

GPU Guide

This page offers a beginner's guide to GPU rendering with V-Ray.

What is V-Ray GPU?

V-Ray GPU is a render engine on its own. It is specifically designed to take advantage of your GPU device(s) to boost the speed and performance of the renderer. In addition, you can also use it in combination with your CPU device. This is the so called **Hybrid rendering** – when the V-Ray GPU engine performs raytracing calculations with the CPU, or simultaneously with both the CPU and GPU devices of your computer.

V-Ray GPU supports a variety of features and even more features are added with time. Although it shares the same user interface as the V-Ray engine, V-Ray GPU differs from the regular V-Ray engine in the way it performs certain calculations. Comparing the results of both engines will never come to a one-to-one match, although it may look quite close. Further, it is not the goal for them to be the same.

This is why, it is strongly recommended to not switch between engines in the middle of your project - if you start setting up a scene with the regular V-Ray engine, use it for the entire project. The interface will only show the available options and your scene will be optimized for GPU rendering.

V-Ray GPU can be used as a production render or in IPR mode to quickly preview scene changes. It also supports both the Progressive and Bucket Image Samplers.

Why V-Ray GPU?

V-Ray GPU has a number of advantages:

- Graphics cards often outperform CPU devices when it comes to processing parallel tasks, such as raytracing;
- V-Ray GPU has all the required features to be production ready;
- For most scenes, V-Ray GPU will produce a good image with the default settings without the need of tweaking.

What devices does V-Ray GPU support?

V-Ray GPU rendering is based on the NVIDIA CUDA and RTX platforms. **V-Ray GPU is supported only in 64-bit builds of V-Ray for Maxwell-, Pascal-, Turing-, or Volta-based NVIDIA cards.**

How to start using V-Ray GPU?

Setting up the GPU devices for rendering with V-Ray is a straightforward process.

Navigate to the **Render Settings** window and select **V-Ray GPU** as the **engine**.

Go to the **V-Ray** tab > **Renderer** > **Engine**. From the drop-down menu, select **V-Ray GPU**.

You will see the **V-Ray render devices selection** rollout appear with a list of all supported devices found on your computer. If you have more than one GPU device, you can choose between them or use all of them. This is the place where you can enable the CPU device to render in hybrid mode with V-Ray GPU. *For more information, please visit the [GPU Setup page](#).*

You can also see that the **Out-of-core (WIP)** option disables the **Texture mode**. *For more information on these and other options, please visit the [V-Ray tab page](#).*

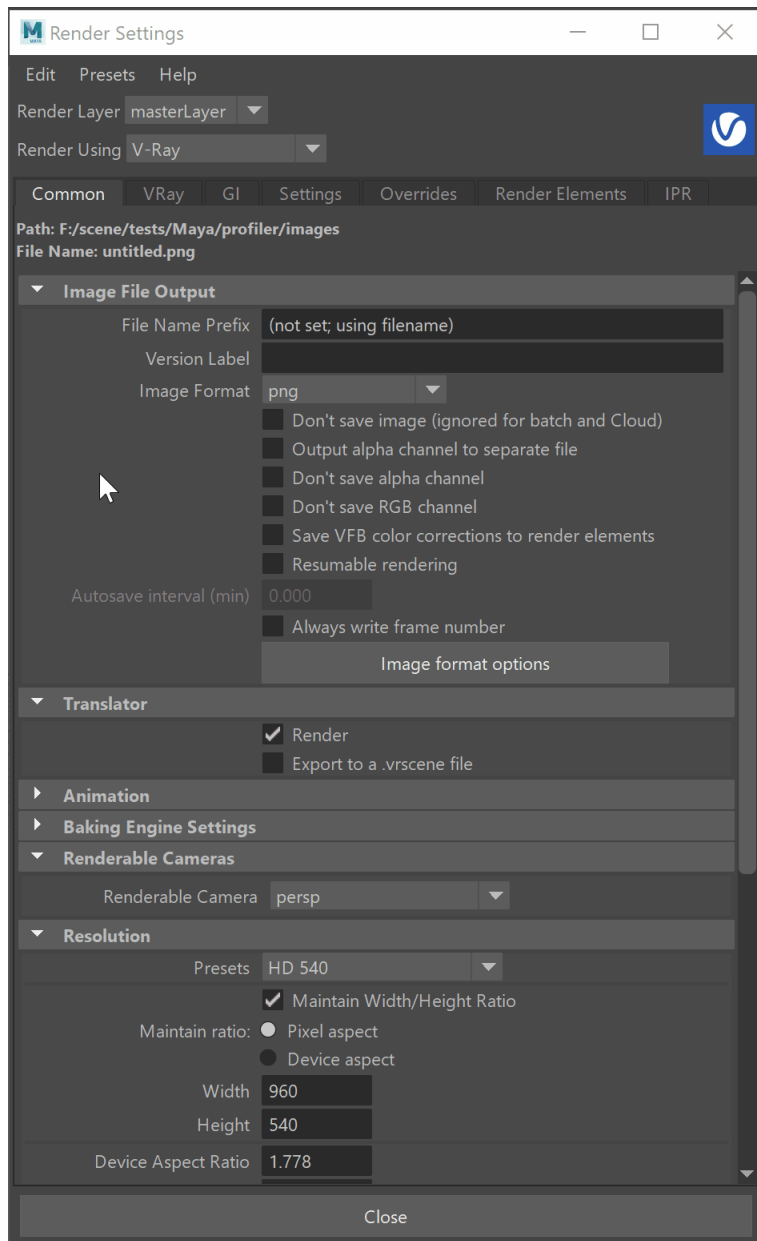
You may want to leave one of your GPU devices free for working on the user interface. In a system with multiple GPU devices, it is often recommended to use one GPU for the monitor, while the rest of the GPU devices are used for rendering. Otherwise, rendering may slow down your user interface. On a machine with a single GPU device, you may want to enable **Low GPU thread priority**.

Next, select the Image Sampler. V-Ray GPU works with both the Progressive and Bucket Sampler types, each with its own merit.

Note that some V-Ray features are only partially supported on V-Ray GPU. The unsupported features and/or parameters will be hidden from the interface when V-Ray GPU is the renderer.

In this example, we show the difference between the supported render elements by the two engines.

For a full list of supported features, see the [Supported Features](#) page.



Related Articles

For more information on GPU support, features, questions and answers and advantages, we recommend the following articles:

[Supported Features](#) – List of all supported features of V-Ray for Maya.

[Frequently Asked Questions](#) – Everything that makes you scratch your head answered.

[V-Ray GPU Setup](#) – See detailed information about V-Ray GPU.

[Next Level GPU Rendering in V-Ray](#) – Article by Philip Miller about all the GPU rendering goodies in V-Ray Next.

[Understanding V-Ray Hybrid Rendering](#) – Article by Christopher Nichols going in-depth about Hybrid rendering.

[V-Ray GPU Next for Maya](#) – V-Ray GPU workflow tutorial by Cory Holm.

[V-Ray GPU](#) – Chaos Group's official V-Ray GPU web page.