

Key New Features in Smoke 7.0

- 64-bit Architecture offers more addressable memory, which allows you to work with more complex projects*
- Clip History: Enables non-destructive effects creation in timeline and enhances collaboration between Smoke, Discreet Fire, Discreet Inferno, Discreet Flame, and Discreet Flint
- Gap Effect: Non-destructive, stackable timeline soft effects applied to blank segments
- Motion Estimation Timewarp: for highly accurate inter-frame interpolation
- Soft Text: Create and preview text animations directly in the Timeline without rendering
- Cleaner XL Integration: Send encoding tasks directly to Autodesk® Cleaner® XL software for expanded Export Media format and codec support
- Overlay user interface: Innovative system for viewing high resolution images during critical effects work
- Keycode: conform using scanned film frames (DPX files) and telecine log files*
- VTR Emulation: Control Smoke as a VTR via RS-422 interface
- Burn for the timeline: remote rendering of record area and source area timelines

Autodesk Burn

With Autodesk® Burn™ background renderer, facilities can leverage a larger pool of CPU power so that complex visual effects requiring intensive processing can be created more quickly—cutting production costs and reducing time to completion on a project.

Burn nodes process timeline and library clips remotely, simultaneously freeing your online suite to continue with more creative tasks. By offering fast, cost-effective processing power, Burn increases the processing capabilities of Smoke.

Discreet® Smoke® 7 finishing system software is designed to be the absolute best in creative editorial tools, image quality, and system performance. Smoke provides real-time mixed-resolution interaction for all types of creative editorial work and client-supervised sessions. With Autodesk's Academy Award®-winning† visual effects technology, Smoke offers the perfect solution for any online finishing job.

Smoke is a high-quality real-time HD and SD solution for creative editing and finishing. Smoke DI is a high-performance solution designed to offer superior capabilities for HD and DI conform, editing, and creative finishing.

Key Features

Editing

- Multi-Master Editing™ distribution in multiple formats from a single timeline.
- Mixed resolution desktop and editing timeline.
- Real-time HDTV editing.*
- Multi-format capture and playback including PAL/NTSC, 720p, 1080i, 1080p.
- Unlimited vertical timeline editing with nested containers for complex visual effects.
- Advanced conform tools for EDLs, OMF (with audio media), and Apple® Final Cut Pro® XML.
- Multichannel audio editing and mixing.
- Multitape archiving with browsable table of contents.

Feature Details

Editing

- Real-time 2K, HDTV, and SD editing.
- Support for 4K (4000x3000) resolutions in timeline.
- Edit multiple resolutions and formats into a single timeline.
- Support for 23.98, 24, 25, 29.97, 30, 50, 59.94, or 60 fps.
- User-definable resolution and frame-rate conversion.
- Real-time letterbox and overlays, loop replay, BVB/VBV/VVV previews, field/frame monitoring, full resolution, or proxy monitoring.

- WYSIWYG pan and scan.
- Track-to-track, real-time video compare (for example, online/offline) function with split or blend.
- Apple Final Cut Pro XML, OMF, and EDL conform or capture clips.
- Gestural, picture-based editing.
- Head/tail, timeline, and storyboard editing.
- Unlimited source/record areas with searchable libraries.
- Vertical editing—unlimited layers in the timeline with video containers for flexibility with complex effects and versioning.
- Intuitive track patching.
- Cue points with comments for fast access to specified parts of timeline.
- Creative editorial tools—two- and three-point edits, fit-to-fill, four-point edits; Splice on-the-fly
- Trim to mark and/or position.
- Track Editor lets you view and slide individual keyframes on a track with multiple tracks or keyframes selected.
- Insert, overwrite, ripple replace, and replace edits.
- Multi-track trim, slip, slide shots, and transitions.
- Soft edits—uncommitted edits, transitions, and speed changes for creative experimentation.
- SMPTE wipes and fully customizable Bézier shape wipes.
- Dissolve to/from color.
- Quick splice for adding edits into clips in the timeline.
- “Remove match frame edits” function.
- Source timeline comparative views for editing source timelines into new programs.
- Multilevel match clip for quickly finding the original source material from a timeline clip.

* See Feature/Platform differentiation table.



EditDesk with Clip History
Image courtesy of !Impossible Pictures

DISCREET® SMOKE® 7

- Automatic audio/video sync break detection and correction.
- Reestablish new sync relationships between sources.
- Fully animatable speed curves with adjustable interframe mixing and trailing for vari-speeds.
- Source to record match.
- Soft Effects—Timewarp, Color Corrector, Blend, Axis (including animated matte and keying capabilities), and Sparks plug-ins.
- Drag-and-drop Soft Effects directly on timeline clips and preview before processing.
- Apply soft effects to blank segments (gaps) in the timeline.
- Sophisticated simultaneous master timeline and container view.
- Create, drag, drop, and preview effects on any clip, segment, selection, or container in the timeline.
- Multiselection of soft effects with animation controls.
- Multiple players on EditDesk for fast sync, trimming, and Soft Effects.
- Capture proxy files only, reducing hard drive space.
- User-definable hot keys and specialized keycaps.
- Hot key dissolves, fades, and audio crossfades.
- Lock effects to prevent accidental modification.
- Undo and redo for all editing operations.

* See Feature/Platform differentiation table.

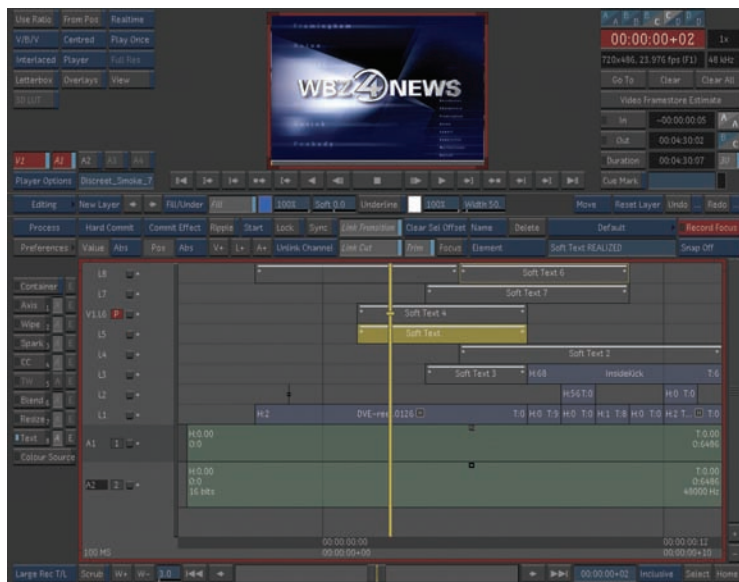
Audio Editing

- Unlimited audio tracks with 32 tracks of real-time playback.
- Fully integrated 24-bit 48 kHz audio subsystem.
- Eight AES/EBU outputs from breakout box with SMPTE/EBU.
- LTC timecode output (audio only).
- Audio waveform display with subframe (1/100) accurate editing.
- Vari-speed audio scrubbing for selected or all tracks.
- Audio timestretch with pitch correction control.
- Audio mix-down capabilities, including at file export.
- Audio mixing capabilities with fully keyframable animation control of audio levels, pans, and EQ during real-time playback.
- VST Audio plug-in support (reverb, modulation, dynamic compression, full parametric EQ).
- Support of external audio controllers with transport control and hot key mapping ability (for example, JL Cooper MCS-3800).
- Audio file import and export (aiff, aifff, avr, bicsf, MPEG-1, nextsnd, samplevision, soundesigner2, soundfront2, voc, and wav).

3D Compositing

- Two, three, or four viewports for precise 3D positioning and compositing.
- True 3D space with full camera control and multiple light sources.
- Selective lighting with parenting affecting only specific layers.
- Surface attributes like shininess and specular highlights.
- Bicubic and extended bicubic 3D warping of DVE Layers.
- Multiple DVE layers with independent control of key, color correction, tracking, and axis attributes.
- 3D text capabilities.
- Full multi-selection schematic view.
- Unlimited global transforms.
- Auto linking for creating hierarchies.
- Layer reentry for sophisticated matte combinations.
- Displacement mapping and motion blur controls.
- DVE blend modes, including add, multiply, and subtract.
- Import of FBX 3D files from Autodesk® 3ds Max® and other 3D applications.
- Import multiple 3D models on a single layer.
- DVE setup compatibility with Discreet® Inferno®, Discreet® Flame®, and Discreet® Flint® Action modules.
- Soft Resize.
- Grids and guides for accurate positioning and element layouts.

* See Feature/Platform differentiation table.



Timeline with gap effects and soft text
Image courtesy of CBS Viacom UPN Boston

Keying and Color Correction

- Master Keyer with interactive gestural control for complex keying tasks.
- Multi-channel Keyer (Color Channel, HLS, YUV, RGB, or RGBCMYL, Luma).
- Adjust and animate tolerance, softness, shrink, and matte erosion.
- Full color suppression controls for accurate spill removal.
- Foreground/background matte controls for edge blending.
- Degrain tool for cleaner matte edges.
- Unlimited number of spline-based garbage mattes.
- Advanced gradient Gmask for defining per-point fade-out from edge of mask.
- Punch matte option for specifying front or back mattes to be used in the composite clip.
- Track and automate spline-based garbage mattes.
- Colour Warper for advanced primary and secondary color correction.
- Overlay user interface with dynamic UI visibility to provide more monitor space for viewing high-resolution images
- Use 3D LUTs with a calibrated display to see how a clip will appear on the final medium, such as film. 3D LUTs also ensure consistency between different products including Discreet® Lustre®.*
- View a clip with a 3D LUT turned on to see the effect of a 3D LUT without altering the clip.*
- Commit and process the clip with a 3D LUT applied, allowing for real-time clip viewing.*
- RGB control of hue, saturation, contrast, gamma, gain, and offset adjustments.
- Histogram and curve controls.
- Selective correction of highlights, midtones, or shadows.
- Advanced color selection and color matching.
- RGB color rewiring for color replacement.
- Internal waveform and vectorscope.
- Comparison buffer for precise color comparisons.

* See Feature/Platform differentiation table.

Tracking and Stabilization

- High-speed, high-quality motion tracking with four-point corner pinning (perspective).
- Stabilize footage, compensate for transfer jitter and handheld cameras.
- Track and automate spline-based garbage mattes.
- Precise subpixel field or frame-based motion analysis/motion estimation tools.
- Image magnifying glass for accurate positioning of tracker boxes.
- Pre-track path analysis and display for more intuitive selection of potential track points.
- Advanced controls for smoothing, refining, or locking track data.
- Offset, forwards, and backwards tracking for flexibly tracking off-screen and occluded objects.
- Copy and paste tracker values into any other channel in any module.

Advanced Paint and Filters

- Advanced Paint module, including Autopaint with motion tracking.
- User-definable brush properties include size, opacity, shape, jitter, pressure sensitivity, direction, roll, and rate.
- Paint effect brushes include blur, clone, drag, impressionist, recursive, reveal, smear, shade, stamp, warp, and wash effects.
- Animate, track, and record all brush strokes.
- Animatable multilayer geometry and cutouts (including Bézier shapes).
- Complete drawing tools for motion graphics and garbage mattes.
- Precise matte extraction for traveling mattes and fast rotoscoping.
- Dirt, scratch, and wire removal using the Clone tools.
- Hand-drawn garbage mattes and creative painting.
- Map multiple keystroke sequences to a single button, field, or function.
- Auto matte feature for quickly creating high-contrast mattes.
- Negative, monochrome, posterize and other commonly used filters.
- Optics module for creating glow effects, emboss, fabric, halo, reticulate, sharpen, soften, and so forth.
- User-definable matrices or procedural filters.
- Film degrain and regrain tools.
- Video interlace/deinterlace, field merge, reverse dominance, and so forth.
- Hundreds of third-party Sparks plug-ins available.

Title Animation and Character Generation

- Create and preview Text animation directly in the Timeline using Soft Text
- Create unlimited numbers of animated text layers.
- Import standard Adobe® Type 1 and TrueType fonts, including Asian (CID) fonts and ASCII text files.
- Import standard Open Type fonts.
- Layer, paragraph, and character hierarchy for layout and animation.
- Independent character adjustment of fill, transparency, shadow, outline, underline, kerning, and axis control, logo import.
- Animate all text properties including position, shearing, scaling, and rotation by layer or character.
- User-definable tab stops for precise text layout.
- Spell checking with customizable dictionary.
- Create and apply user-definable font styles.
- Roll and crawl layers with “Fit Best Speed” optimization for precise roll/crawl speed.
- Group, save, and load text layers as one unit.

Animation Channel Editor

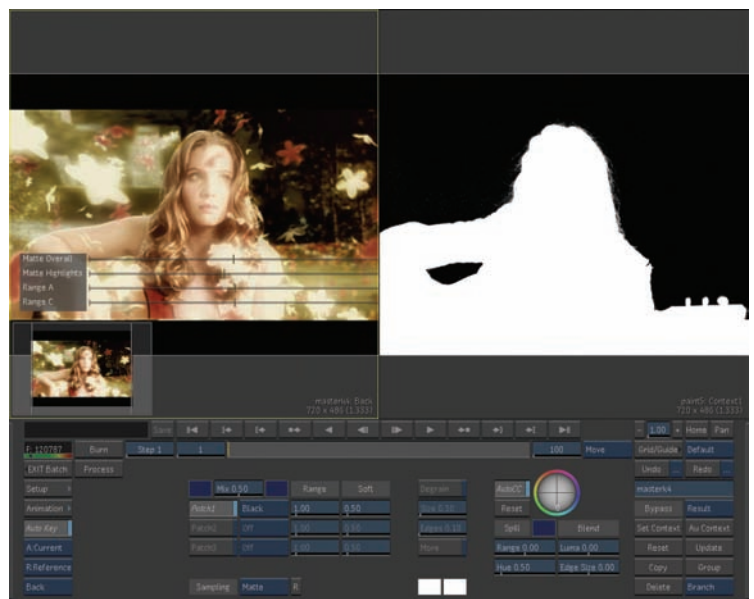
- Auto Keyframe capability.
- Adjust based on absolute or relative values.
- Explicit Keyframe, motion path, or direct manipulation animation.
- Full cut, copy, and paste curves between channels.
- Constant, linear, and hermite animation curves.
- Natural interpolation method for dynamically optimized smooth animations.
- Mix interpolation methods between keyframes.
- Extrapolation setting for controlling the curve before the first and after the last keyframe.
- Curve functions to swap, flip, reverse, simplify, and remove jitter from curves.
- Stretch, compress, and offset groups of channels interactively.
- User-definable default interpolation modes.

Conforming and I/O

- Real-time uncompressed RGB HD/SD video I/O.*
- HSDL I/O for progressive 2K files.*
- Dual-link RGB 4:4:4 I/O (Telecine/Datacine/HDCAM SR).*
- Import/Export popular graphics files (TGA, TIFF, SGI, DPX, PICT, JPEG, and etc.
- Real-time support for up to 12-bit RGB media.*
- Powerful conform of Apple® Final Cut Pro® timelines via FCP XML project metadata.
- Keycode support to conform using scanned film frames (DPX) and telecine log (ALE, FLX, ATN)*
- Control Smoke in VTR Emulation mode via RS-422 interface
- Direct import/export OMF compositions with audio media; Import Avid® ALE log files.
- Integrated EDL editor and comprehensive EDL management toolset.

* See Feature/Platform differentiation table.

- Import/export CMX/SONY/GVG EDLs with cuts, dissolves, SMPTE wipes, freeze-frames, varispeed, split edits, and comments.
- 23.98, 24, 25, 29.97, 30, 50, 59.94, and 60fps EDL conform; 30 to 24fps EDL conversion.
- Multilayer, multitrack, or container assembly from multiple EDLs.
- Batch capture multiple clips from EDL or Log file.
- C-mode auto capture of multiple EDLs with adjustable trim handles.
- Capture on the fly, or from In to Out point.
- Automatic 2:3 removal on capture; automatic 2:3 insertion on output.
- Multitape archiving to SD and HD (including HDCAM SR) VTRs including 1080/720 formats.
- Output multiple clips directly from EditDesk or Clip Library.
- Import Photoshop PSD files with layered structure or as a flat image.
- Import/export industry-standard video files.*
- Import Autodesk® Combustion® tracker, stabilizer, color correction, and Gmask setups.
- Support for Stone Switched and Stone Shared.
- Soft Import and Publish to open file systems.



Master Keyer

Image courtesy of Reel FX

Storage and Networking

- Autodesk® Stone® Direct—high-speed fiber channel storage solutions for real-time access to high-resolution media.
- StoneFS—advanced file system guarantees performance and reduces fragmentation risks.
- Hardware RAID (RAID 5) or Software RAID (RAID 3) to protect from data loss of audio and video media and non-obstructive background healing.*
- Capacity- and bandwidth-scalable, including delivery in real-time of a single 2K stream, dual HD, and 60i video streams.
- Concurrent storage of clips in all supported resolutions without partitioning.
- Autodesk® Wire® networking for visual browsing and high-speed transfer of clips.
- Intuitive user interface to browse remote libraries, view proxies, and scrub through clips.
- Supports TCP/IP to run on any network.
- Supports Autodesk® Stone® Switched—switch large volumes of data between systems instantly.
- Supports Autodesk® Stone® Shared—flexible, high bandwidth, real-time storage area network for multi-user collaboration.

* See Feature/Platform differentiation table.

Workflow & Productivity

- **NEW** Burn rendering of timeline and clip library clips
- **NEW** Send encoding tasks directly to Autodesk Cleaner XL for expanded Export Media format and codec support
- **NEW** Keycode support to conform using scanned film frames
- Composition reformatting, for multistandard conversion (SD/HD/film).
- EditDesk search and undo/redo List (up to 50 levels).
- Improved search filters (search range of timecode, name, comment, and so on).
- Proxy processing for fast previews
- Advanced proxy controls. Clip proxies defined by size, resolution, or frame rate.
- Media unlinking and relinking.
- Film color look-up table (LUT) tools.
- Record area list view with sortable display (if clip is selected, highlights clips on the timeline).
- Multiselection soft effect editing with animation controls.
- Project-based clip library with sharing tool, for instant project access between editing and effects products.
- GPI Trigger

Smoke Platform and Feature Differentiation

Smoke is available in two different turnkey configurations: Smoke and Smoke DI. The feature set between these configurations is the same with the following exceptions:

Feature	Smoke	Smoke DI
Platform	IBM Zpro 6224	SGI Tezro visual workstation
Operating System	Linux Redhat Enterprise 3.0	IRIX
Editing	Real-time 8-bit 4:4:4 HDTV editing	Real-time 10-bit 4:4:4 HDTV editing
4:2:2 Video I/O	Real-time ITU-R 601 Standard definition and SMPTE 292M HDTV I/O stored as 8-bit RGB data on disk	SMPTE-259M/292M SDI: real-time 8-bit/10-bit uncompressed 4:2:2 HD/SD video I/O
4:4:4 Video I/O	n/a	4:4:4 HD/SD video via SMPTE-292 compliant HD-SDI dual-link signal for real-time 8-bit/10-bit uncompressed I/O
HSDL I/O	n/a	HSDL I/O via SMPTE-292 compliant HD-SDI dual-link signal for progressive 2K files
Internal Image Processing	8-bit RGB	12-bit RGB
RAID Protection	Hardware RAID only	Hardware or Software RAID
Keycode/ 3D LUT Support	No	Yes
System Architecture	32-bit	64-bit
Movie file I/O	Remote only.	FG, BG, & Remote

Suites

Suites are the ultimate turnkey solutions for facilities that demand only the best in high-quality imagery, artist-driven creative tools, application workflow, and system interactivity.

Suites offer a combination of Smoke and either Flint or Flame on a single high-performance system.

- TV Suite: Smoke and Flint
- DI Suite: Smoke DI and Flame

Available in two cost-effective packages, the Suites enable your artists to excel creatively when deadlines are looming or impatient clients are in attendance. It will give you the edge you need to deliver high-quality SD, HDTV, 2K, or higher resolution film content with all the speed and visual impact that is the signature of Autodesk's high-end solutions. From extensive conform capabilities and sophisticated timeline editing to legendary visual effects tools and the best in high-value image quality, Suites have it all!

Suite Name	TV Suite	DI Suite
Products Included	Smoke and Flint	Smoke and Flame
Platform/OS	IBM Zpro 6224 / Redhat Enterprise 3.0	SGI Tezro / IRIX
Video I/O	Real-time ITU-R 601 Standard definition and SMPTE 292M HDTV I/O stored as 8-bit RGB data on disk	8-bit/10-bit uncompressed 4:4:4 HD/SD
Internal Image Processing	8-bit RGB	8-bit RGB, 12-bit RGB

Simplify your workflow, enhance your creative capabilities, and open up new revenue opportunities:

- Enrich the contents of your Smoke project by creating complex effects shots in a Flame/Flint project for final inclusion in any complex multilayer Smoke timeline.
- Add more advanced visual effect tools to your facility's online finishing capabilities—Action, Batch, Distort, and more.
- Clip Library compatibility allows you to easily share footage between applications without importing or exporting media files.
- Project, user, and shot compatibility between applications ensure that you can use the right tool for the job—even when requirements change in mid-project.
- Smoke and Flame/Flint together give you the tools you need to take on any project, from the most challenging effects projects, to online finishing, to long form editorial.

To purchase or obtain product information, contact us:

Phone:

UK: +44.(0)20.7851.8000

Australia: +61.2.9844.8055

India: +91.22.695.2000

Japan: +81.3.6221.1818

Singapore: +65.6552.0553

Latin America: +1.305.267.6499

North America: toll free: +1.800.869.3504 or +1.514.393.1616

email: product_info@discreet.com

web: www.discreet.com

Reseller listings are available at

www.discreet.com/resellers

Autodesk Media and Entertainment

10 rue Duke, Montréal, Québec, Canada H3C 2L7

* See Feature/Platform differentiation table.

† In 1998, Autodesk's Discreet Inferno and Discreet Flame visual effects systems' designers won the Scientific and Engineering Academy Award from the Academy of Motion Picture Arts and Sciences. Autodesk, Discreet, 3ds Max, Backdraft, Burn, Cleaner, Colour Warper, Combustion, Fire, Flame, Flint, Inferno, Lustre, Multi-Master Editing, Smoke, Sparks, Stone, and Wire are either registered trademarks or trademarks of Autodesk, Inc./Autodesk Canada Co. in the USA and other countries. All other brand names, product names, or trademarks belong to their respective holders. Autodesk reserves the right to alter product offerings and specifications at any time without notice, and is not responsible for typographical or graphical errors that may appear in this document. © 2005 Autodesk, Inc. All rights reserved. 00000000000116062