

JMobile Training Day 2

JM 4.0

Agenda

Manage Target

Remote Control

Interfaces

Corvina Cloud

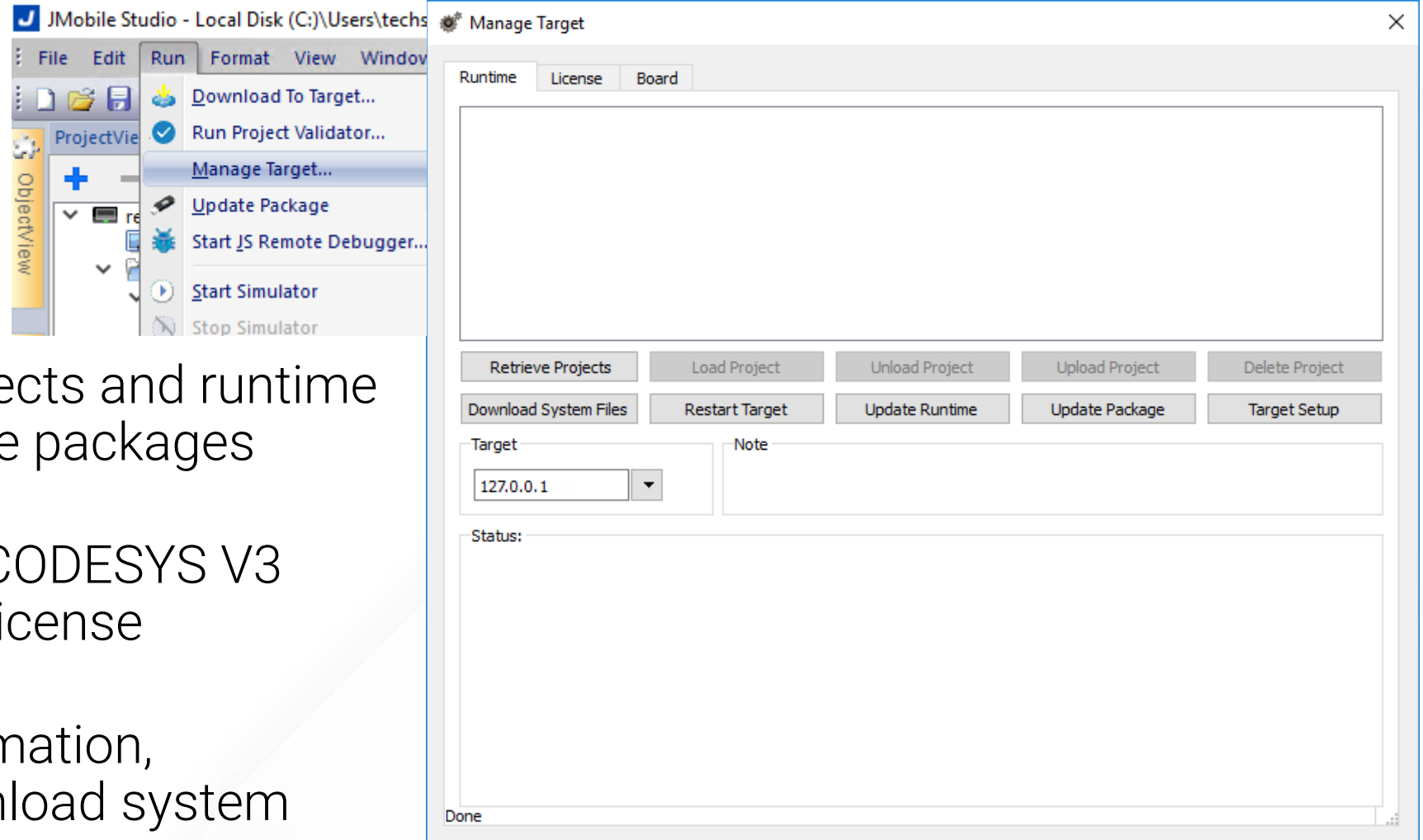
JavaScript

Custom Widgets and User Gallery

CODESYS internal PLC

Manage Target

Manage Target

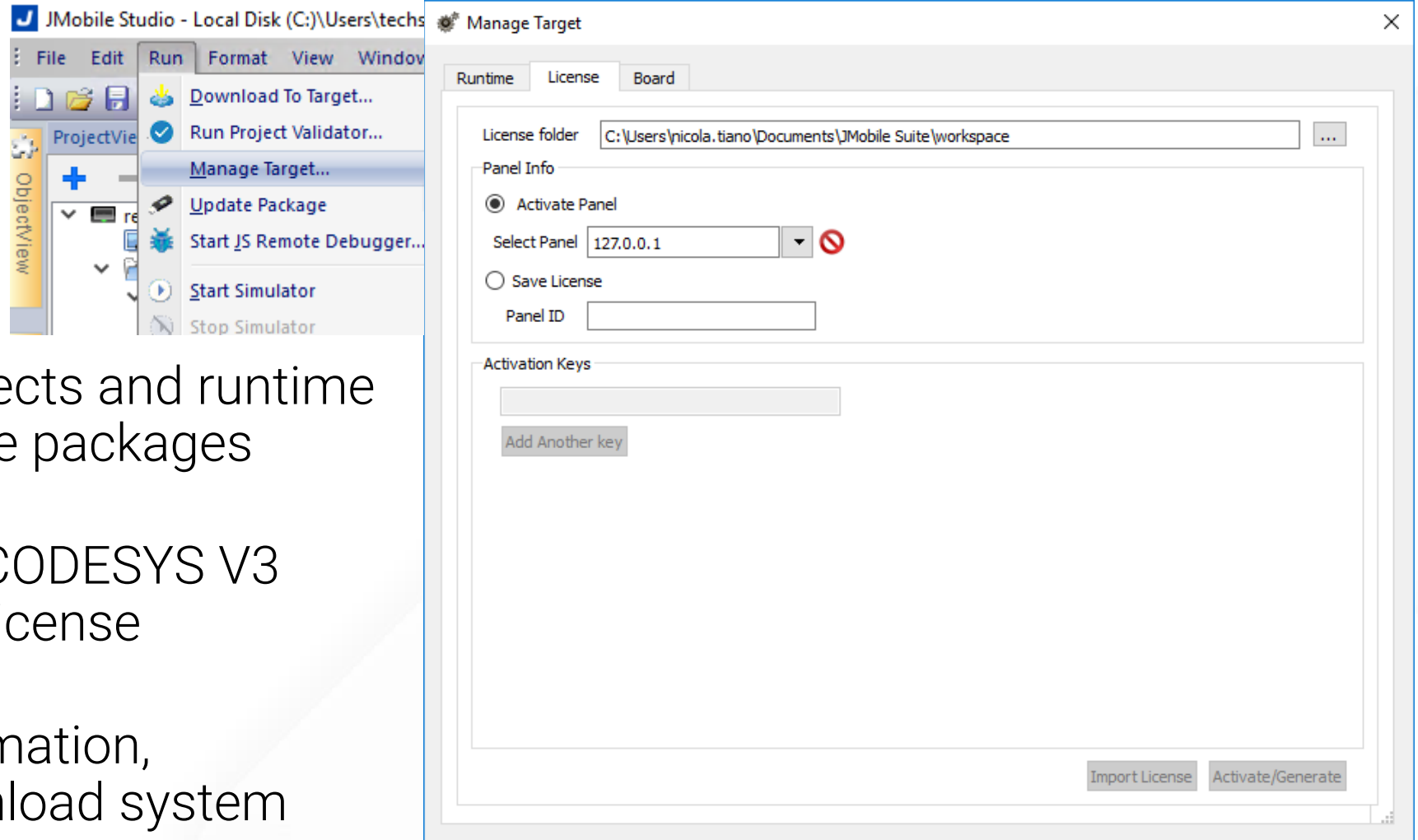


Runtime: manage projects and runtime
create update packages

License: activation of CODESYS V3
internal PLC license

Board: get board information,
upload/download system
components

Manage Target

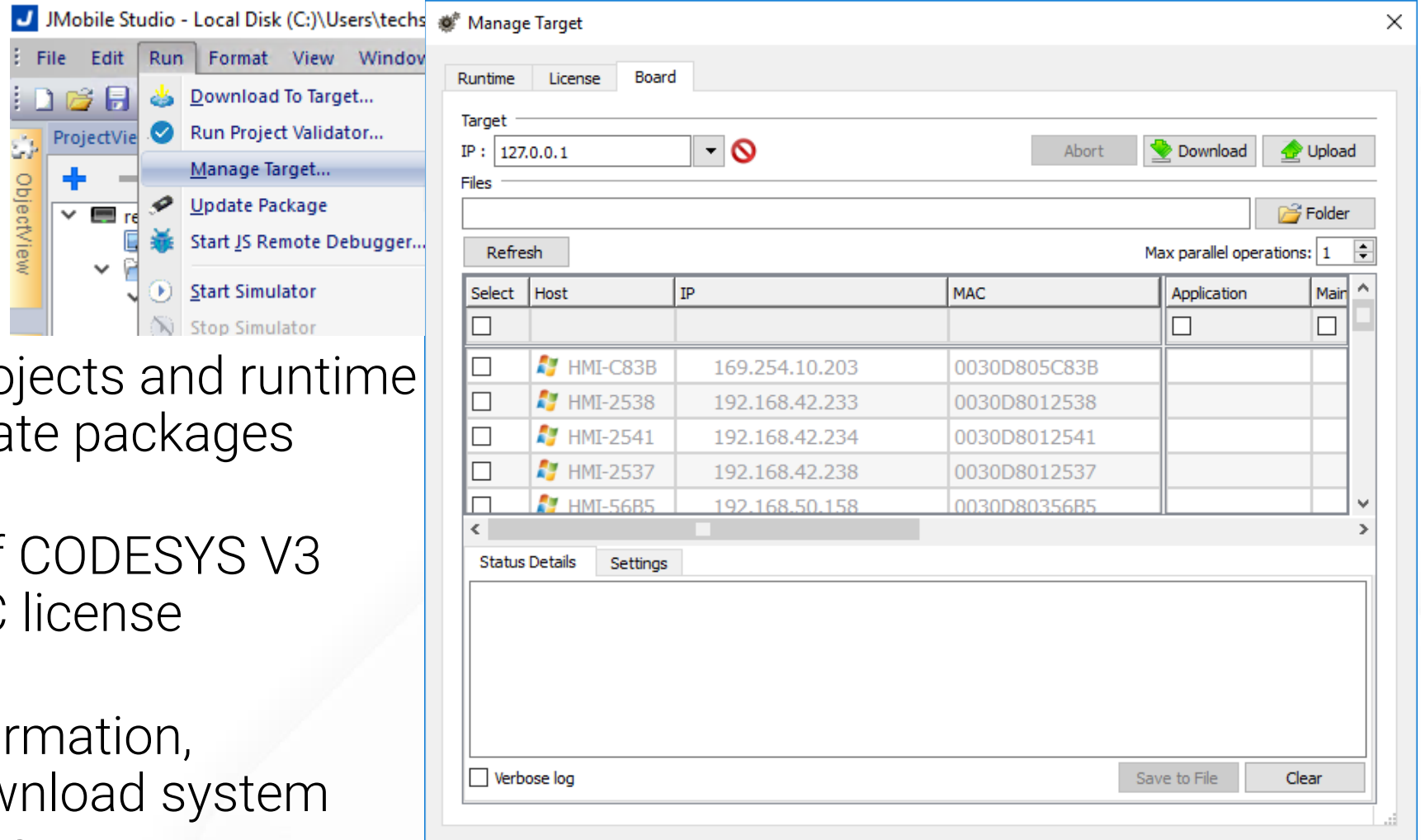


Runtime: manage projects and runtime
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Manage Target



Runtime: manage projects and runtime
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upload/download system
components

Manage Target - Runtime

List of stored projects

Load and unload projects

Red icon > project is unloaded

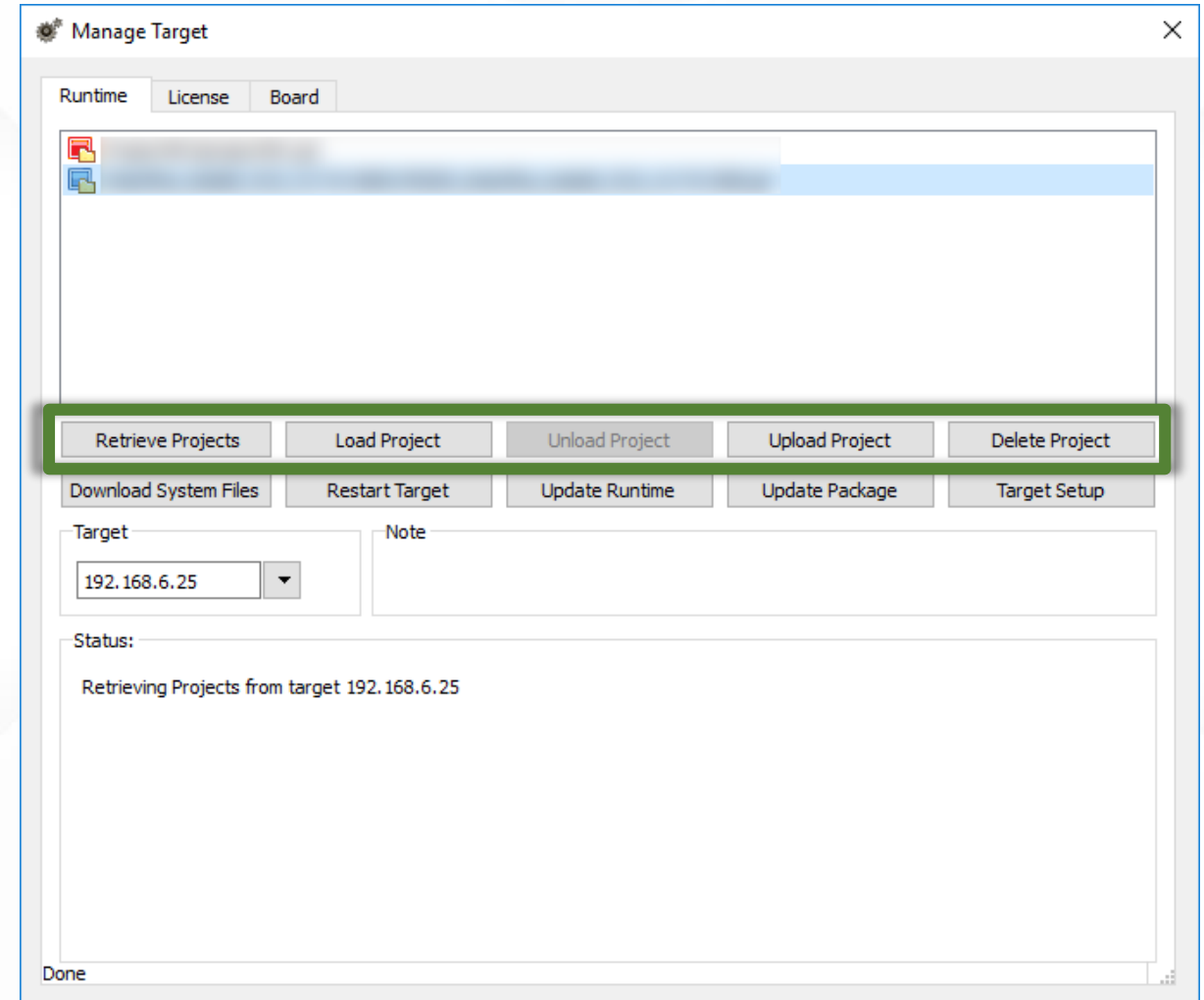
Blue icon > project is loaded

Delete projects to free space

Upload projects *

* Copy project from HMI to PC.

HMI Can be password-protected to prevent “unwanted” uploads



Manage Target - Runtime

Update Runtime

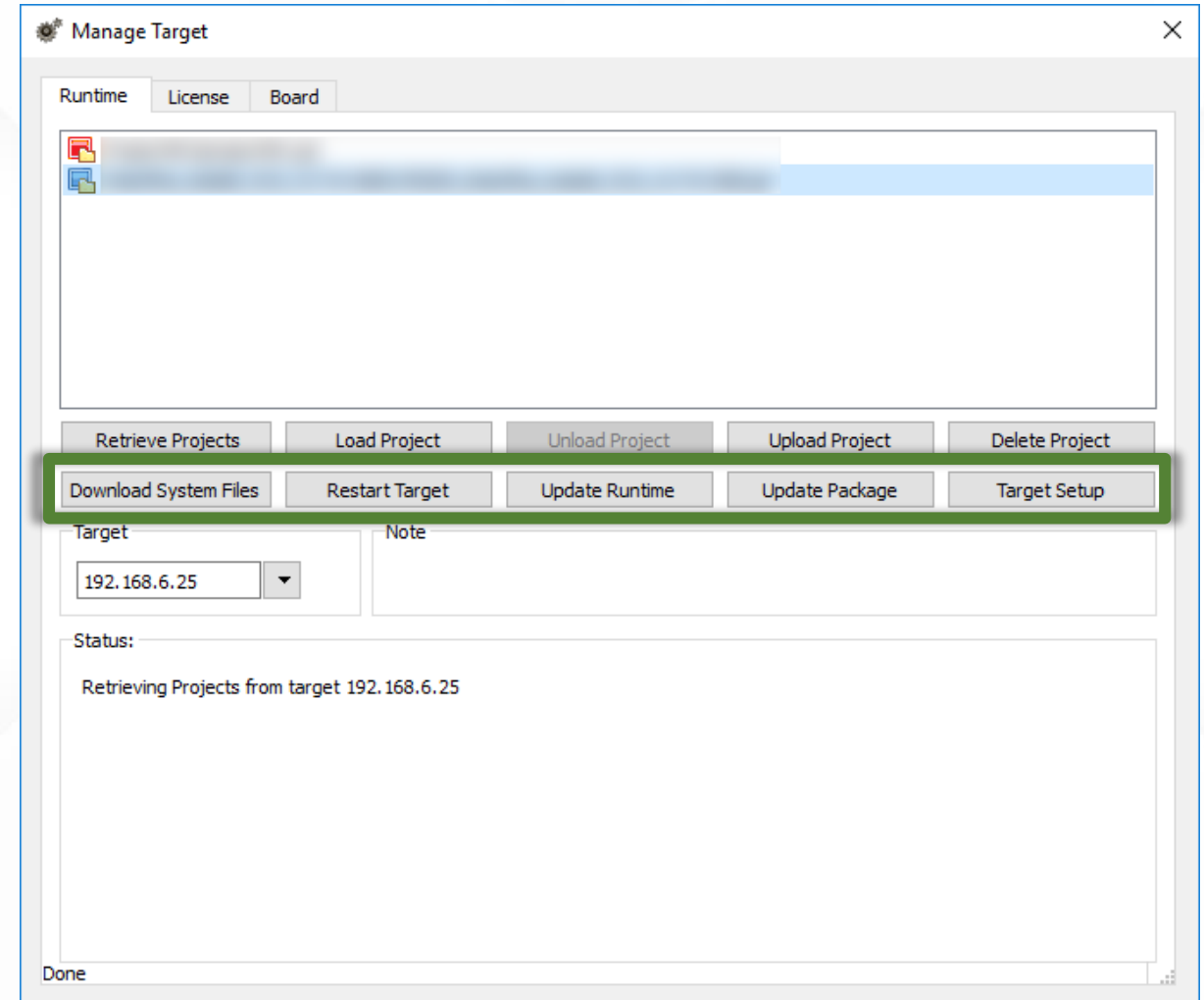
Restart Target

Create Update Packages

Change target listening ports *

Download System Files to apply

* Useful when target is Runtime PC and default HTTP port (80) is already used by other programs



Manage Target - License

Insert HMI IP Address
or search from list

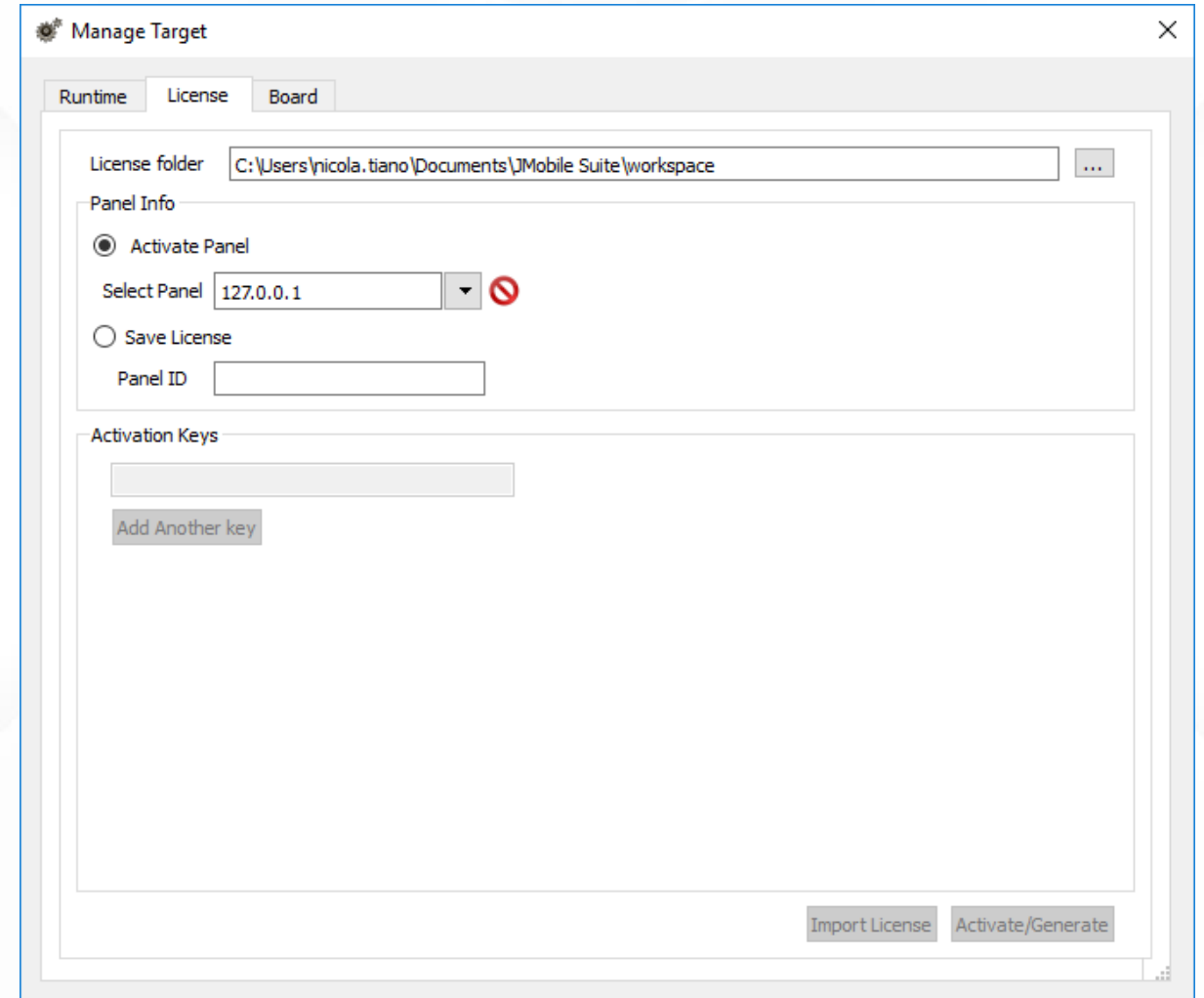
Insert Activation Key *

Click on Activate/Generate

* Activation Key can be:

Final License: ask to sales

Demo License: insert "CODESYS_DEMO" to have a 2 hours running PLC. To restart demo license, HMI requires reboot



Manage Target - Board

Update OS components via Ethernet

Useful to retrieve OS components info

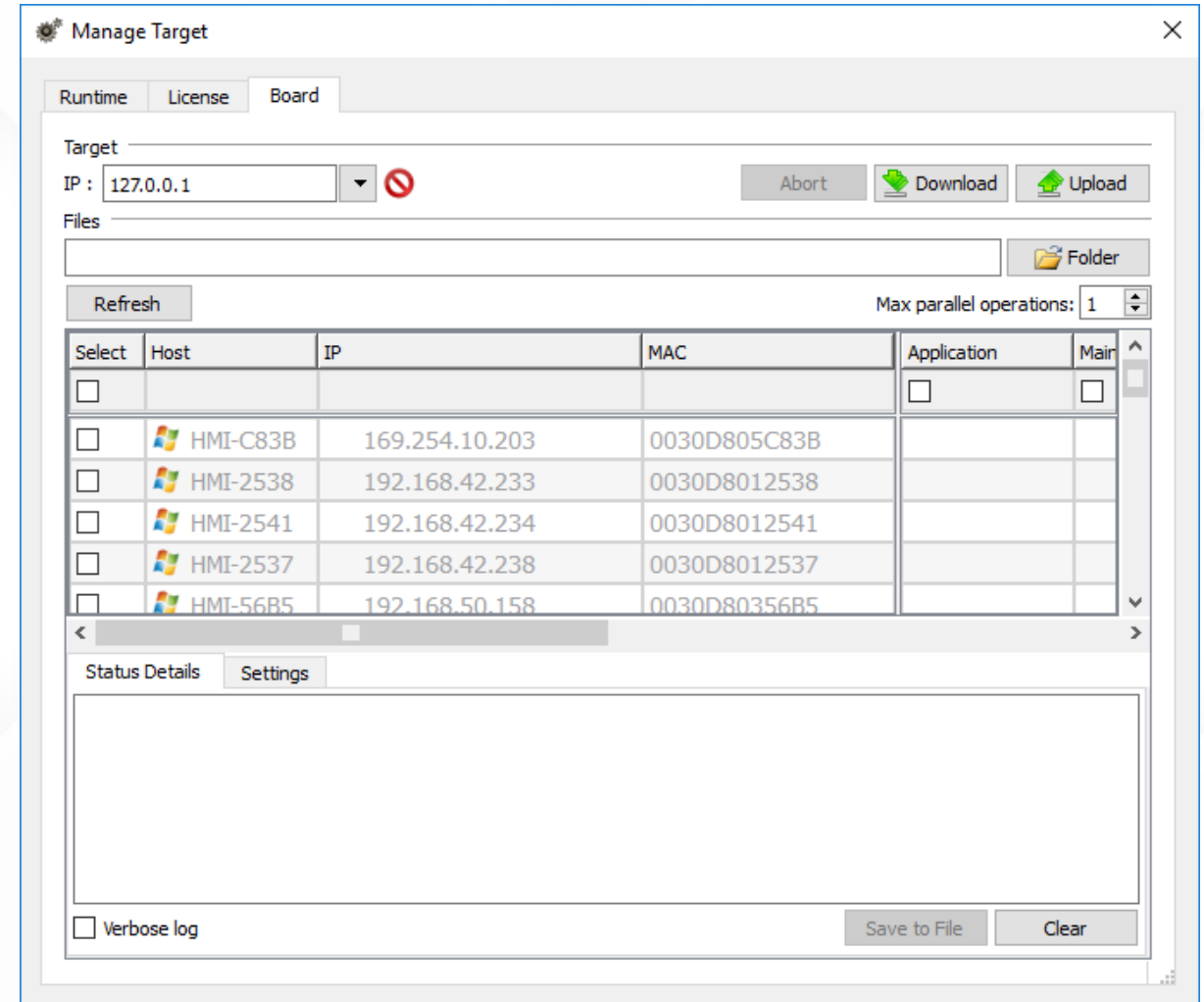
Useful to replace HMI splash screen shown during power-up phase

type: 16bit bitmap

filename: splash.bmp

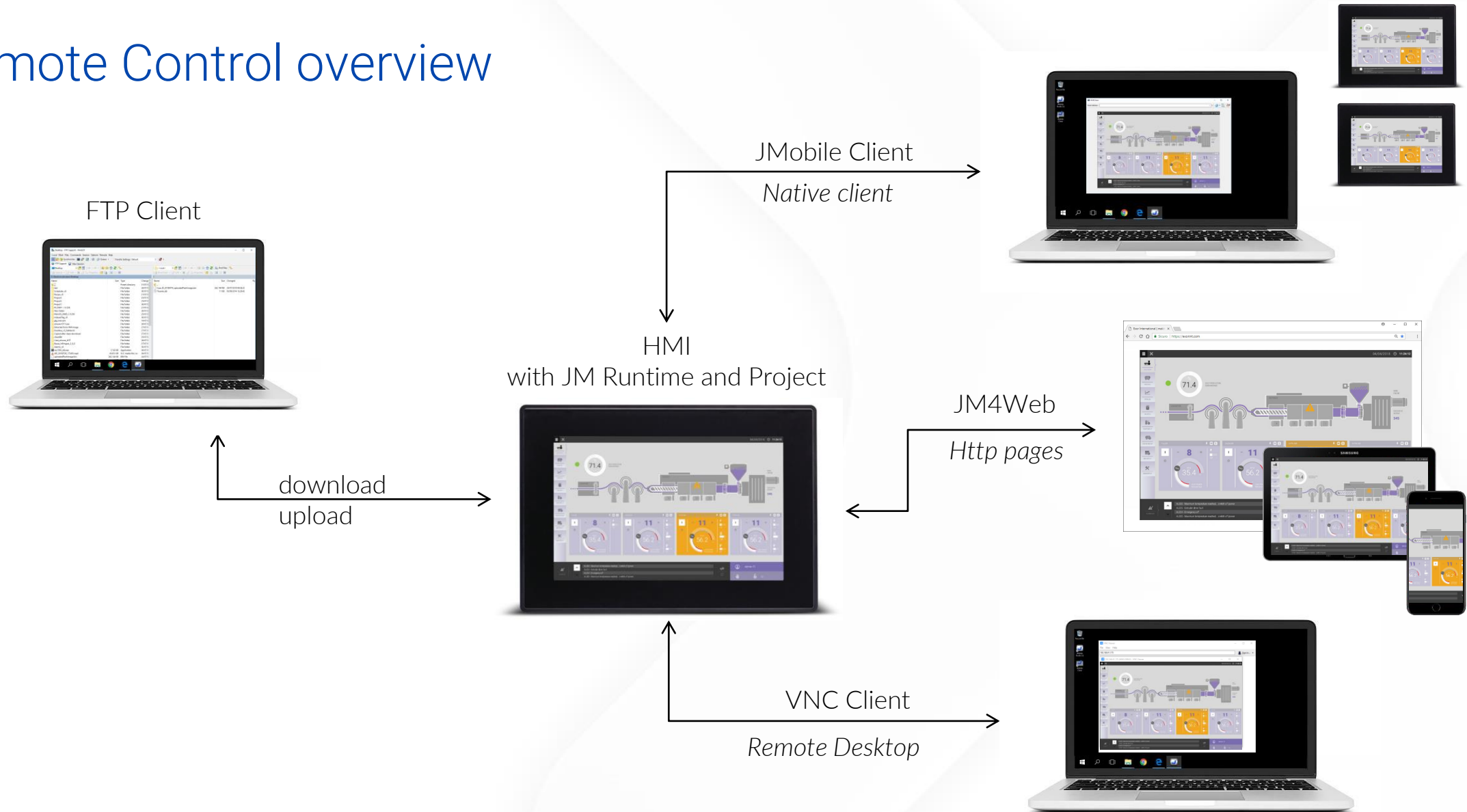
size: less than 500 KB

resolution: even on width and height

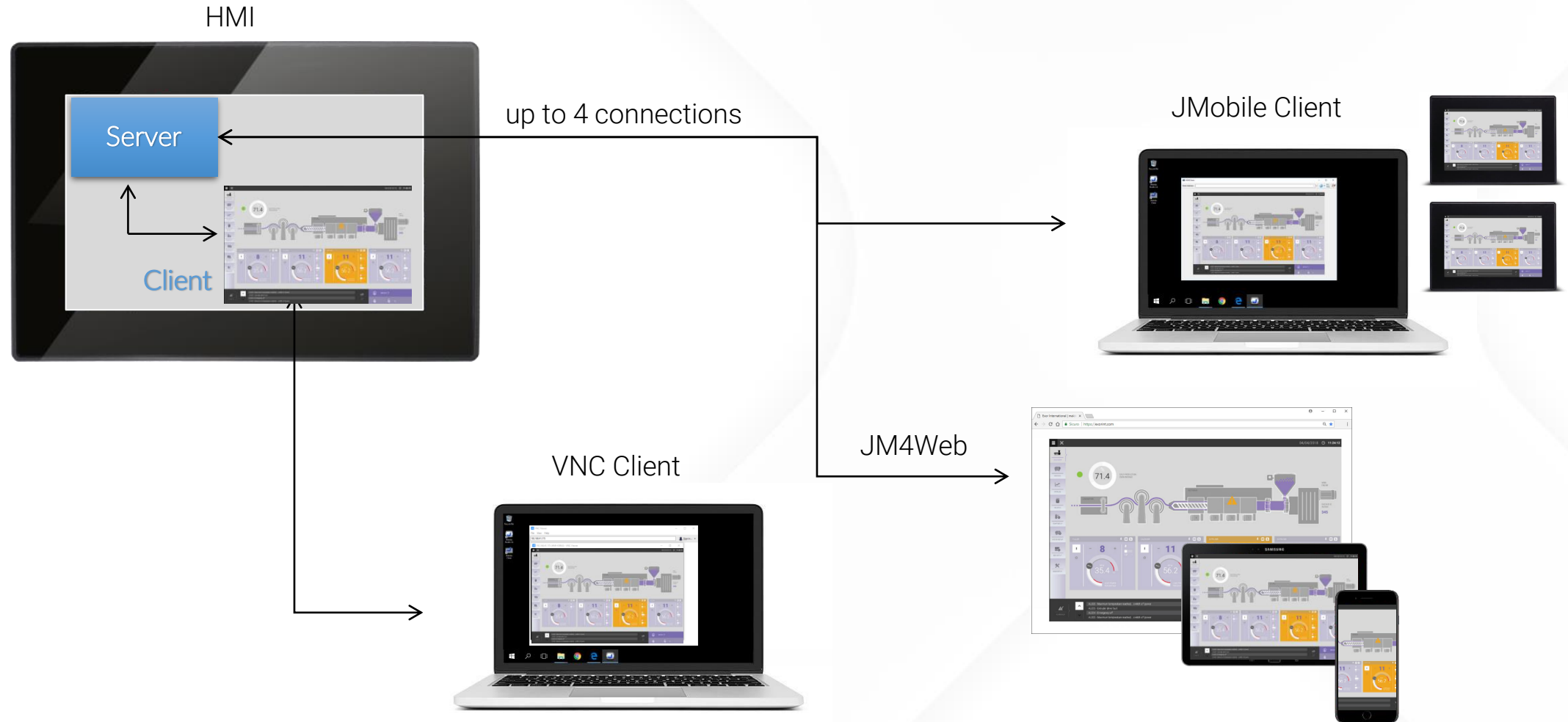


Remote Control

Remote Control overview



Remote Control - Clients comparison



VNC

Any action executed on HMI screen is viewed in VNC Client and vice-versa

Sends graphic frames and click commands based on VNC standard protocol

Useful to “teach” end user to operate on HMI application

Enable VNC

From System Settings

Context menu: directly on HMI

Browser:

https://<ipAddress>/machine_config

https://<ipAddress>/system_settings

The screenshot shows the 'System Settings' interface with the 'Service Settings' tab selected. The 'Services' menu item in the left sidebar is highlighted with a blue circle containing the number '1'. In the main content area, the 'VNC Service' is highlighted with a blue circle containing the number '2'. The 'VNC Service' is currently set to 'On'.

System Settings	Service Settings	ADMIN ↗
Language	Autorun scripts from external storage	<input checked="" type="checkbox"/>
System	Avahi Daemon	Off >
Logs	Bridge/Switch Service	Off >
Date & Time	Cloud Service	Off >
Network	DHCP Server	Off >
Services 1	Fast Boot	<input type="checkbox"/>
Plugins	Firewall Service	Off >
Management	Reserve a CPU core for applications	<input type="checkbox"/>
Display	Router / NAT / Port forwarding	Off >
Restart	Show loading bar during boot	<input checked="" type="checkbox"/>
Authentication	SNMP Server	Off >
EXIT	SSH Server	On >
	VNC Service 2	On >

JMobile Client

JMobile Client is an application included into JMobile Suite installer package

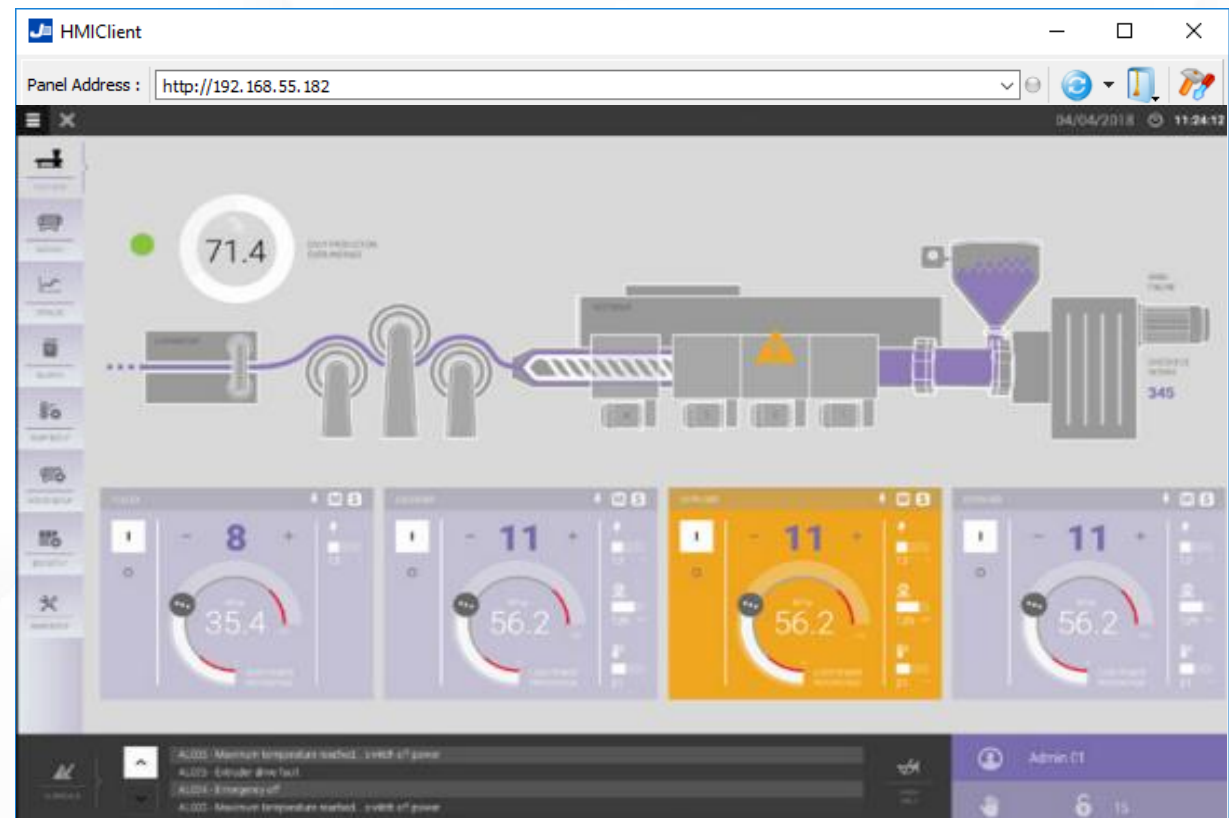
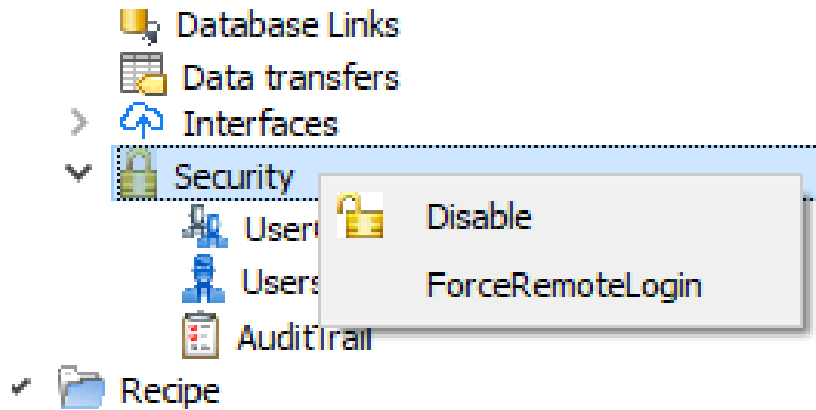
It runs on Microsoft Windows OS machines

Same application running on the HMI will be loaded in JMobile Client

Page navigation on JMobile Client is independent from HMI

JMobile Client

Access from JMobile Client is secured by "Force Remote Login"
Once launched, you need only to type-in HMI address



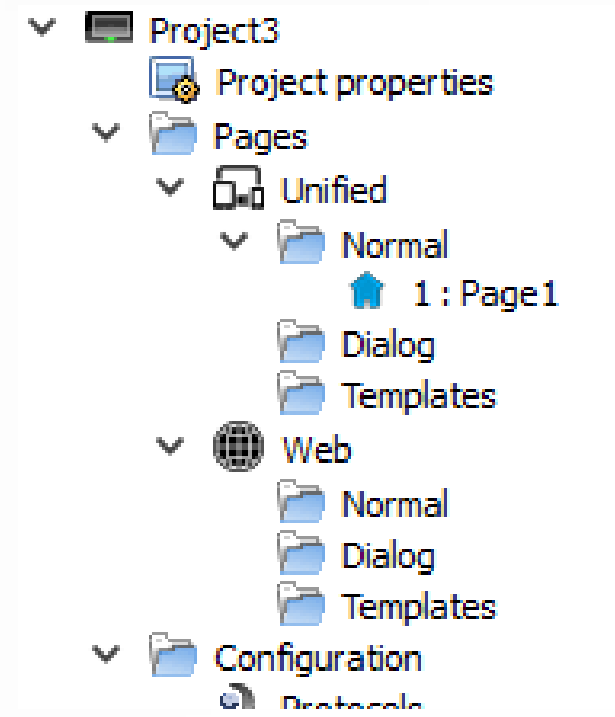
JM4Web

JM4Web provides a real-time interface to the HMIs using standard web technologies

Runs on HTML5 web browsers

Web pages can be
common to native page (Unified)
separated (Web only)

NEW
in 4.0



JM4Web

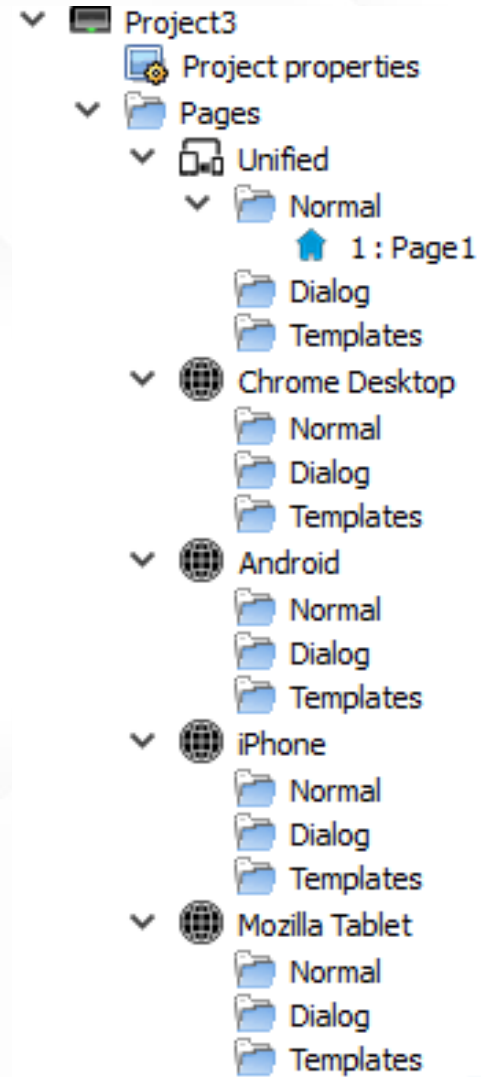
More than one Web technology profile into one project

Pages can be different

based on device

based on "User Agent" parameter

Pages can be shared between categories

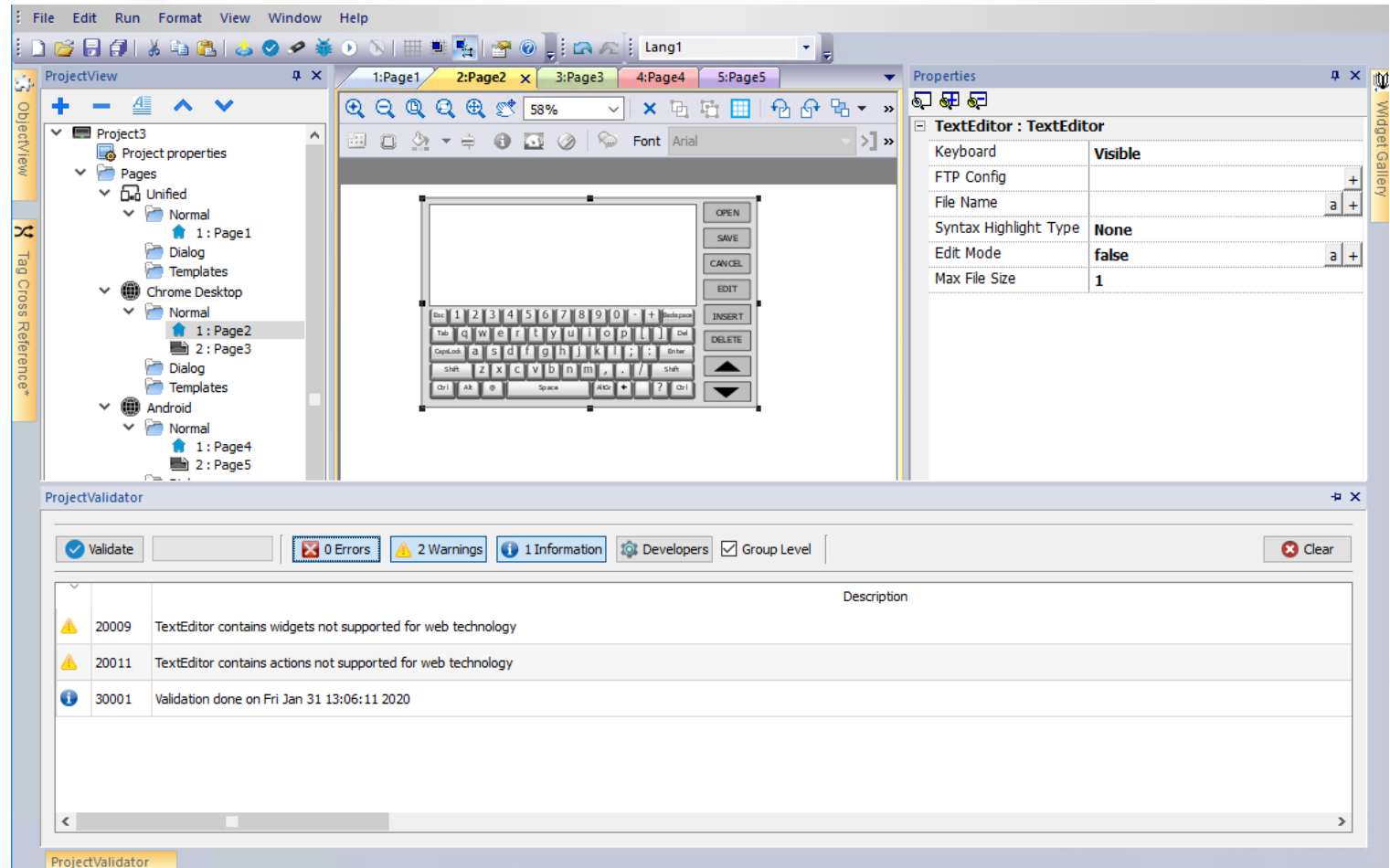


Properties	
<input type="checkbox"/> Page Category : Android	
Name	Android
Width	1024
Height	768
Technology	Web
<input type="checkbox"/> Web Only	
User Agent	Android
Min Width	0
Min Height	0
Max Width	-1
Max Height	-1

JM4Web – Project Validator

Permits to check if widgets or actions are supported into web pages


All adjustment can be done by user before downloading project to target



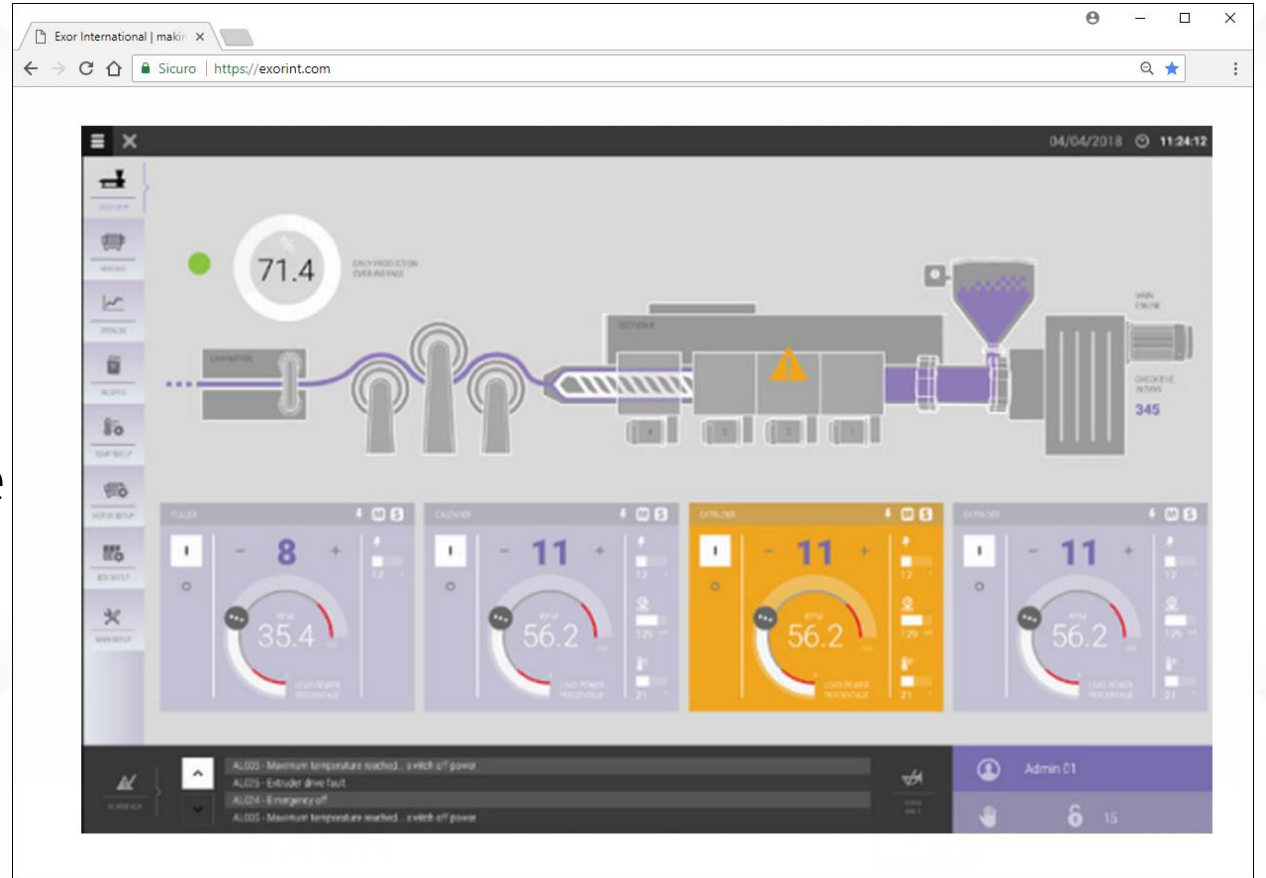
JM4Web

After project download, web page are reachable from browser, pointing to

<http://<IPAddress>>

If HMI is not available, web pages can be reached also in Simulation 

<http://<IPAddress>:81>



FTP

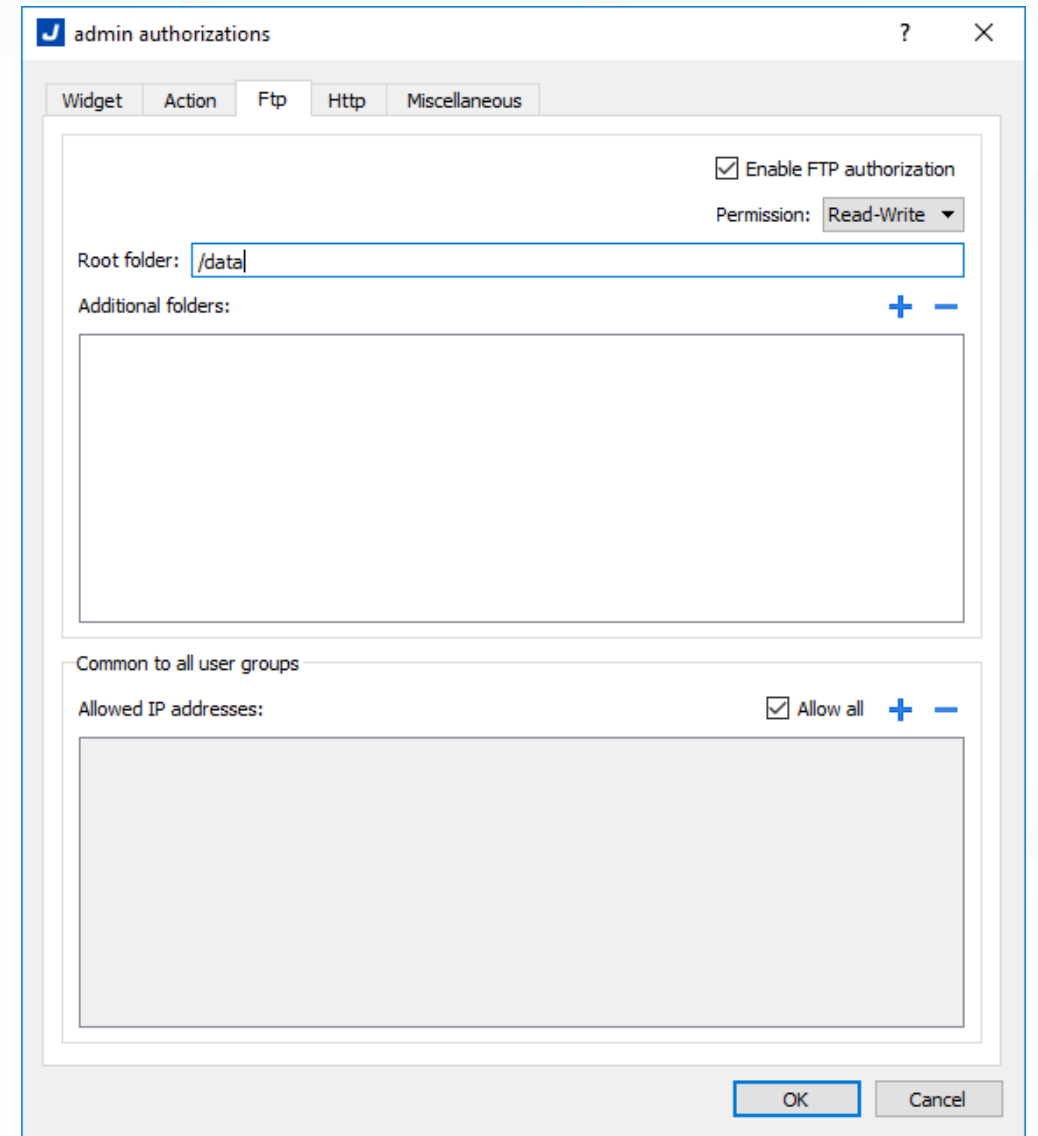
Enable FTP Server on HMI
to get access to the internal flash disk data

Any standard FTP Client can be used

FTP access is disabled by default and
must be enabled into Group Authorization
settings:

"Enable FTP authorization"

"Root Folder" can be set as per needs

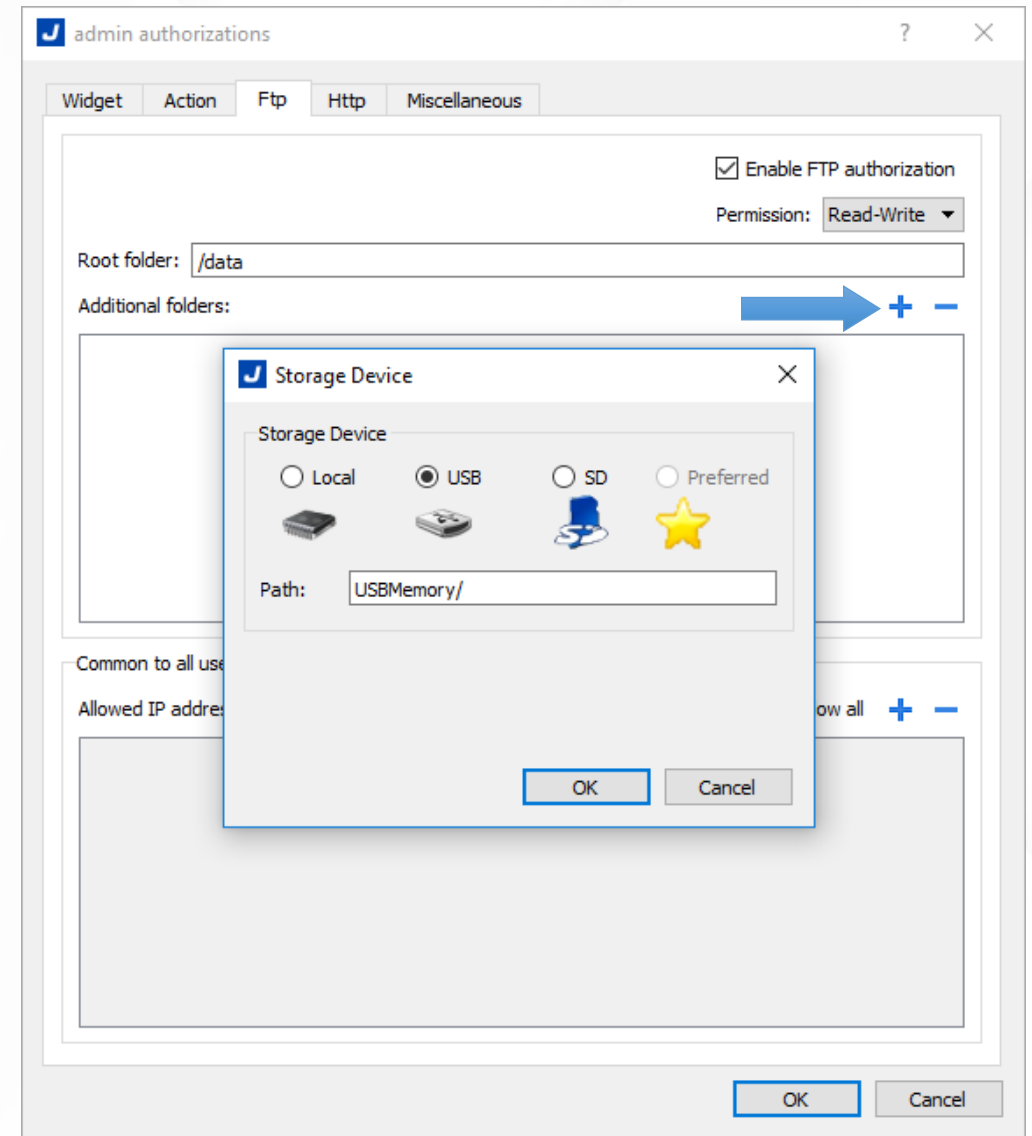


FTP access to external memory

Possibility to map “USB Memory” or “Storage Card” as FTP Folder

USB Memory and SD Card will become accessible by FTP connection

Very useful to retrieve Alarm, Trend or Recipe files dumped into external memories

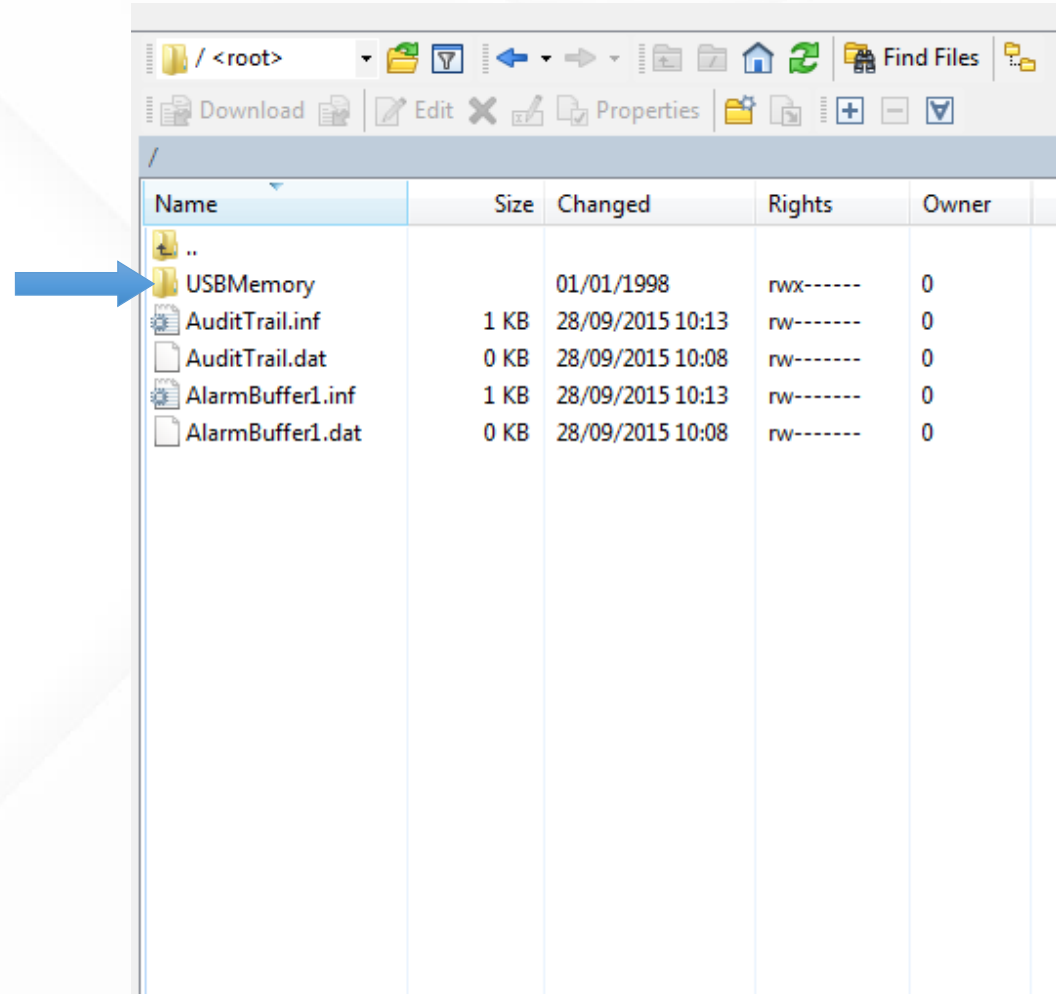


FTP access to external memory

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FTP client

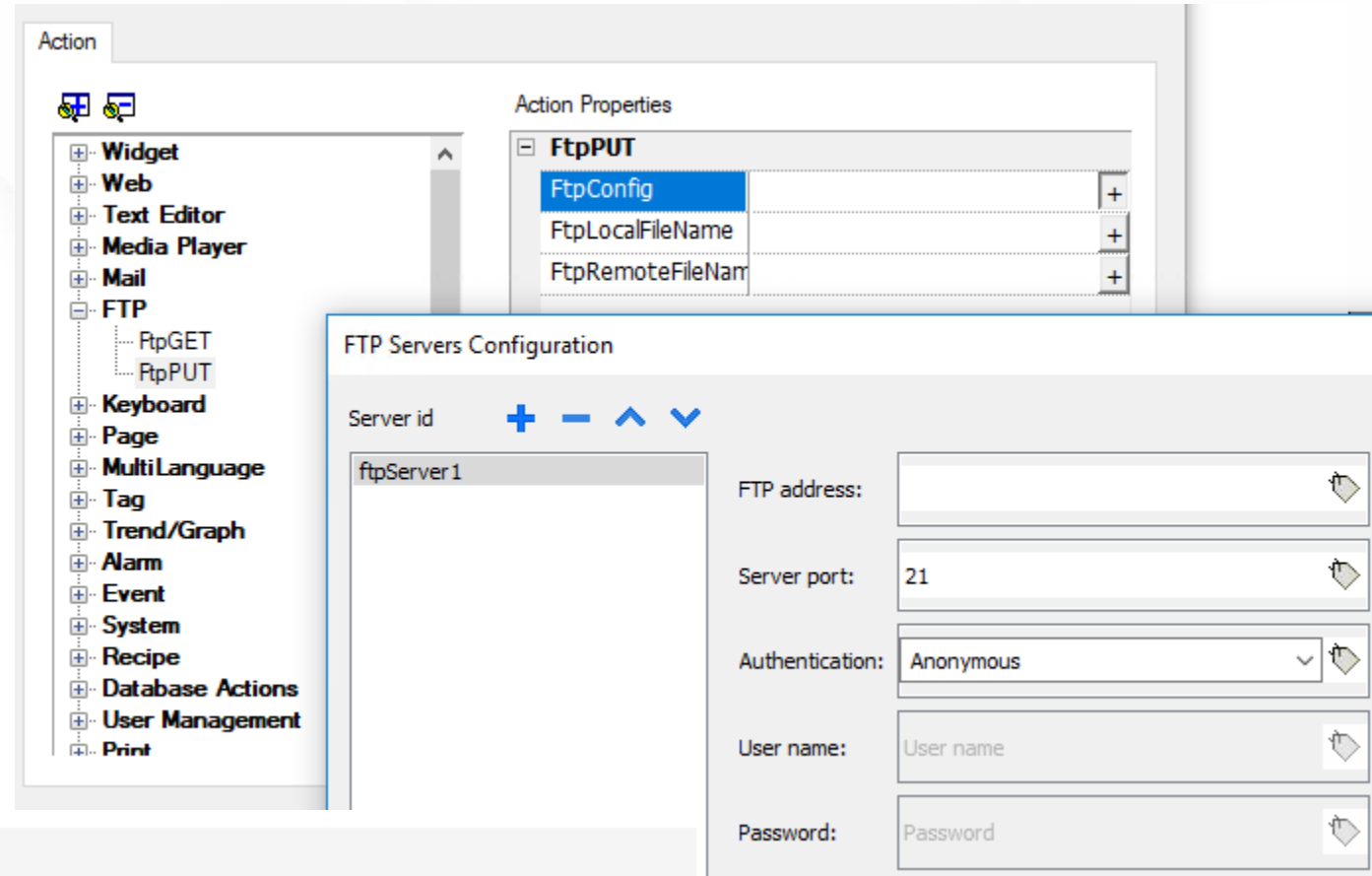
Action to access to an FTP server

FTP Put

FTP Get

From native actions

From JavaScript



```

project.ftpCONFIG("192.168.0.200", "21", "true", "admin", "admin");

project.ftpGET( "data.txt",
               "\\USBMemory\\data.txt",
               function(ftpStatus) {fnFtpGetFinished(ftpStatus);} );

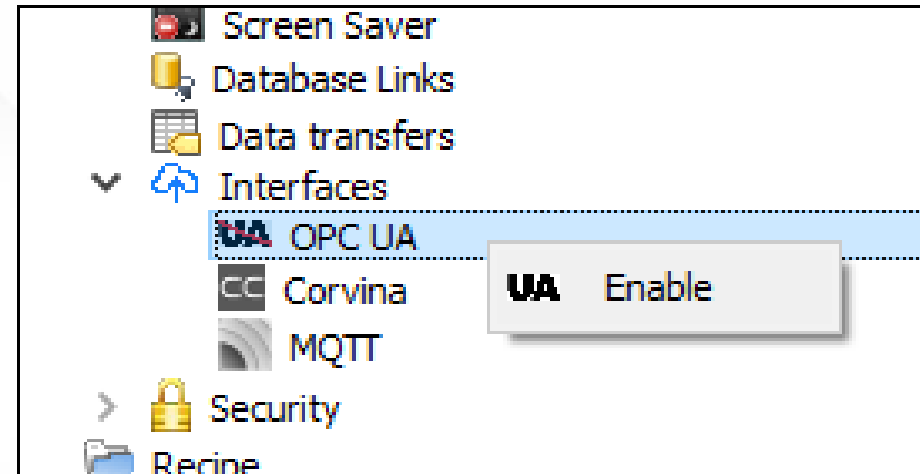
function fnFtpGetFinished(ftpStatus) {
    alert(ftpStatus);
}
    
```

Interfaces

OPC UA Server

All configured Tags can be exposed as OPC UA Server variables

Accessible from any client based on OPC UA specifications



Tip: can be simulated launching Simulator (no necessary need of target device)

OPC UA Server

Possibility to choose all Tags or specific group

Expose active/historical alarms and trends

Allowed connections based

None: typical for communication only

Sign: uses credentials

Encrypt: uses certificates

The screenshot displays the configuration interface for an OPC UA Server, divided into three main sections:

- Tag groups:** A dropdown menu is set to "OPCUA_tags". Below it, a list shows two options: "All" (unchecked) and "OPCUA_tags" (checked).
- Alarm and Trend Settings:** Three checkboxes are checked: "Enable alarms", "Enable historical alarms", and "Enable trends".
- Security settings:** A table lists security policies with checkboxes for "None", "Sign", and "SignAndEncrypt".

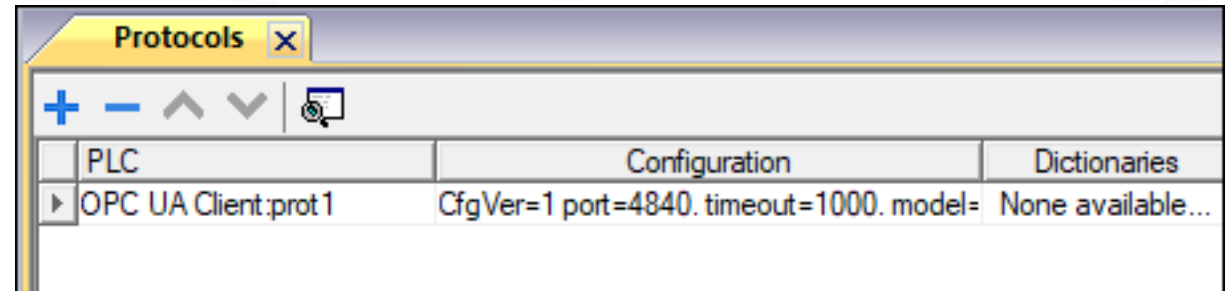
Policy	Sign	SignAndEncrypt
<input checked="" type="checkbox"/> None		
<input checked="" type="checkbox"/> Basic128Rsa15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Basic256	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Basic256Sha256	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Below the table, there is an unchecked checkbox for "Automatically trust any new clients" and a section for "Trusted client certificates" with a text box containing "Double click to enter a new certificate".

OPC UA Client

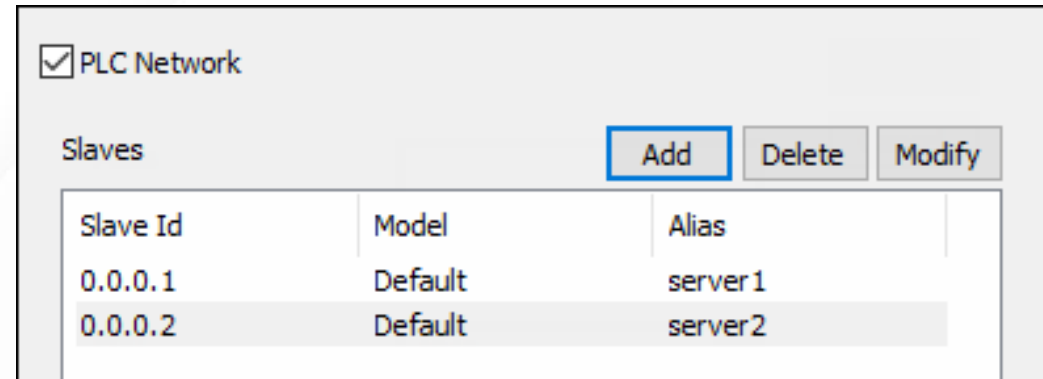
Can access to any server based on OPC UA specifications

Selectable from protocol list



Supports PLC Network

One protocol to connect to many OPC UA Server



OPC UA Client

Online discovery of OPC UA symbols exposed from OPC UA Server by using Tag Importer

Symbol discovery, click 'Browse' to pull symbols. Do you want to continue?

opc.tcp://10.1.34.12:4840

Security Settings

Security Policy

Security Mode

Client Certificate

Private Key

Authentication Settings

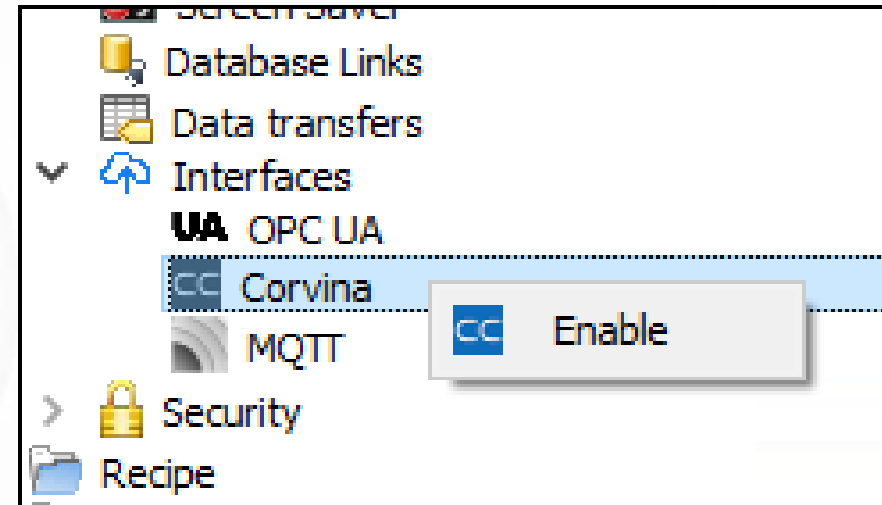
Anonymous

Username

Password

Corvina

Connector for Corvina Cloud * portal
for data pushing to cloud



* Corvina Cloud phase 2: data pushing to cloud

Corvina

Select Tag group to be pushed to Corvina Cloud

Enter Activation key to couple project with device defined on Corvina Cloud portal

The screenshot shows a configuration interface with three main sections:

- Features:** Contains a checked checkbox for "Enable Corvina interface" and a "Tag groups:" dropdown menu currently set to "All".
- Config:** Contains a text input field for "Activation key" with the placeholder text "Enter activation key".
- Advanced settings:** Contains an unchecked checkbox for "Advanced settings" and a text input field for "Corvina endpoint" with the placeholder text "Enter corvina cloud endpoint or leave empty for default".

MQTT

Connector for MQTT broker to push data into cloud

Presets available

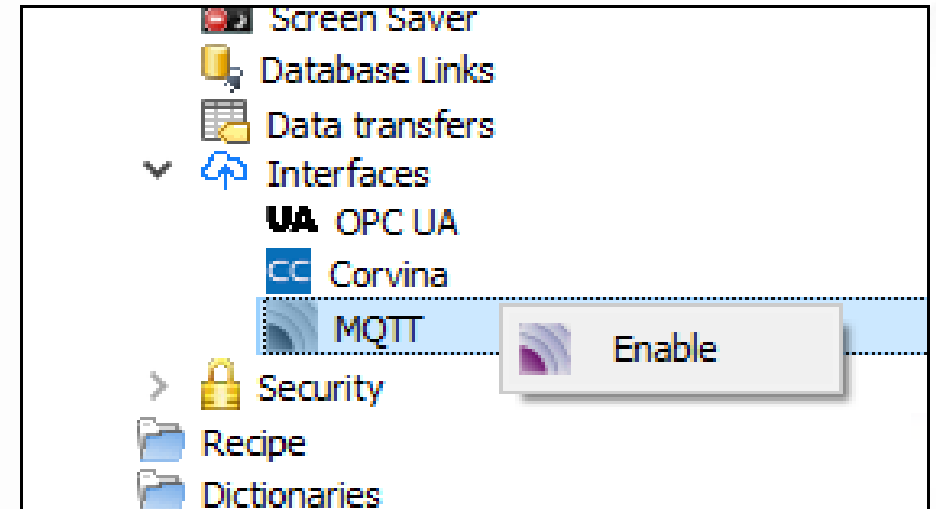
Azure

Amazon AWS

IBM BlueMix

Murano

Generic MQTT broker



MQTT

Set rules for data pushing
 Based on timer
 Based on value change

The screenshot displays the MQTT configuration interface with the following sections:

- Features:**
 - Enable MQTT interface
 - Enable alarms
 - Alarm groups: None
- Tags configuration:**
 - Default push policy: OnChange
 - Manage push policies
- Table:**

	Enable	Tag
1	<input type="checkbox"/>	
- Policy manager dialog:**
 - Policy manager
 - Policy name: OnChange
 - Triggers:
 - tag changes, min/max 1000 ms delay
 - Conditions

MQTT

Enable security options

Enable TLS

CA certificate

Client certificate

Client key

TLS version

Insecure

QoS

Retain

MQTT

Create customize data message format

Birth Will **Data (Pub)** Data (Sub) Alarm

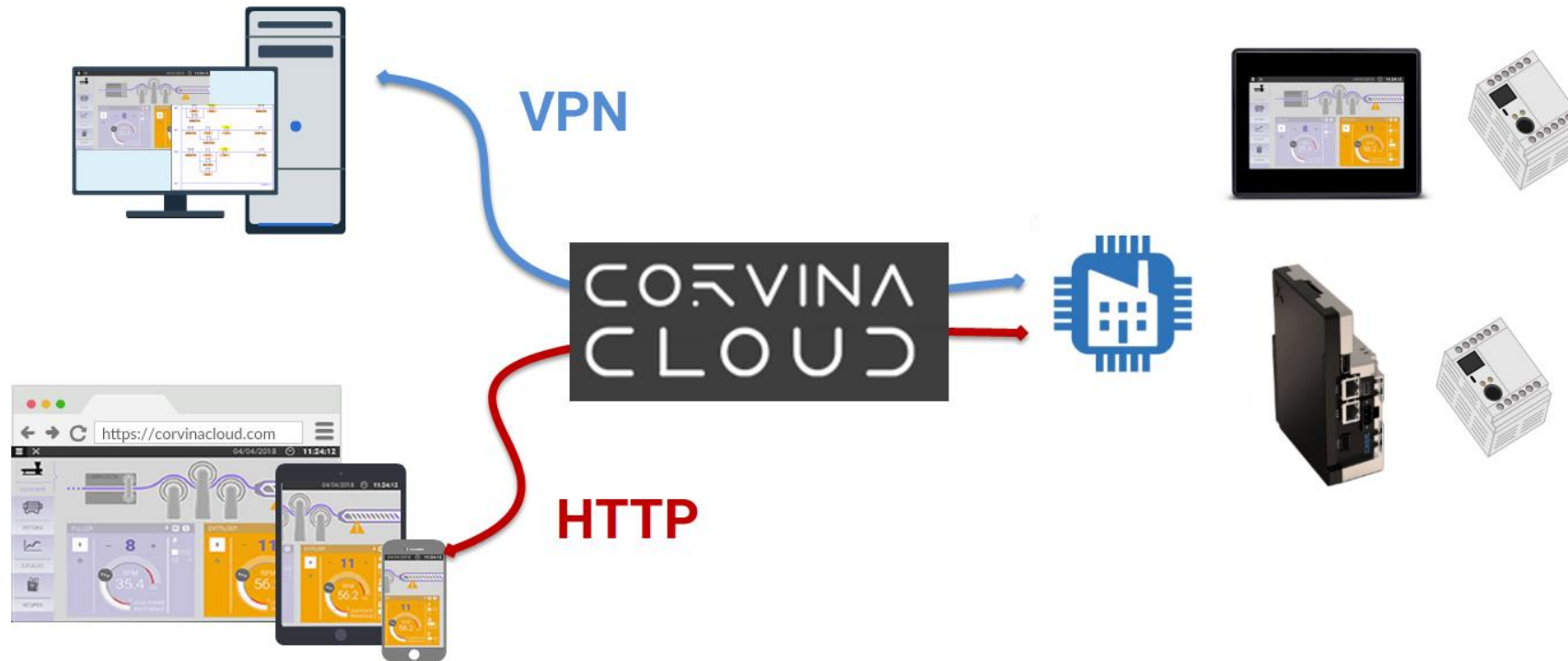
Topic

Payload

Corvina Cloud

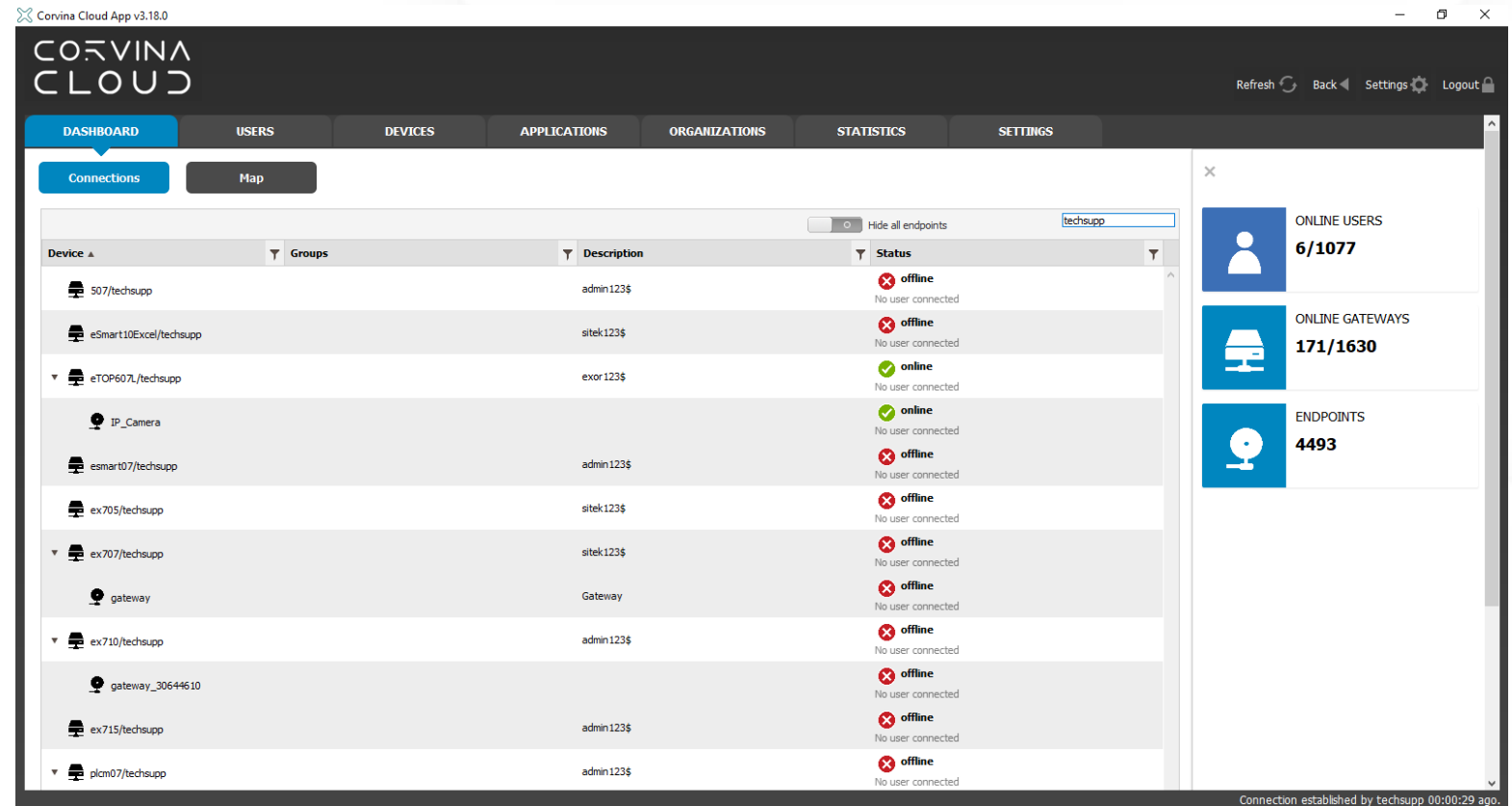
What is Corvina Cloud

Corvina Cloud is the EXOR International solution for Remote Control and Teleassistance, based on secure VPN and Web access



Corvina Cloud App

VPN can be opened using Corvina Cloud App



Web Access

Web access is available connecting to corvinacloud.com



The screenshot shows the Corvina Cloud management interface. The top navigation bar includes 'CORVINA CLOUD' and a user profile 'nicola.tiano' with a 'Logout' button. Below the navigation bar are tabs for 'DASHBOARD', 'USERS', 'DEVICES', 'APPLICATIONS', 'ORGANIZATIONS', 'STATISTICS', and 'SETTINGS'. Under 'DASHBOARD', there are sub-tabs for 'Connections' and 'Map'. The main content area displays a table of connections for the 'techsupp' group. The table has columns for 'Device', 'Groups', 'Description', and 'Status'. The status column shows 'online' with a green checkmark and 'offline' with a red 'X'. Below the table is a pagination control showing '1 - 10 of 12 gateways'.

Device	Groups	Description	Status
507/techsupp		admin123S	offline No user connected
eSmart10Excel/techsupp		sitek123S	offline No user connected
eTOP607L/techsupp		exor123S	online No user connected
esmart07/techsupp		admin123S	offline No user connected
ex705/techsupp		sitek123S	offline No user connected
ex707/techsupp		sitek123S	offline No user connected
ex710/techsupp		admin123S	offline No user connected
ex715/techsupp		admin123S	offline No user connected
plcm07/techsupp		admin123S	offline No user connected
test/techsupp		psw: admin123S	offline No user connected

Why using Corvina Cloud

Reduces costs of maintenance and support

Provides connectivity for new or existing plants

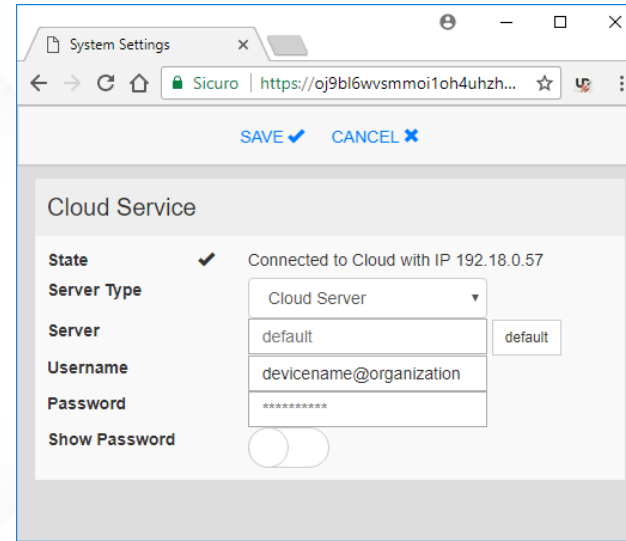
Provided by same HMI manufacturer (native solution)

Completely accessible and configurable from browser

Corvina Cloud solutions – JSmart700 series

One can be dedicated for remote control, others can be logically separated and dedicated to communication with PLC

Cloud service configurable from web browser

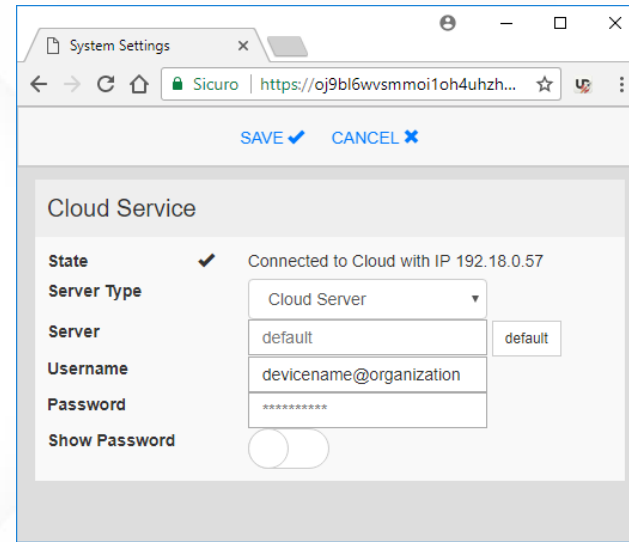


Corvina Cloud solutions – eX700/eXware700 series

Separated Ethernet interfaces

One can be dedicated for remote control, others can be logically separated and dedicated to communication with PLC

Cloud service configurable from web browser

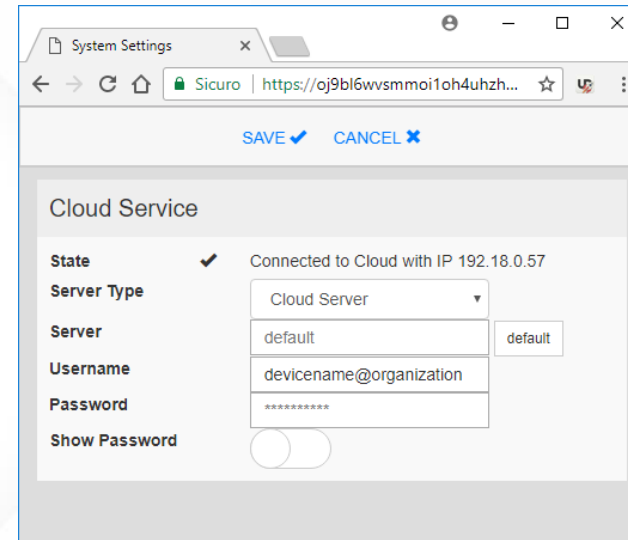


Corvina Cloud solutions – eSMART series

One single Ethernet interface*

Can be dedicated for remote control,
and communication with PLC

Cloud service configurable from
web browser



* Valid for eSMART04/07M/10 while eSMART107 has 2 Ethernet interfaces

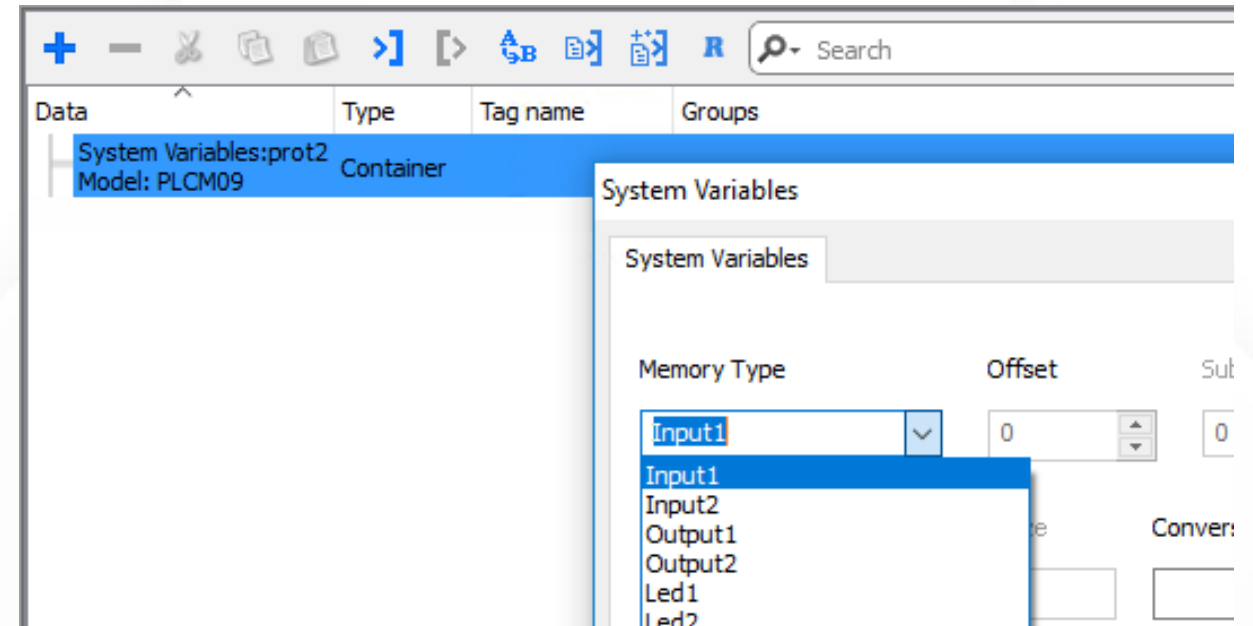
3G Modem module – PLCM09

Available for eX700 and eXware700 series

APN and SIM pin configurable from HMI System Settings

Configurable input and output
2 digital inputs/2 digital outputs (SSR)
with optical isolation

JMobile System Variables available

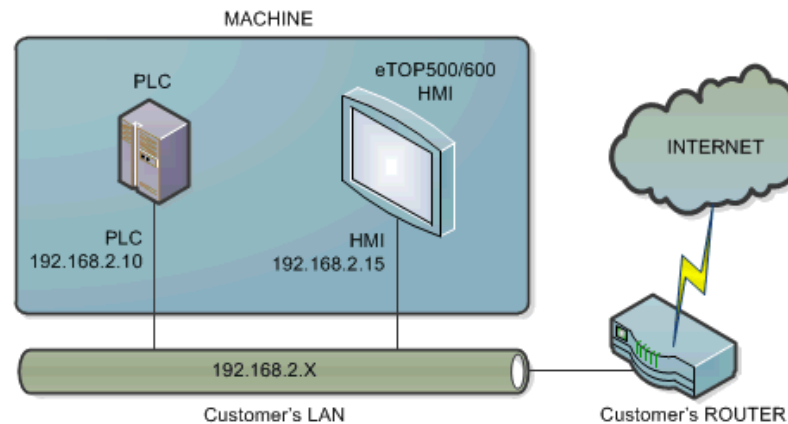
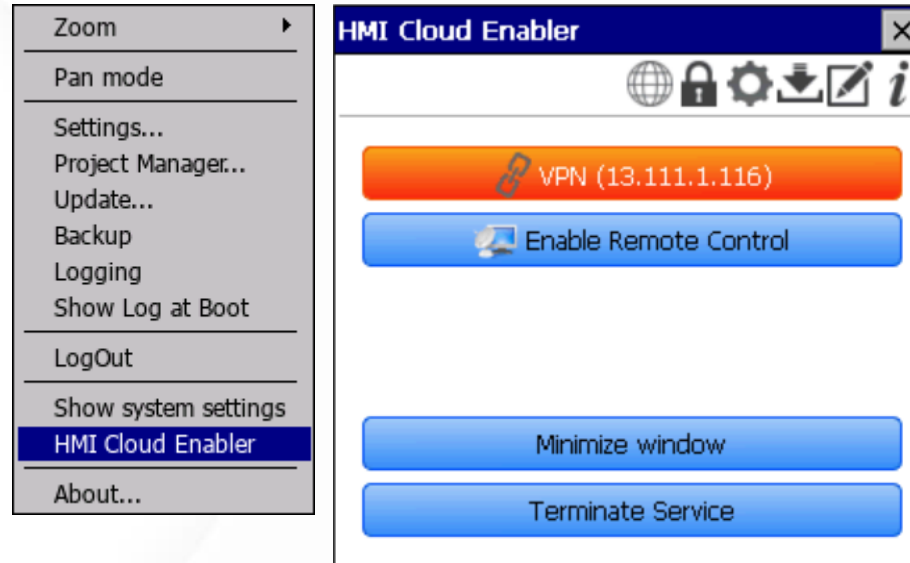


Corvina Cloud solutions – eTOP500/600 series

One single Ethernet interface
2 Ethernet ports

Can be dedicated for remote control,
and communication with PLC
using **HMI Cloud Enabler**

Configurable from HMI



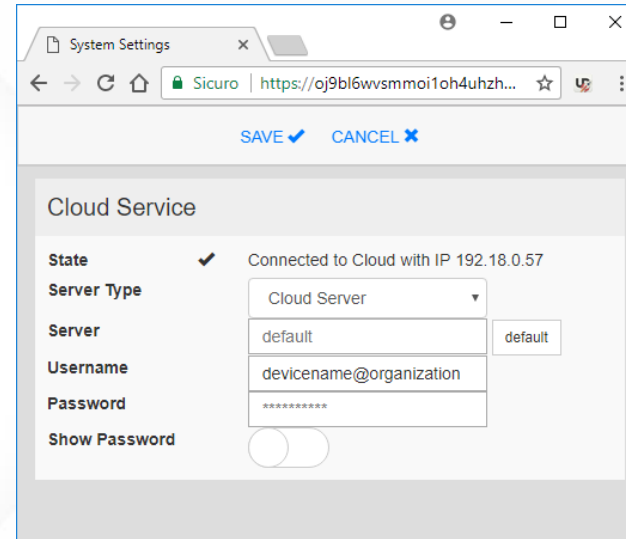
Corvina Cloud solutions – eTOP500/600 and PLCM07

Secure Cloud Connector with
2 separated Ethernet interfaces

Allows connection to Corvina
service for eTOP500/600 panels
when network separation is required

Cloud service configurable from
web browser

Can be mounted on existing plants to give
connectivity to eTOP500/600 HMIs

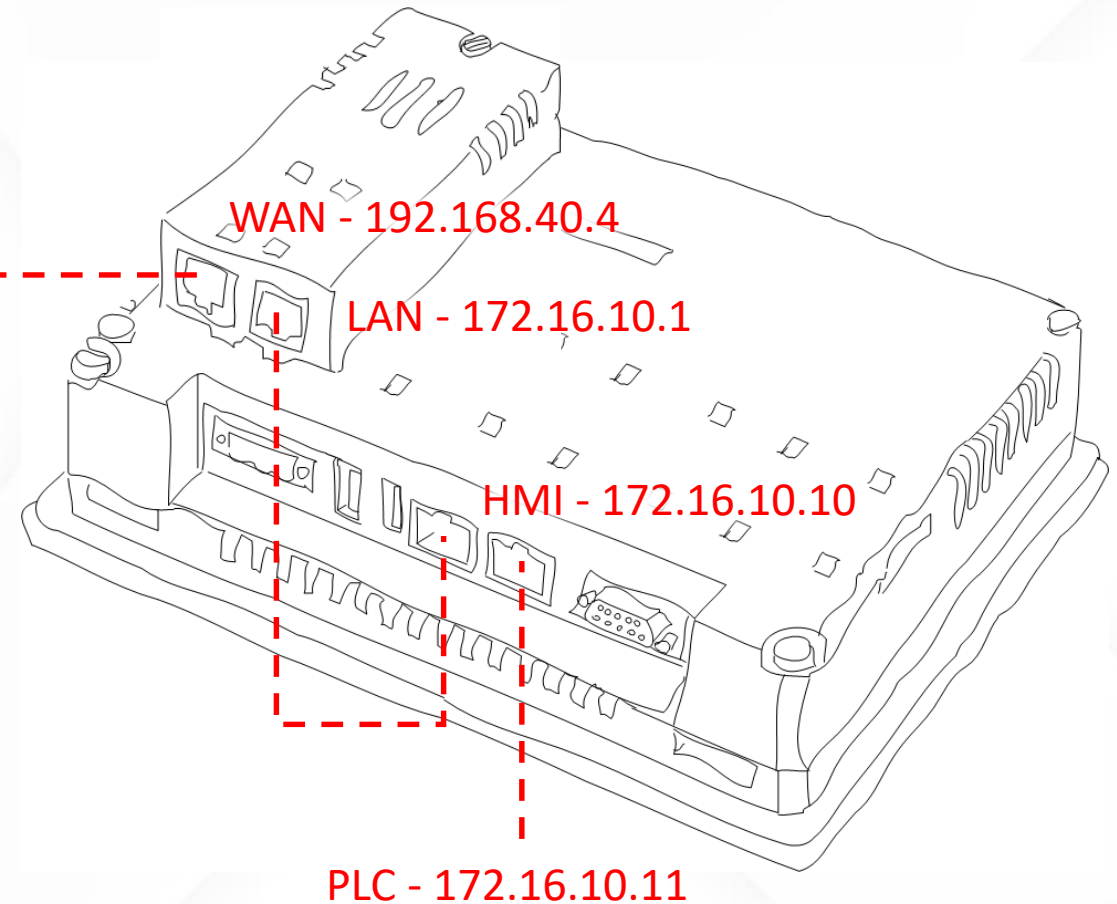
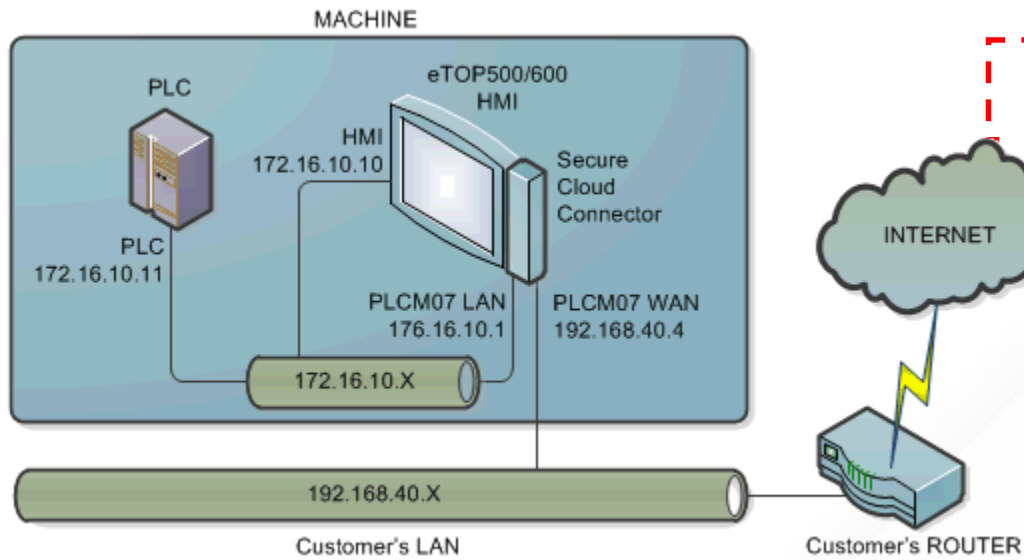


Corvina Cloud solutions – eTOP500/600 and PLCM07

Separate Networks

WAN = Internet / Corvina Cloud

LAN = HMI / PLC local network



Access to Corvina Cloud

Access credentials to Corvina Cloud service to be requested to your EXOR products reseller

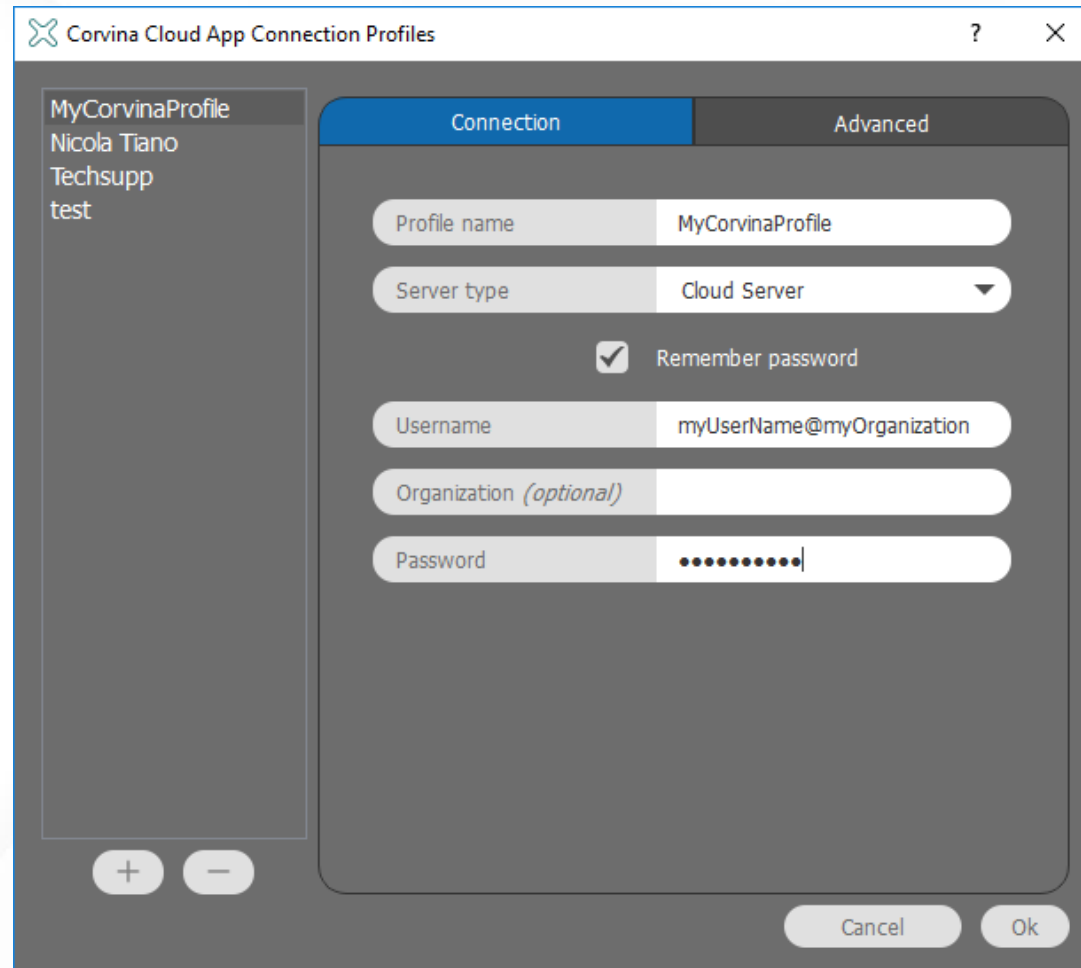


Access to Corvina Cloud

Username and password to access to Corvina Cloud are provided by Exor

Click on gear icon to insert credentials

Possibility to define different access profiles



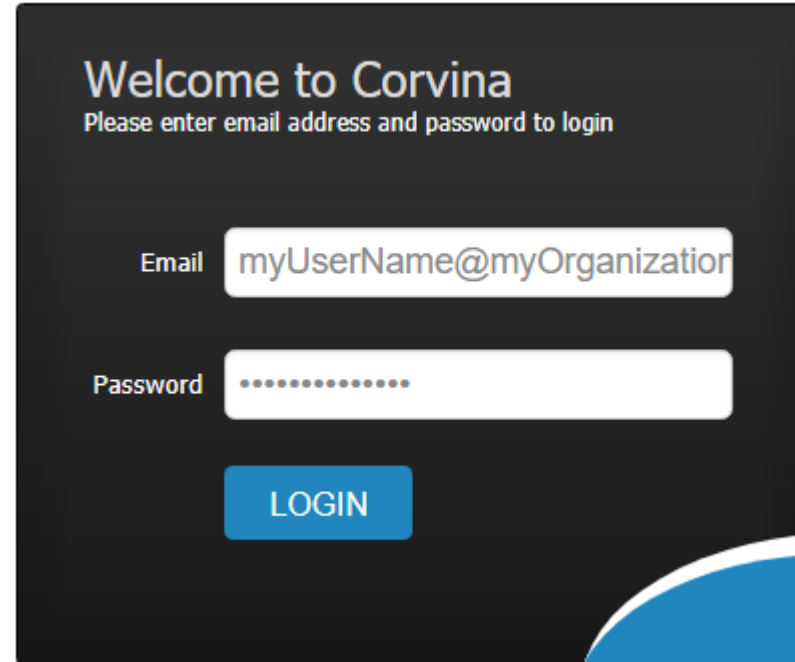
Access to Corvina Cloud

Username and password to access to Corvina Cloud are provided by Exor

Click on gear icon to insert credentials

Possibility to define different access profiles

Same credentials can be inserted in corvinacloud.com



The screenshot shows a dark-themed login interface for Corvina. At the top, it says "Welcome to Corvina" followed by "Please enter email address and password to login". Below this, there are two input fields: "Email" with the placeholder text "myUserName@myOrganization" and "Password" with a masked password represented by dots. A blue "LOGIN" button is positioned below the password field. The bottom right corner of the login box features a blue and white curved graphic element.

Add a Device

From Device tab

click on **Add gateway**

The screenshot shows the CORVINA CLOUD management interface. At the top, the logo 'CORVINA CLOUD' is displayed. Below it is a navigation bar with tabs for 'DASHBOARD', 'USERS', 'DEVICES', and 'AP'. The 'DEVICES' tab is currently selected and highlighted in blue. Underneath the navigation bar, there are two buttons: 'Devices' (highlighted in blue) and 'Groups'. Below these buttons, there are two links: '+ Add gateway' and 'Download CA certificate'. A red circle with the number '1' is placed over the '+ Add gateway' link. Below the links is a table with columns for 'Name' and 'Description'. The table is currently empty, showing a '0' in the middle of the table. At the bottom of the interface, there is a legend with a checked checkbox for 'Enabled (click to disable)', an unchecked checkbox for 'Disabled (click to enable)', and several action icons: 'Edit', 'Copy gateway', 'Delete', 'View logs', and 'Do'.

Add a Device

Fill details in **Gateway** tab:

Name

Organization

Password

Activation code

CORVINA CLOUD

DASHBOARD USERS **DEVICES** APPLICATIONS

Devices Groups

Add Gateway

2

Gateway Groups Endpoints Permissions Port Forwarding Location

Name *
myDeviceName

Organization
myOrganization

Description
this is my device

Serial number
<insert activation code here>

Password
.....

Confirm password
.....

Enabled

Add or Cancel

Add a Device

When configuring Corvina connection on the HMI use one use one of the following syntax to authenticate device

Name@Organization

Name/Organization

The screenshot shows the Corvina Cloud HMI interface. At the top, the 'CORVINA CLOUD' logo is displayed. Below the logo is a navigation bar with tabs for 'DASHBOARD', 'USERS', 'DEVICES', and 'APPLICATIONS'. The 'DEVICES' tab is selected and highlighted in blue. Below the navigation bar are two buttons: 'Devices' (highlighted in blue) and 'Groups'. The main content area is titled 'Add Gateway' and contains a form with several fields and tabs. A red circle with the number '2' is placed over the 'Gateway' tab. The form fields include:

- Name ***: Text input field containing 'myDeviceName'.
- Description**: Text input field containing 'this is my device'.
- Password**: Password input field with a toggle for visibility.
- Enabled**: Checkmark input field that is checked.
- Organization**: Dropdown menu showing 'myOrganization'.
- Serial number**: Text input field containing '<insert activation code here>'.
- Confirm password**: Password input field with a toggle for visibility.

At the bottom of the form, there are two buttons: 'Add' and 'Cancel'.

Add a Device

Serial Number field is used to certificate Device in Corvina Cloud server

For eX, eTOP, eSMART HMI Cloud Enabler activation code must be used

For eXware, PLCM07 Serial Number printed on HMI label must be used

CORVINA CLOUD

DASHBOARD USERS **DEVICES** APPLICATIONS

Devices Groups

Add Gateway

2

Gateway Groups Endpoints Permissions Port Forwarding Location

Name * myDeviceName Organization myOrganization

Description this is my device Serial number <insert activation code here>

Password Confirm password

Enabled

Add or Cancel

Add a Device

Configure Endpoints

Definition of any network point to be reachable from remote

Possibility to open an entire network segment with **Local network** field using CIDR notation

Example: 192.168.100.0/24

The screenshot shows the 'CORVINA CLOUD' interface with the 'DEVICES' tab selected. Below the navigation bar, there are buttons for 'Devices' and 'Groups'. The main content area is titled 'Add Gateway' and contains several tabs: 'Gateway', 'Groups', 'Endpoints', 'Permissions', 'Port Forwarding', and 'Location'. The 'Endpoints' tab is active, showing a form with the following fields:

- Maximum number of endpoints:** A dropdown menu set to '6'.
- Local network:** An empty text input field.
- Do not translate real IPs into virtual IPs (1:1 NAT):** An unchecked checkbox.
- Endpoints table:**

Name*	IP address*	Description	Applicat
gateway	127.0.0.1	Gateway	Click to e
PLC	192.168.50.21	Click to edit	Click to e
IPCamera	192.168.50.22	Click to edit	Click to e

Below the table are buttons for 'Add row', 'Delete row', and 'Show CSV'. At the bottom of the form, there are 'Add' and 'Cancel' buttons.

Add a Device

Possible to show endpoints as **CSV** for easy copy/paste between devices

The screenshot shows the 'CORVINA CLOUD' interface with the 'DEVICES' tab selected. Below the navigation bar, there are buttons for 'Devices' and 'Groups'. The main content area is titled 'Add Gateway' and contains several tabs: 'Gateway', 'Groups', 'Endpoints', 'Permissions', 'Port Forwarding', and 'Location'. The 'Endpoints' tab is active, displaying a table of endpoints. The table has columns for name, ip, remark, action profile, enabled (yes/no), source nat (yes/no), and custom. The table contains three rows of data:

name	ip	remark	action profile	enabled (yes/no)	source nat (yes/no)	custom
gateway	127.0.0.1	Gateway		yes	no	
PLC	192.168.50.21			yes	no	
IPCamera	192.168.50.22			yes	no	

Below the table are buttons for 'Add row', 'Delete row', and 'Show table'. At the bottom of the form, there are 'Add' and 'Cancel' buttons.

Configure HMI service

From web browser go to

https://<IPaddress>/machine_config

System Settings	Service Settings	ADMIN
Language	Autorun scripts from external storage	
System	Avahi Daemon	Off >
Logs	Bridge Service	Off >
Date & Time	Cloud Service 2	Off >
Network	Fast boot	
Services 1	Router Service	Off >
Plugins	SNMP Server	Off >
Management	SSH Server	Off >
Display	VNC Service	Off >

Configure HMI service

Enter in **Edit** mode

Switch to **Enabled**

Insert **Username*** and **Password**

Save

* Use one of the following syntax
Name@Organization
Name/Organization

Configure HMI service

In eTOP500/600 series (WCE-based)

Credentials must be entered in HMI

from **HMI Cloud Enabler**

The screenshot shows a window titled "HMI Cloud Enabler" with a dark blue header. Below the header is a toolbar containing icons for a globe, a lock (highlighted with a red arrow), a gear, a download arrow, a pencil, and an information 'i' icon. The main area contains the text "Enter VPN credentials:" followed by two input fields: the first for "Name@Organization" and the second for a password, represented by asterisks. Below the fields are two checkboxes: "Show password" (unchecked) and "Remember credentials" (checked).

Configure Applications

Use **Applications** as a way to recall common usages in remote connections

Any external application

Embedded VNC and JM4Web (also from web access)

The screenshot shows a web interface for a gateway named "eTOP607L/techsupp". At the top, there are two tabs: "Applications" (selected) and "Logs". Below the tabs are three buttons: "Reset Gateway" (orange), "Connect to all endpoints" (green), and "Connect to gateway" (green). The main area displays a list of applications with their status:

Protocol	Application Name	Status
HTTPS	System_Settings	Active
VNC	VNC	Active
HTTP	JM4Web	Active
SSH	SSH_TS	Active

Below the list is a legend: Active (green square), Busy (orange square), Inactive (black square). At the bottom, there is an information section with a black circle containing a white 'i' icon. The text in this section reads: "Gateway: eTOP607L/techsupp", "VPN IP address 192.18.0.57", and "Information: The virtual IP address has been generated by the Switchboard and can be used to connect to the Endpoint through the Connect App. However, occasionally tools internally require the use of the real IP address of the endpoint, which is the one that has been physically configured. You can find both addresses above this informational text."

Configure Applications

Different type of Applications

SSH: open an SSH session

RDP: open a Remote Desktop Win32

VNC: open a standard VNC channel

Telnet: open a Telnet session

HTTP/S: open HTTP/S session

Custom: open external program

The screenshot shows a web interface for a gateway named "eTOP607L/techsupp". At the top, there are tabs for "Applications" and "Logs". Below the tabs are three buttons: "Reset Gateway" (orange), "Connect to all endpoints" (green), and "Connect to gateway" (green). The main area displays a list of applications with their status:

Protocol	Application Name	Status
HTTPS	System_Settings	Active
VNC	VNC	Active
HTTP	JM4Web	Active
SSH	SSH_TS	Active

Below the application list is a legend: **Legend:** Active (green square), Busy (orange square), Inactive (black square). At the bottom, there is an information section with an "i" icon. The text in this section reads: "Gateway: eTOP607L/techsupp", "VPN IP address 192.18.0.57", and "Information: The virtual IP address has been generated by the Switchboard and can be used to connect to the Endpoint through the Connect App. However, occasionally tools internally require the use of the real IP address of the endpoint, which is the one that has been physically configured. You can find both addresses above this informational text."

Assign Applications to Endpoints

To use Applications

Profiles must be created as group of Applications

Assigned to any Endpoint

Gateway Groups **Endpoints** Permissions Port Forwarding Location

Maximum number of endpoints
6

Local network

Do not translate real IPs into virtual IPs (1:1 NAT)

Name*	IP address*	Description	Application profile
IP_Camera	192.168.2.209	Click to edit	D-Link_profile
gateway	127.0.0.1	Click to edit	HMI_linux_profile

Add row Delete row Show CSV

Use Cases – JM4Web

JM4Web Application
to point to JMobile web pages

Available from

Corvina Cloud App

Web portal
(smartphone, tablet
desktop browser)

Application	
Name *	Organization
<input type="text" value="JM4Web"/>	techsupp
Description	
<input type="text" value="JM4Web"/>	
Application type	
<input type="text" value="HTTP"/>	
Protocol *	Port *
<input type="text" value="TCP"/>	<input type="text" value="80"/>
URL to open	
<input type="text" value="http://%DEVICE_IP%"/>	

Use Cases – VNC

VNC Application
to point to HMI display

Available from

Corvina Cloud App

Web portal
(smartphone, tablet
desktop browser)

Application		Advanced parameters	
Name *	<input type="text" value="VNC"/>	Organization	techsupp
Description	<input type="text"/>		
Application type	<input type="text" value="VNC"/>		
Protocol *	<input type="text" value="UDP & TCP"/>	Port *	<input type="text" value="5900"/>

Use Cases – System Settings

System Settings Application
to point to HMI System Settings *

Available from

Corvina Cloud App

Web portal
(smartphone, tablet
desktop browser)

* For Linux-based HMI only

Application	
Name * <input type="text" value="System_Settings"/>	Organization techsupp
Description <input type="text"/>	
Application type <input type="text" value="HTTPS"/>	
Protocol * <input type="text" value="TCP"/>	Port * <input type="text" value="443"/>
URL to open <input type="text" value="https://%DEVICE_IP%/machine_config/"/>	

Use Cases – JMobile Client

JMobile Client Application
to point to JMobile
Runtime using
JMobile Client

Launches
external application

Application		Advanced parameters	
Name *	<input type="text" value="JMobile_Client"/>	Organization	techsupp
Description	<input type="text"/>		
Application type	<input type="text" value="Custom"/>		
Protocol *	<input type="text" value="UDP & TCP"/>	Port *	<input type="text" value="1:65535"/>
Environments			
Connect App for Windows			
Command path	<input type="text" value="%PROGRAM_PATH%\Exor\JMobile Suite 2.8 \runtime\Client_WIN32\HMIClient.exe"/>	Command arguments	<input type="text" value="%DEVICE_IP%"/>
Connect App for Mac OS X			
Command path	<input type="text"/>	Command arguments	<input type="text"/>

Use Cases – File Transfer

File Transfer Application
for easy remote/local file
management

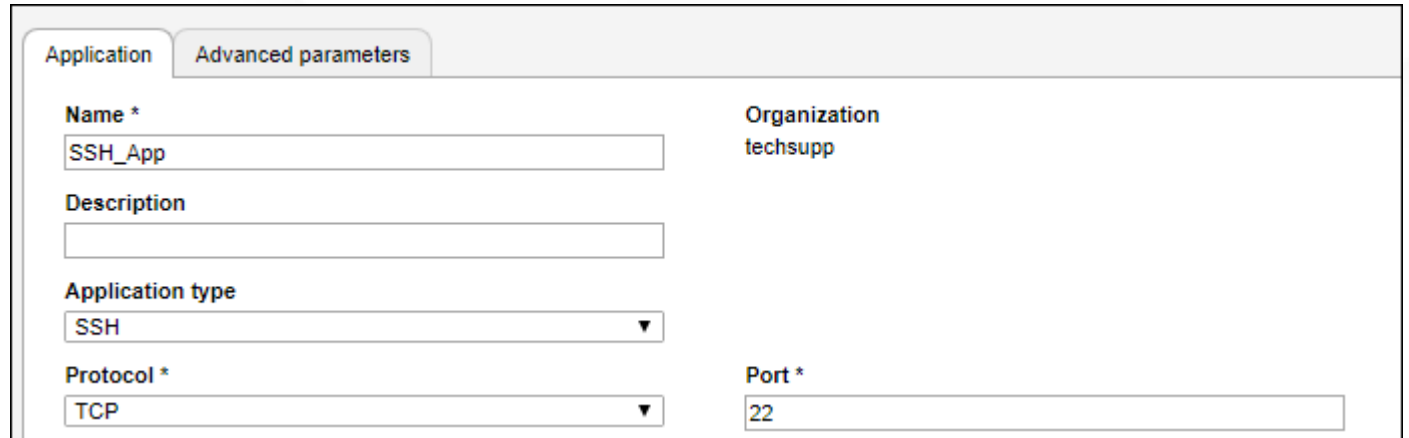
Uses a built-in application inside
Corvina Cloud server

Application	
Name * <input type="text" value="File Transfer"/>	Organization techsupp
Description <input type="text"/>	
Application type <input type="text" value="HTTP"/>	
Protocol * <input type="text" value="TCP"/>	Port * <input type="text" value="80"/>
URL to open <input type="text" value="BUILTIN_APP?app=FTP&endpoint=%DEVICE_IP%"/>	

Use Cases – SSH

SSH Application
to open Linux shell *

Uses a built-in SSH Client



The screenshot shows a configuration window for an SSH application. It has two tabs: 'Application' and 'Advanced parameters'. The 'Application' tab is active. The form contains the following fields:

- Name ***: Text input field containing 'SSH_App'.
- Organization**: Text input field containing 'techsupp'.
- Description**: Empty text input field.
- Application type**: Dropdown menu with 'SSH' selected.
- Protocol ***: Dropdown menu with 'TCP' selected.
- Port ***: Text input field containing '22'.

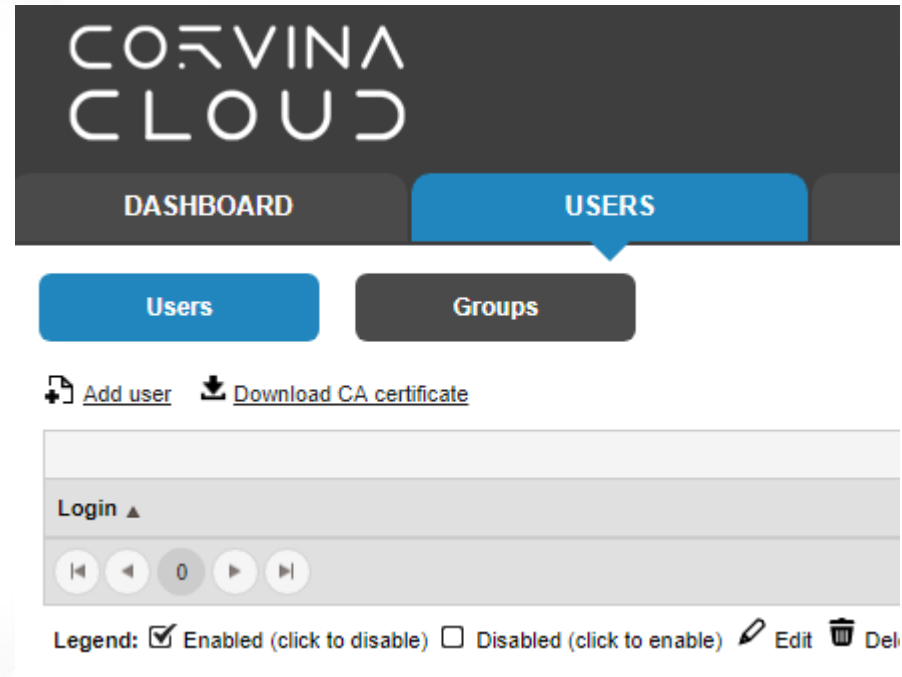
* Useful for debugging purpose. No need to install SSH Client on PC.

Add Users

Users can be added and can have different **Permissions**

Managers can add/remove items

Regular users can view items



Add Users

Fill details in **User** tab

Name

Organization

Password

CORVINA CLOUD

DASHBOARD **USERS** DEVICES APPLICA

Users Groups

Add User

User Groups Permissions Additional user information

Name *
myUser

Organization
MyOrganization ▼

Description
[Empty text box]

Password
[Masked password field]

Confirm password
[Masked password field]

Enabled

Add Users

Fill details in **Permissions** tab

Choose specific permissions to give to user

The screenshot shows the CORVINA CLOUD management interface. At the top, there is a navigation bar with 'DASHBOARD', 'USERS', 'DEVICES', and 'APPLICATIONS'. Below this, there are buttons for 'Users' and 'Groups'. The main content area is titled 'Add User' and contains four tabs: 'User', 'Groups', 'Permissions', and 'Additional user information'. The 'Permissions' tab is active, displaying a table of global permissions. The table has a search bar at the top and a list of permissions with plus signs in the right column. An 'Add all' link is located at the bottom right of the table.

Global permissions	
Superuser (full control)	+
Access to sub organizations	+
Manage users	+
Manage devices	+
Manage applications	+
Add all	

Specify permissions on devices

From device configuration it is possible to specify user permissions from **Permissions** tab

Same concept can be applied to user groups and devices groups

*Example:
Allow access to a group of device to a group of users*

The screenshot shows the CO.VINA CLOUD dashboard with the 'DEVICES' tab selected. Below the dashboard, there are two buttons: 'Devices' (highlighted) and 'Groups'. The main content area is titled 'Change Gateway' and has several sub-tabs: 'Gateway', 'Groups', 'Endpoints', 'Permissions' (selected), 'Port Forwarding', and 'Location'. Under the 'Permissions' tab, there is a section titled 'User permissions on this gateway'. It features a search bar and a summary: 'regular user (0) manager (1)'. Below this is a table with columns for 'Add as', 'user group', and 'permissions'. A dropdown menu is open over the 'Add as' column, showing 'regular user' and 'manager' options. The table contains three rows of user permissions, each with a '+' icon on the right. At the bottom of the table, there are 'Add all' and 'Remove all' links.

Add as	user group	permissions
regular user	techsupp	+
regular user	user: testuser/techsupp	+
manager	user: pippo@techsupp/techsupp	+

JavaScript

JavaScript

A JavaScript function is executed when an event occurs.
For example, a user can define a script for the *OnMousePress* event.

Evaluate carefully execution of JavaScript function at a given scan rate with a scheduled action.
This approach minimizes the overhead required to execute logic on the HMI.

JavaScript engine run at the client side.
Each client connected to the server side of JMobile Runtime (could be the client resident on HMI, or a JMobile Client) will run the same script, providing output results that depend by client

Events

JavaScript Action called on Events

Widget Events

OnMouse event

OnDataUpdate event

Page Events

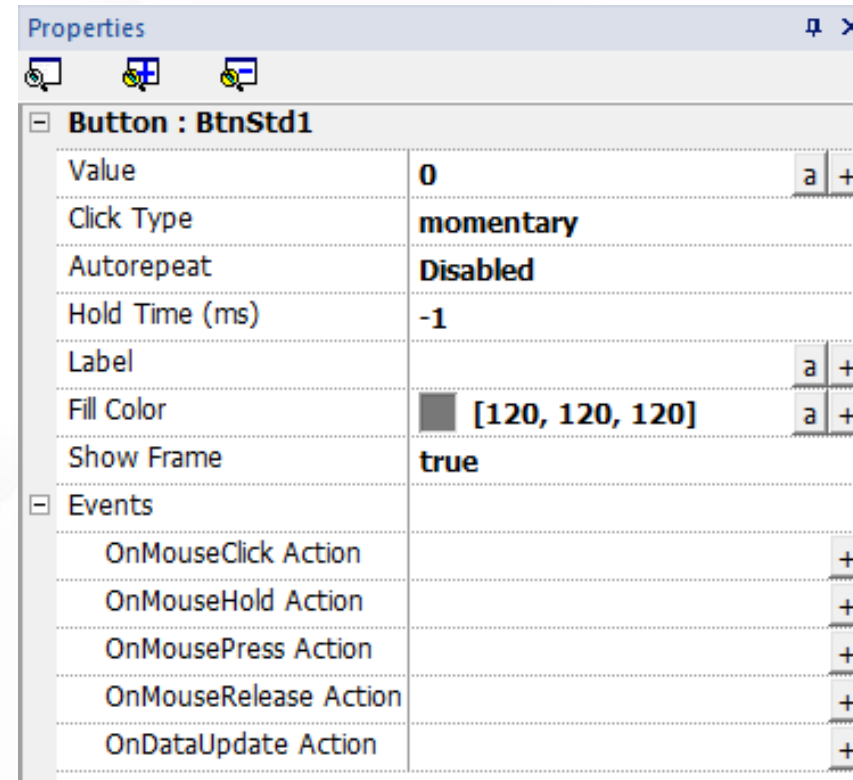
OnActivate

OnDeactivate

System Events

Schedulers

Alarms



Events

JavaScript Action called on Events

Widget Events

OnMouse event

OnDataUpdate event

Page Events

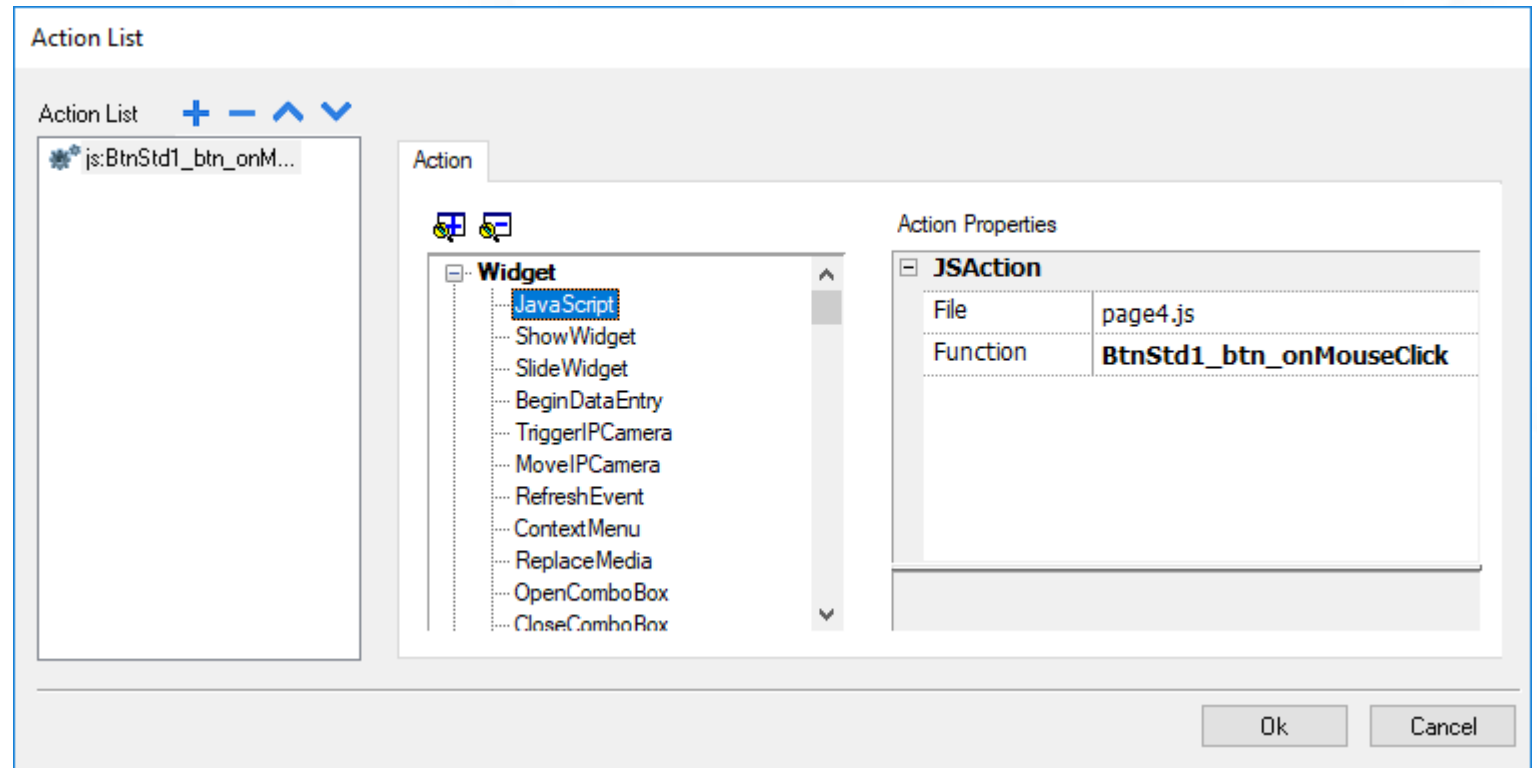
OnActivate

OnDeactivate

System Events

Schedulers

Alarms



Events

JavaScript Action called on Events

Widget Events

- OnMouse event

- OnDataUpdate event

Page Events

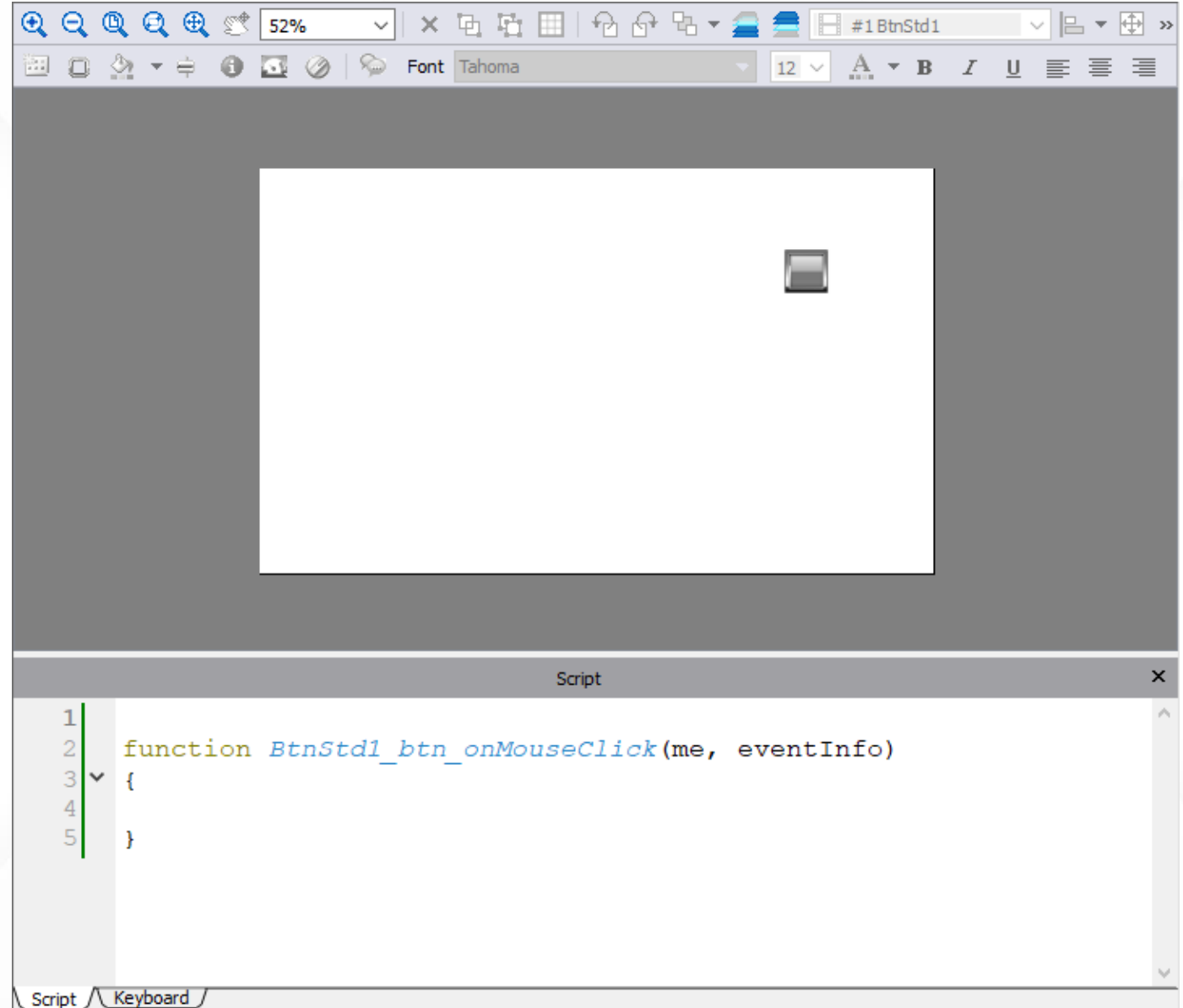
- OnActivate

- OnDeactivate

System Events

- Schedulers

- Alarms



Events

JavaScript Action called on Events

Widget Events

OnMouse event

OnDataUpdate event

Page Events

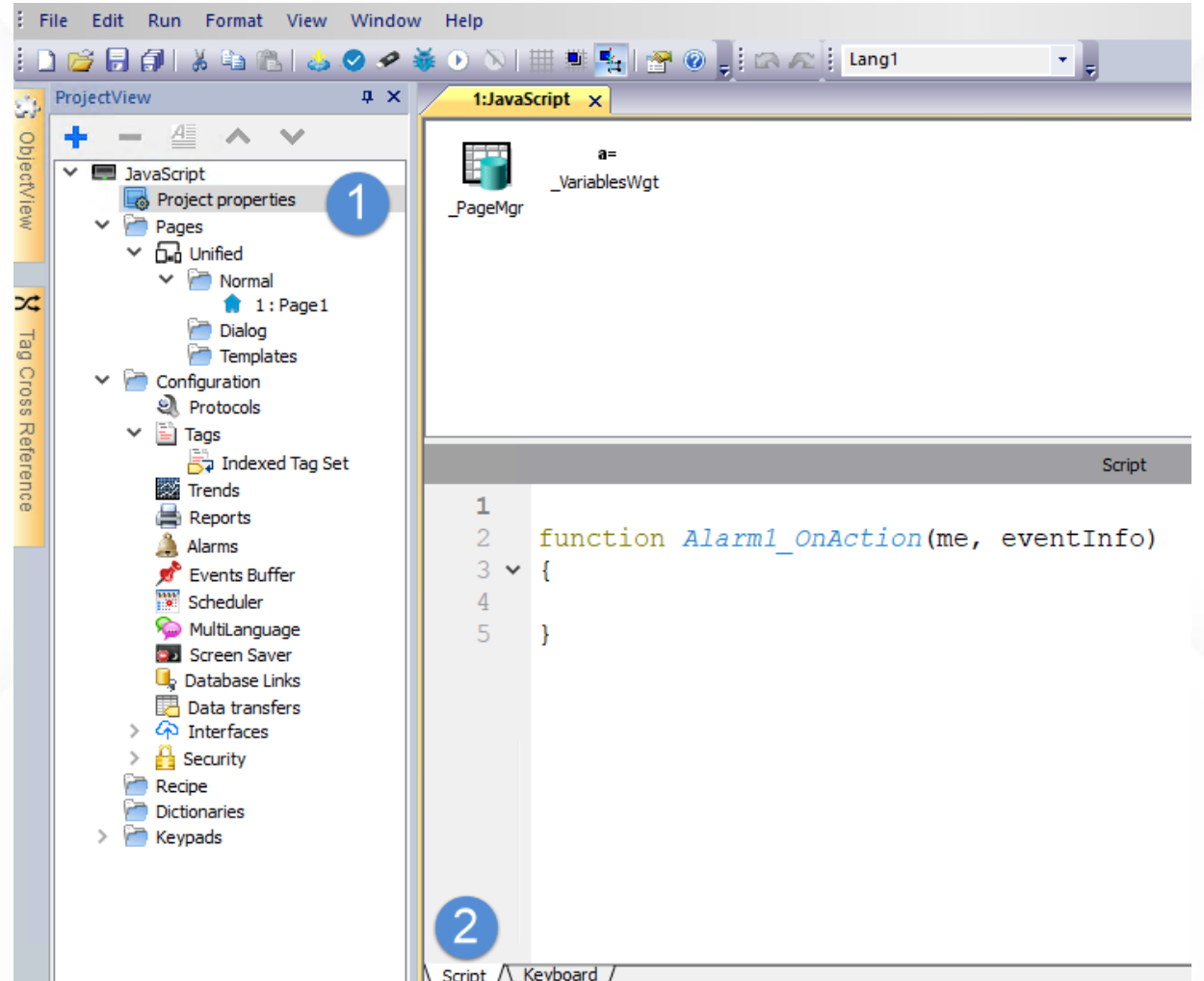
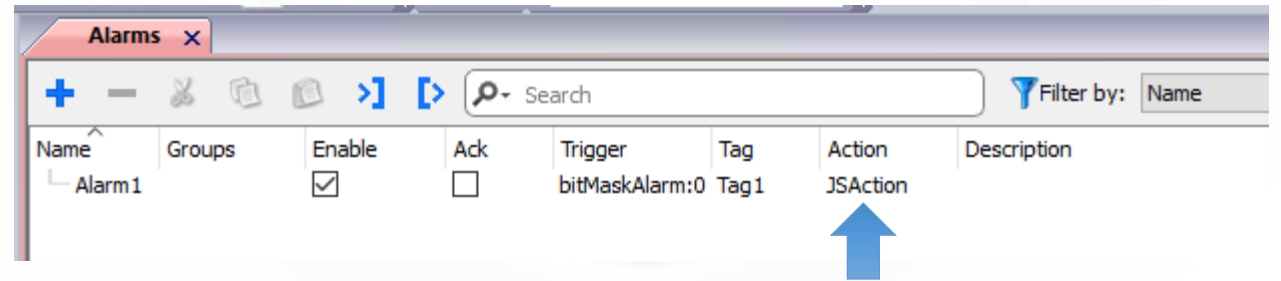
OnActivate

OnDeactivate

System Events

Schedulers

Alarms



Project Object

Page change and open dialog

```
project.nextPage();  
project.prevPage();  
project.homePage();  
project.loadPage("Page5.jmx");  
project.showDialog("Dialog.jmx");  
project.closeDialog();  
project.showMessage("Hi This is test message");
```


Project Object

Read and write Tags

```
var tagvalue = project.getTag("Tag1");  
  
project.setTag("Tag1", 123);
```

Page Object

Access and change graphic properties

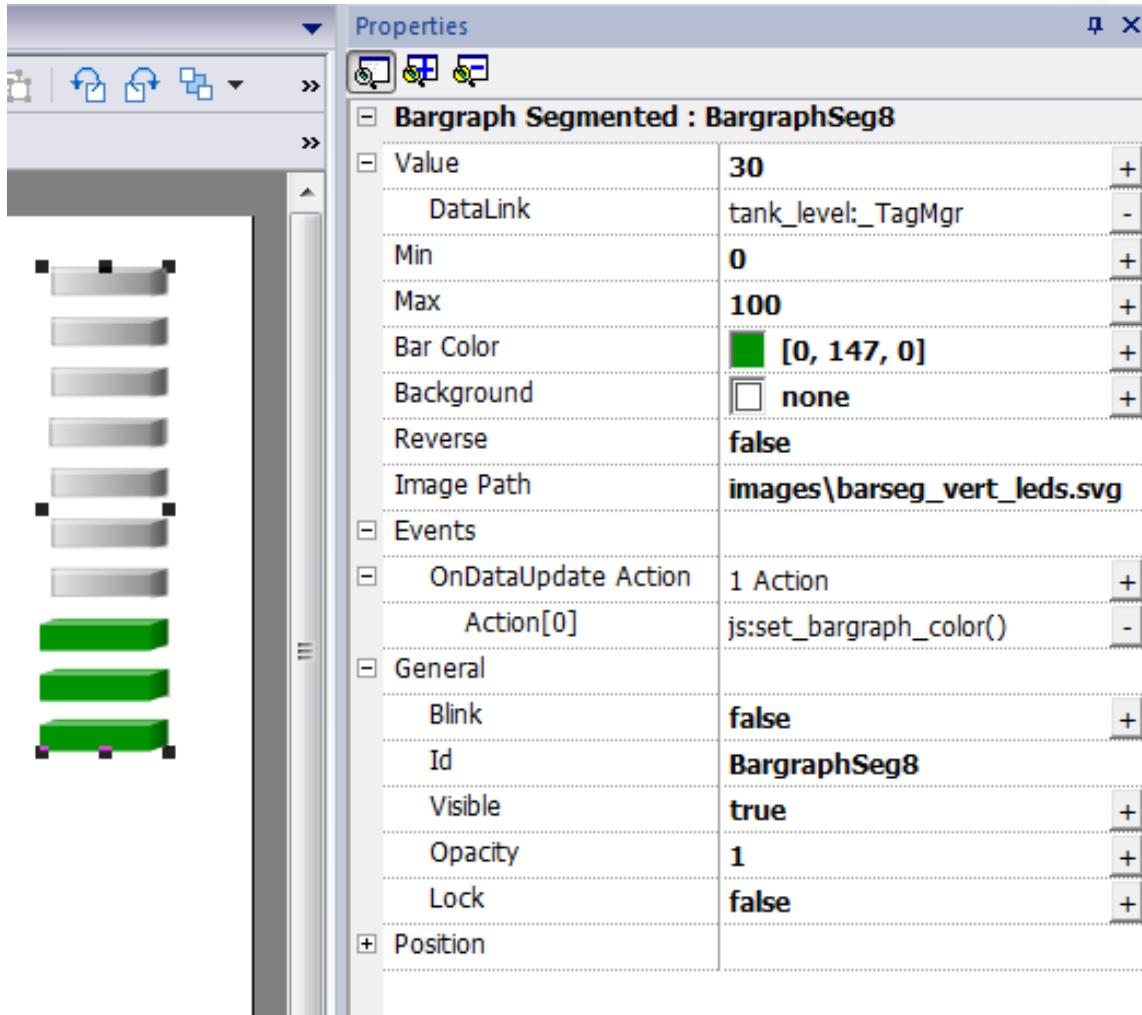
```
var page_height = page.getProperty("height");
page.setProperty("color", "rgb(255,0,0)");

var shape = page.getWidget("rect1");
var W = shape.getProperty("width");

var shape = page.getWidget("rect1");
shape.setProperty("width", 350);
```

NOTE: If properties are set via JavaScript, Static Optimization property must be set to Dynamic to allow dynamic rendering of static objects

JavaScript example explained



The screenshot shows a 'Properties' window for a 'Bargraph Segmented : BargraphSeg8' widget. The widget is currently displaying a green bar at a value of 30. The properties panel shows various settings:

Property	Value	Action
Value	30	+
DataLink	tank_level:_TagMgr	-
Min	0	+
Max	100	+
Bar Color	[0, 147, 0]	+
Background	none	+
Reverse	false	
Image Path	images\barseg_vert_leds.svg	
Events		
OnDataUpdate Action	1 Action	+
Action[0]	js:set_bargraph_color()	-
General		
Blink	false	+
Id	BargraphSeg8	
Visible	true	+
Opacity	1	+
Lock	false	+
Position		

```
function set_bargraph_color(me, eventInfo){

    var tankstate = new State();
    var tankvalue = project.getTag("tank_level", tankstate, 0);
    var bargraph = page.getWidget("BargraphSeg8");

    if (tankstate.isQualityGood()){
        if (tankvalue>70){
            bargraph.setProperty("fill","rgb(255,0,0)");
        }
        else{
            bargraph.setProperty("fill","rgb(0,147,0)");
        }
    }
    else{
        bargraph.setProperty("fill","rgb(127,127,127)");
    }

    return false;
}
```

JavaScript shared code

“project” global variable can be used to share JavaScript code between pages
 Variables and functions created into Project Properties tab, can be recalled from other project pages

```

1
2 project.myGlobalVar = 25;
3
4 project.myGlobalFunction = function() {
5
6     var internal_value = 10;
7     alert ("The internal value is: " + internal_value);
8 }
9
  
```

```

1
2 function buttonStd1_onMouseClicked(me, eventInfo)
3 {
4     alert ("Global variable is: " + project.myGlobalVar);
5     project.myGlobalFunction ();
6 }
  
```

JavaScript read/write files

File management to read and write text files

Custom reports in text files or file management

Parsing of existing text files and write on Tags

```
fs.writeFile(my_file, project.getTag("text")+","+project.getTag("counter")+"\r\n", "r");  
  
var file_read = fs.readFile(my_file);
```

Javascript Debug

QT Script debugger

The screenshot shows the Qt Script Debugger window with the following components:

- Loaded Scripts:** A list containing 'page1.js'.
- Code Editor:** Displays JavaScript code for 'page1.js' with line numbers 1 through 15. Line 1 is highlighted in green, indicating the current execution point.
- Breakpoints:** A section with a file icon and a close button.
- Stack:** A table showing the current call stack:

Level	Name	Location
0	<anonymous>	page1.js:1
- Locals:** A table showing local variables:

Name	Value
__pr...	function 0 { ... 2 more lines ...}
length	0
name	version
- Error Log:** An empty area for displaying error messages.
- Bottom Panel:** Includes tabs for 'Console', 'Error Log', and 'Debug Output'.

The screenshot shows the Properties window for a page, with the following attributes and values:

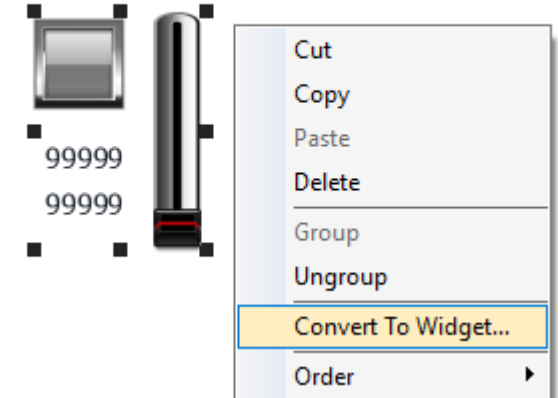
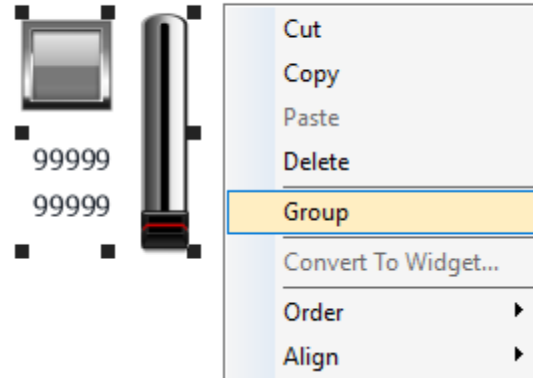
- Page:**
 - Id: Page2
 - Width: 800
 - Height: 480
 - Background: [255, 255, 255]
 - Template: none
 - Static Optimization: true
 - Static File Type: png
 - JavaScript Debug: (dropdown menu is open showing 'false' and 'true')
 - Keyboard: false
 - Events: true
 - OnActivate Action:
 - OnDeactivate Action:
 - OnWheel Action:

At the bottom of the Properties window, there is a section titled **JavaScript Debug** with the text: "Enable or disable Java Script debugging".

Custom Widgets and User Gallery

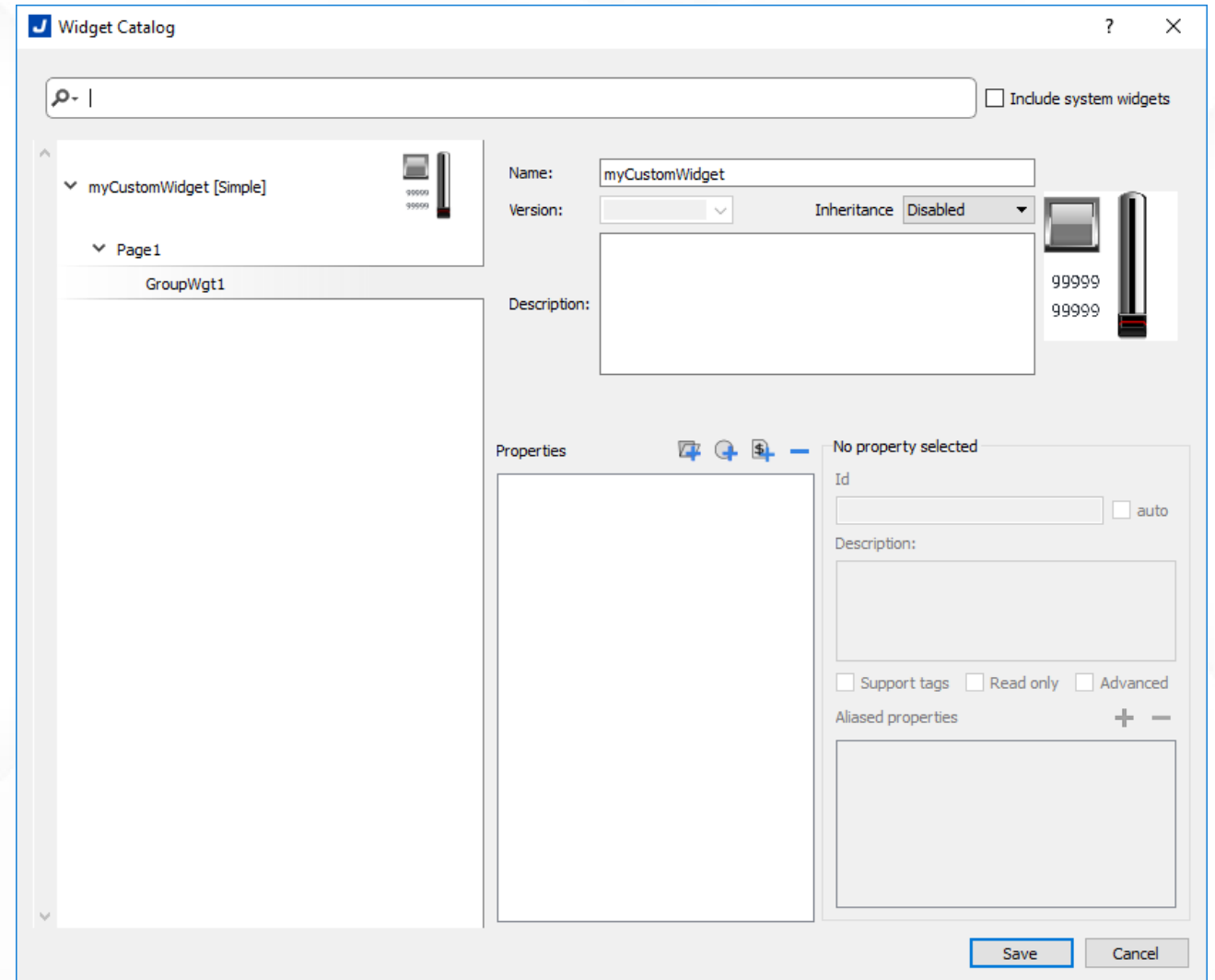
Custom Widgets

Group many Widgets,
then convert to Custom Widget



Custom Widgets

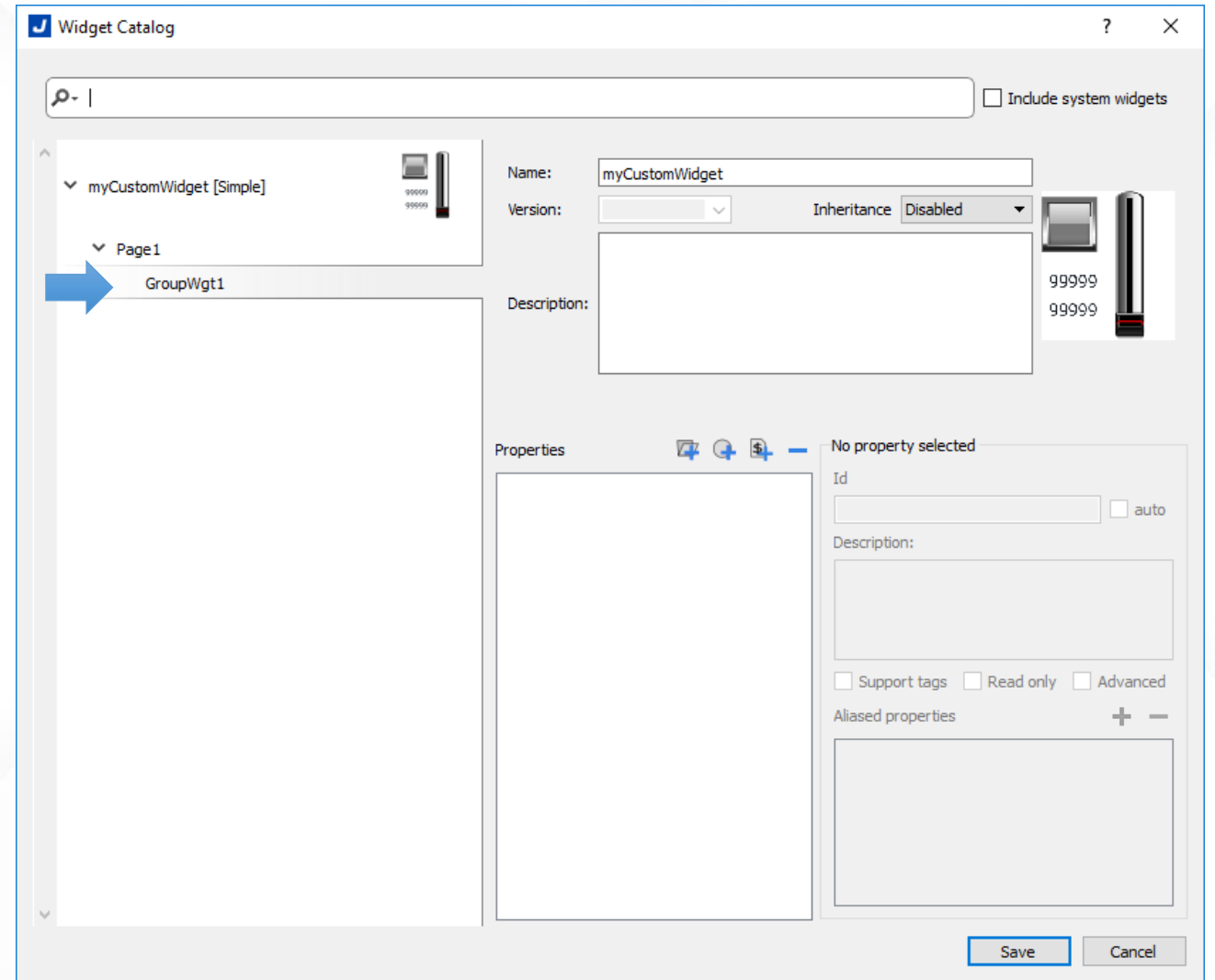
Create your own Widget Catalog



Custom Widgets

Create your own Widget Catalog

View where Custom Widgets are used in the project

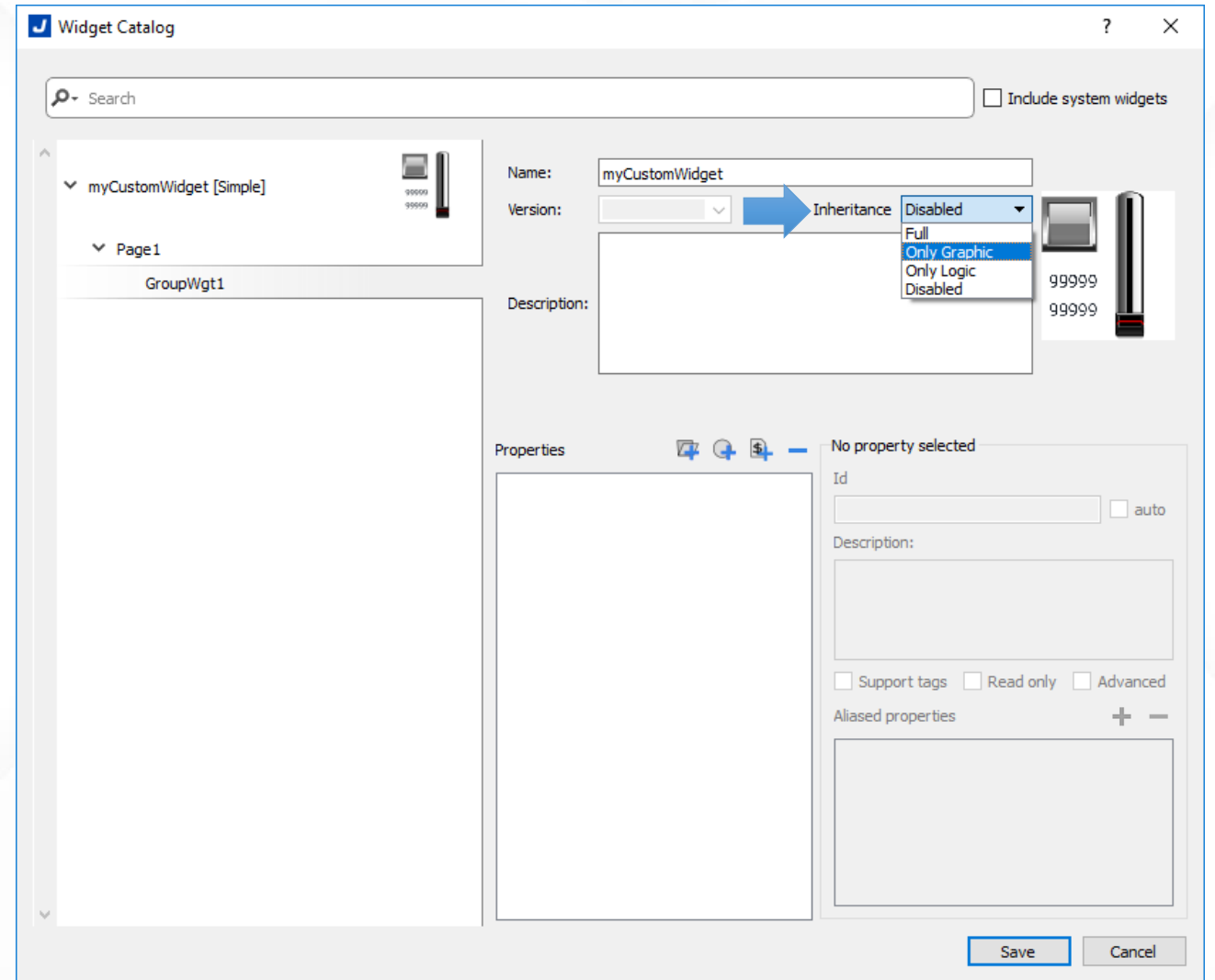


Custom Widgets

Create your own Widget Catalog

View where Custom Widgets are used in the project

Set inheritance configuration



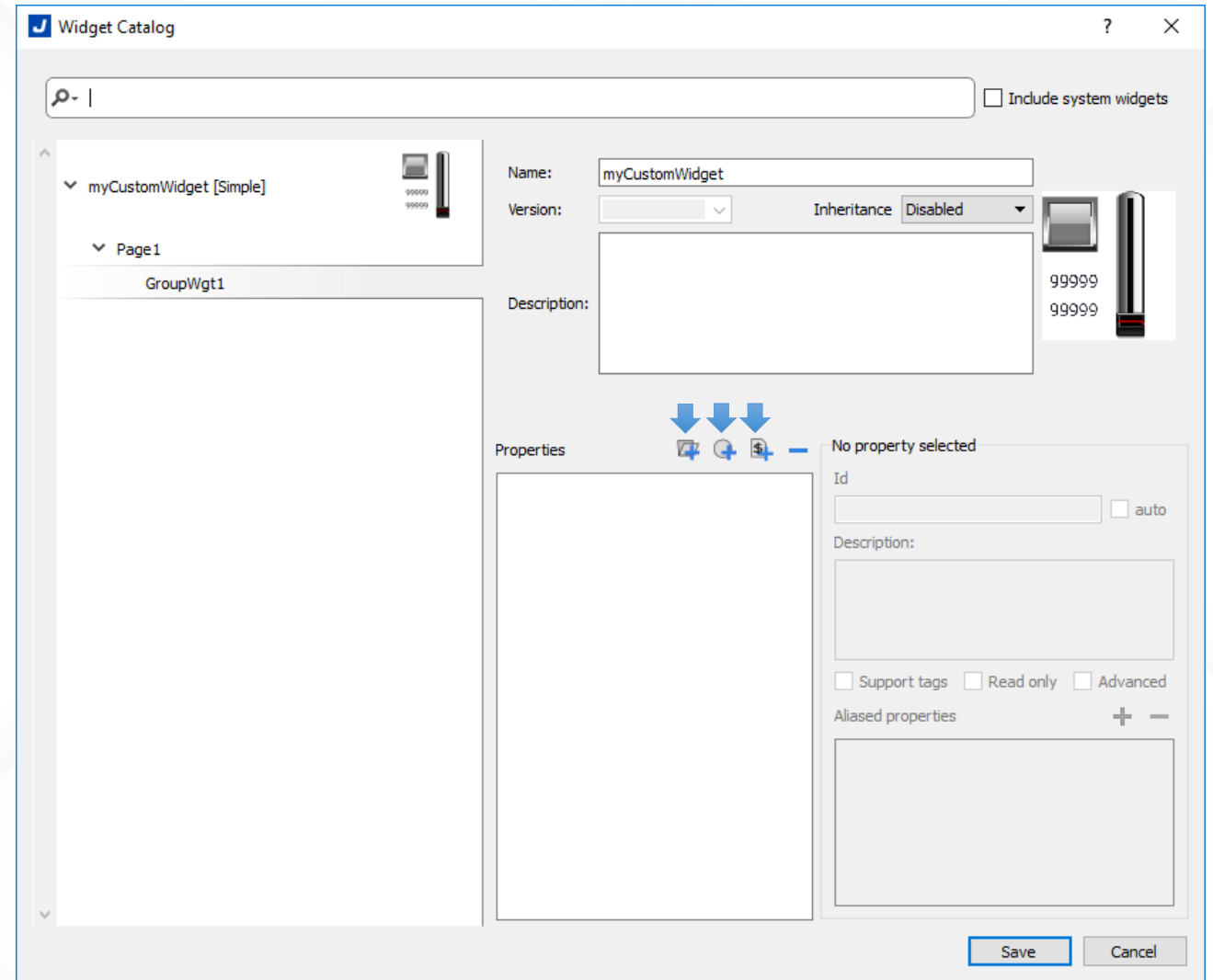
Custom Widgets

Create your own Widget Catalog

View where Custom Widgets are used in the project

Set inheritance configuration

Expose custom properties, categories and parameters



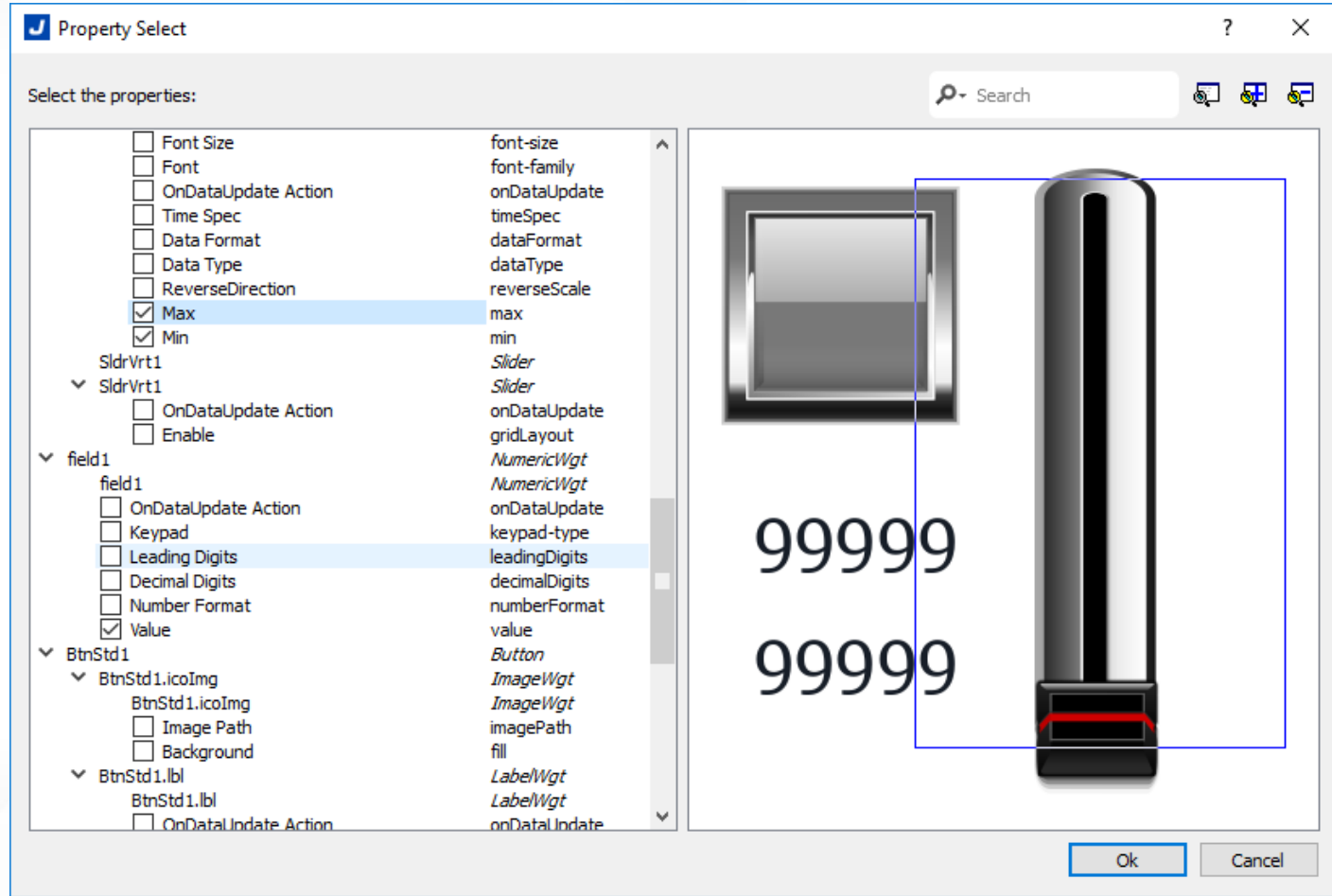
Custom Widgets

Create your own Widget Catalog

View where Custom Widgets are used in the project

Set inheritance configuration

Expose custom properties, categories and parameters



Inheritance

Inheritance allows to create a Widget model

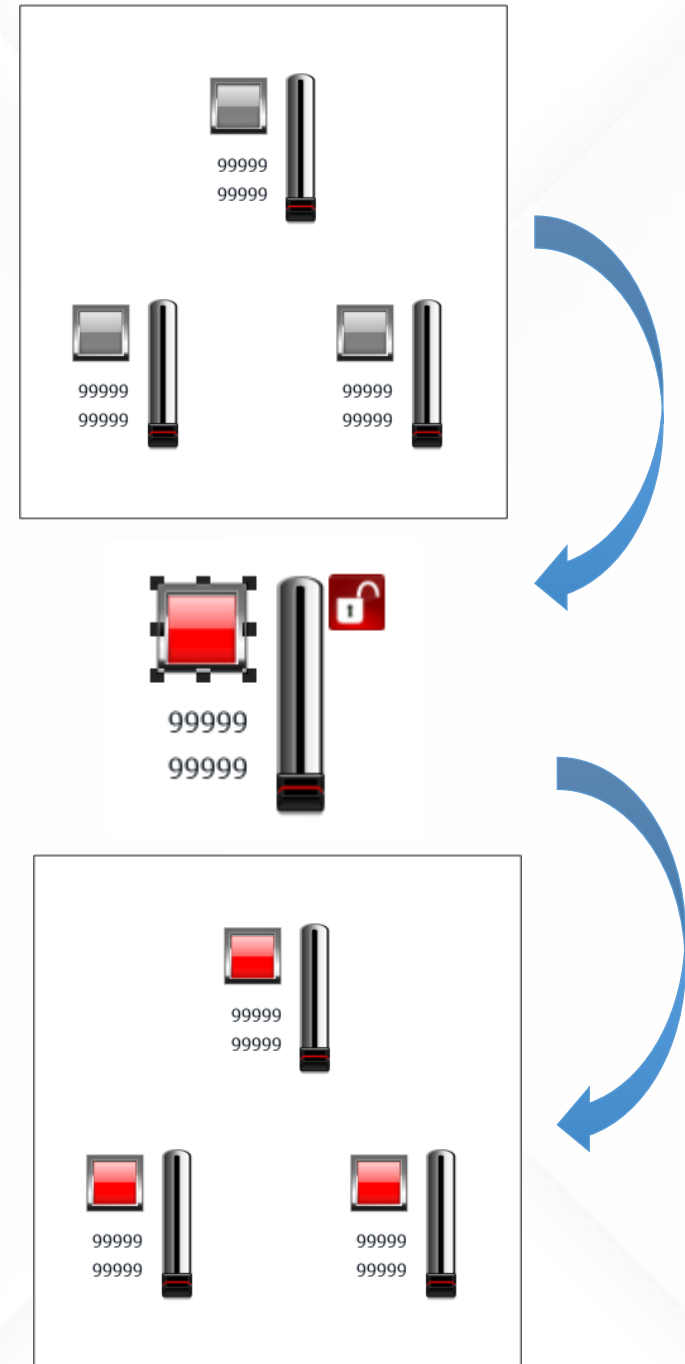
All changes will be applied in all instances (all over the project)

Inheritance types:

Only Graphic

Only Logic (embedded JS code)

Full (Graphic + Logic)



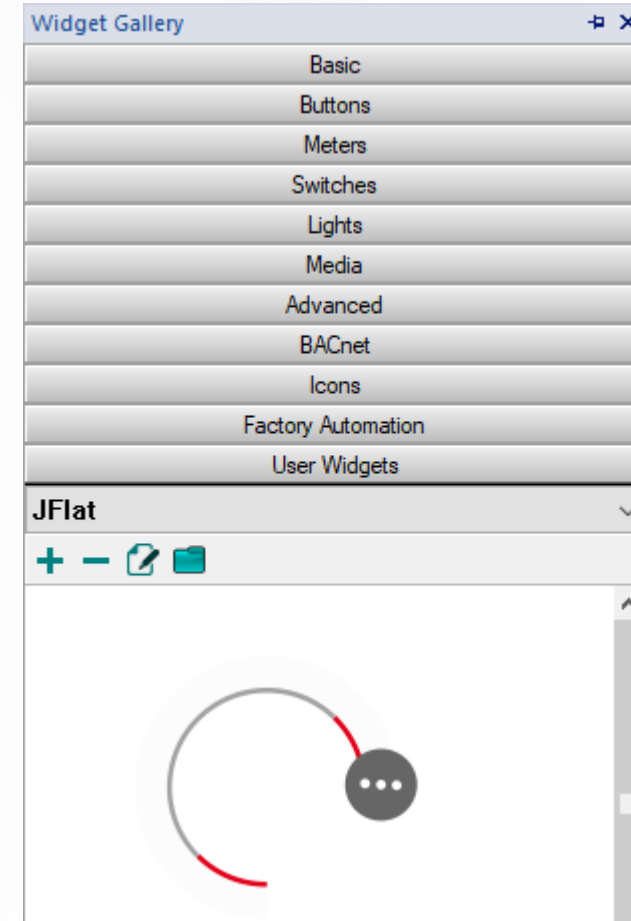
User Gallery

Inside Widget Gallery there is "User Widgets" to store custom widgets

To save a custom widget, select the edit button and copy it into "myGallery1" page

User can add/remove a personal gallery selecting [+] or [-] buttons

A personal gallery can be shared with other users
Personal Gallery by default is placed under JMobile Workspace directory



CODESYS
internal PLC

CODESYS as IEC 61131-3

CODESYS is a development environment for programming controller applications according to the IEC 61131-3

IEC 61131-3 is the third part of the open international standard IEC 61131 for PLC

IEC 61131-3 deals with programming languages and defines three graphical and two textual PLC programming language standards:

- Ladder diagram (LD)

- Function block diagram (FBD)

- Structured text (ST)

- Instruction list (IL)

- Sequential function chart (SFC)

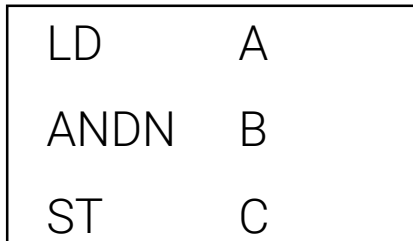
CODESYS V2.3 and CODESYS V3.5

CODESYS V 3.5 internal PLC available for all HMI models

CODESYS V2.3 internal PLC available only for eTOP500/600 WCE based HMI models

Programming Languages

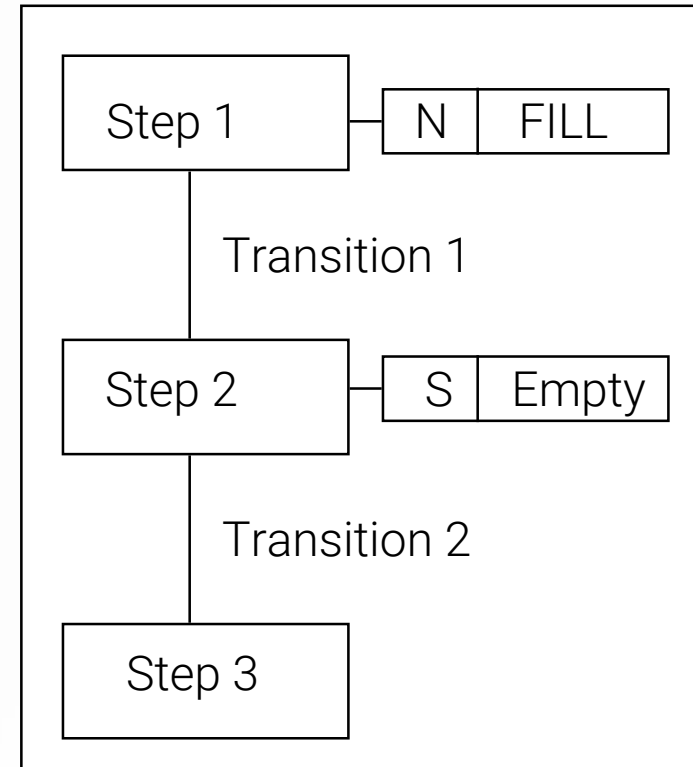
Instruction List (IL)



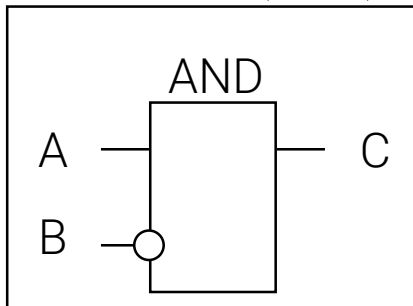
Structured Text (ST)



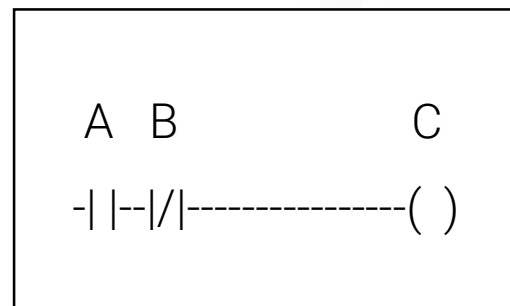
Sequential Function Chart (SFC)



Function Block Diagram (FBD)



Ladder Diagram (LD)



IEC 61131-3 Data Types

IEC 61131-3 Data Type	CODESYS Data Type	JMobile Data Type	Limits	Memory Space
BOOL	BOOL	Boolean	0 ... 1	1 bit data
SINT	SINT	Byte	-128 ... 127	8-bit data
USINT	USINT / BYTE	UnsignedByte	0 ... 255	8-bit data
INT	INT	Short	-32768 ... 32767	16-bit data
UINT	UINT / WORD	UnsignedShort	0 ... 65535	16-bit data
DINT	DINT	Int	-2.1e9 ... 2.1e9	32-bit data
UDINT	UDINT / DWORD	UnsignedInt	0 ... 4.2e9	32-bit data
LINT	---	---	-9.2e19 ... 0.2e19	64-bit data
REAL	REAL	Float	1.17e-38 ... 3.40e38	IEEE single-precision 32-bit floating point type
LREAL	---	Double	2.2e-308 ... 1.79e308	IEEE double-precision 64-bit floating point type

CODESYS objects

POUs (Program Organization Units)

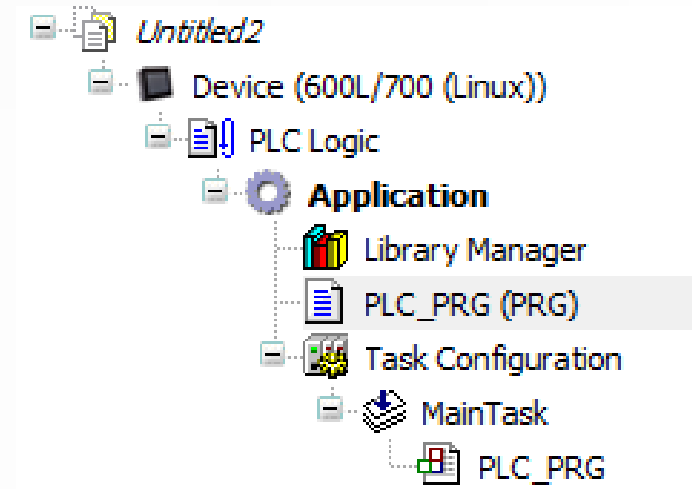
default: PLC_PRG

can be Program, Function or Function block
every POU has variable declaration and code
language can be selected

Library Manager

standard 3S libraries for utilities
EXOR libraries to manage specific scenarios
PT100 and thermocouples (PLI003)
NM2000

NEW
in 4.0



Communication stacks

CANOpen Master

Modbus TCP/RTU Master/Slave

EtherNet/IP Scanner

Profinet I/O Master

EtherCAT Master

PowerLink Master

NOTE: Support depends on hardware capabilities



CODESYS Development software

Download from EXOR website

Many versions can be installed in the same PC

Standard 3S Environment

exorint.com/en/software/jmobile#downloads

CODESYS internal PLC Downloads

CODESYS 3.5 (LAST RELEASED)

CODESYS v3 (OLD VERSIONS)

CODESYS v2.3

NOTE: CODESYS v2.3 is not compatible with CODESYS v3.5

CODESYS EXOR Targets

Distributed into JMobile Installation folder

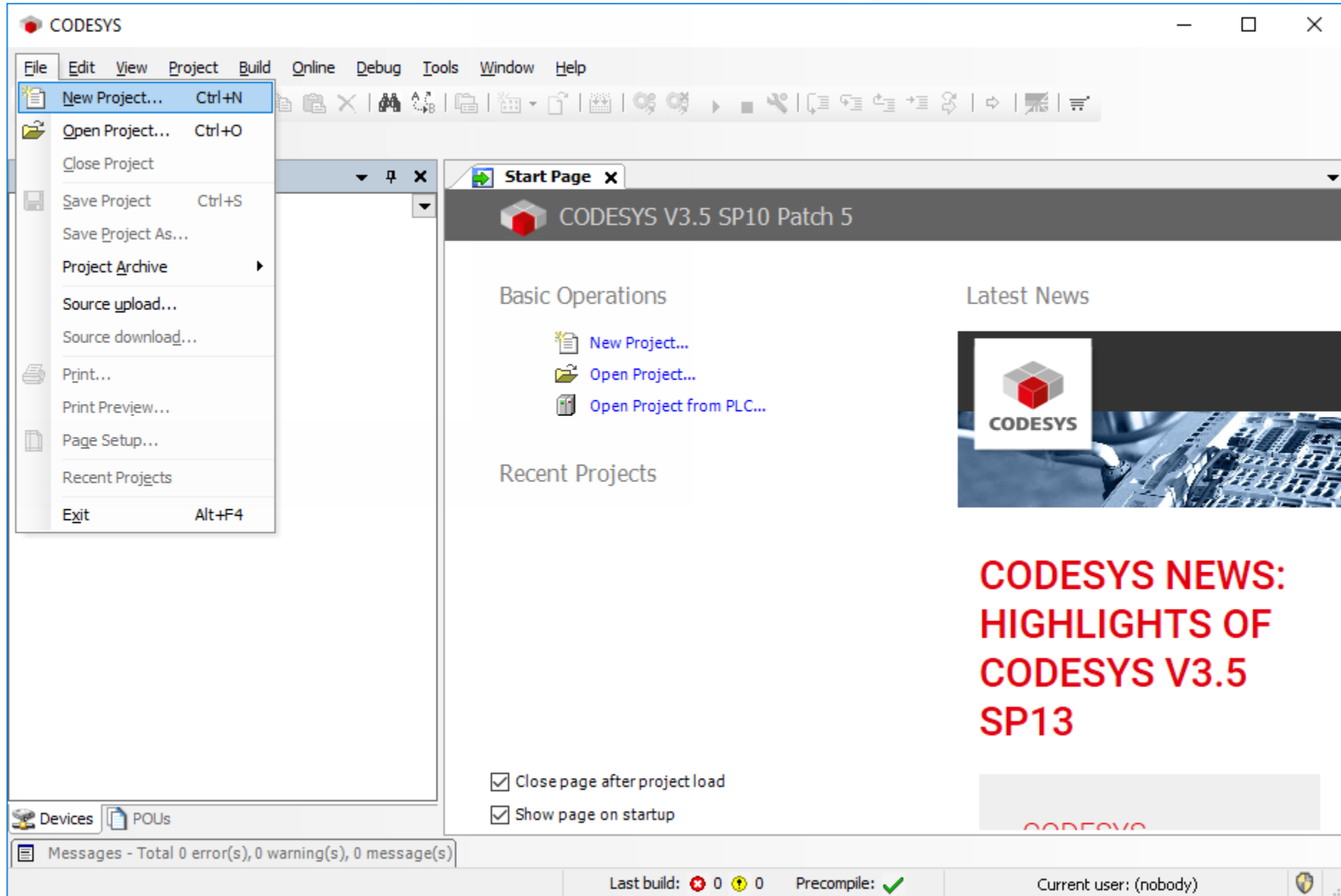


Once CODESYS is installed, double click on Target Package file to install EXOR Targets into CODESYS software

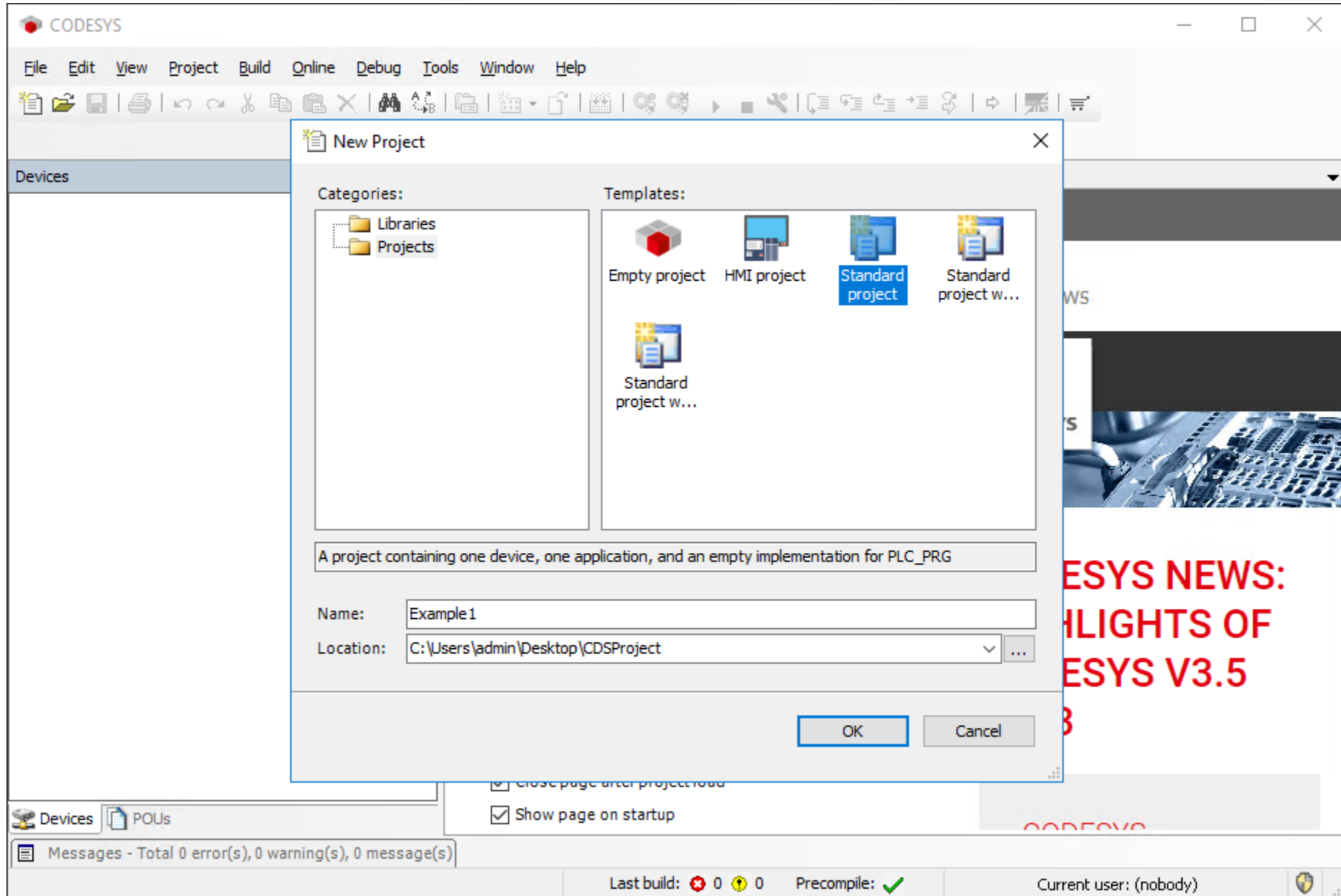
 **CODESYS_JMobile_3.5.12.0_40.package**

Or by opening **Tools > Package Manager > Install** and selecting the package

CODESYS v3: create a new project



CODESYS v3: create a new project



CODESYS v3: create a new project

The screenshot shows the CODESYS v3 interface with a 'Standard Project' wizard dialog box open. The dialog box contains the following information:

Standard Project

You are about to create a new standard project. This wizard will create the following objects within this project:

- One programmable device as specified below
- A program PLC_PRG in the language specified below
- A cyclic task which calls PLC_PRG
- A reference to the newest version of the Standard library currently installed.

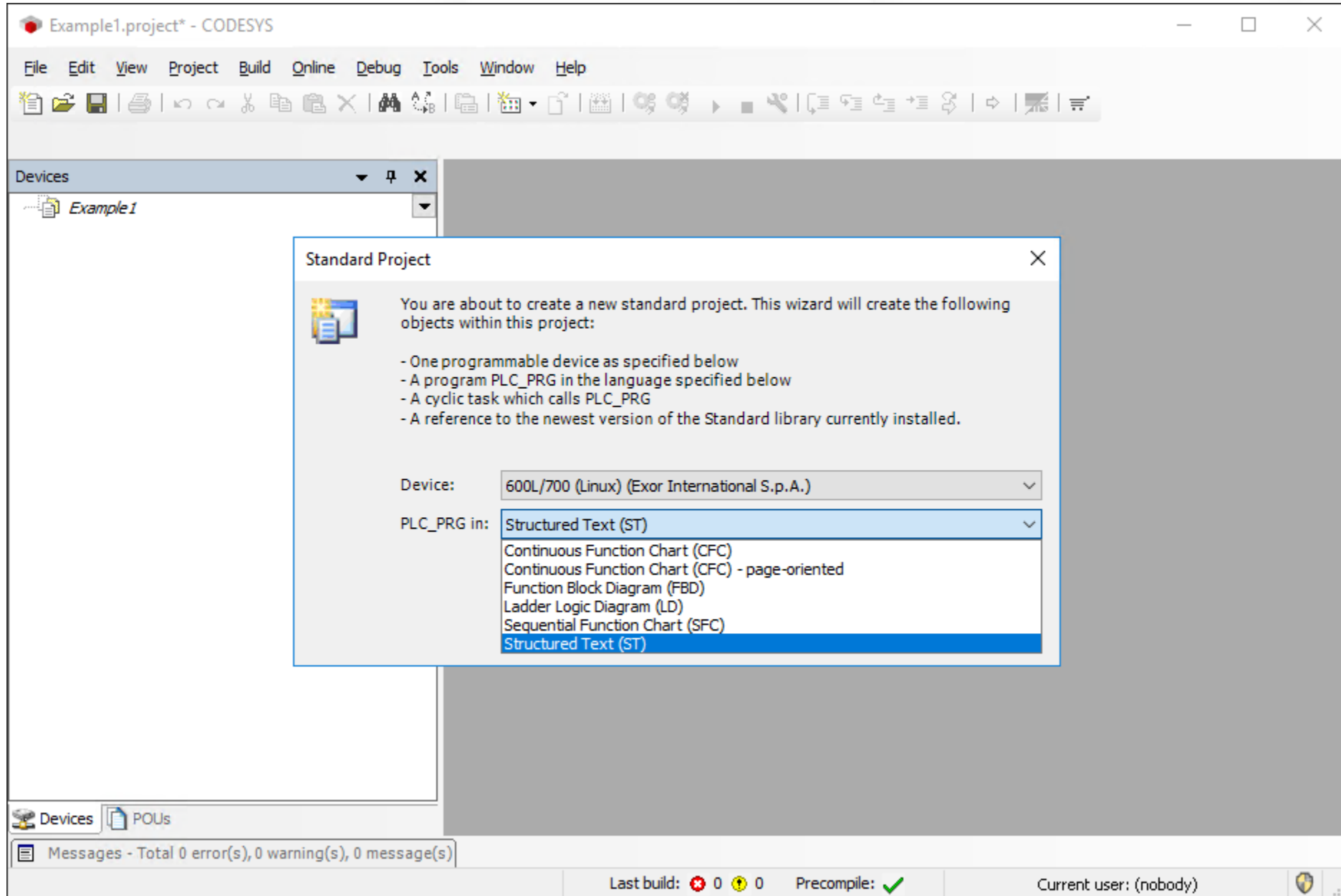
Device: CODESYS Control Win V3 (3S - Smart Software Solutions GmbH)

PLC_PRG in:

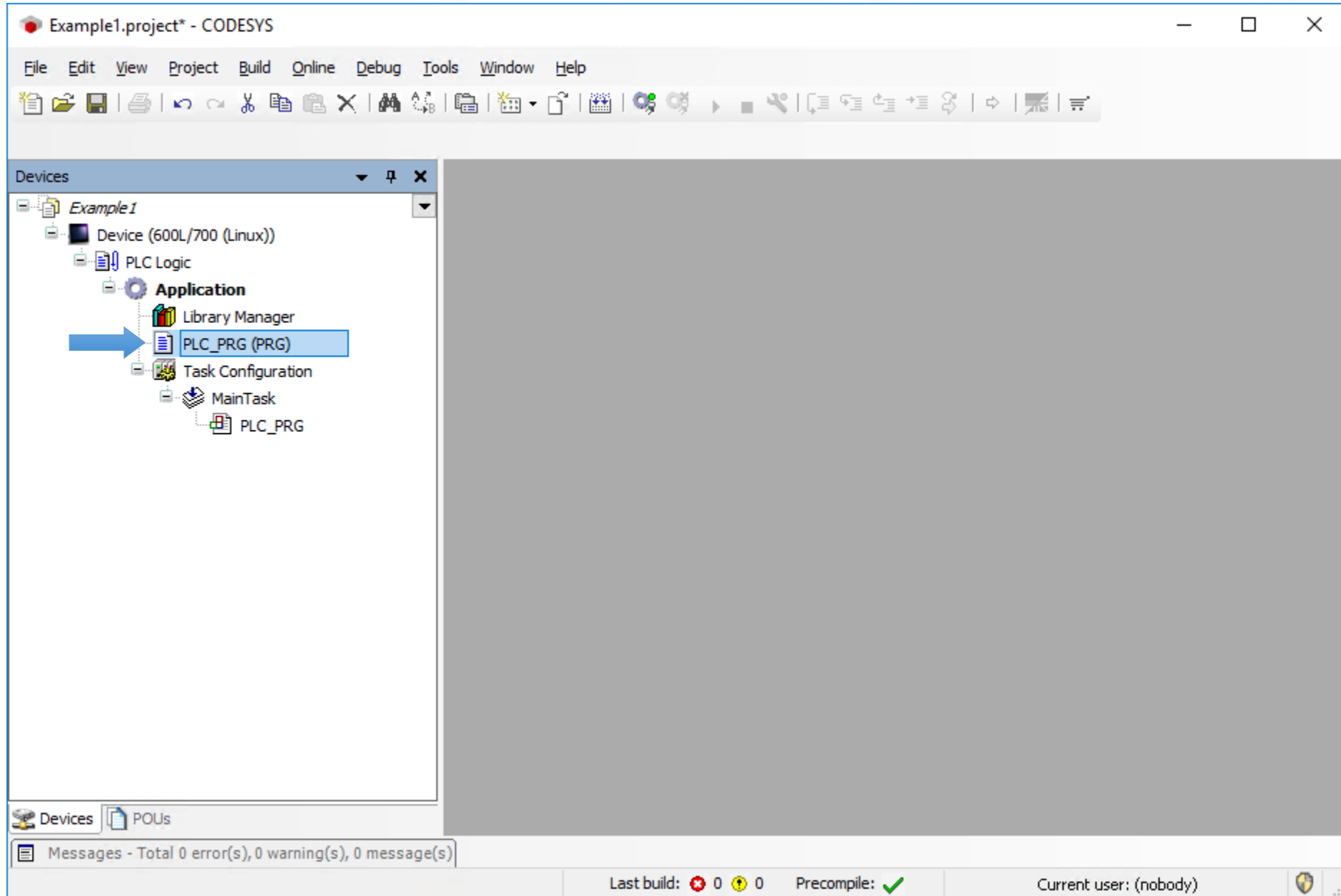
- 500/600 (WCE) (Exor International S.p.A.)
- 600L/700 (Linux) (Exor International S.p.A.)
- CODESYS Control RTE V3 (3S - Smart Software Solutions GmbH)
- CODESYS Control RTE V3 x64 (3S - Smart Software Solutions GmbH)
- CODESYS Control Win V3 (3S - Smart Software Solutions GmbH)
- CODESYS Control Win V3 x64 (3S - Smart Software Solutions GmbH)
- CODESYS HMI (3S - Smart Software Solutions GmbH)
- CODESYS SoftMotion RTE V3 (3S - Smart Software Solutions GmbH)
- CODESYS Softmotion RTE V3 x64 (3S - Smart Software Solutions GmbH)
- CODESYS SoftMotion Win V3 (3S - Smart Software Solutions GmbH)
- CODESYS SoftMotion Win V3 x64 (3S - Smart Software Solutions GmbH)
- DevKit (FRAM) (Exor International S.p.A.)
- DevKit (no FRAM) (Exor International S.p.A.)
- eSMART (Linux) (Exor International S.p.A.)

At the bottom of the interface, the status bar shows: Last build: 0 errors, 0 warnings, 0 messages. Precompile: ✓. Current user: (nobody).

CODESYS v3: create a new project



CODESYS v3: create a new project



CODESYS v3: create a new project

The screenshot displays the CODESYS v3 IDE interface for a project named "Example1.project* - CODESYS". The main window is divided into several sections:

- Menu Bar:** File, Edit, View, Project, Build, Online, Debug, Tools, Window, Help.
- Toolbar:** Contains various icons for file operations, editing, and execution.
- Devices Panel (Left):** Shows a tree view of the project structure:
 - Example1
 - Device (600L/700 (Linux))
 - PLC Logic
 - Application
 - Library Manager
 - PLC_PRG (PRG) (Selected)
 - Task Configuration
 - MainTask
 - PLC_PRG

- PLC_PRG Editor (Top Right):** Shows the ladder logic program:


```

1 PROGRAM PLC_PRG
2 VAR
3     iCounter: UINT;
4 END_VAR
      
```
- Logic Editor (Bottom Right):** Shows a single step of logic:


```

1 iCounter:=iCounter+1;
      
```
- Status Bar (Bottom):**
- Messages - Total 0 error(s), 0 warning(s), 0 message(s)
- Last build: 0 errors, 0 warnings
- Precompile: ✓
- Current user: (nobody)
- INS
- Ln 1 Col 22 Ch 22

Create a new project - remarks

Select the device based on HMI series:

500/600 (WCE)

for eTOP500 and eTOP600

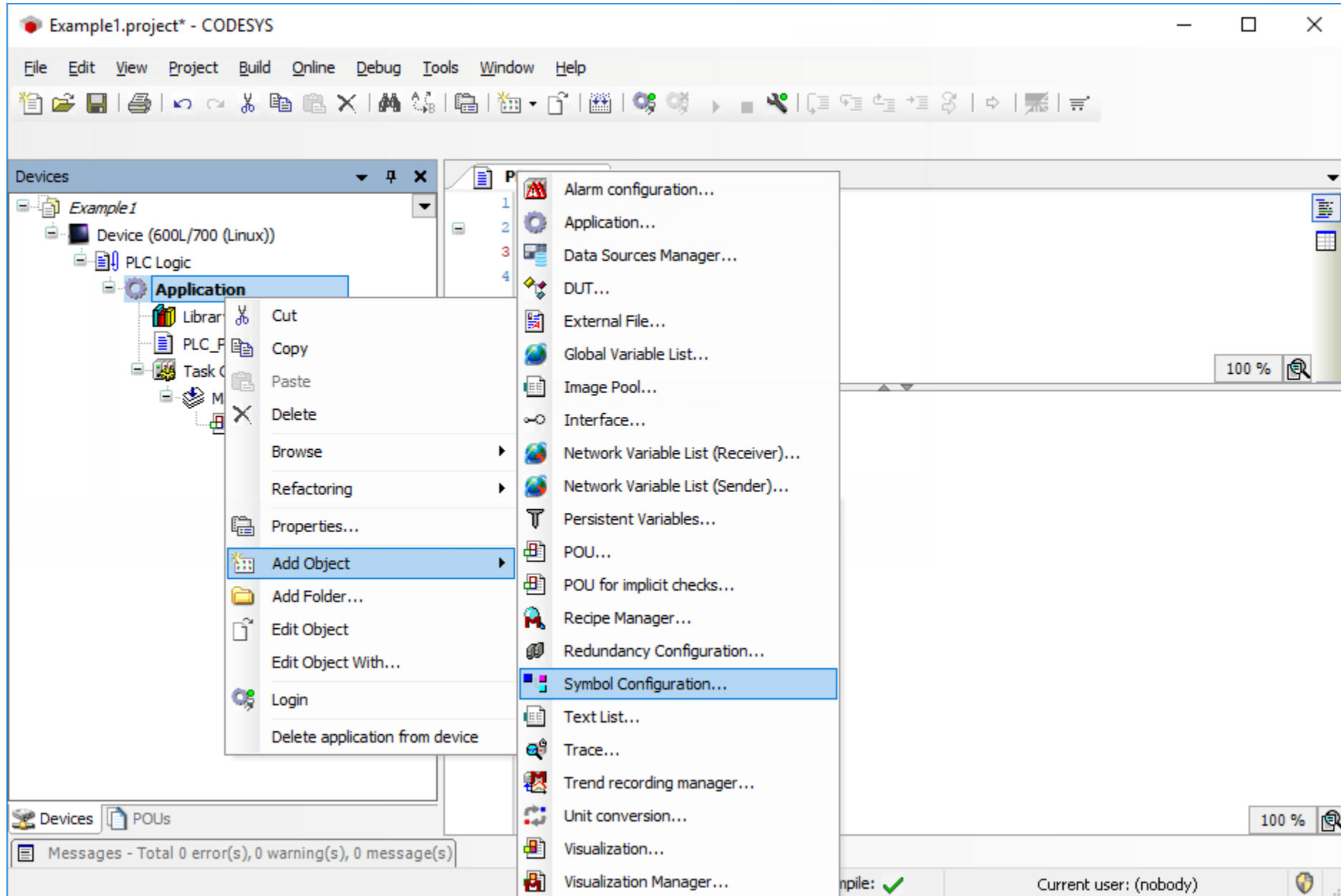
600L/700 (Linux)

for JSmart700, eX700, eXware700, eSMART107

eSMART (Linux) *

for eSMART04, 07M, 10

* CODESYS Retentive variables not supported



The screenshot displays the CODESYS v3 interface with the 'Add Symbol Configuration' dialog box open. The background shows a project tree for 'Example1' containing a 'Device (600L/700 (Linux))' with 'PLC Logic' and an 'Application' sub-tree. The dialog box contains the following elements:

- Title:** Add Symbol Configuration
- Message:** Create a remote access symbol configuration.
- Name:** A text input field containing 'Symbol Configuration'.
- Options:**
 - Include Comments in XML
 - Support OPC UA Features
 - Add library placeholder in Device Application (recommended, but may trigger download)
- Client side data layout:**
 - Compatibility Layout
 - Optimized Layout
- Buttons:** Add and Cancel

The bottom status bar shows: Messages - Total 0 error(s), 0 warning(s), 0 message(s); Last build: 0 errors, 0 warnings; Precompile: success; Current user: (nobody).

CODESYS v3: symbol configuration

Example1.project* - CODESYS

File Edit View Project Build Online Debug Tools Window Help

Devices

- Example1
 - Device (600L/700 (Linux))
 - PLC Logic
 - Application
 - Library Manager
 - PLC_PRG (PRG)
 - Symbol Configuration
 - Task Configuration
 - MainTask
 - PLC_PRG

PLC_PRG Symbol Configuration

View Build Settings Tools

Execute "Build" command to be able to select variables (you need an error-free build). Build Details...

Changed symbol configuration will be transferred with the next download or online change

Symbols	Access Rights	Maximal	Attribute	Type	Members	Comment
---------	---------------	---------	-----------	------	---------	---------

Messages - Total 0 error(s), 0 warning(s), 0 message(s)

Last build: 0 0 Precompile: ✓ Current user: (nobody)

CODESYS v3: symbol configuration

The screenshot shows the CODESYS v3 interface for configuring symbols. The left pane shows a project tree with 'Symbol Configuration' selected. The right pane displays a table of symbols with 'iCounter' selected. A blue arrow points from the 'Symbol Configuration' node in the tree to the 'iCounter' row in the table.

Symbols	Access Rights	Maximal	Attribute	Type	Members	Comment
<input type="checkbox"/> Constants						
<input type="checkbox"/> IoConfig_Globals						
<input checked="" type="checkbox"/> PLC_PRG						
<input checked="" type="checkbox"/> iCounter				UINT		

Messages - Total 0 error(s), 0 warning(s), 0 message(s)

Last build: 0 0 Precompile: Current user: (nobody)

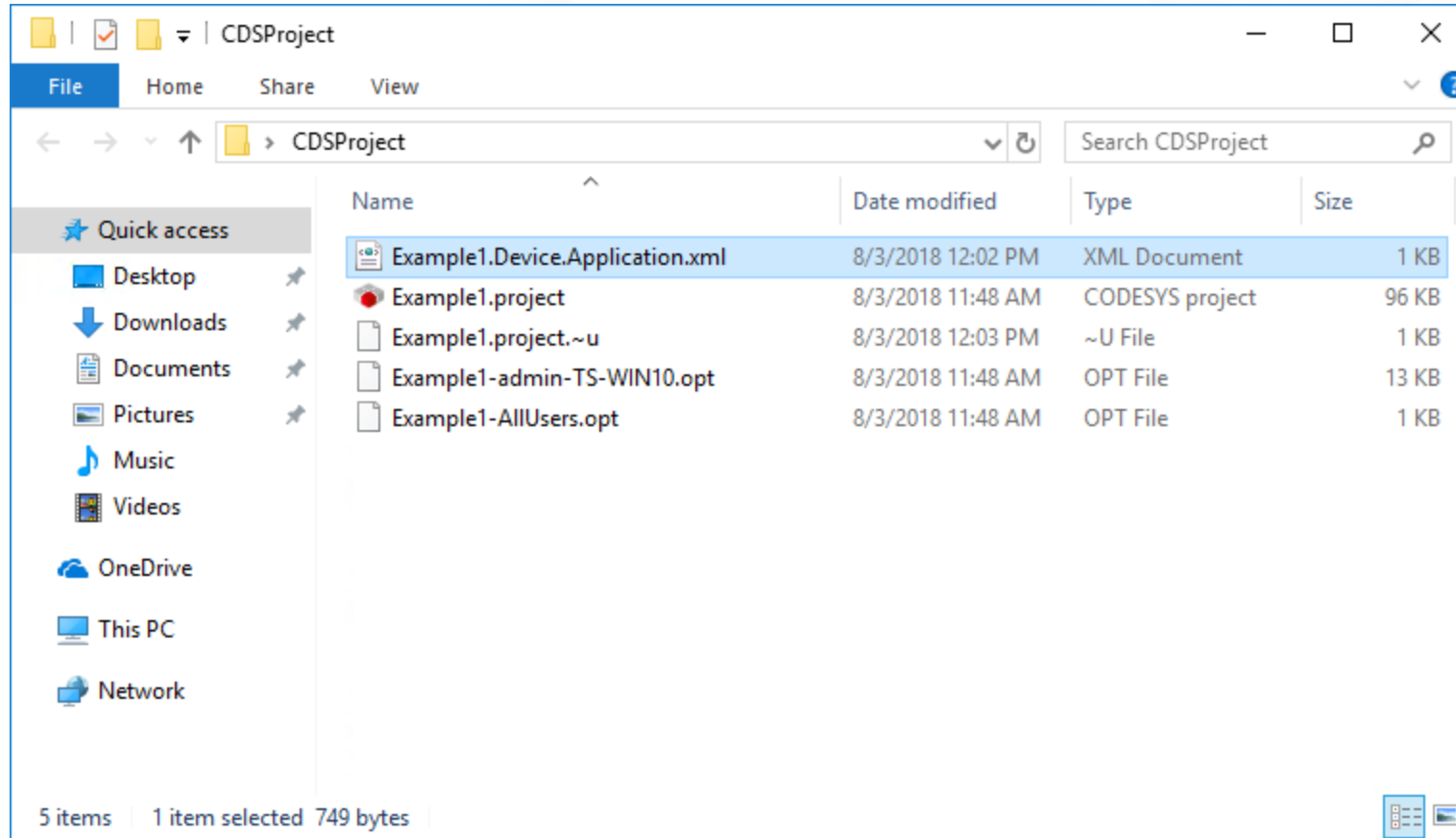
CODESYS v3: symbol configuration

The screenshot shows the CODESYS v3 interface for a project named 'Example1.project*'. The 'Build' menu is open, with 'Generate code' selected. The 'Symbol Configuration' window is active, displaying a table of symbols.

Symbol	Access Rights	Maximal	Attribute	Type	Members	Comment
Constants	<input type="checkbox"/>					
IoConfig_Globals	<input type="checkbox"/>					
PLC_PRG	<input checked="" type="checkbox"/>					
iCounter	<input checked="" type="checkbox"/>			UINT		

At the bottom of the interface, the status bar shows: Messages - Total 0 error(s), 0 warning(s), 0 message(s); Last build: 0 errors, 0 warnings; Precompile: ✓; Current user: (nobody).

CODESYS v3: symbol configuration



Symbol configuration - remarks

Right-Click on Application, then select
Add Object > Symbol Configuration...

Inside Symbol Configuration click "Build"

Go to Build > Generate code to generate the .xml file
xml file is used as the tag import file to bring all selected variables into the JMobile project

OPTIONAL: select "Support OPC UA features" to expose symbols via
CODESYS OPC UA Server

CODESYS v3: download to PLC

The screenshot shows the CODESYS v3 interface for a project named 'Example1.project*'. The 'Online' menu is open, and 'Create boot application' is selected. The background shows a PLC program with a ladder logic network containing the instruction `904 :=iCounter 904 +1;RETURN`. A 'Watch 1' window is visible at the bottom, and the status bar at the very bottom shows 'RUN' mode.

	Type	Value	Prepared value
	UINT	904	

Expression	Application	Type	Value	Prepared

Messages - Total 0 error(s), 0 warning(s), 5 message(s)

Last build: 0 0 Precompile: ✓ RUN Program loaded Program unchanged Current user: (nobody)

Download to PLC - remarks

Online > Login

will open a dialog box to confirm the download to the PLC.
At that time, the code is in RAM. A restart of HMI will erase the PLC code

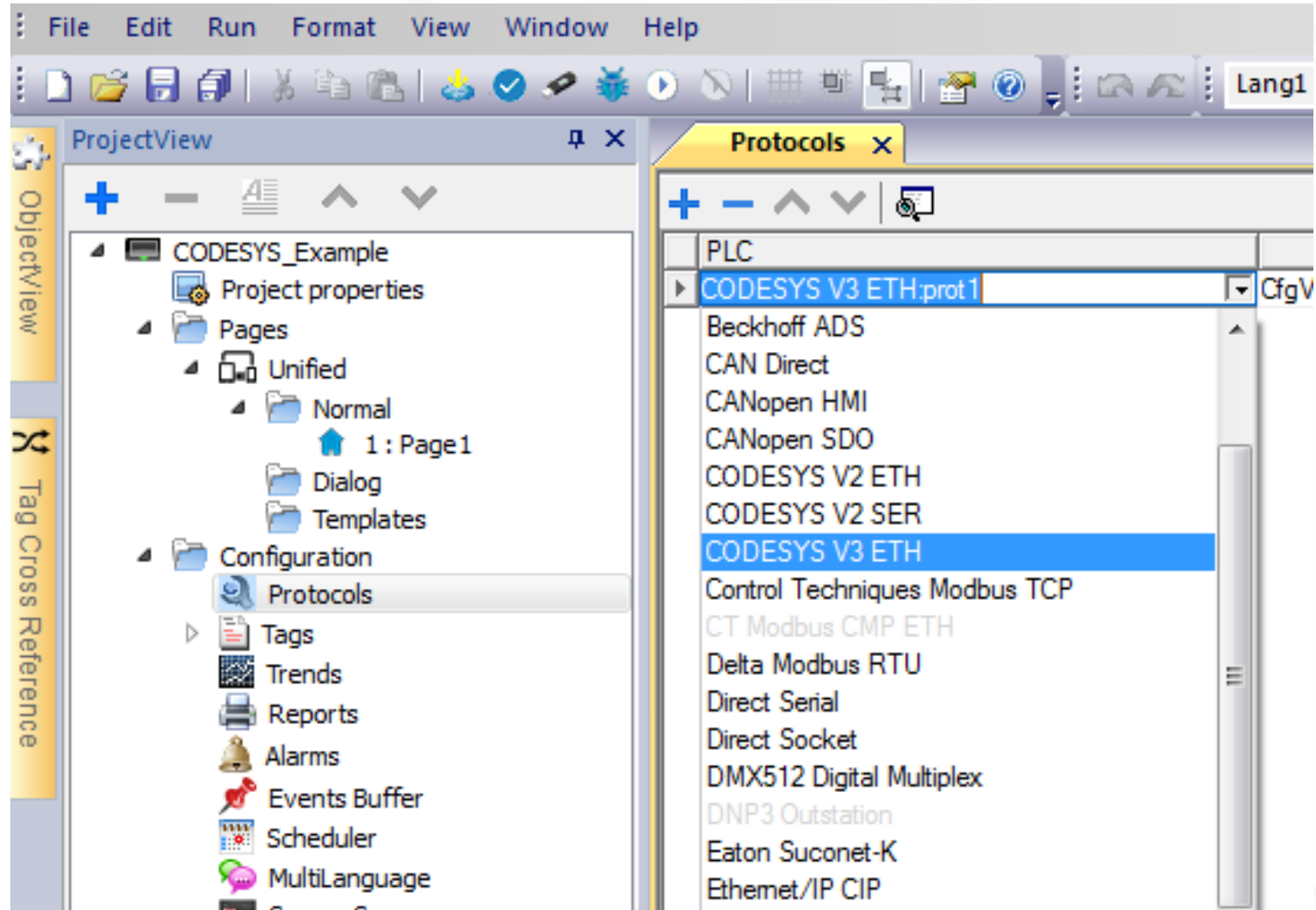
Online > Create boot application

will save the PLC application to flash

Debug > Start

will put the PLC in Run mode

CODESYS v3: configure protocol in JMobile



Set localhost IP Address
in protocol configuration
(127.0.0.1)

PLC Network

Alias

IP address

Timeout (ms)

Full node address

Variable list count

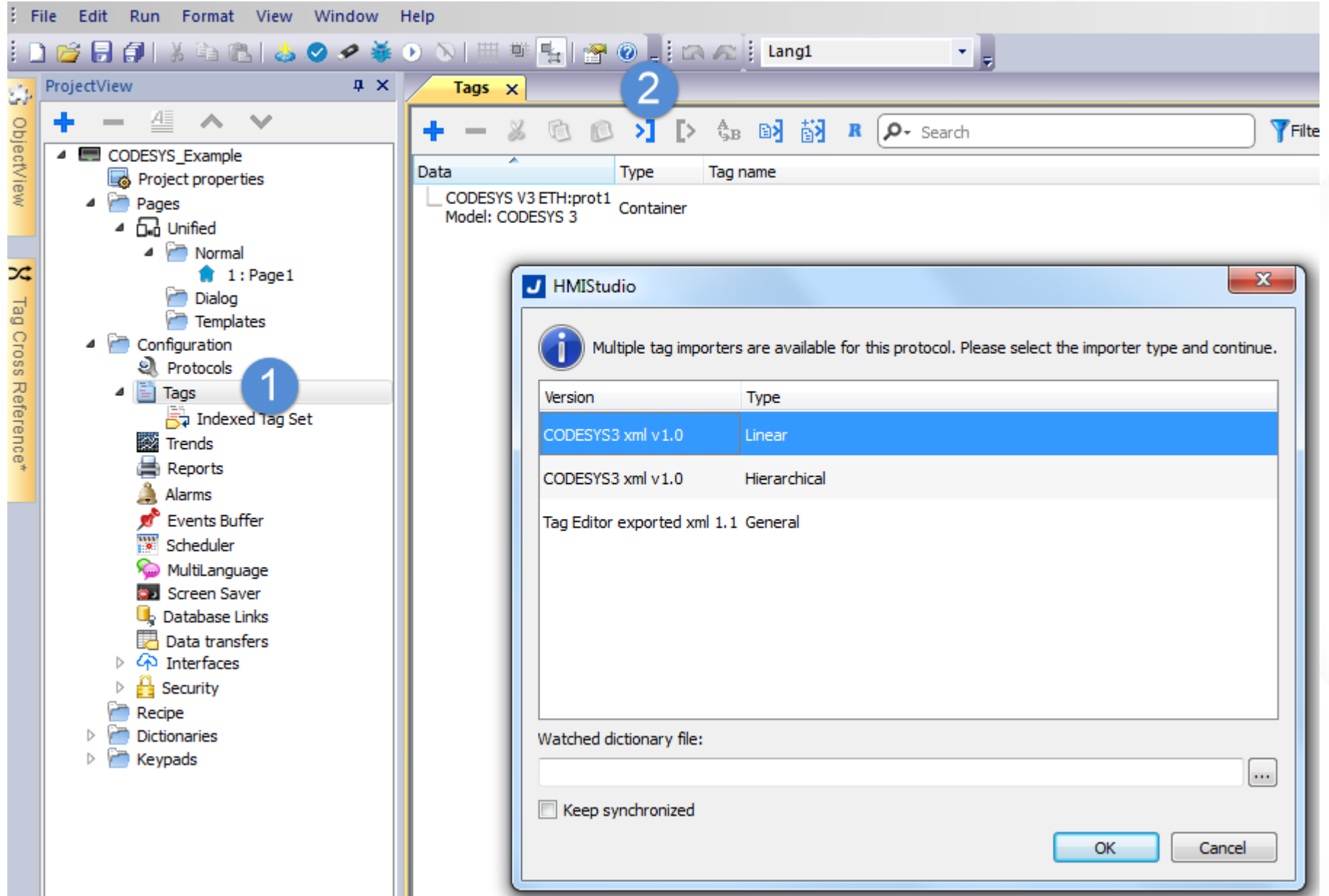
PLC Models

- CODESYS 3
- Schneider

OK

Cancel

Import XML file containing CODESYS variables



Configure protocol - remarks

Add CODESYS v3 ETH protocol

Configure PLC IP address as 127.0.0.1

Import Tags from symbol file ".xml"

PLC Configuration: add local I/O plug-in

The screenshot shows the CODESYS IDE interface for a project named 'Example1.project*'. The 'Devices' tree on the left is expanded to show a 'Device (600L/700 (Linux))' folder. A context menu is open over this folder, with 'Add Device...' selected. The main editor window shows a ladder logic program for 'PLC_PRG' with the following code:

```

1 PROGRAM PLC_PRG
2 VAR
   iCounter: UINT;
END_VAR

iCounter:=iCounter+1;

```

The status bar at the bottom indicates 'Last build: 0 errors, 0 warnings, Precompile: successful, Current user: (nobody)'.

PLC Configuration: add local I/O plug-in

Add Device

Name:

Action:

Append device Insert device Plug device Update device

Enter a string for a fulltext search in all devices... Vendor: <All vendors>

Name	Vendor	Version	Description
Miscellaneous			
PLIO03	Exor International S.p.A.	3.5.7.0	IO-device with 20 digital inputs(counter/encoder
PLIO04	Exor International S.p.A.	3.5.7.0	IO-device with 10 digital inputs, 10 digital output
PLIO06	Exor International S.p.A.	3.5.7.0	IO-module with 8 digital inputs, 6 digital outputs
Fieldbusses			

Group by category Display all versions (for experts only) Display outdated versions

Name: PLIO03
Vendor: Exor International S.p.A.
Categories:
Version: 3.5.7.0
Order Number: ??????
Description: IO-device with 20 digital inputs(counter/encoder configurable), 12 digital outputs, 8 analog inputs, 4 analog outputs

Append selected device as last child of Device

(You can select another target node in the navigator while this window is open.)

Last build: 0 0 Precompile: ✓ Current user: (nobody)

PLC Configuration: add local I/O plug-in

The screenshot shows the CODESYS interface for configuring a PLC. The left sidebar shows a project tree with 'Digital outputs' selected under 'PLIO03 (PLIO03)'. The main window displays the 'Digital outputs I/O Mapping' configuration for 'Digital outputs'. A table lists the mapping of channels to addresses and types.

Variable	Mapping	Channel	Address	Type	Unit	Description
		Outputs	%QB0			Digital outputs of th
		Byte0	%QB0	BYTE		Output byte 0 (cha
		Bit0	%QX0.0	BOOL		Channel 1
		Bit1	%QX0.1	BOOL		Channel 2
		Bit2	%QX0.2	BOOL		Channel 3
		Bit3	%QX0.3	BOOL		Channel 4
		Bit4	%QX0.4	BOOL		Channel 5
		Bit5	%QX0.5	BOOL		Channel 6
		Bit6	%QX0.6	BOOL		Channel 7
		Bit7	%QX0.7	BOOL		Channel 8
		Byte1	%QB1	BYTE		Output byte 1 (cha

At the bottom of the configuration window, there are controls for 'Channel', 'Reset mapping', and 'Always update variables: Enabled 1 (use bus cycle task if...'. A legend indicates that a lightning bolt icon means 'Create new variable' and a plug icon means 'Map to existing variable'.

PLC Configuration: add remote I/O

The screenshot displays the CODESYS software interface for a project named 'Example1.project*'. The 'Devices' tree on the left shows a hierarchy: 'Example1' > 'Device (600L/700 (Linux))' > 'Application'. A context menu is open over the 'Application' node, with 'Add Device...' selected. The main editor window shows a ladder logic program for 'PLC_PRG' with the following code:

```

1 PROGRAM PLC_PRG
2 VAR
   iCounter: UINT;
END_VAR

iCounter:=iCounter+1;

```

The status bar at the bottom indicates 'Last build: 0 0', 'Precompile: ✓', and 'Current user: (nobody)'.

PLC Configuration: add remote I/O

Example1.project* - CODESYS

File Edit View Project Build

Devices

Example 1

- Device (600L/700 (Linux))
 - PLC Logic
 - Application
 - Library Manage
 - PLC_PRG (PRG)
 - Symbol Configu
 - Task Configura
 - MainTask
 - PLC_PP

Add Device

Name: Ethernet

Action:

Append device Insert device Plug device Update device

Enter a string for a fulltext search in all devices... Vendor: <All vendors>

Name	Vendor	Version	Description
Miscellaneous			
Fieldbusses			
CANbus			
EtherCAT			
Ethernet Adapter			
Ethernet	3S - Smart Software Solutions GmbH	3.5.10.0	Ethernet Link.
EtherNet/IP			
Modbus			
Profnet IO			

Group by category Display all versions (for experts only) Display outdated versions

Name: Ethernet
Vendor: 3S - Smart Software Solutions GmbH
Categories: Ethernet Adapter, Ethernet Adapter, Ethernet Adapter
Version: 3.5.10.0
Order Number: -
Description: Ethernet Link.

Append selected device as last child of Device

i (You can select another target node in the navigator while this window is open.)

Add Device Close

Last build: 0 0 Precompile: ✓ Current user: (nobody)

PLC Configuration: add remote I/O

Add Device

Name:

Action:

Append device Insert device Plug device Update device

Enter a string for a fulltext search in all devices... Vendor: <All vendors>

Name	Vendor	Version	Description
Fieldbuses			
EtherNet/IP			
Modbus			
Modbus TCP Master			
Modbus TCP Master	3S - Smart Software Solutions GmbH	3.5.10.0	A device that wo
ModbusTCP Slave Device			
Profinet IO			

Group by category Display all versions (for experts only) Display outdated versions

Name: Modbus TCP Master
Vendor: 3S - Smart Software Solutions GmbH
Categories: Modbus TCP Master
Version: 3.5.10.0
Order Number: -
Description: A device that works as a Modbus Master on Ethernet.

Append selected device as last child of Ethernet

i (You can select another target node in the navigator while this window is open.)

Add Device **Close**

Last build: 0 0 Precompile: ✓ Current user: (nobody)

PLC Configuration: add remote I/O

Add Device

Name:

Action:

Append device Insert device Plug device Update device

Enter a string for a fulltext search in all devices... Vendor:

Name	Vendor	Version	Description
Fieldbuses			
Modbus			
Modbus TCP Slave			
Modbus TCP Slave	3S - Smart Software Solutions GmbH	3.5.10.0	A generic Modbus c

Group by category Display all versions (for experts only) Display outdated versions

Name: Modbus TCP Slave
Vendor: 3S - Smart Software Solutions GmbH
Categories: Modbus TCP Slave
Version: 3.5.10.0
Order Number: -
Description: A generic Modbus device that is configured as Slave for a Modbus TCP Master

Append selected device as last child of Modbus_TCP_Master

i (You can select another target node in the navigator while this window is open.)

Add Device **Close**

Last build: ✖ 0 ⚠ 0 Precompile: ✔ Current user: (nobody)

PLC Configuration: add remote I/O

The screenshot shows the CODESYS IDE interface for a project named 'Example1.project*'. The 'Devices' tree on the left shows a hierarchy: Example1 -> Device (600L/700 (Linux)) -> PLC Logic -> Application -> Modbus_TCP_Slave (Modbus TCP Slave). The right-hand pane displays the configuration for the selected 'Modbus_TCP_Slave' device, with the 'Modbus-TCP' tab active. The configuration parameters are as follows:

Parameter	Value
Slave IP Address:	192 . 168 . 0 . 1
Unit-ID [1..247]	
Response Timeout (ms)	1000
Port	502

At the bottom of the interface, the status bar shows: 'Messages - Total 0 error(s), 0 warning(s), 0 message(s)', 'Last build: 0 0', 'Precompile: ✓', and 'Current user: (nobody)'.

End of JMobile Training Day 2

Thanks for your attention
Technical Support Team