API Version 1.2 2024-08-07

SPARROW

Zip Code Hourly AQI API

Environmental monitoring and management turnkey solutions for Cities

Introduction

NB: The material contained in this document is confidential and proprietary to Sparrow Analytics SA.

The Zip Code Hourly AQI API is a web service which allows you to request and retrieve averaged AQI and pollutants data collected by Sparrow nodes fleet, aggregated by hours for specified zip code and list of dates (between 1 and 31 days).

The API is using REST-Like operations over HTTP GET requests with parameters encoded into the URL address. The response is encoded in JSON format, using HTTP status codes to verify successful data retrieval. It is designed to be easy to use and implement in any third-party software or service that is using web requests for data interchange. Web service is using a scalable cloud infrastructure to be responsive and sustainable for numerous simultaneous connections.

> Please, note that dates and times in the API are always in GMT (UTC +0) timezone.

> In order to use the Zip Code Hourly AQI API you must receive a private authentication. Please make sure to keep the API key safe and unexposed to the public.

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Get Hourly AQI Data for Zip Code

Endpoint URL

`GET` `https://api.sparrow.city/get/aqi-zipcode/`

Request Parameters

All parameters are required.

Parameter	Type	Description
api_key	String	Private API key for authorization
dates	String	Dates separated by comma [1-31] (see Datetime Format)
zipcode	String	Postal code, 2 letters + 4 digits (see Postal Codes)

Successful JSON Response

Parameter	Type	Description
result	Integer	Result code (see Result Codes)
body	Object	Array of measurements objects
↳ ***date***	**String**	**Measurements date key (see Date Format)**
↳↳ ***hour***	**String**	**Measurements hour key (see Time Format)**
↳↳↳ ***zipcode***	**String**	**Measurements zip code key (see Postal Codes)**
↳↳↳↳ aqi	Integer	Averaged AQI value for area (see AQI)
↳↳↳↳ pollutants	Object	List of averaged pollutants values
↳↳↳↳↳ pm1	Float	Fine particulate matter with a size of 1 µm (µg/m^3)
↳↳↳↳↳ pm25	Float	Fine particulate matter with a size of 2.5 µm
↳↳↳↳↳ pm10	Float	Fine particulate matter with a size of 10 µm (µg/m^3)
↳↳↳↳↳ co	Float	Carbon monoxide concentration (ppb)

↳↳↳↳↳ co2	Float	Carbon dioxide concentration (ppm)
↳↳↳↳↳ no2	Integer	Nitrogen dioxide concentration (ppb)
↳↳↳↳↳ o3	Float	Ozone concentration (ppb)

Unsuccessful JSON Response

Parameter	Type	Description
result	Integer	Result code (see Result Codes)
message	String	Short error description

Date Format

Date is using an ISO-8601 date format (YYYY-MM-DD). Example, for the 31st of January 2024:

```
2024-01-31
```

Time Format

Time is using an ISO-8601 date format (HH:MM). Example, for the eight hours of evening time:

```
20:00
```

Result Codes

Result Code	Description
200	Successful request
400	Bad request
401	Unauthorized
403	Forbidden
404	Not found
405	Method not allowed
429	Too many requests
500	Internal server error
501	Not implemented
503	Service unavailable

Request Example

```
$ curl -X GET
'https://api.sparrow.city/get/aqi-zipcode/?dates=2024-07-31,2024-07-30&zipcode=CH100
4&api_key={API_KEY}'
```

Successful Response Example

```
{
  "result": 200,
  "body": {
    "2024-07-30": {
      "06:00": {
        "CH1004": {
          "aqi": 12,
          "pollutants": {
            "pm1": 3.2,
            "pm25": 3.2,
            "pm10": 3.2,
```

```
          "co": 164.6,
          "co2": 533,
          "no2": 13.1,
          "o3": 26.7
        }
      }
    },
    "07:00": {
      "CH1004": {
        "aqi": 18,
        "pollutants": {
          "pm1": 2.86,
          "pm25": 3.52,
          "pm10": 6.96,
          "co": 42.88,
          "co2": 506.4,
          "no2": 19,
          "o3": 40.24
        }
      }
    }
  },
  "2024-07-31": {
    "11:00": {
      "CH1004": {
        "aqi": 4,
        "pollutants": {
          "pm1": 2.4,
          "pm25": 4,
          "pm10": 4,
          "co": 224.7,
          "co2": 489,
          "no2": 0,
          "o3": 75.5
        }
      }
    },
    "12:00": {
      "CH1004": {
        "aqi": 13,
        "pollutants": {
          "pm1": 3.9,
          "pm25": 6.1,
          "pm10": 6.77,
          "co": 489.8,
          "co2": 462,
          "no2": 14.2,
          "o3": 79.63
        }
      }
```

```
      }
    }
  }
}
```

Unsuccessful Response Example

```
{
  "result": 401,
  "message": "Unauthorized"
}
```