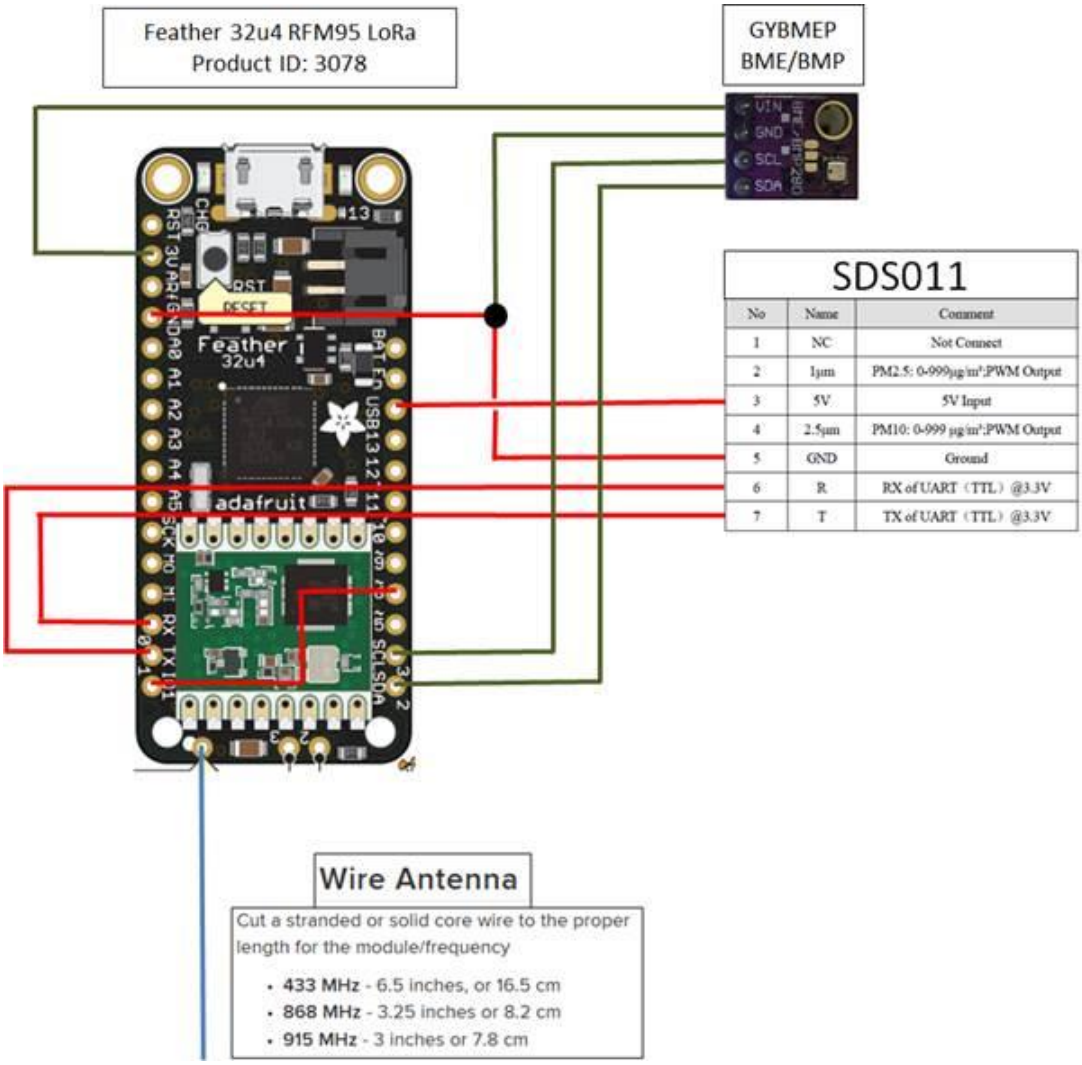
Wire diagram

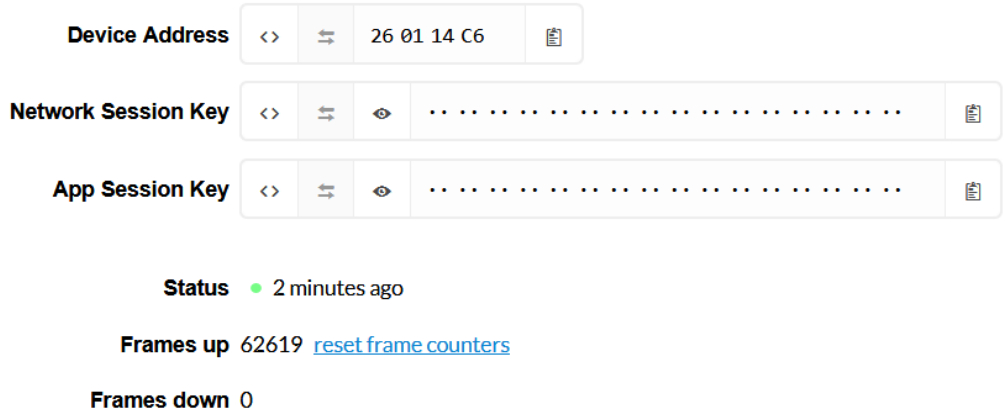


TTN Configuration

Create an account for the Things Network
Go to https://account.thethingsnetwork.org/register
follow steps to register

Create an Application
Login at https://www.thethingsnetwork.org/
Choose Console -> Applications
Add application
Application ID
Description

Create Devices
Application -> <applicationname> -> Devices
register device
Device ID
Device EUI (choose: this field will be generated)
Register
Settings
Activation method ABP
uncheck Frame Counter Checks
- Device Address (Copy this into your sketch)
- Network Session Key (Copy this into your sketch)
- App Session Key (Copy this into your sketch)



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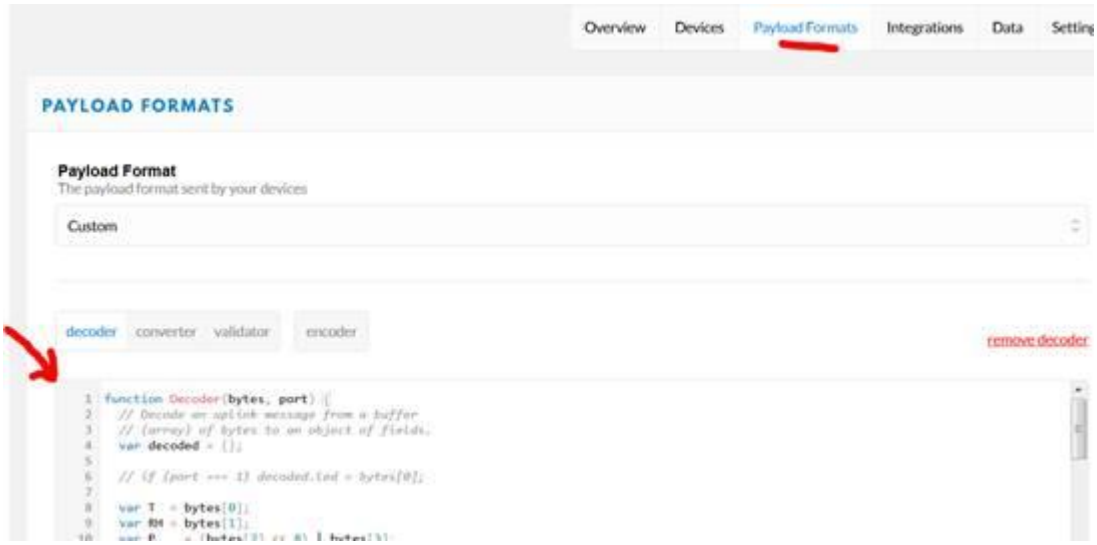
Compile and upload the sketch

- Download and install the Arduino IDE software (https://www.arduino.cc/en/Main/Software)
- Unzip and put the libraries in the library folder of the Arduino software.
- Modify the config.h in the LMIC library foder (\libraries\arduino-lmic-master\src\lmic) with a text editor for the correct LoRa configuration.
  For Europe: #define CFG_eu868 1
  //#define CFG_us915 1
  For US : //#define CFG_eu868 1
  #define CFG_us915 1

- Add the Device adress, Network session key and App session key from TTN into the sketch.
- Save, Compile and upload the sketch.
- Now your first data should be visible in your TTN console.

Payload format

The payload needs to be decoded in order to get readable data.



Copy and paste the following code:

```
function Decoder(bytes, port) {
  // Decode an uplink message from a buffer
  // (array) of bytes to an object of fields.
  var decoded = {};
  // if (port === 1) decoded.led = bytes[0];
  var SDS_ID = (bytes[1] << 8) | bytes[0];
  var T  = (bytes[2] << 8) | bytes[3];
  var RH = (bytes[4] << 8) | bytes[5];
  var P    = (bytes[6] << 8) | bytes[7];
  var PM10_Avg = (bytes[8] << 8) | bytes[9];
  var PM25_Avg = (bytes[10] << 8) | bytes[11];
  //var PM10 = (bytes[12] << 8) | bytes[13];
  //var PM25 = (bytes[14] << 8) | bytes[15];
  //var LAT  = (bytes[16] << 24) | (bytes[17] << 16) | (bytes[18] << 8 ) | bytes[19];
```

```
  //var LON  = (bytes[20] << 24) | (bytes[21] << 16) | (bytes[22] << 8 ) | bytes[23];
  return {
    SDS_ID: SDS_ID,
    T: T/100,
    RH: RH/100,
    P: (P - 100),
    PM10_Avg: (PM10_Avg - 1000) / 10,
    PM25_Avg: (PM25_Avg - 1000) / 10,
    //PM10: (PM10 - 1000)/10,
    //PM25: (PM25 - 1000) / 10,
    //LAT: (LAT - 2000000) / 10000,
    //LON: (LON - 2000000) / 10000,
    };
}
```

Payload Fields