

Win-GRAF Workbench Version 12: What is new?

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1. New Project Wizard

The new Project Wizard simplifies the project setup for the various Win-GRAF controller types.

The "Project" item In the Project Wizard start page is replaced by "Project (WG)".

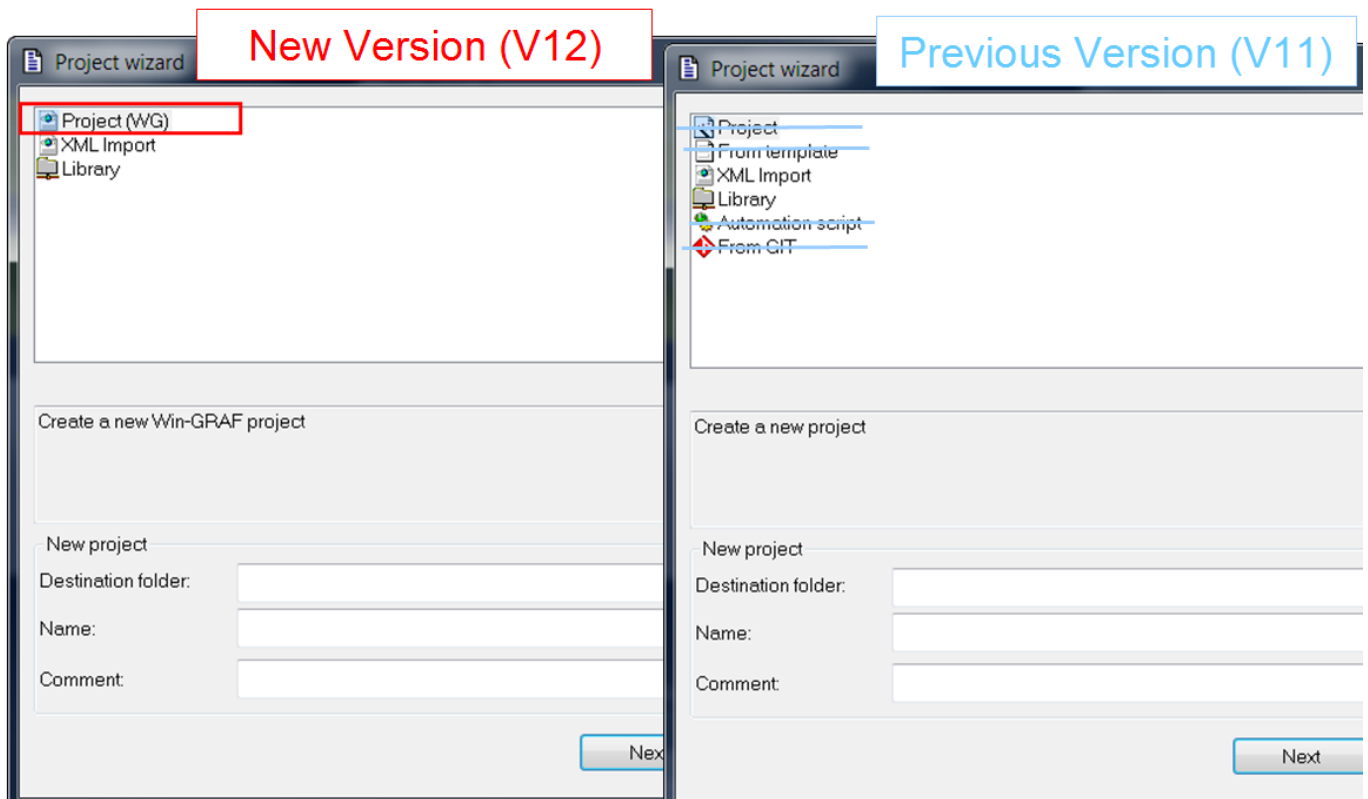


Figure 1: Project wizard start page

New interface for the project setting:

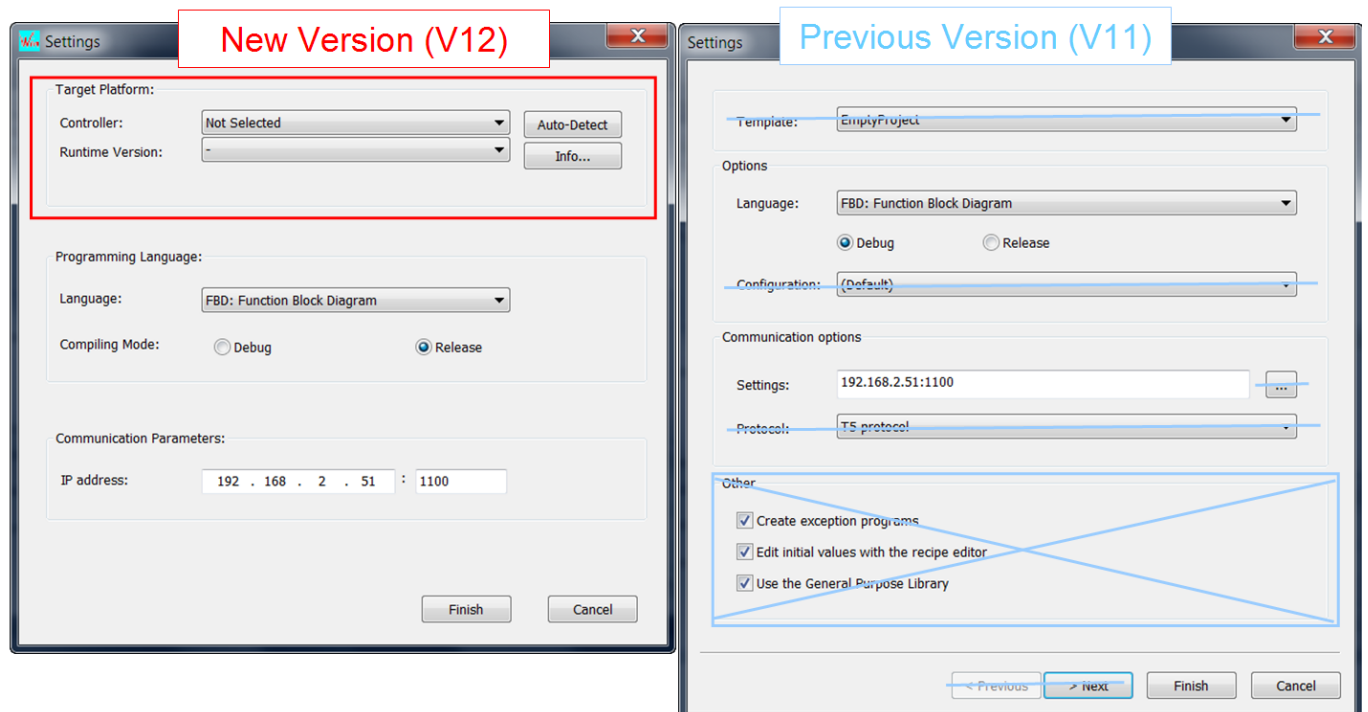


Figure 2: Project wizard setting dialog

New functions of the Project Wizard setting UI (see Figure 3):

1. The "**Controller**" list all the Win-GRAF controller types.

2. The new "**Auto-Detect**" function automatically detects types and executes the required project configuration for the connected controller.
3. Additional information ("**Info...**") about the connected controller such as supported Fieldbus, Function Blocks and libraries can be retrieved.

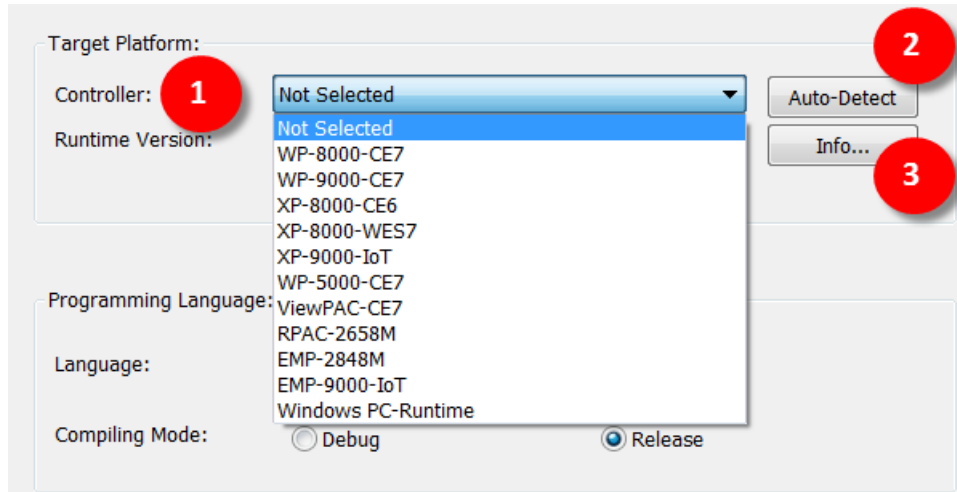


Figure 3: Target Platform selection

2. Information about supported Functions

The workbench shows the supported Function Blocks, Fieldbus and libraries for the selected controller. This prevent the programmer from using unsupported functions in the logic program.

1. Not supported Fieldbus and plug-ins are shown in red

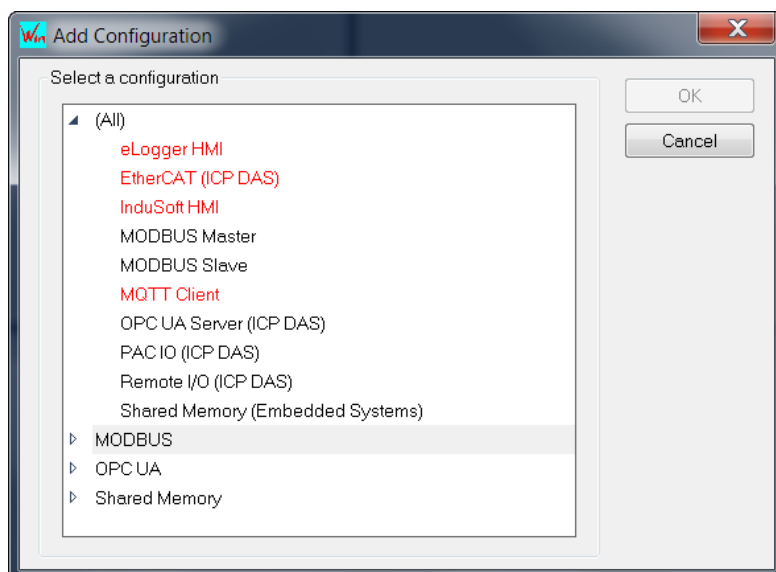
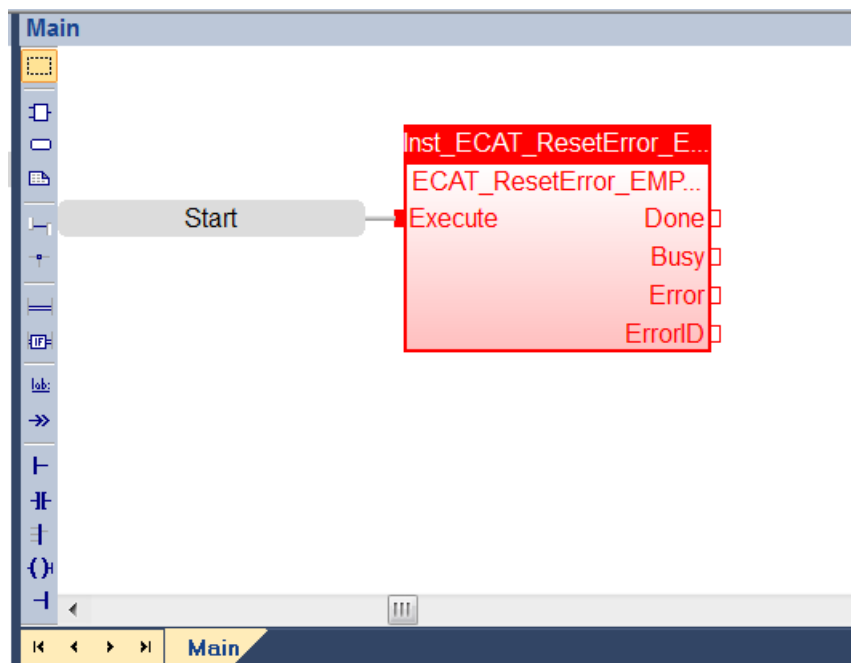
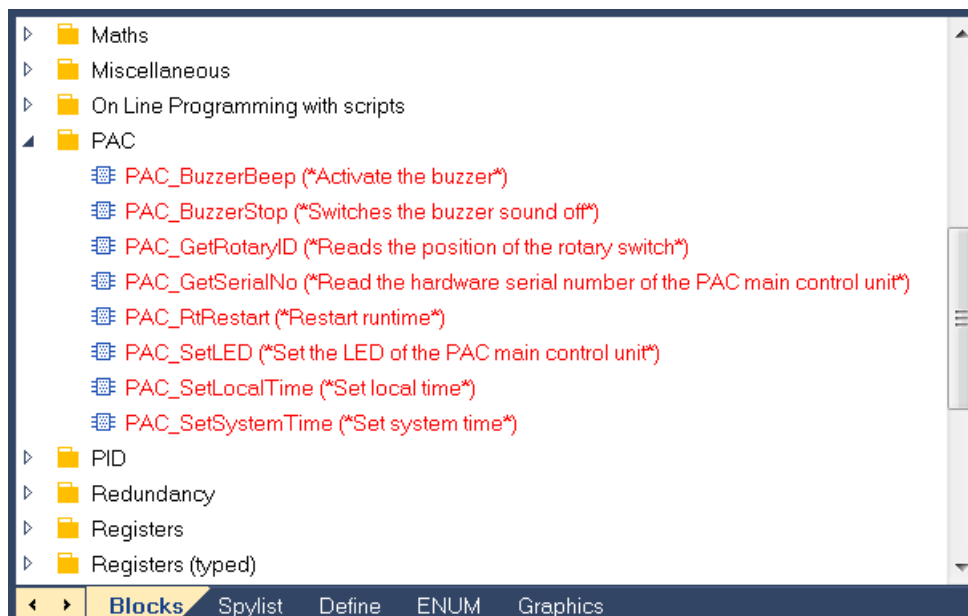


Figure 4: I/O Driver and Fieldbus options

2. Unsupported Function are shown in red in the programming editor



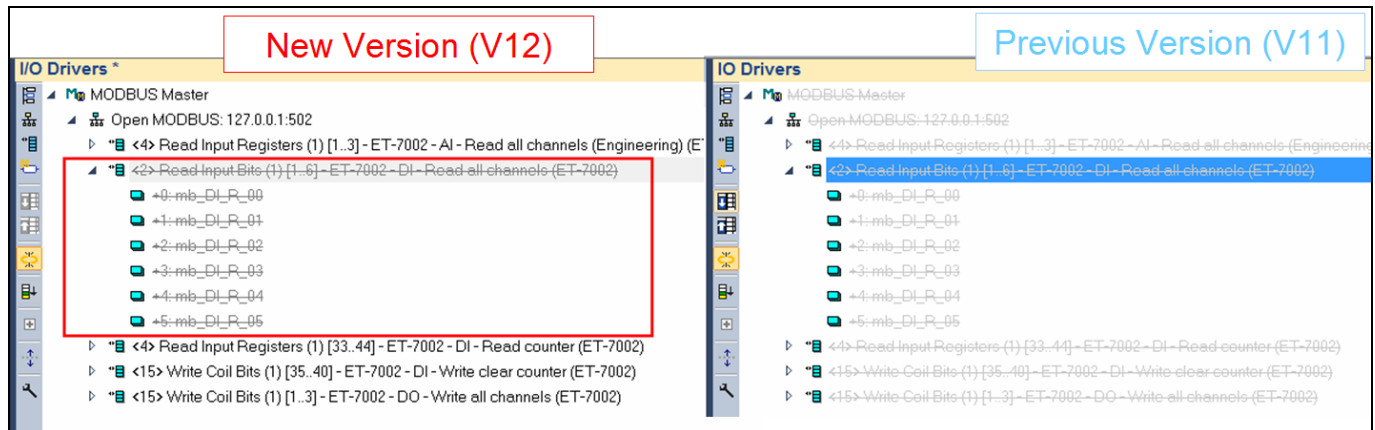
3. Unsupported Function Blocks and libraries are shown in red



3. Modbus Master

Modifications:

1. Modbus Fieldbus allows you to disable part of a fieldbus configuration setting. A disabled configuration will not be build by the compiler. Its behavior is similar to a comment in Structure Text "(* *)" or "*/", which means entries can be quickly disabled/ enabled" for debugging purpose or system adjustments. In the previous version it was only possible to disable all and not part of the fieldbus configuration.



2. In the Modbus configuration Tree View the variable indexes can either be displayed as **addresses** or as **offset addresses**.

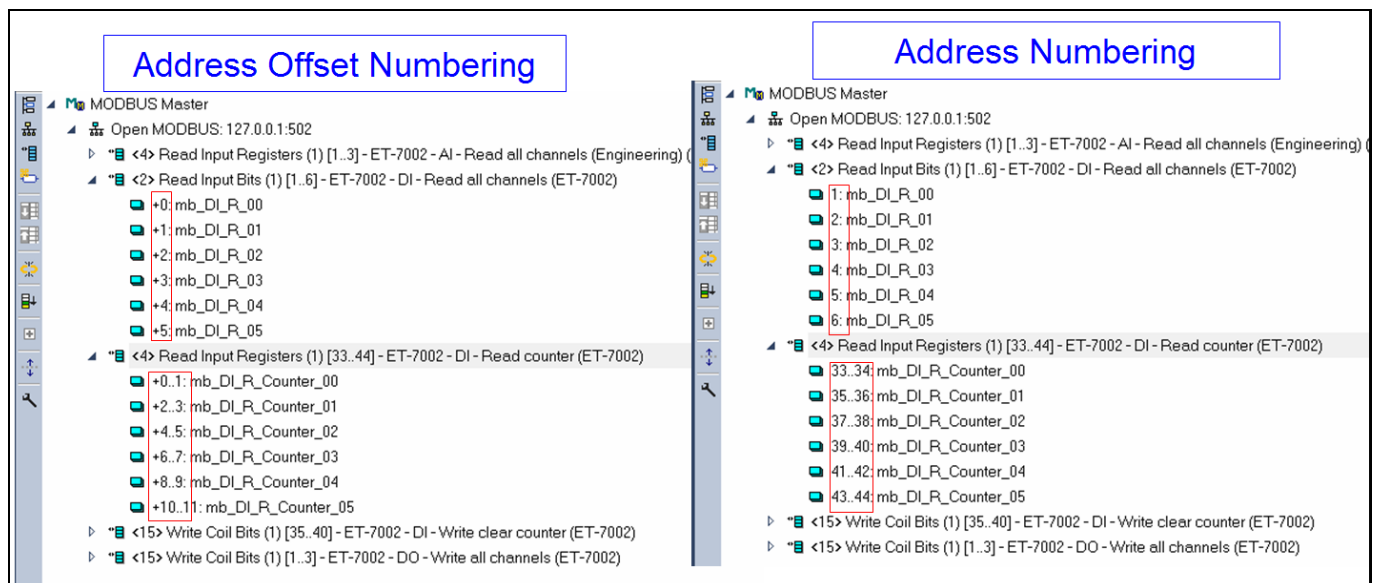


Figure 5: Modbus configuration tree. Modbus variable numbering: Offset (left) or Address (right)

The default the index numbering in the Tree View is set to offset address.

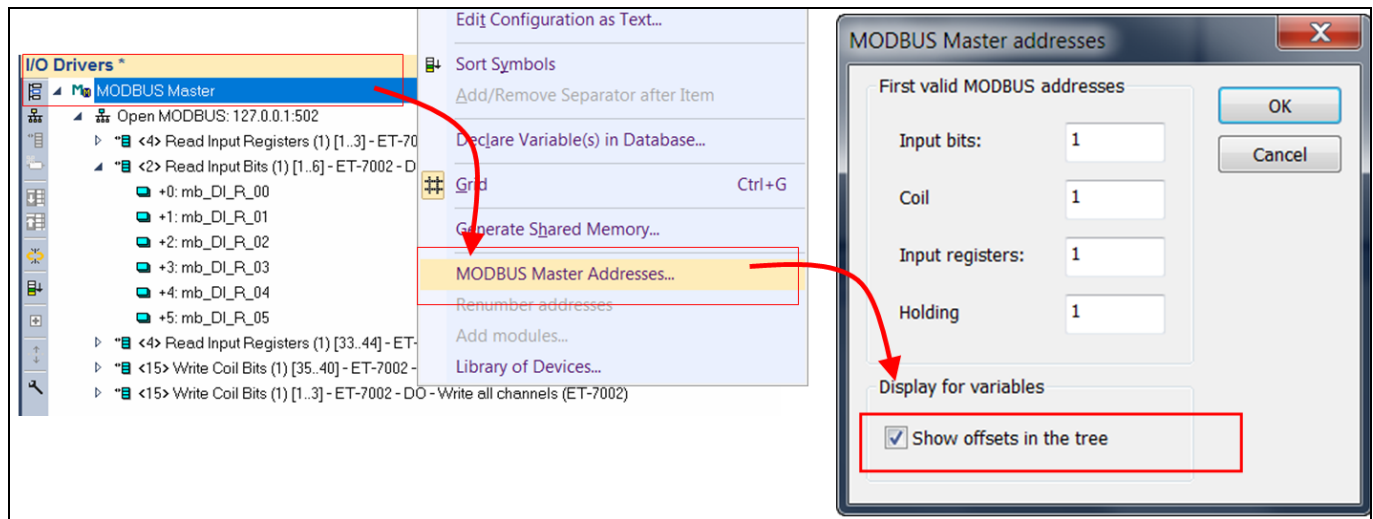


Figure 6: Modbus variable numbering setting

3. Integration of ICPDAS Modbus slaves:

A special Modbus library has been created for the following ICPDAS Modbus series:

- ET-7000
- M-7000
- Power Meter series: PM-2133D, PM-3033, PM-3133, PM-3133-RCT, PM-4324, PM-4324A

Benefit for the user:

- No manual configuration of the Modbus master register is required. After selecting the slave from the list and the I/O channel to be read, the workbench automatically configures the Modbus master register and performs the required variable mapping.
- The new Modbus slave library saves configuration time and prevents register mapping errors.

4. The Modbus master library supports TCP/Serial slaves and is filtered by Modbus protocol type:

- Only Modbus TCP slaves are displayed for Modbus TCP masters(e.g. ET-7000 series)
- Only Modbus RTU slaves are available for the Modbus RTU master (e.g. M-7000 series)

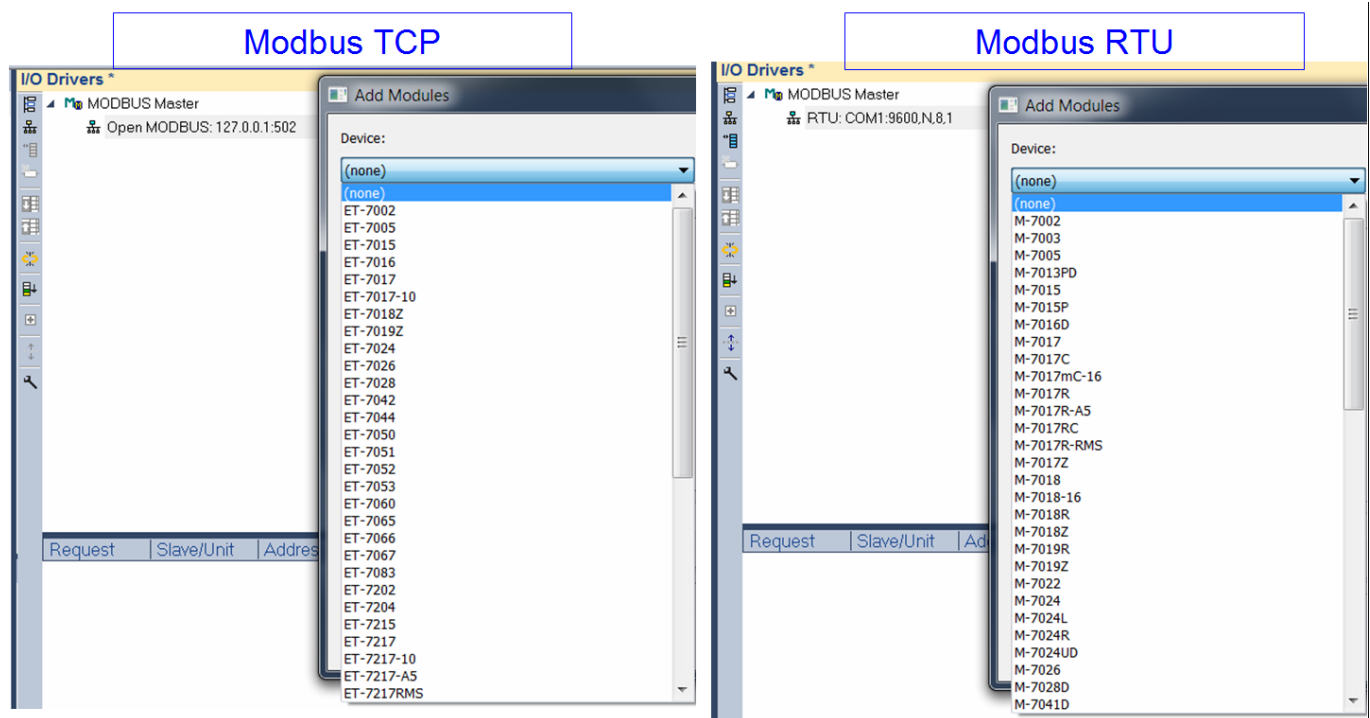


Figure 7: Modbus slave filtering according TCP/Serial protocol

5. MODBUS RTU configurator accept COM port addresses longer than 32 characters:

MODBUS Master Port

☐ MODBUS on Ethernet

Address:

Port:

Protocol:

☒ Serial MODBUS-RTU

Com. port:

Delay between requests

Delay (ms):

☒ Try to reconnect after communication error

☒ Manage diagnostic info for slaves

☐ Disabled (do not open and manage this port)

OK

Cancel

New: COM port addresses longer than 32 characters are supported

6. Create your own Library for third party MODBUS devices

The Workbench 12.0 comes with a Modbus library tool, which allows you to create and manage slave libraries for third party Modbus devices.

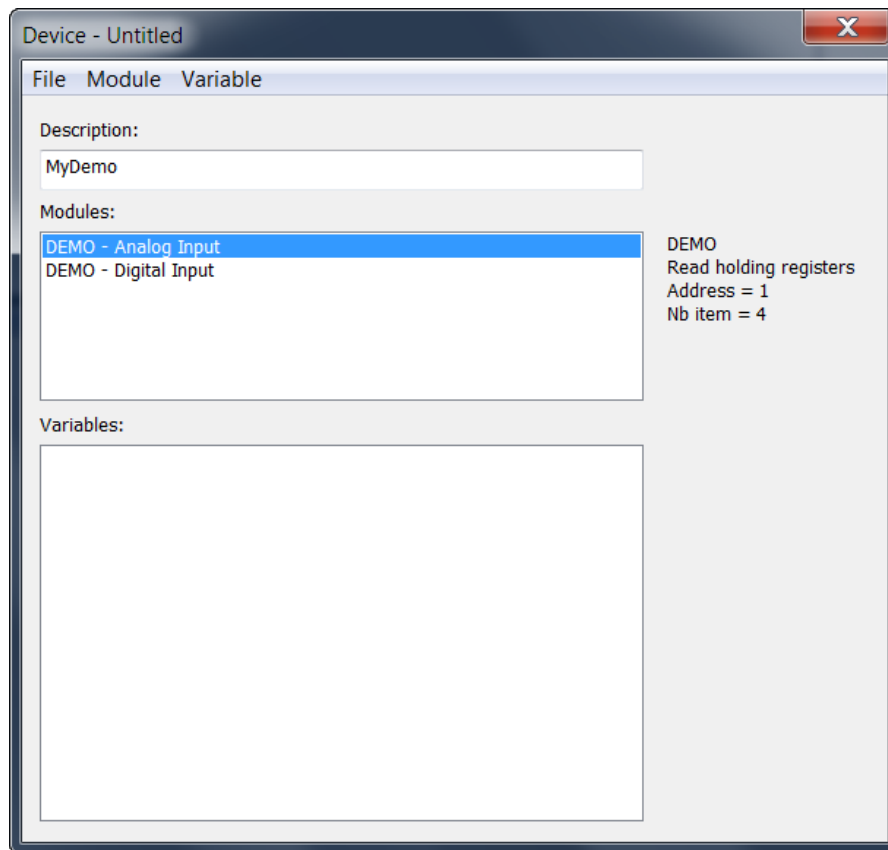


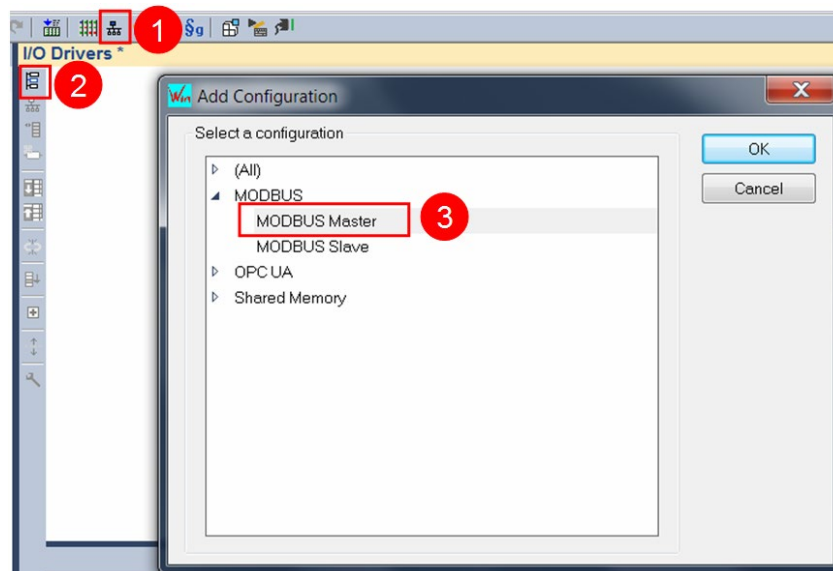
Figure 8: Modbus Library Utility for creating third party Modbus slaves libraries

3.1. Example: Creating a Simple Modbus Network with ICPDAS

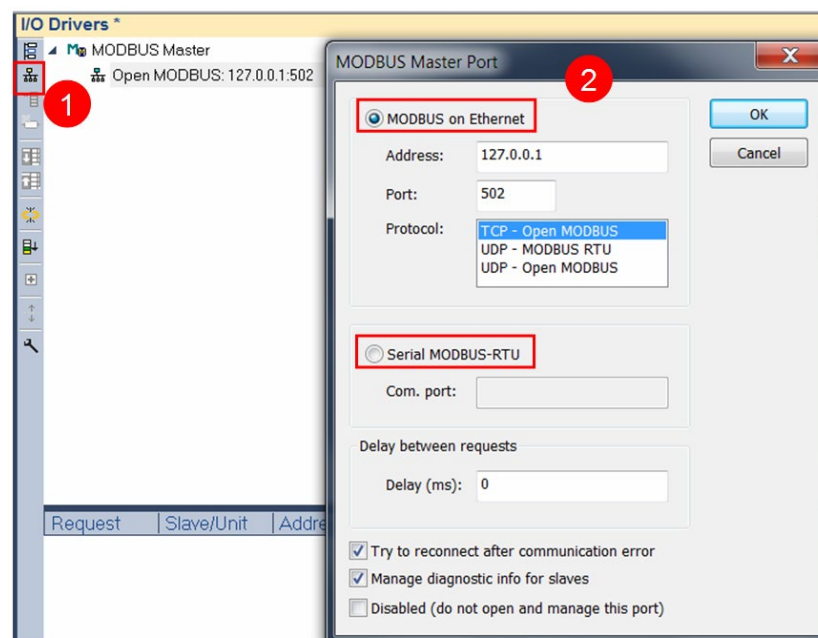
Modbus slaves

This example shows, how to add a new ICPDAS Modbus slave to the Win-GRAF controlled Modbus network.

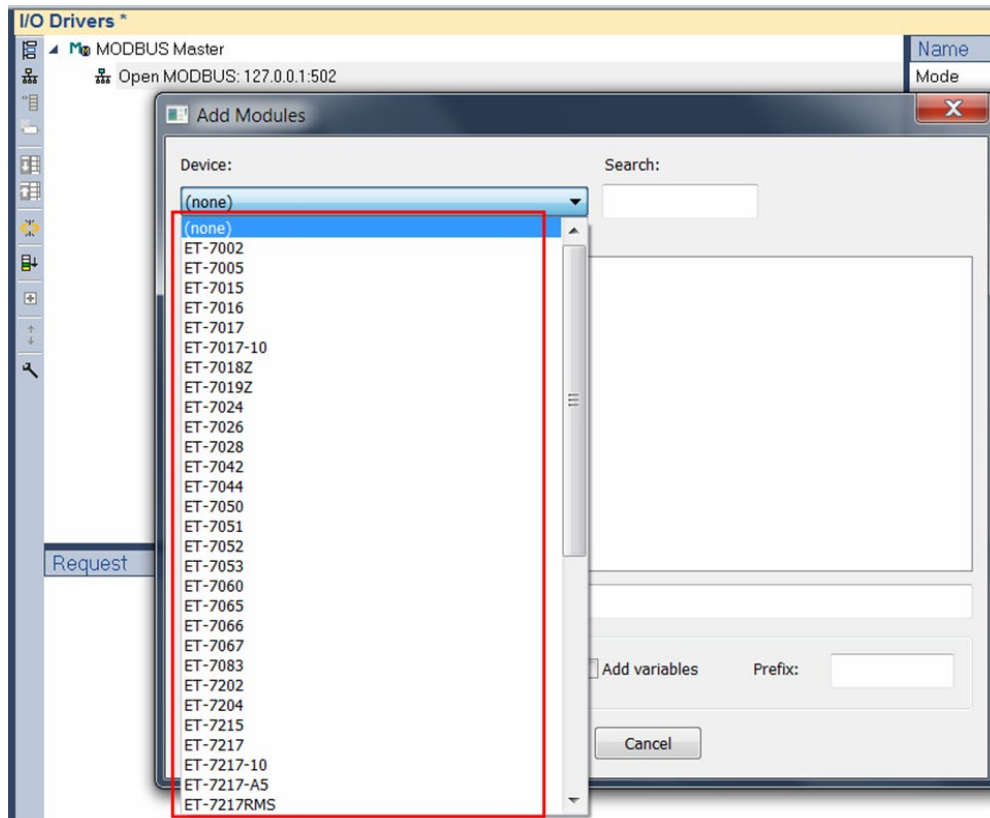
Step 1: Add a Modbus Master to the Fieldbus configurator



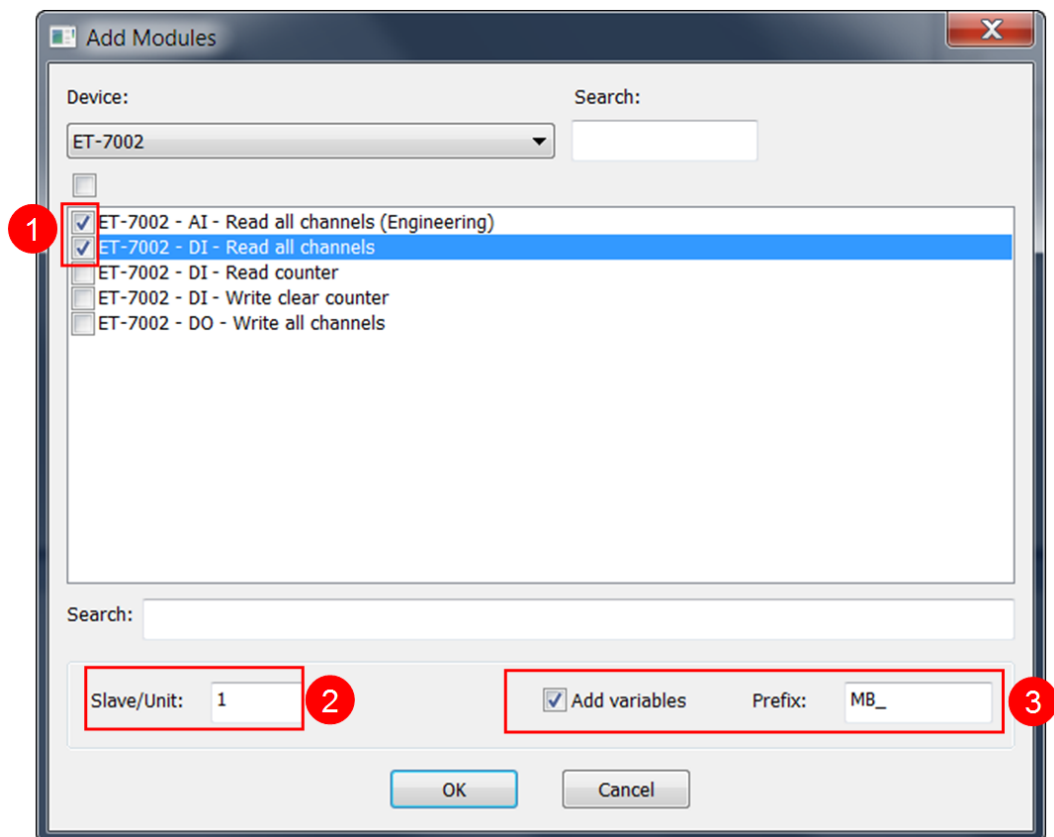
Step 2: Set the master type (Modbus TCP or RTU) and its communication parameters



Step 3: Select a slave devices from the drop-down list



Step 4: Select the I/O channel to read, the slave ID and enable the automatically PLC variable declaration and mapping.



After confirming the setting new PLC variables are created for each channel and

automatically linked to its corresponding Modbus input register/coil.

The screenshot shows two windows. The 'I/O Drivers' window on the left has a tree view under 'MODBUS Master' with 'Open MODBUS: 127.0.0.1:502'. It contains two channels: '<4> Read Input Registers (1) [1..3] - ET-7002 - AI - Read all channels (Engineering) (ET-7002)' and '<2> Read Input Bits (1) [1..6] - ET-7002 - DI - Read all channels (ET-7002)'. The first channel lists three registers: +0: MB_AI_R_Engr_00, +1: MB_AI_R_Engr_01, and +2: MB_AI_R_Engr_02. The second channel lists six bits: +0: MB_DI_R_00, +1: MB_DI_R_01, +2: MB_DI_R_02, +3: MB_DI_R_03, +4: MB_DI_R_04, and +5: MB_DI_R_05. Red boxes highlight these lists, with red arrows pointing to a 'Global variables' table on the right. This table lists the variables and their types: MB_AI_R_Engr_00 (INT), MB_AI_R_Engr_01 (INT), MB_AI_R_Engr_02 (INT), MB_DI_R_00 (BOOL), MB_DI_R_01 (BOOL), MB_DI_R_02 (BOOL), MB_DI_R_03 (BOOL), MB_DI_R_04 (BOOL), and MB_DI_R_05 (BOOL). Red text at the bottom of each window states: 'Newly declared variables linked to the I/O channel register' and 'Newly declared PLC variables'.

Name	Type
MB_AI_R_Engr_00	INT
MB_AI_R_Engr_01	INT
MB_AI_R_Engr_02	INT
MB_DI_R_00	BOOL
MB_DI_R_01	BOOL
MB_DI_R_02	BOOL
MB_DI_R_03	BOOL
MB_DI_R_04	BOOL
MB_DI_R_05	BOOL

Step 5: Add the next Modbus slave and repeat the step 4.

The screenshot shows the 'I/O Drivers' window on the left with the same tree structure as before. A right-click context menu is open over the 'Open MODBUS: 127.0.0.1:502' node, with the 'Add modules...' option highlighted. To the right, the 'Add Modules' dialog box is open, showing a list of devices. The 'Device:' dropdown is set to '(none)'. The list contains various ET-7002 modules, including ET-7002, ET-7005, ET-7015, ET-7016, ET-7017, ET-7017-10, ET-7018Z, ET-7019Z, ET-7024, ET-7026, ET-7028, ET-7042, ET-7044, ET-7050, ET-7051, ET-7052, ET-7053, ET-7060, ET-7065, ET-7066, ET-7067, ET-7083, ET-7202, ET-7204, ET-7215, ET-7217, ET-7217-10, ET-7217-A5, and ET-7217RMS. A search bar is visible on the right side of the dialog.

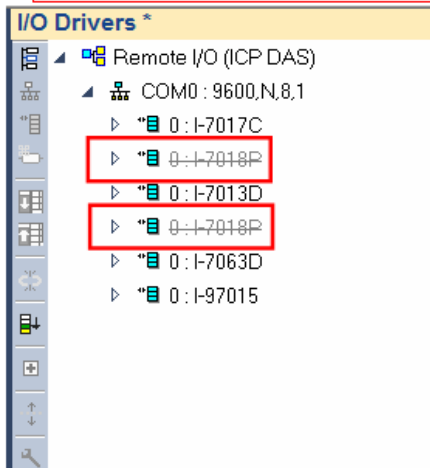
4. Remote I/O (DCON Protocol)

Modifications:

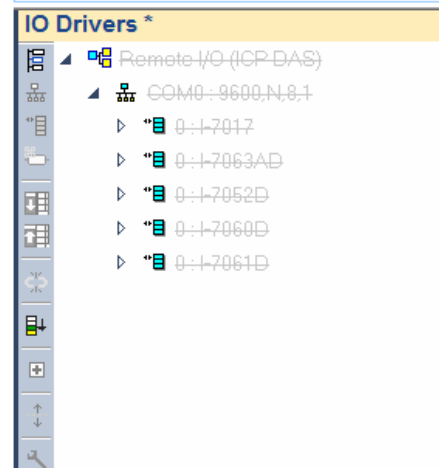
The "Remote I/O Fieldbus" editor allows you to quickly disconnect/disable one or more DCON slaves from communication without removing them from the fieldbus editor or from the DCON network. A deactivated slave is ignored by the compiler and the DCON master does not query this module. The new feature simplifies setting up the DCON network and testing single-slave communication.

In the previous version it was only possible to deactivate all slaves and not a selected few from the fieldbus configuration.

New Version (V12)



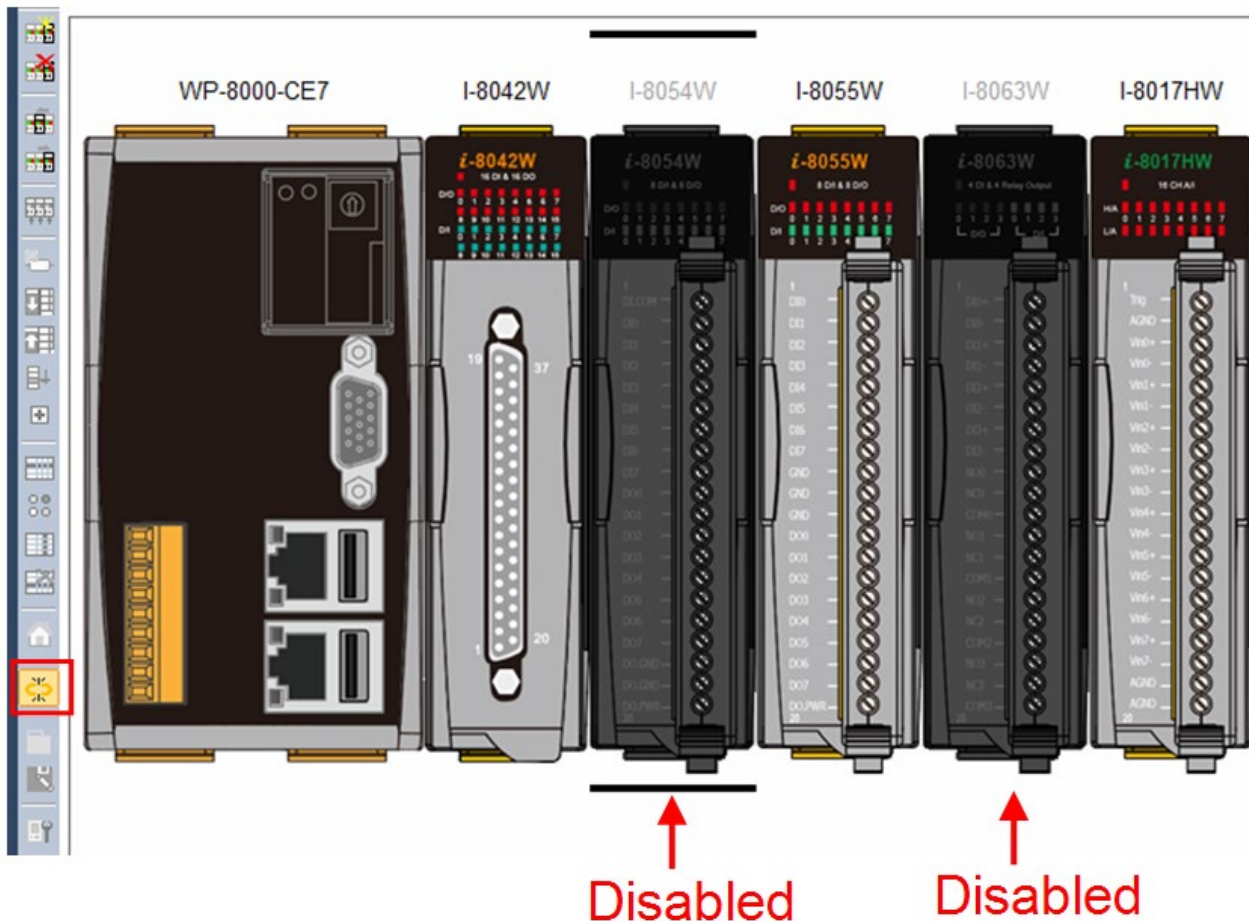
Previous Version (V11)



5. PAC IO Wizard Extension

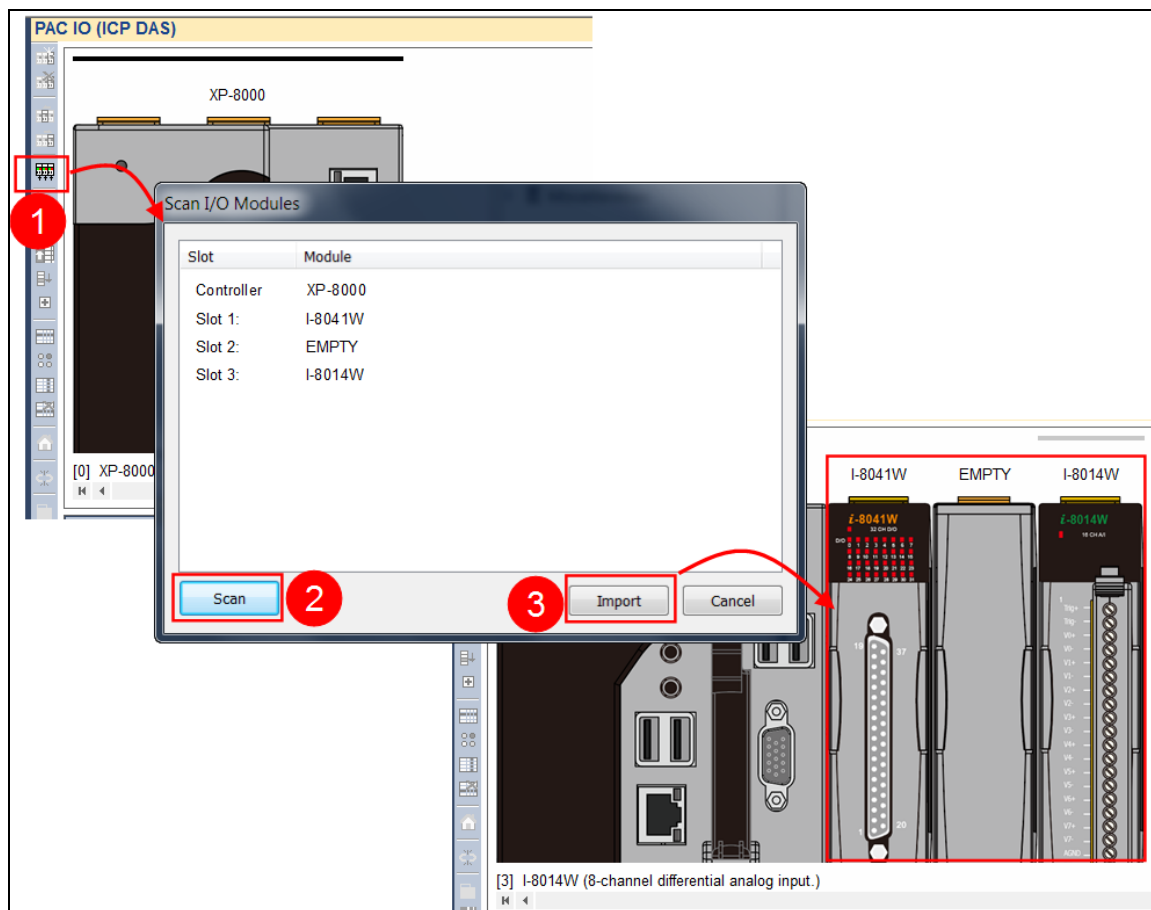
1. Added "Disable Node" support:

- This function allows the user to disable a I/O plug-in module or set it as virtual module. A disabled I/O plug-in module is disconnected from physical operation and enables you to test your application even if the actual hardware is not available.
- Deactivated modules are shown in darker color.



2. Remote IO plug-in module scanning:

The latest Win-GRAF controllers support the online I/O slot scanning function, which allows the user to remotely scan the I/O modules installed in the controller from the workbench on the PC. Detected modules are displayed next to the main controller in the "PAC IO" user interface.

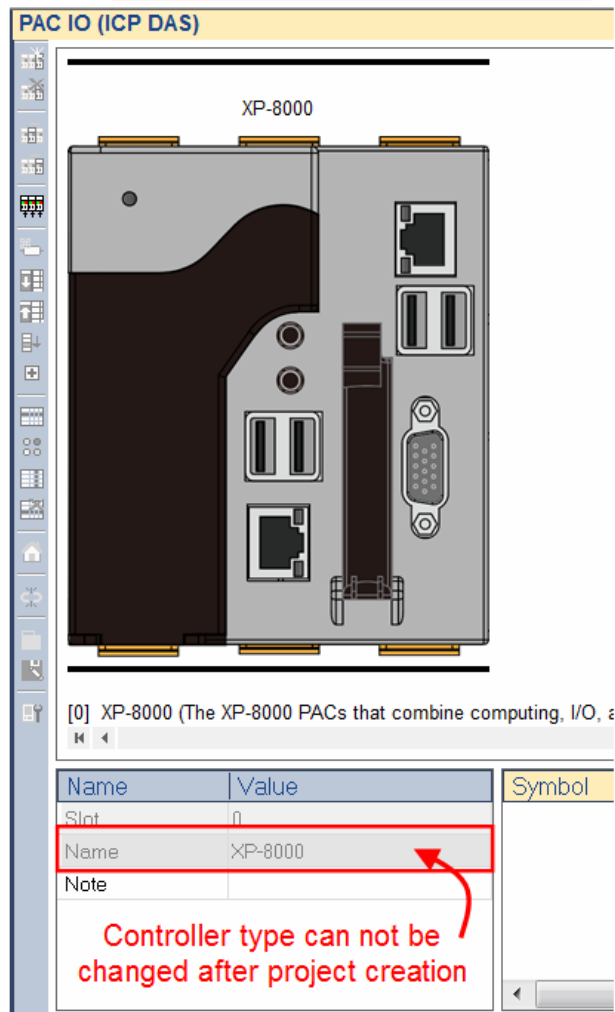


3. Auto-Selection of the Remote IO-plug-in module scanning:

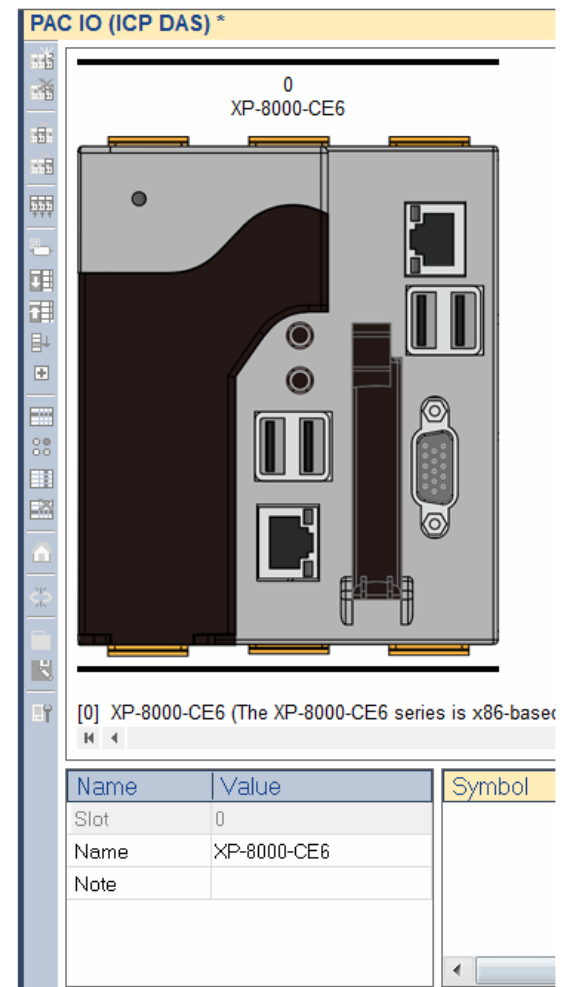
The project wizard automatically selects the correct controller type and displays the supported plug-in modules. After selecting the target platform type via the project wizard, the controller type can no longer be changed via the PACIO user interface.

In the previous Workbench release, the controller type could be changed after a project was created. This can result in the main controller being populated with I/O modules that are not supported by the controller.

New Version (V12)

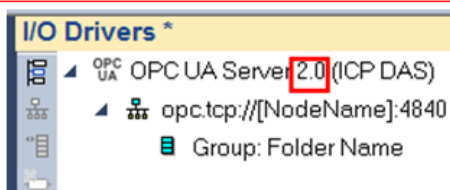


Previous Version (V11)



6. Simplified OPC UA Server UI

New Version (V12)



Previous Version (V11)



Modifications:

- Added new Security Policies such as "Basic256Sha256" and "Aes128_Sha256_RsaOaep".
- Support of "Open62541" OPC UA server

- Simplified the main configuration procedure. The main changes are shown in the following three figures.

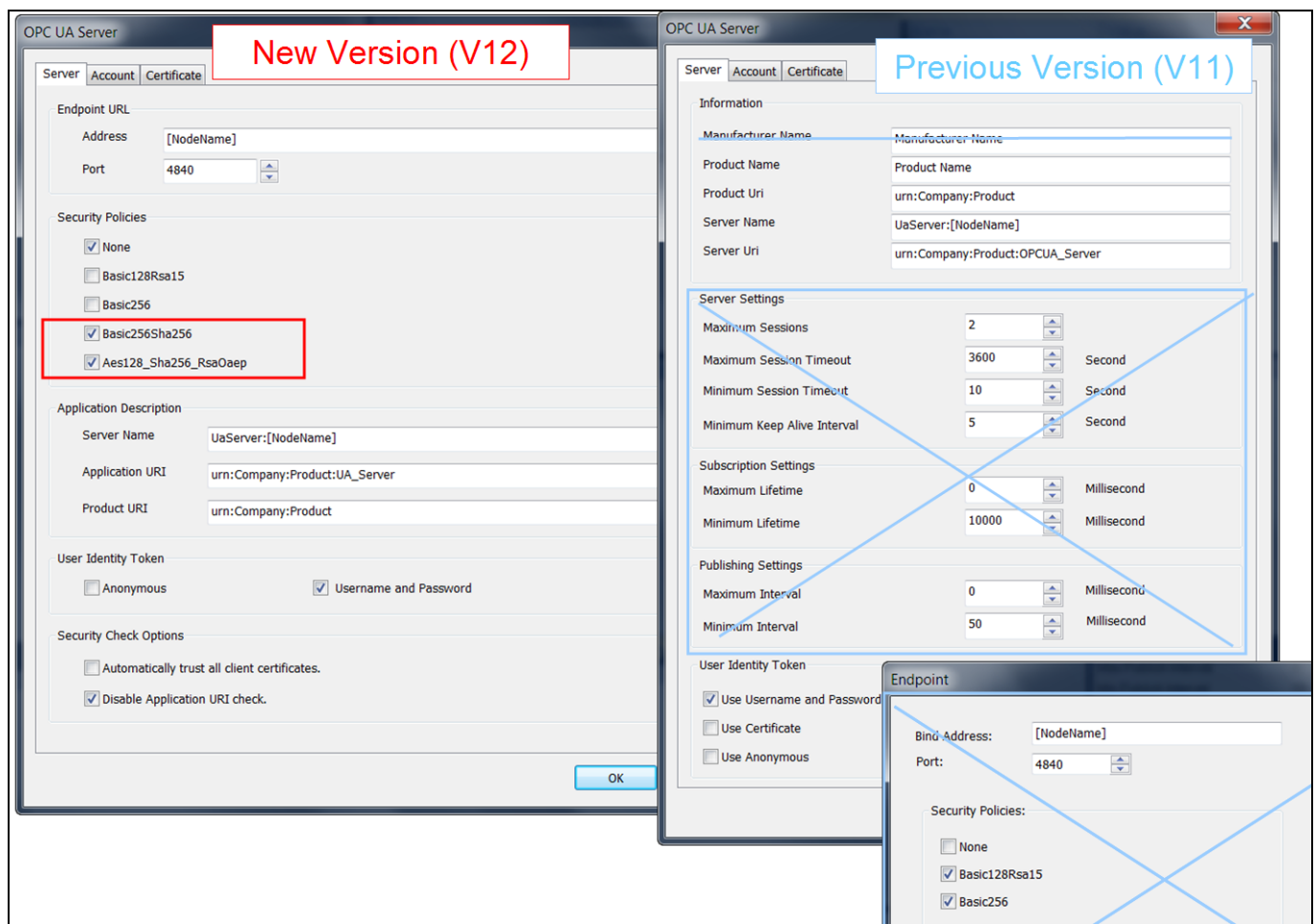


Figure 9:Server configuration UI (left: Version 12; right: old version)

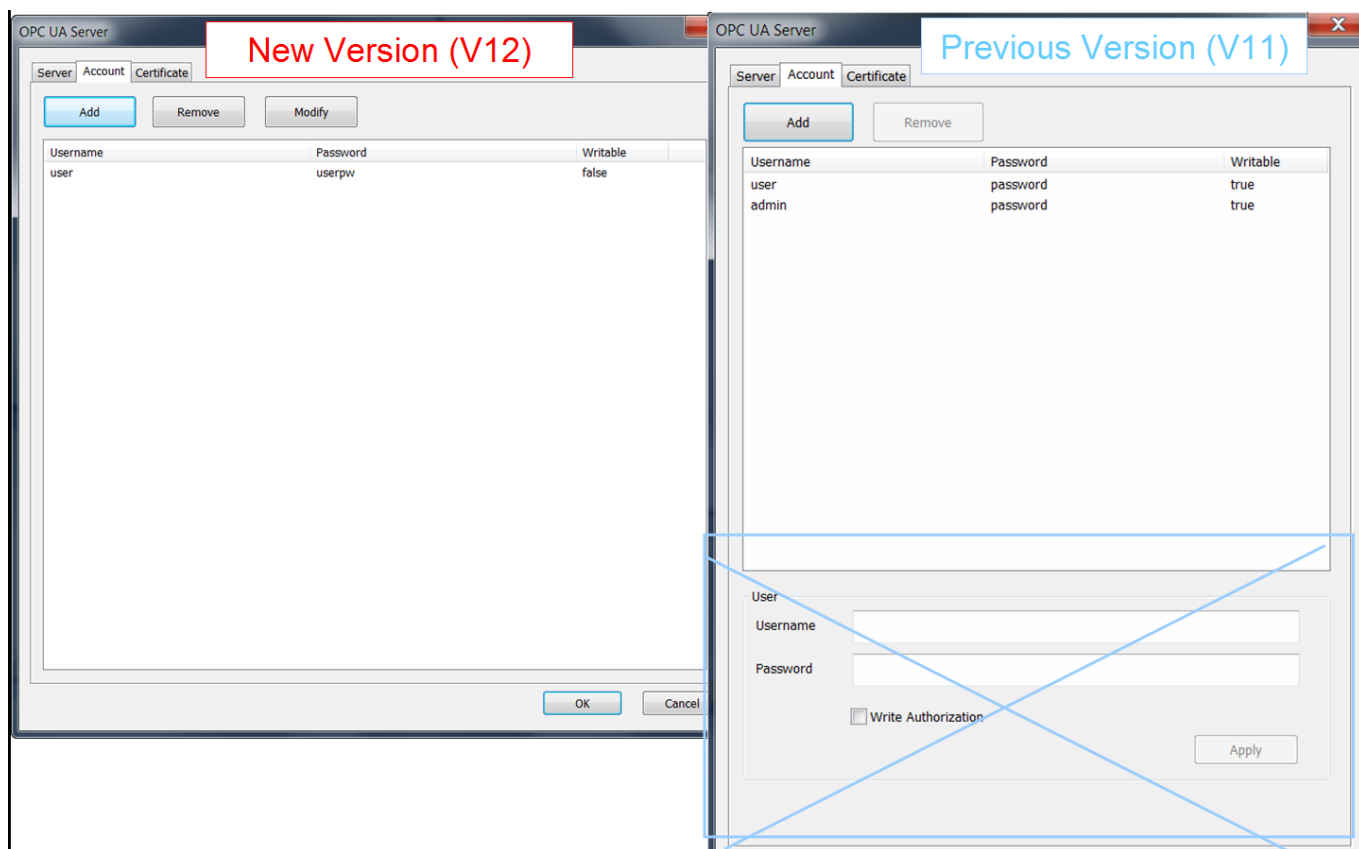


Figure 10: Account configuration UI (left: Version 12; right: old version)

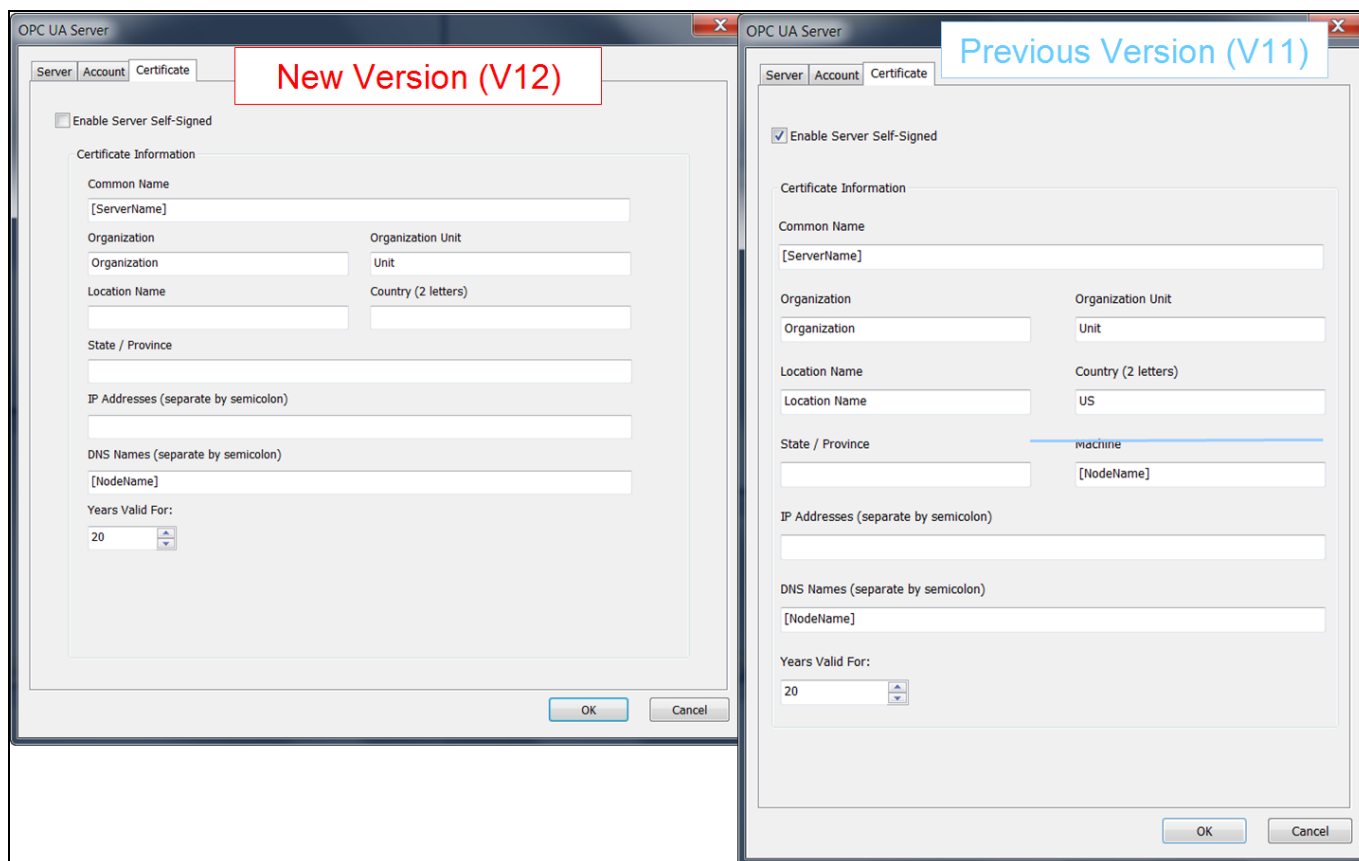


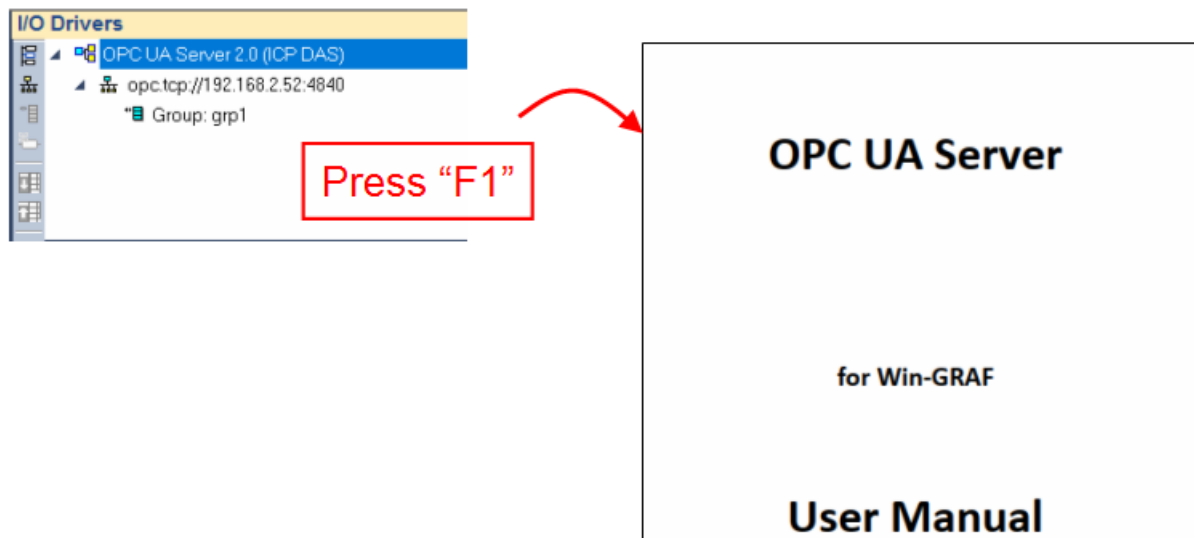
Figure 11: Certificate setting UI (left: Version 12; right: old version)

7. Extended Online Help

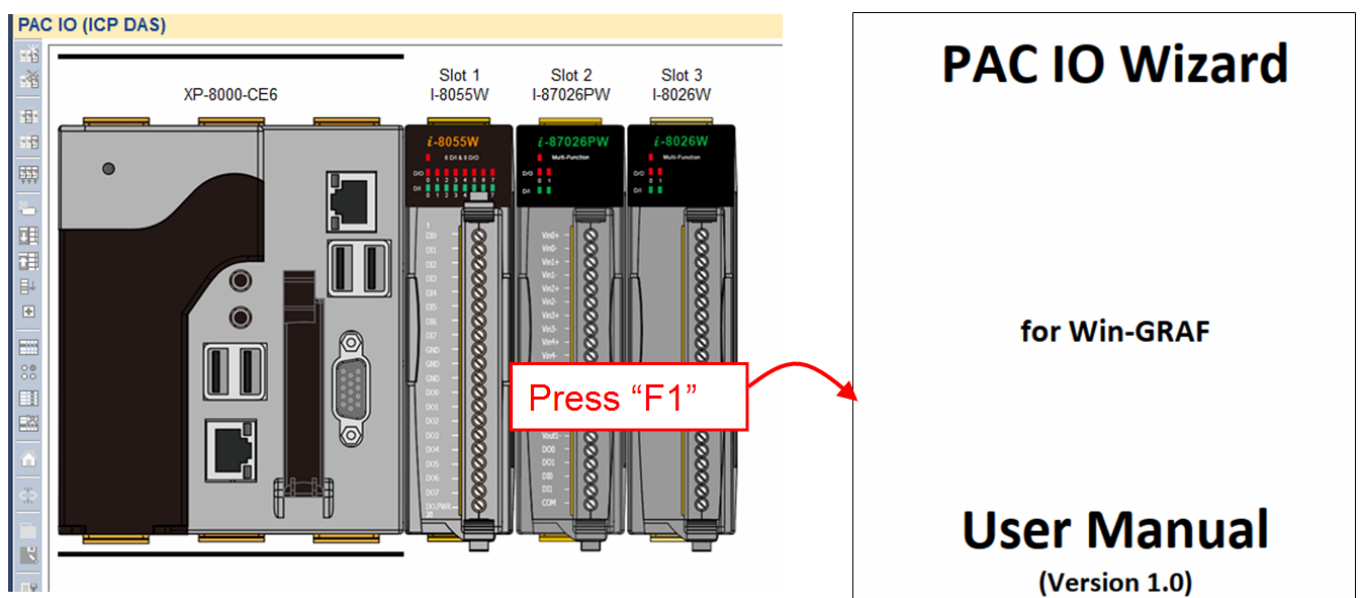
Added "F1" support for directly opening the help file of the "IO Driver" plug-in.

Example:

- Press F1 to open the OPC UA server documentation:



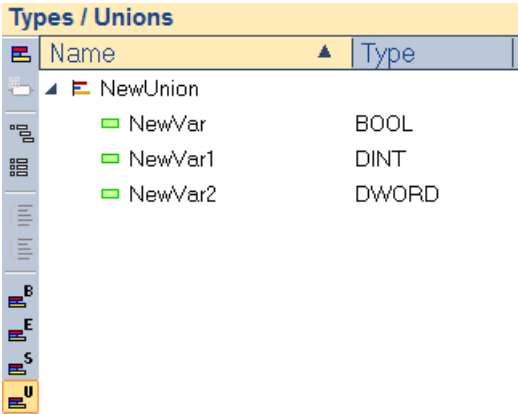
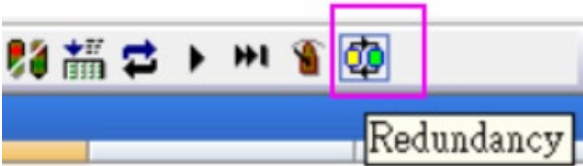
- Press F1 to open the PAC IO Wizard documentation:



7.1. User Manual Updates

- **PAC-IO Wizard manual:** Described the new function and modification made to the PAC_IO wizard
- **Modbus manual:**
 - Described the extended Modbus functions and how to add and configure ICPDAS (ET-7000, M7000, PM) Modbus slaves.
 - In addition described how the user can add third party slaves to the Modbus slave library.
 - Extended the FAQ section.
- **OPC UA Server manual:** Started to describe the modified OPC UA wizard functions

8. Detailed list of new features

	Description
1	Support project names longer than 15 characters
2	Support of UNIONS 
3	Support of WSTRING
4	Compiler: implement a pragma to display messages in the build report
5	Compiling option to send STRING constants as UTF8
6	Add "Redundancy" button to the On Line toolbar for multitask applications 
7	Modbus: Give a way to disable only a part of a fieldbus configuration
8	Modbus: Added Modbus slave Library

9	Modbus RTU configurator accept COM port addresses longer than 32 characters
10	Modbus tree register offset numbering: address or offset address
11	Modbus library tool for integrating third party slaves
12	Remote I/O wizard supports deactivating selected slaves
13	OPC UA server: Added new Security Policies such as "Basic256Sha256" and "Aes128_Sha256_RsaOaep" support.
14	OPC UA server: Simplified the main configuration procedure.
15	PAC-IO Wizard: Added "Disable Node" support
16	PAC-IO Wizard: Online I/O plug-in scan function
17	Project Wizard: New Project Wizard simplifies the project setup for the various Win-GRAF controller types.
18	Added "F1" support for some plug-in wizard (DDKC)