waterBoard 7

Professional Led Display Scoreboard Software

USER MANUAL

www.footballscoreboardsoftware.com

arslan.ziya@gmail.com



LANGUAGE SUPPORT

waterBoard supports all languages. You can use special characters from any language such as Arabic, Chinese, Hebrew, and other Asian alphabets in the application.

Contents

1. Introduction 7
   1.1 What waterBoard 7 Does 7
   1.2 The Four Disciplines 8
   1.3 Display Modes 9
   1.4 How to Read This Guide 10
   1.5 Website and Support 10
2. Installation and First Start 11
   2.1 System Requirements 11
   2.2 Installing 11
   2.3 First Start 12
   2.4 Folders and Files 13
   2.5 Upgrading to a New Version 14
   2.6 Uninstalling 14
   2.7 Quick Start: The First Match 15
3. Licensing 16
   3.1 PC (CPU) and USB Licences 16
   3.2 DEMO Mode 16
   3.3 Entering a PC Licence 16
   3.4 Creating a USB Licence 18
   3.5 Licence Status 18
4. Main Window and Menus 20
   4.1 Title Bar and Window Sizes 20
   4.2 Menu Tabs 22
   4.3 Board Windows 24
   4.4 Closing the Program 24
5. Operator Panel (Game Tab) 25
   5.1 The Game Tab at a Glance 25
   5.2 Teams, Logos and Lower Lines 29
   5.3 Score 30
   5.4 Match Clock 30
   5.5 Periods 31
   5.6 Shot Clock 31
   5.7 Exclusions and Penalties 32
   5.8 Timeouts 33
   5.9 Penalty Shootout 34
   5.10 Display Mode and Design 35

5.11 Background Video and Middle Image....35
5.12 Sound, Language, Remote, NDI and Keyboard....36
5.13 Small Window....37
5.14 The Other Disciplines on the Panel....37
5.15 A Typical Match....38
5.16 Remote and Keyboard Equivalents....38
6. Disciplines and Match Rules....40
6.1 Opening Match Rules....40
6.2 Water Polo....43
6.3 Canoe Polo....43
6.4 Underwater Rugby....45
6.5 Underwater Hockey....46
6.6 Every Setting Explained....48
6.7 Defaults per Discipline....49
6.8 Changing Rules During a Match....49
7. Display Modes and Board Output....51
7.1 Board Position and Size....52
7.2 Standard (St)....53
7.3 Sponsored (Sp)....53
7.4 Advertisement (Ad)....58
7.5 Chroma Key (CK)....67
7.6 Typical Set-Ups....79
8. Designs and the Design Editor....80
8.1 The Masters....80
8.2 Design Gallery (Open Design)....80
8.3 Factory and Current Designs....82
8.4 Saving Your Own Design....83
8.5 The Design Editor....83
8.6 Values, Units, Colours and Fonts....86
8.7 Factory Settings....87
9. Info Screens....88
9.1 The Info Tab....88
9.2 Banner....92
9.3 Announce....95
9.4 Goal....98
9.5 Exclusion (18 Sec)....100
9.6 Red Card....103
9.7 Substitution....103

9.8 Multiple Substitution 106
9.9 Home Team and Guest Team 108
9.10 Referees 109
9.11 Sponsors 110
9.12 Team Database 112
10. Statistics 114
10.1 Timeline 114
10.2 Stats 117
10.3 Standings 119
10.4 Results 121
10.5 Fixtures 123
10.6 Statistics on the Board 124
11. Teams, Players, Photos and Logos 125
11.1 Team Names and Colours 125
11.2 Logos 126
11.3 Player Lists 126
11.4 Team Database 128
11.5 Photos 129
11.6 Files 130
12. Media Player, Sponsors, Cameras and NDI 131
12.1 Media Player and Playlists 131
12.2 URL Playlist 133
12.3 Show Pictures 134
12.4 Cameras and Screen Capture 135
12.5 NDI 136
13. Remote Control 137
13.1 Network and Firewall 137
13.2 Switching the Remote On 137
13.3 PIN 139
13.4 Logging On 140
13.5 The Remote Panel 140
13.6 Phone and Tablet 145
14. HTTP API 146
14.1 Request Format and Replies 146
14.2 Reading the State (cmd=GET) 147
14.3 Command Groups 148
14.4 Good Practice 149
15. Keyboard Shortcuts 150

15.1 Keyboard Hook Manager 150
15.2 Default Keys 151
15.3 Good to Know 152
16. Languages and Translations 153
16.1 Choosing the Language 153
16.2 Editing Translations 154
16.3 Titles 155
16.4 Factory Texts 155
17. Settings Reference 156
17.1 The Settings Tab 156
17.2 License 157
17.3 Screen Properties 158
17.4 Board Design Tabs 160
17.5 Remote Control 160
17.6 Language 160
17.7 Youtube Tutorials 160
17.8 Where Other Settings Are 160
18. Troubleshooting and FAQ 161
18.1 No Board on the Screen 161
18.2 DEMO on the Board 161
18.3 Installation, .NET and WebView2 162
18.4 Fonts 162
18.5 Remote Control and Firewall (Port 1907) 162
18.6 Sound 163
18.7 NDI 163
18.8 Large Images and Slow Reactions 163
18.9 Settings Files 163
18.10 FAQ 164
Appendix A: Rules Sources 166
A.1 Sources 166
A.2 Rule Values and the Program 166
A.3 Unconfirmed Points 167
A.4 What the Program Does Not Follow 167
Appendix B: HTTP API Command Reference 168
B.1 Request and Replies 168
B.2 Commands 168
B.3 Fields of cmd=GET 172
B.4 Examples 173

Appendix C: Glossary 174
Appendix D: Match-Day Checklist 176

1. Introduction

1.1 What waterBoard 7 Does

waterBoard 7 is scoreboard and match-graphics software for water polo and three related aquatic team sports: canoe polo, underwater rugby and underwater hockey. You run the match from the main window on the operator PC. The program draws the scoreboard in a separate board window that you place on a second display, a projector or an LED wall, or send over the network as an NDI video stream.



Figure 1. The Standard board of waterBoard 7 during a water polo match.

The match clock, the shot clock, the exclusion timers and the timeouts run by themselves once you start them. The match rules of the discipline decide what happens on a goal: whether the clock stops, whether running exclusions end, and to which value the shot clock goes back. You enter the goals and the exclusions; the board follows.

Besides the score, waterBoard 7 shows:

- the team names (on one or more lines) with the team logos and the logo of the discipline in the middle;
- the match clock, counting down the period, and the period itself: P1 to P4 in water polo, H1 and H2 in the other disciplines, and P for a penalty shootout;
- the shot clock with two reset values (in water polo 28 and 18 seconds) and a horn at zero;
- the exclusion and penalty timers of both teams with the cap number of the player, up to the number of players that may be excluded at the same time;
- the timeouts used by each team and the timeout countdown;
- the penalty shootout with the scored and missed shots of each team;
- two text lines below the team names, for example the venue, the date and the time;
- info screens: Banner, Announce, Goal, Exclusion (18 Sec), Red Card, Substitution, Multiple Substitution, team lists with or without player pictures, Referees and Sponsors;
- statistics: the match timeline, team statistics, standings, results and fixtures;
- sponsor images, scrolling texts, video playlists, camera pictures and screen captures.

Board Output **Control Panel**

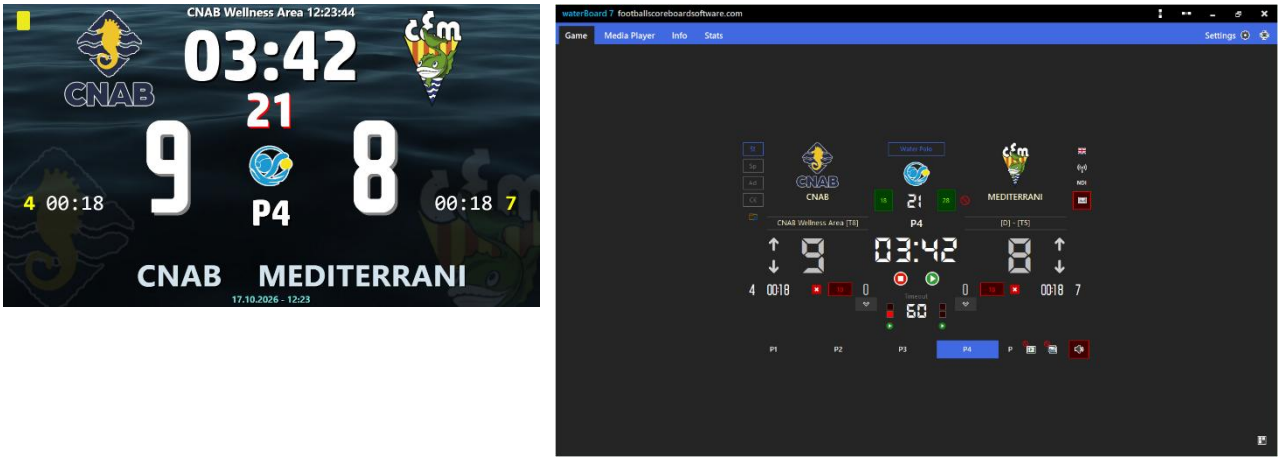


Figure 2. The Standard board during a water polo match (left) and the Game tab that drives it (right).

1.2 The Four Disciplines

One installation covers four disciplines. The button at the top of the Game tab shows the discipline in use, for example "Water Polo". Click it to open the Match Rules dialog, "Period & Penalty Settings" (chapter 6). Each of the four discipline buttons in that dialog loads the factory values of its discipline. Every value stays editable, and Save & Apply keeps the values for the next matches.

	Water Polo	Canoe Polo	Underwater Rugby	Underwater Hockey
Periods	4 × 8 minutes (P1 to P4)	2 × 10 minutes (H1, H2)	2 × 15 minutes (H1, H2)	2 × 15 minutes (H1, H2)
Penalty buttons	18 s, shown as "18"	120 s, shown as "2"	120 s, shown as "2"	60 s "1", 120 s "2", 300 s "5"
Max Penalty Player (timers at once per team)	6	2	3	3
End Penalty On Goal	On: a goal ends all exclusions of both teams	On: a goal ends the oldest penalty of the team that conceded	On, as Canoe Polo	Off
Stop Chronometer on Goal	On	On	On	Off (running clock)
Timeouts	On, 60 s, 2 per team and match	Off (60 s when switched on), 1 per team	On, 60 s, 1 per team and period	On, 60 s, 1 per team and period
Shot clock	On, 28 / 18 s	On, 60 s	Off	Off

What happens on a goal, how the penalty timers wait for each other and how timeouts and the shot clock behave is described in chapters 5 and 6.

> **Note:** The factory values follow the rule books named in Appendix A. Some points could not be confirmed there; they are listed in Appendix A. Check the values against the rules of your competition before the first match.
>
> **Note:** The Match Rules dialog has no memory per discipline: the values you saved last are used, whichever discipline button you pressed before. Press the discipline button again to get its factory values back.

1.3 Display Modes

The board has four display modes. Each has its own design; you switch between them with the St, Sp, Ad and CK buttons at the left of the Game tab (chapter 7).

- Standard (St): the full-screen scoreboard with team names, logos, the score, the match clock, the shot clock, the period, the exclusion timers and the two text lines.
- Sponsored (Sp): the Standard scoreboard with a sponsor band at the bottom or the top, showing sponsor images or a scrolling text.
- Advertisement (Ad): a compact scoreboard beside a large area for a video playlist, a camera or a screen capture, with a banner line.
- Chroma Key (CK): a small scorebug and lower-third info graphics on a solid key colour, to be keyed over a live TV picture in a vision mixer.



Figure 3. The Standard (left) and Sponsored (right) display modes.

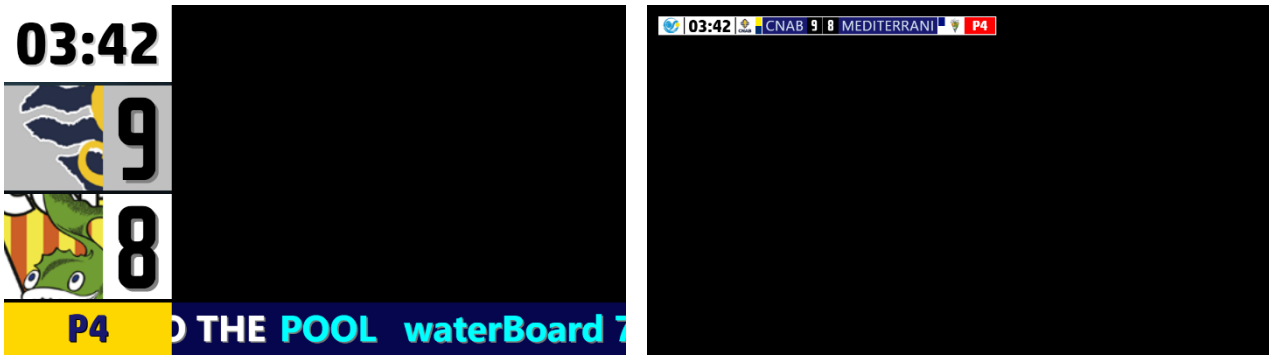


Figure 4. The Advertisement (left) and Chroma Key (right) display modes.

Each display mode has factory designs, and you can change the fonts, colours and positions of every element in the design editor and save your own designs (chapter 8).

1.4 How to Read This Guide

Chapters 2 to 4 cover the installation, the licence and the main window. Chapters 5 and 6 are the core of the work during a match: the operator panel (Game tab) and the disciplines with their match rules. Chapters 7 to 12 describe the display modes, the designs, the info screens, the statistics, teams and players, and the media. Chapters 13 to 15 cover the remote control from a phone or tablet, the HTTP API and the keyboard shortcuts. The guide ends with the languages (16), the settings reference (17), troubleshooting (18) and the appendices: the rules sources (A), the HTTP API commands (B), a glossary (C) and a match-day checklist (D).

- A pair of pictures shows the board output on the left and the panel that produced it on the right.
- A picture with numbered badges is followed by a table with the same numbers.
- Names of buttons and labels are written as the English interface shows them. In another interface language the captions differ; the places are the same.
- Steps are numbered. Do them in this order.

> **Note:** The pictures show the program with its sample teams CNAB and MEDITERRANI in a water polo match: 9 – 8 in period P4, the clock paused at 03:42, the shot clock at 21, one timeout used by CNAB and an 18-second exclusion running for CNAB no. 4 and MEDITERRANI no. 7. The program ran with a licence; without a licence the boards show the word DEMO (chapter 3). The licence key, the Computer ID and the network address of the remote page are hidden in the pictures.

1.5 Website and Support

- Website: www.footballscoreboardsoftware.com (also shown in the title bar of the main window and on the License page of the settings)
- Support: arslan.ziya@gmail.com (also shown on the License page of the settings, with the program version)
- Version described in this guide: 7.6.7.19

2. Installation and First Start

2.1 System Requirements

Item	Requirement
Windows	64-bit Windows. The setup does not install on a 32-bit system; it offers the download of an older 32-bit product instead and closes.
.NET Framework	4.7.2 or later. If it is missing, the setup offers the Microsoft download and closes.
Microsoft Edge WebView2 Runtime	Required: every board is drawn with it. If it is missing, the setup offers the Microsoft download and closes.
Rights	Administrator rights for the setup. Started without them, the setup offers to restart itself as administrator. The desktop shortcut starts the program as administrator.
Board output	A second monitor, a projector, an LED wall controller or an NDI receiver for the board window
Network	Only for the remote control (port 1907) and NDI

> **Note:** Current Windows 10 and Windows 11 PCs normally have the .NET Framework 4.7.2 and the WebView2 Runtime. If the setup reports one of them missing, click OK, install it from the Microsoft page that opens, and run the waterBoard 7 setup again.

2.2 Installing

1. Close waterBoard 7 if it runs.
2. Run the setup (waterBoard7Setup.exe) and follow the wizard. Confirm the Windows question about administrator rights.
3. The program is installed in C:\waterBoard7. The folder cannot be changed, and no Start menu group is created.

During the installation the setup also:

- installs the fonts of the boards in Windows ("Installing fonts..."). The fonts come from C:\waterBoard7\common\font;
- adds four Windows firewall rules for port 1907, named "waterBoard 1907 TCP IN", "waterBoard 1907 UDP IN", "waterBoard 1907 TCP OUT" and "waterBoard 1907 UDP OUT" ("Configuring firewall rule..."). A rule that already exists is not added again;
- creates two shortcuts on the desktop of all users: waterBoard7 (the program, set to run as administrator) and waterBoard7 Help (this guide as a PDF file).

The program is listed in Windows Apps & Features as waterBoard7.

Repeating a step later. Two helpers are copied into C:\waterBoard7:

- open_firewall_1907.bat adds the four firewall rules again. Right-click it and choose Run as administrator. For each rule it reports "Added" or "Exists", then waits for a key.
- install_fonts.ps1 installs the board fonts again. Run it in a PowerShell window opened as administrator, for example: powershell -ExecutionPolicy Bypass -File C:\waterBoard7\install_fonts.ps1

The program also loads the board fonts from common\font by itself at every start and releases them when it closes, so the boards have their fonts even when the Windows font installation failed.

2.3 First Start

Start waterBoard 7 with the waterBoard7 shortcut on the desktop. Windows asks for administrator rights; confirm. A small status card with the vendor logo appears in the middle of the screen while the program loads:

- "waterBoard Started..." while the licence is read: the program reads the Computer ID of the PC and looks for a licence on the USB sticks that are plugged in (chapter 3). This can take a few seconds.
- "Renderer Initialized..." and "Controls Initialized..." while the main window and the Game tab are prepared.
- "Entering Main Loop..." when the board engine (WebView2) is ready.

Then the main window opens at the bottom right of the screen with the Game tab, and the board window opens at the top left.

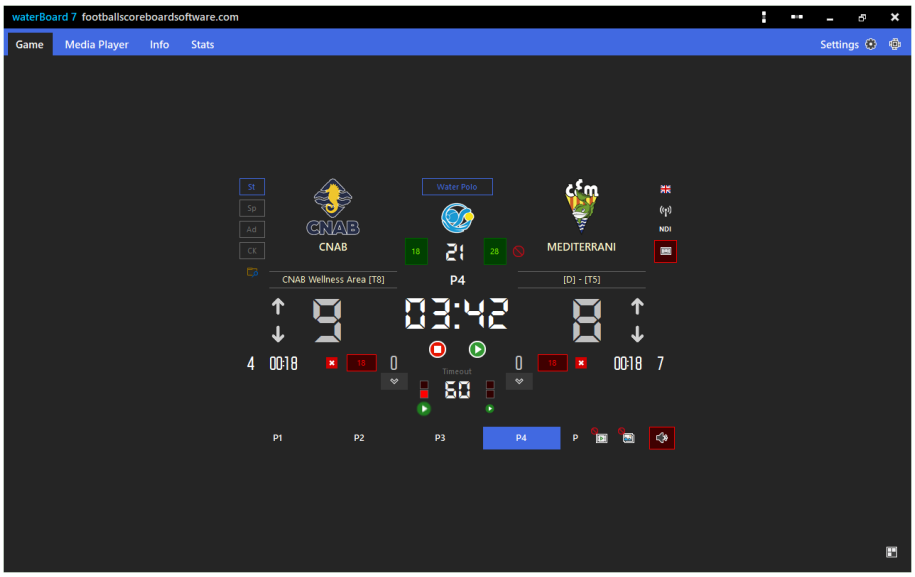


Figure 5. The main window with the Game tab (shown here during a match; at the first start the score is 0 – 0).

A new installation starts with these settings, which the program writes to C:\waterBoard7\start.xml:

Setting	First Start Value
Board window	Left 0, Top 0, 960 × 540 pixels
Display mode	Standard (St)
Discipline	Water Polo, periods P1 to P4 of 8 minutes
Language	The language of the Windows regional format; English if it is not one of the 46 languages
Sample match	CNAB against MEDITERRANI with their logos; lower lines "CNAB Wellness Area [T8]" and "[D] - [T5]"
Background video	media\videos\OpenSea.mp4
Sponsor band (Sp)	At the bottom of the board
Chroma key colour	Green
Sound	On

Setting	First Start Value
Remote control	Off, PIN 123456
Keyboard shortcuts	Off
NDI sender name	Wp7_NDI
Licence	DEMO until a licence is entered (chapter 3)

> **Note:** At the very first start the match rules hold the Water Polo factory values (4 × 8 minutes, 18-second exclusions, shot clock 28 / 18, two timeouts of 60 seconds). For another discipline click the discipline button on the Game tab, choose it in "Period & Penalty Settings" and click Save & Apply (chapter 6).
>
> **Note:** Run only one copy of waterBoard 7. The program does not stop a second copy; two copies would write the same settings files, and only one of them can use the remote control port.

2.4 Folders and Files

Everything lives in C:\waterBoard7:

Folder or File	Contents
waterBoard7.exe, the .dll files and the runtimes folder	The program
start.xml	All settings: board position, display mode, designs in use, the match rules, the keyboard keys, the remote control, the language, the team names, the lower lines and the logo files. Created at the first start.
config.xml	Settings of the info screens (Banner, Announce, Goal, Card, substitutions) and of the background
configSp.xml, configAd.xml, configCK.xml	Settings of the Sponsored, Advertisement and Chroma Key modes (scrolling texts, banners, camera and capture)
water7License.xml	The PC licence (written when you save a key, chapter 3)
common\data	Teams, player lists, team database, timeline, statistics, standings, results, fixtures, referees, sponsors and playlists
common\font	The fonts of the boards
common\images	Pictures of the program, the sample team logos and the flags
common\remote	The remote control pages and API_Commands.txt
common\sounds	The sounds the program plays (horn and timer signals)
common\vizrt\storage	The factory designs, your saved designs and the design list
common\vizrt\current	The designs in use
common\xml	The language file (lang.xml), its factory copy (langFactory.xml) and the licence terms (CPULicense.html, USBLicense.html)
media\videos, media\images	Background videos, background pictures, player pictures and sponsor pictures

Folder or File	Contents
media\downloads	Pictures and data downloaded by the program
waterBoard7.exe.WebView2	The browser data of the boards. The program empties it at every start.
API_Commands.txt	The HTTP API reference (Appendix B)
waterBoard7Help.pdf	This guide
open_firewall_1907.bat, install_fonts.ps1	Helpers to repeat the firewall and font steps of the setup (section 2.2)

2.5 Upgrading to a New Version

Install the new version over the old one, in the same folder. The setup copies all of its files again and replaces files with the same name:

Kept	Replaced by the factory files of the new version
start.xml (all settings, match rules, keys, team names)	The program and its libraries
water7License.xml (the PC licence)	config.xml, configSp.xml, configAd.xml and configCK.xml
Files you added with names of your own (logos, player pictures, videos, sponsor pictures)	Everything the setup ships in common: the lists in common\data, the designs and the design list in common\vizrt, lang.xml and langFactory.xml, the remote pages
	Media files with the same names as the factory files

> **Note:** Before you install a new version, copy the whole folder C:\waterBoard7 to a safe place. Your player lists, standings, sponsors, playlists, translations and saved designs are in files that the setup replaces. After the upgrade copy back the files you need.
>
> **Note:** The setup of an update replaces every file it carries: the program, the config*.xml files and everything in the common and media folders (player lists, standings, sponsors, playlists, lang.xml, title.xml and the designs in common\vizrt). start.xml and water7License.xml are not part of the setup and stay as they are. Back up C:\waterBoard7\common, C:\waterBoard7\media and the config*.xml files before you update, and copy back what you changed.

2.6 Uninstalling

Use Apps & Features > waterBoard7 > Uninstall. The uninstaller removes the files the setup installed and the two desktop shortcuts. Files the program created later stay in C:\waterBoard7: start.xml, water7License.xml, the browser data, the downloads and the files you added. The fonts and the firewall rules stay in Windows.

> **Note:** The uninstaller also removes the installed files you changed, for example the player lists in common\data and lang.xml. Copy C:\waterBoard7 to a safe place before you uninstall if you want to keep your data.

2.7 Quick Start: The First Match

1. Start waterBoard 7. The Game tab shows the sample match CNAB against MEDITERRANI.
2. Put the board where the audience sees it: Settings > Screen Properties, set L, T, W and H to the position and size of the second monitor or LED output (chapters 7 and 17).
3. Check the discipline on the button at the top of the Game tab, for example "Water Polo". Click it, choose your discipline in "Period & Penalty Settings", check the periods, penalties, timeouts and shot clock, and click Save & Apply (chapter 6).
4. Type the team names and the two lower lines, and choose the logos (chapters 5 and 11).
5. Select period P1 and start the match clock at the start of play (chapter 5).
6. Enter every goal with the up arrow of the team and every exclusion with the penalty button of the team, and reset the shot clock when possession changes (chapter 5).
7. At the end of each period the clock stops at 00:00 with a horn. Select the next period and start again.

For a TV production use the Chroma Key display mode (chapter 7); to run the board from a phone or tablet switch the remote control on (chapter 13).

3. Licensing

3.1 PC (CPU) and USB Licences

waterBoard 7 runs with a licence key. There are two kinds:

	PC Licence (CPU)	USB Licence
Bound to	This PC, through its Computer ID	One USB stick, through its USB ID
Key file	C:\waterBoard7\water7License.xml	water7License.xml in the root folder of the stick
Use	Only on this PC	On any PC where the stick is plugged in
Checked	At every program start	At every program start, before the PC licence

The licence is read when the program starts. After you enter a key, or plug in the USB stick, restart the program.

The key also holds:

- the largest board size (Max Resolution): at start the board width and height are cut to this value;
- the expiry date;
- the licence model, which can enable the GPU screen capture of the Advertisement and Chroma Key modes (GPU badge on the License page) and the extra media player (eMP badge).

3.2 DEMO Mode

Without a valid licence the program runs in DEMO mode. The program works, with these marks and limits:

- On the Standard, Sponsored, Advertisement and Chroma Key boards the match clock reads DEMO for one second in every ten.
- The info-screen board, the media-player board and the media area of the Advertisement board show a DEMO label.
- The scores and the team logos are locked. The score arrows of both teams, typing a score into the score boxes, and the choice or removal of the home and guest logos on the Game tab show "License Required ! This action is not allowed in the DEMO version." The same applies to the score buttons of the remote control, the score keyboard shortcuts and the score commands of the HTTP API.

The licence icon at the right of the menu bar shows the state: a padlock without a licence, a USB stick symbol with a USB licence, a CPU symbol with a PC licence. Rest the mouse on it for the tooltip: "No License", "USB License Found" or "CPU License Found".

3.3 Entering a PC Licence

Open Settings > License.

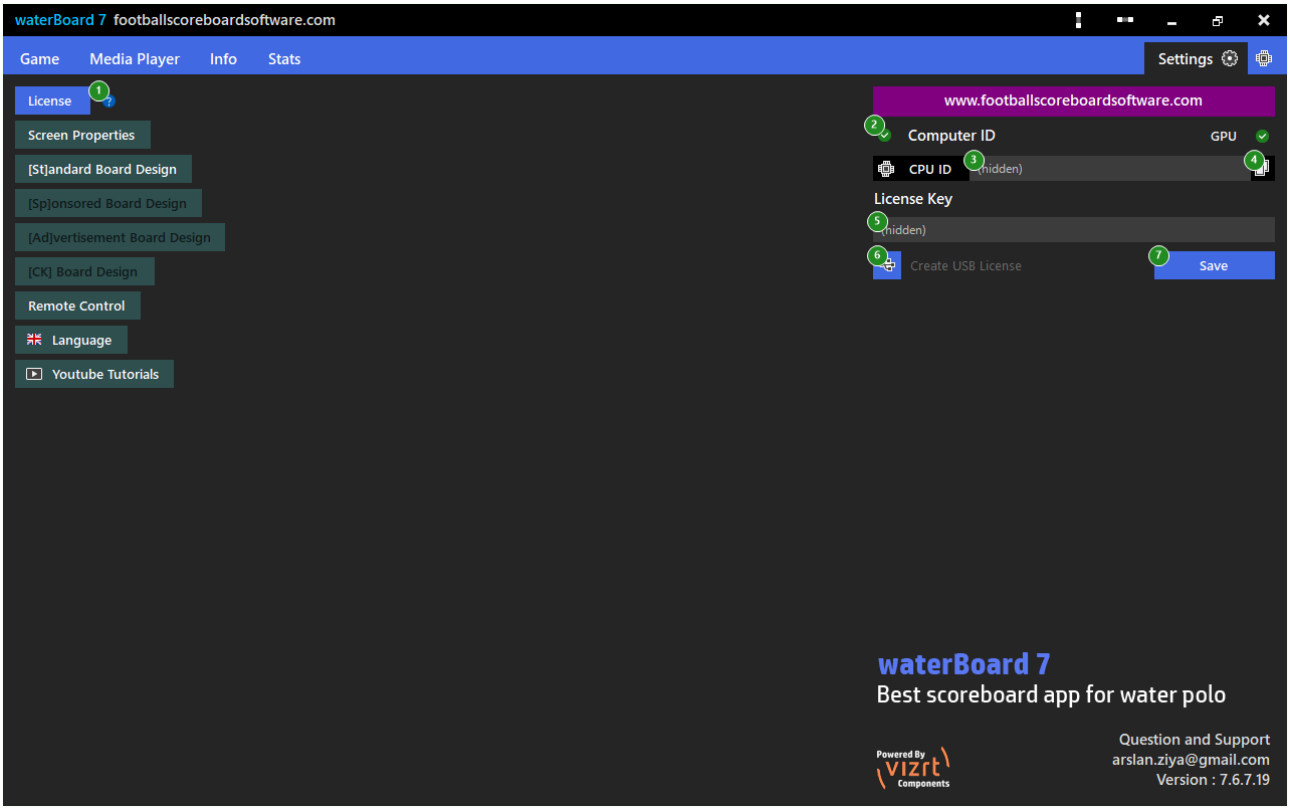
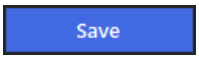


Figure 6. The License page of the settings. The Computer ID and the key are hidden in this picture.

No.	Control	Name	What It Does
1		**License Info (?)**	Shows License Info: validation, max resolution, expire date, model and the licensed options.
2		**Licence status**	Green tick: a valid PC licence. Click it for a help page on PC licences.
3		**CPU ID**	The Computer ID of this PC (read only); send it to receive a PC licence key.
4		**Copy CPU ID**	Copies the Computer ID to the clipboard.
5		**License Key**	Paste the licence key here. The box turns lime when the key fits this PC.
6		**Create USB License**	Opens the page that writes a USB licence on a memory stick (chapter 3).
7		**Save**	Checks the licence key and saves it in water7License.xml; an invalid key shows a warning and the old key comes back.

1. Click the copy button at the right of the Computer ID (CPU ID). The ID is copied to the clipboard.
2. Send the Computer ID to the vendor (arslan.ziya@gmail.com) and order the licence.
3. Paste the key you receive into License Key. The box turns lime when the key fits this PC, pink when the key fits but the date check fails (section 3.5), and grey when it does not fit.
4. Click Save. The program shows "License Key Valid. Please Restart Application." and writes the key to water7License.xml.

5. Restart waterBoard 7.

If the key does not fit, the program shows "License Key Not Valid!" and puts the saved key back into the box.

- The icon in front of Computer ID opens the licence terms of the PC licence. It shows a green tick when the key in the box fits this PC.
- The GPU and eMP badges appear when the key enables the GPU screen capture or the extra media player.
- The ? button next to License opens the License Info box (section 3.5).
- The purple bar at the top shows the website; click it to open the website in the browser.
- The bottom of the page shows the support address and the program version (Version : 7.6.7.19).

> **Note:** Do not type into the License Key box of a licensed PC. A key that does not fit makes the running session unlicensed at once, until a valid key is back in the box or the program restarts with the saved key.

3.4 Creating a USB Licence

1. Plug a USB stick into the PC. Only removable USB drives with a drive letter are offered; USB hard disks are not.
2. Open Settings > License and click Create USB License (the USB button below the key box). The USB License Creator opens in the main window.
3. Choose the stick in Select USB Device. The list shows the drive letter and the label of each stick, for example "E:\KINGSTON". A stick that already holds a key shows "- License Key Found", and its key appears in License Key.
4. The USB ID of the stick appears next to USB ID. Copy it with the copy button and send it to the vendor.
5. Paste the key you receive into License Key. The box turns lime when the key fits the stick.
6. Click Save. The key file water7License.xml is written to the root folder of the stick, and the program shows "License Key Valid. Please Restart Application."
7. Restart waterBoard 7 with the stick plugged in.

Esc or the close button at the top right leaves the USB License Creator. The question-mark icon opens the licence terms of the USB licence.

Message	Reason
"License Key Not Valid!"	The key does not belong to the selected stick.
"Please select a valid USB device."	No stick is selected in Select USB Device.
"Selected USB drive is not available. Please check the connection."	The stick was removed after it was chosen.

When a valid USB licence is found at start, the License page shows "USB License Detected" with the USB ID, the key and the GPU and eMP badges of the licence.

3.5 Licence Status

The ? button next to License opens the License Info box:

Line	Meaning
Validation	Yes with a valid PC or USB licence, No in DEMO
Max Resolution	The largest board width and height allowed by the key
Expire Date	The end of the licence
Model	The licence model number
GPU Enabled, Extra Player, Record & Replay	Options of the licence model
Last line	The result of the date check: "All license checks passed.", "[2099]. Skipping check." for a licence without an end date, or the reason for a failure: the expiry date has passed, or "System clock appears to have been set back"

The program writes the date and time of every successful licence check to start.xml. When the PC clock is earlier than that date at the next start, the licence is not accepted.

When the licence is not accepted:

What You See	Reason and Fix
"License Key Not Valid!"	The key belongs to another PC or stick. A PC key stops working after a hardware change of the main board or the processor; send the new Computer ID to support.
It worked before and now shows DEMO	The licence expired, or the PC clock is earlier than the last start. No message is shown: open the License Info box. Correct the Windows date and time, then restart.
The License Key box turns pink	The key fits, but the date check failed (expired, or clock set back).
USB licence not found	The stick must be plugged in before the program starts. Check that Windows shows it as a removable drive with a drive letter.
DEMO marks stay on some boards after Save	Restart the program. The DEMO labels of the boards are set when the program starts.

4. Main Window and Menus

4.1 Title Bar and Window Sizes

The main window is the operator's window. It opens at 640 × 480 pixels at the bottom right of the screen and cannot be made smaller. It has three parts: the title bar, the menu bar with the tabs, and the page of the selected tab. The pictures in this guide show the window enlarged to 1280 × 800 pixels.

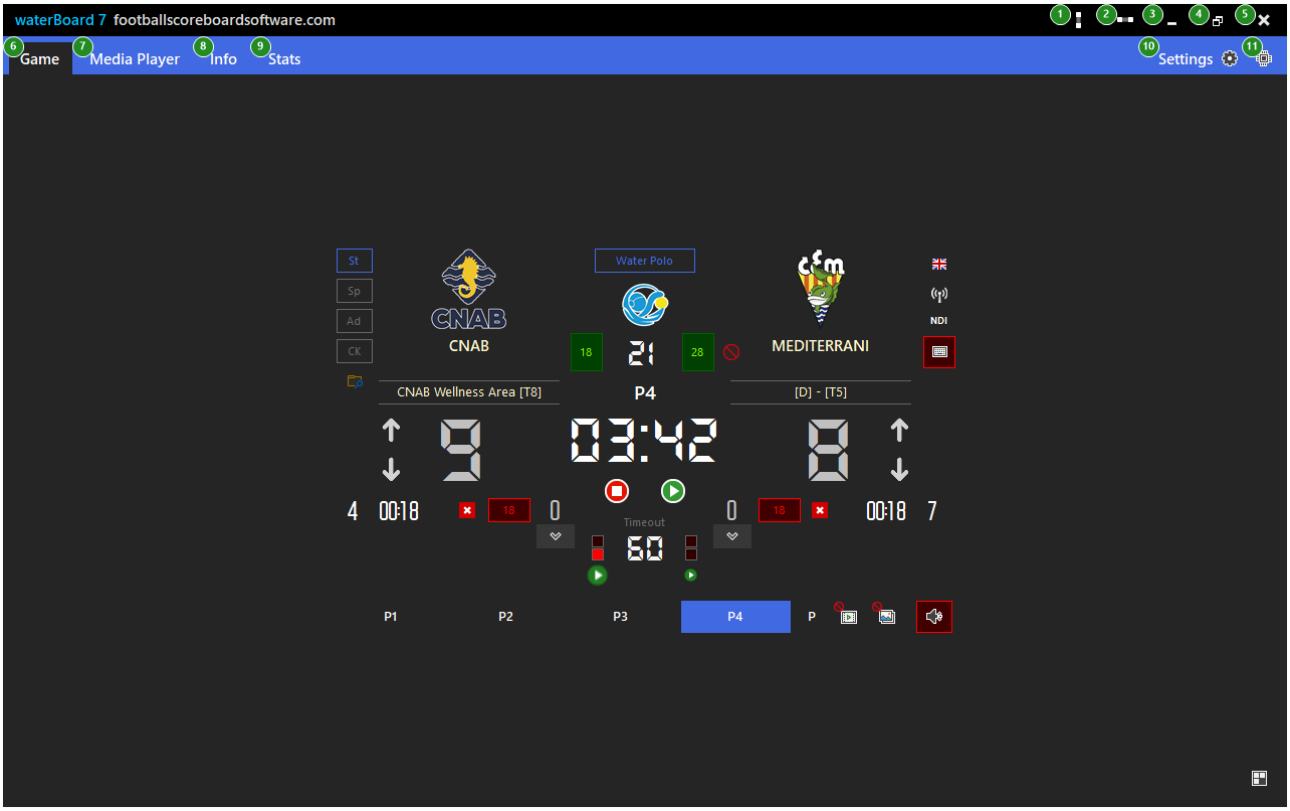
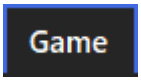
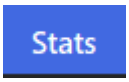
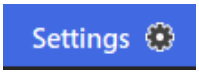


Figure 7. The main window: title bar, menu bar and the Game tab.

No.	Control	Name	What It Does
1		**Column**	Makes the main window a 640-pixel column over the full screen height at the right edge. Click again for 640 × 480 at the bottom right.
2		**Strip**	Makes the main window a 480-pixel strip over the full screen width along the bottom. Click again for 640 × 480 at the bottom right.
3		**Minimise**	Minimises the main window. The board windows stay on.
4		**Maximise**	Fills the screen with the main window. Click again to go back to the previous size.
5		**Close (X)**	Asks "The Application Will Be Closed! Are You Sure?" and, after Yes, saves the team names and lower lines and closes the program.
6		**Game**	Opens the operator panel (Game tab) and brings the board of the current display mode to the front.

No.	Control	Name	What It Does
7		**Media Player**	Opens the Media Player tab with the playlists of the media-player board.
8		**Info**	Opens the Info tab with the info screens, team lists, referees, sponsors and the Team Database.
9		**Stats**	Opens the Stats tab: Timeline, Stats, Standings, Results and Fixtures.
10		**Settings**	Opens the settings: License, Screen Properties, board designs, Remote Control, Language and Youtube Tutorials.
11		**Licence icon**	Shows the licence state: padlock (No License), USB symbol (USB License Found) or CPU symbol (CPU License Found). Rest the mouse on it for the text; it has no click action.

The title bar shows waterBoard 7 and the product website. Drag the title bar to move the window. Its buttons, from left to right:

Button	What It Does
Column	Makes the window a column of 640 pixels over the full height of the screen, at the right edge. Click again for 640 × 480 at the bottom right.
Strip	Makes the window a strip of 480 pixels over the full width of the screen, along the bottom. Click again for 640 × 480 at the bottom right.
Minimise	Minimises the main window. The boards stay on.
Maximise	Fills the screen. Click again to go back.
Close (X)	Closes the program after a question (section 4.4).

- Drag any edge or corner to resize the window. The window snaps to the screen edges and to other windows.
- The column and the strip are useful when the main window shares the screen with other programs, for example a vision-mixer software or a streaming program.

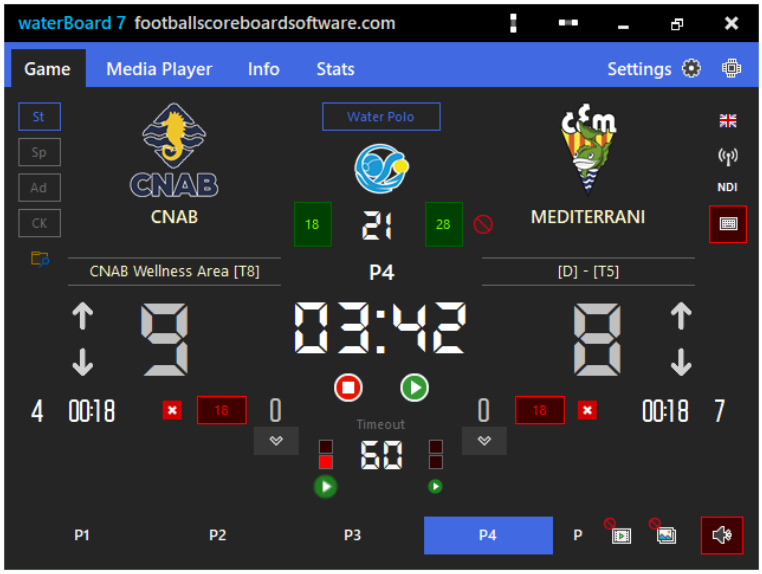


Figure 8. The main window at its smallest size, 640 × 480 pixels. The Game tab keeps all its controls.

4.2 Menu Tabs

Tab	Opens	Chapter
Game	The operator panel: teams, score, match clock, periods, shot clock, exclusions, timeouts, penalty shootout, display modes	5
Media Player	Six playlists of videos and pictures and a URL playlist	12
Info	Info screens: Banner, Announce, Goal, 18 Sec, Home Team, Guest Team, Referees, Red Card, Substitution, Multiple, Sponsors and the Team Database	9, 11
Stats	Timeline, Stats, Standings, Results and Fixtures	10
Settings	Licence, board position, board designs, remote control, language, video tutorials	17
Licence icon (right)	Shows the licence state; rest the mouse on it for the text	3

- In the Sponsored, Advertisement and Chroma Key display modes a fifth tab appears after Stats: Sp, Ad or CK. It opens the page of that mode (chapter 7). In the Standard mode the tab is hidden.

- In the Advertisement and Chroma Key modes the Ad or CK tab flashes (white and aqua) while a playlist, a camera or a screen capture started on that page is on the board.
- Two icons on the Game tab lead into the settings: the flag opens Settings > Language (chapter 16), the antenna opens Settings > Remote Control (chapter 13).

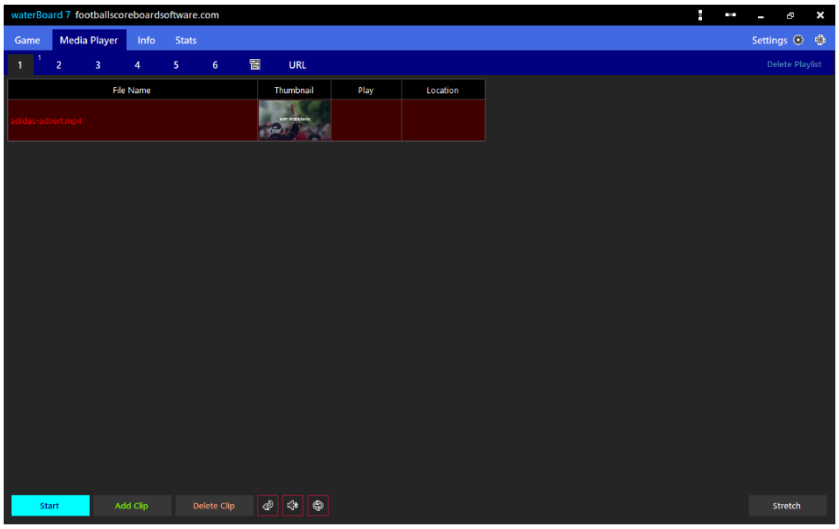


Figure 9. The Media Player tab.

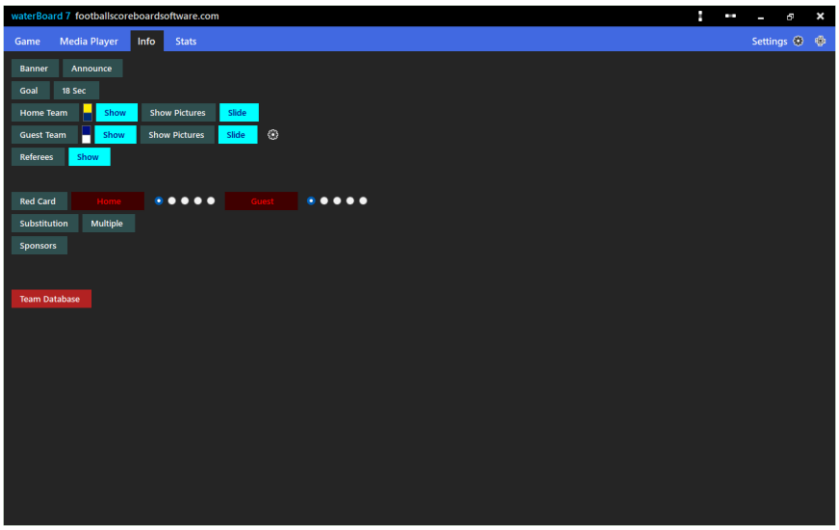


Figure 10. The Info tab.

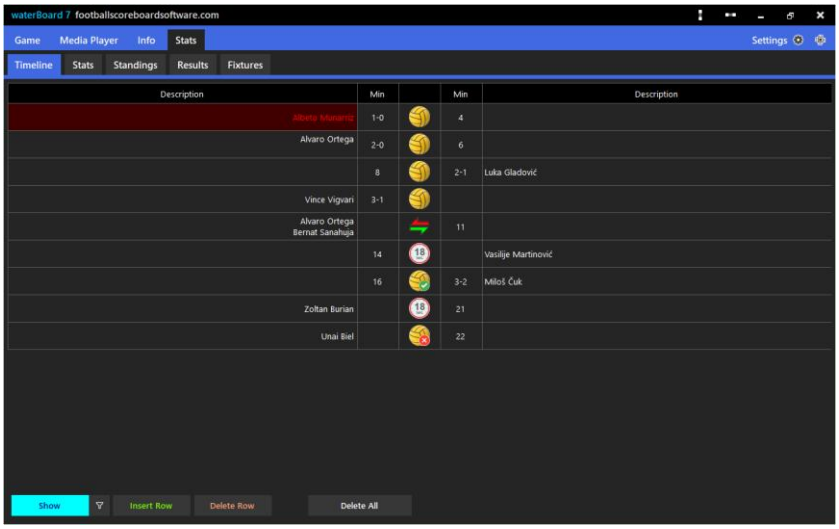


Figure 11. The Stats tab with the match timeline.

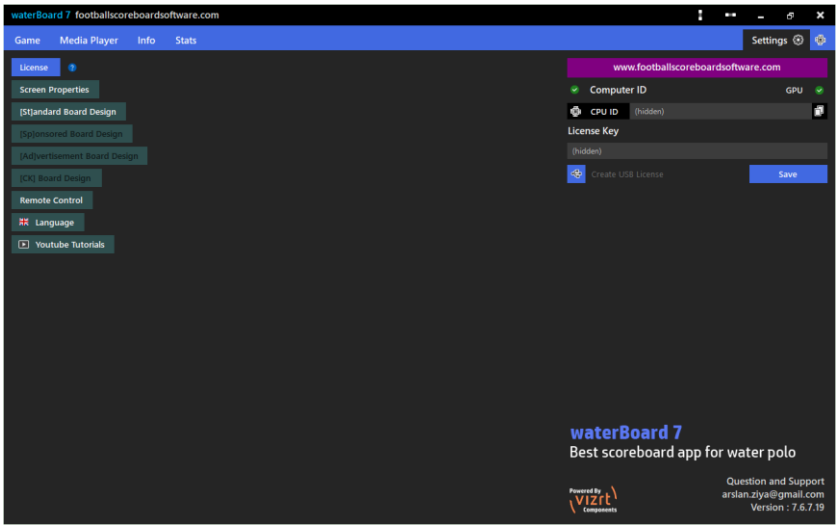


Figure 12. The Settings tab with the License page.

4.3 Board Windows

The boards are separate windows without a frame: one for the Standard and Sponsored board, one for Advertisement, one for Chroma Key, one for the info screens and one for the media player. Only the board of the current display mode is shown; the info-screen and media-player boards appear over it while they are in use.

All board windows share one position and size, set in Settings > Screen Properties: L: Left, T: Top, W: Width and H: Height, in pixels of the Windows desktop (chapters 7 and 17). To show the board on a second monitor or LED controller output, set Left to the x position of that output in the Windows display layout, for example 1920 for a monitor to the right of a full-HD main screen.

> **Note:** Negative positions are treated as 0. Place the board monitor to the right of or below the main screen in the Windows display settings, not to the left or above it.
>
> **Note:** The width and height are limited by the Max Resolution of the licence (chapter 3).

4.4 Closing the Program

1. Click the Close button (X) in the title bar.
2. The program asks "The Application Will Be Closed! Are You Sure?". Click Yes.

The program saves the team names and the two lower lines, closes the boards and the remote control, and releases the board fonts. Settings you change while you work are saved at once, so they are kept as well.

> **Note:** The score, the match clock, the period, the shot clock, the exclusions and the timeouts are not kept when the program closes. Do not close waterBoard 7 during a match.
>
> **Note:** Always close waterBoard 7 with its own Close button. Ending the program from the Windows taskbar or the Task Manager skips the orderly shutdown, and the team names and lower lines typed since the start are lost.

Questions and messages of the program cover the page with a coloured title band (red for warnings, green for success) and Yes / No or OK buttons. Esc answers No (or closes the message).

5. Operator Panel (Game Tab)

The operator panel is the Game tab of the main window. Everything you need during a match is on this one page: the team names and logos, the two text lines, the score, the match clock, the periods, the shot clock, the exclusions and penalties, the timeouts, the penalty shoot-out and the display mode. The page fits a 640 × 480 window, so it also works on a small screen beside the board (section 5.13).

The panel follows the discipline chosen in Match Rules (chapter 6): the period buttons, the penalty buttons, the shot clock and the timeout area change with it. This chapter shows water polo; section 5.14 shows what is different in the other disciplines.

5.1 The Game Tab at a Glance

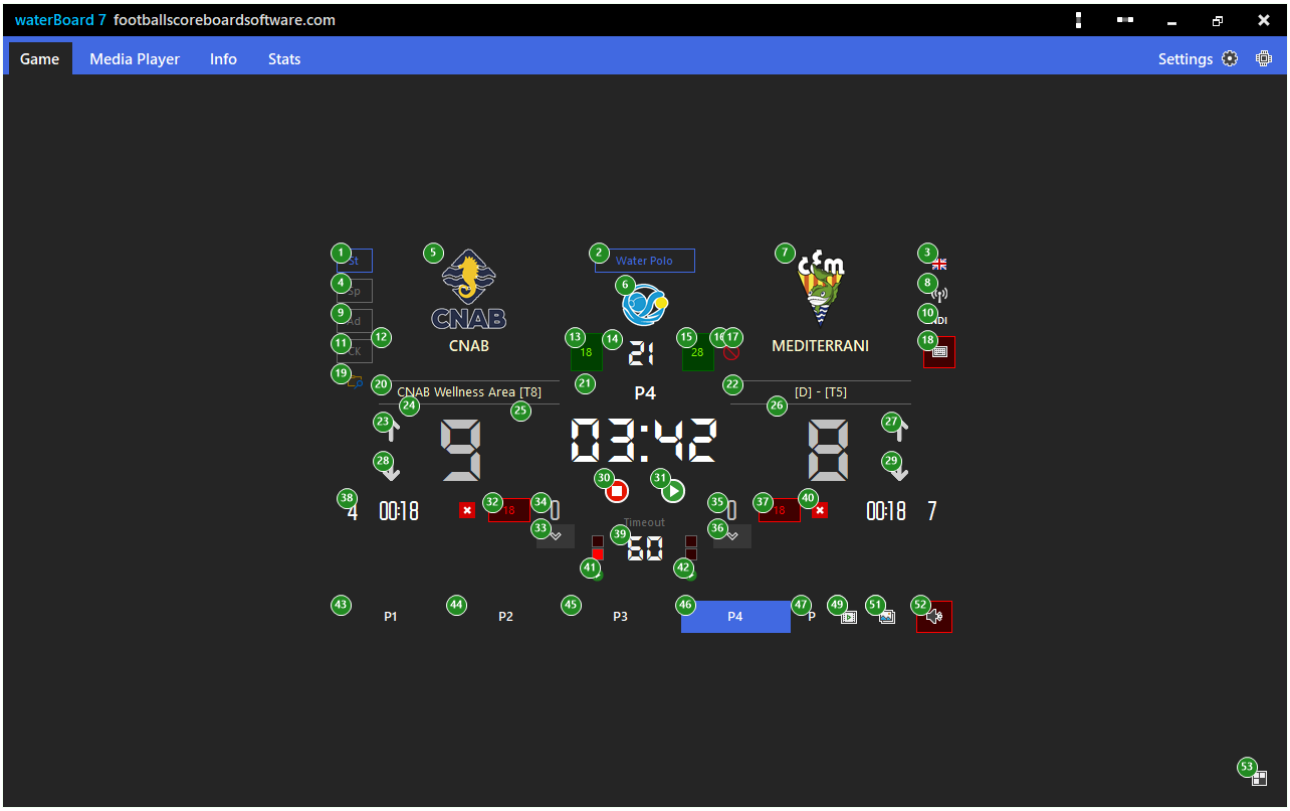
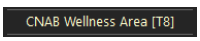
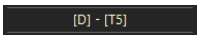
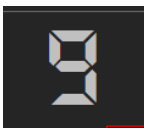
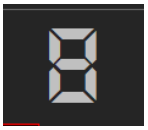
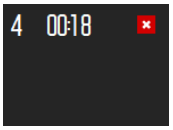
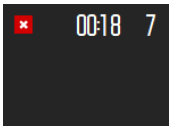
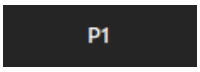
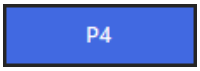


Figure 13. The Game tab during period P4 of a water polo match: CNAB leads 9-8, the clock is paused at 03:42, the shot clock shows 21 and each team has one player excluded.

No.	Control	Name	What It Does
1	St	**St**	Switches the board to the Standard display mode (Standard View). The active mode is blue.
2	Water Polo	**Discipline (Match Rules)**	Shows the discipline (Water Polo, Canoe Polo, UW Rugby, UW Hockey) and opens Match Rules, the Period & Penalty Settings window (chapter 6).
3		**Language (flag)**	Language Settings: opens Settings > Language (chapter 16).
4	Sp	**Sp**	Switches the board to the Sponsored display mode (Sponsored View).

No.	Control	Name	What It Does
5		**Home Logo**	Click to choose the home team logo (picture file). Rest the mouse on it to show a small X that removes the logo.
6		**Centre Logo**	Click to choose the centre logo of the board, for example the tournament logo. Rest the mouse on it to show a small X that removes it.
7		**Guest Logo**	Click to choose the guest team logo (picture file). Rest the mouse on it to show a small X that removes the logo.
8		**Remote Control**	Opens the remote control settings (chapter 13).
9		**Ad**	Switches the board to the Advertisement display mode (Advertisement View).
10		**NDI**	Start/Stop NDI Camera Stream: starts or stops the NDI stream of the board; the button flashes red while it runs.
11		**CK**	Switches the board to the Chroma Key display mode (Chroma Key View).
12		**Home Team Name**	The home team name on the board. Enter starts a second line.
13		**Shot Clock Second Value**	Resets the shot clock to the second value of Match Rules (18 in water polo). Runs on at once if the match clock runs.
14		**Shot Clock**	The shot clock countdown. While the clock stands still, type a value in seconds; it counts from the next Start.
15		**Shot Clock First Value**	Resets the shot clock to the first value of Match Rules (28 in water polo). Runs on at once if the match clock runs.
16		**Shot Clock Clear**	Stops the shot clock and sets it to 0; the board shows no shot-clock value.
17		**Guest Team Name**	The guest team name on the board. Enter starts a second line.
18		**Keyboard Hook**	Enable Keyboard Hook: opens the Keyboard Hook Manager. Green while the global shortcuts are on, red while off.
19		**Select Design (folder icon)**	Opens the design gallery beside the button to choose another board design (chapter 8).
20		**Lower Line (Home Side)**	A free text line on the board. [D] and [T] (or [D5], [T5], [T8]) are replaced by the date and the time of day.
21		**Period Name**	The period name shown on the board, set by the period buttons. During a timeout the board shows the countdown here instead.
22		**Lower Line (Guest Side)**	A second free text line on the board, with the same [D] and [T] tokens.

No.	Control	Name	What It Does
23		**Home Goal (up arrow)**	One goal more for the home team. Applies End Penalty On Goal and Stop Chronometer on Goal.
24		**Home Score**	The home score. Type a value to correct it; the board follows at once.
25		**Match Clock**	The match clock counting down. While it stands still, type a time (mm:ss or seconds) to start from.
26		**Guest Score**	The guest score. Type a value to correct it; the board follows at once.
27		**Guest Goal (up arrow)**	One goal more for the guest team. Applies End Penalty On Goal and Stop Chronometer on Goal.
28		**Home Goal −1 (down arrow)**	One goal less for the home team (a correction, not below 0).
29		**Guest Goal −1 (down arrow)**	One goal less for the guest team (a correction, not below 0).
30		**Stop**	First click: pauses the running clock. Second click (clock standing): resets the clock to the full period length and clears all penalty lists.
31		**Start / Pause**	Starts the match clock with the shot clock and the penalties; click again to pause. Greyed out while a timeout runs.
32		**Home Penalty Button 1**	Start Penalty: adds a home penalty of the first length of Match Rules (18 s in water polo) for the number in the number box.
33		**Home Player List (arrow)**	Select Player: opens the shirt numbers of the home player list and puts the chosen number in the number box.
34		**Home Penalty Number**	The shirt number for the next home penalty. Type it or choose it with the arrow below.
35		**Guest Penalty Number**	The shirt number for the next guest penalty. Type it or choose it with the arrow below.
36		**Guest Player List (arrow)**	Select Player: opens the shirt numbers of the guest player list and puts the chosen number in the number box.
37		**Guest Penalty Button 1**	Start Penalty: adds a guest penalty of the first length of Match Rules (18 s in water polo) for the number in the number box.
38		**Home Penalty List**	The running and waiting home penalties: number, remaining time and X to cancel. Double click a number or time to correct it while the clock stands still.
39		**Timeout Countdown**	The timeout length (60 s by default) and the countdown of a running timeout. Type another length before a timeout to change it once.

No.	Control	Name	What It Does
40		**Guest Penalty List**	The running and waiting guest penalties: X to cancel, remaining time and number. Double click a number or time to correct it while the clock stands still.
41		**Home Timeout Start / Stop**	Starts a home timeout (clock standing only); click again to end it early. Refused with a sound when the team has no timeout left.
42		**Guest Timeout Start / Stop**	Starts a guest timeout (clock standing only); click again to end it early. Refused with a sound when the team has no timeout left.
43		**Period 1 (P1 / H1)**	Chooses the first period and sets the clock to its full length. Not available while the clock or a timeout runs.
44		**Period 2 (P2 / H2)**	Chooses the second period and sets the clock to its full length. Not available while the clock or a timeout runs.
45		**Period 3 (P3)**	Chooses the third period and sets the clock to its full length. Hidden when the period has no text.
46		**Period 4 (P4)**	Chooses the fourth period and sets the clock to its full length. Hidden when the period has no text.
47		**P (Penalty Shootout)**	Switches the panel to the penalty shoot-out: scored / missed buttons and the mark boxes in place of the team names.
48		**Background Video**	Select Background Layer Video File: chooses an mp4, webm or ogg video that plays behind the board.
49		**Remove Background Video**	Removes the background video from the board.
50		**Middle Image**	Select Middle Layer Image File: chooses a picture between the background video and the scoreboard.
51		**Remove Middle Image**	Removes the middle image from the board.
52		**Sound On / Off**	Switches the panel sounds (start, horn, timeout end, penalty end) on (green) or off (red).
53		**Small Window**	Sets the main window to 640 × 480 in the bottom right corner of the screen.

The panel is built around the clock in the middle:

- Top row: the display mode buttons St, Sp, Ad and CK with the Select Design folder below them (left), the home logo, the discipline button with the centre logo, the guest logo, and the icons for language, remote control, NDI and the keyboard hook (right).
- Middle: the team names, the shot clock with its two reset buttons and Clear, the two lower text lines, the period name, the scores with their arrows, and the match clock with Stop and Start / Pause.
- Lower part: the exclusion and penalty area of each team (number box, player list, penalty buttons and the list of running penalties) and the timeout area between them.
- Bottom row: the period buttons, P for the penalty shoot-out, the background video and middle image icons, and the sound button. The small-window button is in the bottom right corner of the tab.

Many controls show a tooltip when you rest the mouse on them, for example "Start Penalty" on the penalty buttons, "Select Player" on the player list arrows and "Select Design" on the folder icon.

Board Output **Control Panel**

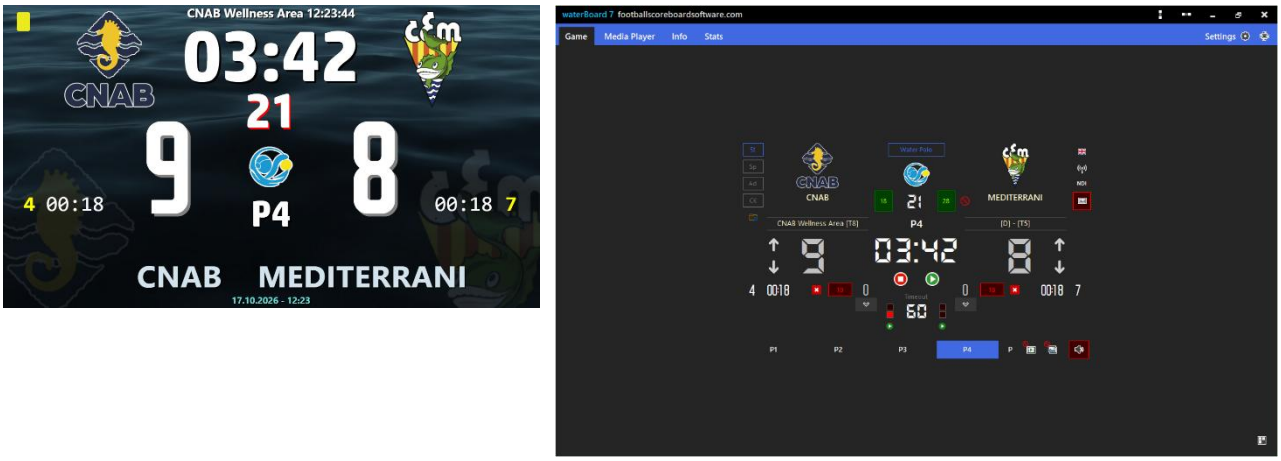


Figure 14. The Standard board and the Game tab that drives it. The board shows the clock, the shot clock (21), the period, the two exclusions (no. 4 and no. 7, 00:18 each), the timeout mark of CNAB in the top left corner and the two text lines with the time and date filled in.

The board follows the panel by itself about ten times a second: you never need to "send" the score, the names or the clock.

5.2 Teams, Logos and Lower Lines

Team names. Click the name box of a team and type the name. A name can have two lines: press Enter to start the second line. The board shows the name as typed. The box turns black when it holds more than two lines, as a warning that the board has room for two.

Logos. Click a logo to choose a picture file (bmp, gif, jpeg, jpg or png). The dialog opens in the folder media\downloads\images of the program. The picture is shown on the panel and on the board at once, and it is kept for the next start. When the mouse rests on a logo, a small X button appears on it: click the X to remove that logo.

There are three logos:

- the home logo (left), the guest logo (right);
- the centre logo below the discipline button, for example the logo of the tournament or the federation.

> **Note:** The panel has no right click on the logos. A logo is changed with a left click and removed with its X button. In the DEMO version the home and guest logos cannot be changed (the program shows "License Required !", chapter 3).

Lower lines. The two text boxes below the team names are free text lines for the board, for example the venue, the competition or the round. They can hold tokens that the program replaces with the date and time of the computer, and the board updates them every moment:

Token	Board Shows	Example
[D]	The date in the short date format of Windows	16.10.2026
[T]	The time of day, hours, minutes and seconds	14:04:10

Token	Board Shows	Example
[Dn]	The first n characters of the date	[D5] gives 16.10
[Tn]	The first n characters of the time	[T5] gives 14:04, [T8] gives 14:04:10

The factory lines are "CNAB Wellness Area [T8]" (the venue with a running clock of the time of day) and "[D] - [T5]" (the date and the time in hours and minutes). A lower line box turns black when it holds more than one line.

The team names and the two lines are saved when you close the program normally and come back at the next start. They can also be set from the remote and the HTTP API (section 5.16); there an underscore starts a new line.

5.3 Score

Each team has a large score box with an up arrow and a down arrow beside it.

- Up arrow: one goal more for the team.
- Down arrow: one goal less, a correction. The score does not go below 0.
- Click the score box and type the score to set it directly, for example after a restart of the program. The board shows the typed value at once.

A goal with the up arrow (and with the keyboard, the remote or the HTTP API) also applies the goal rules of Match Rules (chapter 6):

- End Penalty On Goal: in water polo the goal ends all running and waiting exclusions of both teams; in the other disciplines it ends the oldest penalty of the team that conceded the goal (section 5.7). This also works when you stopped the clock before you entered the goal.
- Stop Chronometer on Goal: when the clock runs, the goal pauses the match clock and resets the shot clock to its first value (for example 28).

> **Note:** Typing a score and the down arrow do not end penalties or stop the clock. Use the up arrow for a goal, and typing or the down arrow only for corrections.

The score is not saved when the program closes: after a restart both teams start at 0. In the DEMO version the score arrows of both teams show "License Required !", and the score boxes cannot be typed in (chapter 3).

5.4 Match Clock

The match clock counts down from the length of the period, for example 08:00 in water polo. On the panel it shows tenths of a second (03:38.1); the board shows minutes and seconds (03:38) and, in the last minute, seconds and tenths (42.3).

Start / Pause. The green button below the clock (play icon) starts the clock. While the clock runs the button shows a pause icon; click it to pause. Start and Pause start and stop the shot clock and the running penalties together with the match clock. The clock digits turn green once the clock has been started.

Stop (two stages). The red square button left of Start:

1. While the clock runs, Stop pauses it, like Pause.

2. While the clock stands still, Stop resets the period: the clock goes back to the full length of the current period and the lists of exclusions and penalties of both teams are cleared. The digits turn white.

> **Note:** Press Stop only once to stop the clock. A second Stop resets the period clock and deletes all running penalties. To continue, use Start.

Typing a time. When the clock stands still, click in the clock, type the time and press Start. The clock accepts mm:ss (05:30), mm:ss with tenths (00:42.5) or a number of seconds (90, 45.5). The new time counts from the next Start. While the clock runs the typed text is overwritten at once.

End of the period. At 00:00 the clock stops by itself and the horn sounds. The running penalties stop with it and keep their remaining time. The board shows no clock value at 00:00. The period does not change by itself: click the next period button (section 5.5).

While a timeout runs, Start and Stop are greyed out (section 5.8). In the DEMO version the board shows DEMO in place of the clock for a moment every ten seconds.

5.5 Periods

The period buttons below the clock choose the period. Their texts come from Match Rules: P1, P2, P3, P4 in water polo, H1 and H2 in the other disciplines. A period without a text has no button, so the two-half disciplines show only H1 and H2.

When you click a period button:

1. The button turns blue.
2. The clock is set to the full length of that period, ready to start.
3. The period box above the clock shows the period text, and the board shows it under the centre logo.
4. In underwater rugby and underwater hockey the timeouts of both teams start again from 0 (one timeout per period or half).

- The period buttons do nothing while the clock runs or a timeout runs. Pause first.
- A click on the button of the current period also resets the clock to the full period length. Do not click it during the period; type the time instead if you must correct it.
- The exclusions and penalties are kept when the period changes. They go on with their remaining time when the clock starts in the new period.
- The shot clock keeps its value. Reset it with one of its buttons before the first possession of the period.
- In water polo and canoe polo the timeouts are counted for the whole match, so they are not reset.

The period box can be typed over, for example to show another text on the board; the next period button replaces it.

P (Penalty Shootout). The narrow P button at the right end of the period row switches the panel to the penalty shoot-out (section 5.9).

5.6 Shot Clock

The shot clock sits between the team names: the countdown box in the middle, the reset buttons left and right of it, and the Clear button (red no-entry sign) on the right.

Control	What It Does
Right button (28 in water polo)	Resets the shot clock to the first value of Match Rules. If the match clock runs, the shot clock runs on from the new value at once.

Control	What It Does
Left button (18 in water polo)	Resets the shot clock to the second value, for example 18 after a corner throw or an exclusion.
Clear	Stops the shot clock and sets it to 0. The board shows no shot-clock value.
Countdown box	Shows the shot clock with tenths (17.1). When the clock stands still you can type a value in seconds; it counts from the next Start.

- The shot clock runs only with the match clock: Start, Pause and Stop of the match clock also start and stop the shot clock.
- At 0 the horn sounds and the shot clock stops. The match clock is not stopped: the referee decides, and you stop the clock if needed.
- With Stop Chronometer on Goal on, a goal resets the shot clock to the first value.
- The board shows whole seconds down to 5 seconds and tenths below that, in red (chapter 7).
- When the discipline has no shot clock (underwater rugby and underwater hockey by default), the reset buttons, Clear and the countdown box are hidden and the board shows no shot clock.

5.7 Exclusions and Penalties

Each team has its own penalty area below its score: home on the left, guest on the right.

Control	What It Does
Number box	The shirt number of the player. Type it, or choose it from the player list.
Player list (arrow below the number box)	"Select Player". Opens the list of the shirt numbers of the team's player list (chapter 11) and puts the chosen number in the number box.
Penalty buttons	"Start Penalty". One button per penalty length of Match Rules: 18 (seconds) in water polo, 2 (minutes) in canoe polo and underwater rugby, 1, 2 and 5 in underwater hockey. A click adds a penalty for the number in the number box.
Penalty list	One row per penalty: the shirt number, the remaining time and a red X. The board shows the same list beside the team.
X in a row	Cancels that penalty at once, for example when a water polo exclusion ends because the excluded team regained the ball.

Board Output **Control Panel**

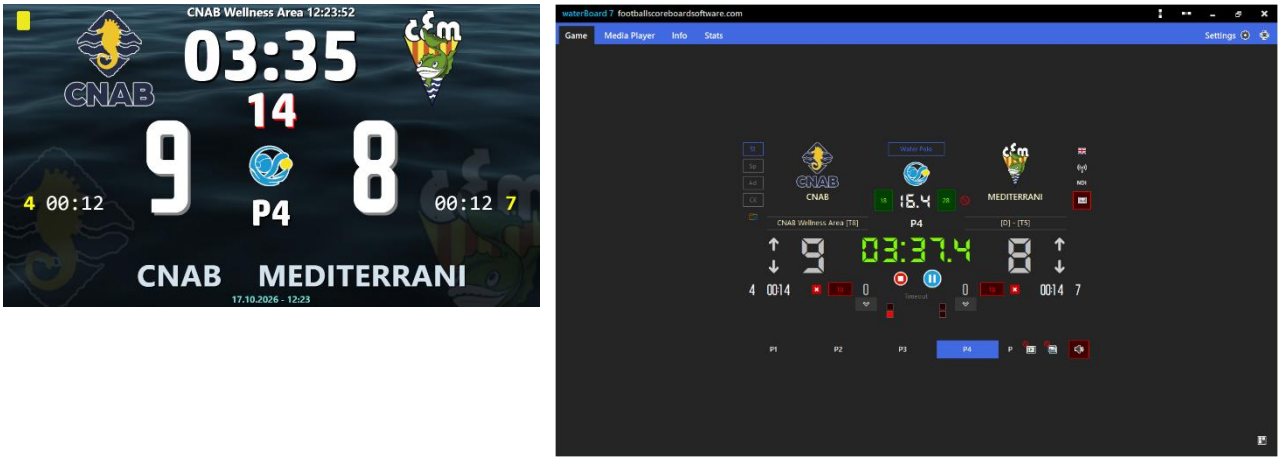


Figure 15. The clock runs: the exclusions of CNAB no. 4 and MEDITERRANI no. 7 count down together with the match clock and the shot clock.

To give a penalty:

1. Type the shirt number in the number box of the team, or click the arrow below it and choose the number.
2. Click the penalty button of the right length.
3. A new row appears in the list of the team with the number and the full time.

How the penalties count:

- The penalty time runs only while the match clock runs. A penalty given while the clock stands still starts with the next Start.
- Up to Max Penalty Player penalties of a team count down at the same time (6 in water polo, 2 in canoe polo, 3 in underwater rugby and hockey; chapter 6). Further penalties of that team wait in the list with their full time and start as soon as a running one ends or is cancelled.
- When a penalty reaches 0, its row is removed and a sound plays.
- End Penalty On Goal ends penalties on a goal (section 5.3). In the disciplines other than water polo it ends the oldest running penalty of the team that conceded. A 300-second (5-minute) penalty is never ended by a goal: the program skips it and ends the next running penalty that is not a 5-minute one.
- The second Stop of the match clock clears both lists (section 5.4).

Correcting a penalty. While the clock stands still, double click the number or the time of a row and type the new value. The time must be m:ss or mm:ss, for example 0:12 or 01:45; a time in another form is refused and the cell stays in edit mode with an error mark. The corrected time counts from the next Start. While the clock runs, a double click does nothing.

> **Note:** The penalty list counts only. The full-screen Exclusion graphic is shown from the Info tab (chapter 9).

5.8 Timeouts

The timeout area is between the two penalty areas, below the clock: the title Timeout, the countdown box with the length of a timeout (60 seconds by default), two lamps on each side (home left, guest right) and a green start button under the lamps of each team.

The lamps show the timeouts a team has used: dark = not used, red = used. The lower lamp is the first timeout. Water polo allows 2 timeouts per team in the match; the other disciplines allow 1 per team (in underwater rugby and underwater hockey again in every period or half, section 5.5).

To give a team a timeout:

1. Stop the clock. The timeout buttons and the countdown box are shown only while the match clock stands still.
2. Click the green start button below the lamps of the team.
3. The countdown runs in red in the box, the lamp of the timeout flashes, the start button of the team turns into a red stop button and the button of the other team is hidden. Start and Stop of the match clock are greyed out.
4. The board shows the countdown in place of the period name, and one timeout mark per used timeout beside the team (chapter 7).
5. At 0 a sound plays, the box goes back to the timeout length and the buttons come back. To end the timeout early, click the red stop button; the timeout stays counted.

Board Output **Control Panel**

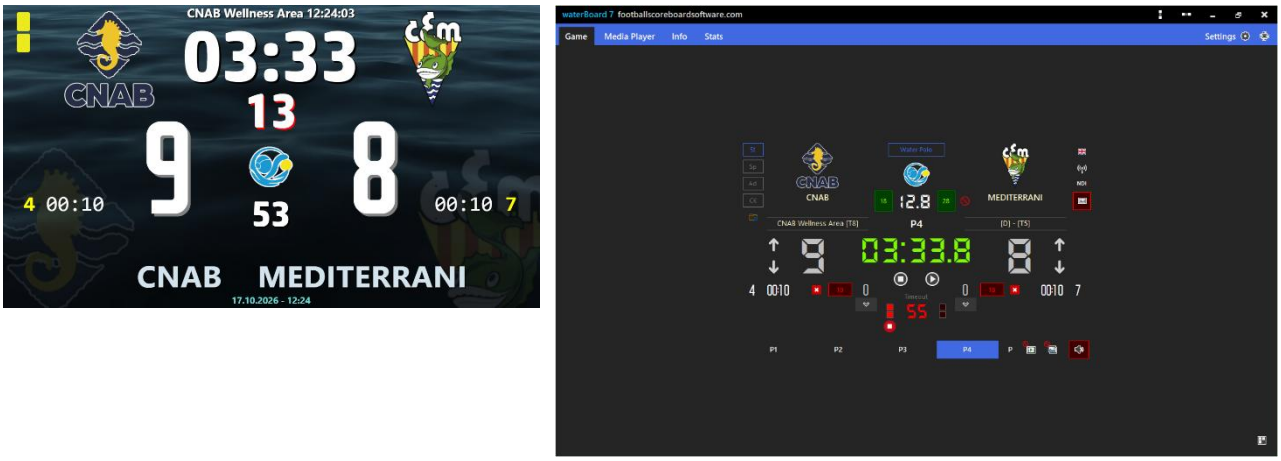


Figure 16. The second timeout of CNAB: the countdown box on the panel shows 56, the board shows 54 below the logo in place of P4 and two timeout marks in the top left corner.

- A team that has used all its timeouts cannot start another one: the click only gives a short sound.
- To give a timeout of another length, type the seconds in the countdown box before you click the start button. After the timeout the box goes back to the length of Match Rules.
- To correct the count, click the lamps while the clock stands still: the lower lamp switches between 1 and 0 timeouts used, the upper lamp sets 2 (in the disciplines with one timeout it sets 1).
- When the discipline has no timeouts (canoe polo by default, chapter 6), the timeout area is hidden.

5.9 Penalty Shootout

The P button at the end of the period row switches the panel to the penalty shoot-out:

- The team names are replaced by the shoot-out boxes, and two buttons per team appear in the middle: a green tick (scored) and a red X (missed).
- The clock, the shot clock and the timeout area are hidden.
- Show sends the marks to the board.

Board Output **Control Panel**

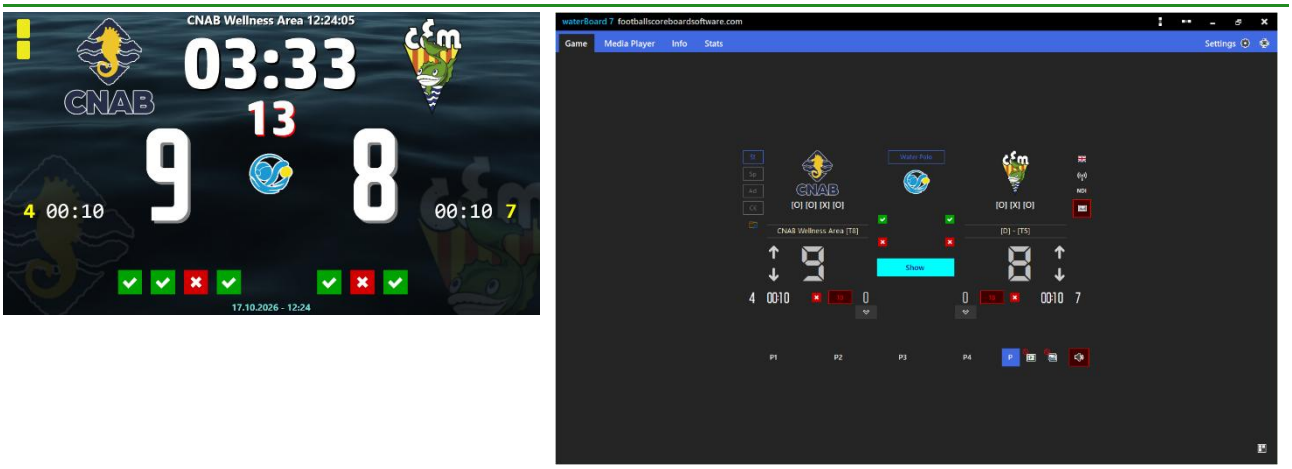


Figure 17. The penalty shoot-out: CNAB has scored three of four, MEDITERRANI two of three. The board shows the marks in place of the team names.

To record a shoot-out:

1. Click P (the clock must stand still).
2. After each shot click the green tick (scored) or the red X (missed) of the team. The box of the team adds [O] for a goal or [X] for a miss.
3. Click Show. The board shows the marks as green ticks and red crosses in place of the team names, and the clock and the period name disappear from the board.
4. Count the goals with the up arrows of the score as usual, if your competition adds them to the result.

- The boxes keep the last five marks of each team. When a sixth mark is added, the oldest one is dropped, so the board shows the last five shots (sudden death).
- You can also type into the boxes: only [,], O, X and spaces are kept when the next mark is added.
- To go back to the normal board, click a period button.

> **Note:** Clear the shot clock and the penalty lists before you click P: the board keeps showing the last shot-clock value and the penalty lists during the shoot-out. Press Clear for the shot clock; the second Stop of the clock (section 5.4) clears the penalties.
>
> **Note:** In the Ad display mode the shootout marks are sent to the Standard board only; the Ad board does not show them. Use St, Sp or CK for the shootout.

5.10 Display Mode and Design

St, Sp, Ad, CK. The four buttons at the top left choose the display mode of the board: Standard, Sponsored, Advertisement and Chroma Key (tooltips "Standard View", "Sponsored View", "Advertisement View", "Chroma Key View"). The active mode is blue. The choice is saved for the next start. Chapter 7 explains the modes.

Select Design (folder icon). The icon below CK opens the design gallery beside the button to choose another board design (chapter 8).

5.11 Background Video and Middle Image

The two icons right of P set the layers behind the scoreboard:

- Background video (first icon, "Select Background Layer Video File"): choose an mp4, webm or ogg file. The dialog opens in the folder media\videos. The video plays behind the board.
- Middle image (second icon, "Select Middle Layer Image File"): choose a picture (bmp, gif, jpeg, jpg or png). It lies between the background video and the scoreboard.

The small red sign on the corner of each icon removes that layer. The files are saved for the next start. The opacity of the background video is set in Settings > Screen Properties (chapter 17).

5.12 Sound, Language, Remote, NDI and Keyboard

Sound. The loudspeaker button at the bottom right switches the panel sounds on (green) and off (red). The choice is saved. The panel plays these sounds (files 01.wav to 05.wav in the folder common\sounds):

Sound	When
01	The match clock starts.
02 (horn)	The period ends at 00:00; the shot clock reaches 0.
03	A timeout ends at 0.
04	A penalty ends at 0, or a goal ends penalties.
05	The match clock is paused or stopped; a timeout is refused.

You can replace a file with your own sound of the same name (a wav file).

Language (flag). The flag of the current language opens Settings > Language (chapter 16).

Remote Control (antenna icon). Opens the remote control settings (chapter 13).

NDI. Starts and stops the NDI stream of the board ("Start/Stop NDI Camera Stream"). While the stream runs, the button flashes red once a second. The stream sends the board area of the screen; the sender name is set in the settings (chapter 12).

Keyboard icon. Opens the Keyboard Hook Manager ("Enable Keyboard Hook"). The icon is green while the global keyboard shortcuts are on and red while they are off. Chapter 15 explains the window and the keys.

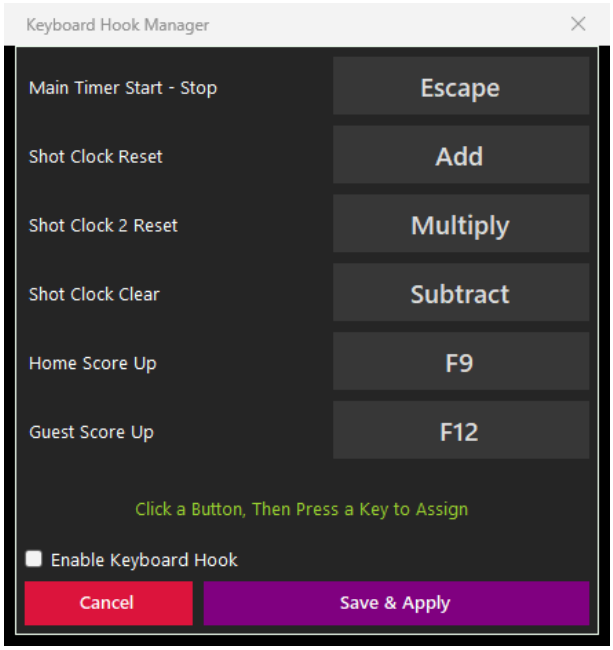


Figure 18. The Keyboard Hook Manager, opened with the keyboard icon (chapter 15).

5.13 Small Window

The button in the bottom right corner of the Game tab sets the main window to 640 × 480 and moves it to the bottom right corner of the screen, so the board and other programs have room. A double click on an empty part of the Game tab does the same.

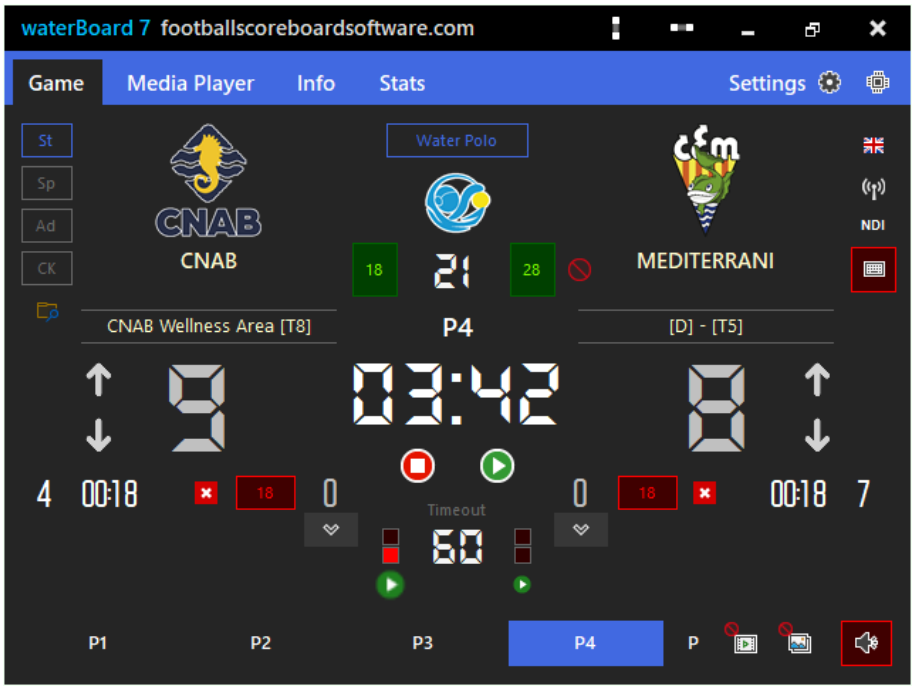


Figure 19. The Game tab in the small window: all controls stay available.

To make the window large again, use the size buttons of the title bar (chapter 4).

5.14 The Other Disciplines on the Panel

The panel adapts to the discipline of Match Rules (chapter 6):

Discipline	Period Buttons	Penalty Buttons	Shot Clock	Timeout Area
Water Polo	P1, P2, P3, P4 (8 min)	18	28 / 18	2 per match
Canoe Polo	H1, H2 (10 min)	2	60 (second button 0)	Hidden (timeouts off)
UW Rugby	H1, H2 (15 min)	2	Hidden	1 per period
UW Hockey	H1, H2 (15 min)	1, 2, 5	Hidden	1 per half

The discipline button above the centre logo shows the discipline and opens Match Rules. The panels of the other disciplines are shown in chapter 6.

5.15 A Typical Match

1. Before the match, check the discipline on the discipline button and the rules (chapter 6).
2. Enter the team names, choose the logos and check the two lower lines.
3. Check the score (0-0), the timeout lamps (all dark) and the penalty lists (empty). Correct them if a previous match left values: type 0 in the score boxes, click the lamps, and press Stop twice to clear the penalties.
4. Click P1 (H1). The clock shows the full period length.
5. Reset the shot clock with its first-value button.
6. Choose the display mode (St for a big screen, CK for a TV production) and, if needed, the background video.
7. At the start signal click Start. Pause the clock at every referee's whistle that stops play, and start it again when play restarts.
8. Reset the shot clock with the first or second value as play requires.
9. For an exclusion or penalty, choose the number and click the penalty button. Cancel a row with its X when the penalty ends early.
10. For a goal, click the up arrow of the team: the goal rules stop the clock and end penalties as set in Match Rules.
11. For a timeout, pause the clock and click the start button of the team.
12. At the end of the period the clock stops at 00:00 with the horn. Click the next period button and reset the shot clock.
13. If the match goes to a penalty shoot-out, clear the shot clock and the penalty lists, click P and record each shot (section 5.9).

5.16 Remote and Keyboard Equivalents

Most panel actions are also available on the remote page (chapter 13), through the HTTP API (chapter 14, Appendix B) and with the global keyboard shortcuts (chapter 15).

Panel Action	Keyboard Shortcut	HTTP Command (Value)
Start / Pause	Main Timer Start - Stop	set_chronometer (play, pause), click (playpause)

Panel Action	Keyboard Shortcut	HTTP Command (Value)
Stop (two stages)	–	set_chronometer (stop), click (stop)
Set the clock	–	set_chronometer (a time such as 05:30; pauses a running clock first)
Home / guest goal	Home Score Up / Guest Score Up	set_home_score_up / set_guest_score_up
Home / guest goal −1	–	set_home_score_down / set_guest_score_down
Set a score	–	set_home_score / set_guest_score
Shot clock first / second value / Clear	Shot Clock Reset / Shot Clock 2 Reset / Shot Clock Clear	shotclock (reset1, reset2, clear)
Period	–	click (period_1 ... period_4, penalty)
Add / cancel a penalty	–	penalty_add / penalty_cancel
Shoot-out mark / clear	–	shootout / shootout_clear
Timeout start / correct the count	–	timeout_start / timeout_set
Team names, lower lines	–	set_home_team, set_guest_team, line_text_1, line_text_2
Display mode	–	click (st, sp, ad, ck)

The remote follows the same rules as the panel: the timeout commands are ignored while the clock runs, and a goal from the remote applies End Penalty On Goal and Stop Chronometer on Goal. The keyboard shortcuts work only after you switch them on in the Keyboard Hook Manager.

6. Disciplines and Match Rules

waterBoard 7 covers four disciplines: water polo, canoe polo, underwater rugby and underwater hockey. Each discipline comes with factory values for the periods, the penalties, the goal rules, the timeouts and the shot clock, and every value can be changed in the Match Rules window. This chapter explains the window, every setting, the factory values of each discipline and what happens when you change the rules during a match.

6.1 Opening Match Rules

Open the Match Rules window with the discipline button on the Game tab: the small button above the centre logo that shows the discipline, for example "Water Polo". The window is called "Period & Penalty Settings". The button is always available, also while the clock runs, but read section 6.8 before you change the rules during a match.

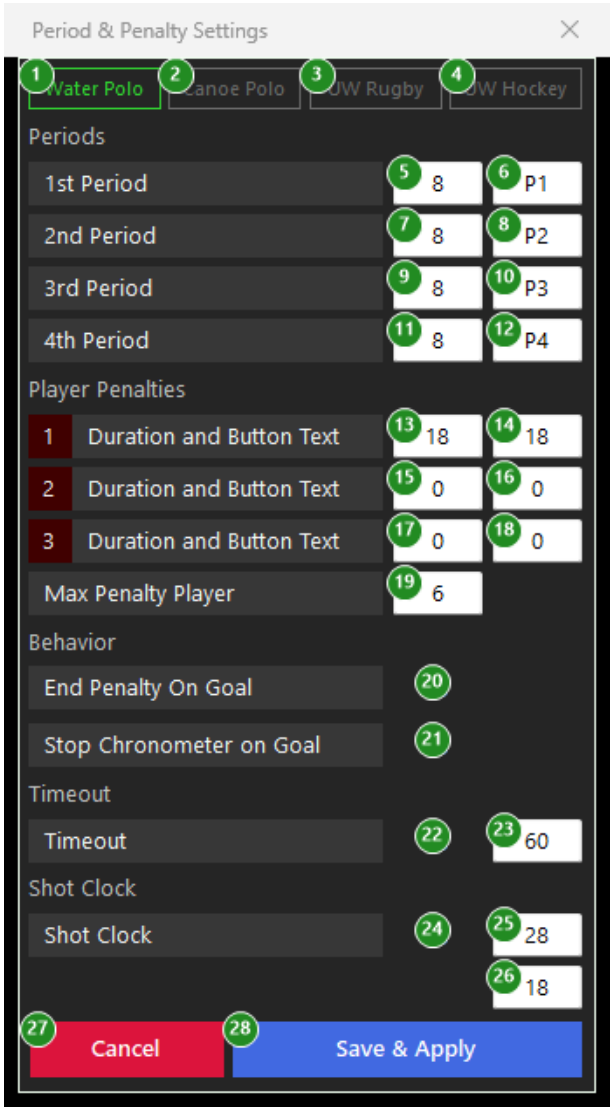


Figure 20. The Match Rules window ("Period & Penalty Settings") with the factory values of water polo.

No.	Control	Name	What It Does
1	Water Polo	**Water Polo**	Loads the factory values of water polo into every field (not saved until Save & Apply).
2	Canoe Polo	**Canoe Polo**	Loads the factory values of canoe polo into every field (not saved until Save & Apply).
3	UW Rugby	**UW Rugby**	Loads the factory values of underwater rugby into every field (not saved until Save & Apply).
4	UW Hockey	**UW Hockey**	Loads the factory values of underwater hockey into every field (not saved until Save & Apply).
5	8	**1st Period: Minutes**	The length of the first period in minutes.
6	P1	**1st Period: Text**	The text of the first period button and the period name on the board. Empty hides the button.
7	8	**2nd Period: Minutes**	The length of the second period in minutes.

No.	Control	Name	What It Does
8	P2	**2nd Period: Text**	The text of the second period button and the period name on the board. Empty hides the button.
9	8	**3rd Period: Minutes**	The length of the third period in minutes.
10	P3	**3rd Period: Text**	The text of the third period button. Empty hides the button (two-half disciplines).
11	8	**4th Period: Minutes**	The length of the fourth period in minutes.
12	P4	**4th Period: Text**	The text of the fourth period button. Empty hides the button (two-half disciplines).
13	18	**Penalty 1: Duration**	The length of the first penalty button in seconds (18 in water polo). 0 hides the button.
14	18	**Penalty 1: Button Text**	The text on the first penalty button. Must not be empty.
15	0	**Penalty 2: Duration**	The length of the second penalty button in seconds. 0 hides the button.
16	0	**Penalty 2: Button Text**	The text on the second penalty button (0 when unused). Must not be empty.
17	0	**Penalty 3: Duration**	The length of the third penalty button in seconds. 0 hides the button.
18	0	**Penalty 3: Button Text**	The text on the third penalty button (0 when unused). Must not be empty.
19	6	**Max Penalty Player**	How many penalties of one team count down at the same time (at least 1); further ones wait.
20	☑	**End Penalty On Goal**	On: a goal ends penalties. Water polo: all exclusions of both teams; other disciplines: the oldest penalty of the conceding team.
21	☑	**Stop Chronometer on Goal**	On: a goal pauses the running clock and resets the shot clock to its first value.
22	☑	**Timeout (on / off)**	Off hides the timeout area of the Game tab.
23	60	**Timeout Length**	The length of a timeout in seconds.
24	☑	**Shot Clock (on / off)**	Off hides the shot clock on the Game tab and on the board.
25	28	**Shot Clock First Value**	The first shot-clock value in seconds (right reset button; also used after a goal).
26	18	**Shot Clock Second Value**	The second shot-clock value in seconds (left reset button).
27	Cancel	**Cancel**	Closes the window without saving.
28	Save & Apply	**Save & Apply**	Saves the values and applies them to the Game tab at once; with the clock standing the panel returns to the first period.

Part	What It Does
Discipline buttons	Water Polo, Canoe Polo, UW Rugby, UW Hockey. A click loads the factory values of that discipline into every field. The discipline in use is green.
Periods	The length in minutes and the button text of up to four periods.
Player Penalties	Up to three penalty buttons (duration in seconds and button text) and Max Penalty Player.
Behavior	End Penalty On Goal and Stop Chronometer on Goal.
Timeout	Timeouts on or off, and the length of a timeout in seconds.
Shot Clock	Shot clock on or off, and its first and second value in seconds.
Cancel	Closes the window without saving.
Save & Apply	Saves the values in start.xml and applies them to the Game tab at once (section 6.8).

Nothing changes until you click Save & Apply. The discipline buttons only fill in the fields, and every field stays editable after that.

The program keeps one set of rules: the values saved last. When you choose another discipline, its factory values are loaded and the changes you made for the previous discipline are not kept. When you open the window again, it shows the saved values, not the factory values.

6.2 Water Polo

Water polo is the factory discipline. It is played in four periods of 8 minutes with a stopped clock (the clock stops on every whistle and on every goal).

- Periods: P1, P2, P3, P4, 8 minutes each.
- Exclusion: one penalty button "18" (18 seconds). Max Penalty Player 6, so all exclusions of a team count down at the same time.
- End Penalty On Goal: on. A goal ends all exclusions of both teams.
- Stop Chronometer on Goal: on. A goal pauses the clock and resets the shot clock to 28.
- Timeouts: on, 60 seconds; 2 per team in the match.
- Shot clock: on, 28 seconds, second value 18 seconds.

The water polo panel is shown in chapter 5.

> **Note:** The panel cannot know when an excluded team regains the ball. When a water polo exclusion ends early for that reason, cancel the row with its X (chapter 5.7).

6.3 Canoe Polo

Canoe polo is played in two halves of 10 minutes.

- Periods: H1 and H2, 10 minutes each. The 3rd and 4th period have no text, so their buttons are hidden.
- Suspension: one penalty button "2" (120 seconds). Max Penalty Player 2.
- End Penalty On Goal: on. A goal ends the oldest suspension of the team that conceded it.

- Stop Chronometer on Goal: on.
- Timeouts: off (the length stays 60 seconds, ready when you switch timeouts on). The timeout area of the panel is hidden. When switched on, each team has 1 timeout in the match.
- Shot clock: on, 60 seconds; second value 0.

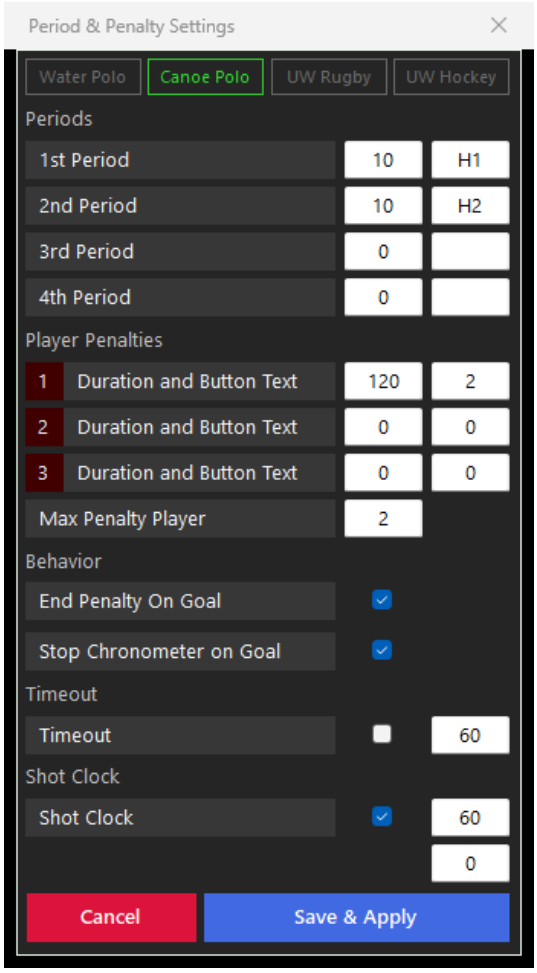


Figure 21. The factory values of canoe polo: timeouts off, shot clock 60 / 0.

Board Output **Control Panel**

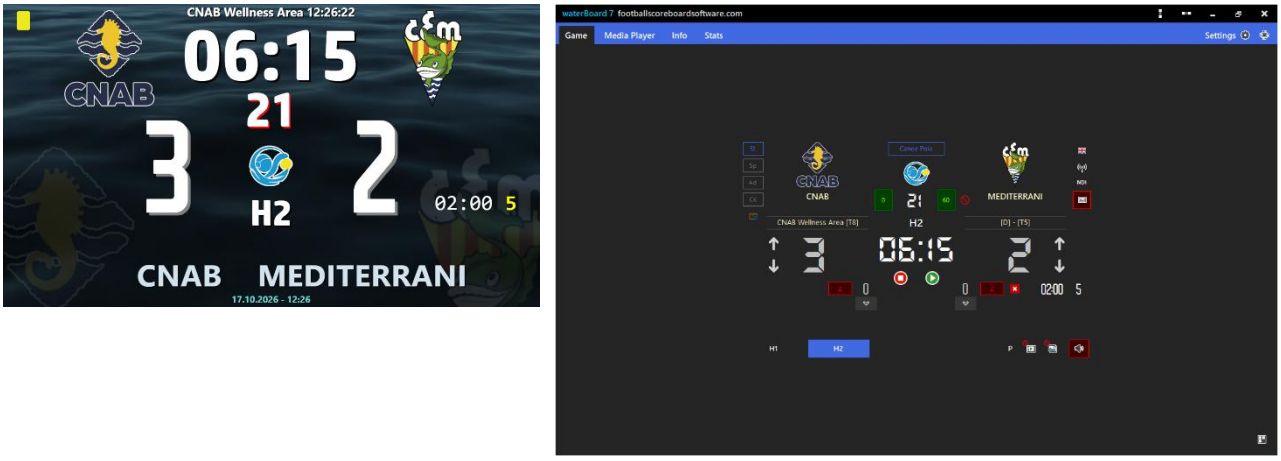


Figure 22. Canoe polo in the second half: two half buttons, a single "2" penalty button, the shot clock 60 / 0 and no timeout area. MEDITERRANI no. 5 serves a 2-minute suspension.

The second shot clock button shows 0 in canoe polo. It sets the shot clock to 0, like Clear. If your competition uses a reduced value, enter it as the second value.

6.4 Underwater Rugby

Underwater rugby is played in two halves of 15 minutes with a stopped clock.

- Periods: H1 and H2, 15 minutes each.
- Penalty: one penalty button "2" (120 seconds). Max Penalty Player 3.
- End Penalty On Goal: on. A goal ends the oldest penalty of the team that conceded it.
- Stop Chronometer on Goal: on.
- Timeouts: on, 60 seconds; 1 per team in every period. The count starts again when you click a period button.
- Shot clock: off. The panel hides the shot clock and the board shows none.

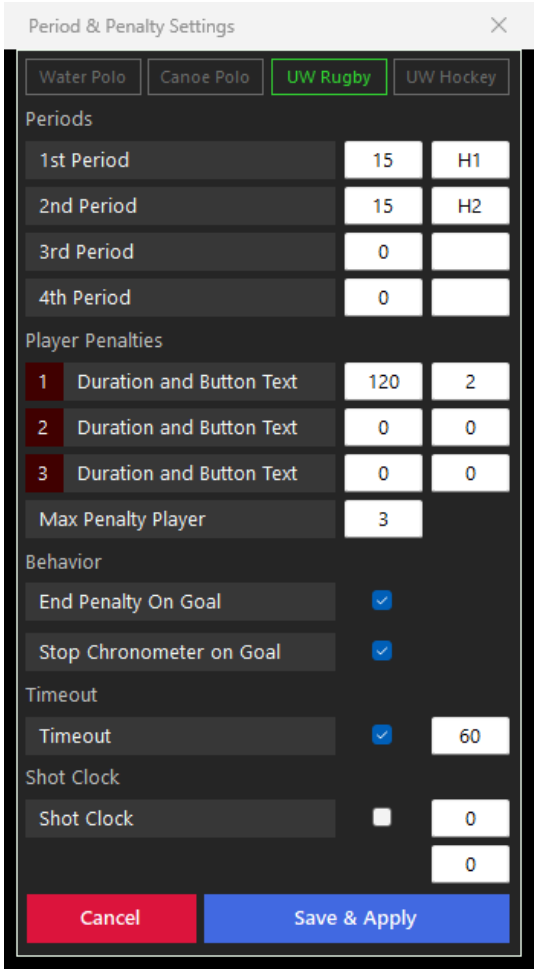


Figure 23. The factory values of underwater rugby.

Board Output **Control Panel**

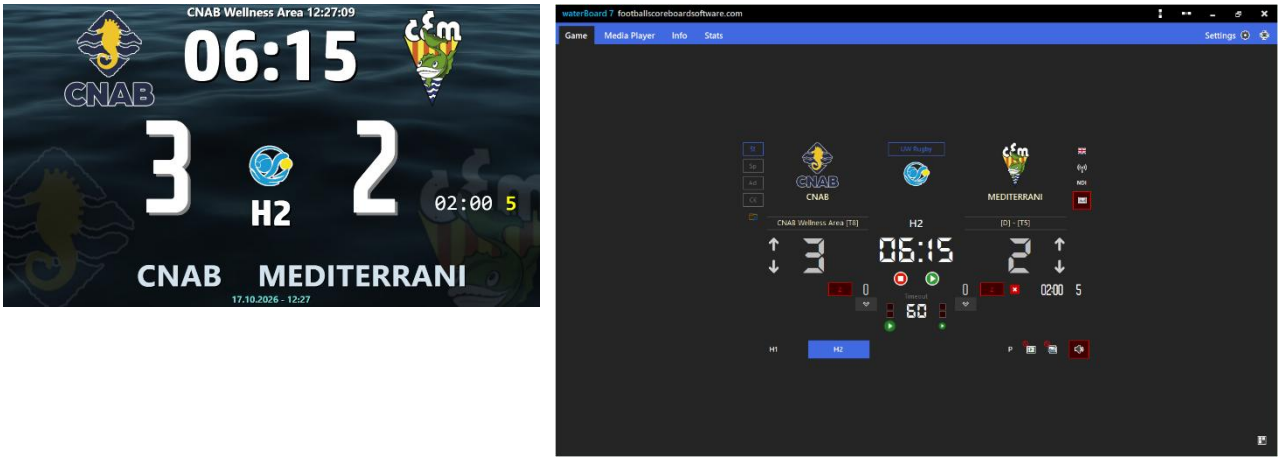


Figure 24. Underwater rugby in the second half: no shot clock on the panel or the board; the timeout area is shown.

6.5 Underwater Hockey

Underwater hockey is played in two halves of 15 minutes with a running clock: the clock is not stopped by a goal.

- Periods: H1 and H2, 15 minutes each.
- Penalties: three penalty buttons "1" (60 seconds), "2" (120 seconds) and "5" (300 seconds). Max Penalty Player 3.
- End Penalty On Goal: off. A goal does not end a penalty.
- Stop Chronometer on Goal: off (running clock).
- Timeouts: on, 60 seconds; 1 per team in every half. The count starts again when you click a period button.
- Shot clock: off.

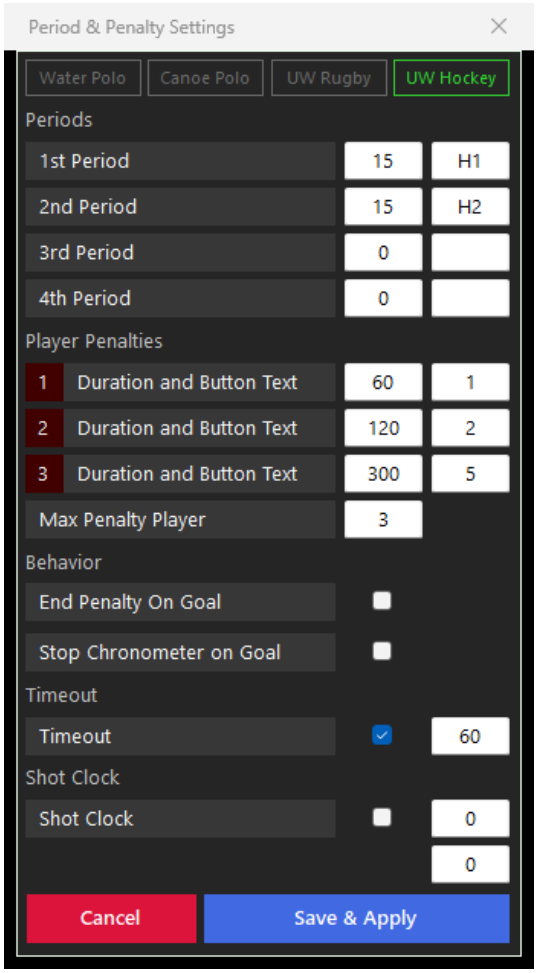


Figure 25. The factory values of underwater hockey: three penalty lengths, running clock.

Board Output **Control Panel**

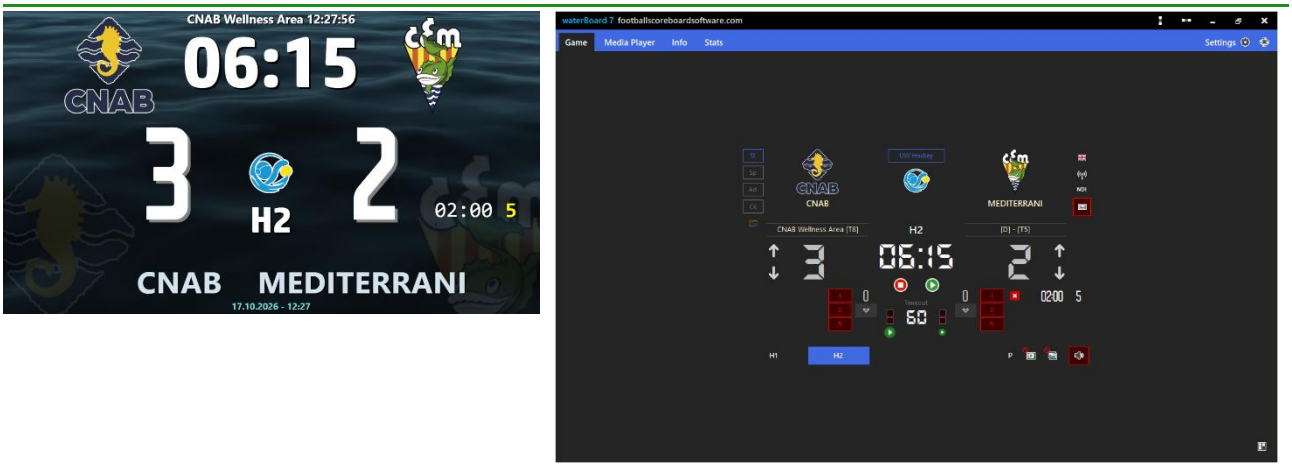


Figure 26. Underwater hockey: the 1, 2 and 5 minute penalty buttons of each team, no shot clock.

> **Note:** With a running clock the program does not stop the clock by itself at any time of the match. If your competition stops the clock in certain phases, for example at the end of the second half, pause and start the clock by hand.

If you switch End Penalty On Goal on in underwater hockey, a 5-minute (300-second) penalty is not ended by a goal: the program ends the oldest running penalty of that team that is not a 5-minute one.

6.6 Every Setting Explained

Setting	Values	What It Does
1st Period ... 4th Period: minutes	Whole minutes	The length of the period. The clock is set to it when you click the period button or reset the clock with the second Stop.
1st Period ... 4th Period: text	Free text, for example P1, H1	The text of the period button on the panel and the period name on the board. An empty text hides that period button: this is how the two-half disciplines have only H1 and H2.
Duration and Button Text (rows 1 to 3): duration	Seconds	The length of the penalty of that button, for example 18 or 120. 0 hides the button.
Duration and Button Text (rows 1 to 3): text	Short text	The text on the penalty button, for example 18 or 2. Keep a text in every row, also in unused rows (0).
Max Penalty Player	1 or more	The number of penalties of one team that count down at the same time. Further penalties wait in the list and start when a running one ends.
End Penalty On Goal	On / off	Water polo: a goal ends all exclusions of both teams. Other disciplines: a goal ends the oldest penalty of the team that conceded it (a 5-minute penalty is kept). It also works when the clock was stopped before the goal was entered.
Stop Chronometer on Goal	On / off	A goal pauses the running clock and resets the shot clock to its first value. Off: the clock runs on after a goal.
Timeout (check box)	On / off	Off hides the timeout area of the panel.
Timeout (seconds)	Seconds	The length of a timeout, shown in the countdown box of the panel.
Shot Clock (check box)	On / off	Off hides the shot clock buttons and countdown on the panel, and the board shows no shot clock.
Shot Clock (first value)	Seconds	The value of the right reset button, used also after a goal with Stop Chronometer on Goal.
Shot Clock (second value)	Seconds	The value of the left reset button, for example 18 in water polo.

The number of timeouts per team is not a setting: it follows the discipline (water polo 2 per match, canoe polo 1 per match, underwater rugby and underwater hockey 1 per period or half; chapter 5.8).

How the window checks the values:

- A number box that holds no number becomes 0 when you leave it. Max Penalty Player is at least 1.
- If a period length is not a whole number when you click Save & Apply, the program keeps the previous lengths of all four periods.

- If a penalty duration is not a whole number or a button text is empty, the program does not save your penalty values: it saves a single 120-second button "2" instead. Check the penalty buttons on the Game tab after Save & Apply.

> **Note:** Some of these values also appear in Settings > Screen Properties (chapter 17). Use the Match Rules window to change the rules of a match.

6.7 Defaults per Discipline

These are the factory values that the discipline buttons load.

Setting	Water Polo	Canoe Polo	UW Rugby	UW Hockey
Periods	4 × 8 min (P1–P4)	2 × 10 min (H1, H2)	2 × 15 min (H1, H2)	2 × 15 min (H1, H2)
Penalty buttons (seconds / text)	18 / "18"	120 / "2"	120 / "2"	60 / "1", 120 / "2", 300 / "5"
Max Penalty Player	6	2	3	3
End Penalty On Goal	On	On	On	Off
Stop Chronometer on Goal	On	On	On	Off (running clock)
Timeout	On, 60 s	Off (60 s)	On, 60 s	On, 60 s
Timeouts per team (fixed)	2 per match	1 per match	1 per period	1 per half
Shot Clock	On, 28 / 18	On, 60 / 0	Off	Off

The factory values follow the rule books listed in Appendix A, with the points marked there as unconfirmed. Check every value against the regulations of your competition before the first match.

6.8 Changing Rules During a Match

Save & Apply applies the new values at once. It does not reset the score, the team names, the logos or the penalty lists, but it does reset the period:

- When the match clock stands still, the panel goes back to the first period: the first period button turns blue and the clock is set to the full length of the first period. In underwater rugby and underwater hockey the timeouts of both teams start again from 0.
- The shot clock box is set to the first shot-clock value, and the timeout box to the timeout length.
- The period buttons, the penalty buttons, the shot clock and the timeout area show or hide according to the new values.
- Max Penalty Player, the goal rules and the number of timeouts of the discipline apply to the next action. Penalties already in a list keep their time.

To change a rule in the middle of a match:

1. Pause the clock and note the remaining time and the period.
2. Open Match Rules, change the value and click Save & Apply.
3. Click the button of the period in play. The clock shows the full period length.
4. Click in the clock, type the remaining time and press Start when play restarts (chapter 5.4).
5. Check the shot clock and the timeout lamps, and correct them if needed.

Note: Choose the discipline before the match. A discipline button loads all factory values, including the period texts and lengths, and replaces every value you typed before.

7. Display Modes and Board Output

waterBoard 7 has four display modes. Each mode has its own board window and its own scoreboard design (chapter 8):

Mode	Use	Output	Page
St, Standard	Full-screen scoreboard on a screen, projector or LED wall	The board window	–
Sp, Sponsored	The Standard scoreboard with a sponsor band at the top or the bottom	The board window, split into scoreboard and band	Sp tab
Ad, Advertisement	A scoreboard column, up to two banners and a large area for video, a camera or a screen capture	The Ad board window	Ad tab
CK, Chroma Key	A compact scorebug and lower thirds on a key colour, for a vision mixer or streaming software	The CK board window	CK tab

Switch the mode with the St, Sp, Ad and CK buttons on the Game tab (tooltips Standard View, Sponsored View, Advertisement View, Chroma Key View), from the remote control (chapter 13) or with the HTTP command click with the value St, Sp, Ad or Ck (chapter 14). The active button is shown in blue. The choice is saved in start.xml and comes back at the next start. In Sp, Ad and CK a further tab with the name of the mode appears in the menu bar, next to Stats; it opens the page of that mode. In St this tab is hidden.

When you switch the mode:

- the working scoreboard design of the mode you leave is kept, and the one of the new mode comes back (chapter 8.3);
- the board window of the old mode is hidden and the one of the new mode is shown;
- a video playing on the scoreboard from the Media Player tab is stopped;
- every source running on the Ad board (playlist, banner playlists, camera, screen capture) stops when you leave Ad, and every source on the CK board stops when you leave CK. They do not restart by themselves when you come back: start them again on the page.

7.1 Board Position and Size

All board windows use the position and size of Settings > Screen Properties (chapter 17 lists every row of that page):

Row	Meaning	Factory value
L: Left	x position of the board window on the Windows desktop, in pixels	0
T: Top	y position of the board window, in pixels	0
W: Width	Board width in pixels. A larger value than Max Resolution is cut to Max Resolution.	960
H: Height	Board height in pixels. A larger value than Max Resolution is cut to Max Resolution.	540
Max Resolution	The largest width or height the licence allows (read only)	From the licence

A value is saved in start.xml when you leave the cell, and the board windows are moved and resized at once.

The board windows have no frame and no title bar. They are:

Window	Shown in	Content
Board	St and Sp	The scoreboard; in Sp also the sponsor band
Ad board	Ad	Scoreboard column, 1. Banner, 2. Banner and the multimedia area
CK board	CK	Scorebug and lower thirds over the key colour (or over a running source)

The Media Player of the main menu and the info screens use windows of their own at the same position and size (chapters 9 and 12).

> **Note:** Negative values of L and T are treated as 0. A board therefore cannot be placed on a monitor that lies to the left of or above the main monitor in the Windows display layout. Arrange the displays in Windows so that the board monitor lies to the right of or below the main monitor.

7.2 Standard (St)

Board Output **Control Panel**

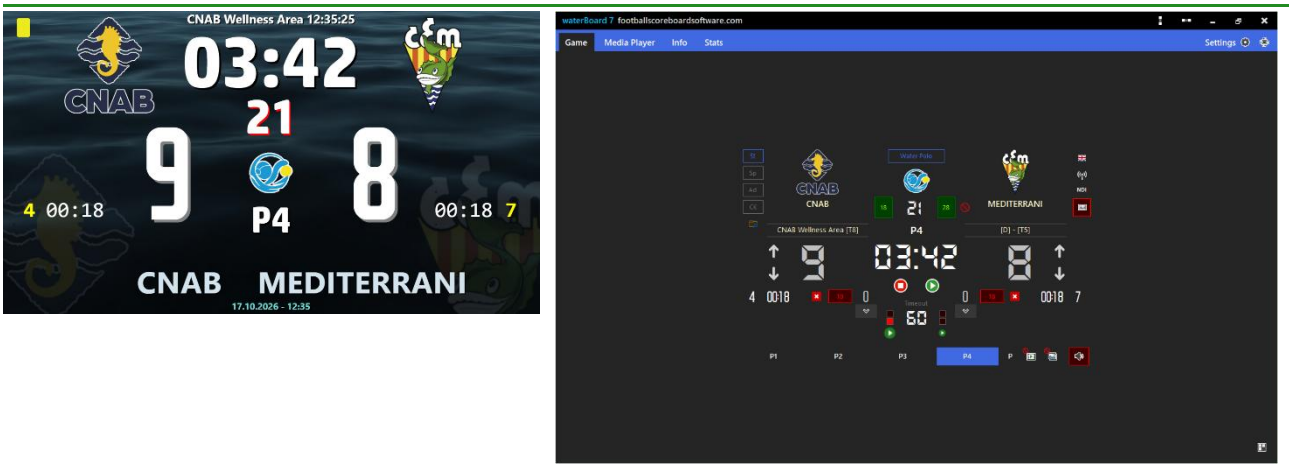


Figure 27. The Standard board and the Game tab with the St button active.

The Standard board needs no page of its own: everything is on the Game tab (chapter 5). The board shows the team logos and names, the scores, the match clock, the shot clock, the period, the running exclusions of each team with the cap number and the remaining time, the timeout marks and the lower lines. Its look comes from the design selected in the design gallery (chapter 8).

7.3 Sponsored (Sp)

The Sponsored board is the Standard board with a sponsor band. The band shows the sponsor logos sliding through, or a scrolling text. The scoreboard is not covered by the band: it is drawn in the remaining height of the board window.



Figure 28. The Sponsored board with the sponsor logos in the band at the bottom.

The Sp page has three tabs: Sponsors, Scrolling Text and Settings. When you open the page, it shows the Scrolling Text tab if the band last showed a text, otherwise the Sponsors tab.

Sponsors

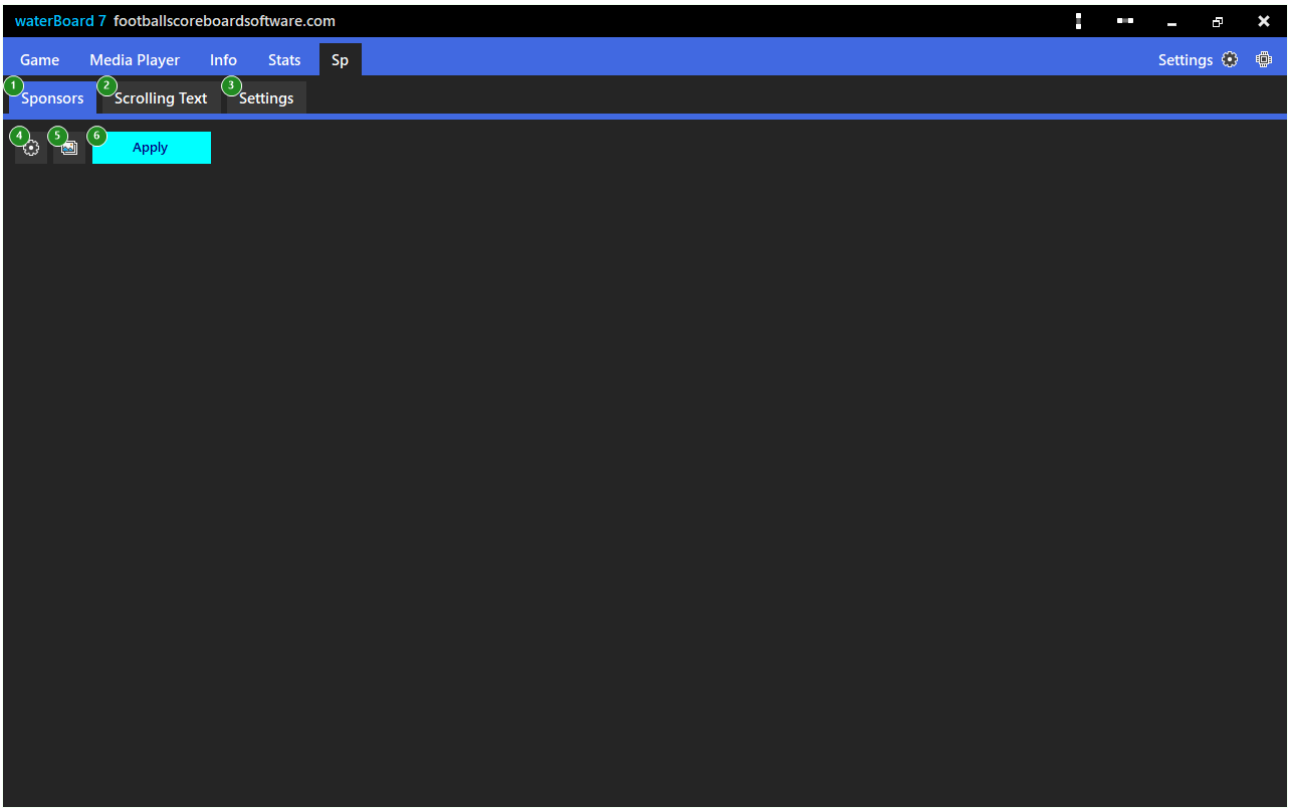


Figure 29. The Sp page: the Sponsors tab.

No.	Control	Name	What It Does
1	Sponsors	**Sponsors (tab)**	Opens the Sponsors tab: the sponsor logos for the band.
2	Scrolling Text	**Scrolling Text (tab)**	Opens the Scrolling Text tab: four text slots for the band.
3	Settings	**Settings (tab)**	Opens the Settings tab: location and height of the sponsor band.
4		**Logo Style (gear)**	Shows or hides the style values of the logo slide: image-height, padding, top, speed, direction.
5		**Sponsor List (photo)**	Opens the sponsor list, where you add, remove and sort the logos.
6	Apply	**Apply**	Lets the logos of the sponsor list slide through the band with the style values shown.

Apply takes the sponsor list (the logos of Info > Sponsors, chapter 12) and lets the logos slide through the band. The photo button opens the sponsor list so that you can add, remove or sort logos; click Apply again afterwards.

The gear button opens the style values of the logo slide. Click a value, type the new one and click the disk button to save the values; Apply uses the values shown.

Value	Meaning	Factory value
image-height	Height of the logos. A number without a unit is a percentage of the band height.	100
padding	Space around each logo (top, right, bottom, left)	0 1vw 0 0
top	Vertical shift of the logos inside the band	0
speed	Speed of the slide	60
direction	Direction of the movement	left

The background colour of the band is the background colour of the Scrolling Text tab (see below).

Scrolling Text

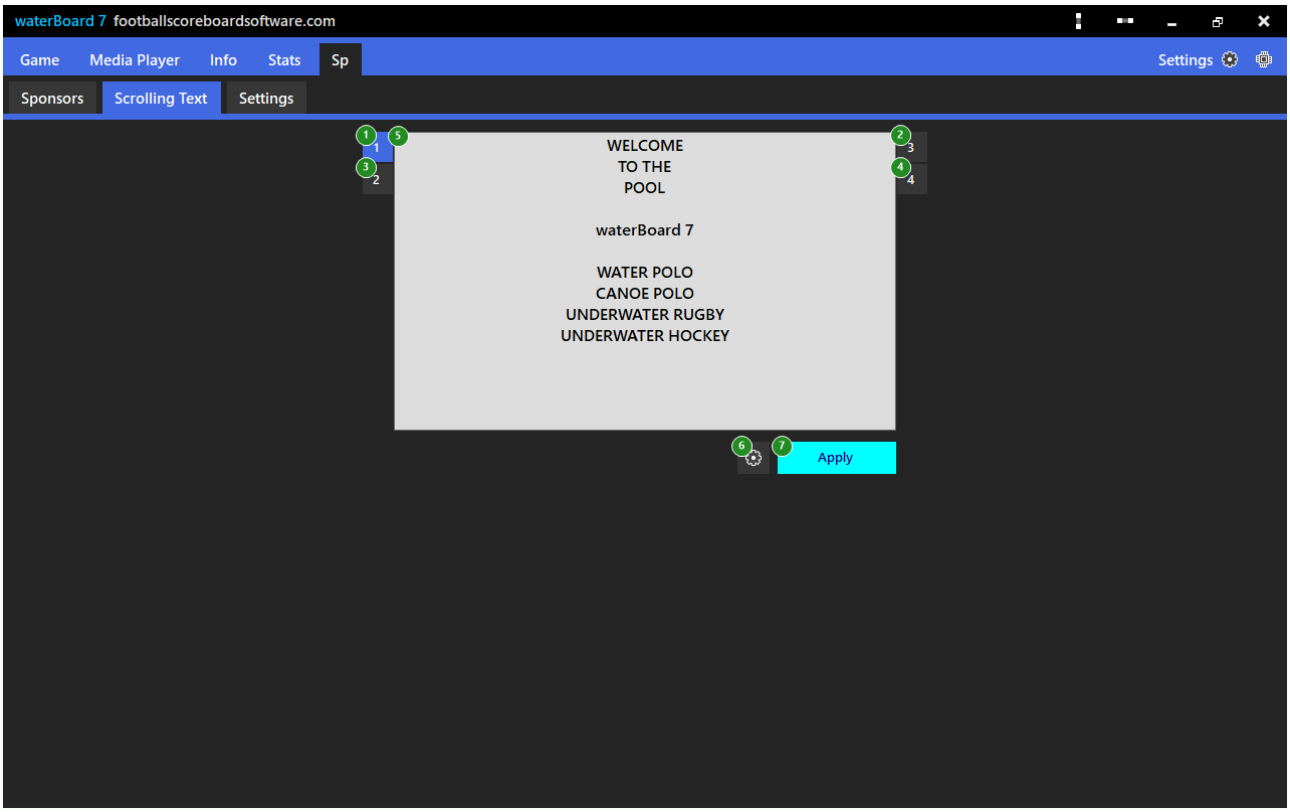
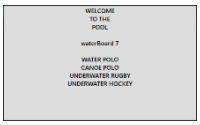


Figure 30. The Sp page: the Scrolling Text tab with text slot 1.

No.	Control	Name	What It Does
1	1	**Text Slot 1**	Selects text slot 1 and shows its text in the box.

No.	Control	Name	What It Does
2		**Text Slot 3**	Selects text slot 3 and shows its text in the box.
3		**Text Slot 2**	Selects text slot 2 and shows its text in the box.
4		**Text Slot 4**	Selects text slot 4 and shows its text in the box.
5		**Text**	The text of the selected slot. Each line becomes one item of the scrolling band.
6		**Text Style (gear)**	Shows or hides the text style values and the three colour boxes (background, odd lines, even lines).
7		**Apply**	Saves the text in the selected slot and lets it scroll through the band at once.

The tab has four text slots, 1 to 4. Each slot keeps its own text. When you open the tab, slot 1 is selected.

1. Click a slot number (1-4). Its text appears in the box.
2. Type the text. Each line becomes one item of the band; the items scroll one after another. An empty line gives a gap.
3. Click Apply. The text is saved in the selected slot and scrolls through the band at once.

The lines are shown in two alternating colours (first, third, fifth line ... in one colour, the others in the second colour), so that, for example, team names and results can be told apart.

> **Note:** On a new installation slot 1 holds a sample text (WELCOME TO THE POOL, waterBoard 7 and the names of the four disciplines). It only shows how the band works: replace it with your own text before you use the band.

The gear button opens the text style. The disk button there saves the values; the three colour boxes open the colour picker (chapter 8.6):

Value	Meaning	Factory value
font-family	Font of the text. A font button appears when you click this row; it opens the font picker.	Segoe UI
font-size	Size of the text; a number without a unit is a percentage of the band height	70
font-weight	normal, bold ...	bold
line-height	Height of a line	90
text-shadow	Shadow of the text, or none	3vh 3vh #777

Value	Meaning	Factory value
padding	Space after each item	0 3vw 0 0
top	Vertical shift of the text inside the band	0
speed	Speed of the scroll	60
direction	Direction of the movement	left
Colour box 1	Background colour of the band (also used behind the sponsor logos)	#06064F (dark blue)
Colour box 2	Colour of the first, third, fifth ... line	#00FFFF (cyan)
Colour box 3	Colour of the second, fourth ... line	#FFFFFF (white)

Settings

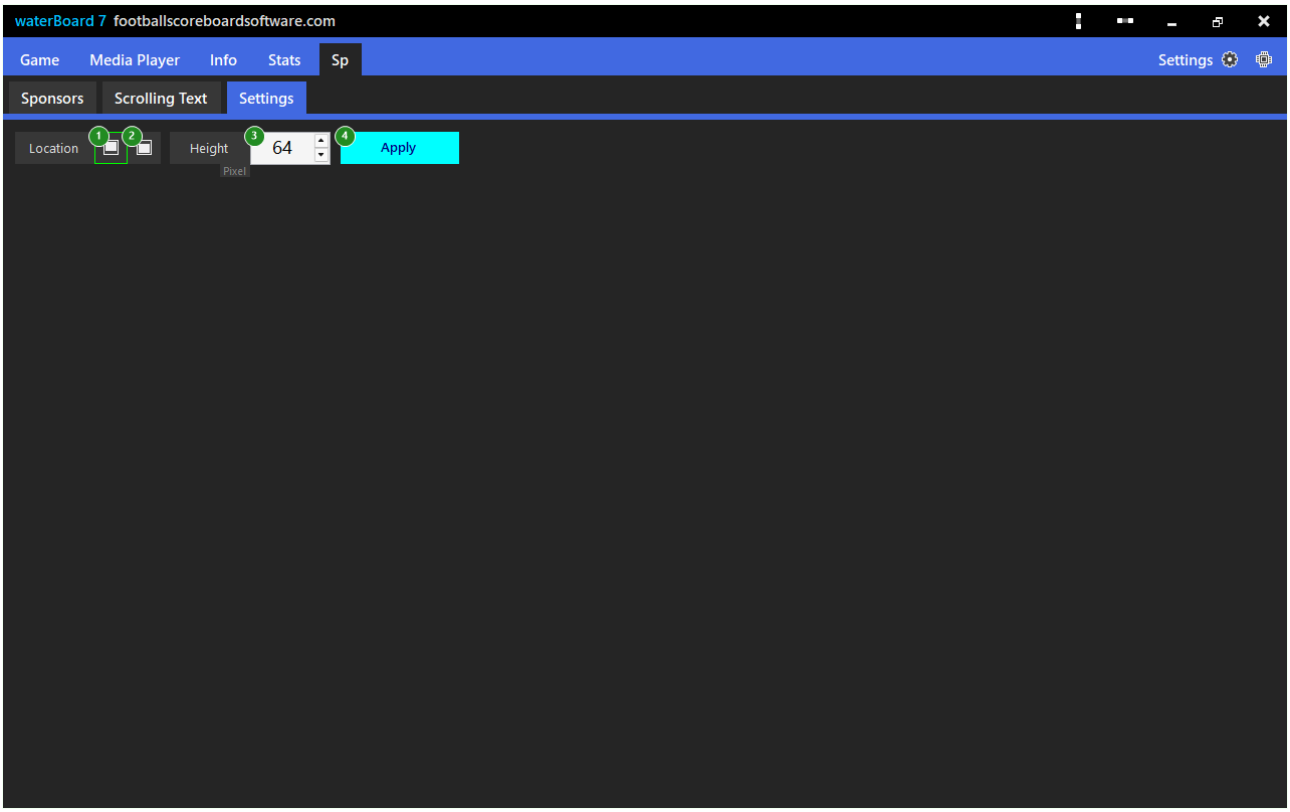


Figure 31. The Sp page: the Settings tab with the position and height of the band.

No.	Control	Name	What It Does
1		**Bottom**	Puts the sponsor band at the bottom of the board (green frame when chosen). Click Apply to use it.

No.	Control	Name	What It Does
2		**Top**	Puts the sponsor band at the top of the board (green frame when chosen). Click Apply to use it.
3		**Height**	Height of the sponsor band in pixels (up to 1920).
4		**Apply**	Saves location and height of the band and redraws the board at once.

Control	What It Does
Location	Two buttons: band at the bottom (left button) or at the top (right button) of the board. The chosen button has a green frame.
Height	Height of the band in pixels (up to 1920)
Apply	Saves the location and height and redraws the board at once

Factory values: Bottom, 64 pixels. The band always shows the content you applied last (logos or text), also after a restart of the program.

7.4 Advertisement (Ad)

The Advertisement board divides the board window into a scoreboard column, up to two banners and a large multimedia area for a video playlist, a camera or a screen capture. The factory layout: scoreboard column on the left (27 % of the width), 2. Banner along the bottom (15 % of the height) with a scrolling text, 1. Banner off.

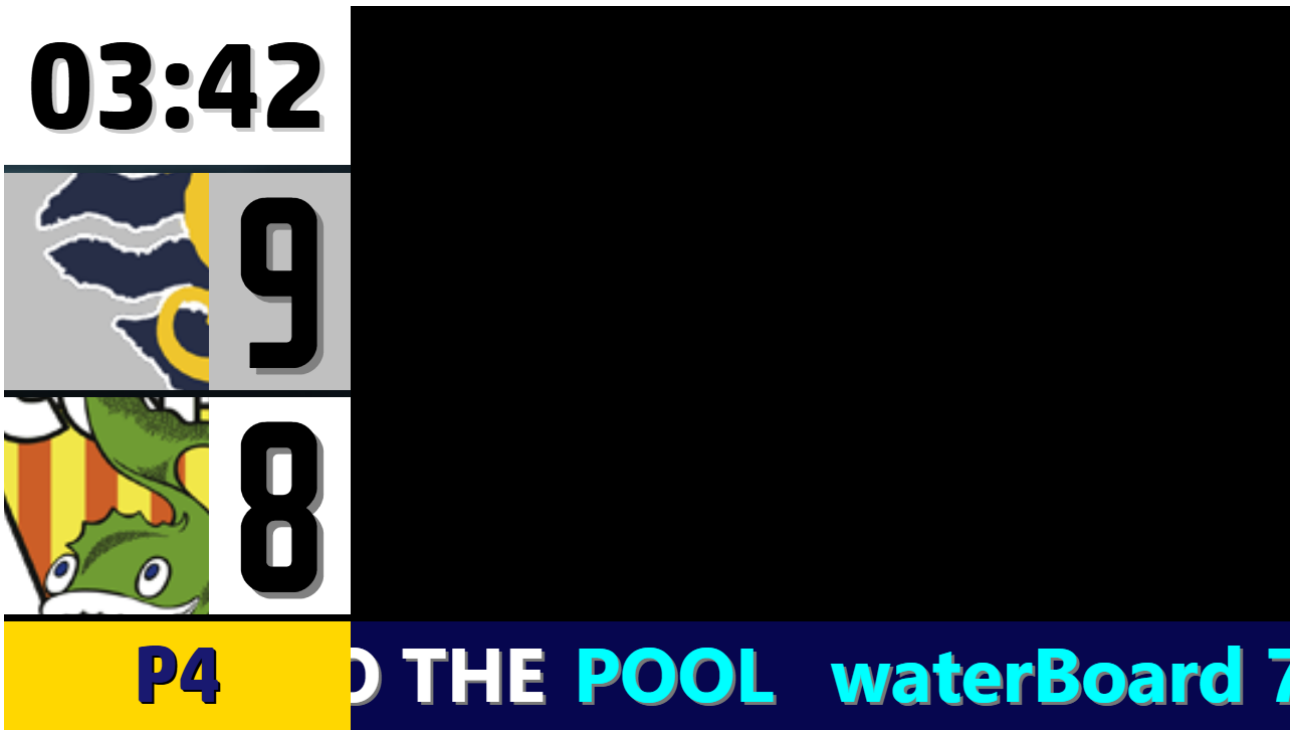


Figure 32. The Advertisement board: scoreboard column on the left, the multimedia area (empty) and 2. Banner with the sample scrolling text.

The Ad page has five tabs:

Tab	What It Does
Media Player	Six playlists of videos and pictures for the multimedia area
Camera	A camera or capture card for the multimedia area
Screen Capture	A part of the PC screen for the multimedia area
Banner	The content of 1. Banner and 2. Banner: sponsor logos, a scrolling text or a playlist
Settings	The layout of scoreboard column, banners and multimedia area

Only one source plays in the multimedia area at a time: starting a playlist stops the camera and the screen capture, showing the camera stops the playlist and the capture, and so on. While a source runs, the tab of that source (Media Player, Camera or Screen Capture) blinks. When you open the Ad page, it shows the tab of the source you started last.

Media Player

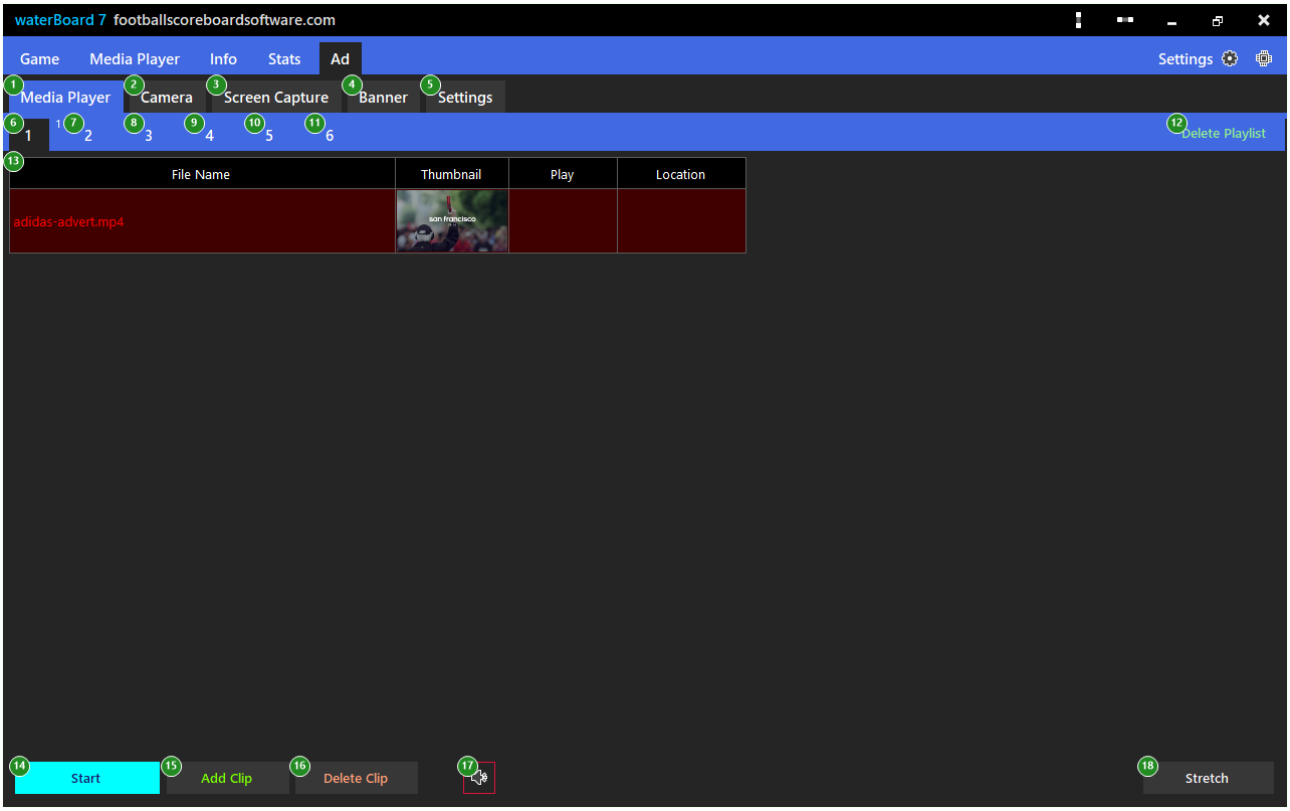
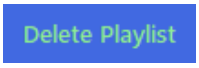
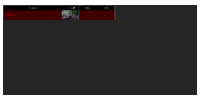
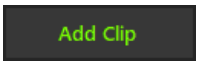
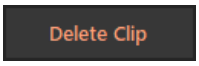


Figure 33. The Ad page: the Media Player tab with playlist 1.

No.	Control	Name	What It Does
1	Media Player	**Media Player (tab)**	Opens the playlists for the multimedia area. The tab blinks while a playlist plays.
2	Camera	**Camera (tab)**	Opens the camera page. The tab blinks while a camera is shown.
3	Screen Capture	**Screen Capture (tab)**	Opens the screen capture page. The tab blinks while a capture runs.
4	Banner	**Banner (tab)**	Opens the content of 1. Banner and 2. Banner.
5	Settings	**Settings (tab)**	Opens the layout values of scoreboard column, banners and multimedia area.
6	1	**Playlist 1**	Selects playlist 1. Not possible while a playlist or clip plays.
7	2	**Playlist 2**	Selects playlist 2.
8	3	**Playlist 3**	Selects playlist 3.
9	4	**Playlist 4**	Selects playlist 4.
10	5	**Playlist 5**	Selects playlist 5.

No.	Control	Name	What It Does
11		**Playlist 6**	Selects playlist 6.
12		**Delete Playlist**	Removes all clips of the selected playlist at once, without a question.
13		**Playlist**	The clips of the playlist with thumbnail, Play button and remaining time. Missing files are red. Drag a row to move it.
14		**Start / Finish**	Start plays the playlist from the selected clip in the multimedia area and repeats it; Finish stops it.
15		**Add Clip**	Adds video, audio or picture files to the selected playlist.
16		**Delete Clip**	Removes the selected clip from the playlist.
17		**Sound**	Switches the sound on (green frame) or off (red frame).
18		**Display Mode**	How the picture fits the multimedia area: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch, ZoomCenter.

Control	What It Does
1 to 6	Selects one of six playlists. The small number next to a playlist number shows how many clips it holds.
Add Clip	Adds one or more video or picture files to the selected playlist
Delete Clip	Removes the selected clip from the playlist
Delete Playlist	Removes all clips of the selected playlist at once, without a question
List	File Name, Thumbnail, Play and Location (remaining time while a clip plays). A clip whose file is missing is marked red and skipped. Drag a row to move it.
Play (in the row)	Plays only the selected clip; the button then shows Stop. After the clip, the area stays empty.
Start / Finish	Start plays the playlist from the selected clip; after the last clip it begins again with the first. Finish stops it.
Loudspeaker	Sound on (green frame) or off (red frame)
Stretch (display mode)	How the picture fits the area: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch, ZoomCenter

Add Clip accepts video, audio and picture files (mp4, mov, mkv, avi, wmv, mp3, jpg, png and others). While a playlist or a clip plays, Add Clip, Delete Clip and Delete Playlist are hidden and the playlist cannot be changed.

> **Note:** Image Play Duration (Settings > Screen Properties) applies to the Media Player of the main menu. For the multimedia area of the Ad and CK boards, use videos, or test the timing of a picture before the match.

From the remote control or with the HTTP command start_playlist_ad_screen you can start an Ad playlist directly; the program switches to the Ad mode first (chapter 14).

Camera

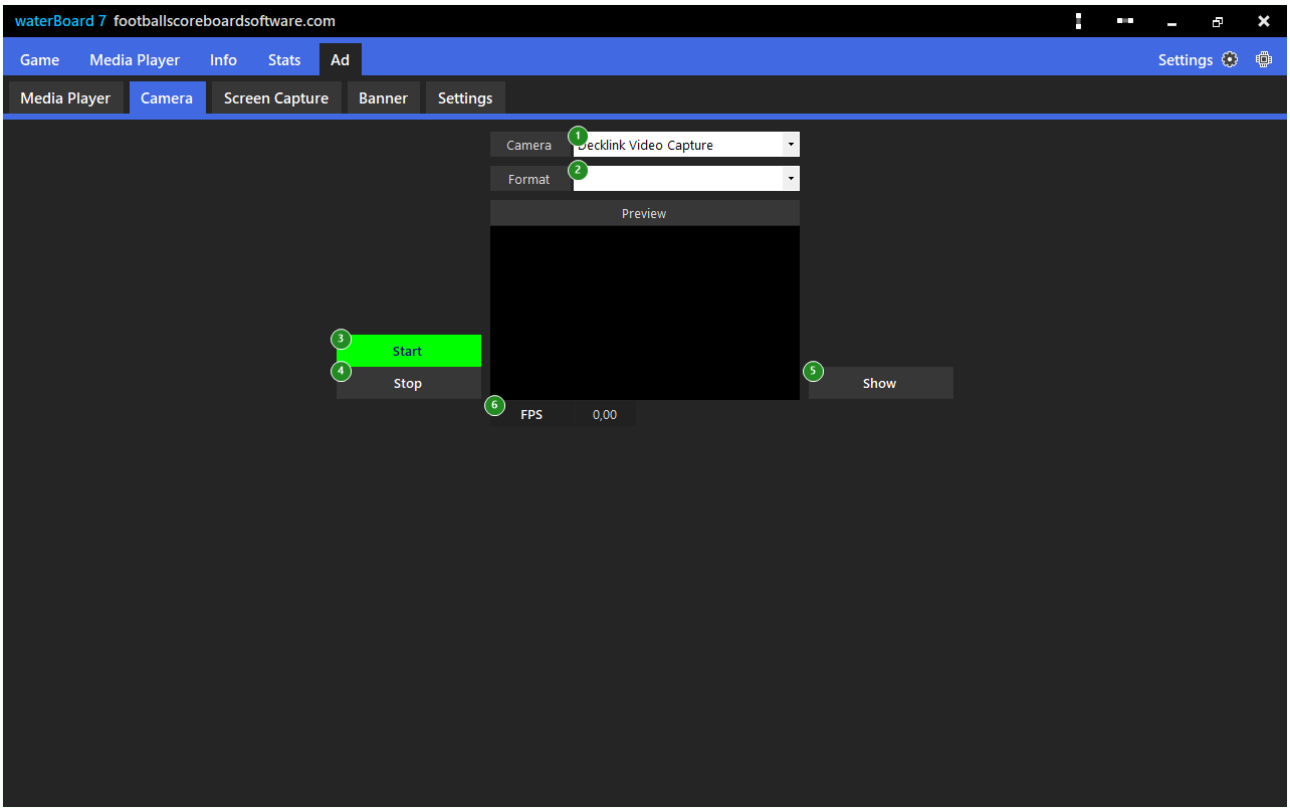


Figure 34. The Ad page: the Camera tab.

No.	Control	Name	What It Does
1	Decklink Video Capture	**Camera**	The video device (webcam, capture card) for the multimedia area.
2		**Format**	Resolution and frame rate of the chosen device.
3	Start	**Start**	Starts the chosen camera in the Preview.
4	Stop	**Stop**	Stops the camera and clears the multimedia area.
5	Show	**Show**	Puts the camera picture into the multimedia area; a running playlist or capture stops.
6	FPS	**FPS**	Refreshes the frame rate shown next to it.

1. Choose the device in Camera. The list shows the video devices of Windows (webcams, capture cards).
2. Choose the resolution and frame rate in Format.

3. Click Start. The picture appears in the Preview, and FPS shows the frames per second.
4. Click Show to put the picture into the multimedia area.
5. Click Stop to end it.

If no camera or format is chosen, Start reports "Please select a camera and format." After a click on Start, Stop or Show the three buttons are hidden for a moment while the device starts or stops. Click FPS to refresh the frame rate shown.

Screen Capture

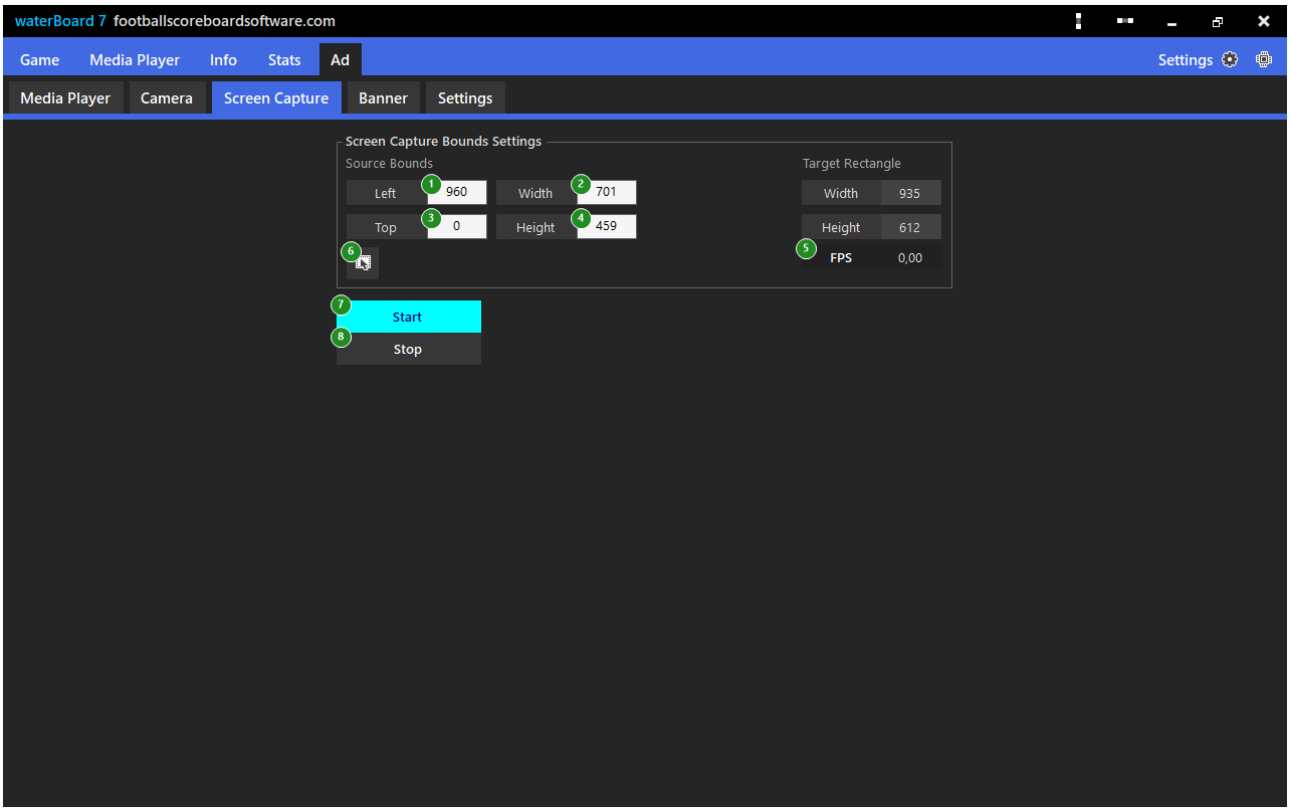


Figure 35. The Ad page: the Screen Capture tab.

No.	Control	Name	What It Does
1	960	**Left**	Left edge of the captured screen area, in desktop pixels.
2	701	**Width**	Width of the captured screen area in pixels.
3	0	**Top**	Top edge of the captured screen area, in desktop pixels.
4	459	**Height**	Height of the captured screen area in pixels.
5	FPS	**FPS**	Refreshes the frame rate shown next to it.
6		**Select Rectangle**	Lets you draw the area to capture on the screen; the four values are filled in.
7	Start	**Start**	Saves the bounds and shows the screen area in the multimedia area; a running playlist or camera stops.
8	Stop	**Stop**	Stops the screen capture and clears the multimedia area.

The screen capture copies a rectangle of the PC desktop into the multimedia area, for example a browser window with live results.

1. Enter the Source Bounds: Left, Top, Width and Height in pixels of the Windows desktop. Or click the rectangle button (Select Rectangle) and draw the area on the screen.
2. Click Start. The area appears on the board; FPS shows the frame rate. Target Rectangle shows the size of the multimedia area.
3. Click Stop to end it.

The bounds are saved when you click Start and come back the next time.

Banner

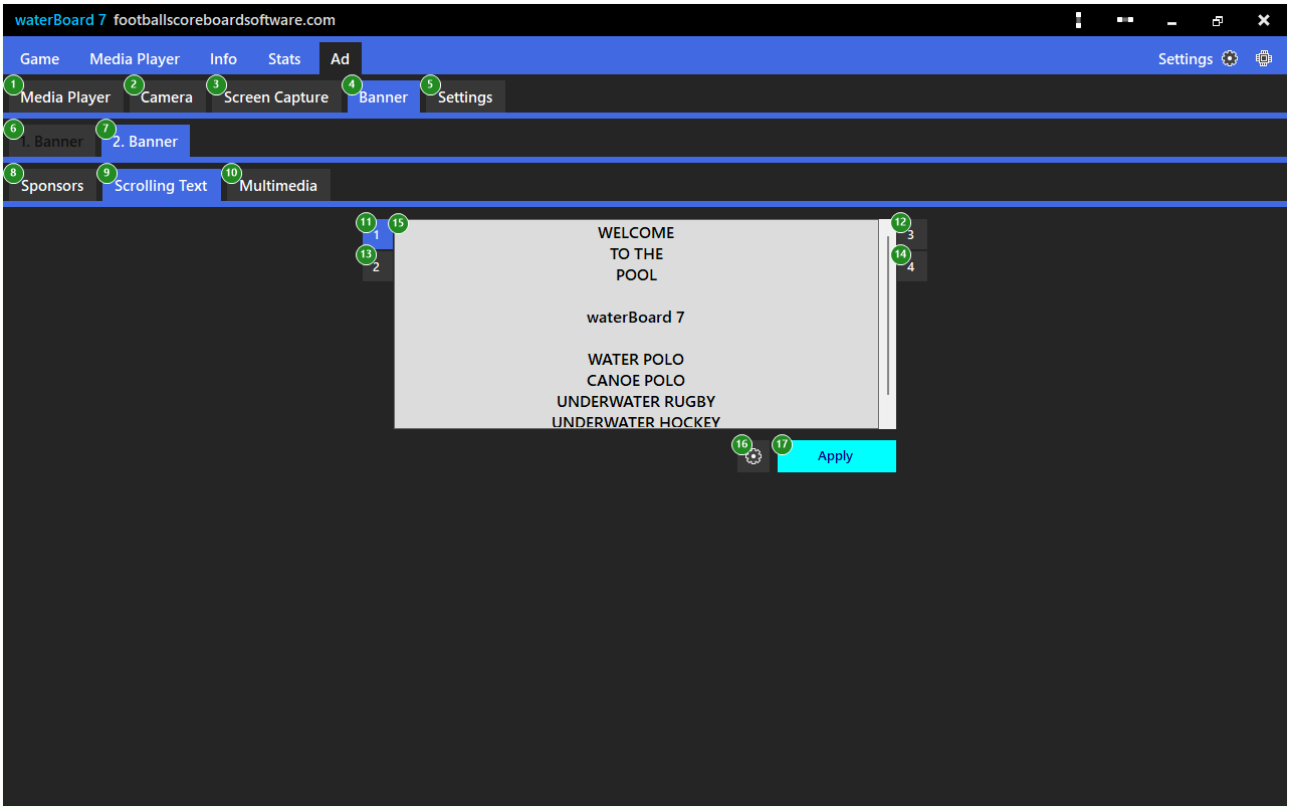
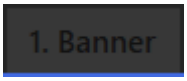
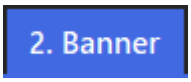
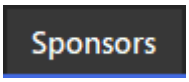
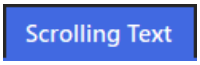
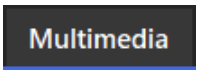
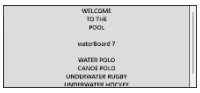


Figure 36. The Ad page: the Banner tab, 2. Banner with the Scrolling Text.

No.	Control	Name	What It Does
1	Media Player	**Media Player (tab)**	Opens the playlists for the multimedia area. The tab blinks while a playlist plays.
2	Camera	**Camera (tab)**	Opens the camera page. The tab blinks while a camera is shown.
3	Screen Capture	**Screen Capture (tab)**	Opens the screen capture page. The tab blinks while a capture runs.
4	Banner	**Banner (tab)**	Opens the content of 1. Banner and 2. Banner.
5	Settings	**Settings (tab)**	Opens the layout values of scoreboard column, banners and multimedia area.

No.	Control	Name	What It Does
6		**1. Banner**	Opens the content of 1. Banner. Disabled while 1. Banner is off.
7		**2. Banner**	Opens the content of 2. Banner. Disabled while 2. Banner is off.
8		**Sponsors (banner)**	Shows the sponsor logo slide of this banner.
9		**Scrolling Text (banner)**	Shows the four text slots of this banner.
10		**Multimedia (banner)**	Shows the six playlists of this banner.
11		**Text Slot 1**	Selects text slot 1 of this banner.
12		**Text Slot 3**	Selects text slot 3 of this banner.
13		**Text Slot 2**	Selects text slot 2 of this banner.
14		**Text Slot 4**	Selects text slot 4 of this banner.
15		**Text**	The text of the selected slot. Each line becomes one item of the scrolling banner.
16		**Text Style (gear)**	Shows or hides the text style values and colour boxes of this banner.
17		**Apply**	Saves the text in the selected slot and lets it scroll through the banner.

The tab has a page for 1. Banner and one for 2. Banner. The page of a banner that is switched off in Settings (visible No, or size 0) is disabled. Each banner page has three tabs:

Tab	What It Does
Sponsors	Apply lets the sponsor logos slide through the banner, as on the Sp page (7.3). The photo button opens the sponsor list, the gear button the style values.
Scrolling Text	Four text slots with Apply, gear (text style) and colour boxes, as on the Sp page (7.3). Each banner keeps its own texts and style.
Multimedia	Six playlists for the banner, with the same buttons as the Media Player tab. Each banner has its own playlists.

The banner shows the content you applied or started last, also after a restart. On a new installation 2. Banner shows the same sample text as the scrolling text of the Sp mode (WELCOME TO THE POOL ...); replace it with your own text.

Settings

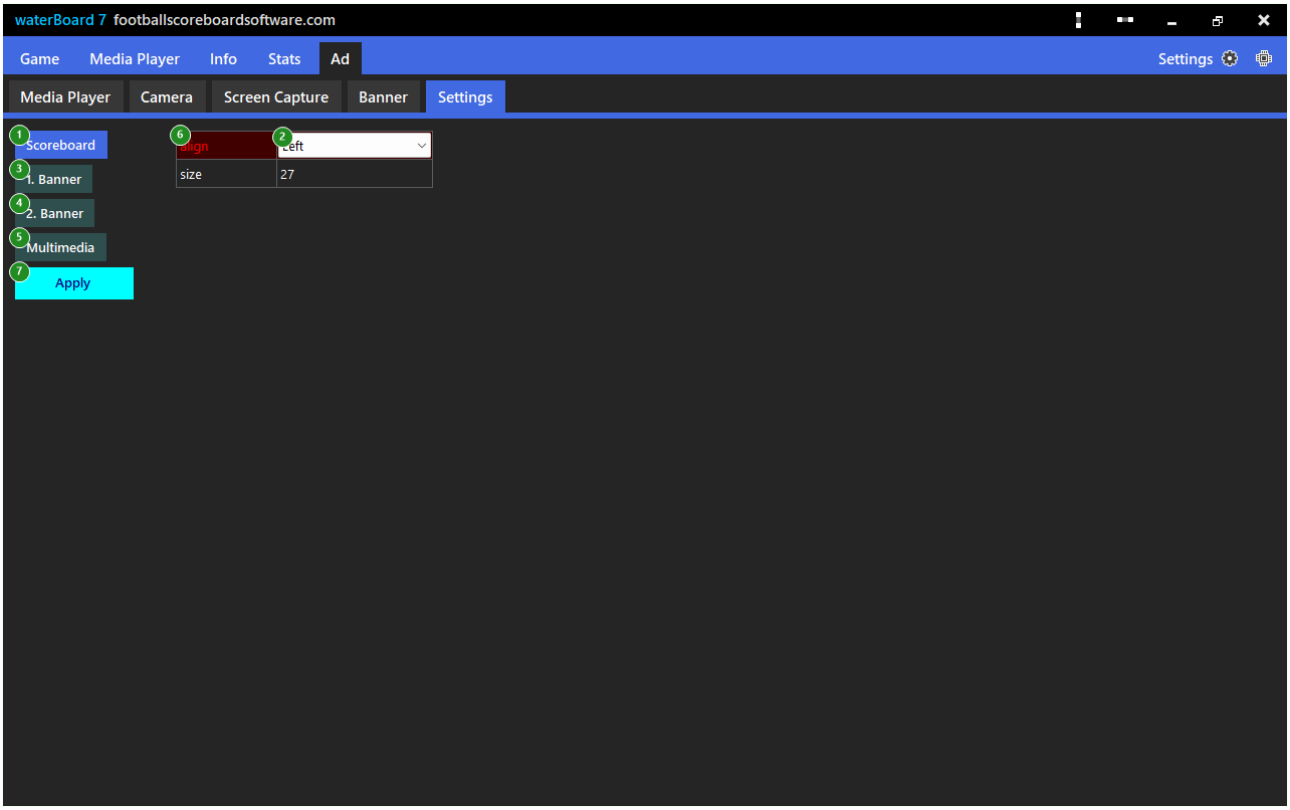


Figure 37. The Ad page: the Settings tab with the layout of the scoreboard column.

No.	Control	Name	What It Does
1	Scoreboard	**Scoreboard**	Shows the align and size of the scoreboard column.
2	Left	**align (list)**	Side of the selected part: Top, Bottom, Left or Right.
3	1. Banner	**1. Banner**	Shows align, size, dock and visible of 1. Banner.
4	2. Banner	**2. Banner**	Shows align, size, dock and visible of 2. Banner.
5	Multimedia	**Multimedia**	Shows the displayMode of the multimedia area.
6	align Left size 27	**Values**	The values of the selected part. A list appears for align, dock, visible and displayMode; type the size in %.
7	Apply	**Apply**	Saves the values of the selected part and changes the Ad board at once. A banner with size 0 or visible No is switched off.

Click a part on the left (Scoreboard, 1. Banner, 2. Banner, Multimedia), change its values in the table and click Apply. The board changes at once. For align, dock, visible and displayMode a list appears in the value cell; type the size.

Part	Value	Meaning	Factory value
Scoreboard	align	Side of the scoreboard column: Top, Bottom, Left, Right	Left
Scoreboard	size	Size of the column in % of the board	27
1. Banner, 2. Banner	align	Top, Bottom, Left or Right	Top / Bottom
1. Banner, 2. Banner	size	Size of the banner in % of the board height	15 / 15
1. Banner, 2. Banner	dock	Yes: the banner runs along the whole board edge, also past the scoreboard column. No: the banner lies only beside the column.	No / No
1. Banner, 2. Banner	visible	Yes or No. A banner with visible No or size 0 is off; its content stops.	No / Yes
Multimedia	displayMode	How the picture fits the multimedia area: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch, ZoomCenter	Stretch

> **Note:** A design saved in the Advertisement mode keeps this layout, and applying it in the design gallery brings the layout back (chapter 8.4).

7.5 Chroma Key (CK)

The CK board shows a compact scorebug and lower thirds over a key colour. A vision mixer, vMix, OBS or similar software removes the key colour and lays the graphics over the camera picture.

Board Output **Game Tab**

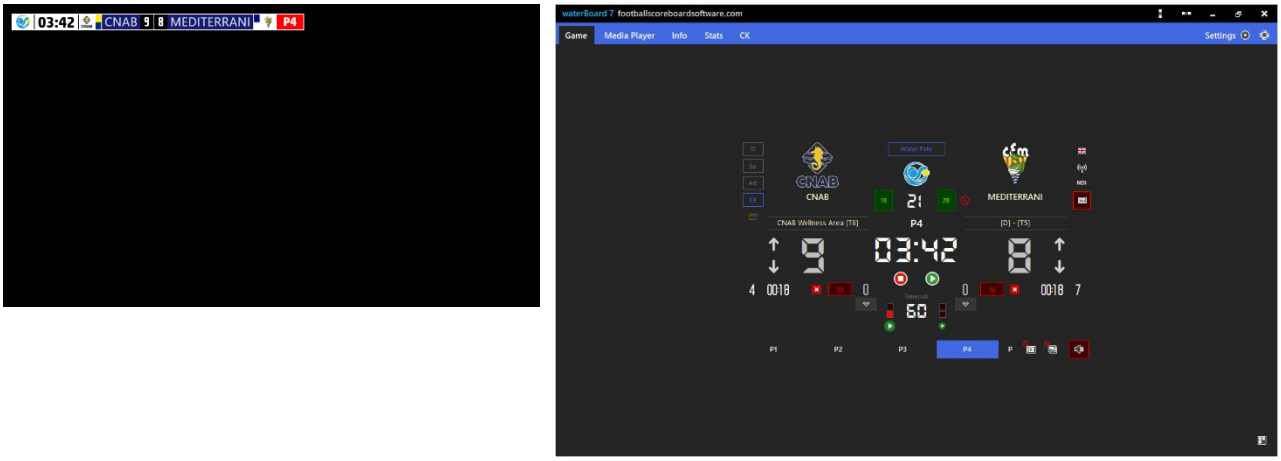


Figure 38. The CK board with the scorebug, and the Game tab with the CK button active.

The scorebug shows the board logo, the match clock, the team logos, the team colours, the names, the scores and the period. It appears when you switch to CK. In the penalty shootout period (P) the CK board shows the shootout graphic in place of the scorebug.

The CK page has five tabs: Info, Media Player, Camera, Screen Capture and Settings.

Info

The Info tab holds one button per CK graphic, each with a Hide button next to it:

Button	What It Does
Scoreboard	Shows the scorebug; Hide next to it takes the scorebug off
Goal	Opens the Goal editor (below)
18 Sec	Opens the exclusion editor (below)
Red Card	Opens the card editor with Red Card selected
Substitution	Opens the Substitution editor
Timeline	Opens the Timeline page (chapter 10); its Show puts the match timeline on the CK board as a lower third
Hide (next to Goal, 18 Sec, Red Card, Substitution, Timeline)	Takes the lower third off the board

The scorebug and a lower third can be on air together. There is one lower-third position: showing a new lower third replaces the one on air, and every Hide button of a lower third takes off whatever lower third is shown.



Figure 39. The CK board with the scorebug alone.

Every editor has the same layout: the team logos at the top (click a logo to choose the team; the chosen team name is shown in cyan, the other logo is dimmed), the type buttons, the player list, the minute box, Show and Hide, and the button Add to Match Timeline on the left of Show. The X at the right of the title bar, or Esc, closes the editor.

- The player list holds the players of the chosen team from the player lists (chapter 11), as "number-name". You can also type a name. Show with an empty player box makes the box flash red and shows nothing.
- The minute box is filled with the minutes shown on the match clock when the editor opens (03:42 gives 3). The stopwatch button next to it clears the box (no minute on the graphic) or fills it again.
- Add to Match Timeline (lightning icon) is a switch: with a green frame, each Show also writes the event into the match timeline (chapter 10). The switch is shared with the editors of the Info tab (chapter 9) and is off after every start of the program.

Goal

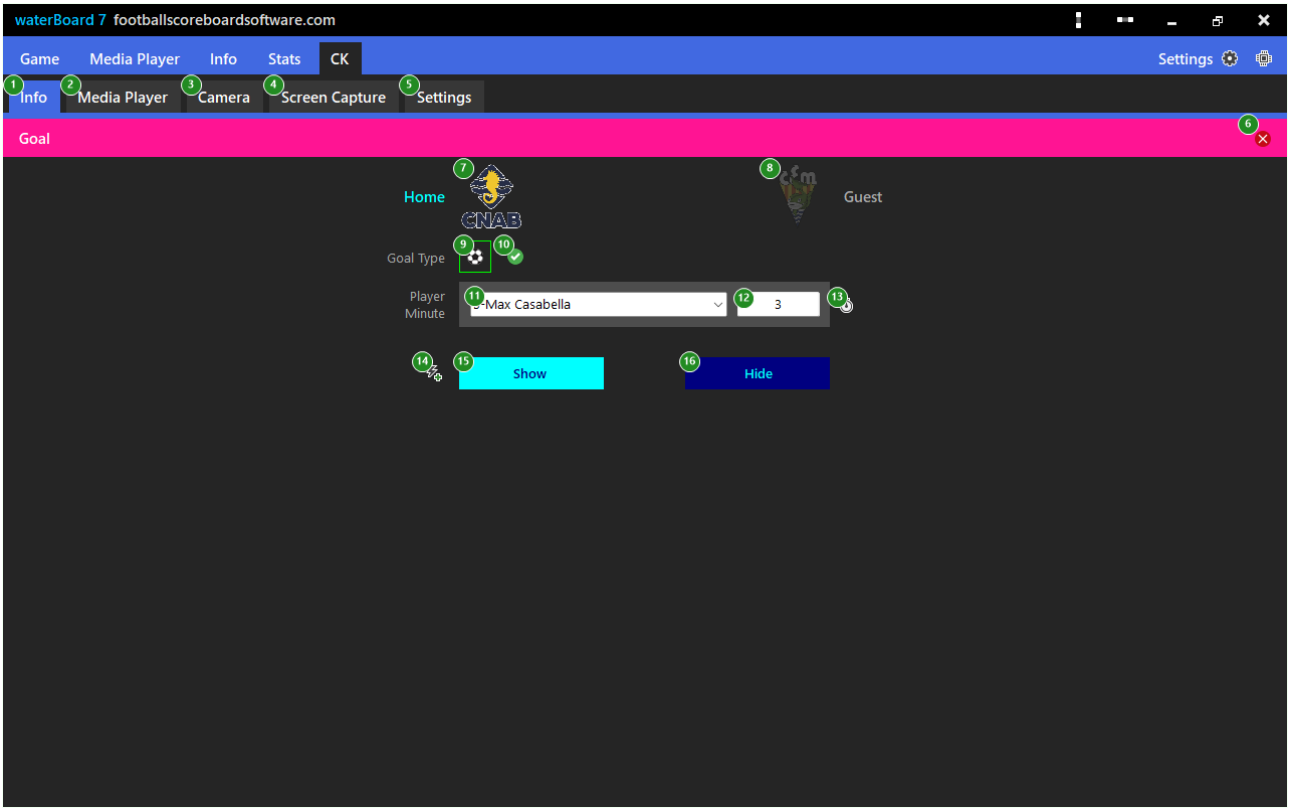
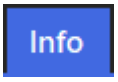
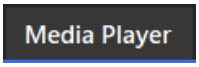
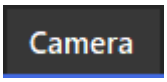
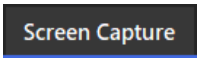
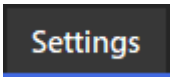
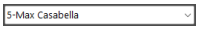


Figure 40. The CK page: the Goal editor with a player selected.

No.	Control	Name	What It Does
1		**Info (tab)**	Opens the buttons of the scorebug and the lower thirds.
2		**Media Player (tab)**	Opens the playlists for the CK board. The tab blinks while a playlist plays.
3		**Camera (tab)**	Opens the camera page of the CK board. The tab blinks while a camera is shown.
4		**Screen Capture (tab)**	Opens the screen capture page of the CK board. The tab blinks while a capture runs.
5		**Settings (tab)**	Opens the Chroma Key Color choice.
6		**Close**	Closes the editor (also Esc).
7		**Home Team (logo)**	Chooses the home team; the player list shows its players.
8		**Guest Team (logo)**	Chooses the guest team; the player list shows its players.
9		**Goal**	Goal type Goal.

No.	Control	Name	What It Does
10		**Penalty Goal**	Goal type Penalty Goal.
11		**Player**	The scorer, chosen from the player list or typed. Required for Show.
12		**Minute**	The minute on the graphic; filled with the minutes of the match clock.
13		**Minute On/Off (stopwatch)**	Clears the minute box, or fills it again with the minutes of the match clock.
14		**Add to Match Timeline**	Switch: with a green frame, Show also writes the goal into the match timeline.
15		**Show**	Puts the Goal lower third on the CK board.
16		**Hide**	Takes the lower third off the CK board.

Goal Type: Goal (ball icon) or Penalty Goal. The lower third shows the type ("Goal" or "Penalty Goal"), the team, the cap number, the name and the minute.

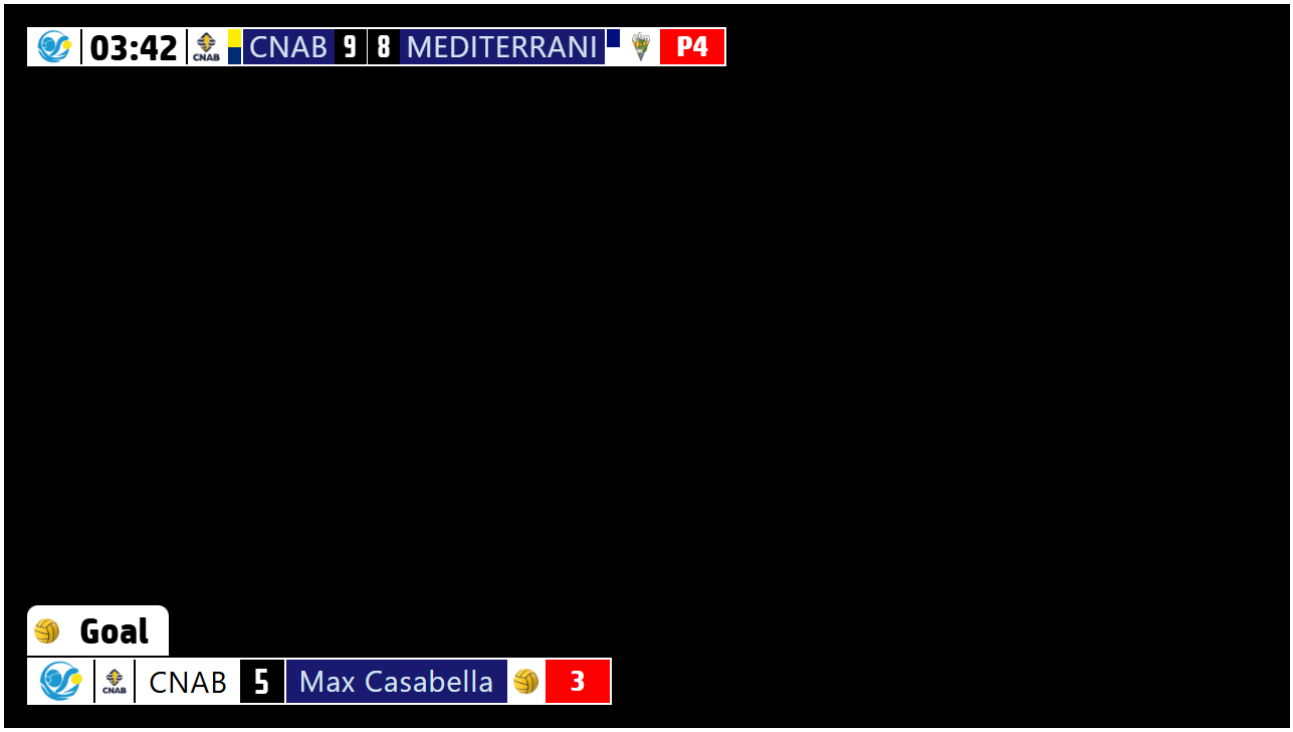


Figure 41. The CK board with the Goal lower third.

18 Sec (Exclusion)

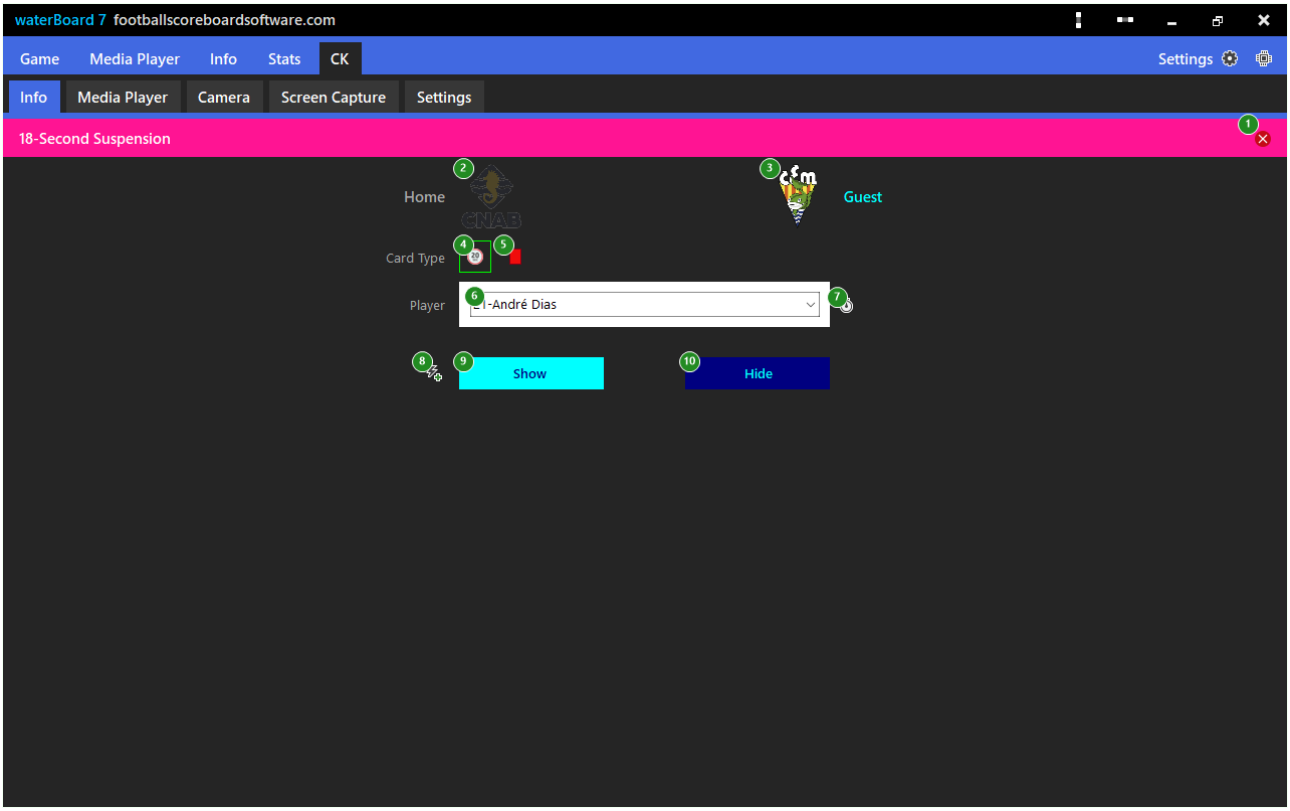


Figure 42. The CK page: the exclusion editor (18 Sec) for MEDITERRANI.

No.	Control	Name	What It Does
1		**Close**	Closes the editor (also Esc).
2		**Home Team (logo)**	Chooses the home team; the player list shows its players.
3		**Guest Team (logo)**	Chooses the guest team; the player list shows its players.
4		**18 Sec**	Card type exclusion (18-Second Suspension).
5		**Red Card**	Card type Red Card.
6		**Player**	The player, chosen from the player list or typed. Required for Show.
7		**Minute On/Off (stopwatch)**	Clears the minute box, or fills it again with the minutes of the match clock.
8		**Add to Match Timeline**	Switch: with a green frame, Show also writes the event into the match timeline.
9		**Show**	Puts the exclusion or red card lower third on the CK board.

No.	Control	Name	What It Does
10	Hide	**Hide**	Takes the lower third off the CK board.

The 18 Sec button opens the card editor with the exclusion type selected. The Card Type buttons switch between the exclusion (left) and Red Card (right). The lower third shows the title "18-Second Suspension", the team, the cap number, the name and the minute. When the card editor is opened the first time, the minute box is empty; the stopwatch button fills it.

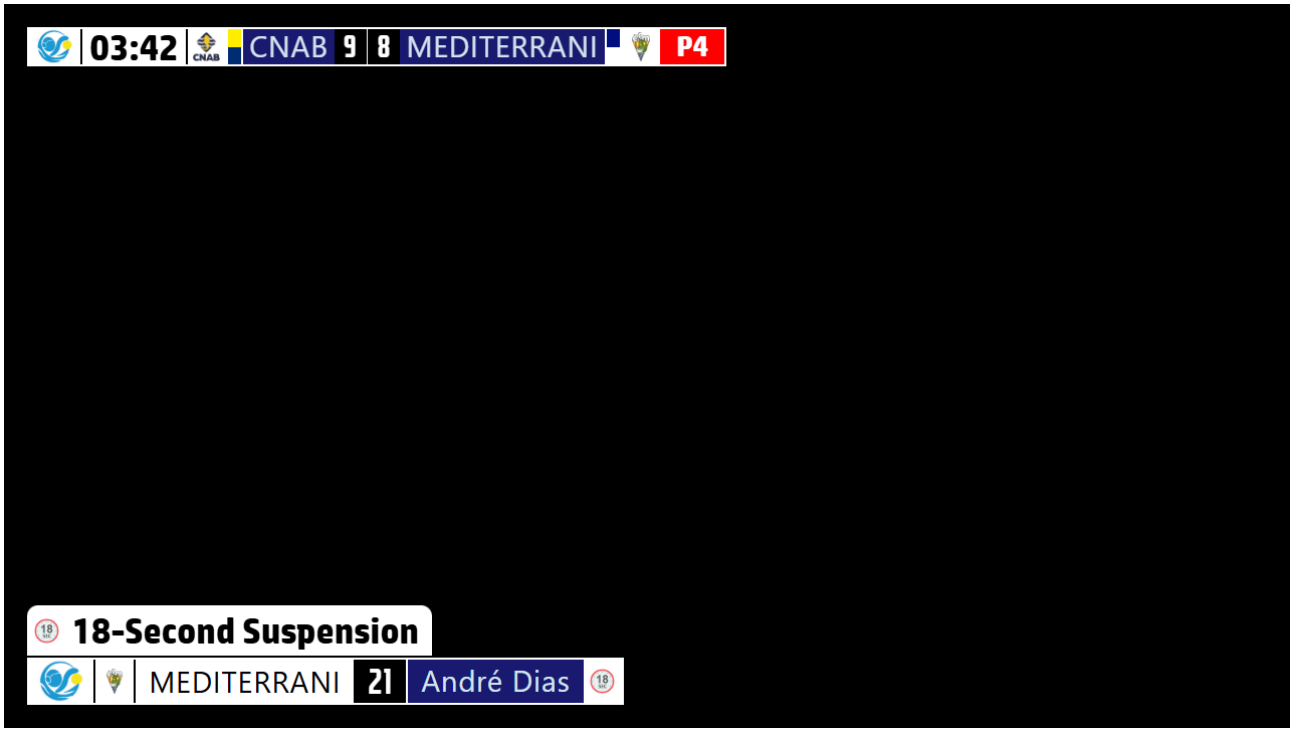


Figure 43. The CK board with the exclusion lower third.

> **Note:** The CK graphic is independent of the exclusion timers of the Game tab (chapter 5): it neither starts nor ends an exclusion. The titles of the lower thirds come from the language file; in canoe polo or underwater rugby you can change "18-Second Suspension" into the wording of your discipline (chapter 16).

Red Card

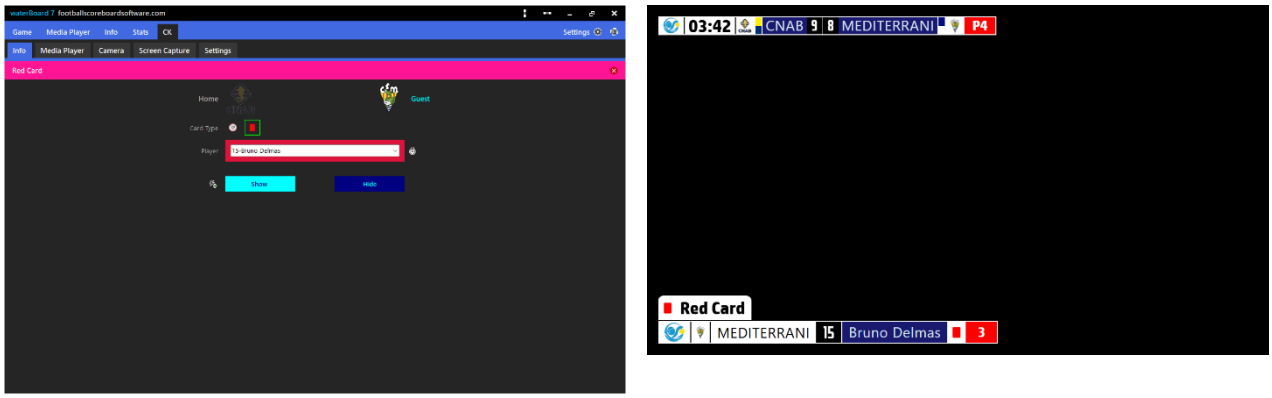


Figure 44. The card editor with Red Card selected (left) and the lower third on the CK board (right).

The red card lower third shows "Red Card", the team, the cap number, the name and the minute.

Substitution

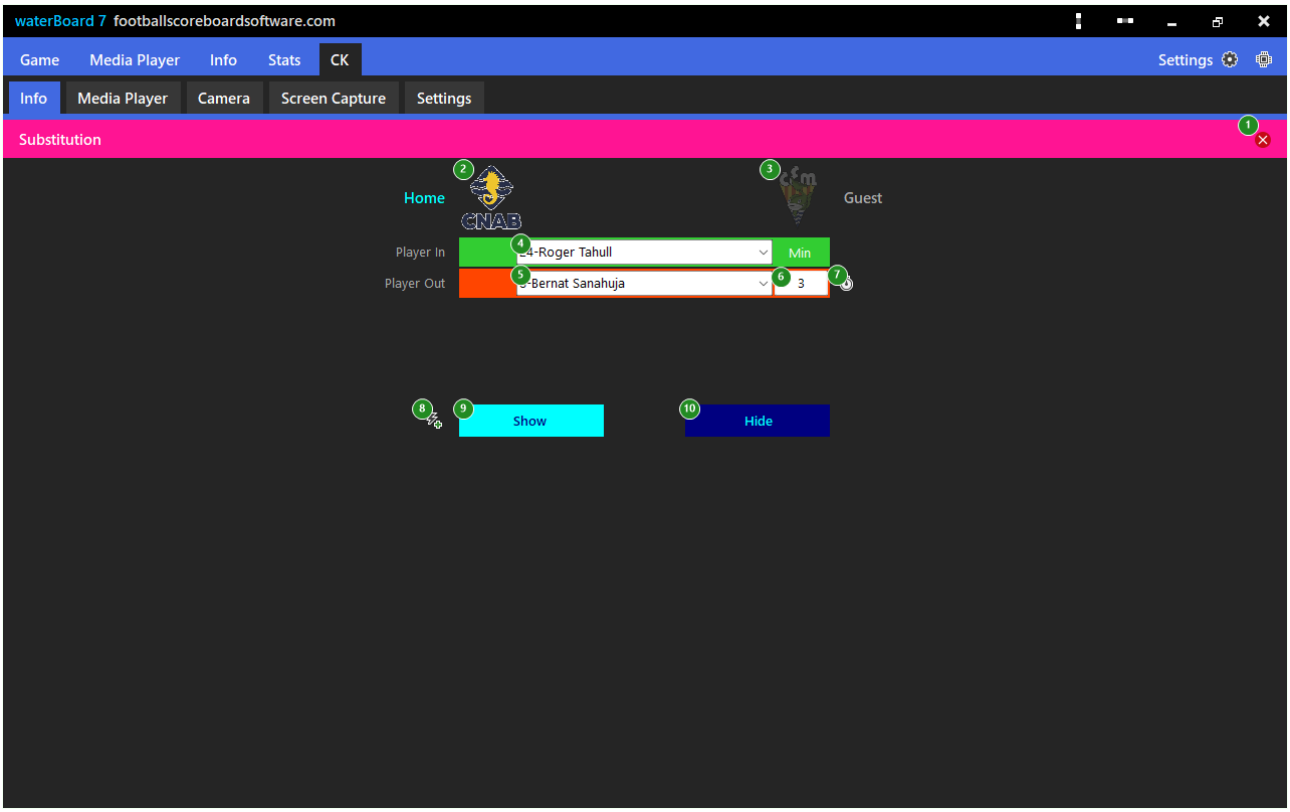


Figure 45. The CK page: the Substitution editor.

No.	Control	Name	What It Does
1		**Close**	Closes the editor (also Esc).
2		**Home Team (logo)**	Chooses the home team; the player lists show its players.
3		**Guest Team (logo)**	Chooses the guest team; the player lists show its players.
4		**Player In**	The player coming in. Required for Show.
5		**Player Out**	The player going out. Required for Show.
6		**Minute**	The minute on the graphic; filled with the minutes of the match clock.
7		**Minute On/Off (stopwatch)**	Hides and clears the minute box, or shows and fills it again.
8		**Add to Match Timeline**	Switch: with a green frame, Show also writes the substitution into the match timeline.
9		**Show**	Puts the Substitution lower third on the CK board.

No.	Control	Name	What It Does
10	Hide	**Hide**	Takes the lower third off the CK board.

Choose Player In and Player Out from the lists of the chosen team. Both are required. The lower third shows the team, the player coming in (green arrow), the minute and the player going out (red arrow).

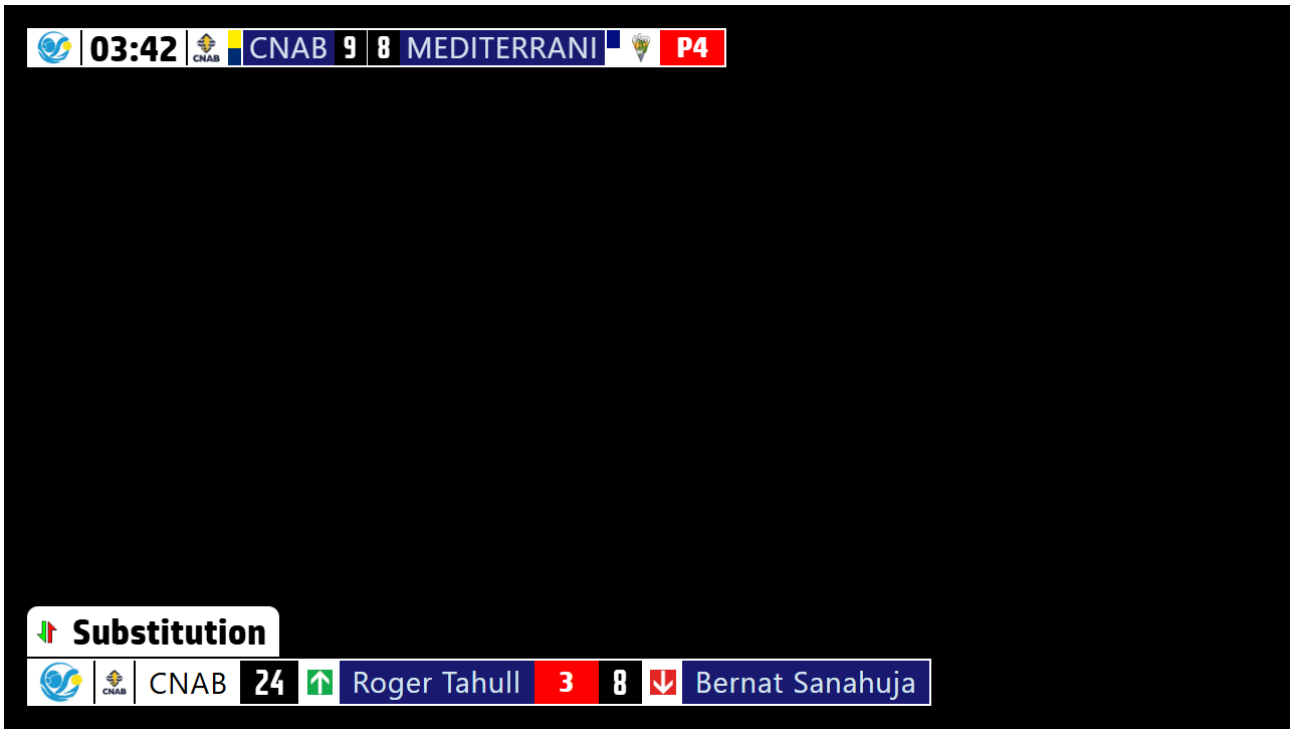


Figure 46. The CK board with the Substitution lower third.

Media Player, Camera and Screen Capture

These tabs work as on the Ad page (7.4). The picture fills the whole CK board behind the scorebug and the lower thirds, in place of the key colour. Playlists, camera and capture bounds of the CK page are kept separately from those of the Ad page.

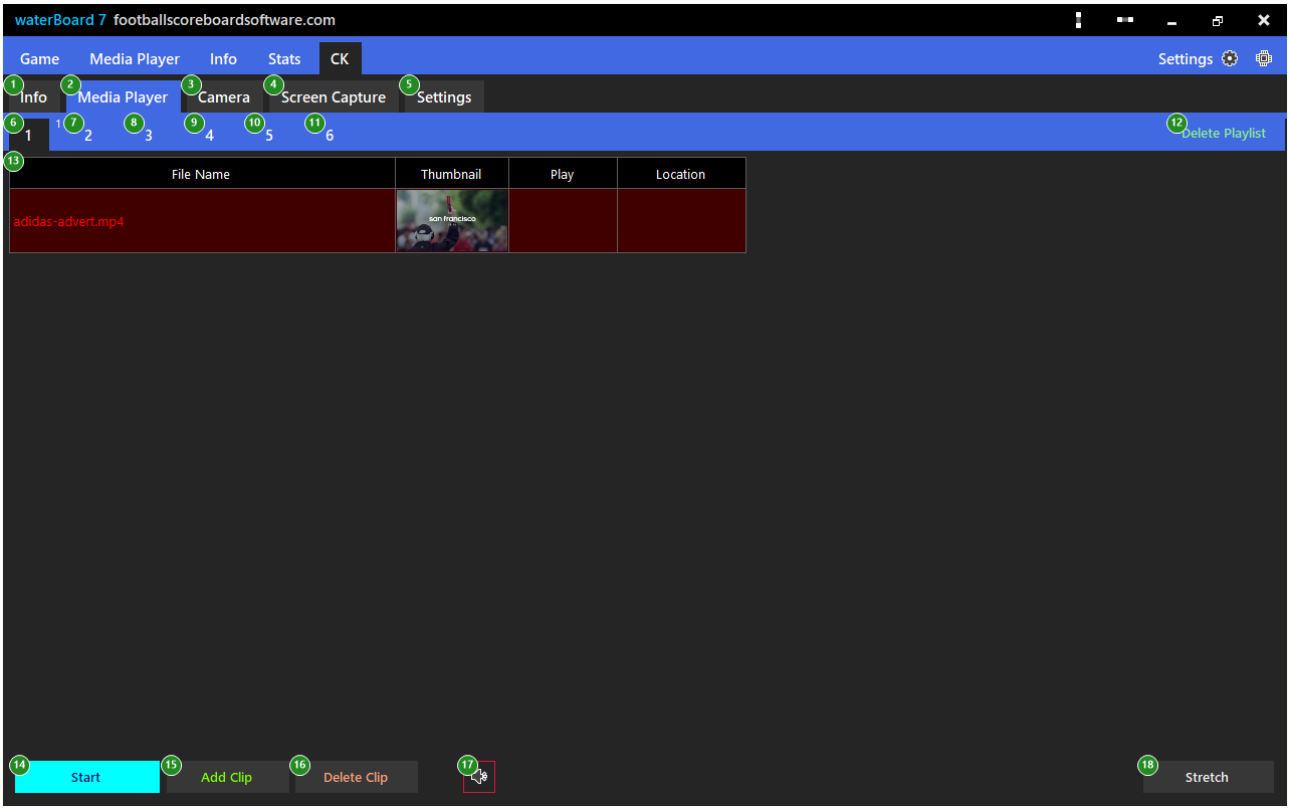


Figure 47. The CK page: the Media Player tab.

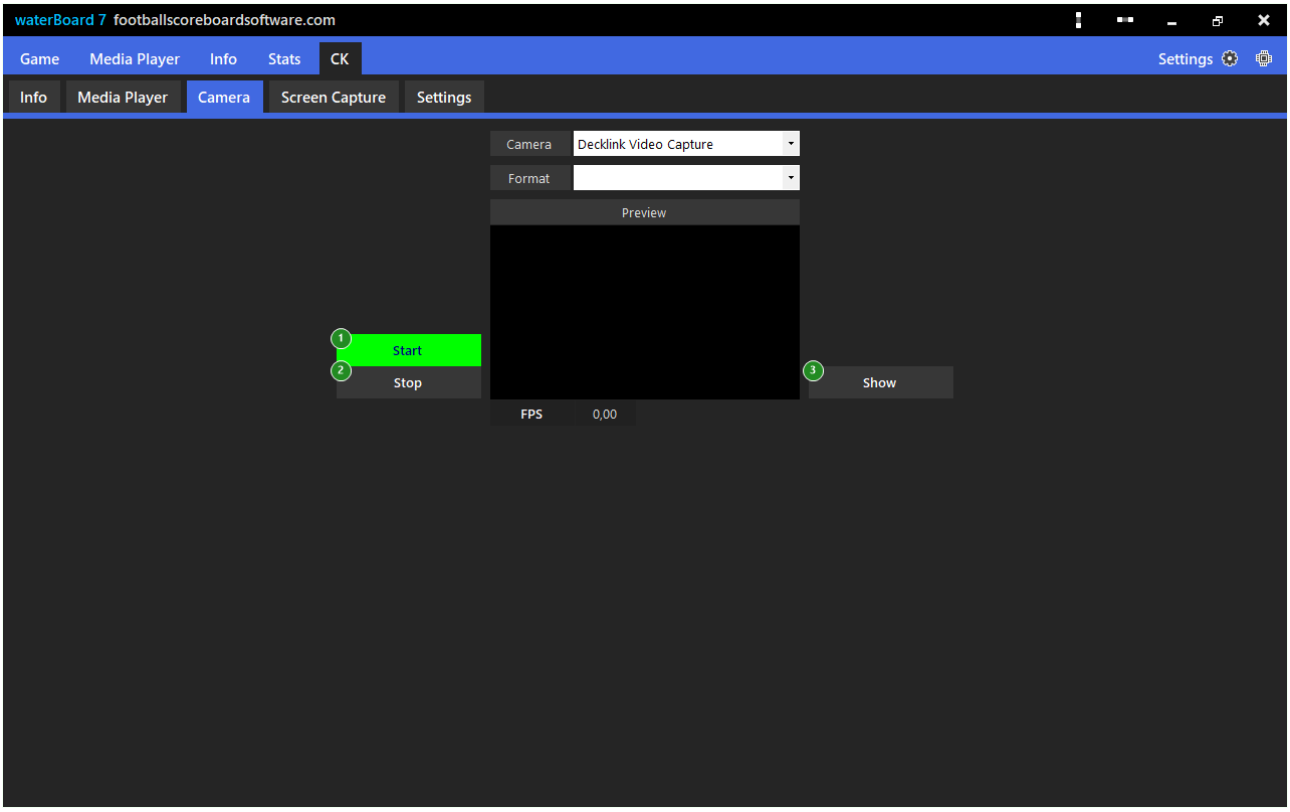


Figure 48. The CK page: the Camera tab with Start, Stop and Show.

No.	Control	Name	What It Does
1	Start	**Start**	Starts the chosen camera in the Preview.

No.	Control	Name	What It Does
2	Stop	**Stop**	Stops the camera and clears the CK board background.
3	Show	**Show**	Puts the camera picture on the CK board behind the graphics; a running playlist or capture stops.

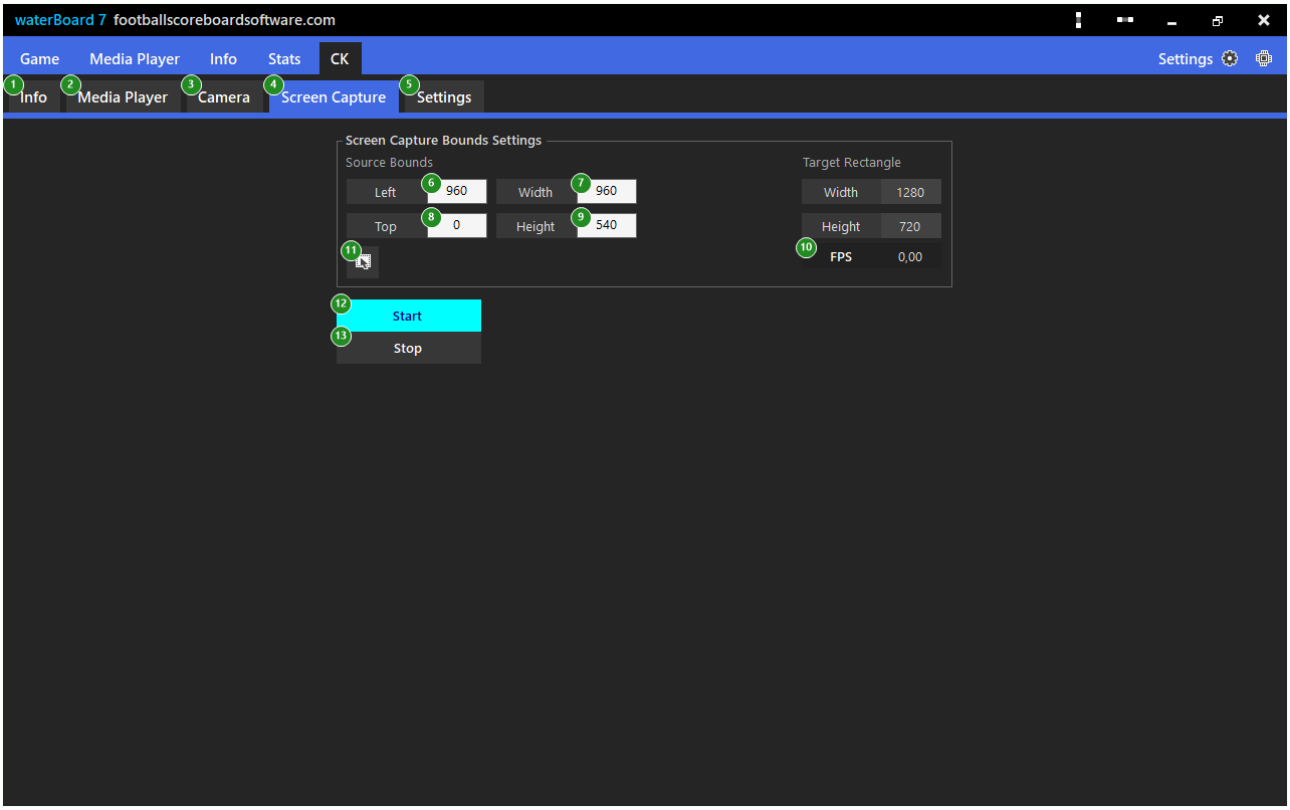


Figure 49. The CK page: the Screen Capture tab.

Settings

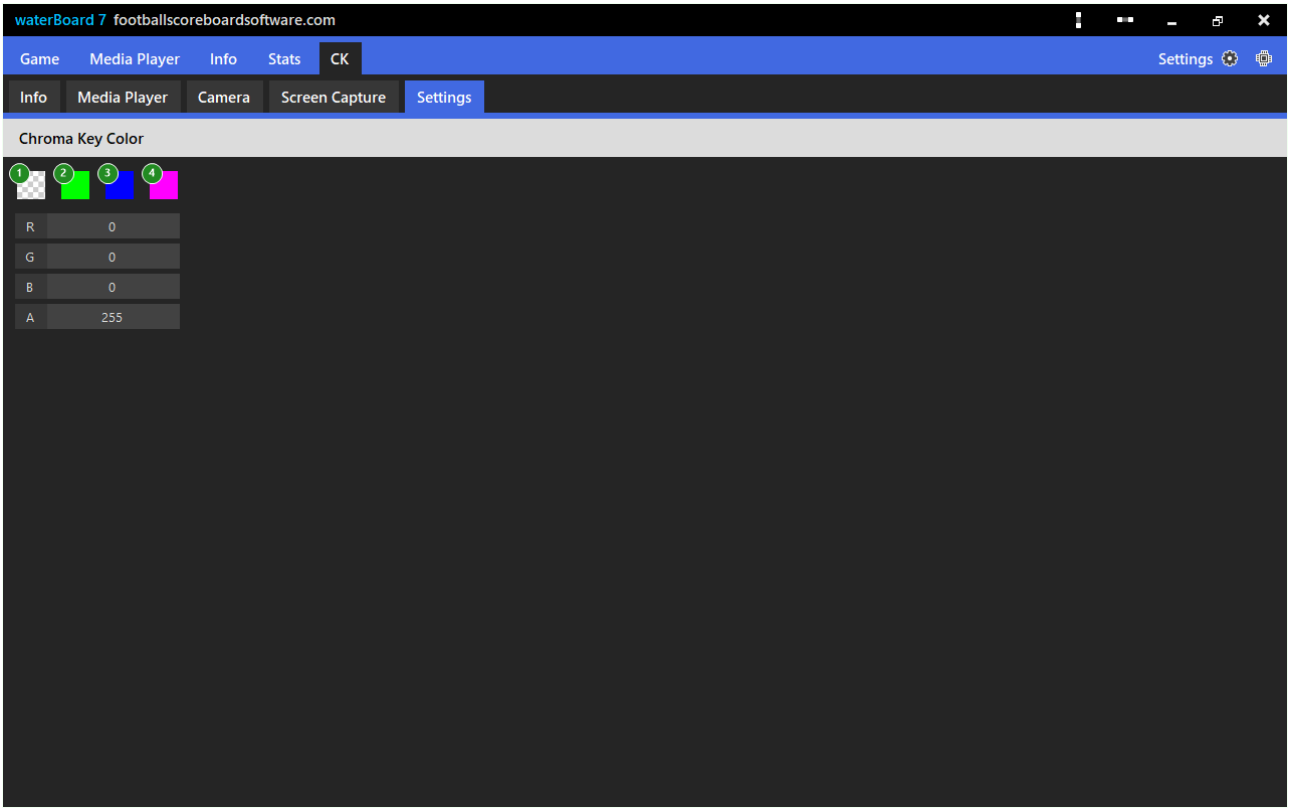


Figure 50. The CK page: Settings with the four key colours.

No.	Control	Name	What It Does
1		**Transparent**	Makes the CK board window see-through on the desktop (black is the see-through colour). Default.
2		**Green**	Uses pure green (0, 255, 0) behind the graphics.
3		**Blue**	Uses pure blue (0, 0, 255) behind the graphics.
4		**Magenta**	Uses magenta (255, 0, 255) behind the graphics.

Chroma Key Color sets what the CK board shows behind the graphics:

Button	Key Colour	Use
Chequered	Transparent	The board window is see-through on the PC desktop. Default.
Green	Pure green (R 0, G 255, B 0)	Video output into a vision mixer, NDI
Blue	Pure blue (R 0, G 0, B 255)	As green, when the graphics contain green
Magenta	Magenta (R 255, G 0, B 255)	As green, when the graphics contain green and blue

A click uses the colour at once, frames the button red and shows its R, G, B and A values. The choice is saved. On a new installation no button is framed and the R, G, B, A boxes show 0, 0, 0, 255 until you choose a colour; the board uses Transparent.

> **Note:** The transparent mode works with black as the see-through colour of the window: pure black parts of a graphic are see-through as well. For a video or NDI output use green, blue or magenta; a video signal has no transparency.

7.6 Typical Set-Ups

LED wall or screen in the venue:

1. Connect the LED controller (or screen) as a second display and extend the Windows desktop to it. Place it to the right of the main display in the Windows display settings.
2. In Settings > Screen Properties set L to the width of the main display (for example 1920) and T to 0, W and H to the resolution of the LED wall or screen.
3. Use the Standard mode, the Sponsored mode for a sponsor band, or the Advertisement mode for videos and live pictures during breaks.

TV production with a vision mixer:

1. Switch to CK and choose green, blue or magenta on the CK page > Settings.
2. Send the CK board to the mixer as a video output of the PC (second display into a converter), or over the network with the NDI button of the Game tab (chapter 12).
3. Key out the colour in the mixer; the scorebug and the lower thirds lie over the camera picture.
4. Show goals, exclusions, red cards and substitutions from the Info tab of the CK page.

Streaming with OBS or vMix on the same PC:

1. Switch to CK with the Transparent key colour and capture the board window, or choose green and use a chroma-key filter in the software.
2. For a full-screen graphic use the Standard mode instead.

In every set-up the operator can also work from a phone or tablet (chapter 13) or with keyboard shortcuts (chapter 15).

8. Designs and the Design Editor

The look of every board is a design: a list of elements (team name, score, clock, logo ...) with their position and style values. waterBoard 7 turns these values into a stylesheet each time the board is drawn. This chapter describes how to choose a design, how the program stores it, and how to change it in the design editor.

8.1 The Masters

waterBoard 7 ships factory designs, the masters:

Master	Display Modes
_Master - [St]andart Design [1] (default)	St, Sp
_Master - [St]andart Design [2]	St, Sp
_Master - [St]andart Design [3]	St, Sp
_Master - [Ad]vertise Design [1]	Ad
_Master - [Ad]vertise Design [2]	Ad
_Master - [Ad]vertise Design [3]	Ad
_Master - [CK]Chroma Key Design [1]	CK

- The Sponsored board uses the Standard designs: in the Sp mode the gallery lists the St designs, and St and Sp share one working scoreboard design.
- The masters of one board type share the same skeleton (the structure of the board); they differ in the position and style values of the elements.
- The Chroma Key master contains the scorebug and the lower thirds Goal, Card, Substitution, Match Summary (timeline) and Penalty (shootout).

The names begin with an underscore, so the masters are listed first in the gallery.

8.2 Design Gallery (Open Design)

1. On the Game tab, choose the display mode (St, Sp, Ad or CK, chapter 7).
2. Click the folder button below the mode buttons (tooltip Select Design). The window Open Design opens.
3. Click a design in the list. The preview on the right shows it with the live score, the logos and the background video; it is refreshed while the window is open.
4. Click Apply.

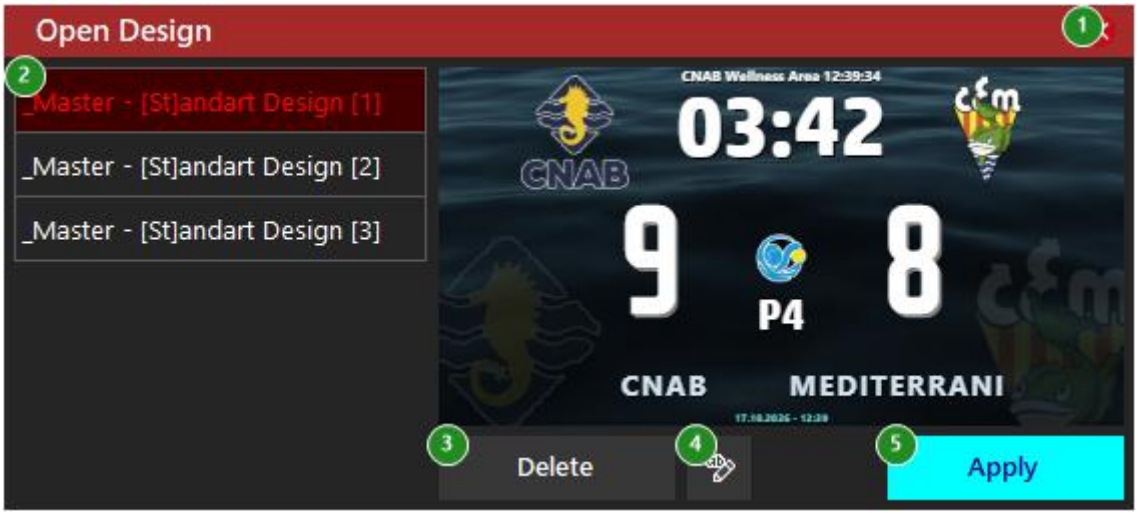
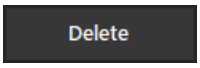


Figure 51. The design gallery Open Design with the three Standard masters and the live preview.

No.	Control	Name	What It Does
1		**Close**	Closes the window without a change (also Esc or a click outside).
2		**Design List**	The designs of the current board type, sorted by name. Click one to see it in the preview.
3		**Delete**	Deletes your own design: the first click turns the button red, the second deletes. Does nothing on a protected master.
4		**Rename**	Lets you type a new name for your own design in the list; Enter keeps it.
5		**Apply**	Uses the selected design for the display mode, redraws the board and closes the window.

Button	What It Does
List	The designs of the current board type (St designs in St and Sp), sorted by name
Apply	Uses the selected design for this display mode, redraws the board and closes the window
Delete	Deletes one of your own designs. The first click turns the button red; a second click deletes the design (no further question). Clicking another design in the list cancels it.
Rename (pencil icon)	Lets you type a new name for one of your own designs in the list; press Enter to keep it
X	Closes the window without a change. Esc or a click outside the window does the same.

The masters (St, Ad and CK) cannot be deleted or renamed: Delete and Rename do nothing on them.

What Apply does:

Display Mode	Apply Brings
St, Sp	The scoreboard values of the design (current\Game.xml). The info screens, Banner and Announce stay as they are.
Ad	The scoreboard values; a design you saved yourself also brings back the layout of the scoreboard column and the banners (section 8.4).
CK	Fills in missing working files of the scorebug and the lower thirds from the CK master. Files you changed in the design editor are not overwritten.

The applied design is remembered in start.xml for the display mode and comes back at the next start.

8.3 Factory and Current Designs

The designs live in two folders under C:\waterBoard7\common\vizrt:

Folder	What It Holds
storage	The factory designs: the masters (<GUID>.xml), the skeletons and factory layouts of the info screens in storage\St, the CK master in storage\CK\<GUID>, and the list of designs dataBoards.xml. Your saved designs are stored here too (section 8.4).
current	The working copy: the files the boards show now. Game.xml (scoreboard), CK_Game.xml (scorebug), the info screens (Goal, Card, Substitution, Banner, Announce ...), the CK lower thirds (CK_Goal, CK_Card ...), and in current\Game\St, current\Game\Ad and current\Game\CK the scoreboard of each display mode.

The program does not write into the masters. Every change goes to the working copy in current:

Step	Where	What Happens
Factory	storage	The masters stay as they were installed. They are the source for Apply and Factory Settings.
Current	current	Apply copies a design into the working copy; the design editor changes the working copy element by element (Save & Apply).
Save	storage	Save Design As keeps the working scoreboard as a design of your own, listed in the gallery next to the masters.
Revert	current	Factory Settings in the design editor copies the factory version of one screen back into the working copy (section 8.7). Apply in the gallery brings back a whole scoreboard design.

When you switch the display mode, the working scoreboard of the mode you leave is stored in current\Game\<mode>, and the one of the new mode comes back. Each display mode therefore keeps its own scoreboard (St and Sp share one). Working files that are missing are filled in from storage at every mode switch.

> **Note:** An update installation replaces the files in common\vizrt (your saved designs, dataBoards.xml and the working copy) and the files configSp.xml, configAd.xml and configCK.xml. Back up the folder C:\waterBoard7\common\vizrt and these files before an update and copy them back afterwards (chapter 2.5).

8.4 Saving Your Own Design

1. Open the design editor of the display mode (section 8.5) and change the scoreboard (Game).
2. Click Save Design As (the disk icon at the top right of the editor).
3. Type a name in the box "Please Enter a Name" and confirm. The program reports "The data has been successfully saved."

Your design is now listed in the gallery of that display mode, next to the masters.

- Save Design As keeps the scoreboard (Game) values. The info screens, Banner and Announce are not part of it.
- In the Advertisement mode the design also keeps the layout of the Ad page (align, size, dock and visible of the scoreboard column, 1. Banner and 2. Banner, chapter 7.4). Apply brings that layout back.
- In the Chroma Key mode, saving is not supported: the program shows "Sorry, Design Saving Is Not Supported For CK Mode Yet!".
- Your designs are files in storage (<GUID>.xml, for Ad also <GUID>_Segment.xml) and an entry in storage\dataBoards.xml. Delete in the gallery removes all of them.

> **Note:** Save Standard designs in the St mode. A design saved while the Sp mode is active is stored with the type Sp, and the gallery (which lists the St designs in both St and Sp) does not show it.

8.5 The Design Editor

Open Settings and click the design button of the current display mode: [St]andard Board Design, [Sp]onsored Board Design, [Ad]vertisement Board Design or [CK] Board Design. Only the button of the active display mode is enabled. The editor fills the work area; its title shows the board type and the selected screen, for example "[St]andard Board Design - Game".

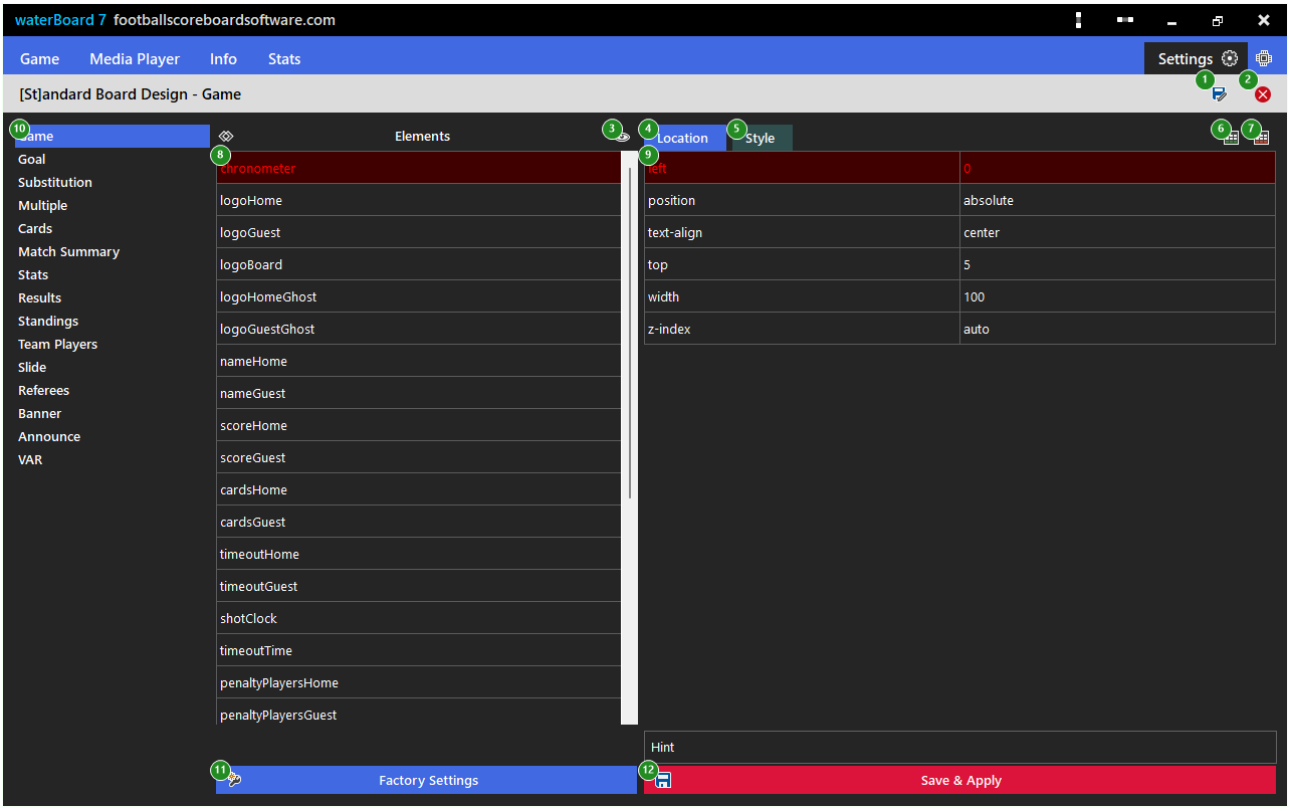
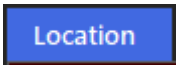
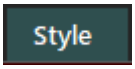
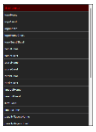
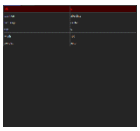


Figure 52. The design editor of the Standard board with the Game screen and the element chronometer selected.

No.	Control	Name	What It Does
1		**Save Design As**	Saves the scoreboard as your own design under a name. Not available in CK.
2		**Close**	Puts the design editor in the background (also Esc).
3		**Show or Hide**	Switches the selected element between display: block and display: none. Save & Apply to use it.
4		**Location**	Shows the position and size values of the element.
5		**Style**	Shows the look values of the element (colour, font, size, shadow ...).
6		**Insert Row**	Adds an empty value row.
7		**Delete Row**	Removes the selected value row.
8		**Elements**	The elements of the selected screen; hidden ones are grey. Click one to show its values and frame it red on the board.
9		**Values**	Property and value of the element. Colour values get a colour picker button, font-family a font picker button.

No.	Control	Name	What It Does
10		**Screen List**	The screens of the board type: Game and the info screens or CK lower thirds. Click one to edit it.
11		**Factory Settings**	Brings back the factory version of the selected screen after a question.
12		**Save & Apply**	Saves the shown values (Location or Style) of the element and redraws the board.

Area or Button	What It Does
Screen list (left)	St, Sp, Ad: Game (the scoreboard), Goal, Substitution, Multiple, Cards, Match Summary, Stats, Results, Standings, Team Players, Slide, Referees, Banner, Announce, VAR. CK: Game (the scorebug), Goal, Substitution, Cards, Match Summary, Penalty, VAR.
Elements	Every element of the selected screen, by its name (for example chronometer, logoHome, nameHome, scoreHome, shotClock, timeoutHome, penaltyPlayersHome). Hidden elements are grey. Click one to edit it.
Show or Hide (eye icon)	Switches the selected element between shown (display: block) and hidden (display: none). Click Save & Apply afterwards.
Location	Shows the position and size values of the element (left, top, width, height, position, text-align, z-index ...)
Style	Shows the look values of the element (colour, background, font, font size, shadow, border ...)
Insert Row	Adds an empty value row; choose or type the property, then type the value
Delete Row	Removes the selected value row
Values	Property and value. A click on a property opens a list of property names. Hint below the table lists typical values of that property as a reminder. Type the value into the cell. A property with "color" in its name gets a colour picker button in the value cell, font-family gets a font picker button.
Factory Settings	Brings back the factory version of the selected screen after a question (section 8.7)
Save & Apply	Saves the values of the selected element (Location or Style, whichever is shown) and redraws the board
Save Design As (disk icon)	Saves the scoreboard as your own design (section 8.4)
X	Puts the editor in the background. Esc does the same.

The screens Goal, Substitution, Cards and the others are the info screens of chapter 9 (St, Sp, Ad) and the lower thirds of the CK page (chapter 7.5). While you edit them, the board shows them with built-in sample texts and pictures.

How to change an element:

1. Click the screen in the list, then the element. The board shows the screen with the element framed by a red dotted line.
2. Click Location or Style and change the values.
3. Click Save & Apply.

Save before you choose another element, and before you switch between Location and Style: both reload the values from the file, and unsaved values are lost. The red frame disappears when you go back to the Game tab.

> **Note:** The editor works on the live board: selecting an info screen puts it on the board, and Save & Apply redraws it. Do not edit designs while you are on air.

8.6 Values, Units, Colours and Fonts

Units of the values:

Unit	Meaning
px, %, em, vh, vw	Usual web units, kept as typed. vh is 1 % of the board height, vw 1 % of the board width.
A number without a unit	For left, right, width, min-width, max-width and the left and right margins and paddings: % of the board width (vw). For top, bottom, height, min-height, max-height, font-size, line-height, gap, margin, padding and the top and bottom margins and paddings: % of the board height (vh).
auto, fit-content, max-content, min-content, inherit, initial, unset ...	Kept as typed

Because the factory designs use vh and vw, the boards scale with the window size set in Settings > Screen Properties.

The colour picker (Select Color) opens from a colour value in the design editor and from the colour boxes of the Sp and Ad pages:

- Click a hue in the colour strip, then a shade in the large field, or type the values in Red, Green and Blue or the hex code (#RRGGBB).
- Only Web Colors limits the field to the web-safe colours.
- A click on the colour sample brings back the colour you started with.
- Ok uses the colour; Esc keeps the old one.

The font picker (Select Font) lists the fonts installed in Windows, each shown in its own typeface. Type the first letters of a name to jump to it; Enter or Ok takes the font, Cancel or Esc keeps the old one. The picker writes one font name into the value.

The setup installs the fonts of the folder common\font with the program: Agency, DS-Digital, Euforia, Groteskia, HP Simplified, Jersey M54, Montserrat, TRT and Axis.

Backgrounds:

- The Standard, Sponsored and Advertisement boards have a background video and a middle-layer image behind the scoreboard. Choose them on the Game tab (chapter 5). Settings > Screen Properties > Background Video Opacity (0-10, default 6) sets how strongly the video shows.
- The board logo is chosen with the logo slot in the middle of the Game tab.

- The Chroma Key board has no background: it shows the key colour or the picture of a running source (chapter 7.5).

8.7 Factory Settings

To undo your changes of one screen, select it in the design editor and click Factory Settings. The program shows the display mode and the screen (for example "Display : St", "Type : Goal") and asks "Factory Settings Will Be Restored. Are You Sure?". After OK:

Screen	What Comes Back
An info screen, Banner or Announce, in the St mode	The factory layout of that screen from storage\St
A CK lower third or the CK scorebug	That screen from the CK master
Game (St, Sp, Ad)	The stored design that was current when the program started

In the Sp and Ad modes the factory files of the info screens are not found: the program reports "... File Not Found!" and changes nothing. Switch to St to restore an info screen; the info screens are shared by St, Sp and Ad.

> **Note:** To bring a Standard, Sponsored or Advertisement scoreboard back to a master, apply the master again in the design gallery (section 8.2). This is the reliable way back; it does not touch your saved designs.

9. Info Screens

9.1 The Info Tab

The Info tab holds the full-screen information screens: banners and announcements, goals, exclusions, red cards, substitutions, the team lists, the referees, and the editors for the sponsors and the team database. An info screen replaces the scoreboard on the board output until you go back to the scoreboard.

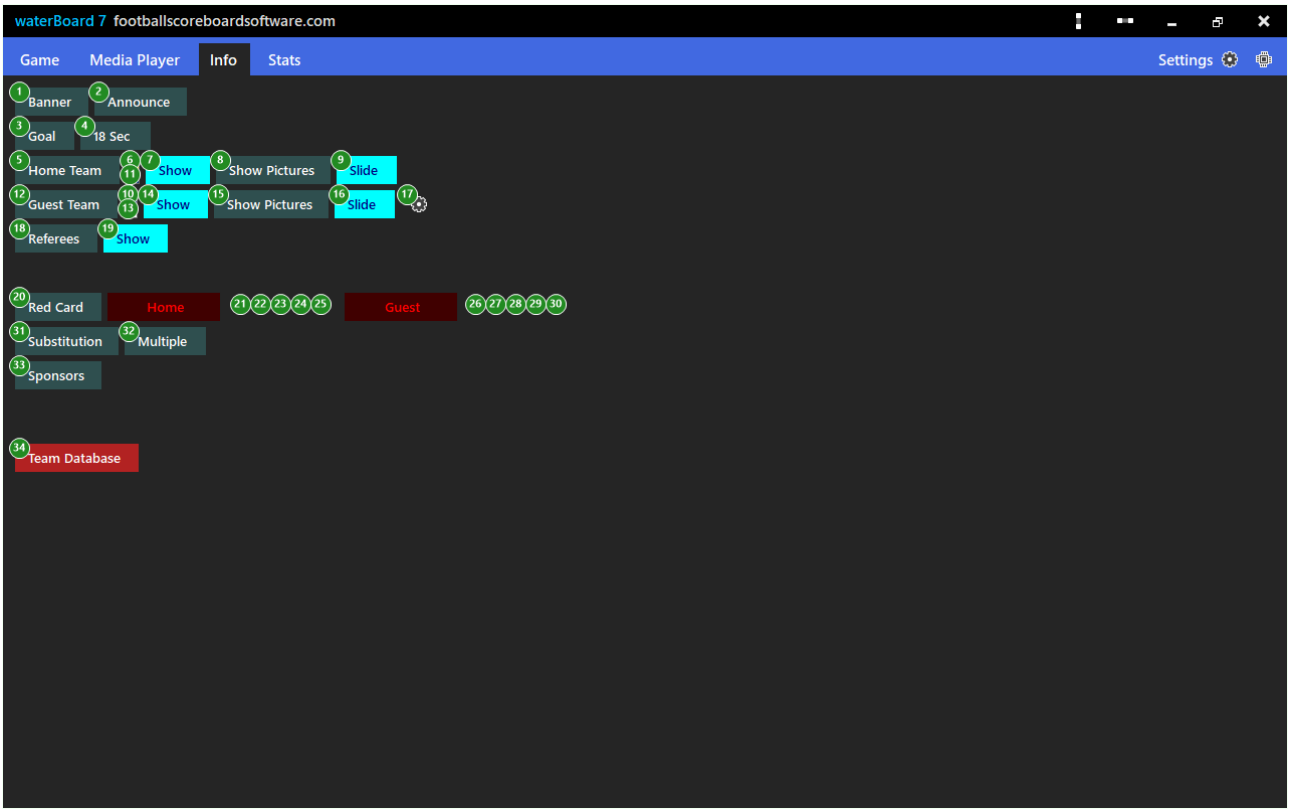
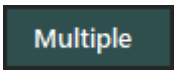
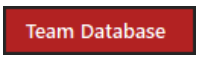


Figure 53. The Info tab with the sample teams CNAB and MEDITERRANI.

No.	Control	Name	What It Does
1	Banner	**Banner**	Opens the Banner editor: top line, second line and a main text with four pages, clock and countdown tokens.
2	Announce	**Announce**	Opens the Announce editor: a full-screen announcement with a team logo, four text pages and six text styles.
3	Goal	**Goal**	Opens the Goal editor: team, goal type, scorer, minute and the goal animation.
4	18 Sec	**18 Sec**	Opens the card editor with the exclusion type selected (headline 18-Second Suspension).
5	Home Team	**Home Team**	Opens the player list of the home team (groups Starting 7, Substitutes, Other Players, Trainer).
6		**Home Main Colour**	The main colour of the home team. Click to pick a colour; it is saved at once. Used for the headline rows and numbers of the team list and the CK scorebug stripe.

No.	Control	Name	What It Does
7	Show	**Show (Home Team)**	Puts the home team list on the board: team name, Trainer, Starting 7 and Substitutes.
8	Show Pictures	**Show Pictures (Home)**	Opens the slideshow page of the home players' Image for Banner pictures.
9	Slide	**Slide (Home)**	Shows the home players one after another with number, name and Image for Events photo.
10		**Guest Main Colour**	The main colour of the guest team. Click to pick a colour; it is saved at once.
11		**Home Second Colour**	The second colour of the home team: the text colour of the team list headlines and numbers, and the second CK stripe.
12	Guest Team	**Guest Team**	Opens the player list of the guest team.
13		**Guest Second Colour**	The second colour of the guest team.
14	Show	**Show (Guest Team)**	Puts the guest team list on the board.
15	Show Pictures	**Show Pictures (Guest)**	Opens the slideshow page of the guest players' Image for Banner pictures.
16	Slide	**Slide (Guest)**	Shows the guest players one after another with number, name and photo.
17		**Background (gear)**	Opens or closes the background buttons for the team list, slide and referee screens: scoreboard background video, black, or a selected video.
18	Referees	**Referees**	Opens the referee list.
19	Show	**Show (Referees)**	Puts the referees screen on the board, from the saved referee list.
20	Red Card	**Red Card**	Opens the card editor with Red Card selected.
21		**Home Red Cards 0**	No red card for the home team on the scoreboard.
22		**Home Red Cards 1**	One red card icon for the home team on the scoreboard.
23		**Home Red Cards 2**	Two red card icons for the home team.
24		**Home Red Cards 3**	Three red card icons for the home team.
25		**Home Red Cards 4**	Four red card icons for the home team.
26		**Guest Red Cards 0**	No red card for the guest team on the scoreboard.
27		**Guest Red Cards 1**	One red card icon for the guest team on the scoreboard.
28		**Guest Red Cards 2**	Two red card icons for the guest team.
29		**Guest Red Cards 3**	Three red card icons for the guest team.
30		**Guest Red Cards 4**	Four red card icons for the guest team.

No.	Control	Name	What It Does
31		**Substitution**	Opens the Substitution editor: one player in, one player out.
32		**Multiple**	Opens the Multiple Substitution editor: several pairs of one team on one screen.
33		**Sponsors**	Opens the sponsor list.
34		**Team Database**	Opens the saved teams; Set Home and Set Guest load a saved team into a player list.

The buttons are arranged in rows:

Row	Buttons
1	Banner, Announce
2	Goal, 18 Sec (the exclusion screen)
3	Home Team, the two home colour buttons, Show, Show Pictures, Slide
4	Guest Team, the two guest colour buttons, Show, Show Pictures, Slide, and the background button (gear)
5	Referees, Show
6	Red Card, the home red-card buttons, the guest red-card buttons
7	Substitution, Multiple
8	Sponsors
9	Team Database (red)

The name buttons (Banner, Goal, Home Team ...) open an editor over the main window. The aqua buttons (Show, Slide) put a screen on the board at once, without an editor.

Showing a Screen and Going Back to the Scoreboard

1. Click the button of the screen, for example Goal.
2. Fill in the editor: team, player, type, background, sponsor.
3. Click Show (or Show With Picture). The screen is built from the editor and sent to the board window; a playing clip of the Media Player is stopped first.
4. To go back to the scoreboard, click Game in the menu bar. From the remote control or the HTTP API, the command match does the same (chapters 13 and 14).

- The board keeps the info screen while you work in other editors or on the Info tab. Only the Game tab (or match) brings the scoreboard back.
- The screen is built when you click Show. It does not follow later changes: click Show again after a change of the score, a name or a photo.
- The X at the right of the editor's title bar, or Esc, closes the editor. The screen on the board stays.
- The match clock, the shot clock and the exclusion timers keep running in the background while an info screen is on the board.

- In the Chroma Key mode the graphics for goals, exclusions, red cards and substitutions are lower thirds with their own editors on the CK page (chapter 7.5).

> **Note:** The info screens have no Hide button. Plan the way back: the Game tab, or match on the remote page, is the only way to put the scoreboard back on the board.

Common Controls of the Editors

The editors of Banner, Announce, Goal, 18 Sec, Red Card, Substitution and Multiple share these controls:

Control	What It Does
Sponsor (the five logos at the top)	The first five logos of the sponsor list (section 9.11). Click a logo to put it on the screen; the chosen logo is shown in full colour, the others are dimmed, and a preview appears below the row. The x next to the preview removes the sponsor. The choice is shared by all editors and stays after a restart.
Home / Guest logos	Click a team logo to choose the team. The chosen team name is shown in cyan, the other logo is dimmed. Choosing a team reloads its player list.
Player list	The players of the chosen team, as "number-name", sorted by shirt number: the groups Starting 7, Substitutes and Other Players of the team's player list (chapter 11.3). The Trainer is not in this list. You can also type a name, or a number and a name ("7 John Smith" or "John Smith 7").
Minute box and stopwatch	The minute is filled with the minutes shown on the match clock when the editor opens (03:42 gives 3). The stopwatch button clears the box or fills it again.
Add to Match Timeline (lightning icon, left of Show)	A switch: with a green frame, every Show also writes the event as a row into the match timeline (chapter 10.1). The switch is shared by all editors and the CK editors and is off after every start of the program.
Background	Use Scoreboard Background (the background video of the scoreboard, chapter 5.11), Use Black Background, or Use Selected Background. The chosen option has a green frame; its name or file name is shown next to it. With Use Selected Background a folder button appears: choose the video for this screen. Each screen keeps its own background choice.
Edit Title (pencil icon at the left of the title bar)	Opens the title texts in the settings (chapter 16). The headline of the Goal, exclusion, Red Card, Substitution and Referees screens comes from these texts, for example "18-Second Suspension".
Show	Builds the screen and puts it on the board. With an empty player box the box flashes red and nothing is shown.
Show With Picture	Like Show, with the photo of the player (Goal, 18 Sec, Red Card, Substitution).

> **Note:** Use Selected Background is meant for video files: the board plays the selected file as a video. For a still background, use a short video of the picture.

Team Colours

The two small colour buttons next to Home Team and next to Guest Team are the team colours: the upper button is the main colour, the lower one the second colour. Click a button to pick a colour; it is saved at once.

- On the team list screen (section 9.9) the main colour fills the headline rows and the number cells, the second colour is their text colour.
- The CK scorebug shows the colours as stripes next to the team names (chapter 7.5).

Red Cards on the Scoreboard

The row Red Card holds, next to the editor button, a dark red Home field with five round buttons and a Guest field with five round buttons. The buttons set the number of red cards of the team: the first button 0, then 1 to 4. The scoreboard shows one red card icon per card at the place the design has for it. The count is not changed by the Red Card screen; set it here.

Background of the Team and Referee Screens

The gear button at the end of the Guest Team row opens a small panel with three background buttons for the screens shown directly from the Info tab: Show and Slide of both teams, and Show of the referees.

Button	Background
First button	The background video of the scoreboard (Scoreboard.Background)
Second button	Black (Color.Black)
Third button	A selected video; the folder button next to the file name chooses the file

The chosen button has a green frame. Click the gear again to close the panel.

9.2 Banner

A full-screen banner with a top line, a second line and a main text, between the two team logos. The main text can also be a clock or a countdown, for example to the start of the match.

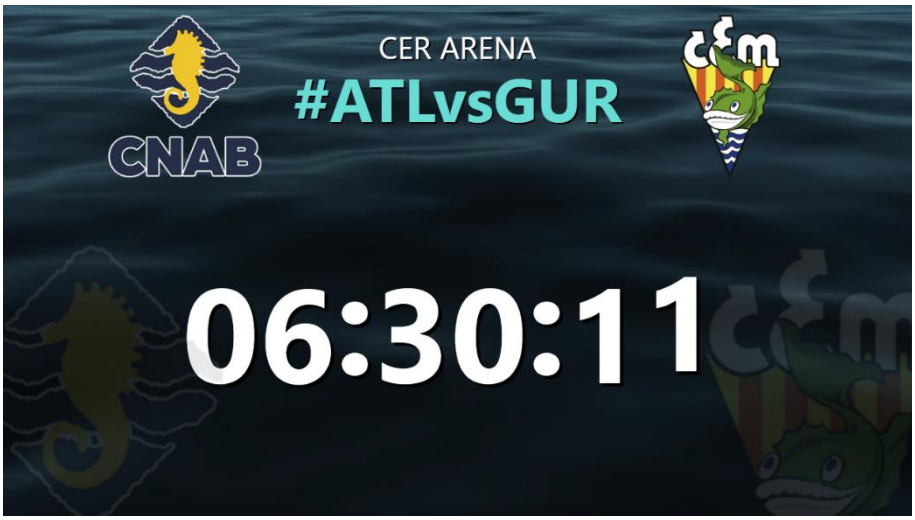


Figure 54. The Banner on the board: venue, hashtag and a countdown between the team logos.

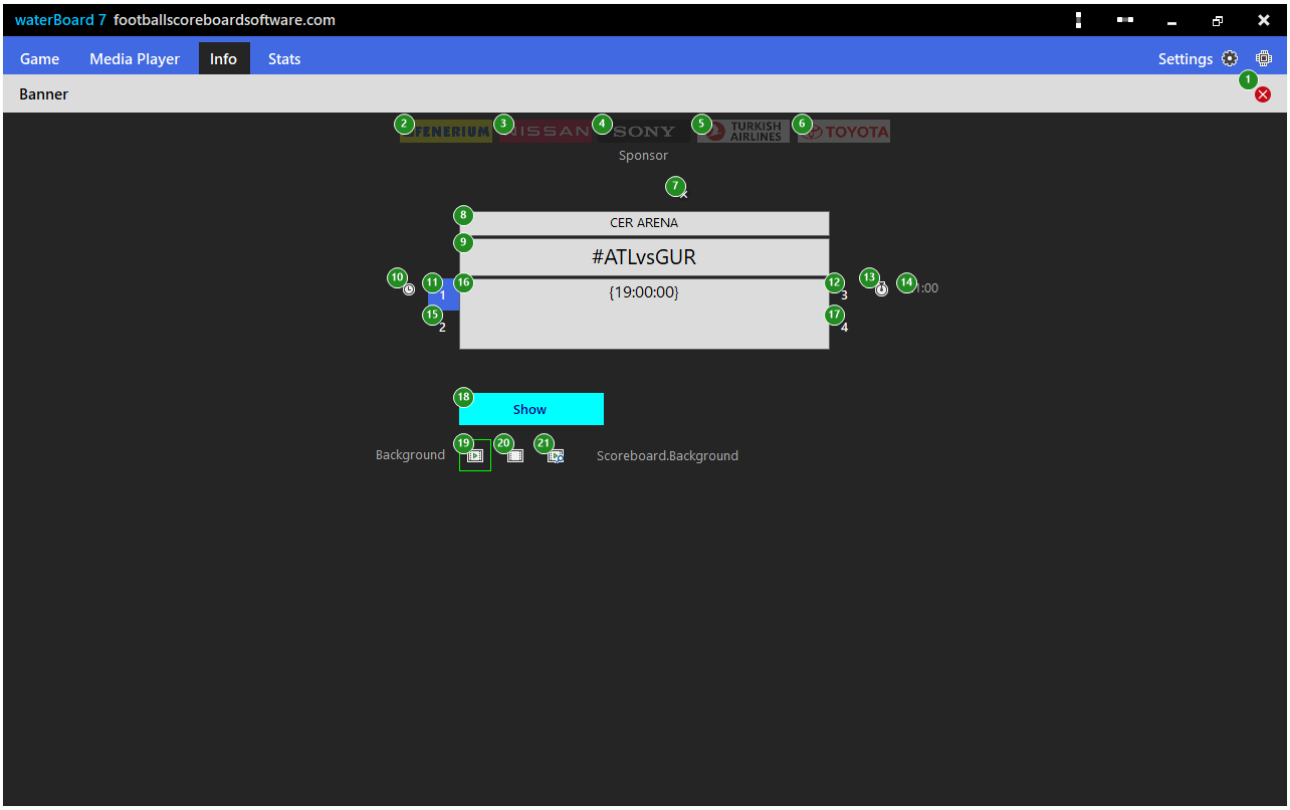
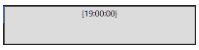


Figure 55. The Banner editor: the main text {19:00:00} counts down to 19:00 with seconds.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor. The screen on the board stays.
2		**Sponsor 1**	The first logo of the sponsor list. Click to put it on the screen; the chosen logo is in full colour.
3		**Sponsor 2**	The second logo of the sponsor list. Click to choose it.
4		**Sponsor 3**	The third logo of the sponsor list. Click to choose it.
5		**Sponsor 4**	The fourth logo of the sponsor list. Click to choose it.
6		**Sponsor 5**	The fifth logo of the sponsor list. Click to choose it.
7		**Remove Sponsor (x)**	Removes the sponsor from the screen.
8		**Top Line**	The top line of the banner, for example the venue.
9		**Second Line**	The second line in larger letters.
10		**Show Clock**	Puts {00:00} into the main text: the board shows the time of day. Click again for {00:00:00} with seconds.
11		**Page 1**	Shows page 1 of the main text.
12		**Page 3**	Shows page 3 of the main text.

No.	Control	Name	What It Does
13		**Show Remaining Time**	Puts the time of the box next to it into the main text, for example {21:00}: the board counts down to that time. Click again for seconds.
14		**Countdown Time**	The target time of the countdown, hh:mm. Another entry becomes 23:59.
15		**Page 2**	Shows page 2 of the main text.
16		**Main Text**	The main text of the chosen page, or a clock token {00:00} / countdown token {hh:mm}. Saved when you click Show.
17		**Page 4**	Shows page 4 of the main text.
18		**Show**	Saves the texts and puts the banner on the board.
19		**Use Scoreboard Background**	Uses the background video of the scoreboard behind the banner.
20		**Use Black Background**	Uses a black background.
21		**Use Selected Background**	Uses a file you choose with the folder button that appears.

Field	What It Holds
Top text box	The top line, for example the venue.
Second text box	The second line in larger letters, for example a hashtag.
Main text box	The main text, or a time token (below). It has four pages, buttons 1 to 4; the chosen page is blue. The top and second lines are the same for all four pages.

The x above the text boxes empties the box you are in.

Clock and Countdown

While the cursor is in the main text box, two buttons appear next to it:

Button	What It Puts into the Main Text	What the Board Shows
Show Clock (clock icon, left)	{00:00}; click again for {00:00:00}	The time of day of the PC, without or with seconds.
Show Remaining Time (timer icon, right)	The time of the box next to it in braces, for example {21:00}; click again for {21:00:00}	A countdown to that time today (to the same time tomorrow when it has passed), as hours and minutes, or with seconds.

- The time box takes hh:mm, for example 19:30. Any other entry becomes 23:59 when you leave the box.
- You can also type a token yourself: {hh:mm} or {hh:mm:ss}.
- The token must be the whole main text. Any other text is shown as typed.

Using the Banner

1. Info > Banner.
2. Type the top and second lines.
3. Choose a page (1 to 4) and type the main text, or click a clock button.
4. Choose a sponsor and the background.
5. Click Show. The texts are saved and the banner goes on the board.
6. Click Game to go back to the scoreboard.

> **Note:** The texts are saved only when you click Show. A page you edited and left with another page button, or with the X, is reloaded from the last saved text.

9.3 Announce

A full-screen announcement in large letters, with the logo of one team and the sponsor.



Figure 56. The announcement "MATCH DAY" with the home logo on the scoreboard background.

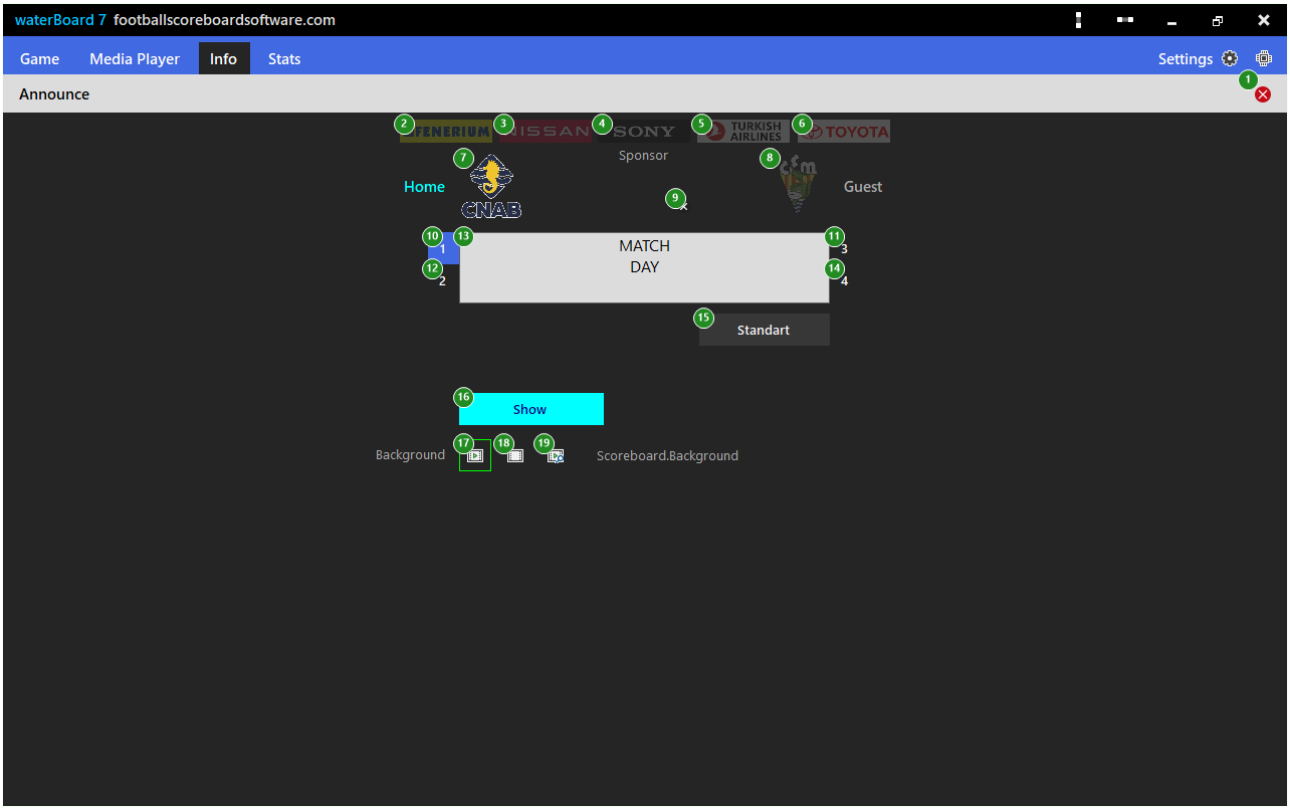
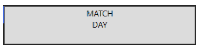
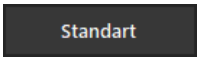


Figure 57. The Announce editor with the style Standart.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor. The screen on the board stays.
2		**Sponsor 1**	The first logo of the sponsor list. Click to put it on the screen.
3		**Sponsor 2**	The second logo of the sponsor list. Click to choose it.
4		**Sponsor 3**	The third logo of the sponsor list. Click to choose it.
5		**Sponsor 4**	The fourth logo of the sponsor list. Click to choose it.
6		**Sponsor 5**	The fifth logo of the sponsor list. Click to choose it.
7		**Home Logo**	Chooses the home team: its logo is shown above the text.
8		**Guest Logo**	Chooses the guest team: its logo is shown above the text.
9		**Remove Sponsor (x)**	Removes the sponsor from the screen.
10		**Page 1**	Shows page 1 of the text.

No.	Control	Name	What It Does
11		**Page 3**	Shows page 3 of the text.
12		**Page 2**	Shows page 2 of the text.
13		**Announcement Text**	The text of the chosen page. Press Enter for a new line. Saved when you click Show.
14		**Page 4**	Shows page 4 of the text.
15		**Style**	Opens the style list: Standart, Gradient, Shape, Stripe-H, Stripe-V, Stroke. The choice is saved.
16		**Show**	Saves the page text and puts the announcement on the board.
17		**Use Scoreboard Background**	Uses the background video of the scoreboard.
18		**Use Black Background**	Uses a black background.
19		**Use Selected Background**	Uses a file you choose with the folder button that appears.

Control	What It Does
Home / Guest logo	Choose the team whose logo is shown above the text. The editor always opens with Home.
Text box, pages 1 to 4	The announcement. Press Enter for a new line. Each page keeps its own text; the x empties the box.
Style list	Standart (plain text), Gradient (moving colour gradient), Shape (moving colour shapes), Stripe-H and Stripe-V (moving stripes) or Stroke (outlined text in changing colours). The style is saved at once.
Style settings (gear, next to the style; not with Standart)	Opens the values of the style: font-family (with a font picker), font-size, font-weight, bottom, text-shadow and text-stroke, as far as the style uses them, and the colour buttons (two for Gradient and the stripes, five for Shape and Stroke). A colour is saved when you pick it; the disk button saves the values.
Background, Sponsor	As in all editors (section 9.1).
Show	Saves the text of the page and puts the announcement on the board.

- With the styles other than Standart, more than two lines are drawn at two thirds of the font size.
- The page text is saved only with Show.

9.4 Goal

A goal screen: headline, team, the goal ball, the cap number, the name of the scorer and the minute, with a ball animation.



Figure 58. The goal of CNAB no. 5 in minute 29 on the board.

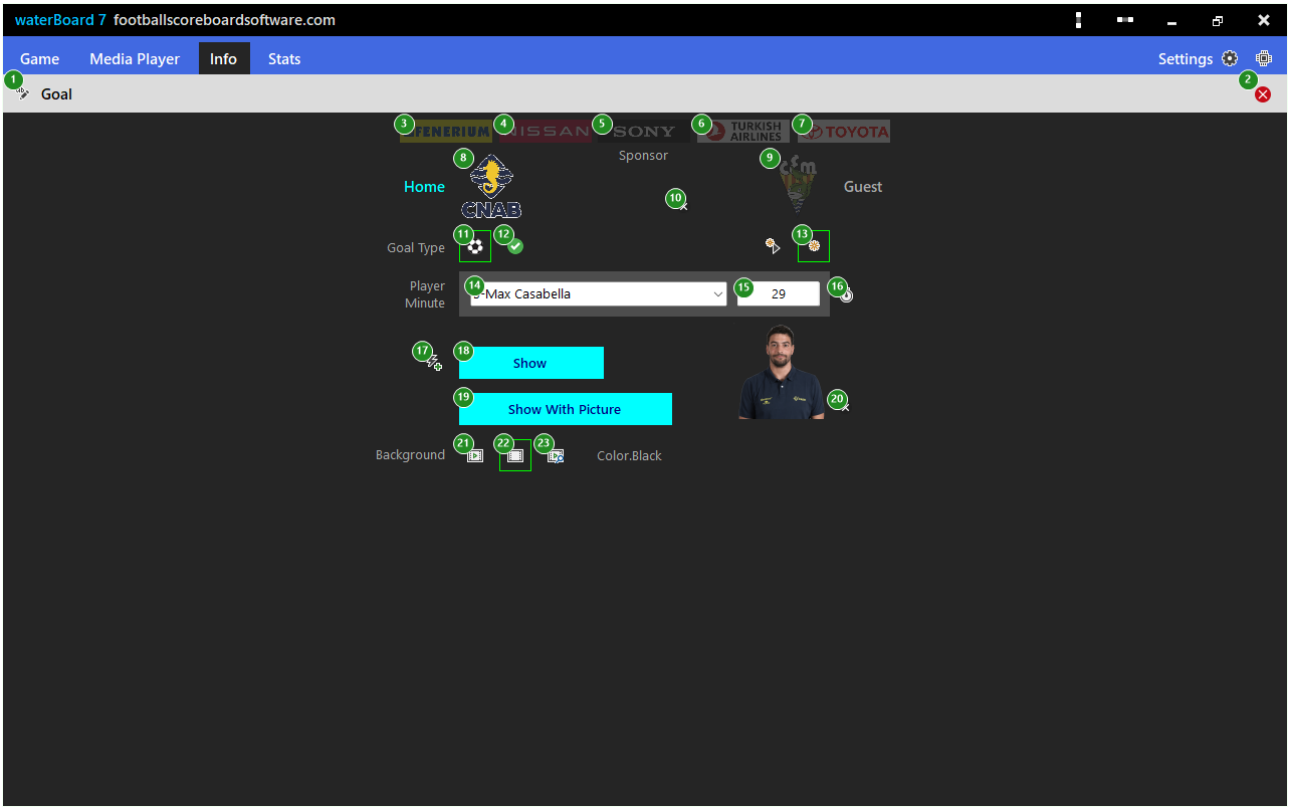


Figure 59. The Goal editor with the home team, player 5 and the minute.

No.	Control	Name	What It Does
1		**Edit Title (pencil)**	Opens the title texts in the settings; the headline of the screen comes from them.
2		**Close (X)**	Closes the editor. The screen on the board stays.

No.	Control	Name	What It Does
3		**Sponsor 1**	The first logo of the sponsor list. Click to put it on the screen.
4		**Sponsor 2**	The second logo of the sponsor list. Click to choose it.
5		**Sponsor 3**	The third logo of the sponsor list. Click to choose it.
6		**Sponsor 4**	The fourth logo of the sponsor list. Click to choose it.
7		**Sponsor 5**	The fifth logo of the sponsor list. Click to choose it.
8		**Home Logo**	Chooses the home team as scoring team and loads its players.
9		**Guest Logo**	Chooses the guest team as scoring team and loads its players.
10		**Remove Sponsor (x)**	Removes the sponsor from the screen.
11		**Goal**	Goal type Goal (headline Goal, goal icon in the timeline).
12		**Penalty Goal**	Goal type Penalty Goal (headline Penalty Goal, penalty-goal icon in the timeline).
13		**Animation**	Green frame: balls fall and bounce over the goal screen. Red frame: no animation.
14		**Player**	The scorer: choose from the team's player list (number-name) or type a name.
15		**Minute**	The minute shown on the screen and written into the timeline. Opens with the minutes of the match clock.
16		**Minute (stopwatch)**	Clears the minute box, or fills it again with the minutes of the match clock.
17		**Add to Match Timeline**	Switch: with a green frame every Show also adds a row to the match timeline.
18		**Show**	Puts the goal screen on the board, without the player photo.
19		**Show With Picture**	Puts the goal screen on the board with the player photo.
20		**Remove Photo (x)**	Removes the player photo for this screen.
21		**Use Scoreboard Background**	Uses the background video of the scoreboard.
22		**Use Black Background**	Uses a black background.

No.	Control	Name	What It Does
23		**Use Selected Background**	Uses a file you choose with the folder button that appears.

Control	What It Does
Goal Type	Goal (ball icon) or Penalty Goal. The chosen type has a green frame. The headline follows the type: "Goal" or "Penalty Goal".
Animation (icon at the right of the type row)	Green frame: the screen opens with balls falling and bouncing over the board. Red frame: no animation. Choosing Home switches it on, choosing Guest switches it off; click the icon to change it.
Player, Minute	The scorer (list or typed) and the minute. The minute box opens with "Minute" and the minutes of the match clock; it is shown at the bottom of the screen as typed. The stopwatch clears or refills the box.
Photo (right of the buttons)	The photo of the chosen player: the Image for Events of the player list. When a file with the same name plus _Goal (for example 05_Goal.png) is in the same folder, that file is used. The x next to it removes the photo for this goal.
Show	The goal screen without the photo.
Show With Picture	The goal screen with the player photo.

What happens on Show:

- The headline, the team name and the team logo (faded in the background) come from the chosen team.
- With Add to Match Timeline on, a row is added to the timeline: the scorer and the minute on the side of the team, with the goal or penalty-goal icon. A row that is the same as an existing row is not added twice.
- A play button appears next to the type row after Show.

> **Note:** The Goal screen does not change the score. Count the goal on the Game tab first (chapter 5.3), then show the screen.

9.5 Exclusion (18 Sec)

The 18 Sec button opens the card editor with the exclusion type selected; the title of the editor and the headline of the screen read "18-Second Suspension". The screen shows the team, the cap number and the name of the excluded player on a white band with the exclusion icon.

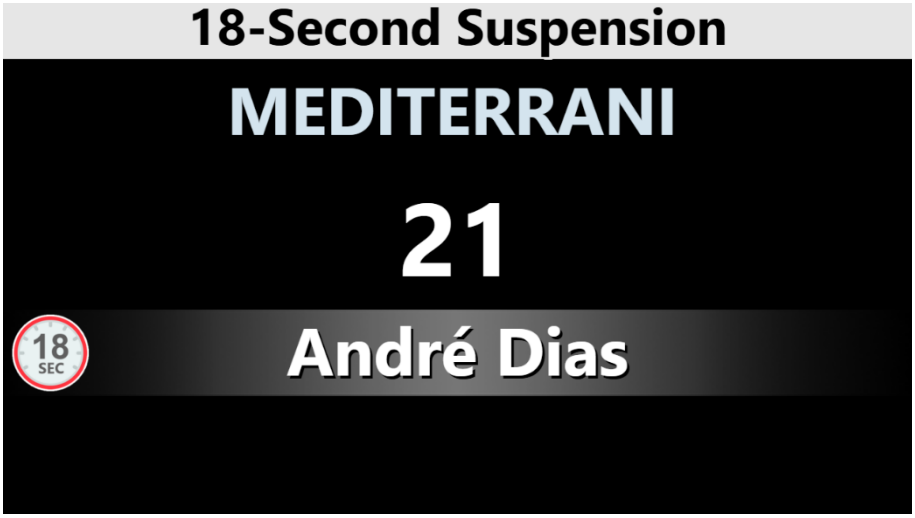


Figure 60. The exclusion screen for MEDITERRANI no. 21 with the exclusion icon of the program's image files.

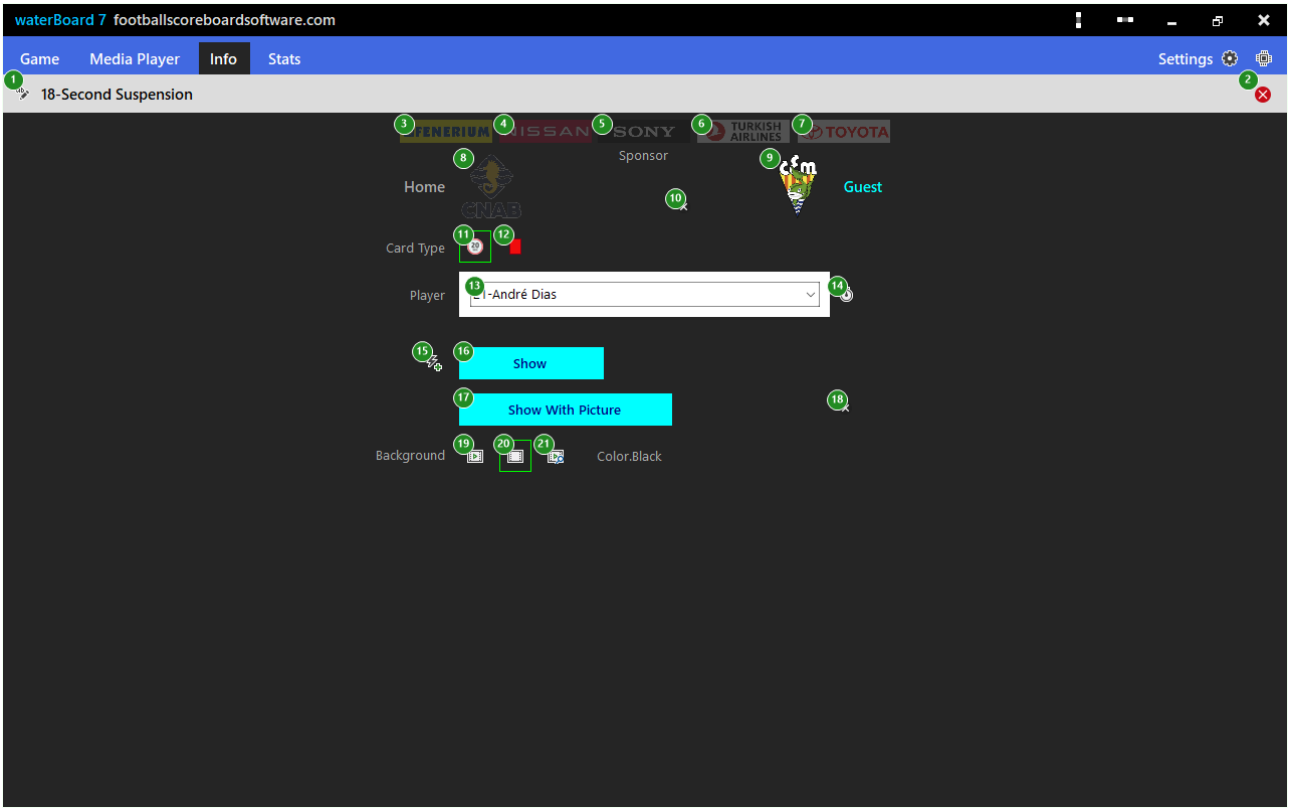


Figure 61. The exclusion editor (card editor with the exclusion type).

No.	Control	Name	What It Does
1		**Edit Title (pencil)**	Opens the title texts in the settings; the headline (18-Second Suspension, Red Card) comes from them.
2		**Close (X)**	Closes the editor. The screen on the board stays.
3		**Sponsor 1**	The first logo of the sponsor list. Click to put it on the screen.
4		**Sponsor 2**	The second logo of the sponsor list. Click to choose it.

No.	Control	Name	What It Does
5		**Sponsor 3**	The third logo of the sponsor list. Click to choose it.
6		**Sponsor 4**	The fourth logo of the sponsor list. Click to choose it.
7		**Sponsor 5**	The fifth logo of the sponsor list. Click to choose it.
8		**Home Logo**	Chooses the home team and loads its players.
9		**Guest Logo**	Chooses the guest team and loads its players.
10		**Remove Sponsor (x)**	Removes the sponsor from the screen.
11		**Exclusion**	Card type exclusion: headline 18-Second Suspension and the exclusion icon.
12		**Red Card**	Card type Red Card: headline Red Card and a red card.
13		**Player**	The player: choose from the team's player list (number-name) or type a name.
14		**Minute (stopwatch)**	Shows the minute box with the minutes of the match clock, or hides and clears it. The minute goes into the timeline only.
15		**Add to Match Timeline**	Switch: with a green frame every Show also adds a row to the match timeline.
16		**Show**	Puts the screen on the board, without the player photo.
17		**Show With Picture**	Puts the screen on the board with the player photo.
18		**Remove Photo (x)**	Removes the player photo for this screen.
19		**Use Scoreboard Background**	Uses the background video of the scoreboard.
20		**Use Black Background**	Uses a black background.
21		**Use Selected Background**	Uses a file you choose with the folder button that appears.

Control	What It Does
Card Type	Exclusion (first button) or Red Card (second button). The chosen type has a green frame; the title follows the type.
Player	The excluded player (list or typed).

Control	What It Does
Minute (stopwatch)	The minute box is hidden at first; the stopwatch shows it with the minutes of the match clock, or hides and clears it again. The minute is used only for the timeline; the screen does not show it.
Photo	The Image for Events of the player; a file with the same name plus _Card in the same folder is preferred. The x removes it.
Show, Show With Picture	The screen without or with the photo.

- The screen only shows the exclusion. The exclusion timer is started on the Game tab (chapter 5.7).
- The headline text comes from the title texts (Edit Title, pencil icon). For Canoe Polo, Underwater Rugby or Underwater Hockey, change the text there, for example to "2-Minute Suspension".

9.6 Red Card

The Red Card button opens the same card editor with Red Card selected. The screen shows the headline "Red Card", the team, the cap number and the name on a red band with a red card.

Board Output **Control Panel**

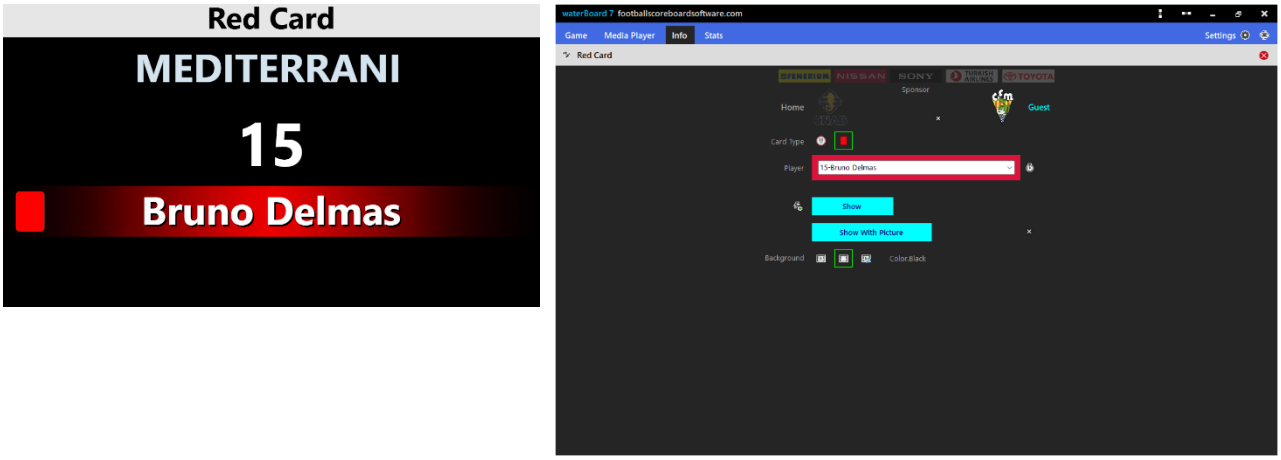


Figure 62. A red card for MEDITERRANI no. 15.

- The controls are those of the exclusion editor (section 9.5).
- With Add to Match Timeline on, a row with the red-card icon is added to the timeline.
- The screen does not change the red-card count of the scoreboard; set it with the round buttons of the Red Card row on the Info tab (section 9.1).

9.7 Substitution

One substitution of a team: the player coming in on a green band, the player going out on a red band.

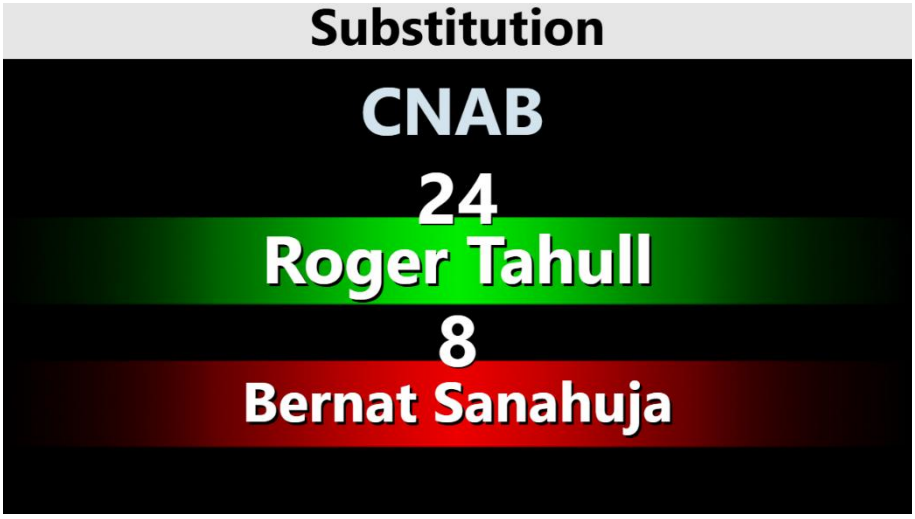


Figure 63. A CNAB substitution on the board: no. 24 in, no. 8 out.

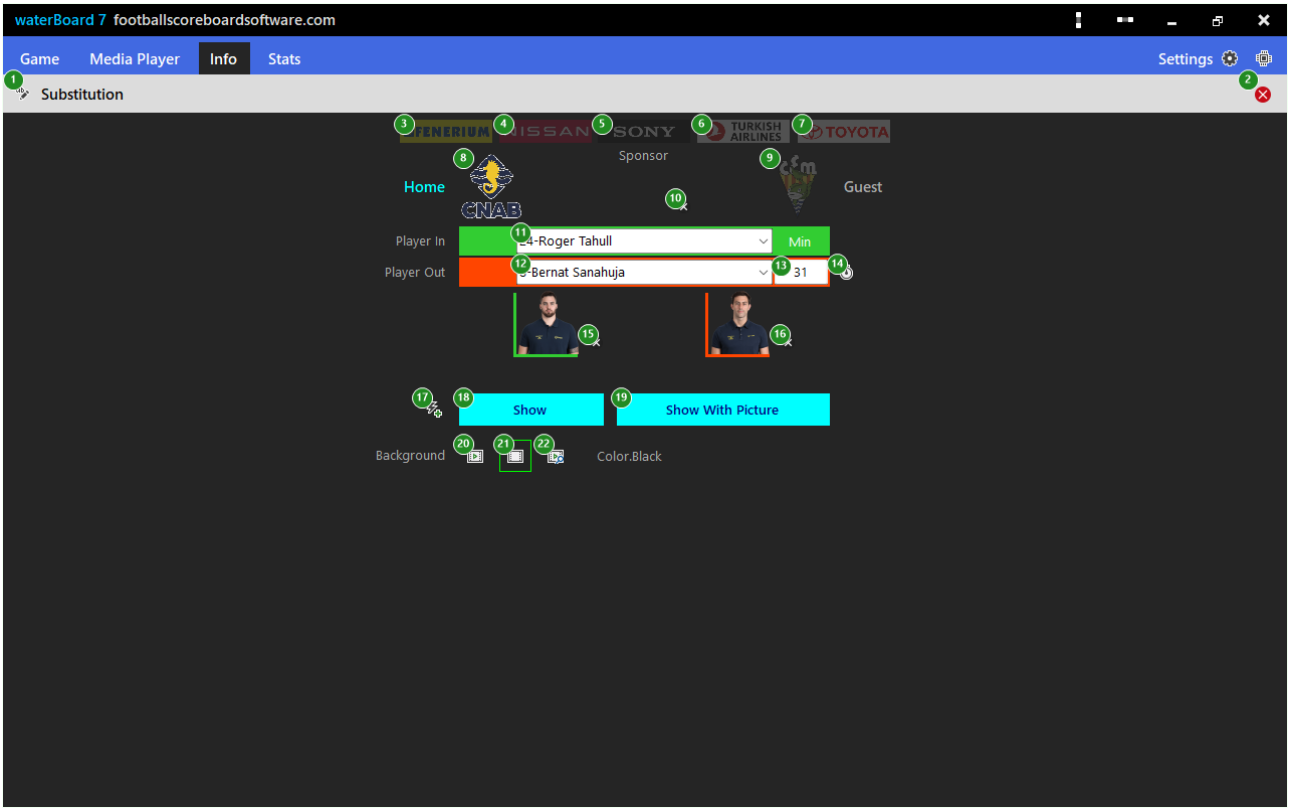


Figure 64. The Substitution editor with Player In, Player Out and the minute.

No.	Control	Name	What It Does
1		**Edit Title (pencil)**	Opens the title texts in the settings; the headline Substitution comes from them.
2		**Close (X)**	Closes the editor. The screen on the board stays.
3		**Sponsor 1**	The first logo of the sponsor list. Click to put it on the screen.
4		**Sponsor 2**	The second logo of the sponsor list. Click to choose it.

No.	Control	Name	What It Does
5		**Sponsor 3**	The third logo of the sponsor list. Click to choose it.
6		**Sponsor 4**	The fourth logo of the sponsor list. Click to choose it.
7		**Sponsor 5**	The fifth logo of the sponsor list. Click to choose it.
8		**Home Logo**	Chooses the home team and loads its players.
9		**Guest Logo**	Chooses the guest team and loads its players.
10		**Remove Sponsor (x)**	Removes the sponsor from the screen.
11		**Player In**	The player coming in (green band on the board).
12		**Player Out**	The player going out (red band on the board).
13		**Minute**	The minute for the timeline. Opens with the minutes of the match clock.
14		**Minute (stopwatch)**	Hides and clears the minute box, or shows and fills it again.
15		**Remove Photo In (x)**	Removes the photo of the player coming in for this screen.
16		**Remove Photo Out (x)**	Removes the photo of the player going out for this screen.
17		**Add to Match Timeline**	Switch: with a green frame every Show also adds a row to the match timeline.
18		**Show**	Puts the substitution on the board, without photos.
19		**Show With Picture**	Puts the substitution on the board with both photos.
20		**Use Scoreboard Background**	Uses the background video of the scoreboard.
21		**Use Black Background**	Uses a black background.
22		**Use Selected Background**	Uses a file you choose with the folder button that appears.

Control	What It Does
Player In (green)	The player coming in.
Player Out (red)	The player going out.

Control	What It Does
Min box and stopwatch	The minute, filled from the match clock. The stopwatch hides and clears it, or shows and fills it again. The minute is written into the timeline; the screen does not show it.
Photos (green and red frames)	The Image for Events of the two players; each x removes one photo.
Show	The screen without photos.
Show With Picture	The screen with both photos.

Both boxes must be filled; an empty box flashes red. With Add to Match Timeline on, a row with both names and the substitution icon is added on the side of the team.

9.8 Multiple Substitution

The Multiple button opens an editor for several substitutions of one team on one screen.

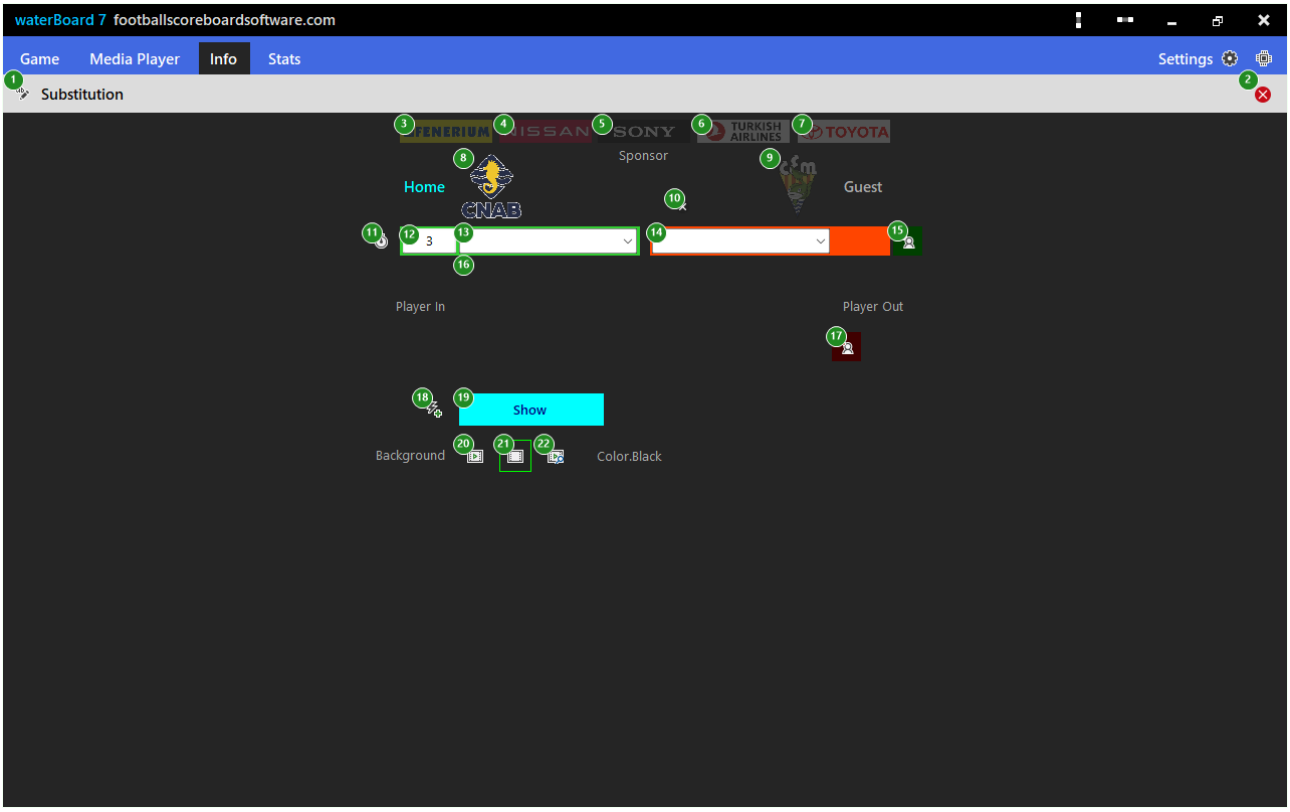
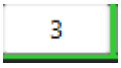


Figure 65. The Multiple Substitution editor before the first pair is added.

No.	Control	Name	What It Does
1		**Edit Title (pencil)**	Opens the title texts in the settings; the headline Substitution comes from them.
2		**Close (X)**	Closes the editor. The screen on the board stays.
3		**Sponsor 1**	The first logo of the sponsor list. Click to put it on the screen.

No.	Control	Name	What It Does
4		**Sponsor 2**	The second logo of the sponsor list. Click to choose it.
5		**Sponsor 3**	The third logo of the sponsor list. Click to choose it.
6		**Sponsor 4**	The fourth logo of the sponsor list. Click to choose it.
7		**Sponsor 5**	The fifth logo of the sponsor list. Click to choose it.
8		**Home Logo**	Chooses the home team, loads its players and clears the table.
9		**Guest Logo**	Chooses the guest team, loads its players and clears the table.
10		**Remove Sponsor (x)**	Removes the sponsor from the screen.
11		**Minute (stopwatch)**	Hides and clears the minute box, or shows and fills it again.
12		**Minute**	The minute for the timeline rows. Opens with the minutes of the match clock.
13		**Player In**	The player coming in for the next pair.
14		**Player Out**	The player going out for the next pair.
15		**Add Pair**	Adds the chosen pair to the table and takes both players out of the lists.
16		**Pairs**	The pairs of the screen: player in (left) and player out (right).
17		**Remove Pair**	Removes the selected pair from the table.
18		**Add to Match Timeline**	Switch: with a green frame Show adds one timeline row per pair.
19		**Show**	Puts all pairs of the table on the board. With an empty table nothing is shown.
20		**Use Scoreboard Background**	Uses the background video of the scoreboard.
21		**Use Black Background**	Uses a black background.
22		**Use Selected Background**	Uses a file you choose with the folder button that appears.

1. Click the logo of the team.

2. Choose the player coming in (green list) and the player going out (red list).
3. Click the add button (green, right of the red list). The pair is added to the table below; both players disappear from the lists.
4. Repeat for every pair. To remove a pair, select it and click the remove button (dark red) below the add button.
5. Click Show.

- A pair with the same player in both lists is not added.
- The screen lists the players coming in and the players going out of the team.
- With Add to Match Timeline on, one timeline row per pair is added.
- The table is cleared when the editor is opened again or another team is chosen.

9.9 Home Team and Guest Team

The rows Home Team and Guest Team of the Info tab hold everything for the team lists:

Button	What It Does
Home Team / Guest Team	Opens the player list of the team (chapter 11.3).
Colour buttons	The team colours (section 9.1).
Show	Shows the team list on the board.
Show Pictures	Opens the slideshow page of the team's banner photos (chapter 12.3).
Slide	Shows the players one after another with their photos.

Show

The team list screen: the team name as headline, the Trainer below it, and two tables, Starting 7 and Substitutes, each with the cap number and the name. The rows appear one after the other.

Board Output **Control Panel**

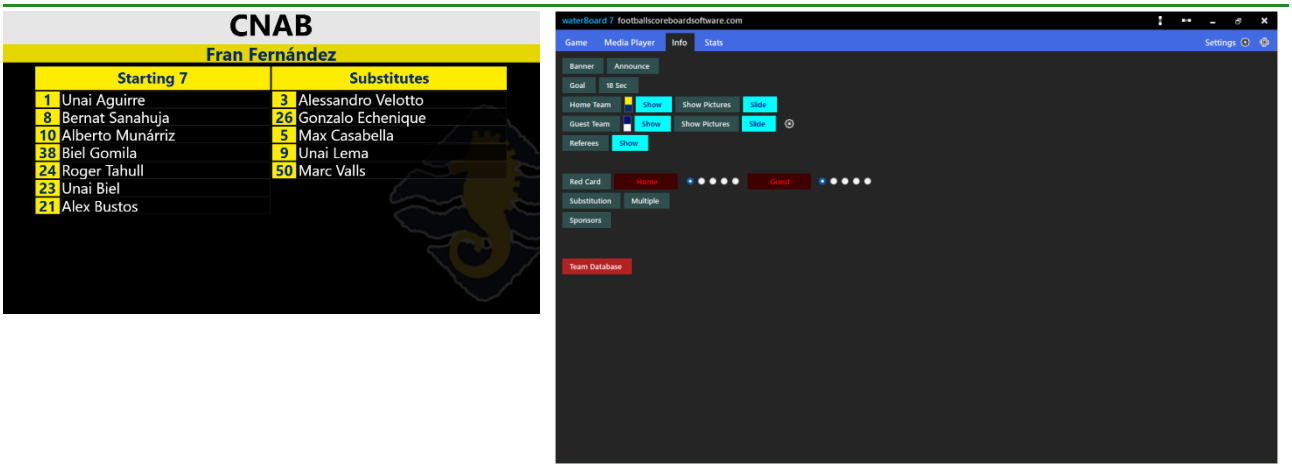


Figure 66. The CNAB team list after Show in the Home Team row.

- Starting 7 is the group Starting 7 of the player list, Substitutes the group Substitutes, the Trainer the first entry of the group Trainer. Other Players are not shown.
- The headline rows and the number cells use the team colours.
- The table headings come from the title texts (chapter 16).

- The background is set with the gear button of the Info tab (section 9.1).

Slide

A slideshow on the board: a title page Starting 7, then each starter with cap number, name and photo, then Substitutes and their players, then Trainer. The photo is the Image for Events of the player list. The background is the one of the gear button.

9.10 Referees

The referees screen lists the officials of the match: the first name in large letters, the others below it, with a whistle-and-flag picture.



Figure 67. The referees screen on the board.

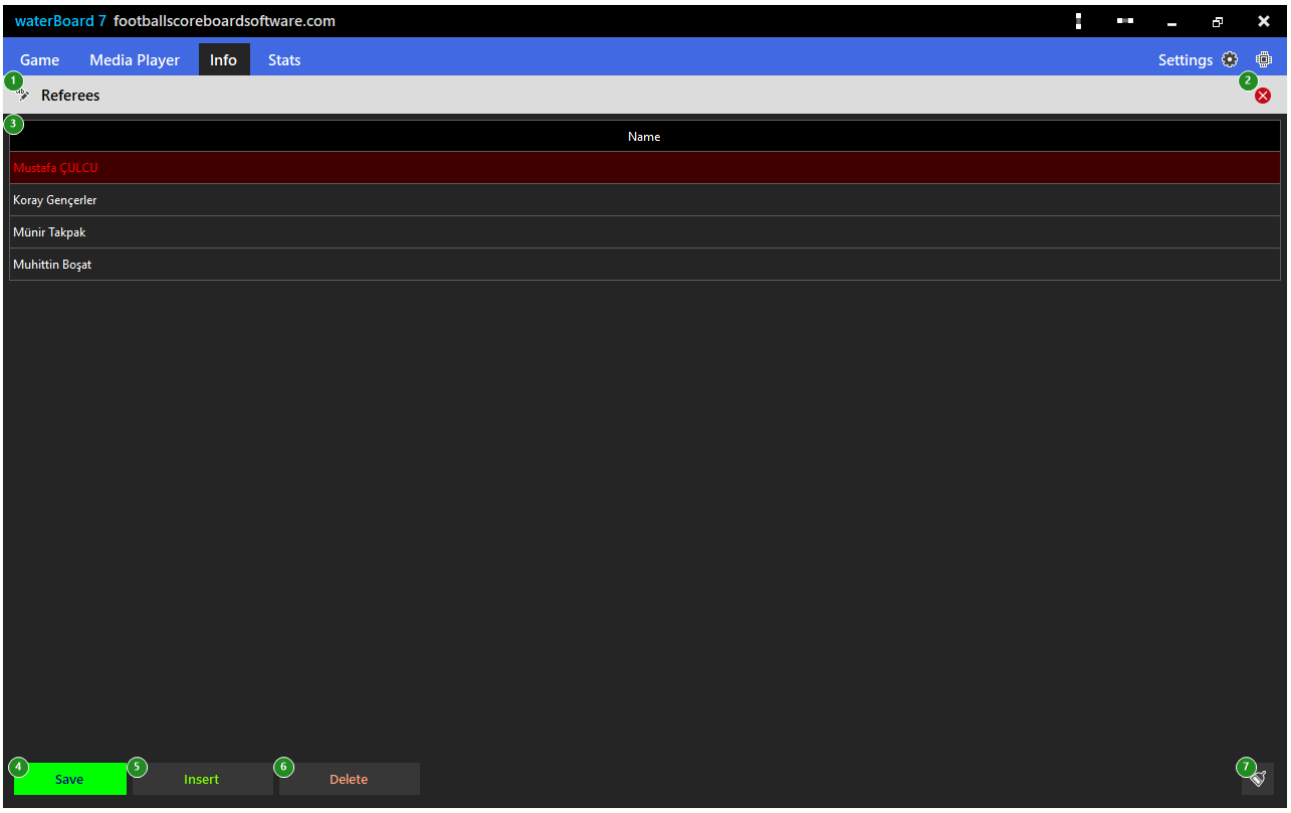
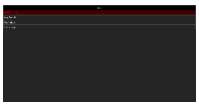
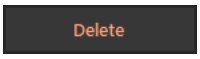


Figure 68. The referee list with the sample names.

No.	Control	Name	What It Does
1		**Edit Title (pencil)**	Opens the title texts in the settings; the headline Referees comes from them.
2		**Close (X)**	Closes the referee list.
3		**Referee List**	One name per row; the first row is the main referee. Click to edit, drag to reorder.
4		**Save**	Saves the referee list. Green while there are unsaved changes.
5		**Insert**	Adds an empty row at the end.
6		**Delete**	Removes the selected row (not the first row).
7		**Clear All**	Empties the list. Saved only when you click Save.

Control	What It Does
Name list	One name per row. The first row is the main referee. Click a cell and type to change a name. Drag a row to change the order.
Save	Saves the list (common\data\referees.xml). The button is green while there are unsaved changes. Empty rows are dropped.
Insert	Adds an empty row at the end.
Delete	Removes the selected row. The first row cannot be removed with Delete; overwrite it instead.
Clear All (icon at the right)	Empties the list. Click Save to keep the empty list.
Edit Title (pencil)	The headline "Referees" comes from the title texts.

Show the screen with Show in the Referees row of the Info tab. Click Save first: Show reads the saved file.

9.11 Sponsors

Info > Sponsors holds the sponsor logos. They are used by the Sponsored band (chapter 7.3), the Ad banner (chapter 7.4) and the sponsor row of the info editors (the first five logos).

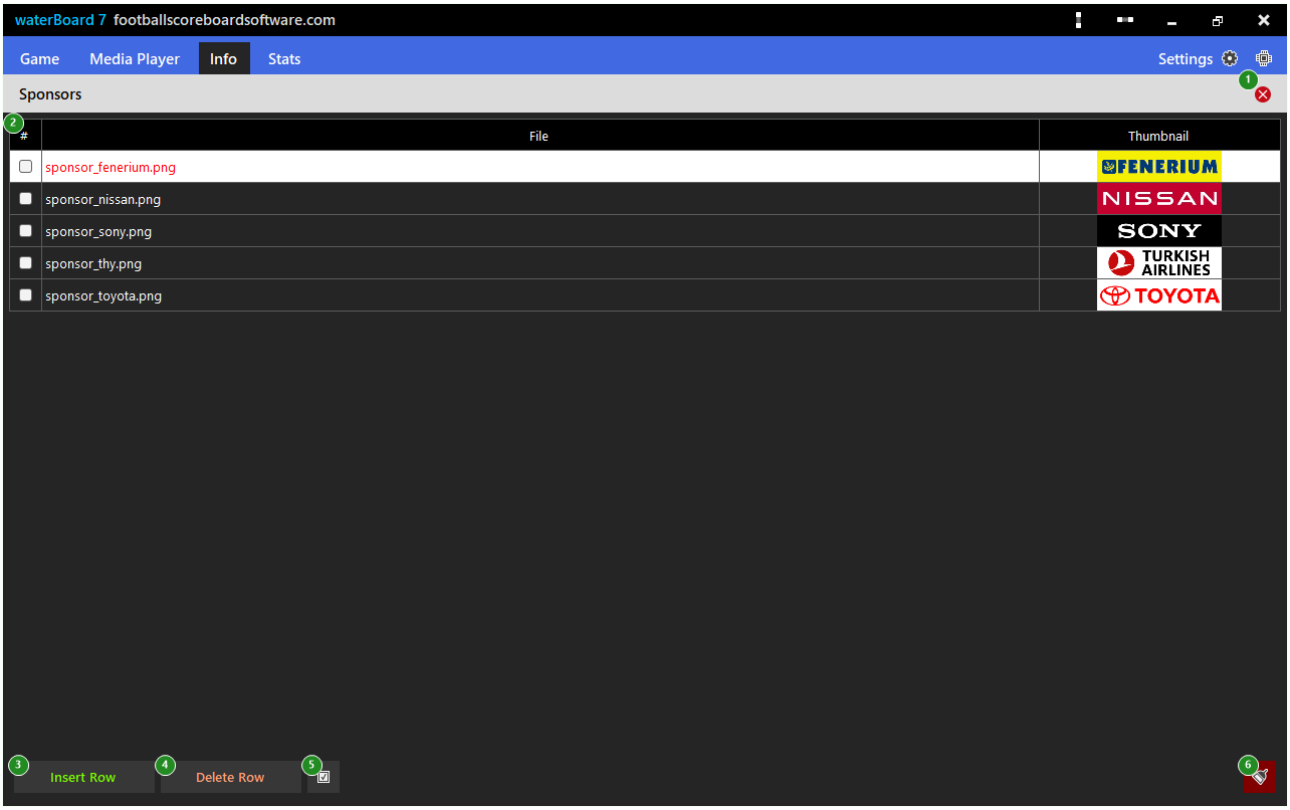
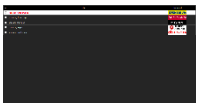
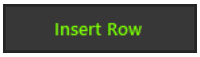
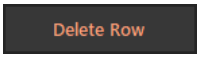


Figure 69. The sponsor list with the sample logos.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the sponsor list.
2		**Sponsor List**	The sponsor logos: default tick, file name and thumbnail. Drag a row to change the order.
3		**Insert Row**	Adds one or more picture files to the list.
4		**Delete Row**	Removes the selected logo.
5		**Set Default**	Ticks the selected logo, makes it the sponsor of the info editors and moves it to the top; on a ticked logo removes the tick.
6		**Clear All**	Empties the sponsor list.

Control	What It Does
List	The columns # (the tick of the default sponsor), File and Thumbnail. Drag a row to change the order.
Insert Row	Adds one or more picture files (bmp, gif, jpeg, jpg, png).
Delete Row	Removes the selected logo.

Control	What It Does
Set Default (icon next to Delete Row)	Ticks the selected logo, makes it the sponsor of the info editors and moves it to the top. On a ticked logo it removes the tick and the sponsor choice.
Clear All (icon at the right)	Empties the list.

- Every change is saved at once (common\data\sponsors.xml); there is no Save button.
- The list keeps the path of each file. Keep the logo files where they are; the sample logos are in media\images\sponsors.

9.12 Team Database

The red button Team Database opens the saved teams. A team is saved from its player list with Save to Teams (chapter 11.3); the database then loads it into the match with Set Home or Set Guest.

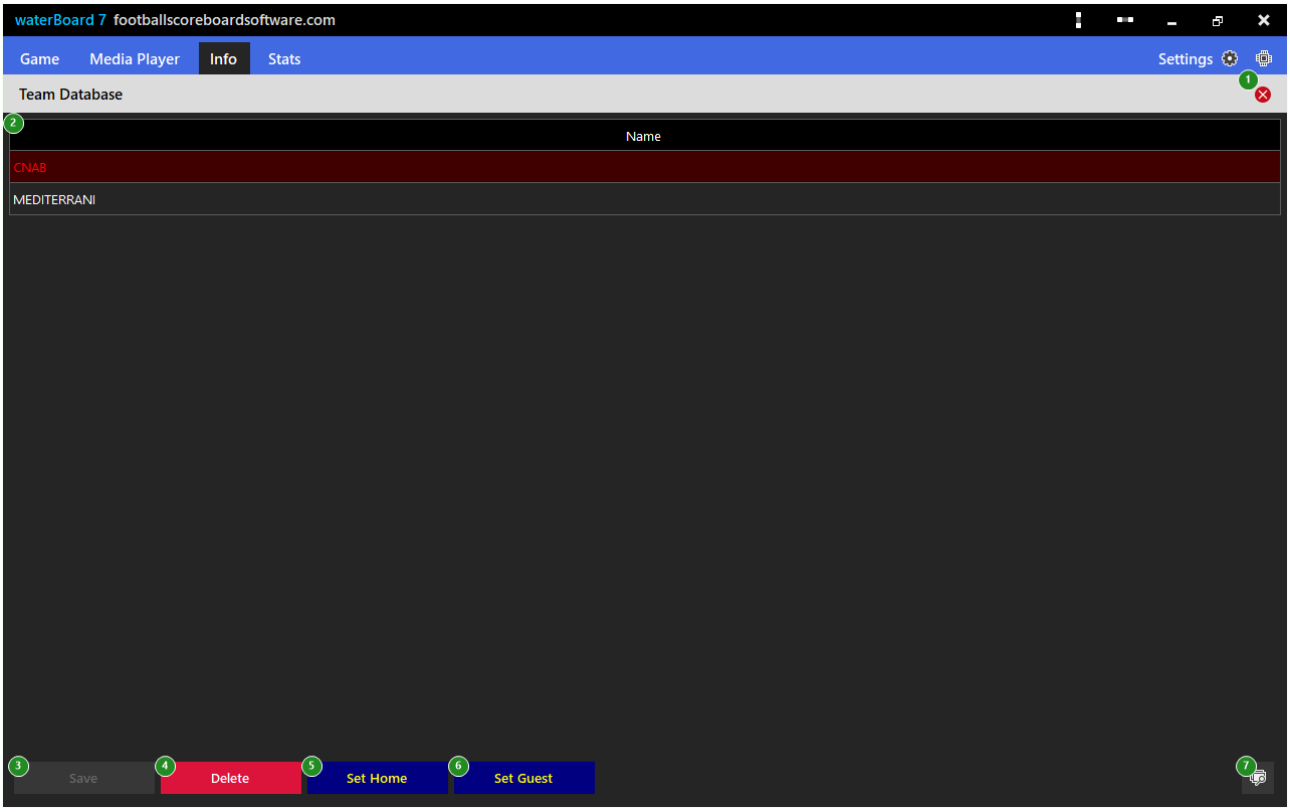
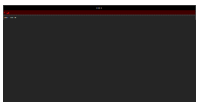
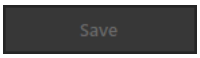
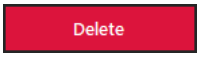


Figure 70. The Team Database with the sample teams.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the team database.
2		**Team List**	The saved teams in alphabetical order. Click a name and type to rename it.
3		**Save**	Saves changed team names.
4		**Delete**	Deletes the selected team and its player file after a question.

No.	Control	Name	What It Does
5		**Set Home**	Copies the player list of the selected team into the home player list, after a question.
6		**Set Guest**	Copies the player list of the selected team into the guest player list, after a question.
7		**Show**	Opens the player list of the selected team for editing.

Control	What It Does
Name list	The saved teams in alphabetical order. Click a name and type to rename it, then click Save.
Save	Saves the changed names. Grey while there is nothing to save.
Delete	Deletes the selected team and its player file after the question "Team player data will be deleted! Are you sure?".
Set Home	Copies the player list of the selected team into the home player list, after the question "The selected team will be assigned to the match squad! Are you sure?".
Set Guest	The same for the guest player list.
Show (icon at the right)	Opens the player list of the selected team in the player editor (title = team name). Changes there are saved with Save into the team's file, not into the match.

> **Note:** Set Home and Set Guest replace only the player list. The team name and the logo on the Game tab stay as they are; change them there (chapter 5.2).

Details and the files are in chapter 11.4.

10. Statistics

The Stats tab of the main window holds five pages: Timeline, Stats, Standings, Results and Fixtures. Each page is a table you fill in or correct by hand, and each has a Show button that puts the table on the board as a full-screen page. waterBoard 7 does not count statistics by itself; only the timeline receives rows automatically, from the info editors.

Page	What It Holds	File (common\data)
Timeline	The events of the match: goals, exclusions, cards, substitutions	dataEvents.xml
Stats	Free statistic rows with a home and a guest value	dataStats.xml
Standings	A league table	dataStandings.xml
Results	Match results, grouped by day or round	dataResults.xml
Fixtures	Coming matches, grouped by day or round	dataFixtures.xml

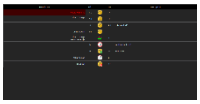
- Click a page button at the top of the Stats tab to open it; the chosen page is blue.
- Like the info screens, a page shown on the board stays there until you click Game (or send match from the remote control). See chapter 9.1.
- New Match on the Game tab does not clear these pages. Clear the timeline and the statistics yourself before a new match.

10.1 Timeline

The match timeline lists the events in order: home events on the left, guest events on the right, with an icon in the middle.



Figure 71. The Timeline page with sample events.

No.	Control	Name	What It Does
1	Timeline	**Timeline**	Opens the match timeline.
2	Stats	**Stats**	Opens the statistics table.
3	Standings	**Standings**	Opens the league table.
4	Results	**Results**	Opens the results table.
5	Fixtures	**Fixtures**	Opens the fixtures table.
6		**Timeline**	The events: home description and minute, icon, guest minute and description. Click a cell to edit; click an icon cell to choose the icon.
7	Show	**Show**	Puts the timeline on the board (rows with the icons ticked in the filter).
8		**Filter**	Opens the icon filter: which event types Show puts on the board.
9	Insert Row	**Insert Row**	Inserts an empty row above the selected row.
10	Delete Row	**Delete Row**	Removes the selected row.

No.	Control	Name	What It Does
11	Delete All	**Delete All**	First click arms the button (red), the second click empties the timeline.

Column	What It Holds
Description (left)	The home player, for example the scorer. Two names (substitution) are on two lines.
Min (left)	The minute of a home event, or a score such as 1-0.
Icon	The event type (below).
Min (right)	The minute of a guest event, or a score.
Description (right)	The guest player.

Button	What It Does
Show	Puts the timeline on the board.
Filter (funnel, next to Show)	Opens the icon filter: which event types Show puts on the board (below).
Insert Row	Inserts an empty row above the selected row (at the end when no row is selected).
Delete Row	Removes the selected row.
Delete All	Empties the timeline. The first click turns the button red; a second click deletes all rows. A click into the table disarms it.

Rows from the Info Editors

With Add to Match Timeline switched on (lightning icon in the editors of chapter 9 and of the CK page), every Show writes a row:

Editor	Row
Goal	Scorer and minute on the side of the team, goal icon.
Goal, type Penalty Goal	The same with the penalty-goal icon.
Substitution, Multiple	Player in and player out (two lines) and the minute, substitution icon; Multiple writes one row per pair.
18 Sec	The excluded player and the minute, with the exclusion icon.
Red Card	The player and the minute, red-card icon.

- A row with no minute takes the minutes of the match clock.

- A row that is identical to an existing row is not added again.
- The rows are added at the end. Insert empty rows and edit them for events you add by hand, or for a score: type it, for example 2-1, into the Min cell of the team that scored.

Editing a Row

- Click a cell and type (or press F2) to change a description or a minute. The page is saved after every change.
- To set or change an icon, click the icon cell, then the button that appears in it. A palette opens: goal, own goal, penalty goal, penalty missed, substitution, yellow card, exclusion (a stopwatch icon) and red card. Click an icon; the red x closes the palette.

Filter

The funnel opens a row of icons. A green icon is shown on the board; a grey one is left out.

- Click an icon to switch its whole group on or off: goals (goal, own goal, penalty goal, penalty missed), substitutions, or cards (yellow card, exclusion, red card). The other groups are switched off.
- Ctrl+click switches a single icon.
- The first icon (filter off) switches all icons on.
- The filter is saved (config.xml) and stays after a restart.

> **Note:** Rows without an icon never appear on the board. Give every row an icon.

Timeline on the Board



Figure 72. The timeline on the board: logos and score at the top, home events left, guest events right.

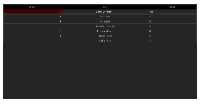
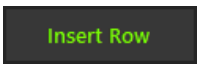
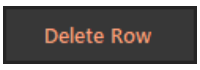
- The top line shows both team logos and the current score of the Game tab.
- A Min cell with a hyphen (a score such as 1-0) is shown as a highlighted score box; other Min values as a minute box.
- A long timeline scrolls down and back up, with a 10-second pause at each end.
- In the Chroma Key mode the Timeline button of the CK page shows the timeline as a lower third; the page then also has a Hide button (chapter 7.5).

10.2 Stats

A free table of match statistics: each row has a home value, the name of the statistic and a guest value.



Figure 73. The Stats page with sample water polo statistics.

No.	Control	Name	What It Does
1		**Statistics**	Rows with a home value, the statistic and a guest value. Click a cell to edit.
2		**Show**	Puts the statistics with bars on the board.
3		**Insert Row**	Inserts an empty row above the selected row.
4		**Delete Row**	Removes the selected row.

Column	What It Holds
Home	The value of the home team, for example 29 or %32.
Stats	The name of the statistic, for example Shots Taken.
Guest	The value of the guest team.

- Insert Row inserts an empty row above the selected row; Delete Row removes the selected row.
- Click a cell and type to change it. The page is saved after every change.
- The values are typed by hand; the program does not count shots, saves or exclusions.

On the board (Show):



Figure 74. The Stats page on the board: a bar per row, the higher value highlighted.

- The top line shows both team logos and the current score of the Game tab.
- Each row has two bars that grow from the middle; their lengths follow the share of the two values.
- The higher value is highlighted.
- Only the digits of a value count for the bars and the comparison: %32 counts as 32.
- A row where both values are 0 or empty is left out.

10.3 Standings

A league table with logos.

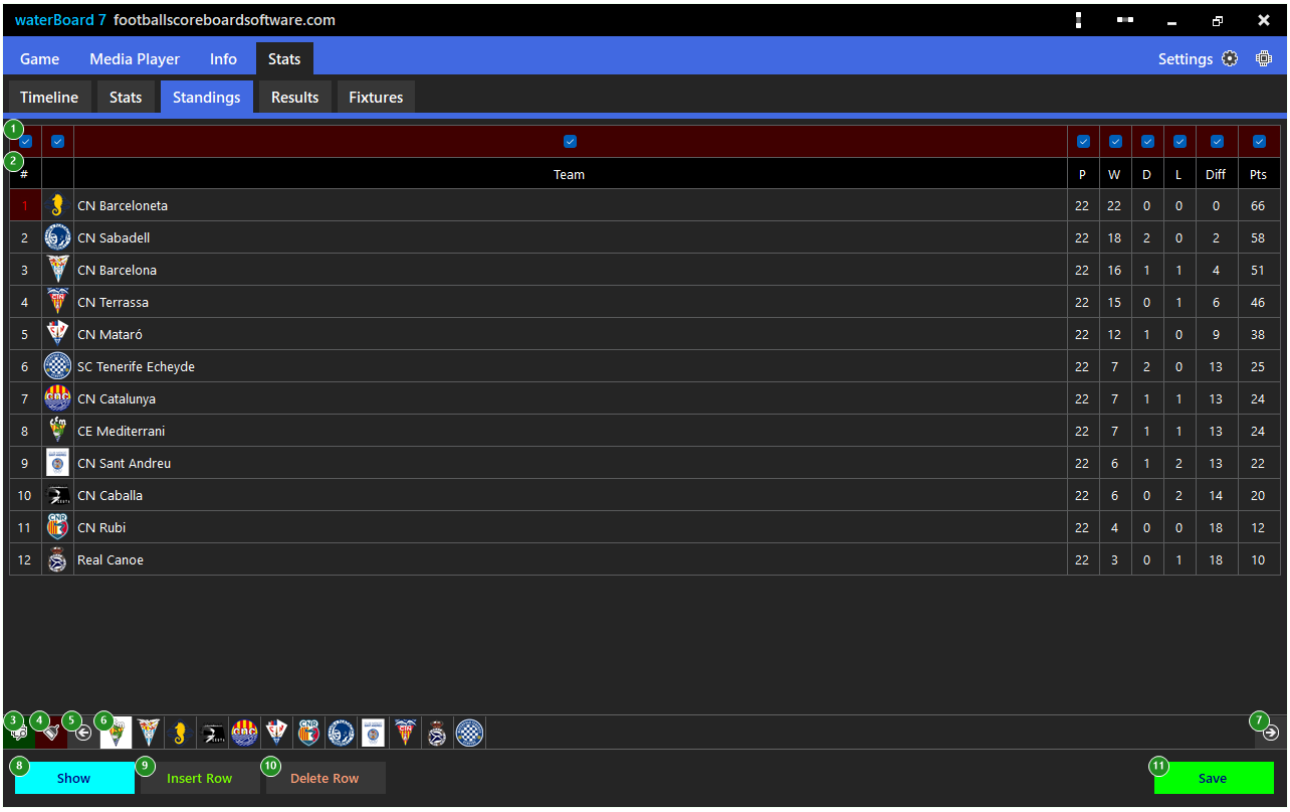
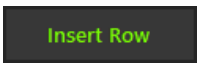
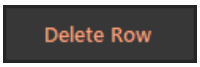


Figure 75. The Standings page with a sample table and the logo strip.

No.	Control	Name	What It Does
1		**Select Column**	Tick the columns that Show puts on the board. The first box ticks or clears all.
2		**Standings**	#, logo, Team, P, W, D, L, Diff and Pts. Click a cell to edit; drag a row to reorder.
3		**Select Picture**	Adds logo files to the logo strip.
4		**Clear**	Empties the logo strip.
5		**Scroll Left**	Scrolls the logo strip while you hold the button.
6		**Logo Strip**	Click a logo, then a row, to give the team its logo; or drag the logo onto the row. Delete removes the selected logo from the strip.
7		**Scroll Right**	Scrolls the logo strip while you hold the button.
8		**Show**	Puts the table with the ticked columns on the board.
9		**Insert Row**	Inserts an empty row above the selected row.
10		**Delete Row**	Removes the selected row.
11		**Save**	Saves the table.

Column	What It Holds
#	The position. It is numbered automatically from the order of the rows.
Logo	The team logo (set from the logo strip).
Team	The team name.
P, W, D, L	Played, won, drawn, lost.
Diff	The goal difference.
Pts	The points.

The row of check boxes above the column names chooses the columns that Show puts on the board. The first check box ticks or clears all of them. The choice is saved at once.

Logos

The strip below the table holds the logo pictures to use in the tables. It is shared by Standings and Results.

Control	What It Does
Select Picture (green icon, left)	Adds one or more picture files (bmp, gif, jpeg, jpg, png) to the strip.
Clear (red icon)	Empties the strip.
Arrows	Scroll the strip left and right while you hold the button.

To give a team its logo, click the logo in the strip (the mouse pointer becomes the logo), then click the row of the team. Or drag the logo from the strip onto the row. Esc cancels. Select a logo in the strip and press Delete to remove it from the strip.

Editing and Saving

- Insert Row inserts an empty row above the selected row; Delete Row removes the selected row.
- Drag a row to another place to change the order; # is renumbered.
- Save writes the table. Click Save before you leave the page: the table is not saved by itself. After Save the button turns grey and stays so until the page is opened again.

On the board (Show) the table has the headline "Standings" (title texts, chapter 16). A table longer than the screen scrolls down and back up with 10-second pauses.



Figure 76. The Standings on the board.

10.4 Results

Match results in rows, with optional heading rows for a day or a round.

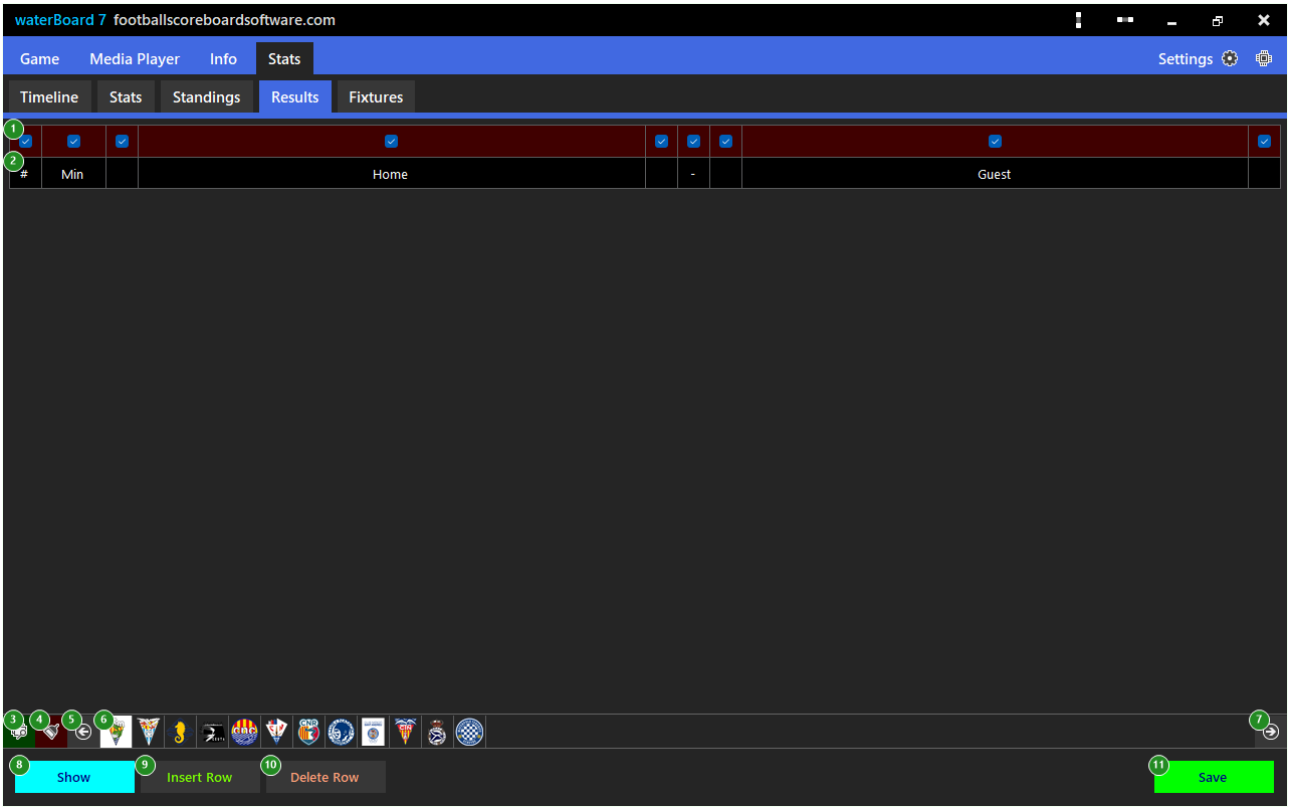


Figure 77. The Results page (empty) with the logo strip.

No.	Control	Name	What It Does
1		**Select Column**	Tick the columns that Show puts on the board. The first box ticks or clears all.
2		**Matches**	#, Min (time, or ! for a heading row), logos, teams and scores. Click a cell to edit; drag a row to reorder.
3		**Select Picture**	Adds logo files to the logo strip.
4		**Clear**	Empties the logo strip.
5		**Scroll Left**	Scrolls the logo strip while you hold the button.
6		**Logo Strip**	Click a logo, then the home or guest part of a row, to set that team's logo. Delete removes the selected logo from the strip.
7		**Scroll Right**	Scrolls the logo strip while you hold the button.
8	Show	**Show**	Puts the results (or fixtures) with the ticked columns on the board.
9	Insert Row	**Insert Row**	Inserts an empty row above the selected row.
10	Delete Row	**Delete Row**	Removes the selected row.
11	Save	**Save**	Saves the table.

Column	What It Holds
#	Row number, automatic.
Min	The kick-off time of the match, or a mark for a heading row (below).
Logo (left)	The home team logo.
Home	The home team; in a heading row the heading text.
Score (left), -, Score (right)	The goals of both teams. The hyphen is filled in automatically.
Logo (right)	The guest team logo.
Guest	The guest team.

A heading row: type ! or # into Min and the heading, for example "Round 12" or a date, into Home. The row turns green, and the other cells of the row are emptied. On the board the heading spans the whole width.

- The check box row, the logo strip, Insert Row, Delete Row, dragging rows and Save work as on the Standings page.
- To set a logo, click the logo in the strip, then click the row: a click in the left part of the row (up to the home score) sets the home logo, a click further right the guest logo.
- The board headline is "Results" (title texts).

10.5 Fixtures

The Fixtures page is the Results page without the score columns: time, home logo, home team, guest logo and guest team, with heading rows for days or rounds. It is saved in its own file. The board headline is "Fixtures".

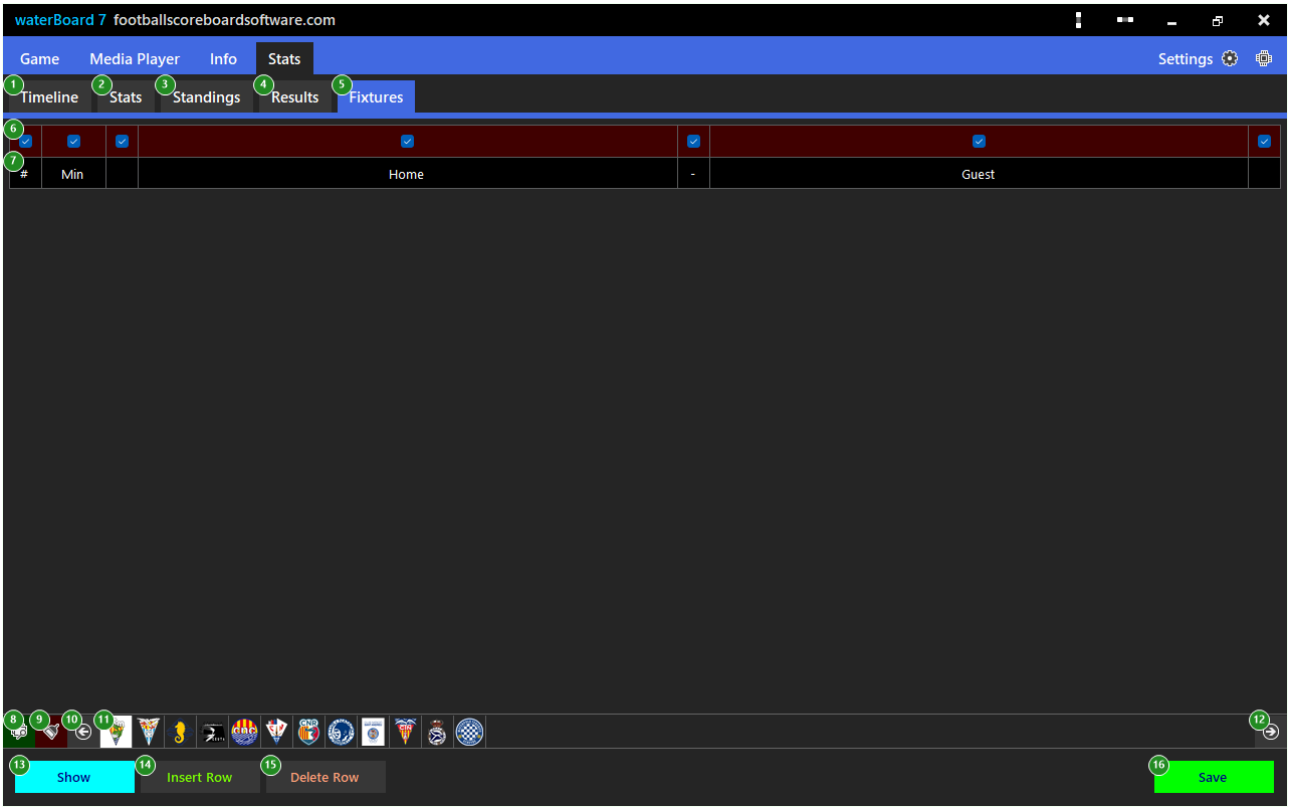


Figure 78. The Fixtures page (empty).

10.6 Statistics on the Board

Page	Board Page	Top Line
Timeline	The event rows with icons	Team logos and the current score
Stats	Bars per statistic	Team logos and the current score
Standings	The table with the ticked columns	Headline Standings
Results	Results with heading rows	Headline Results
Fixtures	Fixtures with heading rows	Headline Fixtures

1. Fill in or check the page.
2. On Standings, Results and Fixtures: tick the columns for the board and click Save.
3. Click Show.
4. Click Game to go back to the scoreboard.

- The board page is built on Show; it does not follow later changes. Click Show again after a change.
- The headlines can be translated or changed in the title texts (chapter 16).
- The remote control and the HTTP API have no commands for the statistics pages; only match brings the scoreboard back.

11. Teams, Players, Photos and Logos

A match in waterBoard 7 uses two teams, each with a name, a logo, two team colours and a player list. This chapter explains where each of them is set, where it appears, and how to keep whole teams in the team database for later matches.

Item	Where It Is Set	Where It Appears
Team name	Game tab (chapter 5.2)	Scoreboard, info screens, team list
Team logo	Game tab (chapter 5.2)	Scoreboard, info screens, timeline and stats pages
Team colours	Info tab, colour buttons (chapter 9.1)	Team list screen, CK scorebug
Player list	Info > Home Team / Guest Team	Player boxes of the editors, team list, Slide, Show Pictures, number list of the exclusions
Saved teams	Player list > Save to Teams; Info > Team Database	Loaded into the player lists with Set Home / Set Guest

11.1 Team Names and Colours

The team names are typed on the Game tab (chapter 5.2). The info screens take the name at the moment you click Show:

- Goal, 18 Sec, Red Card, Substitution and Multiple: the name of the chosen team (for a Goal of the type Goal or Penalty Goal, the scoring team).
- Team list (Show in the Home Team or Guest Team row): the name as headline.
- Timeline and Stats pages: the logos and the current score in the top line.

The team colours are the two small colour buttons next to Home Team and Guest Team on the Info tab. The upper button is the main colour, the lower one the second colour.

1. Click a colour button.
2. Choose the colour in the colour picker and confirm.
3. The colour is saved at once (start.xml) and used from the next Show.

Colour	Team List Screen	CK Scorebug
Main colour	Background of the headline rows and of the cap numbers	Colour stripe next to the team
Second colour	Text of the headline rows and of the cap numbers	Second colour stripe

The colours of the scoreboard itself come from the design (chapter 8).

11.2 Logos

The Game tab has three logo slots: the home logo, the guest logo and the board logo in the middle (chapter 5.2).

1. Click the logo slot. A file dialog opens in media\downloads\images.
2. Choose a picture (bmp, gif, jpeg, jpg, png).
3. The logo appears on the Game tab and on the board.

To remove a logo, rest the mouse on it and click the small X that appears (chapter 5.2).

Where the team logos appear:

- the scoreboard of every display mode, where the design has a place for them;
- Banner (both logos), Announce (the chosen team) and, faded in the background, Goal, Multiple, the team list and the slide;
- the top line of the Timeline and Stats pages;
- the team buttons of the info editors (click a logo to choose the team).

The logos of the Standings, Results and Fixtures tables are separate: they come from the logo strip of the Stats tab (chapter 10.3).

> **Note:** The program keeps the path of the logo file, not the picture. Keep the logo files in place; a moved or deleted file leaves the slot empty. A folder below the program folder, for example C:\waterBoard7\media\images, is a good place.

11.3 Player Lists

Each team has a player list. Open it with Info > Home Team or Info > Guest Team; the title of the editor shows Home Team or Guest Team.

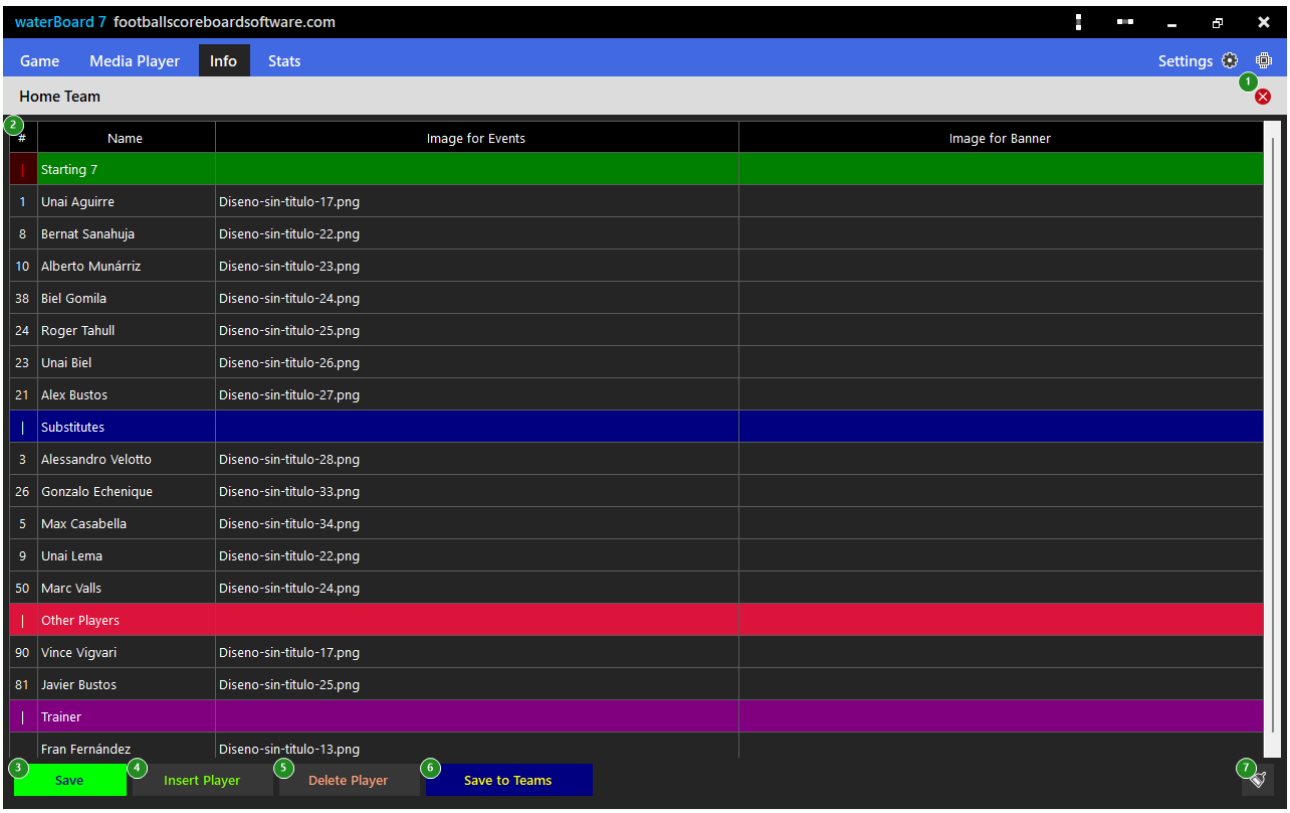
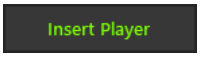
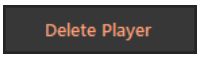


Figure 79. The Home Team player list with the sample players of CNAB.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the player list. Changes that were not saved are lost.
2		**Player List**	The groups Starting 7, Substitutes, Other Players and Trainer with #, Name, Image for Events and Image for Banner. Click a cell to edit; drag a row by # or Name to move it.
3		**Save**	Saves the player list. Green while there are unsaved changes. Empty rows are dropped.
4		**Insert Player**	Adds an empty row at the end of the group of the selected row.
5		**Delete Player**	Removes the selected player.
6		**Save to Teams**	Saves a copy of the list in the team database under a name you type.
7		**Clear All**	Empties all groups. Saved only when you click Save.

The list has four groups, each with a coloured header row:

Group	What It Holds	Used By
Starting 7	The starting players, in the order you want them on the board.	Player boxes of the editors, team list (table Starting 7), Slide, Show Pictures
Substitutes	The other players of the match squad.	Player boxes, team list (table Substitutes), Slide, Show Pictures
Other Players	Further players, for example players not in the squad.	Player boxes of the editors only
Trainer	One person, the coach.	Team list (line below the team name), Slide, Show Pictures

Column	What It Holds
#	The cap number. Use digits only.
Name	The player's name.
Image for Events	The player photo for Show With Picture (Goal, 18 Sec, Red Card, Substitution) and for Slide (section 11.5).
Image for Banner	The picture or video for Show Pictures (chapter 12.3).

Button	What It Does
Save	Saves the list (common\data\playersHome.xml or playersGuest.xml). The button turns green when there are unsaved changes. Empty rows are dropped.
Insert Player	Adds an empty row at the end of the group of the selected row. The Trainer group takes one person only.
Delete Player	Removes the selected player. Header rows cannot be removed.
Save to Teams	Saves a copy of the list in the team database under a name you type ("Please Enter a Name"). The program confirms with "The data has been successfully saved."
Clear All (icon at the right)	Empties all groups. The empty list is saved only when you click Save.

Editing the List

1. Click a cell and type (or press F2) to change a number or a name.
2. For a photo, click the cell in Image for Events or Image for Banner, then the small picture button in the cell, and choose the file. Image for Events takes pictures (bmp, gif, jpeg, jpg, png); Image for Banner also takes videos.
3. To move a player, drag the row by its # or Name cell to the new place, also into another group. The Trainer cannot be moved, and no player can be moved into the Trainer group.
4. Click Save.

- A file name shown in red means that the file is missing.
- When a cell with an existing picture is selected, a preview appears below the row. The folder icon in the preview opens the file's folder in Windows Explorer.
- The X at the right of the title bar, or Esc, closes the list. Changes that were not saved are lost.

> **Note:** The number list of the exclusion boxes on the Game tab (chapter 5.7) is read from the player lists when the program starts. After you change a player list, or load a team with Set Home or Set Guest, restart waterBoard 7 to update that number list. The info editors read the lists each time they open.

11.4 Team Database

The team database keeps complete player lists for later matches, for example all teams of a league.

Saving a Team

1. Open the player list (Info > Home Team or Guest Team) and fill it in.
2. Click Save to Teams.
3. Type the name of the team, for example the club name, and confirm.

The list is saved as a team file; the current match list stays as it is.

Loading a Team into the Match

1. Info > Team Database.
2. Click the team.
3. Click Set Home or Set Guest and confirm "The selected team will be assigned to the match squad! Are you sure?".

4. The message "Action Success" confirms. The player list of that side now holds the saved team.
5. Type the team name and choose the logo on the Game tab; Set Home and Set Guest change only the player list.

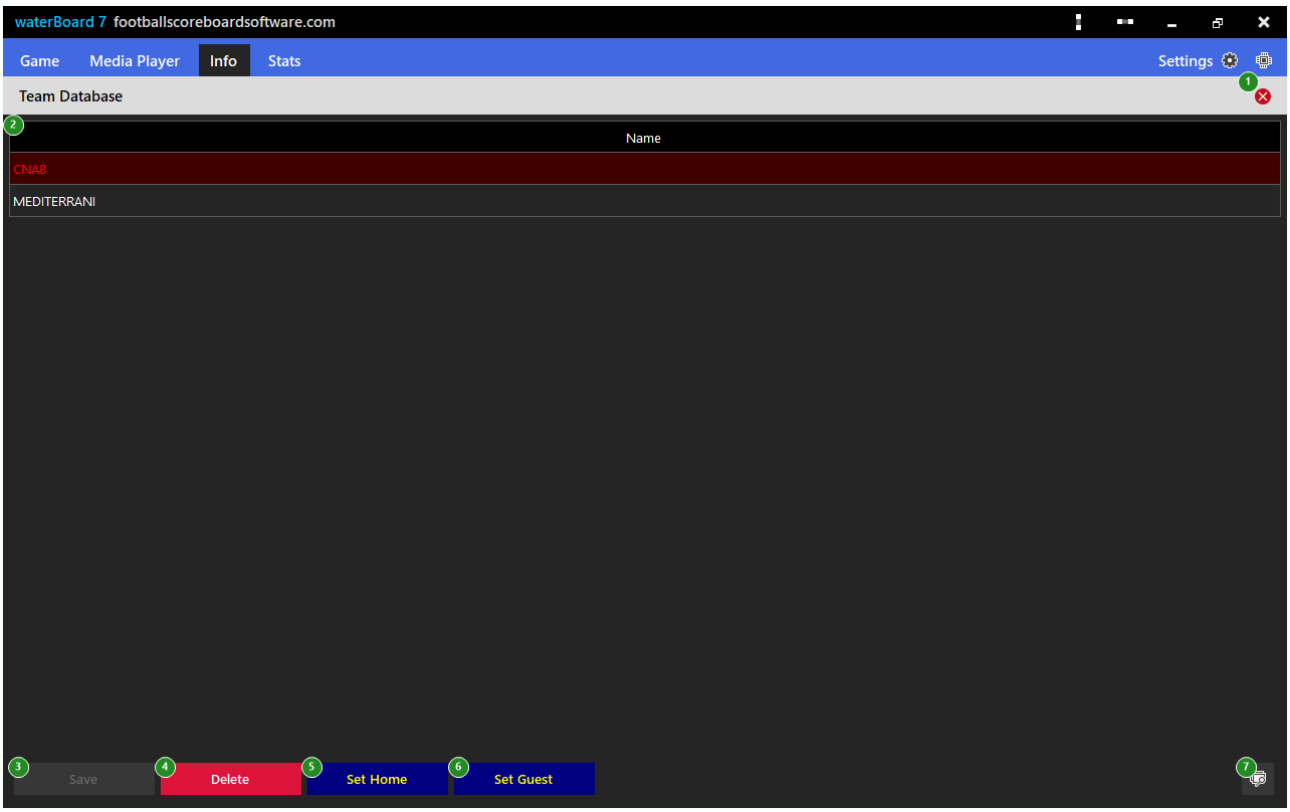


Figure 80. The Team Database with the two sample teams.

Changing and Deleting Saved Teams

- Rename: click the name, type the new name, click Save.
- Edit the players: select the team and click Show (icon at the right). The player editor opens with the team name as title. Changes are saved with Save into the team file. Save to Teams in this view makes another copy under a new name.
- Delete: select the team, click Delete and confirm "Team player data will be deleted! Are you sure?". The team and its file are removed.

The controls of the database window are described in chapter 9.12.

11.5 Photos

waterBoard 7 uses two photos per player.

Photo	Used By
Image for Events	Show With Picture of Goal, 18 Sec, Red Card and Substitution; the slide of the team (Slide on the Info tab).
Image for Banner	Show Pictures (chapter 12.3), as a picture or a video.

Special photos for goals and cards: when a file with the name of the Image for Events plus _Goal (for the Goal screen) or _Card (for the exclusion and Red Card screens) is in the same folder, that file is used

instead. Example: for 05.png the Goal screen uses 05_Goal.png when it exists, for instance a celebrating picture.

- Show (without picture) never shows the photo; use Show With Picture.
- A player typed into a player box, not chosen from the list, has no photo.
- The x next to the photo in an editor removes it for this one screen.
- Cut-out portraits on a transparent background (png) suit the screens best; the sample photos are of this kind.

Folders:

Folder	Content
media\images\players	The sample player photos, one subfolder per team (cnab)
media\images\sponsors	The sample sponsor logos
media\images\backgrounds	Background pictures
media\downloads\images	The start folder of the logo dialog of the Game tab

> **Note:** The player lists keep the full path of each photo. Keep the photos where they were when you chose them. If you move the folder, choose the files again (a red file name shows a missing file).

11.6 Files

File (common\data)	What It Holds
playersHome.xml, playersGuest.xml	The player lists of the match.
dataTeams.xml	The names of the saved teams.
team_<id>.xml	One file per saved team.
referees.xml	The referee list (chapter 9.10).
sponsors.xml	The sponsor list (chapter 9.11).

The team logos, the team names and the team colours are kept in start.xml in the program folder; the names are saved when you close the program normally (chapter 5.2).

> **Note:** Make a copy of the folder common\data before you reinstall or update waterBoard 7 (chapter 2), so that your player lists and saved teams are safe.

12. Media Player, Sponsors, Cameras and NDI

This chapter covers the media that waterBoard 7 can put on the board besides the scoreboard and the info screens: video and picture playlists, web pages, the player photo slideshow, and the NDI output of the board. The sponsor logos are kept in Info > Sponsors (chapter 9.11); cameras and screen capture belong to the Ad and CK display modes (chapter 7).

12.1 Media Player and Playlists

The Media Player tab of the main window plays videos, audio files and pictures full screen on the board output.

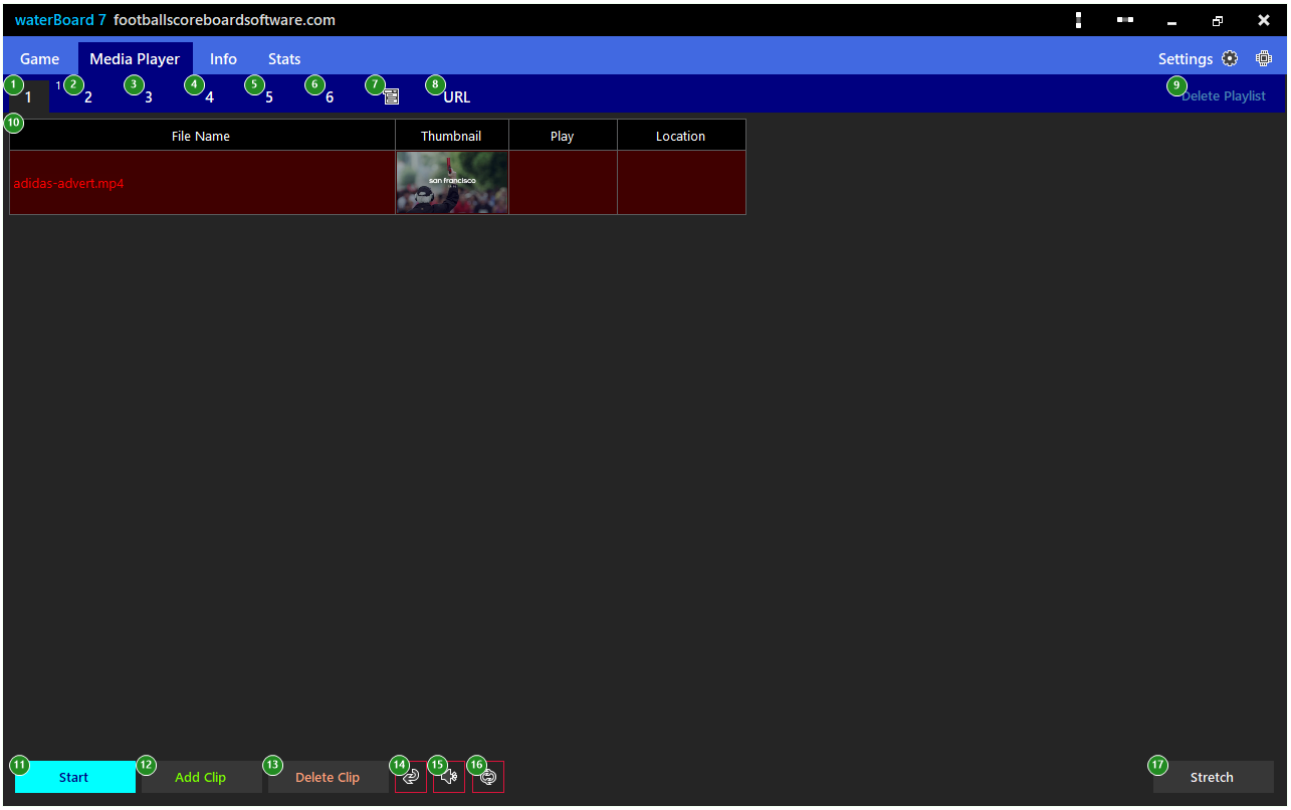
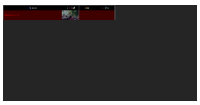
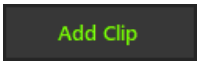
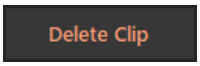


Figure 81. The Media Player tab with playlist 1 and one sample clip.

No.	Control	Name	What It Does
1		**Playlist 1**	Shows playlist 1. The small number above shows its number of clips.
2		**Playlist 2**	Shows playlist 2.
3		**Playlist 3**	Shows playlist 3.
4		**Playlist 4**	Shows playlist 4.
5		**Playlist 5**	Shows playlist 5.

No.	Control	Name	What It Does
6		**Playlist 6**	Shows playlist 6.
7		**More Playlists**	Opens a list of the playlists 7 to 20.
8		**URL**	Opens the list of web pages to show on the board.
9		**Delete Playlist**	Empties the current playlist without a question.
10		**Playlist**	File Name, Thumbnail, Play and Location (time left) of the clips. Drag a row to reorder.
11		**Start**	Plays the list from the selected clip; then reads Finish to stop.
12		**Add Clip**	Adds video, audio or picture files to the list.
13		**Delete Clip**	Removes the selected clip.
14		**Return to Scoreboard Screen When Playlist Ends**	Green frame: the scoreboard comes back when a started list ends. Red frame: the list starts again.
15		**Sound**	Green frame: sound on. Red frame: muted. The setting is saved.
16		**Auto Repeat**	Green frame: the playing clip repeats. Start switches it off.
17		**Display Mode**	How the picture fills the board: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch or ZoomCenter.

Control	What It Does
1 to 6	The playlists 1 to 6. The chosen playlist is dark. The small number above a button shows how many clips the list holds.
List icon (right of 6)	Opens a list of the playlists 7 to 20.
URL	Opens the list of web pages (section 12.2).
Delete Playlist	Empties the current playlist, without a question.
List	The clips: File Name, Thumbnail, Play and Location (the time left of the playing clip). Picture files are shown in grey. A red thumbnail means that the file is missing.
Start	Plays the list from the selected clip to the end. The button then reads Finish (red); click it to stop.
Add Clip	Adds one or more video, audio or picture files at the end of the list.
Delete Clip	Removes the selected clip.

Control	What It Does
Return to Scoreboard Screen When Playlist Ends (icon)	Green frame: when the last clip of a started list ends, the scoreboard comes back. Red frame: the list starts again from the first clip.
Sound (speaker icon)	Green frame: the sound of the clips is on. Red frame: muted. The setting is saved.
Auto Repeat (icon)	Green frame: the playing clip repeats. Start switches it off.
Display mode (Stretch)	How the picture fills the board: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch (default) or ZoomCenter. The setting is saved and also used by Show Pictures.

Playing Clips

1. Choose a playlist (1 to 6, or 7 to 20 from the list icon).
2. Add the clips with Add Clip (video, audio, pictures). Drag a row to change the order.
3. Select the first clip to play.
4. Click Start to play the list, or the Play button in the Play column of the row to play this one clip.
5. Click Finish, or the Stop button in the row, to stop; click Game to show the scoreboard.

- While a single clip plays, its Play cell shows Stop and a Pause button: Pause holds the picture, click again to go on. Select another row to get a Play button there and switch to that clip at once.
- Pictures stay on the board for Image Play Duration seconds (Settings > Screen Properties, chapter 17; default 5), then the list goes on.
- While a clip plays, the Settings button of the menu bar shows ▶ and the time left of the clip.
- While a clip plays, Add Clip, Delete Clip and Delete Playlist are hidden, the playlists cannot be switched and the rows cannot be dragged.
- Every change of a list is saved at once (common\data\playList_<n>.xml). The list keeps the path of each file; keep the files in place.
- Clicking Game stops the media and shows the scoreboard. Showing an info screen also stops a playing clip.

From the remote control (MEDIA tab, chapter 13.5; a second start while the list plays stops it) or the HTTP API (start_playlist with the numbers 1 to 6, Appendix B) a playlist can be started; match brings the scoreboard back.

> **Note:** The playlists of the Media Player tab fill the whole board. The Ad and CK display modes have their own media players for the Ad multimedia area and the CK background (chapter 7.4 and 7.5).

12.2 URL Playlist

The URL button of the Media Player tab opens the list Web URL: web pages that can be shown on the board output, for example a live statistics page.

Control	What It Does
URL	The address of the page. Click the cell and type.
Load	The button in the Load column of the selected row. Saves the list and shows the page on the board output.
Insert Row	Inserts an empty row above the selected row.

Control	What It Does
Delete Row	Removes the selected row.

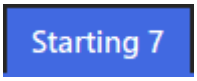
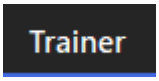
- The list is saved when you click Load (common\data\playList_url.xml).
- Click Game to go back to the scoreboard. The X or Esc closes the list.

12.3 Show Pictures

Show Pictures (one button in the Home Team row and one in the Guest Team row of the Info tab) plays the Image for Banner pictures or videos of a team's players as a slideshow on the board.



Figure 82. Show Pictures with the home starters. The sample players have no Image for Banner, so their thumbnails are red.

No.	Control	Name	What It Does
1		**Starting 7**	Lists the Starting 7 group of the team.
2		**Substitutes**	Lists the Substitutes group of the team.
3		**Trainer**	Lists the Trainer of the team.
4		**Picture List**	#, Name, Thumbnail, Play and Location of the players' Image for Banner files. A red thumbnail means no file.
5		**Start**	Plays the group from the selected player; then reads Finish to stop.

No.	Control	Name	What It Does
6		**Return to Scoreboard Screen When Playlist Ends**	Green frame: the scoreboard comes back after the last picture. Red frame: the group starts again.
7		**Display Mode**	How the picture fills the board: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch or ZoomCenter.

Control	What It Does
Starting 7, Substitutes, Trainer	The group of the player list to play (chapter 11.3).
List	#, Name, Thumbnail, Play (Play / Stop button of the selected row) and Location (time left). A red thumbnail means that the player has no Image for Banner or the file is missing.
Start	Plays the group from the selected player; the button then reads Finish to stop.
Return to Scoreboard Screen When Playlist Ends (icon)	As in the Media Player: green frame, the scoreboard comes back after the last picture; red frame, the group starts again. The setting is shared with the Media Player.
Display mode (Stretch)	As in the Media Player; the setting is shared.

1. Fill in Image for Banner in the player list (chapter 11.3) and click Save there.
2. Click Show Pictures in the row of the team.
3. Choose the group and select the first player.
4. Click Start.

- Each picture stays for Image Play Duration seconds; a video plays to its end.
- A player without a valid file is skipped.
- The page has no close button. Clicking Game, Media Player, Info or Settings in the menu bar stops the slideshow and shows the scoreboard.

The Slide button next to Show Pictures is a different screen: a slide of each player with number, name and the Image for Events photo (chapter 9.9).

12.4 Cameras and Screen Capture

waterBoard 7 shows live pictures in two display modes:

- Ad: the Camera and Screen Capture tabs of the Ad page put a camera, a capture card or a part of the PC screen into the multimedia area of the Ad board (chapter 7.4).
- CK: the Camera and Screen Capture tabs of the CK page put the picture behind the CK graphics (chapter 7.5).

The St and Sp modes and the Media Player tab have no camera input.

12.5 NDI

NDI sends video over the local network. The NDI button on the Game tab (top right, "Start/Stop NDI Camera Stream") sends the board as an NDI source, for example into vMix, OBS or a vision mixer.

1. Put the board in the wanted display mode and check its position and size (chapter 7.1).
2. Click NDI on the Game tab. The button flashes red once a second while the stream runs.
3. In the receiving program, choose the source of the PC. The sender name is Wp7_NDI.
4. Click NDI again to stop the stream.

How the stream is made:

- The stream is a copy of the screen area of the board window (its position and size as set in Settings > Screen Properties), sent at up to 60 frames per second.
- Whatever is on the screen in that area is sent: the board must be visible and not covered by another window.
- The stream has no transparency. For a CK board choose a key colour (green, blue or magenta) and key it in the receiving program (chapter 7.5).
- The sender name is read from start.xml (SETTINGS > NDI > SenderName); the factory value is Wp7_NDI. There is no setting for it in the program.
- The NDI runtime files are installed with the program.

> **Note:** The NDI button shows only that the stream was started. If the source does not appear in the receiving program, check that both PCs are in the same network and that the firewall allows NDI.

waterBoard 7 sends NDI only; it has no NDI input.

13. Remote Control

The remote control is a web page that a phone or tablet opens in its browser; no app is needed. waterBoard 7 serves the page itself on port 1907 of the PC. The page uses the same commands as the HTTP API (chapter 14), so everything it does can also be done by a script, a stream deck or another program.

With the remote, a second operator can keep the shot clock from the pool side, an assistant can start exclusions, or the whole match can be scored from a tablet while the PC stays at the video desk.

> **Note:** The remote control is meant for a trusted local network. The page is plain HTTP without encryption: the PIN travels unencrypted with every request of the page. The logon page sends it in the background, so it is not shown in the address bar and does not stay in the browser history of the phone. There is no lock-out after wrong PINs. Use it in your own production network or on a Wi-Fi with a password that only your crew knows, never on an open public network.

13.1 Network and Firewall

Before a phone can connect, check these points:

- The phone or tablet and the PC are in the same network (the same Wi-Fi, or a Wi-Fi access point that is connected to the same LAN as the PC).
- The remote control is switched on in Settings > Remote Control (section 13.2). It is off on a new installation.
- Port 1907 is open in the Windows firewall. The setup runs C:\waterBoard7\open_firewall_1907.bat, which adds four rules: "waterBoard 1907 TCP IN", "waterBoard 1907 UDP IN", "waterBoard 1907 TCP OUT" and "waterBoard 1907 UDP OUT". Rules that already exist are left as they are. If a phone cannot connect, right click the file and choose Run as administrator; the window lists each rule as Added or Exists.
- Other security software (a third-party firewall, a company endpoint protection) may block the port as well. Allow TCP port 1907 there too.

The port is fixed at 1907; it cannot be changed. Only one program on a PC can use a port at a time, so another program that already listens on 1907 (for example another Board7 scoreboard program with its remote switched on) keeps waterBoard 7 from starting its remote server. Close the other program or switch its remote off.

> **Note:** Only one program can use port 1907. If another program (or a second copy of waterBoard 7) already uses it, the remote control does not answer and the program shows no message: close the other program and restart waterBoard 7.

13.2 Switching the Remote On

Open Settings > Remote Control, or click the antenna icon (tool tip "Remote Control") on the Game tab.

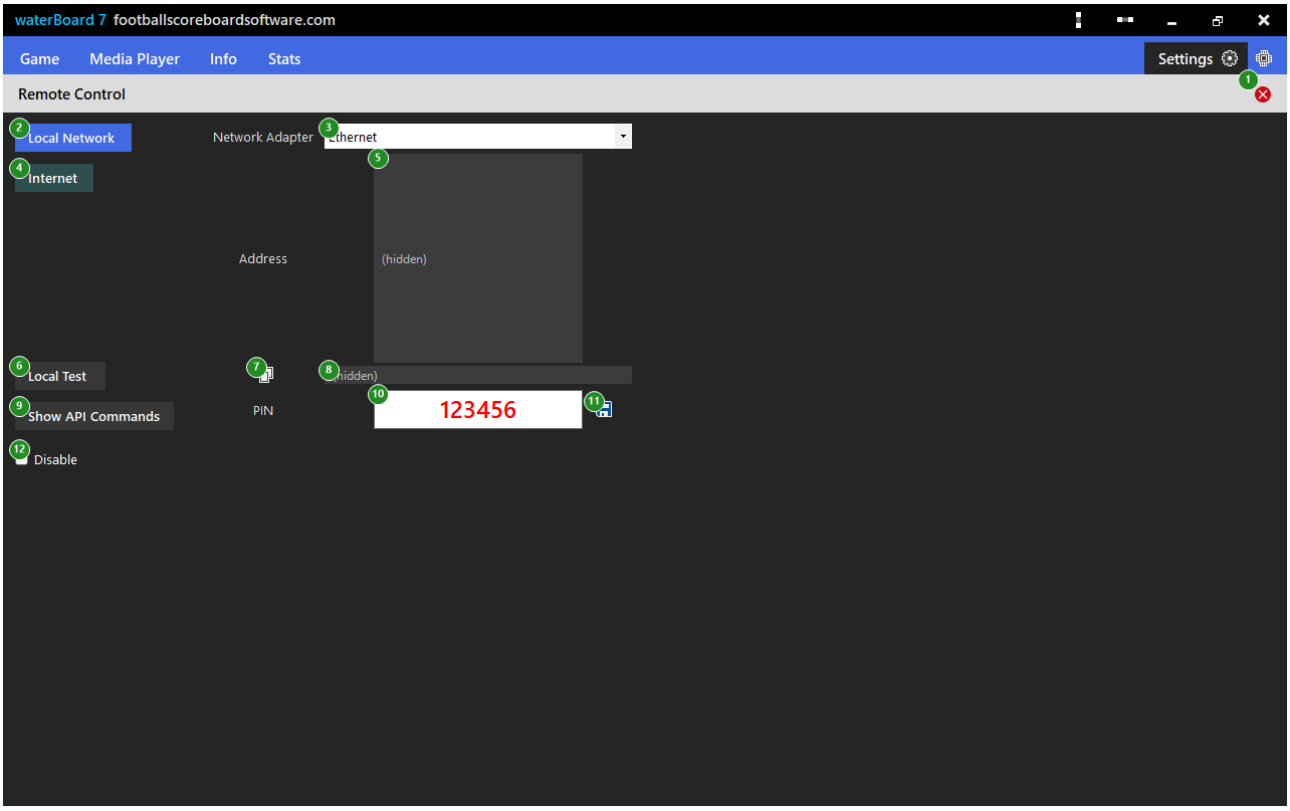
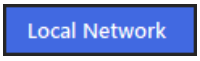
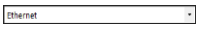
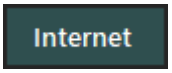
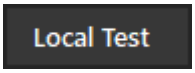
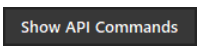


Figure 83. Settings > Remote Control. The address and the QR code are hidden in this picture; your page shows the address of your PC.

No.	Control	Name	What It Does
1		**Close**	Closes the Remote Control page (also Esc); the remote keeps running.
2		**Local Network**	Shows the address of the PC in the local network for the chosen network adapter, with its QR code.
3		**Network Adapter**	The connected Ethernet or Wi-Fi card whose address is shown. Choose the card in the same network as the phones.
4		**Internet**	Shows the public internet address of the PC (asked from an internet service); reads "No Internet Connection" without a connection. Works only with port 1907 forwarded in the router.
5		**QR code**	Scan it with the phone camera to open the remote logon page.
6		**Local Test**	Opens the address in the default browser of this PC to test the remote server (the remote must be switched on).
7		**Copy Address**	Copies the address to the clipboard.
8		**Address**	The address to open in the phone browser: http://<PC address>:1907/logon.html.
9		**Show API Commands**	Opens the command reference API_Commands.txt in Notepad.

No.	Control	Name	What It Does
10	123456	**PIN**	The PIN the remote and the HTTP API must send: digits only, up to 6 (default 123456).
11		**Save PIN (disk icon)**	Saves the PIN typed in the box and uses it at once. Phones that are logged on must log on again.
12		**Disable**	Ticked (red): the remote server is off. Unticked: the server runs on port 1907. Takes effect at once and is kept for the next start.

The page has two address tabs on the left:

- Local Network (default): the address of the PC in the local network. Choose the network card in Network Adapter. The list shows the connected Ethernet and Wi-Fi cards that have an IPv4 address; the first one is preselected. Choose the card that is in the same network as the phones. When no card is found, the list reads "No suitable Ethernet or Wireless card found."
- Internet: the public address of the internet connection of the PC, as reported by an internet service. Network Adapter is hidden on this tab. Without a connection the address reads "No Internet Connection" (the QR code then still shows the previous address).

Address shows the QR code and, below it, the address to type into the phone browser, in the form http://<PC address>:1907/logon.html, for example http://192.168.1.20:1907/logon.html. The copy button on the left of the address copies it to the clipboard, for example to send it to a colleague.

- Local Test opens the address in the default browser of this PC, a quick test that the server answers. The remote must be switched on.
- Show API Commands opens the command reference API_Commands.txt in Notepad (chapter 14, Appendix B).
- Disable switches the remote server off. To switch the remote on, untick Disable: the server starts at once. Ticked, the box turns red and the server stops at once. The setting is saved in start.xml and used at the next program start.
- The red X at the top right (or Esc) closes the page; the remote keeps running.

To switch the remote on:

1. Open Settings > Remote Control.
2. Untick Disable.
3. Choose the Network Adapter of the network the phones use.
4. Scan the QR code with the phone camera, or type the address into the phone browser.

> **Note:** The Internet address works only when the router forwards TCP port 1907 to this PC, and then anyone on the internet who knows the address can try PINs. Because the PIN travels unencrypted, we advise against opening the remote to the internet. Use a VPN into your network instead if you must work from outside.

13.3 PIN

The PIN protects the remote page and the HTTP API. Every request must carry it.

- The default PIN is 123456. Change it before you use the remote at an event.
- Digits only, up to 6. The PIN box accepts no other characters.
- Type the new PIN, then click the disk icon on the right of the PIN box. The new PIN is used at once and saved for the next start.

- Phones that are logged on keep the old PIN in their page. After a PIN change, tap LOG OUT on every phone and log on again with the new PIN. Until then their commands are refused, and the page stops following the PC even though the connection dot can stay green.

> **Note:** Do not save an empty PIN. Until the next program start the server then accepts requests without any PIN; at the next start the PIN goes back to 123456.

13.4 Logging On

1. Open the address in the phone browser, or scan the QR code.
2. The logon page (waterBoard7, REMOTE CONTROL) shows a keypad. Tap the digits of the PIN; the display shows a dot for each digit. ⌫ deletes the last digit.
3. Tap ✓. The remote panel opens on the HOME tab.

A wrong PIN empties the display and the line below the keypad reads "Wrong PIN". Enter the PIN again. If the PC does not answer, the line reads "No connection".

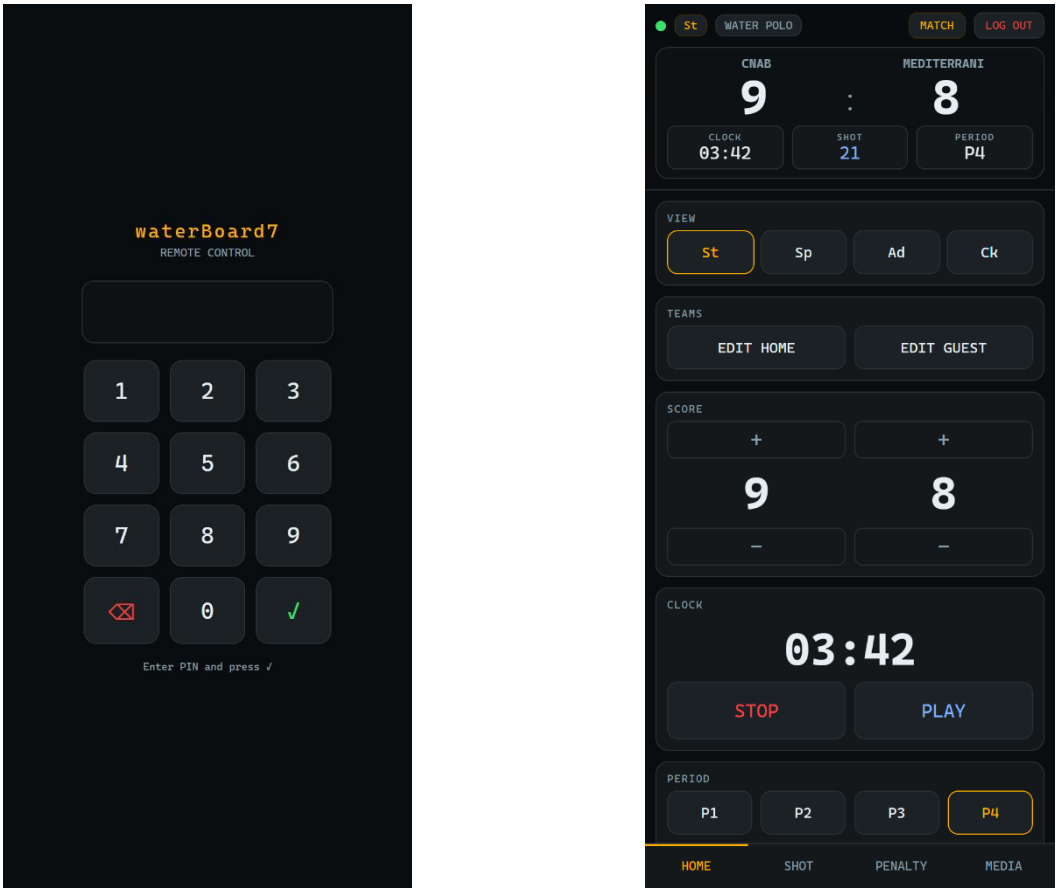


Figure 84. The logon page (left) and the HOME tab of the remote panel (right) on a phone.

> **Note:** Logging on sends the MATCH command (section 13.5): the Game tab comes to the front on the PC, a Media Player video stops and the board of the current display mode is shown. Reloading the remote page in the browser does the same. Log on before the match, not while a video is on air.

13.5 The Remote Panel

The remote panel is in English; it does not follow the language setting of the program (chapter 16).

The Top of the Page

The top of the page stays in place while you scroll and always shows:

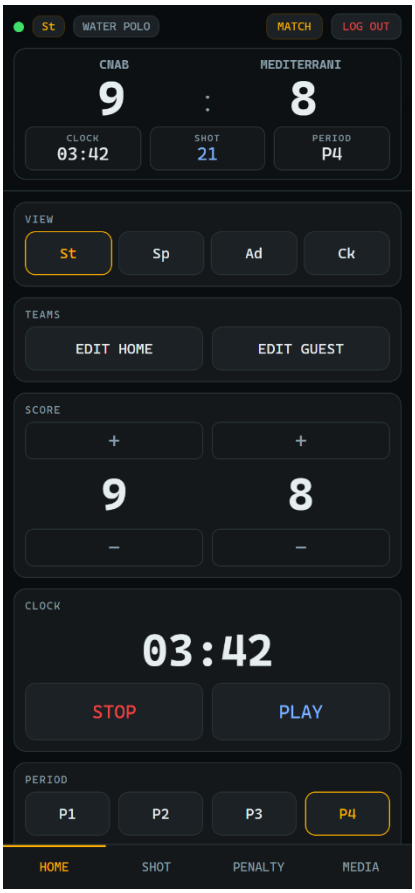
- the connection dot: green = the PC answers, red = the PC cannot be reached (Wi-Fi lost, program closed or remote switched off);
- the display mode on the board (St, Sp, Ad or CK) and the discipline (WATER POLO, CANOE, UW RUGBY or UW HOCKEY);
- MATCH: brings the scoreboard back. The Game tab comes to the front on the PC, a Media Player video stops and the board of the current display mode is shown;
- LOG OUT: back to the logon page;
- the score card: the two team names and scores, and the tiles CLOCK (the match clock; it turns amber and pulses while the clock runs), SHOT (the shot clock; hidden when the discipline has no shot clock) and PERIOD (P1 to P4, PS during the penalty shootout).

The page asks the PC for the state every 0.6 seconds, and once more a quarter of a second after each command. It therefore also shows changes made on the PC, with the keyboard shortcuts or from a second remote. The tabs at the bottom are HOME, SHOT, PENALTY and MEDIA:

- SHOT is shown only when the shot clock is switched on in Match Rules (Water Polo and Canoe Polo by default, chapter 6).
- PENALTY is shown when the discipline has penalty buttons, and always during the penalty shootout.
- When a tab disappears while it is open (for example after a discipline change), the page goes back to HOME.

A faint line at the very bottom of the content shows the time of the last command sent ("sent @ ..."), a quick check that a tap went out.

HOME Tab



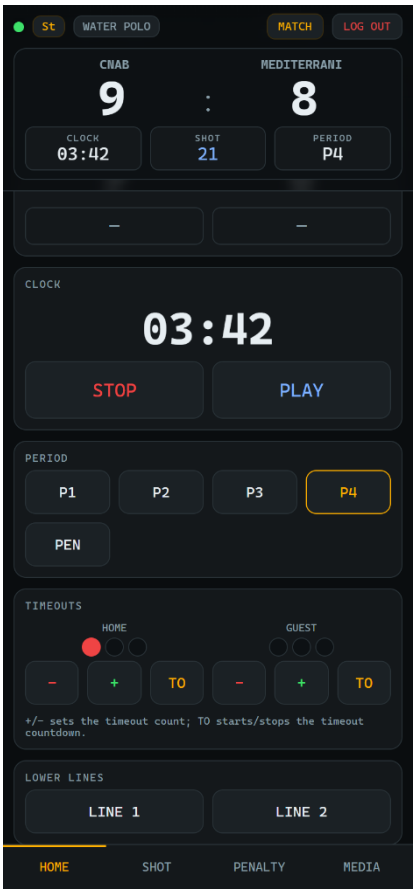


Figure 85. The HOME tab: the upper part (left) and, scrolled down, the lower part (right).

Block	Element	What It Does
VIEW	St, Sp, Ad, Ck	Switches the display mode (chapter 7). The current mode is framed in amber.
TEAMS	EDIT HOME, EDIT GUEST	Opens a text sheet with the team name. Change it and tap SET (or CLOSE to cancel). A line break in the text becomes a second line of the name on the board.
SCORE	+	One goal for the team, exactly as the + arrow on the Game tab: with End Penalty On Goal and Stop Chronometer on Goal the exclusions end, the clock stops and the shot clock is reset (chapter 6).
SCORE	The big number	Tap it to type the score of the team (a correction; nothing else happens).
SCORE	−	One goal less (not below 0).
CLOCK	The big time	Tap it to type a new time (mm:ss) in the sheet "Set Time (mm:ss)". A running clock is paused first.
CLOCK	PLAY / PAUSE	Starts the match clock, or pauses it. The label shows what the next tap does.
CLOCK	STOP	The first tap stops the clock. The second tap (on a stopped clock) sets the clock back to the start of the period and clears the exclusion lists of both teams.
PERIOD	P1 ... P4	One button per period, with the period names of Match Rules (P1 to P4 in Water Polo). The current period is framed in amber. A tap selects the period and sets the clock to its length. Ignored while the clock or a timeout runs.
PERIOD	PEN	Selects the penalty shootout period (chapter 5). The PENALTY tab then shows the shootout card.
TIMEOUTS	Dots	Three dots per team; red dots = timeouts used.
TIMEOUTS	− / +	Corrects the number of timeouts used by the team (0 up to the timeouts allowed in the discipline).
TIMEOUTS	TO	Starts the timeout of the team with its countdown. While a timeout runs, both TO buttons are framed, and TO stops the running timeout. A team that has used all its timeouts cannot start one (the PC gives a short sound).
LOWER LINES	LINE 1, LINE 2	Opens a text sheet with the first or second lower text line of the board. A line break becomes a new line.

While the match clock runs, the TIMEOUTS block is greyed out and reads CLOCK RUNNING: timeouts can be started and corrected only while the clock is stopped, as on the Game tab.

In a text sheet, an underscore _ is also turned into a line break on the board, so a name cannot contain an underscore.

SHOT Tab

The SHOT tab is made for a separate shot-clock operator: open the remote on a second phone and leave it on this tab.

Element	What It Does
SHOT CLOCK	The shot clock in large blue digits; below it the match clock and the period.
RESET (first value)	Resets the shot clock to the first value of Match Rules, for example RESET 28 in Water Polo. If the match clock runs, the shot clock runs on from the new value.
RESET (second value)	Resets the shot clock to the second value, for example RESET 18.
CLEAR	Sets the shot clock to 0 and stops it. It starts again with the next reset.

The shot clock counts together with the match clock: it runs and stops with it. At 0 a horn sounds on the PC; the match clock is not stopped (chapter 5).

PENALTY Tab

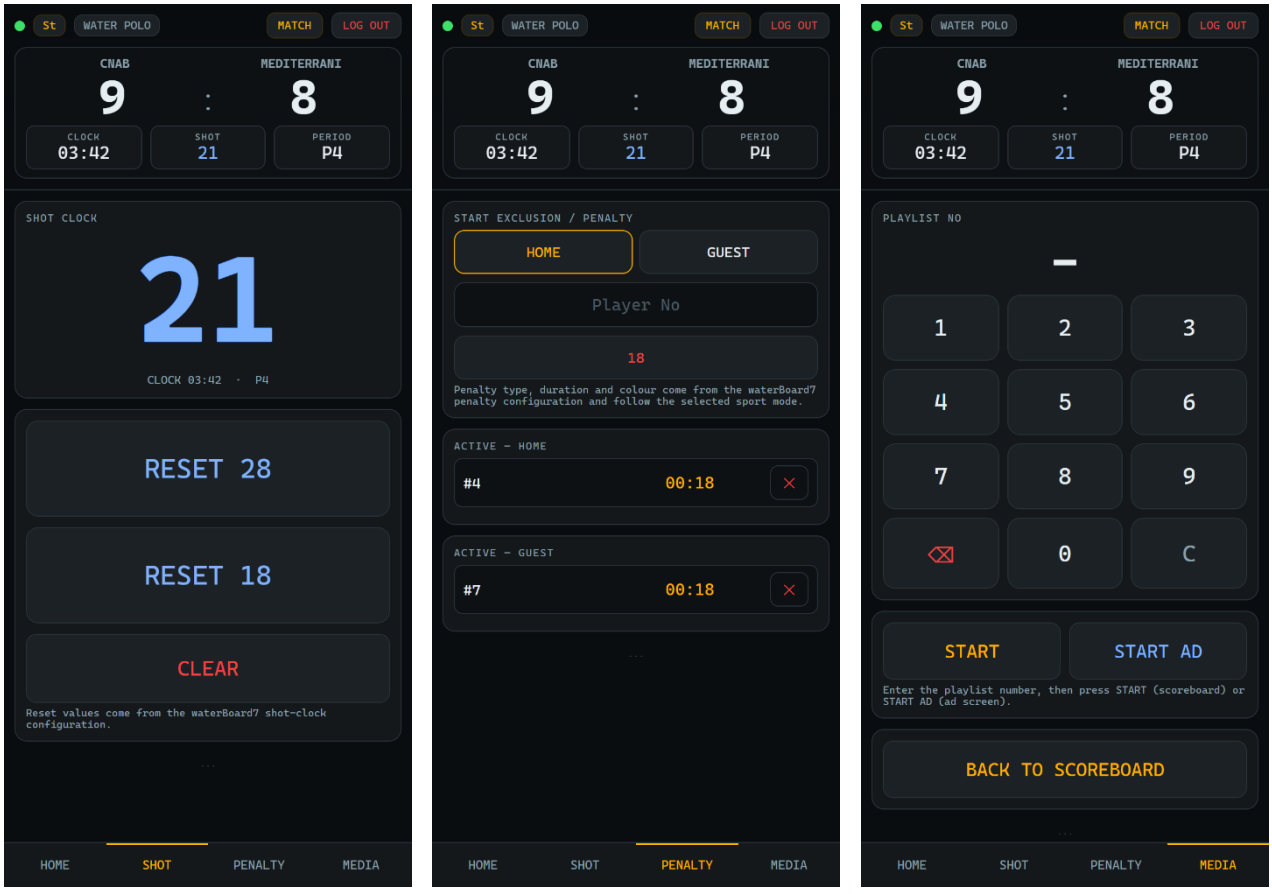


Figure 86. The SHOT, PENALTY and MEDIA tabs.

START EXCLUSION / PENALTY starts a timed exclusion or penalty:

1. Tap HOME or GUEST (the selected team is framed in amber).
2. Type the shirt number in Player No. It can be left empty.
3. Tap a penalty button. The buttons come from the penalty buttons of Match Rules, with their text and colour: one red 18 in Water Polo, for example, or 1, 2 and 5 in Underwater Hockey.

The exclusion appears in the list of the team on the PC and on the board, and on the remote under ACTIVE — HOME or ACTIVE — GUEST with the shirt number and the remaining time. The timers follow the same rules as on the Game tab: they run only while the match clock runs, and only up to Max Penalty Player timers of a team run at once (chapter 6). The ✕ button of a row cancels that exclusion.

During the penalty shootout (PEN) the tab also shows the PENALTY SHOOTOUT card:

Element	What It Does
Marks	The marks of the team, [O] scored and [X] missed. The last five are kept.
SCORE	Adds [O] for the team.
MISS	Adds [X] for the team.
CLEAR	Clears the marks of the team.

MEDIA Tab

Type the number of a playlist on the keypad (up to two digits; ⌫ deletes the last digit, C clears), then:

- START: opens the Media Player tab on the PC and plays that playlist (chapter 12). If a playlist is already playing, START stops it instead.
- START AD: switches the board to the Advertisement mode, opens its media page and plays that playlist there. If a playlist is already playing there, START AD stops it.
- BACK TO SCOREBOARD: the same as MATCH at the top of the page.

The Media Player and the Ad page have six playlists each. Use the numbers 1 to 6: any other number plays playlist 1.

13.6 Phone and Tablet

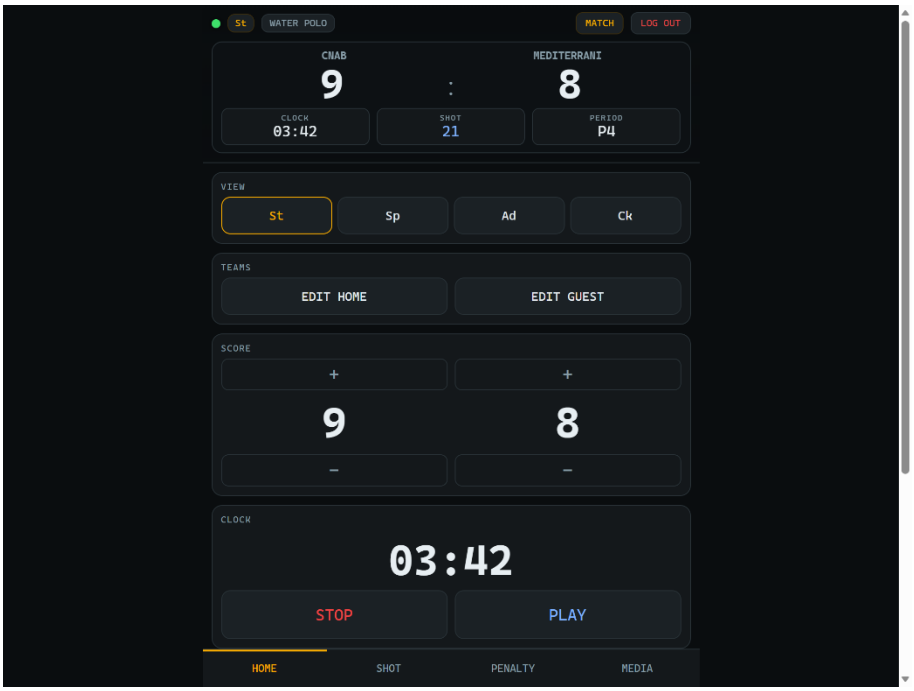


Figure 87. The HOME tab on a tablet.

- The page is made for phones held upright. On a tablet or a computer screen it keeps the same single column, at most 560 pixels wide, in the middle of the screen.
- Add the page to the home screen of the phone (Share > Add to Home Screen, or the browser menu) for a full-screen look. Save the logon page (the address with logon.html), not the panel.
- Several phones can be logged on at the same time, for example one for the score and the clock and one for the shot clock. The PC carries out every command in the order it arrives and does not stop two operators from giving the same goal twice: agree who does what.
- Keep the phone screen on during the match (set the auto-lock of the phone to a longer time). A phone that went to sleep catches up with the state at the next poll.
- If the connection dot turns red, check the Wi-Fi of the phone, that waterBoard 7 still runs on the PC and that Disable is not ticked in Settings > Remote Control.
- In the Demo version, the + and − score buttons of both teams are refused and the PC shows "License Required !" (chapter 3).

14. HTTP API

waterBoard 7 can be controlled by other programs and devices with plain web requests: a vision-mixer macro, a stream deck, a button box, a timing system or a small script. The remote page of chapter 13 uses exactly the same commands. Appendix B lists every command; the file API_Commands.txt in C:\waterBoard7 (Settings > Remote Control > Show API Commands) has the same reference with examples.

14.1 Request Format and Replies

Every request is an HTTP GET to the page api.html on port 1907:

```
http://<PC address>:1907/api.html?_=<number>&pin=<PIN>&cmd=<command>&value=<value>$
```

- The remote server must be switched on (chapter 13.2: Disable not ticked). From the PC itself use the address 127.0.0.1.
- The port is always 1907.
- Every request ends with the terminator $. Without it the reply is #Invalid API Request.
- _=<number> is a cache-buster: any number that changes with each request, placed first. It stops browsers and proxies from answering from their cache. The program ignores it; it may be left out.
- pin is the PIN of Settings > Remote Control (default 123456), digits only.
- cmd is the command (Appendix B). Leave out &value= when the command has no value.
- Encode the value as a browser does (encodeURIComponent): a space as %20, | as %7C, ~ as %7E, + as %2B. The program decodes the request before it reads it.
- A value cannot contain & or $, not even encoded: the value ends at the first & or $.
- In text values (team names and the two lower lines) an underscore _ is a line break. A team name with an underscore is therefore not possible.
- Command names are not case-sensitive, except GET, which must be written in capitals. Side values must be written in lower case: home or guest (any other text counts as guest). The values of set_chronometer (play, pause, stop) are lower case too.
- Keep requests short. The server reads the first 8 KB of a request.

Replies (always with HTTP status 200):

Reply	Meaning
<html>!<command></html>	The command was received, for example <html>!match</html>. This is also the reply to an unknown command and to a command the program could not carry out (for example a timeout while the clock runs): nothing changes then.
XML	The reply to cmd=GET (section 14.2).
<html>#Invalid PIN</html>	The PIN is wrong or missing.
<html>#Invalid API Request</html>	The request is not a GET to /api.html, or the $ is missing.
<html>#Invalid API Command</html>	The request has no command.
<html>#<message></html>	The command failed inside the program; the message tells why.

Because the reply ! does not say whether the command took effect, a panel that needs to know reads the state with cmd=GET afterwards, as the remote page does.

Examples:

```
http://127.0.0.1:1907/api.html?_=1&pin=123456&cmd=set_home_score_up$
http://127.0.0.1:1907/api.html?_=2&pin=123456&cmd=click&value=playpause$
http://127.0.0.1:1907/api.html?_=3&pin=123456&cmd=shotclock&value=reset1$
http://127.0.0.1:1907/api.html?_=4&pin=123456&cmd=penalty_add&value=guest%7C7%7C18$
http://127.0.0.1:1907/api.html?_=5&pin=123456&cmd=set_guest_team&value=CN%20MEDITERRANI_BARCELO
NA$
```

The fourth example starts an 18-second exclusion for guest player 7; the fifth sets a guest name in two lines.

> **Note:** The API never asks for a confirmation. click&value=stop pressed twice sets the clock back to the start of the period and clears all exclusions; a period change sets the clock to the length of the period. Build a safety question into your own panel or macro where needed.
>
> **Note:** The PIN travels in plain text in every request. Use the API only in a trusted local network (chapter 13).

14.2 Reading the State (cmd=GET)

cmd=GET returns the state of the match as XML, one <Item> inside <Response>:

```
http://127.0.0.1:1907/api.html?_=6&pin=123456&cmd=GET$
```

A shortened reply:

```
<Response>
  <Item>
    <BoardType>St</BoardType>
    <Mode>0</Mode>
    <Home>CNAB</Home>
    <HomeScore>9</HomeScore>
    <Guest>MEDITERRANI</Guest>
    <GuestScore>8</GuestScore>
    <Chronometer>03:42</Chronometer>
    <StatusChronometer>false</StatusChronometer>
    <Period>4</Period>
    <ShotClock>21</ShotClock>
    <UseShotClock>true</UseShotClock>
    <ShotClock1>28</ShotClock1>
    <ShotClock2>18</ShotClock2>
    <PenaltyLevels>18~18~red</PenaltyLevels>
    <PenaltyHome>4~00:18</PenaltyHome>
    <PenaltyGuest>7~00:18</PenaltyGuest>
    <TimeoutHome>1</TimeoutHome>
    ...
  </Item>
</Response>
```

The fields:

Field	Content
BoardType	The display mode: St, Sp, Ad or CK.
Mode	The discipline: 0 Water Polo, 1 Canoe Polo, 2 Underwater Rugby, 3 Underwater Hockey.

Field	Content
Home, Guest	The team names; a two-line name has a line break.
HomeScore, GuestScore	The goals.
Chronometer	The match clock as on the Game tab.
StatusChronometer	true while the match clock runs.
Period	1 to 4 = the period; 5 = the penalty shootout.
Extra01, Extra02	The first and second lower text line.
ShotClock	The shot clock in seconds.
UseShotClock	true when the shot clock is switched on in Match Rules.
ShotClock1, ShotClock2	The first and second reset value of the shot clock.
PeriodLabels	The four period names, separated by |; an empty name means the discipline has no such period.
PenaltyLevels	The penalty buttons as seconds~text~colour, separated by |; colour is red, green, yellow, blue or white. Empty when the discipline has no penalty buttons.
PenaltyHome, PenaltyGuest	The exclusions in the list of the team as number~remaining time, separated by |, in list order.
ShootoutHome, ShootoutGuest	The shootout marks, for example [O] [X] [O].
TimeoutHome, TimeoutGuest	The timeouts used by the team.
TimeoutRunning	true while a timeout countdown runs.

Booleans are true or false. A panel can poll GET about twice a second; the remote page polls every 0.6 seconds. GET also runs no other command, so it is safe to send as often as needed.

14.3 Command Groups

Group	Commands
Scoreboard and display	match, click St / Sp / Ad / Ck
Teams and lines	set_home_team, set_guest_team, line_text_1, line_text_2
Score	set_home_score_up, set_home_score_down, set_guest_score_up, set_guest_score_down, set_home_score, set_guest_score
Match clock	set_chronometer, click playpause, click stop
Periods	click period_1 ... period_4, click penalty
Shot clock	shotclock reset1 / reset2 / clear
Exclusions and penalties	penalty_add, penalty_cancel
Penalty shootout	shootout, shootout_clear
Timeouts	timeout_set, timeout_start

Group	Commands
Media	start_playlist, start_playlist_ad_screen
State	GET

Appendix B describes every command, its values and what it does.

14.4 Good Practice

- Read the state with GET before you build a panel: UseShotClock, PeriodLabels and PenaltyLevels tell you which shot-clock, period and penalty buttons the current discipline has, as the remote page does.
- Send one command at a time and wait for the reply. Several controllers may work at once, but the program does not stop two of them from giving the same goal twice.
- Timeouts (timeout_set, timeout_start) and period changes are refused while the match clock runs, exactly as on the Game tab.
- The board follows a command at once. There is no undo: correct a wrong goal with set_home_score_down or set_guest_score_down.

15. Keyboard Shortcuts

15.1 Keyboard Hook Manager

waterBoard 7 can run the match clock, the shot clock and the goals from six keys. The shortcuts are global: Windows passes the key to waterBoard 7 even while another program has the focus, for example the vision-mixer or streaming software. That is why the feature is called a keyboard hook.

Open the Keyboard Hook Manager with the keyboard icon on the Game tab (tool tip "Enable Keyboard Hook"). The icon has a dark green background while the shortcuts are on and a dark red background while they are off.

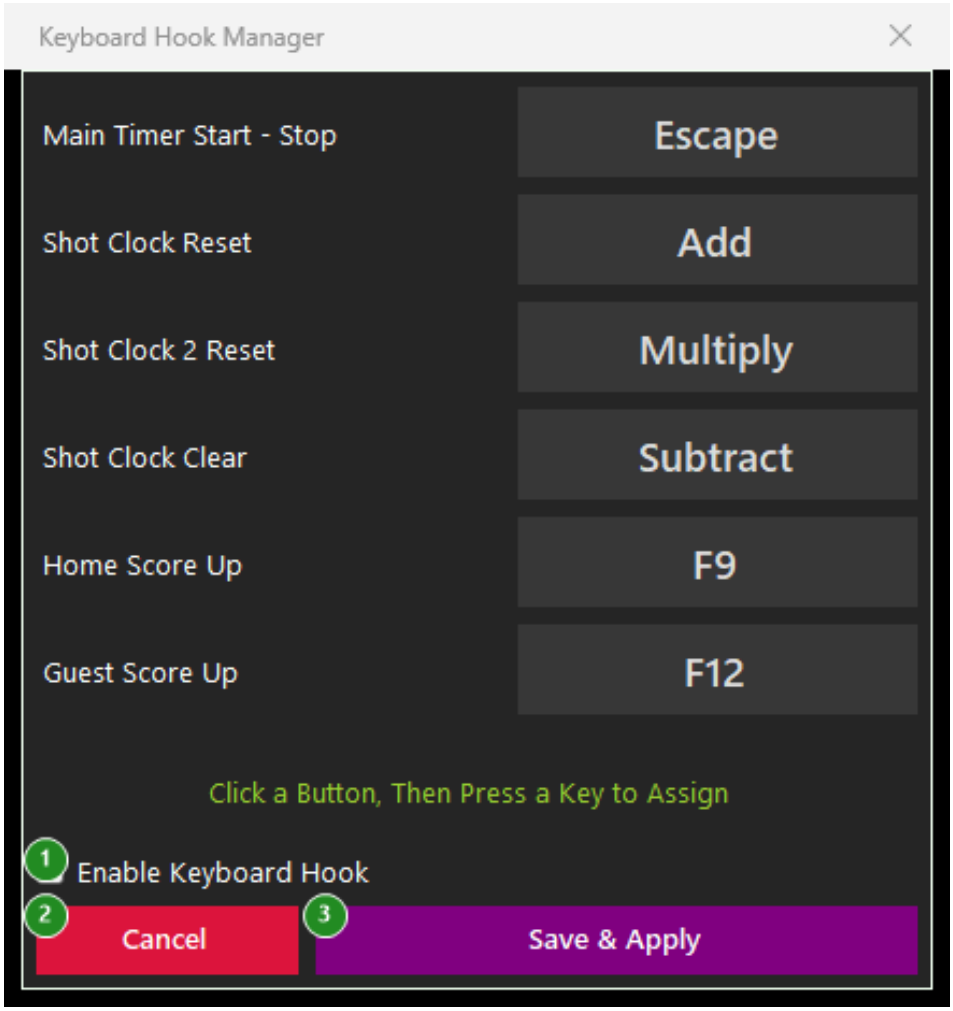


Figure 88. The Keyboard Hook Manager. The key boxes are empty in this picture; a new installation has the keys of section 15.2.

No.	Control	Name	What It Does
1	Enable Keyboard Hook	**Enable Keyboard Hook**	Switches the global keyboard shortcuts on (ticked) or off; applied with Save & Apply.
2	Cancel	**Cancel**	Closes the window without saving.
3	Save & Apply	**Save & Apply**	Saves the six keys and the on / off state in start.xml and arms (or releases) the shortcuts at once.

The window lists the six actions, each with its key box on the right:

Action	What It Does (the Same as on the Game Tab)
Main Timer Start - Stop	Starts the match clock, or pauses it (Start / Pause). It does nothing while a timeout runs.
Shot Clock Reset	Resets the shot clock to its first value (28 in Water Polo).
Shot Clock 2 Reset	Resets the shot clock to its second value (18 in Water Polo).
Shot Clock Clear	Sets the shot clock to 0 and stops it.
Home Score Up	One goal for the home team, with End Penalty On Goal and Stop Chronometer on Goal as set in Match Rules (chapter 6).
Guest Score Up	One goal for the guest team, in the same way.

To assign the keys:

1. Click the key box of an action. It turns blue.
2. Press the key. The box shows the Windows name of the key, for example F9, NumPad7, Subtract (the minus key of the numeric keypad) or Escape.
3. Repeat for the other actions. Click Cancel to close without saving.
4. Tick Enable Keyboard Hook to switch the shortcuts on (untick it to switch them off).
5. Click Save & Apply. The keys and the on / off state are saved in start.xml and take effect at once. When the shortcuts are on, they are armed again at every program start.

> **Note:** Give every action a key before you tick Enable Keyboard Hook. The six keys are armed together, and an action with an empty box keeps the hook from being set up.
>
> **Note:** Fill in every key box before you tick Enable Keyboard Hook: every action needs a key.

There is no key for Goal Down, Timeout or Period: use the Game tab or the remote control (chapter 13) for those.

15.2 Default Keys

A new installation writes these keys into start.xml. The shortcuts themselves are off (Enable Keyboard Hook not ticked).

Action	Default Key (Box Text)
Main Timer Start - Stop	Esc (Escape)
Shot Clock Reset	Num + (Add)
Shot Clock 2 Reset	Num * (Multiply)
Shot Clock Clear	Num − (Subtract)
Home Score Up	F9
Guest Score Up	F12

> **Note:** Esc, the default key of Main Timer Start - Stop, also closes many windows and dialogs in Windows: with the shortcuts on, it starts and stops the match clock wherever you press it. Many operators assign another key (for example the space bar) before they switch the shortcuts on. Older installations had F9 and F12 for both the shot clock resets and the score keys; check the keys in the Keyboard Hook Manager after an upgrade.

A layout that works well on a full keyboard with a numeric keypad:

Action	Suggested Key (Box Text)
Main Timer Start - Stop	Num 0 (NumPad0)
Shot Clock Reset	Num 4 (NumPad4)
Shot Clock 2 Reset	Num 5 (NumPad5)
Shot Clock Clear	Num 6 (NumPad6)
Home Score Up	Num 7 (NumPad7)
Guest Score Up	Num 9 (NumPad9)

15.3 Good to Know

- A key pressed together with Ctrl, Shift or Alt is ignored, so Ctrl+F9 or Shift+F12 keep their usual meaning in other programs.
- The key also reaches the program that has the focus. A digit of the numeric keypad is typed into a text field of another program (or of waterBoard 7 itself) at the same time. Keep the cursor out of text fields while you work with the shortcuts, or use function keys.
- Holding a key down repeats the action, because Windows repeats the key. Tap the keys; do not hold them.
- NumLock must be on for the digit keys of the numeric keypad (NumPad0 to NumPad9). With NumLock off these keys send other keys (arrows, Home, End), and the shortcuts do not fire. Num /, Num *, Num − and Num + work in both states.
- You can assign any key, but a letter or a digit of the main keyboard fires whenever you type it anywhere in Windows. Keep to the numeric keypad and the function keys.
- While the shortcuts are on, pressing an assigned key in the Keyboard Hook Manager also performs its action. Switch the shortcuts off (untick, Save & Apply) before you reassign the keys, or correct the score afterwards.
- One key can be given to two actions; both then run at once. Use this only on purpose.
- In the Demo version, Home Score Up and Guest Score Up are refused and the program shows "License Required !" (chapter 3).

16. Languages and Translations

16.1 Choosing the Language

waterBoard 7 speaks 46 languages: English, Turkish, Albanian, Azerbaijani, Bosnian, Bulgarian, Chinese, Czech, German, Danish, Spanish, Finnish, French, Georgian, Greek, Croatian, Hungarian, Indonesian, Hindi, Persian, Icelandic, Italian, Japanese, Kyrgyz, Khmer, Korean, Kazakh, Macedonian, Mongolian, Malay, Dutch, Norwegian, Polish, Portuguese, Romanian, Serbian, Russian, Arabic, Swedish, Slovenian, Thai, Tajik, Turkmen, Swahili, Uzbek and Vietnamese.

At the first start the program takes the language of the Windows regional format, or English when that language is not in the list.

To change the language:

1. Open Settings > Language, or click the flag icon on the Game tab (tool tip "Language Settings").
2. Open the list Select Language. It shows each language with its flag and in its own name, for example Deutsch or Español. Choosing a language only shows its texts in the table; it does not switch the program yet.
3. Click the disk icon on the right of the list. The program shows "New Language Selected ! Please Restart Application."
4. Close waterBoard 7 and start it again.

The language applies to the program and to the texts on the boards and info screens. The remote control page (chapter 13) is always in English.

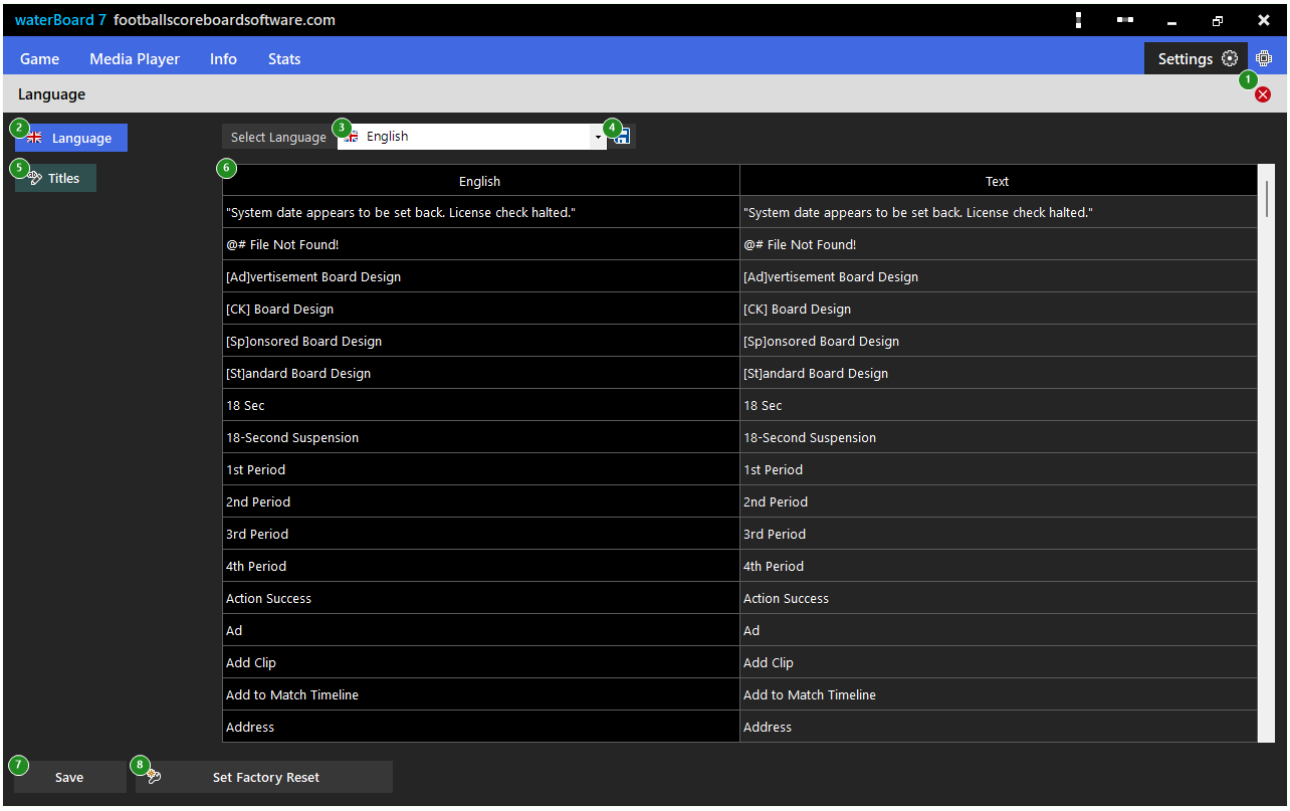
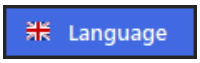
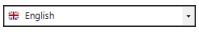
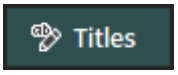
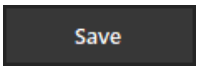
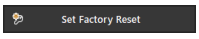


Figure 89. Settings > Language, Language tab.

No.	Control	Name	What It Does
1		**Close**	Closes the Language page (also Esc).
2		**Language**	Shows the table of all program texts of the chosen language.
3		**Select Language**	Chooses the language whose texts the table shows. It does not switch the program language until you click the disk icon.
4		**Save Language (disk icon)**	Makes the chosen language the program language and sets the titles to its texts. Restart the program to apply it.
5		**Titles**	Shows the titles of the info screens (Goal, Red Card, Substitution ...) for editing.
6		**Text table**	English text on the left, the text of the chosen language on the right. Select a cell on the right and press F2 to edit it.
7		**Save**	Saves the changed texts (Language tab) or titles (Titles tab). Turns lime when there are unsaved changes.
8		**Set Factory Reset**	Language tab: copies the factory texts of all languages back over your texts, without a question. Titles tab: sets the titles to the texts of the program language.

> **Note:** Saving a new language also sets the titles of the Titles tab (section 16.3) to the texts of that language. Titles you changed by hand are replaced.

16.2 Editing Translations

Every text of the program can be changed, for example to use the terms of your federation or a shorter word that fits a button.

1. Choose the language in Select Language. The table lists all texts: English on the left, the text of the chosen language on the right (column Text). The rows are sorted alphabetically by the text of the chosen language.
2. Find the text. Scroll, or click a cell of the right column and use the arrow keys.
3. Select the cell on the right and press F2, type the new text, press Enter. The Save button turns lime.
4. Click Save. The changed texts of this language are written to the file.
5. Restart the program: most texts are read at the start.

- The English column cannot be edited. To change an English text, choose English in Select Language and edit the right column.
- Keep the special signs of a text: @# and {0} are filled in by the program, and && shows a single & on a button (for example Save && Apply).
- Avoid the characters & < > " ' in your own texts: they are saved in an encoded form (for example &) and appear like that in the program.
- Translations other than English and Turkish were made by machine translation. Corrections by native speakers are welcome; please send them to support (arslan.ziya@gmail.com).

16.3 Titles

The Titles tab holds the headings that the info screens show (chapter 9), for example Goal, Red Card, Substitution, Referees, Standings, Results, Fixtures, Starting XI, Substitutes and Trainer. The editors of the info screens have a button that opens this tab directly.

1. Click Titles.
2. Select the text on the right, press F2, type the new heading and press Enter.
3. Click Save.

The left column shows the English name of each title for orientation.

16.4 Factory Texts

Set Factory Reset copies the factory texts back:

- On the Language tab: the texts of all languages, at once and without a question. All your own changes in every language are lost.
- On the Titles tab: the titles are set to the texts of the program language.

The factory texts are kept in C:\waterBoard7\common\xml\langFactory.xml and are never changed by the program; your texts are in C:\waterBoard7\common\xml\lang.xml, the titles in common\xml\title.xml. Copy lang.xml and title.xml to a safe place before a factory reset, and before you install an update, if you want to keep your changes.

> **Note:** The setup of an update replaces lang.xml and title.xml in common\xml, so your own texts are lost. Copy these two files before an update and put them back afterwards (chapter 2.5).

17. Settings Reference

17.1 The Settings Tab

Click Settings at the top right of the main window. The tab opens on the License page; the buttons on the left open the other pages.

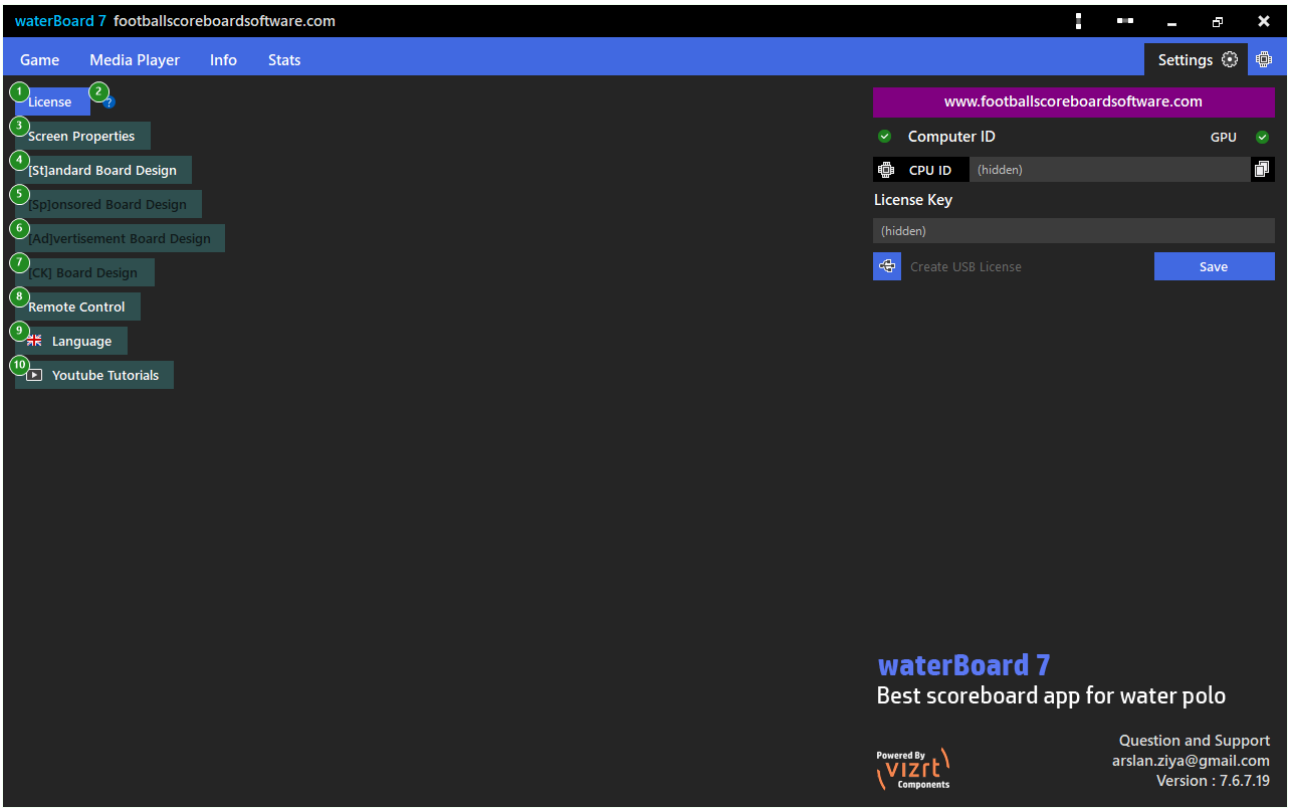
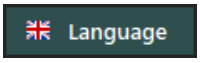
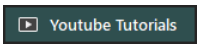


Figure 90. The Settings tab with its buttons on the left (here the License page is open).

No.	Control	Name	What It Does
1	License	**License**	Opens the License page: Computer ID, licence key, USB licence.
2	?	**License Info (?)**	Shows License Info: validation, max resolution, expire date, model and the licensed options.
3	Screen Properties	**Screen Properties**	Opens the table of board position and size, period lengths, background video opacity, separator and image play duration.
4	[St]andard Board Design	**[St]andard Board Design**	Opens the design editor of the Standard board. Enabled only in the St display mode.
5	[Sp]onsored Board Design	**[Sp]onsored Board Design**	Opens the design editor of the Sponsored board. Enabled only in the Sp display mode.
6	[Ad]vertisement Board Design	**[Ad]vertisement Board Design**	Opens the design editor of the Advertisement board. Enabled only in the Ad display mode.
7	[CK] Board Design	**[CK] Board Design**	Opens the design editor of the Chroma Key board. Enabled only in the CK display mode.
8	Remote Control	**Remote Control**	Opens the Remote Control page: on / off, address, QR code and PIN.

No.	Control	Name	What It Does
9		**Language**	Opens the Language page: program language, translations and titles.
10		**Youtube Tutorials**	Opens a playlist of video tutorials on YouTube in the web browser.

Button	Opens	Chapter
License (and ? for License Info)	The licence page	17.2, 3
Screen Properties	The board position and size and the other settings of section 17.3	17.3
[St]andard / [Sp]onsored / [Ad]vertisement / [CK] Board Design	The design editor of that display mode. Only the button of the current display mode is enabled.	17.4, 8
Remote Control	The remote control page	17.5, 13
Language	Language, translations and titles	17.6, 16
Youtube Tutorials	A playlist of video tutorials on YouTube, in the web browser	17.7

The active button is blue. The pages Remote Control and Language fill the work area; close them with the red X at their top right (or Esc) to come back to the Settings tab.

17.2 License

The License page shows the licence state of this PC and takes a licence key. Chapter 3 describes it in full; in short:

- Computer ID / CPU ID: the identifier of this PC (read only). The copy button on its right copies it to the clipboard; send it to us to receive a PC licence key. The status icon on the left of Computer ID is green with a valid licence; click it for a help page on PC licences.
- License Key: paste the key and click Save. A valid key turns the box lime and the program shows "License Key Valid. Please Restart Application."; an invalid key shows a warning and the old key comes back. The key is saved in C:\waterBoard7\water7License.xml.
- The USB icon with Create USB License opens the page that writes a USB licence on a memory stick.
- GPU: shown with a green tick when the licence includes hardware graphics acceleration.
- ? next to License opens License Info: Validation, Max Resolution, Expire Date, Model and the licensed options.
- The bottom right shows the website link, the support address and the program version (Version : 7.6.7.19).

17.3 Screen Properties

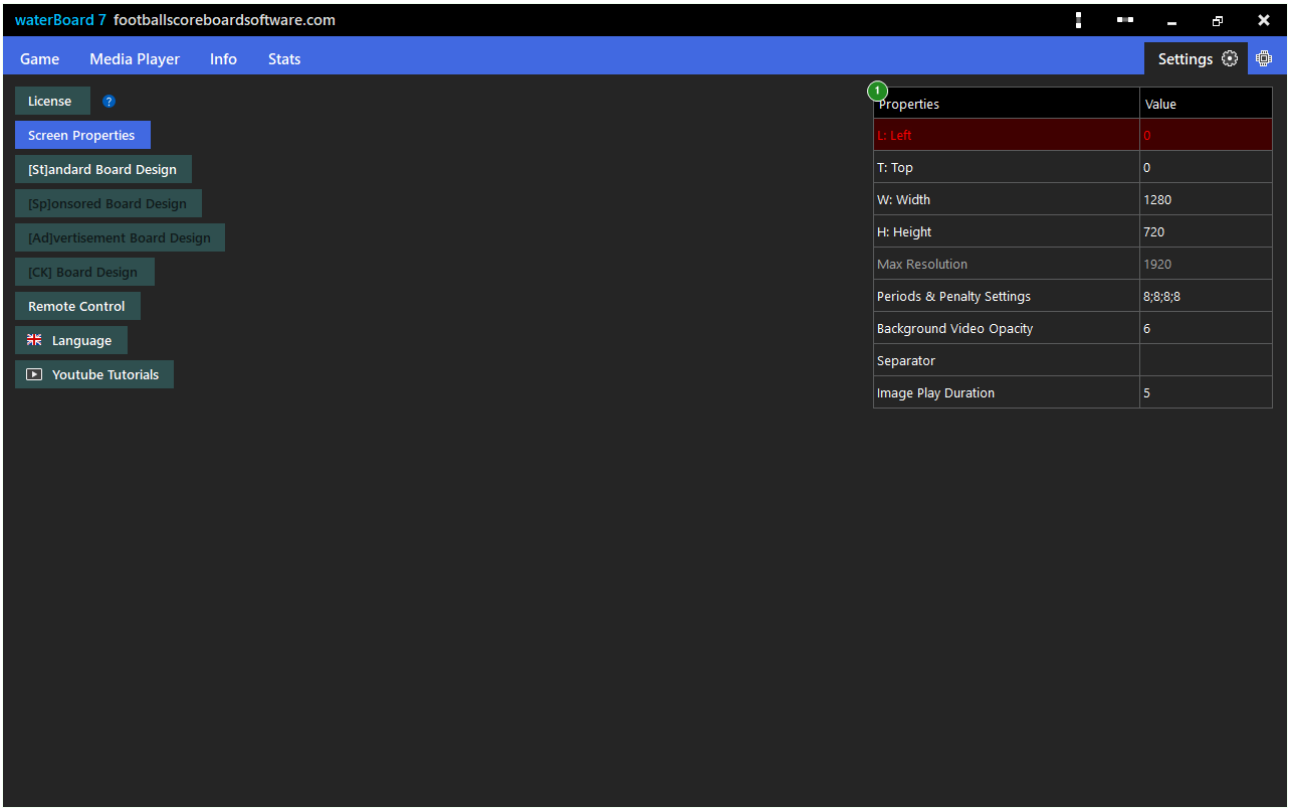
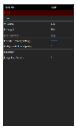


Figure 91. Settings > Screen Properties.

No.	Control	Name	What It Does
1		**Screen Properties table**	Click a value, type the new value (or F2) and leave the cell: it is saved and applied at once. On Periods & Penalty Settings a clock button opens Match Rules.

The page is a table with two columns, Properties and Value. Click a value, type the new value (or press F2 to edit it) and leave the cell with Enter or a click elsewhere. The change is saved in start.xml and applied to the boards at once; there is no Save button. An empty value is not accepted (except for Separator): the old value comes back.

Row	First-Start Value	Values	What It Does
L: Left	0	Pixels	Horizontal position of the board windows on the Windows desktop, measured from the left edge of the main screen. A negative value is treated as 0.
T: Top	0	Pixels	Vertical position of the board windows. A negative value is treated as 0.
W: Width	960	Pixels, up to Max Resolution	Width of the board windows. A larger value is cut to Max Resolution.
H: Height	540	Pixels, up to Max Resolution	Height of the board windows. A larger value is cut to Max Resolution.
Max Resolution	From the licence (38400 in the Demo version)	Read only (grey)	The largest width and height the licence allows.
Periods & Penalty Settings	8;8;8;8	Read only; clock button	The lengths of periods 1 to 4 in minutes. Click the row: a clock button appears at the right of the value. Click it to open the Match Rules dialog "Period & Penalty Settings" (chapter 6); the row shows the new lengths after Save & Apply.
Background Video Opacity	6	0 to 10	Strength of the background video behind the boards and the info screens: 0 = invisible, 10 = full strength. An invalid value is set back to 6.
Separator	Empty	Text	Empty: the board shows the two scores in two separate fields. With a text, for example : or -, the board shows both scores in one field with this text between them (for example 9:8).
Image Play Duration	5	1 to 120 seconds	How long a picture stays on screen in a Media Player playlist (chapter 12). An invalid value is set back to 5.

To place the board on a second screen (an LED wall controller, a video output or a projector), set L to the width of the main screen (for example 1920) and T to 0, and W and H to the pixel size of the second screen. The second screen must be to the right of or below the main screen in Windows Settings > System > Display, because negative positions are not possible.

> **Note:** The board size and position apply to all board windows of all display modes and to the NDI output (chapter 12).

17.4 Board Design Tabs

[St]andard Board Design, [Sp]onsored Board Design, [Ad]vertisement Board Design and [CK] Board Design open the design editor for the board of that display mode. Only the button of the display mode that is on now can be clicked; the others are grey. Switch the display mode on the Game tab first (chapter 7). The design editor is described in chapter 8.

17.5 Remote Control

The Remote Control page switches the remote server on port 1907 on or off (Disable), shows the address and a QR code for phones and tablets, and holds the PIN (default 123456). The remote control is off on a new installation. The page is described in chapter 13.2; the HTTP API that it opens is described in chapter 14.

17.6 Language

The Language page chooses the program language (a restart is needed), edits every text of the program and holds the titles of the info screens on its Titles tab. See chapter 16.

17.7 Youtube Tutorials

Youtube Tutorials opens the playlist of video tutorials on YouTube in the default web browser. An internet connection is needed. Nothing changes in the program.

17.8 Where Other Settings Are

Setting	Where
Discipline and Match Rules	Game tab: the discipline button, or Screen Properties > Periods & Penalty Settings (chapter 6)
Display mode	Game tab: St, Sp, Ad, CK (chapter 7)
Board design	Settings > Board Design and the design gallery (chapter 8)
Sound on / off	Game tab: the sound button (chapter 5)
Keyboard shortcuts	Game tab: the keyboard icon (chapter 15)
Remote control	Game tab: the antenna icon, or Settings > Remote Control (chapter 13)
Media Player display mode and volume	Media Player tab (chapter 12)
NDI sender name	start.xml, value SenderName in the NDI section (default Wp7_NDI); edit only while the program is closed

Most settings are stored in C:\waterBoard7\start.xml, the others in the config*.xml files next to it. The program saves a change at once.

18. Troubleshooting and FAQ

18.1 No Board on the Screen

The board is a separate window without a frame, placed at L, T with the size W × H of Settings > Screen Properties (chapter 17.3).

Problem	Fix
The board is not visible at all	Check L, T, W and H. A board placed for a second screen (for example L = 1920) is invisible when that screen is switched off or disconnected: set L and T to 0 to bring it onto the main screen.
The board is on the wrong screen or cut off	Set L and T to the position of the screen in Windows Settings > System > Display. Negative positions are treated as 0, so the board screen must be to the right of or below the main screen.
The board shows the wrong part, or is blurred	Set W and H to the pixel size of the board screen, and the Windows display scaling of that screen to 100 %.
The board window is empty or black	The boards are drawn by the Microsoft Edge WebView2 Runtime (section 18.3). Check that it is installed, then restart the program.
The Standard board shows a video or an info screen instead of the score	Click Game, or MATCH on the remote: the scoreboard of the current display mode comes back.
The Sponsored band or the Advertisement page is missing	They appear only in their display modes (Sp, Ad). Switch the display mode on the Game tab (chapter 7).

18.2 DEMO on the Board

Without a valid licence waterBoard 7 runs as a Demo version:

- The match clock on the board shows DEMO for one second every ten seconds.
- The + and − score buttons of both teams (on the Game tab, the remote and the keyboard shortcuts) and the score boxes show "License Required ! This action is not allowed in the DEMO version." and do not change the score.

Problem	Fix
DEMO although a key was entered	Open Settings > License. A lime key box means a valid key. Click ? (License Info): Validation must read Yes. Restart the program after you saved the key.
"License Key Not Valid!" or a grey key box	The key belongs to another PC or stick, or was copied incompletely. Compare the Computer ID with the one you sent. After a hardware change send the new Computer ID to support (chapter 3).
USB licence not found	Plug the stick in before you start the program; a stick plugged in later is not seen.
The key was accepted but the box turned pale pink	The licence has expired, or the Windows date was set back. Check the Windows date and time and License Info (Expire Date).

18.3 Installation, .NET and WebView2

waterBoard 7 needs a 64-bit Windows, the .NET Framework 4.7.2 or later and the Microsoft Edge WebView2 Runtime. The setup checks all three: when .NET or WebView2 is missing it offers the download (OK opens the Microsoft download page) and then closes. Install the missing component and run the setup again. The setup must be run as administrator; it offers to restart itself with administrator rights.

If WebView2 is removed later (or damaged), the board windows and the previews stay empty without a message. Install the WebView2 Runtime again from the Microsoft website (search for "WebView2 Runtime download"), then restart waterBoard 7.

18.4 Fonts

The designs use the fonts in C:\waterBoard7\common\font. The setup installs them in Windows, and the program also loads them at every start (and releases them when it closes). If a board shows a wrong or plain font, run the font installation again in a PowerShell window opened as administrator:

```
powershell -ExecutionPolicy Bypass -File C:\waterBoard7\install_fonts.ps1
```

Then restart the program. A font you add yourself must be installed in Windows (right click the font file > Install for all users).

18.5 Remote Control and Firewall (Port 1907)

Problem	Fix
The phone cannot open the remote page	Is Disable unticked in Settings > Remote Control? Are the phone and the PC in the same network? Is the address right (http://<PC address>:1907/logon.html, with http, not https)? Is the chosen Network Adapter the one in the phone's network?
Local Test works on the PC, the phone does not	The firewall blocks the port. Run C:\waterBoard7\open_firewall_1907.bat as administrator (right click > Run as administrator). It adds the four "waterBoard 1907" rules when they are missing. Check other firewall or security software too. Guest Wi-Fi networks often keep devices apart ("client isolation"); use the production network.
Local Test does not work either	The remote server is not running. Untick Disable. If another program already uses port 1907 (for example another Board7 program with its remote on), close it or switch its remote off, then tick and untick Disable.
The PIN is not accepted	The PIN was changed on the PC (it is used at once). Log on with the new PIN. The default is 123456.
The connection dot is green but nothing changes	The PIN was changed after the phone logged on. Tap LOG OUT and log on again.
The connection dot is red	The phone lost the Wi-Fi, the PC sleeps, the program was closed or the remote was switched off.
The SHOT or PENALTY tab is missing	SHOT appears only when the shot clock is on in Match Rules; PENALTY only when the discipline has penalty buttons, or during the shootout (chapter 13.5).

Problem	Fix
A timeout or period button does nothing	Timeouts and period changes work only while the match clock is stopped.

18.6 Sound

The program plays its sounds (start, stop, end of an exclusion, end of the timeout, shot clock horn, period end) through the default Windows playback device.

- No sound at all: check the sound button on the Game tab (green = on, red = off) and the Windows volume and default playback device.
- The sound comes out of the wrong device (for example the HDMI output of the board screen): change the default playback device in Windows Settings > System > Sound.
- The sound files are 01.wav to 05.wav in C:\waterBoard7\common\sounds. You can replace them with your own WAV files of the same names while the program is closed.

18.7 NDI

The NDI button on the Game tab sends the board as an NDI source (chapter 12). The button blinks red while it sends; click it again to stop.

- The NDI picture is taken from the screen area of the board (L, T, W, H). Anything that covers that area, a window, a dialog or the mouse pointer, appears in the NDI picture too. Keep the board area free, or put the board on its own screen.
- The source does not appear in the receiver: the PC and the receiver must be in the same network, and NDI must not be blocked by the firewall. The source is named after the PC with the sender name Wp7_NDI.
- To rename the sender, close the program and change SenderName in the NDI section of start.xml.
- The receiver shows a green picture: that is the Chroma Key display mode with its key colour. Key it in the vision mixer, or switch to the Standard mode (chapter 7).

18.8 Large Images and Slow Reactions

Logos, photos, sponsor pictures and backgrounds are loaded at their full size. A photo straight from a camera (6000 pixels wide, 10 MB and more) takes noticeably long to load, and the program can stop reacting for a moment each time it is loaded or shown.

- Resize pictures before you use them: logos about 512 × 512 pixels, player photos about 600 pixels high, full-screen pictures the size of the board (for example 1920 × 1080).
- Use PNG (for logos with a transparent background) or JPG (for photos).
- Use videos in a common format (MP4, H.264) at the resolution of the board.

> **Note:** Use pictures of moderate size: logos and sponsor images of a few hundred pixels (about 600 pixels wide at most) and PNG or JPG files. Very large image files slow the board down and can make the clock jump.

18.9 Settings Files

File	Content
C:\waterBoard7\start.xml	Program settings, team names and lines, Match Rules, keys, remote PIN

File	Content
config.xml, configSp.xml, configAd.xml, configCK.xml	Settings of the display modes, playlists and banners
common\xml\lang.xml, title.xml	Your texts and titles (chapter 16)
water7License.xml	The PC licence key

- When start.xml is missing, the program creates a new one with the first-start values at the next start (board 960 × 540, English or the Windows language, remote off, PIN 123456, the default keys).
- To start with fresh settings: close the program, rename start.xml (for example to start_old.xml) and start the program. The licence key in water7License.xml stays valid.
- Make a copy of the files above before an event and before an update. Copy them only while the program is closed, and edit them with Notepad only while the program is closed: the program writes them while it runs.

> **Note:** If start.xml is missing, waterBoard 7 creates a new one with the factory values at the next start (Water Polo rules, PIN 123456, team names and board size reset). If the program does not start after a power failure, rename start.xml (for example to start.old) and start the program again; then set your board size, teams and settings again. This version keeps no automatic backup copies, so keep a copy of start.xml from a working day.

18.10 FAQ

The keyboard shortcuts do nothing. Tick Enable Keyboard Hook in the Keyboard Hook Manager and click Save & Apply; check NumLock for the keys of the numeric keypad (chapter 15).

F9 gives a goal and resets the shot clock at the same time. Older installations had F9 and F12 for two actions each. Give the shot clock resets their own keys (chapter 15.2).

The match clock starts when I press Esc. Esc is the default key of Main Timer Start - Stop and the shortcuts are on. Assign another key (chapter 15.2).

The clock does not start. A timeout is running: Start and Stop are disabled until it ends or is stopped (chapter 5).

A timeout cannot be started. The match clock runs, or the team has used all its timeouts (Water Polo 2 per match, the other disciplines 1; chapter 6).

An exclusion does not count down. Exclusion timers run only while the match clock runs, and only up to Max Penalty Player timers per team at once (chapter 6).

The board shows no shot clock. The shot clock is switched off in Match Rules (Underwater Rugby and Underwater Hockey have none by default).

The second STOP cleared the exclusions. STOP on a stopped clock sets the clock back to the start of the period and clears the exclusion lists. Press STOP only once to pause; use PLAY / PAUSE.

The Design button I need is grey in Settings. Only the design editor of the current display mode can be opened. Switch the display mode on the Game tab first (chapter 17.4).

I changed the language and nothing happened. Click the disk icon next to Select Language, then restart the program (chapter 16.1).

My edited titles are gone. Saving a new language sets the titles to the texts of that language (chapter 16.3).

How do I close the program safely? With the Close button (X) in the title bar of waterBoard 7. Settings are saved as you change them; the team names and the lower lines are saved when the program closes (chapter 4).

Appendix A: Rules Sources

waterBoard 7 keeps the clock, the score, the penalties, the timeouts and the shot clock of four disciplines with editable rules: every discipline has factory values, and every value can be changed in Match Rules (chapter 6). This appendix lists the rule books behind the factory values, compares them with what the program does, and names the points that could not be confirmed.

Competition regulations can differ from the rule books, and rule books change. Check the current edition and the regulations of your competition before an event, whatever this appendix says.

A.1 Sources

Discipline	Rule Book
Water Polo	World Aquatics Competition Regulations, Part Six (Water Polo), in force February 2026
Canoe Polo	ICF Canoe Polo Competition Rules 2025
Underwater Rugby	CMAS Underwater Rugby International Rules, version 2024/01
Underwater Hockey	CMAS Underwater Hockey Rules of Play, version 13.0 (February 2025)

A.2 Rule Values and the Program

Discipline	Rule Book	Program (Factory Values)
Water Polo	4 periods of 8:00, stopped clock; shot clock 28 s, 18 s after a reset; 2 timeouts of 1:00 per team in the match; exclusion 18 s, several at a time; the exclusion ends early on a goal or when the excluded team regains the ball	P1–P4, 8 min; Stop Chronometer on Goal on; shot clock 28 / 18; 2 timeouts of 60 s per match; penalty button 18 s, Max Penalty Player 6; End Penalty On Goal ends all exclusions of both teams. Regained possession: cancel the row by hand.
Canoe Polo	2 halves of 10:00, stopped clock; shot clock 60 s; no team timeouts (one timeout of 1:00 is optional in live-streamed games); green and yellow card suspension 2:00	H1, H2, 10 min; shot clock 60 / 0; timeouts off (60 s, 1 per match when switched on); penalty button 2 min, Max Penalty Player 2; End Penalty On Goal on.
Underwater Rugby	2 halves of 15:00, stopped clock; 1 timeout of 1:00 per team and period; penalty 2:00, the oldest penalty of a team ends when it concedes a goal; no shot clock	H1, H2, 15 min; Stop Chronometer on Goal on; 1 timeout of 60 s per period; penalty button 2 min, Max Penalty Player 3; End Penalty On Goal on; shot clock off.

Discipline	Rule Book	Program (Factory Values)
Underwater Hockey	2 halves of 15:00, running clock (stopped in the last 2:00 of the second half and in some overtime phases); 1 timeout of 1:00 per team and half, none in overtime; penalties of 1, 2 and 5 minutes, not ended by a goal; no shot clock	H1, H2, 15 min; Stop Chronometer on Goal off; 1 timeout of 60 s per half; penalty buttons 1, 2 and 5 min, Max Penalty Player 3; End Penalty On Goal off; shot clock off. Pause the clock by hand for the stops of the last minutes.

The penalty shoot-out (P on the Game tab) records scored and missed shots for any discipline and shows the last five per team. Water polo decides drawn matches by a penalty shoot-out of five shooters, then sudden death; the other disciplines have their own tie-breaks (section A.4).

A.3 Unconfirmed Points

The following points could not be confirmed when the factory values were set. Check them against your competition:

- The underwater rugby and underwater hockey rules were taken from copies of the CMAS texts hosted on national federation websites. No newer edition was found, but it was not confirmed that these are still the current versions.
- Underwater rugby, rule 6.6: how long a team plays short-handed after an expulsion before a replacement may enter. Enter a penalty of the length your referees give.
- Underwater rugby: whether timeouts are allowed during the penalty shoot-out.
- Water polo: whether group games of a tournament may end drawn. The program has no draw or match-end logic; it shows the score as it is.
- Canoe polo: the change of the shot clock to 60 / 30 seconds announced for 2027. The factory second value is 0; enter 30 if your competition uses it.
- Canoe polo: whether a suspension ends when the opponent scores. The factory value of End Penalty On Goal is on; switch it off if your competition does not end suspensions on a goal.

A.4 What the Program Does Not Follow

The scoreboard keeps the values an operator needs on the board. It does not keep or enforce the following rules; the referees decide and the operator acts on the panel:

- breaks and half-time intervals (there is no break timer);
- personal fouls, for example the third personal foul in water polo;
- the cards of canoe polo as separate types (a suspension is entered as a penalty of its length);
- expulsions for the rest of the match and the replacement of excluded players;
- overtime, golden goal and sudden-death periods (the program has no overtime logic);
- the video challenge of water polo;
- the end of a water polo exclusion when the excluded team regains the ball (cancel the row by hand);
- the clock stops of underwater hockey in the last minutes of a half (pause the clock by hand).

Appendix B: HTTP API Command Reference

B.1 Request and Replies

Request (chapter 14):

```
http://<PC address>:1907/api.html?_=<number>&pin=<PIN>&cmd=<command>&value=<value>$
```

- The remote server must be on (Settings > Remote Control, Disable not ticked). The port is always 1907.
- Every request ends with $. The PIN is digits only (default 123456).
- Command names are not case-sensitive, except GET (capitals only).
- Side values: home means the home team; any other value (guest) means the guest team. Write home in lower case: Home or HOME count as guest.
- Values are URL-encoded (| as %7C, space as %20, + as %2B). A value cannot contain & or $.
- Text values: _ is a new line.
- In the tables, "!" is the reply <html>!<command></html>. A command that cannot act (a timeout while the clock runs, an unknown value) also replies "!" and nothing changes. The error replies (#Invalid PIN, #Invalid API Request, #Invalid API Command, #<message>) are listed in chapter 14.1.
- The commands act like the matching controls of the Game tab (chapter 5) and follow the Match Rules (chapter 6).

B.2 Commands

Scoreboard and Display

Command	Value	What It Does	Reply
match	–	Brings the Game tab to the front and the scoreboard back on the board of the current display mode: a Media Player video stops and an info screen is taken off. The logon of the remote page sends this command.	!
click	St, Sp, Ad, Ck (any case)	Switches the display mode: Standard, Sponsored, Advertisement or Chroma Key (chapter 7).	!

Teams and Lower Lines

Command	Value	What It Does	Reply
set_home_team	Text	Sets the home team name. _ starts a second line.	!
set_guest_team	Text	Sets the guest team name. _ starts a second line.	!
line_text_1	Text	Sets the first lower text line of the board. _ is a new line.	!
line_text_2	Text	Sets the second lower text line of the board. _ is a new line.	!

Score

Command	Value	What It Does	Reply
set_home_score_up	–	One goal for the home team, as the + arrow of the Game tab: with End Penalty On Goal the exclusions end (chapter 6), with Stop Chronometer on Goal a running clock stops and the shot clock is reset to its first value. Refused in the Demo version (the PC shows "License Required !").	!
set_guest_score_up	–	One goal for the guest team, in the same way. Refused in the Demo version.	!
set_home_score_down	–	One goal less for the home team, not below 0. Nothing else changes. Refused in the Demo version.	!
set_guest_score_down	–	One goal less for the guest team, not below 0. Refused in the Demo version.	!
set_home_score	Number, for example 3	Sets the home score to the value (a correction; exclusions and the clock are not touched). The value is taken as it is: send digits only. Refused in the Demo version.	!
set_guest_score	Number	Sets the guest score to the value. Refused in the Demo version.	!

Match Clock

Command	Value	What It Does	Reply
set_chronometer	play	Starts the match clock (nothing when it already runs). Refused while a timeout runs.	!
set_chronometer	pause	Pauses the running clock.	!
set_chronometer	stop	Two-stage stop: a running clock is stopped; a stopped clock is set back to the length of the period and the exclusion lists of both teams are cleared.	!
set_chronometer	mm:ss, for example 08:00 or 03:42	Sets the clock to this time. A running clock is paused first; nothing is reset. A value without a colon is ignored.	!
click	playpause	Starts the match clock, or pauses it (as Start / Pause on the Game tab).	!
click	stop	The same two-stage stop as set_chronometer stop.	!

The values play, pause and stop of set_chronometer must be written in lower case.

Periods

Command	Value	What It Does	Reply
click	period_1, period_2, period_3, period_4	Selects the period and sets the clock to its length; the shot clock is stopped. Ignored while the match clock or a timeout runs. Use only the periods the discipline has (PeriodLabels of GET).	!
click	penalty	Selects the penalty shootout period (Period = 5 in GET).	!

Shot Clock

Command	Value	What It Does	Reply
shotclock	reset1	Resets the shot clock to its first value (ShotClock1, for example 28). When the match clock runs, the shot clock runs on from there.	!
shotclock	reset2	Resets the shot clock to its second value (ShotClock2, for example 18).	!
shotclock	clear	Sets the shot clock to 0 and stops it until the next reset.	!

The values are not case-sensitive. The commands have a visible effect only when the shot clock is switched on (UseShotClock = true).

Exclusions and Penalties

Command	Value	What It Does	Reply
penalty_add	side|number|seconds, for example home|4|18	Adds an exclusion or penalty to the list of the team: shirt number (may be empty) and length in seconds. Use a length of PenaltyLevels (GET): 18 in Water Polo, 120 in Canoe Polo and Underwater Rugby, 60, 120 or 300 in Underwater Hockey. The timer runs only while the match clock runs and within Max Penalty Player (chapter 6).	!
penalty_cancel	side|index, for example guest|0	Removes an exclusion from the list of the team. index counts from 0 in the order of PenaltyHome / PenaltyGuest of GET.	!

Penalty Shootout

Command	Value	What It Does	Reply
shootout	side|O	Adds a scored penalty [O] for the team. Only the last five marks are kept.	!

Command	Value	What It Does	Reply
shootout	side|X	Adds a missed penalty [X] for the team (X in any case; any other mark counts as O).	!
shootout_clear	home, guest	Clears the shootout marks of the team.	!

Select the shootout period first (click penalty); the board shows the marks during the shootout.

Timeouts

Command	Value	What It Does	Reply
timeout_set	side|up, side|down	Corrects the number of timeouts used by the team by one, between 0 and the timeouts allowed (Water Polo 2, the other disciplines 1). down lowers, any other value raises. Ignored while the match clock runs.	!
timeout_start	home, guest	Starts the timeout of the team with the countdown of Match Rules and counts it as used. While a timeout runs, the command stops it (for either side). Ignored while the match clock runs; a team that has used all its timeouts cannot start one (the PC gives a short sound).	!

Media

Command	Value	What It Does	Reply
start_playlist	1 to 6	Opens the Media Player tab and plays that playlist (chapter 12). Any other number plays playlist 1. If a playlist is already playing, the command stops it instead.	!
start_playlist_ad_screen	1 to 6	Switches to the Advertisement display mode, opens its media page and plays that playlist there. Any other number plays playlist 1. If a playlist is already playing there, the command stops it.	!

To return to the scoreboard after a playlist, send match.

State

Command	Value	What It Does	Reply
GET	–	Returns the state as XML (B.3). Changes nothing.	XML

B.3 Fields of cmd=GET

The reply is <Response><Item> ... </Item></Response> with these fields, in this order:

Field	Type	Content
BoardType	Text	Display mode: St, Sp, Ad or CK
Mode	Number	Discipline: 0 Water Polo, 1 Canoe Polo, 2 Underwater Rugby, 3 Underwater Hockey
Home	Text	Home team name (a two-line name contains a line break)
HomeScore	Number	Home goals
Guest	Text	Guest team name
GuestScore	Number	Guest goals
Chronometer	Text	Match clock as on the Game tab, for example 03:42
StatusChronometer	true / false	true while the match clock runs
Period	Number	1 to 4 = period, 5 = penalty shootout
Extra01	Text	First lower text line
Extra02	Text	Second lower text line
ShotClock	Number	Shot clock in seconds
UseShotClock	true / false	true when the shot clock is switched on
ShotClock1	Number	First reset value of the shot clock
ShotClock2	Number	Second reset value of the shot clock
PeriodLabels	Text	The four period names, separated by |, for example P1|P2|P3|P4. An empty name = no such period.
PenaltyLevels	Text	Penalty buttons as seconds~text~colour, separated by |, for example 18~18~red. Colours: red, green, yellow, blue, white. Empty when the discipline has none.
PenaltyHome	Text	Home exclusions as number~remaining time, separated by |, for example 4~00:18
PenaltyGuest	Text	Guest exclusions, in the same form
ShootoutHome	Text	Home shootout marks, for example [O] [X] [O]
ShootoutGuest	Text	Guest shootout marks
TimeoutHome	Number	Timeouts used by the home team
TimeoutGuest	Number	Timeouts used by the guest team
TimeoutRunning	true / false	true while a timeout countdown runs

B.4 Examples

Start a water polo match from a script (PIN 123456, PC address 192.168.1.20):

```
http://192.168.1.20:1907/api.html?_=1&pin=123456&cmd=set_home_team&value=CNAB$
http://192.168.1.20:1907/api.html?_=2&pin=123456&cmd=set_guest_team&value=MEDITERRANI$
http://192.168.1.20:1907/api.html?_=3&pin=123456&cmd=click&value=period_1$
http://192.168.1.20:1907/api.html?_=4&pin=123456&cmd=set_chronometer&value=play$
```

A goal for the guest team, then the next attack:

```
http://192.168.1.20:1907/api.html?_=5&pin=123456&cmd=set_guest_score_up$
http://192.168.1.20:1907/api.html?_=6&pin=123456&cmd=shotclock&value=reset1$
```

An exclusion for home no. 4 and its cancellation:

```
http://192.168.1.20:1907/api.html?_=7&pin=123456&cmd=penalty_add&value=home%7C4%7C18$
http://192.168.1.20:1907/api.html?_=8&pin=123456&cmd=penalty_cancel&value=home%7C0$
```

A home timeout while the clock is stopped, and the shootout:

```
http://192.168.1.20:1907/api.html?_=9&pin=123456&cmd=timeout_start&value=home$
http://192.168.1.20:1907/api.html?_=10&pin=123456&cmd=click&value=penalty$
http://192.168.1.20:1907/api.html?_=11&pin=123456&cmd=shootout&value=guest%7CX$
```

Play advertisement playlist 2, then back to the scoreboard:

```
http://192.168.1.20:1907/api.html?_=12&pin=123456&cmd=start_playlist_ad_screen&value=2$
http://192.168.1.20:1907/api.html?_=13&pin=123456&cmd=match$
```

Appendix C: Glossary

Term	Meaning
API	The HTTP command interface on port 1907 (chapter 14, Appendix B).
Board	The output window with the graphics (Standard, Sponsored, Advertisement or Chroma Key).
Canoe polo	A team sport in kayaks with goals above the water. A discipline of waterBoard 7: two halves of 10 minutes, 2-minute penalties, shot clock 60 s.
Chroma key (CK)	Graphics on a solid key colour that a vision mixer replaces with the camera picture.
Computer ID	The code of the PC that a PC licence is bound to (shown as CPU ID).
DEMO	The program without a valid licence. The boards show the word DEMO (chapter 3).
Discipline	Water Polo, Canoe Polo, UW Rugby or UW Hockey. Shown on the button at the top of the Game tab; chosen in Match Rules.
Display mode	St, Sp, Ad or CK (chapter 7).
End Penalty On Goal	Match rule: a goal ends exclusions. In water polo all running exclusions of both teams end; in the other disciplines the oldest penalty of the team that conceded ends.
Exclusion	In water polo, a player sent out of the water for 18 seconds. The program shows a timer with the cap number.
Half	One of the two playing periods of canoe polo, underwater rugby and underwater hockey: H1 and H2.
Info screen	A graphic with match information shown instead of the scoreboard, or as a lower third in CK.
Lower lines	The two text lines below the team names on the Game tab, for example the venue or the competition.
Lower third	A graphic in the lower part of a TV picture.
Match clock	The clock of the period. It counts down and stops at 00:00 with a horn.
Match Rules	The dialog "Period & Penalty Settings": periods, penalties, timeouts, shot clock and the goal behaviour of the discipline (chapter 6).
Max Penalty Player	Match rule: how many penalty timers of one team run at the same time. Later penalties wait in the list.
NDI	A standard for video over the network; waterBoard 7 can send the board as an NDI stream.
On air	Shown on the output now.
Penalty	A timed suspension of a player: 18 s in water polo, 2 minutes in canoe polo and underwater rugby, 1, 2 or 5 minutes in underwater hockey.
Penalty shootout	Penalty throws or shots after a drawn match. Period P on the Game tab; each shot is marked scored [O] or missed [X].

Term	Meaning
Period	One of the four playing periods of water polo (P1 to P4), or a half in the other disciplines.
PIN	The code that protects the remote control. The factory PIN is 123456.
Running clock	A match clock that does not stop on a goal (underwater hockey: Stop Chronometer on Goal off).
Scorebug	The small score graphic of the CK mode.
Shot clock	The possession clock: in water polo 28 seconds, reset to 28 or 18. A horn sounds at zero.
Stop Chronometer on Goal	Match rule: a goal pauses the running match clock and resets the shot clock to its first value.
Timeout	A break requested by a team, with a countdown on the board. Started only while the match clock is stopped.
Underwater hockey	A team sport at the bottom of a pool, played with a puck and short sticks. A discipline of waterBoard 7: two halves of 15 minutes, penalties of 1, 2 or 5 minutes.
Underwater rugby	A three-dimensional team sport under water with a negatively buoyant ball and baskets on the pool floor. A discipline of waterBoard 7: two halves of 15 minutes, 2-minute penalties.
USB ID	The code of the USB stick that a USB licence is bound to.
UW	Short for underwater: UW Rugby, UW Hockey.
Water polo	The main discipline of waterBoard 7: four periods of 8 minutes, 18-second exclusions, shot clock 28 / 18 seconds.
WebView2	The Microsoft Edge component that draws the boards.

Appendix D: Match-Day Checklist

Before the event:

1. Licence: the licence icon at the right of the menu bar shows a CPU or USB symbol, not a padlock (chapter 3). With a USB licence the stick is plugged in before the program starts.
2. Board output: Settings > Screen Properties L, T, W, H match the LED wall or second monitor; the board monitor lies to the right of or below the main screen in the Windows display layout (chapters 4, 7 and 17).
3. Design: the right factory design or your own design is applied in every display mode you will use (chapter 8).
4. Discipline and rules: the button at the top of the Game tab shows the right discipline; "Period & Penalty Settings" has the values of the competition: period count and length, penalty durations, Max Penalty Player, End Penalty On Goal, Stop Chronometer on Goal, timeouts and shot clock values. Save & Apply (chapter 6).
5. Data: team names, logos, player lists and photos, referees, standings, results and fixtures are filled in and saved (chapters 9, 10 and 11).
6. Sponsors and media: sponsor pictures, scrolling texts, playlists and the background video are in place (chapters 7 and 12).
7. Sound: the sound of the Game tab is on, and the PC sound reaches the venue if the horn should be heard (chapter 5).
8. Remote: switched on, PIN changed from 123456, the phone or tablet logged on, a test goal entered and taken back (chapter 13). Port 1907 is open in the Windows firewall (chapter 2).
9. Keyboard shortcuts: switched on if used, and tested (chapter 15).
10. NDI or video output: the receiver or vision mixer shows the board; for keying use CK with a key colour (chapter 7).
11. Backup: a copy of C:\waterBoard7 is kept in a safe place, especially before installing a new version (chapter 2).

Before each match:

1. The team names, logos and the two lower lines on the Game tab.
2. The score at 0 – 0, the timeouts and penalty lists empty, the shot clock reset.
3. Period P1 (or H1) selected and the match clock at the full period length.
4. The display mode for the moment (St, Sp, Ad or CK) and the scoreboard on the output.
5. The team lists, referees or other info screens, if you show them before the start (chapter 9).

During the match:

- One person operates the Game tab. Correct a wrong goal at once with the down arrow of the team.
- Start and stop the match clock with the referee's whistle; reset the shot clock on every change of possession.
- Enter each exclusion or penalty with the team's penalty button and the cap number. The timers run only while the match clock runs.
- Timeouts: stop the match clock first, then start the timeout of the team; the board counts down by itself.
- At the end of each period the clock stops at 00:00 with a horn. Select the next period before you start the clock again.
- For a penalty shootout select period P and mark each shot as scored or missed (chapter 5).

After the match:

- Show the result, the timeline or the statistics if wanted (chapters 9 and 10).
- Update the results and standings (chapter 10).
- Close waterBoard 7 with its Close button at the end of the day. The settings, the team names and the lower lines are saved; the score and the clocks are not.