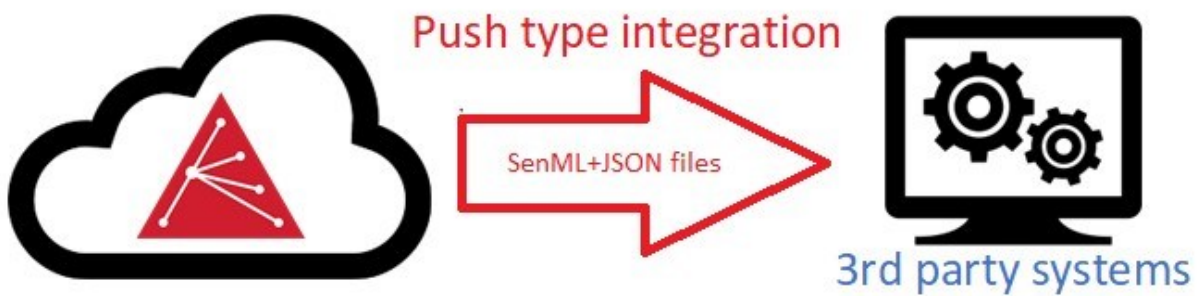


# ARANET CLOUD INTEGRATIONS

Starting Aranet Cloud v.1.7.8

Aranet Cloud platform allows send-out of sensor metrics data from its organizations in SenML+JSON or proprietary [LeanHeat](#) JSON data file format via push type integration API to any 3<sup>rd</sup> party system endpoint (server, computer, another Cloud platform etc.) which is capable of receiving such files.



Configuration of this API can be done from **INTEGRATIONS** tab in **SETTINGS** section:

The screenshot shows the Aranet Cloud web interface. On the left is a dark sidebar with navigation items: DASHBOARD, SENSORS, ASSETS, CHARTS, ALARMS, MONITORING, TAGS, SETTINGS (highlighted with a blue box), ORGANIZATION, and a user profile for ANDREJS. The main content area is titled 'MY BASES' and 'INTEGRATIONS' (highlighted with a blue box). It contains a table of integrations with columns: Name, Type, Sensors, Schedule, Last run, Created at, and State. The table lists four integrations: 'New test integration', 'test', 'Test 20210901', and 'Test integration'. At the bottom of the table, there is a 'Rows per page' dropdown set to 'All', a page indicator '1-4 of 4', and a '+ INTEGRATION' button.

Name ↑	Type	Sensors	Schedule	Last run	Created at ↑	State
New test integration	SenML	3	@every 1h	Never	7 minutes ago	<input checked="" type="checkbox"/>
test	SenML	20	@every 40h	2 days ago	a year ago	<input checked="" type="checkbox"/>
Test 20210901	LeanHeat	17	@every 1m	6 months ago	6 months ago	<input type="checkbox"/>
Test integration	Telemetry	3	@every 1m	a minute ago	9 months ago	<input checked="" type="checkbox"/>

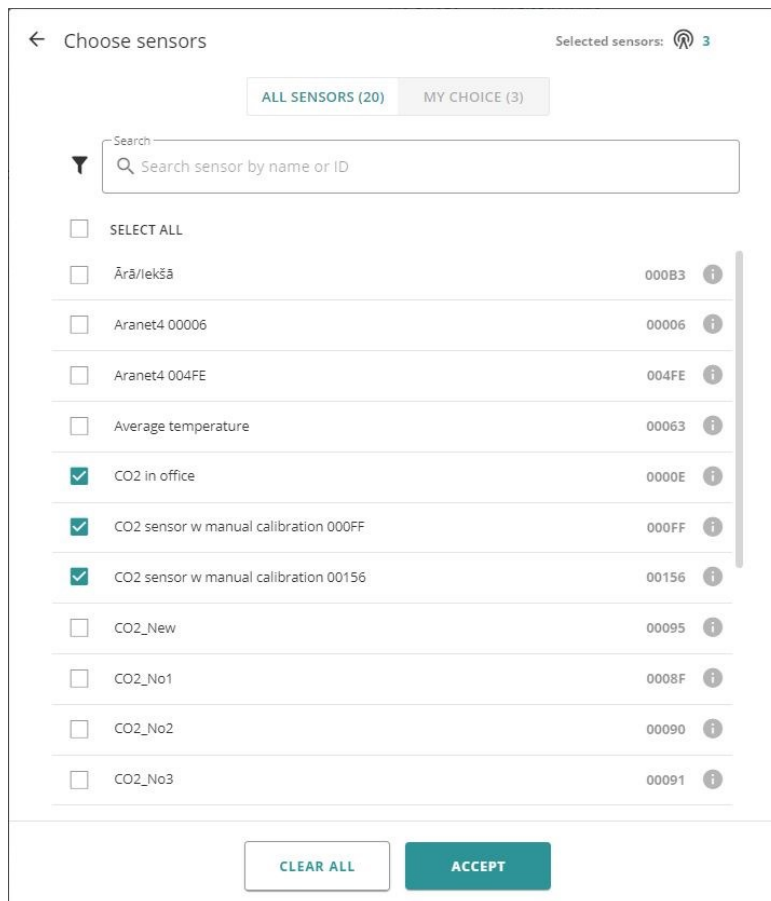
## New integration

Clicking on “+ INTEGRATION” opens new pop-up window where configuration for the new integration can be made:

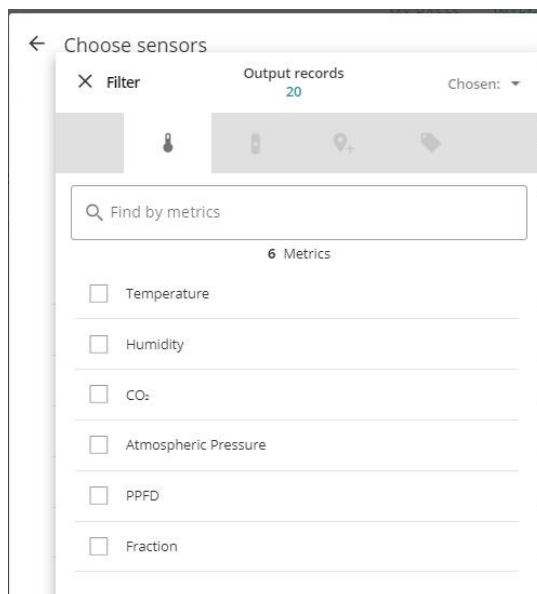
The screenshot shows a 'New integration' configuration window. It includes the following elements:

- Integration name:** A text input field containing 'New test integration' (1).
- Type:** A dropdown menu showing 'SenML' (2).
- Chosen sensors:** A section showing '3 / 20' sensors and an 'EDIT LIST >' link (3).
- Schedule:** A dropdown menu showing '@every 1h' (4).
- Data start date:** A date picker showing '08-Mar-2022' (5).
- Enable integration test:** A checked checkbox (6).
- URL:** A text input field containing 'https://your\_server.web' (7).
- API key (Optional):** A text input field containing 'id\_key\_indentification' (8).
- CREATE:** A green button at the bottom.

- 1) **Integration Name** – allows assigning visible name for the new integration;
- 2) **Type** – allows selecting what sensor metric data and in what format will be send out from Aranet Cloud platform to 3<sup>rd</sup> party system:
  - i. **SenML** – allows specifying that all sensor **metric data** (excluding RSSI and battery level telemetry data) will be sent out from Aranet Cloud in SenML+JSON format;
  - ii. **Telemetry** – allows specifying that **only sensor telemetry data** (RSSI and battery level) will be sent out from Aranet Cloud in SenML+JSON format;
  - iii. **LeanHeat** – allows specifying that all sensor **metric data** (excluding RSSI and battery level telemetry data) will be sent out from Aranet Cloud in JSON files with LeanHeat proprietary data format;
- 3) **Sensors** – opens new pop-up window where you can specify sensors from the Cloud organization that metric data will be sent out from Aranet Cloud. Sensors here can be filtered and then selected by their paired Bases, Sensor types and tags (if used):



Sensors can be filtered by **Metrics**, **Types**, **Locations** and **Tags**:



Click **ACCEPT** to confirm sensor selection.

- 4) **Schedule** – allows specifying how often Aranet Cloud will send data files to the external 3<sup>rd</sup> party system. When integration is enabled and running each new data transmission from Aranet Cloud will include sensor metric data that have been gathered on the Cloud organization after previous data send-out. The exception here is initial historic data send-out that can happen over multiple consecutive data transmissions until the latest data has been dispatched. Here user can enter also a valid CRON query specifying a custom data send-out schedule (examples of possible CRON schedule expression configurations are available: <https://crontab.guru/examples.html>);

- 5) **Data start date** – allows specifying the date starting from which historic sensor metric data will be sent from Aranet Cloud to the external 3rd party system. Aranet Cloud will use this date to identify how old historical data shall be included in the first send-out;
- 6) **Enable integration test** – allows enabling of the test mode for the integration. If this box is checked, then Aranet Cloud platform will not send data out to the external 3rd party system, but integration data files will be prepared and saved locally on Aranet Cloud organization. Such files user then later can open and check from the corresponding Aranet Cloud integration configuration;
- 7) **URL** – allows specifying the web address for the endpoint of the 3<sup>rd</sup> party system (server) which can receive JSON files from Aranet Cloud platform. Current version of Aranet Cloud supports data transmissions only to ports 80 and 443 on the external 3<sup>rd</sup> party system;
- 8) **API key** – allows specifying unique identifier (key) for the authentication of the data exchange between Aranet Cloud and the external 3<sup>rd</sup> party system. The API key must be provided by the external 3<sup>rd</sup> party system. If no authentication is required from the external 3<sup>rd</sup> party system, then this field can be left blank;
- 9) **Enabled** - allows activating or deactivating data send-out process for the integration;

Pressing **CREATE** button finishes integration creation.

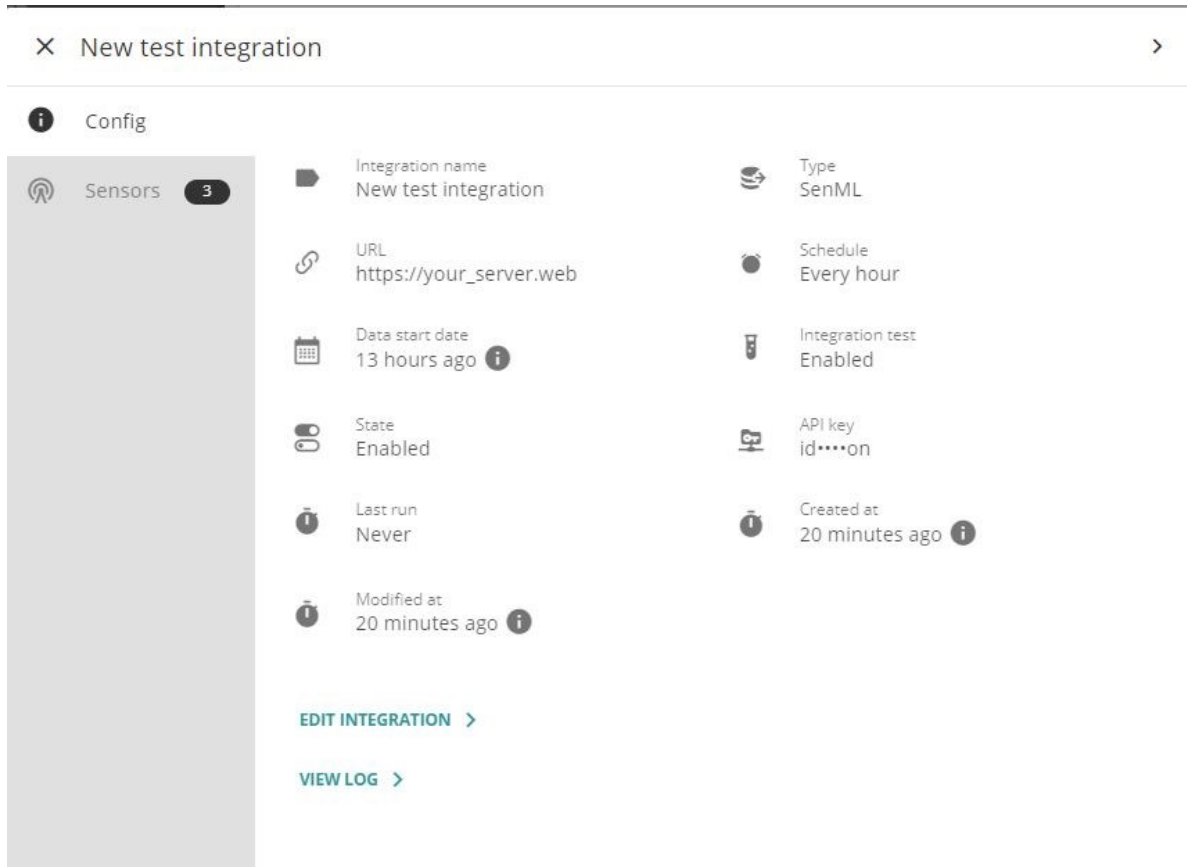
## Created integrations

After the creation of integration its' configuration record will be shown in the INTEGRATIONS tab:

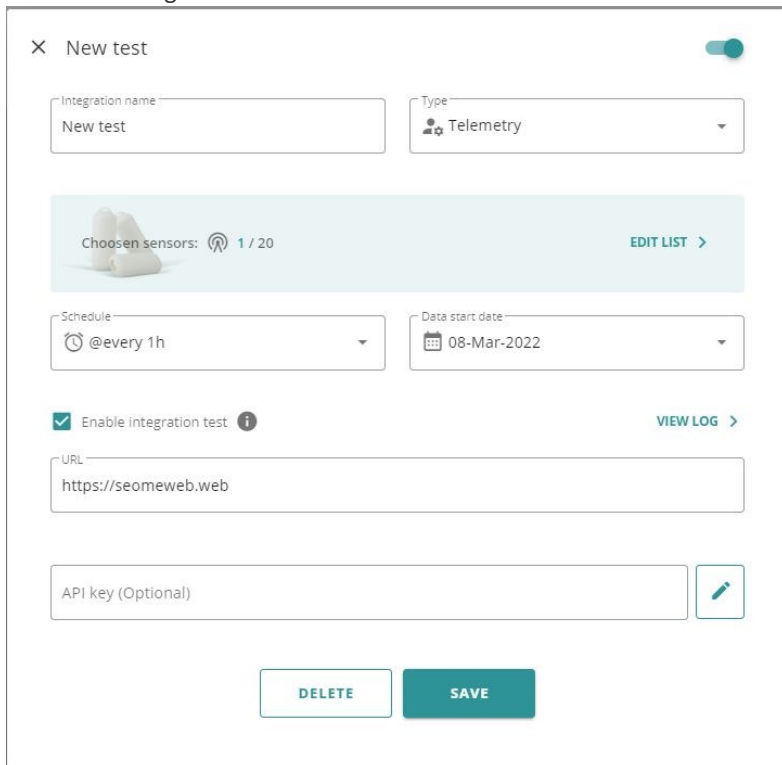
10 Name ↑	2 Type	3 Sensors	4 Schedule	5 Last run	6 Created at	7 8	9 State
test	SenML	20	@every 40h	2 days ago	a year ago		<input checked="" type="checkbox"/>
Test 20210901	LeanHeat	17	@every 1m	6 months ago	6 months ago		<input type="checkbox"/>
Test integration	Telemetry	3	@every 1m	Never	9 months ago		<input type="checkbox"/>

- 1) **Name** – shows the name of the integration configuration;
- 2) **Type** – shows the data send-out type or profile for the integration configuration;
- 3) **Sensors** – shows the number of sensors that will have their data sent-out from the Aranet Cloud platform in the integration;
- 4) **Schedule** – shows how often data send-out from Aranet Cloud will happen in the integration;
- 5) **Last run** – shows how long time ago the last data send-out happened in the integration;
- 6) **Created at** – shows how long time ago the integration configuration was created;
- 7) **Integration log** – clicking on these icons will open integration log page where user can see detailed information on the data send-out processes and events that have happened for the selected integration;
- 8) **Integration edit** - clicking on these icons will open integration configuration window where all existing configuration parameters for the integration can be modified and saved.
- 9) **State** – shows whether data send-out of the integration is enabled or disabled;
- 10) **Add to Dashboard** icon allows to add integration configuration data to the dashboard.

Clicking on integration configuration record will open new pop-up window where detailed information about integration will be visible:



**EDIT INTEGRATION >** button opens integration configuration page. You can adjust integration configuration or delete unneeded integration here:









**VIEW LOG >** button opens new window where integration events and integration test data can be accessed (see details [below](#)).

Information about sensors included in current integration can be found under **Sensors** tab:

× New test integration >

Config

Sensors 3

Sensor ↑	ID	
 CO2 in office	0000E	
 CO2 sensor w manual calibration 000FF	000FF	
 CO2 sensor w manual calibration 00156	00156	

Rows per page: 10 1-3 of 3 < >

## Integration log

Integration logged events are shown on **EVENTS** tab of Integration record:

× New test integration - log

		EVENTS		TEST LOG				
		Last 7 days 01.03.2022 - 08.03.2022					Events 20	
1 Date&time ↓	2 State	3 Type	4 Message	5 Duration	6 Sensors	7 Sensors processed	8 Values uploaded	9 Errors
08-03-22 14:59	✓	🕒	...	< 1 second	2	2	40	0
08-03-22 14:54	✓	🕒	...	< 1 second	2	2	40	0
08-03-22 14:49	✓	🕒	...	< 1 second	2	2	40	0
08-03-22 14:44	✓	🕒	...	< 1 second	2	2	40	0
08-03-22 14:39	✓	🕒	...	< 1 second	2	2	136	0

Rows per page:

5

1-5 of 20



- 1) **Date&Time** – integration event registration date and time;
- 2) **State** – was data sending successful or not;
- 3) **Type** – type of the event: *Process run*, *Schedule modified*, *Status modified*, or *Sensors modified*;
- 4) **Message** – error message sent by recipient point if data sending was not successful;
- 5) **Duration** – duration of the event;
- 6) **Sensors** – number of sensors included in integration;
- 7) **Sensors processed** – number of processed sensors;
- 8) **Values uploaded** – number of values uploading during the event;
- 9) **Errors** – number of errors registered during the event;
- 10) Events can be filtered by **type**
- 11) Or by **time**.





When test mode is enabled for the integration, then sensor data will not be sent to the external 3<sup>rd</sup> party system but will be gathered and saved locally in JSON file format on Aranet Cloud organization. These files after test mode execution then can be viewed and/or downloaded under **TEST LOG** tab:


X New test integration - log

		EVENTS	TEST LOG
 			
Date&time ↓	Headers	Payload	
08-03-22 14:59	suffix=[/] Accept-Encoding=[gzip] Content-Length=[1675] Content-Type=[application/senml+json] Request-Range=[2022-03-08T12:53:22,2022-03-08T12:58:20] User-Agent=[AranetCloud] X-Endpoint=[https://your_server.web]	<pre>[{"bn":"aranet:400006","bt":1646744060,"n":"atmospheric pressure","u":"Pa","v":102040},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":32},{"n":"temperature","u":"Cel","v":21.9},{"bt":1646744118,"n":"atmosphericpressure","u":"Pa","v":102040},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":32},{"n":"temperature","u":"Cel","v":21.9},{"bt":1646744178,"n":"atmosphericpressure","u":"Pa","v":102040},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":32},{"n":"temperature","u":"Cel","v":21.9},{"bt":1646744239,"n":"atmosphericpressure","u":"Pa","v":102040},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":32},{"n":"temperature","u":"Cel","v":21.9},{"bt":1646744298,"n":"atmosphericpressure","u":"Pa","v":102030},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":32},{"n":"temperature","u":"Cel","v":21.9},{"bn":"aranet:4004FE","bt":1646744061,"n":"atmosphericpressure","u":"Pa","v":102120},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":38},{"n":"temperature...more</pre>	<a href="#">DOWNLOAD</a> 
08-03-22 14:54	suffix=[/] Content-Type=[application/senml+json] Request-Range=[2022-03-08T12:48:20,2022-03-08T12:53:21] User-Agent=[AranetCloud] X-Endpoint=[https://your_server.web] Accept-Encoding=[gzip] Content-Length=[1675]	<pre>[{"bn":"aranet:400006","bt":1646743758,"n":"atmospheric pressure","u":"Pa","v":102040},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":32},{"n":"temperature","u":"Cel","v":21.9},{"bt":1646743817,"n":"atmosphericpressure","u":"Pa","v":102040},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":32},{"n":"temperature","u":"Cel","v":21.9},{"bt":1646743878,"n":"atmosphericpressure","u":"Pa","v":102040},{"n":"co2","u":"/","v":0},{"n":"humidity","u":"%RH","v":32},{"n":"temperature","u":"Cel","v":21.9},{"bt":1646743939,"n":"atmosphericpressure","u":"Pa","v":102050},{"n":"co</pre>	<a href="#">DOWNLOAD</a> 
Rows per page:	5	1-5 of 18	

Here user can see what integration data send-out messages would look like if they would be sent from Aranet Cloud to the real external 3<sup>rd</sup> party system.

Pressing on **Time Filter** icon  allows specifying the time interval for which integration test results should be shown.

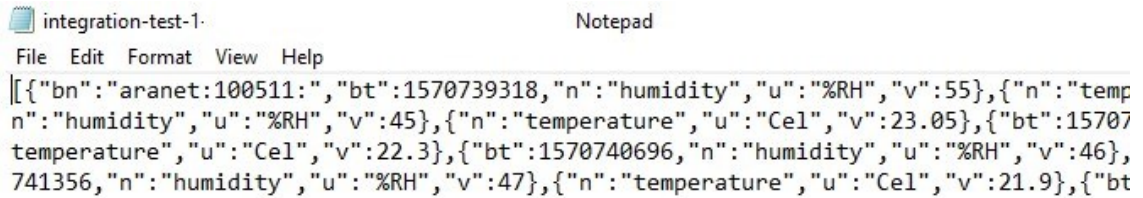
Pressing on  icon will just refresh integration test results according to selected time interval.

**DOWNLOAD**  button allows saving Payload data to your computer.

## Integration test results

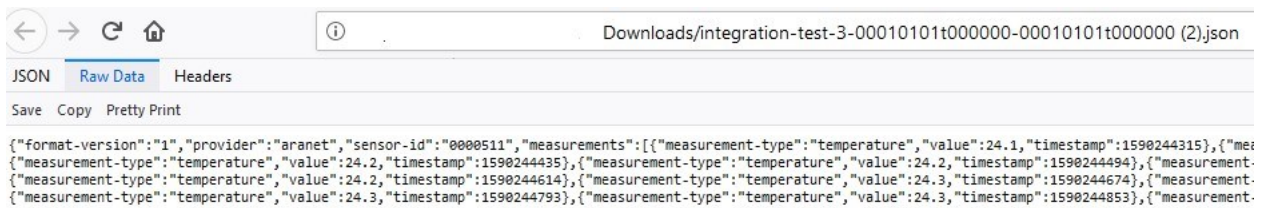
Here user can see the format of data that could be sent-out to external 3<sup>rd</sup> party systems. Downloaded JSON files can be opened, for example, with Notepad or any Web browser. Current Aranet Cloud version allow data send-out in 2 JSON formats:

- 1) **SenML+JSON** for integrations with SenML and Telemetry type. SenML structure and representation in JSON format is described in [RFC8428](#):



```
integration-test-1 Notepad
File Edit Format View Help
[[{"bn":"aranet:100511:", "bt":1570739318, "n":"humidity", "u": "%RH", "v":55}, {"n": "temp
n": "humidity", "u": "%RH", "v":45}, {"n": "temperature", "u": "Cel", "v":23.05}, {"bt":15707
temperature", "u": "Cel", "v":22.3}, {"bt":1570740696, "n": "humidity", "u": "%RH", "v":46},
741356, "n": "humidity", "u": "%RH", "v":47}, {"n": "temperature", "u": "Cel", "v":21.9}, {"bt
```

- 2) **LeanHeat** proprietary JSON data format for integrations with LeanHeat type:



```
Downloads/integration-test-3-00010101t000000-00010101t000000 (2).json
JSON Raw Data Headers
Save Copy Pretty Print
{"format-version":"1", "provider":"aranet", "sensor-id":"0000511", "measurements":[{"measurement-type":"temperature", "value":24.1, "timestamp":1590244315}, {"me:
{"measurement-type":"temperature", "value":24.2, "timestamp":1590244435}, {"measurement-type":"temperature", "value":24.2, "timestamp":1590244494}, {"measurement-
{"measurement-type":"temperature", "value":24.2, "timestamp":1590244614}, {"measurement-type":"temperature", "value":24.3, "timestamp":1590244674}, {"measurement-
{"measurement-type":"temperature", "value":24.3, "timestamp":1590244793}, {"measurement-type":"temperature", "value":24.3, "timestamp":1590244853}, {"measurement-
```