# AdafruitTinyLoRa Library Documentation

***Release 1.0***

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# Contents

LoRaWAN/The Things Network, for CircuitPython.

CHAPTER 1

# Dependencies

This driver depends on:

- Adafruit CircuitPython
- Bus Device

Please ensure all dependencies are available on the CircuitPython filesystem. This is easily achieved by downloading the Adafruit library and driver bundle.

CHAPTER 2

# Installing from PyPI

On supported GNU/Linux systems like the Raspberry Pi, you can install the driver locally from PyPI. To install for current user:

```
pip3 install adafruit-circuitpython-tinylora
```

To install system-wide (this may be required in some cases):

```
sudo pip3 install adafruit-circuitpython-tinylora
```

To install in a virtual environment in your current project:

```
mkdir project-name && cd project-name
python3 -m venv .env
source .env/bin/activate
pip3 install adafruit-circuitpython-tinylora
```

CHAPTER 3

# Usage Example

Usage is described in the learn guide for this library.

CHAPTER 4

# Contributing

Contributions are welcome! Please read our Code of Conduct before contributing to help this project stay welcoming.

CHAPTER 5

# Documentation

For information on building library documentation, please check out this guide.

CHAPTER 6

# License

This library was written by ClemensRiederer. We've converted it to work with Adafruit CircuitPython and made changes so it works with the Raspberry Pi and Adafruit Feather M0/M4. We've added examples for using this library to transmit data and sensor data to The Things Network.

This open source code is licensed under the LGPL license (see LICENSE for details).

CHAPTER 7

# Table of Contents

## 7.1 Simple test

Ensure your device works with this simple test.

Listing 1: examples/tinylora_simpletest.py

```
import time
import busio
import digitalio
import board
from adafruit_tinylora.adafruit_tinylora import TTN, TinyLoRa

# Board LED
led = digitalio.DigitalInOut(board.D13)
led.direction = digitalio.Direction.OUTPUT

spi = busio.SPI(board.SCK, MOSI=board.MOSI, MISO=board.MISO)

# RFM9x Breakout Pinouts
cs = digitalio.DigitalInOut(board.D5)
irq = digitalio.DigitalInOut(board.D6)
rst = digitalio.DigitalInOut(board.D4)

# Feather M0 RFM9x Pinouts
# cs = digitalio.DigitalInOut(board.RFM9X_CS)
# irq = digitalio.DigitalInOut(board.RFM9X_D0)
# rst = digitalio.DigitalInOut(board.RFM9X_RST)

# TTN Device Address, 4 Bytes, MSB
devaddr = bytearray([0x00, 0x00, 0x00, 0x00])

# TTN Network Key, 16 Bytes, MSB
nwkey = bytearray([0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
```

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```
                    0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00])

# TTN Application Key, 16 Bytess, MSB
app = bytearray([0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00,
                 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00, 0x00])

ttn_config = TTN(devaddr, nwkey, app, country='US')

lora = TinyLoRa(spi, cs, irq, rst, ttn_config)

while True:
    data = bytearray(b"\x43\x57\x54\x46")
    print('Sending packet...')
    lora.send_data(data, len(data), lora.frame_counter)
    print('Packet sent!')
    led.value = True
    lora.frame_counter += 1
    time.sleep(1)
    led.value = False
```

## 7.2 TinyLoRa

This file is included to prevent pylint failing with the following error: no-name-in-module. note: revisit/remove this file when this pylint error has been resolved.

CHAPTER 8

# Indices and tables

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# Python Module Index

## a

# Index

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