PAESSLER
THE MONITORING EXPERTS

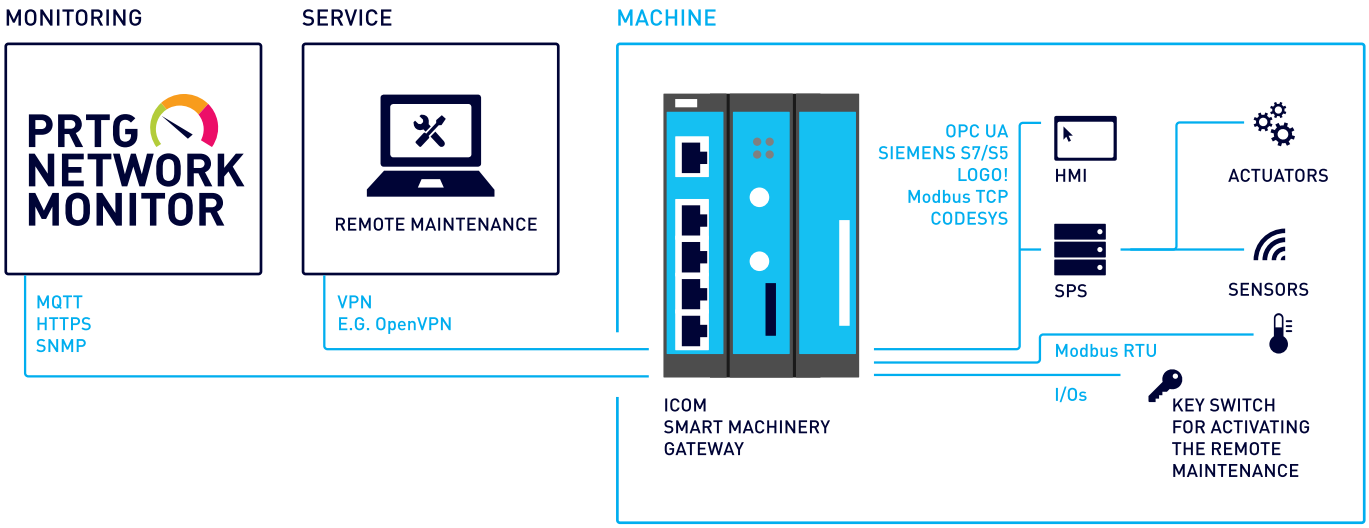
GATEWAY
INTEGRATION

How to integrate your INSYS icom data into PRTG

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 the INSYS icom might be implemented in:



Here you can see that on the one side, the gateway is connected to various aspects of the factory floor, such as actuators, sensors, and other control mechanisms. On the other side, the gateway connects to operators (like ERP or SCADA systems), services and manufacturers.

The software architecture for INSYS gateways is based on Linux containers, and icom Data Suite is one of them. The icom Data Suite turns your router into a protocol converter, data logger or IoT gateway.

Despite the extensive functionality of the application, sooner or later you reach the limits of what is feasible.

Especially when it comes to extensive pre-processing of data, a supplement is needed, which we describe below: The Node-RED Linux container for INSYS hardware.

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 be then deployed to the runtime in a single-click and thus forms the perfect complement to the icom Data Suite.

In our example, we will focus on the PRTG Node-RED Connector, which makes data transfer from INSYS Gateways via Node-RED to PRTG a breeze.

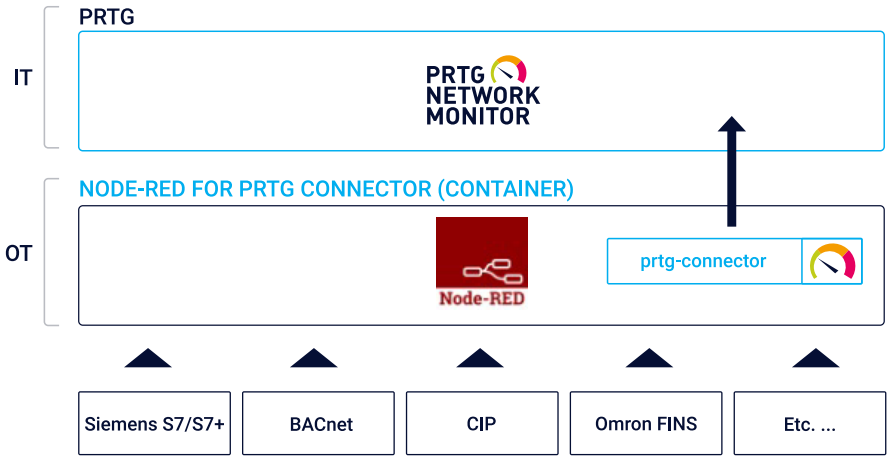
Features & supported protocols

The main advantage of Node-RED is its widespread use and popularity. A look at the Node-RED Library shows how extensive the range of functions is, which can be individually extended with almost 3000 additional nodes according to individual requirements.

Therefore, it is not surprising that Node-RED is often used as a protocol converter due to the countless protocol implementations.

Gateway: Configuration guide

We've already written about how Node-RED and the PRTG Connector can be used to collect data from hundreds of different applications, systems and protocols, process that data and then forward it into PRTG.



Now we've taken that capability and built an LXC containerised version of it that can run directly on an INSYS MRX Smart Edge Gateway, which we use as an example for this guide.

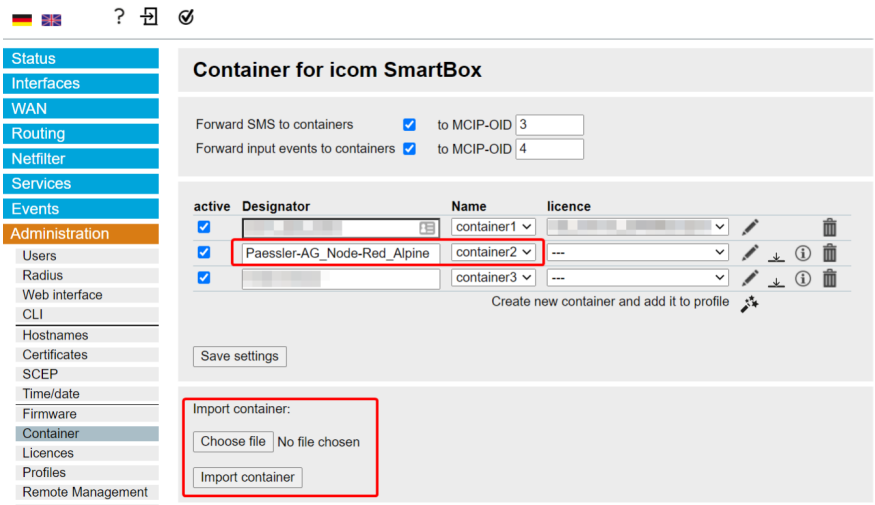
Of course, the same approaches also apply to the product range of the other INSYS gateways. The container is freely available directly from the INSYS icom container library.

So, how does it work?

Configuration procedure

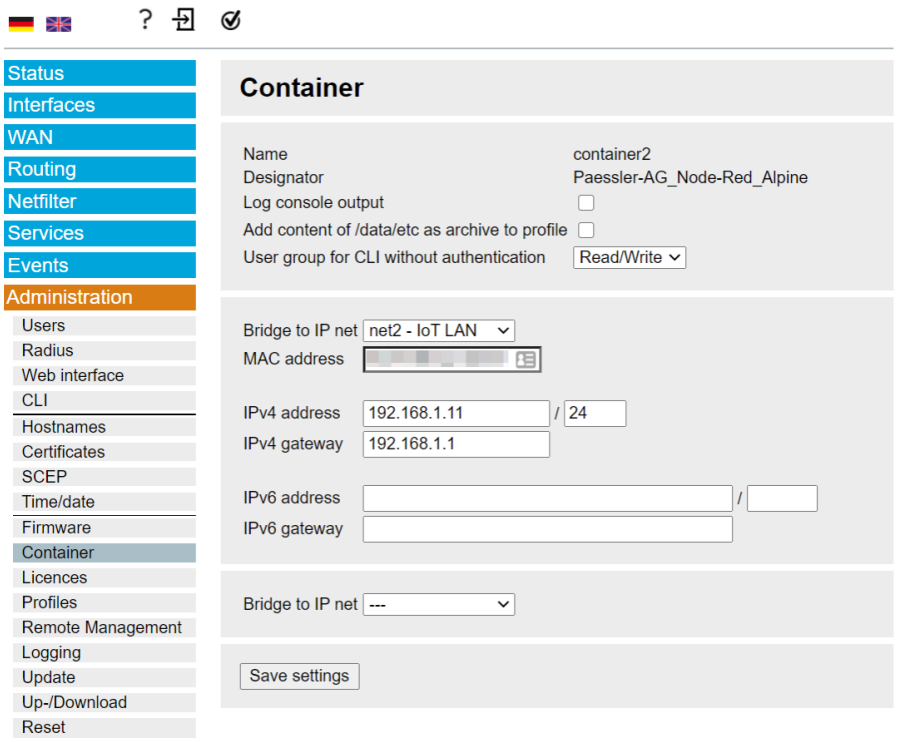
STEP 01

Simply download the Node-RED PRTG Network Monitoring Edition container from the INSYS icom library, and import it into your MRX device (or any other INSYS icom device that runs on icom OS), using the GUI:



STEP 02

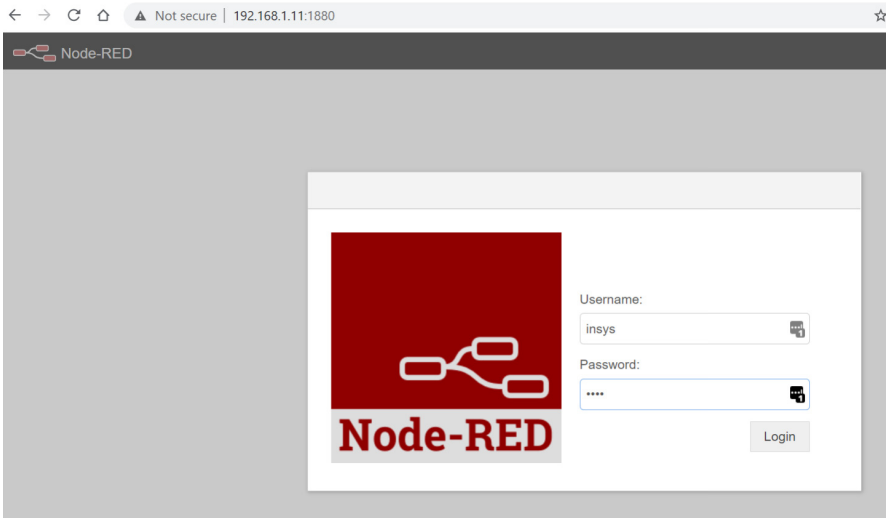
Once the container is imported, click the pencil icon, to **configure the settings**.



STEP 03

Here, you simply need to **assign an IP address to the container and save the settings**, and finally "activate the profile" by clicking the flashing icon on the INSYS icom menu at the top of the screen.

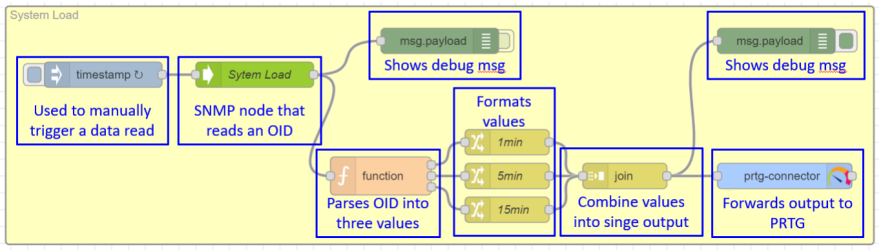
Now you should be able to point your browser to the default Node-RED port of 1880, at the configured IP address, and **login using the default credentials** (ID: insys PW: icom).



STEP 04

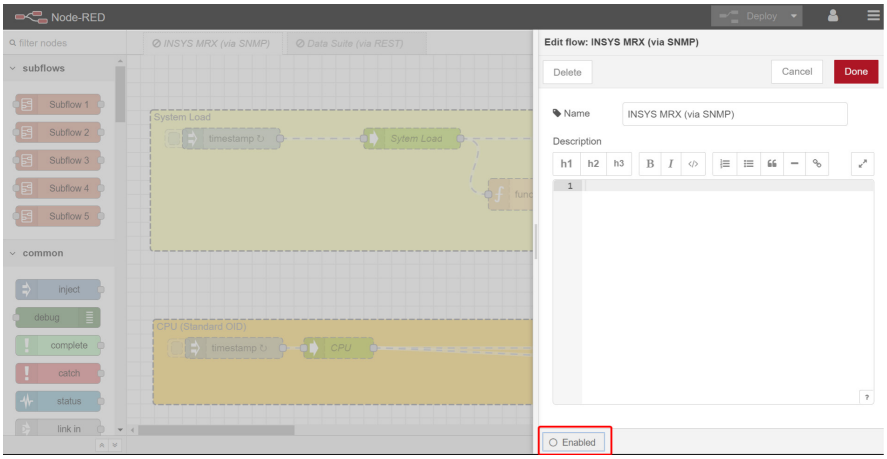
Node-RED should now open and be ready for you to start creating flows. We've provided a couple of examples to get you started – a flow that retrieves data from the icom Data Suite, which we talked about in the previous post, and passes it to PRTG, via the Connector. **The second sample flow retrieves SNMP metrics from the MRX device**, parses the output, and passes the result to PRTG, again using the connector. We'll use the "System Load" sub-flow to walk through the configuration steps.

Before getting into the config details, **let's have a look at the System Load flow**, and what each component does:



STEP 05

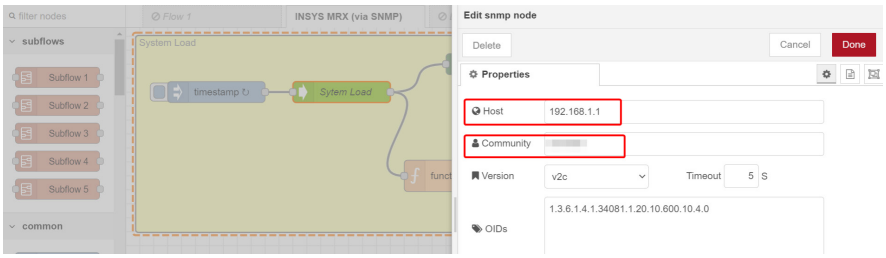
There are a few configuration changes needed to adapt the flow to your environment. To start, we need to **enable the flow** - double click the INSYS icom MRX (via SNMP) tab. Then **click the Enable / Disable button at bottom left** of the Flow Settings page, then **click "Done"**:



STEP 06

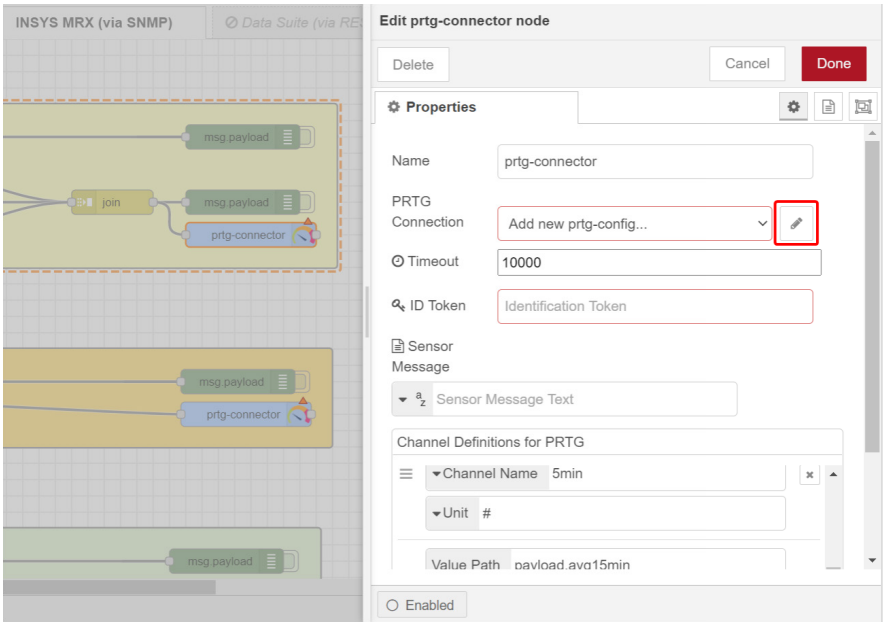
You'll know the flow is enabled when the tab title is in bold text, and the flow components have solid (not dashed) borders.

Next, the **"System Load" SNMP node needs to be edited** to match your own settings. Double click the node and enter the IP address, Community String and verify the SNMP version, used by your MRX device. (Don't change the OID as this is pre-configured to retrieve the System Load values. **Click Done.**



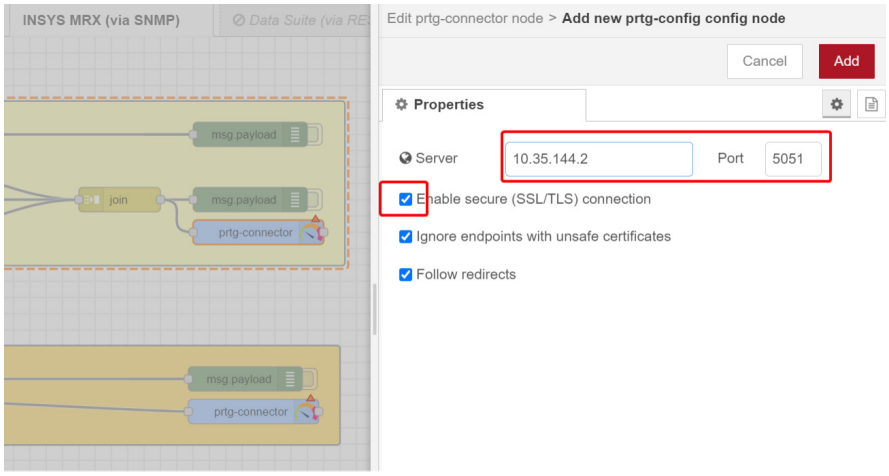
STEP 07

Next, we need to **configure the PRTG connector**. Double click the Connector icon, in the flow:



STEP 08

Then, **click the pencil icon, next to "PRTG Connection"**.

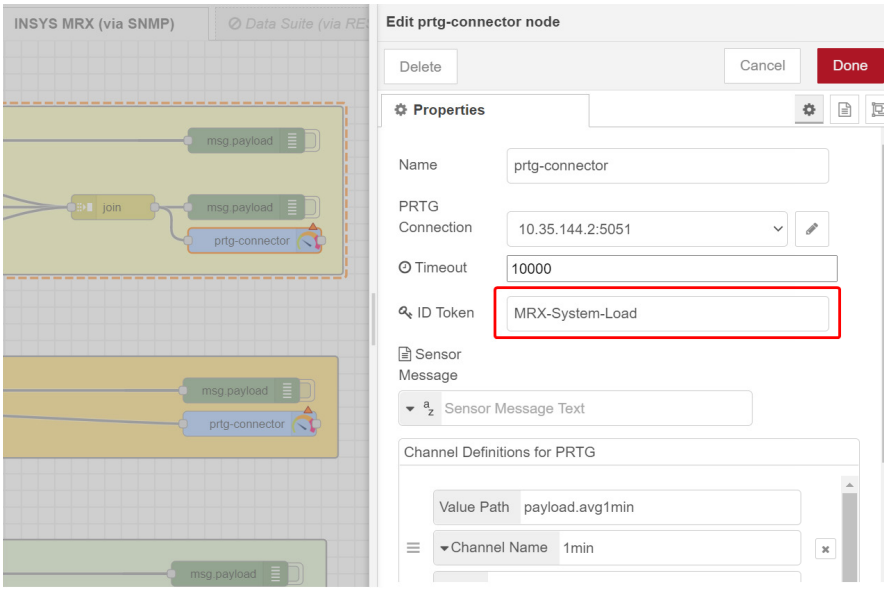


STEP 09

Add the IP address of your PRTG Server, and make sure the port is set to 5051 (the default port for the IoT HTTP IoT Push Data Advanced Sensor, we'll be using to collect the data in PRTG). Also make sure "Enable Secure (SSL/TLS) Connection" is enabled.

It's important to check this because if you copy & paste, or duplicate flows containing the PRTG Connector, Node-RED will disable this option for security reasons, leading to errors. When you're done, click "Add".

The Connector Properties page should now reflect your changes:



STEP 10

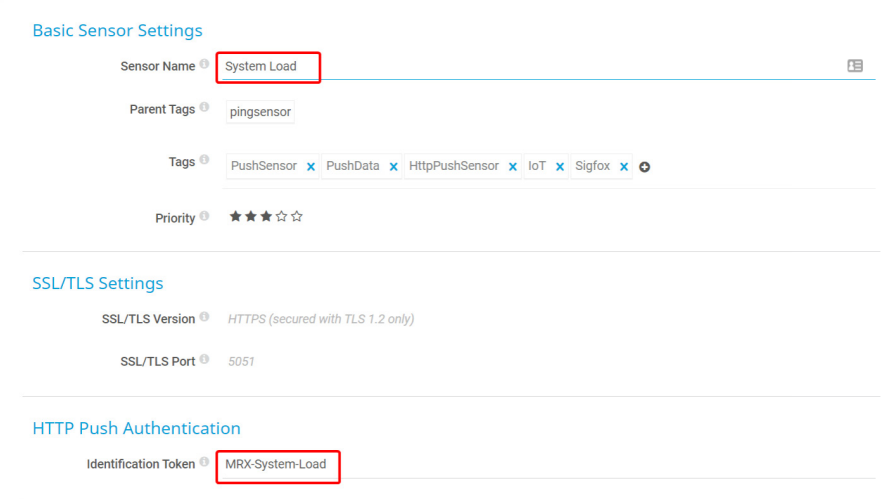
You also need to specify an ID Token, and for this there are two choices. You can either let PRTG create a random GUID, when you create the IoT HTTP IoT Push Data Advanced Sensor, which you need to copy and paste into the ID Token field in the PRTG Connector details. Or you can specify a unique identifier of your own, which we'll need to paste into the sensor config in PRTG. Click Done, once the settings are configured.

Remember, in Node-RED, you must click the "Deploy" button to activate any changes you make.

PRTG Configuration Guide

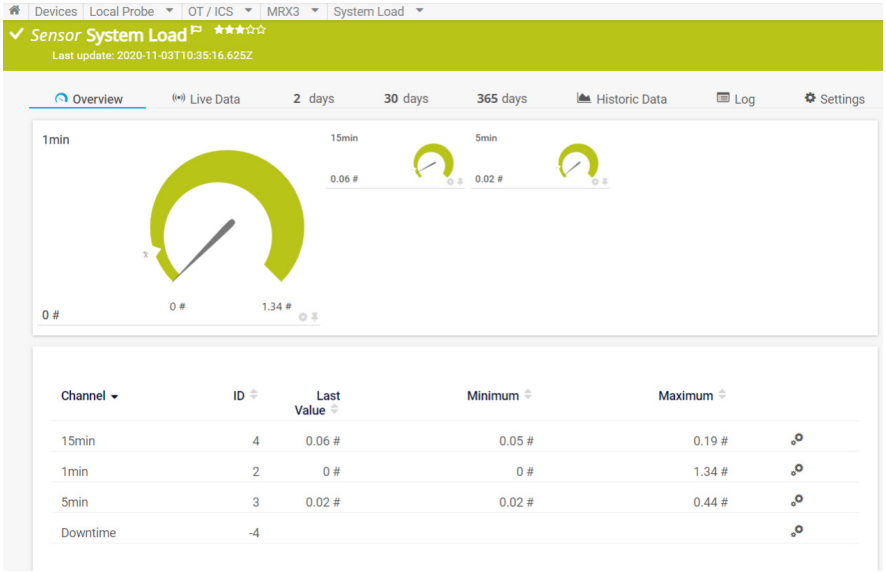
STEP 01

Moving to PRTG - I'll assume you've already added the INSYS icom device - add a new HTTP IoT Push Data Advanced sensor to the device. Give the new sensor a meaningfull name, and add the Identification Token:



STEP 02

After a short delay, the sensor channels will be created and data will be displayed.



Combining the power of PRTG with the flexibility of Node-RED and the versatile, modular hardware of the MRX smart edge gateway **provides a simple, efficient and low cost solution for sharing monitoring data between OT and IT environments.**

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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