ZB-Shield with Home Assistant

This document describes how to use POPP ZB- Shield with existing Home Automation platform called Home Assistant (Hass.io) (https://www.home-assistant.io/).

POPP ZB-Shield firmware version, referenced in this guide: **6.3.0**

Home Assistant (Hass.io) software version, referenced in this guide: **0.112.4**

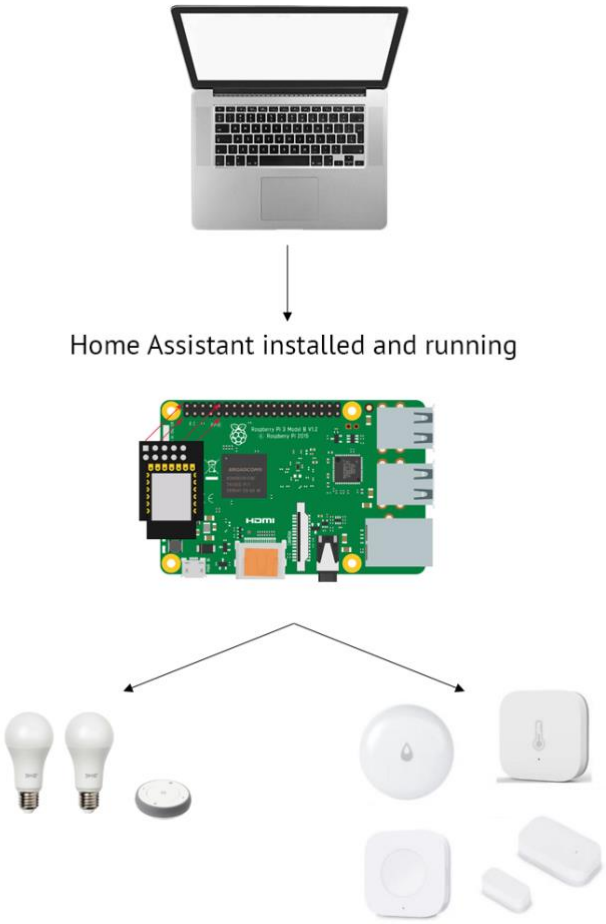
This guide focuses on:

- Connect POPP ZB-Shield to your Raspberry Pi
- Setup Zigbee Home Automation component in Home Assistant
- Zigbee devices Pairing and Removal
- Zigbee device example

This guide DOES NOT focus on Home Assistant (Hass.io) installation and initial configuration. Please follow the official instructions https://www.home-assistant.io/hassio/installation/.

Introduction

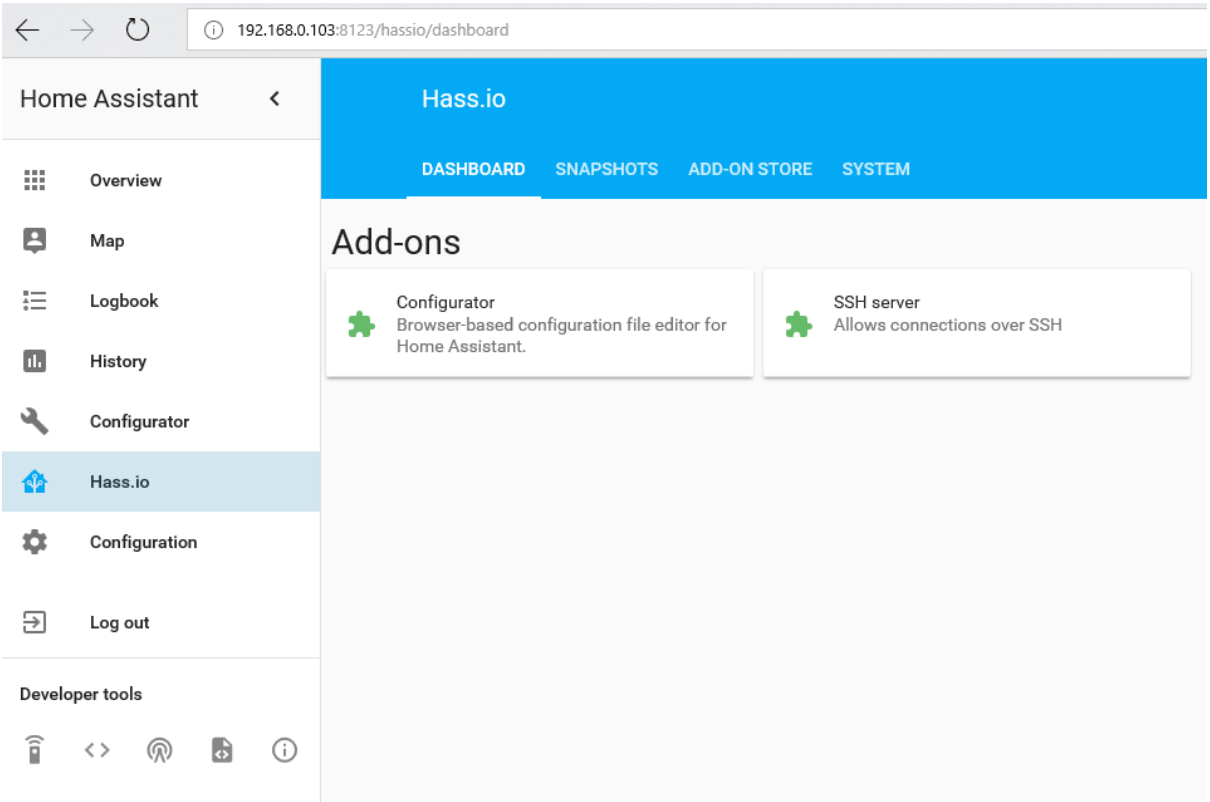
POPP ZB-Shield can be used with a Raspberry Pi with Home Assistant installed.



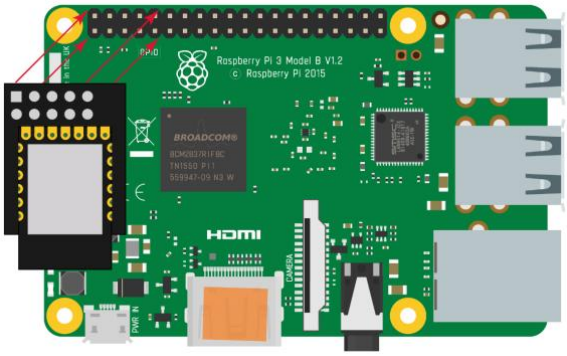
Initial setup and connection

This guide does not cover Home Assistant (Hass.io) installation. We assume, that you can access Home Assistant Web Interface using your browser.

It is highly recommended to have SSH Server and Configurator addons installed, at least during the Zigbee setup phase. To install them just follow the Hass.io installation guide (https://www.home-assistant.io/hassio/installation/).



Connect POPP ZB-Shield to your Raspberry Pi

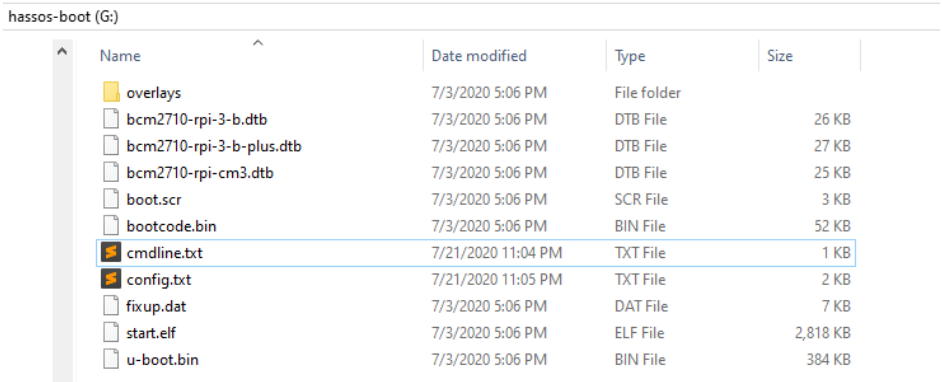


Disable Serial Console

By default, the Raspberry Pi (1,2,3,4) has the Serial Console enabled on the UART, which is used by the POPP ZB-Shield. This results in conflict, so we need to disable the Serial Console.

To do it:

- Insert the SD card with installed Hass.io into your PC/laptop.
- Find the **cmdline.txt** file in the SD card file system

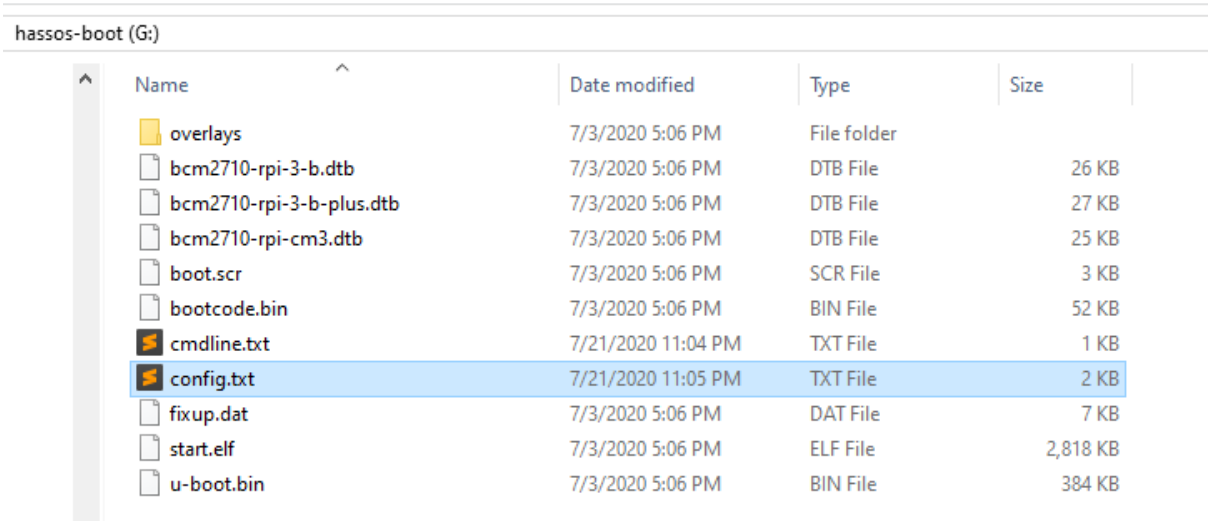


- Modify this file and remove `console=tty1`:

Enable UART Bluetooth overlay (RPi 3 and Rpi 4)

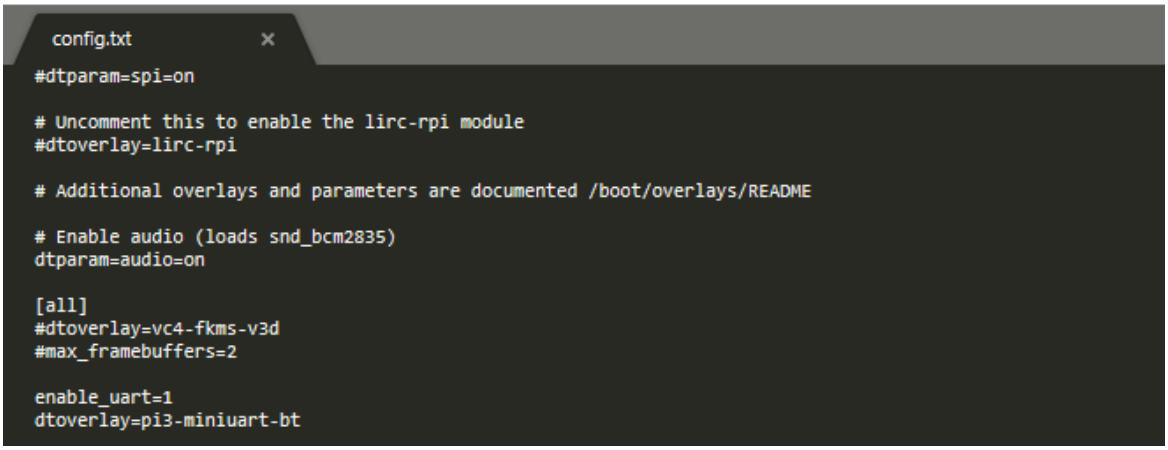
If you are using Raspberry Pi 3 you need to perform an additional step of enabling the Bluetooth UART overlay configuration. To do it:

- Insert the SD card with installed Hass.io into your PC/laptop.
- Find the **config.txt** file in the SD card file system



- Modify this file and add an extra line at the end:
  enable_uart=1
  dtoverlay=pi3-miniuart-bt

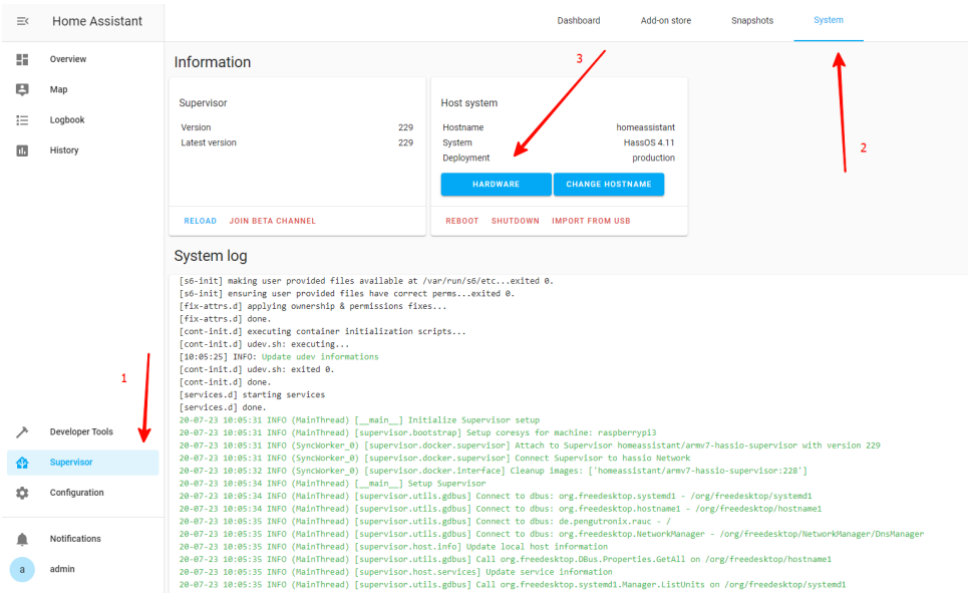
  Raspberry 4: dtoverlay=disable-bt
  enable_uart=1



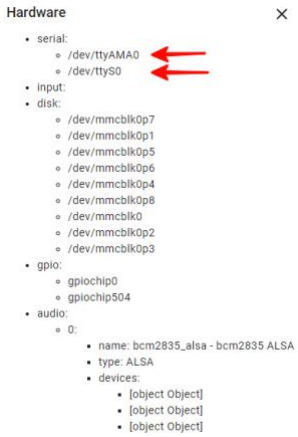
Check configuration in the Web Interface

Once you have modified the hardware setup, boot up the Raspberry Pi and check the configuration.

- Insert your SD card back inside the Raspberry Pi
- Wait for Hass.io to boot
- Connect to the web interface using your favourite browser
- Navigate to the **Supervisor -> System -> Hardware menu**



- Confirm the UART serial ports are visible for you (/dev/ttyAMA0 and /dev/ttyS0)



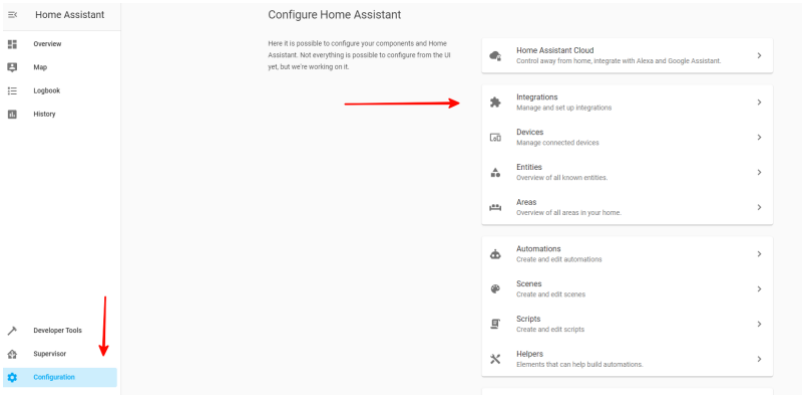
Zigbee HA Component configuration

To work with POPP ZB-Shield from Home Assistant we are using Zigbee Home Automation Component (https://www.home-assistant.io/components/zha/). It comes preinstalled into Hass.io so we only need to configure it properly to get it working.

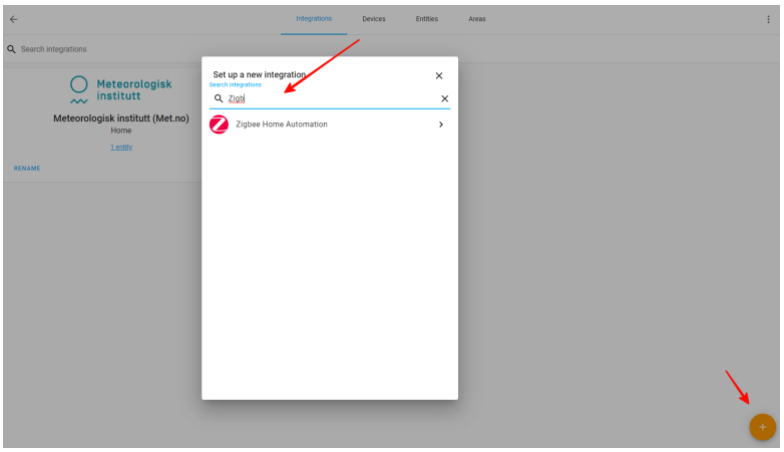
Configure ZHA component

To setup Zigbee Home Automation component to work properly with POPP ZB-Shield we need to:

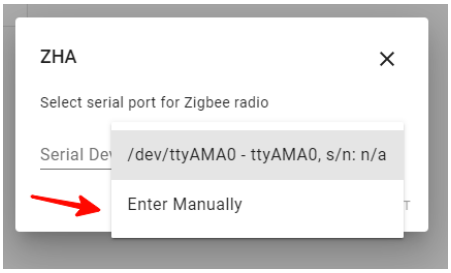
- Navigate to the **Configuration -> Integrations**



- Add new Integration and search for **Zigbee Home Automation**

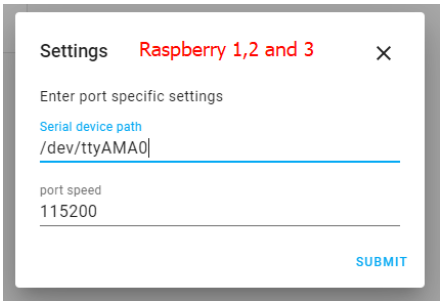


- Select **Enter Manually**

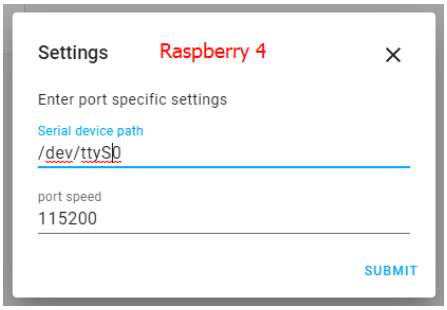


- Select **EZSP** radio type

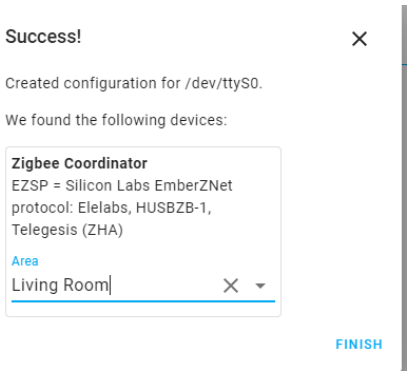
- For Raspberry Pi 1,2,3 enter **/dev/ttyAMA0** as Serial Port and select Baud rate 115200



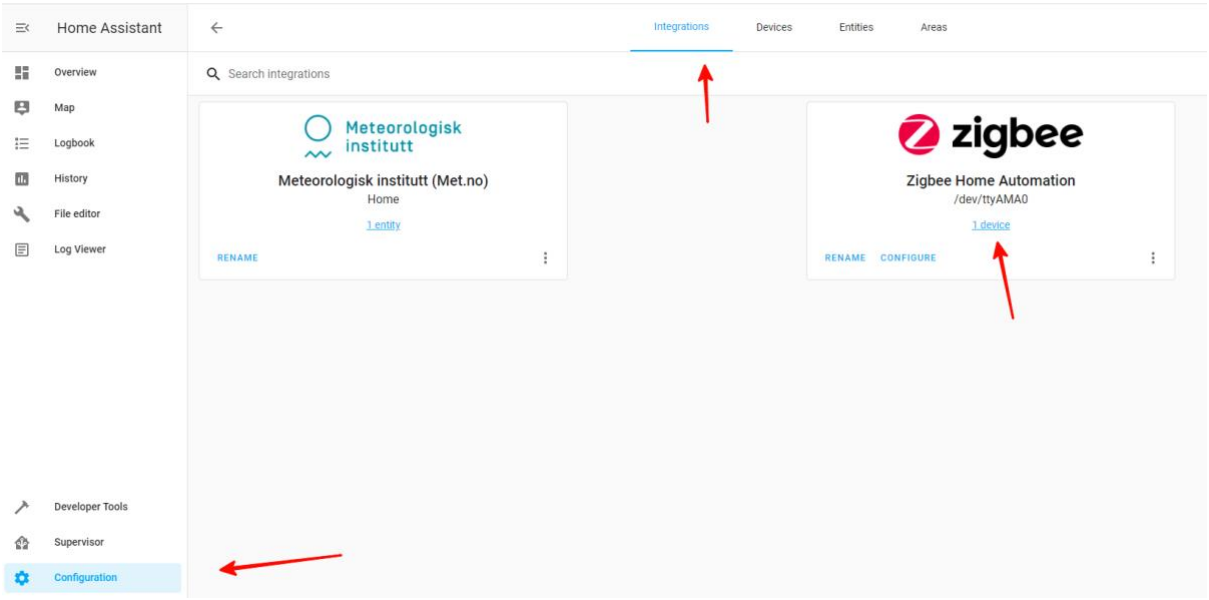
- For Raspberry Pi 4 enter **/dev/ttyS0** as Serial Port and select Baud rate 115200



- The installation should be successful



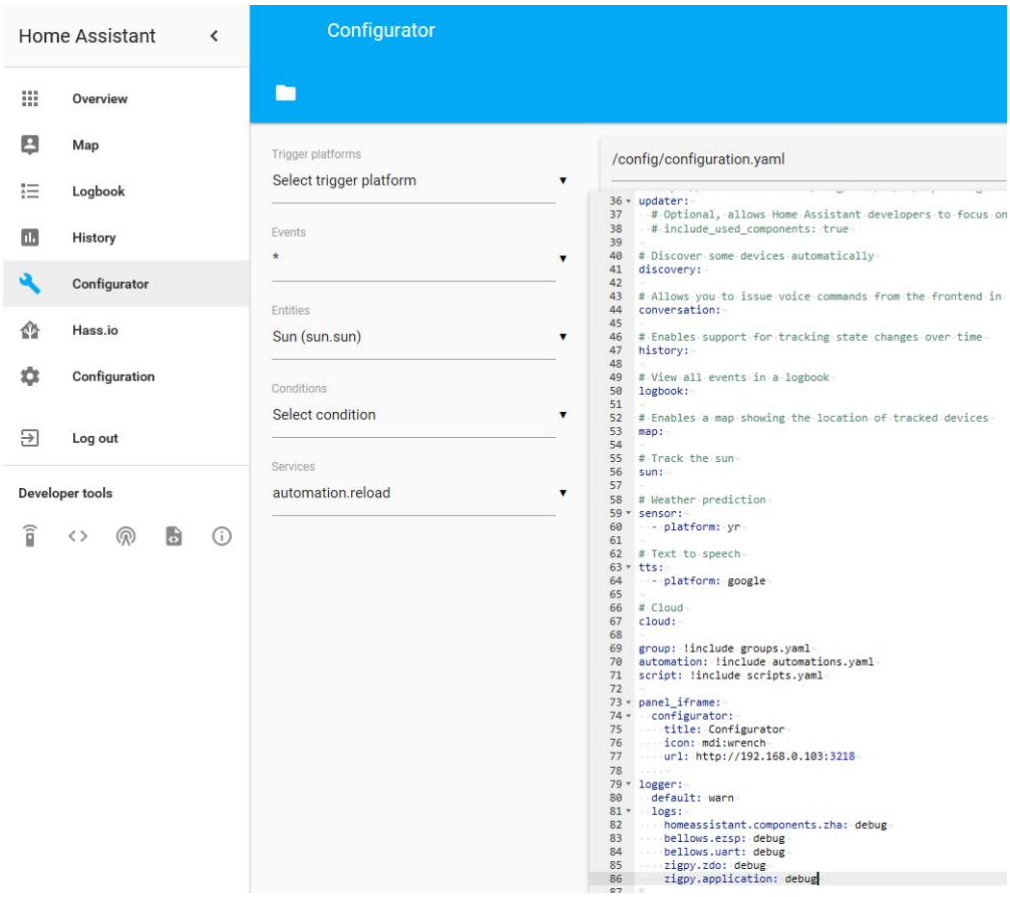
Now the Zigbee Integration should appear:



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, just add the following lines to the configuration file **/config/configuration.yaml**:

```
logger:
    default: warn
    logs:
        homeassistant.components.zha: debug
        bellows.ezsp: debug
        bellows.uart: debug
        zigpy.zdo: debug
        zigpy.application: debug
```

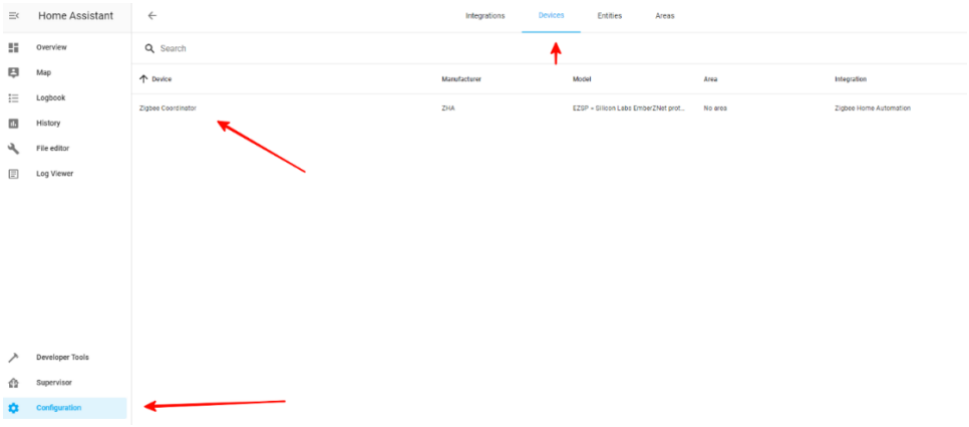


Zigbee HA Component Usage

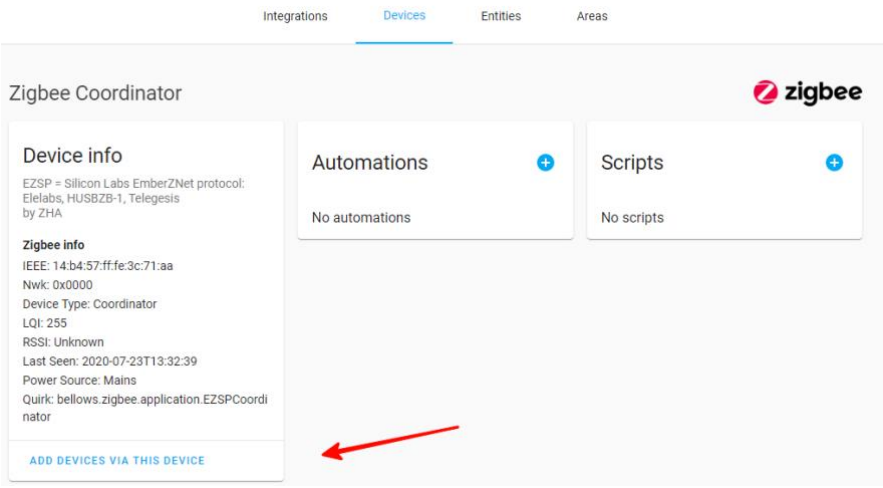
Once Zigbee Component is added and configured properly you can start to use it.

Add your devices to the Home Assistant

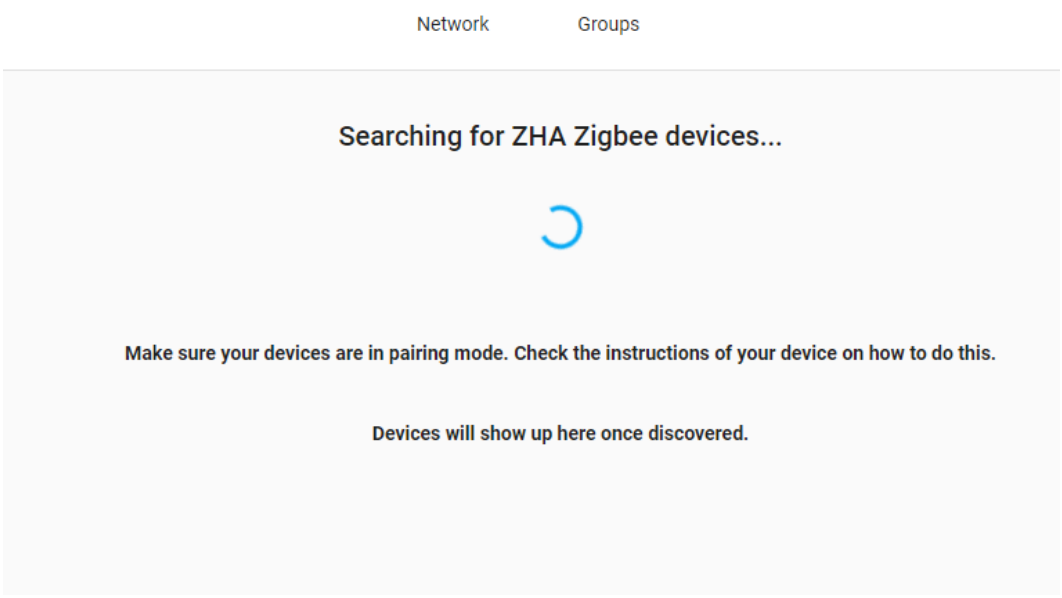
Open **Configuration** and go to **Devices** and **Zigbee Coordinator**



Start "**Add Devices via this device**"

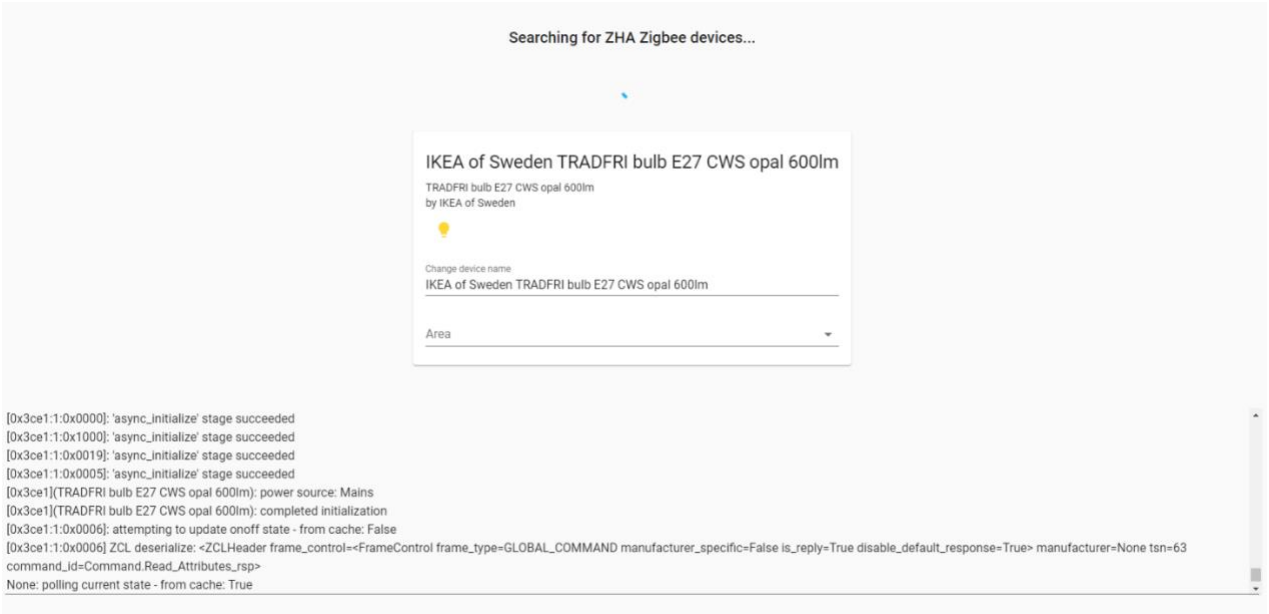


When you will call it, you have 60 seconds to add the device.



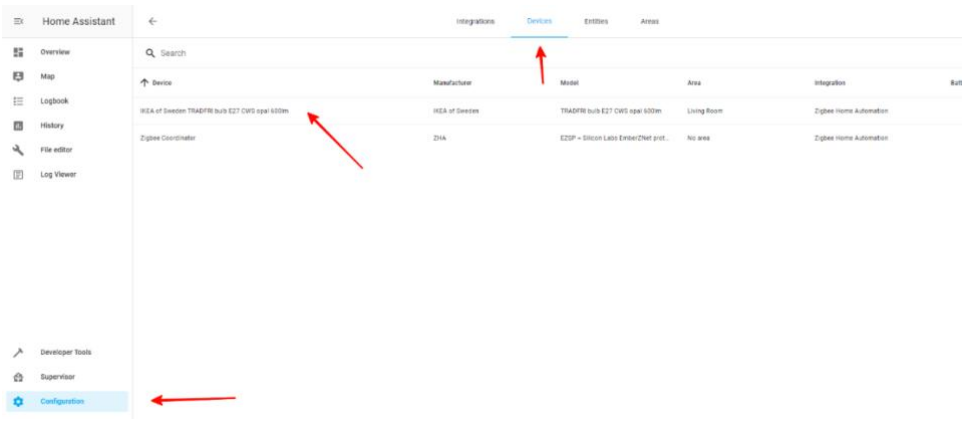
During this period, you need to follow Device manual to put it in Pairing mode. Sometimes you just need to give it power.

If the device is found, you will be able to see it in the logs (example device)

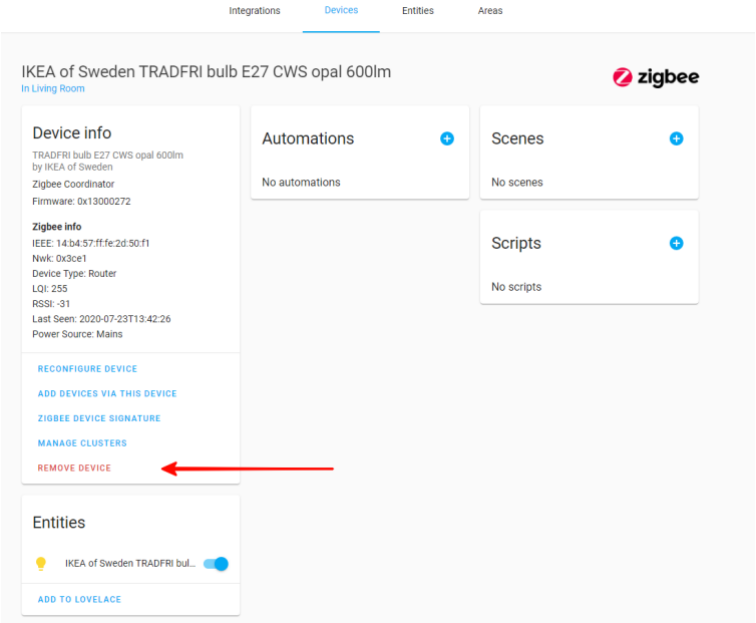


Remove your device from Home Assistant

Open **Configuration** and go to **Devices**.



Select the device, which you would like to remove



Once you call this service you can verify in the logs, that the device has left the network.

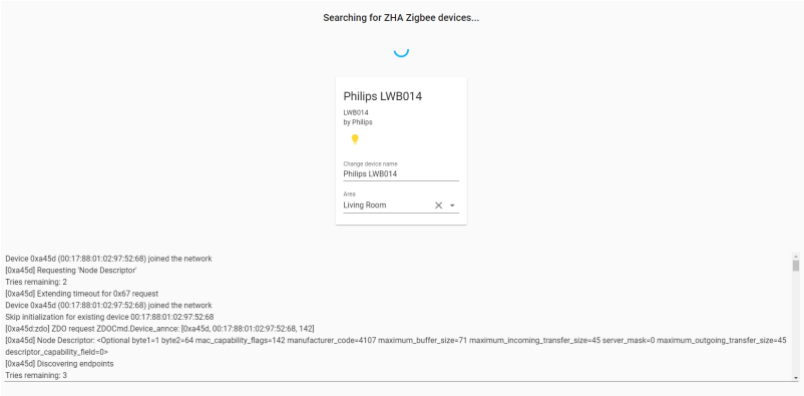
Example: Philips Hue Bulb

This example is done with Hue White Single bulb E26 but is applicable to other products as well.

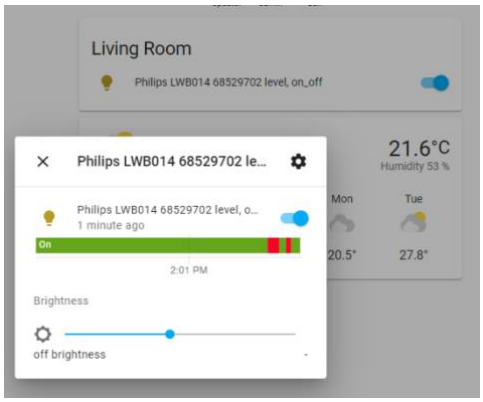
To control Philips Hue Light bulb using Home Assistant, one first needs to reset it.

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

- Call **Add Devices** service as explained in Add devices section of this guide
- Power ON the Lightbulb
- Confirm it is added to the Home Assistant



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



Troubleshooting

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