MEC TIMING
MOVING SPORT FORWARD

dTris Timing Application

User's Manual

November 2023 - Version 1

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Introduction:

MEC Timing has worked hard, so this new dTris (Ver 3.0.0) is more intuitive, efficient and easier for users to learn and use.

The MEC Timing team aimed to redesign dTris Ver 3.0.0 to be easier to learn and use. The new design focuses on maintaining the timing functionality while enhancing the administration of the race set and information.   We have accomplished this by changing every aspect of the current dTris, from streamlining the timing equipment and race setup process to editing the racer and race results.

dTris Ver 3.0.0 provides the user with more information at once so they can quickly understand and see the status of each step, from equipment and race setup to timing the race and exporting the race results. The race and timing equipment parameters are captured on their respective Window by either a drop-down menu or by the user manually entering the information.

dTris Ver 3.0.0 introduces new functionality to significantly improve users' ability to learn and test their race setup, timing and exporting functionality. Our new test timing functionality replaces a user needing expensive physical timing equipment. The test timer allows users, both experienced and new, to simulate a race without timing equipment to:
- help them become familiar with how to set up equipment and race parameters;
- test their equipment setup;
- load race participants;
- simulate a race and the various actions they may encounter during a race; and
- export the race results to an electronic file.

dTris Ver 3.0.0 allows users to use a FIS level equipment synching process regardless of the race level.

Users can now easily import race participants and make racer information changes with the enhanced addition, editing and deleting functionality. Users are no longer restricted by only having a bib number appear once. Now, dTris Ver 3.0.0 allows each group to have their unique bib numbers independently of the other groups.

Once the user has imported the race participants into dTris Ver 3.0.0, the user can see the number of participants in each group, whether a group has a codex assigned to it or is the forerunning. The user can also see each group's participant list and manually rank a group's participants by six different fields. Once the user begins to time the race, dTRis Ver 3.0.0 suspends the Group tab's editing ability. The user can edit a participant's information but must now use the Race Data tab until they complete the race's timing.

The Run tab is where a user times the race. dTris Ver 3.0.0 provides the same functionality as dTris Ver 2; however, users can see each group's status every time they leave the timing screen. A user can more easily add a racer to a run in progress using the timing window, not impacting the user's timing focus. The step to conclude or finish a run is now more straightforward for the user to see which racers did not start because dTris displays them and allows them to assign a DNS status at once. DSQ has become more manageable within the same Window, as the user can scroll to the racer's bib number and toggle the DSQ button.

The last administrative improvement, dTris Ver 3.0.0, concerns editing a racer's information. dTris Ver 3.0.0. This information for all racers is available in the Racer Data tab. The user can edit a racer's specific information and run 1 and 2's timing information by changing a run's time-of-day time (TOD) stamp. We have introduced a new search function for this Window to help the user quickly find a racer or get a list of NDS racers on the screen.

MEC Timing has worked hard to reach this point to release dTris Ver 3.0.0, but we still have more work to do to add the lesser-used functionality before we can retire dTris Ver 2 from production. MEC Timing plans to remove dTRis Ver 2 from production before the 2025/2026 race season.

dTris Ver 3.0.0 today DOES NOT provide the following functionality:
1. Interval timing;
2. Dual Race timing;
3. Ski Cross; and
4. Equivalent Electronic Time (EET).

As the ski season approaches, MEC Timing is starting to plan next year's release, including the above functionality and other suggestions that the users may request.

Have a good race season.

MEC Timing

dTris Installation:

The installation procedure is similar to what the user does today. You go to the MEC Timing's Home web page (mectiming.org) and scroll to the bottom of the home page, where you will find the software quick links section, as shown in Figure A.

The new dTris version is called "dTris 3 – Version 3.0.0 as identified above in the red circle. The user will find all the information and download the link here.
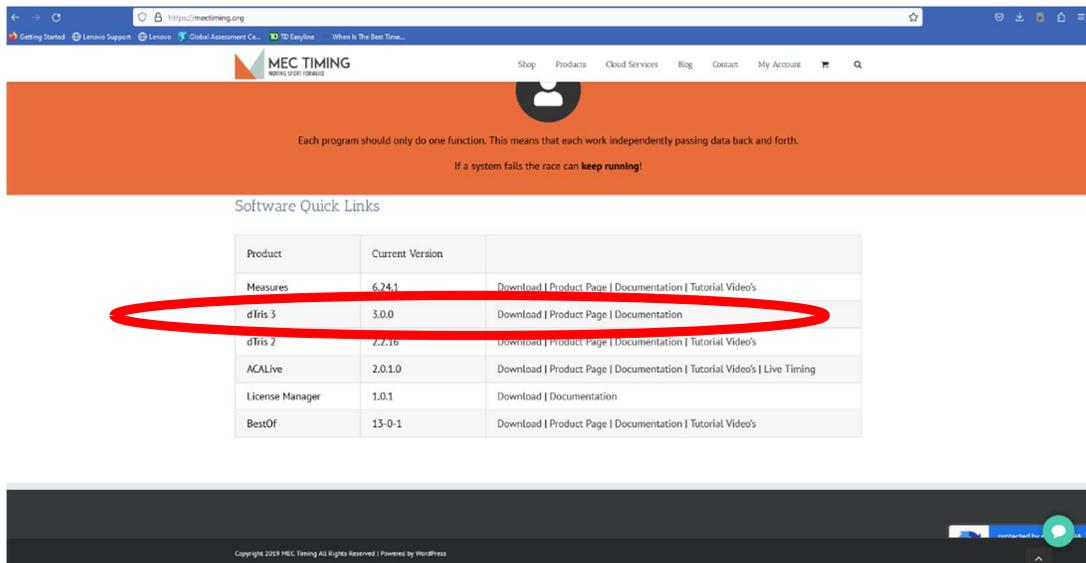
Figure A

dTris Ver 3.0.0 Download

To install the new dTris version, the user must select the highlighted download option and click download to download the software. Once Windows has downloaded the app, the user will see a Windows 11 window popup (Figure B) indicating Windows 11 has successfully downloaded to their computer.
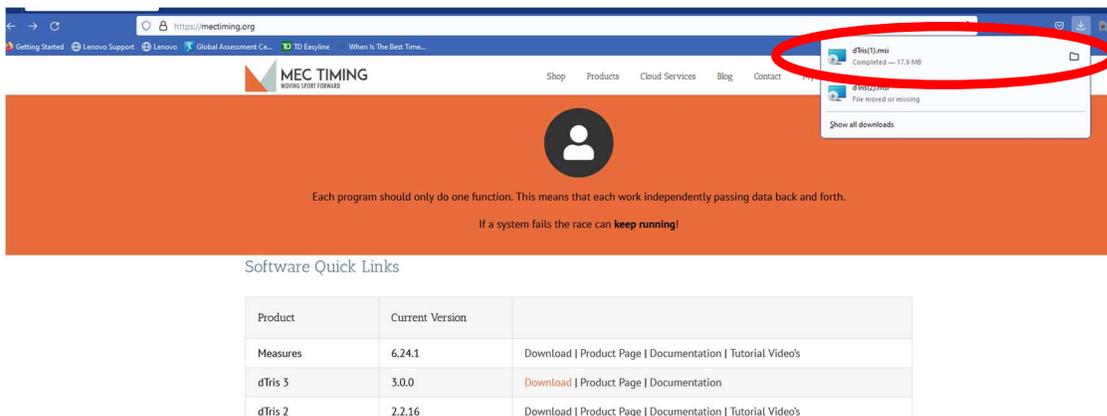
Figure B

To install dTris Version 3.0.0, the user will next go to their download folder to find the dTRis downloaded Windows Installer Package (dTris(1)) and double click on the dTris icon as shown in Figure C
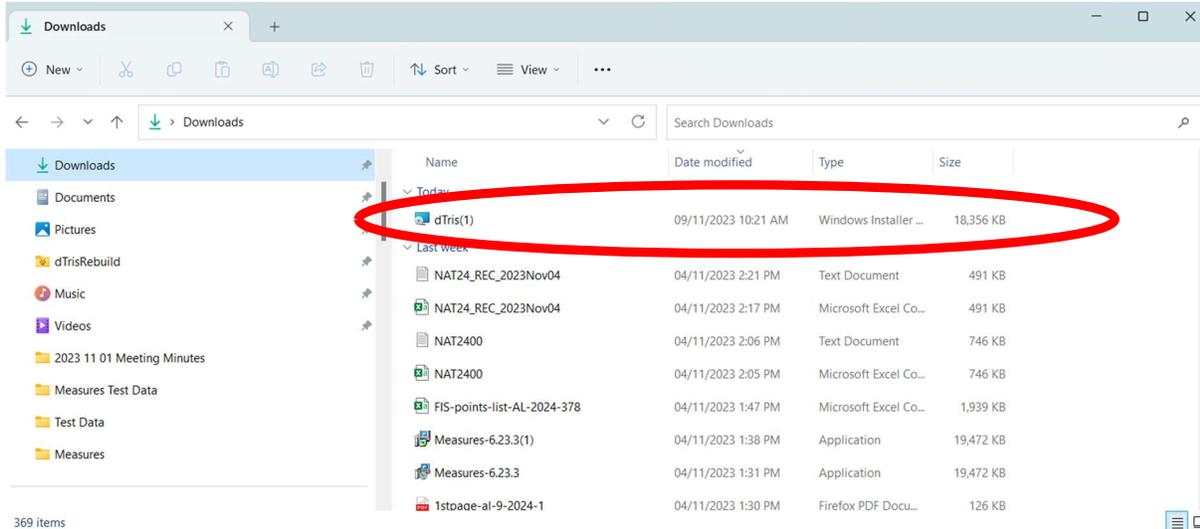
Figure C

After double-clicking the icon, your system will display the dTris installer, as seen in Figure D. If the installer window does not appear, the user should check the Windows taskbar to confirm they have launched the installation app, as highlighted in Figure E.

Figure E

Figure F shows that the user must accept the License Agreement terms by clicking the acceptance checkbox.

Figure D

Figure F

Once the user has accepted the license agreement terms, Windows will display a popup window asking you to allow the dTris app to run, as you can see from Figure G. You will click on the highlighted words "More info." A window will ask if you wish to run the dTris Installer app anyway (Figure H). You will click this button, and the installation app will start installing the new dTris version.

Figure G

Figure H

Once the installer app completes the installation, the finished Window will pop up, as shown in Figure I. For the user to complete the installation, they will need to click the Finish button
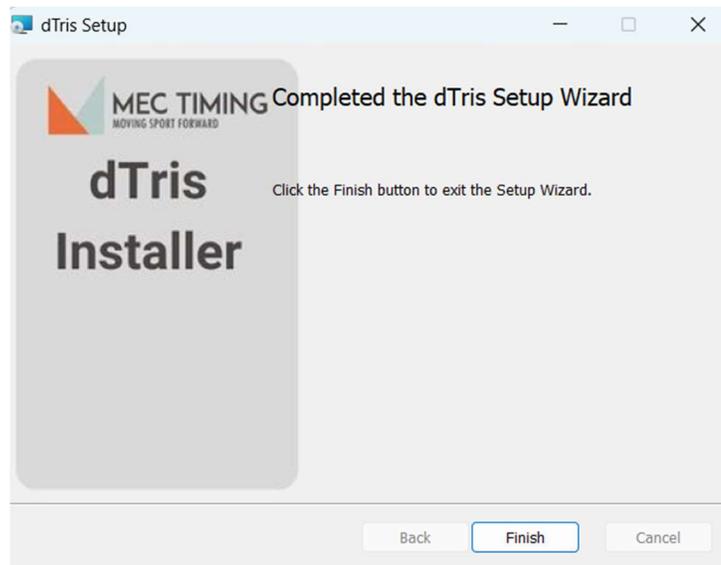
Figure I

dTris Version 3.0.0 Location:

If the user wishes to check to see if Windows 11 has installed the new dTris version on their computer in Windows 11, they will click on the Windows icon in the taskbar (at the bottom Window), then select the All apps button, and Windows 11 will display all their apps on the computer. Now, the user can scroll down to the apps beginning with M, where they will encounter two (2) folders, MEC Apps and MEC Timing, as shown in Figure J.
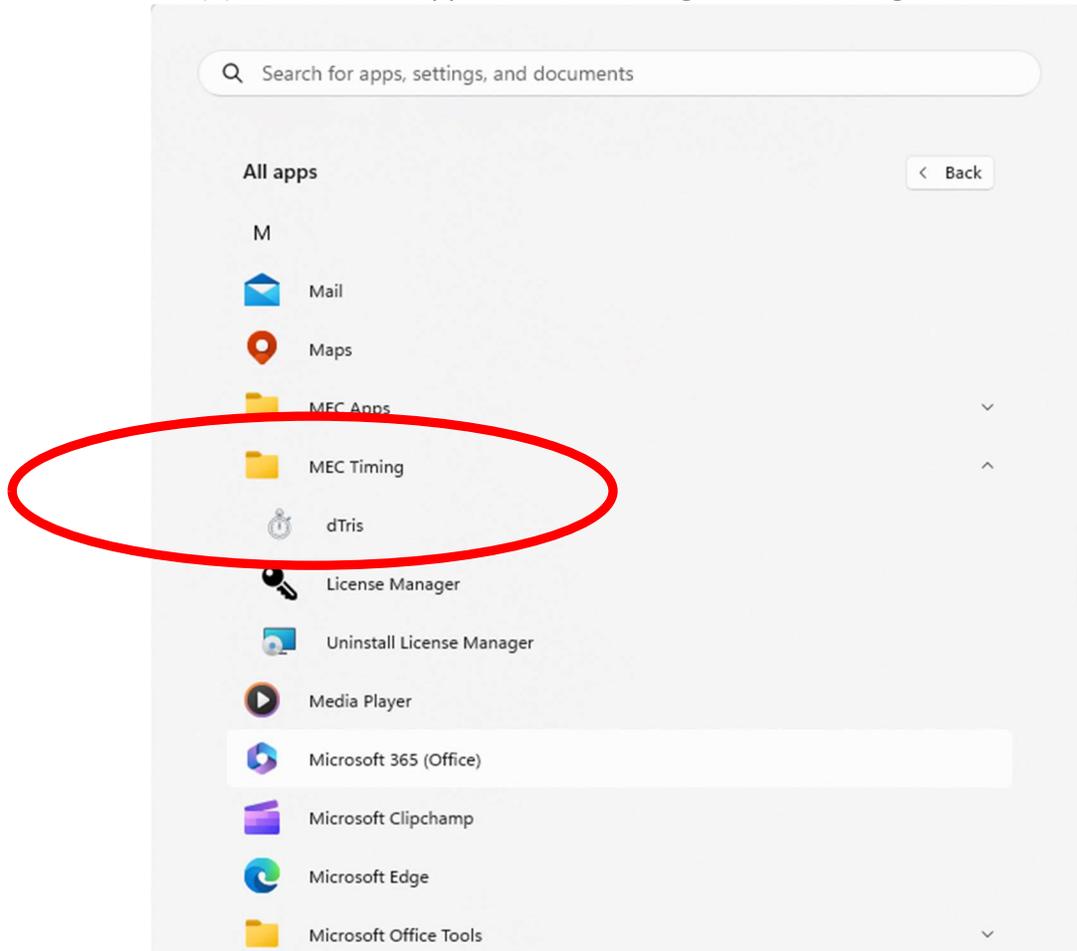
Figure J

The older dTris version (Version 2.2.16) is available in the MEC Apps folder, while the new dTris application (Version 3.0.0) is in the MEC Timing folder, as Figure J highlights.

The user can now use either version of dTris on their computer by launching the appropriate application.

dTris Start-Up:

To use dTris, users must launch the application by clicking on the dTris icon on their computer. dTris displays the Window shown in Figure 1.

We recommend the user place the dTris icon in the taskbar or on the timing computer's desktop.
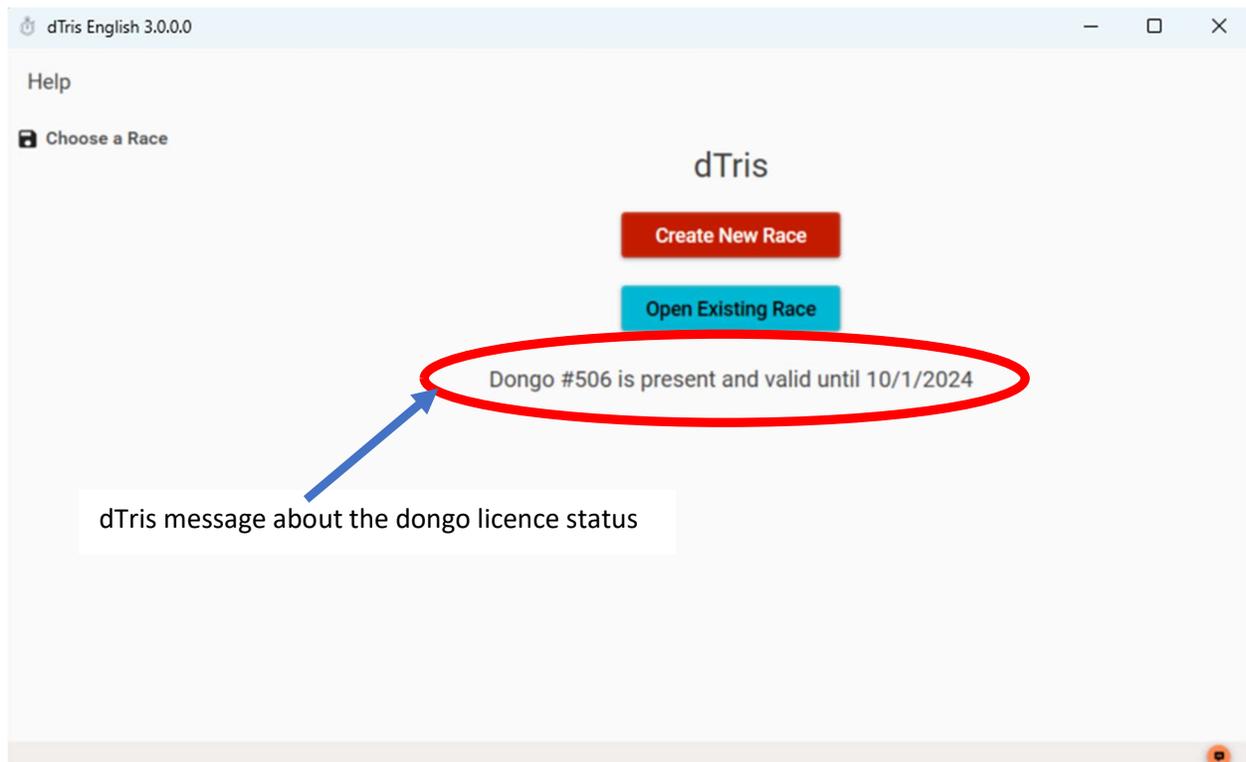
Figure 1

In this Window, dTris identifies if the user has a valid Dongo so they can run the race. For example, Figure 1 dTris shows that the user's Dongo 505 is present and valid until 01/10/2023. The Dongo is not present. dTris displays a message "No Dongo Present – Running in Demo Mode."

The user can use dTris in Demo mode with 5 racers in each of 3 groups.

If the Dongo is present, but the licence is out of date, dTris will present a message "The Dongo licence is invalid – please get in touch with MEC Timing.

From this Window, the user has two options (see Figure 2); they can either select:

- The help button to check if there are any dTris updates or to change the dTris background colour; or
- One of the two buttons on the screen to create a new race or load a previously saved race.
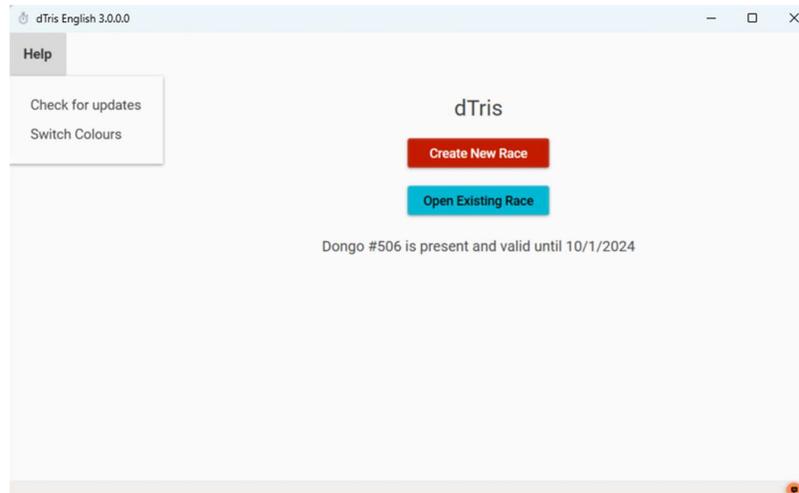
Figure 2

Note: *The race file is where dTris stores all information for the race while the user is preparing to time and captures all the pertinent information about individual racers' times and race results.*

The user can select the following dTris background colour by clicking on the switch colour option from the help drop-down menu.

Before we detail how to set up and time a race, we will quickly describe each tab on the left side of the dTris screen as outlined by the rectangle (see Figure 3).
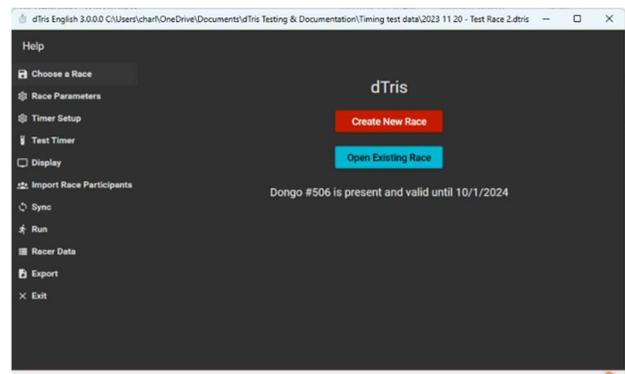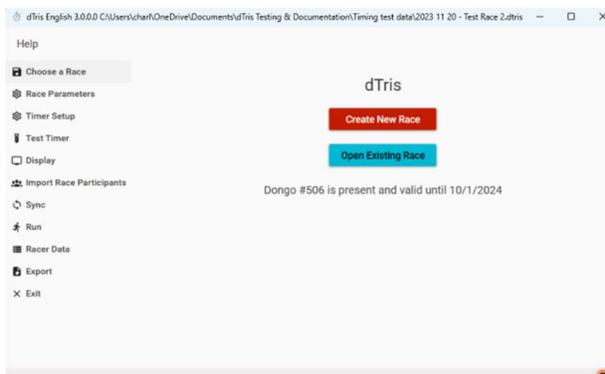
Important Notice
This new window version of dTris is significantly different than the DOS version of dTris. The Windows version will automatically save any user entries when the user leaves a window or exits from the application.

Main Screen Explained:
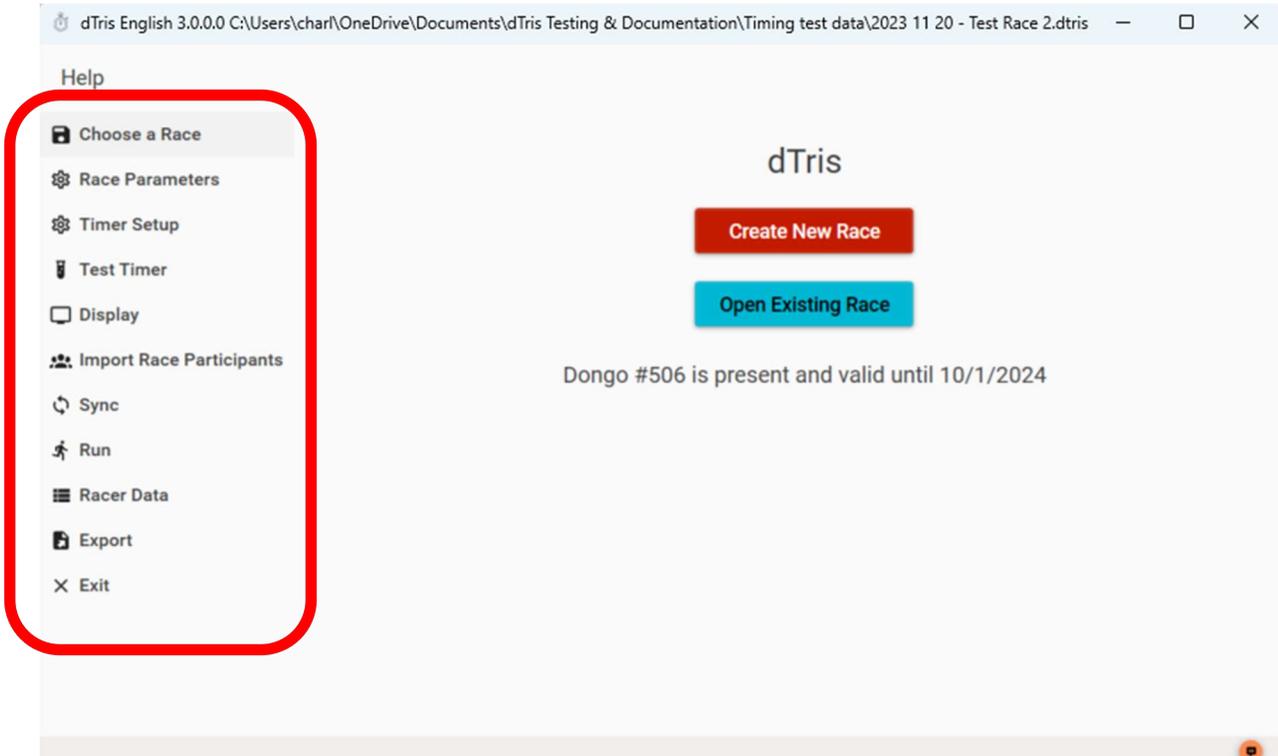
Figure 3

The different tabs used by someone using dTris are Choose a Race, Race Parameters, Timer Setup, Test Timer, Display, Import Race Participants, Sync, Run, Racer Date, Export, and Exit. dTris will present these tabs once the user has selected to create a new race or open an existing one.

Choose a Race:
This tab will enable a user to either create a new race or load an existing race that the user has previously made. In both cases, the process is the same, except in a created race, you enter the race name while the user selects the name of a race previously created to load an existing race.

Race Parameters:
This tab will help the user set up the race description, timing description, and results calculation method.

Timer Setup:
With this tab, the user selects the specific timing equipment, the connection method, and which channels dTris will receive the start, Interval, and finish pulses.

Test Timer:
The user can test the different timing connections and ensure they operate as expected. This tab will also help diagnose any errors in communications connections that the user may have accidentally set up.

Display:
With this tab, the user can create the ability for remote users to see the results over the Internet using Live Timing or a display screen that a club may have mounted in the clubhouse.

Import Race Participants:
Using the Import Race Participant Tab, the user can manually create a list of participants or import the list in either Excel or Measures format.

Sync:
The Sync tab is necessary when running a FIS level race. Using this tab, the timing team can set up and test all the equipment to align the various timing equipment's Time of Day (TOD). The Sync process generally is used for higher-level races.

Run:
Users will spend most of their time timing a race in the Run tab. Once the race has started, there is no need to leave this tab unless something has happened with a racer's time.

Racer Data:
With this tab, a user can see the race results, sort the racer results, and correct timing errors that may have happened while they were in the Run tab.

Export:
With this tab, the user can export the race results into an electronic file in dTris (Measures)or CSV format. The user can export racers' results any time after completing a run and before the start of the next run.

Exit:
The user will use this tab to exit dTris.

Creating or Opening a Race File:

The process is the same whether a user creates a new race or opens an existing one.

A user will use the new race option when they need to start the race setup from the beginning, enter the race name, pick the location of the race information, and select the save button, storing the results on the timing computer. Once the user clicks the save button, dTris returns the user to the "Choose a Race" Window, and they can begin to enter the race's parameters and information in the other tabs.

Open Existing Race:
A user will use this option because they want to use previously created race and timing parameters. These parameters were most likely needed, and the user will only need to add the racer groups before starting to time the race.

In either case, dTris handles the request the same whether the user creates a new race or loads a previously created one. We will only describe creating a race.

The user will select the appropriate button, and dTris will present the following screen (Figure 4), where the user will enter the name of the race and click save.
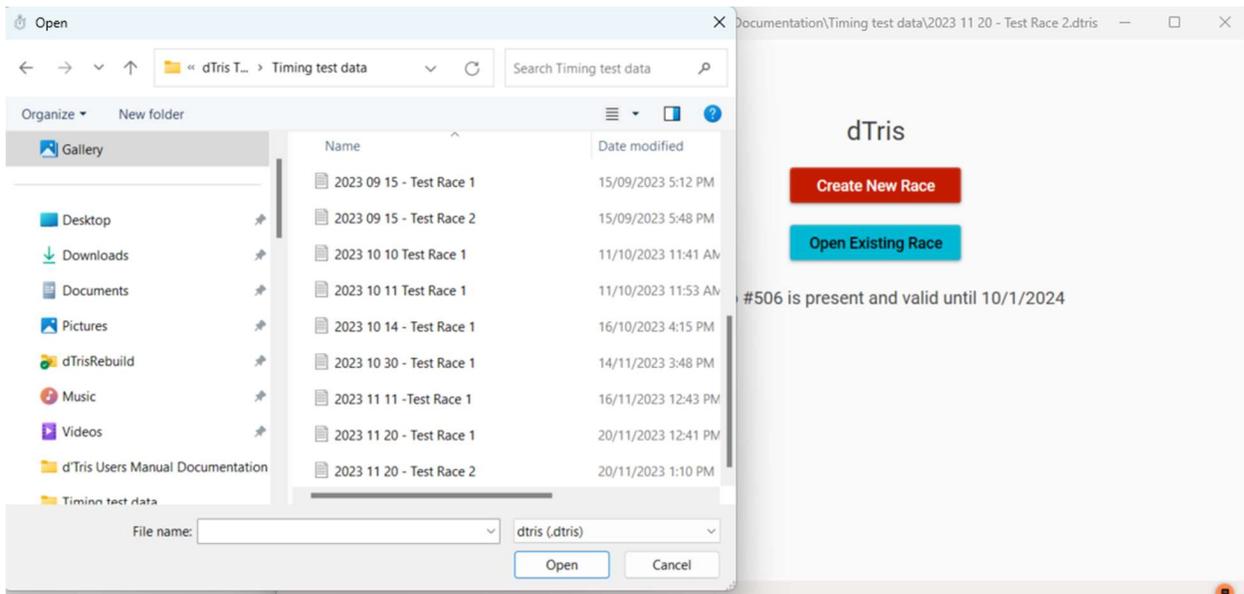
Figure 4

Once the user has clicked the Save button, dTris creates the race and log file and returns to the main screen, as shown in Figure 4.

Race Parameters:

As you can see from Figure 5, there are three (3) different descriptions the user needs to select to describe the race they are about to begin to run.
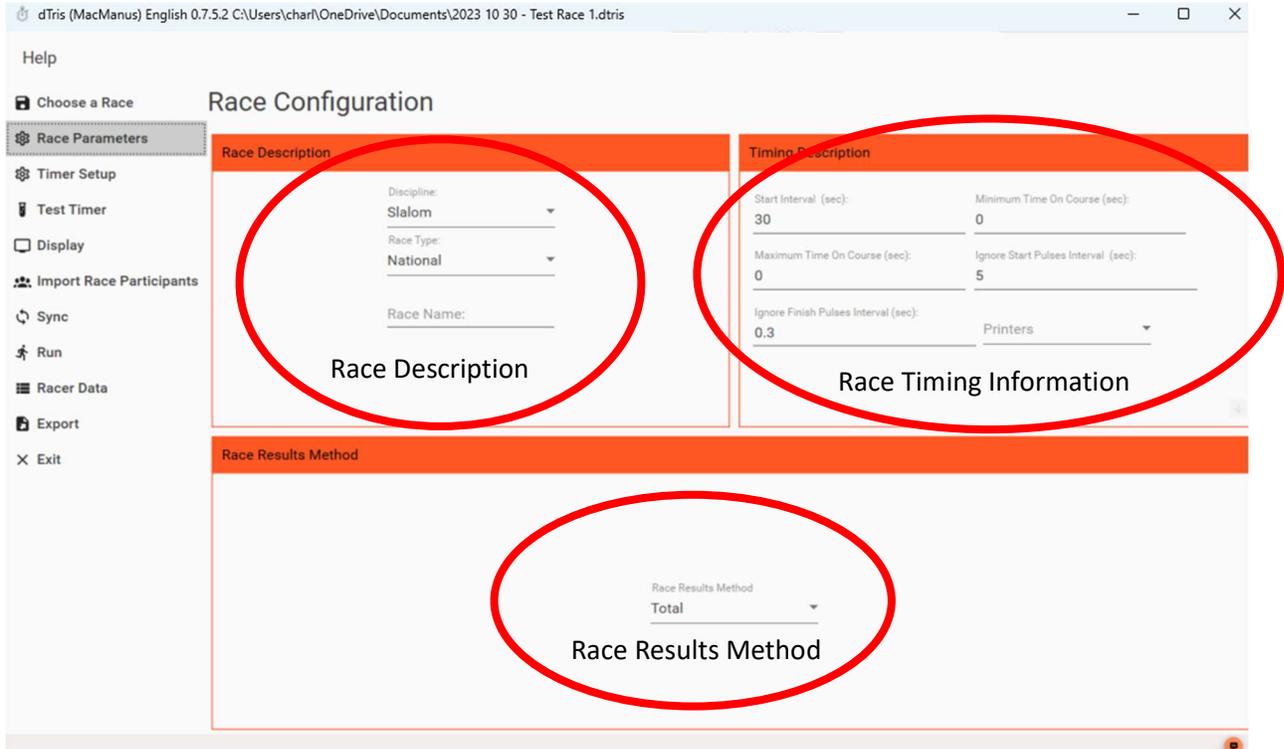
Figure 5

Race Description:
The Race Description asks the user to identify the Race Discipline, Race Type, and Race Name. The user can select the Race Discipline and Type from a drop-down menu populated with options.

The Race Discipline drop-down options are: The Race Type drop-down options are:
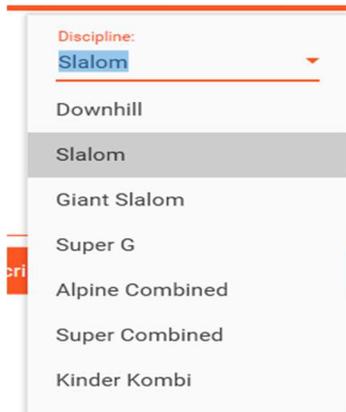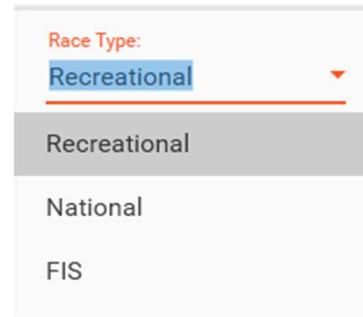
The Area for a user to complete is the Race Name. In this field, the user will type the name of the Race Name.

In this Window, the following section for the user to complete is to set up the race: the Race Timing Information. In this section of the Race Parameter window, the user will enter five descriptors: Start Interval, Minimum Time on Course, Maximum Time on Course, Ignore Start Pulses Intervals, and Ignore Finish Pulses Intervals.

The information about time on the race course enables dTris to help the user by using an icon beside a racer's time, indicating the race's time is either below the minimum or above the maximum time on the course.

- ***Minimum Time on Course*** is your estimate of the minimum time a race will take to complete the course. This entry **must** be in seconds. *The default is 45 seconds*.
- ***Maximum Time on Course*** is your estimate of the maximum time a race will take to complete the course. This entry **must** be in seconds. The default is 90 seconds.

For the start interval, dTris presents a countdown timer so the user knows how long the next racer may leave the gate. The meanings of these three variables and dTris' default value are described below.

- ***Start Interval*** is the number of seconds you estimate there will be between two racers. This entry **must** be in seconds. *The default is 30 seconds*.

The Ignore the start and finish pulse intervals are parameters a user can set to help minimize any duplicate pulses created by the equipment or a user starting or finishing a run.

- ***Ignore Start Pulses Interval*** is your estimate of an interval between a racer leaving the starting gate and when the next time a racer may be ready to start their run. This entry **must** be in seconds. *The default is 5 seconds*.
- ***Maximum Time on Course*** is your estimate of an interval between a racer passing through the finishing gate and the next time a racer may pass through the finishing gate. This entry **must** be in seconds. The default is .3 seconds.

The section of the Timing Description area enables the user to print dTris TOD and channel information to a serial printer.

Important Notice
The user must set up the serial printer and ensure it works actively on the computer.

The user can quickly set up a serial printer on the computer by selecting the Printers field, and dTris will present a drop-down menu with all the active printers (see below).
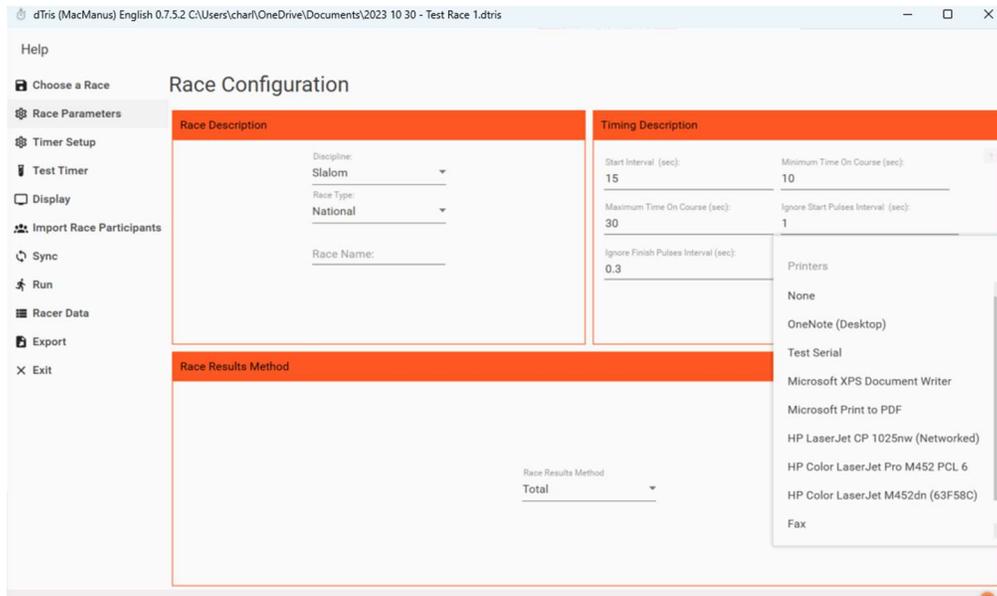
The last area of the Race Configuration window describes how dTris will determine the race results. dTris presently offers the user two options from the drop-down menu, as shown below.
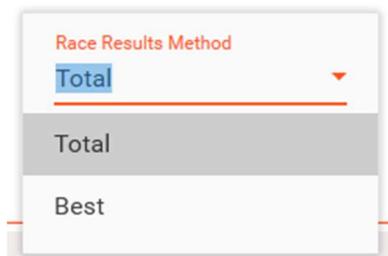
Timer Setup:

Now that the user has completed the Race Parameters setup, they can set up the Timing Equipment Configuration by selecting the Timing Setup Tab on the Left side of the Window (See Figure 6).

The user needs to know three pieces of information about the timing equipment they will use to time the Race. This knowledge is essential as this Window identifies the physical equipment connections with the dTris computer so the application can calculate a racer's time and position. The information is Timing Equipment Manufacture, Timing Equipment Connection between the physical equipment and dTris, and what channels present about pulses to dTris (Interval Configuration).
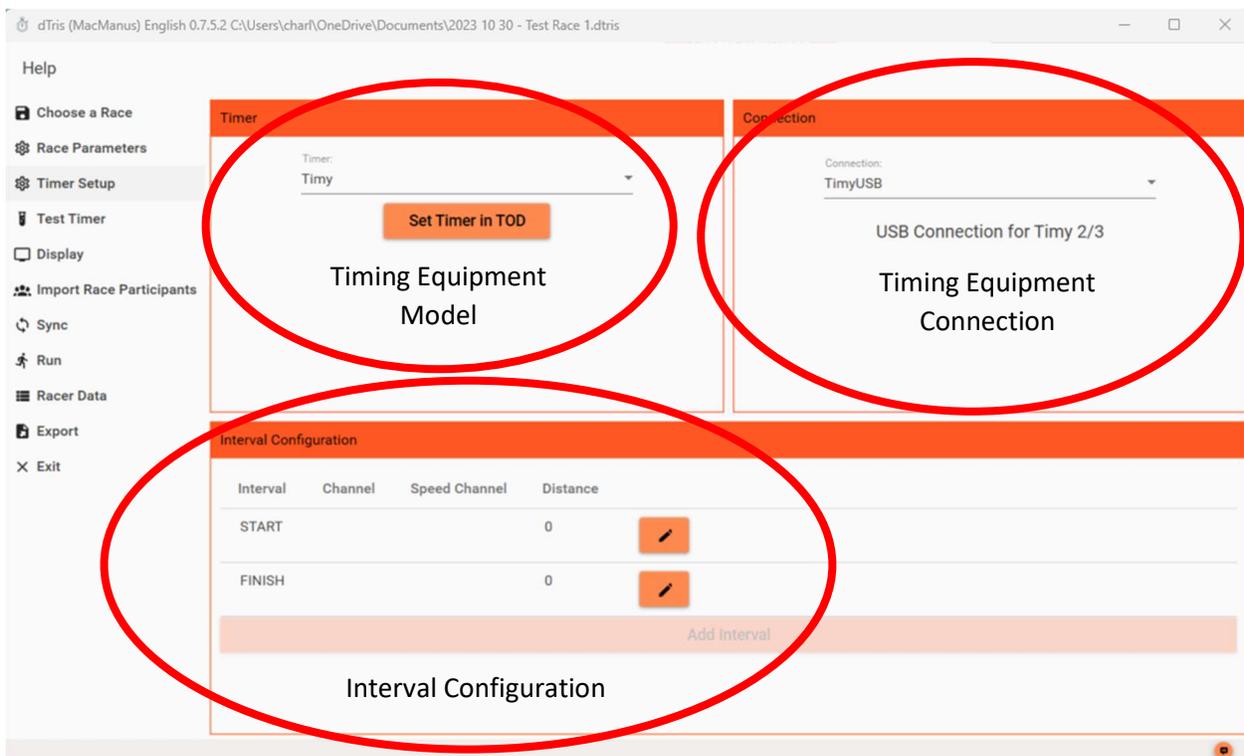
Figure 6

Timing Equipment Model:

The Timing Equipment Model option allows the user to select the type of timing equipment from a drop-down menu. The options that dTris currently supports are:

- S4;
- Timy;
- TDC8001; and
- Test.

We suggest you consult the manufacturer's manual for more specific information about the different timing equipment. The Test option will allow the user to use dTris and simulate running a race without any physical timing equipment.

Note:
If your equipment is absent, please contact MEC Timing with the manufacturer and model number. We will be pleased to add this equipment as soon as possible.

Timing Equipment Connection:

This section of the Timing Setup allows the user to select the type of interface used between the physical timing equipment and dTris input. The options available from the drop-down menu are:

- RS232;
- TimyUSB; and
- Test.

RS232 Interface:

The RS232 interface is a 32-pin connector that connects the timing equipment model to the computer on which dTris is running. With this option, you must populate more information about the serial port and baud rate. The serial port name should be specific to the particular computer running dTris. dTris will search the computer and display the RS232 ports' names from which the user can select the port name. The second option is the baud rate, which is how fast digital information will pass from the timing equipment to the computer running dTris (See Figure 5). The baud rate is a drop-down menu with options from 2400 to 38,400

TimyUSB interface:

This interface type uses the timing computer's USB interface, is found on newer computers, and is a second interface on older computers. For example, Timy 2/3 specific timing equipment uses the USB connection.

Test interface:

You will use this option to test dTris without timing equipment like the S4 or Timy. There are no options when you select using the test timer.

Interval Configuration:

In this section of the Time Setup, the user explicitly assigns the communications channel to a specific dTris function like start, finish, Interval, or speed trap. This configuration tells dTris which pulse and its purpose it receives. After the user selects the equipment manufacturer and configuration, dTris populates the specific manufacturer's channel names, as shown in Figure 7.
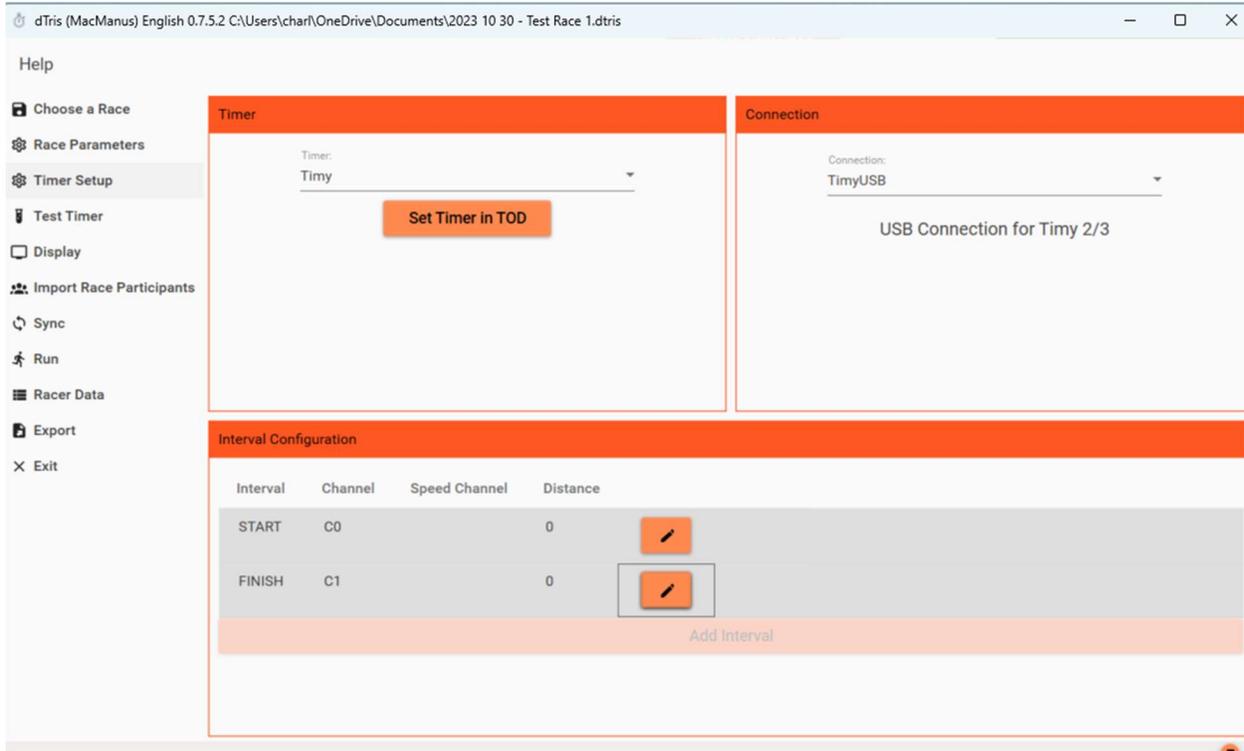
Figure 7

The minimum interval configuration is to select the channel for the start and finish intervals. Figure 8 shows an example where the equipment model selected was Timy, and dTris populated the channel drop-down menu with the Timy channel names. The users will choose the appropriate title from this menu, and dTris will return a screen similar to the example below.
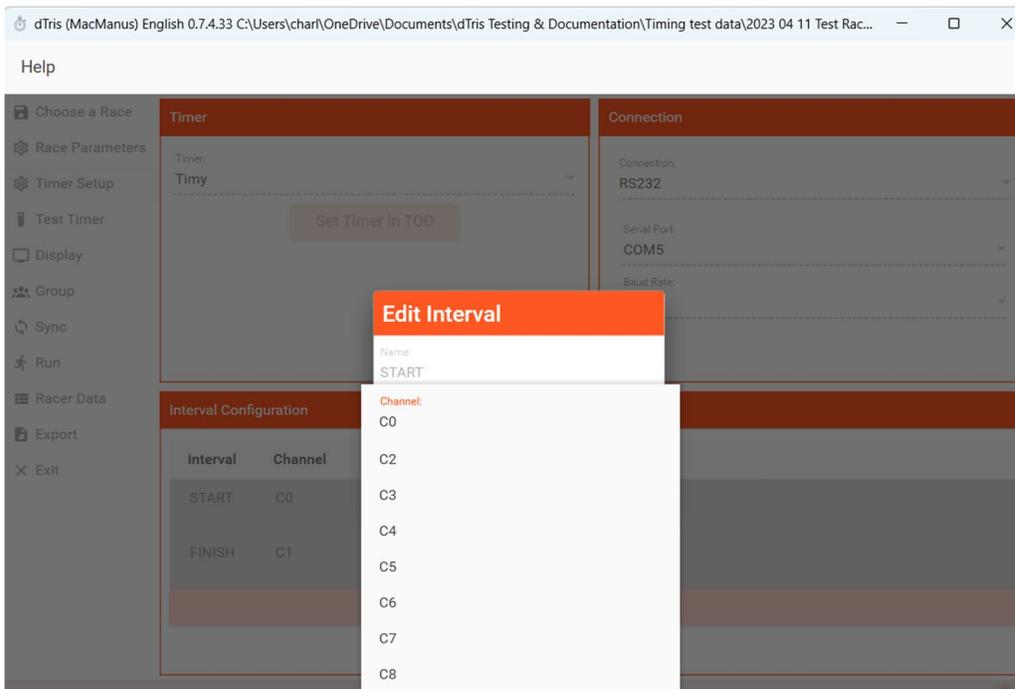
Figure 8

Test Timer Configuration:

When the user chooses to run dTris using the internal test timer, dTris automatically assigns Ctrl+Alt+F1 through to Ctrl+Alt+F8 to channel CO1 through CO8, respectively. In this mode, the user will set an appropriate CO channel to the start and finish intervals similar to what you see above (Figure 8).

Now dTris is set up to simulate a start pulse indicating the Race has left the starting gate using Ctrl+Alt+F1 if the user assigns the start pulse to CO1. While the user designates the finish pulse to CO8, Ctrl+Alt+F08 simulates a racer finishing a race, equivalent to dTris receiving a real finishing pulse on C08.

Addition dTris Timing Options:
Interval Timing & Speed Trap:
Neither the Interval timing nor the speed trap timing options are available with this version of dTris. These options should be available with a future release of dTris.

Test Timer:

With this tab, the user can test the physical connection between the timing equipment and the computer and determine if dTris can receive the timing pulses on the various channels.

The user looks at the Window to verify that the timer model and connection type are what they will be using to time the race. Once the user has confirmed the timer and connection, the user can test the channel connections by requesting someone to create a pulse for each channel assigned by the user using the Timer Setup window.

The example (Figure 7) shows that the user is using a Timy timer with an RS232 Connection. The user then creates a start pulse by breaking the start wand, and dTris indicates the application recognizes the start pulse's channel and the Time Of Day (TOD). Next, the user creates a finish pulse, and dTris shows the channel and finish pulse TOD. The following two entries dTris has received are two pulses from channels C2 and C3, which the user has not configured for use during the timing of this race.

The user can see clearly if the equipment is configured appropriately and working as needed before the start of the race.
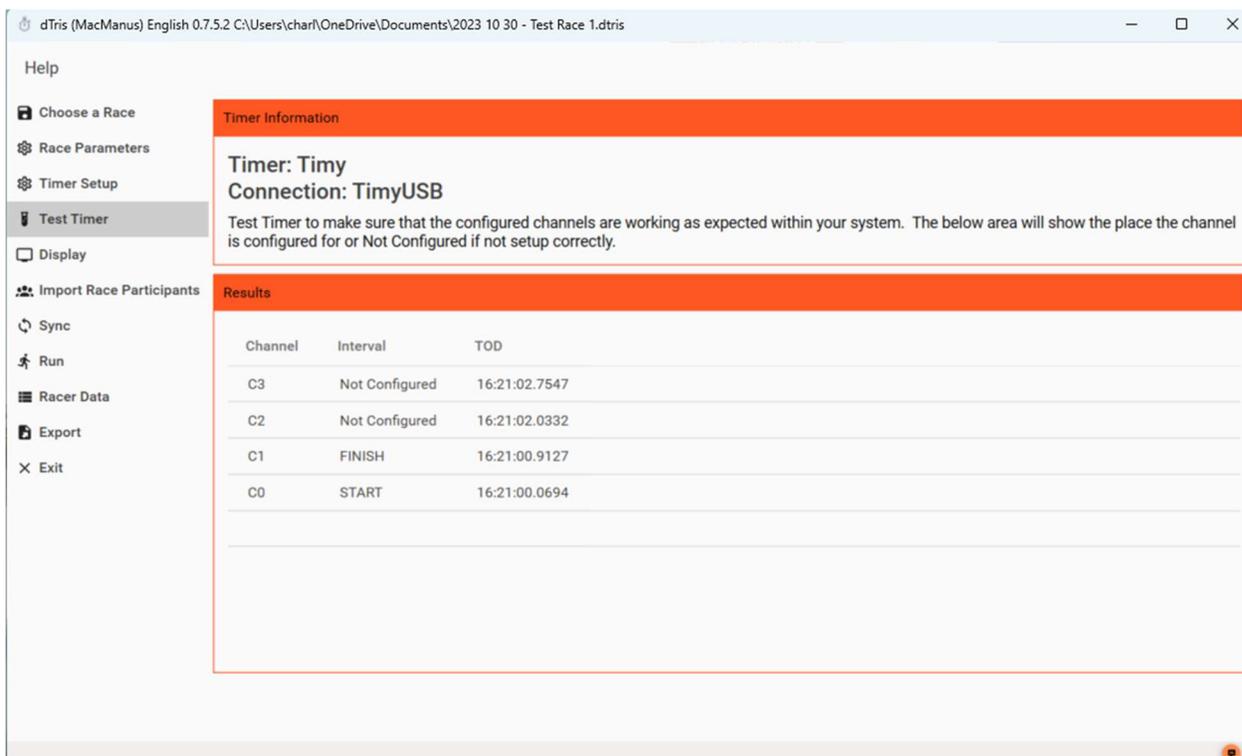
Figure 9

This Window will benefit the user in ensuring they have configured all the equipment and it functions appropriately.

Display:

The user uses this Window to set up the last connection a user can use while they are running a race. This Window (Figure 10) allows users to connect equipment and service to the dTris application so remote users can monitor the race results. The remote users can monitor the race results via two different ways: the Internet (Live Timing) or by watching a display board located somewhere on the ski club's facilities (display).

The user can configure the remote results displays either individually or together.

The user activates the Live timing by checking the Live Timing checkbox, and dTris displays a racer's times and results on MEC Timing's website (www.alpinecanadalive.org).
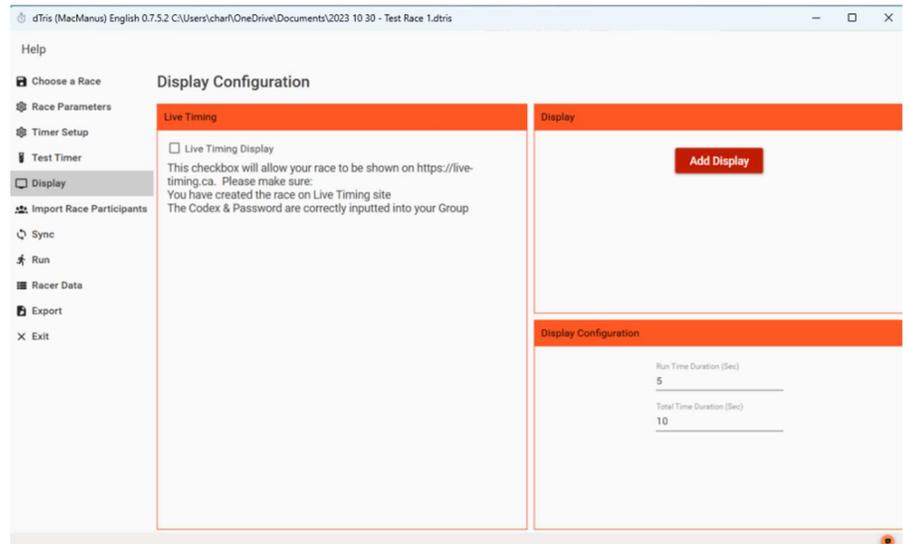
Figure 10

The second method for remote users to see the race results is to watch a screen provided by the ski club connected to dTris. To enable this viewing service, the user must select the Add Display button with a popup screen (Figure 11) to appear that the user must populate.

The user must select the equipment model and connection type from a drop-down menu.

DTris can display racing results on three equipment models: Test, RTNM, and GAZ.

The user must select the equipment model and connection type from a drop-down menu.
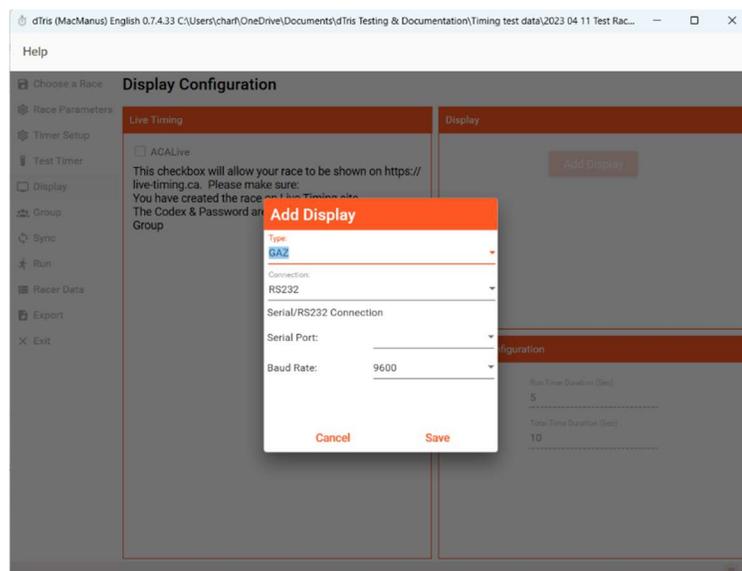
Figure 11

The test option allows the user to simulate a race without using the equipment but verifying that dTris functions correctly.

The RS232 connection is the physical connection that transmits the racing times and results to a remote display board. In this case, the user must enter the correct serial port name and appropriate baud rate ranging from 2400 to 38,400.

The user can set the length of time a racer's results for a specific run and the racer's total time by selecting the time length parameters in the display configuration section of the display window.

Once the user enters all the display information, the user clicks save, and dTris returns the user to the display window (Figure 12), where they can see which live timing and remote displays are active and ready to receive racing information.

You can see three buttons to the right of the display name. The first button is a [ ] test button to test the display and see that dTris displays times correctly.

The next button is the edit button [ ] that allows the user to edit the setting of the specific display identified (see Figure 13).

The last button [ ] lets the user delete the display currently shown by dTris.
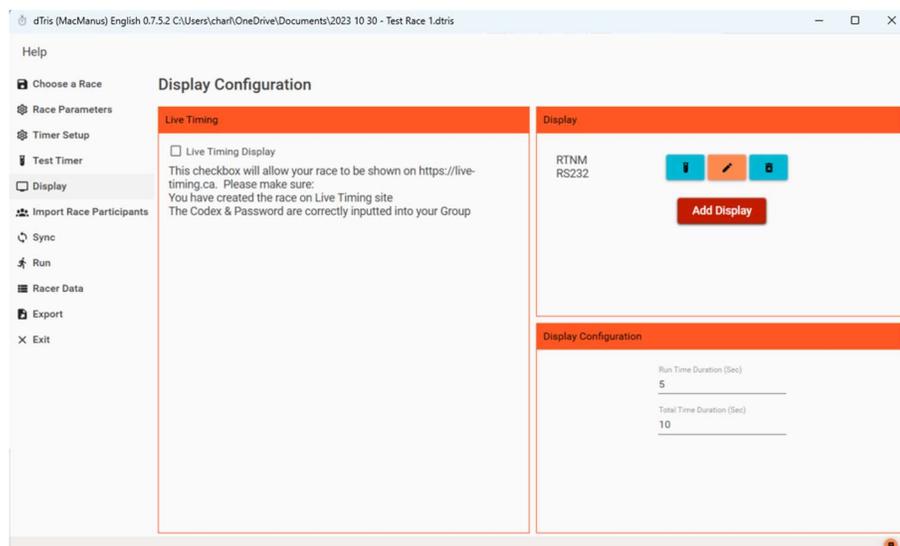
Figure 12
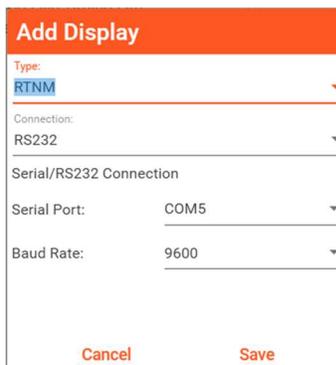
Figure 13

Note:
For Live Timing to work successfully, the user must ensure that each group has its Codex and password assigned to the group when they load the competitors into dTris. If the user misses entering the Codex and password while creating the various groups, the timer can also assign the Codex and password to a group while timing a race using the F3 key.

Import Race Participants:

This tab is where the user creates groups of competitors for the race. When a user selects the Import Race Participants tab, the following Window appears (Figure 14) that must be populated manually or by loading a previous file created by measures or another method.

The first step is for the user to load the groups of competitors that they will be timing. Generally, there are Forerunners, Women, and Men. Once the user has added a group, the user can add individual racers to a group and edit a racer's information should it be incorrect.
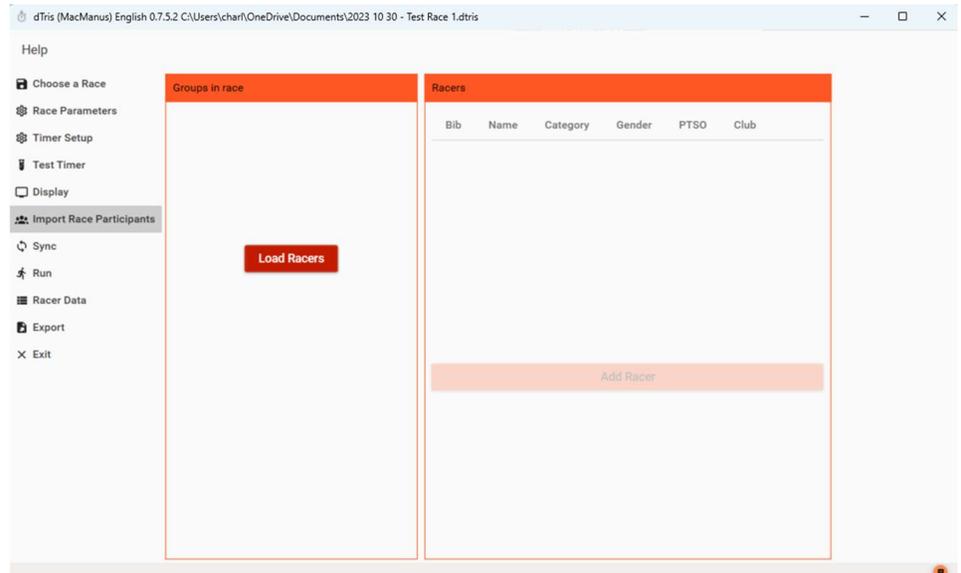
Figure 14

Adding Race Participants:

The first step for the user is to select the Import Race Participants button, and the following screen pops up (Figure 15).

The user must enter the specifics about the group, the group name, whether it is the forerunner group or not, the group's Codex, and the password so others can view the race results over the Internet.

If the group is the forerunner group, then the user should check the Forerunner box. When the user checks the Forerunner box, dTris will not present the Forerunner results when a user finishes either Run 1 or Run 2.
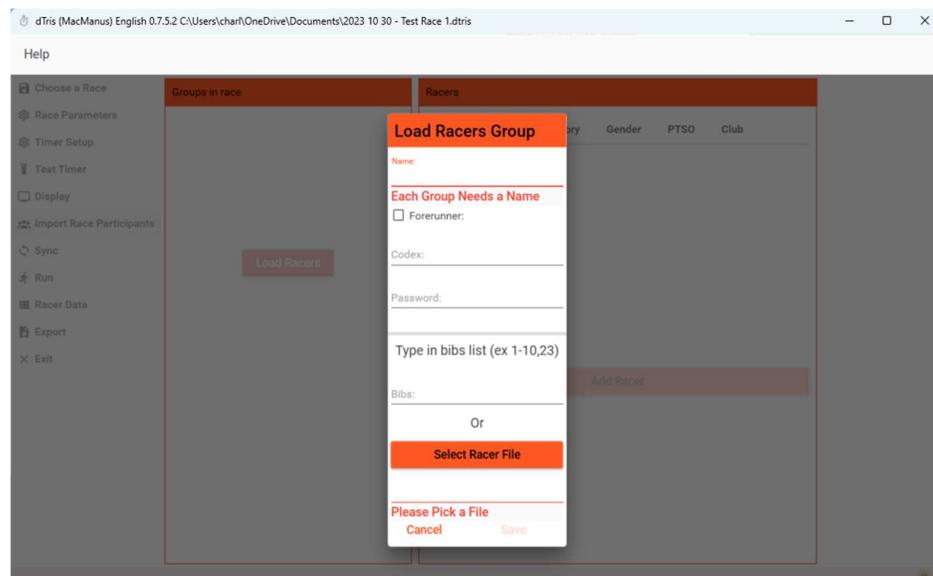
Figure 15

Creating Group Manually:

If a user wishes to manually create a list of racers, they will enter the number of racers in the following format: 1-X, where X is the total number of racers in the group. For example, if a group had 70 racers, the user would enter 1-70 in the bib field.

Figure 16 shows a user manually adding seven racers into the Forerunner group.
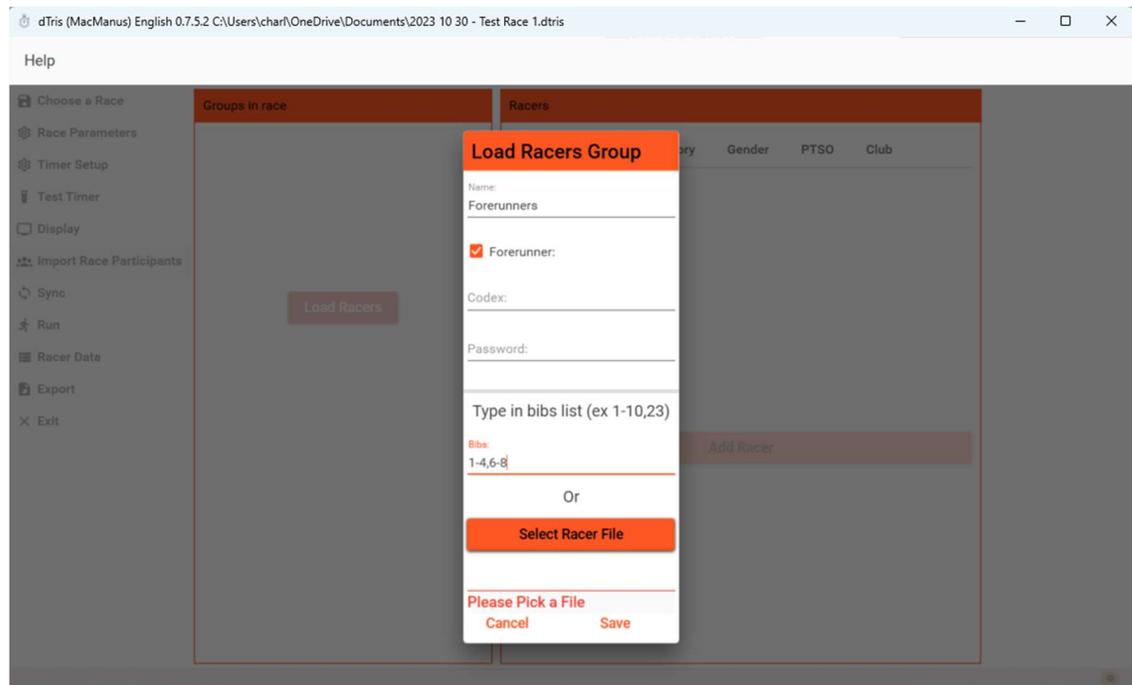
Figure 16

Important Note:
When you manually create a list of race participants, you do not need to have consecutive bib numbers. dTris allows the user to identify the bib number assigned to the race one at a time or in consecutive groups. However, the user MUST separate each group by a comma (,).

If you wish to have remote users view the race results, the user must manually enter the Codex and Password as they create the manual list of racers for this Group.

The user must remember that when creating a manual list of racers, dTris only creates the minimum information, as shown in Figure 17. The user must edit each racer individually and add the racers' first and last name to the bib number generated by dTris with the edit button.
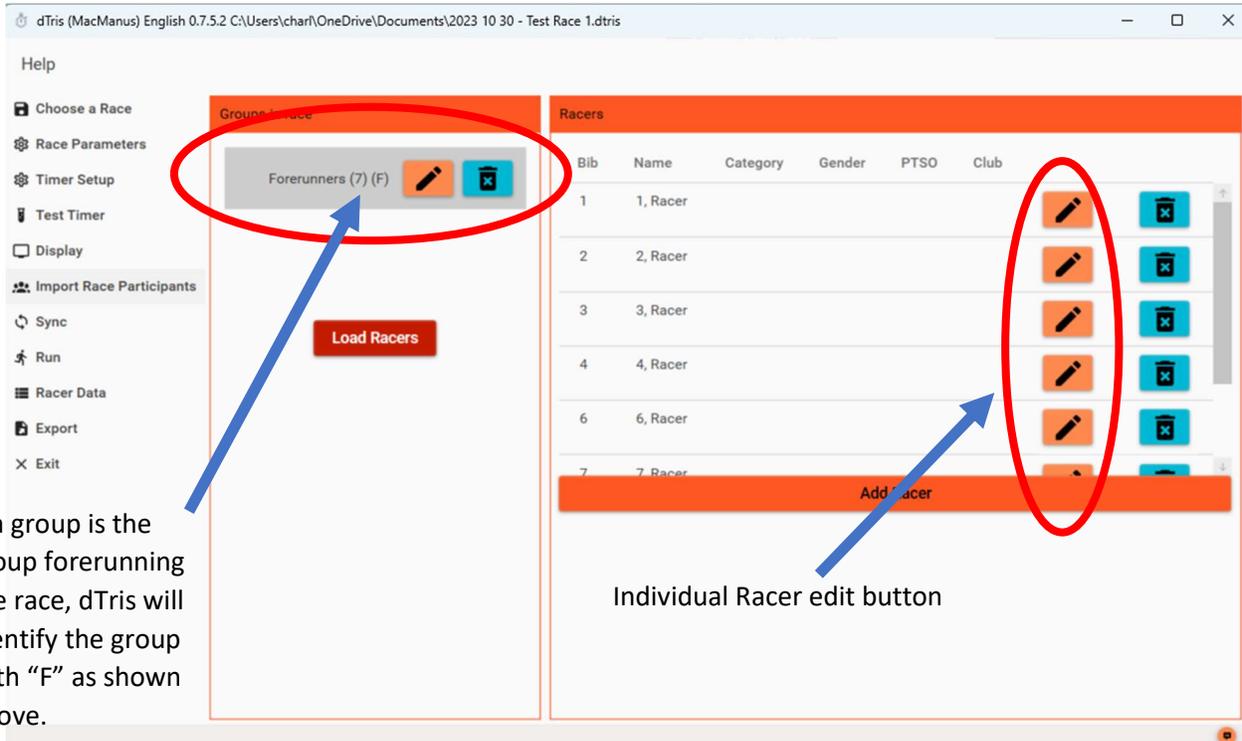
If a group is the group forerunning the race, dTris will identify the group with "F" as shown above.

Individual Racer edit button

Figure 17

If users wish to edit any racer in any group, they only need to click the edit button, as identified in Figure 17. Once selected, dTris will display the edit screen (see Figure 18), and the user can begin to edit any of the ten (10) fields shown below.

Figure 18

The user can also remove a racer from a specific group by clicking the deleted button, 🗑
and a confirmation window will pop up. If the user wishes to remove this racer, they must
select the OK button, and dTris will remove the racer from the specific group.

Confirm Racer Deletion
Racer 1 is being deleted are you sure?
Cancel   Ok
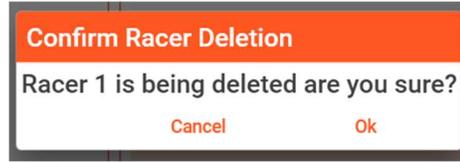
Figure 19

Important Note:
When dTris is in demo mode, dTris only allows a maximum of fifteen (15) racers
to be entered manually or to load a file previously created for each group.

Creating Group by Importing a File:

When the user wishes to load a file containing race Participants, it is
like manually loading a group. The user follows the previously
described steps by selecting the Add Group button, and dTris displays
the popup window, as shown in Figure 20.

The user enters the Group name, Codex number, and password (if the
race shows the race results over the Internet), then clicks the Load
Racers button and selects the file you wish to load into dTris. The file
name is displayed (Figure 20 – "Test Women Start List.xlsx") in the field
above the action line where a user can save or cancel the file load.

Users can load an Excel or RCR file generated by dTris' companion
product Measures.
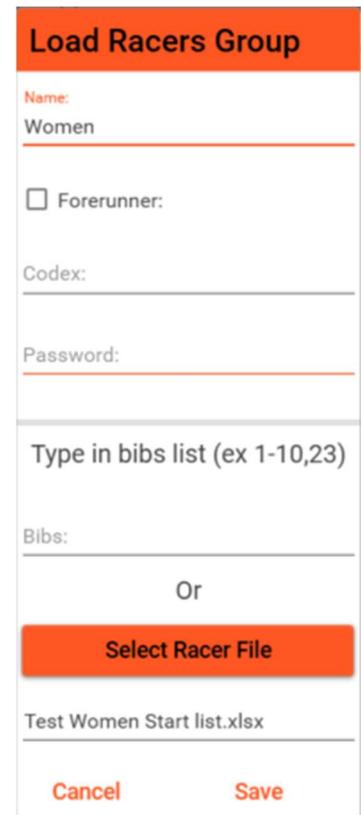
Load Racers Group

Name:
Women

☐ Forerunner:

Codex:

Password:

Type in bibs list (ex 1-10,23)

Bibs:

Or

Select Racer File

Test Women Start list.xlsx

Cancel   Save

Figure 20

Once the user has entered all the groups of racers, they will be timing, and the dTris window will look similar to the screenshot below (Figure 21).
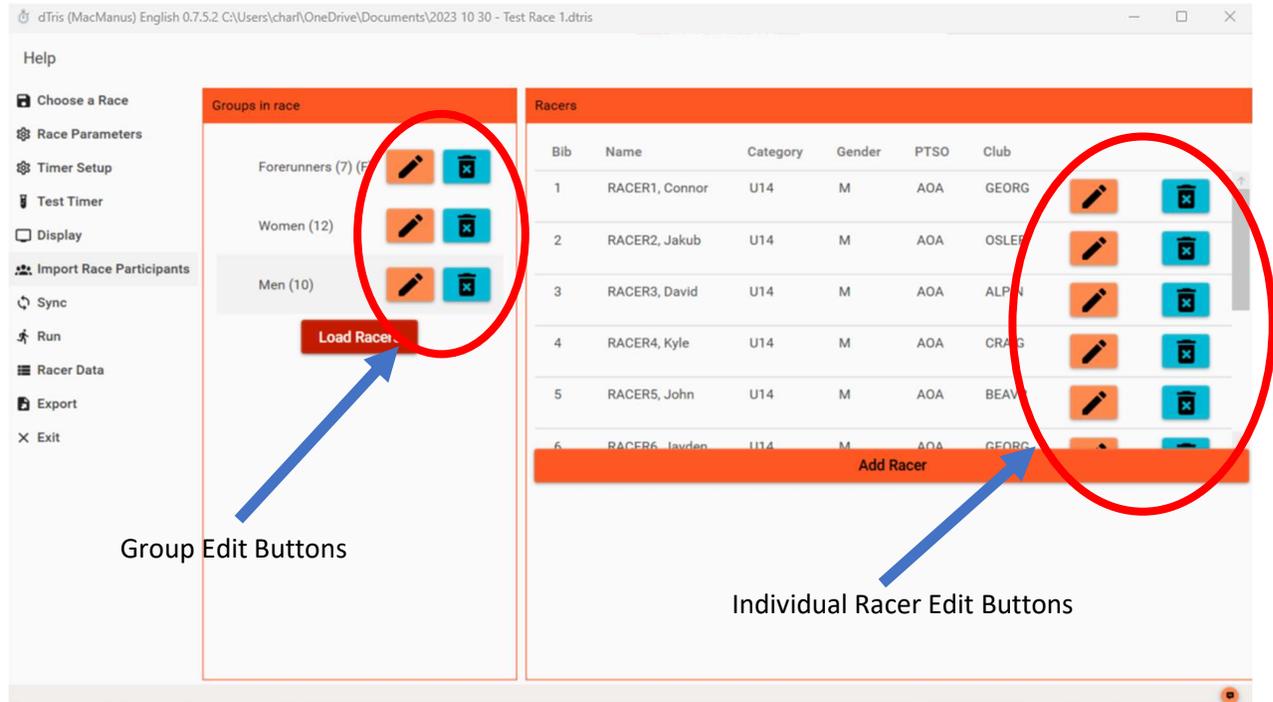
Figure 21

Add an Individual Racer

If the user needs to add a racer to a Group, the user clicks the Add Racer Button, and dTris displays an Add Racer screen (Figure 22), and the user will add the racer information in the fields provided.

The user must enter at least the bib number, racer's last name and first fields so the racer is a valid entry. If the user enters a bib number assigned to another racer, dTris will display an error message: "Bib already Exists in the group."

Once the user populates the bib field, the dTris 'Save' button becomes active, allowing the user to save their additions.
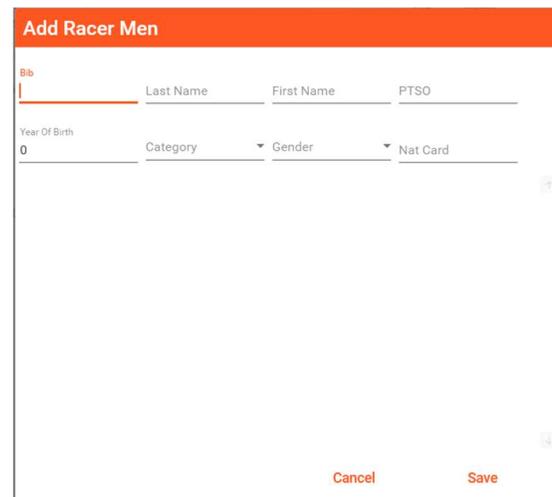
Figure 22

Editing or deleting Group or Racer

The user can edit the Group information and an individual racer's information using the edit button ✏️ or delete a group or unique racer using the delete button. 🗑️

If a user wishes to edit a Group name, they will select the specific Group's edit button, and the respective Window will pop up, as shown in Figure 23. Once the user has altered the Group's name, the save button will become active and allow the user to save the changes.

Edit Group

Name:
Men

Group Name already
ZZZ270

Password:
Password

Cancel   Save
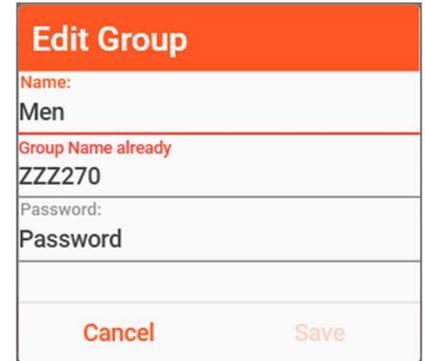
Figure 23

If the user needs to change a specific racer's information, they will click the specific racer edit button, and the respective racer is displayed by dTris, as shown in Figure 24. Once the user has completed the necessary changes, they push the save button, and dTris will display the changes.

Edit Racer ZZZ270 - Men
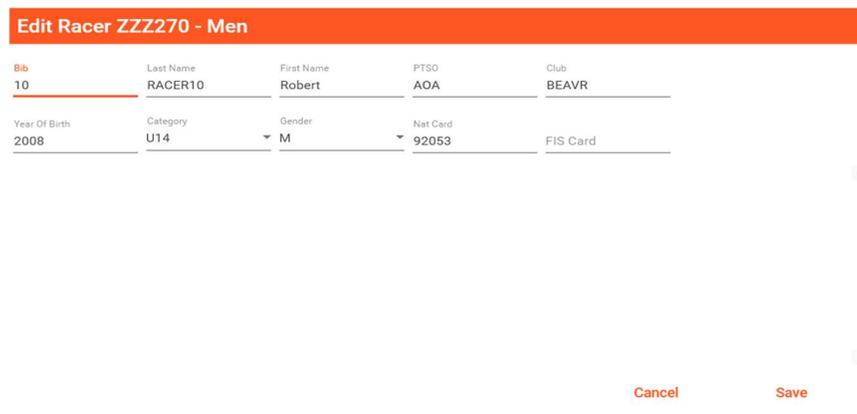
Bib	Last Name	First Name	PTSO	Club
10	RACER10	Robert	AOA	BEAVR

Year Of Birth	Category	Gender	Nat Card	FIS Card
2008	U14	M	92053	

Cancel   Save

Figure 24

If the user wishes to delete a specific group, they will select the Group delete button, 🗑️ and dTris will delete it. When a user wishes to delete a particular racer, the user selects the individual's delete button and dTris present the screen below for the user to confirm or reverse their selection (Figure 25).

Confirm Racer Deletion

Racer 10 is being deleted are you sure?

Cancel   Ok
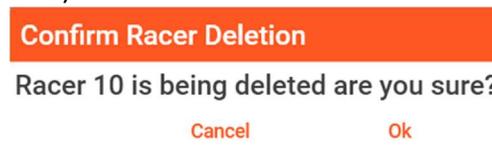
Figure 25

Synch:

The users will use this tab as they start and finish synchronizing the primary, secondary, and backup timing equipment to their respective Time-Of-Day (TOD). The user will ask the race starter to manually trigger the start pulse that begins the time-of-day synchronization countdown, as shown in Figure 26.
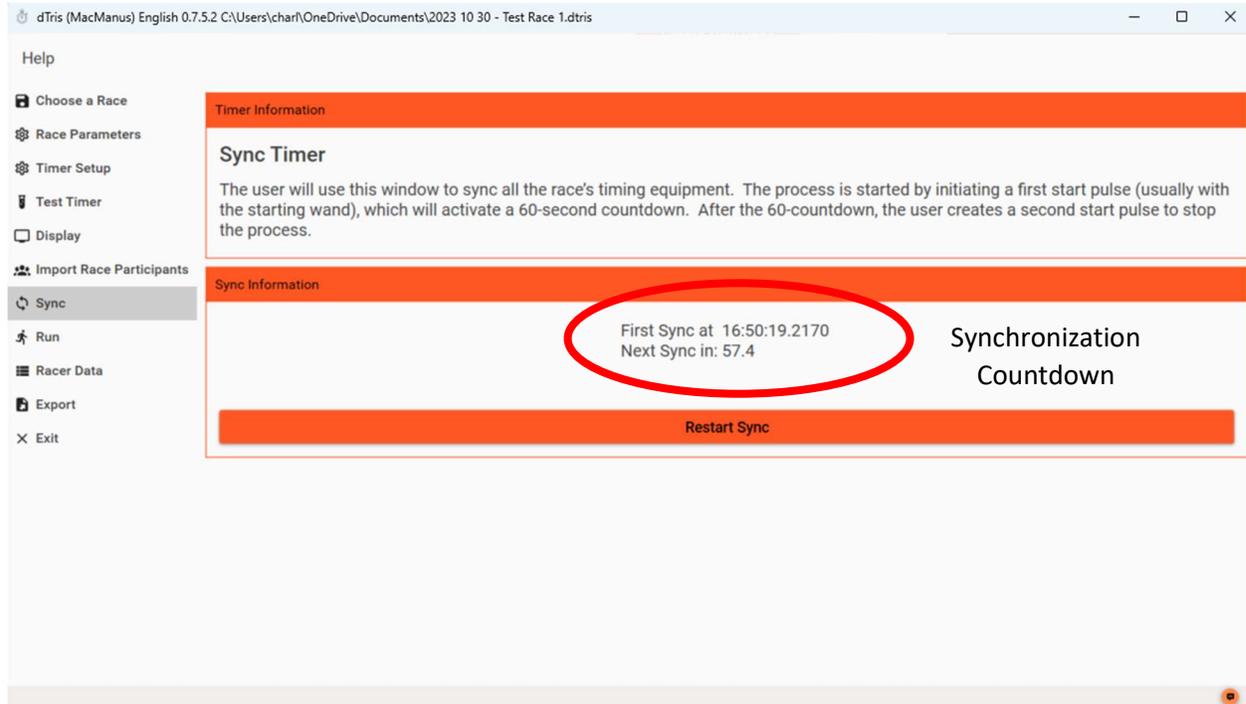
Figure 26

To help the user synch the equipment, dTris shows a 60-second countdown and the start pulse TOD. The user has someone manually trigger a start pulse to begin the process, and dTris displays this information.

After the second start pulse, dTris displays the two pulses with their TOD, indicating the user has completed the timer synch (see Figure 27).
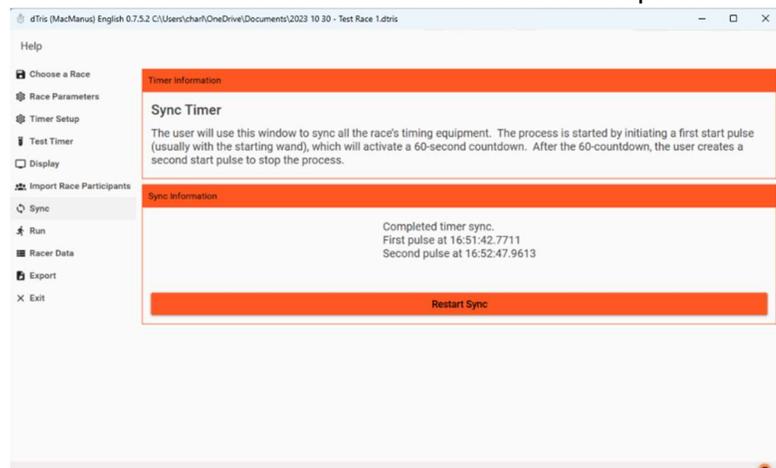
Figure 27

Please Note
As a precaution, dTris can restart the synchronization process button in case something goes wrong during this process.

Run:

After the user has configured the defined race parameters, configured the timing equipment, tested the timing connections, and loaded the group racers, the user has prepared dTris to begin timing the various groups.

When users are ready to set up and time the Race., they click the Run button and the Window below (Figure 28).
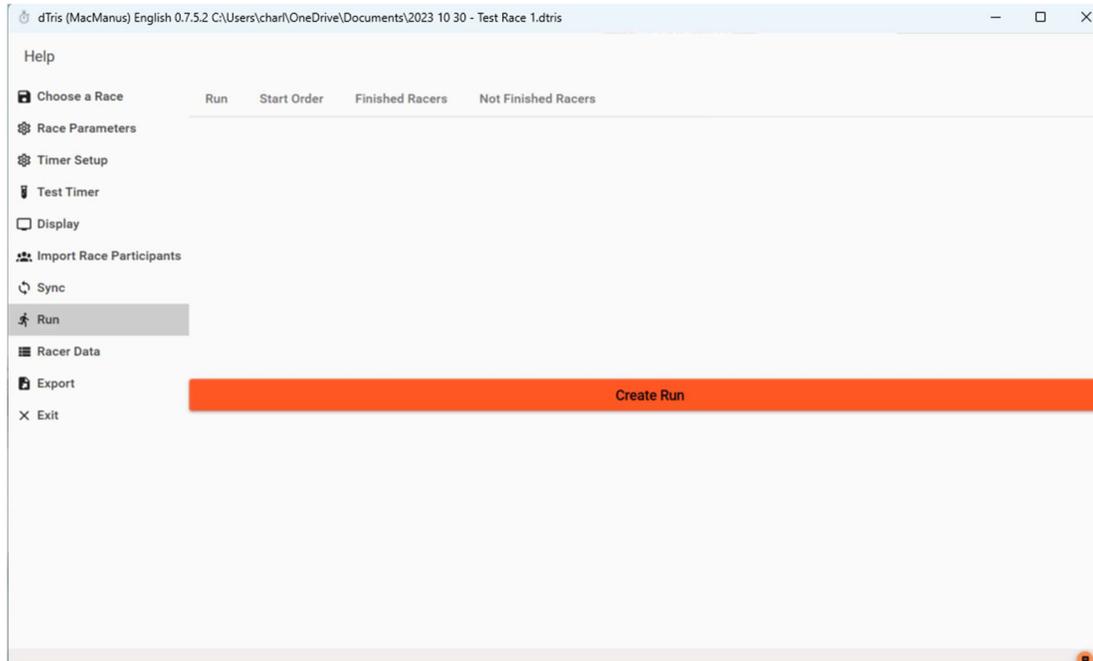
Figure 28

DTris will populate this page's various fields once the user has created the Run's start order using the Add Run button. The meaning of the four fields is:

- **Run** – This field will indicate whether it is Run 1 or Run 2 that is in progress;
- **Start Order** – This field captures how the user has created the start order for the run, such as Bib Oder;
- **Finished Racers** – This field captures the number of racers the user has either timed or assigned DNS of DNF (the number is the total number of racers whom the user has dealt with):
- **Not Finished Racers** – This field captures the number of racers left in the group to start the particular run.

Create Run 1 Start Order:

This step begins with the user clicking the Add Run tab, and dTris presents the Window to start the race (Figure 29). Although you can only see one group in Figure 29, the remaining groups' start list selection can be reached by scrolling down using the scroll bar on the right-hand side of the Window.

Scroll Bar that can be used to bring the other groups into the window to select their start list creation options.
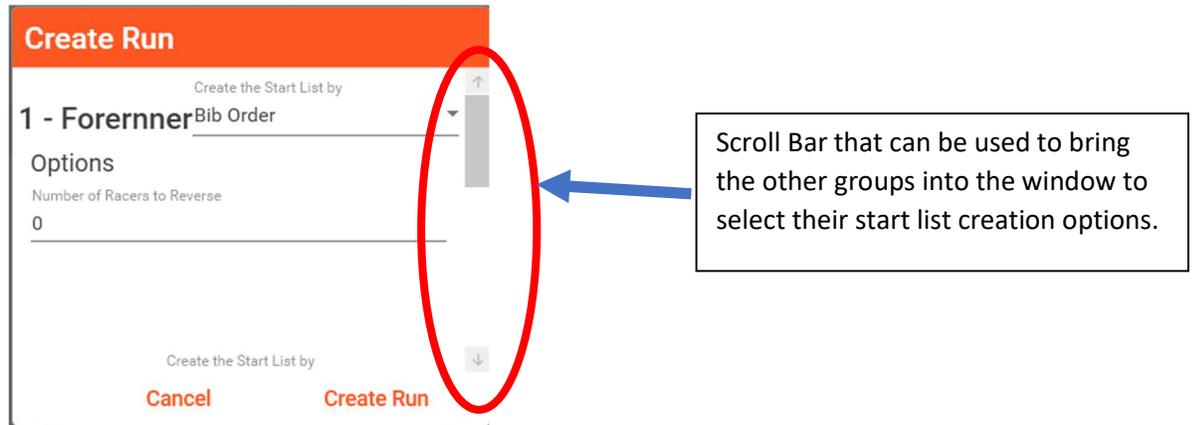
Figure 29

dTris Run 1 Starting Order Options:

When The user selects the drop-down menu for Create the Select Start List, dTris presents the other start list options for Run 1 via a drop-down menu, as shown in Figure 30.

The options for Run 1 are:
- Bib Order:
- Reverse Bib Order, or
- Measures.

The Bib and Reverse Bib order are self-explanatory. In contrast, the Measures start order determined before the race and recorded with the Measures application Measures (a companion application to dTris.)
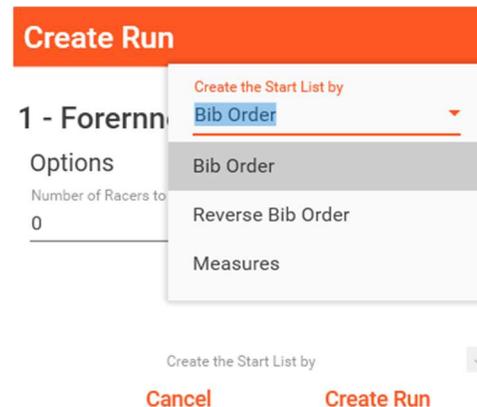
Figure 30

After the user has selected the start list orders for all the groups shown in the Create Run window, the user will choose the Create Run button, and dTris will return the user to the Run Status Window.

dTris Run 1 Status Window:

dTris updates the status window after the user has created the run's start list order and the number of racers to be timed in each group (Figure 31.
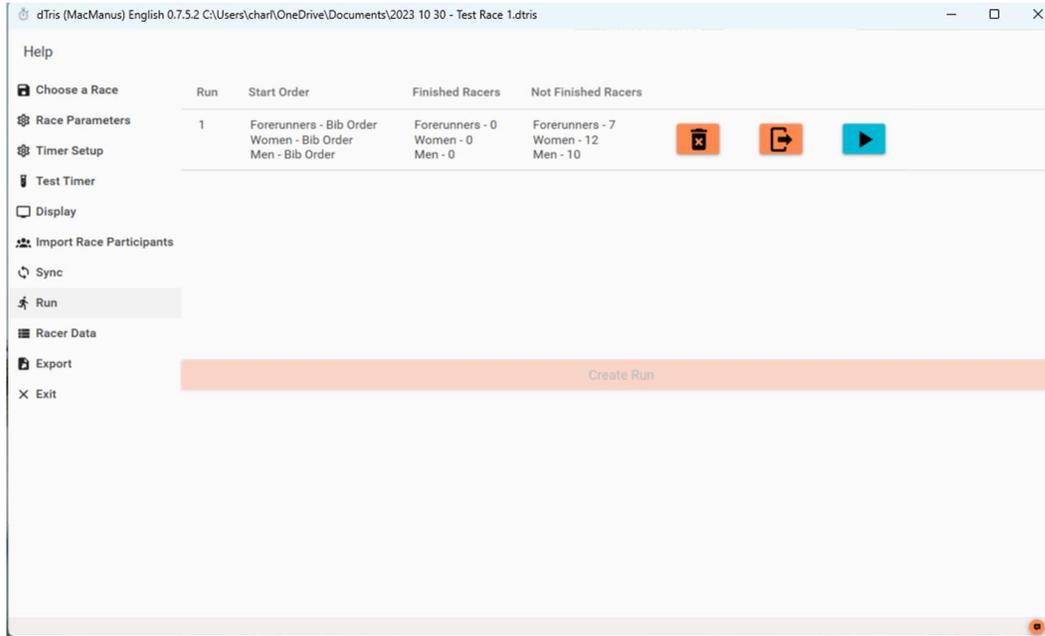
Figure 31

In Figure 31, dTris indicates:

- It is Run 1, with 3 groups to be timed;
- The start order was created in Bib Order;
- No Racers have started the race (0) of any of the groups; and
- The total number of racers still to run by each group (the number of racers per group is after the group name).

In Figure 31, you will see three icons, and the icons mean the following:

Delete - This icon is the delete button, and a user can delete the Run's Start List before the first race leaving the start gate;

Continue Run - This icon is the button when selected, the user moves them to the Timing Window and begins or returns to timing the racers; and lastly,

Finish Run - This icon is the button that, when selected, transfers the user to the Finish Run Window and deals with racers who have not started or were DSQ'd by the Jury.

Please Note:

Once the user has created Run 1's start list, the user cannot change the groups' or individual racers' information using the Group tab editing function. However, the user can edit using the Racer Data Window for appropriate information or timing data such as start and finish TOD pulses.

Timing Window Layout:

Once the user creates the Run 1 starting lists, immediately move the user to the timing window (below Figure 32). Before getting into the timing window details and key perform what actions, we will explain the various sections of this window.

Racer Areas: d'Tirs will constantly update these areas as racers start and finish their runs or something happens to a racer, like being overtaken by another racer or not finishing their run.
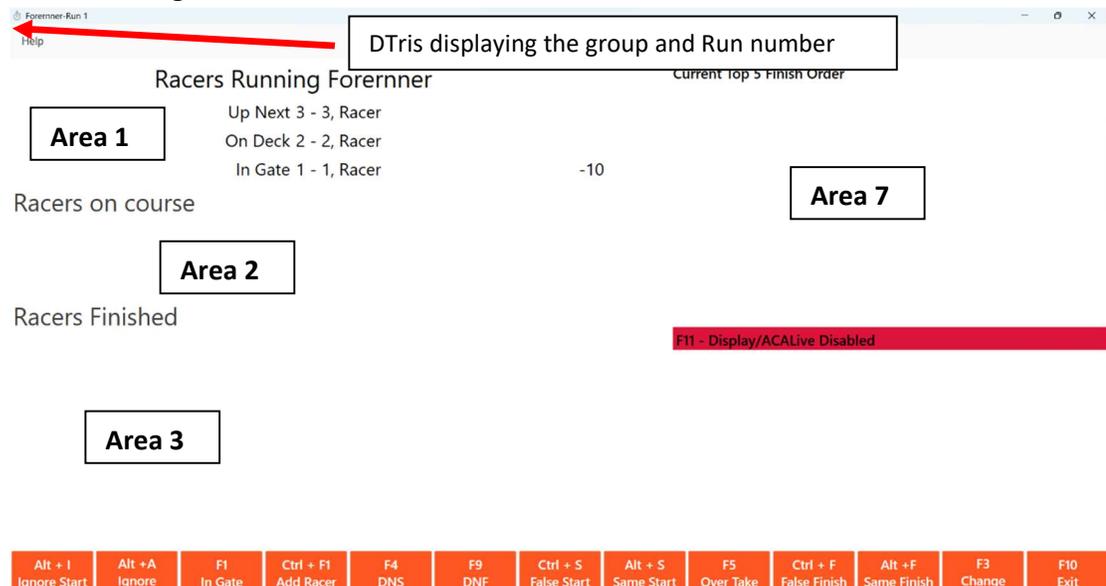
Figure 32

Area 1: This screen section shows three racers who begin the run. The first race is in the area; the second racer is in the on-deck location, while the third racer is up next. As the racer in the gate passes through the start wand to begin their run, dTris automatically moves the racer into Area 2 (Racers on Course), and the rest of the racers are moved into the next position based on the race starting order.

Area 2: As a racer starts their run and triggers the start wand, dTris moves the racer into the Racers on Course section. DTris displays the racers on the screen in order of when they have started their run and their running time. If the user takes action regarding a racer, the racer's running time follows the racer and displayed in the appropriate area.

Area 3: When the racer passes through the finish gate and triggers a finish pulse, dTris moves the racer to the Racers Finished section. dTris shows the order of racers in this section based on the order in which racers finish their run or were assigned a status of DNS or DNF.

Area 7: In this section, dTris displays the current top 5 fastest racers after each racer has completed their run.

Timer Areas: The user (Timer) uses these areas to manage the actions taken when something happens to a racer, the equipment triggers a mishap in a racer's timing, or the remote displaying of the race results (See Figure 33).
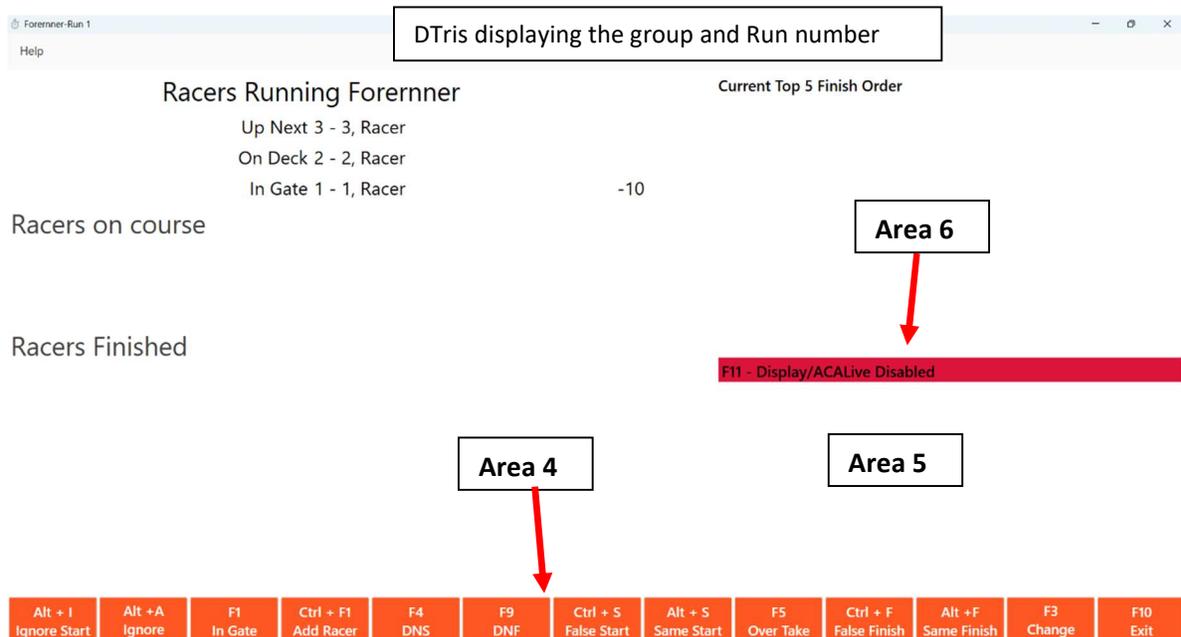
Figure 33

Area 4: This area displays the shortcut keys a timer (user) might use while timing the racer. Depending upon what the racer does during the timing of their run, the user may need to take action using one of the keys. A user will use this area most frequently when the racer does something unusual other than leaving the starting gate out of order, overtaking a racer on the course, or not finishing their run. A user can learn more about these keys by reviewing Table 1, where we explain the purpose of each shortcut key.

Area 5: When dTris receives a pulse from the timing equipment that is not assigned, dTris displays the pulse's name in this area. The display alerts the user that something has triggered a pulse, and they need to quickly determine if this pulse impacts the racers who are in the gate, on the course, or just finished. The user can clear the unassigned pulse if the pulse has no impact.

Area 6: This section notifies users that ACALive and displays are active and display the race results to remote users. *The user can activate or turn off the Internet and display connections anytime during the race by toggling the F11 key*. DTris will indicate whether these connections are active or disabled.

In summary, if a race runs smoothly, the user will see the racers moving from the starting gate onto the course and into the finish area, as shown in Figure 34 below.

Figure 34

You can see from the above that racers have finished their run, there are racers on the course, and a racer has yet to start their run. You can see the order of the current top 5 finishers in the top right-hand corner. dTris show that the display and/or ACALive are disabled and will not show remoting the racers' times. Lastly, dTris has received two pulses from two different channels not assigned by the user when creating the race. The user will need to determine if these pulses are legitimate, phantom pulses, or unknown pulses that have no bearing on the timing of the run.

Shortcut Keys Description:

Shortcut Key	Description
Alt + I Ignore Start & Finish	will disarm or arm dTris so it EITHER ignores or recognizes the pulses from BOTH the start and finish equipment. When you toggle the key, dTris will switch between armed or disarmed equipment.
Alt + A Ignore Finish	will disarm or arm dTris so it ignores or recognizes the pulse from the finish equip. When the user toggles this key, dTris will switch between armed or disarmed equipment.
F1 In Gate	The user can place the racer in the starting gate with a new race. The user can also place a new GROUP into the starting sequence after the GROUP, which is presently in the starting sequence, is finished. This key will also allow the user to restart a racer for any reason, such as a provisional rerun.
Ctrl + F1 Add Racer	It will allow the user to add a racer to the group currently being timed if the starter discovers this racer is missing from the starting list.
F4 DNS	It will allow the user to identify a racer who does not start the particular run starting sequence.
F9 DNF	It will allow the user to identify a racer who has started the particular run start sequence BUT does not finish the particular run for some reason.
Ctrl + S False Start	It will allow the user to correct a false start pulse indicating that a racer has left the starting gate when the race is still in the gate. Please note that this key will allow users to place as many racers on the race course back into the starting sequence as they wish.
Alt + S Same Start	It will allow the user to correct which skier dTris has recorded as having left the starting gate. dTris will return the latest racer to leave the starting gate while placing the racer in the starting gate on the course. This key will assign the time of the first racer who left the starting gate to the new racer and placed them on the course while dTris switches the racer back into the starting gate.
F5 Overtake	It will allow the user to exchange the uphill racer who is overtaking the next racer who started before the overtaking racer to switch places with the racer ahead of them.
Ctrl + F False Finish	It will allow the user to correct a false finish pulse that indicates that a racer has completed their run and has a time when the racer is still on the course. Please note this key will allow the user to place as many racers who have finished their run with a time back into the race course and their time continues to run.
Alt + F Same Finish	It will allow the user to correct which skier dTris has recorded as finished the race. dTris will return the latest racer to finish the course back on course while placing the racer closest to the finishing area as they have finished the race. dTris assigns the time of the first racer who finished the race to the new racer placed in the finish area, puts the racer back on course, and assigns the time of the racer who was switched.
F3 Change Limits	This shortcut key allows the user to change the specific limits previously set for the race being presently timed (i.e., Minimum time on Course, maximum time on Course and/or start Interval) and enter the race's Codex and Password if they were missed.
F10 – Exit	It will allow the user to exit from the Run/Timing Window. PLEASE NOTE: THIS ACTION WILL EFFECTIVELY SUSPEND THE RUN WITHOUT FINISHING THE RUN. TO FINISH A RUN, THE USER WILL NEED TO USE THE "FINISH RUN" BUTTON ON THE RUN WINDOW MAIN SCREEN

Table 1

Place Run 1 First Group into the Starting Gate:

Now that you have set up and checked the equipment connection, loaded the racers, and created the starting list for all the groups, the last check a user must do before starting Run 1 is to check that the appropriate group is in the starting gate.

If the wrong group is in the starting gate, the user will press F1, and dTris will present a screen where the user can move a racer or group into the starting area. The user will use this activity at the start when the wrong group is in the start or when they have finished timing all the racers in that specific group.

For example, in Figure 35, I have the men's group in the starting gate; however, I wish to start with the forerunner group. If you have selected the F1 key and dTris displays, the In Gate window. If the user selects the group and presses the group arrow, dTris will show all the groups for this race (Figure 35). If the user selects the Forerunner group and presses the Load Group button, the Forerunner group is in the starting gate.
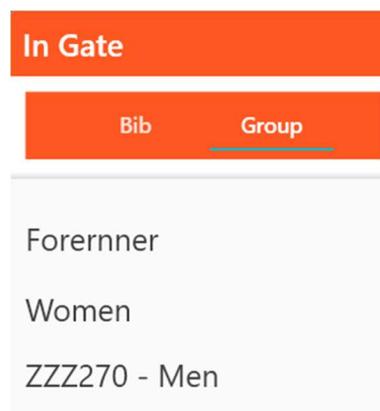
Figure 35

Now I can begin the race and time all the racers.

Important Note:

If you need to stop the race timing during the racer, you will let the last racer on the course finish, then click the F10, and dTris will return you to the main screen. You are now free to navigate to any other dTris screen. Any actions after leaving the timing window will not impact any racer times previously recorded. You can check the current racer results using the Racer Data or perform other necessary tasks.

When you wish to return to the timing screen, click the Run Tab Status Window "Continue Run" button, and dTris returns you to the timing screen.

Unassigned Pulses Action:

Sometimes, dTris receives a recognizable pulse on an assigned channel associated with the timing equipment used for the race. Instead of discarding these pulses, dTris places these pulses in the lower right-hand corner of the Timing Window below and waits for the user to act based on the pulses received and recorded.
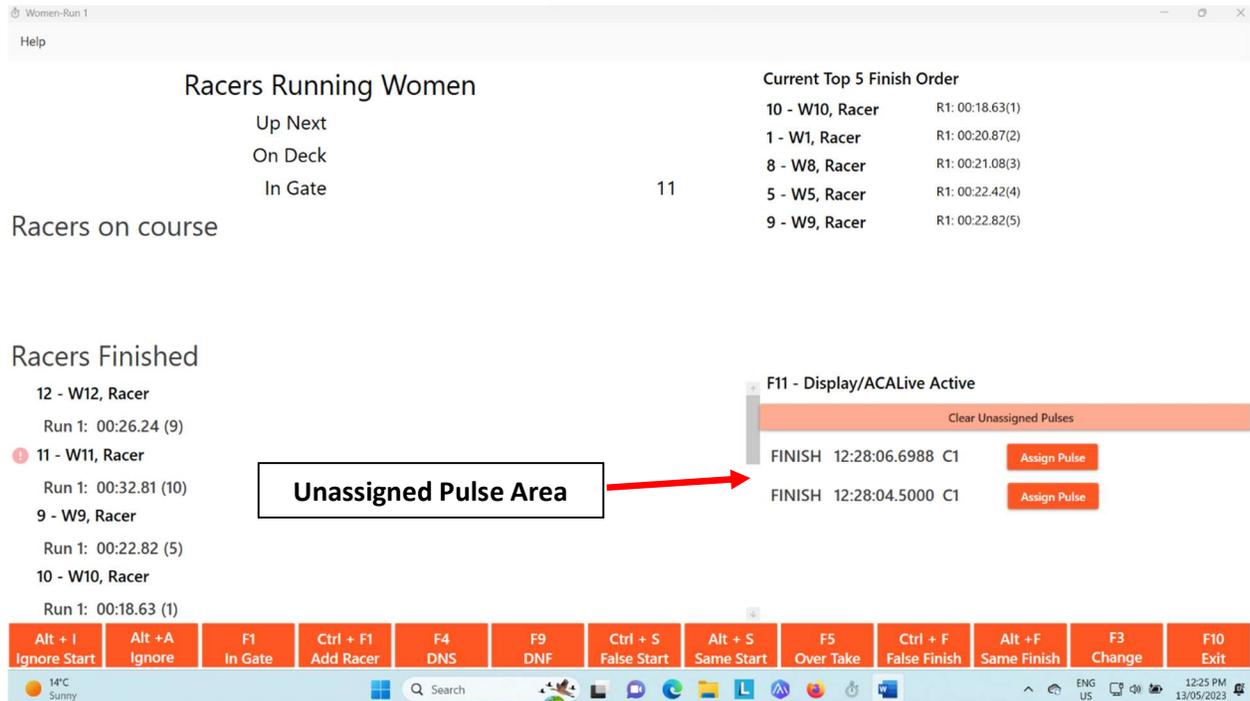
Figure 36

When looking at the area (Figure 36), you can see that dTris assigns an active "Assign Pulse" button or a deactivated "Assign Pulse" button. When the "Assign Pulse" button is active, dTris believes this pulse may have a bearing on the timing of a racer. When the user selects the "Assign Pulse" button, dTris pops up the "Assign Finish Pulse" Window, as shown in Figure 37.
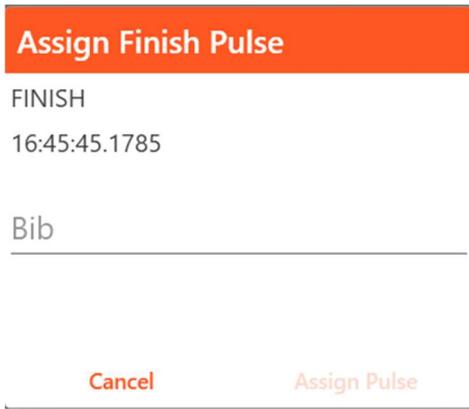
From the screenshot (Figure 36), you can see that DTris shows the finish pulse TOD and expects the timer to assign this pulse to a finished racer. It is up to the timer to decide if this pulse should be assigned to a specific bib or discarded. If the user sets the pulse to the entered bib, dTris will recalculate the racer's time and adjust the run's results appropriately.

Once you have dealt with all the unassigned pulses, we recommend that you clear these pulses using the "Clear Unassigned Pulses" bar (See Figure 36).

Figure 37

Active Display:

When the user has set up either Live Timing or Display and wishes to activate these remote displays, they must ensure the Display/ACALive line states Active using the F11 shortcut key. When the displays are active and ready to display a racer's time, the Timing Window will look like Figure 38.

Figure 38

Live Timing Display:

Anyone can see a race's result on the Internet if a race has a Codex set up for each group the user has created in dTris. The user's internet presentation will be similar to Figure 39

Figure 39

Display:

If the user's ski club has installed displays and they have set up the appropriate show, the spectators can see the live timing of each racer's run time.

Run 1:
Racer on Course:
Once a racer has started their run, their run's time is displayed, as shown in Figure 40. The screen shows the Racer's bib number, name, and running time.

Figure 40

Finished:
When the racer has completed their run, dTris will send the display of the racer's Run 1 results, as shown in Figure 41. The spectators can see the racer's bib number, their name, Run 1 time and the racer's current rank.

Figure 41

Fun 2:
When a racer does a second run, the spectators will see similar display times (Figures 40 and 41), the racer's total time, and current rank, as shown in Figure 42.

Figure 42

Complete Run 1:

Once you have completed timing all the racer groups, the user selects the F10 button, and dTris returns the user to the status screen (Figure 43), where the user can either finish Run 1 or return to timing Run 1.
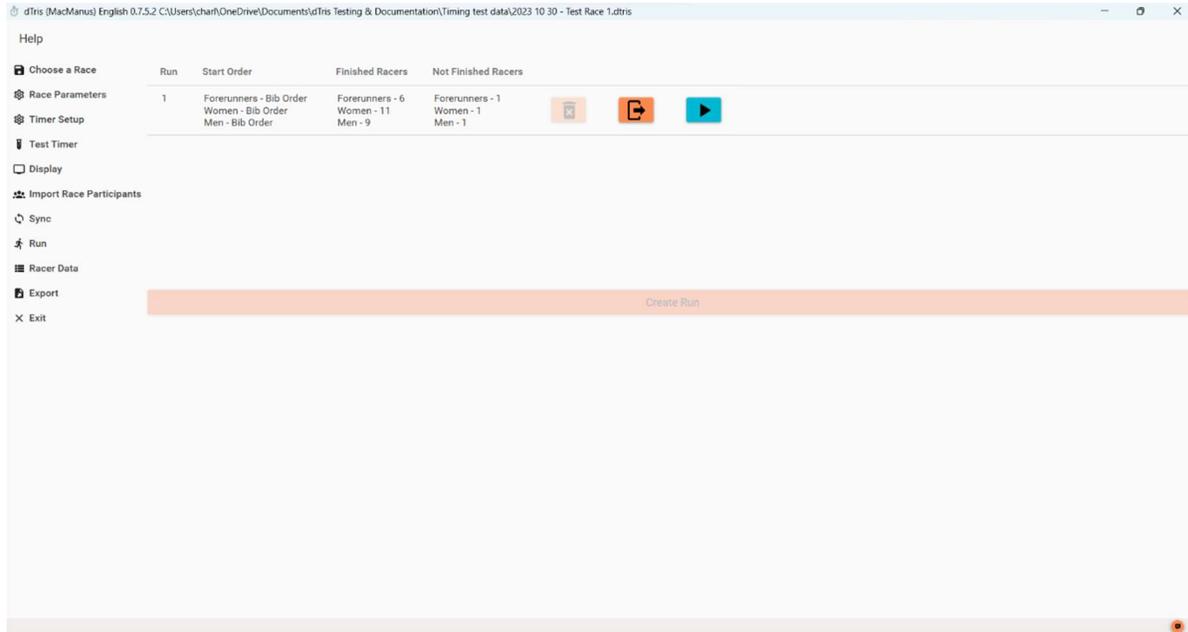
Figure 43

The user will look at the status of each of the groups to determine if they feel Run 1 is complete or not.

In the example (Figure 43), each group has one racer who has not started or those who have completed their first run. The status screen shows the user has decided that Run 1 is completed and selected the "Finish Run" button,   and dTris moves the user to the "Finish Run" Window (see following page Figure   44).
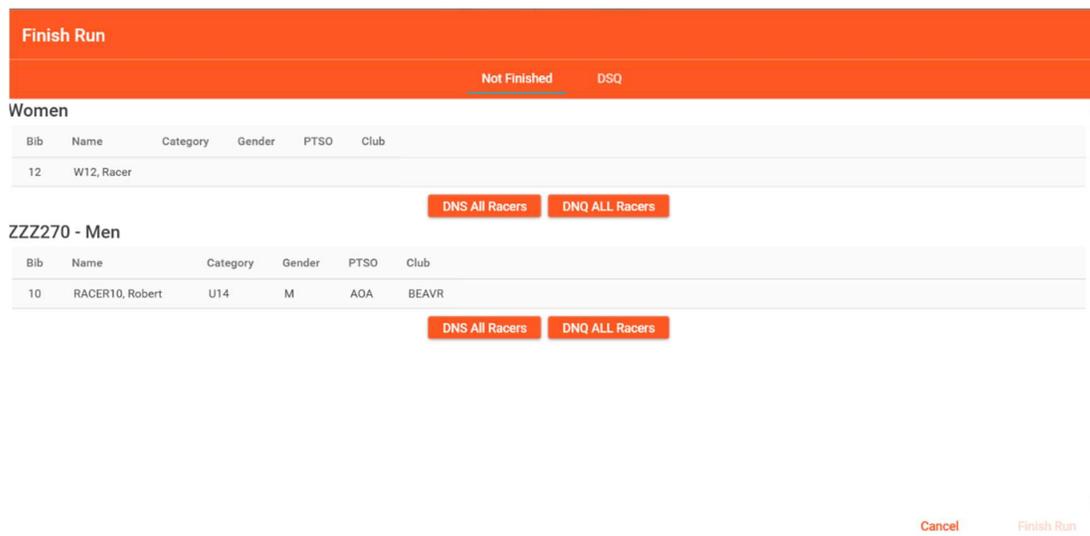
Figure 44

After selecting the "Finish Run" button, dTris displays the "Finish Run" window and shows any racers who have not finished their run. In the example shown in Figure 44, we see that in the Women's group, racer bib 12, W12, Racer has not finished, while in the Men's group, bib 10, RACER10, Robert has also not started Run 1. In both cases, the user has two options to deal with the racers.

Option 1:
When the user selects the cancel button, dTris will return the user to the screen where they can continue Run 1 and deal with bib #12 in the Women's group and bib # 10 in the Men's group by timing these racers using the timing screen. After the user has dealt with the racer, they will return to this screen as described.

Option 2:
The user decides to DNS all the racers presented by clicking the "DNS ALL RACERS" button for all the groups displayed, and dTris will assign DNS status to the racers present and display the message "All Racers Finished." The message indicates the racers' results are appropriate, and the user can now adjust the run1 results by applying any disqualifications decided by the Jury.

The next step is to select the DSQ button, and dTris will display all the racers by group, as shown in Figure 45.

Figure 45

Dealing with disqualified Run 1 Racers:

The user must now wait until the Jury decides about disqualifying racers for this run. Once the Jury delibates, they will advise the timing group if there are any DSQs.

No Disqualifications:
If no racer is DSQ, the user selects the Finish Run button, and dTris will return the user to the Run Status Window and is ready to create the start list for Run 2.

Disqualifications:
If some racers are DSQ, the user will use the Disqualification button ▲ on the "Finish Run" window, as shown in Figure 46.

Figure 46

The user will DSQ the racer by selecting ▲ and toggling this button. When the user toggles this button, the racer's results are changed to DSQ, as shown in Figure 40 for Women's Group Bib # 9.

If the user does not see the specific racer in a group to whom they wish to apply the DSQ, they must scroll down or up using the scroll area highlighted by the red circle.

Once the user has applied all the DSQs to the appropriate racers, the user will click the Finish Run button, signalling that the user has completed timing Run 1. dTris will return the user to the previous Run Status screen, as shown in Figure 43. The user will see that dTris has moved all racers to the Finish Racer category, and all the buttons for Run 1 are deactivated. Consequently, the user can conclude the race after running Run 1 or add another run using the "Add Run" button as previously described.

If, at this point in the race, the user needs to edit or adjust racers' times or information,

they can do this using the "Racer Data Window" editing feature.

dTris Run 2 Starting Order Options:

As before, dTris presents the "Run Window" status, and the user selects the "Add Run" button, and dTris presents a format with more options than the user had for Run 1, as you can see in Figure 47.
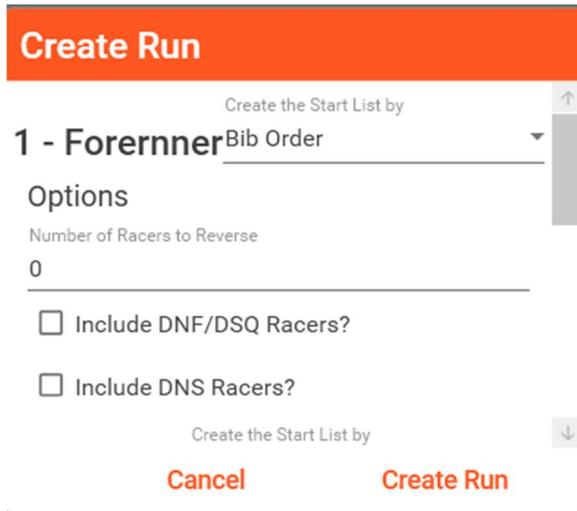
Figure 47
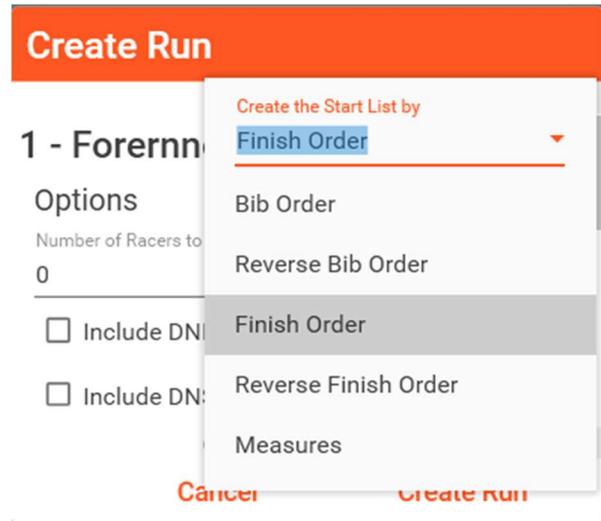
Figure 48

DTris again presents the Create Run start list screen; however, there are more options than for Run 1 (Figures 47 and 48).

As with Run 1, the user can select from Bib Order, Reverse Bib Order, or Measures, as well as two additional options associated with the racer finish order for Run 1 (Finish Order and Reverse Finish Order). As before, the user can identify the number of racers to reverse based on the start list selection. The users will likely use this option a lot for Run 2.

The user has two additional start list options to choose from; they can choose to include or exclude just those racers who did not start Run 1 (NDS) as well as a second choice to include or exclude those racers who Did Not Finish Run 1 (DNF) or were disqualified from Run1 (DSQ). Generally, the user will use this option mostly for racers in the younger categories.

Once Run 2 start list creation is completed, dTris will return you to the "Run Window" Status page, where you will have the same options as described in the section titled "DTris Run 1 Status Window."
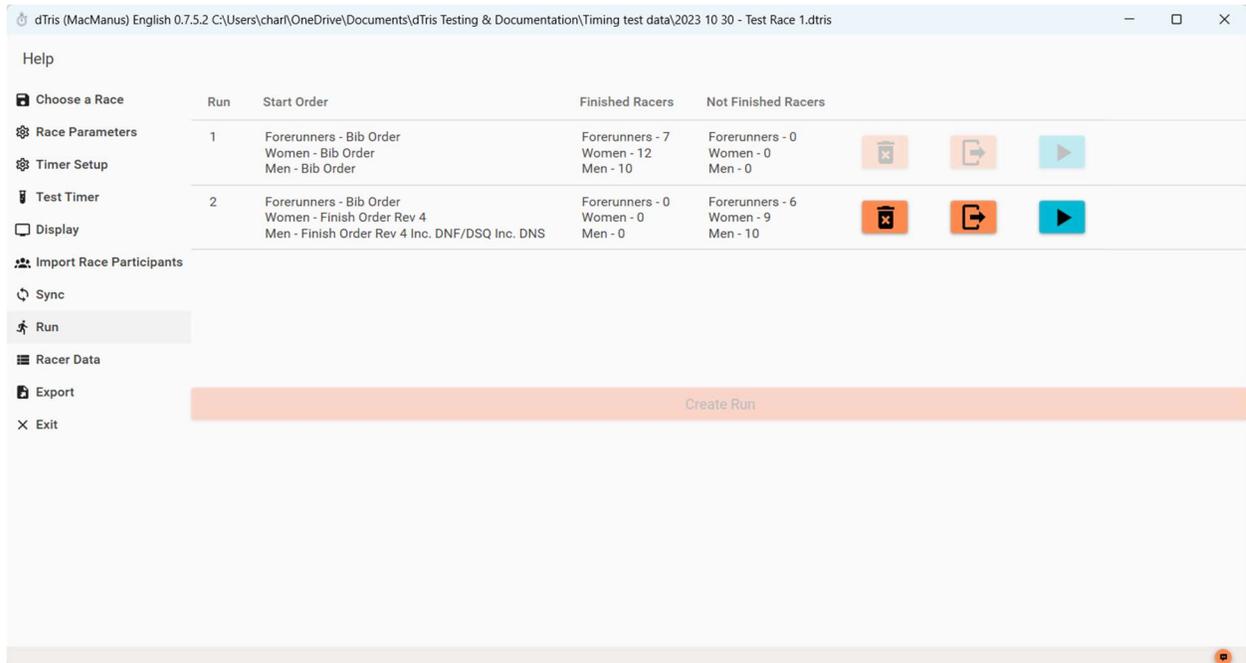
Figure 49

When reviewing Figure 49, you will see that the three groups used different methods to create Run 2 starting order. The Forerunner's starting order was based on their bib order, while the Women's group starting order used the Women's finish order with the top 4 going in reverse order and Run 1 DNS, DNF, and DSQ were excluded in the starting order. Lastly, the Men's group starting order again was based on finish order with the top 4 racers going in reverse order, but with this group, Run 1 DNFs and DSQs were included in the start order but will start after those racers' who had a successful Run 1 time.

Although the features and functions a user uses for Run 2 are the same, dTris will display the times for both Run 1 and Run 2 in the "Timing Window." As you can see in Figure 50, dTris shows the times for the two runs for each racer in the Racer Finished and Current Top 5 Finish Order sections of the "Timing Window."
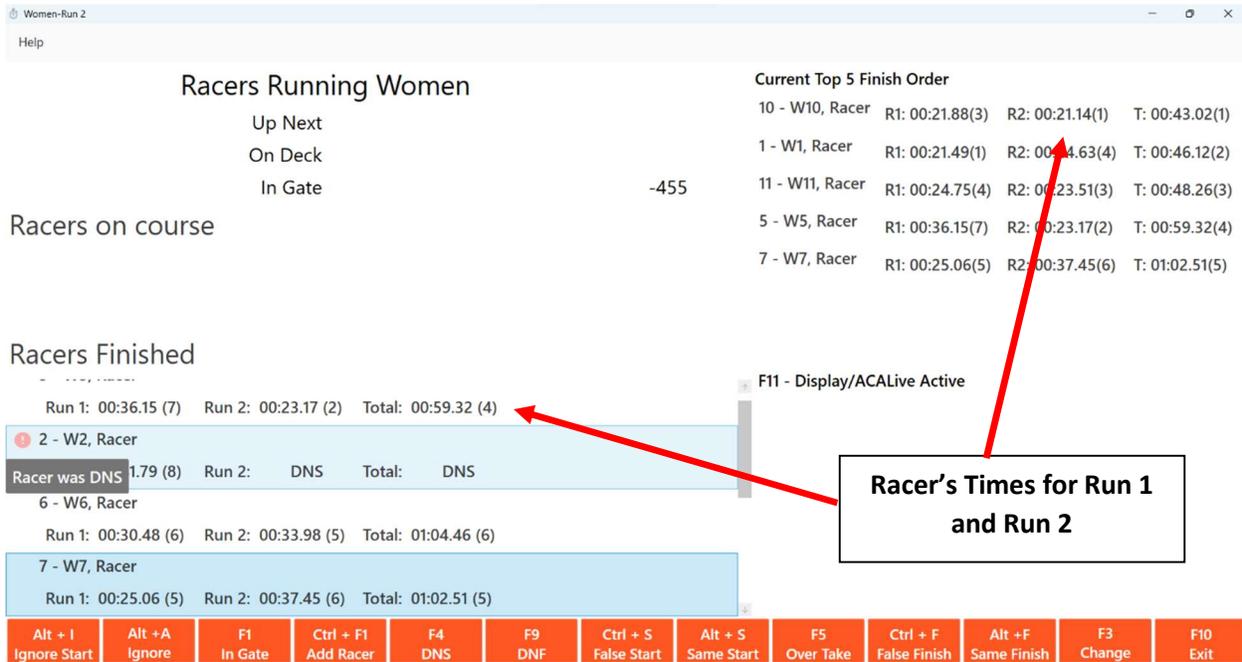
Figure 50

The racer's run times in the Racer Finished area show the time for Run 1 and the finish order in brackets, followed by Run 2 time and finish order again in brackets. DTris shows a racer's total time with their finish order in brackets.

You can also see an icon to the right of Bib #2, and when you place your cursor over the icon, a message indicates that the race was assigned a DNS status during Run 2. These icons also appear in the Racer Finished Section for Run 1.

Important Note:
All the timing window features and actions are the same as described for Run 1.
Run 2 will be finished using the same process described for Run 1. When the user has completed Run 2, the race is finished.

Racer Data:

When the user clicks the Racer Data tab, dTris displays a window showing the racer's results for each group. As the racers finish their run, dTris updates the Race Data window and allows the user to view the run results now in the race without impacting the race timing.

Important Note
A user can edit a racer's information and TOD from before the start of Run 1 to the completion of Run 2. If the user edits a run's start or finish TOD pulses, dTris will recalculate a racer's time and split with the fastest current racer.

If the user clicks on the Racer Data Tab before creating any runs, dTris will display a screen, as shown in Figure 51.

Figure 51
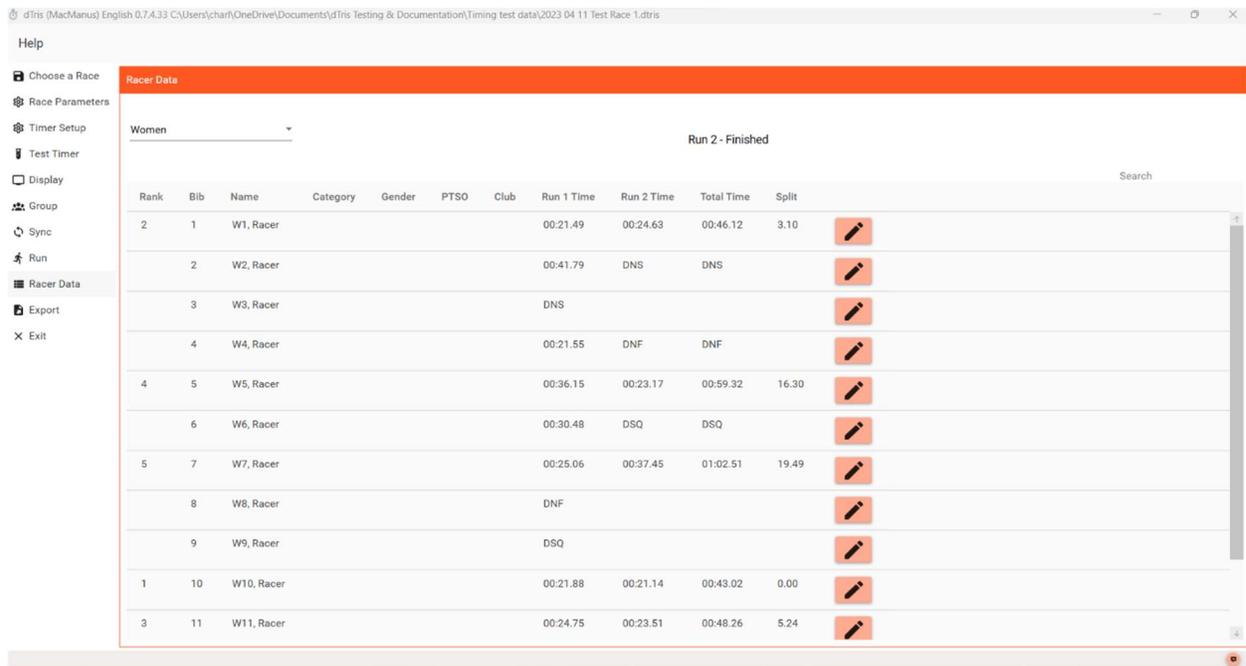
Some columns are pre-populated when the user loads the different groups of racers into the dTris Group Tab. The columns that may be pre-populated by Measures or another race creation tool are Bib, Racer's Name, Category, Gender, PTSO, and Club.

The two columns that are not obvious are the Category and PSTO.

ACA assigns the category and name for a group of racers of a specific age group, which the user is timing using the dTris application. Alpine Canada Aplin identifies the categories, and there are 22 categories.

PTSO is any one of the Canadian provincial or territorial sports organizations which serve as the governing body for alpine skiing, para-alpine skiing, and ski cross in their respective jurisdictions

The Race Data window only presented the information about a Group one Group at a time. If the user wishes to view a different group, they select the top upper left field, and dTris displays all the groups loaded into this particular race (Figure 52). Once a user has selected a specific group they wish to see, they choose the group name, and dTris will display the group's current available information.
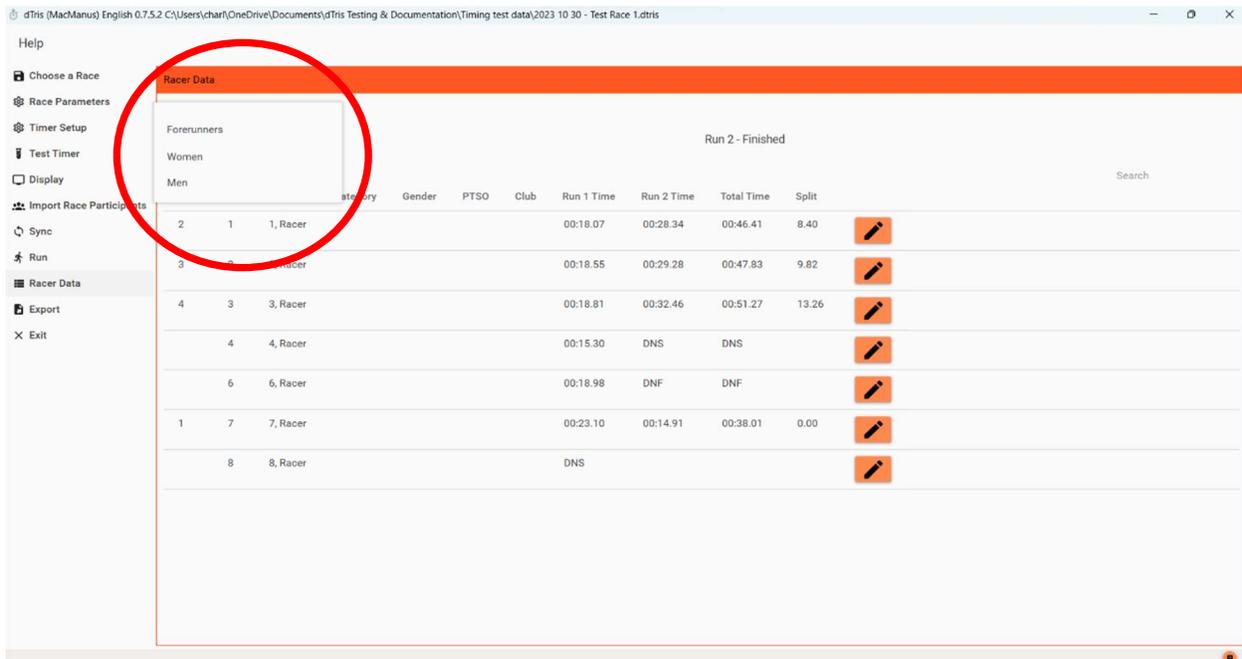
Figure 52

By way of an example, we demonstrate how the Race Data Window is populated as the race progresses.

Example:
Using the women's group, we will display their information before starting Run 1, during Run 1, Run 1 Finished, Run 2, and after completing Run 2, which is the race's conclusion.

Before Starting Run 1 (Figure 53)
Figure 47 illustrates what the user will see in the Racer Data window before Run 1 starts. dTris displays a message indicating that the Race has not started in the middle of the Window highlighted below the Racer Data bar. There is also a search feature for this Window located on the right-hand side of the Window just above the race information display.
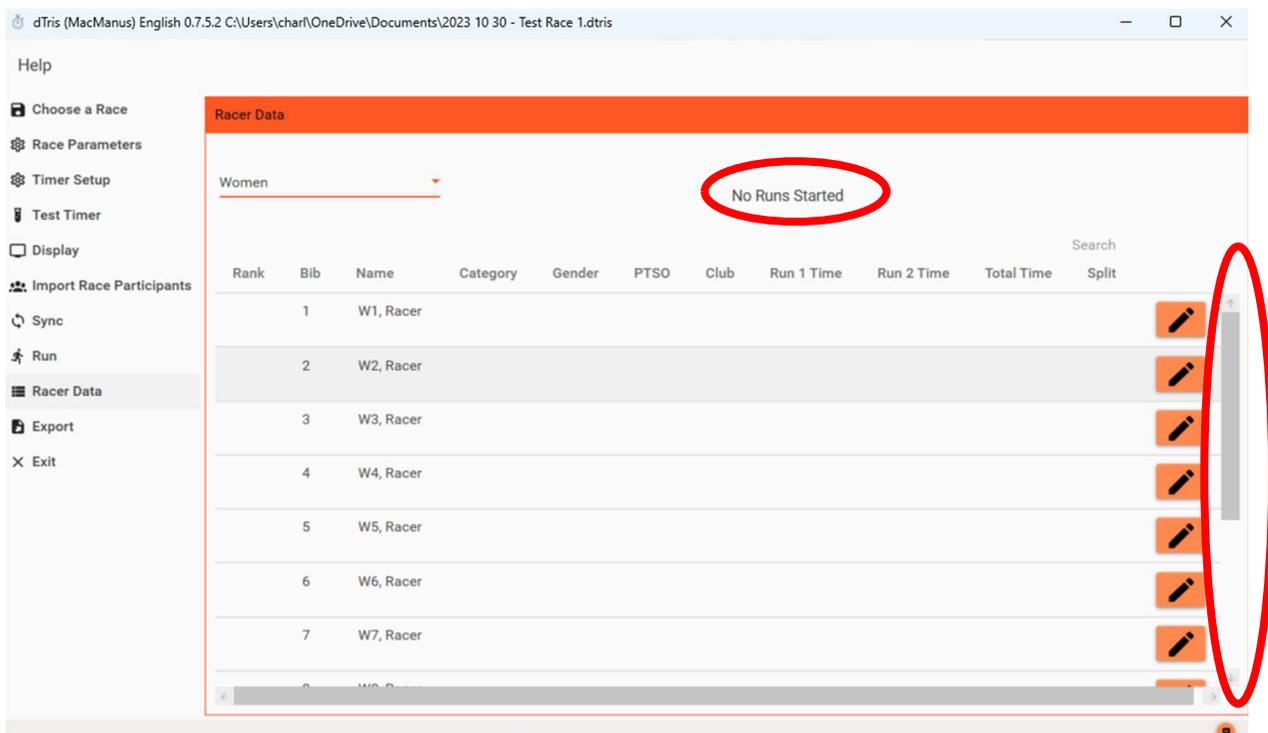
Figure 53

If the group has more racers than can be displayed on the screen, dTris shows as many racers as possible. The user can scroll up or down to see the remaining racers. The user can see the racers' information of a group by using the scroll bar on the screens (Figure 53) on the right-hand side, highlighted by the red circle.

Timing of Run 1 (Figure 54)

When a user goes to the Racer Data Window, dTris advises that "Run 1 is in progress, but because the user is looking at this Window, no racer is on the course and being timed. Consequently, the user can edit any racer's information, such as their run TOD pulses.
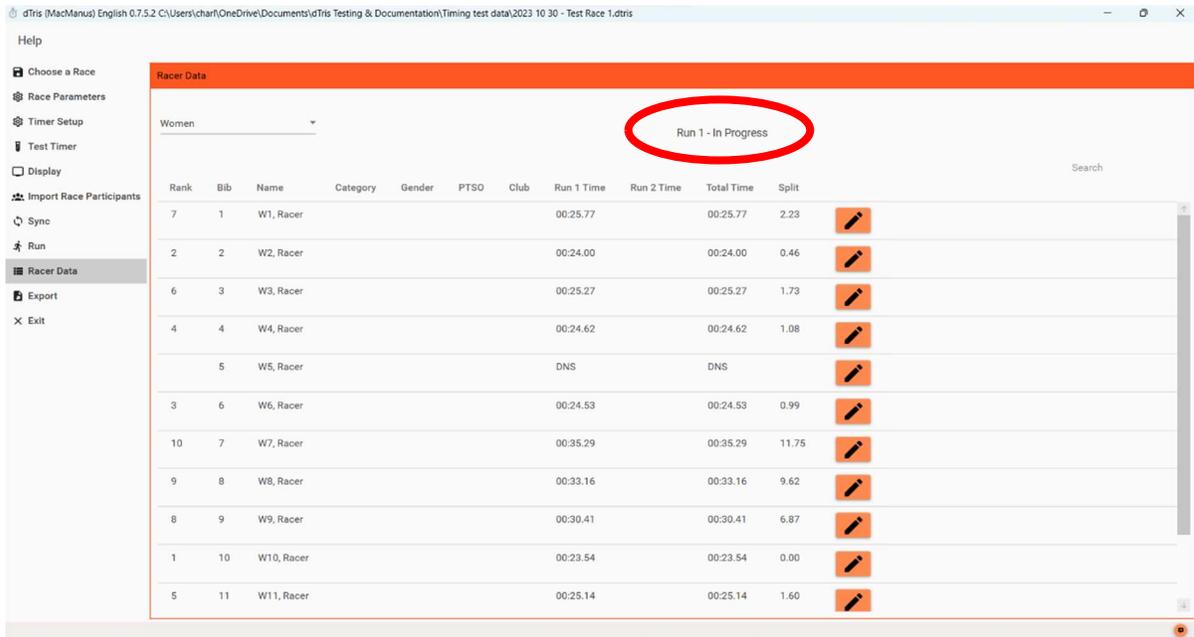
Figure 54

Run 1 Finished (Figure 55)

The screen displays the women's results based on bib number, and dTris advises the user that they have finished Run 1 and can start Run 2 after editing.
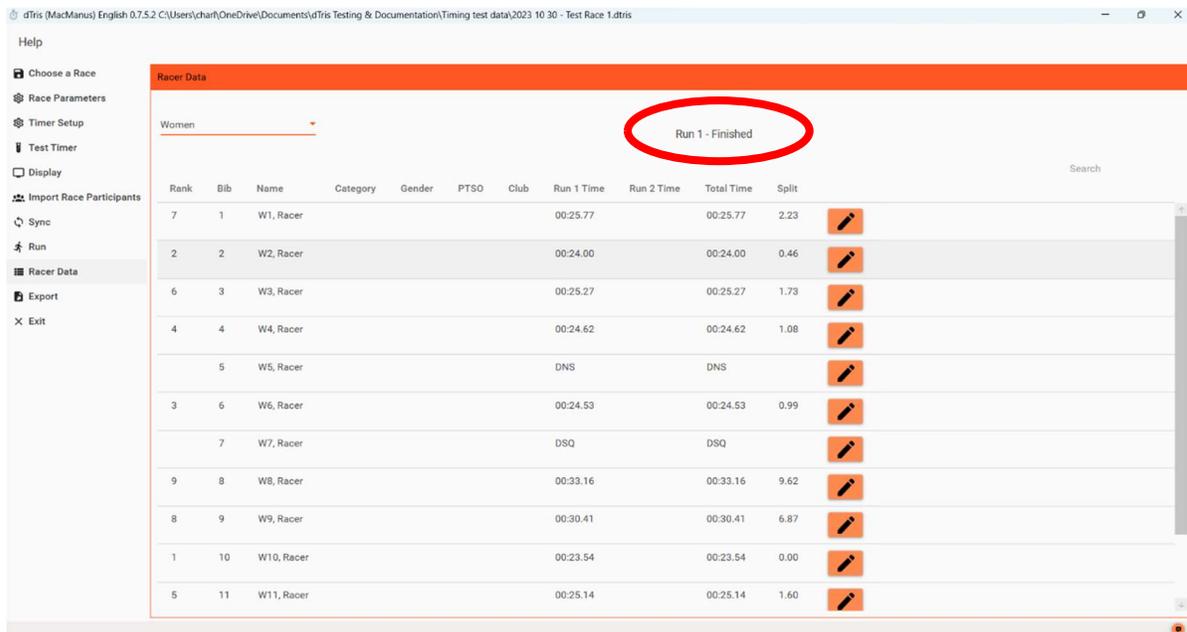
Figure 55

During Run 2 (Figure 56)

As with Run 1, a user goes to the Racer Data Window; dTris advises that "Run 2 is in progress." Since the user is looking at this Window, dTris is not timing any racer. Consequently, the user can edit any racer's information, such as their run TOD pulses for both runs.
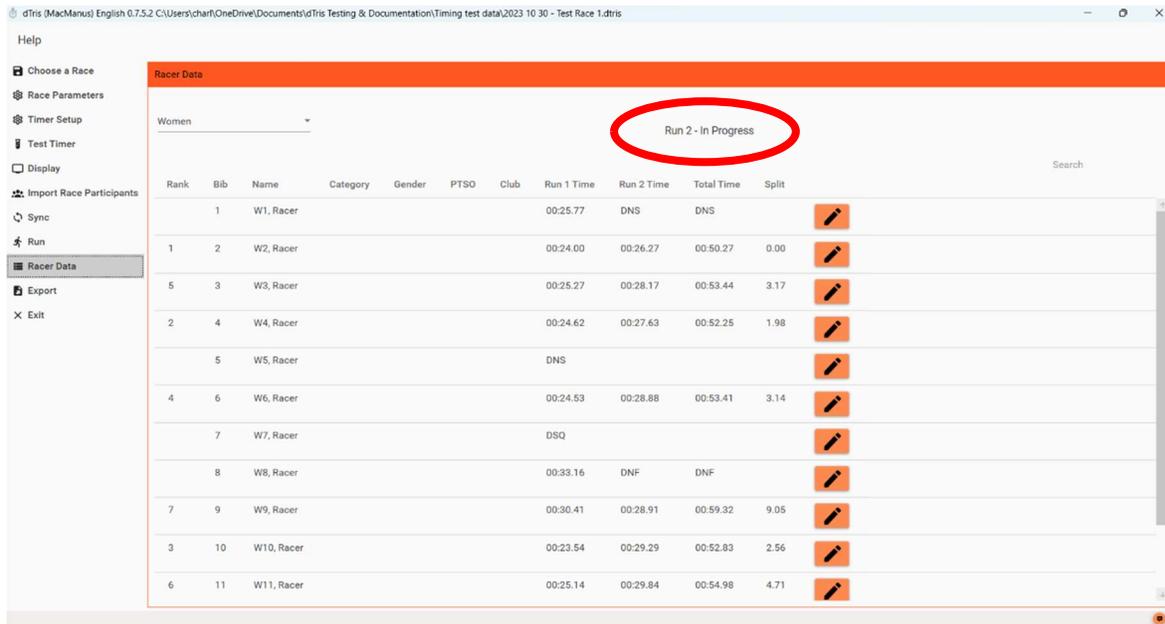
Figure 56

Run 2 Finished (Figure 57)

The screen displays the women's results based on the racers' bib numbers, and dTris advises the user they have finished Run 2. After the user has completed their editing, they can give the race results to the race secretary.
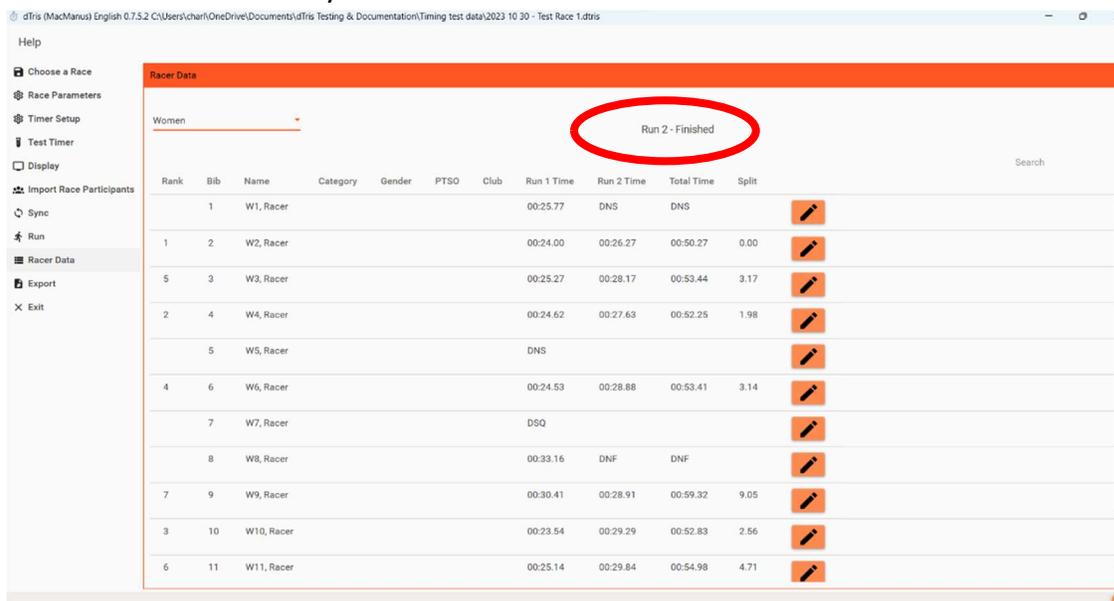
Figure 57

Run/Race Results Sorting

Figure 58 presents the racers' times according to their Run 1 time. DTris allows the user to sort the racers' Run 1 by Ranking, Bib Number, Run 1 Time, Run 2 Time, or Split. The sorting can be from the fastest to the lowest or reverse.

In our example, Figure 58 displays our women group from the fastest to the slowest times for the total race.

Figure 58

In the column where the user is sorting, dTris shows an arrow indicating the sort's direction. In the example, the user is sorting the Total results from the fastest to the slowest time, and the arrow is pointing up, meaning the quickest time is first. DTris calculates the Split column figures based on the time difference between the specific racer and the fastest time.

You will note that DNS, DNF, or DSQ are displayed at the bottom of the racer list and will always be there regardless of the sort type.

Figure 59 shows dTris displaying both Run 1 and Run 2 times and the total time ranking for both runs. Figure 59 shows that the user did not include Run 1 DNS racers in Run 1 because they do not have a time or have assigned a DNS, DNF, or DSQ status. dTRis displays the race's finish order results based on the racer's total time.

Figure 59

Racer Time Edit

The last feature of this Window is the ability for the user (Timer) to manually adjust the time of day (TOD) of a racer if something went wrong or a DSQ was mistakenly applied to a racer. To make these manual changes, the user must click the edit button circled in Figure 59. When the edit button is selected, dTris displays the following editing window (Figure 60). When you look at Figure 60, the user might be interested in changing three areas of information.
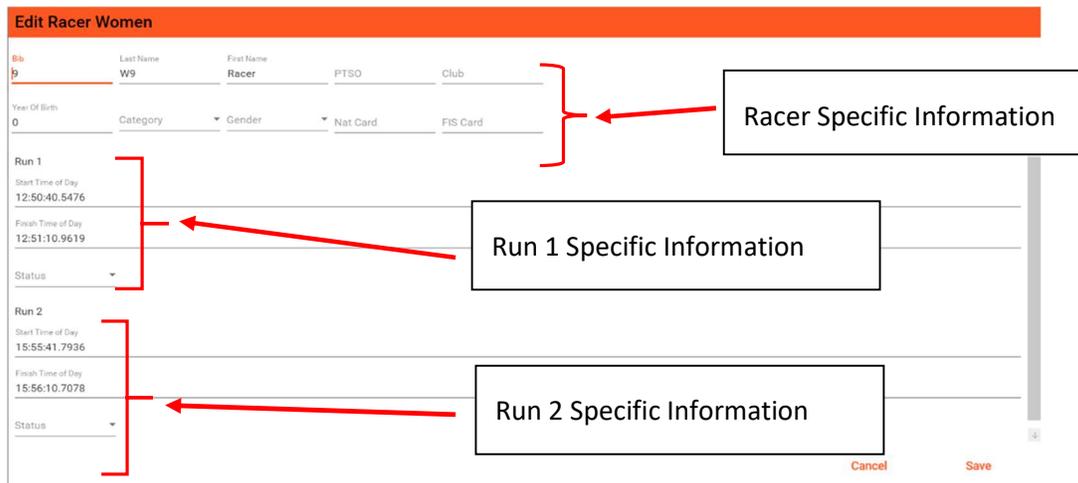
Figure 60

In the above screen (Figure 60), dTris presents the information about the specific racer at the top, followed by the timing TOD details of Run 1 and then the TOD details of Run 2.

For the Run-specific information, the user can edit a Run's status or the start and finish TOD pulses based upon data from another source, such as back timing equipment.

Editing Status Field:

The easiest timing field to edit is the status field. For this field, the user has two editing options. For example, in our example racer bib #9 for Run 1, they can change Run 1 status from DSQ to either DNS/DNF/DNQ, or the second option is to change the status field to Blank and edit the start or finish TOD pulse. Once the user makes these changes, the user will click the save button, and dTris will close the Window and recalculate race bib #9 timing information.

In our example, you will notice that dTris retains both the start and finish TOD pulse, although this racer was assigned a status of DSQ. If the user changes the Run 1 status to Blank and saves the change, the Race Data window information for Race with bib #10 is adjusted by dTris, as is highlighted in Figure 61. If you compare the results of Race #9 in Figure 59, they are different than the results for Racer #9 below, as was expected.

Figure 61

Editing Run TOD Results:

The user can edit a specific start or finish pulse TOD entry for either Run 1 or Run 2. DTris allows users to edit any TOD from the beginning of Run 1 until the race is officially complete. A helpful design feature enables the user to enter the TOD numbers, and dTris will insert the appropriate colon (:) or period (.) as the user enters the proper hour, minute, second, and ten thousand of second number. dTris will check for entry errors such as:

- Wrong TOD entry format; or
- Start pulse TOD is after the finish pulse TOD; or
- Finish pulse TOD is below the start pulse TOD.

Examples of these errors are shown below in Figures 62, 63, and 64.

Wrong TOD
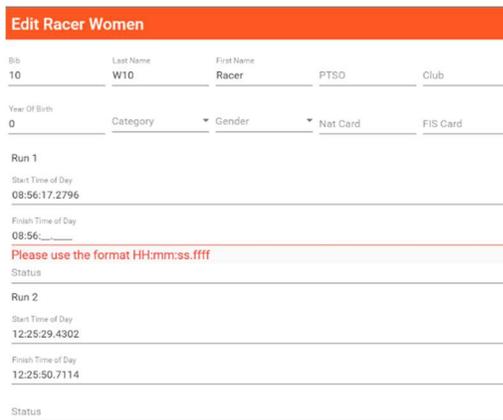
Figure 62

Start pulse TOD is after finish pulse TOD
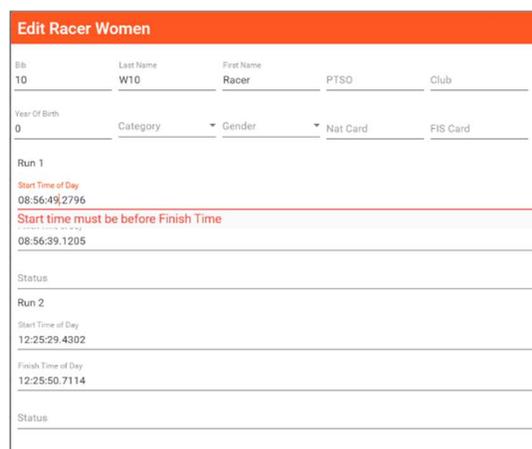
Figure 63

Finish pulse TOD before starting pulse TOD
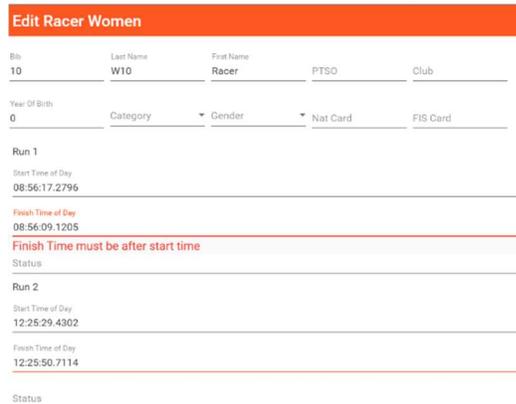
Figure 64

Important Note
dTris' design is such that if the three errors described above occur, the Save button is deactivated, and the user CANNOT save the changes. The Save button will only become activated after the user has rectified the error by making the corrected entry.

Export

The user can export a single run or race results in electronic format using the Export tab. dTris can export the race results in either a Measures or CSV format.

The user can only export the race information by one group at a time. However, dTris will not allow users to export results while a run is in progress, as shown in Figure 65 below.
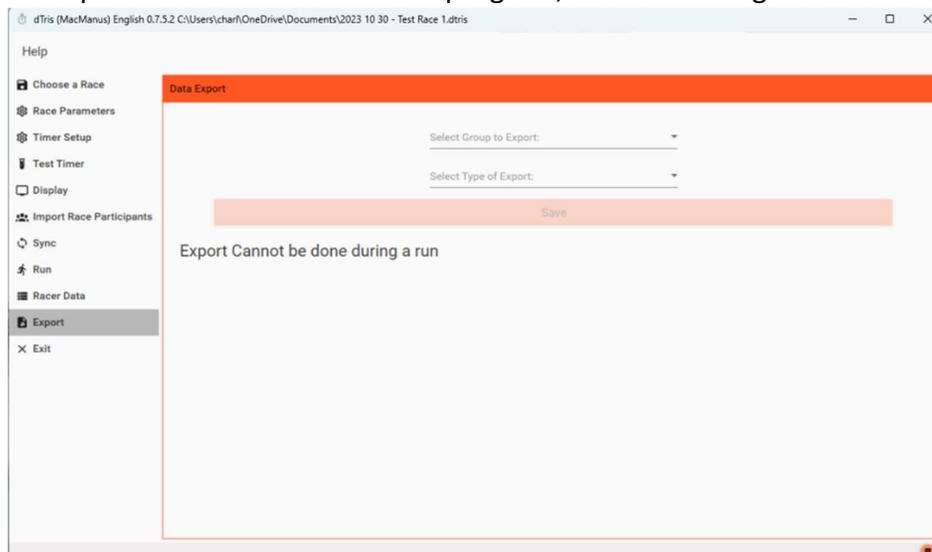
Figure 65

Once run 1 or run 2 are completed, the user can export the race results. First, the user must select the group results they wish to export by selecting the appropriate group from the drop-down menu in the first field, as shown in Figure 66.
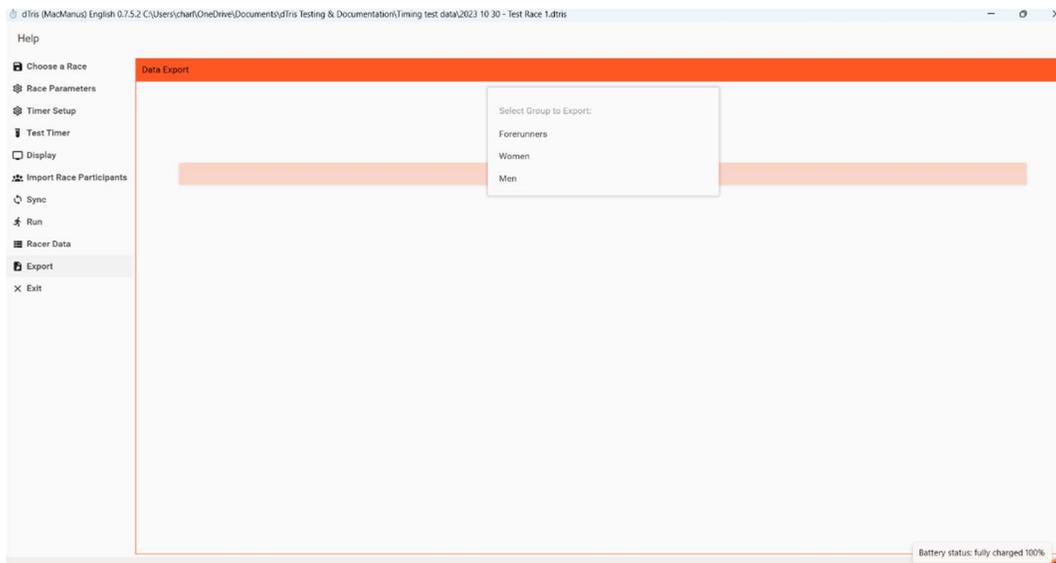
Figure 66

Next, the user selects the file format they wish to export the results, as shown in Figure 67.
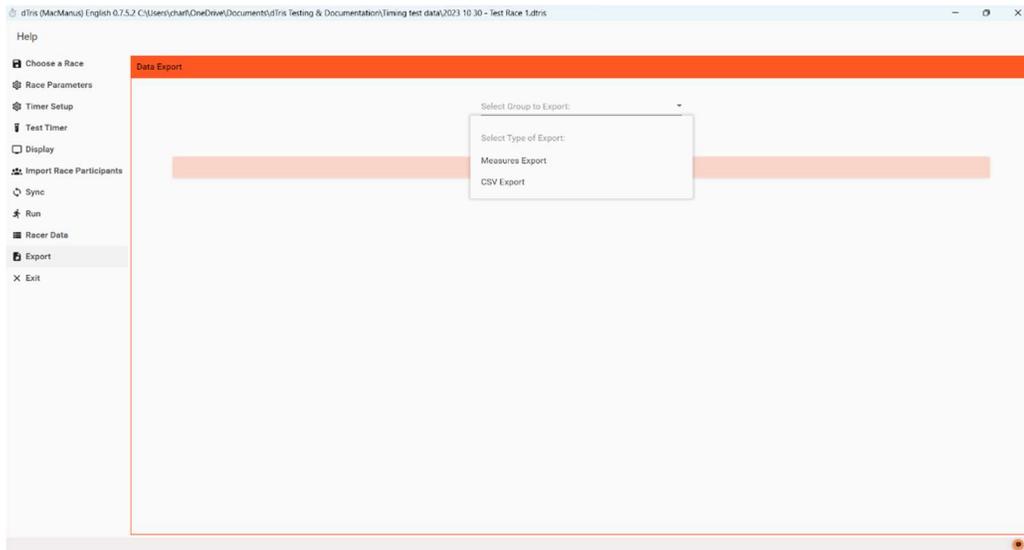
Figure 67

Once the user selects the format and wishes to save the Group's Race results, they click the "Save" button. dTris then asks them to identify the file name and location where they want to store the electronic Group race results, as shown in Figure 68.
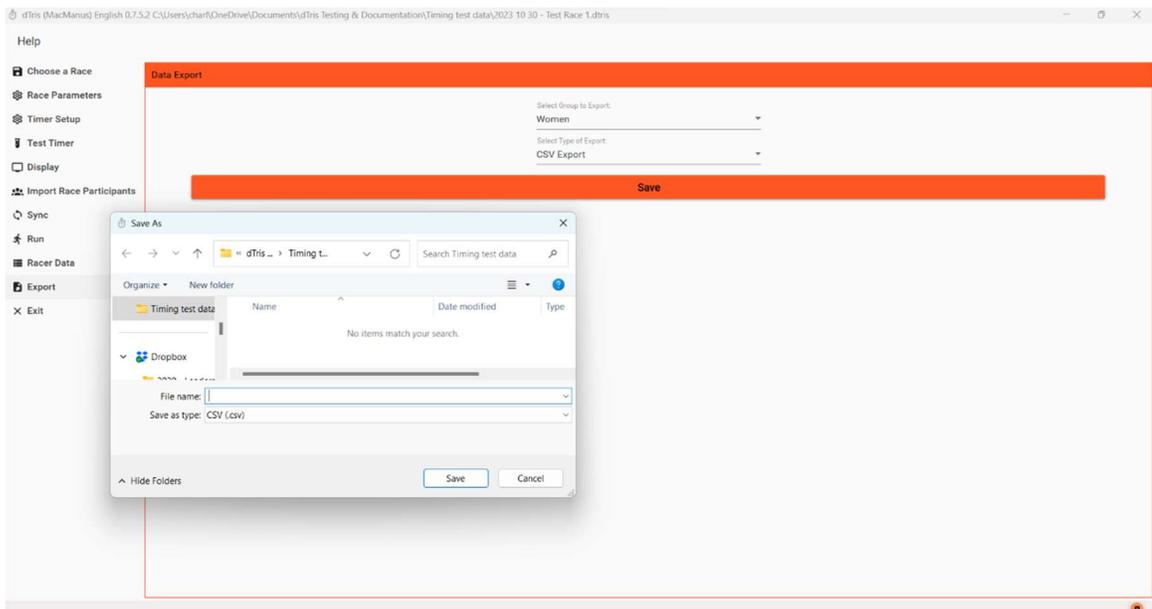
Figure 68

Once the user has entered the file name and clicked save, dTris returns the user to the export window, and dTris identifies the file as saved in the chosen format and the path where dTris stored the export file (see Figure 69).

Figure 69