LoRaWAN Gateway auf dem Raspberry Pi 3

Hardware

- Raspberry Pi 3 B+
- WM1302 Raspberry Pi Hat
- SMA to I-PEX Antenna Cable - 120mm
- Waveshare LPWA Lora Antenne, 868MHz, 5dBi, vertikal, SMA Male, IP65, Magnetfuß, 50 Ohm, 10W
- Wio-WM1302 Long Range Gateway Module(USB) - EU868
- Wio-WM1302 Long Range Gateway Module(SPI) - EU868
- Seeed Studio Wiki zum LoRaWAN® Gateway Modul WM1302
- GitHub Repository für LoraWAN Packet Forwarder
- Issue with GPS Synchronization in LoRa Packet Forwarder-waveshare SX1302 pi Hat #116|Issue with GPS Synchronization in LoRa Packet Forwarder-waveshare SX1302 pi Hat #116
- Autorun Paket-Forwarder on System startup

Installation

Die Installation erfolgt nach WIKI.

```
sudo su
apt update
apt remove --purge modemmanager
apt autoremove --purge
systemctl disable bluetooth.service
systemctl disable hciuart.service
apt remove --purge bluez
apt autoremove --purge
apt install -y git

exit
cd ~
git clone https://github.com/Lora-net/sx1302_hal
#
cd ~/sx1302_hal
make
```

Bugfix für GPS Synchronisation

```
libloragw/src/loragw_gps.c:
832         if (nb_fields != 13) {
#
Change that to:
```

```
832         if ( (nb_fields != 13) && (nb_fields != 14) ) {
# This change will accept NMEA G?RMC messages with 13 or 14 fields, not only
those with 13 as before. The L76K receiver apparently defaults to sending
14-field-messages.
```

Bugfix für "Transmit downlink data packets"

Siehe Seeed Studio Wiki FAQ: „Why my devices can not join the network server even if all the settings are correct?“

```
mcedit /sx1302_hal/packet_forwarder/src/jitqueue.c
# change TX_JIT_DELAY  from 40000 to 120000
##define TX_JIT_DELAY            40000   /* Pre-delay to program packet for
TX in microseconds */
#define TX_JIT_DELAY            120000   /* Pre-delay to program packet for
TX in microseconds */
```

SystemD Service

Den LoRaWAN Packet Forwarder als Systemd Service starten:

```
sudo touch /etc/systemd/system/loragateway.service
sudo mcedit /etc/systemd/system/loragateway.service
```

loragateway.service

```
[Unit]
Description=WM1302 LoRaWAN Gateway Service
After=network-online.target
Wants=network-online.target

[Service]
Type=simple
User=root
WorkingDirectory=/home/christoph/sx1302_hal/packet_forwarder
#ExecStartPre=/bin/sh -c '/home/pi/sx1302_hal/tools/reset_lgw.sh start'
ExecStart=/home/christoph/sx1302_hal/packet_forwarder/lora_pkt_fwd -c
/home/christoph/sx1302_hal/packet_forwarder/global_conf.json.sx1250.EU8
68.USB > /dev/null 2>&1
Restart=on-failure
RestartSec=10

[Install]
WantedBy=multi-user.target
```

Geräte-ID (Concentrator EUI) auslesen

```
./sx1302_hal/util_chip_id/chip_id -u -d /dev/ttyACM0
Opening USB communication interface
INFO: Configuring TTY
INFO: Flushing TTY
INFO: Setting TTY in blocking mode
INFO: Connect to MCU
INFO: Concentrator MCU version is V01.00.00
INFO: MCU status: sys_time:85510 temperature:40.4oC
Note: chip version is 0x10 (v1.0)
INFO: using legacy timestamp
ARB: dual demodulation disabled for all SF

INFO: concentrator EUI: 0x<16-stellige-EUI>

Closing USB communication interface
```

From:
https://www.von-thuelen.de/ - **Christophs DokuWiki**

Permanent link:
https://www.von-thuelen.de/doku.php/wiki/projekte/lorawangateway_raspberry_pi_3/uebersicht

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