

5.9 ABLOGIX IO Server

5.9.1 Introduction

ABLogix IO server is used to communicate with Allen Bradley Logix Series PLCs on the Ethernet link or on the Serial link (in DF1 protocol).

- It allows the eWON to poll ABLOGIX PLCs to read data.
- It allows the eWON to act as EIP-DF1 gateway for remote maintenance of the ABLOGIX PLCs.
- It allows the eWON to poll DH+ device using ControlLogix gateway.

eWON only allows DF1 communication with devices directly connected to the eWON Serial link (the ABLOGIX PLC may not be located behind another PLC connected on the DF1 serial link acting itself as gateway).

note: Please check in the “Rockwell compatibility matrix” on page 192 if your device is supported.

5.9.2 Setup

IO Server: ABLOGIX <input type="button" value="Edit"/> <input type="button" value="Clear"/> <input type="button" value="Init"/>		Global Config		25/02/2008 17:48:44
LOGIX 5000 IO Server settings (This IO server configures interface with AB LOGIX 5000 devices)				
COM Setup (Duplicate of DF1 IO server)				
Baud Rate:	<input type="text" value="9600"/>	Default: 9600		
Parity:	<input type="text" value="None"/>	Default: NO		
Stop Bit(s):	<input type="text" value="1"/>	Default: 1		
Frame Error Detection:	<input type="text" value="CRC"/>	Default: CRC		
HW Mode:	<input type="text" value="Full Duplex NO Handshaking"/>	Default: Full Duplex		
Master response timeout:	<input type="text" value=""/> MS	20..60000, default: 1000		
Rx message timeout:	<input type="text" value=""/> MS	1000..60000, default: 3000		
Tx message timeout:	<input type="text" value=""/> MS	1000..60000, default: 3000		
eWON DF1 Address	<input type="text" value=""/>	Device address of eWON on DF1 link (0..254, default: 4)		
Destination DF1 Address	<input type="text" value=""/>	Device address of destination on DF1 link when EIP is used (0..254, default: 1)		
Topic A : <input checked="" type="checkbox"/> Enabled				
Topic Name:	A			
Global Device Address:	<input type="text" value=""/>	IP Address[,Port Address, Link Address]		
Poll Rate	<input type="text" value=""/> MS	Default: 2000		
Topic B : <input checked="" type="checkbox"/> Enabled				
Topic Name:	B			
Global Device Address:	<input type="text" value=""/>	IP Address[,Port Address, Link Address]		
Poll Rate	<input type="text" value=""/> MS	Default: 2000		
Topic C : <input checked="" type="checkbox"/> Enabled				
Topic Name:	C			
Global Device Address:	<input type="text" value=""/>	IP Address[,Port Address, Link Address]		
Poll Rate	<input type="text" value=""/> MS	Default: 2000		
<input type="button" value="Update Config"/>		<input type="button" value="Cancel"/>		

Figure 82: ABLOGIX IO server setup window

5.9.2.1 Communication Setup

In the current implementation, the serial link configuration may be done using the DF1 IO Server configuration page or the AB LOGIX IO server page.

The same settings apply for both IO servers (DF1 and ABLogix).

note: In the config.txt file the serial link parameters are defined in the DF1 IO server entry.

Baud Rate	Select the Baudrate from 1200 to 38400 Bauds
Parity	The parity to apply: none / odd / even
Stop Bit(s)	Number of stop bits
Frame Error Detection	Cyclic Redundancy Check (CRC) or Block Check Character (BCC)
HW mode	Full Duplex no handshaking or Half duplex
Master Response Timeout	Maximum time the eWON will wait for a valid message from the DF1 master. This value can be critical for a correct operation, depending on the responsiveness of the master. A value of 1000 should be selected to guarantee correct operation
Rx message timeout (MSEC)	Maximum time between a request is posted and the response is received
Tx message timeout (MSEC)	Maximum time for a request to be sent
eWON DF1 address	Device Address of eWON on DF1 link When eWON will act as a DF1 slave, it will respond to 2 consecutive link addresses; doing this improves the throughput of data across the eWON when acting as a gateway. (eWON DF1 address and eWON DF1 address +1)
Destination DF1 address	Device Address of Destination on DF1 link when EIP is used

Table 87: ABLOGIX-DF1 communication setup controls

5.9.2.2 Topic configuration

Three topics can be used for the IO Server. These topics are used to give a common property, to a group of Tags, like:

- **Enable/Disable**
- **Global Device Address**
- **Poll rate**

Topic configuration item	Description
Topic enabled	Enables or disables polling of all the Tags in the topic
Global Device Address	The Global Device Address is a global parameter for all the Tags of the topic. See below for the Device Address syntax. If an address is specified here, it will replace (overload) the address defined Tag by Tag
Poll rate	Defines the refresh rate (in mSec) of the Tag name. In a complex application, we can imagine that some Tag name must be refreshed every second – typically for digital input - and other every minute – typically: temperature-

Table 88: ABLOGIX topics configuration setup

5.9.2.2.1 ABLogix : DF1 serial link

The Global Device Address has the following syntax: **Address**

- **Address** = DF1 Node ID of the device (i.e.: 5)



Figure 83: ABLogix : DF1 address example

5.9.2.2.2 ABLogix : EIP Ethernet link

The Global Device Address has the following syntax : **IP Address,Port,Link**

- **IP Address** = address on your Ethernet network (i.e.: 10.0.30.7)
- **Port** = value from 1 to 3 representing: 1 = Backplane, 2 = Channel A, 3 = Channel B
- **Link** could be:
 - *Slot*: representing the Slot on the Backplane (for example: 0=CPU)
 - *Node ID*: value from 0 to 99 (for ControlNet)
 - *IP address*



Figure 84: ABLogix : EIP address example

REM: In the case of using a ControlLogix as Gateway, the Device Address could be like following: IP Address, Port, Link[, Port,Link][, Port,Link]...

5.9.2.2.3 DH+ polling using ControlLogix gateway

This feature allows the eWON to poll PLC tags located on a DH+ network, behind a controllogix equipped with one or more DHRIO cards. Polling is done using eWON EIP protocol. The ABLOGIX IO server is used to access the "LOGIX" PLC family. The DF1 IO server is used to access the "SLC500" PLC family (See "DH+ polling using ControlLogix gateway" on page 97).

The general syntax *IP address,Port,Link* is still applicable. There is no specific character to indicate the DH+ channel ("2" or "3" should be used).

Example: To reach a PLC5 (with CPU in slot 0) with DH+ node Id 3 using channel A of a DHRIO card at slot 9 of a controllogix at IP address 10.0.30.21.

Topic A Destination = **SLC500-10.0.30.21,1,9,2,3,1,0**

- **10.0.30.21** = IP address of the ControlLogix
- **1** = BackPlane
- **9** = Slot 9 (COM card)
- **2** = Channel A (of the Card present in Slot 9)
- **3** = NodeID of the PLC5 (in the COM network)
- **1** = BackPlane
- **0** = slot (of the CPU in our example)

5.9.3 Tag name convention

IO Server Configuration		
IO server Name	ABLOGIX	
Topic name	A or B or C	
Item Name	ValueName	Topic PLC address is used
	ValueName, IP address[, Port, Link]	PLC address is defined Tag by Tag
	ValueName, NodeID	PLC address is defined Tag by Tag

Table 89: ABLOGIX IO server Tag name convention table

The Item Name can contain the PLC address where the value is polled, or not. If address is also specified at topic level, the address specified at Tag level will be ignored.

5.9.3.1 ValueName

ValueName follows the syntax below:

[PROGRAM:ProgName.]SymbolicTagName

- **ProgName is the name of the program where the Tag is.**

If no ProgName, the Tag is in the global scope (tag is controller type)

- **SymbolicTagName:**

- Symbol of the tag.
Only following atomic type are supported: BOOL, SINT, INT, FLOAT, DINT (*), BIT ARRAY
- Bit selection with <SymbolicTagName>/bit
where bit is the bit number (from 0 to 31)
ex: controlbit/4 read the bit 4 of the controlbit register
- TIMER, CONTROL, COUNTER predefined types with <SymbolicTagName>.acc (or ctl or pre)
ex: MyVar.acc read the counter of MyVar
- Element of a table
<Symbol_1>[idx_1].<Symbol_2>[idx_2].<Symbol_3>[idx_3].<Symbol>
With maximum 3 index.
ex: table1[2].subtable[6].element read data named 'element' on the index 6 of the 'sub table' from the index 2 of the 'table1'
- Element of a structure
<Symbol_1>.<Symbol_2>
ex: CounterObj.init read the 'init' part of the structure 'CounterObj'

(*) Important: See “Tags are stored as Float” on page 62

- **Status register:**

The STATUS Tag is a special Tag that returns information about the current state of the communication for a given device. As for other Tags, the status Tag ValueName is composed of:

Status, ComPortNum

- You can define a status Tag for each COM port used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 90: Tag status meaning