Weightless Starter Kit
Cloud API Development

Revision History

Revision Code	Date	Description	Comments
1.0.0	Sept 5 2017	Initial Draft	

Table of Contents

Revision History 1

Table of Contents 2

Introduction 3

Data Flowchart 3

API 3

Token Authentication 4

GET Uplinks 4

Parameters 4

Response 4

Data Parsing 5

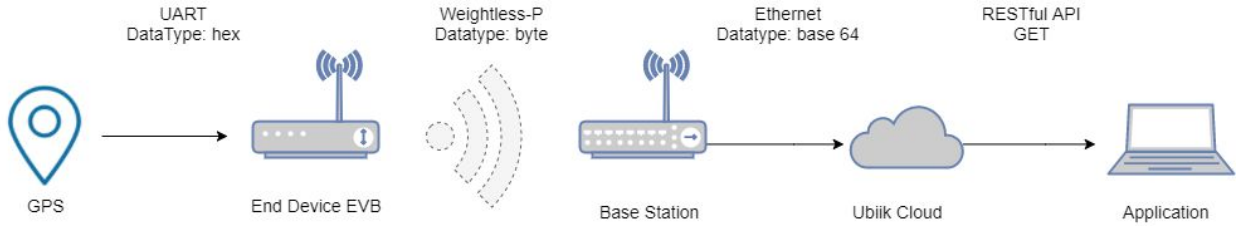
Reference 5

Contact 6

Introduction

Users can reference the sample code in this manual to develop their application that interfaces with the Weightless base station. In this manual, GPS application will be shown as an example. Since the application is using Google Map API to construct the map and certain access key is required, we will not provide the geolocation application source code but just some sample code that reflect how to use the RESTful API.

Data Flowchart



1. UART: The GPS will send the geolocation data(in hexadecimal) to the Weightless EVB through UART.
2. Weightless: The EVB will receive the data from GPS and send the geolocation data to the base station wirelessly through Weightless LPWAN technology.
3. Ethernet: To interact with the cloud, the base station should be connected with Ethernet. After receiving the data from EVB, the base station will uplink the data to the cloud. Then, the data(shown in HEX) can be seen on the config tool.
4. API: In this example, we show the geolocation information on web application using the data from the cloud.

API

The API allows you to GET uplinks. It uses Token Authentication.
Times are in ISO format: YYYY-MM-DDTHH:MM:SSZ and must be URL encoded.
Base Station ID must be sent in base64 URL Safe Alphabet[1].

[1] https://tools.ietf.org/html/rfc3548

Token Authentication

You can get your token, go to the *API* section of Ubiik Cloud.
When sending a request, set the **Authorization** header to “Token YOUR_TOKEN“

GET Uplinks

URL: sdk.ubiik.com/api/uplink

Parameters

All parameters are optional

- base_station: Base Station ID in (Base64 URL Safe)
- from_time: lower bound for event time (time in which the message was generated in the Base Station).
- to_time: upper bound for event time (time in which the message was generated in the Base Station).
- from_server_time: lower bound for server time (time in which the message arrived to the web server).
- to_server_time: upper bound for server time (time in which the message arrived to the web server).

Response

The response contains a json array *data* with up to 100 uplinks:

```
{
        "server_time": Server time. String with format “%Y-%m-%dT%H:%M:%S.%fZ”
        "created": Event time. String with format “%Y-%m-%dT%H:%M:%S.%fZ”
        "ack": Acknowledge (true) or Unacknowledged (false) mode. Boolean,
        "edevice_id": End Device ID. String, Base64,
        "Basestation_id": Base Station ID. String, Base64
        "data": Uplink Data. String, Base64
        "id": Uplink Sequence number. Integer
}
```

For example:

```
{
   "data": [
      {
         "server_time": "2017-07-05T03:11:59.055Z",
         "created": "2017-07-05T03:11:59.032Z",
         "ack": false,
         "edevice_id": "MDctMDVUMDM6MTE6NTkuMA==",
```

```
        "basestation_id": "ERERERERERERERERERERERFw==",
        "data": "MzJa",
        "id": 12338
    },
…
]
```


Data Parsing

Since we only need the geolocation data (latitude and longitude), the data should be parsed in certain format before sending to the cloud.

Format:

Message Type (uint8)	Latitude (int16+uint32)	Longitude (int16+uint32)

1. Message Type: In Uint8 data type. Default value 0x20 for RSSI and 0x01 for humility and temperature.
2. Latitude and Longitude: Integer part in Int16 Type and decimal part in Uint32.

Example(in Hexadecimal):

22 0018000c6ff3 007900005046

Reference

Javascript source code for a simple application to show how to use the RESTful API. To run this demo locally (from your PC) open your browser, disable Cross-Origin Restrictions, and open index.html. This step is not necessary if you open the demo index.html from a web server.
https://s3.amazonaws.com/wp-sdk-software/Demo-JS-RSSI-v1_0_2.zip

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END