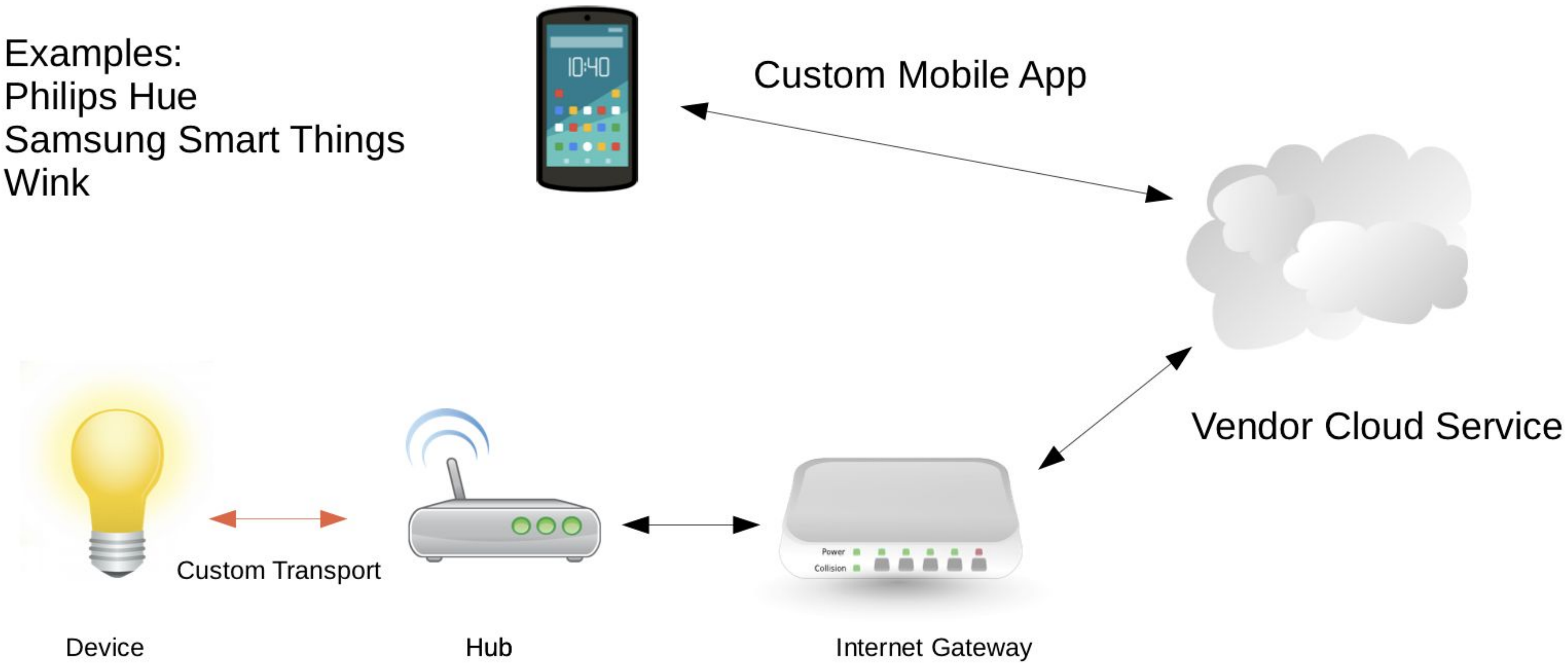
Home automation without the cloud

Paulus Schoutsen
StrangeLoop 2017, St. Louis

Standard IoT Consumer Pattern

Examples:
Philips Hue
Samsung Smart Things
Wink



Custom Mobile App

Vendor Cloud Service

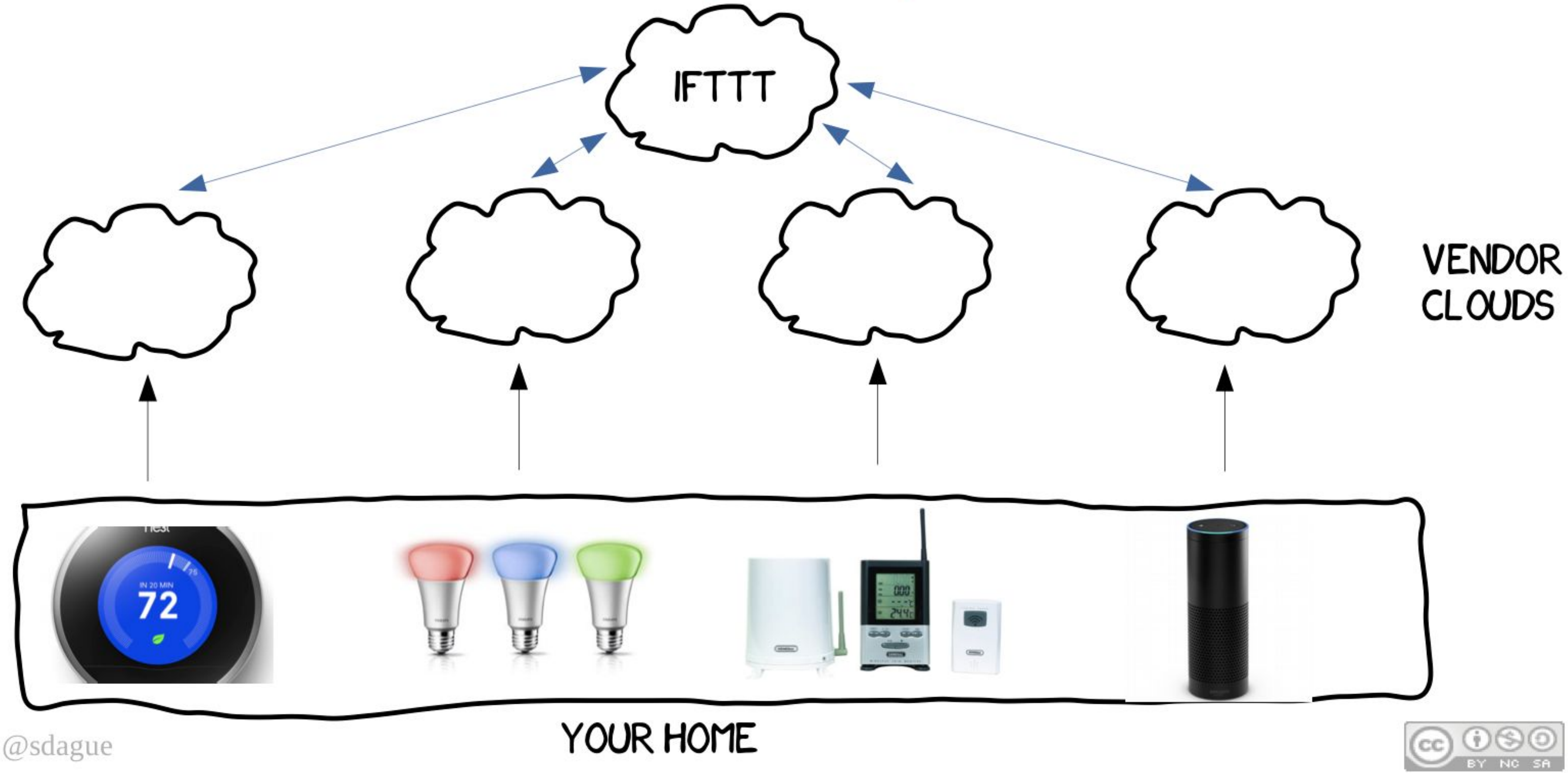
Custom Transport

Device

Hub

Internet Gateway

How to Automate Proprietary Silos



@sdague

Home Assistant

Home automation platform based on Python 3 + asyncio.

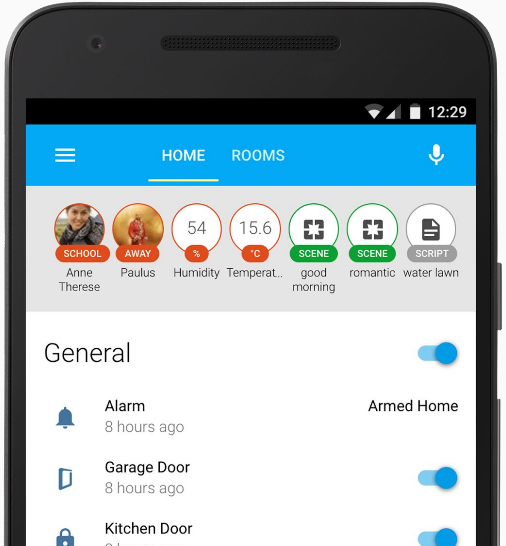
Open-source, Apache 2.0 license.

Host it yourself so your data stays yours.

Track people and things on a map.

Responsive web app that runs great everywhere.

Track the state of your house over time.

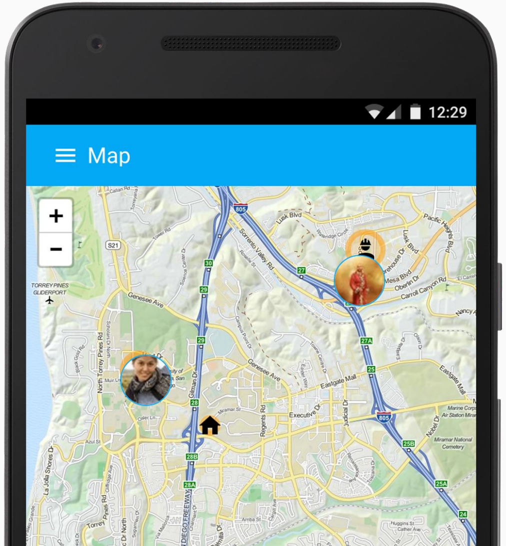


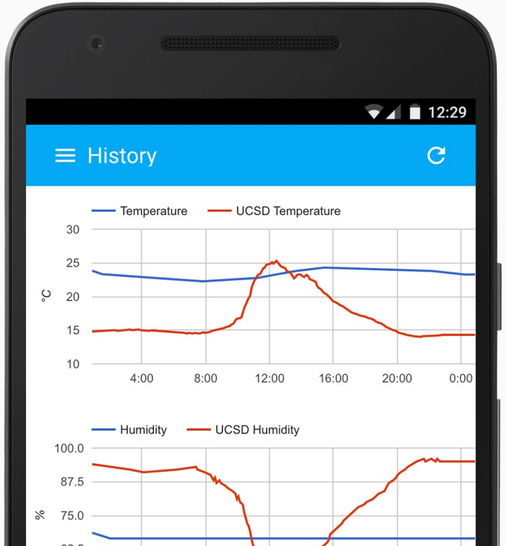
General

Alarm 8 hours ago Armed Home

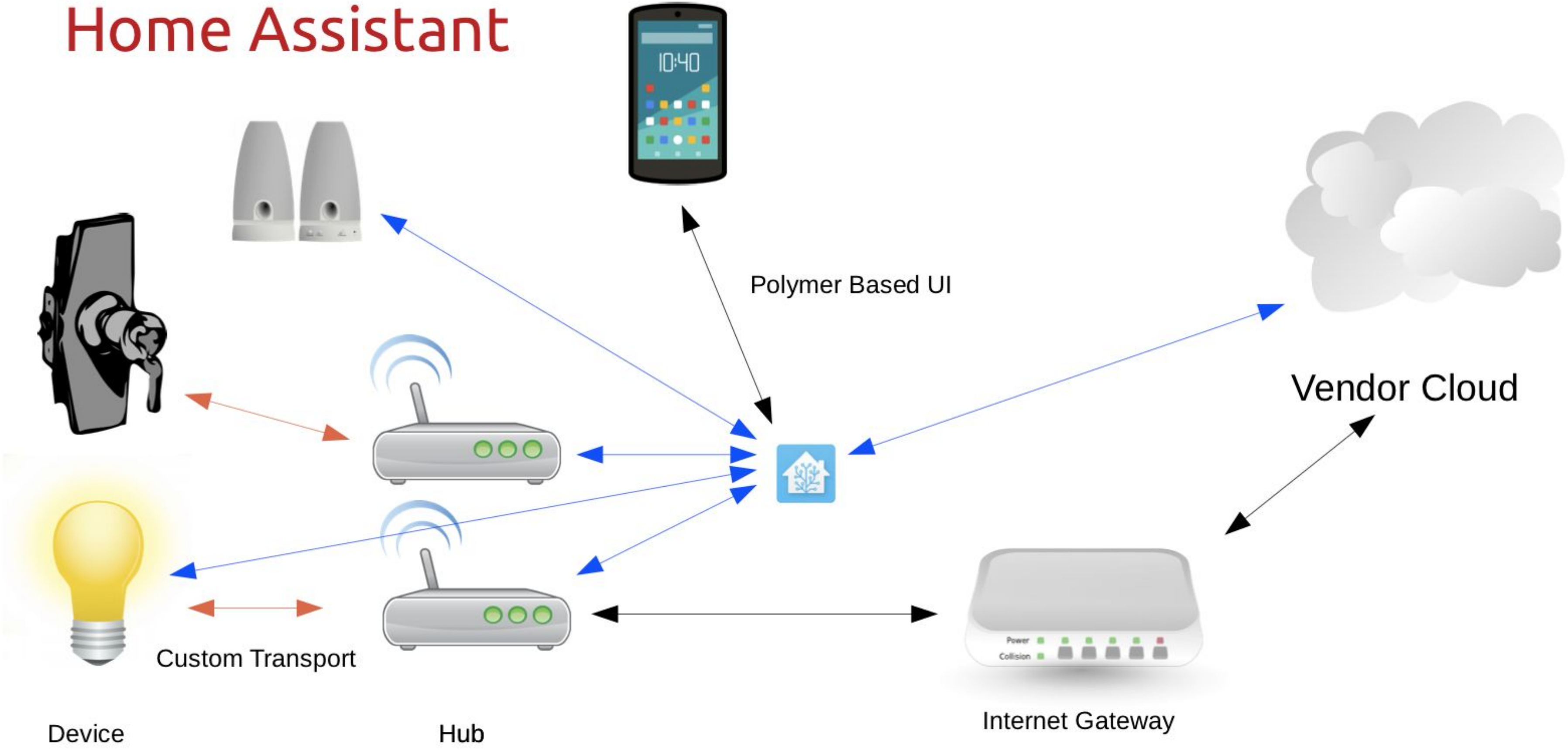
Garage Door 8 hours ago

Kitchen Door

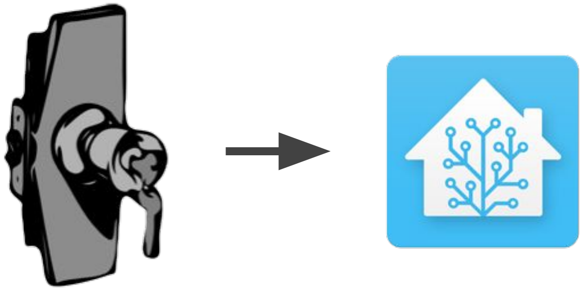




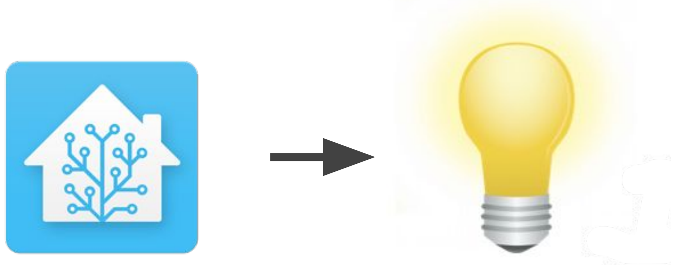
Home Assistant



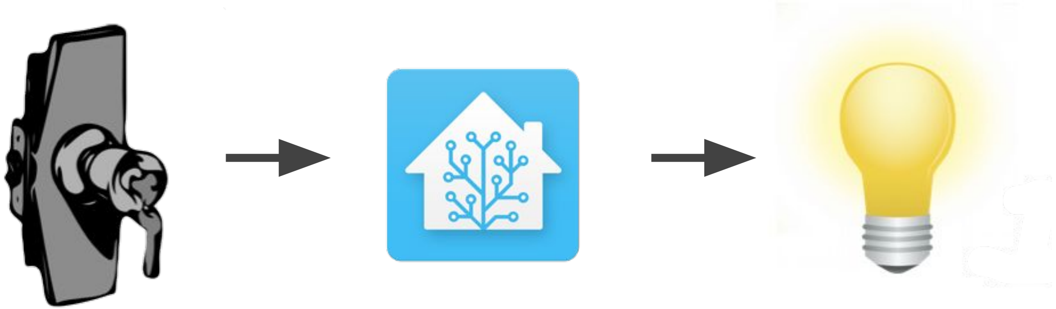
Observe.



Control.



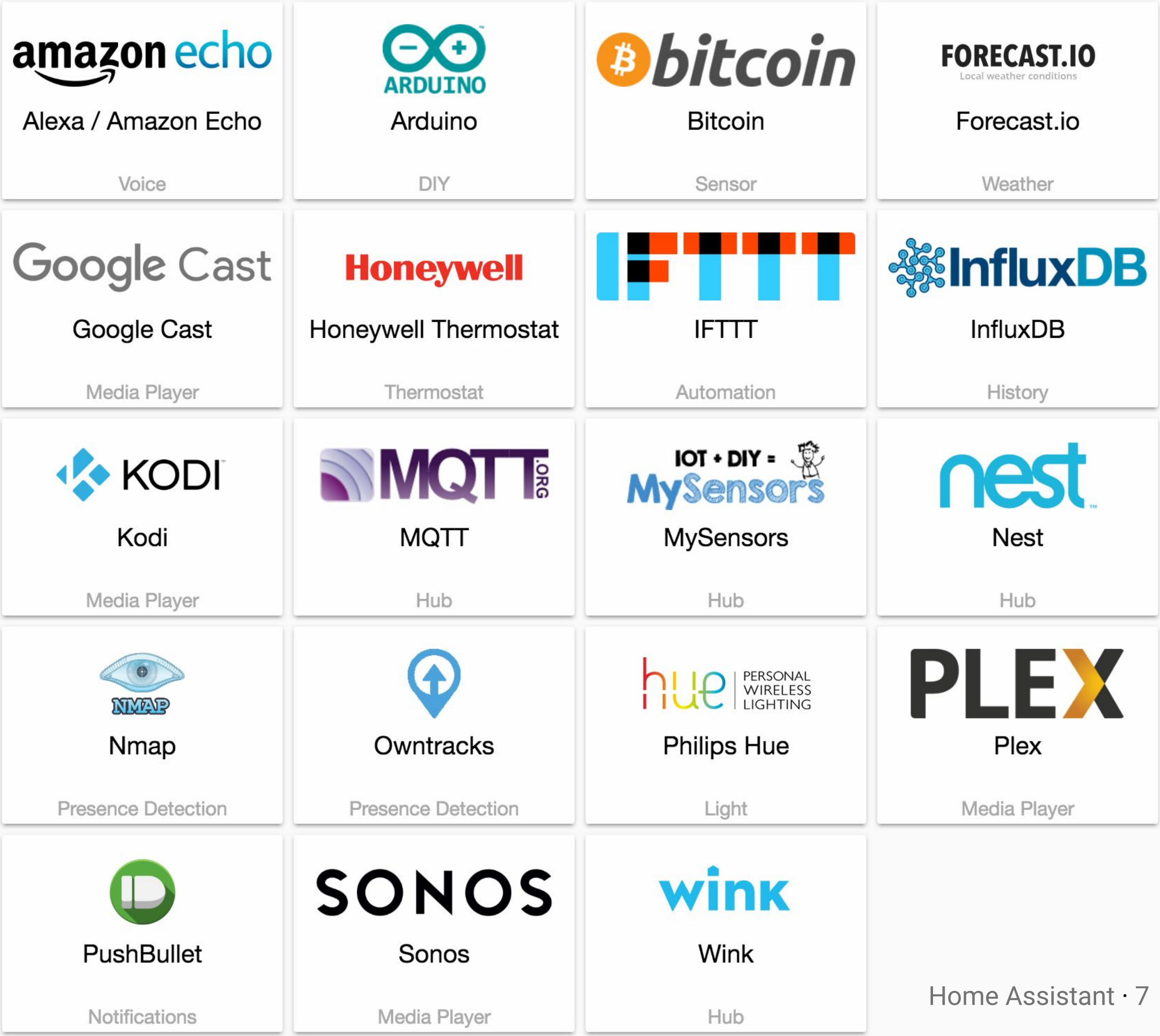
Automate.



There’s a component for that.

- Device Types (light, switch, etc)
- Presence Detection
- Entity Organization
- Automation
- Record History
- Third-Party Services Integrations
- Export Data

Find all 829 components and platforms on home-assistant.io/components



Alexa / Amazon Echo Voice	Arduino DIY	Bitcoin Sensor	Forecast.io Weather
Google Cast Media Player	Honeywell Thermostat Thermostat	IFTTT Automation	InfluxDB History
Kodi Media Player	MQTT Hub	MySensors Hub	Nest Hub
Nmap Presence Detection	Owntracks Presence Detection	Philips Hue Light	Plex Media Player
PushBullet Notifications	Sonos Media Player	Wink Hub	

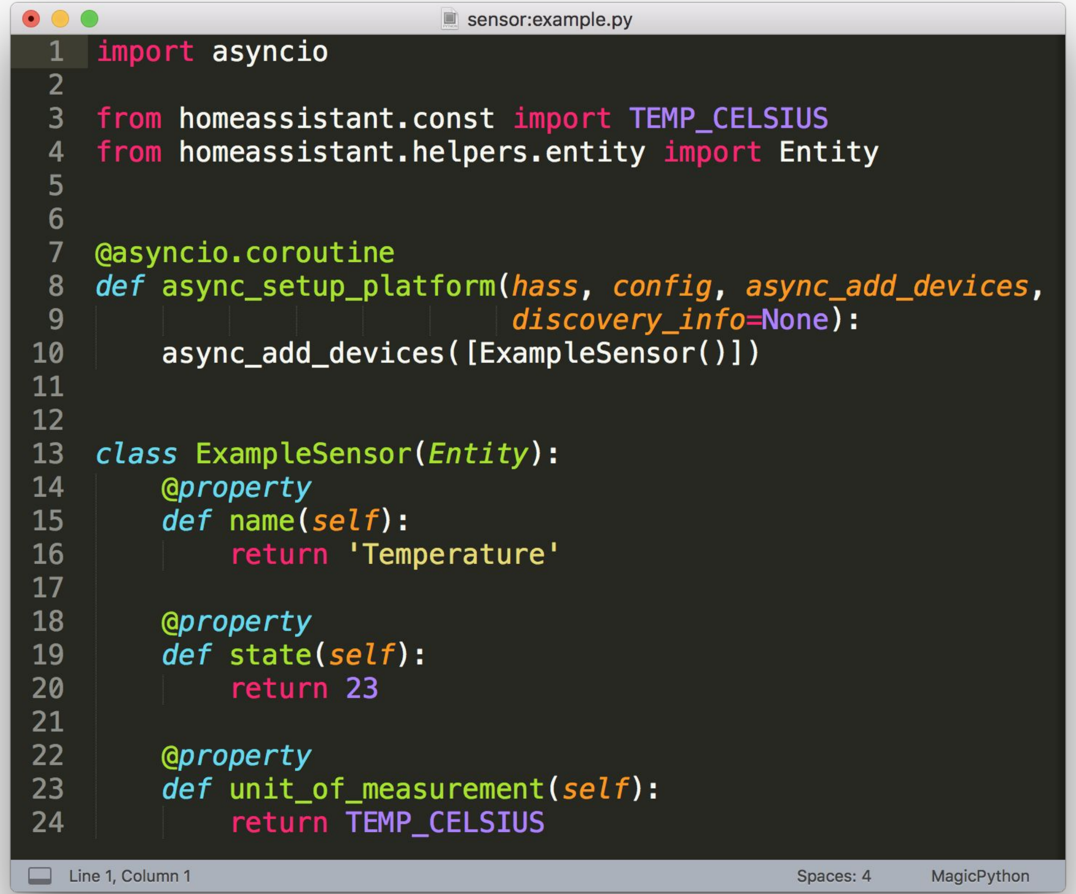
Example sensor platform

Create file as:

`<config>/custom_components/sensor/example.py`

In configuration.yaml file:

```
sensor:
  platform: example
```



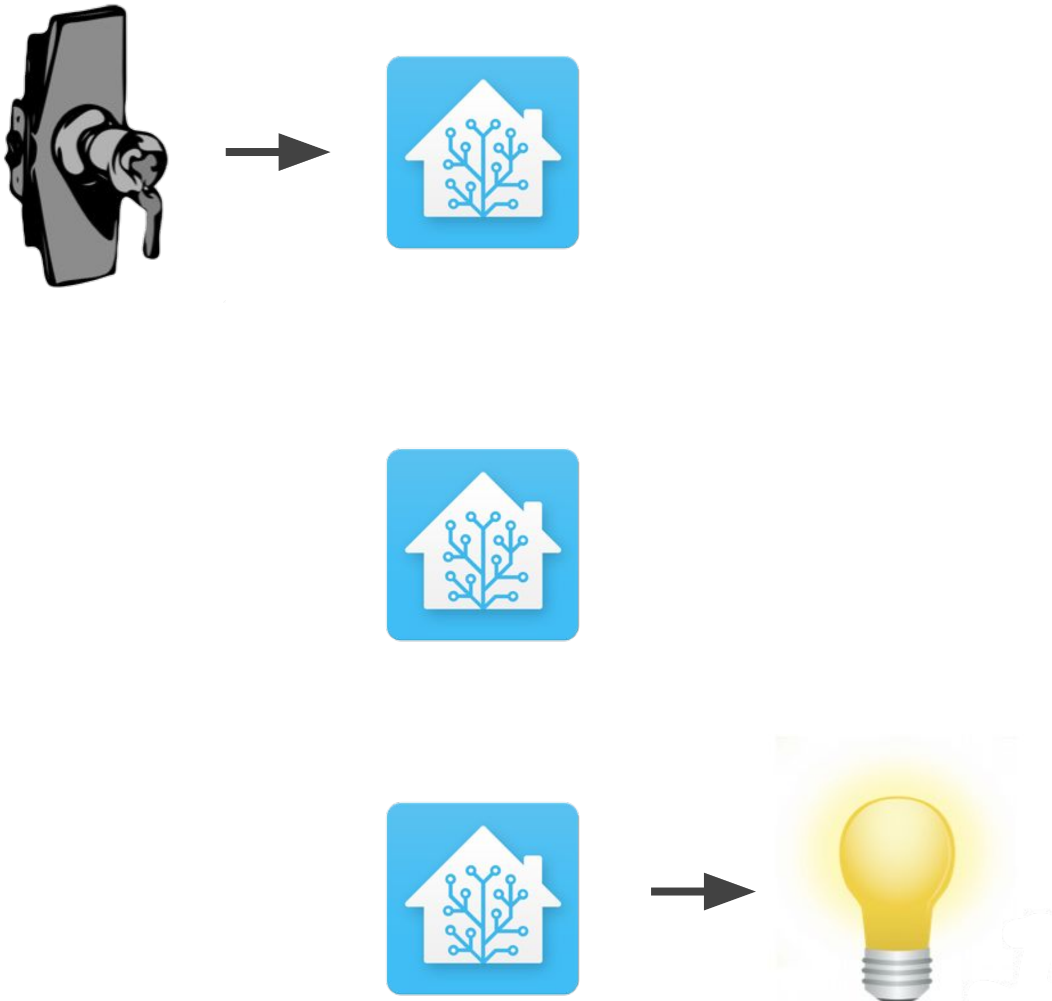
```python
import asyncio

from homeassistant.const import TEMP_CELSIUS
from homeassistant.helpers.entity import Entity


@asyncio.coroutine
def async_setup_platform(hass, config, async_add_devices,
                         discovery_info=None):
    async_add_devices([ExampleSensor()])


class ExampleSensor(Entity):
    @property
    def name(self):
        return 'Temperature'

    @property
    def state(self):
        return 23

    @property
    def unit_of_measurement(self):
        return TEMP_CELSIUS
```

For source code, see:
https://gist.github.com/balloob/3e8ae00a2354f4e889c0

Trigger.

Check Condition.

Action.

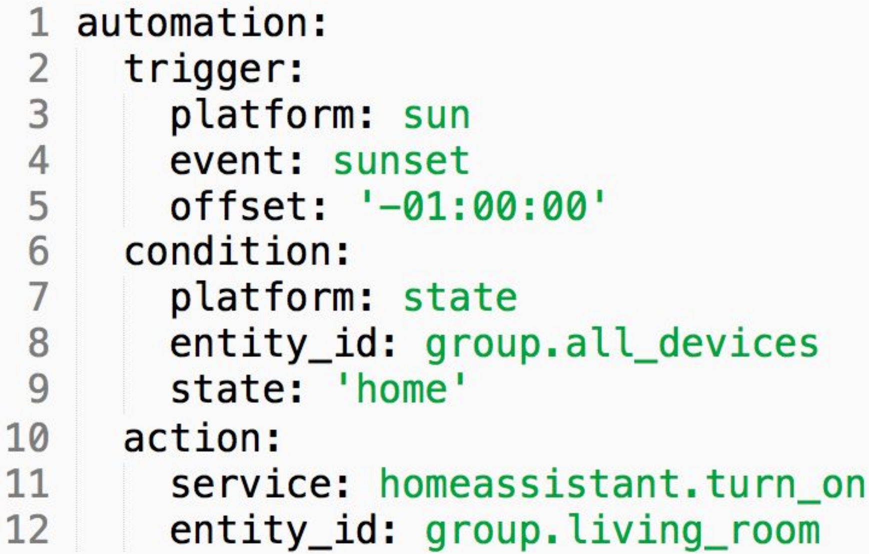


Example automation configuration

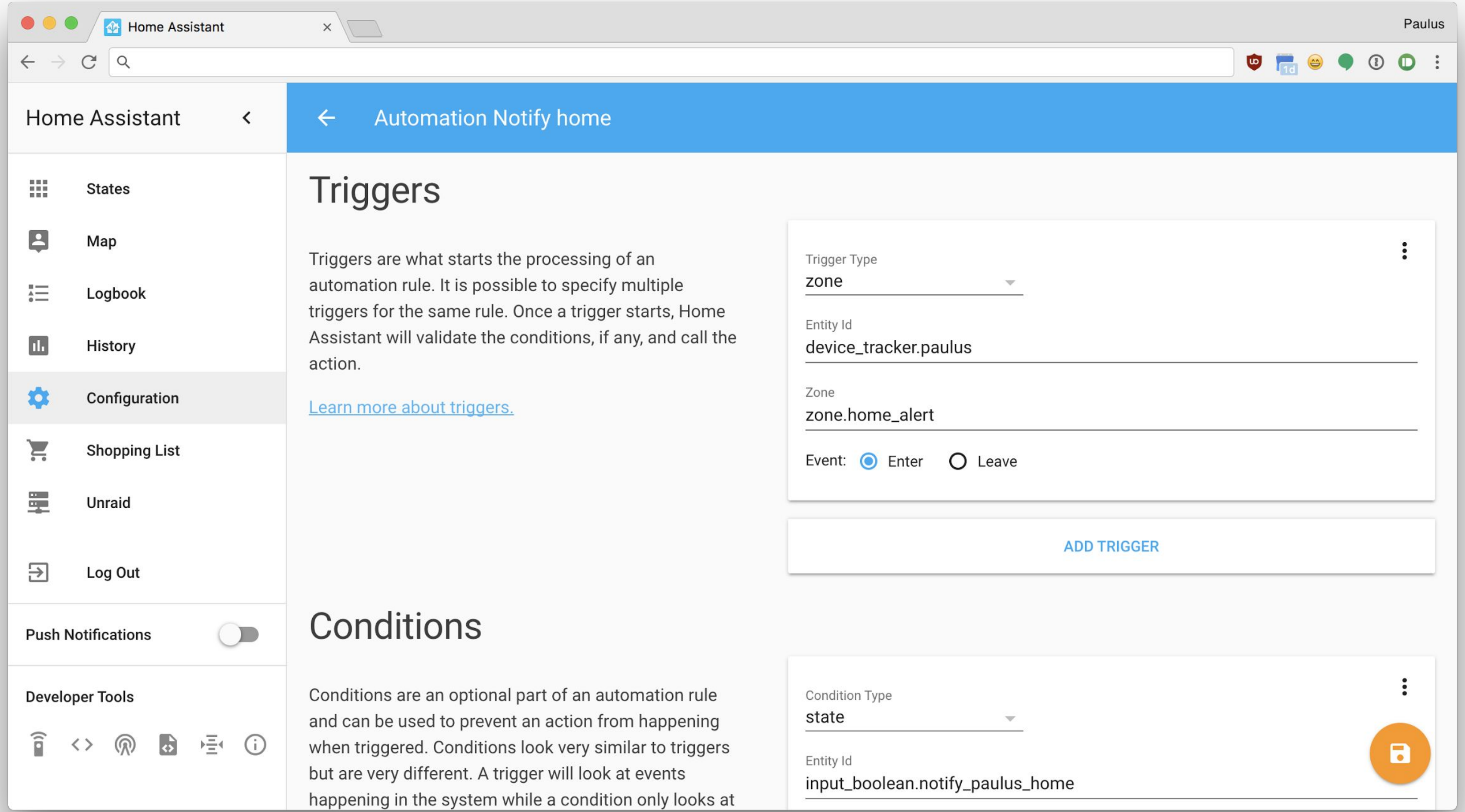
- Turn light on 1 hour before sunset if anyone is home.

Automations:

- 1 or more triggers.
- 0 or more conditions.
    - Time
    - Event
    - State
    - Sun
    - Zone (GPS)
    - MQTT



```yaml
automation:
  trigger:
    platform: sun
    event: sunset
    offset: '-01:00:00'
  condition:
    platform: state
    entity_id: group.all_devices
    state: 'home'
  action:
    service: homeassistant.turn_on
    entity_id: group.living_room
```



Automation Notify home

Triggers

Triggers are what starts the processing of an automation rule. It is possible to specify multiple triggers for the same rule. Once a trigger starts, Home Assistant will validate the conditions, if any, and call the action.

Learn more about triggers.

Trigger Type: zone

Entity Id: device_tracker.paulus

Zone: zone.home_alert

Event: ● Enter ○ Leave

ADD TRIGGER

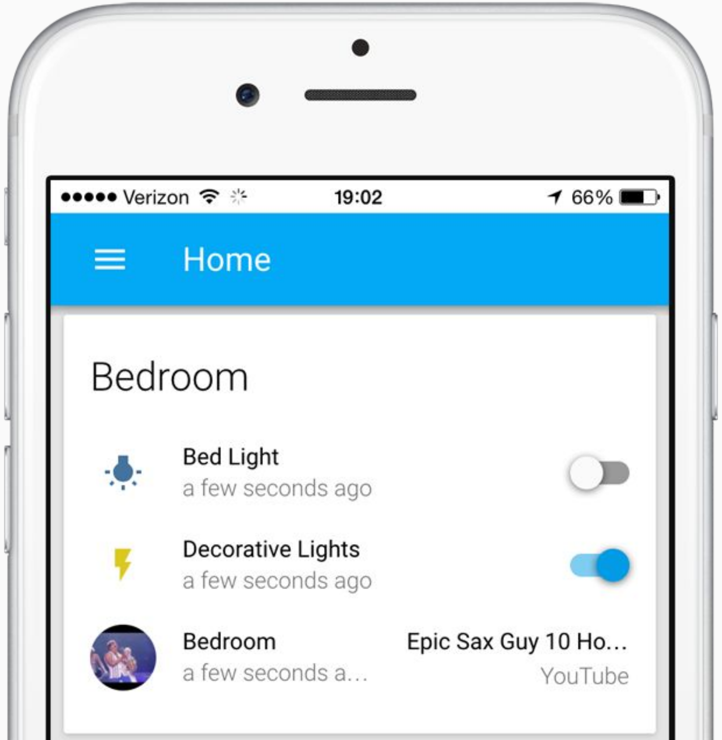
Conditions

Conditions are an optional part of an automation rule and can be used to prevent an action from happening when triggered. Conditions look very similar to triggers but are very different. A trigger will look at events happening in the system while a condition only looks at

Condition Type: state

Entity Id: input_boolean.notify_paulus_home

Home Assistant



Home

Bedroom

Bed Light
a few seconds ago

Decorative Lights
a few seconds ago

Bedroom
a few seconds a...
Epic Sax Guy 10 Ho...
YouTube

Try the demo on your phone at home-assistant.io/demo

On your computer with Python 3:

```
pip3 install homeassistant
hass --open-ui
```

Visit our website for more information and tutorials: home-assistant.io

Example switch platform

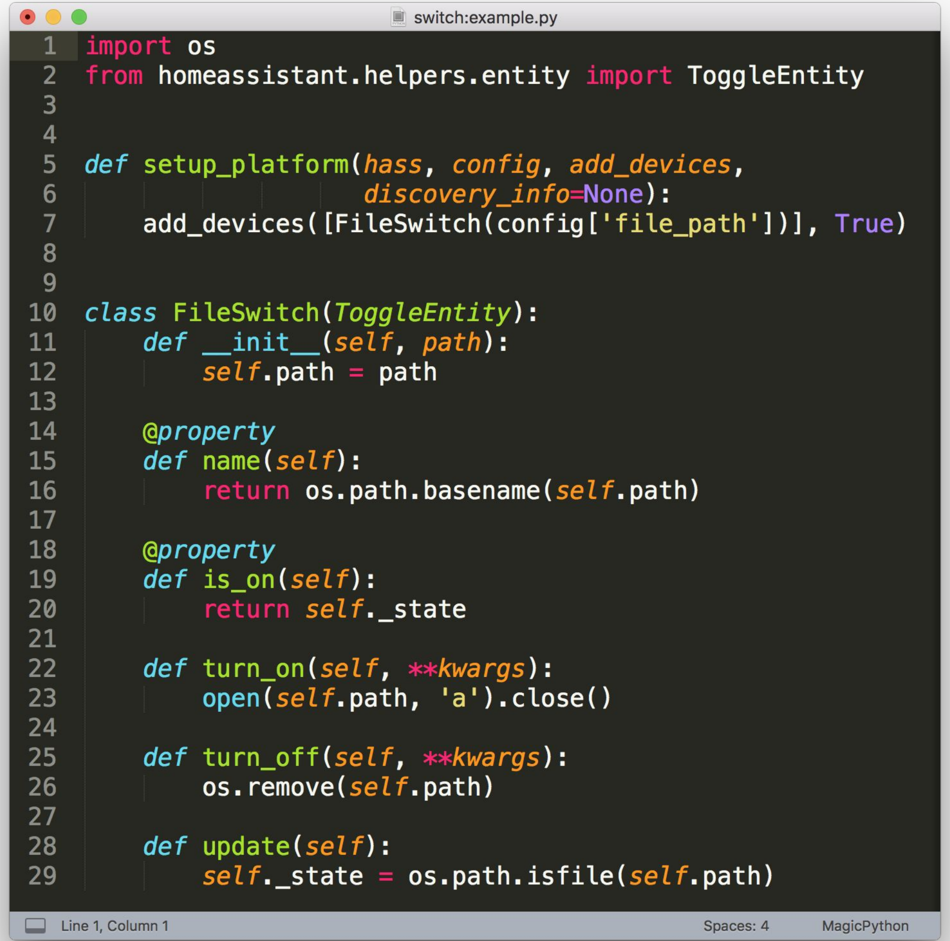
- Based on existence of a file.
- File path passed in via config.

Create file as:

```
<config>/custom_components/
switch/example.py
```

In configuration.yaml file:

```
switch:
  platform: example
  file_path: /tmp/ha_switch
```



```python
import os
from homeassistant.helpers.entity import ToggleEntity


def setup_platform(hass, config, add_devices,
                   discovery_info=None):
    add_devices([FileSwitch(config['file_path'])], True)


class FileSwitch(ToggleEntity):
    def __init__(self, path):
        self.path = path

    @property
    def name(self):
        return os.path.basename(self.path)

    @property
    def is_on(self):
        return self._state

    def turn_on(self, **kwargs):
        open(self.path, 'a').close()

    def turn_off(self, **kwargs):
        os.remove(self.path)

    def update(self):
        self._state = os.path.isfile(self.path)
```

For source code, see:
https://gist.github.com/balloob/3e8ae00a2354f4e889c0