

QUANTUM



Training Manual

with

Meet Manager

(for entries, results and web publishing)

at SOPAC

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V2.125

DISCLAIMER

This is a work in progress document to teach the operation of Quantum as it is used at SOPAC.

Every care has been taken to ensure that the procedures are correct at the time of publication.

There might be instances where procedures do not work as expected or documented, so the user is advised to use care and to always check and adopt alternative procedures if this happens.

SCOPE OF DOCUMENT

PURPOSE

This document has been designed to assist in the training of Swimming NSW Officials in the operation of the AOE Timing equipment at the Sydney Olympic Park Aquatic Centre (**SOPAC**) from simple one-session meets to more complex multi-day meets with separate heats and finals sessions.

WHAT THIS DOCUMENT DOES NOT CONTAIN

This document does not aim to teach how to set up the hardware boxes, install Quantum, wiring configurations, etc. – this is the domain of the Pool Staff.

This document does not aim to teach the operation of Meet Manager or sending the results to on-line systems, but does contain information on resolving communication problems.

STRUCTURE OF THIS DOCUMENT

Pre-Meet setup

See page 14

Is a highly structured methodology and should be followed fairly rigorously in order to prepare the system for the Meet.

Running the Meet

See page 31

This is a response driven method. Every action you perform is a response to a situation. Great flexibility and confidence is required to proficiently carry out this part of the process. Learning under the guide of a mentor or Control Room Supervisor is highly recommended.

Diagnostics

See page 52

Some common problems and their solutions.

Appendices

See page 61

These contain highly detailed information on the specific topic. Some basic information is covered in the main section but some Meets require more specific attention to detail.

Index

See page 123

Index to some important keywords.

Notes

See page 127

Space to add your own notes.

Acknowledgements:

Swimming South Australia
Quantum (v1.8.0.1)
Quantum User Manual (v1.3)
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PRE-MEET SETUP

SEQUENTIAL CHECK LIST

This is a basic check list of items and the order in which they are carried out:

- Start Quantum *page 16*
- Synchronise timer with clock *page 17*
- Create the Meet Session for Quantum *page 18*
- Open the Meet Session *page 19*
- Set Meet Title for Scoreboard *page 22*
- Set Meet Manager database path *page 23*
- Pool config. Check – *page 25*
 - o Harnesses;
 - o Contacts: *Pads, Blocks, Buttons*;
 - o Pool Length;
 - o Finish place;
 - o Number of lanes (*verify with Meet Manager operator*)
- Show reaction times? {YES or NO} *page 27*

Importing the Meet program and subsequent setting up:

- Import Meet Schedule *page 28*
- Create Test Event and Heat *page 28*
- Check arming delays *page 20*
 - o Confirm Show unused lanes *Figure 58 on page84, page 85*
- Check printer config *page 87*
 - o Confirm Auto-print result when officialising *page 87*
- Check tables *page 89*
 - o Change DSQ to DQ *page 95*
- Check Scoreboard title length *page 102*
- Check order of events *page 29*
- Check Quantum and Meet Manager communications *page 109*

30 minutes before scheduled start time:

- Start *Warm up Countdown Timer*
- Edit *Welcome to Technical Officials* on spreadsheet

15 minutes before scheduled start time:

- Put *Clear the Pool* on Scoreboard
- Pool test using test event –
 - o By Pool Staff *page 31*
 - o By Starters *page 30*
 - o Check that Starter's Light goes off after the start
- Prepare for first event *page 33*

Final check

- Verify the Meet or Session
 - o Verify data folder *page 19*
 - o Verify correct start list on Scoreboard
- Check that Arm start is on zero *page 73*
- Check that there is enough paper for the printers *Rolls are held in the cupboard in the back room*

START QUANTUM SOFTWARE

Start the timing software – **Quantum Swimming**



Figure 1 Computer desktop

Double click the Desktop Icon for Quantum Timing to start. Expand it to full screen size.

This window will appear and is known as the **Home** page.

Configuration

To do the **Synchronisation** with the Scoreboard clock.

Race

To **Create** a new Meet, or **Open** an existing Meet and then **Run the Meet**.

Quit

Exits the software.

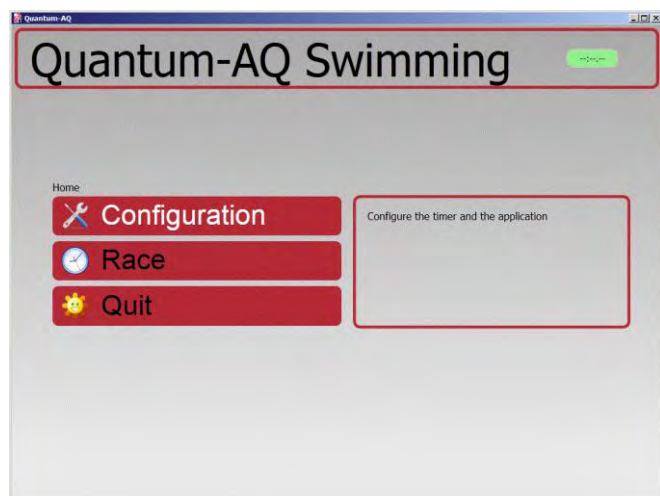


Figure 2 Home page window

NOTE: If you Double Click **RACE**, the last Meet that was run will be opened.

Always verify the Meet before proceeding
see **Verifying database folder page 19**.

CONFIGURATION

There are three tabs associated with Configuration.

Timer, Language and Version

Timer is used to Synchronise Quantum with the Scoreboard clock. It is very important that the Scoreboard clock and the Quantum timing are synchronised to the same time as accurately as possible.

The other two tabs (Language and Version) do not need any changes applied to them.

Timer synchronisation

*For a more in depth treatment, see **Appendix E. Timer Synchronisation** page 80.*

NOTE: It is most important that Quantum be synchronised with the Scoreboard clock as accurately as possible. The Scoreboard clock is also used by many officials around the pool outside of the Control Room.

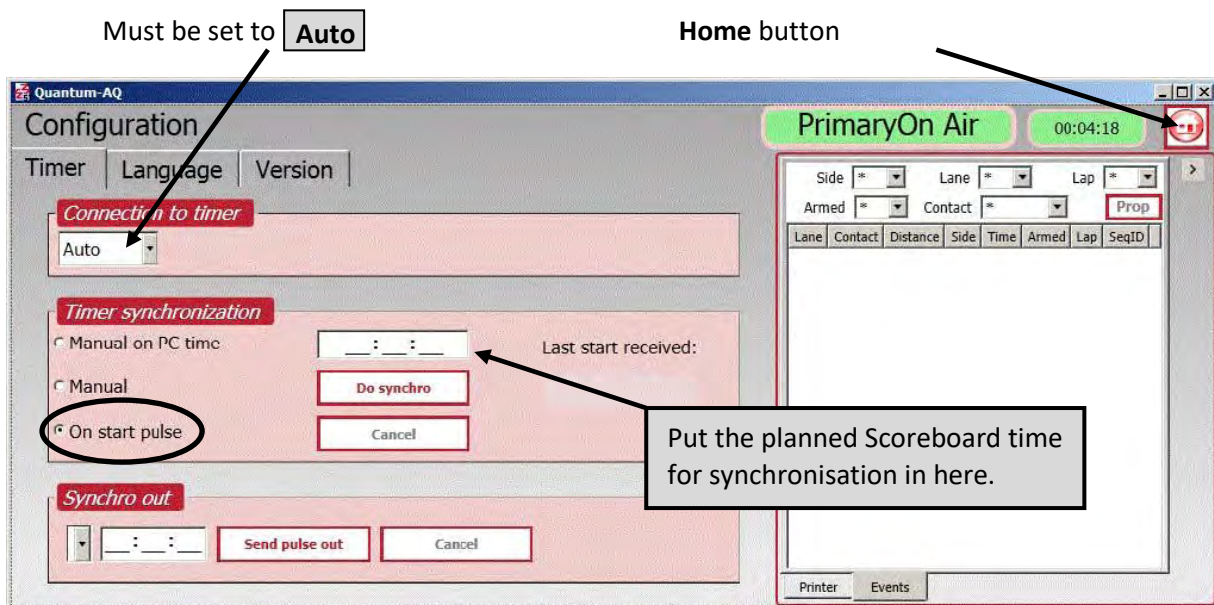


Figure 3 Timer synchronisation

On start pulse

Preferred when BOTH Primary and Secondary are used. Both are synchronised using the start button when the Scoreboard clock reaches a pre-determined time.

On the Primary and Secondary computers set the synchronisation to occur: **On start pulse** (click on the bottom radio button) then:

1. Set the time about a minute or two ahead of the Scoreboard time.
2. Click **Do Synchro**.

Have someone go to the Starters Stand and when the Scoreboard clock changes to this time, press the start button.

RACE

The Meet Tab under **Race** lists all the Meets in the Quantum database.

Either:

- Create a new Meet either for this Session, Day or whole Meet.
- Select your Meet here if it has been created previously, or

*If a restart of Quantum has occurred following a system crash, the Meet is (by default) already selected. Just clicking **Open** will suffice. Verify by observing the name of the Meet on the title bar of the window (See **Figure 7 Quantum window Title bar page 19**).*

Create a new Meet or Session

Quantum does not distinguish between a Meet and a Session. Each Meet, Day or Session can be given its unique name. There are no rules, but naming conventions should apply.

If using Primary and Secondary Quantum, the name entered here should be identical.

NOTE: This is not the same as the **Data Handling (DH)** folder as used by Meet Manager on the Network Drives.

This is the location where Quantum stores the data for every race.

Click the **+** to create the Meet Session.

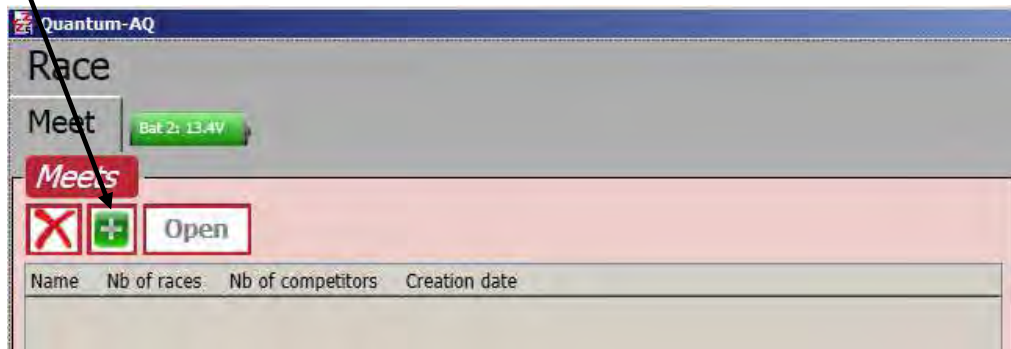


Figure 4 Race - Create Meet

Enter the name of the Meet or Session

E.g. 2018NSWOpenS1H

Click **Ok**

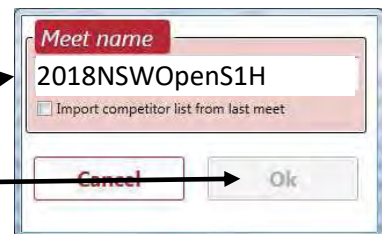


Figure 5 Race - Meet name

After creating a new Meet you have to select it and click **Open** (see next page).

Open an existing Meet or Session

Scroll down the list of meets and click the **Meet name** then click **Open**

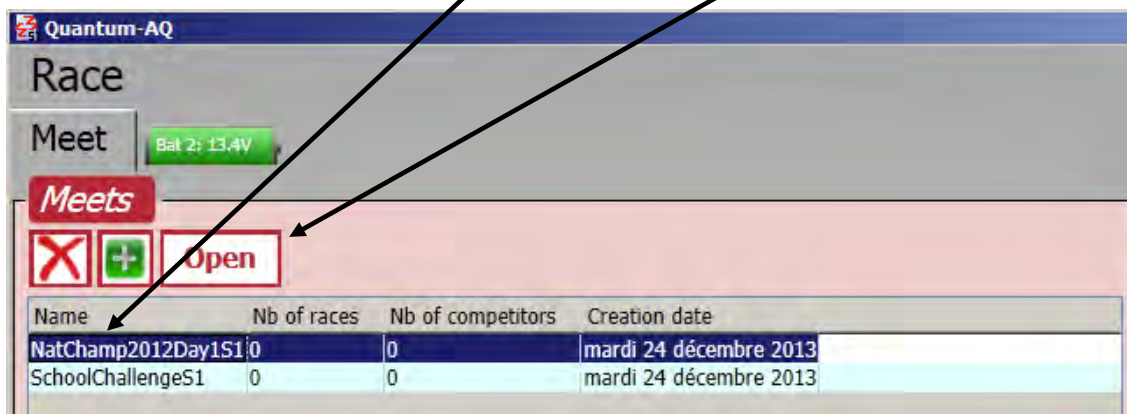


Figure 6 Race - Open Meet

Verifying Database folder

The **Name of the Meet** is shown here at the top left corner of the Quantum window, in the title bar.

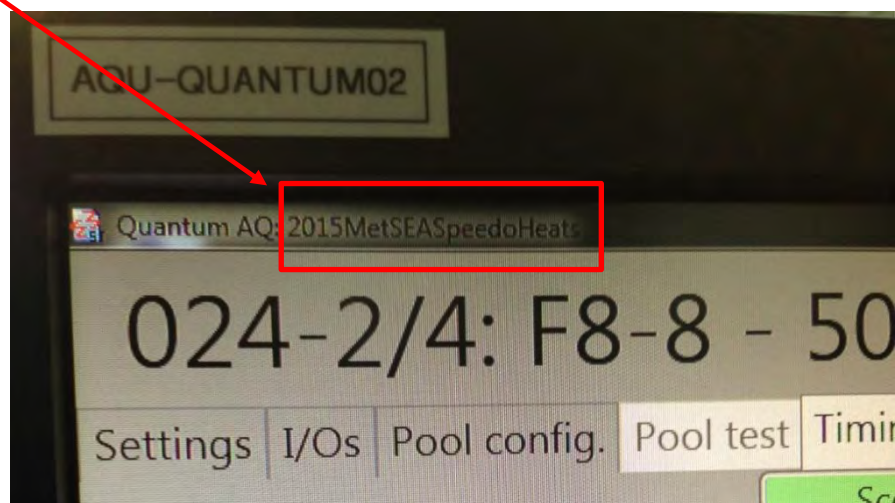


Figure 7 Quantum window Title bar

Once the Meet is “opened”, you will be presented with the Race page with five tabs showing:

- Settings
- I/Os
- Pool config.
- Pool test
- Timing

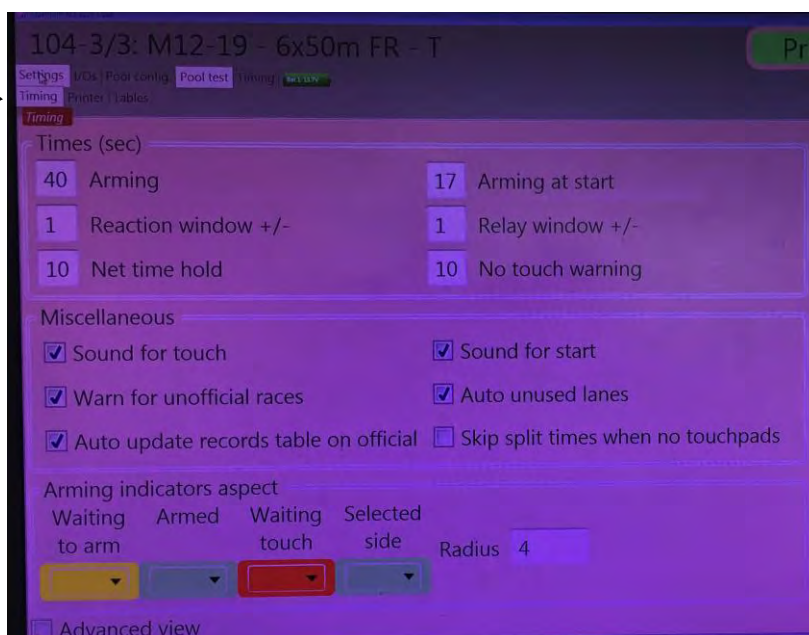
SETTINGS

For a more in depth treatment, see **APPENDIX G. Race Settings** page 84.

Settings are done after the Meet has been imported. Most of the times, these settings can be left as they were from the previous Meet.

There are three tabs:

- **Timing**
- **Printer**
- **Tables**



Timing

Times (sec) group

Sets the Arming delays (*i.e., the time it takes for the pads to become active*).

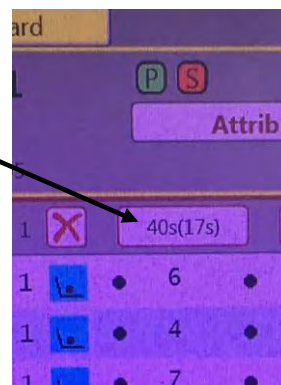
The important **Timing Settings** are:

- The **Arming** number should be a little less than the fastest time a swimmer can swim back and forth along the pool.
- The **Arming at start** number should be a little less than the fastest time a swimmer can swim from the start to the opposite end.

Typical Arming Times in seconds:

	Arming	Arming at start
Long course	40	17
Short course	20	17

These times can be adjusted in the **Race Window** here



Miscellaneous group

The important **Miscellaneous Settings** are:

- Enable **Sounds for Starts**
- Enable **Sounds for touches**
- Turn off unused lanes
- Auto update of records

Scoreboard

Click **Scoreboard**

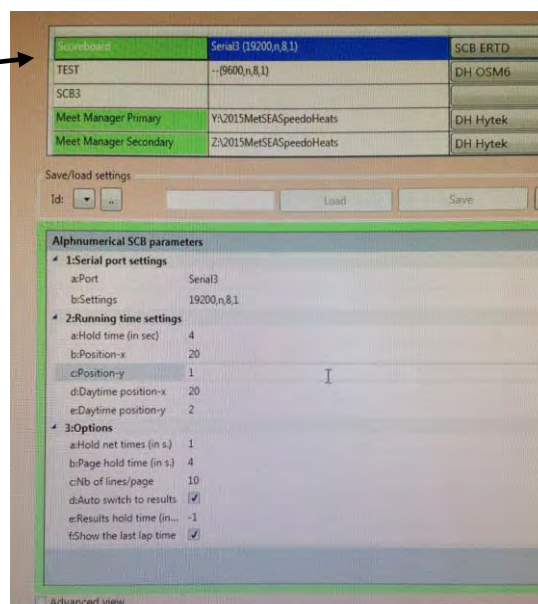


Figure 9 Quantum Scoreboard parameters

Scoreboard parameters

NOTE: The only essential thing to check is the **Scoreboard title** as it may default to the previous meet. All other information here is for more advanced use (e.g. in Finals where heats and finals are swum) and generally optional.

These are the important settings:

4:Titles and presentations	
a:First title line	-title- {3} {4} {5}
b:Second title line (records)	Event:{0} Heat:{2}
c:Summary title line	Ev:{0} {3} {4} {5}

Title format

For all SNSW Meets, and to ensure consistency, the recommended title format should follow the following structure:

MEET NAME	SCOREBOARD TITLE
Metropolitan Championships	<Year> <Sponsor name if any> Metro
Country Championships	<Year> <Sponsor name if any> Country
State Age	<Year> <Sponsor name if any> State
State Open	<Year> <Sponsor name if any> State Open

Showing records

An additional parameter is added to the *First line title (records)*, **{6}**:

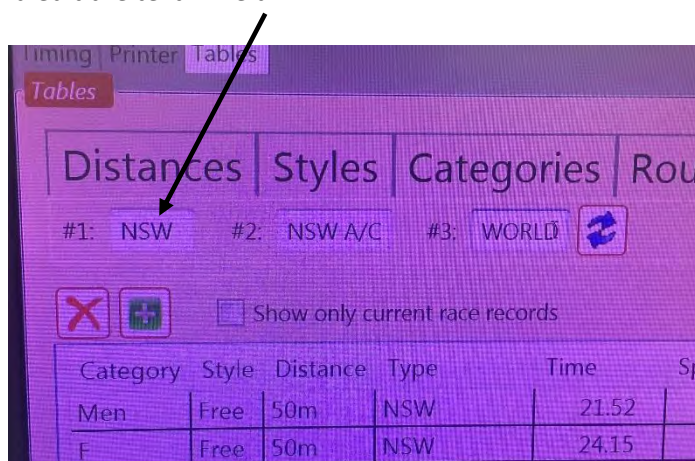
These are the important settings:

4:Titles and presentations	
a:First title line	-title- {3} {4} {5} Rec:{6}
b:Second title line (records)	Event:{0} Heat:{2}
c:Summary title line	Ev:{0} {3} {4} {5}

The text appearing in front of the record value on the Scoreboard is not entered here, but in the Tables. If it were entered here, it would be seen on the Scoreboard as an additional piece of text before the record.

Also, in the **Tables**, click Records and edit the text in field #1.

*The text you place here is what is shown on the Scoreboard, preceding the record value.
If you delete the text here, you must type:
"Rec: {6}"
into the first line title.
See paragraph above.*



An alternate option is just to type in:

Rec: in place of **NSW**
as in this example.

NOTE: The text actually appearing here comes from Meet Manager, but can be edited here.

Meet Manager

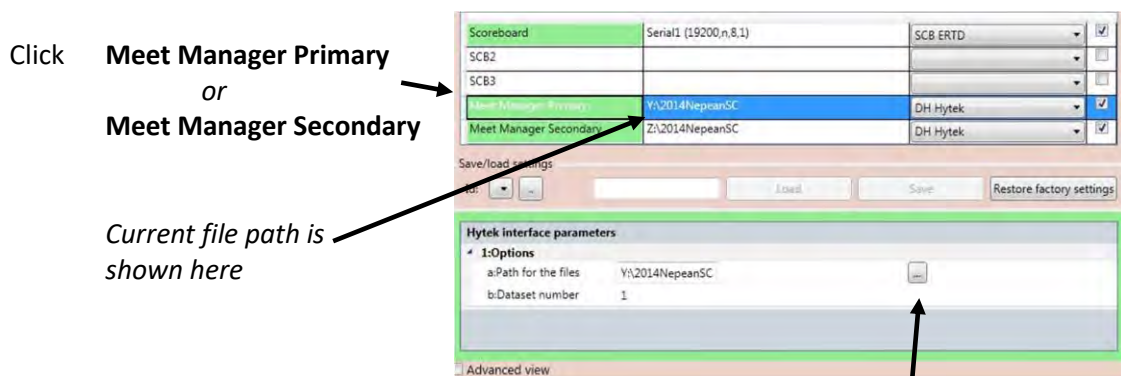


Figure 10 Meet Manager - Set path for files

Meet Manager parameters

The important setting is the file path:

Hytek interface parameters	
1:Options	
a:Path for the files	Y:\2018NSW Age
b:Dataset number	1

To create a new file path for **Meet Manager**:

Click

The **X: drive** folder is the current (2022) preferred drive for Meet Manager primary.

Other drivers available are the **Y: drive** folder for Primary (and **Z: drive** for Secondary).

e.g., Y:\2018NSW Age

This is where the Meet Manager computer picks up the results from.

The **Dataset number** is usually **1** for **Quantum Primary**, and **1** for **Quantum Secondary**.

*If the Primary and Secondary were both writing to the same network drive, then you would use **1** for the Primary and **2** for the Secondary.*

POOL CONFIG

NOTE: The Pool Configuration MUST be done before importing races.

The **Pool configuration** is done in the **Race window** once the meet has been **created** and **selected**.

NOTE: To make any changes, you must click the **Enable changes** check box

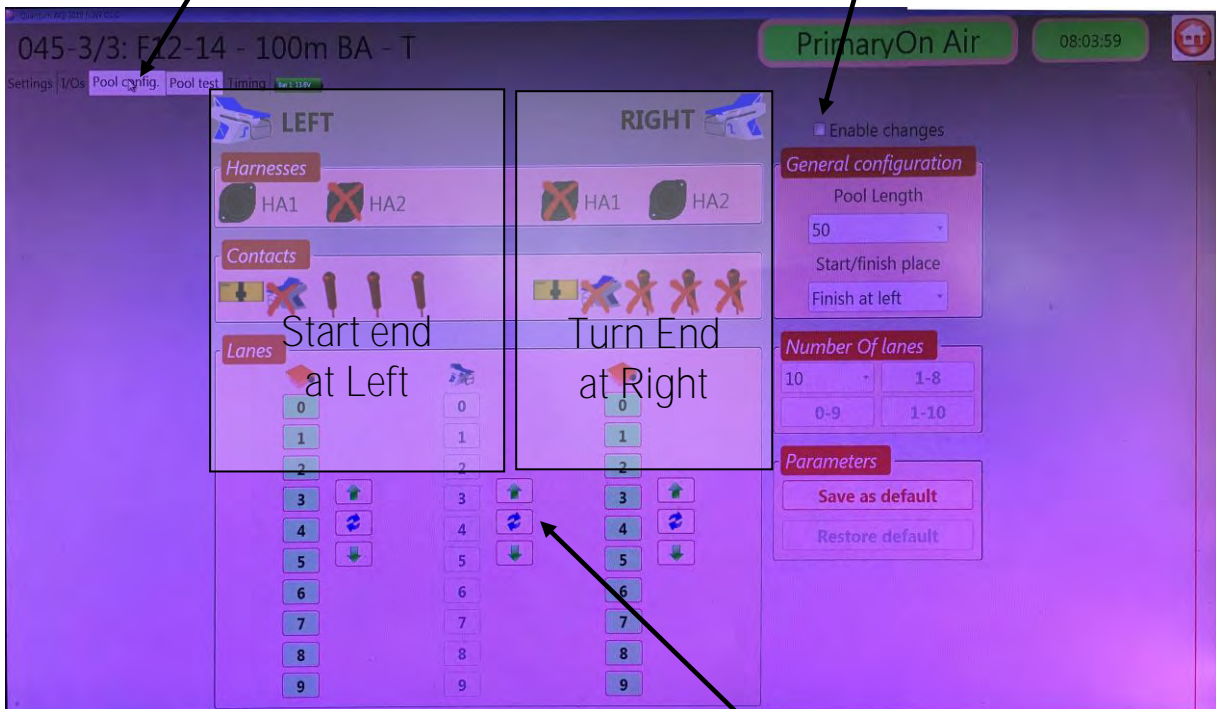


Figure 11 Race – Standard Pool Config for Long Course

If you want the layout of the lanes to match the pool, click this **symbol** (this does not affect anything).

NOTE: You **Enable** or **Disable** by clicking on the Icon corresponding to the Left or the Right side.

Harnesses

Long Course (50m) Meets Enable: Harness1 (**HA1**) at the **Left** or Start end, and Harness2 (**HA2**) at the **Right** or Turn end.
(see **Figure 11** above)

Short Course (25m) Meets Enable: Harness1 (**HA1**) at the **Left** or Start end only.

NOTE: Short Course (25m) meets do not have the touch pads active at the turn end.

Contacts

Each lane has potentially a **Pad**, **Block**, and **3 Buttons** at both ends (*except Short Course*). Crosses indicate that it's turned off.

Typical configurations:



Start end – Left side



Turn end – Right side
(Note that Buttons are off)

Long Course (50m) Meets, use: **Pads**, **Blocks** and **3 buttons** at **Left** end, and **Pads** and **Blocks** only at **Right** end.

Short Course (25m) Meets, use: **Pads**, **Blocks** and **3 buttons** at **Left** end only.
(All the contacts at the **Right** end are turned off).

Pad

Always **enable** Pad at the Finish End (**Left**), so that the pad time will be sent to Quantum.

As there are no Harnesses connected for 25m Short Course Meets, enabling pads at the turn end makes no sense.

Block

Only **enable** Block if you want Reaction Times or to monitor relay change-overs. If there are Relays with swimmers at the turn end, you need to **enable** the Block Icon at the turn end (**Right**) to monitor relay changeovers at that end.

Buttons

These are the buttons that the Timekeepers press when the swimmer finishes. Always **enable** three buttons even if only one or two are available for use.

Turn end buttons (**Right**) are never used at SOPAC.

Number of lanes

Generally all 10 lanes are used at SOPAC. However, circumstances may change, some Meets are set up to use fewer.

NOTE: This should be verified with the Meet Manager operator, prior to importing the races.

If it is not, the lane times will not match when brought into Meet Manager

Pool length

This is for specifying whether the Meet is Long Course or Short Course.

Pool length **50m** for Long course
 25m for Short course

Start/finish place

This sets which end of the pool is the finish end.
At SOPAC, it is always **Finish at left**.

Showing reaction times

Blocks have to be enabled, *i.e.*, *no cross on the Block Icon*, in order for reaction times at the Start to be shown on the Scoreboard.



Also, in the **Scoreboard I/O settings**, you have to enable:

4:Options
g: Show reaction times <input checked="" type="checkbox"/>

This will also enable Relay Changeover times to be shown on the Quantum Console that may indicate a break.

Disabling the Blocks icon will prevent the Scoreboard from displaying Start reaction times as well as any breaks in the Relay Changeovers.

Utility pool configuration

THE UTILITY POOL IS CONFIGURED THE SAME AS A SHORT COURSE MEET IN THE COMPETITION POOL BUT WITHOUT HA2. That is, Harness2 (HA2) is turned off.

The Utility pool is a Short Course Pool (*only 25m long*).

TIMING

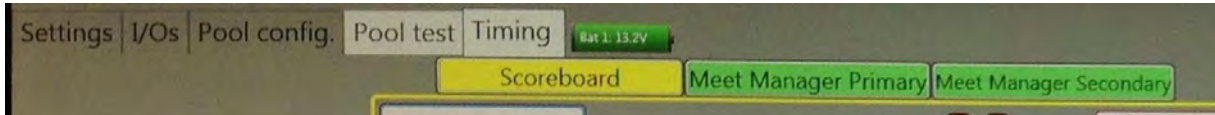


Figure 12 Timing tab

Under the **Timing** tab is where the Meet is Run and controlled from.

All Scoreboard information is controlled from here. (E.g., Event and Heat, Swimmers names, progress Timing, Results, DQ's). Events and Start Lists are imported from Meet Manager, and also where racing is controlled from (e.g., swimmers names, reaction times, split times, results, DQs, lane presentations and podium for medals).

NOTE: This is not to be confused with the Timing Tab which is part of Settings.

Import Events and Start Lists

Also called the **Meet Schedule**.

NOTE: The Pool Configuration **MUST** be done before importing races.

Click Timing and you will see the **Meet Manager** connections (in green).

*(If two Meet Manager computers are used these will be shown as **Meet Manager Primary** and **Meet Manager Secondary**).*

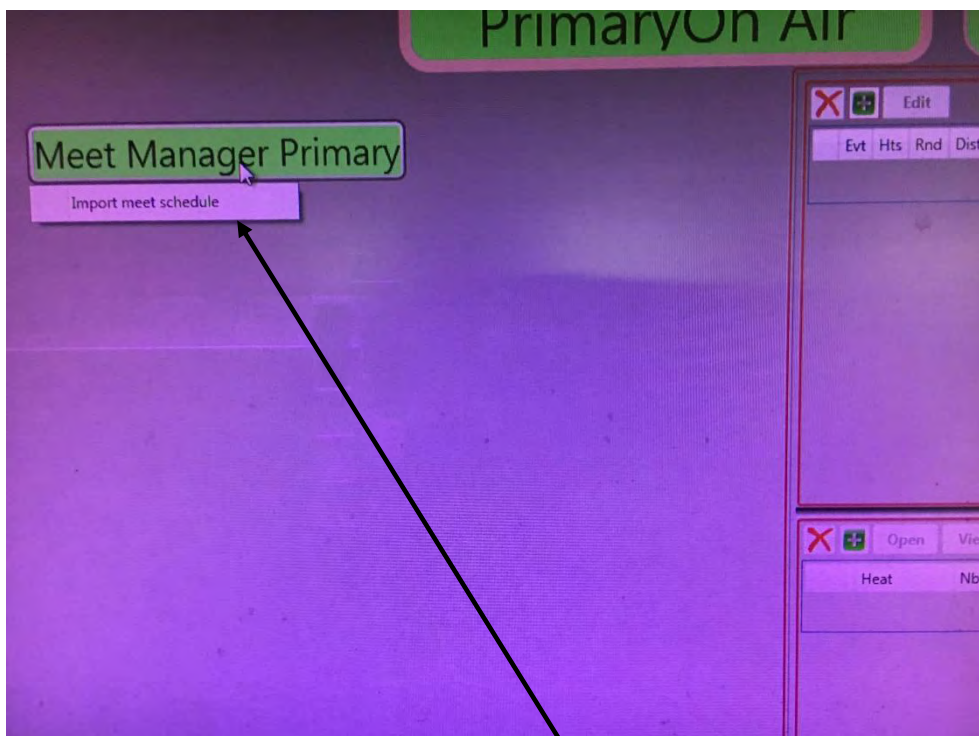


Figure 13 Timing - Meet Manager dropdown box

Click on **Meet Manager Primary** and a dropdown box will appear
Choose **Import meet schedule** to get the events and start list.

Once imported, the Events, Heats, and Swimmers Names will appear in this section.

Meet Manager Secondary has the same functionality.

TEST EVENT

A Test Event is a dummy event (*with a heat*) that you can create before the Meet starts.

Running Heat 1 of the Dummy event allows the Starter to check the equipment and Pool staff to check pads and buttons without the possibility of uploading spurious results to online databases or otherwise having fictional results in an event prior to the Meet starting.

Create the Test Event

Click the **+** sign on the **Events table** to create a new event

Give it an event number, **999** is recommended,
and specify **Mens 100m Freestyle**

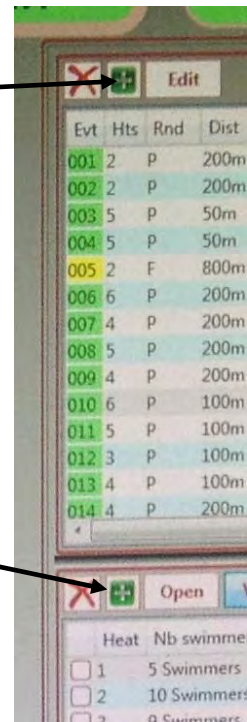
*For a 50m only OR Short Course meet,
you can specify **Mens 50m Freestyle***

Create a heat for the Test Event

Click the **+** sign on the **Heats table** to create a new heat

Double click on this heat to open it.

Double Click on the **event** will display the properties.
An optional title for the Scoreboard
can be put here. E.g., **Test event {3} {4} {5}**



Double click the heat and you are ready to do a pool test. *This is where the pool staff check the pads and buttons.* At the end of the pool test give the result slip to the pool staff.

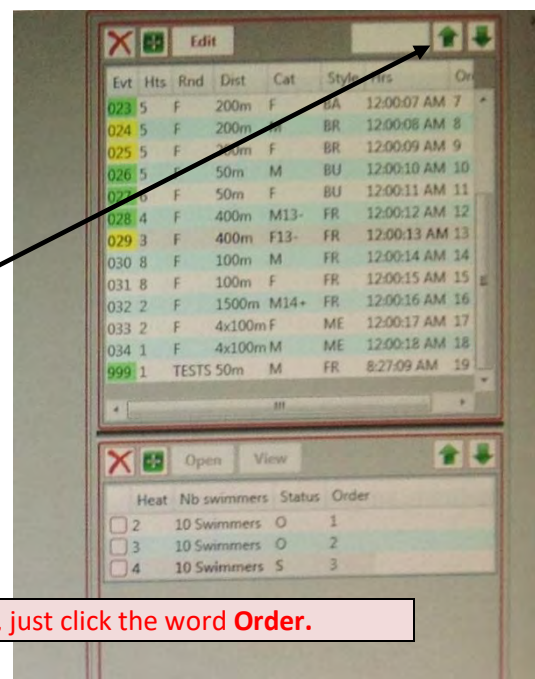
CHECKING THE ORDER OF EVENTS

Not all meets run the events in numerical order.

You will often find that in the Finals session of a Meet,
the Multiclass Events have a different numbering system
and are slotted in between other event.

To change the order, highlight the Event
and click the **Up** or **Down Arrow**
to move that event.

Only one event can be moved at a time.



NOTE: To revert to your Preferred order again, just click the word **Order**.

POOL TEST

This can be done during warm-ups, to check the operations of the pads.



Figure 14 Pool test

Clicking the **Pool test** tab will show you which pad is being touched, the time of touch, and the number of times the pads have been touched.

After the pool is cleared of swimmers, the *Pool Staff* will check the operation of the pads and buttons at both ends. The **Starters Test** will check pads and buttons, the **Pool Test** will help resolve problems.

Starters Test

The Starters will want to check the starting equipment at both ends. Have **Event 999 Heat 1** (a 100m race in order to test both ends, or 50m for Short Course Meets).

Arm Start must be set.

Give *Pool Staff* the printout after the test has completed.

RUNNING THE MEET

PROCEDURES

This is a basic list of functions carried out during a meet:

Before the start:

First Race preparation
Put race on Scoreboard

Using keyboard shortcut:

Click **Heat 1** of first Event
<Ctrl> <Insert>

Using Mouse:

Scoreboard ON

After the start:

Taking out Empty Lanes <Lane number> U

After each turn:

Add a pad touch if necessary Select which end (use <Space bar>) then <Lane number> +

After the finish:

Officiate and print the result <F11>
Next Race <Ctrl> N

New Event:

Previous Event Summary
Put race on Scoreboard

Select Event and 1st Heat, View,
Check that race is **Linked**, (i.e., Icon should be green)
<Ctrl> <Insert>

Scoreboard Summary

Scoreboard ON

Problems:

Getting a Backup Time <Lane number> B
Editing a Finish time <Lane number> F
Missed start
False Start

Attrib last start ▼
× Arm start

Changing a Status:

DQ <Lane number> D
DNF Right click <Lane number> then select **DNF**

Importing Start Lists for (use mouse):

(On Secondary, select **Meet Manager Secondary**)

Amalgamations
Re-Seeds
Swim-Offs

Select Ev, delete first Ht, then
Select Ev, delete last Ht, then
Create new event and heat

Meet Manager Primary

Meet Manager Primary

(see p41)

Import race

Import race

Advanced:

Lane Presentations Have race ready, then
Medal Podium Presentations Have summary in results view, then

Scoreboard

Presentation

Scoreboard

Podium

Restarting Quantum if Quantum becomes unresponsive:

- Press <Ctrl> <Alt> <Delete> to open the Task manager
- Click on the **Quantum** process
- From the drop-down list, select **End task**
- Restart **Quantum**

FIRST RACE

Select first race

Click: **Timing**
First Event

Double Click: **First Heat**

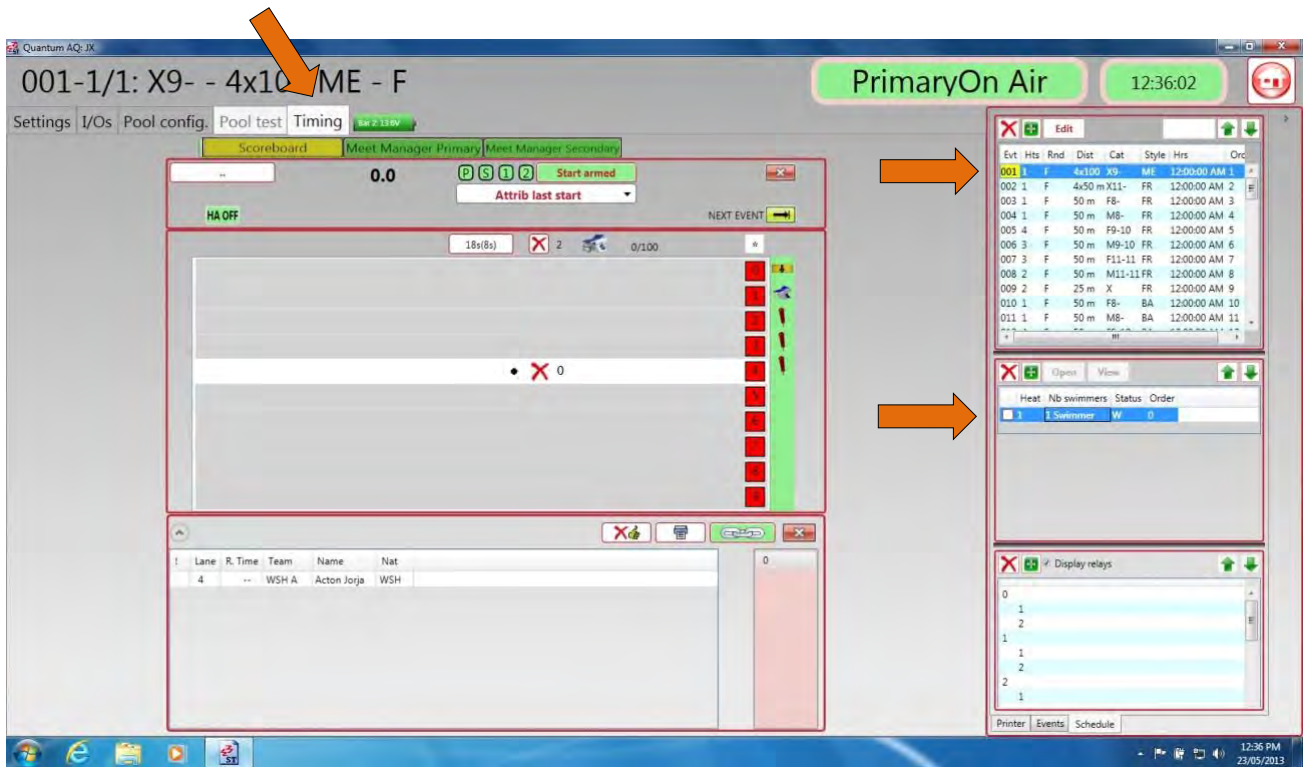


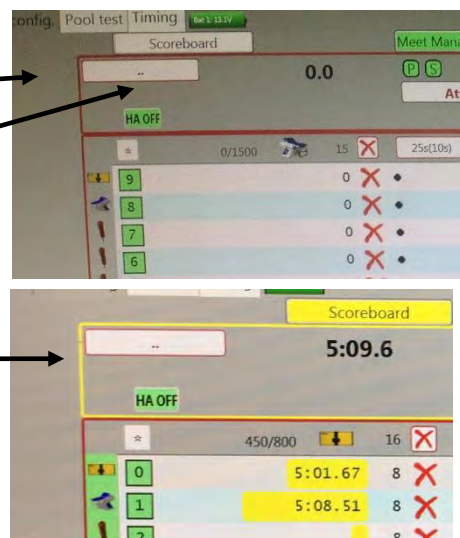
Figure 15 Events and Heats window

Activating (or getting Focus) the main timing window

When there is a Red rectangle here

Click the two dots to activate the window

The rectangle will then turn yellow to indicate that it is active



Showing Race on Scoreboard

Use the **keyboard** combination:

<Ctrl> <Insert>

this will display the race on the Scoreboard.

or **mouse**:

Scoreboard ON

EMPTY LANES

<Lane number> U

Lanes that should be empty will not be shown on the Scoreboard.
(Provided that the **Auto unused lanes** tick box is checked in the Settings for timing).
See within **Miscellaneous Group** in figure on page 20.

Swimmer did not report to marshalling

If a swimmer does not report to marshalling, and the lane is empty, that lane can be deleted on the Scoreboard using <Lane number> U

Swimmer in wrong lane

Similarly, if there is a swimmer in a lane that should be empty, the same shortcut can be used to enable that lane, i.e. <Lane number> U

PAD FAILS TO RECORD A TOUCH

<Lane number> +

This will add touch of the pad to the active end of the pool. Use <Space bar> to change active end.

To add a touch of all pads:

(this can happen if you missed the start and had to “Attrib last start” and didn’t adjust for the number of touches of the pads completed)

Click * then type + and repeat until the number of touches is correct.
This will update touches on all lanes.

Use the push button time from the timekeeper:

Type <Lane number> B

GETTING A BACKUP TIME

<Lane number> B

If there was a swimmer with no pad time, or the pad time was flagged as being <0.30 sec slower than the button time, right click on the lane without a pad time and then choose **Take Backup time** from the dropdown menu.

It is easier to press the <Lane number> B shortcut.

You can also click on the button icon,  (if it is showing in the Results Window) when there is no touchpad time.

NOTE: The green bar should be at the finish end of the pool.
Use the <Space bar> to change ends.

EDITING A FINISH TIME

<Lane number> **F**

If a swimmer fails to activate an intermediate pad, and also goes unnoticed by the Quantum operator, the finish time will not be available. You may need to look in the Log to find the time. (Pick the time which has a "V" next to it (*meaning verified*) and use edit finish time.

Click on Events (bottom right of screen) and select the appropriate lane. By default, all lanes are selected (as indicated by the *).

Right click on the lane without a pad time and then choose **Edit Finish Time** from the dropdown menu. It is easier to press the <Lane number> **F** shortcut.

MISSED START

It can happen that you will not have Quantum ready for the Start at the beginning of a race.

Click 

NEXT RACE

<Ctrl> **N** or Click 

Once <Ctrl> **N** has been pressed, the starting device will show a green light and the next race can be started.

PUT RACE ON SCOREBOARD


<Ctrl> <Insert> or Click  **ON**

This is normally done on the Referee's whistle.

FALSE START

Arm start

If a false start occurs and the timing has started, so you need to stop it.

Clicking  will reset the timing ready for a new start.

DISQUALIFICATION

Make a note of all disqualifications in your program.

NOTE: “DQ” or “DSQ” appear on the Scoreboard immediately when entered.

Do not enter any disqualification until the end of the race when that lane touches (*or, if no swimmer in that lane, after the first swimmer finishes*).

All **DQs** should be on the Scoreboard so that the Referee can signal “all clear”.

For “lower level” meets, like School Carnivals, it may not be appropriate to put the DQ on the Scoreboard. But it must be noted on the timing printout before being handed to the Meet Manager operator.

Started before the starting signal

<Lane number> **D**

When advised by the Referee that a swimmer has been disqualified, make a note on your program but do not enter the **DQ** until the end of the race.

Do not remove the lane from the Scoreboard even if the swimmer is not swimming.

During the race

If a swimmer is disqualified during a race, make a note on your program but do not enter the **DQ** until the end of the race.

Did not finish

<Lane number> **F**

Select **DNF** from the dropdown menu

If a swimmer leaves the water before the completion of the race, the Referee will advise a Did Not Finish (**DNF**) on that lane.

In a previous race

If a **DQ** has to be applied in a previous race, select the **Event** and **Heat** and select **View**.
This will break the link to the current race.

Select the Lane and select the **DSQ** from the drop down menu.

See Change of Status page 38.

CHANGE OF STATUS

Current race

E.g., DQ, DNF, etc

Right click on the <Lane number>
and the underlined shortcut from this table:

Lap -1
Lap ±1
Q: Arm touchpad
Y: DisArm touchpad
Edit Finish Time
<u>D</u> SQ
<u>D</u> N <u>S</u>
<u>D</u> N <u>F</u>
Take <u>B</u> ackup time
<u>U</u> sed / <u>U</u> nused

Figure 16 Status list

NOTE: DNF does not have a shortcut but is selected by mouse.

E.g.: For a **DQ** Type <Lane number> **D**
DNF Right click <Lane number> select **DNF**

Previous race

With the Event and Heat in the Results window,
click on the **Lane number** and select from the *dropdown menu*.

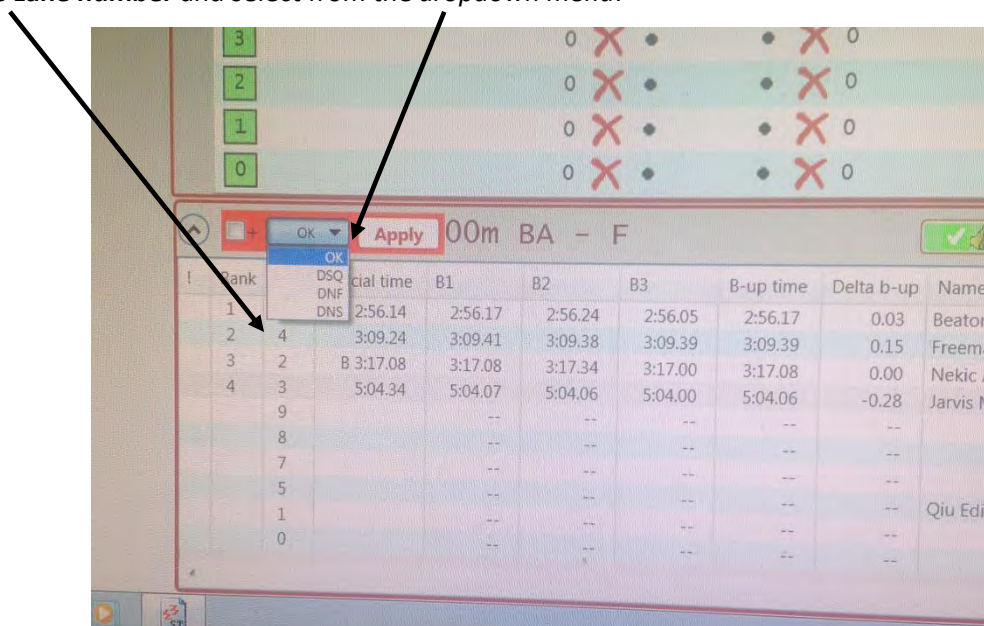


Figure 17 Status dropdown box

Selecting **OK** Removes any DQ, DNF or DNS that was there
DSQ Sets the status to **Disqualified**
DNF Sets the status to **Did not Finish**
DNS Sets the status to **Did not Start**

Click **Apply**

Press <F11> to officialise the times

NOTE: This will print out the new results so allow space on the paper roll
in case another race is in progress.

Click the **Link icon** to make it green, i.e.,


EDITING A PREVIOUS RACE

Results can be viewed from a previous race for a number of reasons:

- Putting results on the Scoreboard
- Editing a time
- Changing the status (i.e., **DQ**)

NOTE: This action will break the link to the current race so you will notice the **Link Icon** change from  to 

To perform actions on the current race (e.g., refresh Scoreboard, add backup times, etc) you must link to the current race.

Click the **Link icon** to make it **green**, (i.e., )

Viewing results

This action puts the results of that Event and Heat into the Results window.

Click the **Event** then the **Heat**, and click **View**

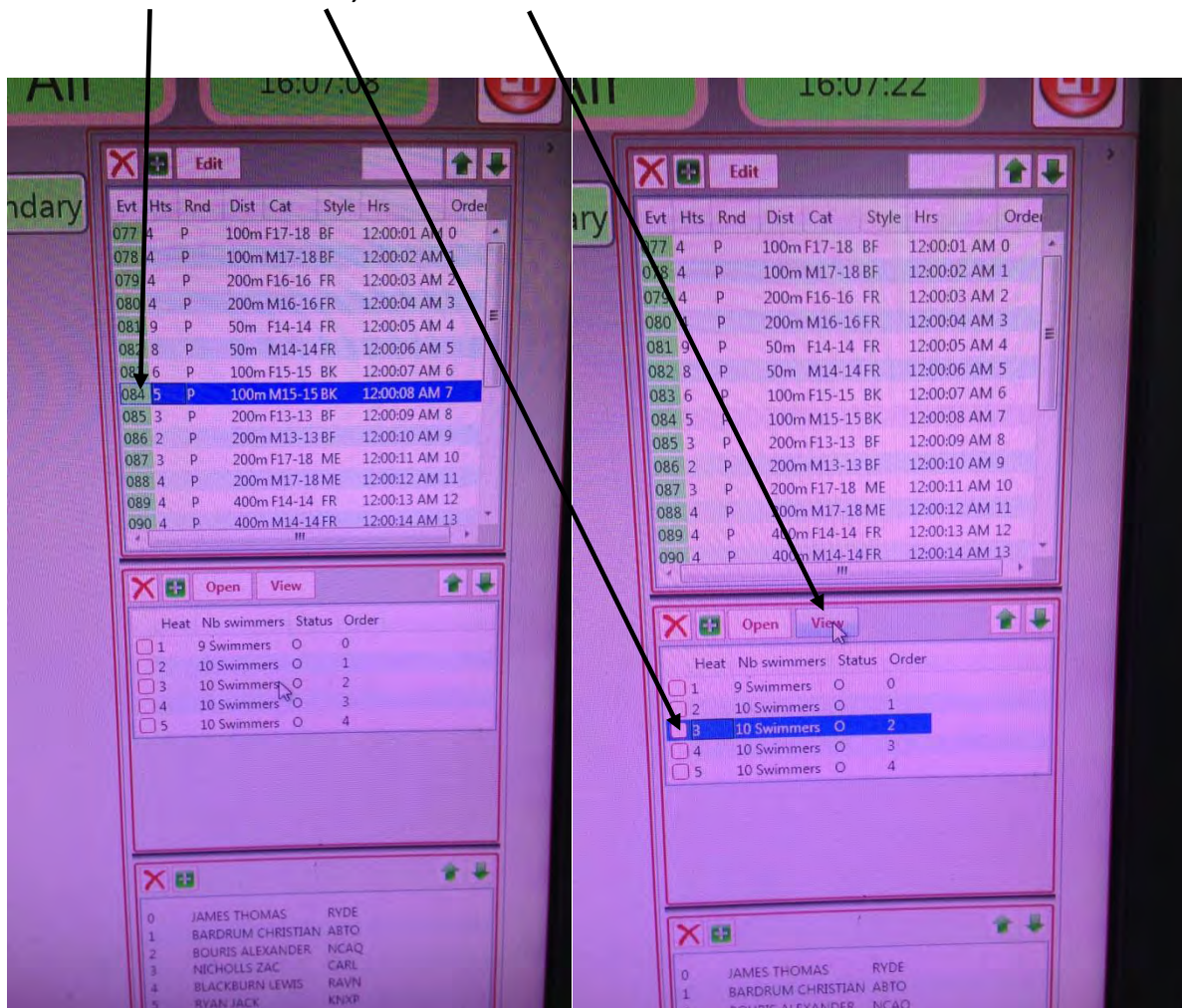


Figure 18 Select Event and Heat

Editing the finish time

With the Event and Heat in the Results window, click the **Official time**, click ▼ to bring up a *dropdown menu*, click **Edit**

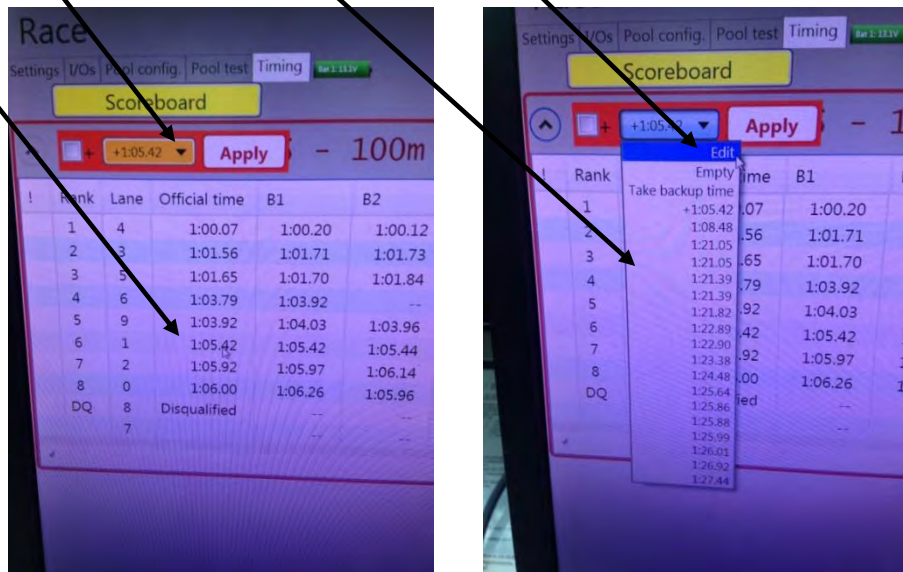


Figure 19 Editing the Official time

Enter the new official **time** in the box, and then click **Ok**

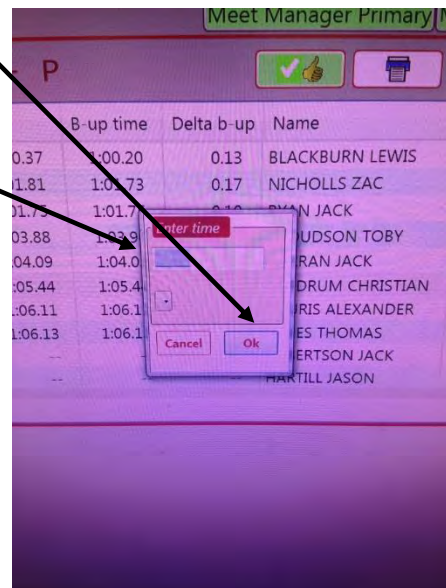


Figure 20 Entering a time from keyboard

Press <F11> to officialise the times

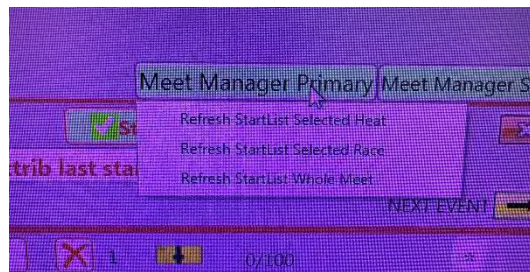
NOTE: This will print out the new results so allow space on the paper roll in case another race is in progress.

Click the **Link icon** to make it **green**, (i.e., )

AMALGAMATIONS

When advised that an amalgamation of heats has occurred:

- Select the Event
- Select Heat 1
- Delete Heat 1
- Select Meet Manager Primary or Secondary and select **Refresh StartList Selected Race**



RE-SEEDS

When advised that an event has been reseeded:

- Select the Event
- Select the last heat
- Delete that last heat
- Select Meet Manager Primary or Secondary and Select **Refresh StartList Selected Race**

SWIM-OFF EVENTS

These events will not be part of the normal Meet Schedule which has already been imported.


Create the New Event

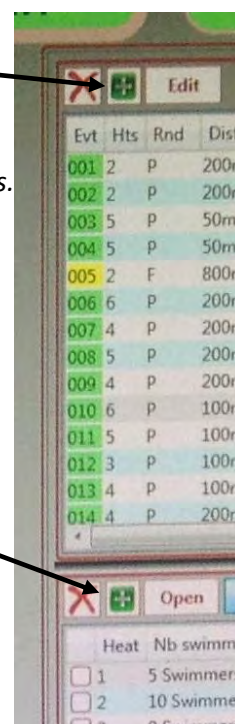
Click the **+** sign on the **Events table** to create the new event

A dialog will be displayed showing all of the details needed to add an event to the schedule. *See next page for details.*

Create a heat for the Swim-off Event

Click the **+** sign on the **Heats table** to create a new heat

Once an event is in the schedule list, the order in the schedule can be changed by highlighting the event and pressing the green up and down arrows  .



Double click the Event to modify the Event details

The important parts of this dialog are:

Event Group

Event number

This example uses 245 but should be related to the original event number perhaps with 100 added.

Round

This example uses Qualif but **MUST** be the same as the original event, mostly T (*for timed finals*).

Failure to do this will mean that Meet Manager will not pick up the results.

The screenshot shows a dialog box with several sections:

- Event:** A text field containing '245' and a dropdown menu set to 'Qualif.'.
- Date/Time:** A date field showing '01/01/2014' and a time field showing '10:00:00'.
- Race:** Three dropdown menus for '100m', 'Freestyle', and 'Women', followed by a checkbox labeled 'Start in Water' which is unchecked.
- Title for print:** A text field containing 'Women's 100m Freestyle'.
- Title for Scoreboard:** A text field containing 'Women's 100m Freestyle'.
- At the bottom, there are 'Cancel' and 'Ok' buttons.

Race Group

Distance

Select from drop down box

Style

Select from drop down box

Category

Select from drop down box

Title for Print

Not used

Title for Scoreboard


This overrides the default created in the I/Os.


Adding the swimmers

Using Meet Manager




From Meet Manager, select the heat and import the race from the dropdown menu of Meet Manager Primary (*or Secondary if using a Secondary Quantum with two Meet Manager systems*).

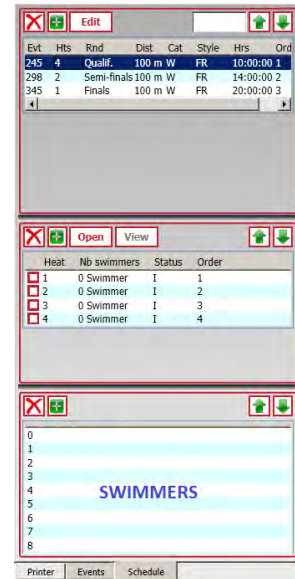
Manual entry of Swimmers names

Open the **Add Swimmer** dialog by double clicking on any lane in the bottom schedule window, or by clicking the  button.

All swimmers in the database will be displayed. By typing a few characters, any name can be quickly found as you type *as the list updates dynamically*. The sort order can also be toggled by clicking on the column headers. The  button lets you add a new swimmer.


Click on a name to highlight it, select a lane number from the drop down list and press **Add to Startlist** to insert the swimmer into the race. The name number will automatically increment ready for the next swimmer.

The  will remove a swimmer from a lane and the up/down arrows   allow lane positions to be changed.



Cannot create New Event

Often a “test” event, number 999, is created to aid the pool test where the pads and buttons are checked. However, if the need arises where you need to create an event above this number, as in the case where the organisers want to run a special event, Quantum may not do this.

The solution is to delete event 999 (or the highest event number in the meet), and then click  to add the new event. See previous page for modifying the Event details.

Don't forget to also create a heat.

Meet Manager can then send the swimmers for you to import.

EVENT SUMMARY

For events with more than one heat, an Event Summary will order the swimmers and their times from first to last.

Show the event summary after the first heat of the next event has commenced, and **Link** to the current race when about 5m to go before the next touch.

Select event

This prepares the results for the Scoreboard.

Quick Race select

Click on the empty box and it will change colour.

Type the **event** followed by a "." then the first heat number of that event.

E.g. Event 5 Heat 1 is shown as **005.1v**

*(If an amalgamation had occurred, the first heat might be heat 2, therefore Event 5 Heat 2 is shown as **005.2v**).*

NOTE: Adding the "v" puts the results in the **View Window** and breaks the link with the current race.

Pressing "-" at any time will clear all characters from the selection box.

*By adding a "+" symbol (**005.1+**) the race will automatically open in race view.*

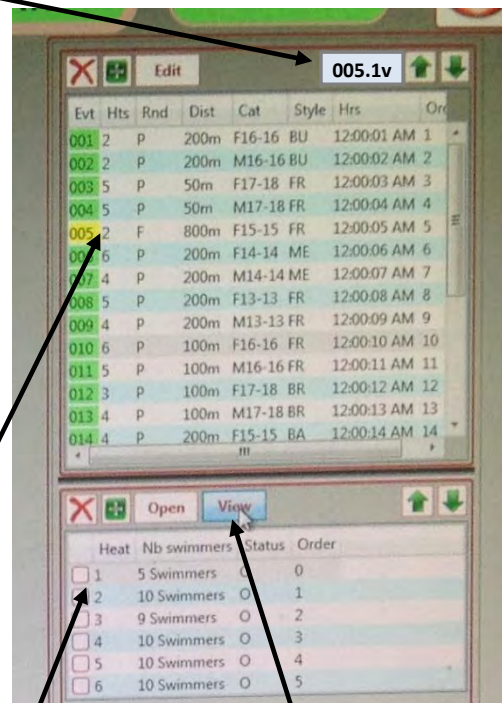


Figure 21 Race select

Race Select using Mouse

Click the **Event number**, then the **first Heat** of that event, then click **View**.

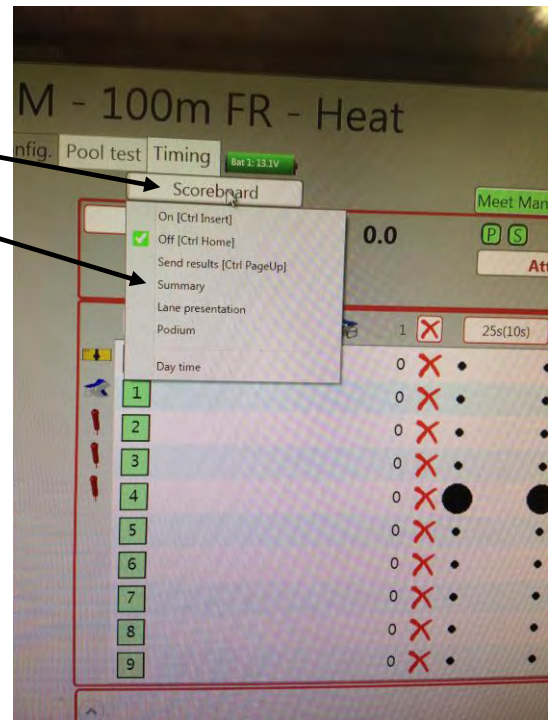
This puts the results into the Result View Window.

Send summary to Scoreboard

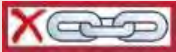
Select **Scoreboard**
Select **Summary**
(from the dropdown menu)

The Scoreboard will progressively display 10 placings at a time.

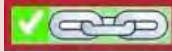
When Summary is completed:
Re-link
(to connect to current race)



NOTE: This has unlinked the current race.
You will notice that the Link icon is no longer Green and also has a red cross next to it



You must re-link to connect to the current race then the icon will become green again



<Ctrl> <Insert> will refresh the Scoreboard.

<Ctrl> <Insert> or using mouse, click:
(to refresh Scoreboard)

Scoreboard ON

RACE SELECT

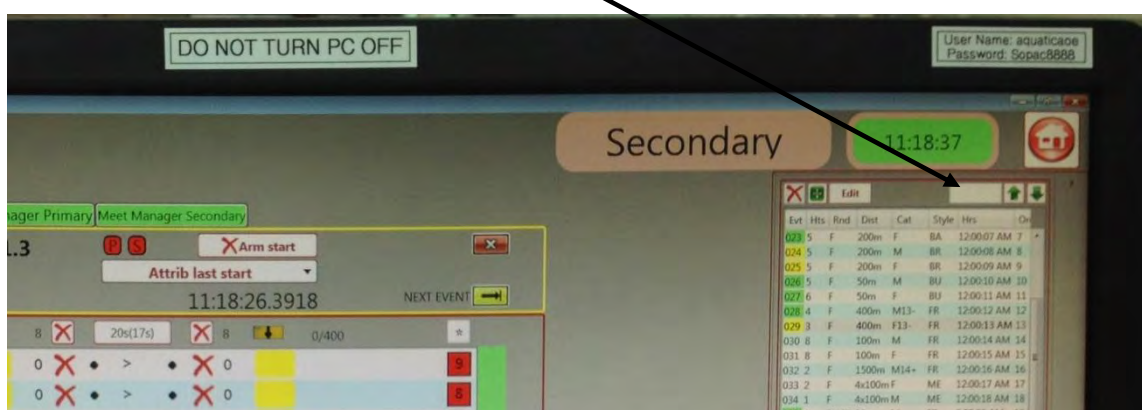
Race Select using Mouse

Click the **Event** in the Event Window
Double Click the **Heat** in the Heat Window

The race will be opened in the result view window.

Quick Race select

Use this selection box to do a quick selection of an event or heat.



The usual preferred method is to select using the mouse.

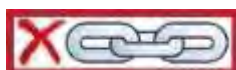
LINK

Any process that takes you away from the current race will unlink that race from the Race Window.

E.g.:
Displaying the previous event summary
Selecting another heat to change a DQ status
Editing a time from a previous race

This will manifest itself by displaying the wrong title on the Scoreboard.

The link icon shows a red cross against a grey background when unlinked.



The solution is to click re-link and refresh the Scoreboard.

When linked, the green tick appears against a green background.



SCOREBOARD

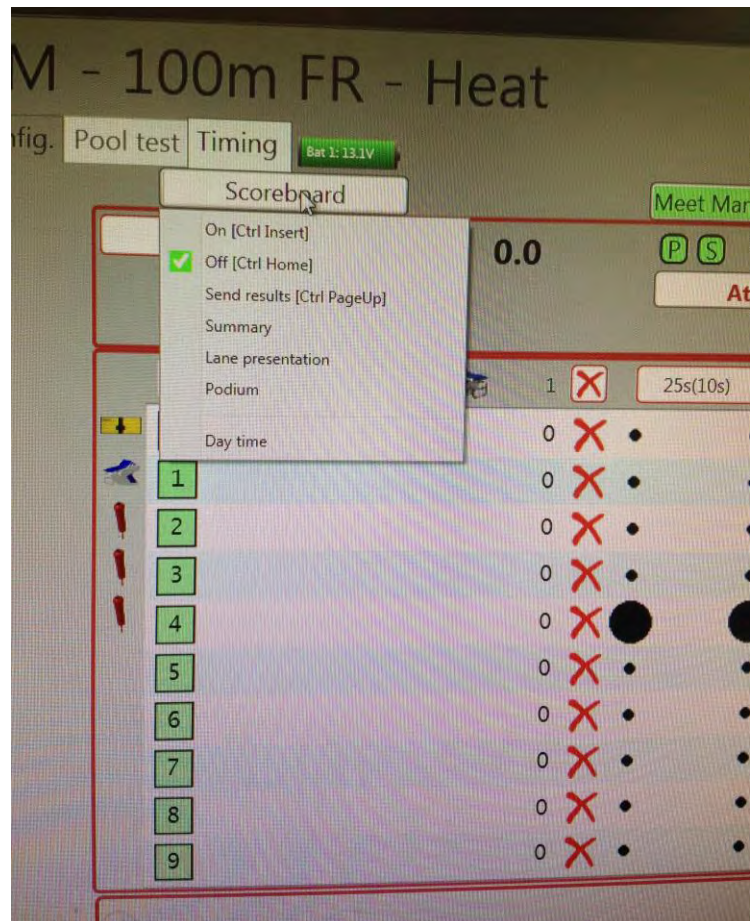


Figure 22 Scoreboard dropdown box

The drop down menu under Scoreboard contains:

On

Sends current information to Scoreboard (*same as <Ctrl> <Insert>*)

Off

Turns off the Scoreboard (*same as <Ctrl> <Home>*)

Send results

for the last race (*same as <Ctrl> <Page up>*)

Summary

for the Event summary (*after you choose the first heat of the event and click View*)

Lane presentation

for when the swimmers' names are announced

Podium

for the Medal Ceremony

Day time

This function is not used at SOPAC.

Lane presentation

After swimmers are assembled by the Check Starter in a Finals session, the announcer will present the swimmers by name. This can be handled by Quantum by having the race in the View Window. Click **Scoreboard, Lane presentation**

NOTE: This is best managed by having an operator on the Scoreboard control panel and putting an Ad up, and the Quantum operator preparing the lane presentation so that as the Announcer announces the first swimmer, the Scoreboard operator removes the Ad to reveal the swimmers name.

This will show the swimmers in this box, with the first name on the Scoreboard.

Click To advance the swimmers names on the Scoreboard

Lane	Swimmer Name	Club
0	Armstrong Jodi	CHBC
1	Munns Madeleine	LCOV
2	McKeon Kaitlin	WIAQ
3	Dahl Lauren	RIPL
4	Richardson Caitlyn	SSSD
5	Schafer Jacqueline	WILB
6	Newman Brittanee	NEPN
7	Liardo Jessica	CMBT
8	Freeman Jenna	QTSC
9	Cantrill Lauren	RYDE

Figure 23 Lane presentation

NOTE: The yellow background against the lane number indicates the name on the Scoreboard.

After the final swimmer's name is announced, a **<Ctrl> <Insert>** will put the race on the screen.

Medal presentation

Based on Summary should be ticked otherwise, only the first heat will be used

Rank	Name	Club	Time
1	Pender Matthew	NOVO	2:03.32
2	Sherington Callum	CARL	2:05.46
3	Vane-Tempest Lachlan	MING	2:06.72

Figure 24 Podium (i.e Medal presentation)

Put the results in the View Window:
Click the **Event**, Click the first **Heat**, Click **View**

Click **Scoreboard, Off [Ctrl Home]**

Click **Scoreboard, Podium**

This will show the top 3 swimmers in this box

NOTE: If there are more than 3 swimmers, DO NOT use Podium, use **Scoreboard Summary** instead to display the top 10 swimmers (e.g., a tied result for 3rd or a visitor is receiving a medal).

Click **->>** to put the **Race Title** on the Scoreboard.

Then, as the swimmers are presented,
Click **3 then ->>** for third place,
Click **2 then ->>** for second place,
Click **1 then ->>** for first place.

Re-establish link with current race (**Link icon**), then

Click **<Ctrl> <Insert>** to put current race on Scoreboard. This also turns the **Scoreboard On**.

NOTE: The **Cross** next to the numbers indicates that the name is not yet on the Scoreboard.

No more than three names can be shown even if there is a tie.

RESULT PRINTOUT

The printout from the Serial Printer looks like this:

At the Start

PF = Reaction Times

TP = Touch Pad

B1 = Button 1

B2 = Button 2

B3 = Button 3

Summary of Results by placing

Backup averaged: 52.82
with difference between pad and
average button in brackets: (0.13)
(slower is positive)

Generally times taken with the push buttons
will be slower than pad time.
*Good timekeepers will be able to achieve
differences of <0.10 seconds.*

Negative differences of >0.30 seconds
would generally mean that a **Backup time**
is required.

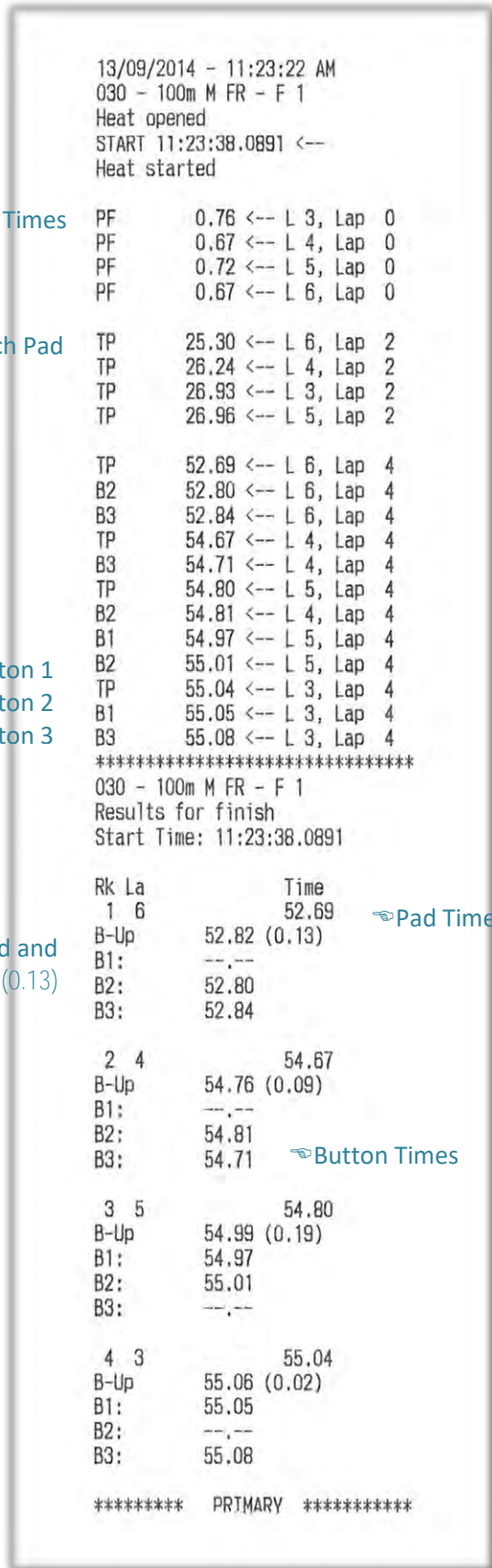


Figure 25 Race Printout

EXIT THE SOFTWARE

As all Meet Manager data is written to shared network drives, as soon as the Control Room Supervisor is satisfied with the results, Quantum can be closed.

DO NOT SHUTDOWN THE COMPUTERS!

To exit the software, return to **Home window** and select **Quit**

Select:



- Yes** to confirm exit
- No** to return in Main Menu

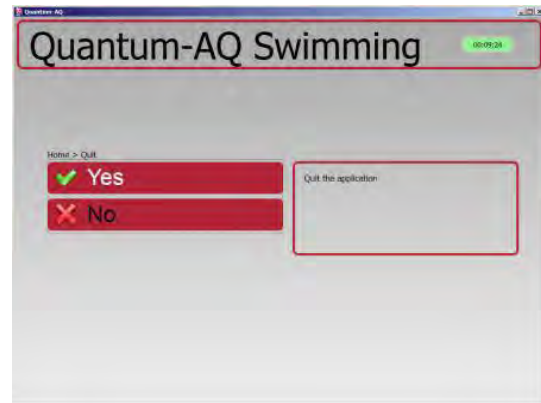


Figure 26 Exiting the Quantum software

NOTE: All computers should be left on - just close the application, clean up your mess, and that's it.

DIAGNOSTICS

SCOREBOARD PROBLEMS

Problem displaying on Scoreboard


Do a <Ctrl> <Insert> on Quantum

NOTE: If race does not come up on Scoreboard, check with Pool Staff.

Scoreboard does not show Event

- Have you done a <Ctrl> <Insert> or using mouse: **Scoreboard ON** ?

Scoreboard shows correct swimmers but wrong event

- Click the link icon as the current race has not been linked.
The link icon should be green, *i.e.*, 

Reaction times are not showing on 50m events

- Have you turned on the Blocks at the turn end in **Config**?

Scoreboard not showing final time

- Did you add in all touches?
- Was the pad activated at the start end by an official or swimmers leaving the pool in a relay?
Refer to the log for all touches and edit in the time.

Putting MC in the title for a Multiclass event

- Click on the Event and in **Title for Scoreboard** put *Meet {3} MC {4} {5}*

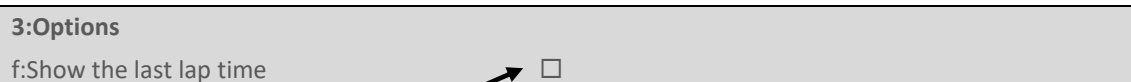
Putting Swim-Off in the title for an event


- Click on the Event and in **Title for Scoreboard** put *Meet {3} {4} {5} Swim-off*

Scoreboard shows last lap time, instead of actual final time of race

- Click **I/Os**, then **Scoreboard**.

You have to disable **Show the last lap time** in I/O Setup of Scoreboard configuration:



Uncheck this box  (like this)

Scoreboard showing formatting errors

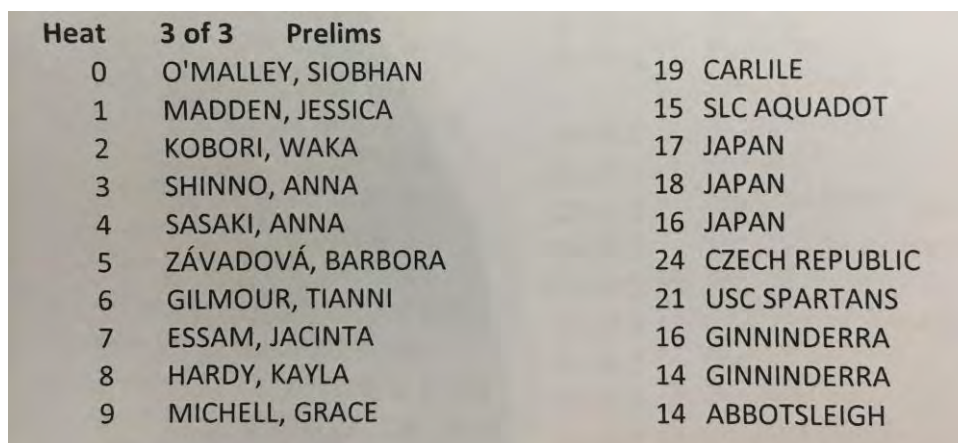
The Problem



NSW Open Women 400m Medley		29.36
Event: 008 Heat: 3		
0	O'Malley Siobhan	CARL
1	Madden Jessica	SLCA
2	Kobori Waka	JAPA
3	Shinno Anna	JAPA 29.36 1
4	Sasaki Anna	JAPA 29.91 2
5	ZÁVADOVÁ, BARBORA	a CZ C
6	Gilmour Tianni	SPRT 30.03 3
8	Hardy Kayla	GIND
9	Michell Grace	ABBT

Figure 27 Scoreboard with gobbledygook

You will notice formatting peculiarities against Lane 5.



Heat	3 of 3	Prelims
0	O'MALLEY, SIOBHAN	19 CARLILE
1	MADDEN, JESSICA	15 SLC AQUADOT
2	KOBORI, WAKA	17 JAPAN
3	SHINNO, ANNA	18 JAPAN
4	SASAKI, ANNA	16 JAPAN
5	ZÁVADOVÁ, BARBORA	24 CZECH REPUBLIC
6	GILMOUR, TIANNI	21 USC SPARTANS
7	ESSAM, JACINTA	16 GINNINDERRA
8	HARDY, KAYLA	14 GINNINDERRA
9	MICHELL, GRACE	14 ABBOTSLEIGH

Figure 28 Program showing accented name in heat

This problem occurs when an accented name is put on the Scoreboard. The solution is to remove those characters either directly in **Quantum** or in **Meet Manager**.

The Solution

In **Quantum**, select the competitors name in the list.

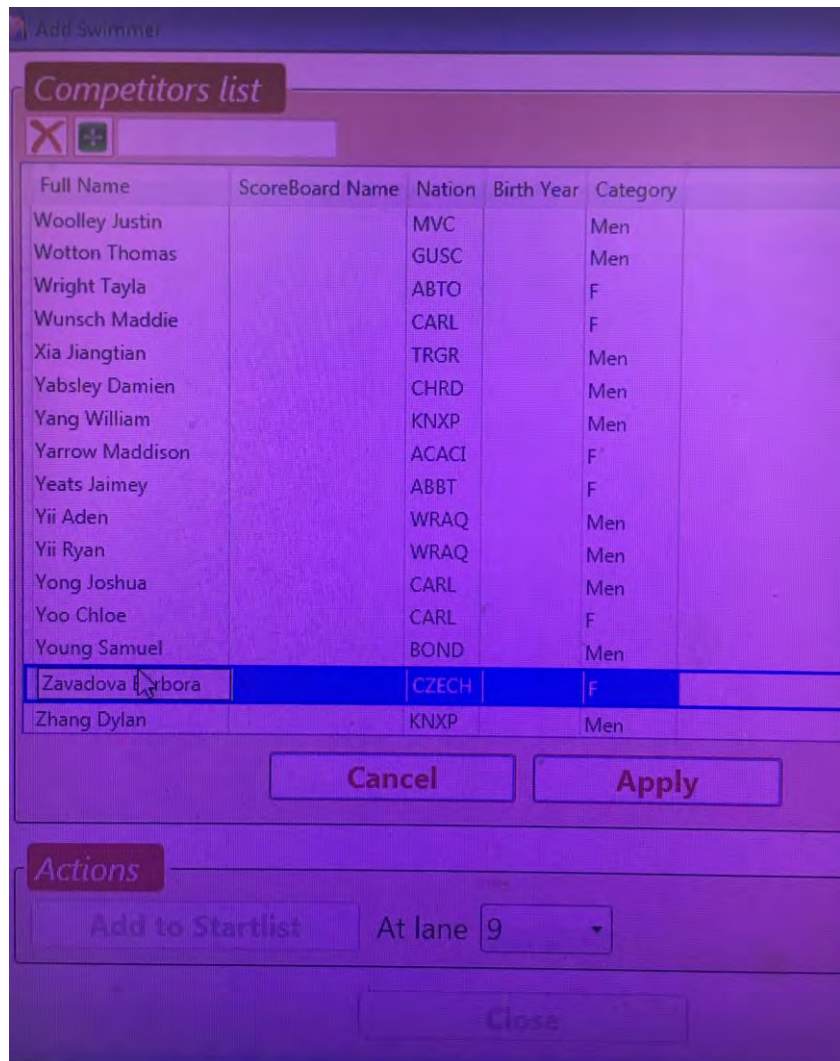


Figure 29 Swimmer's name in the Competitors List

Competitor's name will then appear here ...

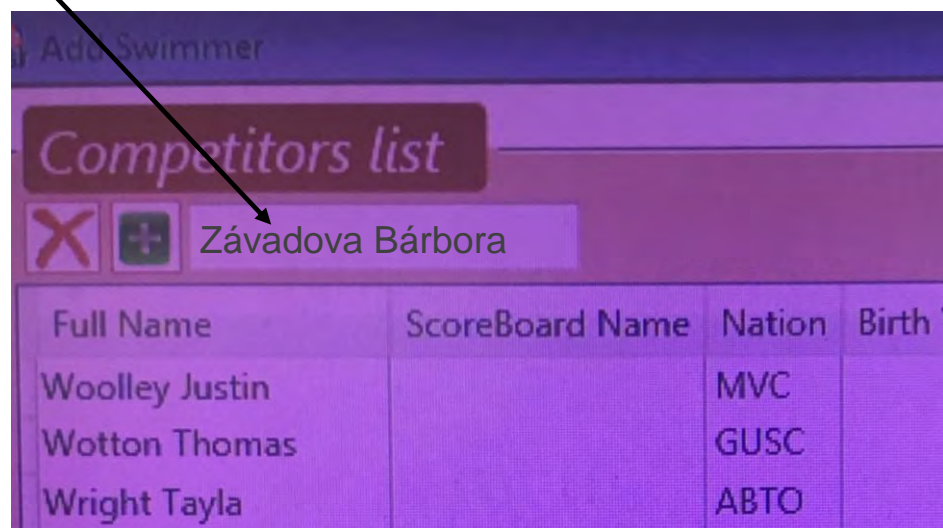


Figure 30 Editing swimmer's name

Using the mouse to position the cursor, delete the **á** and replace with **a**.

Click **Apply**

Then refresh Scoreboard using **<Ctrl> <Insert>**

NOTE: If the swimmer's name occurs again in the program, then the change should be made in Meet Manager and all relevant heats imported again.

In **Meet Manager**, have the operator perform the change.

Import that heat again.

Then refresh Scoreboard using: **<Ctrl> <Insert>**

or

using mouse: **Scoreboard** **ON**

MISCELLANEOUS PROBLEMS

Swimmer did not get a time

Using the Log to retrieve a time

Select the Event and Heat from the **Schedule Tab** and select **View**.

This will unlink the current race.

Click **Events**

to open the Log

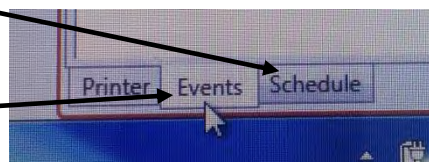
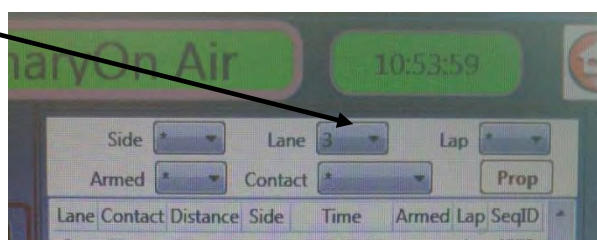


Figure 31 Accessing the Log

Click **Lane**

and select the lane number from the drop down list.

Note the finish time.



In the Results window

select the lane and edit the finish time:

<Lane number> **F**

Apply the finish time to that lane

Officiate the results and print using <F11>

For an advanced method, see [Using the Log to retrieve a time page 112](#) for details.

Lane was not turned on

If a lane was not turned on before the swimmer finished, there will be no time on the Scoreboard.

The Log will not contain any record of the touchpad time either.

However, the Timekeepers push buttons will record a time which should be used.

If neither Timekeepers buttons nor Pad were pressed, this should be referred to the Referee.

Pad did not work

Use the backup time from the buttons, <Lane number> **B**

Pad nor Buttons did not work

Show slip to Referee and follow their instructions.

Turning off the Harness may resolve the problem.

NOTE: This is not guaranteed to work all the time depending on the seriousness of the problem.

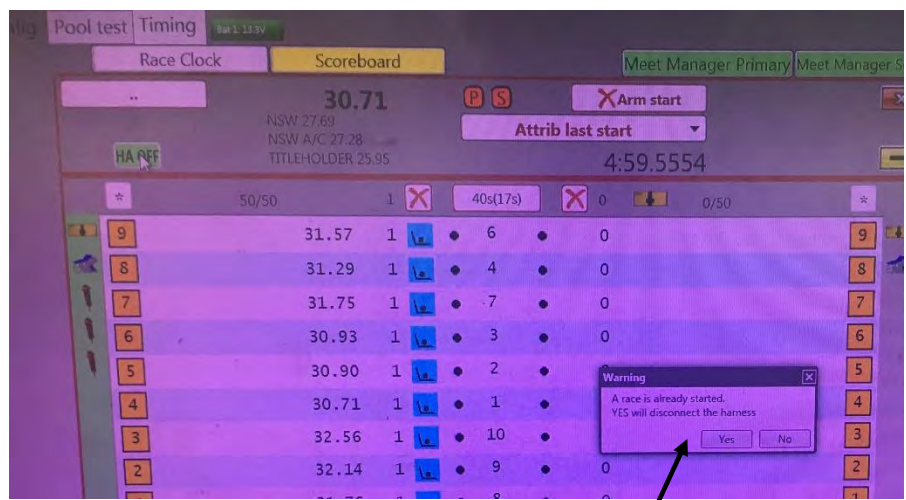


Figure 34 Clicking on HA OFF

A warning message will alert you that “a race has already started”. Click **Yes** to turn off the harness.



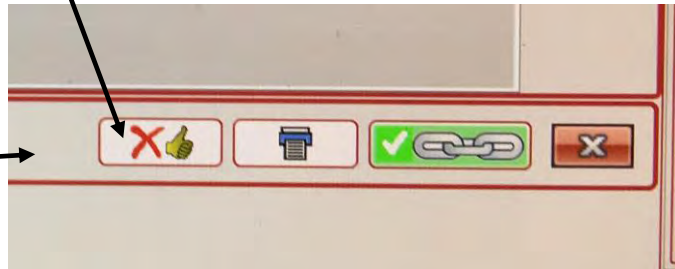
Figure 35 Harness has been turned off

The obvious characteristics when the harness is off is that **HA OFF** becomes **HARNESSES DISCONNECTED** and the colour of the background changes from grey to orange.

Results view window disappears

It can happen that, when officiating the results and printing (using the mouse with these icons) that the results view disappears.

If by some accident you click here (on the grey part)



the Results view window will disappear, (and the Race window will be enlarged) to be replaced with the lane order as the swimmers touch.

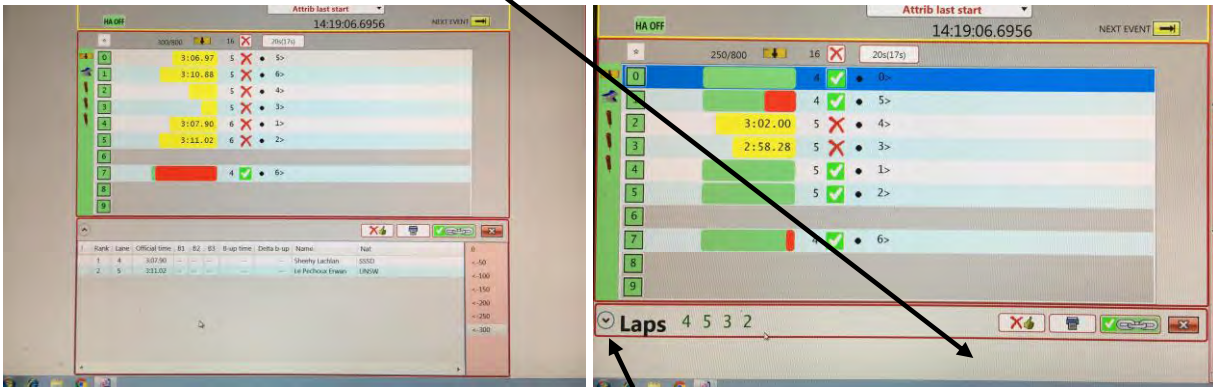


Figure 36 Results view window showing and not showing

Clicking on the grey part again, or on the Down Arrow



will bring back the results window.

APPENDICES

advanced topics

APPENDIX A. AOE CONTROL ROOM

Layout of AOE Control Room

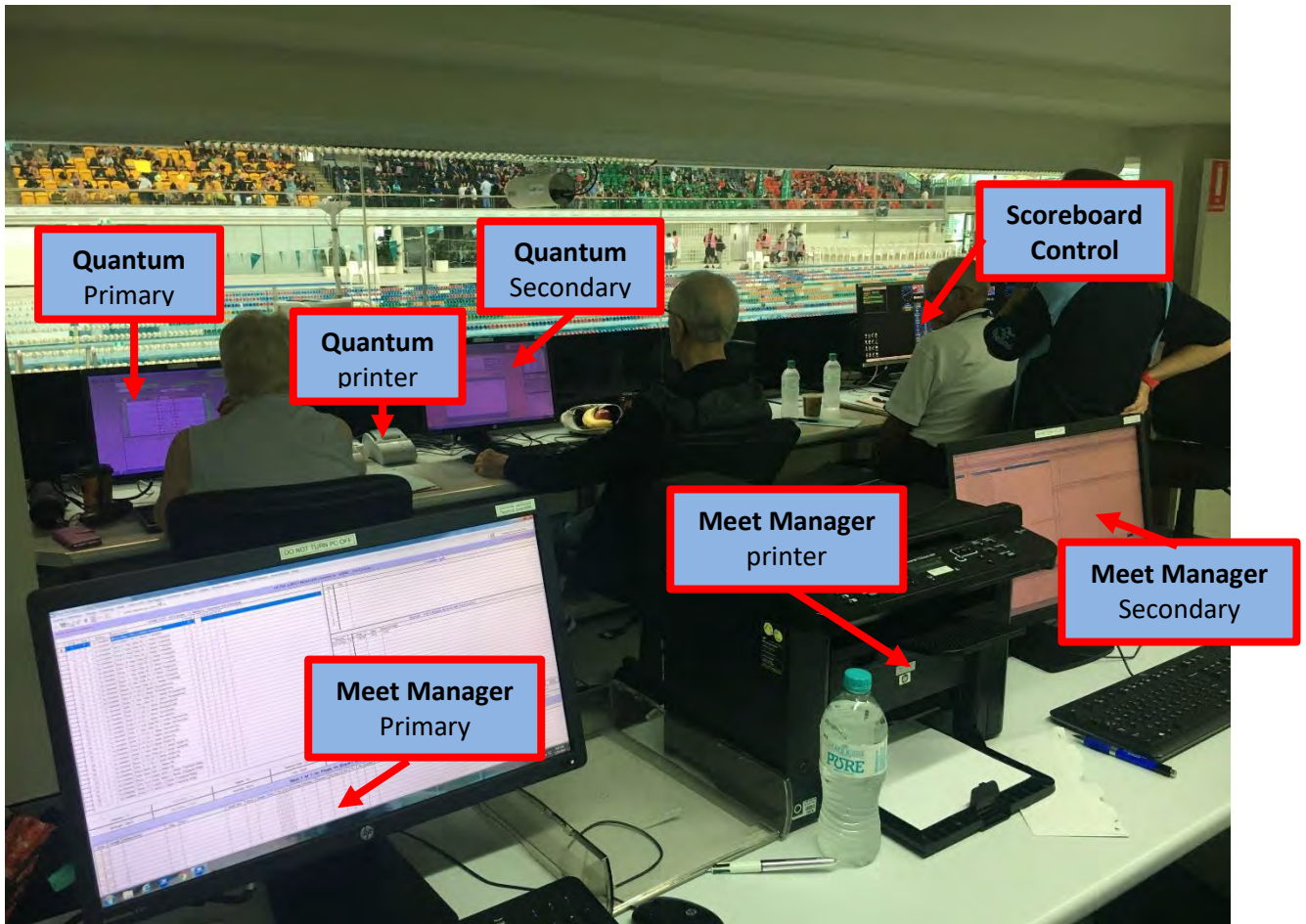


Figure 37 Layout of the AOE Control Room

Officials in the Control Room

The Control Room Supervisor

Responsible for the smooth flow of procedures in the Control Room

AOE Operators

The AOE operator should come prepared for the task at hand. The operator should arrive at the pool at least 1 hour before the scheduled start time so that they can coordinate with the Control Room Supervisor, the Meet Manager Operator and Pool Staff to prepare for the Meet, as well as the Referee, Announcer and Recorder regarding the flow of information.

The AOE Operator should come with pens, sticky tape, stapler and scissors. They should receive a copy of the program and timeline.

Primary operator

- Operates the Quantum Primary system
- Gets pad and button times
- Inserts backup times when pad fails
- Produces results slip

- Scoreboard control:
 - Swimmers' names
 - Race result
 - Heat summary
 - Event summary
 - Presentation
 - Podium
 - Inserts DQs

Secondary operator

- Operates the Quantum Secondary system
- Gets pad and button times
- Inserts backup times when pad fails
- Produces results slip if required

Meet Manager Operators

Primary Computer

- Operates the primary Meet Manager system
- Manages meet entries
- Publishes online results

Secondary Computer

Operates the secondary Meet Manager system as a support to primary.

Quantum timing hardware

Systems

SOPAC maintains two independent but identical Quantum timing hardware systems:

(The operation of these Control Rooms are identical with any exception indicated in these notes).

1. The **Competition Pool** Control Room

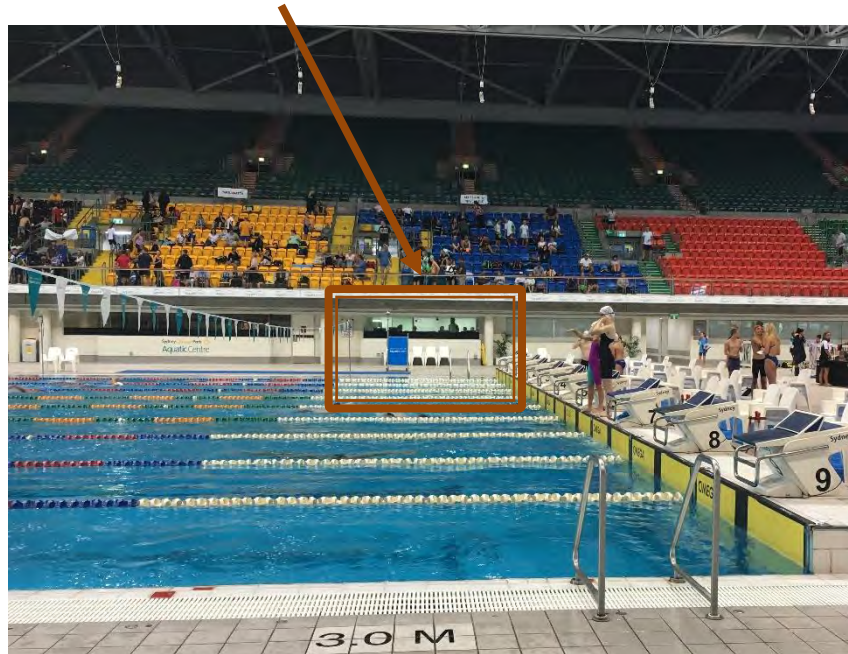


Figure 38 AOE Control Room for the Competition Pool

2. The **Utility Pool** Control Room *(under the diving platform)*

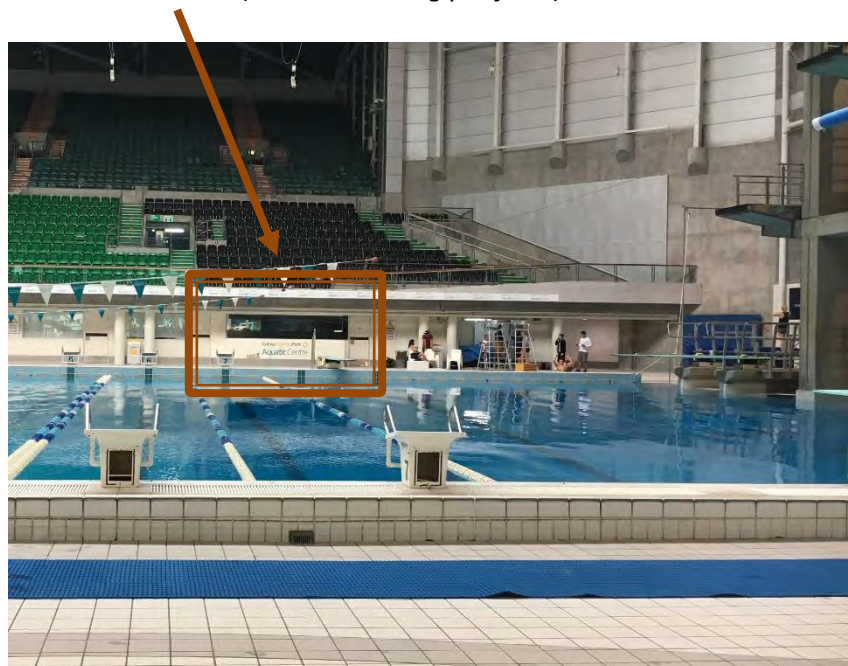


Figure 39 AOE Control Room for the Utility Pool

The Automatic Officiating Equipment (AOE) consists of a Primary and Secondary Quantum Timing System and sharing a common database with the Meet Manager Primary and Secondary Computer System.

If operators are available for both Primary and Secondary, all setup and race operations should be duplicated on both.

NOTE: The final act at the end of each race, to write results to the database, should be performed by **Secondary then Primary** in that order.

Usually **Secondary**, after all swimmers have touched and times and any **DQ's** recorded, **then Primary**, when the Referee signals "All Clear".

Both Primary and Secondary have their own printer, but only the primary is used unless it is necessary to operate the secondary printer for some reason.

NOTE: *These next photos of Quantum are taken in the AOE Control Room of the Competition Pool. This is the primary control room for most Meets.*

Sometimes the Utility Pool (Diving Pool) is also used at the same time but only for 25m races.

The Quantum hardware is kept on a rack in the cabinet at the back area of the AOE Control Room.



Figure 40 Cabinet holding Quantum

Opening Quantum Cabinet

Press the silver keyhole button to raise the lever.



Figure 41 Door Handle

Combined Primary and Secondary control box

Power supply box for Quantum



Figure 42 Quantum Control box

Powering on Quantum

All systems are managed by the pool staff and should already be switched on.

As a last resort, if the Quantum boxes are not switched on, open the Rack and switch them on using these buttons. Buttons are green when ON.

Selecting Primary and Secondary

When switched ON, the default is **1 Primary** and **2 Secondary**, as in this photo.

If for some reason the Secondary has to be made the Primary, press the **Secondary Select** button.



Figure 43 Front switches on Quantum

Swapping Primary and Secondary

Pressing the **Select** button (see Figure 43), determines which acts as the Primary system. Press **Select** on **2 SECONDARY** will swap the default Primary and Secondary. On the Secondary Quantum (which is now acting as the Primary) configure the Scoreboard control.

*I.e., essentially check the Scoreboard settings under **I/Os** and also check Tables for headings, etc.*

There is no need to shut down the Quantum software.

Functions - Primary vs Secondary

As it is only the Primary system that send results to the Scoreboard, the setup of the Secondary should be duplicated as much as possible during the pre-meet setup.

During the running of the Meet, the operations on the Secondary should be done before actions on the Primary. This is especially true when writing results to the database.

I.e., The AOE Secondary operator should officiate the result before the Primary operator. Otherwise the Secondary operator will overwrite the results from the Primary operator.

Loss of Power

All computers (*Meet Manager and Quantum*) are covered by a UPS (**Uninterruptible Power Supply**). This will give enough time for a 1500m race to finish. The UPS won't cover the monitors. But you should be able to officiate the race so that Meet Manager can get the results.

Meet Manager is a database and saves as it goes along. If all power is lost then it will still have the results from earlier when power is available again.

The Quantum timing equipment keeps the data and it runs on 12V from a power supply. It also has battery backup and it may be possible to get the last race when power comes back.

Should one or both of the Scoreboards fail, Quantum will still continue to operate as normal.

Computers

The cabinet contains the computers for both Quantum and Meet Manager:



Figure 44 Quantum Primary and Secondary Computers



Figure 45 Meet Manager Primary and Secondary Computers

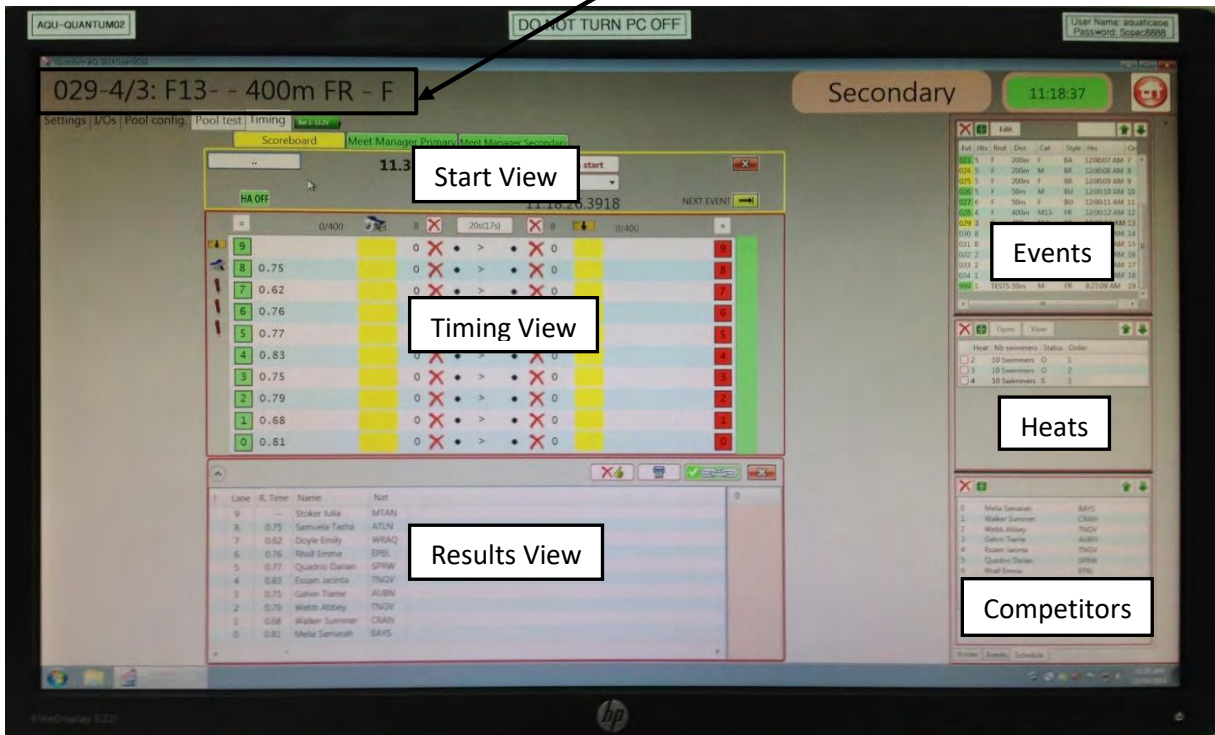
APPENDIX B. BASIC INFORMATION

Race Window

General elements of the race window

EVENT TITLE							
Event	Heat	No. of heats:	Category	Distance	Style	Round	
029	4	/ 3	F13-	400m	FR	F	

Figure 46 Explanation of the Event Title



Scoreboard functions
 e.g., Results
 Lane presentations
 Podium

Meet Manager functions
 e.g., Import start lists



Particular elements of race window

Scoreboard time (if synchronised)
 Arm start (gives Starter the green light)
 Quantum (Primary or Secondary)
 Attrib last start (for missed starts)
 Import start lists from Meet Manager

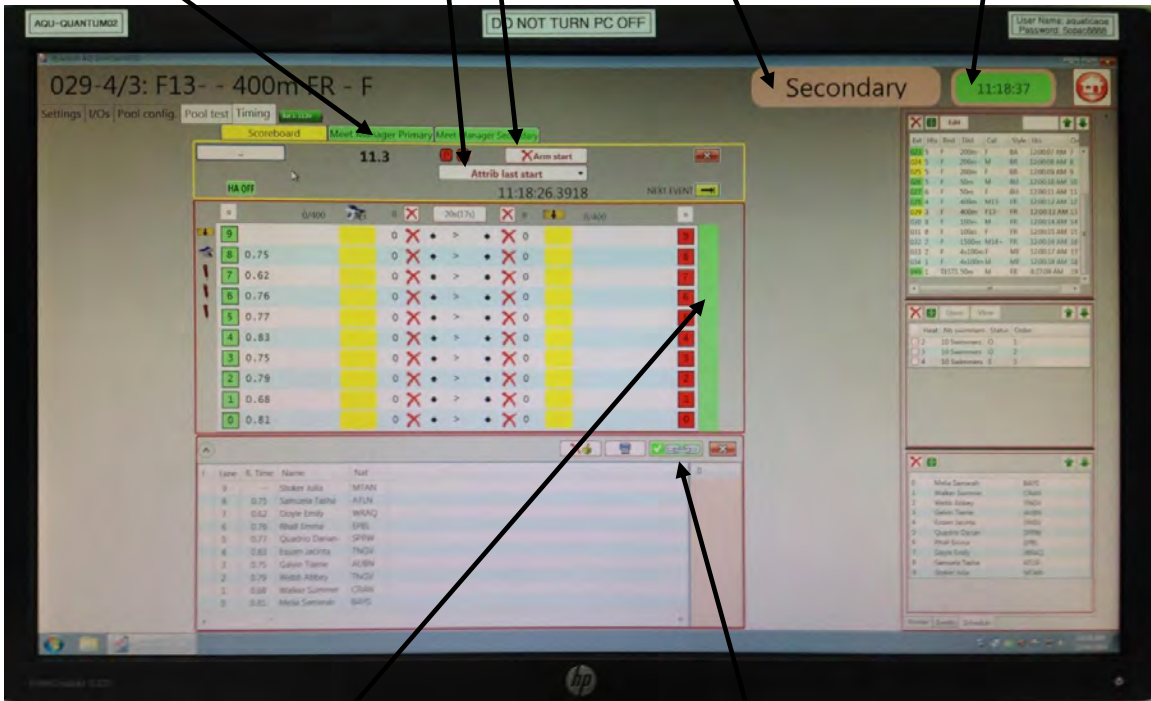


Figure 47 Typical race window

If viewing another race while a race is in progress, the current race becomes unlinked (shown by a red cross) and MUST be re-linked before <F11>, <Ctrl> N or <Ctrl> <Insert> will work. (Green tick indicated that it's linked)

Notice the **Green border**, this indicates the side of the pool where lane controls work, (e.g., adding touches, putting in backup times, DQs, etc).

The <Space bar> is used to change ends.

This must be at the **left side** (finish end) of the pool for inserting backup times or other finish status.

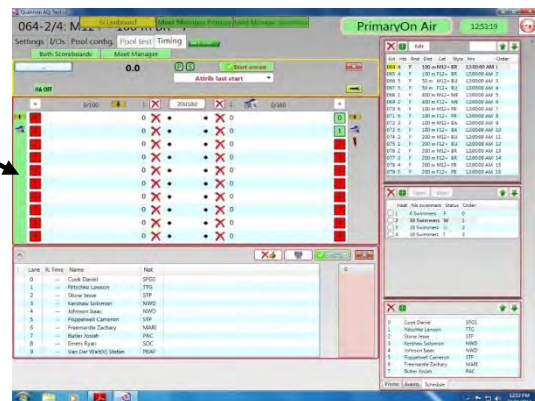


Figure 48 Green border i.e., active end

Events and Heats

Event properties

To edit an individual Event's Scoreboard title, double click an Event

Selecting a Heat

Select the Event by clicking on the Event number

Then select the Heat from the Heats window

When a Heat is selected, a list of swimmers (if available) will be shown in the competitor's window.

A shortcut is to use the quick select window.

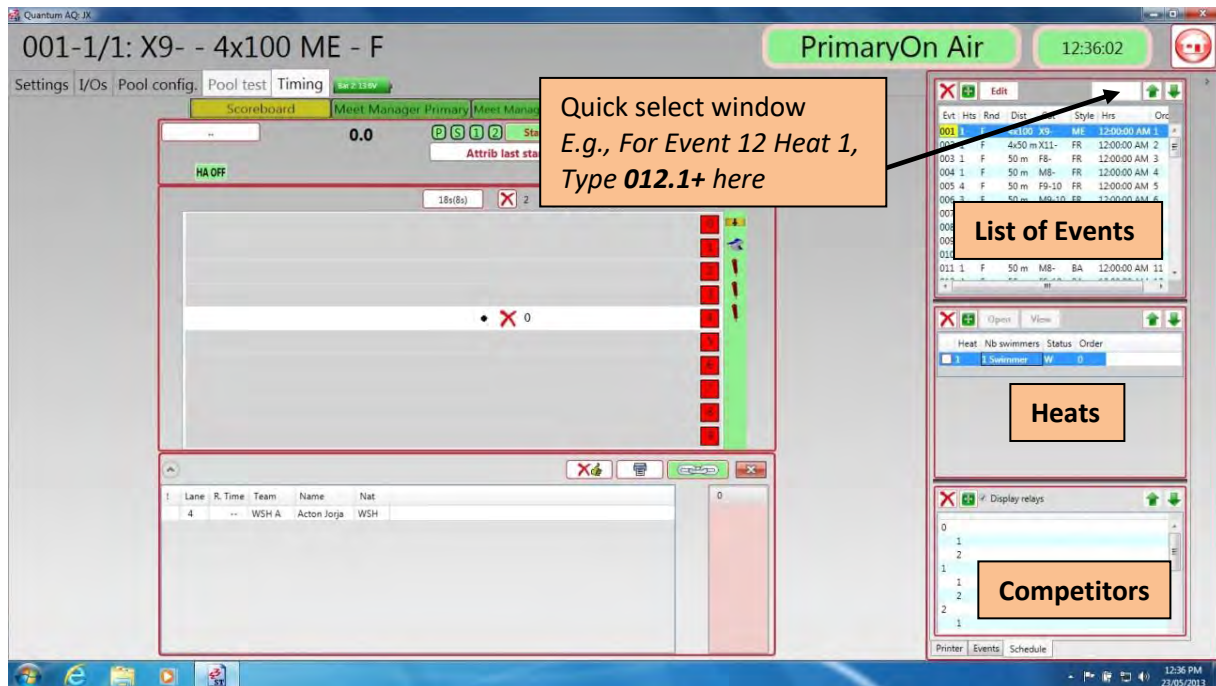
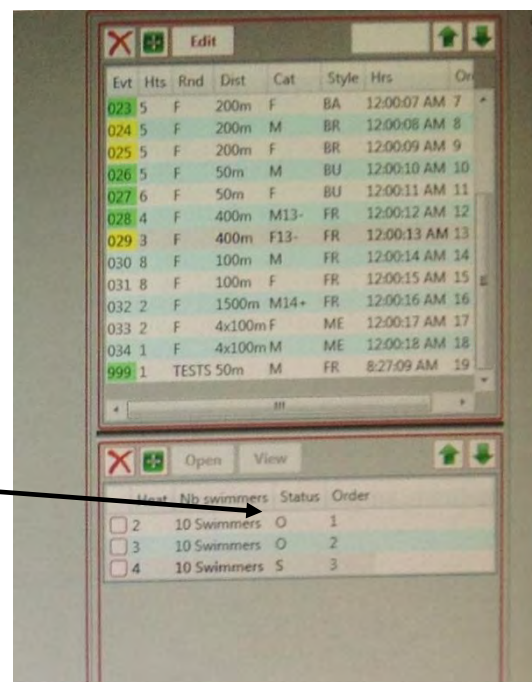


Figure 49 Events and Heats window

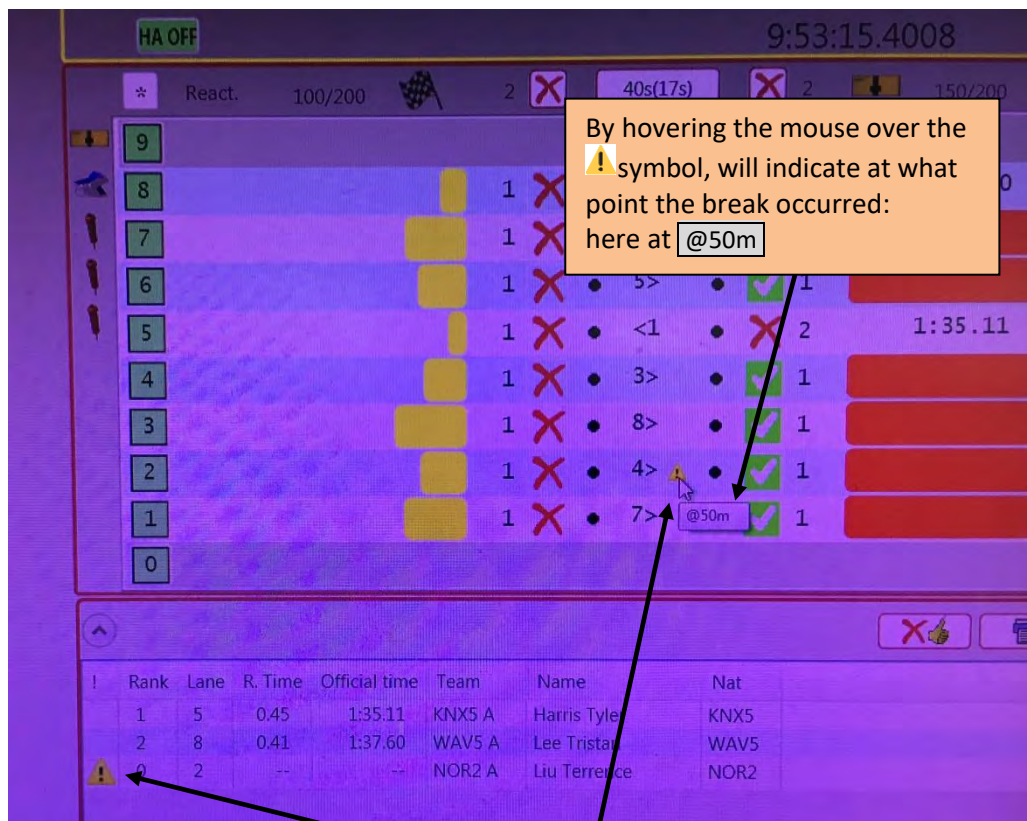
Heat status


F	Finished, but not official
I	Idle
O	Official
S	Started
U	Unfinished race
W	Waiting for start



Monitoring Relay Changeovers

To monitor relay changeovers, blocks have to be enabled. This is normally the case. Also, in the **Scoreboard I/O settings**, you have to enable **Show reaction times**:



Should a break occur in a relay changeover, a warning symbol  will appear in the race window.

The deltas (*i.e.*, difference between the touch and leaving the block) will be on the printout.

Starter's Light

Ready for start...

Green ready lights

Speak button

Start button



Figure 50 Starter's light

On - when ready

After the start...



Off - after the start

Giving the Starter the green light

The Starter will have the ready "green" light when:

- the **Start armed** icon is green with a tick
- the Scoreboard Timing clock reads **0.00**



NOTE: The green light on the start unit is the sign for the Starter that the AOE is ready for the next race.

At the end of a race, results are made official and printed using <F11>. This will **not** give the Starter the green light.

<Ctrl> N will move to the next race and **will** give the starter the green light. The **Arm start** icon will then change to **Start armed**.

Removing the Starter's green light

Clicking the green **Arm start** icon:

- this will turn **off** the Starter's ready light
- remove **0.00** from the Scoreboard
- and the **Arm start** icon will look like this with a cross

CAUTION:

This should be checked prior to the commencement of the Meet.

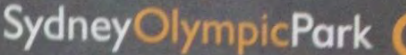


Clicking **Start armed** will reverse the action and the Starter will once again have the green light.

NOTE: The Start Time device may not always accept this action. This depends on the Start Time device setup.

APPENDIX C. SOPAC QUANTUM QUICK REFERENCE GUIDE

Source: Daniel Emerson, SOPAC



SOPAC Quantum Quick Reference Guide

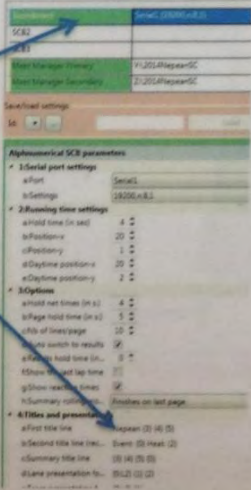
1. **Initial Setup**
 - a. Open *My Computer* and ensure the following two folders are available.
 - i. Quantumprimary (\\172.31.192.41)(Y:)
 - ii. Quantumsecondary (\\172.31.192.42)(Z:)
 - b. On either Primary or Secondary Quantum PC, create the same event folder in both above folders.

2. **Quantum Configuration**
 - a. Open Quantum and click on configuration.
 - b. Sync both PCs to a start pulse, and then click the *Home* button.
 - c. Click *Race*, then the green plus symbol and create and event.
 - d. Settings Tab
 - Choose settings based on event requirements.
 - Serial printer should be enabled and on auto print.
 - Custom table defaults can be set at the following path, change only if confident, otherwise contact pool staff.
 - C: > *Swiss Timing* > *DRCApp* > *Quantum* > *Swimming* > *Defaults*

- e. **I/Os Tab**
 - Click on Scoreboard and add an event title at 4a if required.
EG: Nepean SC {3} {4} {5}
 - Check all other settings are correct. Load a SOPAC Standard setup if unsure.

- f. **Pool Config. Tab**
 - Ensure the *Enable Changes* box is un-ticked
 - Set up pool as per events requirements. For 25m pool, ensure only HA1 on the left is selected.

- g. **Timing Tab**
 - Once advised from Meet Manager operator, import the meet schedule and start list by clicking either *Meet Manager Primary* or *Meet Manager Secondary*, then both import options.



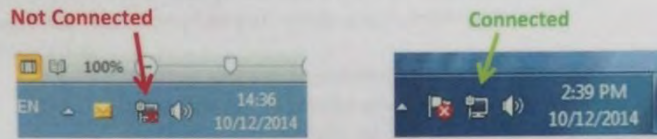
Page 30 of 31

Figure 51 SOPAC Quantum quick reference guide – page 1

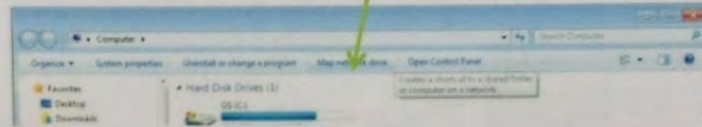
Mapping a Network Folder

To communicate between AOE computers, mapped network folders are used. Follow the below steps to connect a new computer:

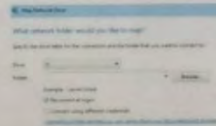
1. Plug in a network cable to a wall port that is activated on the AOE network (contact TSR Manager if confirmation is required of a ports status).
2. Ensure that the computer picks up the network with the below icon. The computer should obtain an IP address automatically.



3. Open **My Computer** then at the top click **Map Network Drive**.



4. Enter the desired details as per the below table, then click **Finish**. If done correctly, the chosen folder will open.



	Computer Description	Drive	Folder	Username and Password (if prompted)
Comp AOE	aq-quantum01	Y	\\172.31.192.41\quantumprimary	Username: aq-quantum01\aquaticaoe Password: Sopac8888
	aq-quantum02	Z	\\172.31.192.42\quantumsecondary	Username: aq-quantum02\aquaticaoe Password: Sopac8888
	aq-meetman01	X	\\172.31.192.43\swmeets5	Username: aq-meetman01\aquaticaoe Password: Sopac8888
Utility AOE	aq-quantum03	Z	\\172.31.192.47\quantumprimary	Username: aq-quantum03\aquaticaoe Password: Sopac8888
	aq-meetman03	Y	\\172.31.192.48\swmeets5	Username: aq-meetman03\aquaticaoe Password: Sopac8888
Athletic AOE	at-meetman01	Z	\\172.31.192.51\tfmeets5	Username: at-meetman01\athleticao Password: Sopac4444
	at-photo02	O	\\172.31.192.54\osv-capture-out	Username: at-photo02\athleticao Password: Sopac4444
	at-photo03	I	\\172.31.192.55\osv-capture-in	Username: at-photo03\athleticao Password: Sopac4444

Approved:

Date: 22/07/2015

Page: 2 of 2

Figure 52 SOPAC Quantum quick reference guide – page 2

APPENDIX D. MEET MANAGER DATABASE FOLDERS

NOTE: You must create these for Meet Manager and Quantum to communicate.

Before starting Quantum, check that the network folders are mapped correctly. At SOPAC, these are network shares on the **Y:** and **Z:** drives.

- Y: drive is normally used by the Primary Meet Manager computer, and the
- Z: drive by the Secondary Meet Manager computer.

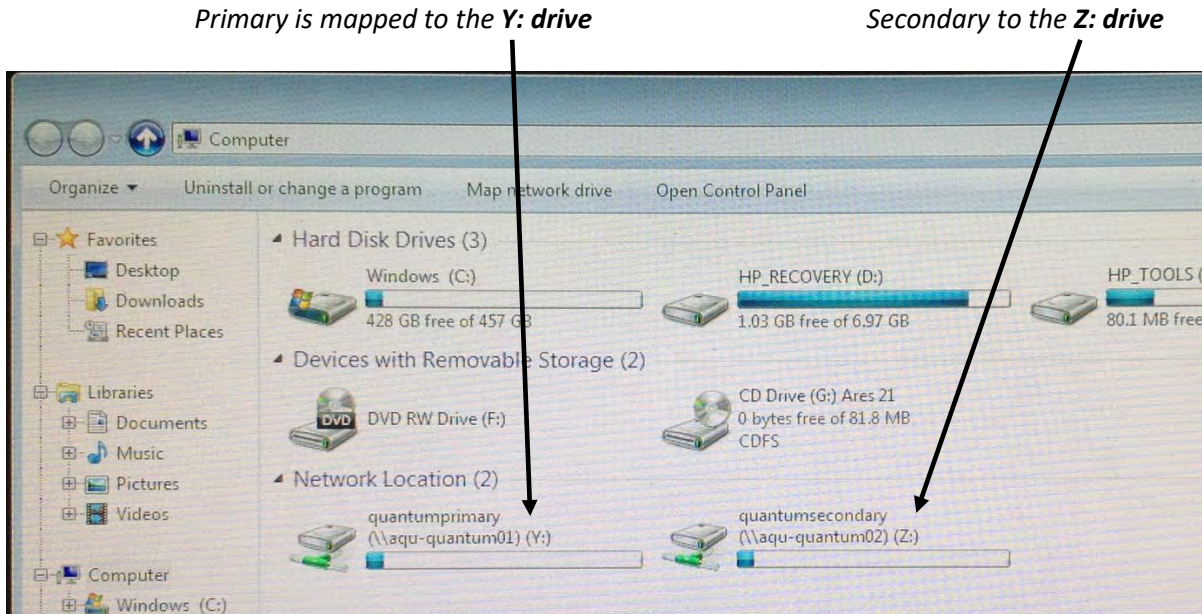


Figure 53 Connected computer disk drives

Data Handling (DH) or sharing between Meet Manager and Quantum is done through these folders. *If the network drives are not shown, please create them.*

See **Appendix B. SOPAC QUANTUM QUICK REFERENCE GUIDE page 74** for mapping the network drives. **NOTE:** This now requires Admin privileges.

Planning the folders for a Meet

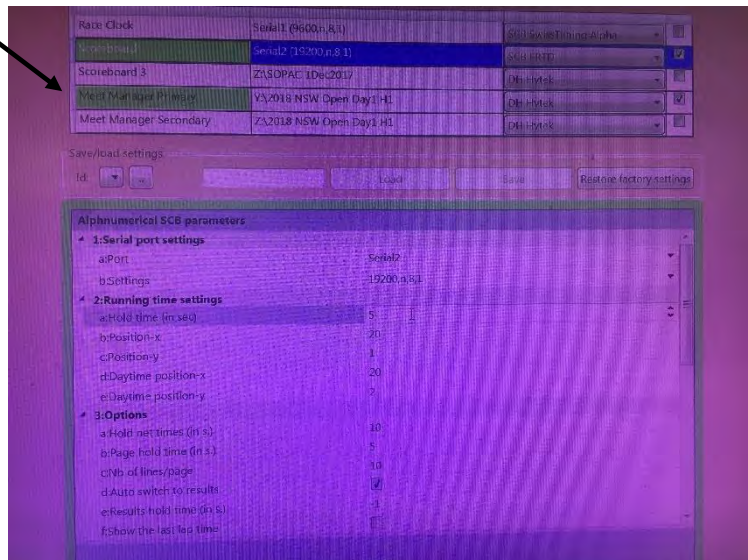
Single-day Meet

Have an operator create a folder for the Meet on **Y:** and copy it to the **Z: drive**.
E.g. 2018Meet

NOTE: Irrespective of whether both Primary and Secondary systems are used, it is good practice that the folders for the Meet be created on both these drives.

There are two ways to create this folder:

1. The folder can be created directly on the **Y: drive** using standard Windows commands and a copy made on the **Z: drive**. If created this way, you must then select this folder in Quantum under the I/O Setup.
2. Within Quantum itself. *See I/O SETUP page 21.*



The **I/O Setup** is found under:

Race | I/Os | Meet Manager Primary and Secondary | Hytek interface parameters

Meet Manager writes the Meet Schedule (.sch) and Start List (.slx) files to this folder for Quantum to import.

Quantum writes the race results to this folder for Meet Manager to pick up.

NOTE: If Quantum itself adds an extra event (*and not through Meet Manager*), those event details are not written to this folder.

E.g., if a new swim-off event is added independently by Quantum, then Meet Manager will not know about it, as its details are not in the DH folder.

Multi-day Meet with Heats and Finals

Each Session, i.e., Heat or Final, should have its own folder.

E.g.,	2016NSWOpenDay1Session1Heats	OR	2016NSWOpenD1S1H
	2016NSWOpenDay1Session1Finals	OR	2016NSWOpenD1S1F
	2016NSWOpenDay2Session2Heats	OR	2016NSWOpenD1S2H
	2016NSWOpenDay2Session2Finals	OR	2016NSWOpenD1S2F

Consistency and a standardised naming convention should be applied.

Have an operator create a folder for the Session on the **Y: drive** and then copy it to the **Z: drive** using standard Windows commands.

NOTE: Irrespective of whether the Primary and Secondary systems are both used, it is good practice that the folders for the Meet be created on both these drives.

There are two ways to create this folder:

1. The folder can be created directly on the **Y: drive** using standard Windows commands and a copy made on the **Z: drive**. If created this way, you must then select this folder in Quantum under the I/O Setup.
2. Within Quantum itself. *See I/O SETUP page 21.*

NOTE: Having a single operator carry out this procedure will help ensure consistency of folder names as the names can be copied and pasted.

If they are created here, you must then select these folders in Quantum under:

Race | I/Os | Meet Manager Primary and Secondary | Hytek interface parameters

Meet Manager writes the Meet Schedule (.sch) and Start List (.slx) files to this folder for Quantum to import. Quantum writes the race results to this folder for Meet Manager to pick up.

NOTE 1: Quantum also writes the results to its own internal database folder.
*(You create this folder when you create the Meet Session after clicking on Race on the **Home** page).*

NOTE 2: Always check that you are in the correct database folder for that particular session or final.

*See **Verifying Database folder** page 19*

Multi-day Meet with Timed Finals

If the Meet Manager operator has the meet program set up as one session, then prepare the folders as for a Single Day Meet (*see previous page*).

It is better to create a separate Session for each day of the Meet and run each Session as if it were a Single Day Meet.

APPENDIX E. TIMER SYNCHRONISATION

NOTE: It is most important that Quantum be synchronised with the Scoreboard clock as accurately as possible. The Scoreboard clock is also used by many officials around the pool outside of the Control Room.

In **Auto** mode, the software searches for the connection to the Quantum timer box.

Home button

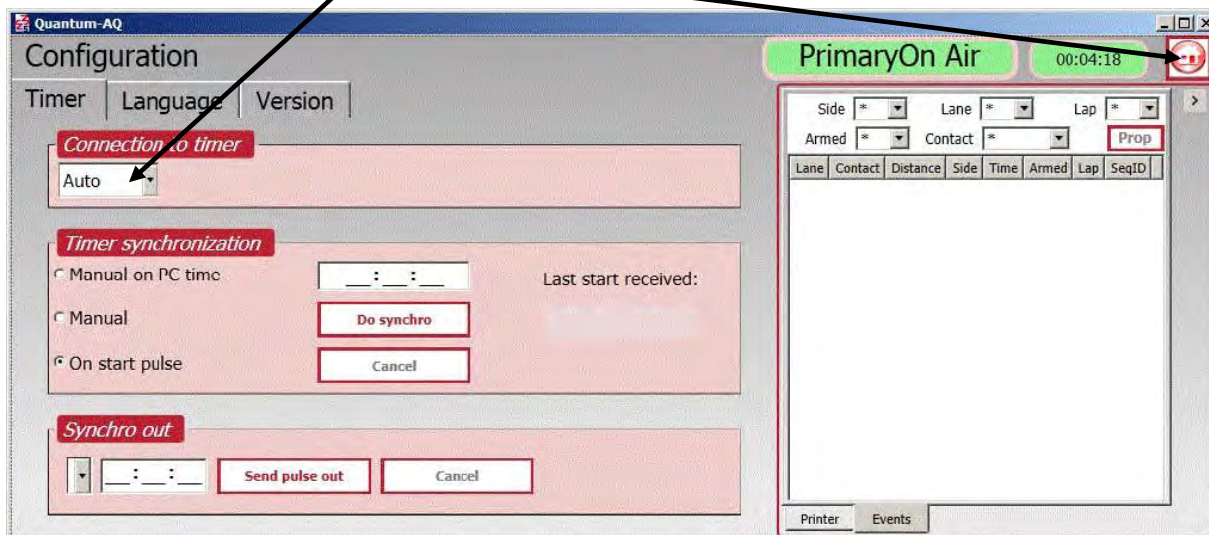


Figure 54 Quantum Configuration window

Timer synchronisation can be made to occur:

Manual on PC time

Not used at SOPAC (the PC and Scoreboard may have slightly differing times).

Manual

Primary only. Entering a Scoreboard time at which the **Do synchro** button will be pressed. Click the **Home button** to return to the *Home screen*.

On start pulse

Preferred when BOTH Primary and Secondary are used. Both are synchronised using the start button when the Scoreboard clock reaches a pre-determined time.

On the Primary and Secondary computers set the synchronisation to occur:
On start pulse (click on the bottom radio button) then:

1. Set the time about a minute or two ahead of the Scoreboard time.
2. Click **Do Synchro**.
3. Have someone go to the Starters Stand and when the Scoreboard clock changes to this time, press the start button on the starter's controller

Connection to timer must be set to **Auto** (this is the preferred method).
Click the **Home button** to return to the *Home screen*.

Synchro out

Can be used when either Primary or Secondary Quantum box has to be re-started.

On the system whose time is correct, (*e.g. Primary*) enter the time at which the pulse will be sent to the other system and click Send pulse out.

Use the dropdown box to select **17:44:00** and click **Send pulse out**.

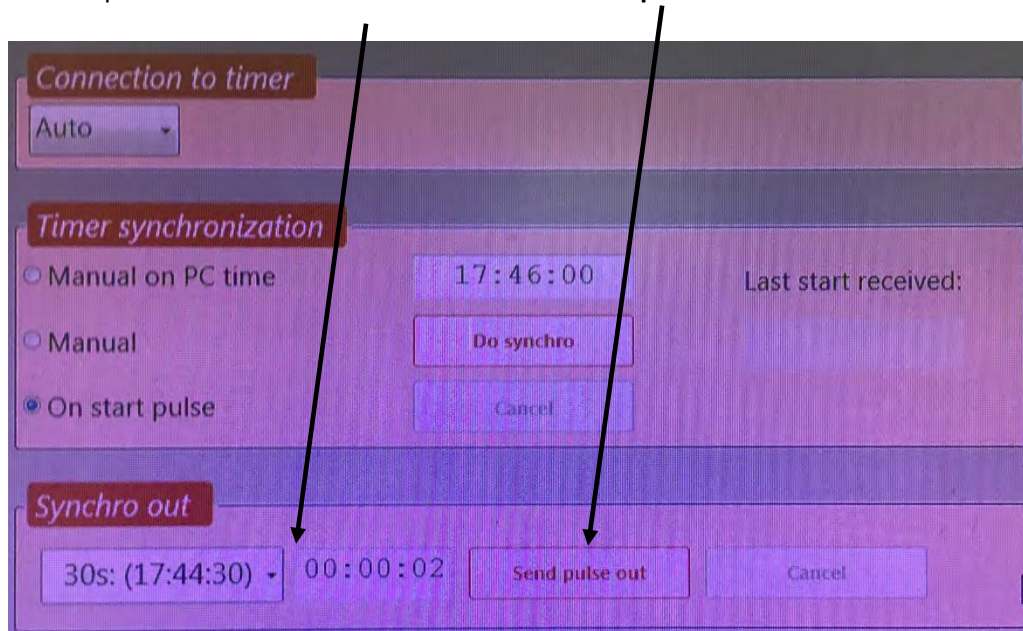


Figure 55 Using Synchro out

NOTE: The reason for the **Synchro out** time not being 17:44:00 was because the synchro was actually performed at this time, but when we returned for the photo, the drop down box had moved past that time. The drop down box only shows times after the current time.

On the system whose time is to be set (*e.g. Secondary*), enter the time to at which the start pulse will be received.

Then click **Do synchro** and wait for the other system to send the pulse.

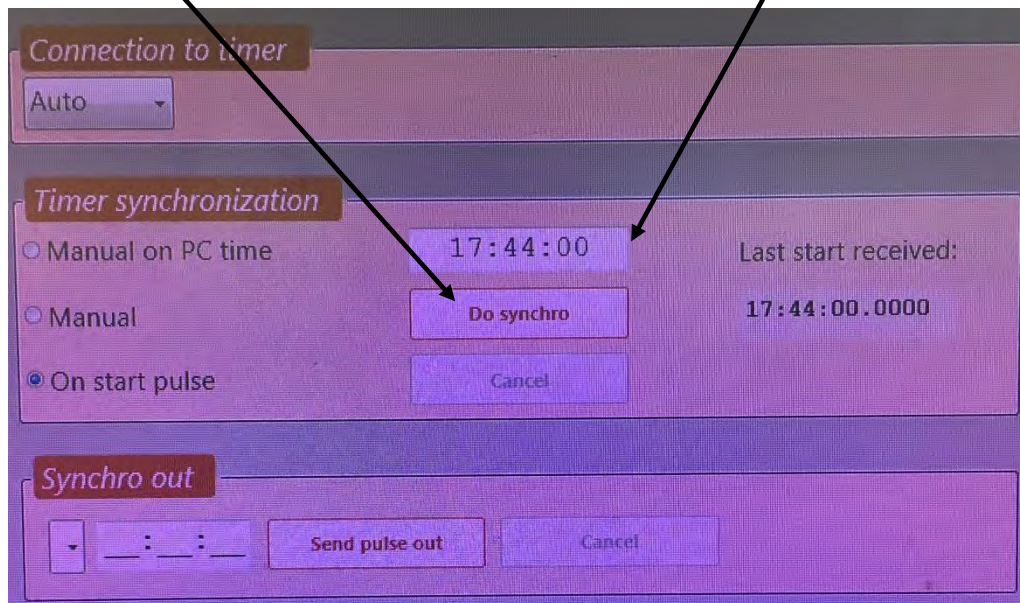


Figure 56 Timer synchronisation

This will synchronise this system (*Secondary*) to the same time as the other system (*Primary*).

Click the **Home button** to return to the *Home screen*.

APPENDIX F. GENERATING TIMES

Simulation of a Race

Simulate actions in the timing part of Quantum.

<Ctrl> <Shift> S Start a race.
<Ctrl> <Shift> <Lane number> Action a touch on the pad.

Choose which end pad by using the <Space bar>.

Import heat results from a previous session

Event 39 has 2 heats for the 1500m Freestyle.

Heat 1 was swum in the morning session, and the results have to be imported for the evening's session as it is a timed final.

Select **Event 39**

And from the dropdown box, select the heat to import

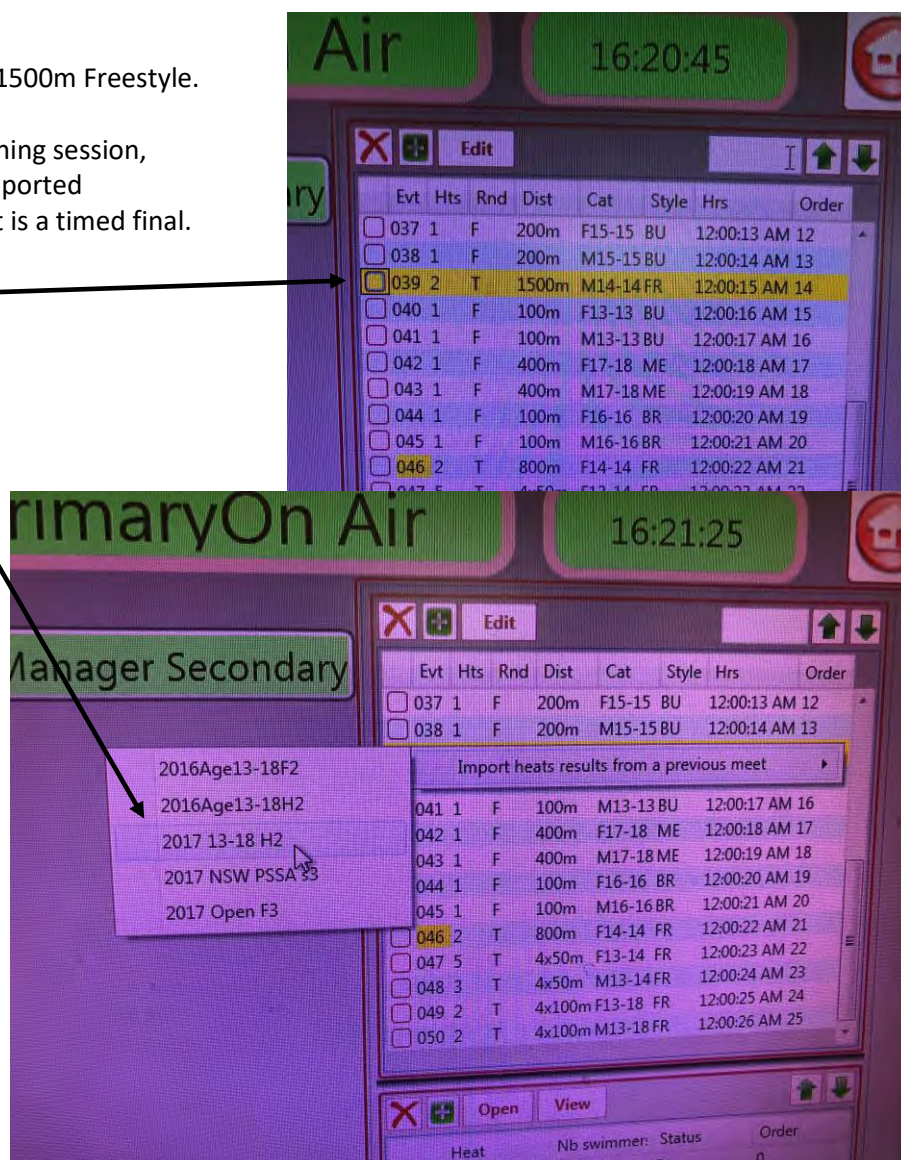


Figure 57 Copying times from one session to another

APPENDIX G. RACE SETTINGS

Timing

Here you can set the Arming delays in seconds (*the time it takes for the pads to become active*). Sounds, also, can be turned **On** or **Off** as well as other miscellaneous features.

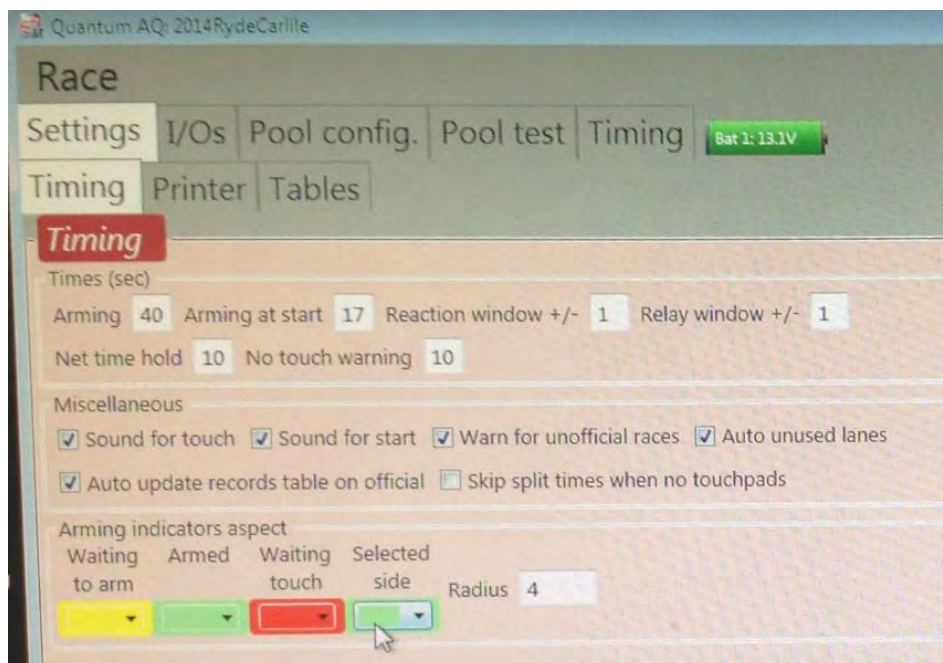


Figure 58 Race - Settings - Timing tab

Each of these will now be explained.

Times (sec)

Arming

The arming delay should be a little less than the fastest time a swimmer can swim **back and forth along the pool**.

Long Course use:

Short Course use:

Arming at start

The arming delay should be a little less than the fastest time swimmer can swim **from the start to the opposite end**.

Reaction window

Specifies the time window within which a reaction time will be accepted based before (-) and after (+) start.

NOTE: Reaction times will not be displayed unless the Block Icon is enabled in Contacts.
See **Reaction Times page 27**.

Relay window

1

Specifies the time window within which a relay takes over will be measured before or after the arrival of previous team member based before (-) and after (+) touchpad pulse.

NOTE: Relay changeover breaks will not be shown on the Quantum Console, unless the Block Icon is enabled in Contacts. See [Reaction Times page 27](#).

Net time hold

10

Period where time is held. Specifies how long the split will stay on the screen before being cleared. This affects only the timing window, not the Scoreboard output, as it has its own settings.

No touch warning

10

If touchpad pulse is not received after this period, warning is displayed.

Miscellaneous

Sound for touch

Computer will emit a beep for every new valid time.
Enable this!

Sound for start

Computer will emit a beep for start.
Enable this!

Warn for unofficial races

Open a warning window before next race, if current race is unofficial.
Enable this!

Auto unused lanes

If you don't use start list, lanes are always activated.
Enable this!

Auto update records table on official

Write in record table if new record on official.
Enable this!

Skip split times when no touchpads

Not usually enabled.

Arming indicators aspect

Waiting to arm



Define colour when lane is waiting to arm.
Default is Yellow

Armed



Define colour when lane is armed.
Default is Green

Waiting touch



Define colour when lane is waiting a touchpad pulse.
Default is Red

Selected side

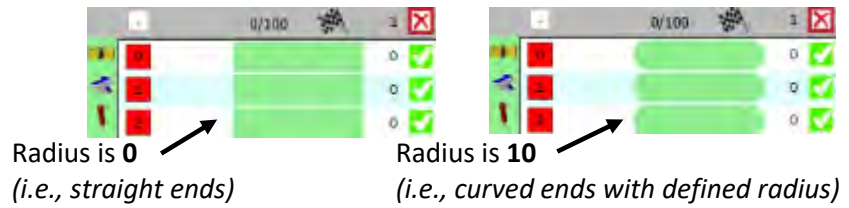


Define color of selected pool side
Default is Green

Radius

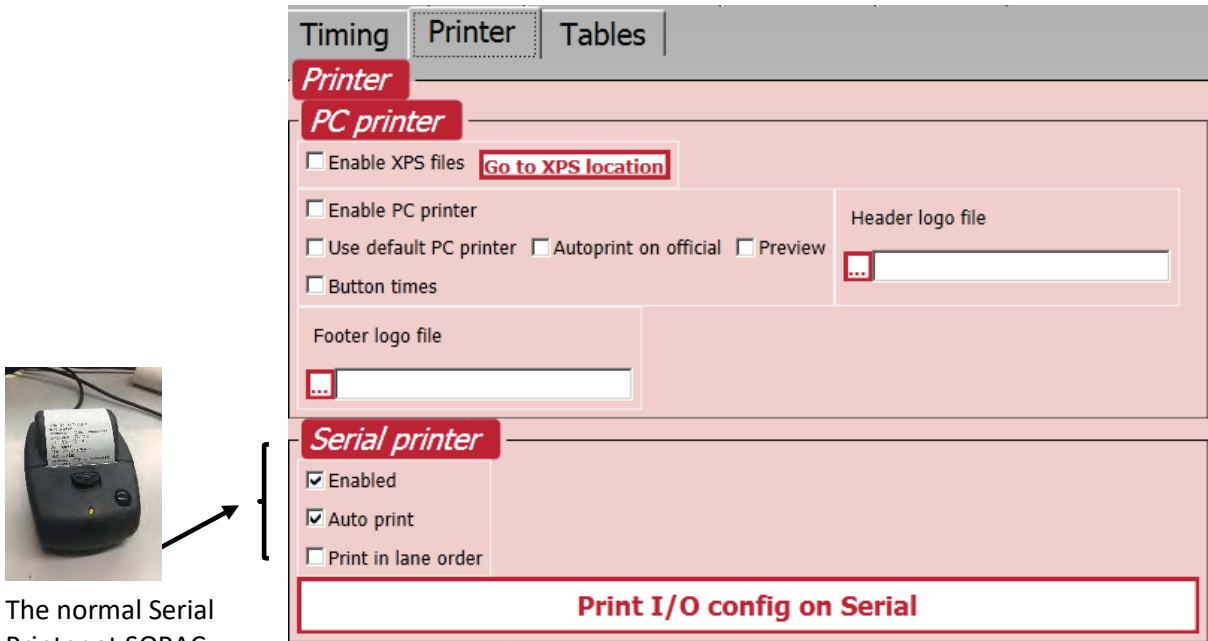


Affects the roundedness of the end of the colour box. Default is 4.



Printer

Used to select and configure printers:



The normal Serial Printer at SOPAC

Figure 59 Race - Settings - Printer tab for Serial printer

See **Figure 25 Race Printout page 50** for a sample printout from this printer.

NOTE: The PC Printer is currently not normally used at SOPAC.

PC printer

Rarely used at SOPAC

Default Function

- Enable XPS files
Go to XPS location
- Enable PC printer
- Use default printer
- Autoprint on official
- Preview
- Button times
Header logo file
Footer logo file

Explanation

Enable XPS files saving
Open directory where XPS files are saved when XPS enabled

Enable computer printer
Use default printer selected in your computer
Print result automatically on official (i.e., <F11>)
Display preview before printing
Print result with backup buttons
Select a specific header logo on printing
Select a specific footer logo on printing

Serial printer

The default slip printer in SOPAC control room

- Enabled
- Auto print
- Print in lane order
Print I/O config on Serial

Enable serial printer
Print result automatically on official (i.e., <F11>)
Print in rank order or in lane order if checked
Print configuration on serial printer

NOTE: If you inadvertently select PC Printer, you may get this screen:

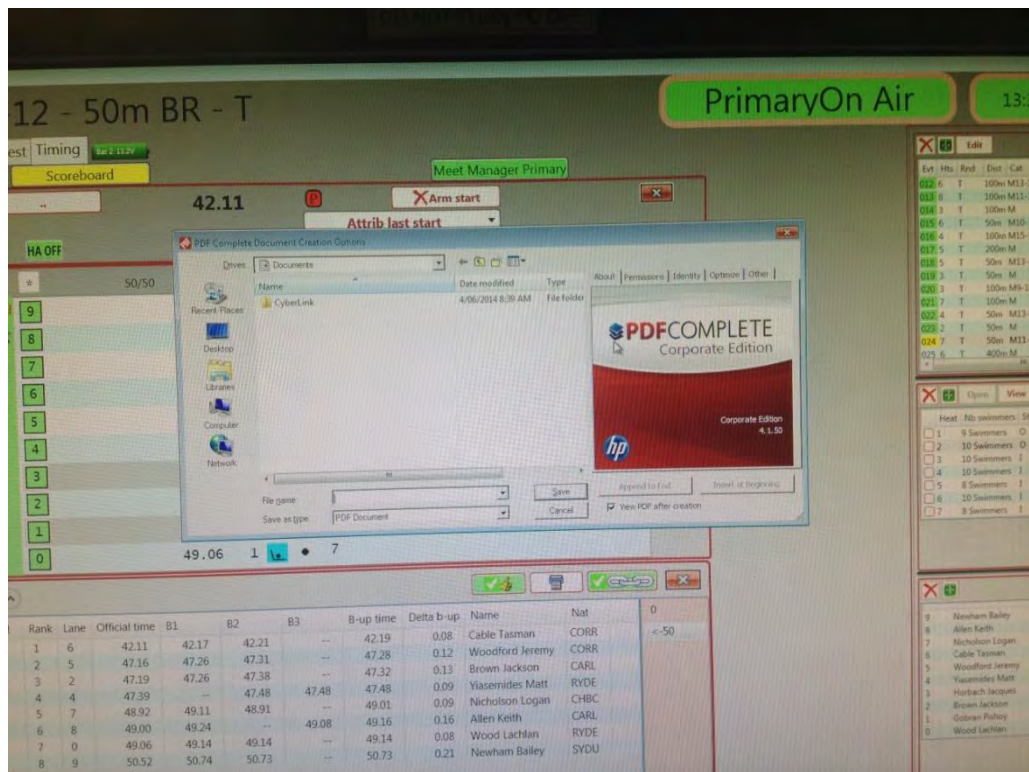


Figure 60 Print asking for PDF file

If this occurs:

- Click **Close**.
- Check printer configuration:
 - Disable all PC Printer functions
 - Enable the Serial Printer

Tables

Many Quantum operators do not bother with tables and just use the defaults.

However, more meaningful Scoreboard information can be provided to the spectators by carefully editing these tables.

There are 6 tables relating to the Meet that are managed here:

1. **Distances**
E.g., 50m
2. **Styles**
E.g., Free
3. **Categories**
E.g., Boys 10&U
4. **Rounds**
E.g., Heats
5. **Status**
E.g., DQ
6. **Records**
E.g., Rec:

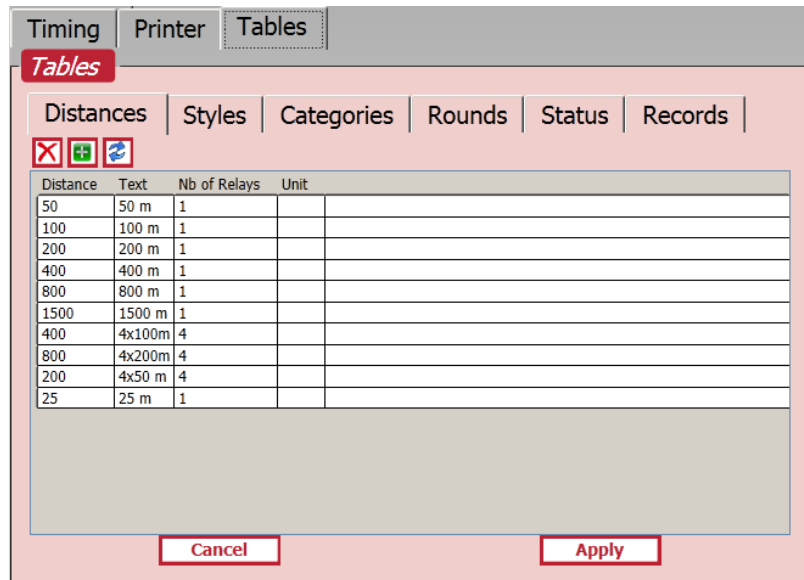


Figure 61 Race - Settings - Tables tab

Distances

Race Distances e.g., 50m

Column 2 (**Text**) is editable. DO NOT CHANGE ANY OTHER COLUMN.

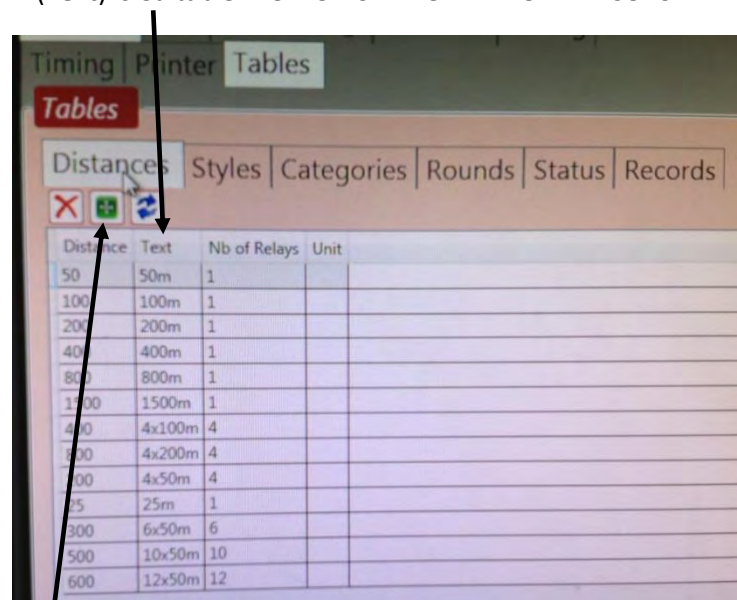



Figure 62 Race - Settings - Tables tab for Distances

This table has four fields:

Distance Text Nb of Relays Unit

To add a new distance, click the  symbol

Fill in these columns:

- Column 1 Total distance
- Column 2 Text for Scoreboard
- Column 3 Number of swimmers as if in a relay
- Column 4 Leave blank

Click **Apply**

Events with unusual distances

Click on the **plus sign** to add the details of the unusual distance setting.



Figure 63 Distances table

These tables indicate the parameters to enter into the Distance Table for events (*mainly relays*) having unusual distances:

50m relays starting at start end:

Relay	Distance	Text	Nb of Relays	Unit
6x50	300	6x50m	6	
8x50	400	8x50m	8	
10x50	500	10x50m	10	
12x50	600	12x50m	12	

50m relays starting at turn end:

Relay	Distance	Text	Nb of Relays	Unit
3x50	150	3x50m	3	
5x50	250	5x50m	5	
7x50	350	7x50m	7	
9x50	450	9x50m	9	

25m relays starting at the start end:

Relay	Distance	Text	Nb of Relays	Unit
4x25	100	4x25m	2	
6x25	400	8x50m	3	
8x25	500	10x25m	4	
10x25	600	12x25m	5	

Example 1 10x50m Freestyle Relay

Distance	Text	Nb of Relays	Unit
----------	------	--------------	------

In the Distance Table, add:

500 10x50m 10

Click **Apply**.

To verify, go back to **Timing**, double click on the **event** (*not the heat*) and click on the display for the description.

NOTE: Quantum assumes all relays have 4 swimmers, and so divides the distance by 4 to arrive at 125.

Choose the new entry from the drop down list.

Click on **Accept**.

Example 2 9x50m Freestyle Relay

Distance	Text	Nb of Relays	Unit
----------	------	--------------	------

In the Distance Table, add:

450 9x50m 9

Click **Apply**

Return to **Timing** and Double click the **Event** number for the description.

Choose the new entry from the drop down list.

Click on **Accept**.

Styles

Race Styles e.g., Freestyle

Column 1 (**Style**) is editable. DO NOT CHANGE ANY OTHER COLUMN.

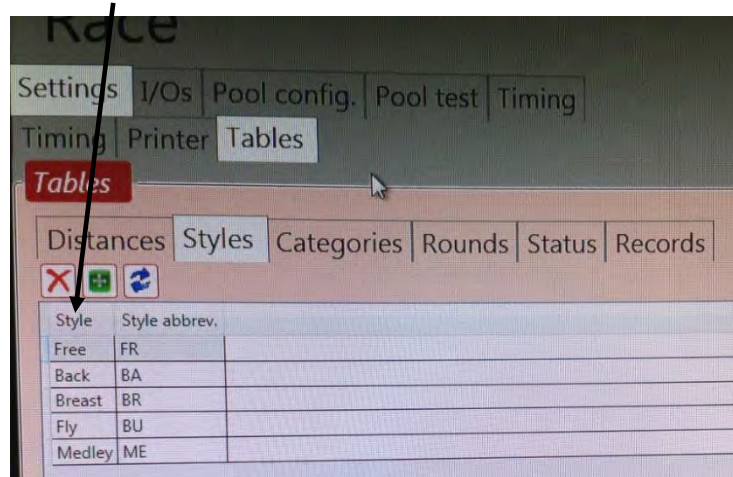


Figure 64 Race - Settings - Tables tab for Styles

This table has two fields: Style Style abbrev.

Alter items in the Style field.

I.e., shorten or lengthen the stroke names to fit the Scoreboard.

These have been abbreviated in to:
Free, Back, Breast, Fly, Medley

NOTE: Currently, the word "Relay", to designate such events, is not imported from Meet Manager.

It is implied by the distance e.g., 4x50m.

If you want to add the word Relay to the display on the Scoreboard, double-click the Event to create a custom title.

Categories

Categories i.e. Gender and Age groups

For most meets there will be gender and age groups listed, but for some meets like NSW Open, only gender is relevant.

In the example following, the particular NSW Open meet also had multiclass events indicated by M10+ and F10+.

Column 1 (**Category**) is editable. DO NOT CHANGE ANY OTHER COLUMN.

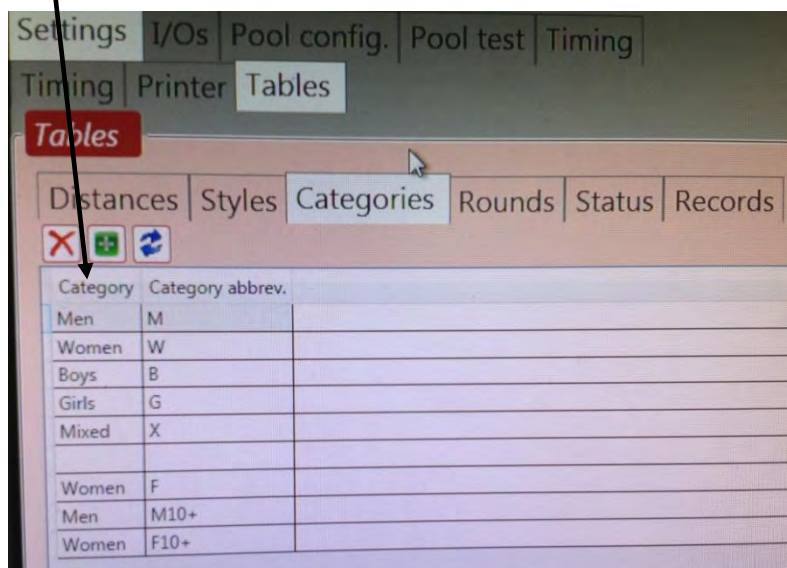


Figure 65 Race - Settings - Tables tab for Categories

This table has two fields: Category Category abbrev.

Alter items in the **Category** field if required:

e.g., In the above example, column 1 names have been changed.
The abbreviations M10+ and F10+ refer to open events at this meet and the change was appropriate in this instance.

For the M10+ and F10+ categories, another change which would also work would have been to change the category to Men MC and Women MC.

Normally you would change things like:

M	to	Men	
F	to	Women	
B	to	Boys	
G	to	Girls	
W	to	Women	
X	to	Mixed	
B13-	to	Boys 13&U	
B14-14	to	Boys 14yrs	
B15-15	to	Boys 15yrs	
B16-17	leave as is		
G18+	to	Girls 18&O	<i>etc.</i>

It is worth noting that having the gender written in full can leave limited space for other parts of the title.

When this is likely to happen, and when space is at a premium, it is best to use these abbreviations:

M	for Male
F	for Female

Rounds

Competition phases e.g. Preliminary, Final, Timed Final

Examples of the Events view window:

Evt	Hts	Rnd	Dist	Cat	Style	Hrs	Ord
023	5	F	200m	F	BA	12:00:07 AM	7
024	5	F	200m	M	BR	12:00:08 AM	8
025	5	F	200m	F	BR	12:00:09 AM	9
026	5	F	50m	M	BU	12:00:10 AM	10
027	6	F	50m	F	BU	12:00:11 AM	11
028	4	F	400m	M13-	FR	12:00:12 AM	12
029	3	F	400m	F13-	FR	12:00:13 AM	13
030	8	F	100m	M	FR	12:00:14 AM	14
031	8	F	100m	F	FR	12:00:15 AM	15
032	2	F	1500m	M14+	FR	12:00:16 AM	16
033	2	F	4x100m	F	ME	12:00:17 AM	17
034	1	F	4x100m	M	ME	12:00:18 AM	18
999	1	TESTS	50m	M	FR	8:27:09 AM	19

Figure 67 Round Settings – F for Final

Evt	Hts	Rnd	Dist	Cat	Style	Hrs	Ord
001	2	P	200m	F16-16	BU	12:00:01 AM	1
002	2	P	200m	M16-16	BU	12:00:02 AM	2
003	5	P	50m	F17-18	FR	12:00:03 AM	3
004	5	P	50m	M17-18	FR	12:00:04 AM	4
005	2	F	800m	F15-15	FR	12:00:05 AM	5
006	6	P	200m	F14-14	ME	12:00:06 AM	6
007	4	P	200m	M14-14	ME	12:00:07 AM	7
008	5	P	200m	F13-13	FR	12:00:08 AM	8
009	4	P	200m	M13-13	FR	12:00:09 AM	9
010	6	P	100m	F16-16	FR	12:00:10 AM	10
011	5	P	100m	M16-16	FR	12:00:11 AM	11
012	3	P	100m	F17-18	FR	12:00:12 AM	12
013	4	P	100m	M17-18	BR	12:00:13 AM	13
014	4	P	200m	F15-15	BA	12:00:14 AM	14

Figure 66 Round Settings – P for Preliminary

In this example, the Round has the abbreviation **F** for **Final** and **P** for **Preliminary**.

At other times **T** is used for **Timed Finals**.

Always note the abbreviation for Round once the meet has been brought in from Meet Manager, and check in the Rounds Table that the appropriate numbers or letters are used in this table.

Round name	One round	Short name	Heats
Qualif.	Heat	H	1;2;3;4;5;6;7;8;9;10;11;12;13;14;15;16;17;18;19;20;21;22;23;24;25;26;27
SwimmOff	SOff	SOff	1;2;3;4;5;6;7;8;9;10;11;12;13;14;15;16;17;18;19;20;
Semi-finals	S-Final	SFI	1;2;
Finals	Final	FI	A;B;
TESTS	Test	TE	1;2;3;4;5;6;7;8;9;10;11;12;13;14;15;16;17;18;19;20;
Consolation	Consol	CO	1;2;3;4;5;6;7;8;9;10;
Bonus Final	B-Final	BF	A;B;
Timed Final	T-Final	TF	1;2;3;4;5;6;7;8;9;10;11;12;13;14;15;16;17;18;19;20;21;22;23;24;25;26;27;
F	F	F	1;2;3;4;
P	P	P	

Figure 68 Race - Settings - Tables tab for Rounds

In the example above, you will see **1;2;3;4;** in the **Heats** column for the Round called **F**.

The following examples explain how to make numbers or letters come up on the Scoreboard for Finals events.

If this were a final, you would get a number on the Scoreboard instead of A or B Final.

Example 1 (where Rounds table has Heats as 1;2;3; etc)

To make this appear on the Scoreboard as:

Event 1 Final 1

Change 4b in the Scoreboard I/O settings to:

4:Titles and presentations
b:Second title line (records) Event:{0} Final:{2}

Example 2 (where Rounds table has Heats as A,B etc)

to make this appear on the Scoreboard as:

Event 1 A-Final

Change 4b in the Scoreboard I/O settings to:

4:Titles and presentations
b:Second title line (records) Event:{0} {2}-Final

NOTE: If the Rounds table uses 1;2; etc instead of A;B; etc, merely edit the numbers and replace with A;B;.

Status

Status of a swimmer at end of race e.g. DQ

This lists these terms:

OK	<i>if the time is accepted</i>
Did not Start	DNS
Did not Finish	DNF
Disqualified	DSQ

Change the Disqualified abbreviation from **DSQ** to **DQ**.

Column 2 (**Status abbrev.**) is editable. DO NOT CHANGE ANY OTHER COLUMN.

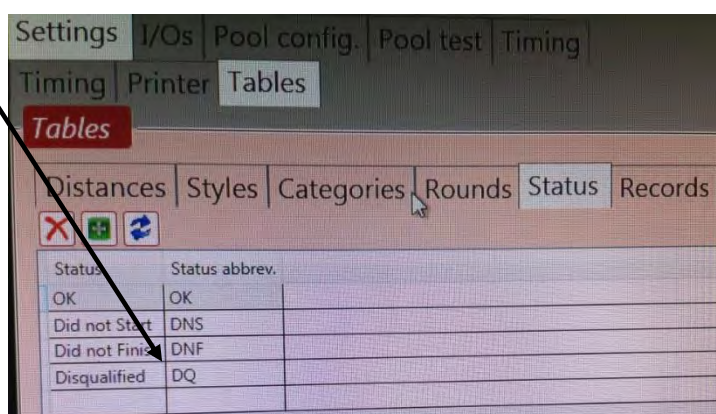


Figure 69 Race - Settings - Tables tab for Status

Records

Three fields are available, denoted as #1, #2 and #3:

Normally only #1 is used

The text is editable and should be adjusted for the Meet.

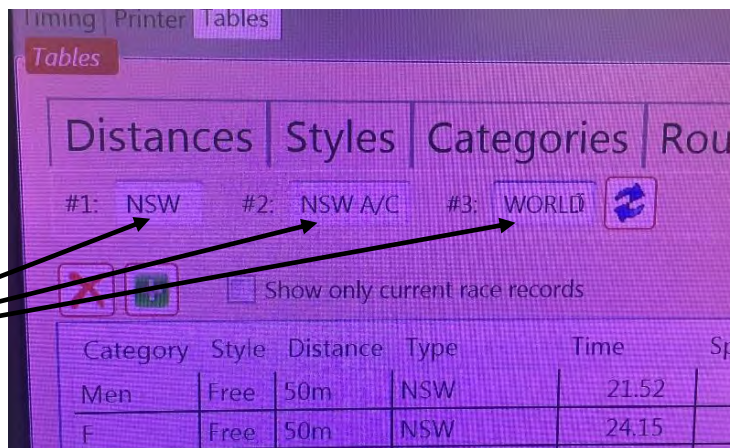


Figure 70 Race - Settings - Tables tab for Records

The text placed here is what is shown on the Scoreboard.

If records are not to be shown on the Scoreboard, they should be **deleted** here.

NOTE: When amalgamations and reseeded events are imported, records may be imported as well.

If records are to be shown, edit these fields:

- #1** Should be changed to the actual abbreviation for the first record. It could be, e.g., NSW, AU, Club, Rec, etc.
- #2** Should be changed to the actual abbreviation for the second record. It could be, e.g., AC (*meaning all-comers*).
- #3** Should be changed to the actual abbreviation for the third record. It could be, e.g., WD (*meaning world record*).

For showing on the Scoreboard, edit **I/Os Scoreboard**, Second title line (records):

4:Titles and presentations

b:Second title line (records)

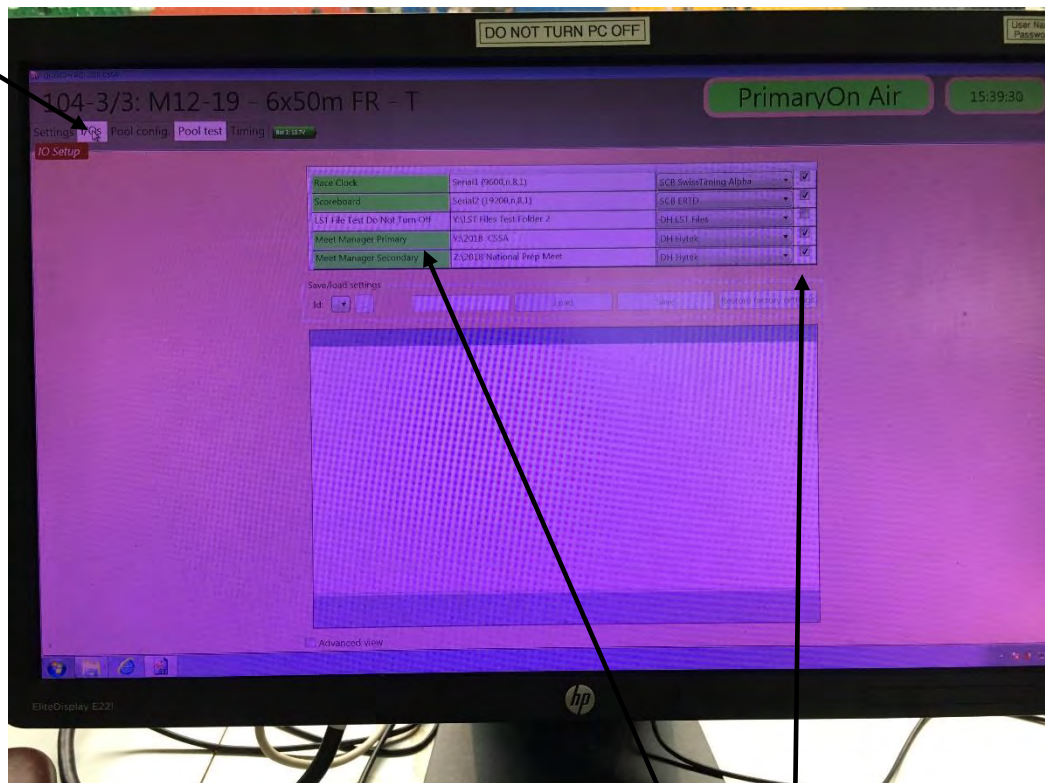
Ev:{0} Ht:{2} {6}

As seen here, **{6}** will display Record #1. By either adding or substituting **{7}** and/or **{8}** will put those records on the Scoreboard.

The field width of the Second title line, may not be big enough to contain the Record. In this case, put the record into the First line title.

APPENDIX H. I/O SETUP

Click I/Os



The important items that need our attention are:

- Scoreboard
- Meet Manager Primary
- Meet Manager Secondary

Placing a tick here makes that item active
*E.g., If **Meet Manager Secondary** is not being used, it can be turned off here by un-checking the tick box.*
 The active items are highlighted in green e.g., **Scoreboard**

You must have a tick at least for:

- Scoreboard
- Meet manager Primary

Scoreboard configuration

Everything that appears on the Scoreboard is configurable here.

To configure the Scoreboard, click Scoreboard.

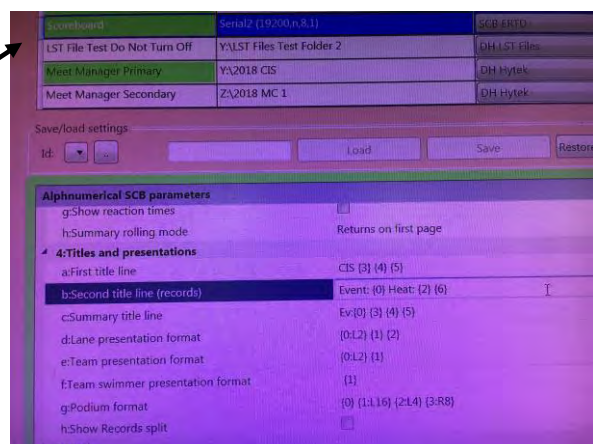


Figure 71 Configuring Scoreboard

Scoreboard parameters

Current settings and explanations are listed here.

This is a complete list of the Scoreboard settings and it's what you see when you click Scoreboard:
(This can be a bit daunting, but the next page explains the settings shows what we can change).

1:Serial port settings	
a:Port	Serial2
b:Settings	19200,n,8,1
2:Running time settings	
a:Hold time (in sec)	5
b:Position-x	20
c:Position-y	1
d:Daytime position-x	20
e:Daytime position-y	2
3:Options	
a:Hold net times (in s.)	10
b:Page hold time (in s.)	5
c:Nb of lines/page	10
d:Auto switch to results	<input checked="" type="checkbox"/>
e:Results hold time (in s.)	-1
f:Show the last lap time	<input type="checkbox"/>
g:Show reaction times	<input type="checkbox"/>
h:Summary rolling mode	<input type="text" value="Returns on first page"/>
4:Titles and presentations	
a:First title line	<i>e.g. 2019 State {3} {4} {5}</i>
b:Second title line (records)	Event:{0} Heat:{2} {6}
c:Summary title line	Ev:{0} {3} {4} {5}
d:Lane presentation format	{0:L2} {1} {2}
e:Team presentation format	{0:L2} {1}
f:Team swimmer presentation format	{1}
g:Podium format	{0} {1:L16} {2:L4} {3:R8}
h:Show Records split	<input type="checkbox"/>
5:Mask	
a:Mask for startlist	{4:L2} {1:L16} {2:L4}
b:Mask for race mode	{4:L2} {1:L16} {2:L4} {3:R8} {0:L2}
c:Mask for resultlist	{0:L2} {1:L16} {2:L4} {3:R8} {4:L2}
d:Mask for summary	{0:L2} {1:L16} {2:L4} {3:R8}
6:Tests	
a:Test command	<input type="text" value="Start"/> <input type="text" value="Stop"/>

See next page for detailed explanation of each of these parameters.

This is the explanation for the Settings:
 (Do not change any settings that are grey colour)

Those that can be changed are indicated by arrows.

Changeable items

	1:Serial port settings
	a:Port
	At SOPAC it's: Serial2
	b:Settings
	At SOPAC it's: 19200,n,8,1
	2:Running time settings
	a:Hold time (in sec)
	Select how long the running time should stop after a turn
→	For State Meets we use: 5
	b:Position-x
	At SOPAC it's: 20
	c:Position-y
	At SOPAC it's: 1
	d:Daytime position-x
	At SOPAC it's: 20
	e:Daytime position-y
	At SOPAC it's: 2
	3:Options
	a:Hold net times (in s.)
	Select how long the split times should stay on
→	At SOPAC we use: 10
	b:page hold time (in s.)
	Select how long a summary page should stay before going to the next
→	At SOPAC we use: 5
	c:Nb of lines/page
	At SOPAC it's: 10
	d:Auto switch to results
	Switch to results mode when official is pressed
→	At SOPAC it's ON: <input checked="" type="checkbox"/>
	e:Results hold time (in s.)
	Select how long the results should stay after the start of the next race
	0: Follow to the next race, -1: No action
→	At SOPAC we use: -1
	f:Show the last lap time
	After the finish, automatically show the last lap time
	At SOPAC it's OFF: <input type="checkbox"/>
	g:Show reaction times
	Show the reaction time after the start
→	At SOPAC it's ON: <input checked="" type="checkbox"/> for State meets
	Or it's OFF: <input type="checkbox"/> for School meets
	h:Summary rolling mode
	Shows how the summary should end: Continuous
	Returns on first page
	Finishes on last page
	Finishes with clear
→	At SOPAC we use: Returns on first page

4:Titles and presentations

a:First title line
 {0}Event Nb, {1}Round, {2}Heat Nb, {3}Category, {4}Distance, {5}Style, {6}Record1, {7}Record2, {8}Record3
 Default:{3} {4} {5} {0}-{2}

At SOPAC we use: *meet* {3} {4} {5} (Where *meet* is the abbreviated name of the Meet)

b:Second title line (records)
 {0}Event Nb, {1}Round, {2}Heat Nb, {3}Category, {4}Distance, {5}Style, {6}Record1, {7}Record2, {8}Record3
 Default:{0}

At SOPAC we use: **Event:{0} Heat:{2}**
Or with records: **Ev:{0} Ht:{2} {6}**

c:Summary title line
 {0}Event Nb, {1}Round, {2}Heat Nb, {3}Category, {4}Distance, {5}Style, {6}Record1, {7}Record2, {8}Record3
 Default:{3} {4} {5} {0}

At SOPAC we use: **Ev:{0} {3} {4} {5}**

d:Lane presentation format
 Use {0}:Lane, {1}:Name, {2}:Country, {3}:Club
 {0:L2} {1} {2}

e:Team presentation format
 Use {0}:Lane, {1}:TeamName, {2}:Country, {3}:Club
 {0:L2} {1}

f:Team swimmer presentation format
 Use {1}:Lane, {1}:Name, {2}:Country, {3}:Club.
 {1}

g:Podium format
 Use {0}:Rank, {1}:Name, {2}:Country, {3}:Time, {4}:Club
 {0} {1:L16} {2:L4} {3:R8}

h:Show Records split
 Show the records split and delta
 Only for the 1st record.
 Default:

5:Mask

a:Mask for startlist
 Use {0}Rank, {1}Name, {2}Country, {3}Time, {4}Lane, {7}Club
 {4:L2} {1:L16} {2:L4}

b: Mask for race mode
 Use {0}Rank, {1}Name, {2}Country, {3}Time, {4}Lane, {6}Laptime, {7}Club
 {4:L2} {1:L16} {2:L4} {3:R8} {0:L2}

c: Mask for resultlist
 Use {0}Rank, {1}Name, {2}Country, {3}Time, {4}Lane, {5}Record indicator, {6}Laptime, {7}Club
 {0:L2} {1:L16} {2:L4} {3:R8} {4:L2}

d:Mask for summary
 Use {0}Rank, {1}Name, {2}Country, {3}Time, {4}Lane, {5}Record indicator, {7}Club
 {0:L2} {1:L16} {2:L4} {3:R8}

6:Tests

a:Test command
 Start a test pattern
 The scoreboard must be activated

Figure 72 Scoreboard parameters showing all arguments

The only essential thing to check is **4a: First title line** as it may default to the previous meet.
 All other information here is for more advanced use and generally are optional.

Changing Scoreboard settings

The amount of time between each screen can be set in the **Scoreboard I/Os**.

Two settings can be changed:

1. The time each page is held
2. What happens at the end of the summary

The time each page of the summary is held on the Scoreboard is configurable in the Scoreboard I/O settings. The default is **5 seconds** between pages.

At the end of the summary, the first page (**top ten swimmers**) will be shown again if **Returns on first page** is selected.

Scoreboard I/O settings

3:Options		
a:Hold net times (in s.)	10	
b:Page hold time (in s.)	5	DEFAULT
c:Nb of lines/page	10	
d:Auto switch to results	<input checked="" type="checkbox"/>	
e:Results hold time (in s.)	-1	
f:Show the last lap time	<input type="checkbox"/>	
g:Show reaction times	<input type="checkbox"/>	
h:Summary rolling mode		Returns on first page
<i>options:</i>	Continuous	
	Returns on first page	
	Finishes on last page	
	Finishes with clear	

Titles

There are many items which are configurable for the Scoreboard:

Line 1

- The name of the meet
- The event title

Line 2

- Event and heat
- Records



Figure 73 Scoreboard during race

Arguments

When referring to variables on the Scoreboard (such as title, event number and heat number), an argument is used. An argument is a code number surrounded by braces.

E.g., {0} is the argument for an Event number.

Those arguments used by the titles (i.e., First line, Second line or Summary) are:

{0}	Event number
{1}	Round
{2}	Heat number
{3}	Category
{4}	Distance
{5}	Style
{6}	Record 1
{7}	Record 2
{8}	Record 3

See Figure 72 Scoreboard parameters showing all arguments for a full list of arguments.

Scoreboard Line 1 – Titles and Records

This is set in the I/O setup in 4a of Scoreboard ...

4:Titles and presentations
a:First title line {3} {4} {5} Record:{6}

4: Titles and presentation

A: First title line

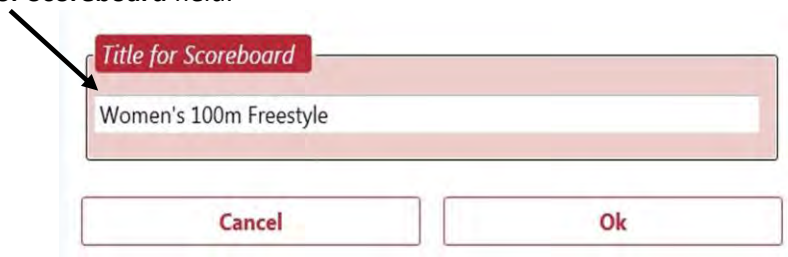
The usual setting is {3} {4} {5} but can be preceded by an optional title:
e.g., **2019 State** {3} {4} {5}

Optionally, Records (if available) can also be added:

4:Titles and presentations
a:First title line 2019 State {3} {4} {5} Rec:{6}

Titles can also be changed by editing the Event and entering a specific title on an event only basis in this window:

Line 1 can be modified on an event basis by double clicking the event and modifying the **Title for Scoreboard** field.



The screenshot shows a dialog box titled "Title for Scoreboard". It contains a text input field with the text "Women's 100m Freestyle". Below the input field are two buttons: "Cancel" and "Ok". An arrow points from the text above to the input field.

Figure 74 Title for Scoreboard

This will override the set title in the **I/Os** Tab at **4a** and only change the title for the chosen event.

NOTE 1: Be aware that if a title is entered here that does not contain the default settings, you should enter **{3} {4} {5}** to use the default meet settings with your title.

E.g., For a Men's Multi-Class 100m Free event, you might use:
2019 State Open {3} MC {4} {5}
This will displayed as:
2019 State Open Men MC 100m Free

NOTE 2: "Relay" in the title has to be added manually for each relay event. Double click the event and enter on the **Title for Scoreboard** line.

E.g., **2019 State Open {3} {4} {5} Relay**
This will be displayed as:
2019 State Open Men 4x50m Free Relay

Scoreboard Line 2 – Event and Heat

This is set in the **I/O** setup in **4b** of Scoreboard ...

4:Titles and presentations

b:Second title line

Event:{0} Heat:{2}

4: Titles and presentation

B:Second title line

The usual setting is **Event:{0} Heat:{2}**

Showing records

As at 2022, the Second line title is not sufficiently wide enough to hold the Event, Heat and Record values. Therefore, it is recommended that only one record, {6}, be placed on the First line title.

4:Titles and presentations	Ev:{0} Ht:{2}
b:Second title line (records)	

Up to 3 records are available to be shown. These records are included with the start lists that are imported from Meet Manager.

Each will have their own abbreviation.

The abbreviations for each record is set in the Tables under Records:

The arguments to use are: {6}, {7}, and {8} for records number 1, 2 and 3.

Preceding these arguments on the Scoreboard are the abbreviations in these boxes. I.e., **NSW**, **NSW A/C** and **WORLD**

These are editable and can be changed to whatever you wish.

Try to keep the abbreviations as short as possible to conserve Scoreboard space.

I.e., In this example you would change these to **NSW:**, **AC:** and **WD:**

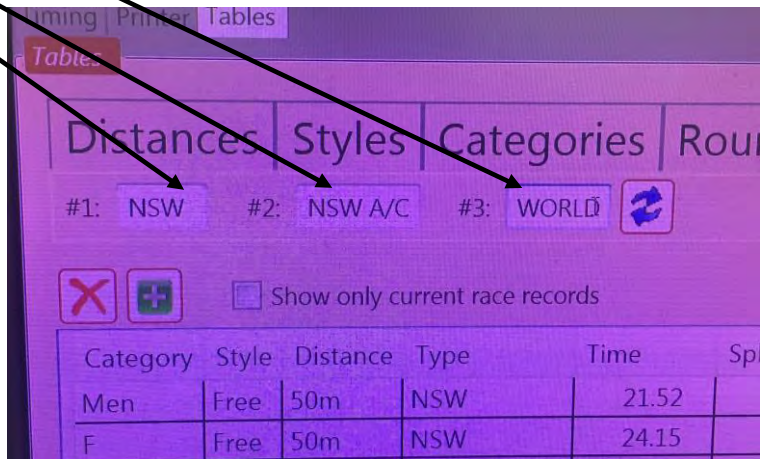


Figure 75 Record abbreviations

This illustrates the truncated record value when abbreviations are not used.

Note that using the words **Event**, **Heat** and **QW Record** leaves insufficient room for the actual record.

Since this photo was taken, the Event field is now justified more to the right leaving little field width for records.



Figure 76 Record text too long for Scoreboard

As of 2022, SOPAC does not have the capability to show more than one record.

NSW Open Championships

At **NSW Open Championships**, where **Heats** and **Finals** are swum, it is preferable to modify the default setting depending on whether it is a Heat or Final.

For **Heats** (with no records displayed):

4:Titles and presentations	
b:Second title line (records)	Event:{0} Heat:{2}

For **Heats with Records**:

4:Titles and presentations	
a:First title line	<i>meet title</i> {3} {4} {5} NSW:{6}
b: Second title line	Ev:{0} Ht:{2}

For **Finals** (without A and B Finals):

4:Titles and presentations	
b:Second title line (records)	Event:{0} Final

For **Finals with Records** (without A and B Finals):

4:Titles and presentations	
b:Second title line (records)	Event:{0} Final {6}

For **Finals** (with **A** and **B** Finals):

4:Titles and presentations	
b:Second title line (records)	Event:{0} {2}-Final

For **Finals with Records** (with **A** and **B** Finals):

4:Titles and presentations	
b:Second title line (records)	Ev:{0} {2}-Final {6}

For **Finals with two Records** (with **A** and **B** Finals):

4:Titles and presentations	
b:Second title line (records)	Ev:{0} {2}-Final {6} {7}

National Championships

The Technical Director will advise on what Records are to be shown on Scoreboard.
At **National Championships...**

For **Heats** (with no records displayed):

4:Titles and presentations	Event:{0} Heat:{2}
b:Second title line (records)	

Some events in the Finals are also timed-finals. For these events you may have to modify the settings prior to the start of the race. **Be vigilant!**

NOTE: Even though this seems fiddly, there is ample time to do this as Medal Presentations are being held followed by the Lane Presentation of swimmers in the next race.

CAUTION: Remember to change this back to **Event:{0} Heat:{2}** prior to relays and multi-class events, and events which are Timed Finals, e.g., distance swims where the fastest heat is swum in the finals Session.

Where Finals races are identified by the appropriate abbreviation in the **Rounds table** i.e. **F**, (which is not always the case) this line can be changed to:

4:Titles and presentations	Event:{0} {2}-Final
b:Second title line (records)	

for the Finals Session

NOTE: Codes have to be done in **Meet Manager**. If this has not been done, the solution is to manually enter **A-Final** or **B-Final**

Where there is only one FINAL, this can be made:

4:Titles and presentations	Event:{0} Final
b:Second title line (records)	

Records can also be shown by adding extra arguments to this line and if space is limited, abbreviating **Event** to **Ev**.

E.g., To show two records:

4:Titles and presentations	Ev:{0} Ht:{2} {6} {7}
b:Second title line (records)	

4: Titles and presentation
C: Summary title line

Quantum default arguments are: **{3} {4} {5} {0}**.

Always check and be prepared to change this, for a more meaningful title:

4:Titles and presentations	Ev:{0} {3} {4} {5}
c:Summary title line	

Meet Manager configuration

NOTE: The Primary operator and the Secondary operator will both configure their settings identically and together to reduce any possibility of errors.

Click **Meet Manager Primary**
 or
Meet Manager Secondary

Current file path is shown here

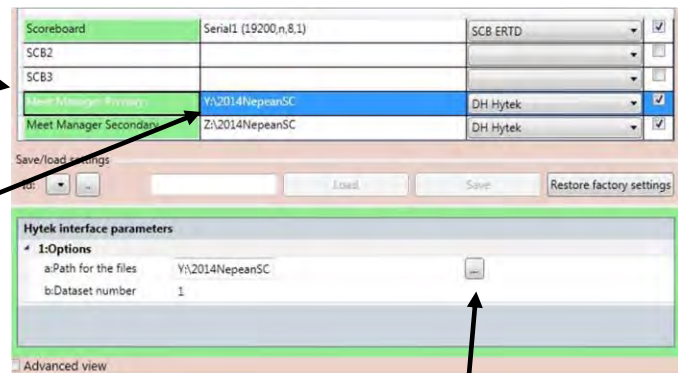


Figure 77 Meet Manager - Set path for files

Meet Manager parameters

The important setting is the file path:

Hytek interface parameters	
1:Options	
a:Path for the files	Y:\2018NSW Age
b:Dataset number	1

To create a new file path for **Meet Manager**:

Click

Click on the **Y: drive** folder for Primary (*and Z: drive for Secondary*).
 e.g., Y:\2018NSW Age

As of 2022, the **X: drive** is used for when there is one Quantum and one Meet Manager operator.

This is where the Meet Manager computer picks up the results from.

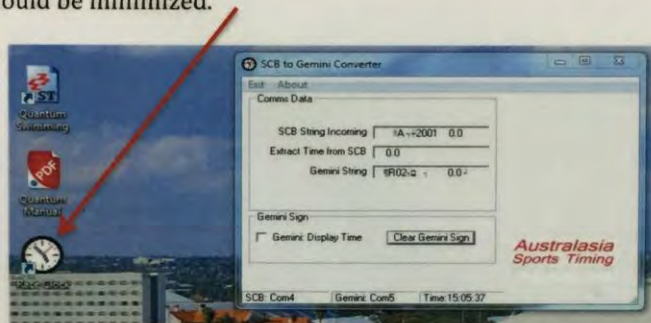
The **Dataset number** is usually **1 for Quantum Primary**, and **2 for Quantum Secondary**.

Race Clock Quick Reference Guide

Overview:

A race clock has been installed on the right side of the competition video board that is controlled by Quantum. For this to work a program called 'Race Clock' needs to be running in the background.

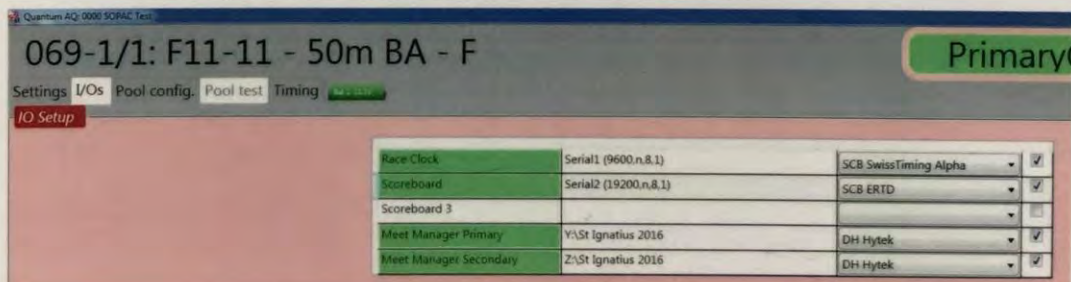
1. Double-click the 'Race Clock' icon that is on the desktop. Once open this should be minimized.



2. Race Clock will be visible in the 'Timing' tab of Quantum. This should remain green and on all the time.



3. Race Clock will also be visible on the top line in I/Os. It should be green and on at all times. Any changes that need to be made to the scoreboard will be performed on the second line named 'Scoreboard'.



APPENDIX J. TESTING COMMUNICATIONS

Quantum procedure

To check if Meet Manager is picking up the times from Quantum:

Start the first heat of the first race as a practice and end it.

<Ctrl> <Shift> S *(this simulates a start)*

Add the required touches, and create times for each lane <Lane number> F.

Entering dummy times this way is the only method of creating times.

Press <F11> *(this makes the times official and prints out the race results)*

Quantum operator will have to prepare the first heat for when competition commences.

Double click on the first heat.

Click Y to overwrite the practice race details.

Meet Manager procedure

NOTE: Ensure that Meet Mobile or any other web publishing service, is not accepting these dummy results.

Ask the Meet Manager operator to confirm that they can bring in the times.

NOTE: If this did not happen, see **Meet Manager not getting times from Quantum page 110** for a detailed solution.

Go into the first heat of the first race in Meet Manager and confirm that “get times” brings across the practice race times.

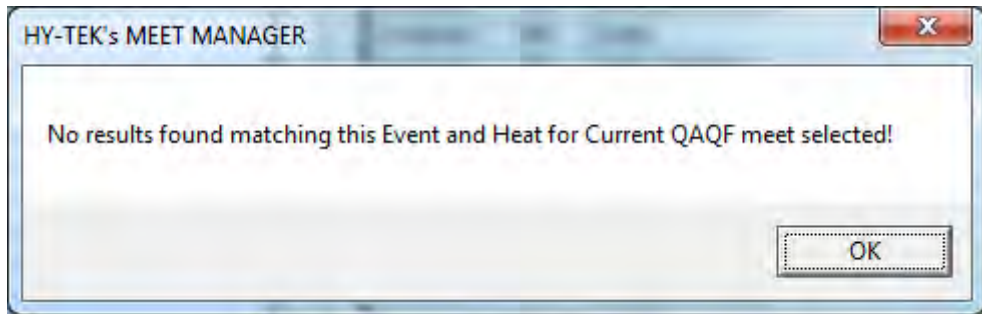
NOTE: The Meet Manager Operator will have to **delete all these times** and **enable Meet Mobile results**.

NOTE: Ensure that Meet Manager on the Primary computer has started before opening Meet Manager on the Secondary computer.

If the Secondary has started first, it will assume admin role and there will be difficulties getting times from the network drive.

Meet Manager not getting times from Quantum

If the Meet Manager operator encounters the following message when trying to get times for a race that has been completed:



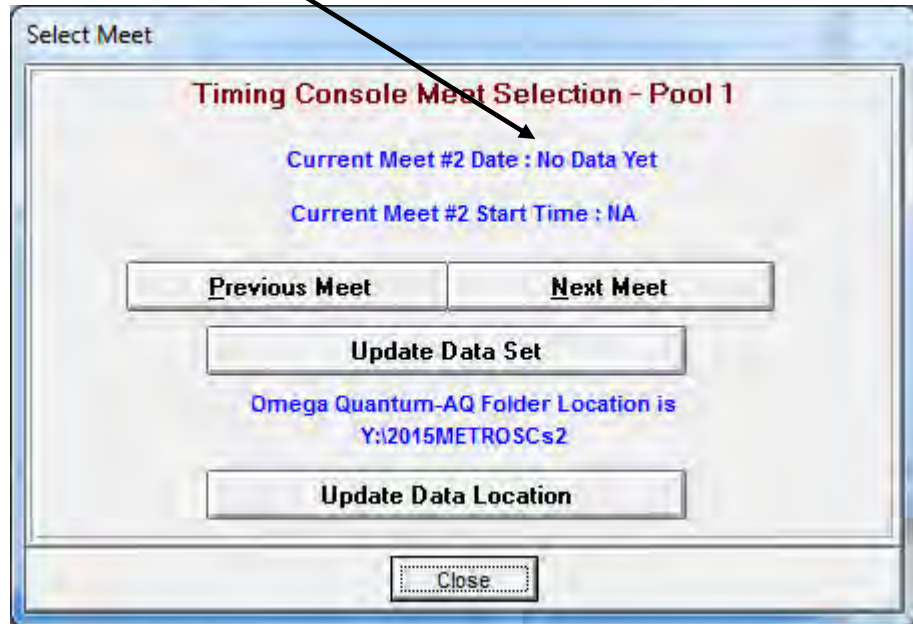
then ...

Go to Interfaces – Timer – Select Data stored from QAQF

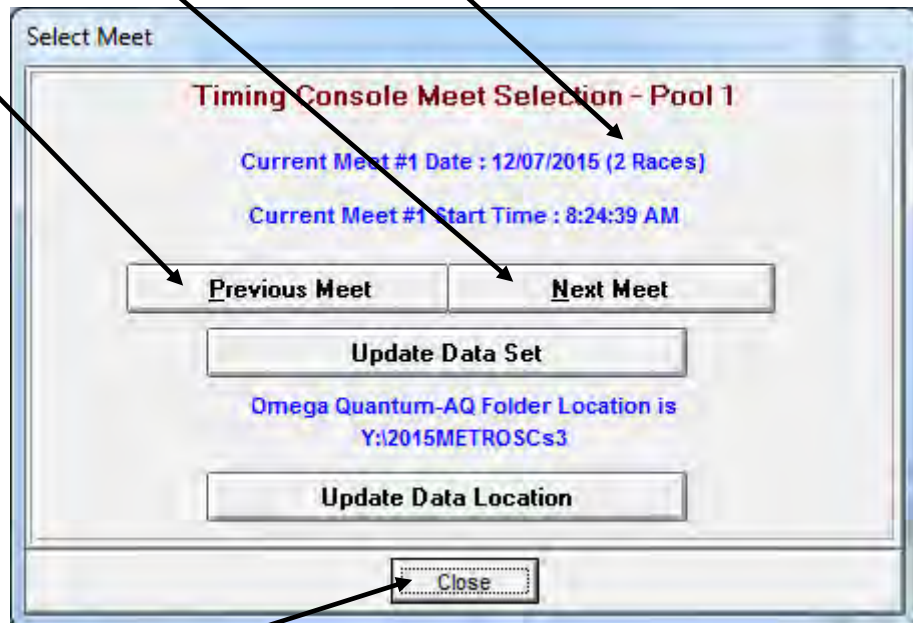
The screenshot shows the main interface of HY-TEK's MEET MANAGER. The 'Interfaces' menu is open, showing options like 'Timer (QAQF) Pool 1', 'Scoreboard (GENNET) Pool 1', and 'Dolphin Backup Mode'. A dropdown menu is also open, showing 'Select Data Set stored from QAQF' and 'Download Events to QAQF'. The main window displays a list of events and a table of results for 'Heat 3 of 4 == Finals == Event 59 Men 14-16 400 SC Metre Freestyle'.

Lane	Swimmer Name	Age	Team	Seed Time	Finals Time	DNF	Ext	Discode	Backup 1	Backup 2	Backup 3	NR	PL	Pts	AdjLat
9	NEVLING ANDREW	15	CABLE	4:24.90											
1	KARDBREAVES THOMAS	16	REVERBY WORKERS	4:30.00											
2	SMITH GERRARD	14	THE HILLS	4:21.69											
3	YU JASON	15	TRINITY GRAMMAR	4:23.00											
4	HERTEL DANIEL	15	AQUARLIFZ	4:20.46											
5	WILLER NICHOLAS	14	CHERRY BROOK GARLAE	4:20.47											
6	WISARTI LEO	14	SLC-KALACUT	4:21.55											
7	KIM JUSTIN	15	TRINITY GRAMMAR	4:22.87											
8	HELDONING KATHA	14	MOONTE	4:30.54											
9	PELLOER KAYDEN	16	SAINS SUDIC	4:24.08											

This screen will appear, it shows **No Data Yet**



Click on **Previous Meet** or **Next Meet** until you have some **data** (looks like this):



Click **Close**

APPENDIX K. USING THE LOG TO RETRIEVE A TIME

Simple method

Select the Event and Heat from the **Schedule Tab** and select **View**.
This will unlink the current race.

Click **Events**
to open the Log

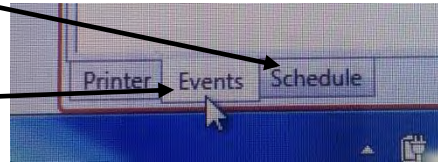
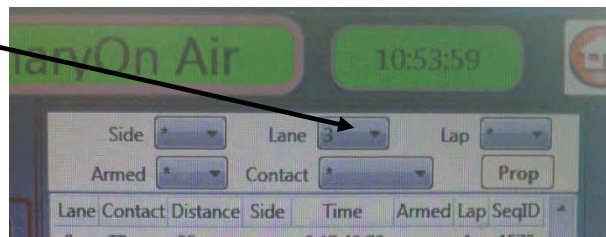


Figure 78 Accessing the Log

Click **Lane**
and select the lane number
from the drop down list.

Note the finish time and using
<Lane number> **F**
apply the finish time to that lane
then officiate the results and print <**F11**>



Advanced method

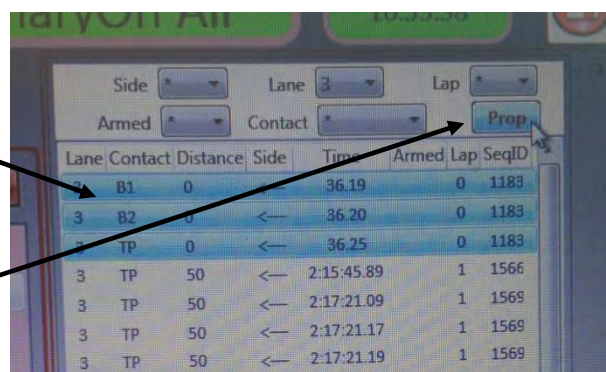
Same as above, but instead of editing the finish time,
you import the log time into the final results.

Side, Lap, Armed or Contact
can also be selected if needed.

Select the information to import
to the results page.

In this example, we want the Touchpad
(**TP**), and both buttons (**B1, B2**)

Select 1st line then <shift> select last line
to select a block of times.
(*this is highlighted in blue*)

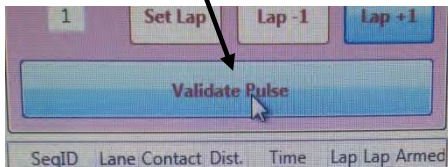


Click **Prop**
to open the Pulse Modification window.

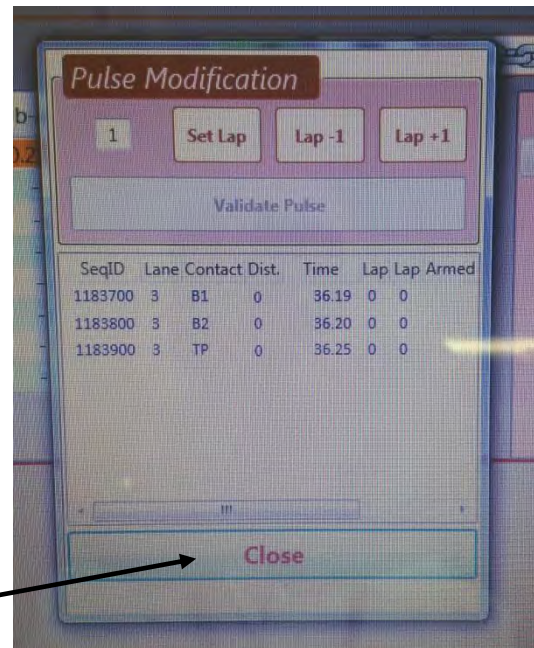
This opens the **Pulse Modification** window for the selection ...

As the distance is wrong, select each line and click **Lap +1** until the correct **Dist.** is shown

Click **Validate Pulse** to set as official



Click **Close** when done



Example of using the Log File to change distance

*In this example for **Lane 4**, the Lap value was showing **0** (but should have been **1**).*

To make the time official, contacts **TP**, **B2**, and **B1** were individually selected

Click **Lap +1** until the correct distance is shown.

Click **Validate Pulse** to set the time as official

*This writes a * symbol next to the distance*

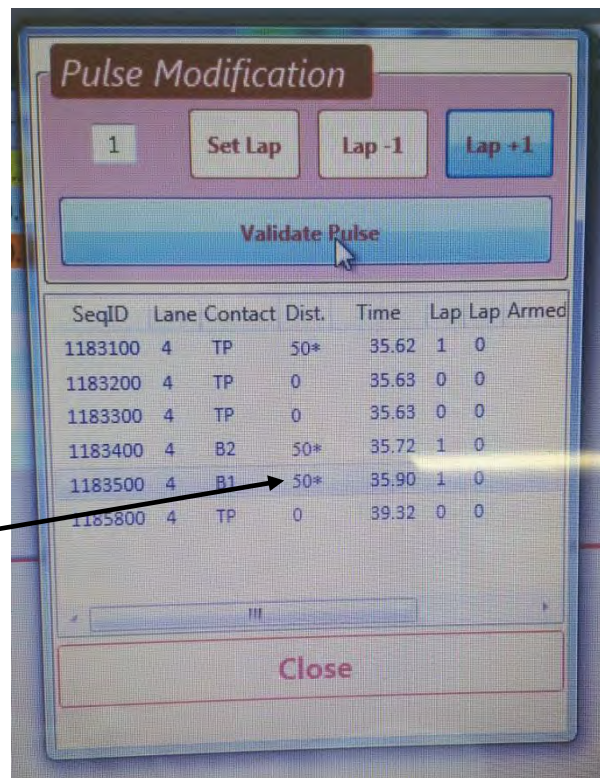


Figure 79 Updating Lap value in Log

APPENDIX L. ADDING A SWIMMER

This is best done on the Meet Manager then select **Refresh StartList Selected Heat** from **Meet Manager Primary** or **Secondary**.

This is an alternative method to select a swimmer from the database or add a new swimmer.

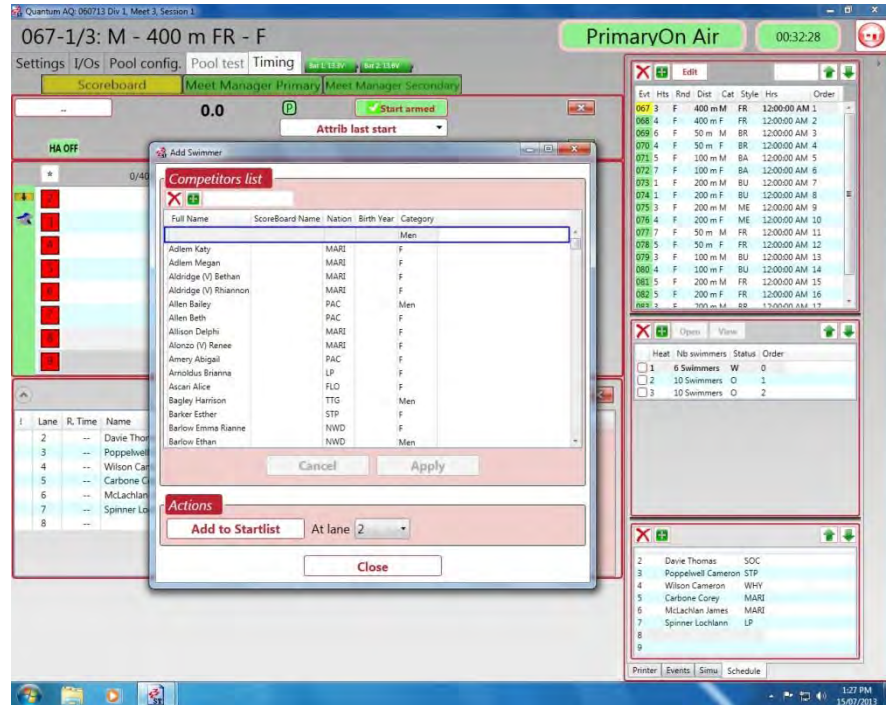


Figure 80 Selecting a swimmer from database

Cycle through the database of swimmers to find the one you want. It is arranged alphabetically by surname. *You can type the first few letters here to make searching faster.*

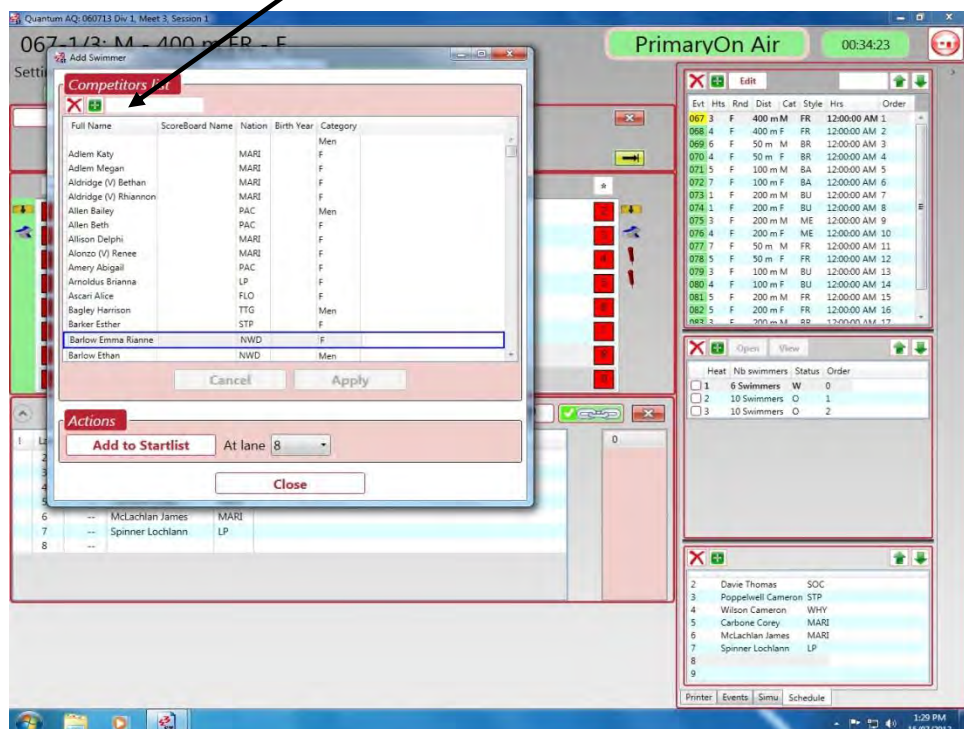


Figure 81 Selecting a swimmer from database and selecting a lane

Make sure you change the **At lane** to the lane number you have just turned on.
Then click **Add to Startlist** and then **Close**.



Figure 82 New swimmer added

If the name of the swimmer to be added does not exist in the database then a new name can be added via the + button on the list of database swimmers.

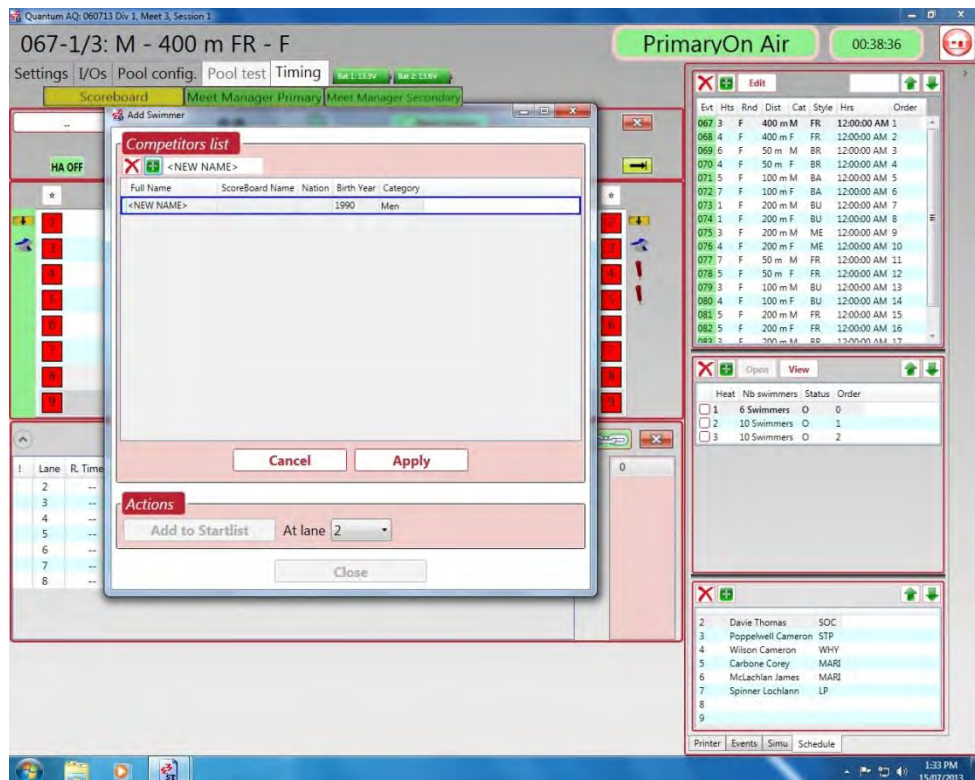


Figure 83 Adding new swimmer not in database

Click into the **Name** area and overtype the words <NEW NAME>.

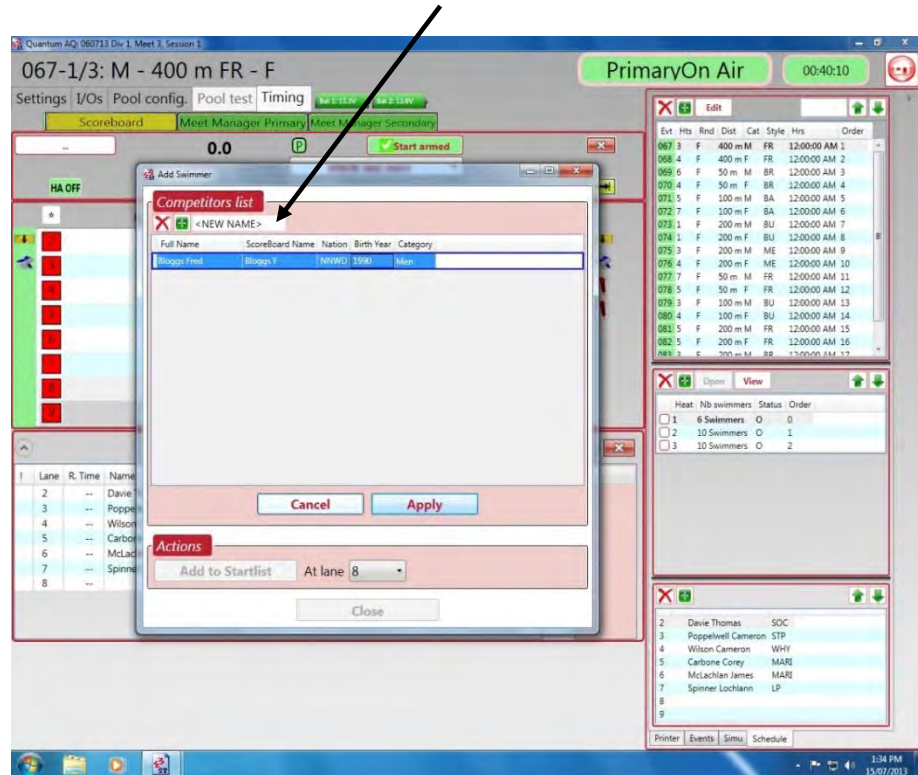


Figure 84 Adding new swimmer not in database to a lane

The **Nation** box is used for the club ID.

The **Birth Year** and **Category** are not needed.

Click on **Apply**.

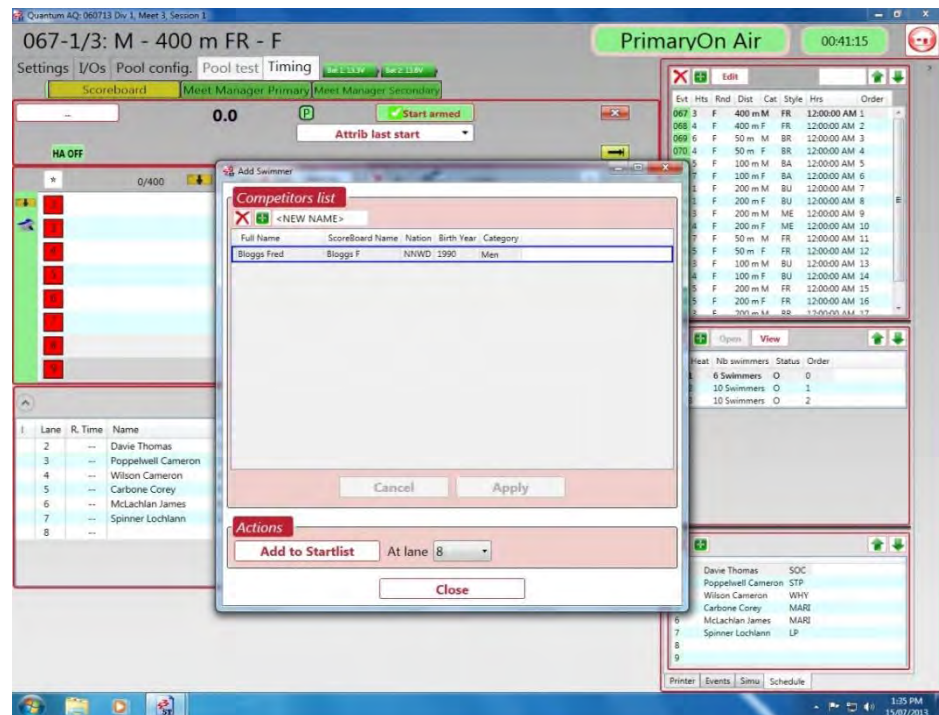


Figure 85 Adding new swimmer not in database to Startlist

Then (after selecting the correct lane) click on:

Add to Startlist

Close

<Ctrl> <Insert>

to update Scoreboard.

APPENDIX M. DAY TIME FUNCTION

The Scoreboard drop down menu has “Day time” as an option to select. This normally put the time of day on the Scoreboard, but at SOPAC, it is not recommended.

WARNING: Do not Click or Enable this function.

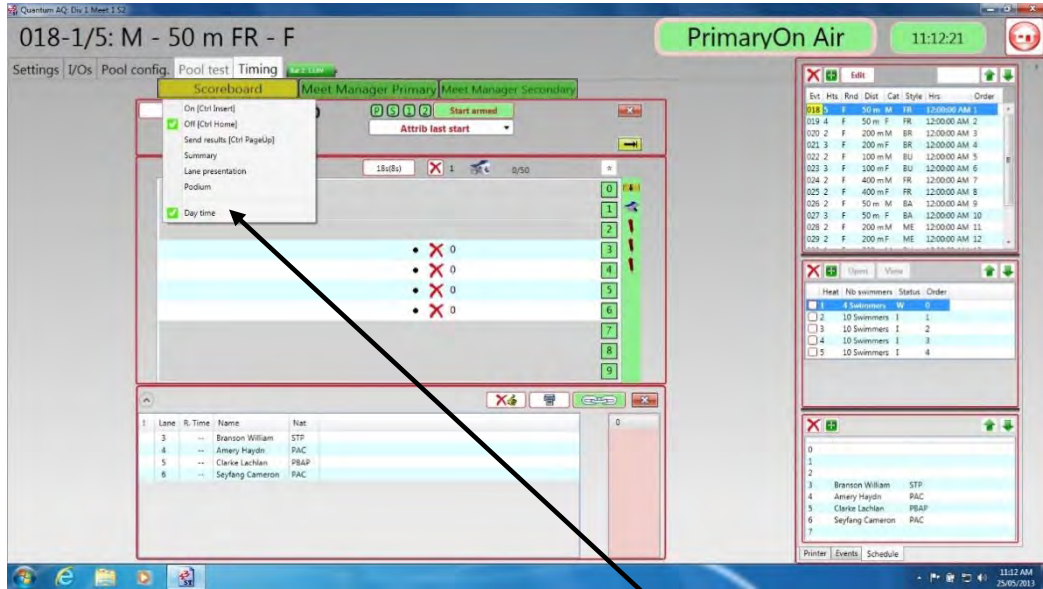


Figure 86 Day time function on Scoreboard

NOTE: The SOPAC Scoreboard does not support the Day time function in Quantum.

Do not enable this, as it will cause a “data overrun”.
(This is an error condition that will cause problems on the computer)

APPENDIX N. COMMON COMMANDS AND SHORTCUTS

Frequently used commands

Prepare for first race

Select first event

Click **Event**, Click **Heat**, Click **Open** *or*
type in quick select box (e.g., **001.1+**)

Put on Race on Scoreboard

<Ctrl> <Insert>

Using mouse, click: **Scoreboard** **ON**

End of Race

Enter **DQs**

<Lane number> D for **DQ** *or*

Click **<Lane number>** and select from dropdown menu for **DNF**

Get backup times

<Lane number> B

Edit a time

<Lane number> F

Officialise results

– On Referee’s nod, PRESS **<F11>** (*Declares result official*)

Pressing **<F11>** makes the times official. Primary and Secondary Quantums can overwrite each other!

NOTE: If this is likely to happen, the Primary Operator should press **<F11>** after the Secondary Operator.

If empty lanes have not been removed during the race, pressing **<F11>** will ask if you really want to complete this race. Just press **Y** before the usual **<Ctrl> N**.

Move to Next Race

– PRESS **<Ctrl> N**

Press **<Ctrl> N**. This moves to the next race so that a start could occur.

If an event has no more heats, then pressing **<Ctrl> N** will go to the next event.




Put Race on Scoreboard

– PRESS **<Ctrl> <Insert>** (*On Referee’s whistle, otherwise if there is a delay, after a reasonable elapsed interval especially if a **DQ** is showing*)

This shows the next start list on this Scoreboard.

Take out empty lanes

(For swimmers listed, but did not swim)

– PRESS <Lane number> **U** (on keyboard: =0, =1, =2 etc)


If Meet Manager has no swimmer in a lane, the lane will already be blanked on the Scoreboard. To take out other swimmers who do not swim, press the lane number then U.

This action is also used to put back a lane that has been taken out.

Getting a Backup Time

– PRESS <Lane number> **B** or <Lane number> **F** (to edit time manually)

The backup time is put on the Scoreboard instantly.
There is no need to refresh the Scoreboard.

OR Click on the button  when it appears in the timing view to insert quick backup time.

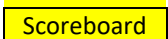

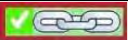
Disqualification

– PRESS <Lane number> **D**

Do this at the **finish** before pressing **F11** as the **DQ** will come up when it's entered. For any other status (e.g., did not finish), right click the lane and select from the list.

Putting Event Summary on Scoreboard

(at start of new event)

- CLICK **Event, 1st Heat, View** This will put the Event Summary into the Result View window.
- CLICK  **Summary** This will send the results to the Scoreboard.
- CLICK **Link icon**  To connect to the current race.
NOTE: Icon is green when linked 
- PRESS <Ctrl> <Insert> To put the current race back on the Scoreboard.

Add in missed pad touches

(make sure Green Bar is at correct end, use <Space bar> to change ends)

<Lane number> +

Missed start

Click **Attrib last start**

Change of status after race swum

(e.g. adding or removing a DQ)

Click **Event**

Click **Heat**

Click **View** to bring up results window

Click **Lane number**

Select from dropdown menu

Click **Apply**

Click **<F11>** to re-officialise the results *(advance printer paper before doing this)*

Click **Link icon** to re-link to current race

WARNING: Never press **<Ctrl> <F11>** as this will cause the Quantum program to stop responding.

RECOVERY:

1. Press **<Ctrl> <Alt> <Delete>** and start Task manager
2. Delete **Quantum** from Processes
3. Restart **Quantum**

Keyboard shortcuts

											← Open lane menu	<i>(Numeric keypad can also be used)</i>
Lane menu:	0	1	2	3	4	5	6	7	8	9	← Lane number	
	Lap <u>-</u> 1		-		Lap -1							
	Lap <u>+</u> 1		+		Lap +1							
	<u>Q</u> : Arm touchpad		Q		Arm touchpad							
	<u>Y</u> : DisArm touchpad		Y		Disarm touchpad							
	Edit <u>F</u> inish Time		F		Edit finish time							
	<u>D</u> SQ		D		Disqualified (DQ)							
	<u>D</u> N <u>S</u>		S		Did not start (DNS)							
	<u>D</u> N <u>F</u>				Did not finish (DNF)							<i>(no shortcut available)</i>
	Take <u>B</u> ackup time		B		Take backup time							
	<u>U</u> sed / Unused		U		Used / unused							
	<Space bar>				Toggle active side							
	<Ctrl> N				Next heat							
	<Ctrl> Q				Arm all lanes							
	<Ctrl> Z				Disarm all lanes							
	<Ctrl> <Shift> S				Manual start command							
	<Alt> S				Arm start							
	<F5>				Timing view focus							
	<F6>				Event window focus							
	<F7>				Toggle result view							
	<F8>				Timing window focus							
	<F11>				Set a race as official							
	<Ctrl> <Insert>				Scoreboard ON							
	<Ctrl> <Home>				Scoreboard OFF							
	<Ctrl> <Page up>				Send results to Scoreboard							
	<Ctrl> <Shift>				Manual touchpad command							
											or use Numeric keypad.	

Figure 87 Keyboard Shortcuts

CAUTION: Never press <Ctrl> <F11> as this will cause the Quantum program to stop responding.

RECOVERY: Press <Ctrl> <Alt> <Delete> and start the Task manager.
Delete **Quantum** from Processes
Restart **Quantum** and double click **Race**

Current pool configurations and synchronisation will remain intact when Quantum is restarted.

APPENDIX O. QUANTUM User's Manual

All Swiss Timing Instruction Manuals are available for download from this site:

<https://www.swisstiming.com/download/instruction-manuals/>

To download Quantum, look for (or follow this link):

Quantum software (**3480.509.02**) *Version 1.3, Edition October 2015*

NOTE: These links were still available as at the date of this revision.

The Quantum User's manual does contain extra information not contained in this document.

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