

# How to integrate LoRaWAN sensor to BACnet

# Introduction

MultiTech Conduit can decode LoRaWAN sensor data and map that sensor data into BACnet Objects which can be integrated into BMS systems and BACnet devices.

### Requirements

- MultiTech Conduit gateway running mPower OS 6.3.2+ with LoRaWAN BACnet Connector Payload Management License enabled
- LoRaWAN sensor
- BACnet Client (YABE will used for this document)

### **Configure LoRaWAN Network and add Sensor**

- 1. Navigate to LoRaWAN  $\rightarrow$  Network Settings
- 2. Set LoRa Mode to Network Server
- 3. Under Key Management change location to Local Join Server
- 4. Click Add New
- 5. Find your LoRaWAN sensor EUI and Key information and enter the fields below.

Dev EUI	
App EUI	
App Key	
Class	
A	
Device Profile	
LW102-0TA-US915	
Network Profile	
DEFAULT-CLASS-A	

6. Check to see if the gateway is receiving packets under LoRaWAN  $\rightarrow$  Packets

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L.	Packets									JSON 🚽	Ł
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	70-b3-d5-2d-d8-00-00-e6	867.300	SF7BW125		-118	24	00000125	UpUnc	10:53:16	ø	

After verifying your sensors are receiving packets, we can move on to configuring BACnet.



## **Configure BACnet**

- 1. Navigate to **Payload Management** →**BACnet Configuration**
- 2. Enable BACnet, Choose your BACnet Device Settings,
  - Port
    - Device Object Identifier
    - Object Name
    - Device Description
- 3. Save and Apply



### **Add Sensors to BACnet**

Before adding sensors to the payload management feature if you are using an Adenuis, Elysys or Radio Bridge move on to step 1a. For all other sensor manufacturers see the document (**How to Add a Custom Decoder and Sensor Definition to BACnet**) before returning to this section.

1. Go to Payload Management  $\rightarrow$  Managed Sensors





#### 2. Click Add Sensor

3. Enter the **Device EUI** and choose the Device **Manufacturer** and **Model** from the drop-down menu.

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	Gateways						
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	Downlink Queue						
	Operations						
	% Payload Management						l@l
	BACnet Configuration						
	BACnet Objects						
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### **Add BACnet Objects**

This section will instruct you how to add objects individually. Suppose you want to have all objects from the sensor definitions added automatically. Download the BACnet Objects App here. This application would add all available BACnet Objects from the sensor definitions file automatically when the sensor is added to the managed sensors page. If using the app move to the next section **Using BACnet Objects App**.

### **Adding Objects Individually**

1. Go to Payload Management  $\rightarrow$  BACnet Objects





#### 2. Click the Add Object tab

- 1. **Device EUI**: Select the EUI from the drop-down menu. These will include sensors added from the previous section in Added Sensors
- 2. Property: Select the value from the sensor definitions
- 3. **Object Name:** Give the object a name
- 4. **Object Type:** Select the BACnet data type
- 5. Object Description: Description of the data, optional

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1	Home	🏶 BACnet Objects 🔤 ,	Add Chject Click to add	new BACnet object					
2	LORaWAN  Payload Management	Import Choose File							
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1	Wireless								
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8	Tunnels								A
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- 3. Submit or Submit and Add New Object
- 4. The objects will now appear in the BACnet Objects tab

BACnet Obje	ects 🛛 🕫 Add Object				
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BACnet Obj	ects Map				
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All IDENTIFIER 2	* NAME Sensor Temp	TYPE Analog Input	Filter By Q SENSOR IO Iora@70-b3-d5-2d-d3-00-ef-86	PROPERTY sensorTemperature	

5. Save and Apply



### Using the BACnet Objects App

- 1. Upload the app to the UI.
  - a. Choose a numerical **app id**
  - b. Name the application **BACnet Objects**
  - c. Choose the file on your machine.
  - d. Wait for the application to finish uploading.

Once the application is finished downloading it will appear like the screenshot below.

MULTITE	CH O	mPower <sup>™</sup> Edge II MTCDT-L4N1-247A	ntellige Firmware	nce Conduit - Application Enabler	ment Platform				💄 admin 🔹
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2. With the app installed, every time you add a new BACnet Sensors, all the properties will populate.

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		MANAGED SENSORS 🕲 🗶 Download 🕂 Add Sensor	
	Home	Import	
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	BACnet Objects	DEVICE EUI SOURCE MANUFACTURER TYPE OPTIONS	
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# **Check BACnet Client**

1. Open a YABE BACnet client tool, Click Add Device, we are using ethernet so under **BACnet/IP V4 & V6 over Udp** choose the IP address of the ethernet port, click **Start** 

Retries 2		Wb	ols limit low	high	_	
BACnet/IP V4 & \	V6 over Udp		BACnet/MSTP or	ver serial		
Port	BACO 💠	Start	Port		~	Stat
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BACnet/Secure (	connect over Websocket		Max Master	127 💿		
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\*If using Windows a screen may pop up asking you to allow access to YABE, click all checkboxes, and accept.

• You should see the Conduit appear with the objects we entered earlier.





2. Click the name of the object and in the dialog box on the right, the decoded values will appear under **Present Value** 

Subscrip	otions, Period	dic Polling, E	vents/Alarms	3					Properties	
Show	Device 4194300	ObjectId AV:1	Name Sensor	Value 27.5	Time 14:22:23	Status OK	Descript		VacatProperty Object Identifier Object Identifier Object Type Present Value Status Rags Property List Event State Out Of Service Units Description Relability	OBJECT_ANALOG_VALUE Sensor Temperature 2: Object Analog Value 275 0000 Object[] Array 0: Normal False 95: No Units 0: No Fault Detected
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