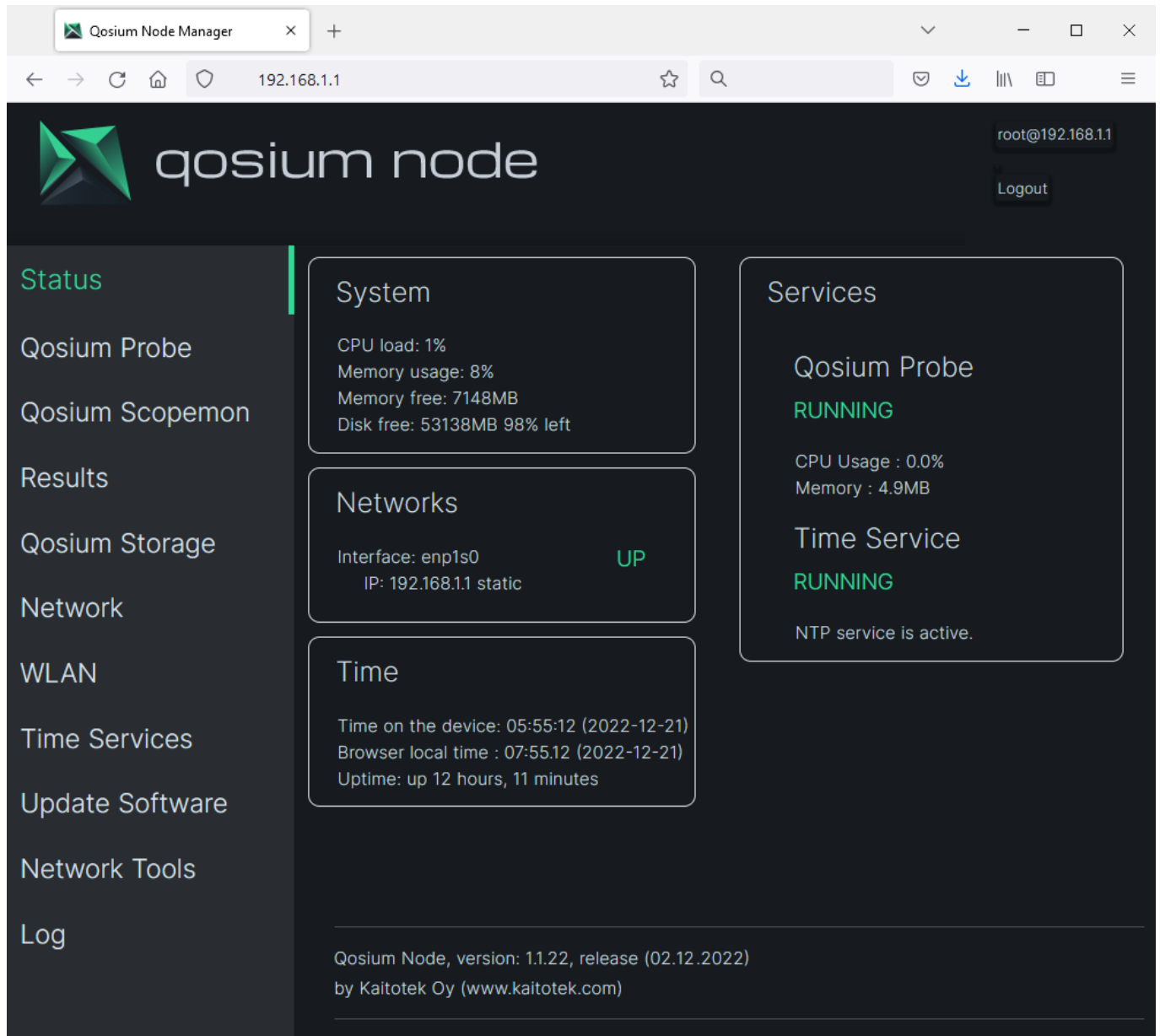# Qosium Node Manager

Qosium Node Manager is the primary tool to control Qosium Node. It runs over a web server, so use your web browser and connect to Qosium Node to access Qosium Node Manager.

Table of Contents

1. General

Once you log in to **Qosium Node Manager**, you land on the *Status* leaf, looking like this:

In the next chapter, we go through the leafs available.

2. The Control Leafs

2.1. Status

The *Status* view, shown in the figure above, displays important overall information. The visible windows are

- *System*: basic system information, including CPU, memory, and disk status
- *Networks*: shows what interfaces are up and connected
- *Time*: Device time, browser (local caller) time, and uptime. Note that, by default, time zones are not

activated on the device.

- *Services*: **Qosium Probe** status with resource usage and time service status

2.2. Qosium Probe

As the name indicates, this leaf is about **Qosium Probe** sitting in the device. The visible windows are:

- *Measurement Agent*: Qosium Probe's status with controls to restart/start and stop Probe
- *Settings*: View Qosium Probe's current setting and see its log. You can also download Probe's initialization file and send modified configurations back.

To modify Qosium Probe's configuration:

- Download the current settings by pressing *Download .ini*.
  - Note: if you already have the initialization file ready, you can skip this and the following step.
- Modify the just downloaded initialization file locally with a plain text editor.
- Use the *Browse...* button to locate your modified initialization file.
- Press *Update Settings* to activate the new configuration to Probe.
  - That will restart the Probe, taking some time.
  - Check the Qosium Probe's status so that it eventually returns to the running state. If not, for some reason, press *Restart*.
  - If Probe still does not activate, check the log. It is possible that some modified parameter has an unacceptable value.

Please note that some of the windows can be collapsed and expanded. The figure below shows an example of *Measurement Agent* window when it is collapsed. To expand the window, move your mouse over it and click the left button.
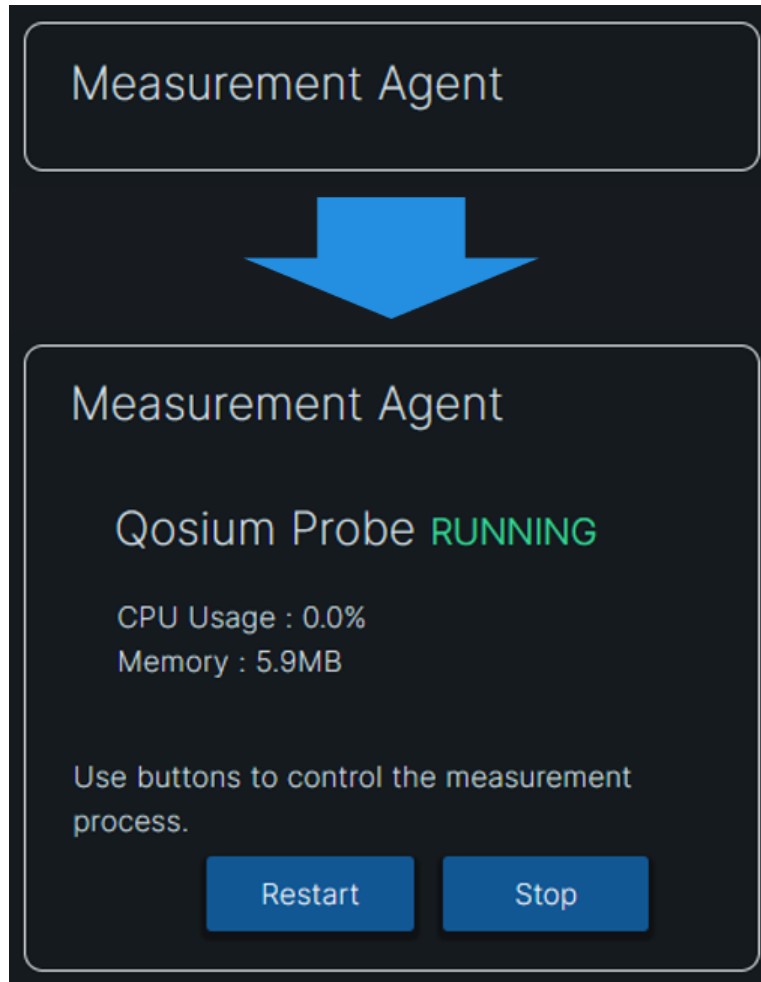
2.3. Qosium Scopemon

The *Qosium Scopemon* leaf lets you control the measurements by using **Qosium Scopemon**. When entering here for the first time, there are no measurements; thus, there is only a single tab available: *Overview*. It shows some instructions in the first window and the available network interface indices of the Node device in the next. The indices are needed when forming a measurement by editing the Scopemon configuration file manually.

Create a new measurement by clicking the + sign next to the *Overview* tab:
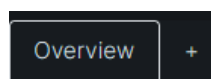
The measurement creation wizard opens, letting you name the measurement and set its type. Once you are ready, click *Create*. Clicking *Ok* takes you back to the *Overview* tab, and now you can see that a new tab of your newly created measurement has appeared, now called "my_measurement":
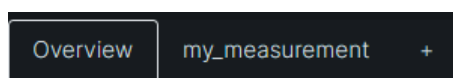
Entering a measurement tab shows you the status of the measurement and its main parameters and gives you several controls:

- Start the measurement

- Run the measurement as a managed service: the measurement is started every time with the device.
- Stop an ongoing measurement
- Show Scopemon log: handy for checking if something went wrong
- Edit the measurement here with the local editor.
- Delete the measurement

In addition, there is a window: *Scopemon configuration file*. It allows you to download and set a Scopemon configuration file edited elsewhere. That is sometimes useful since the Node's local Scopemon configuration editor contains only the main parameters. In addition, the newer versions of **Qosium Scope** allow you to create Scopemon configurations very easily.

2.4. Results

When you measure using the local **Qosium Scopemon**, the *Results* leaf shows the result files stored in the device. You can sort the results according to name, creation time, and file size by clicking the respective column identifier button.

The results can be accessed simply by clicking the desired file. It will be downloaded to your computer, where you can analyze it further. The files are in the same *CSV*-format as always with Qosium.

To delete a result file, press the *Remove* button at the end of the results file line.

2.5. Qosium Storage

If you have bought the extended Qosium Node device, **QMNO-011**, then you also have **Qosium Storage**, and this leaf shows its status information of it. You can control all three Qosium Storage-related services: the Results Receiver, Storage Portal, and the database. In addition, you can access the log of each.

You can access *Qosium Storage* using the link after *Web Access*.

2.6. Network

2.6.1. Interfaces

The *Network* leaf shows the information on the network interfaces and lets you control them.

Expand the interesting interface by clicking the left mouse button over it. There you see information on the interface, including its speed. Press *Edit* to modify the interface settings.

In addition to typical network settings, you can select interfaces to be bridged. By default, the two parallel network interfaces at the device's side are in the bridged mode. You can remove the bridging or change the interfaces in the bridge. You can bridge only two network interfaces at a time. Click *Commit* to save the changes.

2.6.2. Port Forwarding

Below the network interfaces, you have the active port forwarding rules visible. You may enable, disable, and remove the rules. To create a rule, press *New* below the rule window.

2.7. WLAN

When your Qosium Node device is equipped with a WLAN interface, this is where you control it. You can also access the WLAN log.

2.8. Time Services

This important leaf lets you configure the clock synchronization method of Qosium Node. Proper clock synchronization is the essential requirement for accurate one-way delay measurements. The configuration has been made easy – typically, these setting can only be modified in the command line.

Two clock synchronization methods are available: *NTP* and *PTP*. Select one of them for the local clock synchronization. While PTP provides much better accuracy, NTP has broader support. In this leaf, you can edit the setting of these, start and stop the services, and check their status. When editing a setting, press *Commit* to enable the changes. That will also restart the respective service, and the new settings come into effect.

In addition to the local clock synchronization, you can distribute the clock forward using either NTP or PTP. To do this with NTP, enable the NTP server in the settings. To do this with PTP, enable it in Master mode. While NTP can be a client and a server simultaneously, PTP can only be set either to receive clock information (Slave) or to distribute it (Master).

You can also configure a *GNSS* clock as the source if you have the hardware. That provides the best timing synchronization accuracy, assuming you have an unobstructed sight of the sky, allowing good signal from many satellites. When you take GNSS with *PPS* timing synchronization into use, it will override your NTP

client settings, as the NTP daemon tunes the system clock based on the GNSS and PPS. Please note that when you connect GNSS for the first time after a while, the cold start procedure can take over 10 minutes before you start getting PPS, so be patient.

Read more about clock synchronization [here](#).

> ⚠️ Don't run NTP as a client and PTP in the slave mode concurrently! That will ruin the synchronization performance as they both try to twist the system clock differently. If you have accidentally done this, a warning will be shown in the Status leaf in the context of Time Service.

2.9. Update Software

This is the software update center of **Qosium Node**. To update software:

- Access first your Kaitotek account and download the desired update package to your local computer if not already done.
- Go back to Qosium Node Manager's *Update Software* leaf. Browse the package on your local computer by clicking *Browse* under *Transfer software packages*.
- Press *Transfer file* to upload it to **Qosium Node**. The status of the transfer is shown at the bottom part of the page.
- After successful transfer, wait for a while, and the package appears in the *Available install packages* list.
- Install the package by pressing *Install*. You can remove the gratuitous packages by pressing *Remove*.
- After successful installation, it might be wise to reboot the device: click *Reboot*.

> ⚠️ We give guarantees only to software packages distributed by us.

2.10. Network Tools

This leaf has some handy network tools. You can run a ping test to check the availability of a remote device.

As an option, you can control Node's network emulator to cause intentional impairments in the communications path when the Node is running within the path as a network bridge.

2.11. Logs

This leaf lets you take a glance at Qosium Node's operational logs. The available log types are System Log and Journal.

3. Glossary

Comma-Separated Values

Originally CSV was only about values that were separated by commas, but nowadays the separation mark can also be something else like a semicolon.

Qosium, for example, uses tabs as separation marks in its CSV-formatted results files.

Network Time Protocol

A very common protocol for synchronizing the clocks of devices across a network.

Precision Time Protocol

A protocol for synchronizing the clocks of devices across a network. The reached synchronization accuracy is typically considerably better than with NTP.

Global Navigation Satellite System

A general term under which all the different global satellite navigation systems (e.g., GPS, GLONASS, Galileo, BDS) fall.

Pulse per second

A square-like electrical signal that is used in accurate clock synchronization