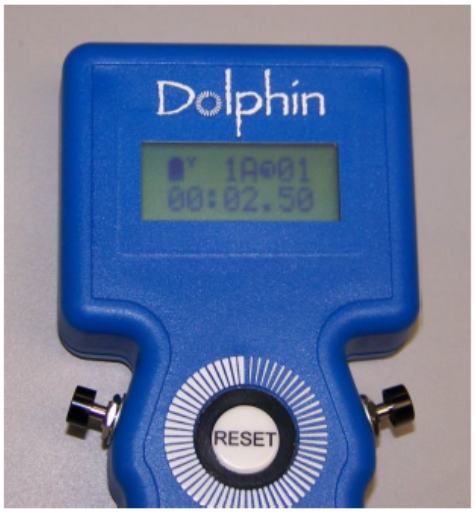
Dolphin

Wireless Stopwatch Timing System



User Guide

Version 3.3
12th October 2023
Central Victoria Swimming Inc.

Table of Contents

1. Introduction

This document describes how to set-up and run the Dolphin Wireless Timing System.

The Dolphin Wireless Timing System program runs on the laptop labelled **CVS-DOLPHIN.** Its purpose is to record the start and stop time for the swimmer in each lane of each race. When the Starting Official sounds the starting horn, time recording commences for each lane. As each swimmer finishes their race, the timekeepers for each lane will press the stop button on their wireless stopwatch, thereby sending a signal to the CVS-DOLPHIN computer to end timing for that lane.

The companion computer to the CVS-DOLPHIN computer is the **CVS-MEETMANAGER** computer. This computer runs the Meet Manager program. It's purpose is to gather and collate the recorded times from the CVS-DOLPHIN computer, rank and order the times according to the rules of the swim meet and produce the necessary reports, not the least of which is the final ranking report for each Event.

Hardcopy reports are created on the CVS-MEETMANAGER computer and printed on the attached laser printer. Results may also be transmitted to the **Meet Mobile** service if that has been set-up before the meet commences. Set-up of Meet Mobile is not discussed in this document.

2. Equipment

The whole solution is comprised of the Dolphin Wireless Timing System, laptop computers, printer and other ancillary items. Before commencing assembly ensure that you have the following items at hand.

- Laptop (2)
- Printer (1)
- Yellow ethernet cable (1)
- USB printer cable (1)
- Dolphin Infinity loudspeaker (1)
- Dolphin Starter with metal bracket (1)
- Dolphin Base unit with USB cable (1)
- Dolphin Stopwatches (26)
- Microphone (1)
- External speaker with lead (1)
- Tripod (1)

- Extension lead (1) and power board (2)
- TP-Link wireless router (1) – Not generally used. *If this router is used in lieu of the aforementioned yellow ethernet cable and USB printer cable to enable wireless connections between the computers and the printer then, because of a network addressing clash, the Meet Mobile service can not be used.*

3. Setting up the Timing Equipment

This section describes how to set-up the timing equipment which includes the Dolphin Infinity loudspeaker, the Dolphin Starter and the Dolphin Stopwatches. Set up of the other critical piece of timing equipment, the Dolphin Base, is discussed in the next section – “Setting up the Computers”.

3.1. The Dolphin Infinity loudspeaker and Dolphin Starter

This equipment is used by the Starting Official to communicate with the swimmers and start each race. It is comprised of a loudspeaker, microphone with start button, strobe light and the Dolphin Starter.

1. Mount the Dolphin Infinity loudspeaker on its tripod.
2. Attach the microphone to the **Microphone 1** jack. Mount the microphone on the hook located to the left of the **Microphone 1** jack.
3. Attach the metal bracket to the hook to the left of the microphone.
4. Place the **Dolphin Starter** device in the metal bracket. The Dolphin Starter is a small device with an LCD screen, about the size of a cigarette pack.

Figure 1: Dolphin Starter

5. Connect the short, grey cable from the Dolphin Starter to the **Start Output** jack.

The Dolphin Infinity loudspeaker has an internal loudspeaker. A remote loudspeaker (included) can be connected to the **External Speaker** jack, if required.

Figure 2: The completed Timing Equipment setup

6. Switch on the Dolphin Infinity loudspeaker.
7. Turn on the Dolphin Starter by pressing and holding the Reset button on the device until the LCD screen lights up.

Under the word **Starter**, in the top right-hand corner of the **CTS Dolphin** window on the CVS-DOLPHIN computer, the battery strength and signal strength of the Dolphin Starter will be displayed. The Dolphin Starter is powered by a standard 9V “transistor radio” battery.

IMPORTANT: The Dolphin Infinity loudspeaker will not run while plugged into mains power. Therefore, it is crucial that the battery within the device be fully charged before the Meet commences. While charging, a flashing green light will be seen. A solid green light will indicate that the loudspeaker is fully charged. A solid yellow light will indicate that about 5-6 hours of charge remain. A solid red light will indicate that about 1-2 hours of charge remain.

3.2. The Dolphin Stopwatches

The Dolphin Wireless Timing System includes twenty-six (26) wireless stopwatches, three for each lane of an eight-lane pool and two spare. Each stopwatch is pre-configued to be used in a specific seat of a specific lane. It is

vitally important that the stopwatches be distributed correctly. For example, the timekeeper in Lane **4**, Seat **A** will use wireless stopwatch “4A”. This stopwatch must **NOT** be used to record a time for any other seat, in any other lane.

1. Turn on each stopwatch by pressing and holding the **Reset** button.
2. The LED screen will light up and display the Lane No. and the Seat ID for that device.
3. Using Lane 1 as a point of reference, in any given Lane, the seat closest to Lane 1 will receive the stopwatch “*x*A” and the seat furthest from Lane 1 will receive stopwatch “*x*C”. The middle seat will receive the stopwatch “*x*B”.

As each stopwatch is powered on, the **CTS Dolphin** window on the CVS-DOLPHIN computer will display the battery strength and signal strength of the stopwatch. Each stopwatch is powered by a standard 9V “transistor radio” battery.

When a successful wireless connection has been made and the stopwatch is ready for use the yellow “traffic light” will appear for it on the CTS Dolphin window. The yellow light means the stopwatch has been reset and is ready for a race to start. The red “traffic light” means that the stop button has been pressed on the stopwatch. The green “traffic light” means that the stopwatch is recording time.

A blank cell indicates that the Dolphin Stopwatch has not connected to the Dolphin Base. Check that the stopwatch is turned on and that it is configured to connect on the correct RF Channel. If all cells are blank, check that the Dolphin Base is connected to the CVS-Dolphin computer via the USB cable.

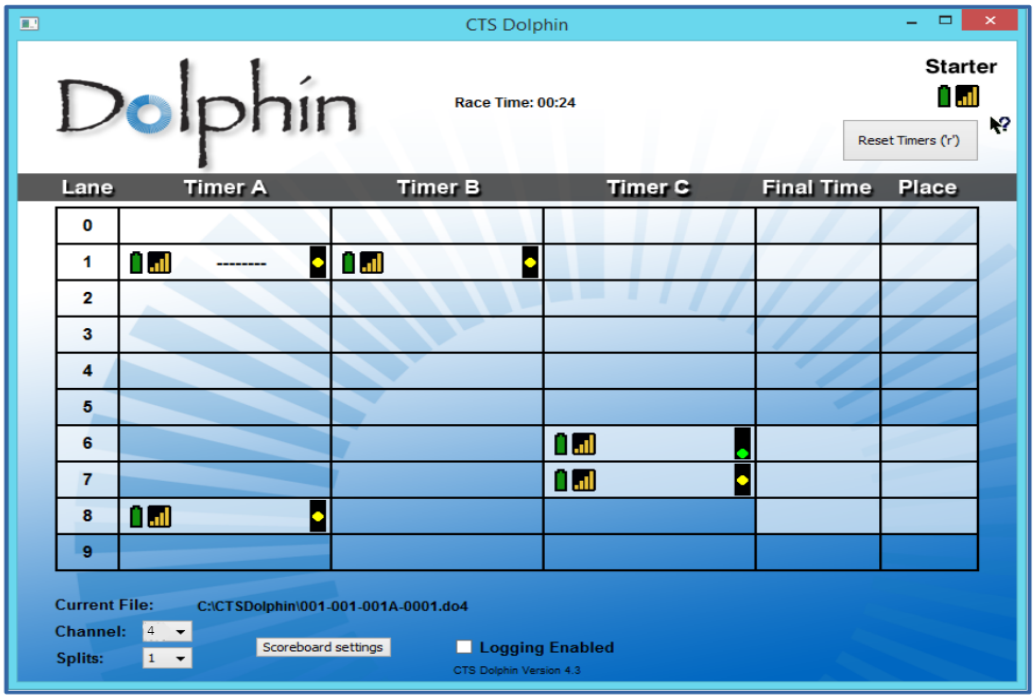


Figure 3: The Dolphin screen with connected stopwatches

4. Setting up the Computers

This solution uses two computers. One is called **CVS-DOLPHIN**. It runs the *Colorado Timing Systems* (CTS) Dolphin program. The Dolphin program collects the times transmitted by the wireless stopwatches. The other computer is called **CVS-MEETMANAGER**. It runs the *Hy-Tek* Meet Manager program. The Meet Manager program gathers the times collected by the Dolphin program, compiles the times and produces the results for each Event. The **Dolphin.exe** program runs on the CVS-DOLPHIN computer and the **MeetManager.exe** program runs on the CVS-MEETMANAGER computer.

The two computers connect via a standard ethernet cable, forming a two-device, wired network. A printer connects via a standard USB printer cable.

1. Connect the two computers using the yellow ethernet cable.
2. Connect the printer to the CVS-MEETMANAGER computer using the USB printer cable.
3. Turn on and login to the CVS-DOLPHIN computer - IP Address: 192.168.1.110 - *(Username – CVSwimming; Password - CVSwimming).*
4. Turn on and login to the CVS-MEETMANAGER computer – IP Address: 192.168.1.100 - *(Username – CVS; Password - CVS)*.

Be aware that the passwords are case-sensitive. Type them exactly as you see here.

5. When the computers start-up they will automatically connect to each other when the ethernet cable is plugged in.

All the times transmitted by the wireless stopwatches will be sent to the C:\CTSDolphin folder on the CVS-DOLPHIN computer. For these times to be accessible to the Meet Manager program running on the CVS-MEETMANAGER computer, the CVS-MEETMANAGER computer must link to the C:\CTSDolphin folder.

On the CVS-MEETMANAGER computer, open the File Manager and click on the **CTSDolphin (\\CVS-DOLPHIN (M:)** link.

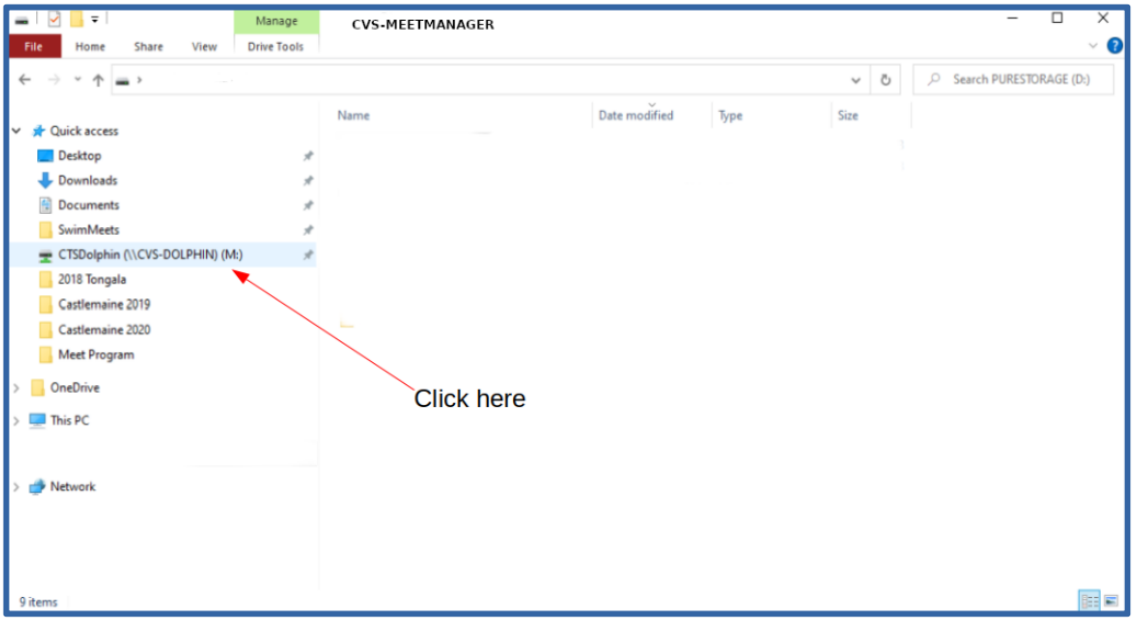


Figure 4: The Windows File Manager screen

The connection to the C:\CTSDolphin folder on the CVS-DOLPHIN computer will be created and the files resident thereon will appear in the CVS-MEETMANAGER computer File Manager window.

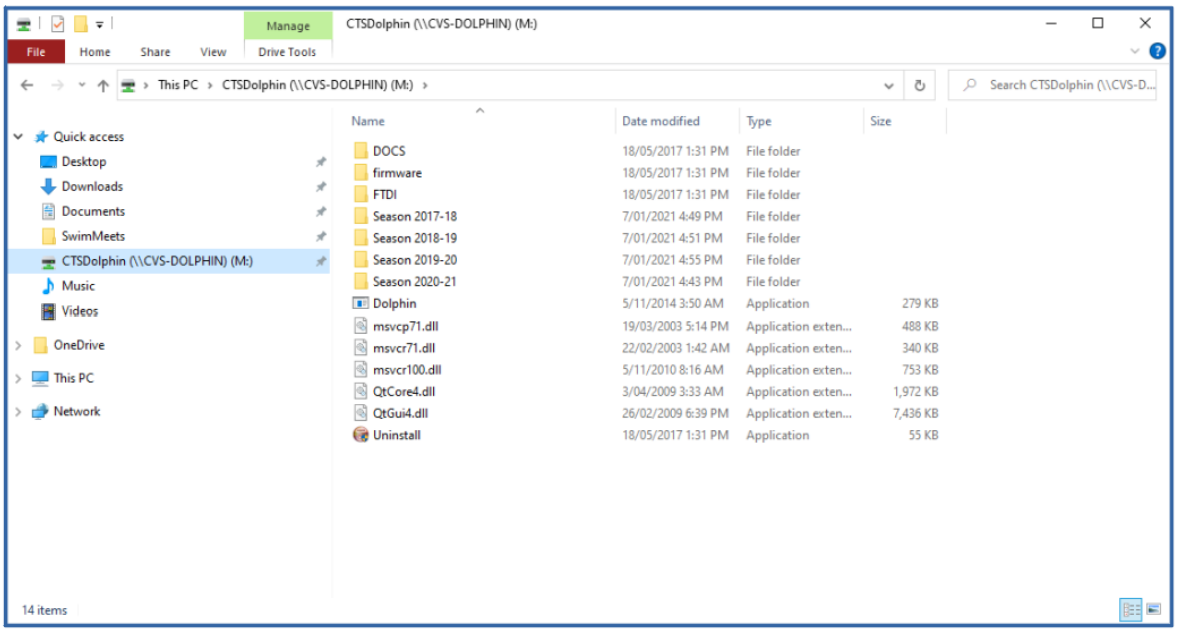


Figure 5: The Windows File Manager screen showing the stopwatch result destination

4.1. The CVS-DOLPHIN computer

1. Connect the Dolphin Base device to any free USB port.

Figure 6: The Dolphin Base

2. Start the **Dolphin.exe** progam. A shortcut to the program can be found on the Windows Desktop System Tray. The **CTS Dolphin** window will appear.

Figure 7: The CTS Dolphin window

In the bottom left-hand corner of the CTS Dolphin window, the value in the **Channel** field sets and indicates the wireless radio frequency (RF) channel of the Dolphin Base. It is the channel upon which the Dolphin Base, the Dolphin Starter and the Dolphin Stopwatches will communicate. The Dolphin Starter and every Dolphin Stopwatch must be set to the same channel for the timing system to work.

Under normal circumstances this value should not need to be changed. However, if there is another device at the venue that is running on the same channel, or the communication between any of the devices is inconsistent, then the value may need to be changed. Choose any value between 1 – 15.

Refer to the Appendix C – Changing the RF Channel, for how to do this.

Each time the **Reset Timers ("r")** button on the CTS Dolphin window is pressed or the **Stop/Start button** then the **Reset** button on the **Dolphin Starter** are pressed a new and unique file will be automatically created on the **CVS-DOLPHIN** computer. The filename will be incremented by a value of 1 compared to the previous file on each occasion. The times captured and transmitted by the Stopwatches will be written to this file. The file name is displayed as the **Current File** on the CTS Dolphin window. The operator of the CVS-DOLPHIN computer must record the four-digit suffix of the filename next to the appropriate Heat on a shared hard-copy of the Meet Program for later reference by the operator of the CVS-MEETMANAGER computer. This process will be discussed in greater detail later in this document.

4.2. The CVS-MEETMANAGER computer

1. Click the shortcut to the **Swim Meets** folder on the Windows Desktop.
2. Click the folder for the current **Season**.
3. Create a folder for today's Swim Meet.
4. Copy the seeded Meet Manager database (*<meetname>.mdb)* to the new folder.
5. Start Meet Manager from the Windows Desktop system tray.
6. Select *File → Open <meetname.mdb>*.
7. Select *Run*, from the drop-down menu and check that you have loaded the correct Meet. You will be presented with this window.

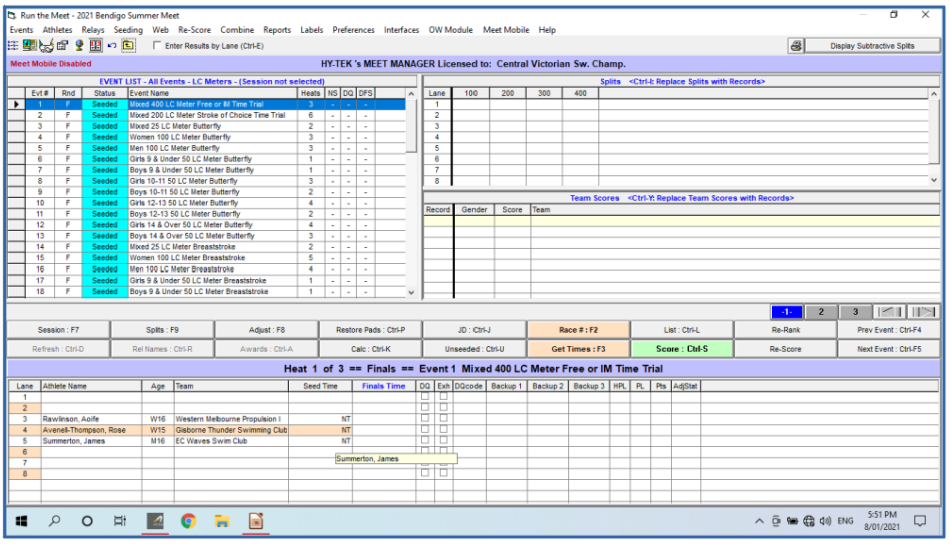


Figure 8: The Meet Manager RUN screen

5. Connect Meet Manager to Dolphin

This section describes how to connect the Meet Manager program to the Dolphin program so that Times can be retrieved. By its very nature, this process tests all hardware, software and network components of the system.

5.1. Perform a Test Start

1. Ensure all stopwatches are turned on and have made a connection to the Dolphin Starter and the Dolphin Base – the yellow light is on for each stopwatch on the CTS Dolphin window.

2. On the microphone, hold the “talk” button and press the red button simultaneously. The hooter will sound, the strobe light will flash and a signal will be sent (via the grey cable) to the Dolphin Starter which will in turn send a signal (via the RF channel) to each stopwatch to commence timing.

3. After a 30 second or so period, press either of the black START/STOP buttons on each stopwatch. The time on each stopwatch will be automatically transmitted (via the RF channel) to the Dolphin Base and then (via the USB cable) to the CTS Dolphin program on the CVS-Dolphin computer. On the CTS Dolphin window every stopwatch should have a red light. This indicates that timing has stopped for every lane.

4. Press the **Reset Timers (“r”)** button. This will:

   - write the times transmitted from the stopwatches to the *.d03/*.d04 files created at the start of the race

   - reset the **Dolphin Starter** and the stopwatches making them ready for the next race

- make the *.d03/*.d04 files available for access by the Meet Manager program
- create a new pair of *.d03/*.d04 files for the next race. The **Current File** on the CTS Dolphin window will now reflect the new file name.

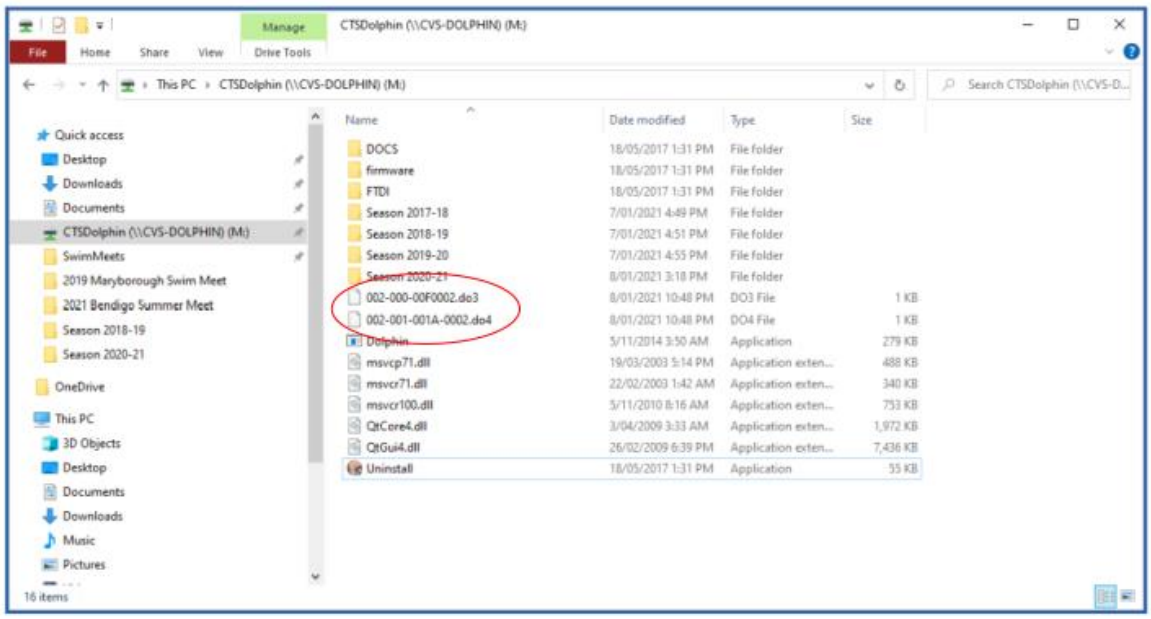


Figure 9: The Windows File Manager screen showing a pair of result files

5. **On the CVS-MEETMANAGER computer**, from the **Run the Meet** window, select:-

Interface --> Timer (CTSS) Pool 1 --> Select data set stored from CTSS

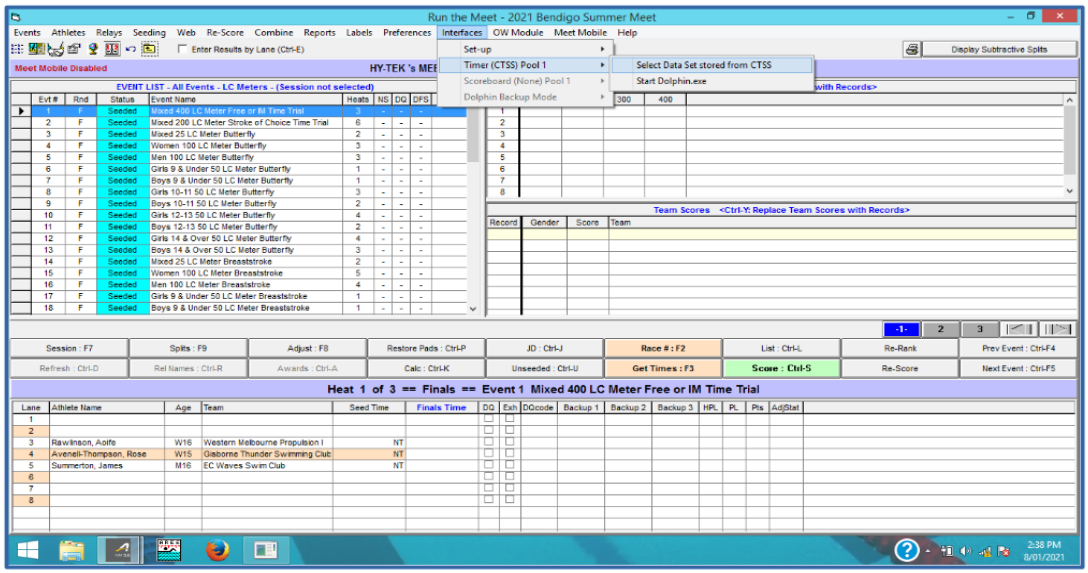


Figure 10: The Meet Manager RUN screen showing how to connect to Dolphin

The following window will appear.

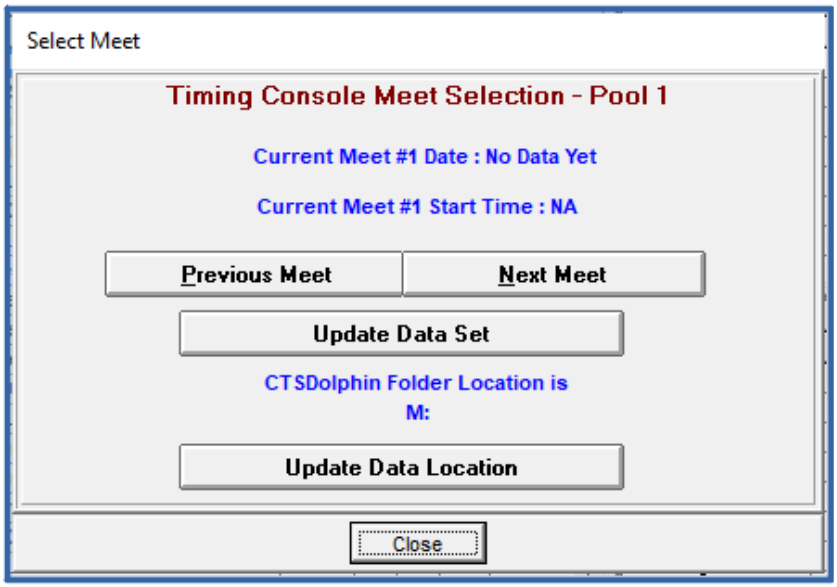


Figure 11: Find and select the destination for stopwatch files

This window describes the location that Meet Manager will look in to get times from each Heat. By default, it will be the **M:** drive of CVS-MEETMANAGER computer which is actually the C:\CTSDolphin folder of the CVS-DOLPHIN computer.

5. Press, **Update Data Location**. A File Manager window will appear. Select CTSDolphin (\\CVS-DOLPHIN) (M:) then press Open. This will ensure that the Meet Manager program looks into the correct folder on the CVS-DOLPHIN computer for recorded times.

6. Press the **Next Meet** button until a value representing the date and time of the Test Start appears in the **Current Meet...** fields. This information can be detected by Meet Manager now because a pair on *.d03/*.d04 files have been created on the M: drive by the Test Start.

7. Press the **Close** button.

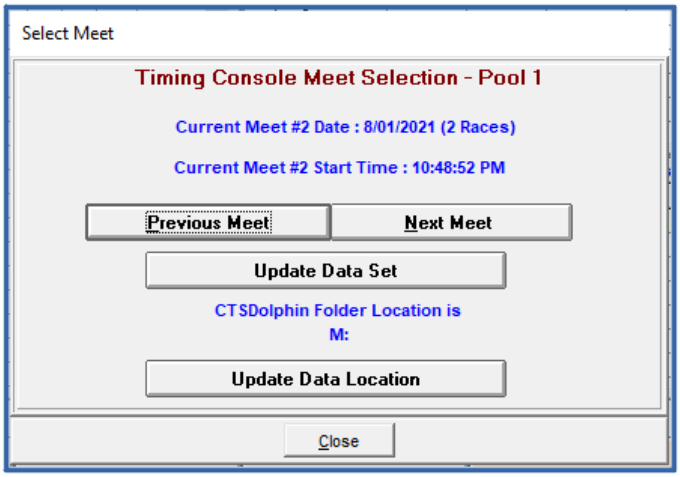


Figure 12: The file destination has been set

5.2. Retrieve the times from the CVS-DOLPHIN computer

On the CVS-MEETMANAGER computer, from the **Run the Meet** window,

1. Select the Event and Heat for which you wish to retrieve the times. In this example, **Event 1, Heat 1.**

2. Press the **Get Times: F3** button. The **Select Download File** window will appear.

3. Select the file with the same suffix that the CVS-DOLPHIN operator recorded next to **Event 1, Heat 1** on the shared hard-copy of the Meet Program. In this example, the file for the Test Start is called “002-001-001A-**0002**.d04”. *Note that this file name matches that seen via Windows File Manager earlier in these instructions.*

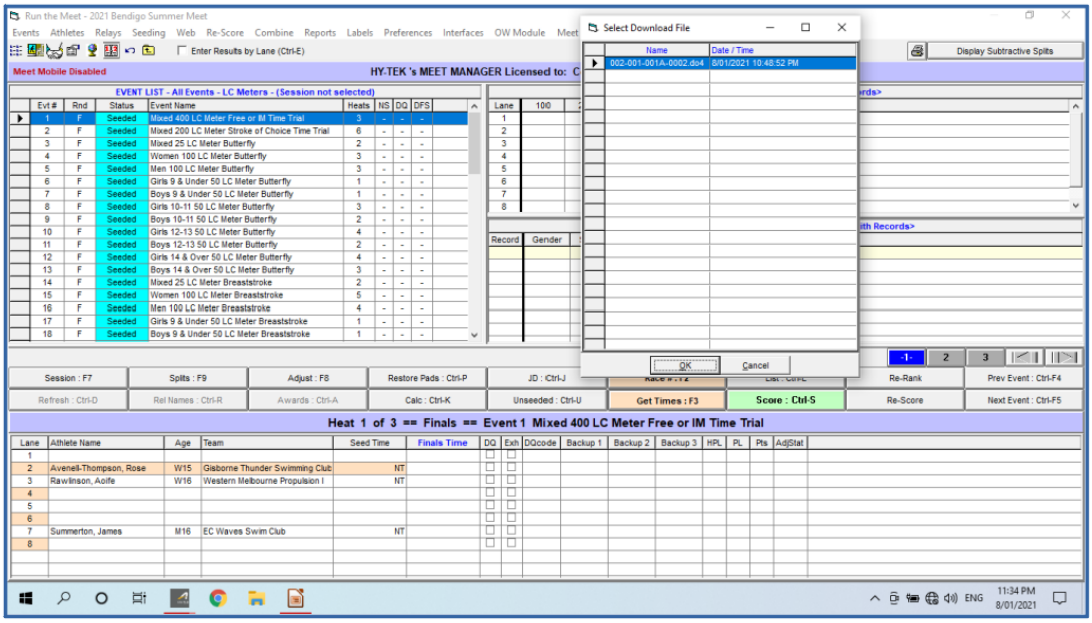


Figure 13: Picking from the list of timer files on the Meet Manager RUN screen

4. Press **OK** to retrieve the times and write them into the Meet Manager database.

6. Running the Meet

This document does not describe all the activities performed by either the CVS-DOLPHIN operator or the CVS-MEETMANAGER operator during the course of a Meet.

Nevertheless, it is important to understand these points:-

- the CVS-DOLPHIN operator controls the pace at which the Swim Meet progresses. That is to say, the Starting Official will not be able to start the next race until the CVS-DOLPHIN operator has pressed the **Reset Timers ("r")** button.
- It is vital for the CVS-DOLPHIN operator to be sure that all swimmers have finished before the **Reset Timers ("r")** button is pressed. If the **Reset Timers ("r")** button is pressed early the time for any swimmer who has not yet finished will be lost. Manual times must be gathered from the Lane(s) in doubt.
- The CVS-DOLPHIN operator must take care to accurately record the **Current File** suffix next to the correct Event/Heat on the shared Meet Program hard-copy. Failure to do so will result in times being incorrectly attributed to swimmers.

7. Packing Up

1. Turn off the stopwatches - hold down the Reset button until the LCD screen is extinguished.
2. Turn off the Dolphin Starter – hold down the Reset button.
3. Turn off the Dolphin Infinity loudspeaker.
4. Place the Dolphin Stopwatches, the Dolphin Starter, the Dolphin Base and their respective cables back in the correct place in the stopwatch case.
5. Create a folder for the Swim Meet under M:\<season>\<meetname>/StopwatchTimes and Cut/Paste all *.d03/*.d04 files to this folder. This will ensure a clean start for the next Meet Director and save the recorded times for later reference.
6. Backup the Meet Manager database and save it to the M:\<season>\<meetname> folder created above.
7. Shutdown the CVS-DOLPHIN computer. Place the ethernet cable in the case with the computer. Shutdown the CVS-MEETMANAGER computer. Place the printer cable in the case with the computer.

8. Appendix A - Concise Instructions

Following are concise, step-by-step instructions on how to set-up the Dolphin Wireless Timing System for a Meet. Please refer to the earlier sections of this document for more detail regarding each step.

Set-up the timing equipment

1. Turn on the **Dolphin Stopwatches** (Press and hold the RESET button).
2. Mount the **Dolphin Infinity** loudspeaker on the tripod.
3. Connect the **Microphone** to the Dolphin Infinity loudspeaker.
4. Connect the **Dolphin Starter** to the Dolphin Infinity loudspeaker.
5. Connect the **Dolphin Base** to the CVS-DOLPHIN computer.
6. Turn on the **Dolphin Starter** (Press and hold the RESET button).
7. Turn on the **Dolphin Infinity** loudspeaker.

Set-up the computers

8. Connect the **CVS-DOLPHIN** computer to the **CVS-MEETMANAGER** computer using the yellow ethernet cable.
9. Connect the printer to the **CVS-MEETMANAGER** computer.
10. Turn on the printer.
11. Turn on the **CVS-DOLPHIN** computer. Login with credentials – CVSwimming/CVSwimming
12. Turn on the **CVS-MEETMANAGER** computer. Login with credentials – CVS/CVS
13. **CVS-MEETMANAGER:** In File Manager, select **CTSDolphin (\\CVS- DOLPHIN) (M:)**
14. **CVS-MEETMANAGER:** Delete all *.D03 and *.D04 files on CTSDolphin (\\ CVS-DOLPHIN) (M:)
15. **CVS-MEETMANAGER:** Start the **Meet Manager** program and load the Swim Meet database.
16. **CVS-DOLPHIN:** Start the **Dolphin** program.

Perform a Test Start and get times into the Meet Manager database

17. Perform a Test Start. After 30 seconds, press STOP on all stopwatches.
18. When all stopwatches have been stopped, the CTS Dolphin window will show a placing for each lane and a **RED** traffic light.
19. **CVS-DOLPHIN:** Press RESET TIMERS("r") on CTS Dolphin window. This will commit the times to the Dolphin program, reset the stopwatches and ready the Dolphin Starter for the next race.
20. **CVS-MEETMANAGER:** Meet Manager → Run → Interfaces → Timer (CTSS) Pool 1→ Select Data Set stored from CTSS.

21. **CVS-MEETMANAGER:** Press **Update Data Location**
22. **CVS-MEETMANAGER:** Select CTSDolphin (\\CVS-DOLPHIN) (M:) → Open.
23. **CVS-MEETMANAGER:** Press **Next Meet** until a Meet with the time and date of the Test Start appears → Close.
24. **CVS-MEETMANAGER:** Press **Get Times : F3**
25. **CVS-MEETMANAGER:** Select file *-0001.d04 → OK

9. Appendix B – Timing Modes

9.1. A Word about Timing

Prior to the start of a the first race of the day, the Dolphin Starter screen will display the time 00:00.00 and each Dolphin Stopwatch will alternate between 00:00.00 and the word RESET on its screen. Both are ready to start a race.

When the race starts the Dolphin Starter and each Dolphin Stopwatch will begin to count time. When a timekeeper presses the black START/STOP button on his stopwatch the time displayed on his screen will not progress and that time will be transmitted via the Dolphin Base to the CVS-Dolphin computer. The Dolphin program will display that time and a red traffic light for that stopwatch. <u>But the stopwatch has not stopped counting time!</u> If the timekeeper has accidentally pressed the black START/STOP button on his stopwatch before the swimmer has finished he can press it again and his stopwatch will display the current time. No time has been lost. The traffic light on Dolphin screen for that stopwatch will turn back to green.

Indeed, both the Dolphin Starter and each stopwatch will continue to count time until their respective START/STOP and RESET buttons are pressed or the CVS-DOLPHIN operator presses **Reset Timers ("r")**.

If the RESET button on a given stopwatch is pressed the screen will display "--------" and time counting will continue. Pressing the START/STOP button will reveal the current time. When the START/STOP button is pressed and then the RESET button is pressed time counting will stop and the screen display will alternate between the last time captured and the word RESET. The stopwatch will be ready for the next race. All other stopwatches and the Dolphin Starter will continue to count time.

If the RESET button on the Dolphin Starter is pressed time counting will continue. When the START/STOP button is pressed time counting will stop on Dolphin Starter and all stopwatches. When the RESET button is subsequently pressed all stopwatch times will be written to the Dolphin program and a new pair of files will be created for the next race. The Dolphin Starter screen will display 00:00.00 and every stopwatch screen will alternate between the last time captured and the word RESET. All is in readiness for the start of the next race.

The CVS-DOLPHIN operator pressing the **Reset Timers ("r")** button has the effect of doing all of the above at the same time. This is the preferred method for stopping the timing for the current race and preparing for the next race.

9.2. Modes of Operation

The Dolphin Timing System can be used in three distinct modes of operation namely:-

- Electronic Start
- Synchronised Start
- Manual Start

Each these modes are discussed below.

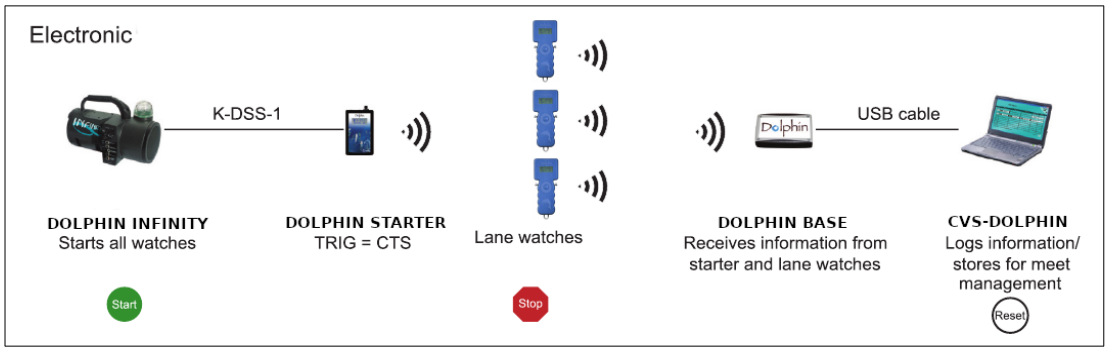
Electronic Start

This is the mode in which most Swim Meets are conducted. It uses the Dolphin Infinity loudspeaker and microphone to communicate the start of the race with the swimmers and the timekeepers. In this mode, all stopwatches will start at exactly the same time.

When the Starting Official presses the red button on the microphone the hooter sounds, the strobe light flashes and a signal is sent from the Dolphin Infinity loudspeaker via the grey cable to the Dolphin Starter. The Dolphin Starter sends a signal via the RF Channel to the Dolphin Base and each Dolphin Stopwatch and timing starts.

As the swimmer completes his swim the timekeeper presses the black START/STOP button on his Dolphin Stopwatch to end timing for that Lane. The time captured on the stopwatch is automatically transmitted via the Dolphin Base to the Dolphin program on the CVS-Dolphin computer.

When all swimmers have completed their swim and each stopwatch has transmitted a time to the Dolphin program, the CVS-Dolphin operator will press Reset Timers ("r") to reset the Dolphin Starter and the Dolphin Stopwatches and ready them for the next race.



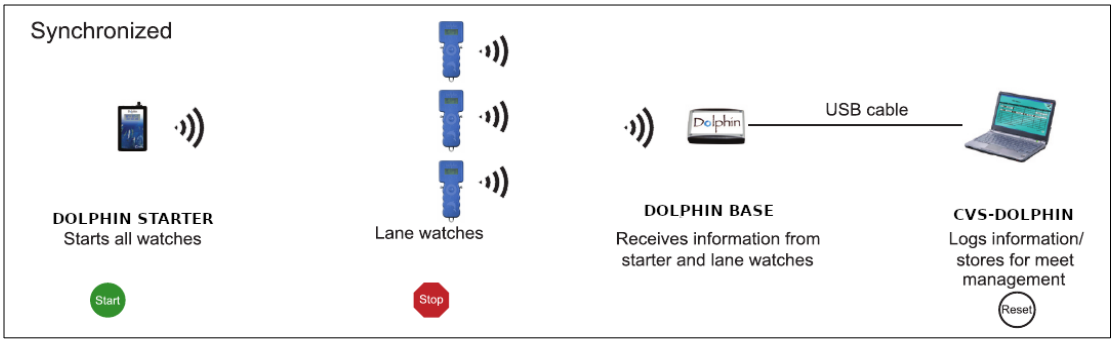
Synchronised Start

This mode can be used when the Dolphin Infinity loudspeaker is unavailable. In this mode, all stopwatches will start at exactly the same time. An alternate method of communicating the start of the race to the swimmers and the timekeepers must be provided.

When the Starting Official presses the START/STOP button on the Dolphin Starter a signal is sent from the Dolphin Starter via the RF Channel to the Dolphin Base and each Dolphin Stopwatch and timing starts.

As the swimmer completes his swim the timekeeper presses the black START/STOP button on his Dolphin Stopwatch to end timing for that Lane. The time captured on the Stopwatch is automatically transmitted via the Dolphin Base to the Dolphin program on the CVS-Dolphin computer.

When all swimmers have completed their swim and each stopwatch has transmitted a time to the Dolphin program, the CVS-Dolphin operator will press Reset Timers (“r”) to reset the Dolphin Starter and the Dolphin Stopwatches and ready them for the next race.



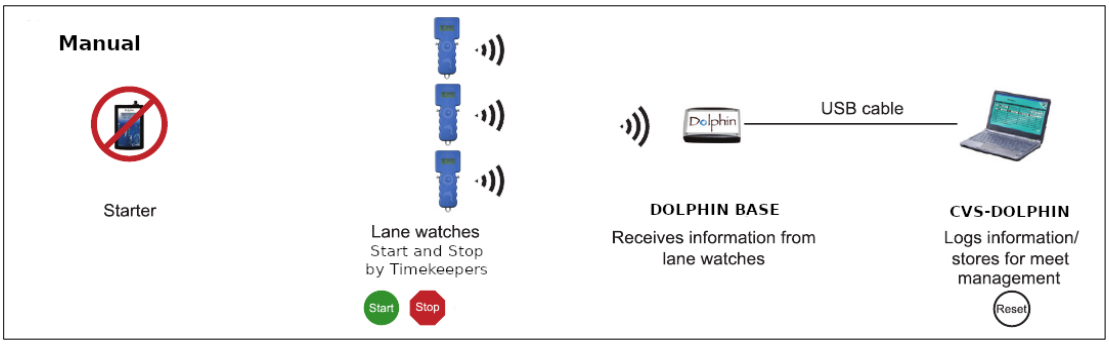
Manual Start

This mode can be used when both the Dolphin Infinity loudspeaker and the Dolphin Starter are unavailable. In this mode, all stopwatches will NOT start at exactly the same time. An alternate method of communicating the start of the race to the swimmers and the timekeepers must be provided.

Upon a signal from the Starting Official, each timekeeper presses the black START/STOP button on his Dolphin Stopwatch to start timing for his Lane.

As the swimmer completes his swim the timekeeper presses the black START/STOP button on his Dolphin Stopwatch to end timing for that Lane. The time captured on the Stopwatch is automatically transmitted via the Dolphin Base to the Dolphin program on the CVS-Dolphin computer.

When all swimmers have completed their swim and each stopwatch has transmitted a time to the Dolphin program, the CVS-Dolphin operator will press Reset Timers (“r”) to reset the Dolphin Starter and the Dolphin Stopwatches and ready them for the next race.



10. Appendix C – Changing the RF Channel

The Dolphin Base, The Dolphin Starter and the Dolphin Stopwatches communicate with each other using a wireless radio frequency (RF) channel. Every device must be configured to use the same channel for the timing system to function correctly. This appendix will describe how to configure each of the devices.

The Dolphin Base

1. Connect the Dolphin Base to the CVS-Dolphin computer using the USB cable.
2. Start the Dolphin program on the CVS-Dolphin computer.
3. Select the desired Channel. Any Channel between 1 – 15 can be used.

The Dolphin Starter and each Dolphin Stopwatch must now be configured to communicate on the same Channel number.

The Dolphin Starter

1. Press and hold the RESET button. Press and hold the START/STOP button until the device enters Configuration Mode. This will take about 4 seconds.
2. The device will display **TRIG CTS**. This is the normal mode of operation for most Swim Meets. TRIG CTS means that when the Starting Official presses the red button on the microphone the Dolphin Starter will send a signal to all stopwatches and timing will be started.

   To change the starting mode to **TRIG NC**, press the START/STOP button. TRIG NC means that when the Starting Official presses the START/STOP button on the Dolphin Starter a signal is sent to all stopwatches and timing will be started. This mode of operation is generally NOT used at Swim Meets.
3. Press RESET. The Channel number is displayed. Eg: **CHAN 04**.
4. Press START/STOP until the desired Channel is displayed. The Channel number <u>must</u> match the Channel number set for the Dolphin Base.
5. Press RESET to exit Configuration Mode.

The Dolphin Stopwatches

1. Press RESET to turn on the Dolphin Stopwatch.
2. Press and hold RESET and press and hold either of the black START/STOP buttons to enter Configuration Mode. This will take about 2 seconds. The configured **LANE** for the stopwatch will appear.
3. Press either of the black START/STOP buttons until the desired LANE number appears.
4. Press RESET. The configured **TIMER** (stopwatch identifier) letter will appear.
5. Press either of the black START/STOP buttons until the desired TIMER letter appears.
6. Press RESET. The configured **CHAN** (channel number) will appear.

7. Press either of the black START/STOP buttons until the desired CHAN number appears. The CHAN number must match the Channel number of the Dolphin Base and the Dolphin Starter.
8. Press RESET to exit the Configuration menu.

This process must be completed on every stopwatch for the timing system to work correctly.