Discreet’s award-winning 3ds max® software is the world’s most productive professional 3D solution for modeling, animation, and rendering for game development, post production, film effects, and design visualisation professionals. Designed for the highest quality output in demanding production environments, 3ds max 7 delivers the most comprehensive advanced character animation toolset currently available, acclaimed visual effects tools, distributed network rendering, and the most comprehensive collection of modeling tools available today.

3ds max® 7 new features include:
- character studio® 4
- mental ray® 3.3
- Normal Mapping Tool
- Render to Texture Update
- Edit Poly Modifier
- Editable Poly Enhancements
- Paint Selections
- Paint Deform for Poly Objects
- Improved UV editing
- Clone & Align Tool
- Modular DX Materials
- DirectX Standard Material
- Pixel-based Camera Mapping
- Parameter Collections
- Skin Morph Modifier
- Skin Wrap Deformer
- Reaction Controller Update
- Snapping Improvements
- Mobile Gaming Features
- 1st Person Camera
New 3ds max 7 features in italic

animation
character studio 4 advanced animation toolset now included with 3ds max:
- 1-Click Parametric Biped® Skeletons remove costly setup times associated with manual creation of constraints and IK relationships
- Animatable Pivot Points enable fluid multi-axis rotation over time
- Motion Retargeting enables quick replacement of entire skeleton, or remapping of any BIPED component to figures and limbs of vastly different scales
- Motion Redirecting lets artists change motion direction and elevation with intelligent animation mixdown that secures foot placement
- Extensive Motion Capture filtering and editing tools including support for up to 3 systemic props
- Behavioral crowd simulation that uses intelligent blending of available animation clips to find “best fit” solutions to the goals set for characters and teams within the simulation

Parameter Collections allow animators to define collections of parameters and custom attributes to be displayed on a per-character basis from a single, easy-to-use floating interface. Any animatable parameter can be held and edited in this interface. Technical directors can also specify notes and URL information per parameter, enabling facilities to link artists to original concept art and reference materials on a per-character basis.

The Skin Morph Modifier allows for the progressive morphing of surfaces to be controlled by rotation of a joint (by the angle between two joints) – adding amazing flexibility and placing character-driven deformations into animator’s hands.

Skin Wrap Deformer: Character Animators can now easily add clothing, props and other details to their models by simply locking the new geometry to an existing skinning solution – the new elements will adhere to the skinned surface without the traditional caveats of building new skinning data for each new element.

Unique, weighted Animation Controller Subsystem allows for multiple algorithms to drive any animation channel (including custom expressions).

Curve Editor and Dope Sheet controls every animated parameter with extensive filtering to isolate relevant data.

Dynamics core with estimated momentum and inertia properties for keyframed objects, allows full interaction of keyframed and dynamically simulated objects – including Virtual Stuntman dynamics.

Reaction Controller: Event-driven animation gets a boost in 3ds max with this intuitive method for linking animation properties to scene events — such as having a door open automatically when a character gets close enough. This dramatically reduces the time required for creating complex animation relationships and propagating changes throughout any series of linked animation events.

Character animation:
- Procedural Animation Core: Controller-based subsystem gives unmatched flexibility for driving animation channels.
- Powerful Non-Linear Animation Mixdown: Fluid blending of multiple animation files with intelligent processing of complex data to ensure realistic results.
- Unmatched skinning flexibility: For visual effects and games, multiple algorithms for deformations and the easy addition of clothes and props to even pre-skinned articulated characters.
- Behavioral Crowd Simulation: Goal-driven, team-based crowd behavior with extensive scripting control and full retargeting of simulation to new characters.
- Custom Attributes: Build easy-to-use, unified interface elements to drive any animation channels associated with a character.

Next generation PC and console game development:
- Flexible Viewports: Can be tuned to display the information that accurately represents the target platform.
- Level Designing: Functionality lets designer create game-ready assets with custom data channels fully exportable to any game engine.
- Extensible development environment: Allows programmers and scripting professionals to seamlessly integrate custom workflow tools, viewers, and real-time engines within the 3ds max core.
- Multiple Lighting Models: Ensure compatibility of beautiful lighting simulations with detailed textures or animated vertex colors for console and PC game compatibility.
- Innovative Approaches: The latest mapping techniques allow for the highest fidelity geometry without the high cost of added polygons.

Visual effects:
- Digital Environment Creation: Rapid workflow and highly evolved toolset for building engaging, photorealistic or highly stylised digital matte paintings and set-extensions.
- Powerful Effects Engine: Event-driven particle system reduces time required to create and edit effects parameters; highly extensible via MAXscript.
- Interactive Dynamics Core: Drives animation with highly accurate interaction between multiple dynamics solvers within an interactive preview window (even allows for dynamics-driven scene construction).
- Multiple Modeling Paradigms: Allow artists to create environments and characters with the method suited to them: Subdivision Surfaces, Patches with per-vertex tangents, NURBS, Polygons, Splines, Meshes – all with extensive viewport proxy techniques to keep scenes interactive without sacrificing render quality.
modeling & texturing
Editable Poly improvements include Preserve UV’s function to enable model editing without adjusting texture coordinates; and Ring/Loop selection modes for faster polygon editing workflow.

New Edit Poly Modifier contains many Editable Poly functions, allowing artists to take advantage of the unique modifier stack approach to solving production problems.

Renderable Normal Maps allow game development professionals to build extremely detailed high resolution meshes and then apply “normal maps” to low resolution models – significantly boosting the apparent levels of detail possible in the game engine without requiring extra polygons.

Paint Selections adds an intuitive, interactive method for selecting sets of vertices.

Paint Deform for Poly Objects brings an easy method for interactive object deformations by adding the painting tools to the Push and Pull modifiers.

Relax UV Coordinates makes it simple to smooth out existing mapping coordinates – particularly useful for organic models where texture vertices overlap.

Preserve UV’s separates texture coordinates from the polygon vertices, allowing artists to edit the mesh without destroying any UV work previously done.

Highlight Seams and Display Open Edges in the UV Unwrap and UVW Modifiers simplify understanding of where problem areas may exist, and offers an intuitive interface for interactively ensuring the right UV layout for seamless mapping.

Copy/Paste Materials, Maps, and Colours: Extending the already intuitive drag and drop method for propagating materials, maps, and colours – this new workflow gives added ability to use a “copy/paste” approach that users will find extremely useful for day to day operations.

Combine an unlimited number of textures to give ultimate control over materials.

Extensive UVW mapping controls with up to 99 mapping channels per vertex and direct manipulation of texture mapping coordinates.

hardwear and software rendering
mental ray 3.3 rendering functionality is a powerful addition to the 3ds max rendering capabilities – bringing a simplified UI for working with Global Illumination, Sub Surface Scattering shaders, and a unified Indirect Lighting Model that ensures switching between different 3ds max radiosity modes will provide consistent results.

Render to Texture integration now includes mental ray 3.3 – increasing the levels of fidelity available for generating light maps, bump maps, normal maps, and even single-map representations of complex procedural and bitmap composites.

Modular DX Materials: With this new workflow, 3ds max handles Shader UI and the parsing/rendering is handled by the game developers. Any .FX file (with appropriate parser) can be represented as a material within the editor and viewports.

DirectX Rendering of “Standard Material”: Quickly turn materials used in post production, visualization, and full CG films into game-ready .FX files.

Pixel-Based Camera Mapping allows the artist to project mapping from the direction of any given camera – bringing new levels of flexibility to film pipelines.

lighting
IES support for indirect lighting: mental ray 3.3 can now render indirect lighting with photometric data from lighting manufacturers and information based on real world units.

Automatic photon mapping distribution: Indirect Illumination is improved with an adaptive assignment of photon mapping based on the scene lighting distribution, providing an industry leading global illumination model for film and visualisation artists.

Controls include: shadows, shadow color and density, projected images, contrast, edge softness, attenuation, and decay.

Surface level lighting control with separate ambient, diffuse, and specular manipulation possible.

The 2d Lighting Data Exporter saves lighting analysis data as Radiance Picture Files or the .TIF format.

cameras
Unlimited number of cameras using industry-standard camera types with optional custom relationships.

Interactive clipping plane, dolly, FOV, grid overlay, orbit, roll, vertigo zoom, zoom, and safe frame display.

Precise alignment with either horizontal, vertical, or diagonal field-of-view measure, and support for orthogonal projection.

Extensive depth-of-field and motion blur controls also include a Viewport preview mode to speed up the iterative process.

viewport interaction
WYSIWYG viewport environment with multi-textures per face, blended true transparency, Phong highlights, procedural, and display of Pixel and Vertex shaders.

Multiple coordinate systems: View, Screen, World, Local, Chosen Object, Grid, or Parent space for flexible manipulation of any object type.

Enhanced snapping functionality that improves ease of use and increases levels of precision.

Smart Object Culling: a utility that suppresses certain aspects of the scene as defined by the artist – this can increase the performance of 3ds max by quickly displaying only what the artist wants to see.

Turbo Smooth: A pure smoothing algorithm that brings amazing speed to viewport operations, allowing for even more detail to be retained when needed.

1st Person Camera: Navigate 3ds max scenes with the same controls and fluid motions that have become extremely familiar to every person who plays 1st person video games.
mobile gaming
JSR-184: native export support for the JSR-184 format and a stand alone previewer application.

architecture
Developer Access to the DirectX Layer: The developer has access to the DirectX layer allowing extreme control of what is displayed in the 3ds max viewport. Also provided is SDK access to the d3dxmeshes (used in the cached mesh feature) providing simplified object export for DirectX.

Plug-in architecture provides extensibility for nearly any system component.

Multi-threaded processing throughout 3ds max 7 software for superior performance and scalability.

Supports OpenGL® and Direct3D® hardware acceleration, and Heidi® software acceleration for any Windows® display.

MAXscript
MAXScript object-oriented scripting language mirrors SDK to provide access to plug-in parameters. Scripts can be called from 3ds max 7 interface or embedded into .max file.

Scripts can be appended to other plug-ins, generate alternative interfaces, or can be treated as a plug-in class to 3ds max 7.

Visual MAXScript generates interactive interface elements like sliders, dropdown lists, check boxes, buttons, color pickers and more to any object, modifier or material—a great time-saver for scripting artists.

workflow
Schematic View: A node-based scene graph with access to object properties, materials, controllers, modifiers, hierarchy, and non-visible scene relationships such as wired parameters and instancing.

File management utilities such as the MAX File Finder, IFL Manager, Increment On Save, Auto-backup, the Resource Collector, Dynamic Texture Reloading, and Log Files manage daily use and transfer of 3ds max 7 data between file iterations, users, and locations.

Load and Save Render Presets enables studios to share rendering settings between artists, reducing scene setup times and ensuring consistency across the entire production for most rendering parameters.

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Hardware System Requirements
- Intel® PIII or later Processor or AMD® running at 300Mhz minimum
  (Dual Intel® Xeon™ or dual AMD Athlon™ or Opteron™ (32-bit) system recommended)
- 512 MB RAM and 500 MB swap space minimum
  (1GB RAM and 2GB Swap Space Recommended)
- Graphics card supporting 1024x768 16-bit color with 64MB RAM. (OpenGL and Direct3D hardware acceleration supported; 3D graphics accelerator 1280 x 1024 24-bit color with 256MB RAM preferred)
- Windows-compliant pointing device
  (specific optimisation for Microsoft IntelliMouse™),
- Wacom Intuos or similar pressure sensitive tablet recommended for vertex paint
- CD-ROM drive
- Optional: sound card and speakers;
  cabling for TCP/IP-compliant network;
  3D hardware graphics acceleration;
  video input and output devices;
  joystick; midi-instruments;
  3-button mouse

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Software System Requirements
- Primary Operating Systems: XP Professional (SP2),
  Windows 2000 (SP4), and XP Home (SP2)
- Internet Explorer 6
- DirectX 9 Recommended (DirectX 8.1 Minimum)

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