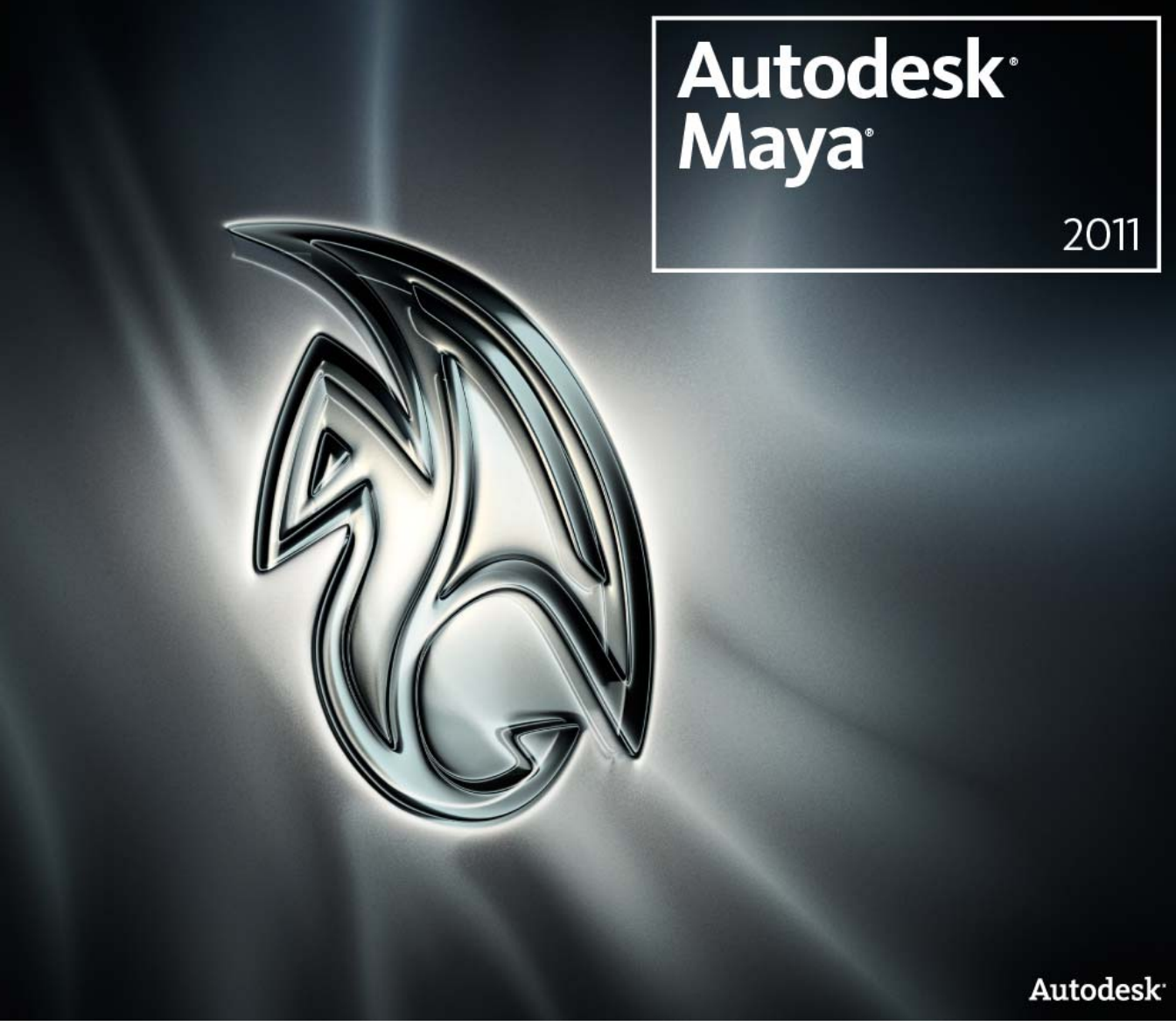

What's New in Subscription Advantage Pack

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What's new in Subscription Advantage Pack for Autodesk Maya 2011

1

What's new

Welcome to What's New in Subscription Advantage Pack for Autodesk® Maya® 2011.

The Subscription Advantage Pack provides higher-level access to animation, shading, and effects feature sets, freeing artists to focus on their creativity. From lightweight, resolution-independent procedural textures; to joystick-driven camera rigs that emulate real-world set-ups, the Subscription Advantage Pack helps artists achieve the high-quality results required by today's demanding consumers in less time.

Refer to the following sections for details on all the new features of this release.

Modeling

New updates and additions to the Maya marking menus now make selections to popular modeling tools faster and easier. Improvements to the Detach Component command now make it easier to detach selected edges.

■ New modeling features on page 5

Animation

Maya now includes pre-rigged models of cars and planes and new custom cameras from Craft Animations. You can use the rigs to quickly set up existing models and use custom input devices.

■ New animation features on page 7

Dynamics

Maya now includes a number of preset effects called Effects Assets. Building on the Maya Asset framework and simulation toolsets, Effects Assets present the most relevant attributes for an effect, making it easy to customize for your scene. Effect assets are available in the Visor window.

ICE Flow for Maya plug-in is a one-click workflow solution that imports Softimage ICE effects directly into Maya. ICE Flow for Maya lets you take advantage of the ICE (Interactive Creative Environment) to create effects for your Maya scenes.

■ New dynamics features on page 11

Rendering

Choose from a library of up to 75 new substance procedural textures, and edit or animate parameters to help achieve a vast range of looks. These new substance textures are available for you to quickly create photorealistic procedural textures using a library of organic, fabric, and material presets. You can choose among substances such as concrete, pavement, stone tiles, painted wood and so forth.

■ New rendering features on page 25

What's new in Installation

Open Source libraries

Three open source libraries are available for use with Subscription Advantage Pack:

- QT 4.5.3 - Maya's whole UI framework
- OpenAL 1.10.622 - audio framework
- libquicktime 1.1.3 - provides QuickTime support for the Sequencer

Maya stores the open source packages in a `open_source_code_used_with_Maya_2011.zip` file in the following location:

- Windows
  `Support` directory of the root directory of your installation folder.

- Mac OS X
  `Support` folder inside the `.dmg`.

- Linux
  In the `.tar.gz` download under the `Support` folder.

For the open source used for AdLM, links are available via Help > About Maya.

Installation directories

By default, the Subscription Advantage Pack is installed in the following locations:

- Windows
  `C:\Program Files\Autodesk\Maya 2011 Subscription Advantage Pack\`

- Mac OS X
  `/Applications/Autodesk/maya2011.5`

- Linux
  `/usr/autodesk/maya2011.5-x64/`

NOTE You can have both Maya 2011 and Maya 2011 Subscription Advantage Pack installed concurrently. Subscription Advantage Pack does not automatically overwrite the Maya 2011 installation. Therefore, your pipelines may need to be adjusted to find the correct installation directory for Subscription Advantage Pack.

New modeling features 2

Marking menu updates and additions

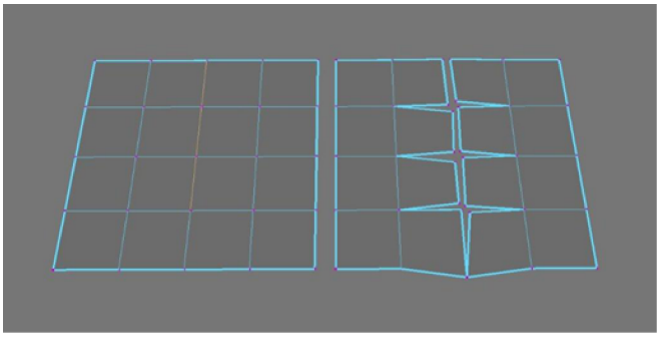
The following table lists updates and additions to the Maya marking menus.

Marking menu	Update/addition
Poly Edge	■ Flip/Spin Edge sub-menu added ■ Detach Components added ■ Connect Components added
Poly Face	■ Assign Invisible Faces added ■ Connect Components added
Move, Rotate, and Select Tool	■ Soft Select toggle removed ■ Object mode toggle added
Scale	■ Menu items reordered ■ Axis sub-menu added, which includes options for scaling axis. ■ Normal Average, Object, World scaling added ■ Soft Select toggle removed ■ Object mode toggle added
Poly Vert	Connect Components added

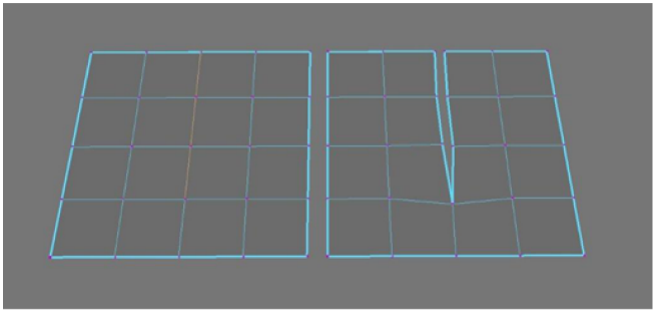
Marking menu	Update/addition
UV Editor Comp Convert	■ To Border removed ■ To UV Edge Loop added

Detach Component tool improvements

You now get better results when using the Detach Component command to detach selected edges.



Previous result for Detach Component on selected edges



Improved result for Detach Component on selected edges

New animation features 3

Craft Animations plug-in

Maya now includes pre-rigged models of two cars and two planes from Craft Animations, as well as the following cameras:

- Craft SoftMotionCam
- Craft ObserverCam
- Craft MultiStateCam
- Craft HumanizerCam

Use these vehicle rigs to quickly set up your existing vehicle models for animation, control the vehicles using custom input devices, and record keyframe animation of the vehicle actions and your camera rigs.

For complete documentation on the Craft Animation rigs and cameras, use the Help menu in the Craft Animation Director Studio plug-in window. For more information on Craft Animation, see *http://www.craftanimations.com*.

Install the Craft Animations plug-in

Install the Craft Animations plug-in on Windows

➤ Run the Maya installation wizard and select the Craft Animations component on the Select the Products to Install page.

Install the Craft Animations plug-in on Mac OS X

1 Double-click the Maya `.dmg` download package.

2 In the Finder window that opens, double-click the `Support` folder.

3 In the Finder window that opens, double-click the Craft Animation `.dmg`, then double-click Install.

Install the Craft Animations plug-in on Linux

1 Extract the Maya packages from the compressed file.

2 Navigate to the `Support` folder and extract the craftdirectorstudio `.tar.gz` file.

3 As a super user, navigate to the directory where you extracted the package.

4 Type `./install.bash`.

This starts the Craft Animation plug-in installation.

Before using the Craft Animation plug-in for the first time, you need to load the plug-In using the Plug-in Manager.

To load Craft Animations Director Studio plug-in

1 Start Maya.

2 Select Window > Settings/Preferences > Plug-in Manager. The Plug-in Manager opens.

3 Locate Craft Animations and turn on Loaded.

To load Craft automatically every time you start Maya, turn on Auto load.

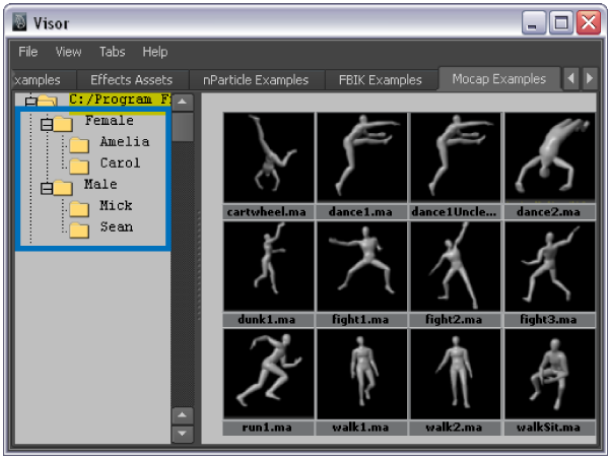
4 Click Close.

You can access the Craft Animations plug-in from the shelf by clicking the DirectorStudio tab, then clicking the  icon.

More Mocap Example files

The Visor window now includes additional motion capture example files that you can use with the character animation retargeting tools.

To find the mocap examples, open the Visor (Window > General Editors > Visor) and switch to the Mocap Examples tab.


Visor
File
View
Tabs
Help
xamples
Effects Assets
nParticle Examples
FBIK Examples
Mocap Examples
C:/Program F
Female
Amelia
Carol
Male
Mick
Sean
cartwheel.ma
dance1.ma
dance1Uncle...
dance2.ma
dunk1.ma
fight1.ma
fight2.ma
fight3.ma
run1.ma
walk1.ma
walk2.ma
walkSit.ma

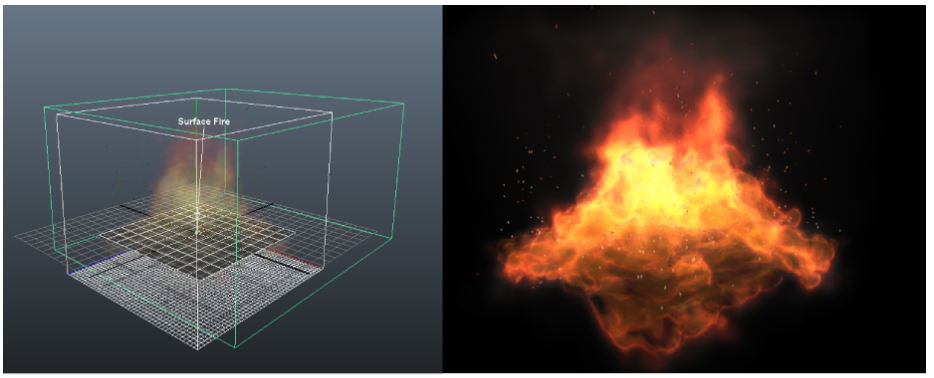
New dynamics features 4

Effects Assets

Overview

Effects Assets provides a number of preset effects that are organized as Maya assets. Effect Assets are available in the Visor window and can be quickly imported into your scene, applied to objects, then played and rendered with little or no modification. Effects Assets include 3D fluid containers that emit fluid and nParticles, nParticle emitters, and Maya fields that provide effects including explosions, fire, smoke, and rain.

Effects Assets are advanced assets, which allow them to be parented to objects outside the asset. For example, some assets, such as a fire asset, can be parented to a polygon object or applied as a surface emitter. Depending on the effect, selecting Effects Assets > Apply Effect from the nDynamics menu set either parents the effect to an object, or applies it to a surface. Effects with Point or Volume emitters are parented while Surface emitter are applied. Free-standing effects, such as the Bomb.ma, do not need to be applied to objects in the scene.

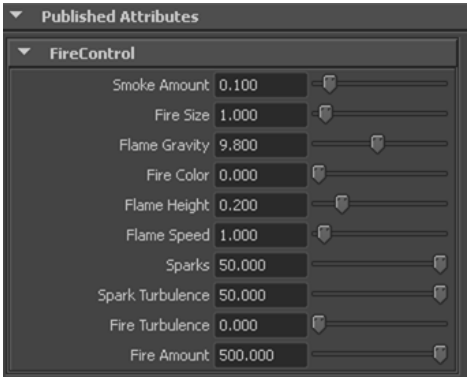


Fire.ma

Effects Assets do not use asset templates or binding sets. For information about Maya assets, see Assets in the *Basics* guide.

Modify an effects asset

The easiest way to modify an effect is to adjust the asset's published attributes. These attributes provide control to the specific characteristics of the effect. For example, the Fire asset has attributes that adjust flame density, speed, and height as well as the amount of emitted sparks.



NOTE You can access the attributes of the asset's internal nodes by expanding the asset in the Outliner, then selecting the individual nodes. Be aware that adjusting the internal node attributes may affect the way the Published Attributes control your effect.

Effects Assets and collision objects

For an effect that includes Nucleus objects, a Nucleus node is published to the asset. To make the effects asset collide with an object, you can select Effects Assets > Collide with Effect. This converts the selected object to a passive collision object and assigns it the asset's Nucleus solver. If the object is already associated with another Nucleus solver, selecting Collide with Effect re-assigns the object to the asset's Nucleus solver.

To make objects collide with a fluid that is in the effect, you can select the fluid object, which is an internal node in the asset, in the Outliner. You can then make the fluid collide with objects as with normal fluids. See *Make fluids collide with geometry* in the *Fluid Effects* guide.

Published nodes

Effects Assets are created with a number of nodes, such as fluid emitter, fluid container, and Maya field nodes encapsulated in an advanced asset. Not all encapsulated nodes are published to the asset. To see the nodes published to the asset, expand the Published nodes section in the effects asset Attribute Editor. For more information, see Assets in the *Basics* guide.

Nodes that are published to the asset use the following naming convention:

Published node name	Node type	Role in asset
childAnchor	not applicable	Published when the node needs to be parented to an object outside the asset.
selectionTransform	transform	Published to transform encapsulated nodes of a freestanding effect.
nucleusSolver	nucleus	Solves Nucleus object interaction, including passive collision objects outside the asset.
targetFluid	fluidShape	Fluid container that is emitted into for fluid emission, including surface from objects outside the asset.
targetParticle	nParticleShape	nParticle object that is emitted, including surface from objects outside the asset.

Published node name	Node type	Role in asset
exampleFluidEmitter	fluidemitter	Fluid emitter when emitting from a surface, including surfaces of objects outside the asset.
exampleParticle Emitter	emitter	nParticle emitter when emitting from a surface, including surfaces of objects outside the asset.
exampleParticle	nParticleShape	nParticle object when effect fills an object with nParticles (Fill Object).
exampleNCloth	nClothShape	nCloth object used in the effect.

Importing and modifying Effects Assets

Import Effects Assets

You can import Effects Assets from the Visor window and apply them to objects in your scene. You can then use asset's published attributes to make most required modifications to your effect.

NOTE If the Effects Assets menu item does not appear in the nDynamics menu set, you need to restore the nDynamics menu set the default Maya settings.

Restore the nDynamics menu set to default by doing the following:

1. From the Status Line, select Customize.
2. In the Menu Set Editor, under Menu sets, select nDynamics.
3. Select Edit > Revert nDynamics to Default.

To import an effects asset

1. In the nDynamics menu set, select Effects Assets > Get Effects Asset.
   The Visor appears with the Effects Assets tab selected.

   NOTE If the Visor window does not display the Effects Assets tab, in the Visor window, select Tabs > Revert to Default Tabs.

2 Select the icon for the effects asset file you want to use and middle-drag it into the scene.

Maya imports the effects asset into the scene and the asset object identified by the assets icon  appears in the Outliner.

NOTE Many of the assets contain descriptions of their contents, located in the Notes sections of their Attribute Editor tabs. These descriptions can help you better understand how the effects are applied.

Some assets can be parented to polygon objects that are outside the asset. You can do this by applying the effect.

To apply an effect

1 Select the object you want to interact with the effect.

2 From the nDynamics menu set, select Effects Assets > Apply Effect.

The effects asset is now parented to the selected object.

NOTE You can import or reference a file containing an effects asset and use it in your scene. After the effect is in the scene, you can apply it to objects like other effects assets.

Modify an applied effect

Each effect asset has a number of published attributes that you can use to modify the effect's behavior.

1 In the Outliner, select the effects asset.

2 In the asset Attribute Editor, in the Published Attributes section, expand channels.

The effect's published attributes are listed.

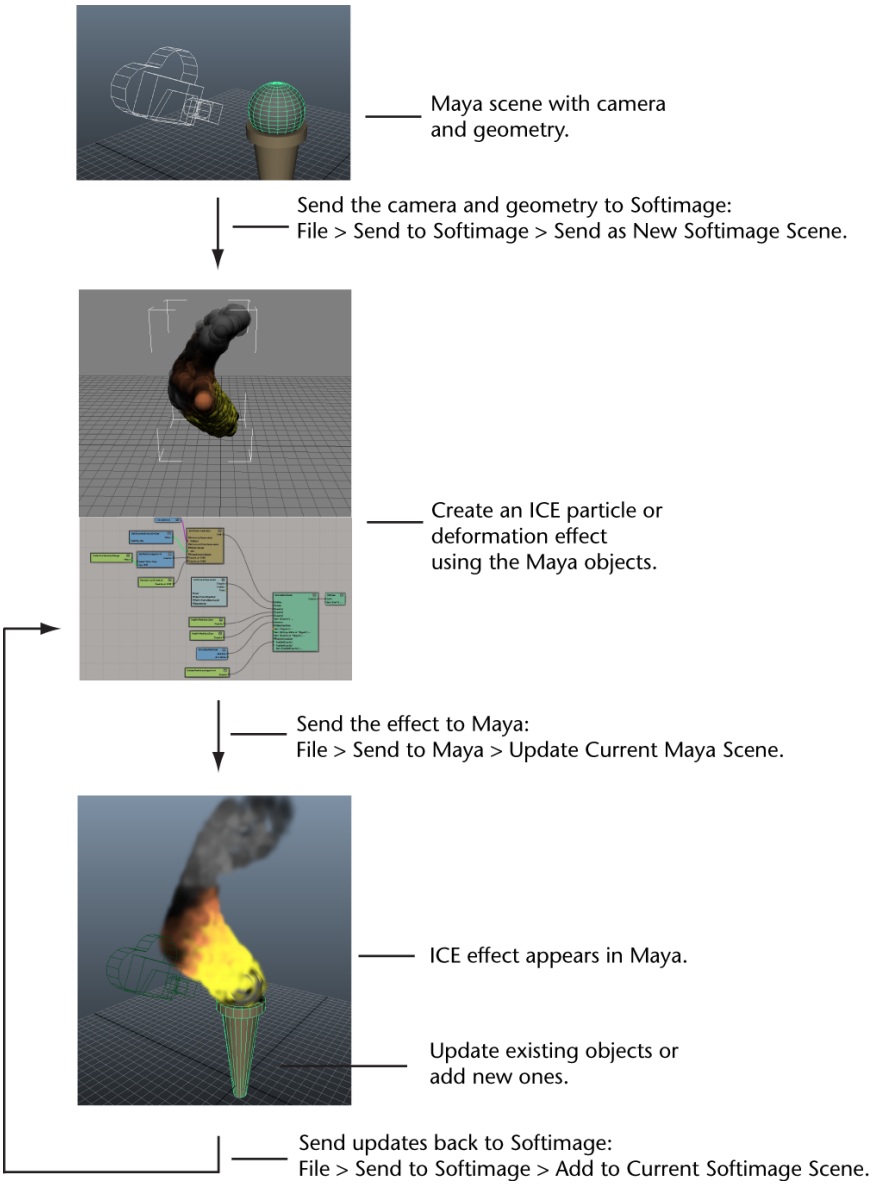
NOTE You can access the attributes of the asset's internal nodes by expanding the asset in the Outliner, then selecting the individual nodes. Be aware that adjusting the internal node attributes may affect the way the Published Attributes control your effect.

ICE Flow for Maya

ICE Flow for Maya lets you import Softimage ICE effects directly into Maya scenes. Using ICE Flow for Maya, you can take advantage of the ICE (Interactive Creative Environment) node-based dataflow structure to create a vast range of effects for your Maya scenes, including point cloud fire and simulated geometry deformations. To use ICE Flow for Maya, you must have Softimage installed on your computer. For more information about ICE simulations, see the *Softimage Wiki:http://softimage.wiki.softimage.com/index.php/Interoperability_with_Maya*.

Scene files for ICE Flow must originate from Maya, include a single node camera (other than the default camera), and at least one curve or polygon object. Softimage uses the new camera as the current camera in the scene. The polygon objects in the Maya scene can be used in ICE effects as surfaces for particle emission, collision geometry, or base geometry for ICE-based deformation effects. See Prepare your Maya scene for ICE Flow on page 20.

A Send as New Softimage Scene command sends objects selected in Maya to Softimage along with any geometry caches. After you create an ICE particle or ICE deformation effect, an Update Current Maya Scene command in Softimage sends the effect back as a Maya nCache (particle effects) or geometry cache file (deformation effects). See Using ICE Flow for Maya on page 19.



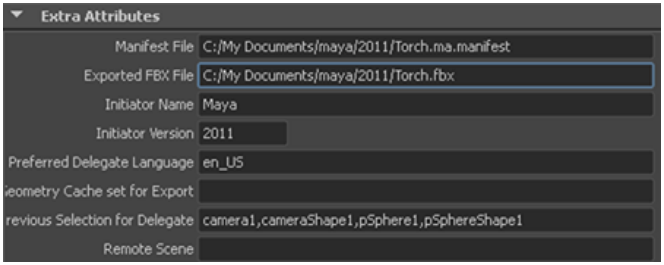
For particle simulations, an nParticleShape, nucleus, and nCache nodes are created when the ICE effect is first sent back to Maya. Note that a particle emitter node is not created in Maya. This means that all particle emission-related settings and updates must be made in Softimage.

Managing ICE Flow files

By default, Maya organizes the various files associated with ICE Flow for Maya in an ICEFlow sub-folder located inside the set Maya projects folder. The Maya projects folder includes the following ICE Flow-related files:

- Original Maya *.mb* scene file.
- An *.fbx* version of objects selected in Maya.
- An *.mb.manifest* version of the scene file.
- A Softimage *.mb.scn* version of the scene.
- Sequence of Maya *.mc* cache, nCache, and *.xml* cache description files of the ICE effect.

You can specify the location where Maya copies ICE Flow file by accessing the ICE Flow preferences in both Softimage and Maya.



See Send to Softimage > Preferences on page 23.

Cached attributes

For particle simulations, Softimage caches the following Maya attributes:

- Count
- Particle ID
- Per-particle color (rgbPP)
- Per-particle opacity (opacityPP)
- Particle velocity
- Per-particle radius (radiusPP)
- SimulatedFrameFraction

NOTE There are Softimage ICE attributes in the cache that are not read by Maya.

You choose which Maya attributes Softimage includes in the cache. To do this, in Softimage, select File > Send to Maya > Preferences. For more information, see the *Softimage Wiki:http://softimage.wiki.softimage.com/index.php/Interoperability_with_Maya*

Like other nCached particle simulations, you can modify per-particle, Color, Opacity, and Radius before rendering with mental ray for Maya.

Using ICE Flow for Maya

When using ICE Flow for Maya, be aware of the following unsupported actions and important notes.

Unsupported actions

- Updates to object transform values and animation must be made in Maya, then sent to Softimage to appear in the effect.
- Maya subdivision objects are not supported in Softimage.
- Any Softimage objects other than ICE tree nodes do not appear in the Maya. For example primitives created in Softimage are not included in the cached effect.
- Properties, such as weight maps and vertex colors that are added in Softimage, are not sent back to Maya. These properties are lost if the objects are re-sent from Maya to Softimage.
- Only Points, Spheres, and Rectangle (Sprites) particle Shapes (Particle Render Types) work in both Softimage and Maya.
  You can change the Particle Render Type in Maya, but the changes are not transferred to Softimage.
- Use of multiple shapes in Softimage will not transfer to Maya. Maya uses the shape of the first particle for the Particle Render Type, as long as it is a Point, Sphere, or Rectangle (sprite).
- If you want to use scene objects as instanced shapes, you need to instance the geometry in Maya after sending the effect back from Softimage. See *Instance geometry to particles* in the Maya *Dynamics* guide.

Important notes

- Maya reads ICE particle and deformation effects as cached files, meaning that the effect cannot be modified in Maya.
  See *nCaching* in the Maya *Dynamics and Effects* guide.
- Maya nodes or objects that are not recognized by the FBX file format appear in Softimage scene as anchors. The anchors maintain transform values set by Maya.
- Changes to scene length and frame rate are not transferred between applications. You must set the frame rate and scene length in Softimage and the timeslider and frame rate in Maya.

For information about creating ICE particle and deformation effects, see the *Softimage Wiki*:
http://softimage.wiki.softimage.com/index.php/Interoperability_with_Maya.

Prepare your Maya scene for ICE Flow

Prepare your Maya scene for ICE Flow by doing the following:

1. Set your Maya project and save the scene you want to use for your ICE particle or deformation effect to the currently set project. All of the files associated with the ICE Flow operation are copied to the currently set Maya project folder.
2. Create a one node camera in your scene.

   You must have a camera in addition to the Maya default camera in the scene.
3. Create a least one polygon or curve object.
4. Set the Maya timeslider in the scene to the desired length of your simulation.

   Increasing the scene length in Softimage does not update the scene that is sent back to Maya. You must set the scene length in both Maya and Softimage.
5. If you want to use animated geometry in an ICE effect, ensure that you have created a Maya geometry cache of the animation.

Sending objects to Softimage

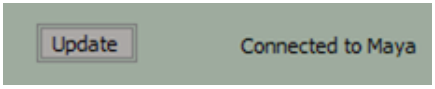
After you have prepared your Maya scene for ICE Flow, you can send it to Softimage, then create an ICE particle or deformation effect.

1 In the Outliner, select camera and the polygon objects you want to use in the ICE effect.

2 Select File > Send to Softimage > Send as New Scene.

NOTE If Send as New Scene does not appear in the File menu, you may need to reload the ICE for Maya plug-in. See Load or unload Maya plug-ins in the **Basics** guide.

Softimage starts with the new scene displaying the selected objects. Maya and Softimage are now connected as indicated in both application status bars.



3 Create your ICE particle or deformation effect in Softimage.

For information about ICE effects, see the *Softimage Wiki*: *http://softimage.wiki.softimage.com/index.php/Interoperability_with_Maya*.

4 If you want to specify a location for the ICE Flow files, in Softimage, select File > Send to Maya > Preferences.

Otherwise, the ICE Flow files are copied to the default location in the set Maya projects folder.

5 In Softimage, select File > Send to Maya > Update Current Maya Scene to send the ICE effect to Maya.

Maya loads the scene and an ICEFlowAttributes node appears in the Outliner.

You can make changes to the objects in the scene or add new ones, then send the scene back to Softimage to update the effect.

Updating, adding, or deleting objects

After sending your ICE effect back to Maya, you can modify objects or add new ones to the scene. For example, you can change the location of collision objects, and then re-send the scene to Softimage to update the ICE effect. If you no longer want to use an object in an effect, you can delete it.

Be aware that there are limitations to the updates you can make to the scene file before sending it back to Softimage. See Using ICE Flow for Maya on page 19.

To update an existing object

1. Save the changes you made to the Maya scene.

   If you have made changes to an animated deformation, you need to update the geometry cache.

2. To select the camera and the objects previously sent to Softimage, select File > Send to Softimage > Select Previously Sent Objects.

3. Select File > Send to Softimage > Update Current Softimage Scene.

   Softimage updates the current scene.

To add objects

1. Save the changes you made to the Maya scene.

2. In the Outliner, select the objects you added, then select File > Send to Softimage > Add to Current Softimage Scene.

   Maya selects the camera and previously sent geometry before sending the scene to Softimage. Softimage updates the effect with the new objects.

To remove an object

➤ To remove objects that you no longer want in a scene, you must delete each object separately in both the Maya and Softimage scene.

nDynamics menus

The following new menu items have been added to Maya nDynamics menu set to support new features:

File > Send to Softimage

Send to Softimage > Send as New Softimage Scene

Launches Softimage (if it is not running), creates a new scene in Softimage, and sends the selected camera and objects to the new scene.

If Softimage is already running, you are prompted to save to the current scene or cancel. Selecting Cancel stops the send operation.

Send to Softimage > Update Current Softimage Scene

Sends the ICE effect back to Softimage and includes updates made to the object previously sent to Softimage.

If no objects are selected, you are prompted as to whether you want to re-send the objects previously sent to Softimage.

Send to Softimage > Add to Current Softimage Scene

Sends the ICE effect back to Softimage and adds new objects that are selected. Maya also selects the camera and updates to objects previously sent to Softimage.

Send to Softimage > Select Previously Sent Objects

Selects the Maya objects that were previously sent to Softimage.

Send to Softimage > Preferences

Opens the ICEFlowAttributes node Attribute Editor. In the Extra Attributes section, you can specify the location where Maya copies ICE Flow files, as well as view ICE Flow related information.

NOTE If you have not sent the scene to Softimage, selecting Preferences creates an empty ICEFlowAttributes node.

Effects Assets

Effects Assets > Apply Effect

Applies the effects asset to the selected object by parenting the asset to the object.

Effects Assets > Collide with Effect

Converts the selected object to a passive collision object and assigns it the Nucleus solver in the asset. If the object is already associated with an other Nucleus solver, selecting Collide with Effect re-assigns the object to the asset's Nucleus solver.

Effects Assets > Get Effects Asset

Opens the Visor with the Effects Assets tab selected. Effects Assets are Maya .ma files of preset fluid and nParticles effects that are organized as Maya assets.

Effects Assets can be quickly imported into your scene, applied to objects, then played and rendered with little or no modification.

New rendering features 5

Substance textures

Creating substance textures

You can use the Substance node to quickly create photorealistic procedural textures using a library of organic, fabric, and material presets.

Creating a shading network using substance textures

1. Select Window > Settings/Preferences > Plug-in Manager and ensure that the `Substance` plug-in is loaded.
2. Select Renderer > High Quality Rendering in the panel menus for best results.
3. Select Window > Rendering Editors > Hypershade to open the Hypershade window.
4. Select Maya > 2D Textures > Substance.

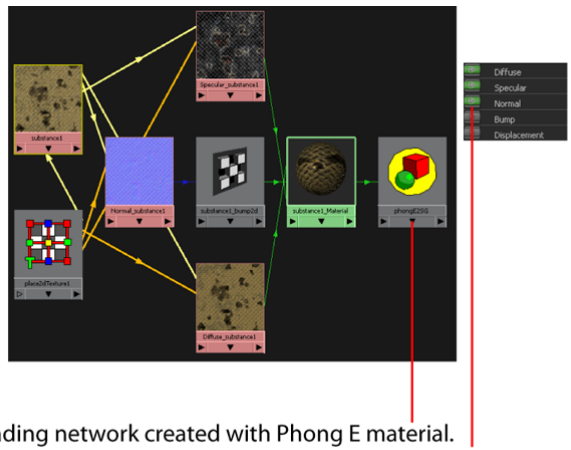
NOTE Do not use the Substance Output node, which is an intermediate node that is created automatically by the Substance node.

5. In the Substance Attribute Editor, Substance File attribute, navigate to your `<Maya Directory>\substances` folder and select a substance texture.
6. Click Create Shader Network.

This creates a shading network with a Phong E material that, by default, connects the Diffuse, Specular, and Normal substance outputs.

NOTE The Diffuse, Specular, and Normal substance outputs are marked with green connect icons  to indicate that these output nodes have been created and are connected to the material shader.

You can now apply this Phong E material to the objects in your scene.



Shading network created with Phong E material. Diffuse, Specular, and Normal outputs are connected by default, and their connect buttons appear in green.

7 Select the resolution for your substance output nodes.

8 Expand the Substance Normal Format section and select the format for your normal map (if a Normal substance output is available for the substance you have selected).

9 Expand the Extra Attributes section in the substance Attribute Editor and tweak the attributes provided to customize the appearance of your shader. Procedural controls are built into each substance so you can easily create unique effects. Experiment with these sliders and view the changes in real time in the Maya scene view.

You can tweak attributes such as Hue Shift to shift the global color range of the texture, or Luminosity to control the brightness level, or Saturation to control the level of color purity, or Depth to adjust the attenuation of depth of the texture and so forth.

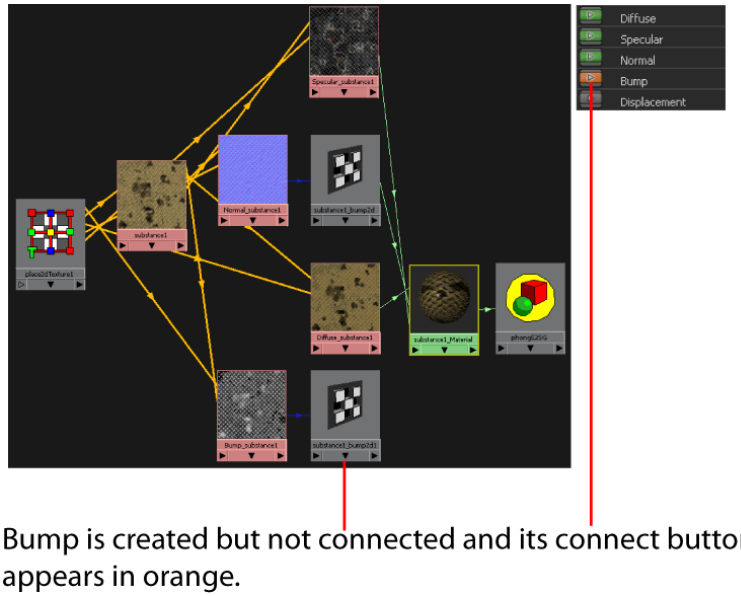
There are also other interesting effects such as Age. For example, with Painted_Wood, increasing the age slider peels away the paint to reveal a

more aged wood look, and with Modern_Concrete, increasing the age slider reveals the rebar in the concrete. With Volcano_Rock, you can tweak the Temperature, Lava and Lava Hue attributes to customize the look of your volcano lava and so forth.

See Extra Attributes on page 31 for more information.

10 If you want to connect additional substance outputs to your shading network, such as a Bump or Displacement map, click on the Connect  icon beside the list of available substance outputs.

If the input of the material attribute is already occupied by another substance output, for example Normal, then a warning message appears, and the output is created but not connected. The substance output connect icon appears orange. You can then delete the connected output and re-attach a new output in its place.



TIP A grey connect icon (initial state) denotes that no S.ubstance Output node has been created yet for this output map. An orange connect icon denotes that an output node is created but not connected to another node. A green connect icon denotes that the Substance Output node has been created and is connected to another node.

NOTE The Maya software renderer is not recommended for use with normal maps. If you want to render unbaked substance textures using the Maya software renderer, use bump maps instead of normal maps. Alternatively, you can use mental ray rendering with baked normal maps.

NOTE Only a subset of the attributes in the place2dTexture node work with substances in the viewport or the hardware renderer: Offset, Wrap U, Wrap V, Rotate UV, and Repeat UV. The remaining attributes all work with substances when rendered.

NOTE You can modify your choice of substance file and the shading network connections are retained.

You can now use the shading network in the Maya viewport, and render it using the Maya hardware renderer or software renderer.

If you want to export the shading network to a game engine, or to render it in mental ray, you must export the images to disk.

Exporting images to disk

1. Click Export images to disk in the Substance Attribute Editor.

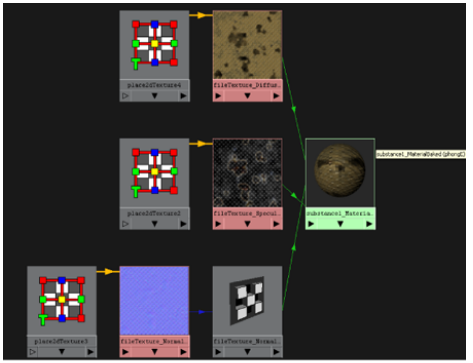
   Using this feature, all Substance Output nodes connected to the Substance node (including both outputs denoted by green and orange icons) are baked onto disk.

   The Substance Bake to Texture window appears.

2. Select your map resolution and image format.

   NOTE mental ray for Maya does not support LZW compressed `.tif` files. To work around this, add IMF_TIFF_COMPRESSION=none to your `Maya.env` file.

3. Select the Create shader network option to create a shading network with connections to the texture files baked from the substance output maps.



Shading network created for baked substance material.

4 Click Export to write your file textures to disk.

Troubleshooting substance parameters are lost when re-opening files on different platforms

If you include a substance file in your scene and customize its parameters, then save the file and re-open it on a different platform, your substance parameters may be lost when you re-enter the file path on the substance node.

To workaround this, open the `.ma` file in a text editor **before** opening it in Maya, and search/replace the substance file paths to fit the platform that you are going to work on.

For example, after you have saved a file in Windows and wish to re-open it on the Mac, search for `C:\Program Files\Autodesk\Maya 2011 Subscription Advantage Pack\substances` and replace it with `/Applications/Autodesk/maya2011.5/substance`s. This way, on file load, your substance parameters should retain all animation and customization.

Substance node Attribute Editor

The following is a list of attributes in the Substance node.

Substance Texture Attributes

Substance File Use this attribute to load a substance file (`.sbsar` file); can be a full path filename or a relative filename. Substance files are located in the `<Maya Directory>\substances` folder by default.

NOTE Search paths for relative filenames happen in the following order:

1. Using the MAYA_LOCATION environment variable. The plug-in searches for a substance file in MAYA_LOCATION/substances (but not in subfolders);
2. Using an optionVar named SBS_FILE_PATH, if it exists.

Substance graph A Substance graph is basically a substance. A graph may contain several outputs combined to make a whole usable material that can be connected directly to any kind of shader. Several substances can be present in a substance file.

Reload Reloads the present substance file, this is used when updating a substance file or when you want to reset all substance parameters of this graph.

Substance outputs After a substance file has been loaded, the possible substance outputs appear in this list. May include Diffuse, Specular, Normal, Bump, Displacement and so forth.

When you click on a connect button, it creates a material or gets the connected material and creates the corresponding substance output node to this material in the appropriate attribute. The color of the connect button indicates the status of the output node.

A grey connect icon (initial state) denotes that no Substance Output node has been created yet for this output map.

An orange connect icon denotes that an output node is created but not connected to another node.

A green connect icon denotes that the Substance Output node has been created and is connected to another node.

Normal This channel outputs a tangent-space normal map. It is mainly intended to be connected to a bump2D node that is connected to the Bump Mapping channel of your shader.

Height This map includes **all** the detail generated for the purposes of surface displacement. It includes major surface distortions, as well as very small surface details.

Displacement This map includes the low-frequency distortions of the Height map. The Relief Balance parameter filters the amount of detail included from

the Height map. It describes major surface displacements (such as dunes on a sand surface).

Bump This map includes the high-frequency detail of the Height map. The Relief Balance parameter filters the amount of detail included from the Height map. It describes the fine details of the same surface (as the sand grains on the sand surface).

Map width/Map height Select from resolutions between 32 to 2048.

Keep aspect ratio Disable this attribute to generate substance output maps that are non-square textures. You can then move the Map width and Map height sliders independently of each other.

Create Shader Network Click this to create a basic shading network with a PhongE material. It connects the Diffuse, Specular, and Normal substance outputs by default, and can connect to more outputs if available.

Export images to disk Select this option to bake textures of the output maps you have created. Use this feature if you want to export your maps to an external game engine or to render with the mental ray for Maya renderer.

Substance Normal Format

Normal map format Select among the list of normal map formats.

The default is the OpenGL file format.

OpenGL is the default Maya hardware rendering API used in the viewport. This option allows users, and especially game developers, to export their assets with their 3D engine format such as Direct3D, and so forth.

Right handed denotes using right handed coordinates.

Normalized in the range [0,1] means that a color value of 0 corresponds to 0 in the normal, and a color value of 255 corresponds to a value of 1 in the normal. If not using normalized values, the normal map is between [-1,1], where [-1,0] maps to the [0,128] color values and [0,1]maps to the [128,255] color values.

Extra Attributes

NOTE Mathematical utility operations can be mapped onto substance parameters, but visual effects like textures cannot.

Hue Shift Shifts the global color range of the texture.

Luminosity Adjusts the brightness level of the texture.

Saturation Adjusts the level of color purity of the texture.

Contrast Adjusts the gradations between the light and dark areas of the texture.

RandomSeed Adjusts the random seed value of the generated texture and allows you to quickly modify the base pattern of the texture.

Depth Adjusts the attenuation of depth of the texture.

Normal Adjusts the attenuation of the normals of the texture.

Emboss Adjusts the level of detail enhancement of the texture.

Angle Adjusts the angle of diffuse in relation to the level of Emboss applied to the texture.

Relief Balance The Relief Balance parameter drives the way the Bump/Normal and Displacement outputs behave.

The higher the value, the more detail is put in the Bump or Normal output and the less in the Displacement output. The lower the value, the more detail is put in the Displacement output and the less in the Bump/Normal output. With the default value, the Displacement output is almost flat.

Using this attribute, you can filter the high frequency detail out of your displacement map to limit the amount of tessellation in your displacement rendering. The high frequency detail can then be handled by a normal map instead.