

DSMR MQTT

MQTT client for Belgian and Dutch Smart Meter (DSMR) - "Slimme Meter". Written in Python 3.x

Connect Smart Meter via a P1 USB cable to e.g. Raspberry Pi.

Application will continuously read DSMR meter and parse telegrams. Parsed telegrams are send to MQTT broker.

Includes Home Assistant MQTT Auto Discovery.

In `dsmr50.py`, specify:

- Which messages to be parsed
- MQTT topics and tags
- Auto discovery for Home Assistant

A typical MQTT message broadcast looks like:

```
{
  "V1": 226.0,
  "V2": 232.0,
  "V3": 229.0,
  "database": "dsmr",
  "el_consumed": 24488767.0,
  "el_returned": 21190375.0,
  "p_consumed": 1130.0,
  "p_generated": 0.0,
  "serial": "33363137",
  "timestamp": 1642275125
}
```

A virtual DSMR parameter is implemented (el_consumed and el_returned, which is sum of tarif1 and tarif2 (night/low en day/normal tariff)) - as some have a dual tarif meter, while energy company administratively considers this as a mono tarif meter.

Requirements

Install following python3 libraries

- paho-mqtt
- pyserial

- persist-queue

Test the P1 adapter & USB connection:

Test if P1 adapter is functional and is providing dsmr data by running in a bash shell:

- `tail -f /dev/ttyUSB0`
- optionally first execute `sudo chmod o+rw /dev/ttyUSB0`
- Results should be similar to:

```
tail -f /dev/ttyUSB0

/Ene5\T210-D ESMR5.0

1-3:0.2.8(50)
0-0:1.0.0(240204171638W)
0-0:96.1.1(XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX)
1-0:1.8.1(024790.294*kWh)
1-0:1.8.2(011140.310*kWh)
1-0:2.8.1(010474.138*kWh)
1-0:2.8.2(025578.620*kWh)
.....
.....
```

Installation & Configuration

- Install Python3 packages per recommendation for your distro
- Install from github and configure:
 - mkdir & cd to your install location
 - git clone <https://github.com/hansij66/dsmr2mqtt.git>
 - cd dsmr2mqtt/
- In `systemd/dsmr-mqtt.service` :
 - Adapt ExecStart under [Service] to ExecStart=//dsmr-mqtt.py (default: `/opt/iot/dsmr`)
- `sudo cp -p systemd/dsmr-mqtt.service /etc/systemd/system`
- Copy `config.rename.py` to `config.py` and adapt for your configuration (minimal: mqtt ip, username, password)

- Edit the MQTT configuration and know that the MQTT_TOPIC_PREFIX = "dsmr" will show these messages as topic dsmr/. Configuration will be shown as homeassistant/sensor/dsmr/

- `sudo systemctl enable dsmr-mqtt`
- `sudo systemctl start dsmr-mqtt`
- And check if it is running properly
 - `sudo systemctl status dsmr-mqtt`

```
user@server:/opt/dsmr2mqtt $ sudo systemctl status dsmr-mqtt
dsmr-mqtt.service - P1 dsmr smartmeter
  Loaded: loaded (/etc/systemd/system/dsmr-mqtt.service; enabled; vendor
  preset: enabled)
  Active: active (running) since Tue 2023-09-26 22:21:06 CEST; 18h ago
  Main PID: 1026 (dsmr-mqtt.py)
  Tasks: 6 (limit: 1595)

  CPU: 56.349s

  CGroup: /system.slice/dsmr-mqtt.service
          └─1026 /usr/bin/python3 /opt/dsmr2mqtt/dsmr-mqtt.py
            ...

Use
```

- <http://mqtt-explorer.com/> to test & inspect MQTT messages

A `test/dsmr.raw` simulation file is provided. Set `PRODUCTION = False` in `config.py` to use the simulation file. No P1/serial connection is required.

Tested under Debian/Raspbian. Tested with DSMR v5.0 meter in Netherlands and Belgium. For other DSMR versions, `dsmr50.py` needs to be adapted. For all SMR specs, see [netbeheer](#) For Belgium/Fluvius, open your P1 port through [Fluvius portal](#):

For encrypted P1/dsmr, there is a [fork](#) available.

Licence

GPL v3

Versions

4.0.2

- Adapt systemd for python venv

4.0.1

- Fix for Home Assistant auto discovery (by JoniR)

4.0.0

- Simplified design
- Patches from javl
- Some Patches from smartathome

3.0.0

- Change HA Auto Discovery. Solve warning: Discovered entities with a name that starts with the device name This stops working in version 2024.2.0. Please address before upgrading. Credits: ricko1

2.0.0 - 2.0.1

- Updated mqtt library
- Removed need for INFLUXDB label
- Added telegraf-dsmr.conf
- Added example (dsmr50_Stromnetz_Graz_Austria.py) for Austria dsmr (Stromnetz Graz, by karlkashofer)

1.0.13

- Add zero/non-zero check on data (as sometimes eg gas and power consumed values in influxdb became zero)

1.0.12

- Fix exit code (SUCCESS vs FAILURE)

1.0.2 - 1.0.4:

- Potential bug fix in parser
- Add MQTT last will/testament

1.0.0:

- Initial release