



ZB-Stick with OpenHAB

This document describes how to use POPP ZB-Stick with existing Home Automation platform called OpenHAB (<https://www.openhab.org/>).

POPP ZB-Stick firmware version, referenced in this guide: **6.0.3**

OpenHab2 software version, referenced in this guide: **v2.5.10**

This guide focuses on:

- Connect POPP ZB-Stick to the target Host system
- Setup Zigbee Home Automation Binding in OpenHAB
- Troubleshooting
- Zigbee devices Pairing and Removal
- Zigbee device example

This guide DOES NOT focus on OpenHAB (openHABian) installation and initial configuration. Please follow the official instructions <https://docs.openhab.org/installation/openhabian.html>.

Introduction

POPP ZB-Stick can be used with a generic Linux machine with OpenHAB installed.

OpenHAB installed and running



POPP ZB-Stick can be used with Raspberry Pi with OpenHABian installed.

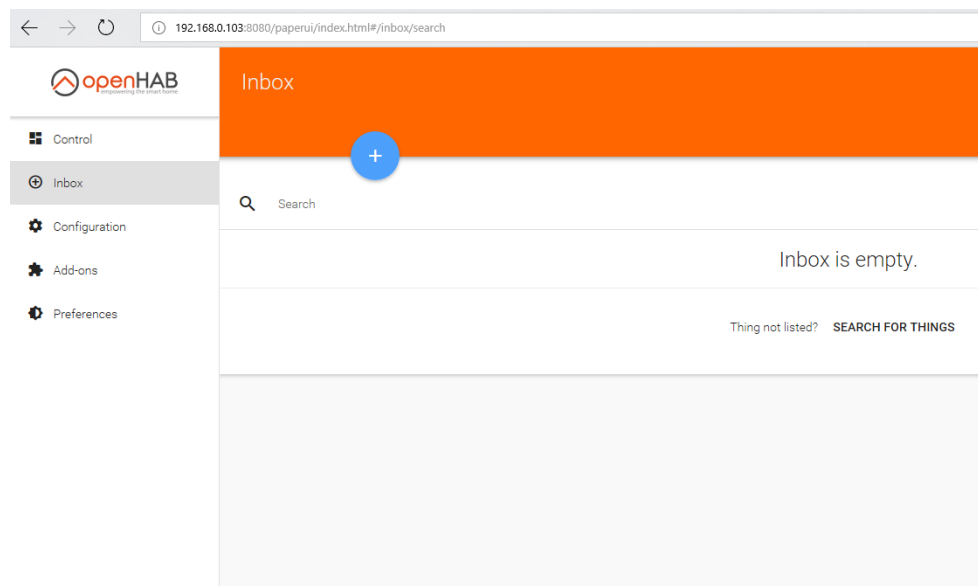


OpenHABian installed and running



Initial setup and connection

This guide does not cover OpenHAB (openHABian) installation. We assume, that you can access OpenHAB Web Interface using your browser.



Insert the POPP ZB-Stick into your Host machine.

OpenHAB Zigbee configuration

To work with POPP ZB-Stick Adapter from OpenHAB we are using Zigbee Home Automation Binding (<https://docs.openhab.org/addons/bindings/zigbee/readme.html>). We need to install it additionally, as it is not installed by default.

Setup Logging (optional)

To spot any potential issues it's good practice to enable logging, at least during the setup and installation period. To do it:

- Connect to the OpenHAB SSH console using your favourite tool (login:password **openhabian:openhabian**):

```
ssh openhabian@129.168.0.103
```

- Connect to "Karaf Console" with the following command. More about it you can read here (<https://docs.openhab.org/administration/console.html>):

```
ssh -p 8101 openhab@localhost
```

- Run 3 commands:

```
log:set debug org.openhab.binding.zigbee
```

```
log:set debug com.zsmartsystems.zigbee
```

```
log:set info com.zsmartsystems.zigbee.dongle.ember.internal.ash
```

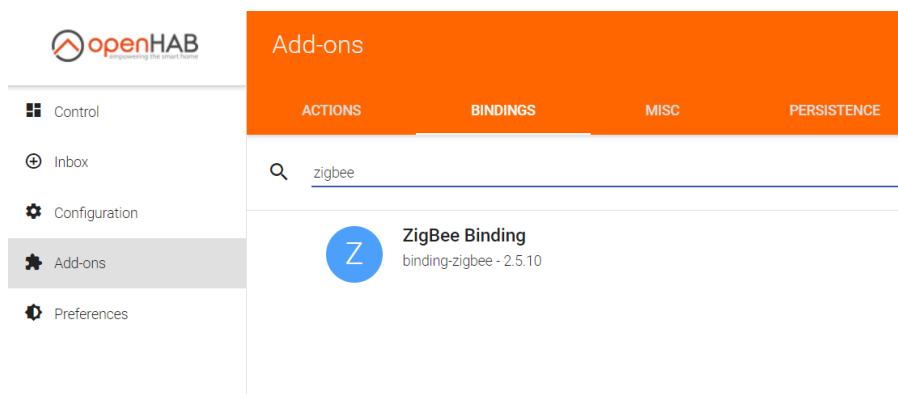
- Exit "Karaf Console" with Ctrl+D keyboard combination

Now you can view the logs either in the web browser or in the SSH console with the following command (<https://docs.openhab.org/administration/logging.html>) :

```
openhab-cli showlogs
```

Configure Zigbee Binding

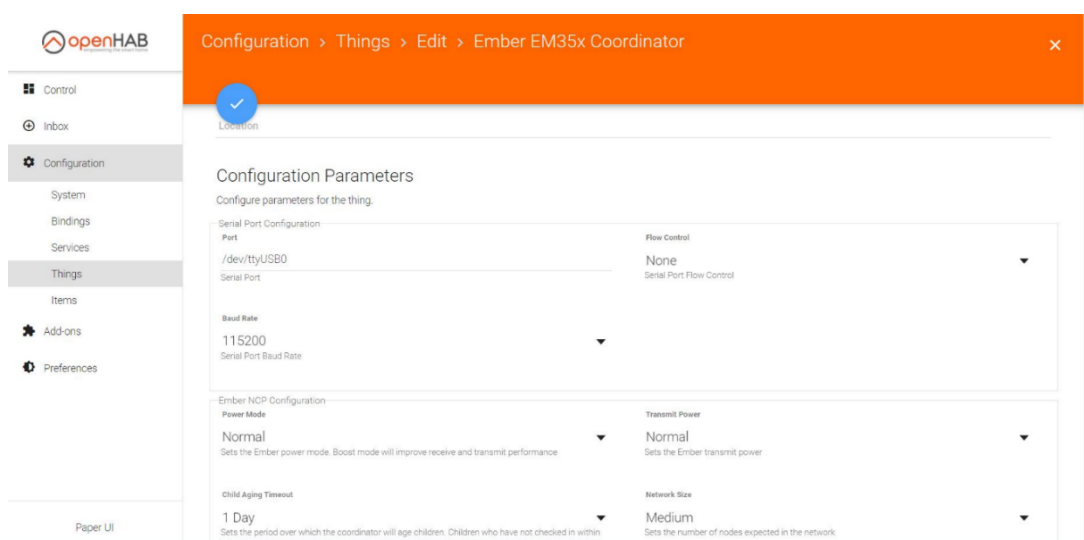
To setup Zigbee Home Automation binding to work properly with POPP ZB-Stick, one need to install the Zigbee Binding in the Add-ons section of the Paper UI. Pay attention, that you need version **>= v2.5.10**. Previous versions do not allow to use Software Flow Control.



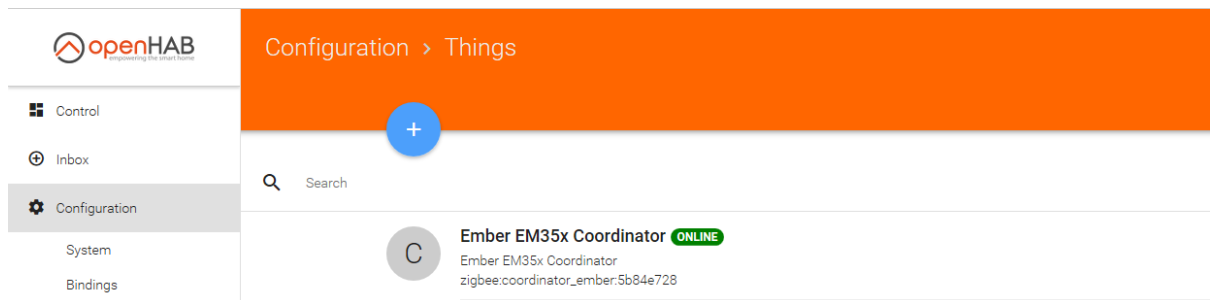
Once installed you can go to the **Configuration->Things** section of the menu and add new **Thing**. Select **Zigbee Binding -> Ember EM35x Coordinator** and then Configure it properly:

- Select **/dev/ttyUSB0** as Serial Port. If not seen, go to Troubleshooting section.
- Select **None** as Flow Control.
- Select **115200** as BaudRate.

Save new Thing.



When added, it will take up to 10 seconds to Initialise the component. If successful, then it will indicate as **ONLINE**. If it doesn't change to **ONLINE** go to Troubleshooting section.



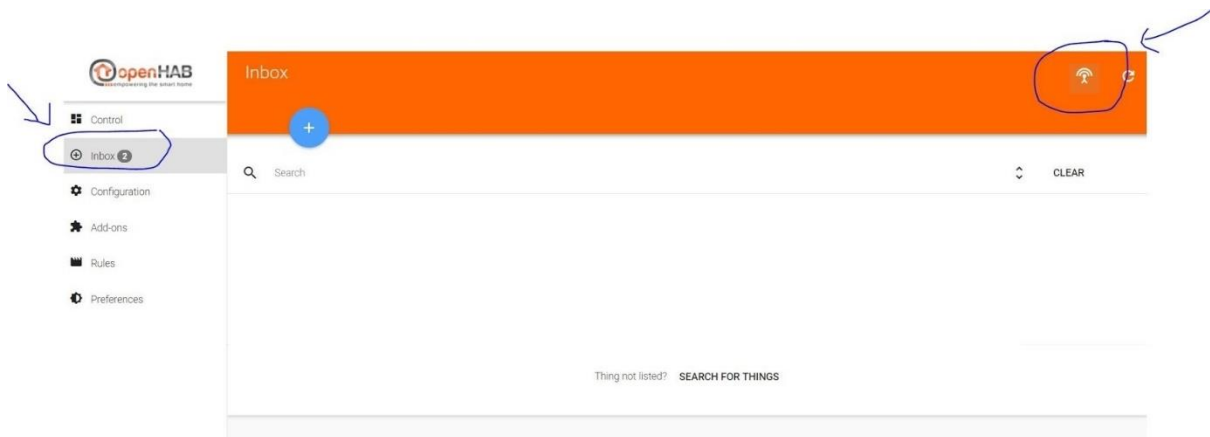
The Zigbee Binding is now configured, and you can start using it.

Zigbee OpenHAB Binding Usage

Once Zigbee Binding is added and configured properly you can start to use it.

Add your devices to the OpenHAB

Open the **Inbox** section and press the scan button.



When you will call it, you have 60 seconds to add the device. It's easier to track the process in the logs. During this period, you need to follow Device manual to put it in Association mode. Sometimes you just need to give it power.

If the device is found, you will be able to see it in the logs and in the Web UI.

Remove your device from OpenHAB

Open **Configuration->Things** menu and press **Delete** button near the device.

Example: Ikea White E26 Lamp

This example is done with Ikea White E26 lamp. but is applicable to other products as well.

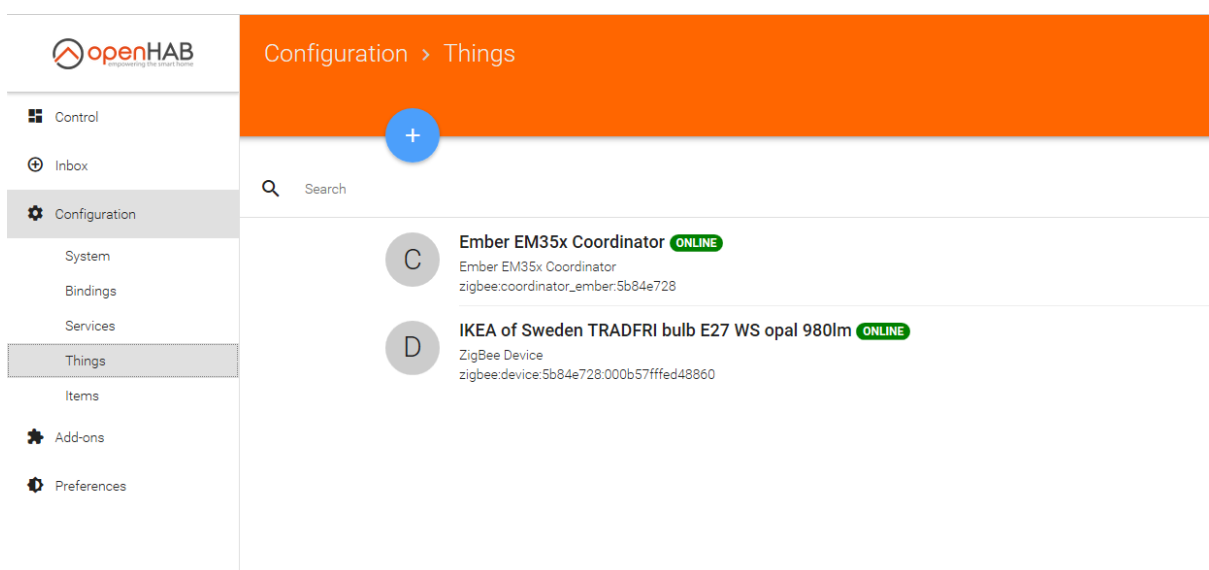


To control Ikea E26 bulb using OpenHAB, one first needs to reset it.

Once it is reset, you can follow the regular process to Add it to the OpenHAB.

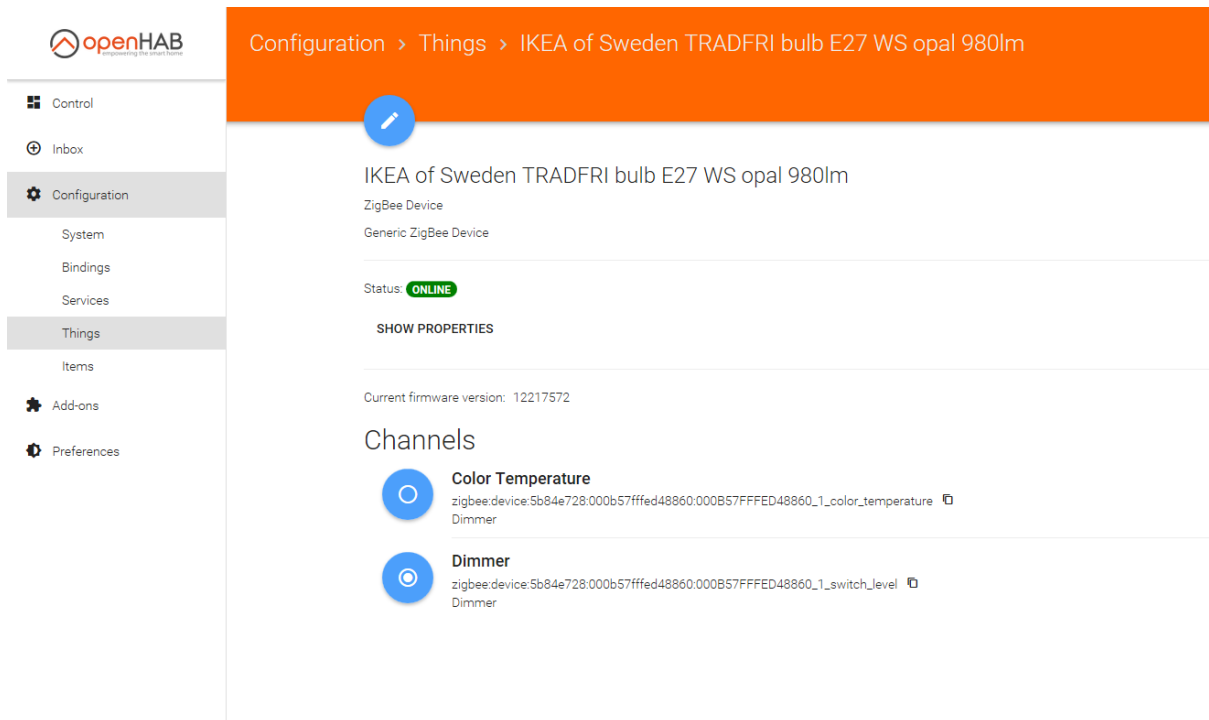
- Call Scan procedure using Zigbee Binding
- Power ON the Lightbulb
- Confirm it's added to the OpenHAB

Now you can control it directly or use in the scenarios.

A screenshot of the OpenHAB web interface. The left sidebar shows the navigation menu with 'Things' selected. The main content area is titled 'Configuration > Things' and features a search bar and a list of devices. Two devices are listed: 'Ember EM35x Coordinator' (ONLINE) and 'IKEA of Sweden TRADFRI bulb E27 WS opal 980lm' (ONLINE).

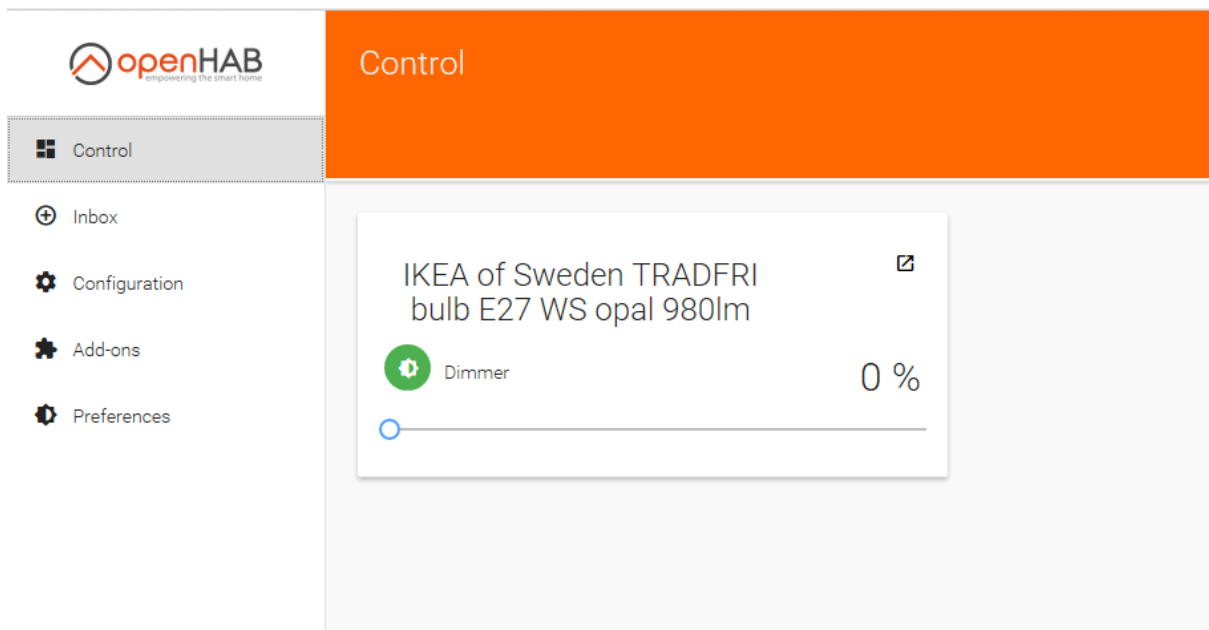
Device ID	Name	Status	Details
C	Ember EM35x Coordinator	ONLINE	Ember EM35x Coordinator zigbee:coordinator_ember:5b84e728
D	IKEA of Sweden TRADFRI bulb E27 WS opal 980lm	ONLINE	ZigBee Device zigbee:device:5b84e728:000b57ffed48860

Once device is added, you can configure it and create new control elements for it:



The screenshot shows the OpenHAB Configuration page for a specific device. The breadcrumb trail is "Configuration > Things > IKEA of Sweden TRADFRI bulb E27 WS opal 980lm". The left sidebar contains navigation options: Control, Inbox, Configuration (selected), Things, Items, Add-ons, and Preferences. The main content area shows the device name "IKEA of Sweden TRADFRI bulb E27 WS opal 980lm", its type "ZigBee Device", and "Generic ZigBee Device". The status is "ONLINE". There is a "SHOW PROPERTIES" button and the current firmware version "12217572". Under the "Channels" section, two channels are listed: "Color Temperature" (zigbee.device:5b84e728:000b57ffed48860:000b57ffed48860_1_color_temperature) and "Dimmer" (zigbee.device:5b84e728:000b57ffed48860:000b57ffed48860_1_switch_level).

Then it's available for control.



The screenshot shows the OpenHAB Control page for the same device. The breadcrumb trail is "Control". The left sidebar contains navigation options: Control (selected), Inbox, Configuration, Add-ons, and Preferences. The main content area shows the device name "IKEA of Sweden TRADFRI bulb E27 WS opal 980lm" and a "Dimmer" control element. The dimmer is currently set to "0 %".

Troubleshooting

OpenHAB Zigbee Binding is OFFLINE

If you have configured ZigBee Binding properly but it doesn't change its status within 10 seconds, start looking into the logs. If there is practically no log activity, just a few packets from OpenHAB to /dev/ttyUSB0, then probably Serial Interface is configured not properly

Zigbee Binding is ONLINE, but no device added during Scan period

Investigate the logs and confirm you can see the start of the communication between OpenHAB and POPP ZB-Stick.

There are no packets from the device at all

This most probably means that your device is already part of the different network and just can't join your new network. Try to reset it, using the manufacturer specific reset procedure.

If your issue is not described here or you need help resolving it, please contact support at info@popp.eu