Libelium-Azure Development Kit

Quick Start Guide

The IoT Marketplace

Make it real

libelium

Microsoft

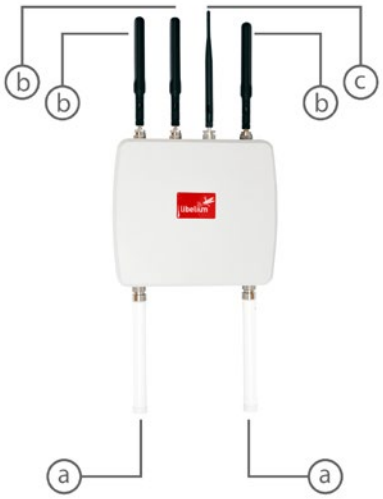
INDEX

1. Identify the products

2. Open the box

3. Identify Meshlium device and antennas

4. Antennas set up



Antennas *

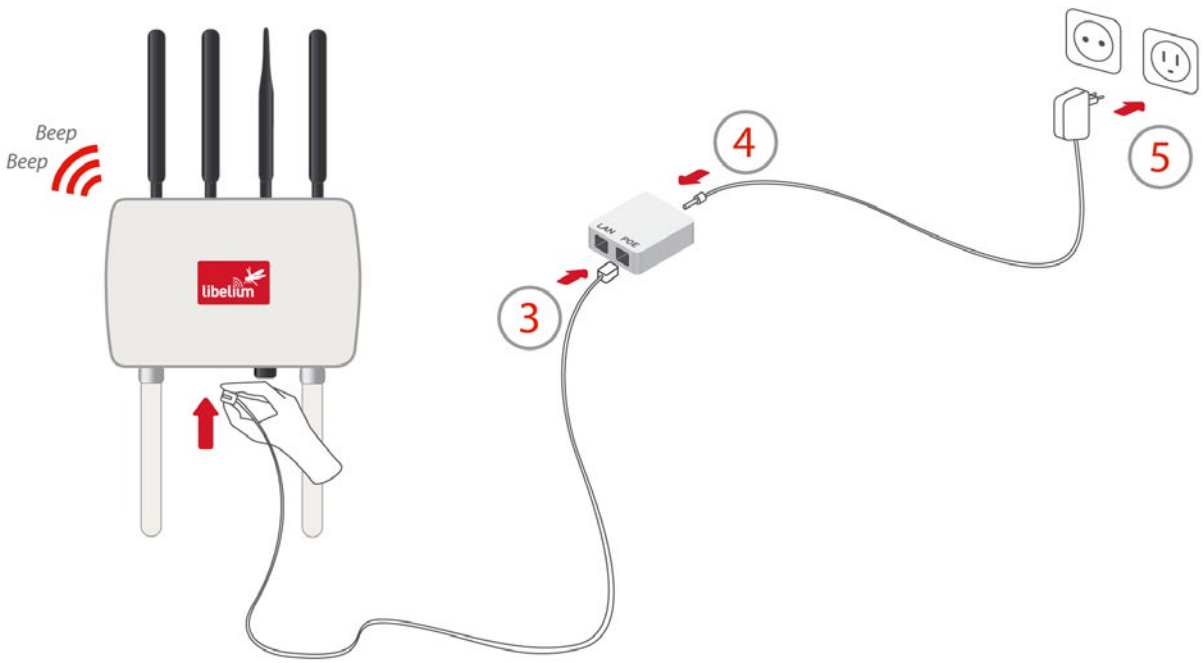
a) Dipole 5 dBi (Bluetooth, WiFi, XBee-PRO 802.15.4).

b) 4G / GPS (3 antennas for EU, US or BR models; 2 antennas for AU models).

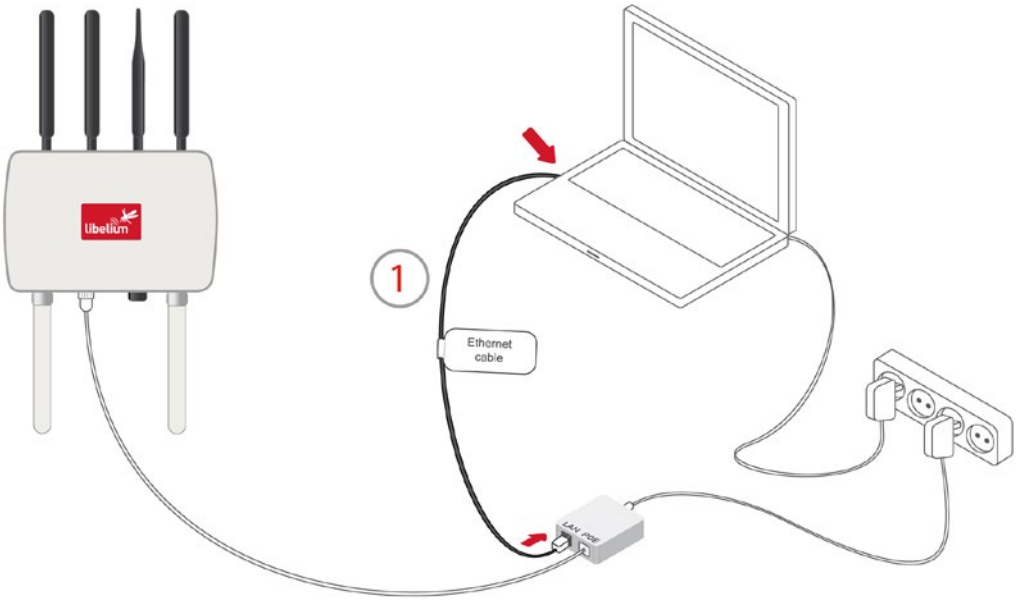
c) Dipole 4.5 dBi (XBee 868LP, XBee-PRO 900HP).

(*) Number and type of antennas depend on the model purchased.

5. Power set up



6. Internet set up



Wifi Access:

- Connect to Meshlium Wifi AP
  - Meshlium_XXXX,
  - no password needed

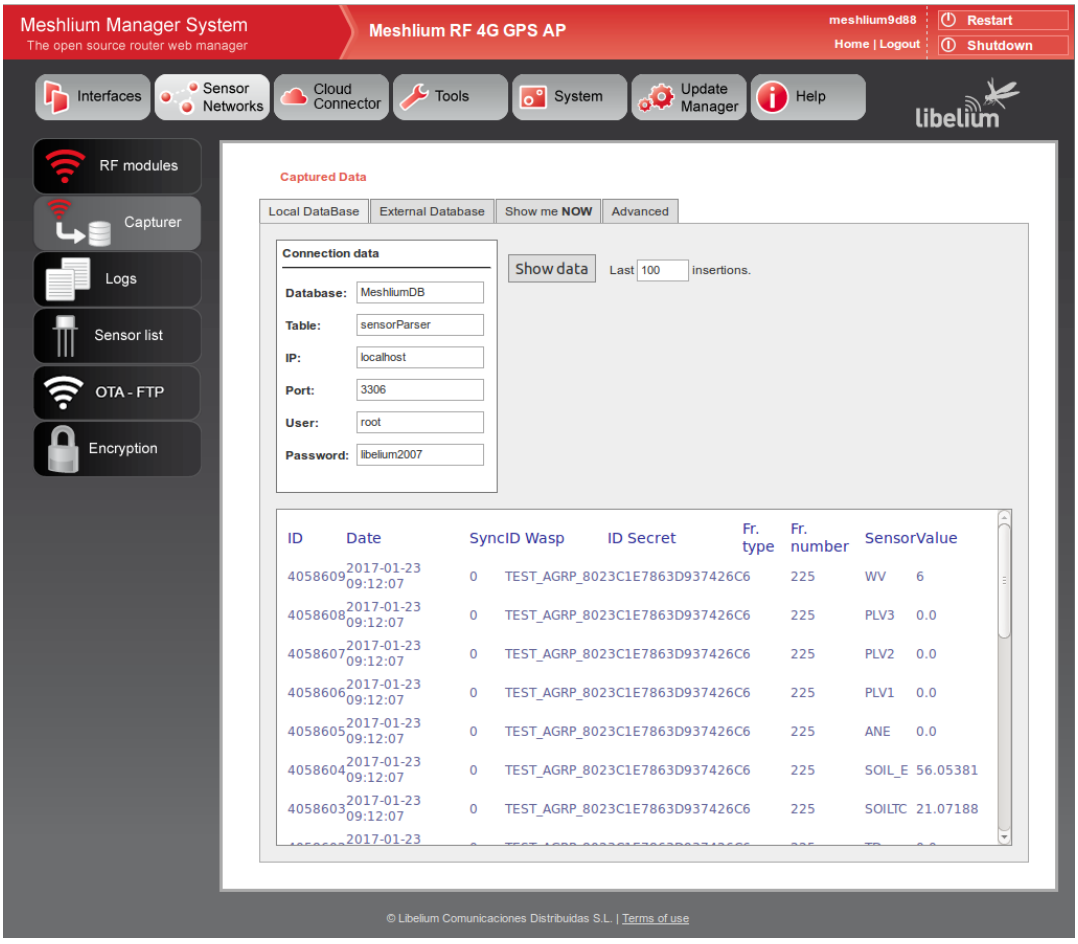
- Access Meshlium IP 10.10.10.1/MeshliumManager using a Web Browser (IE, Chrome, Firefox)
  - User: admin
  - Password: libelium

Ethernet Access:

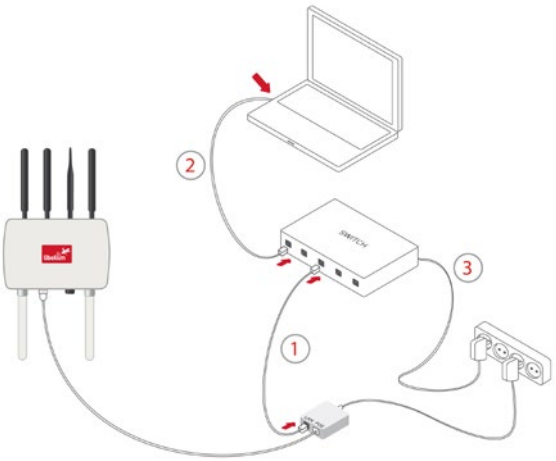
- Access Meshlium assigned IP/MeshliumManager using a Web Browser (IE, Chrome, Firefox)
  - User: admin
  - Password: libelium

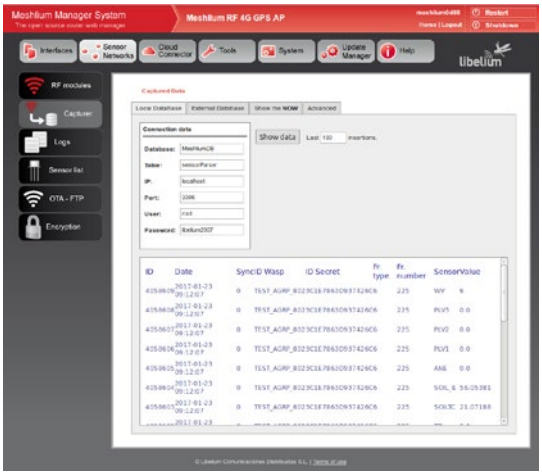
- Meshlium will use DHCP to get the IP address from your router, check in your router the IP address given.

7. Checking data received at Meshlium

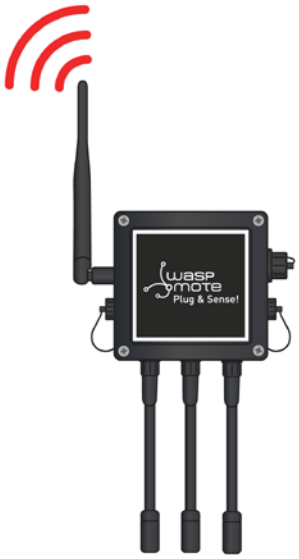


8. Now you can receive data





9. Get Ready to send Data



10. Open the box

11. Recharge Plug & Sense!

12. Antennas set up

13. Identify Plug & Sense! family

Smart Environment

Smart Environment PRO

Ambient Control

Smart Agriculture

Smart Cities PRO

Smart Water

Smart Water Ions

Smart Security

4-20 mA Current Loop

Smart Parking

Radiation Control

14. Check connection diagram

Libelium Azure Development Kit

Get started in the IoT!

Plug & Sense!

- (1) Plug & Sense! Smart Cities PRO 802.15.4 5dBi x1
- (2) Plug & Sense! Smart Agriculture PRO 802.15.4 5dBi x1

Sensor Probes

- (3) Noise Level Sensor x1
- (4) Ultrasound Probe x1
- (5) Calibrated CO_2 Gas Sensor Probe x1
- (6) Soil moisture 1.5 Probe x1
- (7) Weather Station WS-3000 Probe x1
- (8) Temperature, Humidity and Pressure Sensor Probe x1
- (9) Luminosity (luxes accuracy) Probe x1

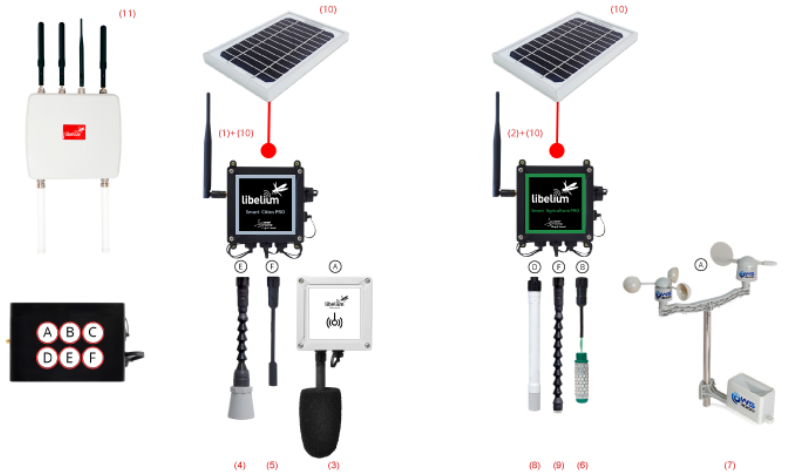
Power Options

- (10) 6600mA·h Rechargeable Battery + External Solar Panel x2

Meshlium

- (11) Meshlium 4G 802.15.4-AP x1

Connection Diagram



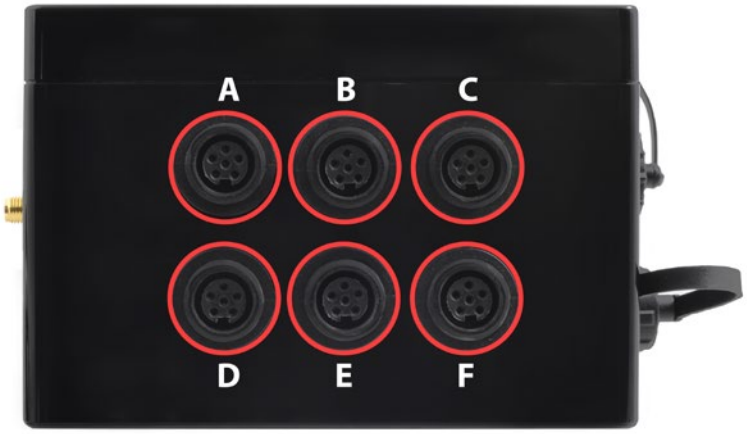
*Pictures are for representation purpose only.

For technical documentation visit:
libelium.com/products/plug-sense/models/

- Show a working demo to your customers within days
- Create an IoT laboratory for your students
- Test and discover the most suitable technology for your project

libelium
www.libelium.com

15. Sensors setup



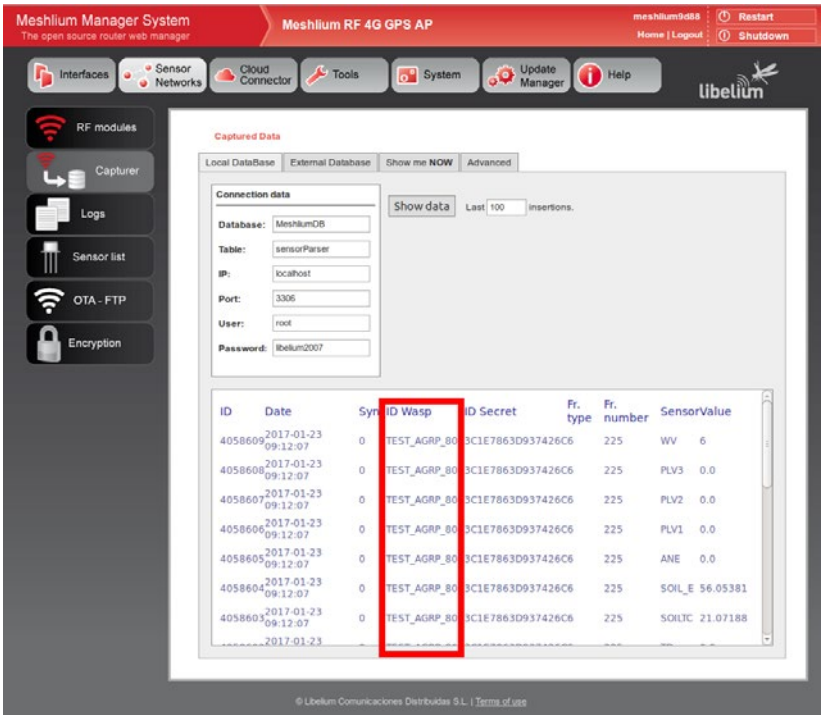
16. Connect sensors

17. Connect Solar Panel

18. Turn ON Plug & Sense!

19. Checking if data is received

- Access to Meshlium as explained before in page 5-6.
- To check that your Plug & Sense! is sending data, see the ID_Wasp. The ID_Wasp of each Plug & Sense! can be found in the details sticker.



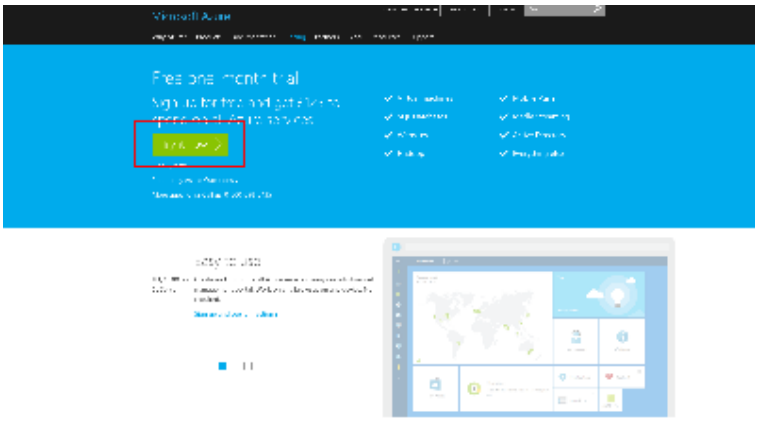
20. Next Steps

Check the following instructions for setting up Meshlium working with the ESRI platform.

20.1. Obtaining a free one-month trial

In order to apply for a free 30 day trial in the Azure platform, visit this URL:

https://azure.microsoft.com/en-gb/pricing/free-trial/



You need a Microsoft account in order to start your trial. Find information about Microsoft accounts here:

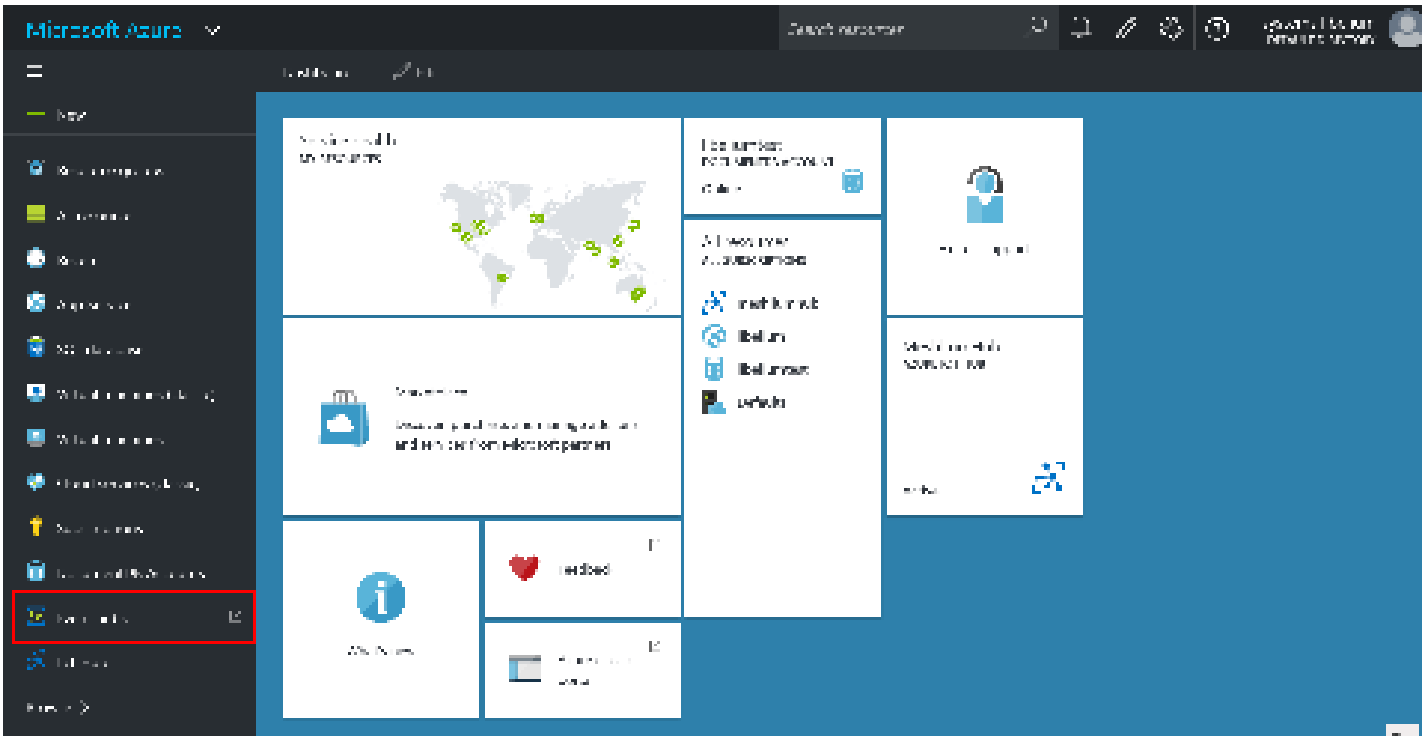
https://www.microsoft.com/es-ES/account/default.aspx

20.2. Setup in Azure

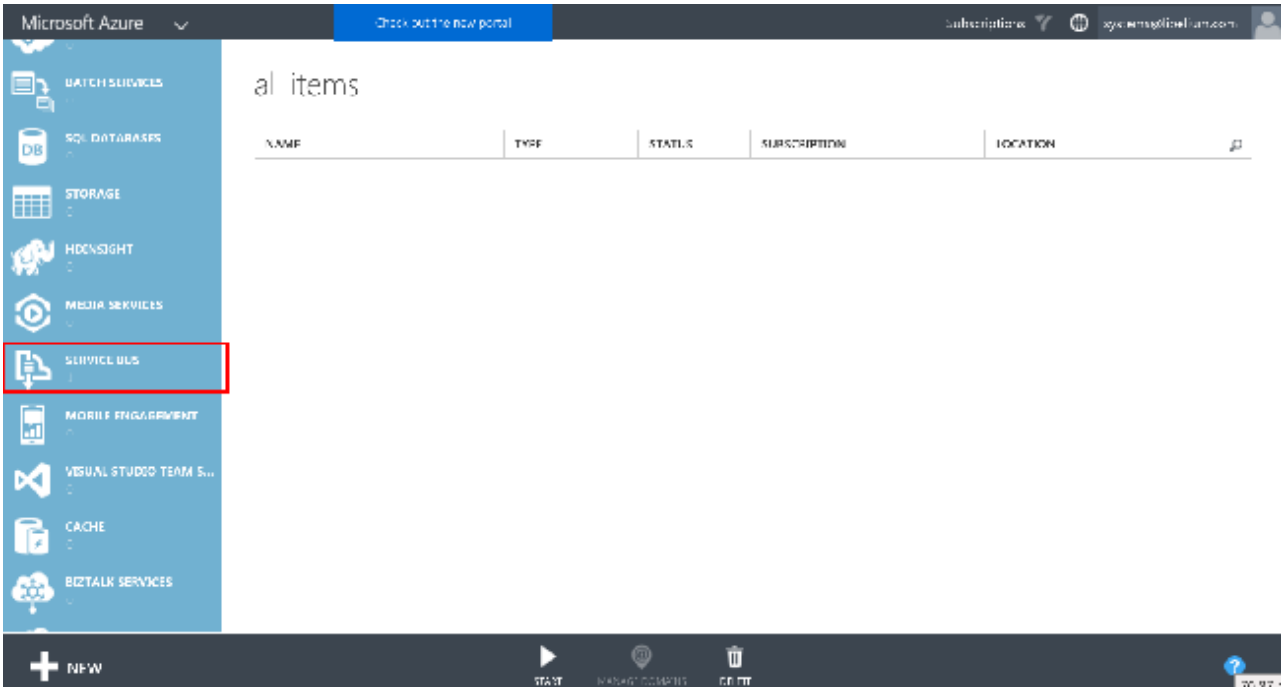
All the Azure setup operations can be done in the management portal in the URL:

https://portal.azure.com/

After login with your Microsoft account, you will have an administration panel. To setup the Event Hubs options click on the Event Hubs button on the left bar.

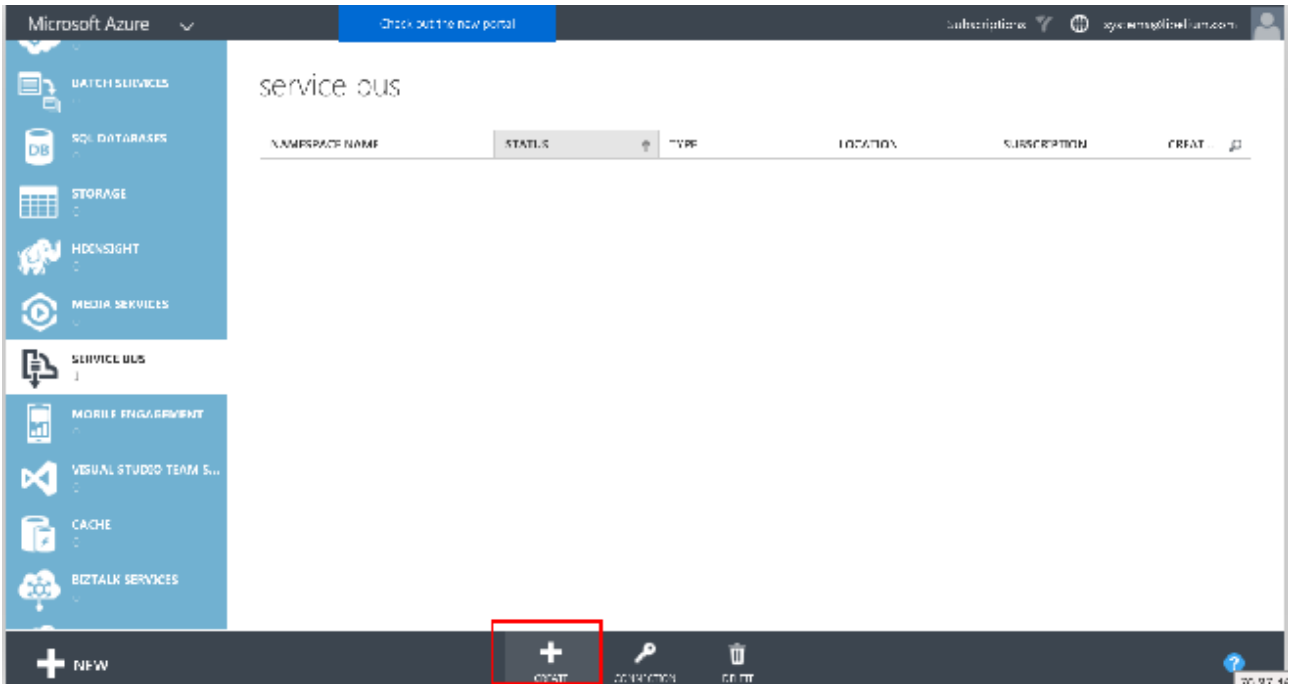


This will open a new management portal with more options. Event Hubs options are included in Service Bus features. You can enter Service Bus setup clicking in the icon in the left bar.

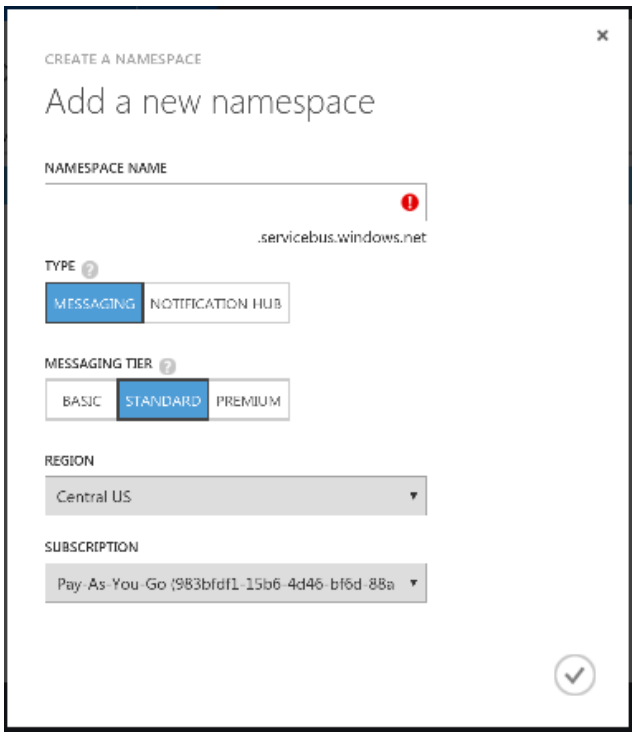


20.2.1. Creating NameSpace

Once in the Service Bus setup, the first step is creating a NameSpace. You can create a new NameSpace clicking in the button "+" at the bottom of the page.



A pop-up will open with the NameSpace form:



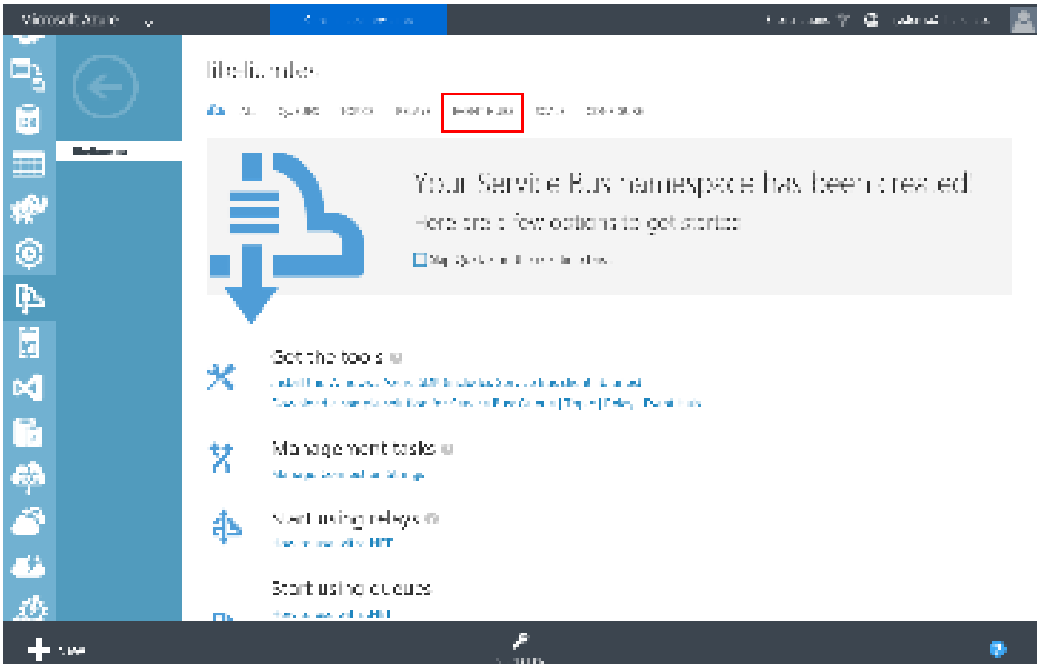
In this window we must complete:

- name for the NameSpace to be created.
- Type: For Event Hubs the type must be “Messaging”
- Message Tier: Choose between different prizing scehmes (more information in: https://azure.microsoft.com/en-us/pricing/details/service-bus/)
- Region: Choose the better region for your application. Typically the closest.
- Subscription: Choose your free trial subscription or your pay subscription.

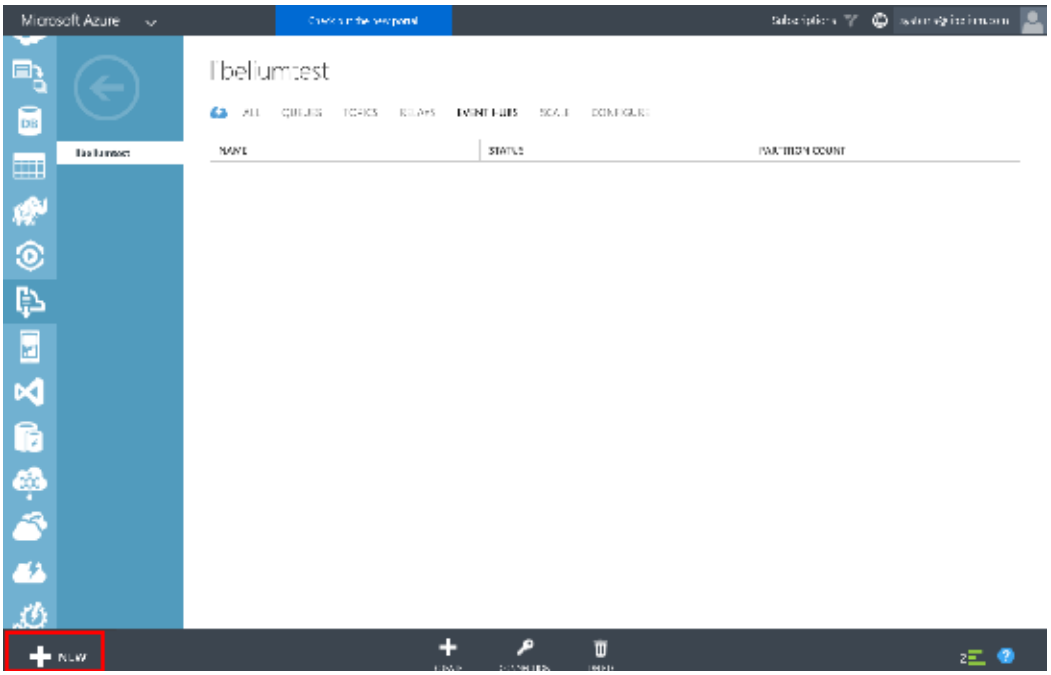
Your namespace will appear now in the list of Service Bus NameSpaces.

20.2.2. Creating Event Hub

To enter Event Hubs setup you can click on your NameSpace. There you can select Event Hubs.

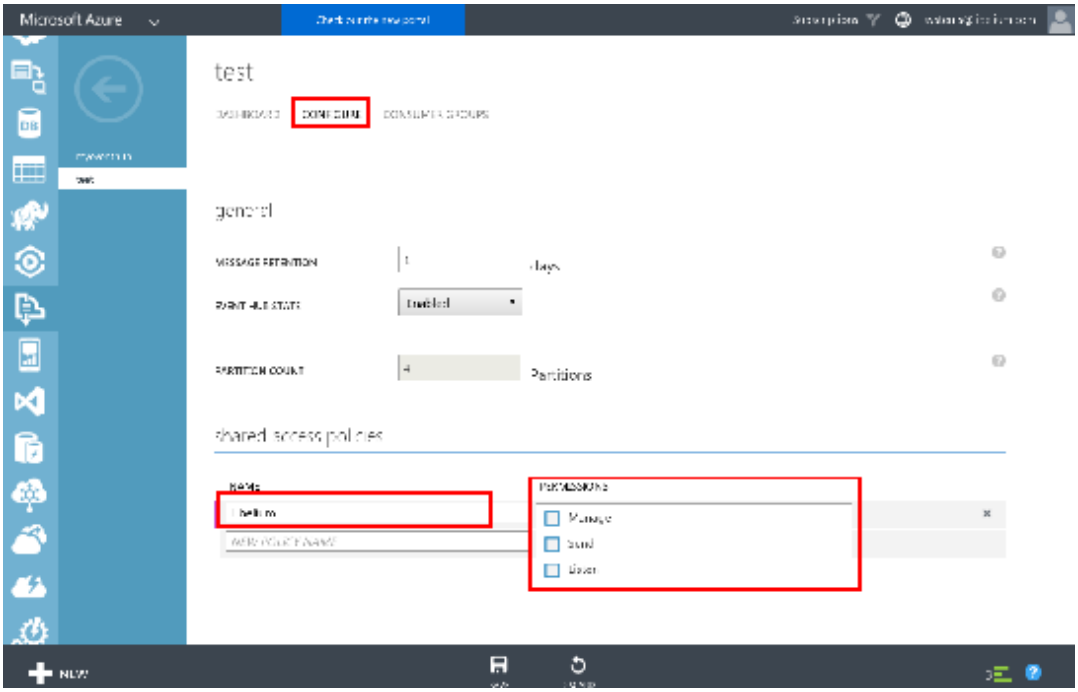


To create a new Event Hub, click on the “+NEW” button.

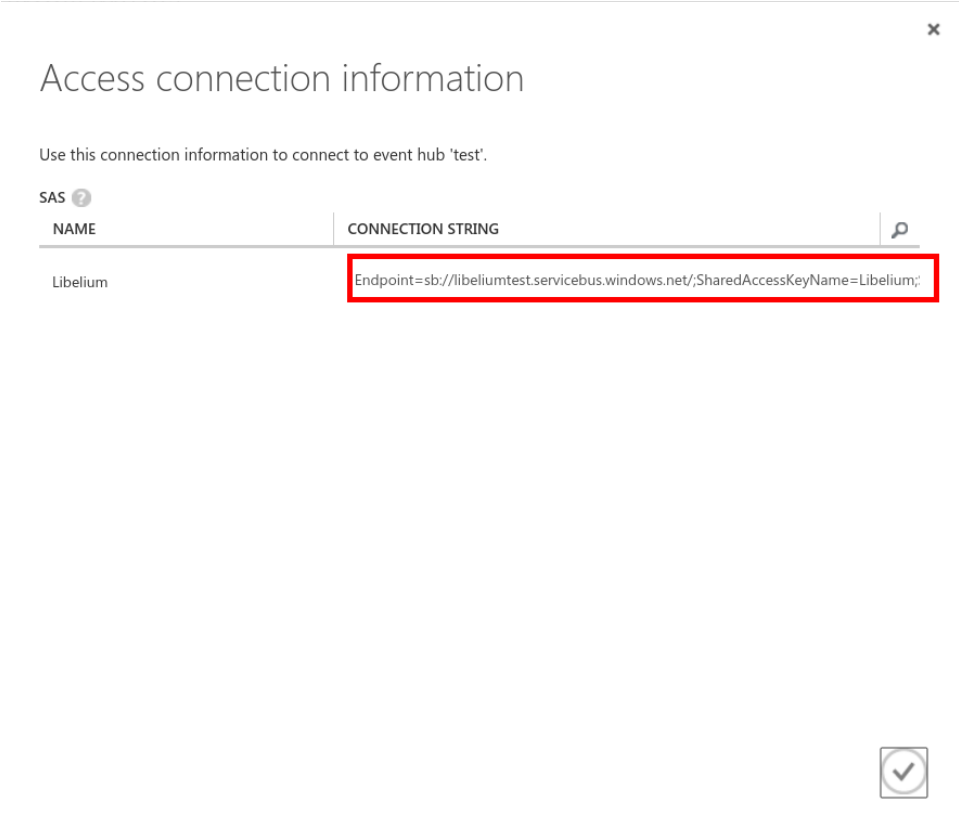


Then, select “Service Bus > Event Hubs > Quick Create” and fill the form with the name, region, subscription and namespace associated to the Event hub to create.

Once created, you have to setup security policies in order to create the authentication tokens. To do this, select the “configure” tab. There, add at least one “Shared access policy”, with the desired name and the permissions assigned to the user (Manage, Send or Listen).



Then select the Event hub and click on “Connection Information” button in the bottom of the page. Now you can see the authentication information, where you can extract the Directive Name and the Directive Key that you have to setup in Meshlium. In the long text, the parameter SharedAccessKeyName corresponds to the Directive Name and the parameter SharedAccessKey corresponds to the Directive Key.



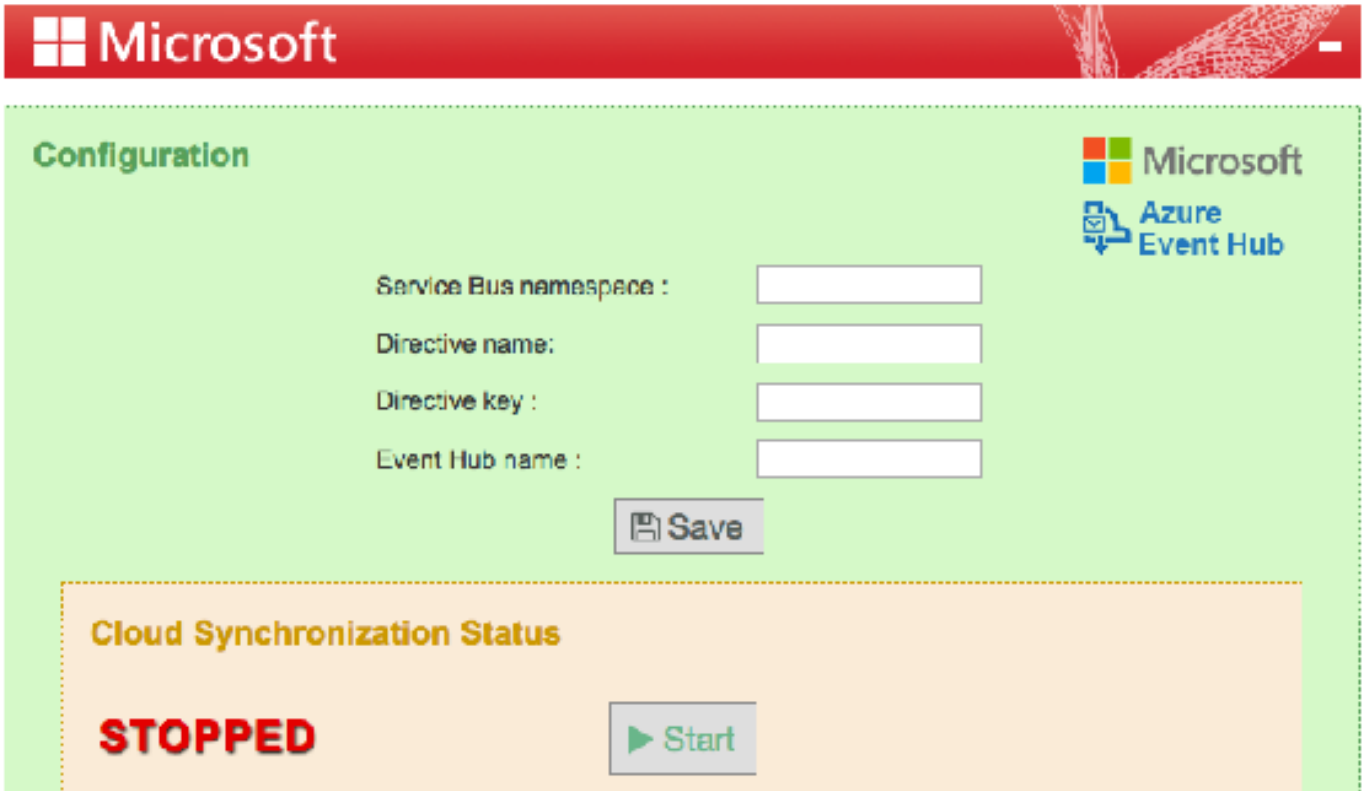
20.3. Setting up Meshlium

In a web browser, you have to access to the Manager System with the IP your Meshlium has assigned.
If you are connected to the Meshlium WiFi Access Point, the IP will be 10.10.10.1. On the other hand, if you are connected to the Ethernet network, you will have to be able to identify the IP your Meshlium has assigned by DHCP in order to access to the Manager System. If your network does not offer DHCP service, Meshlium starts with a default IP (192.168.1.100)
The default credentials are:

- **URL:** http://<your_ip>/ManagerSystem
- **user:** root
- **password:** libelium

20.3.1. Azure Event Hubs setup

In the Cloud Connector section, inside M2M Platform group, clicking on Azure Event Hubs icon, we can see the form in which we can configure all parameter to connect and send the information to the platform



The parameters to setup are:

- **Service Bus Namespace:** The namespace created for your Event Hub.
- **Directive Name:** The authentication name set in Azure platform in the past section.
- **Directive Key:** The authentication key set in Azure platform in the past section.
- **Event Hub Name:** The name of the event hub to send data.

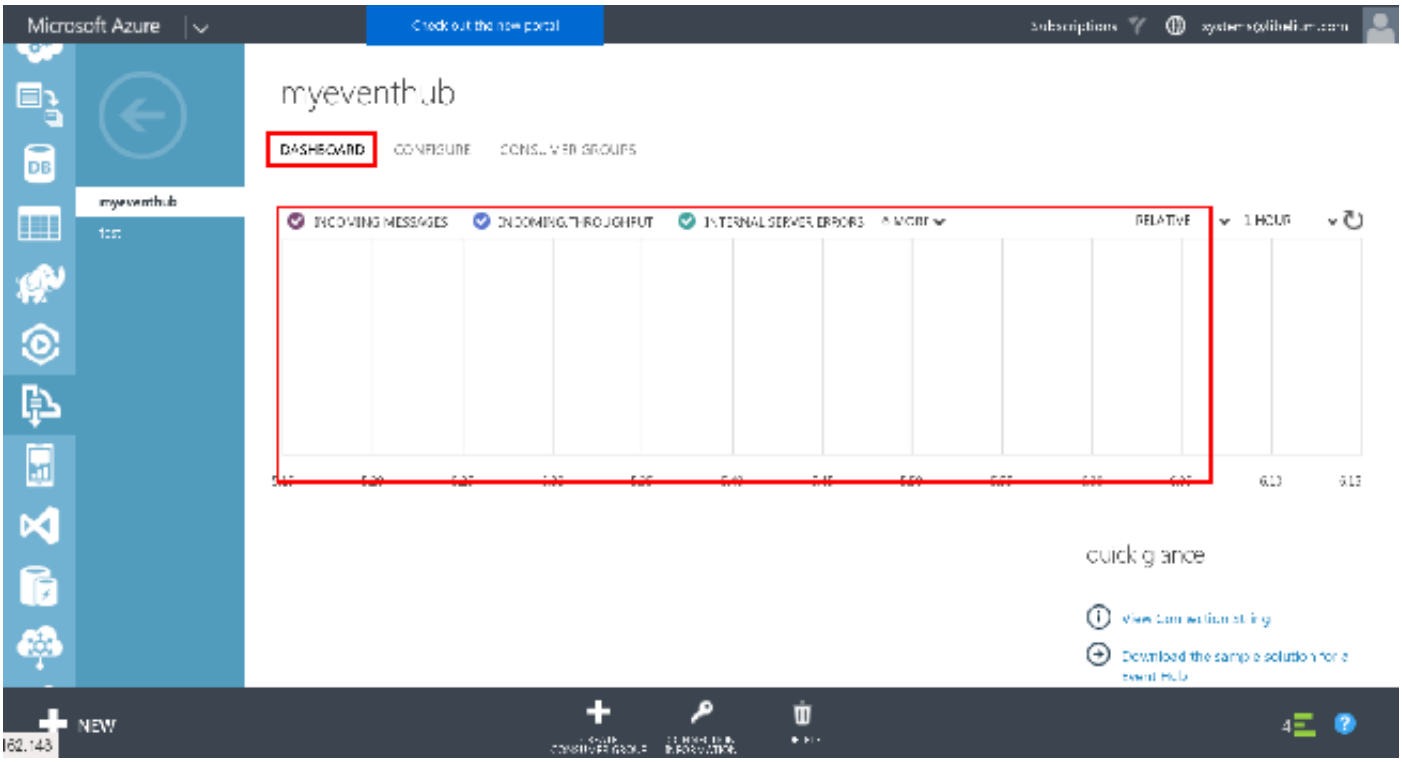
Click on the "Save" button to write this setup to the Azure service.

Once you have typed all fields press save button to save your configuration, then you can start sending your data via Event Hub to your Azure Cloud by pressing Start button. You will notice about it because the screen gives a spinning wheel when the process starts and displays a "running" status.

If you want to stop this process just press "Stop" button. You can start/stop this process whenever you want.

20.4. Event hub information

In the administration panel, there is a dashboard that gives information about the Event Hub, such as number of events received, througput (incoming and outgoing), number of errors and total requests.



In order to consume the events sent to the Event Hub, you can use Microsoft tools. Find more information in:

https://azure.microsoft.com/en-us/documentation/services/event-hubs/