



# Autodesk® 3ds Max® Design 2010 Software Features and Benefits

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## 3DS MAX DESIGN 2010: KEY FEATURES AND BENEFITS

### **Explore. Validate. Communicate.**

Autodesk® 3ds Max® Design Autodesk® 3ds Max® Design software enables architects, designers, engineers, and visualization specialists to fully explore, validate, and communicate their creative ideas—from initial concept models to final, cinema-quality presentations. 3ds Max Design offers these professionals digital continuity with the AutoCAD®, Revit®, and Autodesk® Inventor® software families of products.

## NEW FEATURE HIGHLIGHTS

### **Explore unique designs with expanded modeling, texturing, and iterative workflows.**

- The new Graphite modeling tools represent a modern approach to 3D modeling—over 100 tools for freeform sculpting, texture painting, and advanced polygonal modeling, unified in an innovative user interface. Experience extreme creativity and artistic freedom with this extensive new modeling toolset.
- Create powerful referencing workflows to organize complex scenes easily by treating multiple objects and scenes as a single Container object. Set rules for the Container to control access to its content in collaborative environments. Fast loading and unloading of containers helps you improve performance and reduce memory requirements.
- The third generation of Review technology represents a major leap forward in viewport display, helping take the guesswork out of final renders. It offers support for ambient occlusion, High Dynamic Range Image (HDR)-based lighting, soft shadows, hardware anti-aliasing, interactive exposure control, and the revolutionary mental mill® shader technology.
- The new Material Explorer simplifies the way artists and designers interact with objects and materials. Navigate all rendering-related assets in the scene, perform operations on multiple objects, or inspect individual materials. The Material Explorer also lets you replace materials – making iterations much easier, even in highly complex scenes.

### **Validate your designs throughout the design process.**

- Simulate the lighting in your designs with confidence—Exposure™ lighting analysis technology has been validated ([www.autodesk.com/nrc-exposure](http://www.autodesk.com/nrc-exposure)) by the National Research Council Canada (NRC), Canada's leading organization for scientific research and development, and the same organization that has conducted validation studies on Radiance for lighting simulation ([www.autodesk.com/nrc-radiance](http://www.autodesk.com/nrc-radiance)). A feature unique to 3ds Max Design 2010, Exposure enables you to achieve more sustainable designs by analyzing how sun, sky, and artificial lighting interact with your design and exploring direct lighting effects right in the viewport. Load complex designs and watch lighting levels adjust in the scene as colors.



# Autodesk® 3ds Max® Design 2010 Features and Benefits

- 3ds Max Design 2010 can help you generate broader, more detailed contextual studies for your designs. Revit® Architecture software building information models (BIM) can be quickly and accurately imported into 3ds Max Design and then rapidly manipulated in the viewport. View your design with as much detail as you need to make crucial design decisions.
- Validate your 3D models before exporting or rendering using the new xView mesh analyzer technology. Providing an interactive view of where problems may lie, xView helps you avoid costly mistakes early in the design process when mistakes are easier to fix.

## **Communicate your design intent with impact using advanced visualization.**

- Quickly aggregate scene elements with extensive support for 2D and 3D file formats. 3ds Max Design 2010 also provides integrated workflows with the Revit® and AutoCAD® family of products.
- Use advanced entertainment technology to create cinema-quality presentations with narrative context that fully expresses your design intent.
- Bring your designs to life with realistic water, fire, smoke, and other particle effects with PFlowAdvanced, a comprehensive particle design system. PFlowAdvanced also includes the new PFlowElements library with at least 100 samples created by an industry-leading effects artist.
- Complete your presentation in 3ds Max Design by adding musical scores, ambient sound and narration, with the new ProSound multi-track audio system.



# Autodesk® 3ds Max® Design 2010 Features and Benefits

## 3DS MAX DESIGN 2010 AND 3DS MAX DESIGN 2010 30-DAY TRIAL

**3ds Max Design 2010** — Autodesk® 3ds Max® Design 2010 software enables architects, designers and visualization specialists to fully explore, validate and communicate their creative ideas – from initial concept models to final, cinema-quality presentations. 3ds Max Design offers these professionals faster, more integrated workflows with AutoCAD®, Revit® and Autodesk® Inventor™ software.

**3ds Max Design 2010 30-day Trial** — The Autodesk® 3ds Max® Design 2010 30-day trial is a fully functional version of the 3ds Max Design software that provides free\* access to 3ds Max Design for non-commercial use. This allows 3D graphics and animation students, industry professionals, or anyone interested in breaking into the world of 3D visualization the opportunity to explore all aspects of the 3ds Max Design software.

*(Note: 3ds Max Design 2010 and 3ds Max Design 2010 30-day trial software are available for Microsoft® Windows Vista® and Windows® XP Professional operating systems.)*

*\*This product is subject to the terms and conditions of the end-user license agreement that accompanies the download of the software.*

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## INNOVATIVE MODELING AND MAPPING

### Graphite Modeling Tools

3ds Max Design 2010 takes its renowned polygon modeling tools to a whole new level. With at least 100 new tools for freeform design and advanced polygonal modeling, the Graphite modeling tools facilitate creativity and artistic freedom. Additionally, the Graphite tools are displayed in one central location, making it easier to find the tool you need for the job. Moreover, users can customize the tool display or hide the command panel and model in Expert Mode.

In addition to the many modeling and mapping tools available in previous versions of the software, the Graphite toolkit includes a number of completely new tools for such operations as:

- Sculpting with assorted brushes
- Quick re-topologizing
- Granular polygon editing
- Locking transforms to any surface
- Freeform creation of vertices
- Modifying and creating smart selections
- Quick drawing of surfaces and shapes
- Quick transformations

### Material Explorer

The productivity-enhancing Material Explorer revolutionizes the way artists interact with objects and materials. Users can now quickly browse all materials in the scene, and view material properties and relationships. The Material Explorer also enables them to replace materials – making it much easier to manage even highly complex scenes.

### xView Mesh Analyzer

Validate your 3D models prior to export or rendering using the new xView mesh analyzer technology. Get an interactive view of where problems may lie to help you make crucial decisions. This key new tool makes testing of models and maps significantly faster and more efficient. Users can test or query for flipped faces, overlapping faces and unwelded vertices. They can also add their own specific tests and queries.

### Viewport Canvas

New in 3ds Max Design 2010 is the ability for artists to paint on a 3D model directly in the Viewport. This means artists will be able to quickly create new maps or extend existing maps using brushes, blend modes, fill, clone and erase. The Viewport also provides quick updates for changes to textures made in Adobe® Photoshop® software.

### ProBooleans Enhancements

A new Quadify modifier has been added to the 3ds Max Design ProBooleans toolset that enables modelers to clean up triangles in model for better subdivision and smoothing. A new Merge Boolean operation has also been added which lets them attach an object (or multiple objects) to another while maintaining the transforms, topology and modifier stacks of each object.

### UVW Unwrap Enhancements

Manipulating UV maps in the Viewport is now as easy as modeling in the Viewport thanks to a significantly expanded 3ds Max Design UVW Unwrap toolset. New features include such UV Selection tools as Growing/Shrinking Rings and Loops, and quick editing tools for aligning, spacing, and stitching UVs.

## **ProOptimizer**

The new 3ds Max Design ProOptimizer technology is ideal for quickly and intelligently optimizing high-poly count 3D models. It enables users to precisely control the number of faces or points their scene/model has; useful faces are removed last, so that a selection can be reduced up to 75% without loss of detail. Scenes can be optimized in real time, or batch optimized. ProOptimizer technology maintains UV texture channel information and vertex color channel information, respects the symmetry of symmetrical models, preserves explicit normals, and gives users the option to protect or exclude object borders.

## ADVANCED RENDERING

### **mental mill/MetaSL Support**

3ds Max Design 2010 is the first animation package to integrate the mental images powerful mental mill technology. This means that 3ds Max Design users will be able to develop, test and maintain shaders and complex shader graphs for hardware and software rendering with real-time visual feedback – no programming skills required. MetaSL shaders can be created using the included mental mill Artist Edition software. These shaders are completely hardware agnostic, meaning they do not need to be re-authored for different target platforms. mental mill supports CgFX, HLSL, and GLSL, as well as C++ for mental ray® technology and RealityServer; plus, the mental mill application programming interface (API) enables third parties to develop back-end plug-ins for other targets, including special purpose processors and other software renderers.

### **Review Enhancements**

Representing a major leap forward in viewport display, Review 3 helps take the guesswork out of rendering. It offers support for ambient occlusion, HDRI-based lighting, soft shadows, hardware anti-aliasing, interactive exposure control, and the revolutionary mental mill™ shader technology from mental images. Combined with prior abilities for textures, bump maps and photometric area lights – viewports give you live feedback like never before. The Viewport menu system has also been re-designed to significantly improve the user experience. For example, you can now take advantage of the Layer Manager to control groups of lights (light banks) to quickly turn on and off lights in the viewport, similar to what you can do with the 3ds Max Design software renderer.

### **Exposure Lighting Analysis Improvements**

Simulate the lighting in your designs with confidence—Exposure™ lighting analysis technology has been validated (see: [www.autodesk.com/nrc-exposure](http://www.autodesk.com/nrc-exposure)) by the National Research Council Canada (NRC), Canada's leading organization for scientific research and development, and the same organization that has conducted validation studies on Radiance for lighting simulation (<http://www.autodesk.com/nrc-radiance>). A feature unique to 3ds Max Design 2010, Exposure enables you to achieve more sustainable designs by analyzing how sun, sky, and artificial lighting interact with your design and exploring direct lighting effects right in the viewport. Load complex designs and watch lighting levels adjust in the scene as colors.

### **Interactive Lighting Analysis**

A unique and new feature of 3ds Max Design 2010 lets you analytically explore direct lighting effects with interactive results right in the viewport using the new real-time pseudo-color exposure control. You can use the exposure control to establish color gradations for different light levels and then interactively adjust your lights until they give the necessary coverage. You can then use Exposure to validate the results and to factor in the impact of indirect lighting effects.

### **Global Quality Knobs: mental ray**

Architects familiar with Revit will appreciate the addition of global quality knobs to the 3ds Max Design mental ray toolset. This new feature can be used to quickly dial up or down quality settings for shadows, glossy refractions and reflections along with image anti-aliasing and indirect illumination quality.



# Autodesk® 3ds Max® Design 2010 Features and Benefits

## **Real-Time Photometric Lighting and Viewport Exposure Control**

For the architect who wishes to experiment with advanced lighting effects in their viewport, 3ds Max Design 2010 delivers real-time photometric lighting and exposure control. Not only do these features support timesaving, iterative workflows, exposure control can improve the accuracy of final renderings.

## **Support for High Resolution Render Output**

Enhancements to the 3ds Max Design automatic memory management feature enables architects and designers to render out large, print resolution images with 32-bit systems.

## **Multi-Map Shader: mental ray**

A new 3ds Max Design Multi-Map Shader for mental ray lets users purposely assign specific color variations to a set of objects that otherwise share the same material. It can also be used to quickly randomize or assign colors to multiple objects/maps based on object IDs or Material IDs. This new capability could be used to randomize the colors of trees, leaves, crowds, or anything repetitive that could benefit from a degree of color variation.

## **Animation Flicker Reduction: mental ray**

3ds Max Design 2010 enables users to render animation sequences in mental ray with indirect illumination calculations (Final Gather), greatly reducing or eliminating traditional flickering issues. The ability to use the Final Gather cache, and render animation sequences faster has also been improved.

## **Final Gather Progressive Rendering**

Progressive feedback has now been added for mental ray Final Gather, helping artists to more quickly evaluate their rendering results.

## **Render Surface Map**

3ds Max Design 2010 enables architects and designers to generate bitmaps based on the surface of the geometry (Density maps, Dust maps, SubSurface maps, and Cavity maps) that can be used as masks to blend textures. Maps can also be generated from sub-object selections and wrapped textures that are generated automatically with blended seams. These provide a good starting point for painting or layering details in bitmaps. For example, an architect might generate a Cavity grayscale bitmap where the crevices on the object are darkest, use this as a mask to blend dirt, rust, or emphasize contours with shading.

## **Linear Color Space Workflow**

Gamma correction has been improved to correctly handle images and textures for a physically-accurate rendering workflow where color consistency is critical. Gamma settings now load correctly with files and propagate correctly on network rendering solutions.

## **SIMPLIFIED DATA AND SCENE MANAGEMENT**

### **Containers**

The addition of the Containers toolset to 3ds Max Design facilitates collaboration and flexible workflows by enabling users to collect multiple objects into a single container when dealing with complex scenes. Related objects (e.g. sections of a city) can be placed in a container and treated as a single element. Opening the container exposes the content while closing the container externalizes the data. Containers can be temporarily unloaded from the scene, toggling data in and out as needed to manage complexity. Such workflows can save memory, increase viewport performance and decrease load and save times. Container nodes can be translated, deleted, copied, or saved – affecting everything in the container. Containers also override object properties – so users can organize scene display using container properties without affecting layer organization (similar to a nested layer workflow). Multiple containers created by others can be referenced into a single scene - enabling users to work in-context with each other. Accessing and editing each other's container is managed with permissions on the container – allowing flexible workflows while also imposing constraints on what can be edited.



# Autodesk® 3ds Max® Design 2010 Features and Benefits

## **Enhanced Scene Explorer**

With 3ds Max Design 2010, Autodesk continues to expand the functionality of the Scene Explorer and increase its level of integration with the rest of the software. This powerful scene management toolset now works with viewports, Track View, as well as the Material Explorer. Additionally, Scene Explorer now offers improved management tools – making it easier to navigate, inspect and modify the properties of objects in a scene.

## **OBJ Import Improvements**

Improved OBJ plug-in performance and expanded support for the OBJ file format facilitate the importing and exporting of model data between Autodesk®Mudbox® software and 3ds Max Design – as well as other third-party 3D digital sculpting applications. Users will now be able to see if their OBJ files contain texture coordinates and smoothing groups. They will also have options for triangulating polygons on import, choosing how normals are imported and for saving presets for normal and polygon import, for future use.

## **Flight Studio Support**

A new 3ds Max Design plug-in enables users to import and export OpenFlight format® scenes (FLT files). Users can now load, edit and export OpenFlight scene graphs and databases from within 3ds Max Design - while retaining scene graph structure and attributes. Instead of translating and losing data, 3ds Max Design can be used as an OpenFlight editor.

## **ADVANCED EFFECTS**

### **PFlowAdvanced**

PFlowAdvanced lets users incorporate sophisticated particle effects into their scenes—perfect for creating water features, fireplaces, or other elements. It includes 14 operators new to 3ds Max Design including new precision Painting tools (for precise particle placement), the Shape Plus operator (for defining the shape of particles) and a wide range of Grouping operators (for creating subsets of particles). It also extends and optimizes the previous PFlow functionality while reducing user interface (UI) complexity, resulting in vastly improved performance and a streamlined, thoroughly 3ds Max Design workflow.

### **Cloth**

A whole new range of cloth effects is now available to 3ds Max Design users. The cloth toolset now supports pressure settings for simulating inflated, enclosed cloth surfaces (e.g. cushions, balloons) and cloth can now be torn with variable strength and timing (e.g. cutting, tearing and unzipping cloth). Collision objects can even be set to cut cloth when they collide. Finally, a new Inherit Velocity tool blends a new simulation with one from previous frames to create a smooth transition for staged simulations.

### **Hair**

The 3ds Max Design Hair toolset has now been enhanced to give visualization specialists more precise control over the styling and animation of hair (often used for grass). A new Spline Deform feature enables them to add splines to a set of hairs which act as control guides so that the hairs can be posed, keyed or assigned a dynamic target – with the hair following.

### **ProSound**

Add a new level of professionalism to presentations by adding musical scores, ambient sound and narration with the new ProSound multi-track audio system. The new 3ds Max Design ProSound toolset enables users to add up to 100 audio tracks to their scenes and animate the volume of each track. The technology supports both PCM and compressed audio in AVI and WAV format with up to six output channels.



## POWERFUL ANIMATION

### **Support for Locked Tracks**

3ds Max Design 2010 supports the locking of any parameter that can be animated, including those with animation layers. Wires, expressions and scripts will still evaluate when locked, but they will not be editable. Vital for people working in teams, this toolset enables users to prevent team members from editing specific tracks.

### **Link Constraint**

Support for a new Link constraint enables users to quickly animate the links between objects using the standard 3ds Max Design keyframe animation UI. The tool lets them quickly see their constrained frame numbers and access linked keyframes in the Trackbar, Dope Sheet and Curve Editor.

## ENHANCED USER EXPERIENCE

### **User Interface Refresh**

The 3ds Max Design user interface has been updated to allow for task-based workflows. As a result, key functionality becomes much more accessible when it's needed most through context sensitive user interface components.

### **Adobe Photoshop Interoperability**

Artists can now assign a Microsoft® DirectX® software material to an object and reference individual layers in Adobe Photoshop .psd files as a texture input, for enhanced interoperability with Photoshop. Additionally, the Viewport Canvas also offers support for Photoshop blending modes and quick updating of textures on 3ds Max Design models.

## RECOMMENDED SYSTEM REQUIREMENTS

### Software Requirements

3ds Max Design 2010 software requires one of the following **32-bit** or **64-bit** operating systems:

- Microsoft® Windows® XP Professional (Service Pack 2 or higher)
- Microsoft® Windows® Vista (Business, Premium and Ultimate)
- Microsoft® Windows® XP Professional x64
- Microsoft® Windows® Vista 64 bit (Business, Premium and Ultimate)

3ds Max Design 2010 software requires the following internet browser:

- Microsoft® Internet Explorer® 6 or higher

3ds Max Design 2010 software requires the following supplemental software:

- DirectX® 9.0c\* (required), OpenGL® (optional)

*\* Some features of 3ds Max Design 2010 are only enabled when used with graphics hardware that supports Shader Model 3.0 (Pixel Shader and Vertex Shader 3.0). Check with your manufacturer to determine if your hardware supports Shader Model 3.0.*

### Hardware Requirements

At a minimum, 3ds Max Design 2010 **32-bit** software requires a system with the following:

- Intel® Pentium® 4 or higher, AMD Athlon® 64 or higher, or AMD Opteron® processor
- 1 GB RAM (2 GB recommended)
- 2 GB hard disk space
- 1 GB swap space (2 GB recommended)
- Direct3D 10, Direct3D 9, or OpenGL-capable graphics card with minimum 128 MB RAM
- Three-button mouse with mouse driver software
- DVD-ROM drive

*Note: Apple® computers based on Intel processors and running Microsoft operating systems are supported using Apple's Boot Camp.*

At a minimum, 3ds Max Design 2010 **64-bit** software requires a system with the following:

- Intel EM64T, AMD Athlon 64 or higher, AMD Opteron processor
- 1 GB RAM (4 GB recommended)
- 2 GB hard disk space
- 1 GB swap space (2 GB recommended)
- Direct3D 10, Direct3D 9, or OpenGL-capable graphics card with minimum 128 MB RAM
- Three-button mouse with mouse driver software
- DVD-ROM drive

## 30-DAY TRIAL MINIMUM SYSTEM REQUIREMENTS

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