

# What is AMD's FSR? What does the FSR do?

Since its introduction many years ago, NVIDIA's DLSS has been the only way we can enjoy Ray Tracing graphics in high resolution while keeping smooth frame rates.

But things have changed, AMD has finally released its own upgrade plan, FSR, and it is taking the gaming world by storm.

## What is AMD FSR?

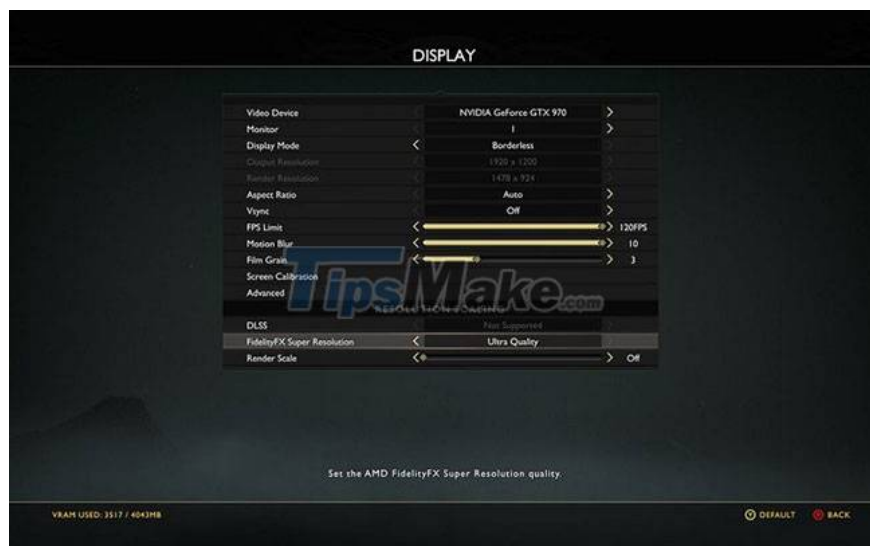
Short for FidelityFX Super Resolution, FSR is AMD's response to NVIDIA's DLSS. TipsMake.com has mentioned how NVIDIA's DLSS works before. And just like NVIDIA's DLSS, AMD's FSR can make games look better and run smoother.

Again, the article says 'maybe', not 'definitely will'. In many cases, FSR won't make your game run smoother or look better. That's why you should know about what FSR can do and how it works before activating the feature.

## What can AMD FSR do?

FSR is an innovative reimplement of shader filtering and upscaling techniques common in emulators. Unlike DLSS, which analyzes game motion, FSR is a combination of:

1. A spatial upscaling algorithm takes individual frames to be displayed at a lower resolution and upscales them to the screen's native frame.
2. The "intelligent" sharpening shader engine detects and enhances detail for improved clarity.



FSR is a combination of upscaling techniques and smart shader filters

FSR offers 4 quality modes in its current form, displaying game graphics in miniature resolution. The lower the mode, the less detailed and blurry the image produced, with more visible artifacts.

1. Ultra Quality reduces the original resolution by 1.3 times.
2. Quality reduces the original resolution by 1.5 times.
3. Balanced reduces the original resolution by 1.7 times.
4. Performance renders graphics at half the original resolution (2x reduction).

Note that the scale factor refers to both horizontal and vertical dimensions. Extremely high quality on a 1920 x 1200 display displayed at a resolution of 1478 x 924, there seems to be no significant reduction, but in fact the number of pixels in the original resolution has been nearly halved:

1.  $1920 \times 1200 = 2304000$  pixels
2.  $1478 \times 924 = 1365672$  pixels



No upscaling tool can magically recreate those missing pixels. However, that's where the FSR's sharpening shader can help. AMD calls it Contrast Aware Sharpening (CAS). The best way to understand how it works is to visualize the process.

Think of a sketch done with a pencil, then ink on it. The ink does not affect the paper around the pencil lines and the previously thin pencil lines are now more vivid.

So, even though the upscaled images initially have less detail, the FSR engine "makes them sharper". The difference is that the FSR does it dozens of times per second.

However, the FSR may be useless to you. If games run fine at their maximum settings on PC, i.e. at your monitor's native resolution and frame rate, then you simply don't need to use FSR.

By releasing FSR as open source, AMD has ensured its success. Any developer can use it in the game for free.

FSR can also support more affordable GPUs that can't run the latest titles at their native resolutions and highest settings. And that's how a mid-range laptop should be able to render many demanding games at over 60FPS with

acceptable graphics settings.

You finished reading the article "**What is AMD's FSR? What does the FSR do?**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.

---