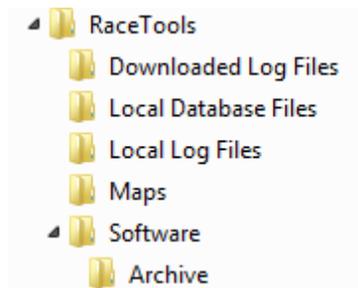


Race Tools Manual v2.b

Race Tools is a software package designed to efficiently summarize timing data provided by the sanctioning series' pit lane real time data feed. It allows for easy tracking of cars on track, summaries of performance indices, real-time lap performance and projections, and strategy management. There are also additional features designed to aid the user with summarization of session and race performance. In addition, the software is highly user configurable to allow for analysis and formatting tailored to the users specific display needs.

Suggested Initial File Structure

In order to streamline the installation of the software and downloading of associated files, an initial file structure similar to the following should be set up.

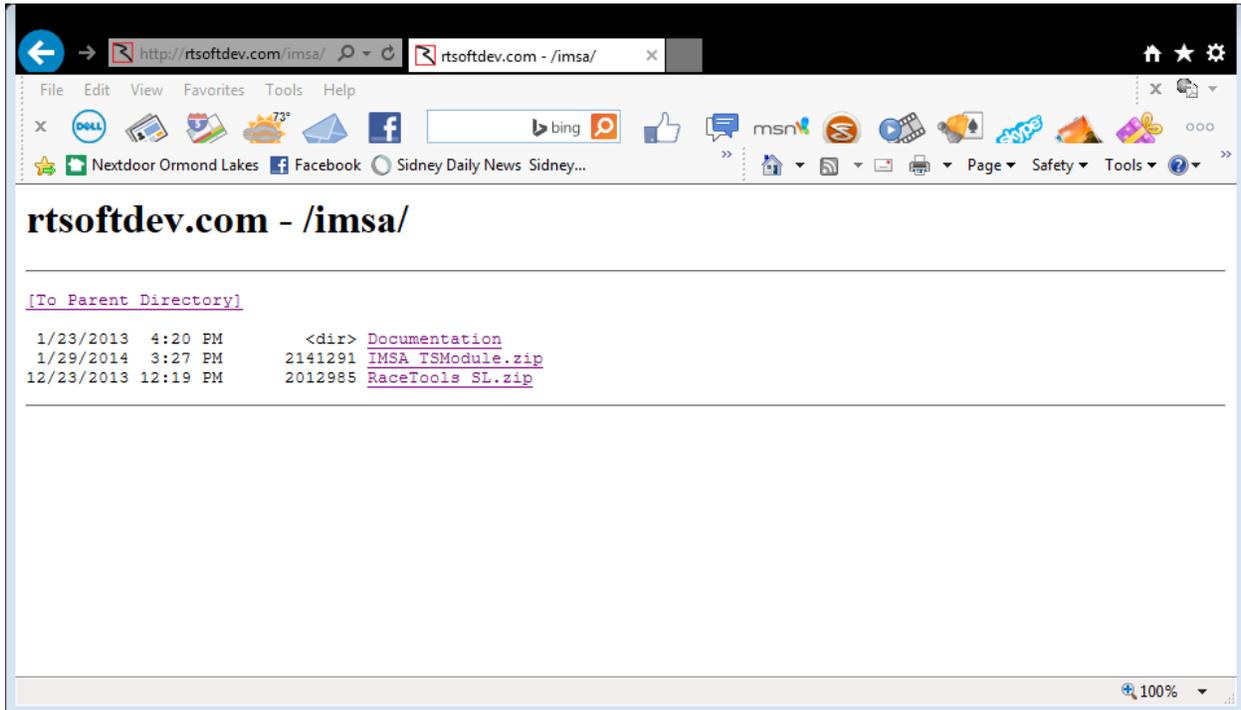


This initial structure allows for efficient management of files used for and created by the software. Below is a summary of the use for each folder.

- Downloaded Log Files – this folder is used to store files that are downloaded post session/event from the Realtime Software Development site at <http://rtsoftdev.com/logfiles/> (RTS web site)
- Local Database Files – this folder provides a location to save the database files that are created locally by the software from the incoming data stream (setup explained later in manual)
- Local Log Files – this folder provides a location to save the log files that are created locally by the software from the incoming data stream (setup explained later in manual)
- Maps – this folder is the local archive of maps that will be used for the season. Maps are available at <http://rtsoftdev.com/maps/> or provided via email when updates are required
- Software – This is the location of the software will be downloaded to and run from.
- Archive – This folder provides a place to keep previous versions of the software, leaving them available for use if needed

Downloading the Software

The software is available for download at <http://rtsoftdev.com/imsa/>. This site contains the zip file for the software: IMSA TSMModule.zip.



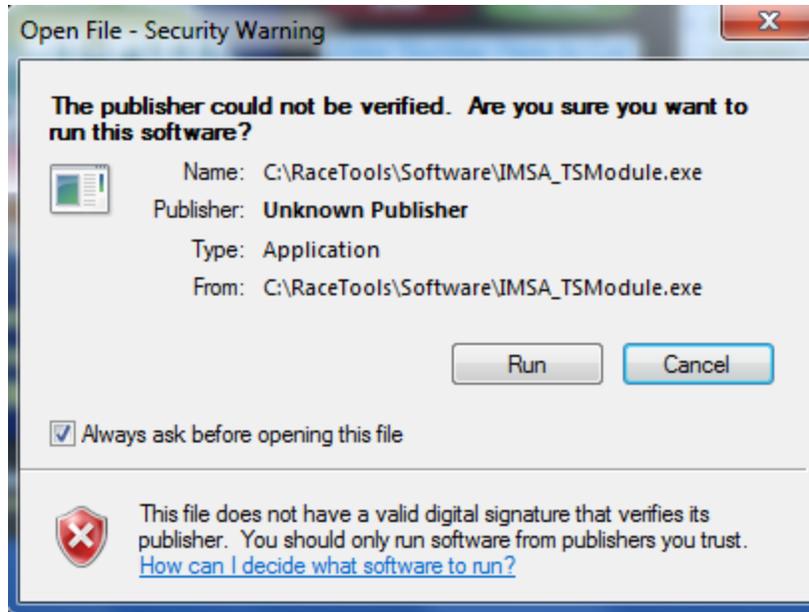
The software can be placed wherever the user determines best, but a structure similar to that outlined above would place the software into the RaceTools\Software folder. Once downloaded, the folder needs to be “unzipped” in order to extract the software. Only one file will typically be contained in the folder.

First Time Use

The software works like any other executable file on a computer, simply double click the icon/file (or select the file and hit the “Enter” key) and the program will load.

Note that a shortcut on the desktop is the easiest method to load the software. Simply right click the executable file and select “Create Shortcut” (or “Send To Desktop”) and place this on the desktop or location of choice.

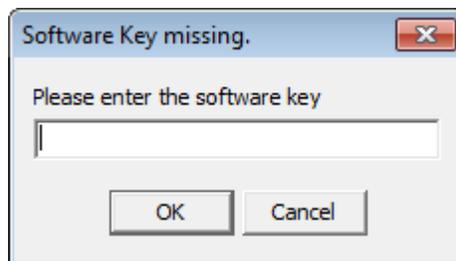
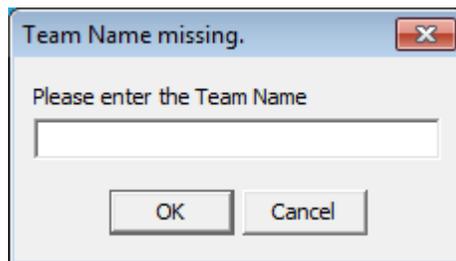
On some computers, the user may be prompted with an “Open File – Security Warning”.



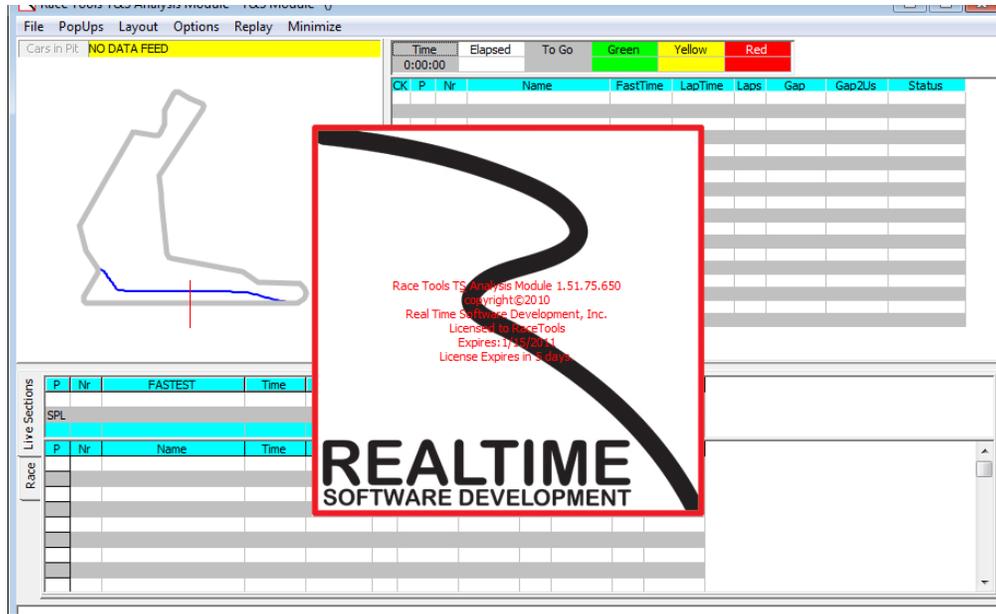
It is best to de-select the check box for “Always ask before opening this file” so that this prompt does not appear each time the software is loaded. Select “Run” in the window.

Before the software fully loads a track map needs to be selected and the user license information entered. If a track map is not available or needed, this step can be skipped.

A prompt for the Team Name and Software Key will come up automatically the first time the software is loaded. This will not be seen again until the license expires or new software is loaded from a new file location.



It is suggested that a .txt file be created with the team name and software key. This can be stored in the Race Tools main directory for access in case of issue or for distribution to other team members. Once these initial steps are completed, the software should load and be ready for use.



Note that a shortcut on the desktop is the easiest method to load the software. Simply right click the executable file and select "Create Shortcut" (or "Send To Desktop") and place this on the desktop or location of choice.

Software and Window Layout

The layout consists of 4 distinct windows under the typical dropdown menus at the top left. The four windows will be referred to as the Track Map, Session Results, Live Sections/Pit Window/Graphing, and Announcements windows. Each section is labeled below.

The screenshot displays the 'Race Tools T&S Analysis Module - T&S Module SC Qualifying (IQ01)' window. The interface includes a menu bar with 'File', 'PopUps', 'Layout', 'Options', 'Replay', and 'Minimize'. Below the menu bar, there are four distinct windows:

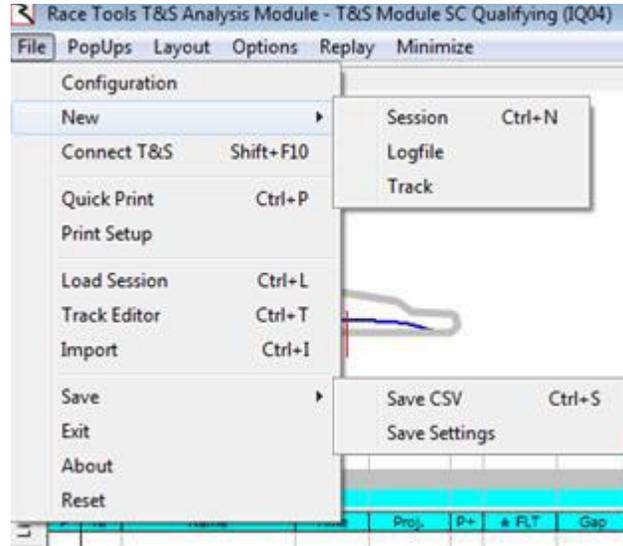
- Track Map:** A window showing a track layout with a blue line indicating a lap. A red vertical line marks a specific point on the track.
- Session Results:** A window displaying a table with columns for 'Time', 'Elapsed', 'To Go', 'Green', 'Yellow', 'Red', and 'UNKNOWN'. Below this is a table with columns for 'CK', 'P', 'Nr', 'Name', 'FastTime', 'LapTime', 'Laps', 'Gap', 'Gap2Us', and 'Status'.
- Live Sections/Pit Windows/Graphing:** A window displaying a table with columns for 'P', 'Nr', 'FASTEST', 'Time', 'Proj.', 'P+', '107%', 'FL', 'FastTime', 'Lap', 'P1 Time', and 'P1'. Below this is another table with columns for 'P', 'Nr', 'Name', 'Time', 'Proj.', 'P+', '# FLT', 'Gap', 'FL', 'FastTime', 'Lap', and '# P1'.
- Announcements:** A window at the bottom of the interface, currently empty.

Each section has its own distinct menus that can be accessed via right click. These will be explained later in the manual.

Dropdown Menus

File

Clicking the “File” button opens a Menu with numerous functions.



Configuration

Initial Software Configuration

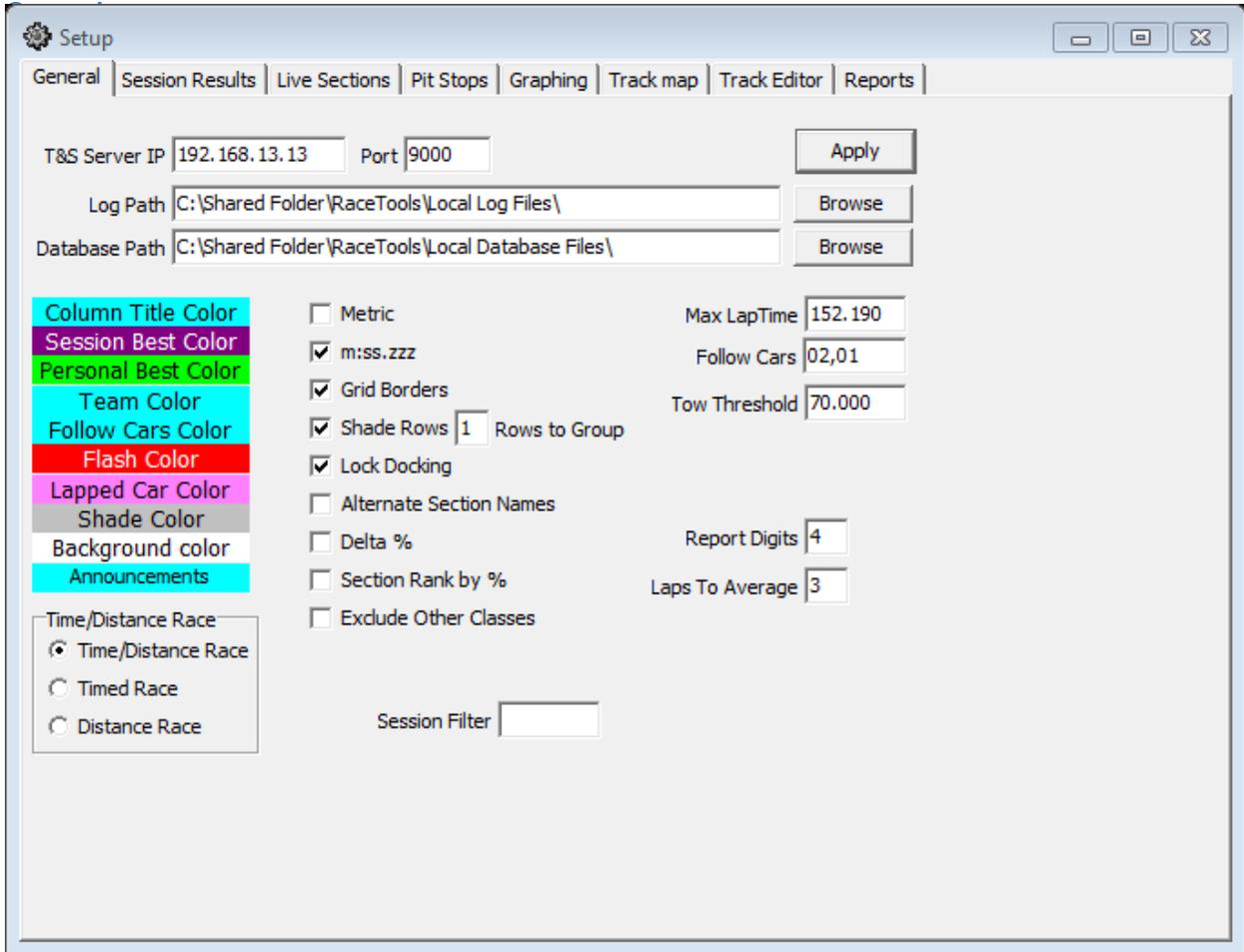
To access the configuration settings for the software, select File → Configuration.

The downloaded software should be configured to function with the current pit lane timing feed settings.

As can be seen below, the appropriate server IP and port to use are IP 192.168.13.13 and port 9000.

Check with provider to confirm settings.

NOTE: Hovering the mouse over an item will, in most cases, produce a screen tip with help on using the item.



- T&S Server IP – IP address or hostname of Timing and Scoring data feed.
- Port – Port number of Timing and Scoring data feed.
- Log Path – Where to save log or replay files. Used to replay sessions.
- Database Path – Where to store database or session files (used to reload sessions).

In addition to setting the IP and port, the location of the software created log and database files can be set. When the software receives information from the pit lane timing feed, a log file that can be used for replay is automatically created and stored in the folder you specify. In addition, a database file is also created. This database file can also be loaded with the software, but does not allow for replay. This will be explained in more detail later. Simply set the location by browsing to the appropriate folder(s).

The Column Title Color, Session Best Color, Personal Best Color, Team Color, Follow Cars Color, Flash Color, Lapped Car Color, Shade Color, Background Color, and Announcements color and font can be set by simply double-clicking the text of the desired parameter. Note that the parameter text in the configuration menu shows the current color configuration. Upon action, a color prompt will appear. Select the desired settings and press “OK”.



Example of color selection dialogs

- Column Title Color – the background color of the column headings for the Session Results and the Live Sections.
- Session Best Color – Used to highlight times that are P1 or Better.
- Personal Best Color – Used to highlight times that are personal best or better.
- Team Color – the color that the specified team car and corresponding rows of data will be colored for easy recognition (first car in the team cars list).
- Follow Cars Color – Used to highlight cars that are in the Follow Cars list.
- Flash Color – Used to highlight team car that needs to pit.
- Lapped Car Color – Used to highlight Lap/Gap fields of lapped cars during a race.
- Shade Color – Used to Shade even rows when Shade Rows option is enabled. Odd numbered rows use the background color.
- Background Color – Used to set the Application background color.
- Announcements – Announcements area changes to this color when new announcements are received.

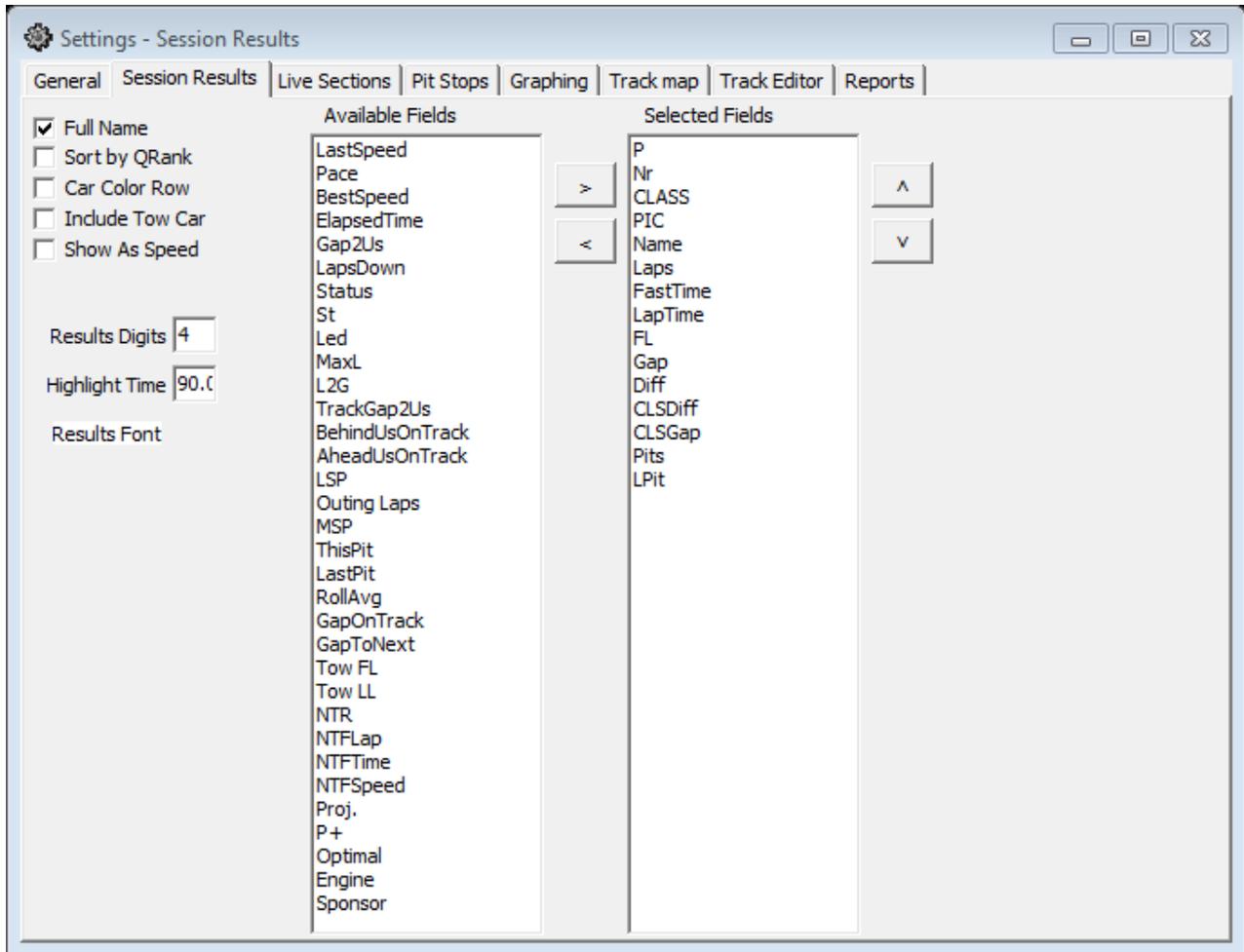
The remaining parameters allow setting formatting or calculation thresholds.

- Metric – Display distances and speeds in Metric (Km, kph) instead of imperial units (mile, mph).
- m:ss:zzz – Display times in minutes and seconds (m:ss:zzz) instead of just seconds (s.zzz).
- Grid Borders – Draw lines to separate rows and columns in tables.
- Shade Rows – Shade even/odd rows in tables. Set Shade Color for even rows.
- Rows to Group – Number of rows to group for shading.
- Lock Docking – Disable docking and undocking.

- Alternate Section Names – Use user defined section names in place of standard section names.
- Delta % - Display Deltas as % instead of time or speed. Setting used in F1 – Best Splits and F4 – Best Lap reports.
- Section Rank by % - Rank Section Time Delta by % instead of time lost. Applies to Fastest Splits Summary and Track Map Analysis color coding. Default Rank by time shows where you are losing the most time, while Rank by % shows which sections you are most off the pace, regardless of the time lost.
- Exclude Other Classes – Exclude other classes when calculating session best times. Reports use class leader instead of overall leader for comparisons.
- Session Filter – Only process data for the specified session. Clear to disable filter.
- Max LapTime – Used to filter out slow laps from average calculations. Laptimes above Max Laptime are ignored for average laptime calculations.
- Follow Cars – Highlight comma delimited list of cars in reports. First car listed is the Team Car, others are highlighted in the reports using the Follow Cars Color.
- Tow Threshold – Seconds behind previous car to use to classify if the lap was tow assisted.
- Report Digits – Precision to display in reports.
- Laps To Average – Laps to use to calculate the Average Laptime used for calculating Laps To Go.

Session Results

The fields in the right side display in the “Session Results” portion of the program display cars in order of their standings in the session. You can add or subtract fields and arrange them in the order you prefer.



- Full Name – Display First and Last Name instead of First Initial and Last Name.
- Sort By QRank – Show competitors in Qualifying Rank order, overriding the default order.
- Car Color Row – Use Defined Car Color if available.
- Include Tow Car – Include car providing Tow in TowFL and TowLL columns.
- Show As Speed – Show times as Speed for fields that don't have corresponding Speed Columns, ie. Pace, Proj and Q Lap time/speeds.
- Results Digits – Precision to display times in Results table.
- Highlight Time – Time in seconds to highlight a S/F crossing. Set to zero to disable.

- Results Font – Double Click to set the Results Font.

The screenshot displays the 'Race Tools T&S Analysis Module' for a Mazda Raceway Laguna Seca race. The main window is divided into several sections:

- Track Map:** A top-left view of the race track with numbered sectors (1-11) and colored flags (Green, Yellow, Red) indicating the status of different cars.
- Session Results Table:** A table with columns: CK, P, Nr, CLASS, PIC, Name, Laps, FastTime, LapTime, FL, Gap, Diff, CLSDiff, CLSGap, Pits, Lpit, ElapsedTime. It lists drivers like Jordan Taylor, Ryan Dalziel, Richard Westbrook, etc.
- Live Sections Table:** A table with columns: Nr, Name, Total, Fuel, Next(#RQ), Stop N, PitTime, Stop -1, PitTime. It shows fuel consumption and pit stop data for various drivers.
- Popup Menu:** A context menu is open over the track map, listing options such as 'Edit Column', 'Insert Column', 'Delete Column', 'Copy To Clipboard', 'Copy to Clipboard (CSV)', 'Print', 'Full Name', 'Set Lap Factor', 'Show As Speed', 'Sort by QRank', 'Classes', 'Select All', 'Clear All', 'Find Car', and 'Flip with Track Map'.

Enhancements:

- When replaying a logfile, the Replay menu displays the progress (lines read / lines total - % complete). This helps provide feedback on whether the replay is in progress, paused or not active.
- 'Flip with Track Map' option added to Session Results popup menu to swap the positions of the track map and the Session Results.
- You can quickly select the 'Team Car' and add it to the Follow Cars list by SHIFT+Clicking the line in the Session Results table or use the 'Find Car' menu (CTRL+F, or type a numeric key with the Session Results table selected). The last car selected is added or moved to the front of the Follow Cars list (making it the primary team car to highlight on the track map and analysis). If the car was previously selected it is moved to the front of the list. To clear all of the cars from the list, enter a 'X' in the Find Car requestor. This allows you to quickly find a car in the results and/or on the track map.

Live Sections

Live Sections Options

- **Reset on New Session** – Reset columns on new session. Automatically adjusts for any changes in track configuration between sessions.
- **Basic Fields Only** – Only display a subset of the Live Sections Columns.
- **Sort By Track Position** – List competitors based on track position instead of rank.
- **Clear Sections on New Lap** – Clear section times with each new lap instead of keeping old section times visible. Current section times underlined in blue if disabled.
- **Show All Cars** – Show all cars even if a subset is selected.
- **Show As Speed** – Show as speed instead of time.
- **Hide Deltas** – Hide section Delta columns.
- **Only Deltas** – Show only Delta times, hide section times.

- $\pm P1 = Proj - P1 \text{ Time}$ – Calculate $\pm P1$ using projected laptime instead of comparing time to line versus P1's best lap.
- Delta vs. Session Best Splits – Select type of Delta to display.
- Delta vs. Personal Best Lap – Select type of Delta to display.
- Delta vs. P1 Best Lap – Select type of Delta to display. Also applies to how Live Sections are highlighted, compared to best laps or best splits.

Sections to Display

- Track Sections (Sn/Tn) – Display physical track sections. Use Track Editor to view/edit section types.
- Intermediates (In) – Display Intermediate track sections (grouped physical sections to reduce the number of sections to analyze). Use Track Editor to view/edit section types.
- Logical Sections (Ln) – Display Logical Sections. Use Track Editor to view/edit section types.
- Pit Sections (Pn/Pxx) – Display Pit Lane sections. Use Track Editor to view/edit section types.
- Speed Traps – Display speed traps. Use Track Editor to view/edit section types.
- Custom Sections – Display user defined sections. Use Track Editor to view/edit section types.

Fastest Splits Options

- Fastest Splits Table – Display Fastest Splits summary above Live Sections table.
- Team Car Comparisons – Display Team Car rows in Fastest Splits Summary Table.
- Delta Rank – Display Team Car's Optimal and Fast Lap delta and rank for each section.
- Team Current Lap Row – Display Team Car's current lap section deltas versus comparison lap.
- Best Splits Comparison – vs. Session Optimal – vs. P1 Optimal – Define Best Splits to display, either the session's optimal lap or P1's optimal lap.

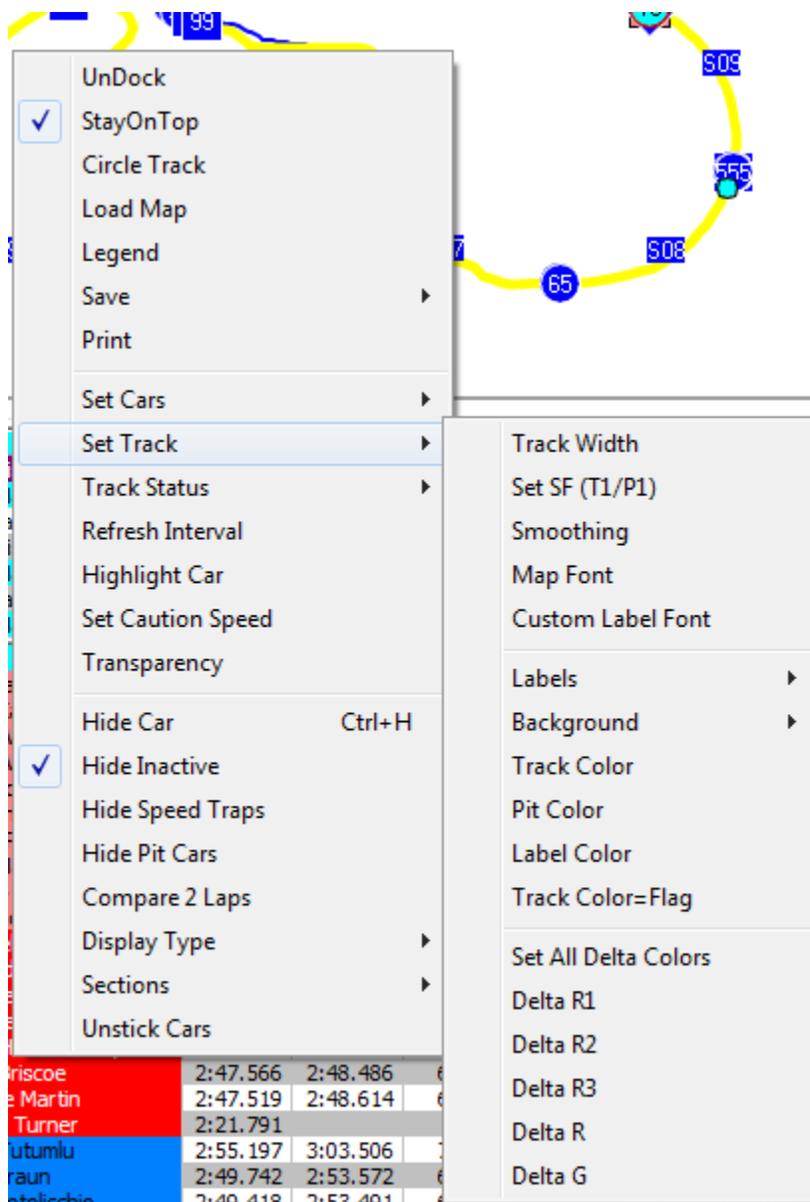
Live Sections		Nr	FASTEST	Time	± FLT	0%	FL	FastTime	Lap	P1 Time	S01	S02	S03	S04	S05
SPL	5	Christian Fittipaldi	1:39.754	1:39.754				1:39.754		99.754	10.797	22.461	19.312	7.049	5.718
SPL	10	Wayne Taylor	0.223				0.223				-0.041	0.116	0.043	0.005	0.013
SPL		Rank (% Loss)	4 (-100%)								5 (-18%)	10 (-52%)	17 (-19%)	4 (-2%)	4 (-6%)
FL	5	Christian Fittipaldi	1:40.351	1:40.351							41	22.461	19.337	7.098	5.775
FL	10	Wayne Taylor	0.215								159	0.116	0.018	-0.030	-0.006
FL		Rank (% Loss)									376%	7 (-54%)	8 (-8%)	2 (14%)	2 (3%)
	10	Wayne Taylor	1:44.663	1:40.566	0.0										
Race		P	Nr	Name	Time	Proj.	±								
	1	5	Christian Fittipaldi	1:41.300	1:41.159										
	2	02	Tony Kanaan	1:41.916	1:41.246										
	3	42	Oliver Webb	1:45.267	1:41.490										
	4	10	Wayne Taylor	1:44.663	1:40.566										
	5	01	Memo Rojas	1:43.268	1:41.158										
	6	90	Michael Valiante	1:41.880	1:40.523										
	7	60	Justin Wilson	1:41.296	1:41.286										
	8	9	Fabien Giroix	1:44.391	1:43.637										
	9	6	Alexander Brundle	1:42.152	1:43.185										
	10	78	EJ Viso	1:45.622	1:41.099										
	11	91	Dominik Farnbacher	1:46.311	1:45.668										
	12	93	Kuno Wittmer	1:45.888	1:46.397										
	13	911	Patrick Pilet	1:46.434	1:45.618										
	14	912	Michael Christensen	1:47.061	1:45.463										
	15	56	Graham Rahal	1:48.247	1:47.159										
	16	3	Ryan Briscoe	1:47.773	1:46.154										
	17	4	Robin Liddell	1:48.393	1:45.876										
	18	55	Maxime Martin	1:49.937	3:36.375	10%									
	19	7	Martin Fuentes	1:48.244	1:45.718										
	20	97	Darren Turner	1:48.487	1:46.915										
	21	54	Colin Braun	1:49.958	3:34.178	10%									
	22	31	Bradley Smith	1:44.280	1:43.964										
	23	25	Potolichio/Kimber-Smith	1:46.218	1:45.393										
	24	08	Chris Cumming	1:46.163	1:44.484										
	25	87	James Kovacic	1:46.150	1:45.228										
	26	57	Peter Dumbreck	1:48.588	1:48.819										
	27	555	Jeff Segal	1:48.651	1:48.298										
	28	23	Mario Farnbacher	1:49.601	1:49.446										
	29	81	Faulkner/Huisman/Faieta	1:49.595	1:49.610										
	30	22	Shane van Gisbergen	1:49.049	1:49.426										
	31	48	Bryce Miller	1:48.863	1:48.815										
	32	58	Marco Seefried	1:50.625	1:48.857										
	33	94	Paul Dalla Lana	1:50.738	1:49.139										
	34	38	David Ostella	1:46.373	1:46.561										
	35	45	Markus Winkelhock	1:49.214	1:48.181										
	36	28	Klaus Bachler	1:49.690	1:49.069										

The top of the Live Sections table has been enhanced with more analysis information. The top three rows are for the 'Best Splits' (SPL), with the top row being the Optimal Lap (best splits for all competitors in session if the vs Session Optimal option is selected) or Best Splits for P1 (if the vs P1 Optimal is selected). The second row is the team car's optimal lap information. The section times are deltas Row 1. The third row is the Section Rank and % lost or gained, just like in the track maps. These also support the same color coding as the track maps to highlight the sections where the most time is lost. If you do not want these sections highlighted, set DeltaR1=DeltaR2=DeltaR3=DeltaR. The next three rows are for the 'Fast Lap' (FL), with the first row (Row 4) being the session's fastest lap, the second row is the team car's fastest lap, and the third row is the team's section rank and % time lost or gained.

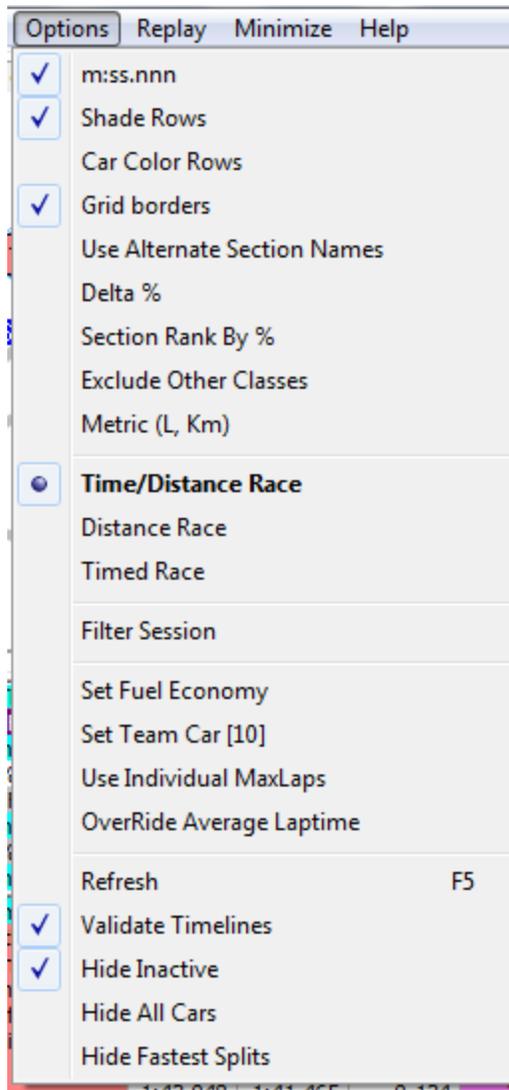
The last row is the 'Live Section' for the team car. It is almost identical to the Live Sections table below except that we display the section deltas instead of section times and section deltas are highlighted green if the section is faster than the team's best lap. You can hide the Rank (% Loss) rows (Rows 3 and 6) with the popup menu 'Hide Delta Rank' option. If no team cars are selected, the Team and Rank rows (Rows 2, 3, 5, 6, and 7) will be hidden. You can hide the whole top table using the main menu Options/Hide Fastest Splits option.

In the example below, I have selected Car 11 (click the 'CK' column in the Session Results table for the car and an 'X' will mark the selected cars) and disabled the 'Show All Cars' popup menu option. Note that if no cars are selected, the 'Show All Cars' will be enabled which means at the start of each session, before cars are in the table, the 'Show All Cars' will be re-enabled since no cars can be selected. This allows you to reduce the height of the window if you only want to see section data for your own car(s).

You set these colors with the new DeltaR1, DeltaR2, DeltaR3, DeltaR and DeltaG menu items found on the Track Map popup menu. The 'Set All Delta Colors' option prompts for all 5 colors consecutively if you want to review or change all of them.



You can hide the top section completely with the 'Hide Fastest Splits' menu option in the 'Options' dropdown menu.



Pit Stops

Settings - Pit Stops

General | Session Results | Live Sections | Pit Stops | Graphing | Track map | Track Editor | Reports

draw All Pitstops
 draw Tire Type
 draw Pit Lap #
 Show All Cars
 Zoom In
 Use Individual Max Laps
 Over Ride Average Lap Time
 Average Lap Time
 Minimum Pit Stop Time
 Pit Stop Digits
 Pit Stop Font

Fuel Economy

Green 3.2000 MPG 1.112 g/Lap 17.98 laps/tank
 Yellow 8.0000 MPG 0.445 g/Lap 44.94 laps/tank

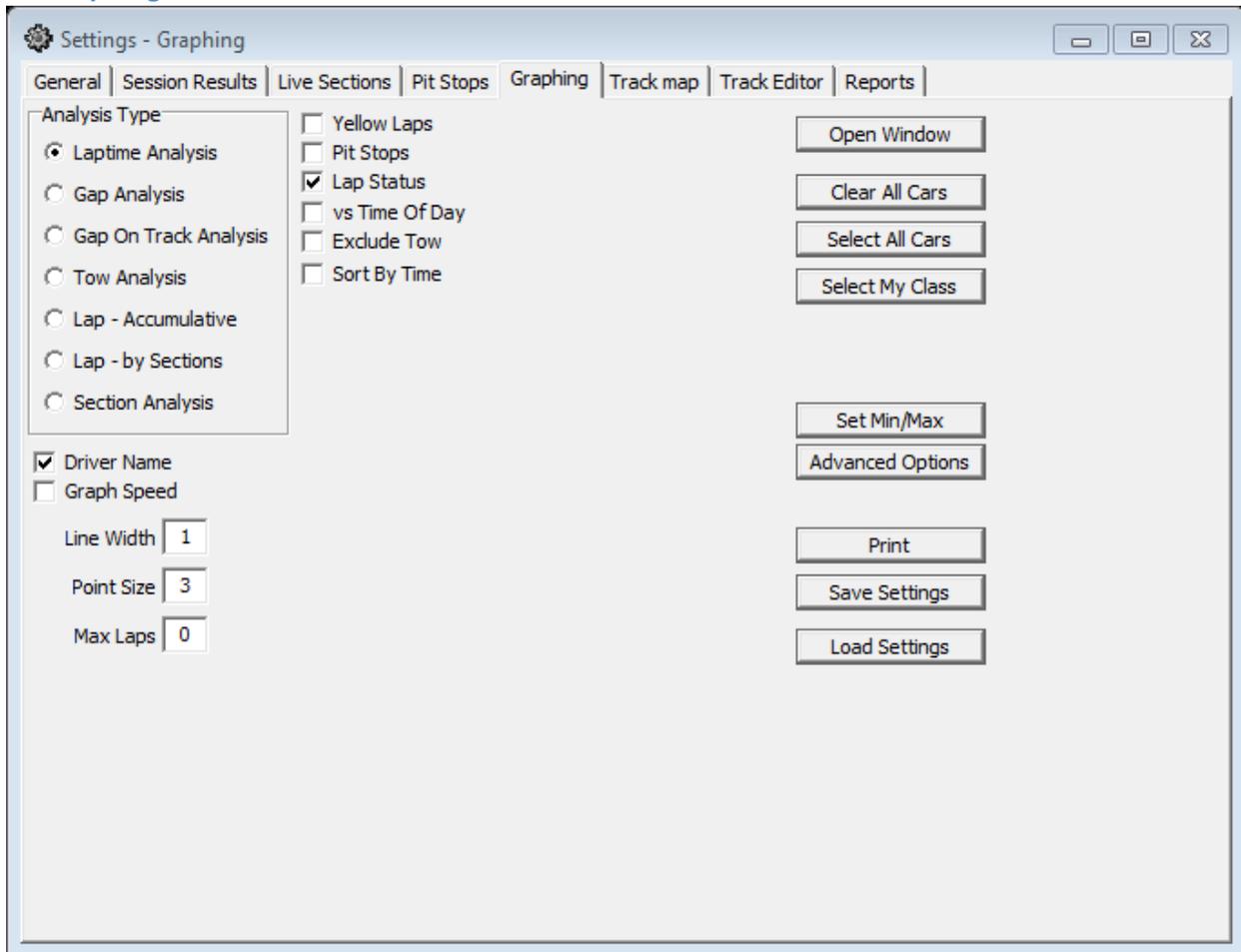
Track Length Miles Duration
 Race Laps -0.9 stops
 Pace Laps
 Capacity Gallons

CLS	Car	Driver	(mpg)	(mpg)	Capacity
P	0	Andy Meyrick	3.20	8.00	0.00
P	1	Scott Sharp	3.20	8.00	0.00
P	2	Johannes van Over	3.20	8.00	0.00
GTU	3	Jan Magnussen	3.20	8.00	0.00
GTU	4	Oliver Gavin	3.20	8.00	0.00
P	5	Joao Barbosa	3.20	8.00	0.00
P	6	Klaus Graf	3.20	8.00	0.00
PC	7	Pierre Kaffer	3.20	8.00	0.00
PC	8	Renger van der Zand	3.20	8.00	0.00
P	9	Burt Frisselle	3.20	8.00	0.00
P	01	Scott Pruett	3.20	8.00	0.00
P	02	Scott Dixon	3.20	8.00	0.00
P	07	Joel Miller	3.20	8.00	0.00

- Draw All Pit Stops – Render all pit stops in Pit Stop Window graph.
- Draw Tire Type – Render Tire Type for each stint.
- Draw Pit Lap # - Render Lap Pitted instead of Car Number for each pit stop.
- Show All Cars – Show All Competitors even if a subset is selected.
- Zoom In – Only include laps 1 ½ pit windows before and 2 pit windows after the Team Car's current lap. Useful for endurance races with many pit stops.
- Use Individual Max Laps – Use individual Max Laps (laps to go) to calculate pit windows instead of the leader's Max Laps/Laps To Go.
- Over Ride Average Lap Time – Use custom average lap time to calculate TEAM Laps To Go (and pit windows) instead of rolling Green Lap average. Only applicable for times sessions.

- Average Lap Time – Average Lap Time to use instead of the Rolling Green Lap Average when ‘Over Ride Average Lap Time’ is enabled. Used for calculating Laps To Go and Pit Windows. Double click to reset to current Rolling Average.
- Minimum Pit Stop Time – Set minimum pit lane time for a stop. Pit times below this threshold are treated as a drive through and the fuel counter is not reset.
- Pit Stop Digits – Number of digits to display for pit stop times.
- Green MPG – Green Lap Fuel Economy.
- Yellow MPG – Yellow Lap Fuel Economy.
- **g/lap** – Amount of fuel used per Green Lap.
- **g/lap** – Amount of fuel used per Yellow Lap.
- **laps/tank** – Number of Green Laps possible per tank of fuel.
- **laps/tank** – Number of Yellow Laps possible per tank of fuel.
- Track Length Miles – Track Length. Will be updated via data feed where available.
- Race Laps – Distance of race in laps.
- Pace Laps – Number of Pace Laps. Used to calculate fuel used.
- Capacity Gallons – Car fuel tank capacity. Used to determine laps per tank and pit windows.
- Duration – Duration of race for Timed races. Used to calculate pit windows before the race.
- **Laptime** 00:00:000 – Average Green laptime. Used to calculate pit windows before the race.
- **Pit Time** – Time lost for pit stop. Used to calculate pit windows before the race.
- **Laptime** 00:00:000 – Average Yellow laptime. Used to calculate pit windows before the race.
- **Laps** – Number of Yellow laps anticipated. Used to calculate pit windows before the race.
- Calc – Calculate Pit Windows based on entered values. Used before the race to calculate pit windows.
- Reset – Apply Fuel Economy to all cars in the list, set as default.
- Save – Apply and Save Fuel Economy changes.

Graphing



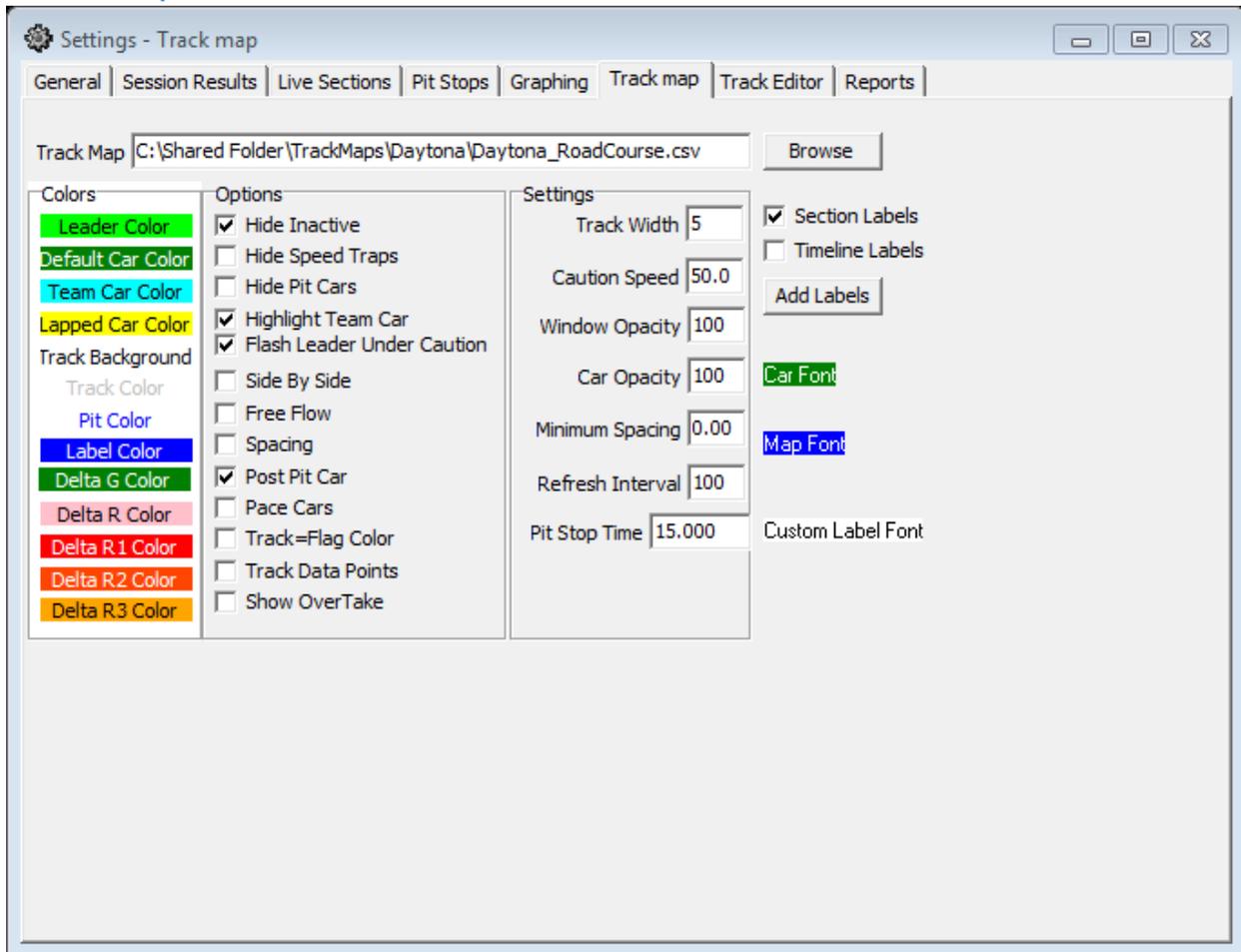
Analysis Type – Select from the list the type of graph you would like to create.

- Laptime Analysis
- Gap Analysis
- Gap On Track Analysis
- Tow Analysis
- Lap- Accumulative
- Lap – by Sections
- Section Analysis

- Driver Name – Display Driver Name in the legend.
- Graph Speed – Graph Speed instead of Time.
- Yellow Laps – Render Yellow Laps with a yellow line.
- Pit Stops – Render Pit Stops with red line/point.
- Lap Status – Render Lap Status (Yellow Laps) in background to identify caution laps.

- Vs. Time Of Day – Use TOD for x axis instead of lap number.
- Exclude Tow – Exclude Tow Laps from analysis.
- Sort By Time – Render times sorted by time instead of lap number or TOD.
- Open Window – Open Graph Popup Window.
- Clear All Cars – Clear all cars from graph. Use to reset car selection.
- Select All Cars – Select all cars to analyze.
- Select My Class – Select all cars in my class to analyze.
- Set Min/Max – Set Y axis maximum and minimum values.
- Advanced Options – Open Chart Editor to access advanced Chart properties.
- Print – Print Graph.
- Save Settings – Save Advanced Graph properties to a file.
- Load Settings – Load Advanced Options settings previously saved with Save Settings.

Track Map



- Track Map – Use the Browse button to find and load the Track Map.
- Colors – Double click on the items in the list to select or change the color of the selected item. Items are rendered in these colors on the Track Map.
- Hide Inactive – Hide Inactive cars (cars that have not had a line crossing for more than 3 laps).
- Hide Speed Traps – Don't render Speed Traps.
- Hide Pit Cars – Don't render cars in Pit Lane.
- Highlight Team Car – Render Team Car opaque and flash outline to help quickly identify the Team Car on the Track Map.
- Flash Leader Under Caution – Flash leader Car outline to help quickly identify the leader during a caution.
- Side By Side – Render 3 cars wide on Track Map. Useful on ovals when cars are running close together.

- Free Flow – Allow projected track positions to pass cars between timelines. Used in RIS version.
- Spacing – Render cars with a gap between cars to help identify cars close together.
- Post Pit Car – Draw where Team Car will be after a pit stop. The marker is rendered Pit Stop Time behind the Team Car.
- Pace Cars – Include Pace Car if available.
- Track =Flag Color – Render Track in the same color as the Flag.
- Track Data Points – Don't clear trackmap between updates. Leaves a trail of cars.
- Show Over Table – Highlight cars (Green with Red outline) when OverTake) activated.
- Track Width – Width of track outline.
- Caution Speed – Default caution speed. Calculate track position using this speed when under caution.
- Window Opacity – Window opacity when track is undocked.
- Car Opacity – Render car with transparency. Useful for being able to see below the other cars when cars are running close together. 100=opaque, 0=invisible.
- Minimum Spacing – Minimum space between cars rendered on track.
- Refresh interval – Interval in ms between trackmap updates. Default in 100ms (10Hz).
- Pit Stop Time – Time lost due to pit stop, including inlap, pit stop, and outlap compared to a regular lap. Used to draw the Post Pit Car.
- Section Labels – Show section labels on track map.
- Timeline Labels – Show timeline labels on track map.
- Add Labels – Add Custom Labels to track map. Use to number corners or other features.
- Car Font – Double Click to set Car Number Font for track map.
- Map Font - Double Click to set Map Standard Label Font used for section and time line labels for track map.
- Custom Label Font – Double Click to set Map Custom Label font.

Track Editor

- Track Editor – In the event that a supplied track .csv file needs modification, or of the user desires to apply aliases to the track sections, the track editor can be used to change editable parameters such as distances, Start/Finish Codes, min split times, split numbers, etc. See example of Daytona below. Note that at some road/street courses, the Finish, Start, and/or Pit Control lines might not be “SF”/“SFP” for some practice and qualifying sessions. Confirm Control Lines with the track map.

Settings - Track Editor

General
Session Results
Live Sections
Pit Stops
Graphing
Track map
Track Editor
Reports

Name

Venue

Track Length (miles)

Tow TimeLines

Control Lines

Finish (SF) Pit (SFP)

Start (SF)

Blend Pit Blend Track

Stint Start Stint End

Special Sections

Pit Lane

In Lap

Out Lap

Units

metres

inches

miles

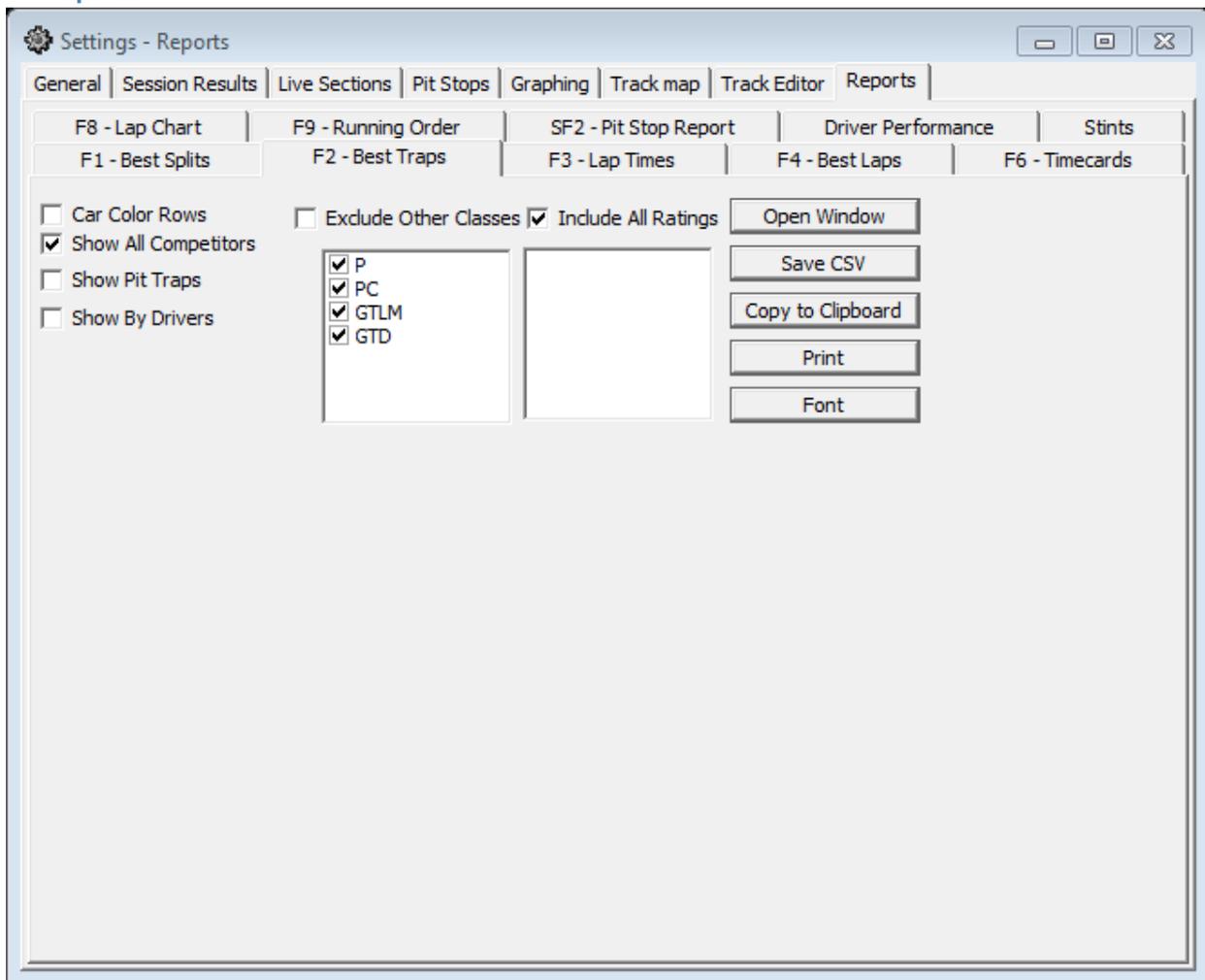
TL	Distance	Track	Pit	Activ
T1	0	T1	N	Y
P1	0	T1	Y	Y
T2	22512	T2	N	Y
P2	22512	T2	Y	Y
T3	64752	T3	N	Y
T4	92976	T4	N	Y
T5	110832	T5	N	Y
T6	128532	T6	N	Y
T7	145656	T7	N	Y
T8	162792	T8	N	Y
T9	180276	T9	N	Y
TA	198084	TA	N	Y
TB	213480	TB	N	Y
PB	213480	TB	Y	Y
TC	214920	TC	N	Y

SEC	ALIAS	START	END	Length	MinTime	PHY	LOG	SPD	PIT	INT	CUS
S01	S01	T1	T2	22512	5.1160	Y					
S02	S02	T2	T3	42240	9.6000	Y					
S03	S03	T3	T4	28224	6.4150	Y					
S04	S04	T4	T5	17856	4.0580	Y					
S05	S05	T5	T6	17700	4.0230	Y					
S06	S06	T6	T7	17124	3.8920	Y					
S07	S07	T7	T8	17136	3.8950	Y					
S08	S08	T8	T9	17484	3.9740	Y					
S09	S09	T9	TA	17808	4.0470	Y					
S10	S10	TA	TB	15396	3.4990	Y					
S11	S11	TB	TC	1440	0.3270	Y					
S12	S12	TC	T1	10642	2.4190	Y					
LAP	LAP	T1	P1	225562	51.2640		Y				
PIT	PIT	PB	P2	34594	7.8620				Y		
SPI	SPI	TB	TC	1440	0.3270			Y			
IL	IL	T1	PB	225562	51.2640		Y				
OL	OL	P2	T1	225562	51.2640		Y				

- Name – Track Name, updated with data feed when available.
- Venue -Venue Name, updated with data feed when available.
- Track Length (miles)- Track Length, updated with data feed when available.
- Tow Timelines – Tow Timelines, updated with data feed when available.

- Track TimeLine and Section tables are updated with data feed when available. You will use information from these tables to fill in the boxes under Control Lines and Special Sections. This is very Important since this data will be used in compiling various reports and graphs.
- Finish (SF) – Finish Line label. VERY IMPORTANT.
- Start (SF) – Start Line label, usually the same as Finish Line unless there is a remote start line.
- Blend Pit – Pit Lane Blend Line.
- Stint Start – Stint Start Line.
- Pit (SFP0 – Pit Lane S/F Line. If Pit Lane does not cross SF Line, use SF line.
- Blend Track – Track Blend Line.
- Pit Lane – Pit Lane Section from Pit-In to Pit-Out. See section table for details.
- In Lap – In Lap section from SF to Pit-In. See section for details.
- Out Lap – Out Lap Section from Pit-Out to SF line.
- Units – Units to use in Timeline and Section tables.
- Add Section – Add Custom Section. Group Physical Sections into other sections for analysis.
- Regenerate Section Times – Recalculate all section times using line crossing data. Automatically called when adding or deleting sections.
- Load – Load track configuration.
- Save – Save and apply track configuration.

Reports



The Reports Tab contains multiple options for Reports that can be printed or saved to a file

- F1 – Best Splits

F1 - Best Splits Analysis [PR01 at 2:56:43.000]

Theoretical	Delta	FL-OL	S01	Delta	R01	S02	Delta	R02	S03	Delta	R03	S04	Delta	R04
1:39.806	-0.717	1.124	10.802	0.227	9	22.488	0.031	2	19.312	0.303	14	7.049	0.005	2
1:40.124	-0.399	0.771	10.826	0.251	10	22.599	0.142	8	19.287	0.278	11	7.070	0.026	6
1:40.021	-0.502	0.545	10.756	0.181	5	22.577	0.120	7	19.355	0.346	17	7.054	0.010	3
1:40.177	-0.346	0.922	10.727	0.152	3	22.650	0.193	9	19.306	0.297	13	7.083	0.039	8
1:40.349	-0.174	0.727	10.781	0.206	7	22.505	0.048	5	19.218	0.209	4	7.163	0.119	13
1:39.799	-0.724	0.784	10.848	0.273	14	22.457	0.000	1	19.355	0.346	18	7.044	0.000	1
1:40.393	-0.130	0.765	10.844	0.269	13	22.660	0.203	10	19.352	0.343	16	7.079	0.035	7
1:40.932	0.409	0.968	10.945	0.370	17	22.704	0.247	12	19.507	0.498	21	7.146	0.102	11
1:40.685	0.162	0.656	10.838	0.263	12	22.662	0.205	11	19.557	0.548	23	7.172	0.128	14
1:39.883	-0.640	0.640	10.737	0.162	4	22.489	0.032	4	19.330	0.321	15	7.054	0.010	4
1:40.664	0.141	0.968	10.575	0.000	1	22.488	0.031	3	19.018	0.009	2	7.216	0.172	16
1:44.815	4.292	1.048	11.266	0.691	33	23.657	1.200	32	19.829	0.820	30	7.576	0.532	26
1:44.773	4.250	1.106	11.191	0.616	30	23.652	1.195	31	19.851	0.842	31	7.636	0.592	36
1:44.772	4.249	0.852	11.150	0.575	25	23.632	1.175	30	19.887	0.878	33	7.628	0.584	32
1:44.840	4.317	1.021	11.303	0.728	34	23.628	1.171	29	19.742	0.733	28	7.632	0.588	33
1:45.064	4.541	0.576	11.202	0.627	31	23.607	1.150	28	19.739	0.730	27	7.654	0.610	39
1:42.597	2.074	1.412	11.027	0.452	19	23.038	0.581	21	19.164	0.155	3	7.341	0.297	17
1:45.037	4.514	0.830	11.129	0.554	24	23.550	1.093	27	19.682	0.673	26	7.653	0.609	38
1:45.367	4.844	1.035	11.263	0.688	32	23.788	1.331	34	19.920	0.911	34	7.647	0.603	37
1:43.285	2.762	1.116	11.187	0.612	27	22.953	0.496	19	19.289	0.280	12	7.416	0.372	20
1:42.876	2.353	1.379	10.796	0.221	8	23.079	0.622	22	19.246	0.237	7	7.439	0.395	22
1:45.795	5.272	1.130	11.188	0.613	28	23.720	1.263	33	19.881	0.872	32	7.715	0.671	55
1:45.568	5.045	1.048	11.314	0.739	35	23.809	1.352	36	19.942	0.933	35	7.625	0.581	30
1:43.121	2.598	1.012	10.970	0.395	18	23.129	0.672	24	19.275	0.266	10	7.441	0.397	23
1:42.790	2.267	0.629	10.837	0.262	11	22.977	0.520	20	19.009	0.000	1	7.394	0.350	18
1:43.103	2.580	0.859	11.113	0.538	22	22.907	0.450	17	19.264	0.255	9	7.427	0.383	21
1:44.403	3.880	1.017	11.171	0.596	26	23.184	0.727	25	19.562	0.553	24	7.485	0.441	25

- Car Color Rows – Shade Rows using specified Car colors.
- Show All Competitors – Show All Competitors even if a subset is selected.
- Hide Deltas – Hide Section Delta Columns.
- Hide Section Rank – Hide Section Rank columns.
- Hide Section Times – Hide Section Time Columns.
- Custom Sections – Include Custom Sections.
- Default Sections – Include Default Sections.
- Show As Speed – Show section times as speed.
- Show By Drivers – Display by drivers.
- Best Rolling Lap – Compare Best Rolling Lap instead of Optimal Lap.
- Average Times – Compare average best section times (top x section times) to filter out one-of section times.
- Delta vs P1 – Calculate Theoretical Delta against Theoretical instead of Session Optimal Lap.
- Exclude Other Classes – Exclude other classes from the report. Override classes selected below.
- Include All Ratings – Include All Driver Ratings in report. Overrides Ratings selected below.

- Open Window – Opens the report using the selected options.
- Save CSV – Opens a Save As dialog window so you can name the file and select where to save it.
- Copy To Clipboard – Copies the report to the Clipboard.
- Print – Opens the Print dialog so you can select where to print the report.
- Font – Opens a dialog window where you can select a font for the report.
- F2 – Best Traps

						SPI	Delta	R
6	1	5	P	Christian Fitt	1:40.930	193.424	0.000	1
12	2	02	P	Tony Kanaan	1:40.895	190.275	-3.149	8
16	3	10	P	Max Angelelli	1:40.566	192.061	-1.362	2
53	4	78	P	Alex Popow	1:41.099	190.275	-3.149	9
30	5	42	P	Roman Rusin	1:41.076	186.374	-7.050	13
61	6	99	P	Memo Gidley	1:40.583	190.718	-2.705	6
11	7	01	P	Memo Rojas	1:41.158	190.275	-3.149	7
44	8	60	P	John Pew	1:41.900	187.656	-5.767	11
10	9	9	P	Fabien Giroix	1:41.341	190.718	-2.705	5
56	10	90	P	Michael Valia	1:40.523	191.612	-1.812	3
7	11	6	P	Lucas Luhr	1:41.632	181.415	-12.009	36
57	12	91	GTLM	Dominik Farn	1:45.863	179.426	-13.998	50
66	13	911	GTLM	Patrick Pilet	1:45.879	182.223	-11.200	31
67	14	912	GTLM	Michael Chris	1:45.624	181.818	-11.605	35
58	15	93	GTLM	Kuno Wittme	1:45.861	182.223	-11.200	30
5	16	4	GTLM	Tommy Milne	1:45.640	180.216	-13.207	43
14	17	08	PC	Chris Cummir	1:44.009	176.713	-16.710	56
4	18	3	GTLM	Antonio Garc	1:45.867	179.033	-14.390	52
41	19	56	GTLM	Graham Raha	1:46.402	182.223	-11.200	29
38	20	52	PC	Mike Guasch	1:44.401	176.332	-17.091	59
8	21	7	PC	Martin Fuent	1:44.255	177.096	-16.328	54

- Car Color Rows – Shade rows using specified Car colors.
- Show All Competitors - Show All Competitors even if a subset is selected.
- Show Pit Traps – Include Pit Lane Speed Traps.
- Show By Drivers – Display by drivers.

- F3 – Lap Times

RANK	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Time/Car	91	55	08	4	25	54	7	31	87	48	63	58	30	555	28
06:25:01	3:46.594	3:43.519	3:24.780	3:04.530		3:15.607	2:02.777	3:15.319	2:01.912	2:02.387	2:01.740	2:02.761	3:24.828	2:01.740	2:01.856
06:26:41					2:02.119				2:00.884			2:01.693		2:01.693	
06:28:21	4:11.548	3:24.485	3:24.448	3:17.146	2:40.290	4:01.249	2:54.742	3:20.371	2:41.160	2:56.575	3:15.642	2:55.082	3:35.338	2:40.667	2:54.225
06:30:01									3:38.273						
06:31:41		3:29.320	3:28.990	3:25.287	3:21.525	3:18.118	3:44.791	3:25.298	3:23.210	3:32.184	3:16.511	3:39.068	4:00.749	3:21.286	3:34.897
06:33:21	3:54.420														
06:35:01	2:20.823	2:58.218	2:57.503	2:55.560	2:46.042	2:39.758	2:31.069	3:10.547	2:46.478	2:42.192	2:37.689	2:33.796	2:37.175	2:45.885	2:34.386
06:36:41	1:52.242	1:49.589	1:48.127	1:47.819	1:55.767	1:56.069	1:53.201		1:53.878	1:58.246	1:56.448	1:53.910	1:54.496	1:57.780	1:58.334
06:38:21	1:50.914	1:47.497	1:47.278	1:48.118	1:47.846	1:50.604	1:51.104	3:25.774	1:50.463	1:50.783	1:50.612	1:50.251	1:53.763	1:51.606	1:53.829
06:40:01	1:47.254	1:47.350	1:46.268	1:46.458	1:46.439	1:49.140	1:49.181	1:48.493	1:45.249	1:49.127	1:49.068	1:50.483	1:50.607	1:51.883	1:51.637
06:41:41	1:50.989	1:47.407	1:46.125	1:46.536	1:47.278	1:52.688	1:50.676	1:44.270	1:46.757	1:52.750	1:53.208	1:50.912	1:51.273	2:01.494	1:51.912
06:43:21		1:47.291	1:45.190	1:45.919				1:43.476							

- Show All Competitors - Show All Competitors even if a subset is selected.
- Show As Speed – Show Section Times as speed.
- Sort By Lap Times – Display results Sorted by Lap Times, overrides vs Laps and ElapsedTime order.
- vs Laps – Display Results sorted by Lap Number, overrides default ElapsedTime order.
- Time Of Day – Display results referenced by Time Of Day (instead of ElapsedTime).
- Show Averages – Show Averages Summary Table.
- Tow Filter – Filter out Tow Laps.
- Highlight Tow Laps – Highlight Tow Laps with red text.
- Stint Averages – Display Stint Average lap times instead of Pit Lap Time.
- 1/100th (s:nn) – Display laptimes to 1/100th of a second.
- Laps To Average - # of laps to use to calculate the Average Lap Time. Default is all or 100% of laps. Enter in either laps or % of laps.
- Section Analysis – Compare Section times instead of lap times. Select section to compare below.

- F4 – Best Laps

P	No	Class	Driver	BestTime	Delta	S01	Delta	R01	S02	Delta	R02	S03	Delta	R03	S04	Delta	R04	S05	Delta	R05	S06	Delta	R06	S07	Delta	R07	S08
1	9	P	Burt Frisselle	128.024																							
2	90	P	Richard Westbrook	127.493	0.417	118.325	0.000	4	106.326	0.000	3	82.798	0.000	11	142.833	0.000	6	173.304	0.000	8	182.099	0.000	6	104.568	0.000	6	155.14
3	10	P	Max Angelelli	127.439	0.460				106.303	-0.024	4	82.854	0.056	10	143.541	0.707	1	174.325	1.021	3	183.403	1.304	3	104.523	-0.045	7	155.26
4	99	P	Alex Gurney	127.417	0.477	116.461	-1.864	18	106.871	0.544	1	82.509	-0.290	20	143.075	0.242	4	175.114	1.811	1	184.481	2.382	1	103.589	-0.979	11	155.22
5	10	P	Ricky Taylor	127.248	0.611																						
6	02	P	Scott Dixon	127.023	0.789	116.472	-1.853	17	106.040	-0.287	7	82.679	-0.120	15	142.713	-0.121	8	171.823	-1.480	16	181.521	-0.578	10	105.076	0.508	5	154.18
7	5	P	Joao Barbosa	126.979	0.824	117.294	-1.031	12							142.773	-0.060	7	173.483	0.179	7	182.886	0.787	4	100.791	-3.778	31	152.87
8	99	P	Memo Gidley	126.870	0.911	116.154	-2.171	20	106.021	-0.305	9	82.568	-0.230	18	143.237	0.403	2	174.476	1.173	2	183.438	1.339	2	100.749	-3.820	33	154.64
9	42	P	Oliver Pla	126.796	0.970	117.921	-0.404	8	106.369	0.042	2	83.155	0.356	8	140.402	-2.431	22	168.824	-4.480	28	177.709	-4.390	24	108.086	3.517	1	153.42
10	78	P	Brendon Hartley	126.767	0.993	117.693	-0.631	9	105.960	-0.366	10	82.773	-0.026	12	142.894	0.060	5	173.933	0.629	5	181.963	-0.136	9	101.442	-3.127	25	153.63
11	01	P	Scott Pruett	126.693	1.052	117.661	-0.664	10	105.699	-0.627	13	82.726	-0.073	14	142.372	-0.461	11	172.798	-0.506	13	180.981	-1.118	12	103.611	-0.957	9	153.51
12	90	P	Michael Valante	126.485	1.218	115.650	-2.675	21	106.030	-0.296	8	82.940	0.141	9	142.392	-0.441	10	173.214	-0.090	11	180.210	-1.889	17	101.494	-3.074	23	152.85
13	9	P	Fabien Giroix	126.464	1.235	118.019	-0.306	7	105.097	-1.229	19	81.998	-0.800	28	140.772	-2.061	20	173.244	-0.060	9	182.783	0.684	5	102.026	-2.542	18	152.95
14	5	P	Christian Fittipaldi	126.336	1.338	113.930	-4.395	33	105.573	-0.753	14	82.670	-0.128	16	142.014	-0.820	14	174.114	0.810	4	182.031	-0.068	7	101.855	-2.713	19	152.97
15	01	P	Memo Rojas	126.265	1.395																						
16	2	P	Simon Pagenaud	126.264	1.396																						
17	6	P	Klaus Graf	126.102	1.526	118.875	0.550	2	106.091	-0.235	6	83.837	1.039	3	138.979	-3.855	29	165.845	-7.459	31	175.212	-6.887	28	105.738	1.170	3	151.85
18	02	P	Tony Kanaan	126.078	1.545	113.024	-5.301	45	105.928	-0.399	11	82.369	-0.430	22	142.253	-0.581	13	173.753	0.449	6	181.997	-0.102	8	101.675	-2.894	22	151.99
19	1	P	Scott Sharp	125.981	1.624	118.215	-0.109	5	105.125	-1.202	18	81.960	-0.838	29	141.066	-1.768	18	169.535	-3.769	26	177.969	-4.130	23	103.600	-0.968	10	153.45
20	1	P	Ryan Dalziel	125.901	1.688	117.176	-1.149	14	104.886	-1.440	20	82.632	-0.166	17	139.879	-2.954	26	170.744	-2.560	22	179.214	-2.885	20	103.041	-1.527	15	153.25
21	2	P	Johannes van Overt	125.891	1.696	118.522	0.197	3	105.319	-1.008	15	83.189	0.391	7	140.987	-1.846	19	169.364	-3.940	27	179.016	-3.082	21	101.063	-3.506	27	151.75
22	6	P	Lucas Luhr	125.878	1.707	117.187	-1.138	13	106.293	-0.033	5	83.995	1.197	2	138.090	-4.744	30	166.393	-6.910	30	174.053	-8.046	30	106.153	1.585	2	150.60
23	60	P	Oswaldo Negri Jr	125.770	1.794	114.409	-3.916	30							140.266	-2.567	23	170.080	-3.224	23	180.177	-1.922	18	104.221	-0.347	8	153.16
24	78	P	Alex Popov	125.647	1.894	114.470	-3.855	29	104.275	-2.051	26	82.369	-0.430	23	142.332	-0.501	12	172.798	-0.506	14	180.612	-1.487	15	101.855	-2.713	20	152.83
25	0	P	Katherine Legge	125.605	1.928	117.165	-1.160	15	105.783	-0.544	12	81.510	-1.288	31	143.095	0.262	3	173.214	-0.090	10	175.276	-6.823	27	98.297	-6.271	57	154.80
26	31	P	Eric Curran	125.467	2.040	116.908	-1.417	16	104.117	-2.209	27	81.506	-1.292	33	139.918	-2.915	25	171.063	-2.240	20	180.377	-1.722	16	103.282	-1.287	13	152.48
27	0	P	Andy Meyrick	125.221	2.241	116.355	-1.970	19	105.263	-1.063	16	80.739	-2.059	44	142.472	-0.361	9	171.005	-2.299	21	179.214	-2.885	19	100.189	-4.379	38	154.90
28	42	P	Roman Rusinov	125.210	2.250																						
29	50	P	Frank Beck	125.101	2.339	113.657	-4.668	37	103.261	-3.065	37	82.183	-0.615	25	141.696	-1.137	16	171.735	-1.568	17	181.454	-0.645	11	100.035	-4.534	40	153.87
30	60	P	John Pew	124.831	2.561	113.818	-4.506	35	104.593	-1.733	22	82.040	-0.758	27	141.855	-0.979	15	171.326	-1.978	19	176.772	-5.327	25	98.457	-6.112	55	152.36
31	6	P	Graf/Luhr/Brundle	124.595	2.755	118.930	0.605	1	105.189	-1.137	17	81.789	-1.009	30	139.150	-3.683	28	166.559	-6.745	29	175.973	-6.126	26	100.127	-4.441	39	150.53
32	50	P	Byron DeFoor	124.337	2.969	113.405	-4.920	41	103.377	-2.949	36	81.033	-1.766	39	140.636	-2.198	21	171.443	-1.861	18	178.984	-3.115	22	99.007	-5.561	52	154.75
33	8	PC	Kenger van der Zant	123.923	3.313	118.030	-0.295	6	104.289	-2.038	25	84.362	1.564	1	137.212	-5.621	33	162.181	-11.123	50	169.948	-12.151	57	103.556	-1.012	12	147.95
34	25	PC	Tom Kimber-Smith	123.276	3.856	113.405	-4.920	40	104.312	-2.015	24	82.764	-0.034	13	136.602	-6.231	34	165.381	-7.923	32	171.748	-10.351	35	101.845	-2.724	21	147.34
35	08	PC	Alex Taglian	123.220	3.903	114.604	-3.721	28	103.609	-2.717	32	82.530	-0.268	19	137.323	-5.510	32	163.340	-9.964	36	170.844	-11.255	46	101.031	-3.537	28	149.05

- Car Color Rows – Shade rows using specified Car colors.
- Show All Competitors - Show All Competitors even if a subset is selected.
- Hide Deltas – Hide Section Delta columns.
- Hide Section Rank – Hide Section Rack columns.
- Hide Section Times – Hide Section Time columns.
- Custom Sections – Include Custom Sections.
- Default Sections – Include default sections.
- Show As Speed – Show section times as speed.
- Tow Filter – Exclude Tow laps when calculating Best Laps.
- Delta vs Best Section Time – Display Deltas versus best section times instead of P1 section times.
- Show By Drivers – Display by drivers.

- F6 – Timecards

Time Card 02		Lap	LapTime	Status	Speed	Flag	001	002	003	004	005	006	007	008	009	010	011	012	PTT	SP1	L	OK	ElapsedTime	ExpOnTrack	TOD	Track		
1	02	P	Scott Dixon	74	101.647	T	126.083	C	115.988	104.525	82.369	143.055	173.274	176.869	102.856	153.755	176.521	180.143	185.529	216.027				185.529	2:14:16.430	4.675	16:25:44.263	
1	02	P	Scott Dixon	75	102.964	T	124.471	C	117.133	102.533	82.015	142.793	173.035	179.744	93.198	151.805	175.846	182.206	188.957	217.895				188.957	2:15:59.394	0.079	16:27:27.227	
2	02	P	Scott Dixon	76	155.811	P	82.253	C	113.184	101.506	79.581	138.998	172.472	171.024	92.262	150.814				24.938				121.919	2:18:35.205	33.558	16:30:02.038	
2	02	P	Tony Kanaan	77	125.985	T	101.726	C			74.772	138.618	170.253	172.847	96.476	151.851	174.091	178.854	185.529	213.284				185.529	2:20:41.190	2.441	16:32:09.023	
2	02	P	Tony Kanaan	78	104.775	T	122.519	C	111.477	102.442	78.745	140.987	171.785	176.420	94.409	151.043	173.257	177.872	183.861	212.236				183.861	2:22:25.965	6.263	16:33:53.798	
2	02	P	Tony Kanaan	79	102.359	T	125.206	C	114.717	104.936	81.106	141.125	172.501	179.512	100.645	151.921	174.813	179.388	185.950	214.799				185.950	2:24:08.324	6.446	16:35:36.157	
2	02	P	Tony Kanaan	80	101.967	T	125.688	C	117.047	105.448	80.499	141.243	172.353	180.914	101.262	154.017	175.298	179.846	186.800	214.952				186.800	2:25:50.291	1.181	16:37:18.124	
2	02	P	Tony Kanaan	81	101.897	T	125.774	C	114.001	105.351	82.492	142.352	172.916	179.744	100.780	151.227	174.934	180.254	187.227	216.259				187.227	2:27:32.188	1.537	16:39:00.021	
2	02	P	Tony Kanaan	82	103.563	T	123.751	C	111.177	100.301	81.004	142.653	172.798	178.819	100.780					180.514	187.227	216.027		187.227	2:29:15.751	6.050	16:40:43.584	
2	02	P	Tony Kanaan	83	101.651	T	126.078	C	113.024	105.928	82.369	142.253	173.753	181.997	101.675	151.990				187.656	217.582				187.656	2:30:57.402	1.251	16:42:25.235
2	02	P	Tony Kanaan	84	104.457	T	122.692	C	114.256	101.497	76.604	141.439	174.901	177.352	97.276	152.879	175.419	182.510	188.957	218.131				188.957	2:32:41.859	0.201	16:44:09.692	
2	02	P	Tony Kanaan	85	103.827	T	123.674	C	111.809	102.771	79.727	141.105	171.560	178.984	97.873	153.883	175.450	181.828	186.800	215.642				186.800	2:34:25.486	0.839	16:45:53.319	
2	02	P	Tony Kanaan	86	102.471	T	125.070	C	115.986	103.466	79.922	142.034	172.383	180.177	101.675	153.945	176.306	181.714	188.521	216.801				188.521	2:36:07.957	-0.011	16:47:35.790	
2	02	P	Tony Kanaan	87	102.555	T	124.967	C	113.164	103.520	82.002	142.532	173.393	181.589	98.866	152.083	175.480	180.589	186.374	215.411				186.374	2:37:50.512	0.708	16:49:18.345	
2	02	P	Tony Kanaan	88	101.906	T	125.763	C	108.260	105.956	82.369	142.813	173.753	181.420	103.041	154.232	174.964	181.262	189.394	217.113				189.394	2:39:32.418	-0.001	16:51:00.251	
2	02	P	Tony Kanaan	89	102.610	T	124.900	C	116.472	106.199	81.718	140.694	174.840	178.458	90.453	152.270	176.244	183.737	187.656	218.762				187.656	2:41:15.028	-0.001	16:52:42.861	
2	02	P	Tony Kanaan	90	103.464	T	123.869	C	111.146	104.239	78.391	142.713	175.450	178.984	98.407	152.467	175.941	181.828	189.394	217.425				189.394	2:42:58.492	0.219	16:54:26.325	
2	02	P	Tony Kanaan	91	102.999	T	124.913	C	112.339	103.413	81.436	143.237	175.519	180.943	98.876	152.809	176.675	183.660	189.833	219.000				189.833	2:44:41.091	1.201	16:56:08.924	
2	02	P	Tony Kanaan	92	103.838	T	123.423	C	115.037	101.807	80.841	141.855	174.658	180.177	91.645	151.642	175.480	180.701	187.656	217.503				187.656	2:46:24.929	0.378	16:57:52.762	
2	02	P	Tony Kanaan	93	110.202	T	116.296	Y	113.184	104.371	79.874	142.034	173.125	142.286	82.386	138.339	151.470	153.550	138.440	148.492				138.440	2:48:15.131	0.265	16:59:42.964	
2	02	P	Tony Kanaan	94	2478.412	T	5.171	Y	69.595	18.361	0.470	46.345	57.258	43.527	44.785	57.683	53.405	42.533	47.157	54.113				47.157	3:00:06.572	1.093	18:01:34.405	
3	02	P	Tony Kanaan	95	246.856	P	51.917	Y	51.626	51.525	49.187	60.941	55.800	51.395	46.328	59.560	56.501				16.471			54.967	3:04:13.428	24.534	18:05:41.261	

- Car Color Rows – Shade rows using specified Car colors.
- Show As Speed – Show section times as speed.
- Live Update – Update automatically after each lap.
- Exclude Tow Lap – Exclude Tow Laps.
- Include Invalidated Laps – Include Invalidated Laps.
- Sections To Display – Click the box(es) below to select the sections to display.
- Apply To All TimeCards – Apply settings to all Time Cards.

- F8 – Lap Chart

Lap Chart [PR01 at 3:58:45.000]

Car# XX Lap 000 0:00.000 Gap 000 0:00.000
00:00:00.000 000 0:00.000

P	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
1	02	02	02	02	02	02	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
2	5	5	5	5	5	5	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	02	10	78
3	10	10	10	99	99	99	78	78	78	78	78	10	10	10	10	10	99	10	10	10	10	10	10	10	10	02	42
4	99	99	99	10	78	78	10	10	10	10	10	99	99	99	99	99	78	99	99	99	99	99	99	78	78	78	
5	78	78	78	78	10	10	99	99	99	99	99	78	78	78	78	78	42	78	78	78	78	78	78	78	42	42	42
6	42	42	60	60	60	60	60	60	42	42	42	42	42	42	42	42	01	42	42	42	42	42	42	42	01	01	01
7	60	60	0	9	42	42	42	42	90	90	90	90	90	90	60	60	60	01	01	01	01	01	01	01	60	60	60
8	0	0	9	42	90	90	90	90	60	60	60	60	60	60	01	01	9	60	60	60	60	60	60	60	9	9	9
9	9	9	01	90	01	9	01	01	01	01	01	01	01	01	9	9	90	9	9	9	9	9	9	9	90	90	90
10	01	01	42	01	08	01	9	9	9	9	9	9	9	9	90	90	6	90	90	90	90	90	90	90	6	6	
11	90	90	90	6	6	6	6	6	6	6	6	6	6	6	6	6	91	6	6	6	6	6	6	6	91	91	
12	6	6	6	08	11	11	91	91	91	91	91	91	91	91	91	91	11	91	91	91	91	91	91	91	11		
13	08	08	08	11	91	91	11	11	11	11	11	11	11	11	11	11	12	11	11	11	11	11	11	11	12		
14	52	52	11	91	12	08	08	12	12	12	12	12	12	12	12	12	93	12	12	12	12	12	12	12	93		
15	11	11	91	62	93	12	12	08	08	08	08	08	08	08	93	93	93	4	93	93	93	93	93	93	93	4	
16	91	91	62	12	4	93	93	93	93	93	93	93	93	93	4	4	4	08	4	08	08	4	4	4	4	08	
17	62	62	12	93	62	4	4	4	4	4	4	4	4	4	08	08	08	52	08	4	4	08	08	08	3		
18	12	12	93	4	7	62	62	62	7	7	7	52	52	52	52	52	3	52	52	52	3	3	3	3	56		

- F9 – Running Order

#	Nr	Gap	Lap	Line	Elapsed	P	PIC	CLS	LSP	LD
1	5	2.854	106	T2	4:21:24.701	1	1	P	9	0
2	57	14.881	100	T1	4:21:28.715	27	10	STLM	5	-3
3	02	1.861	106	T1	4:21:30.576	2	2	P	9	0
4	45	8.243	98	TA	4:21:30.686	40	14	GTD	4	-1
5	10	1.586	105	TA	4:21:32.272	3	3	P	8	0
6	42	0.832	105	TA	4:21:33.104	4	4	P	8	0
7	25	0.315	101	TA	4:21:33.419	23	4	PC	4	-1
8	78	2.590	105	T9	4:21:29.741	5	5	P	8	0
9	35	4.921	98	T8	4:21:27.956	41	15	GTD	4	-1
10	91	1.120	103	T8	4:21:29.076	11	1	STLM	7	0
11	911	0.432	103	T8	4:21:29.508	12	2	STLM	7	0
12	08	1.983	103	T8	4:21:31.491	13	1	PC	8	0
13	93	1.724	103	T8	4:21:33.215	14	3	STLM	7	0
14	63	0.666	98	T7	4:21:24.123	39	13	GTD	0	-1
15	56	0.733	103	T7	4:21:24.856	15	4	STLM	7	0
16	912	0.373	103	T7	4:21:25.229	16	5	STLM	7	0
17	30	3.301	98	T7	4:21:28.530	42	16	GTD	1	-1
18	7	0.710	102	T7	4:21:29.240	20	2	PC	8	-1
19	97	0.523	102	T7	4:21:29.763	21	9	STLM	7	-1
20	52	0.713	93	T7	4:21:30.476	56	8	PC	2	-10
21	3	1.689	103	T7	4:21:32.165	17	6	STLM	7	0
22	32	0.069	98	T7	4:21:32.234	43	17	GTD	4	-1
23	4	0.630	103	T7	4:21:32.864	18	7	STLM	7	0
24	44	1.131	97	T7	4:21:33.995	53	25	GTD	2	-2
25	23	1.269	99	T6	4:21:29.320	28	2	GTD	7	0
26	54	0.507	102	T6	4:21:29.827	22	3	PC	21	-1
27	22	0.075	99	T6	4:21:29.902	29	3	GTD	7	0
28	81	0.593	99	T6	4:21:30.495	30	4	GTD	7	0
29	01	0.373	105	T6	4:21:30.868	6	6	P	5	0
30	38	0.377	98	T6	4:21:31.245	44	6	PC	12	-5
31	94	5.561	99	T5	4:21:30.625	31	5	GTD	7	0
32	555	0.077	99	T5	4:21:30.702	32	6	GTD	6	0
33	48	0.949	99	T5	4:21:31.651	33	7	GTD	6	0
34	31	0.009	101	T5	4:21:31.660	24	11	P	5	-4
35	50	1.357	97	T5	4:21:33.017	54	12	P	16	-8
36	58	3.064	99	T4	4:21:28.763	34	8	GTD	6	0
37	33	1.306	98	T4	4:21:30.069	45	18	GTD	6	-1
38	0	0.687	91	T4	4:21:30.756	59	15	P	17	-14
39	90	2.639	105	T4	4:21:33.395	7	7	P	5	0

- Show Details – Display more columns of information.
- Highlight Gap – Highlight Gap
- Shaded Rows – Shades even numbered rows.

The Running Order window has an extra column during cautions. The 'LD@Y' (Laps Down at Yellow) is similar to the 'LD' (Laps Down) except that it does not update during the caution. It is set when the yellow is first thrown so it displays the status at the time of the caution which is what the Lap Down Wave By rule uses. The column is highlighted if the LD@Y<0 AND the competitor has not taken a pit stop during the yellow.

#	Nr	Gap	Lap	Line	Elapsed	P	PIC	CLS	LSP	LD	LD@Y
1	46	34.832	46	T6	1:36:19.714	1	1	GS	11	0	0
2	48	0.614	46	T5	1:35:41.567	2	2	GS	11	0	0
3	01	1.537	46	T5	1:35:43.104	3	3	GS	11	0	0
4	14	1.727	46	T5	1:35:44.831	4	4	GS	11	0	0
5	28	1.329	46	T5	1:35:46.160	5	5	GS	11	0	0
6	2	0.875	46	T5	1:35:47.035	6	6	GS	11	0	0
7	158	1.376	46	T5	1:35:48.411	7	7	GS	11	0	0
8	97	0.750	46	T5	1:35:49.161	8	8	GS	11	0	0
9	78	1.109	46	T5	1:35:50.270	9	9	GS	11	0	0
10	00	0.907	46	T5	1:35:51.177	10	10	GS	11	0	0
11	41	2.106	46	T5	1:35:53.283	11	11	GS	11	0	0
12	32	1.318	46	T5	1:35:54.601	12	12	GS	11	0	0
13	18	0.895	46	T5	1:35:55.496	13	13	GS	11	0	0
14	8	0.830	46	T5	1:35:56.326	14	14	GS	2	0	0
15	6	0.950	46	T5	1:35:57.276	15	15	GS	8	0	0
16	35	0.898	46	T5	1:35:58.174	16	16	GS	2	0	0
17	07	1.095	46	T5	1:35:59.269	19	17	GS	2	0	0
18	9	0.585	46	T5	1:35:59.854	20	18	GS	2	0	0
19	79	0.750	46	T5	1:36:00.604	22	19	GS	2	0	0
20	09	0.713	46	T5	1:36:01.317	24	20	GS	2	0	0
21	99	0.893	44	T5	1:36:02.210	50	22	GS	2	-2	-2
22	3	4.925	46	T5	1:36:07.135	17	1	ST	24	0	0
23	26	1.015	46	T5	1:36:08.150	18	2	ST	23	0	0
24	5	0.474	46	T5	1:36:08.624	21	3	ST	23	0	0
25	81	0.342	46	T5	1:36:08.966	23	4	ST	24	0	0
26	82	0.893	46	T5	1:36:09.859	25	5	ST	24	0	0
27	98	1.102	46	T5	1:36:10.961	26	6	ST	23	0	0
28	75	1.563	46	T5	1:36:12.524	27	7	ST	23	0	0
29	93	1.476	46	T5	1:36:14.000	28	8	ST	23	0	0
30	23	1.214	46	T5	1:36:15.214	29	9	ST	23	0	0
31	04	1.349	46	T5	1:36:16.563	30	10	ST	23	0	0
32	80	1.301	46	T5	1:36:17.864	31	11	ST	24	0	0
33	24	0.735	46	T5	1:36:18.599	32	12	ST	23	0	0
34	95	0.883	46	T5	1:36:19.482	33	13	ST	23	0	0
35	65	1.161	45	T4	1:35:31.371	48	27	ST	21	-1	-1
36	10	0.944	46	T4	1:35:32.315	34	14	ST	23	0	0
37	34	1.428	46	T4	1:35:33.743	35	15	ST	23	0	0
38	22	2.155	46	T4	1:35:35.898	36	16	ST	23	0	0
39	84	1.181	46	T4	1:35:37.079	37	17	ST	22	0	0
40	64	1.320	46	T4	1:35:38.399	38	18	ST	23	0	0
41	42	0.777	46	T4	1:35:39.176	39	19	ST	17	0	0
42	50	1.334	46	T4	1:35:40.510	40	20	ST	14	0	0
43	92	0.808	46	T4	1:35:41.318	41	21	ST	10	0	0
44	25	0.911	45	T4	1:35:42.229	49	28	ST	10	-1	-1
45	74	1.086	46	T4	1:35:43.315	42	22	ST	10	0	0
46	11	1.132	39	T4	1:35:44.447	53	30	ST	16	-7	-7
47	33	2.006	46	T4	1:35:46.453	43	23	ST	19	0	0
48	88	0.812	46	T4	1:35:47.265	44	24	ST	9	0	0
49	43	0.978	46	T4	1:35:48.243	45	25	ST	10	0	0

- SF2 – Pit Stop Report

P	Car	Class	Driver	Stop	Lap	BaseLap	InLap	PitLane	OutLap	Total	Average	TimeLost	Flag	InRat	OutR	ClsIn	ClsO	ElapsedTime	GapOnTrac	LSP	GL	YL	FuelUsed	TOD
1	5	P	Joao Barbosa	4	83	1:43.016	1:44.556	1:12.766	1:36.353	4:33.675	2:16.838	1:07.643	G	1	1	1	1	2:29:52.539	21.079	25	25	0		16:42:33.138
65	07	P	Tristan Vautier	7	60	1:43.190		3:31.152					G	65	65	18	18	2:29:53.219	2:11.603	1	1	0		16:44:52.204
57	19	GTD	Taggart/Gewirtz	3	76	1:43.383							G	54	0	23	0	2:31:19.356		10	10	0		
39	64	GTD	David Empringham	3	78	1:42.705	1:55.036	1:23.306	1:41.103	4:59.445	2:29.722	1:34.035	G	33	41	5	11	2:32:07.616	6.551	26	26	0		16:44:58.755
20	7	PC	Martin Fuentes	4	81	1:43.045		1:17.342	1:37.893				G	18	21	2	3	2:32:37.010	23.430	25	25	0		16:45:22.185
29	54	PC	Jon Bennett	4	80	1:42.337	1:52.159	1:17.027	1:35.488	4:44.674	2:22.337	1:19.000	G	28	29	6	7	2:32:48.558	11.233	24	24	0		16:45:33.418
7	90	P	Michael Valante	4	83	1:43.016	1:43.045	1:29.704	1:40.163	4:52.912	2:26.456	1:26.880	G	7	10	7	10	2:32:56.170	20.289	25	25	0		16:45:53.707
65	07	P	Tristan Vautier	8	61	1:42.796		1:21.334					G	65	0	18	0	2:35:20.923	2:16.383	1	1	0		16:48:10.090
53	009	GTD	Calum Lockie	3	79	1:41.951	1:53.357	1:23.893	1:41.670	4:58.920	2:29.460	1:35.018	G	52	57	21	26	2:36:36.097	1:17.733	26	26	0		16:49:27.823
0	07	P	Tristan Vautier	9	62	-1.000							G	65		18		2:38:38.869		1	1	0		
55	65	GTD	Yandinho Negrao	3	81	1:43.045	1:52.191	1:34.865	1:44.035	5:11.091	2:35.546	1:45.001	G	48	54	17	25	2:39:47.872	13.515	27	27	0		16:52:50.570
58	50	P	Frank Beck	5	80	1:42.337	1:48.365	2:09.802	1:43.155	5:41.322	2:50.661	2:16.648	G	58	58	13	13	2:39:51.772	38.837	25	25	0		16:53:29.407
50	27	GTD	Marc Lieb	4	81	1:43.045	1:52.721						G	50	0	19	0	2:40:08.589		22	22	0		
25	31	P	Bradley Smith	5	85	1:42.989	1:48.835	1:48.448	1:41.932	5:19.215	2:39.607	1:53.237	G	24	29	12	12	2:41:11.226	58.100	27	27	0		16:54:27.507
55	51	GTD	Marco Ciold	4	82	1:43.016	1:53.618	1:25.909	1:44.722	5:04.249	2:32.124	1:38.217	G	51	56	21	25	2:42:21.023	47.258	28	28	0		16:55:14.765
55	38	PC	David Ostella	4	85	1:42.989	1:47.418	4:56.288	00:52.368	07:36.074	33:48.037	04:10.096	G	34	55	8	8	2:45:11.751	1:18.831	11	10	1		17:01:35.872
50	33	GTD	Ben Keating	3	85	1:42.989	1:52.246	1:34.011	01:21.037	04:47.294	32:23.647	01:21.316	G	47	50	16	20	2:47:15.197	5:02.276	28	27	1		17:00:17.041
0	52	PC	Mike Guesch	4	90	-1.000							Y	18		2		2:48:51.162		19	19	0		
34	555	GTD	Scott Tucker	3	88	1:41.444	01:15.400	1:25.636	3:01.217	05:42.253	32:51.127	02:19.365	Y	34	39	5	11	3:50:42.045	01:59.642	31	29	2		18:03:35.514
44	556	GTD	Mike LaMarra	3	88	1:41.444	3:03.978	56.801	1:45.309	5:46.088	2:53.044	2:23.200	Y	44	43	14	14	3:53:35.197	1:06.097	30	27	3		18:05:59.831
3	02	P	Tony Kanaan	4	95	4:04.227	3:53.159	1:59.333					Y	2	0	2	0	3:53:59.731	1:27.066	19	16	3		18:07:26.897
1	5	P	Christian Fittip	5	96	4:04.227	3:43.401						Y	1	0	1	0	3:57:52.026		13	9	4		
0	10	P	Max Angelelli	4	96	-1.000	3:43.148						Y	2		3		3:57:53.099		23	20	3		
2	78	P	Alex Popov	5	96	4:04.227	3:29.610						Y	4	0	4	0	3:58:18.673		15	10	5		
3	42	P	Roman Rusinov	4	96	4:04.227	3:26.776						Y	5	0	5	0	3:58:28.618		25	20	5		
0	7	PC	Martin Fuentes	5	93	-1.000	3:28.836						Y	20		2		3:58:44.235		12	8	4		

- Car Color Rows – Shade rows using specified Car colors.
- Show All Competitors - Show All Competitors even if a subset is selected.
- Time Lost versus – Calculate Time Lost vs Leader (In-Lap + Out-Lap – 2XLeader Laps) instead of vs Individual Laps.
- Show All Logical Sections – Include all Logical Sections, not just standard Pit Stop sections.
- Show Post Pit Lane – Display Pit Pit Laptimes.
- Set Base Laptime – Set Base Laptime for calculating Time Lost (instead of versus leader or versus individual laps).

- Driver Performance

Driver Performance Report [TUDOR Championship Race-Daytona International Sp...

Car	Driver	Class	Rating	Laps	GL	FastTime	Top 3	Top 10
99	Alex Gurney	P		37	34	1:40.711	1:40.756	1:41.078
08	Alex Tagliani	PC		36	33	1:44.009	1:44.139	1:44.347
27	Andrew Davis	GTD		29	26	1:49.935	1:49.961	1:50.221
44	Andy Lally	GTD		8	5	1:50.568	1:51.125	
0	Andy Meyrick	P		36	33	1:42.347	1:42.381	1:42.588
55	Bill Auberlen	GTM		35	32	1:46.616	1:46.700	1:46.969
555	Bill Sweedler	GTD		7	7	1:51.155	1:51.263	
78	Brendon Hartley	P		36	33	1:41.099	1:41.204	1:41.604
09	Bruno Junqueira	PC		24	21	1:44.288	1:44.361	1:44.674
9	Burt Frisselle	P		36	33	1:40.106	1:40.577	1:41.003
50	Byron DeFoor	P		28	27	1:43.075	1:43.219	1:43.674
46	Charlie Putman	GTD		5	5	1:51.973	1:52.320	
48	Christopher Haase	GTD		35	32	1:48.779	1:48.830	1:49.005
81	Damien Faulkner	GTD		34	31	1:49.708	1:49.864	1:50.097
94	Dane Cameron	GTD		34	31	1:49.269	1:49.553	1:49.973
65	Daniel Serra	GTD		29	26	1:48.838	1:48.877	1:49.173
007	David Block	GTD		12	12	1:53.876	1:53.977	1:55.201
56	Dirk Mueller	GTM		35	32	1:46.743	1:46.788	1:46.990

- Car Color Rows – Shade rows using specified Car color.
- Show All Competitors - Show All Competitors even if a subset is selected.
- 1st Laps To Compare – Number of top laps to average. First set.
- 2nd Laps To Compare – Number of top laps to average. Second Set.

- Stints

Stint Report

Car	Driver	Class	Rating	TotalTime	TimeToMin	TimeToMin	TimeToMin	Stint_1_In	Stint_1_Out	Stint_2_In	Stint_2_Out	Stint_3_In	Stint_3_Out	Stint_4_In	Stint_4_Out	Stint_5_In	Stint_5_Out	Status
42	Roman Rusinov	P		1:48:32	10:11:28	-1:03:32	1:11:28	1:32:20.422	2:10:33.446	2:48:10.081	3:58:28.618							COMPLETE
01	Ryan Dalziel	P		22:56	11:37:04	22:04	2:37:04	1:38:22.242	2:01:18.544									COMPLETE
02	Scott Dixon	P		2:15:11	9:44:49	-1:30:11	44:49	50:03.904	51:22.159	1:33:51.493	1:35:07.041	2:17:44.513						COMPLETE
01	Scott Pruett	P		2:10:28	9:49:24	-1:25:28	49:24	48:28.855	49:55.551	1:30:56.712	1:33:05.521	1:34:43.931	1:39:50.599	2:15:06.285				COMPLETE
1	Scott Sharp	P		1:28:54	10:31:06	-4:34	10:31:06	46:52.889	49:05.813	1:30:07.394								COMPLETE
555	Scott Tucker	GTD		1:04:38	9:55:42	-1:19:18	75:42	1:53:01.264	3:50:42.045	3:52:07.681								RUNNING
67	Sean Rayhall	PC		1:31:38	10:28:22	-46:38	1:28:22	47:30.978	48:37.802	1:32:45.196								COMPLETE
35	Seth Neenan	GTD		2:05:46	9:54:14	-1:20:46	54:14	18:46.215	19:56.082	1:13:32.263	1:14:49.561	2:08:13.071						COMPLETE
22	Shane van Gisbergen	GTD		1:40:17	10:19:43	-55:17	1:19:43	2:18:28.288										RUNNING
45	Spencer Pumpelly	GTD		23:46	11:36:14	21:14	2:36:14	1:36:56.172	2:00:42.546									COMPLETE
97	Stefan Mücke	GTM		1:53:15	10:06:45	-1:08:15	1:06:45	57:19.959	58:38.372	1:54:33.074								COMPLETE
70	Sylvain Tremblay	P		1:58:16	10:01:44	-1:13:16	1:01:44	59:29.977	1:01:35.508	1:03:55.659	1:05:27.312	2:01:52.728						COMPLETE
19	Switz/Kvamme/Micha	GTD		22:29	11:37:31	22:31	2:37:31	2:08:50.183	2:31:19.356									COMPLETE
556	Terry Borcheller	GTD		56:18	11:03:42	-1:11:18	2:03:42		56:17.543									COMPLETE
45	Tim Pappas	GTD		1:08:19	10:51:41	-23:19	1:51:41	39:37.331	38:51.926	20:49.572	1:10:17.142							COMPLETE
71	Tim Bernhard	GTD		49:46	11:10:14	-4:46	2:10:14		1:29:23.151									COMPLETE
55	Tom Krause-Smith	PC		1:29:56	10:30:04	-44:56	1:30:04	47:39.074	49:39.423	1:31:56.225								COMPLETE
4	Tommy Milner	GTM		1:53:56	9:06:04	-2:08:56	6:04	1:03:35.795	2:00:43.492	2:01:56.688								RUNNING
38	Tommy Oress	PC		1:32:27	10:27:33	-47:27	1:27:33	49:39.135	1:36:24.974	1:38:11.500	2:23:52.356							COMPLETE
63	Toni Vilander	GTD		48:43	11:11:17	-3:43	2:11:17		48:42.875									COMPLETE
02	Tony Kanaan	P		1:37:42	10:22:18	-52:42	1:22:18	2:19:03.332	3:53:59.731	3:55:59.064								RUNNING
555	Townsend Bell	GTD		54:29	11:05:31	-9:29	2:05:31		54:29.203									COMPLETE
67	Tracy Krohn	GTM		10:40:02	10:55:58	-19:02	1:55:58	11:71:18.067	2:21:19.654									COMPLETE
07	Tristan Vautier	P		9:00	11:51:00	36:00	2:51:00	2:25:24.389	2:27:16.668	2:28:00.205	2:29:53.219	2:33:24.371	2:35:20.923	2:35:20.923	2:38:38.869			COMPLETE
65	Xandinho Negro	GTD		49:27	11:10:33	-6:27	2:10:33	1:50:20.983	2:39:47.872									COMPLETE

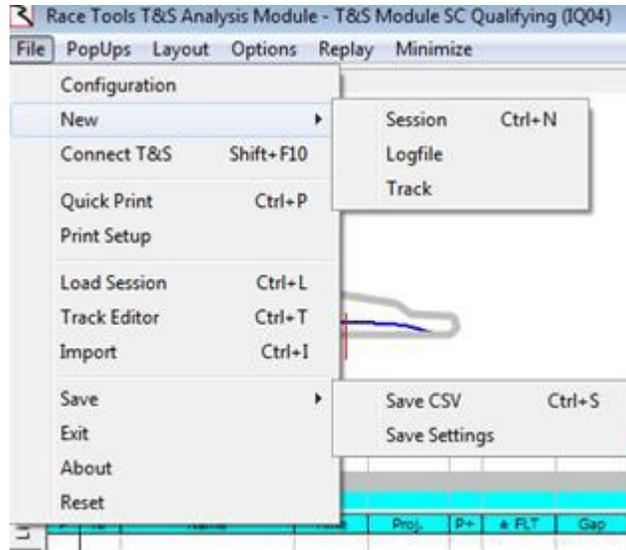
- Hide Column – Hide the selected column.
- Reset Columns – Unhide hidden columns.
- Show All Cars - Show All Competitors even if a subset is selected.

- Driver Ratings – Show driver ratings (if available).
- By Driver and Car – Sort by Driver Name and Car.
- Exclude Other Classes – Exclude classes other than the 'Team Car' class.
- Classes – Choose the classes to display.
- Reverse Stints – Reverse Display of stints to show latest stint first and the first stint last. Keeps more current data towards the left of the table, making it easier to see the key data at once.
- Hide Previous Stints – Hide previous stints. Don't show non-current stint to reduce the amount of information displayed.
- Show Hours – Display in hours instead of hh:mm:sss.
- Car Color Rows – Shade rows using specified Car color.
- Set Font – Set the font for the report.
- Set Maximum Time (12h) – Maximum amount of time a driver can be in the car on track in the race (or session).
- Set Minimum Time (0h) – Minimum amount of time a driver must be on track in the car in the race (or session).
- Set Drive Window (4h) – Sliding drive window time used to monitor the Maximum Time in any given block of time. (ie. Maximum 3 Hours in a 4 Hour Drive Window.)
- Set Max In Window (3h) – Maximum amount of time allowed within the Drive Window (ie. 3 hours maximum in any 4 hours).
- Update Car List – Update the list of cars to display in the report.
- Refresh – Refresh the data in the report.
- Save CSV – Save the report to a csv file.
- Copy to Clipboard – Copy the report to the clipboard for use in another place.
- Save Layout – Save the current layout.
- Load Layout – Load a saved layout.
- Print – Print the report.

- Close – Close the window.

In addition to the “Configuration” menu, the typical options are also available under the **File** dropdown menu as well as some software specific options.

New



Session

- Session - removes previously processed data and creates a new session in the same Log file.

Logfile

- Logfile - creates a new Log file with distinct file name.

Track

- Track - clears the track definition which will be replaced on the next \$T track message.

Connect T&S

- Shift+F10 Shortcut – Connects software to timing feed. Indicator will show up with connection status at the top of the Track Map window.

Quick Print

- Quick Print – function that prepares multiple reports to print at the same time.
- Select the reports to be printed (described in “Popups” section).
- Select font size and grouping options for maps and reports, grouping makes sure certain reports/maps are grouped on a single page (typically the Best Lap and Split Maps are

grouped, All Lap Times Per Driver gets its own page(s), and Best Lap Times, Best Split Times, and Best Speed Traps are grouped together).

- Setup the printer/writer to be used for the reports.

Print Setup

- Print Setup – allows for specification of top, bottom, left, and right margins. These may need to be modified to insure that grouped prints display properly

Export to Excel

- This option allows the user to configure specific reports in Excel to be used for further analysis. This is very flexible so the user can design spreadsheets to fit his particular needs.

Live Export

The screenshot shows the 'Excel Interface' window with the 'Live Export' tab selected. The 'Reports' sub-tab is active. The 'Workbook' field is set to 'C:\Users\Don\Documents\2014 Events\Rol' with a 'Load' button. The 'Enabled' checkbox is unchecked. The 'Laps' field is set to '1'. The 'Update New' and 'Update All Laps' buttons are visible. The 'CELL' and 'Worksheet' columns are used to configure the data to be exported. The 'Color Code Cells' and 'By Class' checkboxes are checked. The 'Initials' checkbox is unchecked.

Field	CELL	Worksheet
Laps	1	
Lap	A1	Sheet1
Driver	B1	Sheet1
Lap Time	D1	Sheet1
Track Status	G1	Sheet1
Elapsed Time	E1	Sheet1
TOD	F1	Sheet1
Position	C1	Sheet1
Gap Behind	H1	Sheet1
Gap Ahead	I1	Sheet1
P1 Average	A2	Sheet2
P1 Laps	B2	Sheet2
Team Average	C2	Sheet2
Team Laps	D2	Sheet2

- Workbook – Input the location and name of the spreadsheet where you want to store the data.
- Enabled – Check this box to enable the live export of data to the spreadsheet.
- Laps – Laps between updates (1 equals update every lap).
- Lap – Check the box to export the lap number.
- Driver – Check the box to export the Driver Name.

- Lap Time – Check the box to export the Lap Time.
- Track Status – Check the box to export the track Flag Status.
- Elapsed Time – Check the box to export the session Elapsed Time.
- TOD – Check the box to export the Time Of Day.
- Position – Check the box to export the Position. Check the “By Class” box to show ‘Position in Class’.
- Gap Behind – Check the box to export the Gap Behind the next car.
- Gap Ahead – Check the box to export the Gap Ahead of the next car.

Under the column “CELL” you input the Cell in the spreadsheet where you want the data placed, and under “Worksheet” you input the name of the worksheet you want to use. Other checkboxes on this window allow you to create a spreadsheet showing average lap times for P1 and your car with projected laps based upon those average lap times.

Reports

Excel Interface

Live Export Reports

Workbook: C:\Users\Don\Documents\2014 Events\Rol Load

	CELL	Worksheet	
Track Map	A1	TrackMap	Export
Fast Lap Ranking	A1	Fast Lap Ranking	Export
Theoretical Ranking	A1	Theoretical Ranking	Export
Best Lap Sectors	A1	Best Lap Sectors	Export
Best Sectors	A1	Best Sectors	Export
Tow Reports	A1	Tow Reports	Export

Options

- Clear Cells
- Use Car Colors
- Include Speed
- Include Engine

Sections

- Sn Pn
- Tn In
- Ln

Export All

- Workbook – Enter the location and name of the workbook where you want to store the report.

- Track Map – Exports the Track Map. Select the beginning cell and name the worksheet.
- Fast Lap Ranking – Exports the fast lap for each car and ranks them in order of fast time.
- Theoretical Ranking – Ranks the cars by their theoretical best lap time.
- Best Lap Sectors – Shows each car with their best time in each section. Under “Sections” you can check which type sections to include in the report.
- Best Sectors – Lists each section with each cars’ best time in that section.
- Tow Reports – Displays the Tow Report.

Under the column “CELL” you input the Cell in the spreadsheet where you want the data placed, and under “Worksheet” you input the name of the worksheet you want to use.

Load Session

- Load Session – Loads a database file (.abs extension), which immediately loads an entire sessions results, not requiring replay.

Track Editor

- Track Editor – In the event that a supplied track .csv file needs modification, or of the user desires to apply aliases to the track sections, the track editor can be used to change editable parameters such as distances, Start/Finish Codes, min split times, split numbers, etc. See example of Daytona below. Note that at some road/street courses, the Finish, Start, and/or Pit Control lines might not be “SF”/“SFP” for some practice and qualifying sessions. Confirm Control Lines with the track map.

Settings - Track Editor

General | Session Results | Live Sections | Pit Stops | Graphing | Track map | Track Editor | Reports

Name: Daytona International S
 Venue: Daytona International S
 Track Length (miles): 3.5600

Tow TimeLines: ,SF,SFT,T1,T1T,E

Control Lines
 Finish (SF): T1 Pit (SFP): P1
 Start (SF): T1
 Blend Pit: P2 Blend Track:
 Stint Start: P2 Stint End: PB

Special Sections
 Pit Lane: Pit
 In Lap: IL
 Out Lap: OL

Units
 metres
 inches
 miles

Buttons: Load, Save, Add Section, Regenerate SectionTimes

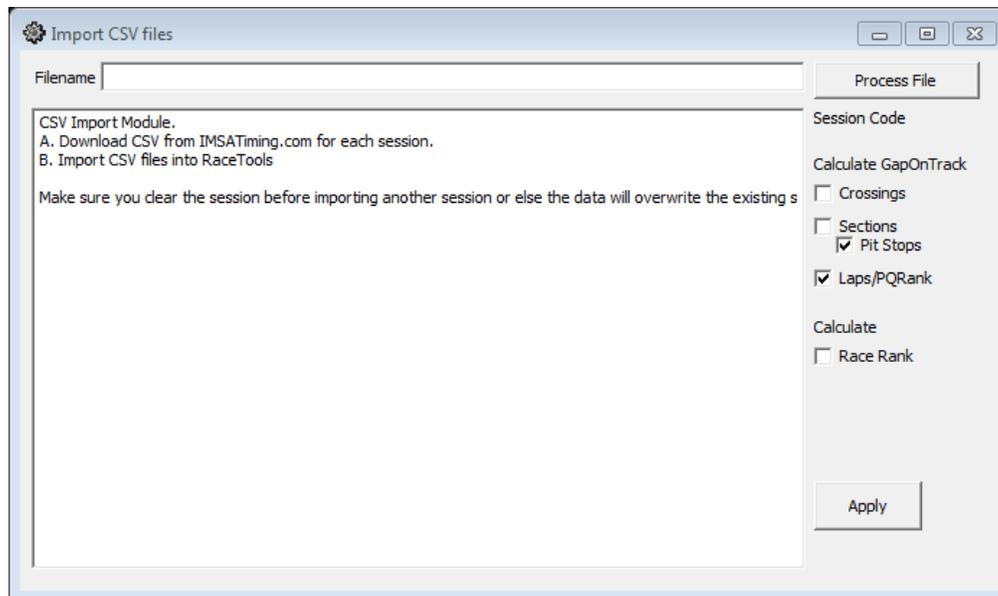
TL	Distance	Track	Pit	Acti
T1	0	T1	N	Y
P1	0	T1	Y	Y
T2	22512	T2	N	Y
P2	22512	T2	Y	Y
T3	64752	T3	N	Y
T4	92976	T4	N	Y
T5	110832	T5	N	Y
T6	128532	T6	N	Y
T7	145656	T7	N	Y
T8	162792	T8	N	Y
T9	180276	T9	N	Y
TA	198084	TA	N	Y
TB	213480	TB	N	Y
PB	213480	TB	Y	Y
TC	214920	TC	N	Y

SEC	ALIAS	START	END	Length	MinTime	PHY	LOG	SPD	PIT	INT	CUS
S01	S01	T1	T2	22512	5.1160	Y					
S02	S02	T2	T3	42240	9.6000	Y					
S03	S03	T3	T4	28224	6.4150	Y					
S04	S04	T4	T5	17856	4.0580	Y					
S05	S05	T5	T6	17700	4.0230	Y					
S06	S06	T6	T7	17124	3.8920	Y					
S07	S07	T7	T8	17136	3.8950	Y					
S08	S08	T8	T9	17484	3.9740	Y					
S09	S09	T9	TA	17808	4.0470	Y					
S10	S10	TA	TB	15396	3.4990	Y					
S11	S11	TB	TC	1440	0.3270	Y					
S12	S12	TC	T1	10642	2.4190	Y					
LAP	LAP	T1	P1	225562	51.2640		Y				
PIT	PIT	PB	P2	34594	7.8620				Y		
SPI	SPI	TB	TC	1440	0.3270			Y			
IL	IL	T1	PB	225562	51.2640		Y				
OL	OL	P2	T1	225562	51.2640		Y				

- Name – Track Name, updated with data feed when available.
- Venue -Venue Name, updated with data feed when available.
- Track Length (miles)- Track Length, updated with data feed when available.
- Tow Timelines – Tow Timelines, updated with data feed when available.
- Track TimeLine and Section tables are updated with data feed when available. You will use information from these tables to fill in the boxes under Control Lines and Special Sections. This is Very Important since this data will be used in compiling various reports and graphs.
- Finish (SF) – Finish Line label. VERY IMPORTANT.
- Start (SF) – Start Line label, usually the same as Finish Line unless there is a remote start line.
- Blend Pit – Pit Lane Blend Line.
- Stint Start – Stint Start Line.
- Pit (SFP) – Pit Lane S/F Line. If Pit Lane does not cross SF Line, use SF line.
- Blend Track – Track Blend Line.

- Pit Lane – Pit Lane Section from Pit-In to Pit-Out. See section table for details.
- In Lap – In Lap section from SF to Pit-In. See section for details.
- Out Lap – Out Lap Section from Pit-Out to SF line.
- Units – Units to use in Timeline and Section tables.
- Add Section – Add Custom Section. Group Physical Sections into other sections for analysis.
- Regenerate Section Times – Recalculate all section times using line crossing data. Automatically called when adding or deleting sections.
- Load – Load track configuration.
- Save – Save and apply track configuration.

Import



Save

Save csv

- Save CSV (deprecated) – saves all lap data for all competitors as CSV file. Use the Time Card (F6) Save CSV (CTRL+S) for a more detailed log of crossings.

Save Settings

- Save Settings – saves user settings selected for displays and setup.

Exit

- Exit – initiates shutdown of software, prompts user to quit Race Tools by clicking “OK”. Cancel if do not want to close Race Tools.

Reset

- Reset – resets some internal counters and flags, use when an error is thrown by the program and the tables stop updating. Reset attempts to restart the updates without having to restart the application.

PopUps

The screenshot shows the 'PopUps' menu in the Race Tools T&S Analysis Module. The menu items and their shortcuts are:

- Best Splits (F1)
- Trap Speeds (F2)
- Pit Stop Analysis (Shift+F2)
- Lap Times (F3)
- Best Laps (F4)
- Time Card (F6)
- Scoreboard (F7)
- Lap Chart (F8)
- Running Order (F9)
- Line Audit (Ctrl+F9)
- StintReport (Ctrl+F2)
- Driver Performance Report (Ctrl+F4)
- Analysis Graph (Shift+F3)
- Best Splits Map (Shift+F1)
- Best Rolling Lap Map (Shift+Ctrl+F1)
- Best Lap Map (Shift+F4)
- Lap Chart Graph (Shift+F7)
- Add Clock (Ctrl+Alt+C)
- Map Legend
- Window Manager (Alt+W)
- Lock Docking (Ctrl+D)
- Close All Popups

The background shows a track map with various markers (555, 87, 508, 09, 72) and a data table with columns: FLT, Gap, FL, FastSpeed, Lap.

FLT	Gap	FL	FastSpeed	Lap
0%		128.156		
		0.526		
		145	128.156	145
		145	-0.423	145
733		145	127.733	156
FLT	Gap	FL	FastSpeed	Lap
0.025	8.778	145	128.156	157
0.003	1.264	118	126.529	157
0.686	0.416	14	127.493	157
0.180	0.313	105	127.712	157
0.930	8.800	41	126.693	156
0.528	1.130	141	127.260	156

Best Splits

F1 - Best Splits Analysis [PR01 at 8:48:17.000]

Pos	Nr	Class	Driver	Theoretical	Delta	FL-OL	S01	Delta	R01	S02	Delta	R02	S03	Delta	R03	S04	Delta	R04	S05
1	5	P	Joao Barbosa	1:38.694	-0.486	0.486	10.467	0.000	1	22.296	0.071	3	19.171	0.246	6	7.015	0.009	4	5.711
2	10	P	Jordan Taylor	1:39.246	0.066	0.757	10.565	0.098	3	22.389	0.164	8	19.256	0.331	11	7.010	0.004	3	5.714
3	9	P	Brian Frisselle	1:39.521	0.341	0.309	10.838	0.371	15	22.329	0.104	4	19.241	0.316	8	7.052	0.046	9	5.727
4	02	P	Marino Franchitti	1:39.495	0.315	0.839	10.723	0.257	18	22.340	0.124	5	19.255	0.340	14	7.035	0.029	6	5.732
5	90	P	Richard Westbrook	1:39.540	0.360	0.644	10.663	0.19	18	22.340	0.124	5	19.255	0.340	14	7.006	0.000	1	5.725
6	01	P	Scott Pruett	1:40.052	0.872	0.937	10.829	0.36	19	22.340	0.124	5	19.255	0.340	14	7.026	0.020	5	5.692
7	60	P	Oswaldo Negri Jr	1:39.863	0.683	0.807	10.646	0.17	10	7.093	0.087	10	5.779						
8	78	P	Sebastian Saverda	1:39.785	0.605	0.922	10.670	0.20	17	7.039	0.033	7	5.734						
9	6	P	Klaus Graf	1:40.044	0.864	1.199	10.488	0.72	4	7.198	0.192	16	5.918						
10	911	GTLM	Nick Tandy	1:44.529	5.349	1.079	11.178	0.01	34	7.598	0.592	38	6.135						
11	912	GTLM	Patrick Long	1:44.426	5.246	1.198	11.082	0.61	30	7.594	0.588	37	6.155						
12	3	GTLM	Antonio Garcia	1:44.664	5.484	1.012	11.075	0.60	28	7.632	0.626	43	6.152						
13	56	GTLM	John Edwards	1:45.053	5.873	1.210	11.091	0.62	36	7.647	0.641	47	6.184						
14	55	GTLM	Bill Auberlen	1:45.140	5.960	1.298	11.074	0.60	33	7.625	0.619	42	6.135						
15	93	GTLM	Jonathan Bomarito	1:44.284	5.104	1.172	11.151	0.68	27	7.593	0.587	34	6.129						
16	4	GTLM	Tommy Milner	1:44.128	4.948	1.273	11.010	0.54	26	7.545	0.539	26	6.083						
17	54	PC	James Gue	1:42.764	3.584	0.846	10.945	0.47	22	7.379	0.373	19	6.111						
18	25	PC	Tom Kimber-Smith	1:42.844	3.664	1.118	10.988	0.52	13	7.427	0.421	24	6.072						
19	7	PC	Alex Popow	1:42.808	3.628	1.447	10.796	0.32	9	7.439	0.433	25	6.117						
20	87	PC	Gaston Kearby	1:42.975	3.795	1.158	10.970	0.50	15	7.419	0.413	23	6.164						
21	63	GTD	Lorenzo Case	1:47.038	7.858	1.050	11.619	1.15	46	7.643	0.637	46	6.111						
22	57	GTLM	Nic Jonsson	1:46.028	6.848	1.064	11.371	0.90	37	7.662	0.656	48	6.210						
23	22	GTD	Leh Keen	1:47.726	8.546	1.040	11.743	1.27	43	7.663	0.657	49	6.159						
24	48	GTD	Matthew Bell	1:46.677	7.497	0.910	11.601	1.13	40	7.606	0.600	40	6.117						
25	555	GTD	Jeff Segal	1:46.561	7.381	0.740	11.553	1.08	39	7.563	0.557	28	6.046						
26	30	GTD	Christina Nielsen	1:47.522	8.342	0.815	11.639	1.17	45	7.689	0.683	54	6.149						
27	556	GTD	Terry Borcheller	1:47.379	8.199	1.665	11.610	1.14	44	7.562	0.556	27	6.069						
28	38	PC	Julio Campos	1:43.073	3.893	1.020	11.094	0.62	12	7.418	0.412	22	6.109						
29	23	GTD	Marco Holzer	1:47.871	8.691	0.805	11.679	1.21	48	7.691	0.685	55	6.192						
30	33	GTD	Emmanuel Collard	1:48.081	8.901	1.234	11.683	1.21	47	7.693	0.687	56	6.207						
31	58	GTD	Madison Snow	1:47.712	8.532	1.144	11.791	1.32	41	7.642	0.636	45	6.126						
32	45	GTD	Spencer Pumpelly	1:46.414	7.234	0.895	11.526	1.05	41	7.588	0.582	33	6.100						
33	44	GTD	Andy Lally	1:48.208	9.028	0.680	11.755	1.28	58	7.695	0.689	59	6.173						
34	007	GTD	James Davison	1:46.780	7.600	0.809	11.610	1.14	42	7.570	0.564	29	6.077						
35	72	GTD	Mika Salo	1:46.092	6.912	1.425	11.648	1.18	47	7.575	0.569	30	6.070						
36	73	GTD	Kevin Estre	1:47.981	8.801	0.457	11.717	1.25	51	7.696	0.690	60	6.184						
37	35	GTD	Seth Neiman	1:47.999	8.819	0.756	11.814	1.34	52	7.616	0.610	41	6.131						
38	94	GTD	Markus Palttala	1:47.831	8.651	0.833	11.684	1.21	44	7.694	0.688	58	6.230						
39	08	PC	Conor Daly	1:42.301	3.121	1.708	10.891	0.424	17	22.900	0.675	22	19.164	0.239	5	7.341	0.335	17	5.982
40	71	GTD	Craig Stanton	1:48.150	8.970	0.887	11.820	1.353	62	24.580	2.355	61	20.732	1.807	50	7.687	0.681	53	6.176

Right Click Menu – Shows different options you can select for this report.

- Hide Column – allows the user to hide any selected column. The column must be underneath the right click. This can be done by right-clicking anywhere in the column
- Show All Columns – makes all columns visible and formats column widths to be identical. This typically makes all data in the popup visible without scrolling laterally.
- Hide Deltas – hides comparative deltas for each section listed.
- Hide Section Rank – hides comparative rank for each section listed.
- Hide Section Times – hides section times.
- Custom Sections – Display Custom sections (if defined).
- Standard Sections – Display Standard sections.

- Show All Competitors – enabled by default, or if no competitors are selected (checked) in the Session Results table. Displays all of the competitors in the session. If it's disabled, the report only displays the competitors selected in the Session Results table.
- Show By Drivers – Sort by Driver Name.
- Exclude Other Classes – Exclude classes other than 'Team Car' class.
- Classes – Select classes to display.
- Vs P1 – Compare to P1.
- Average Times – Displays Average times instead of Best Times.
- Best Rolling Lap – The best complete lap, using any time line as the start/finish line of the lap. This is useful to find the best lap completed, regardless of the location of the S/F line.
- Show As Speed – Display speed instead of Time.
- Car Color Rows – formats the rows to the color applied to each individual car in the car color dialog (accessible by Ctrl+Left Click on the car number in the Session Results window).
- Print – opens print window to print report.
- Save CSV - creates a .csv file for the data contained in the report for use with other programs.
- Copy To Clipboard – copy the data contained in the report to the clipboard for direct pasting into other programs.
- Set Font – sets the font and font size for the table.
- Refresh – while the popup will typically automatically update while the session is in progress, it may occasionally be required to "Refresh" the window to reflect the most current data.
- Close – closes the window. The window can also be closed via the „X“ in the upper right corner.

Trap Speeds

P	Nr	Class	Driver	Best Time	SPI	Delta	R
7	10	P	Max Angelelli	1:40.003	194.342	0.000	1
3	5	P	Sebastian Bourdais	1:40.022	193.882	-0.461	2
6	9	P	John Martin	1:40.909	193.882	-0.461	3
1	90	P	Mike Rockenfeller	1:40.523	193.882	-0.461	4
8	02	P	Kyle Larson	1:40.334	192.967	-1.375	5
5	78	P	EJ Viso	1:40.707	192.513	-1.829	6
4	01	P	Jamie McMurray	1:41.158	192.061	-2.281	7
18	31	P	Boris Said	1:42.146	191.612	-2.731	8
45	50	P	Jim Pace	1:42.445	191.612	-2.731	9
2	60	P	Justin Wilson	1:40.859	191.612	-2.731	10
63	99	P	Memo Gidley	1:40.583	190.718	-3.624	11
56	0	P	Gabby Chaves	1:40.975	190.275	-4.068	12
61	1	P	David Brabham	1:40.433	188.957	-5.386	13
40	65	GTD	Francisco Longo	1:48.077	188.521	-5.821	14
54	2	P	Anthony Luzzaro	1:41.274	187.656	-6.686	15
9	6	P	Alexander Brundle	1:41.294	187.656	-6.686	16
53	42	P	Gustavo Yacamán	1:41.076	187.656	-6.686	17
35	45	GTD	Tim Pappas	1:47.309	186.800	-7.543	18
28	555	GTD	Bill Sweedler	1:47.301	186.374	-7.968	19
29	58	GTD	Marco Seefried	1:48.856	185.950	-8.392	20
31	63	GTD	Toni Vilander	1:48.088	185.529	-8.814	21
50	32	GTD	James Sofronas	1:49.044	185.109	-9.233	22
43	72	GTD	Mikhail Aleshin	1:48.536	185.109	-9.233	23
37	556	GTD	Milo Valverde	1:48.331	184.275	-10.067	24
38	49	GTD	Gialuca Roda	1:48.475	183.861	-10.481	25
36	81	GTD	Mike Avenati	1:49.302	183.861	-10.481	26
52	18	GTD	Ron Zitz	1:49.416	183.449	-10.894	27
44	73	GTD	Patrick Lindsey	1:49.370	183.449	-10.894	28
19	4	GTL	Oliver Gavin	1:45.401	183.038	-11.304	29
65	27	GTD	Marc Lieb	1:49.564	183.038	-11.304	30
60	51	GTD	Jack Gerber	1:48.837	183.038	-11.304	31
46	71	GTD	Timo Bernhard	1:49.312	183.038	-11.304	32
27	48	GTD	Rene Rast	1:47.587	182.630	-11.713	33
41	007	GTD	James Davison	1:49.020	182.630	-11.713	34
13	56	GTL	Dirk Werner	1:46.402	182.223	-12.119	39
15	93	GTL	Rob Bell	1:45.613	182.223	-12.119	41
10	911	GTL	Richard Lietz	1:45.678	182.223	-12.119	42
26	22	GTD	Shane Lewis	1:49.049	182.223	-12.119	35
30	28	GTD	Klaus Bachler	1:48.706	182.223	-12.119	36
25	30	GTD	Nicki Thiim	1:48.337	182.223	-12.119	37
47	35	GTD	Dino von Melke	1:48.677	182.223	-12.119	38

Print	Ctrl+P
Save CSV	Ctrl+S
Copy to Clipboard	Ctrl+C
Close	F2
Refresh	F5
Show Pit Traps	
<input checked="" type="checkbox"/> Show All	
Show By Drivers	
Engine	
Driver Ratings	▶
Car Color Rows	
Exclude Other Classes	
Classes	▶
Set Font	

Right Click Menu reveals options available for this display.

- Print – opens print window to print the report.
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- Close – closes the window. The window can also be closed via the „X“ in the upper right corner.
- Refresh – while the popup will typically automatically update while the session is in progress, it may occasionally be required to “Refresh” the window to reflect the most current data.

- Show Pit Traps – Display Pit traps if available.
- Show All – Displays all of the competitors in the session.
- Show By Drivers – Sort by Driver Name.
- Engine – Display Engine if available.
- Driver Ratings – Display driver rankings if available.
- Car Color Rows – formats the rows to the color applied to each individual car in the car color dialog (accessible by Ctrl+Left Click on the car number in the Session Results window).
- Exclude Other Classes – Exclude classes other than 'Team Car' class.
- Classes – Select classes to display.
- Set Font – sets the font and font size for the table.

Pit Stop Analysis

The Pit Stop Analysis (Shift+F2) report provides the InLap, PitLane, and OutLap times for each pit stop. The total is the sum of the three, which is normally equal to two laps, but if the pit lane does not intersect the S/F line, the total is actually equal to one lap. The BaseLap can be set to the leaders' previous laptime (as indicated in the popup menu), the competitors' previous laptime (default), or a user configured laptime (Set Base Laptime). The Base Lap is used to determine the TimeLost. The TimeLost is the difference between the equivalent number of base lap laptimes and the sum of the InLap, PitLane, and OutLap times (total). The report shows the track status when the car entered the pits, the rank at the start of the InLap, the rank at the end of the OutLap, the ElapsedTime at PitIn, the GapOnTrack is actually the Gap at the PitIn Line,. The LSP is the Laps Since Pit or number of laps in the stint. The GL and YL are the number of Green Laps and Yellow Laps in the stint. A lap must start and end under Green to qualify as a Green Lap. The FuelUsed is calculated using the number of GreenLaps x Green Lap Fuel Economy + Yellow Laps x Yellow Lap Fuel Economy. If the calculated Fuel Used is more than the capacity of the Fuel Tank, then the Fuel Economy numbers being used are wrong and should be adjusted. Note that you will need to refresh (F5) the report to get the most current information. The report is not automatically updated.

P	Car	Class	Driver	Stop	Lap	BaseLap	InLap	PitLane	OutLap	Total	Average	TimeLost	Flag	InRar	OutR	ClsIn	ClsO	ElapsedTime	GapOnTrack	LSP	GL	YL	FuelUsed	TOD	
0	01	P	Scott Pruett	33	611	-1.000	2:01.414						G	29		9		22:30:32.639		18	9	9		36:47:04.402	
37	50	P	Frank Beck	30	592	1:43.068	1:45.976	2:09.945	1:37.723	5:33.644	2:46.822	2:07.508	G	37	37	10	10	22:33:26.624	0.696	29	20	9		36:47:03.706	
16	52	PC	Frankie Montecal	27	621	1:41.666	1:51.784	1:22.944	1:45.113	4:59.841	2:29.921	1:36.509	G	16	16	4	4	22:34:12.929	4:35.509	22	12	10		36:49:28.286	
25	22	GTD	Shane van Giber	29	617	1:41.666	1:49.986	1:30.960	1:41.311	5:02.257	2:31.129	1:38.925	G	25	25	7	7	22:36:29.493	2:23.884	22	12	10		36:50:43.307	
9	42	P	Olivier Pla	30	635	1:42.286	1:41.917	1:10.644	1:30.792	4:23.353	2:11.677	58.781	G	9	10	7	7								36:53:55.305
54	009	GTD	Pete McIntosh II	26	477	1:42.286	1:55.010	1:42.859	1:45.082	5:22.951	2:41.476	1:58.379	G	54	54	27	27								36:55:40.798
32	64	GTD	Ken Wilden	29	608	1:41.666	1:53.552	1:33.255	1:44.798	5:11.605	2:35.803	1:48.273	G	32	33	11	12								36:58:13.015
47	60	P	Justin Wilson	29	560	1:41.666	1:42.371	1:30.185	1:36.733	4:49.289	2:24.644	1:25.957	G	47	47	12	12								36:59:29.496
5	90	P	Richard Westbrook	29	654	1:42.286	1:43.581	1:27.897	1:40.763	4:52.241	2:26.120	1:27.669	G	5	6	5	6								37:00:02.836
28	93	GTLM	Rob Bell	26	616	1:41.666		29.391					G	28	28	6	6								37:03:53.773
51	81	GTD	Patrick Huisman	24	527	1:41.666	1:56.378	4:28.262	1:47.210	8:11.850	4:05.925	4:48.518	G	51	51	25	25								37:03:56.739
10	54	PC	Colin Braun	28	642	1:42.286	1:46.654	1:16.778	1:38.111	4:41.543	2:20.772	1:16.971	G	10	11	1	2								37:04:10.617
1	5	P	Sebastian Bourda	28	659	1:43.068	1:41.269	1:13.121	1:35.104	4:29.494	2:14.747	1:03.358	G	1	2	1	2								37:04:16.033
3	10	P	Jordan Taylor	29	659	1:43.068	1:41.894	1:14.037	1:36.294	4:32.225	2:16.113	1:06.089	G	2	3	2	3								37:04:37.741
14	38	PC	Raphael Matos	32	633	1:42.286	1:47.886	1:11.038	1:36.313	4:35.237	2:17.618	1:10.665	G	14	14	3	3								37:05:59.596
7	911	GTLM	Nick Tandy	23	644	1:42.286	1:47.307	1:18.770	1:42.508	4:48.585	2:24.292	1:24.013	G	7	7	1	1								37:07:35.598
4	02	P	Scott Dixon	31	659	1:43.068	1:42.823	1:12.943	1:34.339	4:30.105	2:15.053	1:03.969	G	4	4	4	4								37:08:07.760
12	2	P	Johannes van Ove	33	642	1:42.286	1:43.817	1:33.450	1:40.568	4:57.835	2:28.917	1:33.263	G	12	12	8	8								37:07:58.037
24	8	PC	Renger van der Z	30	628	1:41.666	1:44.259	1:40.752					G	23	24	5	5								37:09:07.661
2	9	P	John Martin	28	661	1:42.286	1:43.451	1:18.301	1:41.498	4:43.250	2:21.625	1:18.678	G	1	3	2	3								37:09:23.254
48	007	GTD	Brandon Davis	24	548	1:41.666	1:53.509	2:17.682	1:41.338	5:52.529	2:56.264	2:29.197	G	48	48	22	22								37:08:24.762
56	87	PC	Gaston Kearby	29	427	1:41.666	1:50.267	2:19.939	1:44.518	5:54.724	2:57.362	2:31.392	G	56	56	7	7								37:10:4.502
5	6	P	Klaus Graf	33	659	1:43.068	1:43.333	1:12.673	1:33.565	4:29.571	2:14.786	1:03.435	G	5	6	5	6								37:10:14.602
29	65	GTD	Xandinho Negroa	28	618	1:41.666	1:52.465	1:33.434	1:44.615	5:10.514	2:35.257	1:47.182	G	29	29	10	10								37:10:14.602
11	25	PC	Tom Kimber-Smith	29	645	1:42.286	1:48.369	1:10.796	1:38.136	4:37.301	2:18.651	1:12.729	G	10	11	1	2								37:11:39.696
41	31	P	Eric Curran	32	687	1:41.666	1:50.111	1:56.682	1:48.455	5:35.248	2:47.624	2:11.916	G	41	42	11	11								

Right-Click Menu showing options available for this report.

Another useful tool is the Pit Windows display. The Race/Pit Windows tab displays projected and completed pit stop information. The left hand side shows the amount of fuel in the car (this is a calculated value, not from the team's telemetry) and the lap they need to pit by in blue. The right side of the tab displays the pit windows. The projections rely on setting the appropriate Fuel Economy for each car. At the start of the race, the projected pit windows are displayed. The cars are colored RED if they are in the pits which is the default at the start of the race.

Race Tools T&S Analysis Module (MSA eRMON) - Daytona International Speedway Race (PR01)

File: PopUps Layout Options Replay Minimize Help

Cars in Pit 09,55,44,52,10,58,50 (60 cars on track)

Time 16:07:48 Elapsed 01:56:20 To Go 17:50 (81M) Green 1 (46/17) Yellow 3 Red 0

GREEN

P	Nr	CLASS	PIC	Name	Laps	FastTime	LapTime	PL	Gap	Diff	CLSGap	CLSGap	Pts	Laps	
1	02	P	1	Scott Dixon	63	1:40.892	1:41.345	58	-63.0	-63.0	-63.0	-63.0	2	151	
2	5	P	2	Joao Barbosa	63	1:40.930	1:41.951	39	15.554	15.554	+15.554	+15.554	3	58	
3	10	P	3	Ricky Taylor	63	1:40.717	1:42.135	56	0.546	16.100	+16.100	+0.546	2	49	
4	92	P	4	Renzo Galy	62	1:40.265	1:42.043	47	5.106	21.206	+21.206	+5.106	2	30	
5	42	P	5	Roman Rusnov	62	1:41.076	1:45.394	17	47.054	1:05.962	+65.962	-	2	47	
6	78	P	6	Alex Prooy	62	1:41.099	1:44.345	20	22.200	1:14.922	+74.922	+72.291	3	57	
7	11	P	7	Eugen Dzhelid	62	1:41.730	1:42.346	42	25.956	1:40.148	+100.148	+25.956	2	48	
8	60	P	8	Zari Den	62	1:41.690	1:44.140	40	12.211	1:12.211	-	+12.211	3	54	
9	0	P	9	Katherine Leape	62	1:42.153	1:44.845	58	10.123	1:14.845	-	+10.122	2	51	
10	9	P	10	Robert Glock	62	1:42.849	1:42.849	62	0.000	1:14.845	-	-	46.000	86	
11	01	P	11	Scott Pruett	62	1:41.158	1:42.992	41	13.506	1:14.845	-	+13.506	3	50	
12	0	P	12	Richard Ylante	61	1:40.822	1:46.268	14	37.996	1:14.845	-	-	3	32	
13	111	GT/M	1	Michael Vanthone	61	1:45.879	1:47.198	55	-4.579	1:14.845	-	-61.0	1	32	
14	91	GT/M	2	Marc Goossens	61	1:45.907	1:47.715	24	0.353	1:14.845	-	+0.353	1	34	
15	64	GT/M	1	Giannina Berti	61	1:45.631	1:47.859	16	0.708	1:14.845	-	+1.061	+0.708	1	34
16	70	P	1	Alex Tredari	61	1:44.009	1:46.517	17	0.035	1:14.845	-	-61.0	2	51	
17	018	GT/M	1	Daniel Long	61	1:45.621	1:46.521	49	2.325	1:14.845	-	+3.422	+2.321	1	31
18	92	GT/M	3	Jonathan Bonarito	61	1:45.881	1:47.290	30	2.528	1:14.845	-	+5.950	+2.528	1	33
19	84	GT/M	1	Tommy Palmer	61	1:45.640	1:46.511	12	6.353	1:14.845	-	+12.303	+6.353	1	32
20	6	P	13	Mous Grac	61	1:41.632	1:43.659	5	0.747	1:14.845	-	-	+17.623	3	50
21	8	P	14	Markus	61	1:41.821	1:43.626	13	0.205	1:14.845	-	-	+17.623	3	50

Nr	Name	Total	Fuel	Next(Fuel)	Class	Pit Time
1	Scott Dixon	2:33.303	29.4 g	64 (32)	51	1:15.540
2	Joao Barbosa	3:52.230	17.8 g	83 (31)	58	1:09.578
3	Ricky Taylor	1:16.991	17.8 g	83 (31)	49	0.000
4	Memo Galy	2:39.174	20.0 g	84 (30)	56	2:13.924
5	Roman Rusnov	1:16.406	11.8 g	75 (31)	47	0.000
6	Alex Prooy	4:08.827	-2.6 g	63 (32)	57	1:19.559
7	Ryan Dalbey	1:15.124	11.0 g	74 (31)	45	0.000
8	John Pew	4:05.883	16.1 g	80 (31)	54	1:24.031
9	Katherine Leape	3:05.573	12.7 g	76 (31)	51	1:45.949
10	Robert Glock	0.000	17.8 g	82 (30)	46	0.000
11	Scott Pruett	4:40.123	12.7 g	76 (31)	50	1:06.668
12	Michael Vanthone	1:15.547	20.0 g	84 (30)	56	2:13.924
13	Nick Tandy	1:15.715	-2.6 g	62 (32)	32	1:15.715
14	Marc Goossens	1:12.833	-0.9 g	62 (32)	34	1:12.833
15	Giannina Berti	1:14.693	-0.9 g	62 (32)	34	1:14.693
16	Alex Tredari	2:41.124	-8.5 g	62 (32)	51	1:18.582
17	Daniel Long	1:20.318	21.2 g	85 (31)	31	1:20.318
18	Jonathan Bonarito	1:16.688	13.7 g	82 (30)	33	1:16.688
19	Tommy Palmer	1:15.126	-2.6 g	62 (32)	32	1:15.126
20	Mous Grac	4:07.637	13.5 g	76 (31)	50	1:13.378
21	Markus	1:14.993	-1.7 g	62 (32)	33	1:14.993
22	Mika Hakola	1:09.816	17.8 g	81 (31)	46	0.000
23	Dick Mulder	1:05.656	-0.9 g	62 (32)	34	0.000
24	Richard Ylante	3:53.294	13.7 g	75 (31)	49	1:46.268
25	Andy Pilakz	56.170	11.0 g	72 (31)	40	0.000
26	Stefan Mücke	2:38.201	22.0 g	85 (31)	60	1:19.788
27	Memo Galy	1:12.652	11.8 g	73 (31)	47	0.000
28	Martin Fuentes	4:25.663	18.6 g	81 (31)	56	1:44.977
29	Mika Hakola	3:37.353	12.7 g	74 (31)	48	1:27.059
30	Jon Bonnett	3:49.057	-0.9 g	60 (32)	56	1:18.634
31	Kevin Estre	1:51.457	-2.6 g	60 (32)	30	1:51.457
32	Randy Fenner	1:30.090	0.0 g	89 (32)	58	3:28.307
33	Ruba Germanzak	1:34.915	0.0 g	60 (32)	33	1:34.915
34	Domen Faulstich	1:32.022	0.0 g	80 (32)	33	1:32.022
35	Markus	2:37.633	22.0 g	84 (31)	59	0.000
36	Randy Fenner	0.000	10.1 g	70 (31)	33	0.000
37	Mous Grac	2:28.498	14.4 g	75 (31)	49	1:36.534
38	Tommy Palmer	2:36.031	8.2 g	63 (32)	38	1:57.458
39	Peri James	2:36.034	4.2 g	63 (32)	38	1:55.344

Nr	Name	Total	Fuel	Next(Fuel)	Class	Pit Time
39	Peri James	2:36.034	4.2 g	63 (32)	38	1:55.344

You can access the Fuel Economy table by double clicking on the Pit Stop table. You can set global Green and Yellow Fuel Economy numbers and apply them with the Reset button. You can edit the mpg figures for each competitor individually in the table. You should Save these so they will be used the next time the program is launched.

Setup

General | Session Results | Live Sections | Pit Stops | Graphing | Track map | Track Editor | Reports

draw All Pitstops
 draw Tire Type
 draw Pit Lap #
 Show All Cars
 Zoom In
 Use Individual Max Laps
 Over Ride Average Lap Time

Average Lap Time: 103.358

Minimum Pit Stop Time: 70.00
Pit Stop Digits: 4

Pit Stop Font

Fuel Economy

Green 4.2000 MPG 0.848 g/Lap 23.60 laps/tank
Yellow 8.0000 MPG 0.445 g/Lap 44.94 laps/tank

Track Length: 3.560 Miles Duration: 23:59:59
Race Laps: 0 -0.9 stops Laptime: 0:00:00 00:00:00
Pace Laps: 2 Pit Time: 15.000
Capacity: 20 Gallons Laptime: 0:00:00 00:00:00
Laps: 00 0 Laps

Reset Save

CLS	Car	Driver	(mpg)	(mpg)	Capacity
P	0	Katherine Legge	4.20	8.00	22.00
P	1	Ryan Dalziel	4.20	8.00	22.00
P	2	Simon Pagenaud	4.20	8.00	22.00
GTL	3	Antonio Garcia	4.20	8.00	22.00
GTL	4	Tommy Milner	4.20	8.00	22.00
P	5	Christian Fittipaldi	4.20	8.00	22.00
P	6	Lucas Luhr	4.20	8.00	22.00
PC	7	Martin Fuentes	4.20	8.00	22.00
PC	8	Mirco Schultis	4.20	8.00	22.00
P	9	Fabien Giroix	4.20	8.00	22.00
P	01	Memo Rojas	4.20	8.00	22.00
P	02	Tony Kanaan	4.20	8.00	22.00
P	07	Tristan Vautier	4.20	8.00	22.00

After pit stops are taken, the pit windows are updated.

Race Tools T&S Analysis Module (MSA eRMON) - Daytona International Speedway Race (PR01)

File | PopUps | Layout | Options | Replay | Minimize | Help

Cars in Pit: 1,07,8,99,27 (60 cars on track)

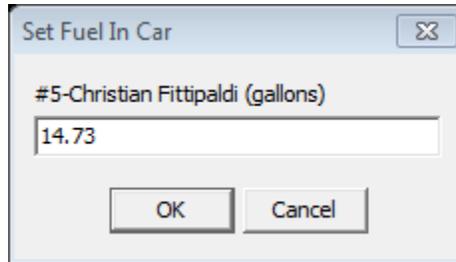
Time: 18:33:12 Elapsed: 04:21:44 To Go: 2:46:13 Green: 10 Yellow: 10 Red: 5102 GREEN

P	Nr	CLASS	PIC	Name	Laps	FastTime	LapTime	Pit	Gap	DifF	CLSDH	CLCGO	Pit	LPH	
1	01	P	1	Christian Fittipaldi	105	1:40.351	1:40.351	105	<0.000	<0.000	<0.000	<0.000	5	96	
2	02	P	2	Tony Kanaan	105	1:40.895	1:41.805	58	16.742	16.742	+16.742	+16.742	5	96	
3	10	P	3	Wayne Taylor	105	1:40.568	1:45.012	88	9.744	26.486	+26.486	+26.744	4	96	
4	10	P	4	Oliver Lieb	105	1:41.076	1:45.368	17	1.038	27.318	+27.318	+1.033	5	96	
5	78	P	5	Scott Mayer	105	1:41.099	1:47.248	20	2.358	29.877	+29.877	+2.358	5	96	
6	01	P	6	Memo Rojas	104	1:41.158	1:48.759	41	22.022	30.233	+30.233	+5.023	5	99	
7	90	P	7	Michael Jabre	104	1:40.523	1:46.686	14	16.336	1:06.589	+16.336	5	99		
8	01	P	8	Tony Kanaan	104	1:41.260	1:42.003	46	3.966	1:10.181	+10.181	+3.966	5	96	
9	9	P	9	Fabien Giroix	104	1:41.341	1:44.406	90	5.892	1:16.073	+16.073	+5.892	3	99	
10	01	P	10	Antonio Garcia	103	1:45.023	1:45.046	5	0.040	0.040	+0.040	+0.040	5	96	
11	91	GTL	1	Donk Farnbacher	102	1:45.863	1:47.577	86	47.328	>L	>102>	>102>	3	95	
12	01	GTL	1	Edoardo Girelli	102	1:45.879	1:46.889	55	0.280	>L	>102>	>102>	3	95	
13	01	GTL	1	Edoardo Girelli	102	1:44.009	1:49.821	17	1.631	>L	>102>	>102>	4	94	
14	91	GTL	1	Louie Wilmer	102	1:45.861	1:47.904	30	1.840	>L	>102>	>102>	3	95	
15	96	GTL	4	Colton Hahn	102	1:46.402	1:47.390	60	1.537	>L	>102>	>102>	4	95	
16	512	GTL	1	Michael Christensen	102	1:45.624	1:47.339	49	0.027	>L	>102>	>102>	3	95	
17	91	GTL	6	Ryan Briscoe	102	1:45.867	1:48.554	14	6.352	>L	>11478	>11478	3	95	
18	4	GTL	7	Robin Liddell	102	1:45.640	1:48.539	12	0.308	>L	>11986	>11986	3	95	
19	01	GTL	4	Morgan Adkins	102	1:46.616	1:47.330	34	1.376	2LAPS	+63.362	+11.376	4	97	
20	01	P	20	Martin Fuentes	101	1:44.233	1:49.245	40	51.925	>L	>L	>L	45.435	5	93

Nr	Name	Total	Fuel	Next(%)	Stop N	Pi Time	Stop -1	Pi Time	Stop -2	Pi Time	Stop -3	Pi Time	Stop -4	Pi Time	Stop -5	Pi Time
1	Christian Fittipaldi	4:46.307	16.4	124 (28)	96	1:25.311	83	1:12.766	58	1:09.578	33	1:11.712	8	1:20.940		
2	Tony Kanaan	7:07.228	16.4	124 (28)	96	1:15.773	95	1:59.333	76	1:18.819	51	1:15.948	26	1:18.255		
3	Wayne Taylor	2:03.554	16.4	124 (28)	96	1:46.563	73	0.000	49	0.000	25	1:16.561				
4	Oliver Lieb	2:40.882	16.4	124 (28)	96	1:28.498	71	0.000	47	0.000	23	1:16.866				
5	Scott Mayer	5:47.381	16.4	124 (28)	96	1:39.154	81	0.000	57	1:19.559	31	1:12.275	8	1:17.993		
6	Memo Rojas	3:51.393	18.6	125 (28)	99	1:11.132	73	0.000	50	1:06.668	49	2:06.809	25	1:26.896		
7	Michael Jabre	7:53.188	18.6	125 (28)	99	1:07.937	82	1:29.704	58	2:15.931	50	1:37.366	25	1:14.230		
8	Justin Wilson	6:46.340	18.6	125 (28)	99	1:24.437	77	1:14.920	54	1:24.031	31	1:14.246	8	1:28.706		
9	Fabien Giroix	2:36.078	18.6	125 (28)	99	1:18.533	74	1:17.545	49	1.000						
10	Alexandre Rousseau	6:28.376	18.6	124 (28)	98	1:33.051	75	26.188	50	1:13.378	25	1:44.836	23	1:09.423		
11	Donk Farnbacher	2:20.292	17.7	122 (28)	95	1:08.069	68	0.000	34	1:12.833						
12	Kuno Wittmer	3:49.465	17.7	122 (28)	95	1:17.972	67	1:14.795	33	1:16.698						
13	Edoardo Girelli	3:26.334	17.7	122 (28)	95	1:14.401	66	1:15.577	34	1.000	1					
14	Colton Hahn	2:52.307	17.7	122 (28)	95	1:31.889	62	0.000	31	1:20.318						
15	Ryan Briscoe	2:50.982	17.3	122 (28)	95	1:15.989	65	0.000	33	1:14.993						
16	Edoardo Girelli	4:15.099	17.7	122 (28)	95	1:46.697	64	1:13.206	32	1:15.106						
17	Memo Rojas	2:09.650	18.6	123 (28)	97	1:13.490	71	0.000	40	0.000	8	56.170				
18	Martin Fuentes	8:03.583	18.6	120 (28)	93	2:20.590	81	1:17.342	36	1:44.977	32	1:21.822	8	1:18.864		
19	Colton Hahn	4:06.707	17.7	121 (28)	94	1:28.596	60	1:19.788	29	1:18.413						
20	Colton Hahn	5:06.084	8.2	110 (28)	80	1:17.027	56	1:18.634	32	1:15.429	8	1:14.994				
21	Morgan Adkins	6:27.622	18.6	122 (28)	96	1:38.495	73	1:11.169	48	1:17.609	24	2:00.249				
22	Bradley Smith	3:24.953	18.6	121 (28)	95	1:55.865	85	1:46.448	54	2:08.807	32	1:36.732	31	49.825		
23	James Kovach	1:26.213	22.0	124 (28)	99	45.581	93	1:14.767	75	1:31.272	49	1:46.800	24	1:06.824		
24	David Greenfield	4:26.692	18.6	120 (28)	78	1:23.396	52	1:44.180	26	1:43.466						
25	Peter Dunlap	6:07.022	18.6	120 (28)	94	1:31.601	72	1:39.590	38	1:37.419	4	1:18.612				
26	Mario Farnbacher	4:13.614	17.7	118 (28)	91	1:37.580	69	0.000	38	1:35.344	8	1:00.690				
27	Sammy Van Coillie	4:00.863	17.7	118 (28)	92	1:28.482	68	1:28.636	57	1:41.648	27	1:23.660				
28	Edoardo Girelli	3:26.692	17.7	118 (28)	91	1:25.340	70	1:22.543	39	1.000	8	1:02.975				
29	Aravah	3:15.954	17.7	118 (28)	91	1:43.781	66	0.000	33	1:32.073						
30	Paul Dalla Lana	3:24.252	17.7	118 (28)	91	1:33.605	61	1:32.531	30	1:29.383	8	58.733				
31	Edoardo Girelli	3:55.816	18.6	119 (28)	92	1:28.482	68	1:28.636	57	1:41.648	27	1:23.660				
32	Byron Miles	6:23.398	17.7	118 (28)	92	56.432	91	1:04.936	73	1:25.346	47	1:36.744	23	1:19.940		
33	Mirco Schultis	3:55.953	18.2	119 (28)	92	1:11.385	91	1:40.781	59	1:26.156	39	1:36.730	8	1:00.903		
34	Christian Fittipaldi	59.951	1.4	99 (28)	68	0.000	38	0.000	1	1.59.911						
35	Mia Valverde	5:59.548	16.4	117 (28)	92	1:39.529	88	56.801	58	1:26.643	28	1:36.175				
36	Sergio Eboliadoro	6:36.415	17.3	118 (28)	91	1:40.486	74	1:27.611	49	1:36.534	25	1:51.964				
37	Mia Valverde	5:21.096	17.7	118 (28)	91	1:32.869	60	0.000	30	1:51.657						
38	Marius Winkelroff	5:52.175	18.6	119 (28)	91	1:45.686	61	2:08.843	35	0.000	8	1:57.646				
39	Edoardo Girelli	7:13.861	18.1	118 (28)	97	1:46.568	91	1:07.642	77	1:31.314	50	1:23.768	24	1:24.569		

Error in Position: 68
lapBar Message Received

Note that the software assumes a full fill any time a car goes through pit lane. If this is not the case, you can adjust the amount of fuel in the car by clicking on the car number in the Pit Stop table. This brings up the Set Fuel In Car dialog box which allows you to set how much fuel you think is in the car at this time. If they short fueled or did not refuel at all, you would decrease this number accordingly.



Lap Times

Lap Times – Shortcut F3 – Lists the lap times for each competitor in the session. By default, lap times are listed by session time. Lap times can also be listed by competitor completed laps, lap times, or Time Of Day. Results are listed left to right by session rank. Out Laps are highlighted in red while fastest laps for each competitor are highlighted in green. This report is applicable to all session types.

The screenshot shows a window titled "F3 - Lap Times per Driver [PR01 at 4:30:48.000]". The main area contains a grid of lap times for 15 drivers (RANK 1-15) across 15 laps (Time/Car 1-15). The grid uses color coding: red for out-laps and green for fastest laps. A context menu is open over the grid, listing various options for data manipulation and display.

RANK	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time/Car	5	02	42	10	01	78	90	60	9	6	91	93	911	08	912
04:09:12	3:30.486	3:31.602	3:33.790			3:32.612	3:43.107	3:46.983	3:44.140		3:32.125	3:14.172	3:20.617	3:31.927	3:12.317
04:10:53					2:46.397		2:38.990	2:44.304	2:43.415	2:49.636					
04:12:33	3:21.524	3:17.040	3:16.253	3:30.290		3:16.211					3:18.027	3:16.992	3:17.615	3:16.275	3:15.443
04:14:13					2:43.336		2:24.882	2:23.754	2:57.402	3:23.746					
04:15:54	3:10.707	3:07.884	3:09.598	3:08.470	2:04.831	3:09.353	2:34.500	2:49.514	2:16.111	2:11.118					
04:17:34	1:43.311	1:47.104	1:50.670	1:49.246	1:44.227	1:49.104	1:43.020	1:43.509	1:45.012	1:44.572					
04:19:14	1:44.033	1:46.801	1:46.626	1:46.779	1:48.589	1:46.618	1:42.169	1:42.756	1:43.127						
04:20:55	1:40.640	1:44.028	1:46.015	1:46.872	1:44.256	1:46.720	1:43.200	1:43.952	1:42.555	1:42.965					
04:22:35	1:40.939	1:42.109	1:45.494	1:46.016	1:44.759	1:46.271	1:46.686	1:42.103	1:44.406	1:43.191					
04:24:15	1:40.351	1:41.805	1:45.508	1:45.012	1:43.263	1:47.248	1:41.447	1:45.015	1:44.620	1:43.946					
04:25:56	1:43.880	1:42.316	1:45.118	1:45.433	1:43.488	1:47.497	1:42.878	1:42.076							
04:27:36	1:40.627	1:41.971	1:44.594	1:44.776	1:43.785	1:47.949	1:46.256	1:43.501	1:43.809	1:43.246					
04:29:17	1:42.070	1:42.108	1:45.025	1:44.848	1:42.361	1:47.525	1:41.890		1:42.185	1:44.393					
04:30:57	1:45.809	1:42.057	1:47.831	1:49.749	1:43.323	2:08.827		1:43.362	1:43.794	1:41.611					
04:32:37	1:42.338	1:41.814	1:44.013	1:44.963	1:43.383		1:47.725	1:43.546	1:45.452	1:46.229					

The context menu options include:

- Section Analysis
- Show All
- Exclude Other Classes
- Classes
- Sort By LapTimes
- Vs. Laps (Alt+L)
- Time Of Day
- Show as Speed (Alt+S)
- Show Averages (Alt+A)
- # Laps To Average
- Tow Filter (Alt+T)
- Highlight Tow Laps (Ctrl+T)
- Set Highlight Color
- Stint Averages
- 1/100th (s.nn)
- Car Color Rows
- Set Font
- Invalidate Lap
- Auto Size
- Manual Update
- Copy To Clipboard (Ctrl+C)
- Save CSV (Ctrl+S)
- Print (Ctrl+P)
- Close (F3)
- Refresh (F5)

Additional options accessed by right click are listed below.

- Print – Shortcut Ctrl+P – opens print window to print report.
- Copy to Clipboard – Shortcut Ctrl+C – copy the data contained in the report to the clipboard for direct pasting into other programs.
- Save as CSV – Shortcut Ctrl+S – creates a .csv file for the data contained in the report for use with other programs.
- Close – Shortcut F3 – closes the window. The window can also be closed via the „X“ in the upper right corner.
- Refresh – Shortcut F5 – while the popup will typically automatically update while the session is in progress, it may occasionally be required to „Refresh“ the window to reflect the most current data.

- Sort By LapTimes – sorts the competitor data by lap time, ascending order.
- Vs. Laps – Shortcut Alt+L – sorts the data by the lap number.
- Time of Day – sorts the data by time of day.
- Auto Size – auto sizes the column width to the data contained within it and the window to the data of the report.
- Show as Speed – Shortcut Alt+S – shows lap performance as speed, most useful for oval events.
- Show Averages – Shortcut Alt+A – adds analysis of average lap time and summarizes the best laps at the top of the report. This is quite useful for sessions that contain many laps by each competitor or span a long period of time (like open test sessions).

F3 - Lap Times per Driver [IR01 at 2:08:08.716]

RANK	1	2	3	4	5
Car #	12	22	3	10	6
AVERAGE	98.808	98.494	98.436	97.886	97.885
CAR #	8	3	12	6	22
FASTTIME	101.471	101.438	101.423	101.362	101.331
Lap/Car	12	22	6	3	10
G Avg	98.808	98.494	97.885	98.436	97.886
Y Avg	56.370	56.924	59.130	56.757	59.528
60	100.563	100.419	99.291	99.405	101.258
61	100.876	100.772	98.271	98.478	100.564

- Tow Filter – Shortcut Alt+T – eliminates laps from the report that are classified as „tow“ laps. If a car is within the Tow Threshold of another competitor at any timing line, the lap is considered a tow lap. This feature is most useful for oval events. Remember that the Tow Threshold is set in the File -> Configuration menu.
- Highlight Tow Laps – Shortcut Ctrl+T – this feature changes the font color of laps that are considered tow laps. The color of the font changes to the user selected color to indicate a lap that was completed under a tow.
- Set Highlight Color – sets the font color for the tow lap highlight.
- Stint Averages – when this option is selected, the out laps that are background highlighted in red change from lap time to the average lap time of the previous stint.
- 1/100 (s.nn) – reduces the resolution of the lap time/speed to 2 decimal places instead of the Report Digits.
- Show All – selects all competitors. The report can be run for only selected competitors if this feature is not selected. Drivers can be selected by clicking in the “CK” check box in the Session Results window (an “x” will appear). When selected drivers are changed, the report might need to be refreshed.
- Car Color Rows – formats the rows to the color applied to each individual car in the cars color dialog.
- Set Font – sets the font and font size for the table.

- Note that double clicking on a car number in the Lap Time report opens the time card for that competitor. An example time card is below. The time card shows lap time, lap speed, segment, trap, and track condition data for the selected driver.

Time Card 5																
P	Car	Class	Driver	Lap	LapTime	Status	Speed	Flag	S01	S02	S03	S04	S05	S06	S07	S
1	5	P	Christian Fittip	103	1:40.640	T	127.345	G	10.797	22.549	19.580	7.094	5.789	5.356	9.384	
1	5	P	Christian Fittip	104	1:40.939	T	126.968	G	11.262	22.530	19.364	7.105	5.791	5.347	9.341	
1	5	P	Christian Fittip	105	1:40.351	T	127.712	G	10.841	22.461	19.337	7.098	5.775	5.343	9.376	
1	5	P	Christian Fittip	106	1:43.880	T	123.373	G	10.867	22.719	20.118	7.149	5.840	5.448	11.171	
1	5	P	Christian Fittip	107	1:40.627	T	127.361	G	10.901	22.591	19.391	7.079	5.767	5.349	9.412	
1	5	P	Christian Fittip	108	1:42.070	T	125.561	G	10.873	23.125	20.439	7.076	5.754	5.321	9.511	
1	5	P	Christian Fittip	109	1:45.809	T	121.124	G	11.569	24.343	19.619	7.098	5.751	5.340	11.642	
1	5	P	Christian Fittip	110	1:42.338	T	125.232	G	10.934	23.671	19.831	7.171	5.786	5.339	9.490	
1	5	P	Christian Fittip	111	1:42.731	T	124.753	G	10.821	22.672	20.138	7.181	5.763	5.431	10.507	
1	5	P	Christian Fittip	112	1:43.323	T	124.038	G	11.630	23.809	20.126	7.104	5.769	5.358	9.589	
1	5	P	Christian Fittip	113	1:44.398	T	122.761	G	11.177	24.016	20.744	7.209	5.780	5.409	9.951	
1	5	P	Christian Fittip	114	1:43.156	T	124.239	G	10.916	23.716	19.622	7.096	5.759	5.425	10.350	
1	5	P	Christian Fittip	115	1:41.641	T	126.091	G	10.926	22.887	19.892	7.360	5.779	5.311	9.522	
1	5	P	Christian Fittip	116	1:41.523	T	126.237	G	11.347	22.853	19.481	7.071	5.755	5.352	9.593	
1	5	P	Christian Fittip	117	1:43.688	T	123.602	G	11.038	22.854	19.532	7.055	5.736	5.529	11.800	
1	5	P	Christian Fittip	118	1:41.300	T	126.515	G	11.113	23.045	19.470	7.056	5.760	5.348	9.455	

Best Laps

Best Laps – Shortcut F4 – displays the timed best lap driven by each competitor. Also displays the segment times, ranks, and deltas for each competitor.

Right-Click menu showing options available for this report.

- Hide Column – allows the user to hide any selected column. The column must be selected before right clicking. This can be done by clicking anywhere in the column.
- Show All Columns – makes all columns visible and formats column widths to be identical. This typically makes all data in the popup visible without scrolling laterally.
- Hide Deltas – hides comparative deltas for each parameter listed.
- Hide Section Rank – hides comparative rank for each section listed.
- Hide Section Times – hides section times.
- Show As Speed – for this report, only the lap time and deltas show as speed, segments are still displayed as time. This is most useful for oval events where the performance index is speed.
- Custom Sections – Display Custom Sections.
- Standard Sections – Display standard sections.
- Trap Speed Sections – Display trap speed sections.
- Show All Cars – selects all competitors. The report can be run for only selected competitors if this feature is not selected. When selected drivers are changed, the report might need to be refreshed.

- Show By Drivers – Sort by Driver.
- Driver Ratings – Display Driver Rating if available.
- Refresh – Shortcut F5 – while the popup will typically automatically update while the session is in progress, it may occasionally be required to „Refresh“ the window to reflect the most current data.
- Autosize – auto sizes the column width to the data contained within it and the window to the data of the report.
- Delta vs. Best Section Time – this compares the section times to the best of the session rather than that of the fastest lap.
- Car Color Rows – formats the rows to the color applied to each individual car in the cars color dialog.
- Exclude Other Classes – Excludes classes other than the ‘Team Car’ class.
- Classes – Displays the classes in the current session.
- Set Font – sets the font and font size for the table.
- Invalidate Fast Lap – Allows the user to Invalidate the fastest lap for a competitor.
- Print – Shortcut Ctrl+P – opens print window to print report.
- Save as CSV – Shortcut Ctrl+S – creates a .csv file for the data contained in the report for use with other programs.
- Copy to Clipboard – Shortcut Ctrl+C – copy the data contained in the report to the clipboard for direct pasting into other programs.
- Close – Shortcut F4 – closes the window. The window can also be closed via the „X“ in the upper right corner.

Time Card

Time Card – Shortcut F6 – displays the timing information for an individual car, including lap times, segment times, trap speeds, tire, overtake, and track condition data. When this report is selected, user will be prompted to enter the car number of interest. Note that the time card can be accessed in many ways, including through other reports and double left clicking on the row for the competitor in the Session Results window.

P	Car	Class	Driver	Lap	LapTime	Status	Speed	Flag	S01	S02	S03	S04	S05	S06	S07	S08	S09
1	5	P	Christian Fittip	143	100.946	T	126.959	G	114.011	106.077	82.061	143.663	174.749	181.555	103.556	154.809	177.793
1	5	P	Christian Fittip	144	101.008	T	126.881	G	117.101	105.699	80.751	143.764	175.053	181.285	103.888	155.707	177.543
1	5	P	Christian Fittip	145	100.466	T	127.566	G	118.281					81.488	103.238	155.414	177.824
1	5	P	Christian Fittip	146	104.030	T	123.195	G	106.246					76.324	96.428	154.616	174.994
1	5	P	Christian Fittip	147	101.128	T	126.730	G	115.233					81.657	102.932	155.390	177.699
1	5	P	Christian Fittip	148	104.704	T	122.402	G	112.785					78.393	99.330	154.328	175.055
1	5	P	Christian Fittip	149	102.863	T	124.593	G	110.888					82.031	99.788	154.906	176.891
2	5	P	Christian Fittip	150	116.084	P	110.403	G	117.348					79.578	101.526	154.496	176.244
4	5	P	Sebastian Bourda	151	164.963	T	77.690	Y						75.118	93.260	140.869	143.094
3	5	P	Sebastian Bourda	152	166.616	T	76.919	Y	97.820					97.247	57.676	82.874	46.952
3	5	P	Sebastian Bourda	153	222.580	T	57.579	Y	44.524					75.394	50.393	55.885	57.213
2	5	P	Sebastian Bourda	154	189.606	T	67.593	G	51.568					48.821	61.865	122.356	166.008
4	5	P	Sebastian Bourda	155	106.940	T	119.843	G	110.648					76.676	100.076	153.588	175.907
4	5	P	Sebastian Bourda	156	102.350	T	125.217	G	116.578					79.844	98.957	154.592	178.137
3	5	P	Sebastian Bourda	157	101.993	T	125.656	G	116.059					80.813	100.958	153.755	177.481
3	5	P	Sebastian Bourda	158	100.022	T	128.132	G	118.544					83.093	103.085	155.853	180.039
3	5	P	Sebastian Bourda	159	102.074	T	125.556	G	119.063					80.947	94.638	151.921	176.367
3	5	P	Sebastian Bourda	160	101.226	T	126.608	G	117.520					78.951	99.452	154.472	175.511
3	5	P	Sebastian Bourda	161	101.160	T	126.690	G	114.113					76.772	103.600	154.688	177.419
2	5	P	Sebastian Bourda	162	180.001	T	71.200	Y	106.440					62.469	57.202	71.330	68.076
2	5	P	Sebastian Bourda	163	235.985	T	54.309	Y	52.783					53.651	48.324	59.952	61.486
3	5	P	Sebastian Bourda	164	222.536	P	57.591	Y	50.756					63.779	56.066	65.828	67.748
8	02		Kyle Larson	10:46.705	13.8 g	179 (25)	150	46.438						95	1:59.333		
9	6		Alexander Brundle	9:49.373	16.0 g	181 (25)	153	1:10.313						75	28.188		
10	91		Richard Lietz	6:26.869	16.0 g	180 (25)	152	1:10.142						32	1:15.715		
11	91		Jorg Bernheimer	5:30.612	15.5 g	180 (25)	152	1:19.110						31	1:20.318		
12	3		Jan Magnussen	5:32.378	-3.3 g	163 (25)	152	1:26.465						33	1:14.993		
13	56		Dirk Werner	6:16.569	-3.3 g	163 (25)	152	1:22.093						34	0.000		
14	91		Ryan Hunter-Reay	5:15.588	-3.7 g	163 (25)	162	1:19.255						34	1:12.833		
15	93		Rob Bell	6:27.238	-3.7 g	163 (25)	162	1:21.213						33	1:16.698		
16	55		Joey Hand	4:41.277	16.8 g	180 (25)	152	1:19.803						40	0.000		
17	08		Rusty Mitchell	12:24.712	-6.8 g	161 (26)	146	1:37.931						74	1:30.317		137
18	31		Boris Said	13:43.568	17.7 g	180 (25)	152	1:19.649						58	3:28.507		
19	4		Oliver Gavin	12:35.940	16.0 g	178 (25)	150	1:10.897						95	1:46.697		
20	25		Rob Huff	10:05.177	18.1 g	181 (25)	153	42.811						73	1:11.169		

- Refresh – Shortcut F6 – refreshes the data in the report if the car list has changed or to reflect changes in the received data
- Update Car List – allows the user to change the competitor data in the report. More than one competitors information can be displayed in the report. Leaving the selection window blank shows all users, otherwise, enter as ##,##,##,# to select individual entries. You can also enter list of car numbers as ## ## ##, separated by spaces.
- Print – Shortcut Ctrl+P – opens print window to print report
- Save CSV – Shortcut Ctrl+S – creates a .csv file for the data contained in the report for use with other programs
- Copy to Clipboard – Shortcut Ctrl+C – copy the data contained in the report to the clipboard for direct pasting into other programs
- Close – Shortcut F1 – closes the window. The window can also be closed via the „X“ in the upper right corner

- Hide Column – Shortcut Alt+H – allows user to hide a selected column. Note that the column title that the mouse is on when the right click is done is the column that will be hidden
- Reset Columns – resets the report to show all columns and all information contained within the column, even if previously hidden.
- All Sections – Display all sections.
- Track Sections (Tnn) – Display Track Sections.
- Track Trap Sections (Tnn) – Display Track Speed Trap sections.
- Pit Sections (Pnn) – Display Pit Sections (if available).
- Logical Sections (Ln) – Display Logical sections (if defined).
- Intermediate Sections (In) – Display Intermediate sections (if defined)
- Custom Sections – Display Custom sections (if defined).
- Weather (Temp/Humidity) – Display Weather (if available).
- Live Update – links the report to the incoming timing data to be automatically updated. If this option is not selected, only the data received prior to opening the report will be displayed (refresh updates the data).
- Show as Speed – shows the timing information as speed for lap and segment information.
- Exclude Tow Laps – excludes laps categorized as tow laps by thresholds set in the Configuration menu.
- Include Invalidated Laps – includes laps in the report which have been invalidated for any reason (shortcut, yellow flag, rules infraction).
- Show All Cars – displays information for all cars in the session. Update Car List to select individual competitors again.
- Car Color Row – formats the rows to the color applied to each individual car in the cars color dialog.
- Save Layout – allows user to save a customized report, including column formatting and removal of columns.
- Load Layout – loads the saved report layout when selected. Use Reset Columns to return the report to default layout.
- Set Font – Set the font for the report.

Scoreboard

Scoreboard – Shortcut F7 – this report is essentially a duplicate of the Session Results window that can be opened and placed outside of the software window (extended to another monitor for example). The Scoreboard can display any of the parameters available in the Session results window (see Session Results window section to see available categories). Note that this report sits on top of any other window that might be open on the desktop, even after Race Tools is minimized.

Additional options are available via right click within the window.

The screenshot shows the 'F7 - Scoreboard' window. The main table displays race results with columns: CK, P, A, Nr, CLASS, PIC, Name, Laps, FastTime, LapTime, FL, Gap, Diff, CLSDiff, and CL. The table lists 19 drivers, with Joao Barbosa highlighted in row 17. A context menu is open over the table, listing various actions such as Refresh (F5), Edit Column, Insert Column, Delete Column, Full Screen, Results Font, Session Font, Top Row [0], Apply To All, Background Color, Print (Ctrl+P), Save CSV (Ctrl+S), Save Fields, Load Fields, Copy Fields from Session Results, Copy To Clipboard (Ctrl+C), Close, Auto Display Mode, Autosize, Show All Cars, Shade Rows, Grid borders, Hide Borders, ShowAsSpeed, Exclude Other Classes, Classes, and Reset Column Widths. Below the main table, there are sections for 'Live Sections' and 'Race' with sub-tables for FASTEST, LapSpeed, and Proj. values for various drivers.

CK	P	A	Nr	CLASS	PIC	Name	Laps	FastTime	LapTime	FL	Gap	Diff	CLSDiff	CL
1	99	P	1			Alex Gurney	18	1:40.711	1:42.593	6	<18>	<18>	<18>	
2	90	P	2			Richard Westbrook	18	1:40.523	1:44.228	14	3.884	3.884	+3.884	
3	02	P	3			Scott Dixon	18	1:40.967	1:44.618	14	1.437	5.321	+5.321	
4	9	P	4			Burt Frisselle	18							
5	10	P	5			Ricky Taylor	18	1:41						
6	01	P	6			Scott Pruett	18	1:41						
7	42	P	7			Olivier Pla	18	1:41						
8	31	P	8			Eric Curran	18	1:42						
9	1	P	9			Scott Sharp	18	1:41						
10	6	P	10			Klaus Graf	18	1:41						
11	0	P	11			Andy Meyrick	17	1:42						
12	8	PC	1			Renger van der Zande	17	1:44						
13	09	PC	2			Bruno Junqueira	17	1:44						
14	08	PC	3			Alex Tagliani	17	1:44						
15	87	PC	4			Sean Rayhall	17	1:44						
16	38	PC	5			Raphael Matos	17	1:44						
17	5	P	12			Joao Barbosa	17	1:41						
18	52	PC	6			Gunnar Jeannette	17	1:44						
19	60	P	13			Oswaldo Neiri Jr	17	1:42						

- Refresh – Shortcut F5 – refreshes the data in the report to reflect changes in the received data.
- Edit Column – allows user to change the timing parameter of a selected column. Right click on the column to change, and select parameter from the drop down menu.

- Insert Column – inserts a column at the point of the right click, then select the desired quantity from the drop down list.
- Delete Column – removes the selected column from the report.
- Full Screen – Expand the display to fill the screen.
- Results Font – sets the font of the text in the report.
- Top Row (X) – sets the position that is displayed at the top of the report. The feature lists the position that is the top row in the report, for example Top Row (0) shows all competitors, while Top Row (5) shows only positions 5+. User will be prompted to input highest position to be displayed when feature is selected. Note that this is useful when there are many competitors and the window needs to be a specific size.
- Apply To All –
- Background Color – changes the background color of the report to the selected color.
- Print – Shortcut Ctrl+P – opens print window to print report.
- Save CSV – Shortcut Ctrl+S – creates a .csv file for the data contained in the report for use with other programs.
- Save Fields – Save the selected fields to a file.
- Load Fields – Load fields from a saved file.
- Copy Fields From Session Results – Copy the fields from the 'Session Results' window. You modify the 'Scoreboard' window using the 'Insert Column' and 'Delete Column' functions.
- Copy to Clipboard – Shortcut Ctrl+C – copy the data contained in the report to the clipboard for direct pasting into other programs.
- Close – closes the window. The window can also be closed via the „X“ in the upper right corner.
- Auto Display Mode –
- Autosize – Autosizes the window to the data that is contained in it
- Show All Cars – by default the report is set to show all cars. If this option is not selected, then only the cars that have been selected in the “CK” column of the Session Results table will be displayed in the report. If change this setting, may have to refresh the report. Note that if no individual competitors are selected and Show All Cars is not selected, all cars will still be displayed.
- Shade Rows – this shades every other row grey in order to help distinguish between the rows.
- Grid Borders – this puts borders on every “cell” to distinguish the data.
- Hide Borders – hides the borders of the window to decrease the footprint.

- ShowAsSpeed – This changes the QTotal, QWU, QL1, QL2, QL3, and QL4 oval qualifying fields to display speed instead of time.
- Exclude Other Classes – Excludes classes other than the 'Team Car' class.
- Classes – Allows selection of specific classes.
- Reset Column Widths – Reset the column widths.

Lap Chart

Lap Chart – Shortcut F8 – most useful for race sessions, this report is similar to the “Race Lap Chart” report. It displays the position of each competitor for each lap of the race, track condition (background yellow for yellow flag), and pit stops laps (framed with a blue box). In addition, clicking on a specific cell, for instance lap 170 car 02 as shown below, gives lap time, gap to car in front, gap to leader, and time of race the lap was completed.

The screenshot shows a window titled "Lap Chart [PR01 at 9:19:52.000]". At the top, it displays "Car# 90 Lap 229 1:43.227 Gap 5 48.786" and "Richard Westbrook 8:34:46.863 02 10.628". Below this is a grid with columns labeled P, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248. The rows represent different cars, with the first row being Car 90. A context menu is open over the cell for Lap 170, Car 02, listing options: Use Class Colors (checked), Exclude Other Classes, Classes, Car Colors, Print (Ctrl+P), Copy to Clipboard (Ctrl+C), Save CSV (Ctrl+S), Refresh (F5), Auto Size, Close (F8), and Set Font.

Additional options available by right click are listed.

- Use Class Colors – Display classes in colors.
- Exclude Other Classes – Exclude classes other than ‘Team Car’ class.
- Classes – Select Classes to display.
- Car Colors – Display car colors (if defined).
- Print – Shortcut Ctrl+P – opens print window to print report.
- Copy to Clipboard – Shortcut Ctrl+C – copy the data contained in the report to the clipboard for direct pasting into other programs.
- Save CSV – Shortcut Ctrl+S – creates a .csv file for the data contained in the report for use with other programs.

- Refresh – Shortcut F5 – refreshes the data in the report to reflect changes in the received data.
- Autosize – Autosizes the window to the data that is contained in it.
- Close – Closes the window. The window can also be closed via the “X” in the upper right corner.
- Set Font – Set the font for this display.

Running Order

Running Order – Shortcut F9 – most useful for race sessions, this report shows the actual running order and gaps on track for the lap. While the Session Results window and Scoreboard show position at SF, this report shows position relative to the most recent timing line. The report shows car number, gap to car directly in front, lap currently working, and scored position (SF). If the option to Show Details is selected, timing line and time information are included as well (shown below). Additionally, the report shows track condition by background highlight color and pit stops with car number cells (and pit timing line) framed in a blue box.

#	Nr	Gap	Lap	P
1	5	0.877	147	1
2	912	1.100	144	12
3	08	0.368	142	23
4	52	0.214	134	51
5	02	0.349	147	2
6	10	0.284	147	3
7	911	0.810	144	13
8	3	0.669	144	14
9	555	3.546	139	27
10	9	2.165	146	7
11	70	0.514	131	54
12	56	1.682	144	15
13	90	0.319	147	4
14	50	2.006	136	47
15	60	0.493	147	5
16	45	1.646	139	28
17	64	0.726	135	48
18	6	0.834	145	9
19	78	1.163	146	8
20	1	1.444	104	61
21	23	3.568	139	29
22	87	0.452	140	25
23	01	1.872	147	6
24	2	5.871	131	55
25	55	2.711	144	16
26	63	0.998	139	30
27	0	2.830	130	56
28	09	0.340	64	66
29	58	2.312	139	31
30	65	0.080	138	39
31	22	1.994	139	32
32	94	0.934	135	49
33	81	4.762	139	33
34	32	1.757	137	40
35	97	0.446	143	17
36	009	2.078	124	58
37	35	1.277	137	41
38	54	3.514	142	18
39	72	1.487	136	45

#	Nr	Gap	Lap	Line	Elapsed	P	PIC	CLS	LSP	LD
1	90	5.202	173	T7	6:43:15.138	1	1	P	21	0
2	73	0.520	163	T7	6:43:15.658	42	17	GTD	7	-2
3	07	4.474	118	T6	6:43:14.228	62	17	P	7	-54
4	0	4.038	155	T5	6:43:11.487	54	14	P	22	-18
5	65	1.519	164	T5	6:43:13.006	39	14	GTD	12	-1
6	22	0.415	165	T5	6:43:13.421	30	7	GTD	3	0
7	6	1.693	172	T5	6:43:15.114	9	9	P	18	-1
8	57	0.448	165	T5	6:43:15.562	31	9	STLM	2	-5
9	2	7.640	157	T4	6:43:15.502	52	12	P	18	-16
10	70	7.031	155	T3	6:42:55.176	55	15	P	7	-18
11	51	2.876	143	T3	6:42:58.501	60	27	GTD	12	-22
12	50	0.207	162	T3	6:42:58.708	43	11	P	23	-11
13	81	0.784	164	T3	6:42:59.492	40	15	GTD	11	-1
14	08	11.221	169	T3	6:43:10.713	17	1	PC	22	0
15	01	3.557	173	T3	6:43:14.270	2	2	P	8	0
16	1	0.540	130	T3	6:43:14.810	61	16	P	8	-43
17	31	1.904	168	T2	6:42:54.323	22	10	P	5	-5
18	38	0.457	165	T2	6:42:54.780	32	6	PC	17	-4
19	78	0.435	173	T2	6:42:55.215	3	3	P	8	0
20	55	0.491	170	T2	6:42:55.706	16	7	STLM	17	0
21	4	1.238	169	T2	6:42:56.944	18	8	STLM	18	-1
22	3	3.159	171	T2	6:43:00.103	10	1	STLM	18	0
23	911	3.127	171	T2	6:43:03.230	11	2	STLM	18	0
24	10	1.189	173	T2	6:43:04.419	4	4	P	8	0
25	912	1.789	171	T2	6:43:06.208	12	3	STLM	18	0
26	9	0.622	173	T2	6:43:06.830	5	5	P	8	0
27	87	-0.065	167	T2	6:43:10.773	23	5	PC	18	-2
28	60	4.008	173	T2	6:43:10.838	6	6	P	8	0
29	56	0.705	171	T2	6:43:11.478	13	4	STLM	18	0
30	25	1.288	169	T2	6:43:12.766	19	2	PC	15	0
31	23	2.978	165	T1	6:43:04.708	33	8	GTD	13	0
32	42	1.100	157	T1	6:43:05.808	53	13	P	8	-16
33	71	5.117	162	T1	6:43:10.925	44	18	GTD	29	-3
34	009	4.038	151	T1	6:43:14.963	58	25	GTD	22	-14
35	64	2.114	159	TC	6:43:14.139	49	22	GTD	23	-5
36	8	3.935	151	TA	6:43:12.494	57	8	PC	26	-17
37	54	0.511	168	TA	6:43:13.005	20	3	PC	7	0
38	19	3.276	144	T9	6:43:10.053	59	26	GTD	2	-20
39	48	0.330	165	T9	6:43:10.383	24	1	GTD	7	0

The Running Order window has an extra column during cautions. The 'LD@Y' (Laps Down at Yellow) is similar to the 'LD' (Laps Down) except that it does not update during the caution. It is set when the yellow is first thrown so it displays the status at the time of the caution which is what the Lap Down Wave By rule uses. The column is highlighted if the LD@Y<0 AND the competitor has not taken a pit stop during the yellow.

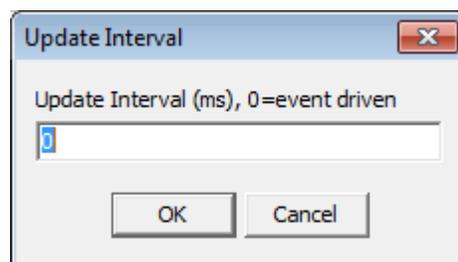
#	Nr	Gap	Lap	Line	Elapsed	P	PIC	CLS	LSP	LD	LD@Y
1	46	34.832	46	T6	1:36:19.714	1	1	GS	11	0	0
2	48	0.614	46	T5	1:35:41.567	2	2	GS	11	0	0
3	01	1.537	46	T5	1:35:43.104	3	3	GS	11	0	0
4	14	1.727	46	T5	1:35:44.831	4	4	GS	11	0	0
5	28	1.329	46	T5	1:35:46.160	5	5	GS	11	0	0
6	2	0.875	46	T5	1:35:47.035	6	6	GS	11	0	0
7	158	1.376	46	T5	1:35:48.411	7	7	GS	11	0	0
8	97	0.750	46	T5	1:35:49.161	8	8	GS	11	0	0
9	78	1.109	46	T5	1:35:50.270	9	9	GS	11	0	0
10	00	0.907	46	T5	1:35:51.177	10	10	GS	11	0	0
11	41	2.106	46	T5	1:35:53.283	11	11	GS	11	0	0
12	32	1.318	46	T5	1:35:54.601	12	12	GS	11	0	0
13	18	0.895	46	T5	1:35:55.496	13	13	GS	11	0	0
14	8	0.830	46	T5	1:35:56.326	14	14	GS	2	0	0
15	6	0.950	46	T5	1:35:57.276	15	15	GS	8	0	0
16	35	0.898	46	T5	1:35:58.174	16	16	GS	2	0	0
17	07	1.095	46	T5	1:35:59.269	19	17	GS	2	0	0
18	9	0.585	46	T5	1:35:59.854	20	18	GS	2	0	0
19	79	0.750	46	T5	1:36:00.604	22	19	GS	2	0	0
20	09	0.713	46	T5	1:36:01.317	24	20	GS	2	0	0
21	99	0.893	44	T5	1:36:02.210	50	22	GS	2	-2	-2
22	3	4.925	46	T5	1:36:07.135	17	1	ST	24	0	0
23	26	1.015	46	T5	1:36:08.150	18	2	ST	23	0	0
24	5	0.474	46	T5	1:36:08.624	21	3	ST	23	0	0
25	81	0.342	46	T5	1:36:08.966	23	4	ST	24	0	0
26	82	0.893	46	T5	1:36:09.859	25	5	ST	24	0	0
27	98	1.102	46	T5	1:36:10.961	26	6	ST	23	0	0
28	75	1.563	46	T5	1:36:12.524	27	7	ST	23	0	0
29	93	1.476	46	T5	1:36:14.000	28	8	ST	23	0	0
30	23	1.214	46	T5	1:36:15.214	29	9	ST	23	0	0
31	04	1.349	46	T5	1:36:16.563	30	10	ST	23	0	0
32	80	1.301	46	T5	1:36:17.864	31	11	ST	24	0	0
33	24	0.735	46	T5	1:36:18.599	32	12	ST	23	0	0
34	95	0.883	46	T5	1:36:19.482	33	13	ST	23	0	0
35	65	1.161	45	T4	1:35:31.371	48	27	ST	21	-1	-1
36	10	0.944	46	T4	1:35:32.315	34	14	ST	23	0	0
37	34	1.428	46	T4	1:35:33.743	35	15	ST	23	0	0
38	22	2.155	46	T4	1:35:35.898	36	16	ST	23	0	0
39	84	1.181	46	T4	1:35:37.079	37	17	ST	22	0	0
40	64	1.320	46	T4	1:35:38.399	38	18	ST	23	0	0
41	42	0.777	46	T4	1:35:39.176	39	19	ST	17	0	0
42	50	1.334	46	T4	1:35:40.510	40	20	ST	14	0	0
43	92	0.808	46	T4	1:35:41.318	41	21	ST	10	0	0
44	25	0.911	45	T4	1:35:42.229	49	28	ST	10	-1	-1
45	74	1.086	46	T4	1:35:43.315	42	22	ST	10	0	0
46	11	1.132	39	T4	1:35:44.447	53	30	ST	16	-7	-7
47	33	2.006	46	T4	1:35:46.453	43	23	ST	19	0	0
48	88	0.812	46	T4	1:35:47.265	44	24	ST	9	0	0
49	43	0.978	46	T4	1:35:48.243	45	25	ST	10	0	0

Right clicking reveals the following options for the Running Order popup:

The screenshot shows a 'Running Order' window with a table of race data. A context menu is open over the table, listing various actions. The table has columns: #, Nr, Gap, Lap, Line, Elapsed, P, PIC, CLS, LSP, LD. The menu items include: Undo (Ctrl+Z), Pause (P), Show Details (D) (checked), Gap2Us, Highlight Gap, Highlight Lead Lap (checked), > Highlight (dropdown arrow), Lap Down AFTER Caution, Shaded Rows, Exclude Other Classes (X), Classes (dropdown arrow), Font, Refresh Rate, Save CSV (Ctrl+S), Print (Ctrl+P), Close (F9), and Refresh (F5).

#	Nr	Gap	Lap	Line	Elapsed	P	PIC	CLS	LSP	LD
1	46	2.158	55	T4	1:51:18.148	1	1	GS	20	0
2	01	1.005	55	T4	1:51:19.153	2	2	GS	20	0
3	48	1.872	55	T4	1:51:21.025	3	3	GS	20	0
4	28	0.385	55	T4	1:51:21.410	4	4	GS	20	0
5	14	1.184	55	T4	1:51:22.594	5	5	GS	20	0
6	158	4.366	55	T4	1:51:26.060	6	6	GS	20	0
7	41	0.386	55	T4	1:51:26.060	6	6	GS	20	0
8	2	0.225	55	T4	1:51:26.060	6	6	GS	20	0
9	09	2.225	55	T4	1:51:26.060	6	6	GS	20	0
10	07	0.373	55	T4	1:51:26.060	6	6	GS	20	0
11	6	0.107	55	T4	1:51:26.060	6	6	GS	20	0
12	78	0.791	55	T4	1:51:26.060	6	6	GS	20	0
13	97	2.261	55	T4	1:51:26.060	6	6	GS	20	0
14	9	1.772	55	T4	1:51:26.060	6	6	GS	20	0
15	00	0.311	55	T4	1:51:26.060	6	6	GS	20	0
16	35	2.445	55	T4	1:51:26.060	6	6	GS	20	0
17	32	6.446	55	T4	1:51:26.060	6	6	GS	20	0
18	79	0.500	55	T4	1:51:26.060	6	6	GS	20	0
19	99	5.615	55	T4	1:51:26.060	6	6	GS	20	0
20	13	10.914	55	T4	1:51:26.060	6	6	GS	20	0
21	3	2.016	55	T4	1:51:26.060	6	6	GS	20	0
22	26	0.194	55	T4	1:51:26.060	6	6	GS	20	0
23	5	0.482	55	T4	1:51:26.060	6	6	GS	20	0
24	81	7.417	55	T4	1:51:26.060	6	6	GS	20	0
25	82	0.295	55	T4	1:51:26.060	6	6	GS	20	0
26	23	1.250	55	T4	1:51:26.060	6	6	GS	20	0
27	98	0.135	55	T4	1:51:26.060	6	6	GS	20	0
28	04	0.267	55	T4	1:51:26.060	6	6	GS	20	0
29	75	1.057	55	T4	1:51:26.060	6	6	GS	20	0
30	93	0.452	55	T4	1:51:26.060	6	6	GS	20	0
31	24	2.938	54	T6	1:51:31.899	31	11	ST	31	0
32	22	2.203	54	T6	1:51:34.102	32	12	ST	31	0
33	80	0.501	54	T6	1:51:34.603	33	13	ST	32	0
34	95	0.774	54	T6	1:51:35.377	34	14	ST	31	0
35	10	0.314	54	T6	1:51:35.691	35	15	ST	31	0
36	65	0.790	53	T6	1:51:36.481	46	26	ST	29	-1
37	42	1.411	54	T5	1:51:14.043	36	16	ST	25	0
38	50	0.363	54	T5	1:51:14.406	37	17	ST	22	0
39	84	0.420	54	T5	1:51:14.826	38	18	ST	30	0
40	92	1.295	54	T5	1:51:16.121	39	19	ST	18	0
41	34	1.144	54	T5	1:51:17.265	40	20	ST	31	0
42	64	0.015	54	T5	1:51:17.280	41	21	ST	31	0
43	74	1.017	54	T5	1:51:18.297	42	22	ST	18	0
44	25	1.183	53	T5	1:51:19.480	47	27	ST	18	-1
45	33	1.820	54	T5	1:51:21.300	43	23	ST	27	0
46	43	1.185	54	T5	1:51:22.485	44	24	ST	18	0
47	94	0.537	49	T5	1:51:23.022	50	28	ST	9	-5
48	11	5.835	47	T5	1:51:28.857	52	30	ST	24	-7
49	56	0.554	54	T5	1:51:29.411	45	25	ST	9	0

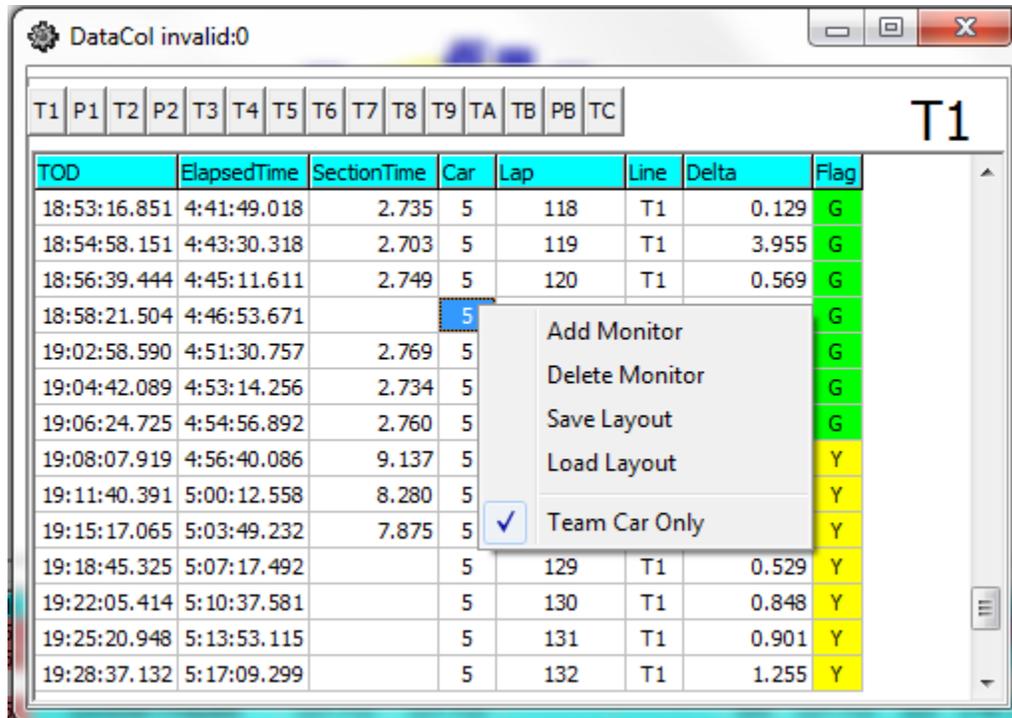
- Pause – Pauses the updating of the Running Order window, Can be used to Freeze the field when a Yellow is displayed.
- Show Details – Shortcut D – this shows the timing line and time information, as shown in the right of the two figures in in the popup description above.
- Gap2Us – Gap from the Leader to the ‘Team Car’.
- Highlight Gap (X.XXXX) – highlights gaps on track relative to the input gap. Gaps less than the input will be background highlighted in red and gaps in between the input and (input + 1 second) will be background highlighted yellow. If left to 0.0000, no special formatting is applied.
- Highlight Lead Lap – Highlight ‘Lead Lap’ cars.
- >Highlight –
 - Cautions Only
 - Team Class Only
- Shaded Rows – Shades even numbered rows.
- Exclude Other Classes – Exclude classes other than the ‘Team Car’ class.
- Classes – Allows the user to select the classes to display.
- Font – changes the font of the report.
- Refresh Rate – changes the refresh rate of the popup. By default, the report is updated based on the occurrence of an event (timing line activity).



- Save CSV – Shortcut Ctrl+S – creates a .csv file for the data contained in the report for use with other programs
- Print – Shortcut Ctrl+P – opens print window to print report
- Close – Shortcut F9 – closes the window. The window can also be closed via the “X” in the upper right corner.
- Refresh – Shortcut F5 – refreshes the data in the report to reflect changes in the received data.

Line Audit

Right clicking reveals the following options for the Line Audit popup:



TOD	ElapsedTime	SectionTime	Car	Lap	Line	Delta	Flag
18:53:16.851	4:41:49.018	2.735	5	118	T1	0.129	G
18:54:58.151	4:43:30.318	2.703	5	119	T1	3.955	G
18:56:39.444	4:45:11.611	2.749	5	120	T1	0.569	G
18:58:21.504	4:46:53.671		5				G
19:02:58.590	4:51:30.757	2.769	5				G
19:04:42.089	4:53:14.256	2.734	5				G
19:06:24.725	4:54:56.892	2.760	5				G
19:08:07.919	4:56:40.086	9.137	5				Y
19:11:40.391	5:00:12.558	8.280	5				Y
19:15:17.065	5:03:49.232	7.875	5				Y
19:18:45.325	5:07:17.492		5	129	T1	0.529	Y
19:22:05.414	5:10:37.581		5	130	T1	0.848	Y
19:25:20.948	5:13:53.115		5	131	T1	0.901	Y
19:28:37.132	5:17:09.299		5	132	T1	1.255	Y

- Add Monitor – Add a monitor window to monitor another timeline.
- Delete Monitor – Delete an added monitor window.
- Save Layout – Save the layout to a file.
- Load Layout – Load a saved layout from a file.
- Team Car Only – Display data for the Team Car only. ('Set Team Car' in the Options menu.)

Stint Report

Car	Driver	Class	Rating	TotalTime	TimeToMax	TimeToMin	TimeInWin	Stint_1_In	Stint_1_Out	Stint_2_In	Stint_2_Out	S
007	Al Carter	GTD		41:56	2:18:04	-11:56			5:46:212	6:47:721	42:57.221	S
63	Alessandro Balzan	GTD		17:42	2:42:18	12:18					1:01:46.093	
08	Alex Tagliani	PC		23:52	2:36:08	6:08						
27	Andrew Davis	GTD		2:21	2:57:39	27:39						
44	Andy Lally	GTD		22:03	2:37:57	7:57						
63	Balzan/Westphal	GTD		3:23	2:56:37	26:37						
33	Ben Keating	GTD		44:45	2:15:15	-14:45					46:14.518	
555	Bill Sweedler	GTD		42:47	2:17:13	-12:47						
81	Bob Faieta	GTD		42:47	2:17:13	-12:47						
09	Bruno Junqueira	PC		24:22	2:35:38	5:38						
48	Bryce Miller	GTD		42:44	2:17:16	-12:44						
46	Charlie Putman	GTD		39:44	2:20:16	-9:44						
38	Charlie Shears	PC		40:29	2:19:31	-10:29						
08	Chris Cumming	PC		40:22	2:19:38	-10:22						
85	Chris Miller	PC		40:41	2:19:19	-10:41						
48	Christopher Haase	GTD		21:12	2:38:48	8:48						
54	Colin Braun	PC		13:30	2:46:30	16:30						
22	Cooper MacNeil	GTD		42:41	2:17:19	-12:41						
71	Craig Stanton	GTD		19:42	2:40:18	10:18						
81	Damien Faulkner	GTD		21:07	2:38:53	8:53						
94	Dane Cameron	GTD		21:30	2:38:30	8:30						
18	David Calvert-Jones	GTD		1:03:39	1:56:21	-33:39					1:03:37.718	
38	David Ostella	PC		24:03	2:35:57	5:57						
35	Dion von Moltke	GTD		21:51	2:38:09	8:09						
09	Duncan Ende	PC		40:21	2:19:39	-10:21						
51	Eddie Cheever III	GTD		19:23	2:40:37	10:37						
52	Frankie Montecalvo	PC		40:23	2:19:37	-10:23						
52	Gunnar Jeannette	PC		24:22	2:35:38	5:38						
30	Henrique Cisneros	GTD		42:43	2:17:17	-12:43						
23	Ian James	GTD		22:09	2:37:51	7:51						
51	Jack Gerber	GTD		43:03	2:16:57	-13:03						
007	James Davison	GTD		21:34	2:38:26	8:26						

- Hide Column
- Reset Columns
- Show All Cars
- Driver Ratings
- By Driver and Car
- Exclude Other Classes
- Classes
- Reverse Stints
- Hide Previous Stints
- Show Hours
- Car Color Rows
- Set Font
- Set Maximum Time (3h)
- Set Minimum Time (30:00h)
- Set Drive Window (4h)
- Set Max in Window (3h)
- Update Car List F6
- Refresh F5
- Save CSV Ctrl+S
- Copy To Clipboard Ctrl+C
- Save layout
- Load Layout
- Print Ctrl+P
- Close Ctrl+F2
- Clean Duplicates

- Hide Column – Hide the selected column.
- Reset Columns – Unhide hidden columns.
- Show All Cars - Show All Competitors even if a subset is selected.
- Driver Ratings – Show driver ratings (if available).
- By Driver and Car – Sort by Driver Name and Car.
- Exclude Other Classes – Exclude classes other than the 'Team Car' class.
- Classes – Choose the classes to display.
- Reverse Stints – Reverse Display of stints to show latest stint first and the first stint last. Keeps more current data towards the left of the table, making it easier to see the key data at once.

- Hide Previous Stints – Hide previous stints. Don't show non-current stint to reduce the amount of information displayed.
- Show Hours – Display in hours instead of hh:mm.sss.
- Car Color Rows – Shade rows using specified Car color.
- Set Font – Set the font for the report.
- Set Maximum Time (12h) – Maximum amount of time a driver can be in the car on track in the race (or session).
- Set Minimum Time (0h) – Minimum amount of time a driver must be on track in the car in the race (or session).
- Set Drive Window (4h) – Sliding drive window time used to monitor the Maximum Time in any given block of time. (ie. Maximum 3 Hours in a 4 Hour Drive Window.)
- Set Max In Window (3h) – Maximum amount of time allowed within the Drive Window (ie. 3 hours maximum in any 4 hours).
- Update Car List – Update the list of cars to display in the report.
- Refresh – Refresh the data in the report.
- Save CSV – Save the report to a csv file.
- Copy to Clipboard – Copy the report to the clipboard for use in another program.
- Save Layout – Save the current layout.
- Load Layout – Load a saved layout.
- Print – Print the report.
- Close – Close the window.
- Clean Duplicates – Clean up 'extra' stints.

Driver Performance Report

Car	Driver	Class	Rating	Laps	GL	FastTime	Top 3	Top 10
99	Alex Gurney	P		35	32	1:40.711	1:40.756	1:41.078
08	Alex Tagliani	PC		34	31	1:44.009	1:44.139	1:44.347
27	Andrew Davis	GTD		29	26	1:49.935	1:49.961	1:50.221
44	Andy Lally	GTD		8	5	1:50.568	1:51.125	
0	Andy Meyrick	P		34	31	1:42.347	1:42.381	1:42.588
55	Bill Auberlen	GTM		34	31	1:46.616	1:46.731	1:47.022
555	Bill Sweedler	GTD		6	6	1:51.155	1:51.420	
78	Brendon Hartley	P		34	31	1:41.099	1:41.204	1:41.604
09	Bruno Junqueira	PC		24	21	1:44.288	1:44.361	1:44.674
9	Burt Frisselle	P		35	32	1:40.106	1:40.577	1:41.015
50	Byron DeFoor	P		26	25	1:43.075	1:43.219	1:43.674
46	Charlie Putman	GTD		5	5	1:51.973	1:52.320	
48	Christopher Haase	GTD		33	30	1:48.779	1:48.830	1:49.005
81	Damien Faulkner	GTD		33	30	1:49.708	1:49.864	1:50.097
94	Dane Cameron	GTD		32	29	1:49.269	1:49.553	1:49.973
65	Daniel Serra	GTD		29	26	1:48.838	1:48.877	1:49.173
007	David Block	GTD		11	11	1:53.876	1:53.977	1:55.201
56	Dirk Mueller	GTM		33	30	1:46.743	1:46.788	1:46.990

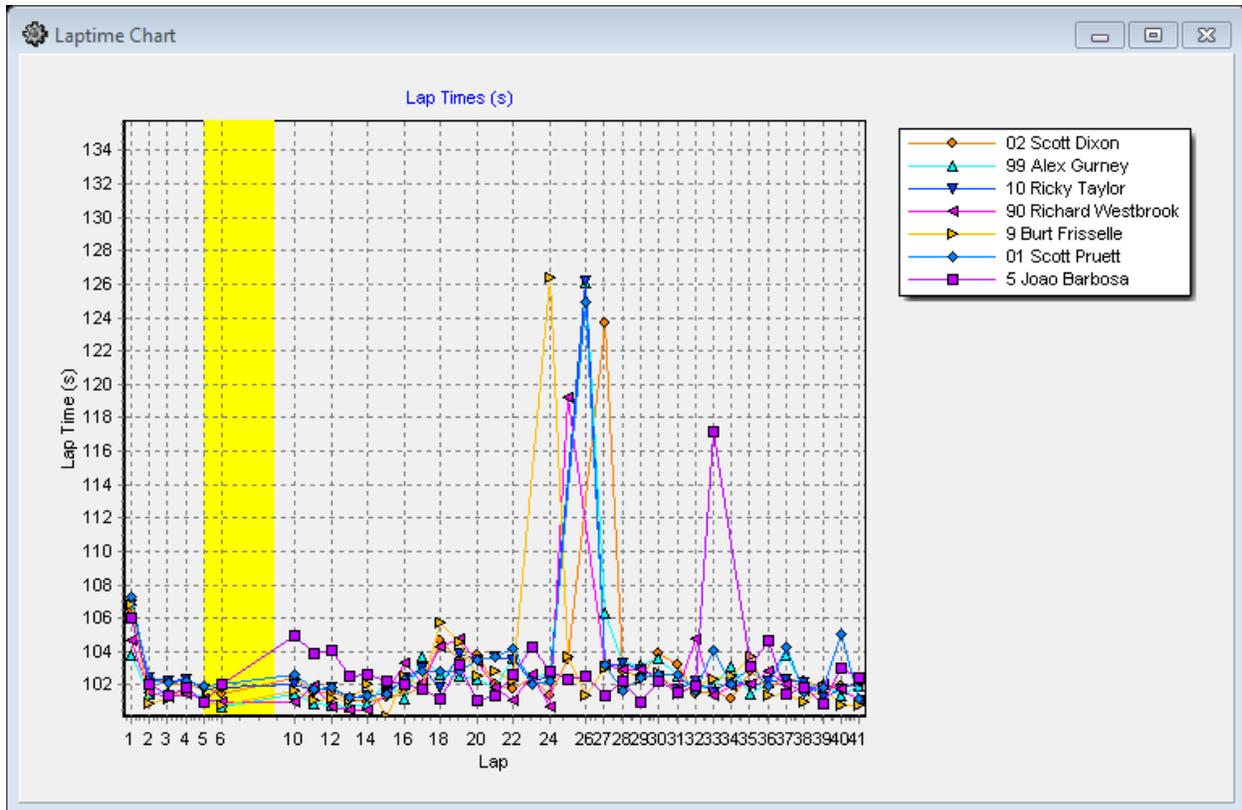
Hide Column	
Reset Columns	
<input checked="" type="checkbox"/> Show All Cars	
Driver Ratings	▶
Exclude Other Classes	
Classes	▶
Car Color Rows	
Set # Laps To Compare	
Set Font	
Update Car List	F6
Refresh	F5
Save CSV	Ctrl+S
Copy To Clipboard	Ctrl+C
Print	Ctrl+P
Save layout	
Load Layout	
Close	Ctrl+F4

- Hide Column – Hide the selected column.
- Reset Columns – Unhide hidden columns.
- Show All Cars - Show All Competitors even if a subset is selected.
- Driver Ratings – Show driver ratings (if available).
- Exclude Other Classes – Exclude classes other than the 'Team Car' class.
- Classes – Choose the classes to display.
- Car Color Rows – Shade rows using specified Car color.
- Set # of Laps To Compare - 1st Laps To Compare – Number of top laps to average. First set.
2nd Laps To Compare – Number of top laps to average. Second Set.
- Set Font – Set the font for the report.
- Update Car List – Update the list of cars to display in the report.
- Refresh – Refresh the data in the report.
- Save CSV – Save the report to a csv file.
- Copy to Clipboard – Copy the report to the clipboard for use in another program.
- Print – Print the report.
- Save Layout – Save the current layout.

- Load Layout – Load a saved layout.
- Close – Close the window.

Analysis Graph

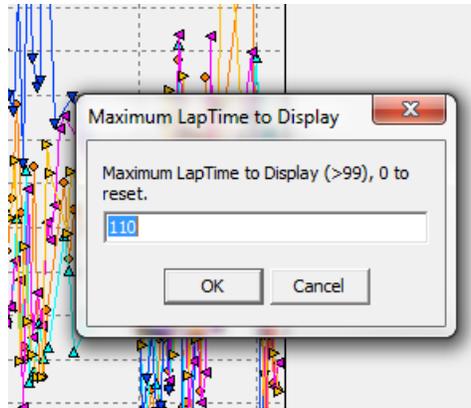
Laptime Graph – Shortcut Shift+F3 – shows the lap times in graphical format for all/selected competitors against laps or time of day. Also contains the Gap analysis graph for race scenarios.



In its simplest format, this graph displays the lap times for the user to be able to gauge the performance of the competitors graphically in real time. For P&Q sessions, this means versus time of day or lap, for races this means either against the time of day, lap, or a gap analysis.

When the graph is first selected, no information will typically be displayed. If by chance the user pre-selected cars by clicking in the “CK” column of the session results display, these cars will show up in the graph. To select all cars, either select all cars in the “CK” column of the session results display or right click on the graph and enable the „Select All Cars” option. Selected entries can only be selected in the “CK” column. Use the “Clear All Cars” right click option to clear all cars before selecting entries or simply deselect unwanted entries after selecting all cars.

The range may not be set properly because it will likely make the maximum for the y-axis equal to the longest lap, pit time included (autoscale). So for P&Q the scale will be very large. Simply click the Y- axis, to bring up the quick prompt for the maximum lap time/speed to display. Input the appropriate value, the scaling will change accordingly based on the user input and fastest lap time/speed.

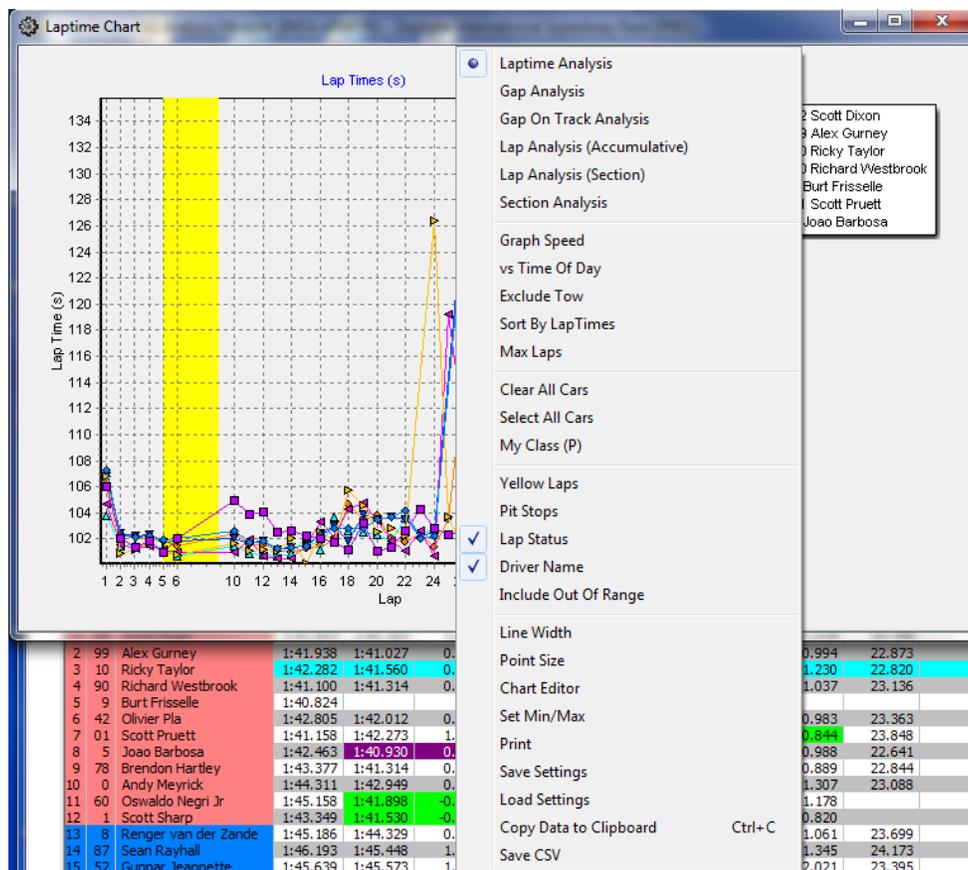


The graph can be changed from the time of day to lap or gap analysis scaling on the x-axis and is quite useful at this stage.

The colors of the competitor data series are randomly assigned by the software unless the car colors have already been set (Ctrl+left click on competitor number in the Session Results window).

In order to access the more sophisticated features of the report, an additional menu is available via right click and even great control is available by left clicking on the legend of the plot.

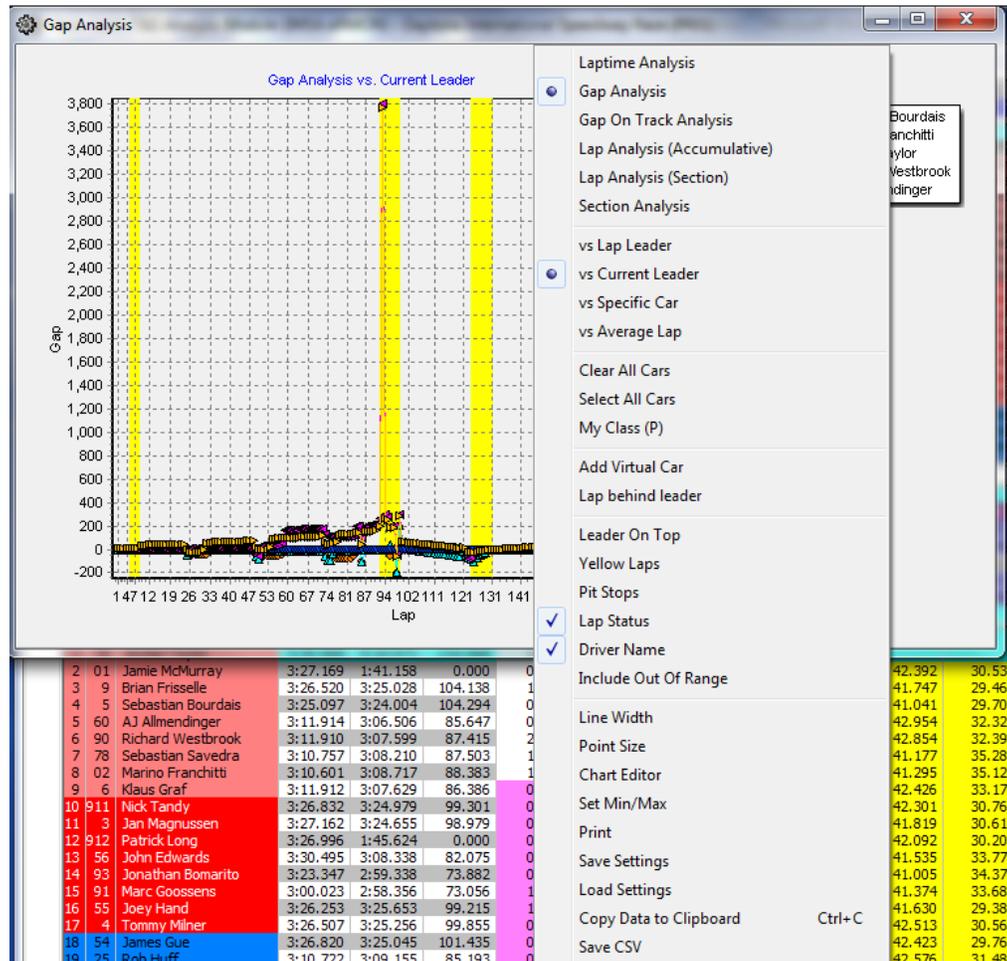
Options available from right clicking on the Laptime Analysis graph are listed below.



- Laptime Analysis – this sets the graph to be the lap time analysis. With Laptime Analysis, the performance index is plotted on the graph vs time of day or lap number.
- Gap Analysis – this sets the graph to be the gap analysis. With Gap Analysis, the gap on track relative to the selected baseline is graphed vs lap number. Note that the right click menu will change from that explained here when this option is selected.
- Gap On Track Analysis –
- Lap Analysis (Accumulative) –
- Lap Analysis (Section) –
- Section Analysis – Display a specific section analysis.
- Graph Speed – this changes the performance index to lap speed for the graph. When this is selected, Y-axis scaling may need to be changed.
- vs Time Of Day – changes X-axis scaling from lap based to time of day.
- Exclude Tow – removes laps determined to be tow laps from the plot.
- Sort By LapTimes – sorts the laps by each competitor from fastest to slowest. Y-axis scaling may need to be changed.
- Max Laps – sets the max number of laps to display for each competitor. Deselect the option to remove the filter.
- Clear All Cars – removes all selected cars from the plot.
- Select All Cars – adds all cars in the session to the plot.
- My Class – Displays info on the cars in the ‘Team Car’ class.
- Yellow Laps – formats the graph to color the data points and connecting lines yellow for laps flagged as yellow.
- Pit Stops – formats the graph to color the data points and connecting lines red for in and out laps of pit stops.
- Lap Status – formats the graph to color the entire column yellow for a yellow lap when lap number is the x-axis parameter.
- Driver Name – Displays the Driver Name.
- Line Width – sets the line width that connects the data points in the plot.

- Point Size – changes the point size for the data points on the graph.
- Chart Editor – Allows the user to format the graph, extract data, print, etc. See the appendix for an explanation of the options.
- Set Min/Max – Set the Maximum and Minimum lap times for the chart to display.
- Print – opens print window to print report.
- Save Settings – Save the Chart settings to a file.
- Load Settings – Load saved chart settings from a file.
- Copy Data To Clipboard – Copy the data in the chart to the clipboard for use in another program.
- Save CSV – Save the data in the graph to a .csv file for further analysis with another program.

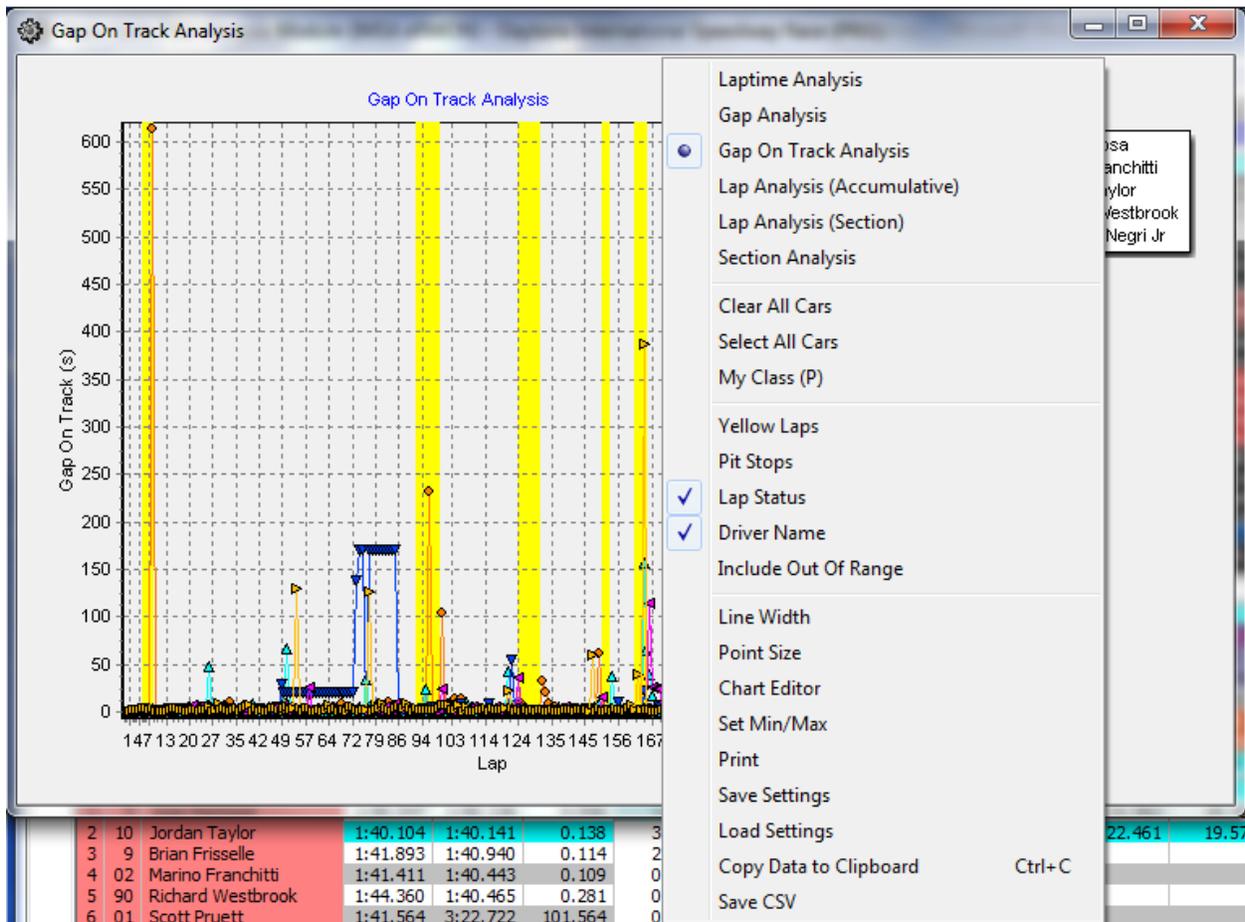
Gap Analysis is an available option in the list above. This feature will change the analysis mode for the report to a gap on track comparison for strategic purposes. When the graph is changed to Gap Analysis mode, the options available in the right click menu change, as shown below.



- vs Lap Leader – Displays the gap to the Lap Leader.
- vs Current Leader – Displays the gap to the Current Leader.
- vs Specific Car – Displays the gap to a Specific Car.
- vs Average Lap – Displays the gap to and Average Lap.
- Clear All Cars – Clear all cars from the graph.
- Select All Cars – Select All cars for display on the graph.
- My Class – Display the cars in the 'Team Car' class.
- Add Virtual Car –

- Lap Behind Leader –
- Leader On Top – Inverts the graph to show the leader on top.
- Yellow Laps – Highlight the cars ‘Yellow’ flag laps.
- Pit Stops – Highlight the cars ‘Pit Stops’ in the chart.
- Lap Status – Displays the ‘Track Condition’ on the chart.
- Driver Name – Display the ‘Driver Name’ in the legend.
- Include Out Of Range – Include Out Of Range cars.
- Line Width – Adjust line width on the graph.
- Point Size – Adjust the point size for the cars in the graph.
- Chart Editor – Opens the Chart Editor window. See Appendix for description.
- Set Min/Max – Set Minimum and Maximum gaps to display in the graph.
- Print – Opens the Print dialog window for printing.
- Save Settings – Save settings to a file.
- Load Settings – Load settings from a file.
- Copy Data To Clipboard – Copy data to the Clipboard for insertion in another program.
- Save CSV – Save data to a csv file for use in another program.

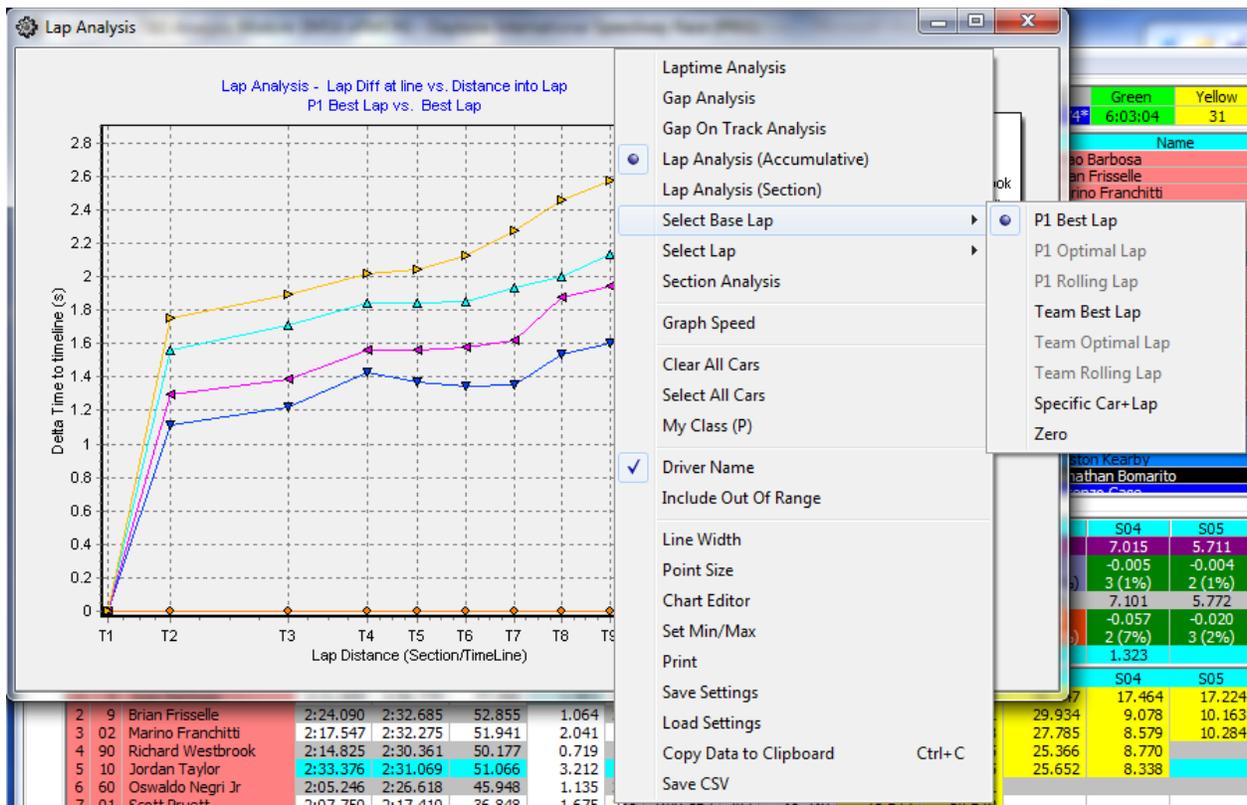
Another available graph is the Gap On Track Analysis. The list of right click options is shown below.



- Clear All Cars – Clear all cars from the graph.
- Select All Cars – Select All cars for display on the graph.
- My Class – Display the cars in the ‘Team Car’ class.
- Yellow Laps – Highlight the cars ‘Yellow’ flag laps.
- Pit Stops – Highlight the cars ‘Pit Stops’ in the chart.
- Lap Status – Displays the ‘Track Condition’ on the chart.
- Driver Name – Display the ‘Driver Name’ in the legend.
- Include Out Of Range – Include Out Of Range cars.
- Line Width – Adjust line width on the graph.

- Point Size – Adjust the point size for the cars in the graph.
- Chart Editor – Opens the Chart Editor window. See Appendix for description.
- Set Min/Max – Set Minimum and Maximum gaps to display in the graph.
- Print – Opens the Print dialog window for printing.
- Save Settings – Save settings to a file.
- Load Settings – Load settings from a file.
- Copy Data To Clipboard – Copy data to the Clipboard for insertion in another program.
- Save CSV – Save data to a csv file for use in another program.

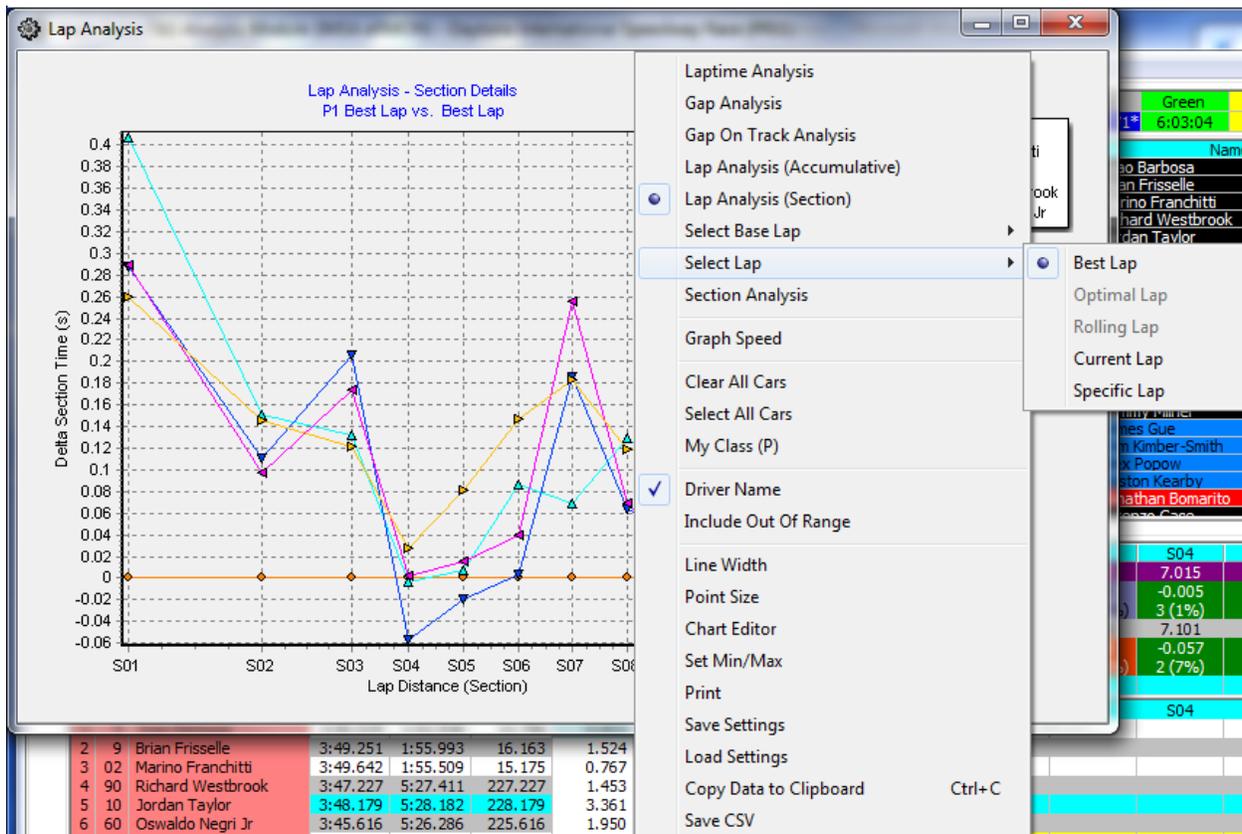
Another available graph is the Lap Analysis (Accumulative). The list of right click options is shown below.



- Select Base Lap
 - P1 Best Lap
 - P1 Optimal Lap
 - P1 Rolling Lap
 - Team Best Lap
 - Team Optimal Lap
 - Team Rolling Lap
 - Specific Car + Lap
 - Zero
- Select Lap
 - Best Lap
 - Optimal Lap
 - Rolling Lap

- Current Lap
 - Select Lap
- Section Analysis - .
- Graph Speed – Displays the Speed on the chart.
- Clear All Cars – Clear all cars from the graph.
- Select All Cars – Select All cars for display on the graph.
- My Class – Display the cars in the ‘Team Car’ class.
- Driver Name – Display the ‘Driver Name’ in the legend.
- Include Out Of Range – Include Out Of Range cars.
- Line Width – Adjust line width on the graph.
- Point Size – Adjust the point size for the cars in the graph.
- Chart Editor – Opens the Chart Editor window. See Appendix for description.
- Set Min/Max – Set Minimum and Maximum gaps to display in the graph.
- Print – Opens the Print dialog window for printing.
- Save Settings – Save settings to a file.
- Load Settings – Load settings from a file.
- Copy Data To Clipboard – Copy data to the Clipboard for insertion in another program.
- Save CSV – Save data to a csv file for use in another program.

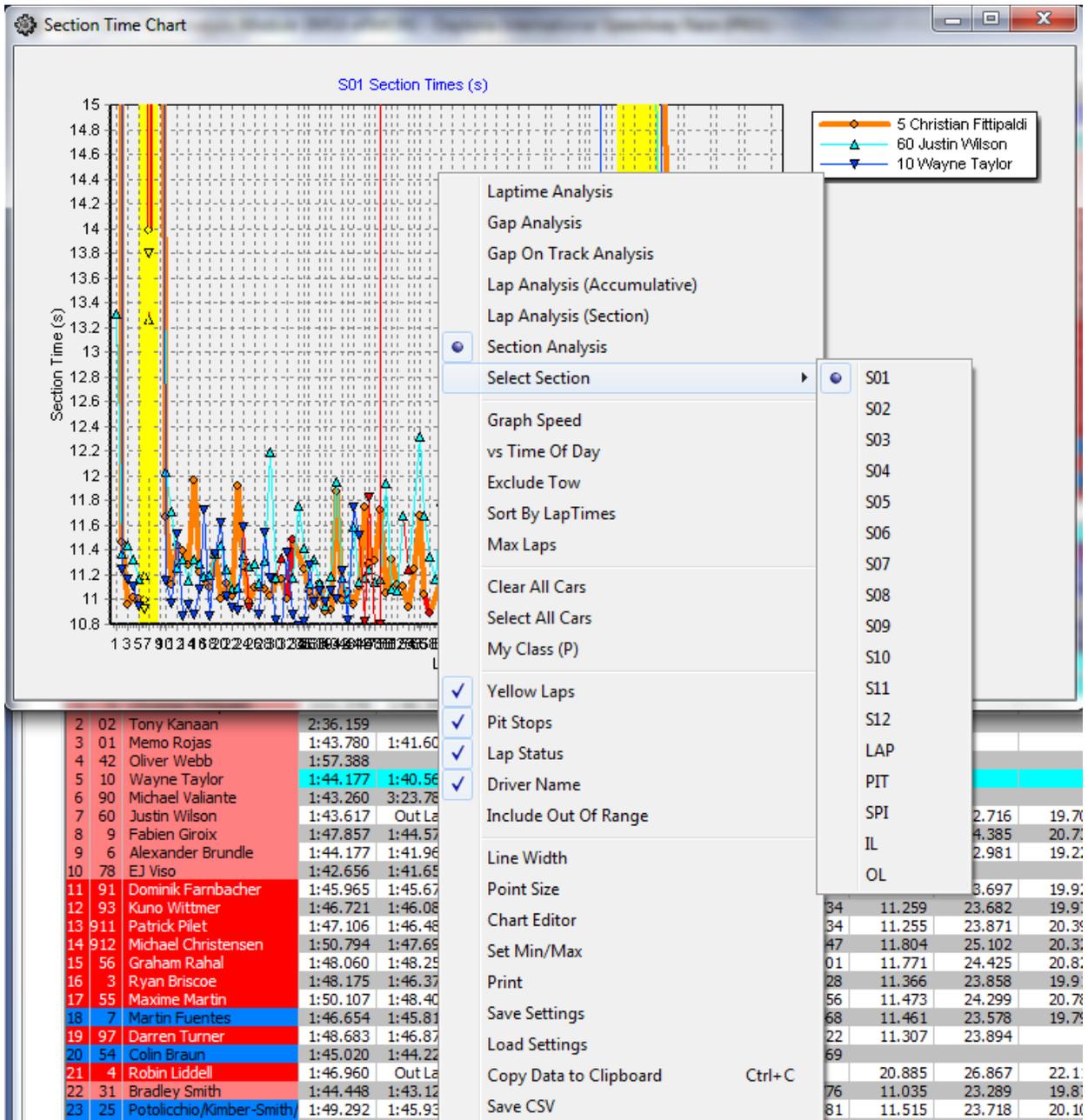
Another available graph is the Lap Analysis (Section). The list of right click options is shown below.



- Select Base Lap
 - P1 Best Lap
 - P1 Optimal Lap
 - P1 Rolling Lap
 - Team Best Lap
 - Team Optimal Lap
 - Team Rolling Lap
 - Specific Car + Lap
 - Zero
- Select Lap
 - Best Lap
 - Optimal Lap

- Rolling Lap
 - Current Lap
 - Select Lap
- Section Analysis - .
- Graph Speed – Displays the Speed on the chart.
- Clear All Cars – Clear all cars from the graph.
- Select All Cars – Select All cars for display on the graph.
- My Class – Display the cars in the 'Team Car' class.
- Driver Name – Display the 'Driver Name' in the legend.
- Include Out Of Range – Include Out Of Range cars.
- Line Width – Adjust line width on the graph.
- Point Size – Adjust the point size for the cars in the graph.
- Chart Editor – Opens the Chart Editor window. See Appendix for description.
- Set Min/Max – Set Minimum and Maximum gaps to display in the graph.
- Print – Opens the Print dialog window for printing.
- Save Settings – Save settings to a file.
- Load Settings – Load settings from a file.
- Copy Data To Clipboard – Copy data to the Clipboard for insertion in another program.
- Save CSV – Save data to a csv file for use in another program.

Another available graph is the Section Analysis. The list of right click options is shown below



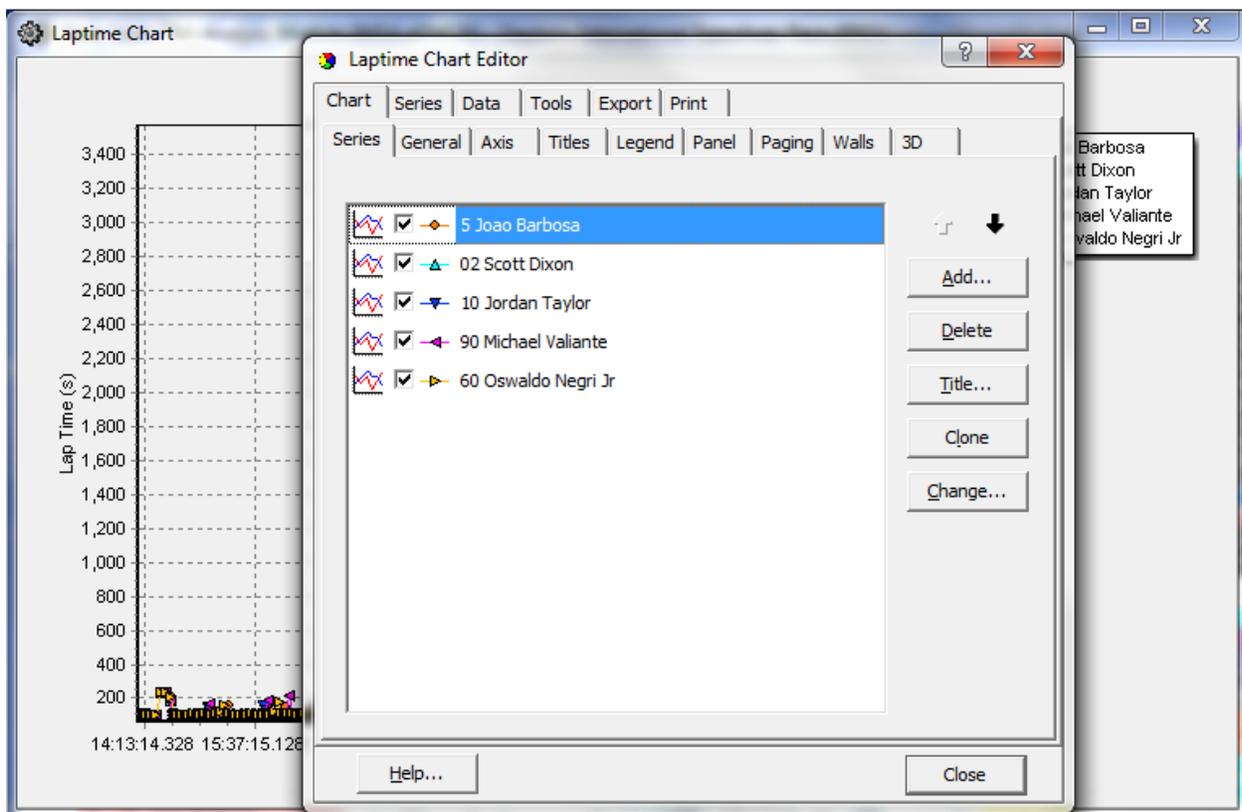
- Select Section
 - S01 – Section 1
 - S02 – Section 2
 - S03 – Section 3
 - S04 – Section 4
 - S05 – Section 5
 - S06 – Section 6
 - S07 – Section 7
 - S08 – Section 8

- S09 – Section 9
- S10 – Section 10
- S11 – Section 11
- S12 – Section 12
- Lap – Section Complete lap
- PIT – Section pits
- SPI – Speed Section
- IL – In-Lap
- OL – Out-Lap
- Graph Speed – Display speeds on the chart instead of times.
- vs Time Of Day – Display Time Of Day instead of Laps.
- Exclude Tow – Exclude Tow laps.
- Sort By LapTimes – Sort by LapTimes.
- Max Laps – Set maximum number of laps to display.
- Clear All Cars – Clear all cars from the graph.
- Select All Cars – Select All cars for display on the graph.
- My Class – Display the cars in the ‘Team Car’ class.
- Yellow Laps – Highlight the cars ‘Yellow’ flag laps.
- Pit Stops – Highlight the cars ‘Pit Stops’ in the chart.
- Lap Status – Displays the ‘Track Condition’ on the chart.
- Driver Name – Display the ‘Driver Name’ in the legend.
- Include Out Of Range – Include Out Of Range cars.
- Line Width – Adjust line width on the graph.
- Point Size – Adjust the point size for the cars in the graph.
- Chart Editor – Opens the Chart Editor window. See Appendix for description.
- Set Min/Max – Set Minimum and Maximum gaps to display in the graph.
- Print – Opens the Print dialog window for printing.
- Save Settings – Save settings to a file.
- Load Settings – Load settings from a file.

- Copy Data To Clipboard – Copy data to the Clipboard for insertion in another program.
- Save CSV – Save data to a csv file for use in another program.

Note that on all graphs a competitor can be selected by clicking on the data series. This highlights the series for easier recognition. If it is desired to highlight more than one driver, then Ctrl+left click on additional series.

There are many options available for the graphs, including formatting, printing, copying data, exporting, and other tools. These are accessed by right clicking on the graph and selecting Chart Editor. The formatting window is shown below.



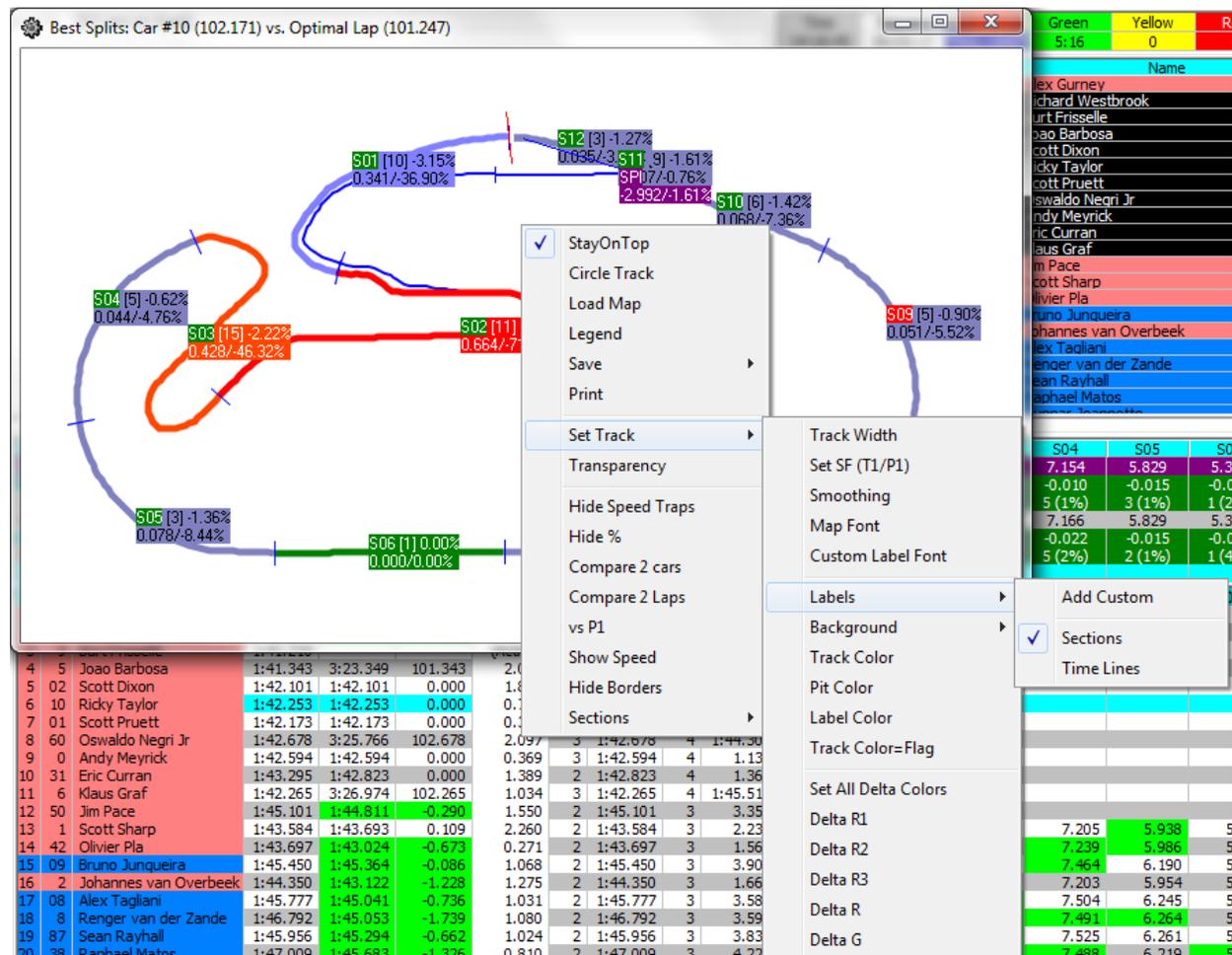
There are six different categories of options; Chart, Series, Data, Tools, Export, and Print. A quick overview of the categories and submenus is necessary to outline all of the possibilities available. Because of the multitude of options available, this feature tree will be located in the Appendix of the manual.

Best Splits Map

Best Splits Map – Shortcut Shift+F1 – this map shows the best splits and traps of the team car (set at Options -> Set Team Car [X]) versus the best splits of the rest of the entrants (optimal lap). Splits in green reflect the team car being best in that section.

The Analysis Maps have extra information in the session labels. The first line contains the Section Name, the Section Rank and the Section Delta %. The second line contains the Section Delta and % loss or gain.

The Section Rank is the rank of each section time compared to the other competitors. The % Loss or Gain is the Section Delta / Lap Delta, which highlights the relative amount of time lost or gained for each section. Note that the Lap Delta is the sum of time lost and gained and that the sum of the deltas equals 100%. This means that if there is a mixture of both time lost and gained in a lap, the percentages are of the lap delta, not the 'time lost' / 'total time lost' or 'time gained' / 'total time gained', but the key is the relative percentages which can highlight which sections your car is losing the most time. To help highlight this further, there are now color codes for the top 3 time lost sections referred to as **DeltaR1 (Red)**, **DeltaR2 (Blue)**, and **DeltaR3 (Purple)**. The other time lost sections are highlighted with the **DeltaR (Orange)** color. The time gained sections are highlighted with the **DeltaG (Green)** color.



Each splits/traps information label can be moved by left clicking and on the split/trap label and dragging. The track map can also be rotated in 45 degree steps by double clicking in the window. Many options are available via right click in the popup window.

- StayOnTop – forces the map to stay on top of all other applications running on the computer, even when Race Tools is minimized.
- Circle Track – loads a circular track to display the data on. Useful if a track map is not available for some reason.
- Load Map – allows user to load the applicable map for the data.
- Save – extends to reveal additional options.
 - Image – opens menu to save popup as a bitmap file.
 - Settings – allows user to save user defined settings such as fonts, track width, etc.
- Print – opens print window to print report.
- Set Track – extends to reveal additional options.
 - Track Width – opens dialog box to change track width which will be used when the track map is next updated.
 - Set S/F – sets the timing line used as the SF during the session. Typically set within track map, but some circumstances require the timing line to be set differently if timing lines fail or change and an updated track map is not available.
 - Smoothing – allows user to manipulate “smoothness” of track map rendering. Lower number increases the number of points to use.
 - Map Font – sets the font for the section deltas and labels.
 - Custom Label Font – sets the font for custom labels (custom labels are created in the next menu).
- Labels – extends to reveal additional options.
 - Add Custom – creates custom map labels. Move the custom labels in the undocked map.
 - Sections – shows section labels.
 - Time Lines – shows time line labels.
- Background – extends to reveal additional options.
 - Color – changes the background color of the map.
 - Image – allows an image to be used as the background for the map.

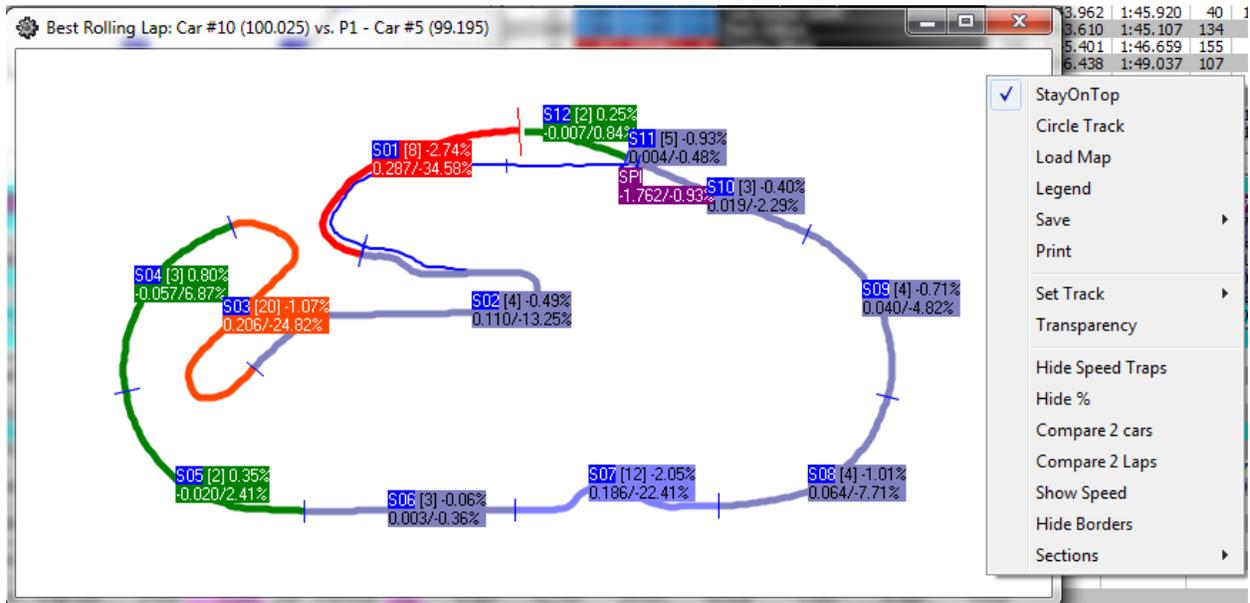
- Clear Image – removes loaded image from background of map.
- Track Color – sets the color of the track rendering (only refreshes if map size is changed or rotated).
- Pit Color – sets the color of the pit lane.
- Label Color – sets the background color of the segment labels on the map.
- Track Color = Flag – changes the track color to reflect the track condition – yellow, green, red.
- Set All Delta Colors – Set all the Delta colors.
- Delta R1 – Set Color for **Delta R1 (default Red)**. (Most Time Lost Section)
- Delta R2 – Set Color for **Delta R2 (default Blue)**. (2nd Most Time Lost Section)
- Delta R3 – Set Color for **Delta R3 (default Purple)**. (3rd Most Time Lost Section)
- Delta R – Set Color for **Delta R (default Orange)**. (Other Time Lost Sections)
- Delta G - Set Color for **Delta G (default Green)**. (Time Gained Sections)
- Transparency – this sets the transparency of the window. Remember that the report can be set to “Stay On Top”, and the transparency will allow the report to be seen as well as the program running behind it. 100% is the default transparency, completely opaque.
- Hide Speed Traps – Hide the Speed Trap Section.
- Hide % – this hides the % performance index for the section deltas (the % is simply the percentage of the selected drivers delta to the fastest split time for that section, can be “+” or “-”).
- Compare 2 Cars – allows the user to compare 2 Cars rather than the “team car” to the optimal lap. The user will be prompted to input the two car numbers to compare. To reset the compare to the default optimal lap comparison, simply select the option again to uncheck it.
- Compare 2 Laps – allows the user to compare 2 laps of selected cars rather than the “team car” to the Best Lap, Rolling Lap, or Optimal Lap. The user will be prompted to input the two car numbers and select Best Lap, Rolling Lap, or Optimal Lap to compare. To reset the compare to the default optimal lap comparison, simply select the option again to uncheck it.

- vs P1 – Compare to P1.
- Show Speed – changes the performance index to speed. This is most useful for ovals.
- Hide Borders – hides the borders of the window to decrease the footprint.
- As a special note if the track map is messed up, you can force a redraw by CTRL+Left Clicking the map to force a refresh.
- Sections
 - Standard – Display Standard sections.
 - Custom – Display Custom sections (if defined).

Best Rolling Lap Map

Best Rolling Lap Map – Shortcut Shift+Ctrl+F1 – this track map compares the team’s best rolling lap (the best complete lap, using any time line as the start/finish line of the lap. This is useful to find the best lap completed, regardless of the location of the S/F line.) with P1’s best rolling lap, if the best rolling lap data is available.

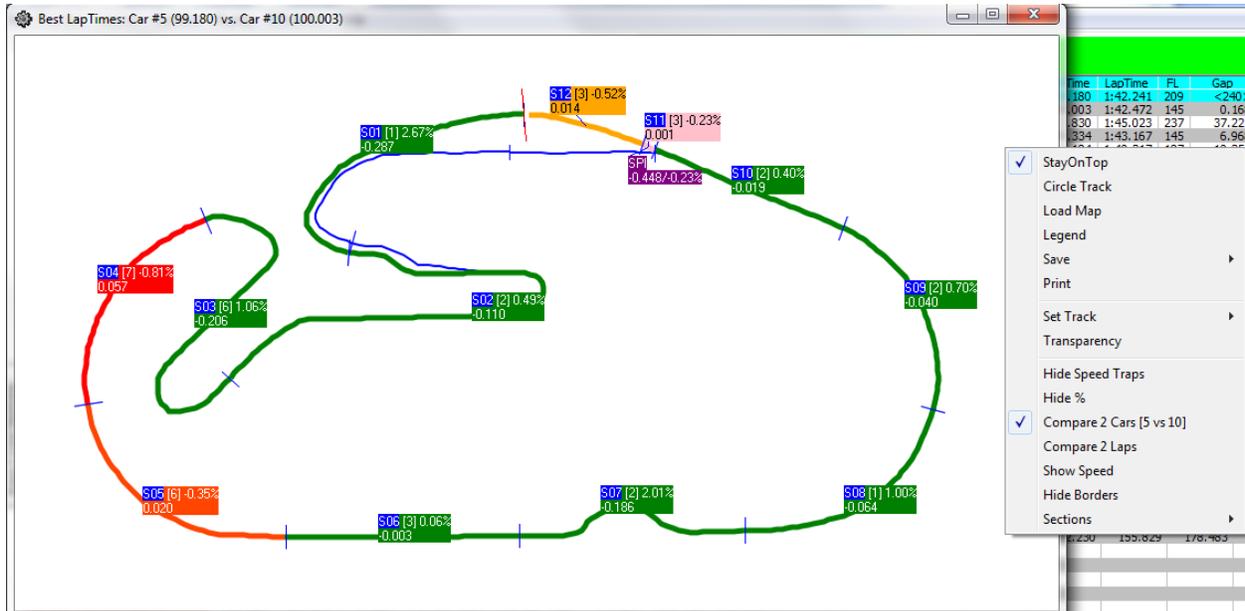
The right click options available for this feature are identical to the “Best Splits Map” feature.



Best Lap Map

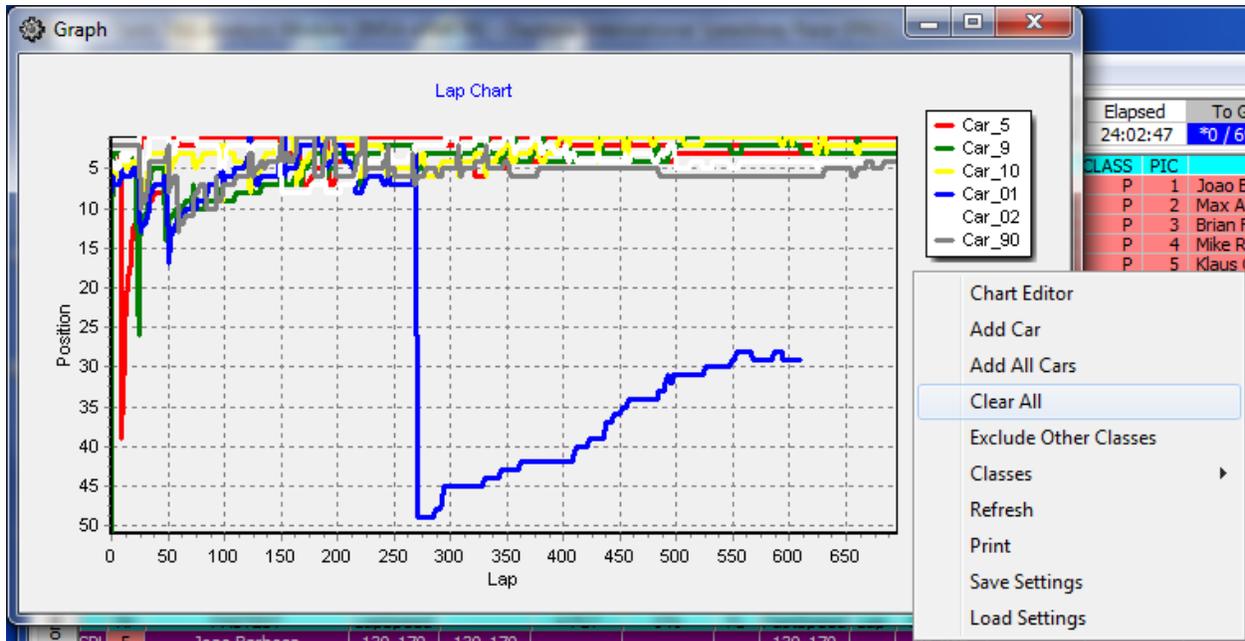
Best Lap Map – Shortcut Shift+F4 – this track map displays the team’s best lap.

The right click options available for this feature are identical to the “Best Splits Map” feature.



Lap Chart Graph

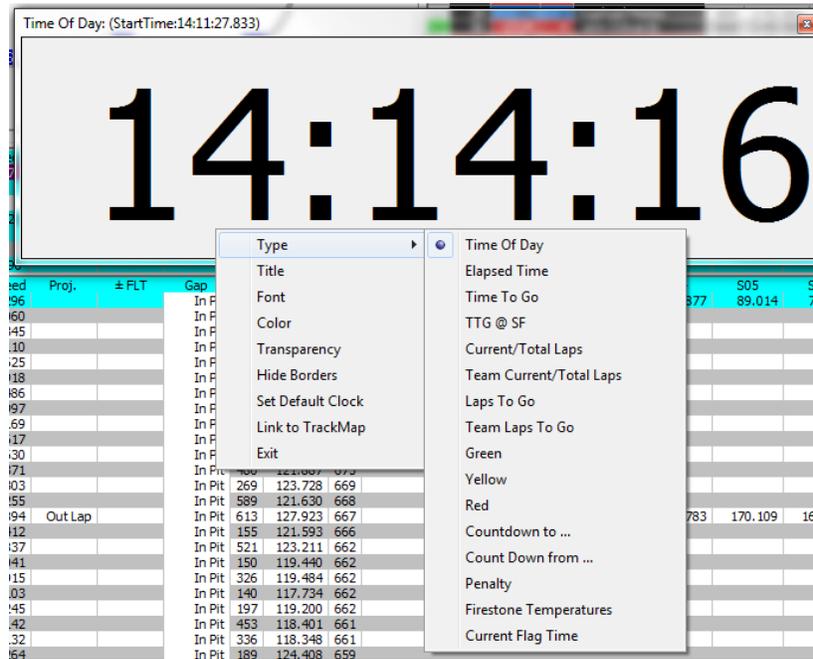
Lap Chart Graph – Shortcut Shift+F7 – This chart allows you to create a graph tracking the position of the cars you choose. Right clicking the chart reveals various options for configuring your graph.



- Chart Editor – opens the same chart editor available in the Laptime Graph. Allows the user to format the graph, extract data, print, etc. See the appendix for an explanation of the options.
- Add Car – allows user to add selected cars to the chart. Input the desired competitors in the form of "9,12,11,6" (comma delimited) or "9 12 11 6" (space delimited).
- Add All Cars – adds all cars completing a lap in the session to the chart.
- Clear All – removes all cars from the chart.
- Exclude Other Classes – Exclude classes other than the 'Team Car' class.
- Classes - Allows the user to select the classes to display.
- Refresh – refreshes the data in the chart to show most recently received results.
- Print – opens the print menu for printing the graph.
- Save Settings – Save settings to a file.
- Load Settings – Load saved settings from a file.

Add Clock

Add Clock – Shortcut Ctrl+Alt+C – adds a clock to the interface. Clocks are used to display session information in a larger format, and in a user determined location. When the feature is selected, a large clock displaying the current time of day will appear in the Race Tools window. This clock can be moved to any location on the screen and be sized to any size. The text will automatically resize as the window size is changed.



Once the clock is added, the type of clock can be selected. It is best practice to choose the type of clock before determining location and formatting size. To choose the clock type, right click in the background of the clock window. Note that certain clocks will also have a background color representative of the current track status.

The options for clock type are explained below.

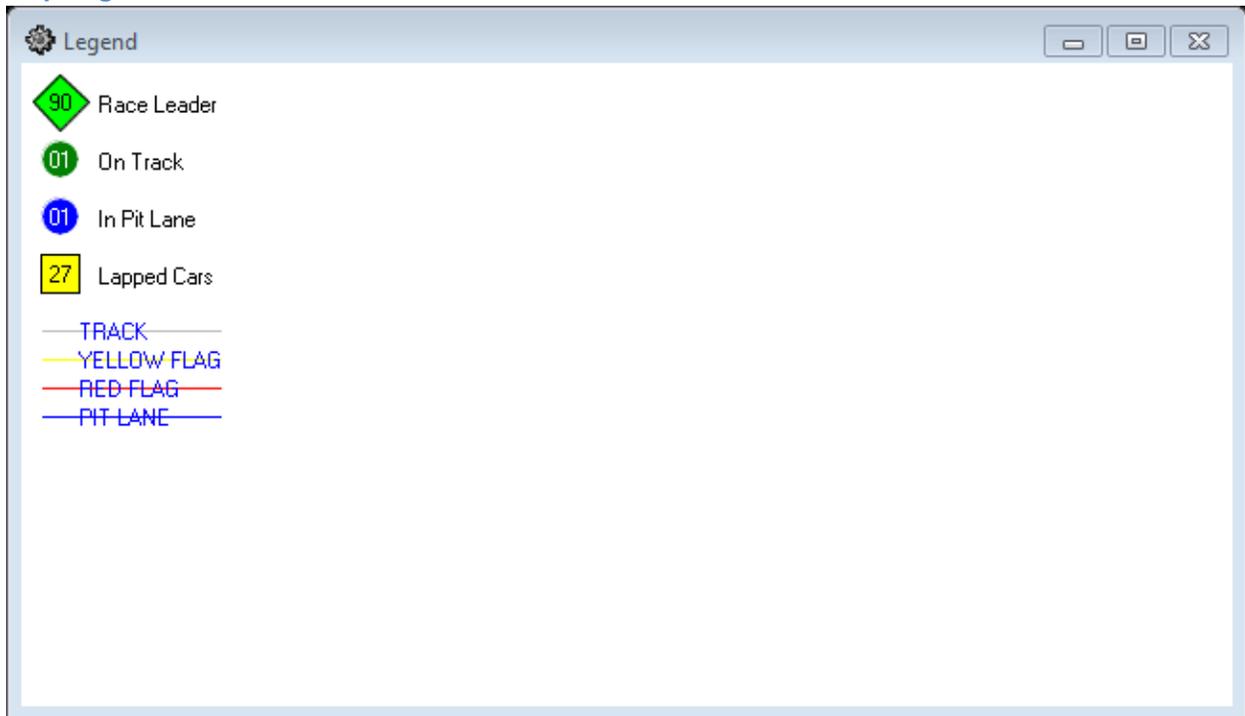
- Time of Day – displays timing and scoring broadcasted time of day.
- Elapsed Time – displays the broadcasted elapsed time from the start of the current session/race.
- Time To Go – displays the time to go in the current session/race (note time to go will display for a race session even if not timed race, this is done based on inputs of Pit/Lap calculator or broadcast value from timing and scoring, use with caution).
- TTG @ SF – displays the time to go (TTG) when the session leader crosses the start finish line. This is typically most useful for timed races, allowing the user to calculate remaining laps based on the leaders timing data.
- Current/Total Laps – for races, displays the current lap the leaders are working and the total laps for the race (will reflect the calculated number of laps if the race becomes a timed race, must select timed race in Options menu).

- Laps To Go – displays the laps to go in the race. This will show the calculated laps remaining if “Timed Race” is selected in the Options.
- Green – total time of session that has been flagged as “green”.
- Yellow – total time of session that has been flagged as “yellow”.
- Red – total time of session that has been flagged as “red”.
- Countdown to ... – allows the user to specify a time to countdown to. Enter the time in the format „11:12:53 AM“. The user will be prompted to change the title of the clock after the time has been entered.
- Count Down from ... – starts a countdown timer for the user. Input the time to countdown from in the format „hh:mm:ss.xxx“. The user will be prompted to change the title of the clock after the time has been set.
- Penalty – creates a user set up penalty clock. The clock is defined in the same manner as the “Count Down from” clock. The clock title automatically changes to display the time the penalty clock was started.
- Firestone Temperatures – displays the logged Firestone air and track temperatures (in Fahrenheit) as well as the time the temperature were logged.

Other right-click options available for the clock feature are:

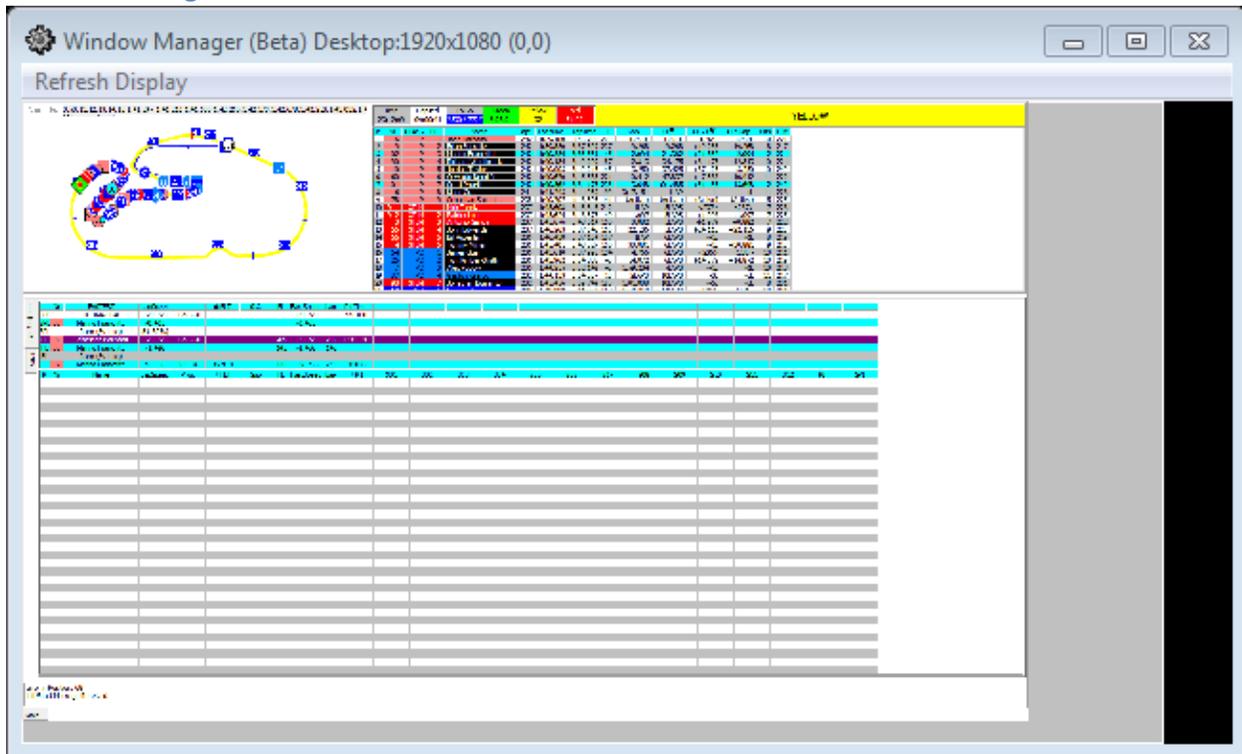
- Title – change the title of the clock.
- Font – change the font of the clock. Note that changing the font will change the size of the clock and that the font will increase in size if the clock size is increased (doesn’t lock the font size).
- Color – change the background color of the clock (not applicable to clocks that display track condition color, like the elapsed time clock).
- Transparency – sets the transparency of the clock (100% is opaque).
- Hide Borders – allows user to hide the borders of the clock. Note that the clock cannot be moved with borders hidden.
- Set Default Clock – sets the currently selected clock type as the default clock. All subsequently added clocks will be of this type.
- Exit – closes the clock window. Can also be closed with the “X” in the upper right corner (if not hidden).

Map Legend



Legend of items shown on the various maps.

Window Manager



Manages the placement of various windows displayed.

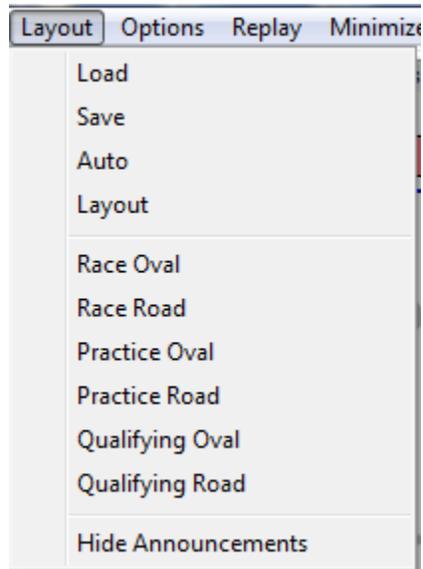
Lock Docking

- Lock Docking – allows the user to dock or undock the map from the Race Tools software. The docked location is always the upper left corner of the software, while the undocked Track Map can be placed anywhere, including extended displays, as well as be resized.

Close All Popups

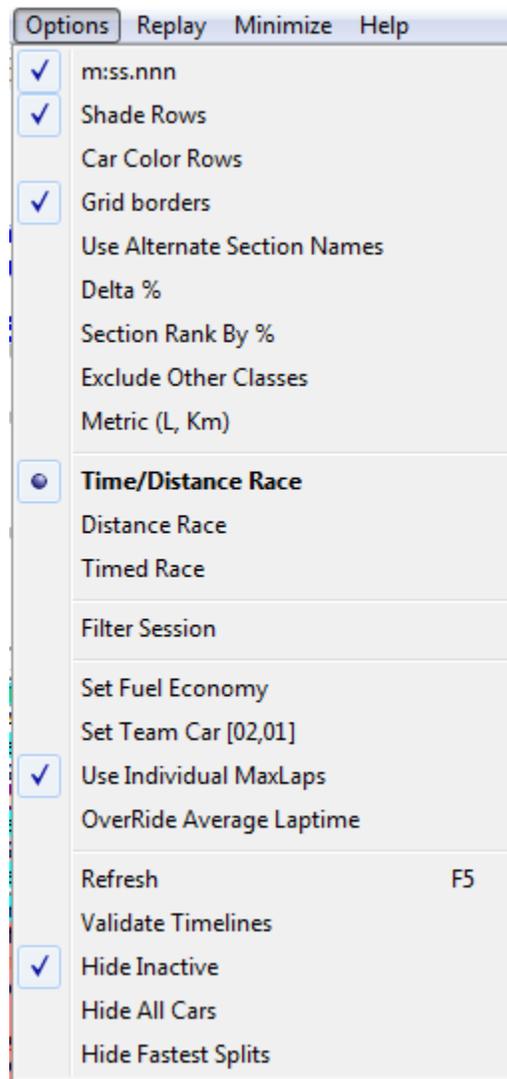
- Close All Popups – Closes all popup windows.

Layout



- Load – Load a saved layout.
- Save – Save a layout.
- Auto – Auto load layout.
- Layout
- Race Oval – Oval track Race Layout.
- Race Road – Road Course Race Layout.
- Practice Oval – Oval track Practice Layout.
- Practice Road – Road Course Practice Layout.
- Qualifying Oval – Oval track Qualifying Layout.
- Qualifying Road – Road Course Qualifying Layout.
- Hide Announcements – Hide the Announcements window.

Options



- mm:ss.nnn – changes the lap time performance index from „ss.nnn“ to „mm:ss.nnn“ when this feature is selected (example 64.1255 vs 1:04.1255)
- Shade Rows – formats the Session Results and Live Sections window to alternate shading between rows of data, by default the shading is white and grey
- Car Color Rows – if colors have been assigned to cars (Ctrl+left click on the car number in the Session Results window, the numbers and marching ants will be the assigned color already), then the rows of the cars with assigned colors will be formatted to that background color. If car colors need changed, either select the entrant again and change colors or manipulate the file “CarColors” in the root menu. If color codes are known, it may prove easier to set colors for all entrants in this file rather than setting in the software.
- Grid Borders – adds or removes borders from the tables in the Session Results and Live Sections windows.

- Use Alternate Section Names – Use alternate section names (if defined).
- Delta % - Displays the Delta as percentage.
- Section Rank by % - Displays the Section Rank as percentage.
- Exclude Other Classes – Exclude classes other than 'Team Car' class.
- Metric (L, Km) – Change distances to Metric values.
- Time/Distance Race – for race sessions, this sets the race type to the hybrid of Time/Distance. In this mode, the race distance will be determined by the maximum time duration or total laps for the race whichever is reached first. The information is available in the data stream and will be calculated automatically. The software uses the leaders' last three green laps to project the maximum number of laps possible with the time remaining and compares it with the number of laps to go for a distance race and displays the lower of the two in the To Go field.
- Distance Race – sets the race type to Distance, resulting is a set number of laps needing to be completed, as set by the Pit/Lap Calculator or the data feed.
- Timed Race – sets the race type to timed, resulting in a variable number of race laps based on race time remaining and average lap time calculations.
- Filter Session – places a filter on data stream parser to only process the data from the desired session. This feature is most useful for situations where one session is interrupted for another session (like practice with qualifying during Indy 500 qualifying days, can filter out the qualifying session).
- Set Fuel Economy – Pit/Lap Calculator – not a report, rather a setup menu for the real time pit window analysis contained in the Live Sections/Pit Windows/Graphing window (accessible by selecting the "Race" tab on the left of the window). Parameters required are shown below in the popup window. Note that this is identical to the menu available under Options -> Set Fuel Economy.

The screenshot shows the 'Settings - Pit Stops' window with the following settings and data:

Fuel Economy

Green	4.2000	MPG	0.848	g/Lap	23.60	laps/tank
Yellow	8.0000	MPG	0.445	g/Lap	44.94	laps/tank

Track Length 3,560 Miles **Duration** 23:59:59 **Calc**

Race Laps 0 -0.9 stops **Lap Time** 0:00.000 00:00:00

Pace Laps 2 **Pit Time** 15.000

Capacity 20 Gallons **Lap Time** 0:00.000 00:00:00

Laps 00 0 Laps

Minimum Pit Stop Time 70.00

Pit Stop Digits 4

Pit Stop Font

CLS	Car	Driver	(mpg)	(mpg)	Capacity
P 0	Alexander Rossi	4.20	8.00	20.00	
P 1	David Brabham	4.20	8.00	20.00	
P 2	Johannes van Over	4.20	8.00	20.00	
GTU 3	Jan Magnussen	4.20	8.00	20.00	
GTU 4	Tommy Milner	4.20	8.00	20.00	
P 5	Sebastian Bourdais	4.20	8.00	20.00	
P 6	Klaus Graf	4.20	8.00	20.00	
PC 7	Issac Tutumlu	4.20	8.00	20.00	
PC 8	Sam Bird	4.20	8.00	20.00	
P 9	Brian Frisselle	4.20	8.00	20.00	
P 01	Jamie McMurray	4.20	8.00	20.00	
P 02	Kyle Larson	4.20	8.00	20.00	
P 07	Tristan Nunez	4.20	8.00	20.00	

Reset **Save**

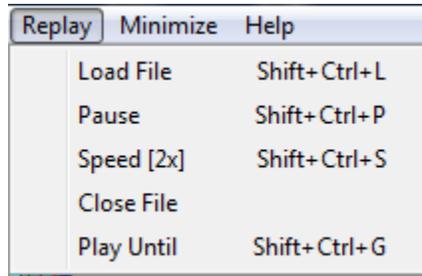
Pressing the Calc button applies the input information to the calculations in the analysis. The Reset button resets all entrants economies to those input at the top of the window. Note that individual economies can be set to reflect the abilities of drivers/teams to be able achieve better/worse economies.

Some of the information required for this menu comes across the timing stream, such as laps, track length, etc. It is always good policy to check the information and apply numbers as seen fit by the user.

- Set Team Car [X] – sets the competitor that will be considered the team car and have any applicable analysis and formatting applied to it. Enter the competitor car number in the pop up menu. Examples of reports and formatting affected by this setup parameter are the Best Splits/Lap Maps, row formatting, and team color among other things. You can enter more than one car number by entering them as a comma delimited string (ie “2,3,4”). The first car number will be treated as the team car for comparative analysis and be highlighted with the team color, the other car numbers will be highlighted with the highlight color.
- Use Individual MaxLaps
- Override Average Laptime
- Refresh – recalculates the leaderboard and refreshes the displays, including resetting the Session Results column widths.
- Validate Timelines – when selected, this feature enables the software to use an algorithm to monitor the functionality of timing lines and attempt to regroup the sections if a timeline is lost, thus eliminating “freezing” of the marching ants on the track map and other issues from missed timing lines. This is an experimental feature.
- Hide Inactive – sets cars that have not crossed a timeline within one lap time as “(inactive)” and hides it from the track map.
- Hide All Cars – Hide all cars on the track map.
- Hide Fastest Splits – Hide the Fastest Splits from the ‘Live Sections’ window.

Replay

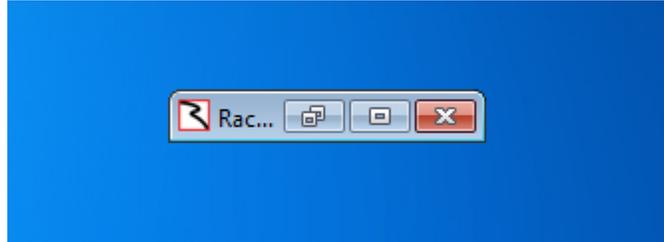
The Race Tools software can utilize downloaded (<http://www.imsatiming.com/results>) or local log files for replay. This feature acts as an emulator and the software behaves exactly as if it was receiving a real time telemetry feed. The Replay menu contains the following options:



- Load File – accesses the “Open Replay Menu” and allows the user to open a desired replay file. Simply navigate to the location of either the downloaded log file or to the local log file directory as set up in the configuration menu.
- Play/Pause – starts and controls the progress of the replay.
- Speed [1x] – sets the replay speed of the file. This can be set from 1-50 times the actual speed.
- Close File – Close the replay file.
- Play Until – Enter the Elapsed Time (h:mm:ss), Lap (n), or flag ('G','Y','K','R','C') to pause replay.

Minimize

- This menu option minimizes the application to the desktop. Rather than minimizing to the taskbar, it instead minimizes the program to the minimal footprint allowed by the header of the program. The reason you might want to minimize to the desktop rather than the taskbar is to keep elements associated with the application visible. For instance, all of the popup reports and clocks are tied to the program window. Minimizing the application to the taskbar also minimizes the popup reports and clocks. Minimizing the application to the desktop keeps any popup reports and/or clocks open.



Help

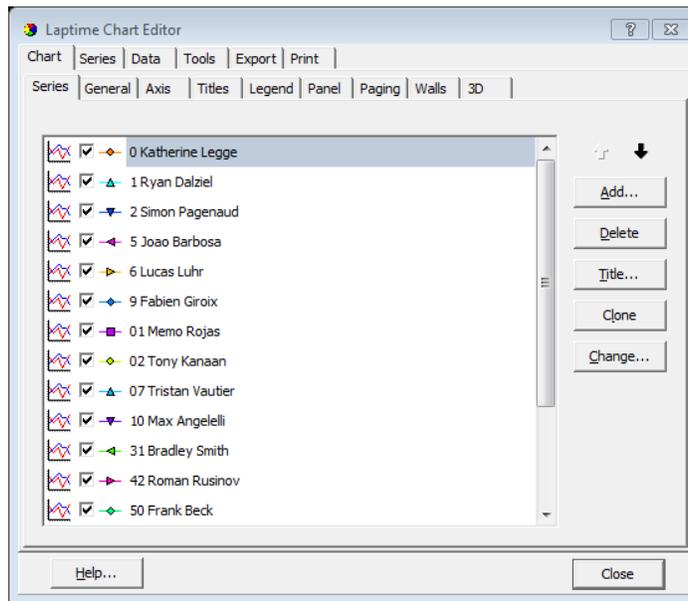
- Reset License Information
- About

Appendix

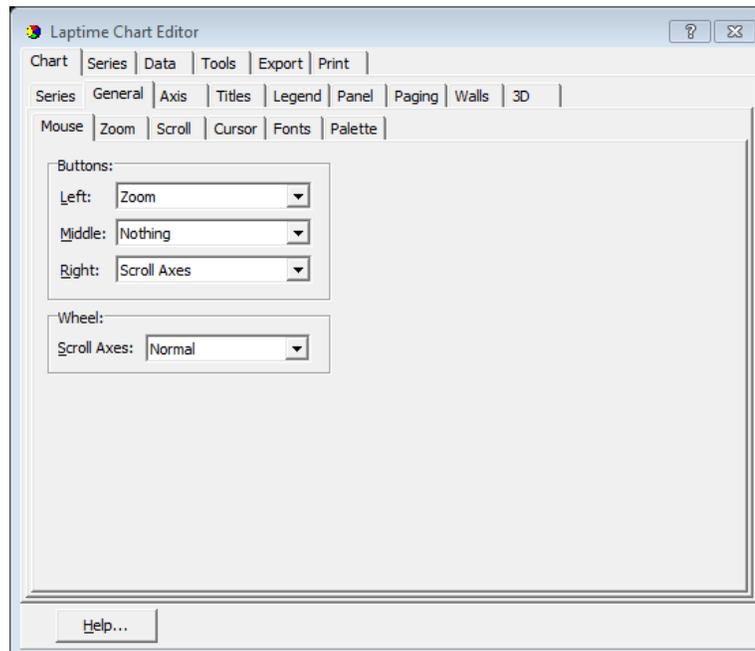
Chart Editor

Chart

- Series
 - Uncheck the box to remove a car (or cars) from the chart. Check the box to add a car back into the chart.



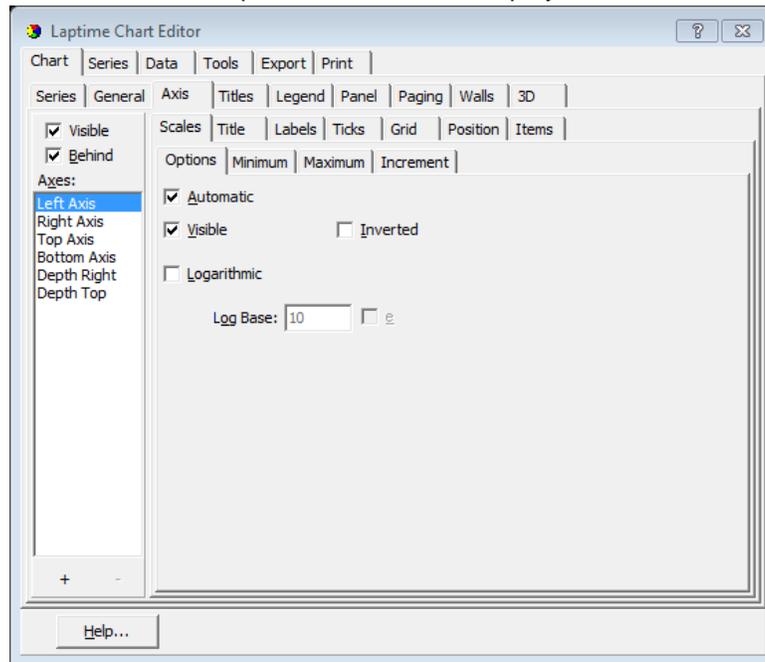
- General
 - This tab allows the user to set the mouse functions.



- Mouse – Define mouse button function.
- Zoom – Define the zoom options for the chart.

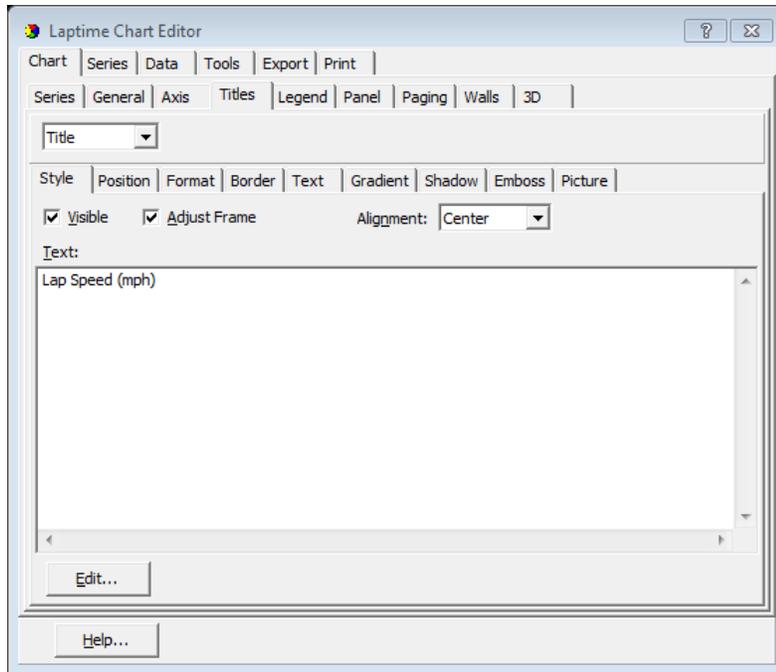
- Scroll – Define the scroll options to allow.
 - Cursor – Define the cursor type.
 - Fonts – Set the fonts for items on the chart.
 - Palette – Select the color palette for the chart items.
- Axis

This tab allows the user to set options on each axis displayed in the chart.



- Scales
 - Options – set Automatic, Visible, Inverted, Logarithmic options for each axis in the chart.
 - Minimum – Select Auto, or set a minimum for each axis.
 - Maximum – Select Auto, or set a maximum for each axis.
 - Increment – Change the increment for each axis.
 - Title
 - Style – Set the Title, Angle, Size for each axis title.
 - Format – Adjust the format (look) of each axis.
 - Labels
 - Style – Select Visible, Multi-line, Round First, Label on Axis, Alternate, Behind Grid options for each axis.
 - Format – Select the format for the values used in the chart.
 - Text – Select the font size and properties for each axis.
 - Ticks – Set the properties for the points on the chart.
 - Grid – Set the Grid properties for the each axis on the chart.
 - Position – Set position properties for each axis on the chart.
 - Items – Set the number of items for each axis. (Checking 'Automatic' will let the software show all data.
- Titles

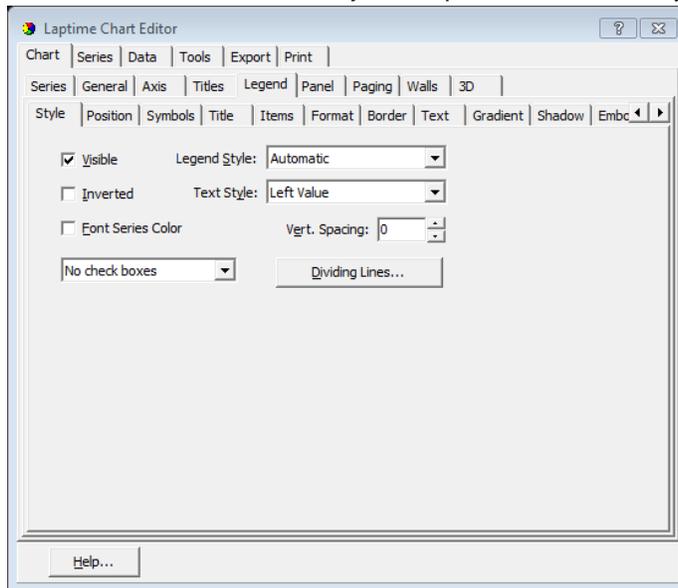
This tab allows the user to Name the chart and adjust the format properties of the chart name.



- Style
- Position
- Format
- Border
- Text
- Gradient
- Shadow
- Emboss
- Picture

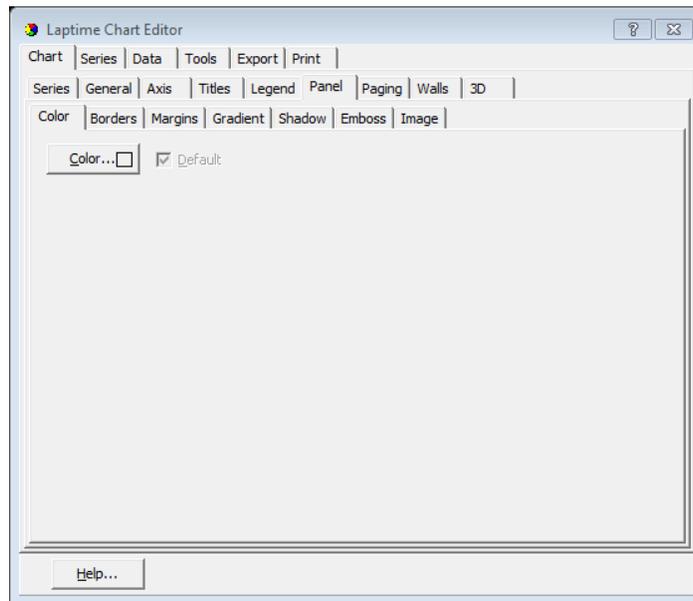
- Legend

This tab allows the user to adjust the position and visibility properties of the chart Legend.



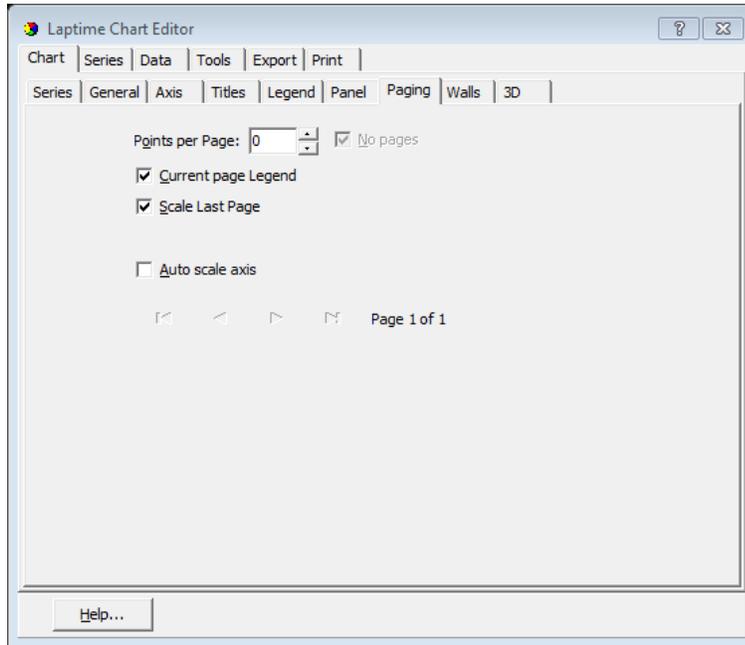
- Style
- Position
- Symbols
- Title
- Format
- Border
- Text
- Gradient
- Shadow
- Emboss
- Picture

- Panel



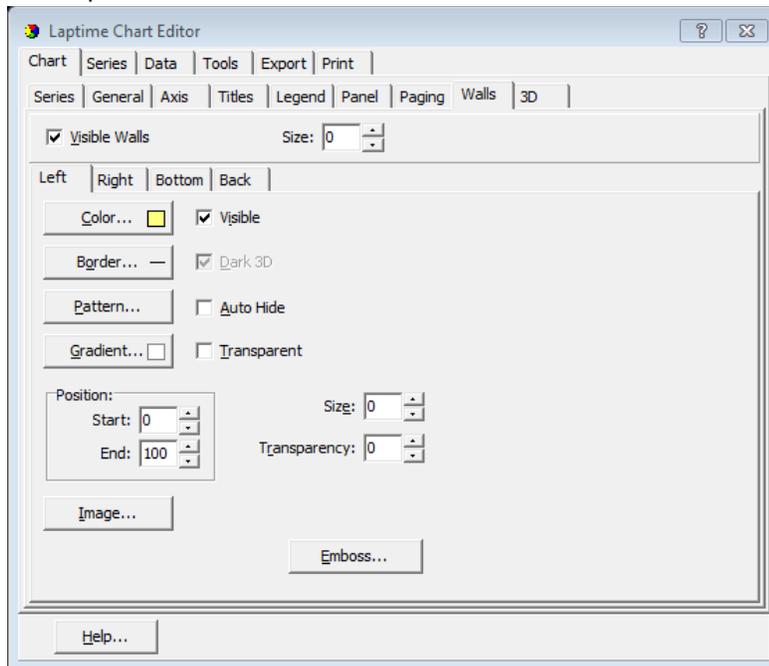
- Color
- Borders
- Margins
- Gradient
- Shadow
- Emboss
- Image

- Paging



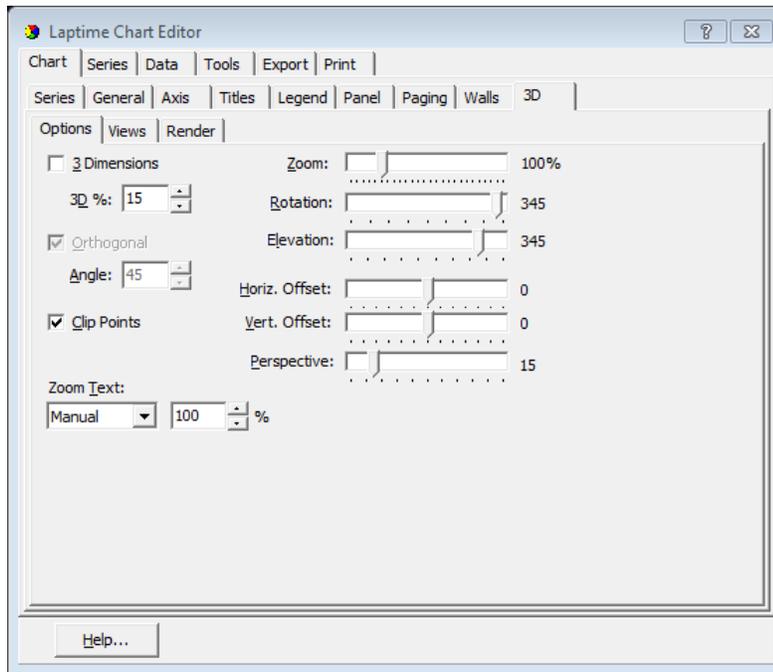
- Walls

Select color and visibility properties for the chart. This is used if you have selected the 3D chart option.



- Left
- Right
- Bottom
- Back

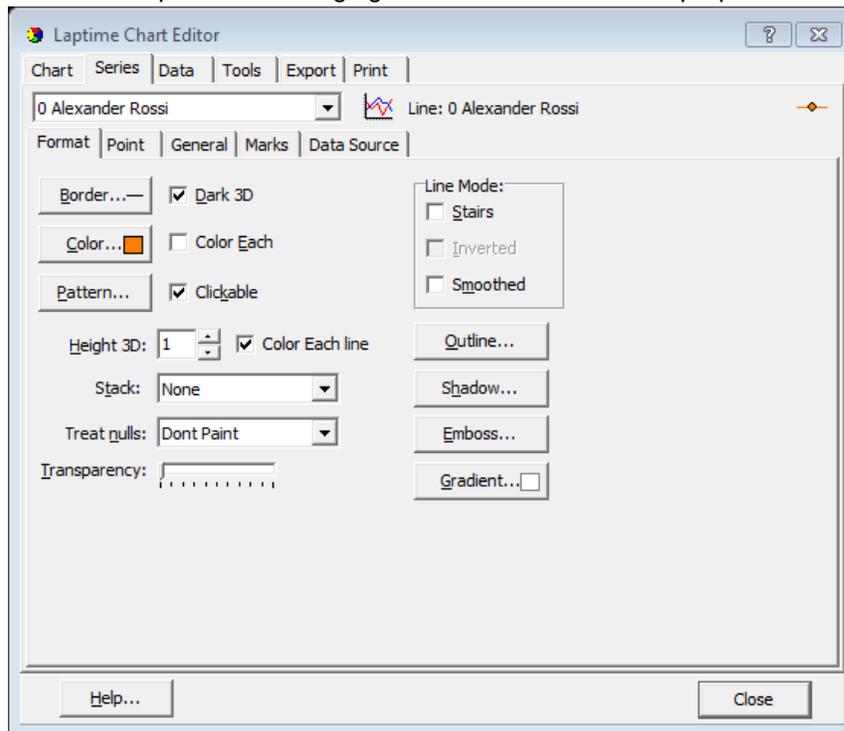
- 3D



- Options – Check the ‘3Dimensions’ box to turn on the 3D chart, then adjust the various properties to get the visible effect you desire.
- Views
- Render

Series

The ‘Series’ tab reveals options for changing the line colors and other properties for each car.



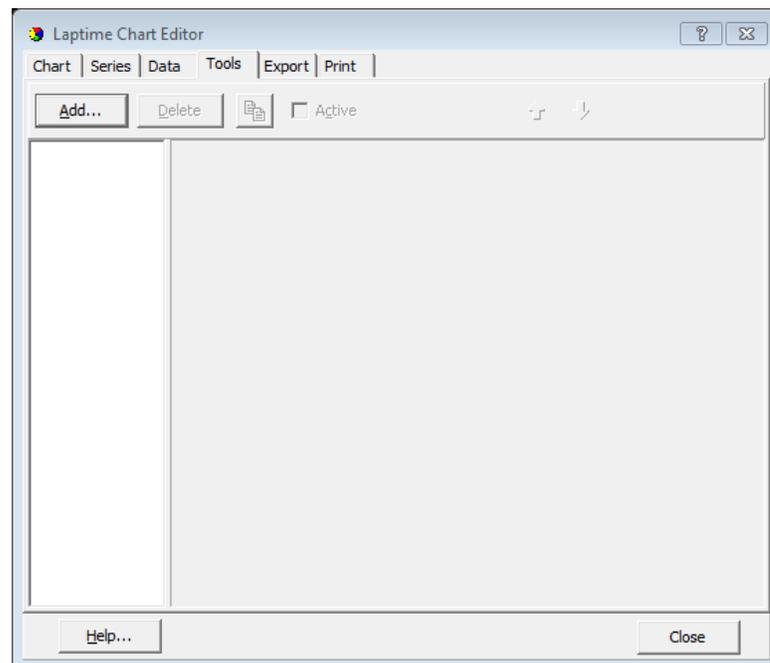
- Format
- Point
- General
- Marks
- Data Source

Data

The 'Data' tab displays the actual data points for each car.

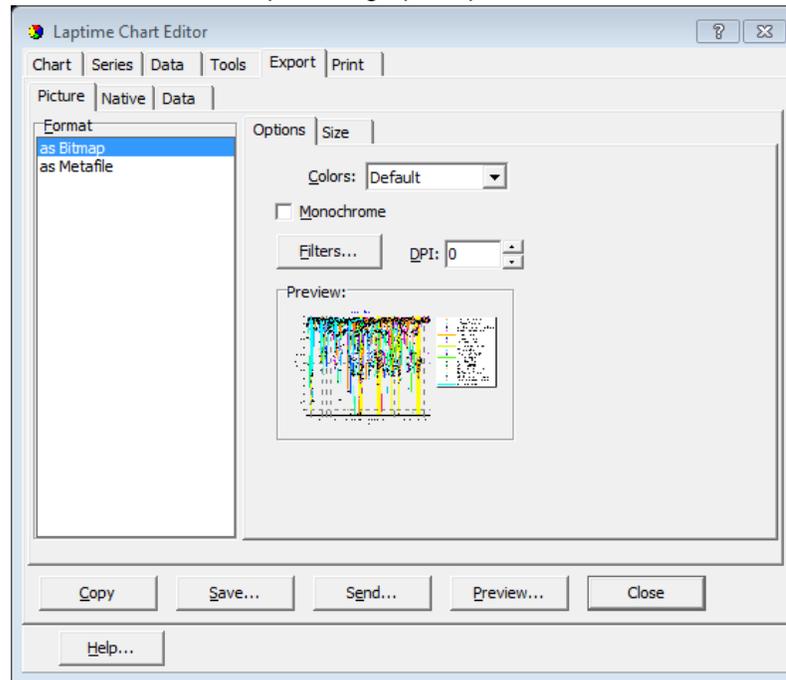
# Text	X	Y	X	Y	X	Y
0 1	1	118.359	1	116.762	1	115.23
1 2	2	123.999	2	123.726	2	122.817
2 3	3	124.92	3	123.604	3	124.121
3 4	4	124.668	4	125.361	4	125.002
4 5	5	125.217	5	125.199	5	125.891
5 6	6	125.017	6	121.429	6	122.536
6 7	7	54.951	7	55.71	7	55.572
7 8	8	56.408	8	56.125	8	45.896
8 9	9	69.007	9	70.449	9	82.276
9 10	10	124.405	10	124.17	10	120.622
10 11	11	124.029	11	124.867	11	121.28
11 12	12	124.508	12	125.638	12	120.723
12 13	13	124.484	13	125.153	13	123.745
13 14	14	125.101	14	125.947	14	124.789
14 15	15	111.623	15	124.911	15	123.011
15 16	16	125.02	16	123.836	16	125.117
16 17	17	125.221	17	124.037	17	124.656
17 18	18	123.160	18	125.175	18	125.367

Tools



Export

The 'Export' tab allows the user to export the graph in picture or data format.



- Picture – Select Bitmap or Metafile format.
- Native – Select Binary, Text, or XML.
- Data – Select the data format: Text, XML, HTML Table, Excel.

Print

The 'Print' tab allows the user to set up and print the chart.

