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Applications > test-application > End devices > Register > From The Things Device Repository

Register end device

From The Things Device Repository	Manually

The device repo tab will be default. However, for the first couple of weeks, we will "remember" the selected tab, meaning if the user registered his/her last end device using the manual mode, then this tab will become

1. Select the end device ⓘ

Want your end device listed here?

Brand*

[⌄]

Cannot find your exact end device? Get help here and try manual device registration.

2. Enter registration data ⓘ

Please choose an end device first to proceed with entering registration data

Register end device

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Register end device

| From The Things Device Repository | Manually |

1. Select the end device ⓘ

Want your end device listed here?

Brand*

```
I              ▼
Alliot
Acsip
adeunis
Babbler
Bosch
Decentlab
ellenex
Elsys
Ewattch
```

...end device? Get help here and try manual device registration.

...data ⓘ

Please choose an end device first to proceed with entering registration data

Register end device

Brand*

```
Non-existant brl        ▼
No matching brand found
```

If the user types a brand name that is not yet covered, the dropdown states this clearly as pseudo-option.

Brand*

```
Type to search...       ▼
Alliot
Acsip
adeunis
Babbler
Bosch
Decentlab
ellenex
Elsys
Ewattch
```

As soon as the control is focused, a placeholder text appears "Type to search...". This placeholder disappears when the first character is typed.

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| From The Things Device Repository | Manually |

1. Select the end device ⍰

As soon as the selection was made, the next layer dropdown will appear. The input focus will move to the input automatically.

Want your end device listed here?

Brand*
Bosch ▾

Model*
Type to search... ▾

- Parking Lot Sensor (TPS110)
- Example Product (EXP100)
- Another Example Product
- *Other...*

Cannot find your exact e~~~~anual device registration.

Each dropdown will have an "Other..." pseudo-option at the bottom. Whenever this option is selected, there will be a message encouraging to use manual device creation (see next page).

2. Enter registration data ⍰

Please choose an end device first to proceed with entering registration data

Register end device

The submit button will be disabled until a device was selected entirely.

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Register end device

| From The Things Device Repository | Manually |

1. Select the end device ⓘ

Want your end device listed here?

Brand*
Bosch ▾

Model*
Other... ▾

Your end device will be added soon!

We're sorry, but your end device is not yet a part of The Things Device Repository. You can use manual device registration, using the information your end device manufacturer provided e.g. in the product's data sheet. You can find more assistance on manual device creation here.

2. Enter registration data ⓘ

Please choose an end device first to proceed with entering registration data

Register end device

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Register end device

| From The Things Device Repository | Manually |

1. Select the end device ⊘

Want your end device listed here?

Brand*
Bosch ⌄

Model*
Parking Lot Sensor (TPS110) ⌄

Hardware Ver.*
⌄

How to find the hardware and firmware version

On the back of the device, look for the numbers in the format A1176XXX BLXXX 0000. The hardware version is the second portion, the firmware version is the last portion.

Note: This information is provided by the end device manufacturer.

We enable manufacturers to provide hints about where to find version infromation. If such information is available, it will be displayed once a device model has been selected. It will dissappear once both hardware and firmware versions have been selected.

2. Enter registration data ⊘

Please choose an end device first to proceed with entering registration data

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| From The Things Device Repository | Manually |

1. Select the end device ⓘ

Want your end device listed here?

Brand*	Model*	Hardware Ver.*	Firmware Ver.*	Profile (Region)*
Bosch ▾	Parking Lot Sensor (TPS110) ▾	9 ▾	0.23.3 ▾	EU863-870 ▾

Cannot find your exact end device? Get help here and try manual device registration.

2. Enter registration data ⓘ

▲ Show advanced external Join Server options

Frequency Plan* ⓘ

Europe 863-870 MHz (SF9 for RX2) ▾

DevEUI* ⓘ

[   ]

AppEUI* ⓘ

[   ] Fill with zeros

AppKey* ⓘ
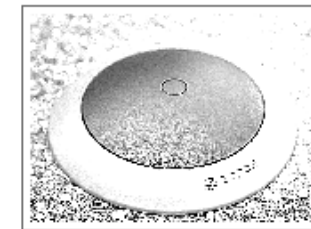
[   ] Generate

End device ID* ⓘ

[   ]

After registration

◉ View registered end device
◯ Register another end device of this type

Register end device

Once the device is selected completely, the second section of the form is revealed. Likewise, the section below with a summary of the end device is shown.

Bosch Parking Lot Sensor (TPS110)
MAC 1.0.3, OTAA, 863-870MHz

The wireless smart parking sensor for detecting parking space occupancy.

Product website ↗   Data sheet ↗

LoRaWAN specification version	1.0.2
LoRaWAN regional parameters version	RP001-1.0.2rB
Activation mode	Over-The-Air activation
Device class capabilities	Class A
Profile	EU863-870
Frame counter width	32 bit

Whenever there's only one option in the hardware/firmware/profile dropdown AND the device definition does not contain a hint (see previous page), that option will be selected automatically and the next layer is revealed. In some cases that can mean that all remaining dropdowns will be selected automatically.

The list FP is narrowed down by the band of the device profile. E.g. for EU868-870, we only show the FPs corresponding to this frequency.

The form will always remember the last seleted frequency plan for each band and subsequently use it as default.

We now enable to create multiple similar end devices in a row. If the second option is selected, upon submitting the form, a success toast is shown, but the user will stay on the same page. The form retains the selected end device and frequency plan but resets all other fields. Depending on JS selection, AppEUI/JoinEUI might be retained as well.

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| From The Things Device Repository | Manually |

1. Select the end device ?

Want your end device listed here?

Brand* — Bosch
Model* — Parking Lot Sensor (TPS110)
Hardware Ver.* — 9
Firmware Ver.* — 0.23.3
Profile (Region)* — EU863-870

Cannot find your exact end device? Get help here and try manual device registration.

2. Enter registration data ?

⌄ Hide advanced external Join Server options

Join Server* ?
Use local Join Server

Frequency Plan* ?
Europe 863-870 MHz (SF9 for RX2)

DevEUI* ?

AppEUI* ?   Fill with zeros

AppKey* ?   Generate

End device ID* ?

After registration
- ⦿ View registered end device
- ◯ Register another end device of this type

Bosch Parking Lot Sensor (TPS110)
MAC 1.0.3, OTAA, 863-870MHz

The wireless smart parking sensor for detecting parking space occupancy.

Product website ⧉   Data sheet ⧉

LoRaWAN specification version	1.0.2
LoRaWAN regional parameters version	RP001-1.0.2rB
Activation mode	Over-The-Air activation
Device class capabilities	Class A
Profile	EU863-870
Frame counter width	32 bit

If the selected device has the `keyProvisioning` prop and it has not set `join-server`, the dropdown will not show third-party JSs (but still show the GJS (if configured)).

Likewise, if the `keyProvisioning` option does not contain the `custom` enum, this dropdown field will move outside of the `Advanced...` section, while the EUIs and the AppKey fields will be hidden too.

Likewise, when the stack has not configured any other JSs (no GSJ, no third-party) this whole section will be hidden.

Refer to manual device creation to see how the selection effects subsequent fields.

The dev ID field will be prefilled with the value of the DevEUI field (onBlur). When this field is focused, it will auto text-select the field value.

Note that the DR might include some rules about how device IDs are generated or prefixed in the future.

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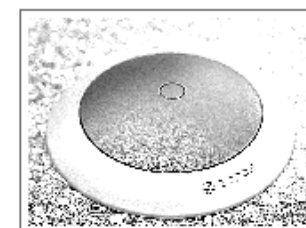
Register end device

| From The Things Device Repository | Manually |

1. Select the end device ❔   Want your end device listed here?

Brand* | **Model*** | **Hardware Ver.*** | **Firmware Ver.*** | **Profile (Region)***
Bosch ▼ | Parking Lot Sensor (TPS110) ▼ | 9 ▼ | 0.23.3 ▼ | EU863-870 ▼

Cannot find your exact end device? Get help here and try manual device registration.

2. Enter registration data ❔

Frequency Plan* ❔
Europe 863-870 MHz (SF9 for RX2) ▼

DevAddr* ❔
[_____] Generate

AppSKey* ❔
[_____] Generate

NwkSKey* ❔
[_____] Generate

End device ID* ❔
[_____]

After registration
◉ View registered end device
○ Register another end device of this type

Bosch Parking Lot Sensor (TPS110)
MAC 1.0.3, OTAA, 863-870MHz

The wireless smart parking sensor for detecting parking space occupancy.

Product website ↗   Data sheet ↗

LoRaWAN specification version — 1.0.2

LoRaWAN regional parameters version — RP001-1.0.2rB

Activation mode — Activation by personalization (ABP)

Device class capabilities — Class A

Profile — EU863-870

Frame counter width — 32 bit

→ In == LW1.0.4 the field DevEUI is necessary as well. It will be added after "DevAddr"

→ In >= LW1.1.0, this will become three required fields: NwkSIntKey, SNwkSIntKey, NwkSEncKey
All of them allowing to generate the value.

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Register end device

Note the wording change: "Register"

| From The Things Device Repository | Manually |

LoRaWAN specification version* ⑦

[▼]

LoRaWAN regional parameters version* ⑦

[▼]

Frequency plan* ⑦

[▼]

⌄ Show advanced activation, LoRaWAN class and cluster settings

DevEUI* ⑦

[   ]

AppEUI* ⑦

[   ] [Fill with zeros]

AppKey* ⑦

[   ] [Generate]

End device ID* ⑦

[   ]

After registration

◉ View registered end device
○ Register another similar end device

[Register end device]

LoRaWAN specification version* ⑦

[▼]

V1.0
V1.0.1
V1.0.2
V1.0.3
V1.0.4
V1.1

LoRaWAN regional parameters version* ⑦

[▼]

1.0 (TS001)
1.0.1 (RP001 V1.0.1)
1.0.2 (RP001 V1.0.2)
1.0.2rB (RP001 V1.0.2rB)
1.0.3 (RP001 V1.0.3)
1.1.0rA (RP001 V1.1rA)
1.1.0rB (RP001 V1.1.rB)
RP002-1.0.0
RP002-1.0.1
RP002-1.0.2

Note that RP002 versions are not yet added to the stack, but will be soon.
The number of options is filtered based on the MAC version. RP002 versions, however, support all MAC versions. Whenever only one RP is applicable, this option is selected automatically and the field is disabled.

The dev ID field will be prefilled with the value of the DevEUI field (onBlur). When this field is focused, it will auto text-select the field value.

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LoRaWAN specification version* ⑨

[   ]

> **What is this?**
> The LoRa Alliance LoRaWAN specification your device conforms to, which defines which MAC features it supports.
>
> **Where can I find this?**
> It should be provided by the manufacturer in a datasheet as "LoRaWAN version" or "LoRaWAN specification".
>
> **What if I can't find this?**
> You should contact the manufacturer, since specifying the wrong version can lead to complex issues when the Network Server provides the end device with unsupported configuration (MAC) commands.
>
> Learn more 🔗

We will provide contextualized tooltips for all LoRaWAN related terms and anything else that needs clarification.
Content will be provided by Ben.

LoRaWAN regional parameters ⑨

[   ]

Frequency plan* ⑨

[   ]

⌄ Show advanced activation, Lo...

DevEUI* ⑨

[   ]

AppEUI* ⑨

[   ] [Fill with zeros]

AppKey* ⑨

[   ] [Generate]

End device ID* ⑨

[   ]

After registration

◉ View registered end device

○ Register another similar end device

[Register end device]

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LoRaWAN specification version* ⓘ

[▼]

LoRaWAN regional parameters version* ⓘ

[▼]

Frequency plan* ⓘ

[▼] → The form will always remember the last seleted frequency plan and subsequently use it as default.

▲ Advanced activation, LoRaWAN class and cluster settings

Activation mode ⓘ
- ⦿ Over-The-Air activation (OTAA)
- ○ Activation by personalization (ABP)
- ○ Define multicast group (ABP & Multicast)
- ○ Do not configure activation → Choosing "Do not configure activation" will make all fields hidden except for this one, "End device ID" and "After registration"

Additional LoRaWAN class capabilities

[None (Class A only)   ▼]

Join Server ⓘ

[Use local Join Server   ▼] →

☐ Use external LoRaWAN backend servers ⓘ

DevEUI* ⓘ

[   ]

AppEUI* ⓘ

[   ] [Fill with zeros]

AppKey* ⓘ

[   ] [Generate]

End device ID* ⓘ

[   ]

After registration
- ⦿ View registered end device
- ○ Register another similar end device

Join Server ⓘ

[Use local Join Server   ▼]
Global Join Server
Use third-party Join Server

Note that there can be a number of additional third-party JS, based on the stack configuration.
If any third-party JS is selected, the security key fields (AppKey, NwkKey) will disappear.

JoinEUI* ⓘ

[70B3D57ED0000000   ▼]
[70B3D57EE0000000   ]

When choosing an extra (non third-party) JS, the JoinEUI field either;
1) becomes a read-only field prefilled with the JS's JoinEUI defined in the stack config
2) becomes a dropdown select, in case the JS defined mutliple JoinEUIs.

[Register end device]

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LoRaWAN specification version* ?

[dropdown]

LoRaWAN regional parameters version* ?

[dropdown]

Frequency plan* ?

[dropdown] → Based on the FP we can assume a couple of default values for MAC settings, sourced from the RP spec, these should be hard-coded in the Console (as they are in the NS).

▲ Advanced activation, LoRaWAN class and cluster settings

Activation mode ?
- ○ Over-The-Air activation (OTAA)
- ◉ Activation by personalization (ABP)
- ○ Define multicast group (ABP & Multicast) → **LoRaWAN class for multicast downlinks***
- ○ Do not configure activation

[Class C (Continuous) ▾]

| Class B (Beaconing) |
| Class C (Continuous) |
| Class B and class C |

For multicast, the class dropdown will turn into a required field, remove the "None" option and select Class C by default. Note also the label change.

Additional LoRaWAN class capabilities

[None (Class A only) ▾]

☑ Use network's RX default settings ?

Factory preset frequencies ?

[✚ Add frequency] [Add frequency plan frequencies] → A frequency entry looks like this:

[869.525] [MHz ▾] [Remove]

☐ Use external LoRaWAN backend servers ?

DevAddr* ?

[   ] [Generate]

AppSKey* ?

[   ] [Generate]

NwkSKey* ?

[   ] [Generate]

End device ID* ?

[   ]

After registration
- ◉ View registered end device
- ○ Register another similar end device

[Register end device]

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LoRaWAN specification version* ⑦

[▼]

LoRaWAN regional parameters version* ⑦

[▼]

Frequency plan* ⑦

[▼]

⌃ Advanced activation, LoRaWAN class and cluster settings

Activation mode ⑦

◯ Over-The-Air activation (OTAA)
⦿ Activation by personalization (ABP)
◯ Define multicast group (ABP & Multicast)
◯ Do not configure activation

Additional LoRaWAN class capabilities

[None (Class A only) ▼]

☐ Use network's RX default settings ⑦

RX1 Data Rate Offset ⑦　　　　**RX1 Delay** ⑦

[3 ⇕]　　　　　　　　　[   ] seconds

RX2 Data Rate ⑦　　　　**RX2 Frequency** ⑦

[Use Network Server default ▼]　　[   ] [Hz ▼]

Factory preset frequencies ⑦

[➕ Add frequency]　[Add frequency plan frequencies]

☐ Use external LoRaWAN backend servers ⑦

DevAddr* ⑦

[   ]　[Generate]

AppSKey* ⑦

[   ]　[Generate]

NwkSKey* ⑦

[   ]　[Generate]

End device ID* ⑦

[   ]

After registration

⦿ View registered end device
◯ Register another similar end device

[Register end device]

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Note that RX1 DR Offset and RX1 Delay are hidden when multicast is selected.

Ping slot data rate ⑦

[Use Network Server default ▼]

DR0, LoRa: SF12/ 125kHz, 250bps
DR1, LoRa: SF11 / 125kHz, 440bps
DR2, LoRa: SF10 / 125kHz, 980bps
DR3, LoRa: SF9 / 125kHz, 1760bps
DR4, LoRa: SF8 / 125kHz, 3125bps
DR5, LoRa: SF7 / 125kHz, 5470bps
DR6, LoRa: SF7 / 125kHz, 11000bps
DR7, LoRa: FSK: 50kbps, 50000bps

(the value options have to be (re-) populated depending on the FP)

Defaults:
RX1Delay: Can be set as stack config
RX1DRO: 3, hardcoded by NS (based on spec recommendation)
RX2DR: Set by NS based on the band (could be hardcoded from there)
RX2 Freq: Set by NS based on the band (could be hardcoded from there)
There's currently no way to retreive the NS stack config, so we'll use blanks for these values

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LoRaWAN specification version* ❓

[▾]

LoRaWAN regional parameters version* ❓

[▾]

Frequency plan* ❓

[▾]

∧ Advanced activation, LoRaWAN class and cluster settings

Activation mode ❓
- ◉ Over-The-Air activation (OTAA)
- ○ Activation by personalization (ABP)
- ○ Define multicast group (ABP & Multicast)
- ○ Do not configure activation

Additional LoRaWAN class capabilities

[None (Class A only)   ▾] ➔

Join Server ❓

[Use local Join Server   ▾]

☐ Use external LoRaWAN backend servers ❓

Additional LoRaWAN class capabilities

[None (Class A only)   ▾]
Class B (Beaconing)
Class C (Continuous)
Class B and class C

DevEUI* ❓

[   ]

AppEUI* ❓

[   ] [Fill with zeros] ➔ Called JoinEUI in >= LW 1.1.0

AppKey* ❓

[   ] [Generate]

End device ID* ❓

[   ]

After registration
- ◉ View registered end device
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[Create end device]

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LoRaWAN specification version* ⑦

[▾]

LoRaWAN regional parameters version* ⑦

[▾]

Frequency plan* ⑦

[▾]

▲ Advanced activation, LoRaWAN class and cluster settings

Activation mode ⑦
- ⦿ Over-The-Air activation (OTAA)
- ○ Activation by personalization (ABP)
- ○ Define multicast group (ABP & Multicast)
- ○ Do not configure activation

Additional LoRaWAN class capabilities

[Class B (Beaconing)   ▾]

Class B timeout ⑦   **Ping slot periodicity** ⑦

[   ] seconds   [Every 128 seconds   ▾]

Ping slot data rate ⑦   **Ping slot frequency*** ⑦

[DR3, LoRa: SF9 / 125kHz, 1760bps ▾]   [869.525] [MHz ▾]

Join Server ⑦

[Use local Join Server   ▾]

☐ Use external LoRaWAN backend servers ⑦

DevEUI* ⑦

[   ]

AppEUI* ⑦

[   ] [Fill with zeros]

AppKey* ⑦

[   ] [Generate]

End device ID* ⑦

[   ]

After registration
- ⦿ View registered end device
- ○ Register another similar end device

[Create end device]

[Every 128 seconds ▾]
Every 2 seconds
Every 4 seconds
Every 8 seconds
Every 16 seconds
Every 32 seconds
Every 64 seconds
Every 128 seconds

128 seconds is the default as per RP1.0.1 spec

This will use the frequency of the current band by default, as defined in the selected RP version

As per RP spec, the ping slot data rate uses the data rate of the beacon, as defined in the selected RP version. E.g. in RP001 1.0.1, for EU863-870, this is DR3

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LoRaWAN specification version* ❓

⌄

LoRaWAN regional parameters version* ❓

⌄

Frequency plan* ❓

⌄

⌃ Advanced activation, LoRaWAN class and cluster settings

Activation mode ❓
⦿ Over-The-Air activation (OTAA)
○ Activation by personalization (ABP)
○ Define multicast group (ABP & Multicast)
○ Do not configure activation

Additional LoRaWAN class capabilities
Class C (Continuous) ⌄

Class C timeout ❓
[   ] seconds

Join Server ❓
Use local Join Server ⌄

☐ Use external LoRaWAN backend servers ❓

DevEUI* ❓
[   ]

AppEUI* ❓
[   ] [Fill with zeros]

AppKey* ❓
[   ] [Generate]

End device ID* ❓
[   ]

After registration
⦿ View registered end device
○ Register another similar end device

[Create end device]

❮ Hide sidebar

🔍 http://

THE THINGS STACK

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👤 John Doe ⌄

🖥 **Parking Sensors**

⊞ Overview
📱 End devices
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👥 Collaborators
🔒 API Keys
⚙ General Settings

Applications > test-application > End devices > Register > Manually

Register end device

| From The Things Device Repository | Manually |

LoRaWAN specification version* ⓘ
[▼]

LoRaWAN regional parameters version* ⓘ
[▼]

Frequency plan* ⓘ
[▼]

⌃ Advanced activation, LoRaWAN class and cluster settings

Activation mode ⓘ
◉ Over-The-Air activation (OTAA)
○ Activation by personalization (ABP)
○ Define multicast group (ABP & Multicast)
○ Do not configure activation

Additional LoRaWAN class capabilities
[None (Class A only)   ▼]

Join Server ⓘ
[Use local Join Server   ▼]

☑ Use external LoRaWAN backend servers ⓘ
Network Server Address* ⓘ
[   ]

Application Server Address* ⓘ
[   ]

DevEUI* ⓘ
[   ]

AppEUI* ⓘ
[   ] [Fill with zeros]

AppKey* ⓘ
[   ] [Generate]

End device ID* ⓘ
[   ]

After registration
◉ View registered end device
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[Create end device]

‹ Hide sidebar