Oxford Microbeams Ltd.

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monDAQ

Remote monitoring for OMDAQ-3 installations

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Introduction

MonDAQ is a small Windows applications which provides monitoring of an OMDAQ-3 installation running on a remote computer.

To do this, OMDAQ-3 provides a simple TCP server which reports the status of the program in response to ASCII commands issued by any remotely connected program. This is implemented on OMDAQ versions released from 2024 onwards. Access via internet allows monitoring from any location (your office, your home, the pub, the beach…) provided that access is possible through any institutional firewall.

Installation

MonDAQ must first be installed on the local computer (the one that is being used for monitoring) and then both the local installation and the remote OMDAQ-3 must be configured to talk to each other. These steps are described below.

Installation on the local machine.

The installation file for monDAQ is **monDAQ-Installer.exe** which can be downloaded from the Oxford Microbeams website:
http://www.microbeams.co.uk/downloads/monDaq/monDaq-installer.exe

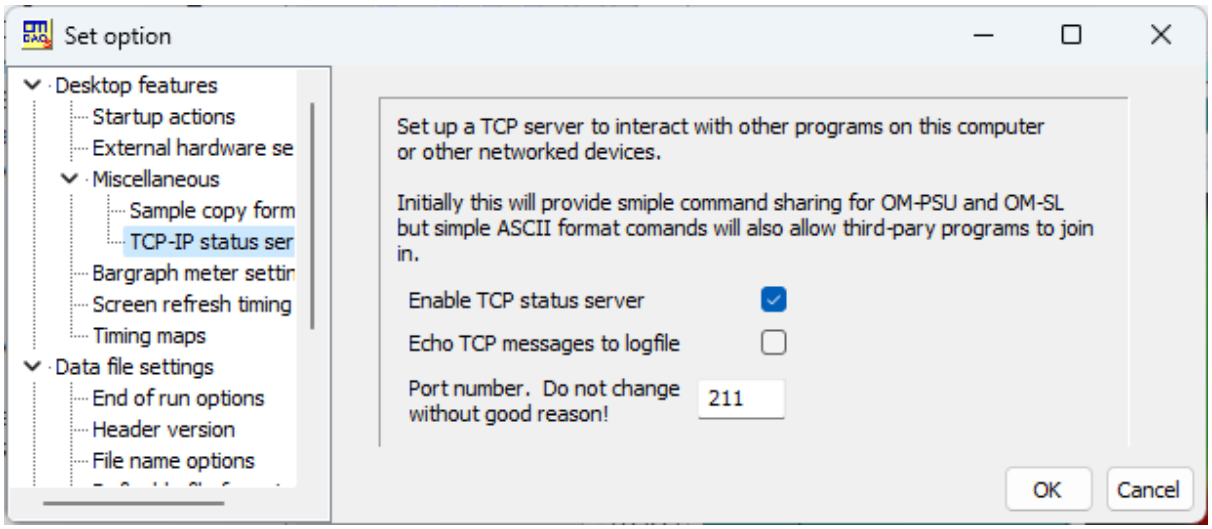
To install monDAQ, simply run the installation .EXE file.

Configuring monDAQ and OMDAQ-3

It is most convenient to carry out the next stages using a remote access program (Remote Desktop, TeamViewer, etc.) to view the 'other' computer.

1. Configure OMDAQ-3 to respond to TCP commands.

In OMDAQ-3 on the host computer, open the Program Options window (**Tools | Program options** from the main menu). Select the **TCP-IP status server** window:



Check the **Enable TCP status server** box. If you also check the 'Echo' box, then all the conversations on the link will be recorded in the OMDAQ log file. This may be useful for initial debugging, but should be disabled in routine operation to avoid the log file filling up.

The OMDAQ-3 TCP link uses port 211. Do not change this unless you know what you are doing and you really have to!

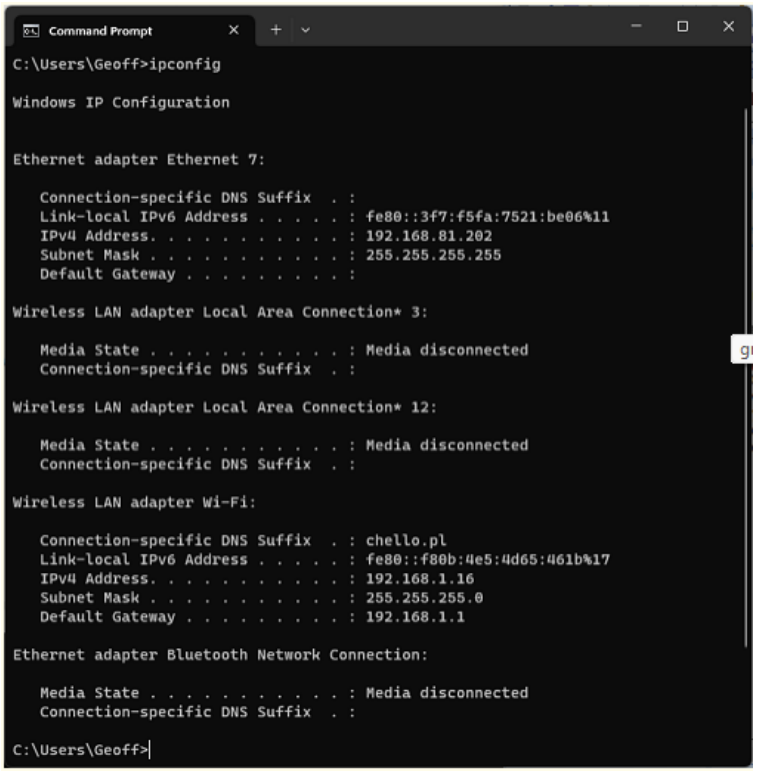
Click OK and then restart OMDAQ-3.

2. Determine the relevant IP address of the OMDAQ-3 PC.

Open a command window on the host PC (Click Search on the taskbar , then type **cmd**).

Type **ipconfig**

Locate the IPv4 address of the ethernet adapter you are using. In the example below, the LAN address is 192.168.81.202 and the Wi-fi address is 192.168.1.16.



Make a note of the available IP V4 addresses.

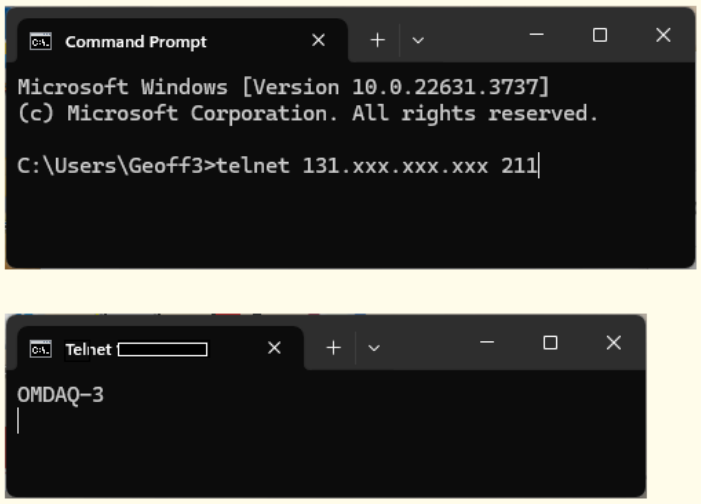
Now start OMDAQ-3 on the host computer and move to the client computer

3. Test the connection to the host computer

Use **telnet** in a command window to create a connection to the OMDAQ telnet server.

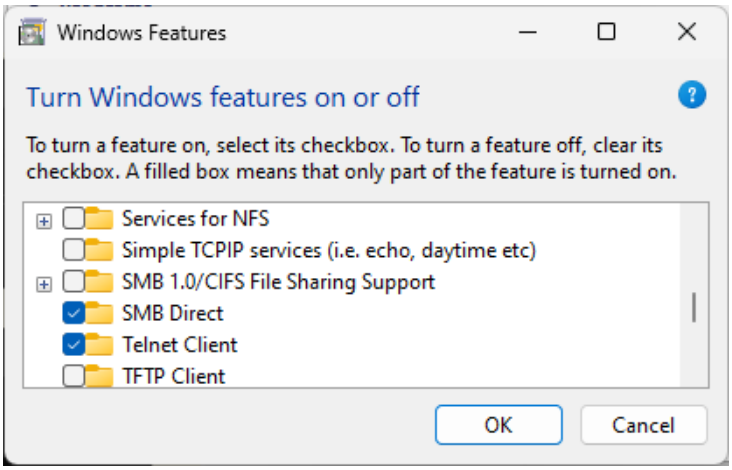
Open a **cmd** window and use the command
telnet <IP address> 211

Here <IP address>. is one of the addresses determined earlier and 211 is the TCP port that OMDAQ is listening on. This should respond with the identifier "OMDAQ-3".



If the telnet command is not available, then do the following:

- Type Control panel into the search box and open the Control Panel program.
- Select Programs
- Select Turn Windows features on or off

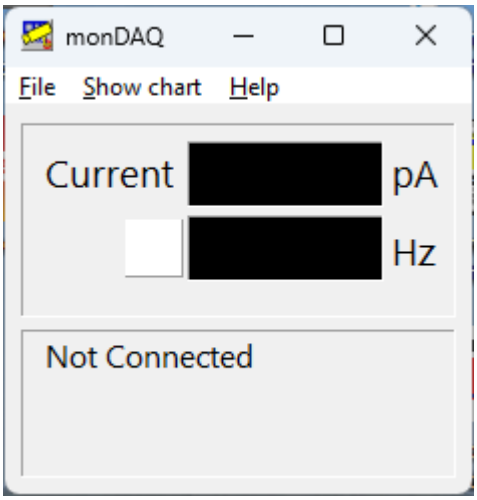


- Enable Telnet Client.

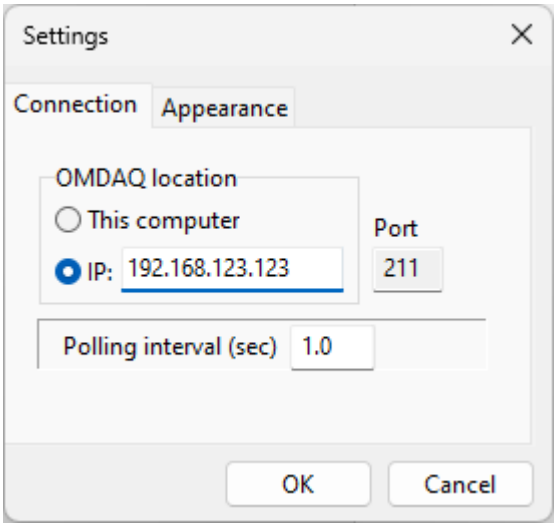
If you do not get a telnet response from OMDAQ-3 you may need to get advice from a network manager.

4. Configure monDAQ on the local PC.

Start monDAQ. This will start with the window below:



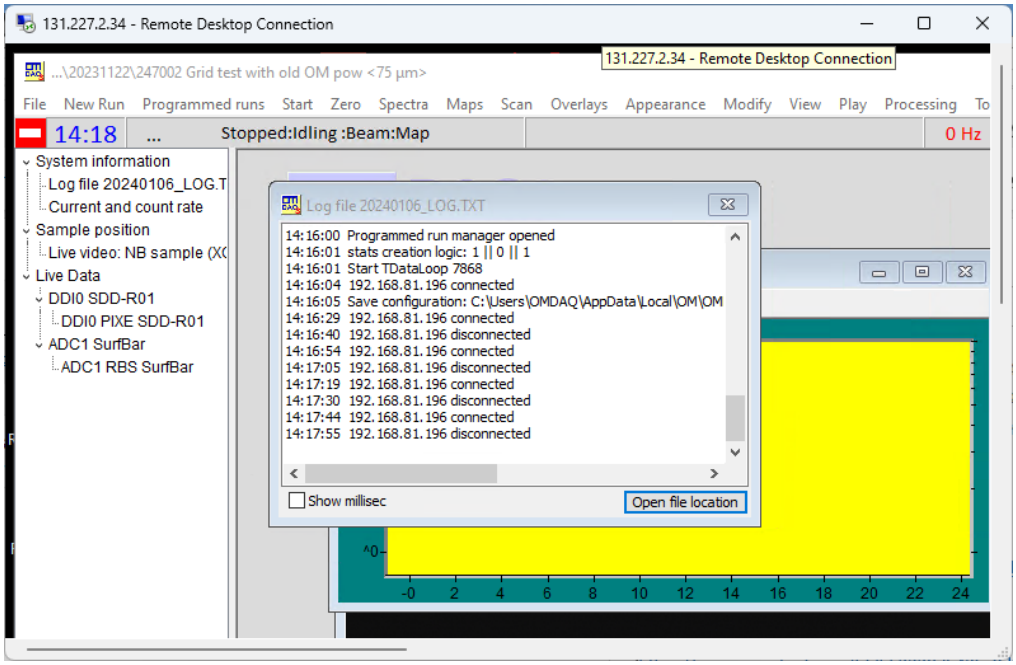
Click **File | Settings** to open the settings dialog box. Open the connection tab:



Enter the IP address in the IP text box. Click OK and restart the program.
Note that the 'This computer' option connects to an OMDAQ-3 running on the local computer. This can be useful for demonstration or training,

You should see:
- The current and count rate boxes come to life.
- The status icon shows the status of the data acquisition in OMDAQ
- The text panel shows the status bar information from OMDAQ
- The title bar shows the name of the remote OMDAQ computer (you may need to click Show Chart to see this).

On the remote computer the OMDAQ log file shows that monDAQ has connected. Note that if the connection is unreliable there may be multiple disconnects and connects. monDAQ handles this automatically.

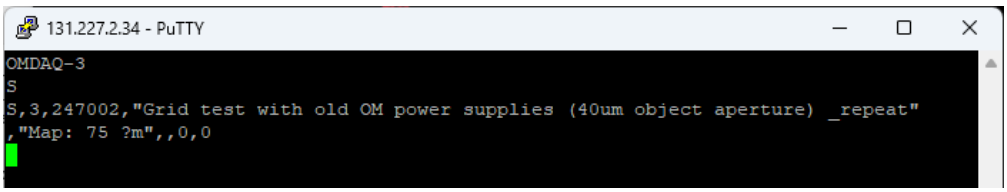


monDAQ is now ready for use.

5. Troubleshooting connection problems.

If monDAQ does not connect, then the problems are likely to be with internet access.

- Check that OMDAQ-3 is running on the remote machine and that the TCP server is enabled.
- Check that you have the correct IP address.
- Check whether you have remote access to the network which OMDAQ is hosted on. You may need to connect through a VPN system. Contact a system administrator.
- For trouble shooting you can use a terminal program such as TeraTerm or PuTTY. Connect using Raw TCP to port 211 using the remote IP address. OMDAQ should respond with the message “OMDAQ-3”. Send the command ‘S<CR>’ and OMDAQ should respond with a status message:



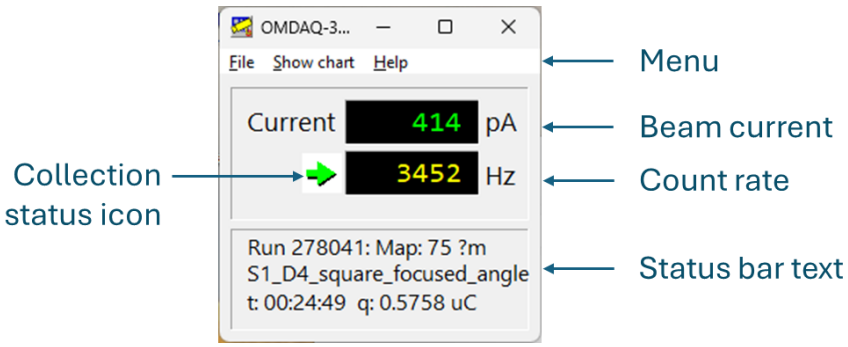
Using monDAQ

Operation is straightforward.

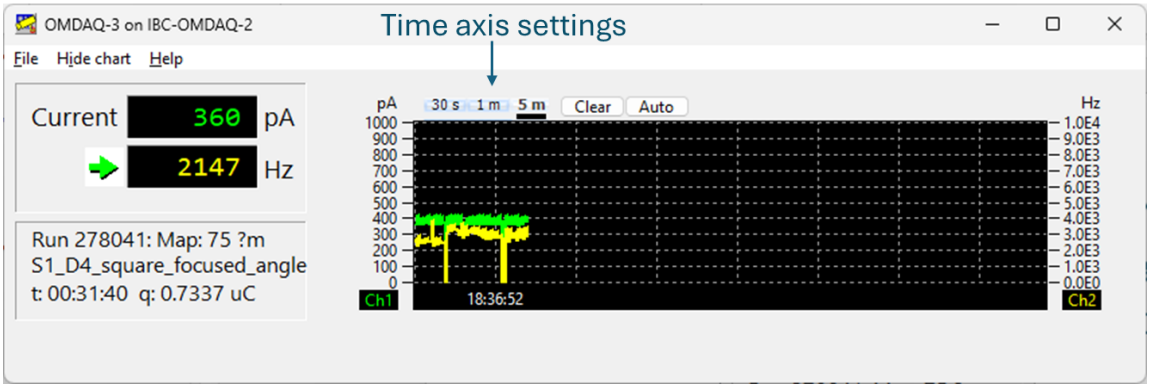
monDAQ displays the current status of OMDAQ including beam current, count rate and the contents of the status bar. If you click 'Show Chart' then a strip chart of beam current and count rate is displayed:

The monDAQ main window has two options.

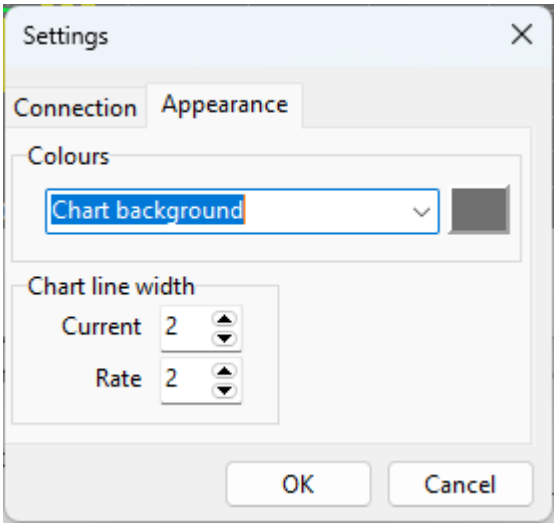
On startup the program shows basic status information



If the Show Chart command is selected the program displays a trend graph of current and count rate:



- Current is displayed on the left axis, count rate on the right axis. The colour of the graphs matches the digits in the value boxes.
- The scales can be changed by hovering the mouse over a scale and clicking **left** to reduce the upper limit and **right** to increase the upper limit.
- The **Auto** button sets both scales to the optimum range for the current values.
- The horizontal time scale (time per division) is defined by the three buttons above the graph.
- The graph can be cleared using the **Clear** button.
- The appearance of the graphs (line colour and thickness and background colour) can be changed using the Appearance tab of the **Settings** dialog (open using File>Settings from the main menu)



Click the colour button to change the colour of the feature selected in the dropdown list.