arenaBoard 7

Professional Led Display Scoreboard Software

USER MANUAL

www.footballscoreboardsoftware.com

arslan.ziya@gmail.com



LANGUAGE SUPPORT

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

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1. Introduction

1.1 What arenaBoard 7 Does

arenaBoard 7 is scoreboard and match-graphics software for lacrosse. 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 monitor, a projector or an LED wall, or send over the network as an NDI video stream.

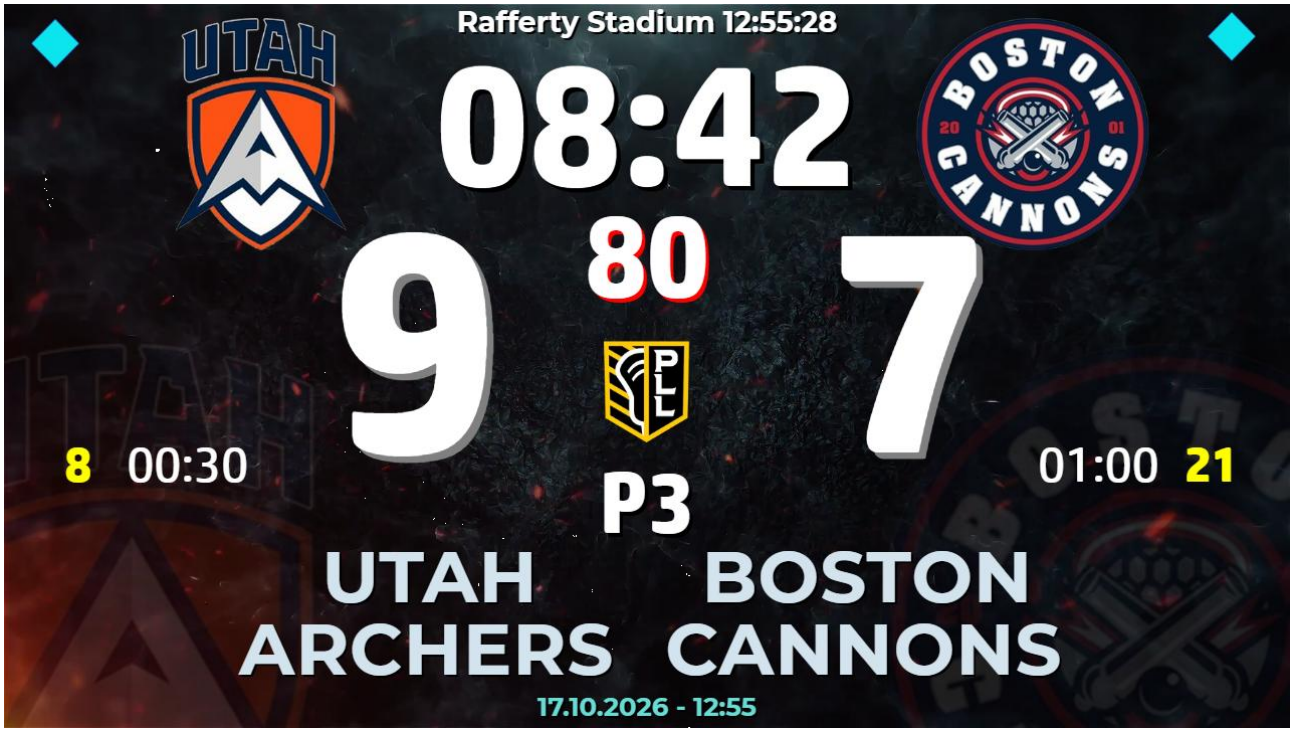


Figure 1. The Standard board of the sample match: Utah Archers - Boston Cannons, 3rd period, 9-7.

On the board, arenaBoard 7 shows:

- the team names on one or two lines, the team logos and a middle logo (for example the league logo);
- the score of both teams, the match clock and the period (P1 to P4, or the period names of the discipline);
- the shot clock, with a full reset value and a shorter reset value (for example 80 and 60 seconds);
- the player penalties of both teams: the player number and the penalty time counting down;
- a timeout countdown, and two text lines for the venue, the date and the time;
- a shootout after a tied match;
- info screens: Banner, Announce, Goal, team lists with player pictures, Referees, Player Penalties, Red Card, Substitution, Sponsors;
- statistics: the timeline of the goals, match stats, standings, results and fixtures;
- sponsor images, scrolling texts, banners, video playlists, camera pictures and screen captures.

Board Output **Control Panel**

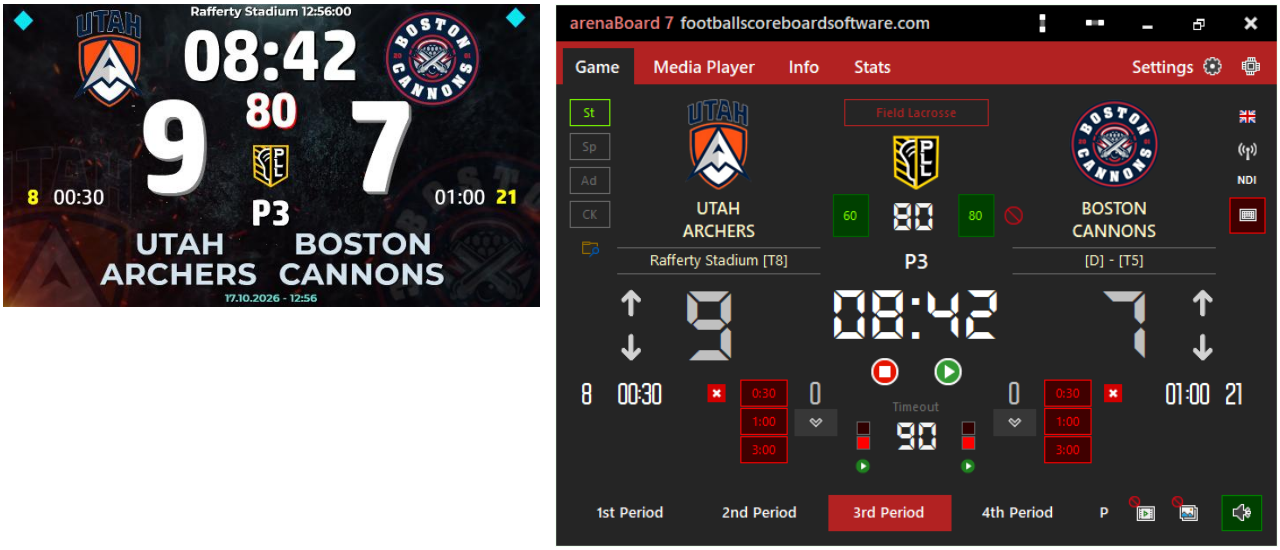


Figure 2. The Standard board during a match and the Game tab that drives it.

You can drive the board from the main window, from the keyboard (chapter 15), from a phone or tablet on the same network (chapter 13) or from other software through the HTTP API (chapter 14).

1.2 Disciplines

One installation covers four lacrosse disciplines. The Mode button at the top of the Game tab shows the current discipline, for example "Field Lacrosse". Click it to open Period & Penalty Settings, where you choose the discipline and change its values (chapter 6).

Discipline	Periods	Penalty Buttons	Max Penalty Player	Timeout	Shot Clock (Reset)	Clock on Goal
Field Lacrosse	4 × 15 min (P1 - P4)	0:30, 1:00, 3:00	3	90 s	80 s (60 s)	Stops
Women's Lacrosse	4 × 15 min (P1 - P4)	1:00, 2:00, 5:00	3	120 s	90 s (60 s)	Stops
Sixes Lacrosse	4 × 8 min (P1 - P4)	0:30, 1:00, 3:00	2	30 s	30 s (30 s)	Runs on
Intercrosse	2 × 15 min (H1, H2) and 2 × 5 min overtime (OT1, OT2)	1:00, 2:00	1	60 s	30 s (30 s)	Stops

In every discipline the factory setting ends a penalty when the other team scores (End Penalty on Goal). You can change each value and keep it for the next matches.

> **Note:** The factory values are a starting point, not a rule book. Leagues and age groups play different period lengths, shot clocks and penalty times. Check every value against the rules of your competition before the first match (chapter 6 and Appendix A).

1.3 Display Modes

The board has four display modes. You switch between them with the St, Sp, Ad and CK buttons on the left of the Game tab (chapter 7).

- Standard (St): the full-screen scoreboard with team names, logos, score, match clock, shot clock, period, penalties and two text lines.
- Sponsored (Sp): the Standard scoreboard with a sponsor band that shows 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 compact scorebug and lower-third graphics on a solid key colour, to be keyed over a live TV picture in a vision mixer.

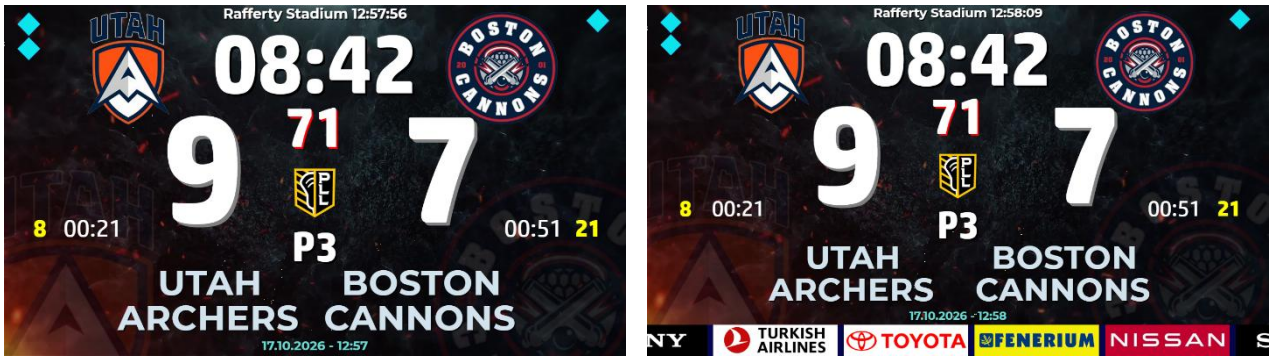


Figure 3. The Standard (left) and Sponsored (right) boards.

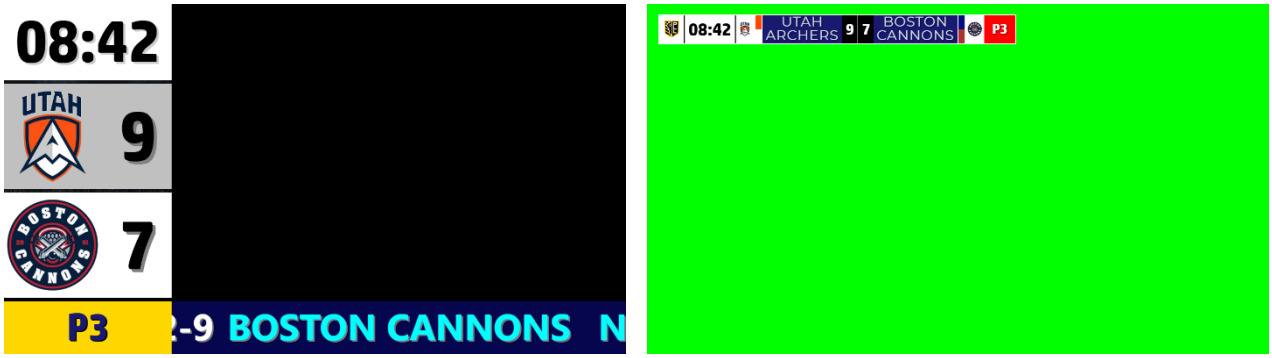


Figure 4. The Advertisement (left) and Chroma Key (right) boards.

The Standard board comes in three factory designs (masters), the Advertisement board in three and the Chroma Key board in one. You can change any element of a design in the design editor and save your own designs; the factory designs themselves stay read only (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 Game tab, and the disciplines with their period and penalty settings. Chapters 7 to 12 describe the display modes, the designs, the info screens, the statistics, the teams and

players, and the media. Chapters 13 to 15 cover the remote control, the HTTP API and the keyboard shortcuts. The guide ends with the languages, the settings reference, troubleshooting and four appendices: the rules sources (A), the HTTP API commands (B), a glossary (C) and a match-day checklist (D).

- A pair block 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 demo data: the PLL teams Utah Archers and Boston Cannons with their players and logos. Scores and clocks were set for the pictures (Field Lacrosse, 3rd period, 9-7, clock 08:42). The program ran with a licence; without a licence the board shows the word DEMO (chapter 3). The licence key, the Computer ID, the USB ID and the network address are hidden in the pictures.

1.5 Website and Support

- Website: www.footballscoreboardsoftware.com (shown in the title bar and on the License page of the settings; click the purple bar on the License page to open it).
- Support: arslan.ziya@gmail.com (shown on the License page under Question and Support, with the program version).
- Video tutorials: Settings > Youtube Tutorials opens the Board7 tutorial playlist on YouTube.

2. Installation and First Start

2.1 System Requirements

Item	Requirement
Windows	64-bit Windows 10 or Windows 11. The setup does not install on a 32-bit system; the program is a 64-bit program.
.NET Framework	4.7.2 or later
Microsoft Edge WebView2 Runtime	Required: every board and the licence terms are drawn with it
Rights	Administrator rights for the setup. 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 and the HTTP API (port 1907) and for NDI
Display scaling	100 % on the monitor that shows the board is recommended (chapter 18)

> **Note:** Current Windows 10 and Windows 11 PCs normally have the .NET Framework 4.7.2 and the WebView2 Runtime. If the program does not start or the board stays empty, install them from Microsoft (chapter 18).

2.2 Installing

1. Close arenaBoard 7 if it runs. The setup also ends a running copy before it copies files.
2. Run the setup (arenaBoard7Setup.exe) and follow the wizard. Confirm the Windows question for administrator rights.
3. The program is installed in C:\arenaBoard7. The folder cannot be changed.

During the installation the setup also:

- installs the fonts of the boards in Windows ("Installing fonts..."), with the helper install_fonts.ps1;
- adds four Windows firewall rules for port 1907, named "arenaBoard 1907 TCP IN", "arenaBoard 1907 UDP IN", "arenaBoard 1907 TCP OUT" and "arenaBoard 1907 UDP OUT" ("Configuring firewall rule..."), with the helper open_firewall_1907.bat;
- creates the desktop shortcut arenaBoard7, set to run as administrator;
- installs this guide as arenaBoard7Help.pdf in C:\arenaBoard7 and creates the desktop shortcut "arenaBoard7 Help", which opens it.

In Apps & Features the program is listed as Lacrosse Scoreboard Software 7.6.7.16.

2.3 First Start

Start arenaBoard 7 with the desktop shortcut. A small status card appears while the program loads. It starts with "arenaBoard Started..." while the program reads the licence (chapter 3), which can take some seconds on a slow PC, and then shows the next steps, for example "Controls Initialized...", "Renderer Initialized..." and "Entering Main Loop...".

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 of the main screen.

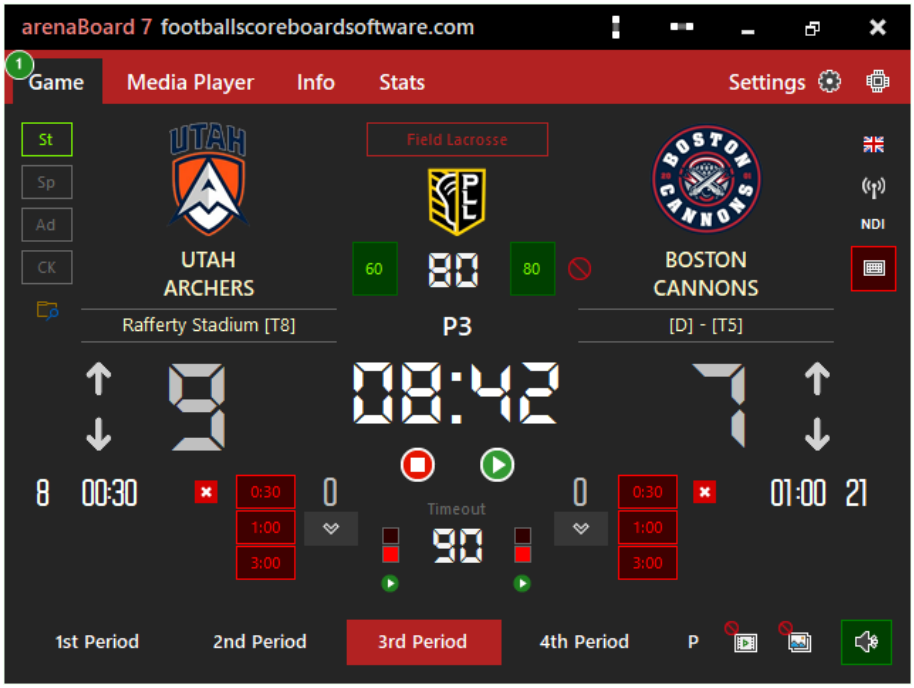


Figure 5. The main window with the Game tab (shown during the sample match; at the first start the score is 0-0).

No.	Control	Name	What It Does
1	Game	**Game**	Opens the Game tab (score, clocks, periods, penalties, display modes). It also takes the board back to the scoreboard: a media clip or an info screen on the output ends.

A new installation starts with these settings:

Setting	First Start Value
Board window	L 0, T 0, W 960, H 540 pixels
Display mode	Standard (St)
Design	_Master - [St]andard Design [1]
Discipline	Field Lacrosse: timeout 90 s, shot clock 80 s (reset 60 s), penalty buttons 0:30, 1:00, 3:00, up to 3 players in penalty
Period length	15 minutes for P1 to P4 (Periods & Penalty Settings 15;15;15;15)
Language	The language of the Windows regional format; English if it is not one of the 46 languages
Demo match	Utah Archers - Boston Cannons with their logos and players, text lines "Rafferty Stadium [T8]" and "[D] - [T5]" (venue, date and time), score 0-0
Background video	media\videos\Iron.mp4, opacity 6
Image Play Duration	5 seconds
Chroma key colour	Green
Remote control	Off, PIN 123456
Keyboard shortcuts	Off (the default keys are already assigned to the numeric keypad)
NDI sender name	Ab7_NDI
Licence	DEMO until a licence is entered (chapter 3)

These are the values of the Field Lacrosse preset (4 × 15 minutes). For another discipline click the Mode button on the Game tab before the first match (chapter 6).

> **Note:** Run only one copy of arenaBoard 7. 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:\arenaBoard7:

Folder or File	Contents
arenaBoard7.exe and the .dll files	The program
arenaBoard7Help.pdf	This guide (desktop shortcut "arenaBoard7 Help")
start.xml	All settings: board position, display mode, discipline values, team names and logos, keyboard keys, remote PIN (created at the first start)
config.xml, configSp.xml, configAd.xml, configCK.xml	Banner and Announce texts, and the Sponsored, Advertisement and Chroma Key settings
arena7License.xml	The PC licence key (written when you save a key, chapter 3)
common\data	Players, team lists, team database, referees, sponsors, playlists, timeline, stats, standings, results and fixtures
common\font	The fonts of the boards

Folder or File	Contents
common\images	Pictures, team logos, player photos and flags
common\remote	The pages of the remote control
common\vizrt\storage	The factory designs (index dataBoardsFactory.xml) and your saved designs (index dataBoards.xml, one <GUID>.xml per design)
common\vizrt\current	The designs in use
common\xml	Language file (lang.xml), factory copy (langFactory.xml), titles (title.xml), licence terms
media\videos, media\images	Background videos, background and sponsor pictures
media\downloads	Pictures downloaded by the program
API_Commands.txt	The HTTP API reference (chapter 14, Appendix B)
open_firewall_1907.bat, install_fonts.ps1	Helpers to repeat the firewall and font steps of the setup (run as administrator)

The browser data of the boards is kept in C:\arenaBoard7\arenaBoard7.exe.WebView2.

2.5 Upgrading to a New Version

Install the new version over the old one. The setup ends the running program, replaces the program files and the factory content, and keeps your data:

Kept	Replaced
start.xml (all settings) and arena7License.xml	The program and its libraries
config.xml, configSp.xml, configAd.xml, configCK.xml	Factory images, fonts, remote pages and board scripts
Players, team lists, team database, playlists, sponsors and statistics (common\data)	The factory design index dataBoardsFactory.xml (the factory designs are read only)
Your saved designs (dataBoards.xml and the <GUID>.xml files) and the designs in use (common\vizrt\current)	API_Commands.txt, open_firewall_1907.bat, install_fonts.ps1, langFactory.xml
Your translations (lang.xml) and titles (title.xml)	Factory media files with the same names (files you added to media are not touched)

- A changed factory design is shipped as a new design file. Your own designs and the designs in use are never overwritten (chapter 8).
- start.xml is never shipped with the setup. A setting that is missing in an older start.xml takes its factory value.

> **Note:** An upgrade keeps your lang.xml with your own translations. Texts that are new in the new version are then shown in English. To get the translations of the new version, click Set Factory Reset on the Language page (chapter 16.4). This also replaces your own changes to the translations, so note them first.

2.6 Uninstalling

Use Apps & Features > Lacrosse Scoreboard Software 7.6.7.16 > Uninstall. The uninstaller removes the program, the browser data of the boards, the downloads folder and the backup copies (*.bak). Your settings (start.xml, config*.xml), the licence file, the data in common\data, your designs and the media you added stay in C:\arenaBoard7. The fonts and the firewall rules stay in Windows.

> **Note:** Before you uninstall, copy C:\arenaBoard7 to a safe place if you want to keep your settings, players, designs and licence.

2.7 Quick Start: The First Match

1. Start arenaBoard 7. The Game tab shows the demo match.
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 Mode button of the Game tab, for example "Field Lacrosse". Click it to choose another discipline or to change the period length, penalties, timeout and shot clock (chapter 6).
4. Type the team names and the two text lines, and choose the logos (chapters 5 and 11).
5. Choose the 1st Period and start the match clock (chapter 5).
6. Count every goal with the up arrow of the team. Use the down arrow at once if a goal went to the wrong team.
7. Start penalties, timeouts and the shot clock with their buttons on the Game tab (chapter 5).

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

3. Licensing

3.1 PC (CPU) and USB Licences

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

	PC Licence (CPU)	USB Licence
Bound to	This PC, through its Computer ID (CPU ID)	One USB stick, through its USB ID
Key file	C:\arenaBoard7\arena7License.xml	arena7License.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 save a key, or plug in the USB stick, restart the program.

The key also holds:

- the Max Resolution: the largest board width and height in pixels. Settings > Screen Properties does not accept a larger W or H (chapter 17);
- the expiry date. A lifetime key has no date check;
- the licence model, which switches on options: the GPU screen capture of the Advertisement and Chroma Key modes (GPU badge on the License page), the extra media player (eMP badge) and Record & Replay.

The licence terms are shown in the program: the question-mark button next to the Computer ID opens the CPU License Terms, the one in the USB License Creator the USB License Terms. Both say that a key is valid for life, and that a new key after a hardware change, or for a lost or damaged stick, is free when there is a valid reason, but not guaranteed.

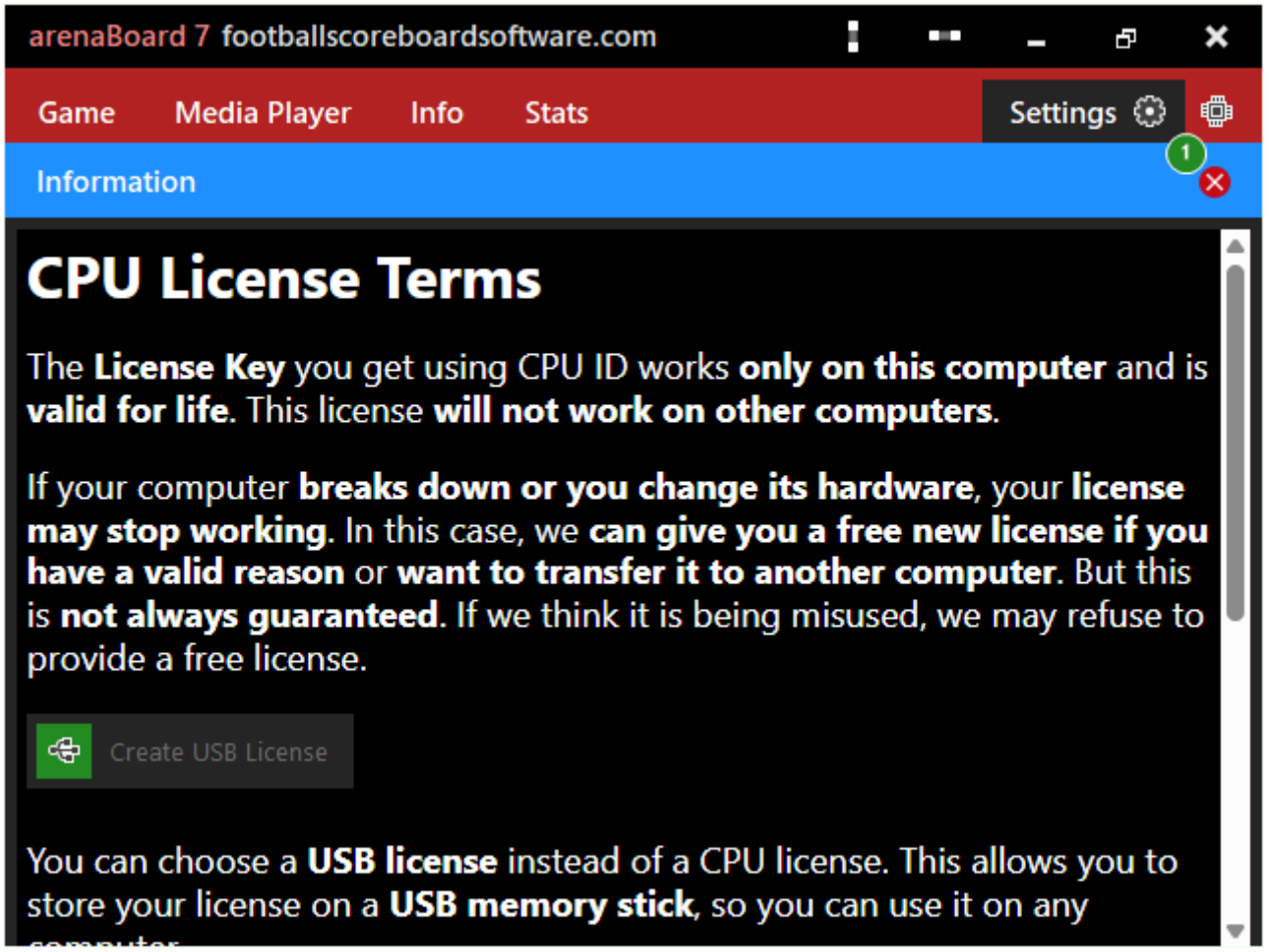


Figure 6. The CPU License Terms. Scroll for the whole text; the close button or any key closes the page.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the information page (here the CPU License Terms) and goes back to the page below. Any key does the same.

3.2 DEMO Mode

Without a valid licence the program runs in DEMO mode. Most functions work, with these 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 up and down arrows of the Home score, and choosing or removing the Home team logo on the Game tab, are blocked. The program shows "License Required! This action is not allowed in the DEMO version."

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". The icon is information only.

3.3 Entering a PC Licence

Open Settings > License.

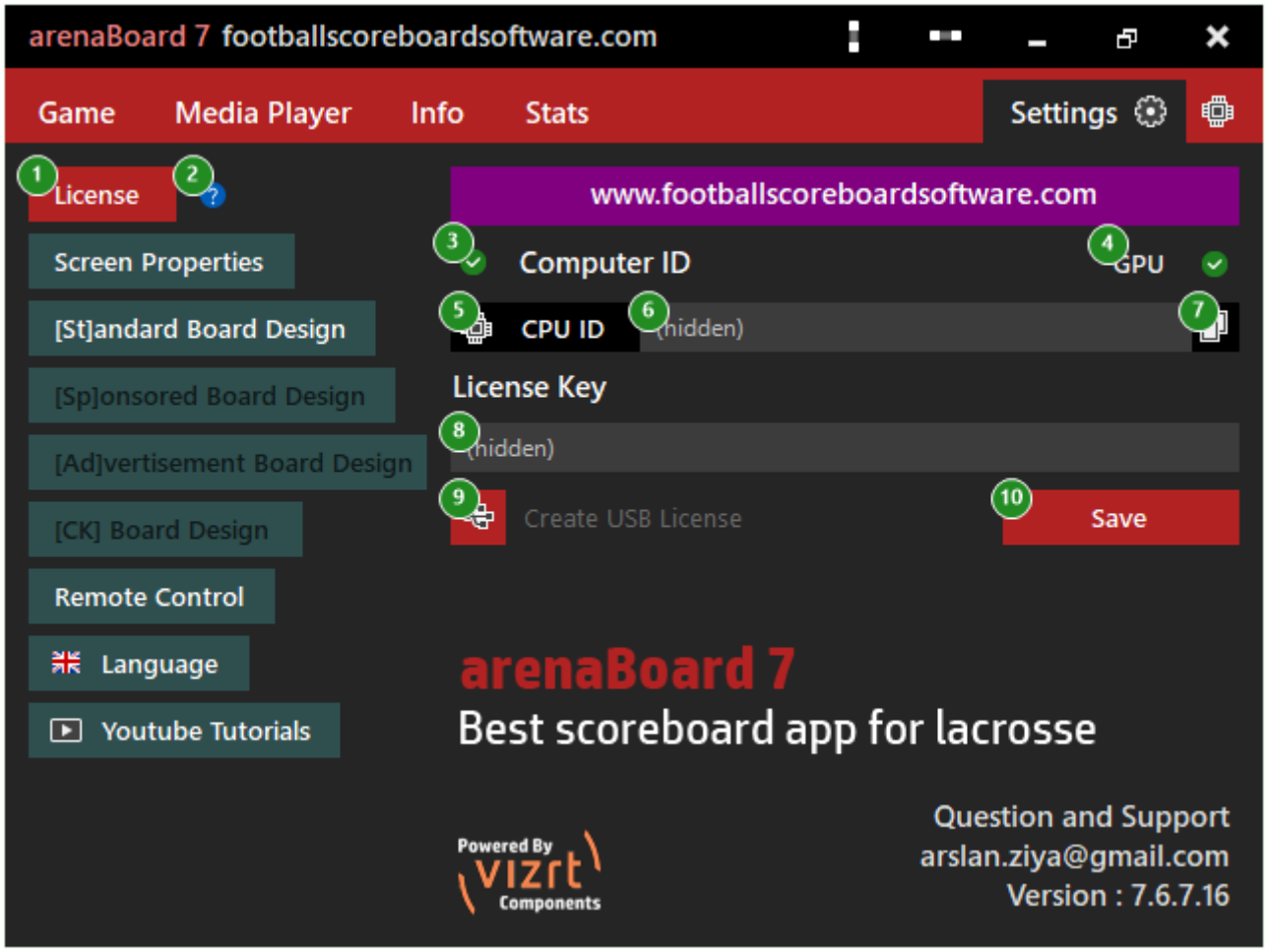
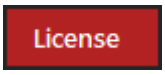
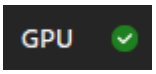


Figure 7. The License page. The Computer ID and the licence key are hidden in this picture.

No.	Control	Name	What It Does
1		**License**	Opens the License page: the Computer ID, the licence key, Save and Create USB License, the support address and the program version.
2		**License Info (?)**	Opens the License Info box: Validation, Max Resolution, Expire Date, Model, GPU Enabled, Extra Player, Record & Replay and the result of the date check.
3		**CPU License Terms (? / Tick)**	Opens the CPU License Terms. It shows a question mark while the key in the box does not fit this PC and a green tick when it does.
4		**GPU**	A badge shown when the licence enables the GPU screen capture of the Advertisement and Chroma Key modes. It is information only.
5		**CPU ID**	The caption of the Computer ID box at its right. Clicking it does nothing.
6		**Computer ID**	The ID of this PC that a PC licence key is made for (hidden in this picture). Click it to select the whole ID; send it to arslan.ziya@gmail.com to order the licence.
7		**Copy**	Copies the Computer ID to the clipboard.
8		**License Key**	Paste the licence key you received here (hidden in this picture). The box turns lime when the key fits this PC, pink when it fits but the date check fails, and grey when it does not fit. Do not type here on a licensed PC: a key that does not fit makes the running session DEMO.
9		**Create USB License**	Opens the USB License Creator, which writes a licence key to a USB stick.
10		**Save**	Checks the key in License Key. A valid key is saved to arena7License.xml and the program says License Key Valid. Please Restart Application. A key that does not fit shows License Key Not Valid! and the saved key comes back.

1. Click the copy button at the right of the Computer ID. The ID is copied to the clipboard.
2. Send the Computer ID to 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 and grey when it does not. It turns pink when the key fits but the date check fails (licence expired, or the Windows clock is earlier than the last start).
4. Click Save. The program shows "License Key Valid. Please Restart Application." and writes the key to arena7License.xml.
5. Restart arenaBoard 7.

If the key does not fit, Save shows "License Key Not Valid!" and the saved key comes back into the box. If the key fits but the date check fails, Save does nothing and the box stays pink.

- The button left of Computer ID shows a question mark while the key in the box does not fit this PC and a green tick when it does. It opens the CPU License Terms.
- The ? button next to License opens the License Info box (section 3.5).

- The GPU and eMP badges at the right show the options of the key.
- The purple bar at the top opens the website. The bottom of the page shows the support address and the program version (Version : 7.6.7.16).

> **Note:** Do not type into the License Key box of a licensed PC. While the box holds a key that does not fit, the running session is unlicensed: the boards show DEMO until a valid key is back in the box or the program restarts.

3.4 Creating a USB Licence

1. Plug a USB stick into the PC. Any size will do.
2. Open Settings > License and click the USB button (Create USB License) under the License Key box.
3. Choose the stick in Select USB Device. The list shows the drive letter and the name of each stick; a stick that already holds a key shows "- License Key Found". The list is read when the USB License Creator opens: plug the stick in first.
4. Click the copy button at the right of the USB ID and send the USB ID to arslan.ziya@gmail.com.
5. Paste the key you receive into License Key. The box turns lime when the key fits the stick, grey when it does not, and pink when the date check fails.
6. Click Save. The key file arena7License.xml is written to the root folder of the stick and the program shows "License Key Valid. Please Restart Application."
7. Restart arenaBoard 7 with the stick plugged in.

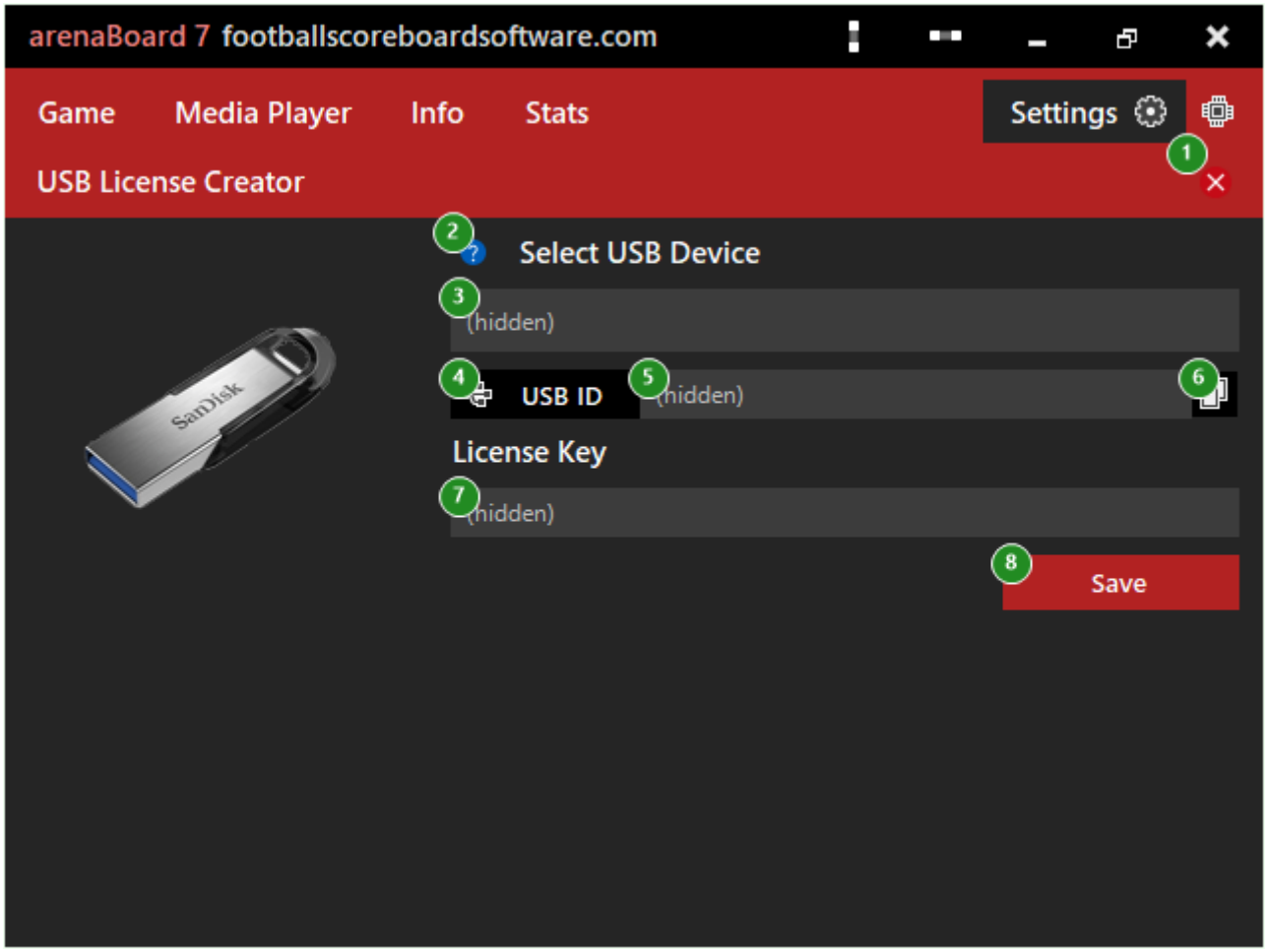


Figure 8. The USB License Creator. The drive, the USB ID and the key are hidden in this picture.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the USB License Creator. Esc does the same.
2		**USB License Terms (?)**	Opens the USB License Terms.
3		**Select USB Device**	Choose the USB stick (hidden in this picture). Each entry shows the drive letter and the name of the stick; a stick that already holds a key shows - License Key Found. Choosing a stick fills in its USB ID and the key stored on it. Plug the stick in before you open the USB License Creator.
4		**USB ID**	The caption of the USB ID box at its right. Clicking it does nothing.
5		**USB ID**	The ID of the selected stick that a USB licence key is made for (hidden in this picture). Click it to select the whole ID; send it to arslan.ziya@gmail.com to order the licence.
6		**Copy**	Copies the USB ID to the clipboard.
7		**License Key**	Paste the key for the selected stick here (hidden in this picture). The box turns lime when the key fits the stick, pink when it fits but the date check fails, and grey when it does not fit.
8		**Save**	Checks the key and writes it as arena7License.xml to the root folder of the selected stick, then says License Key Valid. Please Restart Application. A key that does not fit shows License Key Not Valid!; without a selected stick the program asks you to Select USB Device.

Messages of the USB License Creator:

Message	Reason
"Select USB Device"	Save was clicked before a stick was chosen.
"License Key Not Valid!"	The key does not belong to the selected stick.
"Selected USB Drive Is Not Available. Please Check the Connection."	The stick was pulled out after it was chosen.
"License Could Not Be Saved:" and a reason	Windows could not write the file, for example on a write-protected stick.

Esc or the close button (X) leaves the USB License Creator. When a valid USB licence is found at start, the License page shows a "USB License Detected" panel with the USB ID and the key.

3.5 Licence Status

The ? button next to License opens the License Info box. Its title band is grey with a valid licence and red without one.

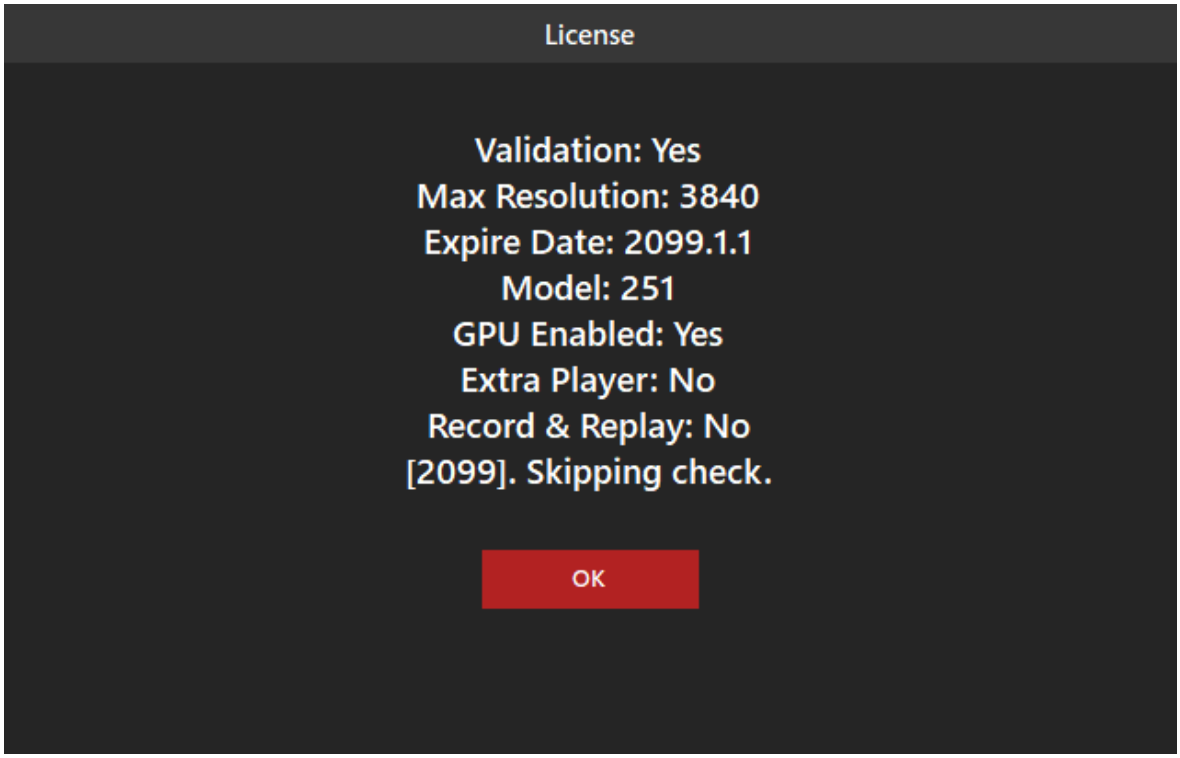


Figure 9. The License Info box of a licensed PC.

Line	Meaning
Validation	Yes with a valid PC or USB licence, No in DEMO
Max Resolution	The largest board width and height in pixels allowed by the key (3840 in the picture)
Expire Date	The end of the licence (year.month.day); 2099.1.1 is a lifetime key
Model	The licence model number
GPU Enabled, Extra Player, Record & Replay	The options of the licence model
Last line	The result of the date check: "[2099]. Skipping check." for a lifetime key, "All license checks passed.", or the reason for a failure (licence expired, or the system clock set back)

The box shows all eight lines; the picture above is a lifetime key with GPU capture and without the extra player and Record & Replay. OK closes the box.

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 (mainboard, processor); send the new Computer ID to support.

What You See	Reason and Fix
It worked before and now shows DEMO	The licence expired, or the Windows clock is earlier than the last start. No message is shown: open the License Info box and read the last line. 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.

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.

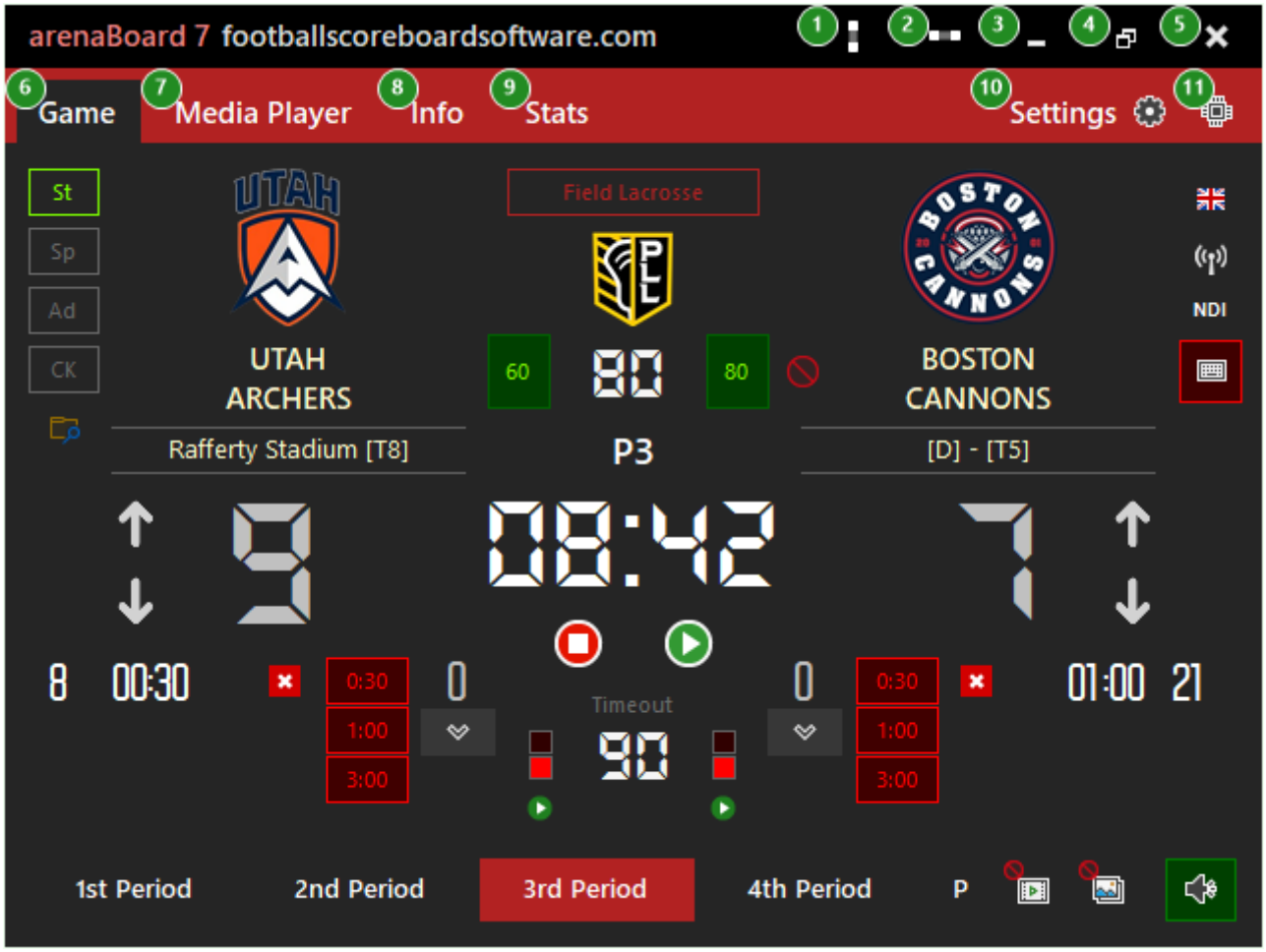
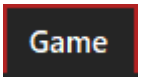
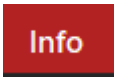
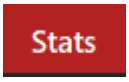
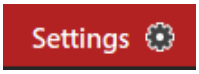


Figure 10. The main window: title bar, menu bar and the Game tab.

No.	Control	Name	What It Does
1		**Column**	Makes the main window a full-height column of 640 pixels at the right edge of the screen. Click again for 640 × 480 at the bottom right.
2		**Strip**	Makes the main window a full-width strip of 480 pixels along the bottom of the screen. Click again for 640 × 480 at the bottom right.
3		**Minimise**	Minimises the main window. The board stays on the output.
4		**Maximise**	Fills the screen with the main window. Click again to go back to the previous size.

No.	Control	Name	What It Does
5		**Close (X)**	Closes the program after the question The Application Will Be Closed! Are You Sure? The team names and text lines are saved; the score and the clocks are not.
6		**Game**	Opens the Game tab (score, clocks, periods, penalties, display modes). It also takes the board back to the scoreboard: a media clip or an info screen on the output ends.
7		**Media Player**	Opens the Media Player tab with the playlists of videos and pictures (chapter 12).
8		**Info**	Opens the Info tab: info screens, team lists, Referees, Player Penalties, Red Card, Substitution, Sponsors and the Team Database (chapter 9).
9		**Stats**	Opens the Stats tab: Timeline, Stats, Standings, Results and Fixtures (chapter 10).
10		**Settings**	Opens the Settings tab: License, Screen Properties, board designs, Remote Control, Language and Youtube Tutorials. While a media clip plays it shows the time left in the clip, for example ▶ 0:42.
11		**Licence Icon**	Shows the licence state: a padlock without a licence, a USB stick with a USB licence, a CPU chip with a PC licence. Rest the mouse on it for No License, USB License Found or CPU License Found. Clicking it does nothing.

The title bar shows arenaBoard 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 full-height column of 640 pixels at the right edge of the screen. Click again for 640 × 480 at the bottom right.
Strip	Makes the window a full-width strip of 480 pixels along the bottom of the screen. Click again for 640 × 480 at the bottom right.
Minimise	Minimises the main window. The board stays on the output.
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 or streaming software.

4.2 Menu Tabs

Tab	Opens	Chapter
Game	The Game tab: score, match clock, periods, shot clock, timeouts, penalties, display modes, designs	5
Media Player	Playlists of videos and pictures	12
Info	Info screens, team lists, Referees, Player Penalties, Red Card, Substitution, Sponsors and the Team Database	9, 11
Stats	Timeline, Stats, Standings, Results and Fixtures	10
Sp, Ad or CK	The page of the current display mode	7
Settings	License, Screen Properties, board designs, Remote Control, Language, Youtube 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.
- A click on Game also takes the board back to the scoreboard of the current display mode: a clip of the media player and an info screen on the output end.
- While a clip plays on the media-player board, the Settings tab shows the time left in the clip, for example ▶ 0:42.

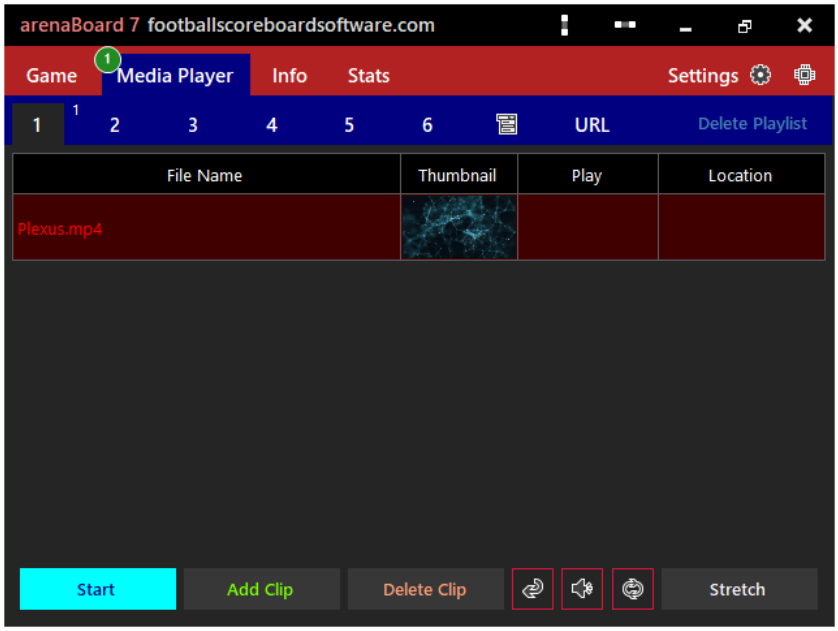


Figure 11. The Media Player tab.

No.	Control	Name	What It Does
1	Media Player	**Media Player**	Opens the Media Player tab with the playlists of videos and pictures (chapter 12).

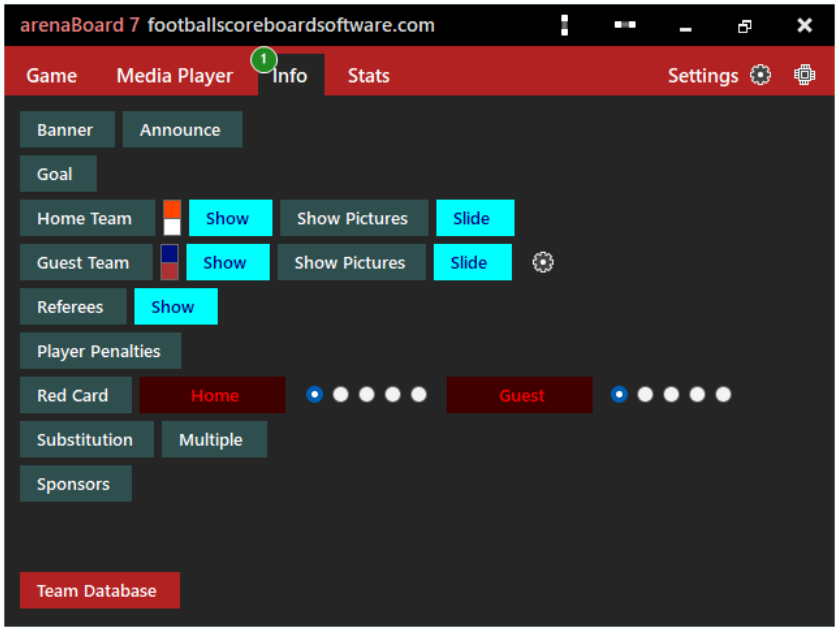


Figure 12. The Info tab.

No.	Control	Name	What It Does
1	Info	**Info**	Opens the Info tab: info screens, team lists, Referees, Player Penalties, Red Card, Substitution, Sponsors and the Team Database (chapter 9).

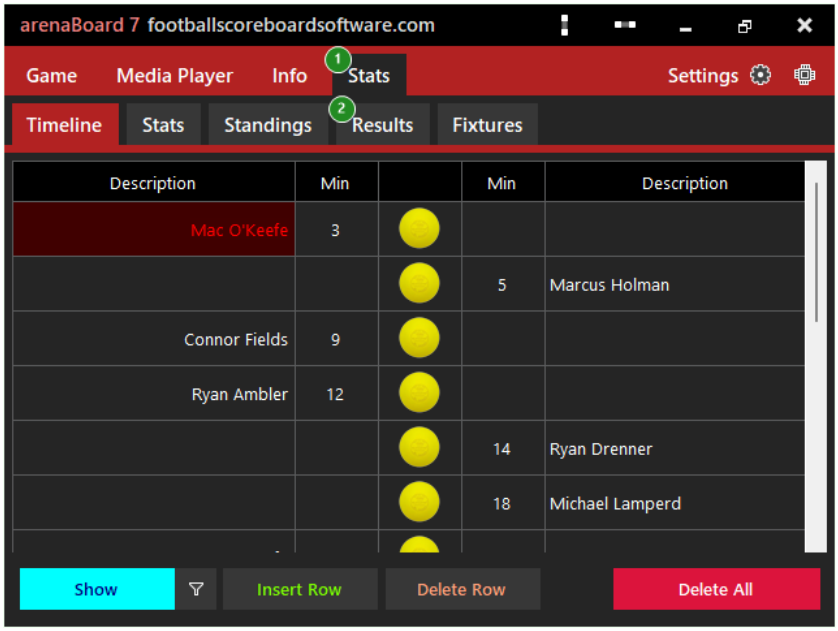


Figure 13. The Stats tab.

No.	Control	Name	What It Does
1	Stats	**Stats**	Opens the Stats tab: Timeline, Stats, Standings, Results and Fixtures (chapter 10).
2	Results	**Results**	Shows the results list (chapter 10.4).

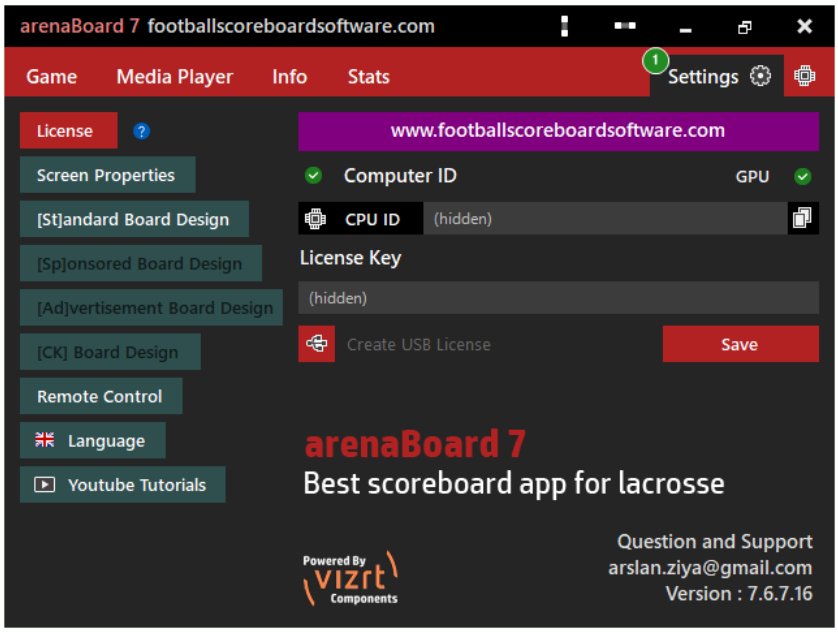
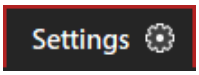


Figure 14. The Settings tab with the License page.

No.	Control	Name	What It Does
1		**Settings**	Opens the Settings tab: License, Screen Properties, board designs, Remote Control, Language and Youtube Tutorials. While a media clip plays it shows the time left in the clip, for example ▶ 0:42.

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; an info screen or a media clip covers it while it plays.

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. W and H cannot be larger than 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 text lines, closes the boards and ends.

After a restart the Game tab shows the saved team names, logos, lower lines, display mode and sound setting. The score, the match clock, the period, the penalties and the timeouts start fresh: the score is 0-0 and the clock shows the time of the 1st period.

> **Note:** The score, the match clock, the period, the shot clock, the running penalties and the timeouts are not saved when the program closes. Close arenaBoard 7 only after the match, and always with its own Close button: ending it from the Task Manager skips the orderly shutdown.

Questions and messages of the program cover the page with a coloured title band (red for warnings, lime for success) and Yes / No or OK buttons. Esc answers No (or OK). Information pages such as the licence terms open over the page with a blue Information band; the close button or any key closes them.

5. Game Tab

The Game tab is the operator panel of arenaBoard 7. Everything you need during a match is on this one page: the score, the match clock, the periods, the shot clock, the timeouts, the player penalties, the shootout, the team names and logos, and the display mode of the board. The page fits a 640 × 480 window, so it also works on a small screen beside the board.

The pictures of this chapter show the sample match: Field Lacrosse, 3rd period, Utah Archers 9 – Boston Cannons 7, clock 08:42, shot clock 80, Utah #8 serving a 0:30 penalty and Boston #21 a 1:00 penalty, one timeout each.

5.1 The Game Tab at a Glance

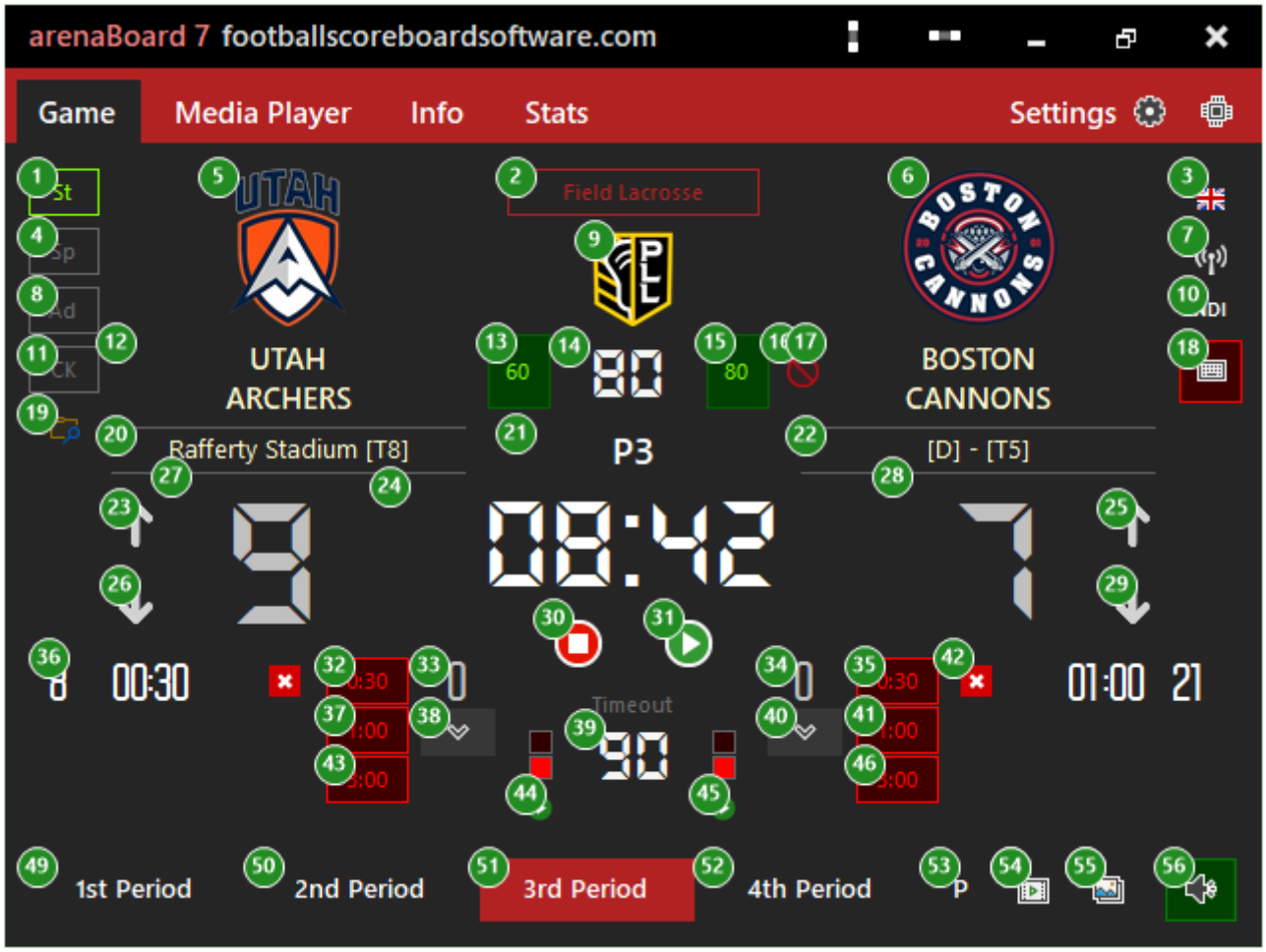
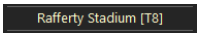
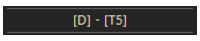
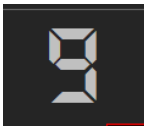
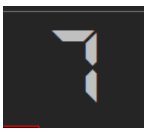
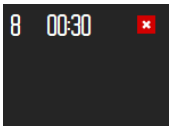
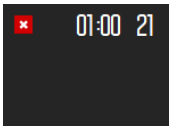


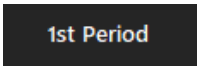
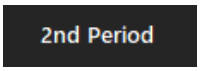
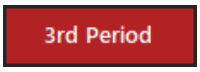
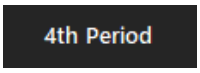
Figure 15. The Game tab of the sample match: 3rd period, 9-7, clock paused at 08:42.

No.	Control	Name	What It Does
1	St	**St**	Switches the board to the Standard display mode (chapter 7). The active mode has green text. Tooltip: Standard View.
2	Field Lacrosse	**Discipline (Field Lacrosse)**	Shows the discipline in use (Field Lacrosse, Women's Lacrosse, Sixes Lacrosse or Intercrosse) and opens Period & Penalty Settings (chapter 6). Also available while the clock runs.
3		**Language Settings (Flag)**	Opens the Language page of the settings (chapter 16). The flag shows the language in use.

No.	Control	Name	What It Does
4		**Sp**	Switches the board to the Sponsored display mode: the scoreboard with a sponsor band (chapter 7). Tooltip: Sponsored View.
5		**Home Team Logo**	Click to choose the logo of the home team (bmp, gif, jpg or png; the dialog starts in media\downloads\images). Rest the mouse on it to show a small X that removes the logo. Not available in the DEMO version.
6		**Guest Team Logo**	Click to choose the logo of the guest team (bmp, gif, jpg or png). Rest the mouse on it to show a small X that removes the logo.
7		**Remote Control (Antenna)**	Opens the Remote Control page of the settings (chapter 13).
8		**Ad**	Switches the board to the Advertisement display mode: score area, banners and a media area (chapter 7). Tooltip: Advertisement View.
9		**Board Logo**	The centre logo, for example the league or the tournament. Click to choose an image file; rest the mouse on it to show a small X that removes it.
10		**NDI**	Starts or stops sending the board into the network as an NDI stream (default name Ab7_NDI). The button blinks red while it sends (chapter 12). Tooltip: Start/Stop NDI Camera Stream.
11		**CK**	Switches the board to the Chroma Key display mode: a scorebug on the key colour for TV (chapter 7). Tooltip: Chroma Key View.
12		**Home Team Name**	The name of the home team on one or two lines: Enter starts the second line. The box turns black as a warning when you type a third line.
13		**Shot Clock: Second Value (60)**	Sets the shot clock to the second value of Period & Penalty Settings, for example 60 after a save. While the match clock runs, the shot clock runs on from the new value.
14		**Shot Clock**	The shot clock. It runs and pauses with the match clock and shows tenths while it runs. Click it and type seconds to set it by hand. At 0 it stays at 0 (no horn).
15		**Shot Clock: First Value (80)**	Sets the shot clock to the first value of Period & Penalty Settings, for example 80 for a new possession. While the match clock runs, the shot clock runs on from the new value. A goal with Stop Chronometer on Goal also does this.
16		**Clear Shot Clock (Red Sign)**	Sets the shot clock to 0 and stops it. The board hides the shot clock.
17		**Guest Team Name**	The name of the guest team on one or two lines: Enter starts the second line. The box turns black as a warning when you type a third line.

No.	Control	Name	What It Does
18		**Keyboard Shortcuts (Keyboard)**	Opens the Keyboard Shortcuts window (chapter 15). Green while the global keyboard shortcuts are on, red while they are off. Tooltip: Enable Keyboard Hook.
19		**Select Design (Folder)**	Opens the design gallery beside the button to choose another board design for the display mode in use (chapter 8).
20		**Lower Line 1**	A free text line, shown at the top of the Standard board. [D] shows the date and [T] the time of day; [T5] = hh:mm, [T8] = hh:mm:ss. One line only: the box turns black when you type a second line.
21		**Period Label**	The label of the selected period, for example P3 (from Period & Penalty Settings). The board shows the same text; you can overtype it, for example with OT. While a timeout runs the board shows the timeout countdown here.
22		**Lower Line 2**	A free text line, shown at the bottom of the Standard board, for example [D] - [T5] (date and time of day). One line only: the box turns black when you type a second line.
23		**Home Goal +1 (Up Arrow)**	One goal for the home team. While the clock runs it also ends the first guest penalty (End Penalty on Goal) and pauses the clock and resets the shot clock (Stop Chronometer on Goal). Not available in the DEMO version.
24		**Match Clock**	Counts down the period (green with tenths while it runs). To set it, pause the clock, click it, type mm:ss (or mm:ss.f, or seconds) and press Play. It stops by itself at 00:00 with the end-of-period sound.
25		**Guest Goal +1 (Up Arrow)**	One goal for the guest team. While the clock runs it also ends the first home penalty (End Penalty on Goal) and pauses the clock and resets the shot clock (Stop Chronometer on Goal).
26		**Home Goal −1 (Down Arrow)**	One goal less for the home team (a correction, never below 0). Does not change the clock or the penalties. Not available in the DEMO version.
27		**Home Score**	The score of the home team. Click it and type a number to set the score directly; a typed score does not end penalties or stop the clock.
28		**Guest Score**	The score of the guest team. Click it and type a number to set the score directly; a typed score does not end penalties or stop the clock.
29		**Guest Goal −1 (Down Arrow)**	One goal less for the guest team (a correction, never below 0). Does not change the clock or the penalties.
30		**Stop**	While the clock runs: stops it like Pause. While the clock is stopped: sets the clock back to the full length of the period and clears all player penalties of both teams. Greyed out while a timeout runs.
31		**Play / Pause**	Starts the match clock from the time shown, or pauses it. The shot clock and the player penalties run and pause with it. Greyed out while a timeout runs.

No.	Control	Name	What It Does
32		**Home Penalty Button 1 (0:30)**	Starts a penalty of the first length (0:30 in Field Lacrosse) for the home player in the number box. Length and text come from Period & Penalty Settings. Tooltip: Start Penalty.
33		**Home Penalty Player Number**	The shirt number for the next home penalty. Type it, or choose it with the arrow button below.
34		**Guest Penalty Player Number**	The shirt number for the next guest penalty. Type it, or choose it with the arrow button below.
35		**Guest Penalty Button 1 (0:30)**	Starts a penalty of the first length (0:30 in Field Lacrosse) for the guest player in the number box. Tooltip: Start Penalty.
36		**Home Penalties**	The penalties of the home team: number, time left and a red X to cancel. They count down while the clock runs; up to Max Penalty Player at once, the others wait. Pause the clock and double-click a number or time (mm:ss) to correct it.
37		**Home Penalty Button 2 (1:00)**	Starts a penalty of the second length (1:00 in Field Lacrosse) for the home player in the number box.
38		**Select Player (Home)**	Opens the list of shirt numbers of the home team list (chapter 11); the chosen number goes into the number box.
39		**Timeout Countdown**	The length of the next timeout in seconds (90 in Field Lacrosse); type another value before the start to change one timeout. Counts down in red during a timeout. Hidden while the match clock runs.
40		**Select Player (Guest)**	Opens the list of shirt numbers of the guest team list (chapter 11); the chosen number goes into the number box.
41		**Guest Penalty Button 2 (1:00)**	Starts a penalty of the second length (1:00 in Field Lacrosse) for the guest player in the number box.
42		**Guest Penalties**	The penalties of the guest team: number, time left and a red X to cancel. They count down while the clock runs; up to Max Penalty Player at once, the others wait. Pause the clock and double-click a number or time (mm:ss) to correct it.
43		**Home Penalty Button 3 (3:00)**	Starts a penalty of the third length (3:00 in Field Lacrosse) for the home player in the number box. Hidden when the third length is 0.
44		**Start Home Timeout**	Starts a timeout of the home team (clock paused): one more timeout square, the countdown runs and the board shows it. Click again (red square) to end it early. Hidden while the clock runs.
45		**Start Guest Timeout**	Starts a timeout of the guest team (clock paused): one more timeout square, the countdown runs and the board shows it. Click again (red square) to end it early. Hidden while the clock runs.
46		**Guest Penalty Button 3 (3:00)**	Starts a penalty of the third length (3:00 in Field Lacrosse) for the guest player in the number box. Hidden when the third length is 0.

No.	Control	Name	What It Does
47		**Remove Background Video (Red Sign)**	The small red sign on the video icon: removes the background video.
48		**Remove Middle Image (Red Sign)**	The small red sign on the image icon: removes the middle layer image.
49		**1st Period**	Selects the 1st period: the clock goes to its length and the period label to its text (P1, H1 ...). Does nothing while the clock or a timeout runs.
50		**2nd Period**	Selects the 2nd period: the clock goes to its length and the period label to its text. Does nothing while the clock or a timeout runs.
51		**3rd Period**	Selects the 3rd period: the clock goes to its length and the period label to its text. Does nothing while the clock or a timeout runs.
52		**4th Period**	Selects the 4th period: the clock goes to its length and the period label to its text. Does nothing while the clock or a timeout runs.
53		**P (Shootout)**	Switches to the shootout: the team names, the clock and the timeouts give way to the shootout marks and buttons (chapter 5.8). Does nothing while the clock runs.
54		**Background Layer Video**	Chooses a video file (mp4, webm, ogg) for the layer behind the board. Tooltip: Select Background Layer Video File.
55		**Middle Layer Image**	Chooses an image for the layer between the background video and the scoreboard. Tooltip: Select Middle Layer Image File.
56		**Sound On / Off (Speaker)**	Switches the sounds of the Game tab on (green) and off (red): clock start and pause, end of period, end of a timeout, end of a penalty.

The top row holds the display mode buttons (St, Sp, Ad, CK), the three logos, the discipline button and the icons for language, remote control, NDI and keyboard shortcuts. The middle of the page is the scoreboard itself: team names and lower lines, score, match clock, shot clock and period label. Below it are the player penalties, the timeouts and the period buttons.

Many controls show a tooltip when you rest the mouse on them, for example "Standard View" on St or "Select Player" on the small arrow buttons of the penalty area.

Board Output **Control Panel**

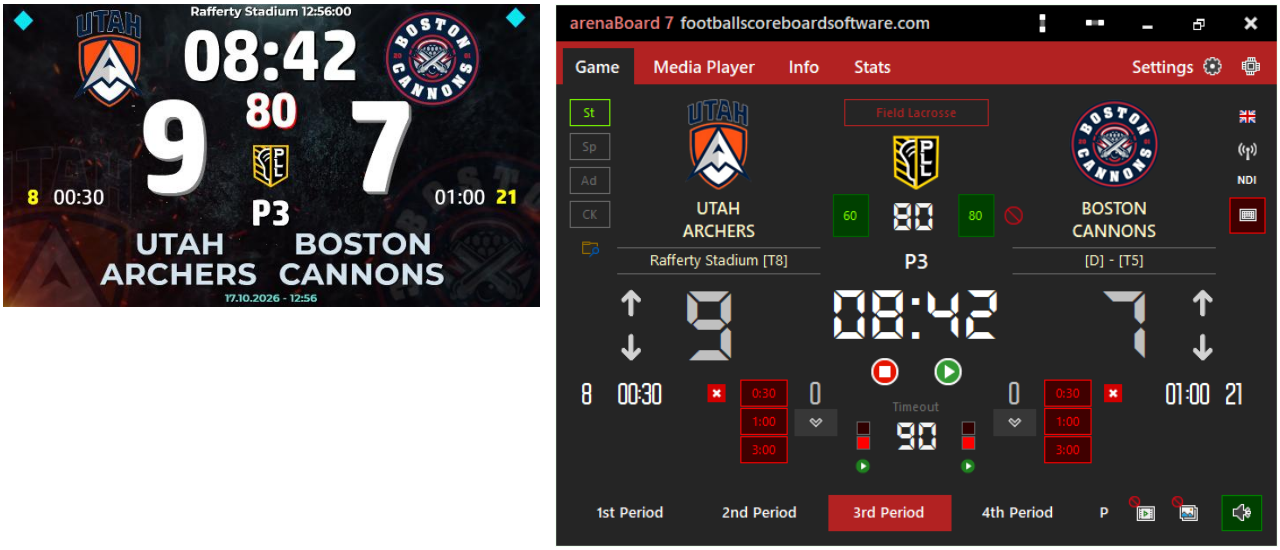


Figure 16. The Standard board and the Game tab that drives it. The penalties appear at the sides of the board (8 00:30, 01:00 21), the diamonds in the top corners show the timeouts taken.

What the Standard board shows (the other designs show the same data in another layout, chapter 7 and 8):

On the Board	Comes From
Logos left, centre, right	The three logos of the Game tab (section 5.9)
Large clock	The match clock (section 5.3). Minutes and seconds; in the last minute seconds and tenths; empty at 00:00
Red number under the clock	The shot clock (section 5.5). Whole seconds; tenths at 5 seconds and below; empty at 0
Large numbers	The score (section 5.2)
P3 under the centre logo	The period label (section 5.4); the timeout countdown while a timeout runs (section 5.6)
Team names	The team names on one or two lines (section 5.9)
Number and time at the sides	The player penalties (section 5.7)
Diamonds in the top corners	The timeouts taken by each team (section 5.6)
Text at the top and at the bottom	Lower line 1 and lower line 2 (section 5.9)

> **Note:** In the DEMO version the board shows "DEMO" instead of the clock every 10 seconds, and the home score arrows and the home logo cannot be changed ("License Required!"). See chapter 3.

5.2 Score

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

- Up arrow: one goal for the team.
- Down arrow: one goal less (a correction). The score never goes below 0.

- Click in the score box and type a number to set the score directly, for example after a restart of the program.

A goal with the up arrow does more than add one, depending on Period & Penalty Settings (chapter 6):

Setting	What a Goal Does While the Match Clock Runs
End Penalty on Goal (on)	The first releasable penalty of the other team ends at once; the longest penalty of the discipline (3:00, in Women's Lacrosse 5:00) is served in full (section 5.7).
Stop Chronometer on Goal (on)	The match clock pauses and the shot clock goes back to its first value (80 in Field Lacrosse).

Both happen only while the match clock runs. The down arrow and a typed score never end a penalty or stop the clock.

> **Note:** Score the goal before you pause the clock. If you pause first and then press the up arrow, End Penalty on Goal does nothing and you must cancel the penalty by hand (section 5.7).

5.3 Match Clock

The match clock counts down the length of the period, for example from 15:00 in Field Lacrosse. While it runs it is green and shows tenths of a second (08:38.3).

Button	While the Clock Runs	While the Clock Is Stopped
Play / Pause (green / blue)	Pauses the clock. The shot clock and the player penalties pause with it.	Starts the clock from the time shown. The shot clock and the player penalties run with it.
Stop (red square)	Stops the clock, like Pause.	Sets the clock back to the full length of the period **and clears all player penalties of both teams**.

To set the time by hand:

1. Pause the clock.
2. Click in the clock and type the time as mm:ss, for example 08:42. You can also type mm:ss.f (08:42.5) or a number of seconds (45).
3. Press Play. The clock runs from the typed time.

When the clock reaches 00:00 it stops by itself and the end-of-period sound plays (section 5.11). The board shows an empty clock at 00:00.

Board Output **Control Panel**

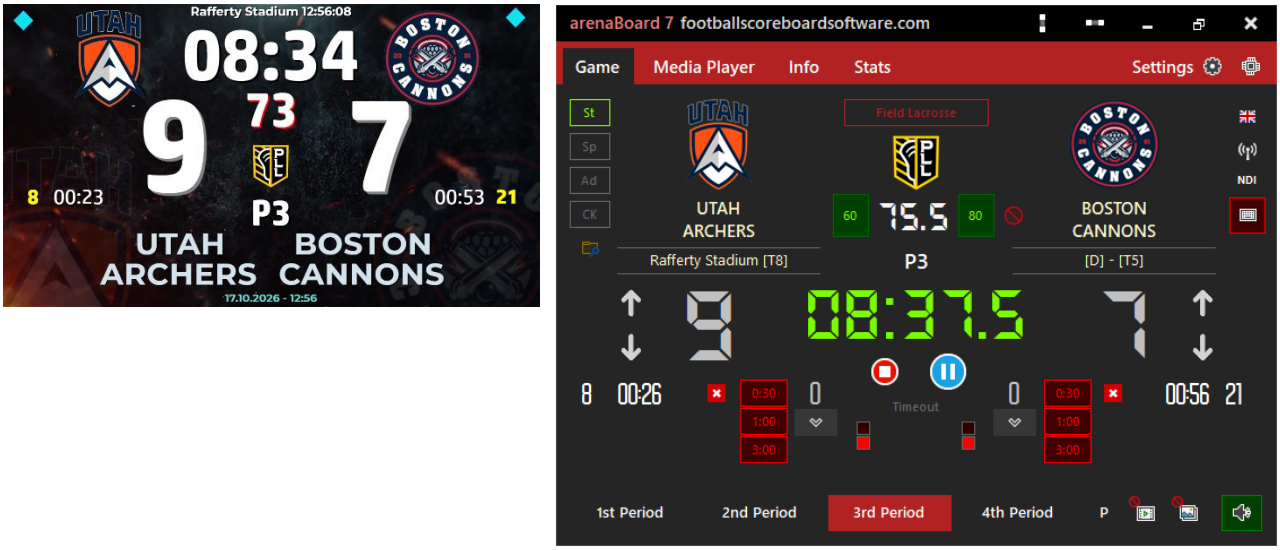


Figure 17. The clock running: the panel shows 08:38.3 and the shot clock 76.3; the board shows 08:37 and 75. The penalties count down with the clock (Utah #8 00:27, Boston #21 00:57 on the panel).

Starting the clock from the remote control, the keyboard or the HTTP API has the same effect as the Play button: the shot clock and the player penalties run with the match clock.

> **Note:** Press Stop only once when you want to pause. A second Stop on a stopped clock resets the period clock and deletes every running and waiting penalty.

5.4 Periods

The buttons 1st Period, 2nd Period, 3rd Period, 4th Period and P are at the bottom of the page. The selected period is red.

Click a period button to:

- set the match clock to the length of that period (Period & Penalty Settings, chapter 6);
- show its label in the period box under the shot clock and on the board, for example P3. Intercrosse uses H1, H2, OT1 and OT2.

P is the shootout (section 5.8).

- The period buttons do nothing while the match clock or a timeout runs. Pause the clock first.
- A new period keeps the score, the player penalties (they carry over), the timeouts taken and the shot clock value. Reset the shot clock with its reset button before the face-off (section 5.5) and correct the timeouts if the rules start them again (section 5.6).
- The period box can be overtyped. The board shows the text you type, for example OT.

The button texts are always 1st to 4th Period; the labels on the board come from Period & Penalty Settings.

5.5 Shot Clock

The shot clock is the number between the two reset buttons above the period label.

Control	What It Does
Left button (60)	Sets the shot clock to the second value, for example 60 after a save in Field Lacrosse.

Control	What It Does
Right button (80)	Sets the shot clock to the first value, for example 80 for a new possession.
Red sign	Clears the shot clock to 0 and stops it. The board hides the shot clock.
The number	Shows the shot clock with tenths while it runs. Click in it and type seconds to set it by hand.

The values on the buttons come from Period & Penalty Settings (80 / 60 in Field Lacrosse, 90 / 60 in Women's, 30 / 30 in Sixes and Intercrosse).

- The shot clock runs and pauses with the match clock. It cannot run while the match clock is paused.
- A reset while the clock runs restarts the count from the new value at once.
- At 0 the shot clock stays at 0. There is no horn and the match clock goes on.
- With Stop Chronometer on Goal, a goal resets the shot clock to the first value (section 5.2).
- When the shot clock is switched off in Period & Penalty Settings, its buttons and number are hidden on the Game tab.

5.6 Timeouts

The timeout area is in the middle below the clock. It shows the timeout length (90 in Field Lacrosse), two red squares per team for the timeouts taken (Utah left, Boston right) and a small green start button under each team.

To give a team a timeout:

1. Pause the match clock. The timeout controls are hidden while the clock runs.
2. Click the green start button of the team.
3. The team gets one more timeout square, the countdown runs in red, the board shows the countdown in place of the period label, and Play and Stop are greyed out.
4. The timeout ends at 0 with the timeout sound, or when you click the button of the team again (it shows a red stop square while the timeout runs).

Board Output **Control Panel**

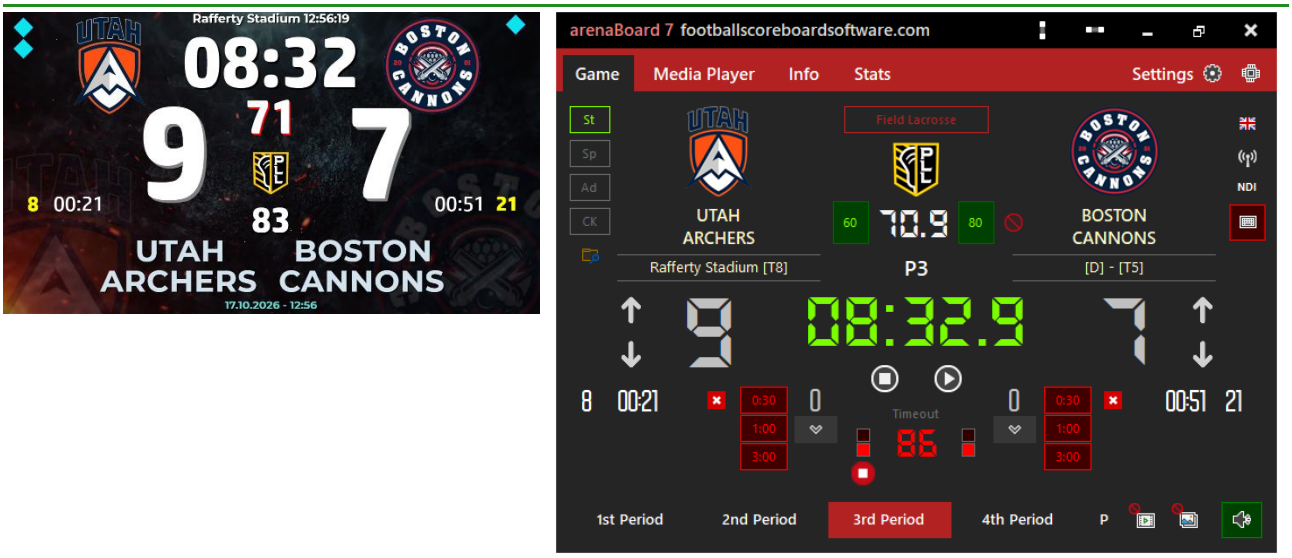


Figure 18. A timeout of Utah: the countdown 87 on the panel and 86 on the board, two timeout diamonds for Utah.

- To change the length of one timeout, type the seconds into the countdown box before you start it. After the timeout the box shows the length of Period & Penalty Settings again.
- A team can take up to two timeouts on the Game tab. The program does not reset the timeouts at a new period or half.
- To correct the timeouts taken, pause the clock and click the squares of the team: the first square switches between 0 and 1 timeout, the second square sets 2.
- When Timeout is switched off in Period & Penalty Settings, the timeout area is hidden.

> **Note:** The timeout countdown on the Game tab does not open an info screen. The full-screen Timeout graphic is on the Info tab (chapter 9).

5.7 Player Penalties

Each team has a penalty area: the penalty buttons, the player number box with a small list button, and the list of penalties.

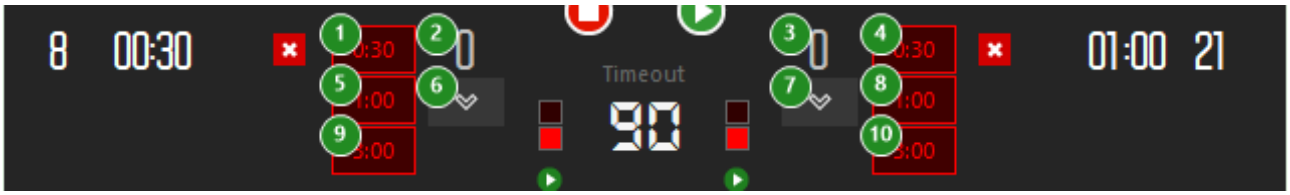


Figure 19. The penalty areas: Utah #8 serves 0:30, Boston #21 serves 1:00.

No.	Control	Name	What It Does
1	0:30	**Home Penalty Button 1 (0:30)**	Starts a penalty of the first length (0:30 in Field Lacrosse) for the home player in the number box. Length and text come from Period & Penalty Settings. Tooltip: Start Penalty.
2	0	**Home Penalty Player Number**	The shirt number for the next home penalty. Type it, or choose it with the arrow button below.
3	0	**Guest Penalty Player Number**	The shirt number for the next guest penalty. Type it, or choose it with the arrow button below.
4	0:30	**Guest Penalty Button 1 (0:30)**	Starts a penalty of the first length (0:30 in Field Lacrosse) for the guest player in the number box. Tooltip: Start Penalty.
5	1:00	**Home Penalty Button 2 (1:00)**	Starts a penalty of the second length (1:00 in Field Lacrosse) for the home player in the number box.
6	⌄	**Select Player (Home)**	Opens the list of shirt numbers of the home team list (chapter 11); the chosen number goes into the number box.
7	⌄	**Select Player (Guest)**	Opens the list of shirt numbers of the guest team list (chapter 11); the chosen number goes into the number box.
8	1:00	**Guest Penalty Button 2 (1:00)**	Starts a penalty of the second length (1:00 in Field Lacrosse) for the guest player in the number box.
9	3:00	**Home Penalty Button 3 (3:00)**	Starts a penalty of the third length (3:00 in Field Lacrosse) for the home player in the number box. Hidden when the third length is 0.
10	3:00	**Guest Penalty Button 3 (3:00)**	Starts a penalty of the third length (3:00 in Field Lacrosse) for the guest player in the number box. Hidden when the third length is 0.

To start a penalty:

1. Type the shirt number into the number box of the team, or click the small arrow button ("Select Player") and choose the number from the team list (chapter 11).
2. Click the penalty button with the right length, for example 1:00.
3. The penalty appears in the list with the number, the time left and a red X. The board shows it at the side of the team.

How penalties run:

- Penalties count down only while the match clock runs. They pause with the clock.
- The first penalties of a team count down at the same time, up to Max Penalty Player (3 in Field Lacrosse). Further penalties wait in the list and start when an earlier one ends.
- At 0:00 the penalty leaves the list and the penalty sound plays.
- With End Penalty on Goal, a goal of the other team ends the first running penalty in the list (section 5.2). The third penalty button of the discipline is not releasable (3:00 in Field and Sixes Lacrosse, 5:00 in Women's Lacrosse): the program skips it and ends the next running penalty instead. When only such penalties run, a goal ends none.

To correct penalties:

- Click the red X of a penalty to cancel it.
- Pause the clock and double-click the number or the time of a penalty to change it. Type the time as mm:ss (for example 0:45) and press Enter.
- Stop on a stopped clock clears all penalties of both teams (section 5.3).

The penalty buttons come from Period & Penalty Settings: up to three lengths with their button texts. A penalty with the length 0 has no button, for example the third penalty in Intercrosse.

> **Note:** The program knows releasability only by the length of the penalty: the third penalty button is non-releasable, the first two are releasable. If a goal ended a penalty that must be served in full (for example a non-releasable 1:00 foul), start it again for the same player and correct its time: pause the clock, double-click the time and type the time that was left. To avoid this, switch End Penalty on Goal off (chapter 6) and cancel releasable penalties by hand with the red X.

The board lists every penalty of the team's list, also the waiting ones; a waiting penalty shows its full time until it starts.

5.8 Shootout

P, the last period button, switches the Game tab to the shootout. The team names, the match clock and the timeouts are replaced by the shootout controls. P is red while the shootout is selected.

Board Output **Control Panel**

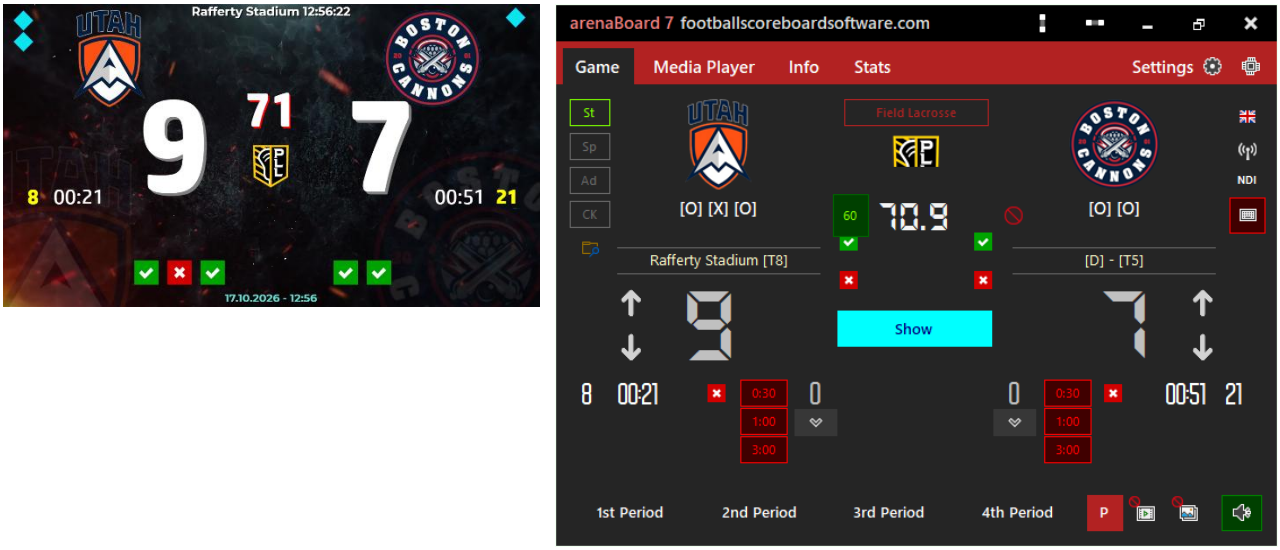


Figure 20. The shootout: Utah scored, missed and scored; Boston scored twice. The board shows ticks and crosses in place of the team names.

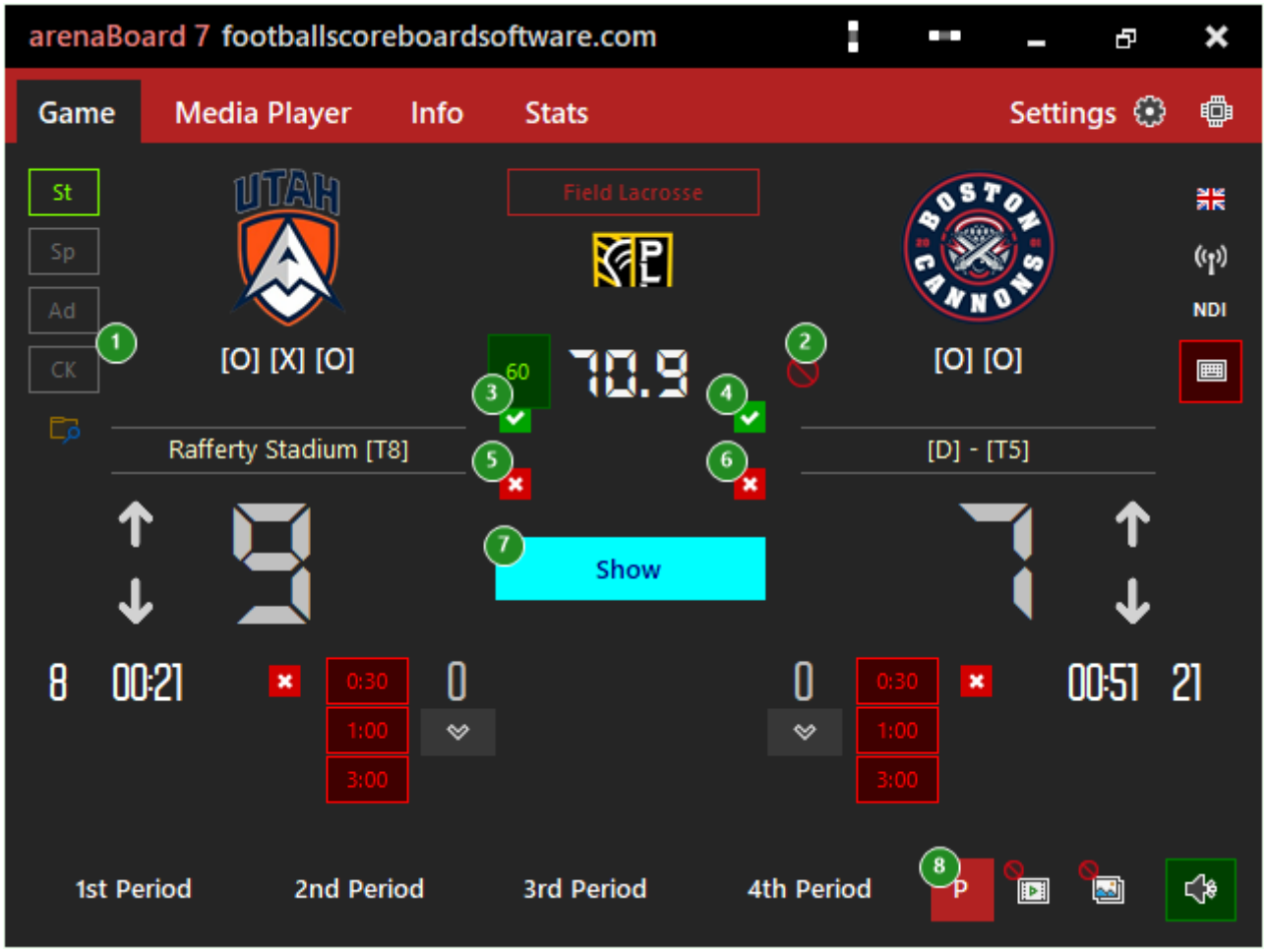


Figure 21. The shootout controls.

No.	Control	Name	What It Does
1	[O] [X] [O]	**Home Shootout Marks**	The shootout marks of the home team, [O] = scored, [X] = missed. You can edit or delete marks here.

No.	Control	Name	What It Does
2		**Guest Shootout Marks**	The shootout marks of the guest team, [O] = scored, [X] = missed. You can edit or delete marks here.
3		**Home Shootout: Scored (Tick)**	Adds a scored attempt [O] to the home shootout marks. The last five marks are kept.
4		**Guest Shootout: Scored (Tick)**	Adds a scored attempt [O] to the guest shootout marks. The last five marks are kept.
5		**Home Shootout: Missed (X)**	Adds a missed attempt [X] to the home shootout marks. The last five marks are kept.
6		**Guest Shootout: Missed (X)**	Adds a missed attempt [X] to the guest shootout marks. The last five marks are kept.
7		**Show (Shootout)**	Puts the shootout marks on the board as ticks and crosses in place of the team names. Click it after you add marks.
8		**P (Shootout)**	Switches to the shootout: the team names, the clock and the timeouts give way to the shootout marks and buttons (chapter 5.8). Does nothing while the clock runs.

1. Click P. The period buttons do nothing while the match clock runs, so pause it first.
2. After each attempt click the green tick (scored) or the red X (missed) of the team. The marks appear in the team name box as [O] and [X].
3. Click Show to put the marks on the board.

- The last five attempts of each team are kept.
- You can edit the marks in the name box, for example to delete a wrong mark.
- The score does not change with the marks. Set the final score with the arrows.
- Click a period button (1st to 4th Period) to return to the normal Game tab. The team names come back, and the match clock is set to the full length of that period.
- The ticks and crosses of the Game tab reach the board only with Show. A shootout mark sent from the remote control or the HTTP API appears on the board at once.
- While the shootout is selected, the board does not update the clocks: the match clock and the period label are empty, and the shot clock and the penalty times stay as they were last shown (75 and the two penalties in the picture).

5.9 Team Names, Logos and Lower Lines

Team names:

- Click the name box and type the name. Press Enter to start the second line, for example UTAH / ARCHERS.
- Two lines are the most. When you type a third line, the box turns black as a warning.
- The board shows the two lines as typed.

Logos:

- The Game tab has three logos: the home team (left), the board logo in the centre (for example the league), and the guest team (right).
- Click a logo to choose an image file (bmp, gif, jpg, png). The file dialog starts in media\downloads\images.

- Rest the mouse on a logo to show a small X; click it to remove the logo.
- More about logos and team colours in chapter 11.

Lower lines: the two text boxes under the team names are lower line 1 (left) and lower line 2 (right). The Standard board shows line 1 at the top and line 2 at the bottom.

- Each lower line has one line of text. The box turns black when you type a second line.
- The lower lines can show the date and the time of day. The board replaces these codes:

Code	The Board Shows	Example
[D]	The date in the Windows date format	16.10.2026
[T]	The time of day	23:17:29
[Dn], [Tn]	The first n characters of the date or the time	[T5] = 23:17, [T8] = 23:17:29

The sample lines "Rafferty Stadium [T8]" and "[D] - [T5]" show as "Rafferty Stadium 23:17:29" and "16.10.2026 - 23:17".

5.10 Background Video and Middle Image

The two icons at the bottom right, beside P, add layers to the board:

Icon	Tooltip	What It Does
Video	Select Background Layer Video File	Chooses a video (mp4, webm, ogg) that plays behind the board. The dialog starts in media\videos.
Picture	Select Middle Layer Image File	Chooses an image that lies between the background video and the scoreboard.
Small red sign on an icon	–	Removes that video or image.

The opacity of the background video is set in Settings > Screen Properties (chapter 17).

5.11 Sound

The speaker button at the bottom right switches the sounds of the Game tab on (green) and off (red). The setting is kept for the next start.

Sound	When
01.wav	The match clock starts.
02.wav	The match clock reaches 00:00 (end of the period).
03.wav	A timeout ends.
04.wav	A player penalty ends (also when a goal ends it).
05.wav	The match clock is paused or stopped.

The files are in common\sounds in the program folder. The program loads them when it starts: to use your own sounds, replace the files with wav files of the same names and restart arenaBoard 7.

5.12 A Typical Match

1. Check the discipline on the discipline button, for example Field Lacrosse. Change it now if needed (chapter 6).
2. Type the team names, choose the logos and set the lower lines.
3. Choose the display mode: St for a big screen, CK for a TV production (chapter 7).
4. Click 1st Period. The clock shows the full period length. Check that the shot clock shows its first value.
5. At the face-off press Play.
6. Goal: click the up arrow of the team while the clock still runs. The program pauses the clock, resets the shot clock and ends the first penalty of the other team (when these settings are on).
7. Possession changes and saves: click the shot clock reset buttons (80 / 60 in Field Lacrosse).
8. Penalty: choose the player number, then click the penalty button.
9. Timeout: pause the clock and click the green start button of the team.
10. End of a period: the clock stops at 00:00. Click the next period button.
11. After the match leave the final score on the board, or show the results from the Info tab (chapter 9). Before the next match set the score to 0 and change the team names.

Remote, Keyboard and HTTP Equivalents

Most Game tab actions are also on the phone remote page (chapter 13), in the HTTP API (chapter 14, Appendix B) and on the keyboard (chapter 15).

Game Tab Action	Default Key	HTTP Command
Home / guest goal +1	Num 7 / Num 9	set_home_score_up / set_guest_score_up
Home / guest goal −1	Num 4 / Num 6	set_home_score_down / set_guest_score_down
Set the score	–	set_home_score / set_guest_score
Play / Pause	Num 0	click playpause
Stop	–	click stop, set_chronometer stop
Set the clock	–	set_chronometer MM:SS
Period buttons	–	click period_1 … period_4, click penalty (shootout)
Shot clock first / second value	Num 1 / Num 2	shotclock reset1 / shotclock reset2
Clear the shot clock	Num .	shotclock clear
Start a penalty	–	penalty_add
Cancel a penalty	–	penalty_cancel
Timeout start / end	–	timeout_start
Correct the timeouts taken	–	timeout_set

Game Tab Action	Default Key	HTTP Command
Shootout mark / clear	–	shootout / shootout_clear
Team names, lower lines	–	set_home_team, set_guest_team, line_text_1, line_text_2
Display mode	–	click st / sp / ad / ck

The keyboard shortcuts work only after you switch them on in the Keyboard Shortcuts window, and with NumLock on (chapter 15).

6. Disciplines and Period & Penalty Settings

arenaBoard 7 covers four lacrosse disciplines: Field Lacrosse, Women's Lacrosse, Sixes Lacrosse and Intercrosse. Each discipline comes with factory values for the periods, the penalties, the timeout and the shot clock. Every value can be changed in the Period & Penalty Settings window. This chapter explains the window, every setting, the factory values of each discipline, and what happens when you change the settings during a match.

6.1 Opening the Settings

Open Period & Penalty Settings in one of two ways:

- Game tab > the discipline button above the centre logo, for example "Field Lacrosse". The button stays available while the match clock runs.
- Settings > Screen Properties > row Periods & Penalty Settings: select the row and click the small button in its value cell (chapter 17). The row shows the four period lengths, for example 15;15;15;15.

Nothing changes until you click Save & Apply. The discipline buttons only fill in the fields.

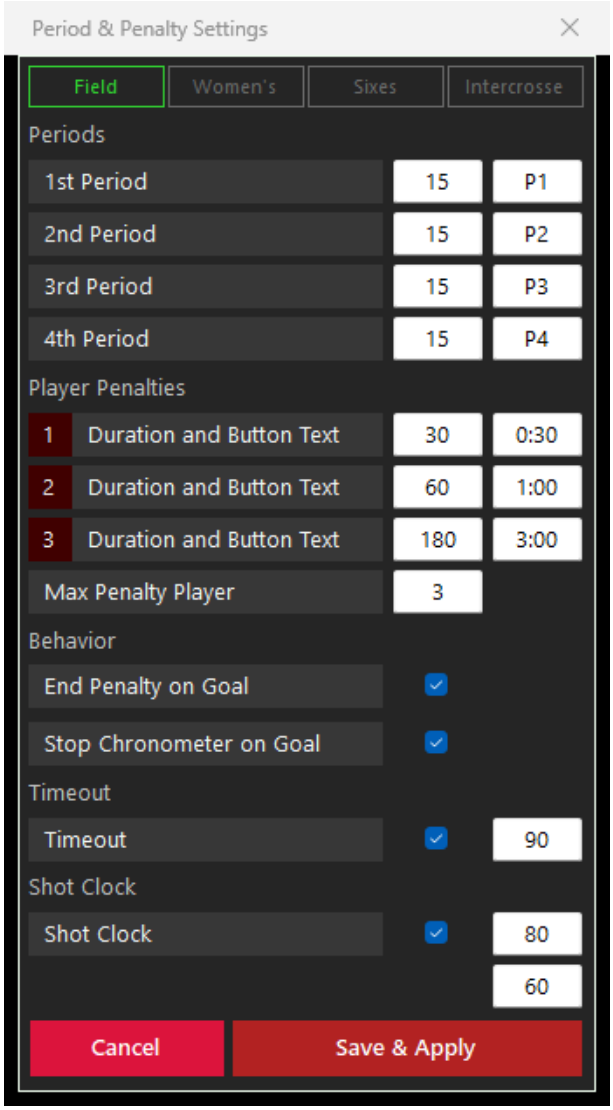


Figure 22. Period & Penalty Settings with the factory values of Field Lacrosse.

Part	What It Does
Field, Women's, Sixes, Intercrosse	The discipline buttons. A click loads the factory values of that discipline into all fields. The selected discipline has green text.
Periods	The length and the label of the four periods.
Player Penalties	Up to three penalty lengths with the text of their buttons, and Max Penalty Player.
Behavior	End Penalty on Goal and Stop Chronometer on Goal.
Timeout	Timeout on / off and its length.
Shot Clock	Shot clock on / off and its two reset values.
Cancel	Closes the window without saving.
Save & Apply	Saves the discipline and the values and applies them to the Game tab (section 6.5).

6.2 The Four Disciplines

Discipline	Button	Discipline Button on the Game Tab	Periods	Penalty Buttons	Timeout	Shot Clock
Field Lacrosse	Field	Field Lacrosse	4 × 15 min (P1-P4)	0:30, 1:00, 3:00	90 s	80 / 60
Women's Lacrosse	Women's	Women's Lacrosse	4 × 15 min (P1-P4)	1:00, 2:00, 5:00	120 s	90 / 60
Sixes Lacrosse	Sixes	Sixes Lacrosse	4 × 8 min (P1-P4)	0:30, 1:00, 3:00	30 s	30 / 30
Intercrosse	Intercrosse	Intercrosse	2 × 15 min (H1, H2) + 2 × 5 min (OT1, OT2)	1:00, 2:00	60 s	30 / 30

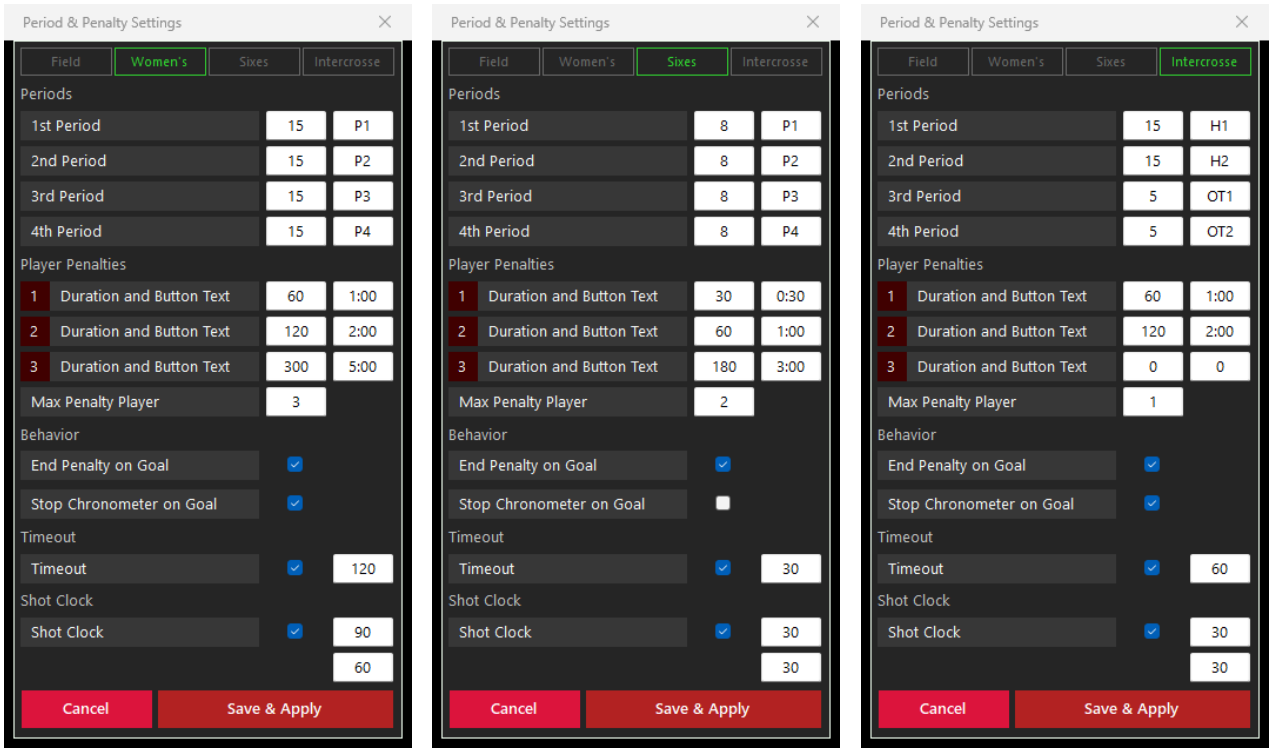


Figure 23. The factory values of Women's Lacrosse, Sixes Lacrosse and Intercrosse.

- A discipline button replaces every field with the factory values of that discipline. Values you typed before are lost, so choose the discipline first and then adjust the fields.
- The program keeps one set of values: the values you saved last, together with the discipline. When you open the window again, it shows the saved values, not the factory values.
- The discipline also chooses which penalty cards the Time Penalty info screen and the remote offer (chapter 9 and 13).

> **Note:** The factory values follow the rule books named in the program code (Appendix A). They are factory defaults, not a check of the current rules. Check every value against the rules of your competition before the first match.

6.3 Every Setting Explained

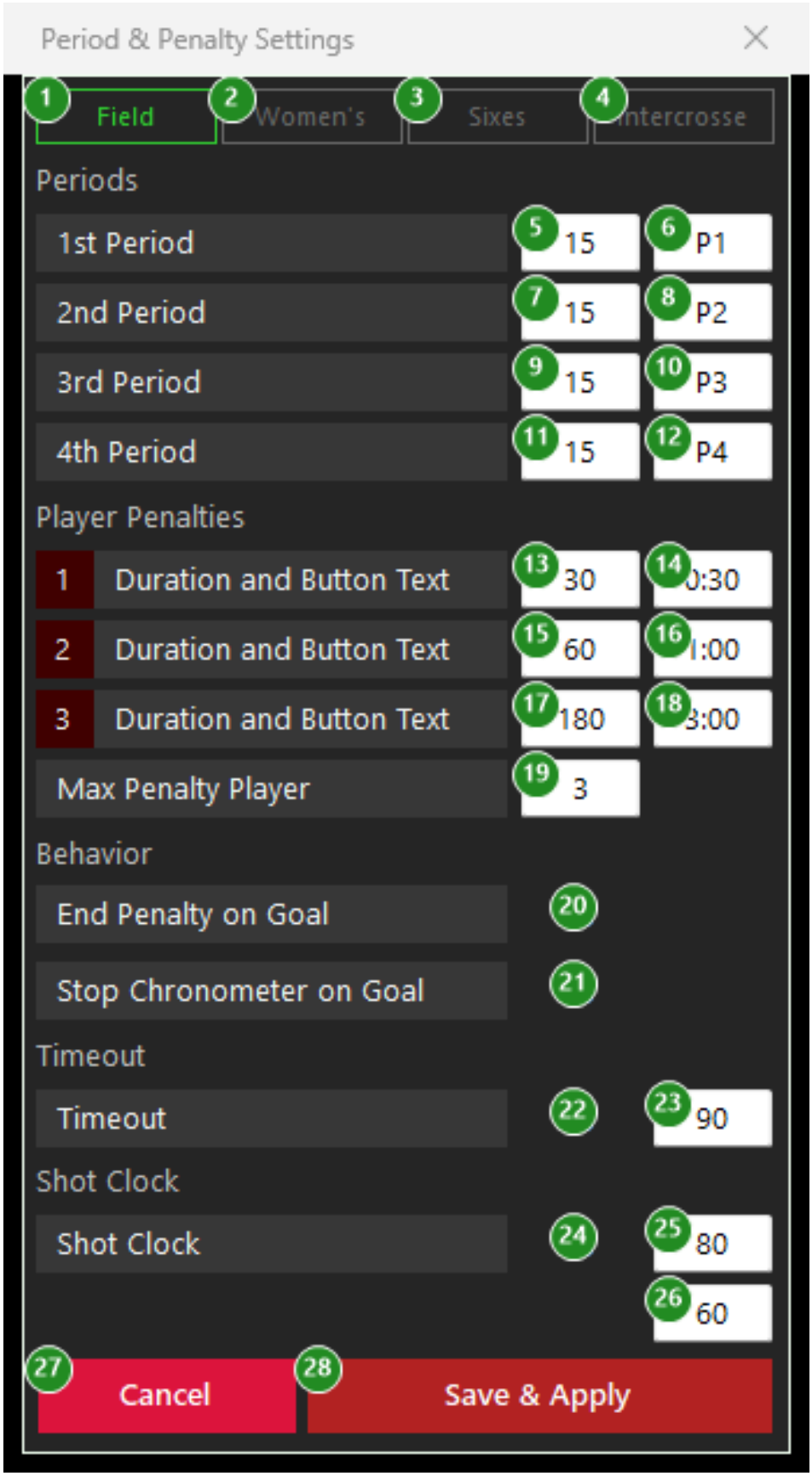
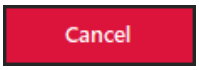
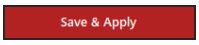


Figure 24. Period & Penalty Settings: every field of the window.

No.	Control	Name	What It Does
1	Field	**Field**	Loads the Field Lacrosse factory values into every field: 4 × 15 min (P1-P4), penalties 0:30 / 1:00 / 3:00, Max Penalty Player 3, both goal options on, timeout 90 s, shot clock 80 / 60. Saved only with Save & Apply.
2	Women's	**Women's**	Loads the Women's Lacrosse factory values: 4 × 15 min, penalties 1:00 / 2:00 / 5:00, Max Penalty Player 3, both goal options on, timeout 120 s, shot clock 90 / 60.
3	Sixes	**Sixes**	Loads the Sixes Lacrosse factory values: 4 × 8 min, penalties 0:30 / 1:00 / 3:00, Max Penalty Player 2, End Penalty on Goal on, Stop Chronometer on Goal off, timeout 30 s, shot clock 30 / 30.
4	Intercrosse	**Intercrosse**	Loads the Intercrosse factory values: 15 / 15 / 5 / 5 min (H1, H2, OT1, OT2), penalties 1:00 / 2:00 (no third), Max Penalty Player 1, both goal options on, timeout 60 s, shot clock 30 / 30.
5	15	**1st Period: Length**	The length of the 1st period in minutes (whole number).
6	P1	**1st Period: Label**	The label of the 1st period on the Game tab and the board, for example P1 or H1.
7	15	**2nd Period: Length**	The length of the 2nd period in minutes (whole number).
8	P2	**2nd Period: Label**	The label of the 2nd period, for example P2 or H2.
9	15	**3rd Period: Length**	The length of the 3rd period in minutes (whole number); in Intercrosse the 1st overtime.
10	P3	**3rd Period: Label**	The label of the 3rd period, for example P3 or OT1.
11	15	**4th Period: Length**	The length of the 4th period in minutes (whole number); in Intercrosse the 2nd overtime.
12	P4	**4th Period: Label**	The label of the 4th period, for example P4 or OT2.
13	30	**Penalty 1: Duration**	The length of the first penalty in seconds, for example 30. 0 = no button.
14	0:30	**Penalty 1: Button Text**	The text of the first penalty button on the Game tab, for example 0:30. Must not be empty.
15	60	**Penalty 2: Duration**	The length of the second penalty in seconds, for example 60. 0 = no button.
16	1:00	**Penalty 2: Button Text**	The text of the second penalty button, for example 1:00. Must not be empty.
17	180	**Penalty 3: Duration**	The length of the third penalty in seconds, for example 180. 0 = no button.
18	3:00	**Penalty 3: Button Text**	The text of the third penalty button, for example 3:00. Must not be empty (type 0 for an unused penalty).
19	3	**Max Penalty Player**	How many penalties of one team count down at the same time (at least 1). Further penalties wait in the list.

No.	Control	Name	What It Does
20		**End Penalty on Goal**	On: a goal (up arrow) while the clock runs ends the first penalty of the other team. A 5:00 (300 s) penalty is never ended this way.
21		**Stop Chronometer on Goal**	On: a goal while the clock runs pauses the match clock and resets the shot clock to its first value. Off for a running clock (Sixes).
22		**Timeout (On / Off)**	Shows or hides the timeout area of the Game tab.
23		**Timeout: Length**	The length of a team timeout in seconds, for example 90.
24		**Shot Clock (On / Off)**	Shows or hides the shot clock and its buttons on the Game tab.
25		**Shot Clock: First Value**	The first reset value in seconds (right button on the Game tab), for example 80. A goal with Stop Chronometer on Goal resets to it.
26		**Shot Clock: Second Value**	The second reset value in seconds (left button on the Game tab), for example 60 after a save.
27		**Cancel**	Closes the window without saving.
28		**Save & Apply**	Saves the discipline and every value and applies them to the Game tab. With the clock paused it also goes back to the 1st Period and its full clock (chapter 6.6).

Setting	Values	What It Does
1st to 4th Period: length	Minutes, whole numbers	The length of the period. A period button on the Game tab sets the match clock to this length.
1st to 4th Period: label	Text, for example P1, H1, OT1	The label of the period on the Game tab and on the board.
Duration and Button Text 1 to 3: duration	Seconds, whole numbers; 0 = no button	The length of the penalty. Each length with more than 0 seconds gets a penalty button for each team on the Game tab.
Duration and Button Text 1 to 3: text	Text, for example 0:30	The text of the penalty button. It must not be empty, also for a penalty with the duration 0 (type 0).
Max Penalty Player	1 or more	How many penalties of one team count down at the same time. Further penalties wait in the list (chapter 5.7).
End Penalty on Goal	On / off	A goal (up arrow) while the clock runs ends the first running penalty of the other team. A penalty with the length of the third button (3:00 in Field and Sixes, 5:00 in Women's) is non-releasable and never ended this way.

Setting	Values	What It Does
Stop Chronometer on Goal	On / off	A goal while the clock runs pauses the match clock and resets the shot clock to its first value. Off in Sixes, which plays a running clock.
Timeout	On / off	Shows or hides the timeout area of the Game tab.
Timeout: length	Seconds	The countdown of a team timeout.
Shot Clock	On / off	Shows or hides the shot clock and its buttons on the Game tab.
Shot Clock: first value	Seconds	The value of the right reset button, for example 80 for a new possession. A goal with Stop Chronometer on Goal resets to it.
Shot Clock: second value	Seconds	The value of the left reset button, for example 60 after a save.

- The number fields accept whole numbers only. A field that is not a number becomes 0 when you leave it; Max Penalty Player becomes at least 1.
- The periods are minutes, the penalties, the timeout and the shot clock are seconds.

> **Note:** If a penalty button text is empty, Save & Apply replaces the whole penalty setup with one 2:00 penalty button with the text "2". Always fill in all three button texts.

A penalty with the duration 0 has no button: it is hidden on the Game tab and on the Penalty tab of the remote control, whatever its button text. Intercrosse uses this for its third penalty (0 s, text "0").

6.4 Defaults per Discipline

These are the values that the discipline buttons load.

Periods:

Discipline	1st Period	2nd Period	3rd Period	4th Period
Field	15 min, P1	15 min, P2	15 min, P3	15 min, P4
Women's	15 min, P1	15 min, P2	15 min, P3	15 min, P4
Sixes	8 min, P1	8 min, P2	8 min, P3	8 min, P4
Intercrosse	15 min, H1	15 min, H2	5 min, OT1	5 min, OT2

Player penalties and behaviour:

Discipline	Penalty 1	Penalty 2	Penalty 3	Max Penalty Player	End Penalty on Goal	Stop Chronometer on Goal
Field	30 s, "0:30"	60 s, "1:00"	180 s, "3:00"	3	On	On

Discipline	Penalty 1	Penalty 2	Penalty 3	Max Penalty Player	End Penalty on Goal	Stop Chronometer on Goal
Women's	60 s, "1:00"	120 s, "2:00"	300 s, "5:00"	3	On	On
Sixes	30 s, "0:30"	60 s, "1:00"	180 s, "3:00"	2	On	Off
Intercrosse	60 s, "1:00"	120 s, "2:00"	0 s, "0" (no button)	1	On	On

Timeout and shot clock:

Discipline	Timeout	Timeout Length	Shot Clock	First Value	Second Value
Field	On	90 s	On	80 s	60 s
Women's	On	120 s	On	90 s	60 s
Sixes	On	30 s	On	30 s	30 s
Intercrosse	On	60 s	On	30 s	30 s

What the program code says about the values (Appendix A lists the sources):

Discipline	Penalties	Shot Clock
Field	0:30 technical foul (releasable), 1:00 personal foul, 3:00 severe personal foul	80 s; 60 s after a save or rebound
Women's	Green card 1:00 and yellow card 2:00 (releasable), red card 5:00 (non-releasable, with ejection)	90 s possession clock; 60 s after a deflection
Sixes	0:30 minor, 1:00 major, 3:00 severe foul	30 s; also 30 s after a rebound
Intercrosse	1:00 minor, 2:00 major; the third level is not used	30 s; also 30 s after a rebound

A new installation starts with the Field Lacrosse values: 4 × 15 minutes, penalties 0:30 / 1:00 / 3:00, at most 3 penalised players, timeout 90 s, shot clock 80 / 60.

6.5 Saving the Settings

When you click Save & Apply, the program:

1. Saves the discipline and every value. They are kept for the next start of the program.
2. Updates the Game tab: the discipline button, the period labels, the penalty buttons, the timeout length, the shot clock buttons, and shows or hides the timeout area and the shot clock.
3. Keeps the period, the match clock, the shot clock and a running timeout as they are (section 6.6). The new period lengths apply when you click a period button.

If a period length is not a whole number, the old period lengths are kept.

6.6 Changing Settings During a Match

You can open Period & Penalty Settings at any time, but Save & Apply affects the match in progress:

What	Clock Paused	Clock Running
Score, penalties in the list, timeouts taken	Kept	Kept
Period and match clock	Kept (a new length applies at the next period button)	Kept
Shot clock	Kept (a new length applies at the next reset)	Keeps running
Penalty buttons, Max Penalty Player	Apply at once (also to the penalties in the list)	Apply at once
End Penalty on Goal, Stop Chronometer on Goal	Apply to the next goal	Apply to the next goal
Timeout length	Applies to the next timeout	Applies to the next timeout
Period labels	Shown at once	Shown at once

7. Display Modes and Board Output

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

Mode	Use	Board Window	Page
St, Standard	Full-screen scoreboard on a screen, projector or LED wall	Display	–
Sp, Sponsored	Standard scoreboard with a sponsor band at the bottom or the top	Display, split into scoreboard and band	Sp tab
Ad, Advertisement	Scoreboard column, up to two banners and a large area for video, camera or screen capture	Ad Display	Ad tab
CK, Chroma Key	Scorebug and lower thirds on a key colour for a vision mixer	CK Display	CK tab

Switch the mode with the St, Sp, Ad and CK buttons on the left of the Game tab (tooltips Standard View, Sponsored View, Advertisement View, Chroma Key View; chapter 5). The active button has green text. The choice is saved and comes back at the next start.

In Sp, Ad and CK a fifth tab with the name of the mode (Sp, Ad or CK) appears in the menu bar, next to Stats. It opens the page of that mode. In St the tab is hidden.

When you switch the mode:

- the scoreboard design of the mode you leave is kept, and the design of the new mode comes back. St and Sp share one scoreboard design (chapter 8.3);
- only the board window of the new mode is shown; the other board windows are hidden;
- a video of the Media Player tab (chapter 12.1) is taken off;
- a source running on the Ad page stops when you switch to St, Sp or CK, and a source running on the CK page stops when you switch to St, Sp or Ad (playlist, camera, screen capture, banner playlist). It does not start again by itself when you come back: start it again on its page (chapter 12).

> **Note:** The Select Design button below the mode buttons opens the design gallery of the active mode (chapter 8.2).

7.1 Standard (St)

Board Output **Control Panel**

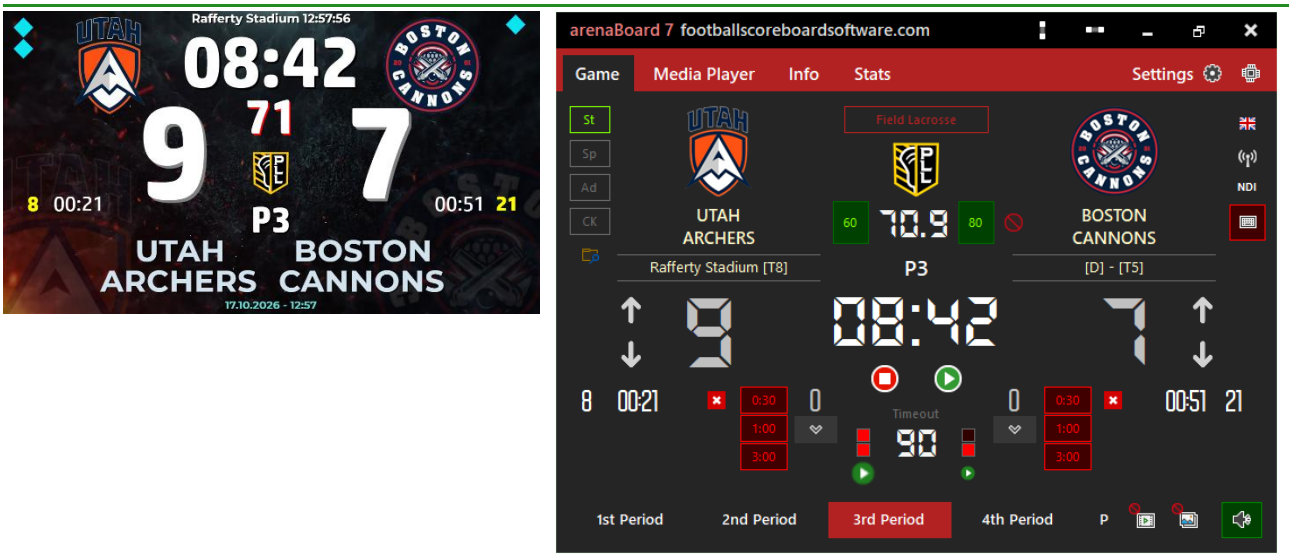


Figure 25. The Standard board (Display window) and the Game tab with St selected.

The Standard board needs no page of its own: everything is on the Game tab (chapter 5). The board shows the match clock, the shot clock, the scores, the period, the team names and logos, the board logo, the two lower lines of the Game tab, the timeout marks and the running player penalties, as far as the selected design shows them. Its look comes from the design selected in the gallery (chapter 8).

7.2 Sponsored (Sp)

The Sponsored board is the Standard board with a sponsor band at the bottom or the top of the same Display window. The band shows the sponsor logos sliding through, or a scrolling text. The scoreboard part uses the Standard design and is made shorter by the height of the band.

Board Output **Control Panel**

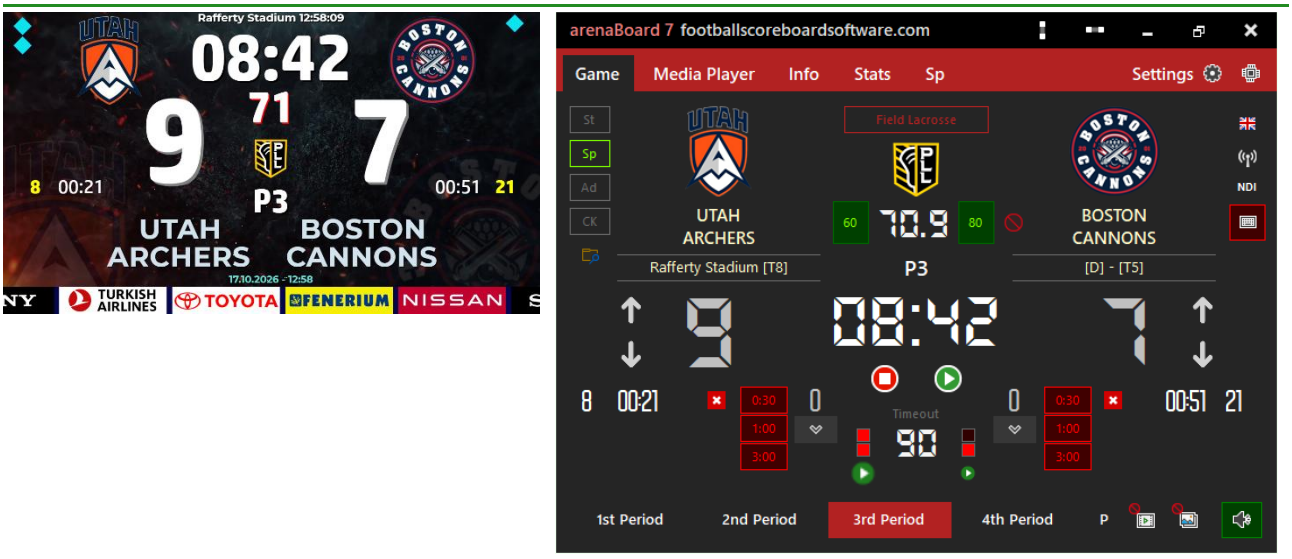


Figure 26. The Sponsored board with the sample sponsor logos in the band, and the Game tab with Sp selected.

Open the Sp tab in the menu bar. The page has three tabs: Sponsors, Scrolling Text and Settings.

Sponsors

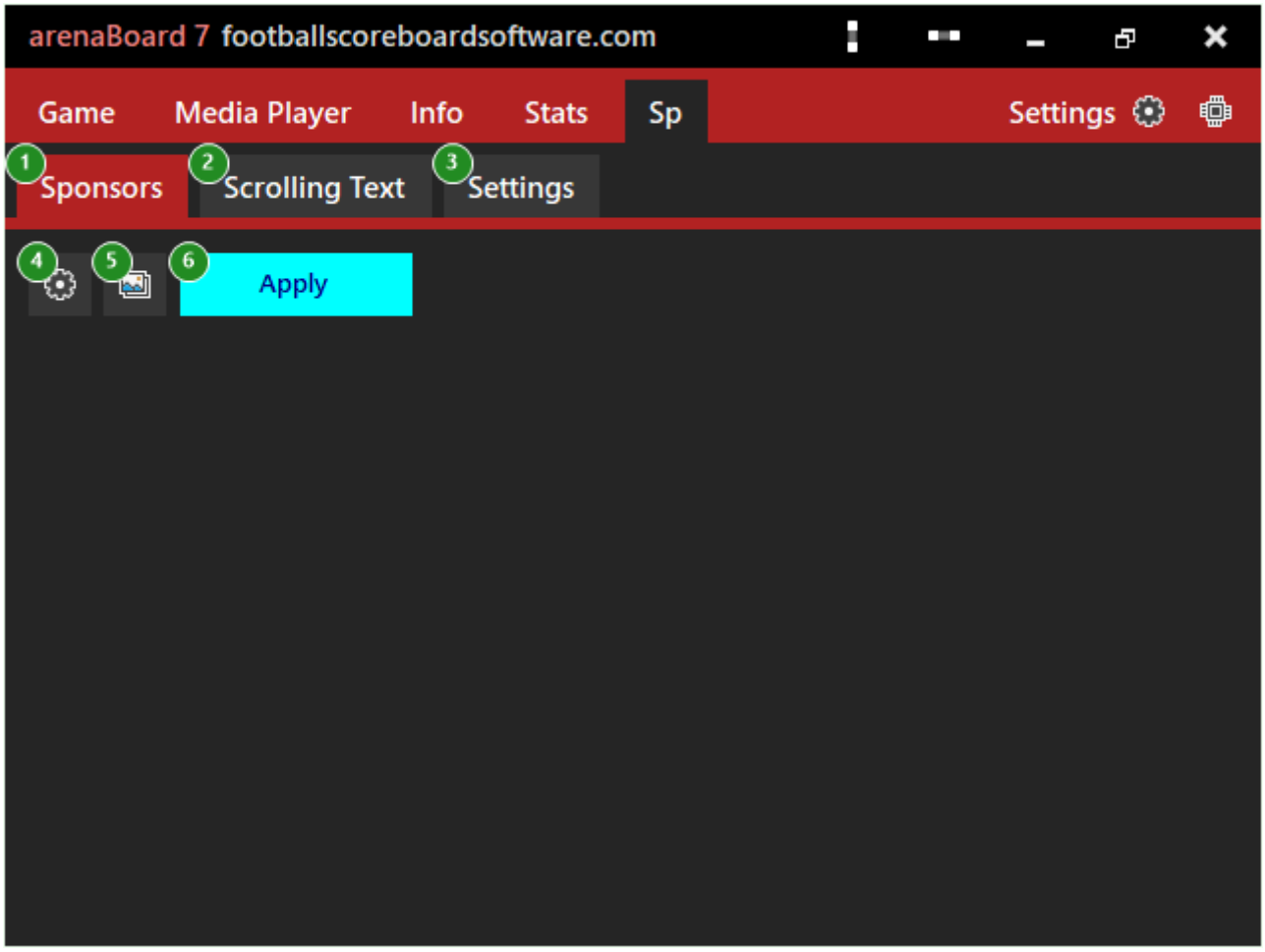


Figure 27. The Sp page: Sponsors.

No.	Control	Name	What It Does
1	Sponsors	**Sponsors**	Opens the Sponsors tab: the sponsor logos of Info > Sponsors as a sliding band.
2	Scrolling Text	**Scrolling Text**	Opens the Scrolling Text tab: four texts that scroll through the band line by line.
3	Settings	**Settings**	Opens the Settings tab: location (bottom or top) and height of the sponsor band.
4		**Style (gear icon)**	Shows or hides the style values of the sliding logos: image-height, padding, top, speed and direction. The disk button in the panel saves them.
5		**Sponsor List (photo icon)**	Opens the sponsor list (Info > Sponsors) to add, remove or sort the logos.
6	Apply	**Apply**	Puts all sponsor logos of the list on the band, sliding through with the style values, and makes the logos the content of the band.

1. Click the photo button to open the sponsor list (Info > Sponsors, chapter 9) and add or sort the logos.
2. Click Apply. The band shows all logos of the list, in list order, sliding through.

The gear button opens the style values of the logo band (chapter 12.4): image-height, padding, top, speed and direction.

Scrolling Text

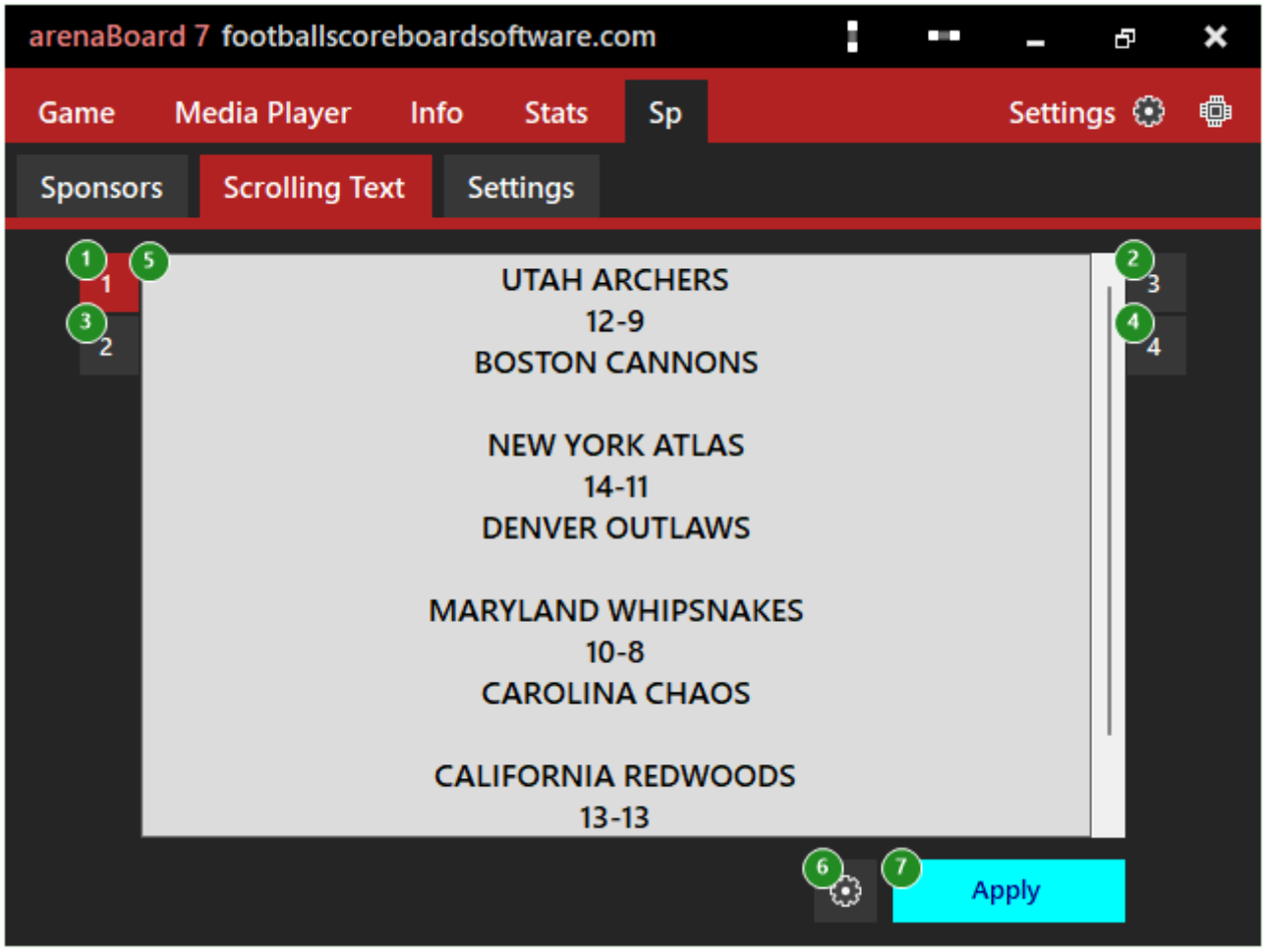


Figure 28. The Sp page: Scrolling Text with the sample results in text 1.

No.	Control	Name	What It Does
1		1	Selects scrolling text 1 and loads it into the text box.
2		3	Selects scrolling text 3 and loads it into the text box.
3		2	Selects scrolling text 2 and loads it into the text box.
4		4	Selects scrolling text 4 and loads it into the text box.
5		Text	The selected text: one item per line; an empty line makes a gap.

No.	Control	Name	What It Does
6		**Style (gear icon)**	Shows or hides the text style: font-family, font-size, font-weight, line-height, text-shadow, padding, top, speed, direction and the colour boxes for the background and the lines.
7		**Apply**	Saves the selected text and scrolls it through the band with the text style.

1. Choose one of the four texts with the buttons 1 to 4.
2. Type one item per line. An empty line makes a gap.
3. Click Apply. The band scrolls the lines one after the other.

Apply also saves the text in the selected slot. The gear button opens the text style and the colours (chapter 12.4).

The band shows the content you applied last (sliding logos or scrolling text), also after a restart. On a new installation the band starts with the sponsor logos.

Settings

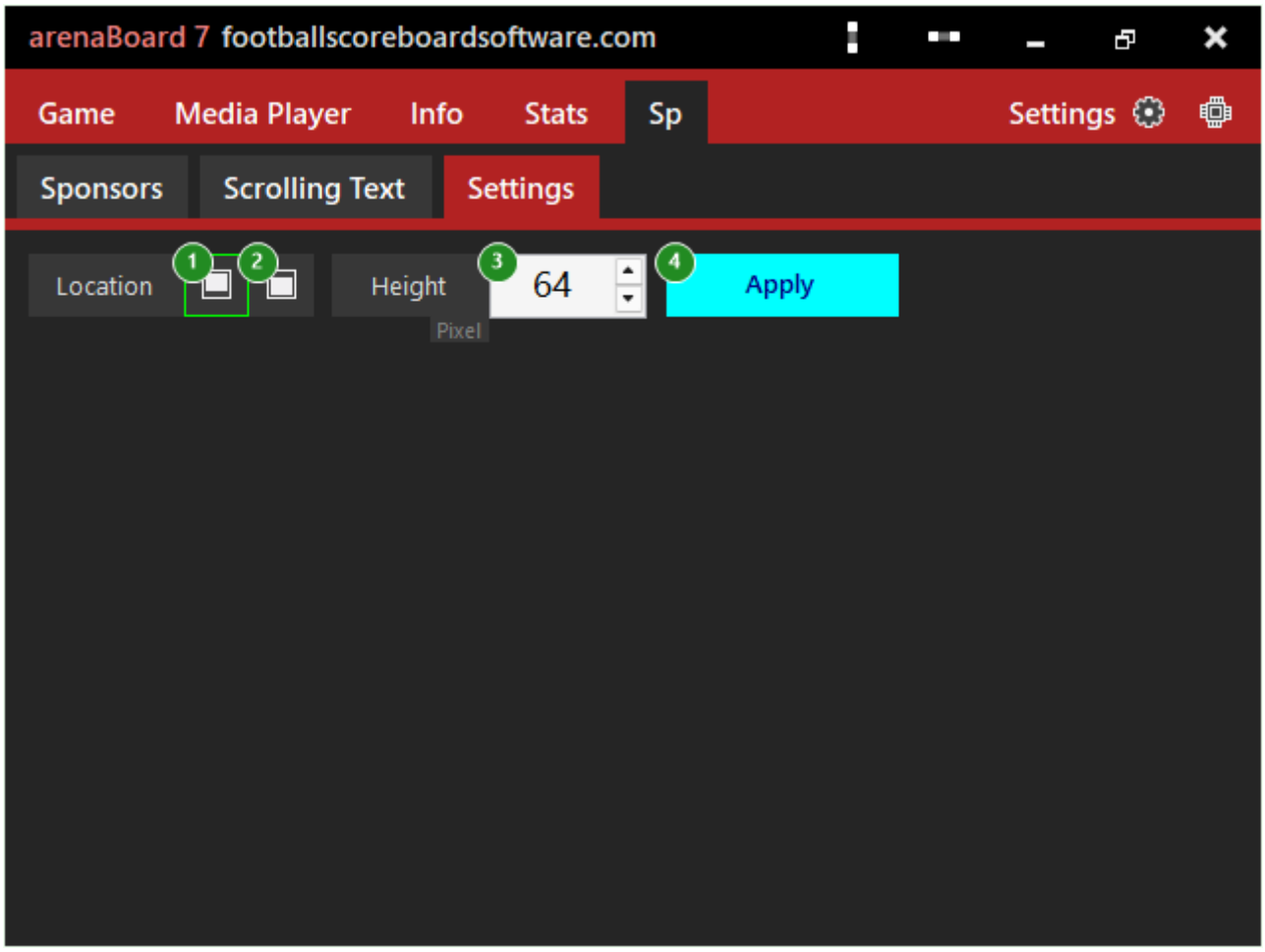


Figure 29. The Sp page: Settings with the location and height of the sponsor band.

No.	Control	Name	What It Does
1		**Bottom**	Puts the sponsor band at the bottom of the board (green frame when chosen). Apply uses it.
2		**Top**	Puts the sponsor band at the top of the board (green frame when chosen). Apply uses it.
3		**Height**	Height of the sponsor band in pixels, up to 1920 (default 64).
4		**Apply**	Saves the location and the height of the band and redraws the board at once.

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

Default: Bottom, 64 pixels.

7.3 Advertisement (Ad)

The Advertisement board has 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 the scrolling text, 1. Banner off.

Board Output **Control Panel**

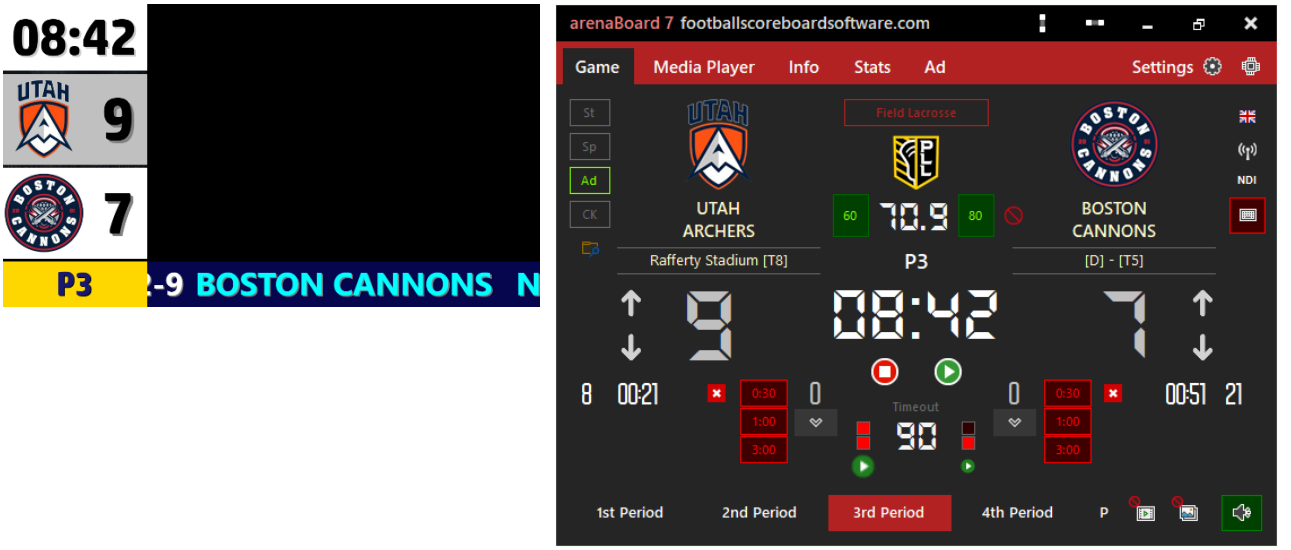


Figure 30. The Advertisement board (Ad Display window) and the Game tab with Ad selected. 2. Banner scrolls the sample lacrosse results; the multimedia area is black until a source runs.

Open the Ad tab in the menu bar. The page has five tabs:

Tab	What It Does
Media Player	Six playlists of videos and pictures for the multimedia area (chapter 12.5).
Camera	A camera with its format: Start shows it in the Preview, Show puts it on the board, Stop ends it (chapter 12.6).
Screen Capture	Shows a part of the PC screen in the multimedia area (chapter 12.7).
Banner	The content of 1. Banner and 2. Banner: Sponsors (sliding logos), Scrolling Text or Multimedia (a playlist), chapter 12.4. The tab of a banner that is switched off is disabled.
Settings	The layout of the board, in four parts: Scoreboard, 1. Banner, 2. Banner, Multimedia.

While a source runs on the Ad page, the tab of that source (Media Player, Camera or Screen Capture) blinks. Only one source runs at a time: starting one stops the other two.

Settings

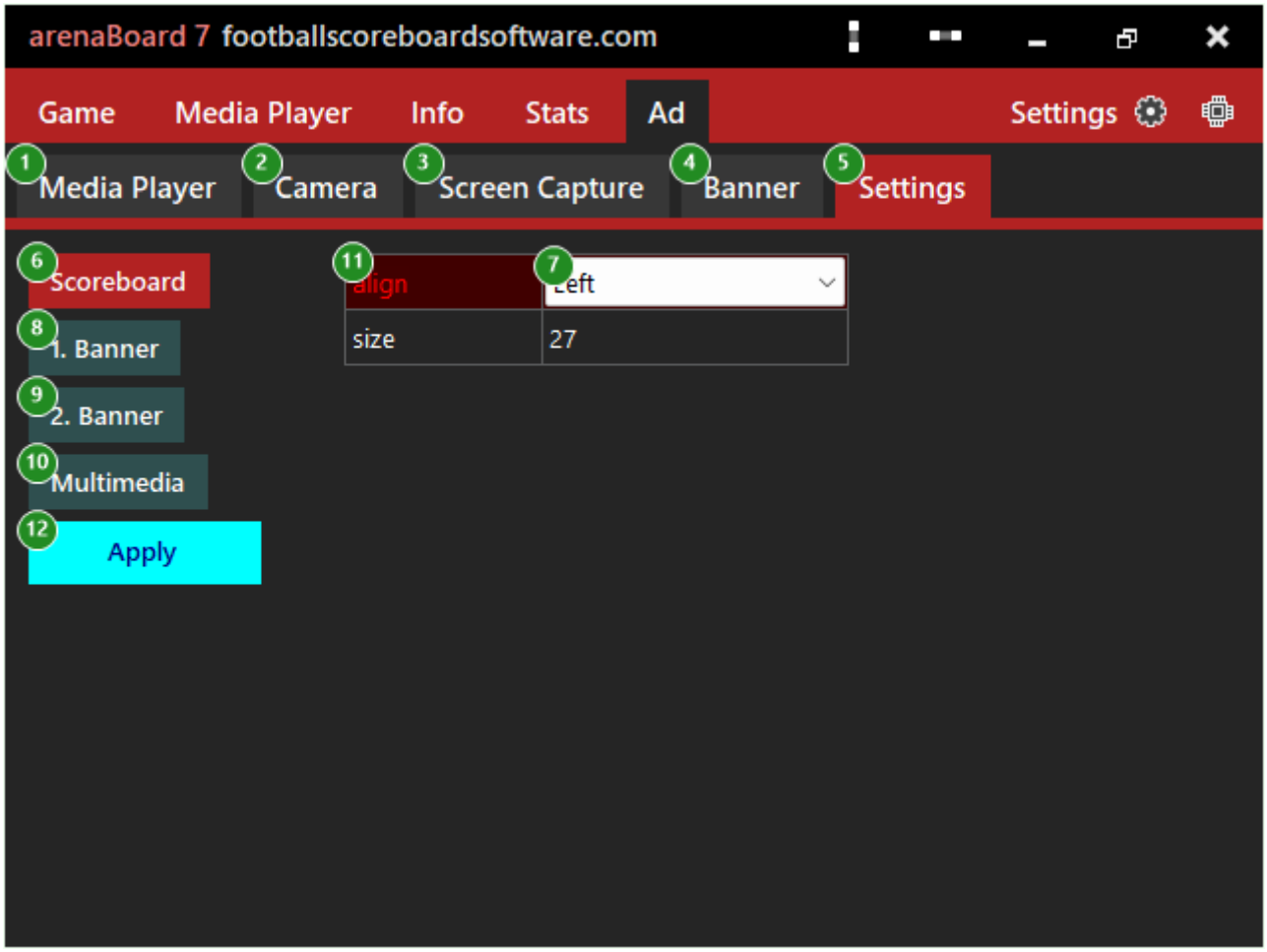
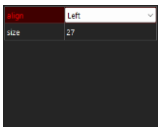


Figure 31. The Ad page: Settings with the layout of the scoreboard column.

No.	Control	Name	What It Does
1	Media Player	**Media Player**	Opens the Media Player tab: six playlists for the multimedia area. It blinks while a playlist plays.
2	Camera	**Camera**	Opens the Camera tab: a camera or capture card in the multimedia area. It blinks while the camera is shown.
3	Screen Capture	**Screen Capture**	Opens the Screen Capture tab: a part of the PC screen in the multimedia area. It blinks while the capture runs.
4	Banner	**Banner**	Opens the Banner tab: the content of 1. Banner and 2. Banner (sponsor logos, scrolling text or a playlist).
5	Settings	**Settings**	Opens the Settings tab: the layout of the scoreboard column, the two banners and the multimedia area.
6	Scoreboard	**Scoreboard**	Shows the values of the scoreboard column: align (Top, Bottom, Left, Right) and size in %.
7	Left	**align list**	The list of the align value: Top, Bottom, Left or Right.
8	1. Banner	**1. Banner**	Shows the values of 1. Banner: align, size, dock and visible.
9	2. Banner	**2. Banner**	Shows the values of 2. Banner: align, size, dock and visible.
10	Multimedia	**Multimedia**	Shows displayMode: how a video, picture, camera or capture fits the multimedia area (Stretch by default).
11		**Values**	Property and value of the selected part. Click a value to change it; align, dock, visible and displayMode open a list.
12	Apply	**Apply**	Saves the values of the selected part and redraws the Ad board. A banner with size 0 or visible No is switched off and its content stops.

1. Click the part: Scoreboard, 1. Banner, 2. Banner or Multimedia.
2. Click a value and change it. For align, dock, visible and displayMode a list opens in the cell.
3. Click Apply. The board changes at once.

Part	Values
Scoreboard	align (Top, Bottom, Left, Right), size (% of the board width for Left and Right, % of the height for Top and Bottom)
1. Banner, 2. Banner	align (Top, Bottom, Left, Right), size (% of the board height), dock (Yes, No), visible (Yes, No). dock Yes: the banner runs across the whole board, and the scoreboard column is shortened. dock No: the banner fills only the space beside the scoreboard column. A banner with size 0 or visible No is off; its content stops.
Multimedia	displayMode: how a video, picture, camera or capture fits the multimedia area: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch (default), ZoomCenter. The same value is set by the Stretch button of the Media Player tab.

> **Note:** A design saved in the Advertisement mode keeps the layout of the scoreboard column and the banners and brings it back when you apply it (chapter 8.3).

7.4 Chroma Key (CK)

The CK board shows a compact scorebug in the top left corner and lower-third graphics on a key colour. A vision mixer (or vMix, OBS ...) removes the key colour and lays the graphics over the camera picture.

Board Output **Control Panel**

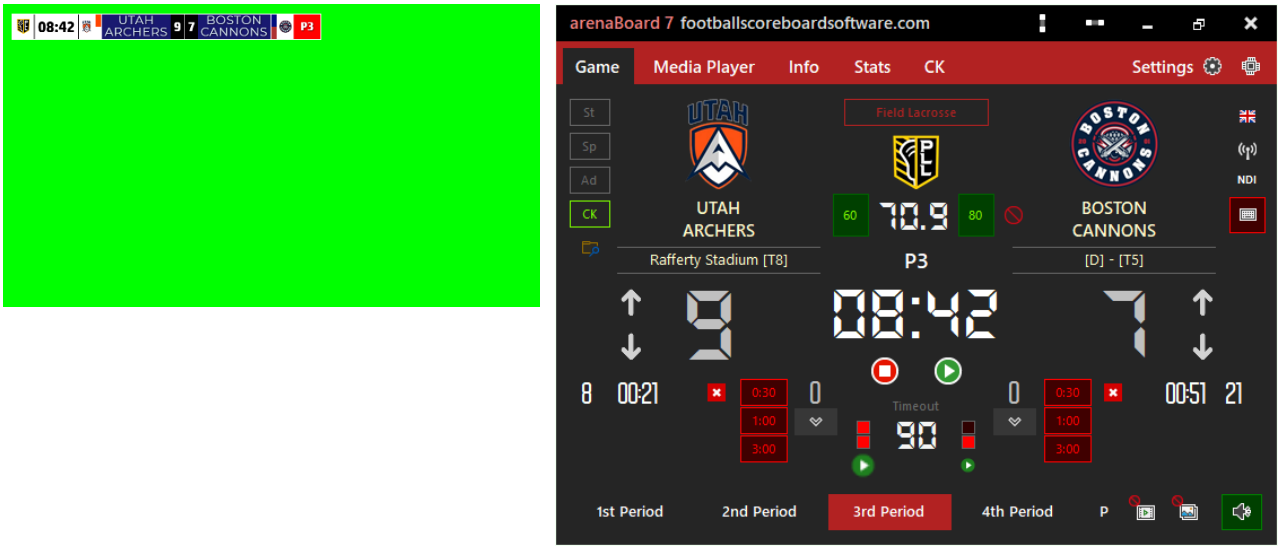


Figure 32. The CK board (CK Display window) with the scorebug on green, and the Game tab with CK selected.

Open the CK tab in the menu bar. The page has five tabs:

Tab	What It Does
Info	Puts the scorebug and the lower thirds on the CK board (below).
Media Player, Camera, Screen Capture	As on the Ad page (chapter 12.5 to 12.7). The picture fills the CK board behind the graphics, in place of the key colour.
Settings	The key colour.

Info

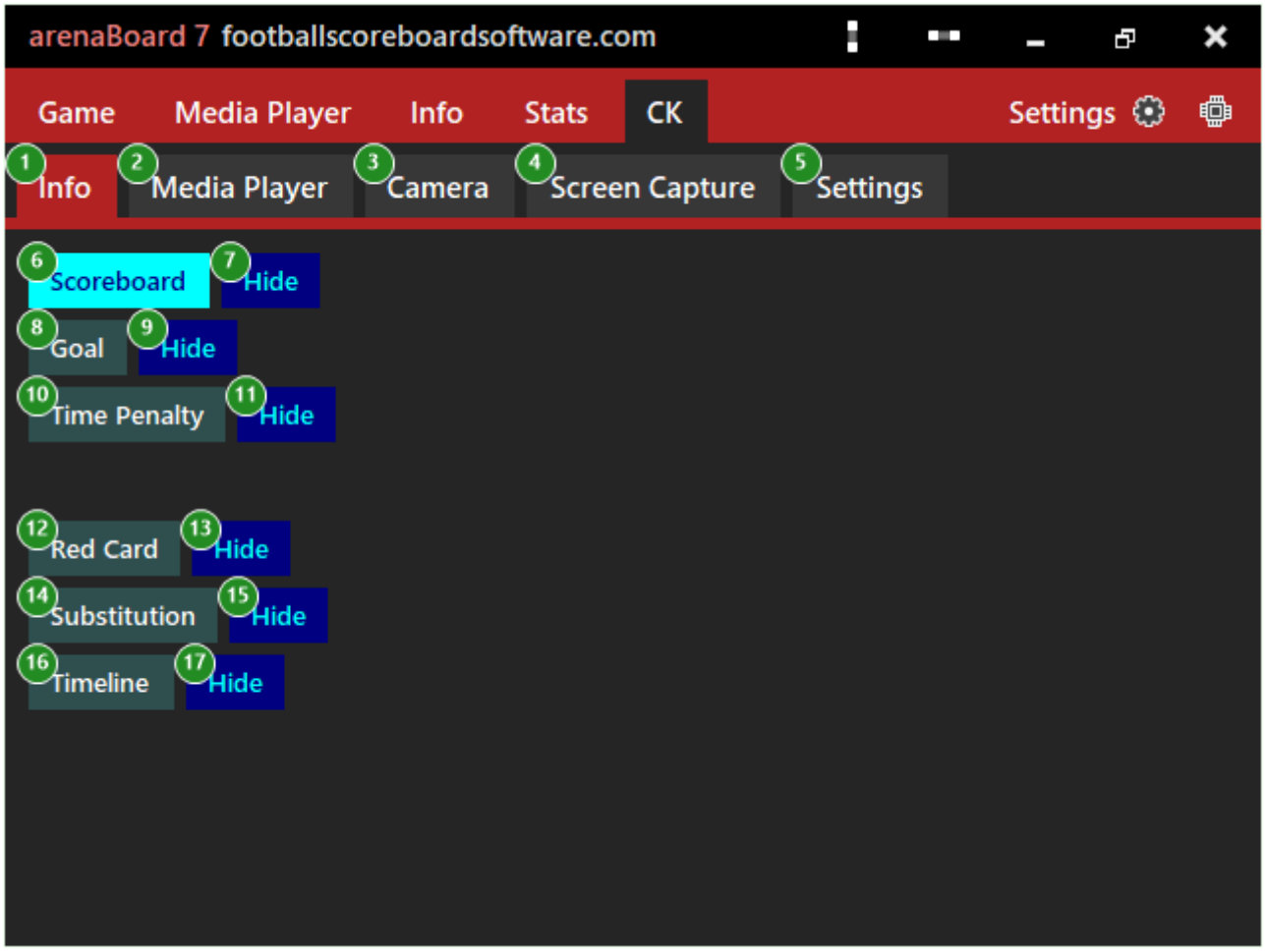


Figure 33. The CK page: Info.

No.	Control	Name	What It Does
1	Info	**Info**	Opens the Info tab: the scorebug and the lower thirds of the CK board.
2	Media Player	**Media Player**	Opens the Media Player tab: six playlists played behind the CK graphics. It blinks while a playlist plays.
3	Camera	**Camera**	Opens the Camera tab: a camera behind the CK graphics. It blinks while the camera is shown.
4	Screen Capture	**Screen Capture**	Opens the Screen Capture tab: a part of the PC screen behind the CK graphics. It blinks while the capture runs.
5	Settings	**Settings**	Opens the Settings tab: the chroma key colour.
6	Scoreboard	**Scoreboard**	Puts the scorebug on the CK board.
7	Hide	**Hide**	Takes the scorebug off the CK board.
8	Goal	**Goal**	Opens the Goal lower third editor.

No.	Control	Name	What It Does
9	Hide	**Hide**	Takes the lower third on air off the board.
10	Time Penalty	**Time Penalty**	Opens the lower third editor with the type Time Penalty.
11	Hide	**Hide**	Takes the lower third on air off the board.
12	Red Card	**Red Card**	Opens the lower third editor with the type Red Card.
13	Hide	**Hide**	Takes the lower third on air off the board.
14	Substitution	**Substitution**	Opens the Substitution lower third editor.
15	Hide	**Hide**	Takes the lower third on air off the board.
16	Timeline	**Timeline**	Opens the match timeline for the CK board (chapter 10).
17	Hide	**Hide**	Takes the lower third on air off the board.

Button	What It Does
Scoreboard	Puts the scorebug on the CK board. Its Hide takes it off.
Goal	Opens the Goal lower third (below).
Time Penalty	Opens the Time Penalty lower third.
Red Card	Opens the Red Card lower third.
Substitution	Opens the Substitution lower third.
Timeline	Opens the Timeline (chapter 10.1) for the CK board.
Hide (next to a lower third)	Takes the lower third off the board.

The lower thirds share one place at the bottom of the board: a new one replaces the one on air, and every Hide button next to a lower third clears that place, whichever lower third it shows.

Settings

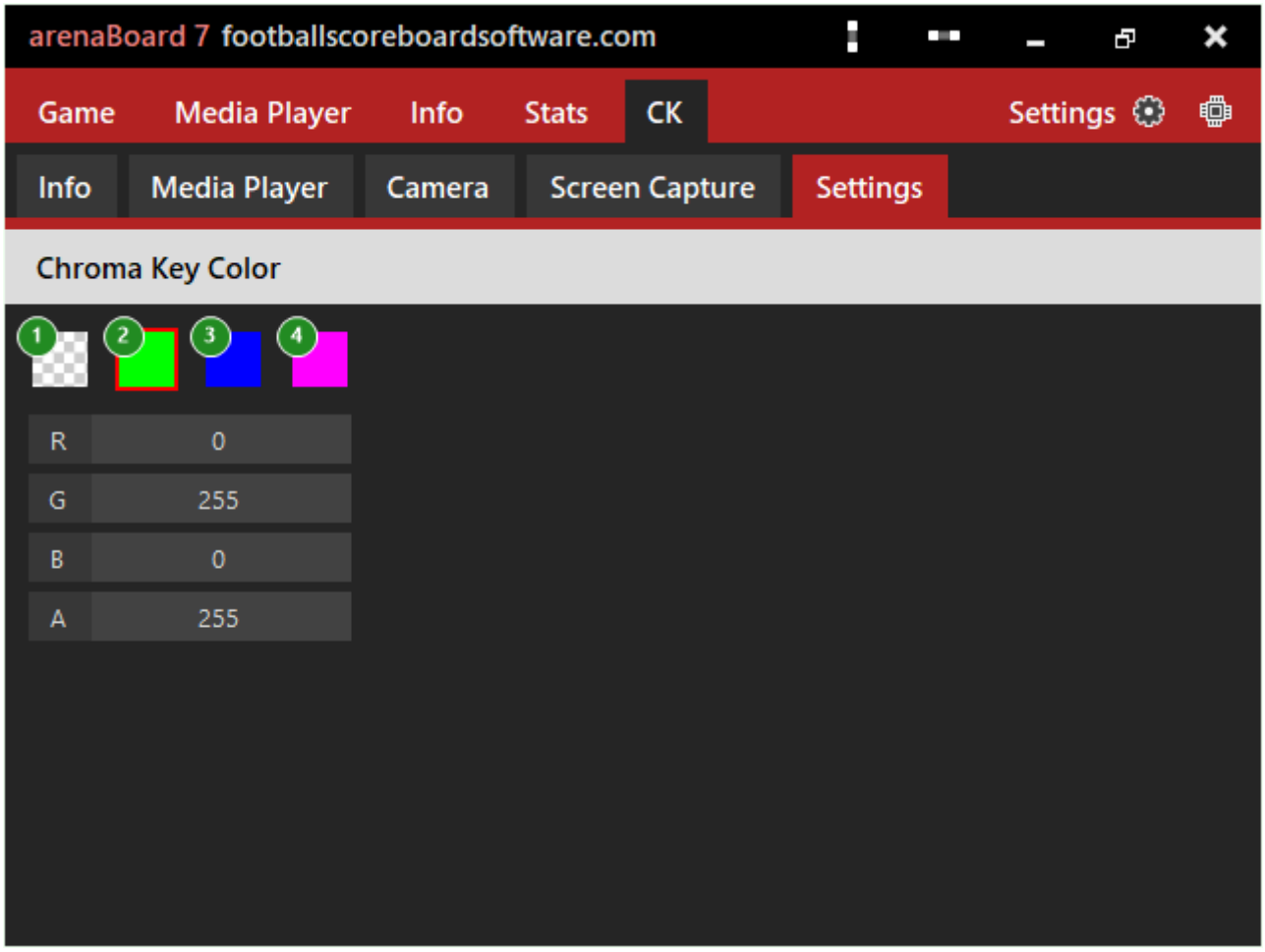


Figure 34. The CK page: Settings with the key colours.

No.	Control	Name	What It Does
1		**Transparent**	Key colour transparent: the CK Display window is see-through on the desktop.
2		**Green**	Key colour green (R 0, G 255, B 0), the default.
3		**Blue**	Key colour blue (R 0, G 0, B 255).
4		**Magenta**	Key colour magenta (R 255, G 0, B 255).

Chroma Key Color: transparent, green (default), blue or magenta. The chosen colour has a red frame, its R, G, B and A values are shown below, and the board uses it at once. With transparent the CK Display window is see-through on the Windows desktop.

> **Note:** For NDI output (chapter 12.8) and for a video output into a mixer use green, blue or magenta: the picture carries no transparency.

CK Lower Thirds

The Goal, Time Penalty, Red Card and Substitution lower thirds have small editors on the Info tab. They all work the same way:

1. Click the logo of the team (Home or Guest). The chosen team is bright, the other one is faded.
2. Choose the player from the list (number-name, from the team list, chapter 11), or type a name.
3. Check the minute (taken from the match clock when the editor opens; the stopwatch button empties it or fills it again).
4. Click Show. The lower third appears at the bottom of the CK board.
5. Click Hide to take it off. The X at the right of the title bar (or Esc) closes the editor.

Show without a player marks the player list red for a moment. When Add to Match Timeline (the button left of Show) has a green frame, Show also writes the event into the match timeline (chapter 10.1). The setting is shared with the info screens of chapter 9.

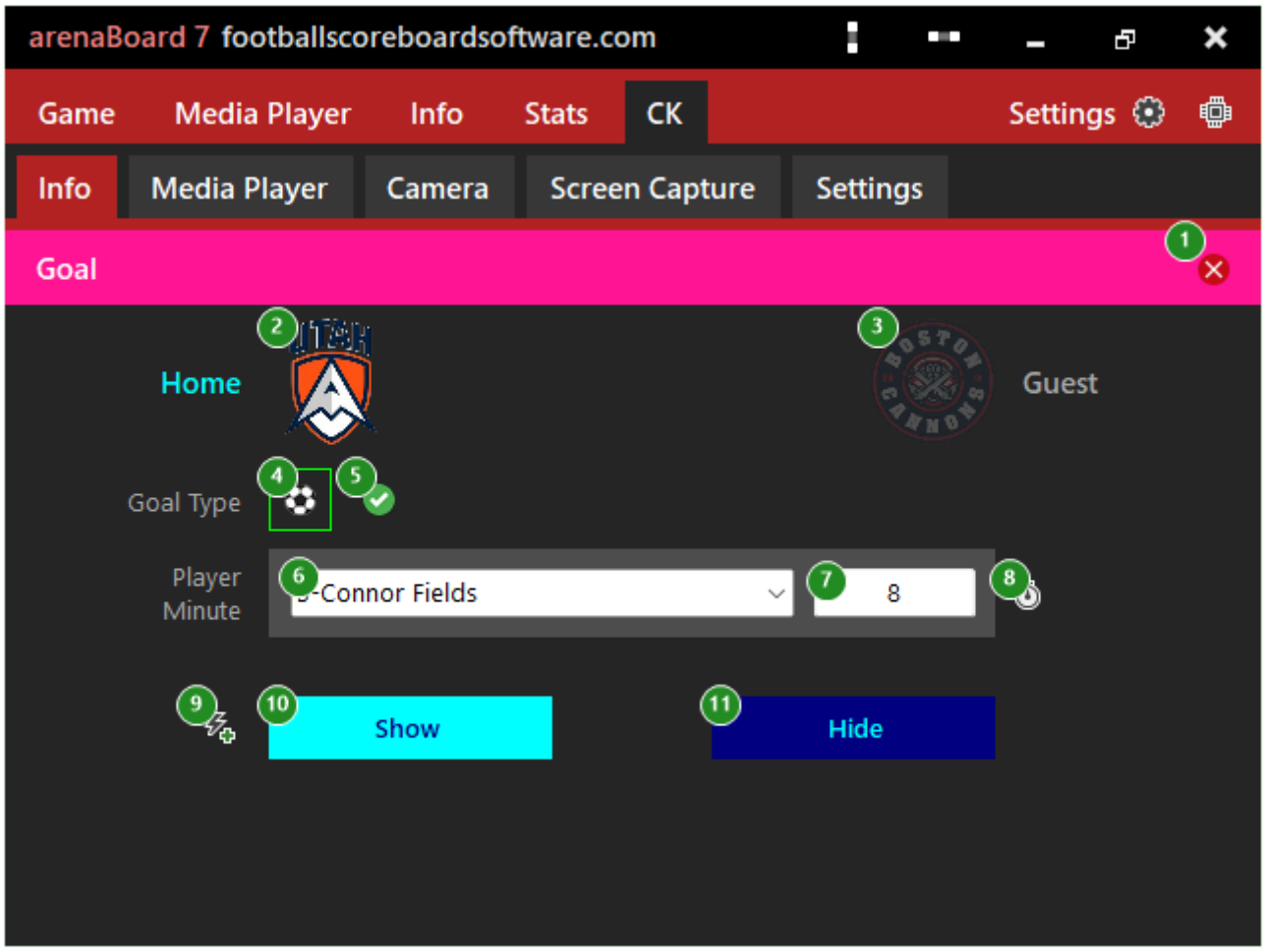
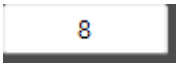


Figure 35. The Goal lower third editor.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the lower third stays on air. Esc does the same.
2		**Home**	Chooses the home team: its logo is bright and its players fill the player list.

No.	Control	Name	What It Does
3		**Guest**	Chooses the guest team: its logo is bright and its players fill the player list.
4		**Goal**	Goal type Goal: the lower third is titled Goal.
5		**Penalty Goal**	Goal type Penalty Goal: the lower third is titled Penalty Goal.
6		**Player**	The players of the chosen team as number-name; a name can also be typed.
7		**Minute**	The minute shown in the lower third; filled from the match clock when the editor opens.
8		**Minute (stopwatch icon)**	Empties the minute box, or fills it again from the match clock.
9		**Add to Match Timeline**	On (green frame): Show also writes the goal into the match timeline. Shared with the info screens.
10		**Show**	Puts the Goal lower third on the CK board. Without a player the list turns red for a moment.
11		**Hide**	Takes the lower third off the CK board.

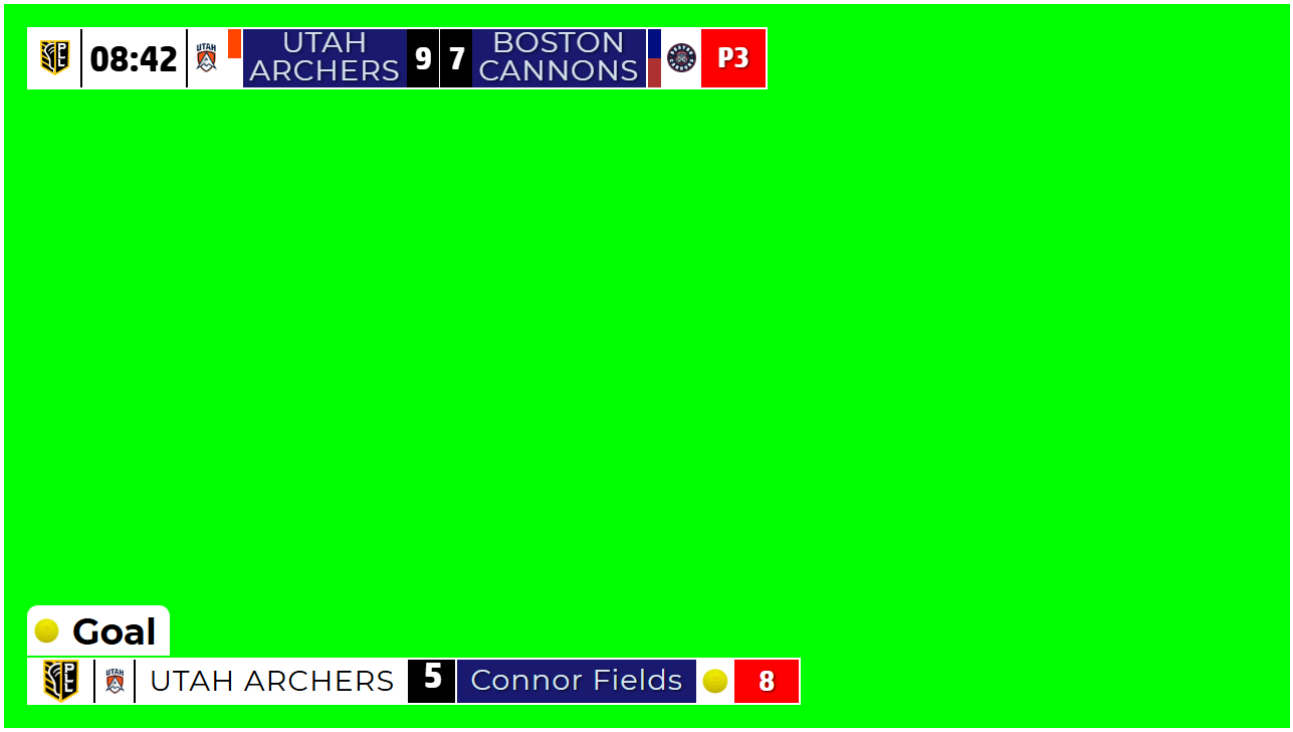


Figure 36. The Goal lower third on the CK board.

Goal Type: Goal or Penalty Goal. The title of the lower third follows the type.

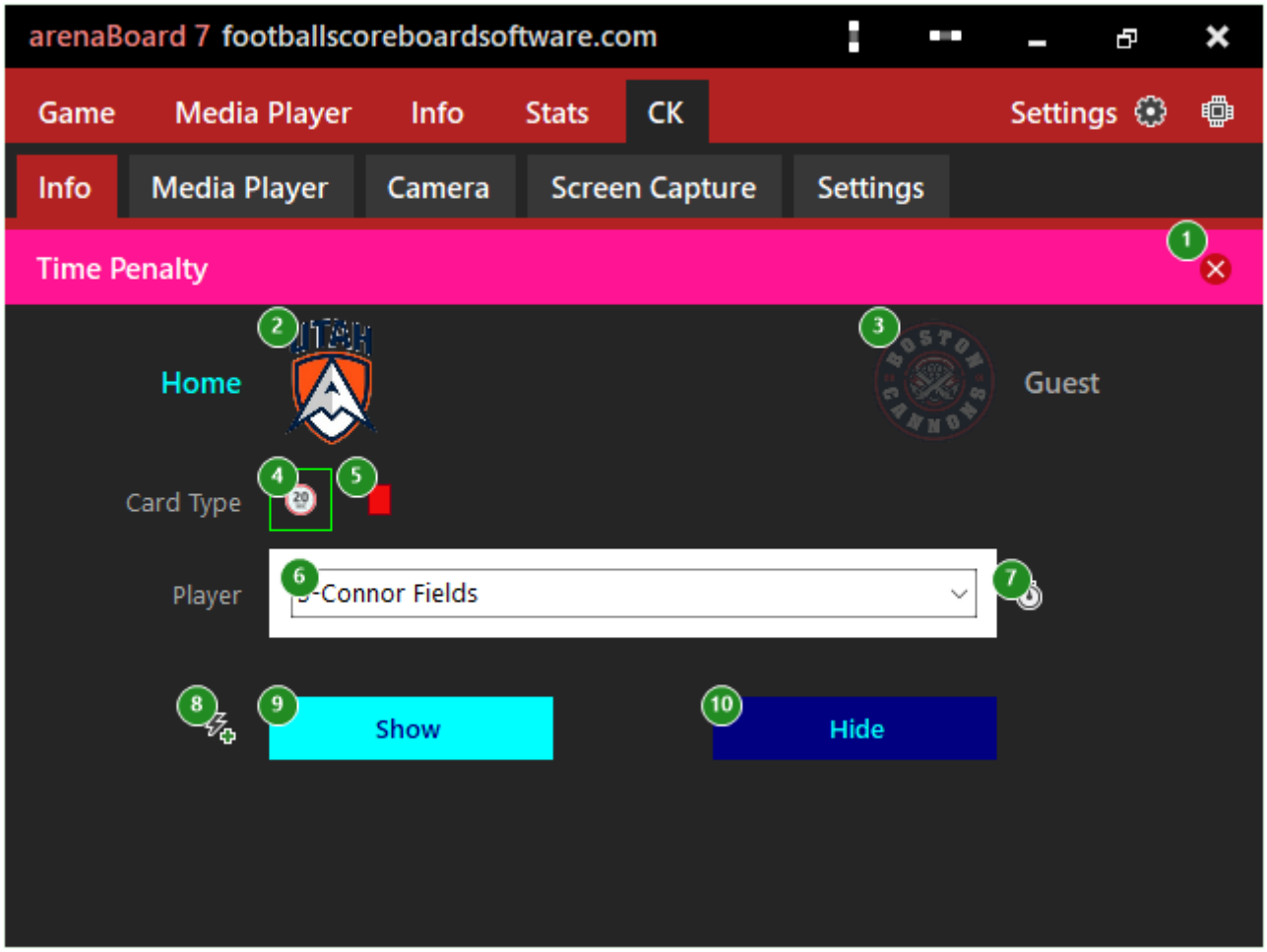


Figure 37. The Time Penalty lower third editor.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the lower third stays on air. Esc does the same.
2		**Home**	Chooses the home team: its logo is bright and its players fill the player list.
3		**Guest**	Chooses the guest team: its logo is bright and its players fill the player list.
4		**Time Penalty**	Type Time Penalty: the lower third is titled Time Penalty.
5		**Red Card**	Type Red Card: the lower third is titled Red Card.
6		**Player**	The players of the chosen team as number-name; a name can also be typed.
7		**Minute (stopwatch icon)**	Shows the minute box filled from the match clock, or empties and hides it. Hidden when the editor opens the first time.

No.	Control	Name	What It Does
8		**Add to Match Timeline**	On (green frame): Show also writes the event into the match timeline. Shared with the info screens.
9		**Show**	Puts the lower third on the CK board. Without a player the list turns red for a moment.
10		**Hide**	Takes the lower third off the CK board.

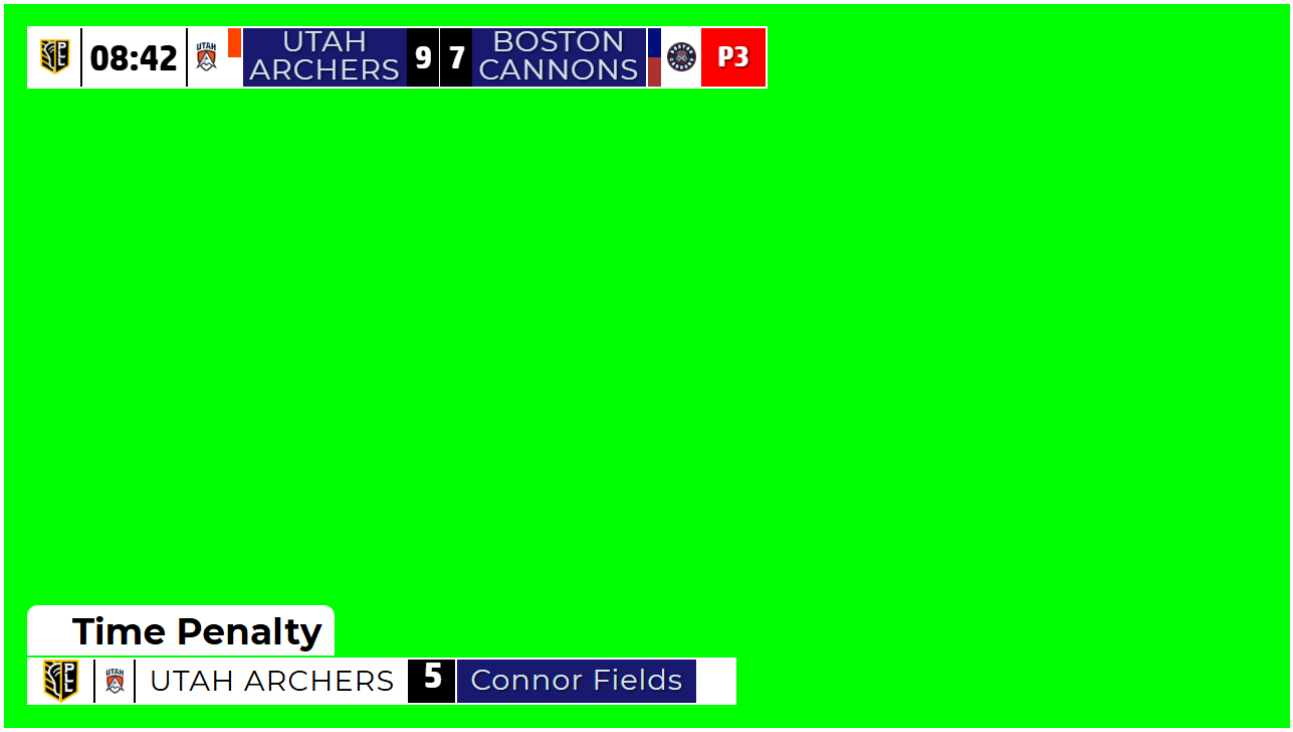


Figure 38. The Time Penalty lower third on the CK board.

Card Type: Time Penalty or Red Card. The Time Penalty lower third shows the team and the player; it does not show the length of the penalty. The minute box is hidden when the editor opens the first time; the stopwatch button shows it.

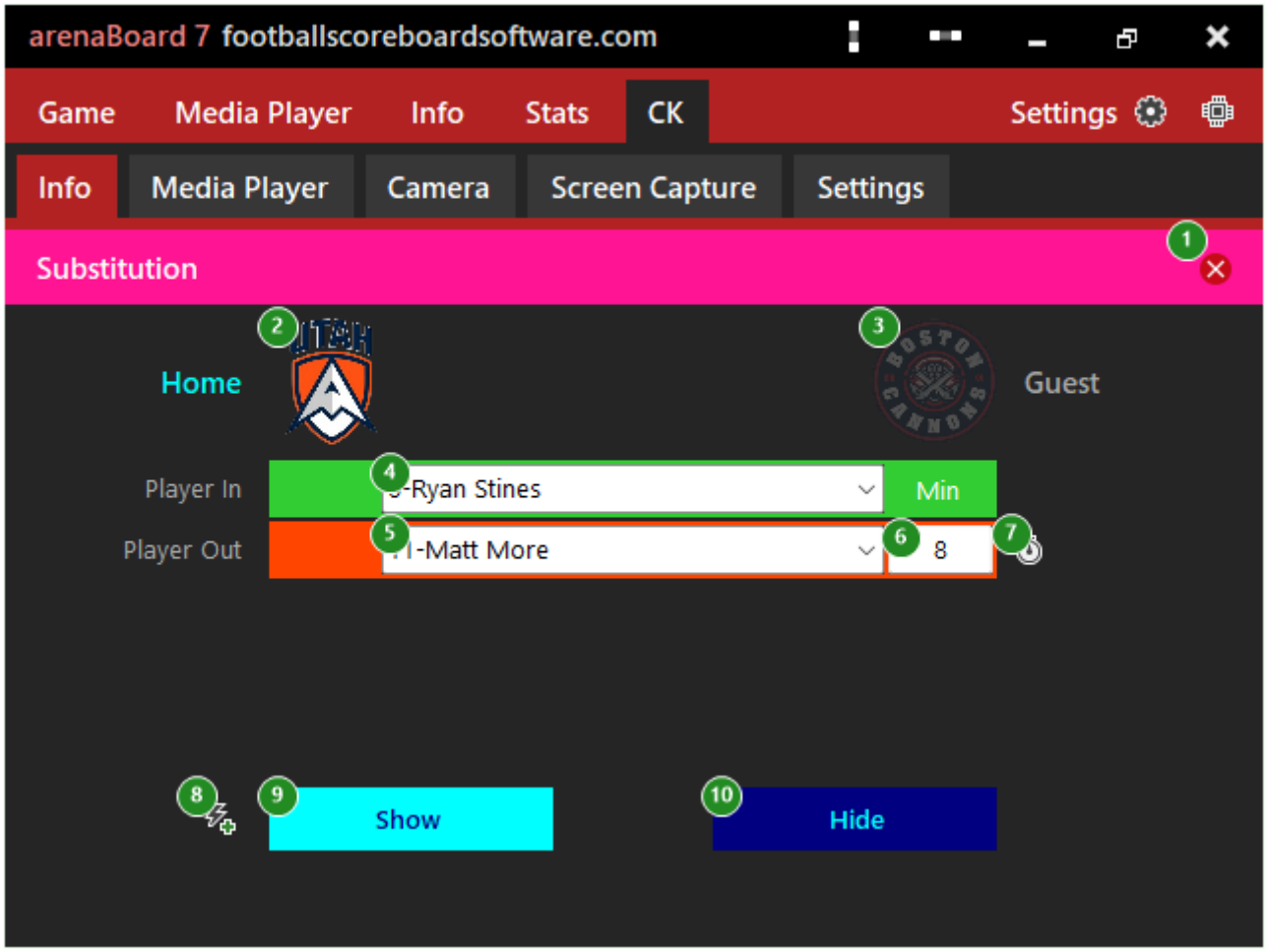


Figure 39. The Substitution lower third editor.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the lower third stays on air. Esc does the same.
2		**Home**	Chooses the home team: its logo is bright and its players fill both player lists.
3		**Guest**	Chooses the guest team: its logo is bright and its players fill both player lists.
4		**Player In**	The player coming on (number-name); a name can also be typed.
5		**Player Out**	The player going off (number-name); a name can also be typed.
6		**Min**	The minute shown in the lower third; filled from the match clock.
7		**Minute (stopwatch icon)**	Hides and empties the minute box, or shows it again filled from the match clock.
8		**Add to Match Timeline**	On (green frame): Show also writes the substitution into the match timeline. Shared with the info screens.

No.	Control	Name	What It Does
9	Show	**Show**	Puts the Substitution lower third on the CK board. Player In and Player Out are both needed.
10	Hide	**Hide**	Takes the lower third off the CK board.



Figure 40. The Substitution lower third on the CK board: player in (green arrow) and player out (red arrow).

Player In and Player Out are both needed.

The minute of the lower thirds is taken from the match clock as it is shown. With a clock that counts down, this is the time on the clock (the time left in the period). To show another minute, for example the minute played, type it into the minute box before you click Show.

7.5 Board Position, Size and LED Formats

All board windows use the position and size set in Settings > Screen Properties (chapter 17):

Row	Meaning	Default
L: Left	x position of the board window on the Windows desktop, in pixels	0
T: Top	y position of the board window	0
W: Width	Width of the board in pixels; a larger value is cut to Max Resolution	960

Row	Meaning	Default
H: Height	Height of the board in pixels; a larger value is cut to Max Resolution	540
Max Resolution	The largest width and height the licence allows (read only, chapter 3)	From the licence

- The board window has no frame. Put it on a second screen or an LED controller output by setting L and T to the position of that screen in the Windows display layout.
- L and T below 0 are used as 0: a screen placed left of or above the main screen in the Windows layout cannot be reached. Arrange the screens so that the board screen is right of or below the main screen.
- The Sponsored band height and the Ad layout are taken from the board size, so they follow a change at once.

The boards are web pages that scale with the window. Values of a design are % of the board width or height, or the board unit u (chapter 8.5). On a board with a very different shape, for example an LED strip, a design made for 16:9 can need changes in the design editor.

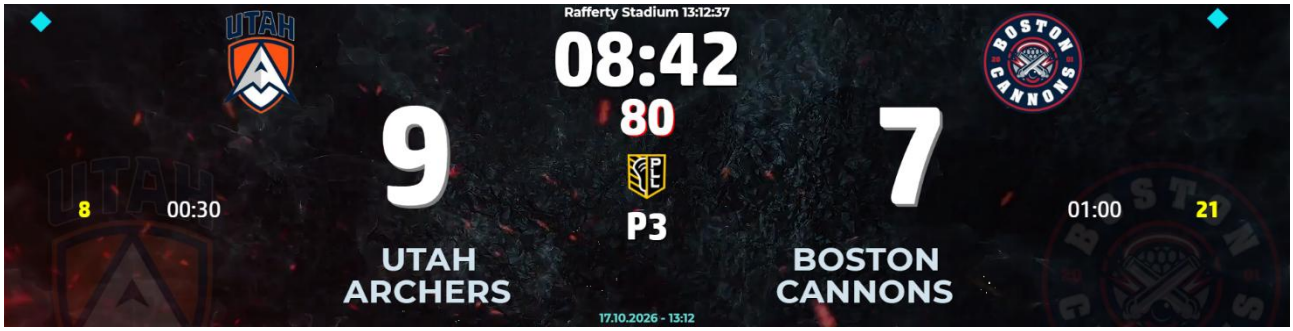


Figure 41. The Standard master [1] on a 1920 × 480 LED strip.

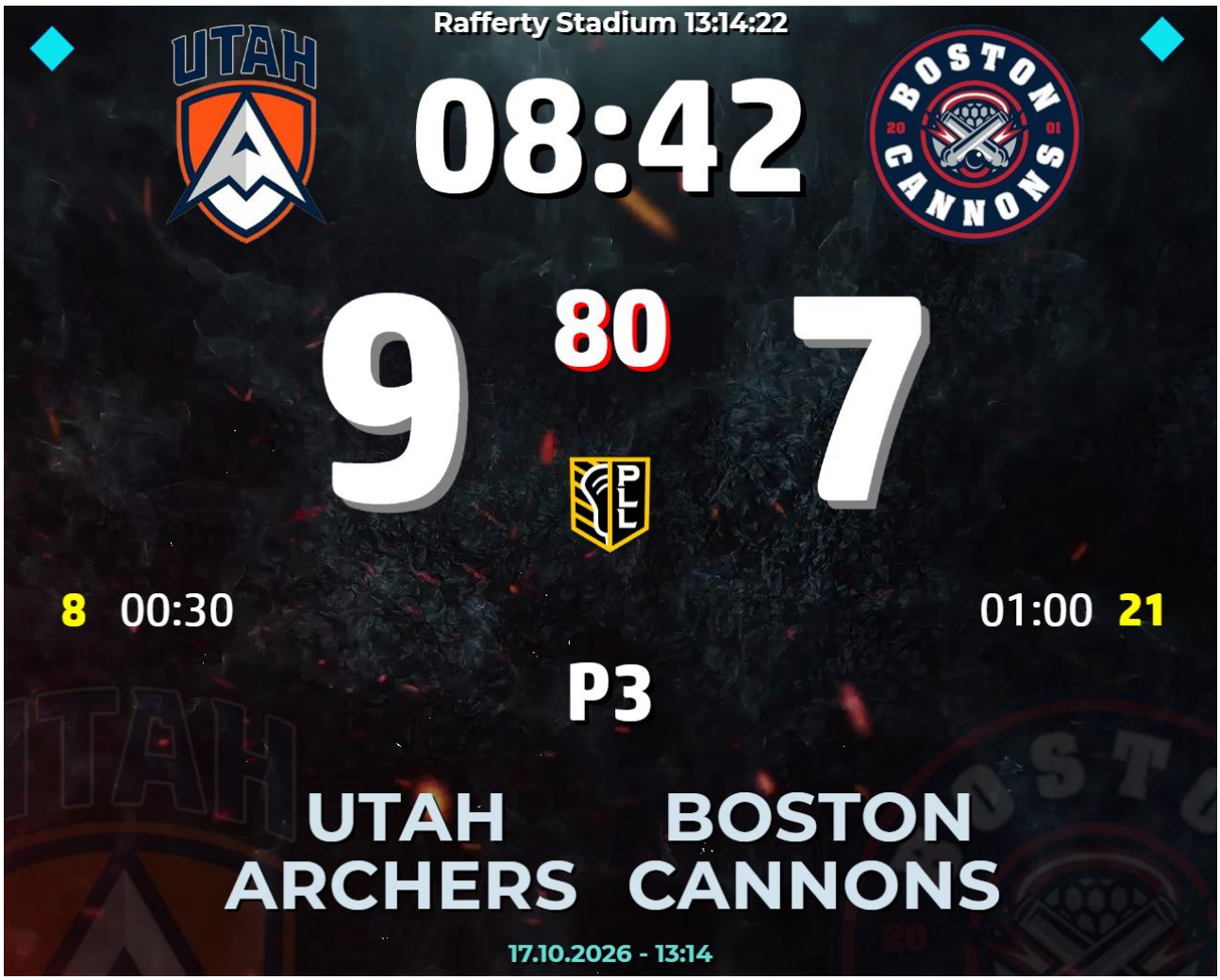


Figure 42. The Standard master [1] on a 1280 × 1024 (5:4) board: text and logos follow the width.

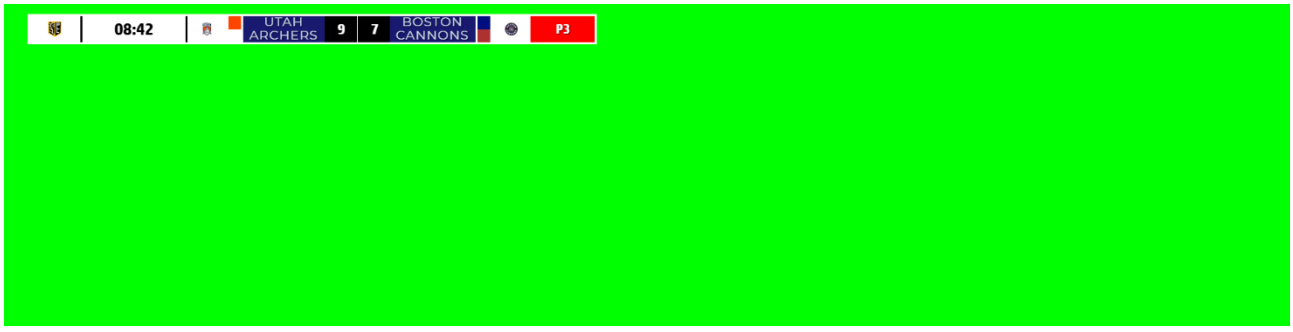


Figure 43. The Chroma Key scorebug on a 1920 × 480 board.

> **Note:** The factory St masters size their text and logos in the board unit u (chapter 8.5): on a 16:9 board and on LED strips such as 1920 × 480 nothing changes, on a 4:3 or 5:4 board (for example 1280 × 1024) they get smaller with the width, so the clock, the logos and the team names do not overlap. A design you made yourself keeps its own units; check it on the real board.

Typical Set-Ups

LED wall or screen in the venue:

1. Connect the screen or LED controller as a second display and extend the Windows desktop to it.
2. In Settings > Screen Properties set L and T to the position of that display, W and H to its resolution.
3. Use the Standard mode, the Sponsored mode for a sponsor band, or the Advertisement mode for video and live pictures.

TV production or streaming:

1. Choose the CK mode and a key colour on the CK page > Settings.
2. Send the CK board to the mixer as a video output of the PC, or over the network with the NDI button of the Game tab (chapter 12.8).
3. Key the colour out in the mixer; the scorebug and the lower thirds lie over the camera picture.

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

8. Designs and the Design Editor

8.1 The Masters

arenaBoard 7 ships factory designs, the masters. A master is locked: you can select it, but you cannot rename, delete or overwrite it. The masters are listed in the gallery with the prefix "_Master":

Master	Board Type	Look
_Master - [St]andard Design [1] (default)	St, Sp	Logos in the top corners, the match clock at the top in the middle, the shot clock and the board logo below it, very large scores, the period, the team names along the bottom and the running penalties beside the scores.
_Master - [St]andard Design [2]	St, Sp	The match clock at the top, the date below it, the logos at the sides of the scores, the period and the shot clock below the board logo, the penalties along the bottom. No team names.
_Master - [St]andard Design [3]	St, Sp	The shot clock at the top, the scores and logos in the middle, the match clock large at the bottom, the penalties in the bottom corners. No team names.
_Master - [Ad]vertise Design [1], [2], [3]	Ad	A scoreboard column: the match clock, the two teams with logo and score, and the period. [2] and [3] dock 2. Banner across the whole width (chapter 7.3). The factory default is [3].
_Master - [CK]Chroma Key Design [1]	CK	A scorebug in one line: board logo, match clock, the teams with logo, colour bar and name, the scores and the period. It brings its own set of lower thirds.

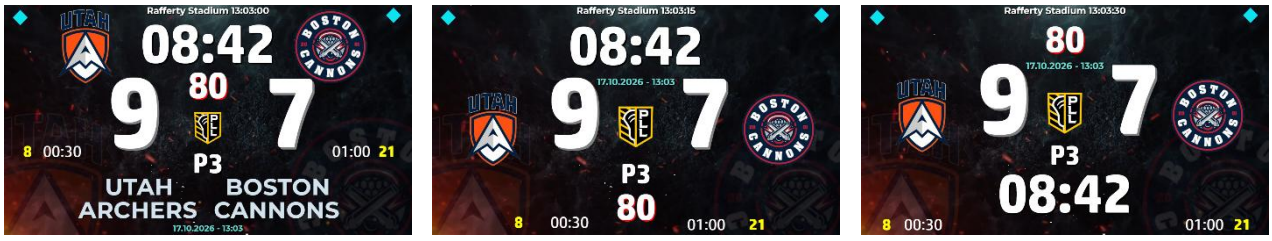


Figure 44. The Standard board in the masters [1], [2] and [3].

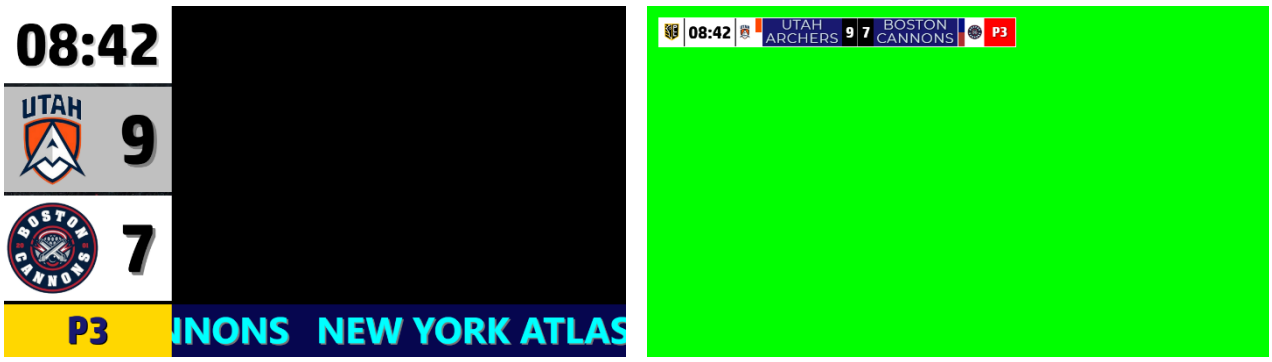


Figure 45. The Advertisement master [1], with the sample lacrosse results scrolling in 2. Banner, and the Chroma Key master.

- The Sponsored board uses the Standard designs: the gallery in Sp mode lists the St designs.
- The info screens (chapter 9), Banner and Announce have one factory layout each; they are not part of a scoreboard master.
- Every element of the masters (team colours, background video, logos) can be changed in the design editor (section 8.4).

8.2 Design Gallery

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

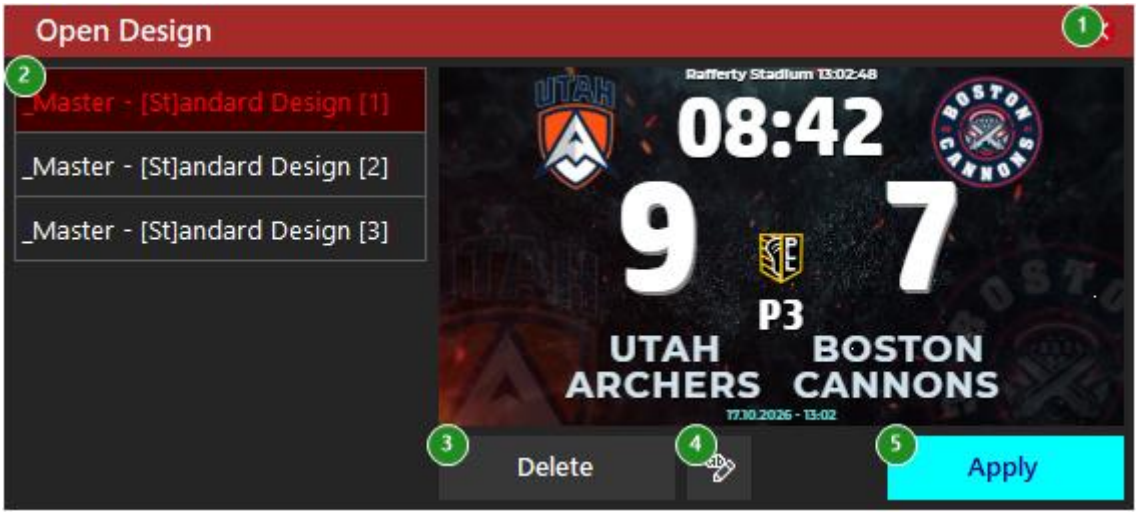
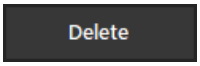


Figure 46. The design gallery of the Standard board with the three masters and the live preview.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the gallery without a change. Esc or a click outside the window does the same.
2		**Design list**	The masters and your own designs of the active display mode, sorted by name (Sp lists the St designs). A click shows the design in the preview with the live score.
3		**Delete**	Deletes the selected design of your own after the question Please Confirm Delete! Does nothing on a master.

No.	Control	Name	What It Does
4		**Rename (pencil icon)**	Lets you type a new name for the selected design of your own in the list; the name is saved when you leave the cell. Does nothing on a master.
5		**Apply**	Uses the selected design for the active display mode, redraws the board and closes the gallery. Ad designs also bring their banner layout; a CK master brings its lower thirds.

The list holds the masters of the display mode and your own designs of that mode, sorted by name.

Display Mode	Apply Brings
St, Sp	The scoreboard layout of the design.
Ad	The scoreboard layout, and the layout of the scoreboard column and the banners (Ad page > Settings, chapter 7.3).
CK	The scorebug and every lower third of that master.

- Apply closes the gallery and redraws the board. The design you applied is remembered for this display mode.
- Esc, the X or a click outside the window closes the gallery without a change.
- Delete and Rename do nothing on a master.

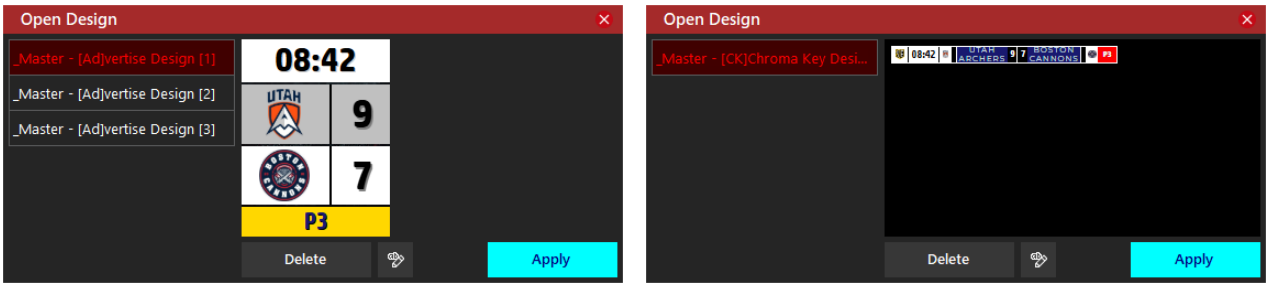


Figure 47. The gallery in the Ad mode (left) and in the CK mode (right).

In the Ad mode the list shows the three Advertisement masters, and the preview shows the scoreboard column of the selected master with the live clock, logos, scores and period. In the CK mode the list shows the Chroma Key master (a long name ends with "..." in the list), and the preview shows its scorebug in the top left corner on black.

> **Note:** Apply replaces the working copy of the scoreboard (and in CK the lower thirds) without a question. Changes made in the design editor are lost unless you saved them as a design of your own first (section 8.3).

8.3 Factory Settings, Save and Save As

The designs live in two folders under C:\arenaBoard7\common\vizrt:

Folder	What It Holds	Written By
storage	The factory designs and their read-only list dataBoardsFactory.xml; your saved designs (<GUID>.xml, for Ad also <GUID>_Segment.xml) and their list dataBoards.xml.	The setup (factory designs); Save Design As, Rename and Delete (your designs only)
current	The working copy: the design the board shows now, for the scoreboard of each display mode (current\Game\St, \Ad, \CK), the info screens, Banner, Announce and the CK lower thirds.	Apply in the gallery, the design editor, Factory Settings

The program never writes into a factory design. Every change goes to the working copy:

Step	What Happens
Apply (gallery)	Copies a design into the working copy (section 8.2).
Save & Apply (design editor)	Saves the values of one element in the working copy and redraws the board (section 8.4).
Save Design As (design editor)	Keeps the working scoreboard as a design of your own, listed in the gallery next to the masters.
Factory Settings (design editor)	Copies the factory version of the selected screen back into the working copy.

Saving Your Own Design

1. Open the design editor of the display mode (section 8.4) and change the scoreboard (Game).
2. Click Save Design As (the disk icon in the title bar of the editor).
3. Type a name (Please Enter a Name) and confirm. The program reports Data Saved Successfully.

- Save Design As keeps the scoreboard (Game) layout. The info screens, Banner and Announce are not part of it.
- In the Sponsored mode the design is saved as a Standard design, so it appears in the St and Sp galleries.
- In the Advertisement mode the design also keeps the layout of the Ad page (scoreboard column, 1. Banner and 2. Banner). Apply brings that layout back.
- In the Chroma Key mode saving is not possible. The program shows "Sorry, Design Saving Is Not Supported for CK Mode Yet!".

Renaming and Deleting

In the gallery, select one of your own designs:

- Rename (pencil icon): type the new name in the list and press Enter. The name is saved at once.
- Delete: deletes the design after the question "Please Confirm Delete!" (OK or Cancel). The design file and its entry in dataBoards.xml are removed.

Neither button does anything on a master.

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 ("Display : St", "Type : Game") and asks "Factory Settings Will Be Restored. Are You Sure?". After OK:

Screen	What Comes Back
Game (St, Sp, Ad)	The factory master that is selected in the gallery now. When the design in use is one of your own, the board type's own factory master comes back. Your saved design itself is not changed.
An info screen, Banner or Announce	The factory layout of that screen. In the Sp and Ad modes this is the Standard factory version of the screen, since the info screens, Banner and Announce are shared by St, Sp and Ad.
A CK screen (scorebug or lower third)	That screen from the Chroma Key master.

8.4 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".

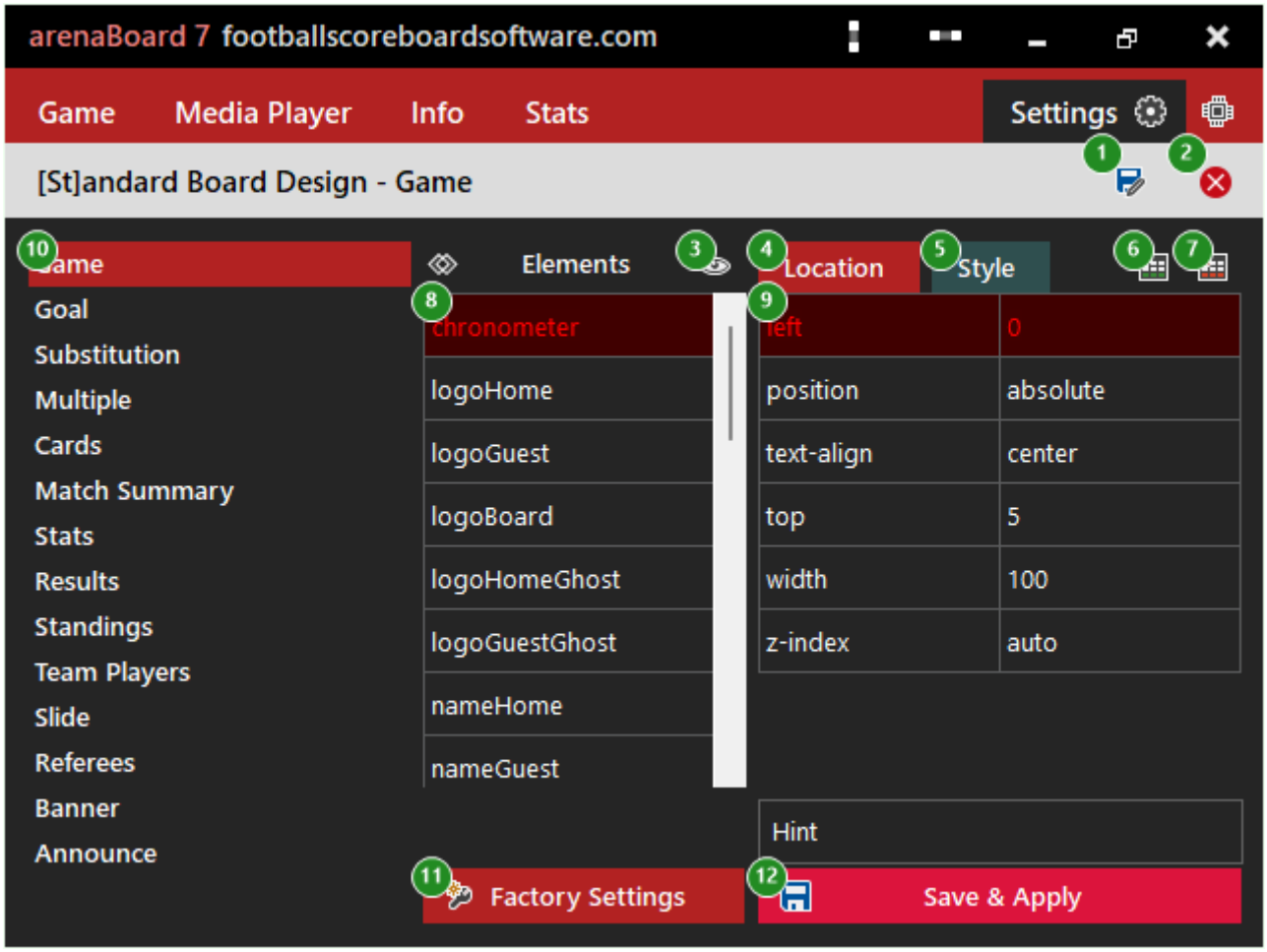
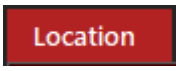
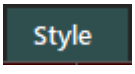
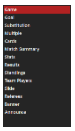
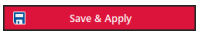


Figure 48. The design editor of the Standard board with the Game screen and the chronometer element selected.

No.	Control	Name	What It Does
1		**Save Design As**	Saves the scoreboard as a design of your own under a name; in Ad mode with the banner layout. Not possible in CK mode.
2		**Close (X)**	Closes the design editor. Esc does the same.
3		**Show or Hide**	Adds the row display: block, or switches it between block (shown) and none (hidden). Save & Apply uses it.
4		**Location**	Shows the position and size values of the element (left, top, width, height, position, z-index ...).
5		**Style**	Shows the look values of the element (colour, font, size, border, opacity ...).
6		**Insert Row**	Adds an empty value row; choose the property, then type the value.
7		**Delete Row**	Removes the selected value row.
8		**Elements**	The elements of the selected screen; hidden ones are grey. A click selects the element and frames it red on the board.

No.	Control	Name	What It Does
9		**Values**	Property and value of the element. Type the value in the right cell; a colour gets a colour picker button, font-family a font picker button. Numbers without unit are % of the board, 24u is the board unit.
10		**Screens**	The screens of the board type: Game (the scoreboard), the info screens, Banner and Announce; in CK the scorebug and the lower thirds. A click shows its elements.
11		**Factory Settings**	Brings back the factory version of the selected screen after the question Factory Settings Will Be Restored. Are You Sure?
12		**Save & Apply**	Saves the values of the selected element in the working design and redraws the board.

How to change an element:

1. Click the screen in the list on the left.
2. Click the element in the Elements list. The board shows the element framed by a red dotted line.
3. Click Location or Style and change the values.
4. Click Save & Apply. Save each element before you choose the next one: values you did not save are dropped when you select another element.



Figure 49. The board while the chronometer element is selected: the red dotted frame marks the element.

The screens of the list:

Display Mode	Screens
St, Sp, Ad	Game (the scoreboard), Goal, Substitution, Multiple, Cards, Match Summary, Stats, Results, Standings, Team Players, Slide, Referees, Banner, Announce. The info screens are shared by St, Sp and Ad.
CK	Game (the scorebug), Goal, Substitution, Cards, Match Summary, Penalty.

Editing values:

- Click a property name to change it: a list of property names opens in the cell. The Hint box below the values offers typical values of that property.
- Type the value into the value cell. A colour property gets a colour picker button in the cell, font-family a font picker button.
- Insert Row adds an empty row for a new property; Delete Row removes the selected row.
- Show or Hide (eye icon) adds the row display: block, or switches it between block (shown) and none (hidden). Click Save & Apply to use it.

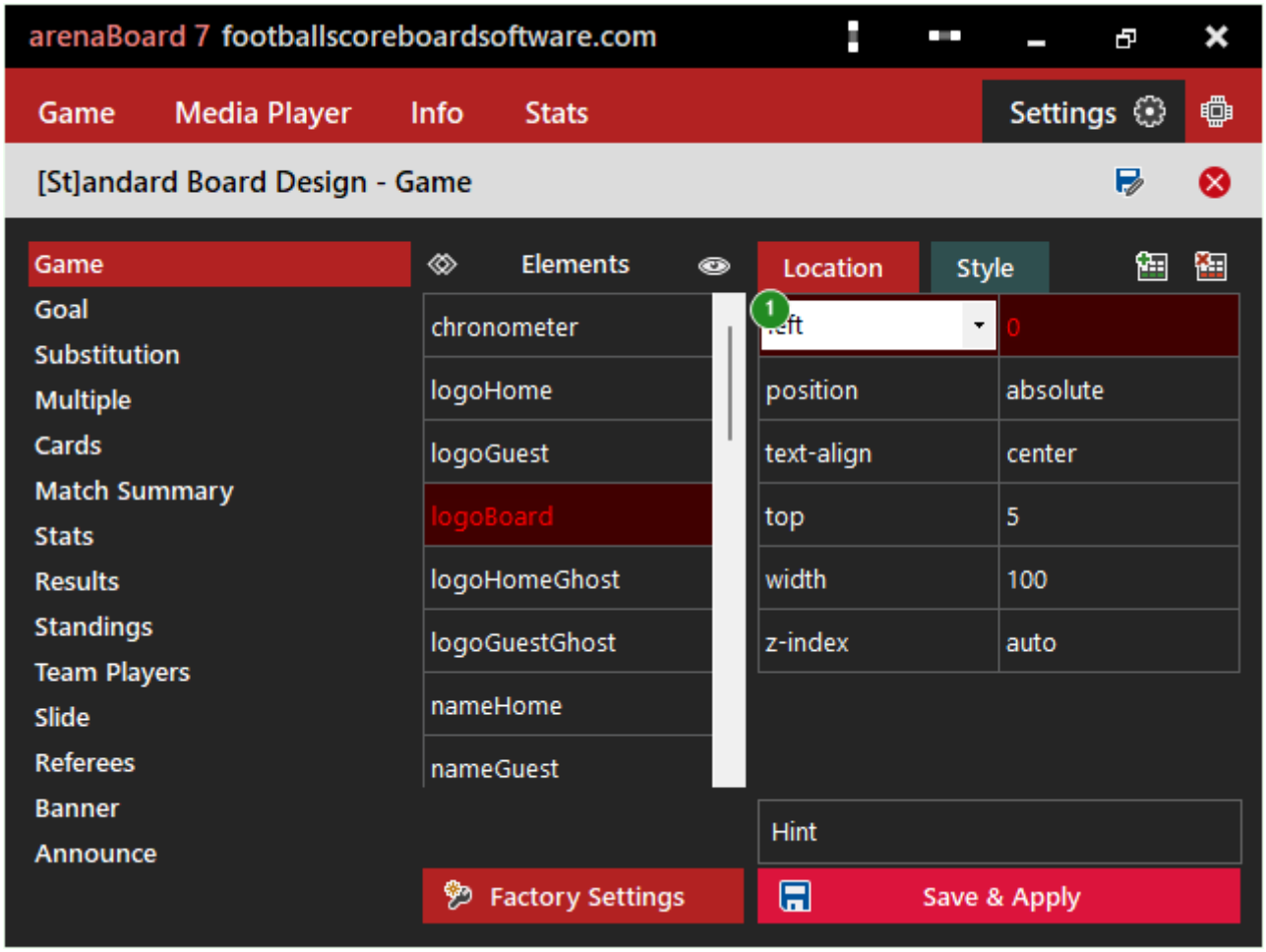


Figure 50. The logoBoard element selected; the property list opens on the property name.

No.	Control	Name	What It Does
1	left	**Property list**	Opens on the property name: choose another property for the row. The Hint box offers typical values.

No.	Control	Name	What It Does

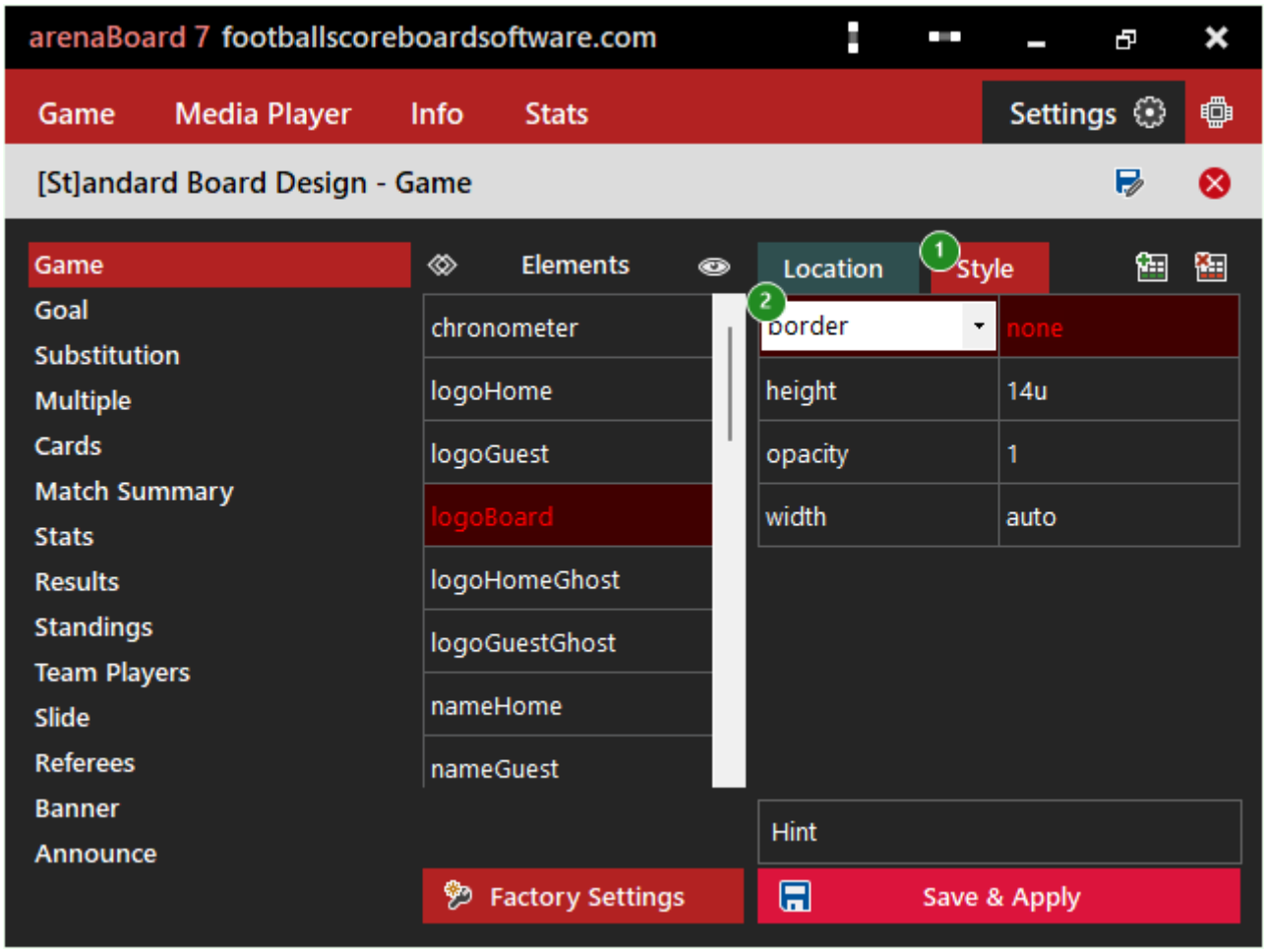


Figure 51. The Style values of the logoBoard element.

No.	Control	Name	What It Does
1		**Style**	Shows the look values of the element (colour, font, size, border, opacity ...).
2		**Values**	Property and value of the element. Type the value in the right cell; a colour gets a colour picker button, font-family a font picker button. Numbers without unit are % of the board, 24u is the board unit.

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

8.5 Fonts and the u Unit

Every object of a board (team name, logo, score, clock, penalty, timeout mark ...) is an element with its own Location and Style values. The program turns the values into a stylesheet each time the board is drawn.

Units of the values:

Unit	Meaning
u	The board unit: 1u = 1 % of the board height on a 16:9 or wider board; on a narrower board (4:3, 5:4) it follows the width (1u = 0.5625 % of the width), so the element keeps its proportions. Write it after the number, for example 24u. It also works inside a compound value, for example 0.6u solid #FFD400.
px, %, em, vh, vw	Usual web units, kept as typed.
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. 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.
auto, fit-content, inherit ...	Kept as typed.

> **Note:** The factory Standard and Advertisement masters use numbers without a unit. Their elements stretch with the board, so a board with another shape than 16:9 can need changes (chapter 7.5). The CK scorebug uses the u unit for its sizes.

Fonts:

- The factory designs use HP Simplified for digits (fallbacks Bahnschrift, Arial Narrow) and Montserrat for words (fallbacks Segoe UI, Arial).
- HP Simplified, Montserrat and GROTESKIA are loaded from C:\arenaBoard7\common\font, so the board looks the same even when the font is not installed in Windows. GROTESKIA can be chosen for digits; its digits are centred in the boxes.
- The setup also brings Agency, DS-Digital, Euforia, Jersey M54, TRT and Axis in common\font (chapter 2).
- The font picker of the editor lists the fonts installed in Windows. A font-family value may name several fonts separated by commas; the program quotes each name.

Backgrounds:

- The Standard, Sponsored and Advertisement boards have a background video and a middle-layer image. Choose them on the Game tab (chapter 5.10). Settings > Screen Properties > Background Video Opacity (0-10, default 6) sets how strongly the video shows.
- The Chroma Key board has no background: it shows the key colour or the picture of a running source (chapter 7.4).

8.6 Upgrades Keep Your Designs

The setup replaces the factory content and keeps your data:

Replaced on an Upgrade	Kept on an Upgrade
The factory design list dataBoardsFactory.xml and the factory folders of the masters	Your saved designs (<GUID>.xml, <GUID>_Segment.xml) and their list dataBoards.xml
	The working folder common\vizrt\current: the design the boards show now, with your changes
	The settings of the Sp and Ad pages (configSp.xml, configAd.xml)

- After an upgrade the boards look as before. A new or changed master appears in the gallery; apply it to use it.
- A changed factory design is shipped under a new name (GUID), so a master you applied is never changed under your feet.
- Missing working files are filled in from the factory folders when you switch the display mode, so a deleted working file comes back as the factory version.

9. Info Screens

9.1 The Info Tab

The Info tab holds the screens that replace the scoreboard for a moment: a banner, an announcement, a goal, a penalty, a substitution, the team lists, the referees. It also holds the lists these screens use: the players, the referees, the sponsors and the Team Database.

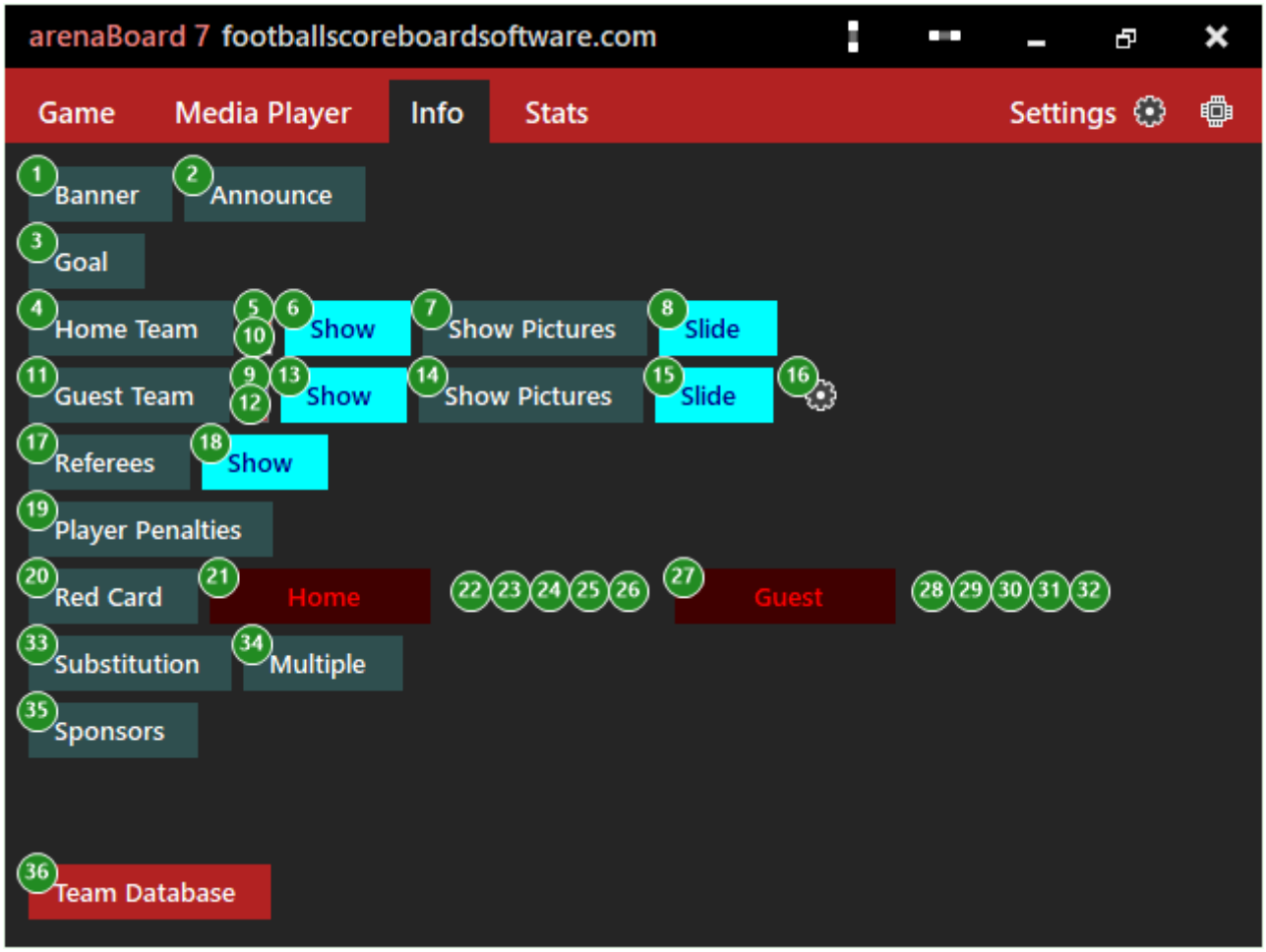
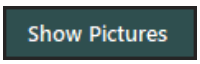
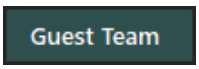
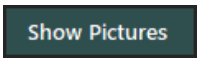
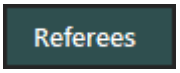
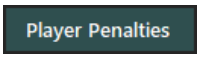
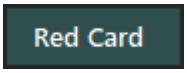
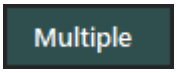


Figure 52. The Info tab.

No.	Control	Name	What It Does
1	Banner	**Banner**	Opens the Banner editor: two header lines, a main text with four presets, a live clock or a countdown (chapter 9.2).
2	Announce	**Announce**	Opens the Announce editor: a full-screen text with a team logo and six text styles (chapter 9.3).
3	Goal	**Goal**	Opens the Goal editor: the scorer, the minute, the goal type and the ball animation (chapter 9.4).
4	Home Team	**Home Team**	Opens the player list of the home team (chapter 11.1).
5		**Home Team Colour 1**	The first colour of the home team: the background of the title bars, the coach line and the shirt numbers of the team list. Click it to choose a colour; it is saved at once.

No.	Control	Name	What It Does
6		**Show (Home Team)**	Puts the team list of the home team on the board: team name, coach, the Players group and the Substitutes group (chapter 9.5).
7		**Show Pictures (Home Team)**	Opens Show Pictures for the home team: a playlist of the Image for Banner files of the players, played on the board one by one (chapter 9.5).
8		**Slide (Home Team)**	Puts a slideshow of the home team on the board: a title slide per group, then the number, name and Image for Events photo of every player and the coach.
9		**Guest Team Colour 1**	The first colour of the guest team (title bars, coach line and shirt numbers of the team list). Click it to choose a colour.
10		**Home Team Colour 2**	The second colour of the home team: the text on the first colour. Click it to choose a colour.
11		**Guest Team**	Opens the player list of the guest team (chapter 11.1).
12		**Guest Team Colour 2**	The second colour of the guest team: the text on the first colour. Click it to choose a colour.
13		**Show (Guest Team)**	Puts the team list of the guest team on the board (chapter 9.5).
14		**Show Pictures (Guest Team)**	Opens Show Pictures for the guest team (chapter 9.5).
15		**Slide (Guest Team)**	Puts the slideshow of the guest team on the board.
16		**Background (Gear)**	Shows or hides the Background buttons of the team lists, the slideshows and the referee screen: the scoreboard background, black, or a selected video.
17		**Referees**	Opens the referee list (chapter 9.6).
18		**Show (Referees)**	Puts the referee screen on the board: the first name large, the others below it.
19		**Player Penalties**	Opens the penalty editor with the first penalty of the discipline selected: 0:30 in Field Lacrosse, the yellow card in Women's Lacrosse (chapter 9.7).
20		**Red Card**	Opens the same editor with the red card (R) selected (chapter 9.8).
21		**Home (Red Cards)**	The caption of the red card counter of the home team at its right. Clicking it does nothing.
22		**Home Red Cards: 0**	No red card for the home team on the scoreboard (the default).
23		**Home Red Cards: 1**	Shows one red card next to the home team on the scoreboard, where the design has a place for the cards.
24		**Home Red Cards: 2**	Shows two red cards next to the home team on the scoreboard.

No.	Control	Name	What It Does
25		**Home Red Cards: 3**	Shows three red cards next to the home team on the scoreboard.
26		**Home Red Cards: 4**	Shows four red cards next to the home team on the scoreboard.
27		**Guest (Red Cards)**	The caption of the red card counter of the guest team at its right. Clicking it does nothing.
28		**Guest Red Cards: 0**	No red card for the guest team on the scoreboard (the default).
29		**Guest Red Cards: 1**	Shows one red card next to the guest team on the scoreboard, where the design has a place for the cards.
30		**Guest Red Cards: 2**	Shows two red cards next to the guest team on the scoreboard.
31		**Guest Red Cards: 3**	Shows three red cards next to the guest team on the scoreboard.
32		**Guest Red Cards: 4**	Shows four red cards next to the guest team on the scoreboard.
33		**Substitution**	Opens the Substitution editor: one player in, one player out (chapter 9.9).
34		**Multiple**	Opens the Multiple Substitution editor: several pairs in one screen (chapter 9.10).
35		**Sponsors**	Opens the sponsor list (chapter 9.11).
36		**Team Database**	Opens the Team Database: the squads saved with Save to Teams (chapter 9.12).

The buttons are grouped by row:

Row	Buttons
Texts	Banner, Announce
Goal	Goal
Teams	Home Team and Guest Team (player lists), the two team colours, Show, Show Pictures and Slide for each team, the Background gear
Officials	Referees, Show
Penalties	Player Penalties; Red Card with the red card counters of both teams
Substitutions	Substitution, Multiple
Lists	Sponsors, Team Database

The buttons with a dark green background open an editor in the program window. The aqua buttons (Show, Slide) put a screen on the board at once.

The Parts of an Editor

The editors of Banner, Announce, Goal, Player Penalties, Red Card, Substitution and Multiple share the same parts:

Part	What It Does
Title bar	The name of the editor. The pencil at the left (Goal, penalties, substitutions, referees) opens Settings > Language at the titles, where the on-air titles are changed (chapter 16.3). The red X at the right closes the editor; Esc does the same.
Sponsor row	The first five logos of the sponsor list (section 9.11). Click a logo to use it as the sponsor logo of the info screens: it is shown in full colour, the others faded, and it appears under Sponsor. The x removes the sponsor logo. The choice is shared by all editors.
Home / Guest	The two team logos. Click a logo to choose the team: its name turns aqua and the player lists of the editor are filled with its players.
Player lists	The players of the team as "number-name", sorted by number: the Players, Substitutes and Other Players groups of the player list (chapter 11.1). You can also type a number and a name, for example "22 Smith".
Minute	Filled with the minutes of the match clock when the editor opens. The stopwatch button empties the minute or fills it again.
Add to Match Timeline	With a lime frame, Show also writes the event to the timeline of the Stats tab (chapter 10.1). The setting is shared by all editors and kept after a restart.
Show	Puts the screen on the board.
Show with Picture	Puts the screen on the board with the player photo (Image for Events, chapter 11.2).
Background	Three buttons: Use Scoreboard Background (the background video of the scoreboard), Use Black Background, Use Selected Background (a video you choose with the folder button that appears). The box at the right shows the choice: Scoreboard.Background, Color.Black or the file name. Each screen keeps its own choice.

Showing a Screen and Going Back

1. Open the editor with its button on the Info tab.
2. Fill in the fields.
3. Click Show (or Show with Picture). The screen replaces the scoreboard on the board.
4. Click the Game tab to bring the scoreboard back.

- The screen is built when you click Show. Changes made later appear only after the next Show.
- Closing an editor does not take the screen off the board.
- The titles of the screens (Goal, Time Penalty, Substitution, Referees ...) come from the titles of the language, not from the editor (chapter 16.3).
- The texts and pictures of a screen sit where the design of the display mode puts them. A design without a place for, say, the sponsor logo does not show it (chapter 8).
- Goal, penalty and substitution screens can also be shown from the remote control (chapter 13) and the HTTP API (info_goal, info_card, info_subst; cmd=match returns to the scoreboard, Appendix B).

> **Note:** Clicking the Game tab always brings the scoreboard back on the board. Leave the Game tab alone while a screen should stay on air; use the Info and Stats tabs meanwhile.

9.2 Banner

A full-screen banner: two header lines, a large main text, the two team logos and the sponsor logo. The main text can be a live clock or a countdown to a time of day, for example to the start of the match.

Board Output **Control Panel**

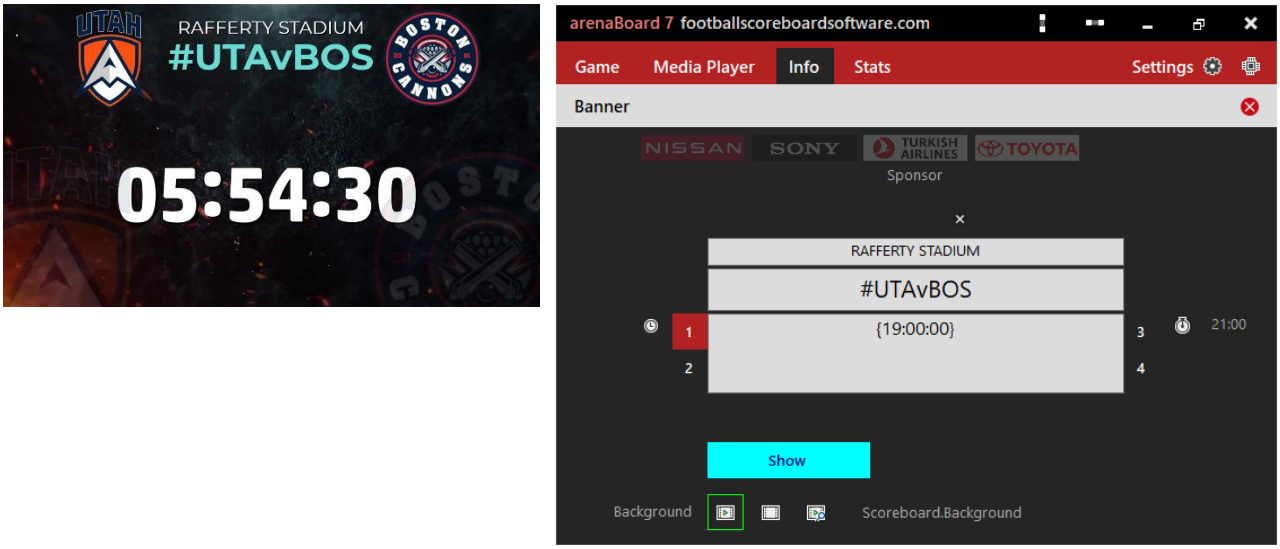


Figure 53. The banner with a countdown to 19:00:00 (left) and the Banner editor (right).

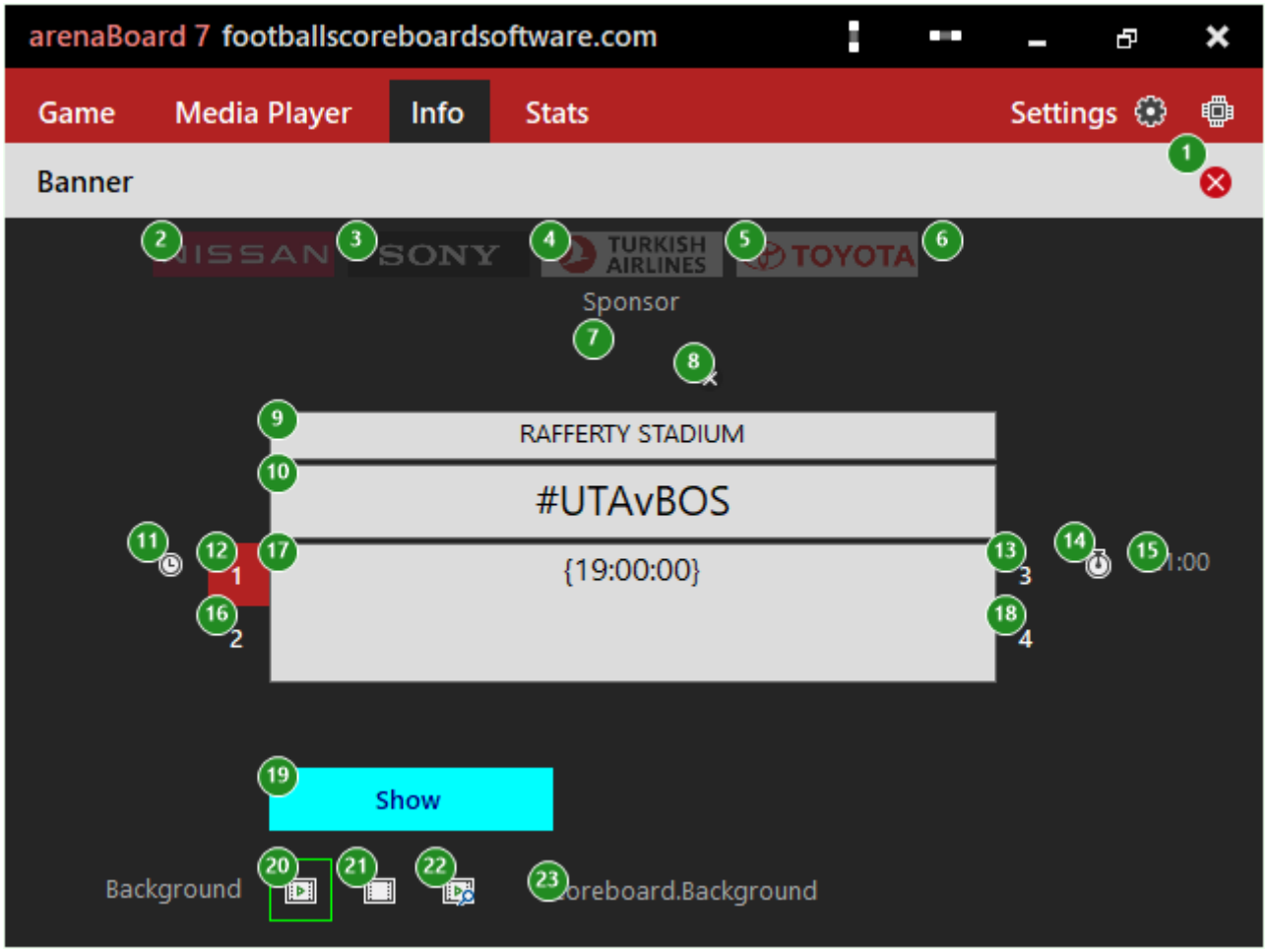
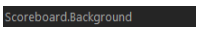


Figure 54. The Banner editor.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor. Esc does the same. The board keeps showing what is on it.
2		**Sponsor Logo 1**	The first logo of the sponsor list. Click it to use it as the sponsor logo of the info screens; the selected logo is shown in full colour, the others faded.
3		**Sponsor Logo 2**	The second logo of the sponsor list. Click it to use it as the sponsor logo.
4		**Sponsor Logo 3**	The third logo of the sponsor list. Click it to use it as the sponsor logo.
5		**Sponsor Logo 4**	The fourth logo of the sponsor list. Click it to use it as the sponsor logo.
6		**Sponsor Logo 5**	The fifth logo of the sponsor list. Click it to use it as the sponsor logo.
7		**Sponsor**	The sponsor logo in use. It appears on the board where the design has a place for it.
8		**Remove Sponsor (x)**	Removes the sponsor logo: the info screens are shown without one.

No.	Control	Name	What It Does
9		**Line 1**	The first header line, for example the venue. It is kept for all four presets.
10		**Line 2**	The second header line, for example a hashtag. It is kept for all four presets.
11		**Show Clock**	Writes {00:00} into the main text: the board shows the clock of the PC. Click again for {00:00:00} (with seconds).
12		**Preset 1**	Loads the main text of preset 1. The text you show is saved in the preset that is selected (red).
13		**Preset 3**	Loads the main text of preset 3.
14		**Show Remaining Time**	Writes the target time of the box at its right into the main text, for example {21:00}: the board counts down to that time. Click again to add the seconds.
15		**Target Time**	The time of day the countdown runs to, as HH:MM. An invalid entry becomes 23:59.
16		**Preset 2**	Loads the main text of preset 2.
17		**Main Text**	The large text of the banner. Enter starts a new line. {HH:MM} or {HH:MM:SS} shows a countdown to that time of day, {00:00} or {00:00:00} the clock of the PC.
18		**Preset 4**	Loads the main text of preset 4.
19		**Show**	Saves the texts and puts the banner on the board.
20		**Use Scoreboard Background**	The banner uses the background video of the scoreboard (lime frame = selected).
21		**Use Black Background**	The banner is shown on black.
22		**Use Selected Background**	The banner uses a video you choose: a folder button appears next to the file name to select it.
23		**Background**	Shows the background in use: Scoreboard.Background, Color.Black or the name of the selected file.

Field	What It Holds
First line	For example the venue. The same for all presets.
Second line	For example a hashtag. The same for all presets.
Main text	The large text. Enter starts a new line.
1, 2, 3, 4	Four presets of the main text. The selected preset is red; Show saves the main text into it.

The main text has two special forms:

Main Text	The Board Shows
{00:00}	The clock of the PC, hours and minutes.
{00:00:00}	The clock of the PC with seconds.
{HH:MM}, for example {21:00}	A countdown to that time of day, hours and minutes. A time that has passed today counts down to the same time tomorrow.
{HH:MM:SS}, for example {19:00:00}	The countdown with seconds.
Any other text	The text as typed.

- The clock button at the left writes {00:00}; a second click writes {00:00:00}.
- The stopwatch button at the right writes the time of the box next to it as a countdown, for example {21:00}; a second click adds the seconds. Type the target time into the box as HH:MM.

Note: The countdown starts from the time of Show. To restart it, click Show again.

9.3 Announce

A full-screen text in large letters with the logo of one team, for example MATCH DAY or WELCOME.

Board Output **Control Panel**

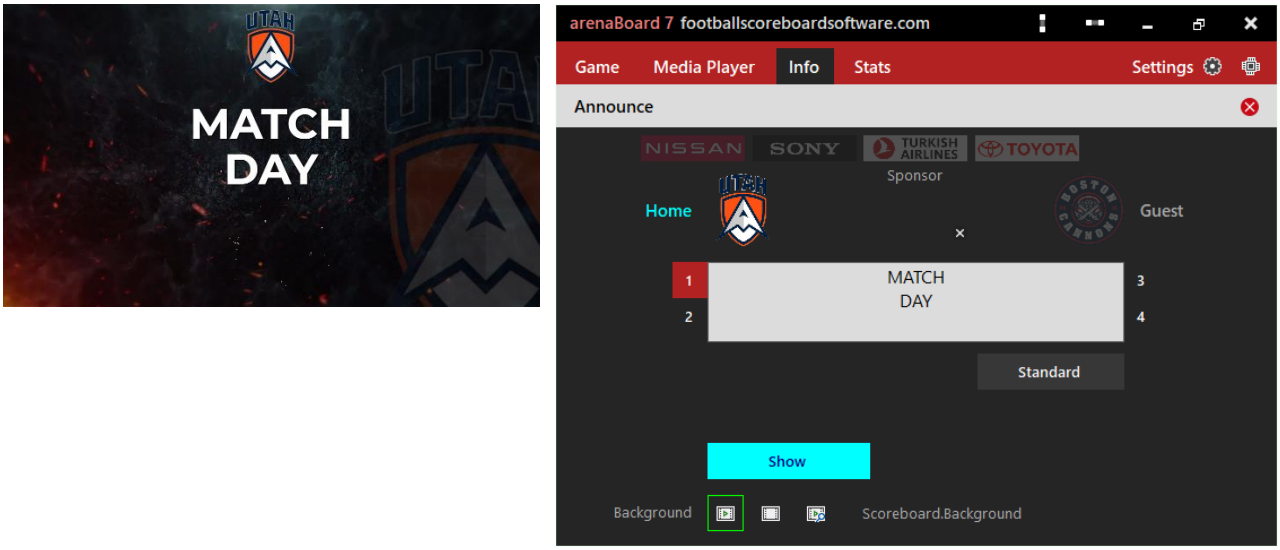


Figure 55. An announcement with the home logo (left) and the Announce editor (right).

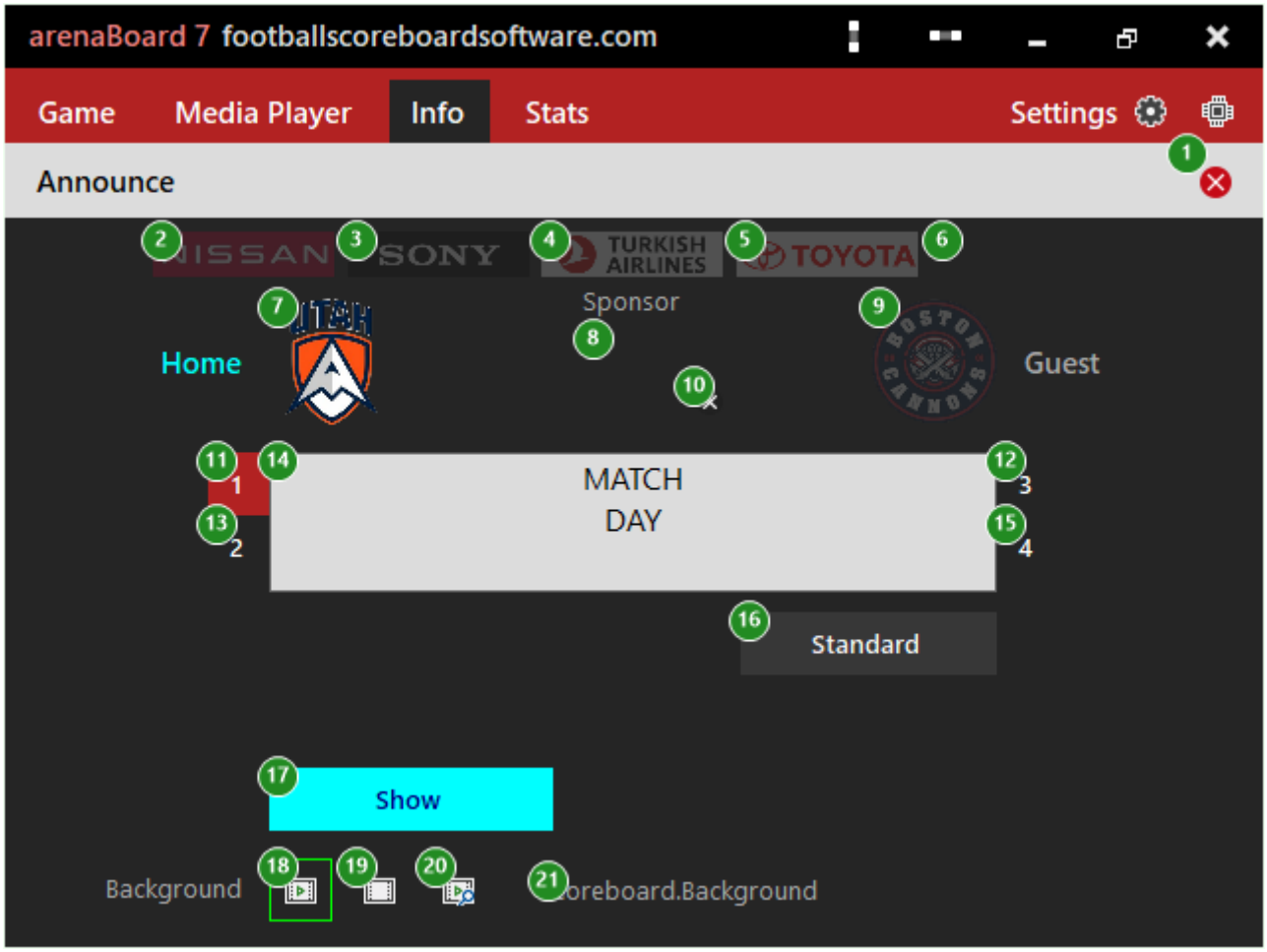
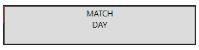
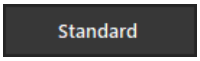
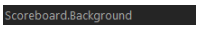


Figure 56. The Announce editor.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor. Esc does the same. The board keeps showing what is on it.
2		**Sponsor Logo 1**	The first logo of the sponsor list. Click it to use it as the sponsor logo of the info screens.
3		**Sponsor Logo 2**	The second logo of the sponsor list. Click it to use it as the sponsor logo.
4		**Sponsor Logo 3**	The third logo of the sponsor list. Click it to use it as the sponsor logo.
5		**Sponsor Logo 4**	The fourth logo of the sponsor list. Click it to use it as the sponsor logo.
6		**Sponsor Logo 5**	The fifth logo of the sponsor list. Click it to use it as the sponsor logo.
7		**Home**	Click the home logo to show the logo of the home team with the announcement (Home turns aqua).
8		**Sponsor**	The sponsor logo in use. It appears on the board where the design has a place for it.

No.	Control	Name	What It Does
9		**Guest**	Click the guest logo to show the logo of the guest team with the announcement.
10		**Remove Sponsor (x)**	Removes the sponsor logo.
11		**Preset 1**	Loads the text of preset 1. The text you show is saved in the selected preset (red).
12		**Preset 3**	Loads the text of preset 3.
13		**Preset 2**	Loads the text of preset 2.
14		**Text**	The text of the announcement. Enter starts a new line.
15		**Preset 4**	Loads the text of preset 4.
16		**Text Style (Standard)**	Opens the list of text styles: Standard (the font of the design), Gradient, Shape, Stripe-H, Stripe-V and Stroke. For every style but Standard a gear button opens its font and colour settings.
17		**Show**	Saves the text and puts the announcement on the board.
18		**Use Scoreboard Background**	The announcement uses the background video of the scoreboard.
19		**Use Black Background**	The announcement is shown on black.
20		**Use Selected Background**	The announcement uses a video you choose with the folder button next to the file name.
21		**Background**	Shows the background in use: Scoreboard.Background, Color.Black or the name of the selected file.

1. Click the logo of the team whose logo you want on the screen (Home or Guest turns aqua).
2. Choose a preset (1 to 4) and type the text. Enter starts a new line.
3. Choose the text style with the button under the text.
4. Click Show. The text is saved into the selected preset.

Style	Look
Standard	The font and colour of the design.
Gradient	Letters filled with a moving colour gradient.
Shape	Letters filled with moving coloured shapes.
Stripe-H, Stripe-V	Letters filled with moving horizontal or vertical stripes.
Stroke	Outlined letters in several colours.

For every style except Standard a gear button appears next to the style button. It opens the settings of the style: font-family, font-size, font-weight, bottom (the vertical position of the text), text-shadow, text-stroke and two to five colours. The settings are kept per style.

9.4 Goal

The goal screen: the title (Goal or Penalty Goal), the team name, the shirt number and the name of the scorer, the minute, the team and sponsor logos and, with Show with Picture, the player photo. The ball animation can run over it.

Board Output **Control Panel**

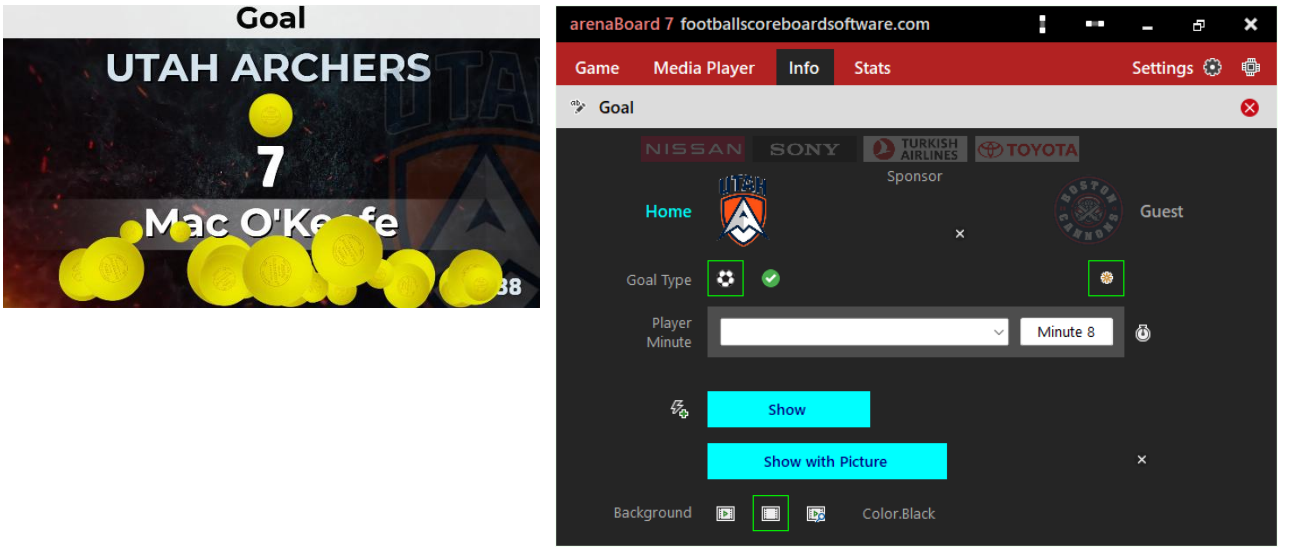


Figure 57. The goal screen with the ball animation (left) and the Goal editor (right).

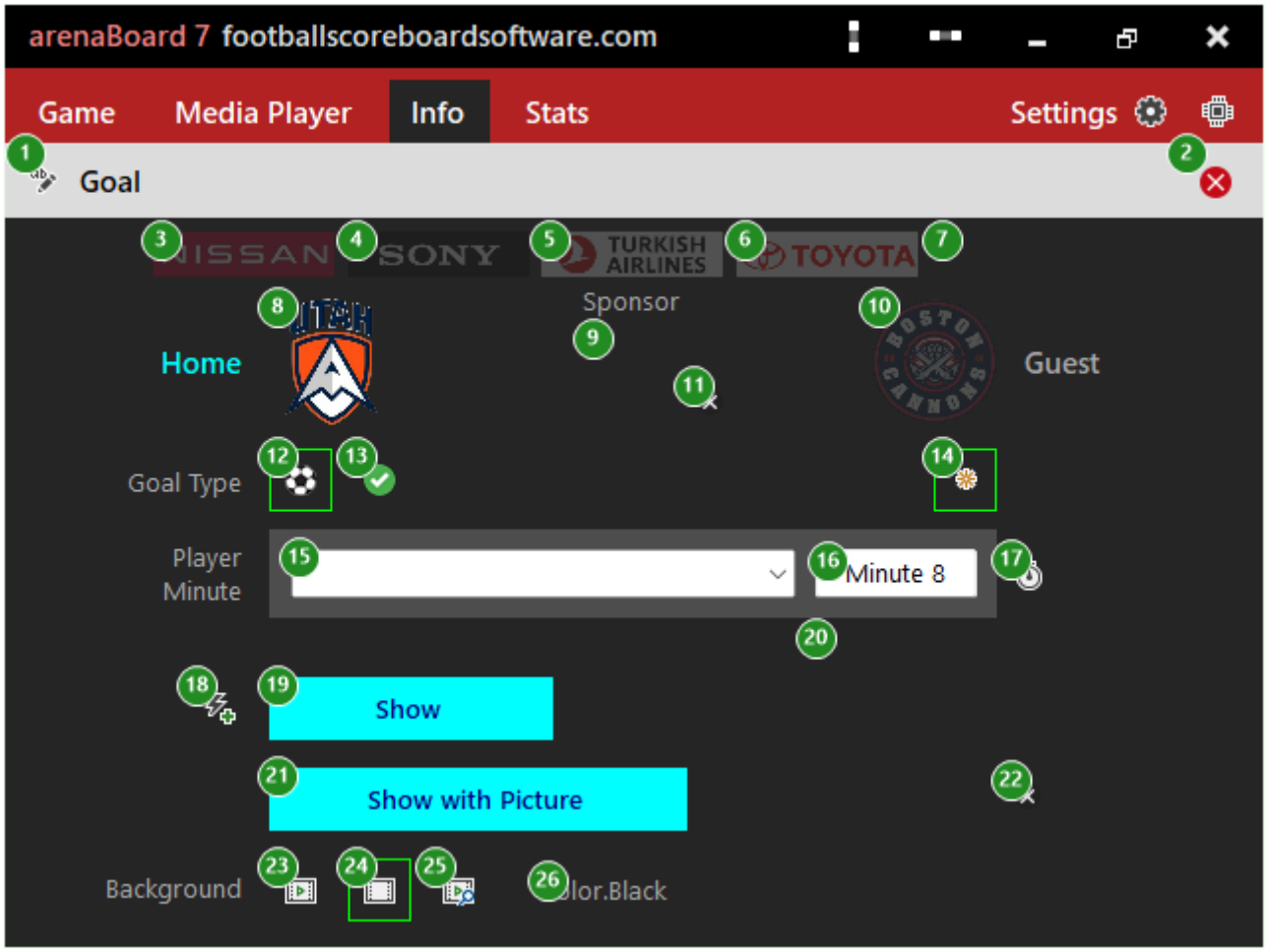
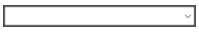
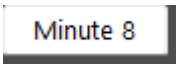


Figure 58. The Goal editor.

No.	Control	Name	What It Does
1		**Edit Title (Pencil)**	Opens Settings > Language at the titles, where the on-air title of the screen (for example Goal) is changed (chapter 16).
2		**Close (X)**	Closes the editor. Esc does the same. The board keeps showing what is on it.
3		**Sponsor Logo 1**	The first logo of the sponsor list. Click it to use it as the sponsor logo of the info screens.
4		**Sponsor Logo 2**	The second logo of the sponsor list. Click it to use it as the sponsor logo.
5		**Sponsor Logo 3**	The third logo of the sponsor list. Click it to use it as the sponsor logo.
6		**Sponsor Logo 4**	The fourth logo of the sponsor list. Click it to use it as the sponsor logo.
7		**Sponsor Logo 5**	The fifth logo of the sponsor list. Click it to use it as the sponsor logo.
8		**Home**	Selects the home team: its players fill the Player list and the animation is switched on.

No.	Control	Name	What It Does
9		**Sponsor**	The sponsor logo in use. It appears on the board where the design has a place for it.
10		**Guest**	Selects the guest team: its players fill the Player list and the animation is switched off (switch it on with Animation if you want it).
11		**Remove Sponsor (x)**	Removes the sponsor logo.
12		**Goal**	Goal type Goal (lime frame = selected). The title of the board is the Goal title.
13		**Penalty Goal**	Goal type Penalty Goal: the title of the board is the Penalty Goal title and the timeline gets the penalty goal icon.
14		**Animation**	Switches the ball animation of the goal screen on (lime frame) or off (red frame).
15		**Player**	The scorer: pick a player of the team (number-name) or type a number and a name. Show is refused while it is empty (the box flashes red).
16		**Minute**	The minute text of the board, filled with Minute and the minutes of the match clock when the editor opens. You can type any text.
17		**Minute On / Off (Stopwatch)**	Empties the minute (the board shows none), or fills it again with the minutes of the match clock.
18		**Add to Match Timeline**	When it has a lime frame, Show and Show with Picture also add the goal to the timeline of the Stats tab (chapter 10.1). The setting is shared by all info editors.
19		**Show**	Puts the goal screen on the board without a player photo.
20		**Player Photo**	A preview of the photo that Show with Picture uses.
21		**Show with Picture**	Puts the goal screen on the board with the photo of the player (Image for Events, chapter 11.2).
22		**Remove Photo (x)**	Removes the photo for this time: Show with Picture then shows no photo.
23		**Use Scoreboard Background**	The goal screen uses the background video of the scoreboard.
24		**Use Black Background**	The goal screen is shown on black.
25		**Use Selected Background**	The goal screen uses a video you choose with the folder button next to the file name.
26		**Background**	Shows the background in use: Scoreboard.Background, Color.Black or the name of the selected file.

1. Click the logo of the scoring team. Home switches the animation on, Guest switches it off.
2. Choose the goal type: Goal or Penalty Goal.
3. Pick the scorer in the player list, or type a number and a name.
4. Check the minute. It is filled with "Minute" and the minutes of the match clock (Minute 8 at 08:42). You can type any text, or empty it with the stopwatch button.
5. Click Show, or Show with Picture for the screen with the player photo.

- Show is refused while the player is empty: the box flashes red.

Animation (the ball button at the right of the goal types) switches the ball animation on (lime frame) or off (red frame).

- Show with Picture uses the Image for Events photo of the player. When a file with the same name plus "_Goal" exists next to it (aidan-maguire_Goal.png), that one is used (chapter 11.2). The x next to the preview removes the photo for this time.
- With Add to Match Timeline on, Show adds the goal to the timeline: the name and the minute on the side of the team, with the goal icon (Goal) or the penalty goal icon (Penalty Goal).
- The score itself is changed on the Game tab (chapter 5). The goal screen does not change the score.

9.5 Team Lists

The Home Team and Guest Team rows of the Info tab put the squads on the board. The players come from the player lists (chapter 11.1).

Button	The Board Shows
Show	The team list: the team name, the coach, the Players group in one column and the Substitutes group in the other, each with shirt numbers.
Show Pictures	Opens the Show Pictures page of the team (see below).
Slide	A slideshow: a title slide for Players, then each player with number, name and Image for Events photo; the same for Substitutes and the Coach.

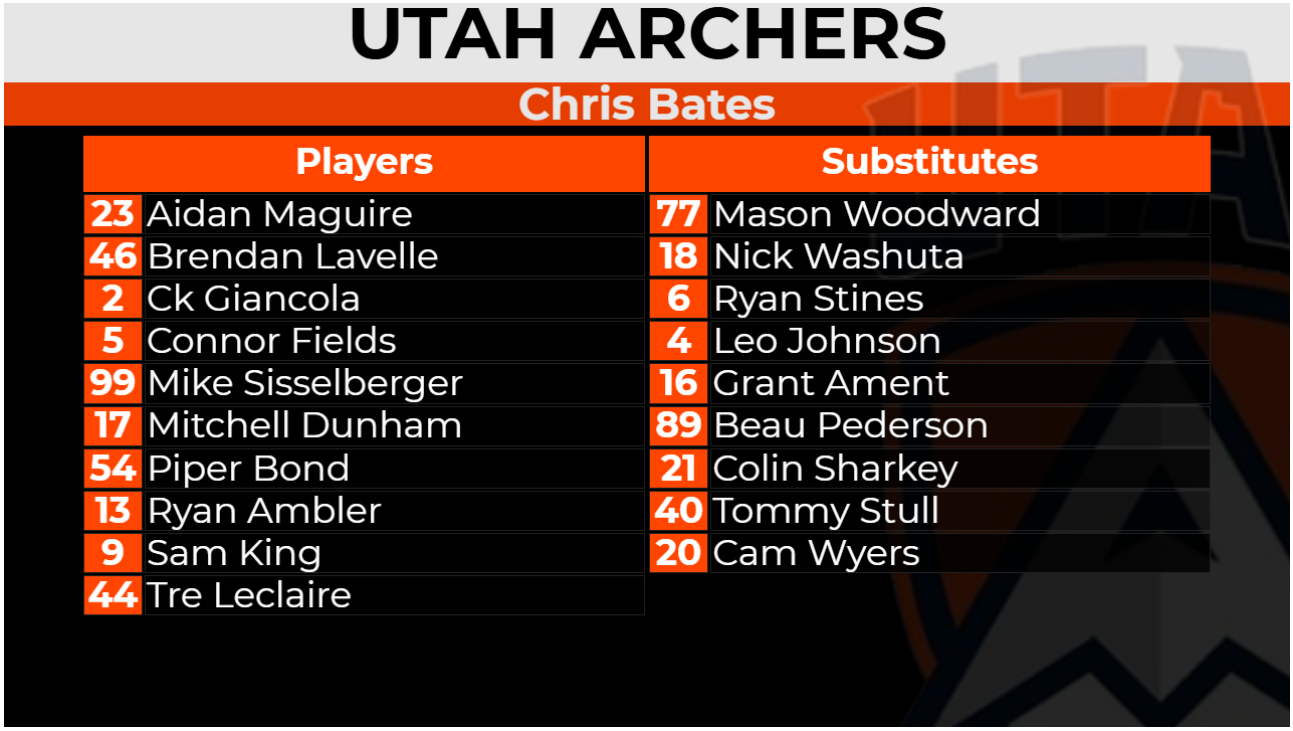


Figure 59. The team list of the home team. The title bars, the coach line and the number cells use the team colours.

Team colours. The two colour squares next to Home Team and Guest Team are the colours of the team: the upper one is the background of the title bars, the coach line and the shirt numbers of the team list, the lower one the text on it. Click a square to choose a colour; it is saved at once.

Background. The gear at the right of the Guest Team row shows three Background buttons. They set the background of the team lists, the slideshows and the referee screen: the scoreboard background, black, or a selected video.

Show Pictures opens a page with the Image for Banner files of the team (photos or videos, chapter 11.2), in three playlists: Players, Substitutes and Coach.

- Play plays the selected file on the board; Stop stops it.
- Start plays the playlist from the selected row to the end; Finish stops it.
- The return button decides what happens when the playlist ends: with a lime frame the board goes back to the scoreboard, with a red frame the playlist starts again from the top.

Only players with an Image for Banner file in the team list (chapter 11.1) appear on the page. The factory demo players have no such files, so the page stays empty until you add them.

- The Other Players group is not shown on the team list or the slideshow.
- The titles of the groups (Players, Substitutes, Coach) come from the titles of the language (chapter 16.3).

9.6 Referees

A screen with the names of the referees: the first name large, the others below it, and the title Referees.

Board Output **Control Panel**

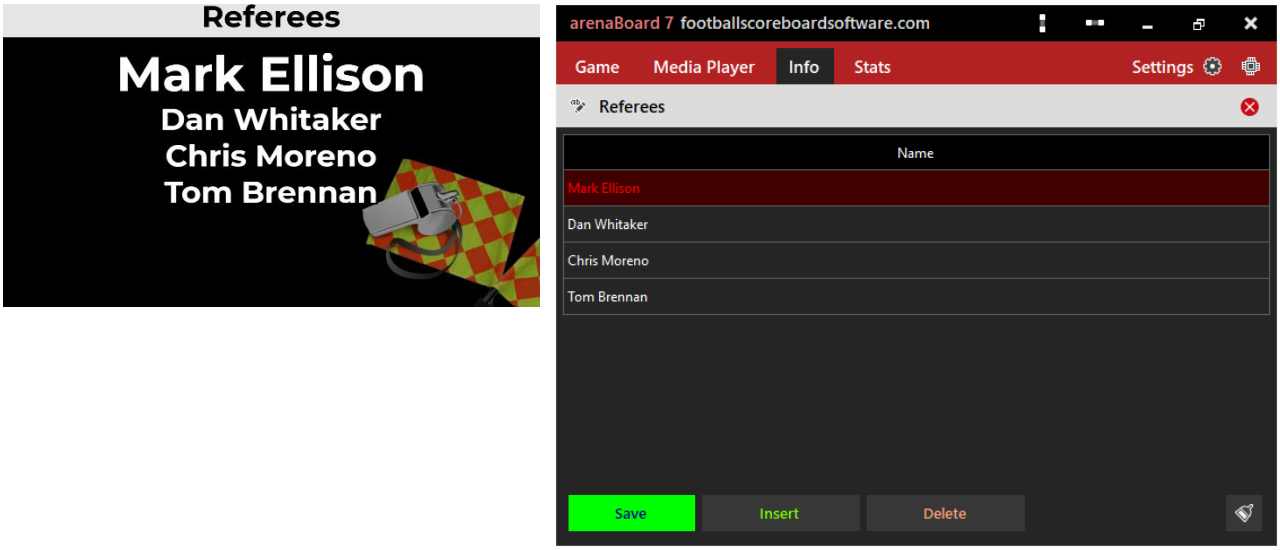


Figure 60. The referee screen (left) and the referee list (right).

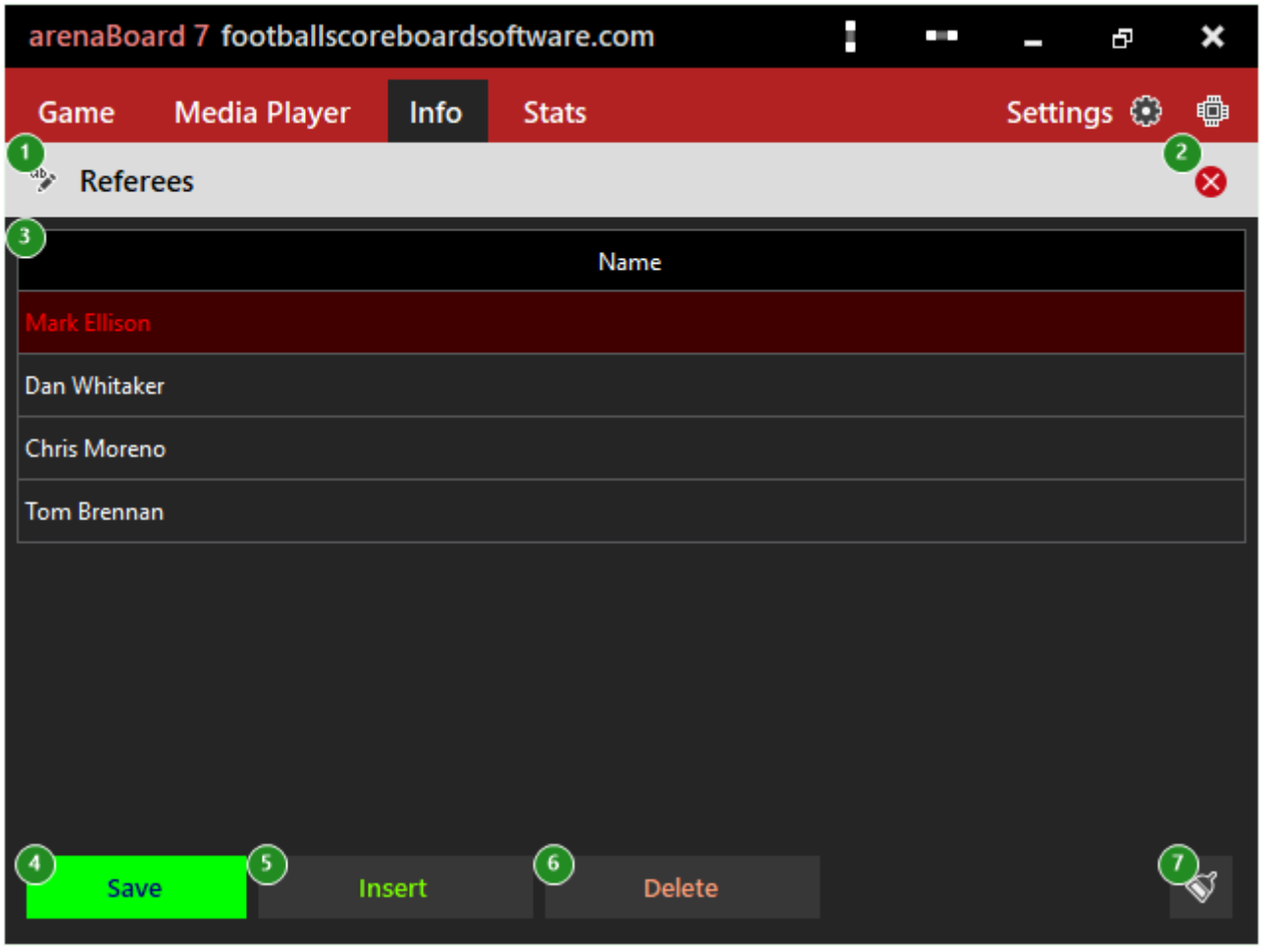
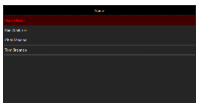
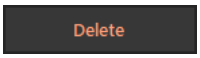


Figure 61. The referee list.

No.	Control	Name	What It Does
1		**Edit Title (Pencil)**	Opens Settings > Language at the titles, where the on-air title Referees is changed (chapter 16).

No.	Control	Name	What It Does
2		**Close (X)**	Closes the referee list. Changes that were not saved are lost. Esc does the same.
3		**Name**	The referees, one name per row. The first name is shown large on the board, the others below it. Click a name and type to change it.
4		**Save**	Saves the list. It is lime while there are unsaved changes. Empty rows are dropped.
5		**Insert**	Adds an empty row at the end of the list.
6		**Delete**	Removes the selected name after a confirmation. The first row cannot be deleted with this button: overwrite it or use Clear All.
7		**Clear All**	Empties the list after a confirmation. The file changes only when you click Save.

1. Click Referees on the Info tab.
2. Click a name and type to change it. Insert adds an empty row at the end.
3. Click Save (lime while there are unsaved changes).
4. Click Show next to Referees on the Info tab to put the screen on the board.

- Put the referee first; the order of the others is the order on the board.
- Delete removes the selected name after a confirmation; the first name cannot be deleted this way, overwrite it instead. Clear All (the broom at the right) empties the list after a confirmation; the file changes only with Save.
- Close the list without Save and the changes are lost.

> **Note:** The factory list holds four sample names. Replace them with the officials of your match before the first broadcast.

9.7 Time Penalty

Player Penalties opens the penalty editor. Its title follows the selected penalty: Time Penalty for the time penalties of Field, Sixes and Intercrosse, the card name for the cards.

Board Output **Control Panel**

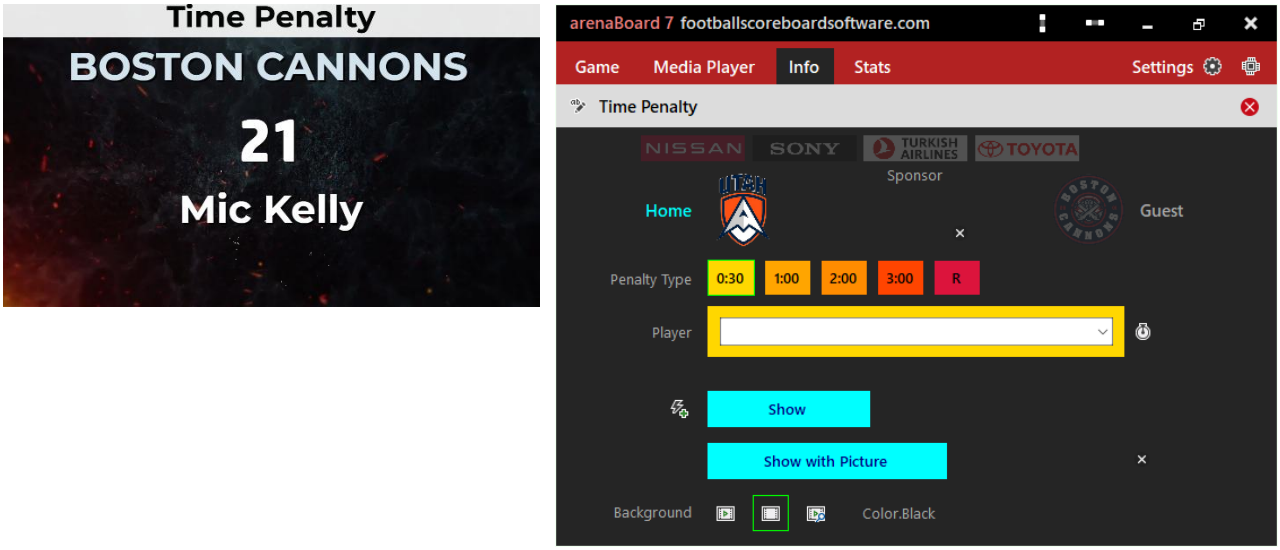


Figure 62. A time penalty of Boston #21 on the board (left) and the penalty editor with 0:30 selected (right).

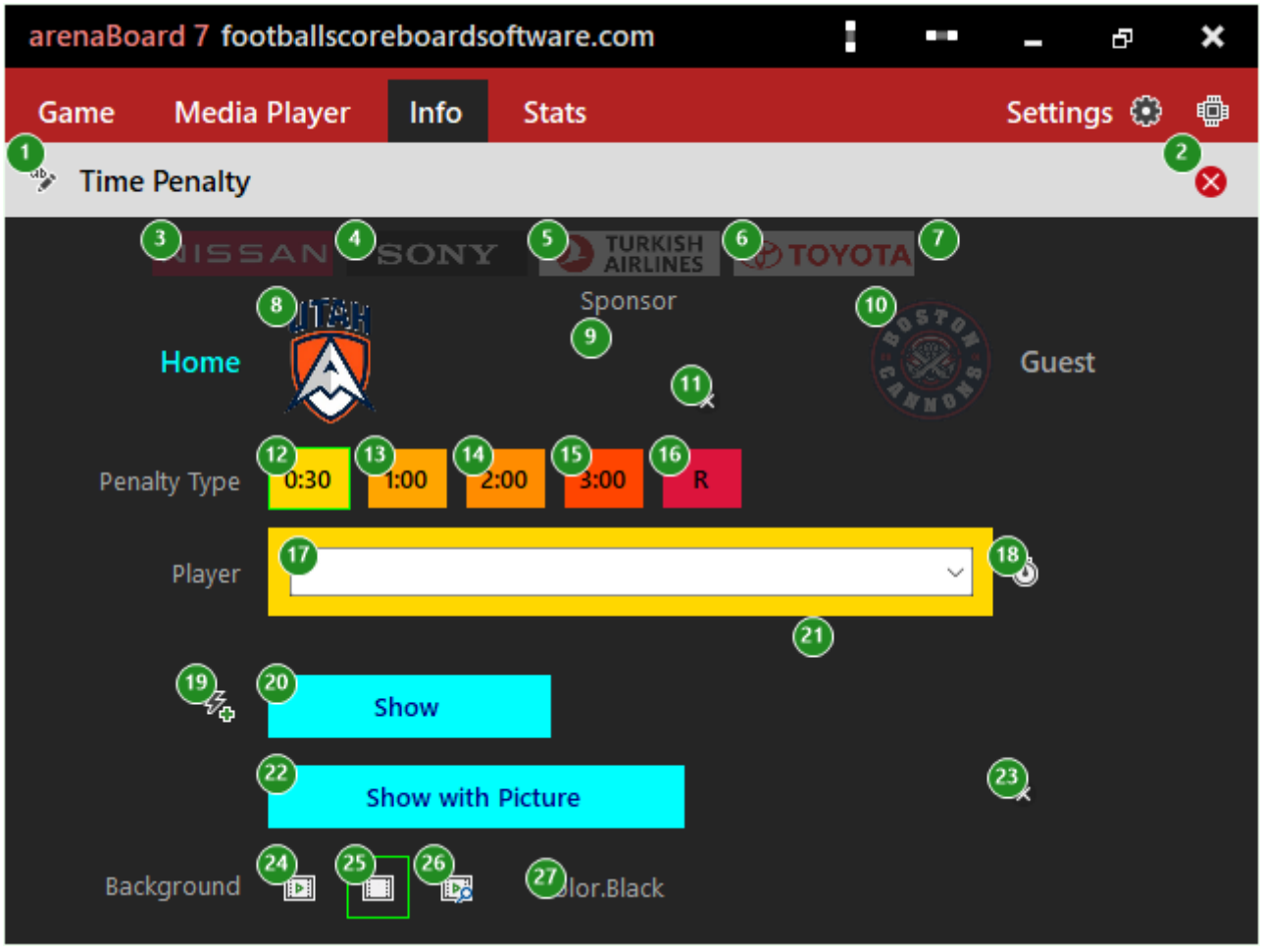
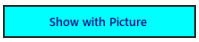


Figure 63. The penalty editor in Field Lacrosse.

No.	Control	Name	What It Does
1		**Edit Title (Pencil)**	Opens Settings > Language at the titles, where the on-air titles (Time Penalty, Red Card ...) are changed (chapter 16).

No.	Control	Name	What It Does
2		**Close (X)**	Closes the editor. Esc does the same. The board keeps showing what is on it.
3		**Sponsor Logo 1**	The first logo of the sponsor list. Click it to use it as the sponsor logo of the info screens.
4		**Sponsor Logo 2**	The second logo of the sponsor list. Click it to use it as the sponsor logo.
5		**Sponsor Logo 3**	The third logo of the sponsor list. Click it to use it as the sponsor logo.
6		**Sponsor Logo 4**	The fourth logo of the sponsor list. Click it to use it as the sponsor logo.
7		**Sponsor Logo 5**	The fifth logo of the sponsor list. Click it to use it as the sponsor logo.
8		**Home**	Selects the home team: its players fill the Player list.
9		**Sponsor**	The sponsor logo in use. It appears on the board where the design has a place for it.
10		**Guest**	Selects the guest team: its players fill the Player list.
11		**Remove Sponsor (x)**	Removes the sponsor logo.
12		**Penalty Type 1 (0:30)**	The first penalty of the discipline: 0:30 time penalty in Field Lacrosse (the buttons change with the discipline, see the table of chapter 9.7).
13		**Penalty Type 2 (1:00)**	The second penalty of the discipline: 1:00 time penalty in Field Lacrosse.
14		**Penalty Type 3 (2:00)**	The third penalty of the discipline: 2:00 time penalty in Field Lacrosse.
15		**Penalty Type 4 (3:00)**	The fourth penalty of the discipline: 3:00 time penalty in Field Lacrosse.
16		**Red Card (R)**	The red card (expulsion). This fifth button is shown in Field Lacrosse only; in the other disciplines the red card is the fourth button.
17		**Player**	The penalised player: pick a player of the team or type a number and a name. Show is refused while it is empty (the box flashes red).
18		**Minute On / Off (Stopwatch)**	Fills a minute box with the minutes of the match clock, or empties and hides it. The minute is used for the timeline only; the board does not show it.

No.	Control	Name	What It Does
19		**Add to Match Timeline**	When it has a lime frame, Show and Show with Picture also add the penalty to the timeline of the Stats tab. The setting is shared by all info editors.
20		**Show**	Puts the penalty screen on the board without a player photo: title, team, number and name.
21		**Player Photo**	A preview of the photo that Show with Picture uses.
22		**Show with Picture**	Puts the penalty screen on the board with the photo of the player (Image for Events, chapter 11.2).
23		**Remove Photo (x)**	Removes the photo for this time: Show with Picture then shows no photo.
24		**Use Scoreboard Background**	The penalty screen uses the background video of the scoreboard.
25		**Use Black Background**	The penalty screen is shown on black.
26		**Use Selected Background**	The penalty screen uses a video you choose with the folder button next to the file name.
27		**Background**	Shows the background in use: Scoreboard.Background, Color.Black or the name of the selected file.

The buttons of Penalty Type follow the discipline of the match (chapter 6):

Discipline	Buttons
Field Lacrosse	0:30, 1:00, 2:00, 3:00 (time penalties), R (red card)
Women's Lacrosse	G (green card), Y (yellow card), Y/R (second yellow, red card), R (red card)
Sixes Lacrosse	0:30, 1:00 (time penalties), Y (yellow card), R (red card)
Intercrosse	1:00, 2:00 (time penalties), Y (yellow card), R (red card)

1. Click the logo of the team.
2. Click the penalty under Penalty Type. The coloured frame around the player box takes its colour.
3. Pick the player, or type a number and a name.
4. Click Show, or Show with Picture.

- The board shows the title, the team name, the shirt number and the name (and the photo with Show with Picture). The time of the penalty is not written on the screen; the title says Time Penalty.
- Show with Picture uses the Image for Events photo, or a file with "_Card" added to its name when one exists (chapter 11.2).
- The stopwatch fills a minute from the match clock. The minute goes to the timeline only.
- With Add to Match Timeline on, Show adds the penalty to the timeline.

Note: The info screen does not start a penalty clock. Penalties that count down on the scoreboard are entered with the penalty buttons of the Game tab (chapter 5.7).

9.8 Red Card

Red Card opens the same editor as Player Penalties with R (red card) selected. The title is Red Card.

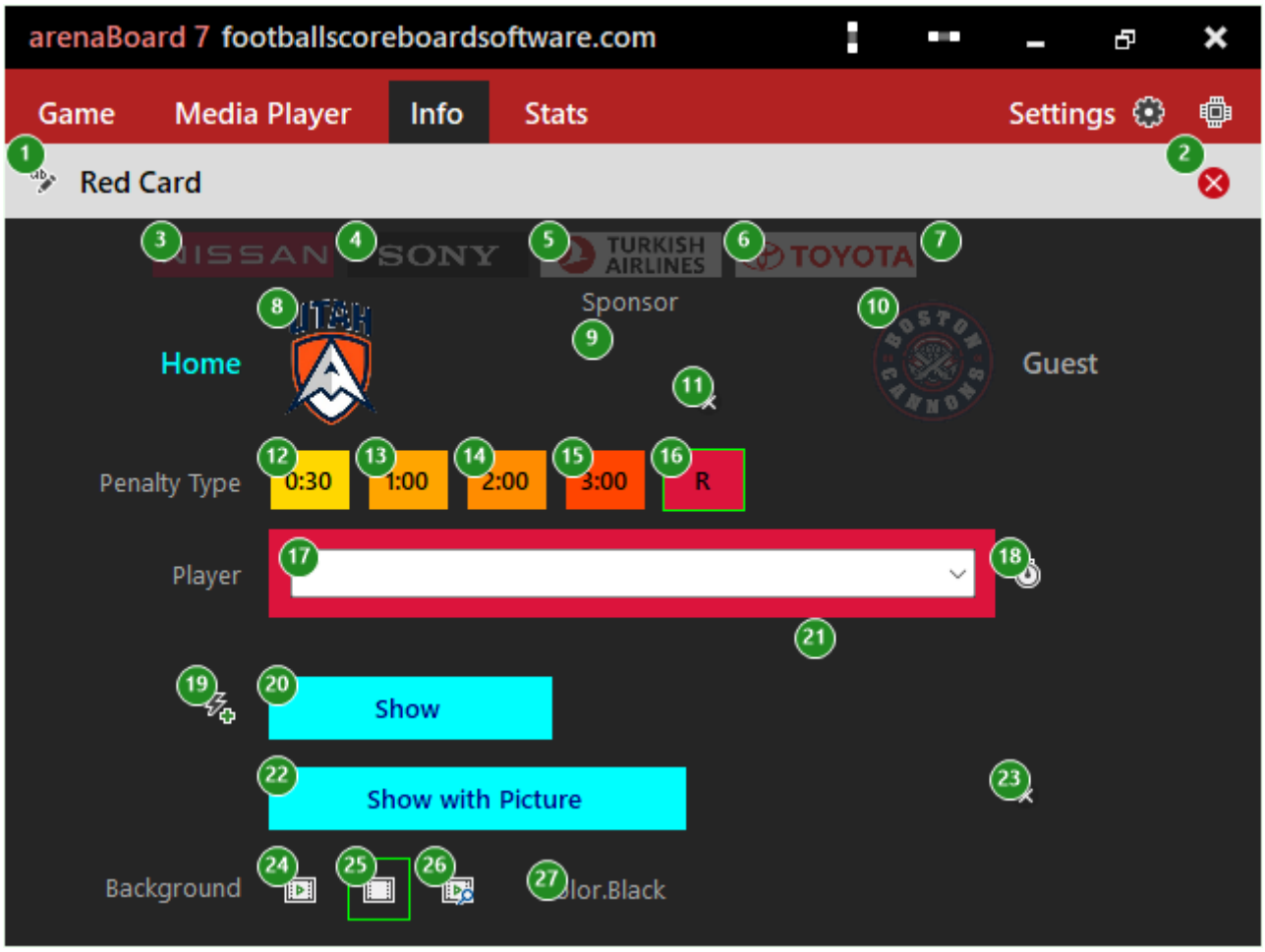


Figure 64. The penalty editor with the red card selected. The controls are those of section 9.7.

Red card counters. Next to the Red Card button the Info tab has a counter for each team: five circles for 0 to 4 red cards. The selected number of red cards appears next to the team on the scoreboard, where the design has a place for them.

- The counters are not changed by the red card screen or by the penalty buttons: set them by hand.
- The counters are not saved: after a restart they are 0. Set them back to 0 yourself for a new match.

9.9 Substitution

A substitution: the team, the player coming on (green row) and the player going off (red row), with number and name, and with Show with Picture their photos.

Board Output **Control Panel**

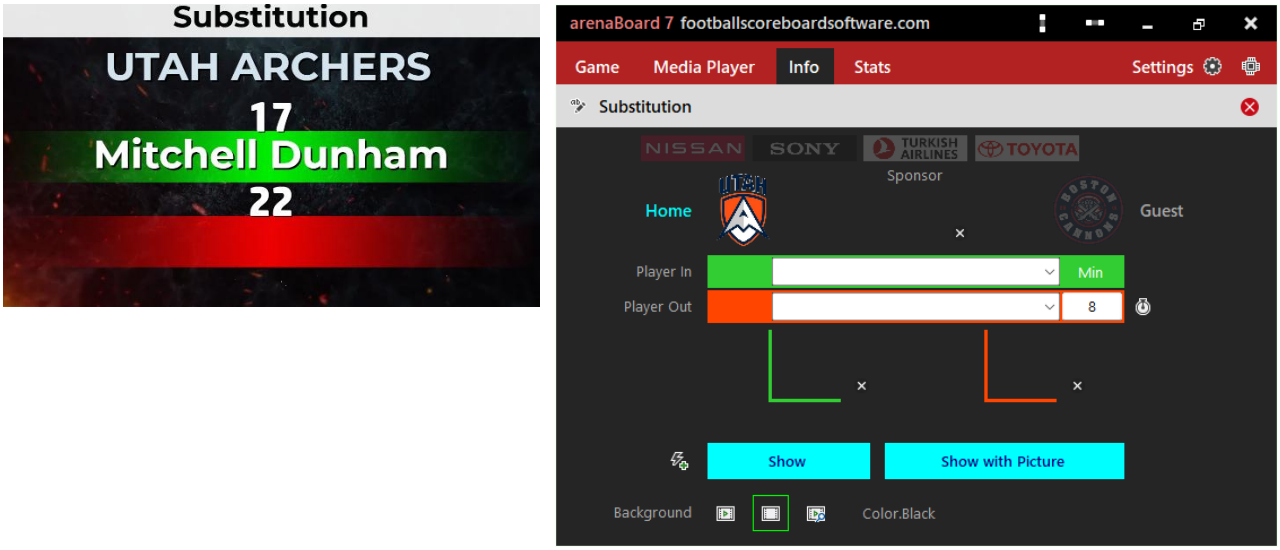


Figure 65. A substitution of Utah (left) and the Substitution editor (right).

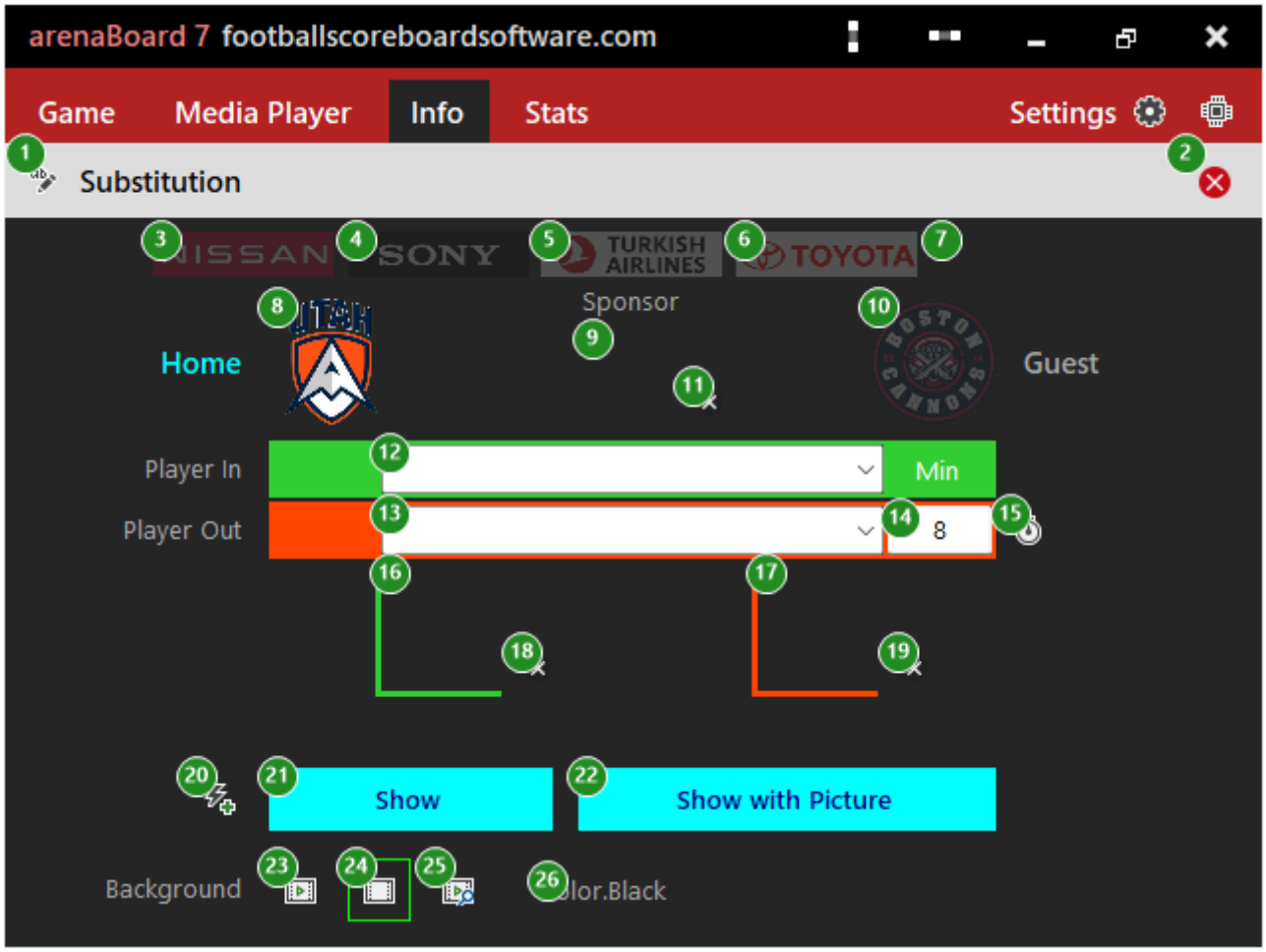


Figure 66. The Substitution editor.

No.	Control	Name	What It Does
1		**Edit Title (Pencil)**	Opens Settings > Language at the titles, where the on-air title Substitution is changed (chapter 16).

No.	Control	Name	What It Does
2		**Close (X)**	Closes the editor. Esc does the same. The board keeps showing what is on it.
3		**Sponsor Logo 1**	The first logo of the sponsor list. Click it to use it as the sponsor logo of the info screens.
4		**Sponsor Logo 2**	The second logo of the sponsor list. Click it to use it as the sponsor logo.
5		**Sponsor Logo 3**	The third logo of the sponsor list. Click it to use it as the sponsor logo.
6		**Sponsor Logo 4**	The fourth logo of the sponsor list. Click it to use it as the sponsor logo.
7		**Sponsor Logo 5**	The fifth logo of the sponsor list. Click it to use it as the sponsor logo.
8		**Home**	Selects the home team: its players fill both player lists.
9		**Sponsor**	The sponsor logo in use. It appears on the board where the design has a place for it.
10		**Guest**	Selects the guest team: its players fill both player lists.
11		**Remove Sponsor (x)**	Removes the sponsor logo.
12		**Player In**	The player coming on (green row on the board): pick a player or type a number and a name.
13		**Player Out**	The player going off (red row on the board): pick a player or type a number and a name.
14		**Min**	The minute of the substitution, filled from the match clock. It is used for the timeline only.
15		**Minute On / Off (Stopwatch)**	Empties and hides the minute, or fills it again from the match clock.
16		**Photo Player In**	A preview of the photo of the player coming on (Image for Events).
17		**Photo Player Out**	A preview of the photo of the player going off (Image for Events).
18		**Remove Photo In (x)**	Removes the photo of the player coming on for this time.

No.	Control	Name	What It Does
19		**Remove Photo Out (x)**	Removes the photo of the player going off for this time.
20		**Add to Match Timeline**	When it has a lime frame, Show and Show with Picture also add the substitution to the timeline (both names, one under the other). The setting is shared by all info editors.
21		**Show**	Puts the substitution on the board without photos. Both players must be filled in.
22		**Show with Picture**	Puts the substitution on the board with the photos of both players.
23		**Use Scoreboard Background**	The substitution screen uses the background video of the scoreboard.
24		**Use Black Background**	The substitution screen is shown on black.
25		**Use Selected Background**	The substitution screen uses a video you choose with the folder button next to the file name.
26		**Background**	Shows the background in use: Scoreboard.Background, Color.Black or the name of the selected file.

1. Click the logo of the team.
2. Pick the player coming on in Player In and the player going off in Player Out (or type number and name).
3. Click Show, or Show with Picture.

- Show is refused while one of the players is empty.
- The previews under the lists show the Image for Events photos; the x next to a preview removes that photo for this time.
- Min holds the minute from the match clock; the stopwatch empties or refills it. The minute goes to the timeline only.
- With Add to Match Timeline on, Show adds the substitution to the timeline: the name of the player coming on above the player going off, with the substitution icon.

9.10 Multiple Substitution

Multiple shows several substitutions of one team on one screen: the players coming on and the players going off.

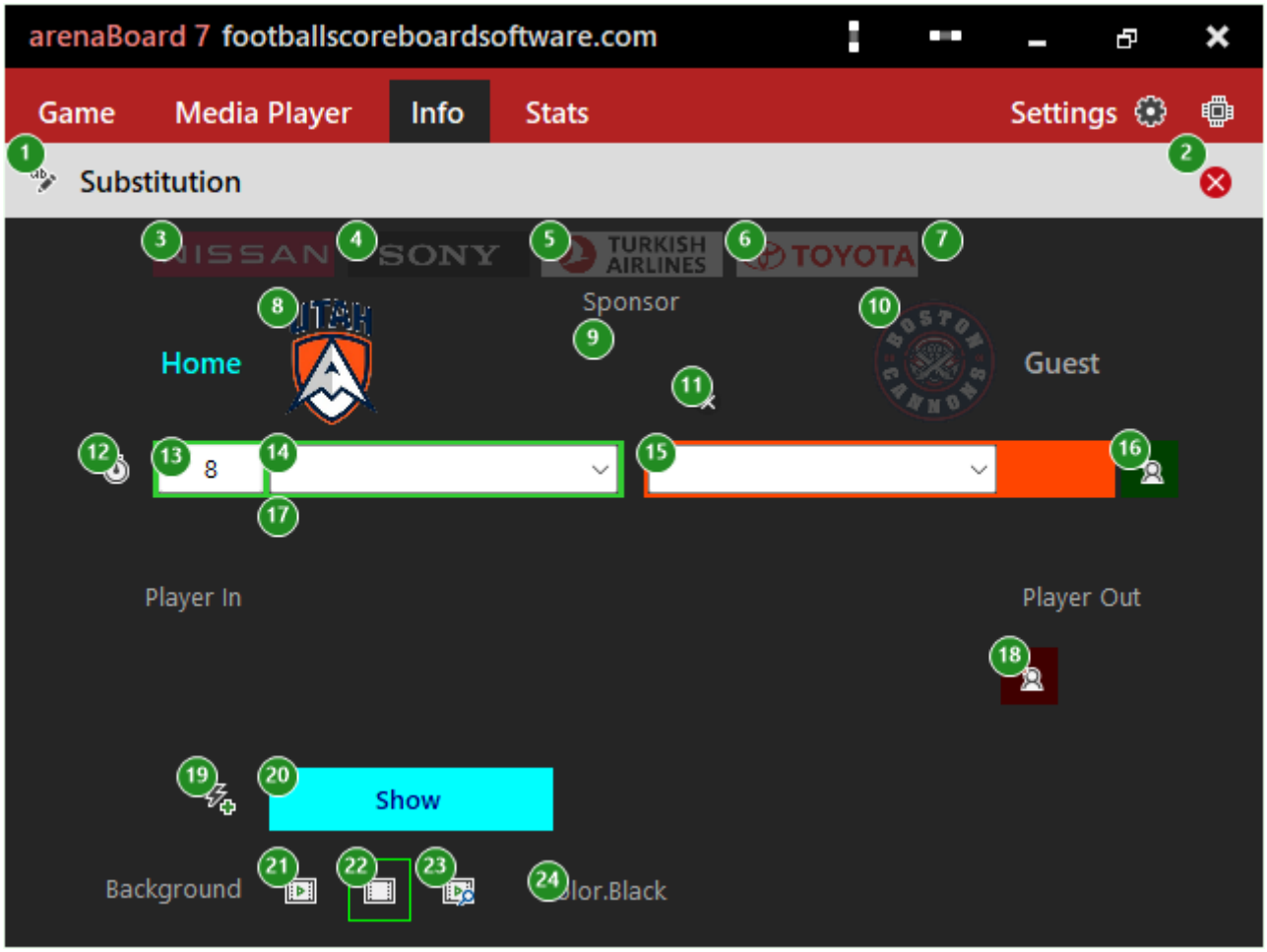
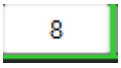


Figure 67. The Multiple Substitution editor.

No.	Control	Name	What It Does
1		**Edit Title (Pencil)**	Opens Settings > Language at the titles, where the on-air title Substitution is changed (chapter 16).
2		**Close (X)**	Closes the editor. Esc does the same. The board keeps showing what is on it.
3		**Sponsor Logo 1**	The first logo of the sponsor list. Click it to use it as the sponsor logo of the info screens.
4		**Sponsor Logo 2**	The second logo of the sponsor list. Click it to use it as the sponsor logo.
5		**Sponsor Logo 3**	The third logo of the sponsor list. Click it to use it as the sponsor logo.
6		**Sponsor Logo 4**	The fourth logo of the sponsor list. Click it to use it as the sponsor logo.
7		**Sponsor Logo 5**	The fifth logo of the sponsor list. Click it to use it as the sponsor logo.
8		**Home**	Selects the home team: its players fill both lists and the list of pairs is cleared.

No.	Control	Name	What It Does
9		**Sponsor**	The sponsor logo in use. It appears on the board where the design has a place for it.
10		**Guest**	Selects the guest team: its players fill both lists and the list of pairs is cleared.
11		**Remove Sponsor (x)**	Removes the sponsor logo.
12		**Minute On / Off (Stopwatch)**	Empties the minute, or fills it again from the match clock.
13		**Minute**	The minute of the substitutions, filled from the match clock. It is used for the timeline only.
14		**Player In**	The player coming on (green). Pick a player from the list.
15		**Player Out**	The player going off (orange). Pick a player from the list.
16		**Add Pair**	Adds the two selected players as a pair to the list below. Both must be picked from the lists and be different; the two players are then taken out of the lists.
17		**Pairs**	The substitutions of the screen: Player In and Player Out, one pair per row. Click a row to select it.
18		**Remove Pair**	Removes the selected pair from the list; the player lists are filled again.
19		**Add to Match Timeline**	When it has a lime frame, Show also adds every pair to the timeline. The setting is shared by all info editors.
20		**Show**	Puts all the pairs of the list on the board: the players coming on and the players going off. Refused while the list is empty.
21		**Use Scoreboard Background**	The screen uses the background video of the scoreboard.
22		**Use Black Background**	The screen is shown on black.
23		**Use Selected Background**	The screen uses a video you choose with the folder button next to the file name.
24		**Background**	Shows the background in use: Scoreboard.Background, Color.Black or the name of the selected file.

1. Click the logo of the team. This clears the list of pairs.
2. Pick a player in the green list (Player In) and a player in the orange list (Player Out).
3. Click the add button at the right. The pair is added to the list below, and both players leave the lists.
4. Repeat for every pair. To remove a pair, select it and click the remove button.
5. Click Show.

- Both players must be picked from the lists, and they must be different.
- Show is refused while the list of pairs is empty.
- There is no Show with Picture: the screen has no photos.
- With Add to Match Timeline on, Show adds every pair to the timeline with the minute of the box at the left.

9.11 Sponsors

The sponsor list holds the logos of the sponsors. It feeds the sponsor row of the info editors and the sponsor display of the Sponsored mode (chapter 7.2).

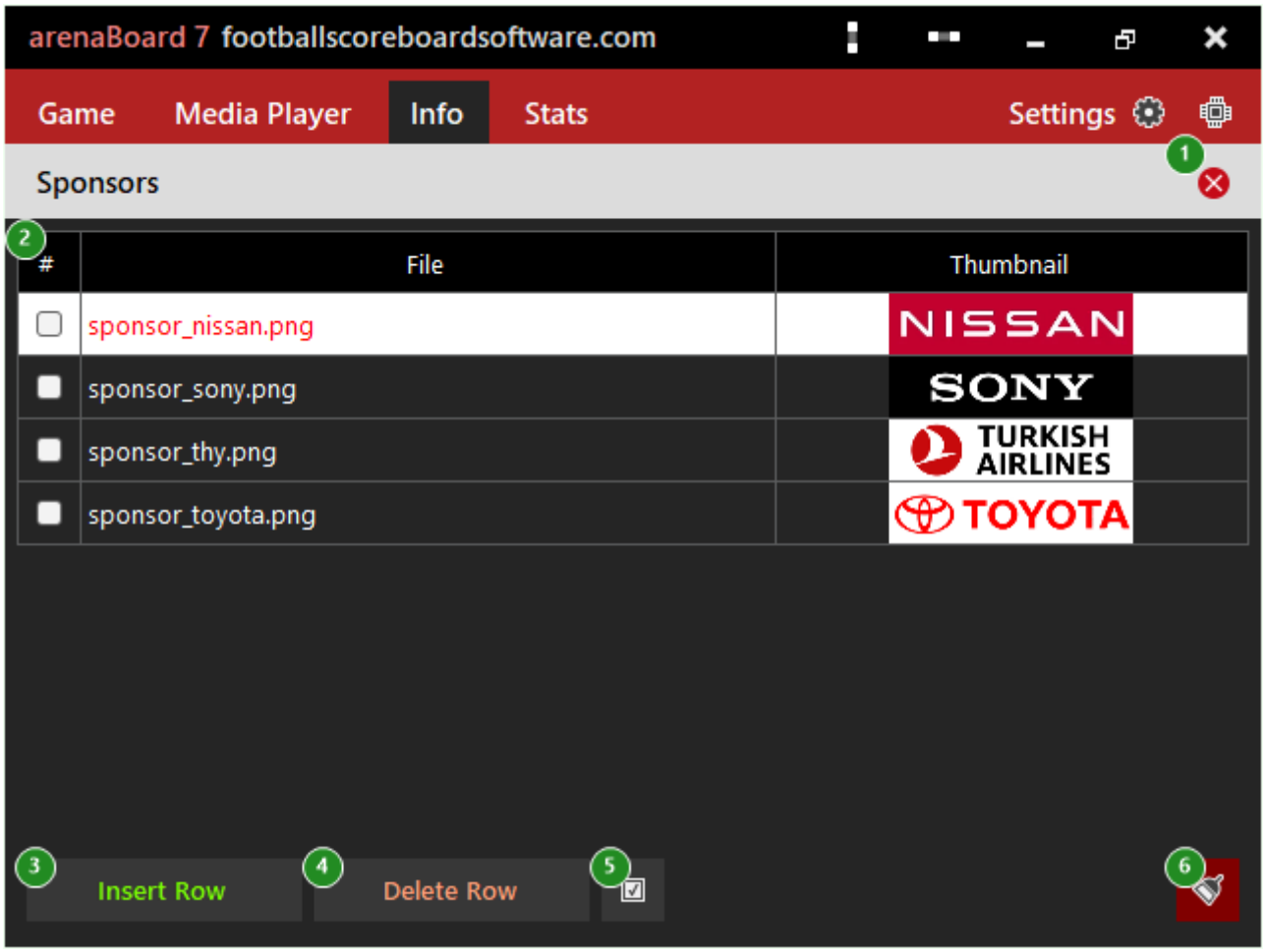
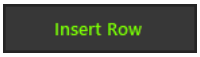
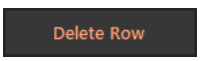


Figure 68. The sponsor list.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the sponsor list. The list is saved at every change. Esc does the same.
2		**Sponsor List**	The sponsor logos: the Default tick, the file name and a thumbnail. Drag a row to change the order. The first five logos are the sponsor row of the info editors.
3		**Insert Row**	Adds one or more picture files (bmp, gif, jpeg, jpg, png) to the end of the list.
4		**Delete Row**	Removes the selected logo after a confirmation.

No.	Control	Name	What It Does
5		**Set Default**	Makes the selected logo the sponsor logo of the info screens: it gets the tick and moves to the top. On a ticked row it removes the tick and the info screens have no sponsor logo.
6		**Clear All**	Removes all logos after a confirmation.

- Insert Row adds picture files (bmp, gif, jpeg, jpg, png), several at once.
- Drag a row to change the order. The first five logos make the sponsor row of the info editors.
- Set Default (the tick button) makes the selected logo the sponsor logo of the info screens: it gets the tick and moves to the top. Set Default on a ticked row removes the tick, and the info screens have no sponsor logo.
- Delete Row and Clear All (the broom) ask for a confirmation.
- The list is saved at every change; there is no Save button.

The list keeps the path of each file, not the picture: keep the files where they are.

9.12 Team Database

The Team Database keeps squads for later matches. A squad is saved from a player list with Save to Teams (chapter 11.1) and loaded into the home or guest list with Set Home or Set Guest.

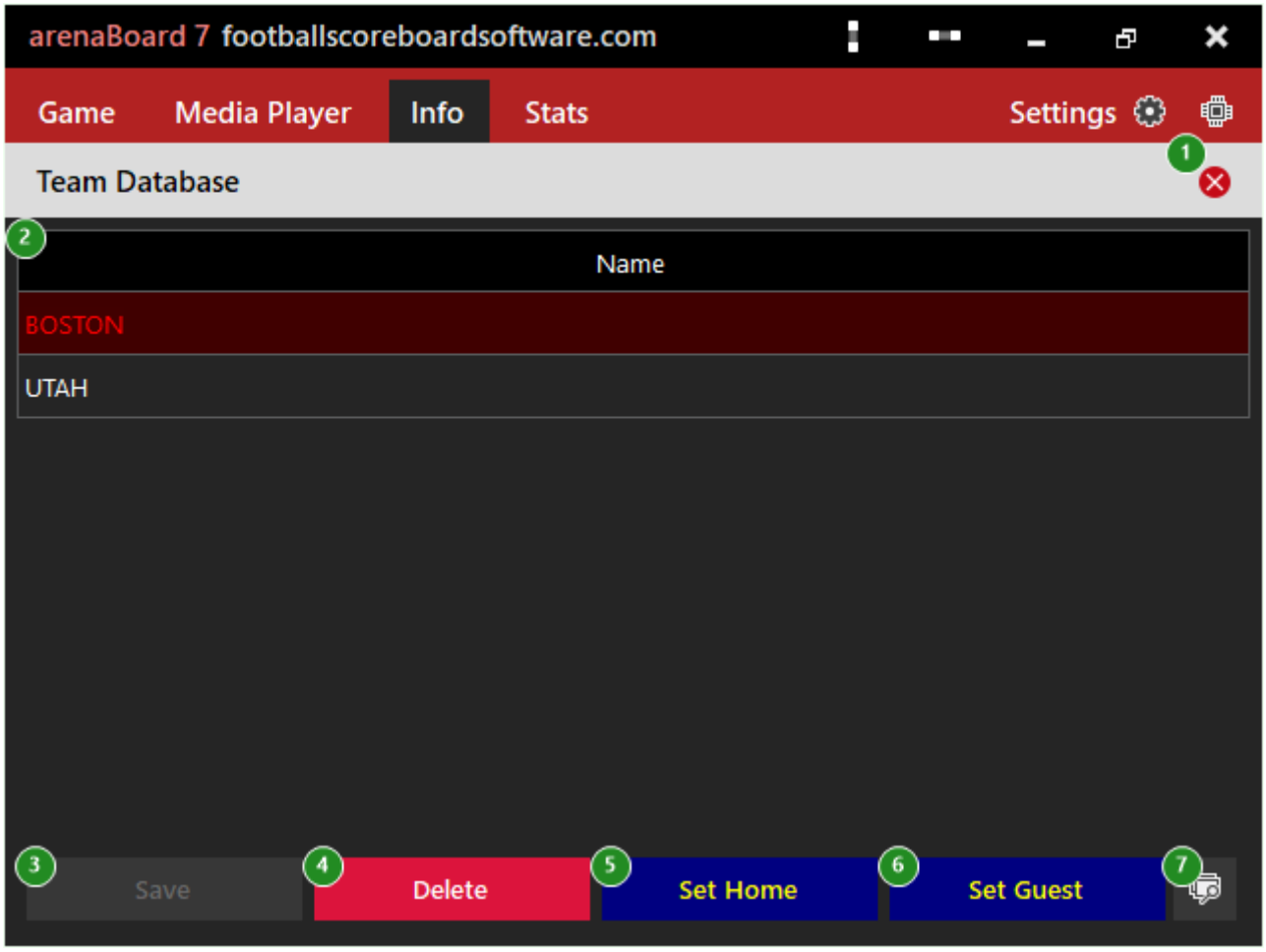
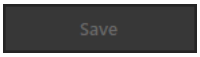
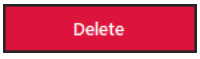


Figure 69. The Team Database with the two demo squads.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the Team Database. Esc does the same.
2		**Name**	The saved squads, sorted by name. Click a name and type to rename it, then click Save.
3		**Save**	Saves the changed names. It is lime while there are unsaved changes.
4		**Delete**	Deletes the selected squad and its player file after the question Team Player Data Will Be Deleted! Are You Sure?
5		**Set Home**	Copies the players of the selected squad into the home team list after a confirmation. The team name and logo are not changed.
6		**Set Guest**	Copies the players of the selected squad into the guest team list after a confirmation.
7		**Show**	Opens the players of the selected squad in the player list, to view or edit them; Save there saves the squad.

Button	What It Does
Show (the icon at the right)	Opens the players of the selected squad in the player list. Change them and click Save there to update the squad.
Set Home, Set Guest	Copy the players of the selected squad into the home or guest player list after the question "The Selected Team Will Be Assigned to the Match Squad! Are You Sure?".
Delete	Deletes the selected squad after the question "Team Player Data Will Be Deleted! Are You Sure?".
Save	Saves the names after you renamed a squad (click the name and type). It is lime while there are unsaved changes.

- Set Home and Set Guest copy the players only. The team name and logo are set on the Game tab (chapter 5.9).
- The step-by-step use is in chapter 11.3.

9.13 CK Lower Thirds

In the Chroma Key display mode the CK page has its own editors for goals, penalties and substitutions, shown as lower thirds over the camera picture. They use the same player lists, sponsor list and timeline as the Info tab. They are described in chapter 7.4 (CK Lower Thirds).

10. Statistics

The Stats tab holds five tables that can be put on the board: the Timeline of the match, the team Stats, the Standings of the league, the Results and the Fixtures. The buttons at the top switch between them.

Page	What It Holds	Saved
Timeline	The goals, penalties and substitutions of the match, filled by the info editors.	At every change
Stats	Team statistics typed by hand, home against guest.	At every change
Standings	The league table.	With Save
Results	Match results, with optional heading rows.	With Save
Fixtures	Coming matches, with optional heading rows.	With Save

- Show puts the table on the board. Click the Game tab to bring the scoreboard back (chapter 9.1).
- The tables use the background video of the scoreboard.
- The data stay after a restart and after an upgrade (common\data, chapter 2.5). New Match does not clear them.

10.1 Timeline

The timeline lists the events of the match: the home team on the left, the guest team on the right, the event icon in the middle.

Board Output **Control Panel**

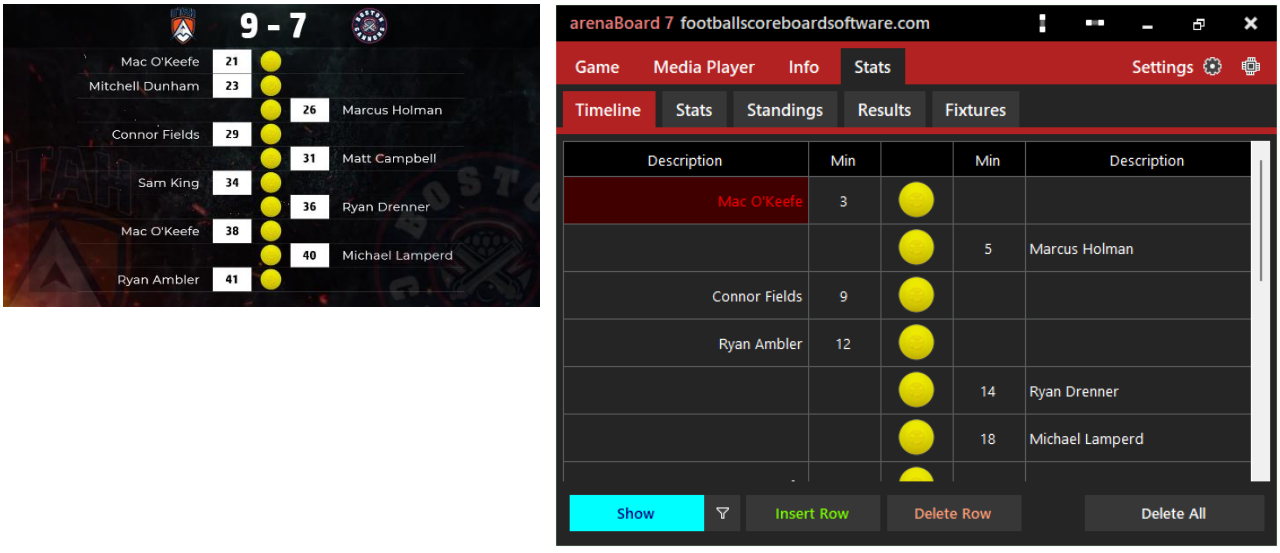


Figure 70. The timeline on the board (left) and the Timeline page (right).

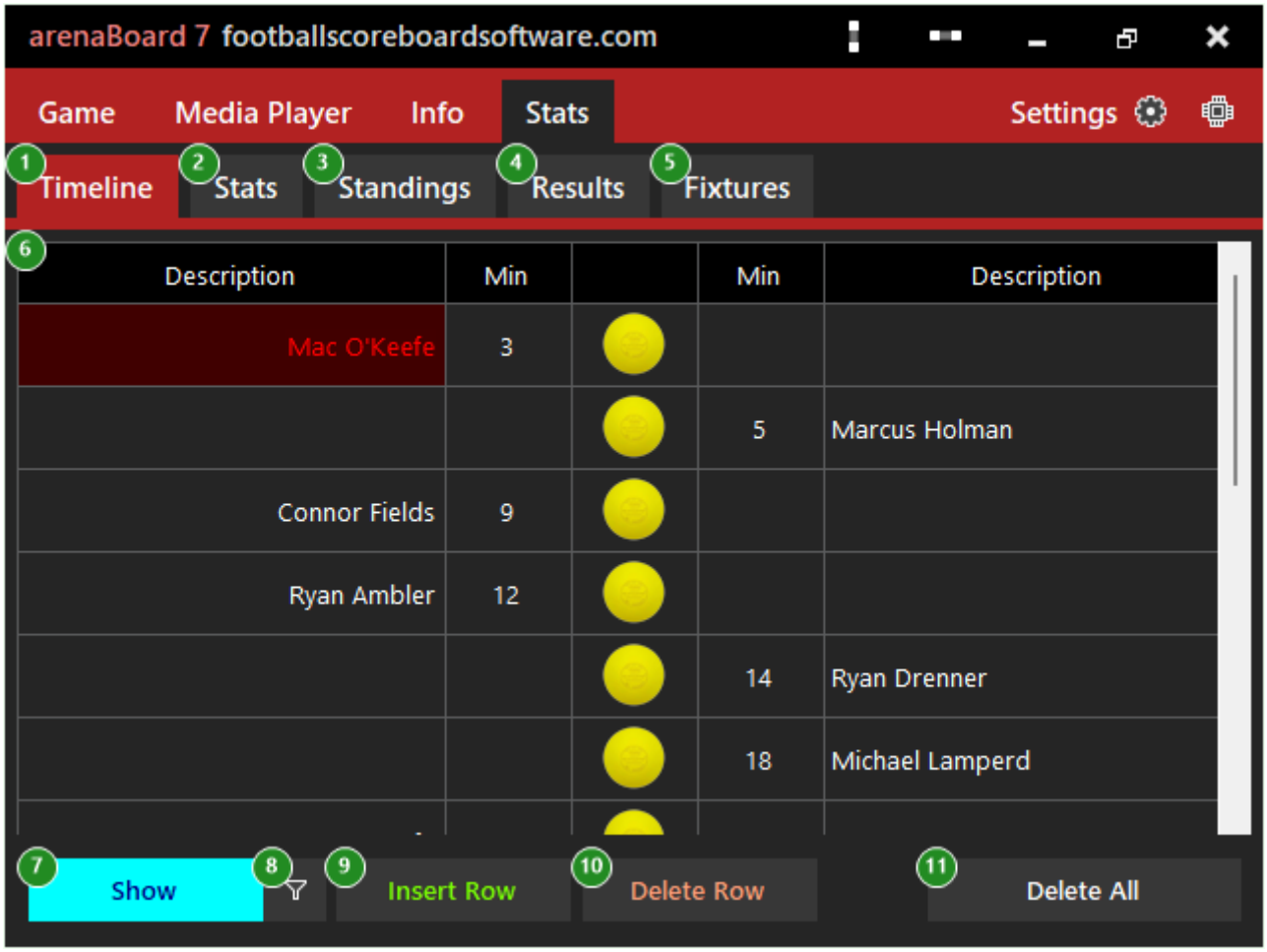


Figure 71. The Timeline page.

No.	Control	Name	What It Does
1	Timeline	**Timeline**	Shows the match timeline: goals, penalties and substitutions (chapter 10.1).
2	Stats	**Stats**	Shows the team statistics table (chapter 10.2).
3	Standings	**Standings**	Shows the league table (chapter 10.3).
4	Results	**Results**	Shows the results list (chapter 10.4).
5	Fixtures	**Fixtures**	Shows the fixtures list (chapter 10.5).
6		**Timeline**	The events of the match: Description and Min of the home team, the event icon, Min and Description of the guest team. Click a cell to type; click the icon cell to choose another icon. Every change is saved at once.
7	Show	**Show**	Puts the timeline on the board: the logos and the score, then the events whose icon is switched on in the filter.
8		**Filter**	Opens the event filter: the icons of the events that Show puts on the board. A click switches a group on or off, Ctrl + click a single icon; the first icon switches all on.

No.	Control	Name	What It Does
9	Insert Row	**Insert Row**	Adds an empty row above the selected row (at the end when nothing is selected).
10	Delete Row	**Delete Row**	Removes the selected row at once, without a question.
11	Delete All	**Delete All**	Empties the timeline. The first click turns the button red, the second click deletes; a click in the table cancels.

Column	What It Holds
Description (left)	The home player. A substitution has two lines: the player coming on, then the player going off.
Min (left)	The minute of the home event.
Icon	The kind of event.
Min (right)	The minute of the guest event.
Description (right)	The guest player.

How the timeline is filled. The Goal, Player Penalties, Red Card, Substitution and Multiple editors add their event when Add to Match Timeline is on (lime frame) and you click Show (chapter 9.1). The CK lower thirds, the remote control and the HTTP API can add events too (chapters 7.4, 13 and 14). An event that is already in the list with the same values is not added again.

> **Note:** Goals scored with the score buttons of the Game tab are not written to the timeline. Show the goal screen with Add to Match Timeline on, or add the row by hand.

Editing the timeline:

- Click a Description or Min cell and type. Every change is saved at once.
- Click the icon cell, then the button in it, to choose another icon: goal, penalty goal, missed penalty shot, substitution, yellow-red card and red card. The red x closes the choice.
- Time penalties, yellow cards and green cards come into the timeline with the yellow card icon.
- Insert Row adds an empty row above the selected row.
- Delete Row removes the selected row at once, without a question.
- Delete All empties the timeline: the first click turns the button red, the second click deletes. A click in the table cancels.

> **Note:** The timeline is not cleared by New Match. Click Delete All twice before a new match.

The Event Filter

The funnel button next to Show opens the event filter: one icon per kind of event. Only the events whose icon is switched on (green) are put on the board.

- A click on an icon switches its group on or off and switches the other groups off. The groups are the goals, the substitutions, and the penalties and cards.
- Ctrl + click switches a single icon.
- The first icon of the filter switches all icons on.
- The filter is kept after a restart.

On the Board

Show puts the timeline on the board: the team logos and the score at the top, then one row per event that the filter lets through, in the order of the list. The minutes are shown in white boxes next to the icon.

- When the events do not fit, the rows get smaller (down to three quarters of their size); after that the oldest events are left out, so the board always shows the latest events and never cuts a row in half.
- An event from the remote control or the HTTP API for a shirt number that is not in the player list is written as #22 (the number), so it is not lost.

10.2 Stats

A table of team statistics, home against guest. The values are typed by hand; the program does not count them.

Board Output **Control Panel**

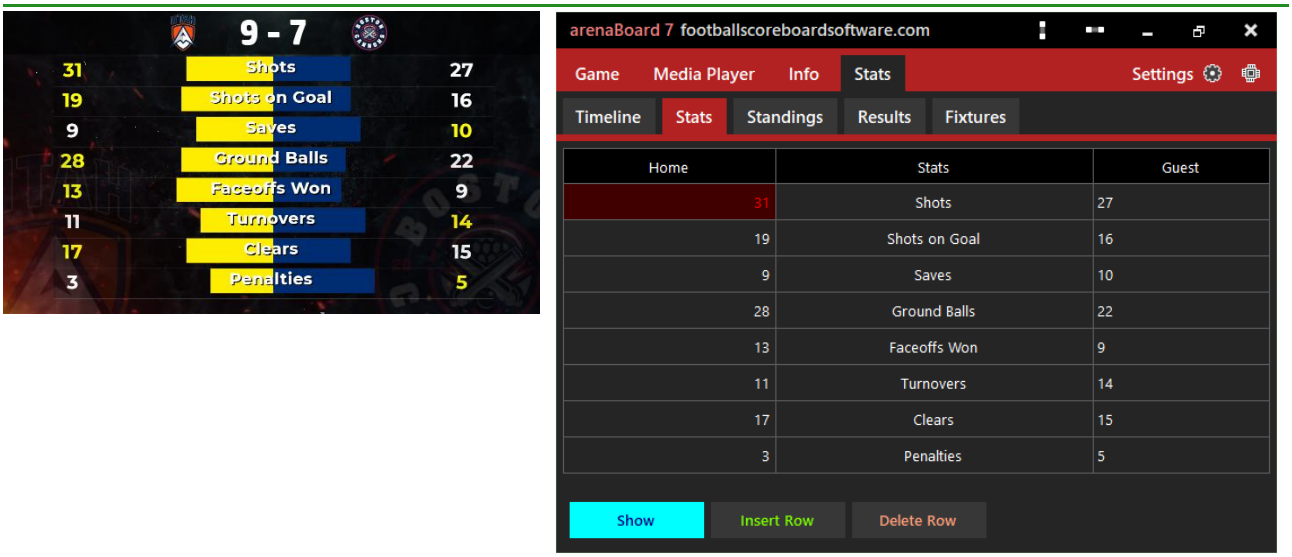


Figure 72. The statistics of the sample match on the board (left) and the Stats page (right): for example Shots 31 - 27, Saves 9 - 10. The higher value of each row is yellow.

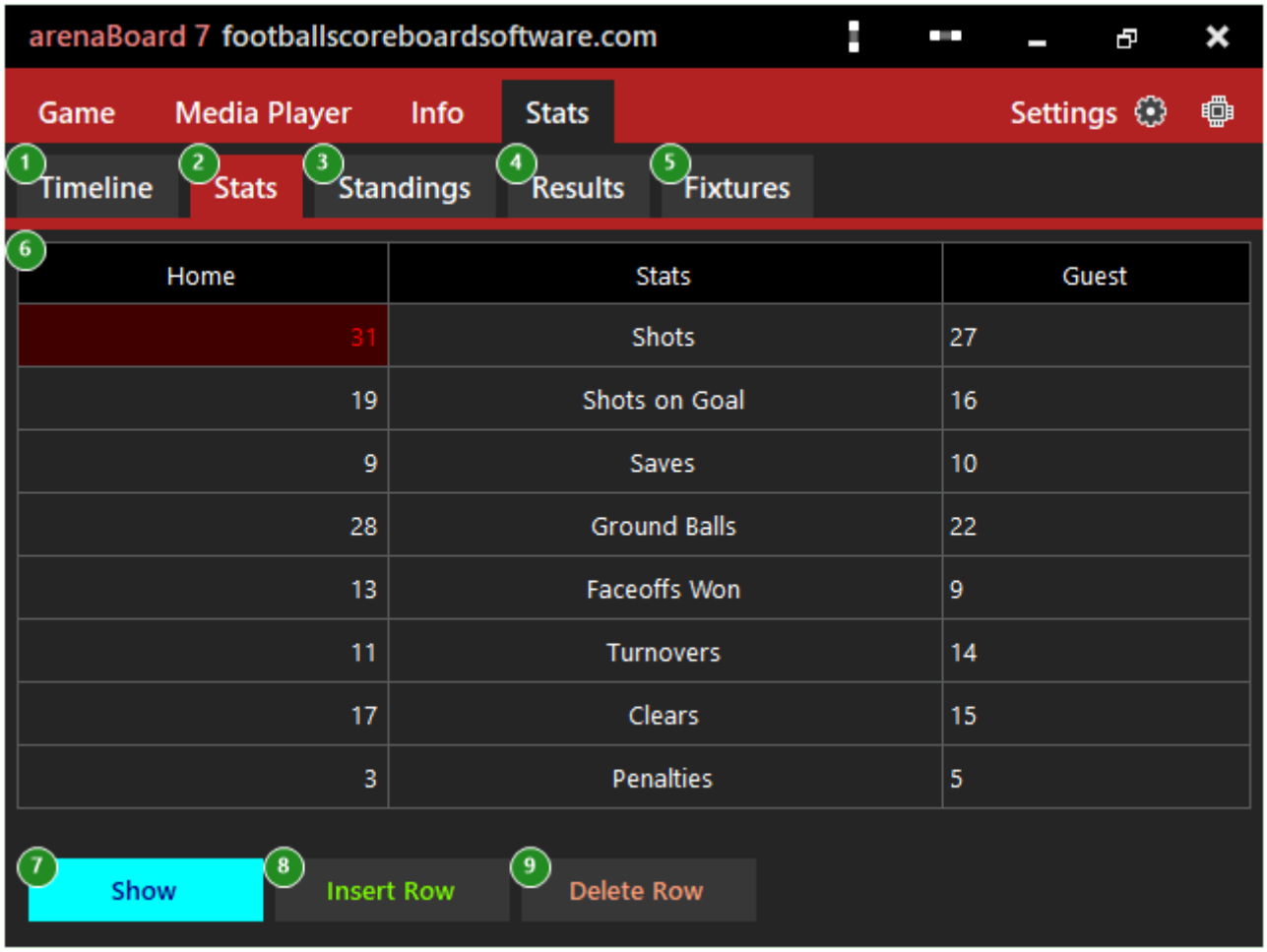
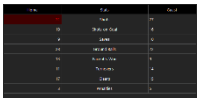


Figure 73. The Stats page with the factory rows and the values of the sample match.

No.	Control	Name	What It Does
1	Timeline	**Timeline**	Shows the match timeline: goals, penalties and substitutions (chapter 10.1).
2	Stats	**Stats**	Shows the team statistics table (chapter 10.2).
3	Standings	**Standings**	Shows the league table (chapter 10.3).
4	Results	**Results**	Shows the results list (chapter 10.4).
5	Fixtures	**Fixtures**	Shows the fixtures list (chapter 10.5).
6		**Stats Table**	The statistics: the home value, the name of the statistic and the guest value. Click a cell and type; every change is saved at once.
7	Show	**Show**	Puts the statistics on the board, with a bar per row. Rows where both values are 0 or empty are left out.
8	Insert Row	**Insert Row**	Adds an empty row above the selected row.
9	Delete Row	**Delete Row**	Removes the selected row at once.

The factory rows are Shots, Shots on Goal, Saves, Ground Balls, Faceoffs Won, Turnovers, Clears and Penalties. On a new installation all values are 0.

- Click a value and type. Every change is saved at once.
- Click a name in the Stats column to rename a row. Insert Row adds an empty row above the selected row; Delete Row removes the selected row.
- Show puts the table on the board: the team logos and the score at the top, then one row per statistic with the two values and two bars.

On the board:

- A row is shown only when at least one of the two values is more than 0. With all values at 0 the table is empty.
- The bars show the share of each team. The higher value is highlighted.
- The bars use the number in the cell: 55% counts as 55, 7/12 as 7.
- All rows always fit: with many rows the table gets smaller on the board. Delete the rows you do not need to keep the text large.

10.3 Standings

The league table: position, logo, team, played, won, drawn, lost, difference and points.

Board Output **Control Panel**

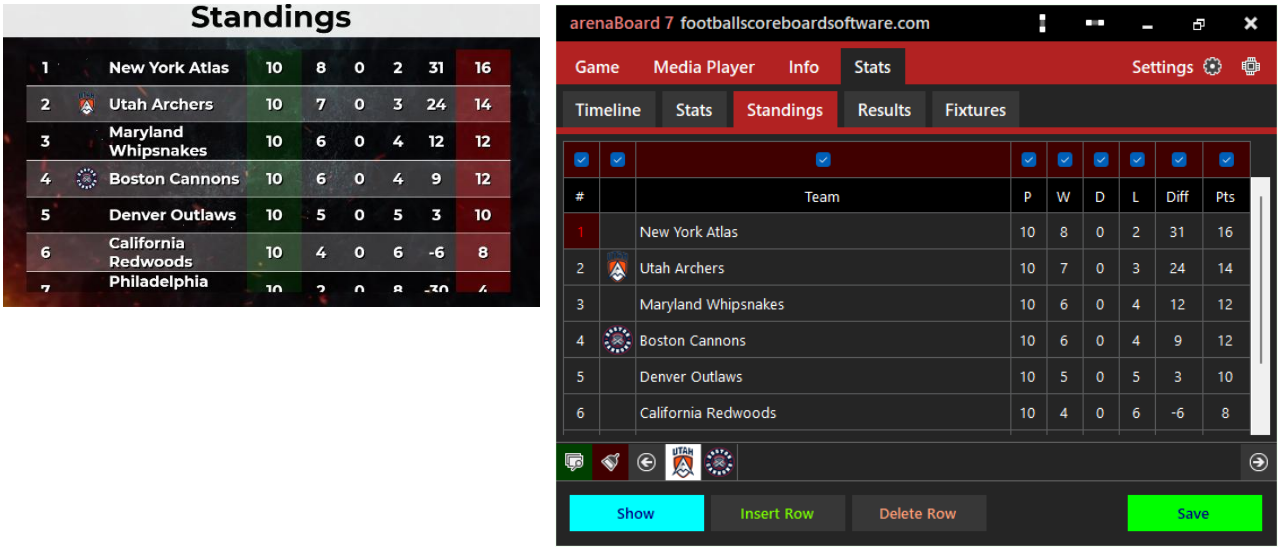


Figure 74. The Standings on the board (left) and the Standings page (right).

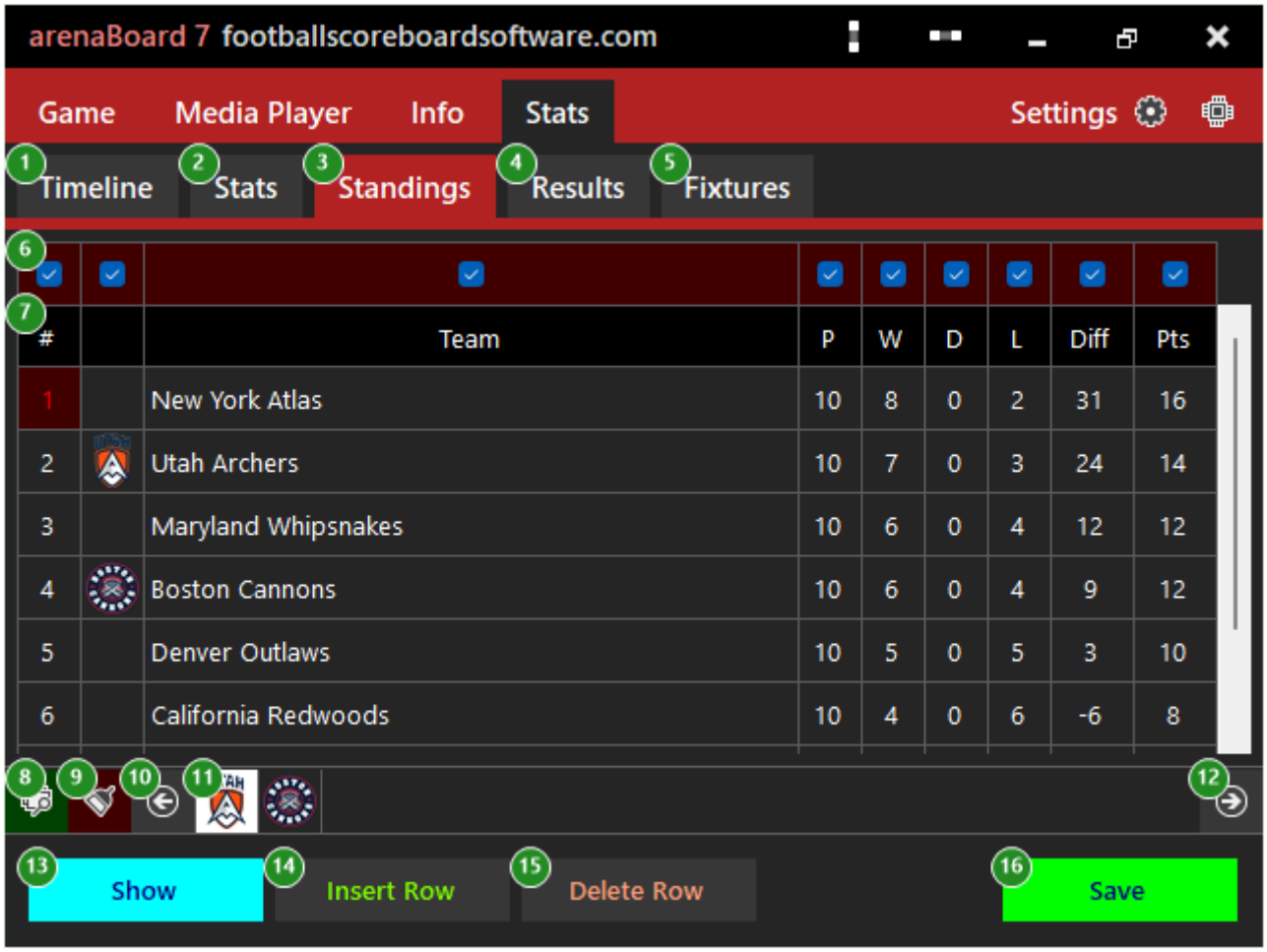
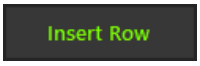
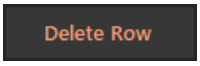


Figure 75. The Standings page.

No.	Control	Name	What It Does
1	Timeline	**Timeline**	Shows the match timeline: goals, penalties and substitutions (chapter 10.1).
2	Stats	**Stats**	Shows the team statistics table (chapter 10.2).
3	Standings	**Standings**	Shows the league table (chapter 10.3).
4	Results	**Results**	Shows the results list (chapter 10.4).
5	Fixtures	**Fixtures**	Shows the fixtures list (chapter 10.5).
6		**Select Column**	One check box per column: only ticked columns appear on the board. The first box ticks or clears all. The ticks are saved.
7		**Standings Table**	The table: #, logo, Team, P, W, D, L, Diff and Pts. Click a cell and type; drag a row to move it (# is renumbered). The logo column shows the logo given from the logo strip.
8		**Select Picture**	Adds logo files to the logo strip at its right (several at once).

No.	Control	Name	What It Does
9		**Clear**	Empties the logo strip after a confirmation. The logos already in the table stay.
10		**Scroll Left**	Scrolls the logo strip while you hold the button.
11		**Logo Strip**	The logos to use in the table. Click a logo (the mouse pointer becomes the logo), then click a row of the table to give it that logo. Delete removes the selected logo from the strip; Esc cancels.
12		**Scroll Right**	Scrolls the logo strip while you hold the button.
13		**Show**	Puts the table with the ticked columns on the board under the Standings title.
14		**Insert Row**	Adds an empty row above the selected row and renumbers #.
15		**Delete Row**	Removes the selected row and renumbers #.
16		**Save**	Saves the table. Changes that are not saved are lost when you leave the page.

Column	What It Holds
#	The position. It is renumbered when you insert, delete or move a row.
Logo	The logo of the team, given from the logo strip.
Team	The team name.
P, W, D, L	Played, won, drawn, lost.
Diff	The goal difference.
Pts	The points.

Editing the table:

1. Click a cell and type. Drag a row to move it.
2. Insert Row adds an empty row above the selected row; Delete Row removes the selected row.
3. Click Save. The table is saved only with Save: leave the page without it and the changes are lost.

Logos. The strip under the table holds the logos to use.

1. Click Select Picture (the left button under the table) and choose one or more logo files.
2. Click a logo in the strip: the mouse pointer becomes the logo.
3. Click the row of the team. Esc cancels.

- The arrows at both ends scroll the strip while you hold them.
- Delete removes the selected logo from the strip. Clear (the broom) empties the strip after a confirmation; the logos in the table stay.

Columns on the board. The check boxes above the table choose the columns that Show puts on the board. Clear a box to hide that column, for example D when your league has no draws. The first box ticks or clears all. The ticks are kept.

Show puts the table on the board under the title Standings (chapter 16.3).

- You can also drag a logo from the strip onto a row; it is kept like a logo given with click-then-click.

10.4 Results

A list of match results: the time or a note, the home team with its logo, the score, the guest team with its logo. Heading rows, for example the date or the round, can separate the matches.

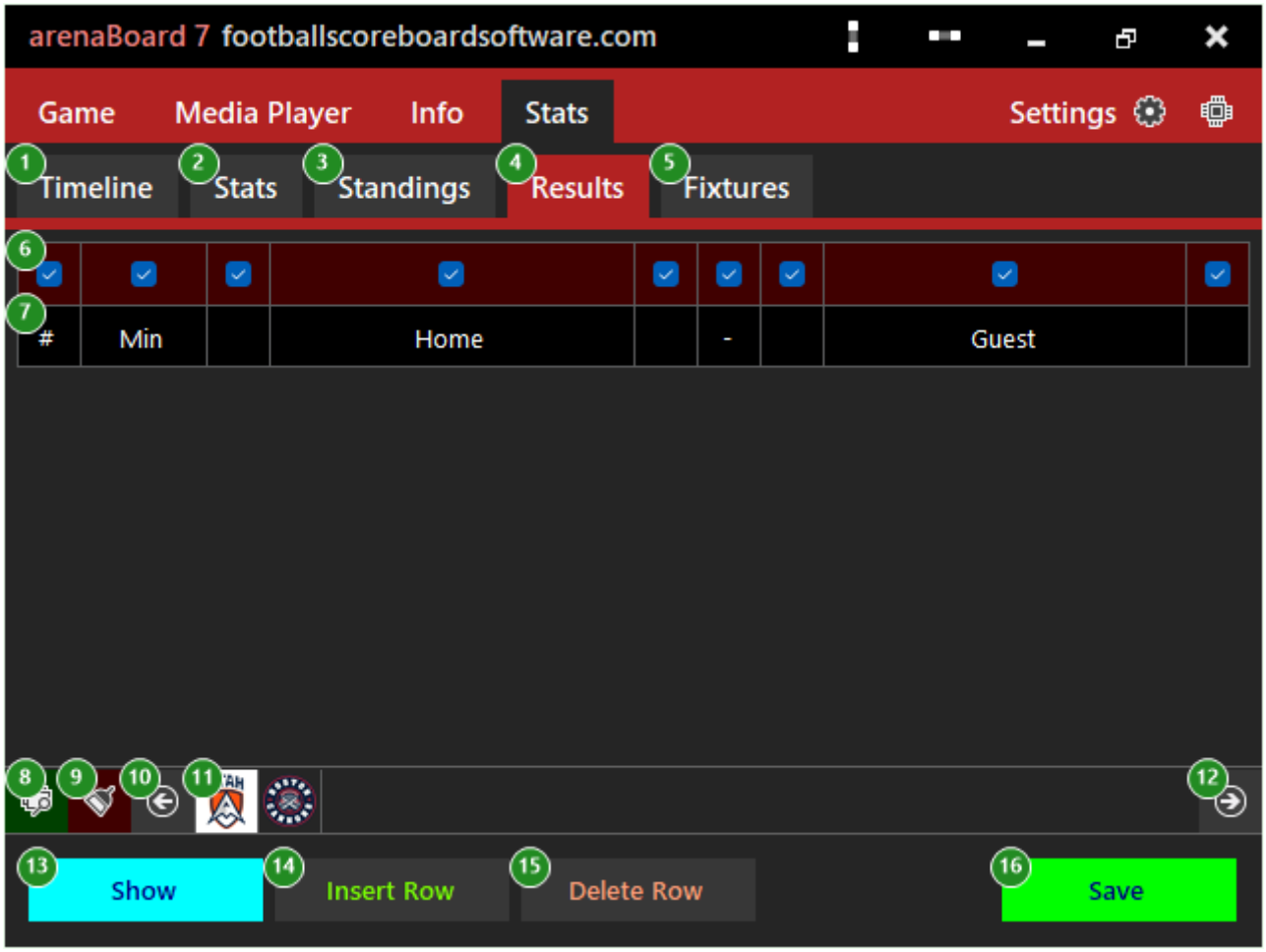
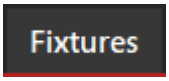
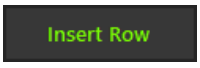
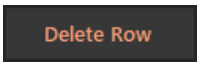


Figure 76. The Results page.

No.	Control	Name	What It Does
1	Timeline	**Timeline**	Shows the match timeline: goals, penalties and substitutions (chapter 10.1).
2	Stats	**Stats**	Shows the team statistics table (chapter 10.2).
3	Standings	**Standings**	Shows the league table (chapter 10.3).
4	Results	**Results**	Shows the results list (chapter 10.4).

No.	Control	Name	What It Does
5		**Fixtures**	Shows the fixtures list (chapter 10.5).
6		**Select Column**	One check box per column: only ticked columns appear on the board. The first box ticks or clears all. The ticks are saved.
7		**Results / Fixtures Table**	The matches: #, Min (a time or note), home logo, Home, score, -, score, Guest, guest logo. Fixtures has no score columns. A row with ! in Min is a heading row: its Home text (for example a date) spans the row.
8		**Select Picture**	Adds logo files to the logo strip at its right.
9		**Clear**	Empties the logo strip after a confirmation.
10		**Scroll Left**	Scrolls the logo strip while you hold the button.
11		**Logo Strip**	The logos to use in the list. Click a logo, then click a row: a click on the left half (up to the home score) sets the home logo, a click on the right half the guest logo. Delete removes the selected logo from the strip.
12		**Scroll Right**	Scrolls the logo strip while you hold the button.
13		**Show**	Puts the list with the ticked columns on the board under the Results (or Fixtures) title.
14		**Insert Row**	Adds an empty row above the selected row.
15		**Delete Row**	Removes the selected row.
16		**Save**	Saves the list. Changes that are not saved are lost when you leave the page.

Column	What It Holds
#	The row number. It is not shown on the board.
Min	A time or a short note, for example 19:00 or FT. Type ! to make the row a heading row.
Home, Guest	The team names, each with a logo cell.
Score columns, -	The two scores. The - is filled in by itself.

Heading rows. Type ! in Min and the heading text (for example "Round 5" or "Saturday 17 October") in Home. The row turns green; on the board its text spans the whole row.

Logos work as in Standings (section 10.3): click a logo of the strip, then click the row. A click on the left half of the row (up to the home score) sets the home logo, a click on the right half the guest logo.

- Insert Row adds an empty row above the selected row; Delete Row removes the selected row.
- Click Save to keep the list. Leave the page without Save and the changes are lost.
- The check boxes above the table choose the columns of the board, as in Standings.
- Show puts the list on the board under the title Results.

> **Note:** The page also turns a row into a heading row when Min holds #, D or d, but only ! works on the board. Use !.

10.5 Fixtures

The coming matches. The page is the Results page without the score columns.

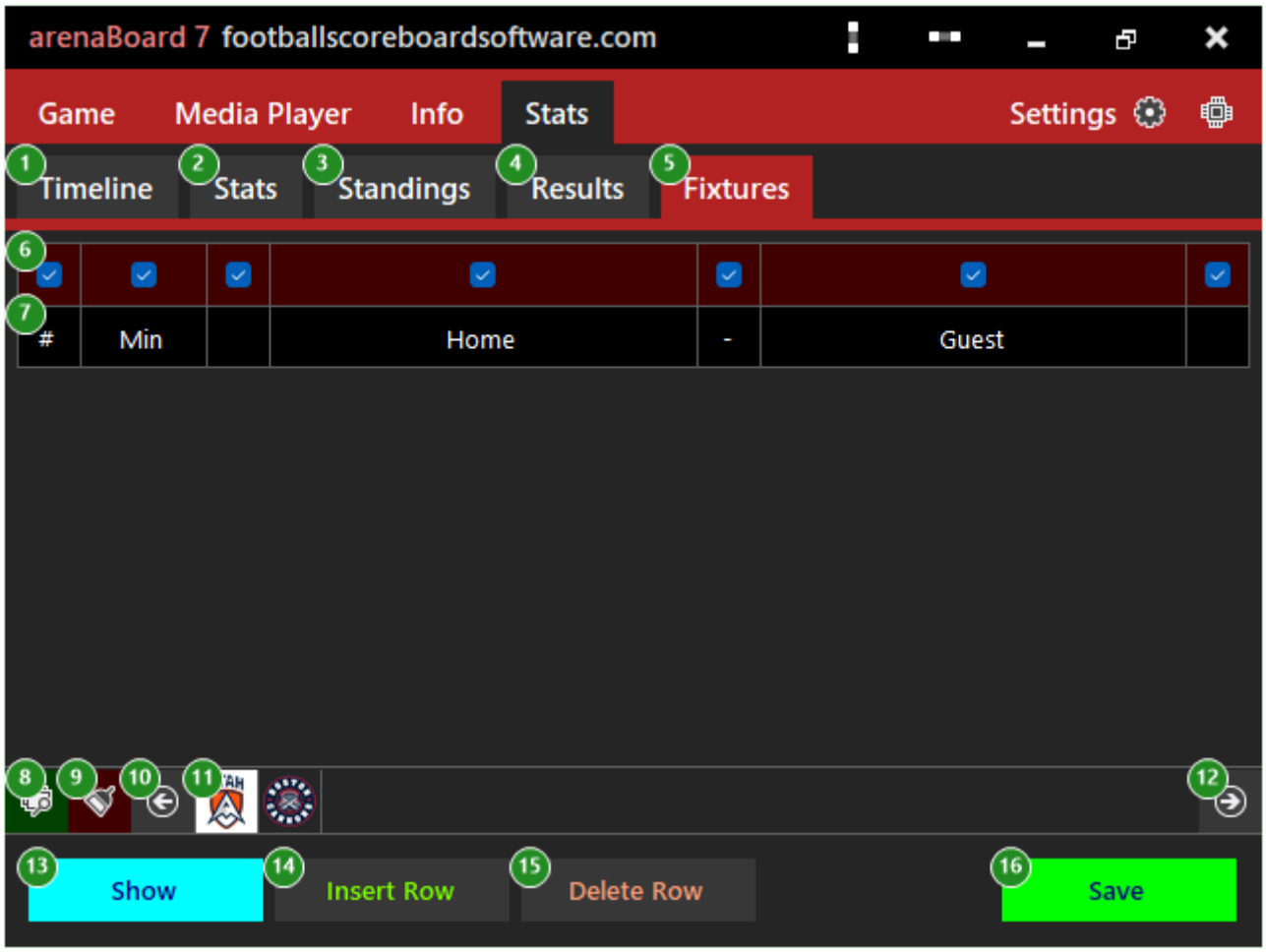
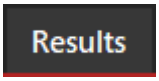
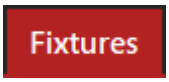
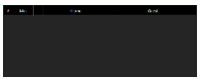
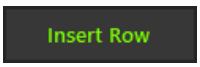
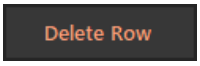


Figure 77. The Fixtures page.

No.	Control	Name	What It Does
1	Timeline	**Timeline**	Shows the match timeline: goals, penalties and substitutions (chapter 10.1).
2	Stats	**Stats**	Shows the team statistics table (chapter 10.2).
3	Standings	**Standings**	Shows the league table (chapter 10.3).

No.	Control	Name	What It Does
4		**Results**	Shows the results list (chapter 10.4).
5		**Fixtures**	Shows the fixtures list (chapter 10.5).
6		**Select Column**	One check box per column: only ticked columns appear on the board. The first box ticks or clears all. The ticks are saved.
7		**Results / Fixtures Table**	The matches: #, Min (a time or note), home logo, Home, score, -, score, Guest, guest logo. Fixtures has no score columns. A row with ! in Min is a heading row: its Home text (for example a date) spans the row.
8		**Select Picture**	Adds logo files to the logo strip at its right.
9		**Clear**	Empties the logo strip after a confirmation.
10		**Scroll Left**	Scrolls the logo strip while you hold the button.
11		**Logo Strip**	The logos to use in the list. Click a logo, then click a row: a click on the left half (up to the home score) sets the home logo, a click on the right half the guest logo. Delete removes the selected logo from the strip.
12		**Scroll Right**	Scrolls the logo strip while you hold the button.
13		**Show**	Puts the list with the ticked columns on the board under the Results (or Fixtures) title.
14		**Insert Row**	Adds an empty row above the selected row.
15		**Delete Row**	Removes the selected row.
16		**Save**	Saves the list. Changes that are not saved are lost when you leave the page.

- Use Min for the start time, Home and Guest for the teams, and heading rows with ! for the dates.
- Logos, Insert Row, Delete Row, Save and the column check boxes work as on the Results page (section 10.4).
- Show puts the list on the board under the title Fixtures.

11. Teams, Players, Photos and Logos

The team names and the team logos of the match are set on the Game tab (chapter 5.9). The players, their photos and the saved squads are kept on the Info tab. This chapter shows how they fit together.

11.1 Home / Guest Team Lists

Each team has a player list: Info > Home Team and Info > Guest Team. The title of the page shows Home Team or Guest Team.

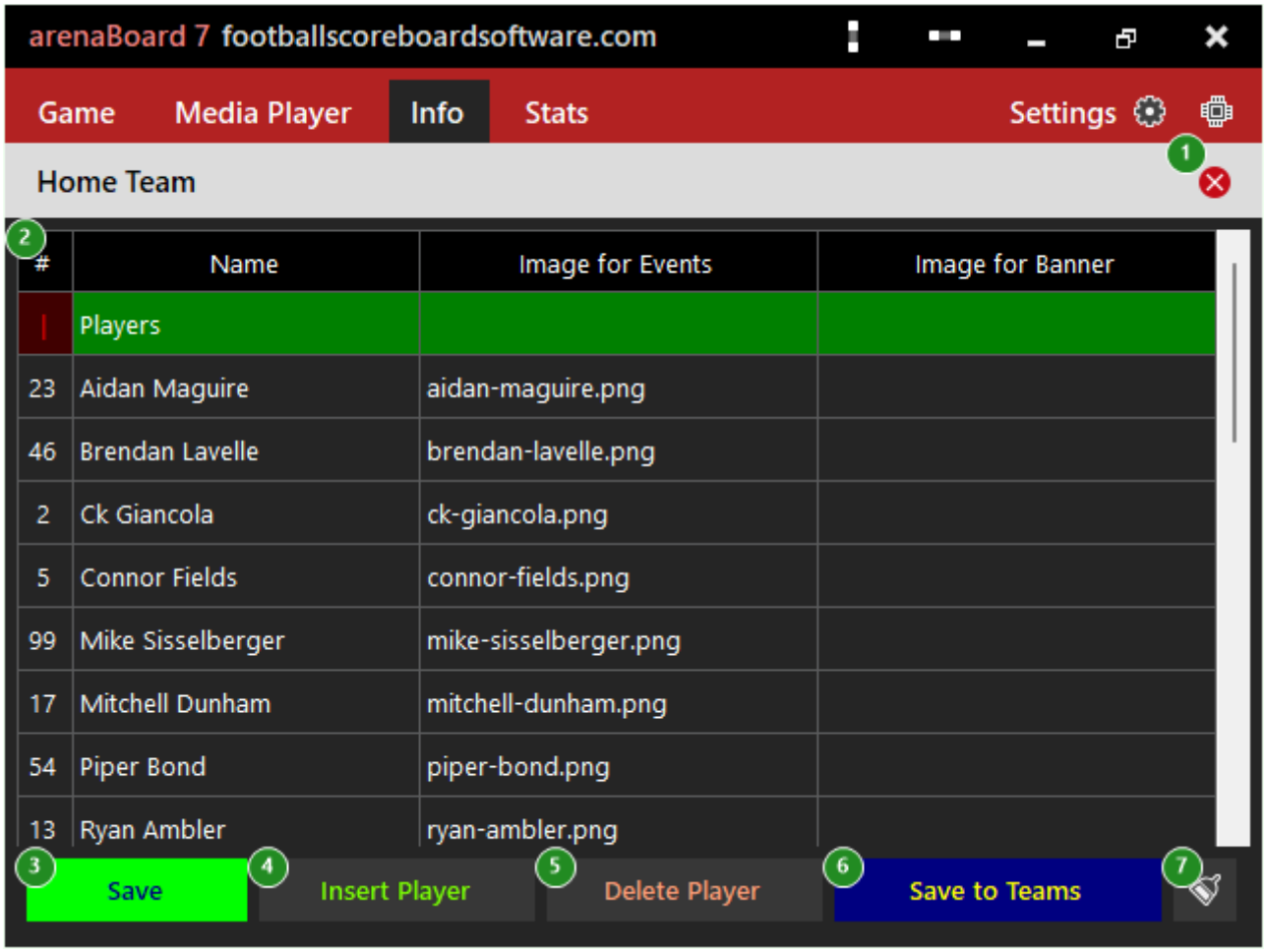
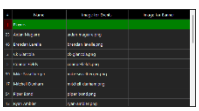
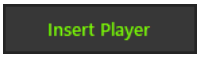
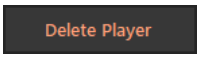
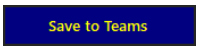


Figure 78. The player list of the home team (factory demo).

No.	Control	Name	What It Does
1		**Close (X)**	Closes the player list. Changes that were not saved are lost. Esc does the same.
2		**Player List**	The players of the team in four groups: Players, Substitutes, Other Players and Coach. Columns #, Name, Image for Events and Image for Banner. Drag a row by its # or Name cell to move it.
3		**Save**	Saves the list. It is lime 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. The Coach group takes one person.

No.	Control	Name	What It Does
5		**Delete Player**	Removes the selected player after a confirmation (Please Confirm Delete!). Group rows cannot be deleted.
6		**Save to Teams**	Saves a copy of the list under a name you type (Please Enter a Name) in the Team Database (chapter 9.12).
7		**Clear All**	Empties the list after a confirmation. The groups stay. The file changes only when you click Save.

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

Group	What It Holds	Used By
Players	The players of the match.	Team list (left column), slideshow, player lists of the editors
Substitutes	Further players of the squad.	Team list (right column), slideshow, player lists of the editors
Other Players	Anyone else who can appear in an event.	Player lists of the editors
Coach	One person: the coach.	Coach line of the team list, last slide of the slideshow

Column	What It Holds
#	The shirt number. The editors list the players as "number-name", sorted by number.
Name	The name as it appears on the board.
Image for Events	The photo of the goal, penalty, substitution and slideshow screens (section 11.2).
Image for Banner	The picture or video of Show Pictures (section 11.2).

Button	What It Does
Save	Saves the list. It is lime while 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 Coach group takes one person.
Delete Player	Removes the selected player after the question "Please Confirm Delete!".
Save to Teams	Saves a copy of the list in the Team Database under a name you type (section 11.3).

Button	What It Does
Clear All (the broom)	Empties all groups after a confirmation. The file changes only when you click Save.

Working with the list:

1. Select a cell of the group and click Insert Player.
2. Type the shirt number and the name.
3. Click the Image for Events cell, then the small button that appears in it, and choose the photo.
4. Repeat for every player, then click Save.

- Drag a player by the # or Name cell to move him to another place or group. The coach row cannot be dragged.
- A selected image cell shows a preview of the picture under the row. The folder button of the preview opens the folder of the file in Explorer.
- A file name in red means that the file is missing.
- Close the list with the X or Esc. Changes that were not saved are lost.

> **Note:** The editors read the player lists when they open. After you changed and saved a list, close the editor and open it again to see the new players.

11.2 Player Photos

Each player has two picture cells. The list stores the path of each file, not the picture: keep the files where they are.

Cell	Files	Used By
Image for Events	Pictures: bmp, gif, jpeg, jpg, png.	Show with Picture of Goal, Player Penalties, Red Card and Substitution (chapter 9); the previews in these editors; Slide on the Info tab.
Image for Banner	Pictures and videos (mp4, mov, webm, wmv and the other media types of the file dialog).	Show Pictures on the Info tab (chapter 9.5).

Special photos per event. For the goal and penalty screens the program looks for a second file next to the Image for Events photo, with "_Goal" or "_Card" added to its name:

Image for Events	Goal Screen Uses	Penalty Screen Uses
aidan-maguire.png	aidan-maguire_Goal.png, when it exists	aidan-maguire_Card.png, when it exists

Without the special file the normal photo is used. This lets you show a celebrating photo for a goal and a neutral one for a penalty.

- A player without a photo is shown without a picture: Show with Picture then looks like Show.

- The photos of the factory demo are in C:\arenaBoard7\media\images\players (one folder per team).

11.3 Team Database

The Team Database keeps squads for later matches, so that a team is typed once.

Saving a squad:

1. Open the player list of the team (Info > Home Team or Guest Team) and complete it.
2. Click Save to Teams.
3. Type a name, for example BOSTON, and confirm. The message "Data Saved Successfully" appears.

Loading a squad for a match:

1. Click Team Database on the Info tab (chapter 9.12).
2. Select the squad.
3. Click Set Home or Set Guest and confirm "The Selected Team Will Be Assigned to the Match Squad! Are You Sure?". The players of the squad replace the home or guest player list.
4. Set the team name and logo on the Game tab (chapter 5.9). Set Home and Set Guest do not change them.

Changing a saved squad: select it and click Show (the icon at the right). The squad opens in the player list with its name as title; change it and click Save there.

Renaming and deleting: click the name in the Team Database, type the new name and click Save. Delete removes the squad and its player file after a confirmation.

> **Note:** Save to Teams always makes a new entry, also when a squad with the same name exists. To update a squad, use Show in the Team Database instead.

11.4 Logos and Colours

Item	Where It Is Set	Where It Appears
Team logos	Game tab, the logo of each team (chapter 5.9).	The scoreboard, and the info screens: Banner (both logos), Announce (the logo you choose), Goal, penalties, substitutions, the team lists and slideshows (faded in the background), the Timeline and Stats screens.
Board logo	Game tab (chapter 5.9).	The scoreboard, where the design has a place for it.
Sponsor logo	The sponsor row of the info editors, or Set Default in the sponsor list (chapter 9.11).	The info screens, where the design has a place for it.
Team colours	Info tab, the two colour squares of Home Team and Guest Team (chapter 9.5).	The team list: title bars, coach line and shirt numbers.
Logos of other teams	The logo strip of Standings, Results and Fixtures (chapter 10.3).	The Standings, Results and Fixtures screens.

The colours, fonts and places of everything else on the screens come from the design of the display mode (chapter 8).

Files (all in C:\arenaBoard7\common\data, kept by an upgrade, chapter 2.5):

File	What It Holds
playersHome.xml, playersGuest.xml	The two player lists.
dataTeams.xml, team_<id>.xml	The list of the Team Database and one file per squad.
referees.xml	The referee list (chapter 9.6).
sponsors.xml	The sponsor list (chapter 9.11).
dataEvents.xml, dataStats.xml	The Timeline and the Stats table (chapter 10).
dataStandings.xml, dataResults.xml, dataFixtures.xml	The Standings, Results and Fixtures.
dataLogos.xml, dataStandingsColumns.xml	The logo strip and the column check boxes of these pages.

12. Media Player, Sponsors, Banners, Cameras and NDI

arenaBoard 7 can play videos and pictures, show sponsor logos and scrolling texts, show a live camera or a part of the PC screen, and send its board over the network as NDI:

Feature	Where	Output
Media Player tab	Menu bar > Media Player	Full screen on the board, in every display mode
Sponsor band	Sp page (chapter 7.2)	The band of the Sponsored board
Ad banners	Ad page > Banner	1. Banner and 2. Banner of the Advertisement board
Ad and CK media players	Ad page, CK page > Media Player	The multimedia area of the Ad board, the background of the CK board
Camera, Screen Capture	Ad page, CK page	As above
NDI	Game tab > NDI	The board of the current display mode, as a network video stream

12.1 Media Player and Playlists

The Media Player tab of the menu bar plays videos and pictures full screen on the board output.

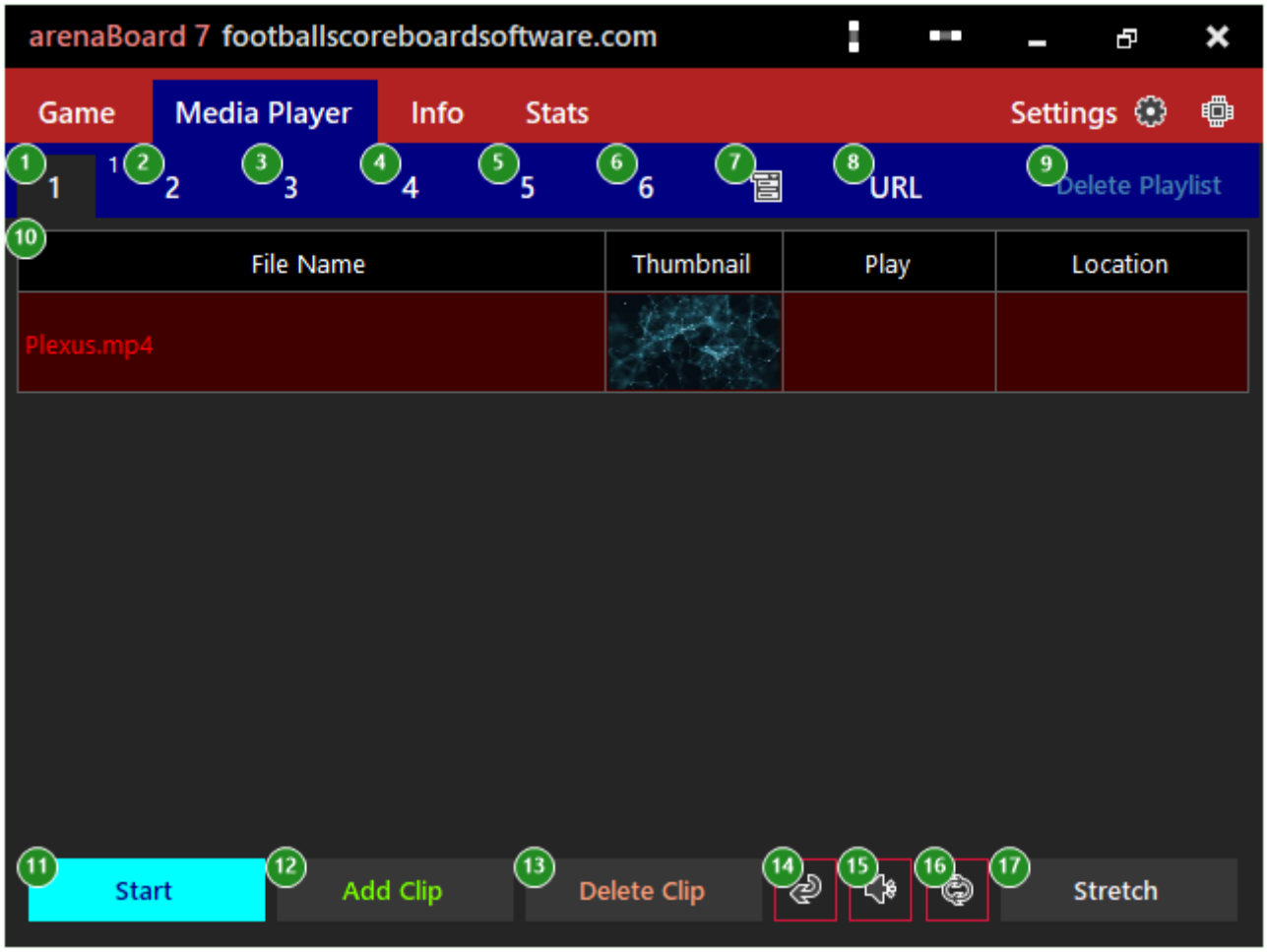
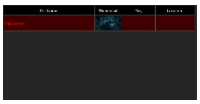
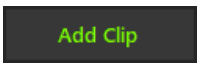
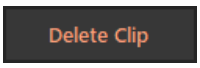


Figure 79. The Media Player tab with playlist 1.

No.	Control	Name	What It Does
1	1	1	Opens playlist 1. The small number shows the clips in the list. Not possible while a clip plays.
2	2	2	Opens playlist 2.
3	3	3	Opens playlist 3.
4	4	4	Opens playlist 4.
5	5	5	Opens playlist 5.
6	6	6	Opens playlist 6.
7		**More Playlists (list icon)**	Opens a list of the playlists 7 to 20.
8	URL	**URL**	Opens the Web URL list: web pages to load on the board output.
9	Delete Playlist	**Delete Playlist**	Empties the current playlist after the question Please Confirm Delete! Hidden while a clip plays.

No.	Control	Name	What It Does
10		**Playlist**	File Name, Thumbnail, Play (play, stop and pause / resume of this clip) and Location (time left of the playing clip). Pictures are grey. Drag a row to change the order.
11		**Start**	Plays the list full screen on the board from the selected clip; the button then reads Finish to stop. Switches Auto Repeat off.
12		**Add Clip**	Adds one or more video, audio or picture files to the playlist. Hidden while a clip plays.
13		**Delete Clip**	Removes the selected clip from the playlist. Hidden while a clip plays.
14		**Return to Scoreboard Screen When Playlist Ends**	On (green frame): the scoreboard comes back when the list ends. Off (red frame): the list starts again.
15		**Sound (speaker icon)**	Switches the sound on (green frame) or off (red frame).
16		**Auto Repeat**	On (green frame): the playing clip is repeated.
17		**Stretch**	Sets how the picture fits the board: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch or ZoomCenter.

1. Choose a playlist (1 to 6, or 7 to 20 with the list button).
2. Click Add Clip and choose one or more files. Videos, audio files and pictures (bmp, gif, jpeg, jpg, png) can be mixed.
3. Click a clip, then Start: the board plays the list from that clip. The button reads Finish while the list plays; click it to stop.

- The small number above a playlist button shows the number of clips in that list.
- Pictures are shown in grey in the list. A picture stays on the board for Image Play Duration seconds (Settings > Screen Properties, default 5).
- To play only one clip, click the Play cell of its row. While a clip plays, its Play cell has a stop button and a pause / resume button, and the Location column counts down the time left.
- While a clip or a list plays, playlists cannot be switched, and Add Clip, Delete Clip and Delete Playlist are hidden.
- Drag a row to change the order.
- Delete Playlist empties the list after the question "Please Confirm Delete!".
- The Game tab, a display-mode change or applying a design stops the media and shows the scoreboard again.
- From the remote control: Media tab (chapter 13); from the HTTP API: Appendix B.

The buttons at the bottom right:

Button	On (Green Frame)	Off (Red Frame)
Return to Scoreboard Screen When Playlist Ends	The scoreboard comes back when the list ends.	The list starts again from the first clip.
Sound	Sound on.	Sound off.

Button	On (Green Frame)	Off (Red Frame)
Auto Repeat	The playing clip is repeated. Start switches it off.	–

The last button (Stretch) sets how the picture fits the board: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch (default) or ZoomCenter.

12.2 Web Pages (URL)

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

The list has the title Web URL and two columns, URL and Load.

- Insert Row adds a row for an address; type the address into the URL cell. Delete Row removes the selected row.
- Load (the button in the Load column of the selected row) shows the page of that row on the board.
- The Game tab goes back to the scoreboard.

12.3 Sponsor Logos

The sponsor logos are kept in one list, Info > Sponsors (chapter 9). The same list feeds:

- the band of the Sponsored board (chapter 7.2);
- 1. Banner and 2. Banner of the Advertisement board (section 12.4);
- the sponsor of the Banner and Announce screens (chapter 9).

The band and the banners show all logos of the list, in list order. After you change the list, click Apply again on the Sp page or the Banner tab to update the board.

12.4 Sliding Logos and Scrolling Text

The sponsor band of the Sp page and each banner of the Ad page show one of these:

Content	What It Shows
Sponsors	The sponsor logos sliding through.
Scrolling Text	One of four texts, scrolling line by line.
Multimedia	A playlist (Ad banners only).

The Ad page: Banner tab.

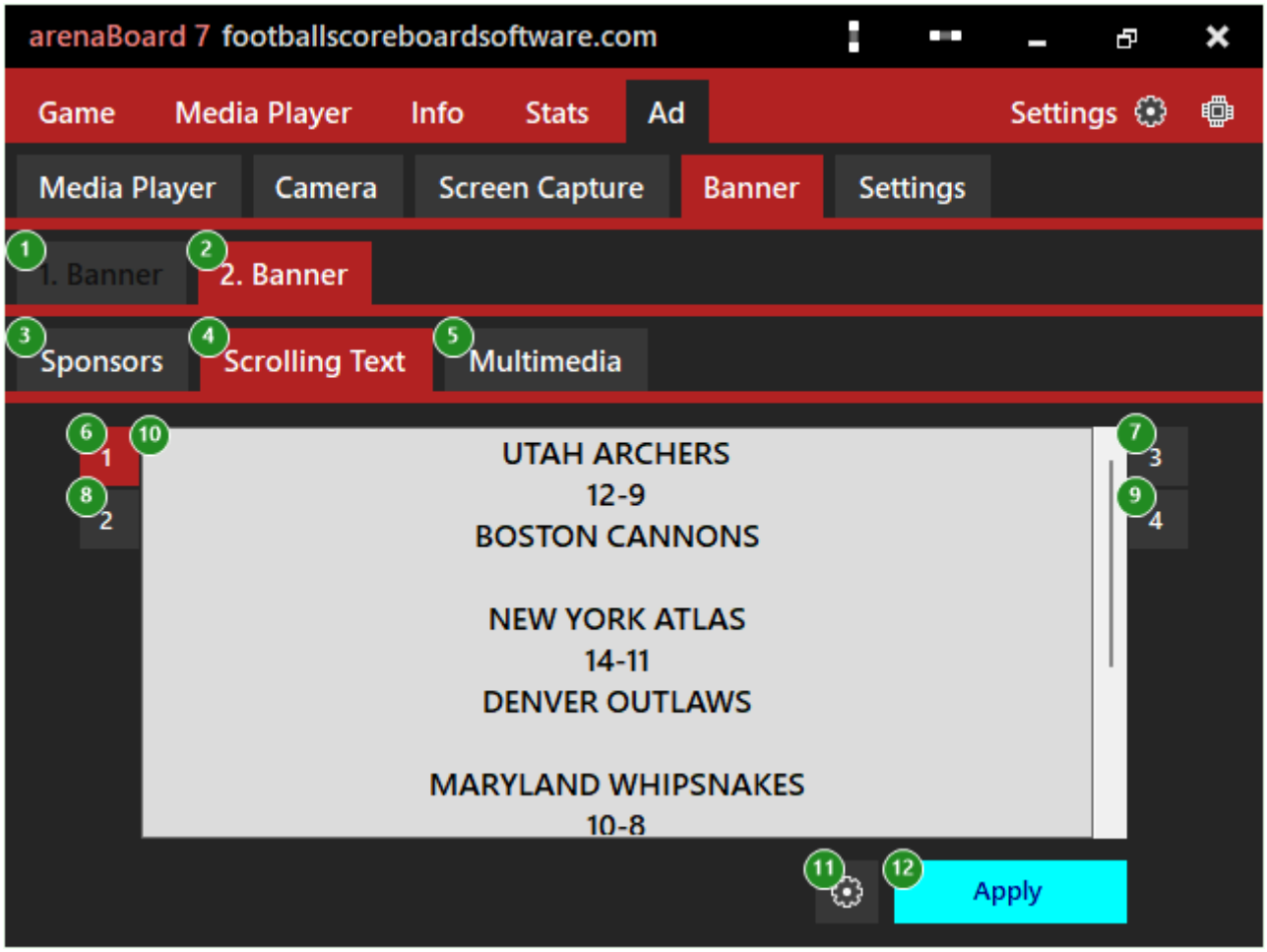


Figure 80. The Ad page: Banner with the scrolling text of 2. Banner. 1. Banner is switched off, so its tab is disabled.

No.	Control	Name	What It Does
1	1. Banner	**1. Banner**	Opens the content of 1. Banner. Disabled while 1. Banner is off (size 0 or visible No in the Ad settings).
2	2. Banner	**2. Banner**	Opens the content of 2. Banner. Disabled while 2. Banner is off (size 0 or visible No in the Ad settings).
3	Sponsors	**Sponsors**	Shows the sponsor logos page of the banner: Apply puts the logos of Info > Sponsors on the banner, sliding through.
4	Scrolling Text	**Scrolling Text**	Shows the four scrolling texts of the banner.
5	Multimedia	**Multimedia**	Shows the six playlists of the banner: Add Clip, Delete Clip, Start / Finish.
6	1	**1**	Selects scrolling text 1 of the banner.
7	3	**3**	Selects scrolling text 3 of the banner.
8	2	**2**	Selects scrolling text 2 of the banner.
9	4	**4**	Selects scrolling text 4 of the banner.

No.	Control	Name	What It Does
10		**Text**	The selected text: one item per line; an empty line makes a gap.
11		**Style (gear icon)**	Shows or hides the text style of the banner: font, size, weight, line height, shadow, padding, top, speed, direction and the colours.
12		**Apply**	Saves the selected text and scrolls it through the banner; stops a banner playlist.

1. Choose the banner: 1. Banner or 2. Banner. A banner that is off (Ad page > Settings, chapter 7.3) cannot be chosen.
2. Choose Sponsors, Scrolling Text or Multimedia.
3. For Sponsors and Scrolling Text click Apply; for Multimedia choose a playlist and click Start.

The banner shows the content you applied last, also after a restart. Each banner has its own four texts, its own style values and its own six playlists.

Style Values

The gear button opens the style values. Change a value in the list, then click Apply to see it on the board. The disk button saves the values for the next time.

Sliding logos (gear button on the Sponsors tab):

Value	Meaning	Default
image-height	Height of the logos, % of the band height	100
padding	Space around each logo, for example 0 1vw 0 0 (space on the right)	0 1vw 0 0
top	Moves the logos up (negative) or down, % of the band height	0
speed	Speed of the slide	60
direction	left or right	left

Scrolling text (gear button on the Scrolling Text tab):

Value	Meaning	Default
font-family	The font; the button in the cell opens the font picker	Segoe UI
font-size	Size of the text, % of the band height	70

Value	Meaning	Default
font-weight	bold or normal	bold
line-height	Line height, % of the band height	90
text-shadow	Shadow of the text, for example 3vh 3vh #777, or none	3vh 3vh #777
padding	Space after each line	0 3vw 0 0
top	Moves the text up or down	0
speed	Speed of the scroll	60
direction	left or right	left

The three colour boxes of the text style set the background colour of the band and the colours of the lines: the first, third, fifth ... line in the second colour, the other lines in the third colour (factory: dark blue background, cyan and white lines). The background colour is also used behind the sliding logos.

A colour chosen for the background or for the first group of lines (second box) is saved at once. A colour chosen for the other lines (third box) is saved only with the disk button: click it after you change that colour.

Multimedia (Ad Banners)

The Multimedia tab of a banner is a small media player with six playlists of its own: Add Clip, Delete Clip, Delete Playlist, Start / Finish and a Play cell per row, as in section 12.1. The banner plays the list in a loop until you click Finish.

12.5 Ad and CK Media Players

The Media Player tab of the Ad page plays videos and pictures in the multimedia area of the Advertisement board. The Media Player tab of the CK page plays them behind the graphics of the CK board, in place of the key colour.

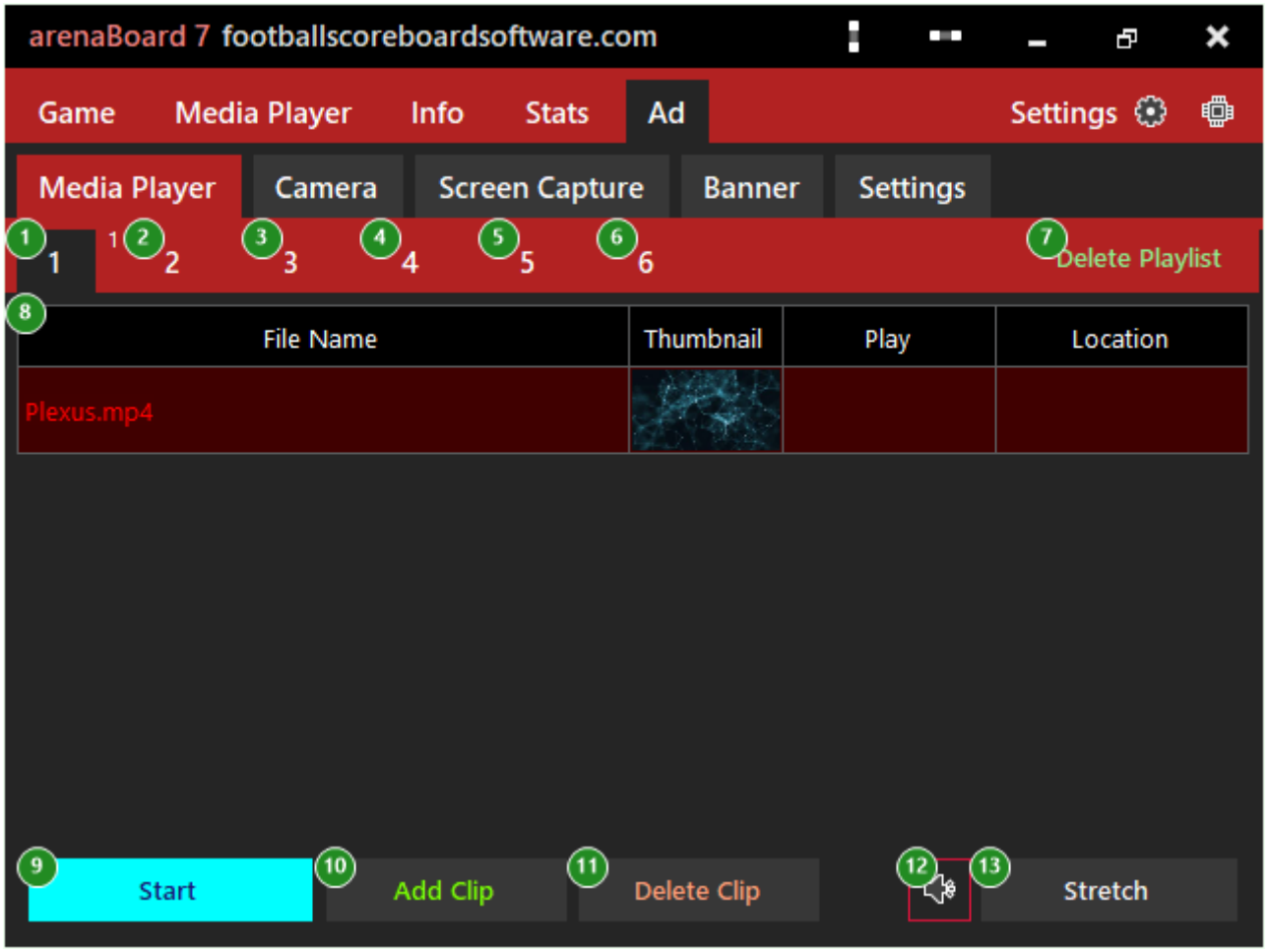
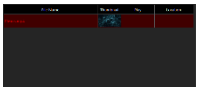


Figure 81. The Ad page: Media Player with playlist 1.

No.	Control	Name	What It Does
1		**1**	Opens playlist 1 of the Ad multimedia area. The small number shows the clips in the list. Not possible while a clip plays.
2		**2**	Opens playlist 2 of the Ad multimedia area.
3		**3**	Opens playlist 3 of the Ad multimedia area.
4		**4**	Opens playlist 4 of the Ad multimedia area.
5		**5**	Opens playlist 5 of the Ad multimedia area.
6		**6**	Opens playlist 6 of the Ad multimedia area.
7		**Delete Playlist**	Empties the current playlist after the question Please Confirm Delete!
8		**Playlist**	File Name, Thumbnail, Play (plays or stops this clip) and Location (time left of the playing clip). Pictures are grey. Drag a row to change the order.

No.	Control	Name	What It Does
9	Start	**Start**	Plays the list from the selected clip in a loop and stops the camera and the screen capture. The button then reads Finish; click it to stop.
10	Add Clip	**Add Clip**	Adds one or more video, audio or picture files to the playlist. Hidden while a clip plays.
11	Delete Clip	**Delete Clip**	Removes the selected clip from the playlist. Hidden while a clip plays.
12		**Sound (speaker icon)**	Switches the sound of the videos on (green frame) or off (red frame).
13	Stretch	**Stretch**	Sets how the picture fits the multimedia area: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch or ZoomCenter.

- Each page has six playlists of its own, separate from the Media Player tab of section 12.1.
- Start plays the list from the selected clip, in a loop, until you click Finish. The Play cell of a row plays one clip.
- Starting a playlist stops the camera and the screen capture of the same page. While a playlist plays, the Media Player tab of the page blinks.
- The Stretch button sets how the picture fits the area (as the Multimedia part of the Ad settings, chapter 7.3).
- The CK page has the same tab, with the same controls.

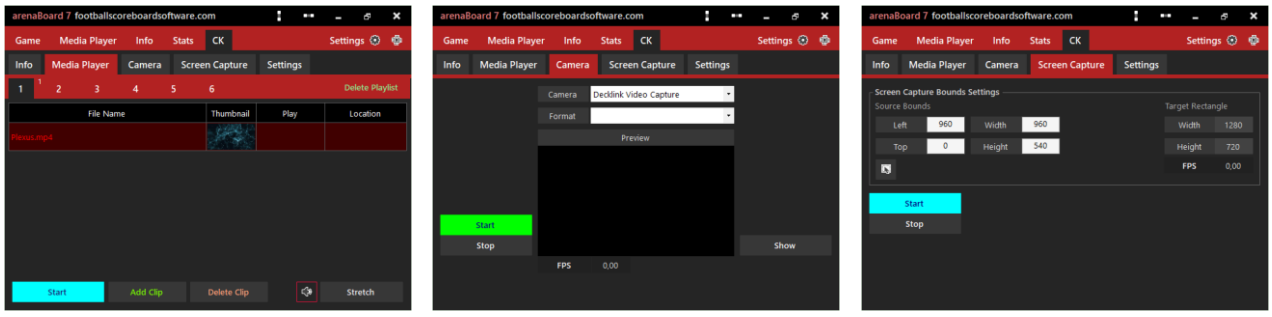


Figure 82. The CK page: Media Player, Camera and Screen Capture. They work as on the Ad page.

12.6 Cameras

The Camera tab of the Ad and CK pages shows a camera or a video capture card (for example a Decklink card) on the board: in the Ad multimedia area, or behind the CK graphics.

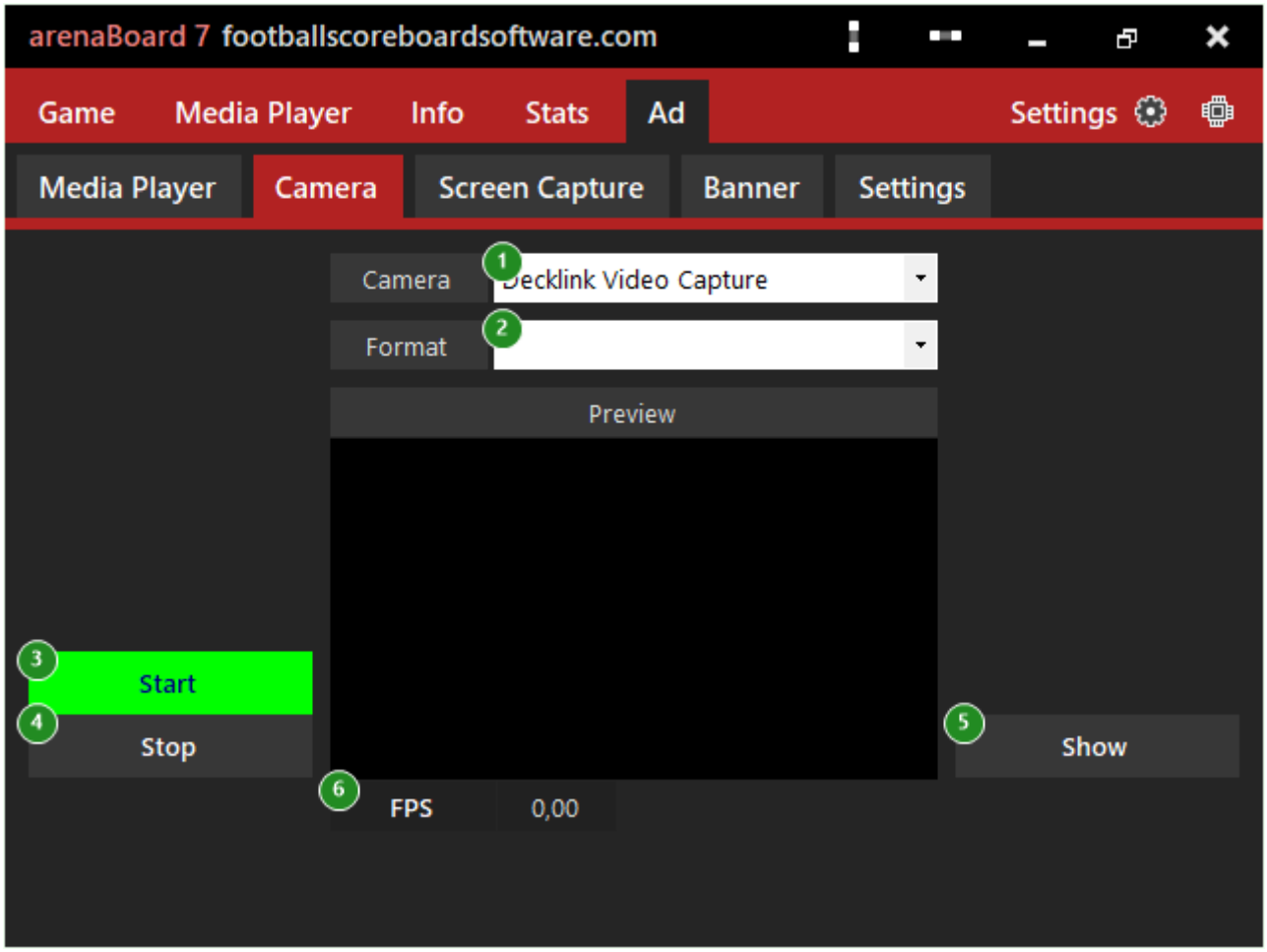


Figure 83. The Ad page: Camera.

No.	Control	Name	What It Does
1	Decklink Video Capture	**Camera**	The video devices of Windows (cameras, capture cards). The first one is selected; its formats fill the Format list.
2		**Format**	Resolution and frame rate of the camera, for example 1280x720 @ 30fps.
3	Start	**Start**	Opens the camera with the chosen format and shows it in the Preview. Without a camera and format: Please Select a Camera and Format.
4	Stop	**Stop**	Closes the camera and clears the picture on the board.
5	Show	**Show**	Puts the running camera on the Ad board and stops the media player and the screen capture.
6	FPS	**FPS**	Shows the frames per second of the camera picture.

1. Choose the Camera and its Format (for example 1280x720 @ 30fps). The list shows the video devices of Windows; the first one is selected.
2. Click Start: the picture appears in the Preview.

3. Click Show: the picture goes on the board, and the media player and the screen capture of the page stop.
4. Click Stop to end it.

- Without a camera and a format the program shows "Please Select a Camera and Format".
- The FPS button shows the frames per second of the picture.

12.7 Screen Capture

The Screen Capture tab of the Ad and CK pages shows a part of the PC screen on the board, for example a statistics program or a browser window.

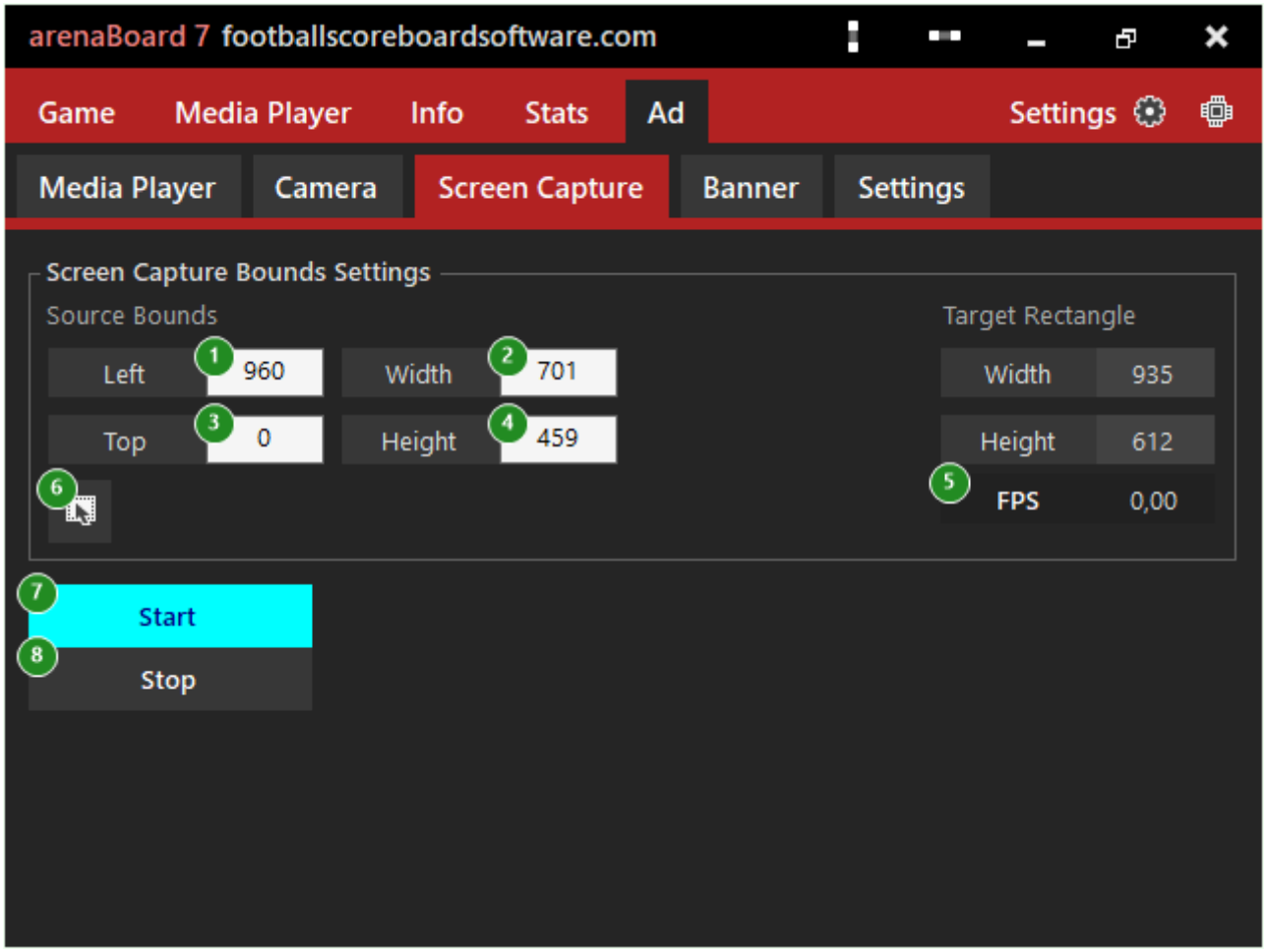
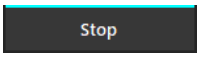


Figure 84. The Ad page: Screen Capture.

No.	Control	Name	What It Does
1	960	**Left**	Left edge of the captured area on the Windows desktop, in pixels.
2	701	**Width**	Width of the captured area, in pixels.
3	0	**Top**	Top edge of the captured area, in pixels.
4	459	**Height**	Height of the captured area, in pixels.
5	FPS	**FPS**	Shows the frames per second of the capture.

No.	Control	Name	What It Does
6		**Select Rectangle**	Opens a frame on the screen: drag it over the area to capture; Left, Top, Width and Height are filled in.
7		**Start**	Saves the Source Bounds and shows the area on the Ad board; stops the camera and the media player.
8		**Stop**	Ends the screen capture and clears the picture.

1. Set the Source Bounds: Left, Top, Width and Height in pixels of the Windows desktop. Or click Select Rectangle and drag a frame on the screen.
2. Target Rectangle shows the size of the area on the board (read only).
3. Click Start. The area is shown on the board; the camera and the media player of the page stop.
4. Click Stop to end it.

- The Source Bounds are saved when you click Start.
- The FPS button shows the frames per second of the capture.

12.8 NDI Output

The NDI button on the Game tab (tooltip Start/Stop NDI Camera Stream) sends the board into the network as an NDI video stream. Receivers such as vMix or OBS list it under the sender name Ab7_NDI.

1. Make sure the board window is on screen and not covered by another window.
2. Click NDI. While the stream runs, the button blinks red.
3. Click NDI again to stop.

- The stream is a copy of the screen area of the board (Settings > Screen Properties L, T, W, H) at up to 60 frames per second. It sends whatever is shown in that area, so keep other windows away from it.
- The stream area is set when you start it. After a change of the board position or size, stop and start the stream again.
- The stream carries no transparency: for the CK board use the green, blue or magenta key colour (chapter 7.4).
- The sender name Ab7_NDI is set in start.xml (SETTINGS > NDI > SenderName); there is no setting for it in the program.
- NDI is an output only: the NDI button sends the board as a stream. The Camera tab of the Ad and CK pages lists the video devices of Windows (section 12.6); an NDI source on the network is not one of them.

13. Remote Control

The remote control is a web page that a phone or tablet opens in its browser; no app is needed. It talks to arenaBoard 7 over the network on port 1907 and uses the same commands as the HTTP API (chapter 14).

13.1 Network and Firewall

- The phone or tablet and the PC are in the same network (Wi-Fi or LAN).
- The remote control is switched on. It is off on a new installation (section 13.2).
- Port 1907 is open in the Windows firewall. The setup runs C:\arenaBoard7\open_firewall_1907.bat, which adds the rules "arenaBoard 1907 TCP IN", "arenaBoard 1907 UDP IN", "arenaBoard 1907 TCP OUT" and "arenaBoard 1907 UDP OUT" when they are missing. If a phone cannot connect, run the file again: right click > Run as administrator.
- Only one program at a time can use port 1907 on a PC. If another Board7 program (for example soccerBoard 7 or a second copy of arenaBoard 7) already uses it, the remote server of arenaBoard 7 cannot start. The program shows no message in this case: close the other program, then switch the remote off and on again (section 13.2).

13.2 Switching the Remote On

Open Settings > Remote Control, or click the remote icon (Remote Control) at the right of the Game tab.

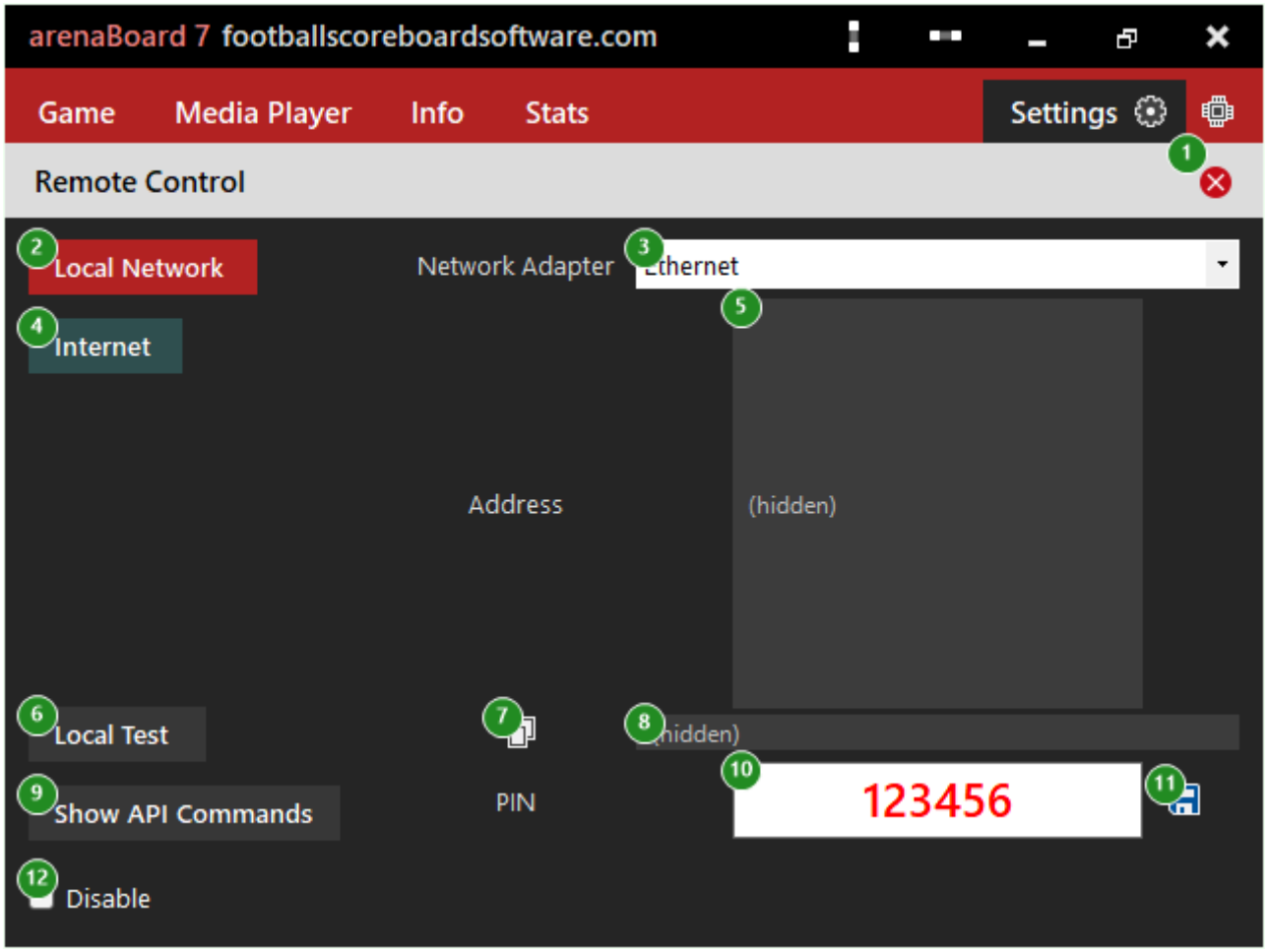
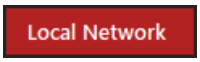
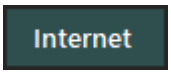
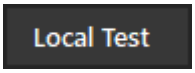
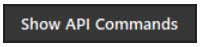


Figure 85. The Remote Control page. The address and the QR code are hidden in this picture; your page shows the address of your PC.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the Remote Control page. Esc does the same.
2		**Local Network**	Shows the address of the remote page in the local network, for the card chosen in Network Adapter. Highlighted while selected (the default).
3		**Network Adapter**	Chooses the connected Ethernet or Wi-Fi card whose address and QR code are shown. Hidden while Internet is selected.
4		**Internet**	Shows the public address of the internet connection instead; it works only when the router forwards port 1907 to this PC. Without a connection the address reads No Internet Connection.
5		**QR Code**	The address as a QR code (hidden in this picture). Scan it with the phone camera to open the logon page of the remote.
6		**Local Test**	Opens the address in the web browser of this PC, to check that the remote server answers.
7		**Copy**	Copies the address to the clipboard.
8		**Address**	The address to open on the phone or tablet: http://<PC address>:1907/logon.html (hidden in this picture).
9		**Show API Commands**	Opens API_Commands.txt, the reference of the HTTP commands, in Notepad (chapter 14, Appendix B).
10		**PIN**	The code the phone must enter to log on: digits only, up to 6; 123456 on a new installation. After a change, click the disk icon to save it.
11		**Save PIN (Disk)**	Appears when you change the PIN; click it to save the new PIN. It is used at once.
12		**Disable**	Ticked (red) = the remote server is off; untick it to start the server on port 1907. The setting is kept for the next start. The remote is off on a new installation.

To switch the remote on, untick Disable at the bottom of the page. The server starts at once, and the setting is kept for the next start of the program. Tick Disable (the box turns red) to switch the remote off.

> **Note:** The remote icon on the Game tab only opens this page; it does not show whether the remote is on. Look at the Disable box.

Local Network shows the address in your local network, for the card chosen in Network Adapter (only connected Ethernet and Wi-Fi cards with an IPv4 address are listed; without one the list reads "No suitable Ethernet or Wireless card found."). The address always has this form:

```
http://<PC address>:1907/logon.html
```

Internet shows the public address of your internet connection instead (the program asks api.ipify.org for it). Without a connection the address reads "No Internet Connection".

> **Note:** The Internet address only works when the router forwards TCP port 1907 to this PC. The remote is protected by the PIN only and is not encrypted (plain HTTP): use it over the internet only if you know what this means for your network.

13.3 PIN

- Digits only, up to 6. The PIN of a new installation is 123456.
- Type the new PIN in the PIN box; the disk icon appears next to it. Click the disk icon to save the PIN. It is used at once.
- After a PIN change, log out and log on again on every phone. A remote page that is still open with the old PIN shows the green dot but no longer changes anything.

> **Note:** Change the PIN from 123456 before you use the remote at an event. Never save an empty PIN: until the next start of the program every request that carries an empty PIN is accepted, so anyone in the network could control the board. After a restart the empty PIN becomes 123456 again.

13.4 Logging On

1. Open the address in the phone browser, or scan the QR code with the phone camera.
2. The logon page (arenaBoard7, Remote Control) shows a keypad. Enter the PIN; the digits are shown as dots. ⌫ deletes the last digit.
3. Tap ✓. The remote panel opens on the Home tab.

A wrong PIN brings back the empty logon page, without a message. Enter the PIN again.

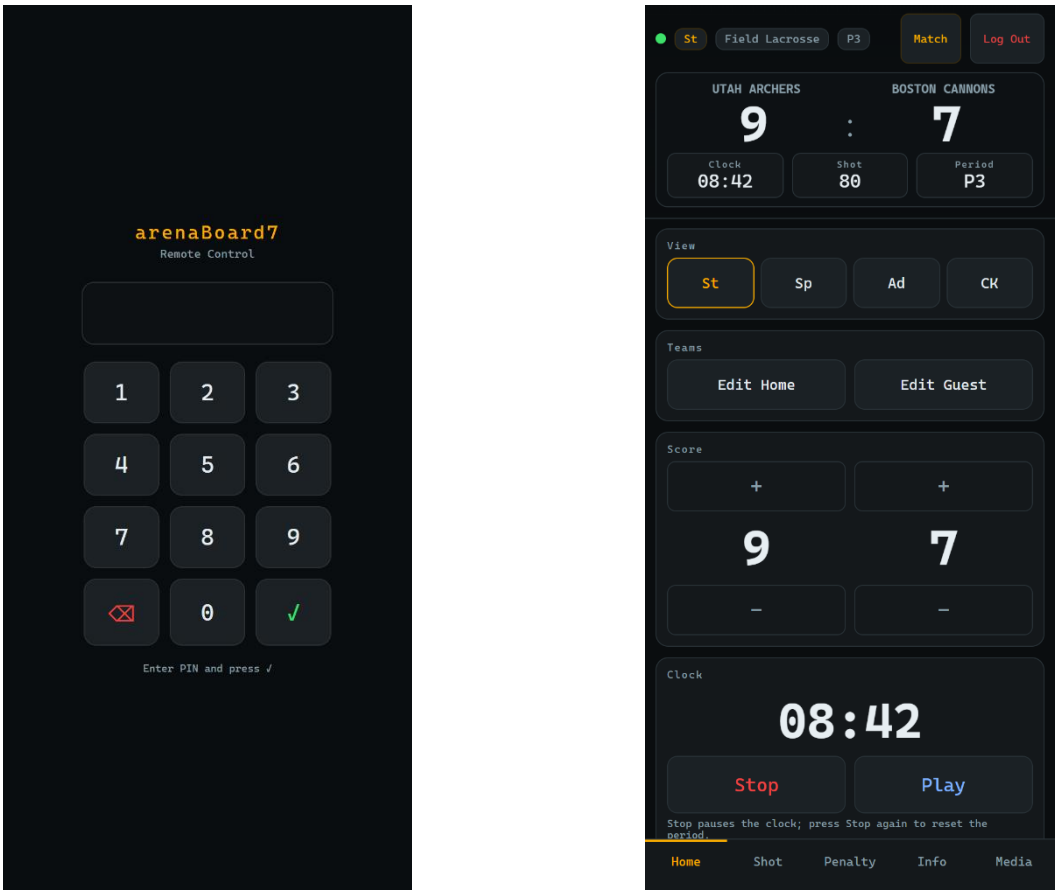


Figure 86. The logon page and the Home tab on a phone.

13.5 The Remote Panel

The top of the page always shows:

- the connection dot: green = the PC answers, red = the PC cannot be reached;
- three chips: the display mode (St, Sp, Ad or CK), the discipline (Field Lacrosse, Women's Lacrosse, Sixes Lacrosse or Intercrosse) and the period (P1 to P4, SO for the shootout);
- Match: brings the Game tab of the PC to the front; Log Out: back to the logon page;
- the score with both team names, and the Clock, Shot and Period tiles. The Clock and Shot tiles are highlighted while the match clock runs. The Shot tile is hidden when the shot clock is switched off in the Period & Penalty Settings (chapter 6).

The page asks the PC for the state about every 0.6 seconds, so it also shows changes made on the PC or with the keyboard. The tabs at the bottom are Home, Shot, Penalty, Info and Media. The Shot tab is hidden when the board has no shot clock.

> **Note:** The remote page is in English. It does not follow the program language (chapter 16).

Home Tab

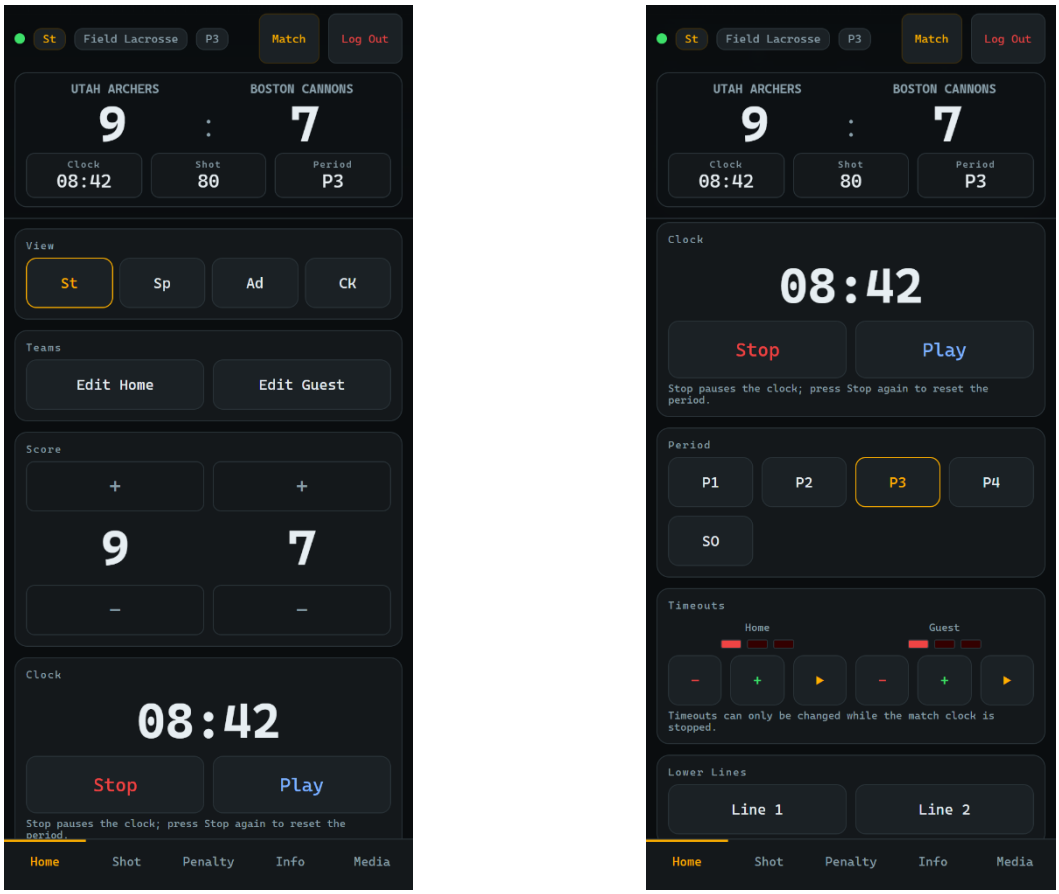


Figure 87. The Home tab: the upper part (left) and the lower part (right).

Element	What It Does
View: St, Sp, Ad, CK	Switches the display mode of the board (chapter 7) and brings the Game tab to the front. The active mode is highlighted.
Teams: Edit Home, Edit Guest	Opens a sheet with the team name, Set and Close. A new line in the text becomes the second line of the name on the board.

Element	What It Does
Score: + and −	One goal more or less for the team (not below 0). A goal works as on the Game tab: depending on the settings it stops the match clock, resets the shot clock and ends the opponent's first penalty (chapter 5).
Score: the number	Tap it to type the exact score.
Clock: the time	Tap it to type a new time (mm:ss). A running clock is paused first.
Clock: Play / Pause	Starts or pauses the match clock (and the shot clock with it). The button shows Play or Pause.
Clock: Stop	The first press pauses the clock; the second press resets the clock to the length of the period and clears the penalty lists.
Period: P1 ... P4, SO	Selects the period; the clock is set to the length of that period. SO is the shootout. The buttons follow the periods of the discipline. While the clock or a timeout runs the card shows Locked and the buttons do nothing.
Timeouts: −, +	Corrects the number of timeouts taken by the team (0 to 3, shown by the three marks).
Timeouts: ▶	Starts the timeout countdown of the team and counts the timeout. Tap ▶ again to end the timeout early.
Lower Lines: Line 1, Line 2	Opens a sheet with the text of the first or second lower line of the board.

The Timeouts card is shown only when timeouts are switched on for the discipline. Timeouts can only be changed or started while the match clock is stopped; while it runs the card shows Clock Running and the buttons do nothing.

Shot Tab

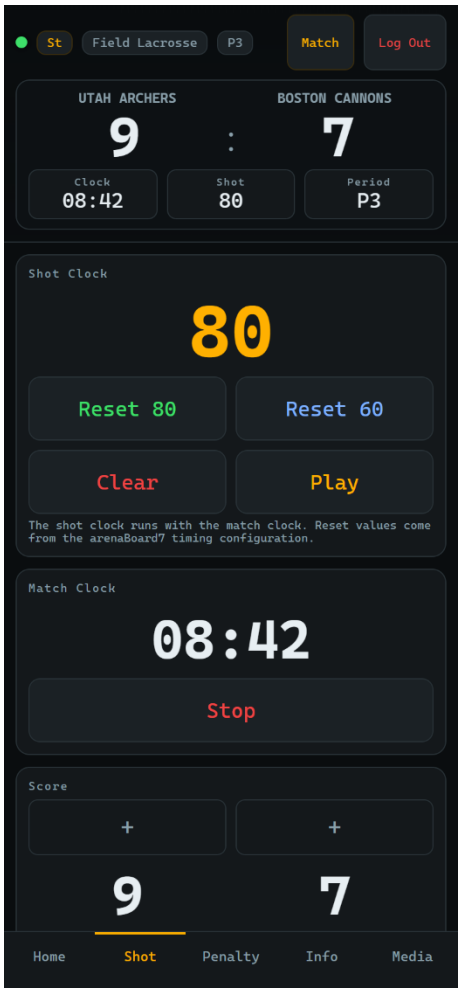


Figure 88. The Shot tab on a phone: Reset 80, Reset 60, Clear and Play, the match clock and the score.

Element	What It Does
Shot Clock	The shot clock in large digits.
Reset (first, green)	Resets the shot clock to the first value of the Period & Penalty Settings (80 in Field Lacrosse). The button shows the value, for example Reset 80.
Reset (second, blue)	Resets the shot clock to the second value (for example Reset 60).
Clear	Sets the shot clock to 0.
Play / Pause	Starts or pauses the match clock; the shot clock runs with it.
Match Clock	The match time; tap it to type a new time. Stop works as on the Home tab.
Score	+ and − per team, as on the Home tab.

Penalty Tab

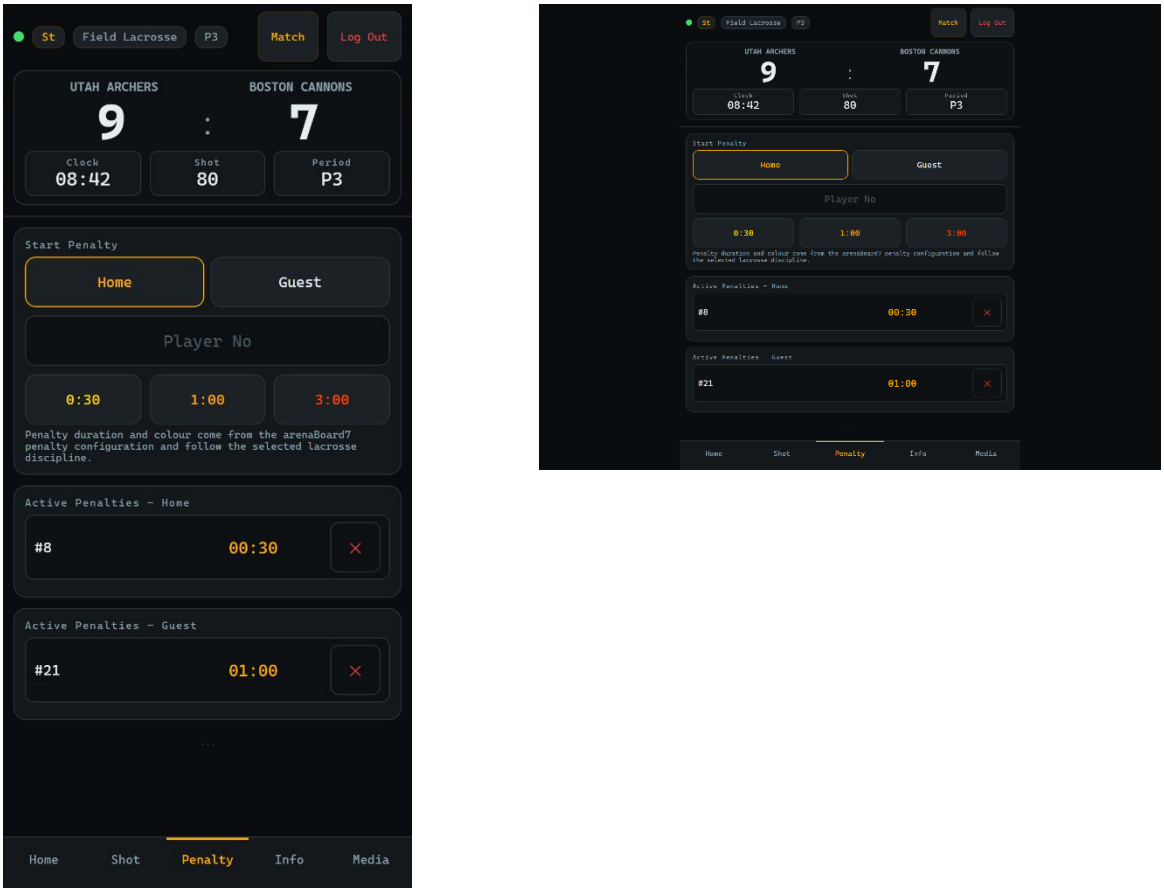


Figure 89. The Penalty tab on a phone and on a tablet: the Field Lacrosse buttons 0:30, 1:00, 3:00 and the penalties of the sample match (Utah #8, Boston #21).

1. Tap Home or Guest.
2. Type the shirt number in Player No.
3. Tap a duration button (for example 0:30, 1:00, 3:00). The penalty is added to the list of the team, as with the penalty buttons of the Game tab (chapter 5).

The duration buttons and their colours come from the penalty settings of the discipline (chapter 6). If none are set, the card reads "No penalty levels configured."

Active Penalties – Home and Active Penalties – Guest list the running penalties with the number and the time left. ✕ cancels a penalty. Penalties count down only while the match clock runs.

During the shootout (period SO) the Penalty tab also shows the Shootout card: per team Score (a scored attempt, [O]), Miss (a missed attempt, [X]) and Clear. The last five attempts per team are kept and shown on the board. The marks do not change the score.

Info Tab

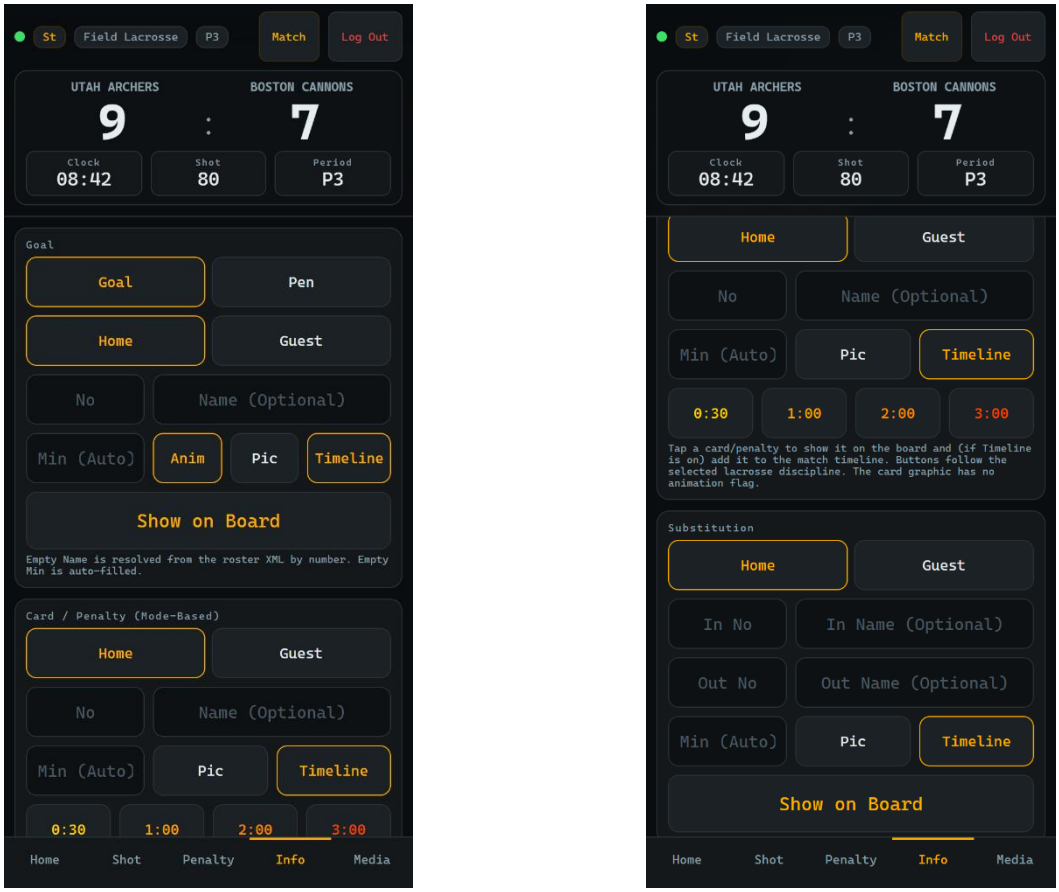


Figure 90. The Info tab: Goal and Card / Penalty (left); the penalty buttons of Field Lacrosse and Substitution further down (right).

The Info tab shows the info graphics of chapter 9 on the board. They do not change the score or start a penalty: use the Home and Penalty tabs for that.

Card	What It Does
Goal	Choose Goal or Pen (a penalty-shot goal), Home or Guest, type No (shirt number) and optionally Name and Min. Anim plays the goal animation, Pic uses the player photo, Timeline adds the goal to the match timeline (chapter 10). Show on Board shows the graphic.
Card / Penalty (Mode-Based)	Choose Home or Guest, No, optionally Name and Min, Pic and Timeline. Then tap a button to show that card or penalty at once. The buttons follow the discipline: Field Lacrosse 0:30, 1:00, 2:00, 3:00; Women's Lacrosse G, Y, Y/R, R; Sixes Lacrosse 0:30, 1:00, Y, R; Intercrosse 1:00, 2:00, Y, R.
Substitution	Choose Home or Guest, In No, Out No, optionally In Name, Out Name and Min, Pic and Timeline. Show on Board shows the graphic.

- An empty name is taken from the team list by the shirt number (chapter 11).
- An empty minute is filled in by the program from the match clock.
- Highlighted toggles (Anim, Timeline) are on. Anim and Timeline are on, Pic is off when the page opens.

To take the graphic off, tap Match at the top, or a view button on the Home tab.

Media Tab

Type the number of a playlist on the keypad (⌫ deletes the last digit, C clears), then:

- Start: opens the Media Player on the PC and plays that playlist. If a playlist already plays, Start stops it.
- Start Ad: switches to the Advertisement mode and plays that playlist of the Ad page.
- Back to Scoreboard: back to the Game tab.

The Media Player and the Ad page have six numbered playlists each (chapter 12). Use the numbers 1 to 6: any other number plays playlist 1.

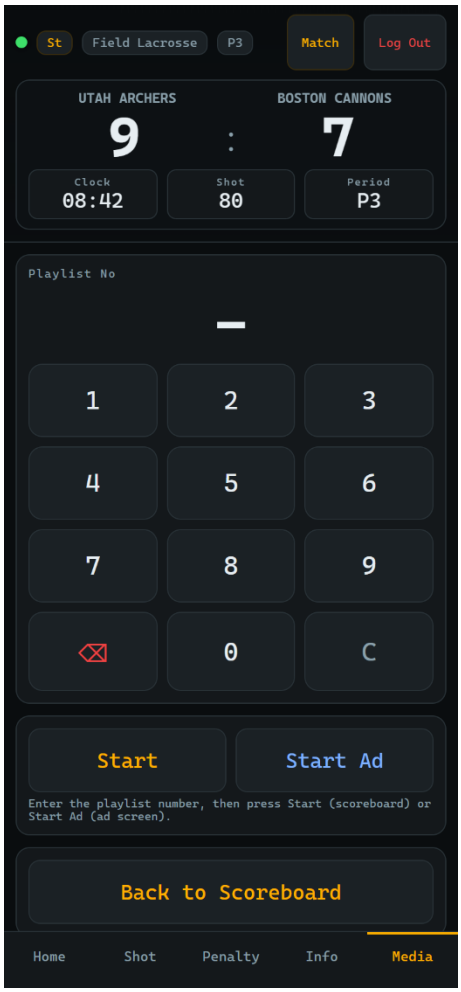


Figure 91. The Media tab.

13.6 Phone and Tablet

- The page is one column on every device, at most about 560 pixels wide. On a tablet or a PC browser it is centred on the screen.
- Add the page to the home screen of the phone for a full-screen app look.
- Only one person should score at a time: the PC does not stop two remotes (or a remote and the keyboard) from giving the same goal twice.
- If the connection dot turns red, check the Wi-Fi of the phone and that the program still runs on the PC with the remote on.

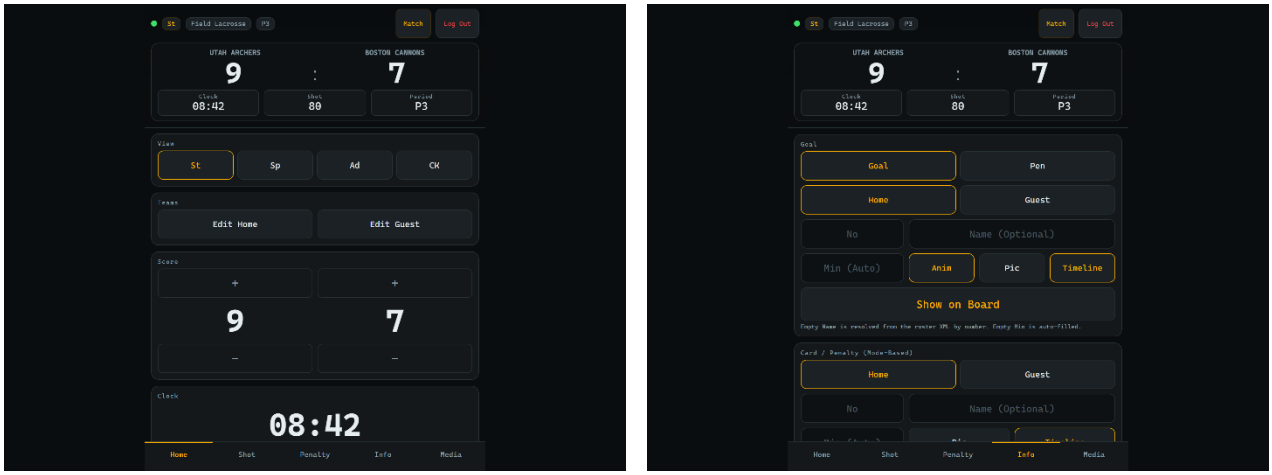


Figure 92. The Home tab (left) and the Info tab (right) on a tablet: the page is centred, one column wide.

14. HTTP API

arenaBoard 7 can be controlled by other programs and devices with plain web requests: a vision-mixer macro, a stream deck, a scoring system or a script. The remote page of chapter 13 uses the same commands.

14.1 Request Format and Replies

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

- Port 1907 is fixed. The remote control must be on (chapter 13.2). From the PC itself use 127.0.0.1 as the address.
- Every request ends with $. The value is the text between value= and the first $; without the $ the value is empty.
- _=<number> (any changing number) stops browsers and proxies from answering from their cache. Put it first, before pin.
- pin is the PIN of Settings > Remote Control (123456 on a new installation).
- You can leave out &value= when the command has no value (the remote page does).
- Encode the value as a browser does (encodeURIComponent): a space as %20, | as %7C, # as %23, & as %26, $ as %24. A + stays a +; it is not read as a space.
- Command names are not case-sensitive. Side values must be written in small letters: home or guest (section B.1).
- In the text values of set_home_team, set_guest_team, line_text_1 and line_text_2 an underscore _ is a line break. In every other value _ is a normal character (period_1, file names).

Replies:

Reply	Meaning
<Items><Item>…</Item></Items>	The command was received. The reply is the state of the board after the command, the same XML as cmd=GET (section 14.2). An unknown command or a value the program cannot use gives the same reply; nothing changes.
<ERROR>PIN</ERROR>	Wrong or missing PIN.
<ERROR>API</ERROR>	The command failed inside the program.
The logon page	The request did not ask for api.html.

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=period_3$
http://127.0.0.1:1907/api.html?_=3&pin=123456&cmd=penalty_add&value=home%7C8%7C30$
http://127.0.0.1:1907/api.html?_=4&pin=123456&cmd=set_guest_team&value=BOSTON_CANNONS$
http://127.0.0.1:1907/api.html?_=5&pin=123456&cmd=info_goal&value=guest%7Cgoal%7C21%7C%7C%7C1%7C0%7C1$
```

> **Note:** The API never asks for a confirmation. A second click&value=stop resets the clock and clears the penalty lists at once.

14.2 Reading the State

cmd=GET returns the state as XML, one <Item> inside <Items>:

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

The reply carries the display mode (BoardType), the discipline (Mode, ModeName), the team names and scores, the match clock and whether it runs, the period, the two lower lines, the shot clock and its two reset values, the period labels, the penalty buttons and running penalties, the card buttons of the Info tab, the shootout marks, the timeouts and the playlist state. Booleans are True or False. Appendix B.3 lists every field.

The period labels, the penalty durations and the card buttons change with the discipline. A panel should read them from GET (PeriodLabels, PenaltyLevels, CardSlots) and not hard-code them, as the remote page does. A panel can poll GET about twice a second; the remote page polls every 0.6 seconds.

14.3 Command Groups

Group	Commands
View	click st / sp / ad / ck, match
Teams and lower lines	set_home_team, set_guest_team, line_text_1, line_text_2
Score	set_home_score, set_home_score_up, set_home_score_down, set_guest_score, set_guest_score_up, set_guest_score_down
Match clock	set_chronometer, click playpause / stop
Periods	click period_1 … period_4, click penalty (shootout)
Shot clock	shotclock
Timed penalties	penalty_add, penalty_cancel
Shootout	shootout, shootout_clear
Timeouts	timeout_set, timeout_start
Info graphics	info_goal, info_card, info_subst
Media	start_playlist, start_playlist_ad_screen
State	GET

Appendix B describes every command, its values and what it does. The file API_Commands.txt in C:\arenaBoard7 (Settings > Remote Control > Show API Commands) has the same reference with more examples.

14.4 Compatibility with Other Board7 Programs

arenaBoard 7 shares the Board7 remote protocol with soccerBoard 7 and the other Board7 programs. Older setups keep working where the command has a lacrosse meaning:

- The view, team, lower line, score and clock commands (click, match, set_home_team, set_home_score_up, set_chronometer and others) work as in soccerBoard 7.
- The period names first_half, second_half, extra_1 and extra_2 select periods 1 to 4 (appendix B.4).

- The shot clock names reset_shotclock, reset_shotclock2 and clear_shotclock still work.
- info_goal with the type own (own goal) is accepted and ignored: lacrosse has no own goal.
- Other commands are ignored; the reply is the state XML as usual.

> **Note:** The API has no command for the discipline, the timeout length or the period lengths. Set them on the PC (chapter 6).

15. Keyboard Shortcuts

15.1 Keyboard Shortcuts Window

arenaBoard 7 can be run with keys of the numeric keypad and the function keys. The shortcuts are global: they also work while another program, for example the vision-mixer software, has the focus.

Open the Keyboard Shortcuts window with the keyboard button on the Game tab (top right, below NDI). The button is green while the shortcuts are on and red while they are off.

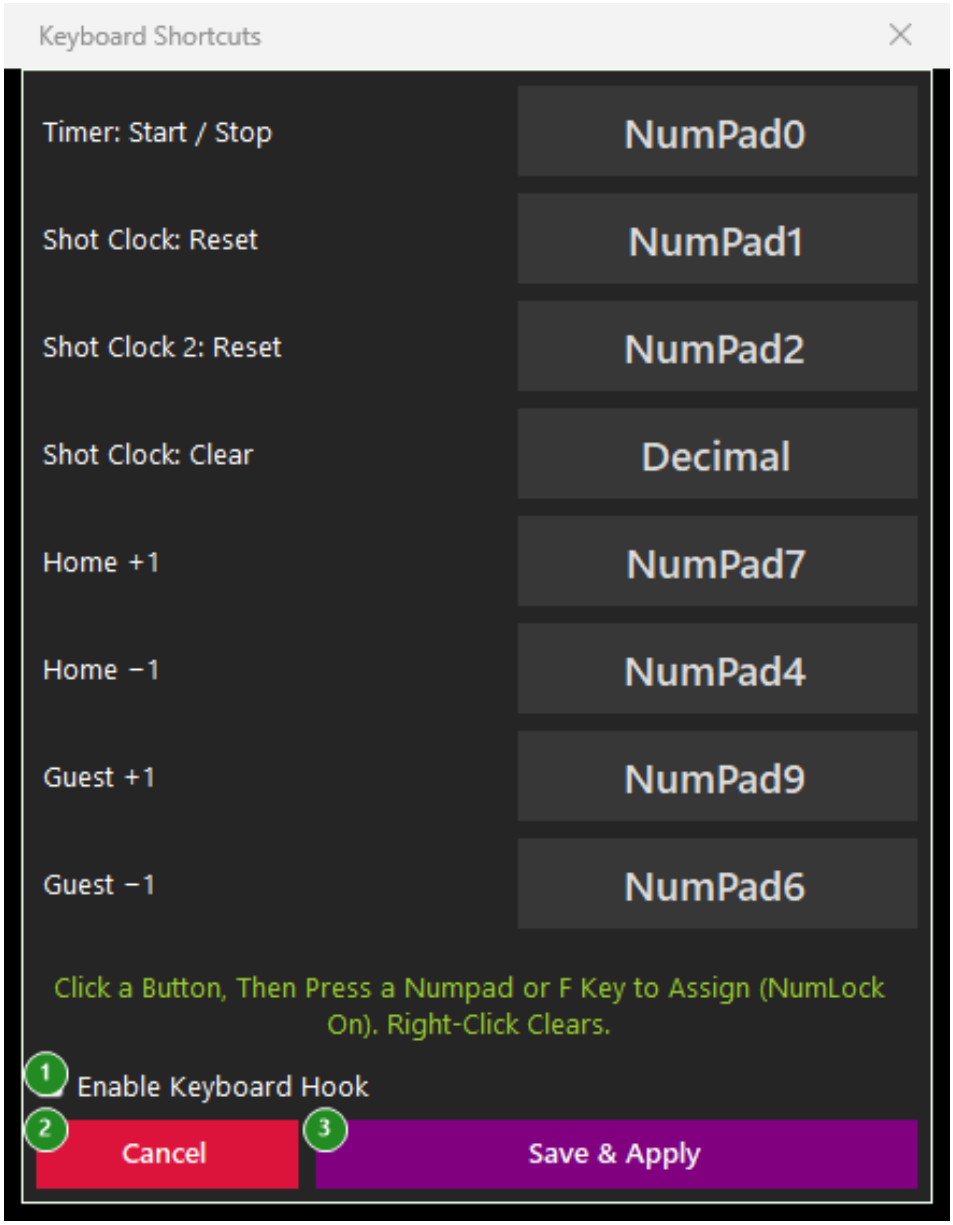


Figure 93. The Keyboard Shortcuts window with the default keys. The shortcuts are off (Enable Keyboard Hook not ticked).

No.	Control	Name	What It Does
1	Enable Keyboard Hook	**Enable Keyboard Hook**	Switches the global keyboard shortcuts on or off. Off on a new installation. NumLock must be on.
2	Cancel	**Cancel**	Closes the window without saving the keys.

No.	Control	Name	What It Does
3	Save & Apply	**Save & Apply**	Saves the keys and the on / off setting and arms the shortcuts at once.

The window lists eight actions, each with a key box.

1. Tick Enable Keyboard Hook. The shortcuts are off on a new installation.
2. To change a key, click its box (it turns blue), then press the new key. The box shows the Windows name of the key, for example NumPad7 or F5.
3. Click Save & Apply. Cancel closes without saving.

- Only the numeric keypad (NumPad0 to NumPad9, Add, Subtract, Multiply, Divide, Decimal) and the function keys F1 to F24 can be assigned. Other keys and keys pressed with Ctrl, Shift or Alt are ignored.
- A key can belong to one action only. When you give a key that is already in use to another action, the old box is emptied.
- Right click a box to clear it. An action without a key has no shortcut.
- Esc releases the selected box; a second Esc closes the window without saving.
- When the shortcuts are on, they are armed again at every program start.

15.2 Default Keys

Action (Window Text)	Default Key (Box Text)	Same As on the Game Tab
Timer: Start / Stop	Num 0 (NumPad0)	Play / Pause of the match clock (chapter 5.3). It does not reset the clock.
Shot Clock: Reset	Num 1 (NumPad1)	The right shot clock button: the first value, for example 80 (chapter 5.5).
Shot Clock 2: Reset	Num 2 (NumPad2)	The left shot clock button: the second value, for example 60.
Shot Clock: Clear	Num . (Decimal)	The red clear sign: shot clock to 0.
Home +1	Num 7 (NumPad7)	The up arrow of the home team: a goal, with End Penalty on Goal and Stop Chronometer on Goal (chapter 5.2).
Home −1	Num 4 (NumPad4)	The down arrow of the home team.
Guest +1	Num 9 (NumPad9)	The up arrow of the guest team.
Guest −1	Num 6 (NumPad6)	The down arrow of the guest team.

The default keys put the home team on the left of the keypad (7 and 4) and the guest team on the right (9 and 6), like the board.

The defaults are written only into a new installation. An installation updated from an earlier version keeps its saved keys.

15.3 NumLock

NumLock must be on. With NumLock off, the keys 0-9 and . of the numeric keypad send other keys (arrows, Home, End, Insert, Delete) and the default shortcuts do not work. Num /, Num *, Num + and Num − work in both states.

Good to know:

- The key also reaches the program that has the focus. Keep the cursor out of text fields of other programs while you score, or the digit is typed there too.
- Holding a key repeats the action. Tap the keys, do not hold them.
- While you assign keys with the shortcuts switched on, pressing an assigned key also performs its action. Switch the shortcuts off (untick, Save & Apply) before you reassign keys, or check the score afterwards.
- Timeouts, penalties, periods and the shootout have no keyboard shortcut. Use the Game tab, the remote (chapter 13) or the HTTP API (chapter 14).

16. Languages and Translations

16.1 Choosing the Language

The program 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.

1. Open Settings > Language, or click the flag at the right of the Game tab (Language Settings).
2. Choose the language in Select Language. The list shows each language in its own name with its flag.
3. Click the disk icon next to the list. The program shows "New Language Selected. Please Restart the Application."
4. Close and restart arenaBoard 7.

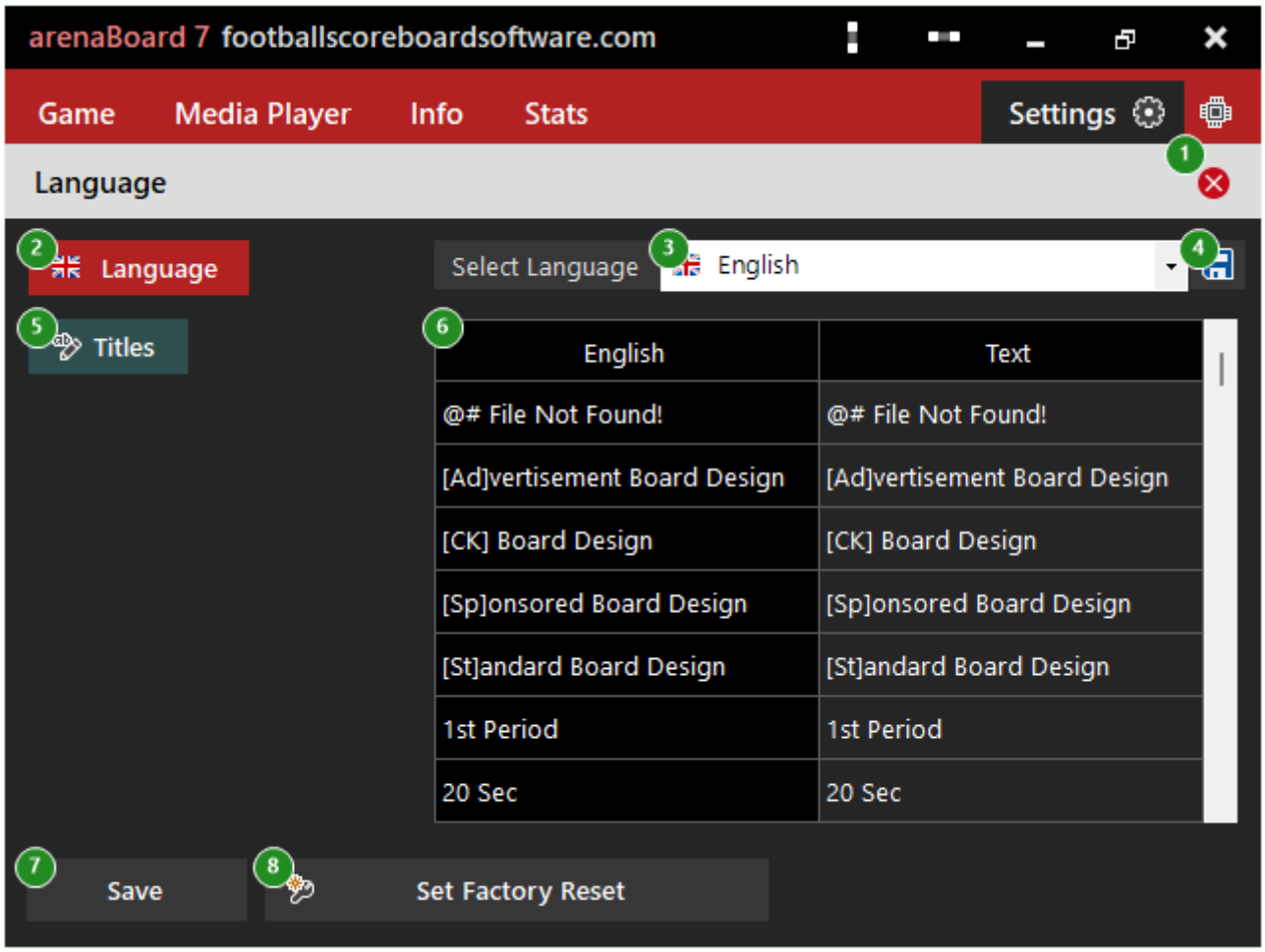
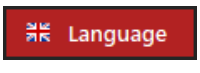
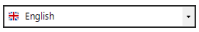
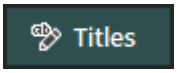
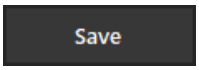


Figure 94. The Language page with the English texts.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the Language page. Esc does the same.
2		**Language**	Shows the translation table of the language chosen in Select Language.

No.	Control	Name	What It Does
3		**Select Language**	Chooses one of the 46 languages, shown in its own name with its flag. The table shows its texts; the program language changes only with the disk icon next to the list.
4		**Save Language (Disk)**	Makes the chosen language the program language and fills the titles with its texts. The program asks for a restart: New Language Selected. Please Restart the Application.
5		**Titles**	Shows the titles of the info graphics and lists (Goal, Time Penalty, cards, Substitution, Standings, Players ...) for editing.
6		**Translation Table**	English on the left (read only), the text of the chosen language on the right (Text). Select a text, press F2, type and press Enter; the Save button turns lime.
7		**Save**	Saves the changed texts (or titles on the Titles tab). Lime while there are unsaved changes. Changed program texts are used after the next start.
8		**Set Factory Reset**	Language tab: copies the factory texts of all languages back at once, without a question; your changes are lost. Titles tab: fills the titles with the texts of the program language.

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

> **Note:** The remote control page (chapter 13) is in English in every language.

16.2 Editing Translations

Every text of the program can be changed:

1. On the Language tab, choose the language in Select Language. The table lists every text: English on the left, the text of the chosen language on the right (column Text), sorted alphabetically by that text.
2. Click the text on the right and press F2, type the new text, press Enter. The Save button turns lime.
3. Click Save. The texts change after the next start of the program.

- Translations other than English and Turkish were made by machine translation. Corrections by native speakers are welcome; please send them to support.
- Your texts are in C:\arenaBoard7\common\xml\lang.xml. An update of the program does not replace this file (chapter 2.5). Copy it to a safe place before you reinstall the PC.

> **Note:** An upgrade keeps your lang.xml with your own translations. Texts that are new in the new version are then shown in English. To get the translations of the new version, click Set Factory Reset on the Language page (chapter 16.4). This also replaces your own changes to the translations, so note them first.

16.3 Titles

The Titles tab holds the titles of the info graphics and lists on the board: Goal, Penalty Goal, Time Penalty, the cards (Yellow Card, Green Card, Red Card, Second Yellow Red Card), Substitution, Referees,

Standings, Results, Fixtures, Players, Substitutes and Coach. The left column shows what the title is for; the right column is the text on the board.

1. Click Titles.
2. Click a title on the right, press F2, type the new text, press Enter.
3. Click Save. The new title is used the next time the graphic is shown.

The edit button next to the title in the info editors (chapter 9) opens this tab directly.

The titles are kept in common\xml\title.xml. At the first start and every time you save a new language with the disk icon, the program fills them with the texts of the program language.

> **Note:** Saving a language with the disk icon replaces your own titles with the texts of that language. Change the titles again afterwards if needed.

16.4 Factory Texts

Set Factory Reset copies the factory texts back:

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

The factory texts are in C:\arenaBoard7\common\xml\langFactory.xml; your texts are in common\xml\lang.xml. Copy lang.xml to a safe place before a factory reset if you want to keep your changes.

> **Note:** Choose the language in Select Language only on the Language tab. Choosing a language while the Titles tab is open loads the translation table into the Titles tab; click Language first.

17. Settings Reference

17.1 The Settings Tab

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

17.2 Screen Properties

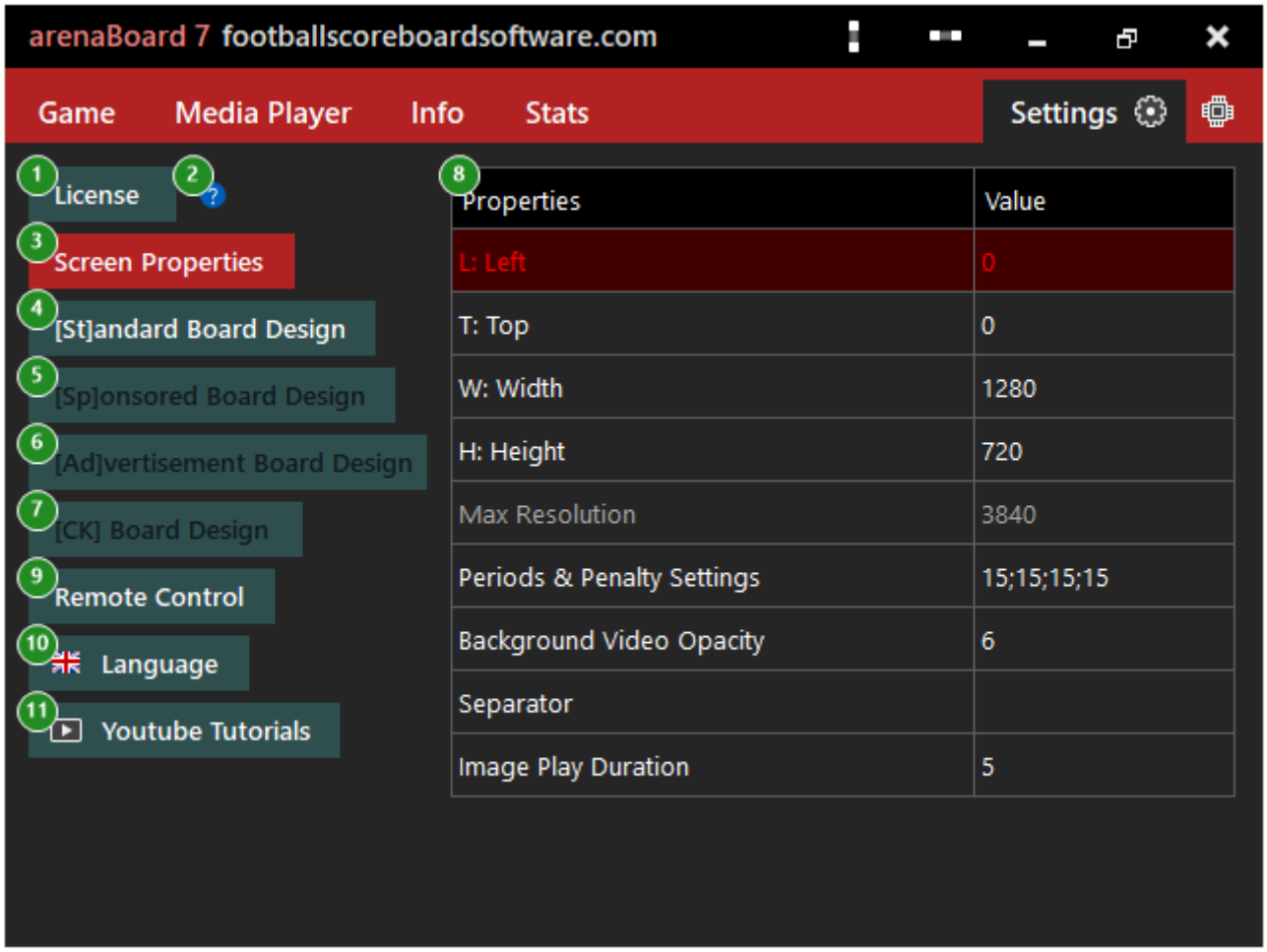
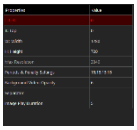


Figure 95. Settings > Screen Properties.

No.	Control	Name	What It Does
1	License	**License**	Opens the License page: the Computer ID, the licence key, Save and Create USB License, the support address and the program version.
2	?	**License Info (?)**	Opens the License Info box: Validation, Max Resolution, Expire Date, Model, GPU Enabled, Extra Player, Record & Replay and the result of the date check.
3	Screen Properties	**Screen Properties**	Opens the Screen Properties table: board position and size (L, T, W, H), Max Resolution, Periods & Penalty Settings, Background Video Opacity, Separator and Image Play Duration.
4	[St]andard Board Design	**[St]andard Board Design**	Opens the design settings of the Standard board: the design gallery and the design editor (chapter 8). It can be clicked only while the St display mode is on.
5	[Sp]onsored Board Design	**[Sp]onsored Board Design**	Opens the design settings of the Sponsored board (chapter 8). It can be clicked only while the Sp display mode is on.
6	[Ad]vertisement Board Design	**[Ad]vertisement Board Design**	Opens the design settings of the Advertisement board (chapter 8). It can be clicked only while the Ad display mode is on.
7	[CK] Board Design	**[CK] Board Design**	Opens the design settings of the Chroma Key board (chapter 8). It can be clicked only while the CK display mode is on.

No.	Control	Name	What It Does
8		**Screen Properties Table**	Click a value, type the new one (or press F2) and leave the cell: it is saved and the board is redrawn at once. L, T, W and H place and size the board in desktop pixels; W and H cannot exceed Max Resolution (grey, set by the licence). Background Video Opacity takes 0 to 10, Image Play Duration 1 to 120 seconds, Separator may be empty; other empty or wrong values are put back. Periods & Penalty Settings is changed with its ... button.
9	Remote Control	**Remote Control**	Opens the Remote Control page: address, QR code, PIN and the on / off switch of the remote server (chapter 13).
10	Language	**Language**	Opens the Language page: the program language and the translations (chapter 16).
11	Youtube Tutorials	**Youtube Tutorials**	Opens the Board7 video tutorials (a YouTube playlist) in the web browser.

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

Row	Default	Values	What It Does
L: Left	0	Pixels	X position of the board windows on the Windows desktop.
T: Top	0	Pixels	Y position of the board windows.
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 DEMO)	Read only (grey)	The largest width and height.
Periods & Penalty Settings	The four period lengths in minutes: 15;15;15;15 on a new installation (Field Lacrosse)	"..." button	Read only. Select the row and click the "..." button in its value cell to open the Period & Penalty Settings (chapter 6).
Background Video Opacity	6	0-10	Strength of the background video behind the boards and info screens. An invalid value is set back to 6.
Separator	Empty	Text	When set, the board shows both scores in one field with this text between them (for example 9:7). Empty = two separate score fields.

Row	Default	Values	What It Does
Image Play Duration	5	1-120 seconds	How long a picture stays on in a Media Player playlist. An invalid value is set back to 5.

> **Note:** The board size and position apply to all board windows of all display modes. Set W and H to the pixel size of the screen or LED output that shows the board (chapter 7). On a second monitor, L is usually the width of the first monitor (for example 1920).

17.3 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; switch the display mode on the Game tab first. The design editor is described in chapter 8.

17.4 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 (for example http://192.168.1.20:1907/logon.html), and holds the PIN. The PIN is 123456 until you change it. The remote control is off on a new installation. The page is described in chapter 13.

17.5 Language

The Language page chooses the program language and edits the translations; the Titles tab holds the titles of the info graphics and lists (chapter 16).

17.6 Where Other Settings Are

Setting	Where
Display mode	Game tab: St, Sp, Ad, CK (chapter 7)
Discipline, periods, shot clock, timeouts and penalties	Game tab, or Screen Properties > Periods & Penalty Settings (chapter 6)
Design	Game tab and the design gallery (chapter 8)
Sponsor band (place, height, content)	Sp page (chapter 7)
Ad layout, media and banners	Ad page (chapters 7 and 12)
Chroma key colour	CK page (chapter 7)
Keyboard shortcuts	Game tab: keyboard icon (chapter 15)
Remote control and PIN	Settings > Remote Control, or the remote icon on the Game tab (chapter 13)

All settings are stored in C:\arenaBoard7\start.xml (and config*.xml for the designs). The program saves them at once. start.xml is not part of the setup: the program creates it with the factory values at the first start, and an update never touches it (chapter 2.5).

18. Troubleshooting and FAQ

18.1 The Board Is Black or Empty (WebView2)

The boards are drawn by the Microsoft Edge WebView2 Runtime. It is part of Windows 11 and of current Windows 10 installations; the arenaBoard 7 setup does not install it. If it is missing, the board windows stay empty and the program shows no message.

- Install the Evergreen WebView2 Runtime from https://developer.microsoft.com/microsoft-edge/webview2/ and restart the program.
- If the board engine crashes, the program reloads the board page by itself. If the board stays black, restart the program and update the graphics driver.

18.2 Fonts

The setup installs the fonts of the boards in Windows, and the program also loads them from C:\arenaBoard7\common\font at every start. If a board shows a wrong font, run the font installation again in a PowerShell window opened as administrator:

```
powershell -ExecutionPolicy Bypass -File C:\arenaBoard7\install_fonts.ps1
```

Then restart the program. A font you choose in the design editor must be installed on this PC (chapter 8).

18.3 The Board Is on the Wrong Monitor or Has the Wrong Size

The board windows are placed by L: Left, T: Top, W: Width and H: Height in Settings > Screen Properties (chapter 17.2). The values are pixels of the Windows desktop:

- Board on the second monitor to the right of a 1920-pixel-wide main monitor: L = 1920, T = 0.
- W and H = the resolution of the monitor, LED processor or capture input that shows the board.
- W and H cannot be larger than Max Resolution (from the licence).

Check the arrangement of the monitors in Windows Settings > System > Display. If the monitors were re-arranged, set L and T again.

18.4 Licence and DEMO

- Without a valid licence the boards show DEMO in the middle, and some actions show "License Required! This action is not allowed in the DEMO version." (for example + and − of the home score, also from the remote). Enter the licence in Settings > License (chapter 3) and restart the program.
- With a USB licence, plug the stick in before you start the program.
- "License Key Not Valid!": the key belongs to another PC or stick. After a hardware change send the new Computer ID to support (chapter 3).

18.5 Remote Control and Network

Problem	Fix
The phone cannot open the remote page	Is Disable unticked in Settings > Remote Control? Are phone and PC in the same network? Is the address correct, with port 1907 (http://<PC address>:1907/logon.html)? Try Local Test on the PC first.

Problem	Fix
Local Test works, the phone does not	The firewall blocks port 1907. Run C:\arenaBoard7\open_firewall_1907.bat as administrator; it adds the four "arenaBoard 1907" rules if they are missing. Check other firewall or security software, and that the Wi-Fi of the phone is not a guest network that isolates devices.
Local Test does not work either	Another program uses port 1907, for example another Board7 program or a second copy of arenaBoard 7. arenaBoard 7 shows no message in this case. Close the other program, then tick and untick Disable.
The PIN is not accepted	The logon page comes back empty after a wrong PIN. Check the PIN in Settings > Remote Control; after a change, click the disk icon to save it.
The remote shows the state but buttons do nothing	The PIN was changed while the page was open: tap Log Out and log on with the new PIN. Some buttons are locked on purpose; see section 18.6.
The Network Adapter list is wrong	Only connected Ethernet and Wi-Fi cards with an IPv4 address are listed. Connect the PC to the network first, then open the page again.
The QR code opens nothing	Choose the network card the phone shares (Network Adapter); a QR code of a virtual or second card leads nowhere.

18.6 A Button or Key Does Nothing

Situation	Reason
A period button (P1 … P4, SO) does nothing	Periods change only while the match clock is stopped and no timeout runs. The remote shows Locked on the Period card. Pause the clock first.
Timeout buttons do nothing	Timeouts can only be started or corrected while the match clock is stopped. The remote shows Clock Running on the Timeouts card.
Play does nothing during a timeout	While a timeout runs the match clock is locked. End the timeout (▶ of the team again) or wait until it ends.
A penalty does not count down	Penalties count down only while the match clock runs. Penalties beyond the number of players allowed in the penalty box wait in the list (chapter 6).
The Shot tab of the remote is missing	The shot clock is switched off for this discipline (chapter 6).
A keyboard shortcut does nothing	Switch the shortcuts on in the Keyboard Shortcuts window and switch NumLock on: the default keys are on the numeric keypad (chapter 15).
A design button 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 17.3).

18.7 A Design Looks Wrong

If a board design was changed by mistake and looks wrong, load the factory version of the design with Factory Settings (chapter 8.3).

18.8 Settings and Translations

- All settings are in C:\arenaBoard7\start.xml. To start with fresh settings, close the program and rename start.xml; the program creates a new one with the factory values at the next start. The PC licence key is kept in arena7License.xml and is not affected (chapter 3).
- The texts of the program are in common\xml\lang.xml. If the texts are wrong or missing, Set Factory Reset on the Language page copies the factory texts back (chapter 16.4).
- An update keeps start.xml, config*.xml, lang.xml, title.xml and your data (chapter 2.5).

18.9 FAQ

The boards show DEMO. No valid licence was found at start. Check Settings > License; after entering a key, restart the program (chapter 3).

How do I control the board from a phone? Untick Disable in Settings > Remote Control, change the PIN, scan the QR code with the phone and enter the PIN (chapter 13).

Is the remote safe? It is protected by the PIN only and not encrypted. Use it in your own network, change the PIN from 123456 and do not save an empty PIN (chapter 13.3).

The remote page is in English although the program is in another language. That is intended: the remote page has English texts only (chapter 16.1).

Two people use the remote and a goal counted twice. The PC accepts every command. Only one person should score at a time.

After a goal the clock stopped and a penalty ended. That is the goal behaviour of the Period & Penalty Settings: a goal can stop the clock, reset the shot clock and end the opponent's first penalty (chapters 5 and 6).

The Goal button on the Info tab of the remote did not change the score. The info graphics only show the graphic and add the goal to the timeline. Give the goal with + on the Home tab.

Stop reset my clock and the penalties disappeared. The second Stop resets the clock to the length of the period and clears the penalty lists. Use Play / Pause to pause.

The language did not change. Click the disk icon next to Select Language, then restart the program (chapter 16.1).

My titles changed after I chose a language. Saving a language fills the titles with the texts of that language (chapter 16.3). Change them again on the Titles tab.

A playlist number on the remote plays the wrong playlist. Only the numbers 1 to 6 exist; any other number plays playlist 1 (chapter 13.5).

How do I close the program safely? With the X in the title bar of arenaBoard 7. The program asks "The Application Will Be Closed! Are You Sure?"; after Yes it saves the team names and the two text lines, closes the boards and ends. The settings are saved as you work. The score, the clocks, the period, the penalties and the timeouts are not saved: after a restart they start fresh (chapter 4.4).

Appendix A: Rules Sources

arenaBoard 7 does not enforce the rules of lacrosse. It keeps the clocks, the score, the penalties and the timeouts with values that you can change in Period & Penalty Settings (chapter 6). Each discipline has factory values. This appendix lists the factory values and the rule books that the comments of the program code name for them.

> **Note:** All values below are factory defaults. They were written into the program as a starting point and are not a check of the current edition of any rule book. Rules change from season to season and differ between competitions, age groups and leagues. Check every value against the rules of your competition before the first match, and change it in Period & Penalty Settings where needed.

A.1 Factory Values and the Sources Named in the Code

Discipline	Factory Values	Source Named in the Program Code
Field Lacrosse	4 periods of 15 minutes; penalties 0:30 (technical foul, releasable), 1:00 and 3:00 (personal fouls); up to 3 penalties per team count down at once; 90 s timeout; shot clock 80 s, 60 s after a save or rebound; a goal stops the clock and ends the first releasable penalty of the other team (not a 3:00 penalty)	NCAA men's lacrosse. The code adds that high-school games can be set to 4 × 12 minutes.
Women's Lacrosse	4 periods of 15 minutes; green card 1:00 and yellow card 2:00 (releasable), red card 5:00 (non-releasable, with ejection); up to 3 penalties per team at once; 2-minute (120 s) team timeout; possession clock 90 s, 60 s after a deflection; a goal stops the clock and ends the first releasable penalty of the other team (not the 5:00 red card)	NCAA / World Lacrosse women's rules
Sixes Lacrosse	4 periods of 8 minutes with a running clock (a goal does not stop the clock); penalties 0:30 (minor), 1:00 (major) and 3:00 (severe); up to 2 penalties per team at once; 30 s timeout; shot clock 30 s, also 30 s after a rebound	World Lacrosse Sixes (the Olympic format). The code also notes: three majors lead to ejection; two 30-second timeouts per team and half; in the last 30 seconds the shot clock reset stays at 30 or is switched off.

Discipline	Factory Values	Source Named in the Program Code
Intercrosse	2 halves of 15 minutes (H1, H2) and 2 overtime periods of 5 minutes (OT1, OT2) for a tie; penalties 1:00 (minor) and 2:00 (major), no third level; 1 penalty per team at once; 60 s timeout; shot clock 30 s; teams of five players	FIIC (Fédération Internationale d'Intercrosse), soft-stick, non-contact. The code notes that FIIC rules vary by event and that the values are meant to be edited.

A.2 What the Program Does With These Values

Rule Topic	What the Program Does	What It Does Not Do
Periods	Counts down the length of each period and stops at 00:00 with a sound.	It does not start overtime by itself or decide a tie.
Penalties	Counts down up to Max Penalty Player penalties per team while the clock runs; the others wait.	It knows releasability only by the length: on a goal it ends the first running penalty of the other team that is not of the third (longest) length (chapter 5.7). Expulsions and the number of fouls of a player are not tracked.
Timeouts	Counts down the timeout length and marks up to two timeouts per team.	It does not limit the timeouts per half or reset them at a new period.
Shot clock	Runs with the match clock and resets to two values.	There is no shot-clock horn and no automatic reset on a change of possession.
Running clock	Stop Chronometer on Goal off keeps the clock running after a goal (Sixes).	Other stoppage rules (for example the last minutes of a period) are not applied; pause the clock by hand.
Shootout	Records scored and missed attempts (chapter 5.8).	It does not count the attempts or decide the winner.

The referees decide; the operator records.

> **Note:** The values in this appendix are factory defaults taken from the rule books named in the table; the program names no edition or year for them. Check them against the rules of your competition before the match.

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>$
```

- Command names are not case-sensitive. The view and period values of click (st, period_1 …) are not case-sensitive either.
- Side values: home means the home team; every other value, guest included, means the guest team. Write home in small letters: HOME counts as guest.
- Fields of a multi-field value are separated by | (encoded %7C). An empty field is allowed: home%7C%7C30 leaves the second field empty.
- Text values: _ is a line break only in set_home_team, set_guest_team, line_text_1 and line_text_2.
- Every accepted request replies with the state XML of section B.3. A command that cannot act (a wrong value, a timeout while the clock runs) changes nothing and gives the same reply. The error replies are listed in chapter 14.1.

B.2 Commands

View

Command	Value	What It Does
click	st, sp, ad, ck	Switches the display mode (chapter 7) and brings the Game tab to the front.
match	–	Brings the Game tab to the front: back from the Media Player, an info graphic or another tab to the scoreboard.

Teams and Lower Lines

Command	Value	What It Does
set_home_team, set_guest_team	Text	Sets the team name. _ starts the second line (BOSTON_CANNONS).
line_text_1, line_text_2	Text	Sets the first or second lower line of the board. _ is a line break.

Score

Command	Value	What It Does
set_home_score, set_guest_score	Number (0 or more)	Sets the exact score. Other values are ignored. The clock and the penalties are not touched.

Command	Value	What It Does
set_home_score_up, set_guest_score_up	–	One goal for the team, as + on the Game tab: depending on the settings it also ends the opponent's first penalty, and with a running clock pauses the match clock and resets the shot clock (chapter 5).
set_home_score_down, set_guest_score_down	–	One goal less (not below 0).

> **Note:** Without a licence (DEMO) set_home_score_up and set_home_score_down show "License Required! This action is not allowed in the DEMO version." on the PC and do nothing (chapter 3).

Match Clock

Command	Value	What It Does
set_chronometer	play	Starts the match clock (and the shot clock). Nothing when it runs already.
set_chronometer	pause	Pauses the match clock and the shot clock.
set_chronometer	stop	As Stop on the Game tab: the first call pauses the clock; a call while it is stopped resets the clock to the length of the period and clears the penalty lists.
set_chronometer	mm:ss (for example 12:00)	Sets the match time. The value must contain a colon. A running clock is paused first; the period does not change.
click	playpause	Starts or pauses the match clock, as the Play / Pause button of the Game tab. Ignored while a timeout runs.
click	stop	Same as set_chronometer stop.

Periods

Command	Value	What It Does
click	period_1, period_2, period_3, period_4	Selects the period and sets the clock to its length. The labels of the periods are in PeriodLabels of GET.
click	penalty	Selects the shootout (period 5): the Game tab shows the shootout marks instead of the team names, the clock reads 00:00.

Periods change only while the match clock is stopped and no timeout runs; otherwise the command is ignored.

Shot Clock

Command	Value	What It Does
shotclock	reset1	Resets the shot clock to its first value (ShotClock1 of GET). It keeps running when the match clock runs.
shotclock	reset2	Resets the shot clock to its second value (ShotClock2).
shotclock	clear	Stops the shot clock and sets it to 0.

Timed Penalties

Command	Value	What It Does
penalty_add	side|number|seconds	Adds a penalty to the list of the team, for example home|8|30. Use one of the seconds values of PenaltyLevels (30, 60, 120, 180 ...). 0 or no seconds: ignored. The penalty counts down while the match clock runs; penalties beyond the number of players allowed in the penalty box wait in the list.
penalty_cancel	side|index	Removes a penalty. index is its place in PenaltyHome or PenaltyGuest of GET, counted from 0.

Shootout

Command	Value	What It Does
shootout	side|O, side|X	Adds an attempt: O scored, X missed (any value other than X counts as O). The last five attempts per team are kept. The score does not change.
shootout_clear	side	Clears the attempts of the team.

Timeouts

Command	Value	What It Does
timeout_set	side|up, side|down	Corrects the number of timeouts taken by the team (0 to 3). Ignored while the match clock runs.
timeout_start	side	Starts the timeout countdown of the team and counts one timeout for it. While a timeout runs, the same command ends it early. Ignored while the match clock runs.

While a timeout runs, TimeoutRunning of GET is True and TimeoutTimer counts down.

Info Graphics

Flags are 1 (on) or 0 (off); the default is in brackets. An empty name is taken from the team list by the number; an empty minute is filled in from the match clock. To take the graphic off, send match or a click with a view.

Command	Value	What It Does
info_goal	side|type|number|name|minute|animate|picture|add2events	Shows the goal graphic. type: goal [default] or penalty (penalty-shot goal); own is accepted and ignored. animate [1]: goal animation; picture [0]: player photo; add2events [1]: add to the match timeline. The score does not change.
info_card	side|slot|number|name|minute|picture|add2events	Shows a card or penalty graphic. slot is a key of CardSlots for the current discipline (section B.5); an unknown key uses the first slot. No animation flag. No penalty is started.
info_subst	side|inNum|inName|outNum|outName|minute|picture|add2events	Shows the substitution graphic.

Examples:

```
cmd=info_goal&value=home%7Cgoal%7C22%7CSMITH%7C14%7C1%7C0%7C1$
cmd=info_card&value=home%7CPen100%7C8%7C%7C%7C0%7C1$
cmd=info_subst&value=home%7C14%7C%7C9%7C%7C22%7C0%7C1$
```

Media

Command	Value	What It Does
start_playlist	1 to 6	Opens the Media Player and starts that playlist (chapter 12). If a playlist already plays, it is stopped. Any other value plays playlist 1.
start_playlist_ad_screen	1 to 6	Switches to the Advertisement mode, opens the Ad page and starts that playlist of the Ad media. Any other value plays playlist 1.

State

Command	Value	What It Does
GET	–	Returns the state XML (section B.3) and changes nothing.

B.3 The GET Reply

```
<Items>
  <Item>
    <BoardType>St</BoardType>
    <Mode>0</Mode>
    <ModeName>Field Lacrosse</ModeName>
    <Home>UTAH ARCHERS</Home>
    <HomeScore>9</HomeScore>
    ...
  </Item>
</Items>
```

Field	Content
BoardType	Display mode: St, Sp, Ad or CK
Mode	Discipline: 0 Field Lacrosse, 1 Women's Lacrosse, 2 Sixes Lacrosse, 3 Intercrosse
ModeName	The name of the discipline
Home, Guest	Team names (a two-line name contains a line break)
HomeScore, GuestScore	Scores
Chronometer	Match clock as shown on the Game tab
StatusChronometer	True while the match clock runs
Period	1 to 4; 5 = shootout
Extra01, Extra02	Lower lines 1 and 2
ShotClock	Shot clock value
UseShotClock	False when the discipline has no shot clock
ShotClock1, ShotClock2	The two reset values of the shot clock
PeriodLabels	Four labels separated by |; an empty label = no such period
PenaltyLevels	The penalty buttons as seconds~title~colour, separated by | (for example 30~0:30~gold)
CardSlots	The card buttons as key~caption~colour, separated by | (section B.5)
PenaltyHome, PenaltyGuest	Running penalties as number~mm:ss, separated by |, in list order
ShootoutHome, ShootoutGuest	Shootout marks, for example [O] [O] [X]
UseTimeout	False when the discipline has no timeouts
TimeoutHome, TimeoutGuest	Timeouts taken

Field	Content
TimeoutRunning	True while a timeout runs
TimeoutTimer	Seconds of the timeout countdown
PlaylistStarted, AdPlaylistStarted	1 while a playlist of the Media Player or the Ad page plays, else 0

Colours are names, not colour codes: gold, orange, dorange (dark orange), orangered, green, yellow, yellowred, red.

B.4 Legacy Names

These older names are still accepted:

Legacy Command	Same As
click first_half	click period_1
click second_half	click period_2
click extra_1	click period_3
click extra_2	click period_4
reset_shotclock	shotclock reset1
reset_shotclock2	shotclock reset2
clear_shotclock	shotclock clear
info_goal type own	Accepted and ignored (soccer own goal; lacrosse has none)

B.5 Card Slots per Discipline

The slot keys of info_card. The caption is the text of the button on the Info tab of the remote.

Discipline	Slots (key: caption)
Field Lacrosse (0)	Pen030: 0:30, Pen100: 1:00, Pen200: 2:00, Pen300: 3:00
Women's Lacrosse (1)	CardGreen: G, CardYellow: Y, CardYellowRed: Y/R, CardRed: R
Sixes Lacrosse (2)	Pen030: 0:30, Pen100: 1:00, CardYellow: Y, CardRed: R
Intercrosse (3)	Pen100: 1:00, Pen200: 2:00, CardYellow: Y, CardRed: R

The title of a Pen slot on the board is the Time Penalty title; the cards use their own titles (chapter 16.3).

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).
Chroma key (CK)	Graphics on a solid key colour that a vision mixer replaces with the camera picture.
Computer ID (CPU ID)	The ID of the PC that a PC licence key is made for (chapter 3).
DEMO	The program without a valid licence: the board clock reads DEMO for one second in every ten.
Discipline	The kind of lacrosse: Field, Women's, Sixes or Intercrosse. Chosen with the Mode button on the Game tab (chapter 6).
Display mode	St, Sp, Ad or CK (chapter 7).
End Penalty on Goal	The setting that ends a running penalty when the other team scores.
Field lacrosse	The men's outdoor game with ten players a side, played in four periods.
Info screen	A graphic with match information shown instead of the scoreboard, or as a lower third in CK (chapter 9).
Intercrosse	A non-contact form of lacrosse with soft sticks and a soft ball, played in two halves with overtime.
Lower third	A graphic in the lower part of a TV picture.
Master	A factory design. It is read only; save your changes as your own design (chapter 8).
Max Penalty Player	The number of players of a team that can be in penalty at the same time.
Max Resolution	The largest board width and height allowed by the licence key.
NDI	A standard for video over the network; arenaBoard 7 can send the board and receive NDI cameras.
On air	Shown on the output now.
Penalty	A player's time out of play for a foul; the board shows the player number and the time counting down.
Period	One part of the match: P1 to P4, or H1, H2, OT1, OT2 in Intercrosse.
PIN	The code that protects the remote control and the HTTP API (chapter 13).
Releasable penalty	A penalty that ends early when the other team scores.
Scorebug	The small score graphic of the CK mode.
Shootout	The tie-breaker after a drawn match; the board shows a green tick for each scored and a red cross for each missed attempt of a team (chapter 5).
Shot clock	The time a team has to shoot at goal. It is reset to the full value or to a shorter reset value (for example 80 or 60 seconds).

Term	Meaning
Sixes	A short, fast form of lacrosse with six players a side on a smaller field, with a running match clock.
Timeout	A break requested by a team, with a countdown on the Game tab and the board.
Timeline	The list of goals and other events of the match (chapter 10).
u	The board unit of the designs (chapter 8).
USB ID	The ID of the USB stick that a USB licence key is made for (chapter 3).
WebView2	The Microsoft Edge component that draws the boards.
Women's lacrosse	The women's game with twelve players a side, with green, yellow and red cards.

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; Windows display scaling of that monitor is 100 % (chapters 7, 17 and 18).
3. Design: the right master or your own design is applied in every display mode you will use (chapter 8).
4. Discipline: the Mode button on the Game tab shows the right discipline. Period & Penalty Settings has the values of the competition: period lengths and names, penalty times, Max Penalty Player, End Penalty on Goal, Stop Chronometer on Goal, timeout and shot clock (chapter 6).
5. Data: team names, logos, player lists and photos, referees, standings, results and fixtures are filled in (chapters 9, 10 and 11).
6. Sponsors and media: sponsor images, banners, playlists and the background video are in place (chapter 12).
7. Remote: switched on, PIN changed from 123456, the phone or tablet logged on, a test goal given and taken back (chapter 13).
8. Keyboard shortcuts: switched on if used, NumLock on (chapter 15).
9. NDI or video output: the receiver or vision mixer shows the board; for keying use CK with a key colour (chapter 7).

Before each match:

1. The team names, the two text lines and the logos of both teams (chapters 5 and 11).
2. The score at 0-0, the 1st Period selected and the match clock at the period length.
3. The shot clock, timeouts and penalties cleared.
4. The Timeline of the previous match deleted, if you do not want to keep it (chapter 10).
5. The display mode for the moment (St, Sp, Ad or CK) and the scoreboard on the output.
6. The team lists or Referees screens, if you show them before the face-off (chapter 9).

During the match:

- One person scores. Use the down arrow of the team at once after a wrong goal.
- Start and stop the match clock with the referee's whistle; reset the shot clock with its buttons (chapter 5).
- Start each penalty with the player and the penalty time button of the team; check that it ends when it should (End Penalty on Goal).
- Timeouts from the Game tab; the timeout counts down by itself.
- Choose the next period at the end of each period.
- Show the Goal screen or a lower third after a goal if wanted (chapter 9).

After the match:

- Show the final score, the stats and the standings if wanted (chapters 9 and 10).
- Close arenaBoard 7 with its Close button at the end of the day. The settings, team names and text lines are saved; the score and the clocks are not (chapter 4).