



Rendered with Iray for Maya | Photographer: Lars Langemeier | Post-Production: [zerone]

Photography: Lars Langemeier | Rendering: [zerone]

## Iray for Maya 2.2

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Release Notes  
2019

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# 1 Feature list

- **NEW:** Supports Maya 2019
- **NEW:** ifmDecal node
- **NEW:** Advanced environment settings
- **NEW:** ifmSwitcher
- **NEW:** Bucket rendering
- **NEW:** Added compression modes for EXR output
- **NEW:** Added features for MDL and Reality Server export
- RLM licensing
- GPU and CPU rendering
- Progressively physically based, global illumination rendering
- Physically based, layered material model
- Image based lighting (IBL) using multiple IBL nodes in a single scene
- Sun and sky lighting model
- IES light emitter
- Light emitting geometry
- Support for Maya's standard Directional, Spot, Point and Area Light
- Textureable Maya Area Lights(Iray Photoreal)
- Light Portal functionality for Area Lights
- Custom color for material ID and object ID
- Iray Photoreal: Antialiasing for Auxiliary Canvases
- Support for Maya's UV based textures and shading networks including multiple UVs
- Fast convergence without persistent artifacts
- Simultaneous rendering component output (diffuse, specular, depth, etc.)
- Additional BSDFs for glossy light interaction
- Light path expressions for custom component output
- Aperture shape can be chosen
- Stereo rendering for Virtual Reality content creation
- Stereo rendering: Left and right camera can be rendered at the same time
- Lens distortion with spherical and cylindrical projection preset
- Tone mapping
- Caustic sampler
- Architectural sampler
- Matte shadows
- Depth of field
- Motion blur
- Vertex animation motion blur
- Vertex color rendering
- Degrain function
- Improvements to Deep-Learning powered Post Denoiser
- Bloom filtering
- Support of Camera Scale
- Camera parameter Refract Backplate
- Improved image plane, incl. texture map support
- Iray Section Objects
- Section capping for Iray Section Objects
- Support for Quadro VCA and Iray Server streaming
- Support for Iray Queue Manager
- MDL preset export
- Support for MDL archives (mdr)
- Automated instancing detection
- Shadow terminator offset to remove shadow borderline artifacts
- Normal mapping supported using ifmNormalMapping
- Particle instancer node support
- Improved AxF import

- ifmBsdF and ifmBsdFMetallicFlakes material
- Faster animation rendering
- Material Viewer support
- ifmState node
- HyperShade swatch rendering
- Support for NVIDIA Volta GPU architecture
- Meta data for OpenEXR file format
- Export to RealityServer

## 2 What's new

New features in Iray for Maya 2.2

## 2.1 Maya 2019 support

Iray for Maya 2.2 is available for Maya 2019 on Windows and Linux operating system.

**NOTE: Be aware that because of some changes in the Maya SDK the performance in the Maya Render View is not so fast as it is in Maya 2018.**

## 2.2 New advanced dome settings



New advanced environment settings | HDRI by kind permission of Norbert Zingel

In Iray for Maya 2.2 the user is able to modify the appearance of the environment behaviour, e.g. the `ifmImageBasedLighting` node. So far it was only possible to use an infinite environment for lighting purpose. This makes it difficult to use the environment as background as well. With the new environment settings Iray for Maya 2.2 offers a wider range of flexibility.



## 2.3 ifmDecal

Decals are an Iray specific way to place stickers on materials. The way they work is different than using the regular Maya tools like *Stencil*, *Layered Texture* or *Layered Shader*. A decal is like an object containing a projection. A material must be assigned to this object. This material will be projected on to another object. A decal will stick to an object even this is moved, rotated or scaled.

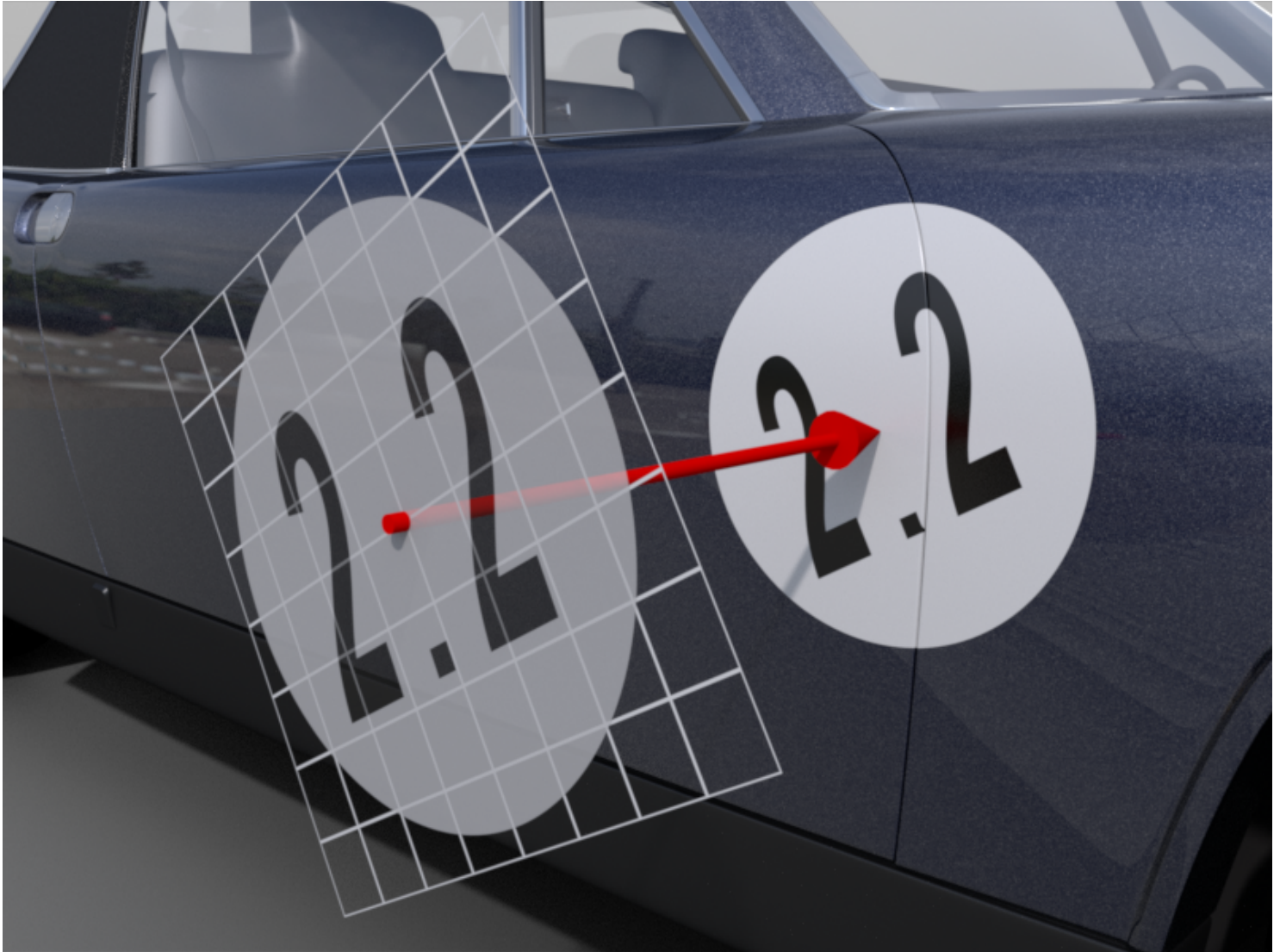
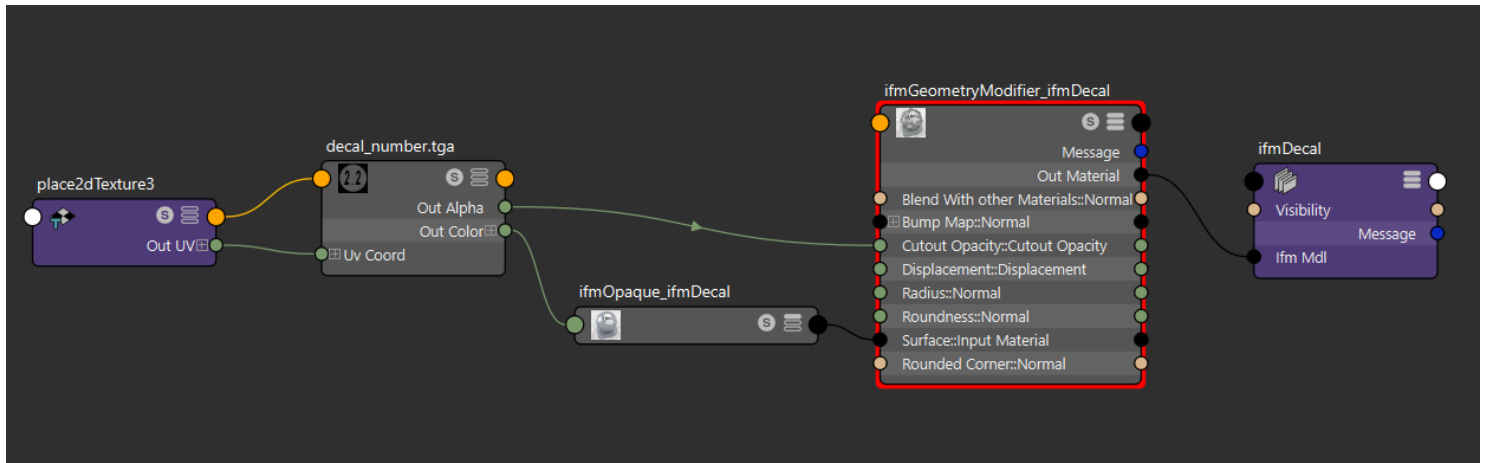


Illustration of the ifmDecal function

The most common material to be used with a decal is an ifmGeometryModifier. Use the *Cutout Opacity* attribute from the ifmGeometryModifier node to define the decal shape. The material assigned to the ifmGeometryModifier will be showed outside the cutout area.





ifmGeometryModifier connected to ifmDecal. This is the corresponding shading network to the illustration showed at the top of the page.



Use the *Priority* attribute to define the order for overlapping decals.



Decals will stick automatically to objects without the need of a proper UV set. This makes it easy for some kind of animation.

For further information read chapter 9 ifmDecal in the Iray for Maya 2.2 User Guide.

## 2.4 New compression method for EXR output

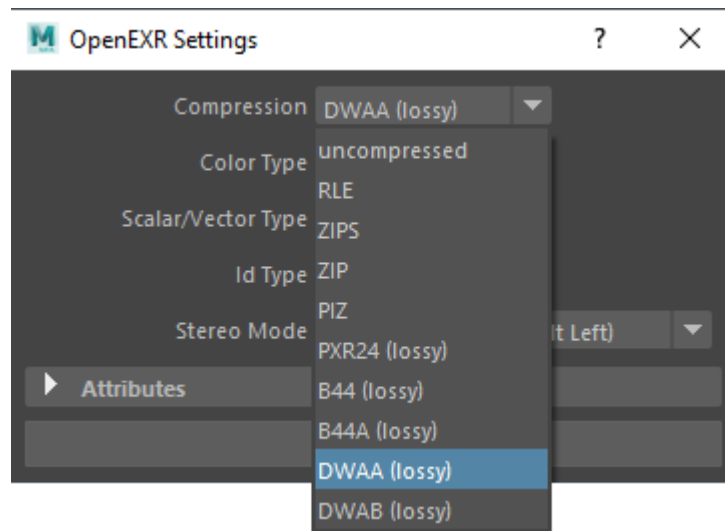
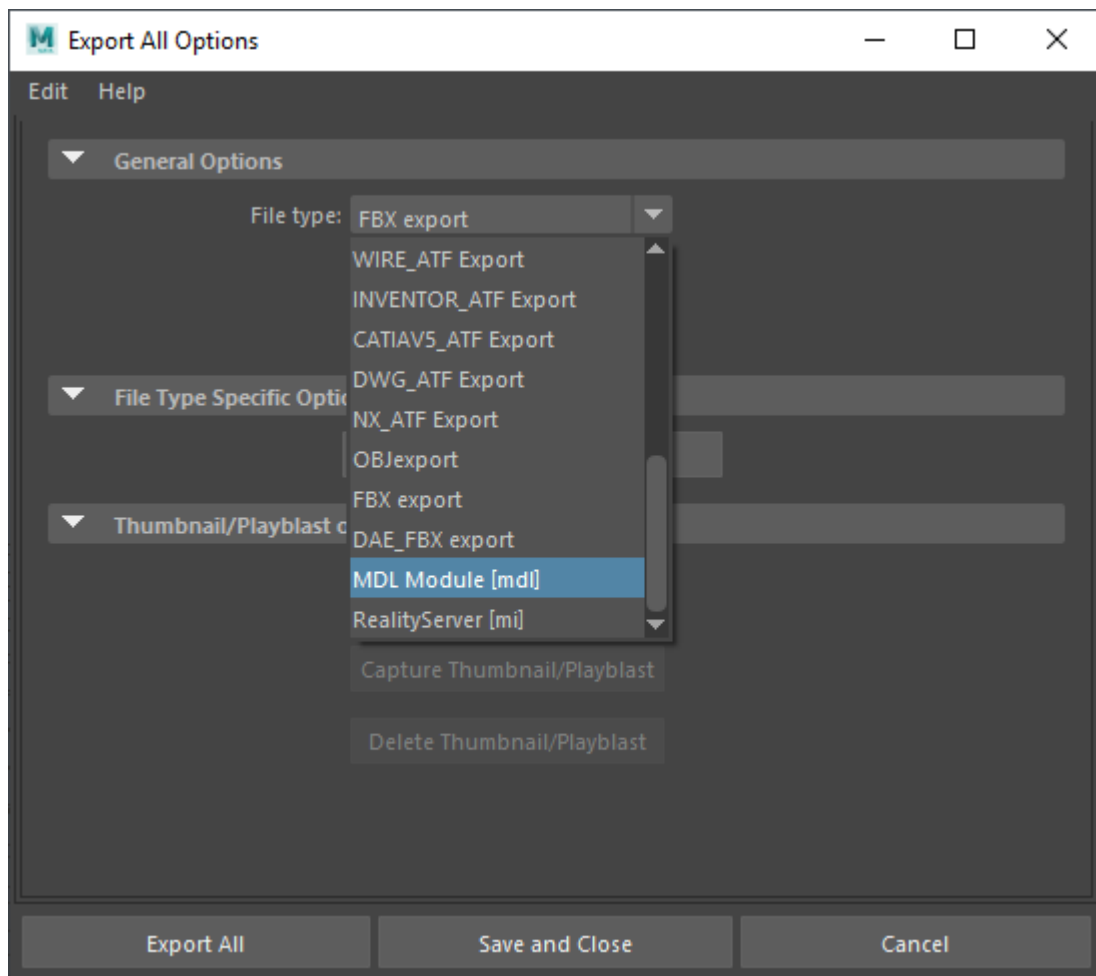


Image Settings for OpenEXR-Format UI

New compression methods for exr were added: DWAA (lossy) and DWAB (lossy)

## 2.5 New export feature for MDL



MDL in the general Maya export

The MDL export was moved from the IFM Control Box to the *File -> Export* und *File -> Export all* main menu. It is now possible to export MDL modules with multiple materials.

## 2.6 New export feature for Reality Server

It is now possible to export selections to Reality Server. To do so use in the main menu *File -> Export selection* and choose *Reality Server*.

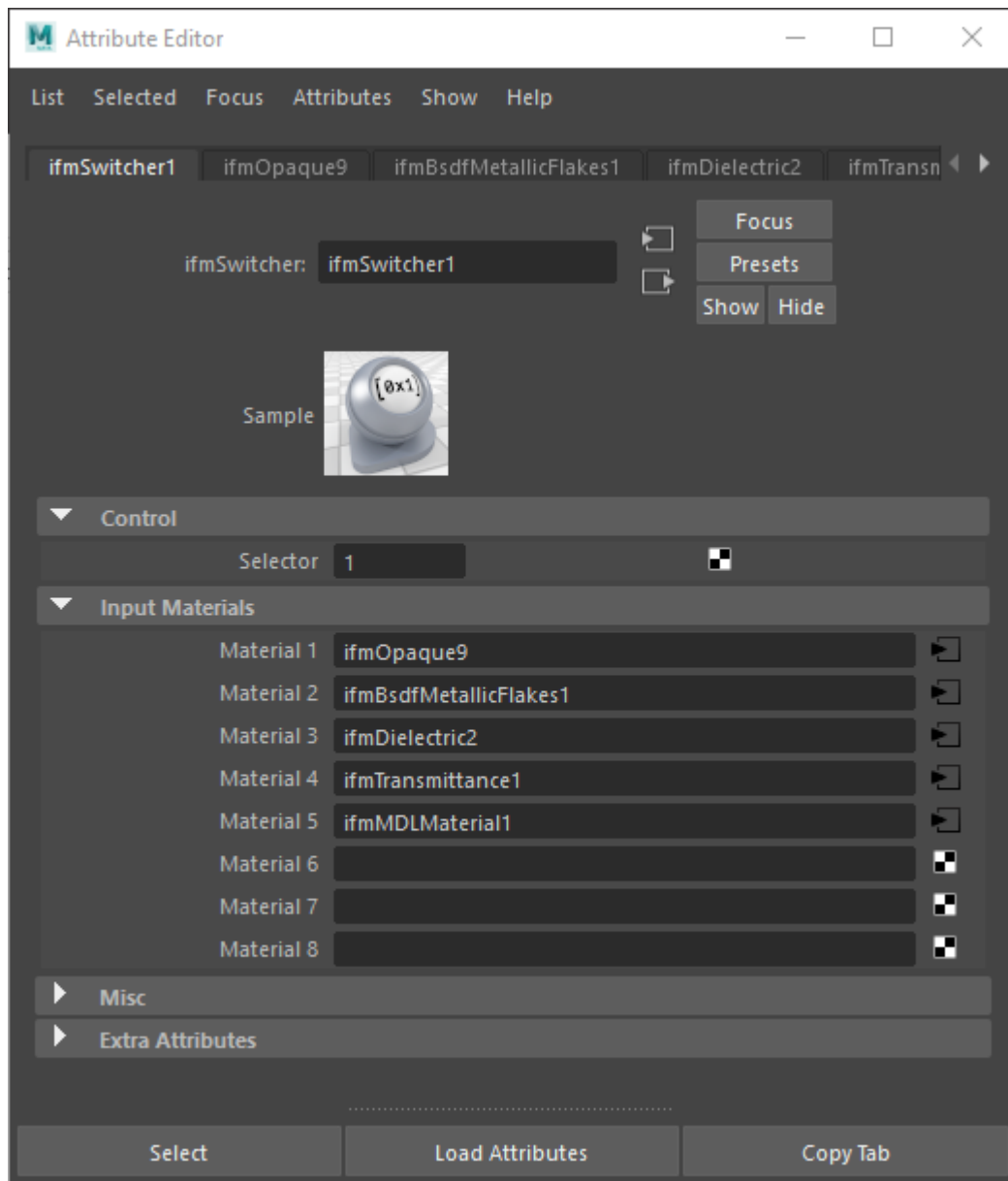
## 2.7 Bucket Rendering

In order to reduce the memory usage for large framebuffers a new option "-bucketing" has been added to command line batch rendering.

The option requires one parameter, the maximum bucket size in MegaPixel as floating point number, e.g. "-bucketing 0.5" for a bucket size of 0.5 MPixel. Note that all calculations are done for a bucket, meaning that caustic sampler, post effects, and post denoising may and will give different results compared to rendering without bucketing.

See the chapter *7.2 Command line rendering* in the user guide for further details

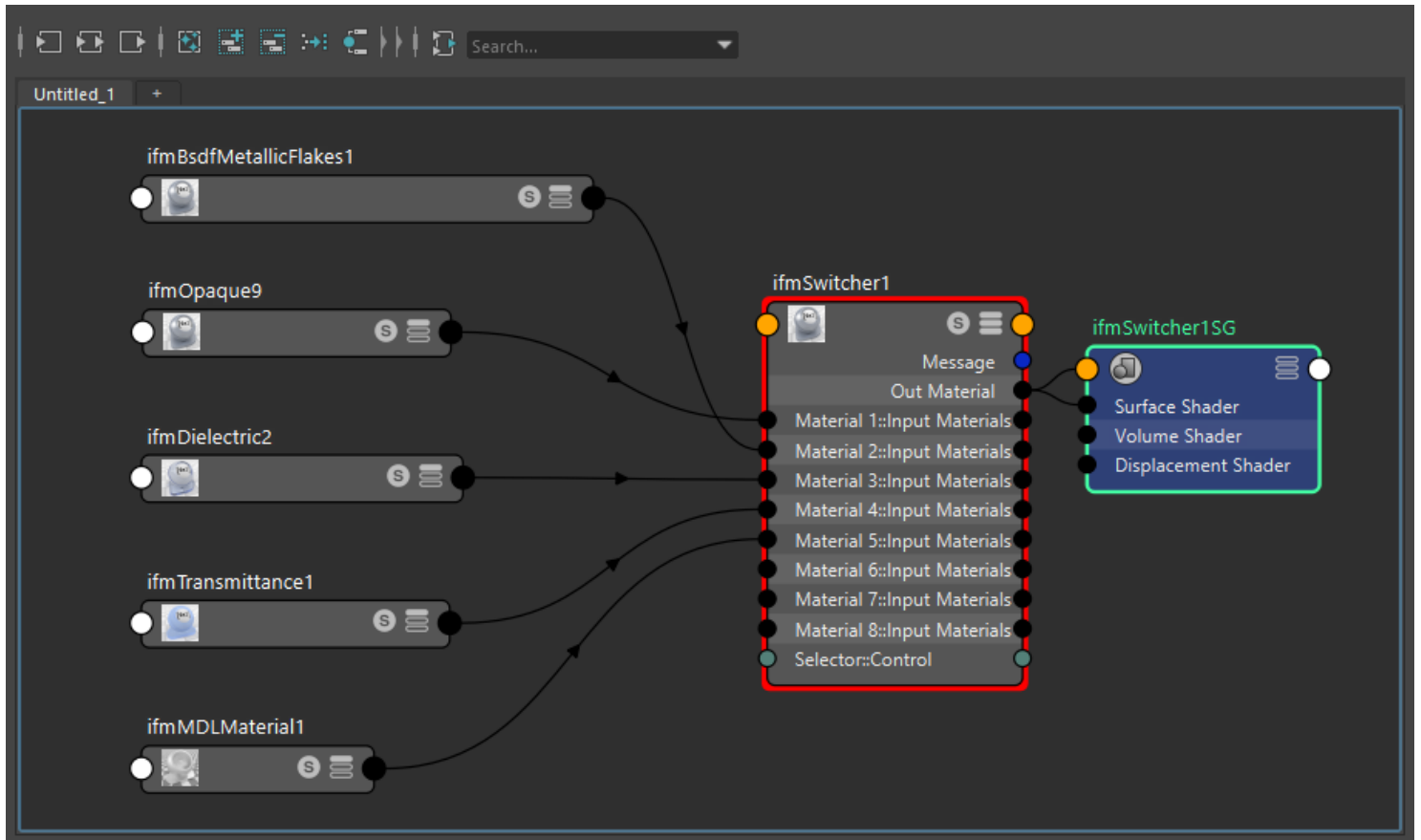
## 2.8 ifmSwitcher



ifmSwitcher attributes

A new material tool is added to Iray for Maya 2.2: ifmSwitcher. Use this material tool to collect up to 8 materials in one node. The user can decide which of the materials will be rendered. This is useful e.g. when rendering different trim levels of a car interior.





Different materials connected to the ifmSwitcher

### 3 Limitations

## 3.1 General

### Geometry Types

Iray for Maya does not render NURBS or SubdivisionSurface objects.

Workaround: Convert NURBS and SubdivisionSurface objects to Polygons before rendering.

### Inherit transform

Iray for Maya does not support the Inherit Transform attribute.

### Usage of multiple UV sets

Using multiple UV sets might cause problems in other areas where Object Ids are involved. This can happen when using *Object Id -> Set* in the Attribute Editor or using the multipleSwitch nodes. Another problem might appear when Object Ids are used in custom MDL materials.

### Usage of multiple shadingSwitch nodes

Using the multiple shadingSwitch nodes — singleShadingSwitch, doubleShadingSwitch and tripleShadingSwitch — might cause problems in other areas where Object Ids are involved. This can happen when using *Object Id -> Set* in the Attribute Editor or when using multiple UV sets. Another problem might appear when Object Ids are used in custom MDL materials.

## 3.2 Interface

### Attribute Editor

Due to a bug in Maya on Windows OS the color field beside Object ID->Set is getting dark grey after setting the color in the RGBA Color Chooser.

Workaround: You need to switch the Object ID attribute once and then go back to Object ID->Set to see the correct color in the color field.

### Hypershade

Quickly changing the MDL type in an ifmMDLMaterial node, while the material is graphed and visible in the hypershade node editor window, can cause a crash.

Workaround: To stop Maya from crashing, close/minimize the hypershade window, or reduce the display mode of the ifmMDLMaterial node to "2" as shown in the following image:



Reducing the display level of the ifmMDLMaterial node

### Hardware texturing

In viewport hardware texturing mode, errors may occur when Iray for Maya materials are assigned to objects. It is recommended to use only wireframe or smooth shaded mode in the viewports when working with scenes using Iray for Maya.

## 3.3 Rendering

### IPR: Motion Blur

Adjustments to the motion blur attributes in the Render settings don't trigger IPR updates.

Workaround: You need to re-render the current camera to see attribute adjustments in the rendered image.

### IPR: Environment nodes

Display and Render Layer changes of environment nodes (ifmImageBasedLighting and ifmHosekSkylight) or their parents aren't handled correctly and may crash during IPR.

Workaround: Turn off IPR while assigning environment nodes to Display Layers or Render Layers.

### Motion Blur

Iray only supports motion blur for transform nodes. This means, for example, that time varying material attributes or textures will not produce motion blur effects.

### Image naming

Iray does not write images when no file extension is added to the file name. This will happen when the setting name.# or name.ext.# of the Frame/Animation ext attribute in the Render Settings window is chosen.

### Iray Interactive restrictions

Iray Interactive has the following rendering limitations:

- No volumetric effects except volume attenuation by Beer's law.
- Emissive geometry is not illuminating the scene, but it is considered when the geometry is hit directly.
- Non-specular refraction is rendered black.
- No motion-blur.
- No custom matte objects.
- The number of elemental BSDFs per material are restricted to a maximum of 16.
- The number of procedural texture functions per material are restricted to a maximum of 32.
- The material volume properties are ignored, for example, no volumetric effects, except for volume attenuation in glass-like materials.
- Fractional cutout opacity is not supported. For values less than 0.5, the object is fully transparent; otherwise, the object is fully opaque.
- The rounded-corners feature is not supported.

### Hard shadows when using Maya standard lights

Using Maya standard lights with Iray for Maya only supports hard shadows.

Workaround: Use light emissive geometry instead.

### Texturing Maya Area Lights in Iray Interactive

Maya Area Light using a texture map is ignored when rendering with Iray Interactive.

Workaround: Use Iray Photoreal instead.

### Texturing Maya standard lights

The other Maya standard lights — Spot Light and Directional Light — do not allow the use of a texture map to modify the Color attribute when using Iray for Maya.

Workaround: Use light emissive geometry instead

## 3.4 Shading

### Material assignment

Per-face material assignment on polygon objects may slow down Iray.

Workaround: If possible, split the geometry in parts and assign materials per object.

### Material connection

Looping material connections will crash Iray

Workaround: Avoid looping connection in material networks.

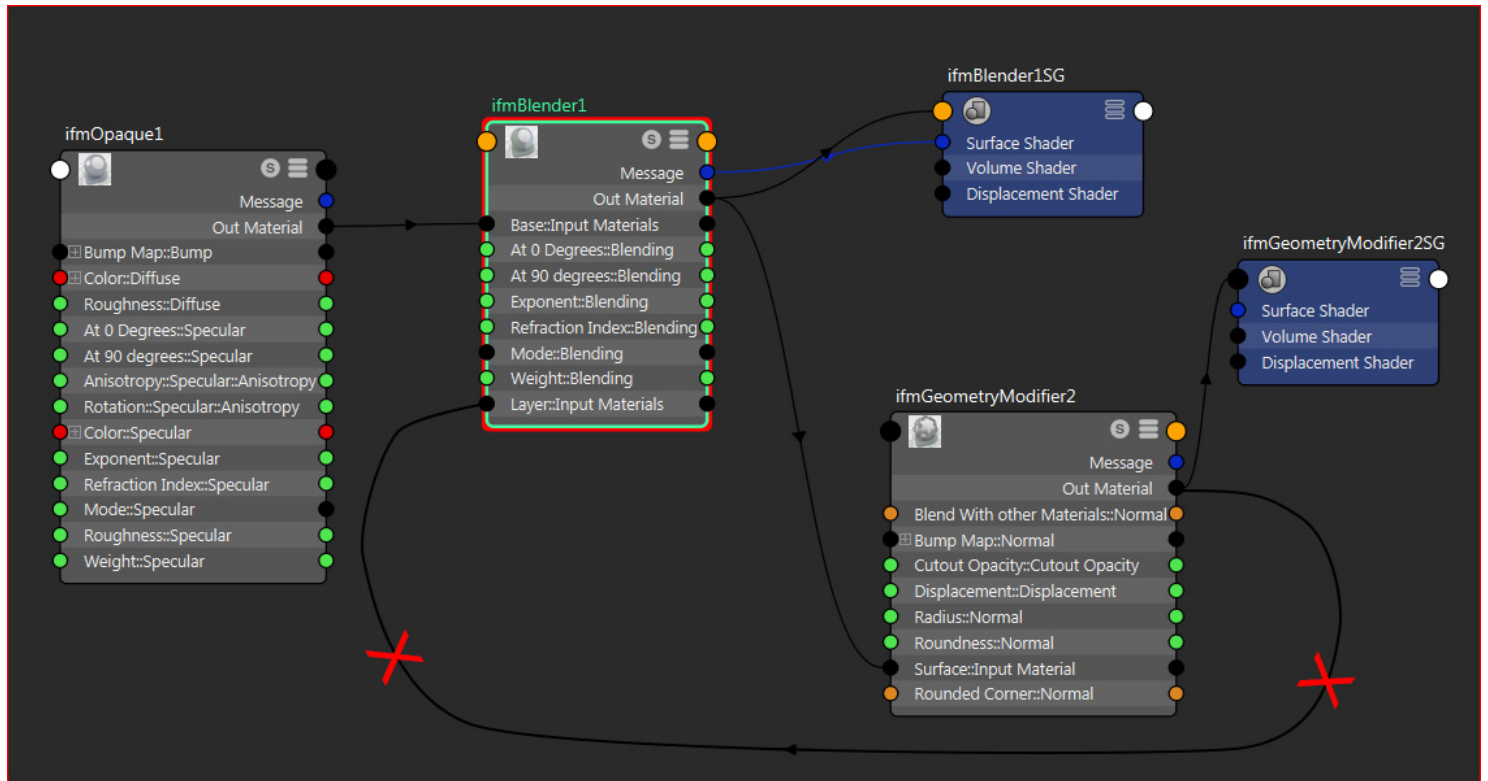


Illustration of a material looping connection

## 3.5 Texturing

### Image naming for file textures

Iray does not understand images as texture maps when no file extension is added to the file name.

Workaround: Use the following syntax to name your files before opening them as texture map: filename.extension, for example, background\_1.png.

### Bump mapping

Iray for Maya doesn't support Tangent Space Normals and Objects Space Normals in the bump2d node.

Workaround: If you want to use normal maps use the ifmNormalMapping node instead.

### 3D textures

Not all Maya's procedural textures are supported. Refer to the chapter Supported Maya Materials for a list of supported textures.

Workaround: Try to use one of Iray's procedural 3d textures if possible.

### Projection node

- Bump mapping is not supported when using the Projection node.
- The attributes Fit Type and Fit Fill in the Camera Projection Attributes section are not supported.



## 3.6 LPE

### User-defined LPEs

Some combinations of user-defined LPEs can trigger a slowdown due to syntax checking, resulting in extended render times.

Workaround: If you have more than 10 canvases and experience a slowdown due to LPE input, open another render layer.

## 3.7 Queue Manager

### **File format mismatch**

Iray for Maya uses a different technique to save image formats than Iray Server. This can lead to differences when rendering the same scene with, for example, the command line renderer using a third-party render manager and Iray Server.

Workaround: Don't mix command line rendering and Iray Server when splitting an animation in one scene file.