

# LapMaster – Version 3.18

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## LapMaster – Version 3.18



(Scale car's ready at the starting line of the author's private racetrack.)

### Introduction

LapMaster is a computer program that handles and controls the execution of a slot car race event.

- ✧ It supports tracks with 1 to 8 lanes.
- ✧ It times and counts the number of laps for each lane and contestant in the race.
- ✧ Every lap is timed with the precision of 1/1000 of a second, and high scores (Track records) are recorded.
- ✧ It times the duration of each stint and intermissions.
- ✧ It manages the execution of an entire race of up to 256 participants, and with the stages of:
  - Registration.
  - Qualification.
  - Heat racing (Several different modes)
  - Final results and statistics, celebrating victory etc.
- ✧ New lap-records, start-of-race and other features of the race are commented vocally using the audio speakers of the computer.
- ✧ Temporary interruption of the race, "Track calls", can be activated using the onscreen "Buttons", the "space bar" or a [Remote control](#). This interruption can both be on a running race (Track call), but can also be used to extend a timed intermission between stints.

- ✱ The screen layout is optimized to use a 1024\*768 pixel format, and the main screen is designed to be readable from a distance of several meters.
- ✱ Supports optional use of dual-monitors.
- ✱ Celebrate victory by printing result list's, [Statistics](#), [diplomas](#) and/or [publishing the result](#) on the internet.
- ✱ Optional combined "[ScoreBoard](#)" with additional information for the entire race, not just the current heat.
- ✱ Ability to publish real-time status directly to internet ( [LiveTiming](#) ).
- ✱ Ability to store results and statistics directly to internet or print.
- ✱ The ability to [WEB-Connect](#) multiple LapMaster systems via TCP/IP (Local LAN or Internet) to form gigantic slotracing events, and display all information on a combined scoreboard.
- ✱ Point's system makes it possible to directly race against other tracks in real time, despite the differences in tracks and car performances.
- ✱ Track time seller mode for commercial race tracks.

## Initial installation

*(This section of the help file will automatically be displayed the first time you start the LapMaster program.)*

### Software install

The LapMaster program must be installed on a Windows based computer (Win-XP, Vista or Windows/7).

#### **Serial-to-USB cable:**

Actual it is not just a cable, but an USB device is hidden inside the cable.

Therefore you need to install an appropriate driver for the cable.

The operating system might have a driver that appears to support a generic version of such cables, but it is our experience that they can be less stable than the supplied driver. So look at the LapMaster CD.

You should find a folder for "Prolific USB-to-Serial Comm Port" inside there you should either run the "Vista\_Win7\_Installer" for Vista or Win/7 systems.

For XP systems you should continue to the "XP USB TO RS232 Cable(PL2303HX)" and "PC Driver", then run the "setup".

#### **Note on Upgrade:**

If you are doing an upgrade, you should always remove the previous version first. You do this using the standard "Control panel" and "Remove program". This will retain your custom settings and data, so that they can be reused with the upgraded program.

To reinstall completely from scratch, without retaining any of your settings, history files, race results or any other customizing you might have done, then also delete the "C:\LapMaster" directory before reinstalling.

#### **LapMaster:**

To install the software, simply click on the "LapMasterSetup3.xx" program on the LapMaster install CD, or download the latest version from

[www.LapMaster.dk](http://www.LapMaster.dk)

A shortcut to the LapMaster program is automatically placed on the "Desktop" and in the "All Programs" list.

The next step is to connect your hardware (see below), and then customize your settings for LapMaster so that it will suit your needs the best.

During the customization process, LapMaster creates a

"c:\LapMaster\LapMaster.ini" file that contains all your individual settings.

#### **Maintenance:**

LapMaster also maintains its list of lap records in

"C:\LapMaster\LapMasterRecords.ini". You can edit or delete this file if you want to correct track records after the fact.

All of your racing history is logged to "C:\LapMaster\History" You might want to clear or archive the history maybe once a year.

If you use the “Publish to WEB” facilities to automatically publish race results, then a copy is also maintained on your harddisk in “C:\LapMaster\Results”. You might want to prune that over time as well. To totally reset the result index on the internet, delete the file “C:\LapMaster\Results\LapMasterResultLink”, and the next time you upload a result, it will start on a fresh new index list.

## Initial program setup

Before you use the LapMaster program for the first time, you must set it up to match your race track. This is done in two parts, first the program setup and then the track setup.

### Program setup:

1. Start the program, I.E. by double clicking on the LapMaster shortcut. When it loads, you will start in the [Main display](#)
2. First select the [Race Setup](#) button to enter the race setup menu.
3. Then select the [Program Setup](#) button to enter the program setup.
4. Select the COM port that you have connected the LapTimer-II device to or simply press “Search” to let the program find the COM port. The “Search” assumes that you have a connected a LapMaster device, and that it is powered on. Otherwise it will not be able to find it. If you already know on which COM port you connected the LapMaster unit, you can set it manually. If you manually select “(None)” you will be able to run LapMaster in simulation mode without the hardware. (**Note:** Connecting the USB cable to a different USB port on your computer is most likely going to assign a new COM port the device.)
5. Next you should select the language you want. Press the “Change” button, open the directory appropriate directory, and then select the “Dictionary” file.
6. If you change either the COM port or the Language, the program will issue a message that it will restart. Just press ok and reload the program again.

### Track setup:

After a program restart you will again find yourself in the main display.

1. You must again enter the [Race Setup](#)
2. Select the [Track Setup](#) button to enter the track setup.
3. Fill out the information about your track, the length, the colour and rotation scheme etc. Use the “Help” if you need guidance on any of the track setup information.

You are now ready to use the program. See section “[Running a race](#)” on how to use the program.

## Hardware



The LapMaster program uses the service of the LapMaster hardware. This comes in a 4-lane and an 8-lane version.

Inside the unit is 1 or 2 computer boards (4- or 8-lanes) and also a small radio receiver for the wireless remote control unit.

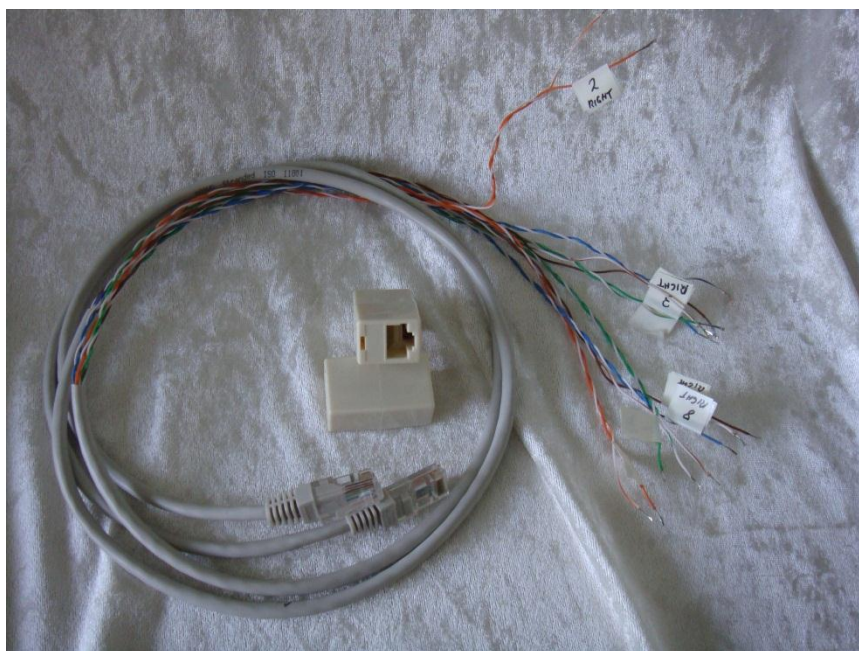
### **Computer connection:**

The LapMaster hardware has a RS-232 (Serial) port. This can connect directly to a computer that has a serial port. However this has become rare. Modern computers use the much more versatile USB ports. To connect to an USB port, you need to use a Serial-to-USB converter.

One has been supplied with the hardware. Note that you should read in the driver for the converter before you use it. (See under Software).

### **Dead-strip:**

A dead-strip is a small section of track (~20 cm) with the electric power rails isolated from the rest of the track. This part of the track carries no power and the cars can only “roll” over it, thus the term dead-strip. You should make the isolation between the power rails long enough that the guide braid cannot make contact on both the power rails and the dead-strip at the same time.



The dead-strip is connected using the kind of multi-wire cables also used as computer LAN cables. Each has 4 pair of wires. Each pair consists of a solid colour and a white with a stripe in the same colour as the solid. The pair has been clearly marked as to what lane, and also the solid colour cable must go to the right side of the track. (As seen from above in driving direction. This is also known as the plus side of the power). It is very important that the polarity is correct. The dead-strip is powered to make sure we can count even if the car stops on the counter. However when the car crosses at speed, it act like a generator and actual supplies voltage to the dead-strip. When connected correctly this voltage adds to the bias voltage, make it easier to count. If the dead-strip wires are reversed it will counteract, making it harder to count.

The LapMaster delivery include 2 or 4 Lan-cable connector blocks. This allows you to extend the length of the wires from the LapMaster box to your dead-strip very easy with standard computer Lan-cables. These cables are cheap, easy to get hold of and comes in virtual any length.

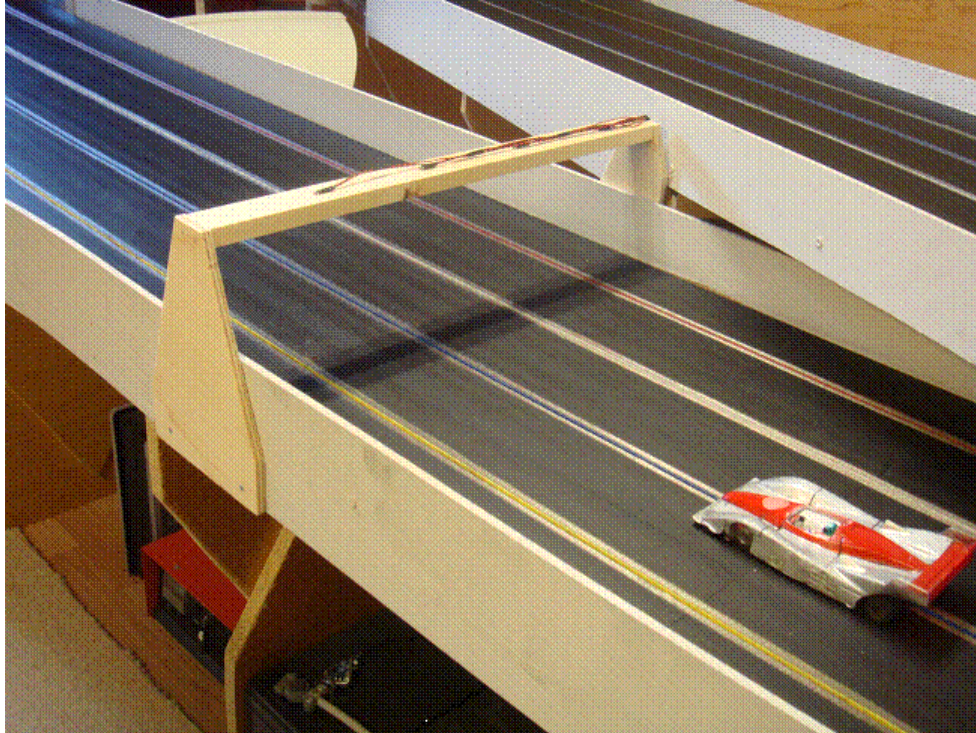
The dead-strip will not function if your track is wired for reverse driving unless you reverse the dead-strip wires as well. The simpler solution is to reverse the wires of the car. Then you can run in reverse direction with no problem.

**Note:** If you use a voltmeter to measure the bias voltage on the dead-strip, you should find between 3-6 Volts with plus **to the left**. Maybe this will seem strange to you, but think on a 2 battery flashlight. To add voltage you need to have plus on one battery touch minus of the other. If you reverse one battery, the flashlight will not work.

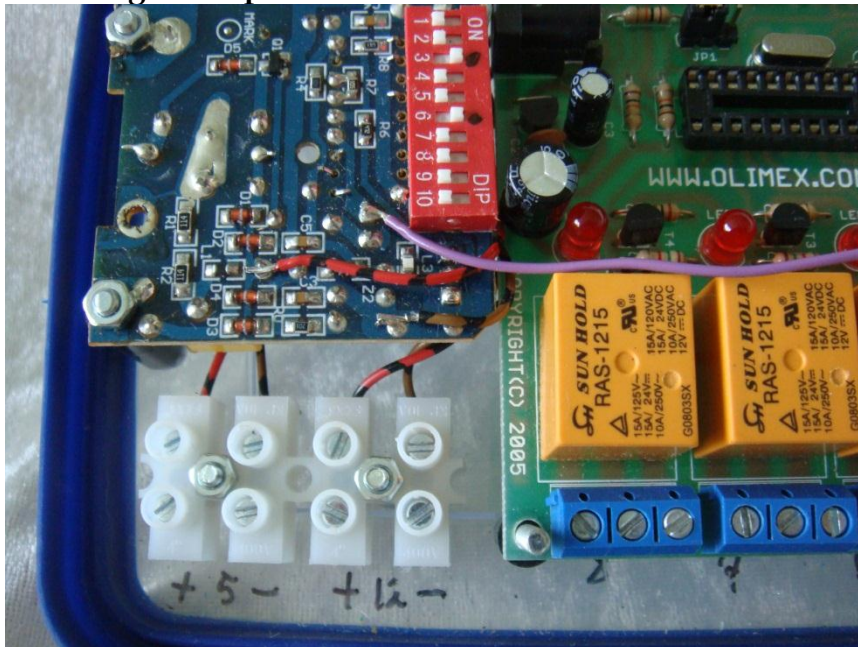
**IR-Sensors:**

To use infra-red sensors with LapMaster, you need an external detector/amplifier.

For a description on the IR-sensor system, see [IR sensor for LapMaster.pdf](#)



### Powering the LapMaster unit:



The LapMaster unit needs a 12 Volt (minimum 400 mA) power supply for the computer boards and built-in relays.

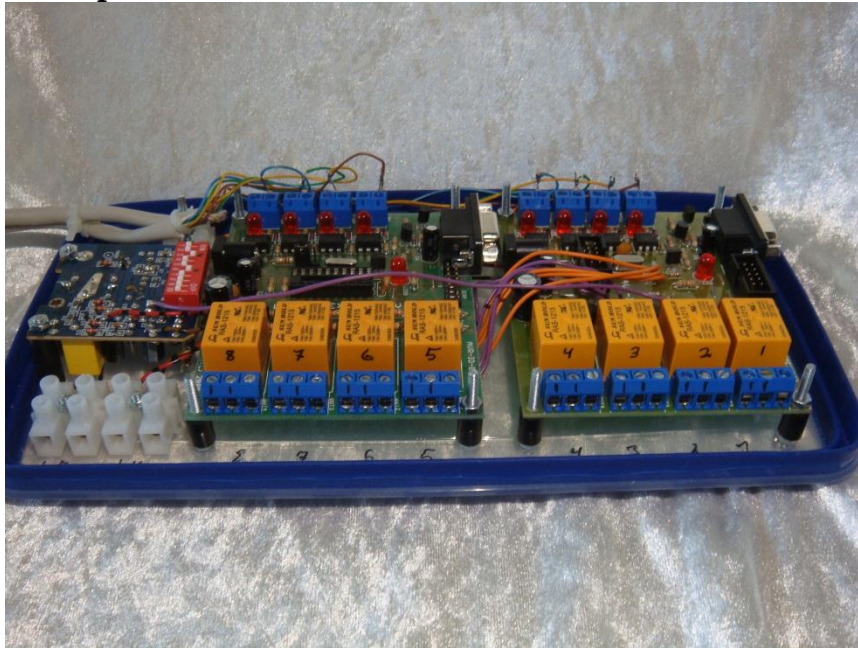
Connecting your 12 Volt to your track power supply is not recommended, as you will be inviting a lot of electrical noise into the computer system. A separate power supply is the better alternative. The 400 mA is a minimum requirement.

You can use power supplies with higher ratings, but they are not better though usual more expensive. The performance will be exactly the same.

You also need a 3 to 6 Volt, nominal 5 Volt (minimum 50 mA) power supply to drive the dead-strip.

You attach the power supplies at the designated screw terminals. **Make sure you get the polarity correct.**

**Track power:**



LapMaster comes with 8 or 4 output power relays. You can wire LapMaster to control everything from just the #1 relay, or you can use 1 relay per lane (Default).

1 relay per lane is preferred, as it allows LapMaster to control each lane individually. E.g. if no driver is assigned to a lane, then there will be no power on the lane either.

If you decide to go with a single relay only, you need to configure this in the [Track Setup](#)

The relays has a maximum rating of 15 Amp. This is usual not enough for a commercial grade racetrack. In that case you must provide external high power relays.

Existing tracks have these already, otherwise it is recommended to use automobile 75 Amp/12 volt relays similar to these:

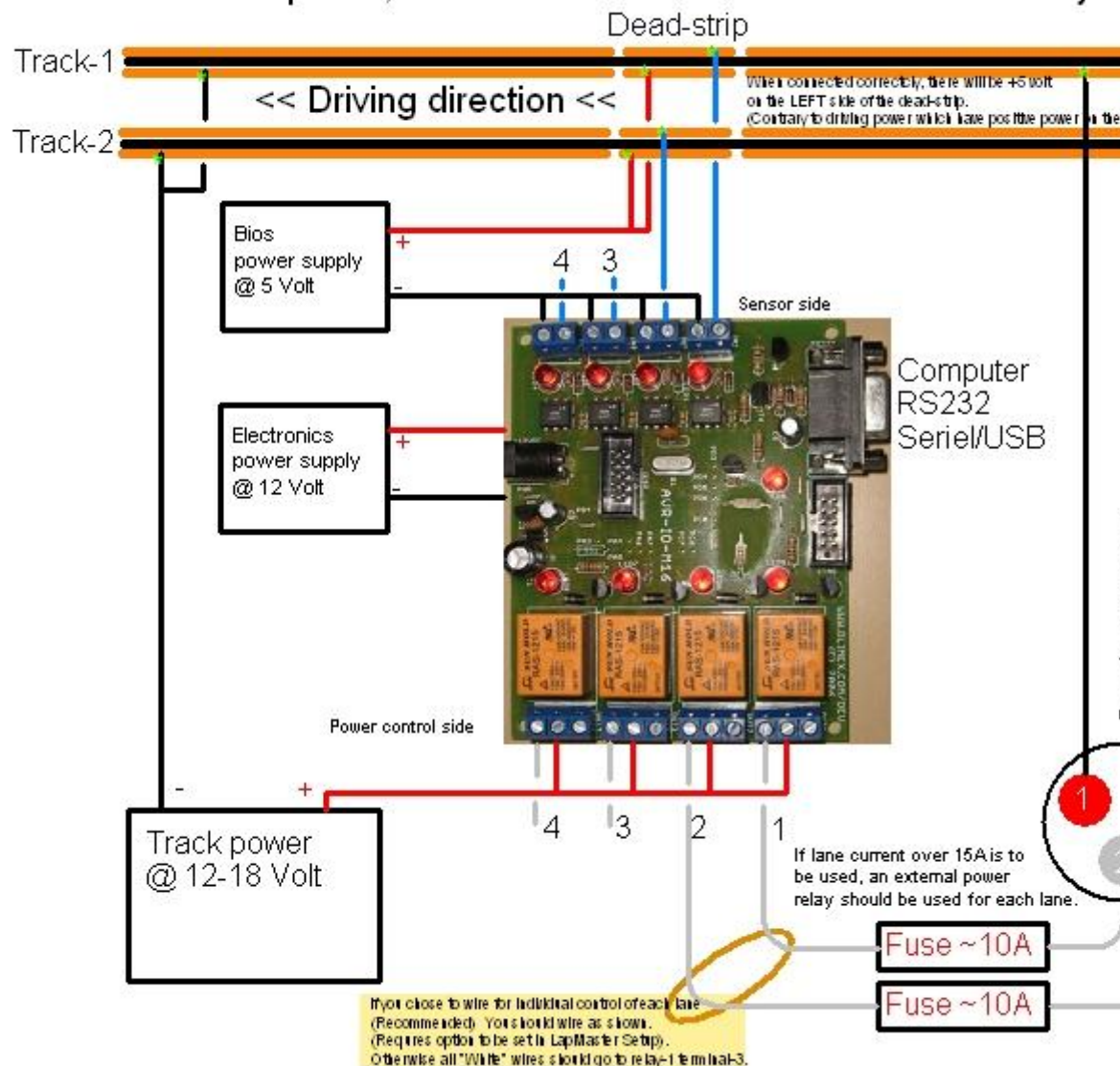


At any rate it is definitely recommended to use fuses. 10 Amp for most, or even 20 to 40 if you race the most power hungry cars like Opens or Eurosport. Power like this is no joking matter. Use fuses or risk fire or damage to track/wiring/LapMaster/Controllers or your power supply.

When a short-circuit happens (and it they will, e.g. someone hooking the controller up wrong), then something has to give. It better be a 25 cent fuse than your 500 USD controller or LapMaster or worse.

This wiring diagram might help you hook up all the wires correctly.

## Connection of track-power, Danish standard XLR connectors/Banana-jack



Note that the middle screw terminal is the common wire.

When the relay is unpowered it is connected to the right screw terminal, and when the relay is powered it is connected to the left.

You would normally use the left and the middle screw terminal.

However if you want your system so that it has power when the computer and LapMaster is off, then use middle and right terminal.

You will then need to go into [Track Setup](#) and set the "Reverse relay connection" for the system to function.

**P.S: Do not use excessive force when tightening the screw terminals. Excessive force has been known to break the screw terminals connection to the printed circuit board.**

## Running a race – A short guide

When you start the programme after initial setup, you will start in the “Free practice” mode, which means power is ON, the counter and timers are running, and you can power ON/OFF using the remote control or spacebar. As this mode says, this is intended for simple practice on the track.

If you have many drivers that all needs to practice at the same time, you might find the “Timed practise” usefull. In this mode you set a fixed amount of practise time. When this time is up, power is turned off, and the drivers asked to give up their practise lane for someone else. After a small break (set by intermission time), power is restored and the cycle continues until you take the system out of “Timed practise”.

However to organize a real race, you will have to work a little more with the program.

A real race involves 4 distinct stages:

Preparation.

Qualification in order to determine the ranking of drivers into heats.

The actual race, consisting of several stints and possibly several heats.

Celebrating victory.

Lets take a closer look at these stages.

### Preparation

Preparation can again be subdivided into 2 stages, which must be carried out in no particular order.

#### Setting the parameters of the race.

You do this using the [Race Setup](#) panel.

- The first ting to consider is the **race type**. You will eventually set this to “**Heat race**”, but if you are planning to do qualification by racing, you must initially set this to “**Qualification**”.
- Then you should set the **racing class**, so that track records will be compared and classified in the appropriate class.
- You can optional name your **event** for reference. I.E. “Club championship 2007”
- Next thing to consider is the **stint time**, This determines how many seconds you intend to race in each stint. For sprint races “2:00” or “120” for 2 minutes, or “5:00” or “300” for 5 minutes are good numbers.
- The **Intermission time**, is the time between stints that the driver has to move to another lane. “1:00” (60) or “2:00” (120) are common values for 1 or 2 minutes intermission.
- **Warm-up time**, is usual “1:00” (60) seconds. The race controller is free to issue as many warm-up periods as he pleases.
- In the qualification group, **Qualification time** should be set. It is usual “1:00” (60) seconds but can be set at any number the race controller wishes.
- **Qualification lane** must be chosen. LapMaster will only record the

qualification result on the selected lane. However there is also a setting for "All tracks" if your racing rules allow for free selection.

- **Qualification mode** must also be selected. "Fastest lap" is the most common method, but some race series also uses the "furthest distance" method.

- The **min lap time** is an important parameter to set. You should set this at something like current track record for the class minus 0.5 second.

- If you want to inspect the advanced options is up to you. For a first attempt, I would check "**Auto rider track call**", "**Announce trackrecords**" and "**10 sec warning**", "**Pling on fast lap**", and leave all other off.

- Click OK to leave the Race Setup panel.

### Editing the entry list.

You enter the names of all the drivers using the Entry/Qualify panel.

- If not done already click on **Clear all**.

- Now click on the top empty box of the driver coloum. This will open up a **field edit** dialog. Enter the name of the first driver and press **enter**. The system automatically advances to the next driver field.

- Repeat this for all the drivers.

- Alternatively you can load a previous stored list, or you can pick from your catalog of usual drivers.

That's it for the entry list. If you want to save this list for later, use the **save** button.

Click OK to leave the Entry/Qualify panel.

## Qualification

Qualification is the process of determining the starting order and seeding into race heats. This can be done 3 ways, **random** by computer, **manual** or by **racing**. We will describe here how it is done by racing.

If you have setup the computer as described above you are now ready for doing qualification. You should be at The main display and the top left corner should say **nn/mm Qualification** where nn is the latest entry number, and mm is the total number of entries. The first driver should be assigned to the lane selected for qualifying, and the next in line also displayed to the right. The race controller must now ask the first driver to prepare himself, and we are ready to do qualification.

1. If the race controller so chooses, he can provide a **warm up** period by pressing the "**WarmUp**" button. When the warm up is over, he can again hit "**WarmUp**" and allow the driver to drive to the starting line. The "**WarmUp**" button has now become a "**(Cancel)**" button, and when the car reach the starting line, clicking on "**(Cancel)**" prepares us for race.

2. The race controller must now click on the **“Start”** button. This will start the count down announcement in the speaker system, and then turn on power etc. When the allotted time is over, the result is automatically recorded in the [Entry/Qualify](#) list.

Alternatively you can start the race from the remote by pressing “Off” (to go to “trackcall”), and then press “On” to start.

This is repeated until all drivers have raced their qualification. The progress can be examined using either the [Result](#) or the [Entry/Qualify](#) panel in the intermissions.

LapMaster has an optional feature to support “Buy-rounds” during qualification. This means that a racer can break off qualifying, to come back later, at a cost of a given amount of qualification time. If you select “Buy round”, the racer is automatically placed at the back of the qualifying order, and the remaining qualification time is calculated and automatically controlled.

When qualification has been completed the race director have one more task to do, and that is to assign the heat and starting lane numbers for the main race. This is again done in the [Entry/Qualify](#) panel.

- First the entries need to be sorted according to result. You do this by clicking on the **“Qualifying result”** heading. The first click sorts with lowest value (best time) in the top. A second click reverses the order to have the highest number (Longest distance) on top.

- Having sorted the entries, you click on **“Assign heat and lanes”**, to have the computer do this for you. If you forgot to sort, you get a warning. There are several options that you can use to distribute how many drivers you would want in each heat, but for this advanced option you will have to look it up in the [Entry/Qualify](#) chapter. For now we will use the standard heat and lane distribution.

- Click OK to return to the main panel.

- The final step before racing is to enter the [Race Setup](#) panel and change the **race mode** from **qualifying** to **Heat race**. Click on OK and we are now set to go racing.

- You could also have used the shortcut **“Go race”** button from [Entry/Qualify](#) and skipped the entry into the [Race Setup](#) panel.

## Racing

The main display should now show that we are ready for racing. The name of the drivers on each lane is displayed.

- The race controller has the option to grant a **Warm-up** by clicking on the button.
- Then when ready the race controller must initiate the first stint of each heat by clicking on the **Start** button. However for the rest of that heat all stint and lane changes are under program control.
- Should a situation arise that requires a **track call**, the race director can click on **Pause**, press the **space-bar**, or use the **remote control**.
- When all heats have been raced, the race is over. During the race, the progress can be monitored on the main display or scoreboard.

## Celebrating victory !

We hope you have enjoyed your first race. !

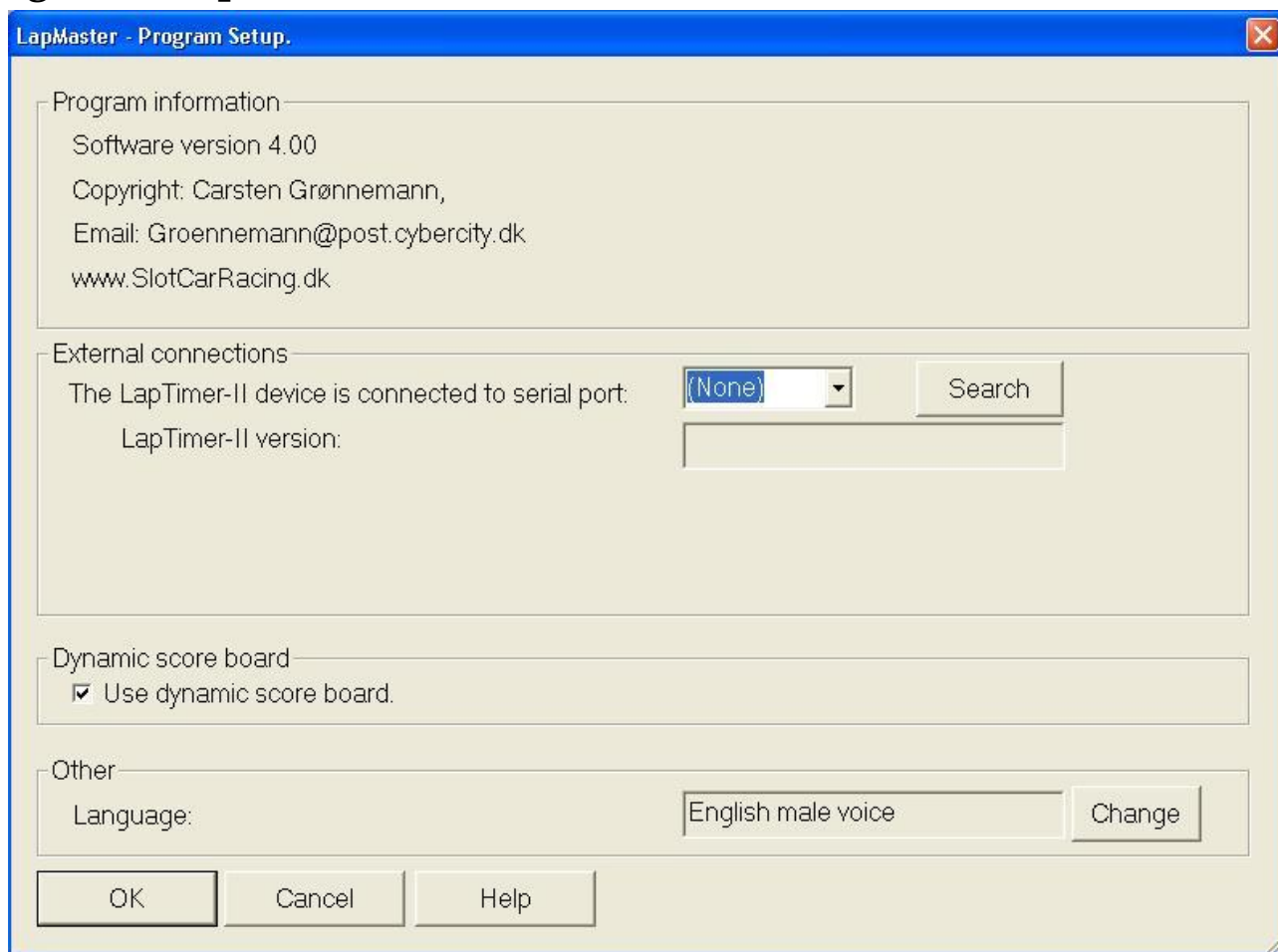
You can now display and print the result using the [Result](#) panel.

You can display and print the track records using the track record button on the [Main](#) display.

You still have the option to celebrate the victories, by printing nice diploma's for the 1,2,3 or who ever you want, from the [Result](#) panel.

You can also save the result or even publish it on the internet using the "Save" and "Web Result" options on the [Result](#) panel.

## Program setup



The screenshot shows the 'LapMaster - Program Setup' dialog box. It has a blue title bar with a close button. The dialog is divided into four sections: 'Program information' (Software version 4.00, Copyright: Carsten Grønnemann, Email: Groennemann@post.cybercity.dk, www.SlotCarRacing.dk), 'External connections' (The LapTimer-II device is connected to serial port: (None) [Search], LapTimer-II version: [ ]), 'Dynamic score board' (Use dynamic score board: [checked]), and 'Other' (Language: English male voice [Change]). At the bottom are OK, Cancel, and Help buttons.

On this screen you setup program parameters. This is usually only done once. You can navigate to the Program Setup from the [Race Setup](#) panel. After having made changes to this panel, the program might issue a message that calls for a program restart.

### **The LapTimer-II device is connected to serial port:**

You can chose COM1 to COM20 as the serial interface for the hardware. Alternative you can chose "None" in which case there is no input to the program.

You can however still use emulation mode, i.e. to test the program.

If you do not know which COM port the LapTimer-II device is connected to, press the "Search" button, and LapMaster will try to locate the LapTimer-II device for you.

### **LapTimer version:**

If a LapTimer-II device is connected, an identification of the firmware will be displayed in this field.

**Use dynamic score board.**

If you check this option you will enable the use of a second page of additional race information. The [ScoreBoard](#) is designed to work together with the XP, Dual-display configuration.

When running with two monitors, you will have the space to display both at the same time. Alternatively if you have 4 lanes or less, you might have room for the ScoreBoard in the unused space of the main display.

The ScoreBoard is a real-time ranking list of all drivers in the race. (Not just the ones on the track).

**Language.**

This is the language used by the LapMaster program. Both on the menus and as the spoken language over the loud-speaker system.

You can select between:

- English – Andy Wasserman
- English female voice
- Dansk herre stemme (Danish, male voice)
- Dansk dame stemme (Danish, female voice)
- Deutsche weibliche Stimme (German, female voice)
- Svensk manlig röst (Swedish, male voice)
- Norsk herre stemme (Norwegian, male voice - Actual Norwegian text, Danish voice)

When you press the "Change" button, you can select the directory that contains the language customization. Inside this directory you need to select the "Dictionary.txt" file to activate the new language.

If you change the language you will need to restart the program.

It is possible to add another language yourself. To learn how this is done, read the ["Customized language"](#) chapter.

## Track setup

LapMaster - Track setup

On this screen you define the parameters of your track.  
(You typically only does this once.)

Name of your raceway: LapMaster development

Length of track in meters: 25

Number of sections on track: 100

Starting from section: 0

Number of lanes: 8

Prefer lane numbers over colors: ☐

Reversed remote trackcall: ☐

Control power to each lane individual: ☒

Reversed relay connection: ☐

Lane color

1 Red

2 White

3 Blue

4 Yellow

5 Black

6 Gray

7 Green

8 Orange

Lane Rotation - Normal

1 ==> 2 Simple up

2 ==> 3 Simple down

3 ==> 4 European up

4 ==> 5 European down

5 ==> 6

6 ==> 7

7 ==> 8

8 ==> 1

On Deck Lane: 4

OK Cancel Help

This screen is typically only used once, to define the physical characteristics of the track to which the LapMaster system is connected.

You can navigate to the Track Setup from the [Race Setup](#) panel.

✳ **Name of your raceway:**

Enter the name you use for your track or club. This will be displayed on top of the Main screen, unless you fill out the “Event” on the [Race Setup](#) panel. It will also be available on printed diploma’s and WEB result lists.

✳ **Length of track in meters:**

Enter the length of the track in metres. Currently not used for anything. Might later be used for speed and statistical purposes.

Valid data is from 1 to 200 meters. No decimals are allowed.

☀ **Number of sections on track:**

Number of laps is usual not enough to determine the winner of a race. For this reason tracks are usual subdivided into a number of sections.

LapMaster accepts a section count between 4 and 100. Based upon the time elapsed from last lap-count until power goes off, LapMaster estimates the number of sections for a driver. This must however be verified before use. I.E. if the driver falls off the track on the last round the estimation will be way off.

The value in this field defines how time is converted to sections and displayed as lap decimals. If you have 25 sections, lap counts could be i.e. from 134.00 to 134.24. One section more would be displayed as 135.00. However section time can never convert into the whole part of the lap count.

If however you are running in the “Challenge” mode, totals are accumulated, and then in this case, sections can add up to be carried into the whole number of laps.

It is recommended to use either the number of real sections marked on the track, or 99 to give a decimal appearance.

☀ **Starting from section:**

By definition the counter position on the track defines the starting point of sections. However the starting line on your track might be located anywhere on the track relative to the counter. In this field you define in which section the starting line is located.

**Note:** This value will not have any influence on the counting. It will however be used by the statistics system.

As a sample; if you start the cars right after the counter, the counter is in the “maximum number of sections” section. On the other hand, if the counter is located, a few meter in after the starting line, you will probably be in section 5 or 10 or something like that.

☀ **Number of lanes:**

This is the physical number of lanes on your track. Any number between 1 and 8 is accepted.

Note: If you change this value you should usually also change the Lane Rotation.

☀ **Prefer lane numbers over colors:**

By default, the verbal announcer will attribute, I.E. a new track record to the lane colour selected. However if you check this field, the announcer will use lane numbers rather than colour's.

☀ **Reverse remote trackcall:**

Depending on the actual model of the remote control, “start” might either be the right or the left button. This can be annoying. However with this option you can revert the On/Off, so that it corresponds to your preference.

☀ **Control power to each lane individual:**

(This option is only available if the LapTimer-II device is running the Version 1.4 (or greater) firmware.)

By default the LapTimer-II device controls track power through a single relay.

However by clicking this option the LapTimer-II device will use its 4 relays to control power to lane 1-4. By means of a second LapTimer-II device, (Dual version) lanes 5 to 8 can be controlled as well.

By controlled, means that power is only being supplied if a driver is expected to be driver on that particular lane. Also by having individual relays for each lane, you might not need additional lane relays, provided that the 15 Amp relays on the LapTimer-II device is sufficient.

The use of the “Track time seller” feature requires by nature that individual power control is being used.

**Note:** A bug in version 1.4 prevents certain function using the individual power control to function as expected. If you have a version 1.4 board and want to use the individual power control, please contact the author for a chip upgrade.

☀ **Reverse relay connection:**

Normally the LapTimer-2 track power relay(s) are wired so that when the computer is powered off, the track power is removed. (Connection between *COMMON* and *NO* is used).

However it is possible to use the connection between *COMMON* and *NC* instead. This have the effect that track power will be on, while the computer system is powered off.

If you use this wiring scheme, you need to tell LapMaster that it should reverse it's use of the power relays to match the wiring. You do that by checking this option.

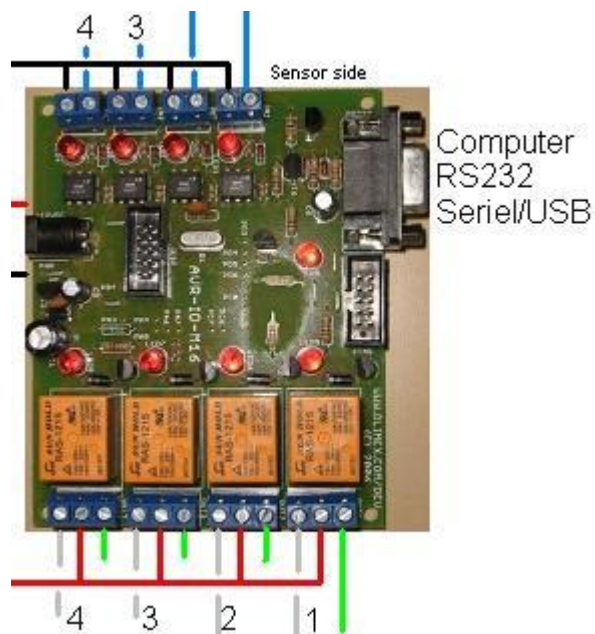


Fig 2: Normal wiring would use the red and gray wiring, reversed wiring would use the red and green wiring.

☀ **Lane color:**

Assign the colour you want associated with each lane on your track.

☀ **Lane Rotation - Normal:**

Assign the lane rotation scheme you wish to use. Lane rotation is the way you change lanes between stints. Simple rotation is to move one lane to the right or left, but also the more complicated "European" rotation can be used. A sample of "European" rotation for an 8 lane track is 1-3-5-7-8-6-4-2. This has the advantage that you are not riding next to the same person all through the heat. "European" can also be done the other way around, and possible other schemes can be implemented. However you are not allowed to assign a rotation that involves lanes not physical on the track. (As determined by Number of lanes above.)

When "round robin" is used, you have more drivers in a heat than you have lanes. This implies that new drivers enter on lane-1 and drivers that

normally would be switched to lane-1 will enter the pool of drivers standing over in the next stint.

☀ **Temporary disabling of tracks:**

It is possible to temporarily disable a track from service by removing it from the rotation list. (Setting it to "N/A").

This can be very useful, if you for instance want to leave out the two outer lanes for a specific race, or if your track suffers from a damaged lane.

☀ **On Deck Lane:**

In Round-Robin racing, you have more drivers than there are lanes, racing in the same heat. The principle is that for each stint, one active driver leaves the track, and one driver from the queue enters the track. This rotation continues until all drivers have raced on all tracks.

The driver that exits from the active set, is the driver that otherwise would have been assigned to drive on the On-Deck-Lane. The new driver enters on the On-Deck-Lane.

Traditionally the On-Deck-Lane has been the first active lane. However you can now specify this lane using this option. Default is lane-1. To be compatible, if the selected lane has been disabled, LapMaster finds the next available lane, and makes that the On-Deck-Lane.

### ☀ **Lane Rotation - Half track:**

This option allows you to setup a lane rotation scheme that will only cycle you through half the lanes on the track. In some race organisations, the initial racing rounds is done in a short form, where a given driver only races the odd (1-3-5-7) or even (2-4-6-8) lanes, thus giving a faster turn around. If you check this option a heat will only have stints equal to  $\frac{1}{2}$  of the tracks number of lanes. (Rounded down, should your track have an odd number of lanes). The rotaion itself must be programmed in the "Lane Rotation" settings, i.e. with the help of the speed setup buttons.

Whether or not you use Half or Full track rotation depends on a setting in the [Race Setup](#)

### ☀ **On Deck Lane A / On Deck Lane B**

When you race in Half-track mode, you have two sets (A and B) of drivers on the track that rotates individually. As a consequence you also need two On-Deck-Lanes. You can specify each. By default the A set will use lane-1 and the B set will use lane-2.

You can however specify this as you like. E.g. If you run 1-2-3-4 as A and 5-6-7-8 as B, you will need to specify something different than the default of 2 for the B set.

Unlike On-Deck-Lane for full track mode, there is no automatic reassignment of A/B lanes, should you chose to disable the lane assigned as On-Deck.

### ☀ **Quick rotation setup buttons:**

To aid you in setup of the lane rotation a number of "Quick setup" buttons has been provided. Using these you can quickly select a rotation scheme:

**Simple up:** Simple ascending rotation. (1-2-3-4-5-6-7-8-1).

**Simple down:** Simple descending rotation. (8-7-6-5-4-3-2-1-8).

**European up:** Alternating ascending on odd lanes and descending on even. (1-3-5-7-8-6-4-2-1). This has the advantage that you do not have the same racer at the right and left all race long.

**European down:** Like "European up" but rotating in the other direction. (2-4-6-8-7-5-3-1-2).

**Half heat up:** Checks the "Half feat" option and set the rotation as follows: (1-3-5-7) and (2-4-6-8). Note that you either drive the odd or the even lanes.

**Half heat down:** Like "Half heat up" but rotating in the other deirection. (7-5-3-1-7) and (8-6-4-2-8) .

## The main display

※ LapMaster Version 3.17 \*\*\* A newer version of LapMaster is available for download. \*\*\*

Flexi2		Testing the setup				Racing
1/8 [1/1 Heat race]						
Lane	Name	Position	Laps	Total Laps	Lap time	Best time
1	J J Lehto	1'	8	8	3.213	3.042
2	Marco Werne	2'	8	8	3.931	3.213
3	Rinaldo Cape	3'	7	7	3.338	3.260
4	Jan Magnuss	4'	7	7	3.713	3.697
5	Frank Biela	5'	7	7	3.806	3.448
6	Stefan Johans	7'	6	6	4.461	3.697
7	Johnny Herbe	8'	6	6	4.119	3.978
8	Tom Kristens	6'	6	6	4.274	3.916
Race Setup		Entry / Qualify	Result	Start	Pause	
						WarmUp w/sound
						1 2 3 4 5 6 7 8 Track Sim off

This display is the one that the drivers should be viewing during the race.

### Header

In the center portion of the header is the **name of your racetrack**, the LAPMASTER brand name, or the name of the **Event**. (See [Race Setup](#) )  
 To the left you will find a description of the **Racing Class** (See [Race Setup](#) ) that you currently are racing.

You will also see the **Racing Type** (See [Race Setup](#) ) and possibly the stint, heat and round number you are racing.

By the way, Racing Class and Racing Type can be clicked as buttons and used as an alternative way to open the [Race Setup](#)

To the right you see the **"Racing clock"**. Either a real time display, or a down count clock for the stage of racing you currently are engaged in.

The **stage** might also be displayed. A stage of “Manual” indicates that Lapmaster is waiting on input from the race controller to enter the next phase e.g. pressing “START” to start the first stint in each heat.

### ***Track record***

The “Track record” heading is actual a button which will display the [track-record](#) panel.

The small > button will reset all track records for the current racing class, after a suitable warning.

### ***Lane information***

Each lane as defined in the [Track Setup](#) is represented by a horizontal colour bar. The colour of this is also defined in the [track setup](#) menu.

The first field is the **Lane number**.

Then follows **Driver name**. This shows the name of the driver assigned to that lane (according to the [Entry/Qualify](#) panel and the current Stint and Heat.)

Next the current **Position** in the race of the driver is displayed. This is updated dynamically during the race. The position is relative to the current set of drivers on the track.

**LAPS** shows the lap count for this stint. Whenever the race is stopped, fractions might be used. This is solely based on calculation of the time passed since last count, the average laptime and the info typed in the [Track Setup](#). The fractions is only a guidance. It might be totally wrong if the driver spins of the track in the time between passing the counter and the power is cut. At end of race the person controlling the race (the race controller) should update the actual “fractions” by means of the “Zone correction” button that will be made available at that point in time. This fraction can also be used to verify if a car, that has coasted past the counter after power off, has been registered or not. If the counter fraction is zero, the car has just been registered. If the fraction is high, the car has not been registered recently.

**Total Laps** shows the accumulated count for all stints in the heat. It will show the same fractions as the Lap counter. When the next stint is started and the car passes the deadstrip, the fractions of the total counter will be cleared. The program assumes that the car is started from the same position as where it stopped (although on another track), therefore the lap continued from this fractional point. By the time the car passes the deadstrip again, the fraction is reset.

However if you have selected the **Challenge** mode in the [Race Setup](#) the cars are expected to restart from the starting line. So in challenge mode the fractions are added together for a total count.

**Lap Time** shows the time of the latest lap. The time is the actual and precise time displayed with 1/1000 of a second precision.

**Best Time** shows the best time achieved within the stint. However the lap needs to be a “clean lap” in order to be counted as a best lap. A “Clean lap” means that the power has not been off between the two consecutive passing’s of the lap counter. This also means that the initial lap of a stint can never be considered as the “Best lap”.

**Track Records.** The system keeps track of track records (single fastest lap) for each lane and Racing Class. Track records are displayed with time, name of driver and date of event. The data is saved automatically.

**The > buttons.** Cancel a track record.



The system keeps 3 generations of registered track records. If you want to cancel one track record, and recall the previous, you can press on the > button for the track in question.

The system keeps 3 generations of track records to recall.

This feature might be very handy if for instants you erroneously get a new record registered because of a car passing in the wrong track. In that case delete the wrong record and reinstate the previous record.

Remember that you might delete all tracks records for the racing class in one sweep by pressing the > button on the “Track record” heading.

## Race control buttons

At the bottom of the main display, you find a number of control buttons to be used by the race controller.

### ✱ Race Setup.

Use this button to enter the Race Setup panel. This button is gray’ed out for certain phases of actual racing when changes to the race setup are not valid. However it will always reappear if you press the RESET button.

☀ **Entry / Qualify.**

Use this button to enter the Entry/Qualify panel. This button is gray'ed out for certain phases of actual racing when changes to the entry/qualification setup are not valid. However it will always reappear if you press the RESET button.

☀ **Result.**

Use this button to display the Result panel. This button is gray'ed out for certain phases of actual racing when changes to the entry/qualification setup are not valid. However it will always reappear if you press the RESET button.

☀ **Start.**

Pressing this button either starts the race or the next stage of racing, when race control is in manual mode. (That is, "Manual" is displayed in the top right corner of the main display.)

A timed intermission might be cut short by a click on the "Start" button.

**Remote Start** is also possible when the system is in the "Manual" state.

Just click the "OFF" and then the "ON" button of the remote control.

☀ **Pause / Resume.**

The race controller can call a "Track call" during racing, by either mouse click on the "Pause" button, pressing the "Space-bar" or pressing the "Off" button on the remote control.

A "Track call" means that power on the track goes off, and the count down clock is temporary halted. This is typically used to clear a dangerous situation on the track, or for whatever reason that the race controller might want to halt the race. When a "Track call" is active "Yellow flag" will be displayed in the top of the main display, and an announcement made suing the speaker system. Also the function of the "Pause" button changes to "Resume".

To resume racing, you can mouse click on the "Resume" button, press the ALT+"Space-bar", or use the remote control.

The use of ALT+Spacebar to resume makes certain that you do not get "stacked" trackcalls due to the repeating nature of the spacebar if you hold it down to long.

**Note: If the track-call is initiated from the remote control the track-call must also be reset from the remote.** A warning to that effect will be issued

if you try to restart in any other way. On the other hand, a track-call initiated using the mouse or keyboard can be reset from the remote, provided that you cycle the remote to “Off” and then “On” again.

**Note2:** The “Track-call” can also be used during a timed race intermission to temporary halt the pause timer.

☀ **Warmup + Warmup w/Sound.**

During certain stages of a race, the race director can allow for a short period of Warm-up time, in which power is on the track, but the counter is disabled. The Warm-up button is used for this. Note that a Warm-up period can be cancel again by pressing the Warm-up again. I.E. drivers are given 1 minute Warm-up. After this they are ordered to the starting line, and a second Warm-up is started and cancelled when all cars have been driven to the starting line.

The **Warmup w/sound** is the same function, but plays a sound bid with “Gentlemen, start your engine..” as an intro. This can be fun, but you don’t want to play e.g. it if you add extra time to drive the car to the starting line.

☀ **Help.**

Well, if you are reading this, you have probably already used the help button to bring up this document.

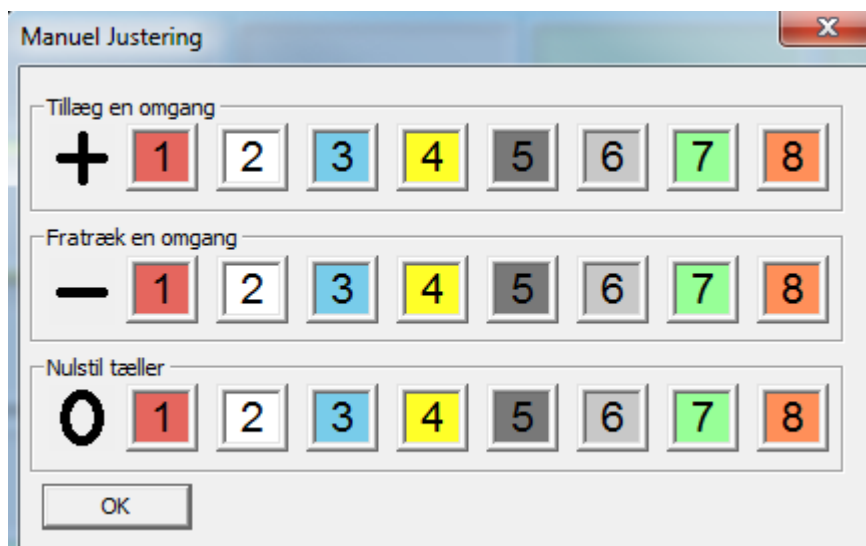
☀ **Reset.**

Pressing this button will cancel any ongoing race and bring the LapMaster program back to an initial state.

☀ **Manual lap correction.**

Pressing this button brings up a correction panel that allows you to add or subtract a whole lap from the counter, or even reset the counter all together.

(This function obsoletes the “hot-key” function for doing the same. However the “hot-key” is difficult to remember.)



This function is only available during actual racing. Otherwise it would not be clearly determined if it is the previous or next driver that will be corrected during lane changes.

Please note that “Zone-correction” is something different, and also that after the race you can correct by going directly into the entry-list and edit the results.

#### ☀ **Simulation buttons.**

(1-8, “track” and “Simtest”)

These buttons are only shown if the LapMaster program is in the simulation mode.

Pressing any of the **1** to **8** will simulate the passing of a car on the track sensor.

The **track** button simulates the pressing of the remote track-call button.

Finally the **simtest** button starts an internal simulation program that will run “virtual cars” on the track with approximately 3.5 seconds lap time.

This is great for testing and viewing how the program operates.

## **Track test button**

This button is located at the right button edge, and is only available while under yellow flag (“Track call”).

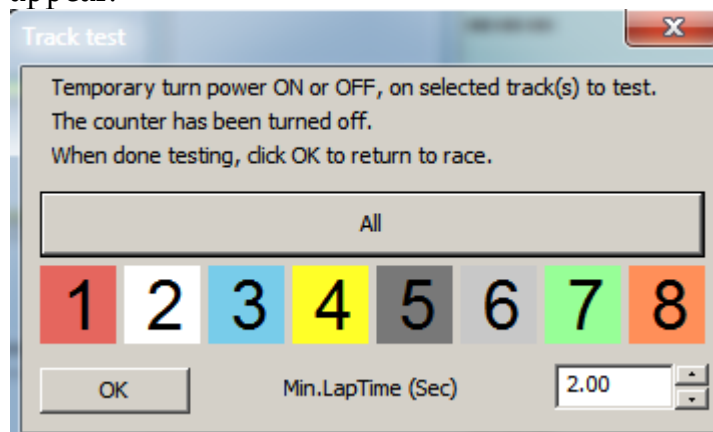


A track call is usual taken for an unserviceable car, or if a fault on the track is suspected. In the latter case, you often want to turn power on, so that a faulty wiring, fuse or whatever can be inspected. You can do so with the “Track test” button.

It turns power on, while disabling the counters, and putting the LapMaster program in a generally disabled state. It does so by putting up a message box in the middle of the screen. Power stays on until you dismiss the message box with “OK”.

At this point the LapMaster program reverts to the previous state of “Yellow flag”. You can then continue the race.

If your track is wired for individual lane power, then this window will appear.



This allows you to put test power on a single lane (or all). This prevents everybody else from racing around except the driver with the problem.

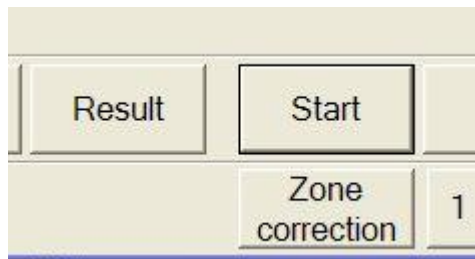
### **Emergency minimum lap time adjust:**

Also on this panel you have the option to adjust the Minimum lap time. If you have started a race and someone suddenly starts racing faster than the minimum time, then this is your escape.

You can adjust the minimum time without having to restart the race.

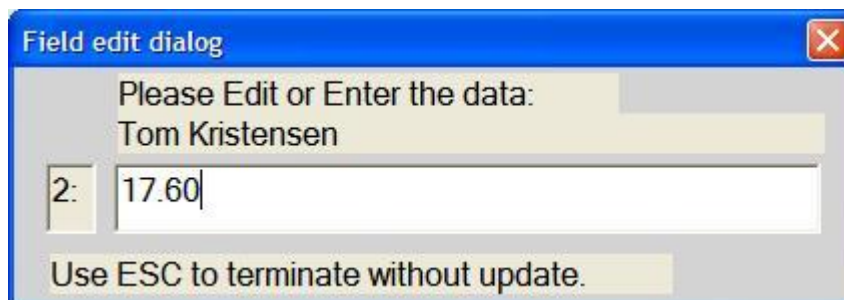
## Zone correction

At appropriate times, according to the type of race that you are racing, the “Zone correction” button might be enabled.



LapMaster calculates the number of zones driven, based upon the time of the last parsing of the lap-detector, and the average lap-time. Usually this is reasonable correct. However if the driver de-slots after the last parsing and before power goes off, it can be significant incorrect. By means of the Zone-correction the race director can manual change the zone registrations to correct for such irregularities when it is significant.

Clicking on the Zone-correction displays each track in turn, and prompt's the race director to enter any correction.



## Bye Round / Next driver

This button is shown during qualification. It allows you to cancel the current qualification attempt, and skip to the next driver.

In “Bye-round” mode (see “Qualify mode” under “Race setup”), it also sets up the driver for a second qualification attempt with the penalty given in the “Bye round penalty” field.



## Hot keys

The **Spacebar** has been setup as a hotkey for trackcall. Hitting space while focus is within the LapMaster or Scoreboard application will toggle the trackcall state.

Pressing "**Shift**" plus "**F1**" to "**F8**" will add a lap to the associated lane. Pressing "**Ctrl**" plus "**F1**" to "**F8**" will subtract a lap from the associated lane.

Pressing "**Alt**" plus "**F1**" to "**F8**" will reset the lap counter of the associated lane.

Pressing "**Alt-Shift**" plus "**F1**" to "**F8**" will terminate racing on a specific lane (When racing fixed number of laps. This is required if the entry cannot complete.)

The operator will be prompted for confirmation of these functions, before they are carried out.

## Entry and qualification

Heat race - Round=1 Heat=1 Stint=1

Drivers name	Qualifying result	Heat	Lane	Lead laps	Lead points	Race result	Best time	Best la
Vettel	2.940	1	1					
Webber	3.001	1	2					
Hamilton	3.003	1	3					
Massa	3.212	1	4					
Rosberg	3.256	1	5					
Kubica	3.499	1	6					
Alonso	3.654	1	7					
Barrichello	3.654	1	8					
Petrov	3.666	1	9					
Sutil	3.775	1	10					
Button	3.800	1	11					
Schumacher	3.892	1	12					

Reset    Entries: 12    Heat distribution: 12    Select drivers from catalogue

Go qualify    Max drivers per heat: 12    Clear all    Random qualification    Save entrylist    To clip

Go heat race    OK    Cancel    Help    Clear (except name)    Assign Heat and Lanes    Load Entrylist    From cl

You use the Entry/Qualify page to define the names of the drivers, and to assign heat and starting lanes, either by doing a qualification run, or by random or manual assignment.

### Entering drivers name

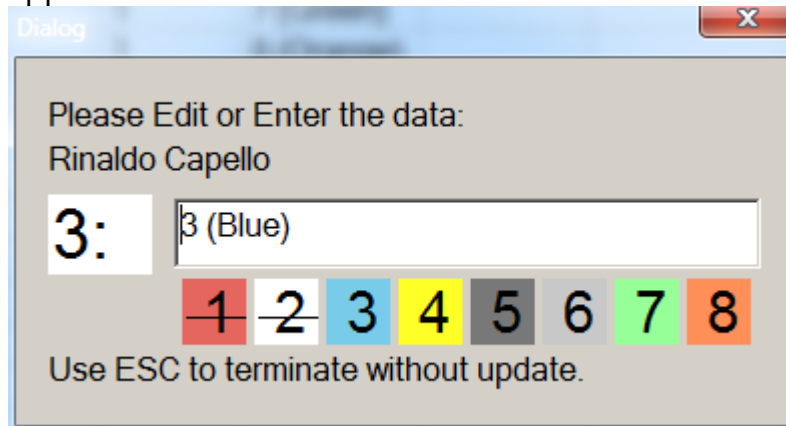
You enter a name by mouse selecting the top empty "Drivers name" cell, and then fill out the field edit dialog. Pressing ENTER closes the dialog and updates the field. Alternatively you can load a pre written list by using the "Load Entrylist" button. This list could either be a previously saved list, or it can be written with NOTEPAD or a similar editor.

Attempts to load a RESULT list as an ENTRY list, will skip the initial column (the position), so that the names will fit the correct column. This could be useful if the qualification or entry order is based on a previous race.

## Choosing the starting lane

Normally you use the “Assign Heat and Lanes” (Together with “Max drivers per heat” and the “Heat distribution”) to automatically divide your drivers into heats, and assign a sequential ordered starting lane to your drivers.

However, sometimes the best qualified driver wins the right to choose first, which lane to start on, then the next etc. In that case you use the “Assign Heat and Lanes” button to divide into heats. Then you click the mouse over the lane assignment for best qualified in the heat. A prompt similar to the one below will appear.



You then click on the lane number/colour to assign the chosen lane. As an aid, the lanes already assigned are indicated with the “strike out” signature.

The system automatically goes to the next driver until you end the assignment by pressing ESC.

If you run in “round robin” fashion you will use numbers greater than the number of lanes, e.g. “9”, “10” or “11”. You can type these numbers in the edit box. Do not type any colour indication, just the number.

## Select drivers from catalogue

As a third option you can select drivers from the “Catalogue”.

The intention is that you store .jpg pictures of your usual drivers in the c:\LapMaster\drivers folder. You should name the pictures with the name of the driver followed by .jpg. Alternative you can store any file named with the drivers name and the .txt extension. Creating the pictures are outside the scope of this program.

Pressing the “**Select drivers from catalogue**” will open up a folder view of the drivers catalogue. If you run on Window’s XP, icons with the drivers picture are displayed, otherwise you just have a list of files named after your drivers. You can select the drivers from this file open dialog. You can make multiple selections by holding down the **ctrl** key while doing the select. When you end the selection dialog, the drivers names will be added to the entry list.

## Qualification

Having completed the entry list you can qualify the drivers. Qualification is used to find the starting sequence in the real race.

You can qualify by basically 3 methods:

1. **By racing.**

You complete the entry list and press the OK button. You then use the [Race Setup](#) panel to determine the length and style of qualification used. Style can be **best lap time** or **longest distance** within the time allotted to qualification. You also select the lane used for qualification, and finally you change the race type to "Qualification". When you exit the race setup, each driver from the entry list (in reverse order) will be called to qualification. The race controller can use the "**Warmup**" option at his digression, and then press "**Start**" to start the qualification round. The result of each driver's qualification is automatically inserted into the entry/qualification list.

Pressing the "**Go qualify**" is a shortcut which changes the race type to "Qualification" and then starts it. You can use it if you are sure you have all the other qualifications parameters set correctly.

When all drivers have been given a one attempt at qualification. The race director returns to the Entry/Qualification panel. The qualifying result is then sorted by mouse click on the heading of "Qualifying result" a further mouse click reverses the sorting order.

Pressing the "**Assign Heat and Lanes**" then assigns the heat and starting lane to each driver according to the "**Max drivers per heat**". If you have more "Max drivers per heat" than lanes the system will use a round-robin method where one or more drivers will be standing by and shifted in and out of the race when they are scheduled to race on lane-1.

The distributions of number of drivers into each heat are shown in the "**Heat distribution**" field. This field can be edited to use any alternative distribution wanted by the race director. After having updated the heat-distribution, press "Assign Heat and Lanes" again to recalculate the assignment.

**Sample:** Let's say you have 8 lanes and 9 drivers. By default the system might suggest 8 drivers in one heat and 1 in another, which is not practical. You might choose to have 5 in one, and 4 in another or even 3 heats of 3. Finally you could also change the "Max drivers per heat" to 9, and run one heat round robin style.

2. **By random.**

For a quick race without actual race qualification, a randomly selected qualifying result number can be generated by pressing the "Random qualification" button. Note that this will delete any previously recorded qualifying result.

It will also sort the drivers according to the random number, and finally assign heat and lanes. If you are unhappy with the distribution. Edit the distribution key and press "**Assign Heat and Lanes**" again.

### 3. **By manual.**

You can use mouse click to select the "Heat" and "Lane" fields yourself, and enter any order you want.

## Lead laps

It is possible to setup the counter to start from a different value than the default of zero. You might use this to provide a positive handicap, or to continue a race from a given position. In fact when racing multiple accumulated rounds, the LapMaster program automatically transfers the previous result to the "Lead laps" when you start the next round.

## Lead points

It is also possible to setup the counter to start from a different point value. You might use this to provide a positive handicap, or to continue a race from a given position. This might come in handy if you race on multiple tracks and i.e. at midpoint want to exchange tracks and continue the race from there.

## Clear, Load & Save, To and From Clipboard

**Clear All:** This button clears all entries (names, qualify-result, heat and Lanes) from the Entry/Qualification panel.

**Clear (Except name):** This button clears all but the driver names from the panel. (That is, both Qualify-result, Race-result as well as Heat and Lane info is cleared.)

**Save Entrylist:** This button opens up a file select dialog. You can then choose a directory and a filename, into which all the information from the Entry panel is saved. This file can later be loaded, or alternatively imported into a spreadsheet like EXCEL as a TAB-separated text file for further processing.

**Load Entrylist:** This button opens up a file select dialog. You can then select any TAB-separated file and load the Entry panel from that. The file can either be a previously saved file, or it can have been created by an editor like NOTEPAD, or saved from EXCEL as a TAB-Separated file. Attempts to load a RESULT list as an ENTRY list, will skip the initial column (the position), so that the names will fit the correct column.

**To clipboard:** This button saves a copy of the current entry list in the windows clipboard. This is very handy for pasting the current entry list into a spreadsheet, text document, web-forum or blog.

**From clipboard:** This button replaces the current entry list with whatever is on the current window clipboard. This is handy for pasting from a spreadsheet or text document.

## Max drivers per heat

This field controls the maximum number of drivers that race in a single heat. If number of drivers are greater than number of lanes, then a round robin principle will be used. This means that a number of drivers stand by while the others race. One driver are then changed in and one out of the active set after each stint. This is the driver that otherwise should have raced on lane-1, and the new driver therefore enters at lane-1. It is important that the driver changing into the set starts with his car where he last was when he was called off the track. He should **not** restart from the starting line except for the first time.

## Heat distribution

Let's say you have a 4 lane track, and 6 drivers. This means that you can race a semi final of 2 and a final of 4 drivers. However it might be more fun to race two heats of 3 drivers, or you might even want to race a round-robin race with 6 drivers rotating on 4 lanes. You use the heat distribution to guide the **Assign heat and lanes** function on how to distribute the drivers. You enter numbers separated by blanks representing the number of drivers in each heat. However you cannot enter more drivers than **Max drivers per heat**. So if you intent to do round-robin racing, you need to modify the **Max drivers per heat** which can convenient be done right here as well as on the race setup menu.

As of version 3.17 you can skip assignment of a number of drivers from the list by putting the number in parenthesis.

E.g. You have qualified 50 drivers. The top 4 goes straight to a final, the next 24 goes into 3x8 semi's and the rest is out of it. To prepare for the semi's you could use the following heat distribution: "(4) 8 8 8 (100)"

## Go buttons

There are 2 easy "GO" shortcut buttons. What they do is the same as the OK button, but they also modify the **Race Type**, so that you can go directly to that stage without having to go through the [Race Setup](#) panel.

However "GO" buttons are disabled during a race to prevent accidental erasure of the race. If you really want to start over, use the "Reset" button, and then one of the "GO" buttons.

## Race setup

LapMaster - Race setup

**Race Setup**

Race type.....: Heat race

Racing Class .....: Flexi

Event .....

Round number.....: 1 / 1 Heat: 1 Stint: 1

Stint time (hh:mm:ss).....: 15

Intermission time (mm:ss) 10

Warm up time (mm:ss).....: 1:00

☒ Race fixed time

☐ Race no of laps (Total laps)

☐ Race no of laps (First)

☐ Race no of laps (All)

Challenge mode: ☐

Half track mode: ☒

**Qualification**

Qualification time (mm:ss) 15

Qualify Lane .....: 1

Qualify Mode .....: Lap time

Bye penalty: 0

**Counter options**

Min.LapTime (Sec) 2.00

Advanced setup

OK Cancel Help

Program Se...

Track Setu...

WEB Ace...

Factory mo...

Load Race setu...

Save Race setu...

This screen is used to define what kind of a race you intend to run, and thereby what functions the LapMaster should perform.  
This is the major control screen of the system.

### Race Type

Here you define what mode the LapMaster should be in.

For a description of the available Race Type's see [RaceFormats.htm](#)

### ★ Racing Class

Racing class is a designation of the type of cars, and/or the grade of drivers (Like Pro, am or rookie) that you define. The concept of racing classes works in association with the track-record system. A separate set of

track records are kept for each class. You define new racing classes simply by typing them into the box. The system then keeps track of the 15 mostly used classes, so that you can either chose from them, or simply type a new. Each time you actual select a class, it is put on top of the stack of known classes. If you do not use a class for a long time, it might be dropped from the list in favour of newly defined classes.

☀ **Event**

This is a title for the race. Titles could be a name like “Club championship 2007”. If filled out it will be display as a heading on the main display. It will also be used on the WEB result list, and the finishing diplomas.

☀ **Round number**

Determines the current round, provides that the race mode uses multiple rounds. (Up to Max rounds)

☀ **Max Round number**

In some modes, you can define that you will be racing from 1 to 4 rounds. In “Heat racing” they are accumulating, in “Best of rounds” only the best round counts towards the result. In other modes the Max-round is limited to a certain value suitable for the mode (Mostly 1).

☀ **Heat number**

Heat number determines the current heat. You can change this to skip or restart heats.

The term “Heat” refers to a collection of stints in which a group of drivers are in direct competition. Typically 1 stint per lane.

Valid data is a whole number between 1 and 256 (=Maximum number of drivers).

☀ **Stint number**

Stint number determines the current stint. You can change this to skip or restart a stint. (However accumulated lap count is not adjusted by this action).

The term “Stint” refers to a fixed time for which the drivers race on a given lane. Lanes are typically changed between stint.

Valid data is a whole number between 1 and 256 (=Maximum number of drivers).

☀ **Stint time / Laps per stint.**

Depending on the setting of the radio buttons: “Race fixed time” or “Race

no of laps" the program either shows this field as "Stint time" or "Laps per stint"

If "Race fixed time" is selected, this field sets the time for each stint. You can enter a number of seconds or a time reference in colon format like "hh:mm:ss" or "mm:ss".

Valid data is a whole number from 1 to 86400 (=24 hours).

If "Race no of laps" is selected, this field sets the number of laps to race for in each stint. The stint ends when the first driver reaches this amount of completed laps.

Valid data is a whole number from 1 to 100000.

### ☀ **Race fixed time / Race no of laps (Total laps) / Race no of laps (First) / Race no of laps (All).**

The most common mode is to race each stint for a fixed amount of time.

However if you run a race that is specified for a certain length (rounds or distance), you could chose the "Race number of laps (Total laps)". In this mode each stint is terminated when the best racer reaches a total lap count equal to the stint number \* 'Number of laps per stint'. In this mode you can easily race an 800 lap race on an 8 lane track, simply by setting the "Laps per stint" to 100.

**Note:** This option cannot be used together with 'Round-Robin' racing. The race would end while some racers where in standby mode.

Alternatively you can select "Race number of laps (First)". In this mode the first driver to reach the set target in each stint, terminates the stint. However at the end of the race the best racer might not have reached the expected total, unless he has won each and every stint. On the plus side, you can use this method together with 'Round-Robin'

A forth method is to race "Race number of laps (All)", which means that all drivers must complete the number of laps, before the race is over. In this case, the winner is the one with a lowest amount of accumulated time. In this mode LapMaster does not display "Total laps", but "Finish time" and "Accumulated finish time" instead.

(See also above for specification of race duration.)

### ☀ **Intermission time**

This determine the time of the intermission between stints. That is the time people have to change lanes. It can be extended by the race director by using the "TrackCall" button during the intermission.

There is no timed intermission between heats. Here the race director has to issue a manual start to advance to a new heat.

Valid data is a whole number between 0 and 86400 (=24 hours).

You can enter a number of seconds or a time reference in colon format like "hh:mm:ss" or "mm:ss".

If the value "0" is put in this field, no timed intermission is used, and the race director must use manual start for each stint.

#### ☀ **Warm up time**

Where appropriate the race director is given the option to press the "Warm up" button. This allows power to be on the track, but all timing and lap counting is disabled.

The time given to this warm up is determined by this setting. However the race director can cancel or repeat the warm-up as he pleases.

Valid data is a whole number between 1 and 3600 (=1 hour).

You can enter a number of seconds or a time reference in colon format like "hh:mm:ss" or "mm:ss".

#### ☀ **Challenge mode**

In challenge mode, the cars stay on the same lane, only the drivers rotate between stints. This means that all drivers get to race the exact same combination of cars and lanes. It is equal for all drivers.

However it is also necessary to start each stint with the cars at the starting line, rather than from the position the previous driver have reached on the track. From a lap counter perspective, this means that the lap fractions must be accumulated from each stint, rather than reset at the next passing of the counter. This option controls the accumulation of lap fractions.

#### ☀ **Half track mode**

This mode activates the alternative lane rotation scheme as it has been defined on the [Track setup page](#). It also means that a heat will only consist of half the number of stints (Rounded down).

#### ☀ **Qualification time**

This determines the amount of time each driver has available in the qualification mode.

Valid data is a whole number between 1 and 3600 (=1 hour).

You can enter a number of seconds or a time reference in colon format like "hh:mm:ss" or "mm:ss".

### ☀ **Qualify Lane**

This determines which lane will be used during qualification.  
Valid data is from 1 to the number of physical lanes available.  
Alternatively you can select "Any" which means that the competitor is free to choose any lane on the track. The one with the best time will automatically be counted as the best.

### ☀ **Qualify Mode**

Two different qualification modes are available.

- \* **LAP TIME** - In this mode the driver's fastest single lap is the qualification result.

- \* **LAP TIME W/2 rounds** - As "LAP TIME", but with two complete qualification rounds. Best result in any round counts.

- \* **LAP TIME W/Bye-rounds** - In this mode the driver can choose to split his qualification time for a second attempt, with a penalty in time defined by the value in "Bye penalty".

- \* **NO OF LAPS** - In this mode the distance covered (Number of laps + sections) is the qualifying result.

### ☀ **Random assignment of qualifying lane.**



This function allows you to assign a qualification lane by "Roll of dice".

Before you use this option you should decide and declare publicly if you accept "Any lane" as a valid assignment, as this function might return this value. If you do not accept "Any lane" as a valid option, and it comes up, simply repeat the drawing until you get a different result.

### ☀ **Bye penalty**

This value (in seconds) is deducted from the available qualification time, each time a racer utilizes the "Bye-round" option. (See "Qualify Mode" above.)

### ☀ **Min lap time**

This is the minimum acceptable lap time. If a car parses in a time faster than this, the lap is not counted, as it is most likely that it is a rider. A warning is issued in the loudspeaker system if this happens, and the track is marked by highlighting.

By clicking on the "Auto rider track call" option, the program will also automatically issue a track call.

The valid data is a decimal number between 0.0 and 60.0 seconds.

Resolution is 0.001 seconds.

You would want to set this as high as possible but surely below any possible fast lap to get the best quality of detections. I.E. If the fastest driver has a lap time of 5.6, then set this value at 5.2  
(This value is a duplicate of the one in the Advanced setup)

#### ✱ **ADVANCED SETUP**

A series of more rarely used options are collected in the [advanced setup](#) menu. Press this button to open the advanced setup panel.

### **Save and restore of race setup**

It is possible to save or restore (load) an entire race setup as a file under a user selectable name. This is done using the **“Save Race setup”** or **“Load Race setup”** buttons.

Each button opens a file dialog in the LapMaster/Setups folder, where you can create or select a file.

Note that the setup saved or loaded are the setup in the race setup menu. It does not become an active setup until the race setup menu is closed with the **“OK”** button.

### **Factory race setups**

In addition to defining your own setups, LapMaster comes with an array of factory setups.

This is a quick and easy way of preparing LapMaster to run exactly according to your racing procedures.

Many setups that implement different national racing organization procedures have been included.

However, they should be considered to be models only and you will therefore need to modify them slightly before use. As a minimum, you need to set the **“Minimum lap-time”** to match your race-track and class of racing. Other common customization options include stint and intermission duration.

**Note 1:** Factory setups may be replaced when you do a LapMaster version upgrade, so you should always rename a factory setup when you do your customization. If the setup is a multi-phase setup that contains links (See Advanced options), then remember to rename the links inside the setup as well !

**You also have the possibility to work the sub-menus of:**

- ✱ [Program Setup](#)
- ✱ [Track Setup](#)
- ✱ [WEB Access](#)

### **OK or CANCEL.**

When the **OK** button is pressed the setup is evaluated. If it is found to be valid, it becomes the active setup. If it is not valid a message is displayed, and you have the option to correct the invalid data before trying the **OK** button again.

On the other hand, pressing **Cancel** any changes you have made is **not** activate, and you return to the previous active setup. (However changes made under the **Program Setup or Track Setup**, but not **Advanced setup**, sub-menus have already been committed.)

## Race formats

Lapmaster supports a many different racing formats. The native formats are listed and explained here, and is selected on the [RaceSetup.htm](#) in the “Race Type” field.

A lot more formats can be setup as variations of the basic formats. Many of these are stored as predefined “Setups”, and can be loaded using the “Load setup” button on the Race Setup panel.

The predefined formats delivered with LapMaster can be found under the “Factory” subdirectory in the setup folder. It is the intention that you should copy the formats you need from the Factory folder into the basic Setup folder. Then modify them as you might need. E.g. you probably need to adjust the minimum laptime in each setup to match your track. The key issue with the Factory folder is that anything in there might be replaced at the next LapMaster upgrade. Your customized setups in the Setup’s folder will not be touch though.

This is the major control screen of the system.

### Free Practice

In this mode power is on, laps are counted and time and best time registered. However no stint timing is in effect. You can just run.

### Timed Practice

In this mode power is on, laps are counted and time and best time registered, but only for the duration set in **Stint Time**. After that an intermission is taken, and the drivers are asked to change lanes. The intermission time is determined by the value in **Intermission time**. After this the sequence is repeated for as long as the program are in the Timed Practise mode.

### Named Practice

This functions is something between timed practice and heat racing. It is intended for the same purpose as Timed Practice, but names are picked from the entry list. Practice is therefore restricted to the assigned timeslot for each driver. For practical reasons, practice will be done using in the same manner heat-racing is conducted, but total lap count is not counted. If the optional ScoreBoard is used, the best practice laptimes will be keep on the ScoreBoard.

### Qualification

This mode is specific to the phase of qualification. All drivers (entries) should have been put into the [entry list](#) . You should have set the

appropriate Qualifying time, lane and mode (See below), and you are now set for qualifying. The drivers on the entry list will be called up in reverse and given the time set in "Qualify time" to perform their best. However at the discretion of the race director, one or more warm up sessions can be granted to each driver before the qualify attempt. Based upon the setting of the "Qualify mode" the best time, or the total distance is stored into the Entry list. Then the next driver is called up etc. until all drivers are qualified. You then use the [entry list](#) menu to sort the result and assign qualifying heat and starting number (lane). By this qualifying is done, and you should proceed to "Heat Race".

### **Time Trial**

Time trial is a short form of timed racing. You will however only race a single stint. The top driver names from the [Entry list](#) will be assigned the available lanes. Stint and heat will be ignored. Laps will not be accumulated.

### **Heat Race**

This is the main form of racing. Particular suited for a large number of drivers. You enter "Heat Racing" after the phases of ENTRY and QUALIFYING has been done.

At this point all drivers are assigned a heat and start number within that heat (=lane). Drivers will be called up in this order. The race director performs a manual start of the first stint in each heat. From here on, the control is handled from the LapMaster program. Each stint is raced for the programmed amount of time, and the programmed intermission between stints is taken, before another stint starts. This continues until all stints of the heat has been raced. Then the system advances to the next heat. Here the race director again must manually start the first stint of the heat. In other words the intermission between heats are manually controlled. LapMaster keeps tracks of all drivers and their accumulated score. At the end of the race (And also in between) this can be viewed at the [Result page](#).

At the start of the first stint in each heat, the race director has the option to grant one or more Warm-up sessions.

It is possibly to race up to 4 accumulating rounds within the Heat Race mode.

### **Heat Race, best of rounds**

This is much like heat racing, except that each driver get's up to 4 individual attempts. Only the best result counts towards a final result. The starting order before each round can be re-arranged.

When raced with 2 rounds, this mode implements the DMRU (Dansk Mini

Racing Union) 2008 racing directive.

### **Heat Race, promoting**

In promoting heat racing, the lanes are only partially filled according to qualification (Seeding). Then by racing, a certain number of the best from one heat is promoted to participate in the next heat, and so forth until the final. In theory you can start as the most poorly qualified, and still win, but you have a long day of racing ahead of you in that case.

Promoting heat racing has a configuration panel associated with it. This panel allows you to specify how many racers you want to seed in each heat. (All heats will seed the same number of drivers.) Also you specify the number of racers you want to promote from each final to the next. Normally the sum would be the number of lanes available. However it doesn't have to be like that. E.g. on an 4 lane track you could chose to seed 2 drivers and promote 3. That just means that every heat will have 5 drivers racing in round-robin fashion for the 3 next move-up's.

### **ISRA Team-race**

This mode implements the TEAM-RACING as defined by ISRA. It is much like Heat-Race, except, that you do qualification by most laps, and that the number of laps raced during qualification, is added to the lapcount of the final score.

### **Speedway**

This mode implements a racing mode known as "Speedway".

In this mode, after the completion of each stint, the drivers are awarded points according to the position in each stint. The winner is the driver that collects the most points after the race.

Points are awarded so that the winner gets a number of points equal to the number of lanes on the track. Each position after that get's one point less, so that the last driver gets 1 point for completion.

Drivers not completing the stint gets no points. If all lanes is not used, the lower points are not awarded.

Sample: 5 drivers on a 6 lane track, one driver not completing the stint. Winner gets 6 points, #2 gets 5, #3 gets 4, #4 gets 3 #5 did not complete and gets 0 points. There was no driver on the last lane so no points awarded there either.

Speedway makes the most sense if you race by "fixed number of laps (All to complete)".

### **Time seller mode**

This mode is intended for commercial raceways, which rent track time on

a commercial basis. In this mode an “egg-timer” is associated with each lane. The operator can set the timer for each lane, and power will only be ON for the preset amount of time.

## Advanced Race setup

Advanced setup

Counter options

- ☐ Announce leader
- ☐ Announce winner
- ☐ Use drivers name
- ☐ Display median time
- ☒ Estimate result
- ☐ Big rotation
- ☐ Auto rider track call
- ☒ Announce trackrecord
- ☐ Records during practice
- ☐ 10 sec warning, Race
- ☐ 10 sec warning, Intermission
- ☐ Auto print
- ☒ Auto publish

'Start' with voice

More setup

Predefine heat distribution:

Link to next setup:

Timing

Min.LapTime (Sec)

'Pling'

☐ Never ☒ On fast lap ☐ On every lap

Announce lap times

- ☒ During qualification
- ☐ Red
- ☐ White
- ☐ Blue
- ☐ Yellow

This screen is used to define more detailed options of a race setup.

### **Announce leader**

If you check this option, an announcement of the current leader is made over the loudspeaker system, whenever the leader position over the counter changes.

### **Announce winner**

If you check this option, the winner/second/third and fourth of the race is

announced over the loudspeaker at end of the race.

If you use the “Use driver names” together with “Announce winners” from the advanced options, then the winner will be picked from all contestants. Otherwise it will be from the drivers on the track only.

### **Use drivers names**

If you check this option, the program uses the Microsoft speech interface, also known as “Microsoft Sam”, to say the names of the drivers.

However the quality of this synthetic voice is not perfect, it is in English only and have a heavy American accent. If you want to use this is up to you.

The Microsoft speech interface is standard in Windows XP, and can be installed as a free add-on to earlier Windows versions. In that case you need to download it from the internet. Look for Microsoft Speech API (SAPI) 5.3.

If you use the “Use driver names” together with “Announce winners” from the advanced options, then the winner will be picked from all contestants. Otherwise it will be from the drivers on the track only.

### **Display median time**

If you check this option, the system will display median time in place of the best lap.

“Median” is a statistical analysis method. In short it looks at the last 9 valid lap times. The 3 best and 3 worst are discarded, and the median time is the average of the 3 middle times.

It gives a more stable reading than just the best time. It can be very useful while doing car setups, to judge if a change really improves the car in the long term running.

### **Estimate result**

If you check this option, an estimation of the final race result (total laps) will be performed, and used on the [scoreboard](#) as the ranking parameter, rather than the point's score which is the default.

### **Big rotation**

Normally you will race Heat=1 before you continue to Heat=2. This has the effect though that it can take a long time before drivers in Heat=2 gets to drive, especially if your stint time is of appreciative length. By clicking the “Big rotation” option, you will race all Stint=1 (from all heats) before going on to race Stint=2. This means that your teams (heats) of drivers get to alternate driving and marshalling. This is perceived by some clubs to be less boring.

### **Starters signal**

Before power goes “on” on the track, a visual countdown is indicated. With this option you select what audio should accompany this countdown.

You can select between:

“Start with voice”, in which case a real countdown will be announce in the speaker system.

“Start with buzzer”, in which case a buzzer will sound for each count.

“Start with silence”, in which case no sound will accompany the visual starting sequence.

### **Auto rider track call**

If you check this option, an automatically track call is issued if a ‘rider’ is detected over the lap counter. (See also [race setup](#) **Min Lap Time**.)

### **Announce Trackrecords**

If you check this option, any newly recognized track records will be automatically announced over the loudspeaker system.

Track records are by default only acknowledged in real racing, that is during qualification of some kind of heat racing. Newer during practice. (See “Records during practise” below)

(However track records are newer announced in heat=1, stint=1, as this usually leads to “information overload”)

Track identification can be by numbers or colours depending on the preference in the [Track Setup](#).

### **Records during practise**

Default is to only accept new track records during official racing (Qualification, Time trial, and the different variations of “Heat racing”).

However by checking this option, you can accept new track records at any time on the track, including free, timed and named practise.

### **10 sec warning, Race**

If you check this option, a verbal warning will be given 1 minute, 30 sec and 10 sec before end of stint.

### **10 sec warning, Intermission**

If you check this option, a verbal warning will be given 3 minutes, 2 minutes, 1 minute 30 seconds, 1 minute, 30 sec and 10 sec before end of intermission.

### **Auto print**

This option will automatically print a race report on the printer for each heat raced. Default printer and printer settings will be used.

### **Auto publish**

With this option, LapMaster loads every result and the associated statistics directly to your webpage at end of heat or race automatically. The index page is updated, and the result and stats are available from your “Live Timing” page.

However it does require that you have setup the appropriate FTP access information in the manual “Load to web” functions for results and statistics, so that the auto-feature knows what to do for you.

### **Alternative power supply / AUX**

This option toggles the AUX output from the LapTimer II device. This output can be used to drive a selection of set of power supplies or voltage, or anything else that you might want to use this output for. However it requires the firmware version 2.3 or later in the hardware LapTimer-II box. If your box doesn't support this feature, this option is not displayed. You will also need external hardware to amplify the 5 Volt 20 mA max signal to interface to anything in the real world.

The nice feature is that this value is saved together with the stored race setup, so that you can create a setup for a special class of cars or i.e. for qualifying which will automatically adjust the power on the track.

### **Predefined heat distribution**

Use this option to make a predefined heat distribution. It is particular useful when making a stored setup involving “Promoting heat race”. I.e. with this option you can then determine that the final should have 2 pre-qualified entries and 6 for all other finals.

### **Link to other setup**

You can link setup's. That is when one racing setup completes, you can automatically transfer to another. This would be useful if your racing procedures involved multiple phases. I.e. Qualification, several rounds of middle rounds, and a final.

You can use the **Browse** button to search for a setup to link to.

### **Min lap time**

This is the minimum acceptable lap time. If a car parses in a time faster than this, the lap is not counted, as it is most likely that it is a rider. A warning is issued in the loudspeaker system if this happens, and the track

is marked by highlighting.

By clicking on the "Auto rider track call" option, the program will also automatically issue a track call.

The valid data is a decimal number between 0.0 and 60.0 seconds.

Resolution is 0.001 seconds.

You would want to set this as high as possible but surely below any possible fast lap to get the best quality of detections. I.E. If the fastest driver has a lap time of 5.6, then set this value at 5.2

(This value is a duplicate of the value in the Race setup panel)

### **"Pling"**

If you want an audio feedback each time the counter registers a new count, you can set this option to "on every lap". This will play the sound "Pling.wav" (Default: a beep) in your sound library for every parsing of the counter.

If you set this option to "On fast lap", a sound will be played for each fastest lap on each lane, within each stint.

If you set this option to "Never", there will be no audio feedback for parsing the counter.

### **Announce lap times**

If you check one or more of these options, all lap times for the selected tracks will be announced over the loudspeakers.

This is a great feature if you practice on the track, but it is usually not a good idea to use this option on multiple active tracks at the same time, as it usual will lead to information overflow.

You cannot distinguish times from one driver from the others.

### **OK or CANCEL.**

When the **OK** button is pressed you return to the race setup panel. Note that you changes are not committed until you press **ok** on the race setup panel.

Pressing **cancel** on either the Advanced settings or the Race setup panel, erases the changes you made on the panel.

## Race result

[illegible]

After Qualification, during intermissions, and after the race, you can find the current result on this page.

You can sort the list by mouse click on the headings.

<b>Pos</b>	- The current position in the race.
<b>Driver</b>	- The name of the driver.
<b>Qualify result</b> used)	- The qualification result (If race qualification has been
<b>Race result</b> the race)	- The race result (or temporary result if displayed during
<b>Best time</b>	- The best lap time during racing.
<b>Best lane</b>	- The lane that was used for the best lap time.
<b>Time raced</b>	- The total amount of time raced. (If displayed during
	racing in <i>Round Robin</i> mode, the time <i>this</i> racer has raced.)

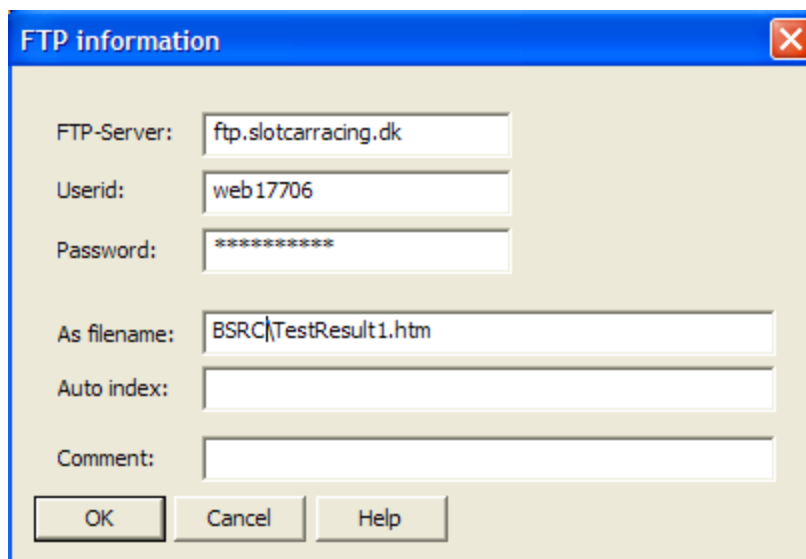
 **Print result**

You can print the result on a printer using the “Print result” button. This

will open a standard printer selection and options dialog.  
The printed result lists are by default printed in landscape orientation. The content is similar to the displayed result list.

### ☀ **As WEB page**

The result list can also be stored as a WEB page and uploaded to your own home page by just hitting the “As WEB page” button.  
You will be prompted to fill out the required FTP Connection information:



You must fill out the FTP server, userid and password. This information is common in the entire setup, and will be kept for you in the LapMaster program.

You must also specify a filename (possibly containing a path) of the file you want on your server. LapMaster keeps a separate filename for Results/Records, ScoreBoard and the Auto (LiveTiming) mode.

**Note:** If the filename contains a drive letter and path like “C:\LapMaster\Results\TestResult1.htm”, then it will be stored locally rather than FTP’ed to the server.

You also have the option to add a simple comment to the page before upload.

### **Auto index**

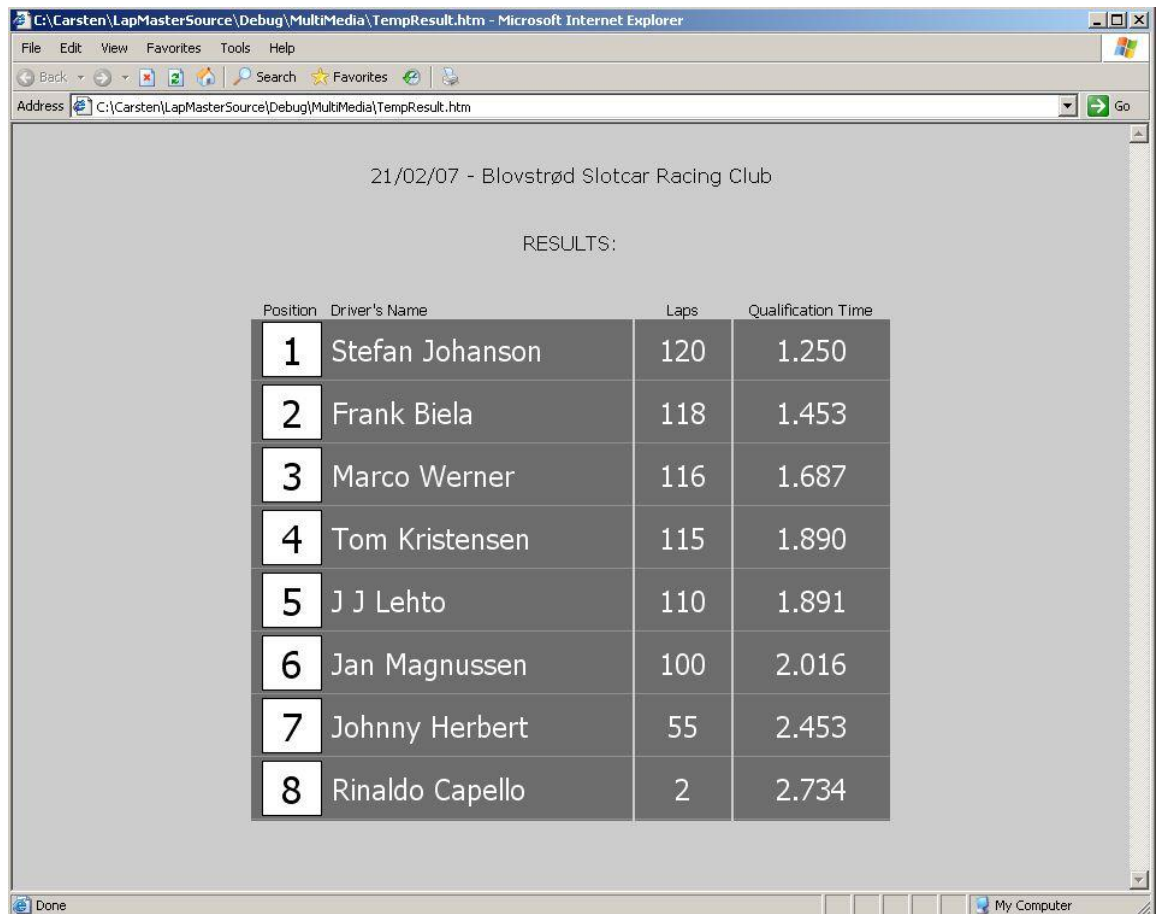
If you provide some descriptive text in the “Auto index” box, then LapMaster will setup a link automatically for you. This link can be found on via the “Results and Statitics” link on the LiveTiming page.

The text you provide will be the displayed “link”, and it will point at the file you just saved.

The link page itself is based upon the model found in the “C:\LapMaster\Multimedia\LapMasterResultLink.htm”. If no model is present, one will be copied from “C:\LapMaster\Multimedia\Factory”

The active list is kept in  
“C:\LapMaster\Results\LapMasterResultLink.htm”. Delete or edit this if  
you want to reset or change your auto link list.

By default a page somewhat like the one below will be generated.  
However you can easily replace it with your own design.  
For information on how to do this, see [Customized diplomas and WEB  
results](#)



Position	Driver's Name	Laps	Qualification Time
1	Stefan Johanson	120	1.250
2	Frank Biela	118	1.453
3	Marco Werner	116	1.687
4	Tom Kristensen	115	1.890
5	J J Lehto	110	1.891
6	Jan Magnussen	100	2.016
7	Johnny Herbert	55	2.453
8	Rinaldo Capello	2	2.734

As with diplomas, the output can be customized by any user with a little  
HTML knowledge. (See [Customized diplomas and WEB results.](#))

#### ☀ To clipboard

This button copies the result page into the windows clipboard. (Like “cntl-  
c”)

This is very useful for copying the result to be pasted into a spreadsheet, a  
web-forum, or any other text document.

### ★ Statistics

After the race, you can examine different statistics about the race. Pressing this button brings you to the [Statistics page](#).

### ★ Make diploma

You can make nice looking diploma's to the top finishers (or all participants for that matter.)

Just press the "Make diploma" button, and fill in the position (I.E: 1) for the one you want to make a diploma for.

This will format and display the diploma in the MS internet explore. You can then use the "print" option from there to get them on paper.

By default there is a "Gold" diploma for no.1, a "Silver" for no. 2, and a "Bronze" for number 3. The rest will get a generic diploma.



However the diplomas can be customized to look how-ever you want, by a user with just a little HTML knowledge. (see [Customized diplomas and WEB results](#).)

### ★ History

Every lap counted on this system is stored in a log file. A new log file will be started for each and every day that LapMaster is started. You can access these log's or history files from this button.

See chapter below on [History](#)

### **Export**

The “**Export**” button allows the data to be saved into a TAB-separated file, which can be loaded by I.E. NOTEPAD or EXCEL

## Statistics

Statistics (Best time/Overall best) - - Date: Fri Jul 16 15:46:25 2010

Pos	Driver	1-Red	2-White	3-Green	4-Orange	5-Blue	6-Yellow	7-Purple	8-Black	Best time	Total Laps
4	Kilo	2.886	3.073	3.182	3.510	3.760	3.557	4.009	3.885	2.886	44.62
9	Hotel	2.933	3.213	3.105	3.245	3.557	3.495	4.228	3.775	2.933	42.01
6	Golf	2.949	3.214	3.261	3.713	3.385	3.572	3.682	3.542	2.949	44.32
1	Charlie	2.964	3.260	3.307	3.354	3.385	3.339	3.510	3.791	2.964	47.49
8	Foxtrot	2.964	3.152	3.260	3.386	3.807	3.542	3.603	3.885	2.964	43.13
7	Echo	2.964	3.136	3.244	3.354	3.463	3.698	3.651	3.760	2.964	44.20
10	Delta	2.980	3.385	3.401	3.557	3.339	3.432	3.728	3.837	2.980	41.66
2	Alpha	3.026	3.089	3.105	3.151	3.370	3.634	3.775	3.869	3.026	45.83
5	India	3.291	3.042	3.089	3.292	3.338	3.510	3.557	4.056	3.042	44.52
3	Juliet	3.104	3.105	3.120	3.713	3.354	3.432	3.573	3.806	3.104	45.54
11	Bravo	3.573	3.136	3.183	3.167	3.463	3.385	3.634	3.822	3.136	41.46
Best time ->		2.886	3.042	3.089	3.151	3.338	3.339	3.510	3.542		

Data: ☒ Lap time ☐ Laps ☐ Realized/Potential Analysis direction: ☒ Overall best ☐ Personal best ☐ None

OK/Cancel Print result As WEB page Auto WEB Export Import Help

The statistics page is available after a race.

It can help drivers analysing the race and finding their respective weak and strong points.

Also the "Laps" display can double as a detailed result display.

"Laps" are compensated with the "Zone correction" value if any is applied.

The "\*" after a lap count indicates that this is the starting lane for the driver.

**Note:** The lap counts displayed are "Net laps". This is not the same as displayed on the lap counter after each stint!

The counts are compensated for the "sector" position at the end of each stint. For instance, if the car completes the first stint stopping just before the counter, then at the next stint it goes a little over 10 laps, this time stopping just after the counter.

In this case the counter would show "11.00" since the car parsed 11 times, and it stopped in the first sector. However the true distance (for the purpose of statistics), is just "10.01".

10 laps and one sector. This is what would be displayed in the statistics section.

## **Data**

You can display 3 different kinds of statistics:

Fastest one lap in each lane.

Number of laps in each stint.

Realized/Potential. This is the ratio between the laps you actual realized on each lane, compared to the number of laps you could have done, had all laps been raced at well as your fastest lap on that lane.

This comes out as a fraction. The closer to 1.000 the better. In rare instances you can realize slightly above 1.000 because the car might travel a little after power off.

## **Analysis direction**

The 3 best results are coloured in progressing green colours, and the 3 worst in progressing red colours. All others are yellow.

You can either have the colours to indicate Overall performance (relative between drivers), or Personal best (relative between lanes).

Alternatively you can select to have no colouring evaluation at all.

## **OK or CANCEL.**

When the **OK** button is pressed you return to the race setup panel. Note that you changes are not committed until you press **ok** on the race setup panel.

Pressing **cancel** on either the Advanced settings or the Race setup panel, erases the changes you made on the panel.

## **PRINT result.**

Get the report printed.

## **As WEB page.**

Prompts for the FTP information, and then publishes the current displayed statistics as a web page.

(See also similar description under [RaceSetup](#) for a description of the FTP settings involved.)

With use of the “Auto-index” feature you save the statistics so that they will show up via a link from the “Live Timing” page.

## **Auto WEB.**

This button generates the 3 statistics:

- Number of laps, Overall.
- Fastest lap, Overall.
- Realized/Potential, Overall.

and uploads to the FTP site with default settings.

Once setup, this is a “fast-button” to upload all statistics to the auto index system.

**Export.**

Exports the current data so that it can be loaded again for later analysis. It is the raw data that is saved, so all available analysis options are available later after import.

**Import.**

Reloads previously exported statistical information, so that you can view it again.

**Help.**

Display this help text.

## Customized diplomas and WEB results

Diplomas and the WEB result are build using HTML. This allows the user to freely build and customize the layouts of the diplomas and the uploaded LiveTiming and Result WEB pages. Actual the provided layouts should only be taken as samples. Please feel free to customize them anyway you like. It is easier than you think.

You can use any editor, provided that you have a basic understanding of the HTML involved, or alternatively you can use an editor that does support HTML. I.E. Microsoft Word might be used to edit the pages, provided you save the data in HTML format.

LapMaster used HTML models stored in the “C:\LapMaster\Multimedia” folder, but distributed in the “C:\LapMaster\Multimedia\Factory” folder. This means that LapMaster first look for your local version in the MultiMedia folder, and if not yet there copies the distribution versions from the Multimedia\Factory folder. In this way you possibly modified models will not be overwritten by a LapMaster upgrade.

These models contain some replaceable parameters in the style [NAME], which will be modified by LapMaster before being used as the actual HTML file.

### ***DIPLOMAS***

For the diplomas, you will find 4 different models (for each supported language) in the Multimedia folder.

The actual name depends upon the translation of item 238 “Diploma” in the language translation file. (See the [language](#) chapter)

They model files are:

- Diploma1.htm – Model for first place diploma.
- Diploma2.htm – Model for 2’nd place diploma.
- Diploma3.htm – Model for 3’rd place diploma.
- Diploma.htm – Generic diploma for place 4 to 255.

The replaceable parameters are:

- [DATE] – The date the diploma is printed. (Current date)
- [POS] – The position selected from the result list.
- [NAME] – The name of the driver.
- [QTIME] – Qualification result.

- [LAPS] - Race result.
- [BESTTIME] - Best lap time during the race.
- [BESTLANE] - Lane identification of the lane the best time was realized upon.
- [RANDOM] - A random number between 1 and 20. (Same number for entire document) In the provided model it is used to pick a random decoration (car) of the diploma.
- [CLASS] - The class of racing as specified in the [Race Setup](#)
- [EVENT] - The event name as specified in the [Race Setup](#)
- [TRACK] - The name of the race track as specified in the [Track Setup](#)

## **WEB RESULT**

(Web results are no longer customizable. However they are now much more dynamic in content, and are identical to the displayed and printed results in their structure.)

## **WEB TRACK RECORDS**

The WEB TRACK RECORDS is constructed from 3 partial models that you will find in the Multimedia folder. They are:

- RecordHeader.htm – This is the initial part of the result model. It usually contains the headings and general description of the circumstances.
- RecordLine.htm – A track record line is generated for each lane on your track. Replaceable parameters are updated before the data is added to the output.
- RecordFoot.htm – When all lanes have been posted, then the final document is completed by adding the RecordFoot.

The replaceable parameters are:

- [LANE] - The lane number or color of the lane. (Line parameter)
- [NAME] - The name of the driver. (Line parameter)
- [RECORDTIME] - The current track record. (Line parameter)
- [COLORREF] - A HTML colorref for the color of the lane. (Line parameter)

- [RANDOM] - A random number between 1 and 20. (Same number for entire document.)
- [DATE] - Date for the record.
- [CLASS] - The class of racing as specified in the [Race Setup](#)
- [EVENT] - The event name as specified in the [Race Setup](#)
- [TRACK] - The name of the race track as specified in the [Track Setup](#)
- [COMMENT] - The comment entered from the FTP Prompt panel when you clicked the “Save as WEB” function.

### ***SCOREBOARD / LIVETIMING***

The LIVETIMING / SCOREBOARD result is constructed from 3 partial models that you will find in the Multimedia folder. They are:

- ScoreBoardHeader.htm – This is the initial part of the ScoreBoard model. It usually contains the headings and general description of the ScoreBoard list.
- ScoreBoardLine.htm – A number of ScoreBoard lines are added to the finished ScoreBoard, one for each driver. Driver related parameters are replaced individually before the lines are added to the final document.
- ScoreBoardFoot.htm – When all driver related lines have been added, then the final document is completed by adding the ScoreBoardFoot.

The replaceable parameters are:

- [RANDOM] - A random number between 1 and 20. (Same number for entire document.)
- [DATE] - The date the result list is printed. (Current date)
- [LOCALTIME]- The time-of-day the result list is printed. (Current time)
- [CLASS] - The class of racing as specified in the [Race Setup](#)
- [TRACK] - The name of the race track as specified in the [Track Setup](#)
- [EVENT] - The event name as specified in the [Race Setup](#)
- [TIME] - Remaining stint time, or overall clock.
- [HEAT] - Current heat.
- [STINT] - Current stint.

[RACETYPE] - Type of race, for instance "Heat racing"

[RACESTATE]- State of race, for instance, "Racing" or "Pause"

[COMMENT] - The comment entered from the FTP Prompt panel when you clicked the "[WEB Access/WEB Publish](#)" function.

[REFRESH] - A suitable refresh interval (in seconds) selected by LapMaster. In general 1 minute or the same as the update interval if less than a minute. 1 Hour if update is not being used.

[FONTSCALE] – A value "100", "75" or "50" depending on the number of entries in the race. Font scaling is used to make the most of the area available for viewing the results.

Per driver:

[POS] - The position of the driver on the result list.

[POINTS] - The number of points earned by the driver

[LAPS] - Race result.

[HEATLAPS] - Laps done in this stint.

[NAME] - The name of the driver.

[STARTHEAT]- The heat number for which the driver is scheduled to start.

[STARTLANE]- The lane in which the driver is scheduled to start.

[LOCATION] - Name of the Raceway on which the driver is racing.

[LAPTIME] - Time for last lap raced.

[BESTTIME] - Fastest lap for this driver in this stint.

[LANE] - Lane currently being used.

[LANECOLOR]- Color code of the lane being used.

## ScoreBoard

If you have selected the optional ScoreBoard from the [Program setup](#) you will have a panel like the one below. The intention is that you should move it to the second monitor, if you are running a dual screen configuration under XP or Vista.

If you run a 2 or 4 lane setup, you can use the unused portion of the main screen for the ScoreBoard. If you are in neither of these situations, you will probably not be using the ScoreBoard, or at least select to run with it in the “minimized” configuration for the most time.

The ScoreBoard is a simple ranking list, but it will contain all drivers, not just the ones currently on the track. This can be used for much wide information on the state of racing.

The Scoreboard will be updated during heat-racing, heat-racing-best-of, ISRA-Team-Racing, Qualification or Named-practice mode.

Score Board											
Pos	Finish time	Laps	Driver	Time	Best time	Lane	Start heat	Start lane	Track	Print re	
1	35.67	35.34	Frank Biela				1	5	LAPMAS	Clear	
2	35.37	35.19	J J Lehto				1	1	LAPMAS	Connect	
3	35.08	35.04	Stefan Johanson				1	6	LAPMAS	Cha	
4	35.06	35.03	Johnny Herbert				1	7	LAPMAS	Save to	
5	35.00	35.00	Rinaldo Capello				1	3	LAPMAS	Help	
6	34.78	34.40	Tom Kristensen				1	8	LAPMAS		
7	34.39	34.20	Marco Werner				1	2	LAPMAS		
8	34.20	34.10	Jan Magnussen				1	4	LAPMAS		

The ScoreBoard contains the following information:

**Pos** The current position in the total ranking. (Compared on Score)

**Score/Predicted/Finish time**

The number of points earned (Laps \* handicap factor)

**or** The predicted race result. This is being used in place of Score, if the option is set in the **Advanced Race Setup**.

**or** Finish time if racing “No of laps – All to complete”.

<b>Tot Laps</b>	The number of laps and fractions realized by the driver at this time.
<b>Laps</b>	The number of laps done by the driver in this stint.
<b>Driver</b>	The drivers name. Must be unique within the entire ScoreBoard (all tracks).
<b>Time</b>	Lap time for last lap.
<b>Best time</b>	Fastest lap within this stint.
<b>Lane</b>	The current lane for this driver.
<b>Start heat</b>	Information on which heat this driver is supposed to or started in.
<b>Start lane</b>	Information on which lane this driver starts in.
<b>Track</b>	The name of the track this driver races on.
<b>Source</b>	Internal technical information. Not to be used at this time.

#### **Print result**

The current contents of the ScoreBoard can be printed by means of this button.

#### **Clear**

The entire ScoreBoard can be cleared by means of this button.

#### **Connect tracks**

Connect tracks takes you to the [WEBConnect page](#)  
The ScoreBoard takes on a completely new dimension when you connect tracks.

In short, Connect tracks allows you to connect several LapMaster system together electronically using TCP/IP (Local area net, LAN or Internet)).

When several LapMaster systems are connected, the ScoreBoard shows the combined status in real-time. Connect-tracks even contains features to synchronize the start of heats at each track, so that the combined real-time result is more interesting.

One obvious application of this feature is to race on several identical tracks in the same room. (Like the massive 24-hour Scalextric race held each year on 3 identical 6 laner tracks in a sports arena.)

But it doesn't stop there. With the unique LapMaster Score system, you can even race on dissimilar tracks or dissimilar types of cars, and still compete on a fair basis. All you need to know is an established lap distance record for a given race

(For instance the distance record from the last time you ran a similar race). By typing these numbers into the handicap calculator, LapMaster calculates the laps into Points or Score, and this score is what will give the ranking on the common Scoreboard.

Combine this handicap system with the possibility to connect LapMasters anywhere in the world using the TCP/IP internet capability, and then the door is open for organized world wide simultaneous racing.

### Chat

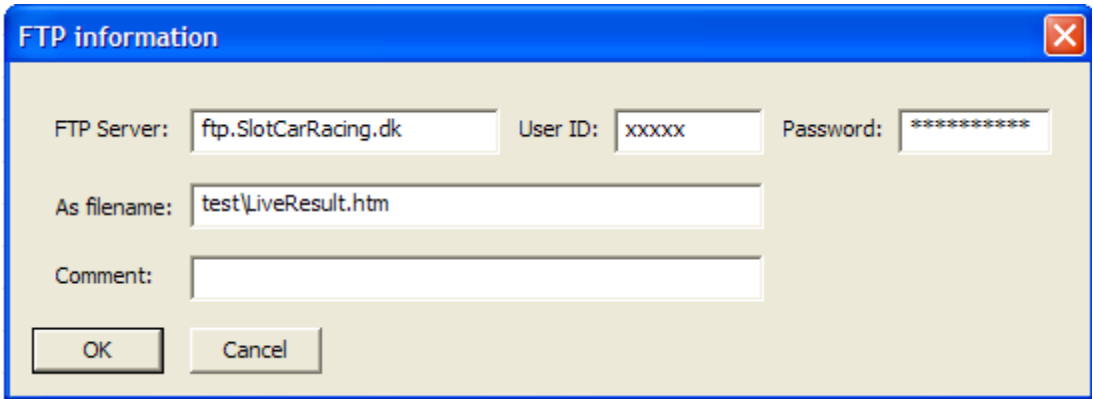
Now, if you are really using Connect-Tracks to race over the internet you might want to communicate with your friends. The **chat** starts another window that allows you to send messages back and forth between the participating LapMaster systems.

The messages that you send will be visible from all locations, and all locations can answer on them.

### Save to WEB

This option allows you to save the current ScoreBoard data in WEB format.

You will be prompted to fill out the required FTP Connection information:



FTP information

FTP Server: ftp.SlotCarRacing.dk User ID: xxxxx Password: \*\*\*\*\*

As filename: test\LiveResult.htm

Comment:

OK Cancel

You must fill out the FTP server, userid and password. This information is common in the entire setup, and will be remembered for you in the LapMaster program.

You must also specify a filename (possibly containing a path) of the file you want on your server. LapMaster keeps a separate filename for Results/Records, ScoreBoard and the Auto (LiveTiming) mode.

You also have the option to add a simple comment to the page before upload.

The format of the WEB page is customizable. See [Customized diplomas and WEB results](#)

## WEB Access / WEB Publish

WEB Access or WEB Publish is the process of displaying the on-going race on your home-page on the internet, either in real time as “LiveTiming”, or just to publish the final race results at a single click of a button.

You should also note that there is an option in the [Advanced setup options](#) called “Auto publish”.

What this feature does is to automatically post race results and statistics to your website at end of race. It also creates and maintains an index page of these stats and results.

The index page itself can be found from a link provided on the “LiveTiming” page.

**Note:** Before you use WEB publish feature, you need to enable the “Dynamic Scoreboard” in the [Program setup](#)


It is the scoreboard that are mirror on the WEB, and without it, no data will be displayed.

WEB publish mode (FTP server)

Your website  
HTTP://

FTP logon  
FTP-Server:   
Userid:   
Password:

FTP action  
Automatic FTP to FTP server:   
As filename:   
Result path:   
Statistics path:   
WebCam  
☒ None ☐ Still/WebCam.jpg ☐ UStream  
Comment:

Setup wizard  
  
Edit Today's Race program

OK Cancel Help

## ***WEB Publish mode (FTP server)***

If you or your club own a home page on the Internet, it is almost certain that you have FTP access to the server that hosts your homepage.

If you provide the required FTP information to LapMaster, you will be able to upload status and results by a simple click of a button.

Actual you don't even need to click a button, but we will get back to that in a moment.

The Information you need to provide is:

**Your website** – This is the URL for your web-page. A sample could be “www.LapMaster.dk”

**FTP-Server** - The name of the FTP-server associated with your home page. This name is provided by your internet provider.

**UserID:** - Your userid for logon.

**Password:** - The password is not displayed, but LapMaster remembers it and uses it for logon.

**Caution:** A malicious user of LapMaster might misuse this capability to damage your WEB-Site.

Use your common sense and your own judgement to determine if you want this feature to be available, and will trust LapMaster and its users, access to your website.

The password itself will not be readable by users of LapMaster.

**As Filename** - This indicates the filename you will be using for upload. It might contain subdirectory navigation, but the directories must exist beforehand.

**Note:** You will need to provide links from your existing pages to the new page for people to be able to navigate to it.

This will not be done by LapMaster, but of course you can provide dummy links beforehand, that will become active as you upload data.

**Result path** - This indicates the path that will be used during upload of Result data.

**Statistics path** - This indicates the path that will be used during upload of Statistics data.

**Note 2:** As a special feature, if you provide a filename/Result-path/Statistics-path that starts with a drive letter specification (Like "C:\"), then the data will not be send by FTP, but stored locally with the specified path and filename. It will still be in the HTML format.

With the basic logon information, you can now use the "Save on WEB" buttons on the result page to publish the result at a simple click of a button.

However you can do much more than that. Actual you can display the running status in real time by using the "LiveTiming" capabilities.

**Automatic FTP to FTP Server: (LiveTiming)** - Now here it becomes extremely interesting.

You can ask LapMaster to log on to your FTP-Server and update the data at regular intervals. However LapMaster will only log on if it has data to update.

What can we use this for you might ask?

Well, actual you can display live status from your race, by uploading a few files, and simply filling out these 5 data fields. That's it !

Tell you friends the filename you will be using, or provide a public link to it from your existing homepages, and you are ready to go with live broadcast. !

You can select the upload interval of 5 sec, 10 sec, 30 sec, 1 minute or 2 minutes. Use the 5 seconds option with care. It takes some internet connection resources to run at 5 sec interval. Normally 10 seconds would be just fine and still provide a good sense of "real-time".

**[ The following section is obsolete, use the  
SETUP WIZARD to do this for you. This  
information is maintained for reference only.]**

To make it easy, follow these guidelines:

As a preparatory step for setting up a “liveTiming” session, you should create the following directory structure on your webserver:

**LiveTiming**

**LiveTiming/Results**

**LiveTiming/Statistics**

Then upload the following files from “c:\LapMaster\Multimedia” to the “LiveTiming” directory on your webserver:

**GetLapMasterInfo.php**

**LiveTimingLoader.htm**

If you are not planning to use the UStream setup, then also copy **index\_LiveTiming.htm** and rename it **index.htm**.

If you are planning on using the live video UStream setup, then you should also upload the following files to the LiveTiming directory on your webserver:

**index\_UStream.htm** and rename it **index.htm**

**LiveTimingLoaderUStream.htm**

**UStreamLink.htm (\*)**

Before upload you must modify this file to include the embedded code provided by UStream for including the video stream and the chat on this page.

**RacewayDescriptor.htm (\*)**

Before upload you must copy and modify this file with the name and contact information for your raceway.

(\*) Since these files are modified for local use, they are distributed in the “LapMaster/Multimedia/Factory” folder. Copy them to “LapMaster/Multimedia” before modification to avoid your updates to be overwritten by future LapMaster version updates.

From your ordinary pages, provide a link to the LiveTiming, something like:

```
<a href="LiveTiming/index.htm">LiveTiming</a>
```

And finally, the predefined setup assumes that you will be uploading to: LiveTiming/LiveTiming.htm

**If you want to make your own web page layout for the LiveTiming display:**

You can customize or make your own web pages by modifying or replacing the models "ScoreBoardHeader.htm", "ScoreBoardLine.htm" and "ScoreBoardFoot.htm" in the "c:\Program Files\LapMaster\Multimedia" folder.

(At first use LapMaster will copy the defaults from the "c:\LapMaster\Multimedia\Factory" folder if not found in the multimedia folder.)

In case you do make your own, there are a couple of items you need to be aware of.

The user needs to "refresh" the display at regular intervals to see your newly updated data.

There are several options for having the browser automatically fetch the updated page at regular intervals.

The most simple is to include a line of code in the "Lapmaster\Multimedia\ScoreBoardHeader.htm" model, that will cause the page to update.

Either: <SCRIPT  
type=text/javascript>setTimeout("location.reload()",[REFRESH]000);</SCRIPT>

Or : <meta http-equiv="refresh"  
content="[REFRESH];URL=LiveTiming.htm">

**Note 1:** LiveTiming.htm must be the name of the uploaded page or the name must be replaced in the META statement.

[REFRESH] will be replaced by LapMaster for a suitable interval matching the selected update interval.

**WebCam :** - If you check the **“Still/Webcam.jpg”** box, LapMaster will use the **“ScoreBoardHeaderWEBCam.htm”** as model rather than **“ScoreBoardHeader.htm”**.  
Also LapMaster will upload the image stored in **“C:\LapMaster\MultiMedia\ WebCam.jpg”** together with the data. You can use a free program such as **“FWINK”**, found on the internet, to take a picture from a webcam at regular intervals and store it here. This will display **“Live”** updated images from the race along with the result. Also when this option is checked, data is transferred to your home page at the specified intervals, regardless if LapMaster has new timing data to display or not.

- if you check the **“None”** (or **“UStream”**), LapMaster does nothing with respect to WebCams.

- To setup a **“UStream”** system you need to do a few extra steps.  
[www.UStream.tv](http://www.UStream.tv) is a free service on the internet that allows you to stream real time video and sound from your webcam, and even record this for later playback. The UStream organization is not associated with LapMaster in any way.

However it is possible to take advantage of this free service and integrate it all into a very nice setup with real time webcam and sound, chat-board and LapMaster live timing on one page. This looks and works fantastic.

You will need to sign up to UStream and get a free account to use their system. Broadcasting from there is extremely simple and can literally be done by 2 clicks once you have an account.

Once signed up, they will also provide you with a display box of code that you can clip and paste into the LapMaster **“UStreamLink.htm”** module. Same for the chat-board feature.

You find the **“UstreamLink.htm”** in the **“LapMaster\Multimedia”** folder on your system. When modified, you need to upload it to the **“LiveTiming”** directory on your webserver.

You should also modify the **“LapMaster\Multimedia\RacewayDescriptor.htm”** with the name and

contact info of your raceway, and then upload this to the “LiveTiming” folder on the server as well.

Finally upload the “LapMaster\Multimedia\LiveTimingLoaderUStream.htm” to the “LiveTiming” folder on your webpage, and rename it “index.htm”.

Only step left is to provide a link from your own pages to “LiveTiming/index.htm” and you are ready to go !

**Note 2:** You will need an approximate minimum of 100 KB upload speed to run real time video. If you reduce quality and frame-rate you might get by with 64 KB upload speed.

**Note 3:** You might consider running the UStream part on a separate computer as not to compromise the race computer in case something’s goes wrong and locks up.

**Comment:** - Any text comment you want to be displayed together with the AUTO generated page.

#### **Setup Wizard:**

The setup wizard helps you copy and modify the required files for doing the website setup.

Follow the prompt and guidance of the wizard.

A basic understanding of HTML is helpful for making this setup.

#### **Edit Today’s Race program:**

The LiveTiming contains a page that is intended for you to publish your time schedule, so that spectators might know when to follow your webcast.

Pressing this button, you get to edit the text, This page will then be uploaded automatically for you.

## WEB Connect

WEB connection is the process where you connect 2 or more tracks to form a single racing event.

The tracks can be in the same room, in which case you connect them using LAN (Local area network), or they can be widespread at any geography in the world, in which case you connect them using the Internet (TCP/IP).

Also the tracks can be identical, like when they run a massive 24 hour Scalextric race running at 6 or more identical layouts at the same time, setup in a large sports arena. Or they can be of different layouts, and possibly be racing with different classes of cars, and still be compared in a reasonable and sporting fashion, using the build-in handicap system.

You find the WEB-CONNECT button on the [ScoreBoard](#)

WEB - Connection

WEB connection mode

TCP/IP Port:  Password:  ☐ Synchronized heat start on all tracks.

☒ No connection.  
☐ Connect as SERVER.  
☐ Connect as CLIENT to server:

Handicap calculator.

Laps:  =>  => Point factor:   
Minuts:  =>

Connection log:

The WEB Connect page have 3 major sections.

## ***WEB Connection mode***

When setting up a connected race, one and only one LapMaster program must be the **SERVER**. All other programs connect as **CLIENTs** to this server. Of course the default is the **No-Connection** mode.

If you connect as client, you will need to know the **name** or **address** of the server machine. For local attachment (LAN), this is the name of the computer in your network that you selected to run the SERVER version of LapMaster.

For internet access (TCP/IP) the name can either be a name of the type [www.slotcarracing.dk](http://www.slotcarracing.dk) or it can be a TCP/IP address like 168.25.0.3. If your server isn't on a machine that has a www address, there is still some possibilities to set up your router with a NAT (Network Address Translation), but now it gets real technical. I assume I will publish details on how to do this at a later time.

### **TCP/IP port**

But before we can connect, we will need to select which **TCP/IP port** we want to use. This port is just a number between 1024 and 65535 (Numbers below 1024 are reserved). You can think of it as a channel. TCP/IP uses this channel number to select which programs to connect together on a given computer. We have chosen the number 1357 as default for LapMaster. It can be anything you want as long as client and server are using the same. However unless you have a very good reason to select otherwise, stay with the default.

### **Password**

This is a simple mechanism to keep unwanted visitors out. The Master and the clients can predetermine a password (any text string) that must be used when signing on. Unless you know the password, you cannot sign on to the server, and you cannot fiddle with the result on the ScoreBoard.

### **Synchronized heat start on all tracks**

If you check this box, each heat doesn't start until all tracks are ready. Even if you start the race on the same time, the heats probably don't end at the same time, due to various numbers of track calls. With the synchronize feature on, at least each heat are started on the same time. This keeps the combined score better in sync, for a more realistic real-time experience. The race manager can override the sync, if one or more tracks experience difficulties, or for some reason selects to abandon the race while active.

## *Handicap calculator*

The Handicap calculator is to be used in association with the WEB Connection mode when you run on different layouts or different classes of cars.

To use the handicap calculator you need an established distance record. For instance the finishing result of the last club race. Just type the number of laps (with zones) and the race time in minutes and click the **Calc** button. LapMaster then calculates and displays the handicap factor. This factor is calculated in such a way, that a driver performing 100% up to the established record, would earn 60 point per minute of racing.

Any laps counted are multiplied by the handicap factor, and it is this Score or Points that are being compared on the ScoreBoard with the other drivers from other tracks.

**Note:** If you check the “Estimate result” in the [Advanced Race Setup](#), then the handicap points will be overridden by the estimates.

## *Connection log*

This scrolling window is a technical aid in determine connection progress.

You will be able to see the progress of sign-on to the Client or Server.

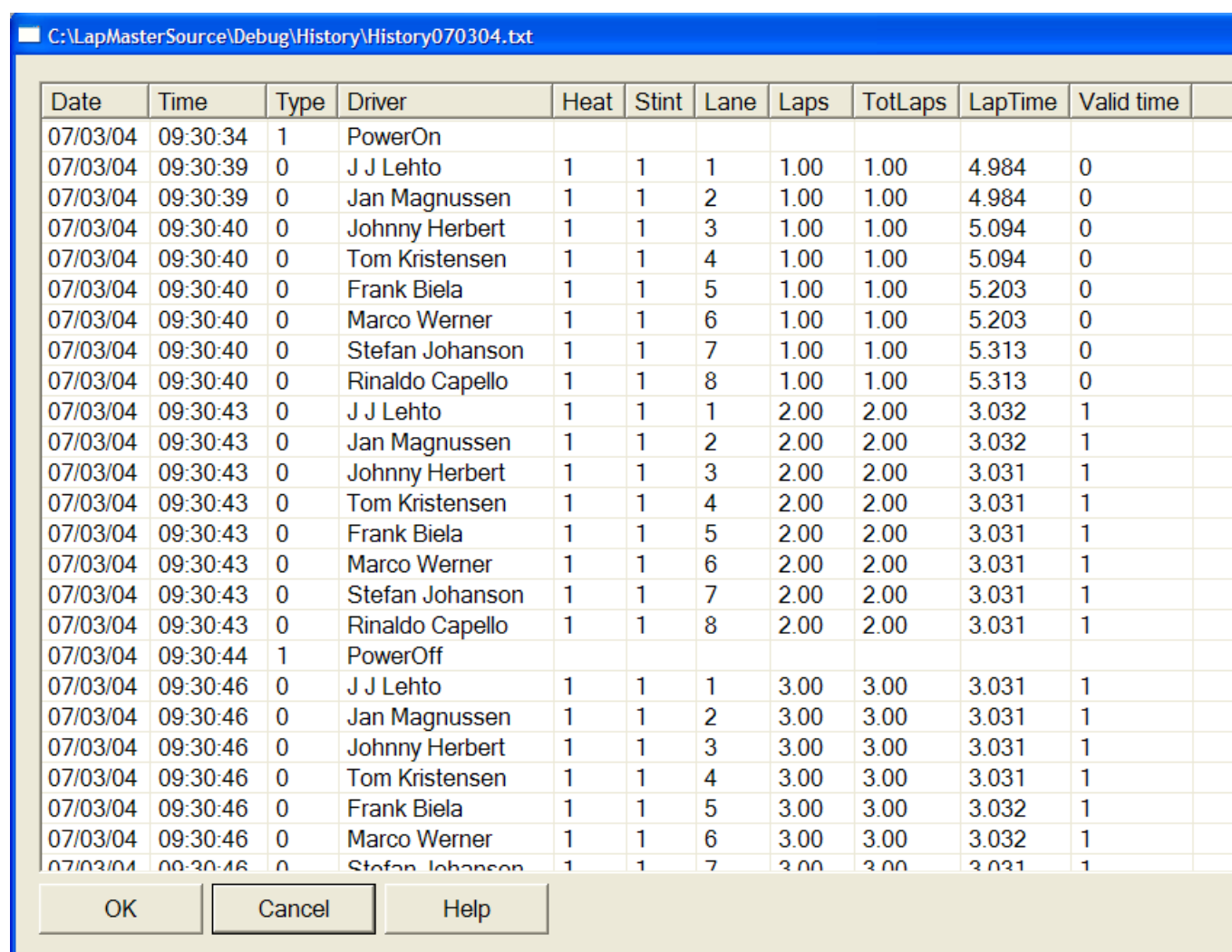
## History

Each lap count, and certain other events causes the LapMaster program to generate a history record.

This data is accumulated in a file in the LapMaster/History folder. The file is named Historyyyymmdd where "yyymmdd" is the date when the Lapmaster program is last started. Usually the current date.

You can select and display a history file from any date in your folder, including todays date.

The history file is a TAB-separated file, which means that you can also load it into NOTEPAD or EXCEL for further processing and analysis.



The screenshot shows a text file named "C:\LapMasterSource\Debug\History\History070304.txt" open in a text editor. The file contains a tab-separated log of race events. The columns are: Date, Time, Type, Driver, Heat, Stint, Lane, Laps, TotLaps, LapTime, and Valid time. The log starts with a "PowerOn" event at 09:30:34, followed by a series of lap times for various drivers (J J Lehto, Jan Magnussen, Johnny Herbert, Tom Kristensen, Frank Biela, Marco Werner, Stefan Johanson, Rinaldo Capello) across different stints and lanes. The lap times are generally between 4.984 and 5.313 seconds. The log ends with a "PowerOff" event at 09:30:44.

Date	Time	Type	Driver	Heat	Stint	Lane	Laps	TotLaps	LapTime	Valid time
07/03/04	09:30:34	1	PowerOn							
07/03/04	09:30:39	0	J J Lehto	1	1	1	1.00	1.00	4.984	0
07/03/04	09:30:39	0	Jan Magnussen	1	1	2	1.00	1.00	4.984	0
07/03/04	09:30:40	0	Johnny Herbert	1	1	3	1.00	1.00	5.094	0
07/03/04	09:30:40	0	Tom Kristensen	1	1	4	1.00	1.00	5.094	0
07/03/04	09:30:40	0	Frank Biela	1	1	5	1.00	1.00	5.203	0
07/03/04	09:30:40	0	Marco Werner	1	1	6	1.00	1.00	5.203	0
07/03/04	09:30:40	0	Stefan Johanson	1	1	7	1.00	1.00	5.313	0
07/03/04	09:30:40	0	Rinaldo Capello	1	1	8	1.00	1.00	5.313	0
07/03/04	09:30:43	0	J J Lehto	1	1	1	2.00	2.00	3.032	1
07/03/04	09:30:43	0	Jan Magnussen	1	1	2	2.00	2.00	3.032	1
07/03/04	09:30:43	0	Johnny Herbert	1	1	3	2.00	2.00	3.031	1
07/03/04	09:30:43	0	Tom Kristensen	1	1	4	2.00	2.00	3.031	1
07/03/04	09:30:43	0	Frank Biela	1	1	5	2.00	2.00	3.031	1
07/03/04	09:30:43	0	Marco Werner	1	1	6	2.00	2.00	3.031	1
07/03/04	09:30:43	0	Stefan Johanson	1	1	7	2.00	2.00	3.031	1
07/03/04	09:30:43	0	Rinaldo Capello	1	1	8	2.00	2.00	3.031	1
07/03/04	09:30:44	1	PowerOff							
07/03/04	09:30:46	0	J J Lehto	1	1	1	3.00	3.00	3.031	1
07/03/04	09:30:46	0	Jan Magnussen	1	1	2	3.00	3.00	3.031	1
07/03/04	09:30:46	0	Johnny Herbert	1	1	3	3.00	3.00	3.031	1
07/03/04	09:30:46	0	Tom Kristensen	1	1	4	3.00	3.00	3.031	1
07/03/04	09:30:46	0	Frank Biela	1	1	5	3.00	3.00	3.032	1
07/03/04	09:30:46	0	Marco Werner	1	1	6	3.00	3.00	3.032	1
07/03/04	09:30:46	0	Stefan Johanson	1	1	7	3.00	3.00	3.031	1

The history display is a log of what the counter systems has recorded.

Most data are obvious. Except for a few codes.

Type=1 means this is a message from an event such as Power-On.

Type=0 means this is a Lap count.

Valid time=0 means that power was interrupted, and that the time cannot be considered valid.

This is also the case for the first lap, which starts from “Power off”, and maybe not even from the counter.

Valid time=1 means that it was a clear “Flying” lap without interruptions, and that the time must be considered valid.

## Track record display panel

Pressing the heading of the track records, opens up the track record display panel.

[illegible]

From this panel you can work with the track records:

- View 3 generations of track records for each lane.  
Print the same info on a printer.  
Save it as a WEB Page to your home page.  
Make Diploma's to the holder of a track record.  
Work the history file to investigate the circumstances of a track record.  
Export the data  
View this HELP file.

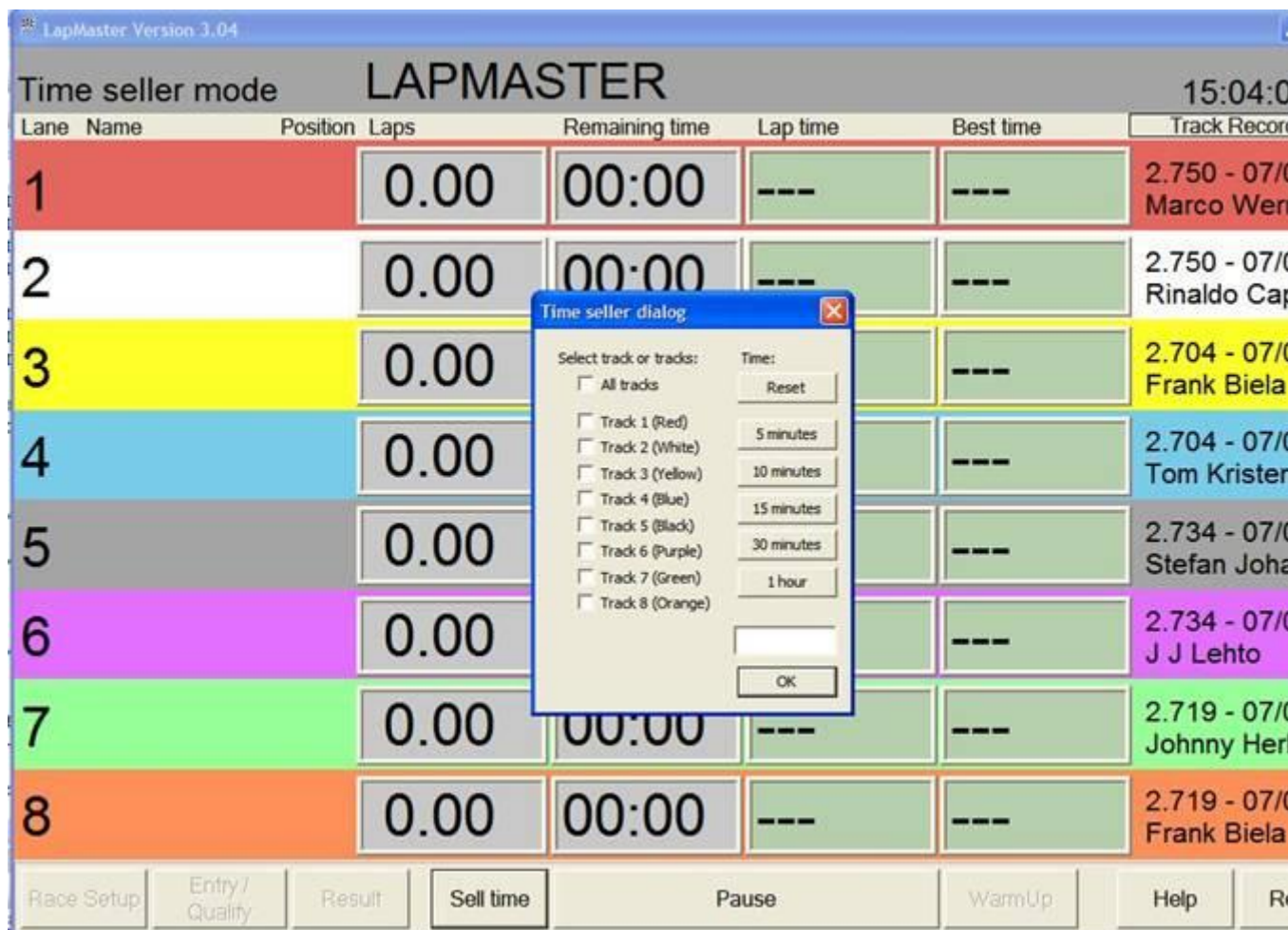
LapMaster maintains a separate lap record for each lane and for each racing class.

Whenever a lap record is broken, the LapMaster program announces so in the loudspeaker system. The class, lap time, the date and the name of the driver is automatically stored in the records file.

Track records are only acknowledged during real racing. (Qualify or some kind of heat racing), never during practise.

Track records are recorded, but not announced during the first heat, first stint. Such announcement would normally lead to information overload.

## Time seller mode



The time seller mode is a special mode for commercial raceways, which rent track time on a time basis.

LapMaster employs 8 “egg timers” that each control power to an individual lane.

The “Total laps” field becomes the “Remaining time” field that displays how much time is left for the customer.

You select “Time seller mode” as a race type in the [race setup](#) panel.

In Time seller mode the “Start” button becomes a “Sell time” button. Pressing it brings up the Time seller dialog.

On this dialog you check the tracks you want to set the timer for (alternatively checks the “All tracks” checkmark), and then enters the time you want to sell in the input field. You can enter seconds or minutes:seconds. Alternatively press one of the speed buttons to define the time

period. Pressing “reset” or setting the time to 0, cancels any outstanding time downcount on the selected tracks.

If you press **OK**, the specification goes into effect. Pressing the X cancels the setup in progress.

You can still halt all downcount using the “Pause” or the “Trackcall” from the [remote](#), if you so desire.

To exit “time seller mode”, press the time-seller heading or press Reset.

## Remote control



The LapMaster unit has a wireless receiver build into the unit.

This works with a transmitter as displayed in this image.

The configuration as delivered has the top button (“A”) of the transmitter set up to controls the LapMaster program.

The remote activates or releases the “Track call” status. That is it stops the race, cuts power and holds the countdown timer. When released, the LapMaster executes the starting sequence, announces the countdown to race, and turn power back on as well as continuing the countdown clock.

“Track call” called from the keyboard can be restarted from the remote by pressing “OFF” followed by “ON”.

However “Track call” called from the remote must be cancelled from the remote. Otherwise the remote control would get out of sync.

You can also halt the timed intermission countdown by use of a “track call” from the remote.

Finally, it is also possible to do a **Remote Start** when the system is in the “Manual” state. Just click the “OFF” and then the “ON” button of the remote control.

## Configuration and battery exchange

The bottom half of the remote can be opened to exchange the battery.

In this compartment you will also find the 5 encoder switches which must match the encoding in the receiver. As delivered, the system code for the remote is **off-off-on-off-off**.

Please observe that it is easy to accidentally change this setting when closing the lid

In the receiver you will find a 10 position encoder switch.

The first 5 is the system code, and must be set the same as the transmitter.

The next 4 indicates the button "A" to "D" and the last is not used.

The default setting for the receiver is therefore **off-off-on-off-off-on-off-off-off-off** (All off except 3 and 6).

If you have multiple tracks with LapMaster installed, you can change the system code on one unit so that they do not interfere.

E.g. Transmitter: off-on-off-off-off and receiver off-on-off-off-off – on-off-off-off-off

Alternatively you could control one track on the "A" button and the other on the "B" if you chose.

In that case use:

Transmitter: off-off-on-off-off

Receiver (track-A): off-off-on-off-off – on-off-off-off-off

Receiver (track-B): off-off-on-off-off – off-on-off-off-off

## Language

LapMaster can be customized to speak and display data in any language you want.

The following language options are predefined:

(English)

English - Andy Wasserman.

English female voice.

(Danish)

Dansk herre stemme.

Dansk dame stemme.

(German)

Deutsche weibliche Stimme.

(Swedish)

Svensk manlig röst

(Norwegian)

Norsk herre stemme. (\*)

(\*) There is no "Norsk" voice yet, only textual translations.

It is possible to add a new language without programming, even though it does take a certain amount of effort to do so.

Adding a new language requires 3 steps.

1) **Create a new language directory.**

This is easy. Just copy a language directory, I.E. "English - Andy Wasserman" found in the "C:\Program Files (x86)\LapMaster\Language" directory, and rename it to the name you want to use for your new language. English language directories should start with the word "English". LapMaster will make assumptions e.g. on decimal point versus decimal comma based upon the selected name.

2) **Change all written text.**

In the directory you just created I.E. C:\Program Files (x86)\LapMaster\Language\SomeLanguage you will find a text file called "Dictionary.txt". Open it with NOTEPAD, and it will look something like this:

```
/* 001 */ "Entries:",
```

```
/* 002 */ "Heat distribution:",
```

```
/* 003 */ "Max drivers per heat:",
```

```
/* 261 */ "Unable to generate the target file %s",
```

You will have to translate all the text into you preferred language. Beware that there are some 400+ lines of texts, so it might take a little effort to get it all right.

If you see something with a “%” or a “\” in front of it, it means the computer will insert data at this point. Be careful not to change the special character or the code following it. It might really screw up things in the program if this is damaged.

Also if the text you translate into is longer than the original, you might end up with parts of the new text not being displayed. If this becomes a problem you might have to shorten the text.

Of course you might opt to do a partial translate only. Maybe only translating the stuff needed on the main display, provided that the race director is comfortable with English.

### 3) **Change all spoken words.**

All spoken words are stored as .wav files in the same directory. You can use the Windows **SoundRecorder** found in “All programs” / “Accessories” / “Entertainment” or similar tool.

Connect a microphone to your computer and record small translated speech files for each of the sound files (Except Pling.wav) found in the language directory. Use the edit facilities of the SoundRecorder to cut off unnecessary leading and trailing empty speech of each sound file. There are some 60+ speech files.

Having completed the translation all you need to do is to select the language using the [program setup](#) panel to activate it.

If you make a new language translation, and would like to share it, feel free to contact the author [mail@lapmaster.dk](mailto:mail@lapmaster.dk) and I will be happy to include it in the standard package.

## Terms and definitions

Race	The entire event where a number of slotcar drivers compete, typically on a single day.
Heat	<p>Since not all drivers can be on the track at the same time, a race is divided into heats, where a number of driver directly competition on the track at the same time. A heat typically involves for all drivers to drive at all the different lanes for a certain amount of time.</p> <p>You can say that a heat = NumberOfLanes * Stint.</p>
Stint	The continues amount of time a driver uses in competition on a specific lane, is called a stint.
Round Robin	A method of racing a heat, where there are more drivers than lanes. One or more driver must therefore stand outside the current set of drivers. At stint change, the driver otherwise scheduled to drive on lane-1 enters the pool of drivers waiting, and the next in line to enter the active set of drivers are assigned to drive on lane-1. This continues until all drivers have raced once on all lanes. Then the heat is ended.
Race director	The person using the LapMaster program to control a race.

# LapMaster - Change log

3.18 – 25/June/2011

- New American voice – Professionally recorded by pro event race director Andy Wasserman.
- The starters sequence now also displays count down lights.
- Starters signal can be selected as “Voice”, “Buzzer” or “Silent”.
- Qualify now works with second best time as tie-break for identical best qualify time.
- The lane to Enter/Exit in Round robin can now be selected.
- Round Robin now also works in “Half-track” mode.
- Fixed small problem with WEB Setup wizard. (Warning on non-standard name, even though the name is standard)
- Fixed problem with the “Print” button floating when resizing panel.
- Added option to suppress announcement of lap times during qualify.
- Graphical changes to the statistics pages being generated.
- Zone correction does not have to be done in lane order. (And zone correction added to log file)
- Track power test can now switch on each lane individually.
- Fixed rare problem with lap count being displayed as “-1.#R” during qualify.
- The qualifying lane is now indicated by colour in the statistics.
- The statistics layout on the internet can now be decorated with an external style sheet (CSS – Internet terminology)

3.17 – 06/feb/2011

- German translation has been redone with professional assistance.
- Swedish language, more translations and a few adjustments.
- All sound files have been “level set” so that all voices are equally loud.
- Zone edit now shows the lane colour.
- Assignment of lanes now with colour support.

- Ability to print the entry list.

- Race with many entries now causes the LiveTiming pages to resize so that more drivers can be shown without scrolling.

(If you are upgrading from older version, you need to delete the 4 files in "C:LapMaster\Multimedia\" named "ScoreBoard...". New files will be generated for you.)

- Displaying laps per stint on the Scoreboard and LiveTiming.

- Tweak to the "LiveTiming wizard".

- LiveTiming and Results/Statistics can now correctly be saved to local harddisk.

- Track records on print and on web-site now displays the date of the trackrecord as well.

- Corrected a number of bugs associated with "Disabled lanes".

Rotation with round-robin now works with disabled tracks, Prediction now show the correct result, and "Stats" do not colour grade disabled lanes.

- Using the "heat distribution" field, it is now possible to skip one or more drivers by putting the number in parenthesis.

E.g: "(4) 8 8 8 (99)" would skip the 4 best qualified (As in qualified directly to final), while the 24 next would race in 3 heats (Semi), and the reminder hasn't qualified to go any further.

- Selection of files (Drivers/EntryList/Results etc.) now remembers the last used directory. This also fixes a problem with selection of directories under Vista and Win/7.

- New warning dialog "Are you sure?". This will warn you if you are about to create a setup with unusual or unlikely settings.

It is designed to help catch errors during setup.

- Fixed bug where qualification result was sorted alphabetical rather than numeric (eg. 1, 10, 4).

- Fixed bug with displaying new drivers at round transitions for multiple rounds racing when doing re-seeting.

### 3.16.11 – 28/09/2010

- Bug fix: LiveTiming wizard attempted to load files from a wrong directory.

- A lot more "tooltip" added to aid the user in selecting the right options.

### 3.16.10 – 19/09/2010

- Specification of “Auto publish” Result and Statistics path added to “WEB Publish” menu.
- New “Setup Wizard” will help you setup the “LiveTiming” feature.
- A racer no longer racing will now drop down the scoreboard in an appropriate manner.  
Previous the “Prediction” was not updated unless the driver passed the counter, and would therefore stay on top until end of heat.
- Cancelling a track record (I.E. a false time because of a rider), now also correctly rolls back the “Best lap” for the racer on the track.
- A new function will inform you if a newer version of LapMaster has been released.
- LapTimes of partial or interrupted laps will display as “---” on the Scoreboard, as not to confuse the spectators.
- Drivers are warned before turning power on in warmup by the announcement of “Gentlemen start you engine”.
- Bug fix: Missing print function on some HP printers.
- Bug fix: “Timed practice” did not recognize the setting for intermission.

### 3.16.9 – 09/07/2010

- LiveTiming now displays track color.
- New statistic “Realized/Potential”.
- Simplified much faster auto statistics upload.

### 3.16.8 – xx/xx/2010

- Support for selection of alternative power supply via LapTimer hardware. Requires “LapTimer Vers 2.3” or later.
- If you use the “Use driver names” together with “Announce winners” from the advanced options, then the winner will be picked from all contestants. Otherwise it will be from the drivers on the track only.
- Bug fix: Corrections to WEB-results, Correct headings, correct spacing in the index list.

- Bug fix: Update also time stats after “Zone correction” (They do contain the total number of laps.)
- Bug fix: “Announce laptime” did not work for lane 8.
- Bug fix: Names containing special characters like René are now displayed correctly on the internet.

#### 3.16.7 – 10/04/2010

- Polishing on the “auto publish” system.
- Making good looking banner headings for UStream LiveTiming setup.
- Moved all customized models from MultiMedia to Multimedia/Factory folder so that customized material isn’t overwritten by new LapMaster software updates.

#### 3.16.6 – xx/xx/2010

- Improved “Live Timing” – Eliminate blink and “404” errors.
- Tooltip added for all non-obvious buttons and difficult to understand options.
- Ability to do random selection of qualifying lane.
- Marking of starting lane in the “statistics” display.
- Zone correction applied to statistics.
- Suggested name and indexing for uploaded results and statistics makes it much easier.
- Single button upload for all variations of statistics.
- Auto publish option in advanced setup lets LapMaster load results and statistics directly to your webpage automatically.
- More time warnings during intermissions added. (3 min, 2 min and 1min30sec).
- Bug fix: Wrong lane changing scheme when one or more lanes had been disabled.
- Bug fix: Fast buttons for lane rotation setups now also works with disabled tracks.
- Bug fix: Display correct Pole position when running qualification with “Most laps”.

#### 3.16.5 – xx/xx/2010

- Implement automatic indexing (link) of results and statistics from LiveTiming page.
- Display practice data on scoreboard and internet.
- Fine tuned "UStream" internet setup.
- Highlight "New driver" at lane change.
- Bug fix: In displaying statistics.

#### 3.16.4 – xx/xx/2010

- Force a track-power off when application closes.
- Remove bug from qualifying on "any" lane.
- Ability to save/restore "Statistical" information. Including "Save to web".
- General ability to direct "Save to web" functions towards local disk. That is local save, but in HTML format.
- Remember to save "Qualification mode" into pre-defined setup.

#### 3.16.3 – xx/xx/2010

- Adding new "Statistics" module that allows analysis of a completed race.
- Adding more history "Event" records to show change of racemode, and start of race.
- Tighten up statistical calculations for lap fractions at trackcall.
- Show only 1 decimal for lap sections, if track only has single digit sections.
- Blip with green background colour in "Laps" when counting.
- Change sound for skipping in bye-round from "Bye-round" to "Next".
- Corrected bug with "Zone correction" used together with "Qualification, Most laps".
- Corrected bug where "next drivers" were displayed at end-of-race.

#### 3.16.2 – xx/xx/2010

- Adding "Autoprint" option that will print a racers report after each stint.
- Setup for USTREAM webcam.

### 3.16 – 06/01/2010

- New “Heat race, promoting” format has been added. This format supports qualification into partly filled heats, and then the option to be promoted by racing from one heat to the next.
- Added two new qualification modes, “Best time w/2 rounds” and “Best time w/bye-rounds”.
- “LiveTiming” now shows extra message as a “Ticker-tape”.
- Track rotation and “Half-heat” option is now included in the Load/Save of racing setup, making it possible to define “Half Heat” as part of the setup.
- Whole range of predefined “Race setup’s” have been added.
- The option to “Link” race setups in chains has been added. This allows multi stage race setups to be build.
- The buttons for “Go qualify” and “Go race” in the entry panel is disabled if not at start of race.
- Cutting an intermission short by pressing “Start” can now be done without the “1-min”, “30-sec” and “10-sec” warnings being triggered.
- The counters are now disabled during intermission, so that the counters are not fouled up by users during lane change.
- A bug that caused the system to lock up if “trackcall” and “heat timeout” occurred at the same time has been found and removed.

### 3.15 – 03/11/2009

- The option to race all Stint=1 (from all heats) before racing Stint=2 etc. This rotates the crew of active drivers more offend and might be perceived as less boring.
- Adding “Buy-Round” option for qualifying.
- Support of “Half-track” racing rotation, where a single driver only drives either all even or all odd lanes.
- The selection of “Racing class” has been redesigned, so that you now can keep a list of your own designations.
- Estimation of end result now works with multiple rounds.
- Ability to set a “Point’s offset” before start of race.

- Do not announce lap times below 2.0 seconds (Not enough time before the next round).

- Fixed a number of bugs. i.e. now connection of multi tracks works again.

- Norwegian language was missing from the pack.

3.14 – (Never released) – Fixing bug, where the Scoreboard and LiveTiming did not get the final update before the “End” MessageBox was dismissed.

- Fixing bug: Track records not announced correctly on black track.

- Minor layout change with end-of-round and end-of-race dialogs.

- Adding Norwegian text option (but no Norwegian speech yet).

3.13 – 27/02/2009 – Fixing bug with rounds being accumulated in “Best of rounds” mode.

3.12 – (Never released)

- Intelligence to select a better “Black-track” colour when gray is not used.

- Option to use “Reversed relay wiring”. (See under Track options).

- New RaceManager supporting the “Speedway” mode of racing.

3.11 – 09/02/2009 – Major internal restructuring – Allowing various RaceManagers to be defined within the software.

- Data stored in folder “C:\LapMaster”, to make the program compatible with Vista, without the need to run as Administrator.

- Adding RaceManager (Race-mode) for ISRA TEAM RACING.

- New racing mode, racing “Fixed number of laps (all)”. The winner is the one that used the least time to complete the set number of laps on each lane.

- Hotkey for terminating drivers unable to complete “Fixed number of laps (all)”.

- It is now possible to temporary leave out one or more lanes, I.E. for repair, or to optimize the number of active lanes for other reasons.

- Install path has been changed to allow LapMaster to work fluidly with Vista operating systems.

- Multiple rounds (Up to 4) allowed for heat racing, both in “Accumulating” or “Best of” modes.

- It is now possible to preset the counter with a number of rounds before race. I.e. to give a “Head start” or “Handicap”.

3.10 – 05/11/2008 – Adding “Gray” as option for track colour.

3.09 – 20/10/2008 – Swedish language has been added.

- It is now possible to select “Any” for lane assignment during qualification. This means that the competitor is free to choose any lane for qualification.

- Bug in FTP transfer has been fixed. Save to WEB and LiveTiming now works correctly again.

- Release of trackcall can no longer be done by hitting the spacebar. It now requires ALT-Spacebar to release a trackcall. This solves an issue where multiple track-calls got stacked up if the spacebar was held down to long.

3.08 – 26/08/2008 – 10 second warning for end of Intermission is now an option.

3.07 – 17/08/2008 – Make sure FTP perform a new Logoff/Logon procedure following any detected ftp errors.

- Added error message and prevent save of screen coordinates if running on a display less than 1024x768.

- Fix bug with racing “number of laps”.

3.06 – 16/08/2008 – Add option for embedded WebCam picture in uploaded scoreboard data.

3.05 – 25/06/2008 – Internal design of “LiveTiming” changed to use a lot less computer resources. (Internal FTP, Preload of models, deferred signoff when possible).

- Fixed problem with “Searching” for the LapMaster com port.

3.04 – 20/05/2008 – Language translation system redesigned to allow local customization from a text file in the language directory

- Search function for finding the LapTimer COM port.
- Support of COM ports from COM10 to COM20.
- Fixed problem with repeated “10 second warning” if pause called at the same time.
- Moved rarely used race setup options into separate “Advanced setup” page.
- Added ability to do race result prediction.
- Added “Track Time Seller” mode.
- Single button to erase all track records.
- Removed the “Edit records” function.
- Highlight “Track record” and “Invalid time” for easy identification.
- Revised and improved HELP system.
- “Announce lap times” on individual tracks.
- Option to accept track records at any time.
- LapMaster wrapped in standard windows install procedure.

3.03 – 04/03/2008 – More fine tuning to “Live-timing”

- Separate “Comment” section for Auto update.
- Preparation work for more language translations, i.e. German.

3.02 – 27/02/2008 – Fine tuning to “Live-timing”

- “LiveTiming” now uses the “livetimingloader.htm” to do the refresh. If the web-page is unavailable due to update (404 error), then it will recover by itself.

- Failures encountered during ScoreBoard to WEB auto load has been made “silent”. You don’t want pop-up error messages during the race.

- The unit of the [REFRESH] replaceable parameter has been changed from ms to seconds. The unit of seconds match the metatag refresh parameter. If you need ms, i.e. in javascript, hardcode the missing 3 zeroes.

- More REFRESH intervals added: 30 second and 1 minute.

3.01 – 24/02/2008 – Adjusting on the TCP/IP functionality.

- Small change in the upload strategy for LIVE-Broadcast. Faster update -> less collision of update and browsing (404 error)
- Ability to save directly to WEB with individual selected filenames. Also added “comment” to the data.
- Fixed small bug in TCP/IP connection mode that potentially could case loss of data connection.

3.00 – 02/02/2008 – Major new release – Full TCP/IP connect ability.

- Full TCP/IP connection facility for coordinating several tracks using the LapMaster program into a single coordinated ScoreBoard.
- Also contains a CHAT function to send messages between participating RaceWays.
- Contains function to SYNC the starting time of each stint, to make the combined Scoreboard more interesting.
- Handicap calculator for doing fair racing with unmatched cars or tracks.
- Named practice mode.
- Revised HotKey assignment for lap count modification.
- Shift + F1..F8 add a count.
- Ctrl + F1..F8 subs a count.
- Alt + F1..F8 resets the count.
- FTP interface, and **LIVE-BROADCAST** mode.

2.08 - 02/01/2008 – Major update.

- Implementing a new race mode: “Heat race, best of 2 rounds”. This is a complete implementation of DMRU (Dansk Mini Race Union) 2008 racing format.
- Implementing the optional “ScoreBoard”. The ScoreBoard contains additional live racing information. The intention is to take advantage of the XP dual-monitor capability.
- It addresses issues on being able to see the entire drivers list etc. during racing.
- In addition to the ScoreBoard, a points evaluation system has been added which allows different tracks or classes to race against each other in a fair system.

- It is the intention that the “ScoreBoard” of multiple LapMaster systems should be coordinated using TCP/IP. However we are not yet there.

- The maximum laptime that can be read aloud has been raised from 10 seconds to 20 seconds.

- New “Pink” lane colour supported.

- The announcement of track records is now a selectable option.

- Fixed another bug that prevented selection of drivers from the catalog.

- Lap count can be adjusted (+1) in real time using the keys 1 to 8 as hotkeys. “Q” to “I” subtracts one lap, and “A” to “K” resets the lap count.

- The hotkey assignment will make sense to you when you look at the keyboard. It is the number row for +, the key below for – and one row further below for reset.

- The “SpaceBar” has been setup as a hotkey for trackcall. If focus is on the “LapMaster” of “ScoreBoard” application, hitting space will toggle the trackcall state.

#### 2.07 - 12/09/2007 - Misc. updates.

- Removed the “Average time” from result.

- Fix a bug with large number of driver selects from visual catalogue.

- Picture of more Danish Scale drivers added.

#### 2.06 - 12/08/2007 -

- Moved the position of the “next driver” display.

- Picture of Danish Scale drivers added.

#### 2.05 – 18/05/2007 – Work in preparation of the LapTimer-II device based on the Olimex AVR-OI-M16 (Microcode version 2.0)

- Adding the “Individual power relay” feature.

- Testing the connection of 2 LapTimer-II devices to a single system.

- Add provision for racing a fixed number of laps in each stint rather than just a fixed amount of time.

- End of heat/End of stint announce now comes immediately after power off and before the run out.

#### 2.04 - 16/05/2007 - Bug fix.

- Fixed bug where the "no of entries" in the "c:\ LapMasterEntry.ini" file where erroneously set to 6.000.000. This caused the following attempt to load the program take forever.

Also the input value is not range checked.

#### 2.03 – 10/05/2007 – Changes in log file.

- Decimal point is now set to "." In English and "," in Danish.

- Log file date now has a 4 digit year.

- Timestamp now contains 3 decimals to the second. (Relative to the timestamps. Not accurate for lap timing.)

- Invalid time on track X now displays the correct track number in the logfile.

- Bug that caused "Best Time" and "Best track" to be erased under certain conditions have been fixed.

- Attempts to load a RESULT list as an ENTRY list, will now skip the initial column (the position), so that the names will fit the correct column.

- The option to display the MEDIAN time in place of the BEST TIME has been added.