



More on: <http://3dsurroundgaming.com/Vk3DVision.html>

Version: 4.19.19 (RTX & SFS)

(A Vulkan Driver made by Helifax for Stereo3D in Vulkan API. 2022)

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How to Install and Run it:
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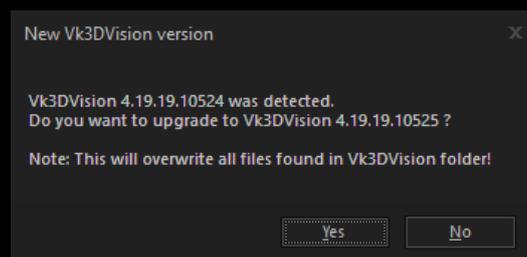
1. Make a folder for Vk3DVision anywhere on your hard drive.
2. Copy/extract "Vk3DVision.exe" & "Profiles" to that folder.
3. Inside "Profiles" you can now copy the Stereo3D fix you want found at: <http://3dsurroundgaming.com/Vk3DVisionGames.html>
4. Read the Readme.pdf for the specific game fix.
5. Enjoy! 😊

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How to Upgrade from earlier version:
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1. There is no upgrade. You need to follow "How to Install and Run it" section.
2. Download the new fix. Alternatively, you can delete the "old Vk3DVision" folder you copied in the game folder.

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How to Upgrade in the future:
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1. Future version of VK3DVision will follow the same pattern. Simply overwriting Vk3DVision.exe with the newer one.
2. On running Vk3DVision.exe if a new version was downloaded a Message box will be presented:



3. Accept and Vk3DVision will update automatically to the new version.
4. Stereo3D game fixes will be updated separately of Vk3DVision, so check for new updates on the Game Fixes page. When copying a new fix, DELETE the old one from the "Profiles" folder before copying the new one! (Don't just overwrite as the old one might have left-over files!)
5. Play & Enjoy!

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New Major Features: (v.4.19.19)
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- **Game Profiles outside Game folder.** With this new update, all the Stereo3D fixes are refactored to work as profiles. Vk3DVision.exe will now search for game fixes in the "Profiles" folder (next to where Vk3DVision.exe is stored). A game profile will be found if "Vk3DVision.ini" file is found in a sub-folder in "Profiles".

Example structure:

```
/Vk3DVision.exe  
/Profiles/DOOM/Vk3DVision.ini  
/Profiles/DOOM/ShaderSwap  
etc
```

- **OpenVRDirect.** A new rendering mode required for VR game mods. Unlike the OpenVR mode which creates a virtual cinema screen, this mode looks to put you directly into the game. It requires a special tailored VR fix for the game and will not work with general Stereo3D fixes.

Other options include:

- VR Motion controller mapping to Xbox Right Stick - for manual Aim Assist.
- VR Camera offset adjustment (so in shooters your camera is not between the character shoulders like it is in the Flat 2D version).
- Motion Reprojection support.

(More in Vk3DVision.ini)

- **Automatic Frame-Sync Debugger.** (Only for Sequential Frame Stereo Rendering) Adds the ability to find all the game functions that call into Time functions. By finding the correct function that affects the game time, you can tell the game engine "not to advance the game time" for the Right Perspective and only do it once it finished rendering the frame. This will help producing the Left and Right frames in the exact moment in "game-time". (More on this later).

- **Single Frame Stereo (sfs)**. By default, Vk3DVision uses Sequential Frame Stereo (*SQFS*), which takes two consecutive frames, adds stereo for L & R views and then presents both of them at once. In contrast, SFS duplicates Renderpasses, Resources, Compute Dispatches, Raytracing API calls, etc in order to render the secondary view (Right Eye). Beyond the duplication of API calls and resources, every single shader in the application needs to be modified to support reading/writing to both views. Vk3DVision will attempt to identify the resources & GLSL functions and do this automatically. However, this will not always work and manual intervention will be needed. Check the "How to add support for Single Frame Stereo" guide.
 - This feature was only tested on NVIDIA hardware. AMD GPUs support is currently untested and most likely it will not work!
 - This feature uses Vulkan's MultiView extension.
 - This feature requires at least **NVIDIA Graphics Drivers 471.11**.
 - This feature requires **Turing or Ampere GPU architecture (RTX 2000/3000 series)**. It will probably not work on **Pascal (GTX 1000 series)** or older GPUs.
- **Shader Cache**. Since all shaders will now be disassembled, injected and recompiled to get SFS working, this process can take up a lot of time! Especially, on a game like Detroit: Become Human that over the course of the whole game will generate more than 30.000 shaders! To avoid doing all the work every single time the application starts and every single time the same shader is used by the game, the shaders can be cached. This will drastically improve loading times and decrease stutters!
- **Bilinear Upscaling**. This currently works only in SBS/TB formats. It is not required in Virtual Reality (OpenVR & HelixVision) as we render to the VR headset and not the monitor. 3DVision support is problematic because of the Exclusive Fullscreen requirement it has. In future versions this will be updated to support AMD SFR or even the newest NVIDIA Upscaling Method. It will use as input whatever Windowed or Borderless Windowed Resolution a game uses and upscale it to the Desktop Resolution in use.
- **Regex Pattern Find**. Ability to use Regex Pattern to find shader injection points and use Capture groups in the injection string for Vertex, Fragment, Computes and Raytracing shaders. For more information on how to use it see "Vk3DVision.ini".

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Other Updates & Features:
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- Automatic detection of Uniform Layout Bindings. This can drastically improve performance simply because the layouts are now better packed with less wasted memory vs specifying a Uniform Layout Binding slot for all shaders. This is optional.
- Stereo Uniform Buffer is now per Eye/View so both Views data can be accessed at once & removes the need for excessive Buffer updates between Views.
- Lots of optimizations in Shader Decompile (it is now correctly thread safe) and Shader Injection & Compilation.
- Ability to modify and export a shader as a "Unique Shader" or "General Shader".
- Ability to specify creation/execution of RenderPasses overrides.
- Added a new FULL SBS mode - useful to capture FULL SIDE-BY-SIDE videos with ShadowPlay (or other capture software that uses a window to capture). One thing to note: *ONLY LEFT VIEW* will be visible on screen as the other view is outside of the Windows Desktop area.
- "Tools" to convert from older Vk3DVision v.3.x.x Sequential Stereo shader fixes to the new Vk3DVision v.4.x.x format.
- "Tools" to convert from **SQFS** to **SFS**.
- Splashscreen & UI are now both DPI aware.
- DirectX11 has been deprecated as a rendering path in Nvidia 3DVision as it relies on older drivers that are no longer supported by Vk3DVision.
- Lots of improvements of Nvidia 3DVision DirectX9 rendering path.
- Developer UI: New UI to debugging Compute Shader Dispatches in **SFS**.
- Developer UI: Better Error handling when a compilation error happens.
- Developer UI: Added extra option to see the shaders that have been modified/exported to "ShaderSwap" folder, even if they are not currently in use.
- Developer UI: Changes and bug fixes for the "Find" functionality in the Editor.
- Developer UI: Ability to highlight the same word in the Editor.
- Stats UI: Better Stats window and GPU clock speed was added.
- VR: Tweaks and fixes for **SFS** fixes to work correctly.
- Different fixes to reduce the rate & risk of Anti-Virus software flagging Vk3DVision as a False Positive.

Supported Rendering Modes:

1. OpenVR:

- Render in Virtual Reality with maximum performance!
(Performance metrics show only 14% performance loss! vs regular 3Dvision/SBS).

Includes:

- Curved Screen FULLY TAILORED for Virtual Reality!
- Ability to modify VR Screen Size, VR Screen Height, VR Screen Distance!
- Ability to Reset VR Screen Orientation to where you HMD is looking at!
(See in-game overlay for controls)
- Full VR Controller mapping to XBOX Controller (via ViGEm) and configurable from SteamVR:
 - To take advantage of this, you will have to first install *ViGEm Bus driver* (bundled with Vk3Dvision). When you start a game using OpenVR, a virtual XBOX Controller will be plugged-in and mapped to the VR controllers. All Controller schemes can be customized from SteamVR, per game, or to add new controllers.
 - The following Virtual Reality Controllers are supported:

1. Valve Index Controllers:



Controller Button	Xbox Button
Right B	B
Right A	A
Left B	Y
Left A	X
Left Trigger	Left Trigger
Right Trigger	Right Trigger
Left Middle Finger	Left Shoulder
Right Middle Finger	Right Shoulder
Left Analog	Left Analog
Right Analog	Right Analog
Left Stick	Left Thumb
Right Stick	Right Thumb
Left Touchpad	D-PAD
Right Touchpad D	Start
Right Touchpad U	Back
Right Touchpad R	Guide

2. HTC Vive Wands:



Controller Button	Xbox Button
R. Trackpad Click Right	B
R. Trackpad Click Down	A
R. Trackpad Click Up	Y
R. Trackpad Click Left	X
Left Trigger	Left Trigger
Right Trigger	Right Trigger
Left Grip	Left Shoulder
Right Grip	Right Shoulder
Left Trackpad	Left Analog
Right Trackpad	Right Analog
L. Trackpad Centre Click	Left Thumb
R. Trackpad Centre Click	Right Thumb
Left Trackpad Click	D-PAD
Right Menu	Start
Left Menu	Back

3. Oculus Touch Controllers (Oculus Rift S & Quest & Quest 2 - via Link)



Controller Button	Xbox Button
Right B	B
Right A	A
Left Y	Y
Left X	X
Left Trigger	Left Trigger
Right Trigger	Right Trigger
Left Grip	Left Shoulder
Right Grip	Right Shoulder
Left Analog	Left Analog
Right Analog	Right Analog
Left Stick	Left Thumb
Right Stick	Right Thumb
L Trigger + X	D-PAD Down
L Trigger + Y	D-PAD Up
L Trigger + A	D-PAD Left
L Trigger + B	D-PAD Right
L Grip + L Trigger + X	Back
R Grip + R Trigger + A	Start

2. OpenVRDirect:

- This is used only in special tailor fixes for Native VR. It doesn't give you a virtual screen, but instead puts you "into" the action!
- THIS REQUIRES A VR MOD/FIX for the game and will NOT WORK with general 3D Stereo fixes!

3. HelixVisionVR:

- Requires HelixVision (<https://store.steampowered.com/app/1127310/HelixVision/>). Provides a bigger performance impact (approx. 35%) compared to OpenVR mode, but has other features.

4. 3DVision:

- Uses **DX9** to render.
- **Works on Nvidia driver ABOVE 452.06.**
- Requires Nvidia 3D Vision Driver!
(DO NOT USE ANY OVERLAYS or Performance will be severely affected!)
- Note: Separation and Convergence are used from "Vk3DVision.ini" and not from the 3DVision driver!
- "**Fullscreen Optimizations**" **MUST be disabled!** (From the Exe properties page).

5. SBS_LEFT:

- Side-by-side, left image first.
- No Nvidia 3D Vision Driver is required!

. SBS_RIGHT:

- Side-by-side, right image first.
- No Nvidia 3D Vision Driver is required!

. TB_LEFT:

- Top-Bottom, left image at top.
- No Nvidia 3D Vision Driver is required!

. TB_RIGHT:

- Top-Bottom, right image at top.
- No Nvidia 3D Vision Driver is required!

6. MONO:

- Standard 2D rendering. (Obviously - Default rendering)

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Getting 3DVision to run:
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- Before using **Vk3DVision**, set your Vulkan game/app to run in Borderless Mode! (Never run it in EXCLUSIVE FULLSCREEN!)
- Make sure the in-game resolution matches your Windows Desktop Resolution (**THIS IS MANDATORY FOR 3D VISION. For other modes, this is not mandatory.**)
- Copy "Vk3DVision" folder (containing "Vk3DVision.ini" + other files) next to the game executable (or working directory of the application).
- In "Vk3DVision.ini" add the name of the application exe you want to render. See **ProcessName** under [General] section. Vk3DVision will only run if the exe name will match, otherwise it will act as a passthrough mode.
- In "Vk3DVision.ini" select your rendering mode.
- Start "Vk3DVision.exe":
 - "Vk3DVision.exe" can reside in any place. It doesn't need to be in the game folder (it can be on your desktop).
 - This will install a Global Vulkan Layer, meaning any Vulkan application that starts after "Vk3DVision" will now be routed through "Vk3DVision". On start of an application, "Vk3DVision" will search for "Vk3DVision.ini" file in the "Profiles\NAME" folder, next to Vk3DVision. If no profile is found, "Vk3DVision" will act as a passthrough.

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Video Documentation:
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- All supported options are documented in "Vk3DVision.ini". They should provide a clear understanding on what each option does.
- Please watch the video documentation here, on how to get running and start fixing your game: <http://3dsurroundgaming.com/Vk3DVisionDocs.html>

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Other Recommendations:

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- To get the best performance, it is recommended to use the latest Nvidia/AMD drivers.
- For Nvidia 3D Vision, the latest driver still works fine.
- It is recommended to use Windows 10 20H2 (2004) version and enable the GPU HW accelerated scheduling:
<https://www.windowslatest.com/2020/07/07/enable-windows-10-hardware-accelerated-gpu-scheduling/>