

How to change Data Types for I/O Scanning in Device DDT's

Revision 00

Feb. 6, 2018

Purpose: To provide information to Unity users on how they can change data types for the NOC Device DDT in "I/O Scanning" in an M580 PAC system. Customers creating a new "I/O Scanner table" for a Unity M580 project that they are creating may want data types other than Byte or String array variables that are available by default.

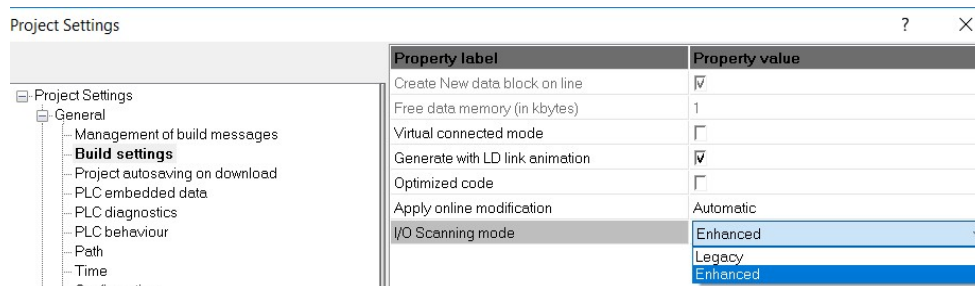
Omissions: This document is not providing details on how to add a BMXNOCxxxxx Ethernet module, navigate within the Device DDT or add a Modbus Device. Its purpose is to inform users on how to edit the data type of the Modbus Device in the Device DDT that they have already created.

How To Create "I/O Scanner" entries other than Byte/ String: There are two methods that can be used to change the array variable data type that is used in the Device DDT for "I/O Scanning".

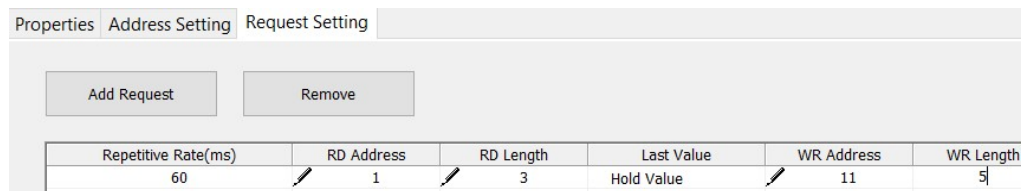
Automatic Data Type of INT: This method will automatically assign data type INT to the variables created for the Device DDT entries.

NOTE: Make this project setting change prior to entering the Device DDT entries. Any entries made prior to changing this setting will be lost.

1. Go to Tools => Project Settings => General => Build Settings. Select I/O Scanning Mode from Legacy to Enhanced.



2. Open the DTM Browser and ADD a Modbus Device.
3. Open the newly entered Modbus Device and Add a Request and enter the I/O Scanner Input and Output register references.



4. View the Unlocated variable that was created for the I/O Scanner entry.

| | | |
|---------------|---------------------|--------------------------------|
| Modbus_Device | T_Modbus_Device | |
| Freshness | BOOL | Global Freshness |
| Freshness_1 | BOOL | Freshness of Object |
| Inputs | T_Modbus_Device_IN | Input Variables |
| Free | ARRAY[0..2] OF INT | Unused Variable |
| Free[0] | INT | Start index for 1st Connection |
| Free[1] | INT | |
| Free[2] | INT | |
| Outputs | T_Modbus_Device_OUT | Output Variables |
| Free | ARRAY[0..4] OF INT | Unused Variable |
| Free[0] | INT | Start index for 1st Connection |
| Free[1] | INT | |
| Free[2] | INT | |
| Free[3] | INT | |
| Free[4] | INT | |

Manual Data Type selection: The I/O Scanning Mode setting is left as the default setting of Legacy.

This method allows the user to expose additional data types by manually grouping Offset/ Device rows. By default, no Offset/ Device rows are grouped. This has the data type entries as 8 bit, the only selection is the default Byte/ String for the Input and tab Output selections

1. Open the DTM Browser and ADD a Modbus Device.
2. Open the newly entered Modbus Device and Add a Request and enter the I/O Scanner Input and Output register references. **Read length of 3 and write length of 5.**

Properties Address Setting Request Setting

Add Request Remove

| Repetitive Rate(ms) | RD Address | RD Length | Last Value | WR Address | WR Length |
|---------------------|------------|-----------|------------|------------|-----------|
| 60 | 101 | 3 | Hold Value | 111 | 5 |

3. Open the Modbus Device Request that was just created.

Channel Properties

- Switch
- TCP/IP
- Services
 - Address Server
 - SNMP
 - RSTP
 - QoS
 - Service Port
- Security
- EtherNet/IP Local Slaves
- Device List
 - [001] Modbus_Device <MDE
 - Request 001: Items

Input Input (bit) Output Output (bit)

| Offset/Device | Offset/Connection | Item Name |
|----------------------------|-------------------|-----------|
| <input type="checkbox"/> 0 | 0 | 0 |
| <input type="checkbox"/> 1 | 1 | 1 |
| <input type="checkbox"/> 2 | 2 | 2 |
| <input type="checkbox"/> 3 | 3 | 3 |
| <input type="checkbox"/> 4 | 4 | 4 |
| <input type="checkbox"/> 5 | 5 | 5 |

Select a region and click on the "Define Item(s)" button to create

4. The Input tab is selected, the default is having independent rows of 8 bit data types>, this can be seen by selecting Define Item(s) then New Items Data Type.

| Input | Input (bit) | Output | Output (bit) |
|--------------------------|-------------|--------|--------------|
| <input type="checkbox"/> | 0 | | 0 |
| <input type="checkbox"/> | 1 | | 1 |
| <input type="checkbox"/> | 2 | | 2 |
| <input type="checkbox"/> | 3 | | 3 |

Item Name Definition

New Item(s) Data Type:

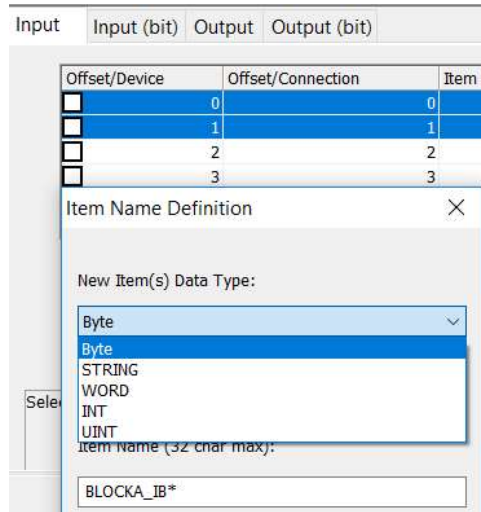
Byte

Byte

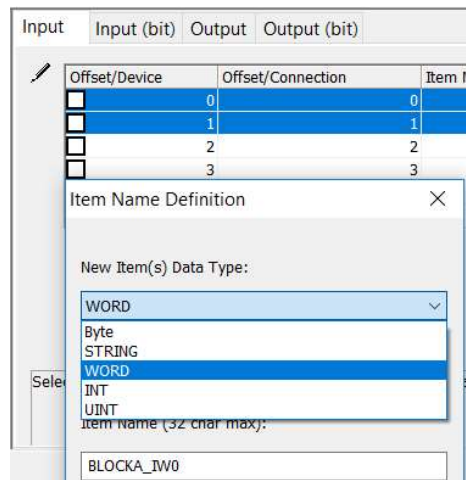
STRING

SelectOne or Several Single Item(s)

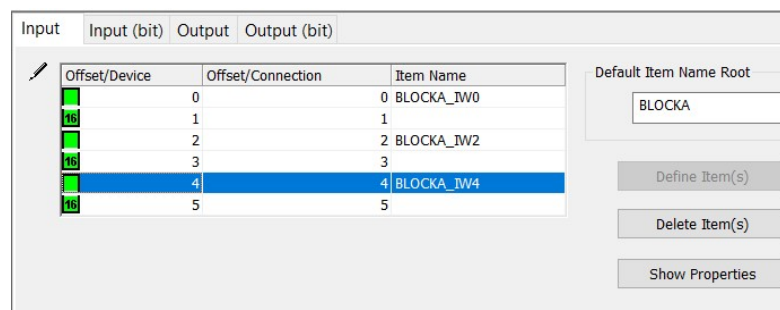
5. Here I have selected two rows to be grouped to have 16 bit data types available.














6. I have selected data type word for this presentation.



7. Each grouping needs to be manually selected and the data type defined (all WORD for this example) to have the all 3 WORDS for the Inputs (6 bytes) available in the structure.



| Name | Ad... | Type | Comment |
|---|-------|---------------------|---------------------|
|  BMENOC0301_2 | | T_BMENOC0301_2 | |
|  BMEP58_ECPU_EXT | | T_BMEP58_ECPU_EXT | |
|  Modbus_Device | | T_Modbus_Device | |
|  Freshness | | BOOL | Global Freshness |
|  Freshness_1 | | BOOL | Freshness of Object |
|  Inputs | | T_Modbus_Device_IN | Input Variables |
|  BLOCKA_IW0 | | WORD | |
|  BLOCKA_IW2 | | WORD | |
|  BLOCKA_IW4 | | WORD | |
|  Free0 | | ARRAY[0..1] OF BYTE | Unused Variable |
|  Outputs | | T_Modbus_Device_OUT | Output Variables |