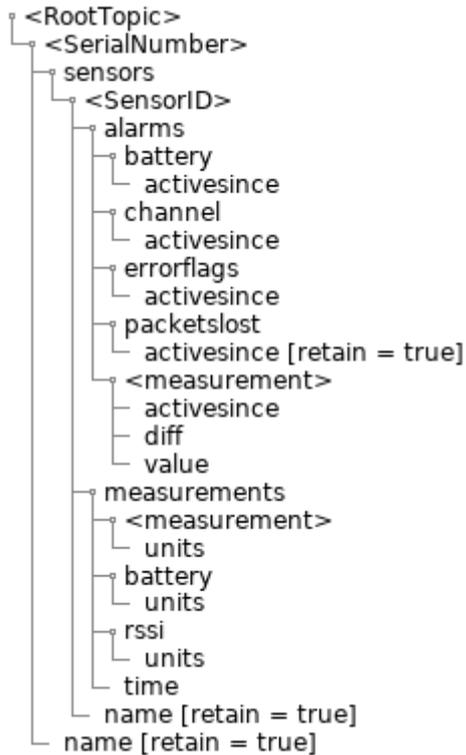


# MQTT demo base instructions for external developers

## Aranet PRO MQTT publisher connection properties

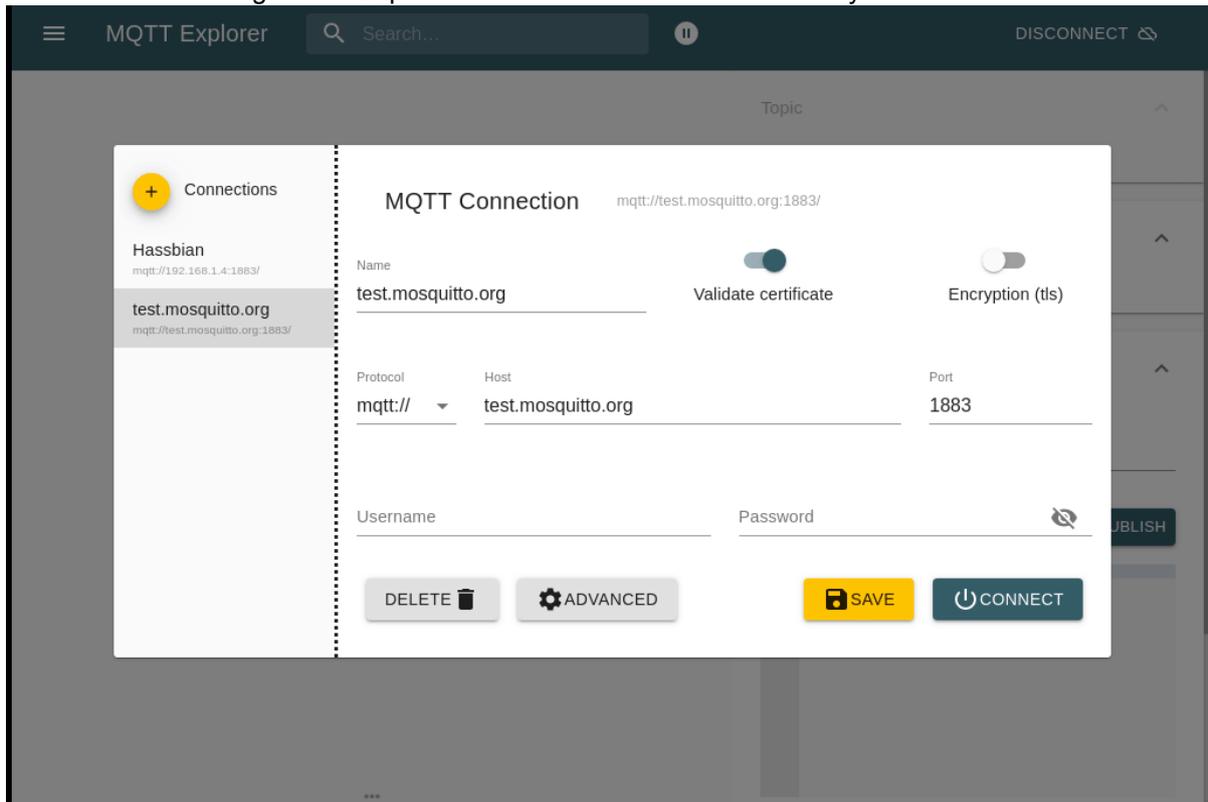
- Host address
- Port
- Protocol version [MQTT v3.1.1 | MQTT v5]
- Authentication [enabled | disabled]
  - Username
  - Password
- Encryption [None | TLSv1.1 | TLSv1.2 | TLSv1.3]
  - Host CA certificate
- QoS level
- Root topic
- Sensor measurement format [raw| JSON]

## Aranet PRO MQTT publisher topic structure



Subscription to the public Aranet PRO MQTT publisher messages for the demo purposes

We recommend using MQTT Explorer to view the MQTT structures for yourself.



### Connect to the public broker (broker.hivemq.com)

- Host address: **broker.hivemq.com**
- Port: **1883**
- Protocol version: **MQTT v3.1.1**
- Authentication: **disabled**
- Encryption: **None**

MQTT Connection mqtt://broker.hivemq.com:1883/

Name Validate certificate Encryption (tls)

Aranet PRO demo publisher

Protocol Host Port

mqtt:// ▼ broker.hivemq.com 1883

Username Password

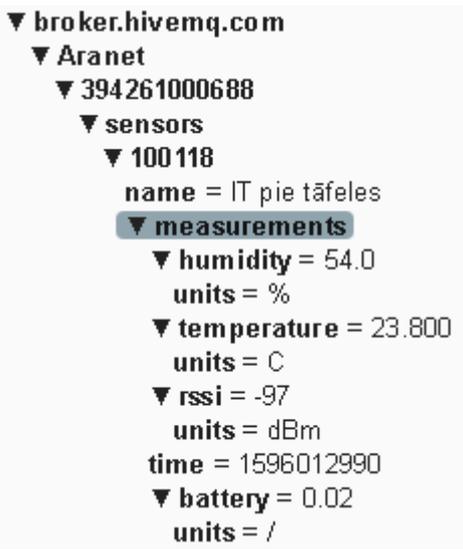
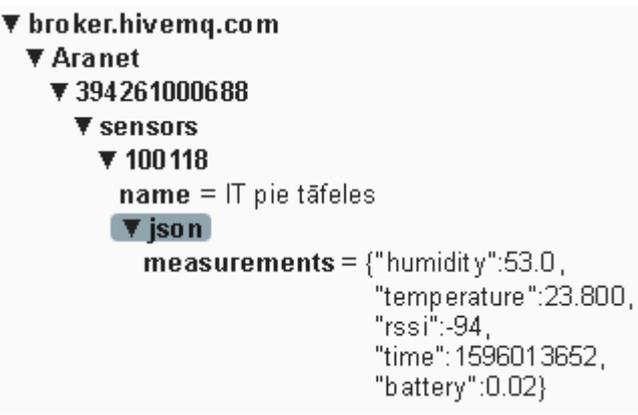
### Subscribe to the messages published by Aranet PRO MQTT demo publisher

Root topic: **Aranetest**

Subscription topic: **Aranetest/394260700033/#**

## Sensor measurement message formats

Two types of sensor measurement formats are available for subscriber to receive - raw and JSON.

Differences between the sensor measurement formats ("raw" un "JSON")	
"raw"	"JSON"
<b>Sensor measurements MQTT message topic structure</b>	
<pre>&lt;RootTopic&gt;/&lt;SerialNumber&gt; /sensors/&lt;SensorID&gt;/measurements /&lt;measurement&gt;</pre>	<pre>&lt;RootTopic&gt;/&lt;SerialNumber&gt;/sensors /&lt;SensorID&gt;/json/measurements</pre>
	
<b>Examples of MQTT subscription topics for measurement data reception</b>	
<p>Example 1) - receive sensor measurements from all the bases if &lt;RootTopic&gt; consists of a single level topic</p>	
<pre>+ / + / sensors / + / measurements / +</pre>	<pre>+ / + / sensors / + / json / measurements</pre>
<p>Example 2) - receive all the sensor measurements from the base with S/N 394261000688 if &lt;RootTopic&gt; is set to "Aranet"</p>	
<pre>Aranet / 394261000688 / sensors / + / measurements / +</pre>	<pre>Aranet / 394261000688 / sensors / + / json / measurements</pre>

Example 3) - receive measurements from the sensor with ID 100118 paired to the base with S/N 394261000688 if <RootTopic> is set to two-level topic "Riga/Warehouse"

<pre>Riga/Warehouse /394261000688 /sensors/100118 /measurements/</pre>	<pre>Riga/Warehouse/394261000688 /sensors/100118/json /measurements</pre>
--	---

### Sensor measurements and units grouped by sensor product code (P/C)

P/C	measurement	unit
TDSPTT01	humidity	%
TDSPT801	temperature	C
TDSPT009		
TDSPSD02 (Stem)	voltage	V
TDSPSD01 (Stem)	derived	<user-defined>
TDSPT002.XXX	temperature	C
TDSPT006.010		
TDSPTE06.010		
TDSPHE01	temperature	C
	bec	S/m
	pec	S/m
	dp	unitless
	vwc	fraction 0.0 - 1.0
TDSPSV01.050	weight	kg
TDSPSV01.100	weight_raw	kg
TDSPCL01.010	current	A
	derived	<user-defined>
TDSPVM01.010	voltage	V
	derived	<user-defined>
TDSPIC01.010	pulses	count
	pulsescumulative	count
	derived_cpp	<user-defined>

	derived_cpc	<user-defined>
TDSPDM01	distance	m
	derived	<user-defined>
TDSKAR01	ppfd	umol/(m <sup>2</sup> s)
TDSPC004	co2	ppm

## Alarming

Name	Description	Repetitive	Retain
battery	Sensor's battery charge level is low.	yes	no
channel	Sensor is using a different radio channel than the base station.	yes	no
errorflags	Sensor malfunction detected.	yes	no
packetslost	Measurement from the sensor was not received in the estimated time.	no	yes
<measurement>	Alarm related to sensor measurement value. Generated in case if value has reached a threshold.	yes	no