Autodesk® **Maya**® 2013

Autodesk

What's New in Extension

Autodesk ® Maya® 2013

Contents

What's New in General

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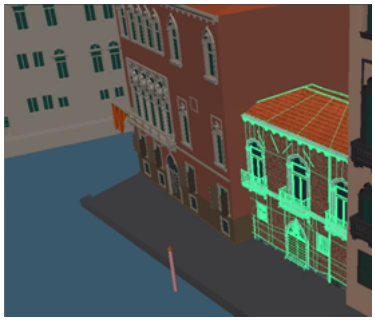
Scene Assembly

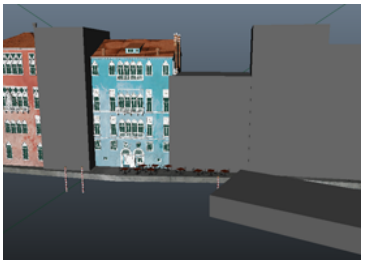


Scene Assembly is a system that lets you build complex Maya scenes without the burden of typical memory overhead. Constructing the scene with Scene Assembly improves viewport interactivity and accelerates file loading, helping to solve common issues when working with large data sets.

Scene Assembly consists of two interdependent nodes (**assemblyDefinition** and **assemblyReference**) and a system for loading alternative forms of your production assets called representations. The system lets you define these alternate representations and build a complex hierarchy of assets, such as detailed models of entire cities, one object at a time.

You can then use representations to manage the scene's complexity at the object level by switching between different versions of each scene object, letting you choose between detailed display and performance as your task requires.

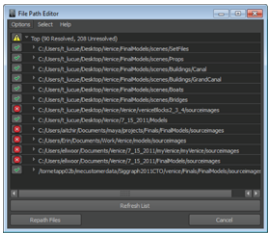
Convert geometry to bounding boxes



A new option in the **Modify > Convert** menu lets you convert selected geometry to bounding boxes.

Converting geometry to bounding boxes is useful for quickly reducing the level of detail in your scene. You can also convert complex production assets to bound boxes and use them as simple, low resolution representations in Scene Assembly workflows.

File Path Editor



You can now manage file paths in your Maya scene using the new **File Path Editor** (**Window > General Editors > File Path Editor**). The **File Path Editor** browser lists path information for files, including texture and referenced files, and displays resolution status icons that let you identify file path issues quickly. Unresolved paths are easily resolved using the editor's **Repath** window. Your repath choices can be reviewed using the **Actions Preview** window, which shows the results of the repathing operation before it occurs.

GPU caching additions

New **GPU Cache Configuration** preferences let you optimize how your graphics card processes Alembic-based GPU cache files. For example, you can specify video RAM usage for GPU caches, choose from OpenGL selection modes, and more. You can access the **GPU Cache Configuration** settings from a new **GPU Cache** section of the Maya **Preferences** window (**Window > Settings/Preferences > Settings > GPU Cache**).

New GPU Cache Import options let you specify the time range and start frame when importing GPU caches into Maya.

Add component-level metadata

A new Maya Metadata API lets you create an arbitrary number of metadata structures that can be attached to components of Maya mesh objects, including vertices, faces, and edges,

or directly to a Maya node. A small set of MEL commands provides access to the metadata from within Maya.

Ignore Version global preference

Easily load scene files from any version of Maya by turning on the new global **Ignore Version** preference.

Composite and the Autodesk Customer Involvement Program

Composite is now part of the Autodesk Customer Involvement Program (CIP) which collects information to help Autodesk learn how you use Composite. Participation is voluntary; select the new Customer Involvement Program option in the Help menu to help us design new features as well as improve existing ones. You have the option to participate anonymously, participate with contact information, or not to participate.

NOTE The Autodesk CIP initiative is only available for Windows versions of Composite.

What's New in Character Animation

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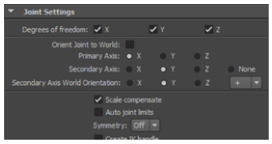
Joint symmetry



New options in the **Joint Tool** settings let you create symmetric joints and joint chains. Select an option from the new **Symmetry** drop-down list to set the axis for your symmetry connection. With **Symmetry** enabled, you can create symmetric skeletons automatically.

Additionally, updated **Joint Tool** marking menus give you access to the most frequently used options in the **Joint Tool** settings. With the **Joint Tool** active, 

+ 

+  and select options to edit joints, joint chains, and symmetry connections.

Automatic joint centering

You can now automatically center joints in a model using the new **Snap to Projected Center** button  . This snapping mode is particularly useful for creating skeleton joints and joint chains, but it can be used with any object type on creation and manipulation.

What's New in Rendering and Render Setup

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New Viewport 2.0 features

Model courtesy of Jesse Sandifer

Viewport 2.0 now supports the DirectX 11 rendering engine for Windows 64-bit systems. You can run Viewport 2.0 in either DirectX 11 or OpenGL mode.

HLSL shaders are supported with DirectX 11 and a sample shader (`MayaUberShader.fx`) is provided and automatically loaded when a **DirectX11 Shader** is created.

The DirectX 11 MayaUberShader allows you to work with features such as tessellated displacement, translucency, blurred reflections and so forth directly in Maya. Lights and light parameters are automatically connected through implicit light binding. All light modes (default, use selected, use none, use all) are supported, as well as both textured and non-textured modes.

The `dx11Shader.mll` plug-in also provides semantics for creating an organized and simple **Attribute Editor** for your HLSL shader, as demonstrated by the MayaUberShader.

It allows for interoperability between Mudbox and Maya. Using DirectX 11 with Viewport 2.0, you can see the displaced results of your Mudbox model realtime directly in the Maya scene view, without needing to render.

In addition, Viewport 2.0 also supports several new shaders and utility nodes, mental ray objects, NURBS features, and other features such as filtering and tem-

plating. Furthermore, there are performance improvements in several areas.

Free image planes supported by mental ray

Free image planes are now supported by the mental ray for Maya renderer.

Coloring vertices in Viewport 2.0

You can now paint your vertices with a color set in Viewport 2.0. In addition, you can also color your vertices based on influence color in Viewport 2.0.

What's New in nDynamics

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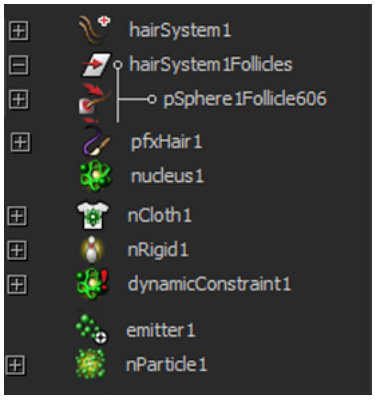
Redesigned nDynamics object icons



Freshly redesigned icons for nDynamics objects make it easier to identify Nucleus objects, dynamicConstraint nodes and nHair follicles in the **Node Editor** or **Outliner**.

Input Attract Method

A new **Input Attract Method** improves performance by letting you specify which vertices of an nCloth mesh participate in simulations.

What's New in API

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API changes

Rendering

The Extension for Maya 2013 includes many API changes for Viewport 2.0. There are many enhancements to OpenMaya Render; for example, draw mode, shader override and geometry enhancements. In addition, several plug-in examples have been added and updated. OpenMaya UI has also been updated for the default viewport. For more information, see the Maya API Documentation at *www.autodesk.com/maya-sdkdoc-2013-enu*.

Scene Assembly

A new Scene Assembly system has been implemented in Maya as a plug-in using a new Scene Assembly API. The Scene Assembly API allows for development of custom Scene Assembly nodes with expanded capabilities, and can provide integration with existing content development pipeline processes and tools. For more information, see the `MFnAssembly` class in the Maya API Documentation.

Metadata

A new Metadata API along with a small set of commands support the definition and creation of an arbitrary number of metadata structures that can be attached to certain components of Maya mesh objects, including vertices, faces, and edges, or directly to a Maya node. The metadata created can flow through certain mesh operations in the Maya DG, maintaining its attachment to the mesh. The metadata can later be examined or modified by certain Maya commands or through the API, and is preserved in Maya files across sessions.

Recursively parsing folders in a module

By default, Maya ignores all subfolders included in a module. You can use the `[r]` keyword to request recursive behavior for a folder.

Maya Viewport 2.0 API Guide and new Best practices section added to API Documentation

A new **Viewport 2.0 API Guide** and a new **PyQt and PySide Widget Best Practices** section has been added to the Maya API Documentation. See the Maya API Documentation for more information.

What's New in MEL and Python

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Building PyQt for Autodesk Maya 2013

When building PyQt for Autodesk Maya 2013, you must use the Microsoft 2010 Visual Studio compiler. This is different from the behavior in Maya 2012.

For instructions on how to build a copy of the PyQt modules, see the PyQt section under *autodesk.com/maya-docs*.

New commands

The following commands have been added:

- **addMetadata**
- **applyMetadata**
- **assembly**
- **dataStructure**
- **dbpeek**
- **editMetadata**
- **filePathEditor**
- **geomToBBox**
- **getMetadata**

Changed commands

The following commands have been changed:

New command flags:

- **file**

  -rns/relativeNamespace

- **imagePlane**
  -c/camera
  -d/detach
  -e/edit
  -h/height
  -iz/imageSize
  -n/name
  -w/width
- **joint** & **jointCtx**
  -sa/symmetryAxis
  -sym/symmetry
- **lockNode**
  -ln/lockName
- **modelEditor** & **stereoCameraView**
  -rol/rendererOverrideList
  -rom/rendererOverrideName
  -rou/rendererOverrideListUI
- **referenceQuery**
  -onc/onContainerNode
- **scriptNode**
  -ire/ignoreReferenceEdits
- **scriptTable**
  -upc/underPointerColumn
- **selectPriority** & **selectType**
  -qbn/queryByName
- **snapMode**
  -mc/meshCenter
- **textField**, **textFieldButtonGrp** & **textFieldGrp**
  -pht/placeholderText
- **textScrollList**
  -lf/lineFont
- **timeControl**
  -tsp/tickSpan

- **treeView**
  -ams/allowMultiSelection
  -it/item

Other command differences:

- **selectPriority** & **selectType**
  -bn/byName now takes two args (a String & a boolean) and is multi-use