



i2 V1.1.4 Updates

FEATURE GUIDE

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OVERVIEW

New versions of i2 software have been uploaded to the MoTeC website under <u>Software > Latest Releases</u>. This document provides information about new features and will assist with understanding new functionalities.

SOFTWARE VERSIONS

This document is based on the following software:

- i2 Standard V1.1.4
- i2 Standard V1.1.4 (64Bit)
- i2 Pro V1.1.4
- i2 Pro V1.1.4 (64Bit)



Before installing the new software version ensure you have a backup of your current Workspace. Once a Workspace has been opened in this version it may not open in previous versions of i2.



i2 PRO

The following features are applicable to i2 Pro only.

Note: i2 Pro can be enabled by purchasing the Pro Analysis upgrade for your logging device or by purchasing a Software Feature Licence.

Multi-Monitor Support

Professional race teams manage large amounts of data, typically for multiple vehicles. It is often helpful to split this vast data across multiple monitors whilst maintaining central management of telemetry, maths, and other related setup. i2 Pro now allows windows to be opened and dragged across a number of connected monitors.

Terminology

Primary frame: The main application window at start up shows a menu bar and the MoTeC logo. Closing this window will close i2 Pro. There is only one primary frame.





Secondary frame: An application window that has been created by the user (see below). Secondary frames do not have a menu bar. Closing them does not close the application.

Note: Multiple secondary frames can be created; each will contribute to higher CPU usage.



Usage

• Right click on the Workbook (combo box) and select **Dock to New Window**.

i2	Circuit 1 - MoTeC i2 Pro (x64) (1.1.4.357)										
Fi	File Edit View Layout Add Data Component Tools Help										
2	; 🎽 🔜 🔛 🛛 🗃	🛕 🖾 🖑 🗹 🖬 🖩 🐮 🖬 🕰 🚟 🔠 🗿 💵 🖉 🖉 🦉 🤶									
Channels	Im [:] Live ,Car # 5	54 [Xananimator], Test. 1.01.out. 1									
nels	🖶 6: Brakes	1 C General 2 Rrake Temp Rainbow 3 Channel Report									
		New Workbook									
Reports	8000 - Engine P	Rename Workbook									
orts	6000 Engine R	Delete Workbook									
	4000	Dock to New Window									
Layouts	2000 -	Dock to Main Window									
outs	¹⁰ Corr Spe 5 Throttle	Apply Data Set to Worksheets >									
	0	Layout Editor Ctrl+F7									
	-5										
	-10										
	10 G Force Lor	19									
	0										
	-5-										



• Alternatively, Ctrl+drag from the Workbook combo box initiates a drag/drop feature. Valid drop targets are other Workbook combo boxes (in secondary frames) or any area outside the main Workbook area (results in a new secondary frame).

12	Circuit 1 - MoTeC i2 Pro (x64) (1.1.4.357)											
Fil	e Edit	View	Layout	Add	Data	Compor	nent 1	Fools I	Help			
ø	🖉 🛃	¥	33	5	*	2 🗷 🛙	-	* 🗉	🛛 🖾		9 🚅 🔛	e
~	W [:,] Live ,	Car# 54 [)	Xananim	ator], 1	Fest. 1.01	.out.1					
R	-			_								
Channels		akes		▼ 1	0	Genera	2 B	rake Ter	mp Rainbow	w 3 C	hannel Repor	t
	[8000 - J						akes					
Reports	6000	Engin	e RPM [r	pmj	2146	9						
	4000-											
Layouts	2000 -											
outs	10-	Corr S	peed tle Pos									
	5-	miot	ue Pos									
	0-											
	-5-											
	-10 - 10 -	G For	ce Lona									
	5											
	-5-											

• Clicking the close (X) button on a secondary window will automatically close that window and merge its Workbooks back into the primary frame's Workbooks combo box.

		1/2005, , Calder							
aps	Out		1	2	3		4	In	
1: Brakes	1	🕒 General	2) Brake Temp	Rainbow 3 C	hannel Report				
				Lap 2					
Т	urn 1	Turn 2 Turn 3	3 Str 3-4		Str 5-6	Turn 6	urn 7 Str 7-8	Turn 8	
5000 Engine	RPM [rpm]	4682							
· · · · · · · · · · · · · · · · · · ·					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	r			
-0 - Corr Sp	eed [km/h]	97.2							
Throttle	Pos [%]	72.3						_	
100-	· · · · · · · · · · · · · · · · · · ·	<u>.</u>							

Note: Frames that would otherwise appear off-screen (for example, if a second monitor has been disconnected) will be forced onto remaining displays when i2 starts up again.



Race Control Vehicle Position

The Race Control component in i2 is used to convey race control state via the telemetry network to each i2 client. The race control state consists of:

- On track vehicle positions (for all competitors).
- Track status visualisation (green, yellow, red), including section based marshalling states.



In order for this component to function correctly, a Race Control server (or **T2 Server** setup for Race Control relay – see image below) must be visible on the network (via Discovery).

Options	×					
General Theme Folders						
Application						
Automatically load most recent configuration on startup						
Automatically delete managed Meta Data Files after 21 🛓 days						
Server	ł					
Control Port 8888 Relay Race Control State from RaceControl.DIABLO.Relay						
API/JSON Output						
Use alternate names & units (when available)						
Enable JSON anti-alias filtering						
Network Diagnostics						
Ping Response Timeout 1500 🗮 ms						
OK Cancel						



Configuration Options

Race Control		
General		
Caption		
Show Caption F	lace Control	
Data		
	🛞 Configure trust between Race Control	and i2 with a security key
Race Control Key	C:\Users\joeca\Docume\JOECA2018-Public.rc	key 👌
Display		
Interpolate Track	Positions (for smoother updates)	
Show Vehicle Leg	end	
Track Width	9	
Cursor Size	15	
	Provide a comma separated list of vehicles	s to highlight, e.g. '65, 888'
Highlighted Vehicles		
		OK Cancel

Race Control Key: Used to establish trust between the Race Control server and i2. This key should be provided from the Race Control Server authority. If not present, data will still be shown, however it may be susceptible to tampering from third parties.

Interpolate Track Positions: The track location for each vehicle is updated periodically at a much slower rate than normal telemetry. This has the effect of the vehicles "jumping" along the track. Enabling track position interpolation allows the vehicles to be displayed smoothly between update samples. i2 "learns" the average speed of the track and applies this when interpolating.

If the error margin between the display and actual location is too large, the vehicles may snap back into position.

Highlighted Vehicles: Provides a comma separated list of vehicle numbers (as defined by the Vehicle Number detail) that will highlight on the map. This allows teams to highlight their own vehicles across the field.



Scatter Plot Interval Average

Some categories of racing require analysis of performance characteristics (e.g. average boost at 100 rpm intervals) to determine vehicle compliance. This typically requires the analysis of averages over a band of values and visualising/exporting the data, so this feature has been added to the existing "Scatter Plot" component.

atter Properties			
Channels Colour Channel Display Telemetry			
Y Axis			
Channels :			
	Scale Mode	Min	Max
(Default Group)	Channel/Auto		
🗹 💻 Eng Oil Pres [kPa]		0.0	600.0
Add Remove Edit	Move Up	Mo	ve Down
		_	
X Axis			
Channel : Engine RPM [rpm]			1
Scale Mode : Manual Scale V Min : 0	Max : 8000	C	alculate
X Axis Interval Average			
Interval Width 100.00 [rpm]			
Export Template : # "Vehicle Desc" ["Vehicle Id"]			ວ
			5
Calculate and display Y axis channel average for each X axis inter	vai		
Gating			
Channel :			8
Exclude data when the value of this channel is less than or equal	o zero		
	OK Can	cel	Help

The image below shows an example where the X axis (Engine RPM) has been divided into bins of interval width 100 (rpm). For each bin across the X axis, the Y axis samples (Engine Oil Pres) that fall within the bin are averaged and displayed as a red diamond. A dotted line joins each average to show the trend.





The user can export the averaged data to the clipboard (for example, to paste into Excel).



To help identify the exported datasheet, additional details can be included by configuring the Export Template setting.

Math Regression Calculation

MoTeC

For a long time, the Scatter Plot component has been used to analyse and determine correlations between channels. A major reason for that is its ability to perform regression analysis on the supplied data to determine a mathematical relationship between input values. In particular, the regression coefficients (be that Linear or Polynomial) are useful for determining vehicle/driver KPIs and would ideally be available as channels for use in other parts of i2.

The Scatter Plot regression calculations have now been made available via the Maths system. These calculations give a curve of best fit, based on the polynomial order, intercept and range constraints (see Settings).

Maths				×	
Create Delete Rename Condition Import	≝ Export				
Math Source		Ma	aths		In the Maths window a
Workspace Maths	Search (Ctrl+F)			8	
··· V Temporary ··· V MoTeC	Name	Summary	Comment	Add Expression	new button has been
		('Brake Temp FL' [C] + 'Brake Temp RL' [C]) / 2	Average temperature of the brakes	Add Scale/Offset	added to configure
	Gear Gear	'Gear'			-
				Add Filter	regression.
				Add Plugin	
				Add 2D Table	
				Add 3D Table	
				Add Regression	
				Remove	
				Edit	
				Comment	
				Move Up	
				Move Down	
	🔢 Items 雅 Consta	ante 🦪 Enumeratione			
	ttems / Consta	anits er lumerations			
				Close Help	



Math Regression Properties	x
Name Driver KPI	
- Source Channels	
Channel X Engine RPM [rpm]	
Channel Y Wheel Speed FL [km/h]	T †
- Settings	
Type Linear Polynomial Order 2	A V
Zero Intercept	
Range Laps	
- Generated Channels	
+ 🗹 Driver KPI. A 🗙	
+ 📝 Driver KPI. B	
Driver KPI. R2 r ²	
OK	cel

The Name given to the Regression Math will auto populate as a prefix under the generated channels. A further name can be added to the various outputs.

Similar to Scatter Plots, the channels for X and Y and the equation type must be defined.

Depending on the type of regression (Linear or Polynomial), a number of channels can be generated that contain the coefficients of the regression.

For example, the third order polynomial is described by the general function $Ax^3 + Bx^2 + Cx + D$, where the coefficients of A, B, C, D will be generated as a best fit for the data provided.

Note: Scatter Plots are able to visualise the regression.

The r^2 coefficient of determination, which provides a statistical measure of how well the regression prediction approximates the data, can also be generated.

Comments for Maths and Constants

Comments can be added to an individual Maths channel or constant and viewed from the main window.

Maths					×			
	🔄 省 🗞 🗐	ta Export						
	Math Source		Ma	aths				
	Workspace Maths	Search (Ctrl+F)						
- 🔽 Tem		Name	Summary	Comment	Add Expression			
Use	er		('Brake Temp FL' [C] + 'Brake Temp RL' [C]) / 2	Average temperature of the brakes				
		Gear Gear	'Gear'		Add Scale/Offset			
					Add Filter			
					Add Plugin			
					Add 2D Table			
					Add 3D Table			
					Add Regression			
					Remove			
					Edit			
					Comment			
					Move Up			
					Move Down			
		📰 Items 🎢 Consta	nts 避 Enumerations					
					Close Help			



Enumerations Support

Logged data is fundamentally numeric in nature. However, there are situations where a textual representation of a value better demonstrates the underlying state of a system. Ideally, channel enumerations would be generated at the source of the data (as is done for the M1 logging system), however there are situations where the source is either unknown (third party) or cannot provide the enumeration information required.

Limited support for user defined enumerations has been added into the i2 Maths system to allow the manual association of values to text.

Math Source		Ma	iths	
Workspace Maths	Search (Ctrl+F)			
MoTeC	Name	Summary	Comment	Add Expression
User	Brake Temp Avg [C]	('Brake Temp FL' [C] + 'Brake Temp RL' [C]) / 2 'Gear'	Average temperature of the brakes	Add Scale/Offset.
		Gear		Add Filter
				Add Plugin
				Add 2D Table
				Add 3D Table
				Add Regression
				Remove
				Edit
				Comment
				Move Up
				Move Down

Usage

Applying an enumeration to a Maths channel requires two steps:

- 1. Define the enumeration (mapping string/value pairs) by selecting:
 - a) Add Enumeration

ີ⊒ ໂ⊒ ໃ⊒ ໂ⊙ ີ⊒ Create Delete Rename Condition Import	Export	
Math Source	Maths	
Workspace Maths	Search (Ctrl+F)	
··· ♥ Temporary ··· ♥ MoTeC	Name	Add Enumeration
L. V User	2 ⁰⁰ Gear	Remove
		Edit
		Import from DBC
	Name Value	Add Enumeration Value
	tal Neutral 0	Remove
	First 1 Second 2	Edit
	a ²⁰ Third 3 a ²⁰ Fourth 4 Prove 5	
	a [™] Fith 5	
	tems T Constants J Enumerations	
		Close Help



b) Add Enumeration Value

Create Delete Rename Condition Import	Expot	
Math Source	Export the current math source Maths	
Workspace Maths	Search (Ctrl+F)	0
Temporary MoTeC	Name	Add Enumeration
User	Prumeration 1	
	a ^a Gear	Remove
		Edit
		Import from DBC
	Name Value	Add Enumeration Value
		Remove
		Edit
	🔢 Items 👖 Constants all Enumerations	
		Close Help

2. Apply the enumeration to the Maths channel.

Enumerations can only be applied to integer channels. To configure an integer channel, you must first:

- Set the Decimal to zero (i.e. show no decimal places)
- Uncheck Interpolate to turn off Interpolation

Once configured as an integer channel, the **Enumeration** field will allow you to associate the enumeration to the calculation result.

Math Expression Editor				×
Channel				
Name : Gear	Quantity : Unitless	~	Rate : Auto	~
Display Unit : none ()	✓ Decimal : 0	Interpolate	Enumeration : Gear	✓ Colour : ✓
Math				
Result Unit : none ()	\sim is the resultant unit of this	s expression.	Apply to :	Telemetry 🔽 Logged 🏠 Array Evaluator 🔻
	Expression			Function Help
5				
All channels are valid.				
Tools				
+ - * / < > <= >=	== != And Or &	[] [] Insert R	ange	
III ▼ Search	Fu	nctions :		Constants :
ADR Status		abs	^	Name Value
Corr Dist	a	acos acosh		
Device Serial		asin		
Engine RPM		asinh		
🐮 Hi RPM	_ a	atan	~	
	i		•	
Insert Channel	In	sert Function		Insert Constant
				OK Cancel Help

In this case, it will display the Gear channel (which is defined as a constant '5') with the word "Fifth" as defined previously. Enumerations are stored as part of the Maths system and will be transferred whenever a Maths Source is exported or imported.



Adding Enumerations from DBC Files

DBC is a defacto standard for specifying and distributing information about CAN bus messages and signals ("CAN Database"). If you have a DBC file definition for data that has been logged from a third party, you can import the enumeration definitions into i2.

Note: Only DBC "VAL_TABLE" entries are enumerated and added into i2.

Telemetry Quality Channel

With the ever increasing reliance on telemetry, a mechanism is required to understand the overall quality/reliability of the data being received. A telemetry "Quality" channel will be automatically generated for each telemetry data source to provide feedback on the quality of its reception.

The telemetry quality calculation approximates telemetry coverage by measuring how many packets (for a given channel – usually "Lap Distance") have been received against how many packets it expects to receive (for that channel). So if that channel is scheduled to arrive at 10Hz (10 packets per second), over the course of 10 seconds we'd expect to see 100 packets. If we have only received 97 packets, that gives us a running coverage of 97%.

At the end of the lap, the coverage metric is reset to 100% and the calculation restarts.

By plotting the channel, it may be possible to locate on track where telemetry blackspots are occurring.

The **Telemetry Quality** channel value is also visible in the Telemetry Data Source Properties dialogue.

Enable Telemetry					
No Faults		! No Warnings			
onfigured Telemetry Sources			Track Map	Bathurst	
Name	Status	Summary	Bathurst		
7 🚾 W525.Daytona 65.Team	Receiving	155 Channels @ 8.0 KB/s		\wedge	
				}	
				/ /	
				88	
c			>		
	_ 1 _				
Add Remove Edit :	🕎 🌆 Split Status F	etrieve Security			
Add., hemove Edit., 3	opiit otatus m	remeve Secunty			

When the **Telemetry** window is open with an incoming stream selected, it is shown as follows:



Select the Edit button to navigate to the following window.

MoTeC

Edit Telemetry	Source									×
Name	Test.1.01.out									
MetaData ID [049cd26cc9c12f	69071e	e1e558400275							
General	Merge									
— Properti	es									
Show in	the 'Data' window	N		Tele	emetry	Track Mag	p Color			
— DDE —		_								
Send da	ta via DDE as	Real	Time							
Push DI)E updates every	0	second(s) (S	iet to 0 to 1	update	e as fast as	possible)			
 Statistics 										
Receive Rate	0.3	KB/s	Dropped Rate		0.0	packets/s	Sequence E	Error Rate		0.0 /s
Received	225	KB	Dropped		0	packets	Sequence E	Errors		0
			Te	lemetry Qu	uality S)7 %				
			Rec	eiving 4:	Cha	nnels				
Channel						Rate (Hz)		# Sam	ples	
Engine F								0 0		6706 6706
RaceCo								0		6706
ADR Sta								0		6706
	Dec	rypting					Deco	ding		
Ok : 7393	Bad CRC :	0	Failed : 0		Ok :	7378	Bad CRC :	0	Failed :	0
							OK	Cano	el	Help

The selected telemetry window will display the live telemetry quality as a percentage.

The **Telemetry Quality** channel will also appear in the channels window when running telemetry. This can be used in Channel Reports or displayed on a time/distance graph.

Save Telemetry Data on i2 Exit

If i2 is being closed when Telemetry is running, it will prompt the message below to ask the user if they wish to export the Telemetry data to an LD file.



If the user exports Telemetry data, the file name will default to the car number followed by the name of the Telemetry Source.

Save As		×
\leftarrow \rightarrow \checkmark \Uparrow \checkmark \checkmark \checkmark \land Desktop \rightarrow items	 Search items	Q,
Organize 🔻 New folder		?
> ★ Name ^	Date modified Type	Size
> • • <		>
File name: Car65_W525.Daytona 65.Te	am	~
Save as type: MoTeC Log File (*.ld)		~
∧ Hide Folders	Save Canc	<u>دا</u>



Gauge Alarms

When monitoring real time telemetry streams for multiple vehicles there is so much to focus on that it can be easy to overlook the centralised alarm view. To augment the alarm system, it's now possible to associate an alarm with any gauge to overlay (and flash) the active alarm state.

Note: This feature only applies when Telemetry Sources are active.

- Define an alarm
 - 1. Select the Alarms icon in the menu bar, then select Add.



2. Edit the relevant gauge (in this case a dial) and associate the alarm.

Dial Properties X
Channel Display Colour Bands Channel Channel : Engine RPM [pm]
Scale Mode : Manual Scale ✓ Min : 0 Max : 8000 Calculate Alerts (Telemetry Only) This gauge will flash an alert indicator whenever the specified Alarm is active.
Alam : OP Lo
OK Cancel Help



3. Ensure a Telemetry Source is selected as the main data source.

MoTeC



4. If the alarm becomes active, a visual indicator will appear. (The icon that displays is based on the severity of the alarm, as defined in its properties).



This indicator will flash whilst the alarm is active.



Time/Distance Component Auto Centre Mode

This feature allows you to set up two (or more) time/distance components where one is an overview with a larger zoom area; the other is zoomed around the cursor showing more detail.

To enable this feature, you must uncheck **Zoom linked globally**, then check **Auto Center using** and select a cursor type.

\times Time/Distance Graph Properties Channels Display Telemetry Caption Show Caption Time/Distance Graph Layout Linking Display multiple groups : Cursor linked globally Overlapped Tiled Datum linked globally Show legend for all channels Zoom linked globally Auto Center using Main Cursor 🗸 Info Options Options Show Channel Legend Show Overlays Show Values Show Grid lines Show Measurements Show X axis Show Status/Errors Show X axis scrollbar Show Y axis Show Variance Manual scale variance Show Y axis scrollbar Min: -1.000 Max : Show Marker band 1.000 Show Section band Show Device Events Show Video Sync Points Track Sections:Default (Unavailable) Alternate Band Colours Cursor Trace Cursor Style : Tick Line \sim Trace Style : Lines Width : 1 ÷ Cursor Snap : Pixel ○ Sample O Points Size : 3 🌲 O Points and Lines OK Cancel Help

Example:

You want to analyse a corner. Use the lap based view to move the cursor to the corner in question.

The second (auto centering) view automatically tracks the cursor and shows data zoomed in at a shorter distance, highlighting details of the corner.



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The top graph is the "lap graph" (a regular time/distance component).

The bottom graph is "Auto Centered using Main Cursor" and is zoomed in either side of the cursor, which is positioned in the middle of Turn 4.

As the cursor on the top graph is moved, the data in the bottom graph will pan to follow.



i2 PRO AND i2 STANDARD

The following features are applicable to i2 Pro and i2 Standard.

Lap Editor GPS Beacon Selection

Typically, laps are generated via physical beacons or pre-configured GPS coordinates. Occasionally, these methods require post-processing to further improve or clarify the logged data, for example, when there are missed beacons (missed laps) or a GPS beacon in the wrong spot (i.e. the start/finish line has changed physical location).

Usage

There are two ways of using this function:

1. From the main application window, select Tools > Lap Generator > From Venue

Generate Laps using GPS Data		Select a GPS Beacon from a	Venue	
Targets		Search	8	
Ourrent Data Source		Venue	Latitude Longitude ^	Rider Bros.
Selected Data Sources		Pristol	36.5159960 -82.2561680 49.2032263 16.4439615	Motorcycle Training
		Broadford Buenos Aires	-37.2159070 145.0823480 -34.6942270 -58.4613890	
		 Bushy Park Buttonwillow Cadwell Park 	13.1386780 -59.4669970 35.4887330 -119.5444720 53.3107205 -0.0591005	
Options		Calabogie	45.3017350 -76.6723610 -37.6709228 144.7538686	
From Cursor From Venue	$\left \Box\right\rangle$	Calder Oval	-37.6730540 144.7600010 34.0860690 -117.5005250	Calde
Latitude -37.6709228	· ·	Campo Grande	-20.4759110 -54.4660250 34.4877270 -80.5970040	Thunde
Longitude 144.7538686		 Cartagena Cascavel 	37.6451000 -1.0357850 -24.9805930 -53.3827290	
Detection Radius 5 m		Castle Combe	51.4927370 -2.2160250 41.5700299 2.2612160	Google Map Data Terms of Use
<u>Execute</u> Cancel		Hide Google Map	44 4704004 00 0F007F0	

Selecting the venue will automatically populate the GPS coordinates (Latitude/Longitude) from the previous dialogue.

2. Alternatively, from the main application window, select Tools > Lap Editor > using GPS > From Venue

ps					
ар	Time	Time (Offset)	Start	End	Insert
Out Lap Cap 1	1:34.136 1:05.163	1:34.136 1:05.163	SOL BCN[1, id=99]	BCN[1, id=99] BCN[2, id=99]	<u>R</u> emove
Lap 2 Lap 3	1:03.682 1:05.192	1:03.682 1:05.192	BCN[2, id=99] BCN[3, id=99]	BCN[3, id=99] BCN[4, id=99]	<u>E</u> dit
Lap 4 In Lap	1:03.759 1:42.068	1:03.759 1:42.068	BCN[4, id=99] BCN[5, id=99]	BCN[5, id=99] EOL	Restore
					Generate Laps - using <u>D</u> istance
					using <u>G</u> PS
eacon Offset 0 m			6	🔉 = Trusted Lap	



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Notes:

- The purple marker indicates the GPS location of the lap marker.
- The marker can be dragged and adjusted by the user. The updated location is returned from this dialogue, but will not be saved, hence the next time you enter this dialogue the original venue definition of the GPS location will be displayed.
- Clicking on different venues causes the map to change.

Log File Open Dialogue Shortcuts

Logged data is typically archived into an organised folder structure, many levels deep.

Accessing these folders manually requires navigating a folder hierarchy that can become cumbersome when repeated often. It's now possible to save common folder locations as shortcuts and quickly navigate to them from within the i2 LD File Open dialogue.

	Explorer							All						Summary
C:\MoTe	eC\Logged Data\Samples\Circuit		Search (Ctrl	+F)							8			
	V Samples	^	Venue	Event	Sessi	Year	Driver	Fastest Time	Date/Time	e	Comment			Sample.ld
¥	···· Circuit		alder 🕺	i2 data day	2	2005	i	1:03.682	23/11/20	05 9:53:00 AM	second warmup		FileSize	
cent	Drag			12 0010 009	-	2000		1.00.002	20/11/20		cocond mannap		DateTime	2005-11-23 09:53:00
ads													Device Options	Pro Logging
	Videos												Device Serial	12007
8	> Octave												Device Type	ADL
	PerfLogs												Device Version	4.20
TeC	> - 📙 Program Files												Event	i2 data day
ples	> Program Files (x86)												Fastest Lap	2
	> · Python27												Fastest Time	1:03.682
	> Windows												Gear 1	2.570
ison	> Windows 10Upgrade		<							_			Gear 2	1.990
17	> @ DVD RW Drive (D:)		<								>	1	Gear 3	1.660
;	> 🦰 Libraries				Selec	ted F	iles			Add	Remove		Gear 4	1.350
)	> 🚅 Network		Ve E	Sessi Y	Driver	Fast	est Time	Date/Ti	Com Ve	hicle ID Eng	ine ID		Gear 5	1.140
)	> 📴 Control Panel												Gear 6	1.000
	Recycle Bin > 13092018Dash Manager He												Log Date	2005-11-23
	>	. 1											Log Time	
		×												Calder Park, 23/11/05,



 \times

Usage

Clicking on any of the buttons on the left hand side will cause the Folder Tree beside it to focus that location.

For example:

Open Log File(s)

1	C:\MoTeC\Logged Data\2017													
	Explorer			All Summary								Summary		
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	> Music		M Calder	i2 data day	2	2005		1:03.682	23/11/20	005 9:53:00 AM	second warmup	FileSize		
Recent	> ·· 📫 pandre (quattro)												2005-11-23 09:53:00	
Unloads	> Pictures											Device Options		-
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	> · 🛃 temp											Device Type		
	> - 🙀 Videos ❤ - 🟪 Local Disk (C:)											Device Version		-
MoTeC Samples													i2 data day	-
	Logs											Fastest Lap Fastest Time		-
	MoTeC													-
	DataFileCache											Gear 1		
Season	V - Loggod Data		<								>	Gear 2		-
2017	v 2017				Selec	ted Fi	es			Add	Remove	Gear 3		
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	Drag		Ve E	Sessi Y	Driver	Faste	est Time	Date/Ti	Com V	ehicle ID Eng	ine ID	Gear 5		-
	Engine											Gear 6		-
	Rally												2005-11-23	
	Videos	~										Log Time		V
	< >											Long	Calder Park, 23/11/05,	
Edit Shore	tcuts Edit Details Edit Column	s										[Open Canc	el .

Configuration

There are two ways to create a shortcut:

- 1. Select Edit Shortcuts...
 - a) Click the + symbol to add a new shortcut

Edit Shortcuts			
Name Description		w Shortcut	<u></u>
Recent Unloads Shortcut to most recent Unload Folder MoTeC Samples Shortcut to installed Samples Folder	-	🖲 Custom Folder 💿 Recent Unloa	ad Folder () Samples Folder
BD No rec samples shortcut to installed samples rolder	Name Folder		
OK Cancel			OK Cancel

2. Alternatively, drag a folder you want as a shortcut from the Folder Tree onto an empty area of the shortcuts button panel.

These shortcut preferences are stored on the local machine as a user preference (not part of the Workspace).



Reports

Channel and Time reports have historically been displayed as textual table representations. This provides the most detailed view of the data, but it can be difficult to easily identify trends. i2 can now optionally show "Channel Report" and "Time Report" results as a line charts.

Usage

G key cycles through the chart view setting:

- Text view
- Chart view
- Split view (text and chart)

Shift+G toggles the split view orientation (horizontal/vertical).

Note: Selecting a cell in the text area will also highlight the chart (and vice-versa).



, 11A,Calder, i2 data day,23/11/2005, 2,9:53:00 AM, second warmup ,Str 0-1 (End) Corr Speed [km/h] Max 200 150 100 Chart view Engine RPM [rpm] Max 6000 5000 4000 3000 Lap 3 Lap 3





Channel Report Reverse Display

On the **Display** Tab of the Channel Report there is an option to "Reverse the main axis", allowing the live lap to display on the left or the right.

Channel Report Properties
Report Display Chart
Caption
Auto Title Channel Report - Laps
C Layout
Orientation : R Channelle in Rewer R Channelle in Calumna
Orientation : Orient
Reverse the major axis
Options
☑ Show deltas for Main & Overlay 0 data
Show Minimums :
Show Maximums :

Acceleration Report Component

A new Acceleration Report has been added in order to analyse acceleration and deceleration characteristics of a vehicle, for example, for category compliance.

Based on the "Corrected Speed" channel (this can be configured), a report is generated based on user defined (speed) intervals that shows minimum and maximum acceleration and deceleration (i.e. the time it takes to get from one speed to another, e.g. 60km/h -> 100km/h).

Results can be displayed in time, distance or (average) G Force and can be toggled with the U key.

celeration Report Properties							
Report Display General © Generate Acceleration Results							
Speed							
Channel : Co	rr Speed (k	m/h]					
Points :	1	2	3	4	5	6	7
km/h	60.0	100.0	140.0	180.0	220.0	260.0	
Speed Hysteresis 5.0 km/h							
Accel/Decel H			secs				
	art Offset		secs				
E	nd Offset		secs			ОК	Reset Settings



Channel: The speed channel on which to perform the acceleration/deceleration analysis.

Points: An ordered sequence of speeds, with each speed providing a point of reference for the difference calculation. For example:

60 -> 100, 60 -> 140, 60 -> 180

100 -> 140, 100 -> 180, 100 -> 220

...and so on.

Speed Hysteresis: How much speed difference must be seen before entering/exiting an acceleration/deceleration region.

Accel/Decel Hold Time: Only include acceleration/deceleration events that hold for at least this amount of time.

Start Offset: Display an additional amount of time before the lap (since acceleration/deceleration events may cross a lap boundary).

End Offset: Display an additional amount of time after the lap (since acceleration/deceleration events may cross a lap boundary).

Result is shown as follows:



The green outline identifies the lap being analysed (as determined by the Main selection). Extra data is displayed (Start Offset, End Offset) to show acceleration/deceleration events across lap boundaries.

Based on the defined Speed Points, i2 will determine:

- 1. How long it takes to accelerate (or decelerate) from one speed to another, or
- 2. How far (distance) it took to achieve a given speed, or
- 3. Average acceleration (in G) within the region

This provides an indication of the overall acceleration or deceleration characteristics of the vehicle (engine/tyres etc.).



Export Data Option on Acceleration Reports

MoTeC

This new feature has been added to export all the Acceleration zones at once by right-clicking on the Acceleration Report, then select **Export > All**.



Excel Report

Excel reports can now be exported in the same orientation as the Channel Report in i2.

1. Select an Excel report in the Add Excel Channel Report window, then select Edit.

Add Excel Channel Report						
General						
Name	test					
Output File Name :	C:\Users\hwang\D\test.xlsx					
File is password protected Password						
Items						
ltem	Cell Reference	Туре	Add Table			
Summary	Sheet1!\$A\$5	Table	Add Chart			
			Remove			
			Edit			



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2. In the Edit Table window, check Apply the Channel Report orientation to the exported table.

Edit Table	×				
Channel Report :	Summary ~				
Cell Reference	Sheet1!\$A\$5				
Apply the Channel Report orientation to the exported table					
	OK Cancel				

Track Report Zoom

Track Reports can be zoomed.

• Use the mouse wheel to zoom the report.



- Click and drag the zoom box to pan the view.
- Double click the zoom box to reset zoom.

