



MobiusFlow®
Aruba
AOS 8 & AOS 10
EnOcean Integration
Guide

www.mobiusflow.com

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1 Introduction

1.1 Aim

The aim of this document is to provide a clear understanding of the architecture, what is required, and how to configure MobiusFlow to enable EnOcean data to be collected via Aruba AOS 10 Access Points.

1.2 Technologies

1.2.1 Aruba Access Points (APs)

AOS 10 (Aruba Operating System 10) and the legacy AOS 8 are distributed network operating systems that, when integrated with Aruba Central, can manage and control Aruba Access Points (APs) and Gateways.

1.2.2 EnOcean

EnOcean is a wireless technology that uses energy harvesting to power sensors and switches, making them battery-free and maintenance-free. It's commonly used in building automation, smart homes, and industrial applications to collect data for the Internet of Things (IoT). EnOcean technology converts ambient energy like motion, light, or temperature differences into usable electrical energy.

1.2.3 MobiusFlow

MobiusFlow is a flexible, scalable middleware platform designed to unlock the potential of new and existing legacy systems. MobiusFlow connects data across all verticals enabling efficient and informed data-based insights.

MobiusFlow is protocol and device agnostic and can be used to streamline the collection, analysis and distribution of normalised data from 1000's of devices and data endpoints, enabling control of devices, data sharing, and visualisation of data.

2 Solution Architecture

2.1 Solution Overview

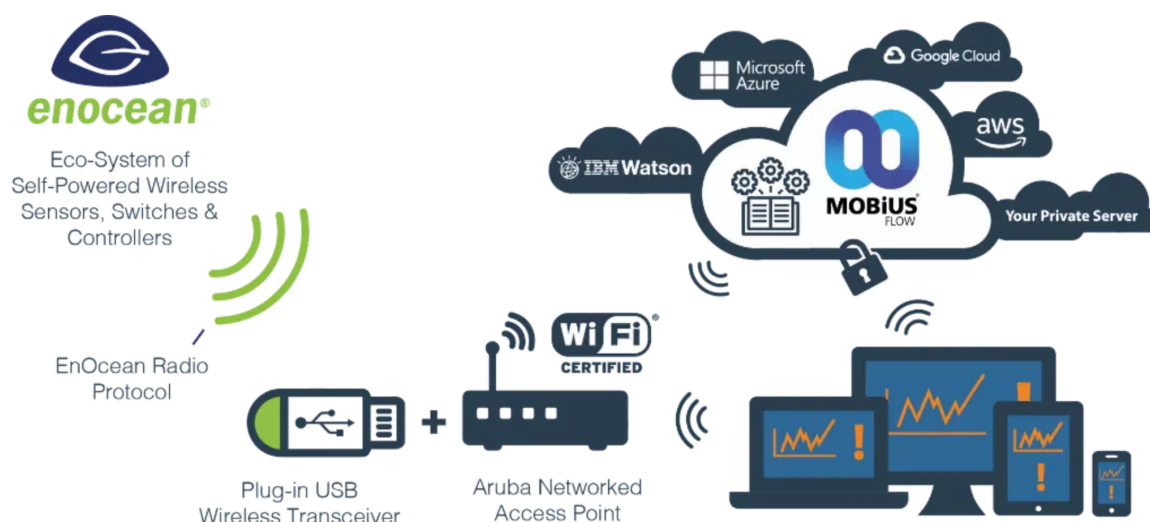
EnOcean is a wireless standard operating on open frequencies (Europe – 868MHz, North America – 902MHz etc). EnOcean devices are typically battery-less and utilise energy harvesting technologies such as solar to provide the energy to power the sensors and transmit data. Due to the low power nature of EnOcean transmission distances are limited to 100m line of sight, or 30m within a building environment.

EnOcean devices broadcast their data which is received by one or more EnOcean transceivers that are within range. These transceivers or EnOcean gateways either process the data locally or in a larger system send the data to a central point to be processed.

Due to the relatively short range of EnOcean devices a typical installation or building requires multiple EnOcean gateways to provide full coverage. These gateways typically use an Ethernet IP network to pass the data to the central processing application. Using existing Aruba APs with attached USB EnOcean transceivers reduces the number of additional IP points required on the network as these are typically already spread across the building for Wi-Fi access.

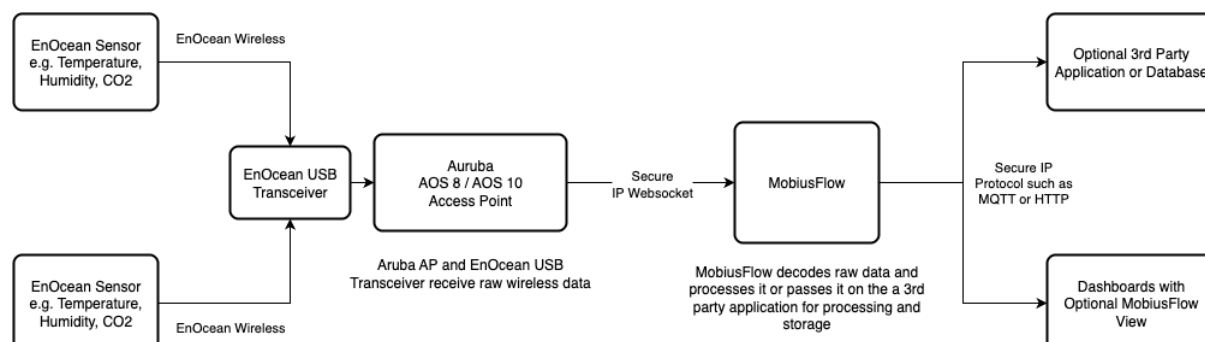
EnOcean devices transmit their data in raw binary format according to a strict format defined by the device type. The Aruba APs send the raw data over the IP network so an application such as MobiusFlow is required to decode the raw data before it can be used for control or analysis.

2.2 Solution Architecture



A typical application consists of one or more EnOcean sensors, one or more Aruba APs with EnOcean USB transceivers plugged into the AP's USB port, an instance of MobiusFlow running in the cloud or on an edge device such as a local VM or small industrial PC.

The block diagram below shows the normal data flow:



2.3 Solution Example

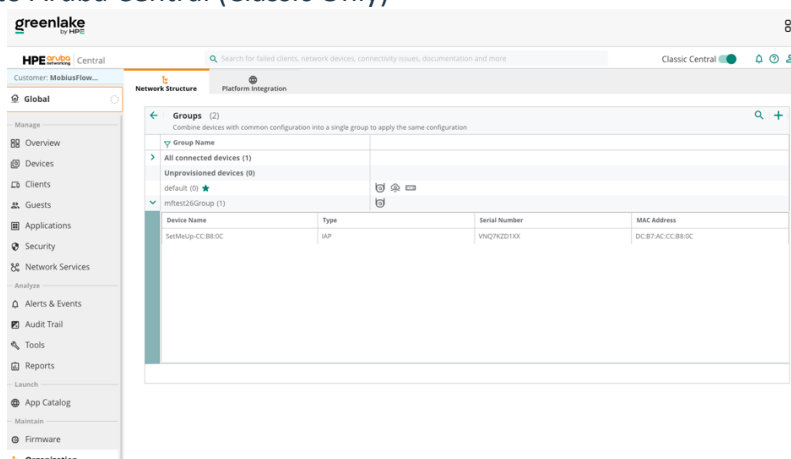
An example of this solution would be collecting occupancy and air quality data from an office building. This data is analysed for anomalies and displayed on a web-based dashboard along with alarms and historical graphs, helping the building owner to understand and control their building's air quality, saving energy, and improving staff productivity by adjusting the BMS to provide fresh air only where required.

3 Solution Configuration

3.1 AP Configuration with Aruba Central

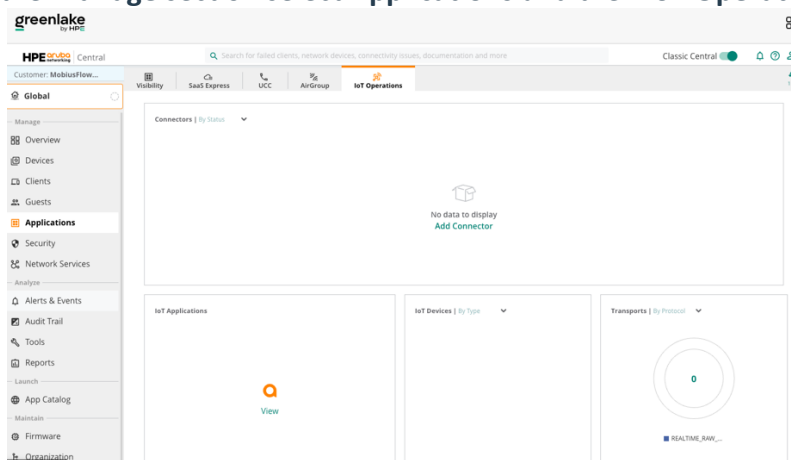
While this document does not serve to act as an Aruba Central manual, the basic steps required to configure the APs via Aruba Central are listed below. It is assumed that the user has the required access and knowledge to configure Aruba Central.

1. Log in to Aruba Central (Classic Only)



a.

2. Under the **Manage** section select **Applications** and then **IoT Operations**



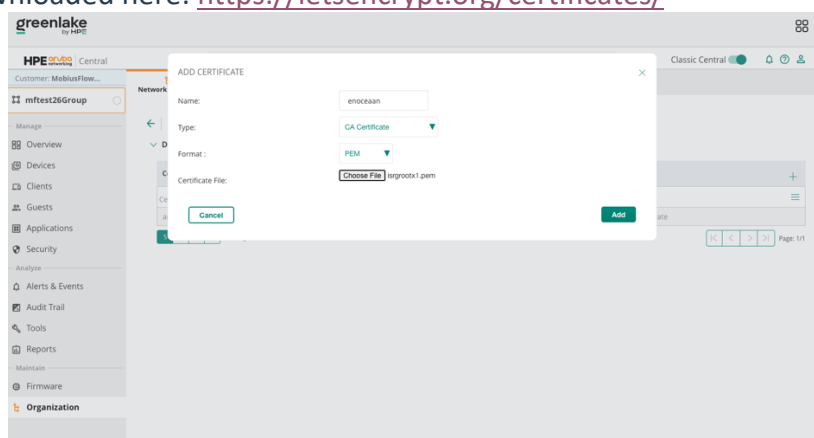
a.

3. Install and configure an **IoT Application** for EnOcean following the Aruba guide. This guide can be found here:

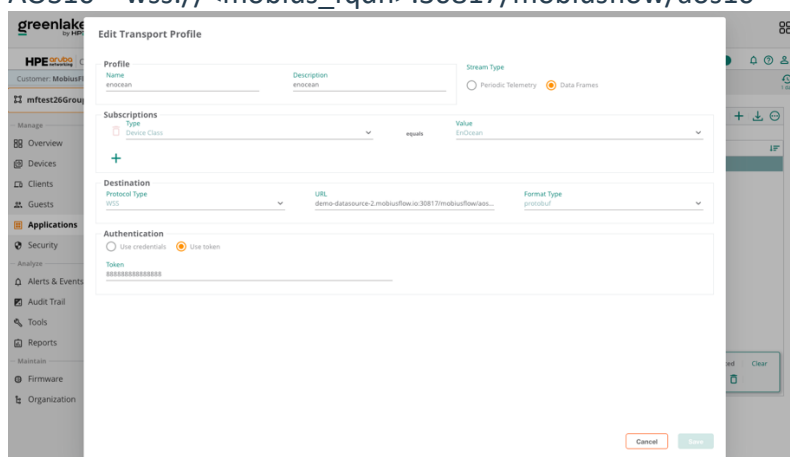
<https://arubanetworking.hpe.com/techdocs/central/2.5.8/content/nms/apps/iot/iot-cfg.htm#Download>



4. Ensure that you have added and correctly configured and enabled the correct certificate to enable a secure websocket connection with MobiusFlow. All hosted cloud instances of MobiusFlow use the ISRG Root X1 certificate. This certificate can be downloaded here: <https://letsencrypt.org/certificates/>



- a.
5. Enter the websocket endpoint. MobiusFlow supports both AOS 8 and AOS 10 devices. Each of these AOS versions transmit data via websocket in a different format so the websocket endpoint you configure in the IoT Collector will differ depending on the AOS version you are using. Both AOS 8 and AOS 10 devices can be used at the same time. The websocket endpoint address is as follows (<mobius_fqdn> is the fully qualified domain name or IP address of your MobiusFlow instance and can be found by looking at the web browser address bar when you are logged into MobiusFlow):
 - a. AOS 8 – wss://<mobius_fqdn>:30817/mobiusflow/aos8
 - b. AOS10 – wss://<mobius_fqdn>:30817/mobiusflow/aos10



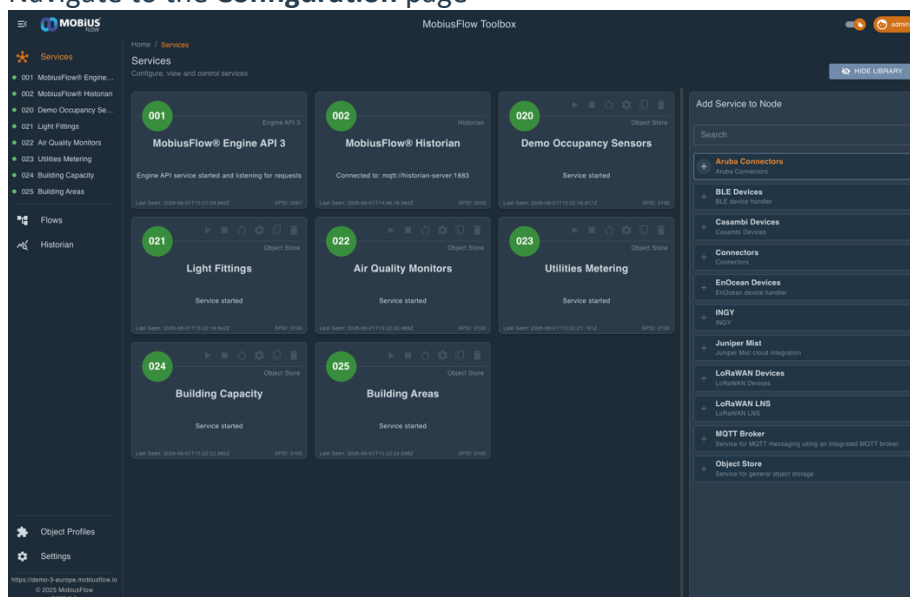
- c.
6. Authentication should be done using a pre-shared key. This key can be any string of characters you choose, and it will need to be entered into both the Aruba Central connection and the MobiusFlow instance

3.2 MobiusFlow Configuration

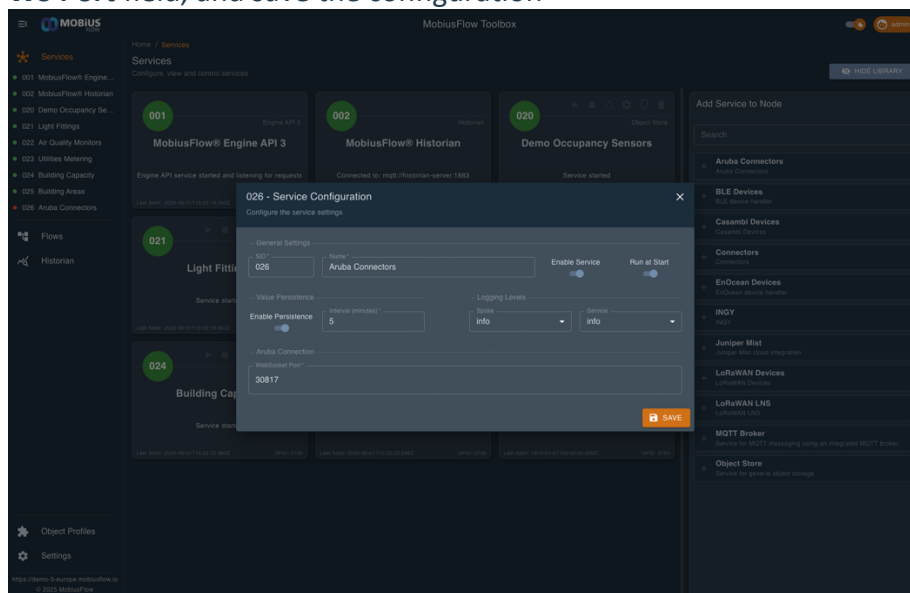
While this document does not serve to act as a full MobiusFlow manual, the steps required to configure the Aruba and EnOcean services are detailed below. More information can be found at <https://docs.mobiusflow.com>

3.2.1 Configuring the Aruba Connector Service

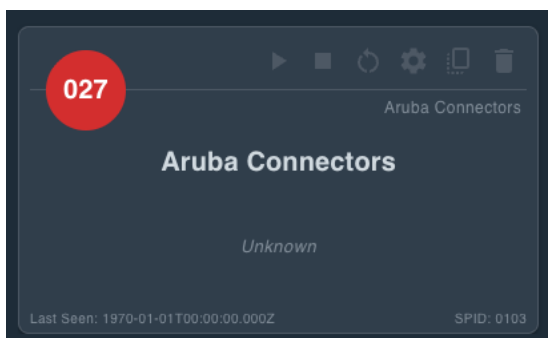
1. Log in to your instance of **MobiusFlow Toolbox**
2. Navigate to the **Configuration** page



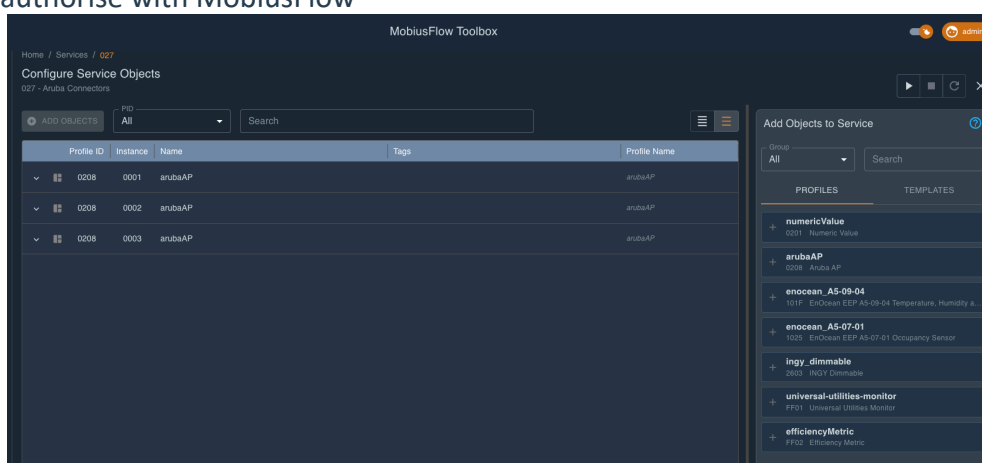
3. Add a **Mobius Aruba Connector** service to your configuration, enter **30817** into the **WS Port** field, and save the configuration



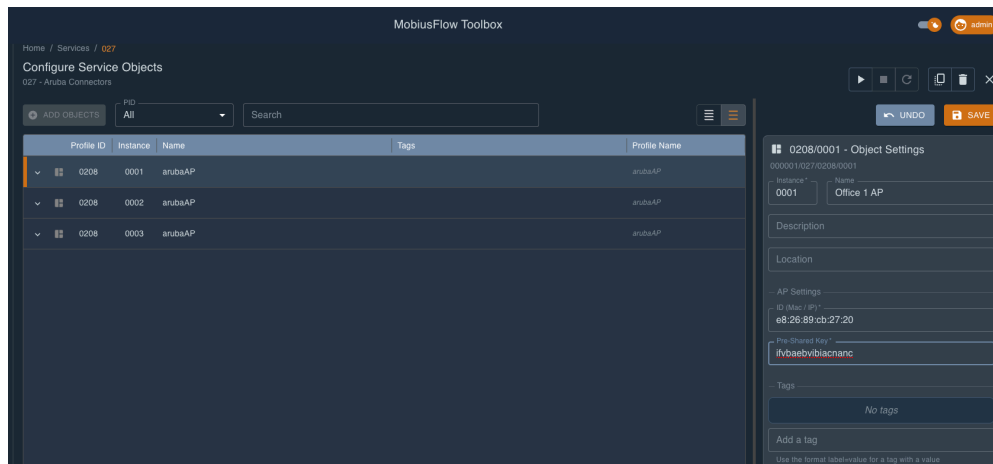
4. Navigate to the service's Objects page



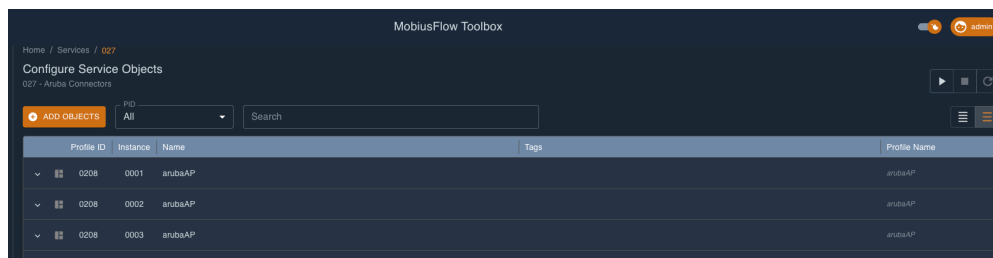
5. Add an **arubaEnOceanAP** object to the service for each AP that you want to authorise with MobiusFlow



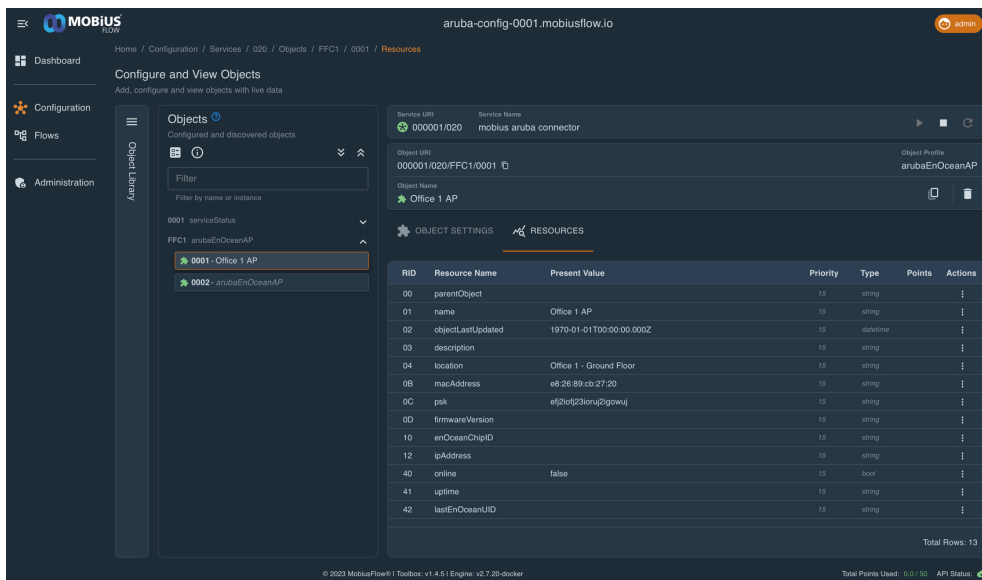
- Click on each **arubaEnOceanAP** object in turn and enter the AP's **MAC address** and the same **pre-shared key** you entered into Aruba Central in step 6 above. You can optionally enter a name, description, and location for each AP



- Start the service



8. Once the service has started the Aruba APs will connect to the websocket server that the **Mobius Aruba Connector** service creates.
9. Click on the object's **Resources** tab to confirm that the AP has connected. Once the AP has connected to the websocket server the resources will be updated with the connection information. This includes the AP's IP address, uptime, and firmware version. The objectLastUpdated resource will show the date and time that MobiusFlow last received data from the AP



The screenshot shows the MobiusFlow web interface. The top navigation bar includes the MobiusFlow logo, a breadcrumb trail (Home / Configuration / Services / 020 / Objects / FFC1 / 0001 / Resources), and a user profile icon. The left sidebar contains navigation links for Dashboard, Configuration, Flows, and Administration. The main content area is titled 'Configure and View Objects' and shows a list of objects on the left and a detailed view of the selected object on the right.

Object List:

- 0001 - serviceStatus
- FFC1 - arubaEnOceanAP
- 0001 - Office 1 AP** (selected)
- 0002 - arubaEnOceanAP

Object Details (Office 1 AP):

- Service URL: 000001/020
- Service Name: mobius aruba connector
- Object URL: 000001/020/FFC1/0001
- Object Name: Office 1 AP
- Object Profile: arubaEnOceanAP

Resources Table:

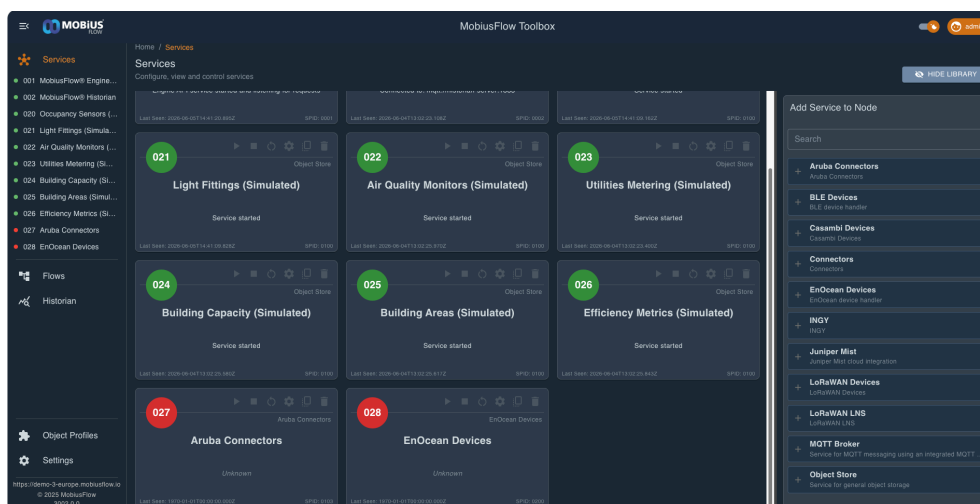
RID	Resource Name	Present Value	Priority	Type	Points	Actions
00	parentObject		15	string		
01	name	Office 1 AP	15	string		
02	objectLastUpdated	1970-01-01T00:00:00.000Z	15	datetime		
03	description		15	string		
04	location	Office 1 - Ground Floor	15	string		
08	macAddress	e8:26:89:cb:27:20	15	string		
0C	psk	ef20cf230m4j2g0wvj	15	string		
0D	firmwareVersion		15	string		
10	enOceanChipID		15	string		
12	ipAddress		15	string		
40	online	false	15	bool		
41	uptime		15	string		
42	lastEnOceanUID		15	string		

Total Rows: 13

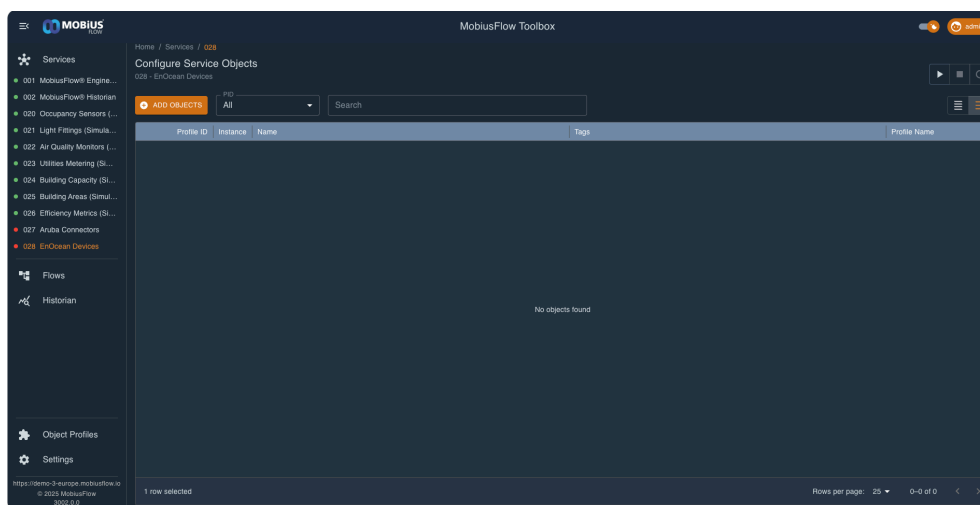
© 2023 MobiusPower | ToolBox: v1.4.5 | Engine: v2.7.20-socket | Total Points Used: 0.0 / 10 | API Status: ●

3.2.2 Configuring the EnOcean Devices Service

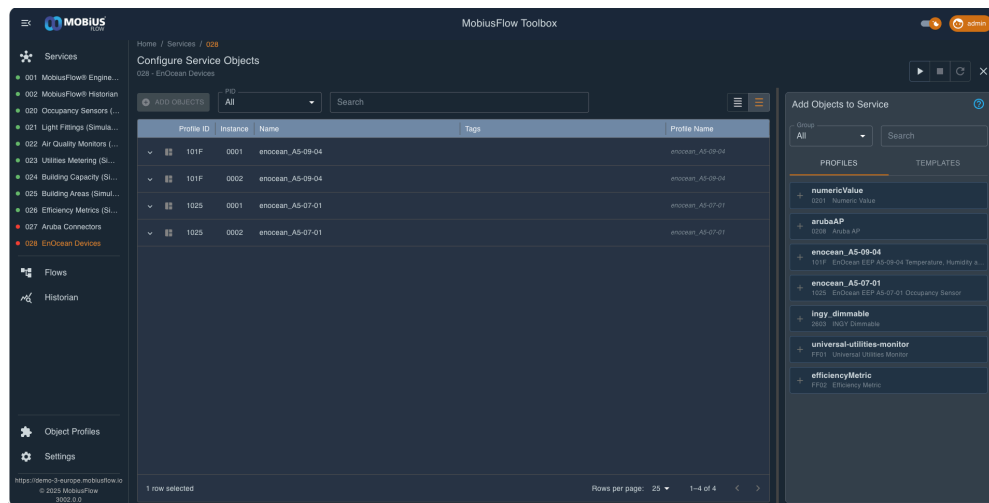
1. Log in to your instance of **MobiusFlow Toolbox**
2. Navigate to the **Configuration** page
3. Add an **EnOcean Devices** service



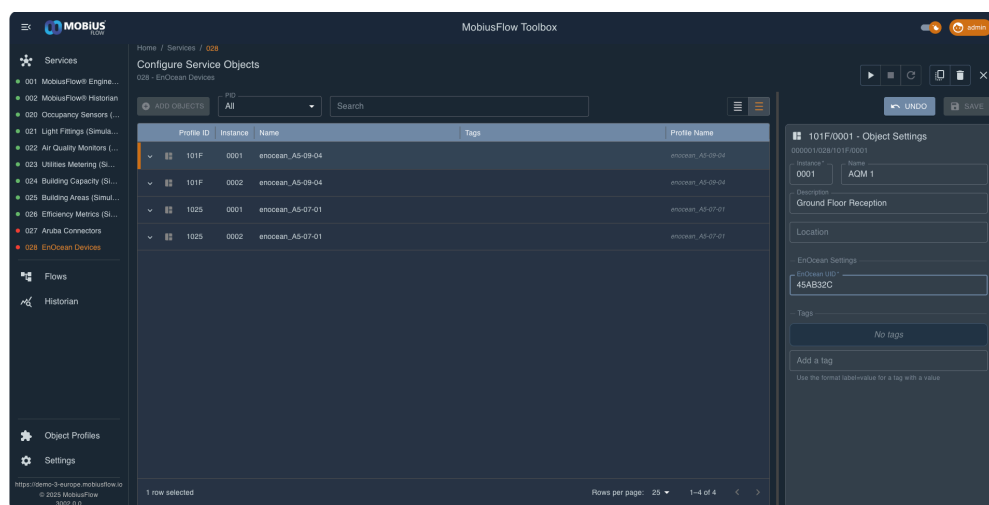
4. Navigate to the service's Objects page



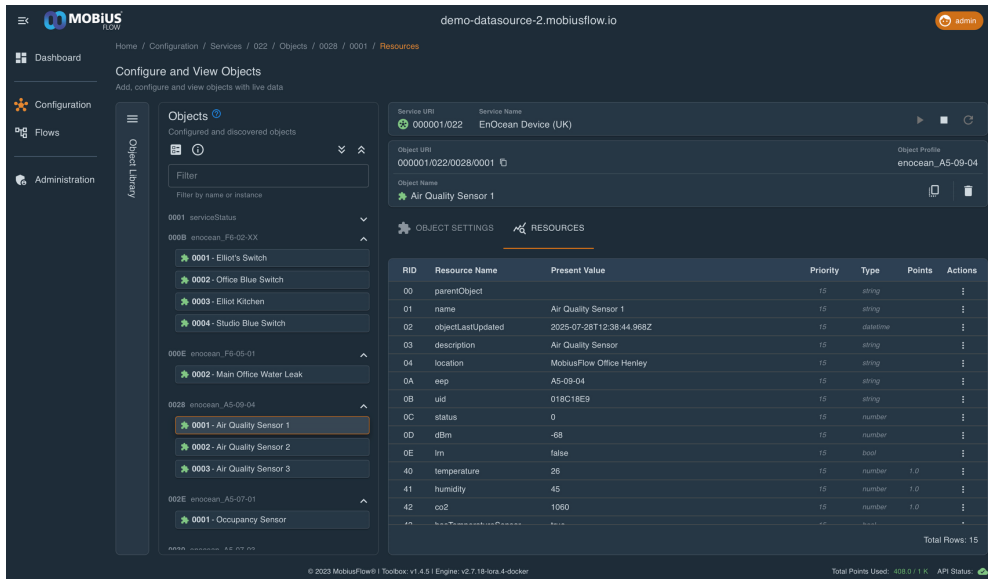
5. Add the required **EnOcean** objects to the **EnOcean Devices** service



6. Click on each **EnOcean** device object in turn and enter the EnOcean UID for each device. This **UID** is normally printed on a label on the device. You can also optionally enter a name, description, and location for each device. When all devices are configured, start the service



- Click on an **EnOcean** object's **Resources** tab to see live data that has been received and decoded by MobiusFlow. This data will only update when an EnOcean device sends data (this could take up to 30 minutes depending on the device)



The screenshot shows the MobiusFlow web interface. The left sidebar contains navigation links: Dashboard, Configuration, Flows, and Administration. The main area is titled 'Configure and View Objects' and shows a list of objects on the left and a detailed view of a selected object on the right. The selected object is '00001-022-0028-0001' (Air Quality Sensor 1). The right panel shows the 'RESOURCES' tab with a table of live data.

RID	Resource Name	Present Value	Priority	Type	Points	Actions
00	parentObject		15	string		
01	name	Air Quality Sensor 1	15	string		
02	objectLastUpdated	2025-07-28T12:38:44.968Z	15	datetime		
03	description	Air Quality Sensor	15	string		
04	location	MobiusFlow Office Henley	15	string		
0A	esp	A5-09-04	15	string		
0B	uid	018C18E9	15	string		
0C	status	0	15	number		
0D	dBm	-58	15	number		
0E	irm	false	15	bool		
40	temperature	25	15	number	1.0	
41	humidity	45	15	number	1.0	
42	co2	1060	15	number	1.0	
43	occupancy	0	15	number	1.0	

Total Rows: 15

4 Trouble Shooting

4.1 Aruba AP Connection

Navigate to the **Mobius Aruba Connector** service, select an **arubaEnOceanAP** object and if the AP's online resource is not set to true it has not connected to MobiusFlow. There could be several reasons for this:

Check that the certificate in Aruba Central is correct and has been enabled and applied.

Check that the websocket endpoint in Aruba Central is correct.

Check that the pre-shared key in Aruba Central matches the pre-shared key in MobiusFlow.

Check that the AP's MAC Address is correct in MobiusFlow.

Ensure that port 30817 is open for outbound websocket connections.

4.2 MobiusFlow is Not Receiving EnOcean Data

Navigate to the **EnOcean Devices** service, select the correct **EnOcean** object.

Check that the correct UID has been entered for this device

Ensure that the device is within range of a connected AP

Ensure that the EnOcean device has enough power to transmit data. This is especially important for devices that harvest energy from photocells etc.

4.3 Support

For MobiusFlow support please contact support@mobiusflow.com or visit our web page at www.mobiusflow.com

For Aruba support please contact your Aruba reseller or go to this web page https://support.hpe.com/connect/s/?language=en_US



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