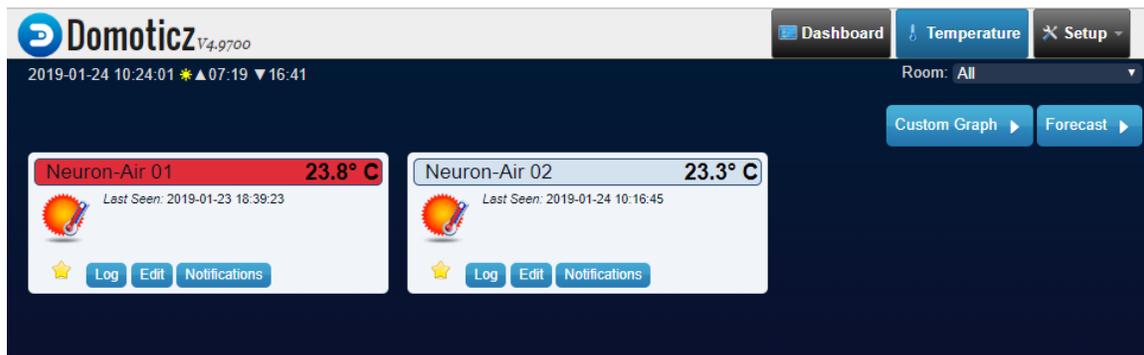




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Configuration with the free home automation system Domoticz (*open source*) via MQTT

Use this documentation with the product: Neuron-Air MQTT

Website : <http://www.symcod.com/>

Steve Bilodeau
Embedded software developer
E-mail : support@symcod.com

IMPORTANT

Symcod offers compatibility with Domoticz software via the MQTT communication protocol. Symcod does not offer technical support for the Domoticz software. You will have to learn without the help of Symcod how this free open source software works through the documentation available on:

<http://www.domoticz.com>

This documentation explains how to interface the Neuron-Air temperature sensors with Domoticz via the MQTT Gateway.

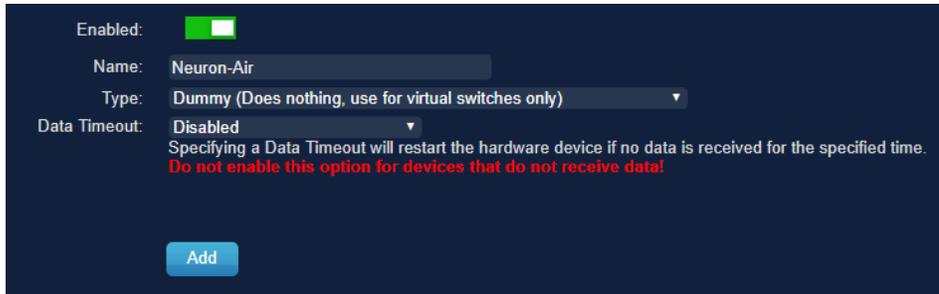


The Neuron-Air is a wireless IOT temperature sensor monitor, long range 900 mhz. Each Neuron-Air gateway can communicate with up to 50 Neuron-Air wireless temperature sensors. A maximum of 9 gateway can be present on the same site to reach 450 wireless temperature sensors. The maximum distance between a Neuron-Air wireless temperature sensor and the gateway can reach 6349 linear feet without obstacle. The wireless temperature sensors are powered by two AA batteries that give it autonomy for more than 5 years (sending the temperature every 10 minutes). With his IP65 waterproof ABS case, the wireless temperature sensor can resist to harsh industrial environments while offering an accuracy of + - .5 degrees Celsius (no calibration required). Several types of interfaces are available such as RS232 / USB HID VCP (Virtual Com Port FTDI) / Ethernet (Intranet or Cloud) / Modbus TCP Slave / Cellular / MQTT. To facilitate your installations, no software configuration is necessary, the addresses and the various parameters are chosen via rotary switches directly on the Neuron-Air. The Neuron-Air wireless temperature sensor can be placed directly in a freezer or in a refrigerator, the long-range radio wave can pass through most metal or stainless-steel walls. No additional hardware, software or subscription is required.

Adding the Neuron-Air Gateway in Domoticz

The first step is to create a hardware in Domoticz

1. In the Domoticz main screen Click on the menu: Setup
2. Select Hardware from the drop-down menu.
3. Enter the name for the material: **Neuron-Air**.
4. As Type select **Dummy (Does nothing, use for virtual switches only)** in the drop-down list.



Enabled:

Name:

Type:

Data Timeout:
Specifying a Data Timeout will restart the hardware device if no data is received for the specified time.
Do not enable this option for devices that do not receive data!

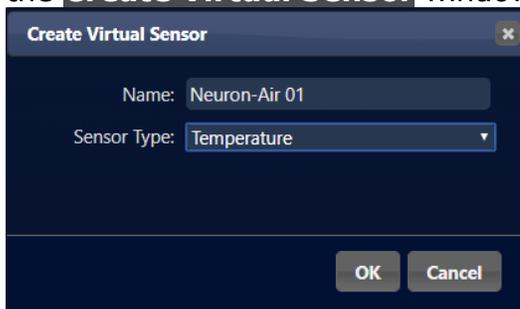
5. Click the **Add** button. The Neuron-Air device will be added to the table at the top of the page.

Idx	Name	Enabled	Type	Address	Port	Data Timeout
3	Neuron-Air	Yes	Dummy (Does nothing, use for virtual switches only) <input type="button" value="Create Virtual Sensors"/>	undefined		Disabled

IMPORTANT: This step is to be done only once, no matter how many gateways or sensors you use.

To add a Neuron-Air sensor

6. Click the **Create Virtual Sensors** button in the new Neuron-Air hardware.
7. Fill the **Name** field, select **Temperature** from the **Sensor Type** drop-down list in the **Create Virtual Sensor** window.



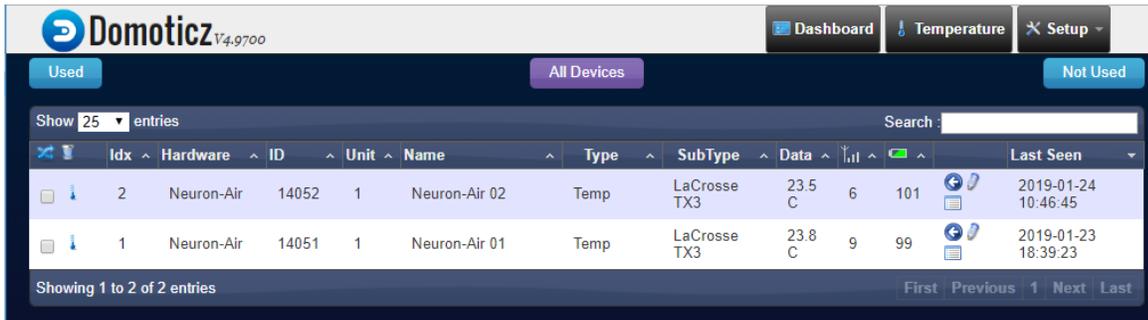
Create Virtual Sensor

Name:

Sensor Type:

Repeat steps 6 and 7 for each Neuron-Air sensor

A message will appear confirming the creation of the sensor and indicating that it can be found in the list of devices. To see the list, click the **Setup** tab and select **Devices**.



The screenshot shows the Domoticz V4.9700 interface. At the top, there are navigation tabs: Dashboard, Temperature, and Setup. Below this, there are buttons for 'Used' and 'Not Used', and a central 'All Devices' button. The main area displays a table of devices with the following columns: Idx, Hardware, ID, Unit, Name, Type, SubType, Data, Unit, and Last Seen. The table contains two entries for Neuron-Air sensors.

Idx	Hardware	ID	Unit	Name	Type	SubType	Data	Unit	Last Seen
2	Neuron-Air	14052	1	Neuron-Air 02	Temp	LaCrosse TX3	23.5 C	6 101	2019-01-24 10:46:45
1	Neuron-Air	14051	1	Neuron-Air 01	Temp	LaCrosse TX3	23.8 C	9 99	2019-01-23 18:39:23

Showing 1 to 2 of 2 entries

- Important note: The "Idx" field must correspond with the sensor number that is configured with the two rotary switches on the Neuron-Air sensor.
 - o Attention: In the Domoticz software the number is in Decimal and on the Neuron-Air sensor it is Hexadecimal so if the sensor has for number 0A in Domoticz the index must be at 10.
 - Until proven otherwise Idx numbers can not be changed in Domoticz they are generated automatically.

Enabling the MQTT protocol in Domoticz

Add in "hardware" the MQTT protocol to Domoticz. The procedure is similar to adding the Neuron-Air in the previous section.

8. Click the **Setup** tab.
9. Select **Hardware** from the drop-down menu.
10. Enter in the field «Name»: **MQTT SERVER**
11. As «Type» select «MQTT Gateway Client with LAN interface» from the drop-down list.
12. Enter the «Remote Address» and «port» of your MQTT server.
Make sure the (Publish Topic) is set to: out
13. Click the **Add** button. The material will be added with the Neuron-Air material in the table at the top of the page.

The screenshot displays the Domoticz hardware configuration interface. At the top, there is a table with 25 entries. The table has columns for Idx, Name, Enabled, Type, Address, Port, and Data Timeout. Two entries are visible: 'Neuron-Air' (Idx 3) and 'MQTT SERVER' (Idx 2). Below the table, there are 'Update' and 'Delete' buttons. The 'MQTT SERVER' entry is selected, and its configuration form is shown below. The form includes fields for Name (MQTT SERVER), Type (MQTT Client Gateway with LAN interface), Data Timeout (Disabled), Remote Address (m16.cloudmqtt.com), Port (18987), Username (wuvutiw), Password (masked), Publish Topic (out), and CA Filename. An 'Add' button is at the bottom of the form.

Idx	Name	Enabled	Type	Address	Port	Data Timeout
3	Neuron-Air	Yes	Dummy (Does nothing, use for virtual switches only) Create Virtual Sensors	undefined		Disabled
2	MQTT SERVER	Yes	MQTT Client Gateway with LAN interface	m16.cloudmqtt.com	18987	Disabled

Showing 1 to 2 of 2 entries

Update Delete

Enabled:

Name: MQTT SERVER

Type: MQTT Client Gateway with LAN interface

Data Timeout: Disabled
Specifying a Data Timeout will restart the hardware device if no data is received for the specified time.
Do not enable this option for devices that do not receive data!

Remote Address: m16.cloudmqtt.com

Port: 18987

Username: wuvutiw

Password:

Publish Topic: out
Select the Topic(s) Domoticz will use to publish outgoing messages.
Flat - publish outgoing messagen on topic domoticz/out.
Hierarchical - publish outgoing messagen on topic domoticz/out/{floorplan name}/{plan name}.
Combined - Use both Flat and Hierarchical topic schemes.
None - disable outgoing messages.
Note that Hierarchical only reports sensor updates for sensors that are placed on a floorplan/plan.

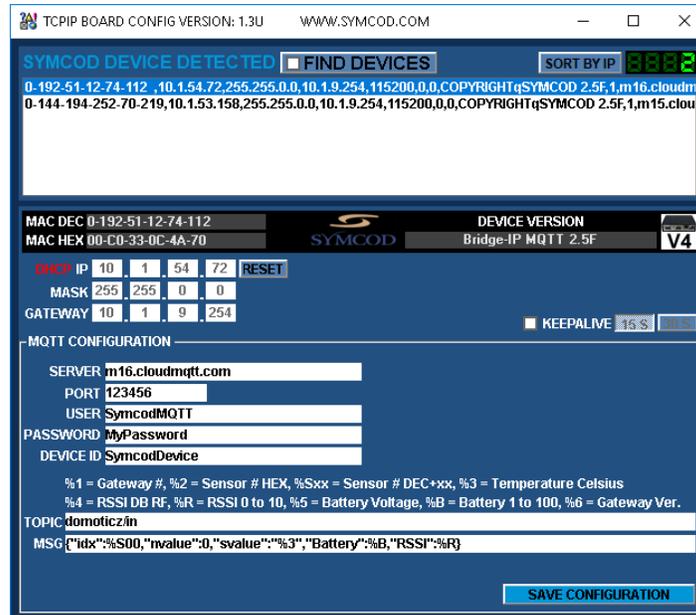
CA Filename:

Add

From this moment, the Domoticz MQTT server subscribes to the domoticz/in topic and will take temperature measurements each time it receives a message from a Neuron-Air Gateway(s).

Configuring the Neuron-Air MQTT Gateway

The configuration of the MQTT gateway is done with the BoardConfig software:



DHCP IP: The Neuron-Air IP address is obtained automatically via DHCP of your network.

MQTT CONFIGURATION :

- SERVER: The IP or DNS address of your MQTT server where data will be sent for Domoticz.
- PORT: The port number of your MQTT server where data will be sent for Domoticz.
- USER : Username to authenticate to your MQTT server
- PASSWORD : Password to authenticate to your MQTT server
- Enter in DEVICE ID field: [SymcodDevice](#)
- Enter in TOPIC field: [domoticz/in](#)
- Enter in MSG field: `{"idx":%S00,"nvalue":0,"svalue": "%3", "Battery":%B,"RSSI":%R}`
 - It is possible to add a value to the sensor number with the parameter `%S00` to match it with the "Idx" number in Domoticz:
 - Example: To add +7 to Neuron-Air 01 device ID change `%S00` for `%S06`.
MSG: `{"idx":%S06,"nvalue":0,"svalue": "%3", "Battery":%B,"RSSI":%R}`
With the `%S06` parameter the value 6 will be added to all sensors ID numbers associated with this Neuron-Air gateway.