

Distributed Rendering

This page explains the essence of Distributed Rendering with V-Ray.

Overview

Distributed rendering is a technique for distributing a single render job within a single frame across many computers in a network. There are different approaches to doing this, but the main concept is to reduce the render times by dividing different parts of the rendering pipeline and giving each participant different parts of the job.

Organization

V-Ray divides the frame into regions and spreads them across the participants in the distributed rendering. This is done completely through TCP/IP protocol which is the standard protocol of the Internet and thus the most common protocol that is supported by the hardware. V-Ray itself does not need an additional file or directory sharing (note that you may actually need some file/directory sharing for the bitmaps or other additional files used during rendering). The distribution management is divided into Render Clients and Render Servers.

To use V-Ray distributed rendering you need to have both V-Ray for 3ds Max and Autodesk 3ds Max installed on both the render client and the server machines. When using the V-Ray GPU render engine, V-Ray Standalone (or V-Ray for 3ds Max) installation is sufficient for each server machine.

Render Clients

The render client is the computer from which the rendering is started. It divides the frame into rendering regions and spreads it across the Render Servers. It distributes data to the render servers for processing and collects the results.

Every render server requires a render node license. To see how to set up your render license, see the [Licensing](#).

Render Servers

A render server is one of the computers in the network that participates in the rendering work. A render server requests render data from the render client, processes it, and sends the result back. In any DR job, there can be many render servers.

If any of the servers fails, you should get a notification and the render client will try to reassign the buckets to another server.

Distributed Rendering setup for the render server machines is set accordingly to the preferred V-Ray renderer. V-Ray requires V-Ray DR spawner to be run on the render server machines, while V-Ray GPU requires V-Ray GPU Render Server or V-Ray Standalone (with server command).

Check how to [Set Up V-Ray Render Service](#)

Check how to [Set Up Distributed Rendering](#)

Notes

- Every render server must have all the plugins and texture maps in their proper directories loaded so that the scene you are sending does not cause them to abort. For example, having a PHOENIX plugin used in the scene causes a server failure in any of the servers that do not have the PHOENIX plugin installed. If you have mapped your object with a file named JUNGLEMAP.JPG and you do not have that map in the BITMAPS directories of the render server installation - you will get bucket rendered at that machine as if the map was turned off, unless you also turned on the **Check for missing files** option in the V-Ray [System](#) rollout, in which case the render server will refuse to render the scene.
- When you cancel a DR rendering, it may take some time for the render servers to finish working and they may not be immediately available for another render.
- Default lights are not supported in DR mode and do not render. If you need any lighting in the scene, you should add it explicitly.
- The default system temp folder, usually `C:\Users\<username>\AppData\Local\Temp` on Windows (%TEMP%), is used for copying the assets if the VRAY_ASSETS_CACHE_PATH [environment variable](#) is not set.
- V-Ray DR can be run automatically as a Windows service whenever the machine boots up. For more information, see [Set Up V-Ray Render Service](#).
- If you see a 3ds Max window flashing on the taskbar and then disappearing, right-click on the V-Ray DR spawner icon in the taskbar tray, select Exit to close the DR spawner, and try running a regular Backburner job with this machine as the server. After that, try to start the V-Ray DR spawner again.
- For a troubleshooting guide, visit the [Distributed Rendering Troubleshooting Guide](#).

