# Ethernet/IP Tag Server

The **Ethernet/IP Tag Server** enables devices that implement EIP Tag Client services (such as HMI workstations) to access data in CTI controllers by tag name.

The Ethernet/IP Tag Server is configured in the Fieldbus IO Drivers editor. To open the editor, click on the **Open Fieldbus** 🔧 button on the Main Toolbar. The configuration is presented in a tree structure as illustrated below.
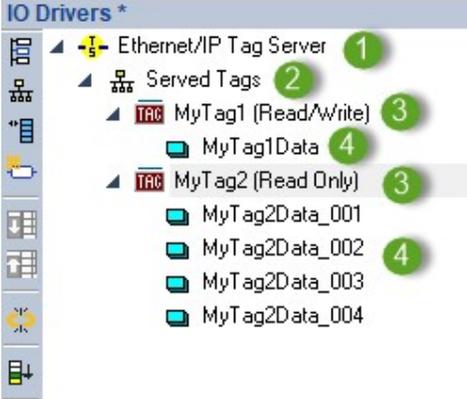
1.Ethernet/IP Tag Server This object represents the protocol being configured.

2. Served Tags: This object acts a parent to all configured tags. Only one Served Tags object is allowed.

3. Tag: This object represents a single Tag Name. Multiple data elements can be associated with a tag.

4. Variables: These objects allow you to assign one or more project variables to a particular tag.

Configuration

The following illustrates the steps involved in configuring the tag server:

1. Click on the **Insert Configuration** toolbar button 🔧 , which will open the **Add Configuration** dialog box. and select the **Ethernet/IP Tag Server** protocol from the list that is displayed in the dialog box. Click on the `CTI 2500P-ACP1`or `CTI Janus Controllers` item, depending on the CTI product your application is going to run on, then, select the `Ethernet/IP Tag Server`configuration and click on the `OK` button.

2. Select the **Ethernet/IP Tag Server** object, then click on the **Insert Master Port** toolbar button 🔧. This will add the **Served Tags** object. There are no parameters for this object. ***NOTE: Only one Served Tags object is allowed.***

3. Select the **Served Tags** object and click on the **Insert Slave/Data Block** toolbar button 🔧. This will insert a Slave/Data block and open the dialog box shown below.
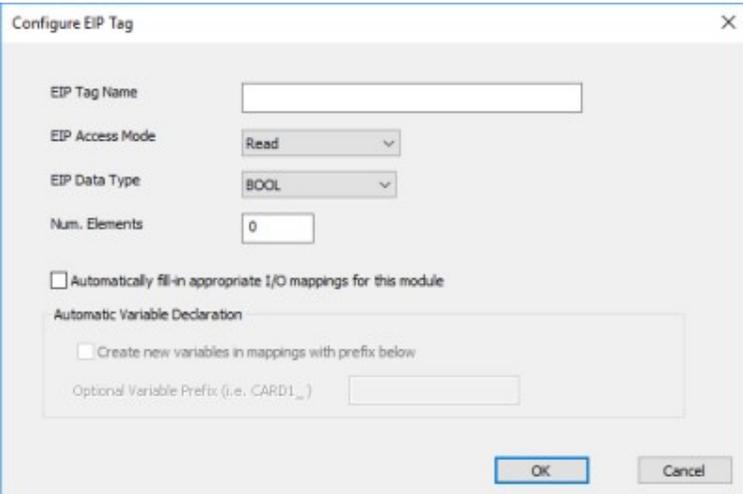
EIP Tag Name: Enter the name you wish to assign to the tag. The maximum tag name size is 80 characters.
EIP Access Mode: Select **Read** if you wish to restrict access to read only or select **Read/Write** if you want to allow the client also to modify the data value.
EIP Data Type: Select one of the available data types. For compatibility, the data types are limited to those supported by Rockwell Logix controllers (BOOL, SINT, INT, DINT, REAL, and DWORD. When selecting

DWORD, you can choose whether you want to assign the tag to a 32 bit value or as a bit array.
Num. Elements: A tag can represent a single value or an array of values. Enter the number of elements that will be contained in the tag.
Automatically Fill-in I/O Mappings: Checking this box will cause variables to be automatically created when you click on the OK button. This can save some time when you are mapping to multiple tag elements.
**Create new variable in mappings with prefix below:**This check box is enabled when you check the previous box. It allows you to specify a prefix for the variable names. Variables will be created with names that concatenate the prefix with a number that is incremented by one for each element. (e.g. prefix001, prefix002, ...).

⚠ Attention

The maximum number of elements depends on the data type of the tag. The maximum number of bytes that can be read or written for a tag is 2000 bytes. For tags with 32-bit data types (DINT or REAL), which require 4 bytes per element, this allows an array of 500 elements to be configured.

Manually Mapping Variables to Tags

If you did not choose to automatically fill in I/O mappings, you must manually assign a variable to each data tag element. You can accomplish this by dragging a variable from the Variables pane to the Tag or clicking on the **Insert Variables** 🔲 button on the local toolbar. In either case, the following dialog box will be displayed.
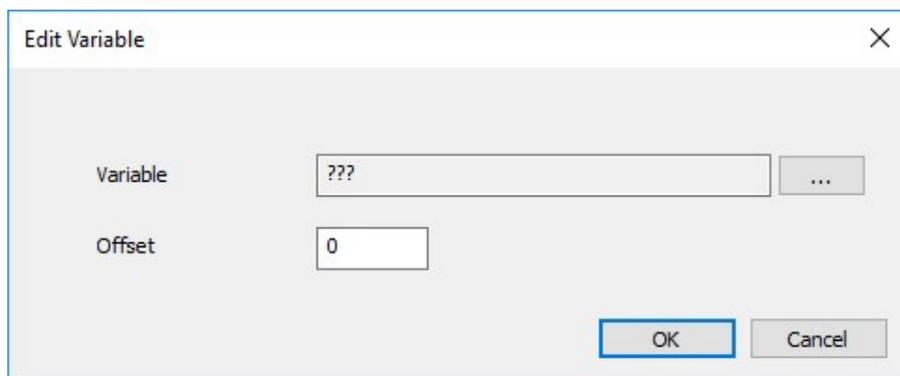
Variable: If you used the "drag and drop" method, this will display the name of the variable. Otherwise, you must select a variable using the browse button. The browse button also allows you to create a new variable.

Offset: The Offset parameter specifies the element offset within the Tag. The first element of a tag will have an offset of 0. For a Tag with a type of DWORD (bit array)) you will also need to enter a bit position in the I/O Drivers Symbol pane.

⚠ Attention

- If you don't assign a variable to every element of a tag, those elements without an assigned variable will return a 0 when read by a client. An error will be returned if you attempt to write to a element that does not have an assigned variable.

CIP Error Status Codes

The server may return the following error codes to the client,

Read Tag Status Codes

General Status	Extended Status	Comments
0x00 (0)	0x0000 (0)	Service was successfully performed,.
0x05 (5)	0x0000 (0)	Request path destination is unknown. This usually indicates the specified tag does not exist.
0x04 (4)	0x0000 (0)	Syntax error in decoding network path

0x08 (8)	0x0000 (0)	Service not supported. The requested service is not currently implemented in the server.
0x28 (40)	0x0000 (0)	Member ID invalid. The array element specified in the request exceeds the number of elements in the tag.
0x1F (31)	0xFFFF (-1)	Passed parameter error. For example, number of elements in a tag was set to 0.
0x1F (31)	0xFFFC (-4)	Data size error. There is not enough space for the request.
0xFF (255)	0x2107 (8455)	Data type of tag is invalid or not supported.

Write Tag Status Codes

General Status	Extended Status	Comments
0x00 (0)	0x0000 (0)	Service was successfully performed,.
0x04 (4)	0x0000 (0)	Syntax error in decoding network path
0x05 (5)	0x0000 (0)	Request path destination is unknown. This usually indicates that the specified Tag Name, Data Type, or Element number does not exist.
0x08 (8)	0x0000 (0)	Service not supported. The requested service is not currently implemented in the server.
0x28 (40)	0x0000 (0)	Member ID invalid. The array element specified in the request exceeds the number of elements in the tag or if a non-zero value is written to an unmapped tag element.
0x29 (41)	0x0000 (0)	Member is not settable. A request was received to write to a "read "Only" tag.
0x1F (31)	0xFFFF (-1)	Passed parameter error. For example, number of elements in a tag was set to 0.
0x1F (31)	0xFFFC (-4)	Data size error. There is not enough space for the request.
0xFF (255)	0x2107 (8455)	Data type of tag is invalid or not supported.

See the CIP Status Codes help topic for a comprehensive list of Ethernet/IP response codes.

CTI Product Support

CTI Janus Controllers

CTI JACP Module