

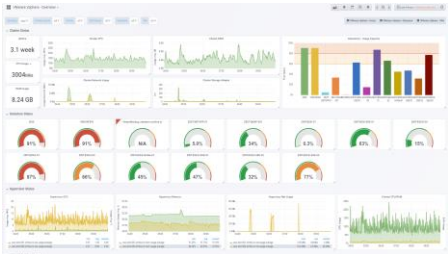


Home Assistant installation (opensource Domotica software)

There are all kinds of Domotica systems for sale, all very nice but pricey and you are usually stuck to the possibilities and limitations of the purchased system. However, it can be done differently: the open source software community offers a range of good (free) Domotica software packages.

What can you do with Domotica?

Uh, a lot... You can make your entire house smart: automatically switching lights that turn on or off based on certain triggers: door contacts, motion sensors, on time, etc. You may have a sunshade, curtains, shutters, an aquarium, a pond or something else: you can also do fun Domotica stuff with it. Do you have a smart meter and / or solar panels: that data can all be read, with or without some (cheap) electronics. You already have some of HUE equipment, Click-on-Click-off stuff, Z-Wave or Zigbee sensors, etc. ? All can also be linked! And if you have an alarm system, you may also be able to use the sensors of such a system for your Domotica: what do you think of the PIRs and door / window contacts: a shame to use them only for your security. Jablotron, for example, has something nice for that: the SmartHub.



Hardware

Home Assistant runs great on a Raspberry Pi3, but if you plan to really enjoy yourself with Domotica, it will turn out that the Raspberry Pi3 is soon a size too small. Especially after installing the not necessarily necessary but very useful and fun tools such as Node-Red, Influxdb, Glances and Grafana, the response from Home Assistant becomes super slow when it is installed on a Raspberry Pi3 and is actually no longer compatible with it to work.

It is also possible to install Home Assistant on a Synology server, via the link below you can easily install the standard version of Home Assistant. To be honest it is better to have your Domotica on a separate server.



Most Home Assistant users quickly switch from a Raspberry Pi3 to a NUC server: that comes in all types and price ranges. If you want to use this mini-computer mainly for your Domotica then you really don't need an expensive one. I bought this one myself: Intel Arches Canyon NUC6CAYH. This currently costs (September 2019) € 140, there is still some memory to be purchased (2x4GB or 1x8GB) and preferably an SSD disk of for example 256GB. A normal Sata 2.5 "hard disk is also possible of course. The nice thing about this mini-computer is that you can screw it into your meter cupboard on the wall with the supplied mounting plate and the thing uses very little power.

On the NUC you can install the Home Assistant Hass.io image within 10 minutes, which you can also do is to provide the NUC with virtualization first: not necessary but still nice and handy. The latter is more for the advanced among us. This NUC is fast enough for this, you will not notice it.

Home Assistant installation

Home Assistant (<https://www.home-assistant.io>) can be installed on a Raspberry Pi3 (or higher). Ready-made images can be downloaded from the above website. Now there are 2 different Home Assistant versions, the standard version (which can be installed on a Synology server, for example) and the Hass.io version.

- Starting point: <https://www.home-assistant.io/getting-started/>
- Installation standard version on a Synology (<https://www.synology.com>) or Xpenology (<https://xpenology.org/>) server:
<https://community.home-assistant.io/t/hass-io-on-synology-dsm-native-package/125559>
- Better is to take the Hass.io version (various hardware) because it is the most extensive:
<https://www.home-assistant.io/hassio/installation/>
- For those who are going to use a NUC and also want to install the virtualization and Home Assistant: <https://www.youtube.com/watch?v=L3XyvpcbBt4>

The Home Assistant website is very extensive, the documentation is up-to-date and every 2 weeks there is a software update that can be installed with 1 click.

Examples of other Home Assistant users can be found here: <https://www.home-assistant.io/cookbook/>

Just some examples of useful additions

- **Smart meter:** <https://www.home-assistant.io/components/dsmr/>
- **DIY sensors:** <https://www.mysensors.org/> and some applications:
 - **Litter box robot sensor:** <https://www.thingiverse.com/thing:2850318/>
 - **Water softener salt barrel sensor:** <https://www.thingiverse.com/thing:2597067>
- **Installation of Influxdb, Glances, Grafana for nice graphs and data collection** <https://www.youtube.com/watch?v=m9qIqq104as>
- **Node-Red:** <https://github.com/hassio-addons/addon-node-red>
- **Philips HUE:** <https://www.home-assistant.io/components/hue/>
- **Click-on-Click-off:** <https://www.home-assistant.io/components/rfxtrx/>

Example alarm installation connection: Jablotron SmartHub

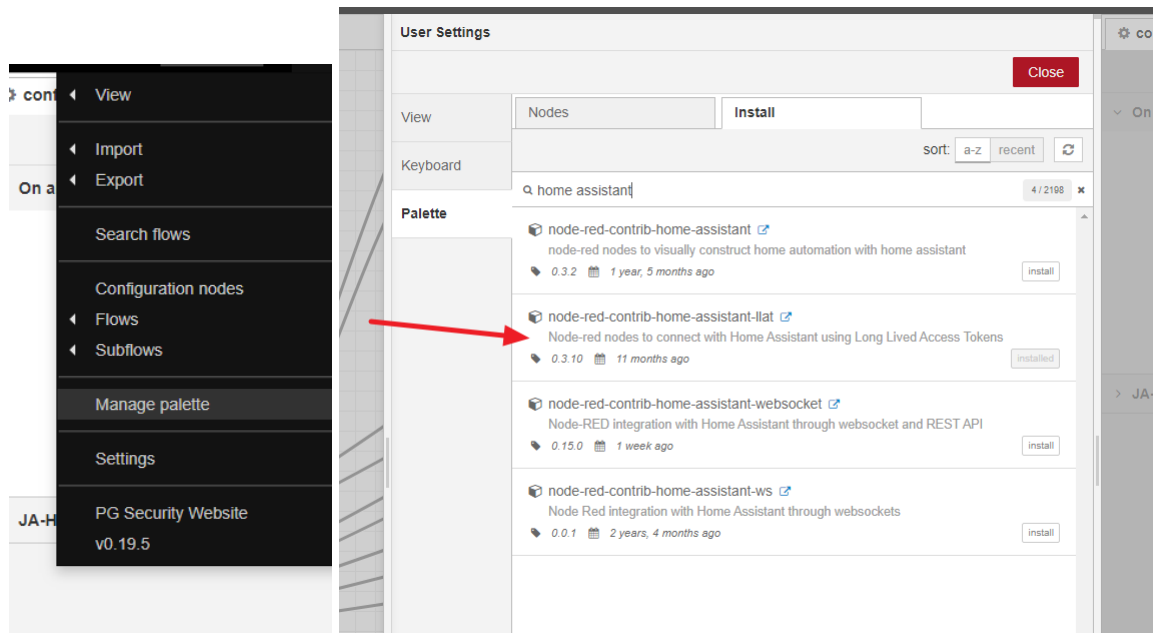


For those who have installed a Jablotron alarm system, with the help of the Jablotron SmartHub and the Node-Red software you can easily communicate the status of various sensors such as a PIR and a door contact via a so-called virtual PG output to Home Assistant.

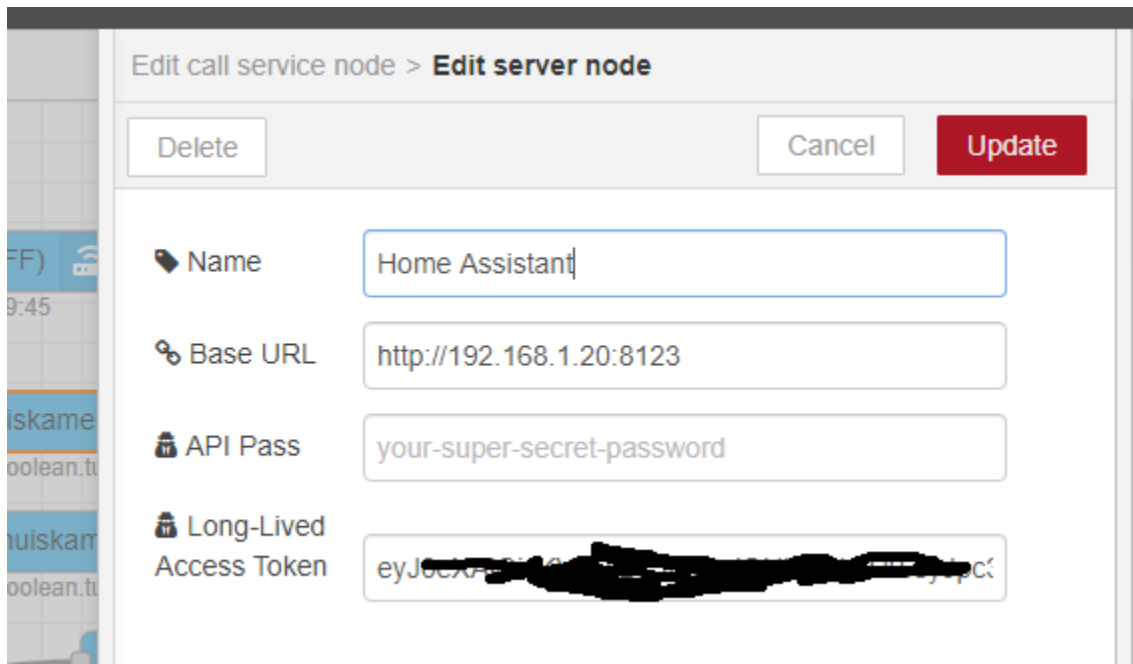


Now the SmartHub is initially intended to be used via IFTTT but it is better and safer to let the SmartHub work directly with the Home Assistant server instead of IFTTT via your local network. This way you keep the status of your alarm system sensors indoors. After mounting and installing the SmartHub, log in to the Node-Red panel, how to do it is all in the accompanying manual. Now follow the following steps

- 1) First of all we install the Home Assistant module in Node-Red of the SmartHub: click on the 3 horizontal lines in the top right corner of the Node-Red panel. Click on Manage Palette. Then click on the Install tab and install the package: “node-red-contrib-home-assistant-llat”



- 2) After installing and restarting the SmartHub you will see a series of Home Assistant nodes on the left side of the Node-Red panel. You can remove the IFTTT module in your current Node-Red flow, you no longer need it. As a replacement you drag the CALL SERVICE node into your current flow, you then have to enter your Home Assistant server Base URL and a new Long-Lived Access Token to be created once. You can find out how to create such a token on the Home Assistant website. API pass leaves you empty.



- 3) You then create one or more input booleans in Home Assistant, which you can do in a separate file: /config/input_booleans.yaml. Each sensor therefore receives its own input boolean. For instance:

```
- pir_hk:  
  name: Huiskamer PIR1  
  initial: off  
  icon: mdi:motion-sensor
```

- 4) In Home Assistant, add the following line in the /config/configuration.yaml file:

```
input_boolean: !include input_booleans.yaml
```

After this, it is best to restart your Home Assistant server.

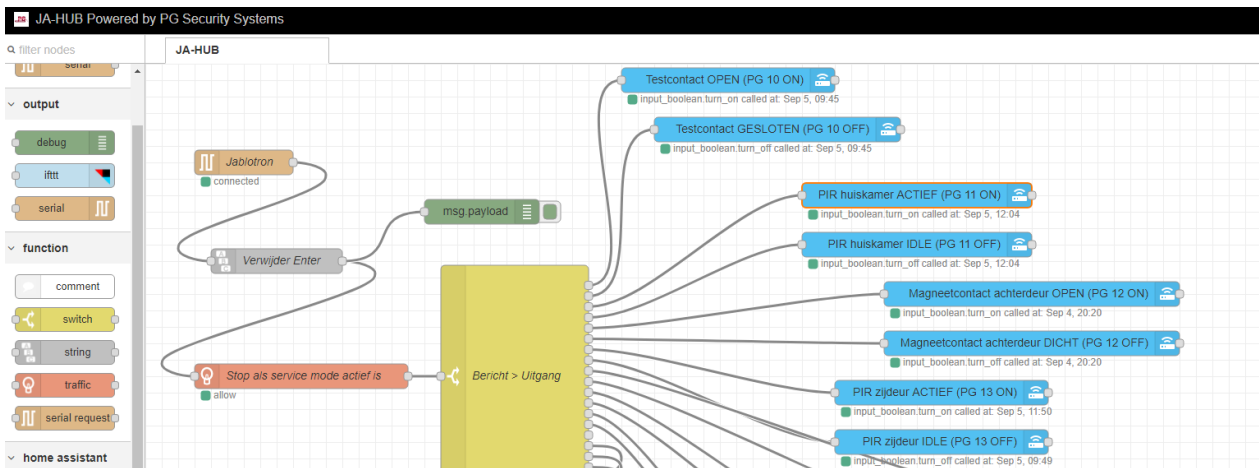
- 5) Now it's up to F-Link: assign a PG to each PIR, door / window contact and of which you want to send the status of further to Home Assistant: we call this a virtual PG because we don't attach any hardware to it. We only send the PG on / off reports.

13	Brandmelder zolder	JA-63S-100	1: Woonhuis	Brand alarm	<input type="checkbox"/>	Nee
14	PIR huiskamer	JA-150P	1: Woonhuis	Direct	<input type="checkbox"/>	11: PG output 11
15	PIR gang	JA-150P	1: Woonhuis	Direct	<input type="checkbox"/>	15: PG output 15
16	PIR zolder	JA-150P	1: Woonhuis	Direct	<input type="checkbox"/>	Nee

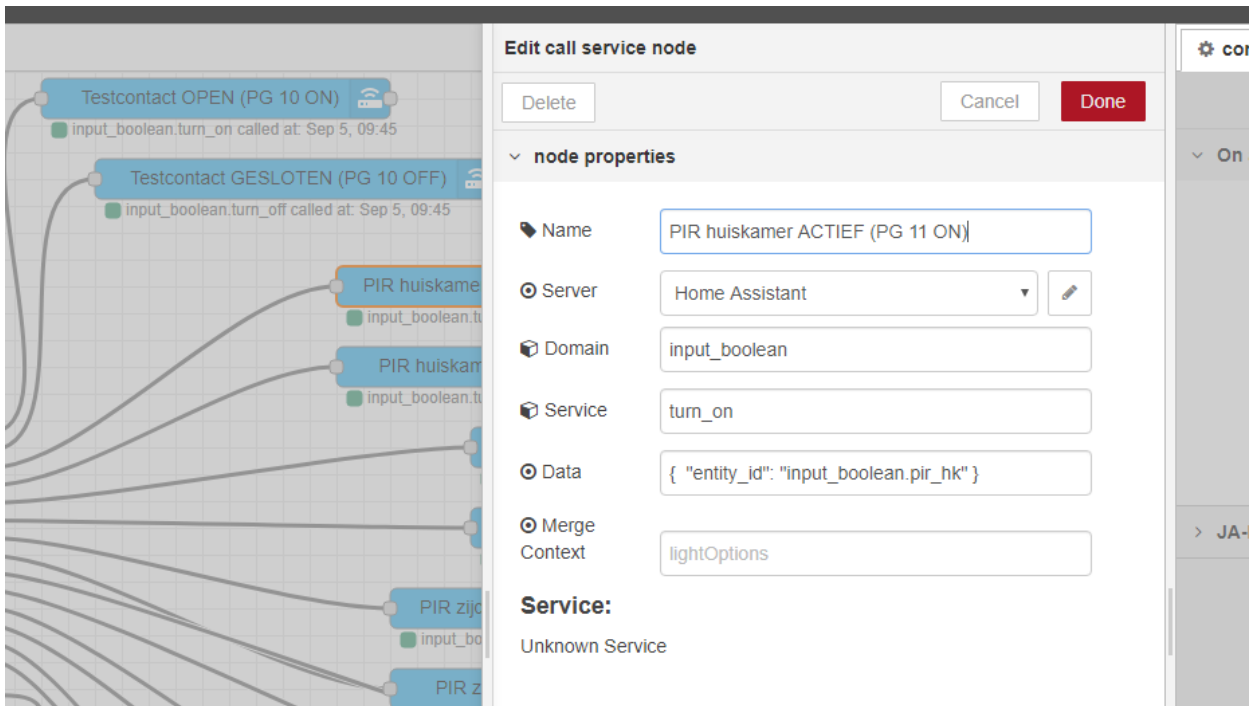
10	PG output 10	NO	Schakel aan/uit	
11	PG output 11	NO	Impuls	00:00:01
12	PG output 12	NO	Schakel aan/uit	

You set door / window contacts as "Switch on / off" contacts, a PIR must give an impulse of 1 second (that turns out to be long enough).

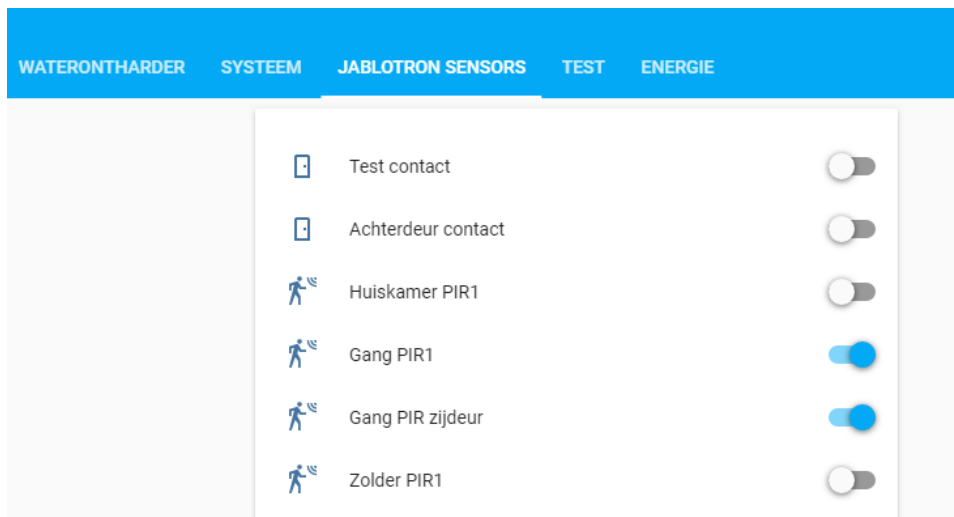
- 6) Now you can create a flow in Home Assistant in the Node-Red panel (an add-on that can be installed via the Hassio.io tab) that looks at the output of the SmartHub. An example:



Example of setting a service node:



- 7) In Home Assistant you can add the various input booleans created in the Lovelace panel as switches.



If you have all of the above worked, you can fully enjoy yourself: the input booleans can be used in Home Assistant as sensors to switch lights and such. The best thing is to do this in the Node Red panel of Home Assistant.

Have fun with all this, I hope to have made you something wiser...

