

# TECHNICAL NOTE

**Maple Model(s)**

All HMC and MLC models  
Using Native Ladder  
programming

**Title**

MAPware-7000 Modbus Tag Converter Utility

**TN7015**

P/N: AW-09077015

Rev. 00 Date: 4/4/2019



## Summary

This document explains how to use the MAPware-7000 Modbus Tag Converter Utility. The tag converter utility will take an exported Native Ladder MAPware-7000 tag file and convert the register names to their Modbus Slave addresses in a format that can be imported into EBPro.

MAPware-7000 projects using IEC 61131-3 programming must assign Modbus addresses manually – this tech note is not applicable. See the Modbus Slave ([TCP/RTU](#)) controller info sheets or [Tech Note 7016 – Modbus Communication in MAPware-7000](#) for more information on IEC Modbus addressing.

## Solution

The conversion utility can be found in the Maple Systems Technical Support Center, under [Software Downloads & Upgrades](#). It is also installed with MAPware-7000 v2.35 March 2<sup>nd</sup>, 2019 release or later and is located in the *C:\MapleSystems\MAPware7000* directory. The utility converts the exported tag file from MAPware-7000 to an EBPro compatible format, while changing register names to their Modbus Slave equivalent address.

A screenshot of the Maple Systems website. The top navigation bar includes links for "Products &amp; Software", "Remote Access", "Technical Support", "Purchasing", and "Br Pr". The "Technical Support" link is highlighted, and a dropdown menu is open, listing "Contact Tech. Support", "Software Downloads &amp; Upgrades", "Manuals &amp; Guides", "Controller Info Sheets", "Controller Cables", "Technical Notes", and "Sample Projects". The main content area features a dark blue background with the text "MAPLE SYSTEMS Manuals &amp; Guides" and a list of categories: "▶ Programming Manuals", "▶ Installation Manuals", "▶ Operation Manuals", and "▶ Quick Start Guides". An image of several binder folders is visible in the background.

## Exporting tags from MAPware-7000:

When a new project is created in MAPware-7000, several default tags will be created. These tags, in addition to any user created tags, can be exported, converted, and accessed from a Maple Systems HMI using the Modbus protocol.

1. MAPware-7000 offers the option to export all tags at once or a selection of tags. To select specific tags to export, open the tag list folder and check the *[Export Tag]* box for all relevant tags.

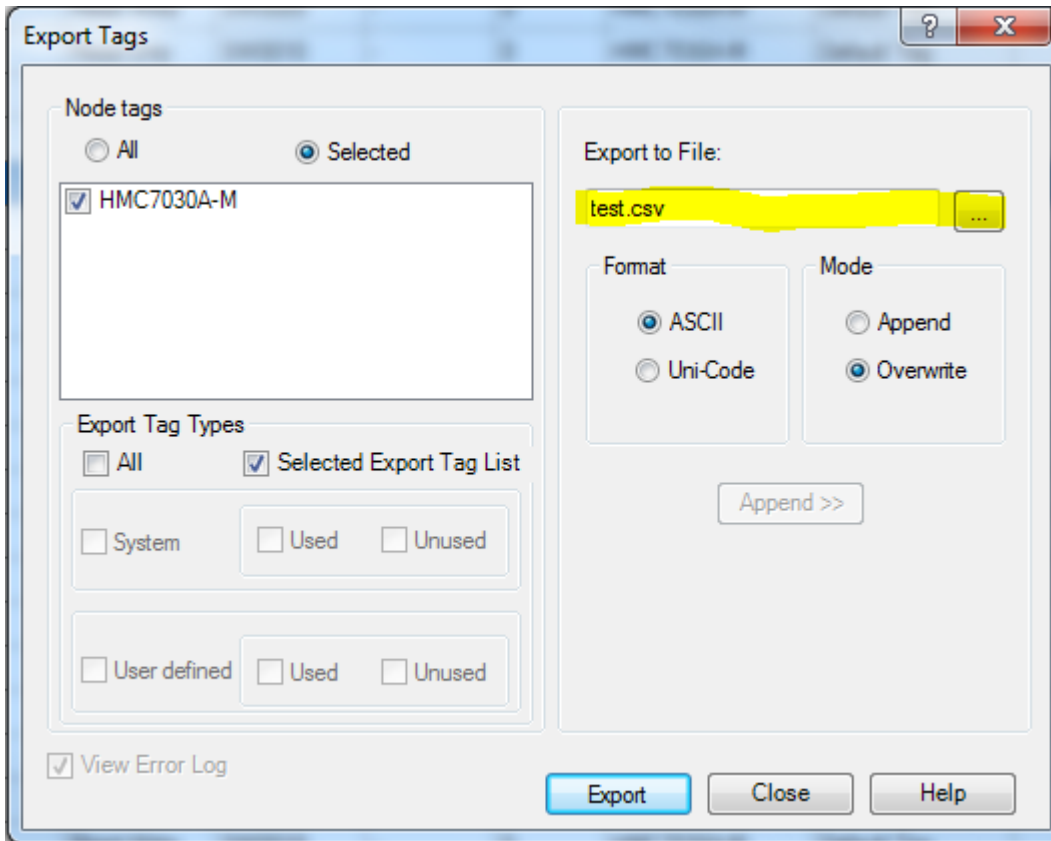
le	Node Name	Tag Category	Export Tag
	HMC7030A-M	Default Tag	<input type="checkbox"/>
	HMC7030A-M	Default Tag	<input checked="" type="checkbox"/>
	HMC7030A-M	Default Tag	<input type="checkbox"/>
	HMC7030A-M	Default Tag	<input type="checkbox"/>

2. Right click on any tag and select *[Export]* to open the tag export dialog.

?	Read Write	SW0001	-
bit	Read Only	SW0003_02	-
bit			
?			
?			
?			
?			
?			
?			
?			
?	Read Only	SW0017	-
bit	Read Write	S00000	-

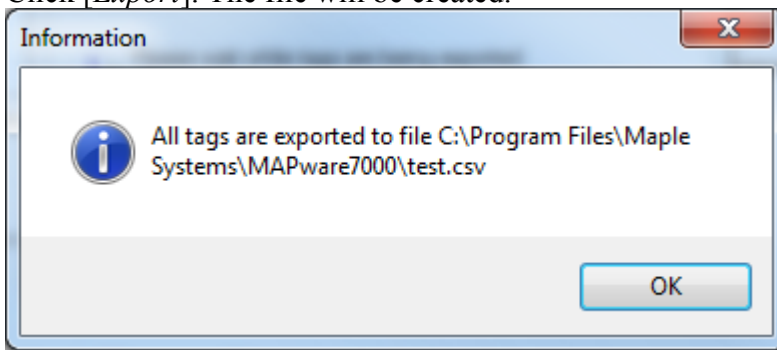
- Add...
- Edit...
- Delete
- Delete All Tags
- Find... Ctrl+F
- Import...
- Export...
- Clear Export Tag List
- Tag Usage...

3. Under export tag types, choosing *[All]* will export every tag in the project. *[Selected Export Tag List]* will export only the selected tags from above.



Make sure to set a filename and file location before exporting. Leaving the [Export to File] prompt at its default will result in a “test.csv” file being created in the base MAPware-7000 install directory.

4. Click [Export]. The file will be created.



**Note:** This may take several minutes depending on file size and MAPware-7000 may become unresponsive until the export is finished.

If using Modbus RTU, you will need to add the Modbus RTU Slave driver on the appropriate port (COM1 or COM2) in MAPware-7000. If using Modbus TCP/IP, the driver is support on COM3 (Ethernet) by default, and you will not need to configure a driver in MAPware-7000. Driver settings and Modbus addressing are described in the following HMC/MLC Modbus Controller Info Sheets:

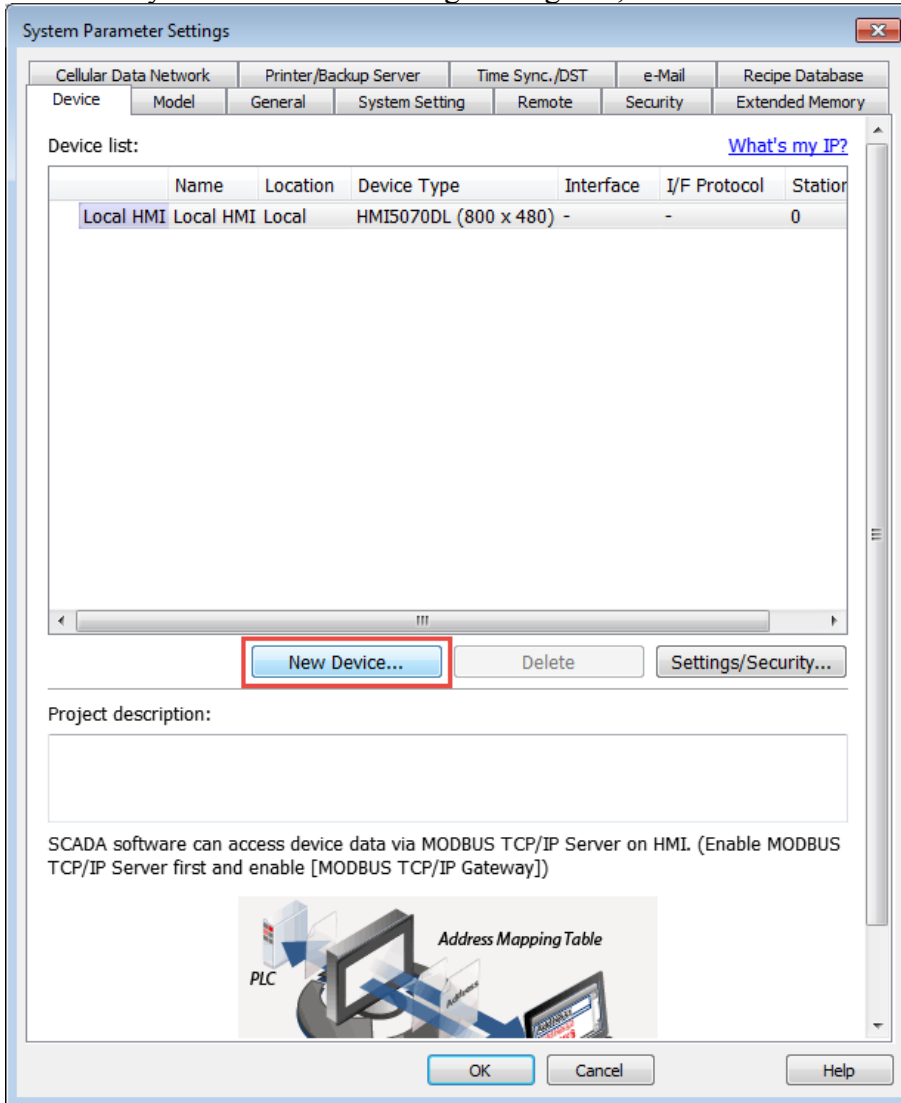
[Modbus RTU](#)

[Modbus TCP/IP](#)

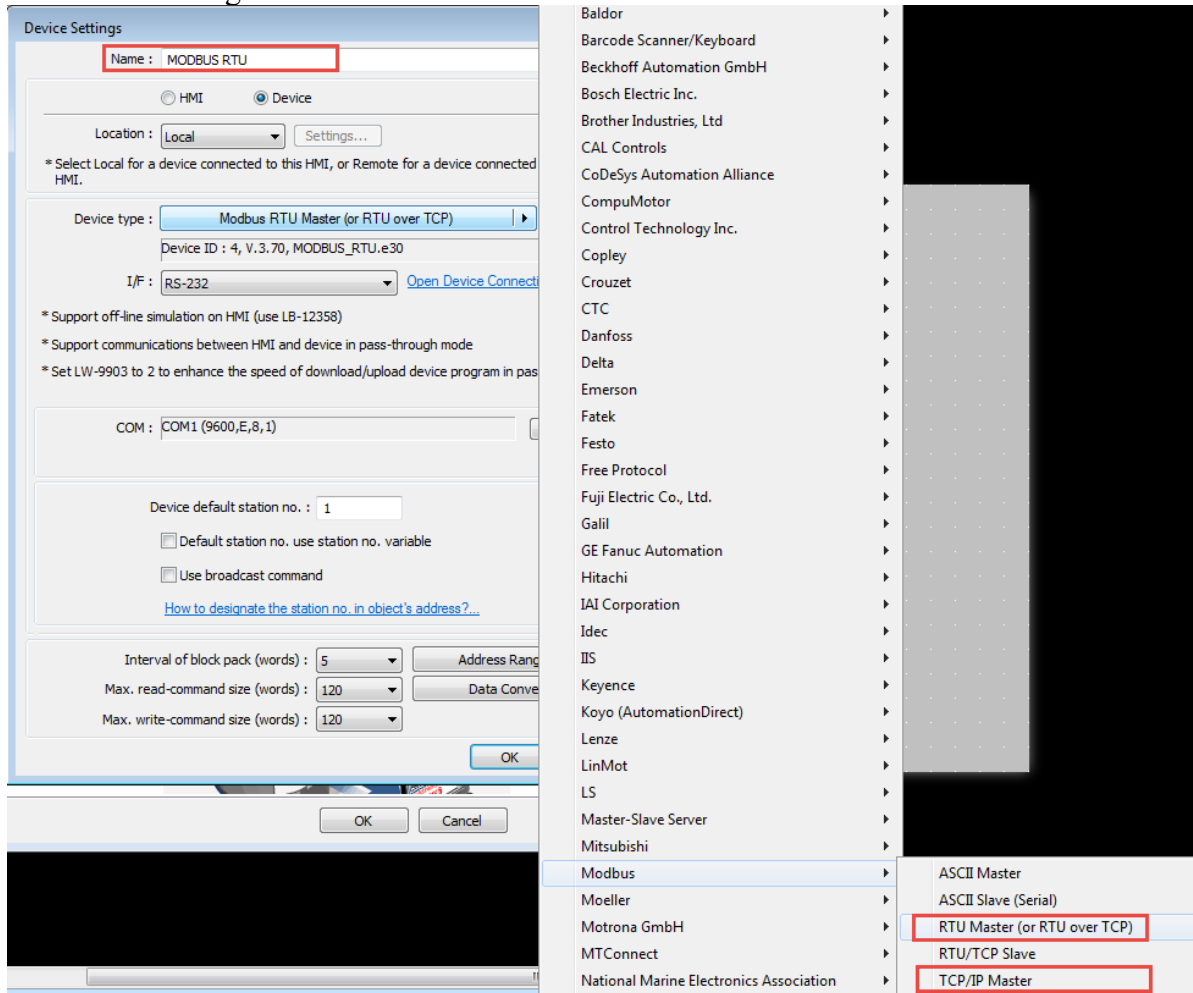
## Add the Modbus Driver in EBPro/EZwarePlus

This step can be skipped if you will not be importing tags into an EBPro project.

1. From the System Parameter Settings dialog box, select New Device.



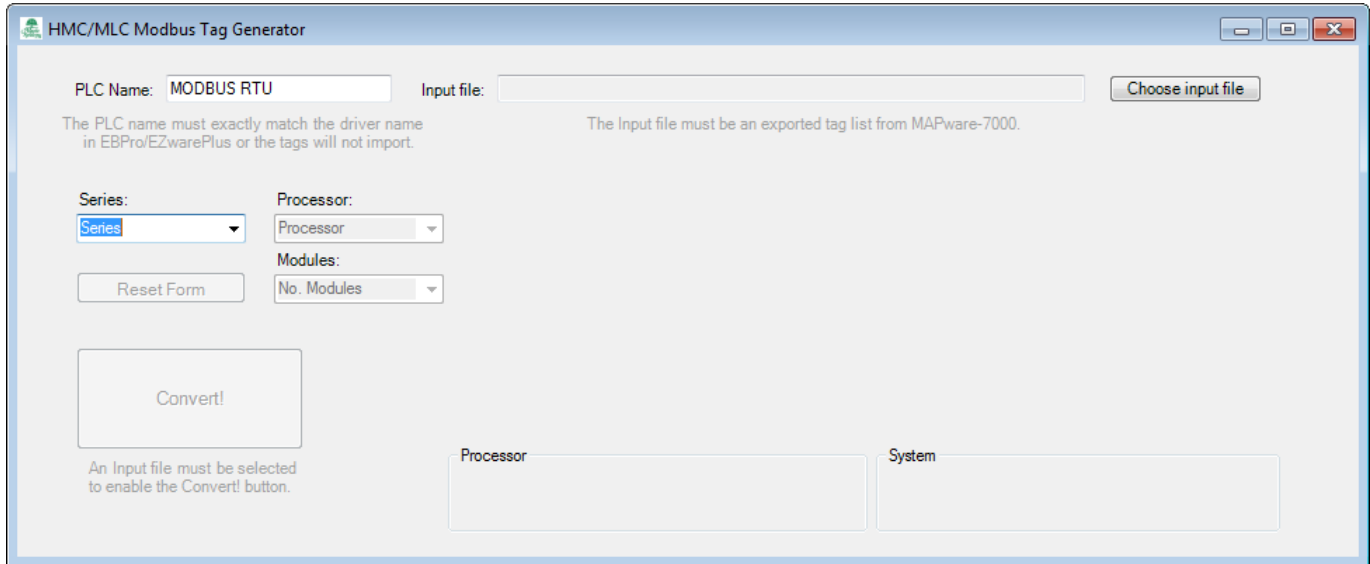
- Select either the Modbus RTU Master or Modbus TCP/IP Master driver, and take note of the PLC Name that is assigned



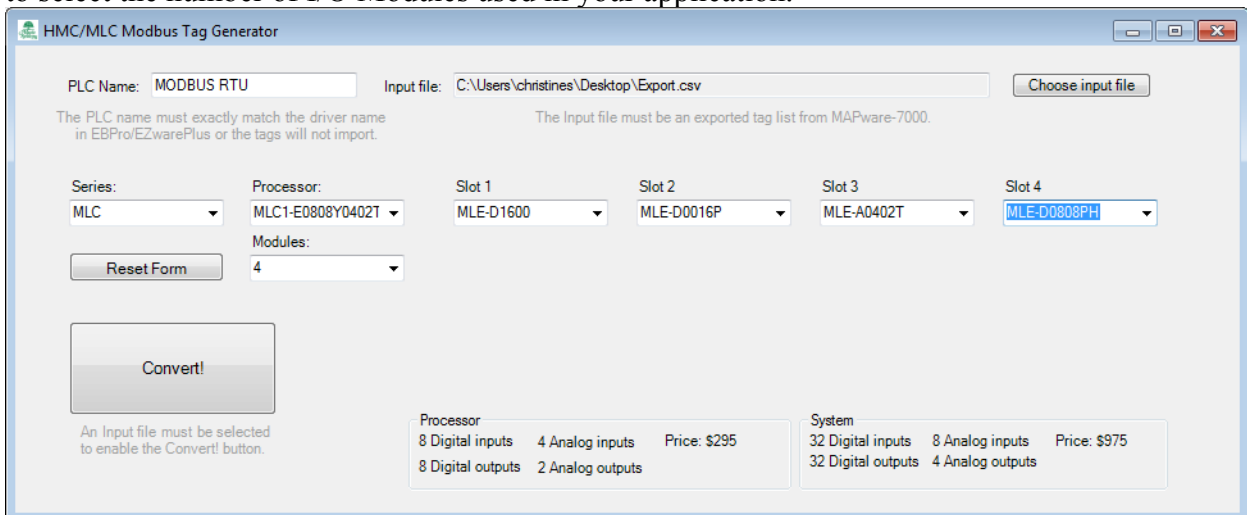
- Adjust the driver settings to match the MAPware-7000 settings assigned above. More information on each driver is available in the appropriate HMI Modbus Controller Info Sheet:

[Modbus RTU](#)  
[Modbus TCP/IP](#)

## Converting tags using the MAPware-7000 Tag Converter:

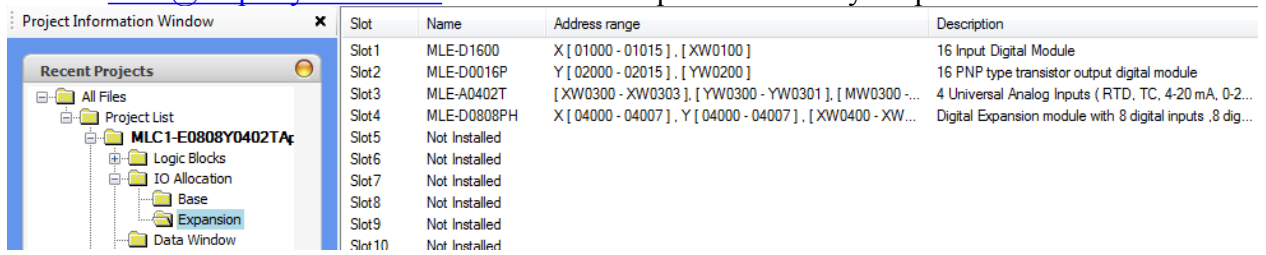


1. The [PLC Name] setting defaults to “MODBUS RTU” when the converter utility starts up. If you changed the device driver name in EBPro in the previous step, or selected the Modbus TCP/IP driver, you must update the [PLC Name] to match the EBPro driver name. If the [PLC Name] does not match the driver name in EBPro, the converted tag file will fail to import into EBPro in the next section.
2. Click [Choose input file] to open a file selection dialog. Select the file exported from MAPware-7000.
3. From the [Series] dropdown, select either MLC, HMC3, or HMC7. This will then populate the [Processor] dropdown selection box.
4. Select your [Processor]. If an EX-Series MLC processor has been selected, you will then be able to select the number of I/O Modules used in your application.



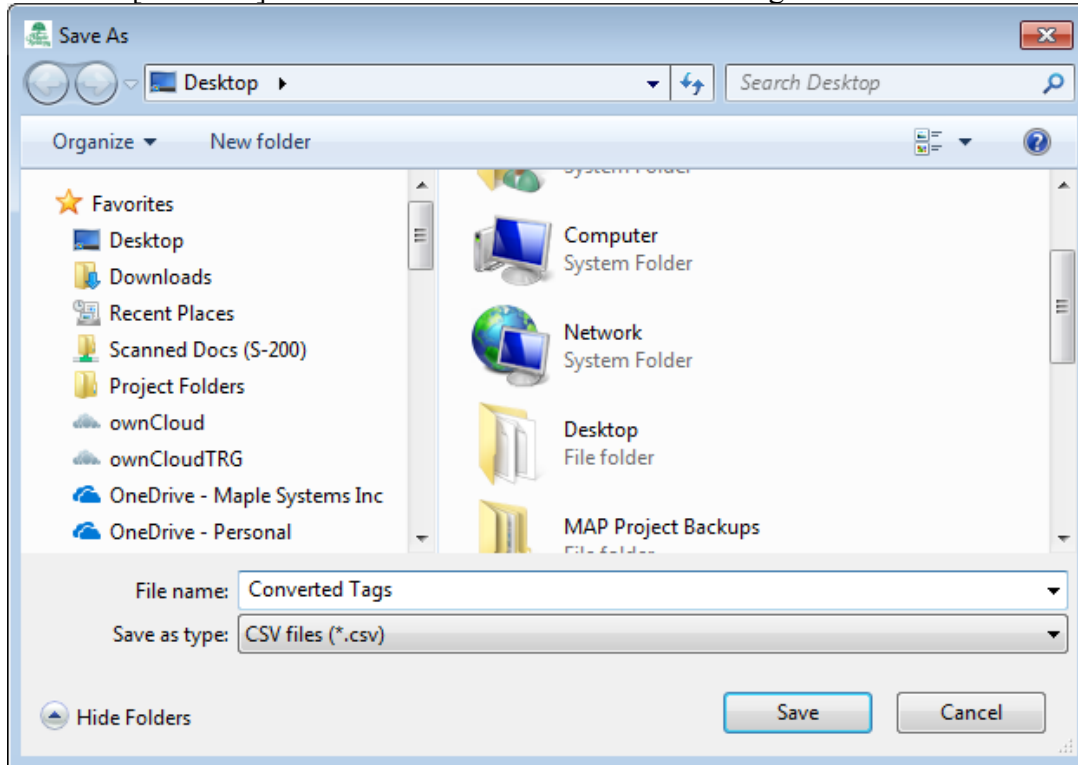
5. Select each I/O Module used in your application from the [Slot] dropdowns, in the same order they appear in your MAPware-7000 project. As each I/O Module is selected, the System description will update with the current amount of I/O and a running price total. Pricing may be out of date –

contact [sales@maplesystems.com](mailto:sales@maplesystems.com) for an accurate quote based on your product needs.

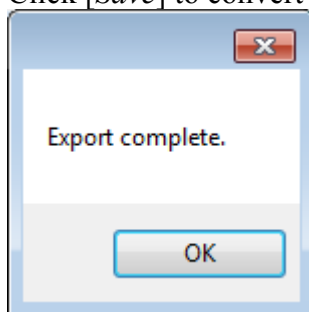


Slot	Name	Address range	Description
Slot1	MLE-D1600	X [01000 - 01015] , [XW0100]	16 Input Digital Module
Slot2	MLE-D0016P	Y [02000 - 02015] , [YW0200]	16 PNP type transistor output digital module
Slot3	MLE-A0402T	[XW0300 - XW0303] , [YW0300 - YW0301] , [MW0300 - ...	4 Universal Analog Inputs ( RTD, TC, 4-20 mA, 0-2...
Slot4	MLE-D0808PH	X [04000 - 04007] , Y [04000 - 04007] , [XW0400 - XW...	Digital Expansion module with 8 digital inputs .8 dig...
Slot5	Not Installed		
Slot6	Not Installed		
Slot7	Not Installed		
Slot8	Not Installed		
Slot9	Not Installed		
Slot10	Not Installed		

6. Click the [*Convert!*] button to select where the converted tag file will be saved.



7. Click [*Save*] to convert the file.



If the program gives an error opening the input or output file, check to see if either file is open in a different program.

8. The exported file is formatted to be imported into EBPro, but can also simply be used to look up the HMC/MLC Modbus slave addressing. The csv can also be edited by hand before importing into EBPro.

Acceleration Time Setting error	MODBUS RTU	4x_bit	6005304	Undefined
Deceleration Time Setting error	MODBUS RTU	4x_bit	6005305	Undefined
No of Total Pulses Setting error	MODBUS RTU	4x_bit	6005306	Undefined
End of Total Pulses Flag (CH2)	MODBUS RTU	4x_bit	6005307	Undefined
Trapezoidal Min Pulse Count Re	MODBUS RTU	4x_Double	60055	Undefined
Trapezoidal Min Pulse Count Re	MODBUS RTU	4x_Double	60057	Undefined
Analog Input CH2 Register	MODBUS RTU	4x_Double	40006	Undefined
Analog Input CH3 Register	MODBUS RTU	4x_Double	40008	Undefined
Analog Input CH2 Type	MODBUS RTU	4x	60088	Undefined
Analog Input CH3 Type	MODBUS RTU	4x	60089	Undefined
Analog_Output_CH1_Type	MODBUS RTU	4x	60090	Undefined
Analog_Output_CH1_Voltage_F	MODBUS RTU	4x	41004	Undefined
Analog_Output_CH1_Current_F	MODBUS RTU	4x	41005	Undefined
Baud_Rate_Com1	MODBUS RTU	4x	20240	Undefined
Parity_Com1	MODBUS RTU	4x	20241	Undefined
Data_Bits_Com1	MODBUS RTU	4x	20242	Undefined
Stop_Bits_Com1	MODBUS RTU	4x	20243	Undefined
Node_Address_Com1	MODBUS RTU	4x	20244	Undefined
Baud_Rate_Com2	MODBUS RTU	4x	20245	Undefined
Parity_Com2	MODBUS RTU	4x	20246	Undefined
Data_Bits_Com2	MODBUS RTU	4x	20247	Undefined
Stop_Bits_Com2	MODBUS RTU	4x	20248	Undefined
Node_Address_Com2	MODBUS RTU	4x	20249	Undefined
Initialize__Port_Com1	MODBUS RTU	0x	20093	Undefined
Initialize__Port_Com2	MODBUS RTU	0x	20094	Undefined
Slot1_InputReg_00000	MODBUS RTU	4x	40011	Undefined
Slot1_InputCoil_00000	MODBUS RTU	4x_bit	4001100	Undefined

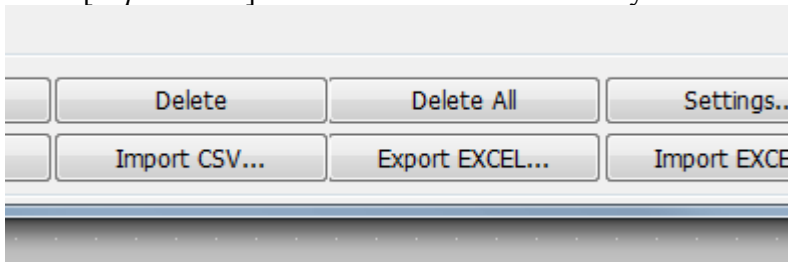


## Importing tags into EBPro:

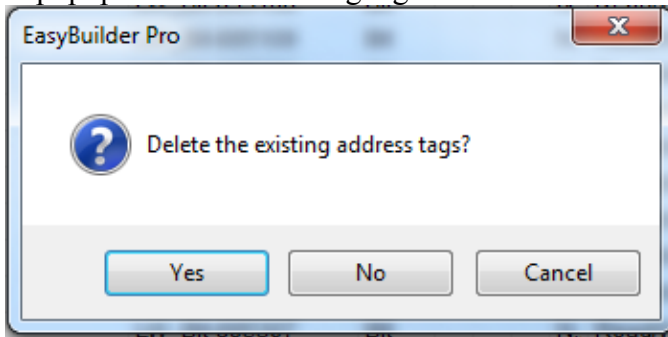
1. In EBPro, open the address library from the [Project] tab.



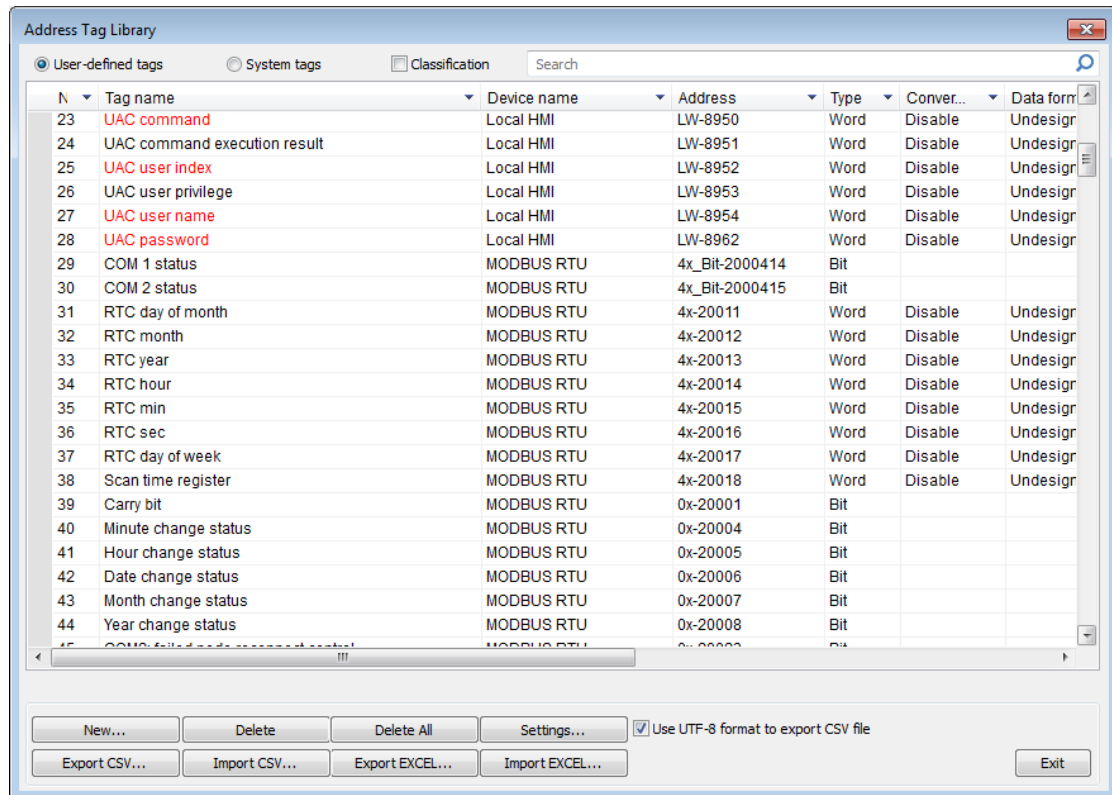
2. Click [Import CSV] and choose the file created by the converter utility.



3. A popup will ask if existing tags should be deleted.



- a. If existing tags are erased, windows 70-74 (preconfigured security windows) will need to be manually deleted. Select [No] if you are planning to use these windows, or export the predefined UAC (User Account Control) tags and reimport them later if needed.
- b. If changes have been made to tags, they can be re-imported and existing objects using tags will be unaffected. In this case, make sure select [Yes] to delete existing tags to avoid duplicate tags.



Tags in red have been assigned to objects in your EBPro project.

### Additional Notes:

- This document gives instructions on importing MAPware-7000 tags into EBPro. This procedure will also work with EZwarePlus, though accessing the address library is done from the *Library* menu instead of the *Project* menu.
- Pricing displayed in the utility may be out of date. Please check the [maplesystems.com](http://maplesystems.com) website or contact [sales@maplesystems.com](mailto:sales@maplesystems.com) for current pricing.
- IEC-61131-3 programming mode allows custom Modbus addresses to be used for tags. Instructions for assigning Modbus addresses are available on page 17 of the [MAPware7000 IEC-61131-3 Programming Manual](#).

## Additional Documentation:

### Modbus RTU Documentation

1. Modbus RTU HMI Master CIS  
<https://www.maplesystems.com/1036/10360045.pdf>
2. Modbus RTU HMC/MLC Slave CIS  
<https://www.maplesystems.com/1038/10380061.pdf>
3. HMI to MLC Serial Cable Drawings (7446-0215-5 and 7444-0215-5)  
<http://www.maplesystems.com/1026/10260215.pdf>  
<http://www.maplesystems.com/1024/10240215.pdf>

### Modbus TCP/IP Documentation

1. Modbus TCP HMI Master CIS  
<https://www.maplesystems.com/1036/10360081.pdf>
2. Modbus TCP HMC/MLC Slave CIS  
<https://www.maplesystems.com/1038/10380128.pdf>

### MAPware-7000 Documentation

1. MAPware-7000 Programming Manual  
<https://www.maplesystems.com/ftp/iis1viii2xii/mapware-7000-programming-manual.pdf>
2. MLC Series PLC Programming Manual & Installation Guide  
<https://www.maplesystems.com/ftp/mlc-series-plc-programming-manual-&-installation-guide.pdf>
3. Native Ladder Logic Guide for MAPware-7000  
<https://www.maplesystems.com/ftp/ladder-logic-guide-for-the-hmc7000-series.pdf>
4. IEC61131-3 Programming Guide for MAPware-7000  
<https://www.maplesystems.com/ftp/iec-61131-3-programming-guide-for-mapware-7000.pdf>
5. MAPware-7000 Getting Started Guide  
<https://www.maplesystems.com/ftp/iis1viii2xii/MAPware7000StartedGuide10101057rev00.pdf>

### I/O Module Guides

1. MLC Series  
<https://www.maplesystems.com/ftp/io-module-guide-for-the-mlc-series.pdf>
2. HMC3000 Series  
<https://www.maplesystems.com/ftp/iis1viii2xii/io-module-guide-for-the-hmc3000-series.pdf>
3. HMC7000 Series  
<https://www.maplesystems.com/ftp/iis1viii2xii/io-module-guide-for-the-hmc7000-series.pdf>