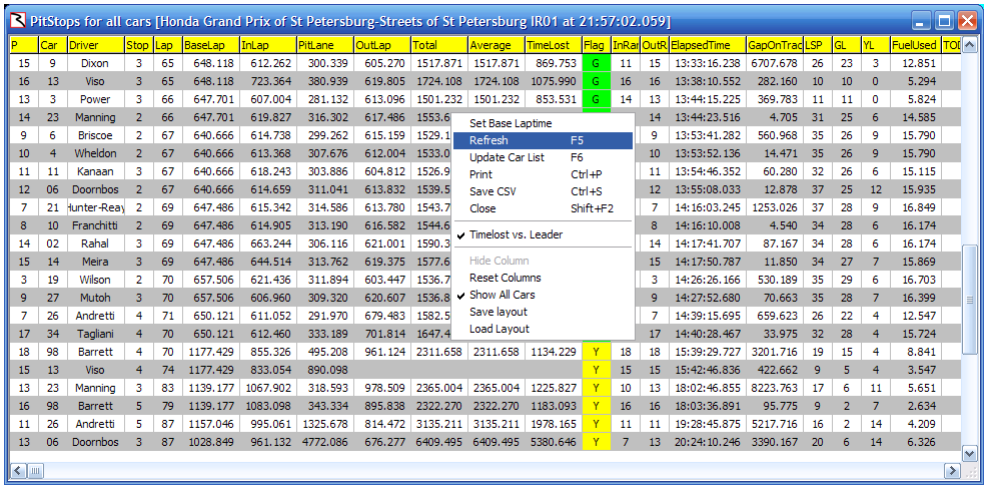
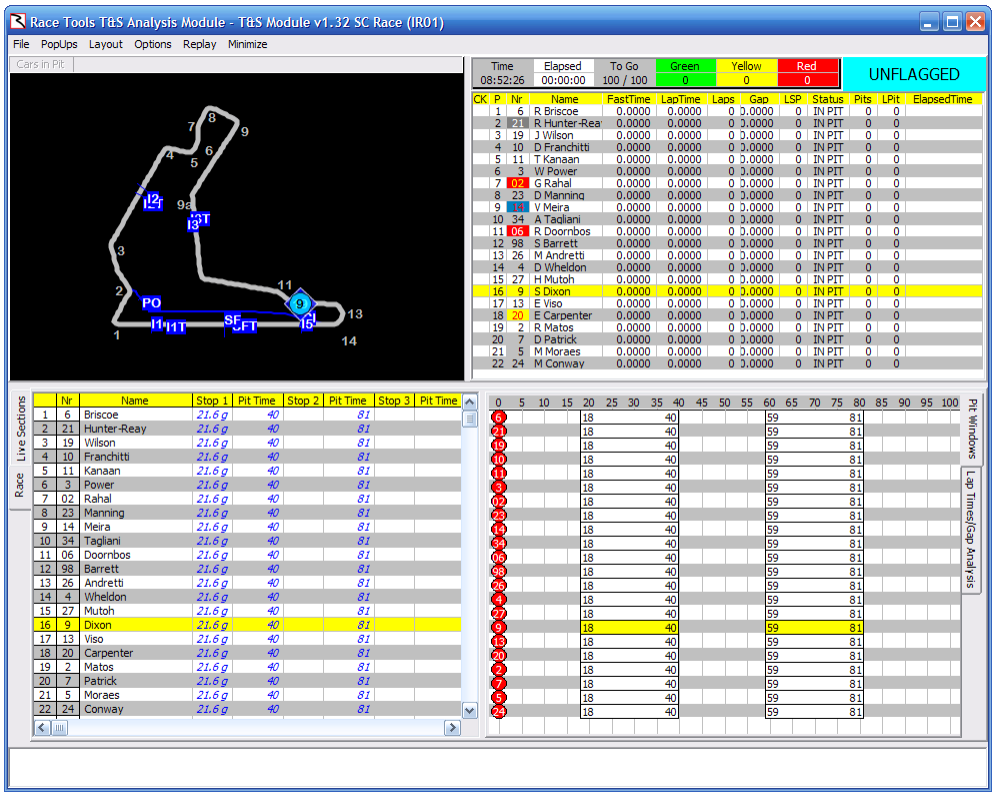
Analyzing Pit Stops

The Pit Stop Analysis (Shift+F2) report provides the InLap, PitLane, and OutLap times for each pit stop. The Total is the sum of the three, which is normally equal to two laps, but if the pit lane does not intersect the S/F line, the total is actually equal to one lap. The BaseLap can be set to the leader's previous lap laptime (as indicated in the popup menu), the competitor's previous laptime (default), or a user configured lap time (Set Base Laptime). The BaseLap is used to determine the TimeLost. In this example, because we are simulating the remote pit lane scenario found at Sao Paulo, the numbers are not accurate, but the idea is that the TimeLost is the difference between the equivalent number of base lap laptimes and the sum of the InLap, PitLane and OutLap times (Total). The report shows the track status when the car entered the pits, the rank at the start of the InLap, the rank at the end of the OutLap, the ElapsedTime at Pit In, the GapOnTrack is actually the Gap at the Pit In Line. The LSP is the Laps Since Pit or number of laps in the stint. The GL and YL are the Green Laps and Yellow Laps of the stint. A must start and end under green to qualify as a green lap. The FuelUsed is the number of Green Laps x Green Lap Fuel Economy + Yellow Laps x Yellow Lap Fuel Economy. If the calculated Fuel Used is more than the capacity of the fuel tank (22 gallons), then the Fuel Economy numbers (see below) being used are wrong and should be adjusted. Note that you will need to refresh (F5) the report to get the most current information. The report is not automatically updated.

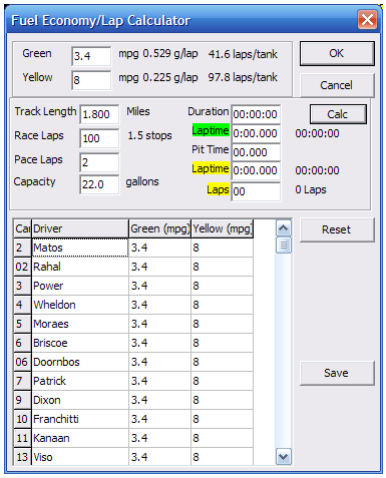


P	Car	Driver	Stop	Lap	BaseLap	InLap	PitLane	OutLap	Total	Average	TimeLost	Flag	InRan	OutR	ElapsedTime	GapOnTrac	LSP	GL	YL	FuelUsed	TOT
15	9	Dixon	3	65	648.118	612.262	300.339	605.270	1517.871	1517.871	869.753	G	11	15	13:33:16.238	6707.678	26	23	3	12.851	
16	13	Viso	3	65	648.118	723.364	380.939	619.805	1724.108	1724.108	1075.990	G	16	16	13:38:10.552	282.160	10	10	0	5.294	
13	3	Power	3	66	647.701	607.004	281.132	613.096	1501.232	1501.232	853.531	G	14	13	13:44:15.225	369.783	11	11	0	5.824	
14	23	Manning	2	66	647.701	619.827	316.302	617.486	1553.6					14	13:44:23.516	4.705	31	25	6	14.585	
9	6	Briscoe	2	67	640.666	614.738	299.262	615.159	1529.1					9	13:53:41.282	560.968	35	26	9	15.790	
10	4	Wheldon	2	67	640.666	613.368	307.676	612.004	1533.0					10	13:53:52.136	14.471	35	26	9	15.790	
11	11	Kanaan	3	67	640.666	618.243	303.886	604.812	1526.9					11	13:54:46.352	60.280	32	26	6	15.115	
12	06	Doornbos	2	67	640.666	614.659	311.041	613.832	1539.5					12	13:55:08.033	12.878	37	25	12	15.935	
7	21	Hunter-Reay	2	69	647.486	615.342	314.586	613.780	1543.7					7	14:16:03.245	1253.026	37	28	9	16.849	
8	10	Franchitti	2	69	647.486	614.905	313.190	616.582	1544.6					8	14:16:10.008	4.540	34	28	6	16.174	
14	02	Rahal	3	69	647.486	663.244	306.116	621.001	1590.3					14	14:17:41.707	87.167	34	28	6	16.174	
15	14	Meira	3	69	647.486	644.514	313.762	619.375	1577.6					15	14:17:50.787	11.850	34	27	7	15.869	
3	19	Wilson	2	70	657.506	621.436	311.894	603.447	1536.7					3	14:26:26.166	530.189	35	29	6	16.703	
9	27	Mutoh	3	70	657.506	606.960	309.320	620.607	1536.8					9	14:27:52.680	70.663	35	28	7	16.399	
7	26	Andretti	4	71	650.121	611.052	291.970	679.483	1582.5					7	14:39:15.695	659.623	26	22	4	12.547	
17	34	Tagliani	4	70	650.121	612.460	333.189	701.814	1647.4					17	14:40:28.467	33.975	32	28	4	15.724	
18	98	Barrett	4	70	1177.429	855.326	495.208	961.124	2311.658	2311.658	1134.229	Y	18	18	15:39:29.727	3201.716	19	15	4	8.841	
15	13	Viso	4	74	1177.429	833.054	890.098					Y	15	15	15:42:46.836	422.662	9	5	4	3.547	
13	23	Manning	3	83	1139.177	1067.902	318.593	978.509	2365.004	2365.004	1225.827	Y	10	13	18:02:46.855	8223.763	17	6	11	5.651	
16	98	Barrett	5	79	1139.177	1083.098	343.334	895.838	2322.270	2322.270	1183.093	Y	16	16	18:03:36.891	95.775	9	2	7	2.634	
11	26	Andretti	5	87	1157.046	995.061	1325.678	814.472	3135.211	3135.211	1978.165	Y	11	11	19:28:45.875	5217.716	16	2	14	4.209	
13	06	Doornbos	3	87	1028.849	961.132	4772.086	676.277	6409.495	6409.495	5380.646	Y	7	13	20:24:10.246	3390.167	20	6	14	6.326	

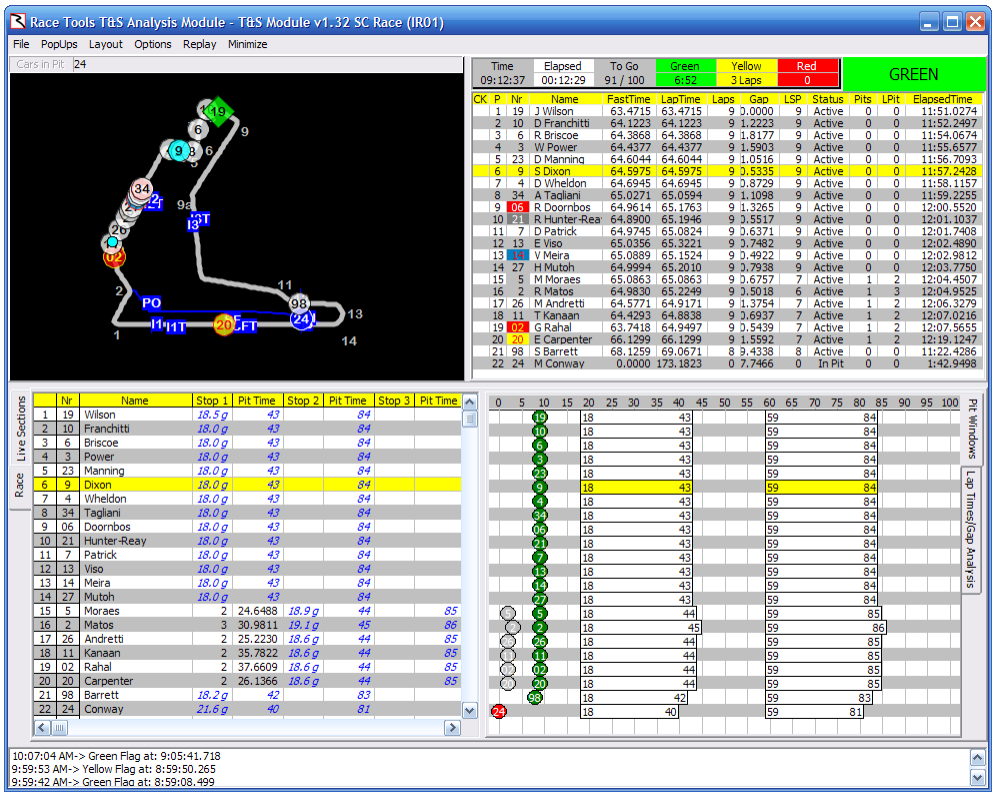
Another useful tool is the Pit Windows display. The Race/Pit Windows tab displays projected and completed pit stop information. The left hand side shows the amount of fuel in the car (this is a calculated value, not from the team's telemetry) and the lap they need to pit by in blue. The right side of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



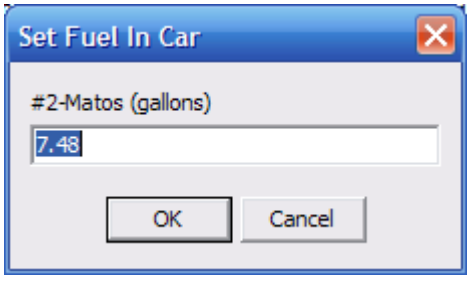
You can access the Fuel Economy dialog box by double clicking on the Pit Stop table. You can set global Green and Yellow Fuel Economy numbers and apply them with the Reset button. You can edit the mpg figures for each competitor individually in the table. You should save these so that they will be used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



After pit stops are taken, the pit windows are updated. In this example, a number of cars went into the pits on laps 2 and 3 and so their pit windows are adjusted accordingly. Because the first few laps were run under yellow, the pit windows for all competitors were expanded, but those that pitted were expanded more.



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



Near the end of the race, you can see that although cars 26 and 20 are running up front, they still need to pit and in this case, car 20 is already in the pits for their final stop. The grey dots show previous pit stops (option/show all pit stops). The black dots designate cars that are out of the race. Their pit windows are no longer valid and thus not shown.