volleyBoard 7

Professional Led Display Scoreboard Software

USER MANUAL

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LANGUAGE SUPPORT

volleyBoard 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 volleyBoard 7 Does

volleyBoard 7 is scoreboard and match-graphics software for volleyball. You run the match from the main window on the operator PC. The program draws the scoreboard in a separate board window that you place on a second display, a projector or an LED wall, or send over the network as an NDI video stream.

The score follows the rules of the match by itself. You give each rally to the team that won it; the set, the serve, set point and match point, the side-switch alerts and the end of the match follow automatically. Corrections and Undo are always one click away.

Besides the score, volleyBoard 7 shows:

- the team names on one or two lines, with the team logo, or with a three-letter team code and its flag when the code is a country code;
- the serve ball beside the serving team, the sets won, the scores of the completed sets and the points of the set in play;
- a status band: Set Point, Match Point, Deciding Set, a timeout with its countdown and the final result;
- the match time or the time of day, and two text lines for the tournament and the round;
- timeouts, technical timeouts, substitutions, the libero indicator, video challenges and sanctions;
- the Set Point Callout before big points;
- volleyball info screens: Starting Lineup, Player Intro, Timeout, Set Result, Match Result, Video Challenge, Substitution, Sanction, MVP / Top Scorer, Statistics, Standings, Results and Officials;
- sponsor images, scrolling texts, banners, announcements, video playlists, camera pictures and screen captures.

Board Output **Control Panel**

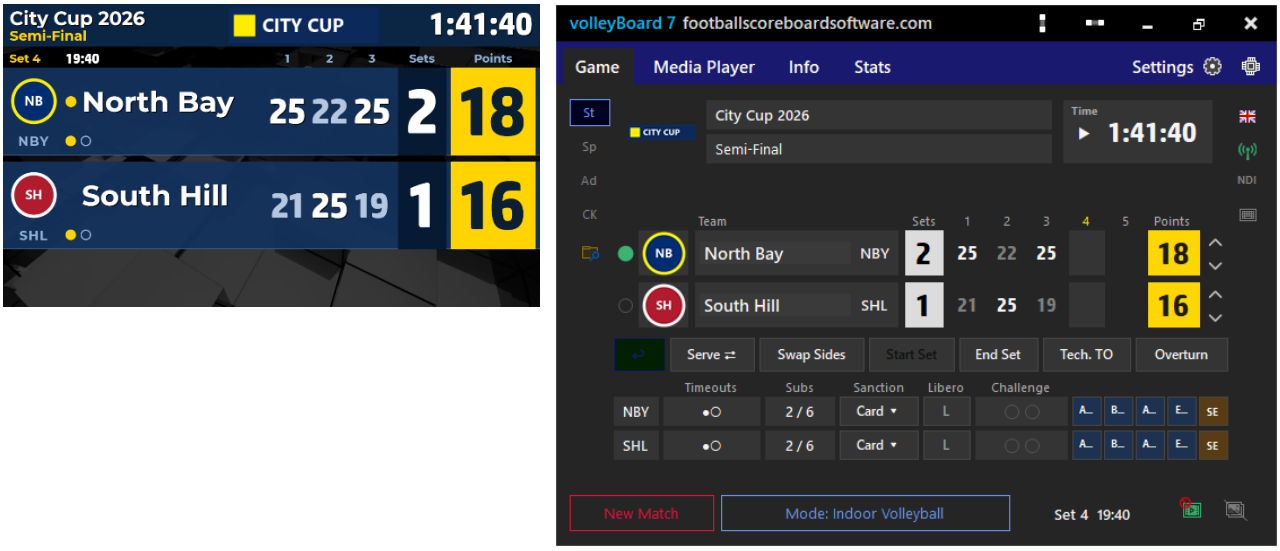


Figure 1. The Standard board during a match and the Game tab that drives it.

1.2 Disciplines

One installation covers eight volleyball disciplines. You choose the discipline with the Mode button on the Game tab, for example "Mode: Indoor Volleyball" (chapter 6). Each discipline starts with its own factory rules; you can change every rule in Match Rules and keep it for the next matches.

Discipline	Factory Format	Timeouts per Set	Substitutions per Set	What Is Special
Indoor Volleyball	Best of 5, sets to 25, deciding set to 15, 2-point lead	2 × 30 s	6	Libero; side-change alert after each set and when the leading team reaches 8 points in the deciding set; technical timeouts can be switched on (at 8 and 16 points of the leading team, 60 s, not in the deciding set). Presets Best of 5, Best of 3, Video Challenge.
Beach Volleyball	Best of 3, sets to 21, deciding set to 15	1 × 30 s	None	Side switch every 7 points (every 5 in the deciding set); technical timeout at 21 points of both teams together (30 s). Presets Best of 3, 1 Set.
Sitting Volleyball	As Indoor	2 × 30 s	6	As Indoor, with libero.
Snow Volleyball	Best of 3, sets to 15, deciding set to 15	1 × 30 s	2	Side switch every 5 points. Presets Best of 3, 1 Set.
Footvolley	Best of 3, sets to 18, deciding set to 15	1 × 60 s	None	Side switch every 6 points (every 5 in the deciding set). Presets Best of 3, 1 Set.
Park / 4v4 Volleyball	Best of 3, sets to 21, deciding set to 15	1 × 30 s	Unlimited (counted only)	Side switch every 7 points (every 5 in the deciding set). Presets Best of 3, 1 Set.

Discipline	Factory Format	Timeouts per Set	Substitutions per Set	What Is Special
Nine-Man Volleyball	Best of 3, sets to 21, deciding set to 15, point cap 25	2 × 30 s	Unlimited (counted only)	Side-change alert after each set and when the leading team reaches 8 points in the deciding set. Presets Best of 3, 1 Set.
Mini Volleyball	Best of 3, sets to 15, deciding set to 15	1 × 30 s	Unlimited (counted only)	Side-change alert after each set. Presets Best of 3, 1 Set.

Video challenges are off in every discipline at first; the Video Challenge preset (Indoor and Sitting) or Match Rules switches them on.

> **Note:** The factory values of Footvolley, Park / 4v4, Nine-Man and Mini volleyball, and some Snow values (side switches, timeouts), are common practice, not an official rule book. Check them against the rules of your competition before the first match (Appendix A).
>
> **Note:** Changing the discipline or a scoring rule during a match starts a new match. The program asks before it resets the score and the match clock.

1.3 Display Modes

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

- Standard (St): the full-screen scoreboard with team names, logos or flags, completed sets, sets won, points, the match time and two text lines for the tournament and the round.
- Sponsored (Sp): the Standard scoreboard with a sponsor band, showing sponsor images or a scrolling text.
- Advertisement (Ad): the scoreboard beside a large area for a video playlist, a camera or a screen capture, with a banner.
- Chroma Key (CK): a compact scorebug and lower-third info graphics on a solid key colour, to be keyed over a live TV picture in a vision mixer.





Figure 2. The Standard (left) and Sponsored (right) display modes.

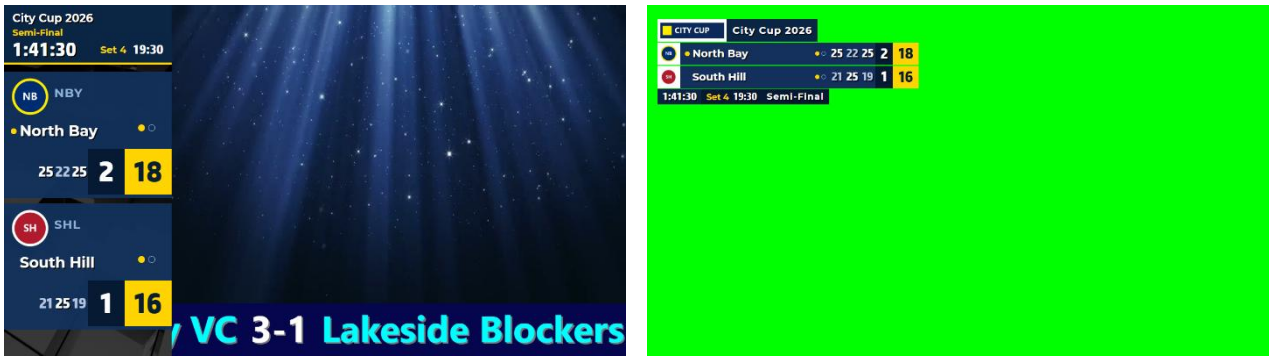


Figure 3. The Advertisement (left) and Chroma Key (right) display modes.

The Standard board comes in five factory designs (Master 1 - Navy, the default, Master 2 - Charcoal, Master 3 - Clay, Master 4 - Arena and Master 4 - Arena (Sponsor Band)); the Advertisement and Chroma Key boards in Navy, Charcoal and Clay. You can change any element of a design in the design editor and save your own designs (chapter 8).

1.4 How to Read This Guide

Chapters 2 to 4 cover installation, licensing and the main window. Chapters 5 and 6 are the core of the work during a match: the operator panel and the disciplines with their match rules. Chapters 7 to 12 describe the boards, designs, info screens, statistics, 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 languages, the settings reference, troubleshooting and the 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 sample teams, tournament and sponsors. Scores and clocks were set for the pictures. The program ran with a licence; without a licence the boards show the word DEMO (chapter 3).

1.5 Website and Support

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

2. Installation and First Start

2.1 System Requirements

Item	Requirement
Windows	64-bit Windows. The setup does not install on a 32-bit system, and the program is a 64-bit program.
.NET Framework	4.7.2 or later
Microsoft Edge WebView2 Runtime	Required: every board is drawn with it (section 18.1)
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 (port 1907) and NDI
Display scaling	100 % on the monitor that shows the board is recommended (section 18.2)

> **Note:** volleyBoard 7 needs the .NET Framework 4.7.2 (or later) and the Microsoft Edge WebView2 Runtime. Current Windows 10 and Windows 11 PCs normally have both. If the program does not start or the board stays empty, install them from Microsoft (section 18.1).

2.2 Installing

1. Close volleyBoard 7 if it runs. The setup also closes it before it copies files.
2. Run the setup (volleyBoard7Setup7.6.10.12.exe) and follow the wizard.
3. The program is installed in C:\volleyBoard7. The folder cannot be changed.

During the installation the setup also:

- installs the fonts of the boards in Windows ("Installing fonts...");
- adds four Windows firewall rules for port 1907, named "volleyBoard 1907 TCP IN", "volleyBoard 1907 UDP IN", "volleyBoard 1907 TCP OUT" and "volleyBoard 1907 UDP OUT" ("Configuring firewall rule...");
- creates the desktop shortcuts volleyBoard7 (the program, set to run as administrator) and volleyBoard7 Help (this guide). A third shortcut, volleyBoard7 Promo, is created only when the promo PDF is part of the setup.

In Apps & Features the program is listed as volleyBoard7 7.6.10.12.

2.3 First Start

Start volleyBoard 7 with the desktop shortcut. A small status card appears while the program loads:

- "volleyBoard Started..."
- "Checking license..." while the licence is read. Reading the Computer ID can take up to 30 seconds on a slow PC; the USB scan up to 8 seconds.
- "Renderer Initialized..." and "Entering Main Loop..." while the boards are prepared.

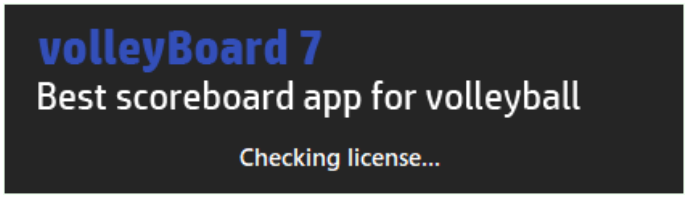


Figure 4. The status card while the program starts.

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

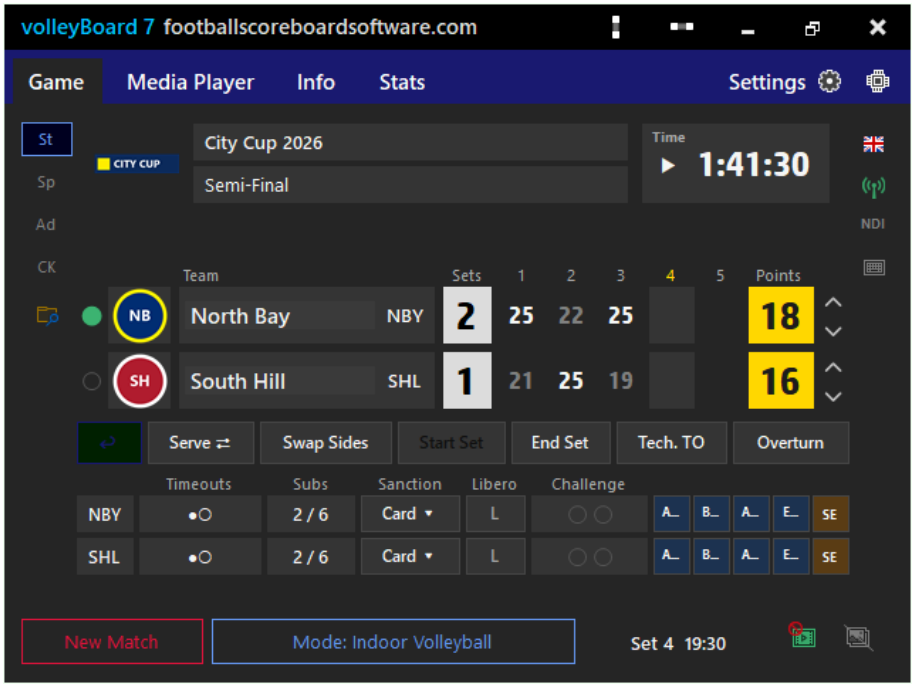


Figure 5. The main window with the Game tab (shown here during a match; at the first start the score is 0-0).

A new installation starts with these settings:

Setting	First Start Value
Board window	Left 0, Top 0, 960 × 540 pixels
Display mode	Standard (St)
Design	Master 1 - Navy
Discipline	Indoor Volleyball, best of 5
Language	The language of the Windows regional format; English if it is not one of the 46 languages
Sample match	Two sample teams with their logos, tournament "Volleyball League 2026", round "Round 1", score 0-0, clock 0
Background video	media\videos\BlackRoyal.mp4
Chroma key colour	Green
Remote control	Off, PIN 123456
Keyboard shortcuts	Off (the default keys are already assigned)
Point-outcome buttons	Off

Setting	First Start Value
NDI sender name	VB7_NDI
Licence	DEMO until a licence is entered (chapter 3)

> **Note:** Run only one copy of volleyBoard 7. The program does not stop a second copy; two copies would write the same settings, and only one of them can use the remote control port.

2.4 Folders and Files

Everything lives in C:\volleyBoard7:

Folder or File	Contents
volleyBoard7.exe and the .dll files	The program
start.xml	All settings, the discipline and match rules, the keyboard keys and the saved match (created at the first start)
config.xml, configSp.xml, configAd.xml, configCK.xml	Banner and Announce texts, Sponsored, Advertisement and Chroma Key settings
vb7license.xml	The PC licence (written when you save a key)
common\data	Players, team lists, playlists, sponsors
common\font	The fonts of the boards
common\images	Pictures, team logos (logos), player photos (players) and flags (flags)
common\remote	The remote control pages and API_Commands.txt
common\vizrt\storage	The factory designs and your saved designs
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 and tables downloaded by the program
logs	One log file per day, vb7_yyyy-MM-dd.log, kept for 14 days
API_Commands.txt	The HTTP API reference (Appendix B)
volleyBoard7Help.pdf	This guide
open_firewall_1907.bat, install_fonts.ps1	Helpers to repeat the firewall and font steps of the setup

The browser profile of the boards is kept per Windows user in %LOCALAPPDATA%\volleyBoard7\WebView2.

2.5 Upgrading to a New Version

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

Kept	Replaced
start.xml (settings, rules, keys, saved match) and vb7license.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, playlists and sponsors (common\data)	The factory designs in common\vizrt\storage\St, Sp, Ad, CK and the factory design list
Your saved designs, your design list and the designs in use	langFactory.xml, this guide, API_Commands.txt, open_firewall_1907.bat
Your translations (lang.xml) and titles (title.xml)	Factory media files with the same names (files you added to media are not touched)

At the next start the program brings your files up to date:

- New texts of the new version are added to lang.xml in all languages. Your own texts are never changed and nothing is removed. The old file is kept once as lang.xml.bak_premigration; the additions are listed in lang.migration.log next to start.xml.
- Missing settings are added to start.xml (new keyboard actions start without a key). The old file is kept once as start.xml.bak_premigration.
- A board design that you never changed is replaced by the new factory design. A design you changed is kept; the new factory design stays available in the design gallery (chapter 8).

> **Note:** Settings > Language > Set Factory Reset brings the new wording of existing texts, but it overwrites all languages at once, without a question (chapter 16).

2.6 Uninstalling

Use Apps & Features > volleyBoard7 7.6.10.12 > Uninstall. The uninstaller removes the program, the logs, the downloads folder, the browser profile and the backup copies of the settings files (*.bak, *.tmp, *.corrupt-*). Your settings, licence file, players, designs and media stay in C:\volleyBoard7. The fonts and the firewall rules stay in Windows.

> **Note:** Before you uninstall, copy C:\volleyBoard7 to a safe place if you want to keep your settings, players, designs and licence.

2.7 Quick Start: The First Match

1. Start volleyBoard 7. The Game tab shows the sample 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 (chapter 7).
3. Check the discipline on the Mode button of the Game tab, for example "Mode: Indoor Volleyball". Click it to choose another discipline or other rules (chapter 6).
4. Type the team names (one or two lines), the team codes, the tournament and the round, and choose the logos (chapters 5 and 11).

5. Give the serve to the team that serves first (chapter 5).
6. Give every rally to the team that won it with Point + or a click on its points cell. Use Undo at once if a rally went to the wrong team.
7. After the last rally the Game tab shows "Match Won" with the winner. Click New Match before the next match.

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

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

	PC Licence (CPU)	USB Licence
Bound to	This PC, through its Computer ID	One USB stick, through its USB ID
Key file	C:\volleyBoard7\vb7license.xml	vb7license.xml in the root folder of the stick
Use	Only on this PC	On any PC where the stick is plugged in
Checked	At every program start	At every program start, before the PC licence

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

The key also sets the largest board size (Max Resolution, chapter 17) and an expiry date. For some licences it enables the GPU screen capture of the Advertisement and Chroma Key modes (GPU badge) and the extra media player (eMP badge).

3.2 DEMO Mode

Without a valid licence the program runs in DEMO mode. Everything works, with these marks on the output:

- On the Standard, Sponsored, Advertisement and Chroma Key boards the match clock and both team names read DEMO, and the team logos disappear, 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 licence icon at the right of the menu bar shows the state: a padlock without a licence, a USB stick symbol with a USB licence, a CPU symbol with a PC licence. Rest the mouse on it for the tooltip: "No License", "USB License Found" or "CPU License Found".

3.3 Entering a PC Licence

Open Settings > License.

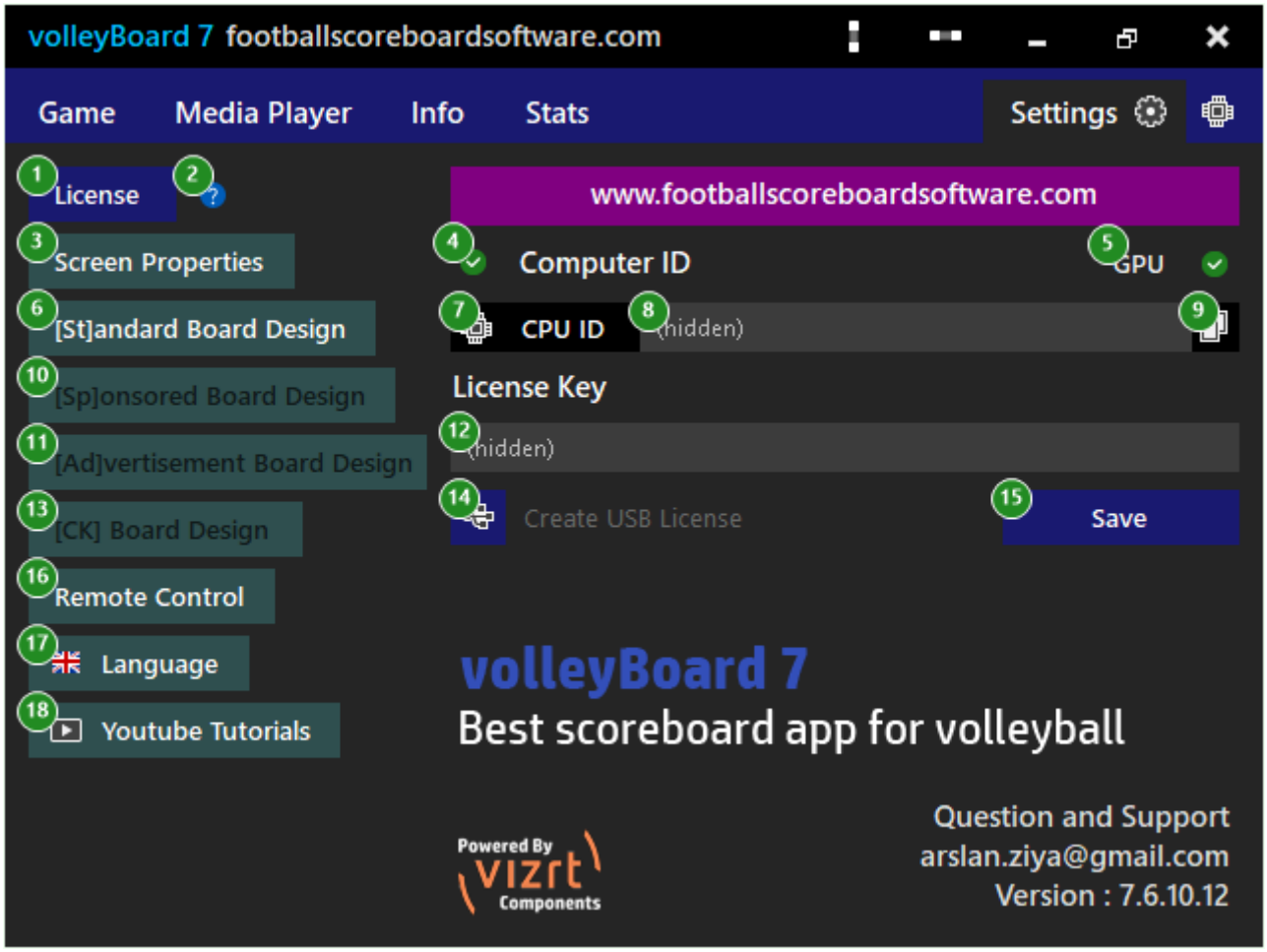
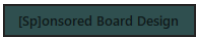
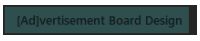
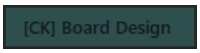
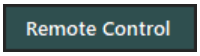
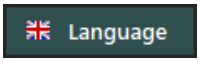
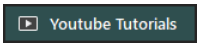


Figure 6. The License page. The Computer ID and the key are hidden in this picture.

No.	Control	Name	What It Does
1	License	**License**	Opens the License page: the Computer ID, the licence key, Save and Create USB License.
2	?	**License Info (?)**	Opens the License Info box: validation, Max Resolution, expiry date, licence model, GPU / 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, background video opacity, separator, image play duration, source on mode switch, Match Rules and Point Outcome Buttons.
4	✓	**CPU License Terms (? / Tick)**	Opens the CPU License Terms of the PC licence. It shows a question mark while the key in the box does not fit this PC and a green tick when it does.
5	GPU ✓	**GPU**	A badge shown when the licence enables the GPU screen capture of the Advertisement and Chroma Key modes. It is information only; clicking it does nothing.
6	[St]andard Board Design	**[St]andard Board Design**	Opens the design editor of the Standard board. It can be clicked only while the St display mode is on.
7	CPU ID	**CPU ID**	The caption of the Computer ID box at its right. Clicking it does nothing.

No.	Control	Name	What It Does
8		**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 the vendor to order the licence.
9		**Copy**	Copies the Computer ID to the clipboard.
10		**[Sp]onsored Board Design**	Opens the design editor of the Sponsored board. It can be clicked only while the Sp display mode is on.
11		**[Ad]vertisement Board Design**	Opens the design editor of the Advertisement board. It can be clicked only while the Ad display mode is on.
12		**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.
13		**[CK] Board Design**	Opens the design editor of the Chroma Key board. It can be clicked only while the CK display mode is on.
14		**Create USB License**	Opens the USB License Creator, which writes a licence key to a USB stick.
15		**Save**	Checks the key in License Key. A valid key is saved 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.
16		**Remote Control**	Opens the Remote Control page: address, QR code, PIN and the on / off switch of the remote server.
17		**Language**	Opens the Language page: the program language, the translations and the titles of the player groups.
18		**Youtube Tutorials**	Opens the volleyBoard video tutorials (a YouTube playlist) in the web browser.

1. Click the copy button next to the Computer ID. The ID is copied to the clipboard.
2. Send the Computer ID to the vendor (arslan.ziya@gmail.com) and order the licence.
3. Paste the key you receive into License Key. The box turns lime when the key fits this PC; it stays grey when it does not.
4. Click Save. The program shows "License Key Valid. Please Restart Application."
5. Restart volleyBoard 7.

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

- The question mark (or green tick) next to the Computer ID opens the licence terms of the PC licence. It shows a green tick when the key in the box fits this PC.
- The ? button next to License opens License Info (section 3.5).
- The bottom of the page shows the support address and the program version (Version : 7.6.10.12).

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

3.4 Creating a USB Licence

1. Plug a USB stick into the PC.
2. Open Settings > License > Create USB License.
3. Choose the stick in Select USB Device. The list shows "Scanning USB drives..." while the program looks for sticks (up to 8 seconds). A stick that already holds a key shows "- License Key Found".
4. Copy the USB ID with the copy button and send it to the vendor.
5. Paste the key you receive into License Key and click Save. The key file vb7license.xml is written to the stick and the program shows "License Key Valid. Please Restart Application."
6. Restart volleyBoard 7 with the stick plugged in.

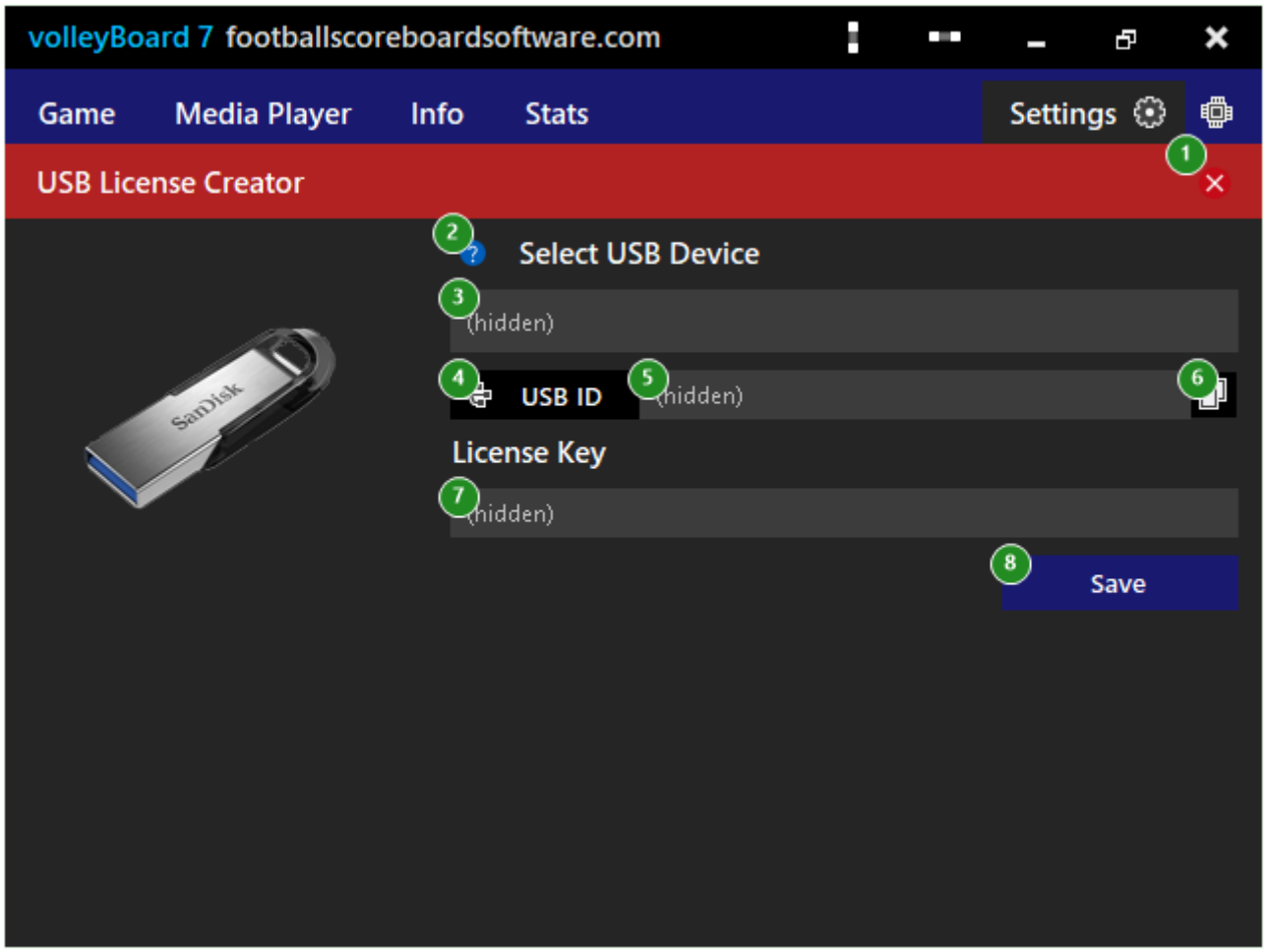


Figure 7. The USB License Creator. The drive, the USB ID and the key are hidden in this picture.

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). The list reads Scanning USB drives... while it searches (up to 8 seconds); 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.

No.	Control	Name	What It Does
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 the vendor 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 vb7license.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!

Esc or the close button leaves the USB License Creator. The question-mark icon opens the licence terms of the USB licence. When a valid USB licence is found at start, the License page shows "USB License Detected" with the USB ID and the key.

3.5 Licence Status

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

Line	Meaning
Validation	Yes with a valid PC or USB licence, No in DEMO
Max Resolution	The largest board width and height allowed by the key
Expire Date	The end of the licence
Model	The licence model number
GPU Enabled, Extra Player, Record & Replay	Options of the licence model
Last line	The result of the date check: "All license checks passed.", or the reason for a failure (licence expired, or the system clock set back)

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; send the new Computer ID to support.
Computer ID shows ?WMI-UNAVAILABLE	Windows could not report the hardware data (WMI). A notice "License check unavailable – Windows WMI error. Try: winmgmt /verifyrepository" appears at start. Run that command as administrator and restart (section 18.4).

What You See	Reason and Fix
It worked before and now shows DEMO	The licence expired, or the PC clock is earlier than the last start. No message is shown: open the License Info box. Correct the Windows date and time, then restart.
The License Key box turns pink	The key fits, but the date check failed (expired, or clock set back).
USB licence not found	The stick must be plugged in before the program starts.

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.

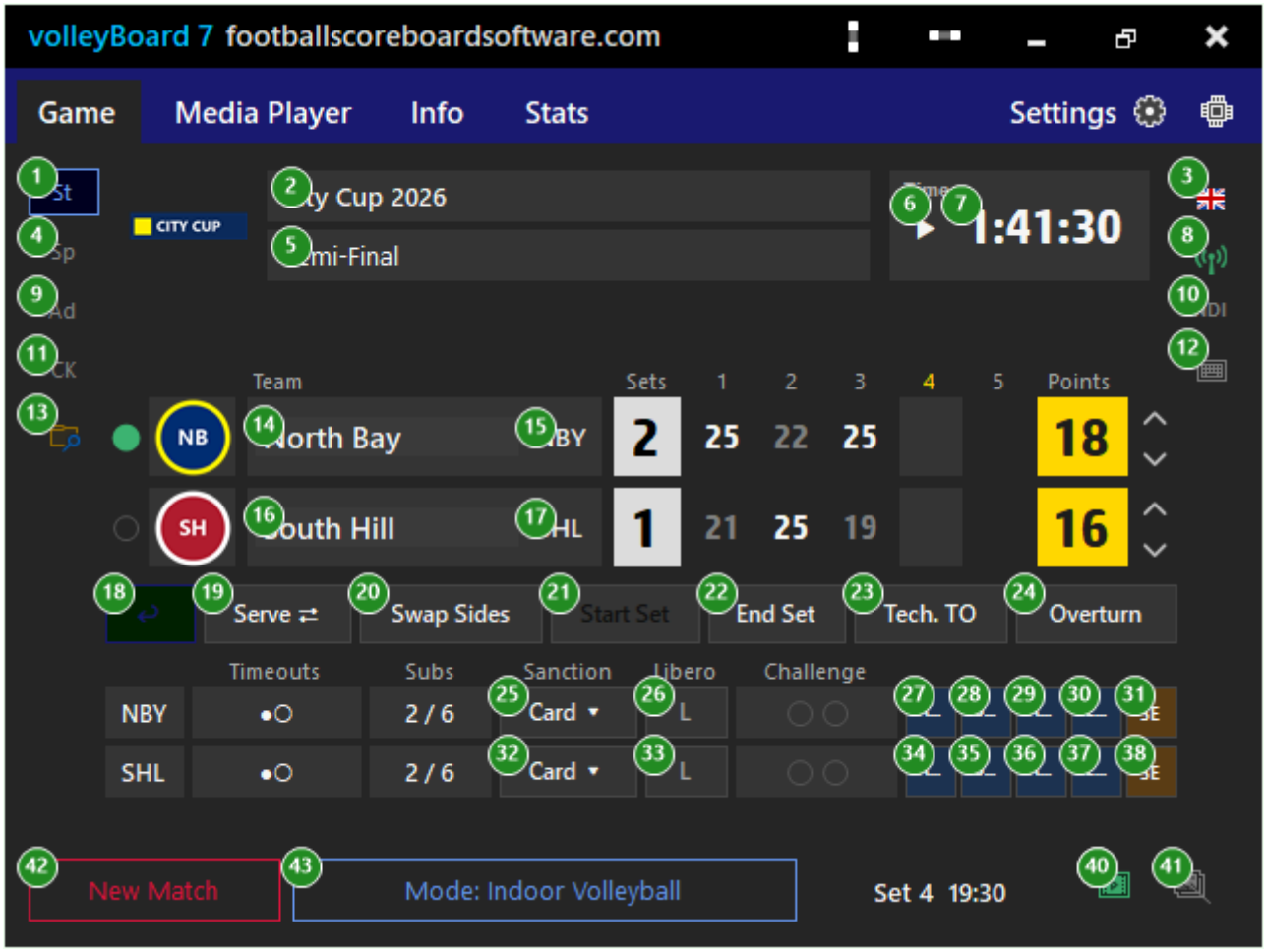
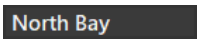
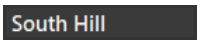
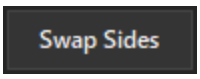
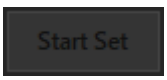
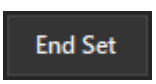
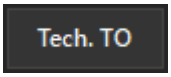
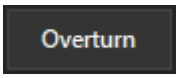
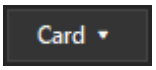
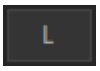
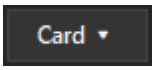
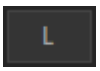
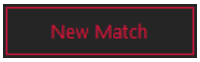
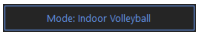


Figure 8. The main window: title bar, menu bar and the Game tab.

No.	Control	Name	What It Does
1	St	**St**	Switches the board to the Standard display mode. The active mode is highlighted in blue.
2	City Cup 2026	**Tournament Line**	The first text line of the board, for example the competition (City Cup 2026). Click and type to change it; it is also part of the subtitle of the info screens.
3		**Language Settings (Flag)**	Opens the Language page of the settings.
4	Sp	**Sp**	Switches the board to the Sponsored display mode: the scoreboard with a sponsor band.
5	Semi-Final	**Round Line**	The second text line of the board, for example the round (Semi-Final). Click and type to change it.

No.	Control	Name	What It Does
6		**Play / Pause**	Starts and pauses the match clock. Hidden while the clock shows the time of day.
7		**Match Clock**	Shows the match time or the time of day. Click it, type a time (h:mm:ss, mm:ss or seconds) and press Enter to set it; right click: switch between match duration and time of day.
8		**Remote Control (Antenna)**	Opens the Remote Control page of the settings. The icon is green while the remote server runs.
9		**Ad**	Switches the board to the Advertisement display mode: score column, banners and a multimedia area.
10		**NDI**	Starts or stops sending the board into the network as the NDI stream VB7_NDI. Highlighted while it sends; when NDI is not available the tooltip gives the reason.
11		**CK**	Switches the board to the Chroma Key display mode: a scorebug on the key colour.
12		**Keyboard Shortcuts (Keyboard)**	Opens the Keyboard Hook Manager. Highlighted while the global keyboard shortcuts are on.
13		**Select Design (Folder)**	Opens the design gallery (Open Design) to apply another board design.
14		**Home Team Name**	The name of the home team on one or two lines: Enter starts the second line, Esc leaves the box. While you type, an X button next to it empties the box.
15		**Home Team Code**	The three-letter code of the home team, always in capitals; a country code shows its flag on the board. Enter or Esc leaves the box.
16		**Guest Team Name**	The name of the guest team on one or two lines: Enter starts the second line, Esc leaves the box. While you type, an X button next to it empties the box.
17		**Guest Team Code**	The three-letter code of the guest team, always in capitals; a country code shows its flag on the board. Enter or Esc leaves the box.
18		**Undo**	Takes back the last action (rally, correction, serve change, timeout, substitution, sanction ...). Click again to go further back.
19		**Serve ⇄**	Gives the serve to the other team.
20		**Swap Sides**	Swaps the teams between left and right on the board. Turns orange when a change of sides is due; clicking it then clears the alert.
21		**Start Set**	Starts the set clock now (the first rally of the set does it too). Greyed out once the set has started.
22		**End Set**	After the question End the Set Now? The Leading Team Wins It., the leading team wins the set. Greyed out while the score is level.

No.	Control	Name	What It Does
23		**Tech. TO**	Starts a technical timeout; while it runs the button is gold and shows the countdown. Click again to end it early.
24		**Overturn**	Gives the last rally to the other team (a referee or video correction).
25		**Card ▾ (Home)**	Opens the sanction menu of the home team: Warning, Penalty, Expulsion, Disqualification, Delay Warning, Delay Penalty. A penalty gives the guest team the point; the text turns gold when the team has a sanction in the set.
26		**L (Home Libero)**	Libero indicator of the home team: click when its libero comes on court, click again when the libero leaves. Highlighted while on.
27		**Atk (Home)**	Attack point of the home team: the home team scores and the outcome is recorded for the statistics. Undo removes both.
28		**Blk (Home)**	Block point of the home team: the home team scores and the outcome is recorded for the statistics. Undo removes both.
29		**Ace (Home)**	Service ace of the home team: the home team scores and the outcome is recorded for the statistics. Undo removes both.
30		**Err (Home)**	Opponent error: the home team scores and the error is counted for the guest team. Undo removes both.
31		**SE (Home)**	Serve error of the home team: the guest team scores and the error is counted for the home team. Undo removes both.
32		**Card ▾ (Guest)**	Opens the sanction menu of the guest team: Warning, Penalty, Expulsion, Disqualification, Delay Warning, Delay Penalty. A penalty gives the home team the point; the text turns gold when the team has a sanction in the set.
33		**L (Guest Libero)**	Libero indicator of the guest team: click when its libero comes on court, click again when the libero leaves. Highlighted while on.
34		**Atk (Guest)**	Attack point of the guest team: the guest team scores and the outcome is recorded for the statistics. Undo removes both.
35		**Blk (Guest)**	Block point of the guest team: the guest team scores and the outcome is recorded for the statistics. Undo removes both.
36		**Ace (Guest)**	Service ace of the guest team: the guest team scores and the outcome is recorded for the statistics. Undo removes both.
37		**Err (Guest)**	Opponent error: the guest team scores and the error is counted for the home team. Undo removes both.
38		**SE (Guest)**	Serve error of the guest team: the home team scores and the error is counted for the guest team. Undo removes both.
39		**Remove Background Video (x)**	The small x on the video icon: removes the background layer video. Shown only while a video is set.
40		**Background Layer Video**	Chooses a video file for the layer behind the board. The icon is green while a video is set.

No.	Control	Name	What It Does
41		**Middle Layer Image**	Chooses an image for the layer between the background video and the scoreboard. The icon is grey and struck through while none is set.
42		**New Match**	After the question Start a New Match? The Score Is Reset., resets the score, sets, counters, Undo history, statistics and the per-match info data; the match clock goes back to 0:00:00.
43		**Mode**	Shows the discipline (Mode: Indoor Volleyball) and opens Match Rules. Hidden while the match clock runs; the tooltip shows the rules summary.

The title bar shows volleyBoard 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 boards stay on.
Maximise	Fills the screen. Click again to go back.
Close (X)	Closes the program after a question (section 4.4).

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

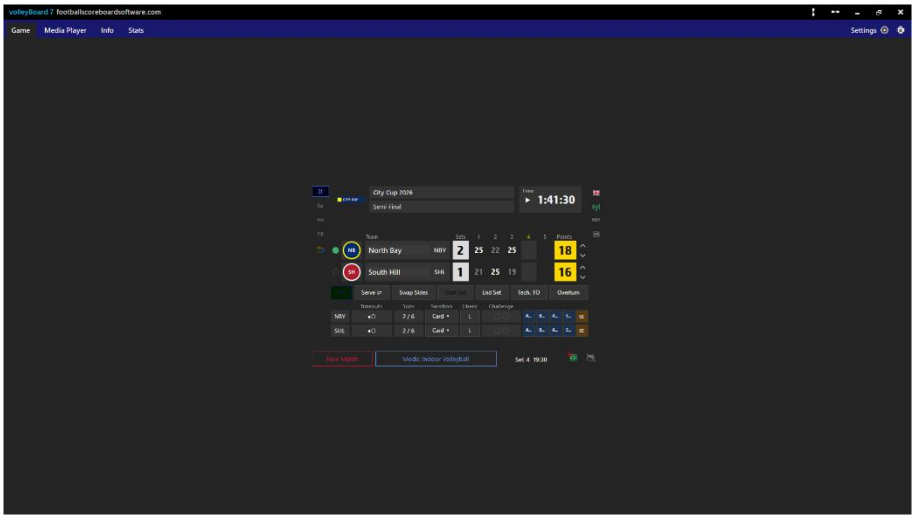


Figure 9. The maximised main window. The page always stays the same size and is centred.

4.2 Menu Tabs

Tab	Opens	Chapter
Game	The operator panel: score, serve, timeouts, substitutions, display modes, designs	5
Media Player	Playlists of videos and pictures	12
Info	Info screens, Banner, Announce, players, sponsors and Show Pictures	9, 11, 12
Stats	The match statistics	10
Settings	Licence, board position, designs, remote control, language	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 between Stats and Settings: Sp, Ad or CK. It opens the page of that mode (chapter 7). In the Standard mode the tab is hidden.
- While a video plays on the media-player board, the Settings tab shows the time left in the clip, for example ▶ 0:42.

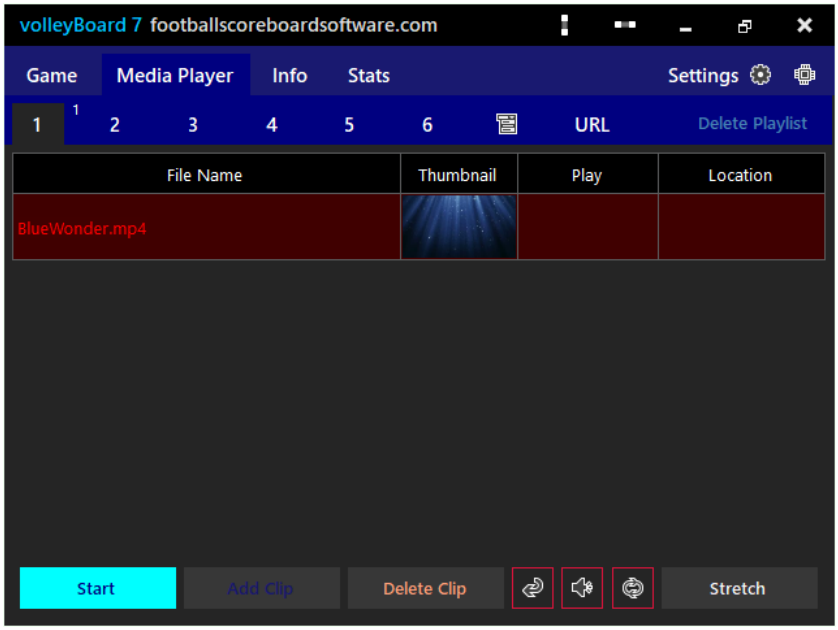


Figure 10. The Media Player tab.

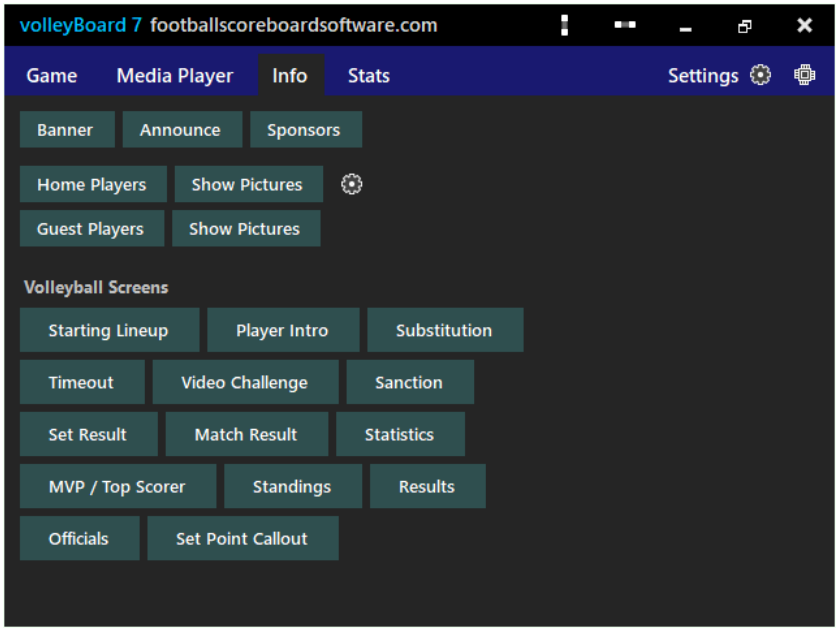


Figure 11. The Info tab.

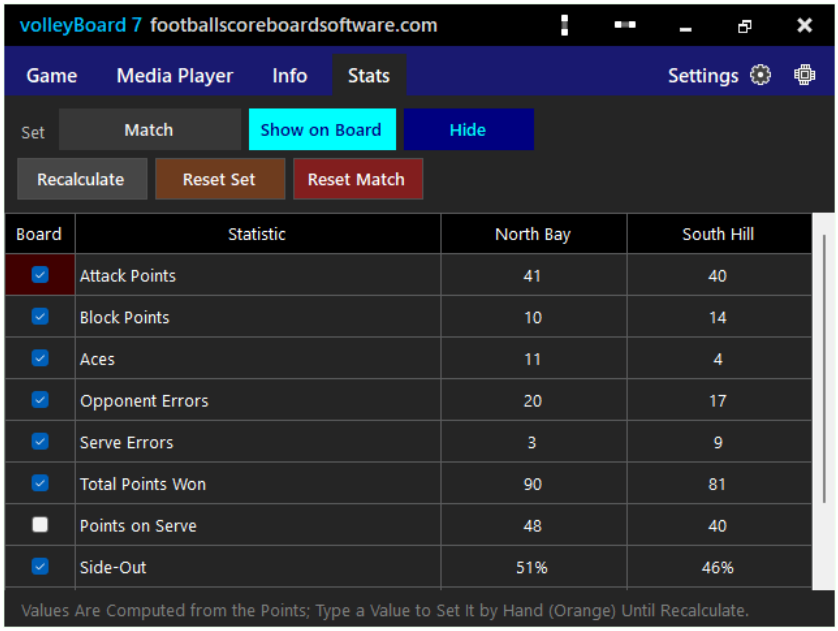


Figure 12. The Stats tab.

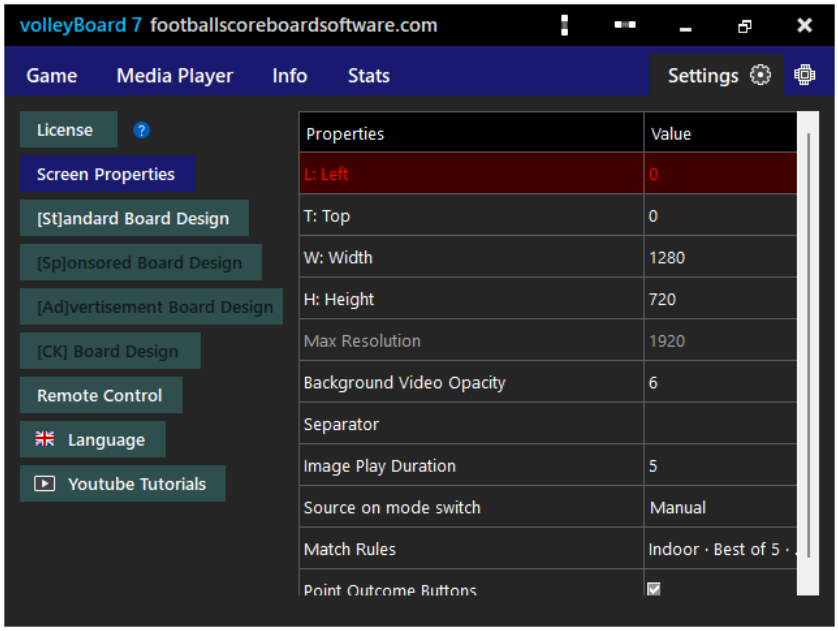


Figure 13. The Settings tab with Screen Properties.

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.

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.

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 settings and the match, stops the remote control, NDI and the captures, and closes the boards. The match is restored at the next start.

> **Note:** Always close volleyBoard 7 with its own Close button. Ending the program from the Windows taskbar or the Task Manager skips the orderly shutdown; the settings files are still protected (section 18.8), but a running match clock may lose the last seconds.

Questions and messages of the program cover the page with a coloured title band (red for warnings) and Yes / No or Ok buttons. Esc answers No (or Ok). Short notices, for example about the remote control, NDI or an internal error that was logged, appear for a few seconds as a small card at the bottom right of the main screen.

5. Operator Panel

The operator panel is the Game tab of the main window. Everything you need during a match is on this one page: the score, the serve, timeouts, substitutions, challenges, sanctions, the libero, corrections, the clocks and the display mode. The page fits a 640 × 480 window, so it also works on a small screen beside the board.

5.1 The Game Tab at a Glance

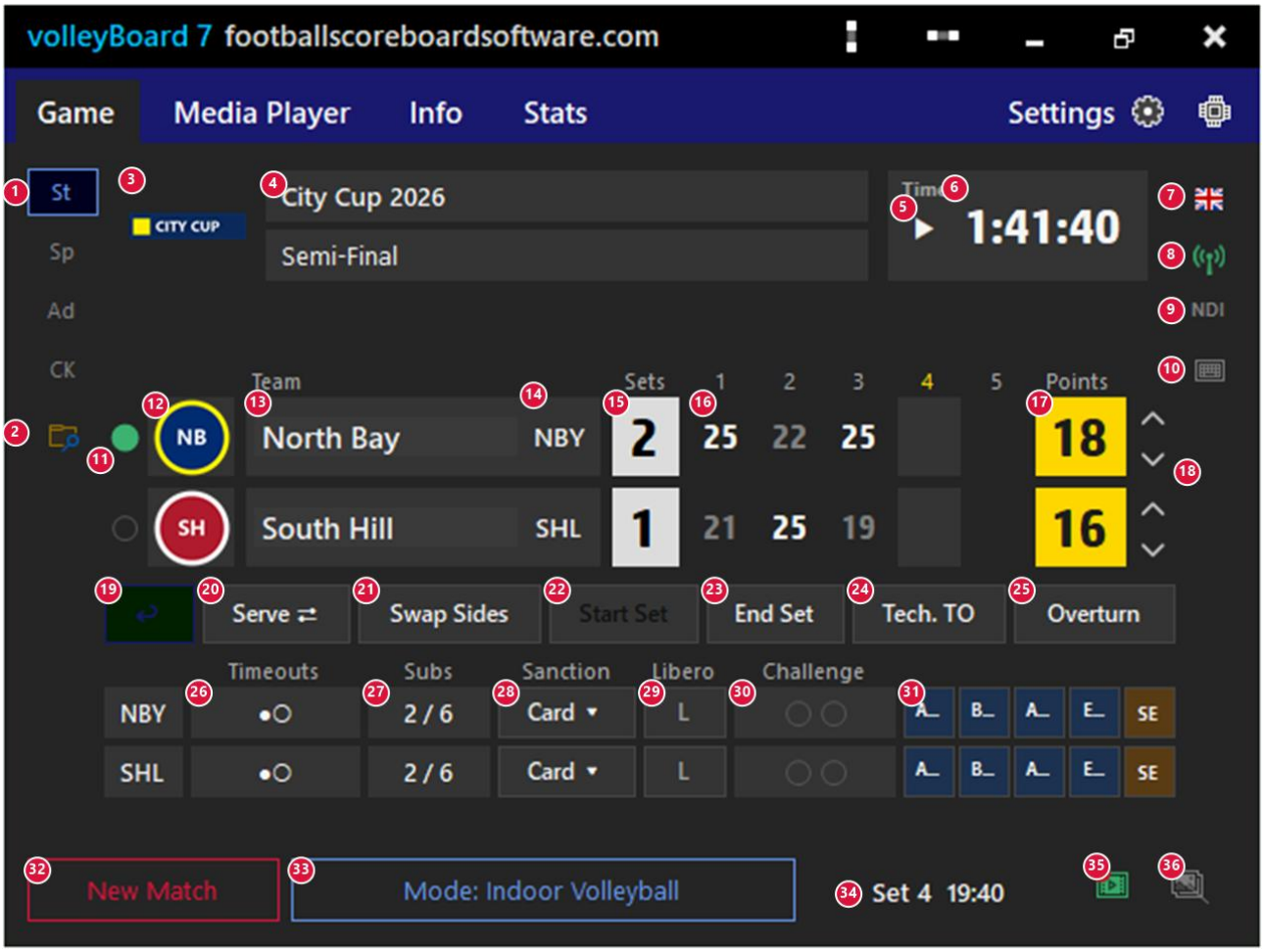


Figure 14. The Game tab during set 4 of an indoor match, with video challenges and the optional point-outcome buttons switched on.

No.	Control	What It Does
1	**St, Sp, Ad, CK**	Switch the board between the Standard, Sponsored, Advertisement and Chroma Key display modes (chapter 7). The active mode is highlighted in blue.
2	**Select Design (folder icon)**	Opens the design gallery to choose another board design (chapter 8).
3	**Logo**	Click to choose a logo for the board, for example the tournament logo.
4	**Tournament and round lines**	Two text lines shown at the top of the board, for example "City Cup 2026" and "Semi-Final".
5	**Play / Pause**	Starts and pauses the match clock (section 5.15). Hidden when the clock shows the time of day.

No.	Control	What It Does
6	**Clock**	The match time or the time of day. Click it to type a time; right click to switch between the two.
7	**Language (flag)**	Opens the language settings (chapter 16).
8	**Remote Control**	Opens the remote control settings (chapter 13). The icon shows whether the remote server runs.
9	**NDI**	Starts and stops the NDI stream of the board (chapter 12.7).
10	**Keyboard**	Opens the Keyboard Hook Manager (chapter 15). Highlighted while the global shortcuts are on.
11	**Serve dots**	The filled dot marks the serving team. Click the ring of the other team to give it the serve (section 5.5).
12	**Team logo**	Click to choose the team logo; right click to remove it (chapter 11.2).
13	**Team name**	The team name on one or two lines (section 5.13).
14	**Team code**	A code of up to three letters. A country code shows its flag on the board (chapter 11).
15	**Sets**	Sets won by the team.
16	**Set columns**	One column per set of the format (5 in a best of 5). Completed sets show their score, the set in play is an empty box with its number in gold. Click a completed set to correct it (section 5.3).
17	**Points**	Points of the set in play. Left click: +1 point (the team wins the rally). Right click: −1 point (a correction). Orange when the team has a set or match point.
18	**Arrows**	Up arrow: +1 point. Down arrow: −1 point.
19	**Undo**	Takes back the last action, whatever it was (section 5.11).
20	**Serve ⇄**	"The Other Team Serves" (section 5.5).
21	**Swap Sides**	"The Teams Change Sides (Board Left / Right)". Turns orange when a change of sides is due (section 5.12).
22	**Start Set**	"Starts the Set Clock (the First Rally Does It Too)". Greyed out once the set has started.
23	**End Set**	"The Leading Team Wins the Set Now", after a question (section 5.3). Greyed out when the score is level.
24	**Tech. TO**	Starts a technical timeout; click again to end it (section 5.6). Shows the countdown while it runs.
25	**Overturn**	"The Last Rally Goes to the Other Team" (section 5.3).
26	**Timeouts**	One pip per timeout of the set; filled = used. Click: timeout. Right click: correct (section 5.6).
27	**Subs**	Substitutions used / allowed in the set, for example 2 / 6. Click: +1; right click: −1 (section 5.7).
28	**Sanction (Card ▾)**	Opens the sanction menu: Warning, Penalty, Expulsion, Disqualification, Delay Warning, Delay Penalty (section 5.9).

No.	Control	What It Does
29	**Libero (L)**	Libero on court on / off, an indicator for the board (section 5.10).
30	**Challenge**	One dot per unsuccessful challenge allowed in the set. Click to request a video check or enter its result (section 5.8).
31	**Point-outcome buttons**	Atk, Blk, Ace, Err, SE: score the rally and record how it ended (section 5.4). Optional.
32	**New Match**	Starts a new match after a question (section 5.16).
33	**Mode**	Shows the discipline, for example "Mode: Indoor Volleyball", and opens Match Rules (chapter 6). Hidden while the match clock runs.
34	**Set clock**	The set in play and its running time, for example "Set 4 19:40" (section 5.15).
35	**Background video**	Chooses the video layer behind the board. A small X on the icon removes it.
36	**Middle image**	Chooses an image layer between the background video and the scoreboard. A small X on the icon removes it.

The rows below the score grid follow the discipline. The Subs column is shown only when the rules count substitutions, the Libero column only when the libero is on, and the Challenge column only when the video challenge system is on (chapter 6). The point-outcome buttons are off on a new installation; switch them on in Settings > Screen Properties > Point Outcome Buttons (chapter 17).

Many controls show a tooltip when you rest the mouse on them, for example "Point: Left Click +1, Right Click -1" on the points and "Click: Timeout (Again: End It). Right Click: Correct" on the timeout pips.

Board Output **Control Panel**

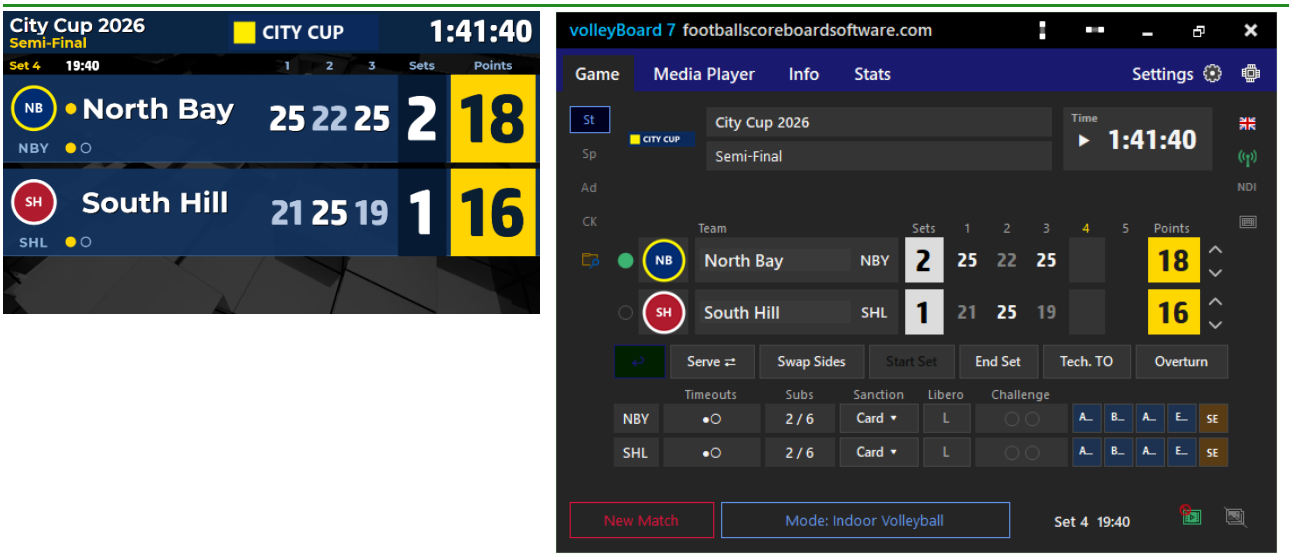


Figure 15. The Standard board and the Game tab that drives it: North Bay leads 2-1 in sets and 18-16 in set 4.

5.2 Points and Sets

volleyBoard 7 uses rally-point scoring: every rally gives one point, and the team that won the rally serves next. Give each rally to the team that won it in one of these ways:

- click the up arrow next to the points of that team;
- left click the points of that team;
- press a point-outcome button (section 5.4), which also records how the rally ended;
- use the keyboard, the remote or the HTTP API (section 5.18).

The program then does the rest by itself:

- The set ends when a team reaches the points of the set (25 in indoor) with the winning margin (2 points). Without a point cap the set goes on until one team leads by 2, for example 26-24 or 31-29. With a point cap the first team to reach the cap wins the set (chapter 6).
- The deciding set (the fifth set in a best of 5, the third in a best of 3) is played to its own target, 15 by default.
- After a set the score moves to its set column, the sets won go up, and the timeouts, substitutions and challenges of both teams start again for the new set.
- The match ends when a team has won the sets of the format (3 in a best of 5). The panel shows "Match Won" with the team name (section 5.14), the points cells are cleared and the match clock stops.
- Set points and match points are worked out by themselves. The points cell of the team that has one turns orange, the match-state indicator shows it, and the board shows the Set Point Callout (chapter 9.16).

Board Output **Control Panel**

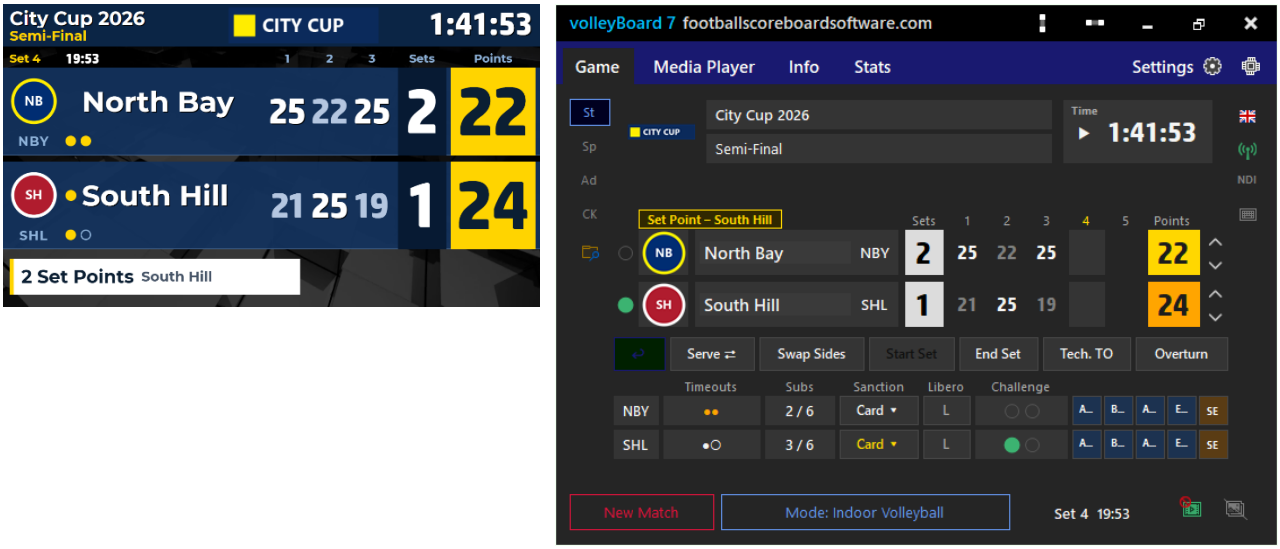


Figure 16. South Hill leads 24-22 in set 4: two set points. The panel shows "Set Point – South Hill" and an orange points cell; the board shows "2 Set Points".

The match clock starts by itself with the first rally of the match.

> **Note:** Nothing is scored after the match is over. The points, arrows, outcome buttons, timeouts and substitutions do nothing until you start a new match. Undo still works, for example when the last rally went to the wrong team.

5.3 Corrections and Set Control

Correction	How	What Happens
Point +1	Up arrow, or left click on the points	A normal rally: it can win the set and the match, and the team gets the serve.

Correction	How	What Happens
Point −1	Down arrow, or right click on the points	One point less for the team in the set in play. A correction only: no set end, no serve change, and the statistics do not change (chapter 10.2). Nothing happens at 0.
The last rally to the other team	Overturn	The referee or a video check gives the last rally to the other team. If that rally ended a set, the set is reopened first.
Correct a completed set	Click its set column	The program asks "Score of the Set (Home-Guest), e.g. 25-21". The winner, the sets won and the end of the match follow the new score. A tied score is refused ("Not a Valid Set Score.").
Reopen the last set	Right click the last completed set column > Reopen Set N	The set comes back with its last score and is played on (a set ended by mistake).
Start the set clock	Start Set	The set clock starts now. The first rally starts it as well.
End the set now	End Set	After the question "End the Set Now? The Leading Team Wins It." the leading team wins the set, for example after a forfeit.

- Only completed sets react to clicks on the set columns. The set in play is changed with the points.
- Every correction is one Undo step.
- Point −1 is not available after the match is over; use Undo or correct a set.

5.4 Point-Outcome Buttons

With Point Outcome Buttons switched on in Settings > Screen Properties, each team row ends with five buttons: the upper row for the home team, the lower row for the guest team. One press scores the rally and records how it ended for the statistics (chapter 10).

Button	Meaning	The Point Goes To
Atk	Attack point of this team	This team
Blk	Block point of this team	This team
Ace	Service ace of this team	This team
Err	Opponent error	This team
SE	Serve error of this team (brown button)	The other team

- The tooltip of each button names it in full, for example "Serve Error (Point to the Opponent) (Home)", and adds "Awards the Point and Records the Outcome; Undo Removes Both."
- In a small window the button texts may be shortened (for example "A..."); the tooltip still names the button.

- A point scored with the arrows or the points cell counts as a rally without an outcome. It still counts for Total Points Won, Points on Serve, Side-Out, Longest Run and Biggest Lead.

5.5 Serve

The filled dot left of the team logo marks the serving team; the board shows a ball beside that team. The serve follows the rallies by itself: the team that wins a rally serves the next one.

To change the server by hand, do one of the following:

- click the ring of the receiving team;
- click Serve ⇄ ("The Other Team Serves").

A change before the first rally of a set also changes which team served first in that set. In the first set it also sets the team that served first in the match.

At the start of every later set the first serve follows the rule First Serve of a Set (chapter 6): by default the team that received first in the previous set serves first. The other choice is that the toss winner serves first in every set.

> **Note:** Set the first server before the first rally: a match starts with the team that served first in the previous match. Use Serve ⇄ or the serve dot after the toss.

5.6 Timeouts and Technical Timeouts

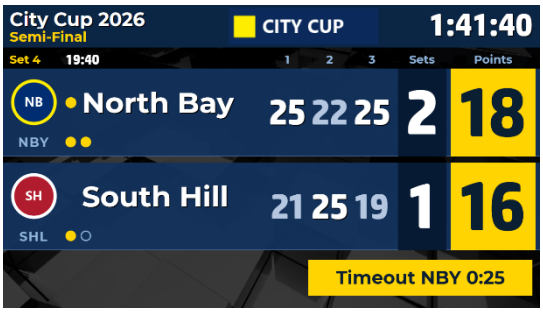
Each team row has a Timeouts box with one pip per timeout of the set (2 in indoor volleyball, 1 in beach volleyball). A filled pip is a timeout used. The pips turn orange when the team has used all its timeouts; "—" means the discipline has no timeouts.

To give a team a timeout:

1. Click the Timeouts box of the team.
2. The box turns gold and counts down (0:30 by default). The match-state indicator shows "Timeout" with the team code and the countdown, and the board shows the countdown in its status band.
3. The timeout ends at 0:00, when you click the box again, or when the next rally is scored.

A timeout is refused when the team has no timeout left in the set or the match is over. Right click the box to correct it: "End the Timeout" (while one runs) and "Timeouts Used: 0", "Timeouts Used: 1" ... set the count of the set. The timeouts start again at every new set.

Board Output



Control Panel

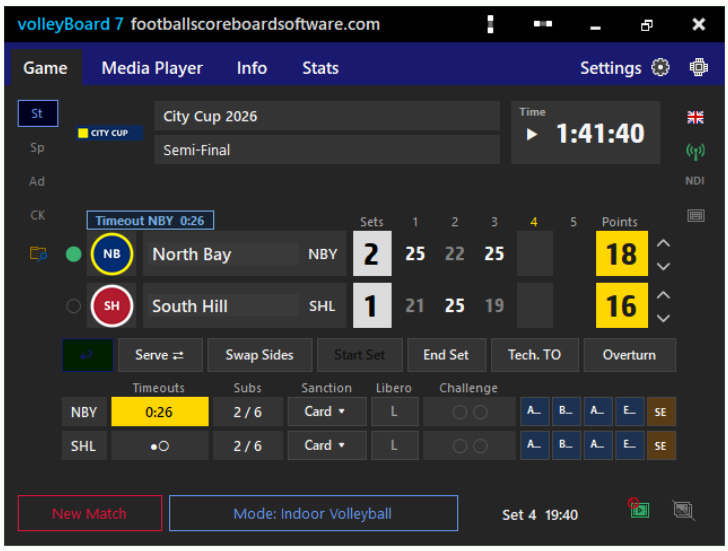


Figure 17. The second timeout of North Bay in set 4: the gold box counts down on the panel, the board shows "Timeout NBY 0:25".

Technical timeouts:

- Click Tech. TO to start a technical timeout by hand. The button turns gold and shows the countdown; click it again to end it early.
- When Match Rules have technical timeouts on, they start by themselves at the points of the rules. Beach volleyball has one technical timeout when both teams together reach 21 points. Indoor volleyball can have them at 8 and 16 points of the leading team when you switch them on (chapter 6).
- There is no automatic technical timeout in the deciding set.
- A technical timeout does not use a team timeout. Its length is set in Match Rules (60 s indoor, 30 s beach).

Board Output **Control Panel**

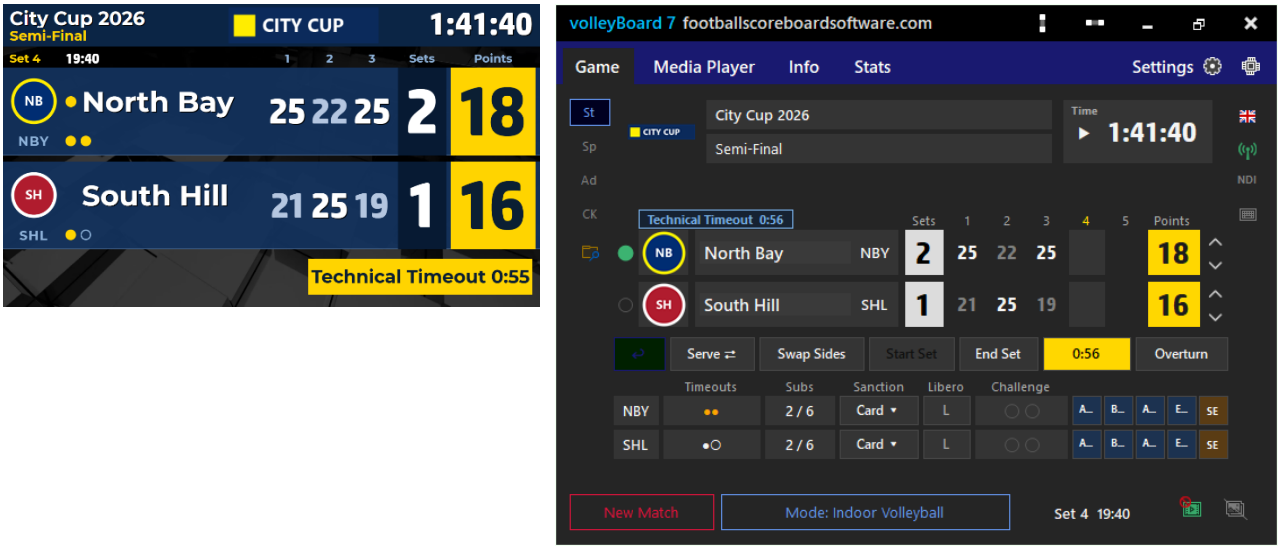


Figure 18. A technical timeout: the Tech. TO button and the indicator count down, the board shows "Technical Timeout 0:55".

> **Note:** The Timeout and Technical Timeout buttons do not open an info screen. To show the full-screen Timeout graphic, use the Timeout screen of the Info tab (chapter 9.5).

5.7 Substitutions

The Subs box shows the substitutions of the team in the set and the limit, for example "2 / 6". In disciplines with unlimited substitutions it shows ∞ as the limit, for example "4 / ∞"; the substitutions are counted, never refused.

- Click the box: one substitution more.
- Right click the box: one substitution less (a correction).
- At the limit the count turns orange and further substitutions are refused.
- The count starts again at 0 in every set.
- The Subs column is hidden when the discipline has no substitutions (beach volleyball, footvolley).

Board Output **Control Panel**

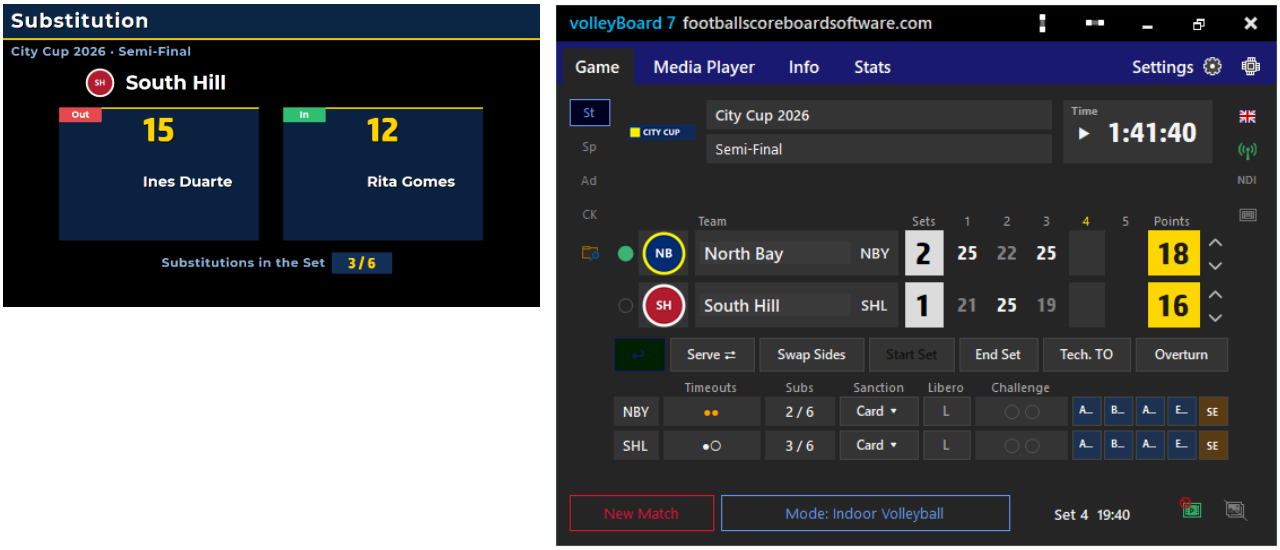


Figure 19. A substitution counted for South Hill (3 / 6). The board shows the Substitution info screen with the players (chapter 9.9).

The box only counts. To show who went out and who came in, use the Substitution screen of the Info tab (chapter 9.9); the click on the Subs box fills its team automatically.

5.8 Challenges (Video Check)

The Challenge column is shown when the video challenge system is on in Match Rules (the Video Challenge preset of indoor and sitting volleyball). It has one dot per unsuccessful challenge a team may make in the set, 2 by default. A filled dot is a challenge lost; a ring is a challenge left. A successful or inconclusive challenge keeps the challenge.

To record a challenge:

1. Click the Challenge box of the team and choose "Video Challenge: <team>". The box turns dark yellow and the board shows "Video Challenge" with the team name.
2. When the result comes, click the Challenge box again and choose the result (table below).
3. The board shows the result, for example "Video Challenge: Unsuccessful", for 8 seconds.

Result	What Happens
Successful - Overturn the Rally	The challenge succeeds and the last rally goes to the challenger (when the challenger lost it).
Successful	The challenge succeeds; the score stays as it is.
Unsuccessful	The team loses one challenge (a dot fills).
Inconclusive	The challenge is kept; the score stays as it is.

Board Output **Control Panel**

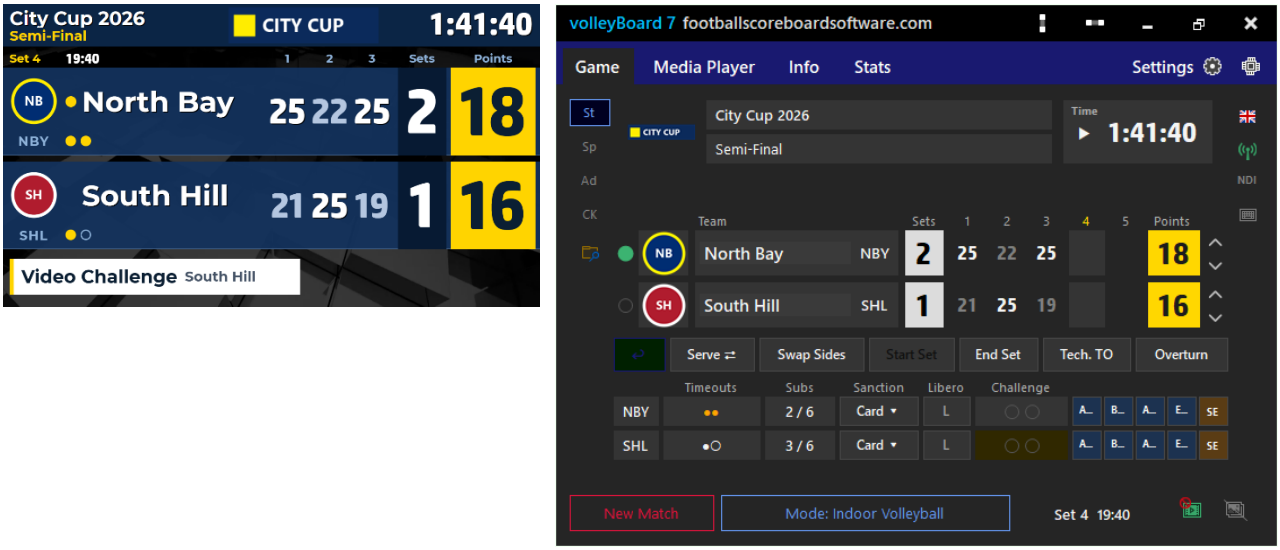


Figure 20. A pending video challenge of South Hill: the dark yellow Challenge box on the panel and the callout band on the board.



Figure 21. The result on the board after the check: Video Challenge: Unsuccessful.

- "Video Challenge: <team>" is greyed out when the team has no challenge left or the match is over.
- The menu also lists "Challenges Left: 0", "Challenges Left: 1" ... to correct the count.
- A pending challenge is cleared when the next rally is scored.
- Every team starts every set with the full number of challenges again.
- For the full-screen graphic with what was checked, use the Video Challenge screen of the Info tab (chapter 9.8).

5.9 Sanctions

The Card ▾ button of each team row opens the sanction menu.

1. Click Card ▾ of the team and choose the sanction: Warning, Penalty, Expulsion, Disqualification, Delay Warning or Delay Penalty.
2. For a misconduct sanction the program asks "Shirt Number or Name (Empty = Team / Coach)". Type the number or name, or leave it empty for the team or the coach. Delay sanctions do not ask.
3. A Penalty or a Delay Penalty gives the other team the point and the serve, in the same Undo step.

- The Card text turns gold when the team has a sanction in the set in play. The tooltip shows the team's last sanction, for example "Warning - 7".

- The program records the sanctions; it does not check the order of the sanctions or apply the consequences of an expulsion or a disqualification. The referees decide, the operator records.
- A penalty point is not counted in the statistics (chapter 10).
- The sanction also fills the Sanction screen of the Info tab (chapter 9.10). Show that screen to put the card on the board.

Board Output **Control Panel**

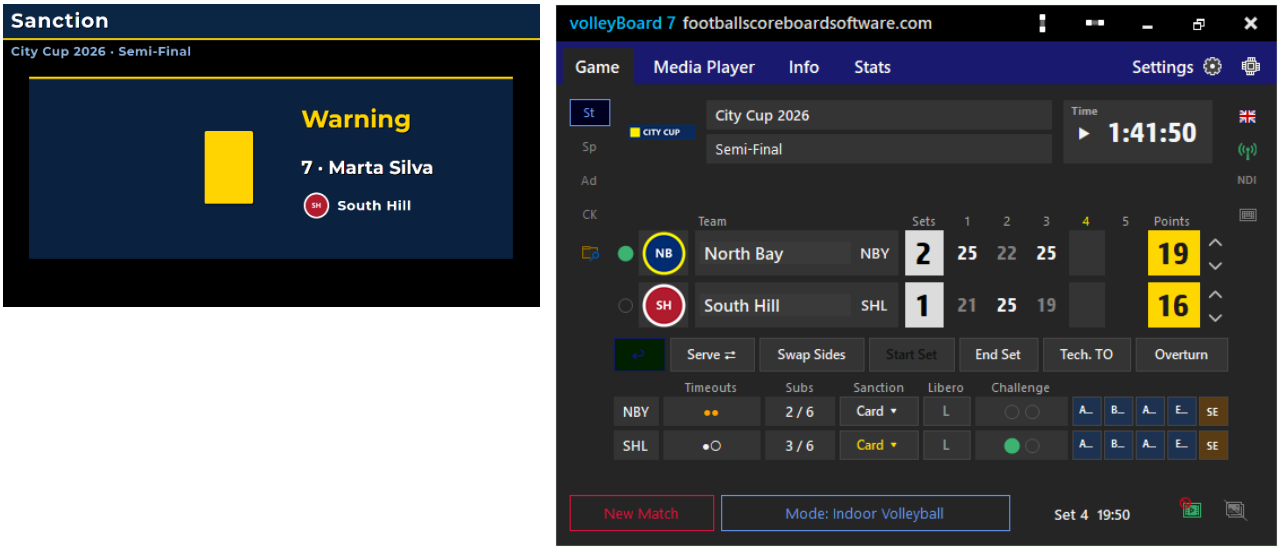


Figure 22. A warning for South Hill no. 7: the gold Card text on the panel and the Sanction info screen on the board.

5.10 Libero

The L button of each team row is an indicator: click it when the libero of that team is on court, click it again when the libero leaves. While it is on, the button is highlighted and the board shows an L beside the team (chapter 7.2).

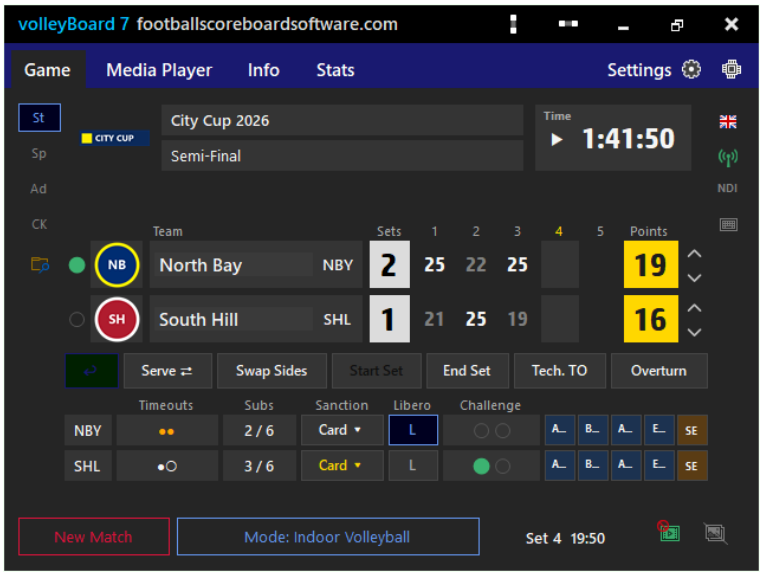


Figure 23. The libero of North Bay on court: the highlighted L button.

- The program does not track libero replacements or the libero's player number.
- The Libero column is shown only when the rule Libero is on (indoor and sitting volleyball by default).

5.11 Undo

The Undo button with the arrow, at the left of the action row, takes back the last action. Press it again to go further back, up to the start of the match.

Undo takes back every action of the match, for example:

- rallies, rallies with an outcome, Point −1;
- serve changes, Swap Sides, Start Set, End Set, Reopen Set, a set correction and Overturn;
- timeouts, technical timeouts, the end of a timeout and timeout corrections;
- substitutions, challenges and their results, sanctions (with the penalty point) and the libero indicator.

Undo restores the score, the sets, the server, the sides, the counters and the end of the match, and removes the statistics of an undone rally.

- Undo does not change names, codes, logos, the text lines, the match clock or the info screens.
- New Match, a change of a scoring rule (chapter 6) and a restart of the program clear the Undo history. The score itself is kept after a restart.

5.12 Swap Sides

Swap Sides exchanges the teams on the board: the home team moves to the right, the guest team to the left. The panel keeps the home team in the upper row.

The program tells you when the teams change courts:

- after every set except before the deciding set (indoor, sitting, nine-man and mini volleyball);
- when the leading team reaches 8 points in the deciding set (indoor, sitting and nine-man volleyball);
- every 7 points of both teams together in beach and park volleyball (every 5 in the deciding set), every 5 points in snow volleyball, every 6 points in footvolley (every 5 in the deciding set).

When a change is due, the Swap Sides button turns orange, the match-state indicator shows "Change Sides" and the board shows Change Sides in its status band.

1. The teams change courts.
2. Click Swap Sides. The board swaps the teams and the alert goes.

If the teams do not change courts on the board, just play on: the next rally clears the alert. The remote page also has Dismiss for this (chapter 13).

Board Output



Control Panel

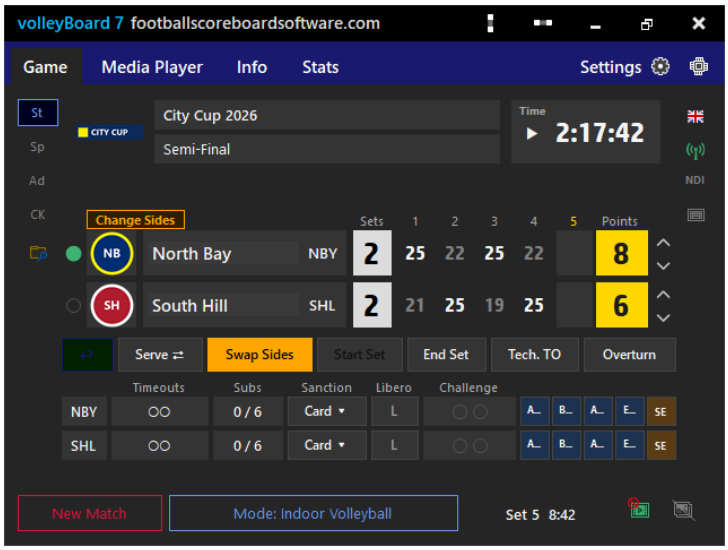


Figure 24. Deciding set, 8-6: North Bay has reached 8 points. Swap Sides is orange and both the panel and the board show Change Sides.



Figure 25. After Swap Sides: South Hill is now on the upper row of the board; the status band shows Deciding Set.

5.13 Team Names on One or Two Lines

Each team has one name box. A name can have one or two lines, for example a long club name or the two players of a beach pair.

1. Click the name box and type the name.
2. Press Enter to start the second line and type it.
3. Click elsewhere or press Esc to leave the box.

- A third line is not possible. Pasted text with more lines is joined to the second line.
- Empty lines and spaces at the end are removed when you leave the box.
- The X button that appears while you type empties the box.
- The board shows the two lines as typed and fits them into the name box (chapter 7.2). Short texts such as the match-state indicator and the column headers of the Stats tab show the two lines joined with a space.
- The remote control and the HTTP API can set a two-line name too (chapter 11.1).

Board Output **Control Panel**

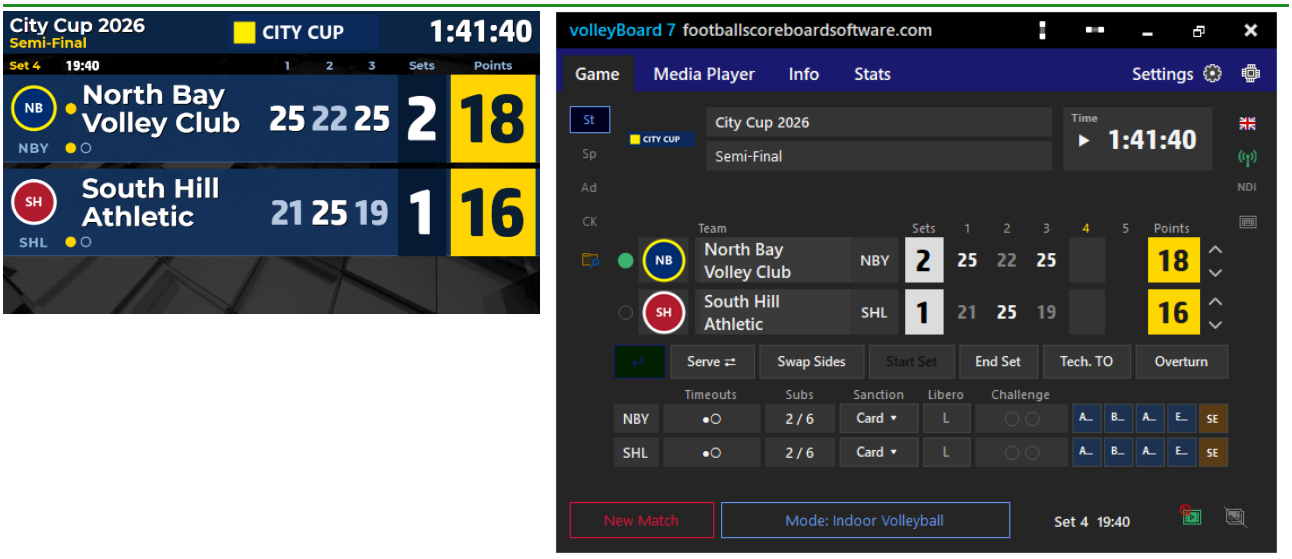


Figure 26. Two-line team names: "North Bay / Volley Club" and "South Hill / Athletic" on the panel and on the board.

5.14 Match-State Indicator

A small coloured tag in the header of the score grid tells you what is going on. It is hidden during a normal rally.

Tag	Colour	When
Set Point – Team	Gold	The team wins the set with the next rally.
Match Point – Team	Gold	The team wins the match with the next rally.
Timeout NBY 0:26	Blue	A team timeout runs; the team code and the countdown.
Technical Timeout 0:56	Blue	A technical timeout runs, with the countdown.
Change Sides	Orange	A change of courts is due (section 5.12).
Match Won – Team	Dark blue	The match is over; the tag names the winner.

When two things apply at once, the tag shows the first of this order: Match Won, Technical Timeout, Timeout, Change Sides, Match Point, Set Point.

Board Output **Control Panel**

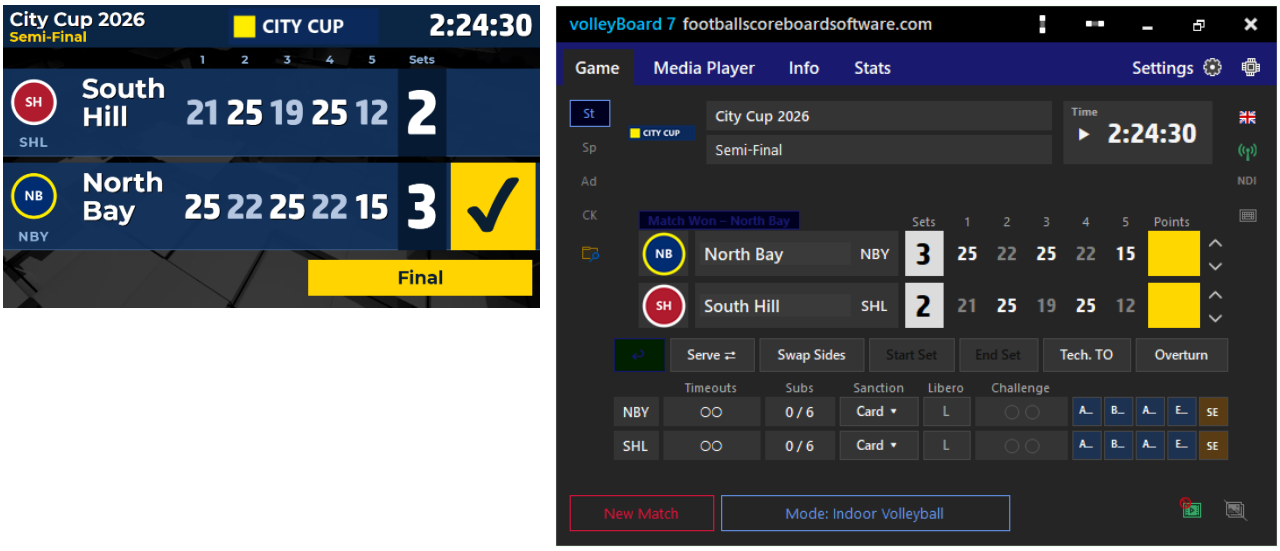


Figure 27. The end of the match: North Bay wins 3-2. The panel shows "Match Won – North Bay"; the board shows a tick for the winner and Final.

The board has its own status band and callout band (chapter 7.2): Set Point and Match Point (with the number of them in a row), the timeout countdown, Change Sides, Deciding Set and Final.

5.15 Match Clock and Set Clock

The clock box at the top right shows the match time (for example 1:41:40) or the time of day.

- The match clock starts by itself with the first rally (also with Start Set or a sanction) and stops by itself when the match ends.
- Play / Pause starts and pauses it by hand.

- To set the time, click in the clock, type the time (h:mm:ss, mm:ss or seconds) and press Enter. Wrong input is ignored.
- Right click the clock to switch between the match time and the time of day ("Right Click: Match Duration or Time of Day"). In time-of-day mode the Play / Pause button is hidden.
- The clock value is saved. After a restart a running clock continues from the saved time.
- New Match and a change of a scoring rule set the clock back to 0:00:00.

The set clock at the bottom of the panel shows the set in play and its running time, for example "Set 4 19:40". It starts with Start Set or the first rally of the set. The board shows it beside the set number, and the Set Result and Match Result screens can show the set durations (chapter 9.6 and 9.7).

> **Note:** The Mode button is hidden while the match clock runs. Pause the clock to change the discipline or the rules, or use Settings > Screen Properties > Match Rules (chapter 6).

5.16 New Match

1. Click New Match.
2. The program asks "Start a New Match? The Score Is Reset."
3. Click Yes to start the new match, or No to keep the current one.

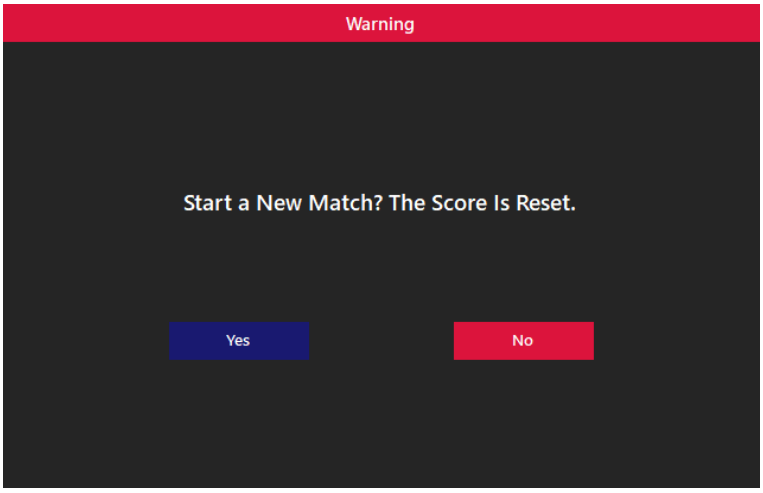


Figure 28. The New Match question.

New Match resets the score, the sets, the counters (timeouts, substitutions, challenges, sanctions, libero), the sides, the Undo history, the statistics and the per-match data of the info screens (timeout, challenge, substitution, sanction, MVP, player intro). The match clock stops and goes back to 0:00:00.

New Match keeps the team names, codes and logos, the tournament and round lines, the discipline and its rules, the display mode, the clock mode, and the standings, results and officials of the info screens. The team that served first in the previous match serves first again; change it before the first rally if needed (section 5.5).

> **Note:** The keyboard shortcut New Match asks the same question. The HTTP command new_match resets without a question (Appendix B).

5.17 A Typical Match

1. Check the team names, codes, logos and the tournament and round lines.
2. Check the discipline on the Mode button. Change it now if needed (chapter 6): a change of the scoring rules during a match resets it.
3. Set the first server after the toss: Serve ⇄ or the serve dot.
4. Choose the display mode (St for a big screen, CK for a TV production).

5. Give each rally to the team that won it. Use the outcome buttons if you keep statistics.
6. Click the Timeouts and Subs boxes when the teams call them. Use Card ▾, L and the Challenge box as the match requires.
7. When Swap Sides turns orange, click it once the teams have changed courts.
8. Use Undo or Overturn at once if a rally went to the wrong team.
9. After the last rally the panel shows Match Won. Show the Match Result or the statistics from the Info tab if you like (chapter 9).
10. Before the next match: New Match, then the new team names.

5.18 Remote and Keyboard Equivalents

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

Panel Action	Default Key	HTTP Command
Home / guest point +1	Num 7 / Num 9	point_home / point_guest
Home / guest point −1	Num 1 / Num 3	set_home_score_down / set_guest_score_down
Undo	Num 0	undo
Serve ⇄	Num 5	serve (serve_home, serve_guest give the serve to a team)
Home / guest timeout	F5 / F7	timeout home / timeout guest
End the timeout	–	timeout_end
Technical timeout	Num *	technical_timeout
Home / guest substitution	F6 / F8	substitution home / guest (substitution_minus for −1)
Swap Sides	Num .	swap_sides (switch_ok dismisses the alert)
Start Set / End Set / Reopen Set	–	start_set / end_set / reopen_set
Overturn	–	overturn
Sanction	–	sanction
Libero	–	libero
Video challenge	–	challenge
Point with outcome	–	outcome
Set Point Callout: show / hide	Num + / Num −	bigpoint trigger / bigpoint suppress
Clock play / pause	Num /	click playpause
New Match	none (asks)	new_match (no question)

The keyboard shortcuts work only after you switch them on in the Keyboard Hook Manager, and with NumLock on. End Set asks its question on the panel only; the remote page has its own confirmation and the HTTP command end_set does not ask.

6. Disciplines and Match Rules

volleyBoard 7 covers eight volleyball disciplines. Each discipline comes with factory rules, and every rule can be changed in the Match Rules window. This chapter explains the window, every rule, the factory defaults of each discipline, and what happens when you change the rules during a match.

6.1 Opening Match Rules

Open the Match Rules window in one of two ways:

- Game tab > the Mode button, for example "Mode: Indoor Volleyball". The button is hidden while the match clock runs: pause the clock first.
- Settings > Screen Properties > row Match Rules: select the row and click the small "..." button in its value cell (chapter 17). This works while the clock runs.

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

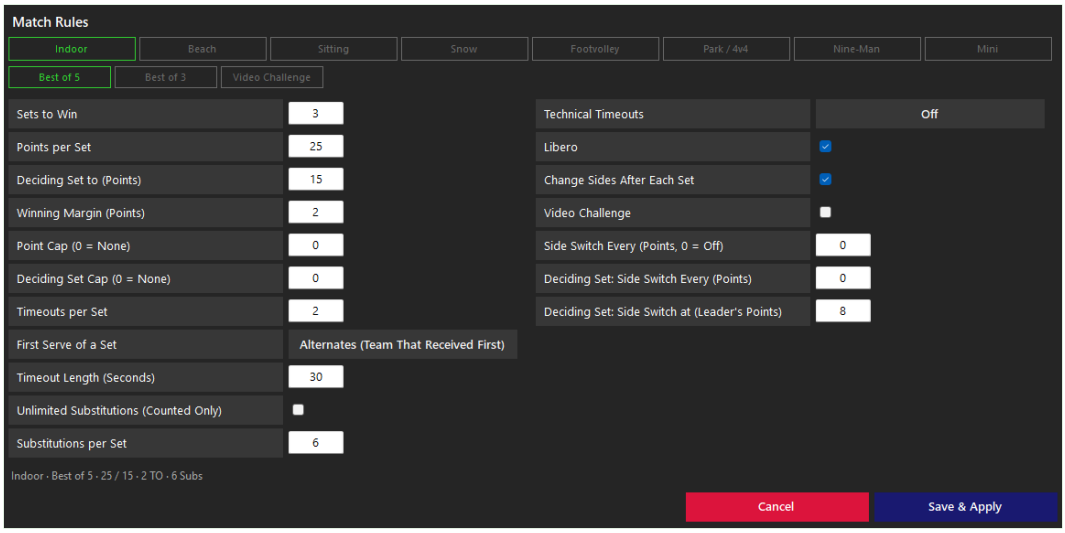


Figure 29. The Match Rules window with the factory rules of indoor volleyball.

Part	What It Does
Discipline buttons	Indoor, Beach, Sitting, Snow, Footvolley, Park / 4v4, Nine-Man, Mini. A click loads the factory rules of that discipline into the rows. The selected discipline is green.
Preset buttons	Common variants of the discipline (section 6.2). The preset that matches the rows is green.
Rule rows	Two columns of rules (section 6.3). Rows that do not apply to the current choices are hidden.
Summary	The rules in one line, for example "Indoor · Best of 5 · 25 / 15 · 2 TO · 6 Subs". The Mode button shows the same line in its tooltip, and Settings > Screen Properties shows it in the Match Rules row.
Cancel	Closes without saving. If you changed something, the program asks "Discard Changes?". Esc does the same.
Save & Apply	Checks the values, saves the rules and applies them to the match (section 6.5).

The summary uses short forms: "Best of 5" or "1 Set", the points per set and of the deciding set ("25 / 15"), "Cap 25" for a point cap, "2 TO" for the timeouts per set, "6 Subs" or "Free Subs" for the substitutions, "TTO 8,16" for technical timeouts and "VCS" for the video challenge system.

6.2 The Eight Disciplines

Discipline	Mode Button	Presets	Summary of the Factory Rules
Indoor Volleyball	Indoor	Best of 5 (default), Best of 3, Video Challenge	Indoor · Best of 5 · 25 / 15 · 2 TO · 6 Subs
Beach Volleyball	Beach	Best of 3 (default), 1 Set	Beach · Best of 3 · 21 / 15 · 1 TO · TTO 21
Sitting Volleyball	Sitting	Best of 5 (default), Best of 3, Video Challenge	Sitting · Best of 5 · 25 / 15 · 2 TO · 6 Subs
Snow Volleyball	Snow	Best of 3 (default), 1 Set	Snow · Best of 3 · 15 / 15 · 1 TO · 2 Subs
Footvolley	Footvolley	Best of 3 (default), 1 Set	Footvolley · Best of 3 · 18 / 15 · 1 TO
Park / 4v4 Volleyball	Park / 4v4	Best of 3 (default), 1 Set	Park / 4v4 · Best of 3 · 21 / 15 · 1 TO · Free Subs
Nine-Man Volleyball	Nine-Man	Best of 3 (default), 1 Set	Nine-Man · Best of 3 · 21 / 15 · Cap 25 · 2 TO · Free Subs
Mini Volleyball	Mini	Best of 3 (default), 1 Set	Mini · Best of 3 · 15 / 15 · 1 TO · Free Subs

A preset loads the factory rules of the discipline with one change: Best of 3 sets Sets to Win to 2, 1 Set sets it to 1, and Video Challenge switches the video challenge system on. Values you typed before are replaced, so choose the preset first and then adjust the rows.

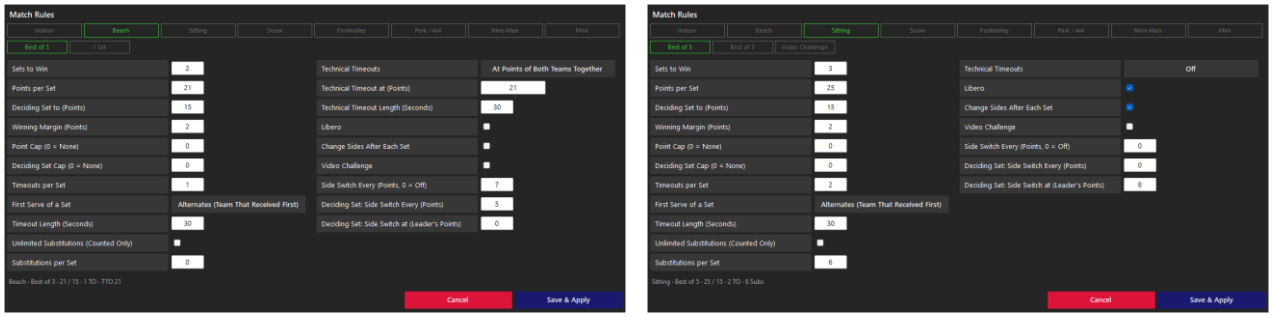


Figure 30. The factory rules of beach volleyball (left) and sitting volleyball (right).

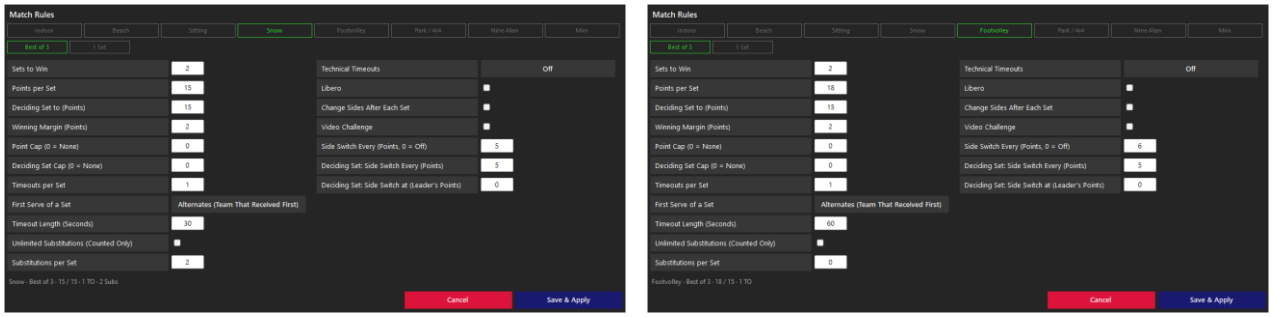


Figure 31. The factory rules of snow volleyball (left) and footvolley (right).

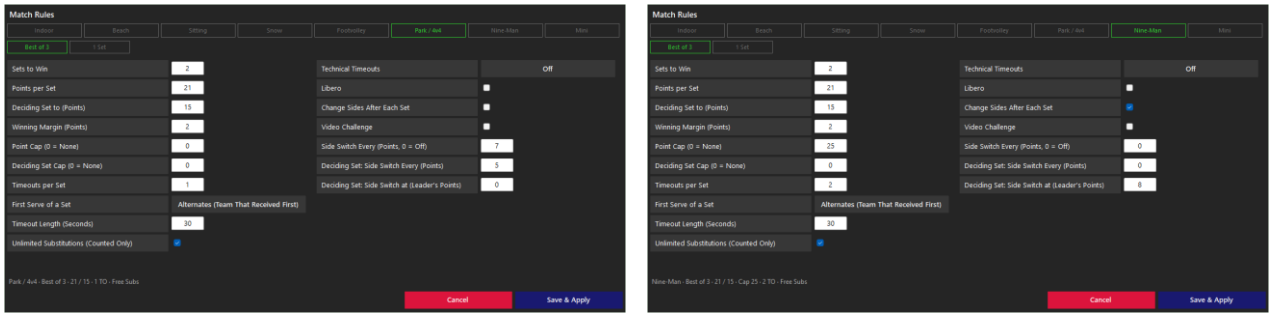


Figure 32. The factory rules of park / 4v4 volleyball (left) and nine-man volleyball (right).

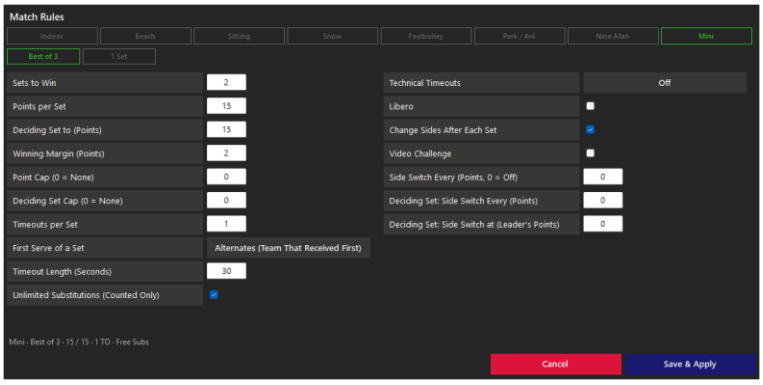


Figure 33. The factory rules of mini volleyball.

> **Note:** Only the indoor, beach, sitting and snow volleyball defaults were checked against the rule books named in the program (with exceptions for snow volleyball). The factory rules of footvolley, park / 4v4, nine-man and mini volleyball are factory defaults that follow common practice; they are not confirmed by an official rule book. Check every value against the regulations of your competition before the first match. Appendix A lists the sources and the status of each value.

The program keeps one set of rules: the rules of the current discipline. When you choose another discipline, its factory rules are loaded; the changes you made to the previous discipline are not kept.

6.3 Every Rule Explained

The left column holds the scoring, the timeouts and the substitutions; the right column the technical timeouts, the libero, the video challenge and the side switches. A number outside its range turns the box red, and Save & Apply asks you to correct it (section 6.5).

Rule	Values	Shown When	What It Does
Sets to Win	1-3	Always	1 = one set, 2 = best of 3, 3 = best of 5. The panel and the board show 2 × Sets to Win − 1 set columns.
Points per Set	5-99	Always	The points needed to win a set (not the deciding set).
Deciding Set to (Points)	5-99	Sets to Win 2 or 3	The points needed to win the deciding set, the last possible set (2-2 in a best of 5, 1-1 in a best of 3).
Winning Margin (Points)	1-2	Always	The lead needed to win a set. With 2, 25-24 goes on and 26-24 wins. With 1, the first team to the points wins.
Point Cap (0 = None)	0-99	Always	0 = no cap: the set goes on until the margin is reached. Otherwise the first team to reach the cap wins the set, whatever the lead, for example 25-24 with a cap of 25. Must be above Points per Set. Not used in the deciding set.
Deciding Set Cap (0 = None)	0-99	Sets to Win 2 or 3	The cap of the deciding set; 0 = no cap. Must be above Deciding Set to.
Timeouts per Set	0-5	Always	Timeouts of each team in every set. 0 = no timeouts (the panel shows "—").
First Serve of a Set	Alternates (Team That Received First), Toss Winner Serves Every Set	Always	Who serves first in the second and later sets: the team that received first in the previous set, or the team that served first in the match.
Timeout Length (Seconds)	10-300	Always	The countdown of a team timeout.
Unlimited Substitutions (Counted Only)	On / off	Always	On: substitutions are counted but never refused; the panel shows "n / ∞".
Substitutions per Set	0-20	Unlimited Substitutions off	Substitutions of each team in every set. 0 = none: the Subs column of the panel is hidden.
Technical Timeouts	Off, At Points of the Leading Team, At Points of Both Teams Together	Always	Automatic technical timeouts. The points of the leading team (indoor style) or of both teams added together (beach style) start them.
Technical Timeout at (Points)	Whole numbers 1-99, separated by commas	Technical Timeouts not Off	For example 8,16 or 21. Each value starts one technical timeout per set. Never in the deciding set.
Technical Timeout Length (Seconds)	10-300	Technical Timeouts not Off	The countdown of a technical timeout, also of one started by hand with Tech. TO.

Rule	Values	Shown When	What It Does
Libero	On / off	Always	Shows the Libero column (L buttons) on the panel and the libero indicator on the board.
Change Sides After Each Set	On / off	Always	A Change Sides alert after every set except before the deciding set.
Video Challenge	On / off	Always	Shows the Challenge column on the panel and counts video challenges (chapter 5.8).
Unsuccessful Challenges per Set	0-9	Video Challenge on	The unsuccessful challenges a team may make in every set. A successful or inconclusive challenge is kept.
Side Switch Every (Points, 0 = Off)	0-50	Always	A Change Sides alert every time both teams together have scored this many points in the set (beach: 7). 0 = off.
Deciding Set: Side Switch Every (Points)	0-50	Sets to Win 2 or 3	The same for the deciding set (beach: 5). 0 = off.
Deciding Set: Side Switch at (Leader's Points)	0-50	Sets to Win 2 or 3	One Change Sides alert in the deciding set when the leading team reaches this score (indoor: 8). 0 = off.

Some combinations cannot be played, and Save & Apply refuses them with a message:

- "The Point Cap Must Be Above the Points per Set (0 = No Cap)."
- "The Deciding Set Cap Must Be Above the Deciding Set Points (0 = No Cap)."
- "Enter the Points of the Technical Timeouts (8,16)." (Technical Timeouts on, but no points entered.)

> **Note:** The side switches are alerts. The program tells you when the teams change courts; the teams change on the board only when you click Swap Sides (chapter 5.12).

6.4 Defaults per Discipline

These are the factory rules as the program loads them when you click a discipline button. Sitting volleyball uses exactly the indoor rules.

Scoring:

Discipline	Sets to Win	Points per Set	Deciding Set to	Winning Margin	Point Cap	Deciding Set Cap	First Serve of a Set
Indoor	3 (best of 5)	25	15	2	0 (none)	0 (none)	Alternates
Beach	2 (best of 3)	21	15	2	0	0	Alternates
Sitting	3 (best of 5)	25	15	2	0	0	Alternates
Snow	2 (best of 3)	15	15	2	0	0	Alternates
Footvolley	2 (best of 3)	18	15	2	0	0	Alternates

Discipline	Sets to Win	Points per Set	Deciding Set to	Winning Margin	Point Cap	Deciding Set Cap	First Serve of a Set
Park / 4v4	2 (best of 3)	21	15	2	0	0	Alternates
Nine-Man	2 (best of 3)	21	15	2	25	0	Alternates
Mini	2 (best of 3)	15	15	2	0	0	Alternates

Timeouts and substitutions:

Discipline	Timeouts per Set	Timeout Length	Substitutions per Set	Technical Timeouts	Technical Timeout at	Technical Timeout Length
Indoor	2	30 s	6	Off	8,16 (used when switched on)	60 s
Beach	1	30 s	0 (none)	At Points of Both Teams Together	21	30 s
Sitting	2	30 s	6	Off	8,16 (used when switched on)	60 s
Snow	1	30 s	2	Off	–	30 s
Footvolley	1	60 s	0 (none)	Off	–	30 s
Park / 4v4	1	30 s	Unlimited (counted only)	Off	–	30 s
Nine-Man	2	30 s	Unlimited (counted only)	Off	–	60 s
Mini	1	30 s	Unlimited (counted only)	Off	–	30 s

Sides, libero and video challenge:

Discipline	Side Switch Every	Deciding Set: Every	Deciding Set: at Leader's Points	Change Sides After Each Set	Libero	Video Challenge (Unsuccessful per Set)
Indoor	0 (off)	0 (off)	8	On	On	Off (2)
Beach	7	5	0 (off)	Off	Off	Off (1)
Sitting	0	0	8	On	On	Off (2)
Snow	5	5	0	Off	Off	Off (1)
Footvolley	6	5	0	Off	Off	Off (1)
Park / 4v4	7	5	0	Off	Off	Off (1)
Nine-Man	0	0	8	On	Off	Off (1)
Mini	0	0	0	On	Off	Off (1)

The value in brackets in the last column is the number of unsuccessful challenges per set that applies when you switch the video challenge system on. For the disciplines without technical timeouts, the points box is empty: enter the points when you switch them on.

Status of the factory values (details in Appendix A):

Discipline	Status
Indoor	Checked against the FIVB Official Volleyball Rules 2025-2028. The video challenge values follow the FIVB Video Challenge System regulations. The optional technical timeouts (8 and 16 points, 60 s) are a program setting, not a value of that rule book.
Beach	Checked against the FIVB Official Beach Volleyball Rules 2025-2028.
Sitting	Checked against the World ParaVolley sitting volleyball rules (as indoor).
Snow	Best of 3 sets to 15 and 2 substitutions per set follow the FIVB snow volleyball format. The side switches and the timeout are a factory preset: check them.
Footvolley	Factory defaults, not confirmed by an official rule book: check every value.
Park / 4v4	Factory defaults following common 4-a-side practice, not an official rule book: check every value.
Nine-Man	Factory defaults, not confirmed by an official rule book: check every value.
Mini	Factory defaults for a youth format, not an official rule book: check every value against the format of your federation or club.

6.5 Saving the Rules

When you click Save & Apply, the program:

1. Checks every visible number box. A box outside its range turns red with its range as a tooltip, and the message "Please Correct the Marked Values." names the range.
2. Checks the combinations (section 6.3).
3. Asks before it resets a match in progress (section 6.6).
4. Saves the discipline and the rules, closes the window and applies them: the Mode button shows the discipline, and the panel shows or hides the set columns and the Subs, Libero and Challenge columns.

The rules are kept for the next start of the program.

6.6 Changing Rules During a Match

A match is in progress as soon as one rally has been played, and also after the end of the match until New Match. What happens on Save & Apply depends on the rule you changed.

Rules that reset the match: the discipline, Sets to Win, Points per Set, Deciding Set to, Winning Margin, Point Cap and Deciding Set Cap. These decide how a score is read, so an existing score is never carried over to other scoring rules. The program asks first:

"Changing the Mode or the Rules Resets the Match in Progress (Score and Match Clock). Continue?"

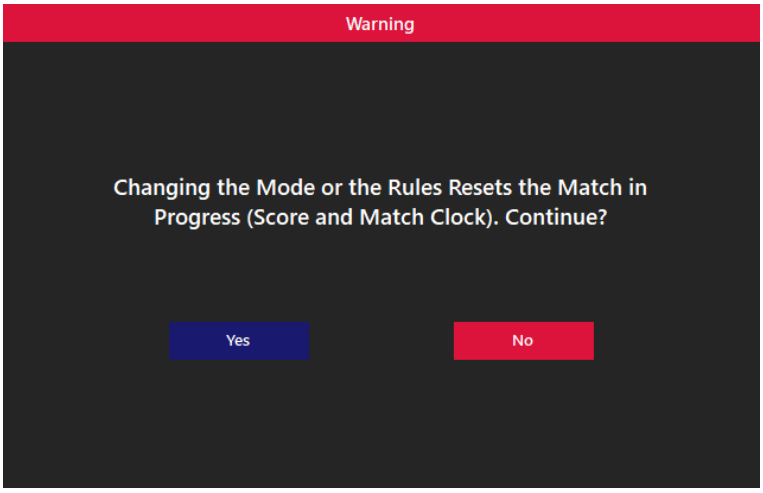


Figure 34. The question before a change of the scoring rules resets the match.

- Yes: the rules are saved and a new match starts: score, sets, counters, Undo history, statistics and the per-match info data are reset, and the match clock goes back to 0:00:00. Names, codes, logos and text lines are kept.
- No: nothing is saved; the Match Rules window stays open.

Rules that change without a reset: timeouts, timeout length, first serve, substitutions, technical timeouts, libero, change sides after each set, video challenge and the side switches. They apply at once to the match in play:

- Counts already used in the set stay. A lower limit applies to the next timeout or substitution.
- The Subs, Libero and Challenge columns appear or disappear at once.
- If you switch technical timeouts on during a set and the score has already passed one of their points, a technical timeout starts with the next rally.

> **Note:** The HTTP command discipline (Appendix B) loads the factory rules of a discipline. It is ignored while a match is in progress, because the remote cannot ask the question. Start a new match first.

7. Display Modes and Board Output

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

Mode	Use	Output	Page
St, Standard	Full-screen scoreboard on a screen, projector or LED wall	The board window	–
Sp, Sponsored	Standard scoreboard with a sponsor band at the top or bottom	The board window, 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	The Ad board window	Ad tab
CK, Chroma Key	Scorebug and lower thirds on a key colour for a vision mixer	The CK board window	CK tab

Switch the mode with the St, Sp, Ad and CK buttons on the Game tab (tooltips Standard View, Sponsored View, Advertisement View, Chroma Key View), from the remote control (chapter 13) or with the HTTP command click (chapter 14). 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 appears in the menu bar; it opens the page of that mode.

When you switch the mode:

- the scoreboard design of the mode you leave is kept, and the design of the new mode comes back (chapter 8.3);
- a video playing on the scoreboard and an info screen on air are taken off;
- every source running on the Ad or CK board (video, playlist, camera, NDI input, screen capture) stops when you leave that mode. The setting Source on mode switch (section 7.8) can restart it when you come back.

7.1 Board Position and Size

The boards use the position and size of Settings > Screen Properties:

Row	Meaning	Default
L: Left	Board window x position in pixels of the Windows desktop	0
T: Top	Board window y position	0
W: Width	Board width in pixels; a larger value is cut to Max Resolution	960
H: Height	Board height in pixels; a larger value is cut to Max Resolution	540
Max Resolution	The largest size the licence allows (read only)	From the licence
Background Video Opacity	0-10: how strongly the background video shows behind the board; another value goes back to 6	6
Image Play Duration	Seconds a picture stays on screen in a playlist (1-120); another value goes back to 5	5
Source on mode switch	Manual or Restore (section 7.8)	Manual

A change is saved when you leave the cell. The board window may be larger than the screen it is on (up to 8192 × 8192 pixels), for example when an LED controller expects a larger picture. Chapter 17 lists the other rows of this page.

7.2 What the Board Shows

The scoreboard follows the match by itself:

- Each completed set gets a set column, numbered 1 to 5 and packed next to the Sets column. The team that won the set has its number highlighted.
- Sets shows the sets won, Points the points of the set in play. When the match is over, the winner gets a tick (✔) in place of the points and the loser's points are hidden.
- A ball beside a team shows the serve. It disappears when the match is over.
- An L beside a team shows that its libero is on court (chapter 5).
- Timeout pips show the timeouts of each team in the set: one pip per allowed timeout, used ones filled. They are hidden after the match.
- The set clock shows the set in play ("Set 3") and its running time.
- The callout band shows a pending video challenge ("Video Challenge" and the team), a challenge result for 8 seconds, otherwise the set or match point (chapter 9.16).
- The status band shows a running timeout with the team code and the countdown, a technical timeout, Change Sides, Deciding Set throughout the deciding set (also at its set and match points), and Final after the match.

- A team logo replaces the flag. Without a logo, a team code that is a country code shows its flag next to the code (chapter 11).
- A team name of one or two lines (chapter 5) is fitted into its box. A name that is still too wide is condensed by up to 15 %, then cut with an ellipsis. Digits are never squeezed.

7.3 Standard (St)

Board Output **Control Panel**

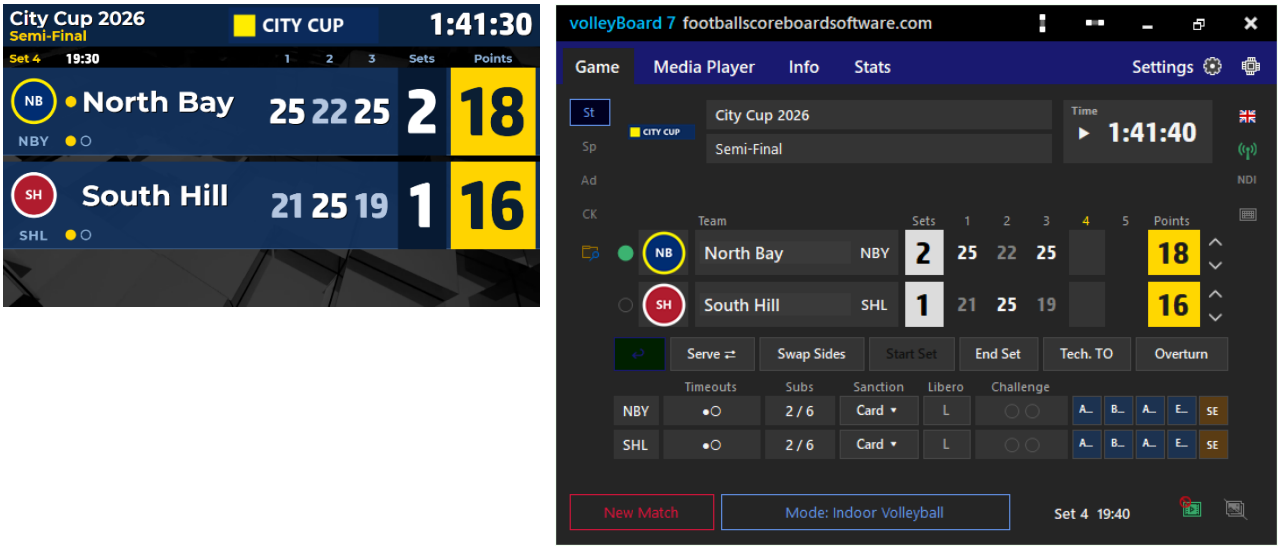


Figure 35. The Standard board and the Game tab.

The Standard board needs no page of its own: everything is on the Game tab. Its look comes from the design selected in the gallery (chapter 8).

7.4 Sponsored (Sp)

The Sponsored board is the Standard board with a sponsor band at the bottom or the top. The band shows the sponsor logos sliding through, or a scrolling text.



Figure 36. The Sponsored board with the sample sponsors in the band.

The Sp page has three tabs:

Tab	What It Does
Sponsors	Apply puts the sponsor list (Info > Sponsors, chapter 12) on the band as a slide of logos. The photo button opens the sponsor list; the gear button opens the style values: image-height, padding, top, speed, direction.
Scrolling Text	Four text slots (1-4). Type one item per line, then Apply: the band scrolls the lines. The gear button opens the text style (font-family, font-size, font-weight, line-height, text-shadow, padding, top, speed, direction); the colour boxes set the background and the line colours.
Settings	Location (Top or Bottom) and Height of the band in pixels (up to 1920). Apply changes the board at once. Default: Bottom, 64 pixels.

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

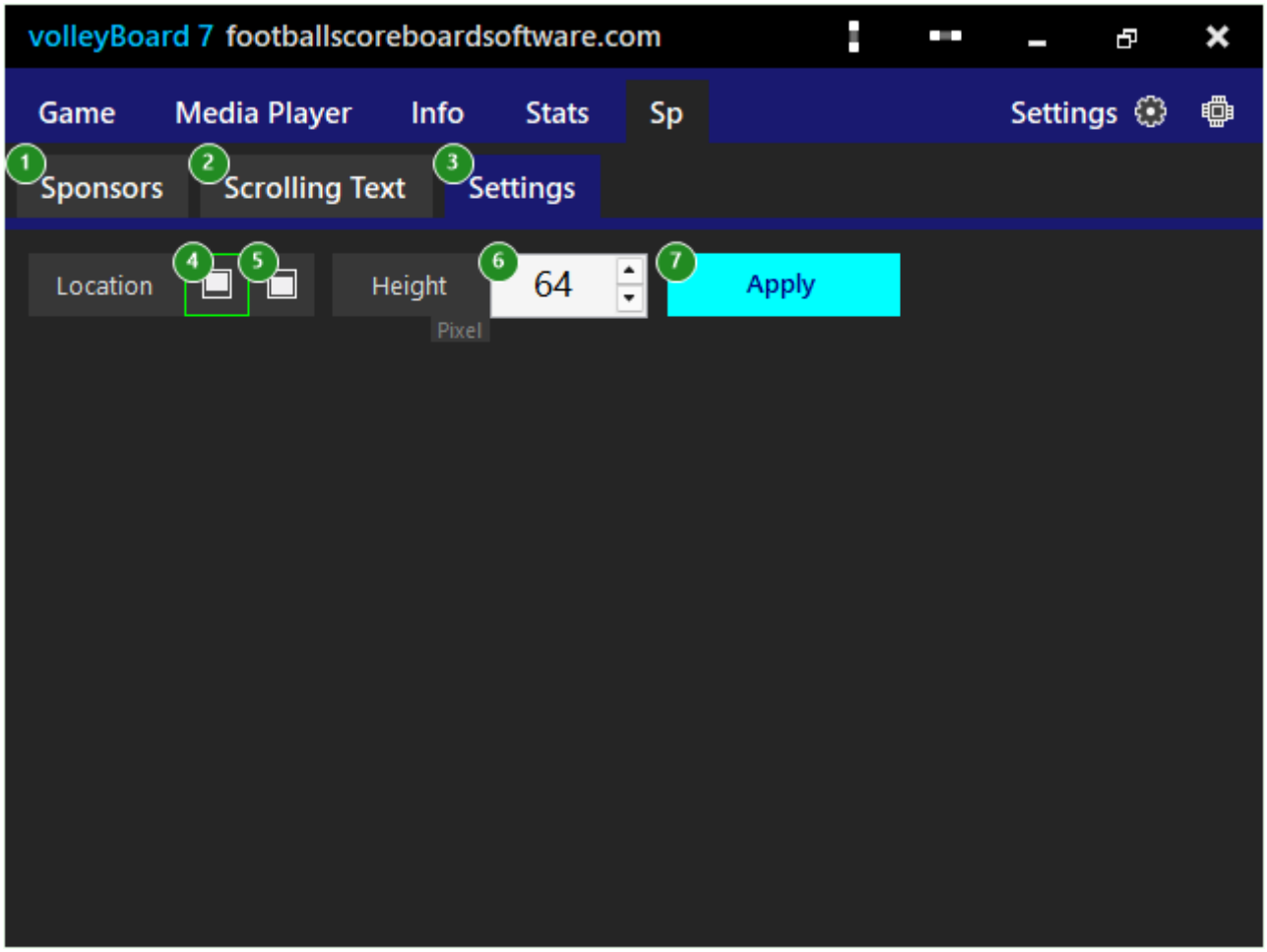


Figure 37. The Sp page: Settings with the location and height of the sponsor band.

No.	Control	Name	What It Does
1	Sponsors	**Sponsors**	Opens the Sponsors tab: puts the sponsor logos on the band.
2	Scrolling Text	**Scrolling Text**	Opens the Scrolling Text tab: the text slots and the style of the scrolling band.
3	Settings	**Settings**	Opens the Settings tab: location and height of the sponsor band.
4		**Bottom**	Puts the sponsor band at the bottom of the board (green frame = selected). Click Apply to use it.
5		**Top**	Puts the sponsor band at the top of the board (green frame = selected). Click Apply to use it.
6	64	**Height**	The height of the band in pixels (up to 1920, default 64). Type it or use the arrows, then click Apply.
7	Apply	**Apply**	Saves the location and the height and changes the board at once.

Note: The Arena master has a version made for the band: Master 4 - Arena (Sponsor Band) (chapter 8.1).

7.5 Advertisement (Ad)

The Advertisement board has a scoreboard column, up to two banners and a large multimedia area for a video playlist, a camera, an NDI source or a screen capture. The factory layout: scoreboard column on the left (27 % of the width), banner 2 along the bottom (15 %), banner 1 off.



Figure 38. The Advertisement board with a video in the multimedia area and the results text in banner 2.

The Ad page has five tabs:

Tab	What It Does
Media Player	Six playlists of videos and pictures for the multimedia area: Add Clip, Delete Clip, Delete Playlist, Start / Finish (plays the list), Play / Stop in a row (one clip) and Return to Scoreboard Screen When Playlist Ends.
Camera	A camera with its Format, or an NDI Source: 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. Set the Source Bounds (Left, Top, Width, Height) with numbers or with Select Rectangle, then Start (chapter 12.6).
Banner	The content of 1. Banner and 2. Banner: Sponsors (sliding logos), Scrolling Text or Multimedia (a playlist). The tab of a banner that is switched off is disabled.
Settings	The layout, in four parts: Scoreboard, 1. Banner, 2. Banner, Multimedia. Apply changes the board at once.

The values of the Settings tab:

Part	Values
Scoreboard	align (Top, Bottom, Left, Right), size (% of the board)

Part	Values
1. Banner, 2. Banner	align (Top, Bottom, Left, Right), size (%), dock (Yes, No), visible (Yes, No). A banner with size 0 or visible No is off and its content stops.
Multimedia	displayMode: how the picture fits the area: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch (default), ZoomCenter.

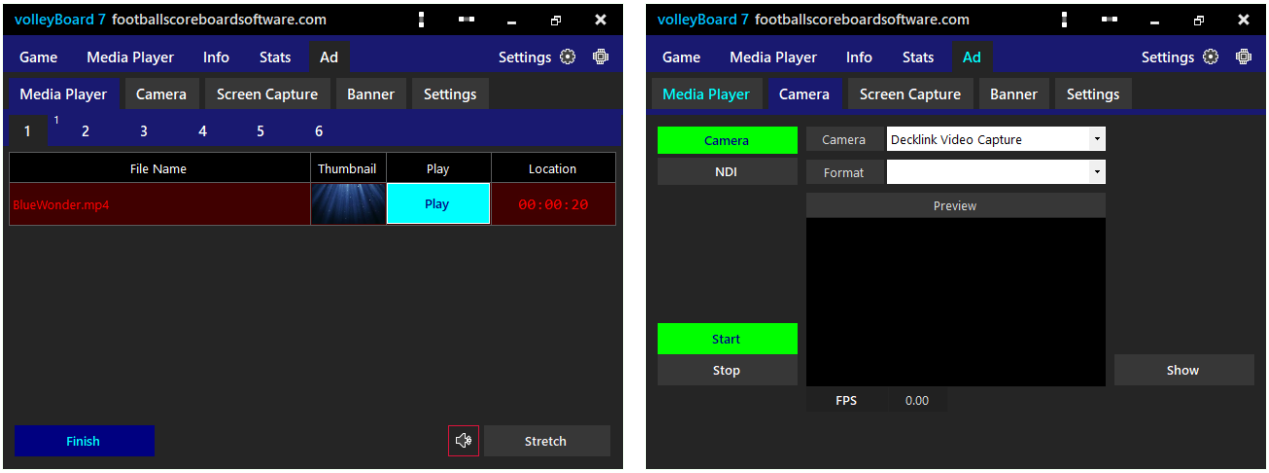


Figure 39. The Ad page: Media Player (left) and Camera (right).

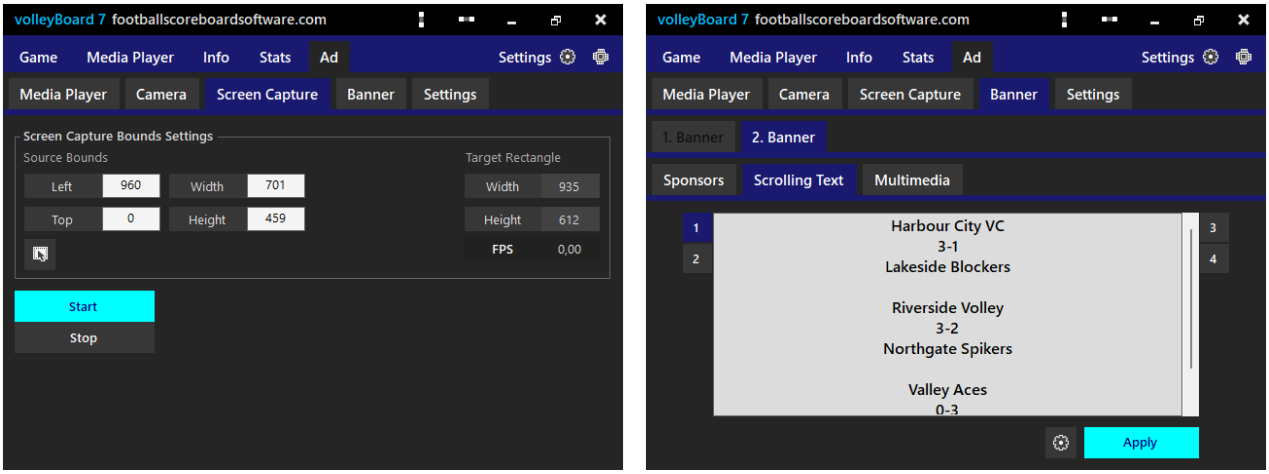


Figure 40. The Ad page: Screen Capture and Banner.

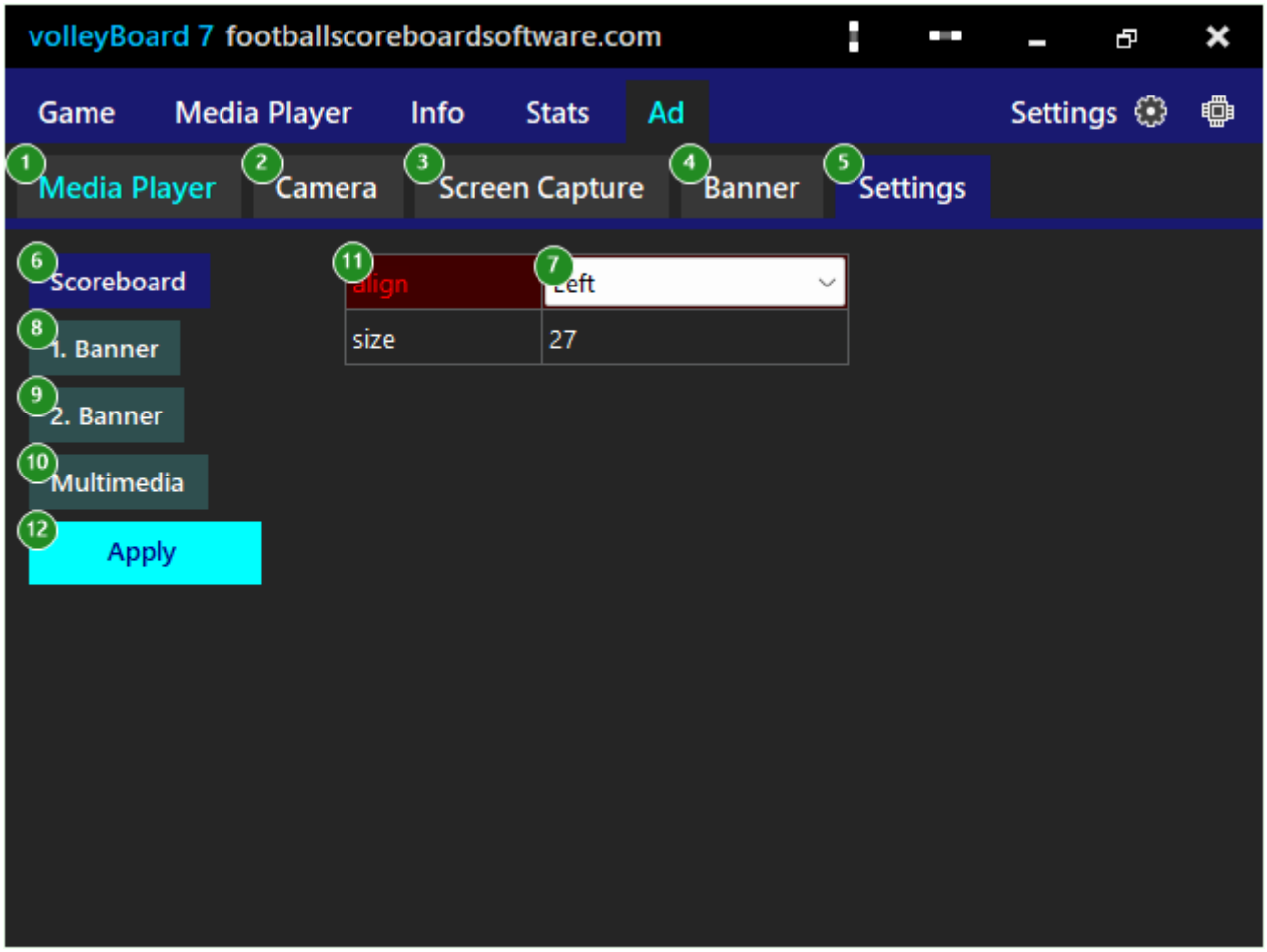
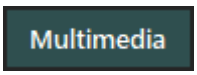
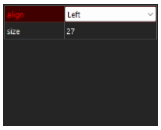


Figure 41. The Ad page: Settings with the layout of the scoreboard column.

No.	Control	Name	What It Does
1	Media Player	**Media Player**	Opens the Media Player tab: the playlists of the multimedia area.
2	Camera	**Camera**	Opens the Camera tab: a camera or an NDI source for the multimedia area.
3	Screen Capture	**Screen Capture**	Opens the Screen Capture tab: a part of the PC screen in the multimedia area.
4	Banner	**Banner**	Opens the Banner tab: the content of 1. Banner and 2. Banner.
5	Settings	**Settings**	Opens the Settings tab: the layout of the scoreboard column, the banners and the multimedia area.
6	Scoreboard	**Scoreboard**	Shows the layout values of the scoreboard column (align, size) in the table.
7	Left	**align**	The drop-down list of the align value: Top, Bottom, Left or Right. Choose one, then click Apply.
8	1. Banner	**1. Banner**	Shows the values of banner 1 (align, size, dock, visible) in the table.
9	2. Banner	**2. Banner**	Shows the values of banner 2 (align, size, dock, visible) in the table.

No.	Control	Name	What It Does
10		**Multimedia**	Shows the displayMode of the multimedia area (how the picture fits) in the table.
11		**Layout Values**	Property and value of the selected part. Click a value to change it: align, dock, visible and displayMode give a drop-down list, size is typed in % of the board.
12		**Apply**	Saves the values of the selected part and changes the Ad board at once. A banner with size 0 or visible No is switched off and its content stops.

While a source runs on the Ad page, the tab of that source (Media Player, Camera or Screen Capture) blinks.

> **Note:** A design saved in the Advertisement mode keeps this layout and brings it back when you apply it (chapter 8.4).

7.6 Chroma Key (CK)

The CK board shows a compact scorebug 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 **CK Page**

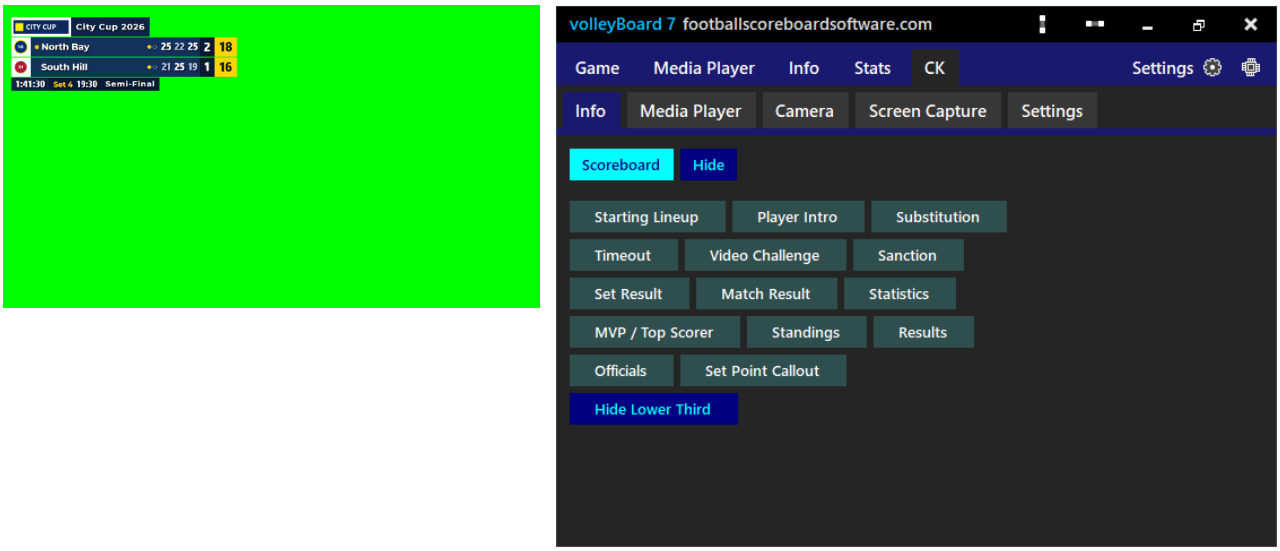


Figure 42. The CK board with the scorebug on green, and the Info tab of the CK page.

The CK page has five tabs:

Tab	What It Does
Info	Scoreboard shows the scorebug, Hide takes it off. One button per info screen opens its editor; Show there puts the lower third on the CK board (chapter 9). Hide Lower Third takes the lower third off.
Media Player, Camera, Screen Capture	As on the Ad page. The picture fills the CK board behind the graphics, in place of the key colour.

Tab	What It Does
Settings	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, and it is used at once.

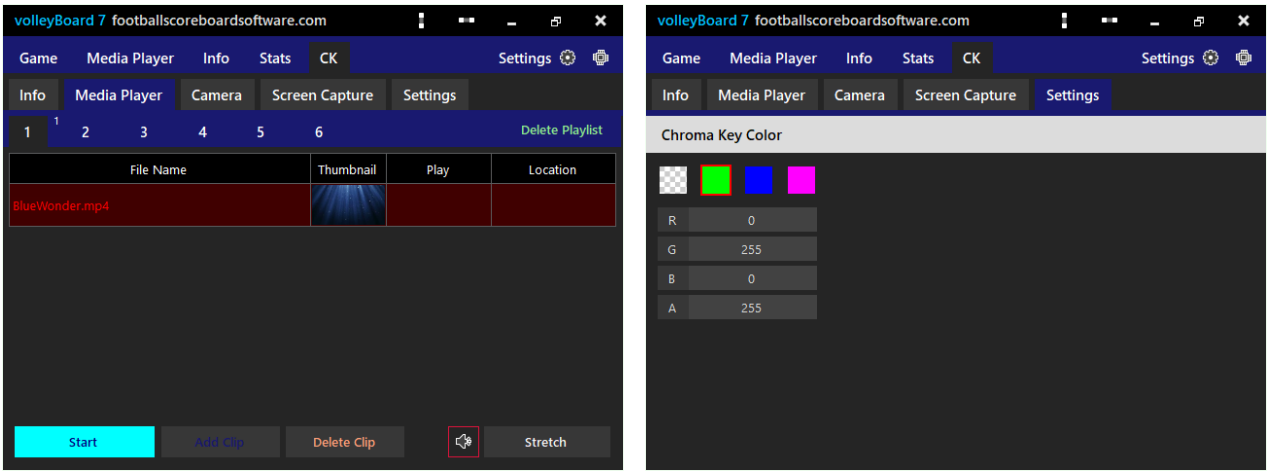


Figure 43. The CK page: Media Player (left) and Settings with the key colours (right).

> **Note:** For NDI output, use the green, blue or magenta key colour: the NDI stream carries no transparency.

7.7 Board Sizes and LED Formats

All factory boards scale with the window. The designs are built in the board unit u (chapter 8.7), so text, digits and plates keep their proportions on 16:9, 4:3, 5:4 and wide LED strips.

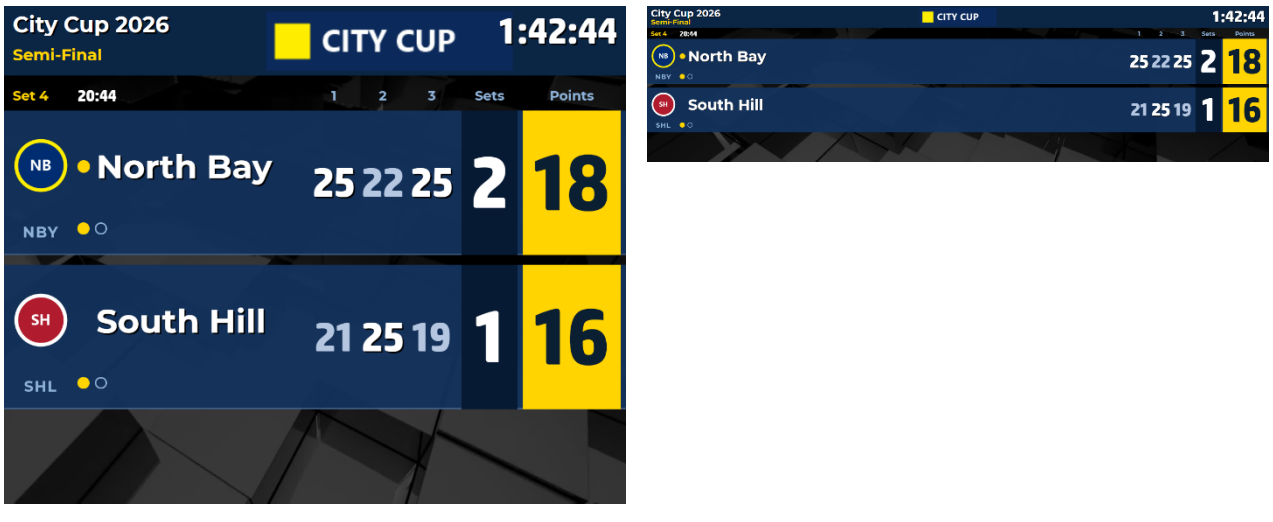


Figure 44. The Standard board at 1280 × 1024 (5:4) and on a 1920 × 480 LED strip.

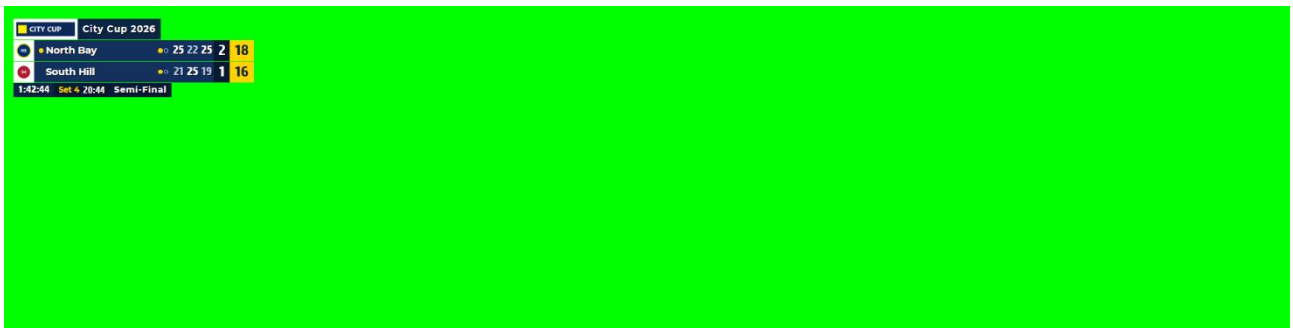


Figure 45. The Chroma Key scorebug on a 1920 × 480 board.

7.8 Source on Mode Switch

Settings > Screen Properties > Source on mode switch:

- Manual (default): a source stopped by a display-mode change stays stopped. Start it again by hand.
- Restore: when you come back to Ad or CK, the source that ran when you left (video, playlist, camera, NDI input or screen capture) starts again after a short pause, with the settings of its page. If it cannot start, a short notice says so; start it by hand. A button you press right after the switch wins over the automatic restore. Restore remembers the source only while the program runs: after a restart no device opens by itself.

7.9 NDI Output

The NDI button on the Game tab ("Start/Stop NDI Camera Stream") sends the board of the current display mode as an NDI video stream (60 frames per second) into the network. Receivers such as vMix or OBS list it under the sender name VB7_NDI. A display-mode change moves the stream to the new board.

Button	Meaning
Blue text and frame on a dark fill	Sending. Click to stop.
Grey text on a dark fill	Off. Click to start.
Amber	The stream stopped; click to restart. The tooltip gives the reason ("NDI stopped: ...").
Grey text on a grey fill	NDI is not available on this PC, or it could not start; rest the mouse on the button for the reason ("NDI unavailable: ..." or "NDI start failed: ...").

Chapter 12.7 describes NDI as an input.

7.10 Typical Set-Ups

LED wall or screen in the venue:

1. Connect the LED controller (or screen) as a second display of the PC and extend the Windows desktop to it.
2. In Settings > Screen Properties set L and T to the position of that display in the Windows layout, W and H to its resolution (for example 1920 × 1080, or the size the LED controller expects).
3. Use the Standard mode, the Sponsored mode for a sponsor band, or the Advertisement mode for video and live pictures between the rallies.

TV production with a vision mixer:

1. Choose the CK display 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 (second display into a converter), or over the network with the NDI button.
3. Key the colour out in the mixer; the scorebug and the lower thirds lie over the camera picture.
4. Show the info screens as lower thirds from the Info tab or the CK page.

Streaming with a software mixer (OBS, vMix):

1. Click NDI on the Game tab. The board appears in the software as the NDI source VB7_NDI.
2. For an overlay use the CK mode and a chroma-key filter on the source in the software; for a full-screen graphic use the Standard mode.

In every set-up the operator can work on 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

volleyBoard 7 ships factory designs, the masters. A master is locked: you can select it, but you cannot rename, delete or overwrite it. The Standard board has five masters, the Advertisement board and the Chroma Key set three each:

Master	Board Types	Look
Master 1 - Navy (default)	St, Ad, CK	Navy rows and a yellow points box.
Master 2 - Charcoal	St, Ad, CK	Dark charcoal rows, white text and an electric cyan accent.
Master 3 - Clay	St, Ad, CK	Terracotta rows, deep brick panels and a chalk-white points box; leading values in gold.
Master 4 - Arena	St	A centred scoreboard: the teams left and right with logo, name and very large yellow points; the centre column holds the board logo, the match clock, the set in play and a table of the completed sets.
Master 4 - Arena (Sponsor Band)	St	The Arena layout made a little tighter, for the Sponsored mode, where the board sits above the sponsor band.

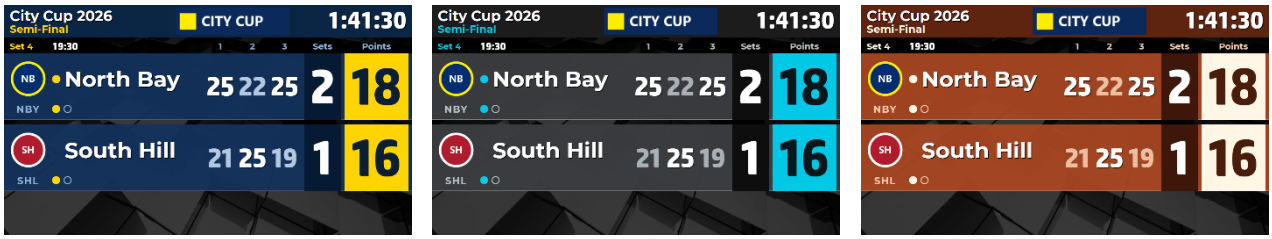


Figure 46. The Standard board in the masters Navy, Charcoal and Clay.

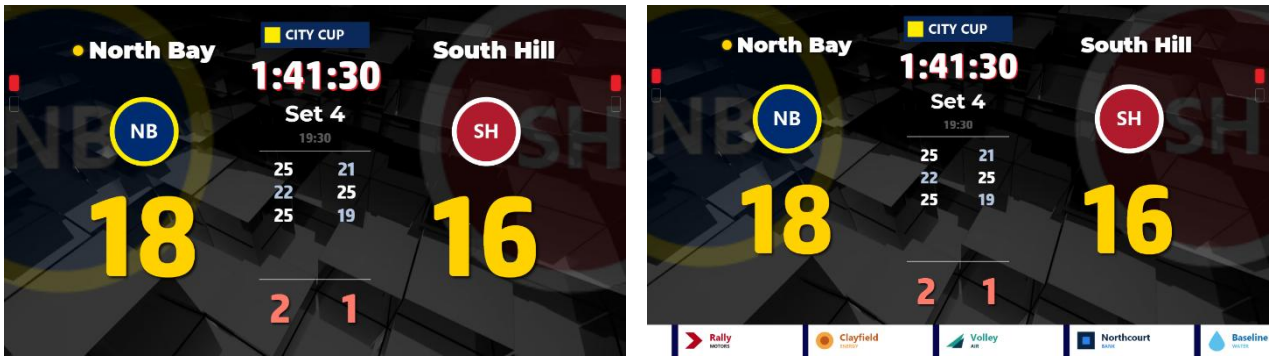


Figure 47. The Arena master on the Standard board, and its Sponsor Band version.

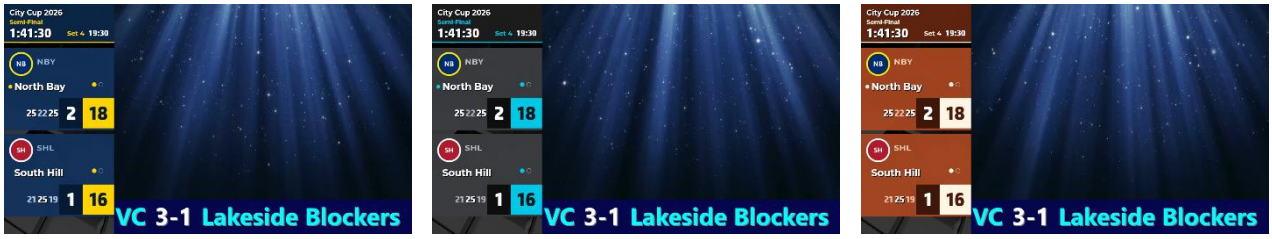


Figure 48. The Advertisement board in the three masters.



Figure 49. The Chroma Key scorebug in the three masters.

- The Sponsored board uses the Standard designs: the gallery in Sp mode lists the St designs.
- A Standard master brings its own layouts of the info screens, Banner and Announce. Navy, Charcoal and Clay each have their own set; both Arena masters use the Navy set.
- A Chroma Key master brings its own scorebug and its own set of lower thirds.

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 with this tooltip next to the mode buttons). The gallery opens next to it.
3. Click a design in the list. The preview on the right shows it with the live score.
4. Click Apply.

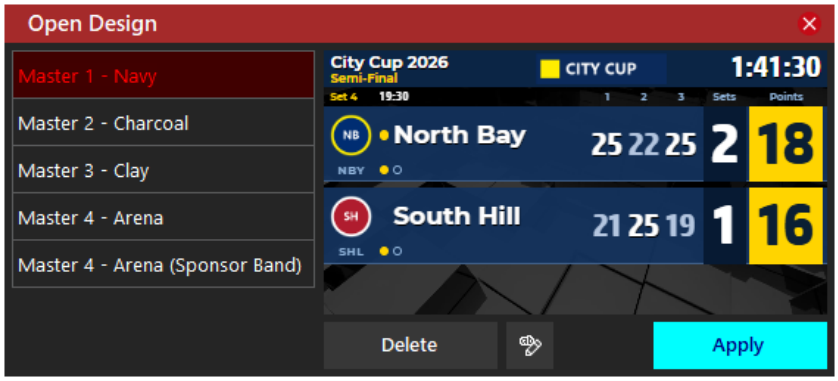


Figure 50. The design gallery with the Standard masters and a live preview.

Button	What It Does
Apply	Uses the selected design for this display mode, redraws the board and closes the gallery.
Delete	Deletes one of your own designs after the question Delete the Design "<name>"? On a master the button does nothing.

Button	What It Does
Rename (pencil icon)	Lets you type a new name for one of your own designs in the list; press Enter to keep it. On a master the button does nothing.

The list is sorted by name. Esc, the X or a click outside the gallery closes it without a change.

What Apply copies:

Display Mode	Apply Brings
St, Sp with a master	The scoreboard layout and its skeleton, and the layouts of all info screens, Banner and Announce of that master.
St, Sp with your own design	The scoreboard layout only. The info screens stay as they are.
Ad	The scoreboard layout; a design you saved also brings back the layout of the scoreboard column and the banners (section 8.4).
CK	The scorebug and every lower third of that master.

> **Note:** Applying a master replaces the working copies of the screens it brings, without a question. If you changed an info screen or a CK lower third in the design editor, those changes are overwritten. Save your scoreboard as your own design first (section 8.4).

8.3 Factory, Current, Save and Revert

The designs live in two folders under C:\volleyBoard7\common\vizrt:

Folder	What It Holds	Written By
storage	The factory designs: the masters, their skeletons, their info-screen and CK layouts, and the factory index dataBoardsFactory.xml. Also your saved designs and their list, dataBoards.xml.	The setup (factory files); Save Design As and the gallery (your designs only)
current	The working copy: the design the board shows now, for the scoreboard of each display mode (current\Game\St, current\Game\Ad, current\Game\CK), each info screen, Banner, Announce and each CK lower third.	Apply, the design editor, Factory Settings

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

Step	Where	What Happens
Factory	storage	The masters stay as they were shipped. They are the source for Apply and Factory Settings.
Current	current	Apply copies a design into the working copy; the design editor changes the working copy element by element (Save & Apply).
Save	storage	Save Design As keeps the working scoreboard as a design of your own, listed in the gallery next to the masters.
Revert	current	Factory Settings in the design editor copies the factory version of one screen back into the working copy (section 8.6). Apply in the gallery brings back a whole design.

When you switch the display mode, the working scoreboard of the mode you leave is kept in current\Game\<mode>, and the one of the new mode comes back. Each display mode therefore keeps its own scoreboard design. Missing working files are filled in from storage at every mode switch, so a deleted file comes back as the factory version.

8.4 Saving Your Own Design

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

Your design appears in the gallery of that display mode, next to the masters.

- 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 (position and size of the scoreboard column, banner 1 and banner 2, chapter 7.5). Apply brings that layout back.
- In the Chroma Key mode, saving is not supported: the program shows "Sorry, Design Saving Is Not Supported For CK Mode Yet!".
- Your designs are files in storage (<GUID>.xml, for Ad also <GUID>_Segment.xml) and an entry in storage\dataBoards.xml. Delete in the gallery removes all of them.

> **Note:** A saved design keeps its layout (the XML) but not its own skeleton. Apply it after the master it was made from: a design made from an Arena master shows correctly only while the Arena skeleton is in use.

8.5 The Design Editor

Open Settings and click the design button of the current display mode: [St]andard Board Design, [Sp]onsored Board Design, [Ad]vertisement Board Design or [CK] Board Design. Only the button of the

active display mode is enabled. The editor fills the work area; its title shows the board type and the selected screen, for example "[St]andard Board Design - Game".

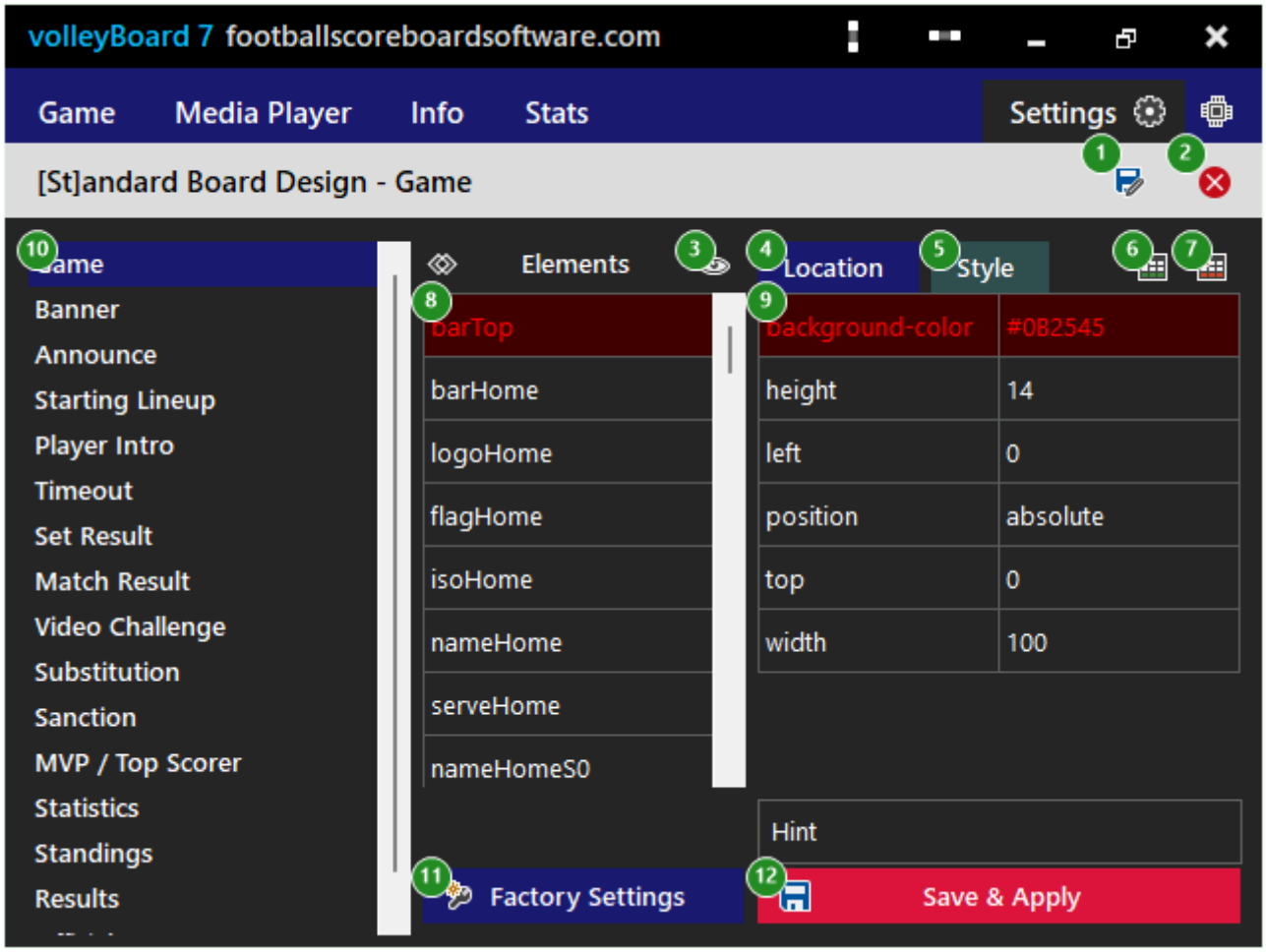
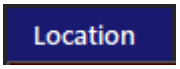
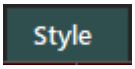
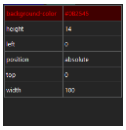
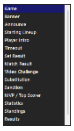
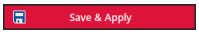


Figure 51. The design editor of the Standard board with the Game screen selected.

No.	Control	Name	What It Does
1		**Save Design As (Disk)**	Saves the current scoreboard as your own design under a name you type; it then appears in the design gallery. Not supported in the CK mode.
2		**Close (X)**	Closes the design editor. Esc does the same.
3		**Show or Hide (Eye)**	Switches the selected element between shown (display: block) and hidden (display: none). Click Save & Apply to use it.
4		**Location**	Shows the position and size values of the selected element (left, top, width, height ...).
5		**Style**	Shows the look values of the selected element (colour, font, border, shadow ...).
6		**Insert Row**	Adds an empty value row: choose the property, then type the value.
7		**Delete Row**	Removes the selected value row.

No.	Control	Name	What It Does
8		**Elements**	Every object of the selected screen; hidden objects are grey. Click one to load its values (unsaved values of the previous element are dropped).
9		**Values**	The property and value rows of the element. Click a property for the list of property names; click a value and type (or press F2). A colour value gets a colour picker button, font-family a font picker button.
10		**Screen List**	Game, Banner, Announce and the info screens (in CK: the scorebug and the lower thirds). Click one to edit it; the board shows that screen.
11		**Factory Settings**	After a question, brings back the factory version of the selected screen.
12		**Save & Apply**	Saves the values of the selected element and redraws the board.

Area or Button	What It Does
Screen list (left)	Game (the scoreboard), Banner, Announce and the 13 info screens (chapter 9). In CK mode: Game (the scorebug) and the 13 lower thirds; Banner and Announce are not in the list.
Elements	Every object of the selected screen. Hidden objects are grey. Click one to edit it.
Show or Hide (eye icon)	Switches the selected element between shown (display: block) and hidden (display: none).
Location	Shows the position and size values of the element (left, top, width, height ...).
Style	Shows the look values of the element (colour, font, size, shadow ...).
Insert Row	Adds an empty value row; choose or type the property, then the value.
Delete Row	Removes the selected value row.
Values	Property and value. A click on a property opens a list of property names; Hint lists typical values for it as a reminder; type the value into the cell. A colour property gets a colour picker button, font-family a font picker button.
Factory Settings	Brings back the factory version of the selected screen after a question (section 8.6).
Save & Apply	Saves the values of the selected element and redraws the board.
Save Design As (disk icon)	Saves the scoreboard as your own design (section 8.4).
X	Closes the editor. Esc does the same.

How to change an element:

1. Click the screen in the list, then the element. The board shows the screen with the element framed by a red dotted line.
2. Click Location or Style and change the values.
3. Click Save & Apply. Save each element before you choose the next one: unsaved values of an element are dropped when you select another one.

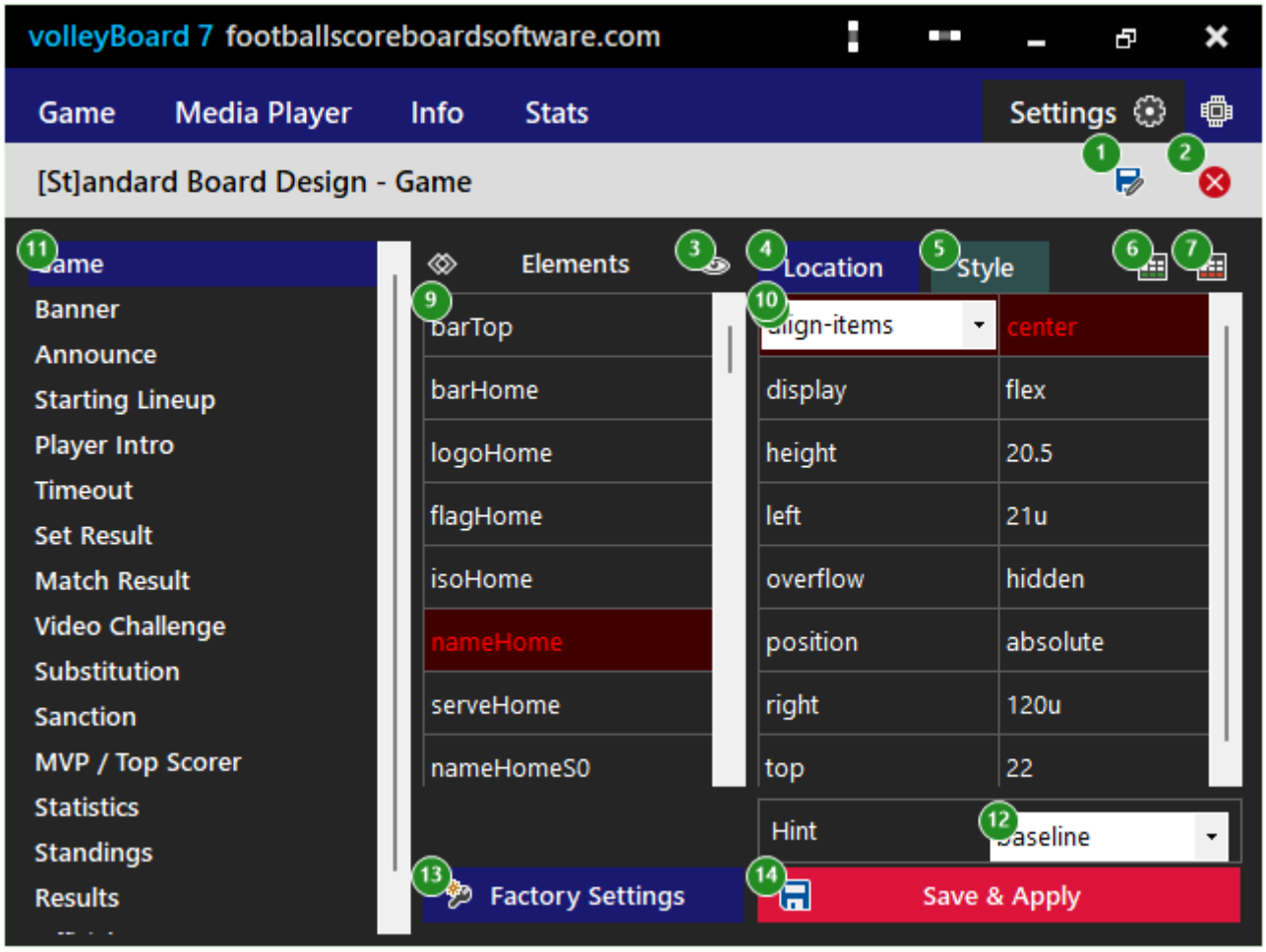
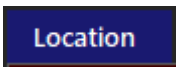
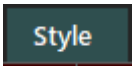
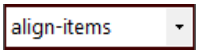
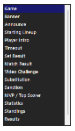
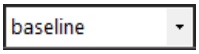
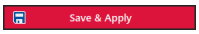
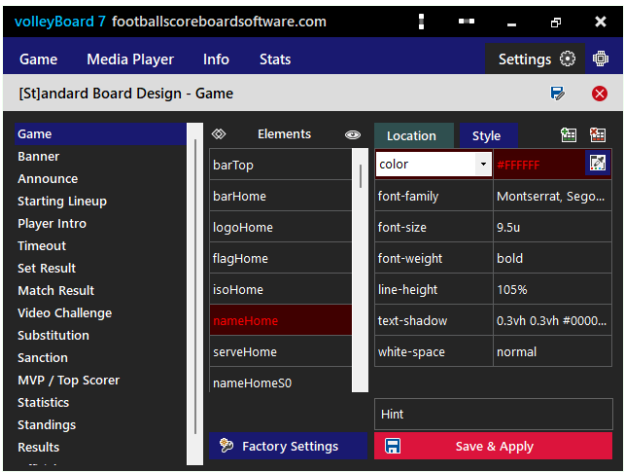


Figure 52. An element of the Standard board selected; its Location values on the right.

No.	Control	Name	What It Does
1		**Save Design As (Disk)**	Saves the current scoreboard as your own design under a name you type; it then appears in the design gallery. Not supported in the CK mode.
2		**Close (X)**	Closes the design editor. Esc does the same.
3		**Show or Hide (Eye)**	Switches the selected element between shown (display: block) and hidden (display: none). Click Save & Apply to use it.
4		**Location**	Shows the position and size values of the selected element (left, top, width, height ...).
5		**Style**	Shows the look values of the selected element (colour, font, border, shadow ...).
6		**Insert Row**	Adds an empty value row: choose the property, then type the value.

No.	Control	Name	What It Does
7		**Delete Row**	Removes the selected value row.
8		**Property**	The list of property names in the row being edited: choose or type a property, for example align-items.
9		**Elements**	Every object of the selected screen; hidden objects are grey. Click one to load its values (unsaved values of the previous element are dropped).
10		**Values**	The property and value rows of the element. Click a property for the list of property names; click a value and type (or press F2). A colour value gets a colour picker button, font-family a font picker button.
11		**Screen List**	Game, Banner, Announce and the info screens (in CK: the scorebug and the lower thirds). Click one to edit it; the board shows that screen.
12		**Hint**	Lists the usual values of the selected property for reference. Choosing one does not change the value; type it into the value cell.
13		**Factory Settings**	After a question, brings back the factory version of the selected screen.
14		**Save & Apply**	Saves the values of the selected element and redraws the board.



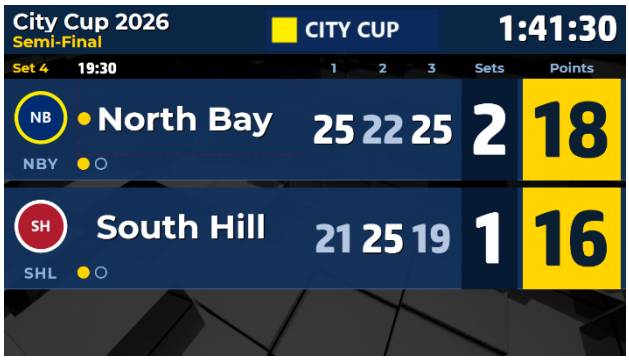


Figure 53. The Style values of the element (left) and the board with the edited element framed in red (right).

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

8.6 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 and asks "Factory Settings Will Be Restored. Are You Sure?". After OK:

Screen	What Comes Back
An info screen, Banner or Announce (St, Sp, Ad)	The layout of that screen from the Standard master in use (Navy, Charcoal or Clay; Navy for the Arena masters and for your own designs).
A CK lower third or the CK scorebug	That screen from the Chroma Key master in use.
Game (St, Sp, Ad)	The stored version of the scoreboard design.

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

8.7 Fonts and the u Unit

Every object of a board (team name, logo, points, set columns, timeout pips, clock ...) is an element with its own Location and Style. 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, so a design keeps its proportions. Write it after the number, for example 16u. 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 (vw). For top, bottom, height, min-height, max-height, font size, line height, gap, margin, padding and the top and bottom margins and paddings: % of the board height (vh).
auto, fit-content, inherit ...	Kept as typed.

Fonts:

- The factory designs use Montserrat for words and HP Simplified for digits, each with fallbacks (Segoe UI, Arial; Bahnschrift, Arial Narrow).
- The setup installs these fonts with the program: Montserrat, HP Simplified, Agency, DS-Digital, Groteskia, Jersey M54, TRT and Axis (common\font).
- 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 behind the scoreboard. Choose them on the Game tab with Select Background Layer Video File and Select Middle Layer Image File. Settings > Screen Properties > Background Video Opacity (0-10, default 6) sets how strongly the video shows.
- The board logo is chosen with the logo slot of the Game tab ("Click to Select a Logo").

- The Chroma Key board has no background: it shows the key colour or the picture of a running source (chapter 7.6).

8.8 Upgrades Keep Your Designs

The setup replaces the factory content (the factory index and the master folders) and keeps your data: your saved designs, their list dataBoards.xml and the whole working folder current are installed only when they do not exist yet.

At the first start after an update, the program checks the working designs:

- A working design you never changed, from an older version, is replaced by the new factory design.
- A working design you changed is kept. The log names it: "... is a customised design - kept ... The new factory design is in ...". The new factory design is then in the gallery (scoreboard, CK) or comes back with Factory Settings (info screens).
- The Standard board, the Advertisement board and the Chroma Key set are each replaced as a whole or not at all, so a board never mixes old and new parts. The info screens are checked one by one.
- Your own saved designs are never changed.

7.6.10.12 is the first volleyBoard 7 release, so it has no older factory designs to replace yet.

9. Info Screens

9.1 The Info Tab

The Info tab holds everything that is shown instead of, or on top of, the scoreboard.

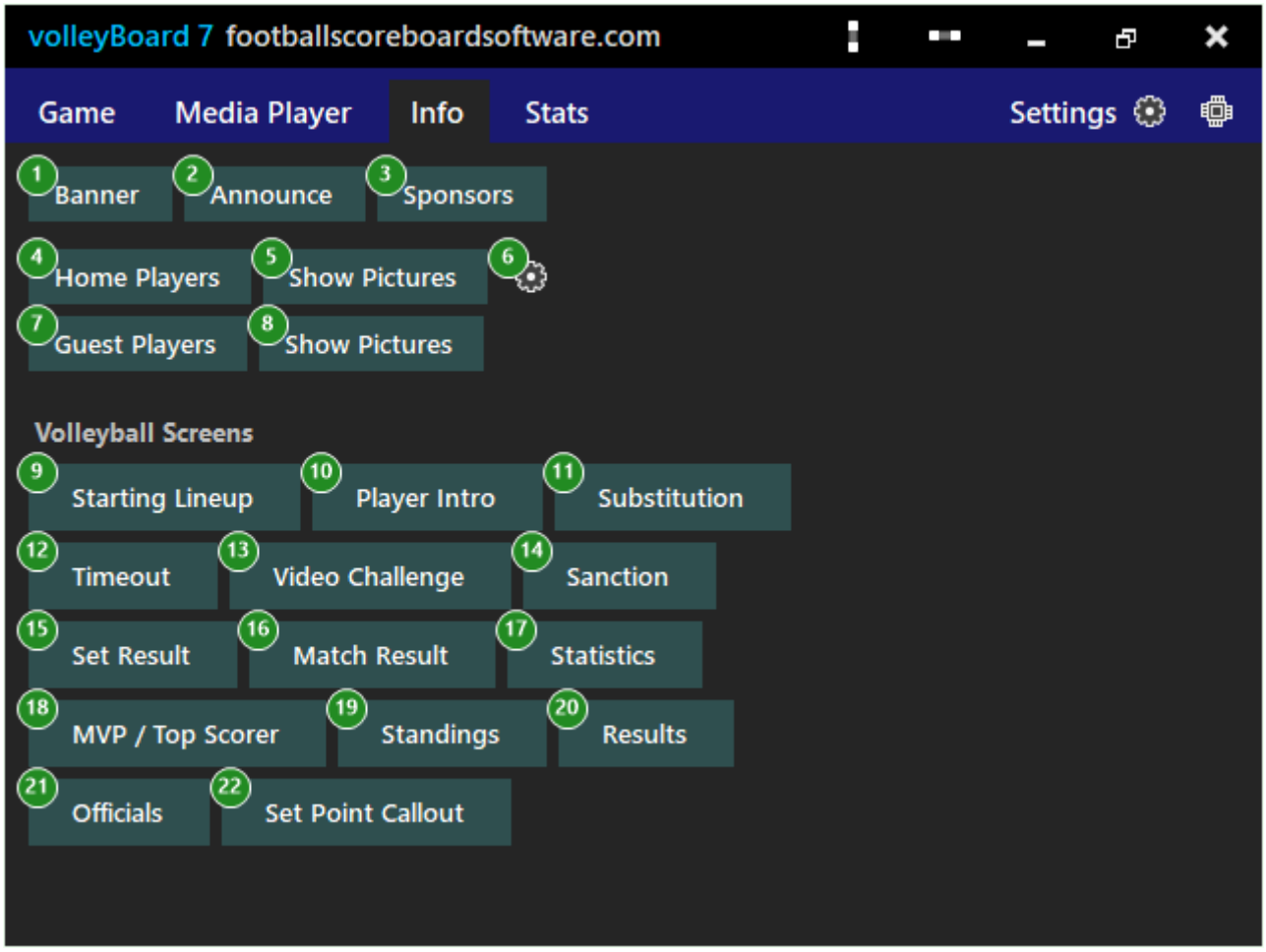


Figure 54. The Info tab with the Volleyball Screens buttons.

No.	Control	Name	What It Does
1	Banner	**Banner**	Opens the Banner editor: a full-screen text banner.
2	Announce	**Announce**	Opens the Announce editor: a full-screen announcement.
3	Sponsors	**Sponsors**	Opens the sponsor list.
4	Home Players	**Home Players**	Opens the player list of the home team.
5	Show Pictures	**Show Pictures (Home)**	Opens Show Pictures of the home team: a slideshow of the player photos on the board.
6		**Info Background (Gear)**	Opens or closes the background choice of the info screens on the St, Sp and Ad boards: the scoreboard's background video (default), black, or a selected video or picture.

No.	Control	Name	What It Does
7	Guest Players	**Guest Players**	Opens the player list of the guest team.
8	Show Pictures	**Show Pictures (Guest)**	Opens Show Pictures of the guest team: a slideshow of the player photos on the board.
9	Starting Lineup	**Starting Lineup**	Opens the editor of the Starting Lineup screen (Side, Show, Hide).
10	Player Intro	**Player Intro**	Opens the editor of the Player Intro screen (Side, Player, Show, Hide).
11	Substitution	**Substitution**	Opens the editor of the Substitution screen (Side, Player Out, Player In, Show, Hide).
12	Timeout	**Timeout**	Opens the editor of the Timeout screen (Timeout Of, Show, Hide, End the Timeout).
13	Video Challenge	**Video Challenge**	Opens the editor of the Video Challenge screen (Side, Challenge, Result, Show, Hide).
14	Sanction	**Sanction**	Opens the editor of the Sanction screen (Side, Player, Sanction, Show, Hide).
15	Set Result	**Set Result**	Opens the editor of the Set Result screen (Show Durations, Show, Hide).
16	Match Result	**Match Result**	Opens the editor of the Match Result screen (Show Durations, Show, Hide).
17	Statistics	**Statistics**	Opens the editor of the Statistics screen (Set, Show, Hide, Open the Stats Tab).
18	MVP / Top Scorer	**MVP / Top Scorer**	Opens the editor of the MVP / Top Scorer screen (award, player and up to four numbers).
19	Standings	**Standings**	Opens the editor of the Standings screen (heading and league table).
20	Results	**Results**	Opens the editor of the Results screen (heading and the matches of a round).
21	Officials	**Officials**	Opens the editor of the Officials screen (role, name and country of each official).
22	Set Point Callout	**Set Point Callout**	Opens the settings of the Set Point Callout (Show Automatically, Final, Show Now, Hide Until the Score Changes).

Control	What It Does
Banner	A full-screen text banner (chapter 12.1).
Announce	A full-screen announcement (chapter 12.2).
Sponsors	The sponsor list (chapter 12.3).
Home Players, Guest Players	The player lists of the two teams (chapter 11.3).

Control	What It Does
Show Pictures (one per team)	A slideshow of the player photos of that team (chapter 12.5).
Background (gear icon)	The background of the info screens on the St, Sp and Ad boards: the scoreboard's background video (default), black, or a selected video or picture.
Volleyball Screens	Fourteen buttons: the 13 info screens and the Set Point Callout. Each opens its editor.

The screen buttons are grouped three per row:

Row	Buttons
Teams and players	Starting Lineup, Player Intro, Substitution
In-match events	Timeout, Video Challenge, Sanction
Results and statistics	Set Result, Match Result, Statistics
Awards and tables	MVP / Top Scorer, Standings, Results
Other	Officials, Set Point Callout

9.2 Showing and Hiding a Screen

1. Click the screen's button on the Info tab (or on the Info tab of the CK page).
2. Fill in the fields of the editor. Every change is saved at once with the match; there is no Save button.
3. Click Show. In St, Sp and Ad the screen fills the board. In CK it appears as a lower third.
4. Click Hide to go back to the scoreboard (CK: the lower third fades out).

- Show is aqua with navy text, Hide navy with aqua text: in volleyBoard 7 these colours always mean "this changes what is on the board".
- The screen is built when you click Show, from the editor fields, the match and the player lists. It is not refreshed while on air: click Show again after the data changed. Only the timeout countdown runs by itself.
- Esc or the X closes the editor; the screen stays on air.
- The Tournament and Round lines of the Game tab are the subtitle of every screen on the St board ("Tournament · Round"). Standings and Results replace it with their own heading.
- Values that are empty are left out, so a screen shows only what has content.
- Team logos are shown where the design has them; a team without a logo shows the flag of its team code (chapter 11).
- New Match clears the per-match data: Timeout, Video Challenge, Substitution, Sanction, MVP and the player of Player Intro. Standings, Results, Officials and the other settings stay.
- From the remote control or the HTTP API: info_show with the screen key, info_hide (chapter 14, Appendix B).

> **Note:** Some screens act on the match when you click Show: Timeout starts a timeout when none runs, Video Challenge requests or resolves a challenge (sections 9.5 and 9.8). Check the fields before you click Show.

9.3 Starting Lineup

The six starters of a team, the libero and the coach, with photo, shirt number, name and position.

Field	Values
Side	Home, Guest

The screen takes the players from the team's player list (chapter 11.3): the first six players of the Players group who are not liberos start; the first player with the position L (or Libero) is the libero; the first entry of the Coach group is the coach. The positions S, OH, OPP (or OP), MB and L are shown as Setter, Outside Hitter, Opposite, Middle Blocker and Libero; any other text is shown as typed.

St Board **CK Lower Third**

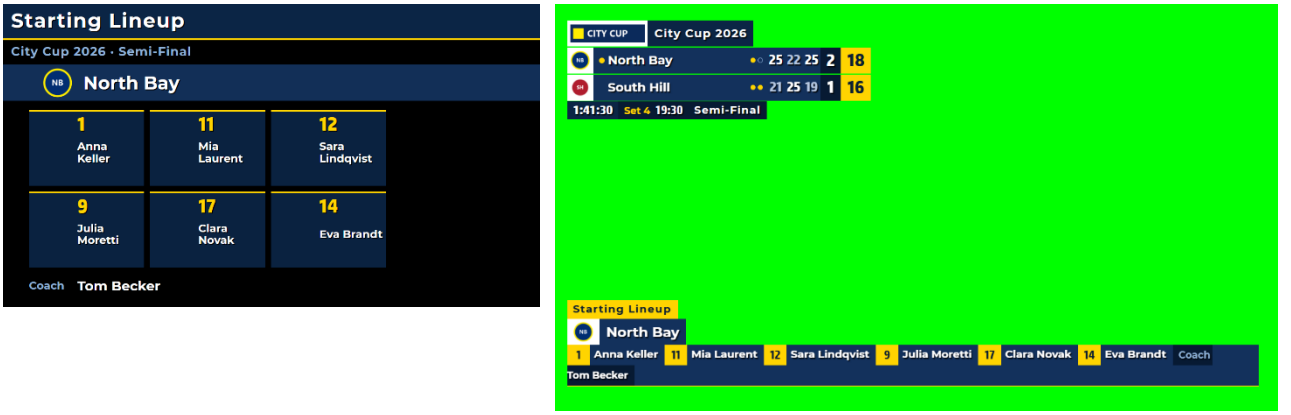


Figure 55. Starting Lineup on the St board (left) and as a CK lower third (right).

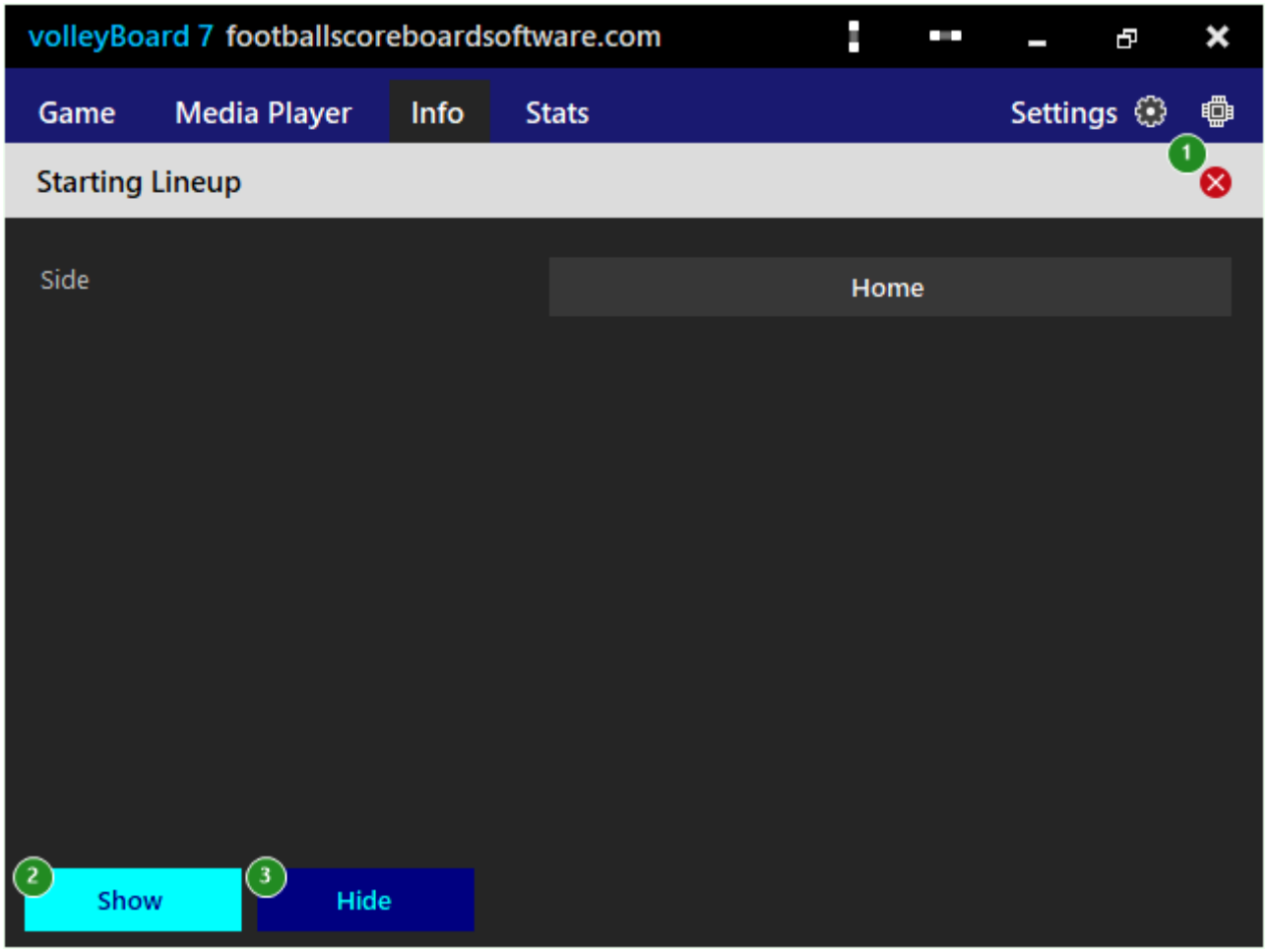


Figure 56. The editor of Starting Lineup.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2	Show	**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
3	Hide	**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.4 Player Intro

A profile card of one player (title Player Profile): photo, shirt number, name, team and the facts Position, Height, Age, Country, Spike Reach and Block Reach from the player list. Facts that are empty are left out.

Field	Values
Side	Home, Guest
Player (Number or Name)	The shirt number or the name of the player, as in the player list. Empty: the first starter of the team.

- The country shows its flag. Without a country in the player list, the team code is used when it is a country code (national teams).
- A number or name that is not in the list is shown as typed, without photo or facts.

St Board **CK Lower Third**

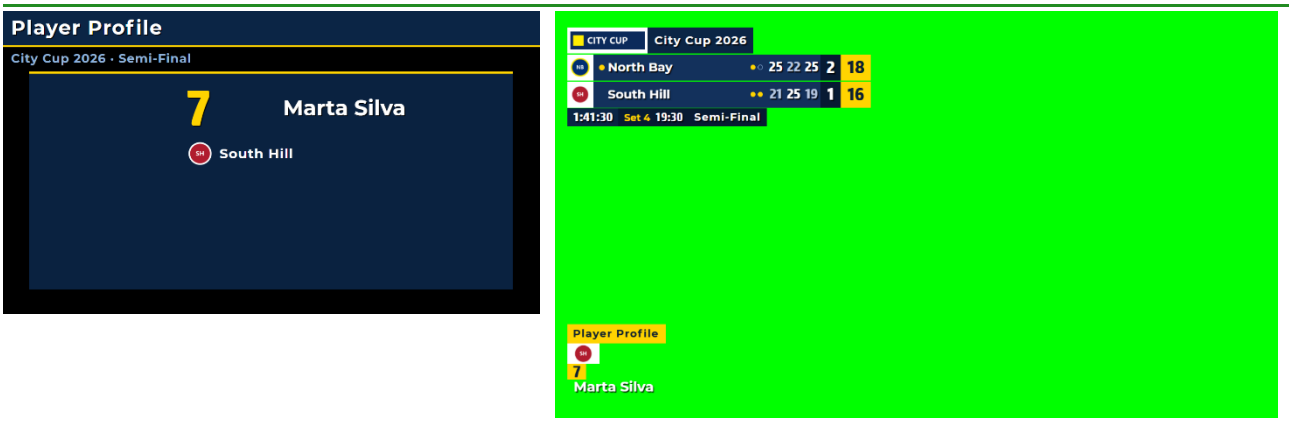


Figure 57. Player Intro on the St board and as a CK lower third.

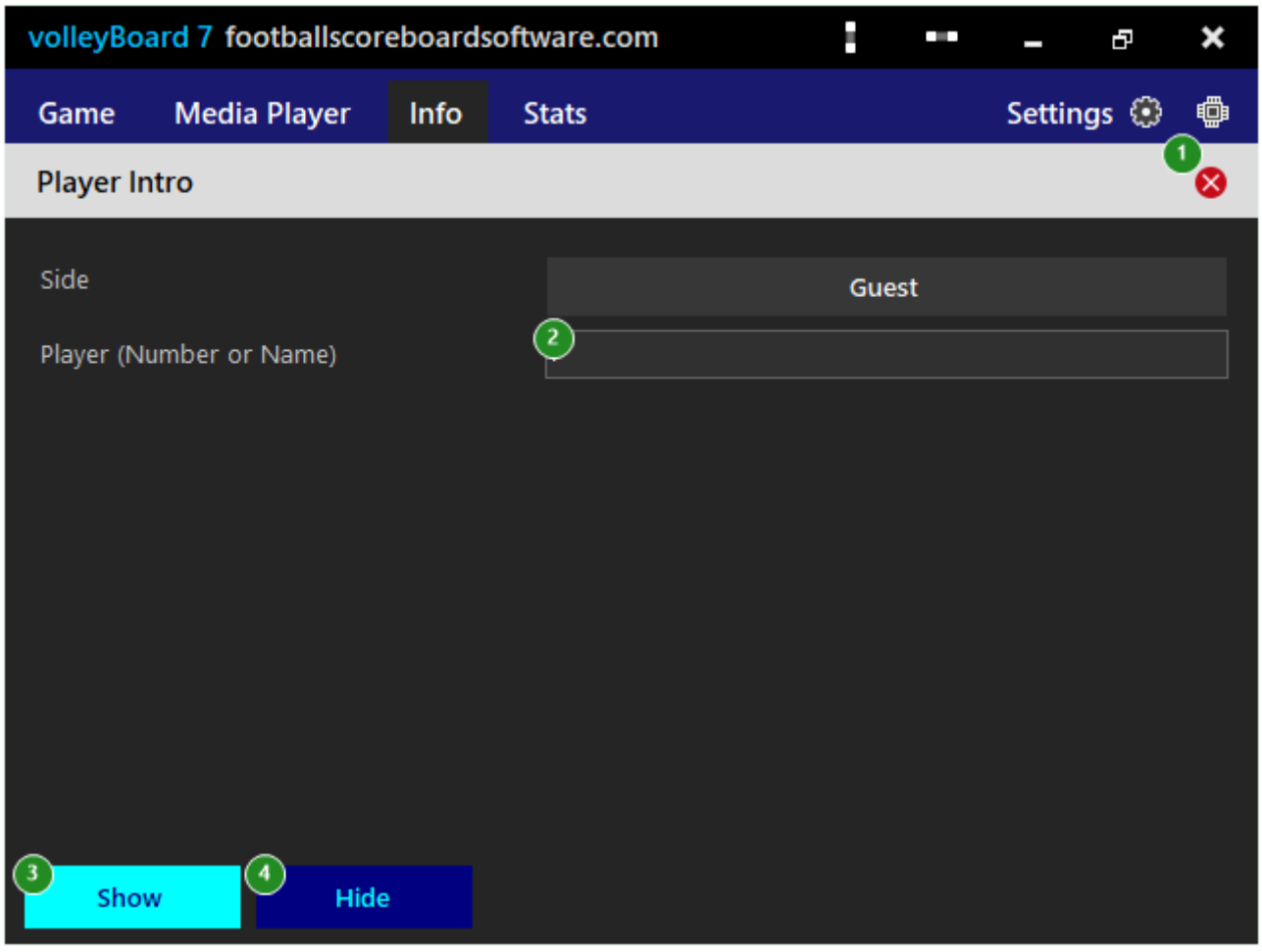


Figure 58. The editor of Player Intro.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Player**	The shirt number or the name of the player. Saved as you type.
3		**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
4		**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.5 Timeout

The timeout screen: the team that called it, the score (points and sets of both teams), the timeout pips of both teams, the set in play and the countdown.

Field	Values
Timeout Of	Home, Guest, Technical Timeout

- When a timeout runs, the screen follows it: the field is set to that team (or Technical Timeout), and the countdown runs on the board until 0:00.
- When no timeout runs, Show starts one: a team timeout for the team in the field, or a technical timeout. A team timeout is refused when the team has none left in the set.
- End the Timeout ends the running timeout early.
- The title is Timeout, or Technical Timeout.

The Timeout buttons of the Game tab (chapter 5) start the timeout without the screen; open the editor and click Show to put it on the board.

St Board **CK Lower Third**

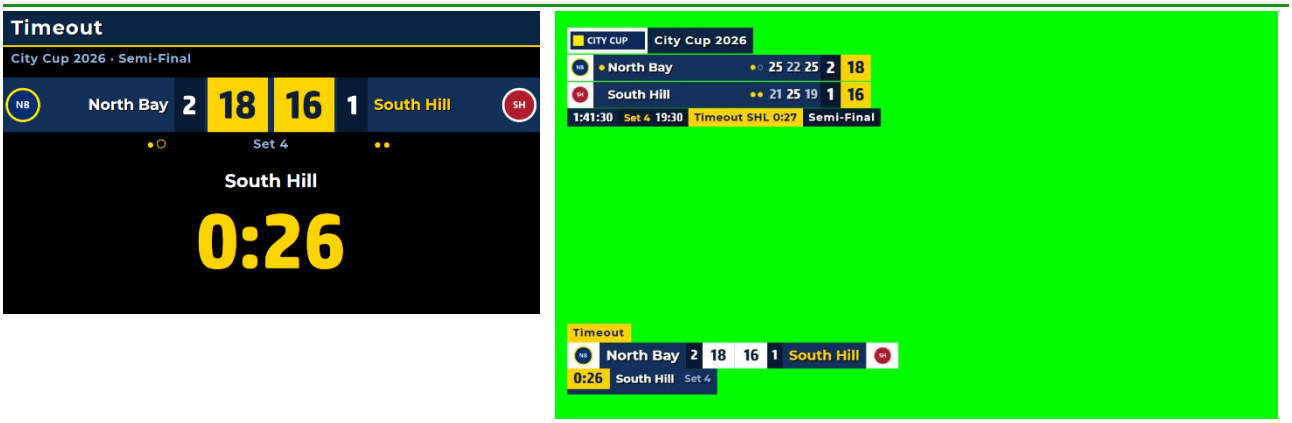


Figure 59. A team timeout with the countdown on the St board and as a CK lower third.

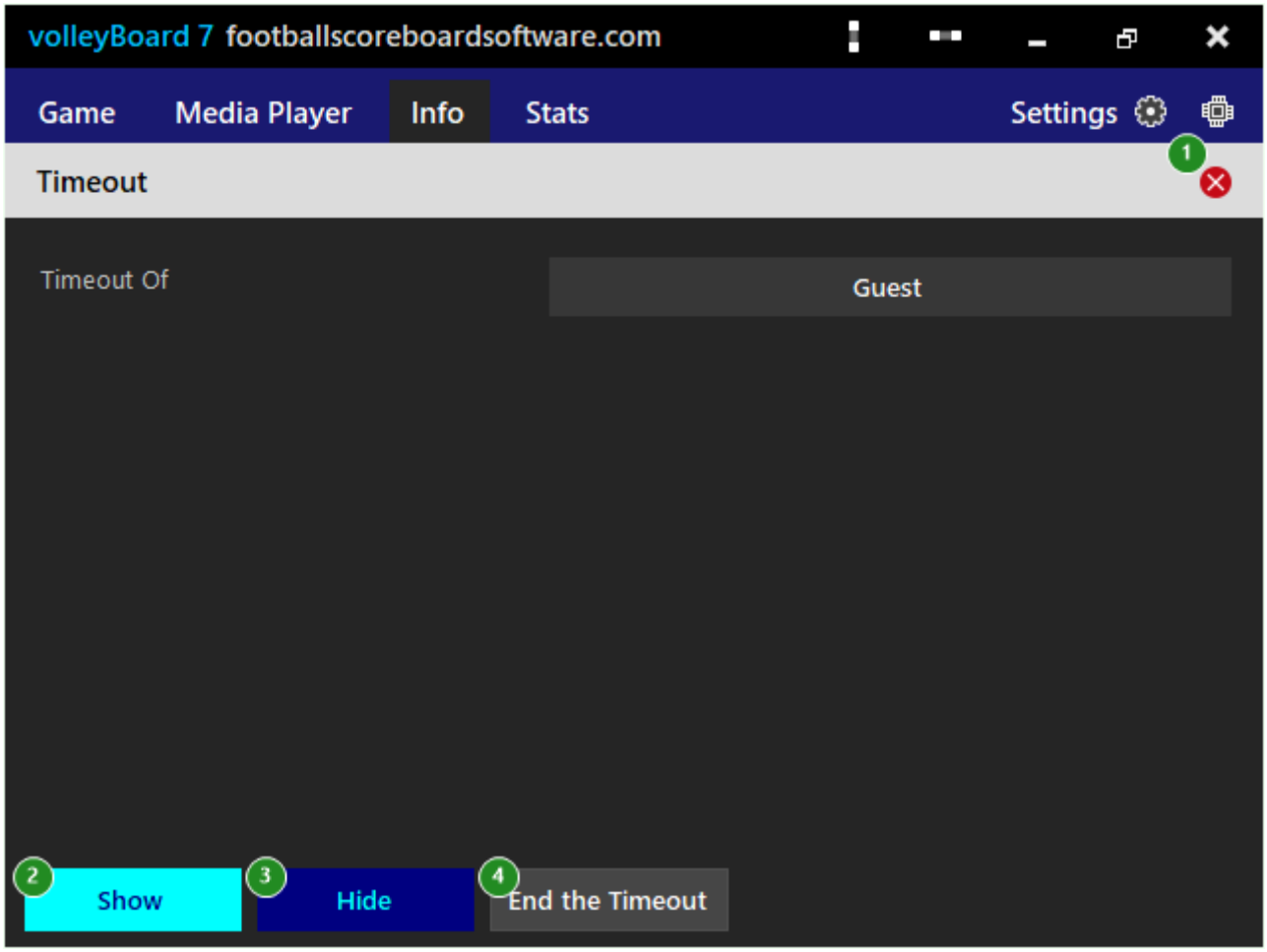
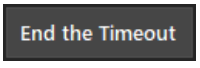


Figure 60. The editor of Timeout with End the Timeout.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor of Timeout, Video Challenge or Statistics; the screen stays on air. Esc does the same.
2		**Show**	Shows the Timeout screen with the running timeout; when none runs, it first starts a timeout for the chosen team (None = a technical timeout).
3		**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).
4		**End the Timeout**	Ends the running timeout before its time is over.

9.6 Set Result

A table of the set scores with the logos, names and sets won of both teams.

Field	Values
Show Durations	On (default): a row with the duration of each set and the match time.

The title follows the match:

When	Title	Columns
Between sets	After Set 2 (the number of completed sets)	The completed sets
During a set	Score	The completed sets and a Live column with the points of the set in play
Before the first point	Score	–
After the match	Match Result	The completed sets; the winner is highlighted

Won sets and lost sets have their own colours.

St Board **CK Lower Third**

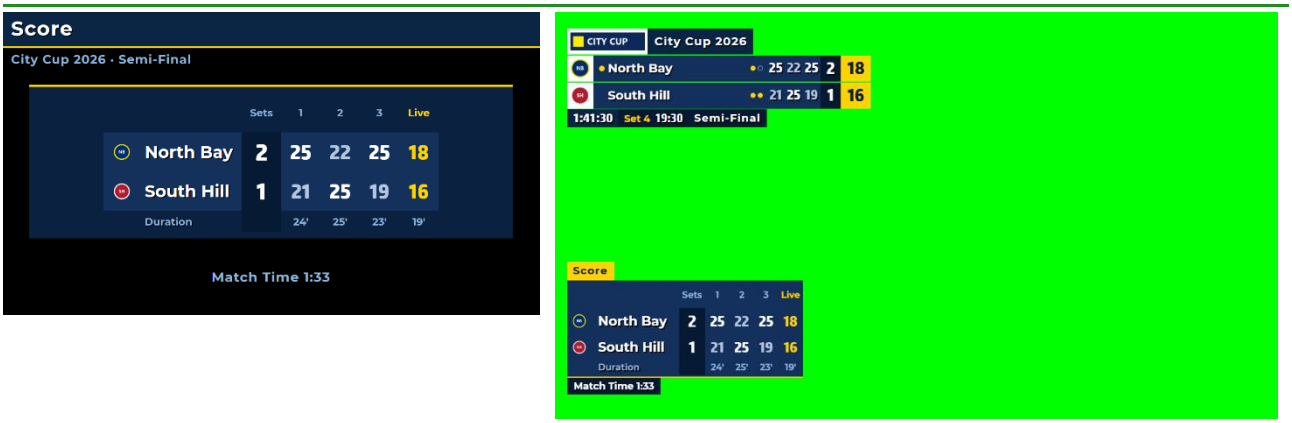


Figure 61. Set Result between sets on the St board and as a CK lower third.

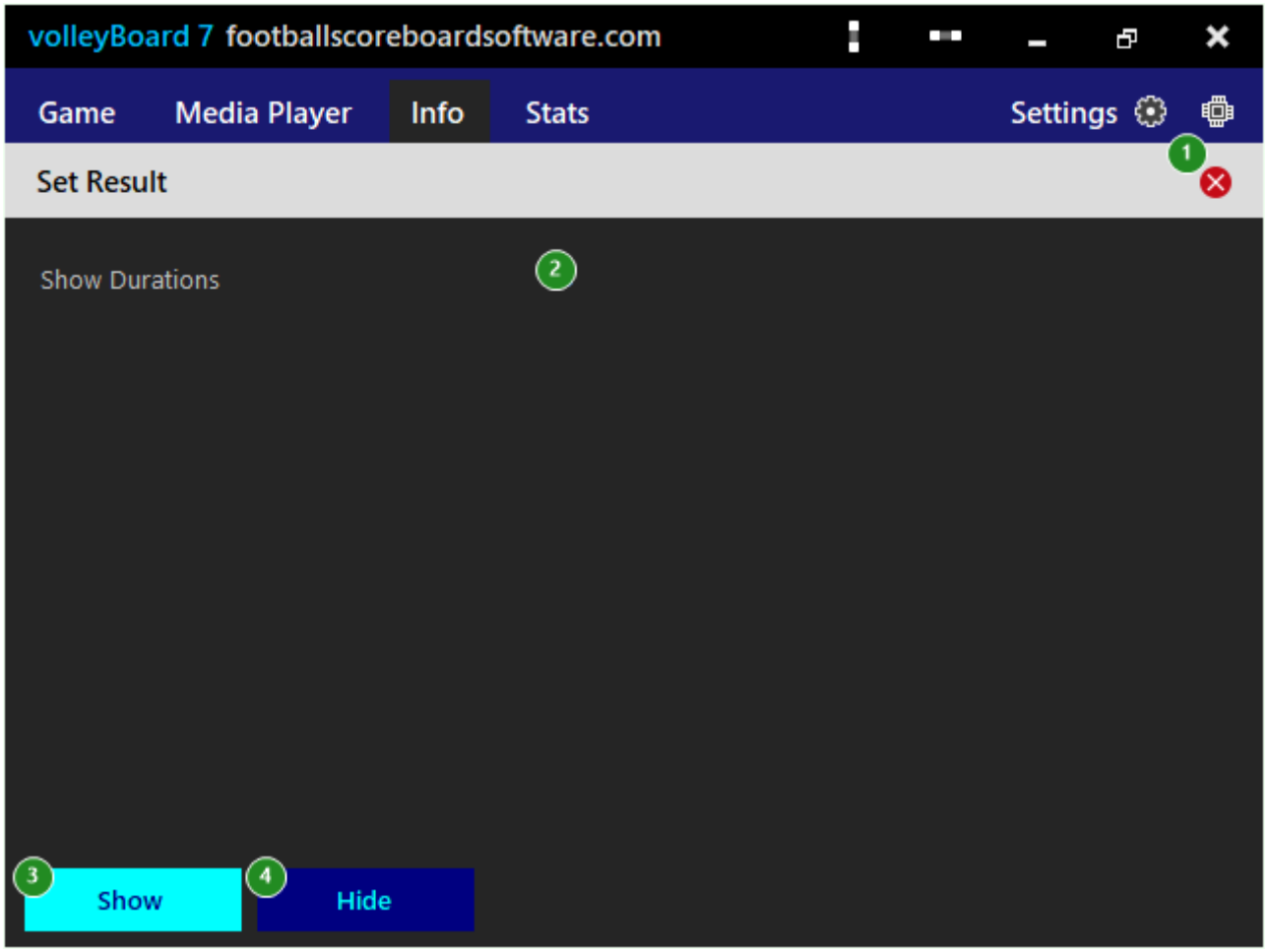


Figure 62. The editor of Set Result.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Show Durations**	Adds the duration of each set and the match time to the screen.
3		**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
4		**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.7 Match Result

The same table as Set Result, made for the end of the match.

Field	Values
Show Durations	On (default): the set durations and the match time.

- After the match the title is Match Result, the winner is highlighted and a line says "<team> Wins".

- Before the end of the match the title is Score and there is no Live column.

St Board **CK Lower Third**

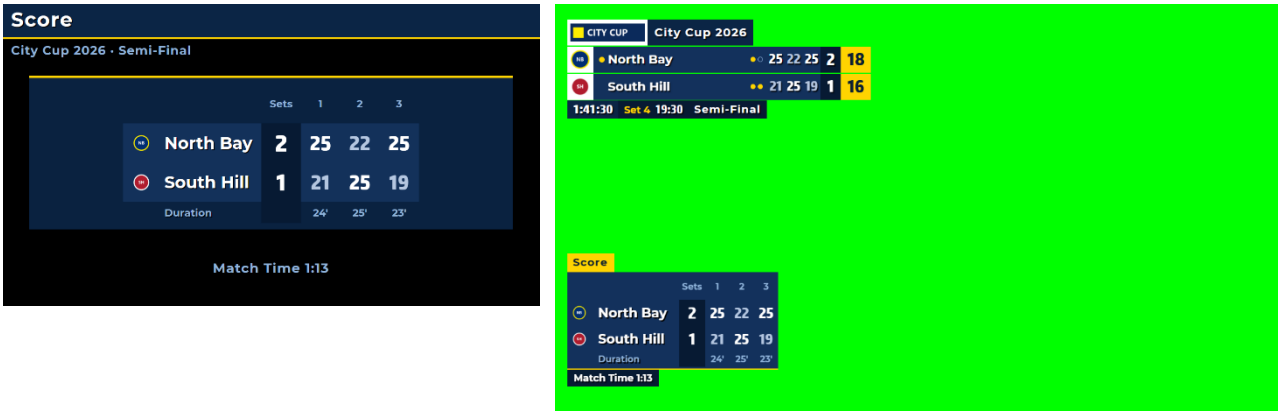


Figure 63. Match Result on the St board and as a CK lower third.

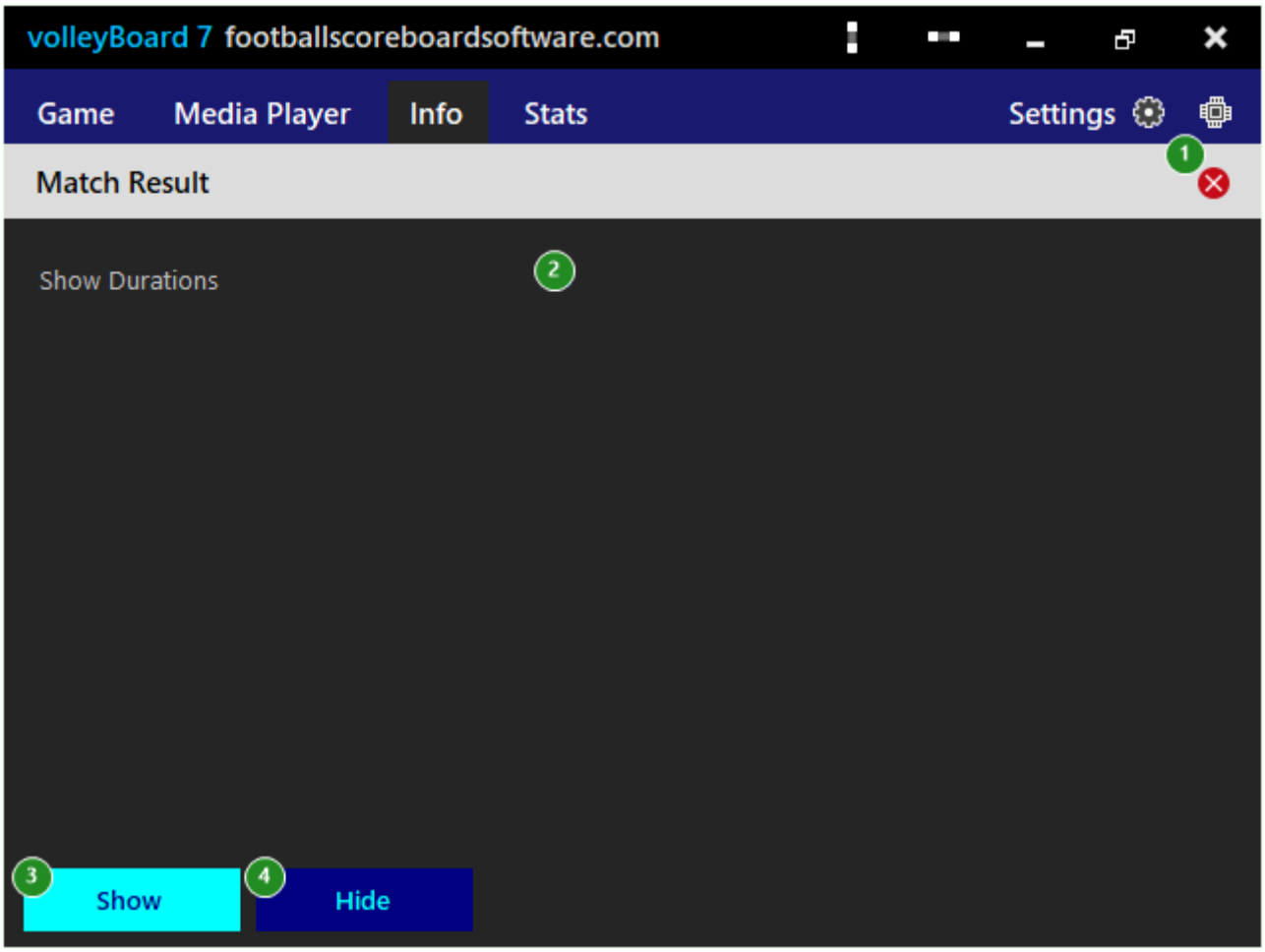


Figure 64. The editor of Match Result.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Show Durations**	Adds the duration of each set and the match time to the screen.

No.	Control	Name	What It Does
3	Show	**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
4	Hide	**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.8 Video Challenge

A video challenge: the team, what is checked and the result, and the challenges remaining of both teams.

Field	Values
Side	Home, Guest
Challenge	Ball In / Out, Block Touch, Net Touch, Antenna, Foot Fault, Reach Over the Net, Other
Result	Video Check, Successful, Unsuccessful, Inconclusive

What Show does:

- Result Video Check: requests a challenge for the team in Side (when none is pending for that team). It is refused when challenges are off in the match rules or the team has none left.
- Successful, Unsuccessful or Inconclusive: resolves the pending challenge with that result. Unsuccessful costs the team one challenge. Show never overturns the rally.
- Successful - Overturn the Rally: resolves the pending challenge as successful and gives the last rally to the challenger when the challenger lost it.
- The result has its own colour on the board (successful, unsuccessful, inconclusive, pending).
- Challenges Remaining is shown only when the video challenge system is on (chapter 6).
- The challenge buttons of the Game tab (chapter 5) fill Side and Result automatically.
- A pending challenge and, for 8 seconds, its result also appear in the callout band of the scoreboard (chapter 7.2).

St Board **CK Lower Third**

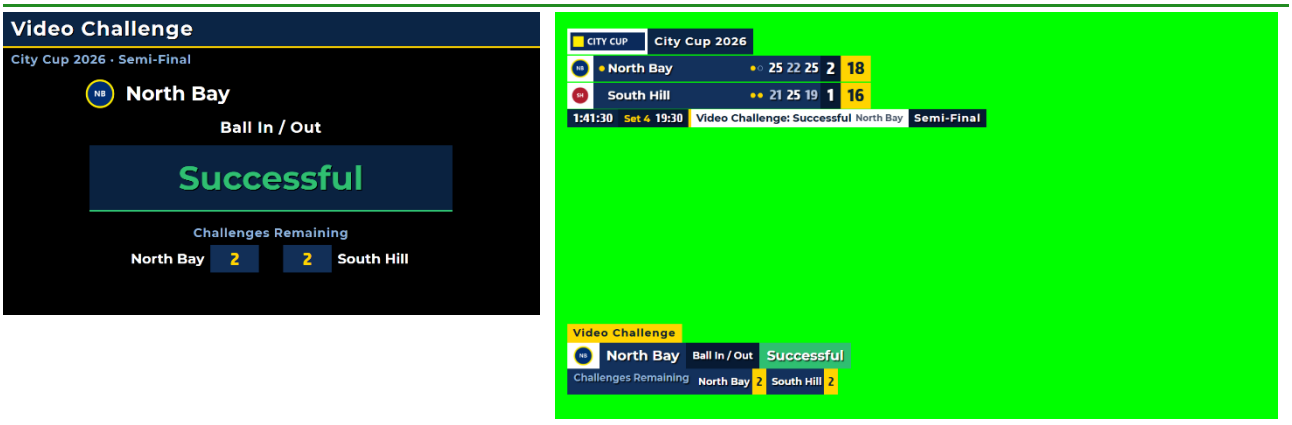


Figure 65. Video Challenge on the St board and as a CK lower third.

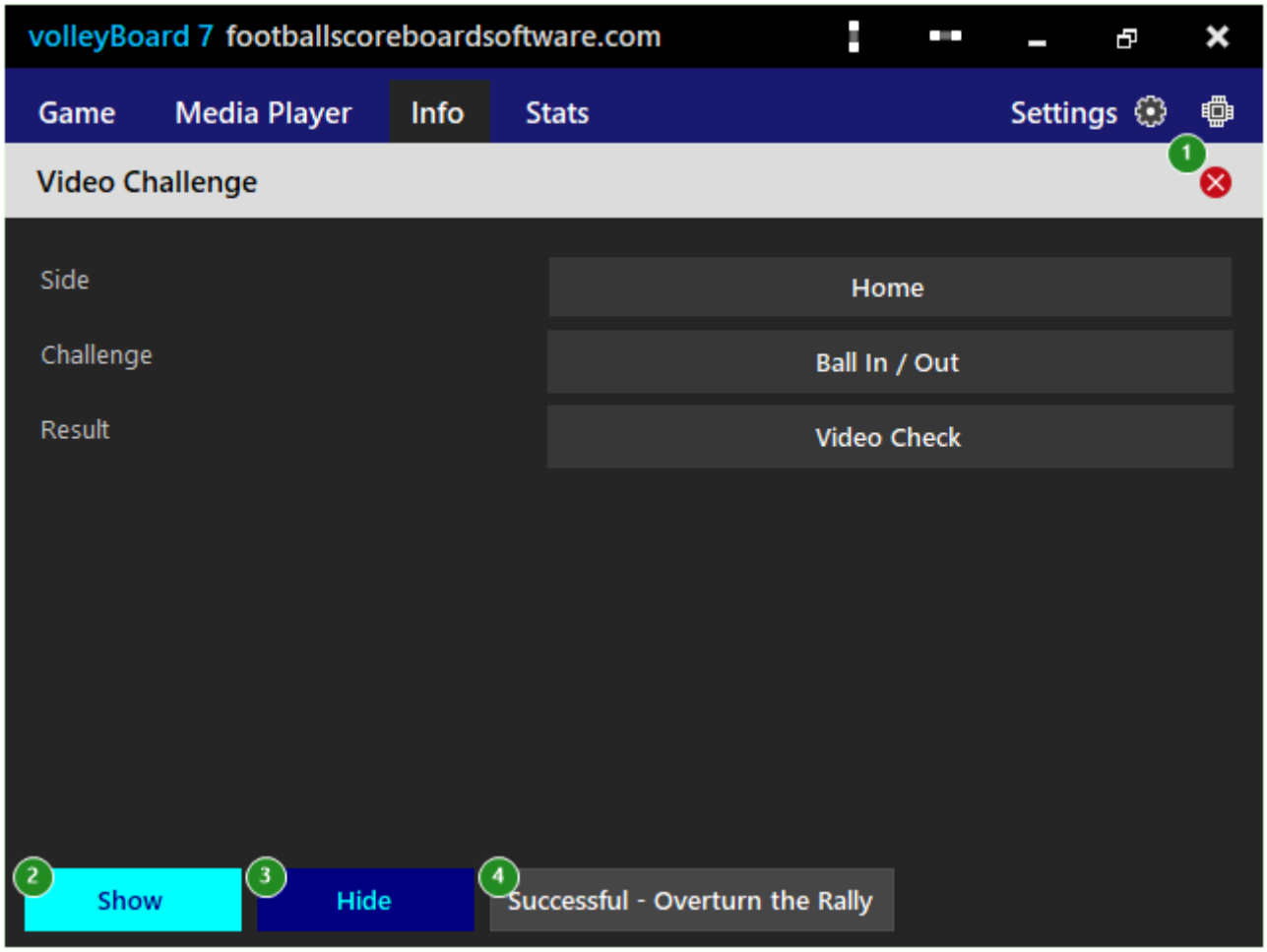
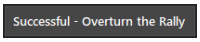


Figure 66. The editor of Video Challenge with Successful - Overturn the Rally.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor of Timeout, Video Challenge or Statistics; the screen stays on air. Esc does the same.
2		**Show**	Shows the Video Challenge screen. With the result Pending it records a challenge for the chosen team; with a result chosen it resolves the pending challenge (once).
3		**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).
4		**Successful - Overturn the Rally**	Resolves the pending challenge as successful and gives the last rally to the team that challenged.

9.9 Substitution

A substitution: the team, the player going out and the player coming in, each with photo, number, name and position, and the substitutions of the team in the set.

Field	Values
Side	Home, Guest

Field	Values
Player Out	Shirt number or name
Player In	Shirt number or name

- The players are found in the team's player list by number or name; an unknown entry is shown as typed.
- The count ("2 / 6", ∞ when there is no limit) appears only when the discipline counts substitutions.
- The substitution buttons of the Game tab fill Side automatically.

St Board **CK Lower Third**

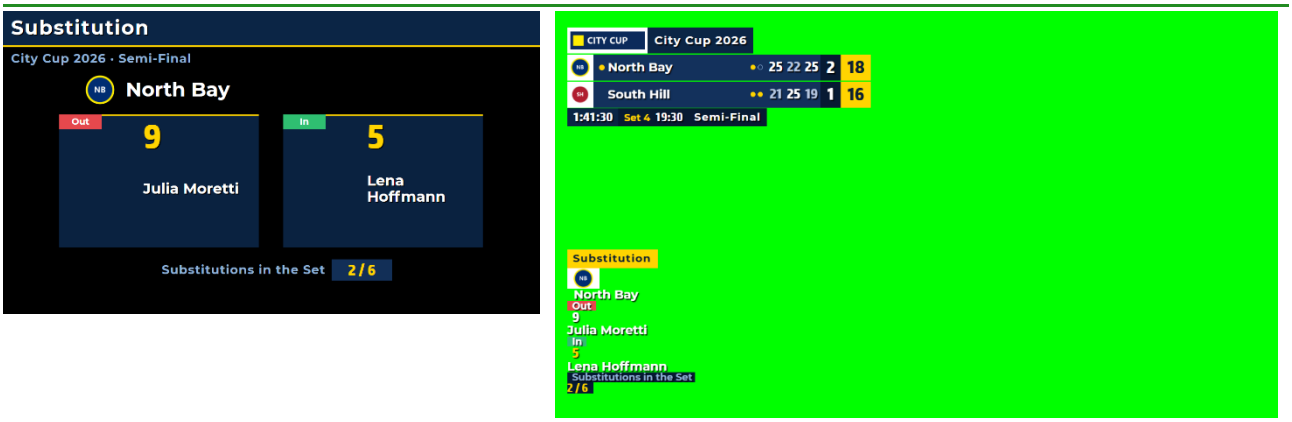


Figure 67. Substitution on the St board and as a CK lower third.

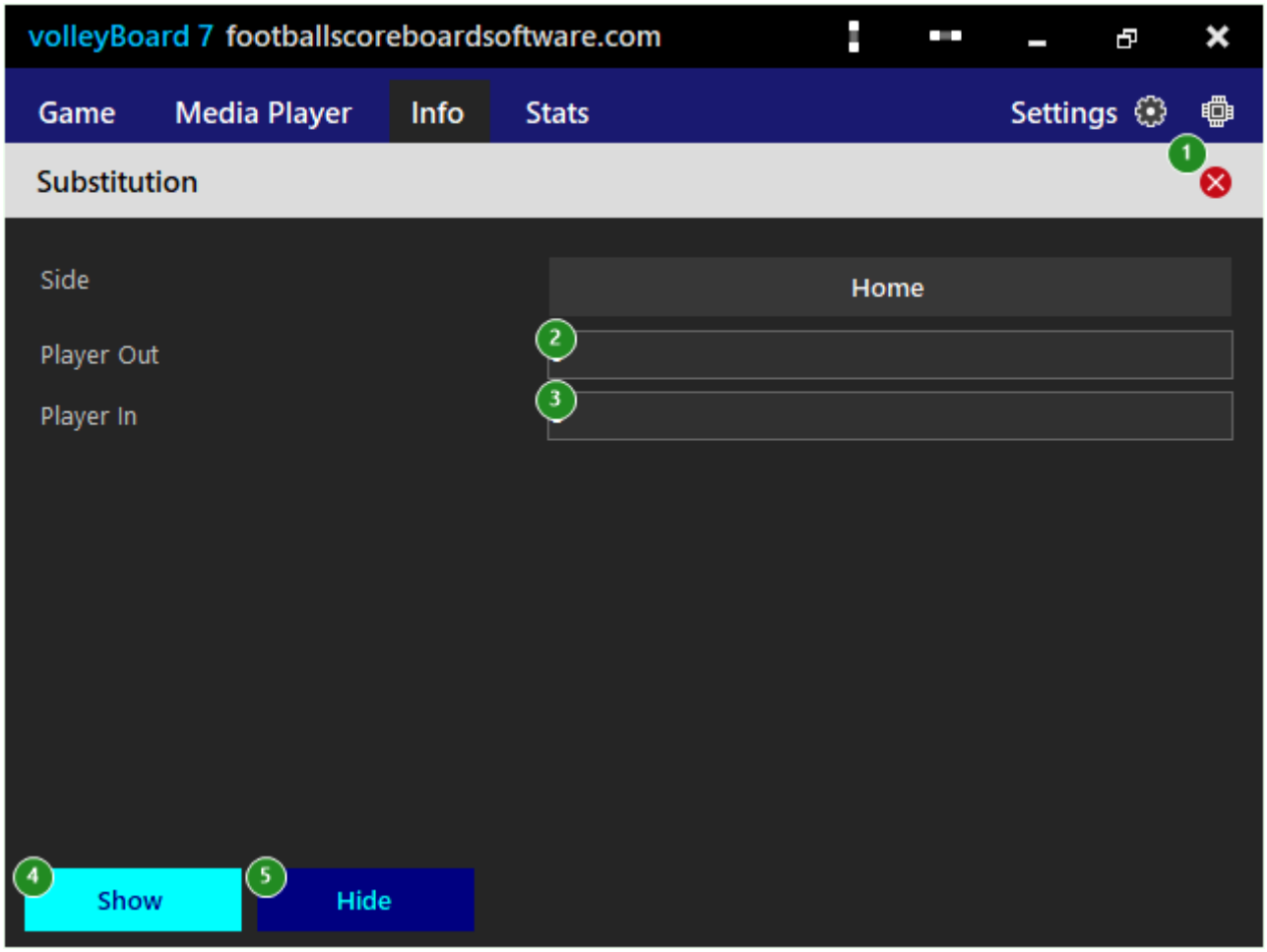


Figure 68. The editor of Substitution.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Player Out**	The shirt number or the name of the player who leaves the court. Saved as you type.
3		**Player In**	The shirt number or the name of the player who comes on. Saved as you type.
4	Show	**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
5	Hide	**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.10 Sanction

A sanction: the team, the player (or Team) with photo, the sanction and its card.

Field	Values
Side	Home, Guest

Field	Values
Player (Number or Name)	Shirt number or name; empty = the team
Sanction	Warning, Penalty, Expulsion, Disqualification, Delay Warning, Delay Penalty

- The card colour follows the sanction: yellow for Warning and Delay Warning, red for Penalty and Delay Penalty; Expulsion and Disqualification show two cards.
- The screen only shows the sanction. To record it (a penalty gives the opponent the point and the serve), use the Card button of the Game tab (chapter 5); it fills the three fields automatically.

St Board **CK Lower Third**

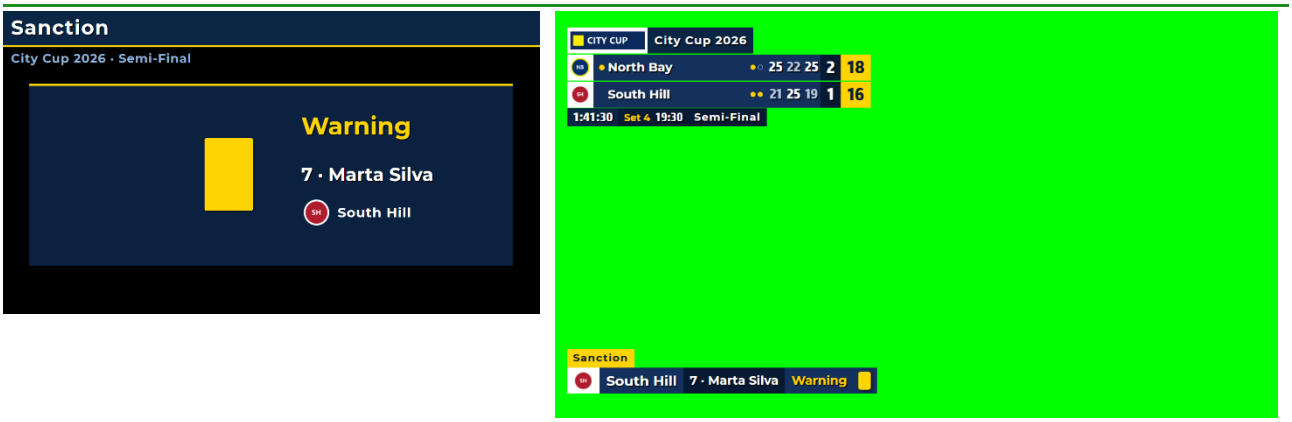


Figure 69. Sanction on the St board and as a CK lower third.

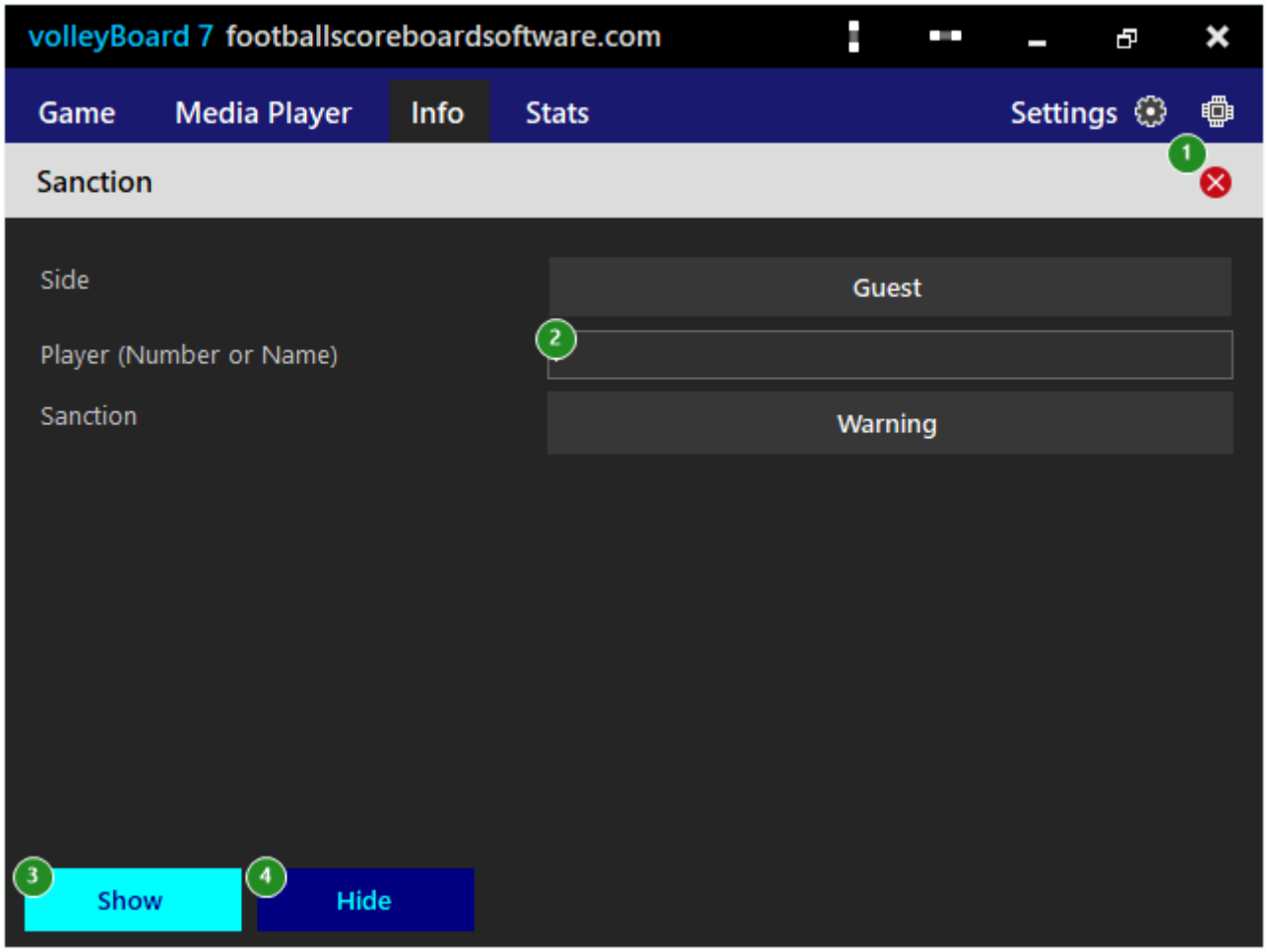


Figure 70. The editor of Sanction.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Player**	The shirt number or the name of the player; leave it empty for a sanction against the team. Saved as you type.
3	Show	**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
4	Hide	**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.11 MVP / Top Scorer

An award card: the award as title, the player with photo, number, name and position, the team and up to four numbers.

Field	Values
Award	Most Valuable Player, Top Scorer, Best Attacker, Best Blocker, Best Server, Best Setter, Best Libero

Field	Values
Side	Home, Guest
Player (Number or Name)	Shirt number or name
Points, Attack Points, Block Points, Aces	Numbers; an empty box hides its row

The numbers are typed by hand; they are not taken from the statistics.

St Board **CK Lower Third**

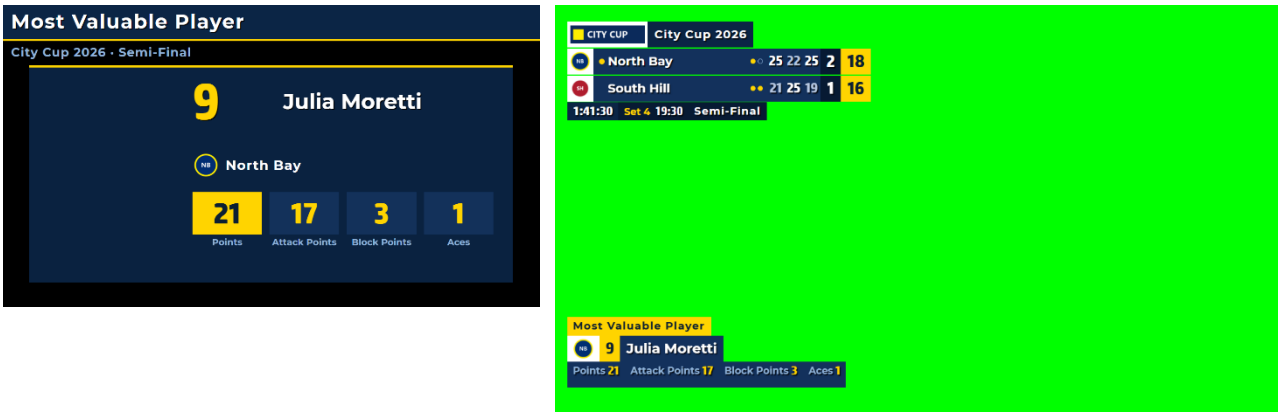


Figure 71. MVP / Top Scorer on the St board and as a CK lower third.

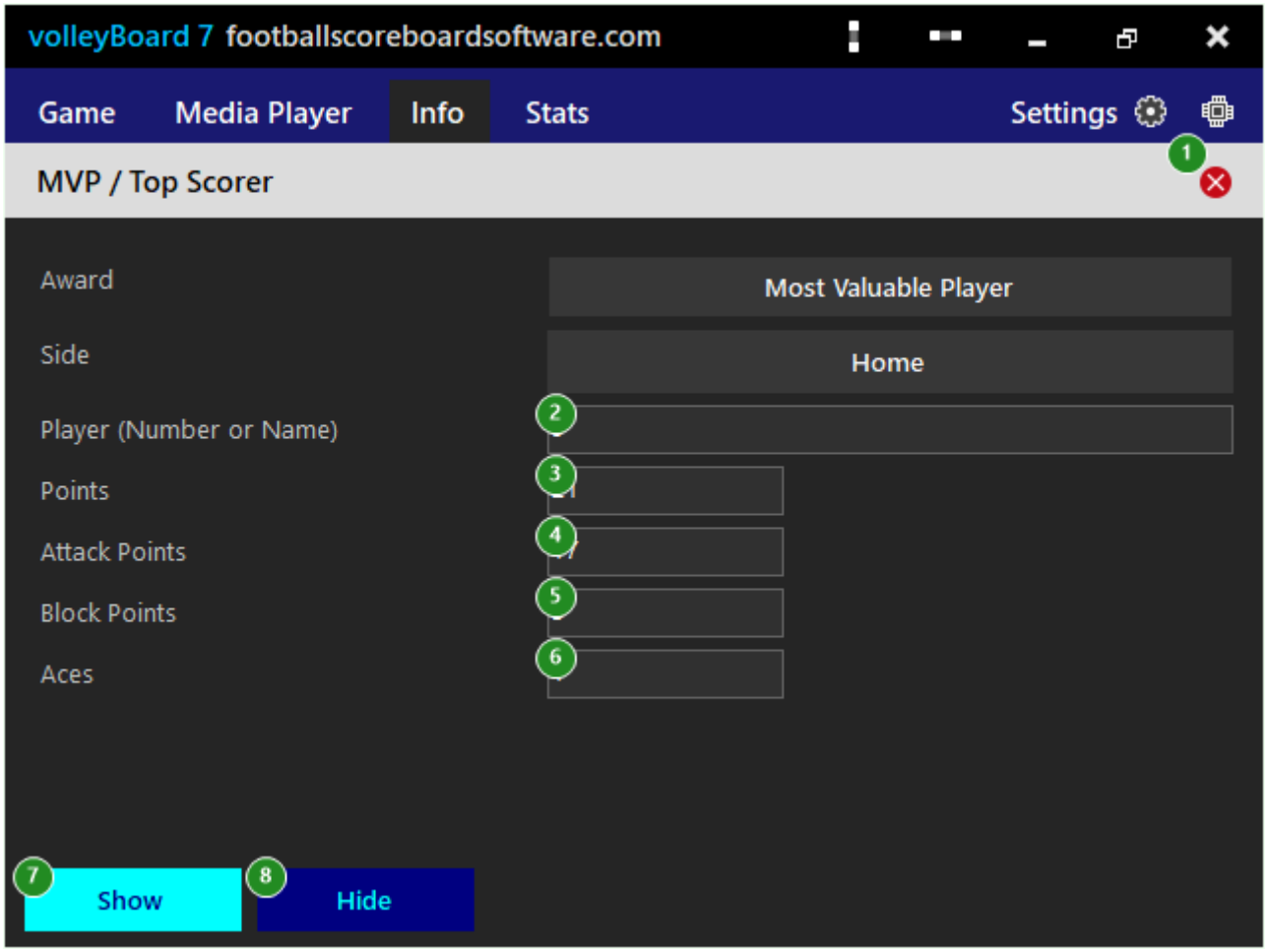


Figure 72. The editor of MVP / Top Scorer.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Player**	The shirt number or the name of the player. Saved as you type.
3	21	**Points**	The Points number of the player; an empty box hides the row. Saved as you type.
4	17	**Attack Points**	MVP / Top Scorer: the number of attack points; an empty box hides the row. The number is typed by hand.
5	3	**Block Points**	MVP / Top Scorer: the number of block points; an empty box hides the row. The number is typed by hand.
6	1	**Aces**	MVP / Top Scorer: the number of aces; an empty box hides the row. The number is typed by hand.
7	Show	**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
8	Hide	**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.12 Statistics

The match statistics, for the match or one set, with a bar per row. The better value of each row is highlighted (for Serve Errors the lower one). Rows without values are left out.

Field	Values
Set	Match, Set 1 ... Set 5

- Open the Stats Tab: the rows of the graphic and the values are set there (chapter 10).
- The Stats tab can also put this screen on the board.

St Board **CK Lower Third**

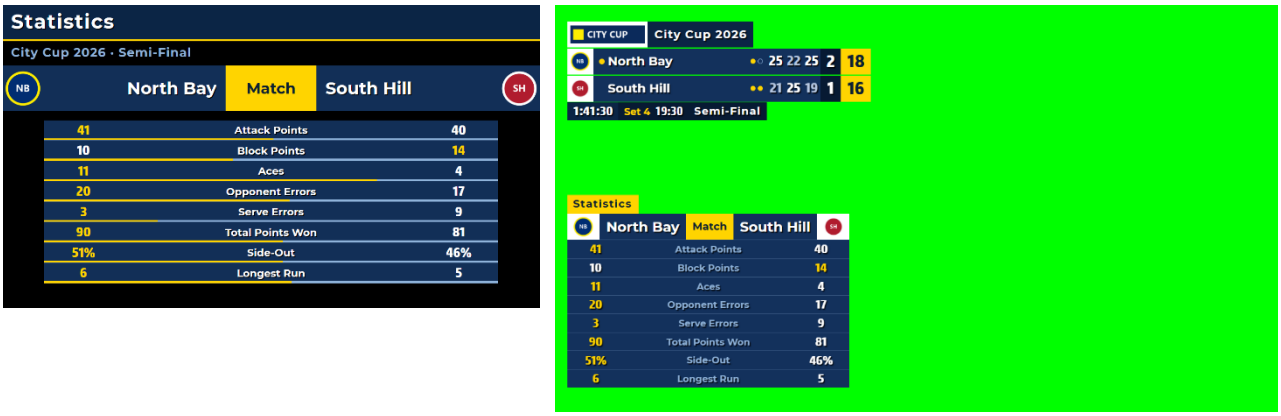


Figure 73. Statistics on the St board and as a CK lower third.

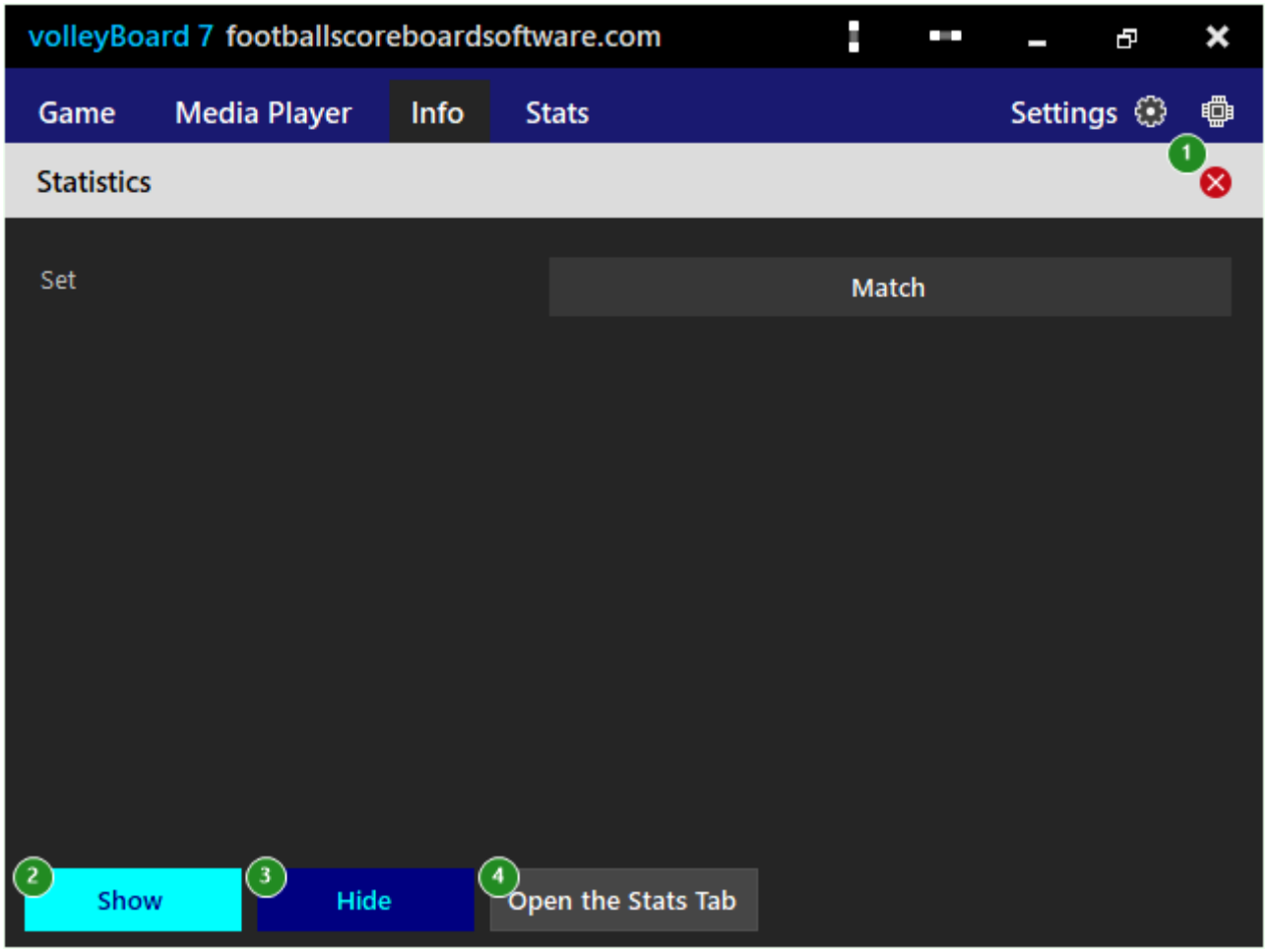


Figure 74. The editor of Statistics.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor of Timeout, Video Challenge or Statistics; the screen stays on air. Esc does the same.
2		**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
3		**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).
4		**Open the Stats Tab**	Opens the Stats tab of the main window (chapter 10).

9.13 Standings

A league table: Pos, Team, P (played), W (won), L (lost), Sets and Pts.

Field	Values
Heading (Competition, Pool)	Replaces the subtitle, for example "Demo League · Pool A".
Teams	The table: Pos, Team, P, W, L, Sets, Pts.

- The rows of the two teams of the match (same name as on the Game tab) are highlighted.
- The new installation fills in a fictional table. In the list, the empty last row adds an entry; select a row and press Delete to remove it.

St Board **CK Lower Third**

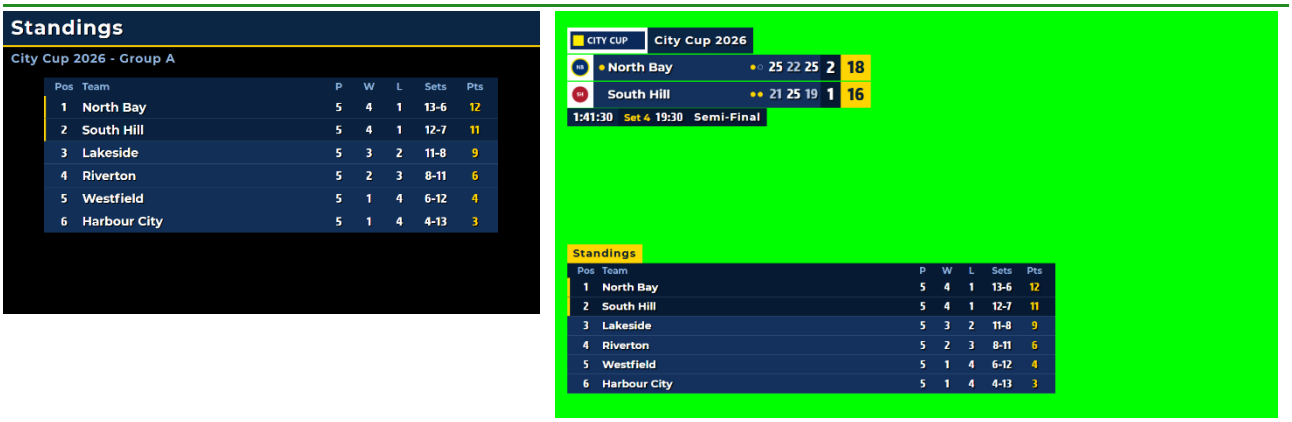


Figure 75. Standings on the St board and as a CK lower third.

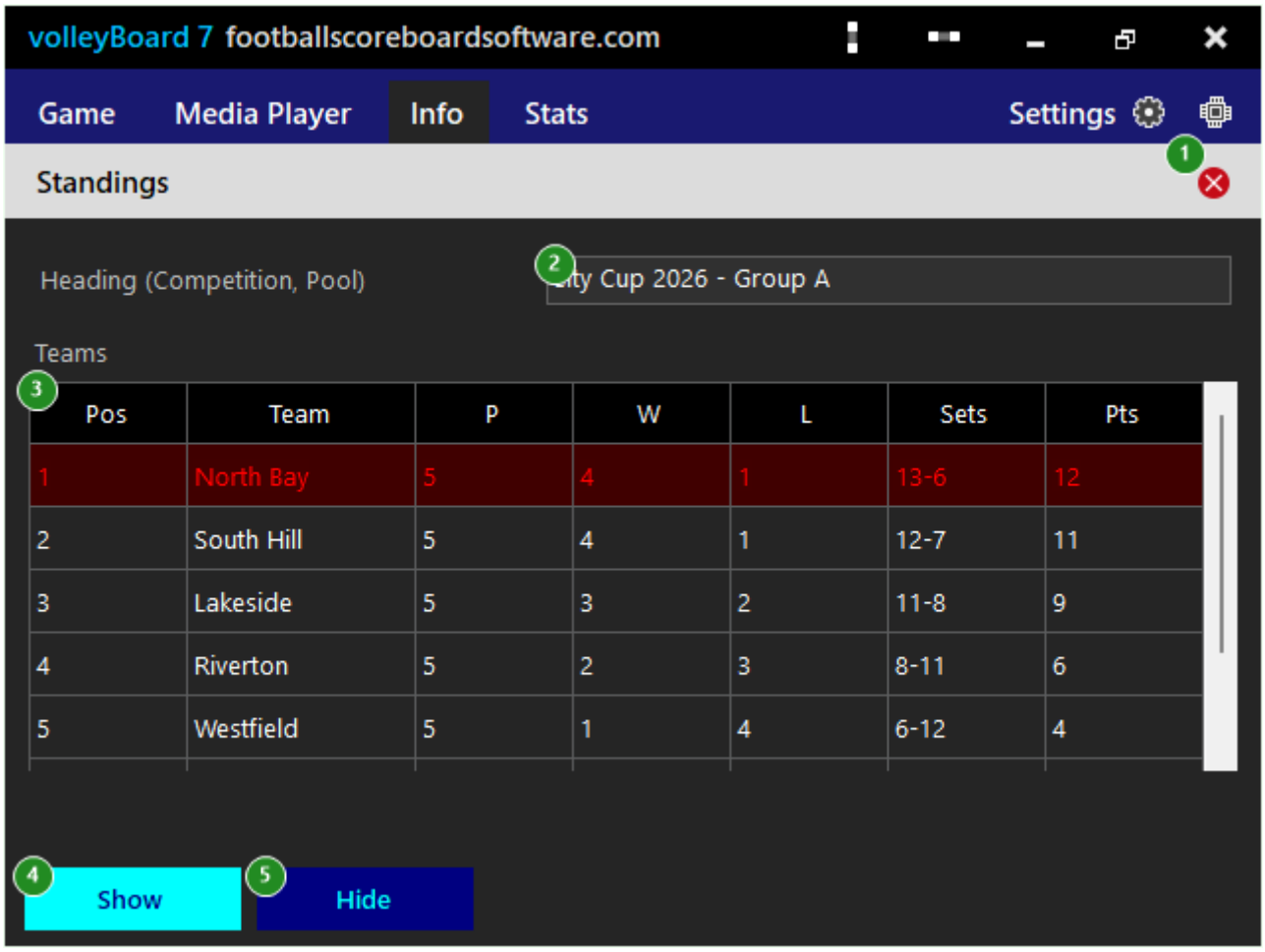
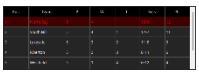


Figure 76. The editor of Standings with the sample table.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Heading**	The heading of the table; it replaces the subtitle on the screen. Saved as you type.
3		**Teams**	The league table: Pos, Team, P, W, L, Sets, Pts. Type in the cells; the empty last row adds a team, Delete removes the selected row. Saved at once.
4		**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
5		**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.14 Results

The results of a round: Round, Home, Score, Guest and Set Scores.

Field	Values
Heading (Round, Day)	Replaces the subtitle, for example "Round 10".
Matches	Round, Home, Score, Guest, Set Scores

The new installation fills in three fictional results.

St Board



CK Lower Third

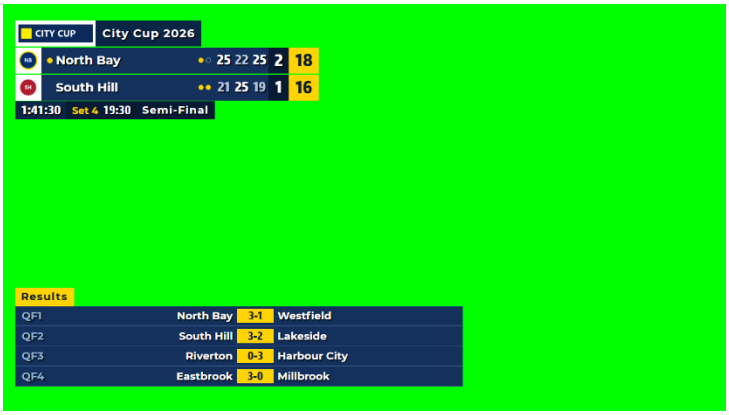


Figure 77. Results on the St board and as a CK lower third.

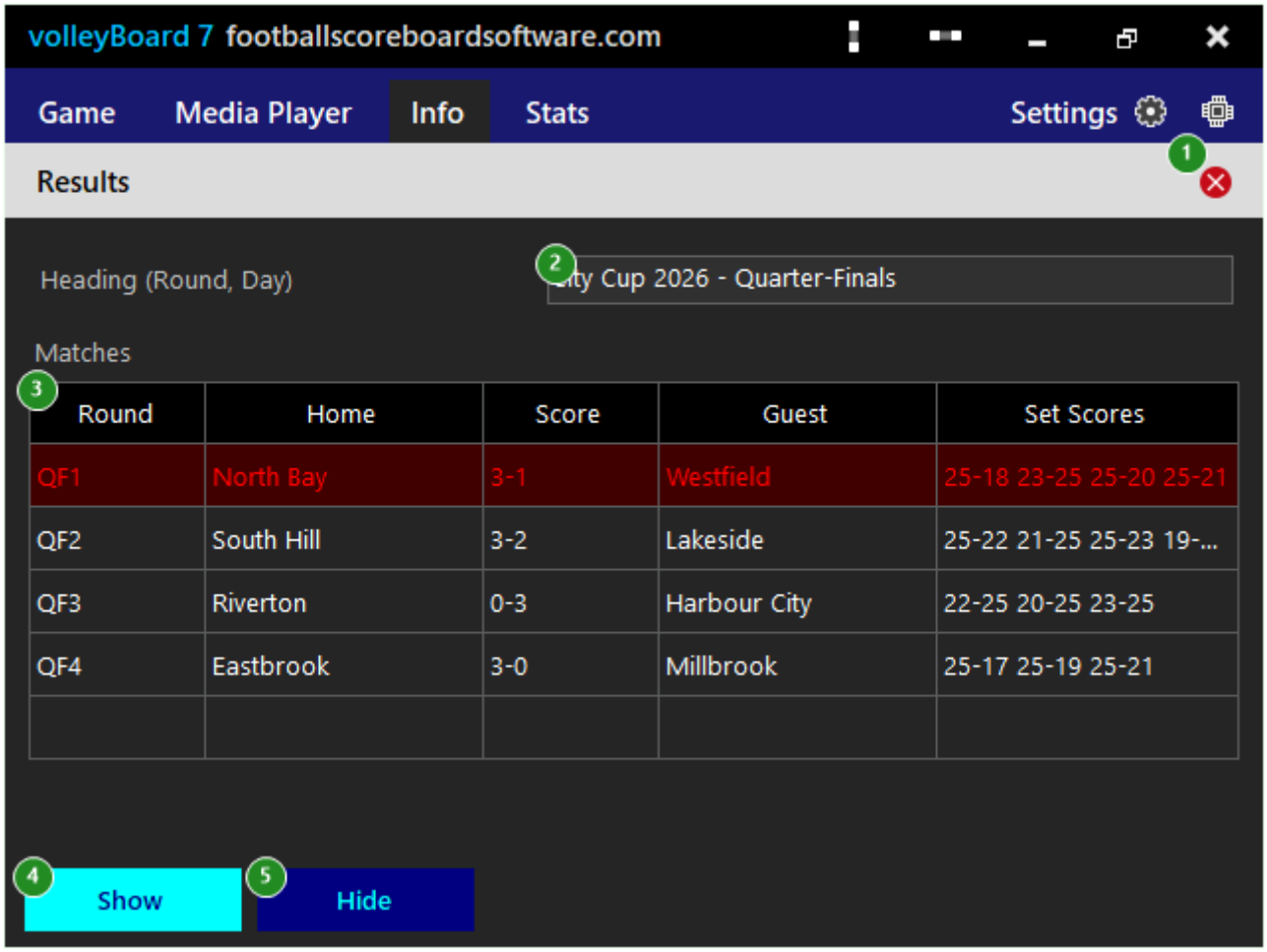
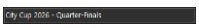


Figure 78. The editor of Results.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Heading**	The heading of the results list; it replaces the subtitle on the screen. Saved as you type.
3		**Matches**	The results: Round, Home, Score, Guest, Set Scores. Type in the cells; the empty last row adds a match, Delete removes the selected row. Saved at once.
4		**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
5		**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.15 Officials

The officials of the match: Role, Name and Country. A country code (IOC or ISO) shows a flag.

Field	Values
Officials	Role, Name, Country

The new installation fills in fictional officials: a 1st Referee, a 2nd Referee, a Scorer and the Line Judges.

St Board



CK Lower Third

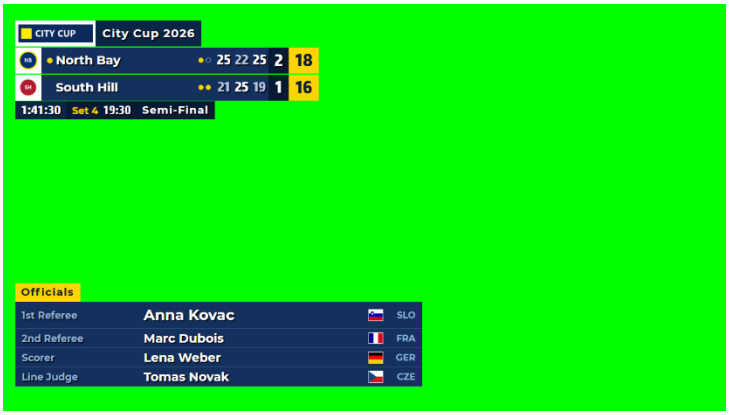


Figure 79. Officials on the St board and as a CK lower third.

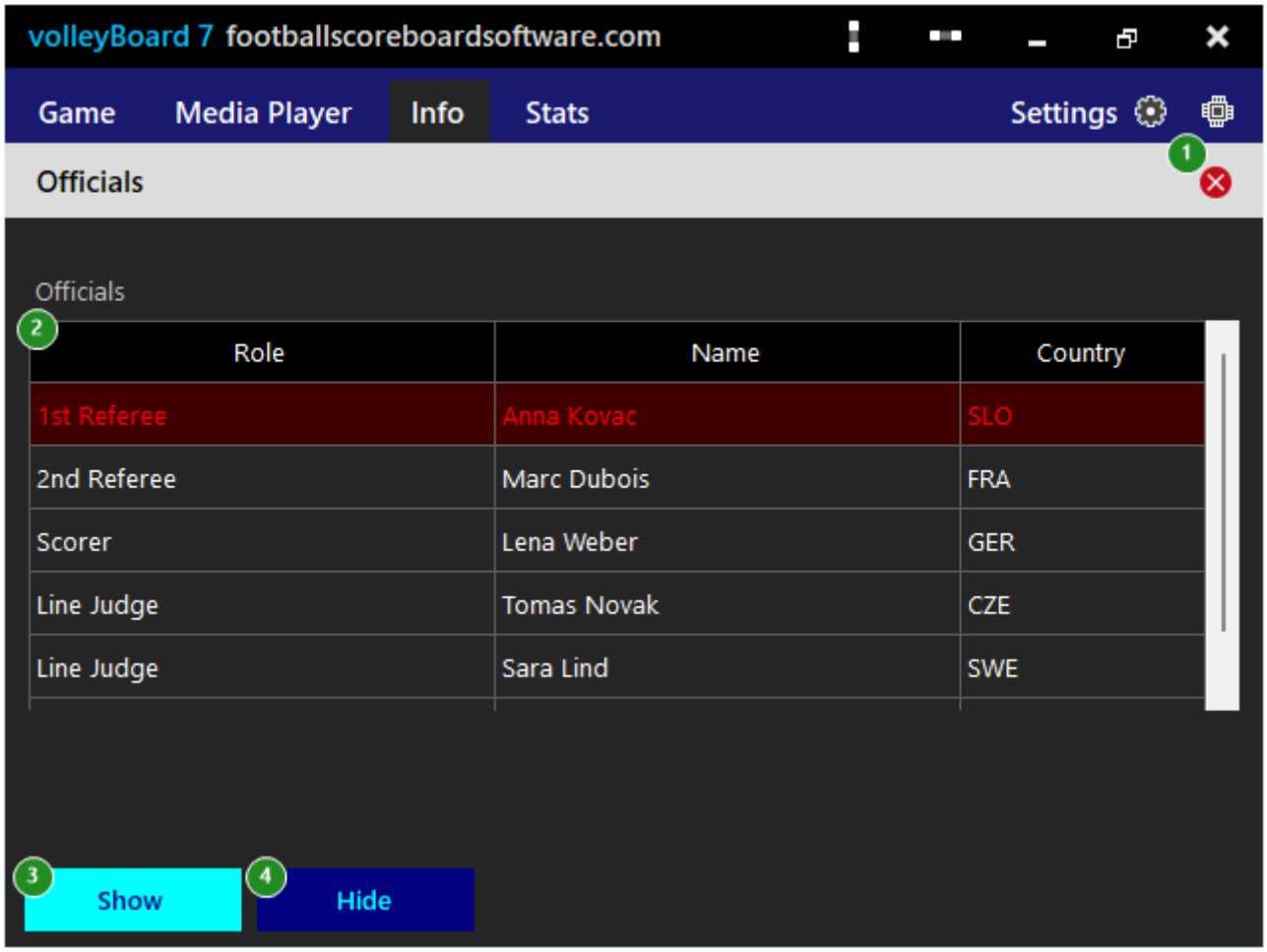


Figure 80. The editor of Officials.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the screen stays on air. Esc does the same.
2		**Officials**	The officials: Role, Name, Country (a country code shows a flag). Type in the cells; the empty last row adds an official, Delete removes the selected row. Saved at once.
3		**Show**	Puts the screen on the board (CK: as a lower third), built from the fields and the match.
4		**Hide**	Takes the screen off and brings the scoreboard back (CK: the lower third fades out).

9.16 Set Point Callout

The Set Point Callout has no screen of its own: it is a band on the scoreboard (St, Sp, Ad and the CK scorebug). The program works out the set or match point by itself: "Set Point", "Match Point", and with several in a row "3 Set Points", "2 Match Points", together with the team that has it. The callout disappears when the match is over.

Field or Button	What It Does
Show Automatically	On (default): the callout appears whenever a team has a set or match point. Off: only when you click Show Now.
Final (Championship Point)	Match points are called "Championship Point".
Show Now	Shows the current callout now, also when Show Automatically is off. It stays until the score changes.
Hide Until the Score Changes	Hides the callout until the next change of the score.

- A pending video challenge and a fresh challenge result take the callout band first (section 9.8).
- From the keyboard: Set Point: Show and Set Point: Hide (chapter 15). From the remote: Info tab > Set Point Callout (chapter 13). From the HTTP API: bigpoint (Appendix B).

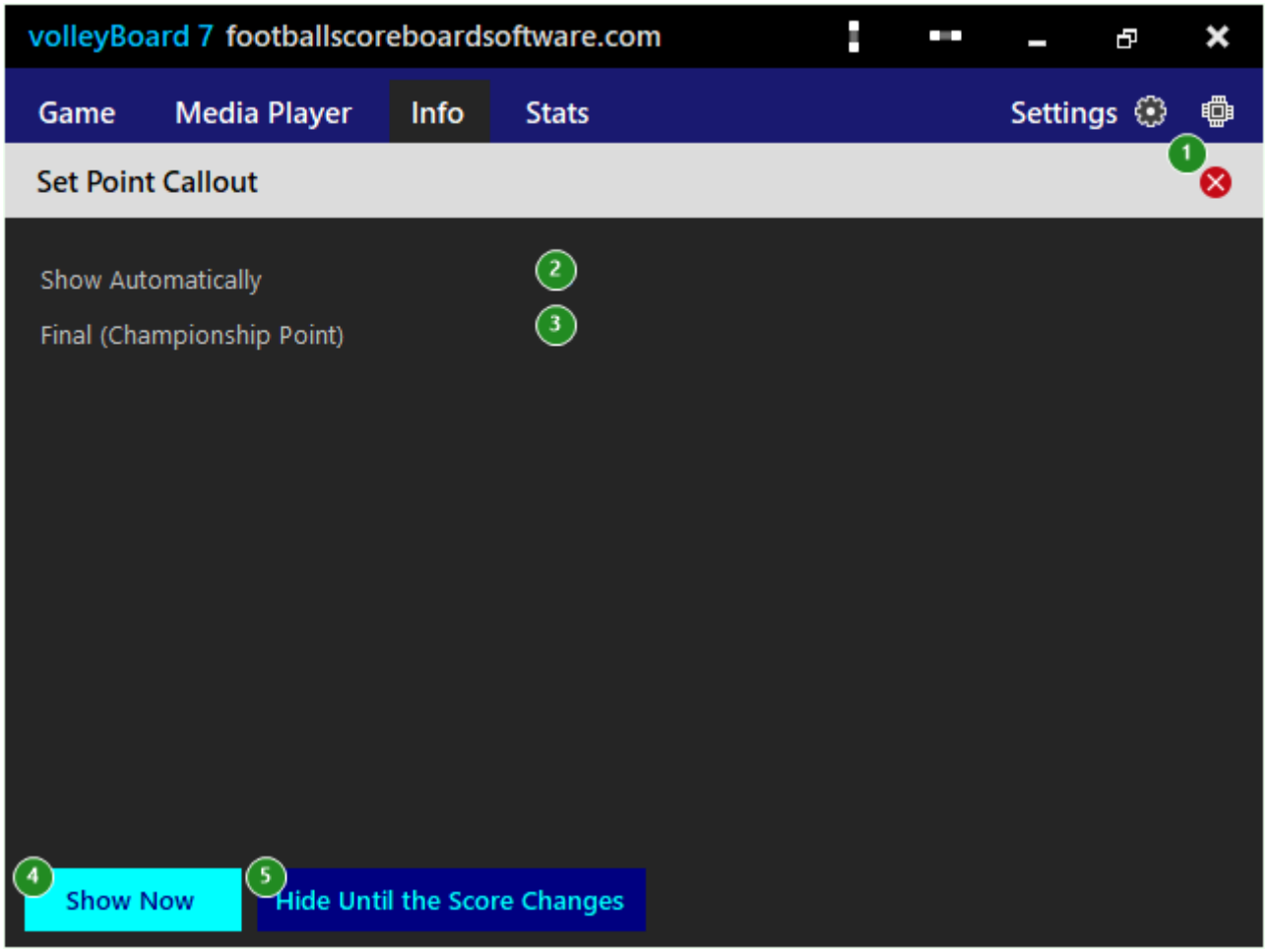
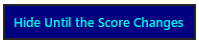


Figure 81. The settings of the Set Point Callout.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the editor; the callout settings are kept. Esc does the same.
2		**Show Automatically**	Shows the callout whenever a team has a set or match point (off: only with Show Now).
3		**Final (Championship Point)**	Set Point Callout: match points are called Championship Point.
4		**Show Now**	Shows the callout of the current set or match point until the score changes.
5		**Hide Until the Score Changes**	Hides the callout; it can come back automatically after the next rally.

9.17 CK Lower Thirds

In the Chroma Key display mode every info screen appears as a lower third. The editors and the data are the same.

- The CK page (fifth tab CK > Info) has Scoreboard and Hide for the scorebug, the same screen buttons as the Info tab, and Hide Lower Third.
- Show in an editor puts the lower third on; Hide or Hide Lower Third fades it out.
- The lower thirds have no subtitle line.
- Each Chroma Key master has its own set of lower thirds (chapter 8.1); change them in [CK] Board Design (chapter 8.5).

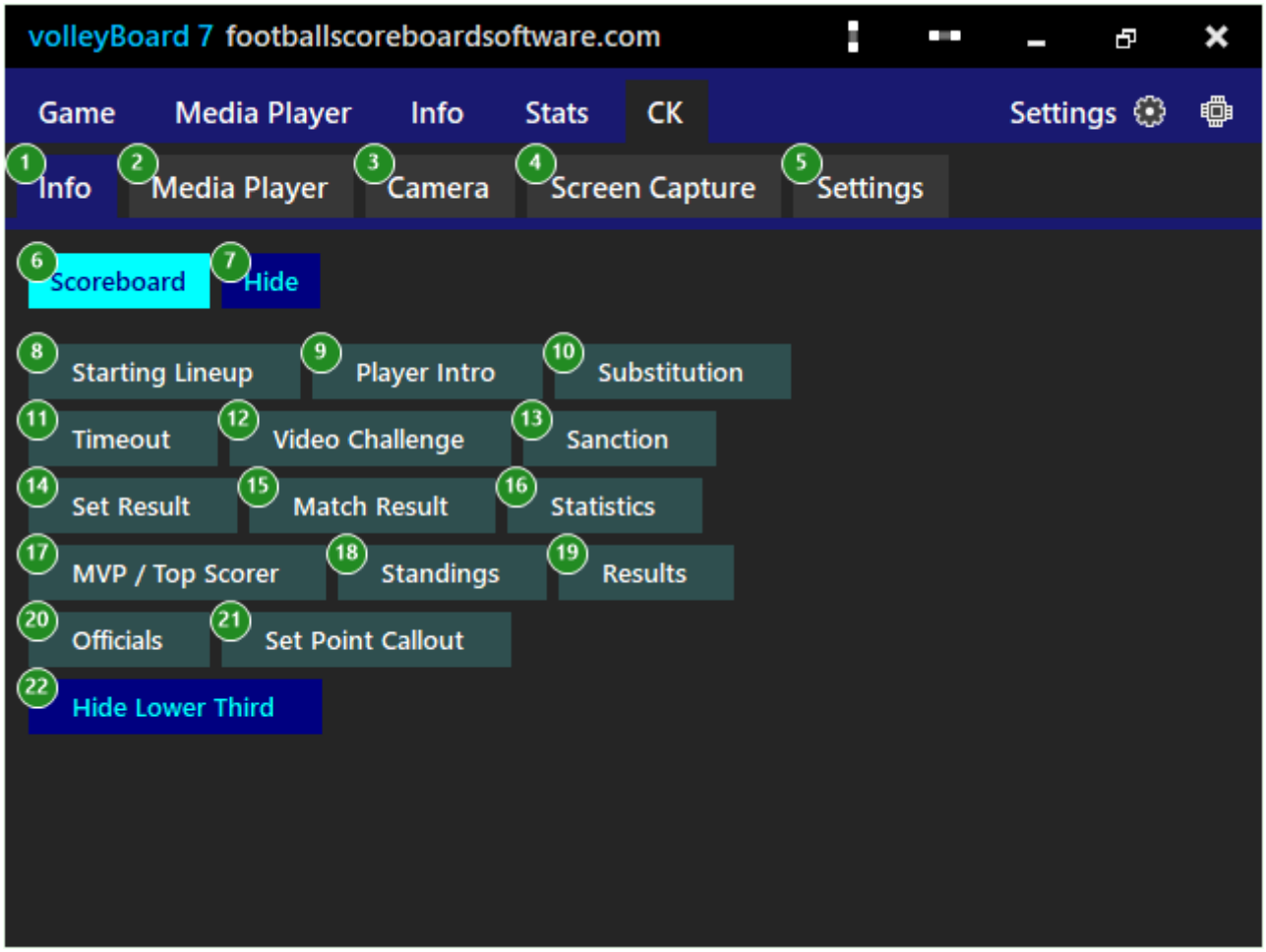


Figure 82. The Info tab of the CK page.

No.	Control	Name	What It Does
1	Info	**Info**	Opens the Info tab of the CK page: the scorebug and the lower thirds.
2	Media Player	**Media Player**	Opens the Media Player tab of the CK page: the playlists behind the CK graphics.
3	Camera	**Camera**	Opens the Camera tab of the CK page: a camera or an NDI source behind the CK graphics.
4	Screen Capture	**Screen Capture**	Opens the Screen Capture tab of the CK page: a part of the PC screen behind the CK graphics.
5	Settings	**Settings**	Opens the Settings tab of the CK page: the chroma key colour.
6	Scoreboard	**Scoreboard**	Shows the scorebug on the CK board.

No.	Control	Name	What It Does
7	Hide	**Hide**	Hides the scorebug on the CK board.
8	Starting Lineup	**Starting Lineup**	Opens the editor of Starting Lineup; Show there puts it on as a lower third.
9	Player Intro	**Player Intro**	Opens the editor of Player Intro; Show there puts it on as a lower third.
10	Substitution	**Substitution**	Opens the editor of Substitution; Show there puts it on as a lower third.
11	Timeout	**Timeout**	Opens the editor of Timeout; Show there puts it on as a lower third.
12	Video Challenge	**Video Challenge**	Opens the editor of Video Challenge; Show there puts it on as a lower third.
13	Sanction	**Sanction**	Opens the editor of Sanction; Show there puts it on as a lower third.
14	Set Result	**Set Result**	Opens the editor of Set Result; Show there puts it on as a lower third.
15	Match Result	**Match Result**	Opens the editor of Match Result; Show there puts it on as a lower third.
16	Statistics	**Statistics**	Opens the editor of Statistics; Show there puts it on as a lower third.
17	MVP / Top Scorer	**MVP / Top Scorer**	Opens the editor of MVP / Top Scorer; Show there puts it on as a lower third.
18	Standings	**Standings**	Opens the editor of Standings; Show there puts it on as a lower third.
19	Results	**Results**	Opens the editor of Results; Show there puts it on as a lower third.
20	Officials	**Officials**	Opens the editor of Officials; Show there puts it on as a lower third.
21	Set Point Callout	**Set Point Callout**	Opens the settings of the Set Point Callout, which appears on the CK scorebug.
22	Hide Lower Third	**Hide Lower Third**	Fades out the lower third on the CK board.

10. Statistics

10.1 The Stats Tab

volleyBoard 7 computes the match statistics from the rallies you score on the Game tab. Open the Stats tab to see them, correct them and put them on the board.

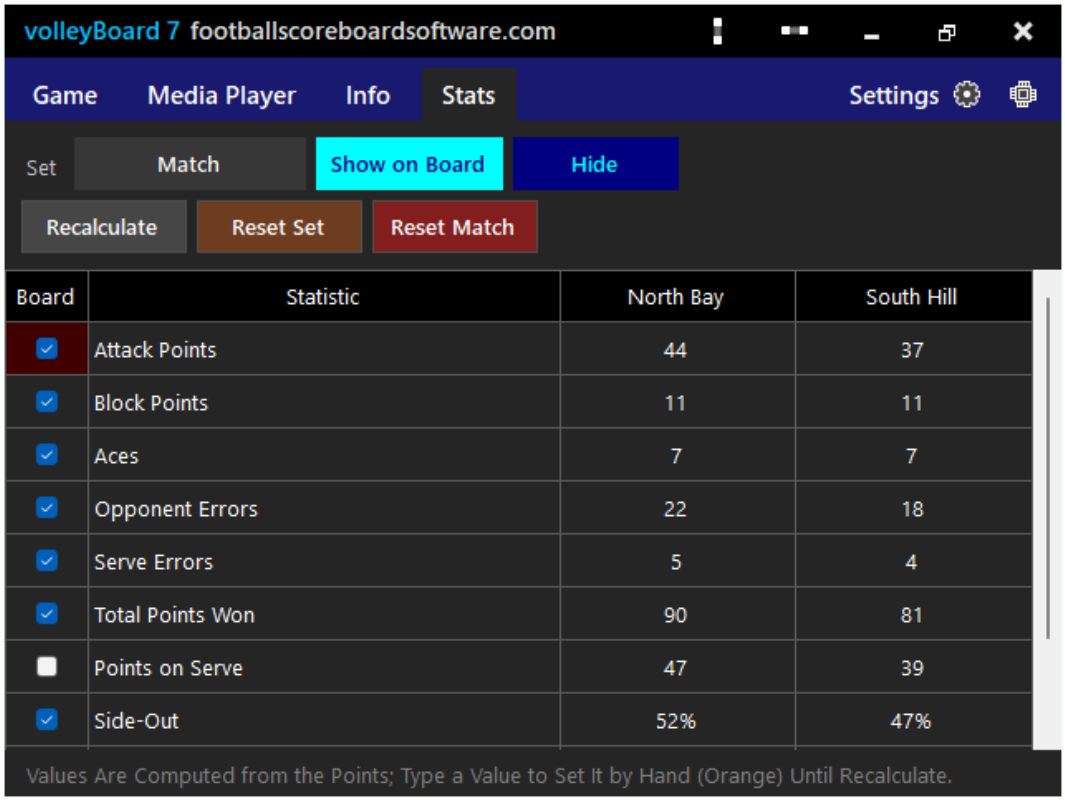


Figure 83. The Stats tab with the statistics of the match.

Control	What It Does
Set	Match, or Set 1 ... Set 5: the values shown, and the view that Show on Board puts on the board.
Show on Board	Shows the Statistics screen of the selected view (section 10.3).
Hide	Takes the screen off the board.
Recalculate	Removes your typed values of the selected view; the computed values come back.
Reset Set	Clears all statistics of the selected set, after the question "Reset These Statistics?". Does nothing while Match is selected.
Reset Match	Clears all statistics of the match, after the same question.
Board	Ticked rows appear on the Statistics screen of the board. The ticks are saved.
Statistic	The name of the row.
Team columns	The values of the home and guest team; the column headers show the team names. Click a value and type to set it by hand.

The line at the bottom of the tab sums it up: "Values Are Computed from the Points; Type a Value to Set It by Hand (Orange) Until Recalculate."

- A value you type is shown in orange and stays until you click Recalculate or empty the cell.
- The values follow the match while the tab is open.
- New Match and a change of the scoring rules (chapter 6.6) clear the statistics.
- The statistics are saved with the match and come back after a restart. Rallies played before a restart can no longer be undone.

10.2 Match and Set Values

There are ten statistics. Each is computed per set and for the match.

Statistic	How It Is Computed
Attack Points	Rallies scored with the outcome Atk (attack point) by the team.
Block Points	Rallies scored with the outcome Blk (block point) by the team.
Aces	Rallies scored with the outcome Ace by the team.
Opponent Errors	Points the team won from errors of the other team: the outcome Err, and serve errors (SE) of the other team.
Serve Errors	Serve errors (SE) of the team. Lower is better.
Total Points Won	All rallies won by the team, with or without an outcome.
Points on Serve	Rallies won by the team while it served.
Side-Out	Of the rallies the other team served, the share the team won (it won the serve back), in percent, for example 62%.
Longest Run	The most rallies in a row won by the team within one set.
Biggest Lead	The biggest lead the team had in the set.

The point-outcome buttons (chapter 5.4) feed Attack Points, Block Points, Aces, Opponent Errors and Serve Errors. Without them these rows stay at 0; the other five rows work with every way of scoring a rally (arrows, points cell, keyboard, remote).

How the Match view is made:

- Counts (Attack Points to Points on Serve) are the sum of the sets. A value you typed for a set counts in the match.
- Longest Run and Biggest Lead show the best set.
- Side-Out is computed over all the rallies of the match.
- A value you type in the Match view replaces only the Match view; the set values stay as they are.

What is not counted:

- Corrections: Point −1 and a set correction (chapter 5.3) leave the recorded rallies as they are. A rally taken back with Point −1 still counts; use Undo instead to remove it.
- The point of a Penalty or Delay Penalty (chapter 5.9).

- An Overturn (or a successful challenge with overturn) does not move the rally in the statistics: it stays with the team that first won it, and the new point is not added. Correct the values by hand if needed.

Undo removes an undone rally together with its outcome.

10.3 Statistics on the Board

The Statistics screen shows the ticked rows for the match or one set, with a bar per row (chapter 9.12).

1. Choose the view in Set: Match, or one set.
2. Tick the rows you want in the Board column. The factory rows are Attack Points, Block Points, Aces, Opponent Errors, Serve Errors, Total Points Won, Side-Out and Longest Run.
3. Click Show on Board. On the St, Sp and Ad boards the screen fills the board; on the CK board it is a lower third.
4. Click Hide to take it off.

- The better value of each row is highlighted; for Serve Errors the lower one. Rows without values are left out.
- The Statistics screen can also be shown from the Info tab (chapter 9.12).
- The remote page can put the Statistics screen of the match or a set on the board (chapter 13). The HTTP API has stats_show, stats_set, stats_recalc, stats_reset_set, stats_clear and stats_rows (Appendix B).



Figure 84. The Statistics screen on the St board (left) and as a CK lower third (right).

11. Teams, Players, Photos and Logos

11.1 Team Names and Codes

The team names, codes and logos are entered on the Game tab (chapter 5).

Field	What It Holds
Team name (one per team)	The name of the team, on one or two lines (chapter 5). Press Enter for the second line, for example the two players of a beach pair. A third line is not possible: pasted extra lines are joined to the second line. The X next to the box empties it.
Team code (one per team)	A short code of up to three letters, always in capitals ("Team Code (3 Letters; a Country Code Shows Its Flag)"). The boards show it next to the name; a country code also shows the flag (section 11.5).

- The boards fit a long name into its box. Info screens with tables or sentences (Set Result, Standings, Results ...) join the two lines with a space.
- The remote control and the HTTP API can set the names (set_home_name, set_guest_name, chapter 14); there too a name has at most two lines.
- There is no team-colour setting on the Game tab. The colours of the team rows, plates and points come from the design; change them in the design editor (chapter 8.5).

11.2 Logos

The Game tab has three logo slots:

Slot	How	Where It Appears
Home team logo, guest team logo	Click the logo to choose a picture ("Team Logo: Click to Select, Right Click to Remove"); right-click removes it.	On the scoreboards next to the team, on the info screens with a team (Starting Lineup, Player Intro, Set Result ...), and as the large faded logo of the Arena master.
Board logo	Click the slot ("Click to Select a Logo"); the X removes it.	The logo of the board, for example the competition or the venue, where the design has a place for it.

- Picture files: bmp, gif, jpeg, jpg, png, webp. The dialog for the team logos starts in C:\volleyBoard7\common\images\logos.
- A team logo replaces the flag of the team code on the boards and the info screens.
- The new installation shows the logos of the two demo teams.

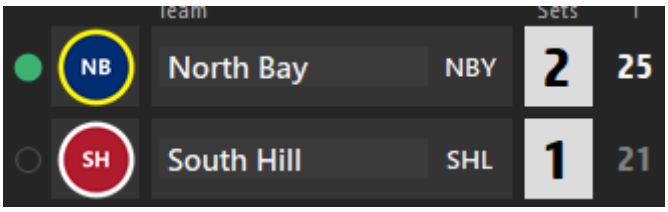


Figure 85. The team logos and the board logo slot on the Game tab.

11.3 Players Editor

Each team has a player list: Info > Home Players and Info > Guest Players. The title shows Home Team or Guest Team. The lists feed the info screens Starting Lineup, Player Intro, Substitution, Sanction and MVP / Top Scorer, and the slideshow Show Pictures.

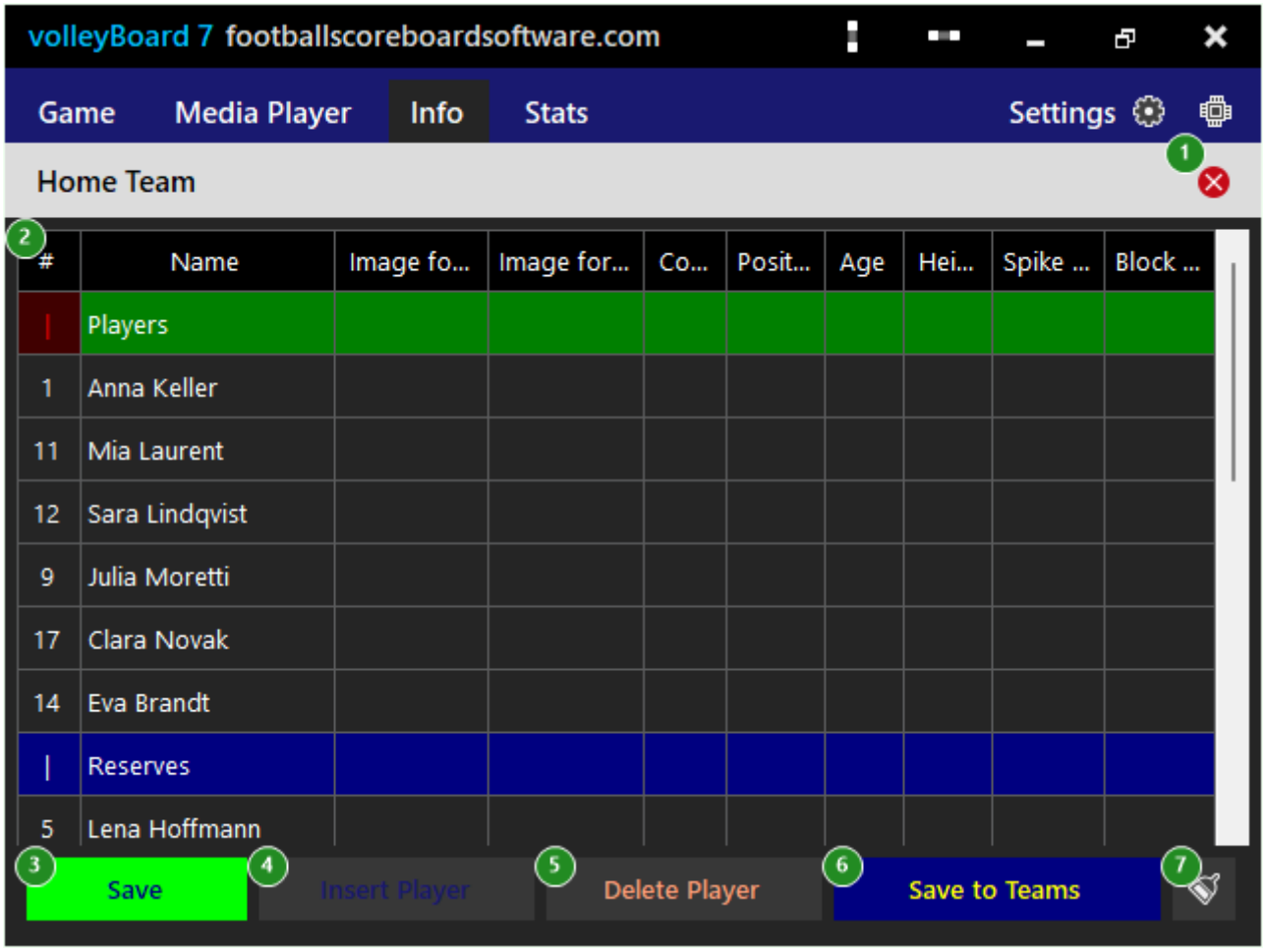
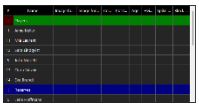
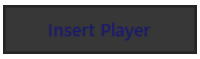
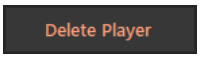
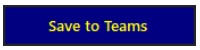


Figure 86. The Home Team player list with the demo players.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the player list. Changes not saved with Save are dropped.
2		**Player List**	The players in four groups (Players, Reserves, Other Players, Coach) with number, name, photos, country, position and facts. Click a cell and type; in an image cell the small picture button chooses a file. Drag a row by its # or Name cell to move it.
3		**Save**	Saves the list. The button is green while there are unsaved changes; empty rows are dropped.

No.	Control	Name	What It Does
4		**Insert Player**	Adds an empty row at the end of the group of the selected row (the Coach group holds one person only).
5		**Delete Player**	Removes the selected player row. Group header rows cannot be removed.
6		**Save to Teams**	Saves a copy of the list as a team under a name you type (Please Enter a Name), in common\data.
7		**Clear All (Brush)**	Meant to empty the list. In this version it adds four new empty group rows (Players, Reserves, Other Players, Coach) below the existing rows instead; nothing is saved until you click Save, so close without saving to undo it.

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

Group	What It Holds
Players	The squad in lineup order. The first six players who are not liberos are the starting six; the first player with the position L (or Libero) is the libero (chapter 9.3).
Reserves	Further players of the team.
Other Players	Any other people, for example staff.
Coach	One person: the coach of the Starting Lineup screen.

Column	What It Holds
#	The shirt number. The info screens find a player by this number or by the name.
Name	The player's name.
Image for Events	A spare photo: used when Image for Banner is empty or its file is missing.
Image for Banner	The player photo of the info screens and the picture of Show Pictures.
Country	The country code of the player (section 11.5); Player Intro shows it with its flag.
Position	S, OH, OPP (or OP), MB or L, shown on the boards as Setter, Outside Hitter, Opposite, Middle Blocker, Libero. Any other text is shown as typed.
Age, Height, Spike Reach, Block Reach	The facts of the Player Intro card. Empty facts are left out.

Button	What It Does
Insert Player	Adds an empty row at the end of the selected group.

Button	What It Does
Delete Player	Removes the selected player.
Save	Saves the list. The button is highlighted while there are unsaved changes. Empty rows are dropped.
Save to Teams	Keeps a copy of the list under a name ("Please Enter a Name") in common\data.
Clear All (the icon at the right)	Empties the list. It is saved only when you click Save.

- Click an image cell, then the small picture button in it, to choose a file. Image for Events takes pictures (bmp, gif, jpeg, jpg, png, webp); Image for Banner also takes videos. A missing file is shown in red; a selected image shows a preview below the row; the folder icon opens the file's folder.
- Drag a row by its # or Name cell to move it. The Coach row cannot be dragged.
- Click Save before you close the list. Closing without Save drops the changes.

> **Note:** The order of the Players group is the starting lineup. Put the six starters first, in the order you want them on the Starting Lineup screen, and give the libero the position L.

11.4 Photos

- The info screens use the Image for Banner photo of a player; when it is empty or the file is missing, they use Image for Events.
- Show Pictures (chapter 12.5) shows the Image for Banner pictures as a slideshow.
- A player without a photo is shown without a picture; the rest of the card stays.
- Keep the photo files in place after you chose them: the list stores the path of each file, not the picture. The demo photos are in C:\volleyBoard7\common\images\players.

11.5 Flags and Country Codes

A country code shows its flag: the team code on the boards and the info screens (when the team has no logo), the Country column of the player list on Player Intro, and the Country column of the Officials screen.

- Type the code as used in sport (IOC, for example GER, ITA, BRA, SLO) or the two-letter ISO code (de, it).
- The flags are vector images (SVG) in common\images\flags\country: 271 flags, including England (gb-eng), Scotland (gb-sct), Wales (gb-wls) and Northern Ireland (gb-nir).
- common\images\flags\country\codes.csv translates the three-letter codes to the flag files, one line per code, for example GER,de. Lines starting with # are comments.
- An unknown code shows no flag; the code itself is still shown where the design has a code field.

To add a code, open codes.csv in a text editor, add a line (for example ENG,gb-eng), save it and restart the program.

11.6 Player Lists and Team Files

File (common\data)	What It Holds
playersHome.xml, playersGuest.xml	The player lists of the Players editor.

File (common\data)	What It Holds
team_<id>.xml, dataTeams.xml	The copies saved with Save to Teams, and their list.

- New Match does not change the player lists.
- The setup keeps the files of common\data on an update (chapter 2).

> **Note:** In this version Save to Teams keeps a copy of the list as a team file in common\data; there is no button that loads a saved team back into a player list.

12. Banner, Announce, Sponsors, Media Player and NDI

12.1 Banner

A full-screen banner with a top line, a second line and a main text, for example the start time of the next match or a countdown. Open Info > Banner.

Board Output **Banner Editor**

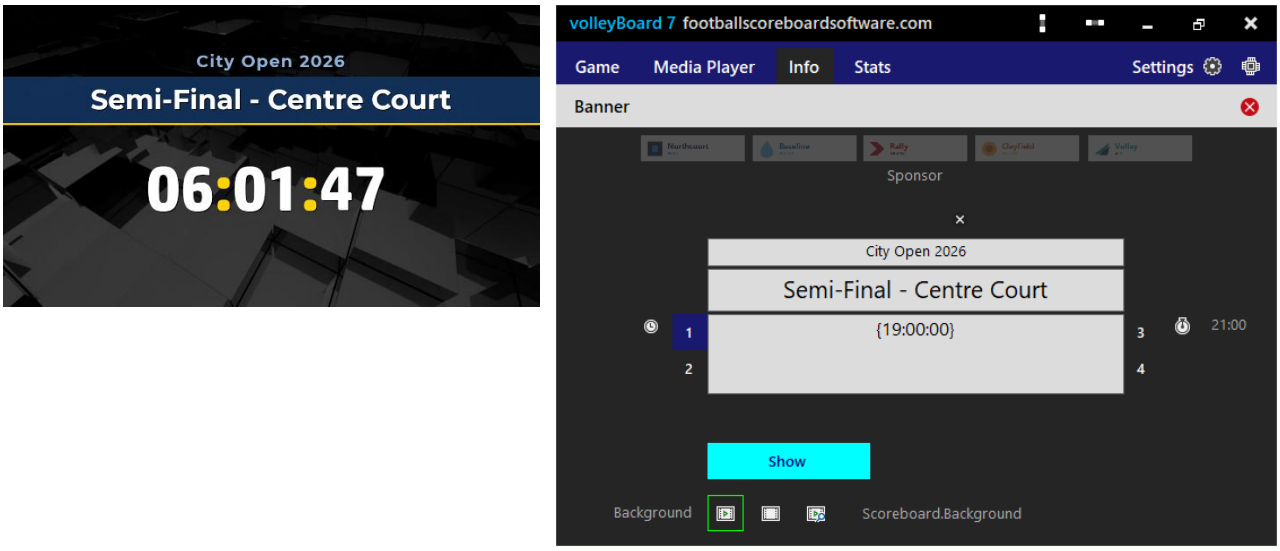


Figure 87. The Banner on the board, and its editor.

Control	What It Does
Top text box	The top line of the banner.
Second text box	The second line.
Main text box	The main text. It has four versions (buttons 1-4); the selected version is shown. The top and second lines are the same for all four.
X (red, next to the box you are in)	Empties that box.
Show Clock (clock icon)	Puts {00:00} into the main text: the board shows the time of day. Click again for {00:00:00} with seconds.
Show Remaining Time (timer icon) and the time box	Puts the time of the box, for example {21:00}, into the main text: the board counts down to 21:00 today, or to tomorrow if the time has passed. Click again for seconds. The time box takes hh:mm; another entry becomes 23:59.
Background	Use Scoreboard Background (the background video of the scoreboard), Use Black Background, or Use Selected Background with the folder button to choose a video (mp4, webm, ogg) or a picture (jpg, jpeg, png, gif, webp). The chosen option has a green frame.
Sponsor	The first five logos of the sponsor list (section 12.3). Click one to show it on the banner; the large preview shows the choice, its eraser removes it.
Show	Saves the texts and puts the banner on the board.

- The clock and countdown buttons appear while you type in the main text box.
- The clock and the countdown work only when the main text holds nothing else; any other text is shown as typed.
- Click the Game tab to go back to the scoreboard. The X of the editor or Esc only closes the editor.

12.2 Announce

A full-screen announcement in large letters. Open Info > Announce.

Board Output **Announce Editor**

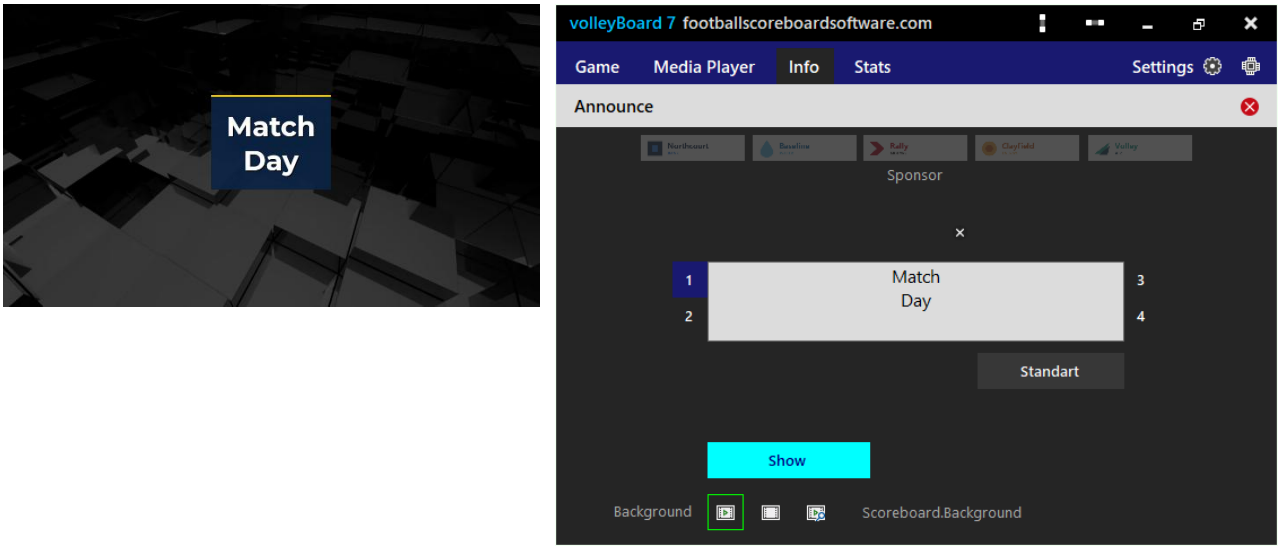


Figure 88. An announcement on the board, and its editor.

- One text with four versions (buttons 1-4); the X empties it.
- Style list: Standart (plain text), Gradient (colour gradient), Shape (moving colour shapes), Stripe-H and Stripe-V (moving stripes), Stroke (outlined text in changing colours).
- The gear button (all styles except Standart) opens the style values: font-family (with a font picker), font-size, font-weight, bottom, text-shadow and text-stroke, as far as the style uses them, and the colour buttons of the style (two for Gradient and the stripes, five for Shape and Stroke). A colour is saved when you pick it; the disk button saves the values.
- Background and Sponsor work as for the Banner. Banner and Announce share one sponsor choice.
- Show puts the announcement on the board; the Game tab goes back to the scoreboard. The team logos are not shown on the Announce page.

12.3 Sponsors

Info > Sponsors holds the sponsor logos for the Sponsored band (chapter 7.4), the Ad banners (chapter 7.5) and the Banner and Announce screens.

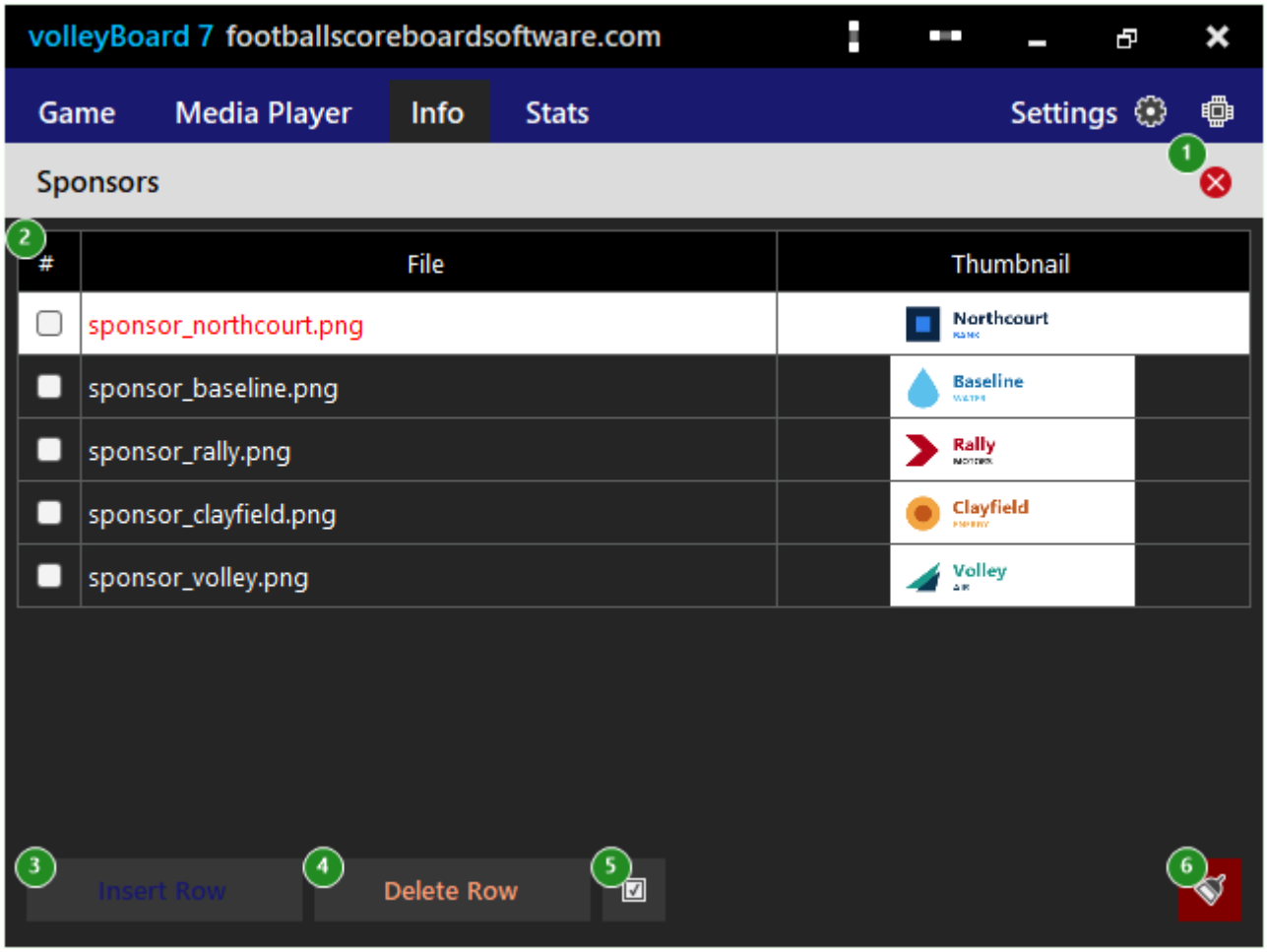
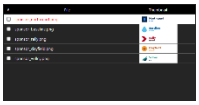
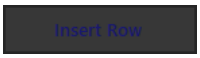
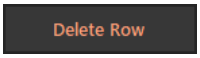


Figure 89. The sponsor list with the fictional sample sponsors.

No.	Control	Name	What It Does
1		**Close (X)**	Closes the sponsor list. Every change is already saved.
2		**Sponsor List**	The sponsor logos: # (tick of the default sponsor), File and Thumbnail. Drag a row to change the order; the order is saved at once.
3		**Insert Row**	Adds one or more picture files (bmp, gif, jpeg, jpg, png, webp) to the list and saves it.
4		**Delete Row**	Removes the selected logo and saves the list.
5		**Set Default**	Ticks the selected logo, makes it the sponsor of Banner and Announce and moves it to the top. On a ticked logo it removes the tick and the sponsor choice.
6		**Clear All (Brush)**	Empties the sponsor list at once, without a question.

Control	What It Does
Insert Row	Adds one or more picture files (bmp, gif, jpeg, jpg, png, webp).

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

- The columns: # (the tick of the default sponsor), File and Thumbnail.
- Drag a row to change the order.
- Every change is saved at once (common\data\sponsors.xml); there is no Save button.
- The Sponsored band and the Ad banners use all logos, in list order. Banner and Announce offer the first five.

12.4 Media Player and Playlists

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

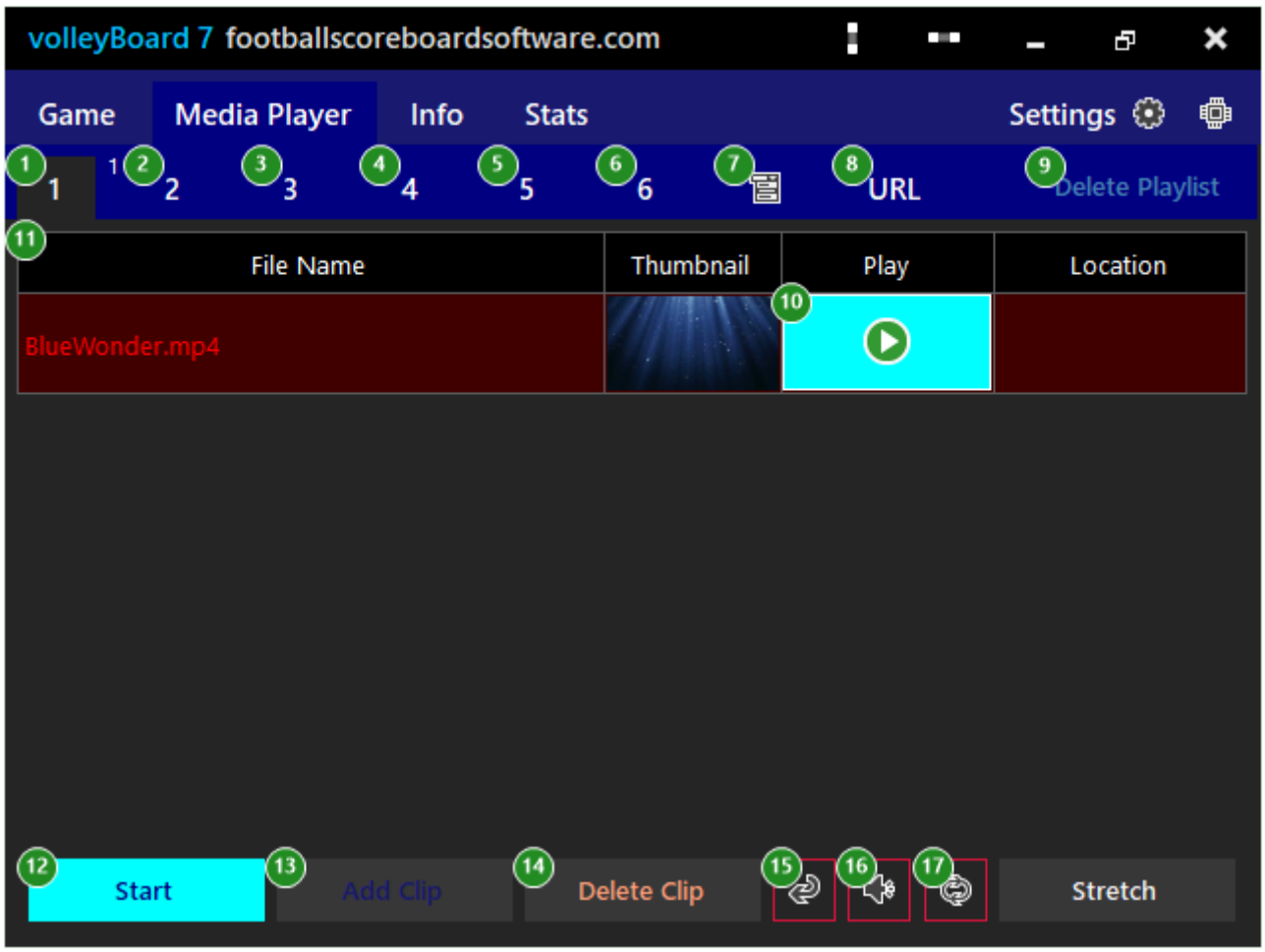
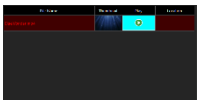
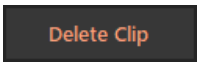


Figure 90. The Media Player tab with playlist 1.

No.	Control	Name	What It Does
1	1	1	Opens playlist 1. The small number above the button shows how many clips it holds. Not available while a clip plays.

No.	Control	Name	What It Does
2		**2**	Opens playlist 2. The small number above the button shows how many clips it holds. Not available while a clip plays.
3		**3**	Opens playlist 3. The small number above the button shows how many clips it holds. Not available while a clip plays.
4		**4**	Opens playlist 4. The small number above the button shows how many clips it holds. Not available while a clip plays.
5		**5**	Opens playlist 5. The small number above the button shows how many clips it holds. Not available while a clip plays.
6		**6**	Opens playlist 6. The small number above the button shows how many clips it holds. Not available while a clip plays.
7		**More Playlists (List Icon)**	Opens a list of the playlists 7 to 20; choose one to open it.
8		**URL**	Opens the Web URL list: web pages to show on the board output.
9		**Delete Playlist**	Empties the current playlist at once, without a question.
10		**Play**	The button in the Play cell of the selected row: plays this clip on the board. While it plays the button shows Stop; click it to stop.
11		**Playlist**	The clips of the playlist: File Name, Thumbnail, Play and Location (time left of the playing clip). Click a row to select it; drag a row to change the order (not while playing).
12		**Start / Finish**	Plays the list on the board from the selected clip; the button then reads Finish, click it to stop.
13		**Add Clip**	Adds video, audio or picture files to the playlist. Not available while a clip plays.
14		**Delete Clip**	Removes the selected clip from the playlist. Not available while a clip plays.
15		**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 from the top.
16		**Sound**	Switches the sound of the clips on (green frame) or off (red frame).
17		**Auto Repeat**	Repeats the current clip: on = green frame, off = red frame. Start switches it off.

Control	What It Does
1-6	The playlists 1 to 6. The small number above each button shows the clips in the list.
List button	The playlists 7 to 20.

Control	What It Does
URL	A list of web pages to show on the output (below).
List	File Name, Thumbnail, Play (plays this clip; while a clip plays: pause and resume) and Location (the time left of the playing clip). Picture files are shown in grey.
Start / Finish	Plays the list from the selected clip; the button then reads Finish to stop.
Add Clip	Adds video, audio or picture files.
Delete Clip	Removes the selected clip.
Delete Playlist	Empties the current playlist, without a question.
Return to Scoreboard Screen When Playlist Ends (icon)	On (green frame): the scoreboard comes back when the list ends. Off (red frame): the list starts again.
Auto Repeat (icon)	Repeats the current clip. Start switches it off.
Sound (icon)	Sound on or off.
Display mode	How the picture fits the board: Center, CoverCenter, Original, SizeToFit, SizeToFitCenter, Stretch (default), ZoomCenter.

- Pictures stay on screen for Image Play Duration seconds (Settings > Screen Properties, default 5).
- While a clip plays, the Settings tab of the menu bar shows the time left. Playlists cannot be switched, and Add Clip, Delete Clip and Delete Playlist are hidden.
- Drag a row to change the order (not while playing).
- The Game tab stops the media and shows the scoreboard again.
- From the remote control: Media tab > Start (chapter 13.5); from the HTTP API: start_playlist (Appendix B). A second start while a playlist plays stops it.

Web pages: the URL button opens the list Web URL with the columns URL and Load. Insert Row adds an address, Delete Row removes one, Load shows the page on the board output. The Game tab goes back to the scoreboard.

The Ad and CK pages have their own Media Player with six playlists for the Ad multimedia area and the CK background (chapter 7.5, 7.6).

12.5 Show Pictures

Info > Show Pictures (one button next to Home Players, one next to Guest Players) shows the player photos as a slideshow on the board output. The title says Show Pictures · Home Team or · Guest Team.

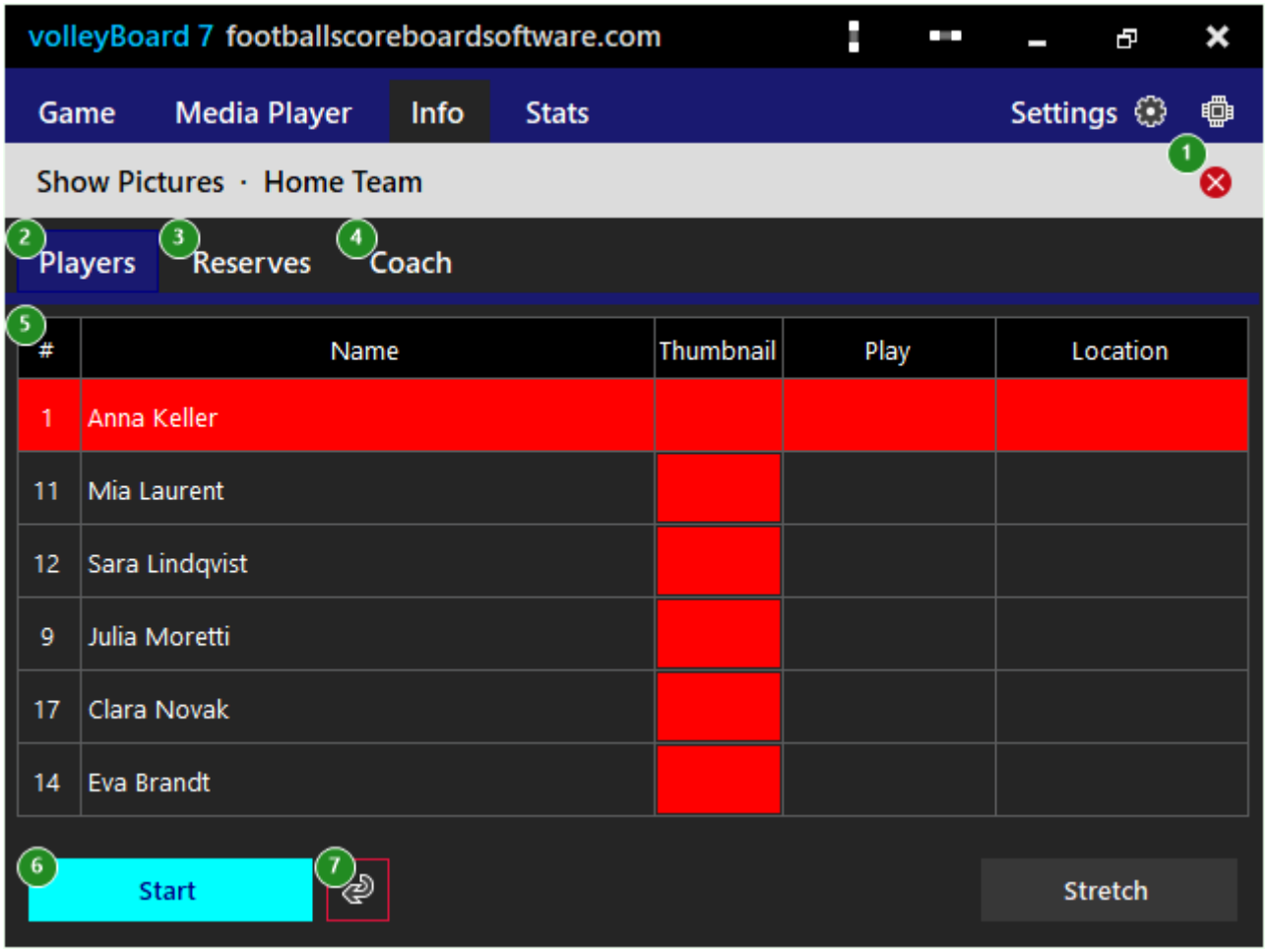
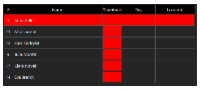


Figure 91. Show Pictures with the home players (the sample players have no photos yet, so their tiles are empty).

No.	Control	Name	What It Does
1		**Close (X)**	Closes Show Pictures.
2		**Players**	Lists the Players group of the team's player list.
3		**Reserves**	Lists the Reserves group of the team's player list.
4		**Coach**	Lists the Coach group of the team's player list.
5		**Picture List**	The players of the group: #, Name, Thumbnail (red = no photo file), Play and Location. Click a row to select it; the Play button in its row shows that one picture.
6		**Start / Finish**	Shows the pictures as a slideshow on the board from the selected row; the button then reads Finish, click it to stop.
7		**Return to Scoreboard Screen When Playlist Ends**	On (green frame): the scoreboard comes back after the last picture. Off (red frame): the slideshow starts again.

- Players, Reserves or Coach: the group of the player list to show (chapter 11.3). Only the Image for Banner pictures are used.
- The columns: #, Name, Thumbnail, Play and Location.
- Start plays the whole list from the selected row (then Finish stops it); Play / Stop in a row shows one picture. Return to Scoreboard Screen When Playlist Ends and the display mode work as in the Media Player.
- Each picture stays for Image Play Duration seconds.

12.6 Cameras and Screen Capture

The Camera and Screen Capture tabs of the Ad and CK pages show a live picture: in the Ad multimedia area, or behind the CK graphics.

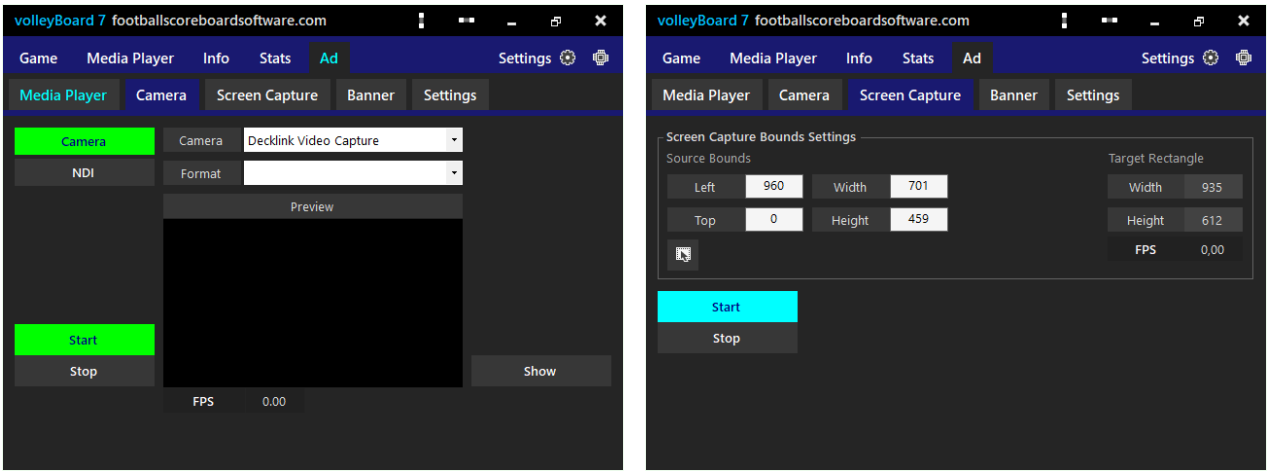


Figure 92. The Camera tab (left) and the Screen Capture tab (right) of the Ad page.

Camera:

1. Choose Camera, then the camera and its Format (for example 1920x1080 @ 30fps). Or choose NDI and an NDI Source from the network (section 12.7).
2. Click Start: the picture appears in the Preview.
3. Click Show: the picture goes on the board.
4. Stop ends it.

- Without a camera and format the program asks "Please select a camera and format."; without an NDI source "Please select a valid NDI source.".
- The FPS button shows the frame rate of the picture.

Screen Capture shows a part of the PC screen, for example a statistics program or a browser window:

1. Set the Source Bounds: Left, Top, Width and Height in pixels, or click Select Rectangle and drag a frame on the screen.
2. Target Rectangle shows the size on the board (read only).
3. Click Start; Stop ends it.

An area outside the screens gives the notice "Capture area is invalid: ...".

- While a source runs, its tab on the Ad or CK page blinks.
- A display-mode change stops the source; Source on mode switch can restart it (chapter 7.8).

12.7 NDI

volleyBoard 7 can send its board as NDI and show an NDI picture of another program.

NDI output: the NDI button on the Game tab sends the board of the current display mode into the network as VB7_NDI (chapter 7.9).

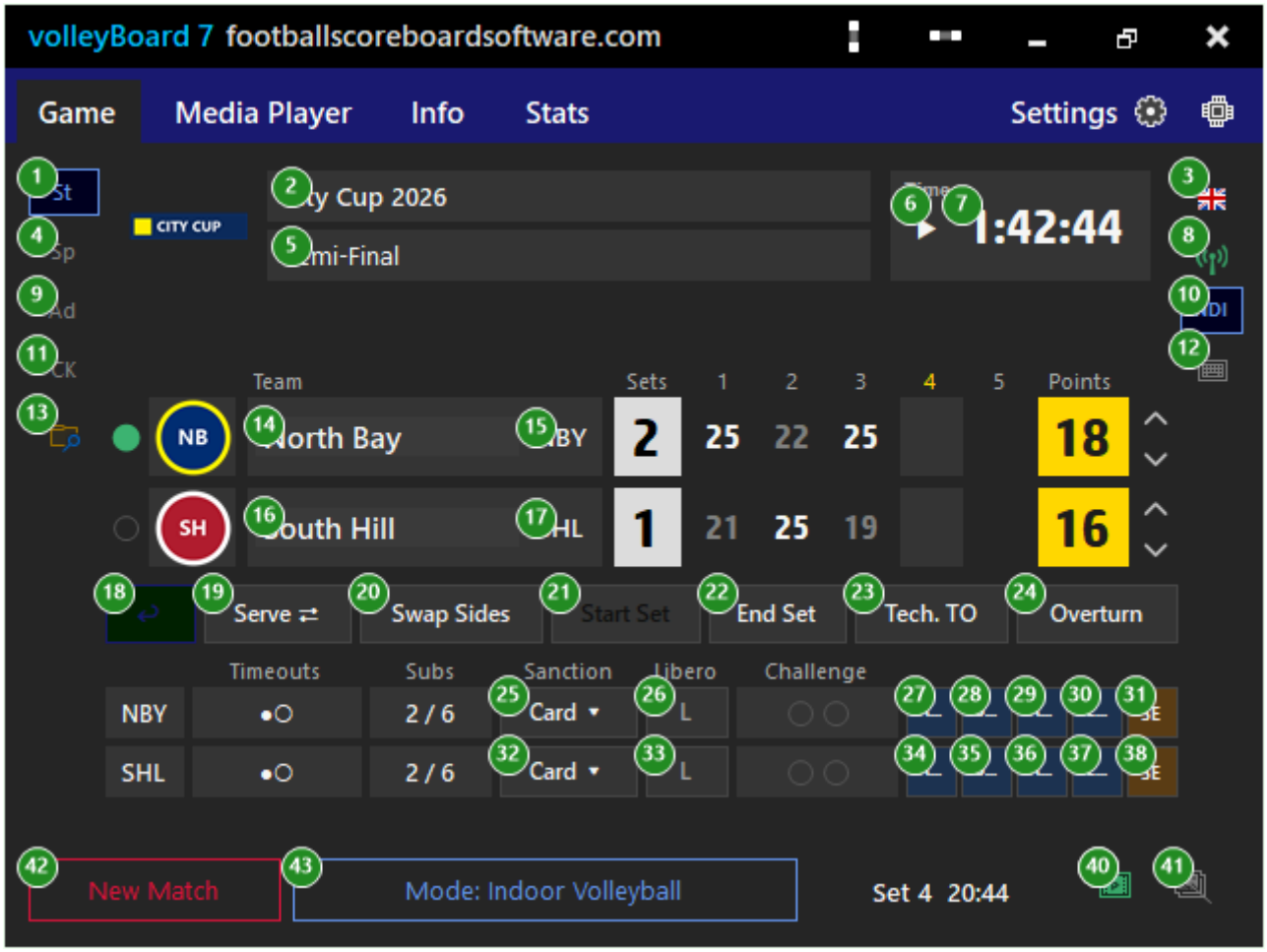
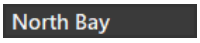
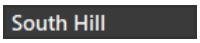
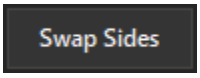
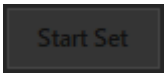
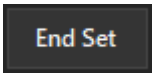
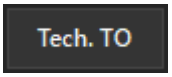
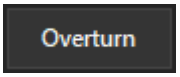
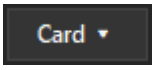
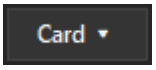
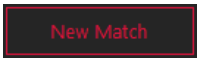
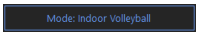


Figure 93. The NDI button on the Game tab while the board is sent.

No.	Control	Name	What It Does
1	St	**St**	Switches the board to the Standard display mode. The active mode is highlighted in blue.
2	City Cup 2026	**Tournament Line**	The first text line of the board, for example the competition (City Cup 2026). Click and type to change it; it is also part of the subtitle of the info screens.
3		**Language Settings (Flag)**	Opens the Language page of the settings.
4	Sp	**Sp**	Switches the board to the Sponsored display mode: the scoreboard with a sponsor band.
5	Semi-Final	**Round Line**	The second text line of the board, for example the round (Semi-Final). Click and type to change it.
6		**Play / Pause**	Starts and pauses the match clock. Hidden while the clock shows the time of day.

No.	Control	Name	What It Does
7		**Match Clock**	Shows the match time or the time of day. Click it, type a time (h:mm:ss, mm:ss or seconds) and press Enter to set it; right click: switch between match duration and time of day.
8		**Remote Control (Antenna)**	Opens the Remote Control page of the settings. The icon is green while the remote server runs.
9		**Ad**	Switches the board to the Advertisement display mode: score column, banners and a multimedia area.
10		**NDI**	Starts or stops sending the board into the network as the NDI stream VB7_NDI. Highlighted while it sends; when NDI is not available the tooltip gives the reason.
11		**CK**	Switches the board to the Chroma Key display mode: a scorebug on the key colour.
12		**Keyboard Shortcuts (Keyboard)**	Opens the Keyboard Hook Manager. Highlighted while the global keyboard shortcuts are on.
13		**Select Design (Folder)**	Opens the design gallery (Open Design) to apply another board design.
14		**Home Team Name**	The name of the home team on one or two lines: Enter starts the second line, Esc leaves the box. While you type, an X button next to it empties the box.
15		**Home Team Code**	The three-letter code of the home team, always in capitals; a country code shows its flag on the board. Enter or Esc leaves the box.
16		**Guest Team Name**	The name of the guest team on one or two lines: Enter starts the second line, Esc leaves the box. While you type, an X button next to it empties the box.
17		**Guest Team Code**	The three-letter code of the guest team, always in capitals; a country code shows its flag on the board. Enter or Esc leaves the box.
18		**Undo**	Takes back the last action (rally, correction, serve change, timeout, substitution, sanction ...). Click again to go further back.
19		**Serve ⇄**	Gives the serve to the other team.
20		**Swap Sides**	Swaps the teams between left and right on the board. Turns orange when a change of sides is due; clicking it then clears the alert.
21		**Start Set**	Starts the set clock now (the first rally of the set does it too). Greyed out once the set has started.
22		**End Set**	After the question End the Set Now? The Leading Team Wins It., the leading team wins the set. Greyed out while the score is level.
23		**Tech. TO**	Starts a technical timeout; while it runs the button is gold and shows the countdown. Click again to end it early.

No.	Control	Name	What It Does
24		**Overturn**	Gives the last rally to the other team (a referee or video correction).
25		**Card ▾ (Home)**	Opens the sanction menu of the home team: Warning, Penalty, Expulsion, Disqualification, Delay Warning, Delay Penalty. A penalty gives the guest team the point; the text turns gold when the team has a sanction in the set.
26		**L (Home Libero)**	Libero indicator of the home team: click when its libero comes on court, click again when the libero leaves. Highlighted while on.
27		**Atk (Home)**	Attack point of the home team: the home team scores and the outcome is recorded for the statistics. Undo removes both.
28		**Blk (Home)**	Block point of the home team: the home team scores and the outcome is recorded for the statistics. Undo removes both.
29		**Ace (Home)**	Service ace of the home team: the home team scores and the outcome is recorded for the statistics. Undo removes both.
30		**Err (Home)**	Opponent error: the home team scores and the error is counted for the guest team. Undo removes both.
31		**SE (Home)**	Serve error of the home team: the guest team scores and the error is counted for the home team. Undo removes both.
32		**Card ▾ (Guest)**	Opens the sanction menu of the guest team: Warning, Penalty, Expulsion, Disqualification, Delay Warning, Delay Penalty. A penalty gives the home team the point; the text turns gold when the team has a sanction in the set.
33		**L (Guest Libero)**	Libero indicator of the guest team: click when its libero comes on court, click again when the libero leaves. Highlighted while on.
34		**Atk (Guest)**	Attack point of the guest team: the guest team scores and the outcome is recorded for the statistics. Undo removes both.
35		**Blk (Guest)**	Block point of the guest team: the guest team scores and the outcome is recorded for the statistics. Undo removes both.
36		**Ace (Guest)**	Service ace of the guest team: the guest team scores and the outcome is recorded for the statistics. Undo removes both.
37		**Err (Guest)**	Opponent error: the guest team scores and the error is counted for the home team. Undo removes both.
38		**SE (Guest)**	Serve error of the guest team: the home team scores and the error is counted for the guest team. Undo removes both.
39		**Remove Background Video (x)**	The small x on the video icon: removes the background layer video. Shown only while a video is set.
40		**Background Layer Video**	Chooses a video file for the layer behind the board. The icon is green while a video is set.

No.	Control	Name	What It Does
41		**Middle Layer Image**	Chooses an image for the layer between the background video and the scoreboard. The icon is grey and struck through while none is set.
42		**New Match**	After the question Start a New Match? The Score Is Reset., resets the score, sets, counters, Undo history, statistics and the per-match info data; the match clock goes back to 0:00:00.
43		**Mode**	Shows the discipline (Mode: Indoor Volleyball) and opens Match Rules. Hidden while the match clock runs; the tooltip shows the rules summary.

NDI input: on the Camera tab of the Ad or CK page, choose NDI. The list searches the network for NDI sources ("Searching..."), then lists them, or shows "-- No NDI source found --". The refresh button (↺) searches again. Choose a source, then Start, Show and Stop as for a camera.

- The NDI runtime is part of the installation. When it is missing or the PC does not support it, the NDI button is grey and its tooltip gives the reason.
- Use a key colour other than transparent when you send the CK board over NDI (chapter 7.6).
- The sender name VB7_NDI is set in start.xml (SETTINGS > NDI > SenderName); there is no setting for it in the program.

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 volleyBoard 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:\volleyBoard7\open_firewall_1907.bat, which adds the rules "volleyBoard 1907 TCP IN", "UDP IN", "TCP OUT" and "UDP OUT". If a phone cannot connect, run the file again as administrator.
- Only one program at a time can use port 1907 on a PC. If another Board7 program already uses it, volleyBoard 7 shows "Remote control unavailable: port 1907 is in use, probably another Board7 app." with Retry and Cancel. Close the other program and click Retry, or click Cancel to work without the remote.

13.2 Switching the Remote On

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

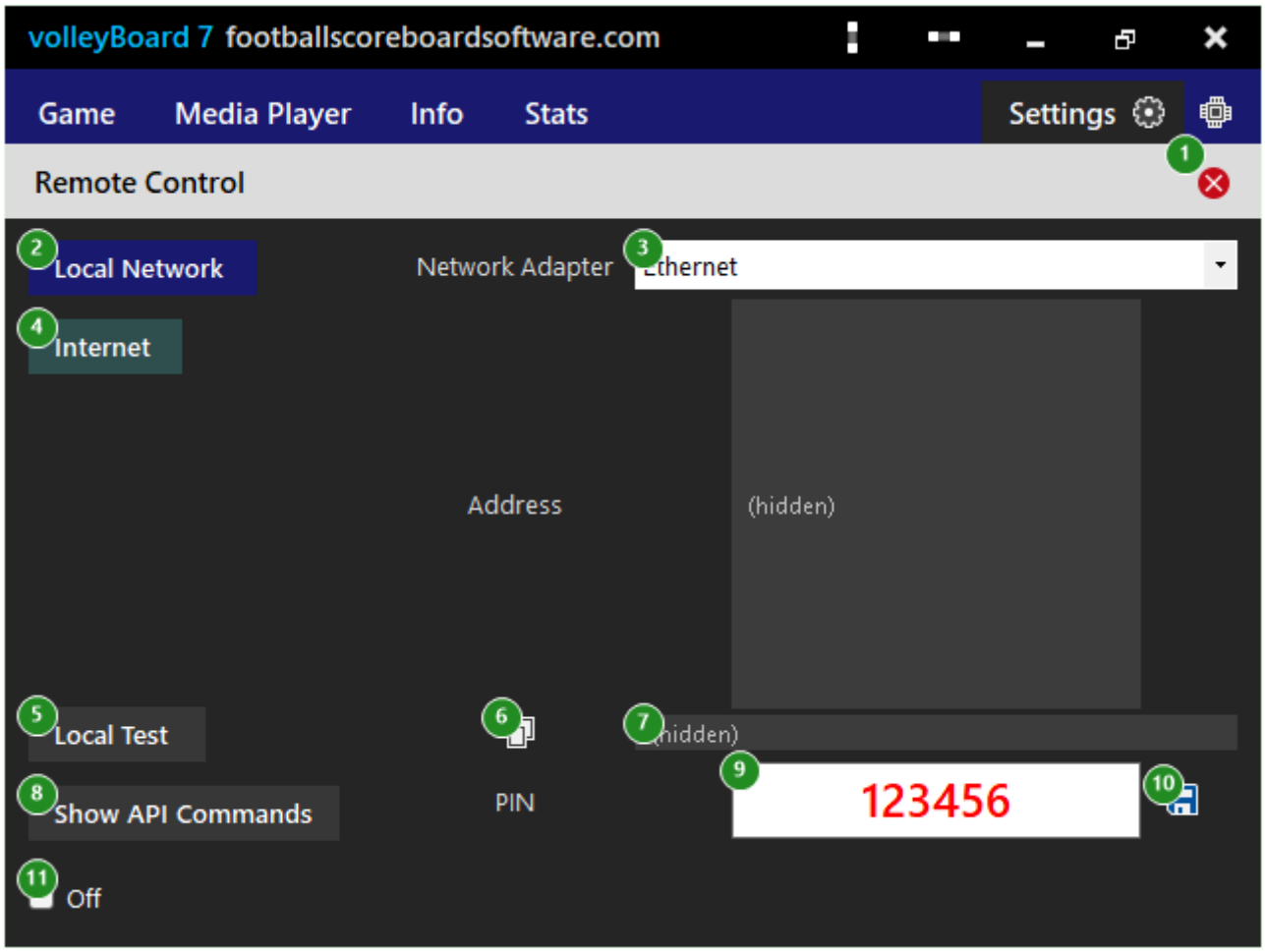
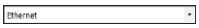
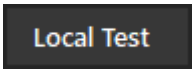
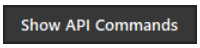


Figure 94. The Remote Control page. The address and the QR code are hidden in this picture; your page shows the address of your PC.

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 selected network adapter.
3		**Network Adapter**	Chooses the connected Ethernet or Wi-Fi card whose address and QR code are shown.
4		**Internet**	Shows the public address of the internet connection (works only when the router forwards port 1907). Without a connection it reads No Internet Connection.
5		**Local Test**	Opens the remote page address in the web browser of this PC.
6		**Copy**	Copies the address to the clipboard.
7		**Address**	The address to open on the phone or tablet: http://<PC address>:1907/logon.html (hidden in this picture).
8		**Show API Commands**	Opens API_Commands.txt, the list of HTTP commands, in Notepad.
9		**PIN**	The code the phone must enter to log on: digits only, 123456 by default. After a change, click Save PIN.
10		**Save PIN (Disk)**	Appears when you change the PIN; click it to save the new PIN and use it at once.
11		**On / Off**	Ticked (red) = the remote server is off; untick it to start the server. The text shows the real state of the server (On or Off) and the setting is kept for the next start; if port 1907 is in use the box goes back to ticked.

Control	What It Does
Local Network	Shows the address in the local network (default).
Internet	Shows the public address of the internet connection (see the note below). Without a connection the address reads "No Internet Connection".
Network Adapter	The network card whose address is shown (Ethernet or Wi-Fi cards that are connected).
QR code	Scan it with the phone camera to open the remote page.
Address	The address to type in the phone browser: http://<PC address>:1907/logon.html. The copy button copies it.
Local Test	Opens the address in the browser of this PC.
Show API Commands	Opens API_Commands.txt in Notepad (Appendix B).
PIN	The code the phone must enter (section 13.3).
Save PIN (disk icon)	Appears when you change the PIN; click it to use the new PIN.

Control	What It Does
On / Off box	Not ticked = the remote control is on, the box reads On. Ticked (red) = off, the box reads Off.

To switch the remote on: untick the box at the bottom. The box reads On and the remote icon on the Game tab turns from the off icon to the on icon (it always shows the real state of the server). The setting is kept for the next start. If the port is in use, the box goes back to ticked and the remote stays off.

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

13.3 PIN

- Digits only, up to 6. The default is 123456.
- Type the new PIN and click Save PIN. It is used at once.
- After a PIN change, log out and log on again on every phone.

> **Note:** Change the PIN from 123456 before you use the remote at an event. Never save an empty PIN: no phone can log on until the next start of the program.

13.4 Logging On

1. Open the address in the phone browser, or scan the QR code.
2. The logon page (volleyBoard7, Volleyball Remote Control) shows a keypad. Enter the PIN; ⌫ deletes the last digit.
3. Tap ✓. The remote page opens on the Score tab.

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

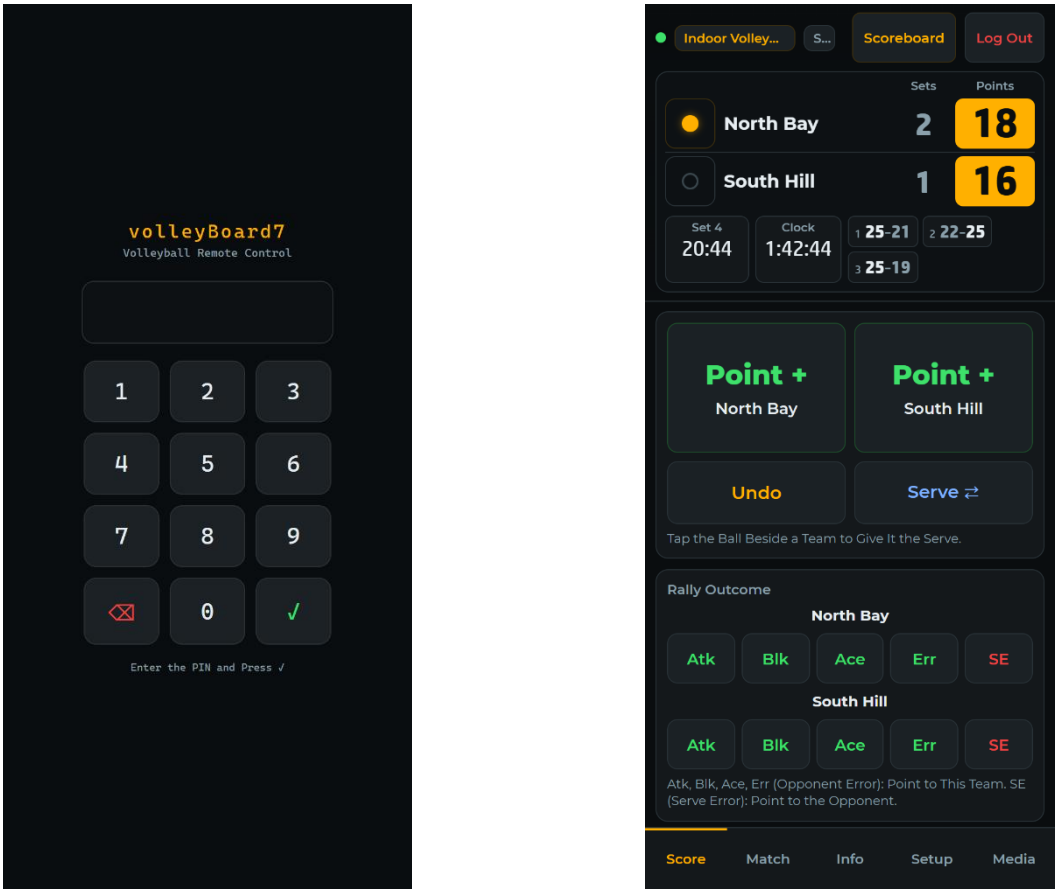


Figure 95. The logon page and the Score tab on a phone.

> **Note:** Logging on and reloading the remote page bring the scoreboard back on the PC: the Game tab comes to the front, a video stops and an info screen on the St board is taken off. Log on before you start a video or an info screen.

13.5 The Remote Panel

The top of the page always shows:

- the connection dot: green = connected, red = the PC cannot be reached;
- the discipline (for example Indoor Volleyball) and the display mode (St, Sp, Ad or CK);
- Scoreboard: brings the scoreboard back on the board (stops a video, takes an St info screen off); Log Out: back to the logon page;
- the score: per team the serve ball, the name, the sets won and the points; the winner's name turns green when the match is over;
- the set clock (Set 3 and the time of the set), the match Clock (it pulses while it runs) and the scores of the completed sets;
- a state band when it matters: a timeout with its countdown (with End the Timeout), a technical timeout, Change Sides (with Swap Sides and Dismiss), Set Point, Match Point, Deciding Set, Match Result;
- the set point callout band, and a Video Challenge band while a challenge is pending (its Challenge button opens the Match tab).

The page asks the PC for the state about every 0.6 seconds, so it also shows changes made on the PC or on the keyboard. The tabs at the bottom are Score, Match, Info, Setup and Media. The labels come from the language of the program (chapter 16).

Score Tab

Element	What It Does
Point + (one per team, the name below)	Gives the rally to the team. Disabled when the match is over. The two buttons follow the sides of the board after Swap Sides.
Undo	Takes back the last action.
Serve ⇄	The other team serves. Tap the ball beside a team in the score to give that team the serve.
Rally Outcome	Per team: Atk, Blk, Ace, Err (opponent error): point to this team; SE (serve error): point to the opponent. Each scores the rally and records its outcome. Shown when Point Outcome Buttons is on in Settings > Screen Properties.
Corrections	Point − per team: one point less in the set in play.

Match Tab

Element	What It Does
Timeout (per team)	Starts a team timeout; the pips show the timeouts used, the countdown runs on the button. Disabled when the team has none left or a timeout runs. End the Timeout appears during the team's timeout. Hidden when the discipline has no timeouts.
Subs (per team)	− and + with the count "used / allowed" (∞ without a limit). Hidden when the discipline does not count substitutions.
Libero (per team)	Libero on court on / off. Shown when the discipline uses the libero.
Sanction (per team)	Opens a sheet: player (shirt number or name; empty = team / coach) and Warning, Penalty, Delay Warning, Delay Penalty, Expulsion, Disqualification. A penalty gives the opponent the point and the serve.
Video Challenge (per team)	Requests a video check; the number shows the challenges left. Shown when challenges are on.
Technical Timeout	Starts a technical timeout.
Challenge result	While a challenge is pending: Successful - Overturn the Rally, Successful, Unsuccessful, Inconclusive.
Set Control	Start Set, End Set, Swap Sides, Dismiss (when a change of sides is due), Technical Timeout, Reopen the Last Set, Overturn.

End Set ("End the Set Now? The Leading Team Wins It."), Reopen the Last Set ("Reopen the Last Set? Its Result Is Taken Back.") and Overturn ("Overturn the Last Rally? The Point Goes to the Other Team.") ask first, with Yes and No. The challenge results do not ask.

Info Tab

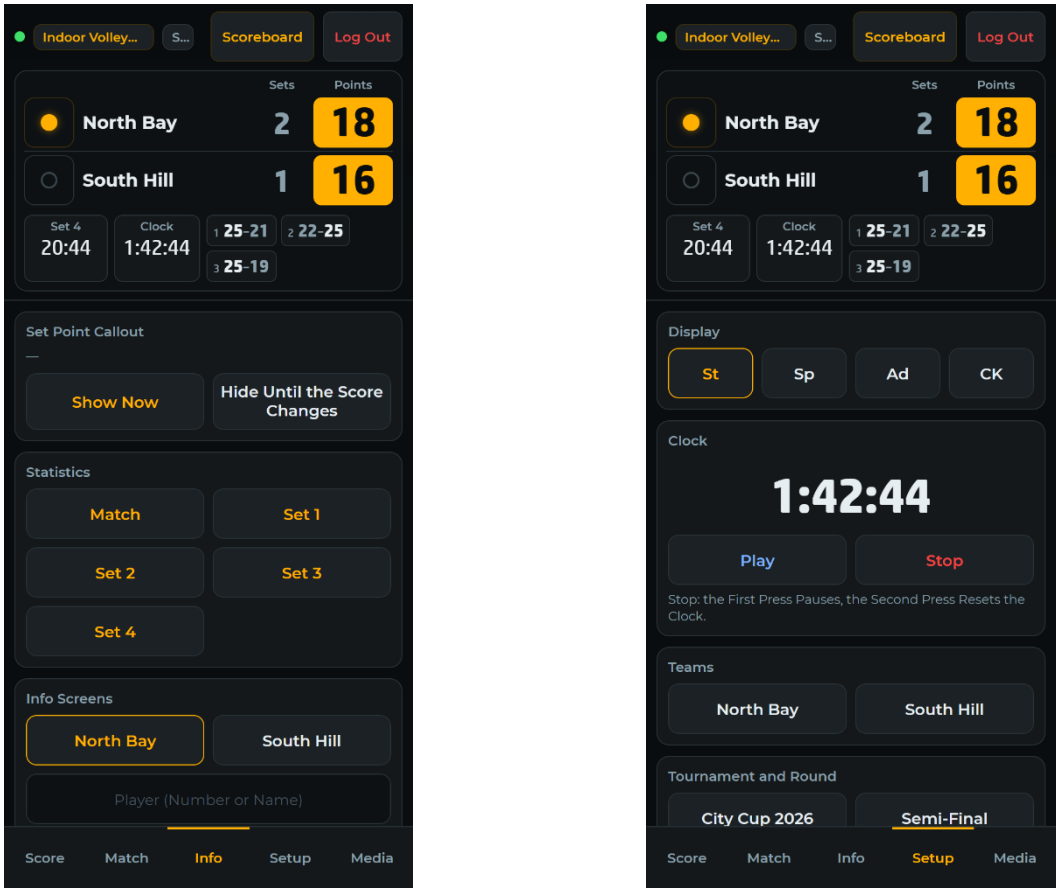


Figure 96. The Info tab (left) and the Setup tab (right).

Element	What It Does
Set Point Callout	Shows the current callout; Show Now and Hide Until the Score Changes (chapter 9.16).
Statistics	Match, and Set 1 ... for the sets played: shows the Statistics screen of that view.
Info Screens	The team buttons (Home is preselected) and Player (Number or Name) are used by Starting Lineup, Player Intro and MVP / Top Scorer. Then one button per info screen; the screen on air is highlighted, tap it again to hide it. The other screens show the data set in their editors on the PC.
Hide the Screen	Takes any info screen off.

Setup Tab

Element	What It Does
Display	St, Sp, Ad, CK: switches the display mode and brings the scoreboard back.
Clock	Tap the time to type a new one (mm:ss or h:mm:ss); Play / Pause; Stop: the first press pauses, the second press resets the clock. Only for the match time, not the time of day.

Element	What It Does
Teams	Tap a team name to change it (two lines at most).
Tournament and Round	Tournament and Round / Venue: the two text lines of the board.
Discipline	Indoor, Beach, Sitting, Snow, Footvolley, Park / 4v4, Nine-Man, Mini: loads the factory rules of the discipline after a question. Locked during a match: start a new match first.
New Match	Starts a new match after the question "Start a New Match? The Score Is Reset."

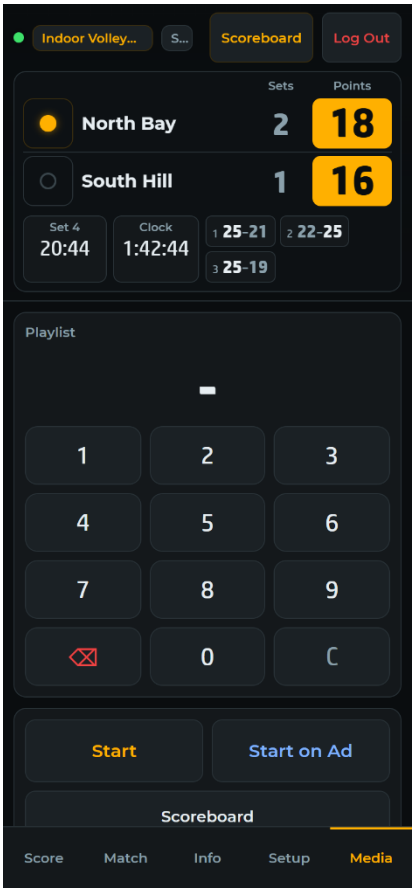
Text fields open a sheet with the text, Set and Close. A new line in a team name becomes the second line on the board.

Media Tab

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

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

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



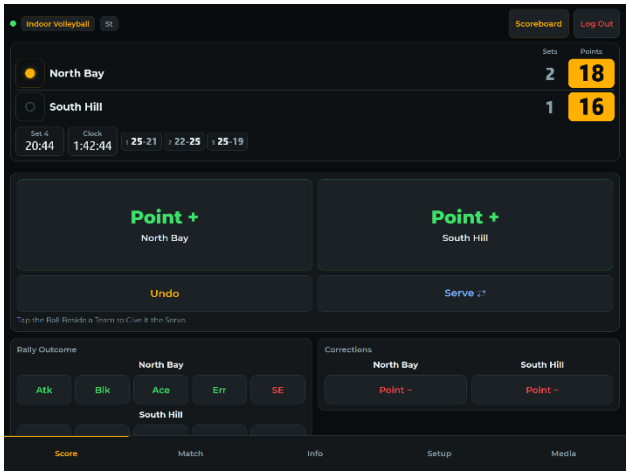


Figure 97. The Media tab on a phone, and the Score tab on a tablet.

13.6 Phone and Tablet

- On a phone the page is one column. On a tablet, or a screen 768 pixels wide and more, the cards are in two columns and the Point + buttons are larger.
- 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 point 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.

14. HTTP API

volleyBoard 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 $. Text after the last $ is ignored.
- _=<number> (any changing number, first) stops browsers and proxies from answering from their cache. The program ignores it.
- pin is the PIN of Settings > Remote Control (default 123456).
- Leave out &value= when the command has no value.
- Encode the value as a browser does (encodeURIComponent): a space as %20, | as %7C, ~ as %7E, & as %26, $ as %24, a line break as %0A. Every character arrives as typed.
- Command names are not case-sensitive, except GET. The names pin, cmd and value, the path /api.html and the request method GET must be written exactly like this.
- In text values (team names, the two lines, info texts) %0A or an underscore _ is a new line. Text values are cut at 400 characters. A team name has one or two lines: empty lines are dropped and a third line is joined to the second.

Replies:

Reply	Meaning
!<command>	Accepted. Also the reply to an unknown command, an ignored legacy command and a value the program cannot use (it writes a warning to the log).
XML	The reply to cmd=GET (section 14.2).
#Invalid PIN	Wrong or missing PIN.
#Invalid API Request	The request is not a GET to /api.html, or the $ is missing.
#Invalid API Command	No command.
#Busy	Too many connections at once (more than 32). HTTP status 503.
#Not ready	The program is starting or closing. HTTP status 503.
#Request too large	The request is larger than 16 KB. HTTP status 413.
#Not an HTTP request	The connection did not send an HTTP request. HTTP status 400.
#<message>	The command failed inside the program. HTTP status 500.

Examples:

```
http://127.0.0.1:1907/api.html?_=1&pin=123456&cmd=point_home$
http://127.0.0.1:1907/api.html?_=2&pin=123456&cmd=outcome&value=guest%7Cblock$
http://127.0.0.1:1907/api.html?_=3&pin=123456&cmd=timeout&value=home$
```

```
http://127.0.0.1:1907/api.html?_=4&pin=123456&cmd=set_guest_name&value=A.%20Silva%0AB.%20Costa$
http://127.0.0.1:1907/api.html?_=5&pin=123456&cmd=info_show&value=Lineup%7CLineup.Side=Guest$
```

> **Note:** The API never asks for a confirmation: new_match, end_set, reopen_set and overturn act at once. Build a question into your own panel or macro, as the remote page does.

14.2 Reading the State

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

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

The reply has two groups of fields:

- The first group carries the field names of soccerBoard 7, filled with volleyball values, so older panels keep working: BoardType, Home, HomeScore (sets won), Guest, GuestScore, Chronometer, Period (the set in play), Extra01 and Extra02 (the Tournament and Round lines) and others.
- The second group is the volleyball state and is the one to use: Discipline, PointsHome, PointsGuest, SetsHome, SetsGuest, SetScores, CurrentSet, Server, MatchOver, Winner, SetClock, the timeouts, substitutions, libero, challenges, sanctions, the rules, the info screen on air, the set point callout and the texts for a remote page.

Booleans are true or false. Appendix B.3 lists every field. A panel can poll GET about twice a second; the remote page polls every 0.6 seconds.

14.3 Command Groups

Group	Commands
Scoreboard and display	match, click, clear_events_history
Score	point_home, point_guest, set_home_score_down, set_guest_score_down, undo, serve, serve_home, serve_guest, new_match, discipline
Set control	start_set, end_set, reopen_set, overturn, swap_sides, switch_ok
Team actions	timeout, timeout_end, technical_timeout, timeouts_set, substitution, substitution_minus, libero, sanction, challenge
Rally outcome and callout	outcome, bigpoint
Names and lines	set_home_name, set_guest_name, line_text_1, line_text_2
Match clock	set_chronometer, click playpause / stop
Info screens	info_show, info_hide, info_set, info_list
Statistics	stats_show, stats_set, stats_recalc, stats_reset_set, stats_clear, stats_rows
Media	start_playlist, start_playlist_ad_screen
State	GET

Appendix B describes every command, its values and its reply. The file API_Commands.txt in C:\volleyBoard7 (Settings > Remote Control > Show API Commands) has the same reference with more examples.

14.4 Compatibility with soccerBoard 7

volleyBoard 7 shares the Board7 remote protocol with soccerBoard 7. Remote setups made for it keep working where the command has a volleyball meaning:

- set_home_team and set_guest_team set the team names; set_home_score_up and set_guest_score_up give a rally to the team; set_home_score_down and set_guest_score_down take a point back.
- The clock commands set_chronometer and click playpause / stop work as in soccerBoard 7.
- Older commands without a volleyball meaning (goals, cards, added time and others) are accepted with !, written to the log and ignored.

Appendix B.4 and B.5 list these names.

15. Keyboard Shortcuts

15.1 Keyboard Hook Manager

volleyBoard 7 can be scored with keys of the numeric keypad and the function keys. The shortcuts are global: they work while another program (for example the vision-mixer software) has the focus.

Open the Keyboard Hook Manager with the keyboard icon on the Game tab.

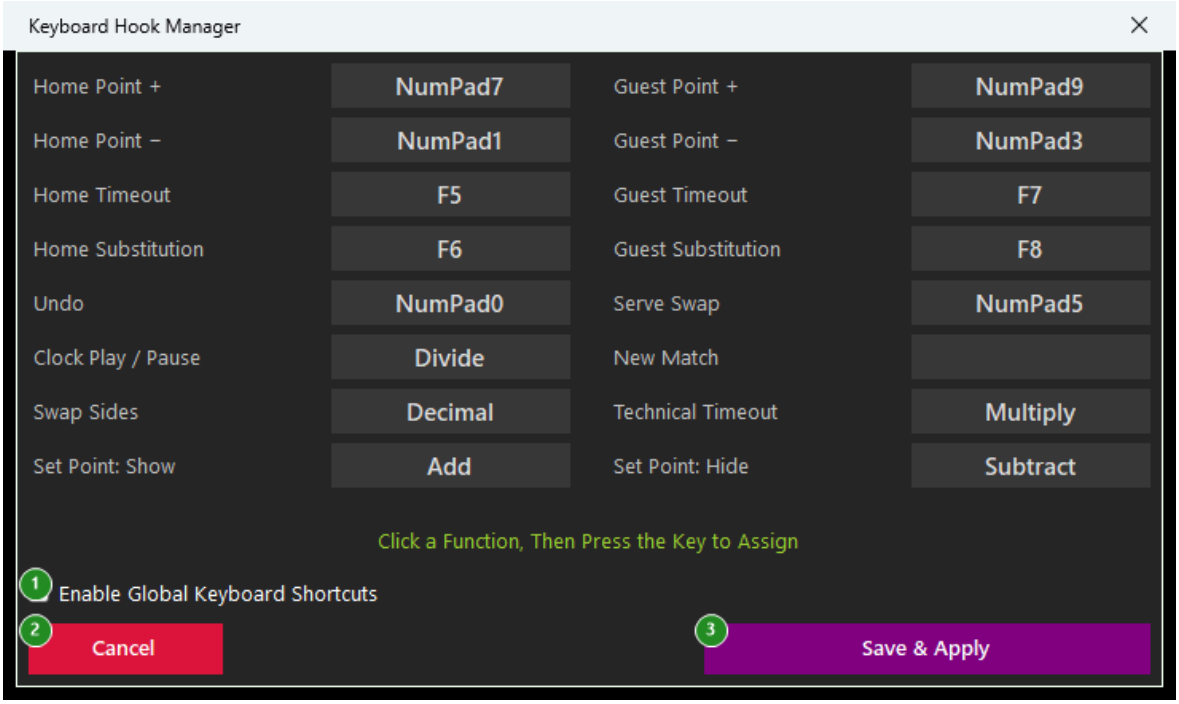


Figure 98. The Keyboard Hook Manager with the default keys.

No.	Control	Name	What It Does
1	Enable Global Keyboard Shortcuts	**Enable Global Keyboard Shortcuts**	Switches the keyboard shortcuts on; they then work even while another program has the focus. Takes effect with Save & Apply.
2	Cancel	**Cancel**	Closes the Keyboard Hook Manager without saving.
3	Save & Apply	**Save & Apply**	Saves the keys and the on / off switch and arms or releases the shortcuts at once.

The window lists 16 actions in two columns, the home team on the left and the guest team on the right.

1. Tick Enable Global Keyboard Shortcuts. 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. Right click a box to clear it.
3. Click Save & Apply. Cancel closes without saving.

The keyboard icon on the Game tab is green while the shortcuts are on and grey while they are off. When they are on, they are armed again at every program start.

15.2 Default Keys

Action	Key (Box Text)	Action	Key (Box Text)
Home Point +	Num 7 (NumPad7)	Guest Point +	Num 9 (NumPad9)
Home Point −	Num 1 (NumPad1)	Guest Point −	Num 3 (NumPad3)
Home Timeout	F5	Guest Timeout	F7
Home Substitution	F6	Guest Substitution	F8
Undo	Num 0 (NumPad0)	Serve Swap	Num 5 (NumPad5)
Clock Play / Pause	Num / (Divide)	New Match	(none)
Swap Sides	Num . (Decimal)	Technical Timeout	Num * (Multiply)
Set Point: Show	Num + (Add)	Set Point: Hide	Num − (Subtract)

What the actions do:

Action	Same As
Point +	The team wins the rally (Point + on the Game tab). Does nothing after the match is over.
Point −	One point less for the team in the set in play, a correction without statistics.
Timeout	Starts a timeout of the team with its countdown. Does nothing when the team has no timeout left in the set.
Substitution	Counts one substitution of the team. Does nothing when the team has no substitution left.
Undo	Undo on the Game tab: takes back the last action.
Serve Swap	The other team serves.
Clock Play / Pause	Starts or pauses the match clock.
Swap Sides	The teams change sides on the board (left / right) and a side-switch alert is cleared.
Technical Timeout	Starts a technical timeout.
Set Point: Show	Shows the Set Point Callout now (Show Now).
Set Point: Hide	Hides the callout until the score changes.
New Match	Asks "Start a New Match? The Score Is Reset." before the reset.

- New Match has no default key. If you give it one, it still asks before the reset.
- The defaults are written only into a new installation. An installation updated from an earlier version keeps its saved keys; new actions start without a key.

15.3 NumLock and Good to Know

- NumLock must be on. With NumLock off the keys 0-9 and . of the numeric keypad send other keys (arrows, Home, End, Delete), and the Num 0-9 and Num . shortcuts do not work. Num /, Num *, Num + and Num − work in both states.
- A key pressed together with Ctrl, Shift or Alt is ignored.
- Holding a key repeats the action: tap the keys, do not hold them.
- 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.
- You can assign any key, but a letter or digit of the main keyboard would fire while you type anywhere in Windows. Keep to the numeric keypad and the function keys.
- 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 use Undo afterwards.

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 top right of the Game tab.
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 Application."
4. Restart volleyBoard 7.

The language applies to the program, the texts on the boards and the remote page. The remote page follows the new language at once; the program after the restart.

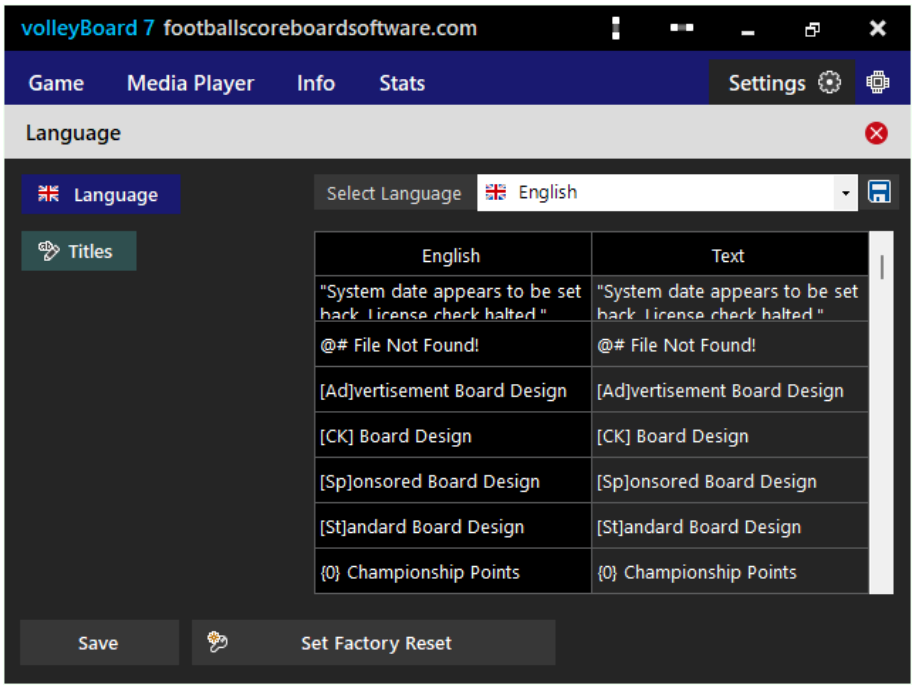


Figure 99. The Language page.

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

16.2 Editing Translations

Every text of the program can be changed:

1. Choose the language in Select Language.
2. Find the text in the list: English on the left, the translation on the right.
3. Select the translation and press F2, type the new text, press Enter. The Save button turns lime.
4. Click Save. The texts change after the next start.

- Names in braces, for example {0}, are filled in by the program; keep them.

- Translations other than English and Turkish were made by machine translation. Corrections by native speakers are welcome; please send them to support.
- An update of the program keeps your translations and only adds the texts of new features (chapter 2.5).

16.3 Titles

The Titles tab holds three group names: Players, Reserves and Coach. Change the text on the right, then click Save.

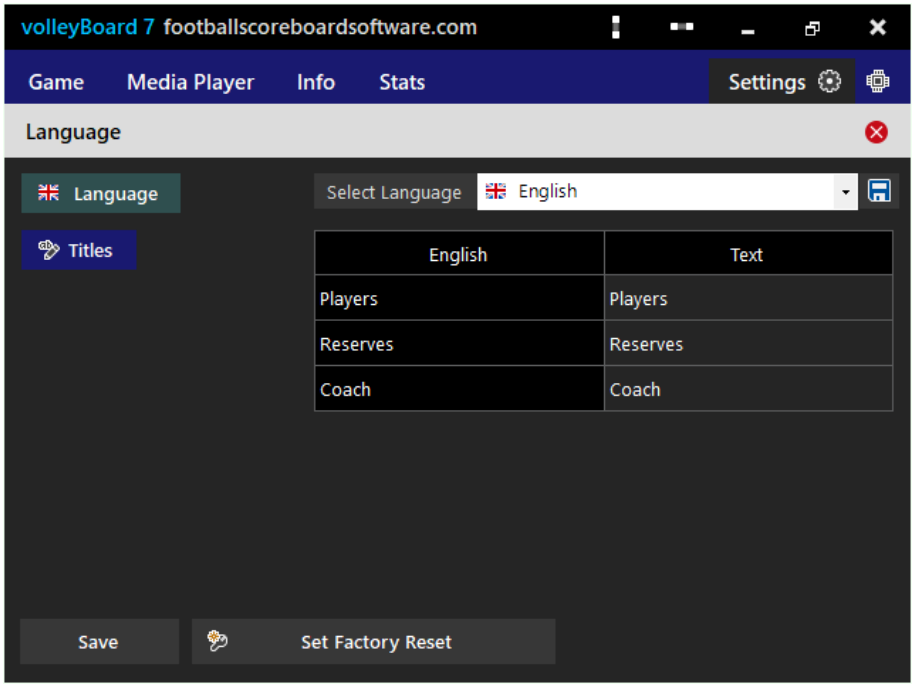


Figure 100. The Titles tab.

> **Note:** In this version the player lists and Show Pictures take their group names from the translations (the texts Players, Reserves and Coach on the Language tab), not from the Titles tab. To rename a group on the screen, change its text on the Language tab.

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. Use it after an update to get the new wording of existing texts.
- On the Titles tab: the titles in the program language.

The factory texts are in C:\volleyBoard7\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:** If lang.xml is damaged and has no usable backup, the program rebuilds it from langFactory.xml at the next start (section 18.8).

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 in the web browser	–

17.2 Screen Properties

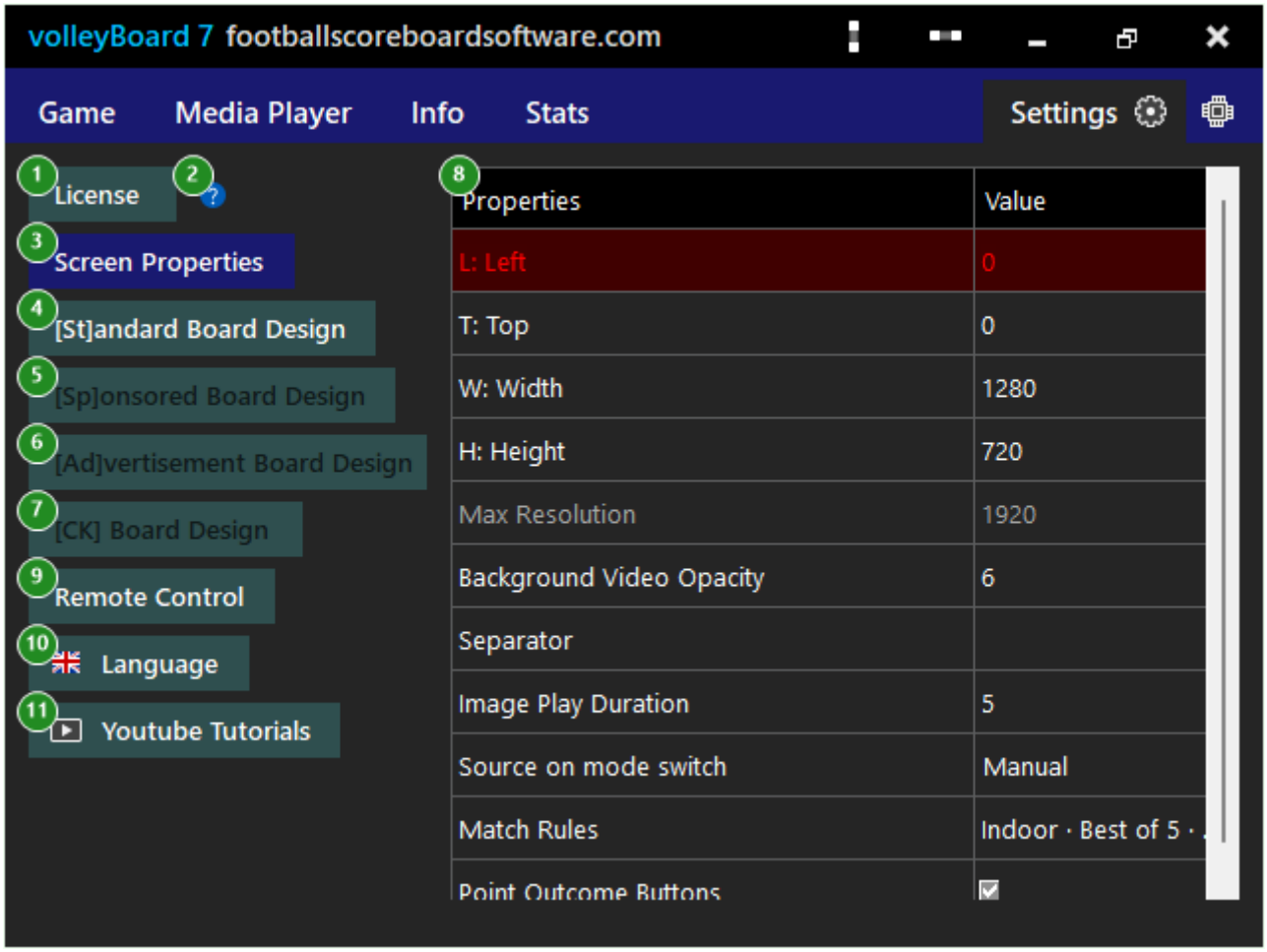
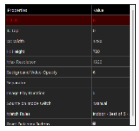


Figure 101. Settings > Screen Properties.

No.	Control	Name	What It Does
1	License	**License**	Opens the License page: the Computer ID, the licence key, Save and Create USB License.
2	?	**License Info (?)**	Opens the License Info box: validation, Max Resolution, expiry date, licence model, GPU / 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, background video opacity, separator, image play duration, source on mode switch, Match Rules and Point Outcome Buttons.
4	[St]andard Board Design	**[St]andard Board Design**	Opens the design editor of the Standard board. It can be clicked only while the St display mode is on.
5	[Sp]onsored Board Design	**[Sp]onsored Board Design**	Opens the design editor of the Sponsored board. It can be clicked only while the Sp display mode is on.
6	[Ad]vertisement Board Design	**[Ad]vertisement Board Design**	Opens the design editor of the Advertisement board. It can be clicked only while the Ad display mode is on.
7	[CK] Board Design	**[CK] Board Design**	Opens the design editor of the Chroma Key board. It can be clicked only while the CK display mode is on.

No.	Control	Name	What It Does
8		**Screen Properties Table**	Select a value, type the new one (or press F2) and leave the cell: it is saved and applied at once; an empty value is not accepted (except Separator). Match Rules has a … button in its value cell, Point Outcome Buttons a tick box.
9	Remote Control	**Remote Control**	Opens the Remote Control page: address, QR code, PIN and the on / off switch of the remote server.
10	Language	**Language**	Opens the Language page: the program language, the translations and the titles of the player groups.
11	Youtube Tutorials	**Youtube Tutorials**	Opens the volleyBoard 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 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
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 the points of both teams in one field with this text between them (for example 18:15). Empty = two separate point fields.
Image Play Duration	5	1-120 seconds	How long a picture stays in a Media Player playlist. An invalid value is set back to 5.
Source on mode switch	Manual	Manual, Restore	Manual: a camera, NDI source, screen capture or playlist of the Ad or CK mode stops when you leave the mode and is started again by hand. Restore: it starts again by itself when you come back to that mode (chapter 7).
Match Rules	The rules summary, for example "Indoor · Best	"…" button	Select the row and click the "…" button in its value cell to open Match Rules (chapter 6).

Row	Default	Values	What It Does
	of 5 · 25 / 15 · 2 TO · 6 Subs"		
Point Outcome Buttons	Off	Tick box	Shows the rally-outcome buttons (Attack Point, Block Point, Ace, Opponent Error, Serve Error) on the Game tab (chapter 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).

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, 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 page is described in chapter 13; the remote control is off on a new installation.

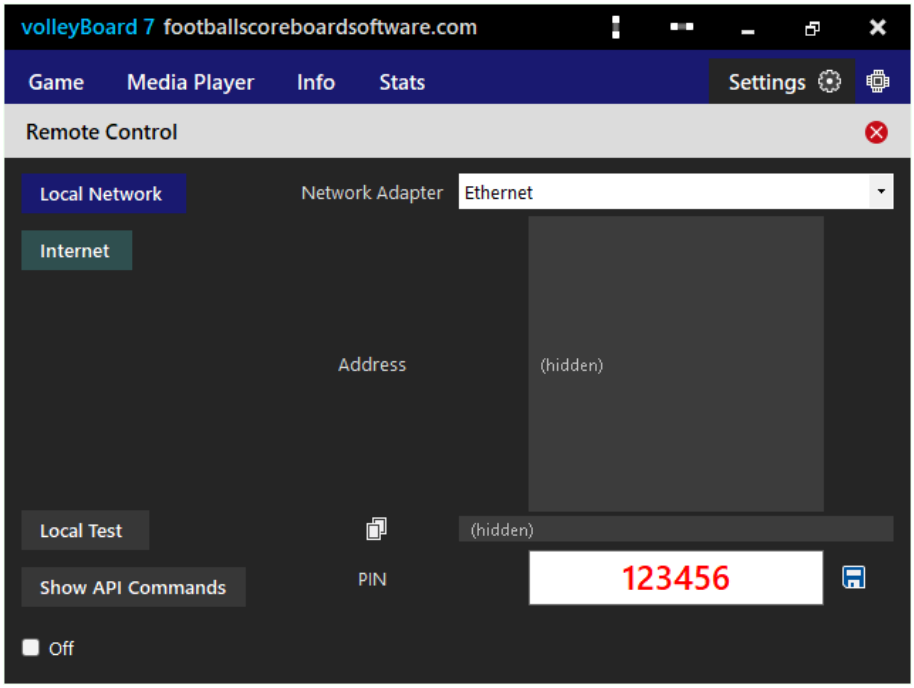


Figure 102. Settings > Remote Control.

17.5 Language

The Language page chooses the program language and edits the translations; the Titles tab holds the group names of the player lists (chapter 16).

17.6 Where Other Settings Are

Setting	Where
Display mode	Game tab: St, Sp, Ad, CK (chapter 7)
Discipline and match rules	Game tab: Mode button, or Screen Properties > Match Rules (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: Chroma Key Color (chapter 7)
Info screen background	Info tab (chapter 9)
Keyboard shortcuts	Game tab: keyboard icon (chapter 15)
Clock mode (match time or time of day)	Game tab: right click on the clock (chapter 5)
Media Player display mode	Media Player tab (chapter 12)
NDI sender name	start.xml, value SenderName in the NDI section (default VB7_NDI; edit only while the program is closed)

All settings are stored in C:\volleyBoard7\start.xml (and config*.xml). The program saves them at once; a copy of the previous version is kept as start.xml.bak (section 18.8).

18. Troubleshooting and FAQ

18.1 The Board Is Black or Empty (WebView2)

The boards are drawn by the Microsoft Edge WebView2 Runtime. If it is missing, a notice says "WebView2 Runtime is not installed. The scoreboard cannot render." with the download address https://developer.microsoft.com/microsoft-edge/webview2/. Install the runtime and restart the program.

If the board engine keeps crashing, the program switches to software rendering and says so: "WebView2 keeps crashing ... Switching to software rendering; if the board stays black, restart the application." Restart the program; update the graphics driver if it happens again.

The browser profile of the boards is kept in %LOCALAPPDATA%\volleyBoard7\WebView2. The program creates it again when it is missing.

18.2 Display Scaling

Set the Windows display scaling of the board monitor to 100 % (Windows Settings > System > Display > Scale). The program does not adapt to other scaling: at 125 % or 150 % Windows enlarges it, the picture becomes slightly blurred and the board position and size in Screen Properties are counted in scaled pixels.

18.3 Fonts

The setup installs the fonts of the boards in Windows, and the program also loads them from C:\volleyBoard7\common\font at every start (and releases them when it closes). If a board shows a wrong font, run the font installation again as administrator:

```
powershell -ExecutionPolicy Bypass -File C:\volleyBoard7\install_fonts.ps1
```

Then restart the program.

18.4 Licence Checks (USB and WMI)

- At start the program reads the Computer ID through Windows WMI (up to 30 seconds) and looks for USB sticks (up to 8 seconds), then continues in any case.
- If Windows cannot report the hardware data (WMI), the Computer ID shows ?WMI-UNAVAILABLE, the program runs in DEMO and a notice "License check unavailable – Windows WMI error. Try: winmgmt /verifyrepository" appears for 25 seconds. Run that command in a command prompt opened as administrator, restart the PC and the program.
- A USB stick plugged in after the start is not seen: restart the program.
- An expired licence or a PC clock set back gives DEMO without a message. Check the ? License Info box on the License page (chapter 3.5) and the Windows date and time.

18.5 Network and Firewall

Problem	Fix
The phone cannot open the remote page	Remote control switched on (Settings > Remote Control)? Phone and PC in the same network? Address and port 1907 correct (http://<PC address>:1907/logon.html)?

Problem	Fix
Still no connection	Run C:\volleyBoard7\open_firewall_1907.bat as administrator. It adds the four "volleyBoard 1907" firewall rules if they are missing. Check other firewall or security software.
"Remote control unavailable: port 1907 is in use, probably another Board7 app"	Another Board7 program (for example soccerBoard 7 or tennisBoard 7) or a second copy of volleyBoard 7 uses the port. Close it and click Retry. Cancel continues without the remote control; switch it on later in Settings > Remote Control.

18.6 NDI

- Grey NDI button that does not start: the NDI runtime cannot be used on this PC. Rest the mouse on the button for the reason ("NDI unavailable: ..."), repair or reinstall volleyBoard 7, and restart.
- Amber NDI button: the stream stopped ("NDI stopped: ... - click to restart"); click it to start again.
- The source does not appear in the receiver: PC and receiver in the same network, NDI not blocked by the firewall; the sender is called VB7_NDI on new installations.

18.7 Log Files

The program writes a log file per day: C:\volleyBoard7\logs\vb7_yyyy-MM-dd.log, kept for 14 days. When that folder cannot be written, the logs go to %ProgramData%\volleyBoard7\logs. Send the log of the day of the problem to support. It contains the program, Windows, .NET, WebView2 and NDI versions, the licence mode and the Computer ID (never the licence key), the remote control and NDI events and a status line every 10 seconds.

If the program meets an internal error, a notice says "volleyBoard7: an internal error was logged and the application continues." with the name of the log file. An error the program cannot recover from shows "volleyBoard7 hit an unrecoverable error and must close." with the place of the log.

18.8 Damaged Settings Files

Every settings file (start.xml, config*.xml, lang.xml, players, playlists, designs) is saved safely: the program writes a temporary copy first and keeps the previous version as <file>.bak. If a file is damaged or empty (for example after a power cut), the program restores it at the next load from the backup, keeps the damaged copy as <file>.corrupt-<date and time> and writes the name of the file into the log. lang.xml without a usable backup is rebuilt from langFactory.xml; a design in use from its factory copy. At most five .corrupt files are kept per file, none older than 30 days.

To start with fresh settings: close the program and rename start.xml. The program creates a new one with the first-start values (chapter 2.3). The licence file vb7license.xml stays valid.

18.9 FAQ

The boards show DEMO every 10 seconds. No valid licence was found at start. Check Settings > License; after entering a key, restart. 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.

The board is in the wrong place or has the wrong size. Set L, T, W and H in Settings > Screen Properties (chapter 17.2). Use 100 % display scaling.

A rule change asks to reset the match. Changing the discipline or a scoring rule (sets, points, lead, cap) starts a new match. Choose the rules before the first rally. Timeouts, substitutions, side switches, technical timeouts, libero and challenges can be changed during a match without a reset (chapter 6).

The Timeout or Substitution key does nothing. The team has no timeout or substitution left in this set, or the match is over.

Point + does nothing. The match is over. Click New Match for the next match, or use Undo if the last rally was wrong.

The board shows a side-switch alert. Click Swap Sides on the Game tab (or press its key) when the teams change courts; the alert goes away (chapter 5).

A shortcut key does nothing. Switch the shortcuts on in the Keyboard Hook Manager and check NumLock (chapter 15).

The match is back after a restart. That is intended: the score, the sets and the match clock are saved all the time (a running clock every 5 seconds) and restored at the next start. Click New Match to start from 0-0.

My translations changed after an update. They did not: an update only adds new texts. Set Factory Reset brings the factory texts back for all languages (chapter 16.4).

I changed a title on the Titles tab and nothing happened. The player lists and Show Pictures use the texts Players, Reserves and Coach of the Language tab (chapter 16.3).

I started the program twice. Close one copy with its Close button. Only one copy should run.

How do I close the program safely? With the X in the title bar of volleyBoard 7 and Yes. The match and the settings are saved.

My NDI receiver shows a green picture. That is the Chroma Key display mode with the key colour. Key it in the receiver or vision mixer, or switch to the Standard mode (chapter 7).

The Sponsored band is missing. The sponsor band appears only in the Sp display mode. Check its height and place on the Sp page (chapter 7).

The Design button I need is grey in Settings. Only the design editor of the current display mode can be opened. Switch the display mode on the Game tab first (chapter 17.3).

Appendix A: Rules Sources

volleyBoard 7 scores by parametric rules: every discipline has factory values, and every value can be changed in Match Rules (chapter 6). This appendix lists the sources the program names for these factory values and says which values are confirmed by a rule book and which are factory defaults.

Competition regulations can differ from the rule books. Check the current edition of the rules and the regulations of your competition before an event, whatever the status below says.

A.1 Confirmed Values

Discipline	Values	Source Named in the Program
Indoor Volleyball	Best of 5; sets to 25, deciding set to 15; two-point lead, no cap; 2 timeouts of 30 s per set; 6 substitutions per set; libero; change of courts after each set except before the deciding set, and at 8 points of the leading team in the deciding set	FIVB Official Volleyball Rules 2025-2028
Video challenge (indoor and sitting, off by default)	2 unsuccessful challenges per team and set; a successful challenge is kept	FIVB Video Challenge System regulations
Beach Volleyball	Best of 3; sets to 21, deciding set to 15; side switch every 7 points (every 5 in the deciding set); one 30 s timeout per set; a 30 s technical timeout when both teams together reach 21 points, in sets 1 and 2	FIVB Official Beach Volleyball Rules 2025-2028
Sitting Volleyball	The indoor values	World ParaVolley sitting volleyball rules (as indoor)
Snow Volleyball	Best of 3 sets to 15; 2 substitutions per set	FIVB snow volleyball format

Sanctions follow the misconduct and delay sanctions of the FIVB indoor rules (rules 16 and 21): a Penalty or a Delay Penalty gives the opponent a point and the serve. The program records the sanctions; it does not check their order or apply an expulsion or disqualification to the team. No other discipline has its own sanction source in the program.

A.2 Factory Defaults Without a Confirmed Source

The following values are factory defaults. They follow common practice or a source that was not confirmed against a rule book, and they must be checked against the regulations of your competition.

Discipline	Factory Values	Basis Named in the Program Code	Status
Indoor and Sitting: technical timeouts (off by default)	At 8 and 16 points of the leading team, 60 s, not in the deciding set	None; a program option for competitions that use technical timeouts	Not part of the confirmed indoor values.
Snow Volleyball	Side switch every 5 points (also in the deciding set); one 30 s timeout per set; two-point lead	The side switches and timeouts are named as a preset; the source note gives only "best of 3 sets to 15, 2 substitutions per set"	Preset: check it.
Footvolley	Best of 3; sets to 18 with a two-point lead, deciding set to 15; side switch every 6 points (every 5 in the deciding set); one-minute timeouts; no substitutions; one timeout per set	The European Footvolley League rules 2025 are named in the code comment. The timeouts per set are left to the organiser there and were chosen for the program, as were the substitutions. The optional "killer point" at 21 / 18 of those rules is not offered.	Not confirmed for this guide: treat all values as factory defaults.
Park / 4v4 Volleyball	Best of 3; sets to 21, deciding set to 15; side switch every 7 points (every 5 in the deciding set); one 30 s timeout per set; unlimited substitutions, counted	The common 4-a-side beach format (points and side switches); timeouts and substitutions chosen for the program	Common practice, no official rule book.
Nine-Man Volleyball	Best of 3; sets to 21 with a two-point lead, capped at 25;	The NACIVT scoring is named for the points (21, two-point lead, cap 25); the deciding set,	Not confirmed: treat all values as factory defaults.

Discipline	Factory Values	Basis Named in the Program Code	Status
	deciding set to 15 with a change of courts at 8; change of courts after each set; 2 timeouts of 30 s per set; unlimited substitutions, counted	timeouts and substitutions were chosen for the program	
Mini Volleyball	Best of 3 sets to 15; change of courts after each set; one 30 s timeout per set; unlimited substitutions, counted	"The youth format" (best of 3 sets to 15); timeouts and substitutions chosen for the program	Youth formats differ by federation and club: check every value.

> **Note:** The program does not name an edition or a document number for the NACIVT scoring, the 4-a-side format or the mini volleyball youth format, and this guide does not add one.

A.3 What the Program Does Not Follow

The scoreboard keeps the score and the counters an operator needs on the board. It does not enforce the following rules; the referees decide and the operator records:

- player rotation, the service order of the players and the positions on court;
- libero replacements and the libero's shirt number (the L button is an indicator only);
- the players taking part in a substitution (the Subs box counts; the Substitution screen shows names);
- the order of sanctions and their consequences for the team;
- the side chosen after a toss before the deciding set.

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, except GET.
- Side values: guest (any case) means the guest team; every other value means the home team.
- Text values: %0A or _ is a new line; at most 400 characters.
- In the tables, "!" is the reply <html>!<command></html>. A command that cannot act (a timeout with none left, a value the program does not know) also replies "!" and writes a warning to the log; nothing changes. The error replies are listed in chapter 14.1.

B.2 Commands

Scoreboard and Display

Command	Value	What It Does	Reply
match	–	Brings the Game tab to the front and the scoreboard back on the board of the current mode: stops a video playing on the scoreboard and takes an info screen on the St board off.	!
click	St, Sp, Ad, Ck	Switches the display mode (chapter 7), then works as match.	!
click	playpause	Starts or pauses the match clock (match duration mode only).	!
click	stop	Pauses the match clock.	!
clear_events_history	–	Empties the event history texts (HomeEvents, GuestEvents of GET). The score is not changed.	!

Score

Command	Value	What It Does	Reply
point_home, point_guest	–	A rally won by the team (rally point scoring): the team scores and serves; sets, side changes, technical timeouts and the match follow the rules. Counted in the statistics. Starts a paused match clock (match duration mode).	!
set_home_score_down, set_guest_score_down	–	One point less for the team in the set in play (correction). Nothing at 0 or after the match.	!
undo	–	Takes back the last action (rally, correction, timeout, substitution, sanction ...).	!
serve	–	The other team serves. Nothing after the match.	!

Command	Value	What It Does	Reply
serve_home, serve_guest	–	Gives the serve to the team. Before the first rally of a set it also sets who serves first.	!
new_match	–	Starts a new match without a question: score, statistics, clock and the per-match info data are reset; names, rules and lists are kept.	!
discipline	indoor, beach, sitting, snow, footvolley, park, nineman, mini (or 0-7; also 4v4, nine-man, 9man, 9-man)	Selects the discipline with its factory rules (chapter 6). Ignored while a match is in progress: start a new match first.	!

Set Control

Command	Value	What It Does	Reply
start_set	–	Starts the set clock of the set in play (the first rally also does). Nothing when the set has started or the match is over.	!
end_set	–	Ends the set in play now: the leading team wins it. Nothing when the score is level or the match is over. No question.	!
reopen_set	–	Reopens the last completed set; its last score is played on. Nothing when no set is completed.	!
overturn	–	The last rally goes to the other team (referee or video decision). A rally that ended a set reopens that set first.	!
swap_sides	–	The teams change sides on the board; also clears a due change of sides.	!
switch_ok	–	Dismisses the Change Sides alert without swapping.	!

Team Actions

Command	Value	What It Does	Reply
timeout	home, guest	A team timeout; starts the countdown. Refused when the team has none left in the set or the match is over.	!
timeout_end	–	Ends the running timeout (team or technical) early.	!
technical_timeout	–	Starts a technical timeout by hand (automatic ones follow the rules).	!

Command	Value	What It Does	Reply
timeouts_set	home|n, guest|n	Correction: timeouts used by the team in the set (0 to the timeouts per set).	!
substitution	home, guest	One substitution. Refused at the limit of the set or after the match.	!
substitution_minus	home, guest	One substitution less (correction, not below 0).	!
libero	home, guest	Libero on court on / off. Only when the discipline uses the libero.	!
sanction	home|kind[|player]	A sanction; kind = warning, penalty, expulsion, disqualification, delaywarning, delaypenalty (delay_warning etc. also work); player = shirt number or name, omit for the team or coach. A penalty or delay penalty also gives the opponent the point and the serve. Fills the Sanction info screen.	!
challenge	request|home, request|guest	The team asks for a video check (Challenge = Pending). Refused when challenges are off, the team has none left or the match is over.	!
challenge	result|successful[|overturn], result|unsuccessful, result|inconclusive	The result of the pending challenge. Unsuccessful costs the team one challenge; successful|overturn also gives the last rally to the challenger when the challenger lost it.	!
challenge	set|home|n, set|guest|n	Correction: challenges left for the team in the set.	!

Rally Outcome and Set Point Callout

Command	Value	What It Does	Reply
outcome	home|attack, home|block, home|ace, home|error, home|serve_error (or guest|...)	Scores the rally and records how it ended, in one step (undo removes both). attack, block, ace: the team scores with its action; error: the team scores from an opponent error; serve_error: the team missed its serve, the opponent scores. Short forms: atk, kill, blk, err, opponent_error, se.	!
bigpoint	trigger (or show)	Shows the current set or match point callout now.	!
bigpoint	suppress (or hide)	Hides the callout until the score changes.	!
bigpoint	auto_on, auto_off	Shows the callout automatically, or not (Show Automatically).	!
bigpoint	final_on, final_off	Match points are called "Championship Point", or not.	!

Names and Lines

Command	Value	What It Does	Reply
set_home_name, set_guest_name	Text, one or two lines	The team name. %0A or _ starts the second line, for example the two players of a beach pair.	!
line_text_1	Text	The Tournament line.	!
line_text_2	Text	The Round (or venue) line.	!

Match Clock

Command	Value	What It Does	Reply
set_chronometer	play	Starts the match clock (match duration mode).	!
set_chronometer	pause	Pauses the match clock.	!
set_chronometer	stop	Two-stage stop: the first call pauses (the time is kept), the second resets to 0:00:00.	!
set_chronometer	mm:ss, h:mm:ss	Sets the time, for example 45:00 or 1:05:00. Only in match duration mode, not while the panel shows the time of day.	!

The values play, pause and stop are written in small letters. The clock also starts by itself with a rally and with start_set.

Info Screens

Command	Value	What It Does	Reply
info_show	Screen[|Field=value|...]	Sets the given fields, then shows the screen on the active display: the full page on St, Sp and Ad, the lower third on CK. Screens: Lineup, Intro, Substitution, Timeout, Challenge, Sanction, SetResult, MatchResult, Stats, MVP, Standings, Results, Officials. Timeout starts a timeout when none runs; Challenge requests or resolves a challenge (chapter 9).	!
info_hide	–	Takes the info screen off (CK: the lower third fades out).	!
info_set	Field=value	Sets one field; it is saved with the match (B.6).	!
info_list	List=c1~c2~c3|c1~c2~c3	Replaces a whole list (B.6); an empty value clears it.	!

Examples:

```
http://127.0.0.1:1907/api.html?_=1&pin=123456&cmd=info_show&value=Stats%7CStats.Set=Set2$
http://127.0.0.1:1907/api.html?_=2&pin=123456&cmd=info_set&value=MVP.Award=TopScorer$
```

```
http://127.0.0.1:1907/api.html?_=3&pin=123456&cmd=info_list&value=Officials.Rows=1st%20Referee~A.%20Novak~SLO$
```

Statistics

Command	Value	What It Does	Reply
stats_show	match, set1 ... set5	Shows the Statistics screen of that view.	!
stats_set	row;home;guest[;set]	A manual statistics value; row = a row name or its number (B.7); set = match (default), 1-5 or set1-set5; an empty value clears the manual value. The soccerBoard 7 form index;home;label;guest also works (match column).	!
stats_recalc	match, 1-5	Removes the manual values of that view; the values are computed again.	!
stats_reset_set	1-5	Clears the statistics of one set.	!
stats_clear	–	Clears all statistics of the match.	!
stats_rows	row,row,...	The rows of the Statistics screen, in this order (B.7 names). An empty value brings back the default rows.	!

Media

Command	Value	What It Does	Reply
start_playlist	1-6	Opens the Media Player tab and plays that playlist. A call while a playlist plays stops it.	!
start_playlist_ad_screen	1-6	Switches the display to Ad and plays that playlist of the Ad page. A call while a playlist plays there stops it.	!

> **Note:** API_Commands.txt gives the playlist range as 1-7. The Media Player and the Ad page have six numbered playlists; the values 2 to 6 select playlists 2 to 6, and every other value (also 7) plays playlist 1.

State

Command	Value	What It Does	Reply
GET	–	The state as XML (B.3). Written in capitals.	XML

B.3 The GET Reply

Fields with the soccerBoard 7 names (volleyball values):

Field	Meaning
BoardType	Display mode: St, Sp, Ad, CK
Home, Guest	Team names, one or two lines (a new line between them)
HomeScore, GuestScore	Sets won
HomeEvents, GuestEvents	Event history text
Chronometer	Match clock (h:mm:ss) or the time of day (HH:mm)
StatusChronometer	true while the match clock runs
Period	Number of the set in play (= CurrentSet)
Extra01, Extra02	Tournament and Round (venue) lines
PlaylistStarted, AdPlaylistStarted	1 while a playlist of the Media Player / the Ad page plays, else 0
ExtraTimeUserValue, ExtraChronometerActive, ExtraChronometer, ShowExtra	Football added time: always empty or false
StatsData	Match statistics: home~label~guest|home~label~guest|... (rows with a value)

Volleyball fields:

Field	Meaning
Discipline	Indoor, Beach, Sitting, Snow, Footvolley, Park, NineMan, Mini
PointsHome, PointsGuest	Points of the set in play
SetsHome, SetsGuest	Sets won
SetScores	The completed sets, home-guest, separated by spaces: 25-20 23-25
CurrentSet	Number of the set in play (1-5)
DecidingSet	true while the deciding set is played
SetTarget	Points needed to win the set in play (25, 15, 21 ...)
Server	0 = home serves, 1 = guest serves
MatchOver, Winner	true when the match is over; Winner 0 = home, 1 = guest, -1 = none
SetClock	Duration of the set in play (m:ss); empty before Start Set and after the match
SetStarted	true once the set in play has started (Start Set or the first rally)
Swapped	true when the teams play on swapped sides (home on the right)
SwitchDue	true while a change of sides is due

Field	Meaning
TimeoutsPerSet	Team timeouts per set (0 = none in this discipline)
TimeoutsHome, TimeoutsGuest	Timeouts used in the set
TimeoutSide	Running timeout: -1 none, 0 home, 1 guest, 2 technical timeout
TimeoutLeft	Seconds left of the running timeout (0 = none)
SubsPerSet	Substitutions per set (0 = not counted, -1 = no limit)
SubsHome, SubsGuest	Substitutions used in the set
LiberoEnabled	true when the discipline uses the libero
LiberoHome, LiberoGuest	Libero on court
ChallengesEnabled	true when the video challenge system is on
ChallengesPerSet	Unsuccessful challenges a team may make per set
ChallengesHome, ChallengesGuest	Challenges left in the set
Challenge	None, Pending, Successful, Unsuccessful, Inconclusive
ChallengeSide	Team of the last challenge: -1 none, 0 home, 1 guest
LastSanction	The last sanction: Home or Guest ~ kind ~ player (empty = none)
Mode	0 Indoor, 1 Beach, 2 Sitting, 3 Snow, 4 Footvolley, 5 Park / 4v4, 6 Nine-Man, 7 Mini volleyball
MatchStarted	true once a rally was played (a discipline change is refused)
ModeName	Name of the discipline in the program language
ModeFeatures	Comma list: Libero, Substitutions, Challenges, TechnicalTimeouts, SideSwitch, Timeouts
Rules	SetsToWin~PointsPerSet~DecidingSetPoints~PointMargin~PointCap~TimeoutsPerSet~TimeoutSeconds~SubstitutionsPerSet~ChallengesPerSet (PointCap 0 = no cap; SubstitutionsPerSet -1 = no limit; ChallengesPerSet 0 when challenges are off)
InfoOnAir	Key of the info screen on air (empty = none)
BigPoint, BigPointName	The set or match point callout text (Set Point, 3 Match Points, Championship Point; empty = none or hidden) and the team that has it

Field	Meaning
OutcomeButtons	true when Point Outcome Buttons is on
ScoreState	over, technical, timeout, switch, matchpoint, setpoint or empty
ScoreStateText	The state in the program language: Match Result, Technical Timeout 0:42, Timeout · Team 0:21, Change Sides, Match Point, Set Point, Deciding Set (empty in a normal rally)
InfoScreens	The info screens with a page: Key~Label|Key~Label|... (Key is the info_show value)
Labels	The remote page texts in the program language: LangKey~Text|...

If the reply cannot be built, the last good one is returned, or a short one with the basic fields only.

B.4 soccerBoard 7 Command Names

These soccerBoard 7 commands are accepted with a volleyball meaning:

Command	Volleyball Meaning
set_home_team, set_guest_team	set_home_name, set_guest_name
set_home_score_up, set_guest_score_up	point_home, point_guest (nothing after the match)
set_home_score_down, set_guest_score_down	One point less in the set in play
set_chronometer play, pause, stop, time	The match clock (B.2)
click playpause, click stop	The match clock (B.2)
stats_set index;home;label;guest	stats_set, match column

B.5 Legacy Commands

Older Board7 commands without a volleyball meaning are answered with "!" and ignored; nothing changes. Most of them write a warning to the log:

Command	Note
set_home_score, set_guest_score	An absolute score: use point_home, point_guest and undo.
set_chronometer with !	Added time.
click first_half, second_half, extra_1, extra_2, show_added	Football periods.
info_goal, info_card, info_subst, stats_add	Football events.

Command	Note
format, fault, serve_speed, challenge_lost, challenges_reset, challenges_set	Commands of another sport.
set_home_games_up, set_home_games_down, set_guest_games_up, set_guest_games_down	Commands of another sport.
set_home_name2, set_guest_name2	Second name lines: use the second line of set_home_name / set_guest_name.
stats_show standings, results, schedule	Ignored.
volume	Ignored without a log entry.

Any other unknown command is also answered with "!" and ignored.

B.6 Info Fields and Lists

Field keys and choices are not case-sensitive.

Field	Values
Lineup.Side	Home, Guest
Intro.Side	Home, Guest
Intro.Player	Text: shirt number or name
Timeout.Side	Home, Guest, None (None = technical timeout)
Summary.Durations	1, 0 (Set Result and Match Result)
Challenge.Side	Home, Guest
Challenge.Type	InOut, BlockTouch, NetTouch, Antenna, FootFault, Reach, Other
Challenge.Result	Pending, Successful, Unsuccessful, Inconclusive
Substitution.Side	Home, Guest
Substitution.Out, Substitution.In	Text: shirt number or name
Sanction.Side	Home, Guest
Sanction.Player	Text: shirt number or name (empty = team)
Sanction.Kind	Warning, Penalty, Expulsion, Disqualification, DelayWarning, DelayPenalty
MVP.Award	MVP, TopScorer, BestAttacker, BestBlocker, BestServer, BestSetter, BestLibero
MVP.Side	Home, Guest
MVP.Player	Text: shirt number or name

Field	Values
MVP.Points, MVP.Attack, MVP.Block, MVP.Serve	Numbers (empty = row hidden)
Stats.Set	Match, Set1, Set2, Set3, Set4, Set5
Standings.Title, Results.Title	Text
BigPoint.Auto, BigPoint.Final	1, 0 (the Set Point Callout; it has no page: use bigpoint)

List	Columns (separated by ~, rows separated by |)
Standings.Rows	position ~ team ~ played ~ won ~ lost ~ sets ~ points
Results.Rows	round ~ home ~ score ~ guest ~ set scores
Officials.Rows	role ~ name ~ country (IOC or ISO code)

In info_set and info_list an underscore is a new line, so a value cannot contain an underscore: write DelayWarning, not Delay_Warning.

B.7 Statistics Rows

Row names (or numbers) for stats_set and stats_rows:

No.	Name	Label on the Board
0	**AttackPoints**	Attack Points
1	**BlockPoints**	Block Points
2	**Aces**	Aces
3	**OpponentErrors**	Opponent Errors
4	**ServeErrors**	Serve Errors (lower is better)
5	**TotalPoints**	Total Points Won
6	**PointsOnServe**	Points on Serve
7	**SideOut**	Side-Out
8	**LongestRun**	Longest Run
9	**BiggestLead**	Biggest Lead

The default rows of the Statistics screen: AttackPoints, BlockPoints, Aces, OpponentErrors, ServeErrors, TotalPoints, SideOut, LongestRun.

Appendix C: Glossary

Term	Meaning
Ace	A serve that wins the rally directly. One of the rally outcomes.
API	The HTTP command interface on port 1907 (chapter 14, Appendix B).
Attack point / block point	A rally won by an attack or by a block. Rally outcomes for the statistics.
Board	The output window with the graphics (Standard, Sponsored, Advertisement or Chroma Key).
Bo3 / Bo5	Best of 3 / best of 5 sets: the first team to win 2 / 3 sets wins the match.
Chroma key (CK)	Graphics on a solid key colour that a vision mixer replaces with the camera picture.
Deciding set	The last possible set: the third in a best of 3, the fifth in a best of 5. It is usually played to 15 points.
DEMO	The program without a valid licence.
Discipline	The kind of volleyball: Indoor, Beach, Sitting, Snow, Footvolley, Park / 4v4, Nine-Man or Mini. Chosen with the Mode button.
Display mode	St, Sp, Ad or CK.
Info screen	A graphic with match information shown instead of the scoreboard, or as a lower third in CK.
Libero	A defensive specialist in indoor and sitting volleyball. The board shows an L beside the team while the libero indicator is on.
Lower third	A graphic in the lower part of a TV picture.
Master	A factory design: Navy, Charcoal, Clay, and for the Standard board also Arena and Arena (Sponsor Band).
Match point	A rally that ends the match if the leading team wins it.
NDI	A standard for video over the network; volleyBoard 7 can send and receive NDI.
On air	Shown on the output now.
Opponent error	A rally won because the other team made an error. A rally outcome.
PIN	The code that protects the remote control.
Point cap	The score at which a set ends even without a two-point lead (0 = no cap).
Rally	One exchange from the serve to the end of play; every rally gives one point (rally-point scoring).
Sanction	A referee's penalty: warning, penalty, expulsion, disqualification, delay warning, delay penalty.
Scorebug	The small score graphic of the CK mode.
Serve error	A missed serve; the point goes to the other team. A rally outcome.
Set point	A rally that ends the set if the leading team wins it.

Term	Meaning
Side switch	The teams change courts: after a set, or after a fixed number of points (beach volleyball: every 7). The program shows an alert; Swap Sides changes the board.
Side-out	A rally won by the receiving team, which then gets the serve.
Substitution	A player change. Counted per team and set, limited or unlimited by the match rules.
Team code	The three-letter code of a team. A country code (GBR, FRA ...) shows the flag.
Technical timeout	A timeout at fixed scores (indoor option: at 8 and 16 points; beach: at 21 points together).
Timeout	A break requested by a team, with a countdown on the board.
u	The board unit of the designs (chapter 8).
Video challenge	A request by a team to check a decision on video.
WebView2	The Microsoft Edge component that draws the boards.
Winning margin	The lead needed to win a set (normally 2 points).

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 18.2).
3. Design: the right master or your own design is applied in every display mode you will use (chapter 8).
4. Discipline and rules: the Mode button shows the right discipline; Match Rules has the format of the competition: sets, points, deciding set, timeouts, substitutions, technical timeouts, side switches, libero, video challenges (chapter 6).
5. Data: team names, codes and logos, player lists and photos, standings, results and officials are filled in and saved (chapters 9 and 11).
6. Sponsors and media: sponsor logos, playlists and background video are in place (chapter 12).
7. Remote: switched on, PIN changed from 123456, the phone logged in, a test rally given and undone (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. New Match (Game tab), then the team names, team codes, logos, tournament and round lines.
2. The serve on the team that serves first.
3. The match clock at zero (it starts with the first rally).
4. The display mode for the moment (St, Sp, Ad or CK) and the scoreboard on the output.
5. The Starting Lineup or Player Intro screens, if you show them before the first serve (chapter 9).

During the match:

- One person scores. Use Undo at once after a wrong rally.
- Timeouts and substitutions on the Game tab or with their keys; the board counts down a timeout by itself.
- Watch for the side-switch alert and click Swap Sides when the teams change courts.
- Video challenges and sanctions from the Game tab (chapter 5).
- Show the Set Result screen between sets if wanted.

After the match:

- Show the Match Result, the MVP / Top Scorer and the statistics if wanted (chapters 9 and 10).
- Close volleyBoard 7 with its Close button at the end of the day; the match and the settings are saved.