Extension 2 for Autodesk Maya 2013 Readme

This document contains bug numbers and corresponding descriptions for issues fixed in this release. In addition, this document may contain information about new functionality in this release (where applicable). It is strongly recommended that you read this document before you install this release. For reference, you should save this readme to your hard drive or print a copy.

Important notes:

- This release is a full product installation on all operating systems. Uninstall your existing Maya application before installing this release.
- This release includes all of the fixes from the service pack(s) that preceded it. Therefore, you do not need to download and install all the preceding release in addition to this extension.

Contents

Additional Resources

For complete instructions about uninstalling and installing this release, see: www.autodesk.com/maya-install-2013-enu.

For complete documentation and learning resources, see: www.autodesk.com/maya-docs.

For hardware qualifications, see: www.autodesk.com/maya-hardware.

To report issues with this release, see: www.autodesk.com/maya-support.

For more resources, see: www.autodesk.com/maya-learningpath.

What's New?

Maya and .NET SDK

The new Maya .NET SDK allows you to create plug-ins for Maya using Microsoft's .NET technology and load plug-ins stored in .NET assemblies. Included with the SDK are the .NET SDK class libraries, the Visual Studio XML documentation and C# example files.

For more information regarding the Maya .NET SDK, see http://www.autodesk.com/maya-sdkdoc-2013-enu.

DirectX11 MayaUberShader enhancements

The DirectX11 MayaUberShader enhancements in Extension for Maya 2013 include the following new/updated features:

Using the _MAYA_ macro

If you share your HLSL files with other applications but need to include Maya specific code, you can wrap your HLSL code in the _MAYA_ macro, similar to the example below:

```
#ifdef _MAYA_

    float2 UV = float2(U, 1.0-V);

#endif
```

Light 0 / Light 1 / Light 2

The following new attribute has been added:

Light 0 Type
Select the type of light, for example, spot, point, directional or ambient. The **Default** and **None** options are used internally by the `dx11Shader.mll` plug-in. Selecting either of these options results in a point light.

Ambient and Emissive

The **Ambient Emissive Map** attribute has been renamed to **Emissive Map**.

The following new attribute has been added:

Ambient Occlusion Map
Select this option to add ambient occlusion to your scene. Connect a pre-baked map that affects only ambient light in the shader.

Diffuse

You can now use image based lighting with the DirectX11 MayaUberShader, as well as simulate diffuse shading for hair. The following attributes are new or updated:

Diffuse Model
Select among three diffuse shading methods, depending on your object. Select **Blended Normal (Skin)** so that the diffuse lighting on an object is more realistic for simulating skin. Select **Soften Diffuse (Hair)** to simulate the diffuse lighting for hair. Select **Lambert** for other models.

Note: Use of the **Depth Peeling Transparency Algorithm** with **Diffuse Map Alpha** is currently not supported.

Blended Normal Mask / Blended Normal

Soften Diffuse Mask from Extension 1 has been renamed to **Blended Normal Mask** in Extension 2. Likewise, **Soften Diffuse** has been renamed to **Blended Normal**.

IBL Map
Use this feature to add image based lighting to your scene. You can connect a `.dds` cube map or a 2D spherical or latlong map; or, a combination of a cube map and a 2D map.

This feature allows you to rapidly prototype your character in different lighting environments.

IBL Cube Map
Select this option to connect a `.dds` cube map.

IBL 2D Map
Select this option to connect a 2D spherical or latlong map.

IBL Type
Select from the drop-down list the type of IBL map(s) that you are connecting. You can connect a `.dds` cube map or a 2D spherical or latlong map; or, a combination of a cube map and a 2D map.

IBL Intensity
Use this slider to increase or decrease the intensity of your image based lighting.

IBL Blur
Use this slider to blur the image based map.

IBL Rotation
Use this slider to rotate your IBL map; for example, if you want the sun in your IBL map to appear elsewhere on your object.

IBL Spherical Pinch
Adjust this attribute to reduce pinching artifacts that may occur with some spherical maps.

Specular

You can now simulate metal or hair using anisotropic specular lighting. The following attributes are new or updated:

Specular Model
Select among three specular shading methods, depending on your model. Select **Kelemen-Szirmaykalos (Skin)** to perform Kelemen-Szirmaykalos specular calculations to better simulate human skin. Select **Anisotropic (Brushed Metal/Hair)** to add anisoptropic specular lighting to simulate metal or hair. Select **Blinn** shading for other models.

Anisotropic Direction Map
If you select the **Anisotropic (Brushed Metal/Hair)** option under **Specular Model**, you can optionally add a directional map to control the direction of the anisotropic highlight. If you do

not select this option, you can still use the **Anisotropic Specular Color** and **Anisotropic Roughness** options to control the color and shape of your specular highlight.

Note: Currently, you must use a tangent space map.

Anisotropic Direction Type
Select from the drop-down list the type of direction map you are connecting to the **Anisotropic Direction Map** attribute.

Anisotropic Specular Color
Use this option to control the color of your specular highlight.

Anisotropic Roughness
Use this option to control the shape of your specular highlight.

Mix Blinn-Anisotropic by Direction Alpha
Select this option to blend between **Blinn** and anisotropic specular lighting based on the alpha channel in the direction map.

Normal

The following new attributes have been added:

Support Non-Uniform Scale
Select this option to correctly display normals for objects that have non-uniform scaling applied.

Normal X (Red) / Normal Y (Green)
Use these options to set whether the red and green channels of your normal map are positive or negative.

Important: For this option to work correctly, you must ensure that **Tangent Space > Coordinate System** is set to **Right Handed** under the shape node.

Reflection

You can now use 2D spherical or latlong reflection maps, and the following attributes are new or updated:

Reflection Map
Select this option to use a reflection map in your scene.

Reflection Type
You can connect a `.dds` cube map or a 2D spherical or latlong map in any standard supported image format (including .HDR); or, a combination of a cube map and a 2D map. Select from the drop-down list the type of map(s) you are using.

Reflection 2D Map
Select this option to connect a 2D spherical or latlong map.

Tip: IBL and reflection maps should be in the same color space as your other input textures. When using the **Linear Space Lighting** setting in the MayaUbershader, input textures are expected to be in sRGB display space; therefore, IBL and reflection maps should be converted into this space through image editing software. If rendering linear output and using the Viewport 2.0 **Gamma** setting for preview, all input textures should be in scene referred linear color space and the **Linear Space Lighting** setting in the MayaUbershader should not be used.

Reflection Rotation
Use this option to rotate your reflection map.

Reflection Spherical Pinch
When using spherical reflection maps, you can use this option to reduce the pinching artifacts that some spherical maps may exhibit.

Reflections Affect Opacity
Select this option so that areas on the object that have reflection or specularity do not become fully transparent (for example, like a soap bubble). When this option is disabled, reflections and specular lighting do not affect opacity (for example, with semi-transparent objects such as hair).

Tessellation and Displacement

When connecting tangent vector displacement maps, you can now use the **Displacement Model** drop-down list. The following attributes are new or updated.

Displacement Model
 Select from the drop-down list whether you are using a greyscale displacement map or a tangent vector map. You can create vector displacement maps in Mudbox. However, you must use the same low polygon model in Maya as you do in Mudbox.

When using a vector displacement map, you usually also want to provide a normal map to the shader to provide the correct normals to the shader after the vector displacement map has moved the vertices.

Note: Select **Tangent** as your **Coordinate Space** if you output your normal map from Mudbox. Select **Absolute Tangent** as your **Vector Space** if you output your vector displacement map from Mudbox.

Displacement Coordsys
Select the correct displacement axis for vector displacement maps. The axis is determined by the application from which you generated the vector displacement map, for example, Mudbox.

Use of .exr/.tif files

When creating a new scene in Extension 2 for Maya 2013, if you are using `.exr` files for greyscale displacement maps, you no longer need to adjust the **Displacement Offset** or

Displacement Height values and the default settings should work automatically. If you are using `.exr` files for tangent vector displacement maps, you should set your **Displacement Offset** to 0 and your **Displacement Height** to 1.

However, if you have a legacy scene, you must adjust your height and offset values to achieve the same result as in Extension for Maya 2013. In general, you should set the **Displacement Height** to 1 and **Displacement Offset** to 0 for tangent vector displacement maps and **Displacement Height** to 1 and **Displacement Offset** to 0.5 for greyscale displacement maps.

This change does not apply to `.tif` files. Therefore, when creating a new scene in Extension 2, you must still adjust the **Displacement Offset** or **Displacement Height** values manually. However, if you have a legacy scene, the same settings from Extension 1 should also work for Extension 2.

In general, use of `.exr` files for displacement maps is recommended.

Working with scenes from Extension 1

Currently, there are two versions of the ubershader available: the `MayaUberShader.fxo` from Extension for Maya 2013, and the `AutodeskUberShader.fxo` from Extension 2, which contains the new features described above.

If you load a scene from Extension 1 into Extension 2, and your *existing* dx11Shader nodes are mapped to an absolute shader path that is still valid (the `.fxo` file still exists at the absolute path), the scene should work as it did in Extension 1.

If you load a scene from Extension 1 into Extension 2, and your *existing* dx11Shader nodes are mapped to an absolute shader path that is no longer valid (in other words, the `.fxo` no longer exists), you can remap to the `MayaUberShader.fxo` file so that your scene works as it did in Extension 1.

Alternatively, you can remap to the `AutodeskUberShader.fxo` file, which contains new features from Extension 2. However, you may need to adjust some of your parameters; for example, reconnect your ambient emissive map, or re-enable the **Reflection Map** option.

If you create a new **DirectX 11** Shader, the `AutodeskUberShader`.fxo file is loaded, with all the new features available.

New MAYA_CER_INCLUDE_SCENE_NAME environment variable

Use this environment variable to determine whether your scene file name is included with your CER report to Autodesk. If this variable is not set, the scene name is show as undisclosed.

- 0 = scene name is listed as undisclosed
- 1 = include only the file name
- 2 = include the full path/file name

What's Fixed?

This section describes fixes included in this extension. For a list of included fixes from preceding releases see the following documents:

- http://images.autodesk.com/adsk/files/extension_maya2013_readme_enu.pdf
- http://images.autodesk.com/adsk/files/Maya2013_SP1Readme_enu0.pdf

Animation

Bug Number	Description
MAYA-13850	Playblast in Quicktime doesn't open in viewer if name contains '.' (period)
MAYA-15314	cMuscleSaveWeights MEL error when switching the "load by" options
MAYA-16179	Rotate Order set to incorrect value when added to animation layer
MAYA-17210	Skin cluster max influences breaks tools (weight hammer)
MAYA-18066	Playblast player not launched automatically on Linux
MAYA-18418	Playblast player cannot open file because the filename is missing an extension

File Referencing and Assets

Bug Number	Description
MAYA-12163	File is dirty after saving it (possibly due to temporary reference namespace)
MAYA-16547	Loading reference instability
MAYA-17133	Locked DAG container allows parenting

Modeling

Bug Number	Description
MAYA-14958	Add warning when MFnMesh.generateSmoothMesh() produces NANs
MAYA-16267	UV set editor not displaying all UV when there are intermediate mesh objects
MAYA-18018	Display of high surface precision NURBS geometry is incorrect
MAYA-18495	Poly normals 'locked' when re-opening scene
MAYA-18753	Add Global Poly Normal Method preference

Simulation and Effects

Bug Number	Description
MAYA-9865	Objects created using Maya Bullet shelf/menu do not work as expected

Rendering

Bug Number	Description
MAYA-1859	Materials render on parts of the mesh differently than they appear assigned to (per face shading) with mental ray
MAYA-12578	Disabling "Filtering" in Camera Depth render pass with mental ray causes instability
MAYA-13789	Painting on textured object leads to instability
MAYA-14414	Substance Attribute Editor broken when loading scene
MAYA-16275	Maya file with particular line crashes with locknode (mental ray)

Bug Number	Description
MAYA-16631	Texture mode with CGFX shaders in Viewport 2.0 is not displayed properly
MAYA-17081	Wireframe object is always drawn in the back of image plane
MAYA-17877	Instability with 2k stereo panel off-screen playblast
MAYA-17888	GPU memory issues
MAYA-18660	Image plane stays hidden with show menu
MAYA-18671	Setting camera image plane changes visibility of camera hierarchy
MAYA-18702	Clipping planes ignored by mental ray
MAYA-18706	Error when renaming image planes or disconnecting image planes
MAYA-18933	Textures don't display in Viewport 2.0 when files exchanged between Maya and Mudbox
MAYA-18977	Mia_MatX Roughness breaks render pass and contribution maps
MAYA-19218	Material information lost after Hypershade Delete Unused Nodes
MAYA-19578	EXR textures used in the DX11shader corruption
MAYA-19371	Maya CER reports too much info
MAYA-16156	Snapping/framing in UV Editor is incorrect if Use Image Ratio is on

Scripting

Bug Number	Description
MAYA-15718	PyQt instability issues

Feature Limitations and Notes

The following section describes limitations and other notes about this release.

Limitations

Bug Number	Description
MAYA-7971	Composite instability on CentOS 6 with ATI Radeon 5870