

Light for TEOS

Installation & User Manual

Document revision 1.1

Overview

2 busylights have been integrated within TEOS:

The Innes SBL10e Qeedji :

<https://www.innes.pro/en/sbl10e/>

The Plenom Kuando Busylight

<https://busylight.com/kuando-busylight-iot-omega-lorawan-eu/>

Both can be used with TEOS to show the status of a space (meeting room or desk). This technology has been selected to be integrated in TEOS for the flexibility of installation as device works with a simple USB 5V plug and can show light using LoRaWAN technology (same as for the sensors)

Requirements

- LoRaWAN Gateway (not supplied), the requirement for a gateway for EU region usage a frequency compatibility from 863-870 MHz with 8 channels at least
- LoRaWAN Gateways used for tests:
 - You can find all the LoRaWAN gateways compatible in this [URL](#) under thethingsindustries website
 - Multitech Conduit AP (<https://www.multitech.com/brands/multiconnect-conduit-ap>)
 - Seeed Studio The Things Indoor (for demo purpose found in Amazon [HERE](#)).
- TheThingsIndustries (chargeable version) of the platform to send data (downlinks) from TEOS to the busylights. This part is on top of the TEOS offer
- TheThingsNetwork (free version) allow only up to 10 downlinks per day
- Manage for TEOS from version 3.1
- TEM-SL20.xY, package with 20 device licenses to be able to add them into TEOS, get the data and take actions from this data
- Internet access for TEOS, to be able to connect with TheThings Platform
- For the Innes Busylight only a PoE switch port is needed for licenses, SL20.1Y are not directly compatible. Please contact support@teos.support to get them working

Contents

| | | |
|-----------|---|-----------|
| 1. | Innes SBL10e installation & usage | 3 |
| | Configuration of the device | 3 |
| | Add the Innes busylight in TEOS..... | 4 |
| | Create an automation scenario for the Innes busylight management..... | 6 |
| 2. | Kuando Busylight IoT Installation & usage | 7 |
| | Busylight IoT specs..... | 7 |
| | Technical flow overview..... | 7 |
| | Add LoRaWAN controller and Busylight into TEOS | 8 |
| | Gateway Creation in TheThingsNetwork (optional)..... | 8 |
| | Configuration of the LoRa Gateway (OPTIONAL)..... | 10 |
| | Configuration in TheThingsNetwork..... | 10 |
| | Installing and enabling TEOS IoT service (On Premise Version of TEOS) | 13 |
| | Installing and enabling TEOS IoT service (ON CLOUD) | 16 |
| | Add a LoRaWAN controller and sensors in Manage for TEOS | 16 |
| 3. | Kuando Light assignment to a space | 18 |
| | Room or desk assignment under site configuration | 18 |

1. Innes SBL10e installation & usage

The SBL10e occupancy indicator light is particularly suitable for office environments in smart buildings. Connected directly to a RJ45 powered plug (PoE), its commissioning is very fast. It is equipped with LED light which diffuses a green, red, blue, yellow or orange light. The way to control the scattered light depends on the firmware installed on the device. In its standard version, the light commands can be requested by a simple HTTP request or WEB Browser.

You can find the user guide of the product on this URL :

http://www.geedji.tech/free-downloads/sbl10e/regular/V1.11.12/sbl10e-regular-user_manual-1.11.12-002A_en.pdf

CONFIGURATION OF THE DEVICE

Connect the device to your network. By default, the device is configured with Obtain de IP address automatically by DHCP activated and Time for attempts inactivated. As soon as the DHCP server becomes available, the device ends by getting back a valid IP address given by the DHCP server within less than one minute. After a device reboot, when the device is configured with Obtain de IP address automatically by DHCP activated and Time for attempts is activated, in case the DHCP server is unavailable after the Time for attempts duration (10 minutes, maximum and default value) has expired, the device ends up using the static IP address entered in the LAN configuration. The static IP address is 192.168.0.2 when it has never been changed yet by the user. It is recommended to set an appropriate IP address, netmask and gateway if this case would happen. In case a daily reboot task is programmed, the device will restart this operation the day after.

You can under the web interface of the device define a fixed IP address. To connect tot he device, It is available from the URL:http://device_ip_address

By default, the login credentials for the device Web user interface are:

login: admin

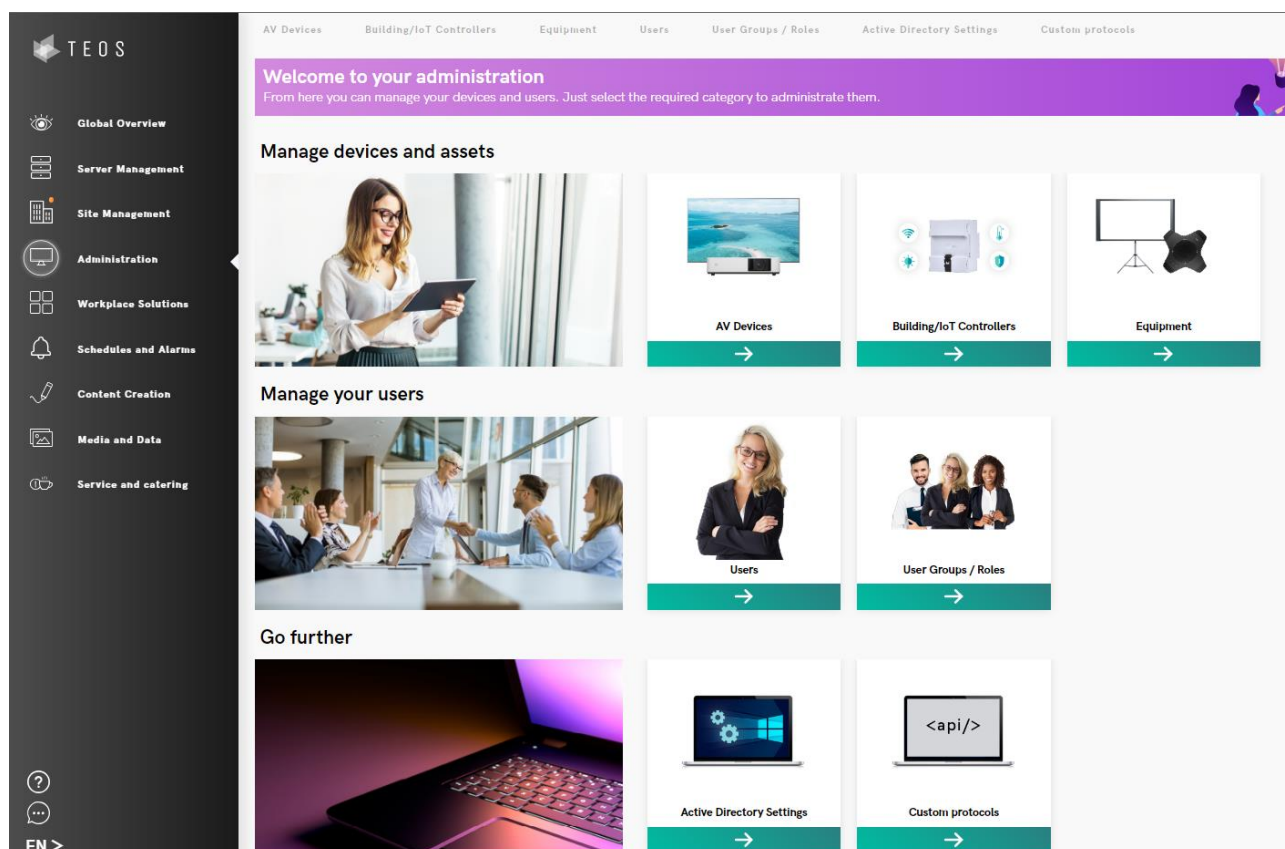
Password: admin .



You can then go to the administration console to set it up. Please refer tot he user guide from Innes to find any parameters you would like to use

ADD THE INNES BUSYLIGHT IN TEOS

Login to you TEOS solution (you must have a TEOS Enterprise for this integration) and go to administration > custom protocols.



Under custom protocol add a custom protocol as a custom action

Custom protocol
On this page you can edit your custom protocols for devices which are not natively compatible with TEOS.

General

Name: Qeedji Red

Type: Custom actions

Protocol configuration

| Field | Field type |
|-----------|------------|
| ipaddress | Text |

Needs delegated device: ☒

Delegated device:

Actions Add action

☒ New action HTTP

Add a field type text and define the variable "ipaddress"

| Field | Field type |
|-----------|------------|
| ipaddress | Text |

For the CLOUD version of TEOS define the delegated device who will send the command in port 80 to the busylight. Make sure they are both reachable in the same network.

Add an action type HTTP and define the URL:

- [http://ipaddress\]/api/v1/leds/light?color=red](http://ipaddress]/api/v1/leds/light?color=red) (for the red color)
- [http://ipaddress\]/api/v1/leds/light?color=green](http://ipaddress]/api/v1/leds/light?color=green) (for the green color)

define the HTTP method to “PUT”

Dialog box titled "Edit action" showing configuration for a new action:

- Action**
 - Name: New action
 - Protocol: HTTP
- Request**
 - URL: `http://ipaddress]/api/v1/leds/light?color=red`
 - HTTP method: PUT
 - HTTP content-type: (empty)
 - HTTP headers:

| HTTP header | Value |
|---------------|------------------------|
| Authorization | Basic YWRtaW46YWRtaW4= |

Buttons: SAVE, BACK

Add a header with the following details:

- HTTP header: Authorization
- Value: Basic YWRtaW46YWRtaW4=

Save the action and save the custom protocol. Do the same action for the green status of the led by following all the steps and putting in the URL the “green” URL instead of read

Dialog box titled "Edit action" showing configuration for a new action:

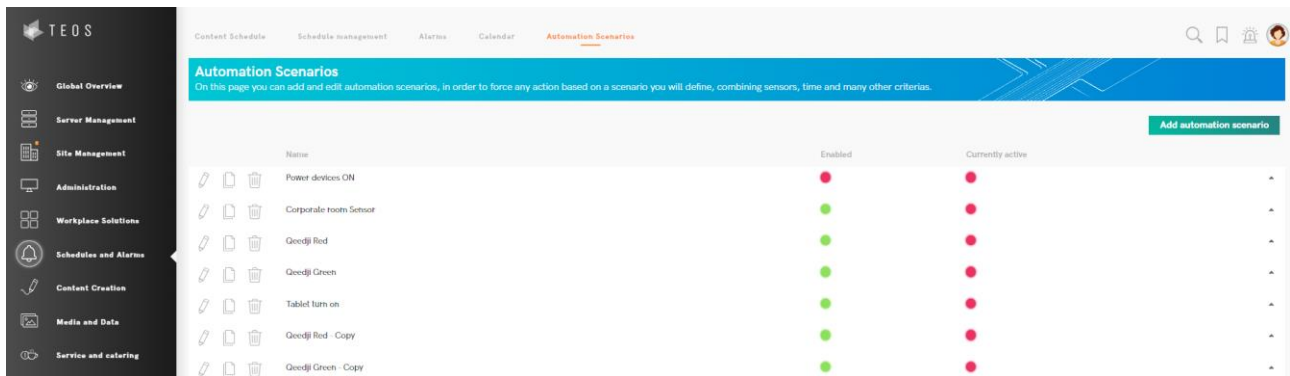
- URL: `http://ipaddress]/api/v1/leds/light?color=red`
- HTTP method: PUT
- HTTP content-type: (empty)
- HTTP headers:

| HTTP header | Value |
|---------------|------------------------|
| Authorization | Basic YWRtaW46YWRtaW4= |
- Body: (empty text area)

Buttons: SAVE, BACK

CREATE AN AUTOMATION SCENARIO FOR THE INNES BUSYLIGHT MANAGEMENT

For that go to schedule and Alarms and automation scenario



Create a new automation scenario where you will link the sensor detection or the calendar activity to the status of the Qeodji busylight. As shown below, the Qeodji will turn green if the room is not booked (checked via the conditions). For the action select “Other” and custom protocol action and select the name of your custom protocol and define the IP address of the device

Conditions

When of the following conditions are true

Calendar

Is booked currentl

Equals

False

Calendar

Room02@leosdemo.nl

Time Zone

(UTC+01:00) Brussels, Copenhagen, Madrid, Paris

+ Add condition

Actions

The following actions will be triggered:

Other

Custom protocol action

Protocol

Qeodji Green

Action

New action

Delay action

0

seconds

ipaddress

192.168.8.106

+ Add action

Save the configuration for green and red. The device will then show the status according to the calendar of de space.

Automation scenario

On this page you can add and edit automation scenarios, in order to force any action based on a scenario you will define, combining sensors, time and many other criteria.

Back Save

General

Name: Qeodji Green

Active: ☒

Action priority: 10

Conditions

When of the following conditions are true

Calendar

Is booked currentl

Equals

False

Calendar

Room02@leosdemo.nl

Time Zone

(UTC+01:00) Brussels, Copenhagen, Madrid, Paris

+ Add condition

Actions

The following actions will be triggered:

Other

Custom protocol action

Protocol

Qeodji Green

Action

New action

Delay action

0

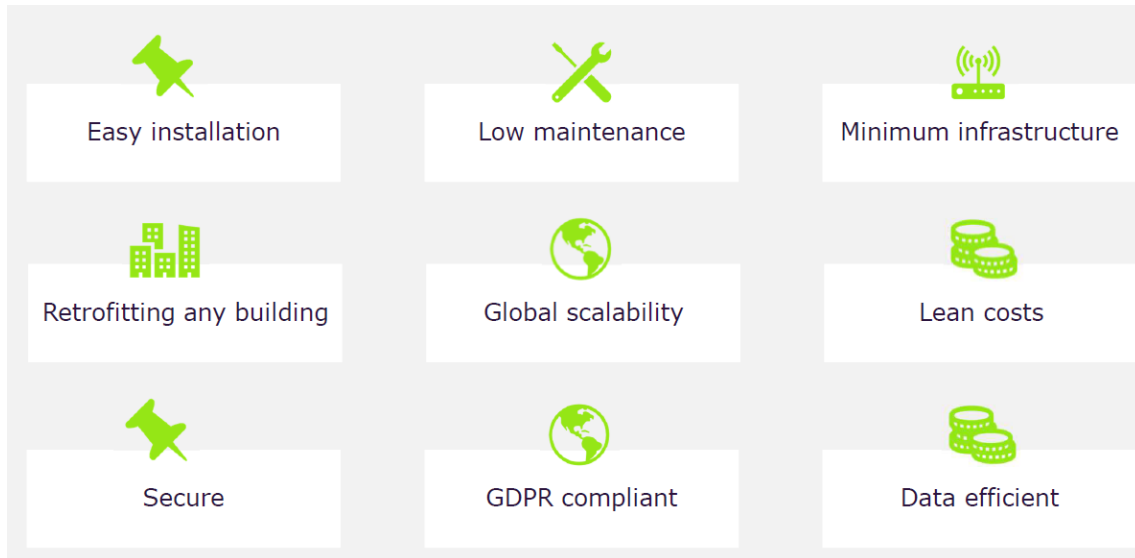
seconds

ipaddress

192.168.8.106

2. Kuando Busylight IoT Installation & usage

Smart Building solutions increases the value of an organisation for various stakeholders. Therefore, it is important that the desired and final solution meets the exact needs of a business. The kuando Busylight IoT for LoRaWAN networks is a class C LoRaWAN device and can be installed in large variety of use cases. Through the LoRaWAN downlink package the Busylight can be programmed to show any color and used as a visual notifier, indicating a certain event, status or as a cue for specific handling. Installing the Busylight in networks combined with Class A sensors will complete the IoT experience and the use cases are basically endless. Examples could be:



BUSYLIGHT IOT SPECS

General specifications for kuando Busylight Omega:

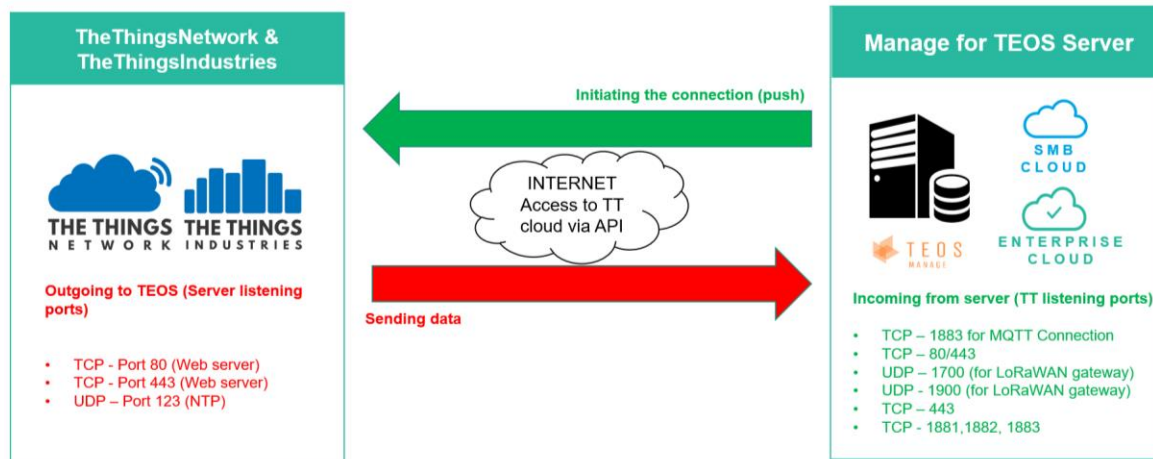
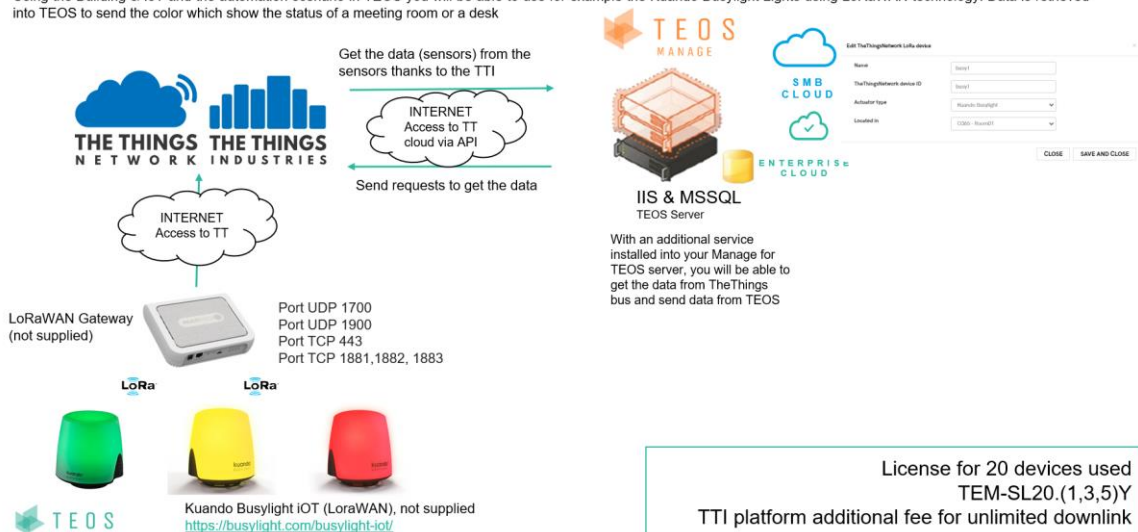
- 360 degree visible angle.
- USB connected with 3 mtr (HID device)
- Multi color LED light (only green, yellow, red for TEOS)
- Class C compatible LoRaWAN technology embedded

TECHNICAL FLOW OVERVIEW

To use the Busylight into TEOS, or in another platform you need to understand the network infrastructure needed for that part.



Using the Building & IoT and the automation scenario in TEOS you will be able to use for example the Kuando Busylight Lights using LoRaWAN technology. Data is retrieved into TEOS to send the color which show the status of a meeting room or a desk



Add LoRaWAN controller and Busylight into TEOS

For LoRaWAN busylight integration and taking the example of the Multitech gateway and TheThingsNetwork integration, please make sure, TTI platform can receive the data from the devices, which means that you have a gateway and an application created.

Be aware that from December 2021, the V2 Console will be shut down and thethingsnetwork will be only V3. We recommend you to use directly the V3 platform or to use our Sony thethingsindustry platform (please contact us for that part)

GATEWAY CREATION IN THE THINGS NETWORK (OPTIONAL)

For you to see if you gateway is able to connect to ThethingsNetwork and get information from it.

Go to <https://console.thethingsnetwork.org> and create an account, when you have access to the console, select gateways to create the link between the gateway and TTN.

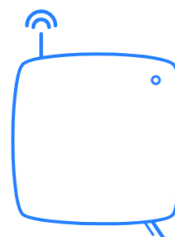
Welcome back, Guillaume Oliveira! 🤖

Walk right through to your applications and/or gateways.

Need help? Have a look at our [Documentation](#) or [Get Support](#).



Go to applications



Go to gateways

Insert a gateway ID with the gateway EUI (shown below), define the Frequency Plan (868MHz) if you are in Europe and select the TTN server to be used (in our case ttn-router-eu). Press save

Add gateway

General settings

Owner *

guillaume

Gateway ID *

my-new-gateway

Gateway EUI

gateway EUI

Gateway name

My new gateway

Gateway description

Description for my new gateway

When you save the page, you will have a gateway key that you can copy to be used later in the gateway to synchronize the gateway with TTN.



gtw-ttn-gfo

ID: gtw-ttn-gfo

Disconnected 1 Collaborator 0 API keys

General information

Gateway ID gtw-ttn-gfo

Gateway EUI 68 A0 CB FF FE 80 35 0F

Gateway description None

Created at May 15, 2021 07:49:21

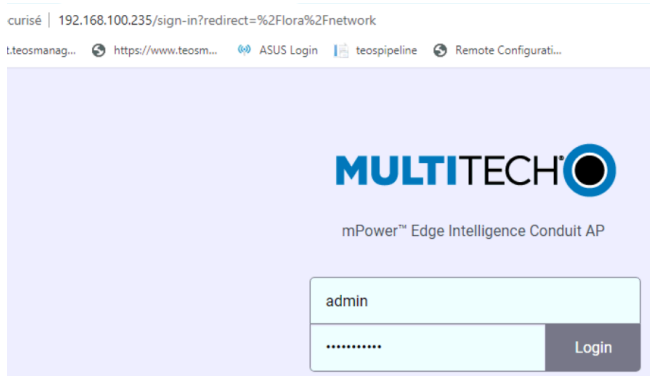
Last updated at May 15, 2021 07:57:54

Live data

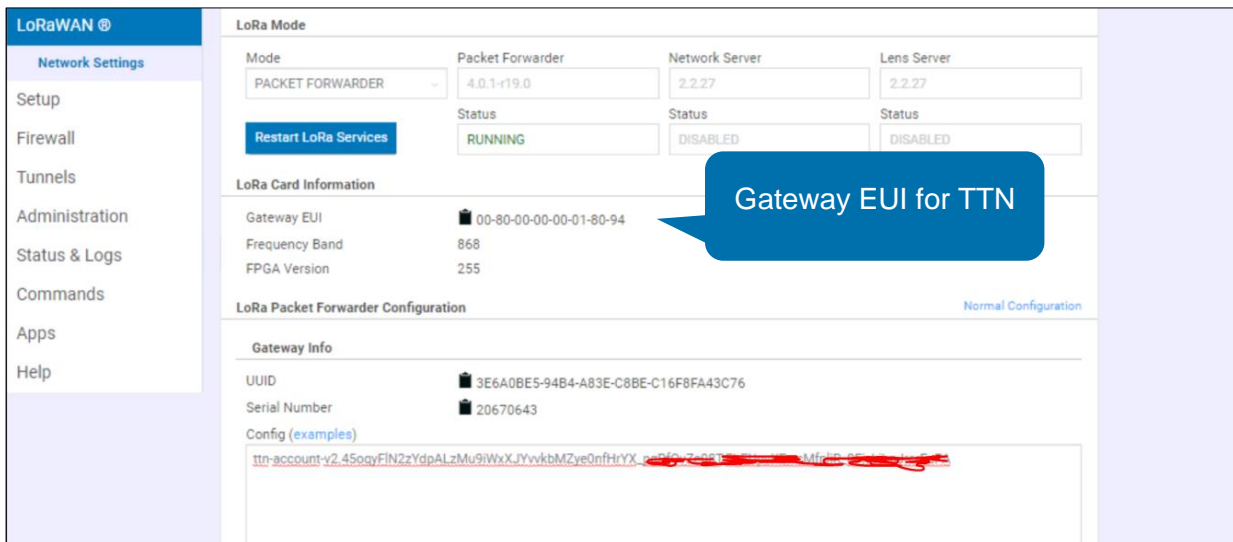
CONFIGURATION OF THE LoRa GATEWAY (OPTIONAL)

Using the Multitech Conduit AP, connect the device to a network where you can access on and the gateway get an internet access.

Open the web browser of the gateway (please follow the steps defined by the vendor for the first usage of the gateway) and login.



Go to LoRaWAN page and select Network Settings. For the gateway



Save your configuration and restart LoRa Services, the gateway should show the status "RUNNING"

CONFIGURATION IN THE THINGS NETWORK

Go back now in TTN console <https://console.thethingsnetwork.org> and click on Applications>add application. Define here your Application ID, you can add a description and the region of usage and click save. The Application ID generated here will be used in TEOS for the authentication of TEOS with this application.

Add application

Owner*

guillaume

Application ID*

my-new-application

Application name

My new application

Description

Description for my new application

Optional application description; can also be used to save notes about the application

Create application

Add your Busylight into TTN platform.

For that go into Applications > Devices and add a device, add a device ID, the device EUI (for TEOS sensors) is directly into the device and can be sent separately with the app key which is another security key.

Press add end device and select manually and select the LoRaWAN version which is **MACV1.0.3**

Sensors

Overview

End devices

Live data

Payload formatters

Uplink

Downlink

Integrations

Collaborators

Register end device

From The LoRaWAN Device Repository [Manually](#)

Preparation

Activation mode ⓘ *

☒ Over the air activation (OTAA)

☐ Activation by personalization (ABP)

☐ Multicast

☐ Do not configure activation

LoRaWAN version ⓘ *

MAC V1.0.3

Press start and in the next page insert the end device ID (the one you want), and add the appEUI (you receive in the list from us) and device EUI (which is shown directly in the device hardware sticker. Press after network layer settings to go to the next step.

To add the device to a LoRaWAN network you need:

a) Device EUI: 16-digit code/QR-code can be found on the cord label and on the box.



b) Application EUI: 16-digit code assigned for the application. a. Default is **70B3D57ED1000000**

- b. Alternative code can be assigned and available through Plenom or the Solution Partner.
- c) Application Key: 32-digit code assigned for the application.
- a. A unique number composed by the 16 digit **AppEUI** and the 16 digit **DeviceEUI**.
 - i. Example: 70B3D57ED1000000202020360E0C0F02
 - b. Alternative code can be assigned and available through Plenom

Register end device

From The LoRaWAN Device Repository [Manually](#)

1 Basic settings
End device ID's, Name and Description

2 Network layer settings
Frequency plan, regional parameters, end device class and session keys.

3 Join settings
Root keys, NetID and kek labels.

End device ID ⓘ *

desk01

AppEUI ⓘ *

15 16 16 12 12 15 14 45 00

DevEUI ⓘ *

54 85 48 42 16 16 46 46

End device name ⓘ

My new end device

End device description ⓘ

Description for my new end device

Optional end device description; can also be used to save notes about the end device

[Network layer settings >](#)

Select now Europe 863-870 MHz (SF9 for RX2 – recommend) frequency for Europe and press join settings

Select support Class C when adding the device

From The LoRaWAN Device Repository [Manually](#)

1 Basic settings
End device ID's, Name and Description

2 Network layer settings
Frequency plan, regional parameters, end device class and session keys.

3 Join settings
Root keys, NetID and kek labels.

Frequency plan ⓘ *

Europe 863-870 MHz (SF9 for RX2 - recommended) ▼

LoRaWAN version ⓘ *

MAC V1.0.3 ▼

Regional Parameters version ⓘ *

PHY V1.0.3 REV A ▼

LoRaWAN class capabilities ⓘ

☐ Supports class B

☐ Supports class C

Advanced settings ▼

[< Basic settings](#) [Join settings >](#)

Last step is to add the AppKey that you receive in the list of device when purchasing. Press Add end device to finish the process.

Register end device

From The LoRaWAN Device Repository [Manually](#)

✓ Basic settings
End device ID's, Name and Description

✓ Network layer settings
Frequency plan, regional parameters, end device class and session keys.

3 Join settings
Root keys, NetID and kek labels.

Root keys

AppKey ⓘ *

65 46 4D 31 31 1D 51 D6 51 C6 51 C3 1C 51 C1 35 ⓘ

Advanced settings ▾

[< Network layer settings](#) [Add end device](#)

The configuration is now done, you can check the data received by TTN under the “Live data” page for all the devices on your application or per device.

| | | Applications > Sensors > Live data | | | |
|---------|--------------------|------------------------------------|-------------|-----------------------------|--|
| | | Time | Entity ID | Type | Data preview |
| Sensors | Overview | 17:37:25 | gui | Delete end device | |
| | End devices | 17:37:25 | gui | Delete end device | |
| | Live data | 17:37:25 | gui | Delete end device | |
| | Payload formatters | 17:37:25 | gui | Delete end device | |
| | Uplink | 17:37:07 | gui | Create end device | |
| | Downlink | 17:37:07 | gui | Create end device | |
| | Integrations | 17:37:07 | gui | Create end device | |
| | Collaborators | 17:16:01 | v2presence2 | Forward uplink data message | Payload: { humidity: 69, tempC: 22.66 } 38 00 DA 32 45 FPort: 15 SNR: 7.75 RSSI: -35 Bandwidth: 125000 |
| | API keys | 17:16:05 | v2presence2 | Forward uplink data message | Payload: { hwVersion: 0, swVersion: "2.4", vdd: 2.379 } 82 00 04 11 00 00 03 02 04 22 09 40 FPort: 20 SNR: 9 RSSI: -35 Bandwidth: 125000 |
| | | 00 17:16:08 | v2presence2 | Accept join-request | |

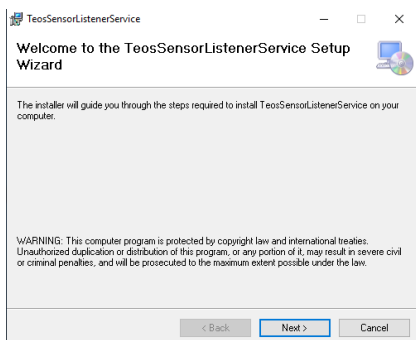
INSTALLING AND ENABLING TEOS IOT SERVICE (ON PREMISE VERSION OF TEOS)

This section explains how to enable into TEOS the possibility to use KNX, DALI and LoRa devices.

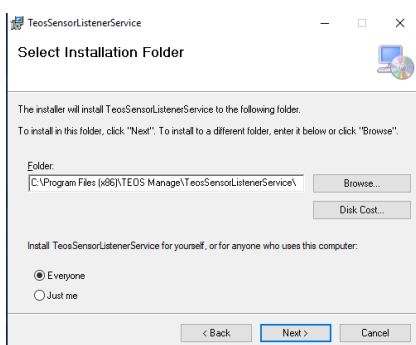
Install Sensor Listener for Service TEOS into your TEOS Server

First, you need to go to your Manage for TEOS Server as an administrator. Download the file Sensor Listener for TEOS Server Setup_1.3.msi (you can download it [HERE](#)). Or you can find it under <https://bit.ly/sonypsetech> under 5.1 building and IoT for TEOS. It can also be found under <https://teos.solutions/resources>

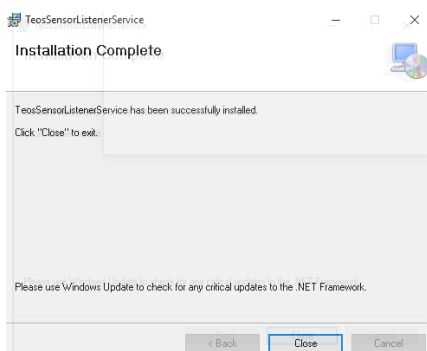
In your Manage for TEOS server, run the software and press “next”



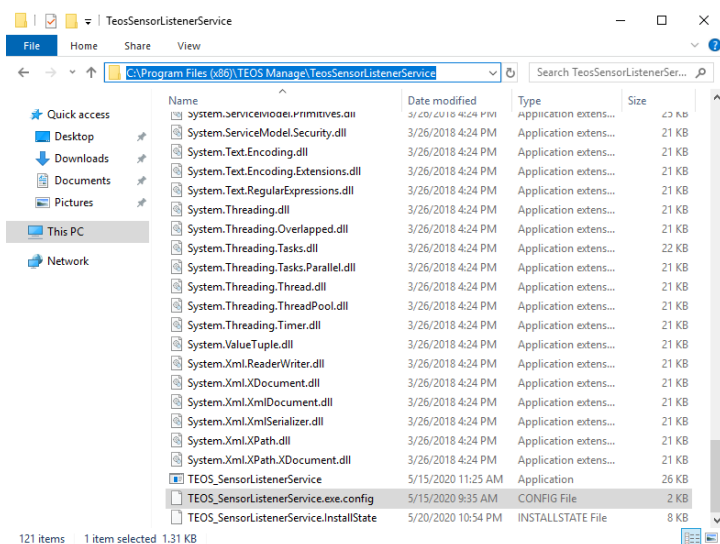
Choose the path for the installation, by default C:\Program Files(x86)\Manage for TEOS\SensorListenerServerforTeos



Click “next” and finish after the installation is done.



Go to C:\Program Files(x86)\Manage for TEOS\SensorListenerServerforTeos and open the file TEOS_SensorListenerService.exe.config with a notepad

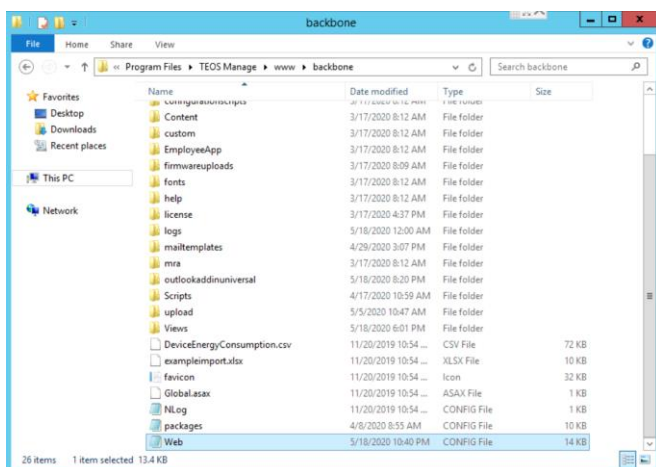


Change in the value of the key Manage for Teos Url with your own server name



Enable Sensor Reader under TEOS Backbone web.config

Go to C:\Program Files\Manage for TEOS\www\backbone and open the file “web.config”.



On lines 71 (ReadSensors) and 73 (EnableAutomation) change the value from false to true.


```

C:\Program Files\TEOS Manage\www\backbone\Web.config - Notepad++ [Administ
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
change.log Web.config TEOS_SensorListenerService.exe.config
53 <!--GEEN BACKSLASH ACHTER ZETTEN-->
54 <add key="LicenseBaseUrl" value="http://test.teosmanage.com" />
55 <!--GEEN BACKSLASH ACHTER ZETTEN-->
56 <add key="PushNotificationProxyURL" value="http://notifications.teosmanage.com" />
57 <!-- Create a VPN connection to be able to use the following configuration settings: -->
58 <!-- For development, connect the following path in file explorer or use the next option
59 <!--<add key="MediaPath" value="\\172.17.2.90\upload\7647032-c973-42c8-b6fa-377e3b0cadf
60 <add key="MediaPath" value="c:\data\upload\7647032-c973-42c8-b6fa-377e3b0cadf0" />
61 <add key="SalesAppPath" value="c:\Data\www\Sony Sales App\upload" />
62 <add key="TEOSConnectIntegration" value="false" />
63 <add key="hueUsername" value="" />
64 <add key="GoogleCal_sqlserver" value="teospipeline.teosdemo.com" />
65 <add key="GoogleCal_sqluser" value="googlecalendar" />
66 <add key="GoogleCal_sqlpass" value="4Et5j98GzA7Hit" />
67 <add key="GoogleCal_sqldb" value="Google Calendar Logins" />
68 <!--setting to enable or disable the iptv add-on-->
69 <add key="EnableIpTv" value="false" />
70 <!-- setting to enable or disable reading of KNX/DALI/LoRa sensors -->
71 <add key="ReadSensors" value="true" />
72 <!-- setting to enable or disable automation scenarios -->
73 <add key="EnableAutomation" value="true" />
74 </appSettings>
75 <location path="mra">
76 <system.webServer>

```

TEOS is now ready to receive and send data using the different building protocols.

Go to Services under your server and start the TEOS Sensor listener service. Make sure the service is also setup in automatic to restart automatically if the server reboots.

INSTALLING AND ENABLING TEOS IOT SERVICE (ON CLOUD)

For the CLOUD version of TEOS please contact the support service to support@teos.support for them to enable the service as it is management directly on the CLOUD system

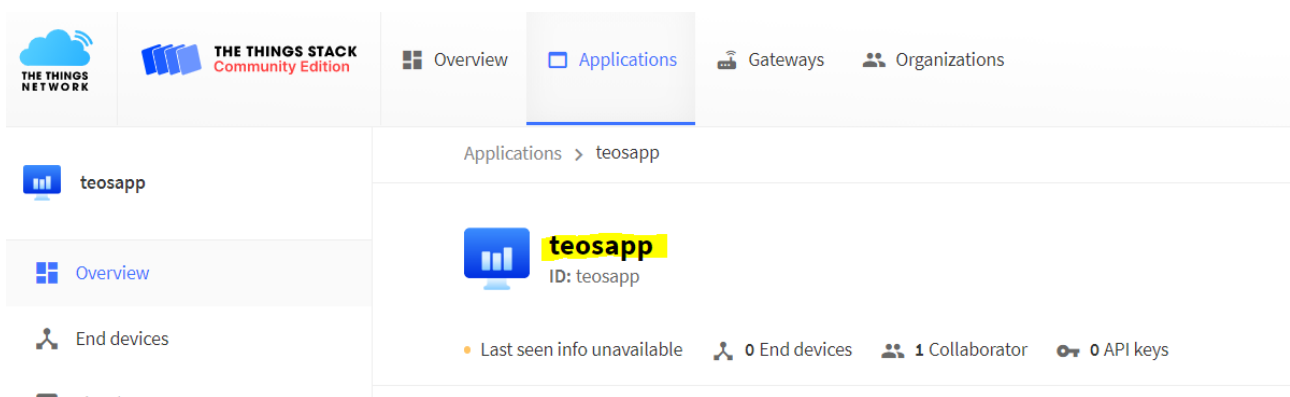
ADD A LoRAWAN CONTROLLER AND SENSORS IN MANAGE FOR TEOS

Go to Manage for TEOS > Administration and select Building and IoT. When you select LoRa controller in the controller brand, insert a name of the controller.

Select the TheThingsNetwork region you want to use (in our example select eu.thethings.network). Put after the application ID you have configured in the section upper and the TheThingsNetwork access key generated.

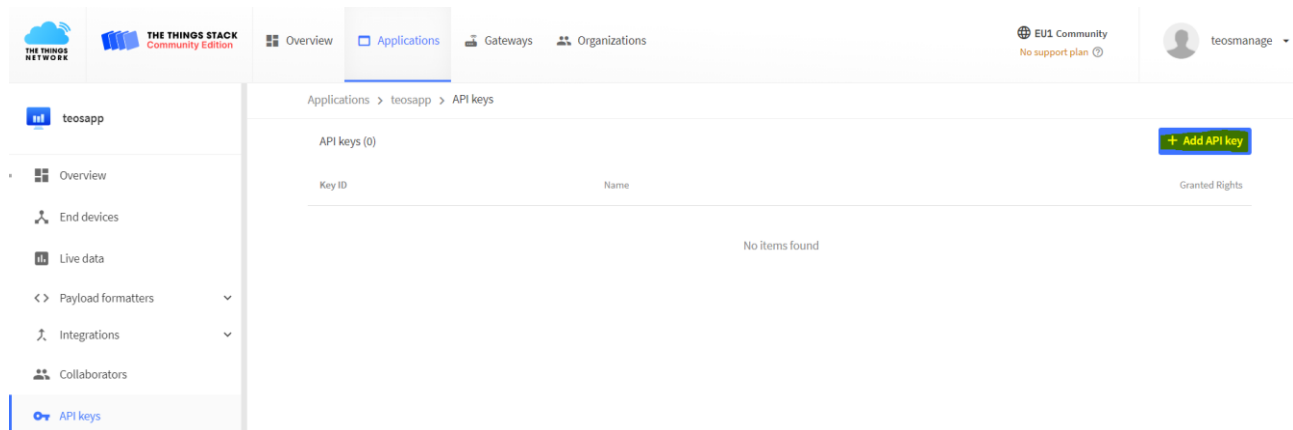
If you are using the version 3 of thethings network (eu1.cloud.thethings.network), choose under TEOS the Custom option and insert the following URL: eu1.cloud.thethings.network.

Under the Application ID part, insert the application ID created when adding sensors and for thethings network you need to add "@ttn":

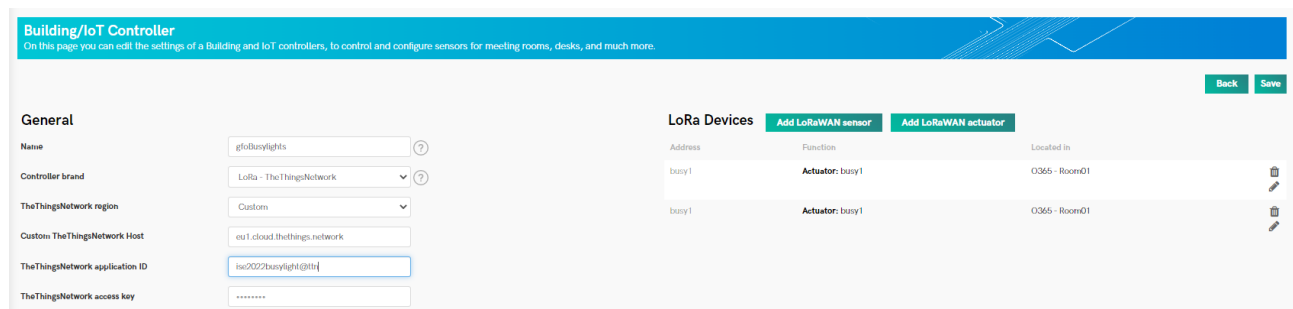


This means for this example in the Application ID to insert in TEOS, you will have something like teosapp@ttn (applD@ttn). If you use other accounts, maybe a private one you will need to put applD@tenantname.

For the access key, go under application and API keys to generate the key that will be used by TEOS to authenticate to TTN.

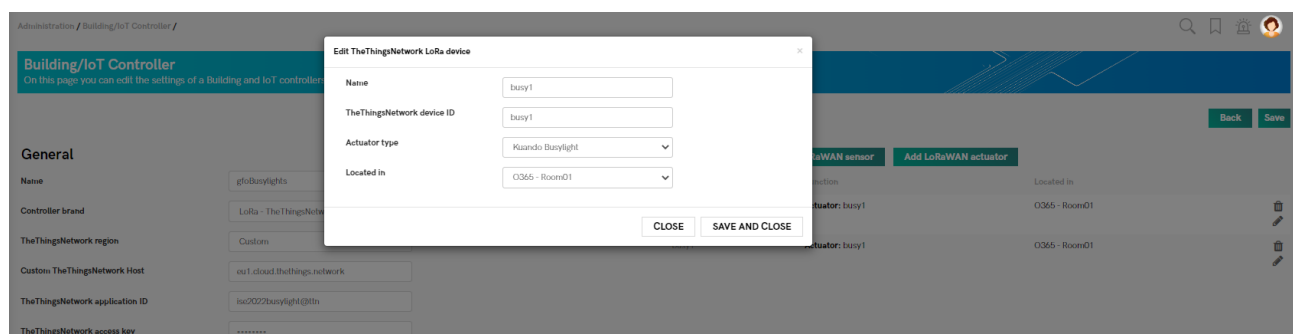


The next step is to add sensors to TEOS. If your devices are registered under the same application ID, you will simply need to add them inside the account created under TEOS, no need to create different accounts under TEOS to connect to the same Application ID.



To add a busylight into LoRa you need to know what type of information

Insert the name for the busylight in TEOS, add the name of device created in TTN in device ID. In measurement type, add the values you want to be retrieved from the sensor into TEOS. You can define the location of the sensor, for example in a meeting room to be able to show the data into the site overview.



Make sure to link the device in the space you want to show the status.

3. Kuando Light assignment to a space

Room or desk assignment under site configuration

To make sure your light is link with your device go to site management > site configuration and go to the space where your device need to be linked.

Edit the localization and go tot he second tab

The screenshot shows the 'Edit' page for a 'Meeting Room' in the TEOS system. The page is divided into two main sections: 'Settings' on the left and 'Content' on the right. The 'Settings' section includes fields for 'Active' (checked), 'Room type', 'Description', 'Capacity' (10), 'Early check-in and cancel' (5), 'Cancel time' (5), 'Unavailable after each meeting' (checked), 'Reason' (Cleaning), 'Duration' (15 Minutes), 'Limit to working hours' (unchecked), 'Allow special services' (unchecked), 'Special services mail address', and 'Equipment' (Projector, Videoconferencing, Board, PPS). The 'Content' section includes fields for 'Room looking presentation' (Room01), 'Find another room base localization' (Pulvax - Floor 01), 'Meeting room calendar' (room01@teosdemo.nl), 'Export calendar events', 'Room control presentation' (Room-control_GA), 'Mirroring Template', 'Meeting Interface', 'Meeting Display' (Room01), 'Status Lights Integration' (Building/NoT Controller: ghulsoylights), 'Linked smart lights' (two entries for 'busy1' with 'Remove' buttons), and 'Unlinked smart lights' (a message 'There are no lights waiting to be linked' and an 'Add new Kuando Busylight' button).

If no light is assigned, press on add new busylight and insert the device ID

The screenshot shows a dialog box titled 'Add new Kuando Busylight'. It has a close button (X) in the top right corner. The dialog contains a label 'TheThingsNetwork device ID' followed by a text input field. At the bottom, there are two buttons: 'SAVE CHANGES' and 'CLOSE'.

The device will automatically take the status sent by TEOS from the calendars



Visit us on

<https://teos.solutions>