



Application User Guide

AUG 071 / Rev. 1.1

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

- Note -

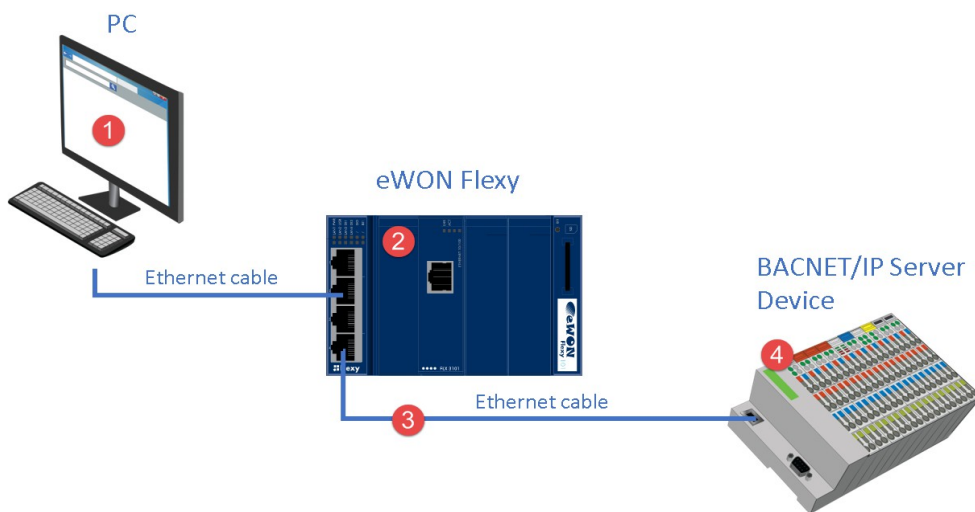


Advanced explanations are indicated by this icon

2. Hardware requirements

In order to follow this guide you'll need:

- PC suitable to connect to the eWON
- A Device acting as a BACNET/IP Server



1. From a computer running a web-browser, you will configure the BACNET IO Server in the eWON Flexy to poll different types of object properties.
2. Access to the eWON Flexy web server is done either by using (one of) its local LAN port(s) or by another type of access like through Talk2M, etc.
3. Connection to the BACNET/IP device is done using an Ethernet cable.
4. The connected BACNET/IP device will have its object property values read by the tags associated to the BACNET IO Server of the eWON Flexy.



3. Software requirements

eWON configuration software:

The eWON Flexy is configured through its web server. All you need is a standard Web Browser software like Internet Explorer, Firefox or Chrome.

Additionally we suggest you to download the eBuddy utility on our website :
<http://support.ewon.biz/>

This utility allows to list all the eWONs on your network and change the default IP address of an eWON to match your LAN IP address range. With eBuddy, you can also easily upgrade the firmware of your eWON (if required) and make a backup of your configuration.

eWON Firmware Version

The screen-shots of this guide reflect the firmware version 12.0s0 (Jan 2017), but you can expect the basic principles to remain the same in later versions.

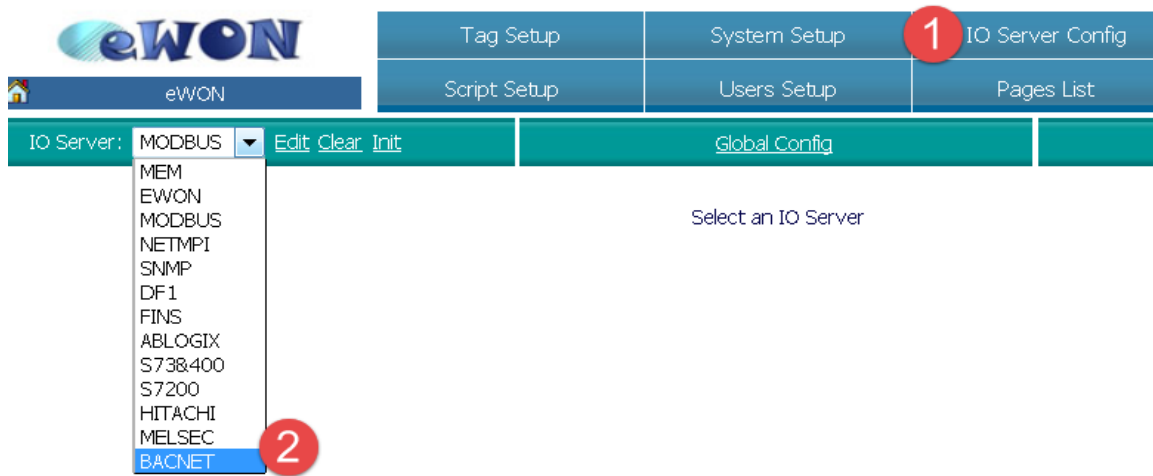
If your eWON is not up-to-date, use eBuddy to upgrade your firmwares easily.

4. Protocol compatibility

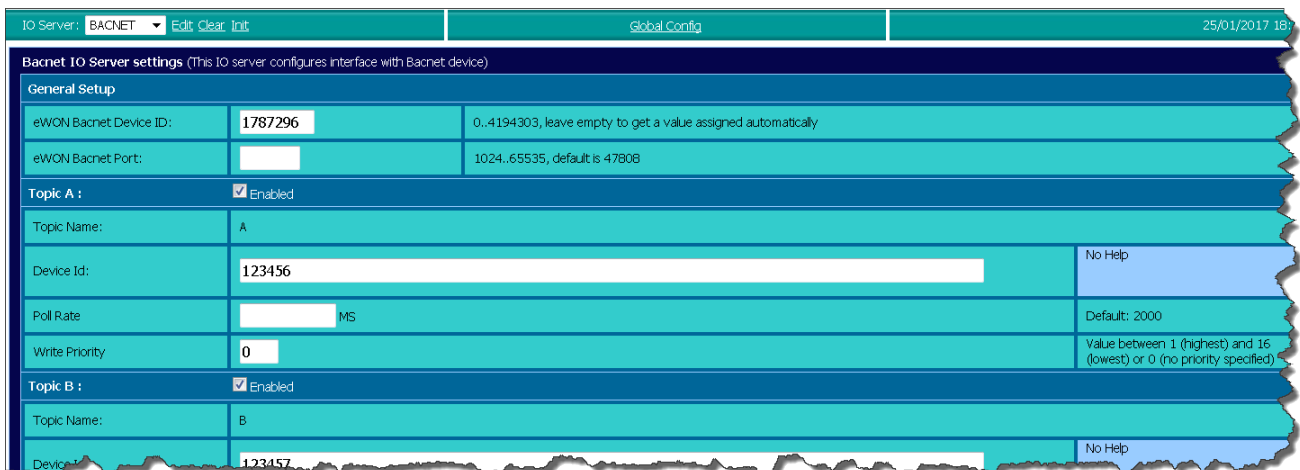
The BACNET IO Server is only supported by the eWON Flexy (as of firmware 12.0). This IO Server uses the BACNET/IP protocol (based on UDP/IP) to collect the data from field devices acting as BACNET/IP Servers.

5. IO Server configuration

Go to "Configuration→ IO Server Config" and select "BACNET".



Here you can configure the BACNET IO Server general settings.



Main Settings

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

The BACNET IO Server provides also three Topics used to define different polling rates.

Check "Enabled" to enable the topic. At least one topic must be enabled.

The topic settings (except the pollrate) 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.

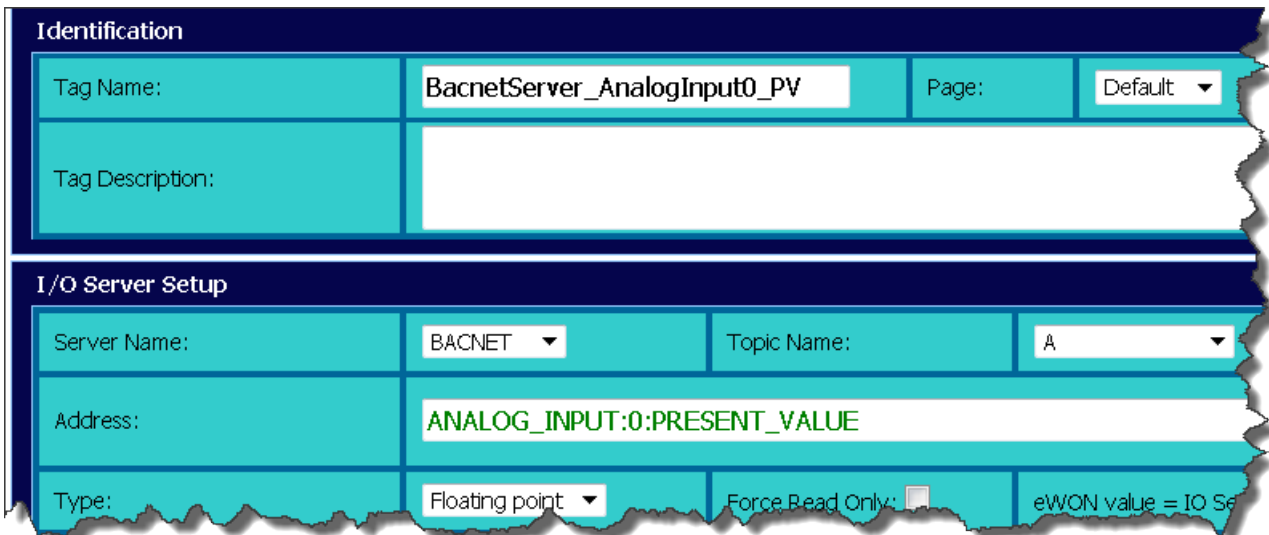
Topic Settings

Parameter	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 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

When the General settings of the IO Server are defined, you can now create your BACNET tags.

Go to “Configuration → Tag Setup” and click “Create New Tag”



The screenshot shows a configuration window with two main sections: Identification and I/O Server Setup.

Identification Section:

- Tag Name: BacnetServer_AnalogInput0_PV
- Page: Default
- Tag Description: (empty text area)

I/O Server Setup Section:

- Server Name: BACNET
- Topic Name: A
- Address: ANALOG_INPUT:0:PRESENT_VALUE
- Type: Floating point
- Force Read Only:
- eWON value = IO Se (partially visible)

First select the Topic you want to associate the Tag to (A, B or C)

Second, define the address of the Tag.

The address of the Tag is composed of four parameters :

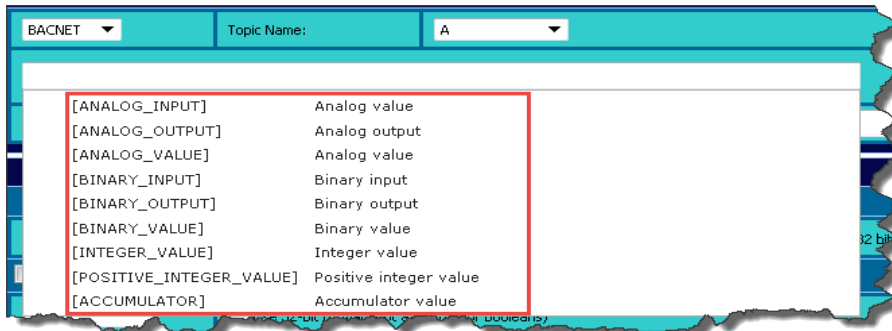
1. Object Type (mandatory)
2. Instance Number (mandatory)
3. Property of the object (optional. If not defined, the property “Present Value” is used)
4. Device ID (optional if defined in the topic settings)

Object Type

Here is the list of the supported object types :

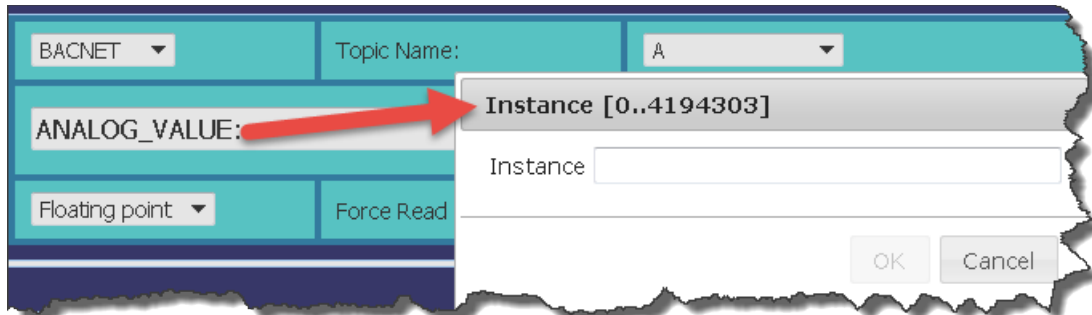
- ANALOG_INPUT (0),
- ANALOG_OUTPUT (1),
- ANALOG_VALUE (2),
- BINARY_INPUT (3),
- BINARY_OUTPUT (4),

- BINARY_VALUE (5),
- INTEGER_VALUE (45),
- POSITIVE_INTEGER_VALUE (48)
- ACCUMULATOR



Instance Number

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



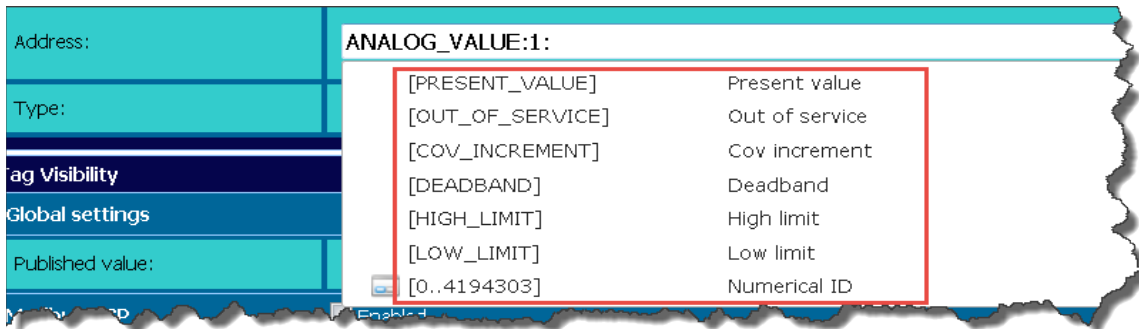
Property of the object

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 :

- PRESENT_VALUE (85),
- OUT_OF_SERVICE (81),
- COV_INCREMENT (22),

- DEADBAND (25),
- HIGH_LIMIT (45),
- LOW_LIMIT (5)
- Any numerical ID



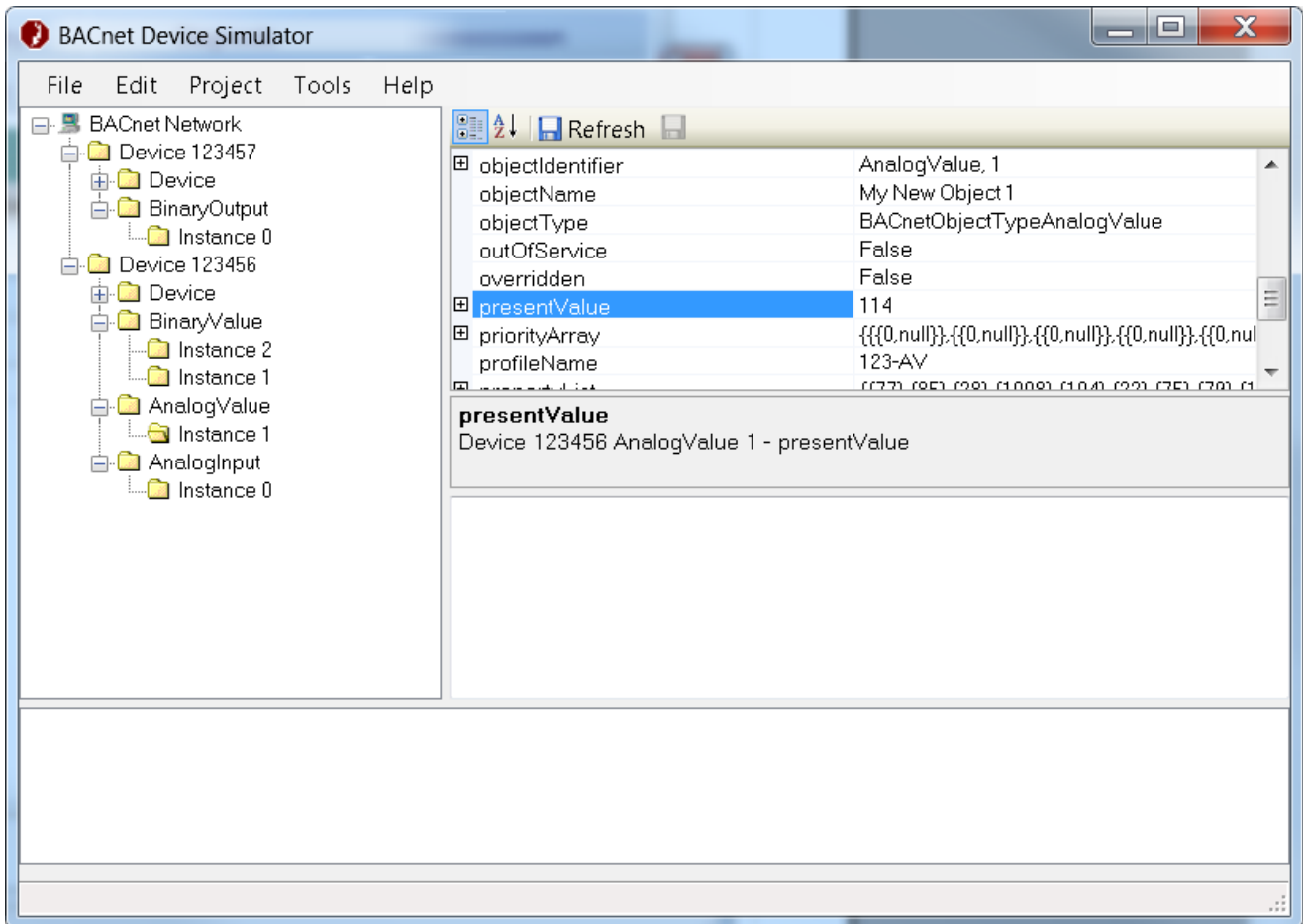
- Note -

The other Tag settings are explained in the eWON General Reference Guide.

7. Example of configuration

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

Here is my device configuration :



Here is the corresponding Flexy configuration :

- IO Server Settings

IO Server: BACNET Edit Clear Init Global Config

Bacnet IO Server settings (This IO server configures interface with Bacnet device)

General Setup

eWON Bacnet Device ID: 0..4194303, leave empty to get a value assigned automatically

eWON Bacnet Port: 1024..65535, default is 47808

Topic A : Enabled

Topic Name:

Device Id:

Poll Rate: MS

Write Priority:

Topic B : Enabled

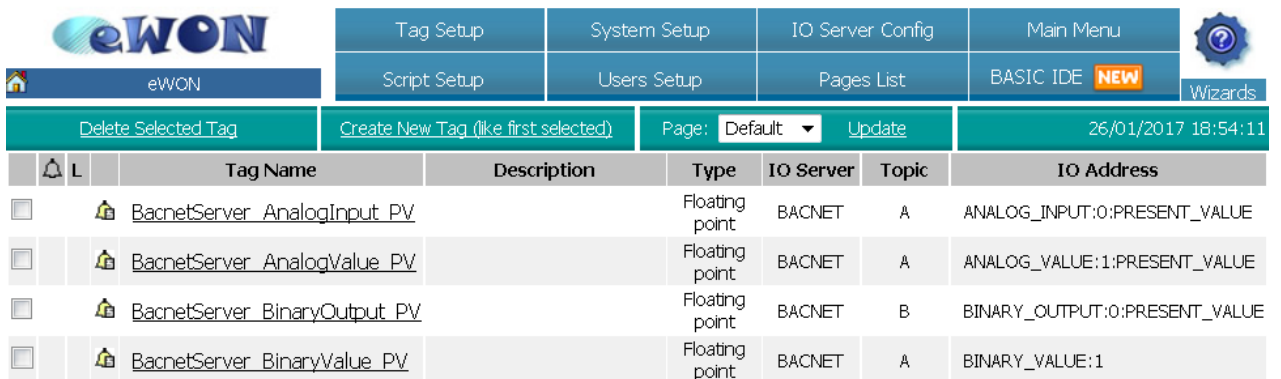
Topic Name:

Device Id:

Poll Rate: MS

Write Priority:

- Tag Setup



Navigation: Tag Setup, System Setup, IO Server Config, Main Menu, Script Setup, Users Setup, Pages List, BASIC IDE **NEW**, Wizards

Page: Default Update 26/01/2017 18:54:11

	Tag Name	Description	Type	IO Server	Topic	IO Address
<input type="checkbox"/>	BacnetServer_AnalogInput_PV		Floating point	BACNET	A	ANALOG_INPUT:0:PRESENT_VALUE
<input type="checkbox"/>	BacnetServer_AnalogValue_PV		Floating point	BACNET	A	ANALOG_VALUE:1:PRESENT_VALUE
<input type="checkbox"/>	BacnetServer_BinaryOutput_PV		Floating point	BACNET	B	BINARY_OUTPUT:0:PRESENT_VALUE
<input type="checkbox"/>	BacnetServer_BinaryValue_PV		Floating point	BACNET	A	BINARY_VALUE:1

- Tag ViewIO

Tag Name	Value	New Value	
BacnetServer_AnalogInput_PV	1149		
BacnetServer_AnalogValue_PV	114	<input type="text" value="114"/>	Update
BacnetServer_BinaryOutput_PV	1	<input type="text" value="1"/>	Update
BacnetServer_BinaryValue_PV	1	<input type="text" value="1"/>	Update



Chapter 7

Example of configuration



Revision

Revision History

Revision Level	Date	Description
1.0	26/01/17	Initial Version

Document build number: 104

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