

**Manual**



**SwimWatch**

**Race Analyzer**

**Version 3**

**[www.swimwatch.nl](http://www.swimwatch.nl)**

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All pictures and descriptions subject to change.

Some pictures show text in Dutch language, these will be replaced in future manuals.

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# 1 Introduction

This chapter contains information on the manual and the software. It includes directions for installing the software and for removing the software.

## 1.1 About the manuals

This paragraph contains information on the manual.

### 1.1.1 Conventions in the manuals

If the text is **bold**, it refers to a button or component of the program.

Descriptions that are only applicable to one of the versions, such as Lite, Standard and Pro, are labeled in the margin.

**LIT** This function is only available in the Lite version.


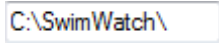
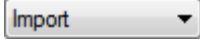

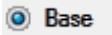



**STD** This function is only available in the Standard version.

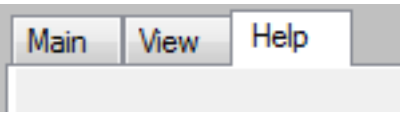
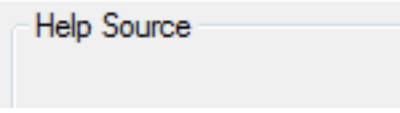
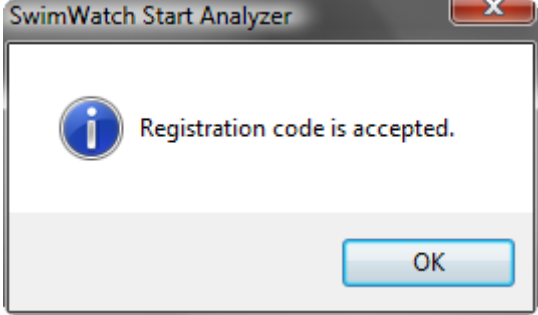
**PRO** This function is only available in the Pro version.

**STDPRO** This function is only available in the Standard and the Pro version.

### 1.1.2 Names of components

To fully understand the descriptions in the manuals, it is important to know the terms for the different controls.

Component	Name
	<i>Label</i>
	<i>Textbox</i>
	<i>Combobox</i>
	<i>Checkbox</i>
	<i>Radio button</i>
	<i>Trackbar</i>
	<i>Scrollbar</i>
	<i>Button</i>

Component	Name
	<i>Tab page</i>
	<i>Groupbox</i>
	<i>Dialogbox</i>

## 1.2 About the software

SwimWatch Race Analyzer is developed by NatriSoft and is part of the SwimWatch product line.

### 1.2.1 About SwimWatch software

Every coach wants to help athletes reach their full potential. In order to do that, the coach obviously needs knowledge and skills, but also data. SwimWatch offers software with which swimmers can be analysed during training and competition. These analyses offer the coach more insight into strengths and weaknesses, and with that knowledge, the coaches can make the trainings more effective.

The SwimWatch products are developed specifically for use during competitive swimming. Besides the SwimWatch product line, there is also a SportsWatch product line, consisting of programs that can be used in all types of sports.

### 1.2.2 About the SwimWatch Race Analyzer

Analyses made with the SwimWatch Race Analyzer are very detailed. In case of a 100m freestyle race, the software shows over 100 parameters. To show all these parameters, a total of 44 values need to be measured (the rest of the parameters are calculations). A 100m analysis can be made in 5 minutes!

### 1.2.3 About the SwimWatch Viewer

The SwimWatch Viewer is developed for viewing the results. This product can be used to view the video and analyses. The SwimWatch Viewer can be downloaded for free via [www.swimwatch.nl](http://www.swimwatch.nl).

## 1.3 Installation

This paragraph contains directions for installing the software. The total installation process consists of up to three steps:

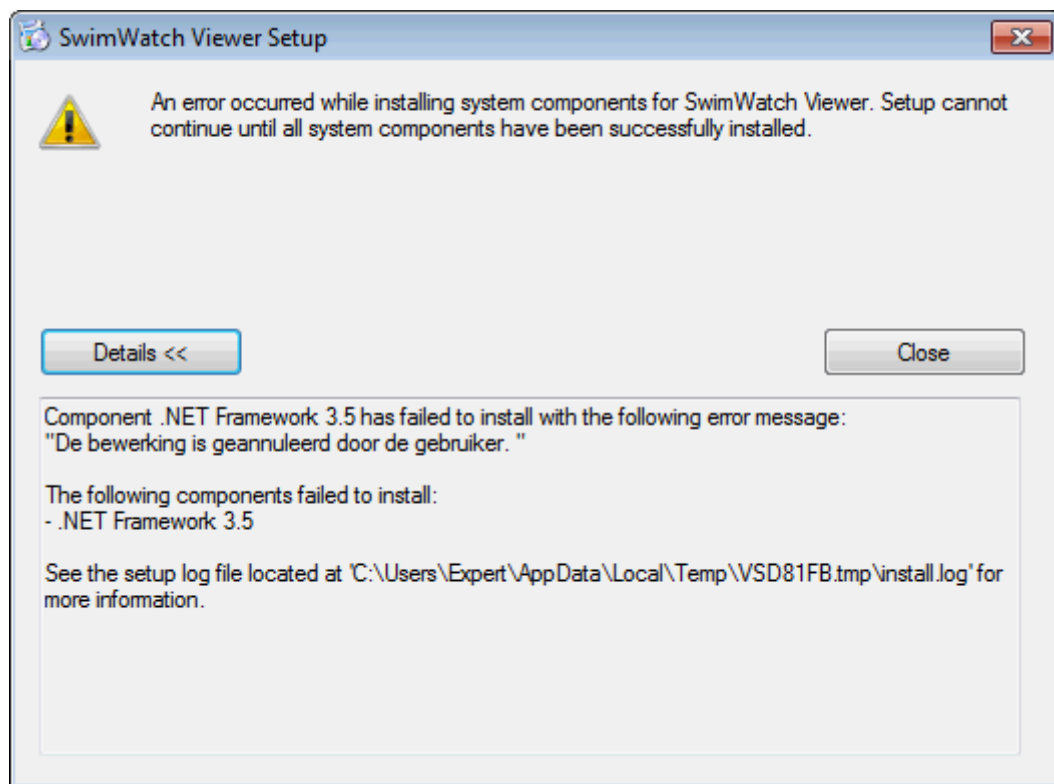
1. Installing .NET Framework = dotnetfx.exe

2. Installing SwimWatch Viewer = setup.exe
3. Installing video and analysis = analysis.zip / demo.zip

The software is designed for use with Windows XP, Windows Vista, and Windows 7. The software is not designed for *Apple computers*, but clients have reported it can work on Mac computers with an Intel processor, Windows installed on a disk partition (formatted NTFS) using the bootcamp method. The Parallel desktop method (the other way to get Windows on a Mac) does not support the firewall connection. Bootcamp can be downloaded from [www.apple.com](http://www.apple.com).

### 1.3.1 Installing .NET Framework

The main program is written in the programming language VB.NET (Visual Basic dot net). To be able to use the program the installation of "Microsoft .Net Framework 3.5" is required. This component is also used by other software and therefore this component is already installed on many computers. If this is not the case, the setup program of the SwimWatch Race Analyzer (see next paragraph) will prompt you to download this component.

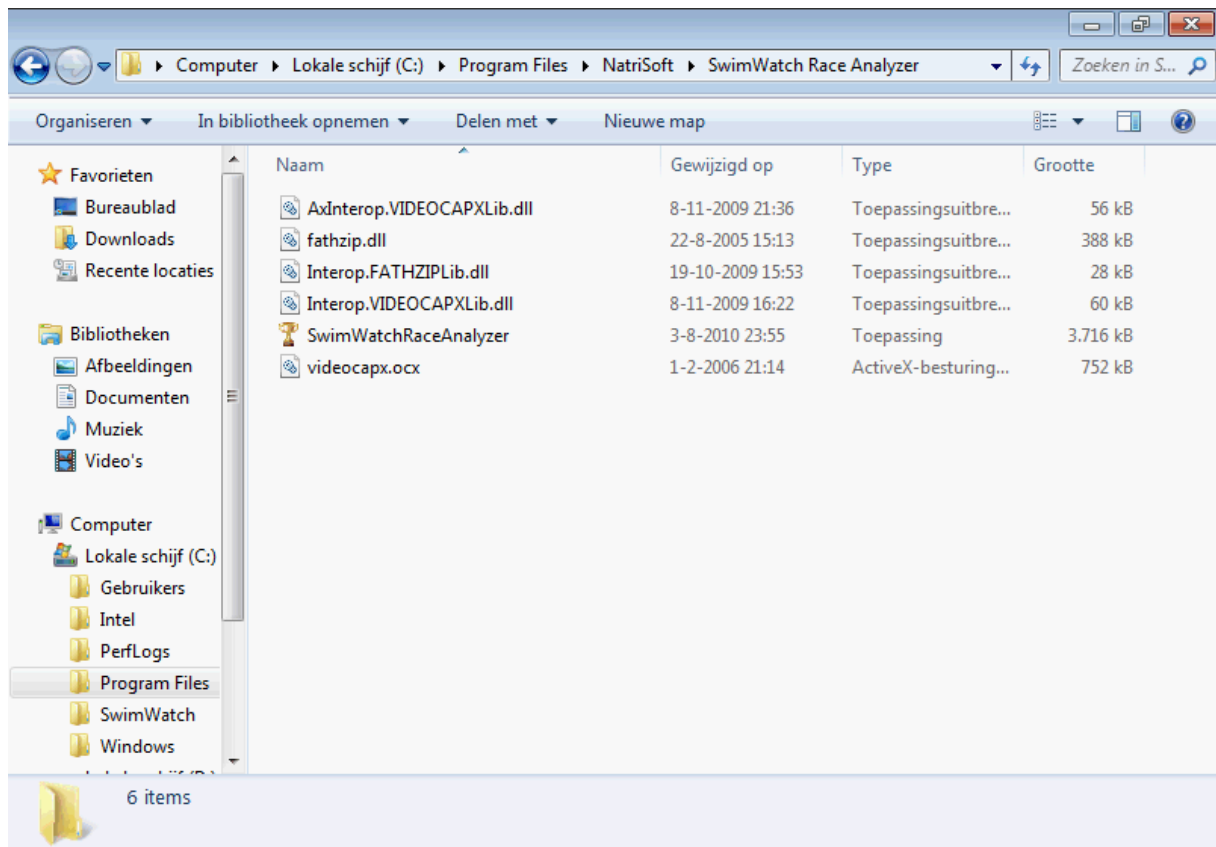


To install this component you need the file "dotnetfx35.exe". This file can be downloaded from the internet, from [www.swimwatch.nl](http://www.swimwatch.nl) and many other websites. This component needs only to be installed once. Execute the file "dotnetfx35.exe" and follow the instructions on your screen.

### 1.3.2 Installing SwimWatch Race Analyzer

The main program can be installed by executing "setup.exe", which can be downloaded from [www.swimwatch.nl](http://www.swimwatch.nl). Follow the instructions on your screen and the software will be installed.

New versions of the program can be downloaded from [www.swimwatch.nl](http://www.swimwatch.nl). When updating, you need only to copy the file "SwimWatchRaceAnalyzer.exe". Place this file in the program directory and the update is completed, a new "setup" program is not required.



### 1.3.3 Installation video and analysis

Finally, video and analyses need to be installed to serve as comparisons in making new analyses. There are three possible situations:

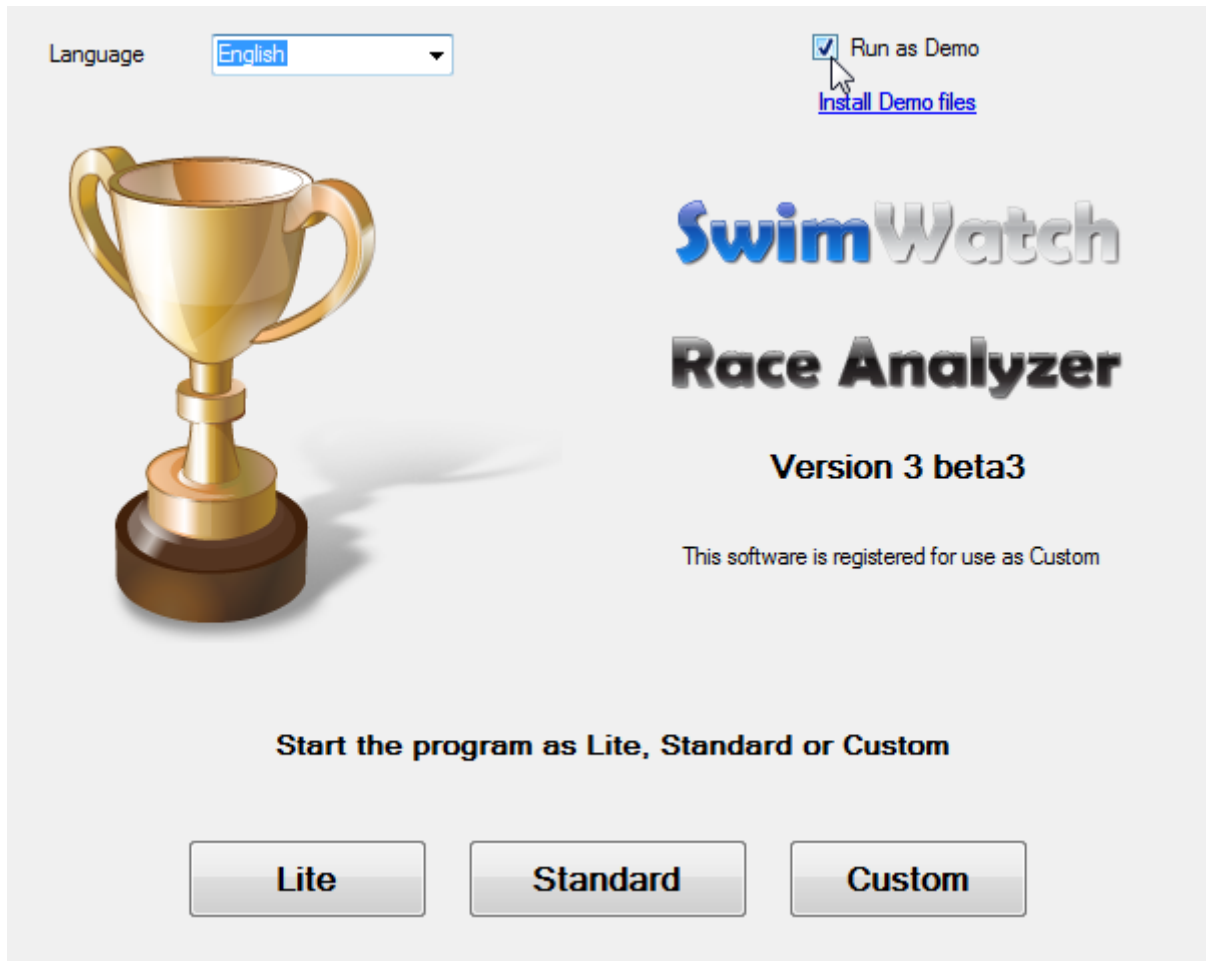
1. Video and analyses have been installed already, because of previous use of the SwimWatch Software
2. Video and analyses are available, but not yet installed
3. Neither video nor analyses are available, demo files can be installed

If video and analyses have already been installed because of previous use of the SwimWatch software, these can be found by the SwimWatch Viewer software, if they are installed in the base path 'C:\SwimWatch\'. If the files are located in another path, please change the base path in the options, or relocate the files to 'C:\SwimWatch\'.

Analyses of the SwimWatch Race Analyzer software are automatically stored in the subfolder 'C:\SwimWatch\Race\', video of this program will be stored automatically in the subfolder 'C:\SwimWatch\Video'. Analyses and videos are stored separately, because the videofile may show more than one athlete.

If video and analyses are available, but not yet installed, these should be relocated to 'C:\SwimWatch\'. This can be done manually, but it is also possible to use the **Import** mode. This mode will be explained in the corresponding chapter.

A number of demo races can be installed. On the website [www.swimwatch.nl](http://www.swimwatch.nl), one or more files named "demo.zip" (or similar names) can be downloaded. Each zip files contains two demo races and one video file. Download one or more zip files and save them in a temporary folder on your computer.



Activate the selection box **Start as DEMO** and a message will appear asking whether zip files containing Demo races have been downloaded. After confirmation is given, a dialog box will appear in which the demo file can be selected. Installing the files can take a minute.

## 1.4 Removing the software

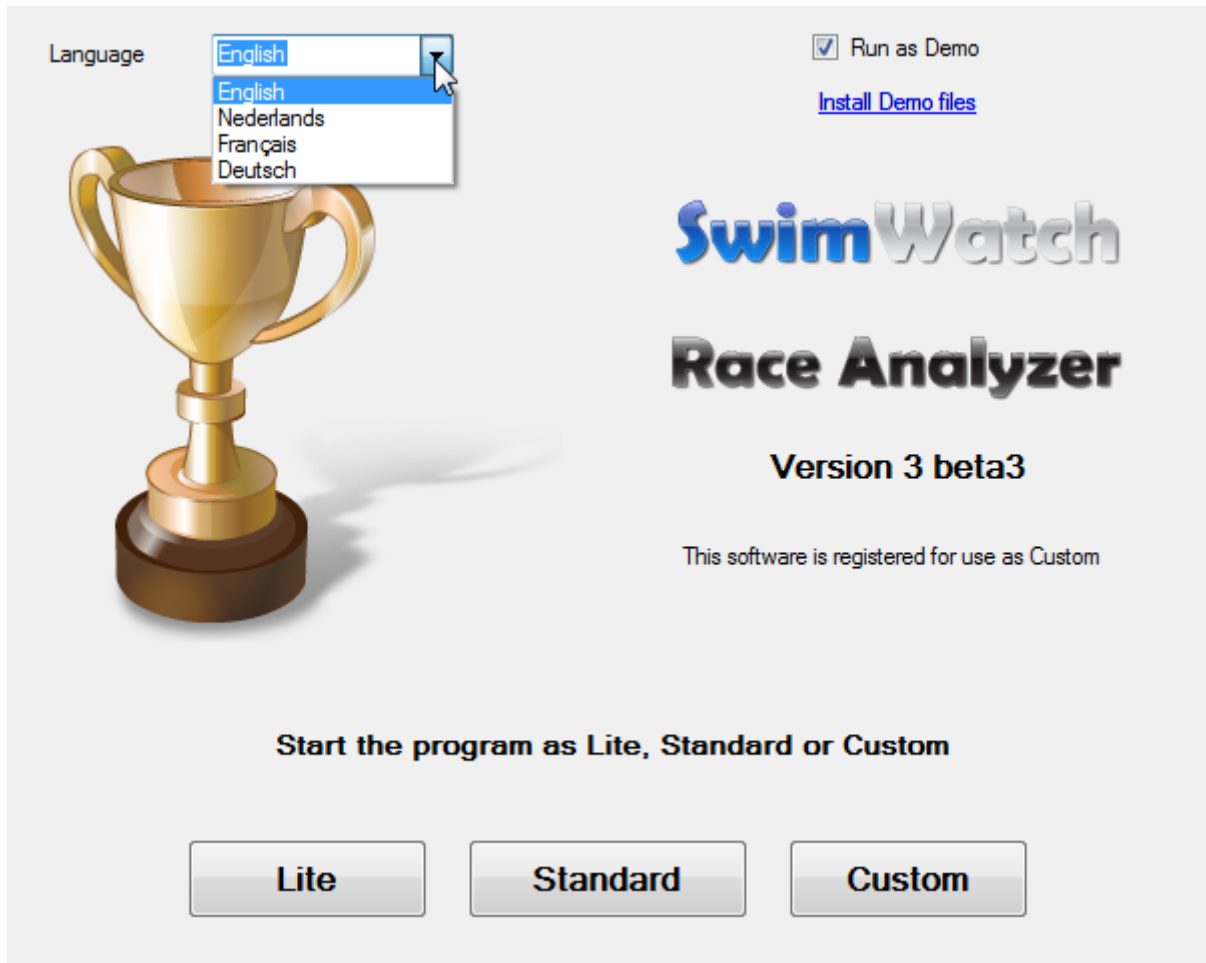
The software can be removed through the Control panel. Unfortunately, the name of the section in the Control panel where software can be removed is different for each Windows version. After a list of installed programs is loaded in the list, select the program and click the button **Remove**.

After removing the software, check the program folder and delete files that were left behind. After that, you might want to delete the analysis and video files, these files can be found in the folder 'C:\SwimWatch\'. After that the computer is completely free of SwimWatch software.

## 1.5 Setting the language of the software

The program contains multiple languages and more languages may be added in new versions. The language can be changed in the startup screen. Start the software by double-clicking on the program icon on your desktop. In the top of the start screen you will find a combo box, with which you can change the language. The change is effective immediately. The language can also be set in **Options** mode, see the corresponding chapter.



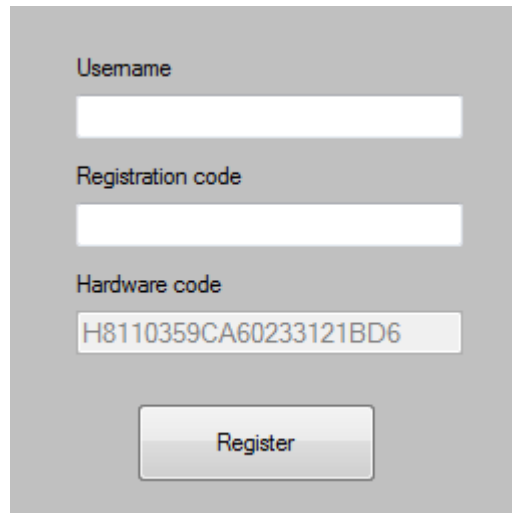


## 1.6 Registering the software

Making software is a time consuming process. That's why software builders want users to pay for the software by registering the software. Users on the other hand, like to test software before they buy it. SwimWatch offers users that haven't registered yet the opportunity to test the software before the software needs to be registered and paid for.

The process of registering and payment consists of multiple steps. First, the software needs to be started. In the start-up screen, select the image and notice that multiple textboxes become visible. In one of the textboxes, the hardware code is shown. This is the user's unique computer code.

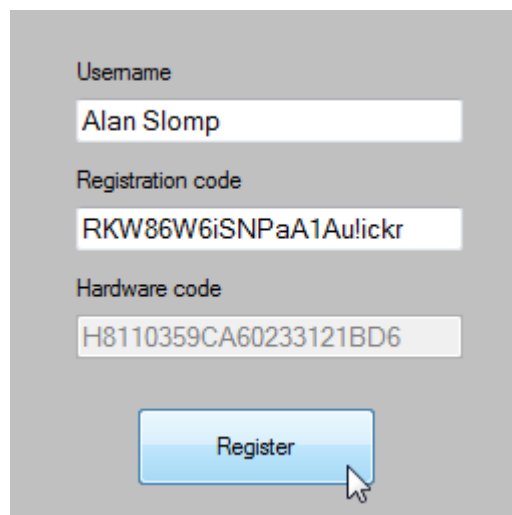




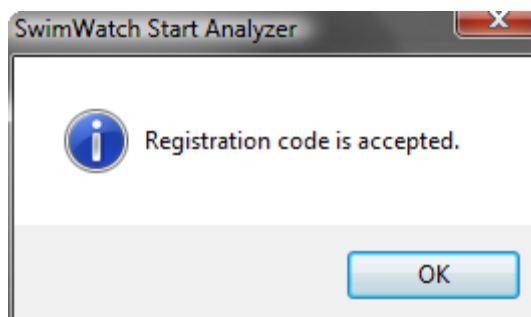
A registration form with three text input fields and a button. The fields are labeled 'Username', 'Registration code', and 'Hardware code'. The 'Hardware code' field contains the text 'H8110359CA60233121BD6'. Below the fields is a button labeled 'Register'.

Go to the section Register on [www.swimwatch.nl](http://www.swimwatch.nl) and fill out the form. Please also enter the hardware code. After confirming the form, an e-mail with payment information will be sent automatically.

If the payment has been received by NatriSoft, an e-mail with the invoice and registration code will be sent. First click on the image in the startup screen, and three textboxes will appear. Type the username and the registration code in the first two textboxes and click on **Register**. When the codes were entered correctly, a message will appear that the software is registered.



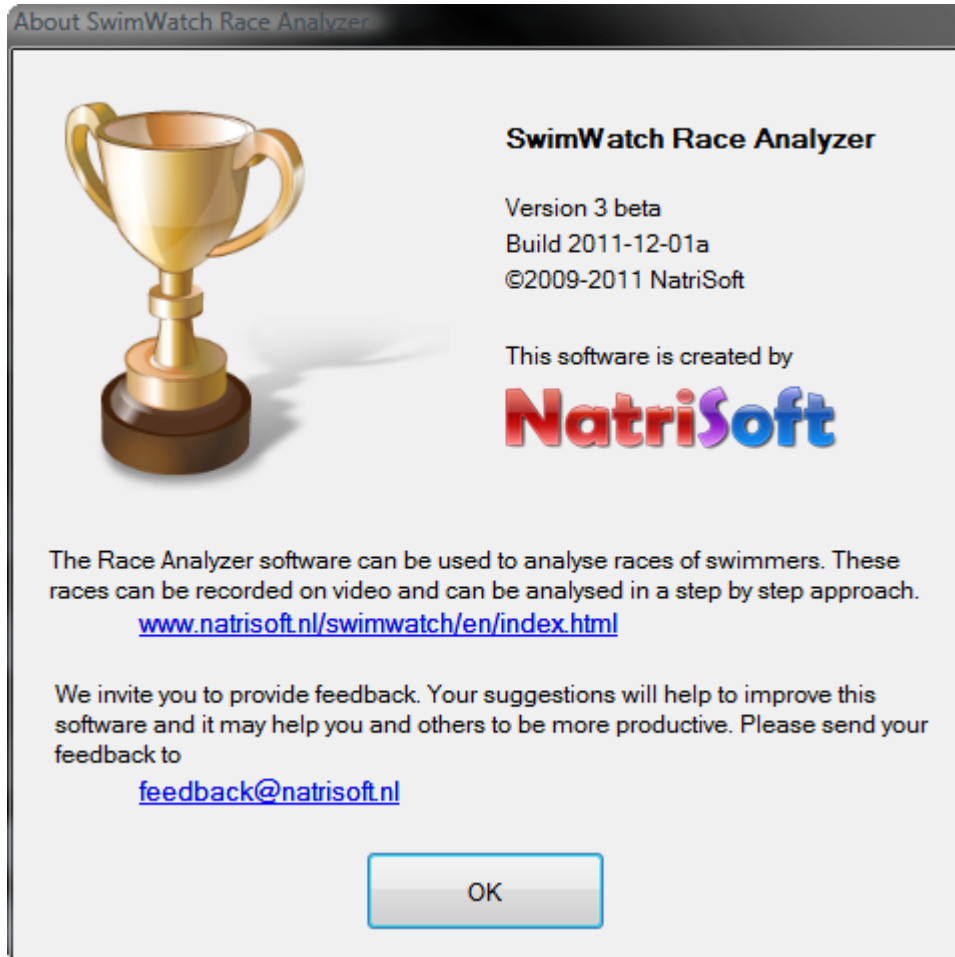
The same registration form as above, but with the 'Username' field filled with 'Alan Slomp' and the 'Registration code' field filled with 'RKW86W6iSNPaA1Aulickr'. The 'Hardware code' field remains 'H8110359CA60233121BD6'. A mouse cursor is hovering over the 'Register' button.



In future versions, the process of registering and payment will become more automated. Online payments will be possible, in order to receive registration codes more quickly. It will also become possible to transfer licences to other computers. Until this new registration method is in place, the licences are not transferable to other computers!

## 1.7 The About box

If the logo in the right upper corner (in the menu bar) is selected, a dialog box opens with more information on the software. It is possible to visit the SwimWatch website or send an e-mail to SwimWatch via the displayed hyperlinks.



## 1.8 Suggestions and remarks

All suggestions and remarks that can lead to improvements in the software or the manual are more than welcome. Send your e-mail to:

**support@natrisoft.nl**

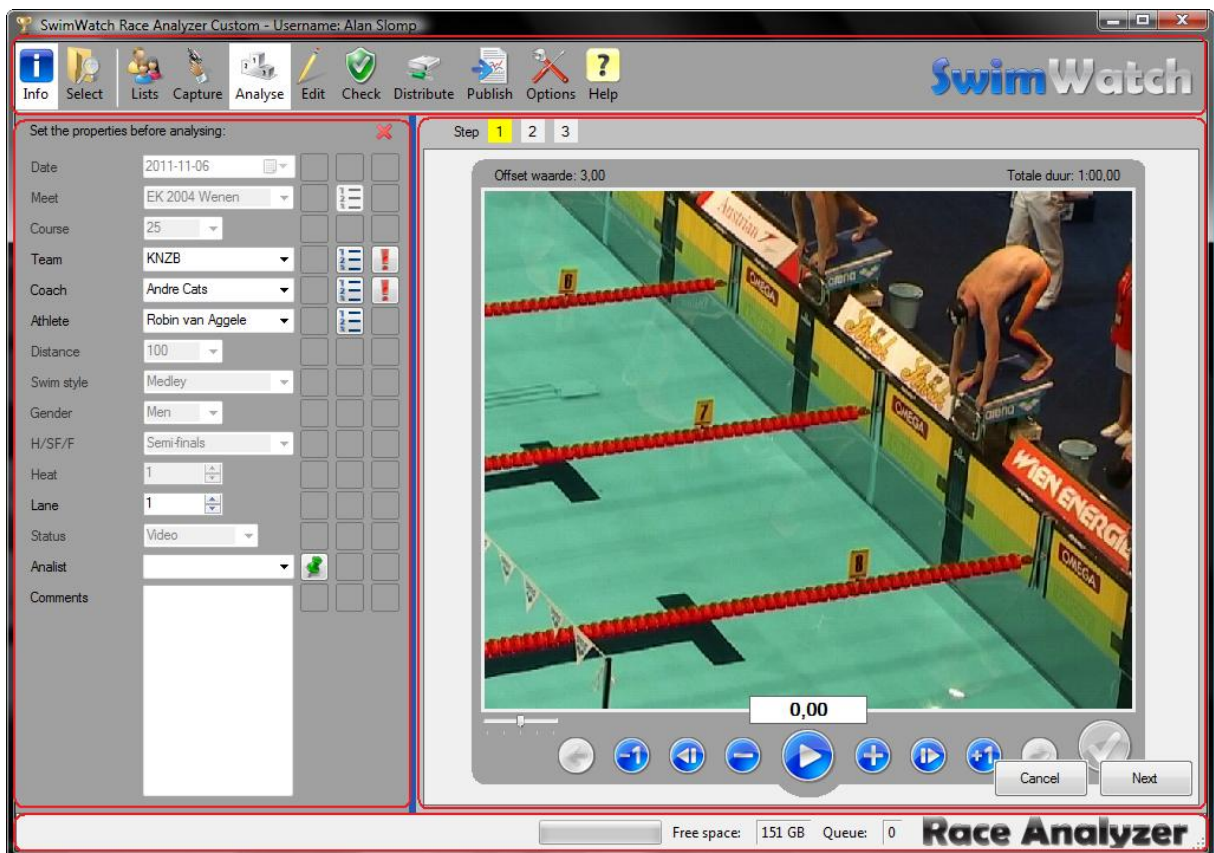
Thank you!

## 2 User interface

NatriSoft software has a very userfriendly interface and is developed for use with touch screens. In this chapter, the components of the screen will be explained, as well as the selection of the modes or one or multiple items.

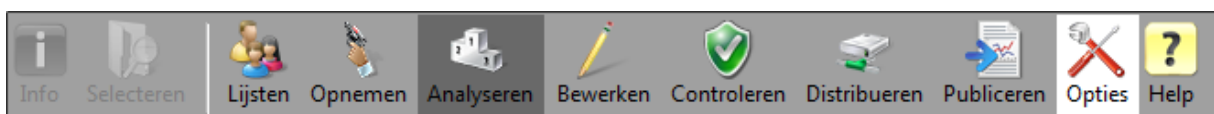
### 2.1 Parts of the screen

The screens of practically all SwimWatch programs consist of four panels. The menu bar can be found at the top of the screen, the status bar at the bottom. In the middle, there are two panels. The left panel shows either the panel Info or the panel Select. The right panel shows the parts of the mode selected in the menu bar.



### 2.2 Selecting modes

The menu bar can be found at the top and shows the buttons for the multiple modes. A mode can be selected by clicking on the corresponding button. The button of an active mode has a white background colour. If the background colour is a dark shade of grey, the mode is active in the back. That means that the activity in that mode has not been closed yet.

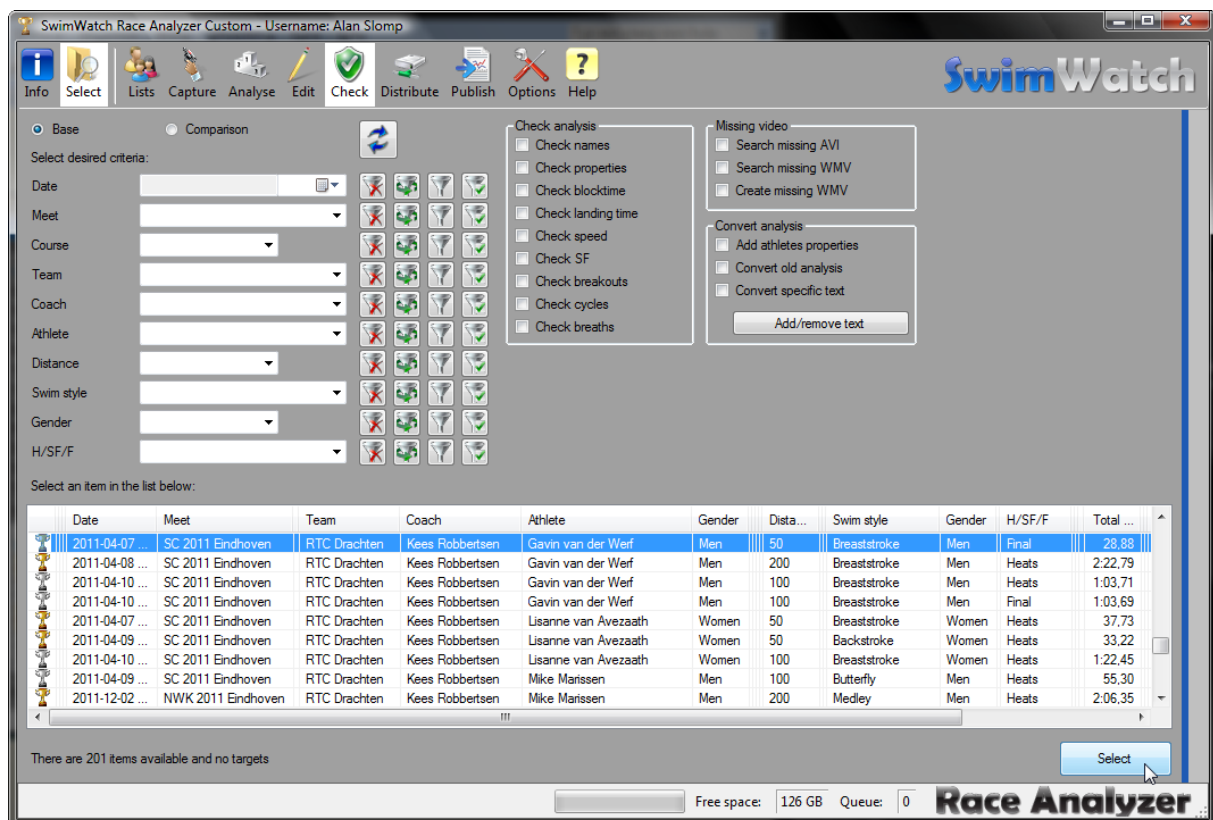


## 2.3 Selecting items

With the different programs of SwimWatch, an enormous amount of information can be collected. All this information will be shown in a list if the Select mode is activated. If the user wishes to do something with the data (for example analyse or distribute), first one or more items should be selected.

### 2.3.1 Selecting a item

Select an item from the list. Then click the button below the list to open that item in the software. The text on the button below the list, and the action after opening, depend on the mode. For example in the **Analyze** mode, there will be started to analyse the selected race.



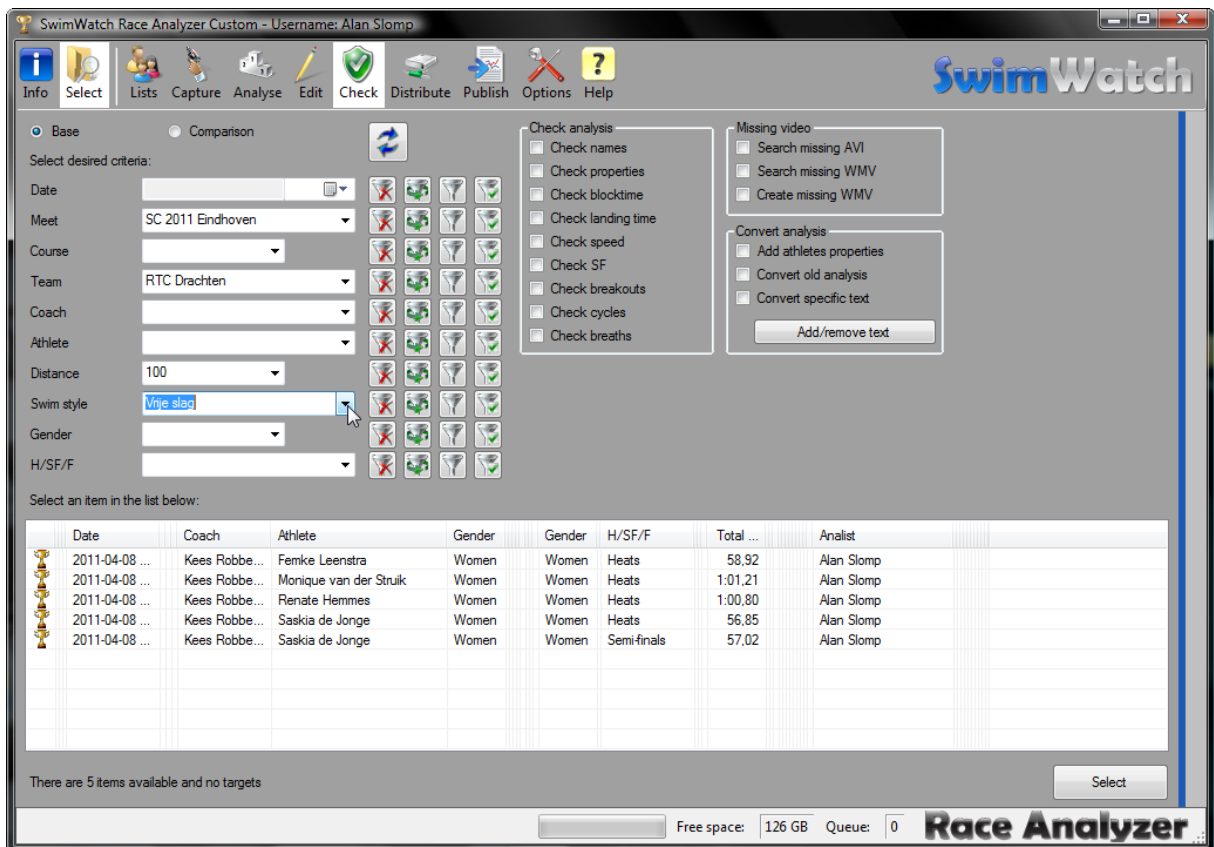
### 2.3.2 Using filters

The number of items is shown in the status bar. This number can run up to hundreds/thousands of items (there is no maximum). To be able to select items easily, a set of filters is available. When filters are set, the list will only show items that meet those criteria.



Every filter consists of a label, a combo box, and a number of buttons. The label shows the property related to the filter. In the combo box, text can be selected or typed, after which only the items with a same property as the text in the combo box will be displayed.

Next to each combo box, a button with an X is displayed. Each of these buttons clears the corresponding combo box. The next picture shows the use of filters with a large archive.



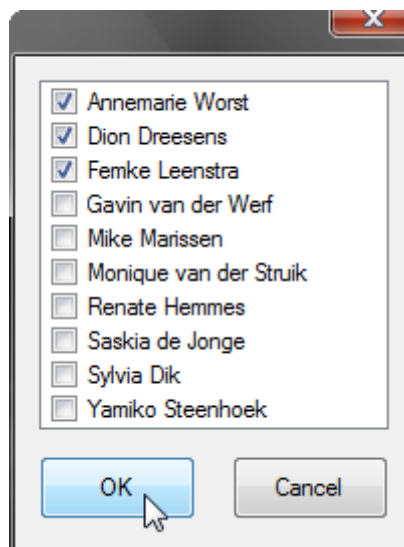
The second button is **Last**, with this button, the previous text can be placed again.

#### STDPRO





The third button is **Inverse**, with this button it is possible to select all items that do not match the criterion. So after a specific athlete has been selected, and this button is clicked, all items will be shown, except those of this athlete.

#### PRO

The fourth button is **Multi**, with this button, a combination of names can be selected. If this button is clicked, a small windows opens with all items from the combo box.



Each of these items can be turned on and off with a checkbox. With this function, for example certain items from three athletes can be shown.

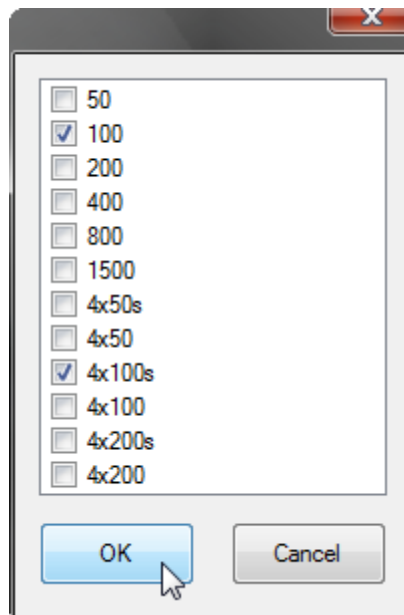
	Datum	Team	Coach	Sporter	M/V	Afsta...	Zwemslag	S/HF/F	T
	2010-07-16	NED	Titus Mennen	Annemarie Worst	Wo...	50	Backstro...	Heats	
	2010-07-14	NED	Titus Mennen	Dion Dreesens	Men	400	Freestyle	Heats	
	2010-07-15	NED	Titus Mennen	Dion Dreesens	Men	100	Freestyle	Heats	
	2010-07-14	NED	Titus Mennen	Femke Leenstra	Wo...	100	Freestyle	Heats	

It is also possible to set the filters using the context menu of the list. Just click on an item in the list with the right mouse button and choose one of the two filter items in the context menu. The first item in the context menu activates a single filter, the second item activates a combination of filters.

### 2.3.3 Relays

Items made with the SwimWatch Race Analyzer are analyses of the meets. During the meets, relay races can be analysed. The software distinguishes relay races swum by a start swimmer (e.g. "4x100s") and relay races swum by other swimmers ("4x100"). The reason for this is that these two types of relay races have different block times and therefore different 15 meter splits.

Even though only one item can be selected in the combo box Distance, it is possible to use the **Multi** button to show individual distances and relay races alongside each other.



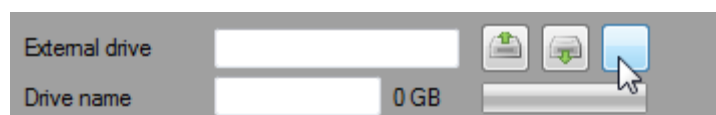
### 2.4 Refreshing the list



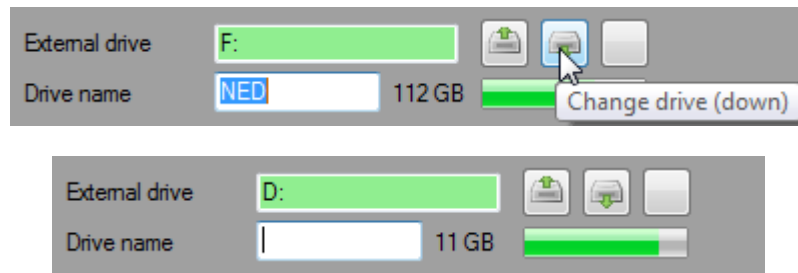
The list with items can be refreshed by clicking on the button with the two blue arrows, or using function key **F5**.

### 2.5 Selecting paths or discs

In the different modes, paths or discs can be selected. In many of these places, a textbox with three buttons is shown. The third button can be used to choose a path, by using a dialog box.



By using one of the two other buttons, a same path on another disk can be selected quickly. If the drive 'C:' is selected, and the second button is pressed, the search for the next disc is started, from A to Z. The first button works the other way around, from Z to A.



Usually, a disk has to be selected, but sometimes a specific path has to be chosen. For example if "C:\SwimWatch\" is selected and the second button is pressed, the search for the next disc with the path "\SwimWatch\" is started.

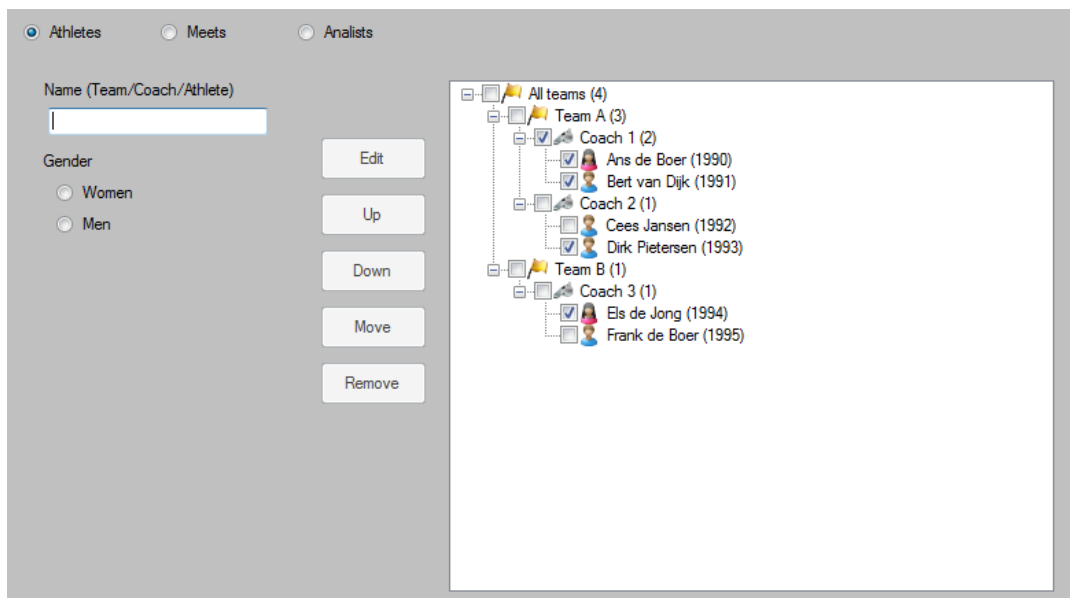


### 3 Lists mode

In the **Capture** and **Analyse** modes, combo boxes are used to enter properties. Some of these combo boxes are filled with default values, such as distance and style. Other combo boxes need to be filled out, for instance the names of teams, coaches, athletes and analysts. This can be done in the **Lists** mode. This chapter will explain how this works.

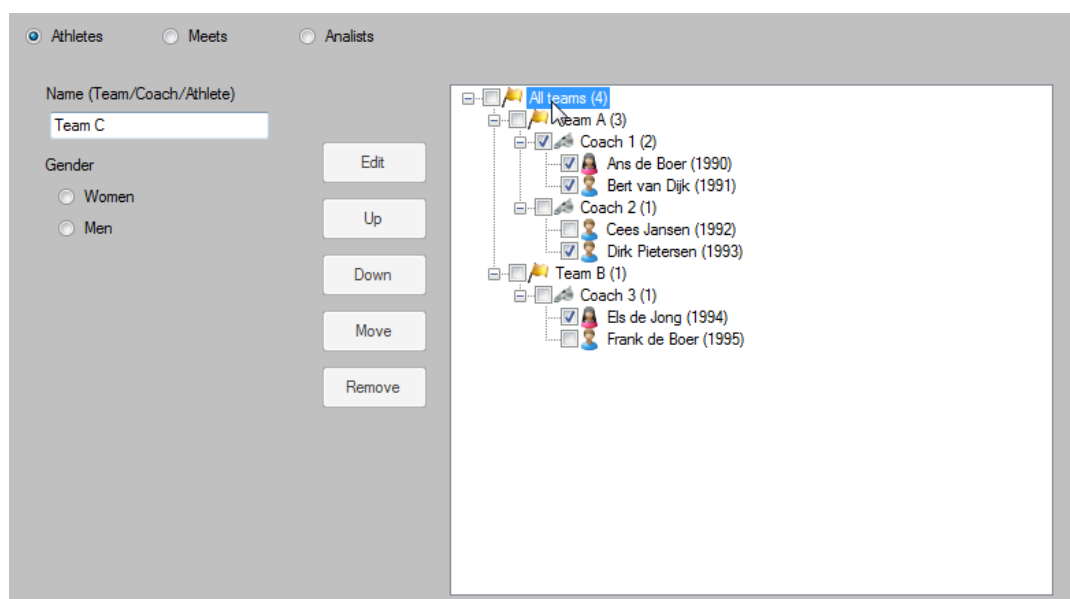
#### 3.1 Managing names of teams, coaches and athletes

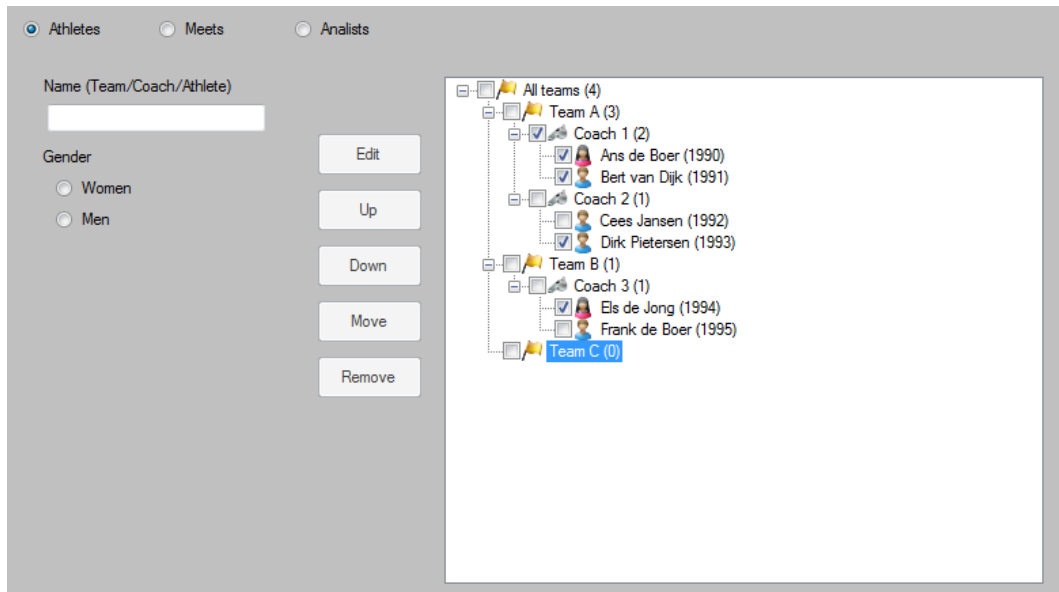
In the **Lists** mode, three radio buttons are shown. Select **Sporters** to show the list in which the names of the teams, coaches and sporters are managed.



##### 3.1.1 Adding teams

To add a team, enter the name in the textbox and in the list, select the top item **All teams**.

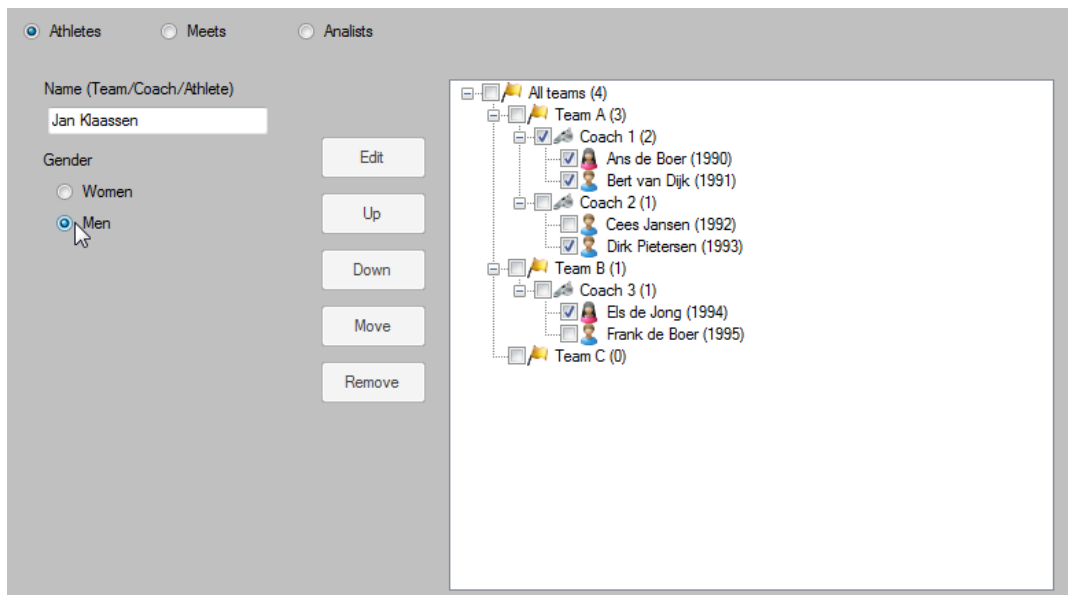


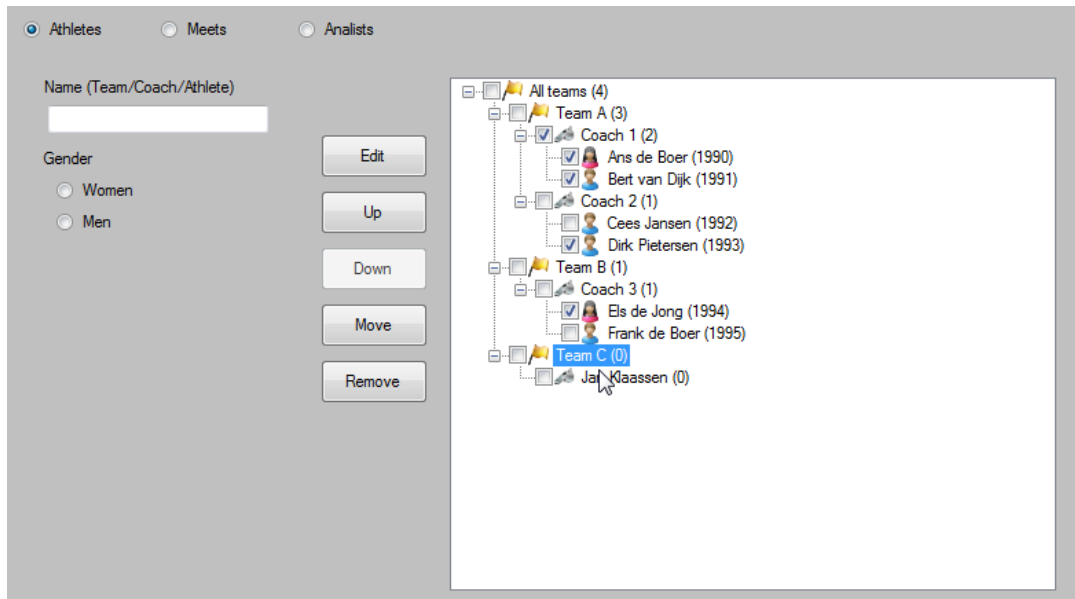


### 3.1.2 Adding coaches

The procedures for adding, editing and removing coaches are similar to that of teams, see the previous paragraph. There are only two differences.

The first difference is that names of coaches must contain both uppercase and lowercase characters and at least one space. Second, you need to click on a Team item instead of **All teams**.

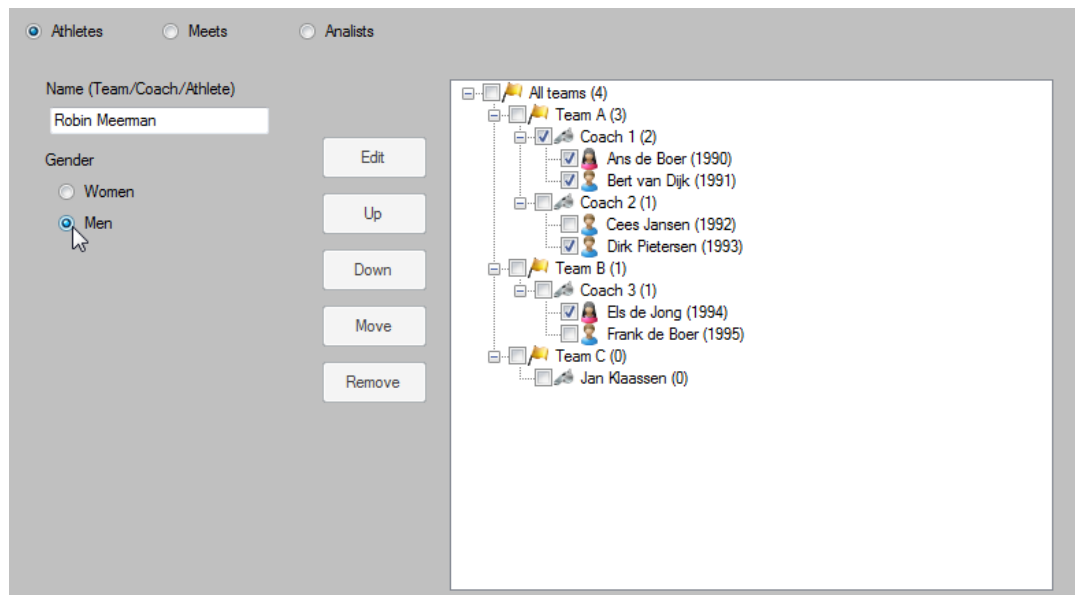


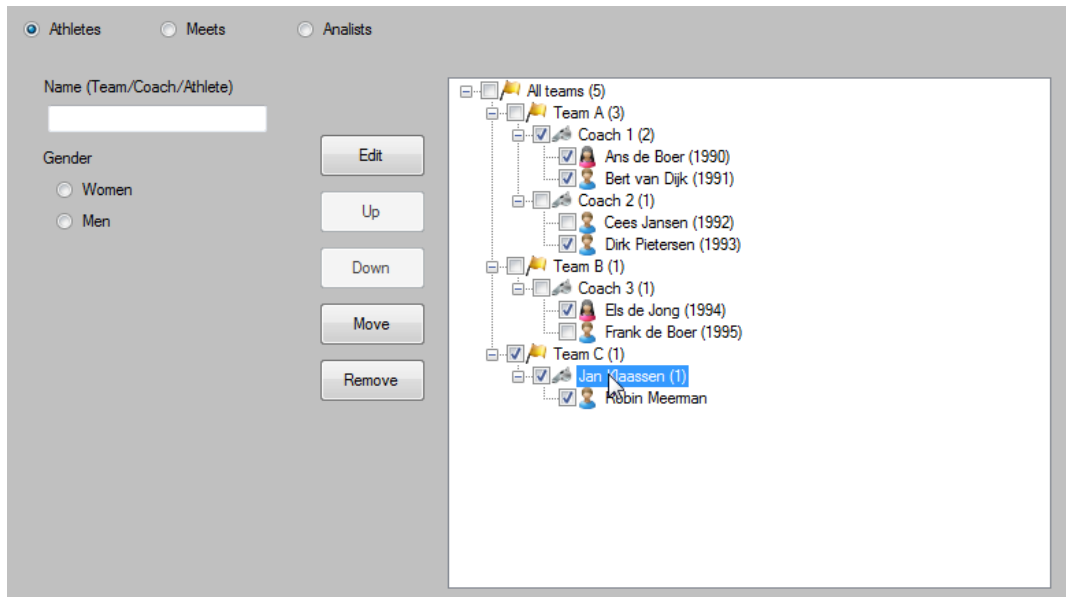


### 3.1.3 Adding athletes

The procedures for adding athletes is also similar to that of the teams, see two paragraphs back for details. There are only three differences.

The first difference is that names of athletes must contain both uppercase and lowercase characters and they must contain at least one space. Second, the gender of the athlete needs to be set before inserting the item, using the two radio buttons. Third, you need to click on a coach item instead of **All teams** or a Team item.



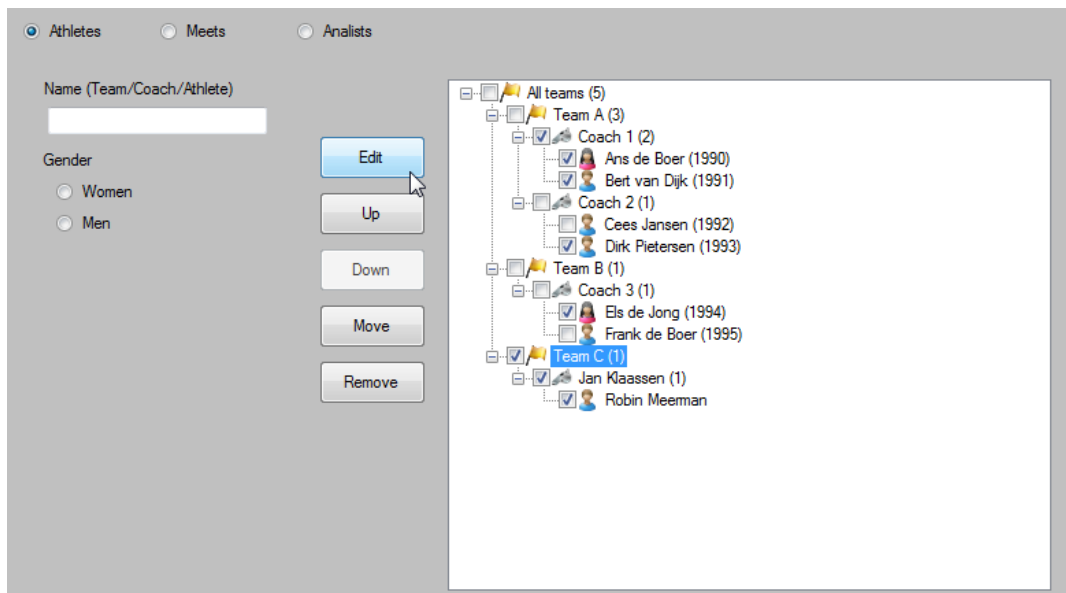
**STDPRO**

Depending on the settings, more textboxes are shown, for example for the year of birth of the sporter. In case multiple textboxes are shown, these also need to be filled out. Whether or not these properties are mandatory can be set in the **Options** mode, and the tab **Lists**.

It is possible to add sporters or coaches to two or more lists, in different teams. This allows for making a list with one or multiple club teams and a national team.

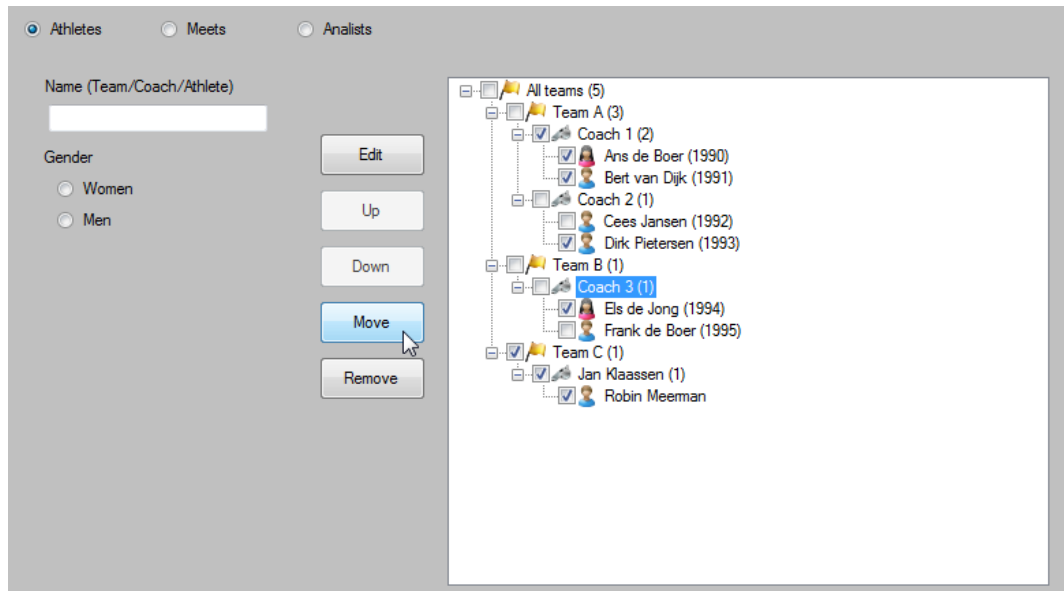
### 3.1.4 Editing names of teams, coaches and athletes

The name of a team can be edited by double-clicking on an item, or selecting it once and then use the button **Edit**. Edit the text in the textbox and click on the list to place it back.



### 3.1.5 Moving names of teams, coaches and athletes

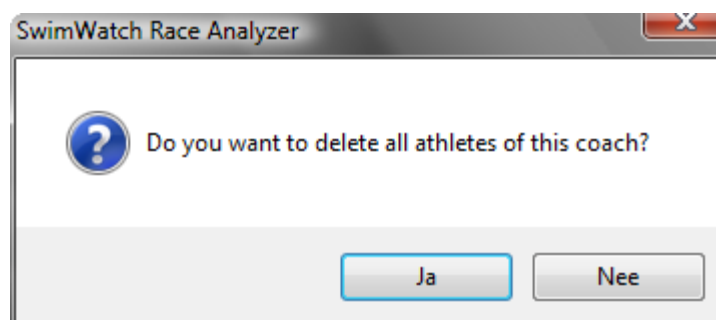
Teams, coaches and athletes can be moved up or down the list by selecting the item and using the buttons **Up** and **Down** directly below the list, or by using the shortcut keys **Ctrl + Arrow up** and **Ctrl + Arrow down**. The list is not in alphabetical order. This means you can move your best team to the top or your youngest team, whatever you prefer.



Coaches and teams can also be moved to other places in the list. Select a coach and the button **Move**, and then select another team. Or select a sporter and the button **Move**, and then select another coach.

### 3.1.6 Removing names of teams, coaches and athletes

A team can be deleted by selecting the item and clicking on the button **Delete**, or by pressing **Delete** on your keyboard. A dialog box appears asking for confirmation.



## 3.2 Adding, editing or removing meets

Adding a meet is a little more complicated. First, the name of the Meet must meet a few criteria (see below). Then select the course length in the combo box below the text box and click on the button **Add**. The meet will be added to the list.

The name should start with two of three characters that describe the kind of meet (NC, EC, WC, etc.), then a space, the year (4 digits), another space and the city where the meet takes place.

Athletes  Meets  Analysts

Meet:

Course:  25  50

Start side:

Lane order:

Wedstrijd	Baanlen...	Startzijde	Baanvolgorde
<input checked="" type="checkbox"/> EK 2008 Rijeka	25	Links	Baan 1 bovenin
<input checked="" type="checkbox"/> OS 2008 Beijing	50	Links	Baan 1 onderin
<input checked="" type="checkbox"/> WK 2009 Rome	50	Rechts	Baan 1 bovenin

Athletes  Meets  Analysts

Meet:

Course:  25  50

Start side:

Lane order:

Wedstrijd	Baanlen...	Startzijde	Baanvolgorde
<input checked="" type="checkbox"/> EK 2008 Rijeka	25	Links	Baan 1 bovenin
<input checked="" type="checkbox"/> OS 2008 Beijing	50	Links	Baan 1 onderin
<input checked="" type="checkbox"/> SC 2011 Eindhoven	50	50 links, 100 rechts	Baan 1 onderin
<input checked="" type="checkbox"/> WK 2009 Rome	50	Rechts	Baan 1 bovenin

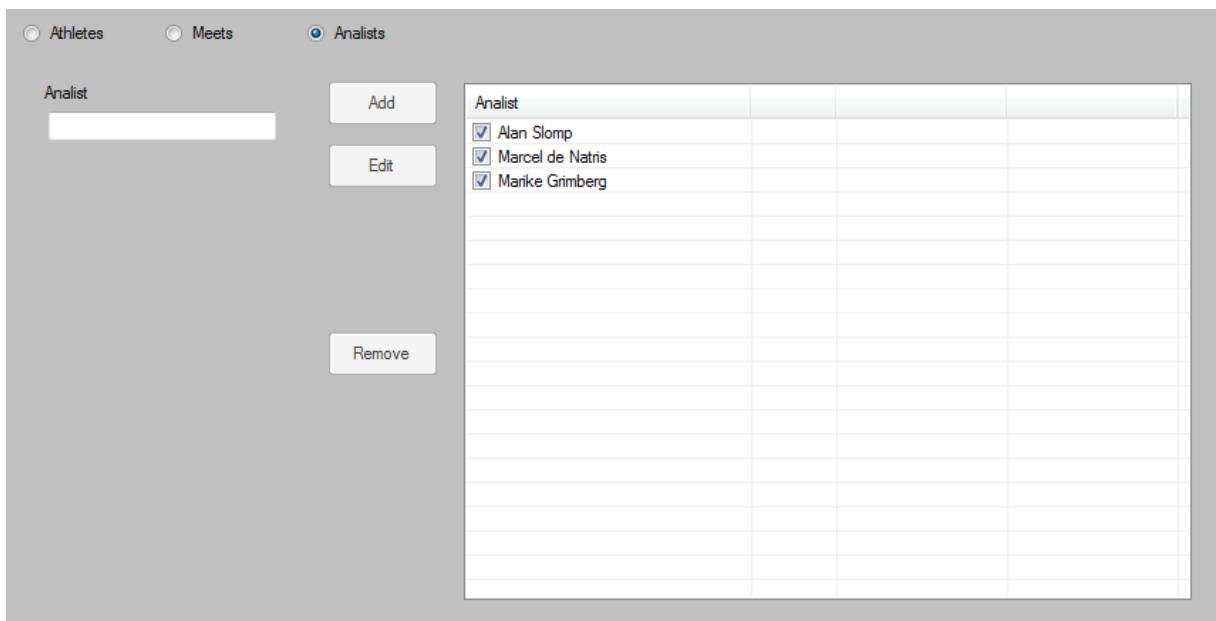
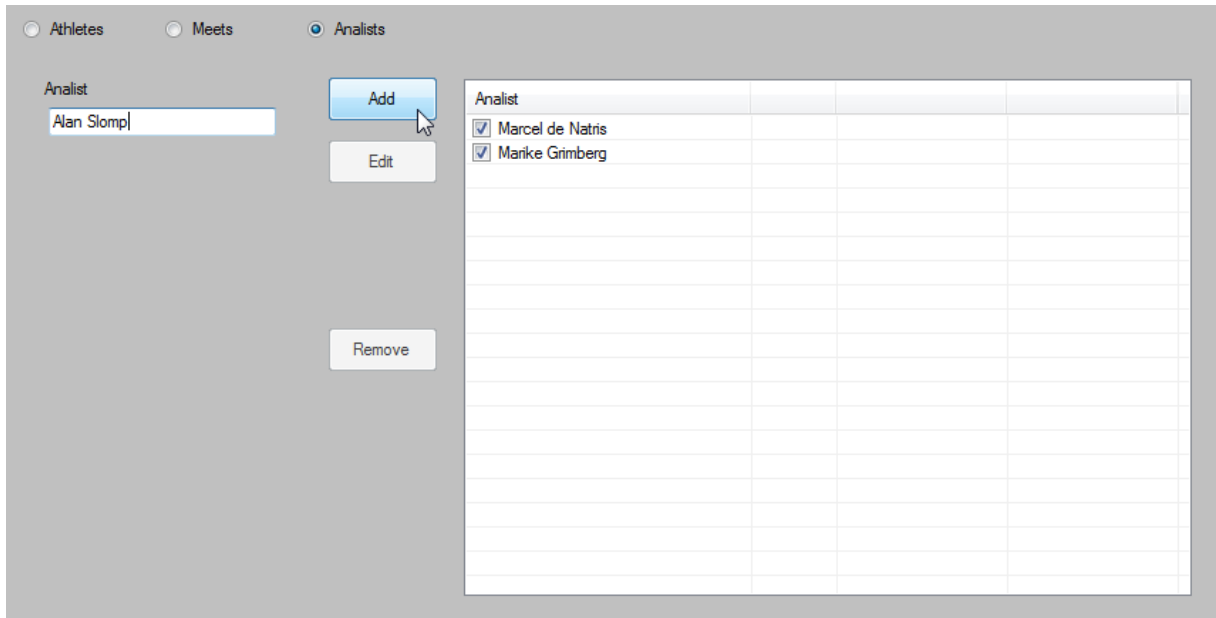
### STDPRO

From the Standard version it's necessary to fill in the start place. In the Pro version it's also necessary to fill in the lane order.

A meet can be edited or removed the same way as a team, coach, or sporter. See previous paragraphs.

### 3.3 Adding, editing or removing Analysts

Adding an analyst can be done the same way as adding a meet, however, the course length does not have to be selected. Enter the name in the textbox, and click on Add. The name of the analyst is added to the list. This list is in alphabetical order.



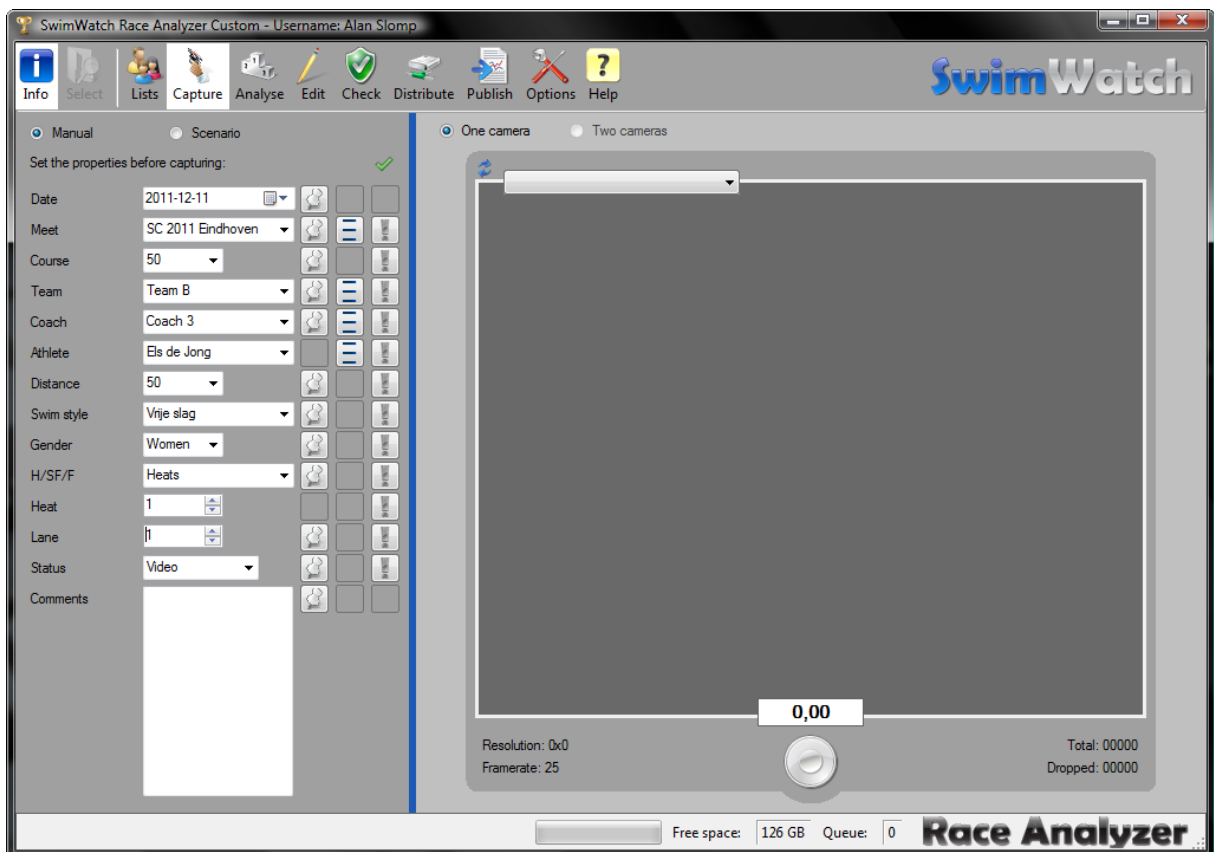
An analyst can be added or removed the same way as a team, coach or sporter. See previous paragraphs.

## 4 Capture mode

In the **Capture** mode, captures can be made that can be used to make analyses in the **Analyse** mode. In this chapter, capturing and setting the properties will be explained.

### 4.1 Setting properties

Even though it is only necessary to choose properties while analysing the video, it can be advised to do this while recording. If analyses need to be made at a later point in time, it will be easier to select the right recording from the list.



On the left, the properties can be set, matching the following capture. Most properties are set by using a combo box with possible names for the characteristic. On the right of the combo boxes, a number of buttons are shown, which will be explained in the next paragraph.

#### 4.1.1 Managing the properties



The first button on the right of the combo box, required for the property, shows a drawing pin. This button can be used to set if the characteristic should be saved after every capture. A green drawing pin means that the that the property needs to be saved, a grey drawing pin means that it will be removed after every capture. It is useful to save the name of the match, but remove the name of the sporter.

The second button can be used to select whether or not names can be entered manually, or need to be selected from the list. In the last case, the button will not only show three stripes, but also 123. In that case, it is only possible to select an item from the list.



The third button shows an exclamation mark, and this button can be used to make the property mandatory. If a red exclamation mark is shown, the property is mandatory, if the button is grey, it is not mandatory. It is useful to make the name of the race mandatory, but not the name of the coach (which is not always known).

Manual Scenario

Set the properties before capturing: ❌

Date	2011-12-11	[Calendar]	[Person]	[Grey]	[Grey]
Meet	SC 2011 Eindhoven	[Dropdown]	[Green]	[Blue]	[Red]
Course	50	[Dropdown]	[Green]	[Grey]	[Red]
Team	Team B	[Dropdown]	[Person]	[Blue]	[Red]
Coach	Coach 3	[Dropdown]	[Person]	[Blue]	[Red]
Athlete		[Dropdown]	[Grey]	[Blue]	[Red]

If all mandatory properties have been filled out, above the first property, a mark will be shown. If a camera is connected (see further on in this manual), it is possible to start capturing. If not all mandatory properties have been filled out, a cross is shown. If a recording is started, a warning will follow. It is possible to start a recording after confirming this warning.

Manual Scenario

Set the properties before capturing: ✅

Date	2011-12-11	[Calendar]	[Person]	[Grey]	[Grey]
Meet	SC 2011 Eindhoven	[Dropdown]	[Green]	[Blue]	[Red]
Course	50	[Dropdown]	[Green]	[Grey]	[Red]
Team	Team B	[Dropdown]	[Person]	[Blue]	[Red]
Coach	Coach 3	[Dropdown]	[Person]	[Blue]	[Red]
Athlete	Els de Jong	[Dropdown]	[Grey]	[Blue]	[Red]

## 4.1.2 Using scenarios

**PRO** In the Pro version, it is possible to insert the schedule of a meet before it starts, so less time is needed to set the properties during the meet. For more information on the scenarios, please contact SwimWatch.

## 4.2 Connecting a camera

It is common practice to connect a digital video camera with a firewire cable. Use this cable to connect the camera with the computer, and start up the computer. Windows needs a few seconds to connect the camera and the computer. After that, start the program, and go to the **Capture** mode.

On the right side, on top of the video frame, one or more combo boxes will be shown. The first combo box consists of a list of available cameras and webcams. If a *digital video camera* is connected to the computer, the video image should automatically appear in the video panel. In case it doesn't, press the key **F5** to refresh the screen.

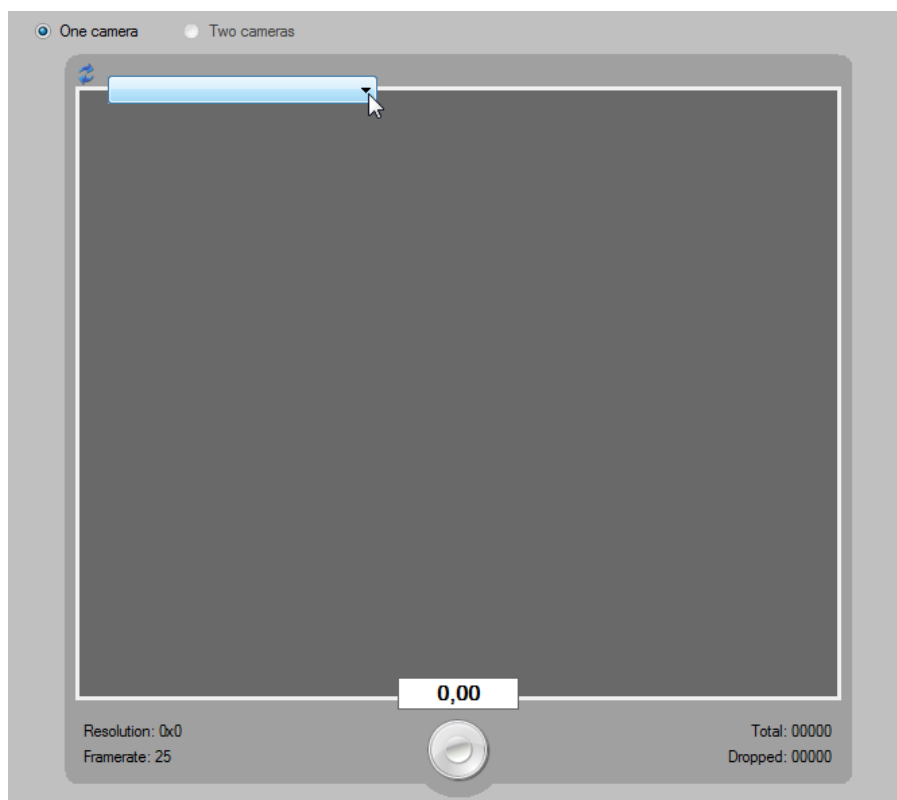
Select the desired item from the combo box and see if a video image appears in the video frame. Press **F5** if the live footage does not appear after a few seconds. If the video image still does not appear, check whether the camera is visible in the Windows Explorer or My computer. If the camera isn't, switch your camera off and on again or restart your computer.

Not all digital video cameras offer live footage. Many modern cameras only offer the possibility to store the video digitally, on an internal hard drive, internal DVD or internal memory stick. These captures can only be copied to a computer afterwards, and not during capturing.

**STDPRO**

With the Standard and Pro versions, it is possible to capture images of the two cameras. Most computers only offer a connection for a single video camera. In order to capture images of two cameras at the time, a pc card with one or more firewire connections can be used.

### 4.3 Capturing from one camera



Select **One camera** from the **Capture** mode. Use the combo box with available video cameras to select the correct item. The live footage will appear within a few seconds. If not, check if the camera is connected correctly. For more information, check the previous paragraph.

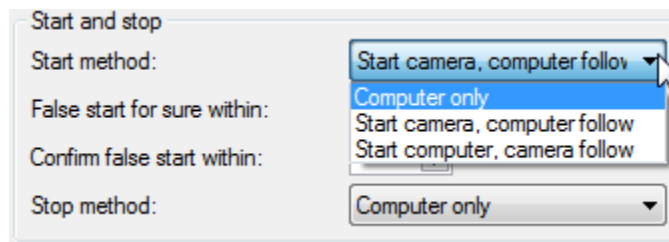
A recording can be started and stopped in multiple ways. One way is to use the mouse to select the round button below the video frame. Click it once to start recording, and once to stop recording. Another way to start and stop recording is using the **space bar**. Recording can be cancelled by using **Esc**.

While starting or stopping a recording, notifications can appear. During the start, a warning may be displayed, showing that not all properties are selected. After confirmation, the recording can start. If the recording is stopped within a set time, the program may ask if the recording should be removed. This time can be set in the **Options** mode (on the tab **Capture**).

Right below the video frame, a text box shows the length of the recording. Left and right of the recording button, a number of labels are displayed, showing information about the camera and the recording.

**STDPRO**

Even though it is not necessary, in live capture during the game, the recording will mostly be started and stopped on two devices: both the camera and on the computer. Of course, this will take up extra time and effort. In the Standard and Pro version, it is possible to start recording from both devices, after which the other device follows. This can be set in the **Options** mode, on the **Capture** tab.

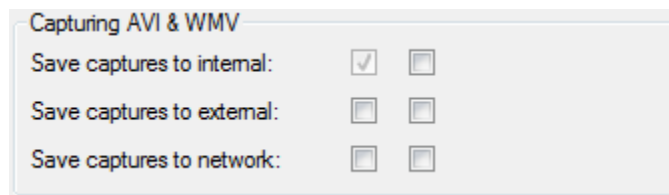


### 4.3.1 Saving video files

When the capture is started and stopped, the video is automatically saved to a drive (the first base path). By default, this is the sub folder 'C:\SwimWatch\Capture\'. At the same time, a datafile containing the properties of the capture is also saved (unless no capture properties are set).

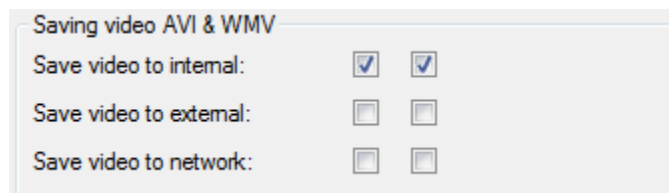
**STDPRO**

It is possible to copy the files to a second, and (in case of a Pro version) a third drive, right after stopping. This can be done via the **Options** mode, where the second and possibly third base paths need to be filled out in **Paths**. Also, **Capturing AVI & WMV** need to be activated in the first column, on the second, and possibly third, row. The marks in the first column relate to the AVI files, the marks in the second column to the WMV files. See next paragraph for more explanation on saving compressed video (WMV).

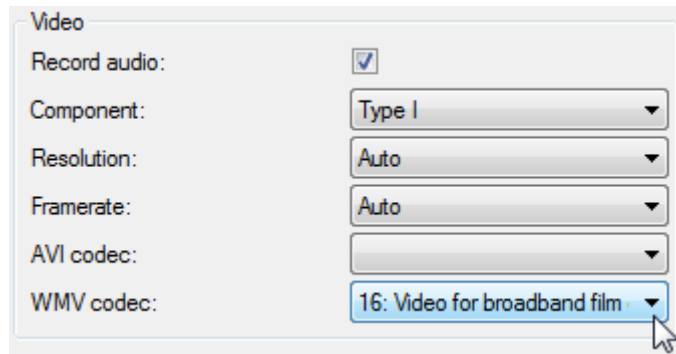


### 4.3.2 Saving compressed video

To save compressed video files after recording, at least to settings in the Options mode should be activated. First, in the tab **Main**, in **Capturing AVI & WMV**, the second column on the first row needs to be activated, to ensure that the WMV is stored on the internal disc.



Also, the *level of compression* needs to be set. This can also be done in **Options**, by using the tab page **Capture**, in the groupbox **Video**, and the option **WMV codec**. The combo list shows the codecs installed onto the computer. Determine the desired codec by testing different settings. The *video codec* "Video for broadband film (1500 Kbps)" offers a reasonable quality.

**STDPRO**

In the previous paragraph, the way to copy AVI files to a second or third drive is described. This can also be done with WMV files. To create a compressed video file on the external drive, the second box on the second row needs to be ticked. To do the same for a third location (only possible in Pro versions), the second box on the third row needs to be activated. As described in previous paragraphs, it is necessary to fill out the second or third paths in the groupbox **Paths!**

## 4.4 Capturing two cameras

**STDPRO**

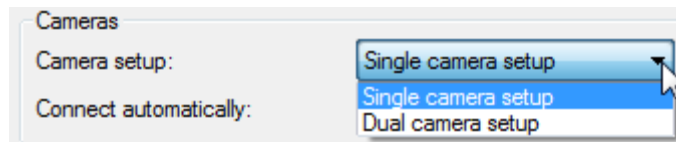
Capturing races with two or more cameras on different places (but from the side) offers both the analyst and the coach a better view on the sporter. Whether or not two cameras are necessary, is hard to determine. This depends on the height of the point of view of the camera and the length of the lanes. Also, the use of multiple cameras is not possible at every race.

In the Lite version, only one camera can be used. In the Standard version, two cameras can be used. The Pro version can handle multiple cameras (up to tens). Analysing with multiple cameras will not get more difficult. However, recording will. For example, more people and more hardware and software is needed.

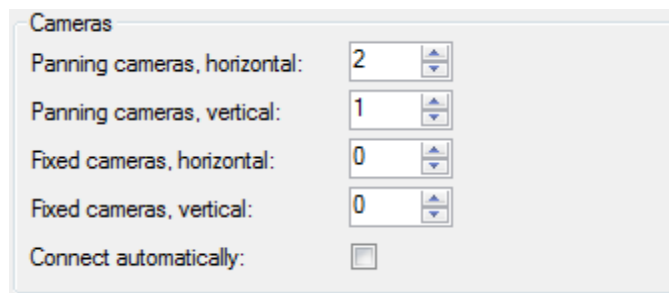
### 4.4.1 Settings in the Options mode

**STDPRO** If two cameras are used, it is possible to connect both cameras to a computer. It is also possible to connect both cameras to separate computers. In the Pro version, it is possible to work with a total of six cameras, and capture images with three laptops (each one handles two cameras). There can be a difference between the total number of cameras used (the *camera setup*), and the number of cameras connected to the current computer.

**STD** In the **Options** mode, the total number of cameras needs to be set. The image below shows the settings in the Standard version. The choice here is between a **Single camera setup** and a **Dual camera setup**.

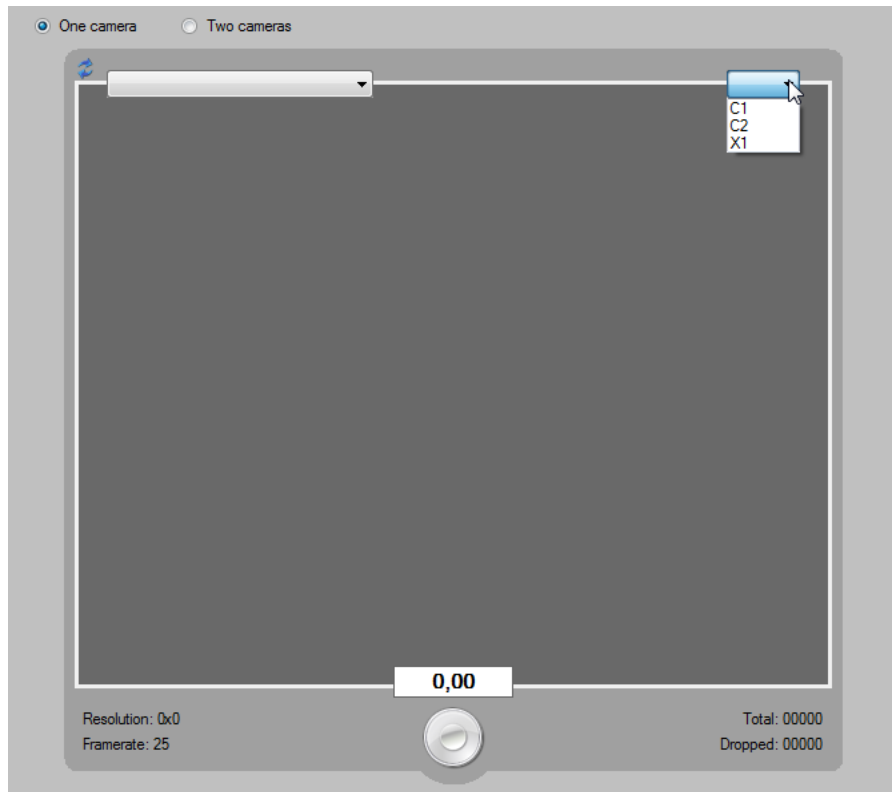


**PRO** The image below shows the settings in the Pro version, in which a combination of moving and fixed cameras is used as a setup. See appendix 'File names and camera names' for more information on the camera setups.

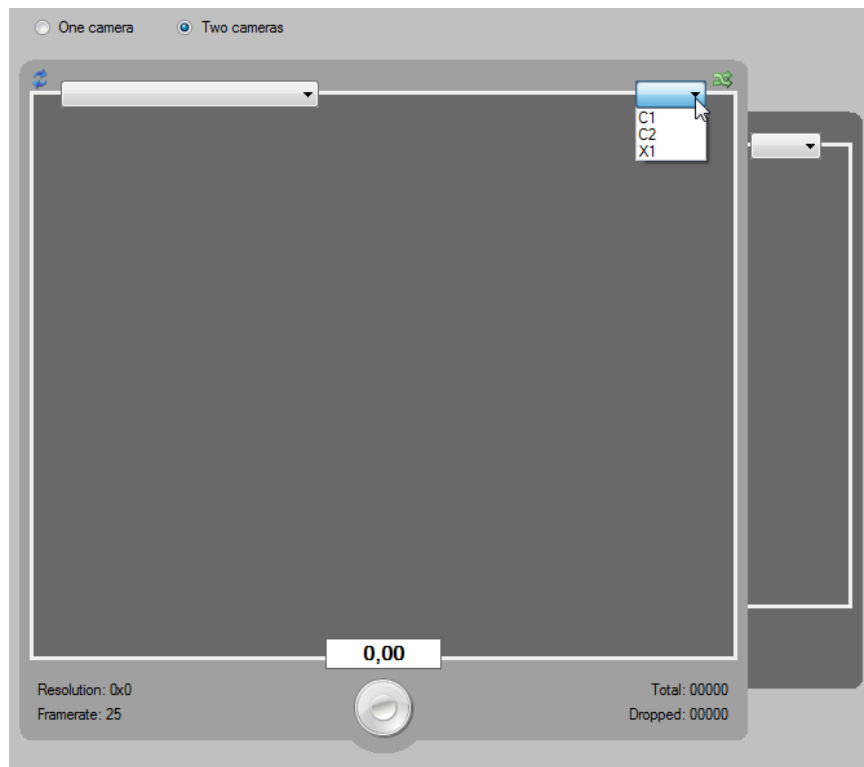


### 4.4.2 Settings in the Capture mode

**STDPRO** If a setting of more than one camera is chosen in the **Options** mode, the camera or cameras connected to the current computer need(s) to be selected in the **Capture** mode. A second (and possibly third) combo box will be shown on top of the video frame (or both video frames) in the **Capture** mode. With the combo box (or combo boxes), the position of the camera of the video frame can be set.



The previous image shows a situation in which the current computer is used to capture only one camera at a time. If the radio button **Two cameras** is activated, images of two cameras can be captured at the same time. Two video frames will be shown. Of course, the video frame needs to be adjusted for the right camera position.



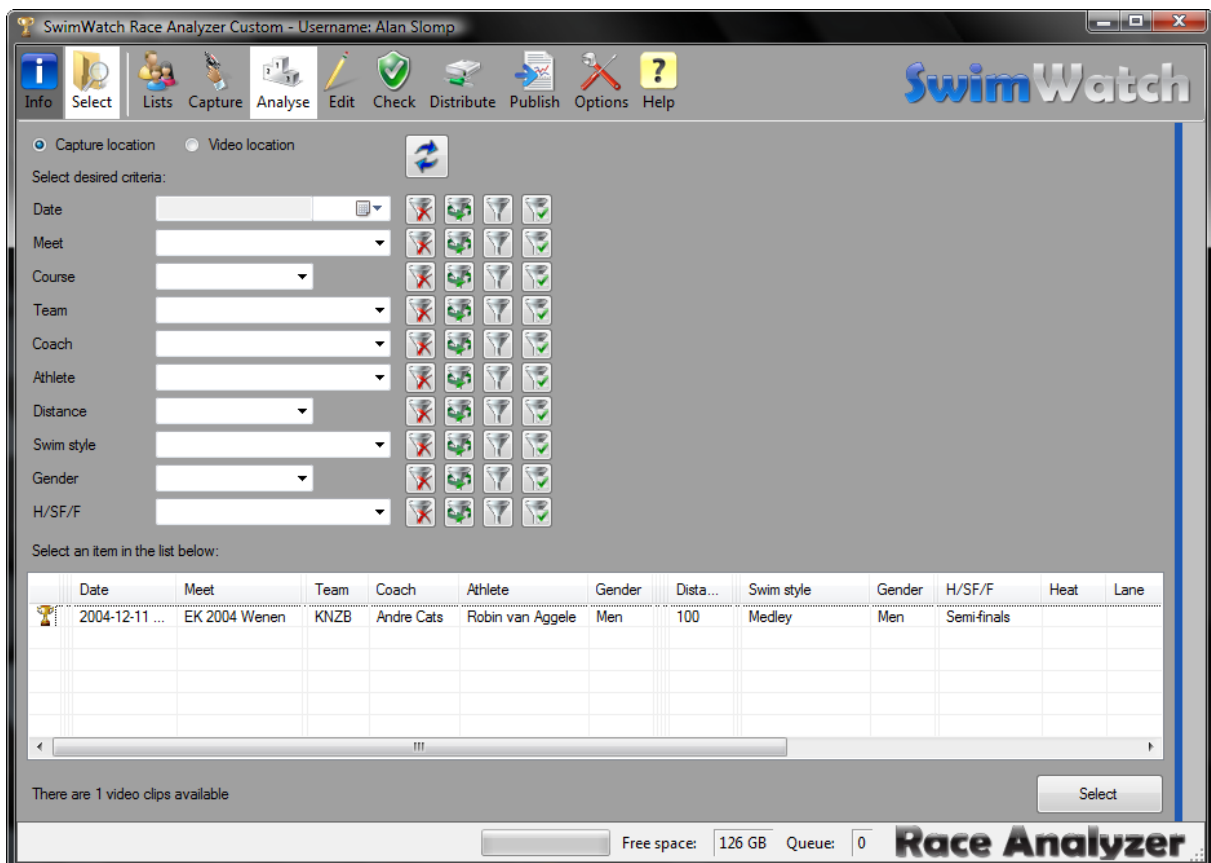
Starting and stopping capturing works the same as with a single camera.

## 5 Analyse mode

The **Analyse** mode helps to analyse captures filmed with **Capture**. In this chapter, the steps necessary for analysing a race are explained.

### 5.1 Selecting captures for analysing

All captures are saved in a separate sub folder, to be analysed later. By default, this is 'C:\SwimWatch\Capture'. To analyse a race the video file needs to be selected first from the list of captured videos. Activate the **Analyse** mode, and click on the button **Select** in the menu bar to show this list.



A data file with the set properties is stored as well, unless no properties are set. The previous image shows items with and without properties. It is not necessary to select the properties before or during the race, but it is good practice. It makes it easier to distinguish races in the list.

When a race is recorded with a single camera, the capture can be selected by double clicking on the item or by clicking on an item and clicking on the button **Select**, which is shown right under the list.

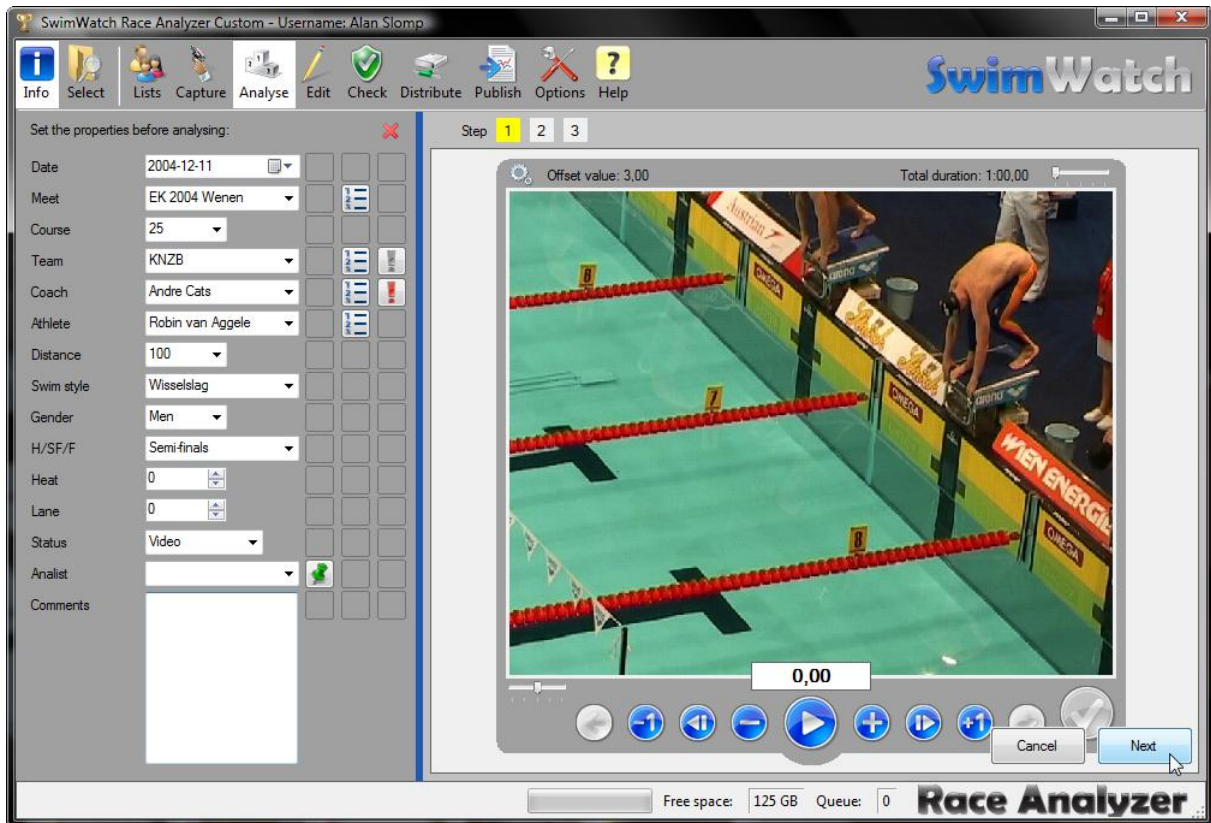
#### STDPRO

In the Standard and Pro version it's possible to select several captures if a race is captured with several cameras. In paragraph 5.7 it will be explained in more detail.

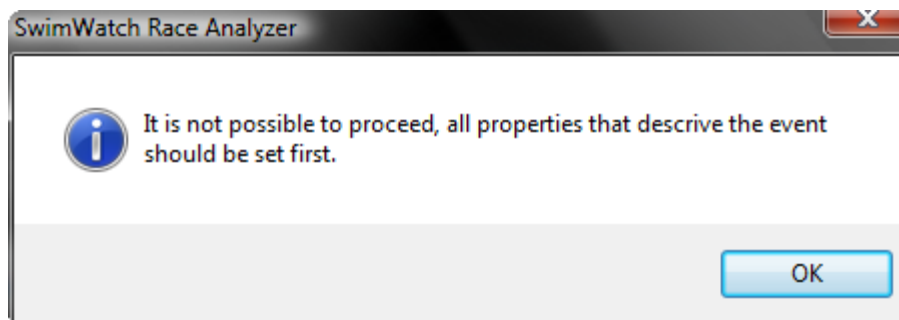
### 5.2 Step 1: Enter properties and official times

After the video is selected, the analysing process consists of a number of steps. On the right side the video is shown to check if it is the right video. Below the video are several buttons to control the video. By clicking on the blue button with the white arrow, the video can be started or stopped, this may also use the **space bar**.

The next step is to add the properties on the left side on the screen. When all properties are added, the next step will be available through clicking on the button **Next** or to use the controls **Ctrl+Enter**.



When not all properties are added, a message appears.



If the properties are added, a table appears on the right side. The official times need to be entered there. Time values can be entered in numerous ways, (with or without dots and commas). The most easy way to enter the total time of 55,25 is to use four numerals: 5525. Use arrow keys  $\uparrow$  and  $\downarrow$  (with Ctrl 0.01 sec and without Ctrl 0.10). After selecting the last property, click the button **Proceed** or use the controls **Ctrl+Enter** to go to the next step.



Step **1** 2 3  Validate all measurements

Official times			
Block	0,80	0,80	=
25m	11,44	11,44	=
50m	25,53	25,53	=
75m	41,93	41,93	=
100m	55,25	55,25	=

Import Clear Cancel Next

**STDPRO**

The Pro version offers the possibility to import results into the table with official times. This can save time, especially for longer races.

### 5.3 Step 2: Set the offset for the race in sec

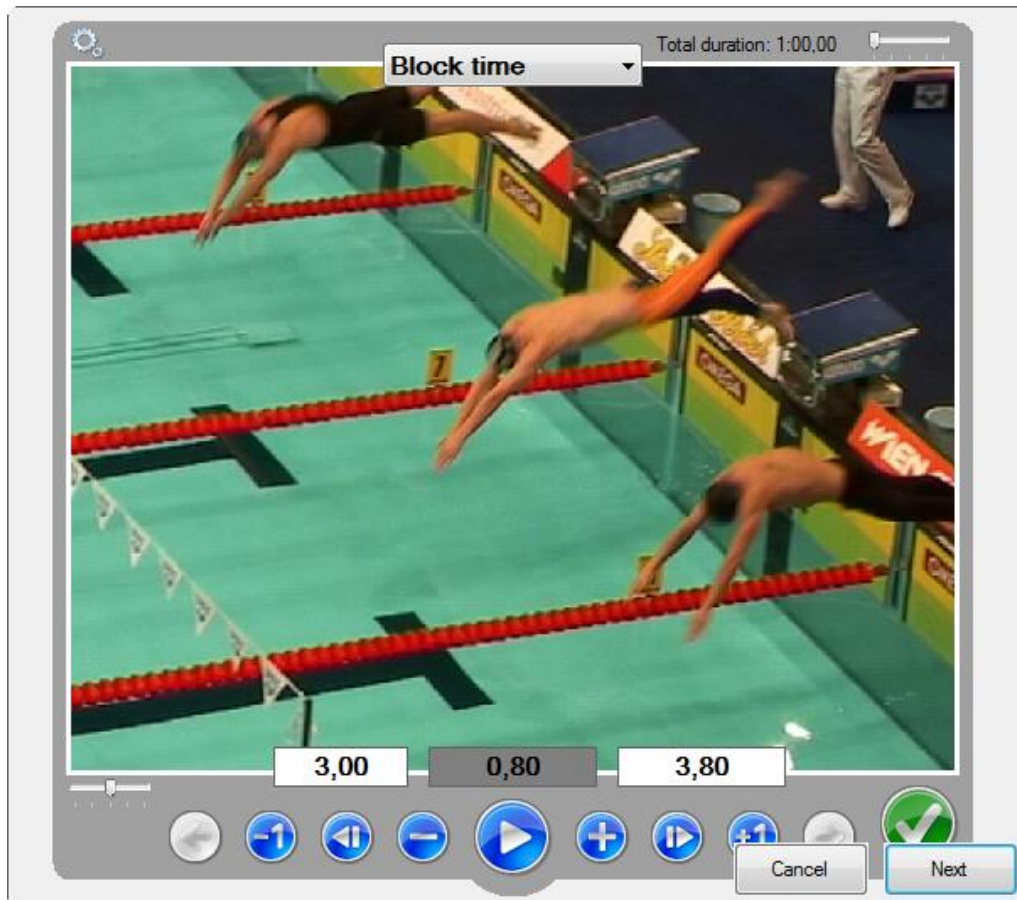
In step 2 the offset needs to be determined. The offset is the time between the beginning of the video and the starting moment of the race. The offset is different with every captured video, because the capture starts manually (seconds before the start signal). The offset is needed to determine the exact split times of each section. The offset can be determined in one of these manners:

- Start: search for the frame that shows the start flash (this is the fastest method, but can only be used whenever flash equipment is available)
- Block time: search for the moment where the toes do not touch the block or the wall (can only be used whenever official block times are available)
- Turn 1/2/3: search for the frame where the athlete touches the wall at the first or second turn (use this method when no flash and no block time is available)
- Finish: search for the frame where the athlete touches the wall at the finish (same)

**PRO**

The Pro version offers another method: **Synchronising**. This method helps to determine the offset for a clip, by comparing a random moment with the same moment from a clip that already has been synchronised.

One of these methods can be selected at a time, using the list above the video panel. Which of the methods works best and/or fastest, depends on the availability of a flash machine and block times. In the **Options** mode, the default method can be set, but the analyst can switch between the four methods at all time. This can be done by clicking on the radio buttons or by pressing the **PageUp** and **PageDown** keys.



Use the arrow keys (with or without **Ctrl**) to change the value of the offset. While searching for the right frames, the current offset value is shown below the video panel. If another method is selected, the offset value remains the same. The offset is set correctly when the video frame shows the corresponding frame for every method.

The offset value can be fixed by clicking on the green round button, or by using **Enter**. If the offset for all clips has been determined, click on **Proceed** or use **Ctrl+Enter** to proceed to the next step.

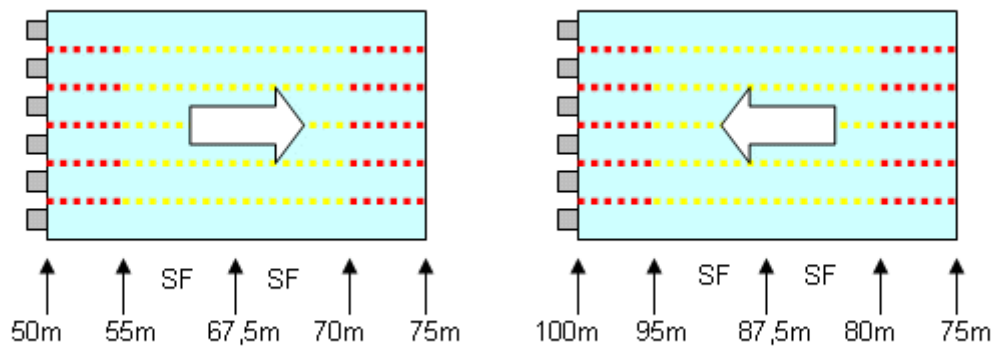
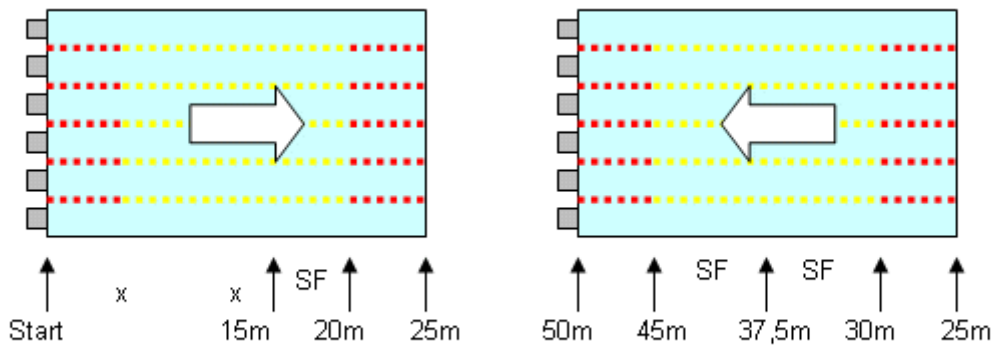
## 5.4 Step 3: Correct and confirm splits and SF

When the offset value is confirmed, the 'real' analysing work can start. In the following paragraph, the types of measurements are explained. In the next paragraphs, the analysing process is described.

### 5.4.1 Overview of measurements

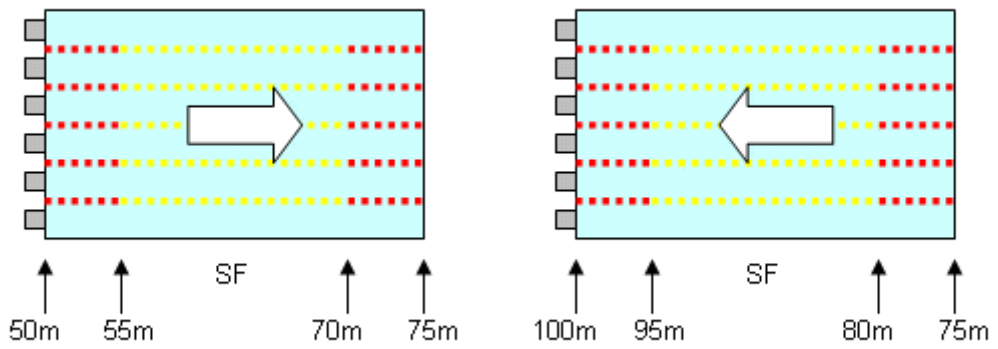
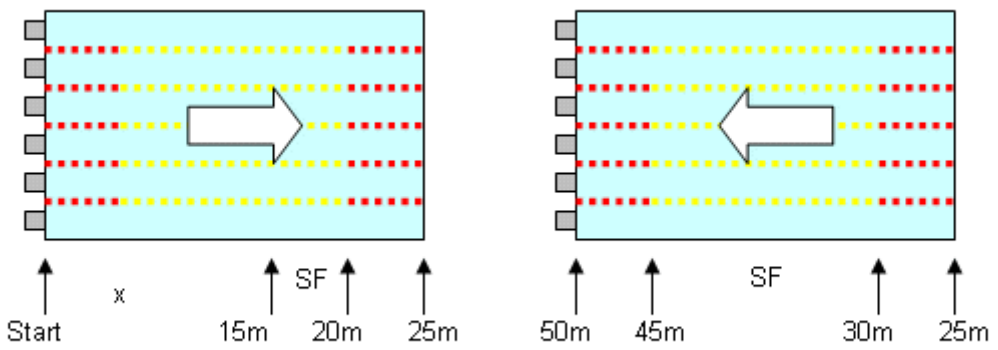
For each of the marks in the following pictures, a split time needs to be measured. In each of the sections - except the first and last section of each length - a stroke frequency needs to be determined. Other data is optional and can be added to the analysis by selecting these options on the tab page **Options**. This includes data for the start (block and landing time), breakouts and strokes.

Course length 25m, distances 50, 100 and 200m:



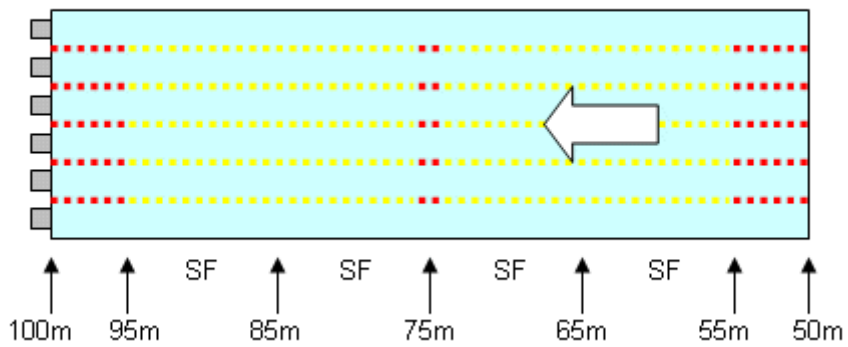
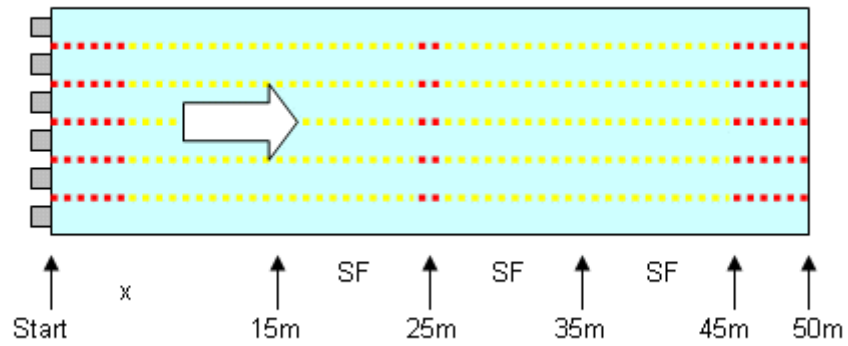
Etc

Course length 25m, distances 400m and beyond:

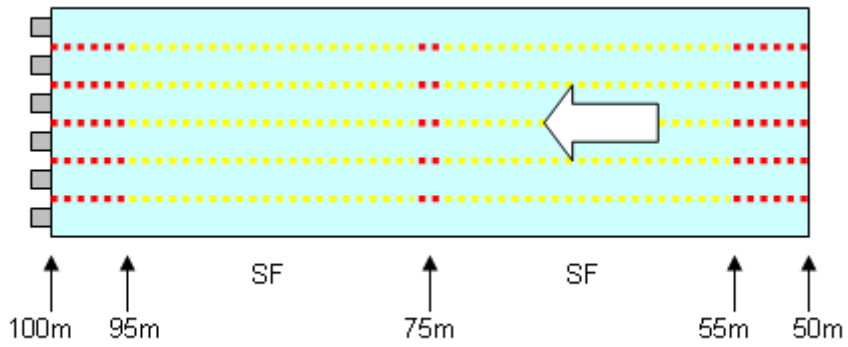
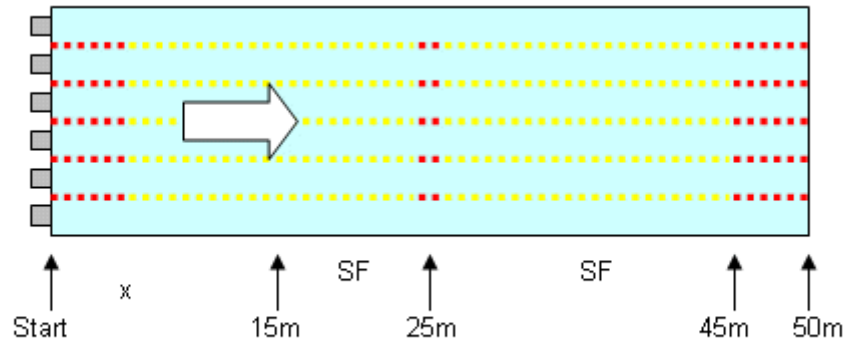


Etc

Course length 50m, distances 50, 100 and 200m:



Course length 50m, distances 400m and beyond:



After reviewing these pictures it will be clear that the SwimWatch Race Analyzer provides very detailed analysis. However, analysing a race usually costs only a few minutes per race.

## 5.4.2 Show and hide properties and tables

From step 3 and onwards, the analysing process offers the possibility to show or hide the properties on the left side. This can be done by clicking on the **Info** mode in the menu bar. To keep the video panel as large as possible, hiding the properties once they are set is recommended (in step 1).

The tables on the right can also be shown or hidden. This can be done by using the checkbox on the right, below the menu bar. Showing the tables on the right is recommended, since these show the preliminary results of the analysis. By keeping an eye on these tables, errors in the analyses can be prevented.

The screenshot shows the software interface with three steps (1, 2, 3) at the top. A 'Validate all measurements' checkbox is checked, and a 'Show tables' checkbox is also checked. The video panel displays a swimmer with a '15m' mark and a 'Splittime' dropdown. Below the video are time markers: 6,44, 0, 6,44. Control buttons include back, forward, and a green confirmation button. The data tables on the right are as follows:

Time	Base	Comp	Diff
Block	0,80	0,80	=
Landing		1,00	
Break		3,96	
First			
15m	6,44	6,30	+0,14
Middle		8,24	
Result		-1,94	

Speed	Base	Comp	Diff
15m	2,33	2,38	-0,05
20m		1,82	
Middle		1,82	

Buttons for 'Cancel' and 'Save' are located at the bottom right.

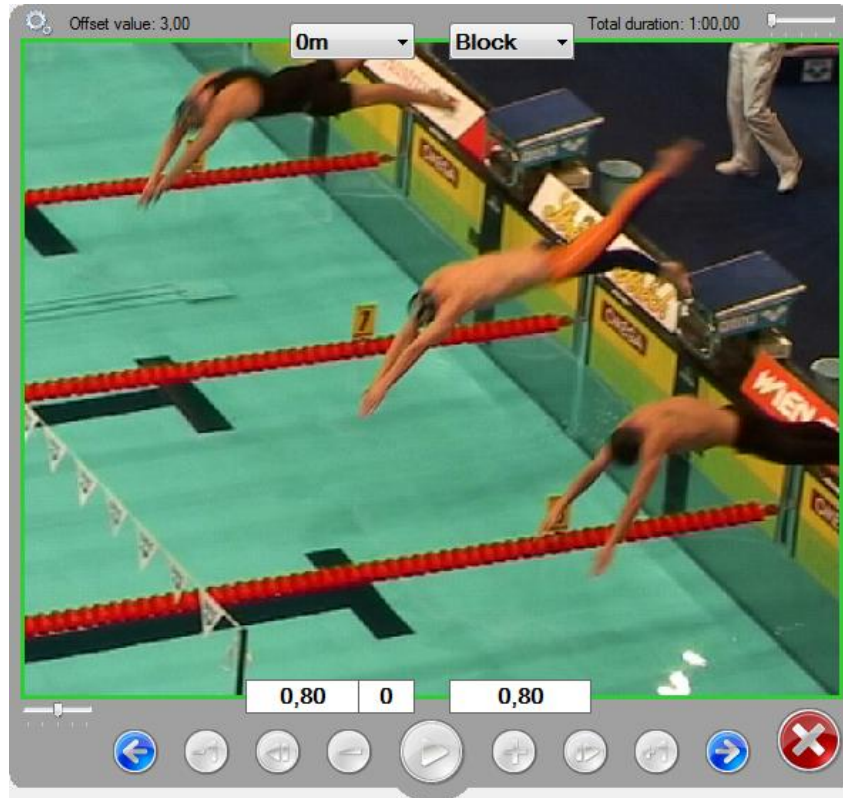
## 5.4.3 Determining split times

When determining split times for each of the marks, the frame will be shown that matches the split time of the estimation. This time value can be adjusted by using the arrow keys (← and →, with or without of **Ctrl**). Confirm the time with the **Enter** key and the video will jump to the split time that matches the next mark. Correct and confirm all marks.

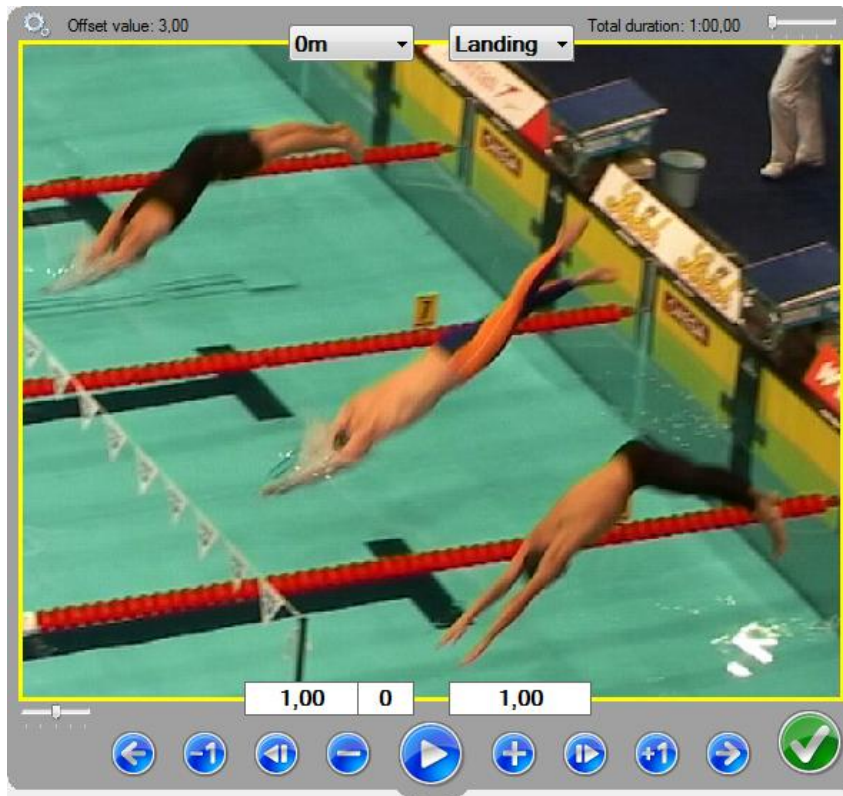
The combo box below the video panel shows the current mark: 15, 25, etc. The second combo box indicates what kind of frame needs to be searched. All marks need to be confirmed from start to finish, but the analyst can switch to past or future marks using the combo box or the **PageUp** and **PageDown** keys. When the frame around the video panel is green, that measurement is confirmed.

When the corresponding option is selected in the **Options** mode, the first time that needs to be confirmed is the block time of the start. When the block time is used while determining the offset of the video, the correct frame will be shown automatically. The measurement can be confirmed by clicking on the green round button or pressing the **Enter** key. Using keys makes analysing faster!

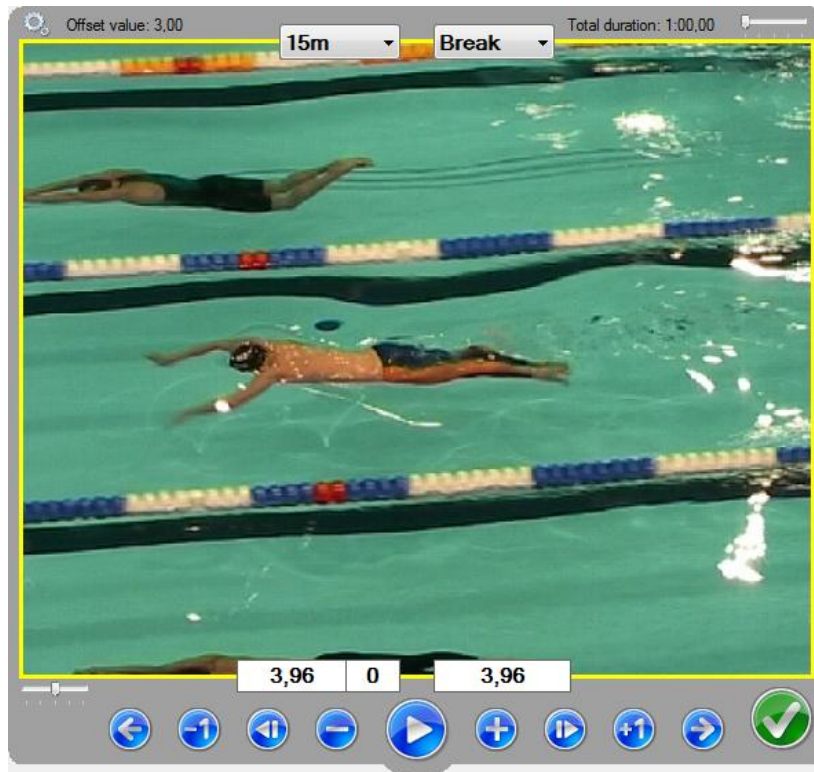




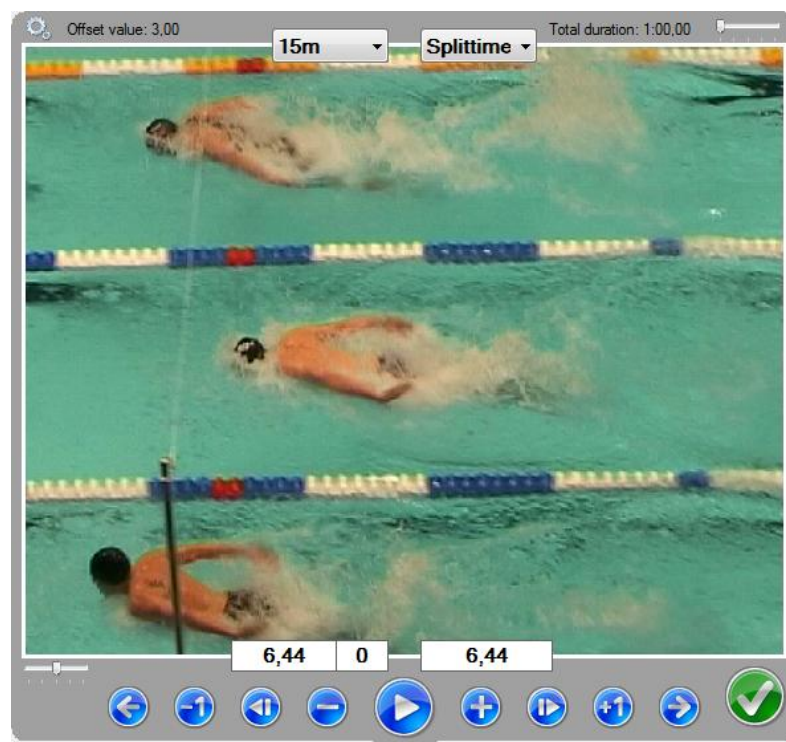
The second time that needs to be confirmed is the landing time. Use the arrow keys with the **Ctrl** key to select the correct frame. Usually the landing is defined as the first frame where the head touches the water. The measurement can be confirmed with the green round button or the **Enter** key.



In the **Options** mode can be set whether the analysis should include split times of break-outs. If break-outs are included, the next frame to be searched is the frame where the head or an arm breaks the surface (from under water). In some pools it is very difficult to define this frame, there is often room for debate and interpretation. That is why it is advised not to compare break-outs from different meets or different analysts!

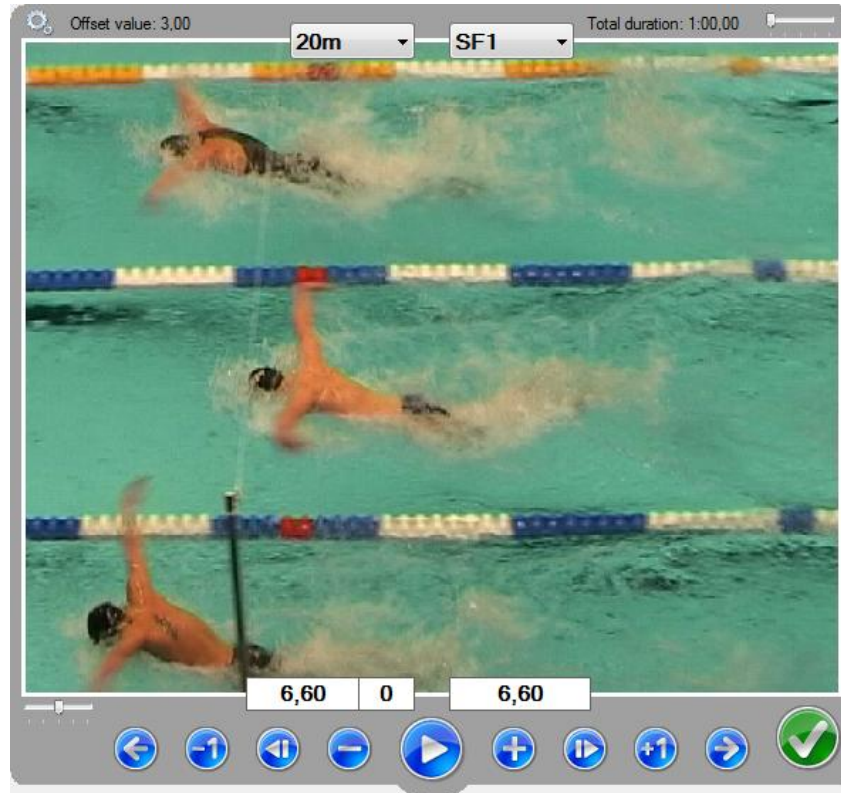


When determining split times for marks, the lines between the lanes of the pool are used. Nearly all lines used in competitive swimming will show colours for each of the marks that the software uses. Notice that the 10m, 12.5m and 15m marks are very close in a 25m pool. Check the lines before the meet starts and check whether the lines are tight and aligned properly. If this is not the case, note the differences, so that these can be taken into account while analysing.



#### 5.4.4 Determining stroke frequencies

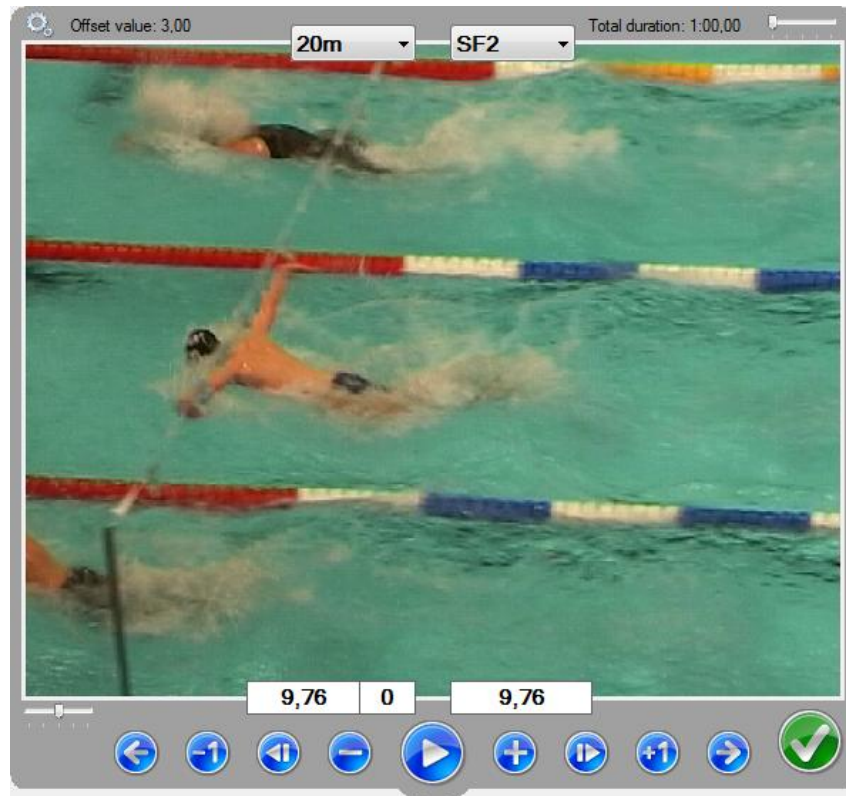
Stroke frequencies can be measured in different ways. When video is used, the most common method is to search for two frames in which the athlete is in exactly the same phase of the movement. The stroke frequency can be calculated with these two split times and the number of cycles between those two moments. The program does not require a certain number of cycles, but it's recommended to take as many cycles as possible to get the best accuracy.



The first of the two split times can be determined in the same way as a split time for a mark: find the desired frame and confirm with **Enter** (see previous image). After that the second split time and the number of cycles need to be determined and confirmed together (see next picture). There are two ways to do this.

- The first method is Playing the video, and stop it after a few cycles, in order to count the cycles while playing. Enter the number of cycles manually, by using **Alt+↑** and **Alt+↓**. Playing the video is the simplest but also the most time consuming method. It is possible to play the video at a higher speed by moving the vertical slider up, but when the video is playing fast it is difficult to stop at the right frame.
- The second method to measure the frequency can only be used after the second measurement for a lane. By using the combinations **Alt+←** and **Alt+→** repeatedly, the video will move a cycle, based on the frequency of the previous section.





Which method is chosen to search the second split time, use the key combinations **Ctrl + ←** and **Ctrl + →** to find the correct frame and **Ctrl + ↑** and **Ctrl + ↓** to set the number of cycles. When both the split time and the number of cycles is set, these values can be confirmed with the **Enter** key.

#### 5.4.5 Setting split times in-between frames

Version 2.0 shows 25 frames per second (with cameras that record 25 frames per second). Version 3.0 shows 50 frames per second. In the meantime, split times between two frames can be set, by using the bleu buttons + and - (directly below the video panel). With these buttons the times can be set in units of 0,01 seconds.

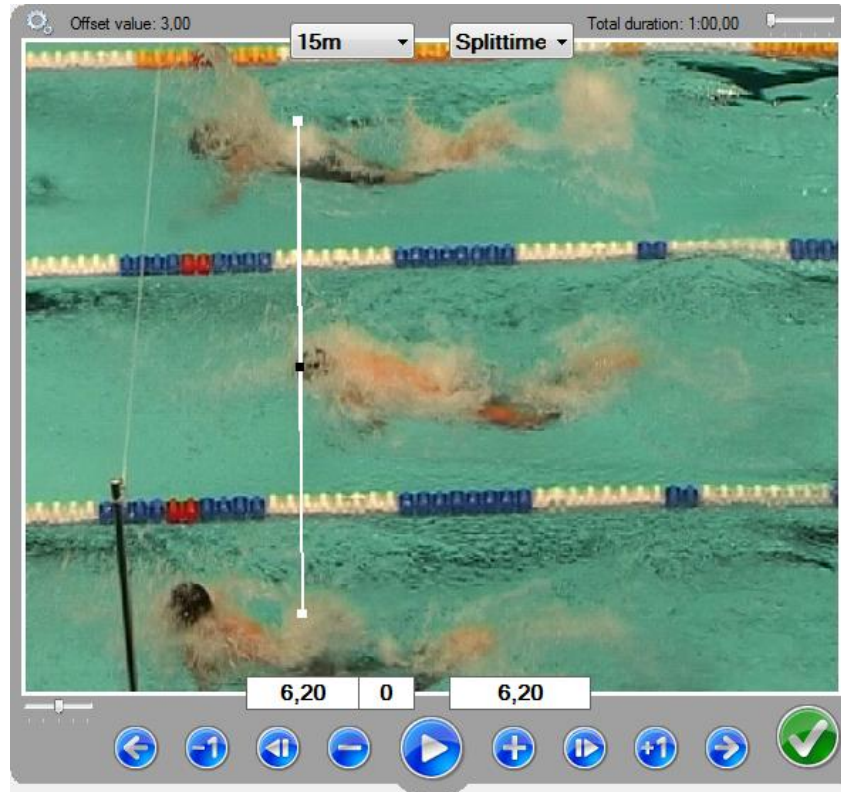


Both actions can be performed using the key combinations **Shift + ←** and **Shift + →**. The alignment of the time in the text field indicates that the shown time is on the right of the shown frame. Press the small bleu buttons a few times to see how the time and alignment changes, indicating the deviation to the left or right side of the current frame.

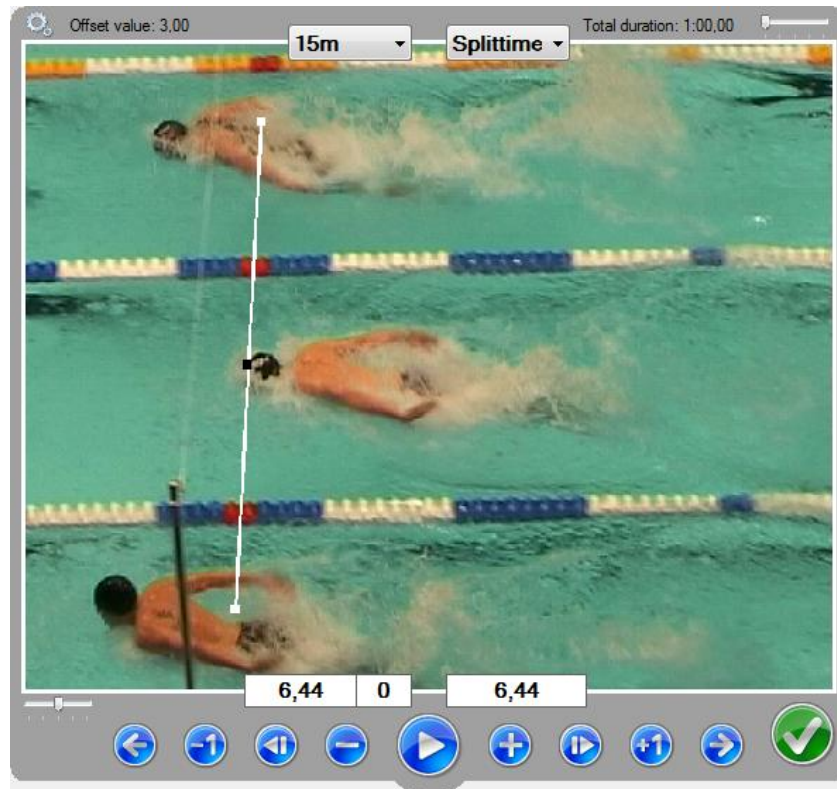


### 5.4.6 Drawing lines and moving lines

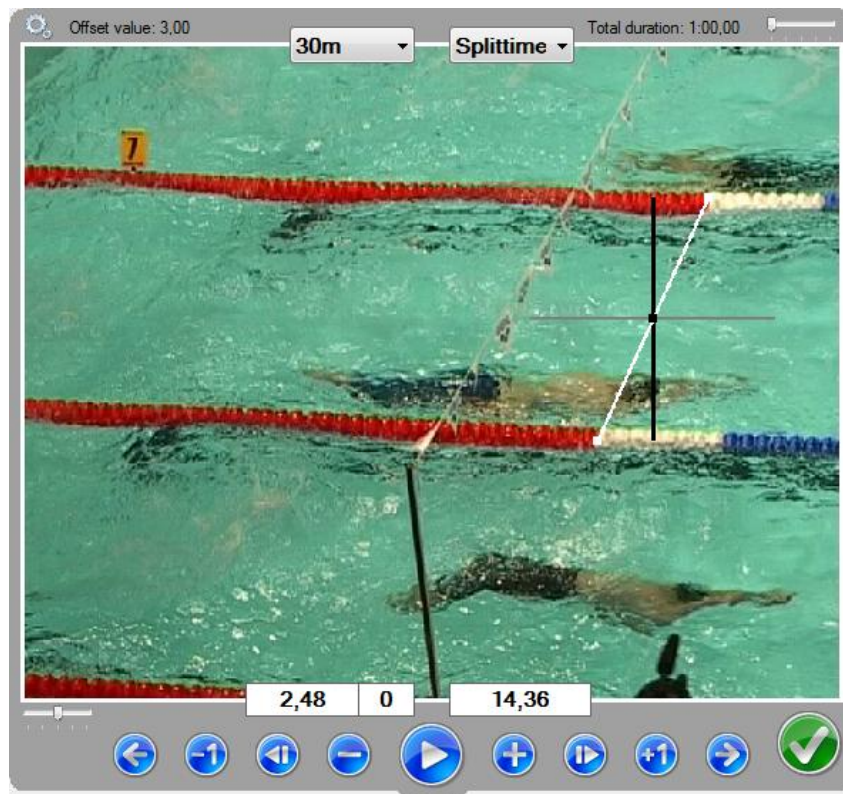
At certain points in the race it can be difficult to judge whether the athlete is past a certain mark. The user can draw lines over the video, which can help to judge the race. Drawing lines is very easy: just click on a certain pixel with the left mouse button, hold the mouse button, move the mouse to a second pixel and release the mouse button.



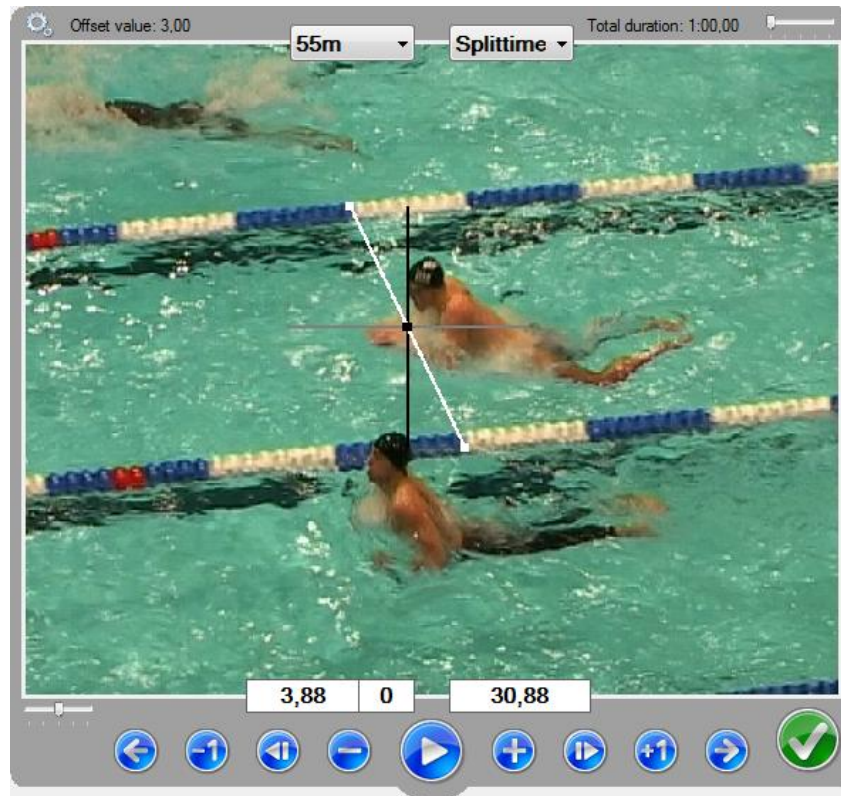
When stepping frames, the lines that were drawn are no longer aligned to the video. Luckily, the line does not have to be drawn again for each frame. It is possible to move the line with the mouse or shortcut keys **Ctrl + Shift + ←** and **Ctrl + Shift + →**.



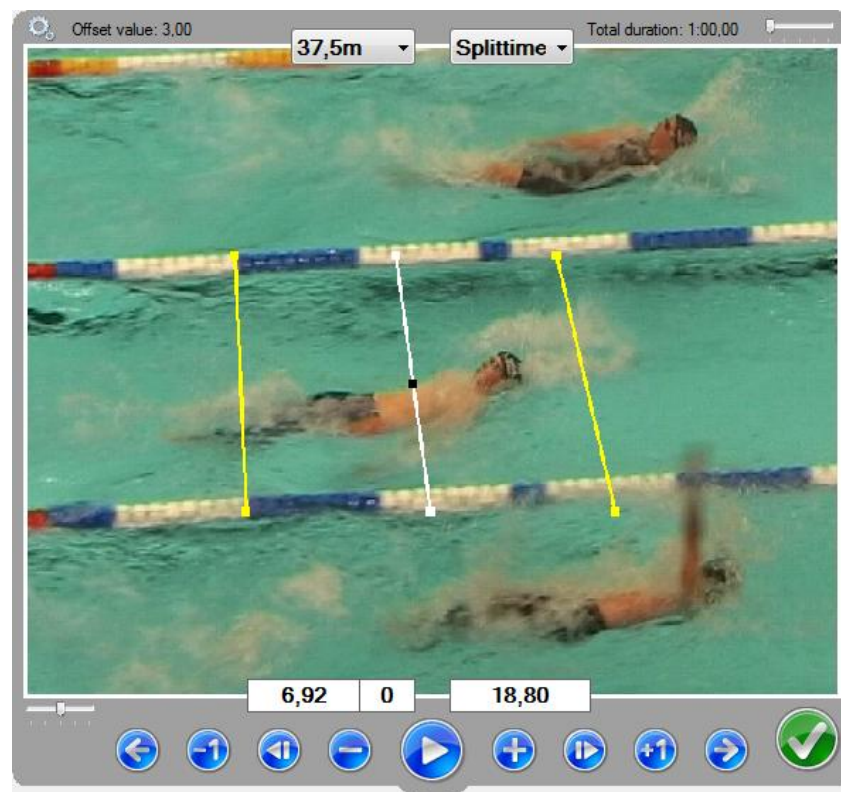
When the left mouse button is used, a simple line is drawn on the video. When a line is drawn using the right mouse button, an extra line is drawn. This line is a vertical line which crosses the line that is drawn by the user (in the exact middle). This second line is helpful when judging athletes that are under water or high above the water. See the next two pictures.

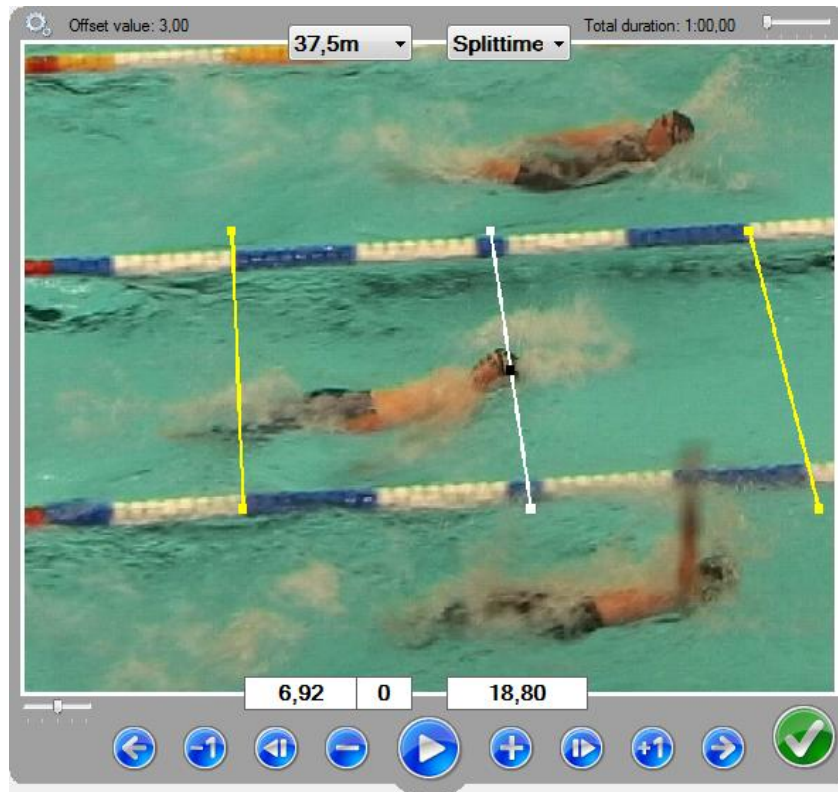






When the right mouse button is used in the centre sections three vertical lines appears on the video. This can be used to determine the 25m point when there's no mark in the raceline attached.





Lines are automatically cleared when the user confirms the measurement (using the **Enter** key or the green round button) and when the user selects another measurement (**PageUp** or **PageDn**).

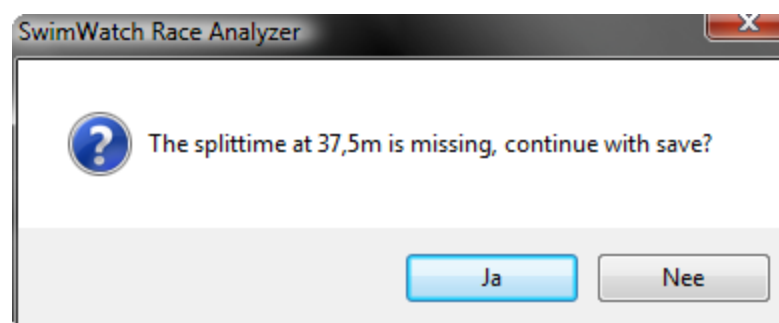
## 5.5 Step 4: Determine real stroke count

### STDPRO

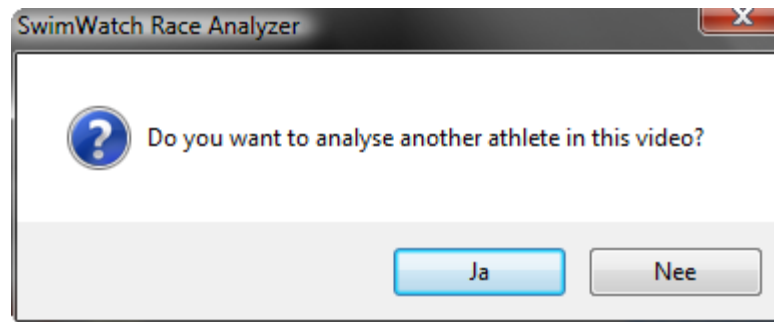
In this step, the number of strokes per lap in the race can be counted. This step is optional, in the **Options** mode can be set whether or not this step is desired. This functionality is not yet available, it will become available in the final Standard and Pro versions.

## 5.6 Saving analyses

When all measurements are done and confirmed, the data can be saved by clicking the button below, or using the combination **Ctrl+Enter**. In case one or more measurements are not confirmed, warnings will be shown, see the next picture for an example. Click **No** to return to step 4 to confirm the missing measurement(s). Click **Yes** to continue saving the analyses.



When the data is saved, a dialog box will appear asking whether another athlete in the same video needs to be analysed. In that case the whole process will be repeated, excluding the step in which the offset is determined.



After capturing, the video files will be saved by default in the folder 'C:\SwimWatch\Capture'. After determining the offset, the video files are moved to another file, depending on the name of the match (for example 'C:\SwimWatch\Video\NameRace').

### 5.6.1 Adding comments

Analysts and coaches can add comments to analysis. For this a textbox is added below the race properties in the **Info** mode. If the analysis is stored, the comments will be stored in the analysis file.

### 5.6.2 Showing practice results

When an analysis is made in demo mode, no analysis will be stored. Instead, the program will show a dialog box containing information on how accurate and how fast the analysis has been made (compared to the original analysis). This feature can be used to train beginning analysts. For more info, contact [SwimWatch@sportswatch.nl](mailto:SwimWatch@sportswatch.nl)

## 5.7 Procedure with two cameras

### 5.7.1 Capturing

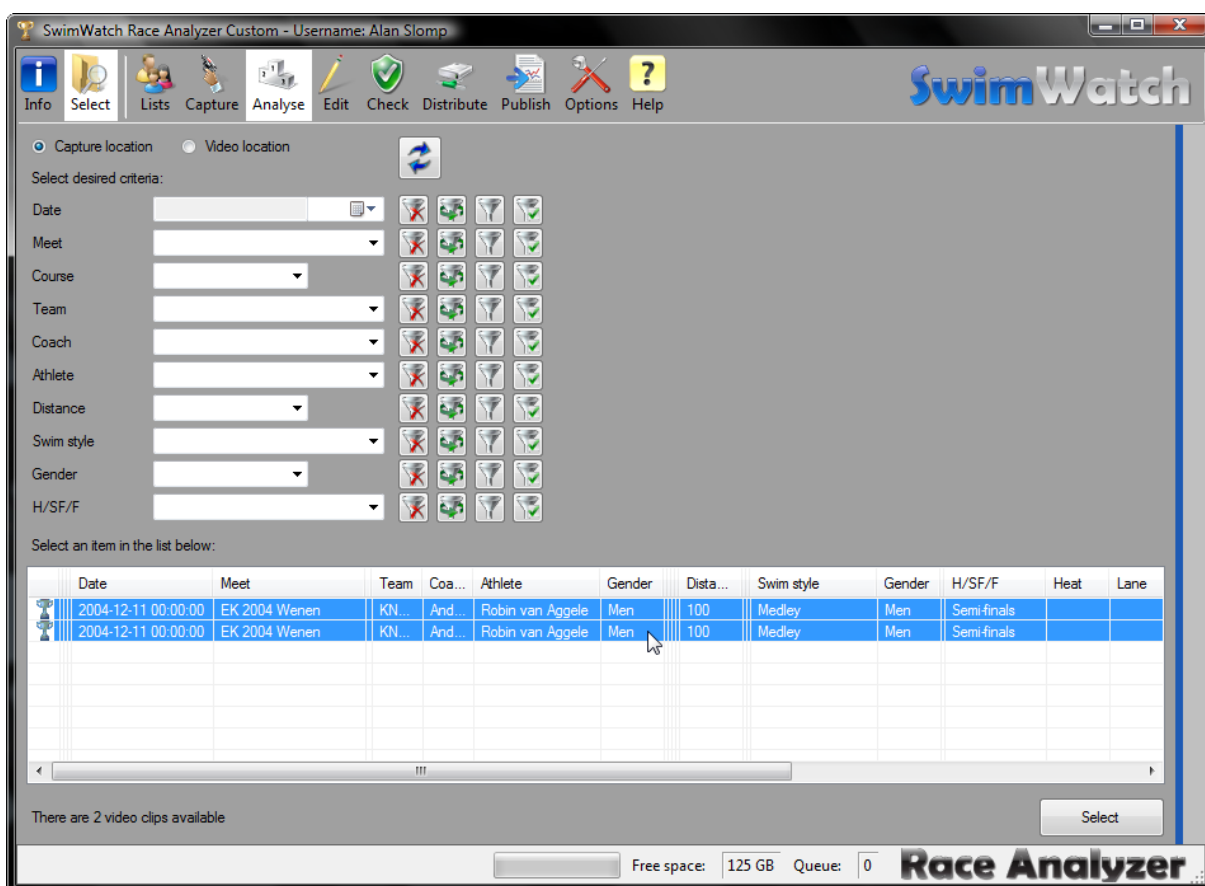
In paragraph 4.4.2 is already described which options are necessary to capture with more than one camera. Recording itself is not different than with a single camera.

### 5.7.2 Analysing

#### STDPRO

In the Standard and Pro versions, it is possible to make analyses of races captured with more than 1 camera. If an item is selected, the program will also select the other related items. Then click on the button **Select**, right below the list.

In case a race is recorded with two or more cameras, the procedure is almost the same as described in the previous paragraphs. Only a few things are different.



When two or more cameras are used, two offset values need to be determined, even when the video clips were captured on the same computer (experience shows offset can vary 1 or 2 frames).

It is possible to switch between the different clips while using the key combinations **Ctrl+PageUp** and **Ctrl+PageDown** or clicking on one of the video frames.

## 5.8 Analysing old video clips or clips recorded with other software

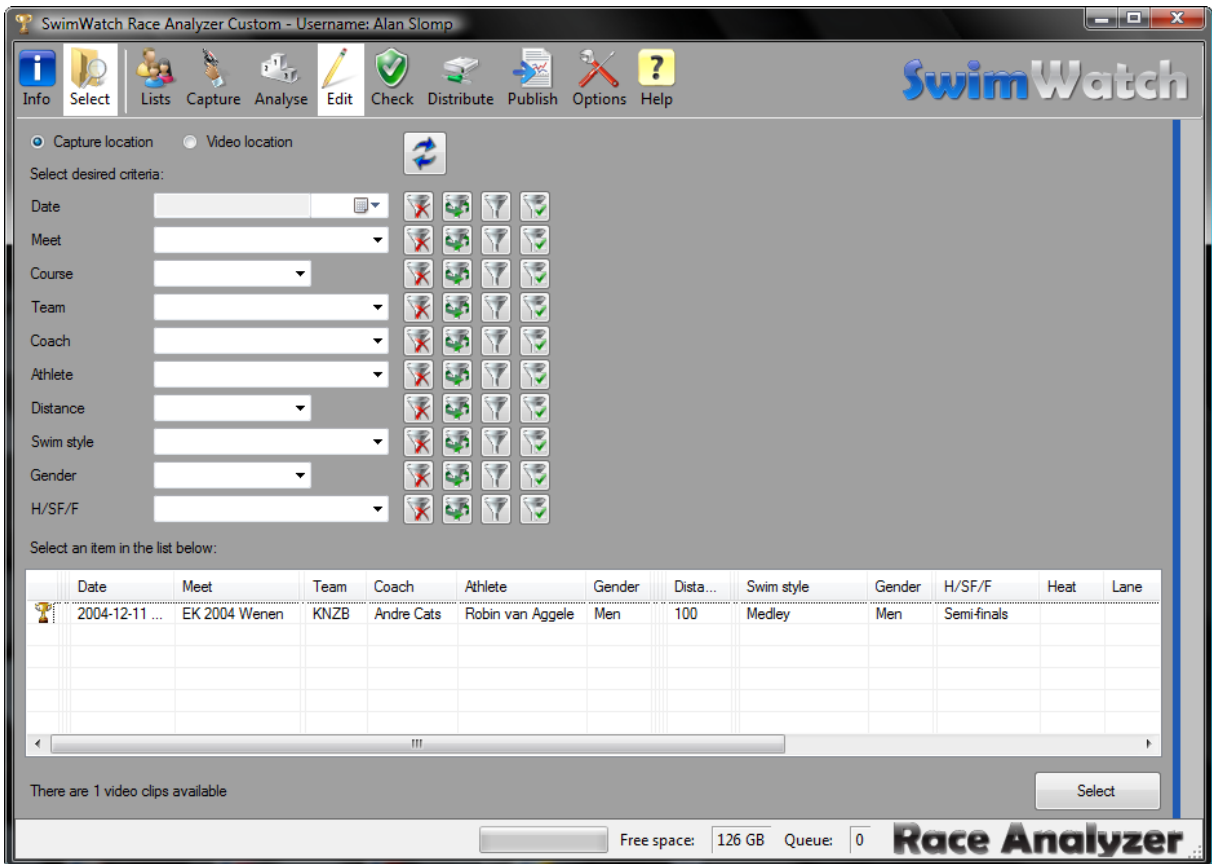
The SwimWatch Race Analyzer offers all tools required to record and analyse races, no other software is needed. But it is possible to analyse video clips that have been recorded with other software, for example races of the past.

Check the settings for the first base path in the **Options** mode. This location is set to 'C:\SwimWatch\' by default. Using that base path, means that the files are placed in the sub folder 'C:\SwimWatch\Capture'. When AVI files are moved manually to this location, these video clips should be visible in the list with captures. Refresh the list with function key **F5** if needed.

If a race is captured with multiple cameras, the file names need to be adjusted accordingly, in order to match them. See the appendix File names and camera names for more information. From that point on, the analysing procedure is the same as it would have been when the video was captured using the internal capture utility.

## 6 Edit mode

The **Edit** mode can be used to edit analyses, in case an analysis is incomplete or contains an error. These may be errors in properties, or times. This mode is not yet available in the current beta version.



In the **Edit** mode only races are shown that are stored on the computer path. Races that are stored on an external path are not shown.

When a race is selected it can be edit pressing the **Select** button.

In the **Edit** mode the same steps of a race as in the **Analyse** mode has to be passed. When the race is done, it can be saved bij pressing the **Save** button.

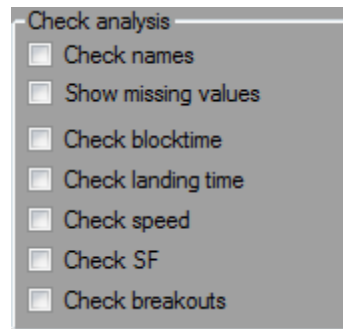


## 7 Check mode

In the **Check** modes it is possible to check the archive for errors. This may be errors in properties or errors in times.

### 7.1 Check analysis

Analyses can be checked for errors at seven points.



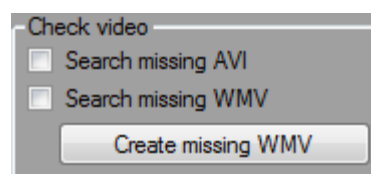
It is possible to make a combination of items to be checked. After selecting the check(s), the page should be refreshed. This can be done by clicking on the button with two blue arrows or by using the **F5** key.

Check names	This control checks the archive on various spellings of names.
Show missing values	This control checks the archive on missing (imported) values.
Check block time	This control checks the archive on above average deviations of block times.
Check landing time	This control checks the archive on above average deviations of landing times.
Check speed	This control checks the archive for possible incorrect measurements which creating different speeds within a race.
Check SF	This control checks the archive for possible incorrectly entered number of strokes which create a deviation in stroke frequencies during a race.
Check breakouts	This control checks the archive for possible incorrectly entered measurements which create a deviation in breakouts during a race.

In this version it is not yet possible to select a possible error in the **Check** mode and edit it in the **Edit** mode. So discovered errors have to be adjusted manually in the explorer or in the **Edit** mode.

### 7.2 Check video

This is a check for missing AVI or WMV video.



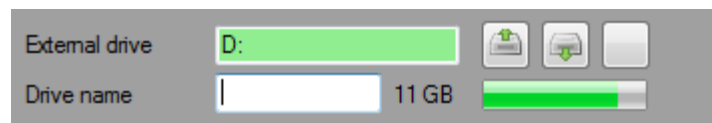
When there is an AVI video available, but the WMV video is missing it can be created by pressing the button **Create WMV**.

## 8 Distribute mode

Distribute mode provides tools for the coach and analyst to copy analyses and video files easily to external drives or *USB sticks*. Files can also be copied using the *Windows Explorer*, with the same result. But using the tab page **Distribute** is faster and easier. By using filters and selection boxes a very specific selection of files can be copied.

### 8.1 Connecting an external drive

Before or after activating the **Distribute** mode, an external drive needs to be attached to the computer. On many occasions this drive will be found automatically and the text field showing the path of the drive will turn green. Below this text path, a second text path shows the name of the drive. On the right of the second path, the available free space on the drive is shown.



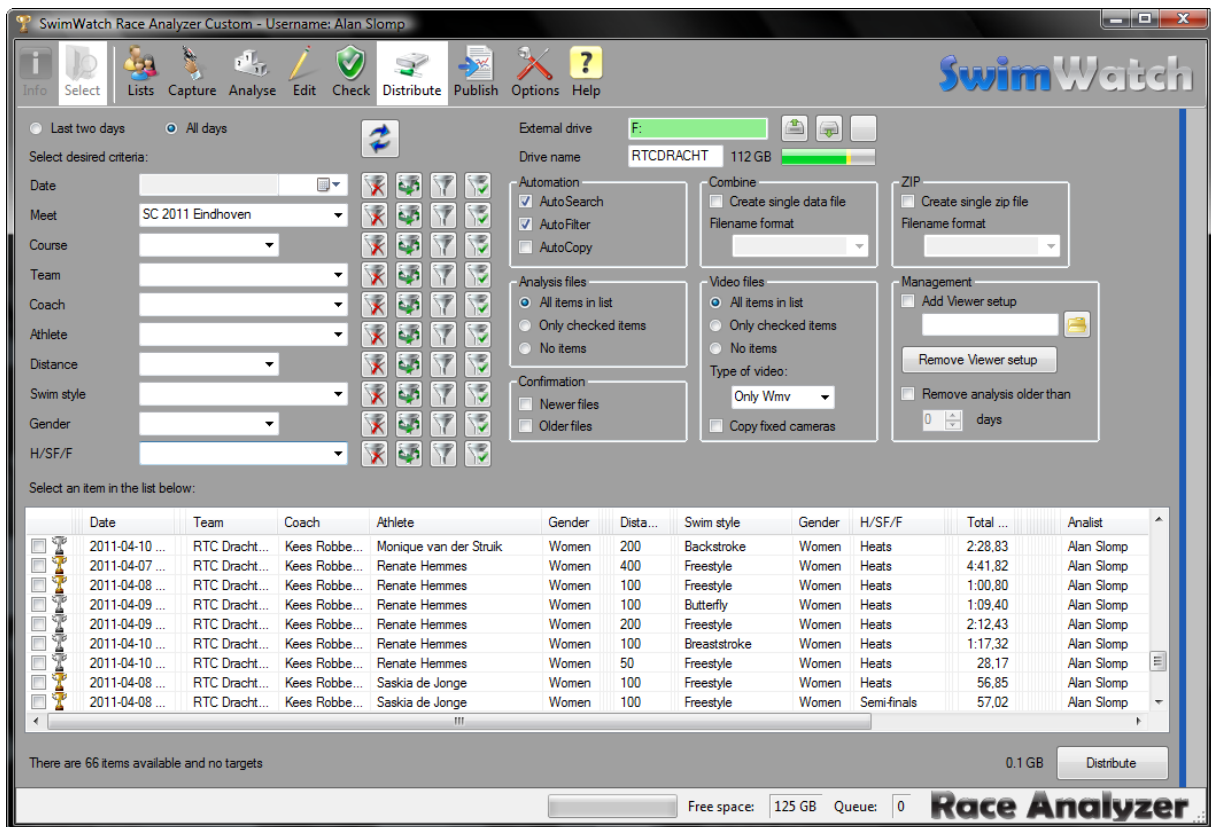
If the drive cannot be found automatically, set the location manually by using the button next to the text box of the path. The use of the other buttons near the text box is explained in chapter 2, in the paragraph *Selecting paths*.



**PRO** In the Pro version, it is possible to have the program search for an external drive, by testing the existing drive letters for an external drive. Activate the selection box **AutoSearch** and wait till the program finds the external drive.

In the Pro version it is possible to automate the distribution by using the volume names of external drives. If the checkbox **AutoFilter** is ticked, the volume name of that drive will be compared to a name of a team or coach after connecting the drive. If that is the case, a filter for that name will be used. If that is not the case, it is possible to make a manual selection.

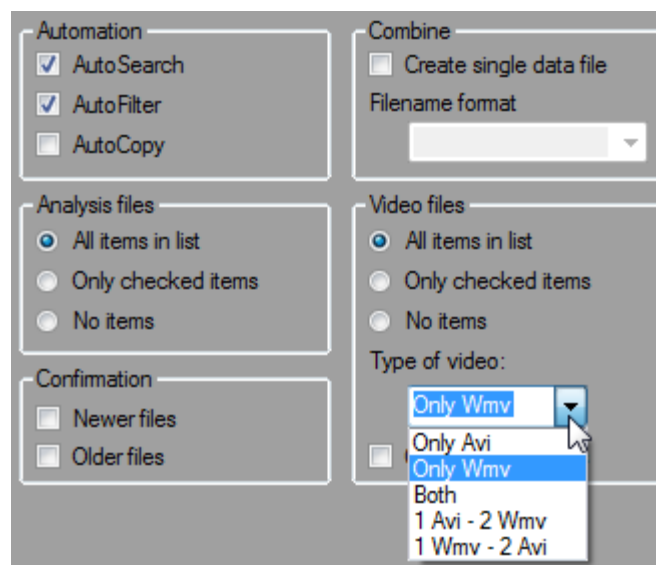
It is also possible in the Pro version to start copying right away, if the **AutoFilter** has found a team or a coach. This can be done by activating **AutoCopy**. If the **AutoFilter** is not activated, or if no team or coach can be found, the copying process will not start automatically. Of course, it will be possible to make a selection and copy this selection manually.



## 8.2 Settings for distributing races

Before the copying process can start, the files that need to be copied must be determined. Filters can be used to limit the number of races in the lists. After that, the files that need to be copied should be selected in **Analysis files** and **Video files**.

It is possible to copy all analysis files in the list, or just the items of which the checkbox is activated, or no analysis files at all. When the option **Only checked items** is selected, one or more races in the list need to be checked. The same applies to the settings for the video files.



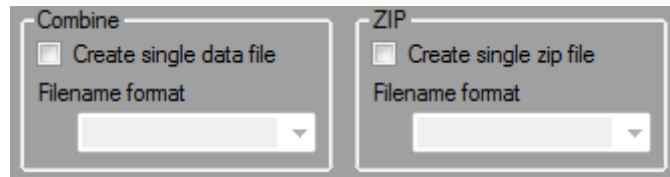
In the combobox in the video settings, the user can choose between two video formats: AVI (high quality) and WMV (compressed). The third option copies both AVI and WMV. The fourth and fifth options in the combo box indicate a first and second choice (1 AVI - 2 WMV means that the program will try to copy AVI, if AVI files are not found the program will try to copy WMV files).

Finally, **Confirm** can be used to set whether or not notifications should appear if a file is copied to an external drive, when there is already a copy of that file on the drive. It is possible to distinguish between copying a newer or older file to the external drive. Users can decide whether or not to copy for both activated checkboxes. If the file that needs to be copied is newer and the checkbox **Newer files** is not activated, the file will still be copied. If the file that needs to be copied is older, and the tick box **Older files** is not activated, the file will not be copied.

**PRO** The Pro version also shows a small checkbox in the groupbox **Videofiles: Copy fixed cameras**. With the Pro version, it is possible to capture races with a combination of moving and fixed cameras. By default, only video from moving cameras is distributed. If this checkbox is activated, the video files of fixed cameras will also be copied.

## 8.2.1 Combining files

**PRO** The SwimWatch Race Analyzer software stores analyses in different files. This makes the distribution per team or coach very easy. However, if massive amounts of data are collected (thousands of races), or if the analyses are only sent to the coach after a meet, it can be useful to combine multiple files into one file. This can be done in two ways.

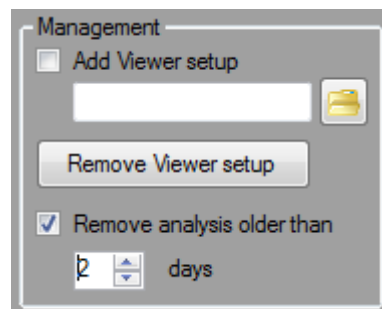


Using the options in the groupbox **Combine** allows for combining analyses into one file. The file will keep the same file format as a single analysis, but it consists of multiple lines.

Using the options in the groupbox ZIP makes it possible to combine analyses and video in one ZIP file. Since it allows for video and analyses files to be combined, it differs from the previous function. However, the ZIP file needs to be unpacked by the recipient, either by using Windows Explorer, or the Import mode in the SwimWatch Viewer software.

## 8.2.2 Management options

**PRO** The Pro version offers more possibilities in the groupbox Management. It is possible to provide external drives with the SwimWatch Viewer Setup. With this setup, coaches whom receive the results, can install the SwimWatch Viewer themselves. They can use this software to view the results (for free). First place the files of the SwimWatch Viewer Setup in a subfolder, somewhere on the internal drive. Tick the box Copy Viewer Setup and select the path in which the software is placed. The setup will be copied as soon as the first files will be copied.



In the Pro version, it is also possible to remove analyses from an external drive, if they are older than a set number of days. This is very useful during a long tournament, when USB sticks are distributed on a daily basis. The available space on a stick may be insufficient after a number of days.

If the Viewer Setup is placed on the stick, and the program has already been installed by the viewer, the setup can be removed by using the button **Remove Viewer Setup**. If there is still not enough space available, it is possible to tick the box **Remove files older than**, and the desired number of days can be set. The old files will be removed before the next time new files are copied.

### 8.3 Copying analyses and video

It is important to check all settings very carefully before copying. Also, check if the space on the external drive is sufficient. This is shown in the bar at the right of the textbox showing the name of the external drive.

There are 66 items available and no targets

0.1 GB Distribute

	Date	Team	Coach	Athlete	Gender	Dista...	Swim style	Gender	H/SF/F	Total ...	Analist
<input type="checkbox"/>	2011-04-10 ...	RTC Dracht...	Kees Robbe...	Monique van der Struik	Women	200	Backstroke	Women	Heats	2:28.83	Alan Slomp
<input checked="" type="checkbox"/>	2011-04-07 ...	RTC Dracht...	Kees Robbe...	Renate Hemmes	Women	400	Freestyle	Women	Heats	4:41.82	Alan Slomp
<input type="checkbox"/>	2011-04-08 ...	RTC Dracht...	Kees Robbe...	Renate Hemmes	Women	100	Freestyle	Women	Heats	1:00.80	Alan Slomp
<input type="checkbox"/>	2011-04-09 ...	RTC Dracht...	Kees Robbe...	Renate Hemmes	Women	100	Butterfly	Women	Heats	1:09.40	Alan Slomp
<input type="checkbox"/>	2011-04-09 ...	RTC Dracht...	Kees Robbe...	Renate Hemmes	Women	200	Freestyle	Women	Heats	2:12.43	Alan Slomp
<input type="checkbox"/>	2011-04-10 ...	RTC Dracht...	Kees Robbe...	Renate Hemmes	Women	100	Breaststroke	Women	Heats	1:17.32	Alan Slomp
<input type="checkbox"/>	2011-04-10 ...	RTC Dracht...	Kees Robbe...	Renate Hemmes	Women	50	Freestyle	Women	Heats	28.17	Alan Slomp
<input type="checkbox"/>	2011-04-08 ...	RTC Dracht...	Kees Robbe...	Saskia de Jonge	Women	100	Freestyle	Women	Heats	56.85	Alan Slomp
<input type="checkbox"/>	2011-04-08 ...	RTC Dracht...	Kees Robbe...	Saskia de Jonge	Women	100	Freestyle	Women	Semi-finals	57.02	Alan Slomp

The green part shows the space in use. The yellow part shows the space required to copy the video that is selected. A yellow field shows that the available space is insufficient. By moving this bar with the mouse, it is possible to see the available space and whether or not it is enough.

If the settings are made, the copying process can be started. This can be done by clicking on the button below the list, which in this mode is labelled **Distribute**. In the status bar below, the progress is shown. If all files are copied, a notification will appear, showing the number of copied files.

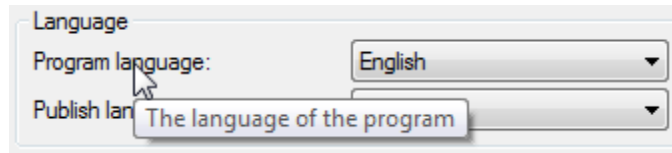
## 9 Modus Publiceren

In the **Publish** mode, it is possible to publish results as HTML pages. These pages will only show general information. According to NatriSoft's philosophy, only detailed analyses are given to the involved coaches, digitally (video and analyses together, not just tables). The **Publish** mode is meant to introduce people to race analyses. The current beta version does not offer this possibility yet.

## 10 Options mode

The **Options** mode is meant for adjusting settings that apply to multiple modes. The options are divided into tab pages. In the following paragraphs, an overview of options per tab page is given.

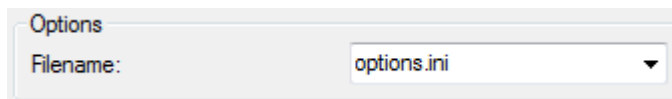
Using the mouse to hover over a part of the background of the option will show a short description of the option. A yellow frame with a short explanation will appear.



### 10.1 Options on the Main tab page

Like other SwimWatch programs, the program has many options. It is possible that the program is used for multiple users, in which case multiple settings may be required. Therefore, the program offers the possibility to store multiple sets of settings.

The first option in the **Main** mode shows the name of the file in which the current settings are stored. The default name of this file is 'options.ini'. It is possible to enter another name, for example 'marcel.ini' or 'amsterdam.ini'. Then, the settings will be stored in a new file. If multiple files are created, the combo box can load another set.

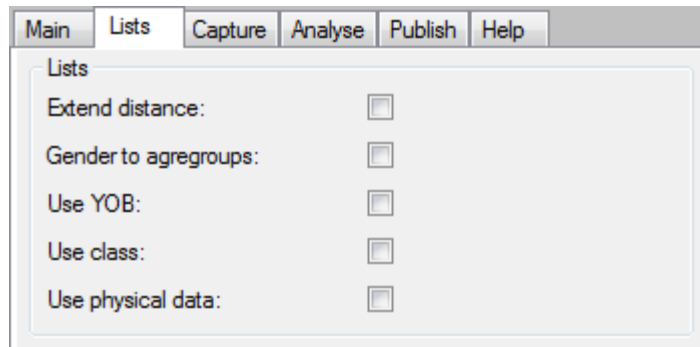


Option name	Description
Filename	The filename of the file that holds the current options, see above
Program language	Choose the desired language of the program
Publish language	The language for publications
Maximized	Whether the window should start in maximum size
Modesbar text	If and where the modesbar should show text (Image only, Text after image, Text below image)
Automatic check at startup	Check to activate automatic check at startup
After startup start with	Active a mode to start automatically after starting up the program
Computer path	The base path for the internal drive
<b>STDPRO</b> External path	The base path for the external drive
<b>PRO</b> Network path	The base path for the network drive
Search computer path	Check to search the computer path
<b>STDPRO</b> Search external path	Check to search external path
<b>PRO</b> Search network path	Check to search network path
Searching video files	This group contains options for searching video
Search computer path	Check to search computer path
<b>STDPRO</b> Search external path	Check to search external path
<b>PRO</b> Search network path	Check to search network path



Option name	Description
Check for and remove doubles	Check to activate checking for and removing doubles before showing items
Add or remove filters	Check to add a button with which filters can be added or removed
Update names in filters	Check to decrease the number of available items in filters after changing other filters
Save captures to computer	Check to save captures to the computer path. First check box is for AVI, second for WMV
<b>STDPRO</b> Save captures to external	Check to save captures to the external path. First check box is for AVI, second for WMV
<b>PRO</b> Save captures to network	Check to save captures to the network path. First check box is for AVI, second for WMV
Read captures from computer	Check to read captures from the computer path
<b>STDPRO</b> Read captures from external	Check to read captures from the external path
<b>PRO</b> Read captures from network	Check to read captures from the network path
Save analysis to computer	Check to save analyses to the computer path
<b>STDPRO</b> Save analysis to external	Check to save analyses to the external path
<b>PRO</b> Save analysis to network	Check to save analyses to the network path
Save video to computer	Check to save video to the computer path. First checkbox is for AVI, second for WMV
<b>STDPRO</b> Save video to external	Check to save video to the external path. First checkbox is for AVI, second for WMV
<b>PRO</b> Save video to network	Check to save video to the network path. First checkbox is for AVI, second for WMV
<b>PRO</b> Show pause icon	Check to show the icon that enables pausing the queue. This will make it possible to pause the copying of video files during the matches (to prevent overload during the following captures)
<b>STDPRO</b> Show mobile drive icon	Check to show mobile drive icon that indicates if the drive is busy (the pictogram offers a quick view on whether or not the drive can be changed)
<b>PRO</b> Delay processing if larger than	Tick the box to place a pictogram in the status bar, with which it is possible to delay copying video files larger than a predetermined size (so that only small files will be copied right now, and larger files at a later time)

## 10.2 Options on the tab page Lists



Option name	Description
Add to lists automatically	Tick the box to automatically add new names to the lists
<b>STDPRO</b> Use YOB	Tick the box to use the property birth year
<b>STDPRO</b> Use Class	Tick the box to use the property class
<b>STDPRO</b> Use Class	Tick the box to use the property class
<b>PRO</b> Use Class	Tick the box to use the property class

### 10.3 Options on the tab page Capture

The screenshot shows the 'Capture' tab of the software interface. It is divided into three sections: 'Cameras', 'Start and stop', and 'Video'.

- Cameras:**
  - Panning cameras, horizontal: 1
  - Panning cameras, vertical: 3
  - Fixed cameras, horizontal: 2
  - Fixed cameras, vertical: 1
  - Connect automatically:
- Start and stop:**
  - Start method: Start camera, computer follow
  - False start for sure within: 5
  - Confirm false start within: 15
  - Stop method: Stop camera, computer follow
  - Master to slaves:
- Video:**
  - Record audio:
  - Component: Type I
  - Resolution: Auto
  - Framerate: Auto
  - AVI codec: (empty)
  - WMV codec: 16: Video for broadband film

Option name	Description
Connect automatically	Connect cameras automatically at startup
<b>STD</b> Camera setup	Set the number of cameras used (Single camera setup, Dual camera setup)
<b>PRO</b> Fixed cameras, horizontal	Set the number of fixed cameras, horizontal, more information in appendix File names and camera names
<b>PRO</b> Fixed cameras, vertical	Set the number of fixed cameras, vertical, more information in appendix File names and camera names
<b>PRO</b> Moving cameras, horizontal	Set the number of moving cameras, horizontal, more information in appendix File names and camera names
<b>PRO</b> Moving cameras, vertical	Set the number of moving cameras, vertical, more information in appendix File names and camera names
<b>STDPRO</b> Start method	Start method (Computer only=if the recording has started on the laptop, the camera will not start automatically / Start camera, computer follow=if the recording has started on the camera, the laptop will start automatically / Start computer, camera follow=if the recording has started on the laptop, the camera will start automatically)
False start for sure within	Set the number of seconds within stopping a capture will be handled as an immediate false start, without confirmation

STDPRO

Option name	Description
Confirm false start within	Set the number of seconds within stopping a capture will be handled as a false start after confirmation
Stop method	Stop method (Computer only=if the recording has stopped on the laptop, the camera will not stop automatically / Stop camera, computer follow=if the recording has stopped on the camera, the laptop will stop automatically / Stop computer, camera follow=if the recording has stopped on the laptop, the camera will stop automatically / Fixed=the recording stops after a set number of seconds)
Record audio	Check to record audio
Component	If the video component does not work properly, select another type of component here (if more than 1 type is available)
Framerate	Choose the framerate (Auto = let the video component determine the framerate, Fixed 25 fps, Fixed 30 fps, Fixed 50 fps, Fixed 60 fps, Fixed 100 fps)
AVI codec	Choose the codec for the hi-quality video file, that is created during recording and will be used during analysis
WMV codec	Choose the codec for the compressed video file, that might be created after recording (depending on other settings)

## 10.4 Options on tab page Analyse

	Option name	Description
<b>STDPRO</b>	Skip textboxes	Nog in te vullen
<b>STDPRO</b>	Skip textboxes	Check to skip textboxes (leaving every other textbox blank)
<b>STDPRO</b>	Blocktime backstroke	Check if results of backstroke races contain block times
<b>STDPRO</b>	Blocktime other	Check if results of races of other styles contain block times
<b>STDPRO</b>	Skip words 50	Set the number of words to skip, for distances of 50
<b>STDPRO</b>	Skip splittimes 50	Set the number of splittimes to skip, for distances of 50
<b>STDPRO</b>	Total time placement 50	Set where the total time is placed in the results, for distances of 50 (Before block time / After block time / At the end)
<b>STDPRO</b>	Skip words short distance	Set the number of words to skip, for short distances 100m and 200m
<b>STDPRO</b>	Skip splittimes short distance	Set the number of splittimes to skip, for 100m and 200m
<b>STDPRO</b>	Total time placement short distance	Set where the total time is placed in the results, for 100m and 200m
<b>STDPRO</b>	Skip words long distance	Set the number of words to skip, for distances of over 200m
<b>STDPRO</b>	Skip splittimes long distance	Set the number of splittimes to skip, for distances of over 200m
<b>STDPRO</b>	Total time placement long distance	Set where the total time is placed in the results, for distances of over 200m
	Input method	Choose the input method (Video=using video captures / StopWatch=Manual input, insert SF as values / Manual=Manual input, insert SF as times and cycles)
	Copy previous SF2 to new SF1	Check to re-use each previous SF2 as a new SF1 (maximum number of cycles)
<b>LIT</b>	Default offset method	Choose the default offset method
<b>STDPRO</b>	Default offset method first	Choose the default offset method for the first clip
<b>STDPRO</b>	Default offset method second	Choose the default offset method for the second clip
<b>PRO</b>	Default offset method third	Choose the default offset method for the third and next clip

Option name	Description
Default offset value	Set the default offset value
Play audio	Check to play audio
Control + arrow Keys	Choose action for Control + arrow Keys (Ctrl for jumping frames / Ctrl for jumping seconds)
Component	If the video component does not work properly, select another type of component here (if more than 1 type is available)
Framerate	Choose the framerate (Auto = let the video component determine the framerate, Fixed 25 fps, Fixed 30 fps, Fixed 50 fps, Fixed 60 fps, Fixed 100 fps)
Measure blocktime	Check to measure the blocktime
<b>STDPRO</b> Handen en Voeten	Plaats een vinkje om de bloktijd voor zowel handen als voeten te meten
Measure landing time	Check to measure the landing time
Measure sections	Check to measure the sections ( )
Measure breakouts	Check to measure the breakouts
<b>STDPRO</b> Measure cycles	Check to measure the cycles
Global validate	Check to turn validation on, uncheck to turn validation off
Warning at percentage >	Set percentage above which warnings should be shown (value can be confirmed)
Error at percentage >	Set percentage above which errors should be shown (value cannot be confirmed)
Validate blocktime	Check to validate the blocktime
Validate landing time	Check to validate the landing time
Validate sections	Check to validate the sections
Validate breakouts	Check to validate the breakouts
<b>STDPRO</b> Validate cycles	Check to validate the cycles
<b>PRO</b> Validate breaths	Check to validate the breaths
<b>PRO</b> Save in old file format	Check to save analysis in old file format
Save when incomplete	If the video component does not work properly, select another type of component here (if more than 1 type is available)

Re	use of drawings
Choose re	use of drawings (No re
use=Drawings have to be drawn again each time / Only in same video=Drawings are re	used in the same video / Re
use in next video=Drawings are re	used until cleared)

## 10.5 Options on the tab page Publish

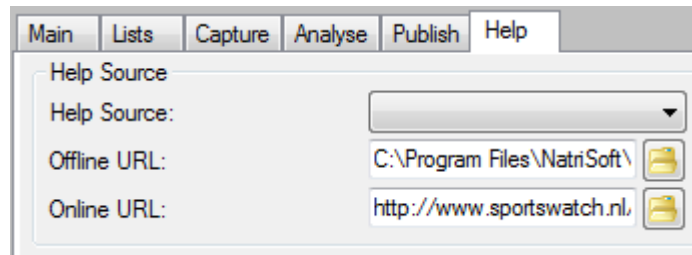
Option name	Description
Level of detail	Choose the level of detail (One average=One average / Two averages=One average per half / Four averages=One average per quarter)
Sorting	Choose the method for sorting (Order of lane=Sort by order of lane, lane 1 first / Fastest first=Sort by time, fastest first)
Show team	Check to show team name
Show coach	Check to show coach name
Show year of birth	Check to show year of birth
Show class	Check to show class
Show analyst name	Check to show analyst name
Show comments	Check to show comments
Discard sections	Set which sections need to be discarded when calculating totals (Don't discard any, First section, First and last section, First lap, First and last lap)
Turn distance	Choose the turn distance (5 in + 5 out / 5 in + 10 out / 5 in + 15 out)
Turns and breaks	Choose the turns and breaks (Just totals / 2x50% + totals / 4x25% + totals / All and totals)
Decimals	Set the number of decimals shown in the tables
Show blocktime	Check to include value and rank of blocktime
Show landing time	Check to include value and rank of landing time
Show speed	Check to include value and rank of speed
Show SF	Check to include value and rank of SF
Show breakouts	Check to include value and rank of breakouts
Show cycles	Check to include value and rank of cycles

**PRO**

<b>Option name</b>	<b>Description</b>
Show breaths	Check to include value and rank of breaths
Show coach grade	Check to include value and rank of the Coach grade
Show calculated Grade	Check to include value and rank of the Calculated Grade



## 10.6 Options on the tab page Help



Option name	Description
Help Source	Choose the source for the Help function (Offline, Online)
Offline URL	Set the offline URL
Online URL	Set the online URL

## 11 Help mode

The **Help** mode can be used for viewing the manual. In the current beta version, this is not yet possible. In the final version, *offline help* and *online help* will be available.

## Appendix: File names and camera names

In this appendix, more information will be given on the structure of the file names, the contents of the analysed files, and the different camera positions in the Lite, Standard, and Pro versions.

### 1. Structure of the file names

The file names used in SwimWatch Race Analyzer version 2 are different from those used in version 3.

#### File names in version 3

Below, two examples of file names will be given, one of an analysis, and one of a video file. In the table below, every part of the file name is explained.

2004-12-11 25 100 S5 G2 F2 H3 L4.csv  
2004-12-11 25 100 S5 G2 F2 H3 L4 C1.csv

Option name	Description
2004-12-11	Date of the race (not the analysis)
25	Lane length
100	Distance of the race
S5	This is the swimming style (S is for Style): S1= Butterfly, S2= Backstroke, S3= Breaststroke, S4= Freestyle, S5= Medley
G2	Gender of the swimmer: G1 = Ladies, G2= Gentlemen
F2	Characteristic of the part of the race (F is for Finals): F1= Series, F2=Semi Finals, F3=Finals, F4=swim-off, F5=Time trial
H1	Serialnumber of the race (H is for Heat)
L1	Lane number used by the swimmer during the race (L is for Lane)
C1	This part will only be used in video file names, since it is the name of the camera. Further on, more information on camera names will be given.

### 2. Contents of the analyse files

The layout of the analyse files of the SwimWatch Race Analyzer version 2 differs from that of version 3. In the next two paragraphs, both layouts will be explained.

#### Contents of version 3

The format of version 3 is not yet definitive. In a next version of this manual, a complete table will be placed.

### 3. Camera positions and camera names

The camera positions of the SwimWatch Race Analyzer version 2 differs from those in version 3. Also, the Lite, Standard and Pro versions differ. In the following two paragraphs, both layouts will be explained.

### **Camera names of version 3**

For the Lite version of version 3, it is only possible to record with a single camera. In that case, the video files - like version 2 - do not contain a camera name. For Standard, two cameras can be used. However, in that case the cameras do have fixed names, regardless of the starting side: C1 and C2. The starting side will be recorded in the header of the analysis. This solution is more clear than that of version 2.

The Pro variant of version 3 allows for multiple cameras. The moving cameras are referred to as C and a sequence number (left to right, regardless the starting side), any fixed cameras are referred to as X and a following number. If multiple cameras are used vertically, also a reference to the lane number will be contained in the file name. The different possibilities and accompanying file names will be explained in the next manual.