



AUG 071 / Rev. 1.2



Polling Data from a BACNET/IP device

How to use the BACNET IO Server to poll data from a BACNET/IP device



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1. Objective

The objective of this document is to explain how the eWON Flexy can poll data variables out of one or more BACNET/IP devices.

Polling BACNET/IP data variables can be resumed in four steps :

- Linking the eWON Flexy with the BACNET/IP Device
- Configuring the eWON Flexy BACNET IO Server
- Creating tags in the eWON Flexy
- Monitoring tags

- Note -

Advanced explanations are indicated by this icon





2. Hardware requirements

In order to follow this guide you'll need:

- An eWON Flexy
- A PC to connect the eWON Flexy through its web interface
- A device acting as a BACNET/IP Server



eWON FLEXY 205:

MACHINES CAN TALK

Chapter

3. Software requirements

Software configuration:

The eWON Flexy is configured through its web interface. Which is accessible with any modern web browser as shown here below:

- Firefox 15+
- Chrome 16+
- Safari 6+
- Edge 13+
- IE 11

Additionally, we suggest you to download the eBuddy companion tool available on our website : <u>http://support.ewon.biz/</u>

This tool allows you to list all the eWON Flexy on your network and execute changes such as IP address change, firmware upgrade or device recovery (if required).

Firmware Version

This guide targets devices running a firmware version 12.2 or higher.



4. Protocol compatibility

The eWON Flexy supports the BACNET/IP protocol (based on UDP/IP) to poll data from devices acting as BACNET/IP Servers.



5. Configuring the IO Server

- Connect your PC to one of the LAN ports of the eWON Flexy
- Open the web browser and enter the IP address of the eWON Flexy
- Log into the eWON Flexy web interface
- Go to Tags menu on the left hand side
- Click on the IO Servers option and a supplementary menu will be displayed
- Select the IO Server "Bacnet" inside the IO Server list
- Additionally, there is an address helper feature that turns green when the address is correct and red the address is wrong

General Setup eWON Bacnet Device ID: eWON Bacnet Device ID: 1024.65535, default is 47808 Topic A Destination Device Type and Address: Poll Rate: Image: Im	IO Serve	rs 🔪 E	BACNET
eWON Bacnet Device ID: eWON Bacnet Device ID: 1024.65535, default is 47808 Topic A Destination Device Type and Address: Write Priority: Device ID Default: 2000 Write Priority: Device ID Default: 2000 Value between 1 (highest) and 16 (lowest) or 0 (no priority specified Poll Rate: Poll Rate: M5 Default: 2000 Write Priority: M5 Default: 2000 Default: 2000 Poll Rate: Poll Rate: Po	General Setup		
eWON Bacnet Device ID: Topic A Destination Device Type and Address: Write Priority: Destination Device Type and Address: Write Priority: Device ID Device ID Default: 2000 Value between 1 (highest) and 16 (lowest) or 0 (no priority specified Poll Rate: Poll Rate: MS Default: 2000 Value between 1 (highest) and 16 (lowest) or 0 (no priority specified Value between 1 (highest) and 16 (lowest) or 0 (no priority specified Value between 1 (highest) and 16 (lowest) or 0 (no priority specified Value between 1 (highest) and 16 (lowest) or 0 (no priority specified Value between 1 (highest) and 16 (lowest) or 0 (no priority specified Value between 1 (highest) and 16 (lowest) or 0 (no priority specified	eWON Bacnet Device ID:		04194303, leave empty to get a value assigned automatically
Topic A Destination Device Type and Address: Poll Rate: 0.4194303 Device ID Default: 2000 Write Priority: Copic B Destination Device Type and Address: Enter Bacnet Device ID Poll Rate: MS Default: 2000 Write Priority: MS Default: 2000 Write Priority: Value between 1 (highest) and 16 (lowest) or 0 (no priority specified) Value between 1 (highest) and 16 (lowest) or 0 (no priority specified) Value between 1 (highest) and 16 (lowest) or 0 (no priority specified) Value between 1 (highest) and 16 (lowest) or 0 (no priority specified)	eWON Bacnet Device ID:		102465535, default is 47808
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Poll Rate: MS Default: 2000 Write Priority: Value between 1 (highest) and 16 (lowest) or 0 (no priority specified)	Destination Device Type and Address:		Enter Bacnet Device ID
Write Priority: Value between 1 (highest) and 16 (lowest) or 0 (no priority specific	Poll Rate:	MS	Default: 2000
	Write Priority:		Value between 1 (highest) and 16 (lowest) or 0 (no priority specified)
1 miles			



Main Settings

Parameters	Description
	This number must be unique in your BACNET network.
eWON BACNET Device ID	Type the BACNET device ID of the eWON Flexy or leave it blank to let the eWON Flexy choose a device ID.
eWON BACNET Port	Select the UDP port used for the BACNET IP communication.

To poll data registers out of your BACNET device, you need to define at least one **Topic**. Topics are meant to allocate common properties to a group of tags

The topic settings (except the Poll Rate) are optional and can be defined in the Tag address as well. This allows you to poll more than 3 BACNET devices. Leave them blank if you define them in the Tag address.

Topic Settings

Parameters	Description
Device ID	Type the device ID of the device to poll. There is no IP address to define for the device as the BACNET IP protocol can detect the BACNET devices on the network using an UDP Broadcast packet. Note that the IP address of the BACNET device must still be in the same range as the eWON Flexy IP address
Poll rate	Type the poll rate for this topic (in milliseconds). Default : 2000 ms
Write Priority	Type a write priority value. (0 or blank : no priority defined, 1 : highest priority, 16 : lowest priority)



6. Tag Creation

- On the left hand menu, please select the option **Value** under the Tags menu
- Switch to Setup MODE

Home	Switch <u>from</u> :		
Tags	MODE VIEW	to	MODE SETUP
🏷 Values			

• Click on Add (+)

MODE	SETUP		3	C Add	
MODE		0	~	Name	

- Once the create a new Tag window opens proceed to enter the parameters of the Tag you want to create.
- Enter a Tag Name free text, no spaces, no symbols, -, =, %, \$, @, # etc
- Select Topic Name the topic you just created in previous step

Define the address of the Tag, the address of the Tag is composed of four parameters :

- Object Type (mandatory)
- Instance Number (mandatory)
- Property of the object (optional. If not defined, the property "Present Value" is used)
- Device ID (optional if defined in the topic settings)



BacnetSrvAnalogInput	Page: Default	•
My_first_Bacnet_TAG		
	C	
BACNET -	Topic Name: A	
Ĩ		
[ANALOG_INPUT]	Analog value	
[ANALOG_OUTPUT]	Analog output	
[ANALOG_VALUE]	Analog value	
[BINARY_INPUT]	Binary input	
[BINARY_OUTPUT]	Binary output	
[BINARY_VALUE]	Binary value	rm Enabled
[INTEGER_VALUE]	Integer value	
[POSITIVE_INTEGER_VA	LUE] Positive integer value	Update Tag
	Accumulator value	
	BacnetSrvAnalogInput My_first_Bacnet_TAG My_first_Bacnet_TAG BACNET (ANALOG_INPUT] (ANALOG_OUTPUT] (ANALOG_OUTPUT] (ANALOG_VALUE] (BINARY_INPUT] (BINARY_INPUT] (BINARY_OUTPUT] (BINARY_VALUE] (INTEGER_VALUE] (POSITIVE_INTEGER_VA	BacnetSrvAnalogInput Page: Default My_first_Bacnet_TAG My_first_Bacnet_TAG BACNET Topic Name: A A A A A A A A A A A A A A A A A A A



Object Type

Here is the list of the supported object types :

Object Type	Tag type ???
ANALOG_INPUT (0)	Analog Input
ANALOG_OUTPUT (1)	Analog Output
ANALOG_VALUE (2)	Analog Value
BINARY_INPUT (3)	Binary Input
BINARY_OUTPUT (4)	Binary Output
BINARY_VALUE (5)	Binary Value
INTEGER_VALUE (45)	Integer Value
POSITIVE_INTEGER_VALUE (48)	Positive Integer Value
ACCUMULATOR	Accumulator Value

Instance Number

The instance number defines the ID of the object you want to access to.

Server Name:	BACNET	•	Topic Name:	A 🔻
Address:	ANALOG_VALUE:			
	🗔 [04194303]		Instance	
Туре:	Floating Point	•	Force Read	d Only
eWON value	e = IO Server Value	* 1	+ 0	



Property of the object

An object is composed of different properties. These properties can be accessed through different Tags. You have therefore to define which property you want to access for your Tag. If no property is defined, the property "PRESENT_VALUE" is used. Here is the list of the property you have access to :

Value	Description
PRESENT_VALUE (85)	Present Value
OUT_OF_SERVICE (81)	Out of Service
COV_INCREMENT (22)	Cov Increment
DEADBAND (25)	Deadband
HIGH_LIMIT (45)	High Limit
LOW_LIMIT (5)	Low Limit
Any numerical ID	Numerical ID



7. Example of configuration

For this example, I used the BACNET IP Device simulator from "SCADA Engine" <u>http://www.scadaengine.com/downloads.html</u>

Device configuration :

BACnet Device Simulator		
BACnet Device Simulator File Edit Project Tools Help BACnet Network Device BinaryOutput Device Device Device BinaryValue Instance 1 AnalogValue Instance 1 AnalogIput Instance 0	Image: Second system Image: Second system <	AnalogValue, 1 My New Object 1 BACnetObjectTypeAnalogValue False 114 {{{0.null}}.{{0.nul}}.{{0.null}}.{{0.null}}.{{0.null}}.{{0.nul}}.{{0.



Chapter 7 Example of configuration

- Cou	noral C	otup									
Gei	licial St	etup									
		eWO	Bacnet Device ID:	1787296			04194	1303, leav	ve empty to get a	value assigned automatically	
eWON Bacnet Device ID:			N Bacnet Device ID:				10246	5535, de	efault is 47808		
-										Fnabled	
-10											
De	stination	Device	Type and Address:	123456			Enter Ba	acnet Dev	vice ID		
			Poll Rate:		MS			t: 2000			
	Write Priority:						Value b	oetween	1 (highest) and 1	6 (lowest) or 0 (no priority specified)	
-	i. D									Senabled	
lob	DIC B										
De	stinatior	Device	Type and Address:	1234567			Enter Bacnet Device ID				
			Poll Rate:		MS		Default: 2000				
			Write Priority:				Value between 1 (highest) and 16 (lowest) or 0 (no priority specified)				
						Update	2				
Q Filt	er		C Ad	d 🔻 🕏 Edit	× Delete	🐥 Config	gure Alarm action	s			
	Ø	~	Name	Туре	IO Server	Topic	IO Address	••	Value	Tag description	
~			TAG0	DWORD	BACNET	A	ANALOG_I	0	0		



Revision

Revision History

Revision Level	Date	Description
1.0	26/01/17	Initial Version
1.2	06/07/18	New GUI

Document build number: 38

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