

# Key Features and Benefits

Autodesk® Maya® 2012 software delivers new toolsets for previsualization and game prototyping, extends the simulation feature set, and opens the way for better pipeline integration.

With a high-fidelity, high-performance viewport; the new ability to create node-based representations of render passes; an expanded camera sequencer toolset; and new camera rigs, artists gain new tools to help explore, refine, and present their ideas prior to final production, while editable motion trails offer an enhanced animation experience. Moreover, with new physics solvers, together with further development of the Nucleus unified simulation framework and its modules, artists can create a wider range of convincing effects in less time. And, with single-step interoperability and a more consistent f-curve editor with other Autodesk® Entertainment Creation Suites products; a redesigned Pythonic API; and added support for vector displacement maps, Maya 2012 is more easily integrated into production pipelines.

## Top Features and Benefits

### Viewport 2.0 Enhancements

The high-performance viewport introduced with Maya 2011 now offers full-screen effects: motion blur, depth-of-field, and ambient occlusion, enabling artists to evaluate their work in a higher fidelity environment and without needing to render or export to a game engine. In addition, Viewport 2.0 now provides component and manipulator display to support modeling workflows, together with batch rendering capabilities, and a high-performance API.

### Node-Based Render Passes

Create and edit node-based representations of render passes directly within Maya 2012, and render the composited output directly through the mental ray® renderer. A powerful tool for verifying and refining render passes prior to handing them to the compositor, node-based render passes also enable artists to perform certain simple compositing tasks without leaving Maya.

### Editable Motion Trails

Edit animation directly in the viewport without the need to switch context to the graph editor, with new editable motion trails that provide a faster and easier method for fine-tuning motion animation. Animators can intuitively edit the position and timing of keyframes in relation to the animated object, while viewing the path of motion over time in 3D space, resulting in a smoother, more productive workflow.

### Sequencer Enhancements

First introduced in Maya 2011, the Camera Sequencer is now extended to offer a Sequencer Playlist—enabling artists to manage their sequences through a configurable spreadsheet view that provides the ability to reorder clips, edit In and Out points, and change camera assignments— together with support for multi-track audio and the new ability to output multiple shots as a single sequence for easier game cinematic rendering or export to a game engine.

## Substance Procedural Textures

Achieve a vast range of look variations with a new library of 80 Substance procedural textures. These dynamic, resolution-independent textures have a tiny disk space footprint, and can be exported to certain game engines via the Substance Air middleware offering (available separately from Allegorithmic SAS). Alternatively, textures can be quickly converted to bitmaps for rendering. Some examples of dynamically editable and animatable parameters are: brick distribution, surface aging, and mortar thickness in a brick wall; pupil size, eye color, and extent of veining in an eye texture; and the age, roughness, curb borders, and lane markings of a street texture.

## Craft Animation Tools

Easily create believable, complex camera movements that mimic real-world set-ups, with four new camera rigs from the Craft Director Studio™ animation tool. Use a joystick to record real-time input while driving the camera; stabilize turbulent or unnatural camera movements; add shakiness to an existing animated camera; or smoothly transition or instantly cut between different camera views and settings. Also included are four pre-rigged models—two cars, and two airplanes—that can be used to simulate complex vehicle motion, including terrain recognition, for previsualization or in-game cinematics.

## Enhanced, Consistent Graph Editor

An enhanced Graph Editor takes some of the best features from the f-curve editors within the products of the Autodesk® Maya® Entertainment Creation Suites 2012, and combines them into a toolset that offers more consistent functionality and terminology—enabling animators to switch more easily between products. Maya users gain a new Auto-tangent type that automatically adjusts tangents when keys are moved, preventing overshooting; the option to sync what's displayed in the Timeline and Graph Editor with what's selected in the Channel Box; an Isolate Selection option that restricts the display to only the selected curves; and a Region Tool for easier scaling of animation keys in time and value.

## New Simulation Options

Create compelling dynamic effects in less time, with new simulation options that incorporate industry-leading technology into Maya. Now artists can leverage the multi-threaded NVIDIA® PhysX® engine\* to create static, dynamic, and kinematic rigid-body simulations directly in the Maya viewport, and gain the ability to match a runtime solution. And highly-realistic shattering simulations with multiple interacting materials are more easily achievable, with the help of the newly included Digital Molecular Matter plug-in from Pixelux Entertainment™.

\*Available with Autodesk Maya 2012 Windows® platform only.

## Nucleus Enhancements

Further development of the Nucleus unified simulation framework and its associated modules delivers improved liquids simulation with new pouring, splashing, and boiling effects; multi-threaded nParticle collisions and nCloth self-collisions for faster performance; and a range of easy-to-use, customizable effects (fire, smoke, bomb, dust trail, fireworks, laser, melt, snow, sparks, and tears) that can be assigned to an object as easily as assigning a shader.

# Other New Features

Autodesk Maya 2012 software also has the following key features:

## Single-Step Suites Interoperability

Take better advantage of the full range of 3D tools in the Autodesk® Maya® Entertainment Creation Suite Standard 2012 and the Autodesk® Maya® Entertainment Creation Suite Premium 2012, with new single-step interoperability. Use Single-Step workflows to directly move 3D data between Maya 2012, Autodesk® MotionBuilder® 2012 software, Autodesk® Mudbox™ 2012 software, and the Interactive Creative Environment (ICE) of Autodesk® Softimage® 2012 software.

## HumanIK Enhancements

Working with characters is now easier in both Maya 2012 and MotionBuilder 2012, with an enhanced interface and unified solver for HumanIK® technology (formerly implemented as FBK in Maya). The unified solver offers more consistent workflows—thanks to new Character Controls and graphical Characterization UIs in Maya—and improved interoperability between the products. In addition, customers who use the Autodesk® HumanIK® 4.5 or 2012 middleware solution will benefit from improved animation consistency between Maya and their game engine.

## Vector Displacement Map Support

With new support for Vector Displacement Maps (VDMs) in Maya 2012, artists can use mental ray to render complex high-resolution details created in Mudbox or certain other packages on low-resolution geometry. VDMs can represent directional displacements that do not simply follow the surface normal: for example, forms with appendages, undercuts, folds, and bulges, such as a human ear.

## Motion Capture Samples

Leverage the advanced motion retargeting capabilities of Maya 2012, with 70 motion capture samples that provide useful starting points for creating previsualizations and developing character animations. Utilizing the Autodesk® FBX® 2012 asset exchange format, the samples can be shared between applications in the Autodesk Entertainment Creation Suites.

## Python API Enhancements

Programmers familiar with Python® scripting language can now enjoy easier and more powerful ways to extend and customize Maya, thanks to an improved Python API that offers more idiomatic (pythonic) command writing capabilities (for example: MScriptUtils are eliminated, while the Maya array type becomes a fully functional Python sequence), and is up to three times faster.

For a complete review of the new features and enhancements in Autodesk Maya 2012, view the “What’s New” documentation on the Maya product center at [www.autodesk.com/maya-documentation](http://www.autodesk.com/maya-documentation).

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