

User's Manual

3Delight for Maya is a fully integrated *Maya* plug-in that lets you render *Maya* scenes using the powerful *3Delight* rendering engine. A wide support of all native *Maya* geometries, lighting, shading and FX features is provided. See [Limitations](#) for more details on what is currently unsupported. *3Delight for Maya* is compatible with:

Maya versions	2013	2014	2015	2016	2016.5	2017
Operating systems	Windows 64		Linux 64		macOS 64	

The *3Delight for Maya* plug-in is designed to be easy to use and integrate all the features needed in modern production pipelines:

- Production grade Path Tracing with highly optimized multi-bounce global illumination
- Programmable shaders with ability to easily deploy custom [RSL](#) and [OSL](#) shaders in Maya
- HDRI [Image Based Lighting](#) with higher quality environment sampling
- Physically/visually plausible BSDF-based [materials](#), including:
 - a general purpose, dual-layer, PBR material ([3Delight Material](#))
 - a physical solution for (human) skin ([3Delight Skin](#))
 - a complete physical solution for [hair](#) ([3Delight Hair](#)), simulating primary reflections (R), secondary reflections (TRT), light multiple scattering and transmission through the hair fibers (TT) and glints
 - a physical glass material ([3Delight Glass](#))
 - a physical metallic material with easy controls ([3Delight Metal](#))
- Area Lights (support of builtin Maya Area Light and arbitrary geometric area lights)
- Progressive final frame rendering (using the same engine as final frame rendering: and converging to virtually the same results)
- Interactive Progressive Rendering (IPR) with scene edits support for: cameras, lights and materials
- Integrated Volume Rendering of OpenVDB caches (compatible with [OpenVDB 3.0+](#))
- Fully automatic [Color Management](#)
- LRU [Network Cache](#) for textures and archives — requires 3Delight Studio Pro
- UDIM texture support (with Mari-style UDIM tile mapping by default)
- PTEx texture support
- [Sub-Pixel Displacement](#) (analytic, no pretessellation), with support for both scalar and vector displacement (typically from *ZBrush*, *Mudbox*, *Mari*)
 - Optional [Vertex Displacement](#) (for large displacements & VDMs)
- Infinitely-smooth analytic* subdivision surfaces with support for [edge and vertex subdivision creases](#) — (* no pre-tessellation)
- Real [round corners](#) on polygon meshes via subdivision surfaces
- Powerful [scene elements](#) (sets) and [image layers AOV](#) systems
- [Multi-Light](#) Output (lights, light groups, incandescent geometry, environment light) for [Physically-Based Compositing](#) — *Path Tracing only*
- [Multi-Mask](#) Output (masks for objects, materials, or both)
- EXR (multi-channel) image file output
- High performance Deep EXR image file output supporting highly efficient compression
- Efficient simultaneous Multi-Camera rendering — Stereo / VR is the case with 2 cameras
- Spherical, Cylindrical and Fisheye camera projection rendering, compatible with multi-camera rendering — *Path Tracing only*
- Physical Lens Shaders — *Path Tracing only*
- Caustics (via *Photon Mapping* or *forward path tracing in OSL*)
- Anti-aliased, sub-sampled, [Outline Rendering](#) with per-variable AOV component detection and varying color/width/depthfade
- A powerful system to assign [shader collections](#) and shader overrides.
- **3Delight Display** (a-k-a "i-display"), a powerful cross-platform interactive image viewer with:
 - multi AOVs
 - HDPI support
 - Multi-Light Mixer
 - OpenColorIO color profiles
 - "half" datatype support
 - 4K playback support at 60fps
 - statistic display
- Ability to choose the legacy REYES algorithm (typically for projects with lower pixel complexity) (see [Pros and Cons of REYES vs Path Tracing](#))
- Ability to choose the legacy *Point-Based Global Illumination* and *Point-Based Subsurface* algorithm (typically for projects with lower pixel complexity)

The *3Delight for Maya* plug-in benefits from the powerful and many unique features of the *3Delight* rendering engine:

- Unidirectional, multi bounce, forward Path Tracing (default), using either the RSL or the OSL shading framework
- Legacy REYES rendering mode, using the RSL shading framework
- High performance Volume Rendering with support of [OpenVDB 3.0](#)
- Proprietary, higher quality, environment sampling
- Physical solution (interactive, no pre-computation) for Subsurface Scattering (SSS) using the `subsurface()` shadeop, with multiple and single scattering output and ability to resolve small geometric detail.
- Physically/visually plausible BSDF evaluation via the `bsdf()` and `trace()` RSL functions, featuring the following BSDFs for direct and indirect lighting:
uniform, cosine, oren-nayar, blinn, ashikhmin-shirley, cook-torrance, ward, ggx (glass-ggx), gtr (glass-gtr), hair
- Transformation and Deformation Motion Blur with support for topological changes
- Advanced [OSL \(Open Shading Language\) support](#) with full support of both *closures* and *patterns* in path tracing.
- RSL1.0 / RSL2.0 Shading Language support with optimizing compiler and very efficient last stage [JIT](#) compilation
- Procedural Geometry / Archives (with delayed or immediate loading)

- Dynamic Space Partitioning
- RIB I/O — *feature available with 3Delight Studio Pro*
- Distributed Rendering — *feature available with 3Delight Studio Pro*
- Full geometry support, without any tessellation, of higher order geometry such as: *subdivision surfaces, NURBS, curves, points, implicit surfaces, constructive solid geometries (CSG), quadrics, patches...*
- Massive instancing of geometry with tiny impact on memory footprint
- Bake to texture (bake2d) and bake to pointcloud (bake3d) functionalities