BemTrain

The BemTrain program provides a range of value adding facilities for BMX, Pump Track and other cycling disciplines and sports using transponder systems.

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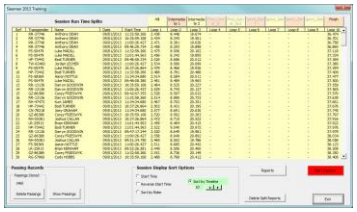
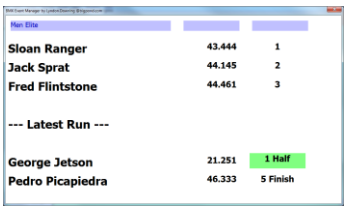
BemTrain Facilities

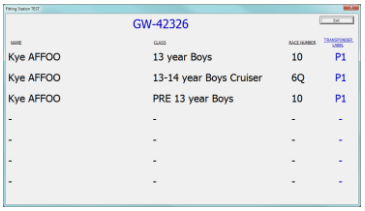
- A Training and Coaching aid providing Split Time Reporting from up to 10 timelines.
  This facility can provide live data from a Training Session or Race Meeting or be run at a later time by importing the passing records. Reports available in an Excel file for detailed analysis or in HTML format or uploaded to the SportsLists Phone App (subscription required) every few minutes during the Training Session.
  The session can be configured for gate start or first loop start and caters for multiple loops on the one decoder.
- For velodrome or speed skating, a Pursuit training report in Excel or HTML format that shows the leader at each timing point, the gap to following team participants, lap times, half lap splits, cumulative lap times, individual sector times and cumulative time at each sector.
- A transponder Fitting Station for verification that the correct transponder is fitted to the correct bike.
- A Track Monitor application for use during practice to check for competitors with an unregistered transponder, identifying riders without or with a faulty or expired transponder subscription and riders practicing outside of their specified session.
  As an aid to identifying faulty or expired subscription transponders when the event is being scored with the BEM program, a report can be generated that identifies competitors in the BEM event whose transponder has not been seen during practice.
- A real time Scoreboard for commentary, public display or staging check operating in one of the following modes.
  - Time Trial scoreboard with selectable display options:
    - Three fastest times and split times with relative placing in the class for the latest competitor to cross the first, intermediate and finish line loops.
    - Five fastest times.
    - Qualification mode from single runs or multiple laps showing the top 8 qualifiers plus the last 8 completed laps. Ⓟ
  - Pump Track specific scoreboard displays with tailored displays for each of the event formats:
    - Solo Run Ⓟ
    - Pursuit / Head to Head Single. Ⓟ
    - Head to Head Dual. Ⓟ
  - Multi Lap Race with lap count and cumulative times. Ⓟ
  - Race Progress mode for a single race with the scoreboard progressively updated as riders cross each timeline.
  - Race Lap Time, showing lap times and placings for each race.
    Allows for multiple races on the track and multiple loops on the one decoder.
  - Single timeline showing gaps between passings.
  - Two timelines independently showing gaps between passings.
  - Lap time display mode showing the last 8 or 16 completed lap times.
  - Staging Check moto to validate transponder fitting and operation.
- May be used stand alone or in association with the BEM Race program.
- Features flagged with Ⓟ are available only with the Premium version of BemTrain.



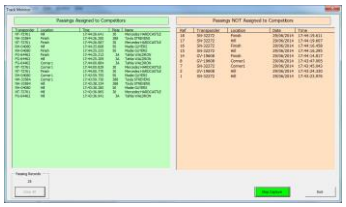
Live Split Times



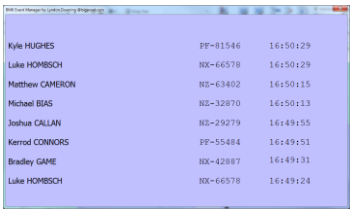
Time Trial Scoreboard



Transponder Fitting Station



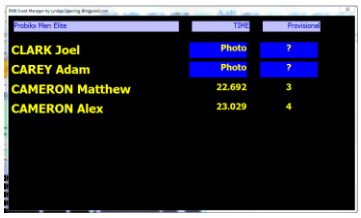
Track Monitor



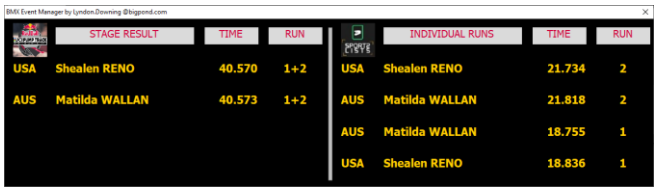
Staging Check

Single Timeline Scoreboard

Race Lap Time (overlay on video)



Race Lap Time Scoreboard



Pump Track Head to Head Dual Scoreboard

Pursuit Analysis Report

A Velodrome

BMX Event Manager, Bem Train Report Created 03/Apr/2018 15:28:00

Report Summary

Run Date	2018-03-17
Run Start	15:51:15.872
Run End	15:52:20.430
Run Time	1:04.558
Participants	4
Laps	2

BemTrain Version 3.1.0.0 03 Apr 2018		Licenced to: Bemman BMX							
Location in Passing >>> Location Description >>>		Apex1 Apex 1		Half Track Back Pursuit		Apex2 Apex 2		Start-Finish Front Pursuit	
Lap 1		**Sector 1**		**Sector 2**		**Sector 3**		**Sector 4**	
Lap	35.613	Sector	9.560	Sector	7.790	Sector	7.555	Sector	10.708
First Half	17.350	Elapsed	9.560	Elapsed	17.350	Elapsed	24.905	Elapsed	35.613
Second Half	18.263	Fred Frog	0.000	Fred Frog	0.000	Sleepy Hollow	0.000	Sleepy Hollow	0.000
Elapsed	35.613	Sleepy Hollow	0.029	Sleepy Hollow	0.033	Hairy Maclary	0.023	Hairy Maclary	0.040
		Hairy Maclary	0.061	Hairy Maclary	0.066	Postman Pat	0.054	Postman Pat	0.074
		Postman Pat	0.078	Postman Pat	0.088	Fred Frog	0.281	Fred Frog	0.156
Lap 2		**Sector 1**		**Sector 2**		**Sector 3**		**Sector 4**	
Lap	28.945	Sector	6.638	Sector	7.511	Sector	7.483	Sector	7.313
First Half	14.149	Elapsed	42.251	Elapsed	49.762	Elapsed	57.245	Elapsed	1:04.558
Second Half	14.796	Hairy Maclary	0.000	Hairy Maclary	0.000	Postman Pat	0.000	Postman Pat	0.000
Elapsed	1:04.558	Postman Pat	0.052	Postman Pat	0.031	Fred Frog	0.031	Fred Frog	0.023
		Fred Frog	0.078	Fred Frog	0.065	Hairy Maclary	0.067	Hairy Maclary	0.027
		Sleepy Hollow	0.124	Sleepy Hollow	4.366	Ø	-	Ø	-

Installation

Please contact Lyndon.Downing@bigpond.com for all enquiries regarding the BemTrain program.

For installation and registration instructions, please refer to the version specific Release and Installation Notes (separate document).

Setup Overview

For each scenario to be run with BemTrain, the operator sets up the required configuration data for the required mode. Each individual setup can be saved in a separate Session file which has a system added .BTS (Bem Train Session) file that can be opened at a later time.

Some basic rules:

- The first loop in the run must be Timeline 1 in BemTrain
- The last loop in the run must be Timeline 10 in BemTrain (except for velodrome or circuit racing where Timeline 1 is the Start/Finish loop).
- The Session must be saved before the Fitting Station, Scoreboard, Track Monitor or Training functions can be run.

NOTE: References and examples in this document predominantly use the MyLaps Pro-chip transponder system with the DataCollector program as the interface however interface using the MyLaps Timing and Scoring program may also be used.

Timing systems from RaceResult and BeChronized are also catered for in BemTrain.

Setup Detail

This section is a generic guide to the required settings. Refer to the individual sections for the Fitting Station, Scoreboard and Training later in this document for specific requirements for each facility.

Session Name

In the **Session Name** box, enter the name that will identify the Session on screen and in reports.
E.g. **Shepparton Time Trial 3 May 2018**

Track Name

In the **Track Name** box, enter the location name
E.g. **Shepparton BMX Club**

Timelines

For each of the timelines to be used.

- Enter the Timeline Name to be an exact match with the timeline or location name in the Passing Record.
  E.g. **Hill** for Timeline 1 and **Finish** for Timeline 10
- Enter the Loop Locations.
  These Loop Location Labels are a brief, meaningful description of the timeline location that is added to Split screen Scoreboard and Excel and Html Training Session Reports.
- Tick the Enable box for the timelines used.
  E.g. Timelines 1 and 10
- Select the Passing File with the Select File button. (Files must exist to be selected)
  E.g. C:\BEM\Passings\Kink\Kink.txt Timeline 1
  D:\BEM\Passings\Finish\Finish.txt for Timeline 10
- Where multiple loops are connected to the one decoder:
  - All loops connected to the same decoder are to have the same Timeline Name entered.
  - Only one loop per decoder has a passing file selected.
- Once the required timelines are enabled, distances between each timeline can be entered to obtain speed details in the HTML Training Reports.

Gate Transponders

Where Starting Gates are used, enter the pseudo transponder number that the timing system uses for the Start Gate. Typical values using MyLaps DataCollector is 9992 for a single gate and 9991 in the Gate2 Transponder (00-09991 and 00-09992 for Timing and Scoring) where tracks with two Start Hills report a different transponder number for each Gate.
For RaceResult, use 99999 as the Gate Transponder.

Run Mode

The settings from the drop-down list are to be set to reflect the track configuration being used.

- Start Gate – Single Run.
  The run is started from the Start Gate so the same start time applies to all in run from gate drop.
- Timeline 1 – Single Run.
  Individual start times for each from the time of crossing of loop 1 for single run. I.e. Staggered Start.
- Gate Start for Velodrome Laps Mode.
  Laps Mode with single Gate / Gunshot start time for all riders on lap 1. For subsequent laps, loop 1 is the Start/Finish.
  Note that the Gate Start Time must be before the first rider crosses loop 1.
- Velodrome Laps Mode.
  Select this option where the training run consists of laps on a closed track and Timeline 1 is the Start and Finish for each lap.
  Note that a start gate transponder record can be selected for the start in a Pursuit Analysis Report.
- Single Timeline S/B
  Display of a single timeline showing the gaps between passings. Typical use for intermediate or finish line for announcers.
- Twin Timeline S/B
  Twin display timeline scoreboard for two independent timeline passing displays on the one screen.
- Staging Transponder Check
  Select this option for the single Timeline Staging Check Scoreboard display.

Run Time Settings

These settings are similar to the transponder setup in BEM. Where BEM is being used to score the event and the Scoreboard function is being used in BemTrain, use settings here to match those in BEM.

- Minimum Gate to Loop 1
  Where the Starting Gate is being used, set the minimum time from the gate drop to timeline 1.
  Note that a setting of 1 second is interpreted as a minimum time of >0.
- Maximum Gate to Loop 1
  Where the Starting Gate is being used, set the maximum time expected from the gate drop to the first rider crossing timeline 1.
- Maximum Lap Time.
  Set the Maximum Lap Time (seconds) to a value that each run in Single Run mode or each Lap in Velodrome mode would reasonably expect to be completed.
  Note that this time must be longer that the actual run but short enough in Single Run mode that a second or subsequent run should not be started within this time period.

Passing File Format

Select the required options here for import of passing records.

- T&S BemTrain Custom 2
  Custom format from MyLaps Timing and Scoring to include the Athlete State and Country Code, Rider ID (e.g. UCI ID) and transponder 2 (where the one athlete has two transponders, e.g. skating).
- T&S BemTrain Custom 1
  Custom format from MyLaps Timing and Scoring to include the Athlete State and Country Code.
- MyLaps DataCollector 3
  Select for the standard Tab delimited Live File Export from MyLaps DataCollector or compatible export from MyLaps Timing and Scoring.
- BEM Event File
  Select this option to import passing records from a BEM event file that has been scored using transponders then click Run Training to import the event passing records and then generate Training Reports.
- RaceResult RRconnector
  Select for RaceResult format text file using the default settings in the RRconnector program.
- BeChronized (also applicable for Trident)
  Provided for interface to the BeChronized and Trident transponder system. Note that with this system, a Gate Timeline name needs to be entered.
- Delete Passing Files after Processing
  This option is normally selected except where specific testing is being undertaken.

Run Application Buttons

Click the appropriate button for the required mode. Note:

- Sanity checking on the settings is performed before the session can be activated.
- The Session File must be saved before the application selections are available.
- The Track Monitor, Scoreboard and Training functions are not available in unregistered copies of BemTrain.

Session Management

A Session file must be saved before the Run buttons are enabled.

- **Open Session** button opens a previously saved Session.
- **Save Current Session** saves the setup on screen in a new session file.
- **Save Session As** enables an existing session to be saved in a new Session File.
  E.g. where you want to keep the settings but start a new set of training data.
- **Close Session** saves and closes the current Session file and resets the setup screen to the default settings.

Initial Setup Selection

The user is able here to save any current setup as the default settings that are loaded on opening the program and when closing a currently open Session File.
E.g. if you always use Timing and Scoring then save the setup showing Gate Transponders as 00-09992 and 00-09991.

- **Save Current Setup** button saves the current settings as the user defaults.
- **Use System Settings** button reverts to the BemTrain system default settings.

Premium Version Facilities and Upgrade

When the standard version of BemTrain is licenced, the button will show “Premium Enable” to allow the user to upgrading to the premium version delivering Scoreboard enhancements for multi-lap events, time-trial qualification and Pump Track Solo Run, Pursuit, Head to Head Dual and Open Session format events.
A fee applies for the upgrade. Please contact lyndon.downing@bigpond.com for details.
Where the premium upgrade is installed the button will be disabled and show “Premium enabled”.

Fitting Station Overview

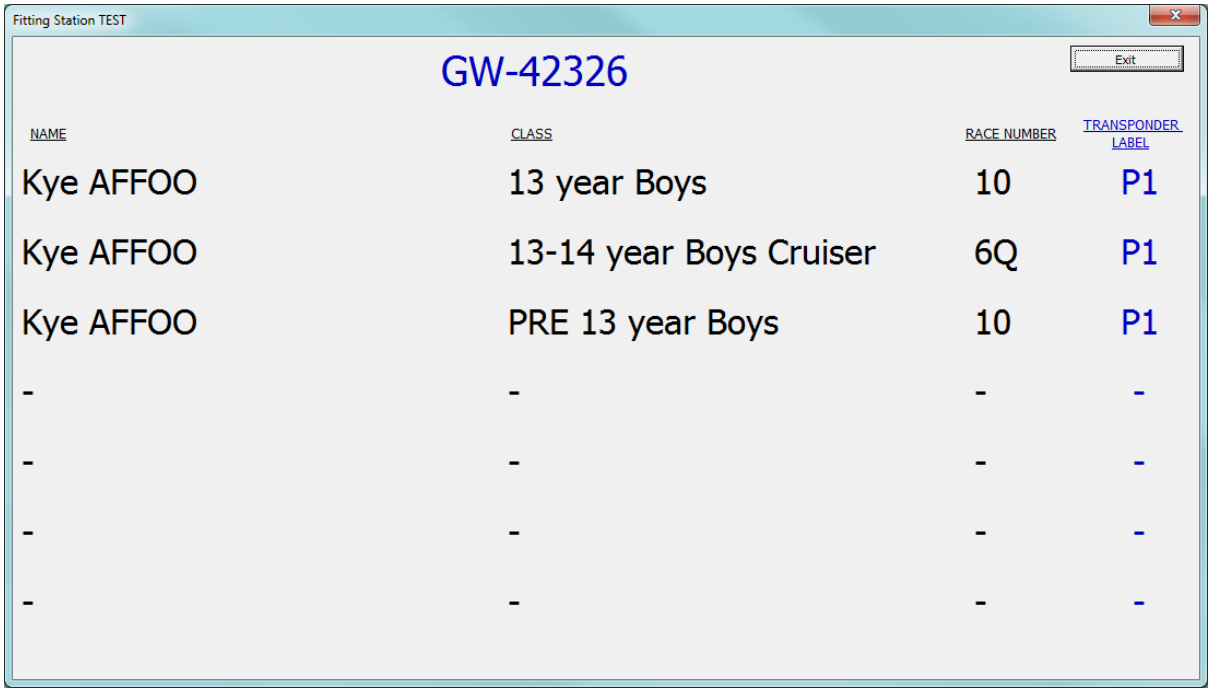
The typical scenario for use of the Fitting Station display is where a dedicated decoder, loop and computer are used for riders to verify that they have the correct transponder on their bike. Envisaged configuration is that both DataCollector / Timing and Scoring and BemTrain are run on the same PC.

A selection from two methods of running and displaying the data are available:

1. The display for each transponder is based on competitor information loaded into the respective transponder system and included in the passing records. E.g. DataCollector / Timing and Scoring
2. The display for each transponder is based on allocations from a reference BEM Event File. Note that if the Fitting Station PC is networked to the BEM Registration PC, the auto update option can be used to update the Fitting Station with entry changes from Registration.

No passing details are stored by in the Session File as this facility is only envisaged for short term display purposes. Display of competitor data can be based on the content of the passing records or by reference to a BEM Event File which is recommended when the BEM program is to be used for scoring the event.

Fitting Station screenshot (below) using a BEM event file to source the competitor details from the transponder number.



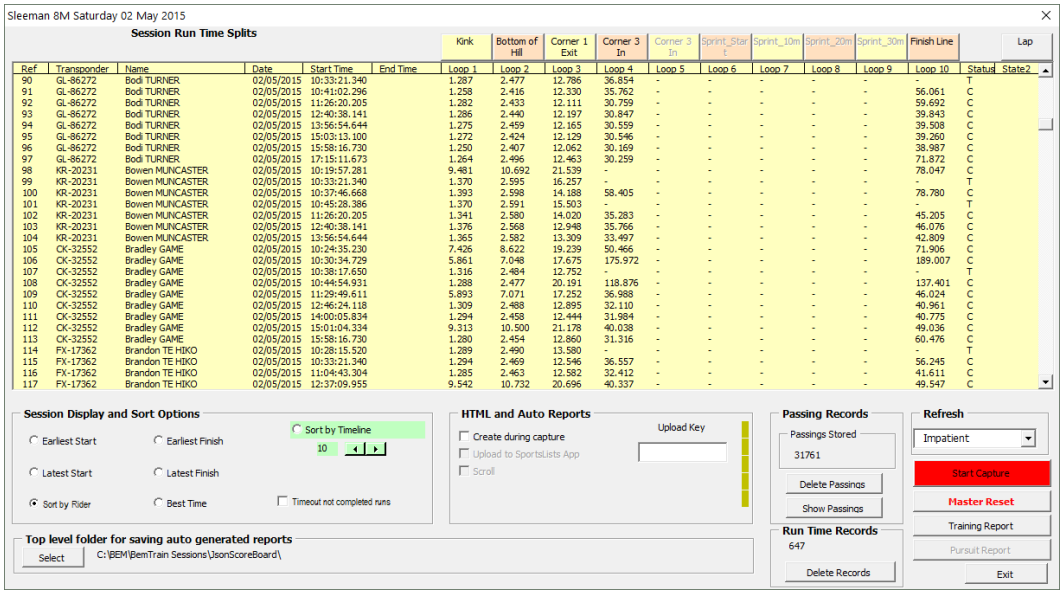
Fitting Station Setup

1. Run DataCollector or Timing and Scoring and:
    a. Set up an event with a single fitting station decoder.
    b. If using competitor information from DataCollector / Timing and Scoring (not required if using a reference BEM Event file, under the Registration Tab, import the list of competitors, e.g. generated from BEM export.
    c. Under the Processing tab, got to “Live File settings” and set up the Live file export
        i. Export Type: “Save on deletion of file.
        ii. Export Path: e.g. C:\BEM\PASSINGS\
        iii. Export format: Tab delimited text file.
    d. Run a transponder across the loop and verify that the expected xxxx_LOG.txt passing file is generated.
    e. Minimise DataCollector / Timing and Scoring
2. Run BemTrain
    a. Set up Timeline 1 to match the DataCollector / Timing and Scoring setup.
        i. Timeline Name
        ii. Enable checked for timeline to be used
        iii. Click the Select File button for Timeline 1 and select the live file export passing file created in step 1.d above.
        iv. Enter a Session Name.
        v. Save the Current Session with a meaningful name.
        This creates a .BTS file to save the set up scenario.
3. Click on the Run Fitting Station button and select:
    a. **Display competitor information by using data imported from DataCollector / Timing and Scoring** where you have a competitor list loaded into DataCollector / Timing and Scoring
    b. **Display competitor information by looking up Transponder number from DataCollector / Timing and Scoring in a reference BEM Event File** (recommended) where a BEM Event File is to be used as the Transponder to Competitor link.
    When this selection is made, the Select BEM File button is enabled to allow selection of the Reference BEM Event File.
4. After a short delay, each passing data will be displayed on screen.

Training Split Time Overview

The Live Split Time facility provides progressive lap times from up to 10 timelines. This can be used for live data from a Training Session or Race Meeting or be run at a later time by importing the passing records from a training session or an event.

The screen below is an example with data from a practice session at the Sleeman Sports Complex. Data can be displayed by Start Time, Reverse Start Time (latest at top), by Rider or by any of the active timelines.



Reports can be generated in Excel or HTML file formats.

Excel example below showing elapsed time to each timing point and sector times between timing points.

			Sleeman 2013 Training									
			BemTrain by Lyndon.Downing@bigpond.com									
			Version 1.1.3, 25 Feb 2014, Licenced to: Bemman BMX			Bottom of		First Corner		Second		Finish Line
			Group by Rider: Sorted by Lap Time: Completed Runs			Hill				Corner		
Transponder	Class	Plate	Name	Date	Start Time	Hill	<Sector2>	ntermediate 1	<Sector3>	ntermediate 2	<Sector4>	Finish
FS-58369	Probikx Men Elite	512	Aaron NOTTLE	9/01/2013	11:34:34.680	2.514	6.070	8.584	11.427	20.011	17.466	37.477
FS-58369	Probikx Men Elite	512	Aaron NOTTLE	9/01/2013	11:00:26.427	2.511	6.174	8.685	11.757	20.442	17.681	38.123
FS-58369	Probikx Men Elite	512	Aaron NOTTLE	9/01/2013	09:41:15.909	2.523	5.990	8.513	12.222	20.735	18.435	39.170
FS-58369	Probikx Men Elite	512	Aaron NOTTLE	9/01/2013	10:35:59.108	2.493	6.456	8.949	17.437	26.386	20.299	46.685
FS-58369	Probikx Men Elite	512	Aaron NOTTLE	9/01/2013	08:50:40.565	2.499	6.222	8.721	11.886	20.607	46.484	67.091
FN-80590	NADP Team	2AUS	Abbie BLACKBURN	9/01/2013	10:45:49.165	2.493	7.632	10.125	14.639	24.764	22.228	46.992
FN-80590	NADP Team	2AUS	Abbie BLACKBURN	9/01/2013	11:13:06.493	2.653	7.553	10.206	14.609	24.815	22.276	47.091
FN-80590	NADP Team	2AUS	Abbie BLACKBURN	9/01/2013	10:17:30.288	2.524	7.761	10.285	15.225	25.510	29.993	55.503
FN-80590	NADP Team	2AUS	Abbie BLACKBURN	9/01/2013	09:08:49.377	9.308	11.114	20.422	73.176	93.598	22.480	116.078
RR-37746	Probikx Men Elite	W4	Anthony DEAN	9/01/2013	11:32:58.260	2.438	6.010	8.448	11.226	19.674	16.800	36.474
RR-37746	Probikx Men Elite	W4	Anthony DEAN	9/01/2013	10:35:59.108	2.434	5.909	8.343	11.158	19.501	17.200	36.701
RR-37746	Probikx Men Elite	W4	Anthony DEAN	9/01/2013	11:00:26.427	2.471	5.910	8.381	11.245	19.626	17.132	36.758
RR-37746	Probikx Men Elite	W4	Anthony DEAN	9/01/2013	09:46:29.724	2.458	5.835	8.293	11.605	19.898	16.962	36.860
RR-37746	Probikx Men Elite	W4	Anthony DEAN	9/01/2013	08:50:40.565	2.407	5.818	8.225	11.660	19.885	30.868	50.753
HP-73442	Probikx Men Elite	747	Bodi TURNER	9/01/2013	09:48:58.334	2.526	6.160	8.686	11.326	20.012	17.357	37.369
HP-73442	Probikx Men Elite	747	Bodi TURNER	9/01/2013	11:32:58.260	2.488	6.293	8.781	11.707	20.488	16.921	37.409
HP-73442	Probikx Men Elite	747	Bodi TURNER	9/01/2013	10:37:26.864	2.502	5.929	8.431	11.764	20.195	17.481	37.676
HP-73442	Probikx Men Elite	747	Bodi TURNER	9/01/2013	11:01:44.563	2.522	6.518	9.040	11.932	20.972	17.004	37.976
FX-17362	NADP Team	AUS 2	Brandon TE HIKO	9/01/2013	11:09:43.155	2.538	6.866	9.404	11.798	21.202	18.630	39.832
FX-17362	NADP Team	AUS 2	Brandon TE HIKO	9/01/2013	10:42:34.166	2.425	6.823	9.248	12.266	21.514	19.473	40.987
FX-17362	NADP Team	AUS 2	Brandon TE HIKO	9/01/2013	10:13:31.100	2.485	7.230	9.715	12.521	22.236	19.618	41.854
LR-25913	Probikx Men Elite	42	Brian KIRKHAM	9/01/2013	11:01:44.563	2.459	6.025	8.484	11.931	20.415	17.507	37.922
LR-25913	Probikx Men Elite	42	Brian KIRKHAM	9/01/2013	09:52:26.681	2.449	6.057	8.506	11.894	20.400	17.808	38.208

HTML example noting the Speed details as distance information has been entered.

Sleeman 8M Saturday 02 May 2015

BMX EVENT MANAGER, BEM TRAIN Report Created 21/Aug/2015 16:44:35

Group by Rider: Sorted by Lap Time: Completed Runs

BemTrain Version 2.0.0.0 Test, 21 Aug 2015				TIMELINES										
Bemman BMX				Sector1 10.00m	Kink (1)	Sector2 15.00m	Bottom of Hill (2)	Sector3 75.00m	Corner 1 Exit (3)	Sector4 179.00m	Corner 3 In (4)	Sector5 109.00m	Finish Line (10)	Track Length 388.00m
NAME	T/PONDER	DATE	RUN START (Gate)	Time Speed	Kink	Time Speed	Hill	Time Speed	Corner1	Time Speed	Corner3	Time Speed	Finish	Lap Speed m/s
Aaron NOTTLE	FS-58369	2/05/2015	13:59:24.386	1.344 7.44	1.344	1.198 12.52	2.542	10.628 7.06	13.170	19.259 9.29	32.429	9.042 12.05	41.471	9.36
Aaron NOTTLE	FS-58369	2/05/2015	12:45:45.823	1.351 7.40	1.351	1.190 12.61	2.541	10.348 7.25	12.889	19.983 8.96	32.872	8.951 12.18	41.823	9.28
Aaron NOTTLE	FS-58369	2/05/2015	11:28:25.816	1.346 7.43	1.346	1.192 12.58	2.538	10.356 7.24	12.894	20.623 8.68	33.517	9.067 12.02	42.584	9.11
Aaron NOTTLE	FS-58369	2/05/2015	15:01:12.358	1.316 7.60	1.316	1.207 12.43	2.523	10.756 6.97	13.279	19.455 9.20	32.734	35.850 3.04	1:08.584	5.66
Adam CAREY	VC-17041	2/05/2015	11:26:20.205	1.311 7.63	1.311	1.181 12.70	2.492	10.522 7.13	13.014	21.779 8.22	34.793	9.264 11.77	44.057	8.81
Adam CONDON	GS-48709	2/05/2015	12:39:58.718	1.439 6.95	1.439	1.323 11.34	2.762	13.074 5.74	15.836	24.785 7.22	40.621	10.414 10.47	51.035	7.60
Adam CONDON	GS-48709	2/05/2015	11:25:36.705	1.422 7.03	1.422	1.278 11.74	2.700	13.401 5.60	16.101	24.665 7.26	40.766	10.304 10.58	51.070	7.60
Adam CONDON	GS-48709	2/05/2015	13:56:11.302	1.410 7.09	1.410	1.216 12.34	2.626	12.377 6.06	15.003	25.669 6.97	40.672	11.646 9.36	52.318	7.42
Adam DE NYS	NP-51792	2/05/2015	11:27:02.393	1.333 7.50	1.333	1.221 12.29	2.554	11.041 6.79	13.595	20.861 8.58	34.456	9.807 11.11	44.263	8.77
Adam DE NYS	NP-51792	2/05/2015	12:41:16.430	1.354 7.39	1.354	1.217 12.33	2.571	11.477 6.53	14.048	21.224 8.43	35.272	10.484 10.40	45.756	8.48
Adam DE NYS	NP-51792	2/05/2015	13:57:36.764	1.364 7.33	1.364	1.222 12.27	2.586	11.086 6.77	13.672	23.737 7.54	37.409	11.326 9.62	48.735	7.96

For velodrome configuration, Individual and Team Pursuit reports can be generated showing leader to leader times for each sector, lap and half lap times and gaps between each team member at each timing point.

Pursuit Analysis Report

A Velodrome

BMX EVENT MANAGER, BEM TRAIN Report Created 03/Apr/2018 15:28:00

Report Summary

Run Date	2018-03-17
Run Start	15:51:15.872
Run End	15:52:20.430
Run Time	1:04.558
Participants	4
Laps	2

BemTrain Version 3.1.0.0 03 Apr 2018		Licenced to: Bemman BMX							
Location in Passing >>> Location Description >>>		Apex1 Apex 1		Half Track Back Pursuit		Apex2 Apex 2		Start-Finish Front Pursuit	
Lap 1		**Sector 1**		**Sector 2**		**Sector 3**		**Sector 4**	
Lap	35.613	Sector	9.560	Sector	7.790	Sector	7.555	Sector	10.708
First Half	17.350	Elapsed	9.560	Elapsed	17.350	Elapsed	24.905	Elapsed	35.613
Second Half	18.263	Fred Frog	0.000	Fred Frog	0.000	Sleepy Hollow	0.000	Sleepy Hollow	0.000
Elapsed	35.613	Sleepy Hollow	0.029	Sleepy Hollow	0.033	Hairy Maclary	0.023	Hairy Maclary	0.040
		Hairy Maclary	0.061	Hairy Maclary	0.066	Postman Pat	0.054	Postman Pat	0.074
		Postman Pat	0.078	Postman Pat	0.088	Fred Frog	0.281	Fred Frog	0.156
Lap 2		**Sector 1**		**Sector 2**		**Sector 3**		**Sector 4**	
Lap	28.945	Sector	6.638	Sector	7.511	Sector	7.483	Sector	7.313
First Half	14.149	Elapsed	42.251	Elapsed	49.762	Elapsed	57.245	Elapsed	1:04.558
Second Half	14.796	Hairy Maclary	0.000	Hairy Maclary	0.000	Postman Pat	0.000	Postman Pat	0.000
Elapsed	1:04.558	Postman Pat	0.052	Postman Pat	0.031	Fred Frog	0.031	Fred Frog	0.023
		Fred Frog	0.078	Fred Frog	0.065	Hairy Maclary	0.067	Hairy Maclary	0.027
		Sleepy Hollow	0.124	Sleepy Hollow	4.366	Ø	-	Ø	-

Training Split Time Setup – Live Capture

1. Run DataCollector / Timing and Scoring and:
    a. Set up the event with the timelines and decoders to be used for the session.
    b. If using competitor information from DataCollector / Timing and Scoring (not required if using a reference BEM Event file, under the Registration Tab, import the list of competitors, e.g. generated from BEM export.
    c. Under the Processing tab, got to "Live File settings" and set up the Live file export
        i. Export Type: "Save on deletion of file.
        ii. Export Path: e.g. C:\BEM\PASSINGS\
        iii. Export format: Tab delimited text file.
2. Have one athlete complete the training run and verify that the expected xxxx_LOG.txt passing files are created for each timeline.
3. Run BemTrain
    a. Set up the Timelines to match the DataCollector / Timing and Scoring setup ensuring that Timeline 1 is the first timeline in the run.
        i. Timeline Names
        ii. Enable checked for timelines to be used
        iii. Click the Select File button for each enabled Timeline and select the relevant live file export file created in step 2 for each Timeline.
    b. If distances are available, enter the distance between each sector to enable speeds to be included in the html reports.
    c. Enter a Session Name. This should be unique to the particular training session, particularly where session times are being uploaded to SportsLists as the Session Name is used to create the report folder in SportsLists.
    d. Set the appropriate Run Mode option. I.e.
        i. Select **Start Gate – Single Run** where a gate start is used to start each single training run then:
            1. Enter the Gate Transponder (typically 9992 or 9991 for DataCollector or 00-09991 or 00-09992 with Timing and Scoring) where the photocell input on the MyLaps decoder is used for the Gate Start signal).
            2. Set appropriate time values (seconds) for Minimum Gate to Loop 1 and Maximum Gate to Loop 1.
        ii. Select **Timeline 1** where crossing this timeline is used to start each single training run.
        iii. Select **Velodrome Laps Mode** where the training run consists of laps on a closed track and Timeline 1 is the Start and Finish for each lap.
    e. Set the Maximum Run Time (seconds) to a value that each run in Single Run mode or each Lap in Velodrome mode would reasonably expect to be completed.
    Note that this time must be longer that the actual run but short enough in Single Run mode that a second or subsequent run should not be started within this time period.
    f. Passing file format to be set to MyLaps DataCollector 3.
    g. Option to Delete Passing Files after Processing to be selected.

h. Save the Current Session with a meaningful name.
   This creates a .BTS file to record the passings and split time results.
i. Click on “Run Training” button.
j. On the Run Screen, click on Start Capture and check that the passing records for all timelines generated in step 2 are imported error free.
   If errors are reported, go back to the Set Up screen to correct.
   If unexpected passings are shown from an earlier session or date and time, use the Master Reset button to clear all data ready for a fresh start.
k. Note that changes to the Session Display sort option takes effect immediately only when the Capture is halted. When Capture is running, display sort changes will update only after then next Capture update cycle is completed (up to 30 seconds).

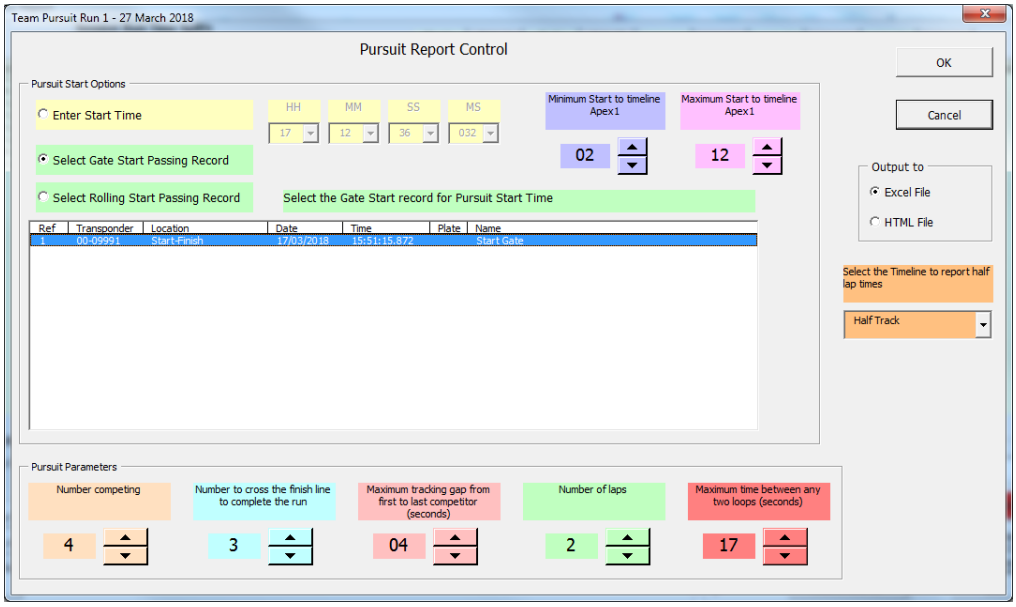
4. Good to go to run the training session.
5. In Velodrome Laps Mode, the time for each completed lap is shown under Loop 1.
6. Manual Reports in Excel and HTML format are available by clicking on the Report button, enabled when Capture is not running.
7. Auto HTML reports can be generated during the training session. To set this up:
   a. If not done previously, click on the **Select** button in the **Top level folder for saving auto generated reports** group and select a folder for storing these reports.
      BemTrain creates a folder for each training session based on the entered Session Name in this “top level” folder.
   b. In the **HTML Auto Reports group**:
      i. Select the **Create during capture** option.
      ii. If reports are to be uploaded to the SportsLists phone App, select **Upload to SportsLists App** option and enter your **Upload Key**.
      Note: To use this facility you need to register and obtain an Upload Key from SportsLists. Contact email is support@sportslists.eu with keys normally issued per Coach or per Club.
      iii. If you are not uploading to SportsLists and wanting to display the training session details locally, select the **Scroll** option to make the report auto scrolling and auto refresh then select the report file to display using a web browser.
      iv. The vertical bar on the right side of the group is a countdown indication to the next auto report being generated / uploaded.
      Should the countdown timer expire when there is no activity on the track, the countdown bar is shown in red and a new report / upload will be triggered when the next passing is received.
      Note that when starting the Capture for a session that has split times stored, a new report / upload is created a few seconds after the capture is started.

Training – Pursuit Analysis Report

When the training capture is used in velodrome mode, an analysis report is available for individual or team pursuit.

The user can specific the training run parameters such as number in the team, number of laps, maximum gap from the team leader to when riders are dropped.
Details in the report include the leader to leader times for each sector, cumulative time, gaps at each timeline between the leader and individual team members.

Clicking on the Pursuit Report button in the split time screen opens the Pursuit Report Control settings.



1. Pursuit Start Options
   There are three options to set the start time of the pursuit run
   a. Enter Start Time
      For this option, the operator enters the Hour, Minute, Second and Millisecond of the start time.
      Typically used for a standing start without a hardware generated start signal from a gate or push button.
   b. Select Gate Start Passing Record
      When this option is selected, all gate start passing records are show for the operator to select the one relevant to the pursuit start.
      Note that the gate start transponder number must match one of the Gate Start transponder number(s) in the setup screen.
   c. Select Rolling Start Passing Record.
      When this option is selected, all passing records for first timeline in the run are shown for the operator to select the leader's passing to start the pursuit run.
2. Minimum and Maximum Start to timeline.
   The Minimum Start to timeline and Maximum Start to timeline are sanity settings used to identify the rider(s) in the pursuit run.

They apply irrespective of the Start Time option selected and set a time window for the rider(s) to cross the second loop in the run after the start time.

3. Pursuit Parameters
   The following settings are used to customise the report for various track, team and distance requirements.
   a. Number competing.
      Specifies the number making up the pursuit team. Settings from 1 – 8.
   b. Number to cross the finish line to complete the run.
      For a team pursuit, specifies how many of the team need to cross the finish line to complete the run.
   c. Maximum tracking gap from first to last competitor.
      This setting (in seconds) is the maximum gap from the leader at any timeline which if exceeded by any team member, they will no longer be tracked as part of the run. Gap times that exceed this threshold are show in red in the reports.
   d. Number of laps.
      Settings from 1 – 20.
   e. Maximum time between any two loops.
      This setting is a sanity check for tracking purposes. An incomplete run error is given if this time is exceeded between any two timing points. Settings from 1 – 30 seconds.
4. Output to.
   An operator selection for the report format to be an Excel or HTML file.
5. Select the Timeline to report half lap times.
   An operator selection of the timeline that represents the half lap timing point. Used to report first and second half lap times in the report.

Split Time Setup – BEM Import

A transponder scored BEM event can be imported into BemTrain and the Split Time reports generated.

1. Run BemTrain
    a. Set up timeline names to match those in the BEM event. Typical setting will be:
        i. Timeline 1 name Hill
        ii. Timeline 10 name Finish
        iii. Enable checked for Timeline 1 & 10.
    b. Enter a Session Name.
    c. Set the Gate Transponder number to match that used in the BEM File.
    d. In Run Mode, select Start Gate - Single Run
    e. In Run Time Settings, set the times to match those used in the BEM File.
    f. In Passing File Format, select BEM Event File.
    g. Save the Current Session with a meaningful name.
    This creates a .BTS file to record the passings and split time results.
    h. Click on “Run Training” button.
    i. When the Select the Competitor Data Source is displayed:
        i. Select “Display competitor information by looking up Transponder number from passing record in a reference BEM Event File.
        ii. Click on the Select BEM File button and select the required BEM Event.
        iii. Click OK.
    j. When the Session Run Time screen is displayed, click on the Start Capture button.
    There will be a delay dependant on the size of the event while all passing records are read and the split time records built.
    Progress indicator is show at the lower left of the screen.
    Build is complete when the Capture button changes from Green “Stop Capture” to Red “Start Capture”
    k. Click Reports and create the required report(s)

Scoreboard Overview

The real time Scoreboard facility can be used to provide information for commentary or public display where suitable screens are available.
As BemTrain is operating independently from the official race scoring, results display by BemTrain should always be treated as provisional.

Envisaged configuration is that both DataCollector or Timing and Scoring and BemTrain are run on the same laptop with an external monitor for the Scoreboard display.

Works best with a second monitor set up with the Desktop extended across both displays. That enables you to drag the Scoreboard window onto the second monitor and use the laptop screen to control it.

The Scoreboard operation can be set up in one of the following modes.

- Time Trial Mode

  Typical setup for a typical BMX scenario with a gate start requires a minimum of two loops to be active. E.g. bottom of Hill and Finish line. If an intermediate loop is activated then splits at that time are shown.
  For a typical Pump Track event using a rolling start, a common Start/Finish loop is used however separate start and finish loops or gate start configurations are possible.

  In all Time Trial modes:
  New leader highlighted in green in the latest competitor area.
  - Display starts when the first rider crosses the first loop and is updated as each subsequent rider crosses any of the three (max) loops.
  - Supports concurrent riders on the track
  - While the Auto reset and clear at class change option is provided, recommendation is not to use this option and use manual reset between classes as any stray or unknown transponder will cause an unexpected and unwanted class reset.

  Options for the Time Trial display are:
  - Show top 3 + intermediate
    Shows the top three in the class at the top of the screen and the latest competitor to pass the Hill, Intermediate (if activated) and Finish at the bottom of the screen.

- Show top 5
- Qualification – Best Time
  With this qualification option, the left pane shows the top 8 fastest laps. The right pane shows the last 8 completed laps or where an intermediate timeline is included, the latest 8 crossing of either the finish or intermediate timeline.
  Note that the Qualification Best Time scoreboard is applicable to stages of Pump Track Events run under Open Session format.
- Qualification – Total Time
  With the Total Time qualification, the left pane shows the top 8 based on total time and number of laps completed. The right pane shows the last 8 completed laps or where an intermediate timeline is included, the latest 8 crossing of either the finish or intermediate timeline.

- Race Progress Mode

  Requires a minimum of two loops to be active. E.g. bottom of Hill and Finish line with each loop having a dedicated decoder and a Gate Start signal.
  - Display on the Scoreboard starts when the first rider crosses the first loop on the track.
  - Display is progressively updated during the race as the lead rider crosses each loop. Note that you can set a maximum time to display each intermediate loop before an auto clear is applied.
  - A restriction of this mode is that only one race can be on the track at any one time and an operator reset of the display is required between races.
- Race Lap Time Mode

  Requires a minimum of two loops to be active. E.g. bottom of Hill and Finish and a Gate Start signal.
  - Designed to run throughout the event without operator intervention
  - Display on the Scoreboard starts when the first rider crosses the finish line.
  - Operates with multiple races on the track.
  - Recommended configuration is to have a dedicated decoder for each loop but will operate with Hill and Finish loops connected to a single decoder.
  - Can be set for timer clearing of the display with an operator selectable time period that commences from the first place rider being displayed, or for the display to remain until manually cleared or the first placed rider from the subsequent race crosses the finish line.
- Single Timeline Mode
  - Display shows gaps between passings at the timeline.
  - Selectable Auto Reset (timer) or Manual Reset.
  - Allow for a Photo Gap referral time to be set to show “Photo” rather than the gap between riders if used to show Finish Line.
  - An example for the use of this mode is to have a timeline before the last corner to provide a live display for use by the commentators.

- Twin Timeline Mode
  - Similar to Singe Timeline Mode but with two timelines displayed on the one screen.
  - Selectable Auto Reset (timer) or Manual Reset.
  - Allow for a Photo Gap referral time to be set to show “Photo” rather than the gap between riders if used to show Finish Line.
  - An example for the use of this mode is to have independent displays for a timeline coming out of the first corner on one half of the screen and the finish line timeline display on the other half of the display for use by commentators.
- Lap Time Display Mode.
  - Displays the lap time of the last 8 or 16 completed laps by operator selection of Lap Time (8) or Lap Time (16).
  - Can be used with Gate Start or Loop 1 as the start of run trigger.
  - With Manual Clearing selected, when the 8 (16) laps are displayed, subsequent laps appear at the top of the display with earlier laps scrolling off the bottom.
  - Can be used with 1:1 loop to decoder or with multiple loops connected to the one decoder.
  - Run data is preserved so that after exiting from the Scoreboard App, you can go to the Training App and display / generate training reports.
  - Envisaged use is for a rider information display.
- Staging Transponder Check.
  - Provides a scrolling display from a single Timeline with the latest passing at the top of the screen.
  - Envisaged use is as a check in staging to verify correct fitting and operation of the transponders.
- Multi Lap Race

  Two layouts are included for multi-lap races to optimise clarity depending on the scoreboard characteristics.
  - 8 + 8 Format with two 8 competitor panes.
    - Shows the top 8 in the left pane with cumulative time and number of completed laps.
    - Shows the last 8 completed laps in the right pane with cumulative time and number of laps or were intermediate timelines are included, shows the latest 8 crossings of either the intermediate or finish timelines.
  - 3 + 5 Format with one 8 rider pane.
    - Shows the top 3 in positions 1 to 3 on the display with cumulative time and number of completed laps.
    - In positions 4 – 8 of the display, shows the last 5 completed laps or where intermediate timelines are included, shows the latest 5 crossings of either the intermediate or finish timelines.

- Pump Track

  The three options in the Pump Track section reflect the various UCI Pump Track event formats. For stages run under Open Session rules, use Time Trial Qualification scoreboard.
  - Solo Run shows each competitor's as their run is started, lap time when completed with overall place when the second rider has completed their lap.
  - Pursuit / Head to Head Dual Single Run shows each competitor as they start then the race result when completed.
  - Head to Head Dual, 2 Runs

    Specific display and processing where there is a Left and Right track. Shows each rider's individual lap times for Left and Right track and stage result based on cumulative times.

Scoreboard Content Display

While most of the scoreboard content is fixed, user options are provided to display State or Country codes on some scoreboards and control header logos in all scoreboards.
A number of the scoreboards have the option to add a Json Virtual scoreboard output, where a Json file is generated for each scoreboard change. Initial use of this facility is in conjunction with companion graphical scoreboards.

Country or State Code

Where either a .bem event file is selected to link transponders to competitors or where the passing file format contains State and Country codes (e.g. BemTrain format from Timing & Scoring), the scoreboard control option "Show Group As" will be selectable with options to:

Not show the State or Country code in the display line.
Show the State Code
Show the Country Code

Logo Display Control

- Left and right header logos can be shown on all scoreboards with operator selections of default logos, user defined logos provided by the operator or no logos being made with the Logo Control options in the Scoreboard Control screen.

  To display user defined logos, create .bmp graphics files with the following names in the C:\BEM\UserData\BemTrain Scoreboard bmp logos folder.
  - BemTrainUser_HL_Logo.bmp (for Header Left)
  - BemTrainUser_HR_Logo.bmp (for Header Right)

Speed Trap

Scoreboards where the Json Virtual option is selected can also have the Speed Trap enabled. Output from the speed trap is only to a Json file and the Scoreboard control screen in the current design.

Scoreboard Reset Options

Two reset options are provided for when unexpected scenarios occur such as missing passings, stray passings, inadvertent importing of historic data.

Soft Reset that marks all passing records and all result records to be ignored and clears the scoreboard display.

Master Reset that will instantly delete all passing records, all result records and clear the scoreboard display.

Scoreboard Style Options

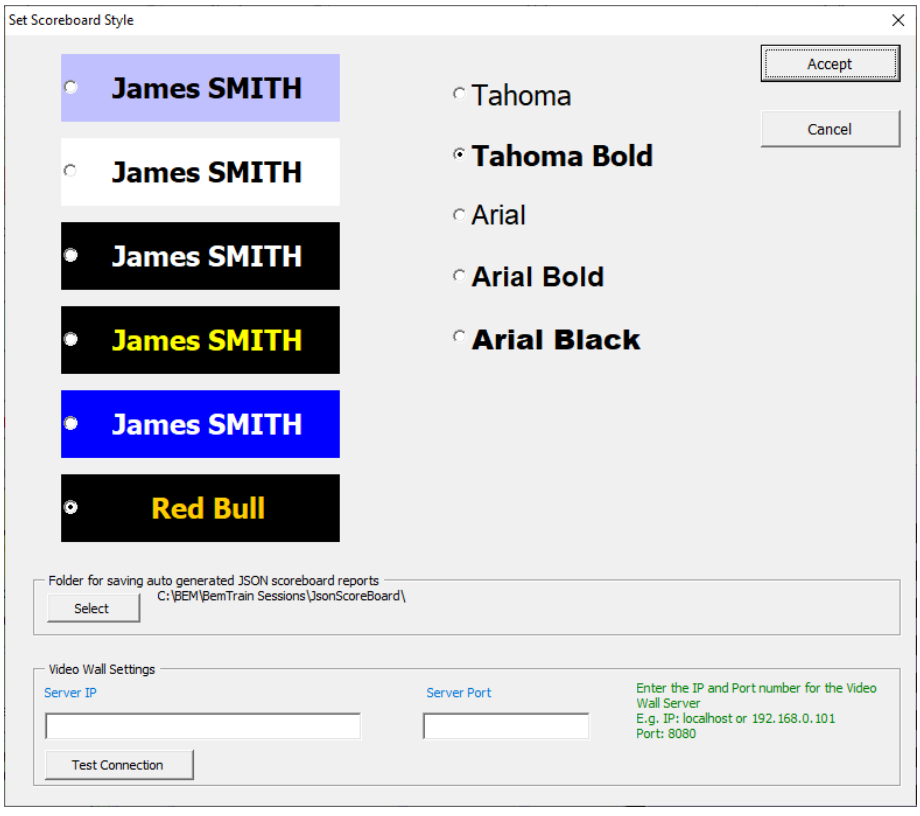
The Set Scoreboard Style button on the Scoreboard Control screen allows selection of six pre-defined background and text colours together with five fonts together with settings for the selectable JSON scoreboard images.

For the colour schemes, select the combination that gives the best clarity for the monitor type, monitor size and indoor or outdoor environment or sponsor requirements.

Note: JSON options are only applicable to the Premium version of BemTrain.

When the "+ JSON Virtual" option is selected, select the folder to be used to write the scoreboard content Json files.

When the "+ JSON Video Wall" option is selected, enter the Video Wall server details to send the scoreboard content in Json format.



Refresh BEM Reference Event - Scoreboard Mode

When a BEM event is used as a reference to link transponder numbers to competitors for the Scoreboard, the New BEM Snapshot button on the Scoreboard Control can be used to update the BEM file without having to close the Control window.

Envisaged use is where there has been a transponder change or new entries added to the event after the Scoreboard display was opened.

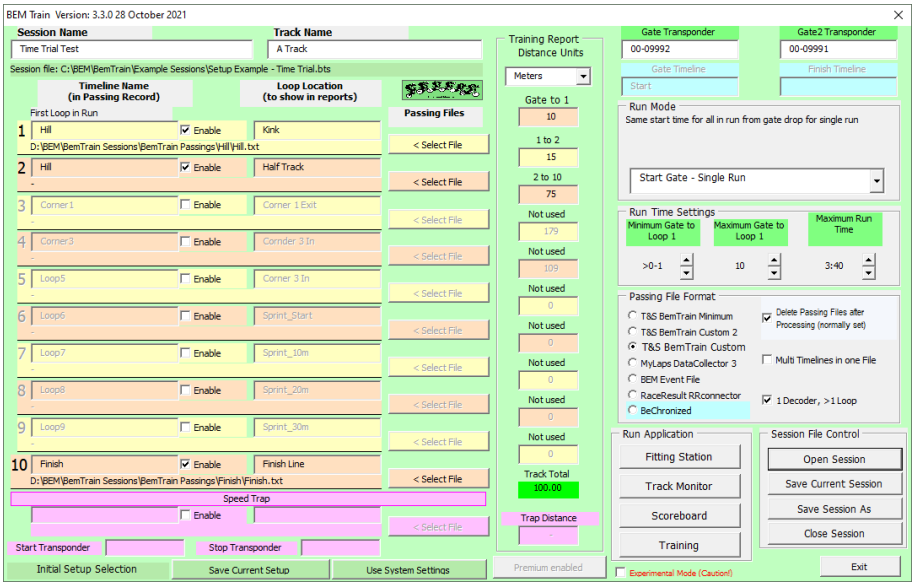
Note that Capture must be turned off for the update.

Time Trial Scoreboard Setup

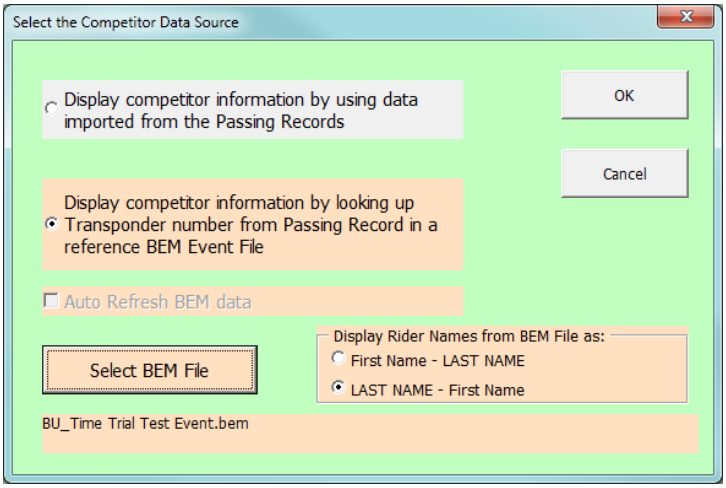
The following example is for a BMX Time Trial with a gate start.

Suggest that where an intermediate loop is used that the Show top 3 + intermediate option be selected else the Shop top 5.

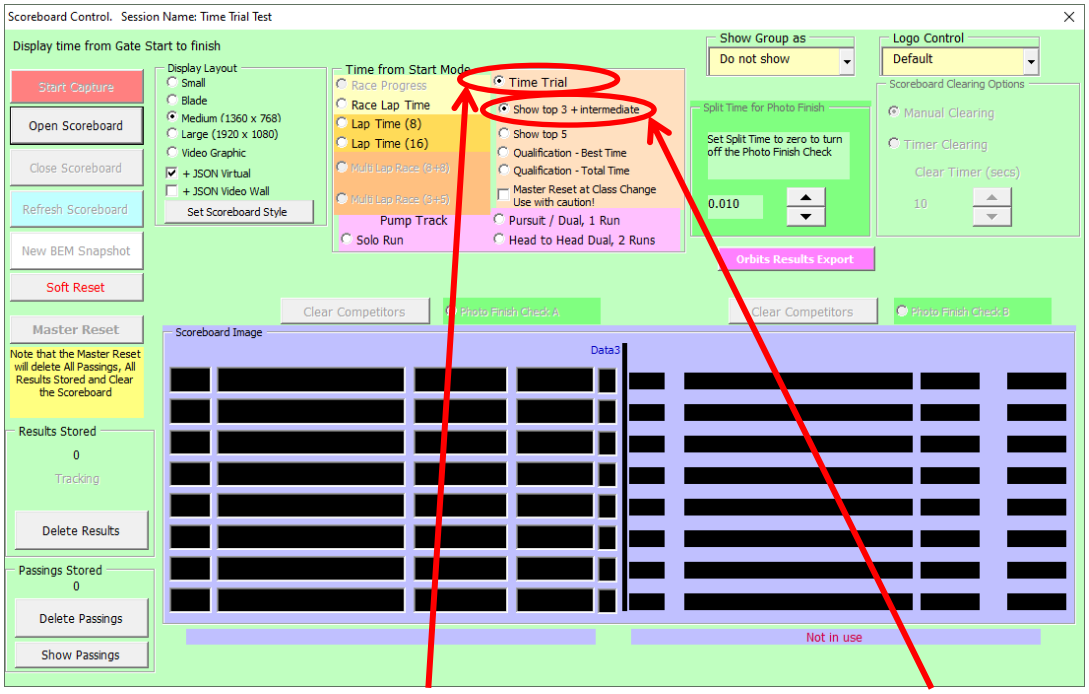
1. Run DataCollector / Timing and Scoring and:
    a. Set up an event with a minimum of bottom of the Hill and Finish Line decoders.
    Note that if intermediate loop(s) are specified, competitor details from the first intermediate loop are also shown. Other intermediate decoders can be specified but are not processed or displayed.
    b. If using competitor information from DataCollector / Timing and Scoring (not required if using a reference BEM Event file, under the Registration Tab, import the list of competitors, e.g. generated from BEM export.
    c. Under the Processing tab, got to “Live File settings” and set up the Live file export
        i. Export Type: “Save on deletion of file.
        ii. Export Path: e.g. C:\BEM\PASSINGS\
        iii. Export format: Tab delimited text file.
    d. Run a transponder across each of the loops and verify that the expected xxxx_LOG.txt passing files are generated.
    e. Minimise DataCollector / Timing and Scoring
2. Run BemTrain and setup the Scoreboard requirements for Time Trial display.
    a. Loop 1 must be the first loop after the start.
    b. Loop 10 must be the Finish line.
    c. Optional to use an intermediate loop to display splits at that timing point.
    Note in the example, the intermediate loop at “Half Track” is connected to the same decoder as the loop at “Hill”
    d. Set the timeline names to match the location name settings.
    e. Select the relevant xxxx_LOG.txt passing files for each timeline.
    f. Start Trigger to be Start Gate - Single Run



3. Click on **Run Scoreboard**
   You then have the choice to either use names from DataCollector / Timing and Scoring passing records or to use a BEM file to look up the names from the Transponder Number in the passing record. (Same selection as for Fitting Station)



4. The **Scoreboard Control** screen is now shown.



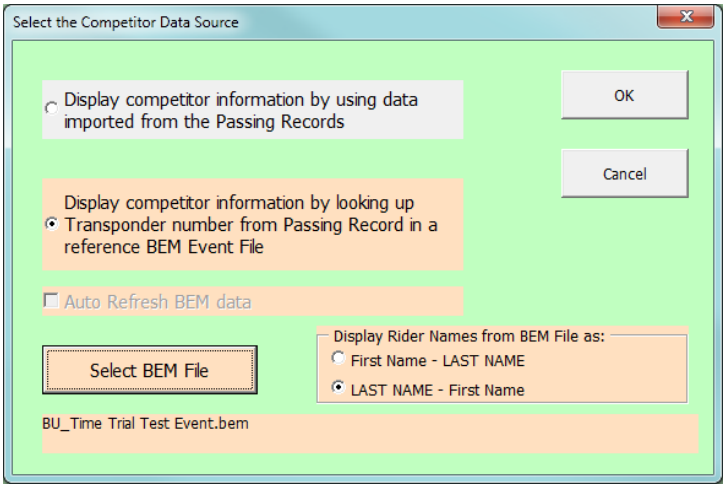
   Set the **Time from Start Mode** to **Time Trial** and in this example, **Show top 3 + intermediate**. Recommended action is not to use the Reset at Class Change option but to have a clear track between classes and use Master Reset before a subsequent class starts. This is based on operating experience where a competitor with a different transponder on the bike to that in the entry will cause an unintended class reset and loss of relative placings in the class.
   Note that the **Split Time for Photo Finish** and **Scoreboard Clearing Options** do not apply for Time Trial mode.
5. Click **Open Scoreboard** which will open the Scoreboard frame will open behind the control. If you have a second (external) monitor, drag the scoreboard frame onto the second monitor leaving the Control window on the laptop screen.

6. **Start Capture** checks for new passings at around 100ms intervals and the button function changes to Stop Capture once it is in capture mode.
   In Time Trial mode, all passings are processed and stored with the first Scoreboard display occurring when the first competitor crosses the first loop in the run.

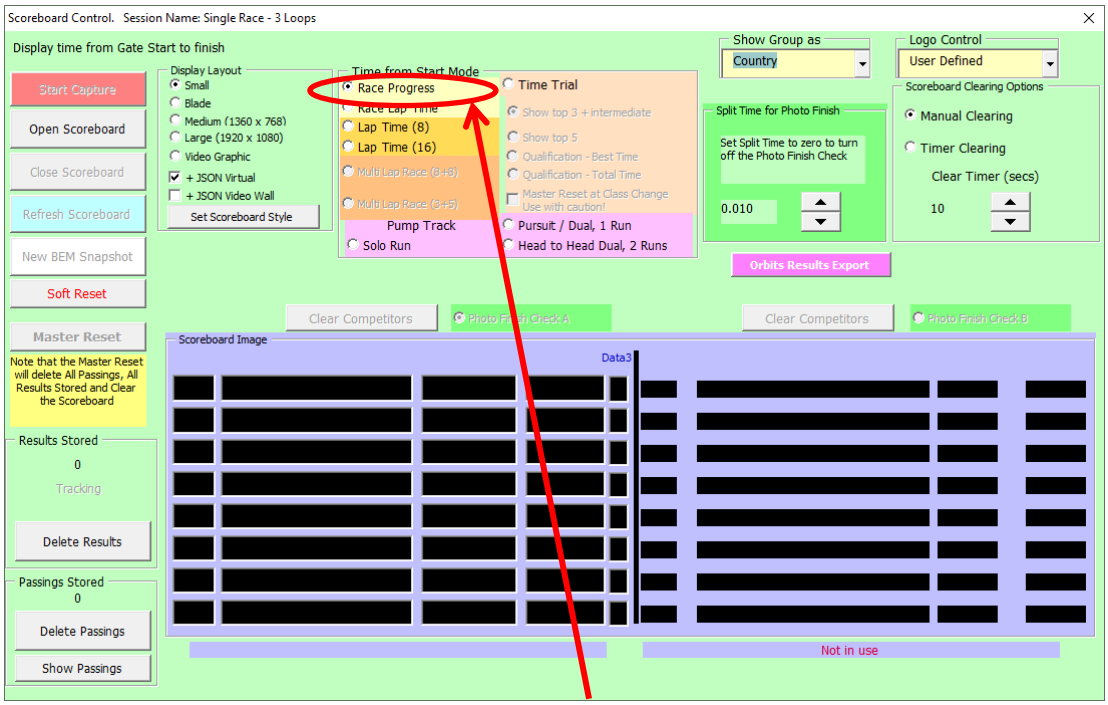
Race Progress Mode Scoreboard Setup

1. Run DataCollector / Timing and Scoring and:
    a. Set up an event with a minimum of bottom of the Hill and Finish Timelines.
    The system caters for up to 8 intermediate timelines in addition to the bottom of Hill and Finish, however a rather more practical scenario would be for intermediate timelines coming out of the first corner and into the last corner.
    b. If using competitor information from DataCollector / Timing and Scoring (not required if using a reference BEM Event file, under the Registration Tab, import the list of competitors, e.g. generated from BEM export.
    c. Under the Processing tab, got to “Live File settings” and set up the Live file export
    d. Export Type: “Save on deletion of file.
    e. Export Path: e.g. C:\BEM\PASSINGS\
    a. Export format: Tab delimited text file.
    b. Run a transponder across each of the loops and verify that the expected xxxx_LOG.txt passing files are generated.
    c. Minimise DataCollector / Timing and Scoring
2. Run BemTrain and setup the Scoreboard requirements for Race Progress display.
    a. Loop 1 must be the first timeline after the start.
    b. Loop 10 must be the Finish line.
    c. Intermediate loops should be in the order they are crossed around the track.
    d. Set the timeline names to match the DataCollector / Timing and Scoring settings.
    e. Select the relevant xxxx_LOG.txt passing files for each timeline.
    f. Start Gate - Single Run to be the Start Trigger
    In the example below there are timelines at the bottom of the **Hill**, in the **Second** straight and at the **Finish** line.

3. Click on **Run Scoreboard**
   You then have the choice to either use names from DataCollector / Timing and Scoring passing records or to use a BEM file to look up the names from the Transponder Number in the passing record. (Same selection as for Fitting Station)



4. The **Scoreboard Control** screen is now shown.



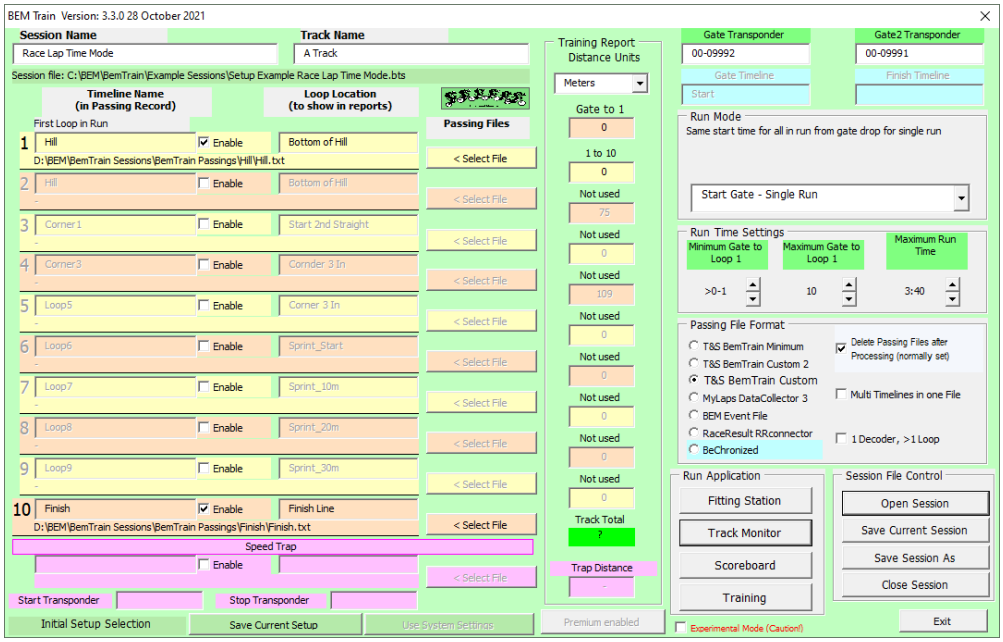
   a. Set the **Time from Start Mode** to **Race Progress**.
   b. Set the Timer Clearing (if required) to the maximum display for each timeline.
      Note that the display is auto updated when the first rider crosses a subsequent timeline
   c. You cannot start the Scoreboard if any Passings or previous Results are Stored. Easiest way to clear is by using the Master Reset button.

5. Click **Open Scoreboard** which will open the Scoreboard frame will open behind the control. If you have a second (external) monitor, drag the scoreboard frame onto the second monitor leaving the Control window on the laptop screen.

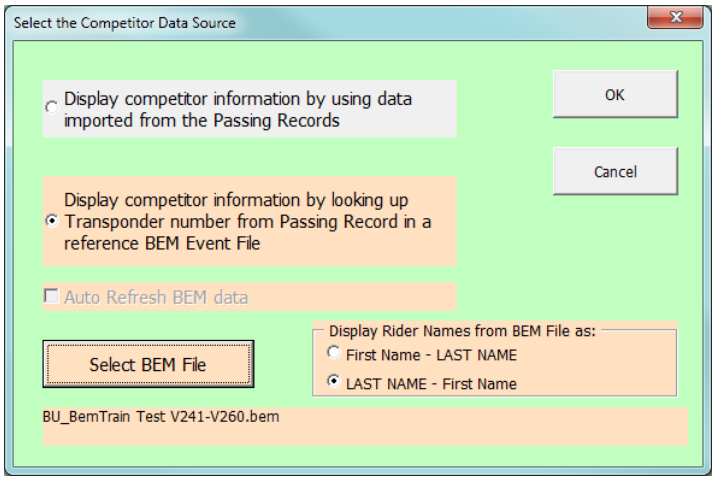
6. Click **Start Capture** when track is clear.
   When Capture is active, checks for new passings are at around 100ms intervals and the button function changes to Stop Capture once it is in capture mode.
7. The first Scoreboard display is initiated as the first rider crosses the first loop specified in the Setup (normally the Hill loop).
8. Use the **Master Reset** button to clear the display and reset ready for the next race.

Race Lap Time Mode Scoreboard Setup

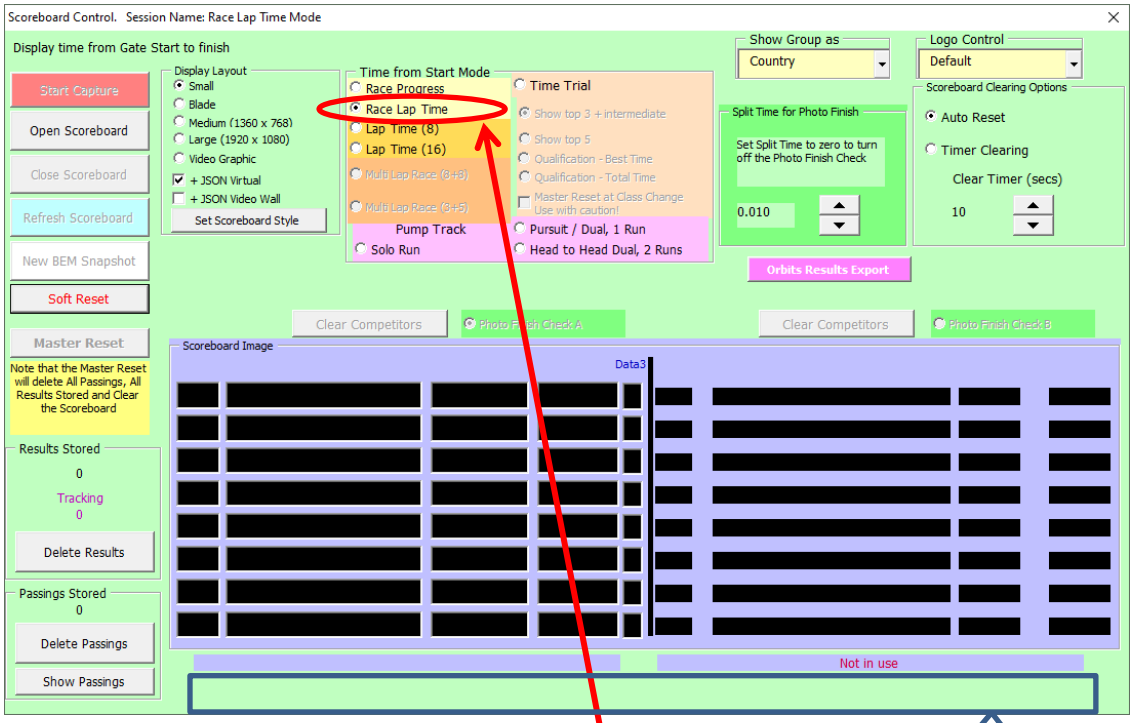
1. Run DataCollector / Timing and Scoring and:
    a. Set up an event with a minimum of bottom of the Hill and Finish Timelines.
    The system caters for up to 8 intermediate timelines in addition to the bottom of Hill and Finish, however a rather more practical scenario would be for intermediate timelines coming out of the first corner and into the last corner.
    b. If using competitor information from DataCollector / Timing and Scoring (not required if using a reference BEM Event file, under the Registration Tab, import the list of competitors, e.g. generated from BEM export.
    c. Under the Processing tab, got to “Live File settings” and set up the Live file export
    d. Export Type: “Save on deletion of file.
    e. Export Path: e.g. C:\BEM\PASSINGS\
    d. Export format: Tab delimited text file.
    e. Run a transponder across each of the loops and verify that the expected xxxx_LOG.txt passing files are generated.
    f. Minimise DataCollector / Timing and Scoring
2. Run BemTrain and setup the Scoreboard requirements for Race Lap Time display.
    a. Loop 1 must be the first timeline after the start.
    b. Loop 10 must be the Finish line.
    c. Intermediate loops should be in the order they are crossed around the track.
    d. Set the timeline names to match what will be in the passing files.
    e. Select the relevant xxxx.txt passing files for each timeline.
    f. Start Gate - Single Run to be the Start Trigger
    In the example below set up using Timing & Scoring as the interface, there are timelines at the bottom of the **Hill**, and at the **Finish** line.



3. Click on **Scoreboard**
   You then have the choice to either use names from DataCollector / Timing and Scoring passing records or to use a BEM file to look up the names from the Transponder Number in the passing



4. The **Scoreboard Control** screen is now shown.



   a. Set the **Time from Start Mode** to **Race Lap Time**.
   b. Set the Timer Clearing (if required) to the maximum display time.
      Note that the timer starts when the first rider for the race crosses the finish line. When Auto Reset is selected, the display is auto cleared when the first rider from the next race crosses the finish line.
   c. You cannot start the Scoreboard in this mode if any Passings are Stored and if they do exist, you will have the option to clear these.
   d. If any lap records are stored, you will be prompted to either delete these or keep them should you wish to generate a training report at a later time.

Status Message Area

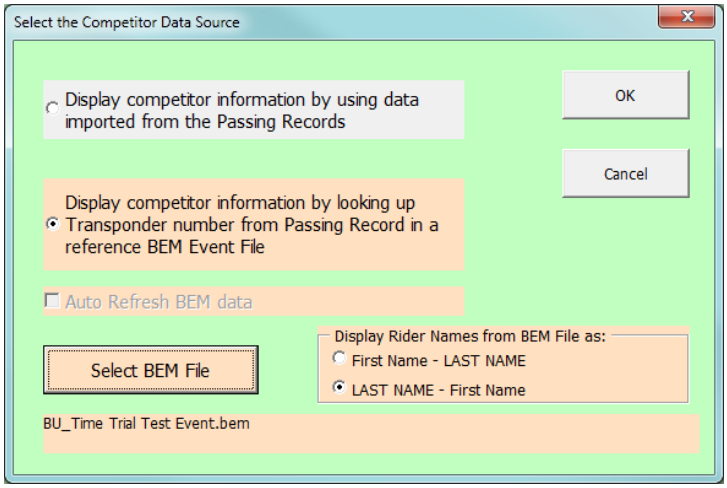
e. Once results are cleared for a particular race, a late finisher (e.g. after a crash) will not be displayed.

5. Click **Open Scoreboard** which will open the Scoreboard frame will open behind the control. If you have a second (external) monitor, drag the scoreboard frame onto the second monitor leaving the Control window on the laptop screen.
6. Click **Start Capture** when track is clear and before racing commences.
   When Capture is active, checks for new passings are at around 100ms intervals and the button function changes to Stop Capture once it is in capture mode.
7. The first Scoreboard display is initiated as the first rider crosses the Finish Line.
8. There are two mechanisms to assist the operator in identifying out of sequence or unexpected events.
   a. In the Results Stored group, there is a Tracking counter that shows the number of incomplete runs that the scoreboard has at any one time. This counter should be zero when there is no activity on the track. Should this not be the case then the recommended action is to either do a Master Reset or if you want to keep the Results for later use such as generating a Training Report, then stop capture and delete all Passings Stored with the Delete Passings button.
   b. In the Status Message Area, exception messages are shown with these also being recorded in the Session file.

Single Timeline Scoreboard Setup

1. Run DataCollector / Timing and Scoring and:
    a. Set up an event with a single decoder for the loop to be displayed on the Scoreboard.
    b. If using competitor information from DataCollector / Timing and Scoring (not required if using a reference BEM Event file, under the Registration Tab, import the list of competitors, e.g. generated from BEM export.
    c. Under the Processing tab, got to “Live File settings” and set up the Live file export
        i. Export Type: “Save on deletion of file.
        ii. Export Path: e.g. C:\BEM\PASSINGS\
        iii. Export format: Tab delimited text file.
    d. Run a transponder across the loop and verify that the expected xxxx_LOG.txt passing file is generated.
    e. Minimise DataCollector / Timing and Scoring
2. Run BemTrain and setup the Scoreboard requirements for single loop monitoring.
    a. Set up must have only Loop 1 enabled. In Loop 1:
        i. Set the timeline name to match the DataCollector / Timing and Scoring setting.
        ii. Select the xxxx_LOG.txt passing file.
    b. Set Single Timeline S/B in the Run Mode setting as per the screenshot below

3. Click on **Run Scoreboard**
   You then have the choice to either use names from DataCollector / Timing and Scoring passing records or to use a BEM file to look up the names from the Transponder Number in the passing record. (Same selection as for Fitting Station)



4. The **Scoreboard Control** screen is now shown.
   Here you can set the preferences for:
   a. Auto or Manual Clearing of the Scoreboard and the Auto clear time
      Gap time for Photo finish when the display timeline is the Finish. A value of 0 always shows the gap time.
   b. The Number of Passings Stored are shown (just total, no details) and a Delete Passings button (handy for simulation testing when you are using the same Finish_log.txt file over and over again).
5. When you click **Open Scoreboard**, the Scoreboard frame will open behind the control. I normally then drag this frame to the second (external) monitor leaving the Control window on the laptop screen.
6. **Start Capture** checks for new passings at around 100ms intervals and the button function changes to Stop Capture once it is in capture mode.

Lap Time Display Mode

1. Notes for this display mode.
    a. Lap-times are displayed after the riders cross the finish loop.
    b. Start of run can be a Gate Start or where a sprint or practice session is being used without a gate, Loop 1 in the run can be the start of run trigger.
    c. Multiple loops connected to the one decoder can be used.
    d. At the conclusion of the display session, you can close the Scoreboard Control, go into Training and generate Training Reports with split and sector times.
2. Run DataCollector / Timing and Scoring and:
    a. Set up the event with appropriate timelines and decoders.
    b. If not using a BEM Event file as the reference for linking transponder numbers to competitors, import the list of competitors into DataCollector / Timing and Scoring.
    c. Enable the export and generate a passing from each loop to generate a passing file for each decoder.
3. Run BemTrain and set the configuration to match the track setup.
    a. Loop 1 must be the first loop in the run.
    b. Loop 10 must be the last loop in the run.
    c. Set the timeline names to match the names in the passing records.
    d. Select the relevant xxxx_LOG.txt passing files for each timeline.
    e. Set the Start Trigger to be Start Gate - Single Run or Timeline 1 as appropriate
    f. Save the Session File.
    g. Setup example with Gate Start, Hill, Corner1, Corner3 and Finish Line loops each with dedicated decoders.

h. Setup example where Hill and Corner 3 loops are connected to the same decoder.

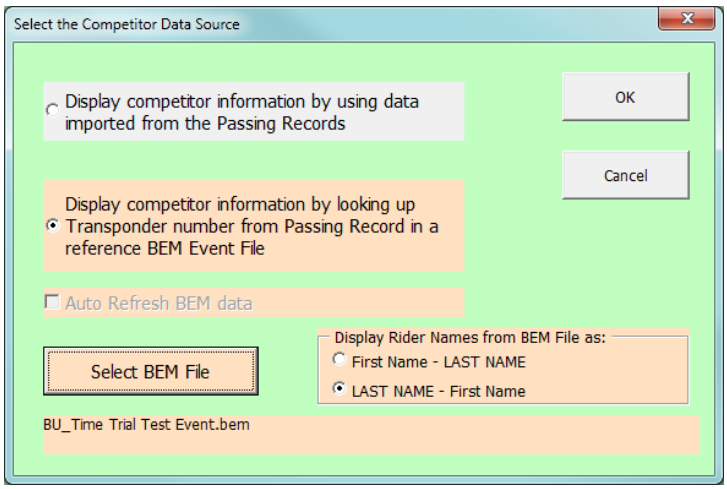
Note that with this setup:

i. Loop 1 (Hill) and Loop 4 (Corner 3) both have the same Timeline Name as the two loops are connected to the same decoder.

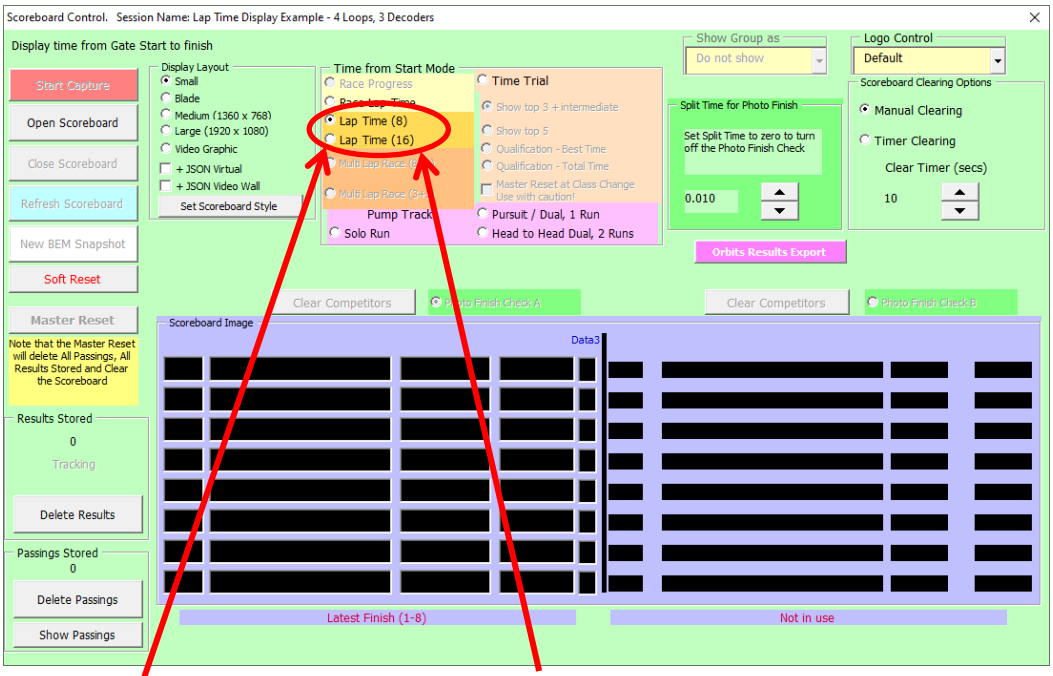
ii. No Passing File is required for Loop 3.

iii. The “1 Decoder, >1 Loop” option is selected.

4. Click on **Run Scoreboard**
   You then have the choice to either use names from the Passing Records or to use a BEM file to look up the names from the Transponder Number in the passing record.



5. The **Scoreboard Control** screen is now shown.

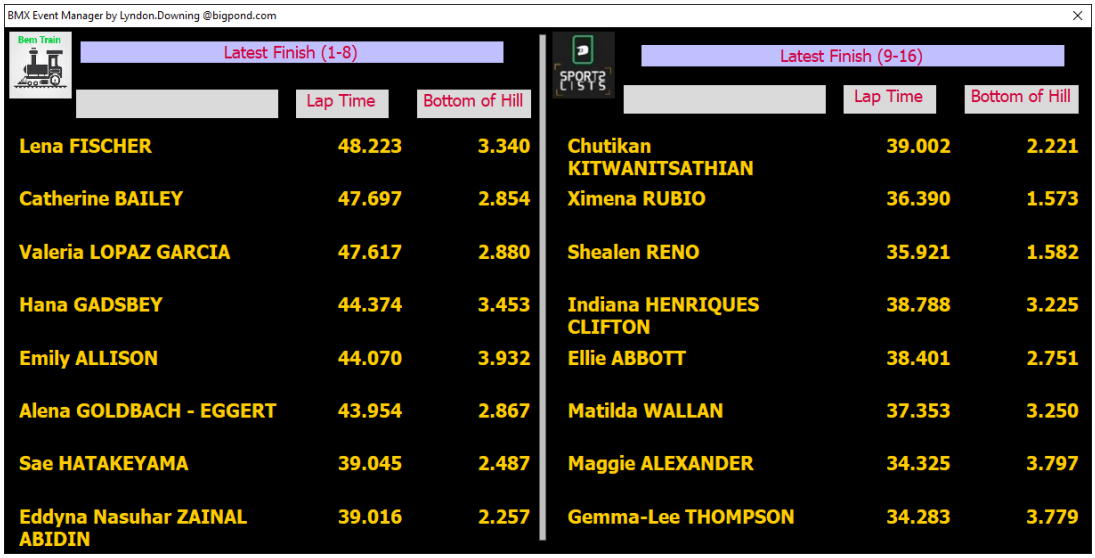


   Set the **Time from Start Mode** to **Lap Time (16)** to display the latest 16 completed runs or to **Lap Time (8)** display the latest 8 completed runs.

6. Click **Open Scoreboard** which will open the Scoreboard frame will open behind the control. If you have a second (external) monitor, drag the scoreboard frame onto the second monitor leaving the Control window on the laptop screen.
7. **Start Capture** checks for new passings at around 100ms intervals and the button function changes to Stop Capture once it is in capture mode.

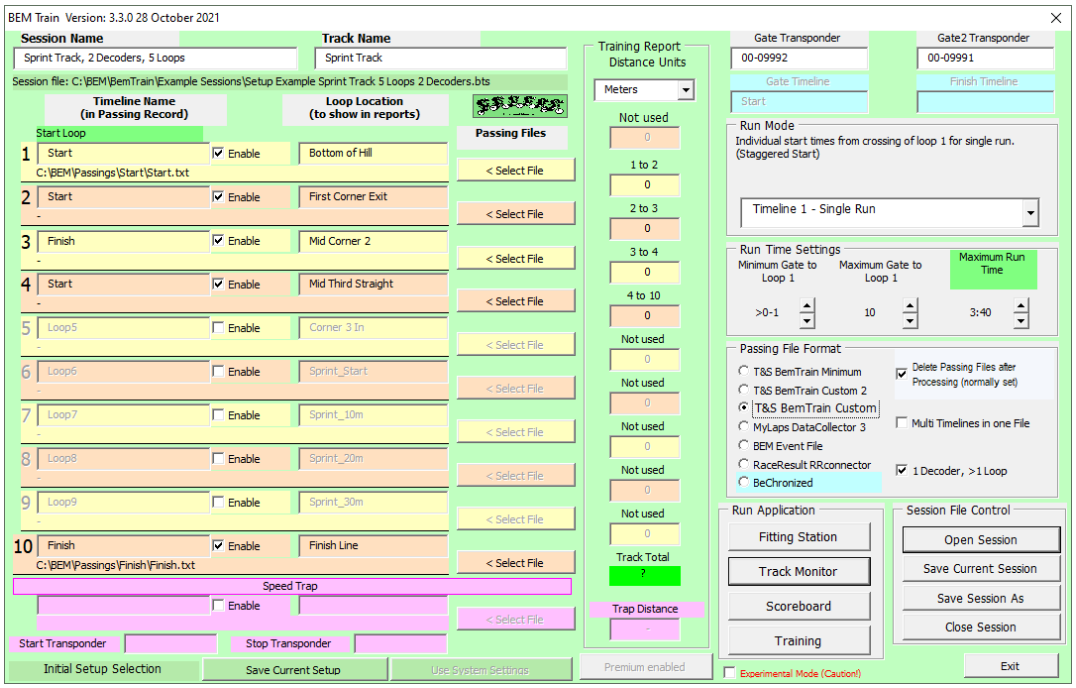
   In Lap Time Display mode, all passings are processed and stored but the actual Scoreboard display is only updated as riders cross the finish line.

8. With manual clearing, when you exceed the 8 (16) displayed, they just scroll off the bottom of the list so the last 8 to cross are always on display.
9. Scoreboard example with Lap Time (16)

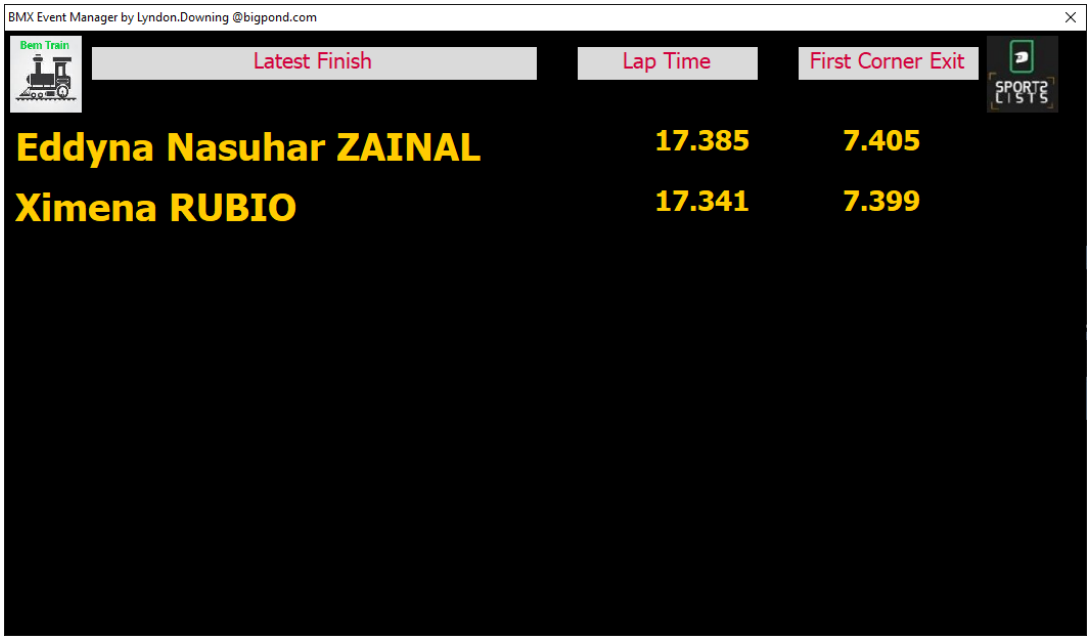


Sprint Track Example, 2 Decoders & 5 Loops

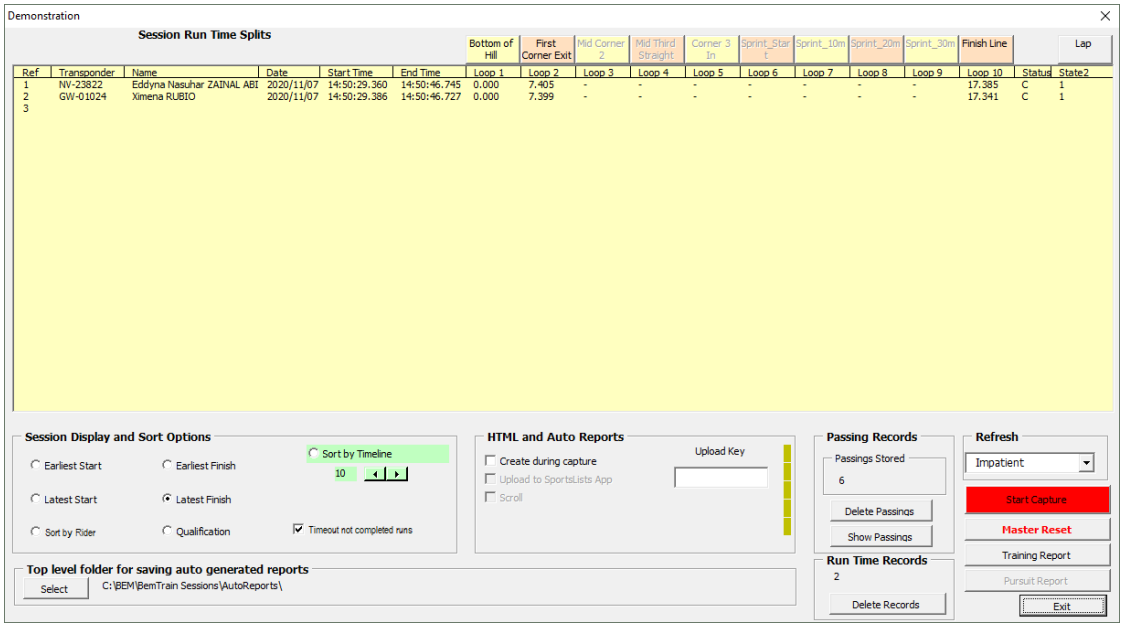
Note that first two loops are on the Start Decoder, Loop 3 on the Finish, Loop 4 on the Start and Loop 10 on the Finish. Sprint Track, 2 Decoders, 5 Loops



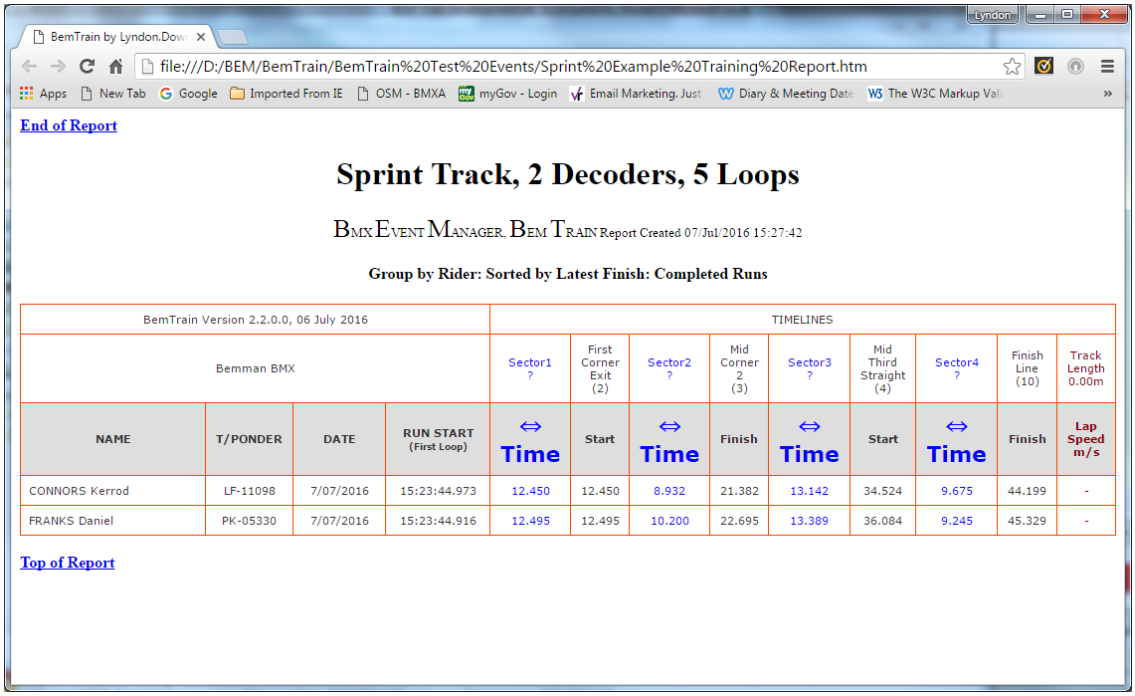
After completed runs from 2 riders



Same two runs shown after exiting from the Scoreboard and going in to Training



HTML Report from Training.



Speed Trap Setup Guide

The speed trap can be enabled and run in conjunction with any of the scoreboards supporting the Json Virtual scoreboard option. Note that the output from the speed trap is to a Json file and Scoreboard Control screen and is not shown on any of the BemTrain scoreboards in the current design.

The Json file for the Speed Trap reports has a fixed file name: **BemTrainSpeedTrap.json**

The location where the file is written is selectable by the operator as for other Json scoreboard reports. I.e. both Score Board and Speed Trap Json files are written to the same folder.

Typical inputs to the speed trap are from two photo cells connected to separate external device inputs on a decoder and set up a precise distance apart. E.g. 0.7m meter.

The following screenshot below an example of an enabled speed trap in conjunction with a gate start single run track configuration.

Speed Trap Setting Notes (pink background)

Enable: Check box to enable or disable the Speed Trap facility.

Timeline Name: The Timeline Name (Location in Timing and Scoring) in the passing records containing the Start Transponder and Stop Transponder. “SpeedTrap” in the example above.

Loop Location: A descriptive name of the location. “Ramp” in the example above.

Select File: Select the passing file containing the Speed Trap records.

Start Transponder: Enter the transponder number from the photo cell at the start of the trap. “00-09992” in the example above.

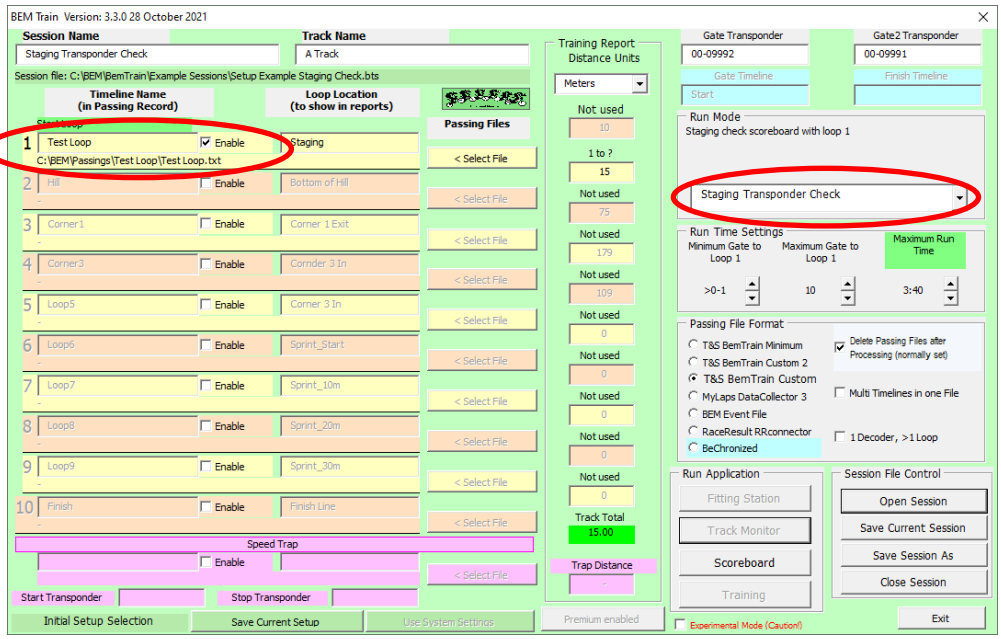
Stop Transponder: Enter the transponder number from the photo cell at the end of the trap. “00-09991” in the example above.

Note: When both a Gate Start and Speed Trap are used, the Gate Timeline name (blue background) must be entered to differentiate between gate start and speed trap where typically they will have the same transponder number.

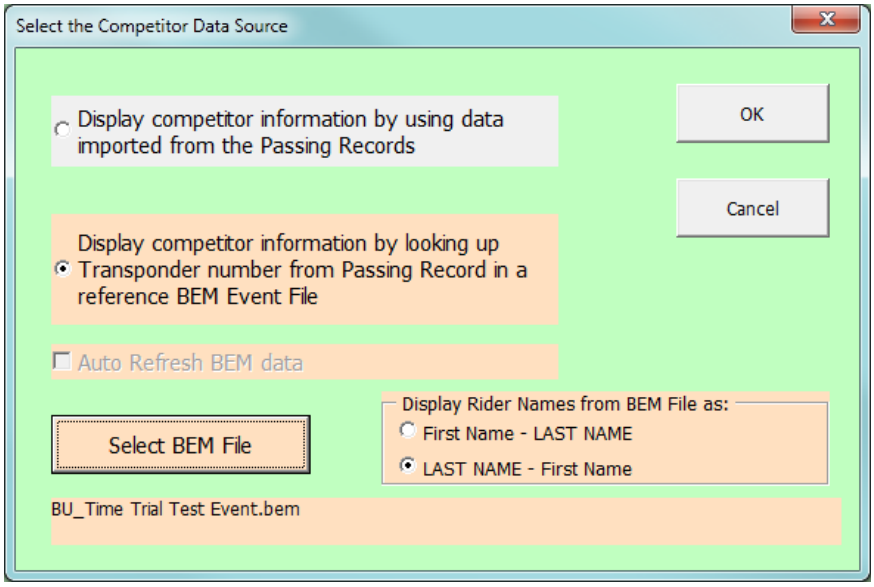
Trap Distance: Enter the precise distance in the selected Distance Unit the photo cells are apart. 0.7m in the example.
The distance can be more or less whatever suits the particular track layout with the restriction that where the time to traverse the trap exceeds 5 seconds, a speed will not be generated.

Staging Transponder Check

1. Run DataCollector / Timing and Scoring and:
    a. Set up an event with a single decoder for the loop to be displayed on the Scoreboard.
    b. If using competitor information from DataCollector / Timing and Scoring (not required if using a reference BEM Event file, under the Registration Tab, import the list of competitors, e.g. generated from BEM export.
    c. Under the Processing tab, got to “Live File settings” and set up the Live file export
        i. Export Type: “Save on deletion of file.
        ii. Export Path: e.g. C:\BEM\PASSINGS\
        iii. Export format: Tab delimited text file.
    d. Run a transponder across the loop and verify that the expected xxxx_LOG.txt passing file is generated.
    e. Minimise DataCollector / Timing and Scoring
2. Run BemTrain and setup the Scoreboard requirements for Staging Display with single loop monitoring.
    a. Set up must have only Loop 1 enabled. In Loop 1:
        i. Set the timeline name to match the DataCollector / Timing and Scoring setting.
        ii. Select the xxxx_LOG.txt passing file.
    b. Set Staging Transponder Check as the trigger in the Run Mode setting as per the screenshot below



3. Click on **Run Scoreboard**
   You then have the choice to either use names from DataCollector / Timing and Scoring passing records or to use a BEM file to look up the names from the Transponder Number in the passing record. (Same selection as for Fitting Station)



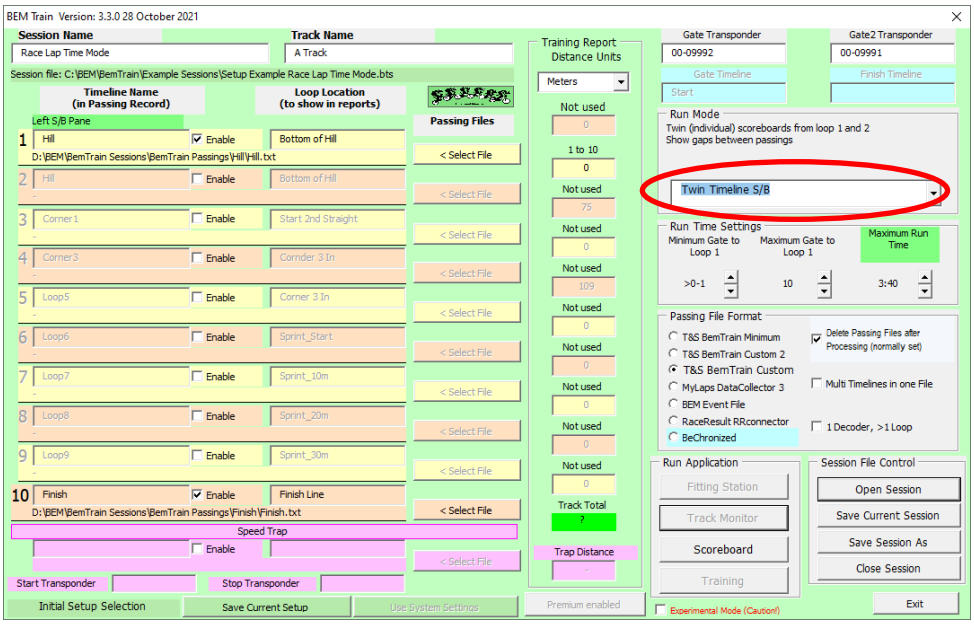
4. The **Scoreboard Control** screen is now shown.
   Here you can set the preferences for:
   a. Auto or Manual Clearing of the Scoreboard and the Auto clear time
      Gap time for Photo finish when the display timeline is the Finish. A value of 0 always shows the gap time.
   b. The Number of Passings Stored are shown (just total, no details) and a Delete Passings button (handy for simulation testing when you are using the same Finish_log.txt file over and over again).
5. When you click **Open Scoreboard**, the Scoreboard frame will open behind the control. I normally then drag this frame to the second (external) monitor leaving the Control window on the laptop screen.
6. **Start Capture** checks for new passings at around 100ms intervals and the button function changes to Stop Capture once it is in capture mode.

Twin Timeline Scoreboard Setup

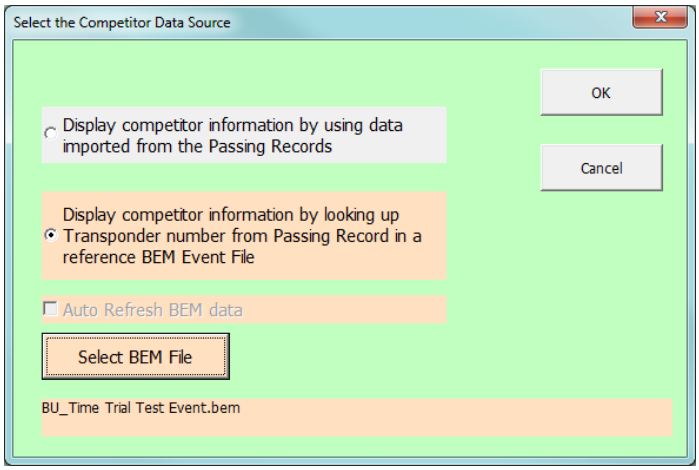
1. Run DataCollector / Timing and Scoring and:
    a. Set up an event with the two decoders for the two loops to be displayed on the Scoreboard.
    b. If using competitor information from DataCollector / Timing and Scoring (not required if using a reference BEM Event file, under the Registration Tab, import the list of competitors, e.g. generated from BEM export.
    c. Under the Processing tab, got to "Live File settings" and set up the Live file export
        i. Export Type: "Save on deletion of file.
        ii. Export Path: e.g. C:\BEM\PASSINGS\
        iii. Export format: Tab delimited text file.
    d. Run a transponder across each loop and verify that the expected xxxx_LOG.txt passing file is generated.
    e. Minimise DataCollector / Timing and Scoring
2. Run BemTrain and setup the Scoreboard requirements for Twin Timeline display.
    a. Set up must have Loop 1 enabled. In Loop 1:
        i. Set the timeline name to match the DataCollector / Timing and Scoring setting.
        ii. Select the xxxx_LOG.txt passing file.
        iii. Enter a short description in the Loop Location for display on the scoreboard.
        iv. Note that the loop on timeline 1 will be shown on the left side of the screen.
    b. Set up the second timeline to be displayed. Note that this can be any of locations 2 – 10 in BemTrain.

        For this location:
        i. Set the Timeline Name to match the DataCollector / Timing and Scoring setting.
        ii. Select the xxx_LOG.txt passing file.
        iii. Enter a short description in the Loop Location for display on the scoreboard.
        iv. Note that this timeline will be shown on the right side of the display.

c. Set the Run Mode selection to Twin Timeline S/B as per the screenshot below

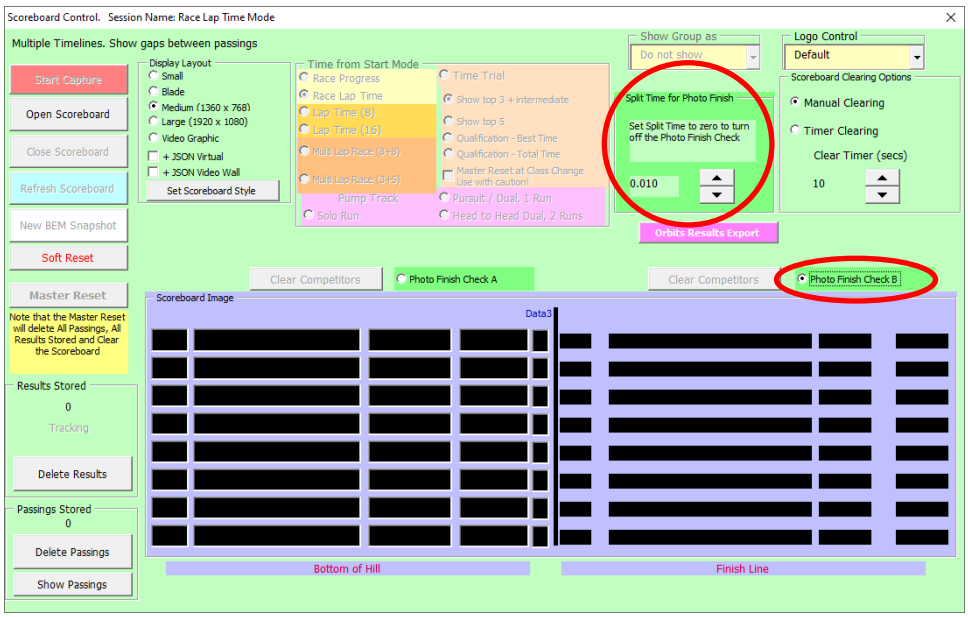


3. Click on **Run Scoreboard**
   You then have the choice to either use names from DataCollector / Timing and Scoring passing records or to use a BEM file to look up the names from the Transponder Number in the passing record. (Same selection as for Fitting Station)



4. The **Scoreboard Control** screen is now shown.
   Here you can set the preferences for:
   a. Auto or Manual Clearing of the Scoreboard and the Auto clear time

b. Gap time for Photo finish when either of the display timeline is the Finish. Example shows a photo finish gap time of 0.010 seconds for the right display. Note a value of 0 in the Photo Finish split time turns off the photo checking.



c. The Number of Passings Stored are shown (just total, no details) and a Delete Passings button (handy for simulation testing when you are using the same Finish_log.txt file over and over again).

5. When you click **Open Scoreboard**, the Scoreboard frame will open behind the control. I normally then drag this frame to the second (external) monitor leaving the Control window on the laptop screen.
6. **Start Capture** checks for new passings at around 100ms intervals and the button function changes to Stop Capture once it is in capture mode.

Pump Track Scoreboards

There are three pump track scoreboard options that have individual processing to reflect the various event formats. Typical timing loop configuration is a single Start/Finish loop with a rolling start.

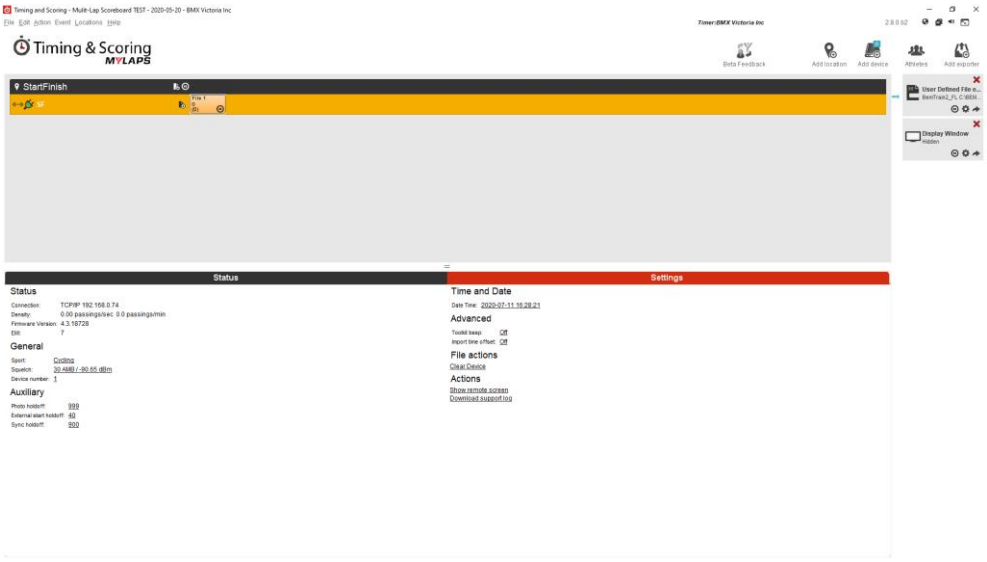
For Pursuit and Head to Head Dual formats, both Start/Finish loops should be connected to the one decoder or if two decoders are used, both should report the same timeline name, i.e. assigned to the same Location in Timing and Scoring.

Solo Run

With this format, BemTrain links the two riders to the same heat by virtue of consecutive starting order. Where there is a DNS or DNF result, a Soft Reset should be used before the next pair of riders start their run.

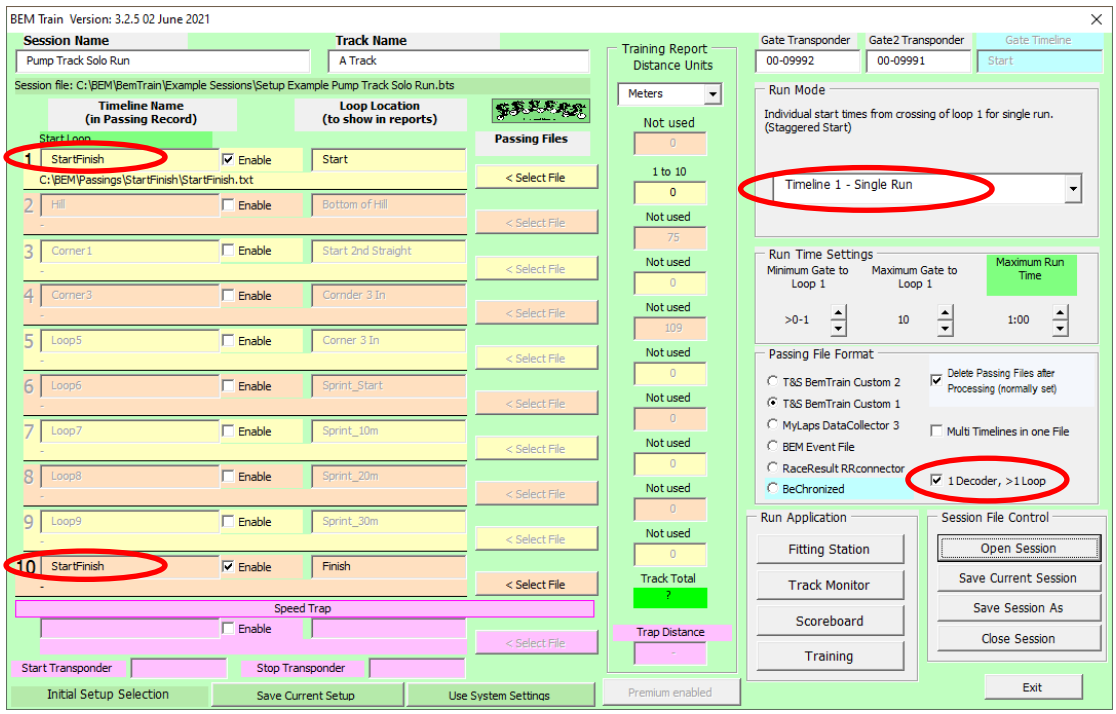
Typical setup for a Pump Track Solo Run with a rolling start and a single Start/Finish loop is shown below. Note the same Timeline Name for both loops and the **1 Decoder, > 1 Loop** option selected.

Timing and Scoring setup example.



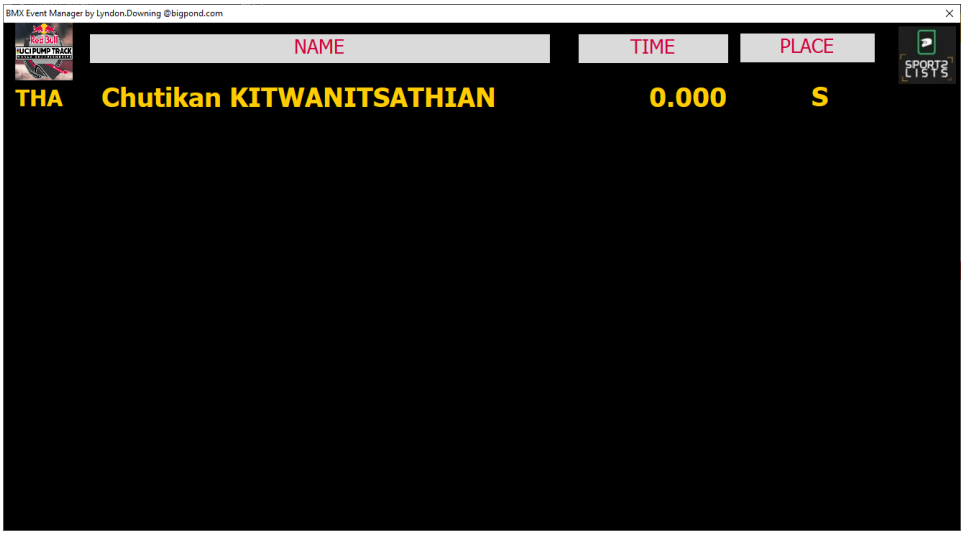
BemTrain setup example.

Note the one physical timeline is configured as virtual Start and Finish timelines in BemTrain using the same Timeline Name for both loops and the **1 Decoder, > 1 Loop** option selected.

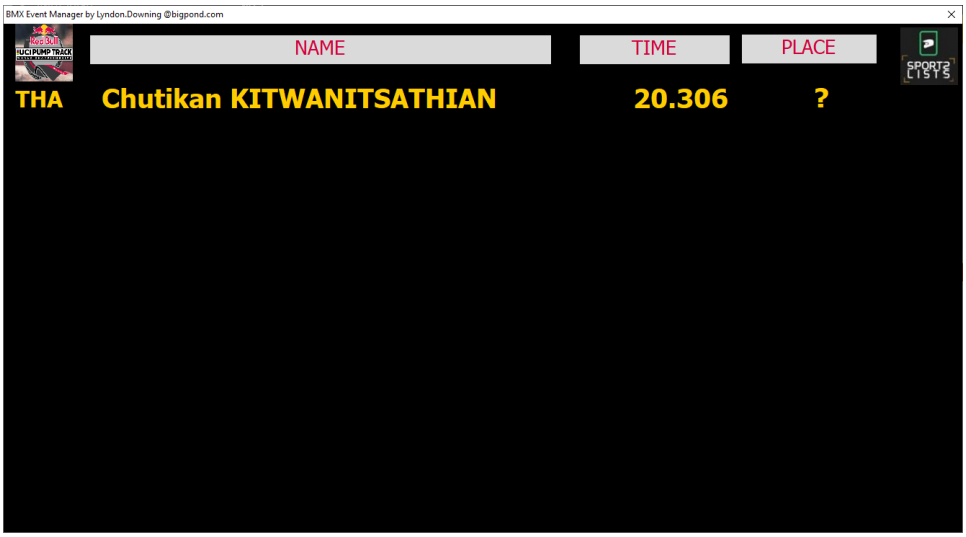


Scoreboard Displays for Solo Run

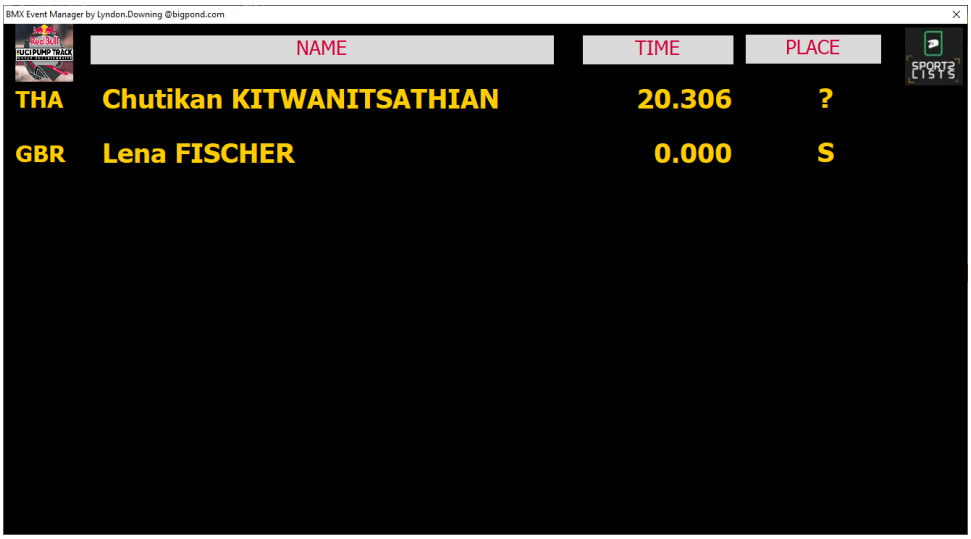
- After the first rider has started.



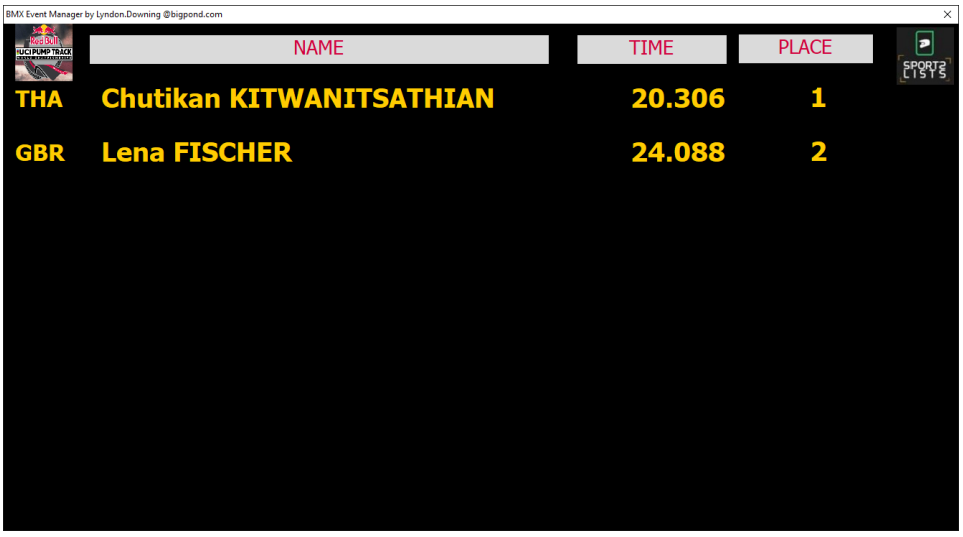
- After the first rider has finished.



- After the second rider has started.

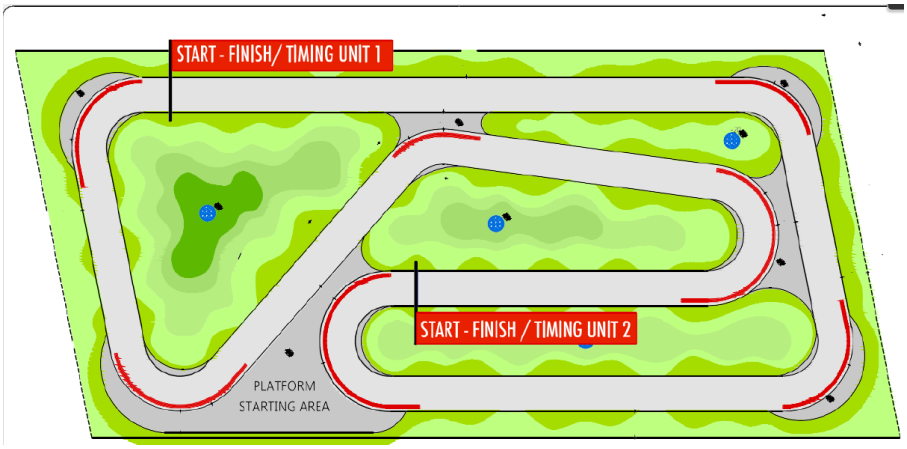


- After the second rider has finished, places for the heat are shown.



Pursuit and Head to Head Single Run

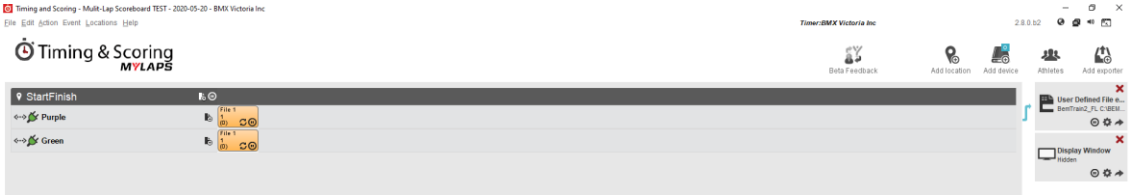
With this format, BemTrain links the two riders in the same heat based on their run start time. For a rolling loop start time, both riders in the one heat must start within 8 seconds of each other (usually much closer than that). Where there is a DNS or DNF result, recommended action is to do a Soft Reset before the next heat starts.



Example Pursuit track layout from UCI Rule Book Part 4, Mountain Bike, version 01.01.2019.

Typical setup for a Pump Track Pursuit or Head to Head Single Run on a 2 lane track with a rolling start. Separate Start/Finish loops for each rider that can either be both connected to the one decoder or where separate decoders are used, have both decoders assigned to the same location in Timing and Scoring.

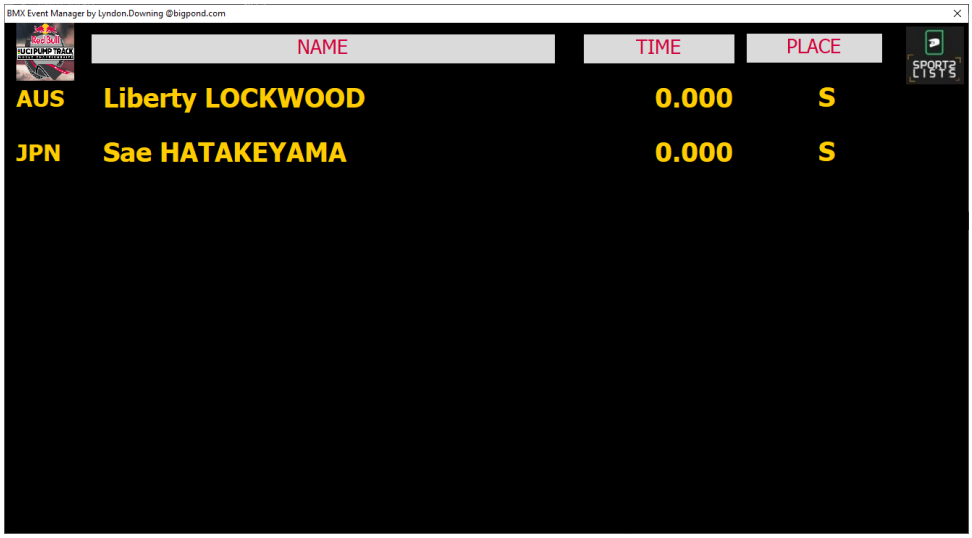
Timing and Scoring Pursuit setup example with a separate decoder for each loop.
Note the Purple and Green decoders both assigned to the StartFinish location.



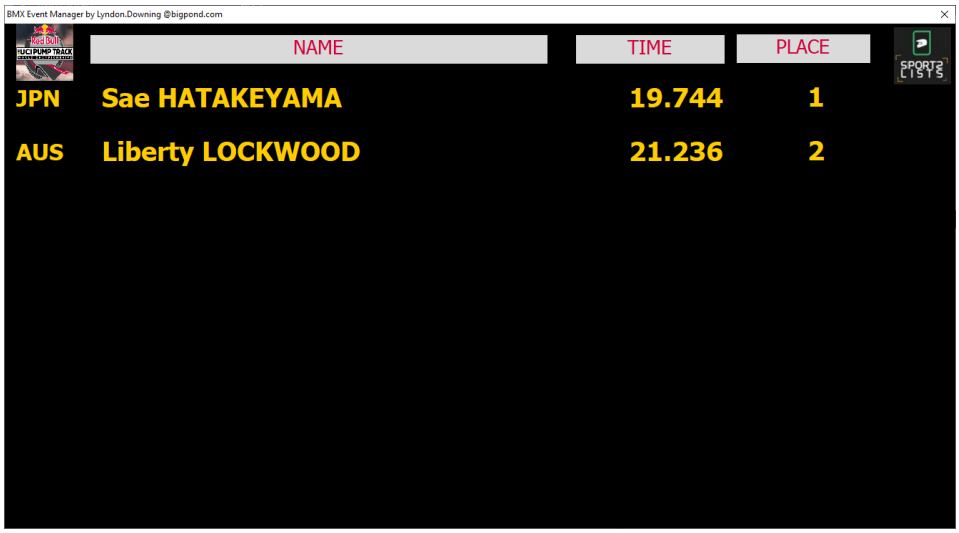
BemTrain Pursuit setup example applicable to both loops into the one decoder or separate decoders.

Scoreboard Displays for Solo Run

- After both riders have started.



- After both riders have finished.



Head to Head - Dual

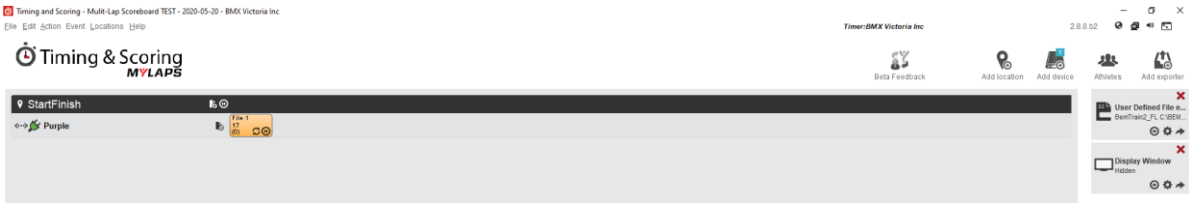
With this format, BemTrain links the two riders in the same heat based on their run start time. For a rolling loop start time, both riders in the one heat must start within 8 seconds of each other (usually much closer than that) and then links the two run together after the second run.

Note that a Master Reset must be performed before the start of each stage for BemTrain to correctly identify the riders first and second runs in the stage.

Example Head to Head Dual track layout from UCI Rule Book Part 4, Mountain Bike, version 01.01.2019.

Typical setup for a Pump Track Head to Head Dual will use a common Start/Finish loop with a rolling start. Where separate Start and Finish Loops are used, each of the Start loops can be either connected to the same decoder or the separate decoders connected to the same Location in Timing and Scoring. Same scenario for the Finish Loops.

Timing and Scoring Head to Head Dual setup example with a common Start/Finish loop or separate Start/Finish loops for each track connected to one decoder.

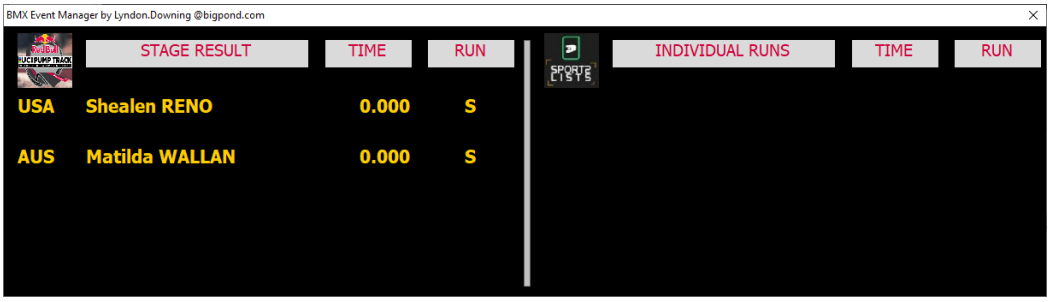


BemTrain Head to Head Dual setup example where each track has a common Start/Finish loop. Applicable to both loops into the one decoder or separate decoders.

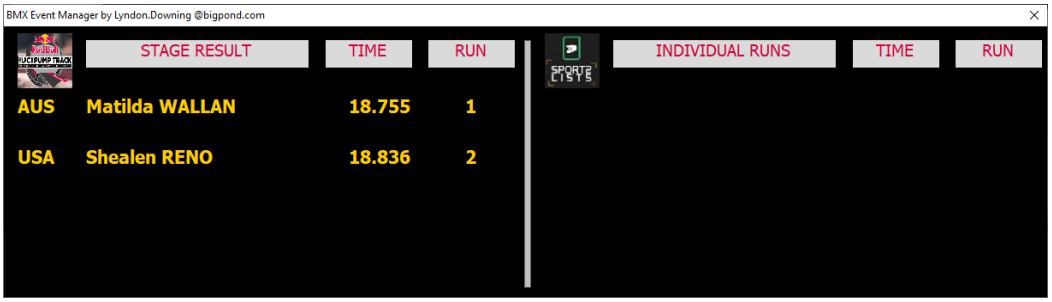
Scoreboard Displays for Solo Run

Note that this example uses the Video Graphic Scoreboard selection.

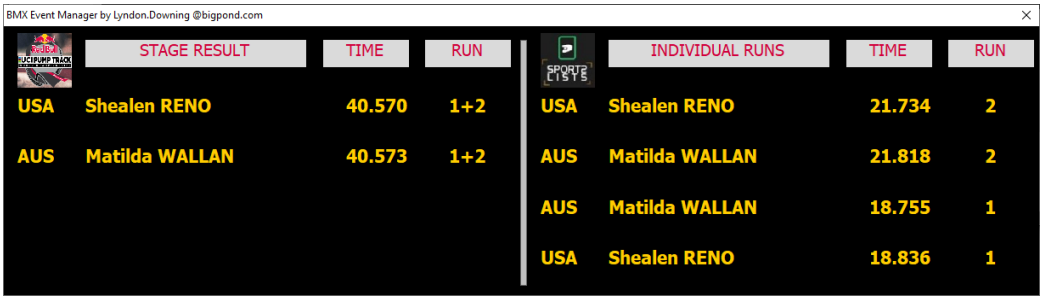
- After both riders have started Run 1.



- After both riders have completed Run 1



- After both riders have completed Run 2

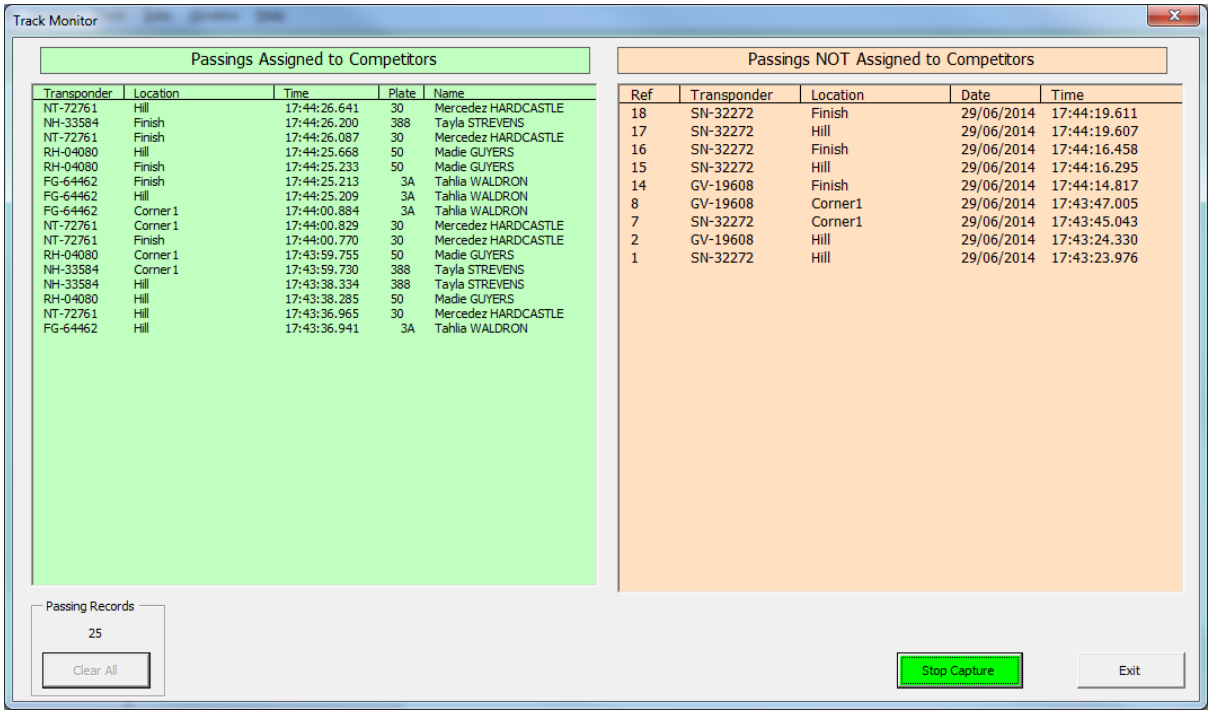


Track Monitor Overview

The Track Monitor application allows an easy way of monitoring competitors on the track during practice to check that all transponders detected are registered to competitors in the event and if required, checking that competitors are practicing in their assigned time slot.

When the display of competitor information is from a BEM event file, a report can be generated showing the number of passings not assigned to competitors, passings assigned, a detailed listing of riders in the event who haven't registered a passing and (optional), a list of transponders with passings that are not assigned in the reference BEM event.

Monitoring can used from 1 to 10 timelines with the display showing Assigned and Not Assigned passings in separate panes. E.g.



The reference for transponder to competitor name allocation can be from either the passing records or an operator selected BEM Event File.

Track Monitor Setup

1. Run DataCollector / Timing and Scoring and:
    a. Set up an event with as many decoders as required.
    Normal configuration would be to use all available timelines so that the progress of any unassigned transponder(s) around the track can be easily seen and the competitor identified and intercepted.
    Recommended if a transponder test station is being used, that passing from that decoder are also captured during practice by Track Monitor.
    b. Recommended setup is to select the backup BEM event file as the competitor reference with the Auto Refresh option so that the competitor reference is always up to date and also enables the Transponder Registration report and functions.

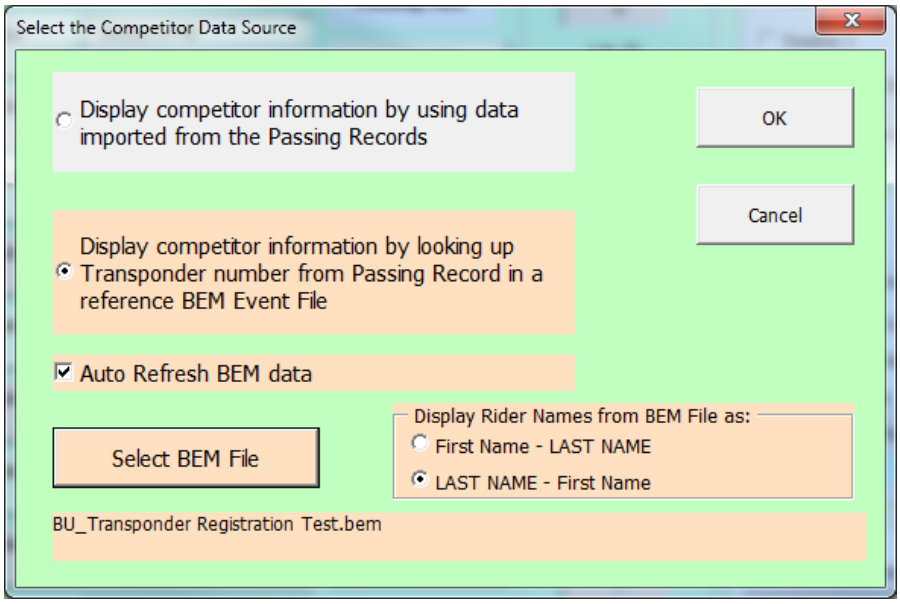
c. If using competitor information from the Passing Records (not required if using a reference BEM Event file), under the Registration Tab in DataCollector or Athlete Import in Timing and Scoring, import the list of competitors, e.g. generated from BEM export.

d. Set up the live file export as appropriate in the decoder interface program you are using. E.g. DataCollector, Timing & Scoring or race|result Connector.
For DataColector, under the Processing tab, got to “Live File settings” and set up the Live file export
   i. Export Type: “Save on deletion of file.
   ii. Export Path: e.g. C:\BEM\PASSINGS\
   iii. Export format: Tab delimited text file.

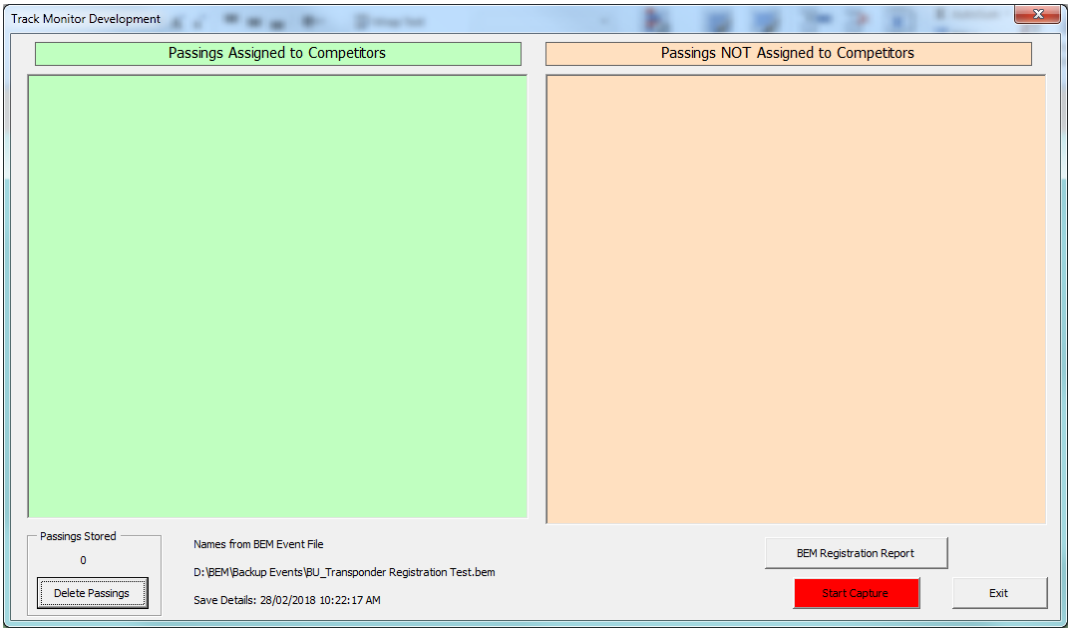
e. Run a transponder across each loop and verify that the expected xxxx_LOG.txt passing file is generated.

f. Minimise DataCollector / Timing and Scoring

2. Run BemTrain and setup the loop requirements for the Track Monitor.
Note Loop 1 must be enabled.
   a. For all enabled loops:
      i. Set the timeline name to match the passing records data.
      I.e. Decoder name in DataCollector / Timing and Scoring or Timeline name in Timing & Scoring.
      ii. Select the xxxx_LOG.txt passing file.
      iii. Enter a short description in the Loop Location.
3. Set the Run Mode to Timeline 1.
4. Set the Passing File Format to match the exporter.
5. Save the Session File.
6. Click the Track Monitor button in the Run Application group.
You then have the choice to either use names from DataCollector / Timing and Scoring passing records or to use a BEM file to look up the names from the Transponder Number in the passing record.



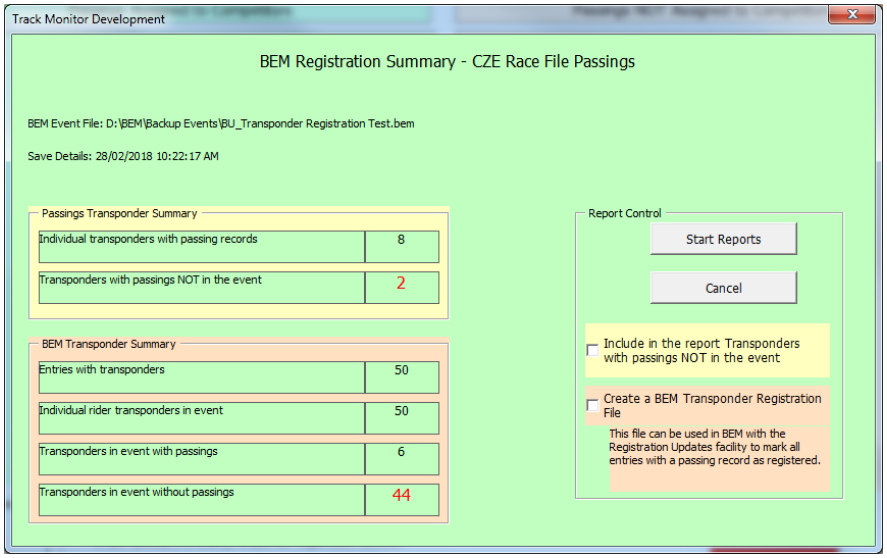
7. The Track Monitor screen is now shown.
   Note that the BEM Registration Report button is only enabled when display competitor information from a BEM file is selected.
   Click the **Start Capture** button to start the monitor.



   Note that you can Clear All records if required when the capture is inhibited but is not recommended if using the Registration Report.

   a. Passings that have transponders assigned to competitors are shown in the left pane.
   b. Passings where the transponder number is not assigned to a competitor are shown in the right pane with an audible alert to draw the operator's attention to the error.

8. Clicking the BEM Registration Report button displays the Registration stats and report options



   In this rather contrived example, the key data is that there are 2 transponders with passings where the transponder numbers are not allocated in the reference .bem event file and that there are 44 riders in the .bem event file whose transponders have not recorded a passing.

   a. The "Include in the report Transponders with passings NOT in the event" option is provided should the operator not wish to include this information. E.g. if accidentally importing a large number of passings that are not relevant to this event.

b. The “Create a BEM Transponder Registration File” option creates version of the .bem event file with a TP_REG_ prefix that has all riders with transponders who have a passing recorded flagged as Registered.
This file can be used in BEM with the Registration Updates facility to mark all entries with a passing record as registered.

9. Clicking Start Reports prompts the operator to select a folder and file name to save the html format Registration Report. Once the report file is saved:
   a. A file complete message is given with the save path and file name.

The report is displayed on screen in print preview mode so that it can be printed if required.
E.g. to give to the announcers so that riders listed can be called up to check their transponders.

Track Monitor Example

BMX EVENT MANAGER, BEM TRAIN Report Created 03/Mar/2018 17:01:11

BEM Registration Summary - CZE Race File Passings

BEM Event File: D:\BEM\Backup Events\BU_Transponder Registration Test.bem
Save Details: 28/02/2018 10:22:17 AM

Passings Transponder Summary

Individual transponders with passing records	8
Transponders with passings NOT in the event	2

BEM Transponder Summary

Entries with transponders	50
Individual rider transponders in event	50
Transponders in event with passings	6
Transponders in event without passings	44

Transponders in event without passings

GROUP	NAME	CLASS	PLATE	TRANSPONDER	Label
TJ Favorit Brno	Radim BOČEK	Boys 11/12	90	FP-18366	501
?Club Unknown?	Jakub CIDLINSKÝ	Boys 15/16	22	FP-03436	506

Laguna cycles team	Tadeáš ČUŘÍK	Boys 15/16	80	KF-37263	508
Bikrosclub Řepy	Viktorie DORŇÁKOVÁ	Girls 11/12	13	FP-42743	510
?Club Unknown?	Bohuslav DOSKOČIL	Men 40 & over	97	NK-49174	511
?Club Unknown?	Nikola DVOŘÁKOVÁ	Girls 15/16	96	PV-65584	512
?Club Unknown?	Pavel EDL	Boys 15/16	68	SK-91024	545
Bikrosclub Řepy	Václáv FILIP	Boys 11/12	70	RV-72334	514
Bikrosclub Řepy	Pavel FOLTÁN	Boys 11/12	78	NK-52249	515
BIKE TEAM Uničov	Kristýna HAVLÍČKOVÁ	Girls 15/16	19	FV-19204	516
BMX & 4X TEAM OLYMPUS	Michal HRAZDÍRA	Boys 15/16	01	CL-53849	517
Bikrosclub Řepy	Bruno HUDÁK	Boys 11/12	76	VF-83954	518
Bikrosclub Řepy	Marek JANDA	Men 40 & over	58	VC-93363	519
?Club Unknown?	Lukáš KADLEC	Boys 15/16	54	FZ-37622	520
BMX & 4X TEAM OLYMPUS	Sára KALÁBOVÁ	Girls 11/12	4	PV-69968	521
SK Jantar Opava	Jakub KLEMENT	Boys 15/16	04	NK-39368	522
?Club Unknown?	Michal KOMNÍČEK	Boys 15/16	50	PV-15308	523
?Club Unknown?	Petr KOTVAS	Boys 11/12	94	PV-12244	524
?Club Unknown?	Jan KRACÍK	Boys 15/16	18	NK-17716	525
BMX & 4X TEAM OLYMPUS	Ondřej KŘÍŽOVIČ	Boys 11/12	04	NK-39458	526
Bikrosclub Řepy	Viktor LOVĚTÍNSKÝ	Boys 11/12	40	RK-08488	527
TJ BMX Pardubice	Pavel LUKAŠÍK	Boys 15/16	58	FG-34772	552
Bikrosclub Řepy	Jiří MÁDR	Men 40 & over	15	RC-90708	509
Bikrosclub Řepy	Vít MÁDR	Boys 15/16	32	FP-69291	529
B4 Team	Kryštof MALIŇÁK	Boys 11/12	44	PV-64872	530

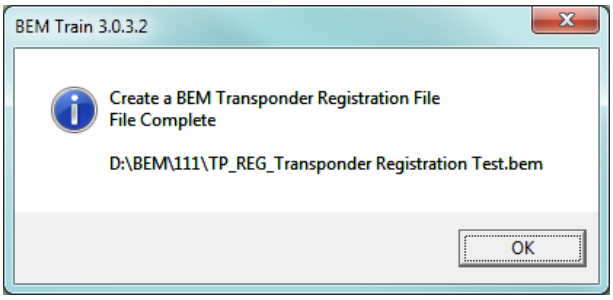
Bikrosclub Řepy	Jakub MALÝ	Boys 15/16	92	TW-85738	531
Bikrosclub Řepy	Lisa MICHNA	Girls 11/12	22	VC-99205	532
?Club Unknown?	Matyáš ORAVEC	Boys 11/12	28	TV-49935	533
?Club Unknown?	Filip OREL	Boys 15/16	60	TW-14715	534
?Club Unknown?	Tomáš OTEVŘEL	Boys 11/12	72	TV-37460	535
Bikrosclub Řepy	Barbora PETROVÁ	Girls 15/16	89	TX-86223	536
?Club Unknown?	Jan POŘÍZEK	Boys 15/16	74	TW-06578	537
?Club Unknown?	Radek PRUDIL	Men 40 & over	70	VF-98081	538
Bikrosclub Řepy	Stanislav RADOSTA	Boys 15/16	52	VF-10568	539
Bikrosclub Řepy	Adam SEDLÁČEK	Boys 11/12	54	TX-64336	540
?Club Unknown?	Jiří SMÉKAL	Boys 15/16	96	SK-44659	541
?Club Unknown?	Šarlota STAŇOVÁ	Girls 15/16	63	SX-52574	542
BMX & 4X TEAM OLYMPUS	Agáta SVOBODNÍKOVÁ	Girls 11/12	47	HR-57368	543
Bikrosclub Řepy	Stella TAMME	Girls 11/12	18	SK-43483	544
?Club Unknown?	Tereza TYLOVÁ	Girls 11/12	27	TN-99711	546
?Club Unknown?	Tereza VANČOVÁ	Girls 15/16	79	SV-72066	547
CYKLOTEAM ABOS	Lubor VAŠÁT	Men 40 & over	22	SL-37724	548
BMX & 4X TEAM OLYMPUS	Richard ŽÁK	Boys 11/12	38	ST-96752	549
TJ Favorit Brno	Daniel Jiljí ŽALMAN	Boys 15/16	94	SX-56455	550
Bikrosclub Řepy	Kristýna ZVOLSKÁ	Girls 15/16	41	TX-23391	551

Transponders with passings NOT in the event

TRANSPONDER	PASSINGS COUNT	LAST PASSING	
		DATE - TIME	LOCATION

AA-12345	2	14/02/2018 - 12:35:43.873	Hill
ZZ-98765	1	19/01/2018 - 15:59:30.063	Hill

b. When closing the report and the create BEM file option was also selected, this will be saved in the same folder with the prefix TP_REG_ added to the original .bem event file name. E.g.



System Requirements

- 32 or 64 bit versions of Windows XP, Windows Vista, Windows 7 or Windows 8 (except for the tablet only Windows 8 RT)
- Excel version Office 2010 (recommended) or 2003, 2007.
  Not compatible with Office 2013 or later versions including Office 365.

Timing System Interface Requirements

- MyLaps ProChip Transponder System.
  - MyLaps DataCollector for Scoreboard, Fitting Station and Training.
  - MyLaps Timing and Scoring (free from MyLaps) can be configured for Training, Scoreboard and Fitting Station requirements.
- RaceResult Active Transponder System.
  - Interface defined and functionally tested. Full interface availability requires a new passing export facility being developed by RaceResult with an anticipated availability of October April 2015.
- BeChronized Transponder System.
  - Interface defined and functionally tested. Full interface availability requires a new passing export facility in the process of being developed by BeChronized.
- Tag Heuer Protime RC Transponder System
  - Under consideration.

=== End of Document ===