Aranet PRO MQTT server

Aranet PRO MQTT publisher connection properties

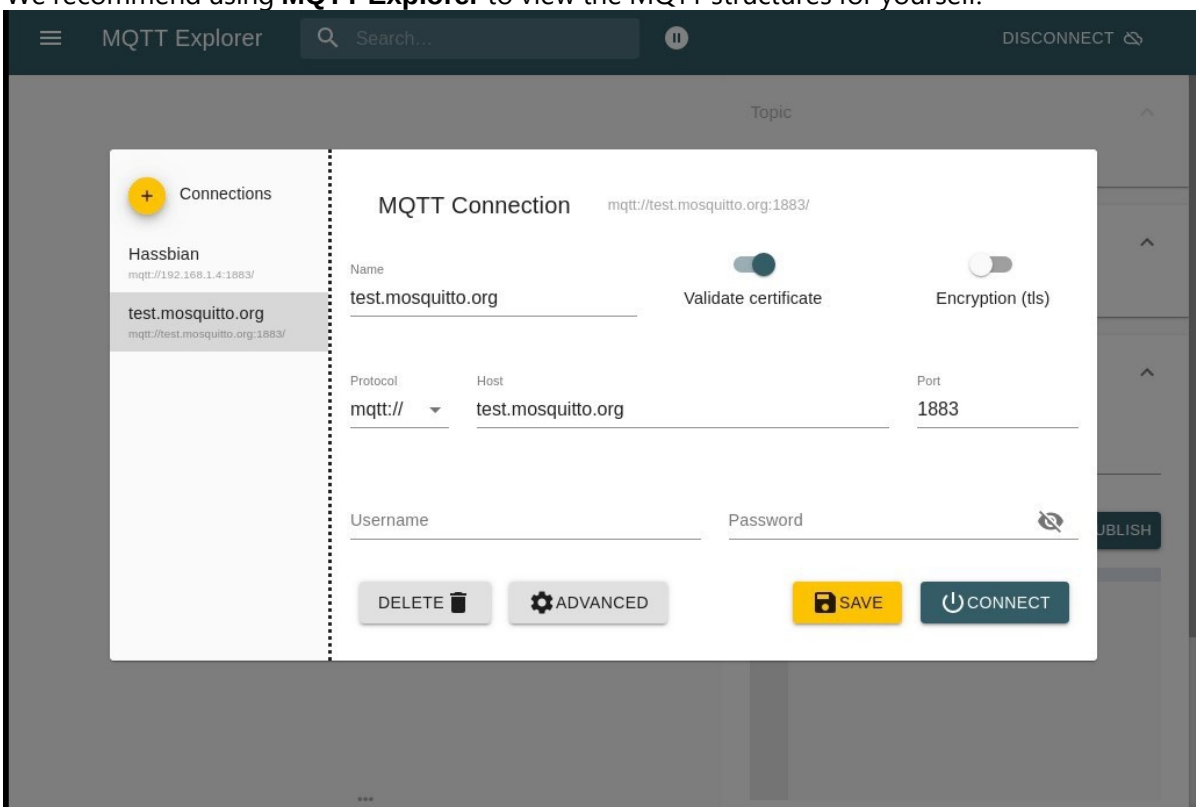
- Host address Port
- Protocol version [MQTT v3.1.1 | MQTT v5]
- Authentication [enabled | disabled]
    - Username
    - Password
- Encryption [None | TLSv1.1 | TLSv1.2 | TLSv1.3]
    - Host CA certificate
- QoS level
- Root topic
- Sensor measurement format [raw| JSON]

Aranet PRO MQTT publisher topic structure

RAW format	JSON format
<rootTopic> └ <base serial number> ├ sensors │ ├ <sensorID> │ │ ├ alarms │ │ │ ├ battery │ │ │ │ └ activesince │ │ │ ├ channel │ │ │ │ └ activesince │ │ │ ├ errorflags │ │ │ │ └ activesince │ │ │ ├ packetslost │ │ │ │ └ activesince [retain = true] │ │ │ └ <measurement> │ │ │ ├ activesince │ │ │ ├ diff │ │ │ └ value │ │ ├ measurements │ │ │ ├ <measurement> │ │ │ │ └ units │ │ │ ├ battery │ │ │ │ └ units │ │ │ ├ rssi │ │ │ │ └ units │ │ │ └ time │ │ ├ name [retain = true] │ │ ├ productNumber [retain = true] │ │ ├ group [retain = true] │ │ └ groupId [retain = true] │ └ pairing [sensor management functionality enabled] │ ├ status │ └ errorMessage └ name [retain = true]	<rootTopic> └ <base serial number> ├ sensors │ ├ <sensorID> │ │ ├ alarms │ │ │ └ json [retain = true if packetslost alarm is active] │ │ ├ measurements │ │ │ └ json │ │ ├ name [retain = true] │ │ ├ productNumber [retain = true] │ │ ├ group [retain = true] │ │ └ groupId [retain = true] │ └ pairing [sensor management functionality enabled] │ ├ status │ └ errorMessage └ name [retain = true]

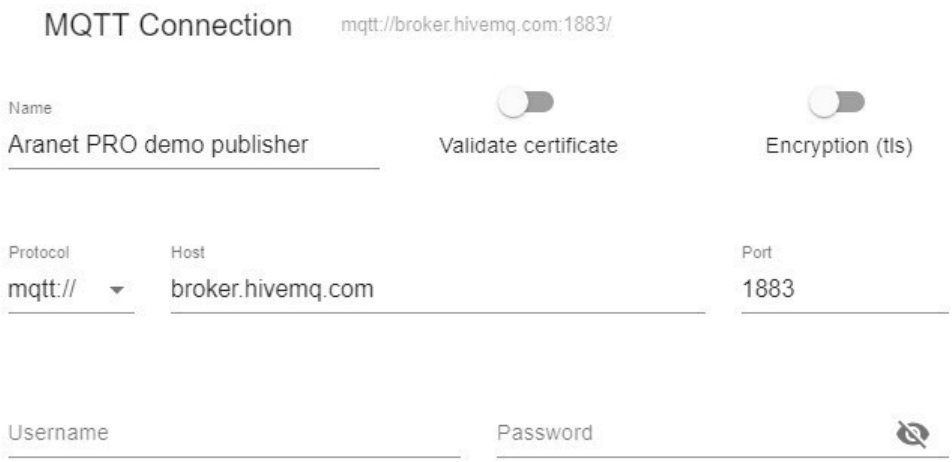
Subscription to the public Aranet PRO MQTT publisher messages for the demo purposes

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



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"
Sensor measurements MQTT message topic structure	
`<RootTopic>/<SerialNumber>/sensors/<SensorID>/measurements/<measurement>`	`<RootTopic>/<SerialNumber>/sensors/<SensorID>/json/measurements`

```
▼ 10.0.10.10
  ▼ aranetPro
    ▼ 394261000091
      ▼ sensors
        ▼ 500ACE
          name = Contact pulse meter
          productNumber = TDSPIC02
          group = roomEnv
          groupId = 0
          ▼ measurements
            ▼ derivedpc = 2.469000E+04
              units = kg
              dimension = weight
            ▼ derivedp = 2.468000E+03
              units = kg
              dimension = weight
            ▼ battCharge = 0.17
              units = /
            ▼ rssi = -41.000000
              units = dBm
            ▼ pulses = 1234
              units = pulses
            ▼ pulsescumulative = 12345
              units = pulses
            ▼ time = 1704717106
              units = seconds
    name = MySystemName
```

```
▼ 10.0.10.10
  ▼ aranetPro
    ▼ 394261000091
      ▼ sensors
        ▼ 500ACE
          name = Contact pulse meter
          productNumber = TDSPIC02
          group = roomEnv
          groupId = 0
          ▼ json
            measurements = {
              "derivedpc": "2.469000E+04",
              "derivedp": "2.468000E+03",
              "battCharge": "0.01",
              "rssi": "-40.000000",
              "pulses": "1234",
              "pulsescumulative": "12345",
              "time": "1704717288"
            }
    name = MySystemName
```


Examples of MQTT subscription topics for measurement data reception	
Example 1) - receive sensor measurements from all the bases if <RootTopic> consists of a single level topic	
`+/+/sensors/+/measurements/+`	`+/+/sensors/+/json/measurements`
Example 2) - receive all the sensor measurements from the base with S/N 394261000688 if <RootTopic> is set to "Aranet"	
`Aranet/394261000688/sensors/+/measurements/+`	`Aranet/394261000688/sensors/+/json/measurements`
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"	
`Riga/Warehouse/394261000688/sensors/100118`	`Riga/Warehouse/394261000688/sensors/100118/json/measurements`

`/measurements/+`	

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

P/N	measurement	unit
TDSPTT01 TDSPT801 TDSPT009 TDSPT309 TDSPT409 TDSPT509 TDSPT802 TDSPTT02	humidity	%
	temperature	C
TDSPSD02 (Stem) TDSPSD01 (Stem)	voltage derived	V <user-defined>
TDSPTE06 TDSPT006 TDSPT106 TDSPT206 TDSPT306 TDSPT_06 TDSPT506 TDSPT002 TDSPT204 TDSPTK01	temperature	C
TDSPHE01 TDSPHE02	temperature bec pec dp vwc	C S/m S/m unitless fraction 0.0 - 1.0
TDSPSV01.050 TDSPSV01.100 TDSPSV02	weight	kg
	weight_raw	kg
TDSPCL01.010 TDSPCL02	current derived	A <user-defined>
TDSPVM01.010 TDSPVM02	voltage	V
	derived	<user-defined>
TDSPIC01.010 TDSPIC02	pulses pulsescumulative derived_cpp derived_cpc	count count <user-defined> <user-defined>
TDSPDM01 TDSPDM02	distance	m
	derived	<user-defined>
TDSKAR01 TDSKAR02 TDSPPA02	ppfd	umol/(m^2 s)
TDSPC001 TDSPC004	CO^2	ppm
TDSPSM02	vwc	fraction 0.0 - 1.0
TDSPAC01 (AC Hour) TDSPDC01 (DC Hour) TDSPHM01 (Dry Contact Hour)	motorseconds	s
	motorsecondscumulative	s
TDSPDP01	differentialpressure	Pa
TDSKLM01	illuminance	lx
TDSPG301	O^2 temperature	ppm C
TDSPG101	NH3	ppm

	temperature	C
TDSPG201	NO2 temperature	ppm C
TDSPG001	CO	ppm
	temperature	C

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 form 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