USER MANUAL

StereoShutter

Version 0.18.111.209 · November 2026

Your NVIDIA 3D Vision glasses on today's monitors: games in 3D, with the glasses in exact time with the screen.



- Monitors from 120 to 360 Hz
- On-screen setup assistant
- HDR: more light through the glasses
- Seven languages

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The basics, over a game

Ctrl + Alt + K	Ctrl + Alt + S	Ctrl + Alt + Enter	Ctrl + T	Ctrl + Alt + F12
keys and settings	swap the eyes	save	3D on / off	close the 3D

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01 Highlights

StereoShutter makes NVIDIA 3D Vision glasses and their emitter work on today's computers and monitors, without the 3D Vision driver that NVIDIA no longer includes in its drivers. It shows each eye its own image from the game, at exactly the right moment, and tells the glasses when to open each lens.

Your 3D Vision glasses, back again

It works with today's NVIDIA graphics drivers. All it needs is the emitter's USB driver, which NVIDIA still offers on its website.

Today's fast monitors

On a 240 or 360 Hz monitor it puts a black refresh between one eye and the other: a clean picture and much more light. Monitors from 120 to 180 Hz work too, and so do 3D Vision monitors, with LightBoost.

On-screen assistant

Four steps to set the glasses up for your monitor: remove the ghost image, put the eyes the right way round, add brightness and save.

Quick setup in the game

One key brings up the setup bars over the game itself, so you can fine-tune without leaving it.

Games with geo-11

The 3D picture comes from geo-11, in DirectX 11 games of 64 and 32 bits, fixes made for 3DMigoto Loader included. No screen capture.

3D photos of games

One key saves the game's picture in 3D: side by side for 3D photo programs and virtual reality viewers, in HDR too, or as a red-cyan anaglyph.

In time with the glasses

It sets the game's pace: a new image for every round of the glasses. After a hitch of the computer or a change of window, a neutral moment instead of an image in the wrong eye.

HDR: the light comes back

The glasses swallow a lot of light. On an HDR monitor, StereoShutter makes the images brighter to give it back to you.

3D panels

The HDR panel (brightness and colours) and each game's settings appear in front of the screen, and you use them with the mouse or with keys.

It tells you what gets in the way

If something on the computer could spoil the 3D, it warns you on screen, with what to do.

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Reporting a problem

StereoShutter_Feedback records one game session with everything needed in a single file of at most 5 MB, ready to send by e-mail.

Seven languages

English, Spanish, Italian, French, German, Portuguese and Russian, following the language of Windows.

02 What you need

- NVIDIA 3D Vision (or 3D Vision 2) glasses and their USB infrared emitter. Some 3D Vision monitors have the emitter built in, and its signal comes through the video cable, not through USB. StereoShutter cannot use that emitter: with those monitors, the separate USB emitter is needed.
- The emitter's USB driver, from NVIDIA. In Windows Device Manager it shows as “NVIDIA Stereoscopic 3D USB controller”. StereoShutter talks to the emitter through it; it does not install or change any driver.
- Instead of those glasses and their emitter, **Samsung SSG-5100GB** glasses with a TP-Link UB500 USB Bluetooth adapter and an OLED monitor at 240 or 360 Hz (experimental support). “Samsung SSG-5100GB glasses” explains it.
- Windows 10 or 11 and an NVIDIA graphics card. Which one, for games: “The graphics card”, below.
- A monitor the glasses can follow: any monitor at a refresh rate from 99 to 185 Hz or from 198 to 555 Hz (120, 144, 240, 360 or 480 Hz, for example), or a 3D Vision monitor. “Your monitor” explains it.
- To play, the game's 3D layer: **geo-11**, in DirectX 11 games of 64 and 32 bits. The 3D fixes made with geo-11, game by game, are on HelixMod (helixmod.blogspot.com).
- You can also use it without a game: the setup assistant and the pattern test work on their own.

If the emitter's driver is missing. Download the “NV3DVisionUSB” package from NVIDIA's website (nvidia.com/en-us/drivers/nv3dvisionusb/390_41/nv3dvisionusb-dch-driver/) without running it: NVIDIA's installer may refuse to work with a recent graphics driver, and the driver alone is enough. It is a compressed file: extract it with 7-Zip. Then, in Device Manager, right-click the emitter (it shows as an unknown device) → Update driver → Browse my computer for drivers → the extracted NV3DVisionUSB.Driver folder → Next. NVIDIA lists it in its Quadro section, but it is only the emitter's USB driver and works with any NVIDIA card.

Online games and anti-cheat. Using StereoShutter or 3D fixes in online games or in games with anti-cheat is not recommended. 3D layers and fixes get into the game (DLL files and hooks), and an anti-cheat system may block them or ban the account, even for good, even if they are only used to see in 3D. Use them in single-player games that allow it. Closing StereoShutter does not remove what is in the game's folder: before playing online, remove StereoShutter and the 3D fix by following their instructions. Never turn off or get around an anti-cheat system.

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The graphics card

In 3D the game draws each frame for both eyes, so it asks more of the graphics card than in 2D. The recommended card, or a better one, for high settings in most games with 3D:

Monitor	60 cycles a second	90 cycles a second
1920×1080 (3D Vision monitors too)	RTX 3070, 4060 Ti, 5060	RTX 4070 Super, 5070
2560×1440	RTX 3080 Ti, 4070 Super, 5070	RTX 4090, 5080
3440×1440	RTX 4070 Ti Super, 5070 Ti	RTX 4090*, 5090
3840×2160	RTX 4090, 5090	—

- 60 cycles: monitors at 120, 240 and 360 Hz (as supplied). 90 cycles: at 180 Hz, or at 360 Hz when chosen. At 144, 165, 300 and 480 Hz (72, 82, 75 and 80 cycles), in between.
- A somewhat smaller card also works with lower settings; the newest, heaviest games can need more. At 3840×2160, no card gives 90 cycles with room to spare.
- * With the RTX 4090, most games hold 90; some dip in their heaviest scenes.
- Tested with an RTX 4090; the other cards are estimated from published benchmarks. Films and photos need much less.

03 Installation

1. Copy StereoShutter's files into the game's folder: next to the game's .exe and next to its 3D layer, geo-11. They are all called StereoShutter..., so they do not touch or replace anything of the game's.
2. Run **StereoShutter_geo-11_Setup** once in that folder (“Games with geo-11” explains it). From then on, StereoShutter starts by itself with the game.
3. Set Windows to the refresh rate (Hz) you will play at and run **StereoShutter_Setup**, the assistant that sets up the glasses (“Setting up the glasses”). You do it once for each monitor and refresh rate, and it works for every game.
4. Check the three settings in “NVIDIA and Windows settings”. If one of them gets in the way, StereoShutter warns you on screen.
5. Start the game as usual. A few seconds after its window settles, the 3D picture appears over it and the glasses start. When you close the game, everything closes.

> **“Windows protected your PC”.** StereoShutter and its tools are not signed. If Windows says this when you open one, click “More info” and then “Run anyway”. To stop it saying so: before unzipping the download, right-click the .zip → Properties → Unblock → OK.

StereoShutter installs nothing in Windows and leaves nothing running in the background. How to remove it: “Risks, undoing and licence”.

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04 How it works

Before you adjust anything, it is worth understanding what the glasses do. There are four simple ideas.

Two eyes, two images

Your eyes are about 6 centimetres apart, so each one sees the world from a slightly different place. Your brain puts the two views together, and that gives you depth. A 3D game does the same: it draws two images, one for the left eye and one for the right.

Shutter glasses

The screen shows the left eye's image, then the right eye's, over and over. Each lens of the glasses can turn black in an instant, like a tiny shutter. While the screen shows the left image, the right lens is closed (black) and the left one is open; then the other way round. It goes so fast (60 or 90 times a second for each eye on a 360 Hz monitor) that you don't notice: each eye sees only its own image, and your brain does the rest.

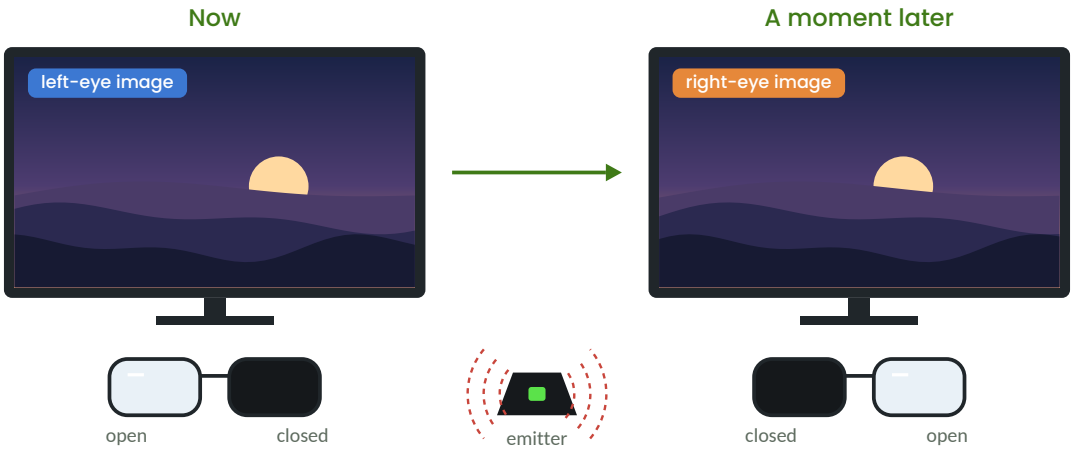


Figure 1. *The screen alternates the two images, and the glasses close the eye that must not see them.*

The emitter

The emitter is the little USB box with the green light. It sends flashes of infrared light, which you can't see, to tell the glasses when to switch lenses. StereoShutter tells the emitter the exact moment, following the monitor's own clock.

Where the 3D picture comes from

The game draws the two images with its 3D layer: geo-11, in DirectX 11 games. The layer hands the two images to StereoShutter directly, inside the graphics card, without capturing the screen. StereoShutter shows them eye by eye, in time with the monitor, over the game's window, and at the same time sends the glasses' rhythm to the emitter.

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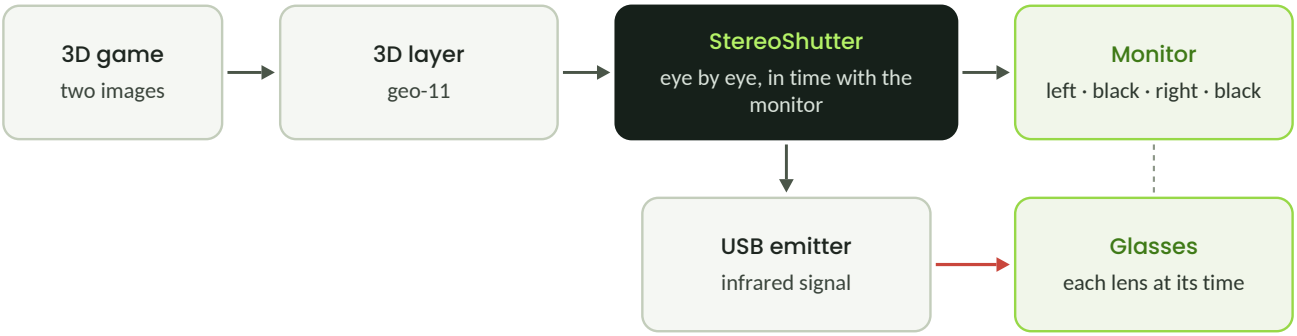


Figure 2. *The picture's path, from the game to your eyes.*

Words you'll see

Hz (hertz)	Times per second. A 360 Hz monitor changes its picture 360 times every second: each change is a **refresh**.
Cycle	One full round of the glasses: once the left eye and once the right. At 360 Hz there are 60 cycles per second (90 if you choose them).
µs (microsecond)	A millionth of a second; 1000 µs make 1 millisecond. The glasses are adjusted in microseconds: on a 360 Hz monitor, each eye's turn lasts about 5555 µs.
Phase	When each lens opens, compared with when the monitor's picture changes. Moved with ← →.
Open time	How long each lens stays open in its turn. More open time, more light. Changed with ↑ ↓.
Eye order	Which lens opens with which image. The wrong way round, the depth comes out inside out. Changed with S.
Ghost image	A faint copy of the other eye's image. It appears when a lens is open while the screen is showing the other eye's image, even partly.
Pattern	A test image from StereoShutter: the white bars, for the ghost image, and the light rectangle, for depth.
3D layer	The piece that makes a game 3D and hands its two images to StereoShutter: geo-11, with the game's fix.
HDR	Pictures with more light than normal ones, on a monitor that supports it. The normal picture is called SDR. The brightness of a screen is measured in **nits**.

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05 Your monitor

What StereoShutter does depends on the monitor and on its refresh rate in Windows (Settings → System → Display → Advanced display). StereoShutter never changes it: choose it before you start.

Refresh rate in Windows	How each eye is shown	Cycles per second	Glasses
360 Hz	Image, image and black (3 refreshes per eye)	60	120 Hz
360 Hz, 90 cycles	Image and a black refresh (2 refreshes per eye)	90	180 Hz
240 Hz	Image and a black refresh	60	120 Hz
300 Hz	Image and a black refresh	75	150 Hz
198 to 370 Hz	Image and a black refresh	a quarter of the rate	half the rate
480 Hz	Image, image and black (not yet tried on such a monitor)	80	160 Hz
371 to 555 Hz	Image, image and black	a sixth of the rate	a third of the rate
99 to 185 Hz (120, 144, 165, 180)	One refresh per eye, with the monitor's own strobing (ELMB, ULMB…) on	half the rate	same as the monitor
3D Vision monitor	One refresh per eye, with LightBoost, at the refresh rates in NVIDIA's table	half the rate	same as the monitor
3D Vision monitor at another refresh rate, from 198 Hz (240 Hz)	Image and a black refresh, without LightBoost (not yet tried)	a quarter of the rate	half the rate
Others (60, 75, 600 Hz…)	Not usable: “Unsupported display mode” comes up	—	—

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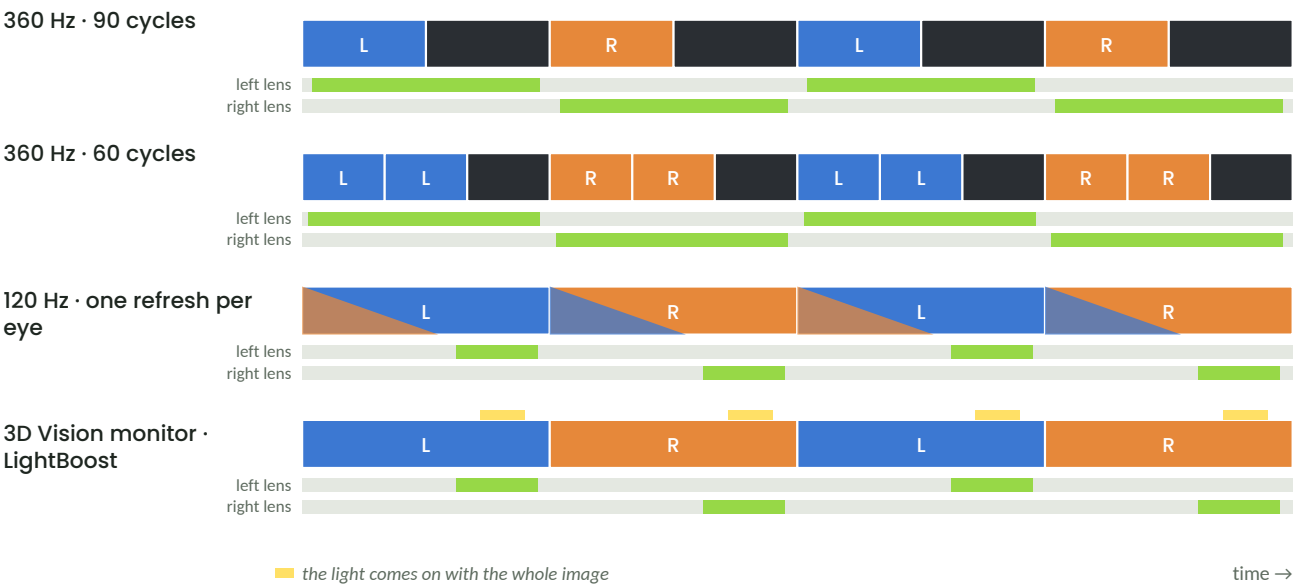


Figure 3. *How each monitor shows the two eyes, and when each lens opens (in green). At 120 Hz, the slanted part is the screen changing from one eye to the other, from top to bottom: the lens only opens after it.*

198 to 555 Hz: image and black

This is the best case apart from 3D Vision monitors. StereoShutter shows each eye for one refresh and then puts in a black refresh. While the black comes in there is nothing from the other eye to see, so the glasses can stay open for almost the whole turn: a clean picture and much more light. If the monitor has its own strobing (ELMB, ULMB...), leave it off: StereoShutter already puts in the black. From 371 to 555 Hz, and at 360 Hz with 60 cycles, each eye shows its image for two refreshes in a row before the black.

240 or 360 Hz? At 360 Hz StereoShutter gives 60 cycles per second, as at 240 Hz, but each eye shows its image for two refreshes in a row: the steadiest, and 60 images per second are enough for the game. If the game reaches about 90 images per second, at 360 Hz you can choose 90 cycles: finer movement and no flicker at all. At 60 cycles some people notice a slight flicker.

At 360 Hz, 90 cycles too

For a game that reaches 90 images per second, at 360 Hz you can choose 90 cycles: image and black. You choose it in “Settings for this game” → Glasses cycles (from 360 to 370 Hz), or for every game with refreshes_per_eye = 2 in StereoShutter.ini. The glasses' values for 60 and for 90 cycles are saved separately; with nothing saved for 60, they start from the ones for 90. Below 360 Hz it is always two refreshes per eye (75 cycles at 300 Hz, 60 at 240 Hz); from 371 to 555 Hz, always three: 80 cycles at 480 Hz, 90 at 540 Hz.

99 to 185 Hz: one refresh per eye

> **From 99 to 185 Hz, without the monitor's own strobing (ELMB, ULMB...) there will be a ghost image.** Turn it on in the monitor's menu before playing. If your monitor does not have it and reaches 240 Hz or more, set it to that rate: there StereoShutter puts the black between the eyes itself.

Here each refresh belongs to one eye, with no black in between, and the monitor changes the picture from top to bottom: there is always a strip of the screen showing the other eye's picture. **Turn on your monitor's own strobing** (ELMB, ULMB, DyAc or “motion blur reduction”, depending on the brand): it turns the screen off while the picture changes and on again when it is complete, so no ghost image is left. Without it, the glasses can only

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open for a short moment: the picture looks dark, and if they open longer, a ghost image stays at the top or the bottom.

3D Vision monitors

The monitors that were sold for 3D Vision are in an NVIDIA table that is installed with the emitter's driver. StereoShutter reads it and uses NVIDIA's values for that monitor, with LightBoost: the monitor's backlight flashes in time with the glasses and the ghost image almost disappears. There is nothing to adjust: it is the best case. LightBoost only works at the refresh rates and resolutions in that table. A 3D Vision monitor at a refresh rate its table does not have, from 198 Hz (240 Hz), works like the other monitors, with a black refresh between the eyes and the glasses set up for it, without LightBoost (not yet tried on such a monitor).

Other refresh rates

At 60 Hz, 75 Hz, 600 Hz or any other refresh rate the glasses can't follow, StereoShutter does not start the glasses and shows this red message, with the refresh rates that do work. Change the refresh rate in Windows and start again.

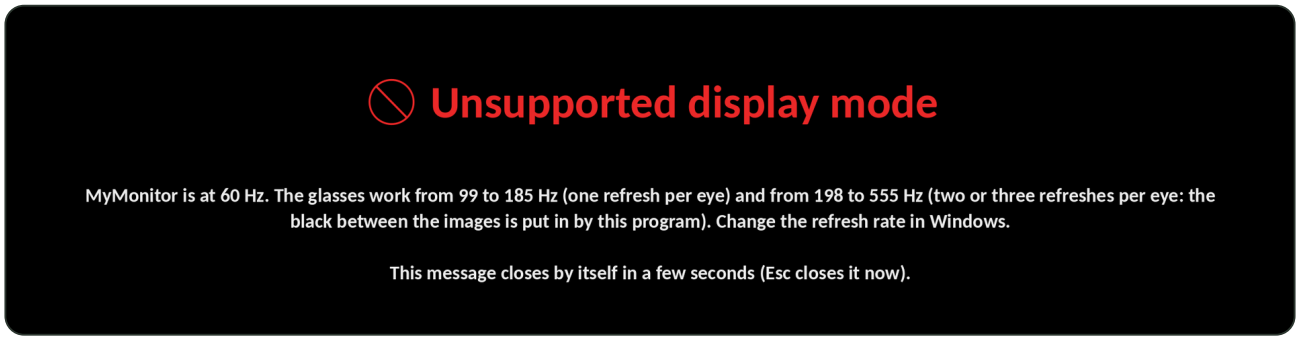


Figure 4. *A refresh rate the glasses can't follow.*

> **NVIDIA Surround** (several monitors that Windows sees as one): the glasses follow that big screen, at its monitors' refresh rate, and StereoShutter's texts appear on the middle monitor. Windows HDR is not switched on there. With 3D Vision monitors, LightBoost needs a one-time preparation (“LightBoost and NVIDIA Surround”).

Which monitor? Windows' main monitor, unless **[Output] monitor** says another one (“The StereoShutter.ini file”).

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06 Setting up the glasses

This is the most important section. Read it calmly: once you understand it, everything else is easy. For the 3D to look clean and bright, three things need setting, and the assistant guides you through all three.

Phase

When each lens opens. Moved with ← and →, in microseconds. Set right, there is no ghost image.

Open time

How long it stays open. ↑: more light; ↓: less ghost. It has a maximum.

Eyes

Which lens goes with which image. The wrong way round, the depth comes out inside out. Changed with S.

How the monitor changes the picture

A monitor doesn't change the whole picture at once. It draws it line by line, from top to bottom, like a blind coming down, in a few milliseconds. While it comes down, the top part already shows the new image and the bottom part still shows the old one. This is the key to everything that follows.

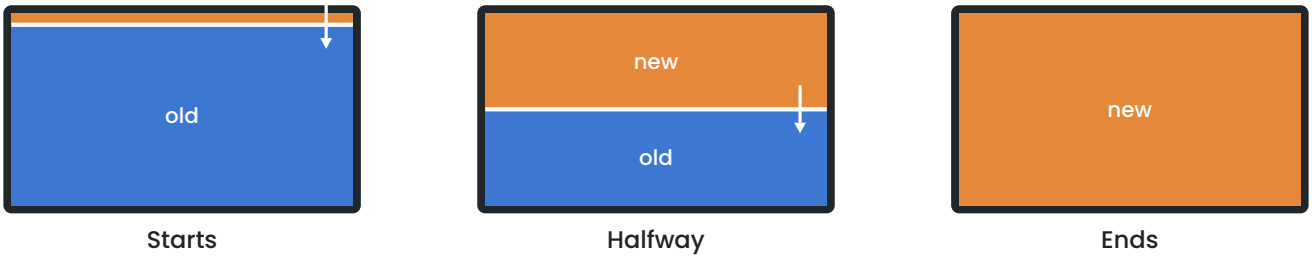


Figure 5. The new image comes in from top to bottom: for a moment, the old one and the new one share the screen.

The ghost image

If a lens is open while some part of the screen is showing the other eye's image, that eye sees a faint copy of the wrong image: a double edge, a “ghost”. Because of the way the blind comes down, the ghost always appears at the top or at the bottom of the screen:

- **Ghost at the top:** the lens closes late. The other eye's image is already coming in at the top and the lens is still open.
- **Ghost at the bottom:** the lens opens early. At the bottom there is still the old image, which belongs to the other eye.
- **Ghost at the top and the bottom at once:** the lens is open for too long and catches both sides.

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The phase: when the lenses open

The phase moves the moment the glasses switch lenses earlier or later, compared with the moment the monitor starts each image. It is measured in microseconds (µs) and can be negative. Each press of ← or → moves it 10 µs; with Shift, 100 µs. ← makes it earlier (the lenses open sooner) and → makes it later.

The figure is like a map of the screen over time. Time runs to the right, and the top of the screen is at the top. Each coloured stripe is an image coming in from top to bottom, which is why they slant: blue, the left eye; orange, the right eye; dark grey, the black refresh. The green frame is the time the left lens is open: the left eye sees everything that falls inside it.

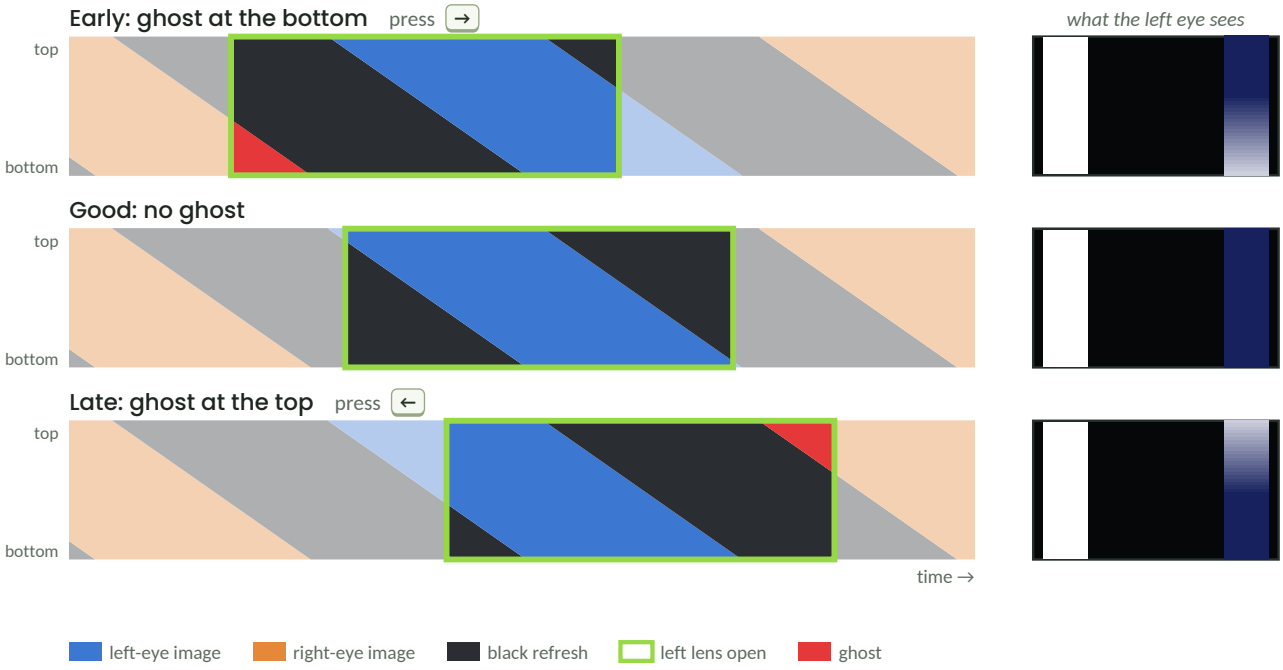


Figure 6. The phase moves the lens's green frame. Set right, the lens only catches its own eye's image and black. On the right, what the left eye sees in the bar pattern.

> **Easy rule:** if the faint bar has white at the top, press ←; if it has it at the bottom, →. If pressing brings more white, go the other way. In fact you don't need to know the direction: just find the position where no white is left, at the top or at the bottom.

The open time: how long they open

The open time is how long each lens stays open in its turn. The longer it is, the more light reaches the eye. But if it lasts too long, the green frame spills over both sides and catches the other eye's image: ghost at the top and the bottom at once. The best is the longest open time that leaves no ghost.

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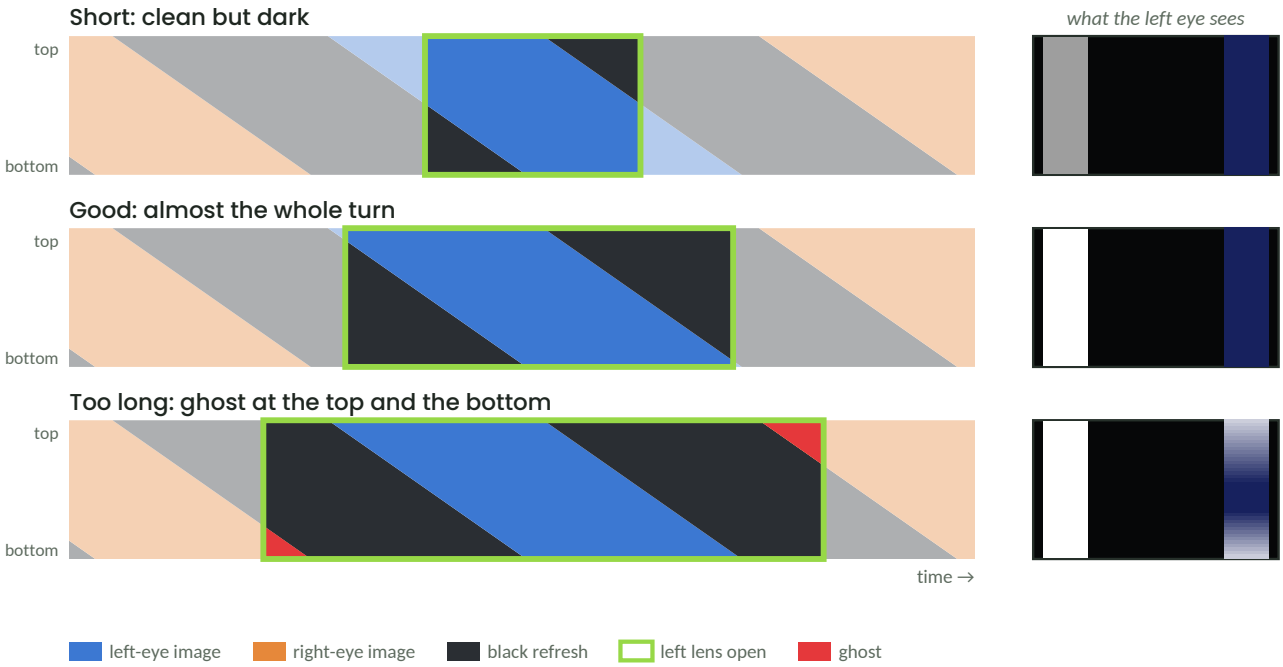


Figure 7. *Short: clean but dark. Good: almost the whole turn. Too long: ghost at the top and the bottom.*

There is also a maximum that doesn't depend on the monitor: the emitter needs about 450 µs of each turn to send its own signals to the glasses. Without them it skips whole turns, and you see bright flashes now and then. That is why the arrows stop at that maximum and the screen says “maximum”.

Each eye's turn and the longest open time. You don't need to learn them: the arrows stop by themselves at the maximum.

Monitor	Refreshes per eye	Glasses	Each eye's turn	Longest open time
360 Hz	3 (image, image and black)	120 Hz	8333 µs	about 7880 µs
360 Hz, 90 cycles	2 (image and black)	180 Hz	5555 µs	about 5100 µs
240 Hz	2 (image and black)	120 Hz	8333 µs	about 7880 µs
180 Hz	1	180 Hz	5555 µs	about 5100 µs
144 Hz	1	144 Hz	6944 µs	about 6490 µs
120 Hz	1	120 Hz	8333 µs	about 7880 µs

With nothing saved, StereoShutter starts from a starting open time, from StereoShutter.ini or calculated, and step 3 of the assistant fits it to your monitor.

The eye order: in front or sunk in

If the lenses open with the images swapped (the left lens with the right image), the 3D comes out inside out: what should stand out of the screen sinks in. There is no ghost image, but something looks odd. To check it, StereoShutter shows a light rectangle that must float in front of the screen, closer to you than the four squares in the corners.

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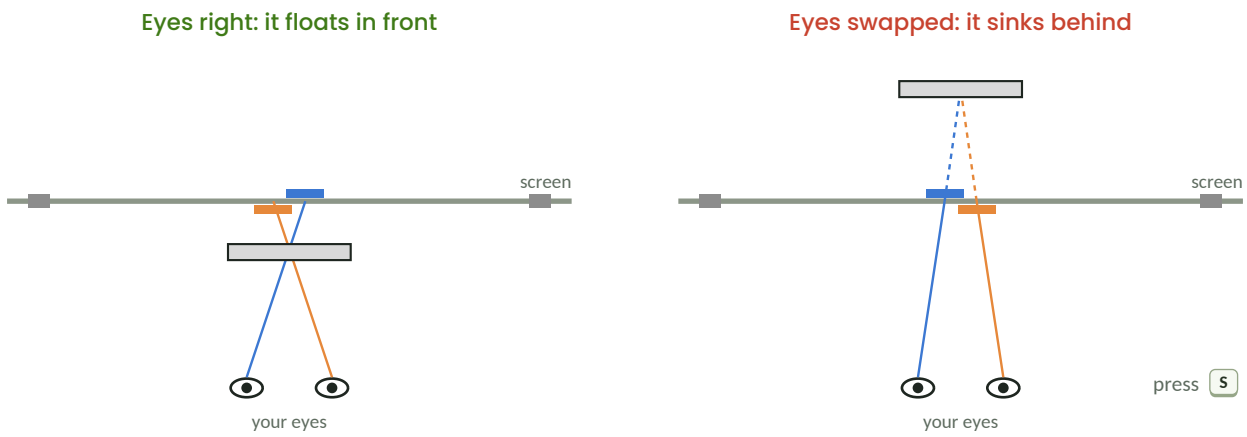


Figure 8. With the eyes right, the rectangle floats in front of the screen. With the eyes swapped, it sinks behind it.

You fix it by swapping the eyes: S in the assistant and in the pattern test, and Ctrl + Alt + S over a game. Needing it is not a fault: it depends on the monitor and on the picture's path, and StereoShutter saves it.

Before you start

- Set the monitor in Windows to the refresh rate you will play at: what you set up is for that monitor at that refresh rate.
- Close other programs that use the glasses or the emitter, and SteamVR. Only one program can use the emitter at a time: if there is another one, StereoShutter does not start and says which one to close.
- Switch the glasses on and sit as you do when you play, facing the emitter.
- If you are going to play with HDR, switch it on first (the H key in the assistant, then open it again): the values with HDR are saved separately.

The assistant, step by step

Open **StereoShutter_Setup**. It fills the glasses' monitor with the pattern and a panel with the instructions and the keys. Below, the status line shows the values in use: eyes, phase, open time, the glasses' and the monitor's rates, and where they come from. There are four steps.

Step 1 · The ghost image (the phase)

Two white bars appear on black, from top to bottom: the left one is the left eye's image and the right one, the right eye's. Without the glasses you see both.

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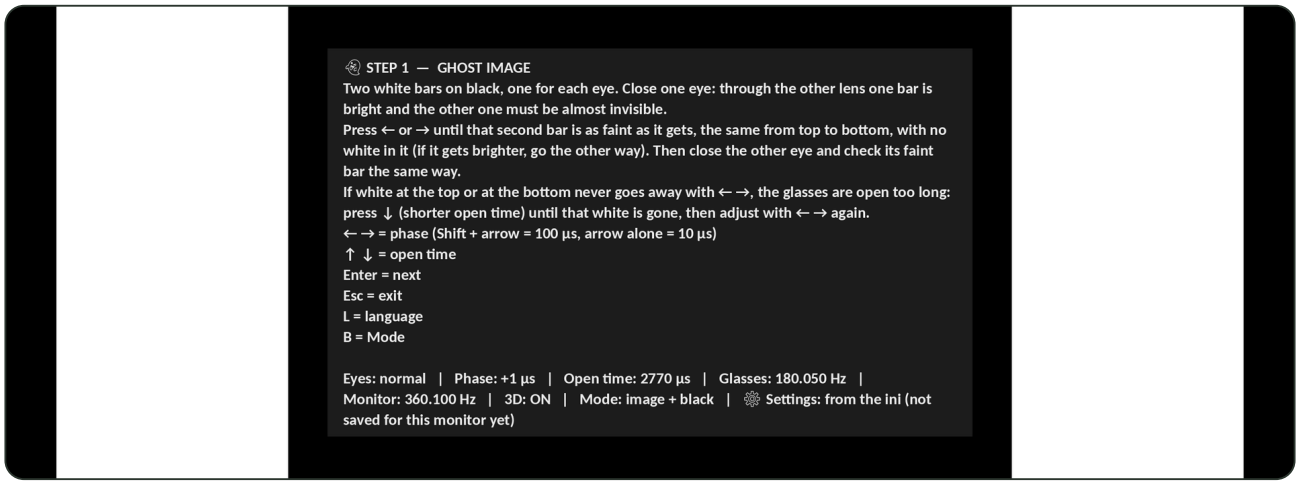


Figure 9. Step 1: the two bars and the assistant's panel, as they look without the glasses.

1. Put the glasses on and close one eye, for example the right one. Through the left lens the left bar looks bright; the right one looks very dim, dark blue: it is the “faint bar”.
2. Press ← or → until no white is left in the faint bar, at the top or at the bottom: all of it the same dark blue. If pressing brings more white, go the other way. With Shift the steps are bigger.
3. Close the other eye and check its faint bar the same way; now it is the left one.
4. If the white at the top or at the bottom never goes away with ← →, the lens is open for too long: press ↓ until it goes, then look for the phase again.

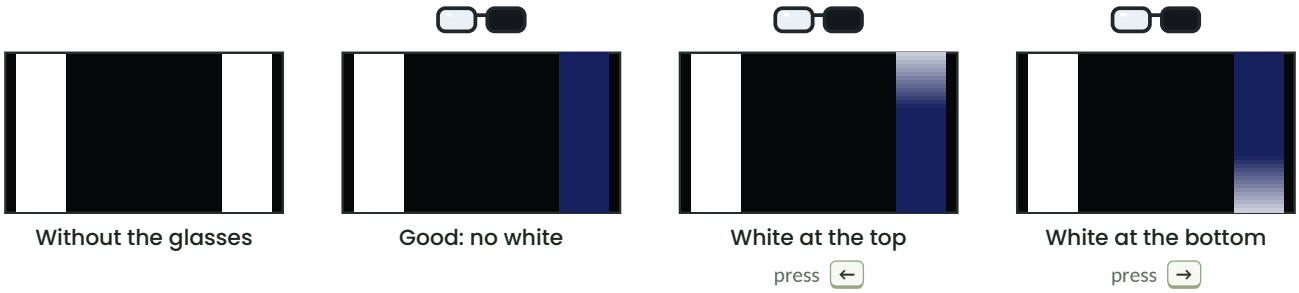


Figure 10. Through the left lens, with the right eye closed. The faint bar stays dark blue: what must not be there is white.

The faint bar never disappears or turns black: through the glasses it always looks dark blue, and that is normal. What to watch for is white in it. Enter goes on to step 2.

> With the monitor's ELMB on (or its own strobing), its timing changes every time it is switched on: if no position of the arrows removes the white from the faint bar, press R (it switches the ELMB off and on) and try again. Sometimes it takes a few tries.

Step 2 · The eyes

The depth pattern appears: a grey background, four squares in the corners and a light rectangle. Does the rectangle float in front of the screen? Press Enter. Does it look sunk behind? Press S, then Enter. Does it look double or flat? Backspace goes back to step 1: the ghost must be gone first.

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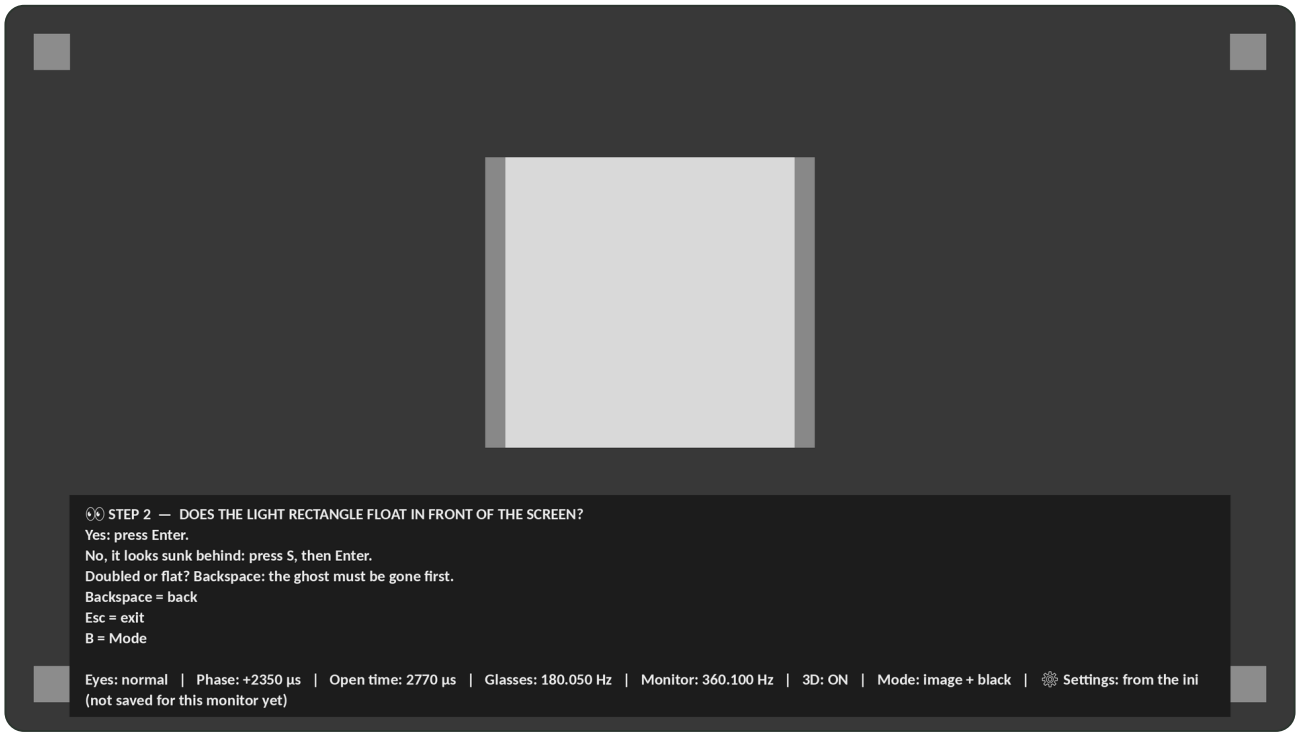


Figure 11. *Step 2: does the rectangle float in front of the screen? Without the glasses it looks double, with an edge on each side.*

Step 3 · The brightness (the open time)

The bars come back. Press ↑ to open the lenses for longer (more light) until white starts to show in the faint bar, or until the maximum; then press ↓ once or twice. That leaves the longest open time with no ghost.

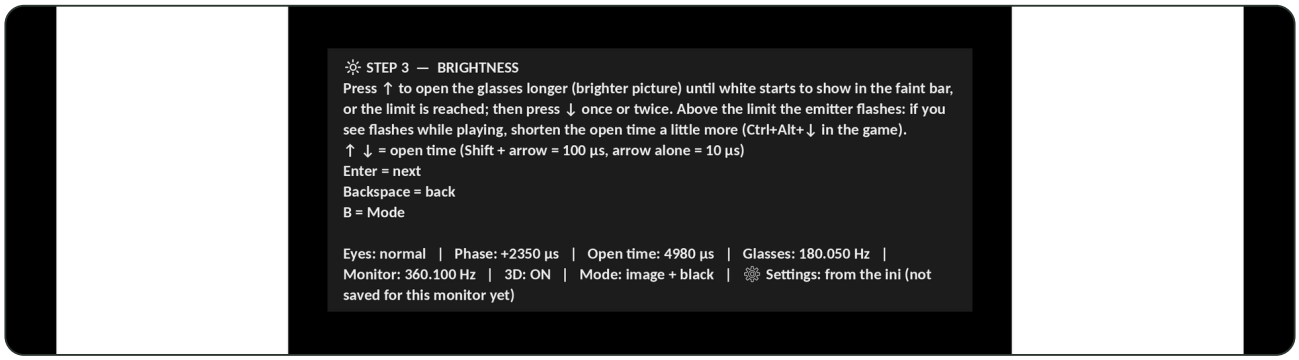


Figure 12. *Step 3: more open time until white shows in the faint bar, and then a little less.*

Above the maximum the emitter would flash. If you ever see flashes while playing, lower the open time a little more (Ctrl + Alt + ↓ in the game).

> On a 3D Vision monitor, at a refresh rate in its table, step 3 is different: it starts from NVIDIA's values, which you should normally leave as they are. Only if white shows in the faint bar, lower it with ↓ until the white goes.

Step 4 · Save

Enter saves the values for this monitor at this refresh rate, and the assistant closes. Esc exits without saving; Backspace goes back.

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Figure 13. Step 4: save for this monitor and this refresh rate.

What the assistant saves is for StereoShutter's window. Over a game the phase may need a different value, so there it is set separately, in the game itself, with the quick setup (below).

The assistant's keys

Key	What it does
← / →	Phase: 10 µs earlier or later. With Shift, 100 µs.
↑ / ↓	Open time: 10 µs more or less. With Shift, 100 µs.
Enter	Next step; on the last one, save.
Backspace	Previous step.
S	Swap the eyes.
R	Switch the monitor's ELMB off and on, if it is on.
B	With image and black: switches between “image + black” and “image twice” (the same image on both refreshes). It is only for comparing: image + black is the good one.
H	Use HDR from the next start (on a monitor with HDR, if it is off).
PgUp / PgDn	HDR brightness, with the HDR output.
L	Language of the texts.
Esc	Exit without saving.

The pattern test

StereoShutter_Test shows the depth pattern for 10 minutes, with a panel that shows the keys and the values in use. It is for checking the setup calmly or fine-tuning it: it has the same keys as the assistant, Enter saves for this monitor and T switches the 3D off and on. With Ctrl+Alt in front (Ctrl+Alt+S…), the keys also work with another window in front.

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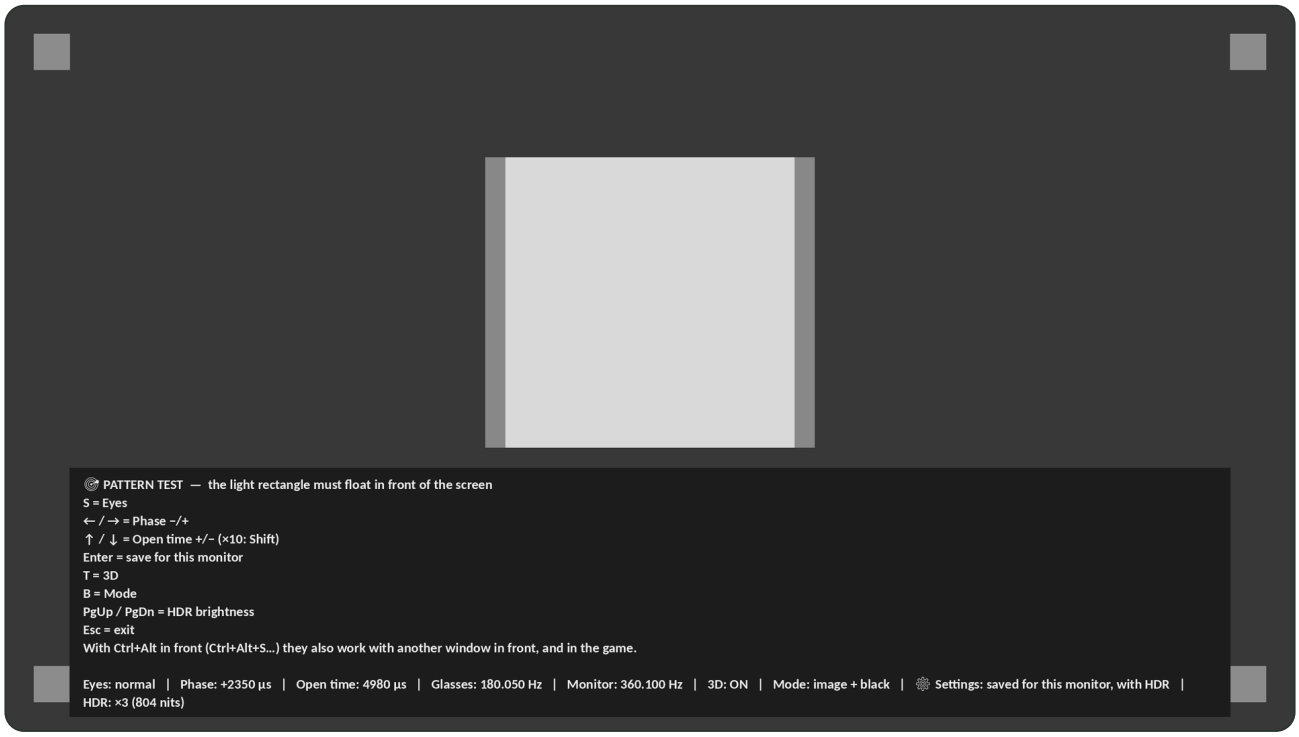


Figure 14. The pattern test, with its keys and the values in use.

In the game: the quick setup

Over a game, the picture takes a different path from the one in StereoShutter's window, and the phase may need a different value (and another one with HDR). That is why the values for over a game are saved separately, and they are set in the game itself with the same bars:

Playing



pause the game first

Figure 15. The help key over a game: each press brings up the next thing.

1. Pause the game.
2. Press the help key, Ctrl + Alt + K, until the bars appear: first the keys appear, then “Settings for this game” and then the quick setup.
3. With one eye closed, Ctrl + Alt + ← or Ctrl + Alt + → until no white is left in the faint bar (it stays dark blue: it does not disappear). Then the other eye.
4. For more light: Ctrl + Alt + ↑ until white shows in the faint bar, then Ctrl + Alt + ↓ once. With the HDR output, Ctrl + Alt + PgUp and Ctrl + Alt + PgDn also change the HDR brightness.
5. Ctrl + Alt + Enter saves and goes back to the game. Ctrl + Alt + K goes back without saving.

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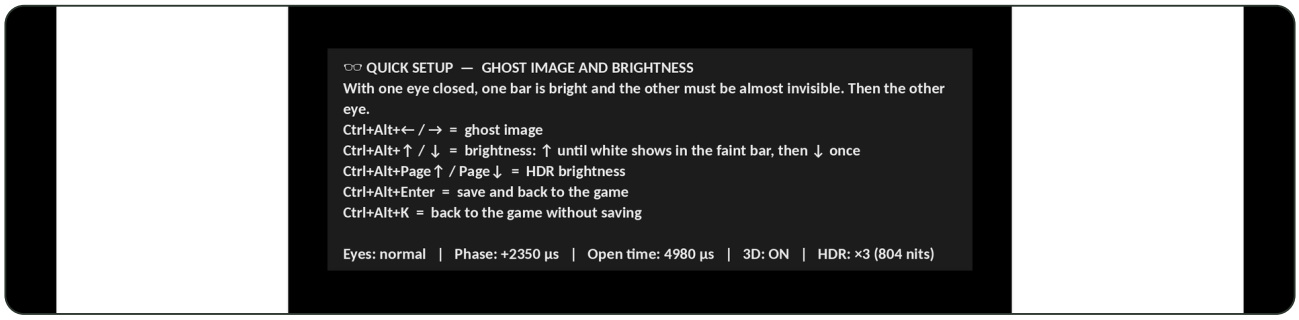


Figure 16. The quick setup over a game: the bars and their keys.

The eyes are not in the quick setup: over a game you check them with the game itself. If the depth comes out inside out, Ctrl + Alt + S, and Ctrl + Alt + Enter saves it.

Fine-tuning with keys, without bars

Over a game these keys always work. Each change appears on screen for a moment with the status line; nothing is saved until you press Ctrl + Alt + Enter.

Key	What it does
Ctrl + Alt + ← Ctrl + Alt + →	Phase: 10 µs earlier or later (with Shift, 100 µs).
Ctrl + Alt + ↑ Ctrl + Alt + ↓	Open time: 10 µs more or less (with Shift, 100 µs).
Ctrl + Alt + S	Swap the eyes.
Ctrl + Alt + G	Re-lock the glasses: sends their settings to the emitter again, in case the glasses have lost track.
Ctrl + Alt + Enter	Save these values for over a game, on this monitor.

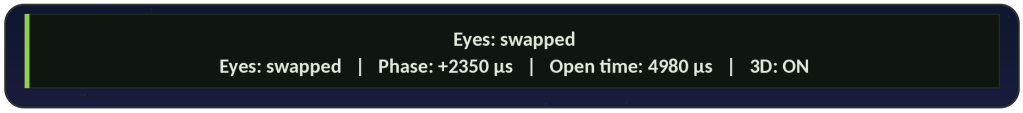


Figure 17. After Ctrl + Alt + S: the eyes swapped, with the status line.

What is saved, and where

- What you save (the assistant, Enter in the pattern test or Ctrl + Alt + Enter in a game) is three things: the phase, the open time and the eye order.
- It is saved in a single file for your Windows user: **%LOCALAPPDATA%\StereoShutter\monitors.json**. It works for every game: the glasses are set up once per monitor and refresh rate, not once per game.
- Each monitor at each refresh rate has its own entry, with four parts: StereoShutter's window, with HDR, over a game and over a game with HDR. If one is not saved yet, the closest one is used.
- Every time you save, the previous file is kept as monitors.json.previous, in the same folder.
- To start from scratch, delete monitors.json. To undo the last thing you saved, replace it with monitors.json.previous.

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Figure 18. *Where each thing is saved.*

The status line says where the values in use come from: “saved for this monitor” (with HDR, for the game…), “NVIDIA 3D Vision table” or “from the ini (not saved for this monitor yet)”. With nothing saved, StereoShutter starts with the values in StereoShutter.ini or with calculated ones, good enough to see in 3D but not the best.

3D Vision monitors: NVIDIA's values

On a 3D Vision monitor, StereoShutter uses NVIDIA's values for that monitor (phase 0 and the open time from the table) and switches LightBoost on. Normally you don't need to touch them. If you change and save them, yours are used from then on for that monitor, and at the start a red message comes up: “Your own glasses values, not NVIDIA's: at your own risk”. The first change of NVIDIA's values in each session is also warned about in red. To go back to NVIDIA's, delete that monitor's entry in monitors.json (the message says where it is).

The monitor's own strobing (ELMB, ULMB…)

Some monitors can switch the screen off while the picture changes, so that movement looks sharper: ELMB, ULMB or “motion blur reduction”, depending on the brand. With one refresh per eye (99 to 185 Hz) it is needed: without it a ghost image remains. Its timing changes every time it is switched on: if the assistant can't get the white out of the faint bar, the R key switches it off and on to try another timing (if the monitor lets the computer do it). If at the start the ELMB is not as it was when you set up the glasses, StereoShutter warns you. With image and black (240 or 360 Hz), leave it off.

If something goes wrong

What you see	What to do
Double image, mostly at the top	The lenses close late: phase with ← (in the game, Ctrl + Alt + ←).
Double image, mostly at the bottom	The lenses open early: phase with → (in the game, Ctrl + Alt + →).
Double at the top and the bottom, and the arrows don't fix it	Open time too long: ↓ until it goes, then look for the phase again.
The depth comes out inside out	Swap the eyes: S (in the game, Ctrl + Alt + S) and save.
Bright flashes now and then	The open time is at the emitter's limit: lower it a little with ↓ (in the game, Ctrl + Alt + ↓).
Everything very dark	More open time (step 3 of the assistant), the HDR output (“HDR: more light through the glasses”) and the monitor's brightness at maximum.

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What you see	What to do
Double everywhere, no depth	The glasses are not in time with the screen: Ctrl + Alt + G re-locks them. Check the emitter's light, the glasses' battery and that the monitor is at the refresh rate you set up.
Message “Monitor at … Hz, glasses set up for … Hz”	The monitor has changed refresh rate (for example, a game in full screen at another rate): put it back at the one you set up, in the game too.
Flicker	It isn't about the glasses' setup: see “The game's rhythm” and “On-screen messages”.

07 Playing

- Start the game as usual. StereoShutter starts by itself with it: StereoShutter_host.dll, the DLL the geo-11 setup connects, starts it.
- If you need to start it by hand, open **StereoShutter_Play** before the game: it waits up to 10 minutes for the game to appear.
- The 3D starts when the game's window has kept the same size for 5 seconds. If it changes (another resolution, minimising…), the picture goes away and comes back by itself. If the game first opens a small window (its loading window) and then its own, or changes window while you play, StereoShutter follows the window the game draws in.
- There can only be one StereoShutter at a time.

Over a game, while its 3D picture is on its way, StereoShutter shows black; if it takes more than 2 seconds, the pattern with a message at the top. In games with geo-11 it also waits for the game to make its picture before going over it: while the game loads, you see its own window.

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Figure 19. If the game's 3D picture takes more than 2 seconds: the pattern, with this message.

The red banner at the start

When the glasses start, a red banner comes up, “3D ON”, and below it, in short, anything that could spoil the 3D, with what to do. Below that, in the green box, the important things about the start (for example, that Windows HDR has been switched on) and two keys: Ctrl + Alt + K for the keys and settings, and Alt + Shift + F10 for the HDR panel.

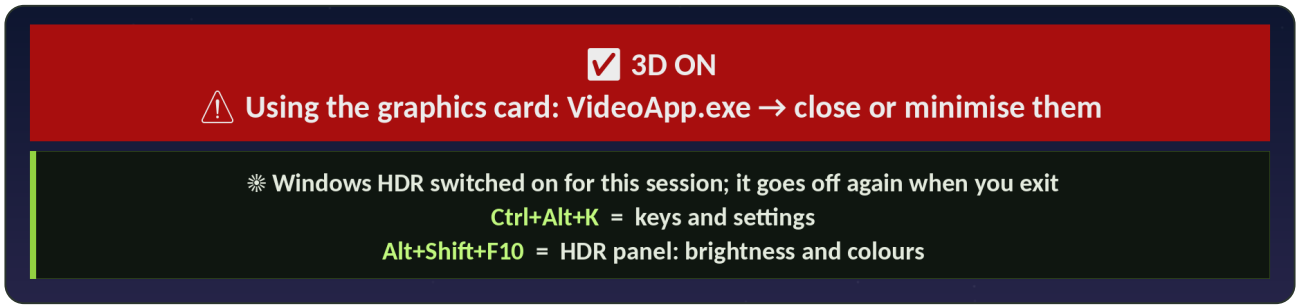


Figure 20. The start: the red banner, with a tip, and the two keys.

The keys page

The first time, the keys page comes up by itself after the red banner. After that, whenever you want, with Ctrl + Alt + K. The keys with Ctrl + Alt work even when the game has the keyboard, also with another window in front, and while StereoShutter is running they don't reach other programs. Ctrl + T, which has no Alt, only works with the game in front: with another window in front, that window gets it (in a browser, it opens a new tab).

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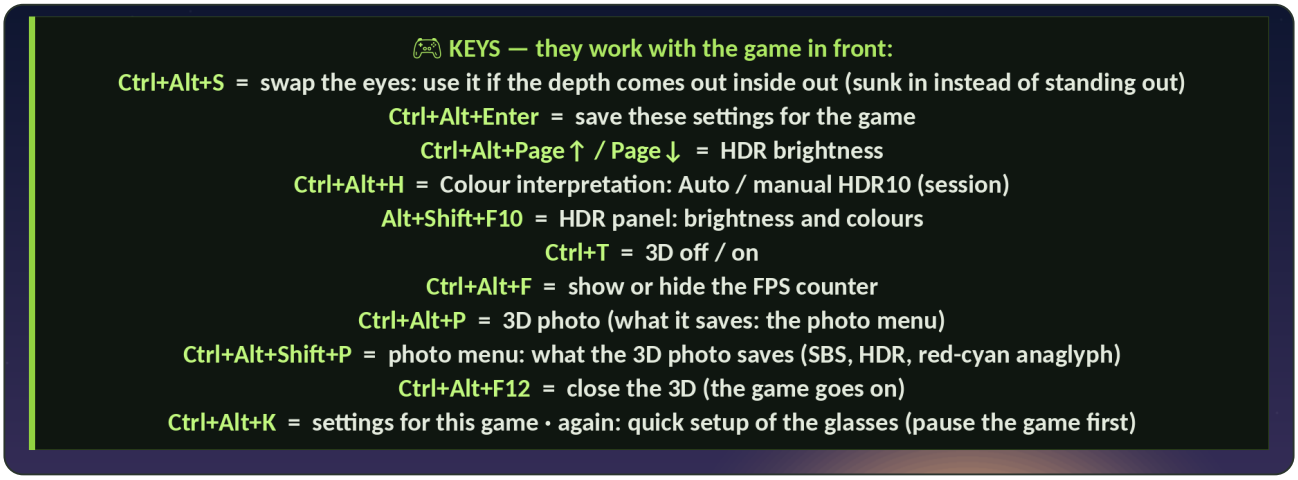


Figure 21. *The keys page over the game.*

The status line

Every time you change something, a box comes up for a moment with what you did and the status line: **Eyes** (normal or swapped), **Phase** and **Open time** in µs, and **3D** (ON or OFF).

The FPS counter

Ctrl + Alt + F switches a small counter on and off at the top left: the game's images per second (fps) and StereoShutter's (Hz). At 360 Hz, if none are lost, it says 360. With the package's StereoShutter.ini it is not there at the start (**[Output] fps_counter = no**); over a game, Ctrl + Alt + Enter keeps it the way Ctrl + Alt + F left it, for that game.



Figure 22. *The FPS counter, with 90 cycles: the game makes 90 images per second and StereoShutter shows all 360.*

3D photos

Ctrl + Alt + P takes a 3D photo of the game at once and saves it in the Pictures\StereoShutter folder, with the game's name, the date and the time. Only the game's picture is in it, without StereoShutter's texts or the FPS counter, and with the light the game makes, without the extra brightness StereoShutter adds for the glasses. Ctrl + Alt + Shift + P opens “Settings for this game” at what the photo saves:

- **SBS 3D**, ticked as standard: a 3840×1080 JPG with both eyes side by side, 1920×1080 each, the left eye on the left (full side-by-side). 3D photo programs, virtual reality viewers and StereoShutter Photos open it.
- **SBS 3D HDR**: the same in JPEG XR, with the game's HDR light: the format of Windows' HDR screenshots, which an HDR image viewer shows in HDR. Only in games with HDR; in a game without HDR the JPG is saved instead.
- **Red-cyan anaglyph**: a 1920×1080 JPG for cardboard red-cyan glasses, with Dubois' colours, the method that keeps the colours best and leaves the least ghost image.

Each eye fits whole into its 1920×1080, without being stretched: a game wider than 16:9 (21:9, for example) gets black bars above and below, and a narrower one at the sides. If you tick several, they all come from the same

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moment of the game. The message at the top says what was saved and where. The folder can be changed in [Photo] folder in StereoShutter.ini; if its name has ; or #, write it between double quotes. The photo key also works during the quick setup of the glasses: the photo is of the game's picture behind it.

> If Windows' **Controlled folder access** is on, it may not let StereoShutter save into Pictures, and the message will say that the photo was not saved. Allow StereoShutter.exe in Windows Security (Virus & threat protection, Ransomware protection) or choose another folder.

Finishing

When you close the game everything closes, and what StereoShutter changed (the monitor's brightness, Windows HDR, LightBoost) goes back to how it was. Ctrl+Alt+F12 closes the 3D earlier, and the game goes on. Ctrl+T, with the game in front, switches the 3D off and on without closing anything: with the 3D off you see one eye's image and the emitter stops.

> **The other monitors.** If you like, StereoShutter covers them in black while you play, so they don't distract you or use the graphics card: “Cover the other monitors” in “Settings for this game”. They come back as soon as you switch to another program.

08 Keys

All of them can be changed in the [Keys] section of StereoShutter.ini. Over a game, PgUp and PgDn show on screen as Page ↑ and Page ↓. The keys with Ctrl+Alt also work with another window in front; the ones without Alt (by default, only Ctrl+T) only with the game in front.

Over a game

Key	What it does
Ctrl+Alt+K	The keys; again, “Settings for this game”; again, the quick setup of the glasses; again, back to the game.
Ctrl+Alt+S	Swap the eyes, if the depth comes out inside out.
Ctrl+Alt+← Ctrl+Alt+→	Phase: 10 µs earlier or later (with Shift, 100 µs).
Ctrl+Alt+↑ Ctrl+Alt+↓	Open time: more light or less ghost (with Shift, in steps of 100 µs).
Ctrl+Alt+Enter	Save the glasses' values for the game, and the FPS counter as Ctrl+Alt+F left it. With a panel open, save the panel.
Ctrl+Alt+G	Re-lock the glasses.
Ctrl+T	Switch the 3D off and on, with the game in front.
Ctrl+Alt+F	The FPS counter.
Ctrl+Alt+P	Take a 3D photo (“3D photos”).

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Key	What it does
Ctrl + Alt + Shift + P	Choose what the 3D photo saves: opens “Settings for this game” at the photos.
Ctrl + Alt + PgUp Ctrl + Alt + PgDn	HDR brightness, up or down (with the HDR output).
Alt + Shift + F10	Open and close the HDR panel.
Ctrl + Alt + I Ctrl + Alt + M	In a panel: choose the previous or the next setting.
Ctrl + Alt + J Ctrl + Alt + L	In a panel: lower or raise the chosen setting.
Ctrl + Alt + Backspace	In a panel: put the chosen setting back to its value.
Ctrl + Alt + H	For a game that sends HDR10 without saying so: read its picture as HDR10, or go back to automatic, for this session only (“HDR: more light through the glasses”).
Ctrl + Alt + End	The bright-area limit on or off (only with [Output] hdr_bfi_limit = static or scene; for this session: “OLED monitors”).
Ctrl + Alt + Home	The bright-area limit's level: 100, 85, 70 or 55 % (if it was off, it turns it on).
Ctrl + Alt + R	Switch the monitor's ELMB off and on (only with [Monitor] relatch_elmb = yes).
Ctrl + Alt + F9	Mark a moment while StereoShutter_Feedback records a game session (“Reporting a problem”).
Ctrl + Alt + F12	Close the 3D. The game goes on.

In StereoShutter's window: the assistant and the pattern test

Key	What it does
← / →	Phase.
↑ / ↓	Open time (with Shift, steps ten times bigger).
Enter	Save for this monitor (in the assistant, next step).
Backspace	The assistant's previous step.
S	Eyes.
T	3D on or off (pattern test).
B	Image + black or image twice.
R	ELMB off and on (assistant).
H	HDR from the next start.
PgUp / PgDn	HDR brightness.
L	Language (assistant).
Esc	Exit.

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With Ctrl+Alt in front, the keys of StereoShutter's window also work with another window in front. In StereoShutter's window, Ctrl+Alt+K shows and hides the list of keys.

09 Settings for this game

A panel with the settings that make sense to change for each game, each with a short explanation. It opens over the game when you press Ctrl+Alt+K twice (the first press shows the keys). Pause the game first. It appears in front of the screen, in 3D, at the menu depth.



Figure 23. Settings for this game: the two pages of the panel.

- With the mouse: click and drag on a setting's bar. The buttons at the bottom change page, put the setting back as it was, save or close.
- With the keyboard: Ctrl+Alt+I and Ctrl+Alt+M choose, Ctrl+Alt+J and Ctrl+Alt+L change, Ctrl+Alt+Backspace puts the chosen setting back to its saved value and Ctrl+Alt+Enter saves.
- It is saved in the StereoShutter.ini in the game's folder: each game has its own. Esc closes; if there were unsaved changes, it reminds you.
- The FPS counter, the menu depth, the language and what the 3D photo saves change at once. The others count from the next start of the game, and until then the panel marks them with ↻.
- A setting that can't be changed here is greyed out, and the panel says why.
- Another press of Ctrl+Alt+K goes on to the quick setup of the glasses.

Setting	What it does	When
Glasses cycles	At 360 Hz: 60 cycles (image, image and black), the steadiest, or 90 cycles (image and black), smoother if the game reaches 90 images per second. It can only be chosen from 360 to 370 Hz, and not on 3D Vision monitors.	↻

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Setting	What it does	When
HDR output	A brighter picture through the glasses. It needs a monitor with HDR.	↻
FPS counter	The game's images per second, at the top left.	at once
Keys at the start	Whether the keys page comes up at the start: never, the first time or always.	↻
Menu depth	How far this panel and the HDR panel stand out of the screen, from 0 (level with the screen) to 2.	at once
Eyes in geo-11 games	geo-11 sends the right eye in the left half; “Normal” puts it right. Change it only if the eyes come out the wrong way round in those games.	↻
Cover the other monitors	Turns the other monitors black while you play in 3D. They come back when you switch to another program.	↻
Language	The language of StereoShutter's texts. Auto: the language of Windows.	at once
Monitor brightness to maximum	Raises the monitor's brightness to the maximum while you play (the glasses take away a lot of light) and puts it back when you exit.	↻
3D photo: SBS	Ctrl + Alt + P saves the 3840×1080 JPG with both eyes side by side.	at once
3D photo: SBS in HDR	It saves the 3840×1080 JPEG XR with the game's HDR light (in games with HDR).	at once
3D photo: red-cyan anaglyph	It saves the 1920×1080 JPG for red-cyan glasses.	at once

10 The game's rhythm

Think of the glasses as a merry-go-round that never stops: on each round, the left eye sees an image and then the right eye. The rounds per second depend on the monitor: 60 at 360 Hz (90 if you choose them) and 60 at 240 Hz.

- Each round has room for one image from the game, and both eyes see that same image. The best is a game that makes exactly one image per round.
- **More images than rounds:** the extra ones are thrown away, and making them keeps the graphics card so busy that StereoShutter's images arrive late: the 3D flickers.
- **Images at their own pace, out of step with the rounds:** now and then a round is left without a new image and the movement jumps a little.
- **Fewer images than rounds** (a heavy scene): it doesn't flicker; the movement is just less smooth.

StereoShutter sets the pace

StereoShutter has a doorman: it lets the game's images through one at a time, each one just when its round comes. While the doorman is working, the game makes as many images as there are rounds, never more: 60 per second at 360 and at 240 Hz (90 at 360 Hz with 90 cycles). It counts the rounds of whatever monitor you use, so there is nothing to change when you change monitor. It never makes the game slower than it can go: an image

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that arrives late goes straight through.

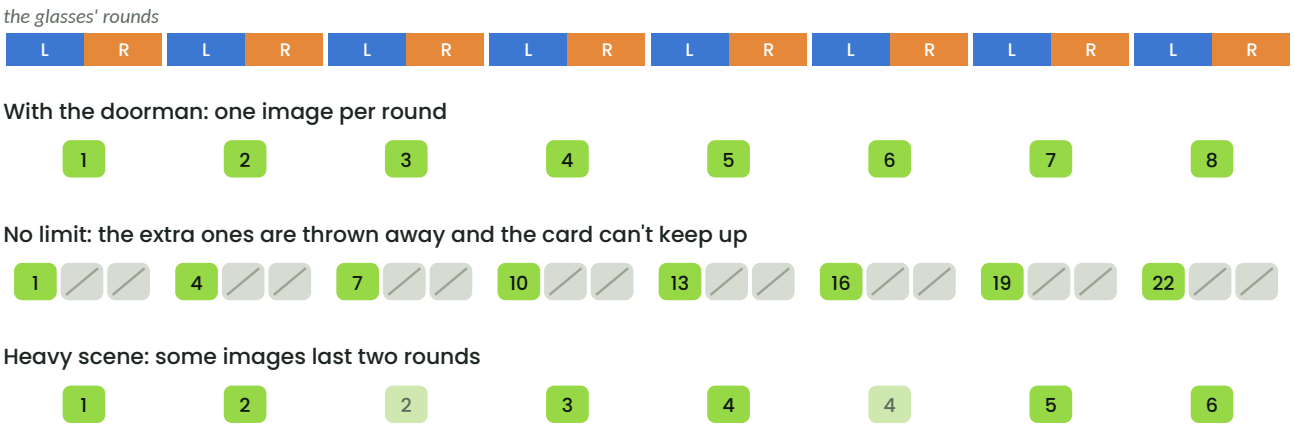


Figure 24. *The glasses' rounds and the game's images.*

In a heavy scene that the game can't keep up with, with image and black (240 and 360 Hz) the doorman steps aside: each eye shows the newest image and the game goes as fast as it can. When the scene gets lighter, the doorman comes back. With one refresh per eye it always stays.

Hitches and window changes

If the whole computer stops for a moment (the game freezes while loading, the driver is slow to answer), the images that may reach the screen late go out without eyes: the left eye's in both, or black, until the screen has caught up. The same when another window comes in front of the game or goes away: Windows changes how it composes the screen and for a quarter of a second everything moves by two refreshes. Instead of a flash with swapped eyes, you see a moment without 3D, and the 3D comes back by itself. With three refreshes per eye, each image is also presented once for its two refreshes and the black comes from an image that is already black (**[Output] present_hold = auto**): the graphics card does a third of the work and the screen shows the same.

The game's FPS limit

Without the doorman (in the first few seconds, when StereoShutter isn't showing the game, or in a game without StereoShutter_host.dll), the game goes at its own pace. If it has its own limit of images per second, set it once to 60 (to 90 if you use 90 cycles at 360 Hz) and forget about it. The images the game makes beyond the rounds of the glasses aren't shown: the report says so.

In games with geo-11, the doorman is StereoShutter_host.dll. Without it there is no doorman: limit the game's images per second with its own limit (60; 90 at 360 Hz with 90 cycles).

The graphics card's margin

StereoShutter prepares its images a little before the monitor needs them. If the graphics card ever doesn't have them in time, you notice a flicker, and StereoShutter gives more margin by itself and warns you in red:

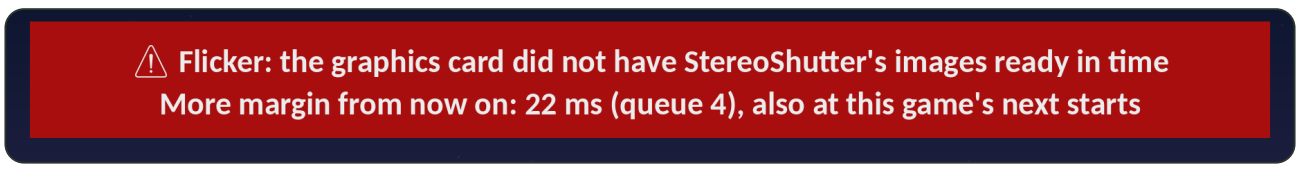


Figure 25. *A flicker: StereoShutter gives the graphics card more margin from that moment on, also the next times with that game.*

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The margin goes up on the same picture, from the next eye: the 3D doesn't go away. It stays for the next times with that game, and the message says so: StereoShutter notes it in the game's StereoShutter.ini, on the line queue_auto_start. And it comes down again by itself: after 10 minutes of play at that level with no margin missing, counted across sessions too (the line queue_auto_calm), the next start begins one level lower, with less delay; if that level flickers, it goes back up at once. A stall of the whole computer does not count as a slow graphics card: no margin covers it. To start everything from the beginning again, delete the line queue_auto_start. If even the largest margin isn't enough, the message tells you to lower the game's graphics or limit its FPS. What helps most: the FPS limit, closing programs that use the graphics card and not having videos open.

A game that fills the graphics card

A game so heavy that it keeps the graphics card at its maximum and makes very few images a second can delay StereoShutter's images so much that not even the largest margin is enough: the 3D flickers all the time. That is what **[Output] engine = auto** is for, and the package's StereoShutter.ini comes with it (if a game's ini is older and lacks that line, add it). If it happens, StereoShutter keeps a part of the graphics card for its images and warns you in red: the game stays just as slow, but without flicker. It does the same when a hitch of the game holds the graphics card longer than the whole margin. Once that part has held for two minutes of play without flicker, it stays for the next times with that game (the line engine_auto_start = copy; delete it to start as usual again); if it flickers before that, the picture goes the usual way again for the rest of the session, with a red notice. And lower the game's graphics: in 3D it draws everything twice.

11 HDR: more light through the glasses

The glasses only let part of the light through: each eye is closed half of the time and the lenses are dark. On a monitor with HDR, StereoShutter can make its images brighter than the desktop's white and give that light back.

Switching it on

- In the assistant or in the pattern test, on a monitor with HDR, the offer comes up: H leaves it on from the next start. Then run the assistant again with HDR: the values with HDR are saved separately.
- Or in “Settings for this game” → HDR output, or in StereoShutter.ini, **[Output] hdr = yes**.
- If Windows HDR is off on that monitor, StereoShutter switches it on while it runs and switches it off at the end (the screen goes black for a moment). If it was already on, it leaves it on.
- Before switching HDR on, StereoShutter raises the monitor's brightness to the maximum: with HDR on, some monitors no longer let the computer change it.

How much light

The white of the images is the white Windows gives the desktop with HDR (the “SDR content brightness” slider) times StereoShutter's HDR brightness, from 1 to 8 (usually 3), and never more than the monitor's maximum, its peak.

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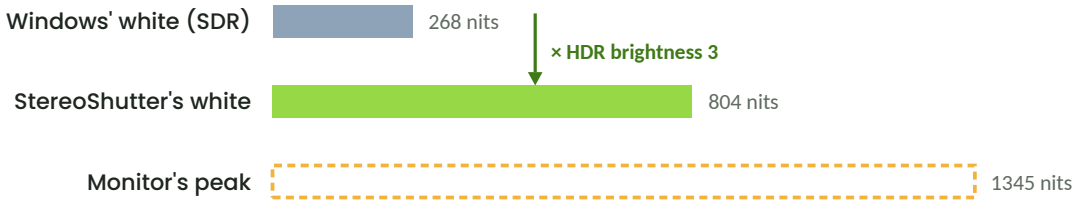


Figure 26. StereoShutter's white: Windows' white times the HDR brightness, up to the monitor's peak.

More light, step by step

1. In the monitor's menu: the HDR mode with the highest peak, and its brightness at maximum if it has one.
2. In Windows: Settings → System → Display → HDR, the “SDR content brightness” slider. It is the white StereoShutter multiplies: higher, more light.
3. In StereoShutter: in the pattern test with HDR, PgUp until the panel says “max” (the white is already at the monitor's peak) and Enter to save it. While playing: Ctrl+Alt+PgUp and Ctrl+Alt+PgDn, and Ctrl+Alt+Enter saves it.
4. If the game has its own HDR on, a brightness of 1.5 to 2 leaves room for its bright lights up to the peak.
5. The other lever is the glasses' open time (step 3 of the assistant): HDR adds to it, it doesn't replace it.

Games with or without their own HDR

The simplest: the game's own HDR off, and Windows' Auto HDR off too. StereoShutter makes the HDR itself from the game's normal picture. If you play with the game's HDR on, that works too: its bright lights are kept up to the monitor's peak and, each time the game switches its HDR on, a short message comes up at the top, as on a TV: “3D · HDR10 active” or “3D · scRGB HDR active”. If StereoShutter notices it from the picture before the game says so, another, longer message comes first, saying how it reads it.



Figure 27. The HDR message: the game comes in HDR10 and the HDR output shows it in full.

Ctrl+Alt+H is for a game that sends HDR10 without saying so, like some that switch their HDR on through NVIDIA's driver: if its colours look odd, it makes StereoShutter read its picture as HDR10, for this session only; press it again to go back to automatic. For good: **[Input] picture** in StereoShutter.ini. If the message already says HDR is active, leave it on automatic.

What is normal with the game's HDR

- **The monitor doesn't change mode** when you switch the game's HDR on. With the HDR output, Windows HDR and the monitor are in HDR from before you start: what changes is what the game sends. The message at the top tells you that StereoShutter has taken it as HDR.

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- **It can look duller than without its HDR.** Games in HDR usually keep ordinary surfaces below the desktop's white and save the light for the bright parts: the picture looks darker and its bright parts stronger. To lighten it, raise “Midtones” above 1 in the HDR panel (below): it lightens the middle tones without touching the white or the bright parts. “Brightness” raises everything, and more of the bright parts end up squeezed against the peak. That setting is saved apart, only for games that come in HDR.

The HDR panel

Alt + Shift + F10 opens the HDR panel over the game, in front of the screen, with 14 settings on two pages. Pause the game first. You use it like “Settings for this game”: with the mouse (click and drag) or with Ctrl + Alt + I and Ctrl + Alt + M (choose) and Ctrl + Alt + J and Ctrl + Alt + L (change). Ctrl + Alt + Enter saves, Ctrl + Alt + Backspace puts the chosen setting back to its neutral value, and Alt + Shift + F10 or Esc closes it.



Figure 28. *The HDR panel, its two pages.*

At the top it shows the output white (the brightness and its nits), the monitor's peak and what picture comes from the game: normal input, HDR10 or scRGB, and how it knows. Until the game's picture arrives, the settings are greyed out.

Two different looks are saved: one for games that come without HDR and StereoShutter turns into HDR, and another for those that already come in HDR. The panel changes whichever one applies at the time, and it is saved in the game's StereoShutter.ini. In the table, in brackets, the neutral value: the one Reset gives.

Setting	What it does	Values
Brightness	The white of the images, as a multiple of Windows' white.	1 to 8 (3)
Exposure	The whole picture lighter or darker, as on a camera.	−4 to 4 EV (0)
Midtones	Lightens or darkens the in-between tones, without touching black or white.	0.5 to 2 (1)
Contrast	More or less difference between the light and the dark areas.	0.5 to 2 (1)
Shadows	Lifts or deepens the dark areas.	−1 to 1 (0)

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Setting	What it does	Values
Saturation	Duller or more vivid colours.	0.5 to 2 (1)
SDR gamma	How the greys of a game without HDR are read: 2.2 as on a normal monitor; sRGB lightens the shadows. Only for games without HDR.	1.6 to 3, or sRGB (2.2)
Highlight knee	Where bright lights start to be softened. Only with “Highlights” on soft.	10 to 90% (50%)
Highlights	soft: lights that would go above the peak are squeezed in below it, keeping their colour. clip: they are cut off at the peak.	soft · clip
Red, green and blue gain	Corrects the colour: more or less of each.	0.25 to 4 (1)
Paper white	The base white, in nits, instead of Windows' white; the brightness multiplies it.	auto, or 80 to 1000 nits
Display peak	The monitor's maximum, in nits, instead of what the monitor reports.	auto, or 80 to 10,000 nits

OLED monitors: brightness that “breathes”

Many OLEDs raise and lower their brightness depending on what is on screen. With 3D, the screen alternates image and black many times a second, and that monitor feature never stops correcting: the brightness slowly “breathes” (you notice it most when looking at a still scene). The fix is in the monitor's menu: turn off its dynamic brightness boost (“Dynamic Brightness Boost” on ASUS monitors; other brands give it other names) or turn on the setting that keeps the brightness steady (“uniform brightness” or similar), and play with StereoShutter's HDR output, which gives the light back steadily. If the HDR mode in use does not let you change it, try its other HDR modes.

The bright-area limit

Something else: with HDR output and black between the images, a large very bright area (a sky, sand, snow) is lit and dark at every eye, and the OLED's own brightness limiter can flicker with it, even without the glasses. That is what **[Output] hdr_bfi_limit** is for, off as standard. With **scene**, StereoShutter lowers only the bright part of each pair, just enough to keep the pair's mean light at the monitor's full-screen luminance; pictures already below it are untouched, dark parts never change and both eyes get the same. With **static**, it always lowers the bright part by the same amount (hdr_bfi_limit_gain). Ctrl + Alt + End turns it on and off and Ctrl + Alt + Home changes its level (100, 85, 70 and 55 %), for that session.

> **Games with geo-11:** Windows HDR has to be on before the game makes its picture. StereoShutter_host.dll takes care of it when the game starts. If StereoShutter opens with the game already running, it leaves Windows HDR as it is and says so: switch it on before starting the game.

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12 Games with geo-11 (DirectX 11)

geo-11 makes DirectX 11 games 3D: it is its d3d11.dll in the game's folder, with each game's 3D fix. It can hand its 3D picture to another program through what it calls the Katanga channel. StereoShutter picks it up and shows it to the glasses inside the game's window. Each game needs its fix made for geo-11: a 3Dmigoto fix made for 3D Vision does not work as it is; it has to be adapted to geo-11. It works with 64-bit and 32-bit games: in a 32-bit game, geo-11 and its fix are the 32-bit ones, and StereoShutter's DLL is StereoShutter_host32.dll.

1. Copy StereoShutter's files into the game's folder, next to the game's .exe and geo-11's d3d11.dll. When updating, replace StereoShutter_host.dll (and StereoShutter_host32.dll) too: StereoShutter connects only to those of its own download.

2. With the game closed, run **StereoShutter_geo-11_Setup** once. It puts the two lines that are needed into geo-11's files: in d3dx.ini (in its [System] section), **proxy_d3d11 = StereoShutter_host.dll**, or **StereoShutter_host32.dll** in a 32-bit game (it tells which from geo-11's d3d11.dll), and in d3dxdm.ini, **direct_mode = katanga_vr**. If geo-11 and the game are not of the same kind (32 or 64-bit), it says so and changes nothing. It also gets the fix ready: it turns off exclusive full screen (**full_screen = 0**) and the 3D Vision profile in the driver (**create_profile = 0**), which fixes adapted from 3D Vision ones often keep; it sets what some games need (**[Host] geo11_load_redirect**); and in two known versions of geo-11 it fixes a fault of its d3d11.dll that now and then closes the game when the 3D starts. First it says what it will change and waits for you to press Enter; if that removes another DLL chained after geo-11, it asks you to type REPLACE. It keeps a copy of each file before changing it (….before-StereoShutter). If StereoShutter is already set up, it offers to remove it (UNDO), and puts everything back as it was.

3. Start the game as usual. StereoShutter_host.dll starts StereoShutter by itself, before the game makes its window, and the 3D starts by itself.

StereoShutter_host.dll (StereoShutter_host32.dll in 32-bit games) sits behind geo-11: it passes all the game's calls to Windows without changing them, puts StereoShutter's picture inside the game's window, starts StereoShutter, acts as the doorman (“The game's rhythm”) and tells StereoShutter when the game puts its picture in HDR. It doesn't draw anything or touch the game's images.

- It also works without StereoShutter_host.dll, in a different way: StereoShutter shows the picture in a window of its own over the game's, and the game keeps the mouse and the keyboard. Then there is no doorman and no count of the game's images: give the game its own FPS limit. If StereoShutter takes another window for the game's, write the game in **[Input] game_window**.
- **Fixes made for 3DMigoto Loader** (their guide starts the game with 3DMigoto Loader.exe, from a folder of its own): leave the fix as it is, copy StereoShutter's files into that folder and run StereoShutter_geo-11_Setup there, which sets it up all the same and says so. To play, open **StereoShutter_Play** first, then the game with 3DMigoto Loader: StereoShutter shows geo-11's picture in a window of its own over the game, without the doorman (give the game its FPS limit). In a folder with neither the game nor the loader, the setup says where the files go and changes nothing.
- In 32-bit games, StereoShutter_host32.dll does the same as StereoShutter_host.dll, except [Host] fullscreen_compat and [Host] nvapi_hdr_route, which are only for 64-bit games.

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- geo-11 only hands over its 3D picture when the game's window has an even width and height. If the pattern stays and the game's picture never arrives, try another resolution.
- If the eyes come out the wrong way round in games with geo-11: “Eyes in geo-11 games” in “Settings for this game”.
- If a game closes during its first images, set **[Host] pace_hook = no** in StereoShutter.ini: the 3D goes on, without a doorman (give the game its FPS limit).
- With **[Report] enabled = yes**, StereoShutter_host.dll writes StereoShutter_host.log next to itself: it says whether it started, whether it started StereoShutter and what it saw.
- If the game closes when you switch its own HDR on, try **[System] allow_platform_update = 2** in the fix's ini; the line is in d3dx.ini or in one of the .ini files of the ShaderFixes folder. With 2, geo-11 gives the game what it asks for its HDR. Set it for that game only: if something else fails with 2, put it back as it was and play with the game's HDR off (StereoShutter's HDR output still gives you HDR).
- If the picture comes out grey, like a depth map, the fix's .ini files are not of the same version as the geo-11 d3d11.dll next to them: keep all the files of one fix together.
- If the game stays in exclusive full screen (StereoShutter's picture doesn't come over it), look for full_screen in the .ini files of the ShaderFixes folder: some fixes set it there, in a file that d3dx.ini includes, and the setup doesn't look at it. Set it to 0. A tool for the game can force it too.
- Small stutters the first time you go through a place, with the fix just installed or changed: that is normal. geo-11 prepares each effect the first time the game uses it and keeps it, and after that it doesn't happen again. It isn't the 3D flickering: the eyes don't cross.
- If the depth keeps changing by itself, it is the automatic convergence some fixes come with, not StereoShutter: it is switched off with the key the fix says.
- StereoShutter_host.dll's other options are in the [Host] section (“The StereoShutter.ini file”).

13 Samsung SSG-5100GB glasses (experimental)

StereoShutter also drives **Samsung SSG-5100GB** active 3D glasses, the ones made for Samsung's 3D TVs. They are Bluetooth glasses: there is no NVIDIA emitter. NVIDIA 3D Vision glasses go on working as before.

> **Experimental support.** It is new in this version and still being refined: it is only for the glasses, the adapter and the kind of monitor named here, and how well it works can change from one setup to another. NVIDIA 3D Vision glasses are not affected by it.

What it needs

- **Samsung SSG-5100GB** glasses.
- A **TP-Link UB500** USB Bluetooth adapter with TP-Link's official driver installed. While the 3D runs, the adapter works only for the glasses; StereoShutter puts its driver back when it closes.
- An **OLED monitor at 240 Hz or 360 Hz**. Both give 60 cycles a second: at 240 Hz each eye gets an image and a black refresh; at 360 Hz, the image twice and a black refresh, which is brighter.

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Setting them up, in StereoShutter Manager

1. Connect the UB500 and install its driver. Keep the glasses close to the adapter, and the TV they were used with off.
2. In the Manager open **Glasses**, choose **Samsung 3D (Bluetooth)**, choose the monitor, confirm that it is an OLED and save.
3. Press **Test glasses** and answer yes when Windows asks for administrator rights: StereoShutter prepares the adapter for the glasses and puts its driver back at the end.
4. Wait for the countdown on the screen, then press the button of the glasses briefly. The first time, or after the glasses were used with a TV, hold the button for about two seconds so that they join StereoShutter. Do not add the glasses in Windows' Bluetooth settings.
5. Close one eye, then the other: Ctrl+Alt+← and Ctrl+Alt+→ move the phase, Ctrl+Alt+↑ and Ctrl+Alt+↓ the open time, until each eye sees only its own bar (with Shift, ten times the step). Ctrl+Alt+F12 ends the test; back in the Manager, save the adjustment it brings back.

From then on every game uses this general profile, also when it is started outside the Manager. A game can keep a profile of its own.

In games

- **StereoShutter Engine** fixes (DirectX 12) work with these glasses as with NVIDIA's.
- A game with **geo-11** needs **StereoShutter_host.dll 0.18.32** or later next to StereoShutter.exe (StereoShutter_host32.dll in a 32-bit game), the ones of this download: they hand the game's picture to StereoShutter as complete pairs, which these glasses need.
- Ctrl+Alt+K in the game shows the keys, then the settings, then the two bars for a quick adjustment; Ctrl+Alt+Enter saves it for that game.

Good to know

- A longer open time is brighter, but lets more of the other eye's picture through. On some monitors a little of it remains and changes with the viewing angle.
- Only one StereoShutter at a time.
- The adapter's firmware is taken from TP-Link's installed driver. It is not part of the download.
- Other Samsung models, other Bluetooth 3D glasses and other adapters are not supported.

Without the Manager. In a game's StereoShutter.ini, **[Emitter] backend = bluetooth** chooses these glasses and **[Glasses] profile = game** makes the game use its own choice; the **[Bluetooth]** section has the monitor and the refreshes per eye. **StereoShutter.exe --settings** opens StereoShutter's own window to choose, save and test the glasses without the Manager (in Spanish for now); its “Recuperar USB” button puts the adapter's driver back if an interruption left the adapter without it.

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14 StereoShutter Manager and DirectX 12 games

StereoShutter Manager is a separate program: it is downloaded on its own, has its own versions and is not in this ZIP. It puts the games, their 3D fixes and the glasses in one place, and downloads StereoShutter by itself: with it, nothing has to be copied by hand.

- **It finds the installed games** and shows the 3D fixes there are for each: the geo-11 fixes published on HelixMod, with their authors' instructions and credits, and StereoShutter Engine fixes for DirectX 12 games.
- **It installs, updates and removes a fix** and keeps a copy of what it changes, to be able to go back.
- **The glasses:** a general profile for every game (NVIDIA 3D Vision, or Samsung SSG-5100GB as experimental support), with the test bars and the calibration; a game can keep its own.
- **Photos and video:** it downloads, updates and opens StereoShutter Player and StereoShutter Photos.
- **No account** for what is free: free fixes, the glasses, the Player and Photos.

How to use it

1. Extract the Manager's ZIP into a folder where you can write and run **StereoShutterManager.exe**. Windows 10 or 11, 64-bit. It looks for its own updates and asks before it restarts to apply one.
2. **Library** lists the installed games it has found (Steam, Epic, Ubisoft Connect, GOG, EA and other launchers) and shows which ones have a 3D fix. **Scan again** looks again after you install or move a game, **Add game** lets you choose a game's executable yourself, and **Search games** (Ctrl + F) filters the list.
3. To install a fix, open the game (**View details**), read the author's instructions and press **Install fix**, with the game closed. For a geo-11 fix from HelixMod, choose **StereoShutter** as its output when the Manager asks. It keeps a copy of what it changes.
4. **Glasses**, at the top, holds the general profile that every game uses: choose **NVIDIA 3D Vision 2** or **Samsung 3D (Bluetooth)**, save, and press **Test glasses** to adjust them with the two bars. A game that needs other values keeps its own: on its page, **Use own settings**; **Use general profile** goes back.
5. **Play** starts the game once its fix is ready.
6. To take a fix out: on the game's page, **Uninstall fix**, with the game closed. The Manager puts back the files it kept. **Repair fix** restores a fix's damaged or missing files, and **Backup history** brings back earlier saved settings.
7. **Photos & video** downloads, updates and opens StereoShutter Player and StereoShutter Photos.

Before installing a fix, read this manual's warning about multiplayer and anti-cheat. The Manager's full guide is inside its own download.

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DirectX 12 games: StereoShutter Engine

StereoShutter Engine fixes bring DirectX 12 games in geometric 3D: each eye is rendered from its own camera through the game's own rendering, with ray tracing, DLSS Super Resolution and DLSS Frame Generation in both eyes where the game has them. They are installed from the Manager, each one complete. With shutter glasses their picture goes through StereoShutter, as this manual describes; they also have outputs of their own: native Leia SR, side-by-side and top-bottom for 3D TVs and projectors, anaglyph, interlaced, checkerboard and Katanga.

> The rest of this manual is for StereoShutter installed by hand.

15 LightBoost and NVIDIA Surround

3D Vision monitors have LightBoost: with the right signal, their backlight flashes in time with the glasses and only comes on when the picture is already complete. It removes a lot of ghost image.

- On a 3D Vision monitor, at a refresh rate in NVIDIA's table, StereoShutter asks NVIDIA's driver for the LightBoost signal while it runs, and removes it at the end. It doesn't save anything.
- It comes switched on. **[Monitor] lightboost = no** switches it off.
- If the previous signal doesn't come back at the end (for example, if the computer hangs), change the monitor's refresh rate in Windows, run **StereoShutter_Undo_LightBoost** or restart.

LightBoost in NVIDIA Surround

In NVIDIA Surround, with 3D Vision monitors, LightBoost is prepared once, before playing, with **StereoShutter_LightBoost_Surround_Setup**:

1. Set NVIDIA Surround up the way you play, at 120 or 144 Hz: your monitor's 3D refresh rates in NVIDIA's table.
2. Save your work and close games, StereoShutter, the NVIDIA Control Panel, the web browser and other programs.
3. Run StereoShutter_LightBoost_Surround_Setup. It explains what it will do, and changes nothing until you type YES and press Enter.
4. The screens go black several times, for a few seconds. Don't touch the mouse or the keyboard until the window says DONE (less than a minute).

After that, play as usual: at the start, “LightBoost: ON in NVIDIA Surround” comes up. It stays like that, even after restarting, until you remove it or change Surround or its refresh rate. To remove it, when you no longer play in Surround: **StereoShutter_LightBoost_Surround_Undo**. If the computer hangs or restarts halfway through, run the Undo afterwards: the file StereoShutter_lightboost_surround.json tells it what to put back.

If a game changes the refresh rate when it starts, LightBoost goes off and the red banner says so. With **[Monitor] lightboost_surround = auto** (the standard setting), StereoShutter puts the refresh rate back when the 3D starts, and the screens go black for a moment.

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Risk: these two tools change the display configuration through NVIDIA's driver, and any change like that can hang or restart the computer. Use them at your own risk. The value try of [Monitor] lightboost_surround is not recommended.

16 On-screen messages

At the start, and then every 30 seconds, StereoShutter checks for anything that could spoil the 3D, and reports it in a red banner at the top, with a triangle in front of each thing and what to do. Each thing is warned about at most twice per session; the second time says it is the last.



Figure 29. A red banner while playing, with what to do.

Message	What it means and what to do
Using the graphics card: ...	Other programs are using the graphics card. Close or minimise them (browsers, videos, chat or AI programs).
Windows keeps redrawing a screen	Something is animated on one of the screens: close videos, browsers and animated windows.
Running: ...	Programs that get into games' drawing (FPS counters, recorders, overlays). Close them if the 3D flickers.
NVIDIA control panel: ...	A global NVIDIA setting gets in the way of the 3D: vertical sync forced off or “Fast”, power management mode, FPS limits or G-SYNC. The message says what to set (“NVIDIA and Windows settings”).
NVIDIA: low latency mode “Ultra” in the global settings...	Set “On” or “Off” in the global settings. “Ultra” for a single game is fine.
HAGS is on and StereoShutter could not get the graphics card's realtime class...	Answer yes when Windows asks for administrator rights as StereoShutter starts, or turn HAGS off and restart Windows (“NVIDIA and Windows settings”).
Flicker: the graphics card did not have ... in time	StereoShutter gives more margin by itself (with [Output] engine = auto, it also keeps a part of the graphics card), and keeps it that way for the next times with that game. If it is already at the maximum, lower the game's graphics or limit its FPS.
Flicker with StereoShutter's own part of the graphics card too...	That part did not help in this game: the picture goes the usual way again until the end of the session, and nothing is noted for next time.
Monitor at ... Hz, glasses set up for ... Hz	The monitor changed refresh rate: put it back at the one you set up, in the game too.
Your own glasses values, not NVIDIA's	On a 3D Vision monitor you are using your own values. To go back to NVIDIA's, delete that monitor's entry in monitors.json.

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Message	What it means and what to do
Monitor ELMB: ...	The ELMB is not as it was when you set up the glasses: put it back as it was in the monitor's menu, or set the glasses up again.
LightBoost OFF in NVIDIA Surround	The one-time preparation is missing (StereoShutter_LightBoost_Surround_Setup), or the game changed the refresh rate: the message says which.
The monitor did not take the brightness	Raise it in the monitor's menu (or start with Windows HDR off).
Windows HDR was not enabled during gameplay...	Games with geo-11: switch Windows HDR on before starting the game.
HDR input · SDR output	The game comes in HDR and the HDR output is off: turn it on for next time.
Diagnostic: this game session is recorded...	The game session is being recorded for “Reporting a problem”. Ctrl + Alt + F9 marks the moment of a problem.

Screens that stop the start

These appear instead of the 3D, on a black screen with the title in red. They close by themselves (the emitter one, when the emitter is back), and Esc closes them at once:

- **Unsupported display mode:** the monitor is at a refresh rate the glasses can't follow (“Your monitor”).
- **Glasses not set up for this display mode:** nothing is saved for this monitor at this refresh rate, and it can't start without the assistant: run StereoShutter_Setup.
- **3D Vision emitter not found:** unplug the emitter's USB cable, wait 5 seconds and plug it in again. StereoShutter looks for it every second and goes on by itself when it is back.

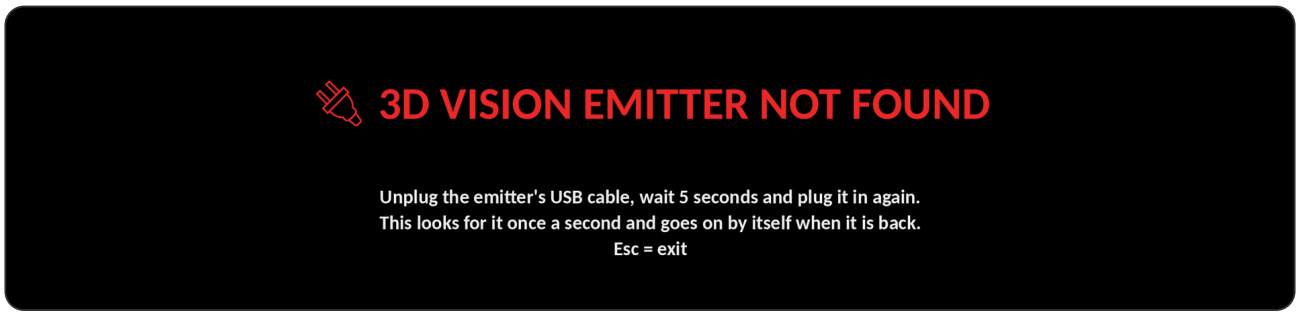


Figure 30. The emitter isn't connected: StereoShutter waits for it to come back.

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17 NVIDIA and Windows settings

Three things to check. StereoShutter checks them at the start and warns you on screen.

1. **Windows: hardware-accelerated GPU scheduling (HAGS), on or off.** Windows Settings → System → Display → Graphics settings. Games' frame generation needs it. With it on, each time StereoShutter starts it asks Windows for administrator rights for a helper of its own, which puts it in the graphics card's realtime class while it runs, so that its images go before the game's: answer yes. With no, it works all the same, but its images may come late and the glasses flicker. **[Output] hags_realtime = no** never asks. After changing it, restart Windows.

2. **NVIDIA: global low latency mode set to "On" or "Off", never "Ultra".** NVIDIA Control Panel → Manage 3D settings → Global Settings. A global "Ultra" also acts on StereoShutter and makes it lose refreshes; "Ultra" for a single game is fine.

3. **NVIDIA: G-SYNC off on the glasses' monitor** (Monitor Technology: Fixed Refresh). The glasses need a fixed refresh rate.

StereoShutter does the rest: it saves in NVIDIA's driver a small profile just for StereoShutter.exe (no low latency for it, no FPS limit, its own vertical sync and maximum performance), so that the global settings don't get in its way. It doesn't touch anything of the games. If you'd rather it didn't do this: **[Output] nvidia_profile = no**.

> **In the game:** vertical sync (V-Sync) off. The 3D goes over the game's window, in full screen too.
>
> **While you play:** keep the game in front; with another window in front, Windows composes the screen and the 3D can flicker. Close or minimise anything that keeps drawing (browsers, videos, chat or AI programs), the game's launcher and other windows left behind it, and programs that get into games (overlays, recorders, FPS counters).

18 The StereoShutter.ini file

StereoShutter.ini, next to StereoShutter.exe, keeps the settings, each with its explanation above it. Edit it with StereoShutter closed (with Notepad, for example); changes count from the next start. A line that starts with ; is a comment. If a line is missing, its standard value is used: in the tables, the one in bold, or in brackets.

One file for several monitors

Any section can have a version for one monitor or for one refresh rate: a section with the same name, @ and the monitor or the refresh rate. Its lines replace those of the normal section when that is the monitor in use:

```
[Output @ 120 Hz]          the monitor is at 120 Hz
[Output @ DISPLAY2]         Windows' DISPLAY2 monitor, or part of its name
[Input @ DISPLAY2 360 Hz]   both
```

If several apply, the last one in the file wins. It doesn't work for what is needed before the monitor is known: [Output] monitor and own_window, [Input] katanga and game_window, [Monitor] profiles and nvidia_table, or

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the [Display], [Report] and [Host] sections. What StereoShutter writes in the file goes to the section the value came from.

[Output] · The output

Option	Values	What for
`mode`	**glasses** · image_only	glasses: with the emitter. image_only: only the picture, without the emitter, to check it.
`monitor`	**primary** · surround · part of its name · DISPLAY2	The glasses' monitor. primary: the main one; surround: the NVIDIA Surround screen.
`queue`	**auto** · 2 to 8	How many images it prepares ahead. auto starts at 3 and goes up by itself if the graphics card is not in time, and what it goes up stays for that game; after 10 minutes of calm play it comes down again (“The game's rhythm”). More: more margin, but the picture arrives a little later.
`fps_counter`	**yes** · no	yes: the FPS counter is shown from the start. no (the package's): only with its key; over a game, Ctrl+Alt+Enter saves how it left it.
`own_window`	**no** · yes	Over a game: no, a layer inside the game's window; yes, a window of its own over the game's.
`cover_monitors`	**no** · others · 2, 3 · part of a name	Cover the other monitors in black while the 3D runs: others, all of them; or the ones you say, with their Windows display numbers. At the start, each one shows its number and name for 5 seconds.
`reflex`	**status** · yes · no	NVIDIA Reflex, only on StereoShutter's own images. status: it only reads the driver's state, without changing anything. yes: Reflex on. no: nothing of Reflex.
`nvidia_profile`	**yes** · no	StereoShutter.exe's own profile in NVIDIA's driver.
`hdr`	**no** · yes	The HDR output.
`hdr_brightness`	1 to 8 (2)	The HDR brightness: the white, as a multiple of Windows' white. The usual value is 3, the HDR panel's Reset.
`hdr_format`	**scrgb** · hdr10	How the HDR picture goes out: scrgb (16 bits) or hdr10 (10 bits).
`hdr_bfi_limit`	**off** · static · scene	The bright-area limit, only with HDR output and black between the images (“OLED monitors”).
`hdr_bfi_limit_nits`, `hdr_bfi_limit_knee`, `hdr_bfi_limit_gain`	**auto** · numbers	The mean light allowed (auto: the monitor's full-screen luminance), where the lowering starts (0.6) and the gain of static (0.6).

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Option	Values	What for
`hdr_gamma`, `hdr_saturation`, `hdr_highlights`, `hdr_exposure`, `hdr_midtones`, `hdr_contrast`, `hdr_shadows`, `hdr_highlight_knee`, `hdr_red_gain`, `hdr_green_gain`, `hdr_blue_gain`, `hdr_paper_white_nits`, `hdr_peak_nits`	the HDR panel's	The HDR panel's settings ("HDR: more light through the glasses"). auto: the neutral value.
`gpu_priority`	−7 to 7 (7)	The priority of StereoShutter's images on the graphics card: 7, ahead of the game's work; 0, the normal one.
`gpu_priority_class`	**high** · normal	The priority of the whole of StereoShutter on the graphics card.
`hags_realtime`	**auto** · no	With HAGS: auto, at the start it asks for administrator rights for a helper that puts StereoShutter in the graphics card's realtime class; no, it never asks.
`cpu_priority`	**max** · time_critical · normal	The priority on the processor while it shows the game.

[HDR.SDR] and [HDR.Native] · The two looks of the HDR panel

Option	Values	What for
`the panel's 14 lines`	as in [Output]	For games without HDR ([HDR.SDR]) and for those that come in HDR ([HDR.Native]). Whatever is missing is taken from [Output]. The panel writes them when it saves.

[Input] · The game's picture

Option	Values	What for
`source`	**auto** · pattern · game	What is shown. auto: over a game, its 3D picture (black until it arrives; if it takes more than 2 seconds, the pattern), and in StereoShutter's window, the pattern. pattern: always the pattern. game: the game's picture in StereoShutter's window too.
`picture`	**auto** · sdr · scrgb · hdr10	What the game's picture is: auto works it out. By hand, only if the colours come out wrong.
`pace_game`	**auto** · yes · no	The doorman: auto, StereoShutter decides; yes, always; no, never (the game goes at its own pace).
`pace_lead_ms`	**0** · 0.5 to 10	How far ahead each game image must be ready. 0: half a round, the safest.
`pace_lead_auto`	**yes** · no	That this lead adjusts itself as the game's images arrive.
`pace_divider`	1 to 4 (1)	With the doorman always on: one game image every N rounds. 2, for a game that can't keep up: an even pace, but what moves may look a little doubled.

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Option	Values	What for
`eyes`	**same_frame** · newest · auto	Which game image each eye comes from. same_frame: both from the same one. newest: each eye, the newest one (without the doorman). auto: chosen with the doorman.
`link`	**live** · pairs	How the layer's picture arrives: live, as the layer draws it; pairs, its complete pairs, a little later. Older layers only have pairs.
`katanga`	**auto** · no · yes	geo-11's channel: auto, when it is there; no, never; yes, only that one.
`katanga_eyes`	**right_left** · left_right	Which eye goes in each half of geo-11's picture (“Eyes in geo-11 games” changes it).
`game_window`	**empty** · the .exe · part of the title	Without StereoShutter_host.dll: which window is the game's. Empty: the one in front.
`nvapi_hdr`	**auto** · yes · no	For old games that switch their HDR on through NVIDIA's driver: whether what the driver says counts. no: it isn't even read while you play.
`nvapi_hdr_reads`	**needed** · always	When it is read while you play: needed, only if the game's picture doesn't say its colours; always, every second. A slow read of the driver keeps StereoShutter's images waiting.
`pattern`	**depth** · bars · colors	The test pattern: the rectangle, the bars, or red for the left eye and blue for the right.

[Monitor] · The monitor

Option	Values	What for
`brightness`	**max** · keep	max: the monitor's brightness at maximum while it runs, and back at the end. keep: it isn't touched.
`read_elmb`	**yes** · no	Read the monitor's ELMB at the start and at the end.
`relatch_elmb`	**no** · yes	yes: switch the ELMB off and on at the start, and Ctrl + Alt + R repeats it. It changes the monitor.
`lightboost`	**yes** · no	LightBoost on 3D Vision monitors.
`lightboost_surround`	**auto** · no · try	LightBoost in NVIDIA Surround (“LightBoost and NVIDIA Surround”). try is not recommended: it can restart the computer.
`profiles`	**auto** · a file	Where the glasses' values are saved. auto: %LOCALAPPDATA%\StereoShutter\monitors.json.
`nvidia_table`	**StereoShutter_nvtimings.json** · none	A copy of NVIDIA's 3D Vision table, only for monitors missing from the driver's. It doesn't come with the program.

[Emitter] · The emitter and the glasses

Option	Values	What for
`sync_offset_us`, `open_duration_us`	µs	The starting phase and open time, for a monitor with nothing saved. The open time only counts when the glasses run at the rate in rate_hz; otherwise it is calculated: half the turn with image and black, 30% with one refresh per eye.

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Option	Values	What for
`swap_eyes`	**no** · yes	Eyes swapped from the start. What is saved for each monitor wins.
`clean_start`	**yes** · no	That the glasses start when the picture is already steady.
`disable_on_exit`	**yes** · no	Switch the emitter off at the end.
`rate_hz, open_delay_us, w_us`	numbers	Emitter values: leave them as they come.

[BFI] · Image and black

Option	Values	What for
`mode`	**black** · double	With 2 refreshes per eye: black, image and black (the good one); double, the image twice.
`refreshes_per_eye`	**3** · 2	3: image, image and black (60 cycles at 360 Hz), from 360 Hz; below that 2 (75 cycles at 300 Hz). 2: image and black (90 cycles at 360 Hz). From 371 to 555 Hz always 3. “Glasses cycles” changes it.
`sync_offset_us, open_duration_us, swap_eyes`	optional	Starting values of its own for image and black, if nothing is saved.

[Display] · Texts and panels

Option	Values	What for
`language`	**auto** · en · es · it · fr · de · pt · ru	The language of the texts (auto: the language of Windows).
`hdr_panel_depth`	0 to 2 (0.4)	How far the panels stand out of the screen.
`hdr_panel_mouse`	**auto** · yes · no	The mouse in the panels. no: keyboard only.

[Photo] · The 3D photo

Option	Values	What for
`sbs`	**yes** · no	The SBS photo: a 3840×1080 JPG.
`hdr`	**no** · yes	The SBS photo in HDR: a 3840×1080 JPEG XR (games with HDR only).
`anaglyph`	**no** · yes	The red-cyan anaglyph: a 1920×1080 JPG.
`folder`	a folder	Where the photos are saved (made when missing). Empty: Pictures\StereoShutter. Without a drive (C:), next to the ini. Between double quotes if it has ; or #.

[Test], [Report], [Timing], [Diagnostics]

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Option	Values	What for
`[Test] seconds`	1 to 3600 (10)	How long the pattern test lasts when StereoShutter.exe is opened on its own, in seconds. StereoShutter_Test always lasts 10 minutes.
`[Report] enabled`	**no** · yes	A report of each session in the StereoShutter_reports folder, next to the program. If something goes wrong, it is what to look at or send. The assistant and the pattern test always write theirs.
`[Timing] reflex_low_latency`	**yes** · no	With reflex = yes, whether Reflex's low latency mode is requested.
`[Diagnostics] temporal_trace`	**no** · yes	Very detailed timing data, only for tracking down a problem.

[Host] · StereoShutter_host.dll, in games with geo-11

Option	Values	What for
`autostart`	**yes** · no	That the DLL starts StereoShutter with the game.
`color_space_hook`	**yes** · no	That it tells StereoShutter when the game puts its picture in HDR.
`pace_hook`	**yes** · no	Count the game's images and act as the doorman. no: if a game closes at the start.
`frame_statistics`	**yes** · no	Some games run very slowly with their window fully covered: it answers them as if it could be seen.
`visible_game_strip`	**0** · auto	auto: leaves a 1-pixel strip of the game's window visible if it is still slow. It can take a loading screen or a pause for that and make the 3D flicker: then, 0.
`fullscreen_compat`	**no** · yes	For games that ask for exclusive full screen: it gives them a borderless window the size of the screen. 64-bit games only.
`nvapi_hdr_route`	**no** · yes	For games that switch their HDR on through NVIDIA's driver, if they need it. Only with [Output] monitor = primary, and in 64-bit games.
`nvapi_primary_first`	**no** · yes	With the previous one: the main monitor, first in the list.
`geo11_load_redirect`	**no** · yes	Some games need geo-11's load_library_redirect setting, which geo-11 switches off when it has a DLL behind it: yes makes the DLL do it.

Advanced options: leave them as they come

Option	Values	What for
`[Output] engine`	**draw** · copy · auto	Which part of the graphics card puts each image on screen. auto: draw, and copy if the graphics card doesn't have the images in time or a hitch of the game holds it; it stays for that game once it has held for 2 minutes (“The game's rhythm”).
`[Output] final_cache`	**auto** · yes · no	Keep each finished HDR image so as not to draw it again.

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Option	Values	What for
`[Output] present_hold`	**auto** · yes · no	With three refreshes per eye: each image is presented once for its two refreshes and the black comes from an image that is already black (“The game's rhythm”).
`[Output] queue_raise, queue_auto_gpu_done`	**auto** · in_place · restart; exact · seen	How queue = auto goes up (on the same picture, without losing the 3D) and how it knows the graphics card was late.
`[Output] gpu_priority_absolute, gpu_priority_scope`	**off** · 16 · 17 · auto; output · pipeline	An absolute priority on the graphics card.
`[Output] queue_auto_start, engine_auto_start, queue_auto_calm, queue_auto_calm_needed, queue_auto_lowered`	written by StereoShutter	Where queue = auto and engine = auto start in that game, if they had to change. Delete them to start as usual again.
`[Input] katanga_acquire, pair_acquire, pair_release, katanga_phase_probe, pace_lead_fit`	various	How the game's picture is picked up.
`[Emitter] timing_source, exact_rate`	—	Kept for compatibility; they change nothing.
`[Diagnostics] dx12_debug_layer, source_hold_probe`	**no** · yes	Only for tracking down a problem.
`[Diagnostics] drift_guard, plan_pull, pace_retry`	**yes** · no	The guards against hitches; don't turn them off except to track down a problem.

[Keys] · The keys

Each key in “Keys” has its line: toggle_3d, relock, swap_eyes, phase_minus, phase_plus, open_plus, open_minus, save, help, quit, fps_counter, hdr_brighter, hdr_darker, input_picture, hdr_panel, hdr_panel_prev, hdr_panel_next, hdr_panel_minus, hdr_panel_plus, hdr_panel_reset, photo, photo_menu, hdr_bfi_limit_toggle, hdr_bfi_limit_level and elmb. They are written like this: Ctrl+Alt+S, F9, Ctrl+Alt+Left, Shift+F12 (key names: Left, Right, Up, Down, PageUp, PageDown, Enter, Backspace…). Empty or none: no key. Also: help_at_start (once, always or never: the keys page at the start; with once, StereoShutter writes never after the first time), phase_step_us and open_step_us (how much each press moves: 10 µs), and mark (marks a problem in the report; no key as standard, except in the game session recorded for “Reporting a problem”: Ctrl + Alt + F9).

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19 Tools, files and options

Each tool is a small program with its own icon: it opens StereoShutter in a window, says what it will do and at the end waits for you to press Enter.

Tool	What it does
StereoShutter_Setup	The assistant to set up the glasses. Writes its report.
StereoShutter_Test	The pattern test, 10 minutes. Writes its report.
StereoShutter_Play	Starts StereoShutter by hand for a game; waits up to 10 minutes for the game.
StereoShutter_geo-11_Setup	Sets StereoShutter up in geo-11 in this folder and gets the fix ready, or removes it.
StereoShutter_Undo_LightBoost	Puts the previous signal back if LightBoost was left on.
StereoShutter_LightBoost_Surround_Setup	Prepares LightBoost in NVIDIA Surround, once.
StereoShutter_LightBoost_Surround_Undo	Removes it.
StereoShutter_Feedback	Records your next game session to report a problem. It has a window of its own (“Reporting a problem”).

File	What it is
StereoShutter.exe	The program.
StereoShutter.ini	The settings.
StereoShutter.ini.…-backup-….bak	Copies of the ini from before StereoShutter wrote into it by itself or with the assistant's H. They can be deleted.
StereoShutter_host.dll	Only for games with geo-11 (“Games with geo-11”).
StereoShutter_host32.dll	The same, for 32-bit games with geo-11.
….before-StereoShutter	Copies of geo-11's files from before StereoShutter_geo-11_Setup changed them.
StereoShutter_reports\	The reports: with [Report] enabled = yes, and always those of the assistant and the test.
StereoShutter_feedback\	The ZIP files of “Reporting a problem”.
StereoShutter_diagnostic.json	Only while a game session is waiting to be recorded or being recorded.
StereoShutter_lightboost_pending.json	Only while LightBoost is on, or if it couldn't be removed.
StereoShutter_lightboost_surround.json	What the LightBoost preparation in Surround did, until it is undone.

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File	What it is
`StereoShutter_LICENSE.txt`, `StereoShutter_THIRD_PARTY.txt`	The licence and the notices for other people's material.
`%LOCALAPPDATA%\StereoShutter\monitors.json`	The glasses' saved values (and monitors.json.previous).

StereoShutter.exe also accepts options; StereoShutter.exe --help lists them all. The most useful:

Option	What it does
`--setup`	The assistant.
`--play`	For playing: waits for the game and finishes with it.
`--seconds N`	How long the pattern test lasts.
`--monitor NAME`	The glasses' monitor: part of its name, or DISPLAY2.
`--hdr · --no-hdr`	With or without the HDR output, this time.
`--hdr-brightness X`	The HDR brightness, this time.
`--swap-eyes`	Eyes swapped, this time.
`--pattern bars`	The bar pattern (or depth, colors).
`--no-lightboost`	Without LightBoost, this time.
`--report`	Write the report, this time.
`--no-save`	A trial: Enter and Ctrl+Alt+Enter save nothing.
`--list`	Just look: monitors, emitter and timings, and finish.
`--version`	The version.

20 Reporting a problem

If the 3D or the glasses do something wrong in a game, **StereoShutter_Feedback** prepares a file with what is needed to find the cause, ready to send by e-mail to info@stereoshutter.com. It records only your next game session; afterwards everything is as before, and nothing stays running.

1. Open **StereoShutter_Feedback** (next to StereoShutter.exe, in the game's folder) and press “Record the next game session”. Then press “OK, close this window”.
2. Start the game as usual and play until the problem shows up. When the 3D starts, the message on the screen says that the game session is being recorded.
3. When you see the problem, press Ctrl + Alt + F9: it is marked, and the second-by-second detail of that moment is kept. You can mark more than one.

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4. Close the game. A window opens by itself with the file ready: press “Send by e-mail to info@stereoshutter.com”, say in the e-mail what you saw and when, and send it.

Your e-mail program opens with the file already attached. If it cannot (for example, if you use your e-mail in the browser), a new e-mail and a folder window with the file selected open: drag the file into the e-mail. If your e-mail program answers that the e-mail was cancelled, the folder window opens with the file selected, in case the e-mail did not go: send the file as an attachment from the e-mail you normally use. The file stays in the StereoShutter_feedback folder, next to StereoShutter, until you delete it.

What goes into the file

- StereoShutter's report of that game session, with its timings and the moments you mark.
- StereoShutter's settings and the glasses' saved values.
- The logs of StereoShutter and of the game's 3D layer in the folder.
- The Windows version, the processor, the memory, the graphics card and its driver, and the monitors.
- The versions of StereoShutter's files and of the graphics files in the folder.
- What Windows recorded about programs that closed because of an error, or about the graphics driver being restarted, during that game session.
- **5 MB at most**, so that any e-mail can carry it. In a long session it keeps what matters: the start, the end, what happened along the way (messages and changes) and, second by second, the two minutes before and the 30 seconds after each problem you marked.

> **It never contains** your name, the computer's name, your files, network addresses or serial numbers: they are taken out of every text before the file is saved. “See what it contains” opens it for you to look. Nothing is sent by itself: you send the e-mail.

If something does not go as expected

- If the game did not open, or opened but its 3D did not start, open StereoShutter_Feedback again and press “The 3D did not start: prepare the file”.
- If you start no game within 24 hours, the recording is cancelled by itself. “Cancel the recording” cancels it earlier.
- If the game session is cut off (StereoShutter or the computer stops), the file is prepared the next time you open StereoShutter_Feedback or a game session ends.
- If another full-screen program is in front when you close the game, the window waits until you close it.
- While it records, StereoShutter writes its whole report and StereoShutter_host.dll its log. When the file is prepared, what was written only for the recording is taken out of the folder (if you already had the reports on, it stays).

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21 Good to know

StereoShutter does everything a program can do. These are its limits, so you know what to expect.

- **A program, not the driver.** NVIDIA's 3D Vision lived inside the graphics driver and switched eyes exactly on the refresh, with nothing getting in between. StereoShutter is a program: it hands each image to Windows, which puts it on screen. It measures the monitor's clock and follows it to the microsecond, but if something else keeps the graphics card busy at the worst moment, an image arrives one refresh late and for an instant one eye sees the other's: a flash, or flicker if it happens often. That is why it warns you about what gets in the way: the deal is that it keeps watch and you keep the graphics card free.
- **The game needs its rhythm:** StereoShutter's doorman or the FPS limit. Without either, the 3D flickers.
- **With HAGS on**, StereoShutter needs the graphics card's realtime class: Windows asks for administrator rights each time it starts.
- **From 99 to 185 Hz (one refresh per eye)** the monitor's own strobing (ELMB, ULMB...) is needed: without it the picture is darker and a ghost image stays at the top or the bottom.
- **The glasses eat light:** each eye is closed half of the time. HDR and the monitor's brightness at maximum give some of it back.
- **Some OLEDs** make the brightness “breathe” with 3D, or flicker with large very bright areas (“HDR: more light through the glasses”).
- **NVIDIA Surround:** Windows HDR isn't switched on there.
- **geo-11 without StereoShutter_host.dll:** there is no doorman and no count of the game's images; the game needs its own FPS limit.

22 Risks, undoing and licence

Your monitor: read this. While it runs, StereoShutter sets the monitor's brightness to maximum and, with the HDR output, makes its images brighter than the desktop: roughly the light of a game in HDR. The monitor keeps its own limits and protections. Even so, **an OLED screen wears with brightness and with time**, and something bright that always stays in the same place (a game's score display) can leave a mark, as with any HDR game. Keep the monitor's own care features on, lower the HDR brightness or play without HDR if in doubt, take breaks and don't leave StereoShutter running with a still picture. **You use it at your own risk: the author accepts no responsibility for any damage** to the monitor, the glasses, the emitter or anything else.

Online games and anti-cheat. Using StereoShutter or 3D fixes in online games or in games with anti-cheat is not recommended. 3D layers and fixes get into the game (DLL files and hooks), and an anti-cheat system may block them or ban the account, even for good, even if they are only used to see in 3D. Use them in single-player games that allow it. Closing StereoShutter does not remove what is in the game's folder: before playing online, remove StereoShutter and the 3D fix by following their instructions. Never turn off or get around an anti-cheat system.

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What StereoShutter touches

- It only reads its own files, NVIDIA's table (without changing it) and the monitor's brightness and ELMB. It installs nothing and doesn't change drivers.
- While it runs it changes, and puts back at the end: the monitor's brightness, Windows HDR (only if it was off) and LightBoost on 3D Vision monitors. If StereoShutter were to close suddenly (a crash), they can stay that way: set the brightness back in the monitor's menu, switch HDR off in Windows display settings if StereoShutter switched it on, and change the monitor's refresh rate (or run StereoShutter_Undo_LightBoost).
- It writes into its StereoShutter.ini what you save and, by itself, what queue = auto and engine = auto learn (“The game's rhythm”) and that the keys page has come up once. Before writing what queue and engine learn, or the assistant's H, it keeps a copy of the ini next to it.
- The LightBoost tools for Surround change the display configuration through NVIDIA's driver: they can hang or restart the computer.
- Over a game, StereoShutter only reads the 3D picture that geo-11 shares with it. StereoShutter_host.dll passes the game's calls on without changing them; if something fails inside it, that part stops and the game goes on.
- With HAGS on, its helper (StereoShutter.exe itself, with administrator rights) only puts StereoShutter in the graphics card's realtime class while it runs, and goes away with it.
- StereoShutter_Feedback only reads what “Reporting a problem” lists and leaves the file in this folder. It sends nothing: you send the e-mail.
- If something hangs: unplug the emitter and plug it in again.

How to undo and how to remove it

- To start from scratch with the glasses: delete %LOCALAPPDATA%\StereoShutter\monitors.json. To undo the last thing saved: replace it with monitors.json.previous.
- To remove it: if you used LightBoost in NVIDIA Surround, first run StereoShutter_LightBoost_Surround_Undo. In games with geo-11, StereoShutter_geo-11_Setup removes it from geo-11 (UNDO). Then delete its files and folders (they are all called StereoShutter…) and the %LOCALAPPDATA%\StereoShutter folder.

Licence

StereoShutter is free for everyone. © 2026 murdavs. All rights reserved. You may use it on as many computers as you like and pass it on to others, free of charge, with the complete package and unchanged. It may not be sold, modified or decompiled; the source code is not published. No warranty: you use it at your own risk. The full terms are in StereoShutter_LICENSE.txt.

StereoShutter_THIRD_PARTY.txt says what material from others is used or has been read, where it comes from and under what conditions.

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