

Data Transfers

- Data transfers can be done:

  - On update: when the value of the source tag changes

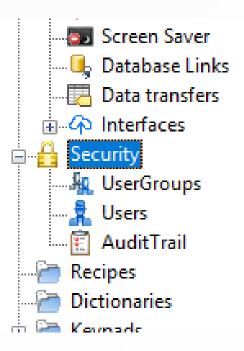 - On trigger: when tag defined as Trigger changes with a value greater than High Limit or less than Low Limit

	TAG A	TAG B	Direction	Update method	Trigger	Low limit	High limit	Enable	on Startup
1	Tag1	Tag2	A->B	On update		0	0	☑	☑
2	Tag3	Tag4	B->A	On trigger	Tag5	0	0	☑	☐

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
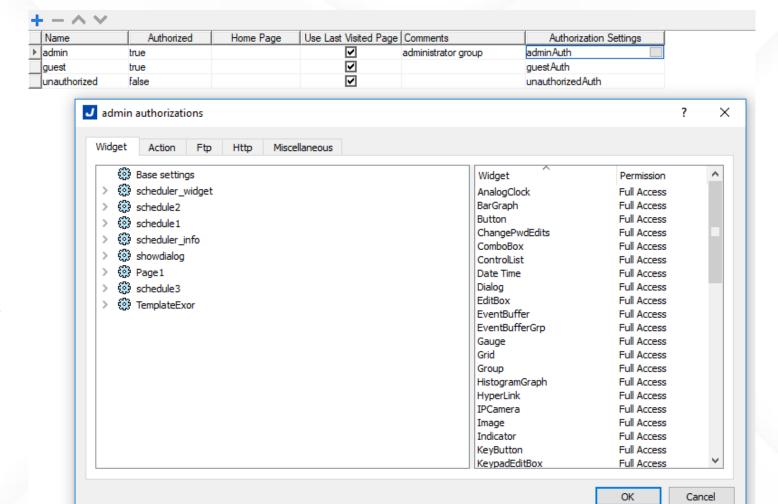- Option to Switch showing last visited page
- Compliant to FDA 21 CFR Part 11

NEW in 2.8

User Group Authorizations

- Define groups

- Define per each group the "base settings" authorizations

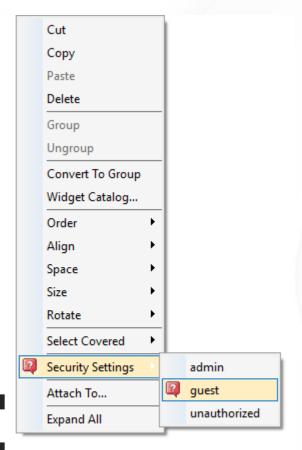 - By widget: Hide, Read Only, Full Access

  - By Action: Allowed, Not Allowed

Widget Authorizations

- Permissions can be set on single widget

  - Right Click

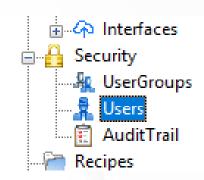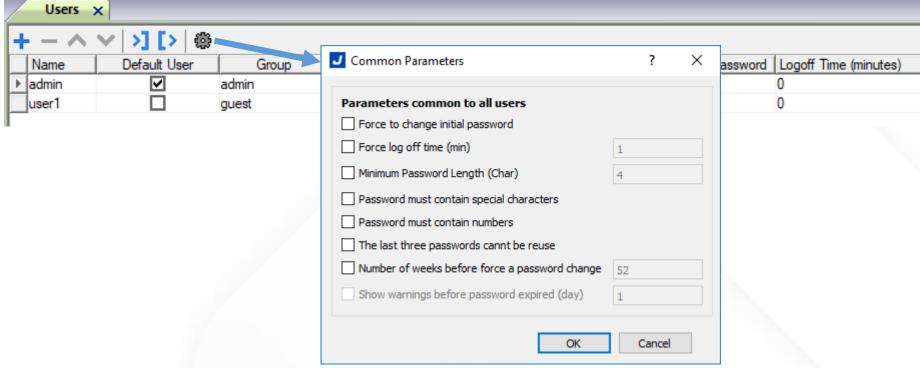   Security Settings

    Select group

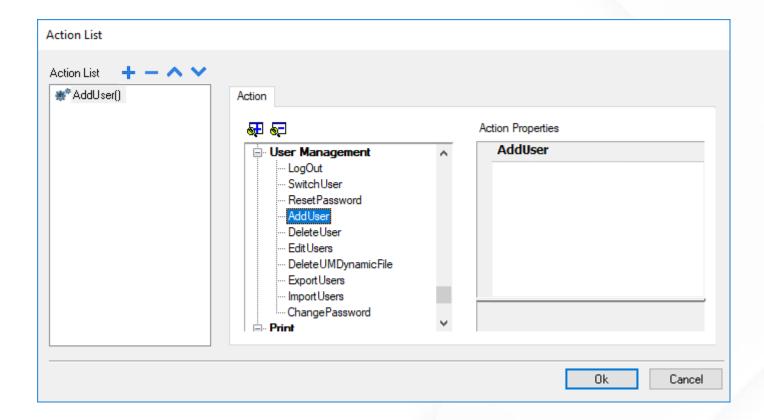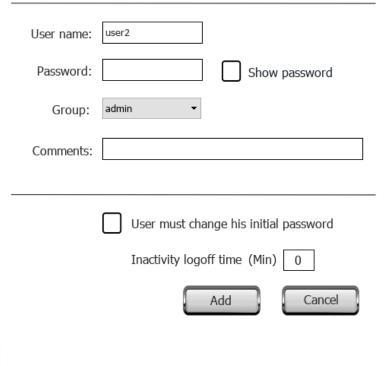# Create Users

- At design time, from Users

- Common Parameters

Create Users

• At runtime, using dedicated action

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
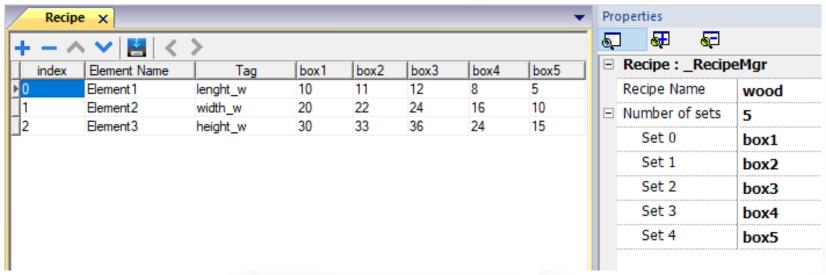 - Download/Upload
  - Add/delete recipe sets

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
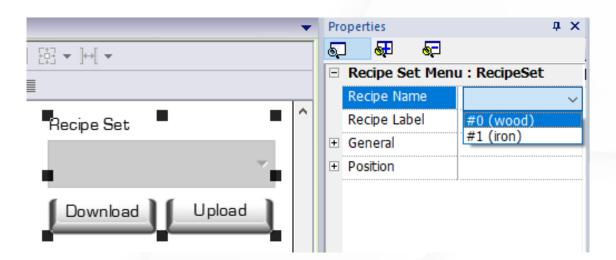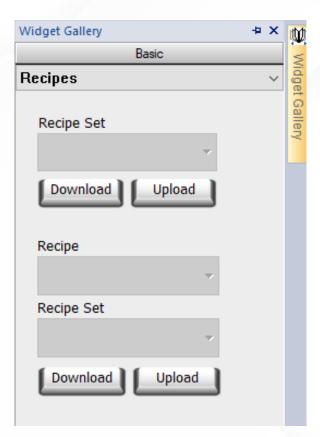 - Sets (columns): predefined values for each Tag

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
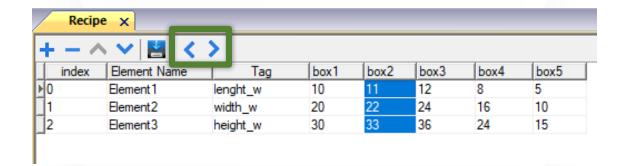 - Recipe Menu: user can select Recipe and Set on HMI

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
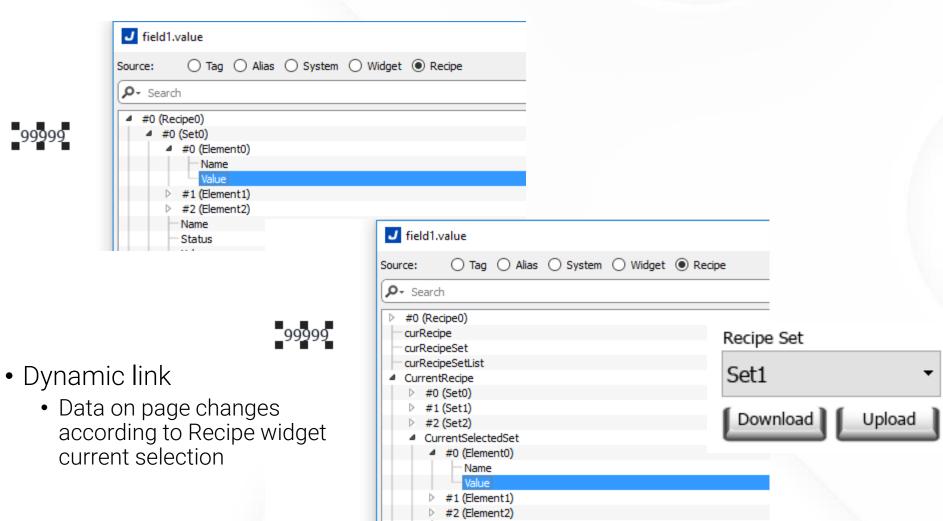 - Restore by Replace, Match, Match and Add

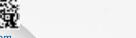| index	Element Name	Tag	box1	box2	box3	box4	box5
0	Element1	lenght_w	10	11	12	8	5
1	Element2	width_w	20	22	24	16	10
2	Element3	height_w	30	33	36	24	15

Recipe data on widgets

- Static link

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

End of JMobile Training Day 1

Thanks for your attention
Technical Support Team

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