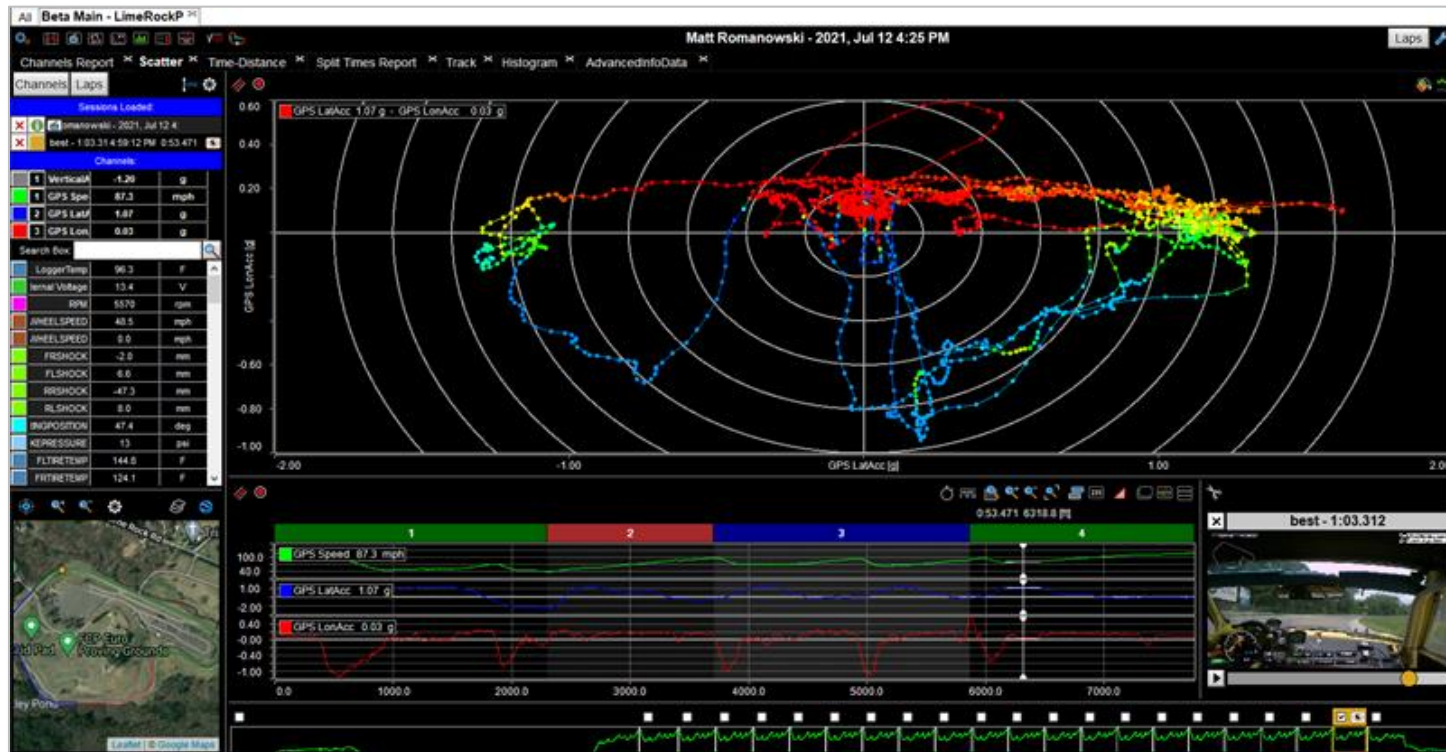


Race Studio 3 Analysis

Beta Software - Update #9



Host:

Roger Caddell

AiM Sports - National Training Manager

Co-Host:

Emiliano Bina

AiM-Sportline - Software



[aimsports.com](https://www.aimsports.com)

Tuesday October 26th, 2021

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Emiliano Bina

software@aim-sportline.com



- Graduated in 2000 as Road Vehicles Engineer with a Thesis on a Simulation Model for Toyota Prius Hybrid Powertrain
- Software Developer for AiM Since 2000: RaceStudio2 Analysis, DragAnalyzer, GPSManager, RaceStudio3
- Passion for Sim Racing and Motorsport, Cooperated for Data Analysis in Endurance Races
- 12 Time AiM Sports Webinar Co-Host!



Emiliano Bina

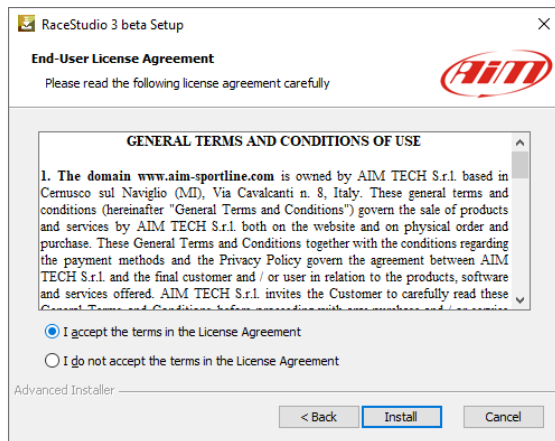
AiM-Sportline Software Developer

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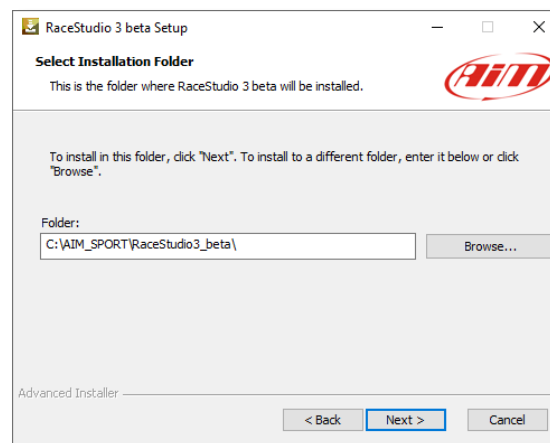
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Installer



With recent beta versions we introduced a new installer technology, of which I'd pinpoint the better compatibility with Windows™.

... as a fix of this new installer technology we added the possibility to change the installation folder.

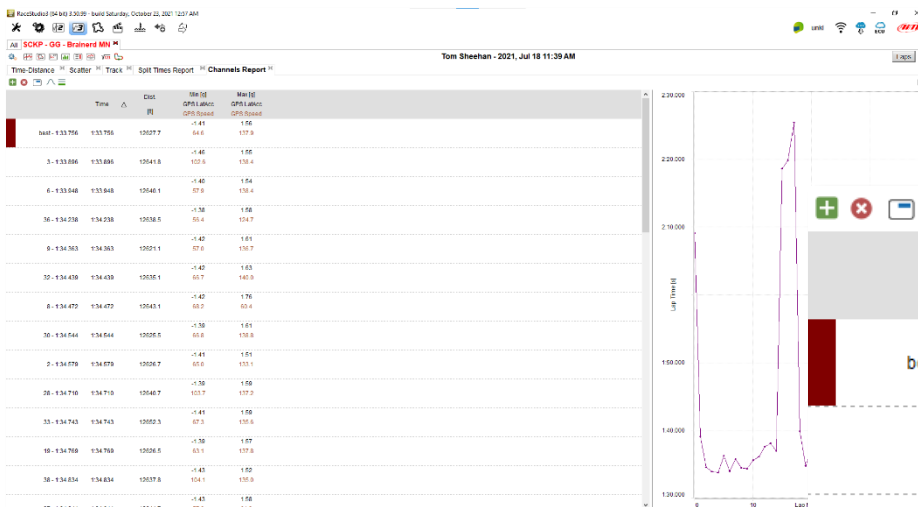


Race Studio 3 – Update #9

Installer

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Channels Report



Added possibility of having side channels values and splits.

	Time	Δ	Dist [ft]	Min [g] GPS LatAcc GPS Speed	Max [g] GPS LatAcc GPS Speed
best - 1:33.756	1:33.756		12627.7	-1.41 64.6	1.56 137.9
3 - 1:33.896	1:33.896		12641.8	-1.46 102.6	1.55 138.4
6 - 1:33.948	1:33.948		12640.1	-1.40 57.9	1.54 138.4
36 - 1:34.238	1:34.238		12638.5	-1.38 56.4	1.58 124.7
9 - 1:34.363	1:34.363		12621.1	-1.42 57.0	1.61 136.7
32 - 1:34.439	1:34.439		12635.1	-1.42 66.7	1.63 140.0

New icons.
New data.

Track Report

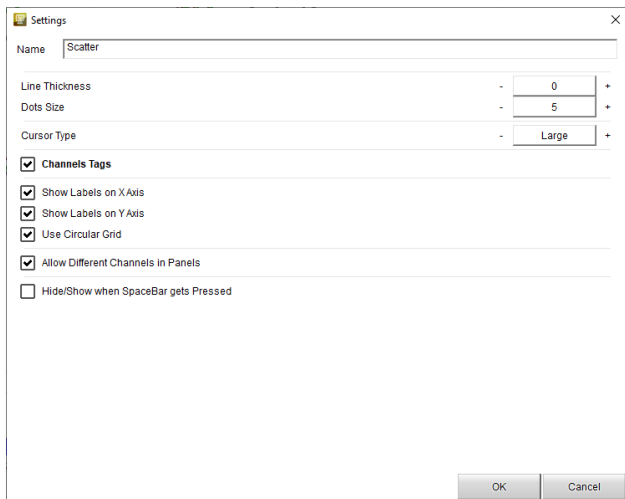


Dedicated to a single split, that can be selected using the track map or moving the cursor.

Same engine of the Channels Report.

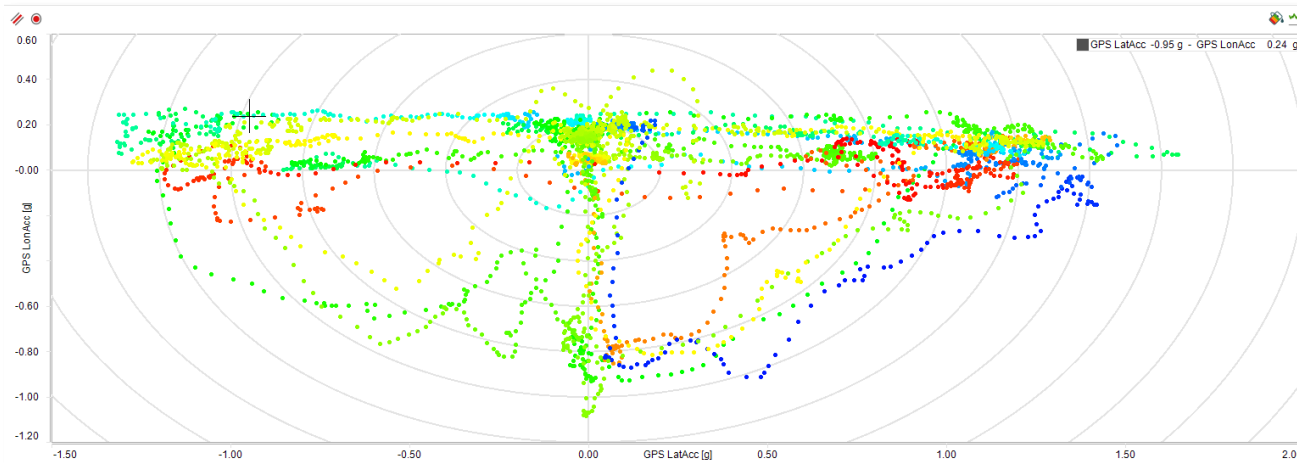
Sector	11	△	Time	Dist.	Max [mph]	GPS Speed	ECU RPM
out - 2:09.085	0:07.353	2138.7	69.5	4448	85.9	5567	85.9
1 - 1:39.091	0:06.614	2089.6	85.9	5564	84.8	5537	84.6
2 - 1:34.579	0:06.351	2124.6	85.9	5564	84.8	5537	84.6
3 - 1:33.896	0:06.369	2132.4	84.6	5498	85.6	5601	86.0
best - 1:33.756	0:06.400	2133.2	85.6	5498	85.6	5601	86.0
5 - 1:36.253	0:06.354	2134.9	86.0	5612	86.2	5637	85.7
6 - 1:33.948	0:06.363	2127.3	86.2	5614	85.1	5590	83.9
7 - 1:35.761	0:06.364	2126.7	85.7	5614	83.8	5498	84.5
8 - 1:34.472	0:06.421	2136.5	85.1	5590	84.5	5468	82.7
9 - 1:34.363	0:06.403	2117.3	84.5	5468	82.7	5398	84.1
10 - 1:35.650	0:06.500	2115.6	83.9	5492	83.8	5498	56.0
11 - 1:36.144	0:06.493	2114.0	83.8	5498	84.5	5468	82.7
12 - 1:37.636	0:06.359	2113.1	82.7	5398	84.1	5490	56.0
13 - 1:38.069	0:06.506	2118.4	84.1	5490	56.0		
14 - 1:36.999	0:06.419	2118.2	56.0				
15 - 2:18.621	0:10.219	2121.7					

Scatter Plot

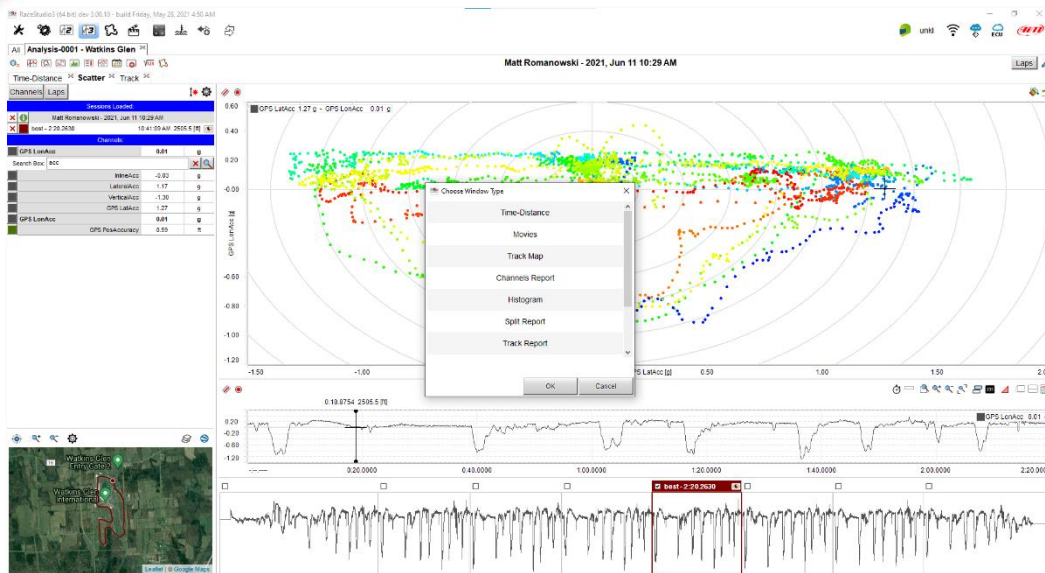


Added the possibility of having a circular grid.
Useful, for example, in
G-G diagram.

It applies to all channels in the
single scatter plot. You can
have more scatter plots with
either circular or normal grids.

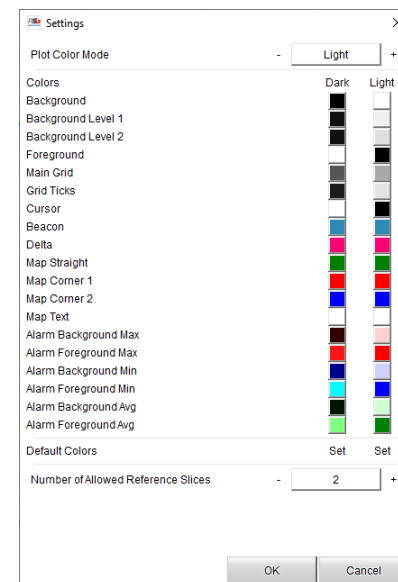


Profiles



Incremented the number of windows of the same time in the same view.

Several fixes to channels and laps colors.



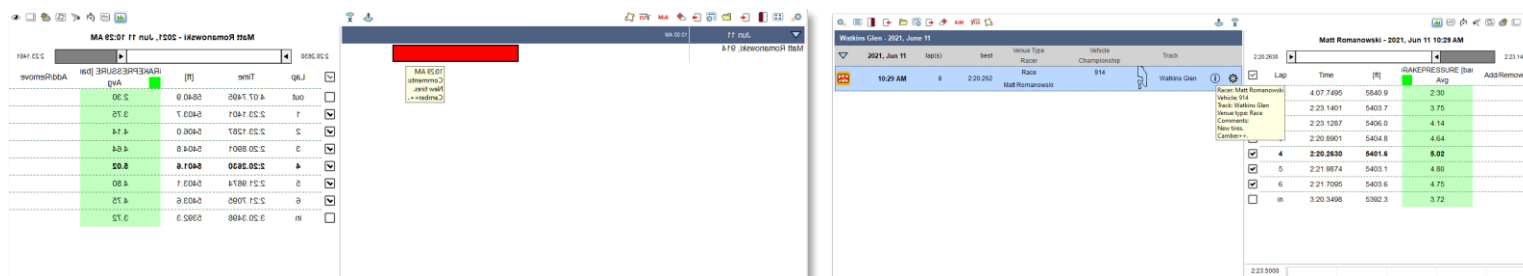
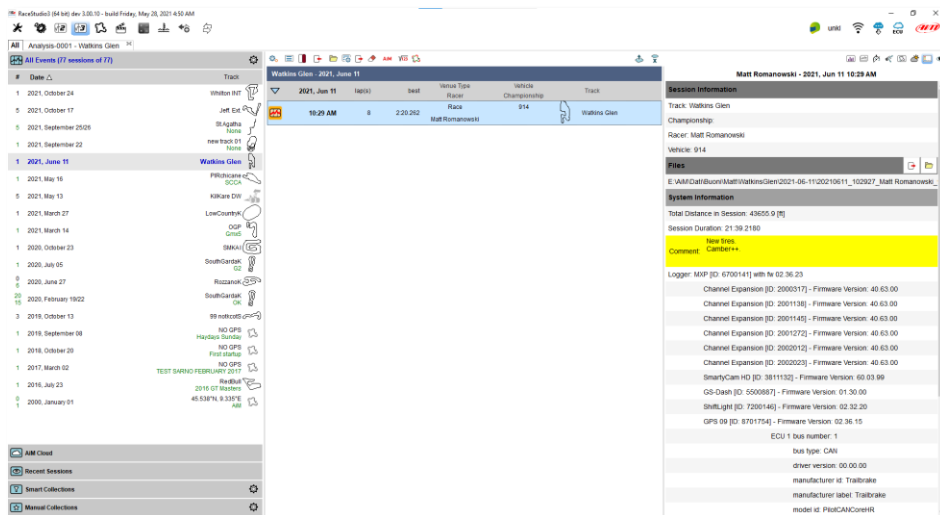
Race Studio 3 – Update #9

Profiles

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Run Comments

Session comments are now accessible in the preview window and in the session tooltip in the DB window.



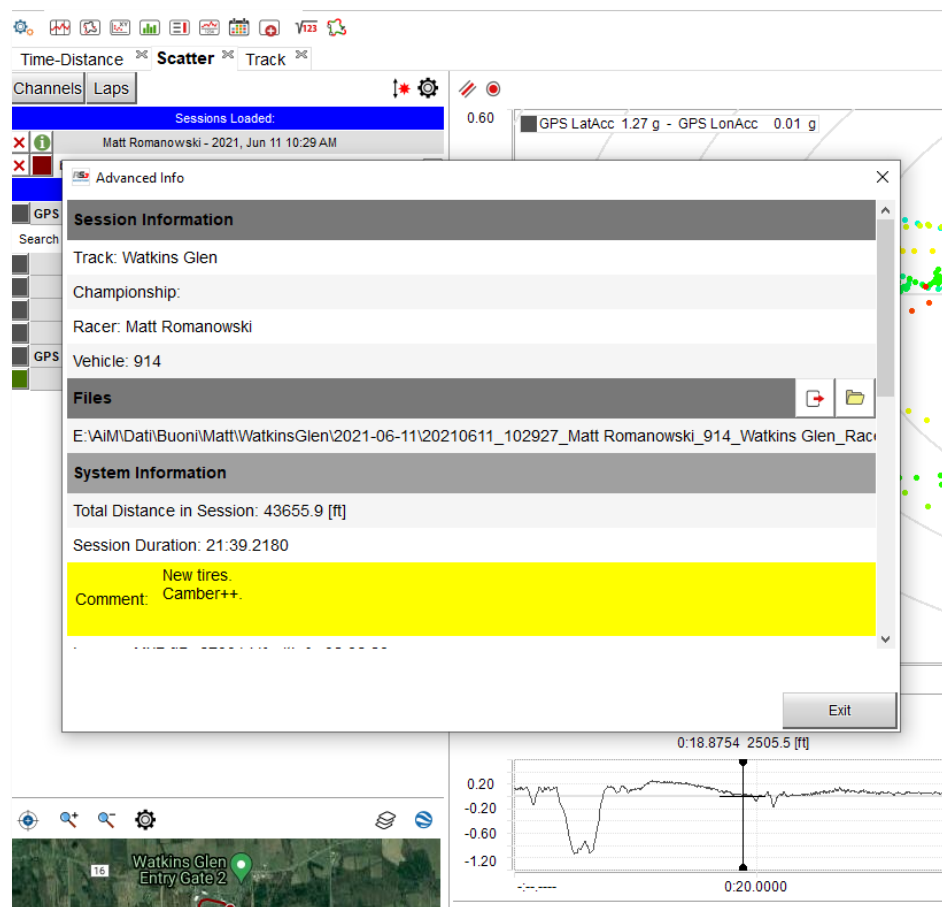
Race Studio 3 – Update #9

Run Comments

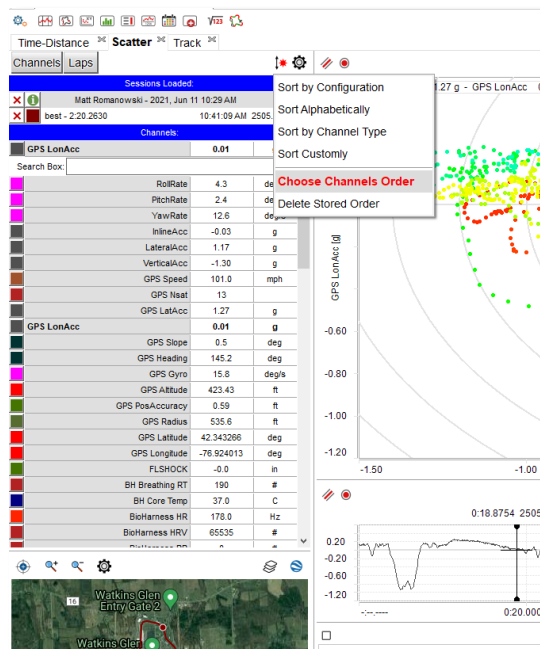
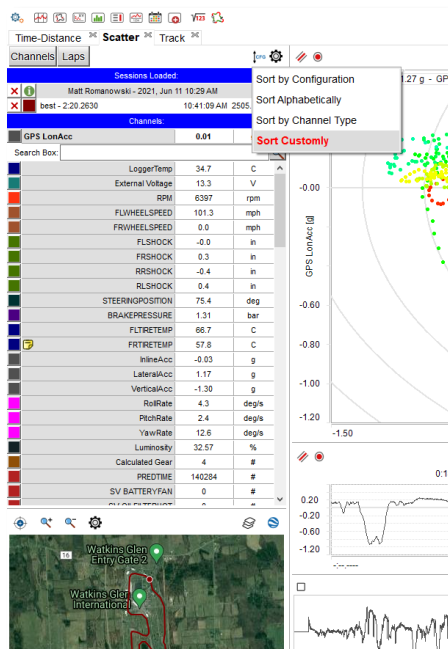
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Run Comments

Comments can be viewed also
within analysis window.

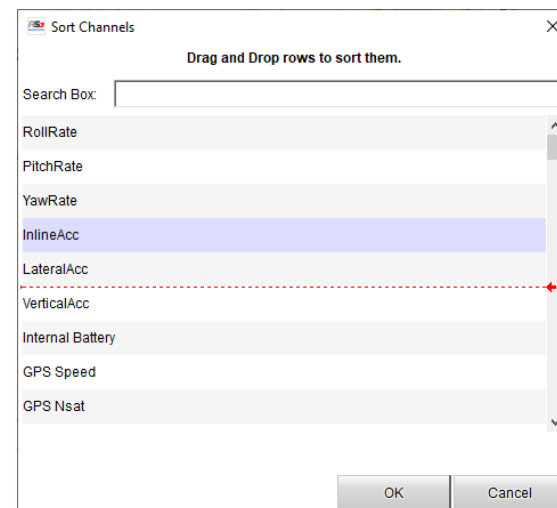


Sorting Channels

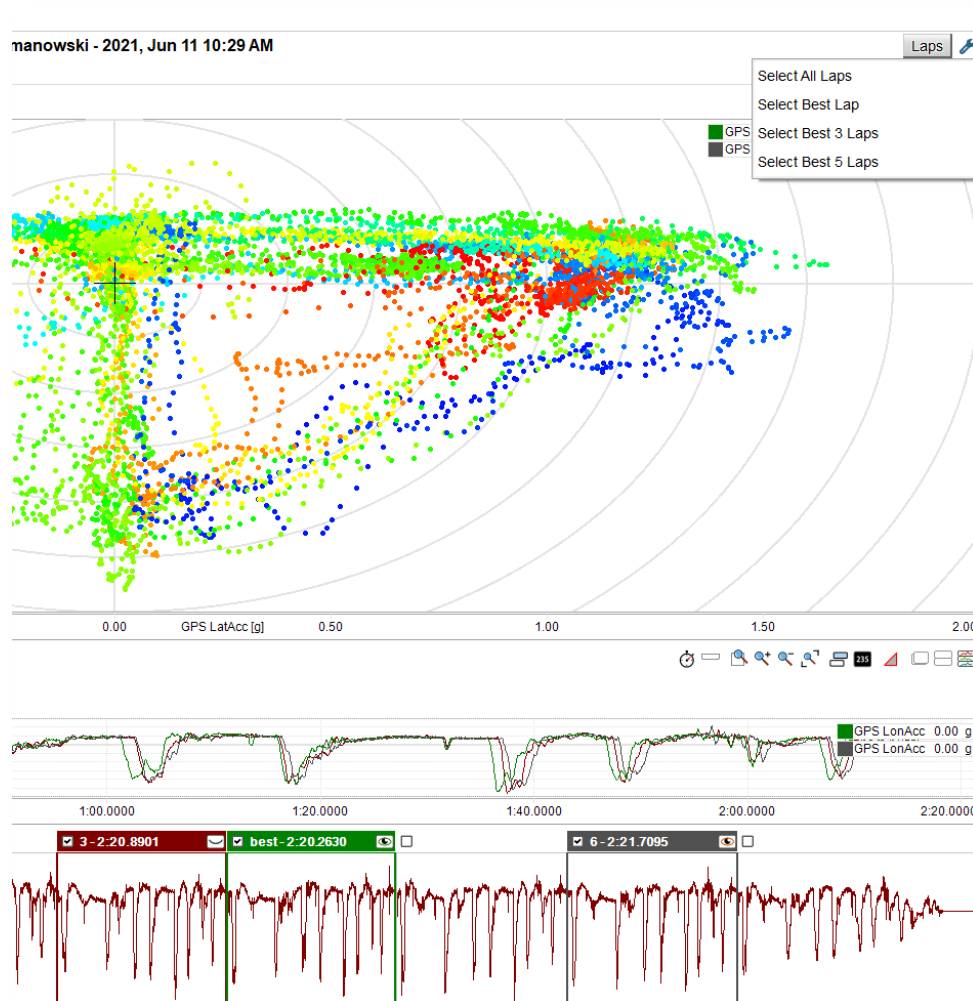


Sorting menu button is context sensitive.

Channels Order intuitively set with drag and drop.



Laps Selection



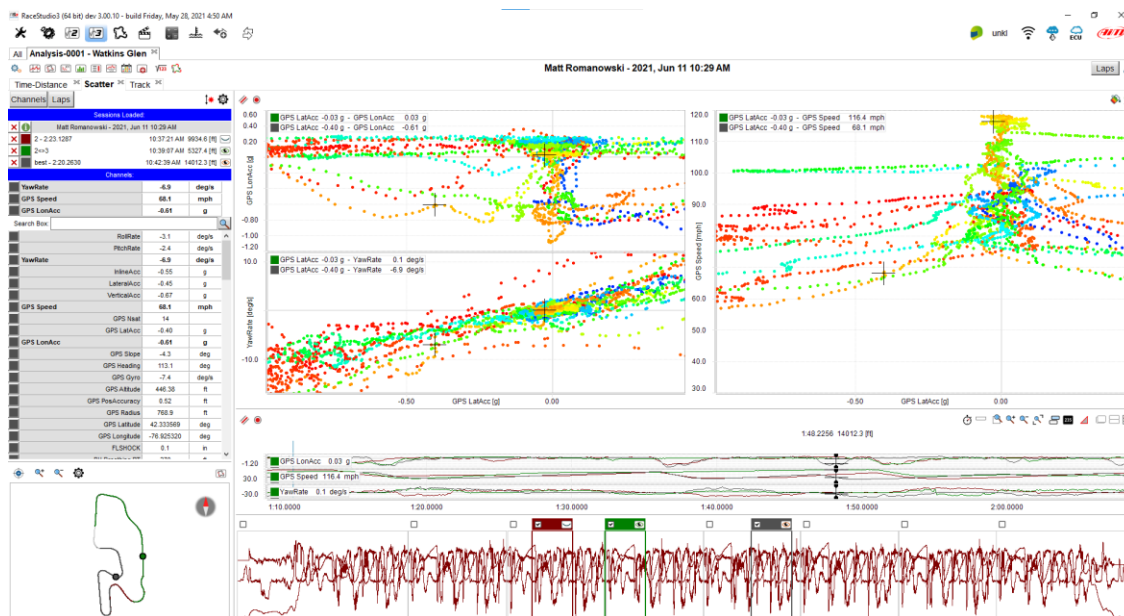
Added possibility to select:
All laps
Best lap
Best 3 laps
Best 5 laps

This allows the most useful
data to be shown quickly.

Plot Axes and Zooms

Improved and unified management across windows.

- You can zoom a single axis (in case of scatter plot, the x axes zoom synchronized);
- You can zoom into the plot;
- Double click on axis to bring it back to its original scaling;
- Ctrl + double click to open the channel settings;
- Horizontal zoom in time/distance modifies the data set, in other windows... only the plot;
- Control + drag the plot to move into zoomed views (in case of scatter plot, the x axes move together).

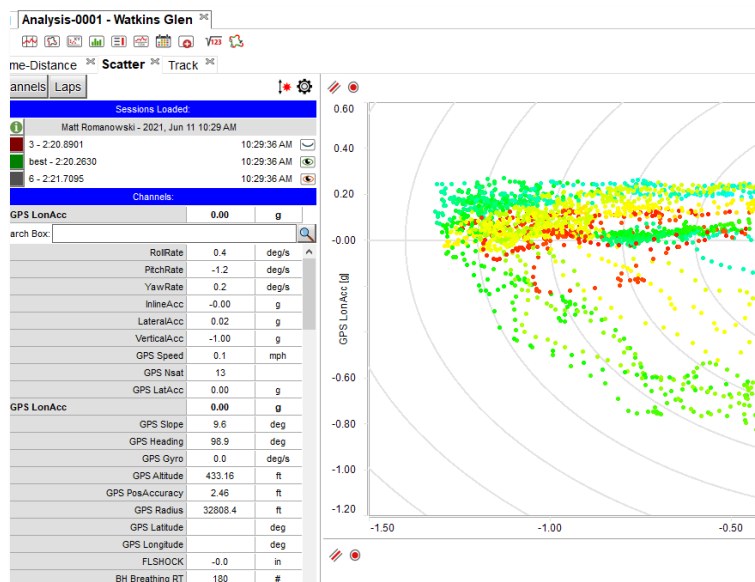


Race Studio 3 – Update #9

Plot Axes and Zooms

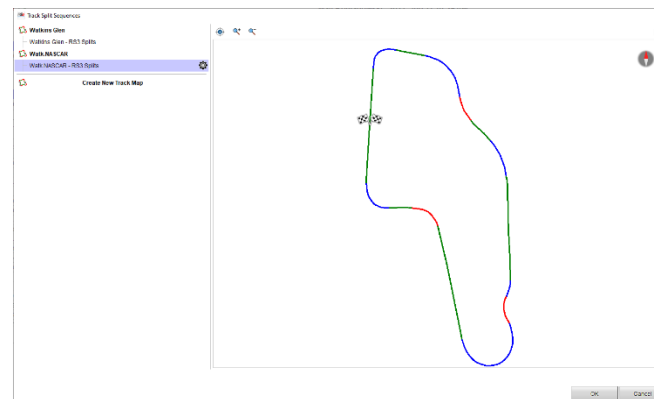
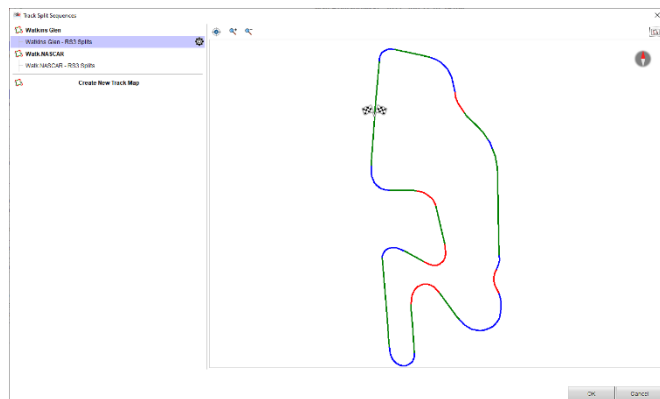
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Tracks Selection



Useful to select either among different saved splits configurations or in case RS3 doesn't recognize the track.

In the latter case, please send us data: we'll be adding it, normally within 24 hours.
tracks@aim-sportline.com



Race Studio 3 – Update #9

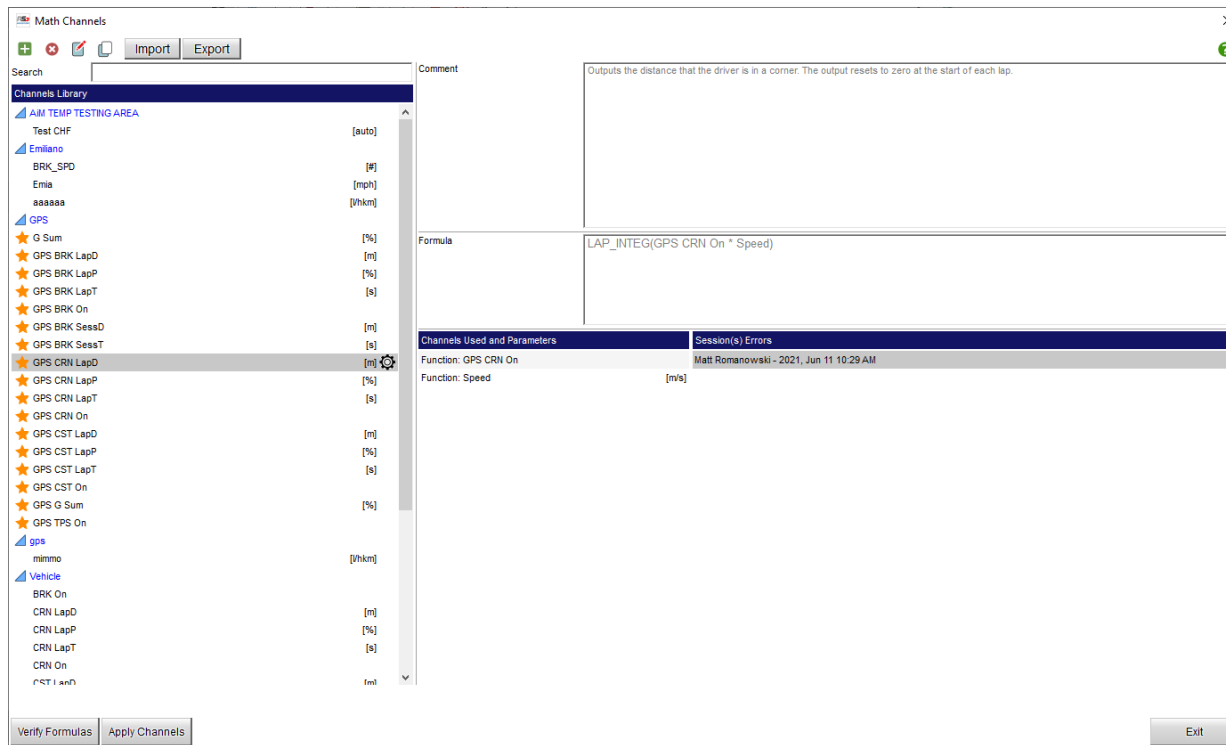
Tracks Selection

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Math Channels - Application

Simply choose which channels you want to enable.

Choose if to enable them for all sessions or if you prefer to enable them only for a specific logger.



You can import channels from RS2A.
You can create your own sets of math channels.

Math Channels - Application

The idea is to create your own set, made of many subsets.
You can export/import sets, to share them with friends or colleagues.

Math channels are computed only when created or modified, differently from RS2A that used to compute their values every time you open the session.
This allows you to enable a lot of them and leaving them 'ON'.

Math Channels – Creation (Area/Comment)



Remember to use the “Area” and “Comment” fields to help identifying the channel and selecting it correctly in the application window.

New Math Channel

Name: MyMainChannel
Function: Frequency
Area: Emiliano
Comment: Sample channel
Formula: "External Voltage"[mV] * CHF(Engine RPM) + "FUELPRESSURE"[bar] / \$Dew Point\$

Channels Used and Parameters

Name	Unit
External Voltage	[mV]
FUELPRESSURE	[bar]

Identifiers

- Sessions Channels - Device
- Sessions Channels - GPS
- Sessions Channels - Math
- BRK SPD
- Distance on GPS Speed
- Math Channels - AM TEMP TESTING AREA
- Test CHF
- Math Channels - Emiliano
- BRK_SPD
- Emia
- aaaaaaa
- Math Channels - GPS
- Math Channels - Vehicle
- Math Channels - gps
- mimmo
- Log Sheet - WeatherLogbookSet
- Wind Direction
- Wind Speed
- Air Temperature
- Humidity
- Barometer
- Corrected Air Factor
- Density Altitude
- Air Density Ratio
- Dew Point
- Corrected Air Factor

Operators

- (
-)
- [
-]
- +
-
- *
- /
- ^

Functions

- ABS
- ACOS
- AND
- ASIN
- ATAN
- ATAN2
- AVG
- BAND_PASS
- BIKE_ACCLAT
- BIKE_ANGLE
- BIKE_CORNRAD
- CEL
- COS
- DERIV
- EQ
- EXP
- FLOOR
- GE
- GEAR
- GT
- HIGH_PASS
- IF

Channel Functions

Choose...

Verify Formula

OK Cancel

- Channels of the loaded sessions
- Other math channels
- Log Sheets

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Math Channels – Creation (Operators/Functions)



Same operators of RS2A.
Some more functions.

New Math Channel

Name: MyMainChannel
Function: Frequency
Area: Emiliano
Comment: Sample channel
Formula: "External Voltage"[mV] * CHF(Engine RPM) + "FUELPRESSURE"[bar] / \$Dew Point\$

Freq: 10 Hz
Unit: Hz

Search: [Search Box]

Identifiers

- Sessions Channels - Device
- Sessions Channels - GPS
- Sessions Channels - Math
- BRK SPD
- Distance on GPS Speed
- Math Channels - AM TEMP TESTING AREA
- Test CHF
- Math Channels - Emiliano
- BRK_SPD
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- Math Channels - GPS
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Operators

- (
-)
- [
-]
- +
-
- *
- /
- ^

Functions

- ABS
- ACOS
- AND
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- ATAN
- ATAN2
- AVG
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- BIKE_CORNRAD
- CEL
- COS
- DERIV
- EQ
- EXP
- FLOOR
- GE
- GEAR
- GT
- HIGH_PASS
- IF

Channels Used and Parameters

Name: External Voltage [V]
Name: FUELPRESSURE [bar]

Verify Formula

OK Cancel

Race Studio 3 – Update #9

Math Channels (Operators/Functions)



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Math Channels – Creation (Verification Results)



In the bottom left part of the window, you can get the result of channel verification, right after having clicked the “Verify Formula” button.

New Math Channel

Name: MyMainChannel
Function: Frequency
Area: Emiliano
Comment: Sample channel
Formula: "External Voltage"[mV] * CHF(Engine RPM) + "FUELPRESSURE"[bar] / \$Dew Point\$

Channels Used and Parameters

Name	Unit
External Voltage	[mV]
FUELPRESSURE	[bar]

Operators

- (
-)
- [
-]
- +
-
- *
- /
- ^

Functions

- ABS
- ACOS
- AND
- ASIN
- ATAN
- ATAN2
- AVG
- BAND_PASS
- BIKE_ACCLAT
- BIKE_ANGLE
- BIKE_CORNRAD
- CEL
- COS
- DERIV
- EQ
- EXP
- FLOOR
- GE
- GEAR
- GT
- HIGH_PASS
- IF

Channel Functions

- Choose...

Verify Formula

OK Cancel

Math Channels – Creation (Formula)



The “Formula” field is a little more complicated, if compared with RS2A

New Math Channel

Name: MyMainChannel Freq: 10 Hz Search: Operators: ?

Function: Frequency Unit: Hz

Area: Emiliano

Comment: Sample channel

Formula: "External Voltage"[mV] * CHF(Engine RPM) + "FUELPRESSURE"[bar] / \$Dew Point\$

Channels Used and Parameters

Name: External Voltage [V]
Name: FUELPRESSURE [bar]

Identifiers

- Sessions Channels - Device
- Sessions Channels - GPS
- Sessions Channels - Math
- BRK SPD [m]
- Distance on GPS Speed [m]
- Math Channels - AM TEMP TESTING AREA
- Test CHF [auto]
- Math Channels - Emiliano
- BRK_SPD [m]
- Emia [mph]
- aaaaaa [l/hkm]
- Math Channels - GPS
- Math Channels - Vehicle
- Math Channels - gps
- mimmo [l/hkm]
- Log Sheet - WeatherLogbookSet
- Wind Direction [deg]
- Wind Speed [m/s]
- Air Temperature [C]
- Humidity [%]
- Barometer [bar]
- Corrected Air Facctor
- Density Altitude [m]
- Air Density Ratio [%]
- Dew Point [C]
- Corrected Air Factor [%]

Channel Functions

Choose...

Functions

- ABS
- ACOS
- AND
- ASIN
- ATAN
- ATAN2
- AVG
- BAND_PASS
- BIKE_ACCLAT
- BIKE_ANGLE
- BIKE_CORNRAD
- CEL
- COS
- DERIV
- EQ
- EXP
- FLOOR
- GE
- GEAR
- GT
- HIGH_PASS
- IF

Verify Formula OK Cancel

Race Studio 3 – Update #9

Math Channels (Formula)

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Math Channels – Creation (Formula)



Use of identifiers

- Channel names, surround the channel name with quotation marks, example: “RPM”, “GPS Speed”...
- Channels, referenced by functions, CHF(Engine RPM). CHF stays for **CH**annel **F**unction. You need to insert the exact AiM function name, you can be eased into this using the “Choose Function” button (center bottom of the window).
- Log Sheets items, surround the item name with the dollar character, example: \$Dew Point\$, \$Humidity\$.

These formats are applied automatically when double clicking the identifiers.
Surrounding chars allow the presence of spaces in identifier names.

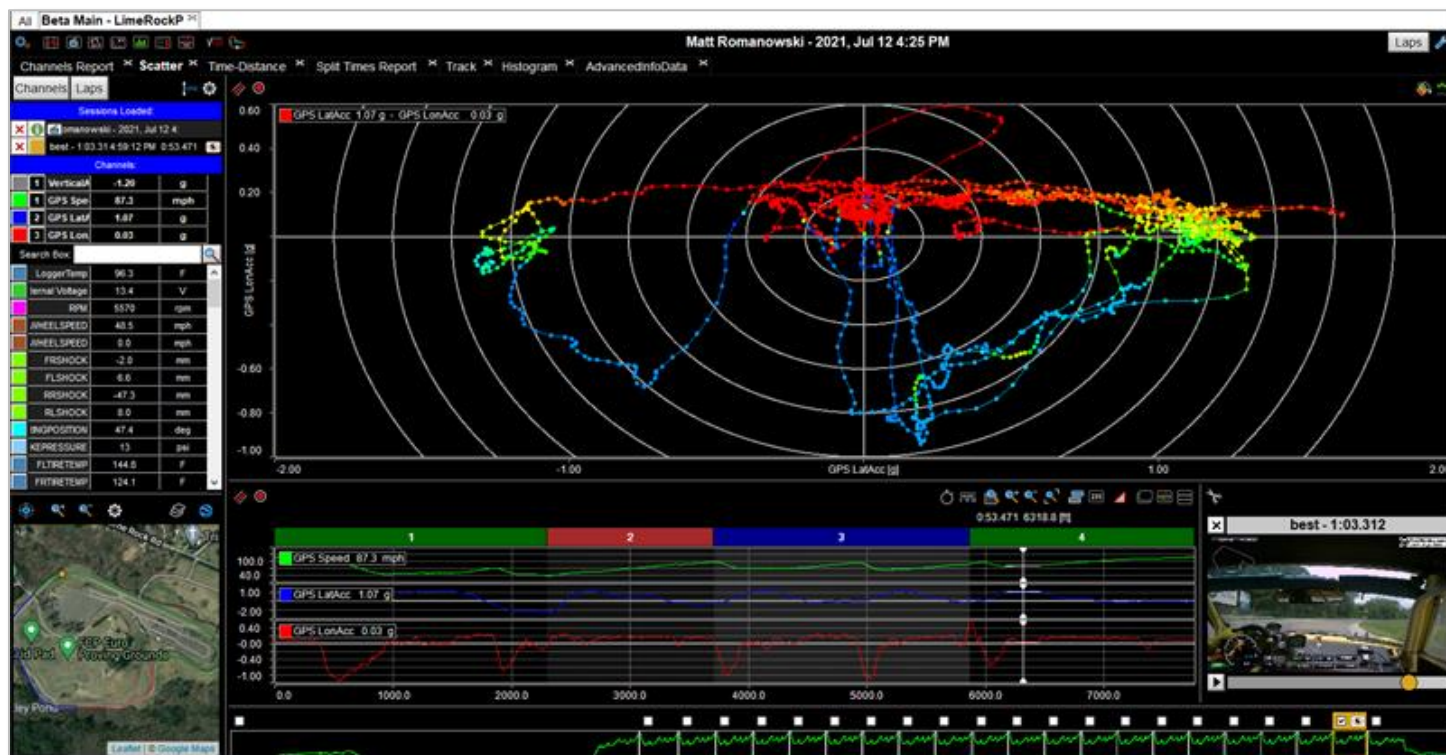
Units

In case you want an identifier to be used always with the same units of measure, just add the units you want aside the identifier name, example: “GPS Speed”[mph] * 2

If you export this channel, and you give it to a friend that uses km/h, well

- His GPS Speed channel will be displayed in km/h;
- The math channel you give him will be always converting his speed into mph for its calculations;
- He will be able to choose the units in which he will display his math channel, according to the units available for the AiM function you choose for the channel.

Live RS3A Demonstration



Race Studio 3 – Update #9

Live RS3A Demonstration

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If You Have Questions

Race Studio 3 Analysis

Beta Software - Update #9

Host:
Roger Caddell
AIM Sports - National Training Manager

Co-Host:
Emiliano Bina
AIM-Sportline - Software

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- Software Updates with Race Studio 3
- Pre-Calculated Gear Position Function
- Configuring WiFi Communication
- Customizing AiM Device Logos
- Race Studio 3 Basic Configuration - Part 1
- Race Studio 3 Basic Configuration - Part 2
- **I Have Downloaded my Data, Now What - Part 1*
- **I Have Downloaded my Data, Now What - Part 2*
- GPS Lap Insert
 - Selection Criteria
- Data Views
 - Sensor Calibration
- Measure Units
 - Conditional Alarms
- Sort Channels
 - Gear Position
- Test Properties
 - Firmware Update
- Per Lap Color
 - Solo Configuration
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AIM Sports - National Training Manager

Co-Host:
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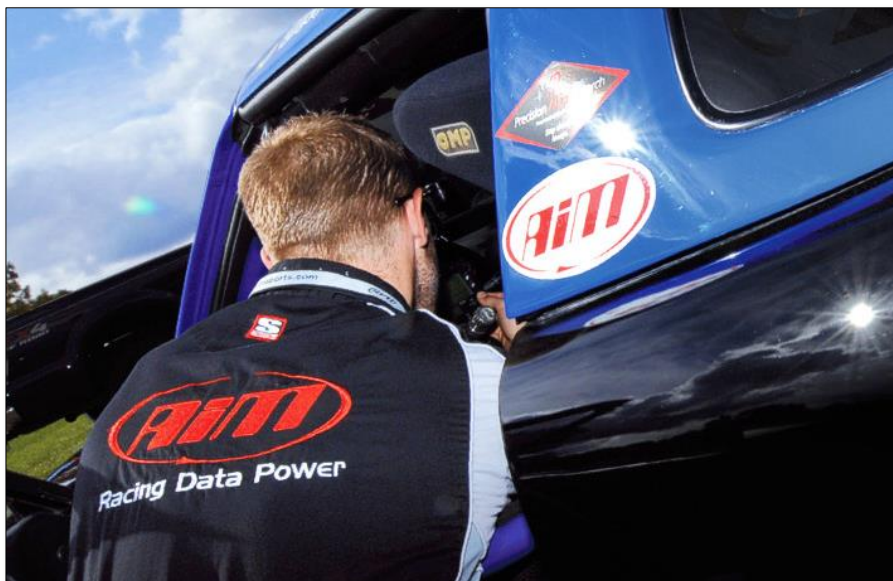
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Attend Races and Other Events

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Or Call Us At **800.718.9090**



Customer Support

At An Event Near You!

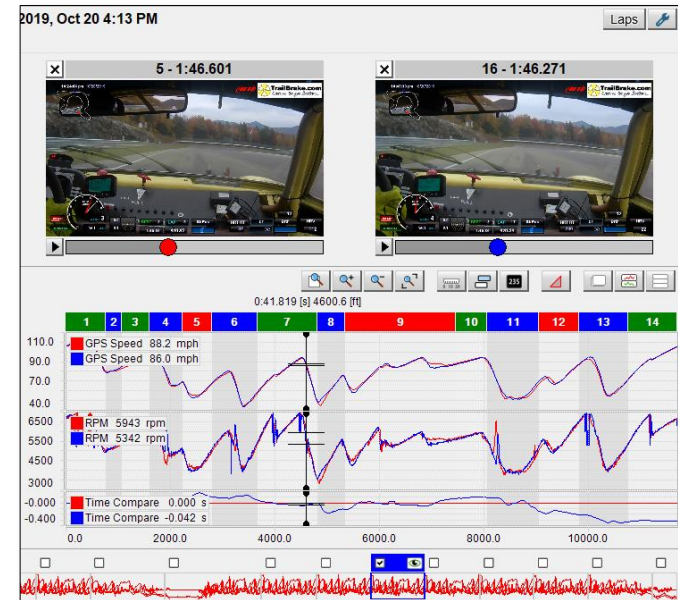
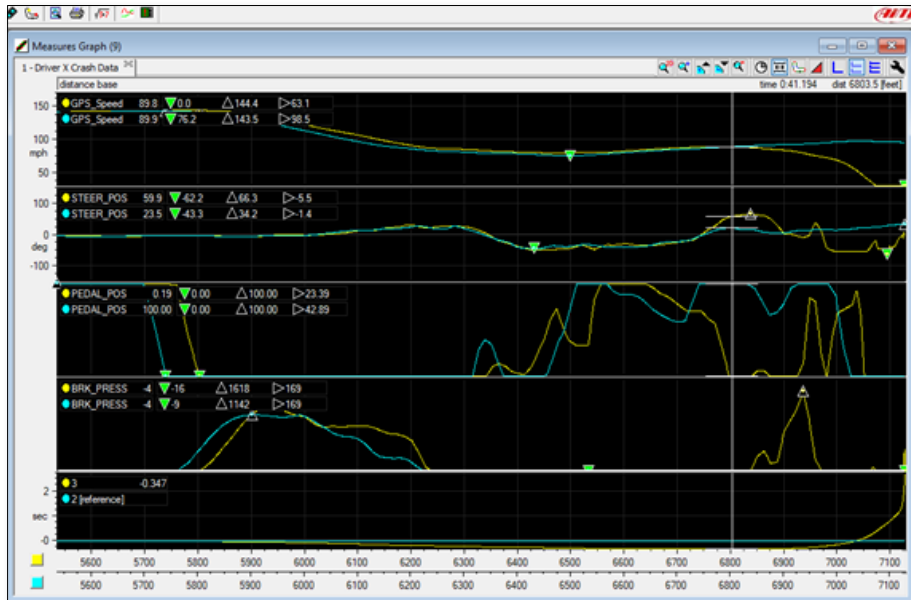
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To Be Determined

Maybe You? ☺



Host:

Roger Caddell

AiM Sports - National Training Manager

Co-Host:

Maybe You?

Or Maybe You? ☺

Next Webinar: Tuesday November 2nd, 2021 - 10:00am Pac/1:00pm East

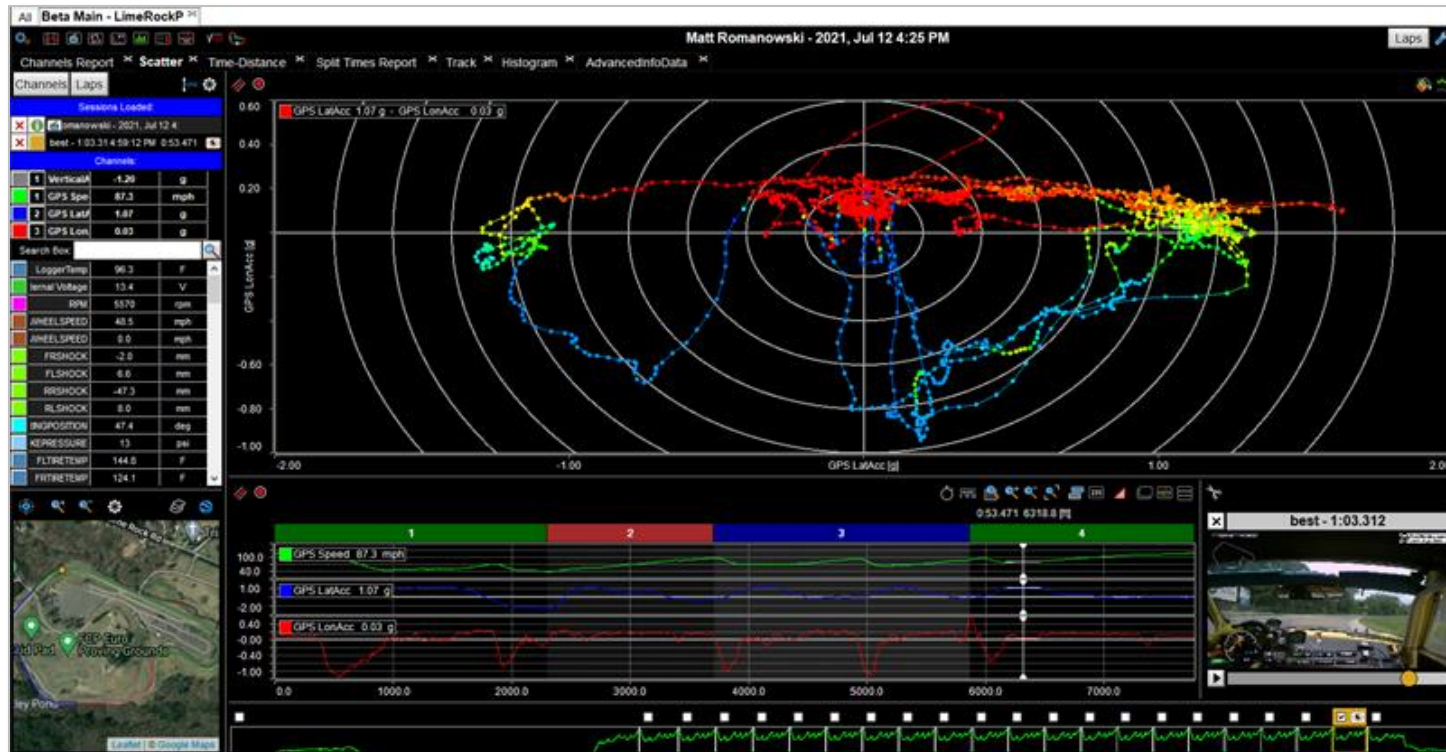
Next Webinar Topic

To Be Determined

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