Quantum with DH OSM6 protocol

Erik Fornander - 2023-06-13 - Timekeeping

This article describes how to get started with connecting Swimify/WinGrodan 2 Timekeeping to the Quantum Swimming software using the DH OSM6 protocol.

Cables

In order to use this protocol you must have a special cable and a USB RS422 serial adapter.

The USB RS422 serial adapters that we use are these two models:

Moxa UPort 1130

Vscom USB-COM-I

We have tested these two models and know that they work correctly. Other models may also work but they may have different pinning configuration which means that the cable you make may need to be different than what we specify here.

Important: It is very important that the USB serial port adapter is using RS422 and NOT RS232! Adapters that use RS232 are much more common than RS422 but RS232 will NOT work!

The special cable that is used to connect between the Quantum unit and the RS422 serial adapter must use two wires and in one end of the cable must have a male 9-pin D-sub connector and in the other end have a female 9-pin D-sub connector. The wires in the cable should be connected to the D-sub connectors using the schema as shown in the table below:

9-pin D-sub male pin number (Quantum)	9-pin D-sub female pin number (USB serial adapter)
3 (Tx-)	4 (Rx-)
4 (Tx+)	3 (Rx+)

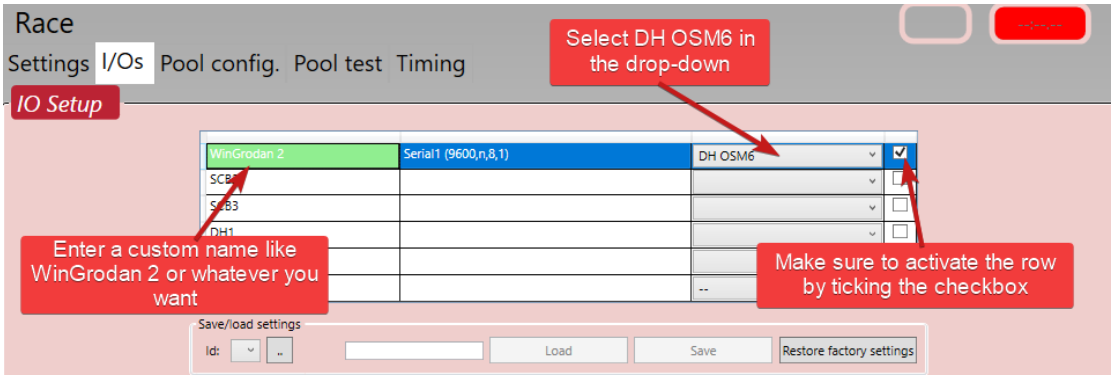
So make a cable that connects pin 3 in one end to pin 4 in the other end and pin 4 to pin 3.

Note that the pinning shown in the table above for the 9-pin D-sub female connector works with the two RS422 USB serial adapters we recommend above. Other RS422 USB serial adapters may have different pinning so you will need to check the manual for the USB serial adapter and see which pins are Rx- and Rx+ and connect those pins in the 9-pin D-sub female connector. The important part is that pin number 3 on the Quantum connector is connected to RX- on the USB serial adapter and that pin 4 on the Quantum connector is connected to RX+ on the USB serial adapter.

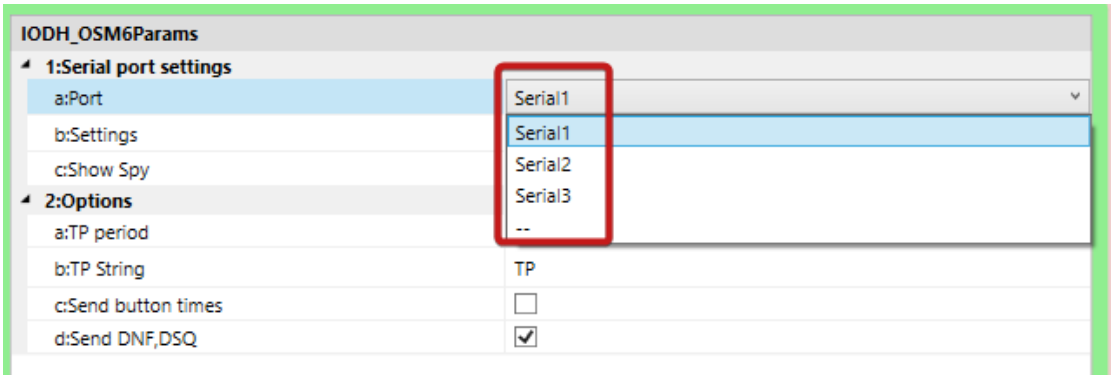
You connect the cable into the back of the Quantum unit in one of the outputs that is named Serial 1, Serial 2 etc. It is important to remember which Serial port you connect the cable to because you will need to select this in the settings in the Quantum software.

Settings in Quantum

To enable the DH OSM6 protocol in Quantum you must first go to the **I/Os** tab in Quantum Swimming. Select DH OSM6 in the drop-down box on an empty row.



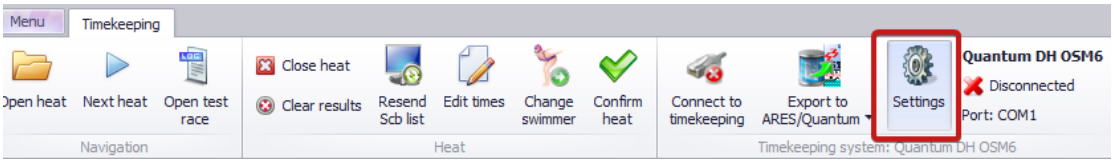
Before you can activate the row by clicking in the checkbox you must first select which serial port you are using on the Quantum unit for this protocol. You change this setting in the bottom grid on the row that says “a:Port“, see image below.

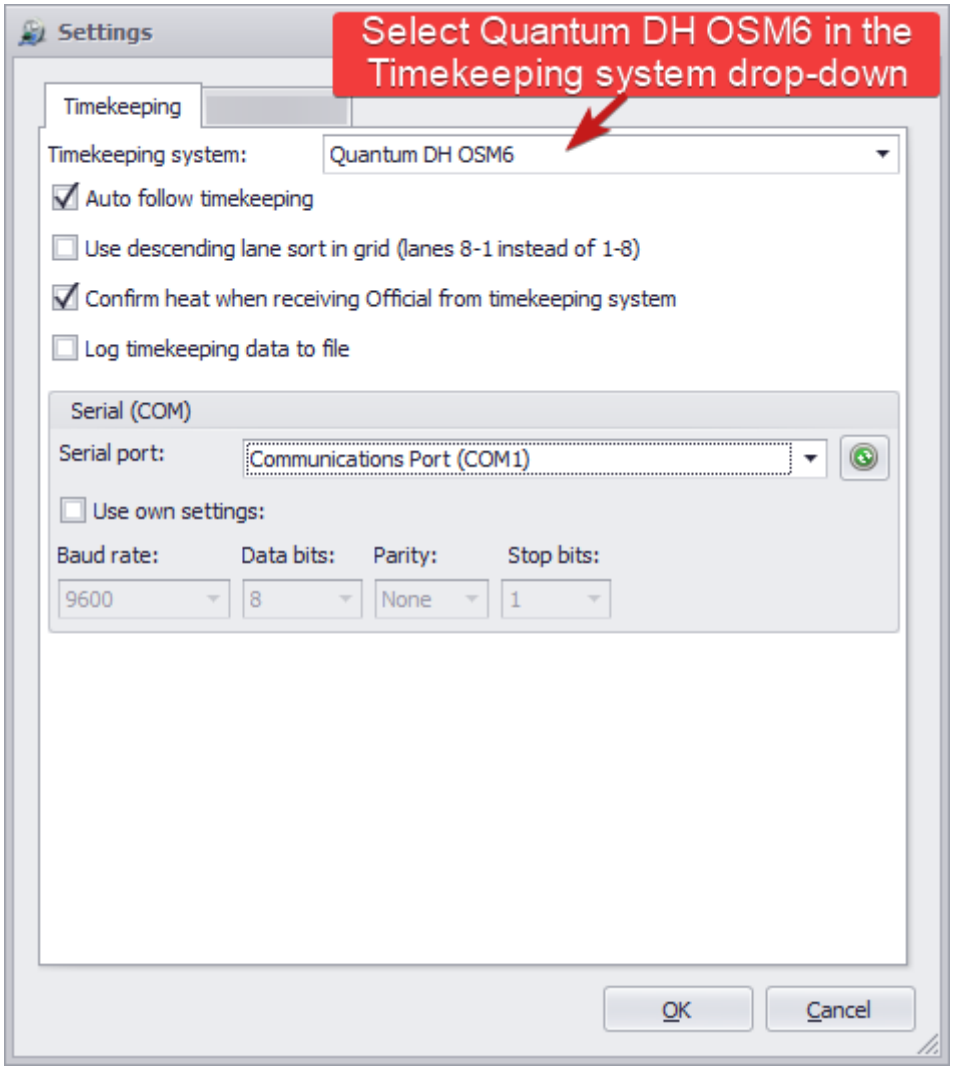


The different options that you can select in this drop-down box (Serial1, Serial2 etc) corresponds to the physical outputs on the Quantum unit that is marked Serial 1, Serial 2 etc. So if you connect the cable to the output named Serial 1 then you must select Serial1 in the drop-down box.

Settings in Swimify/WinGrodan 2 Timekeeping

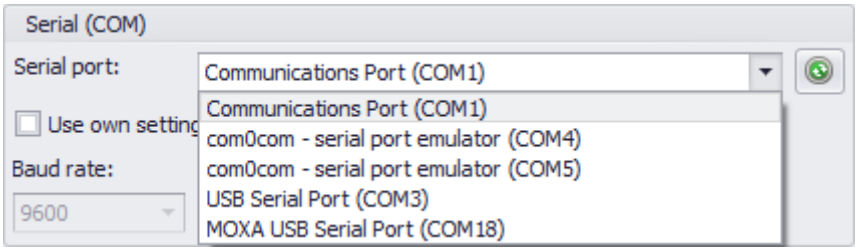
You must also do some changes in the settings window in Swimify/WinGrodan 2 Timekeeping. Start Swimify/WinGrodan 2 Timekeeping application and click on the Settings button to open the settings window.





In the timekeeping settings window you must select Timekeeping system: Quantum DH OSM6. You will then get a group box named Serial (COM) at the bottom of the settings window with some additional settings that are important that you set correctly. You must select the correct Serial Port in the drop-down box.

Serial port settings



It can be difficult to know which serial port/COM port you want to select if you have several serial ports/COM ports in your system. In that case there are a few hints to help you select the correct one.

It can say different things in the drop-down box depending on which USB serial port adapter you are using. If you have a Vscom model then it should say “USB Serial Port (COMx)” in the drop down. If you use a Moxa model then it should say “MOXA USB Serial Port”.

If you have several options that are all called USB Serial Port or MOXA USB Serial Port then you can find out which one to choose by disconnecting the USB serial adapter from your computer and then click on the small refresh button with a green icon to the right of the drop-down box. Then look in the drop-down box again and take note of which serial port has disappeared. Connect the USB serial adapter again and press the refresh button again. The serial port that disappared should now be visible again. Select this serial port since you know

now that the one that disappeared and came back is the one you should use.

Important note: The serial port you select in Swimify/WinGrodan 2 Timekeeping does not have anything to do with which serial port you select in Quantum software in the I/Os tab! Just because you have selected Serial 1 in Quantum that does not mean you should select COM1 in Swimify/WinGrodan 2 Timekeeping! They are two different serial ports with different settings that are mostly unrelated to each other (except that they are connected with a cable between the serial ports).

Auto follow timekeeping

There is also an option called Auto follow timekeeping. We recommend that you enable this setting. What this option does is this: When the Quantum operator opens a heat in Quantum, then Swimify/WinGrodan 2 Timekeeping will open the same heat. The advantage is that you do not need to click Next Heat button to manually move to the next heat, WinGrodan 2 Timekeeeping will open the correct heat automatically.

Import events and heats to Quantum

Before you can start your races you need to add events and heats to your Quantum competition. You can add events and heats manually but that is a lot of work and you need to make sure that you have the same event numbers and heat numbers as the events and heats in Swimify/WinGrodan 2.

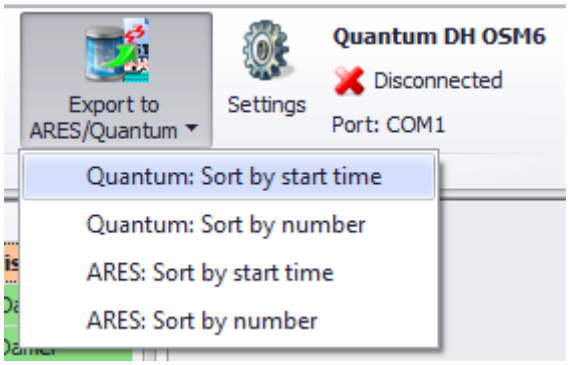
Instead of adding events manually we recommend you instead import the events and heats from Swimify/WinGrodan 2.

The recommended way to do this when you use a serial port communication is to export files from Swimify/WinGrodan 2 Timekeeping and then import those files into Quantum.

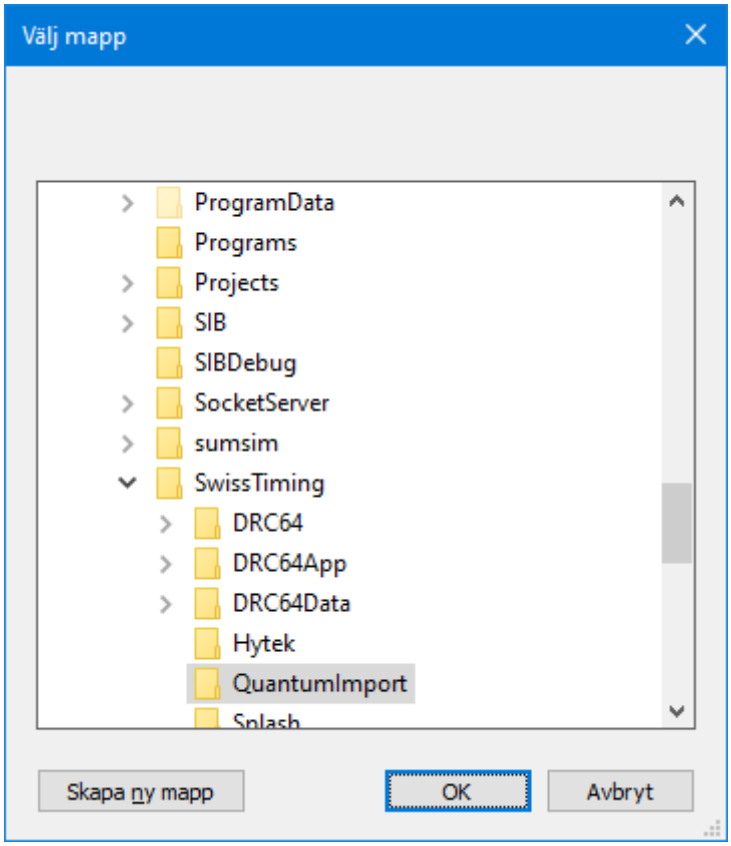
You must do an export and import of events every time you do a new seeding in Swimify/WinGrodan 2. Otherwise you may not get all events and/or heats into Quantum.

Export events from Swimify/WinGrodan 2 Timekeeping

Start Swimify/WinGrodan 2 Timekeeping on your Quantum computers and make sure you connect to the correct Swimify/WinGrodan 2 database. Then click on the button “Export to ARES/Quantum“ and select “Quantum: Sort by start time“.

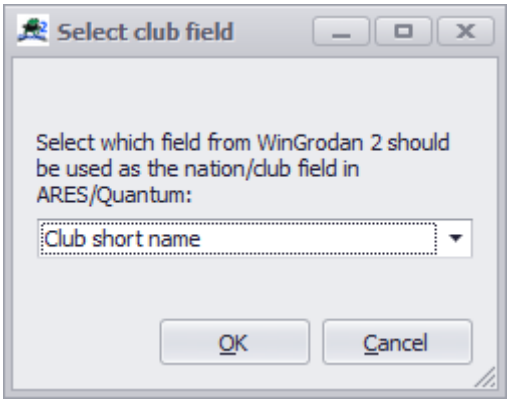


When you select “Quantum: Sort by start time“ you should get a window where you can select a folder on your computer.



If it is the first time you do this on your computer, I would recommend that you create a new folder where you know where it is. I for example usually create a folder called QuantumImport and then select that folder. You can then use this folder for all your competitions, you do not need to change or create a new folder every time you have a new competition. Select the folder you have created and click on OK. The next time you export the events to Quantum this folder should already be selected as default and you should just click the OK button.

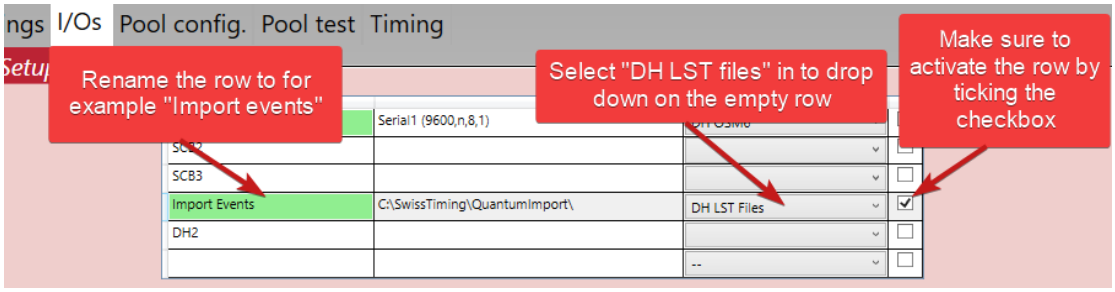
You should then get a new window that asks you which field do you want to save in the club/nation field in Quantum.



We recommend you just use the default option which is “Club short name”. Click on OK to create the files into the selected folder.

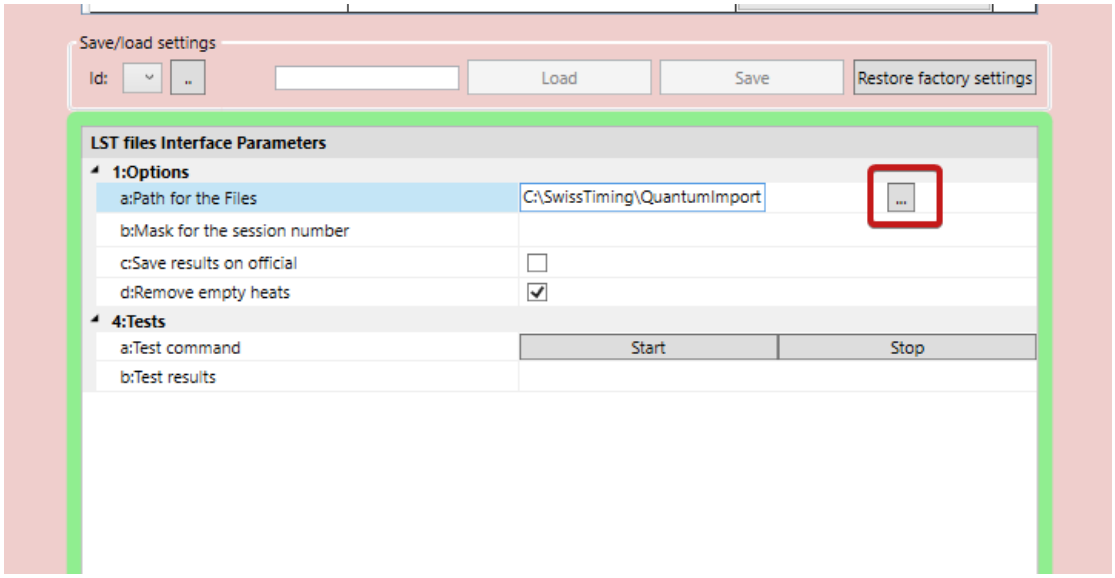
Import events into Quantum

To import the events into Quantum you must first do some settings in the **I/Os** tab. Open the I/Os tab and select an empty unused row and select “**DH LST Files**” in the drop-down box. Also rename the row to “Import events“ or something similar to make it easier for you. You must then also activate the row by making sure the checkbox is ticked.



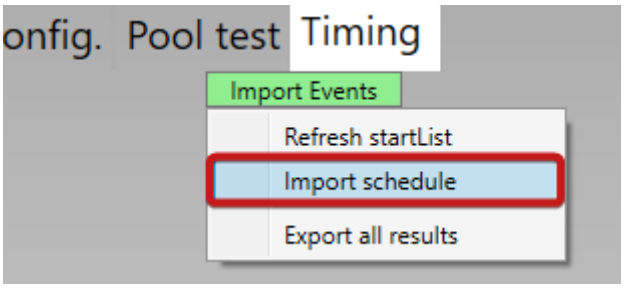
Then select the row to see the settings in the lower grid.

Click the button that is on the row “a: Path for the Files” to get a folder selection window. In this window you should select the same folder that you exported the files to in Swimify/WinGrodan 2 above.



We also recommend that you enable the setting named “d:Remove empty heats“.

Then go to the tab named Timing in Quantum Swimming software. You should see a menu button named “Import events” (assuming you named the row “Import events“).



Click the button and you should see a menu with either 2 or 3 menu items. To import the events and also all the swimmers then you MUST select “**Import schedule**“. Do not use “Refresh startList”.

Note that the option “Import schedule“ is not visible if you have a heat opened in Quantum. So if you want to import the events then you must first close the current race in Quantum before you import the schedule.

You should export the events and import schedule every time you do a new seeding just to make sure you have the latest events and heats in Quantum.

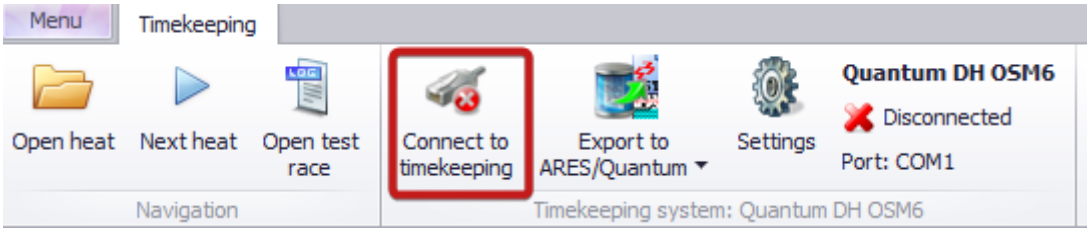
If you have a primary and secondary Quantum then you must do this on both Quantum computers!

How to run a race

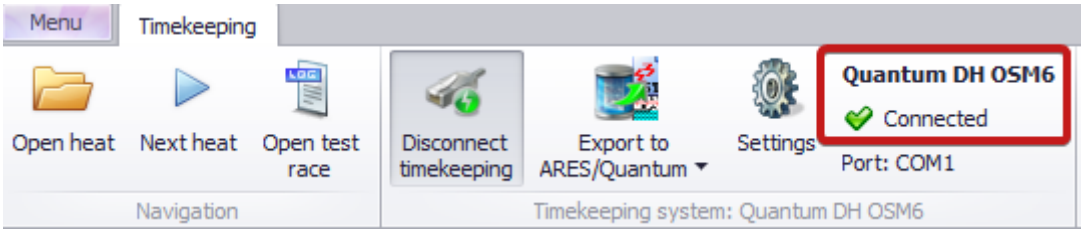
When you run a race there are a couple of important things to check.

First make sure you have opened the correct database in Swimify/WinGrodan 2 Timekeeping. If you have the wrong database loaded then you will also get the wrong events and swimmers sent to Quantum when you import the events.

The second important thing to check is to make sure you connect to the timekeeping equipment. You do this by clicking on the button called **Connect to timekeeping**. When you click on this button the program will try to connect to Quantum using the the selected serial port.

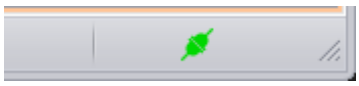


If everything works correctly, you should see that the **Connect to timekeeping** button get a little green icon instead of the red icon. It also changes name from **Connect to timekeeping** to be named **Disconnect timekeeping**. You can also see that the connection status will get a green check mark and say Connected instead of Disconnected.



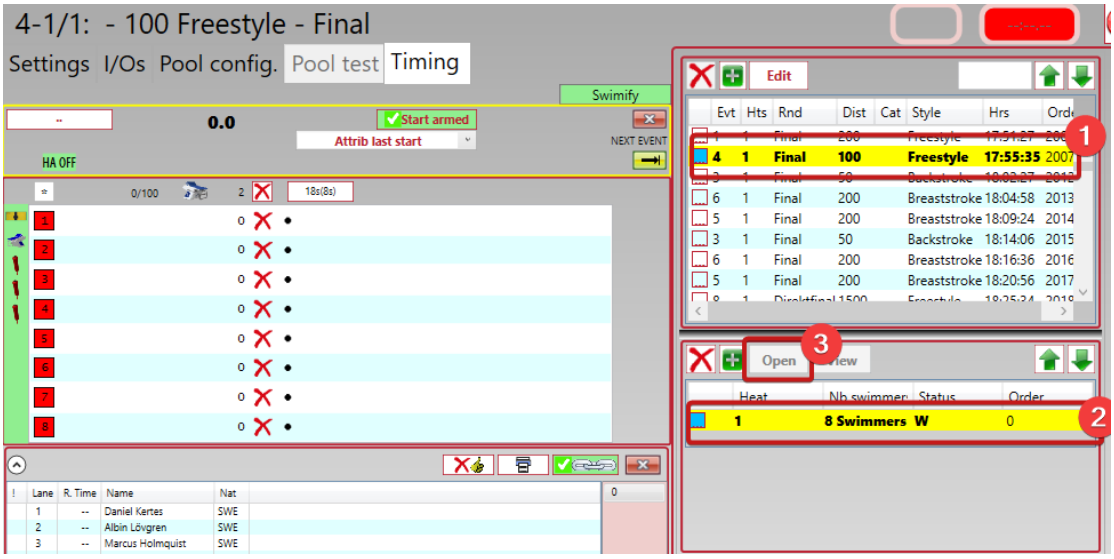
If you do not see a green check mark and it says Disconnected instead of Connected then that means that the application could not open the serial port. Please check the settings again and make sure you have selected the the correct serial port. If you still do not get a green check mark and status Connected you can try to remove the USB serial adapter from the computer and re-insert it again.

In the lower right corner of Swimify/WinGrodan 2 Timekeeping you should see a green icon that will get a yellow circle around the icon whenever the program receives data on the serial port.



If you see the yellow circle occationally then it means you probably have a connection to the Quantum.

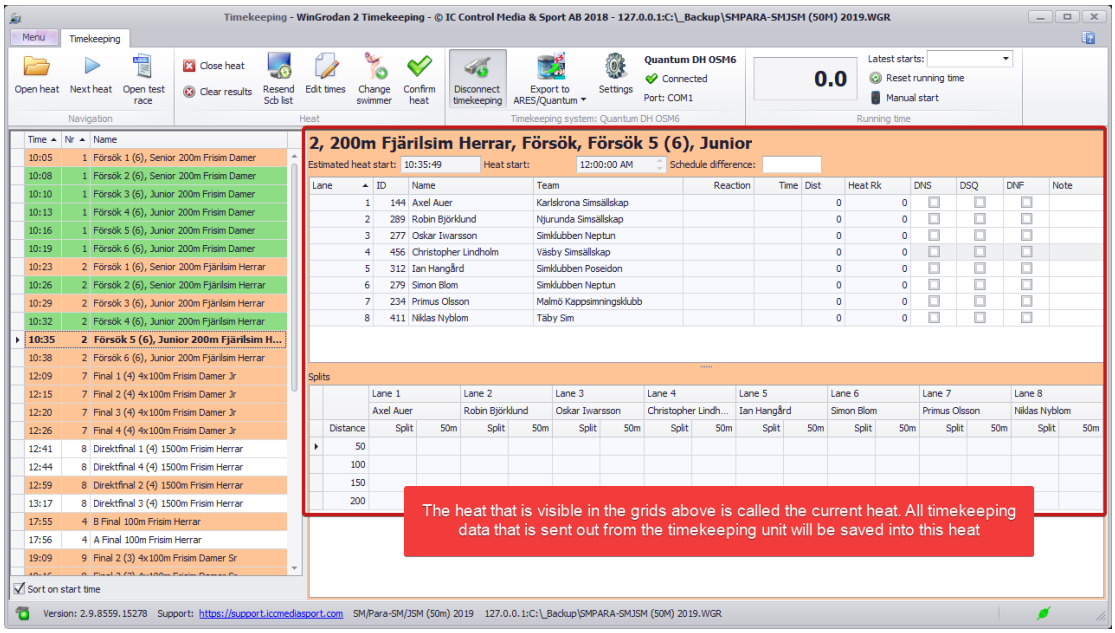
After you have connected to Quantum you can then open a race in Quantum. Do this by going to the Timing tab and select an event in the event list (step 1 in image below) and then select a heat in the heat list (step 2 in the image below) in the Quantum software and click on the Open button (step 3 in the image below).



The same heat should now open in Swimify/WinGrodan 2 Timekeeping assuming you have enabled the “Auto

follow timekeeping“ option in settings. If you are not using “Auto follow timekeeping” then you can manually open the heat in Swimify/WinGrodan 2 Timekeeping by double clicking on the heat in the heat list.

The way Swimify/WinGrodan 2 Timekeeping works is by opening a heat as a current heat. All timekeeping data will be saved into this current heat.



When the race is finish and you open the next heat in Quantum, then Swimify/WinGrodan 2 Timekeeping should also open the next heat and be ready to start the next race.

Other important issues regarding Swimify/WinGrodan 2 Timekeeping

- Make sure you only have one computer running one instance of Swimify/WinGrodan 2 Timekeeping when the competition is running. You do NOT want to have two different computers running the application and have both of those applications connected to the Quantum software.

- Make sure you have the Swimify/WinGrodan 2 Timekeeping application running the whole time that the competition is running. You can close and restart Swimify/WinGrodan 2 Admin software but the Timekeeping software should run at all times. If you accidentally close the software then you can use the “Send results“ function from Quantum to resend any heats that you may have missed.