PAESSLER
THE MONITORING EXPERTS

GATEWAY INTEGRATION

How to integrate your Advantech data into PRTG

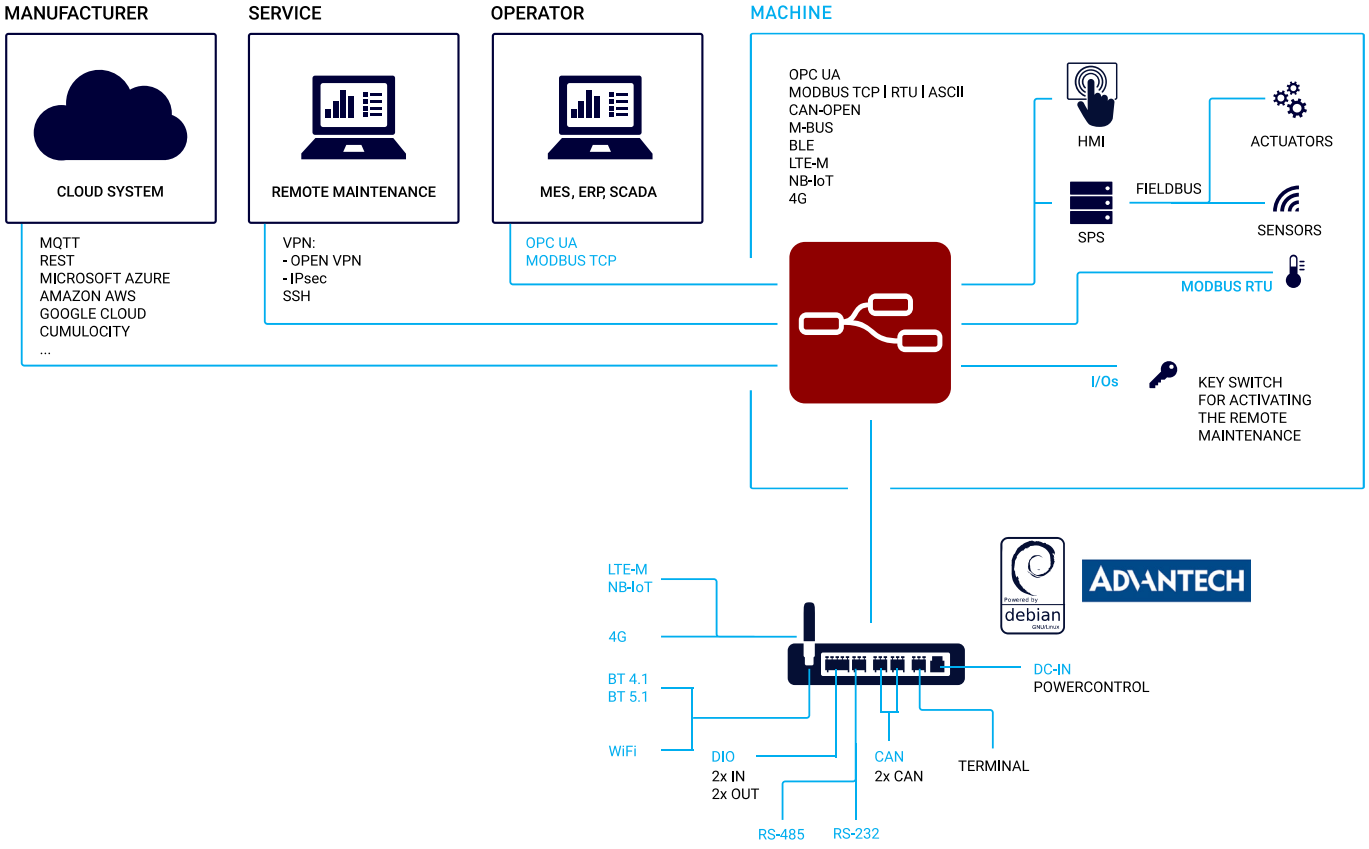
Fieldbus gateway EKI-1242NR

PRTG NETWORK MONITOR

Gateway: General functionality

The gateway is essentially a connection between the factory floor and various other systems. Here is a typical architecture that ADVANTECH Gateways might be implemented in:

All Advantech V3 routers, including the Smart-Fex, Smart-Start and IC3231 product lines, are based on an implementation of Node-RED.



Node-RED provides a browser-based flow editor that makes it easy to wire together flows using the wide range of nodes in the palette. Flows can then be deployed to the runtime in a single-click.

This makes it especially suitable for the development of data acquisition and pre-processing logic. The ready-made components for various communication protocols and general data processing functions make Node-RED even more user-friendly. The routers can thus, in addition to their standard routing functions, also be used as complete IoT an IIoT gateways.

Perhaps less well known is that Advantech developed the first Node-RED fieldbus gateways several years ago and still produces them.

This includes the EKI-1242NR, which is the subject of this article. Admittedly, it is a bit outdated and the Node-RED version as delivered is V0.17.5. Because of this, many core functions of the current versions of Node-RED are missing; however, this does not mean that it no longer serves its purpose.

If you currently have a gateway of this type in use, here is how the integration with PRTG works.

Note: If you are thinking about getting a new Node-RED based gateway, we recommend the current gateway series from ADVANTECH, as mentioned at the beginning. In this case, integration into PRTG is also greatly simplified, thanks to the Node-RED Connector for PRTG.

Gateway: Configuration guide

In the case of the EKI-1242NR, the integration is done via the MQTT protocol.

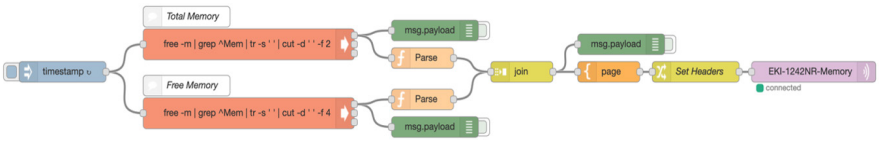
PREREQUISITE: You have already completed the basic configuration of your gateway.

Begin by calling Node-RED in your web browser using the IP address of your gateway followed by the typical Node-RED port number, 1880, e.g.:
http://<Your-Gateway-IP>:1880

With the following instructions, you will be able to monitor the memory of your gateway and pass it on to PRTG via the MQTT protocol. The only requirement is that you use your own MQTT broker.

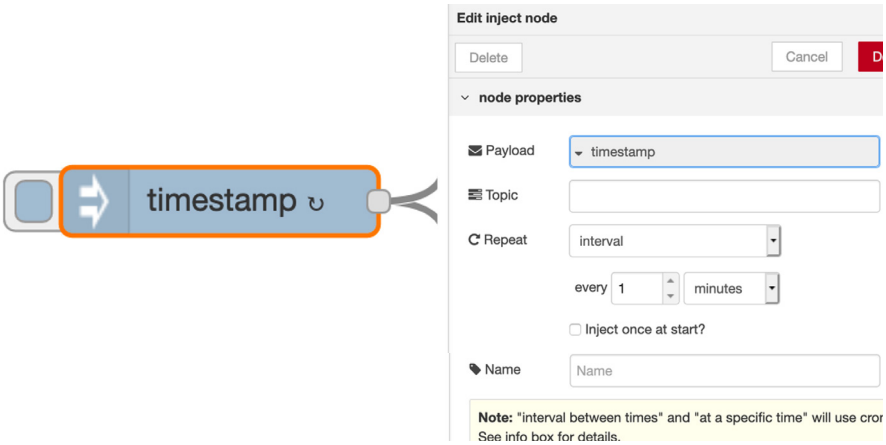
To help demonstrate a Node-RED flow, we created an example that you can reproduce directly without further devices connected to the gateway.

The complete flow looks like this:



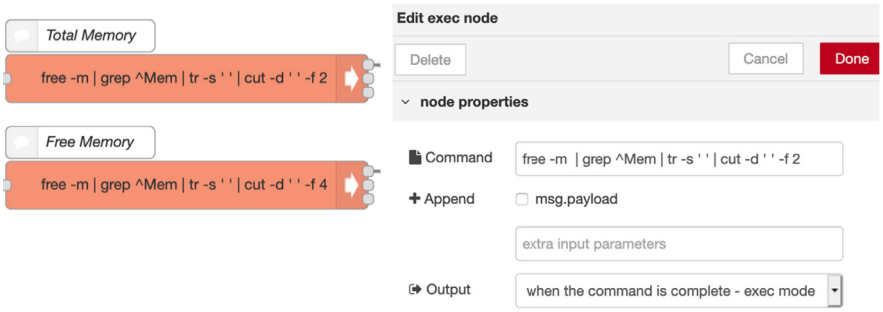
STEP 01

The **"inject" node** (aka timestamp) on the left side is set to a transmission interval of 1 minute:



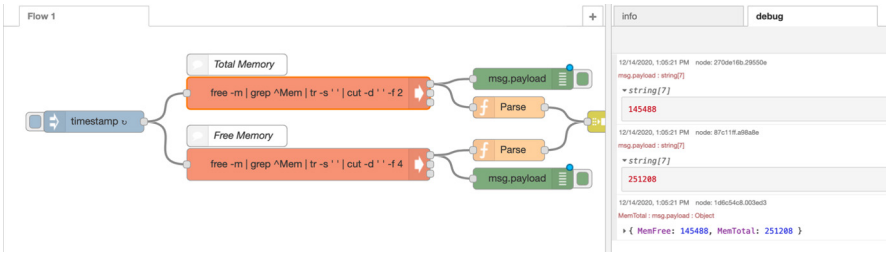
STEP 02

The two **"exec" nodes** execute standard Linux commands at the operating system level. The **upper node monitors the total memory**, while the **second node monitors the free memory**.



STEP 03

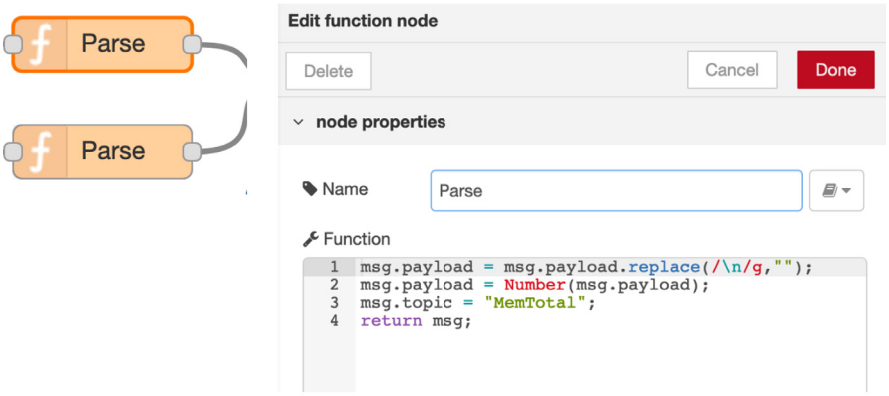
If you debug **both nodes**, you get the feedback of both values in the debug window. To do this, **click on the "inject" node and switch to the debug window**.



STEP 04

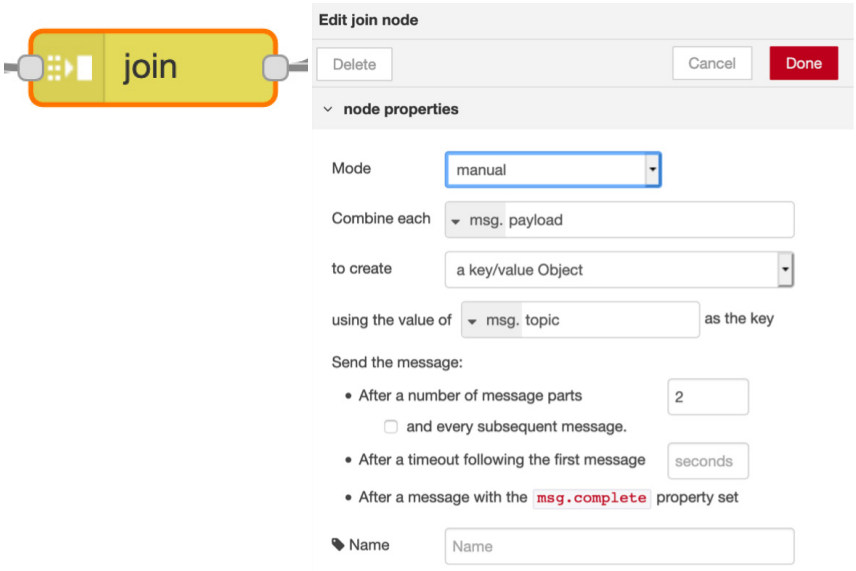
The returned value from the operating system must now be cleaned up because it still contains special characters. Furthermore, we convert the string into an integer. This is necessary so that we can monitor the data with PRTG.

Finally, **mark the values with individual topics**. This is done to combine the individual values as one data package in the next step. Here we use the "function" node:



STEP 05

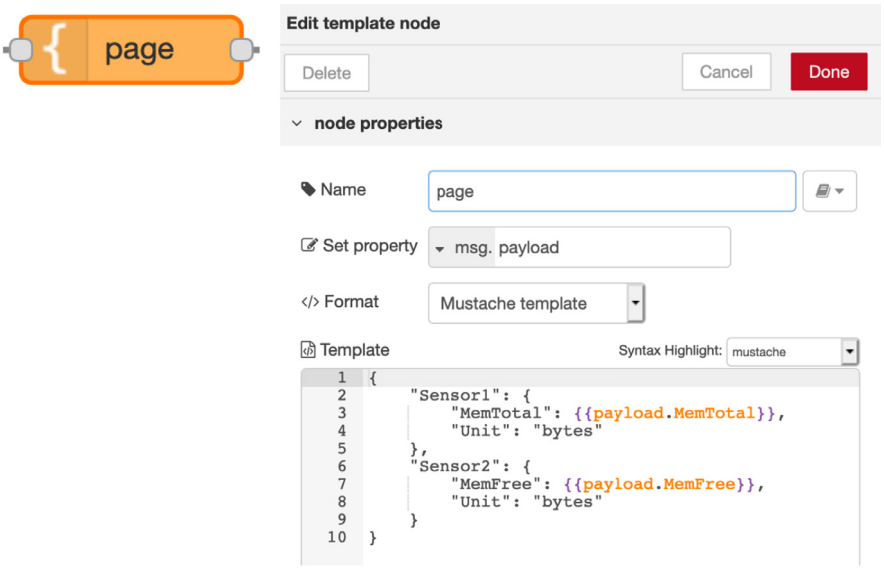
Using the **"join" node, combine the two individual data streams** into one data package with the help of the predefined topics.



STEP 06

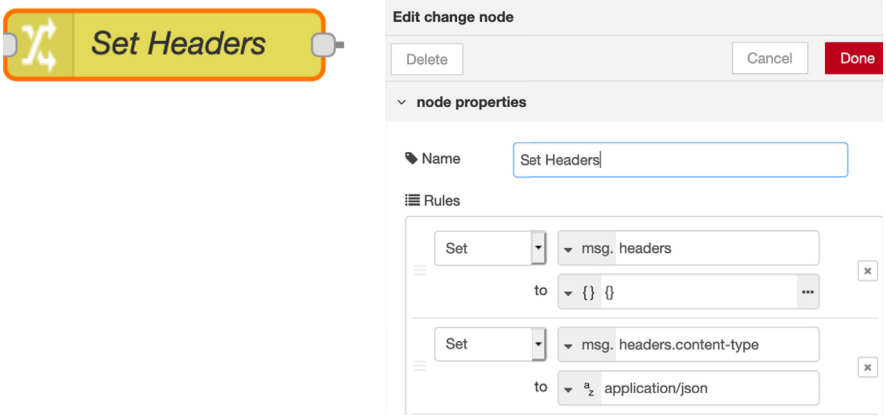
In PRTG, the "MQTT Subscribe Custom Sensor" is used for this purpose. The only requirements are that the data are numeric values and that the data are JSON compliant.

To achieve this, use the **"template" node** and **define the respective variables** from our flow.



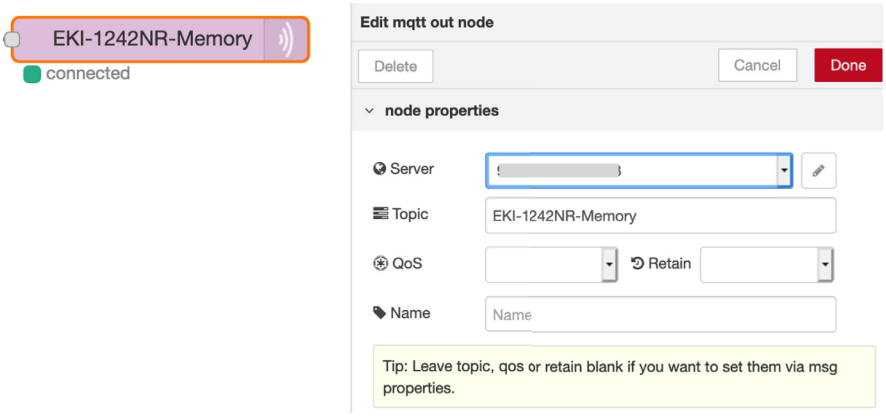
STEP 07

The required JSON conformity is achieved through the **"change" node**. Here you **essentially define the "headers"**.



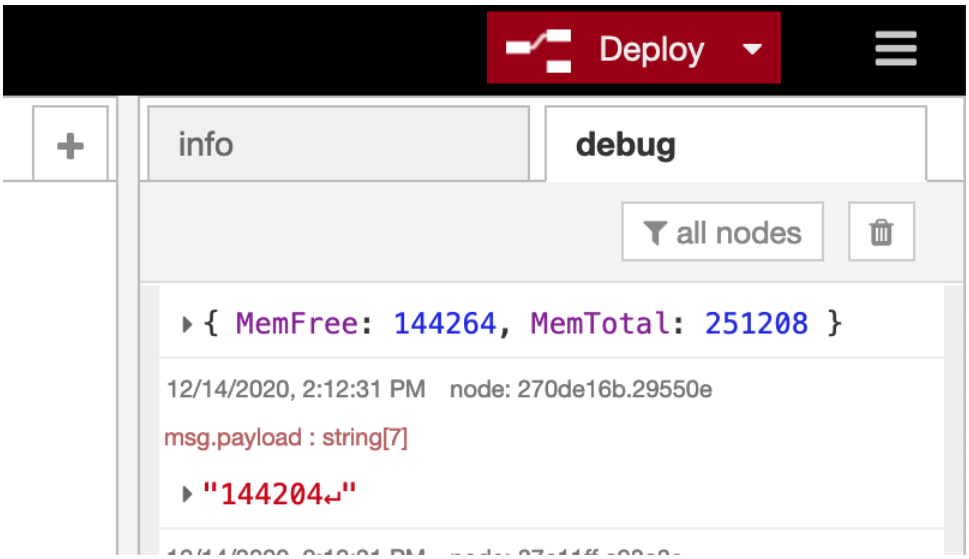
STEP 08

The actual transfer of data to **PRTG takes place via the "mqtt out" node**. Simply formulated, PRTG accesses the data of the MQTT broker via MQTT subscribe. Within the "mqtt out" node, you also **define the specific credentials**. Also set an individual topic, which you will use in PRTG.



STEP 09

The configuration of the flow in Node-RED is complete. Now is the time to put the flow into operation. To do this, **click on "Deploy" in the upper right-hand area** of the window.

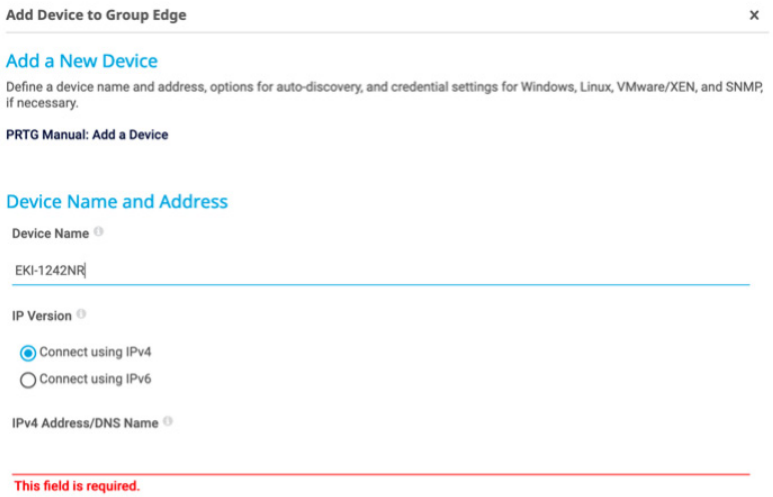


The only thing missing is the appropriate sensor in PRTG. As already mentioned, we want to use the "MQTT Subscribe Custom Sensor" for this.

PRTG Configuration Guide

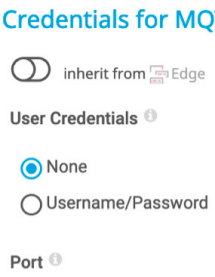
STEP 01

In PRTG, you **first create a new device**. In our example, we call it EKI-1242NR. Also enter the IPv4 of your MQTT broker.



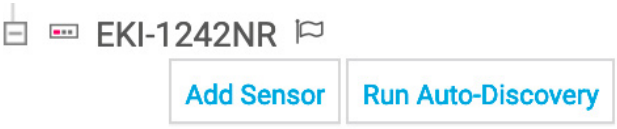
STEP 02

Now scroll down and **enter the details of your MQTT broker**



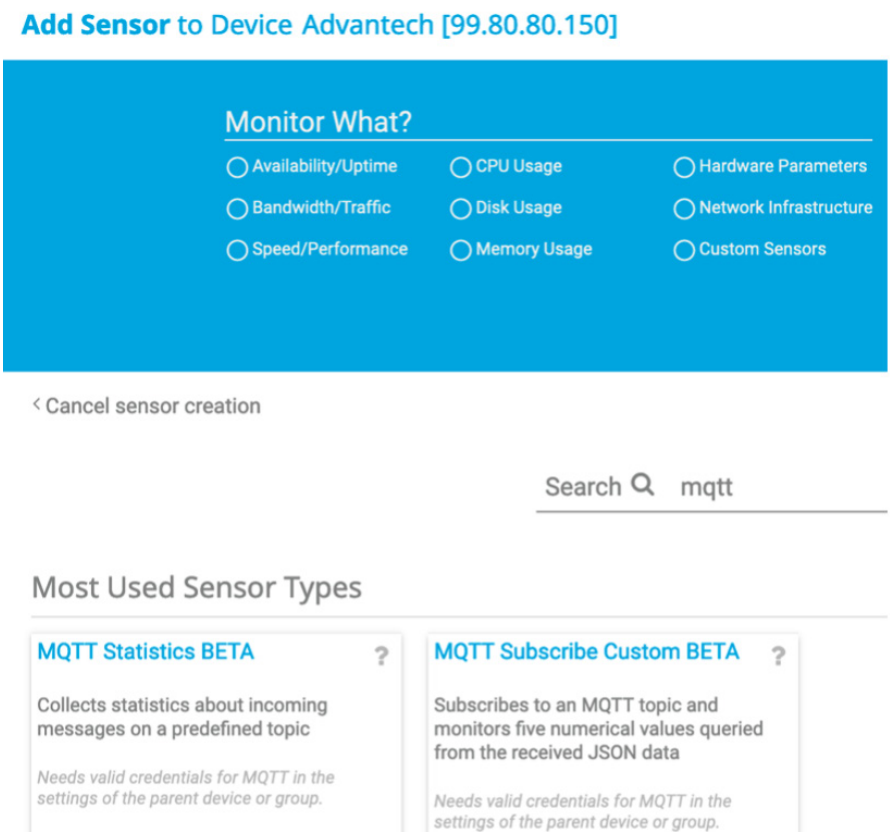
STEP 03

Once the device has been successfully created, **configure the MQTT sensor**. To do this, click on “Add Sensor”.



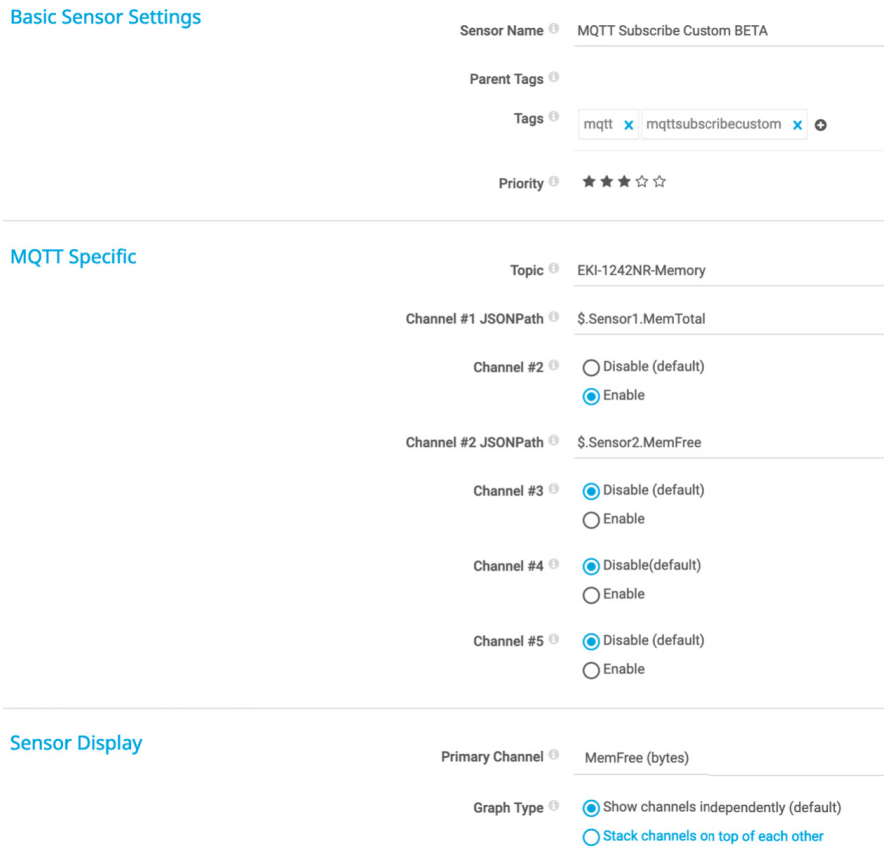
STEP 04

Use the search field and select the "**MQTT Subscribe Custom BETA**" sensor.



STEP 05

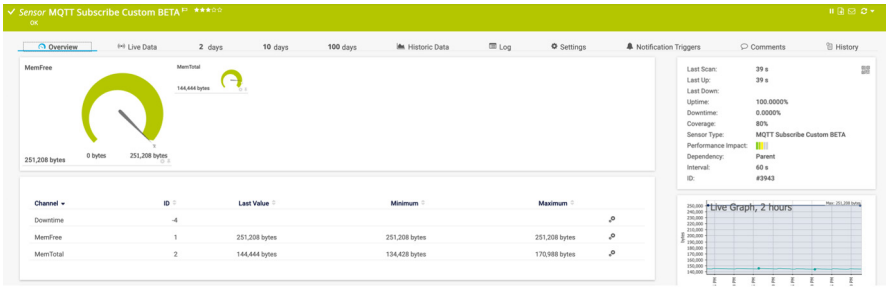
Now **configure this sensor** as follows:



STEP 06

After you have saved the sensor, you have to wait a little while for the **first data to be read by PRTG**.

The result looks like this:



Only the individual steps that were used for the data transfer to PRTG are necessary for you. In general, you can use any data protocol that Node-RED supports as a data source.

ABOUT PAESSLER

Paessler believes monitoring plays a vital part in reducing humankind's consumption of resources. Monitoring data helps its customers save resources, from optimizing their IT, OT and IoT infrastructures to reducing energy consumption or emissions – for our future and our environment. That is why Paessler offers monitoring solutions for businesses across all industries and all sizes, from SMB to large enterprises. Paessler works with renowned partners, and together they tackle the monitoring challenges of an ever-changing world.

Since 1997, when Paessler first introduced PRTG Network Monitor, it has combined its in-depth monitoring knowledge with an innovative spirit. Paessler knows the challenges of complex IT, OT and IoT infrastructures and networks. Paessler products empower its customers to monitor everything, and thus help them optimize their resources.

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