Application note			
Subject	V430-F Profinet tags generator	**Date**	12-May-2021
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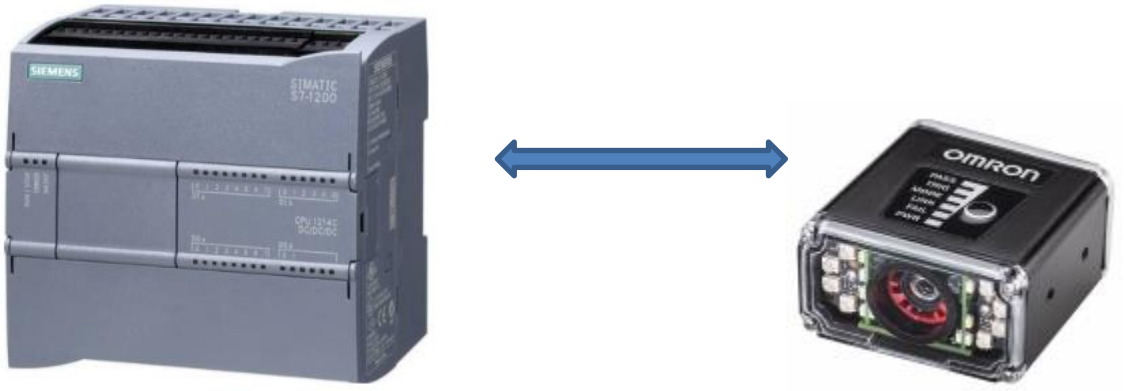
Subject

This document describes the setup procedure required for adding pre-defined V430-F tags to a project in TIA15.1 using the Excel sheet 'Profinet tags generator' which is provided by OMRON.

Required Hardware

This tutorial uses Siemens PLC 1200 (1214C), TIA software 15.1 and V430-F with Firmware version 2.1.



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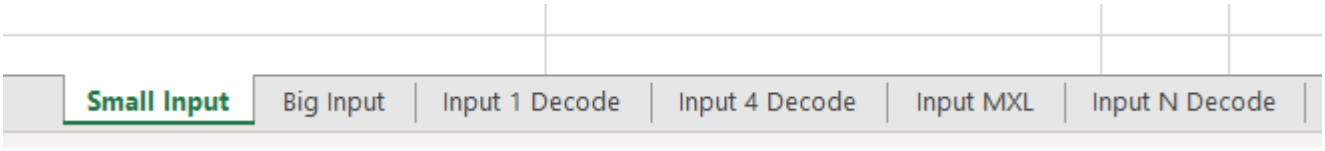
Overview

The EIP communication with the reader is done via Input and Output assemblies which are data structures that are defined in the communications manual of V430. Those data structures are composed of a set of variables which are the content of the cyclic data going back and forth between PLC and reader.
Since those data structures are long and every single byte and bit has specific meaning, it can be time consuming to define from scratch all required data types or Tag lists for using it in the TIA software. Therefore, OMRON provides Tags generator, to make it easier for users.

There are 6 separate sets of UDT file, which corresponds to 6 valid combinations of Input⇔Output assembly pairs:

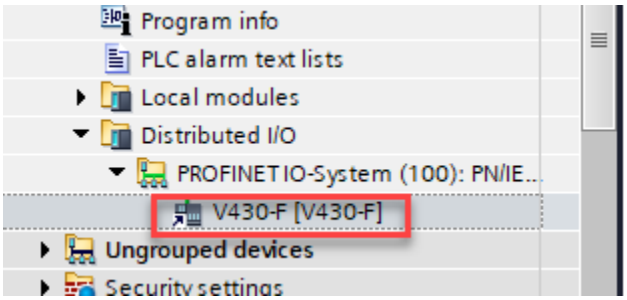
Possible combinations	Input Assembly name	ID Number	Output Assembly name	ID Number
1	Small Input	100	Output legacy	198
2	Big Input	101	Output legacy	198
3	MXL/SLC	102	Output premier	197
4	Input 1 decode	103	Output premier	197
5	Input 4 decode	104	Output premier	197
6	Input N decode	105	Output premier	197

For any V430 which is added to a PLC project, we can use only one of the 6 pairs above. In the provided Excel file there are several sheets. Each sheet is for using one pair from the above table. The user should use only the relevant sheet for the project, to fit the assemblies used in the project.



Setup procedure

1. In the TIA project, first we need to find the correct start address for each memory module in the input/output assemblies. Then we need to use these addresses to configure the Excel sheet generator. Address info we can find in the memory map. To view the memory map, double click on the V430 under Profinet I/O devices:



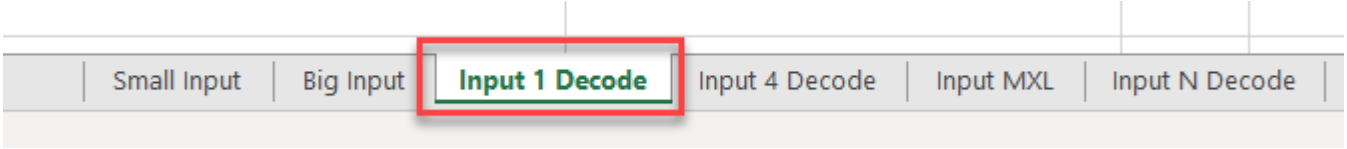
See our memory map in the screenshot below. It provides the memory addresses of all modules which we chose to use in this project. The 'I' column shows the Input modules and 'Q' column shows the Output modules. For every module there are always 2 given numbers: Start address and End address. We need to use the start address in our excel sheet configuration.

We can also see below that the used assembly pair in this project is:
Input 1 Decode assembly
Output premier assembly

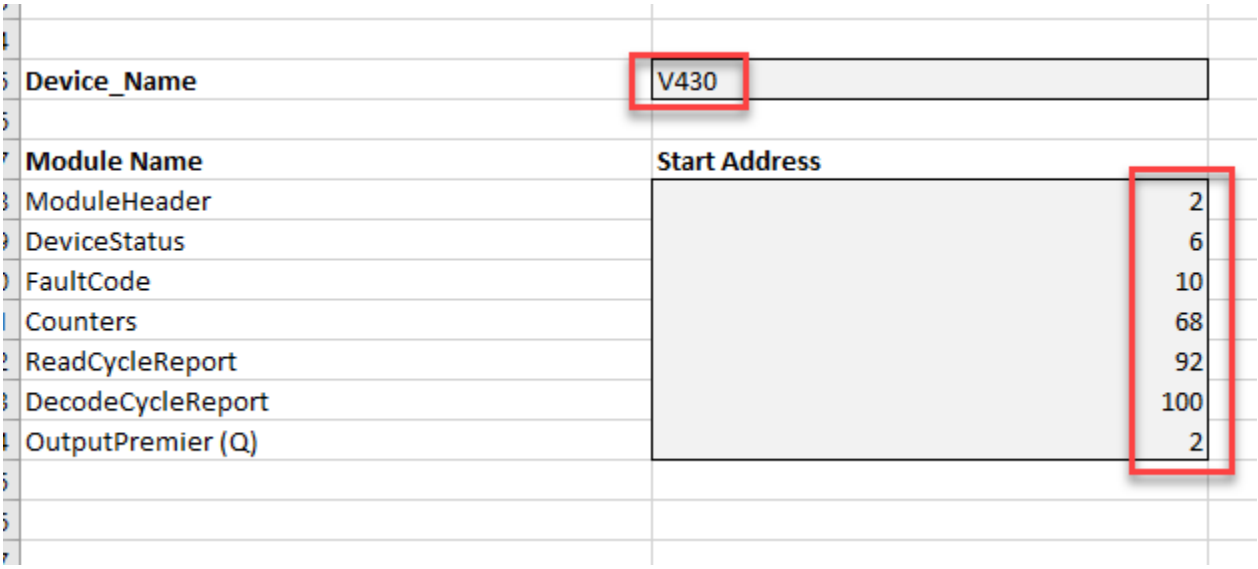
Device overview

Module	Rack	Slot	I address	Q address	Type	A...
V430-F	0	0			V430-F	V...
Interface	0	0 X1			V430-F	
Input 1 Decode_1	0	1			Input 1 Decode	
Module Header	0	1 24	2...5		Module Header	
Device Status	0	1 25	6...9		Device Status	
Fault Code	0	1 26	10...13		Fault Code	
Counters	0	1 27	68...91		Counters	
Read Cycle Report	0	1 28	92...99		Read Cycle Report	
Decode Cycle Report	0	1 29	100...555		Decode Cycle Report	
Output Premier_1	0	2			Output Premier	
Output Premier Comma...	0	2 48		2...5	Output Premier Commands	

2. In the excel sheet, open the relevant sheet:

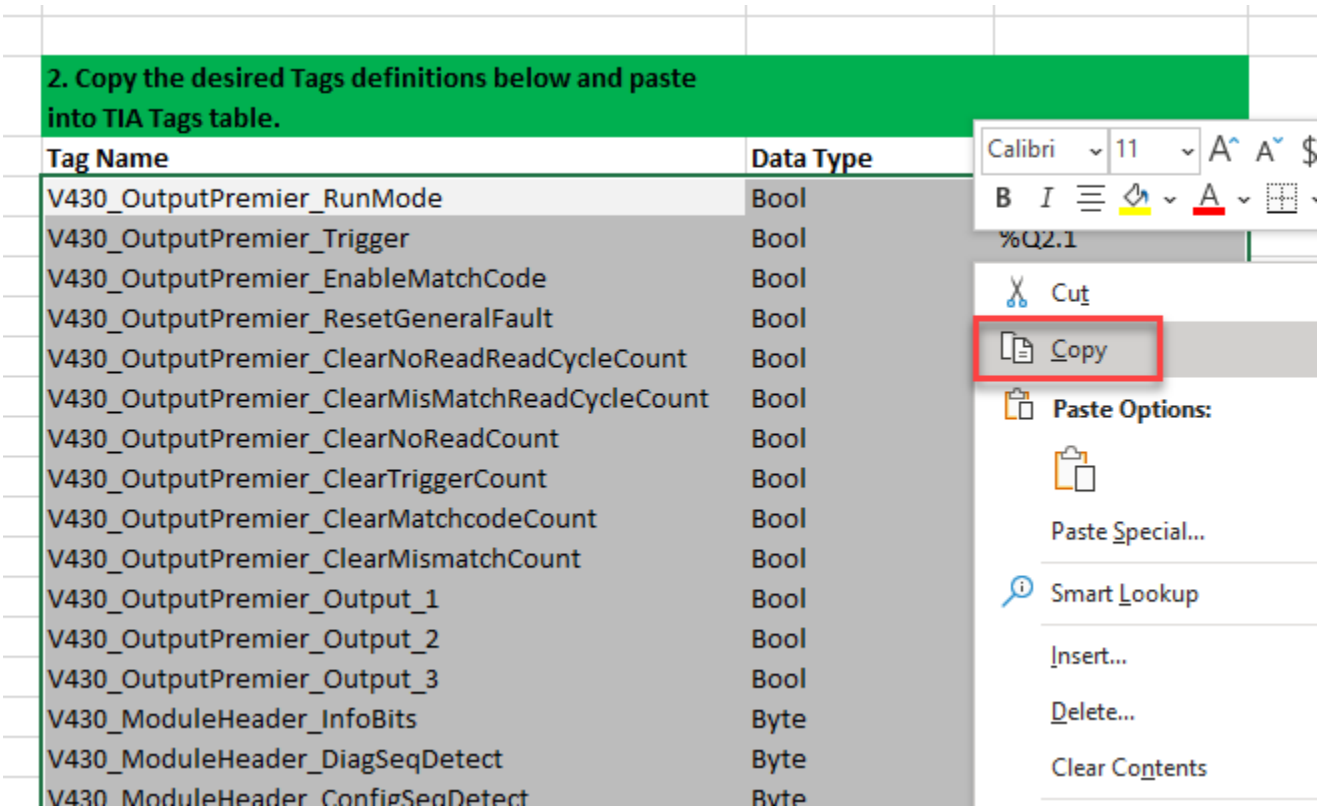


Then type any device name and copy all start addresses from the memory map in TIA to the correct column in the excel sheet:



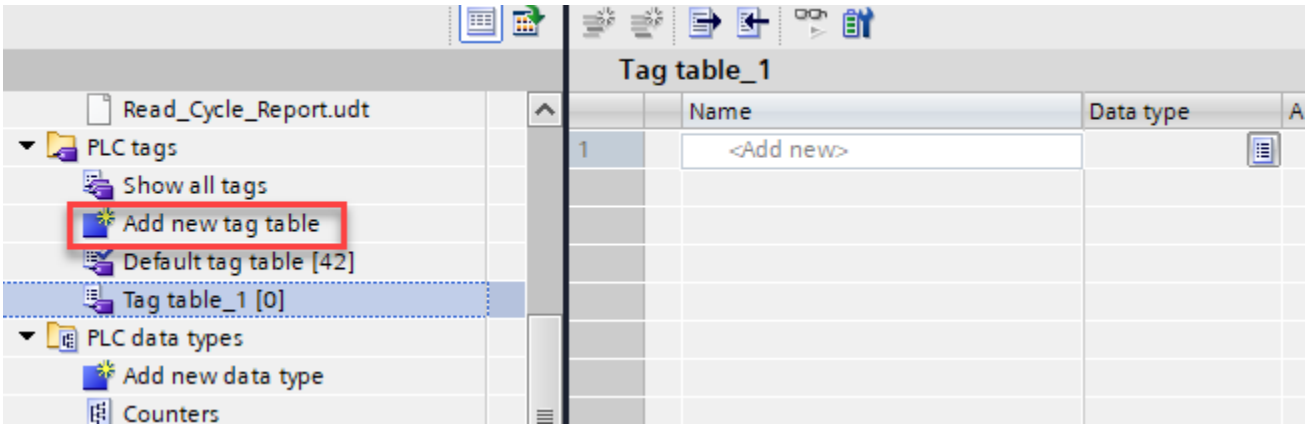
After typing all the start addresses correctly, the tags list on the right is updated automatically with the correct addresses and names. Now the 3 columns of the tag name, address and type are ready to be copied and pasted to the TIA project.

3. Copy the tags from the excel sheet table:

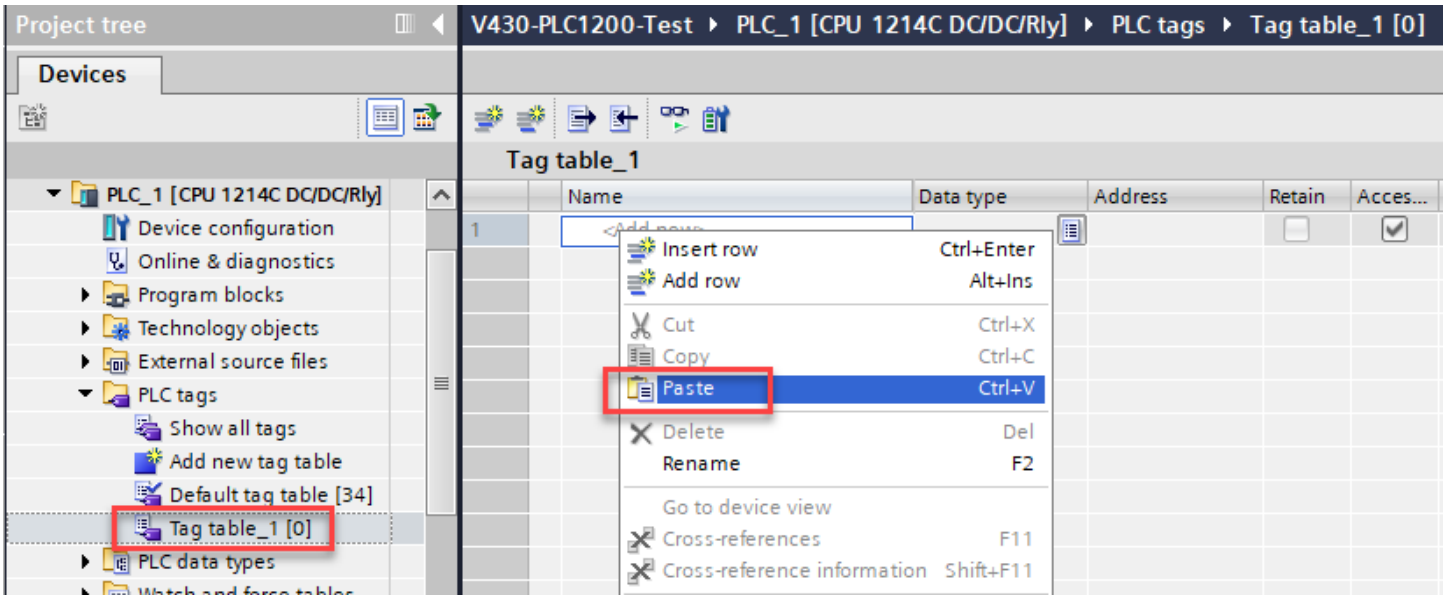


2. Copy the desired Tags definitions below and paste into TIA Tags table.	
Tag Name	**Data Type**
V430_OutputPremier_RunMode	Bool
V430_OutputPremier_Trigger	Bool
V430_OutputPremier_EnableMatchCode	Bool
V430_OutputPremier_ResetGeneralFault	Bool
V430_OutputPremier_ClearNoReadReadCycleCount	Bool
V430_OutputPremier_ClearMisMatchReadCycleCount	Bool
V430_OutputPremier_ClearNoReadCount	Bool
V430_OutputPremier_ClearTriggerCount	Bool
V430_OutputPremier_ClearMatchcodeCount	Bool
V430_OutputPremier_ClearMismatchCount	Bool
V430_OutputPremier_Output_1	Bool
V430_OutputPremier_Output_2	Bool
V430_OutputPremier_Output_3	Bool
V430_ModuleHeader_InfoBits	Byte
V430_ModuleHeader_DiagSeqDetect	Byte
V430_ModuleHeader_ConfigSeqDetect	Byte

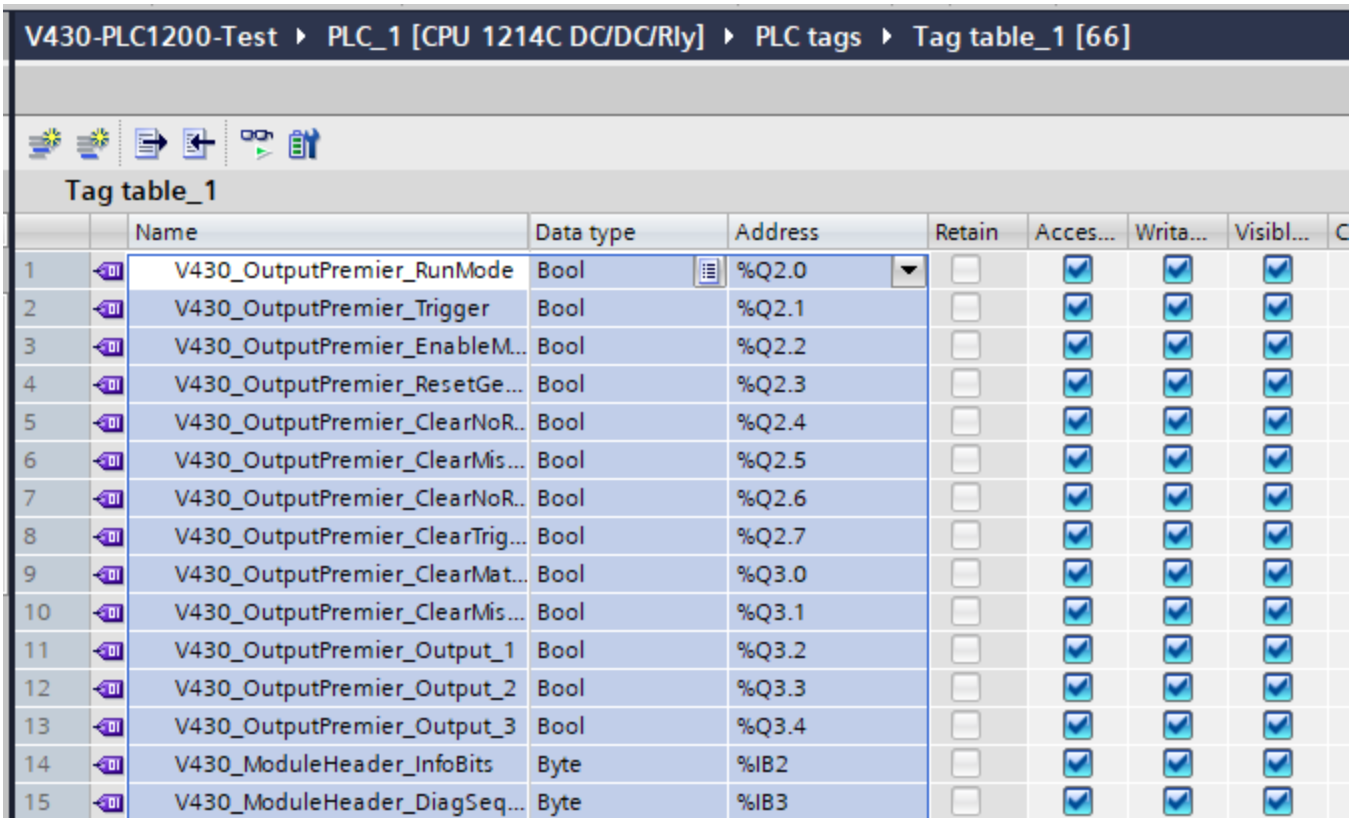
4. In TIA software, create a new PLC tags table by double click on ‘Add new tag table’:



5. Right click and paste the tags into the new tags table:



Now the tag table is populated with all tags and the corresponding addresses and types. They can be used anywhere in the program or in the watch window for accessing the V430 data.



	Name	Data type	Address	Retain	Acces...	Writa...	Visibl...
1	V430_OutputPremier_RunMode	Bool	%Q2.0				
2	V430_OutputPremier_Trigger	Bool	%Q2.1				
3	V430_OutputPremier_EnableM...	Bool	%Q2.2				
4	V430_OutputPremier_ResetGe...	Bool	%Q2.3				
5	V430_OutputPremier_ClearNoR...	Bool	%Q2.4				
6	V430_OutputPremier_ClearMis...	Bool	%Q2.5				
7	V430_OutputPremier_ClearNoR...	Bool	%Q2.6				
8	V430_OutputPremier_ClearTrig...	Bool	%Q2.7				
9	V430_OutputPremier_ClearMat...	Bool	%Q3.0				
10	V430_OutputPremier_ClearMis...	Bool	%Q3.1				
11	V430_OutputPremier_Output_1	Bool	%Q3.2				
12	V430_OutputPremier_Output_2	Bool	%Q3.3				
13	V430_OutputPremier_Output_3	Bool	%Q3.4				
14	V430_ModuleHeader_InfoBits	Byte	%IB2				
15	V430_ModuleHeader_DiagSeq...	Byte	%IB3				