Moving from FREE Studio to FREE Studio Plus

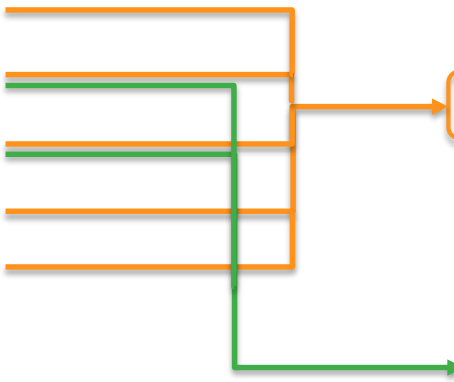
FREE Studio Plus Features

1	New Executables & Software Structure
2	HowTo Import a Free Studio project
3	HowTo Create a “NEW” Project
4	New Graphic Style
5	Improved Software Features

New software present into the installed folder

FREE Studio

- free Studio Application
- free Studio Connection
- free Studio Device
- free Studio Simulation
- free Studio User Interface



FREE Studio Plus

Free Studio Plus

Single all-in-one work environment

- only way to import FREE Smart existing projects

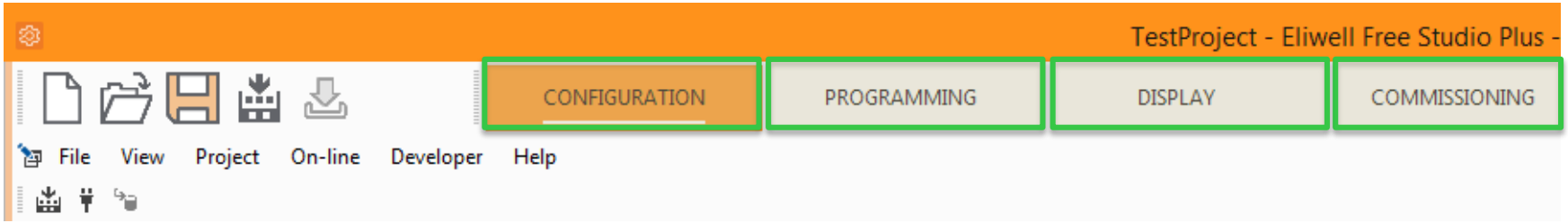
Free Studio Plus Installer

Installer:

- is the only way to import existing projects (except Free Smart)
- is used for software commissioning w/o source code
- is used to configure binding communication

FREE Studio Plus

The new software structure is more user friendly (Configuration, Programming, Commissioning)



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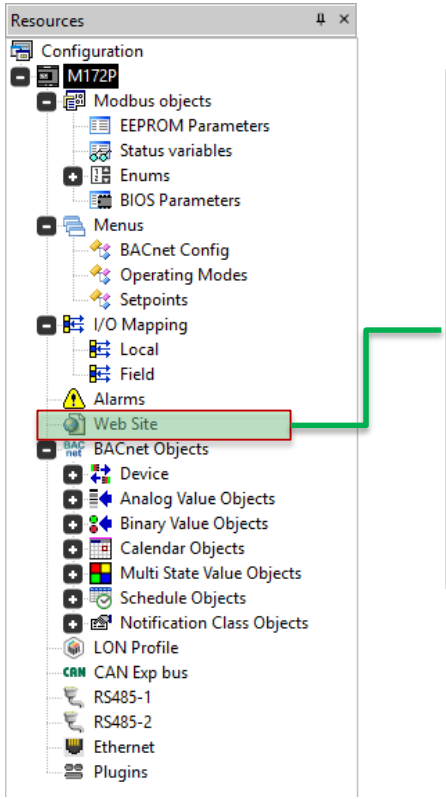
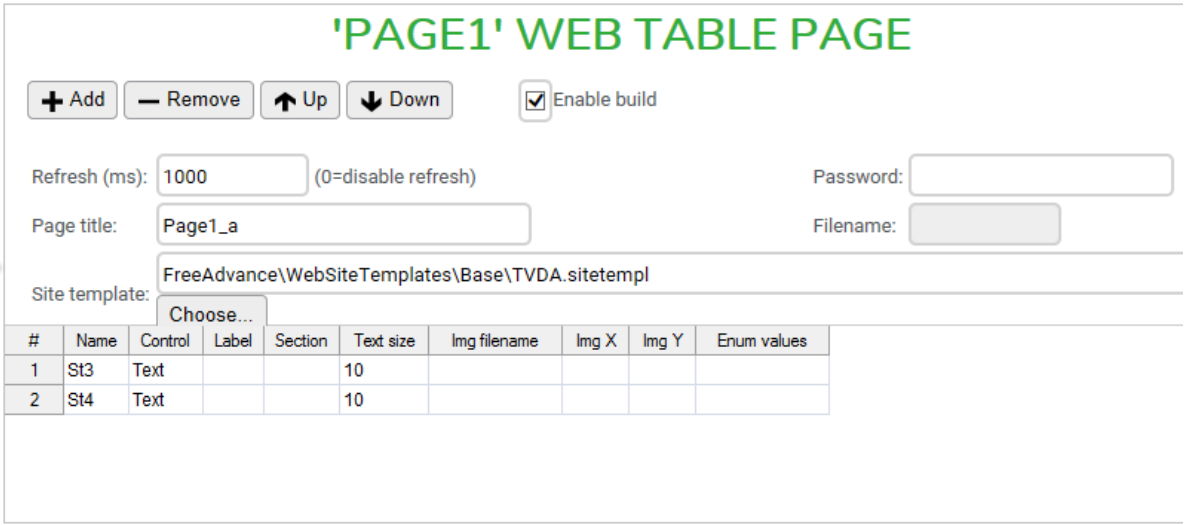
Configuration Perspective

Configuration of Programming variables and communication settings



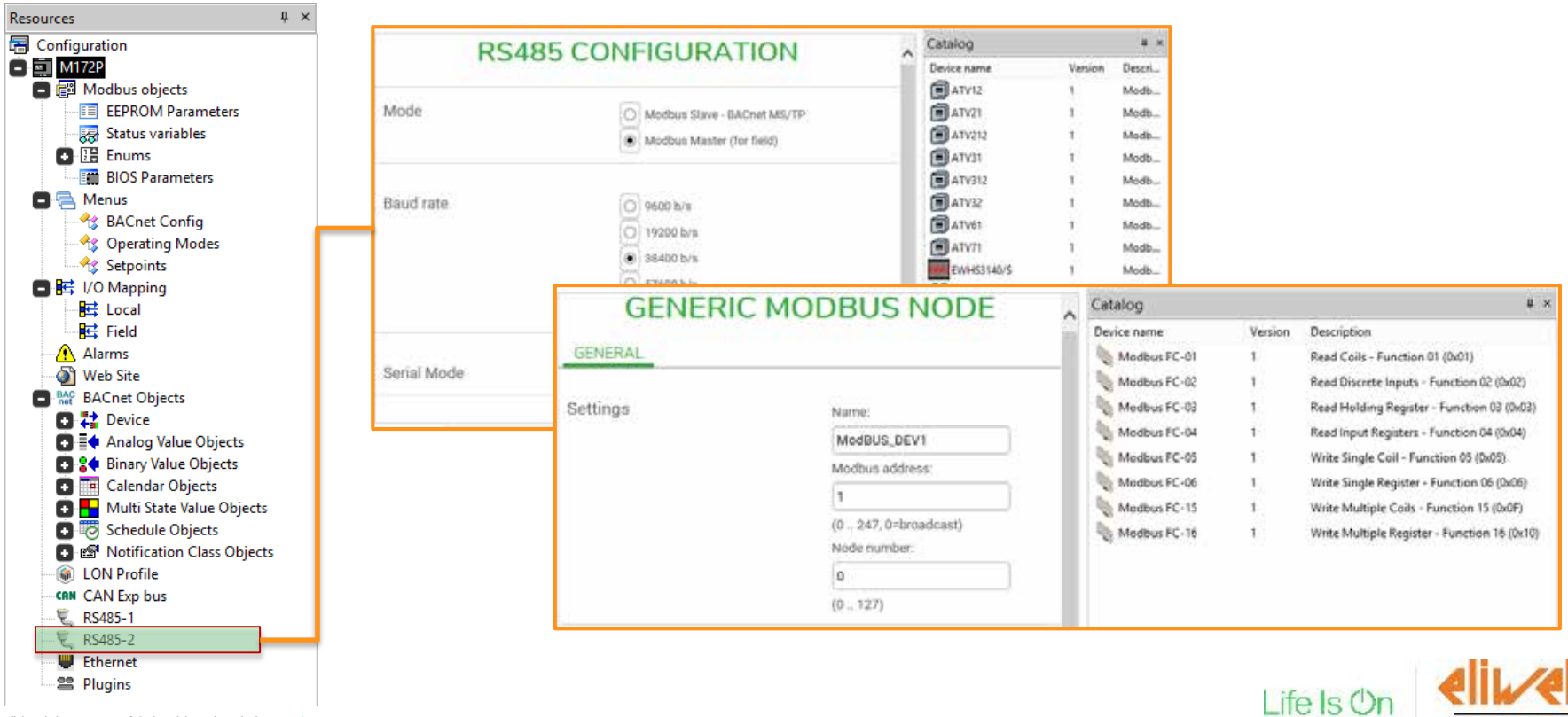


> **Easy Web Page creation:**

- § Pick an existing Site template
- § Drag-and-drop variables to be shown on the page

Configuration Perspective

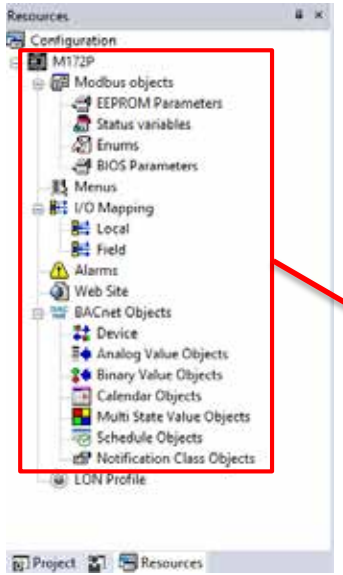
Configuration of Programming variables and communication settings

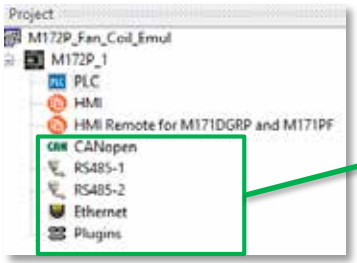


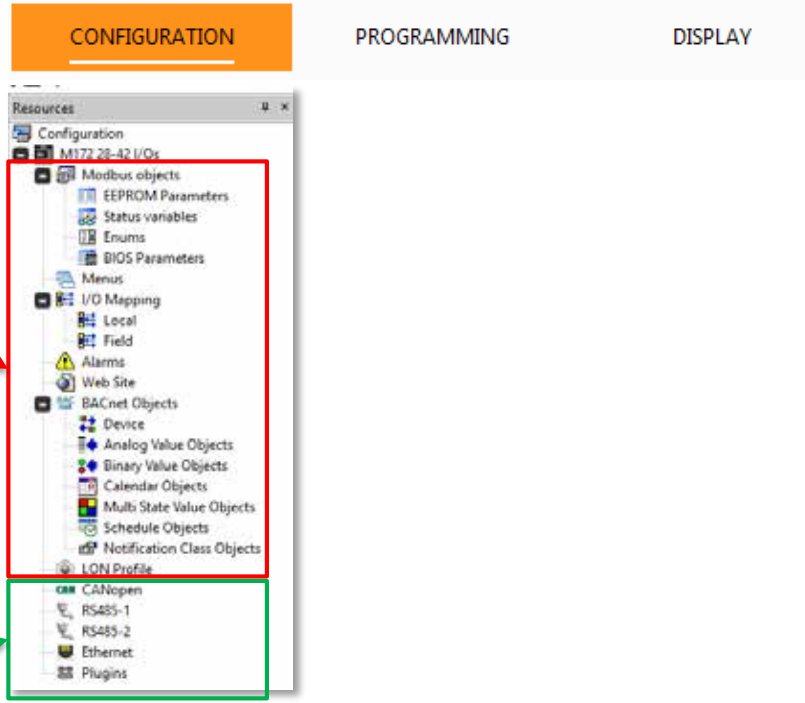
Comparison with FREE Studio

Application

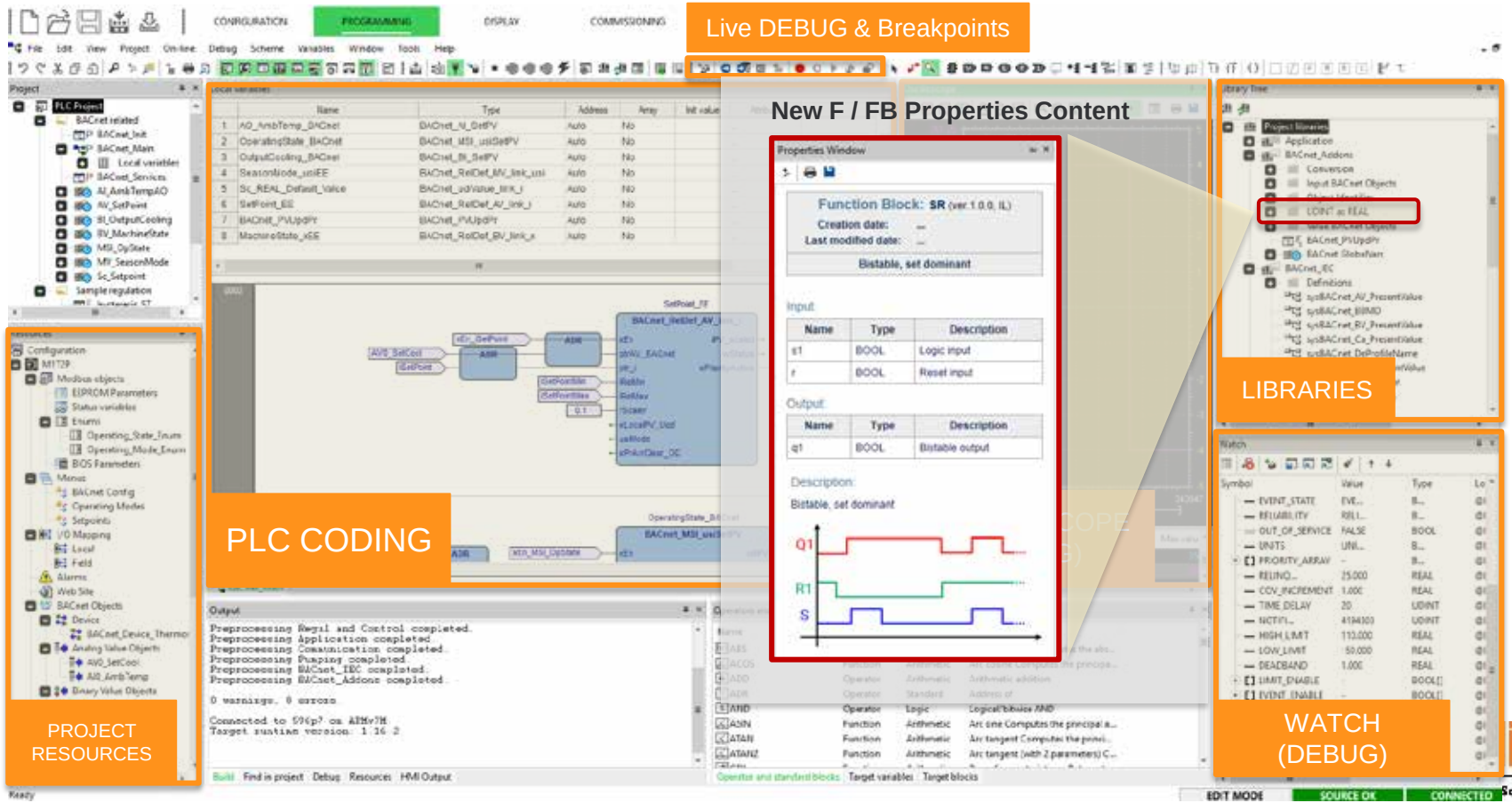
Connection







Programming Perspective



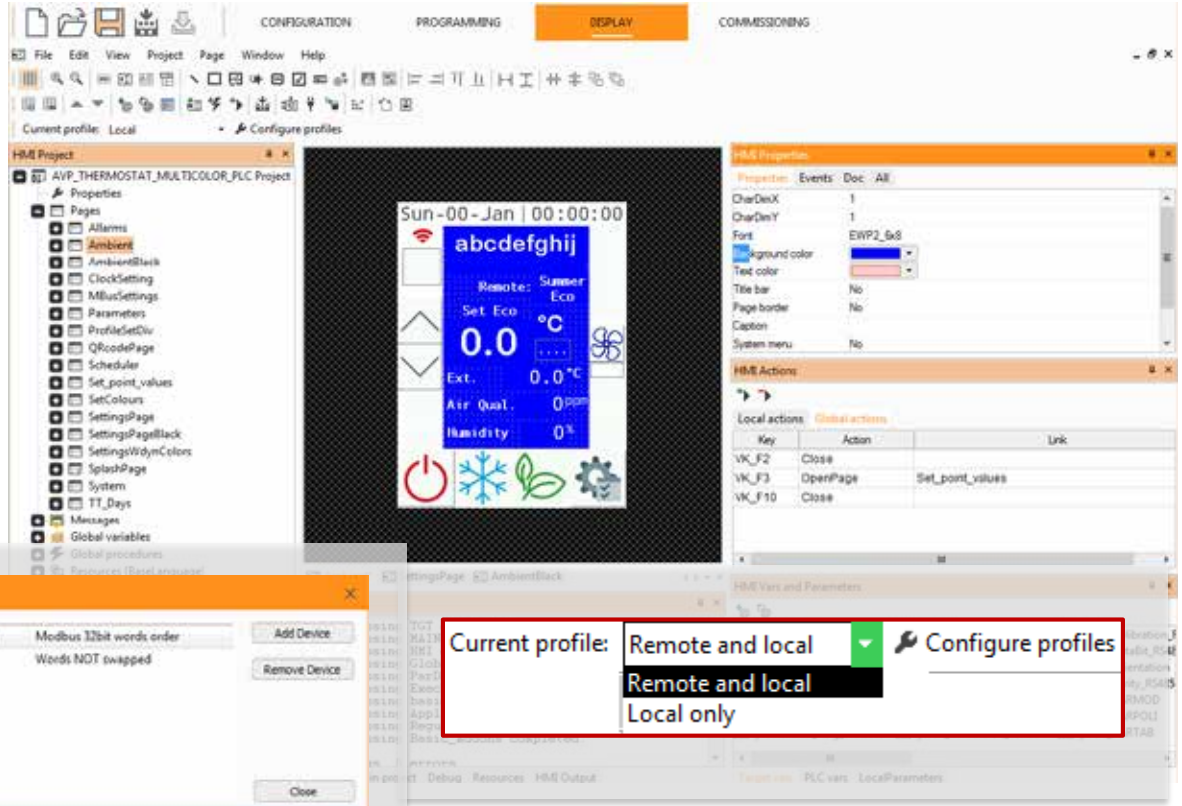
Display Perspective

HMI Design

> **Single software** to design Local and Remote HMIs

> **Full-integration w/ the software**: Configuration (EEPROM Parameters and Status Variables) automatically linked.

> **Several minor improvements.**



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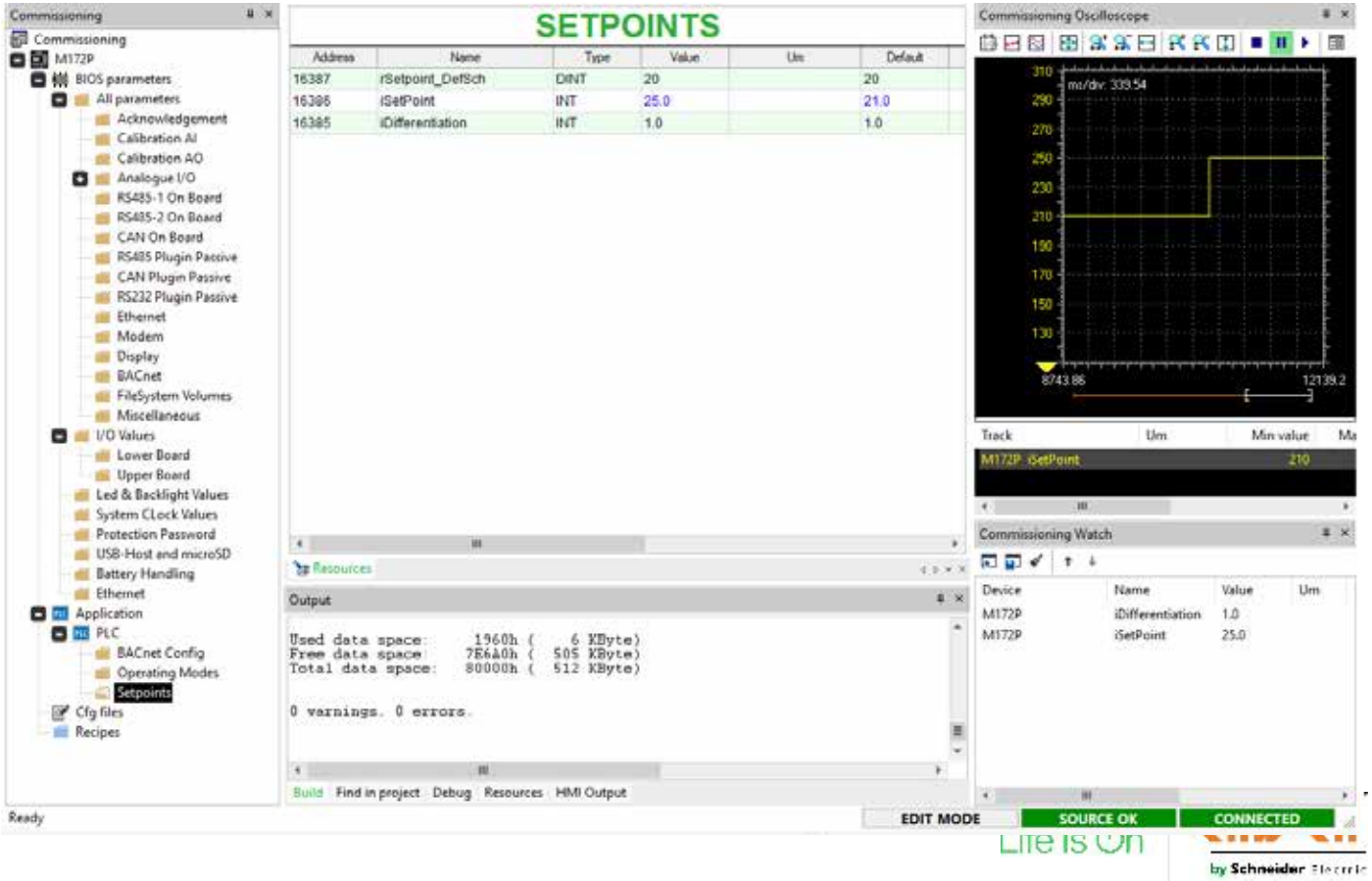
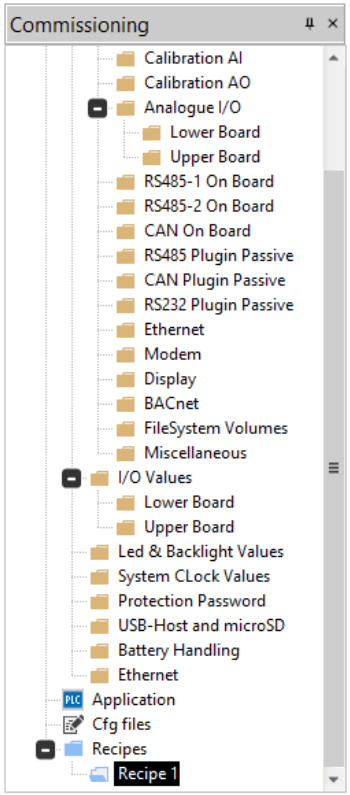
Commissioning Perspective

> **Parameters Settings**



Commissioning Perspective

- > Parameters Settings
- > Recipes Management



RECIPE 1

Address	Name	Value	Um	Recipe value	Min	Max	Description
8642	LED3	2=Blink	num	2=Blink	0	2	Led yellow
8720	BACKLIGHT	1=On	num	1=On	0	4	Display backlight
15726	Cfg_AI1	5=0÷5V(Ratiometric)	num	0=NTC(NK103)	0	11	Type of analogue input AI1
15727	Cfg_AI2	4=0÷10V	num	2=NTC(103AT)	0	11	Type of analogue input AI2
15728	Cfg_AI3	4=0÷10V	num	1=DI	0	11	Type of analogue input AI3
15729	Cfg_AI4	1=DI	num	1=DI	0	11	Type of analogue input AI4
15730	Cfg_AI5	5=0÷5V(Ratiometric)	num	5=0÷5V(Ratiometric)	0	11	Type of analogue input AI5
15731	Cfg_AI6	5=0÷5V(Ratiometric)	num	5=0÷5V(Ratiometric)	0	11	Type of analogue input AI6
15766	Load_BACnet_E2_Defaults	False	flag	False	0	1	Load default values for BACnet pa

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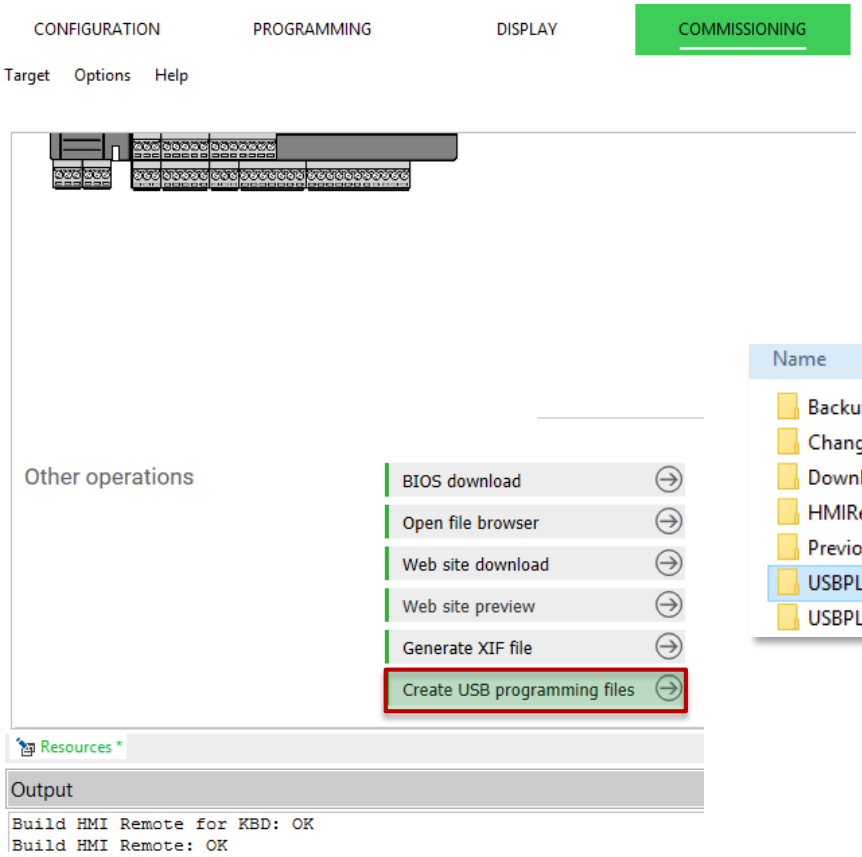
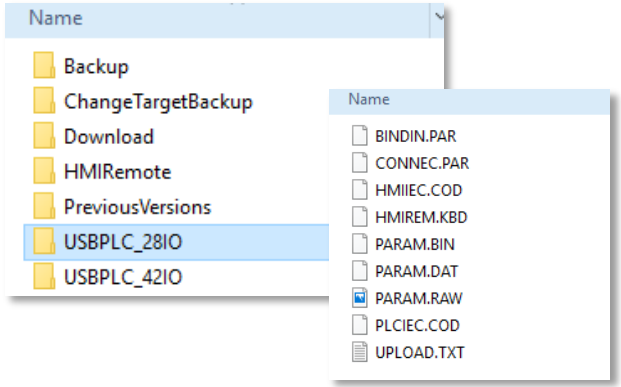
Commissioning Perspective

- **Parameters Settings**
- **Recipes Management**
- **Create USB Key**
- **Command line download:** OEM production process integration





Importing FREE Studio projects

- Import a PLC only project
- Import Connection from Installer
- Opening from Application
- Updating BIOS

Importing an FREE Studio project

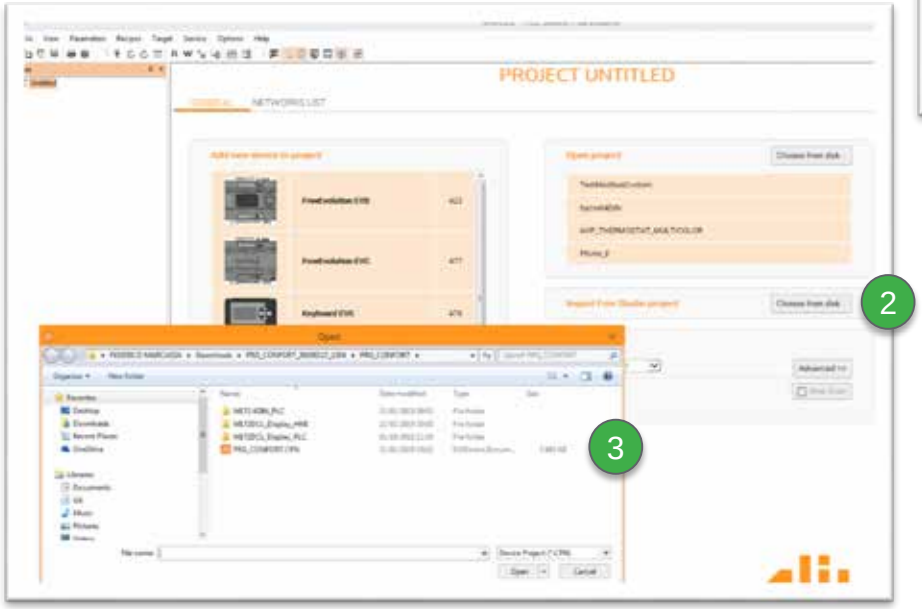
Selection of the import tool

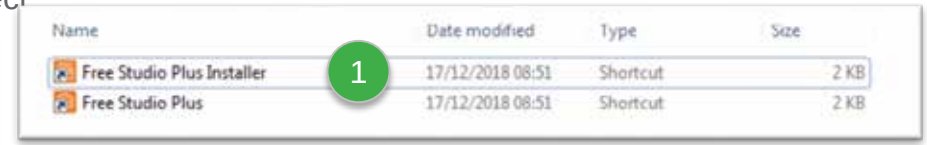
Free Studio – Project Type	File Type	Tool to convert
PLC – Application Only	.plcprj	FREE Studio Plus
HMI – User Interface Only	.pajx	
Full Project	.cfn	FREE Studio Plus – Installer

Importing a full project

Source (from Free Studio)	Tool to convert
.cfn	Free Studio Plus - Installer

1. Before importing, it is strongly recommended to **make a BACKUP** of the project
2. Open “FREE Studio Plus - Installer“
3. Select the previous .CFN from “Import FREE Studio Project“





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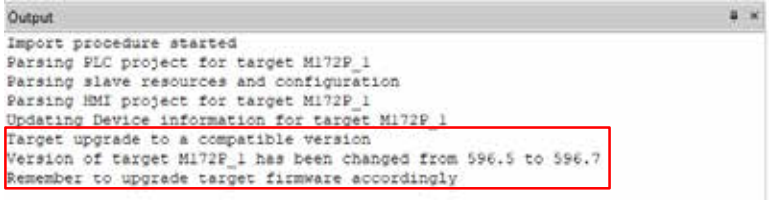
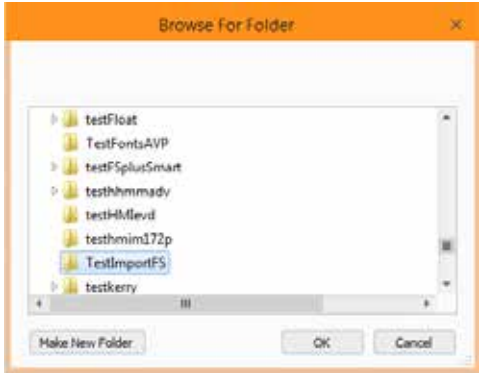
Importing a full project (continue)

Converted project destination and BIOS target

- Select the folder for converted project output
- Conversion output





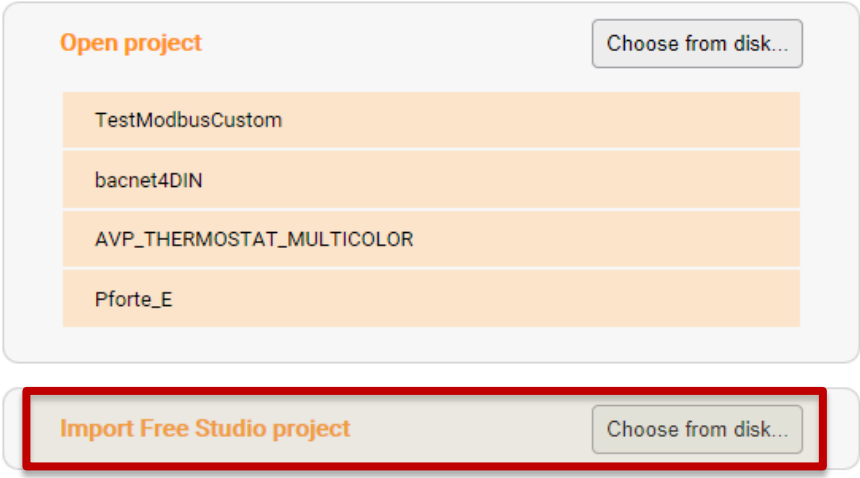
- Upgrade BIOS reminder, for Auto target changing!

- Project Conversion completed

Importing just PLC (.plcprj) or HMI (.pajx)

Source (from FREE Studio)	Tool to convert
.plcprj (only Application)	FREE Studio Plus
.pajx (only HMI)	

1. Open “FREE Studio Plus“
2. Click “Import FREE Studio Project“ and select a *.plcprj or *.pajx file.
3. Pick the folder for converted project output

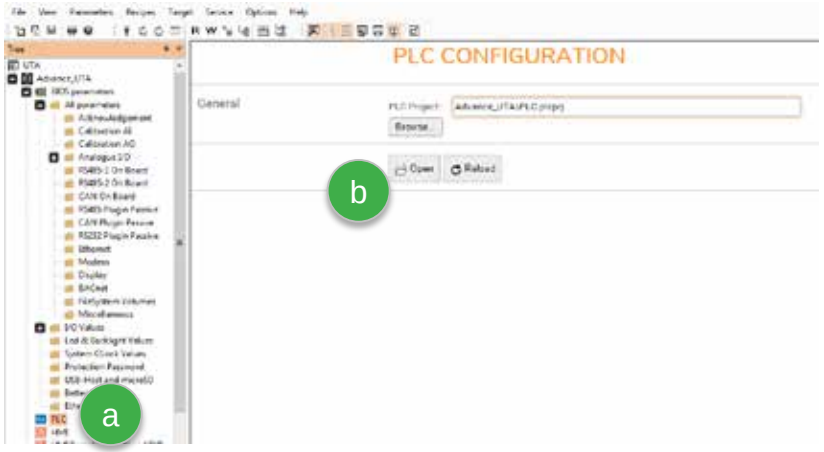


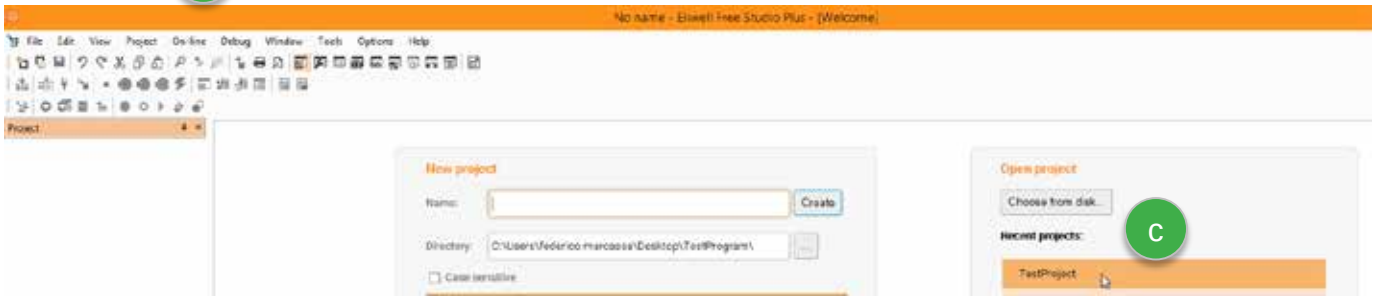
- Do not open the old project directly with the new software.

HowTo Open the converted Project

Several ways to open the converted project

- Two alternatives by using “FREE Studio Plus – Installer”:
  - § Right click on the entry with the blue PLC icon in the Project tree (a)
  - § If the PLC icon is selected, you can use the Open button (b)
- Using “FREE Studio Plus” (c)





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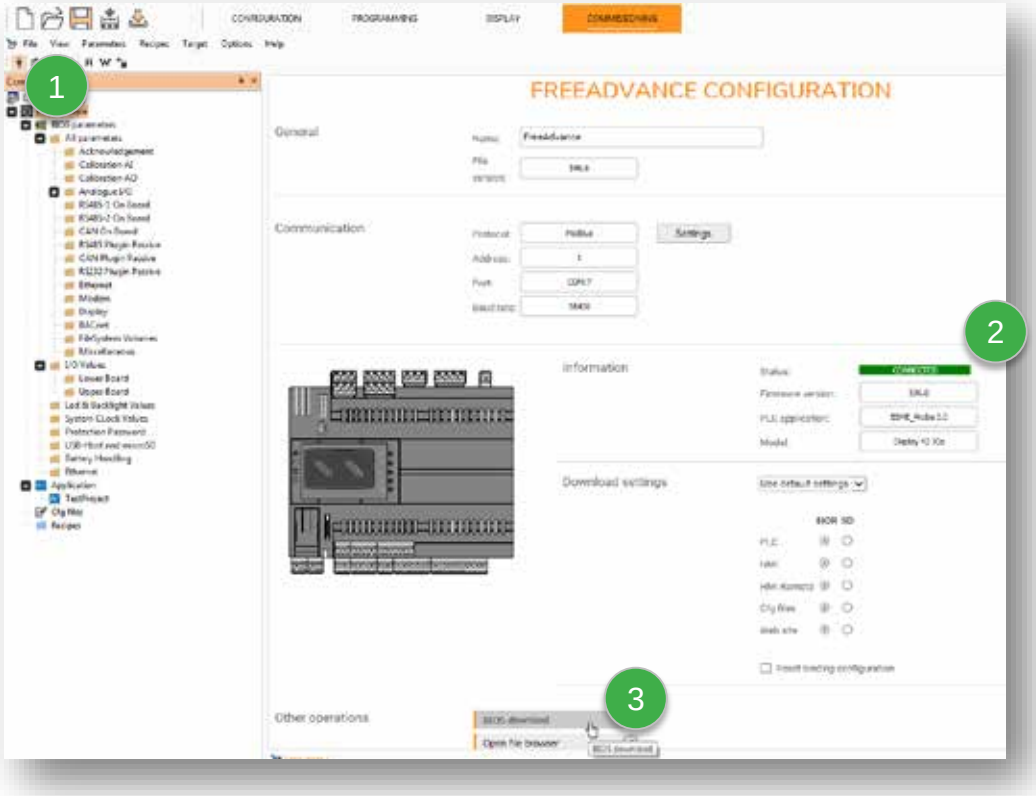
Upgrade your controllers to the latest BIOS release

BIOS upgrade procedure

FREE Studio Plus requires a BIOS upgrade of Evolution and Advance devices.

From the COMMISSIONING tab:

1. Connect to the controller
2. Check the connection
3. Toggle «BIOS download»



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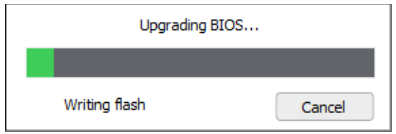
Upgrade your controllers to the latest BIOS release (continue)

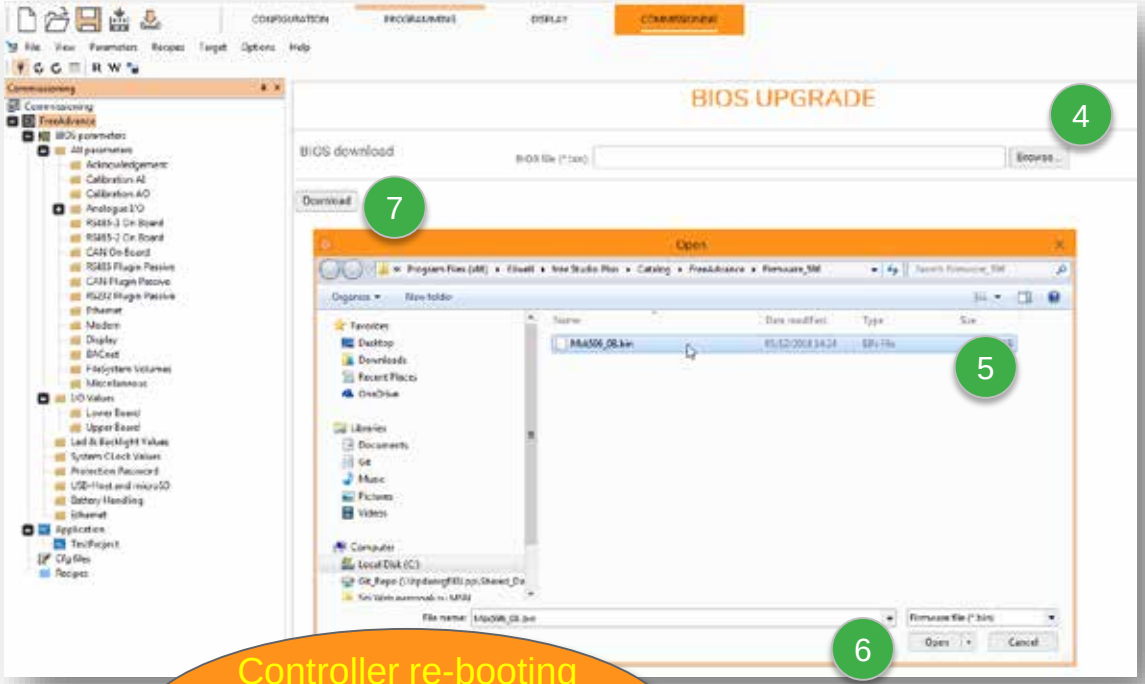
BIOS upgrade procedure

4. Click on the «Browse» button
5. Select the latest BIOS
6. Click on «Open»
7. Click on «Download»
8. BIOS upgrade in progress



9. Final output

Firmware upgrade has been completed successfully



Controller re-booting with error: system fault WDT:0

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Improved Software Features

- New Appeareance
- “User Interface” Improvements
- “Device” Improvements
- Operating Guide Improvements
- Quick Help / Tooltips
- Other Enhancements:
  - Build Web Site Button
  - Targets Order
  - ModBUS Master Setup
  - CANopen Master Setup
  - Binding Setup
  - Remote Displays Setup

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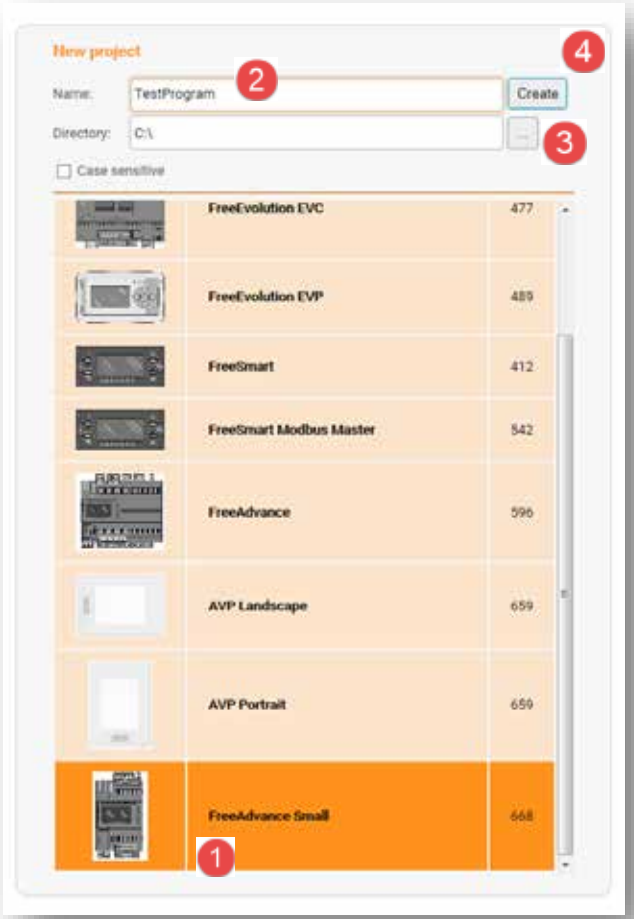
New project creation

Create button

To create a new project from “FREE Studio Plus”, there are two ways:

- Select controller 1, insert the project name and select the folder 2 3 and then click on the «Create» button 4
- Insert the project name and folder 2 3 and select the controller 1. The project is automatically created without using the «Create» button.

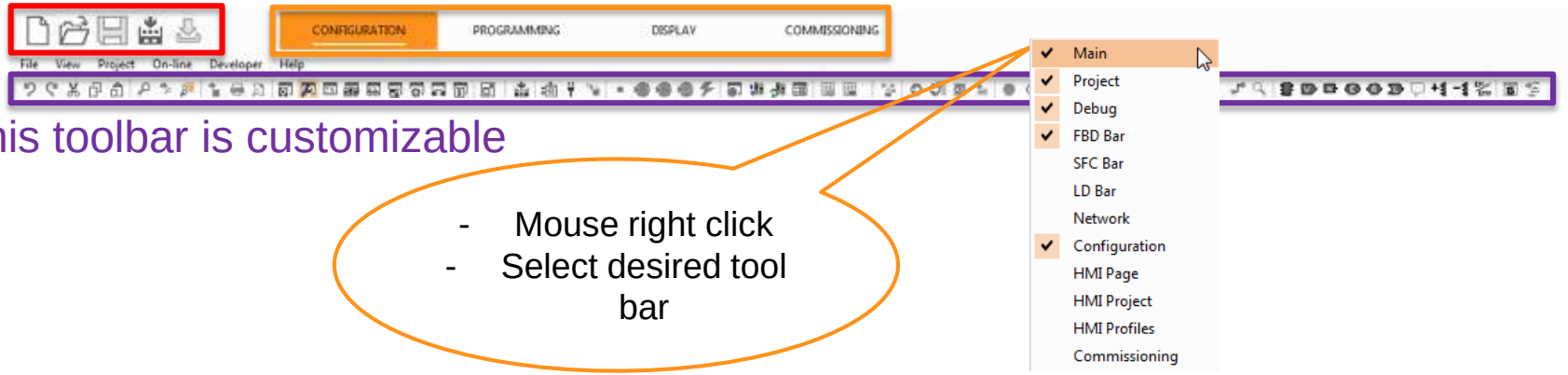


FREE Studio Plus: Appearance

Fixed toolbar and customizable toolbar

This toolbar is fixed

Tabsheet for Application, HMI, Parameters and Configuration



This toolbar is customizable

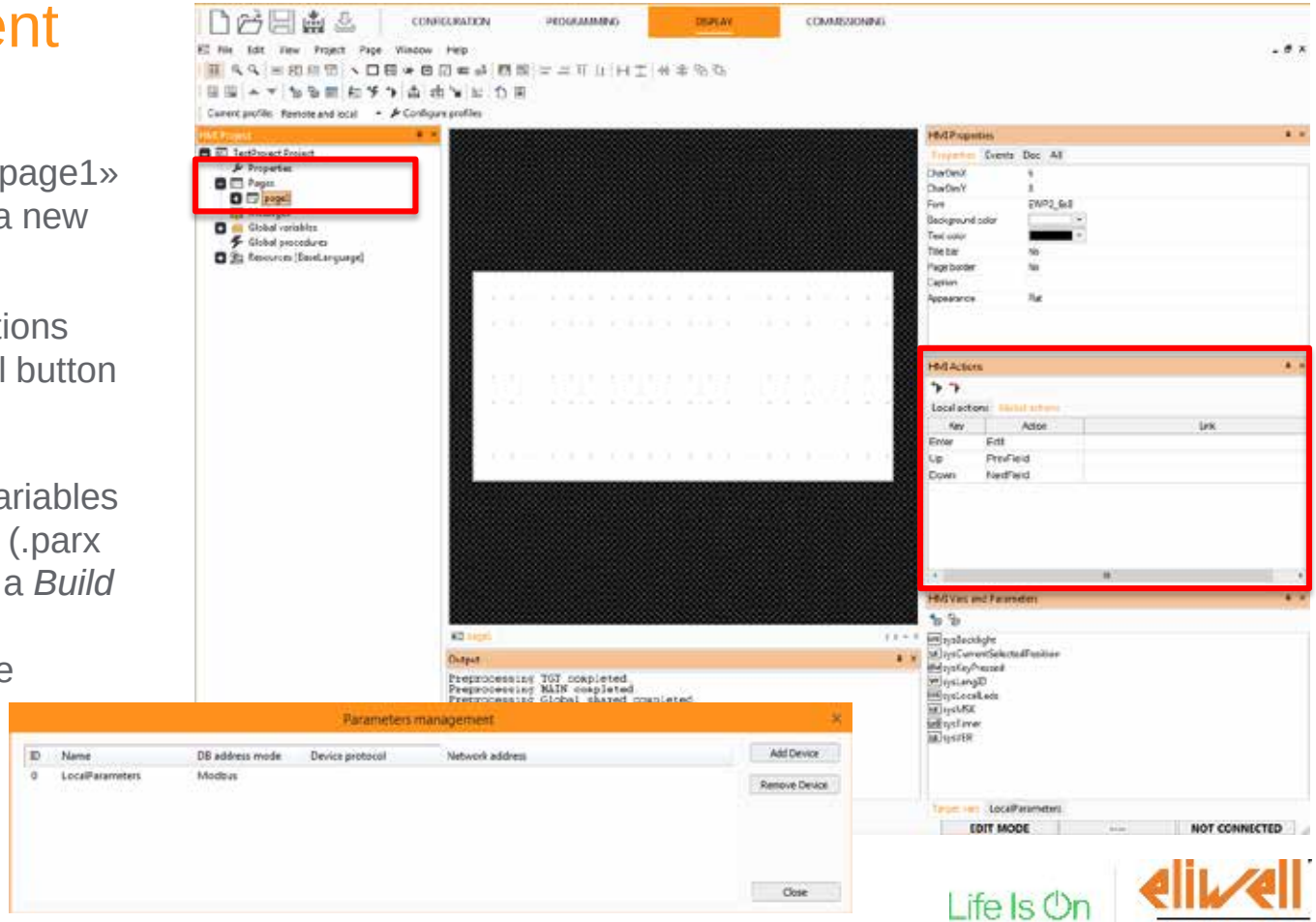
- Mouse right click
- Select desired tool bar

Each tabsheet will have a different toolbar composition

HMI improvement

New default template

- An empty page called «page1» is created as default in a new HMI project.
- There are by default actions assigned to the physical button keys of the display.
- EEPROM and Status Variables are automatically linked (.parx file) and refreshed after a *Build All* command or after a compilation in the programming side



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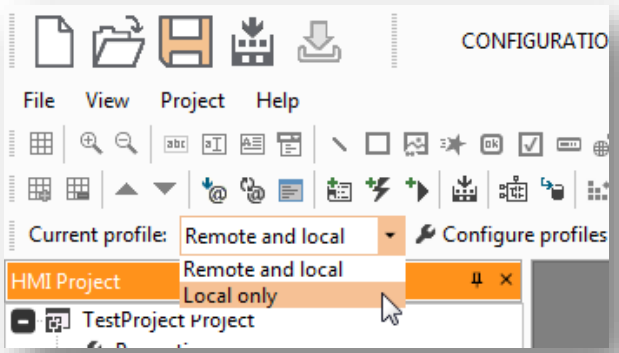
Local and Remote HMI

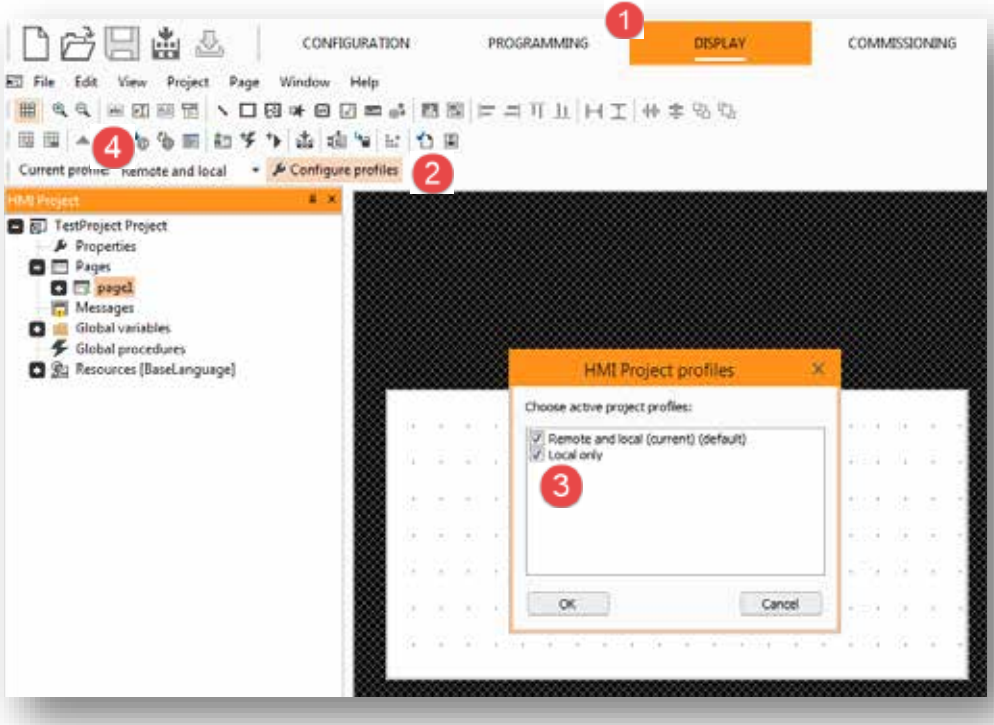
How to differentiate Local and Remote HMI

Default: HMI pages are for both local and remote displays

To differentiate local HMI from Remote:

- Configure profiles
- Select Local profile as current





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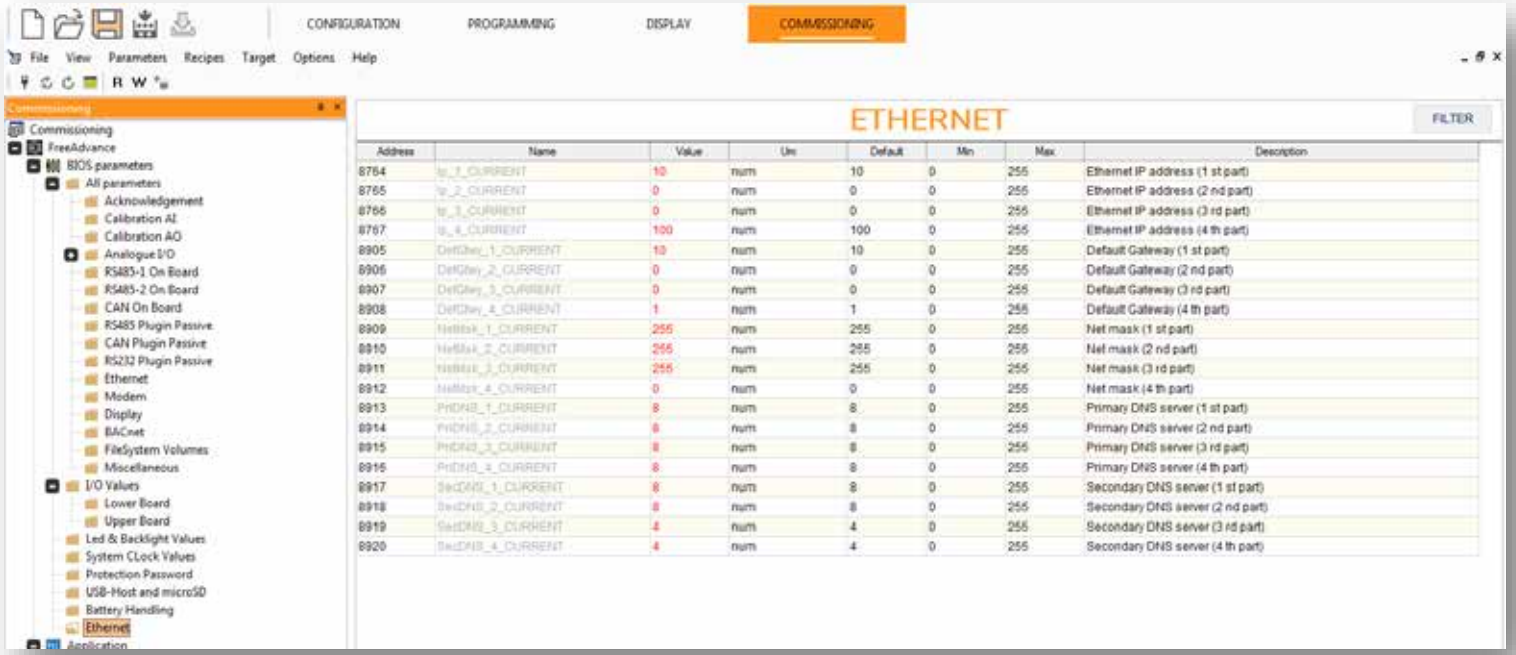
Commissioning Improvements

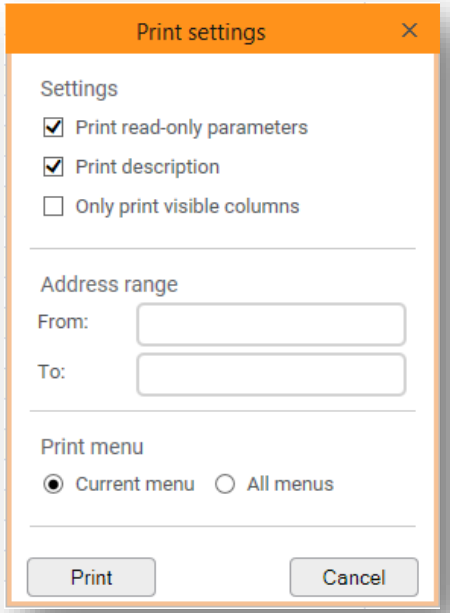
Ethernet folder contains new Target variables for IP servicing

Always detect the current IP, current gateway and current DNS, also with active DHCP.



Commissioning Improvements

New print settings for the Commissioning tables



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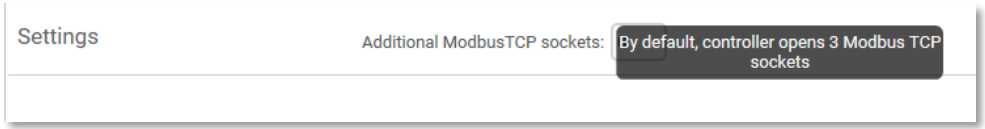
Improvements of documentation and quick help

Function properties, documentation, tooltips and editor

An improvement for the following functions:

- sysUART…. family functions
- Modbus TCP client/server tooltips
- Modbus TCP sockets tooltips
- Close button on document tab switcher



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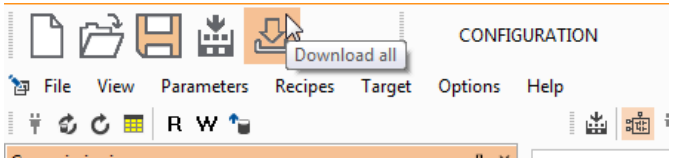
Improvements of documentation and quick help

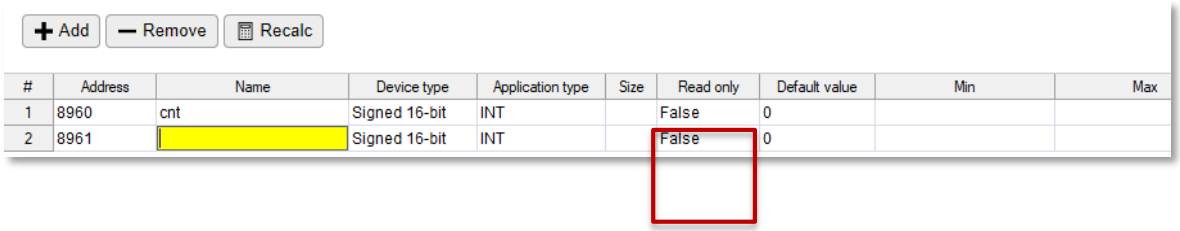
Simulator, Status variables

An improvement for following functions:

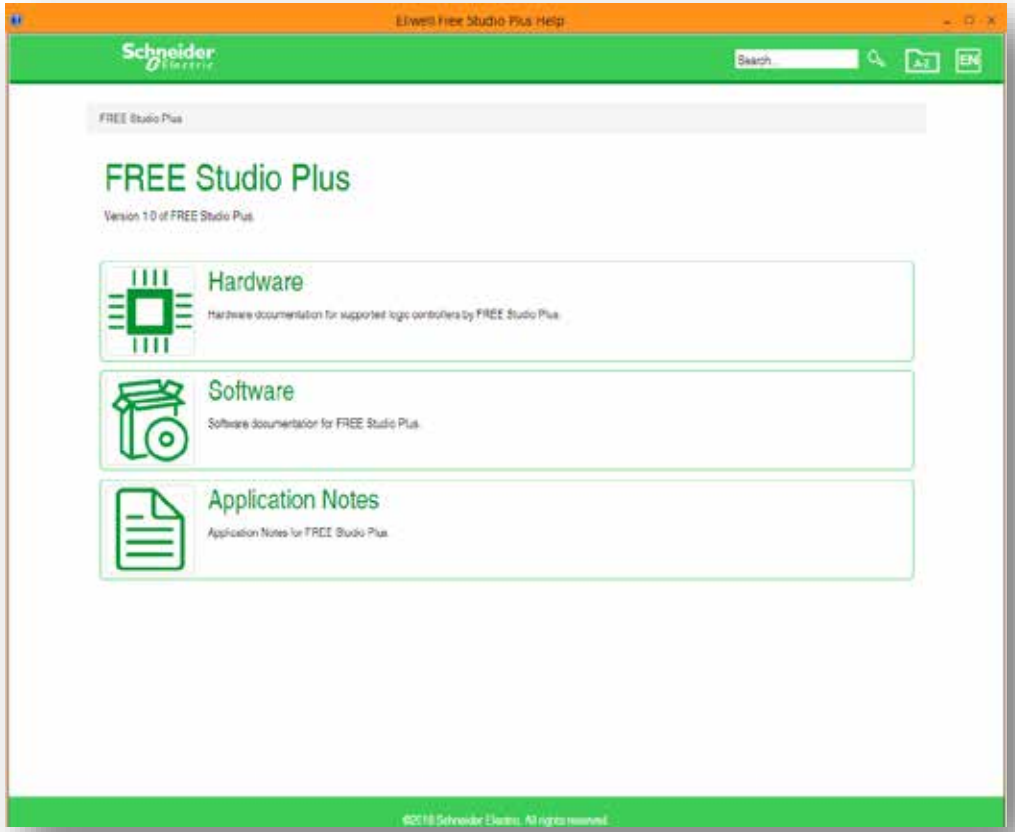
- In simulation mode, the “Download ALL” button is now available



- For *Status Variables*, the “Read Only” column has been moved before the “Default Value” one and its default value is now FALSE



New HTML Documentation



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New HTLM Documentation

Search tool – Global

New Online Help

Improved FB Libraries Descriptions

Menu Bar

Overview

The Menu bar is composed by several menus:

- File
- View
- Project
- On-line
- Developer
- Help

File Menu

This menu gives access to features allowing you to manage your project:

Command	Icon	Key	Description
New project		-	Creates a new project.
Open project		Ctrl+O	Opens an existing project.
Save project		Ctrl+S	Saves the current open project.
Save project as...	-	-	Saves the current open project specifying new name, location and extension.
Close project	-	-	Closes the open project.
Options...	-	-	Opens the Program options dialog box.
Print...		Ctrl+P	Prints the document of the currently active window.
Print preview		-	Creates a preview of the document of the currently active window, ready to be printed.
Printer setup...	-	-	Opens the **Printer setup** dialog box.
..recent..	-	-	Lists a set of project file recently opened.
Exit	-	-	Closes EcoStruxure Machine Expert - HVAC.

Function block: SR (ver.1.0.0, IL)

Creation date: ...
Last modified date: ...

Bistable, set dominant

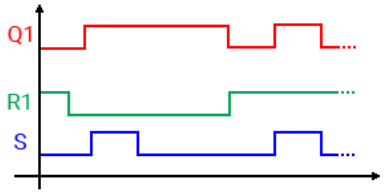
Input:

Name	Type	Description
s1	BOOL	Logic input
r	BOOL	Reset input

Output:

Name	Type	Description
q1	BOOL	Bistable output

Description:
Bistable, set dominant



Function block: TOF (ver.1.0.0, IL)

Creation date: ...
Last modified date: ...

Off-delay timer

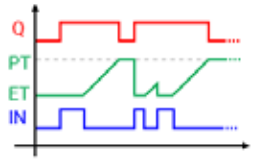
Input:

Name	Type	Description
IN	BOOL	Timer input source
PT	UDINT	Preset time value (ms)

Output:

Name	Type	Description
Q	BOOL	Timer output
ET	UDINT	Timer current value (ms)

Description:
The TOF block produces a delayed de-activation of the output Q with respect of the input IN. The delay time is expressed in milliseconds on the PT input.

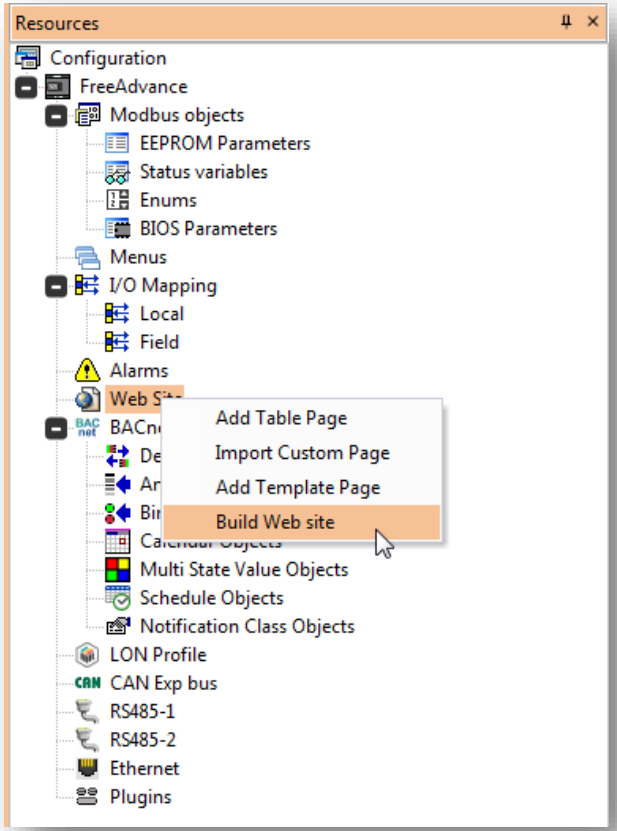


- if IN is TRUE then Q is TRUE
- Q becomes FALSE after PT milliseconds from IN becomes FALSE
- Q remains FALSE until IN remains FALSE

Build Web site

New position of command

To Build Web Site the command is in Configuration tabsheet, inside the tooltip menu clicking the right mouse button on WebSite folder of the resources tree.

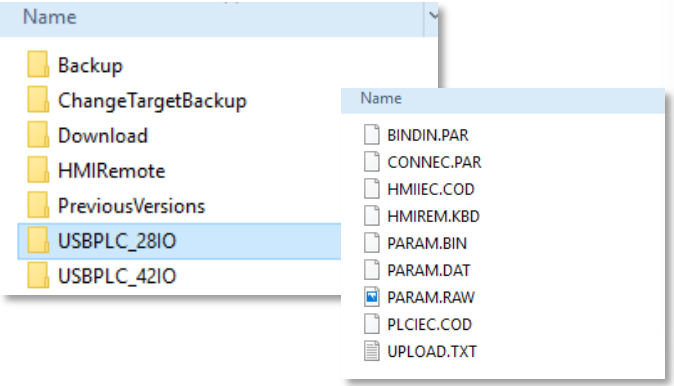


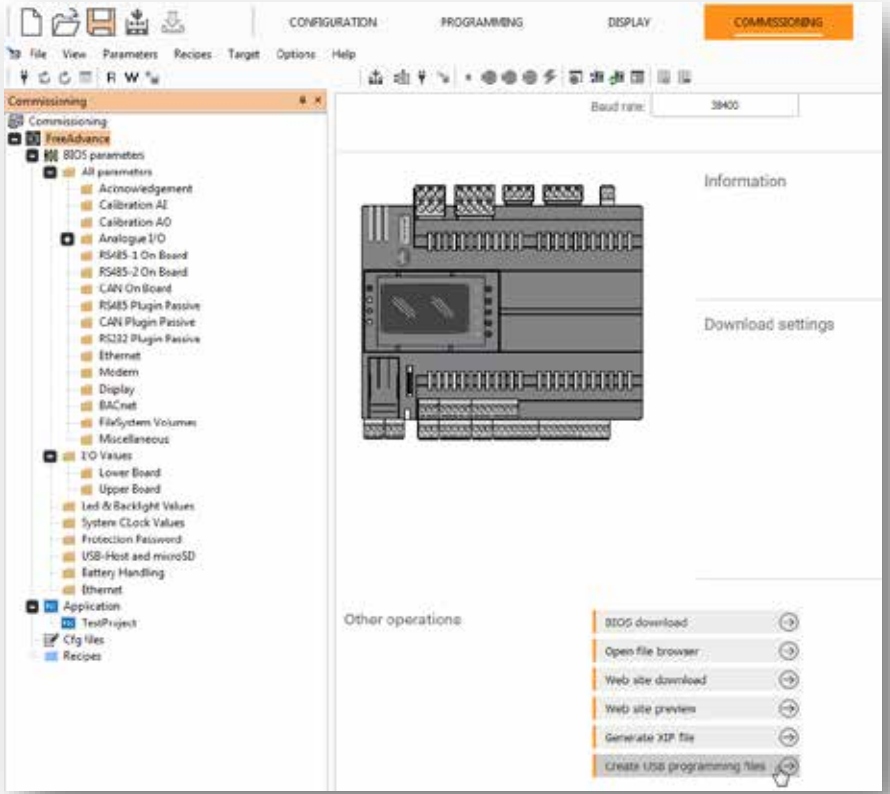
USB key creation

Tool to create an USB key for Advance

To Build USB key with program and parameters :

1) Build ALL
2) Launch “Create USB programming files” command
3) Copy the right folder into a USB key





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HowTo Set a ModBUS Master

Communication setting of RS485-2 like Modbus master

In Configuration part

1) Select RS-485-2 port
2) Modbus Master as Mode
3) Baud rate
4) Serial mode

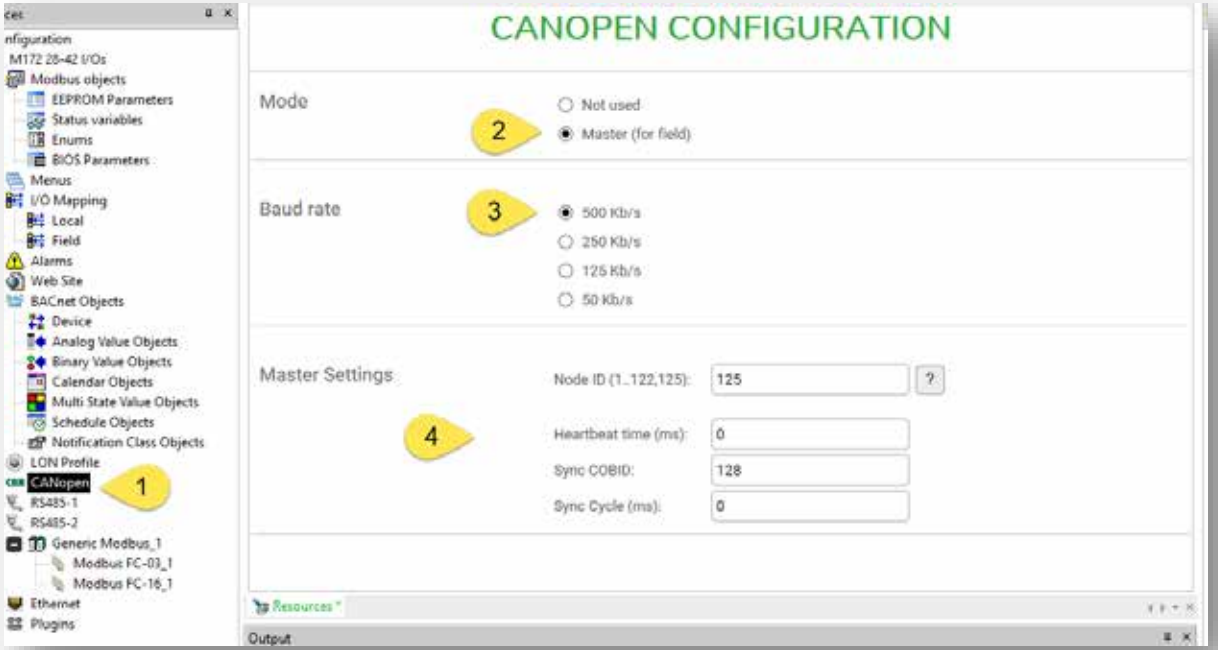
To add Node and commands the procedure doesn’t change

HowTo Set a CANopen Master

Communication setting of CANopen

In Configuration part

1) Select CANopen port
2) Mode like Master
3) Baud rate
4) Master Settings



To add Expansion the procedure doesn't change

HowTo Set a ModBUS Master TCP

Communication setting of Modbus TCP

In Configuration part

1) Select Ethernet port
2) Master as Mode
3) Additional sockets (maximum 3)

To add Nodes and commands the procedure doesn't change

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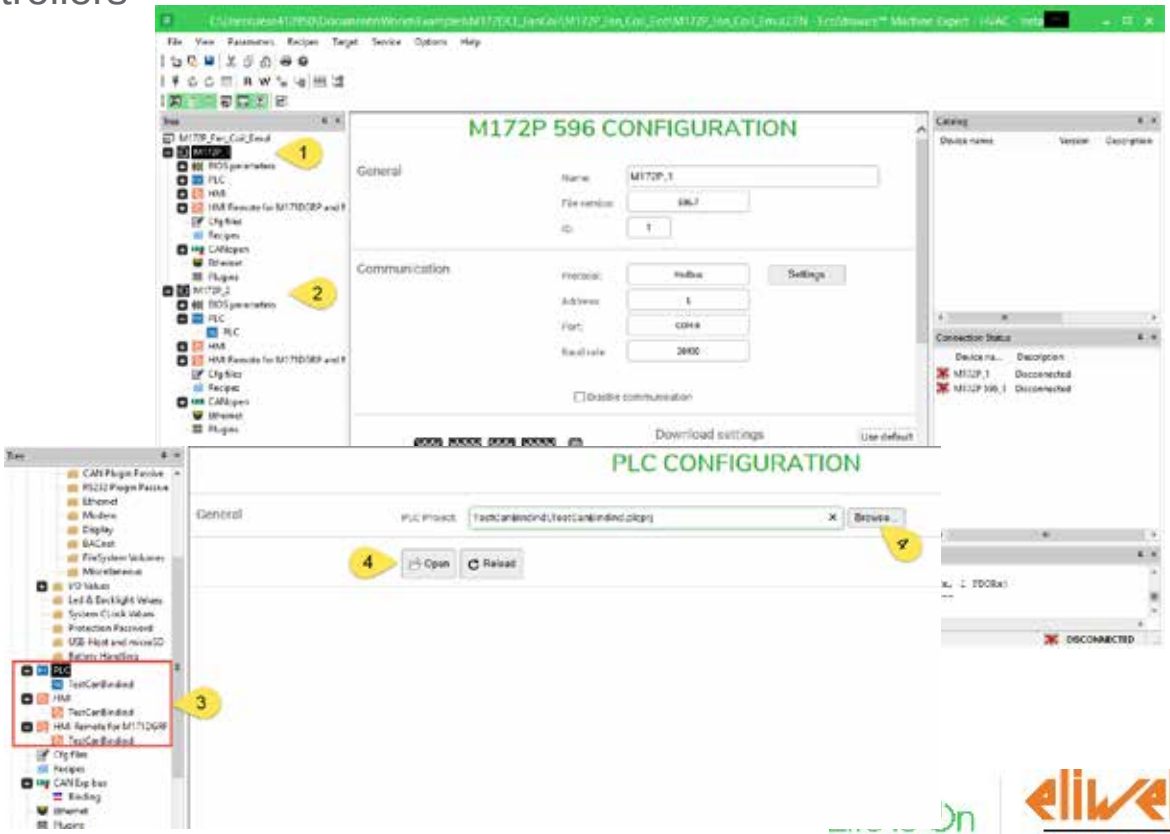
Communication in binding in CAN ADV_1 and Adv_2

Create a CFN file with both controllers

In Installer:

- Create a CFN with all controllers for binding communication
- Link for each controller the right PLC or HMI or HMI REMOTE
- Compile ALL

Note. In the example our CFN file has inside controller 1 and 2

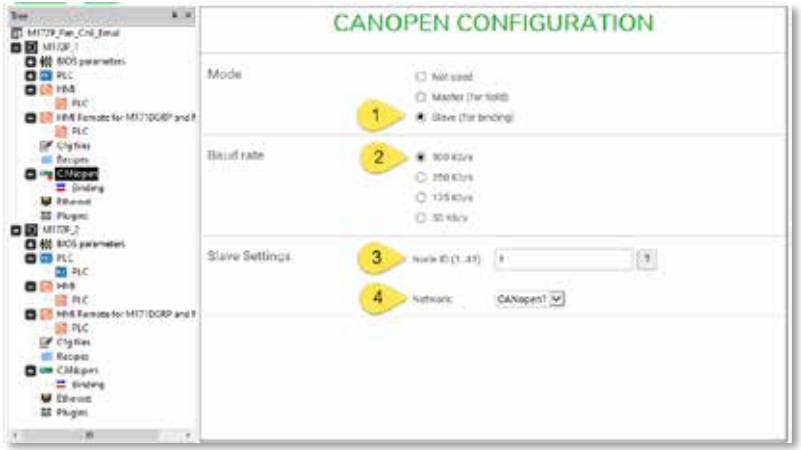


Communication in binding in CAN ADV_1 and Adv_2

Definition data communication for binding

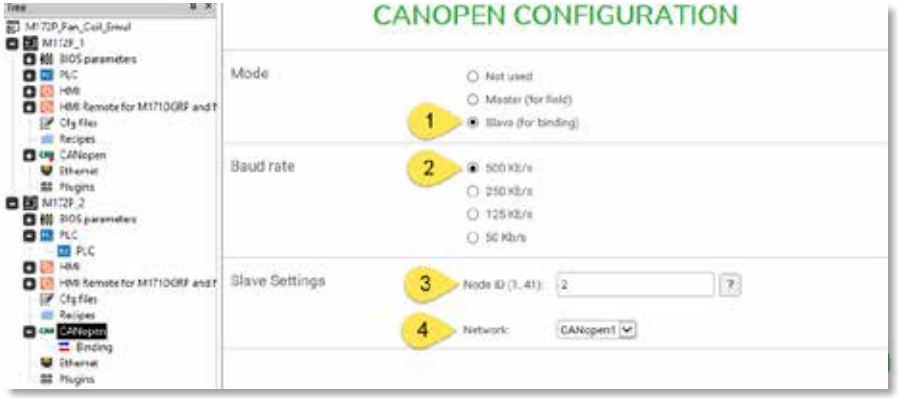
For ADV_1

1) Select CANopen port
2) Slave (for binding) Mode
3) Node ID in Slave settings -> 1
4) Network CANOpen1



For ADV_2

1) Select CANopen port
2) Slave (for binding) Mode
3) Node ID in Slave settings -> 2
4) Network CANOpen1

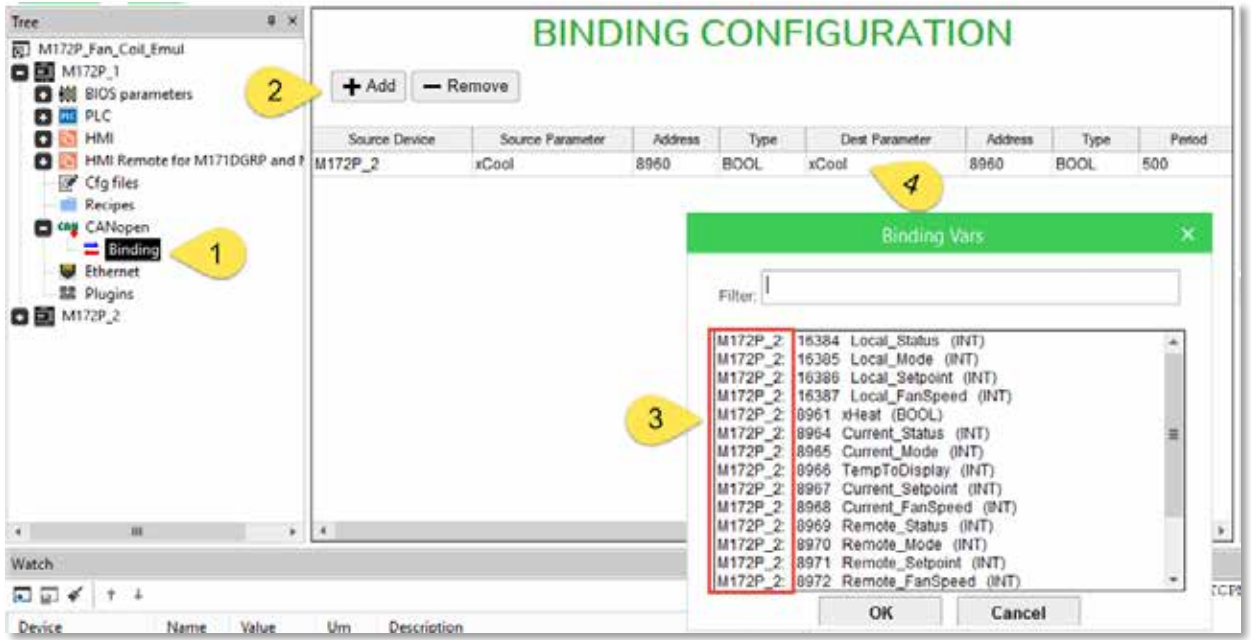


Communication in binding in CAN ADV_1 and Adv_2

Link registers in binding

For ADV_1

1) Add a Binding configuration from Catalog with right click or a drag&drop
2) Add one register
3) Select a register from controller 2
4) Select Destination register of controller 1
5) Compile project
6) Connect and Download All

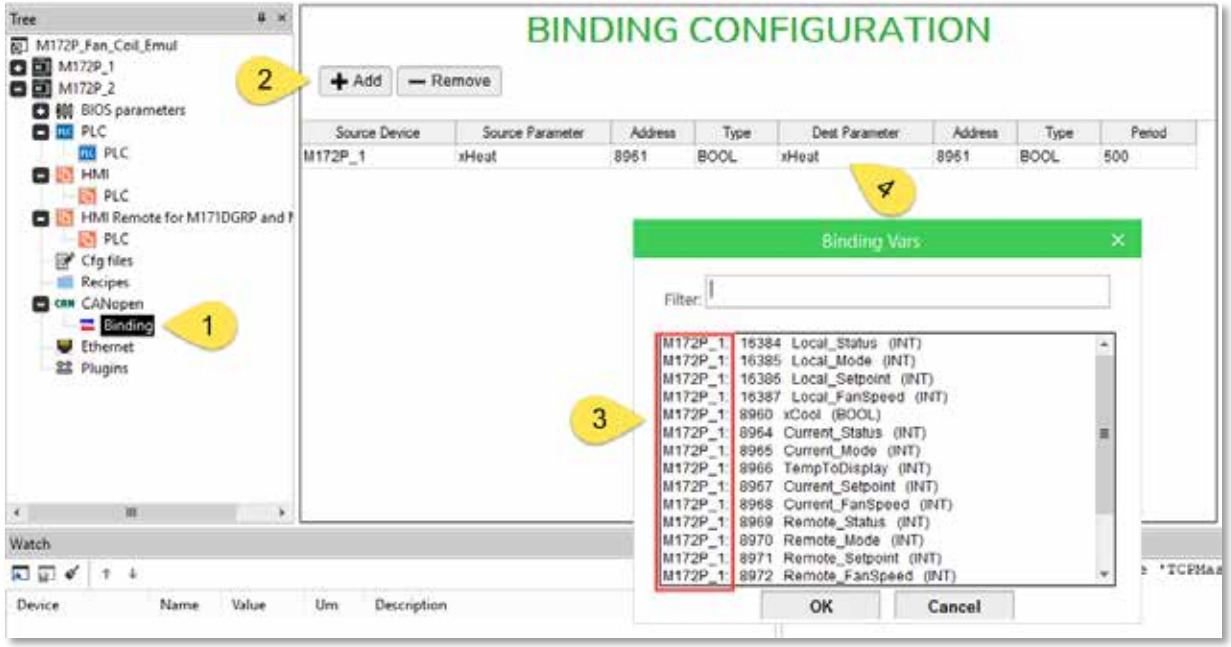


Communication in binding in CAN ADV_1 and Adv_2

Link registers in binding

For ADV_2

1) Add a Binding configuration from Catalog with right click or a drag&drop
2) Add one register
3) Select a register from controller 1
4) Select Destination register of controller 2
5) Compile project
6) Connect and Download All
7) *For a bug it is possible that HMI not change after a download all command, repeat download from Display section*

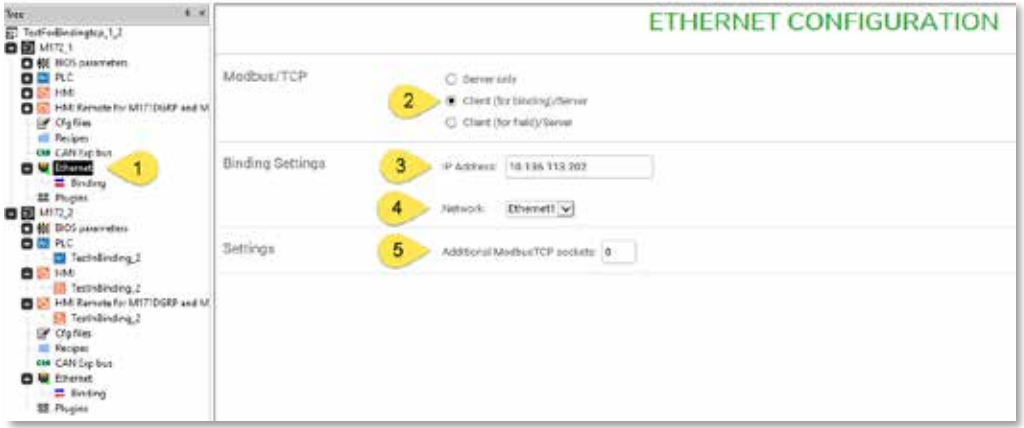


Communication in binding in TCP ADV_1 and Adv_2

Definition data communication for binding TCP

For ADV_1

1) Select Ethernet port
2) Client (for binding) Mode
3) IP Address (**same** of controller)
4) Network Ethernet1
5) Set additional Socket



For ADV_2

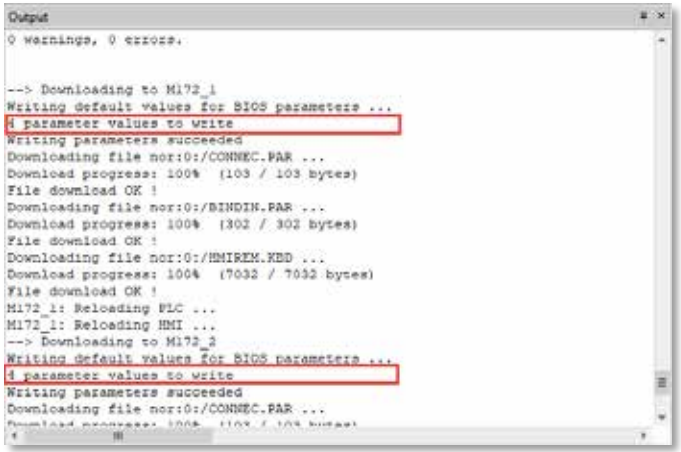
1) Select Ethernet port
2) Client (for binding) Mode
3) IP Address (**same** of controller)
4) Network Ethernet1
5) Set additional Socket

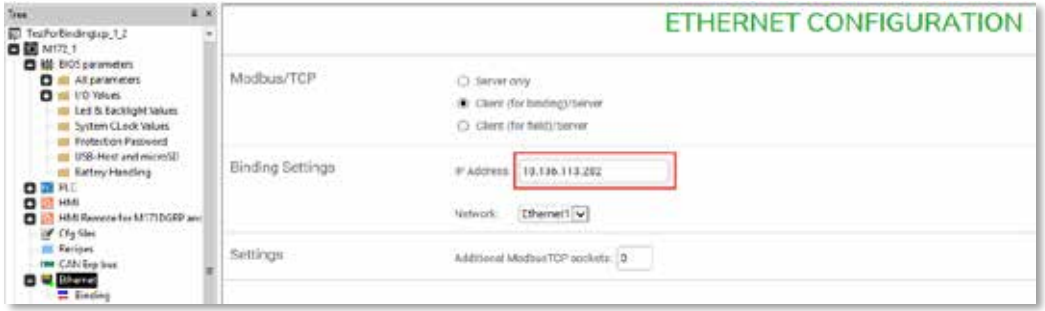
Communication in binding in TCP ADV_1 and ADV_2

Binding IP writes during download

To link register follow same procedure for CAN binding, not changeFor ADV_1.

But pay attention of IP inserted into Binding settings to be the same of parameter controller, because IP specified in binding will be written in the controller during a download all process even if you don't download parameters.





Life Is On

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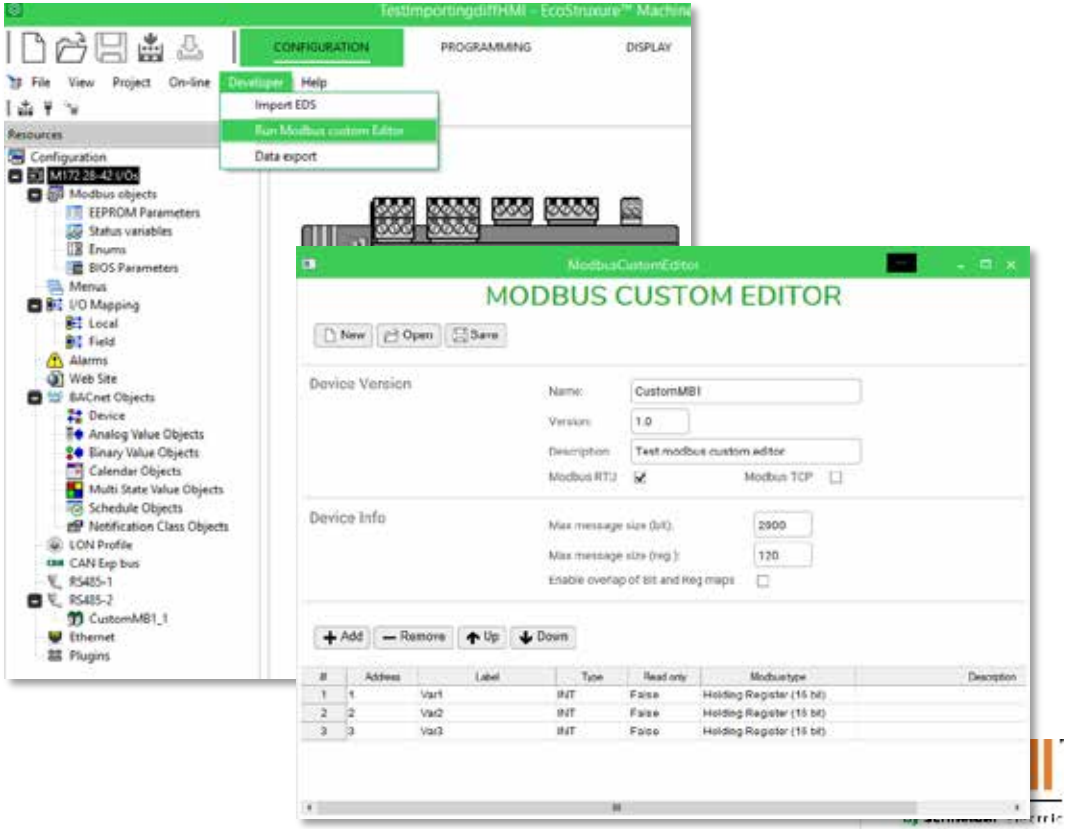
ModBUS Custom Editor

Improvement to manage a custom modbus

To create a Modbus custom

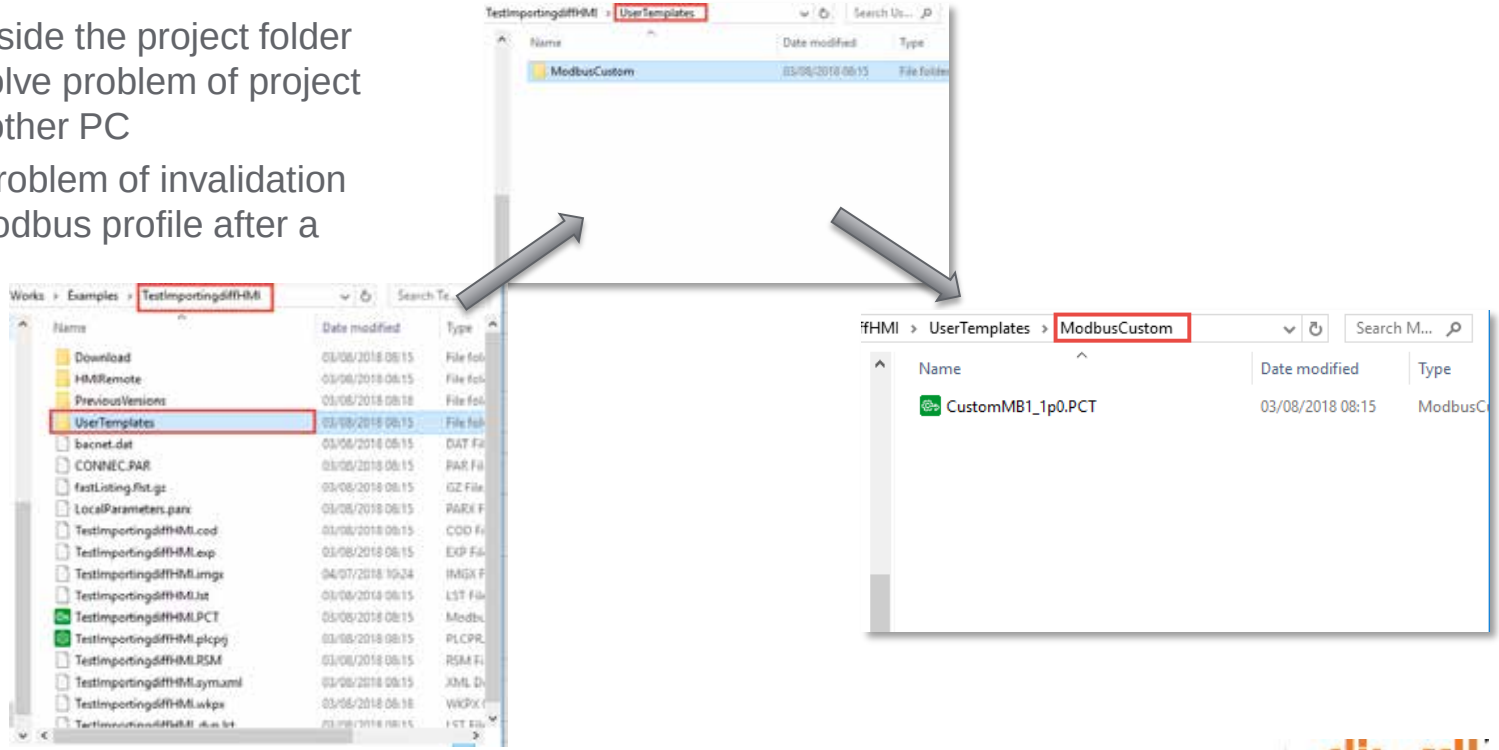
- Command is in **Configuration** under *Developer* menu
- Modbus custom editor form is similar to the last one
- *Save* button before close the tool
- ***.PCT** file is inside the project folder in order to solve problem of project move to another PC
- Solved the problem of invalidation of custom Modbus profile after a change



Modbus custom Editor

Improvement to manage a custom Modbus

- PCT file is inside the project folder in order to solve problem of project import to another PC
- Solved the problem of invalidation of custom Modbus profile after a change



Life Is On

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New Hardware

New Release : Advance 8400 and 12600 vs Device Isolation

- With the new offer launch, the Advance 8400 and 12600 will have two part numbers per product: one related to the old offer (not isolated, no “I”) and one to the new offer (isolated, “/I”).
  The distinction between the current offer and new offer is indicated by the “/I” at the end of the references.
- All the other devices are isolated in terms of power supply and RS485 (Free Advance Optimized 18, 28 and 42 I/Os, Free Advance Performance 7 and 18 I/Os) and have no “I” at the end of part number.

New Printings Positioning on isolated Advance

Printings will change position on the controller plastics

- The printings of the connectors label are currently positioned in a way that is not very intuitive.

  The long one (related to the bottom connectors) is just right above the short row of connectors (top connectors) and it might be misleading.
- The printings of the new part numbers will be modified as follows:
  - The labels related to the top connectors will be reported just right above them.
  - The labels related to the bottom connectors will be reported close to the HMI and also, in a shorter form, just right above the bottom connectors.
  - This is in line with the positioning already present in the Advance 7 and 18 I/Os.