

CODESYS V2.3 Serial Driver for JMobile

This documents describes how to use the
CODESYS V2 serial driver for JMobile

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Contents

CODESYS V2.3 Serial Driver	5
Protocol Editor Settings.....	5
CODESYS Software Settings	6
Tag Import.....	7
Aliasing Tag Names in Network Configurations.....	9
1.1 Tag Array	10
Data Types	12
Standard Data Types	12
Limitations	13
Communication Status	13

CODESYS V2.3 Serial Driver

The communication driver has been designed for serial communication with controllers based on CODESYS V2.3.

Please note that changes in the controller protocol or hardware, which may interfere with the functionality of this driver, may have occurred since this documentation was created. Therefore, always test and verify the functionality of the application. To accommodate developments in the controller protocol and hardware, drivers are continuously updated. Accordingly, always ensure that the latest driver is used in the application.

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Version 1.02

Protocol Editor Settings

Add (+) a driver in the Protocol editor and select the protocol called "CODESYS V2 SER" from the list of available protocols.

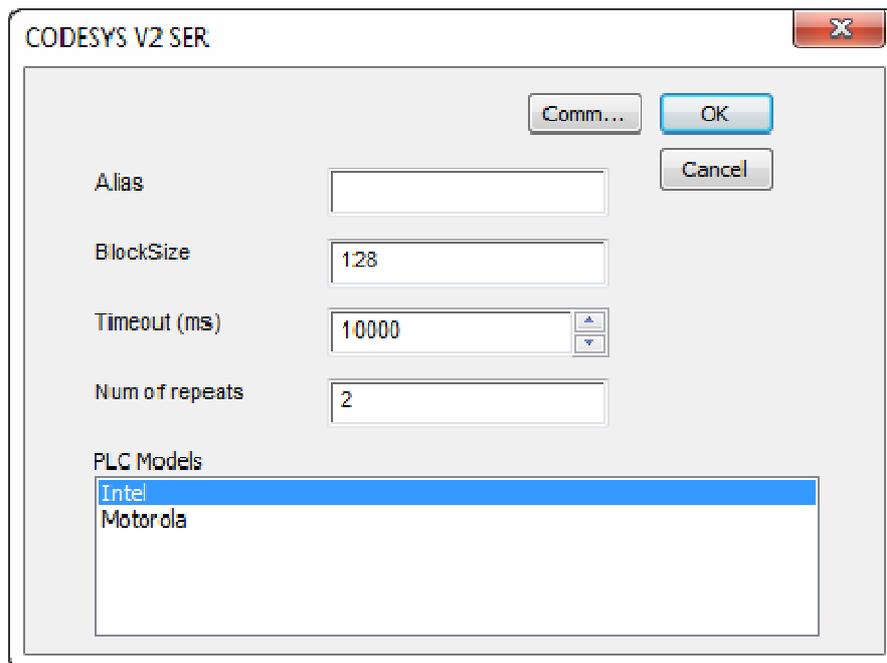


Figure 1

- Alias** Name to be used to identify nodes in network configurations. The name will be added as a prefix to each tag name imported for each network node
- Block Size** Enter the max block size supported by your controller (limit is 1024)
- Timeout** The number of milliseconds between retries when communication fails
- Num of repeats** This parameter defines the number of times a certain message will be

sent to the controller before reporting the communication error status.
A value of 1 for the parameter “No of repeats” means that the panel will eventually report the communication error status if the response to the first request packet is not correct.

PLC Model

Defines the byte order that will be used by the communication driver when sending communication frames to the PLC

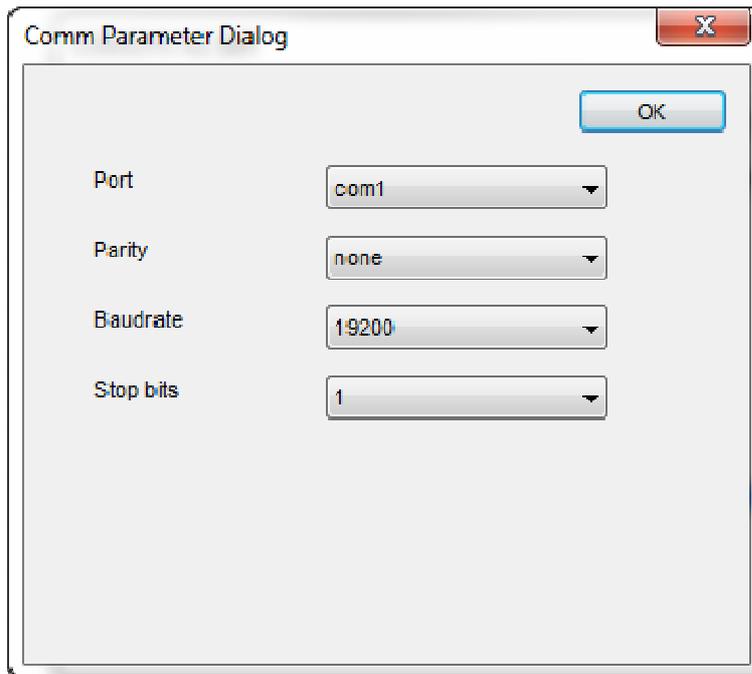


Figure 2

Port

Serial port selection.
COM1 is the PLC port.
COM2 is PC/Printer port on panels with 2 serial ports or refers to the optional plug-in module plugged in Slot 1/2 for panels with 1 serial port on-board.
COM3 refers to the optional plug-in module plugged in Slot 3/4 for panels with 1 serial port on-board.

**Baudrate,
Parity,
Data bits,
Stop bits**

Communication parameters for the serial line.

CODESYS Software Settings

When creating the project in CODESYS, the option Download Symbol File (in Target Settings/General) must be checked.

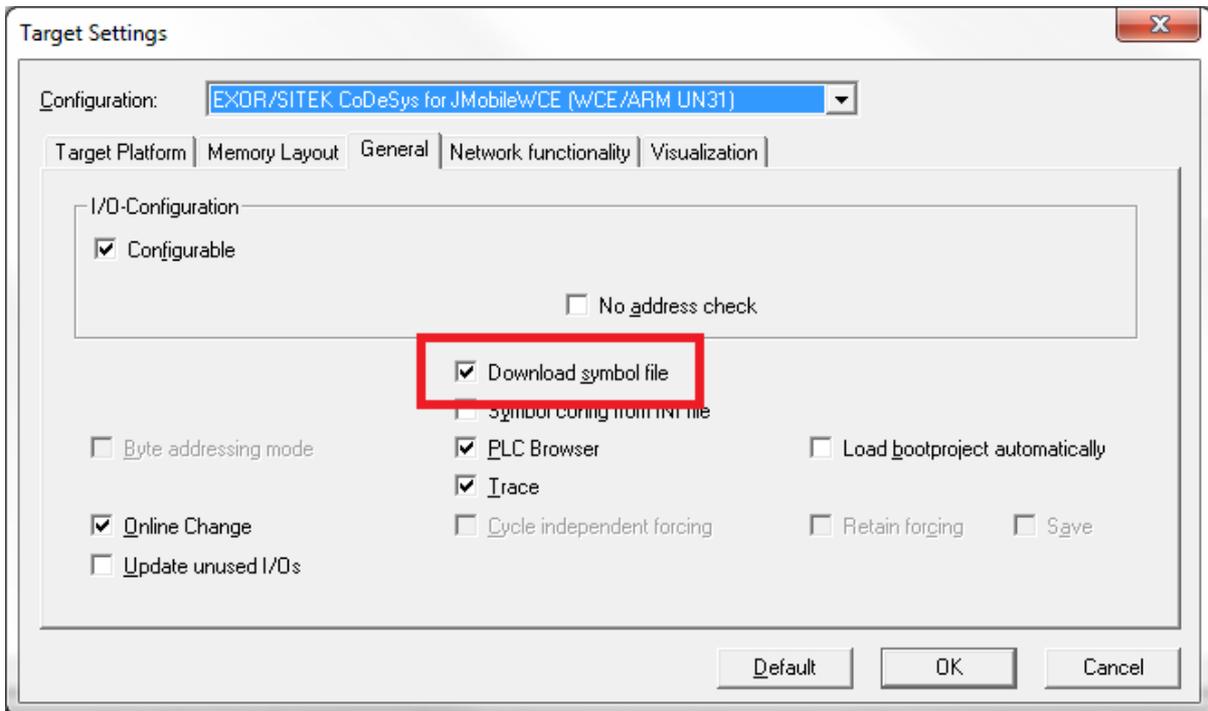


Figure 3

Note: CODESYS V2 SER communication driver supports the automatic symbol file (SDB) upload from the PLC; any change in the tag offset due to new compilation of the PLC program does not require a symbol file re-import. Tag file has to be re-imported only in case of tag rename or definition of new tags.

When the option Download symbol file is not available or not checked, the protocol can work only if the ProjectId tag is imported. Any change in the tag offset due to new compilation of the PLC program requires that symbol file is imported again.

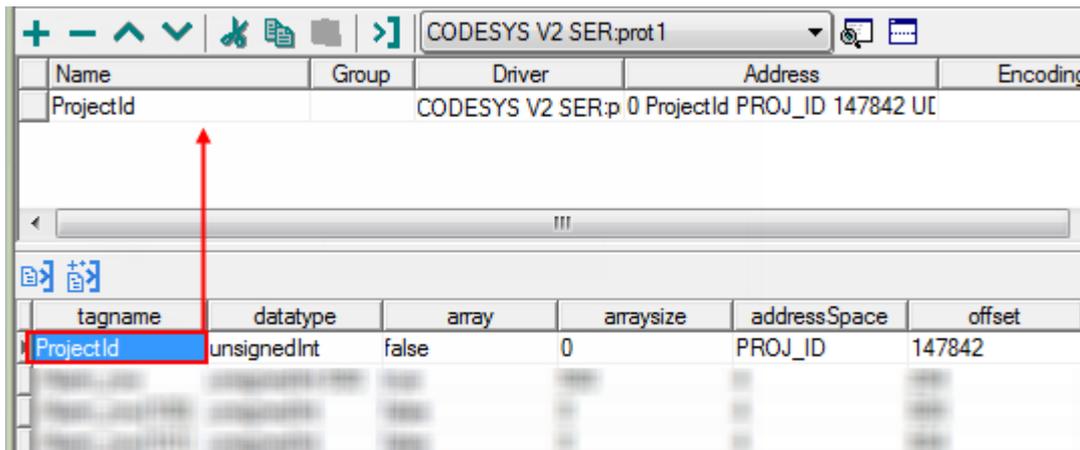


Figure 4

Tag Import

When configuring PLC using the manufacturer's configuration software, make sure to enable Symbol file creation (file with .SYM extension). It can be done under the CODESYS programming software, by

selecting “Project\Option\Symbol configuration” and mark the check box “Dump symbol entries” as shown in the picture below.

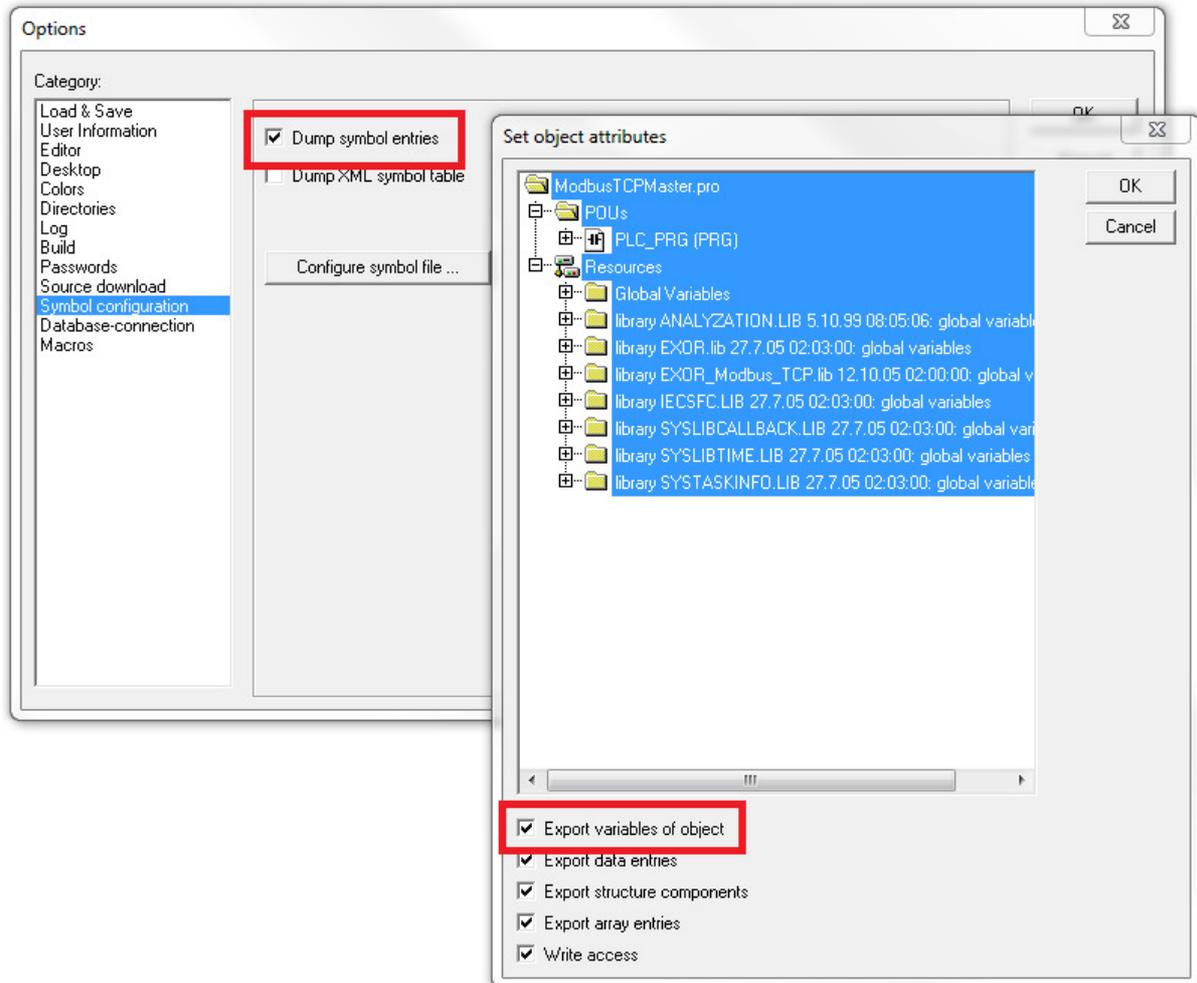


Figure 5

Note: Click then on the “Configure symbol file...” button and make sure the “Export variables of object” check box is marked as shown in the following picture. We recommend to un-check the check box and mark it again to be sure about the proper settings.

Select the driver in the Studio tag editor and click on the “Import tag” button to start the importer.

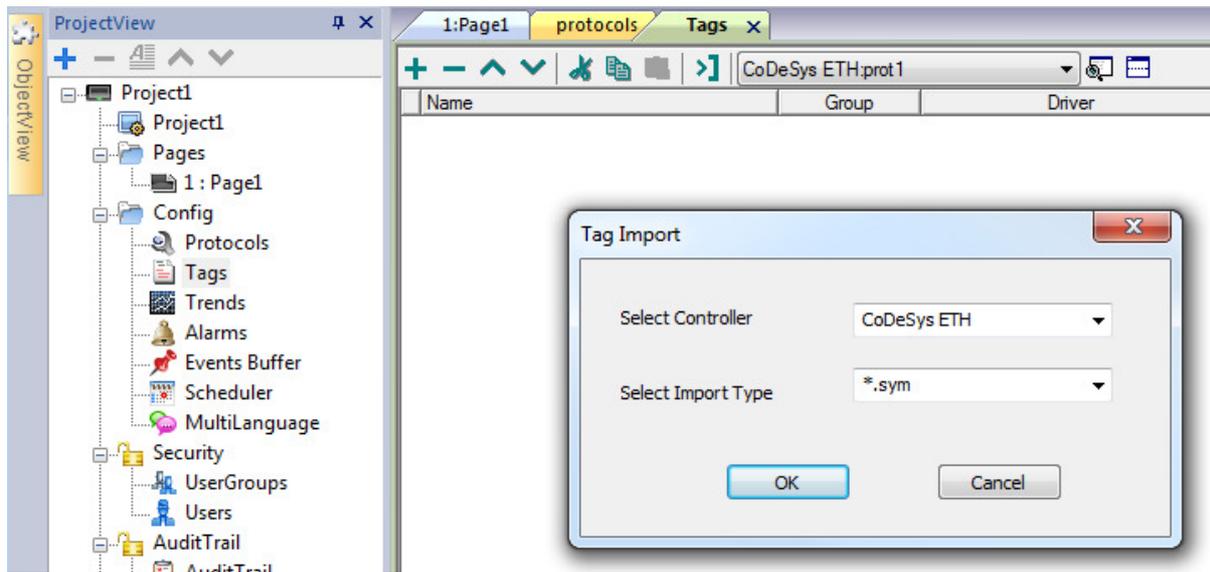


Figure 6

Locate the “.sym” file and confirm.

The tags present in the exported document are listed in the tag dictionary from where they can be directly added to the project using the add tags button as shown in the following figure.

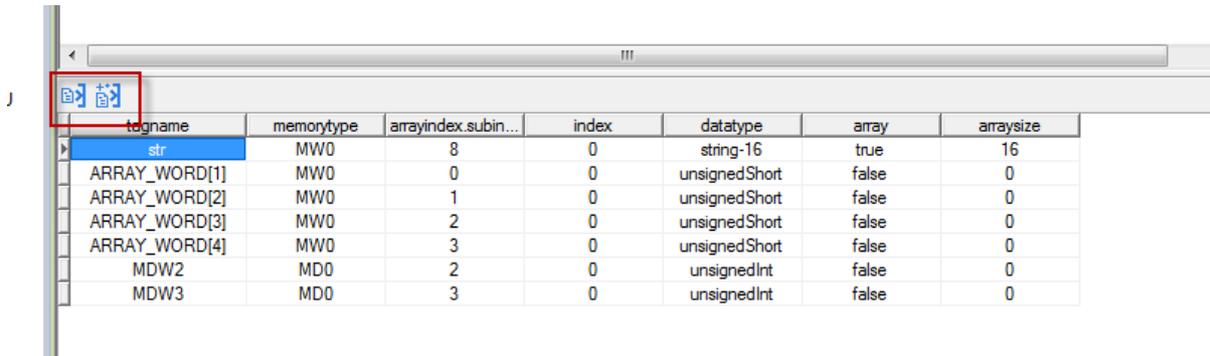


Figure 7

Aliasing Tag Names in Network Configurations

Tag names must be unique at project level; it often happens that the same tag names are to be used for different controller nodes (for example when the HMI is connected to two devices that are running the same application). Since tags include also the identification of the node and Tag Editor does not support duplicate tag names, the import facility in Tag Editor has an aliasing feature that can automatically add a prefix to imported tags. With this feature tag names can be done unique at project level.

The feature works when importing tags for a specific protocol. Each tag name will be prefixed with the string specified by the “Alias”.

Note:

An Aliasing tag name is only available when tags can be imported. Tags which are added manually in the Tag Editor do not need to have the Alias prefix in the tag name. The Alias string is attached to the tag name only at the moment the tags are imported using Tag Editor. If you modify the Alias string after the tag import has been completed, there will be no effect on

the names already present in the dictionary. When the Alias string is changed and tags are imported again, all tags will be imported again with the new prefix string.

1.1 Tag Array

Tag Arrays are split into individual elements and one Tag for each element is created. The figure below shows an example of one Array with 10 elements

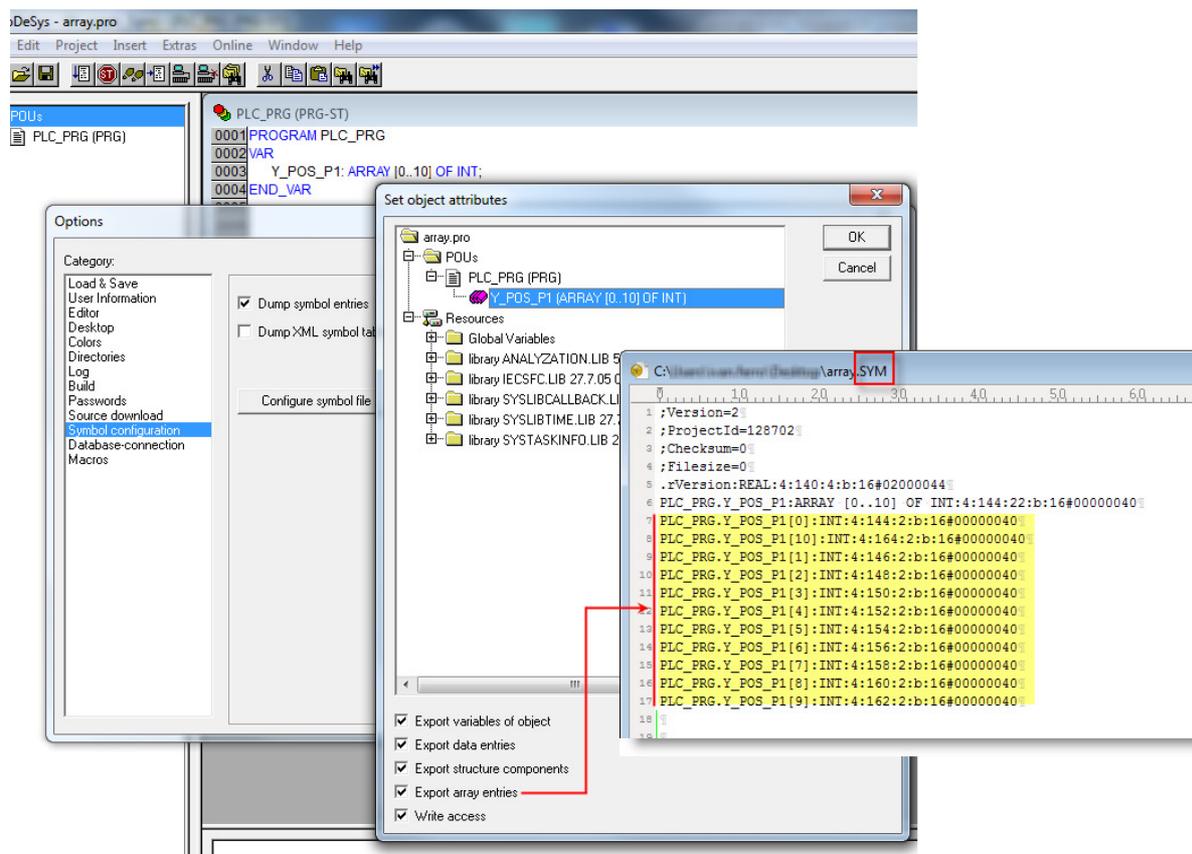


Figure 8

Note: When “Export array entries” is set, a tag for each element is created and exported into the SYM file. The entire tag list is automatically imported into Tag Editor.

The amount of tags can be reduced and only one Tag for each one array can be created by removing the checkbox “Export array entries”, see figure below.

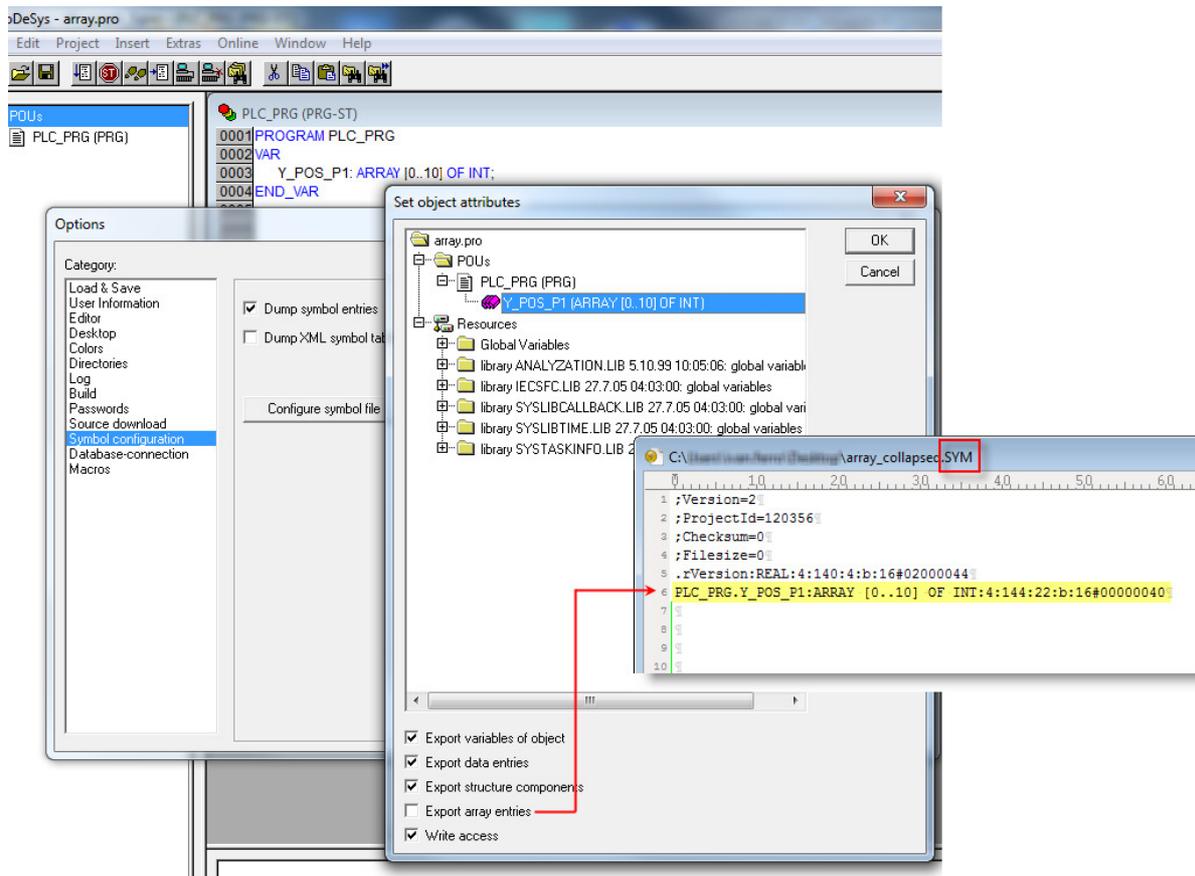
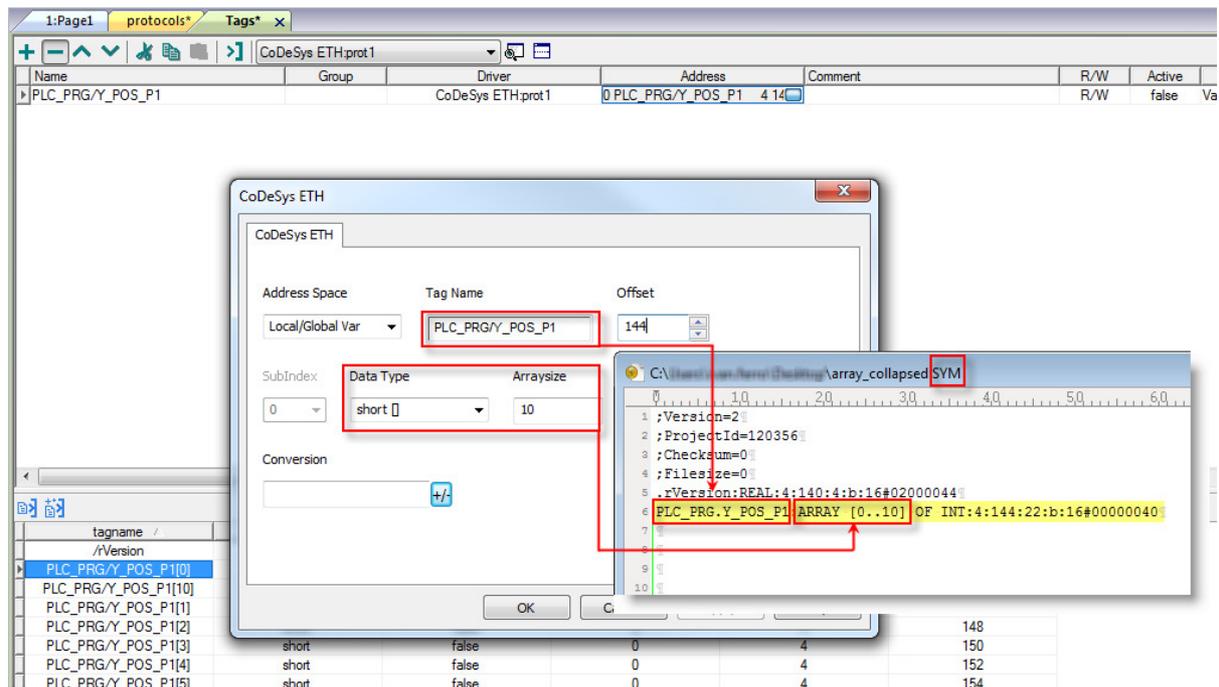


Figure 9

Note: When “Export array entries” is not set, only one tag is created and exported into the SYM file. The Array will not be automatically imported in Tag Editor and Tags need to be manually configured in Tag Editor



All Tag elements can be referenced in the editor using “TagIndex” in the “Attach to Tag” dialog

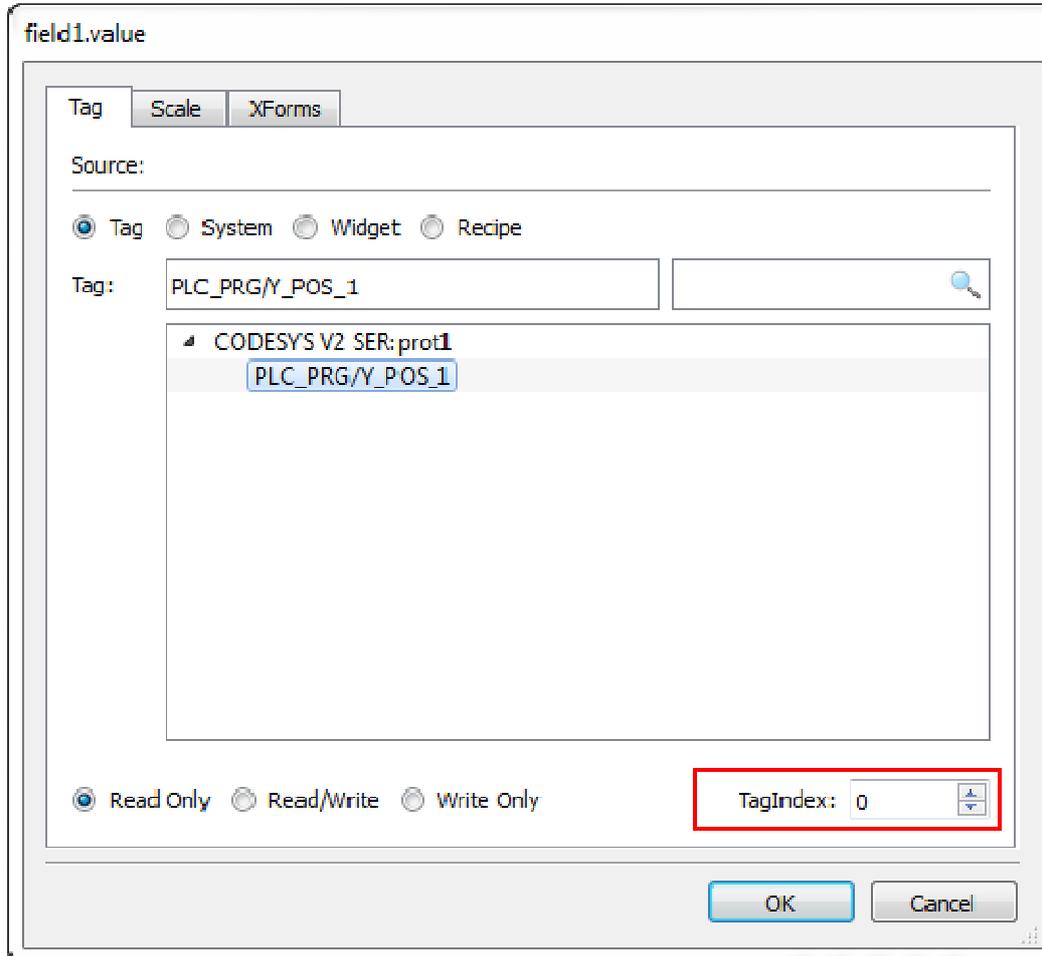


Figure 10

Data Types

The import module supports variables of standard data types and user defined data types.

Standard Data Types

The following data types in the CODESYS programming tool are considered standard data types by the import module:

BOOL
 WORD
 DWORD
 INT
 UINT
 UDINT
 DINT
 STRING

REAL
TIME
DATE & TIME

and 1-dimensional ARRAY of the types above.

The 64-bit data types LWORD, LINT and LREAL are not supported.

String length for a STRING variable in PLC should be max 80 characters. Declare a STRING variable either with a specified size (str: STRING(35)) or default size (str: STRING) which is 80 characters.

Limitations

Max block size is 1024 byte.

Communication Status

The current communication status can be displayed using the dedicated system variables. Please refer to the User Manual for further information about available system variables and their use.

The codes supported for this communication driver are:

Error	Notes
Symbol file not present	Check Symbol file and download again the PLC program
"tag" not present in Symbol file	Check if the Tag is present in the PLC project
Time out on Acknowledge	Controller didn't send acknowledge
Time out on last Acknowledge	Controller didn't send last acknowledge
Time out on data receiving	Controlled does not reply with data
Connection timeout	Device not connected