

Meteobot Data Export API

The Meteobot web back-end collects data from all weather stations participating in the Meteobot Network. External access to collected sensor data is implemented via a REST service – Meteobot Data Export API.

1. Prerequisites

The service endpoint is accessible at URL

https://export.meteobot.com/v2/Generic/<method_name> (may change), where <method_name> is a placeholder for specific API method.

The consumer of the service needs to authenticate against the service with a pair of credentials – username and password.

A consumer may receive several pairs of credentials – each pair provides access to a specific set of weather stations.

2. Authorization

All requests to the REST service require authorization via Basic authentication scheme (RFC 2617, Section 2) over HTTPS. Requests over HTTP or with incorrect credentials in the Authorization header will be rejected.

3. Response

Successful result of requests is indicated by HTTP Status Code 200 (OK).

The response format of successful requests is plain text CSV.

4. CSV Format

The following generic formatting rules apply:

- Date is in format "YYYY-MM-DD"
- Time can be represented in different formats:
 - default, which is "HH:MM"
 - ISO-8601

- Decimal separator is point (.)
- Field separator is semicolon (;)
- Text qualifier is double quotes ("), will be added when necessary
- Line separator is CR+LF
- The first line is always a header row containing the names of the fields, even if there are no other rows in the response

5. Methods

All API methods are requested as HTTP GET methods (unless explicitly stated otherwise).

Request parameters are specified in query string.

5.1 Index (Get Sensor Data, Hourly Aggregation)

Gets collected sensor data for specified date range. Each row corresponds to a **period of 1 hour**.

Parameters

The consumer of the service must provide the following required parameters:

- **startDate** – declares the start range (inclusive) of requested data, format "YYYY-MM-DD"
- **endDate** – declares the end range (inclusive) of requested data, format "YYYY-MM-DD"
- **id** – unique identifier of the weather station, text value

Note that parameters "startDate" and "endDate" are interpreted as marking the beginning (at midnight) of respective calendar day, i.e. "YYYY-MM-DD" → "YYYY-MM-DD 00:00"

The consumer of the service may also provide the following optional parameters:

- **timeFormat** – identifier of preferred format for presentation of date and time:
 - empty value will render the default format
 - "iso-8601" will render the result in format that complies with ISO 8601

- **timeZone** – identifier of preferred time zone of returned measurements:
 - when not provided, timestamps will be rendered in local time zone of device
 - "utc" will convert the timestamps to "Universal Coordinated Time"

Field Specification

- a. Identifiers of source and timestamp; these fields always have value in output:

Field name	Value type	Description
id	text	Unique identifier of weather station. May contain symbols of ranges 0-9, A-F and a-f.
date	Date format	The "date" part from the timestamp of measurement record. This column will be omitted when a specific time format is requested.
time	Time format	The "time" part from the timestamp of measurement record – defines the start of the 1-hour period.

- b. Measurement values from sensors; any of these fields may be empty or missing from output:

Field name	Value type	Description	Unit
airTemperature	decimal	Atmospheric temperature.	degree Celsius
airHumidity	decimal	The amount of water vapour present in air expressed as a percentage of the amount needed for saturation at the same temperature.	percentage
airPressure	decimal	Atmospheric pressure.	hectopascal
dewPoint	decimal	The atmospheric temperature below which water droplets begin to condense and dew can form.	degree Celsius
precipitation	decimal	Accumulated precipitation per unit area. Resolution is usually 0.25 mm.	millimeter per square meter
windDirection	decimal	The direction from which the wind blows. Represented as degrees on compass rose, from 0 (North) to 359, clockwise .	degree
windSpeed	decimal	Wind speed.	meter per second
leafWetness1	decimal	Leaf wetness in a shaded part of the crop.	percentage
leafWetness2	decimal	Leaf wetness outside the crop canopy.	percentage
solarRadiation	decimal	Shortwave radiation received from the Sun measured in power per unit area.	Watt per square meter

solarEnergy	decimal	Accumulated shortwave radiation received from the Sun measured in energy per unit area.	Kilo-watt per square meter
sunshineDuration	decimal	Duration of bright sunshine condition observed for the time span of current record (hourly aggregation) or since preceding record (detailed data).	minute
evapotranspiration	decimal	Reference evapotranspiration (ET _o) estimated according to FAO Penman-Monteith equation.	millimeter per square meter
hydrostaticLevel1	decimal	Height of liquid in tank, or well, at port 1.	meter
hydrostaticLevel2	decimal	Height of liquid in tank, or well, at port 2.	meter
earthHumidity1	decimal	Soil moisture (field capacity) at port 1, depth set by user.	percentage
earthHumidity2	decimal	Soil moisture (field capacity) at port 2, depth set by user.	percentage
earthHumidity3	decimal	Soil moisture (field capacity) at port 3, depth set by user.	percentage
earthTemperature1	decimal	Soil temperature at port 1, depth set by user.	degree Celsius
earthTemperature2	decimal	Soil temperature at port 2, depth set by user.	degree Celsius
earthTemperature3	decimal	Soil temperature at port 3, depth set by user.	degree Celsius
earthTemperature4	decimal	Soil temperature at port 4, depth set by user.	degree Celsius
earthTemperature5	decimal	Soil temperature at port 5, depth set by user.	degree Celsius
earthTemperature6	decimal	Soil temperature at port 6, depth set by user.	degree Celsius
earthTemperature7	decimal	Soil temperature at port 7, depth set by user.	degree Celsius
earthTemperature8	decimal	Soil temperature at port 8, depth set by user.	degree Celsius
earthTemperature9	decimal	Soil temperature at port 9, depth set by user.	degree Celsius
earthTemperature10	decimal	Soil temperature at port 10, depth set by user.	degree Celsius
earthTemperature11	decimal	Soil temperature at port 11, depth set by user.	degree Celsius

earthTemperature12	decimal	Soil temperature at port 12, depth set by user.	degree Celsius
soilWaterContent1	decimal	Soil water content at port 1, depth set by user.	millimeter per square meter
soilWaterContent2	decimal	Soil water content at port 2, depth set by user.	millimeter per square meter
soilWaterContent3	decimal	Soil water content at port 3, depth set by user.	millimeter per square meter
soilWaterContent4	decimal	Soil water content at port 4, depth set by user.	millimeter per square meter
soilWaterContent5	decimal	Soil water content at port 5, depth set by user.	millimeter per square meter
soilWaterContent6	decimal	Soil water content at port 6, depth set by user.	millimeter per square meter
soilWaterContent7	decimal	Soil water content at port 7, depth set by user.	millimeter per square meter
soilWaterContent8	decimal	Soil water content at port 8, depth set by user.	millimeter per square meter
soilWaterContent9	decimal	Soil water content at port 9, depth set by user.	millimeter per square meter
soilWaterContent10	decimal	Soil water content at port 10, depth set by user.	millimeter per square meter
soilWaterContent11	decimal	Soil water content at port 11, depth set by user.	millimeter per square meter
soilWaterContent12	decimal	Soil water content at port 12, depth set by user.	millimeter per square meter
soilSalinity1	decimal	Volumetric Ion content of salts in the soil at port 1, depth set by user.	volumetric ion content
soilSalinity2	decimal	Volumetric Ion content of salts in the soil at port 2, depth set by user.	volumetric ion content
soilSalinity3	decimal	Volumetric Ion content of salts in the soil at port 3, depth set by user.	volumetric ion content
soilSalinity4	decimal	Volumetric Ion content of salts in the soil at port 4, depth set by user.	volumetric ion content
soilSalinity5	decimal	Volumetric Ion content of salts in the soil at port 5, depth set by user.	volumetric ion content
soilSalinity6	decimal	Volumetric Ion content of salts in the soil at port 6, depth set by user.	volumetric ion content
soilSalinity7	decimal	Volumetric Ion content of salts in the soil at port 7, depth set by user.	volumetric ion content
soilSalinity8	decimal	Volumetric Ion content of salts in the	volumetric ion content

		soil at port 8, depth set by user.	
soilSalinity9	decimal	Volumetric Ion content of salts in the soil at port 9, depth set by user.	volumetric ion content
soilSalinity10	decimal	Volumetric Ion content of salts in the soil at port 10, depth set by user.	volumetric ion content
soilSalinity11	decimal	Volumetric Ion content of salts in the soil at port 11, depth set by user.	volumetric ion content
soilSalinity12	decimal	Volumetric Ion content of salts in the soil at port 12, depth set by user.	volumetric ion content
pm0p5	decimal	Mass concentration of particulate matter of size up to 0.5µm	microgram per qubic meter
pm1p0	decimal	Mass concentration of particulate matter of size up to 1.0µm	microgram per qubic meter
pm2p5	decimal	Mass concentration of particulate matter of size up to 2.5µm	microgram per qubic meter
pm4p0	decimal	Mass concentration of particulate matter of size up to 4.0µm	microgram per qubic meter
pm10p0	decimal	Mass concentration of particulate matter of size up to 10.0µm	microgram per qubic meter
pmSize	decimal	Typical size of particulate matter	micrometer
co2	decimal	Concentration of Carbon dioxide (CO ₂).	parts per million
batteryVoltage	decimal	Voltage from the battery that acts as a power supply for the board.	voltage
solarPanelVoltage	decimal	Voltage from connected solar panel for charging the battery.	voltage

Example

- Request

<https://export.meteobot.com/v2/Generic/Index?id=1122334455667788&startDate=2017-05-01&endDate=2017-05-04>

- Response

```
id;date;time;airTemperature;airHumidity;precipitation;windSpeed;leafWetness1;leafWetness2
1122334455667788;2017-05-01;00:00;15.7;40;1.25;1.2;40;30
1122334455667788;2017-05-01;01:00;15.8;40;0;0;40;0
```

Request parameters are specified in query string.

5.2 IndexFull (Get Sensor Data, Not Aggregated)

Gets collected sensor data for specified time range. Each row corresponds to **exactly one reading**.

Parameters

The consumer of the service must provide the following required parameters:

- **startTime** – declares the start range (inclusive) of requested data, format "YYYY-MM-DD HH:MM"
- **endTime** – declares the end range (inclusive) of requested data, format "YYYY-MM-DD HH:MM"
- **id** – unique identifier of the weather station, text value

The consumer of the service may also provide the following optional parameters:

- **include** – requests inclusion of additional (optional) data fields, not directly related with sensor data, but otherwise associated with respective measurement record (eg. security event, diagnostic information, etc.); this parameter can be specified more than once – at most once for each of the several possible fields; the following complementary fields are currently available when explicitly requested:
 - **guard** – the security event (if any) that triggered collection of the data record
- **timeFormat** – same role as the argument listed in method 5.1 Index
- **timeZone** – same role as the argument listed in method 5.1 Index

Field Specification

Available are the same fields listed in method 5.1 Index.

Additional fields available by providing their name in optional parameter "include":

Field name	Value type	Description
guard	text	Specifies whether corresponding record was triggered by a security event. Possible values are: <ul style="list-style-type: none">• "tamper" – lid of enclosure box was opened• "motion" – physical shock or change in station's location was detected Possible reported values depend on hardware model of installed station. Empty value means that the measurement was taken during a regular measurement cycle – i.e. normal circumstances.

Example

- Request

<https://export.meteobot.com/v2/Generic/IndexFull?id=1122334455667788&startTime=2017-05-01%2000:00&endTime=2017-05-04%2000:00>

- Response

```
id;date;time;airTemperature;airHumidity;precipitation;windSpeed;leafWetness1;leafWetness2
1122334455667788;2017-05-01;00:00;15.7;40;1.25;1.2;40;30
1122334455667788;2017-05-01;00:10;15.8;40;0;0;0;40;0
```

Example with security information

- Request

<https://export.meteobot.com/v2/Generic/IndexFull?id=1122334455667788&startTime=2022-10-08%2000:00&endTime=2022-10-08%2001:00&include=guard>

- Response

```
id;date;time;batteryVoltage;guard
1122334455667788;2022-10-08;00:00;12.7;
1122334455667788;2022-10-08;00:13;12.7;tamper
1122334455667788;2022-10-08;00:30;12.5;
```

5.3 Locate (Get Location Information)

Gets current registered geographical location of a weather station.

Parameters

The consumer of the service must provide the following required parameters:

- **id** – unique identifier of the weather station, text value

The consumer of the service may also provide the following optional parameters:

- **timeFormat** – identifier of preferred format for presentation of date and time:
 - empty value will render the default format
 - "iso-8601" will render the result in format that complies with ISO 8601
- **timeZone** – identifier of preferred time zone of returned records:
 - when not provided, timestamps will be rendered in local time zone of device
 - "utc" will convert the timestamps to "Universal Coordinated Time"

Field Specification

The following CSV fields are exported in the result:

Field name	Value type	Description	Notes
id	text	Unique identifier of weather station. May contain symbols of ranges 0-9, A-F and a-f.	
date	Date format	The "date" part from the timestamp when the location was registered. This column will be omitted when a specific time format is requested.	
time	Time format	The "time" part from the timestamp when the location was registered.	
latitude	decimal	Latitude of location in WGS84.	
longitude	decimal	Longitude of location in WGS84.	
altitude	decimal	Altitude in meters.	May be empty
name	text	User defined (private) name of location.	May be empty

Example

- Request

<https://export.meteobot.com/v2/Generic/Locate?id=1122334455667788&timeFormat=iso-8601>

- Response

```
id;time;latitude;longitude;altitude;name
```

```
1122334455667788;2024-04-20T12:00:00+03:00;42.0;24.0;936.8;Crosspoint
```

5.4 Locations (Get History Of Registered Locations)

Gets list of changes that have occurred to registered geographical location of a weather station.

Parameters

The consumer of the service must provide the following required parameters:

- **id** – unique identifier of the weather station, text value

The consumer of the service may also provide the following optional parameters:

- **timeFormat** – identifier of preferred format for presentation of date and time:
 - empty value will render the default format
 - "iso-8601" will render the result in format that complies with ISO 8601

- **timeZone** – identifier of preferred time zone of returned records:
 - when not provided, timestamps will be rendered in local time zone of device
 - "utc" will convert the timestamps to "Universal Coordinated Time"
- **startTime** – declares the start range (inclusive) of requested data, format "YYYY-MM-DD HH:MM"
- **endTime** – declares the end range (inclusive) of requested data, format "YYYY-MM-DD HH:MM"
- **count** – limits number of returned results, positive numeric value;
 - when used in combination with **startTime**, and no value is supplied for **endTime**, will limit number of returned items to only those that have been registered immediately since provided **startTime**
 - otherwise, will limit number of returned changes to only those that have been registered immediately before provided **endTime**

Field Specification

Available are the same fields listed in method 5.3 Locate.

Results are always returned in **chronologically descending** order – from newest (first row) to oldest (last row).

Example – all historical changes, including most recent (current state)

- Request

<https://export.meteobot.com/v2/Generic/Locations?id=1122334455667788&timeFormat=iso-8601>

- Response

```
id;time;latitude;longitude;altitude;name
1122334455667788;2024-04-20T12:00:00+03:00;42.0;24.0;936.8;Crosspoint
1122334455667788;2023-04-20T12:00:00+03:00;41.9999;23.9999;934.5;Crosspoint (offset 2)
1122334455667788;2022-04-20T12:00:00+03:00;42.0;24.0;936.8;Crosspoint
1122334455667788;2021-04-20T12:00:00+03:00;42.0001;24.0001;939.1;Crosspoint (offset)
1122334455667788;2020-04-20T12:00:00+03:00;42.0;24.0;936.8;Crosspoint
```

Example – two of the most recent changes (until specific timestamp or as of *now*)

- Request

- <https://export.meteobot.com/v2/Generic/Locations?id=1122334455667788&timeFormat=iso-8601&endTime=2025-07-10%2000:00&count=2>

- <https://export.meteobot.com/v2/Generic/Locations?id=1122334455667788&timeFormat=iso-8601&count=2>

- Response

```
id;time;latitude;longitude;altitude;name
```

```
1122334455667788;2024-04-20T12:00:00+03:00;42.0;24.0;936.8;Crosspoint
```

```
1122334455667788;2023-04-20T12:00:00+03:00;41.9999;23.9999;934.5;Crosspoint (offset 2)
```

Example – first change since specific date

- Request

- <https://export.meteobot.com/v2/Generic/Locations?id=1122334455667788&timeFormat=iso-8601&startTime=2020-01-01%2000:00&count=1>

- Response

```
id;time;latitude;longitude;altitude;name
```

```
1122334455667788;2020-04-20T12:00:00+03:00;42.0;24.0;936.8;Crosspoint
```

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