

CASSANDRA

User Manual

Delayed video, scoreboard and ball speed for training sessions

Version 1.2.0

@Cassandra — Made with ♥ by Francesco Oleni

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1 · What Cassandra is

Cassandra plays back your training session or match **on a delay**, full screen, with the drill **score** and the **ball speed** built into a single window.

The action you just performed reappears on the big screen after the delay you set, so players can review themselves right away without stopping the session. Everything is controlled from the PC keyboard or from your phone.

What it is for

- **Delayed video** on the court: review the action a few seconds after performing it, with the option to go back, go forward, slow motion and zoom.
- **Drill score** on screen, with team names and colours and set partials.
- **Ball speed** from the Pocket Radar over Bluetooth, live and/or synchronised with the video.
- **Clips** you can save on the fly, with score and speed burned into the video.

Requirements

- A **Windows** PC connected to a projector or a big screen ("Duplicate" display mode recommended).
- A **video source**: Data Volley, a phone used as a camera over WiFi, or a USB webcam.
- (Optional) a **Pocket Radar** with Bluetooth for ball speed.
- An internet connection for activation and periodic licence checks (Cassandra also works offline in the gym).

2 · Installation, trial and licence

Installation

Download the installer from the Cassandra website and run it. When it finishes you'll find Cassandra among your programs and on the desktop. At startup, Cassandra opens the video window (standby screen) and the small server for the phone.

Free trial

The first time, a **7-day free trial** starts with all features. When it ends, if you don't activate a licence, Cassandra locks but stays installed: just enter a key to resume.

Activating the licence

The licence is an **annual subscription**, valid for **1 computer at a time** but **movable**: activating it on a new PC automatically frees the previous one.

1. After purchase you receive a key in the format `CAS-XXXX-XXXX-XXXX`.
2. Open the settings (gear icon, or the `O` key) and go to the bottom, to the **Licence** section.
3. Paste the key and press **Activate**. Internet is needed only at this moment and for periodic checks.

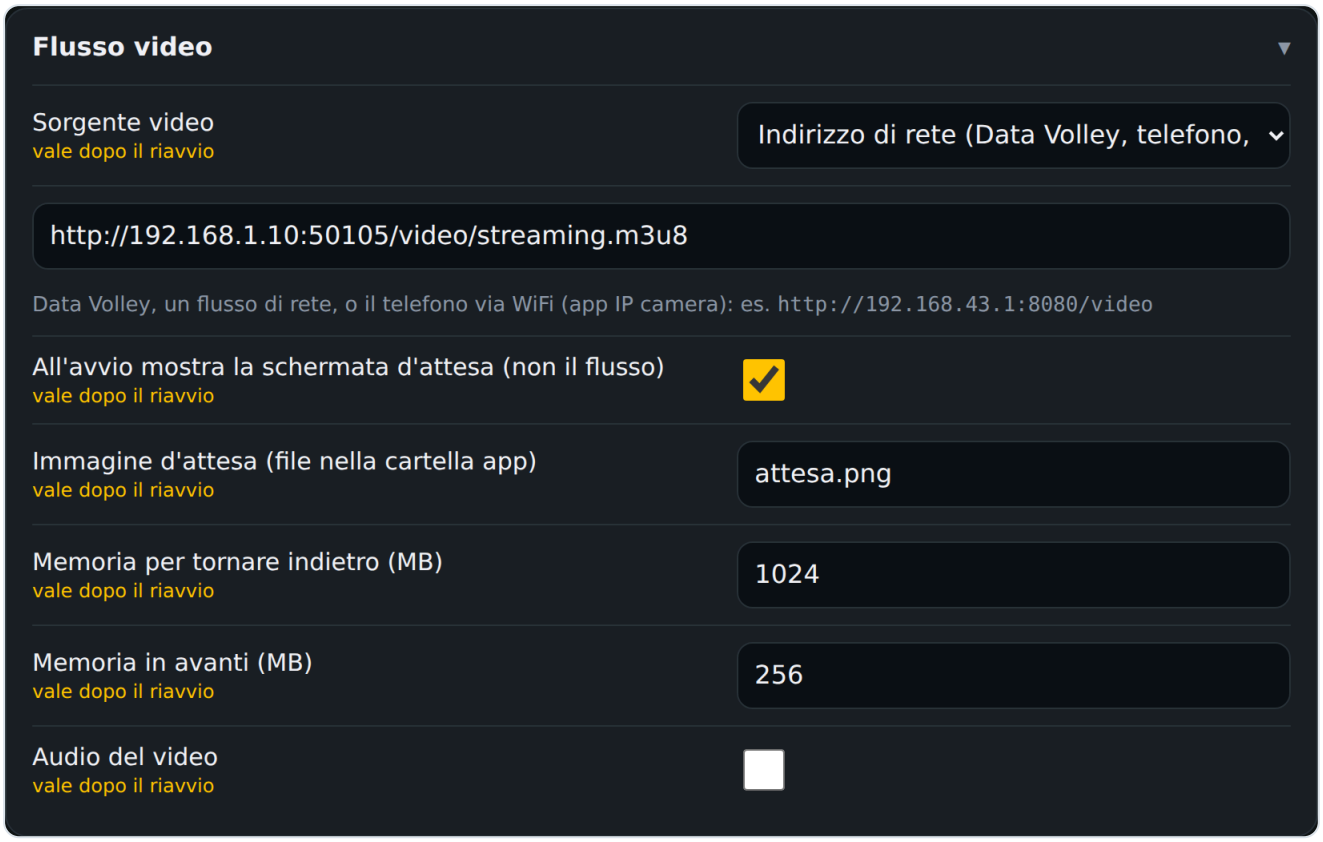
> **Note.** The **Licence** section is at the bottom of the settings panel (see chapter 11). Its status (active / expiry / days remaining) is shown there.

3 · The video source

Cassandra can take the video from three types of source. You choose it in the settings, in the **Video stream** section.

The three ways

- **Data Volley / network stream** — enter the stream address (e.g. `http://.../streaming.m3u8`).
- **Phone as a camera (WiFi)** — with an app like *IP Webcam* on Android, the phone broadcasts the video over the network; enter the address the app shows (e.g. `http://192.168.43.1:8080/video`).
- **USB webcam** — choose "PC webcam", press **Detect** and select the webcam from the list.



Settings → **Video stream**: source choice, stream address and video buffer.

Tip. To use the phone, the PC and the phone must be on the **same WiFi network** (the phone's hotspot works too). The "Buffer for going back" sets how many seconds of video you can rewind.

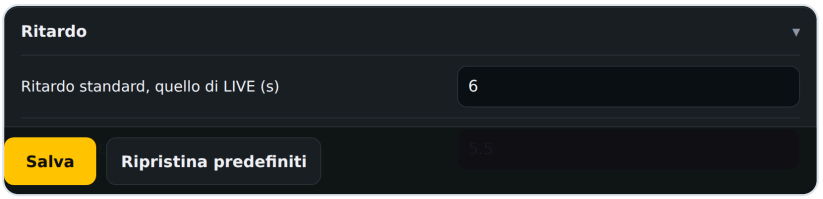
Caution. Changing the source, the buffer, the audio or the port requires **restarting** Cassandra (the affected settings are marked "applies after restart").

4 · The delay (instant replay)

The heart of Cassandra: the video is shown a few seconds late, so players review the action right away.

Two delays

- **Standard delay** — the total delay players see on the court (usually 6 seconds). This is the "LIVE" feed.
- **Data Volley delay** — compensates for the delay introduced by the network and by the PC generating the stream; set it once, as it varies from venue to venue.



Settings → **Delay**.

Quick controls

- Adjust the standard delay on the fly with `1` (−0.5 s) and `2` (+0.5 s).
- Adjust the Data Volley delay with `3` (−0.5 s) and `4` (+0.5 s).
- Press `Enter` to return to the **standard delay (LIVE)** at any time.
- `D` shows the current delay; `T` opens a stopwatch to measure it.

5 · The video controls

All controls work from the PC keyboard (and many also from the phone). Below are the defaults; you can change them in the settings.

Action	Key
Pause / resume	**Space**
Back / forward (long step)	**←** / **→**
Back / forward (short step)	**N** / **M**
Frame back / forward	**,** / **.**
Slow motion (1x · 0.5x · 0.25x)	**↓**
Normal speed	**↑**
LIVE (back to standard delay)	**Enter**
Zoom + / −	**+** / **−**
Remove zoom	**Z**
Pan the framing	**Ctrl** + arrows
Standby screen / back to video	**E**

Hint. You can print the full, up-to-date list of keys (see chapter 12): it always includes your personal configuration.

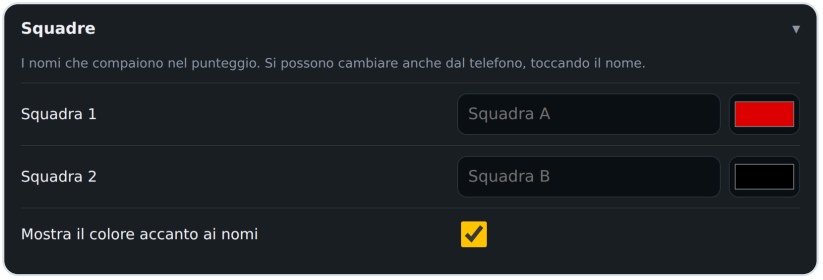
6 · The scoreboard

A scoreboard overlaid on the video, with team names and colours, sets and partials.

Controls

Action	Key
Show / hide scoreboard	H
Team 1: +1 / −1	Q / A
Team 2: +1 / −1	P / L
Close set	S
Undo	U
Switch sides	C
Reset score	Ctrl + R

Team names can be changed from the panel (**Teams** section) or directly from the phone by tapping the name.



Settings → **Teams**: names and colours.

Skins and colours

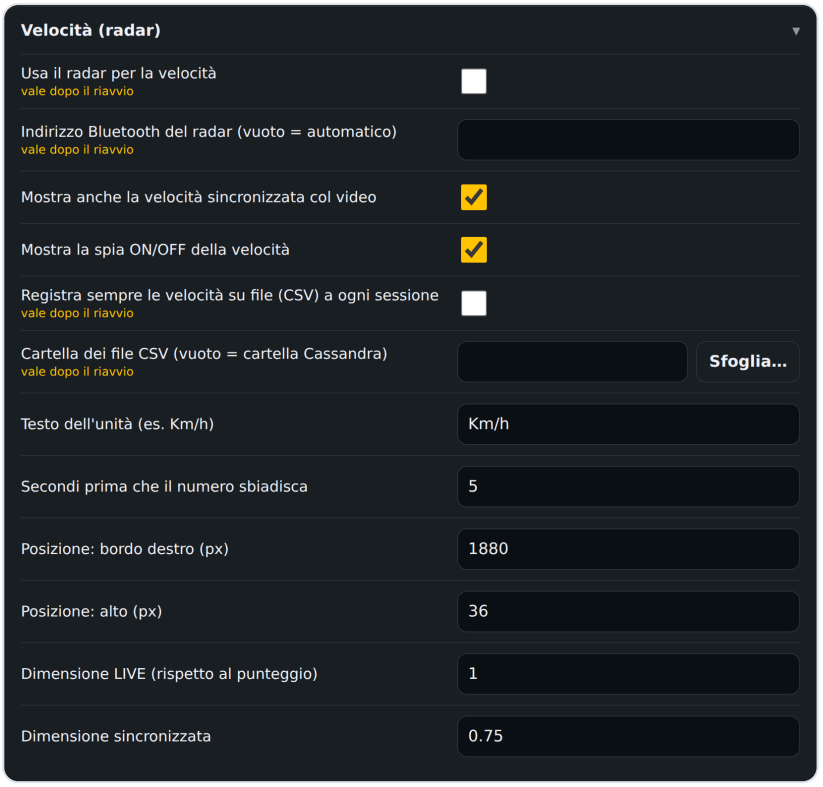
You can pick a ready-made **skin** (colour scheme) or customise every colour. The skin sets the scoreboard colours; speed and partials follow automatically. You'll find everything in the **Scoreboard — colours** and **Scoreboard — teams and partials** sections (chapter 11).

7 · Ball speed (radar)

With a **Pocket Radar** connected over Bluetooth, Cassandra shows ball speed right on screen, with no need for the radar's own app.

Connecting

1. Turn on the radar and set it to Smart Coach / Bluetooth mode.
2. In the settings, **Speed (radar)** section, enable **"Use the radar for speed"**. The Bluetooth address can be left empty (automatic search).
3. Cassandra finds the radar and starts "listening for readings".



Settings → **Speed (radar)**.

Live and synchronised

- **Live speed**: the latest reading in real time.
- **Synchronised speed**: the speed matching the frame shown in the delayed video (useful because the video is on a delay). It can be turned on/off in the settings.
- Show / hide the speed with **V**. Start / stop recording to a file (CSV) with **R**.

If the radar won't connect. See chapter 13 (Troubleshooting): almost always it's enough to switch the radar off/on and toggle Bluetooth OFF→ON on Windows.

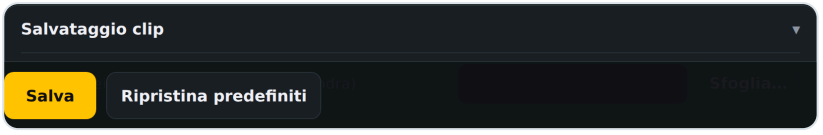
8 · Saving clips

During the session you can save a clip of what you just watched on the fly, with **score and speed already burned** into the video.

How to save

Action	Key
Save the last 8 seconds	7
Save the last 16 seconds	8
Save the last 30 seconds	9

The file is saved to the folder you set (or to Cassandra's folder if left empty), in **MP4** format. An on-screen message confirms the save.



Settings → **Clip saving**: the destination folder.

> **Note on the webcam.** From the **phone stream** the clip is instant and as long as you want. From the **USB webcam** the video is raw: Cassandra re-encodes it (which takes a few seconds) and the maximum length is a few seconds, because the raw-video buffer covers less time. In both cases the clip comes out as MP4 with synchronised score and speed.

9 · Control from your phone

You can also control Cassandra from your phone, handy when you're out on the court.

1. Press `I` on the PC to show the **QR code** on screen.
2. Scan the QR code with your phone: the interface opens in the browser.
3. Two screens: **Score** (to update the score and names) and **Video** (back/forward, slow motion, LIVE, etc.).

> **Note.** The phone and the PC must be on the same WiFi network. If the QR code doesn't appear with the right address, you can set the PC's IP by hand in the settings (**Window and phone** section).

10 · Full screen

- `F` — full-screen **toggle**: enters and exits (works both ways).
- `Esc` — **only exits** full screen.

> **If you exited with Esc** and want to go back to full screen, press `F`. Cassandra also shows a brief on-screen reminder.

11 · Settings (gear icon)

They open with the gear icon or with the <kbd>O</kbd> key. They can also be changed from the phone. At the bottom of the panel there are the **Save** and **Restore defaults** buttons.

Video stream

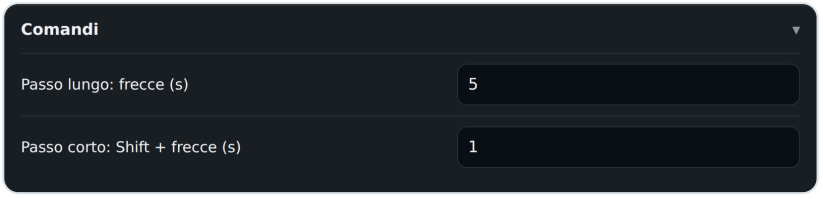
Source choice (network or webcam), stream address, standby screen at startup, video buffer (how many seconds you can rewind) and audio. *See the image in chapter 3.*

Delay

Standard delay (LIVE) and Data Volley delay. *See the image in chapter 4.*

Controls

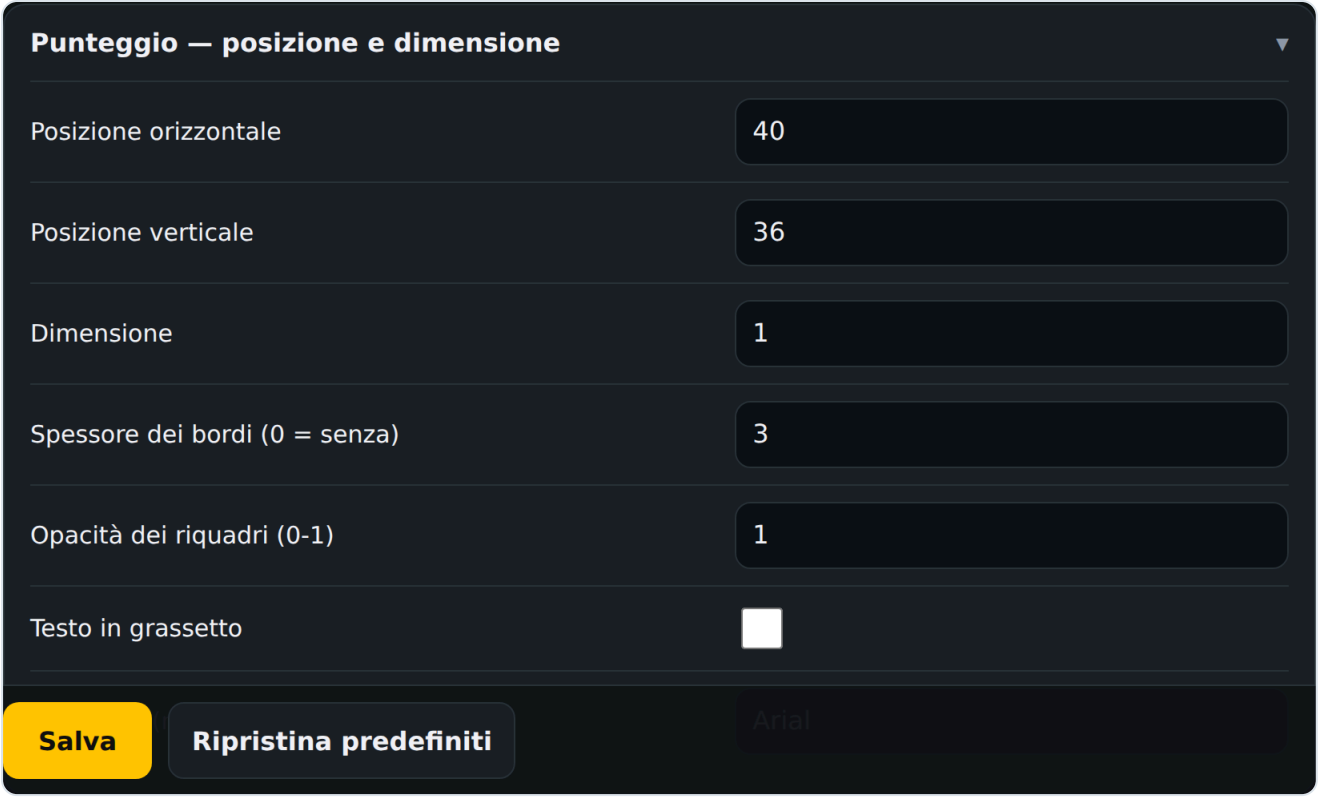
The length of the back/forward "steps": long step (arrows) and short step.



Settings → **Controls**.

Scoreboard — position and size

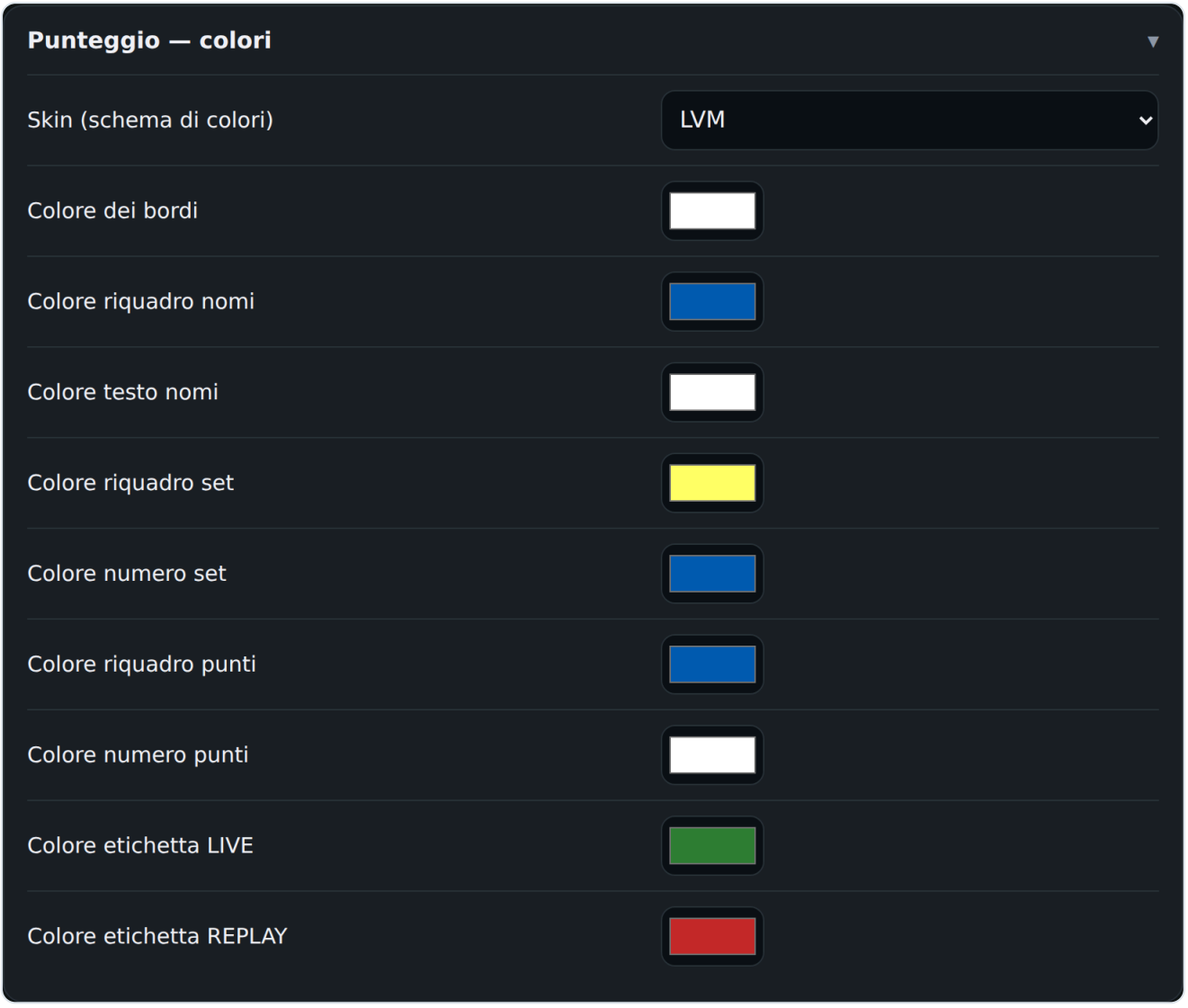
Where the scoreboard appears, how big it is, the opacity of the boxes, the border thickness, bold and font.



Settings → **Scoreboard — position and size**.

Scoreboard — colours

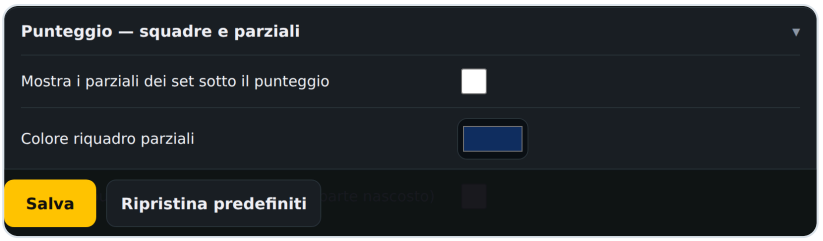
The **skin** (ready-made colour scheme) and the individual colours of borders, names, sets, points and the LIVE/REPLAY labels.



Settings → **Scoreboard — colours**.

Scoreboard — teams and partials

The colour next to the two team names, how the set partials are shown, and whether to show the score at startup.



Settings → **Scoreboard — teams and partials**.

Speed (radar)

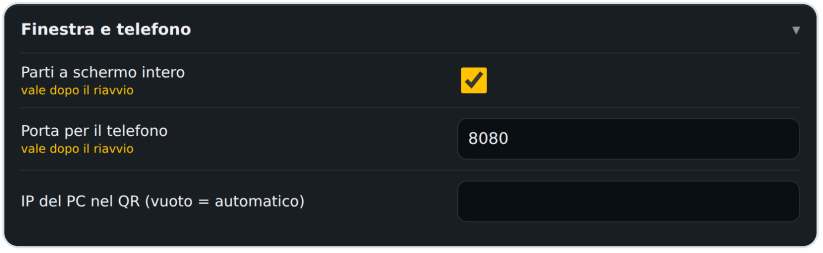
Enabling the radar, Bluetooth address, synchronised speed, CSV recording, unit of measure, position and size. *See the image in chapter 7.*

Clip saving

The folder where clips are saved. *See the image in chapter 8.*

Window and phone

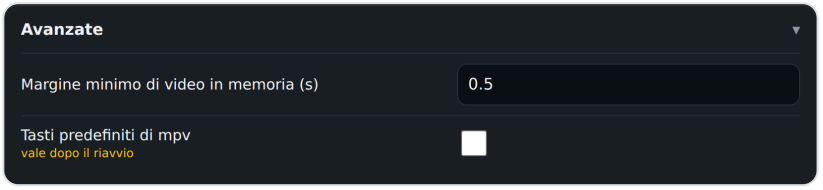
Start in full screen, the port for the phone and the PC's IP in the QR code (leave empty for automatic detection).



Settings → **Window and phone**.

Advanced

Minimum buffered-video margin and default mpv keys (for expert users).



Settings → **Advanced**.

Keys

Here you customise every shortcut: tap **+** and press the key on the PC (this also works with a joystick that acts as a keyboard). From here you also open the printable **key map** (chapter 12).

Tasti

Tocca + e premi il tasto sulla tastiera del PC (vale anche per un joystick che funziona come tastiera). Dal telefono puoi scriverne il nome, ad esempio F9, Ctrl+x, SPACE, LEFT, KP_ADD. Le modifiche ai tasti valgono subito dopo aver salvato.

🖨 **Apri la mappa dei tasti da stampare (A4)**

Video

LIVE (torna al ritardo standard)	**Invio** ×
Pausa / riprendi	**Spazio** ×
Indietro (passo lungo)	← ×
Avanti (passo lungo)	→ ×
Indietro (passo corto)	**N** ×
Avanti (passo corto)	**M** ×
Fotogramma indietro	, ×
Fotogramma avanti	. ×
Rallenty (1x - 0,5x - 0,25x)	↓ ×
Velocità normale	↑ ×
Zoom +	+ × **+ tastierino** ×
Zoom -	- × **− tastierino** ×
Togli zoom	**Z** ×
Inquadratura a sinistra	Ctrl + ← ×
Inquadratura a destra	Ctrl + → ×
Inquadratura in alto	Ctrl + ↑ ×
Inquadratura in basso	Ctrl + ↓ ×
Salva clip ultimi 8 s	**7** ×
Salva clip ultimi 16 s	**8** ×
Salva clip ultimi 30 s	**9** ×
Schermata d'attesa / vai al video	**E** ×

Salva **Ripristina predefiniti**

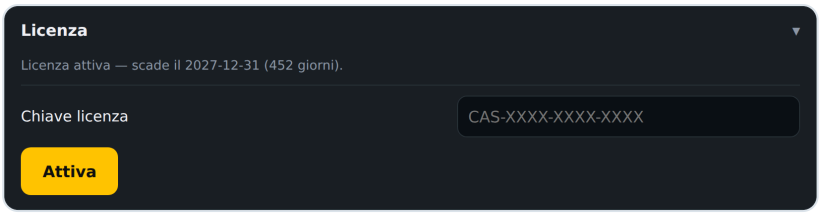
Ritardo

Ritardo standard -0,5 s	1 ×	+
Ritardo standard +0,5 s	2 ×	+
Ritardo Data Volley -0,5 s	3 ×	+
Ritardo Data Volley +0,5 s	4 ×	+
Mostra il ritardo impostato	D ×	+
Orologio per misurare il ritardo	T ×	+
Velocità		
Mostra / nascondi velocità	V ×	+
Avvia / ferma registrazione velocità (CSV)	R ×	+
Punteggio		
Squadra 1: +1	Q ×	+
Squadra 1: -1	A ×	+
Squadra 2: +1	P ×	+
Squadra 2: -1	L ×	+
Chiudi set	S ×	+
Annulla (punteggio)	U ×	+
Cambio campo	C ×	+
Azzera punteggio	Ctrl + R ×	+
Mostra / nascondi punteggio	H ×	+
Finestra		
Apri le impostazioni	O ×	+
Schermo intero sì/no	F ×	+
Esci dallo schermo intero	Esc ×	+
Chiudi Cassandra	Ctrl + Q ×	+
Mostra / nascondi QR	I ×	+

Settings → **Keys** (the yellow button at the top prints the map).

Licence

At the bottom of the panel: licence status and the field to enter the key and activate it.



Settings → **Licence** (last section).

12 · The key map

From the settings, **Keys** section, the yellow button opens a **printable key map** (2 A4 pages) that **always includes your current configuration**.

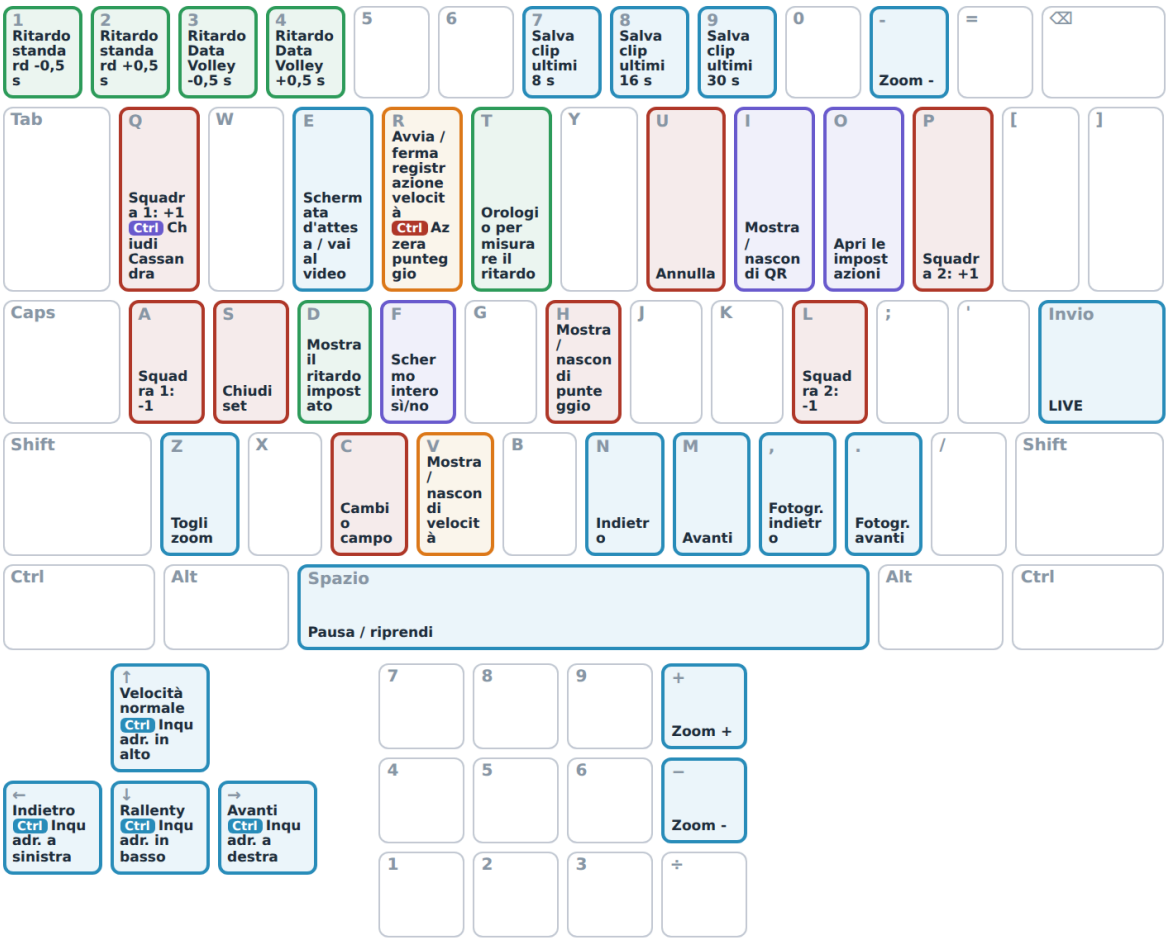
- **Page 1**: a drawing of the keyboard with the functions on the keys, colour-coded by group, plus arrows and keypad, and a "key → function" list.
- **Page 2**: the functions grouped (Video, Delay, Speed, Scoreboard, Window) with their keys.

Press **Print** on the page (or Ctrl+P) to get the two A4 pages.

CASSANDRA

Mappa tasti · Tastiera

Aggiornata al 06/10/2026 13:57



Video Ritardo Velocità Punteggio Finestra

Tasti e funzioni

Avanti (passo corto)	M
Avanti (passo lungo)	→
Fotogramma avanti	.
Fotogramma indietro	,
Indietro (passo corto)	N
Indietro (passo lungo)	←
Inquadratura a destra	Ctrl+→
Inquadratura a sinistra	Ctrl+←
Inquadratura in alto	Ctrl+↑
Inquadratura in basso	Ctrl+↓
LIVE (torna al ritardo standard)	Invio
Pausa / riprendi	Spazio
Rallenty (1x - 0,5x - 0,25x)	↓
Salva clip ultimi 16 s	8
Salva clip ultimi 30 s	9
Salva clip ultimi 8 s	7
Schermata d'attesa / vai al video	E
Togli zoom	Z
Velocità normale	↑
Zoom -	-
Zoom -	– tast.
Zoom +	=
Zoom +	+ tast.

Mostra il ritardo impostato	D
Orologio per misurare il ritardo	T
Ritardo Data Volley -0,5 s	3
Ritardo Data Volley +0,5 s	4
Ritardo standard -0,5 s	1
Ritardo standard +0,5 s	2
Avvia / ferma registrazione velocità (CSV)	R
Mostra / nascondi velocità	V
Annulla (punteggio)	U
Azzera punteggio	Ctrl+R
Cambio campo	C
Chiudi set	S
Mostra / nascondi punteggio	H
Squadra 1: -1	A
Squadra 1: +1	Q
Squadra 2: -1	L
Squadra 2: +1	P
Apri le impostazioni	O
Chiudi Cassandra	Ctrl+Q
Esci dallo schermo intero	Esc
Mostra / nascondi QR	I
Schermo intero sì/no	F

Example of the key map (page 1) with the default keys. (The app interface is in Italian.)

13 · Troubleshooting

The radar won't connect

The radar is found but no speed arrives, or after closing and reopening Cassandra it won't reconnect. Almost always the Bluetooth state has got "stuck". In order:

1. Switch the **radar** off and on.
2. Toggle **Windows Bluetooth OFF and then ON**.
3. Restart Cassandra.
4. If it still doesn't work: make sure the radar is **not connected to the tablet/phone** (it accepts only one connection at a time); if it's among Windows' paired devices, remove it; as a last resort, restart the PC.

The video won't start

- Check the source **address** in the Video stream section.
- For the phone: make sure the PC and the phone are on the **same WiFi network** and that the streaming app is running.
- After changing the source or the buffer, **restart** Cassandra.

I exited full screen

Press <kbd>F</kbd> to go back.

The clip won't save

If "not enough video in buffer" appears, that's normal with the USB webcam (the raw-video buffer covers only a few seconds): the clip will contain the seconds available. From the phone stream, however, you can save up to 30 seconds.

14 · Support

For questions, tips and news you can rely on:

- The Cassandra users' **WhatsApp group** (the link is on the website, in the "Users group" section).
- The support **email** shown on the website.

Thank you for choosing Cassandra. Enjoy your training!

@Cassandra — Made with ♥ by Francesco Oleni · Version 1.2.0