

V-Ray GPU Supported Features

This page provides tables of features supported by V-Ray GPU in 3ds Max.

Overview

These features are supported by V-Ray GPU in 3ds Max.

Supported Features

Cameras

Feature	V-Ray GPU
Motion blur (transformation+deformation) ¹	✓ (On integer frames)
Camera motion blur ¹	✓ (On integer frames)
Camera DoF	✓
Perspective	✓
VRayPhysicalCamera	✓
Stereoscopic	✓
Distortion for Physical Camera ²⁶	PARTIAL
VRayDomeCamera	✓

[back to top](#)

Geometry

Feature	V-Ray GPU
Triangle meshes	✓
VRayProxy	✓
Alembic via proxy	✓
NURBS	✓
Subdivisions	✓
Displacement ²	✓
VRayFur	✓
Hair&Fur	✗
VRayPlane	✓
VRaySphere	✓ (CUDA only)
Particles (with Particle Flow)	✓
X-Ref Scene	✓
VRayInstancer ³	✓

VRayCoronaScatterMod²⁹	✓
VRayClipper	✓
ChaosScatter	✓
VRayEnmeshMod³¹	✓

[back to top](#)

Lights

Feature	V-Ray GPU
Lights textures ¹⁵	✓
V-Ray Lights	✓
Standard Lights ¹⁸	✓
Photometric Lights	✓
Ambient Light	✗
Image based lighting	✓
Procedural clouds²⁸	✓

[back to top](#)

Global switches

Feature	V-Ray GPU
Displacement	✓
Lights	✗
Hidden lights	✓
Don't render final image	✓
Override depth	✓
Override material	✓
Override material exclude list	✓
Force back face culling	✗
Shadows	✗
Show GI only	✗
Reflection/Refraction	✗
Maps	✓
Glossy effects	✗
Max ray intensity	✓
Filter maps	✗
Secondary rays	✗
Max transp. levels	✗

Transp. cutoff	✗
Light tree and adaptive lights	✓

[back to top](#)

Textures

Feature	V-Ray GPU
Bitmap	✓
Cellular	✓
Checker	✓
Color Correction	✓
Composite ¹⁶	✓
Dent	✗
Falloff ¹³	✓
Gradient	✓
Gradient ramp ⁸	✓
Marble	✓ ⁹
Mask	✓
Mix	✓
Noise ³⁰	✓
Output	✓
OSL Map ²³	PARTIAL ¹¹
Particle Age	✗
Particle MBlur	✗
Perlin Marble	✗
RGB Multiply	✓
RGB Tint	✓
Smoke	✓
Speckle	✓ ^{9.1}
Splat	✓ ^{9.2}
Stucco	✓ ^{9.3}
Substance	✓ ²²
Swirl	✓ ^{9.4}
Tiles	✓ ^{9.5}
Vertex Color	✓
Waves	✗

Wood	✗
Advanced Wood	✗
VRayColor	✓
VRayColor2Bump ⁷	✓
VRayCompTex ^{8.1}	✓
VRayCurvature	✓
VRayDirt ^{8.2}	✓
VRayDistanceTex	✓
VRayEdgesTex	✓
VRayFakeFresnelTex	✗
VRayGLSLTex ¹⁹	✓
VRayBitmap	✓
VRayHairInfoTex	✓
VRayICC	✗
VRayLUT	✗
VRayMap	✗ (deprecated)
VRayMultiSubTex ^{8.3}	✓
VRayNormalMap	✓
VRayOCIO	✓
VRayOSLTex	✓ ^{9.6}
VRayParticleTex	✗
VRayPluginNodeTex	✓
VRayPTex	✗
VRaySky	✓
VRaySamplerInfoTex	✗
VRaySoftBox	✓ ^{9.7}
VRayTriplanarTex	✓ (bitmaps only)
VRayUserColor	✓ (no alpha attribute)
VRayUserScalar	✓ (no alpha attribute)
PhoenixFDOceanTex	✗
ChaosScatterSurfaceColor	✗

[back to top](#)

Other

Feature	V-Ray GPU
---------	-----------

VRayShadow	✓
VRayShadowMap	✗
VRayStereoRig	✗
VRayLensEffects (VFB)	✓
VRayLightMeter	✗
VRayExposureControl	✓
VRayVolumeGrid	PARTIAL ²¹
Antialiasing	✓
Color Mapping	✓
Render Mask (see Image Sampler)	✓
VFB	✓
G-Buffer	✓
UDIM/UVtile texture tags	✓
Anisotropy	✓
Matte objects (with VRayMtlWrapper and object properties)	✓
Include/Exclude Lists for Materials	✗
Include/Exclude Lists for Lights	✓
Trace Sets (Reflection/Refraction exclude)	✗

[back to top](#)

Texture Baking

Bake Element ²⁵	V-Ray GPU
VRayAOMap	✓
VRayBumpNormalsMap	✓
VRayCausticsMap	✗
VRayCompleteMap	✓
VRayDiffuseFilterMap	✓
VRayExtraTexMap	✓
VRayGlobalIlluminationMap	✓
VRayLightingMap	✓
VRayMatteShadowMap	✗
VRayMtlReflectGlossinessBake	✗
VRayMtlReflectHilightGlossinessBake	✗
VRayMtlReflectIORBake	✗
VRayMtlRefractGlossinessBake	✗
VRayMetalnessMap	✗
VRayNormalsMap	✓

V-RayRawDiffuseFilterMap	✗
V-RayRawGlobalIlluminationMap	✗
V-RayRawLightingMap	✗
V-RayRawReflectionFilterMap	✗
V-RayRawRefractionFilterMap	✗
V-RayRawRefractionMap	✗
V-RayRawShadowMap	✗
V-RayRawTotalLightingMap	✗
V-RayReflectionMap	✗
V-RayReflectionFilterMap	✓
V-RayRefractionFilterMap	✓
V-RayRefractionMap	✓
V-RayRoughnessMap	✗
V-RaySelfIlluminationMap	✓
V-RayShadowMapBake	✓
V-RaySpecularMap	✗
V-RaySSSMap	✗
V-RayTotalLightingMap	✗

[back to top](#)

Environment

Feature	V-Ray GPU
Spherical Mapping	✓
Mirror ball mapping	✓
Angular mapping	✓
V-RayToon	✗
V-RayEnvironmentFog	✓
V-RayAerialPerspective	✓
V-RaySphereFade	✗

[back to top](#)

Global Illumination Methods

Feature	V-Ray GPU
Brute Force	✓
Light Cache	✓
Irradiance Map	✗

[back to top](#)

Anti-Aliasing Filters

Feature	V-Ray GPU
Area	✓
Sharp Quadratic	✗
Catmull-Rom	✗
Plate Match/Max R2	✗
Quadratic	✗
Cubic	✗
Video	✗
Soften	✗
Cook Variable	✗
Blend	✓
Blackman	✗
Mitchell-Netraval	✗
VRayLanczosFilter	✓
VRaySincFilter	✗
VRayBoxFilter	✓
VRayTriangleFilter	✗
VRayMitNetFilter	✗

[back to top](#)

Materials

Feature	V-Ray GPU
VRayALSurfaceMtl	✓
VRayBlendMtl	✓
VRayCarPaintMtl	✓
VRayLightMtl	✓ (without Emit light on back side option)
VRayMtl	✓ (without Roughness translucency mode)
VRayOverrideMtl	✓
VRay2SidedMtl	PARTIAL (without Multiply By Front diffuse)
VRayMtlWrapper	✓ (shadows only, no GI on mattes)
VRayFastSSS2	PARTIAL (without raytraced (solid) and raytraced (refractive))
VRayFlakesMtl	PARTIAL

VRayGLSLMtl	PARTIAL ¹⁹
VRayHairNextMtl	✓
VRayBumpMtl	✓
VRayVRmatMtl	✓
VRayOSLMtl	✗
VRayPluginNodeMtl	✓
VRayStochasticFlakesMtl	✓
VRayScannedMtl	PARTIAL ¹⁰
VRayMDLMtl	INITIAL
VRaySwitchMtl	✓
VRayScatterVolume	✗
VRayToonMtl	✗
VRayFlakesMtl2	✓
VRayCarPaintMtl2	✓
3ds Max Physical Material	✗

[back to top](#)

Unsupported materials and textures in V-Ray GPU are regarded as incompatible in the **Material Editor** of 3ds Max. They will not be displayed unless the **Show Incompatible** option is enabled in the **Material/Map Browser**.

Render Elements

Feature	V-Ray GPU
RGB_Color	✓
MultiMatteElement	✓
VRayAlpha	✗
VRayAO	✓
VRayAtmosphere	✓
VRayBackground	✓
VRayBumpNormals	✓
VRayCaustics	✗
VRayCoatFilter	✗
VRayCoatGlossiness	✗
VRayCoatReflection	✓
VRayCoatSpecular	✓
VRayCryptomatte	✓
VRayDenoiser	✓
VRayDRBucket	PARTIAL ²⁰
VRayDiffuseFilter	✓

VRayExtraTex	✓
VRayGlobalIllumination	✓
VRayLighting	✓
VRayLightingAnalysis	✓
VRayLightMix	✓
VRayLightSelect	PARTIAL ⁴
VRayMatteShadow	✗
VRayMetalness	✗
VRayMtlID	✓
VRayMtlReflectGlossiness	✗
VRayMtlReflectHighlightGlossiness	✗
VRayMtlReflectIOR	✗
VRayMtlRefractGlossiness	✗
VRayMtlSelect	✗
VRayNoiseLevel	✓
VRayNormals	✓
VRayObjectID	PARTIAL ¹⁴
VRayObjectSelect	✗
VRayOptionRE	✓
VRayRawDiffuseFilter	✗
VRayRawCoatFilter	✗
VRayRawCoatReflection	✓
VRayRawGlobalIllumination	✓
VRayRawLighting	✓
VRayRawReflection	✓
VRayRawReflectionFilter	✗
VRayRawRefraction	✓
VRayRawRefractionFilter	✗
VRayRawShadow	✓
VRayRawSheenFilter	✗
VRayRawSheenReflection	✓
VRayRawTotalLighting	✓
VRayReflection	✓
VRayReflectionFilter	✓
VRayRefraction	✓
VRayRefractionFilter	✓
VRayRenderID	✓
VRayRenderTime	✓
VRayRoughness	✗

V-RaySampleRate	✓
V-RaySamplerInfo ⁵	✓
V-RaySelfIllumination	✓
V-RayShadows	✓ ⁶
V-RaySheenFilter	✗
V-RaySheenGlossiness	✗
V-RaySheenReflection	✓
V-RaySheenSpecular	✓
V-RaySpecular	✓
V-RaySSS2	✓
V-RayToon	✗
V-RayTotalLighting	✓
V-RayUnclampedColor	✓
V-RayVelocity	✓
V-RayWireColor	✓
V-RayZDepth	✓

[back to top](#)

3rd Party Plugins

Feature	Version	V-Ray GPU
ForestPro ³	v8.2.1	✓
RailClone ^{27, 33}	v6.0.7	✓
MultiScatter	1.623	✓
ColorCorrect	v3.4.138.22	✗
Ornatrix ^{8.4}	v7.4.3	✓
HairFarm ^{8.5}	Professional 2.7.3.232	✓
MultiTexture	2.04	✓
BerconMaps	3.04	✓ ¹²
RPM Material	7.09	PARTIAL
Anima	5.0.2	✓
thinkingParticles	6.10	PARTIAL ¹⁷
tyFlow	v1.018	✓ ²⁴
SiNi Scatter	1.26.0	INITIAL
SiClone		INITIAL
ProxSi		✓
SiNi Disperse		INITIAL

Floor Generator		✓
-----------------	--	---

[back to top](#)

Footnotes

1 – GPU rendering supports motion blurred frames on integer numbers only. For example, starting the render from frame 1 produces correct motion blur, but starting from frame 1.25, will produce incorrect motion blur. Shutter efficiency is not supported with GPU.

2 – Displacement results between CPU and GPU rendering may differ slightly because of Pre-tessellation and Cache Normal settings.

3 – With V-Ray 6, update 1, instanced lights by VRayInstancer / Forest Pack / Rail Clone, etc. are part of the Light Select RE of the respective source light.

4 – Light Select modes always contain GI information in V-Ray GPU. The Raw and indirect modes are not supported in V-Ray GPU.

5 – The Sampler Info Render Element supports different UVW Coordinate types through its different pass types. For more details, please see the [Sampler Info Render Element](#) page.

6 – When rendering with V-Ray GPU CUDA, the VRayShadows Render Element is incompatible with Adaptive Lights and may render incorrectly if used together.

7 – Starting with V-Ray 3.6, the VRayColor2Bump texture is no longer needed for procedural textures in order to be supported by V-Ray GPU.

For earlier releases, all procedural textures are supported by V-Ray GPU when used for Bump mapping through a VRayColor2Bump texture attached to the Bump slot.

In V-Ray Next and above, the texture ensures that the procedural bump is fully consistent between V-Ray and V-Ray GPU. Without VRayColor2Bump there might be some difference in the rendered procedural bump amount related to the scene size and scale.

8 ([8.1](#) / [8.2](#) / [8.3](#) / [8.4](#) / [8.5](#)) – These plug-ins are only partially supported by V-Ray GPU.

9 ([9.1](#) / [9.2](#) / [9.3](#) / [9.4](#) / [9.5](#) / [9.6](#) / [9.7](#)) – The texture is baked for rendering on the GPU. This means that it will use more memory to render, than a fully supported procedural texture.

10 – V-Ray GPU supports VRayScannedMtl under few limitations. For more information, visit the [VRayScannedMtl](#) page.

11 – It is supported in V-Ray for 3ds Max 2019. Some OSL maps are not supported yet.

12 – V-Ray GPU supports all Bercon maps within the following limitations: Distortion map is not supported. BerconGradient Lighting, Random, Particle age, Particle speed and Particle size types are not supported. Normal and Distance types *To Object* and *Object Z* are not supported. BerconTile UV Mapping and Randomization are not supported. BerconMapping is supported via baking.

13 – Falloff map does not support Shadow/Light type.

14 – VRayObjectID is always rendered with Integer (no Anti-Aliasing) mode in V-Ray GPU.

15 – V-Ray GPU does not support V-Ray Mesh Light textures.

16 – There is a limit of 6 layers per Composite map when using the V-Ray GPU engine.

17 – Particle shading set is not supported by V-Ray GPU.

18 – Area shadows are not supported by V-Ray GPU.

19 – For detailed information on the V-Ray GPU support of VRayGLSLMtl and VRayGLSLTex, please refer to the [GLSL Support](#) page.

20 – VRayDRBucket Render Element works only in **Production** rendering mode using **Bucket** sampler.

21 – Fire Lights ([Fire Rollout](#)) and Use Light Cache ([Smoke Color Rollout](#)) options are not supported with V-Ray GPU. For more information, refer to their relevant pages.

22 – Substance 2 is supported.

23 – 3ds Max OSLs can cause a progressive slowdown in animation. Use the [VRAY_GPU_SL_SHADERS_LIMIT](#) environment variable to control how much OSL cache is wiped out and to reduce the animation slowdown. If set to 1, the cache is deleted for every frame. For more complicated scenes, or when using an interactive render a higher value works better. The default value is 64.

24 – Support is confirmed for tyFlow v0.16122 [BETA] (June 13 2021). There may be occasional failures with other versions while the product is still in Beta and major changes to it happen.

25 – All render elements which are not supported with GPU are also not supported as bake elements with GPU.

26 – Currently Lens File distortion type is not supported with V-Ray GPU.

27 – RailClone mapping features are not supported in Chaos Cloud Rendering with RailClone's Use Instancing Engine option enabled. More details are available at [Ito's RailClone requirements](#) page under V-Ray RT/GPU.

28 – Animation of cloud parameters is currently not supported.

29 – When Corona 8 is installed and a scene saved with the earlier Corona 7 is opened with V-Ray 6, the scene has its Corona Scatter objects converted to the more advanced Chaos Scatter objects. When Corona 7 is used with V-Ray 6, such scenes keep their Corona Scatter objects and respectively - the VRayCoronaScatterMod.

30 – Note that the noise pattern renders differently in Chaos Cloud/V-Ray Standalone. Use the VRayNoiseTex instead to keep consistent results.

31 – When using VRayEnmesh on V-Ray GPU the gizmo's amount on the Z axis should be slightly greater than the bounding box size of the source object to avoid Z-fighting.

OSL Map Support Notes

Some 3ds Max shaders are problematic when V-Ray GPU is selected as a render engine.

Shaders with string outputs do not work on V-Ray GPU. In general, shaders which involve string operations may not function as expected, since V-Ray GPU has very strict limitations with respect to string handling. The following 3ds Max shaders are problematic and do not work on V-Ray GPU as they return strings:

- GetNodeName.osl
- SetFile.osl
- SetFilename.osl
- SetString.osl

The following shaders skip the automatic gamma correction (the gamma is determined by the file extension):

- HDRIEnviron.osl
- OSLBitmap.osl
- RandomBitmap.osl / RandomBitmap2.osl
- UberBitmap.osl

The following shaders do not work both on V-Ray and V-Ray GPU as the object picking is not implemented yet:

- CameraProjector.osl
- ObjectProjector.osl
- SphericalProjector.osl

GetParticleAge.osl does not work on both V-Ray and V-Ray GPU because the paLife attribute is not supported.

Here is an example of what GPU-friendly shaders are allowed to do:

- string initialization with a string literal, e.g., string a = "foo";
- string initialization with another string, e.g., string b = a;
- string assignments, e.g., a = b; b = "foo";
- equality checks: a == b; a != b;
- passing strings as arguments to function calls, e.g., string a = "foo"; bar(a);
- returning a string from a function, e.g. string bar() { return "bar"; }

Note that using any other string operations and string routines may lead to undefined behavior.

Additional Notes

- V-Ray GPU supports map channels from 0 to 15.
- V-Ray GPU only supports normal maps in tangent space.
- Currently, V-Ray GPU does not support animated formats for input.