Orbiter4
User Guide:
Software Setup

So easy to use “Anyone Can Time an Event.”

Don’t like manuals? Call us at 253-627-5588 and learn how to time your event in 10 minutes. The software is a “Tool” that allows “Any Human Powered” event to be Timed, Lap Counted, and Split Timed.
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Instruction integrating with RESTful Interface, Jasper Reports, real time CLOUD, and custom HTML displays on request.
Quick Start – Orbiter Localized Software and Hardware System.

Orbiter is a LOCALIZED system that ensures you have complete control from your computer at the event. Localized means the database is with you on your computer at the event. A CLOUD based timing server does not split time or lap count events as well. This is because local control Orbiter is able to provide real time reader control, and greater reliability as there is less back and forth communication with the Cloud. Plus, more types of concurrent events can be set up than CLOUD based timing systems. With Orbiter you are free to choose Registration platforms and Reporting methods you desire.

For a Quick Start, fill out the Tracks Tab, fill out the Schedule Events Tab, enroll your RFID tags from the Tags tab. Import your participants by creating an All-In-One .CSV template fund. This is found under “File” on the upper left of your screen. Cut and paste your participants and associate a big number into the spread sheet. You are now ready to import your people. Under the "Assign" tab choosing your event, and import the spreadsheet. Now Start your event! Practice by using the "Simulator" and "Manual Entry to inject" tag detects as if it was a real race. Or let the simulator take over and watch your race unfold.

For advanced users’ connectivity to the Internet Orbiter uses RESTful Interface and Jasper Report software for real time results, and to provide you a multitude of Web Based solutions including your own proprietary method.

To set up your timing system there are three things you will need: software, hardware, and transponders. The installation instructions for the hardware are in Appendix A. For real time results display use your local computer with optional HDMI. For interior tracks you will need to purchase your own wall mounted interior LED display; OR for exterior displays use a rugged extreme weather (readable in direct sun light) from Orbiter. Tough Tablets are also good for complete mobility and visibility of real time results for Coaches and Event Managers. Appendix B explains how the transponders are worn and used by participants. This instruction manual concerns the Orbiter4 software. Within the software, there is the original software set up instructions and daily operation that includes registration, displaying results, and replacing and adding transponders.
Initial Set-Up

The software is located on your desktop and the icon is a white square with a blue star swoosh. Double click this to open. The software opens to the Orbiter Home page where the initial setup is done. The second main page is where the event is started and viewed. This is opened when the Green Button called “Start and View Events” is clicked. These are the two pages you will interact with.

The initial set-up is done on the home page and you will notice tabs that move from left to right. These tabs are located about ¼ of the page down. The tabs are from left to right Tracks, Schedule Events, Tags, Participant, Team, Assign, Report, Bollards, and Event Planner. To begin the set-up start on the left and move right through the tabs. First go to the Track Tabs and click on it. After you have set up your event, use the Green Start and View events button.

Tracks Tab: Add Detectors

In order for Orbiter4 to work, detector(s) need to be assigned first. Assign a detector under Detector Name. The layout must be capital “M” with the detector number with no “space”
between Mobile and the number. The detector number may be found on the Orbiter detectors. Mobile88 for example is short for IP address 172.25.0.88. Only use the MobileXX nomenclature when assigning detectors. Or, this is done automatically when a detector is turned “On”.

**Tracks Tabs: Loop and Start Finish Tracks**

After assigning a detector, the next choice is using a “Loop track” or a “Start Finish” track. A loop track is where the same detectors are used for the Start/Finish. This is true whether the start and finish are located geographically in different locations. For example, there can be a Triathlon where the Start detector is moved to the finish after the participants started. Or, there can be a 5K where the finish is a distance away from the start.

**Tip:** Be sure you can move quickly from the start to the finish before runners get to the finish. An advantage to Orbiter is it makes moving detectors a snap. This is unlike mat systems that take time to move due to all the wiring and cabling.

A Start/Finish race requires a detector to be placed at the start and a different detector at the Finish. In this case, detectors cannot be moved and are permanently placed for the entire race.
Examples of these types of races include hill climbs that use chip time individual starts. As a note, a way around having to have two detectors is using interval starts. Interval starts may be started manually by the timer either at preset time intervals or with a push of the button for each participant. There is also a control to “pause” an interval start. Ski races use Interval Starts.

Looking to the right of the Track GUI, is the “Min Lap” Time Setting. This is an important setting because it prevents participants from standing in front of a detector and being counted twice. For school lap counting, it prevents students from cheating and getting free laps. For 5Ks it allows walkers to chat in front of the reader before heading out for the race. Otherwise, you would have walkers winning a race as they linger at the start. It is always best practice to write down the winners bib number so any false tag detects can be deleted. Some ways this happens is when a volunteer brings no show participant pre-registered bibs to the finish to watch. These bibs then get detected after minimum lap time and create confusion as they appear to have won the race.

Next down on the screen is “Max Lap” time setting. This is used for unattended automated courses such as indoor and permanent outdoor tracks. It allows for results to be automatically erased so a new work out session can happen. For example, at a resort where there is an Orbiter unattended automated race course, Max Lap can be set so each day’s workout is fresh for the participant to see. This eliminates clutter on the display screen from prior workouts.

Moving down the screen is how the detectors positions are set. It is important to know that by clicking on the detector name, more than one detector may be set to work in unison with another detector. This is done often at a start and finish such that a right and left detector work together as one. Adding and deleting detectors is easy by clicking right on top of the detector name (not on the Detector column heading). Just add and remove detectors this way.

**Tip about Position:** By setting detectors to “Start/Finish”, the detector is assigned position “0”. This means the detector can be moved from the start to the finish. If all detectors are assigned position “Start/Finish” they can be moved along the race path on the fly. This means they are picking up detections at each way point that is greater than minimum lap time. It is a slick way to use fewer detectors and economize by leap frogging them as participants travel on the race path. However, if a detection is missed the results will slide to the left. For example, for four detection points with one missed detection, then there will be three shown. In order to
determine where the detection was missed, the timer must hover the cursor over the time shown in the real time event viewer and a listing of tag detects will be shown.

To simplify this, Orbiter4 allows detectors to be assigned a specific location under “Add Position”. This is found at the bottom of the Track GUI. Once a detector is assigned a “Position” it cannot be moved during the race. The detection is then pinpointed for the results and instant confirmation the detection is a “finish” detection is made. It’s best practice is to keep detectors operating at way points and not move them. However, the “Tip” above about setting all detectors to Start/Finish is a work around for economy.

“Min Leg Time” setting is used where the race is a start finish and Laps are set to “1” under Schedule events. This is the time it takes to get from one detector to another within the race. It is used for Triathlons where transition times are very short. It can be as short as 10 seconds, while min leg time for a run may be 15 minutes. Min Leg Time is similar to Min Lap time as it keeps counting the tag for a reasonable period of time so the times are reported rationally.

Lastly, an important setting unique to Orbiter is “First Tag Seen”, “Last Tag Seen”, and “Corkscrew”. Since Orbiter readers are autonomous a real time connection to the server is not needed for positioning of tags.

**Tip:** When a beep is heard the location of the time is instant and may be seen immediately. This allows calibration of the reader position on the spot. Calibrate the reader by moving it such the tag is detected on the line desired.

Last tag seen is useful for bike races by pointing the detector at the riders to pre-energize the passive RFID for best responsiveness.

Corkscrew is used for two readers such that one is pointed toward the participant and another way. This allows reading tags placed on both front and back of a runner. In a group of 100 runners there are almost always those that put the tags on their backs or sides. Corkscrew solves reading these tags. Another method is to use the SLING reader that is highly mobile. It can be easily turned quickly so that all tags may be read both front and back.

Using the above methods means that a separate “Time Machine” 10 key manual entry system is
not needed. The rule with Orbiter is, “If you can see the tag, the detector will read the tag. If you cannot see the tag, then you must assume the reader cannot read the tag.” Either the Corkscrew needs to be used, or moving the SLING right or left as needed to read the tag.

**A note on Event Type, “PATH”:** Path events are unique to Orbiter and are fun. You may place multiple detectors and have races that go from one to another in random order. Hit all 10 detectors and then finish the race. This strategy may be used to win these unique races. Path races are also used when multiple vertical feet are calculated from many chairlifts.

**Schedule Event Tab**

To set up an event, Click on “New Event” and you will then see this screen:

Fill out a name for the race. You can change any of the settings at any time, so do not worry about filling the forms incorrectly. You can come back and correct errors or change your mind later. Next, choose your track. Moving from left to right on the tabs means you build on the information filled in as you progress to ready and start the race. Track is an example. You must have filled out the “Track Tab” form previously in order to choose a track.

The “Event Type” allows you a wide choice of events. Here is an explanation for each:
Chip Start provides each participant an individual start time when their RFID transponder passes the detector and the detector “beeps”. Under the Green “Start and View” events button, choosing the event and then clicking the “Start” button readies the Orbiter for a Chip Start. The participant’s start time is when he passes the Orbiter reader, not when the Start button is clicked. Clicking the Start button only readies the system for a chip start. Results on the View Events page are displayed as “Elapsed Time”. This is the time from the first RFID chip detection to the tag detection to the reader. For Chip Start this is the Finish Time too. “Most Recent Tag Detect” is the time from clicking the start button and the most recent tag detect. It is also called Gun Time.

When “Gun Start” is used, the most recent tag detect and Elapsed Time are the same. Start on Gun Start happens when the start button is clicked. This provides the same start time to all Participants.

Wave Start is set for groups of people to start in Waves. In order for this to work, the All-In-One excel must be filled out with assigned wave numbers. Or, Dynamic Waves may be made by self-enrollment of the participants as they approach the start reader. Starting a Wave is done in the Green Start and View Events real time Event Viewer page. Wave starts are on the left side of the page under Wave, and then Start Wave. To start the Wave, click “Start Wave”. It is good to practice starting waves by “Cloning” a practice event prior to your race. Practice false starts and then restarting a wave quickly.

Reoccurring Chip Start is used for indoor tracks and resort automated trail runs where participants repeat the same event daily or within a set time interval. Using this type of Start allows the prior work out not to show on the display. The display may be “cleared” of a prior work out so only the current work out session is shown. The time interval to clear the display is called “Max Lap Time.”

Interval Start is where a present time is set to start individuals in a race. This is done by setting the “Start Interval” time. The start interval then automatically starts each racer on a cadence, such as 15 second intervals if the start time is set at such. An interval start number must be assigned to each participant in the Excel All-In-One. This is used for cross country ski races in Europe and other elite sports. Interval Start has a pause and resume button too.
Where interval starts are desired such that each person starts with a push of the start button, Wave Starts may be used. Each person in the All-In-One is assigned an individual wave number. This is used for Indoor Pool Triathlons where the participants start one at a time at one corner of the pool, and then swim (snake) their way back and forth down each lane of the pool, to the exit of the pool on the far end. These types of races are common for YMCA’s and military bases where lake Triathlon races are not possible.

Interval Starts and Wave Starts are a good way to reduce the need for extra Orbiter readers by eliminating the need for a reader at the start.

“Mass Chip Starts” pegs the start time to the individual as if it is a gun start. If there is a missed tag detect the click of the “Start” button is used. To reduce the chance of missed start times use two Orbiter SPIRE detectors to reduce shadowing at the Start. All passive RFIDs have as much as a 5% missed tag detects at the start. Mats are the same as Orbiter in this respect with missed detects often higher because of the antennas placed on the ground unlike Orbiter in the air. UHF radio frequency works better with air to air communication using side antennas.

“Start” may be set to “On Button” or Start “As Scheduled” drop down. Start on button setting is used to ready the event for Chip Start. The actual participant time starts as the RFID tag passes the Start Reader. Start on Button is also used for Gun Starts. The majority of events are using Gun Starts as this the running rules. Otherwise, it is confusing to spectators as to who won a race because the first person across the finish line may not be the winner. However, Chip Starts are preferred for individuals that are at the back of the pack. Thus, having results both as Chip Start and Gun Start is good. This is done by setting to Chip Start and then displaying both Most Recent Tag Detects (Gun Start) and Chip time (Elapsed Time).

“Start as Scheduled” is typically used for school PE classes when the “Event Viewer” tab is used.

When “Start Time” is set, the computer will be “Ready” to start one hour before or one hour after the set time. If a mistake is made, then on the Green Start and View events on the “Event Viewer” the time will show how many hours until the start will happen. To by-pass this, just push the “Start” button and your event will start without the need to reset to “Ready”.

“Duration” is used to automatically stop an event. It is used to turn off events if the timer forgets
to do so. If an event is turned off inadvertently, use the “Resume” button found in the Green Start and View Events area of the program. It is located right under the Start button that started your event. Duration is also used for setting up physical education class sessions under the “Event Viewer”.

“Laps” is a most important setting. Setting Laps = “1” is used on a start finish race like a 5K. It shows a participant’s time from the start of the event to the end of the event, even if the person comes back to the finish line root their friends on. Setting to one will ignore further tag detects and post accurate times by ignoring additional detections. If Laps is set to 4 for a mile run, then only the mile run is timed. If laps are set to 6, then a military or police fitness test appropriate laps are counted. In event laps are set incorrectly, then setting laps correctly after the fact and pressing “Reprocessing” fixes the problem. Reprocessing is found in the Green Start and View events area.

“Start Interval” is the time set to automatically start participants in Intervals such as every 15 seconds or every 30 seconds. Start Interval only works with the event is set to Interval Start type.

“Clone” is to copy an event. It may be used for repeat events such as Fitness Testing. Thus with just a few key strokes repeat back to back events may be started. “Clone” is also a second way other than “Resume” to start a closed event.

“Child” is very powerful way of creating subs events to a Master Event. By creating children to a Master you can report the sum of all events quickly to the Master event. For example, this can be used to create a vertical ski program where each chair lift is its own event, yet the sum of all chairlifts is counted for the overall event. If you are part of resort network of automated trail runs, you can link each trail run into a total trail run. Or, if you are a school, individual schools to a district wide event.

“Delete” is where you delete an event. In order to delete tracks you must first delete the event and then the track. It is always good to back up your database prior to deleting events. This way you can recover your data if you make a mistake. Backup database is found in the upper left of the Orbiter4 GUI under “File”.
Tags

Tags tab is where RFID transponders are imported into the computer. With Orbiter there are typically three ways to do to gain the same result. Tags are no exception. The first and easiest way to import tags is to “Export” a Tags Excel Template and fill it out and import your tags. When you purchase inlays from Orbiter, you are sent a Tags file to import. When you use an “Enrollment Machine” an excel tags file is automatically built for you. You import this file. This is the easiest way to import hundreds, if not thousands of tags.

A second way is “Add” a tag individually. To do this, select the Tag Type.

Standard Tag is a High Frequency 13.56 mHz Tag such as Near Field passive tag. It is used for concert and sporting event access.

Medium Tag is the Standard 800 – 900 mhz UHF passive tag used by most road running race events around the world.

Long Range Tag is an active tag with a battery operating at 2.45 GHz. This tag is unique as it is always “on” and does not blink or power up as other active tags do. This tag is used for motor sports and military applications. There is no need to recharge the battery after every use as is normal in other active systems. Battery life is for Long Range tags to remind you when the tag needs to be replaced. All active tags purchased at the same time, will be replaced at the same
date. This is 5 years after purchase. With Orbiter active tags, you will not have tags fall out as some are used more than others. This ensures good results at your races, as there is no worry of some tags failing and other not due to lower battery power.

Bib Number and User Label are normally the same. However, User label is most important as this number is what binds the bib (tag) to the runner. The system will not work without a bib number.

RFID number is the number found inside the integrated circuit. It is an 8 Hex number. If you want to see this number, turn on the Orbiter reader and connect a live connection to your computer gaining a green line on “Bollard” tab. Then scan the tag and you will see the RFID number inside the chip. You can edit RFID tags by double clicking on the long white line with the tag shown. When you do this you will see you can designate a tag a “Start Tag”. This them makes the tag when shown to the reader, start your event. It is an optional way to start an event, without the need for a laptop being present.

Tip: Tags are the “Key” in the database. All tags used in the event must be loaded in advance. No new RFID tag numbers may be added after the event has started unless it is done automatically under the Green “Start and View Events” button, “Start Events”. Click the “Add if Missing” box.

Loading Your Participants and Associating Tags
The three tabs that must be filled out for the building blocks to enroll participants is Tracks tab, Schedule Events Tab, and Tags Tab. Once these are done you can move onto loading your participants and association your RFID tags to them. Then lastly, start your event and review results either live with the real time viewer or in logging mode by using reports.
There are two ways to do this. First is the quick and easy way. Go to the upper left of the Orbiter GUI, and select “File”, “All-In-One”. An Excel Spreadsheet will open, cut and paste into it, save it to a place on your computer you can find it, and then import.

Once the All-In-One is produced be sure to fill out four columns at a minimum: Last Name, First Name, Bib Number and User Label. Bib Number and User label are normally the same number, where User Label is the most important of all. User Label is where the bib is associated with the name. If there is no User Label, results will not show up until you input a user label. Middle Initial is a single Initial and not a full name.

The second method loading participants is to continue moving from tab to tab left to right. Fill out the series of Tab to Participants, Team, and Assign. This method is for individual edits and is tedious unless there are only a few to check. Individual edits are a useful tool and will be explained in detail later same as the Assign and Bollard Tabs.
The “Assign” tab is where you can double check that all your participants are loaded and in the event. The “Bollard” tab is where you can check to see you have a live connection from your Readers to your Computer.

Reports are most important and a future section will explain these later too.

Event Planner is for schools and is very unique as it allows for tags to be traded between participants and automate turning off and on many events during a semester. Given the average PE teacher has 5 to 6 classes a day and each is an event, the event planner saves the teacher time.

On the drop down notice “Export Database” which is the same as Backup Database. “Restore Database” is the same as “Import Database”. It is always good to back up your database before making major changes to configurations of repeat events.

**Participant Tab**

When filling out the fields, only two are required, Last Name and First Name. USATF is a number used for qualifying for the Boston Marathon. UF fields are user defined. You can put whatever you want in these. For example, you can designate UF1 for Clysdale.

The “Team” tab is where you put team categories. For schools “Team” is often the same as “Teacher”.

![Participant Tab Image](image-url)
The Participant tab is an important tab because it is where you double check to see if everyone is in the race. The screen has a left and right side separated by “>” arrows. The left side is where Participants, Tags and Teams are assigned. The right side is where the participants in the event are located. To put a new person in an event, “select event”. Then then click on the left side of the page area and highlight Participant, Tag and Team. They will highlight in blue. Then click the Arrow “>” found in the middle of the page, and the participant with their associated tag is put in the event. To take a person out, do the reverse “<”.

Most importantly, check the number of people in your event. On the upper right of the left screen you will see the number. For example, if you have 100 people pre-registered, and then add 50 people day of the event, this number should be 150 participants. It is an important thing, even with using the “All-In-One”, to be sure you loaded your event correctly. If not, just reload your event. You can add people after the event starts or even after the event. Just click the “Reprocess” button found in the Green Event Viewer to make the data refresh to see the updated race results that include the new people.

On this page, “All-In-One” is used for creating the important All-In-One spreadsheet template. This is a second place you can create an All-In-One. The other location is on the upper left of the home page GUI under “File”.

Quick enroll is used when the reader is connected to the computer and a tag is flashed at the reader.
Assign Tab

First “Select Event” and then this is where Participants, Tags, and Teams (Left side of Screen) are assigned to Events (Right Side of the Screen) by using the “>” key. Most importantly it is where the number of people placed into an event may be double checked. Here is shown 30 people. The number one reason a person’s results do not show up is because they were never put into the event. To correct this problem, just find the person and bib, and put them in the race. Click “Reprocessing” on the Green Event Viewer page, and presto their results will show up.

You can sort people by clicking on the column header such as Last Name shown above. You can edit people names on the fly by double clicking on the name directly, and then editing it. This is good for correcting misspellings or correcting switched bibs between people. Also, switch the names by editing the name field, and never doing it by editing the Bib field.

Report Tab

The Report Tab is where custom reports are created. This is found on the home page. You will note that a second location for reports is on the Green Event Viewer where you start a race.
Reports will be covered in more detail in another section. However, here is an overview. Under the Report tab you will see two sides with “OR” separating them. On the left is Print Ready Results. These are .pdf results that are pre-made and standard. On the Right Side is where you make custom Print Ready Results. To do so, just click “New” type in the name and another view is shown listing all the column options for the report. In the screen area to the right are the column listings that will print. The first column on the page will be the top column listed. To remove column headers just click “<” and move them to the left, off the report. To put columns in the report, click “>” to put them in the report. Then Save and your report will then appear as a Print Ready Option over on the “Reports” page on the Event Viewer.

For even more sophisticated reports Orbiter works with Jasper Reports. This is a world class robust and professional report writer. Jasper may be used to create stadium tall LED display output, television quality commercial output, and mobile phone applications like anything you have ever seen on your phone, at the movies, or on television.

To summarize, the areas to find reports are (1) The home page “Report Tab”, (2) The “Event Viewer” under Reports, (3) Real time results “Even Viewer” where live results are shown.
The bollard tab is not needed to run a race; however, it is a nice tool to let you know what is happening to all your readers in real time. Above you, you can see three green lines. This shows three readers operating simultaneously. A green line means a live connection. To connect to a reader, just turn the reader and the computer on. Be sure you have a live Ethernet, Wi-Fi, Cellular, or VHF radio connection. Remember, you do not need to have an active connection to time a race. This is because Orbiter also works in logging mode and download of the data can happen anytime including after the race. In logging mode, there are no green lines and the screen is blank. This is normal.

To control power levels of a reader, right click it’s green line.

In the screen above, where there is a live connection to three readers for a Triathlon, you will notice two areas: “Unassigned Tag Detects” and “Tag Detections”. In the unassigned tag detections, heart beat monitors will let you know if the readers are operating normally. You will also know if any tags are seen that are not part of the race. Or, tags that have not been assigned to the race. If you want to include these tags in to the race, go to the Green Start View Event page, click on the event, and then under the Start button, you will find “Create if Missing”. Check the box and the unassigned tags will automatically be entered into the race.

On the screen above, to the right you will see the “Tag Detections” page. This will show the tag
detects in real time. Note that all the tags have enter and leaving. This is because Orbiter positions on tags and thus allows first tag seen, last tag seen, and corkscrew detections. All tags seen on the right side of the page have been entered into the data base.

Looking closely at Tag Detections you will see an 8hex number. It looks something like this 00000001 or A123UKL8. If you ever want to find the secret integrated circuit number that has been written onto the chip inside your RFID, just scan the tag and see it here.

**Tip:** Think of Tag Detections as a chalkboard that can be erased without harm. To read chip identifications, it is easier to click inside the Tag Detection area and hold Ctrl button and A, to highlight them all in Blue. Then click Delete button. This clears the screen so when you pass a tag, you can identify which tag you scanned clearly.

At the bottom of the “Assign” screen is a “white area”. This is where detailed messages about your reader status is shown. If there is a connectivity problem, you will likely find the reason here.

**Event Planner:** The PE Class Scheduler with Automated Start and Stop for large school districts or control of worldwide simultaneous events. Also, allows the ability to trade tags between participants.

This ambitious program was made for schools and mega events. Orbiter is the only RFID software program able to automatically schedule classes, stop and start new classes. It allows a school to schedule as many teachers, class periods and students to use one Orbiter reader...
simultaneously.

The purpose is to free the teacher from having to interact with the Orbiter computer and concentrate on the kids. This is because once this is set up, the teacher can collect reports.

To set the program up, go to “Schedule Event Tab” and create an event for each PE Period. Be sure to set the “Start” type to “As Scheduled” and NOT on “Button Click”. The “Duration” is set to the number of minutes in the class. Normally this is 40 minutes.

Use your All-In-One to load your kids into your class.

Next go to the event planner and select the event and then set the times and days for the event. This is seen on the “Create Event Schedule”. Put an end date on “Until” click the days of the week and “Save”. Your class periods for the entire year are now made. You will see them on the calendar replicated.

Once this is set up at the beginning of each semester, the machine automatically turns on and off and keeps track of the kids.

The machine can also trade tags between students and classes. However, we have found this is more difficult for teachers to administer and most teachers like having every student have their own tags.
The Green Start and View Events Button

Click the green button and then choose an event.

The real time “Event Viewer” then is shown.
On the left side of the event viewer are controls. “Start / Stop Events” is where you “Start” your event. “Reprocessing” is where you confirm a change setting in the middle or after a race. It also is used to reset the start time if needed. Manual Detection is where you insert a tag detect in event one is missed. Interval Start is how Intervals are started. This button will change to “Wave Start” when waves are required. Waves are often used in Triathlons. Reports are where Standard and Custom reports are gained. Verify Event is where you can double check your setup of an event.

The main grey area, which is blank above, is where your live real time detections with lap counts and time is shown. In the Columns “Elapsed Time” is the race time for each participant. Recent Detection time is the “Gun Start” Time for each participant. It is from the time the start button is clicked to the time the detection was gained. By clicking this column with a down arrow, as people pass the finish they will be sorted to the top. This is also called “announcer” mode.

On the bottom right is “O”, “-“and “+” buttons. Clicking “O” hides the left column from view. This is done if the screen is connected to a display with HDMI so participants may view results on a remote LED. “-“makes the type set smaller. “+” makes the type set larger.

The columns may be sorted by clicking the column header and sliding them right or left. They also may be minimized to hide unwanted columns from view.
Starting a Race Detail:
After clicking the green "Start and View Events" and then selecting the event, the timer has options as to how to start the race. The Start can be "Scheduled" which usually is done for school class physical education runs, or on "Start" button shown. An additional Start option is "On Start Tag". This is where on the Tags tab, the option on the tag called “Start Tag” is selected. The tag, when waved, will "Start" a race. The purpose of this is to allow a race to be started without a tag being present. Just wave the tag in front of the reader and the race will start. If more than one tag is enabled to start a race, it will be listed on the drop down. In this case, Tag "1" is a start tag.

To "Stop" the race, click "Stop". To "resume" a stopped race, click "Resume". To hear a gun shot when a race is started click "Gun Shot".

"Create if Missing" is an important and very handy feature. This automatically enrolls all tags into a race whether they are pre-enrolled or not. For example, say a volunteer handed out bibs and did not write down people names to associate the bibs. The tags then were not enrolled in a race. In this situation, a runner (even though they wear a bib) would not show a result. It would appear that the bib did not record. However, the bib did record and "beeped" a confirmation but the result will not show because they were not enrolled. By turning on this feature, the bib "is" enrolled automatically and the result showed. It then becomes a matter of sleuthing who this person was. This feature works nicely to overcome volunteer errors in handing out bibs. Runners normally remember their bib numbers, and results then will show by bib.
Specific Event Set-Up

Display setting for an indoor track, outdoor 1/5 like track, or automated trail run.

Participants in these events want to see their results per work out. They do not want to initially see accumulative work out results. For example, on an indoor track, the participant goes around and around and is able to see the display only for a few moments as they pass. Or, in the case of an automated trail run where they work out each day, they want to see the work out for that day only.
Orbiter display has the ability to provide additional information such as total climbs, vertical, feet, number of participations, teach results and more.

Generally, the amount of information initially shown on the display screen is desired to be limited. Information such as bib number, split time, and total time are usually shown. Participant name and cumulative workouts are optional information.

Additionally, with these systems, there needs to be auto-clearing of results. For example, if a participant is not seen for a set time, say 30 minutes (aka Max. Lap Time), the result is auto-cleared such that a new work out may commence. Hence, a participant may use the system several times a day.

To accomplish the above, here are the Orbiter settings required to do so for an indoor track:

1. On the “Track” tab, set “Min Lap” to less than the time it takes the fastest person to complete a loop. If this is set incorrectly, then it is possible for only every other lap count to be counted. Min Lap is designed to allow a runner to pass the detection zone and not be counted twice. A standard Min Lap is six seconds on an indoor track. The standard is six seconds. “00:00:06”
2. On the “Track” tab, set “Max Lap” to the time you want to clear the display of results after the last lap is made. The standard is 30 minutes. “00:30:00”
3. Most important is, under the “Schedule Event” tab, set the “Event Type” to “Recurring Chip Start”. If this is not done, then the system will not display properly.
4. Under “Schedule Event” tab, the “duration” on automated timed events is typically for 365 days. Under duration, set the duration as “365d 01:01” where each time frame has a number and not 365d 00:00. With this set-up, the event will stop each year. If you want the system to continue longer, increase the number of days.

The good news is, if any setting is not set correctly, the settings may be changed and corrected after the fact. Simply go to “Start Event”, select the event and click “Reprocessing”. The results will be fixed after the fact. Also, many types of set up may be timed and lap counted. Shown below is an indoor track, and on line you can see the demanding short track skating video.
Orbiter excels at Accurate Lap and Split Timing. This is done using a “Localized” rather than a “Cloud” based timing system. Special software inside the RFID reader is also used.

The indoor track and outdoor PATH event are just examples of the versatility of our system that CLOUD systems have difficulty doing. Whether big or small Orbiter times them all.

**Indoor Track- Timer and Lap Counter**

Your indoor track was an expensive asset to install.

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