

# What is Nvidia DLSS? What is the effect?

Put simply, DLSS allows you to run games at sharper resolutions, with higher frame rates, completely automatically and for free.

Referring to Nvidia GPUs, ray-tracing is probably a technology that anyone has ever heard of. However, not many people know that under the umbrella of ray tracing features is another feature that can even 'change the game': Deep Learning Super Sampling (DLSS). So what is this feature actually? How does it work? Let's find out right here.

## What is DLSS and how does it work?

In theory, DLSS is a technology created by combining final rendered frames and an intermediate buffer taken from the game's display system. The necessary data will be pre-processed and prepared by the Graphics Card, and then fed into the training process on the NVIDIA Saturn V DGX supercomputer cluster. This process will accumulate frames, thereby creating a more perfect frame. Put simply, DLSS allows you to run games at sharper resolutions, with higher frame rates, completely automatically and for free.



In version 1.0 (released February 2019), DLSS will take stills of the game's frames running at low resolution and have lots of aliasing, and then use these images to create a quality version high, higher resolution for the user. Finally, DLSS will feed the still images and high-quality versions of them into a cluster of supercomputers that train themselves to recognize 'aliased' and low-resolution frames and generate the frames. High quality, high resolution to meet.

In addition, if you want to run the game at a higher graphics setting or resolution but are not satisfied with the performance, DLSS allows you to render your game at a lower resolution, thereby getting better performance. better performance.

In version 2.0, DLSS can produce higher quality and even more detailed images. Now, every individual game doesn't need to be tested and trained at all before DLSS can be implemented.

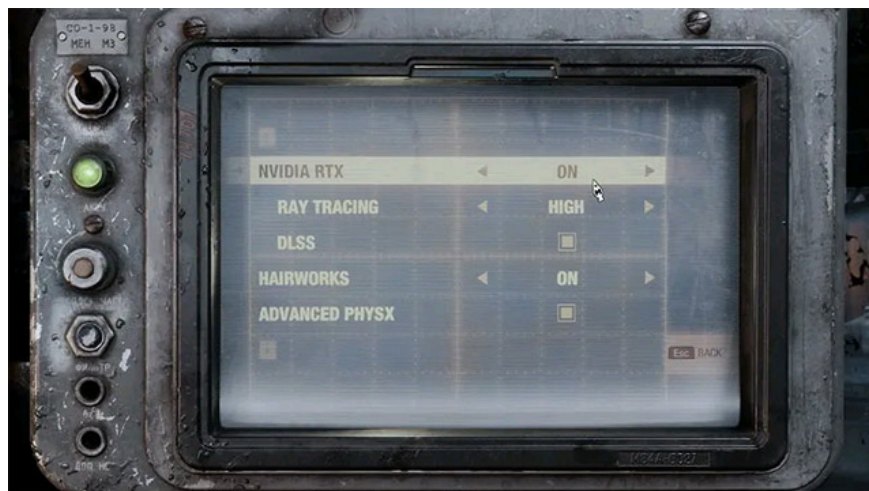
DLSS 2.0 (released August 2019) comes with some advanced additional customizations. For example, instead of choosing between On and Off, you can choose Quality, Balanced, and Performance modes, which offer the ability to upscale display quality from a variety of resolutions. Particularly in Performance mode, the system will be able to increase the resolution by 4 times, for example from 1080p to 4K. But at the same time, it also helps to reduce the heat and power consumption of the graphics card.



It is important to note that DLSS is not a piece of software. It is not something that can be manually downloaded or assigned to your game. Tensor cores on NVIDIA GPUs that support ray tracing are also the ones that power DLSS. That's why DLSS is considered an RTX feature, even if it's not a ray tracing feature in itself.

## How to use DLSS

It is quite interesting that DLSS can be compatible with all your other graphics settings in the game. This means you won't have to manually deal with any NVIDIA or Windows installation packages. The only thing you have to do is find the DLSS trigger switch in the game.



Another important thing you need to remember to set your game to is the respective resolution used for the output. If you're planning on using DLSS to upscale to 4K, the game's resolution should also be set to 4K. By enabling DLSS, the game will run at a lower internal resolution and will then be upscaled to its desired resolution. DLSS is best utilized at high resolutions, like 1440p and 4K, especially when you want to run at frame rates higher than 60fps. But it should also be noted that the performance increase will also depend on the load capacity of the GPU, as well as the power of the hardware components involved.

## **DLSS-enabled games and GPUs**

Not all games support DLSS! At the present time (mid-2021), only about 41 games support this feature. Of course, the presence of DLSS greatly improves the performance and picture quality of games, especially with DLSS 2.0.

The best DLSS implementations can be found in the following 10 titles:

1. Control
2. Death Stranding
3. Cyberpunk 2077
4. Amid Evil
5. No Man's Sky
6. Ghostrunner
7. Metro Exodus Enhanced Edition
8. Minecraft: Bedrock Edition
9. Call of Duty: Warzone
10. Crysis Remastered

Similarly, not all Nvidia GPU models support DLSS. Here is a list of graphics card models that support this feature at the moment:

1. GEFORCE RTX 3090
2. GEFORCE RTX 3080
3. GEFORCE RTX 3070
4. GEFORCE RTX 3060 Ti
5. GEFORCE RTX 3060
6. GEFORCE RTX 2080 Ti
7. GEFORCE RTX 2080 SUPER
8. GEFORCE RTX 2070 SUPER
9. GEFORCE RTX 2080
10. GEFORCE RTX 2070
11. GEFORCE RTX 2060



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