

DISCREET®

FLINT®

9.5

New in Flint 9.5

- *Layer-based Paint: Powerful batch tool adds new design and compositing capabilities*
- *Batch Text Node: The full text module is now incorporated in batch*
- *Motion Estimation Timewarp: for highly accurate inter-frame interpolation*
- *Expanded clip history: more modules are supported with clip history, including batch text, processing, and format nodes*
- *Improved UI and navigation: expanded multi-view support with navigation pane for quick reference and navigation*
- *Cleaner XL Integration: Send encoding tasks directly to Autodesk® Cleaner® XL software for expanded Export Media format support*

Autodesk Burn

With Autodesk Burn, 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 Batch clips in the background, simultaneously freeing your online suite to continue with more creative tasks. By offering fast, cost-effective processing power, Burn increases the processing capabilities of Flint.

Discreet® Flint® 9.5 high-performance high-definition visual effects system is made for broadcast and postproduction.

Enabling you to work with high-quality RGB images, Flint 9.5 delivers real-time video I/O capabilities, efficient project workflow, and the ability to combine high-resolution imagery using a sophisticated palette of visual effects tools based on Academy Award®-winning† Discreet® Flame® technology.

Powerful and easy to use, Flint provides instant feedback in a fine-tuned creative environment for complex compositing, paint, motion graphics animation, and visual effects design that enables your artists to excel.

Key Features

Efficient Workflow Environment

All media and tools are well-organized for quick access by the power user. Clip history provides handy reference of work history with the ability to tweak or duplicate prior setups. Intelligent caching speeds up user interaction and final processing. Background rendering via Autodesk® Burn™ rendering functionality accelerates project completion while supplying more creative time for the user.

Action for High-Performance Design

The acclaimed 3D compositing environment for advanced visual effects creation, interactive brainstorming, and client-driven design. Allows for seamless integration of resolution-independent live-action layers and 3D elements in a responsive, interactive 3D environment.

Batch for Complex Effects Made Easy

A complete flowchart representation of compositing workflow and clip history to display all operations

performed on a clip, allowing for easy editing of intricate effects. A large library of image filters, math operators, blend modes, and third-party Autodesk® Sparks® plug-ins enables limitless design choices.

Advanced Tracking

High-speed, interactive tracking technology for fast, smooth image stabilization and seamless matching of elements to moving objects.

High-Quality Motion Estimation Timewarps

Exceptional motion analysis algorithms for creating extreme slow motions with crisp, clear results and speed-ups with accurate motion blur. Timewarps with highly accurate interframe interpolations can be generated from the desktop or within the batch timeline.

Advanced Keying and Rotoscoping

Versatile keying toolset features the award-winning Keyer, as well as the powerful and innovative Master, 3D, and Modular Keyers. Sophisticated rotoscoping tools include Tracer and GMask garbage masks with three-spline vector technology for localized feathering.

Innovative Color Correction and Grading

Intuitive toolset for interactive primary and selective color correction, including the innovative Colour Warper™ feature, delivers superior performance for SD and HDTV color grading.

Interactive Warping and Morphing

Interactive, intuitive mesh- and spline-based tools for warping and morphing images with optimized rendering for fast results.

Autodesk®



Colour Warper - primary and selective color correction
Image courtesy of Efe-x

DISCREET® FLINT® 9.5

Integrated Paint and Text

High-performance, integrated paint and text for interactive digital painting/retouching, advanced motion graphics, and interactive 2D/3D text animation.

Animation and Expressions

Powerful animation tools, including curve editors and expressions for total control over how animated parameters behave.

System Configuration

- Dual Opteron™ IBM® IntelliStation™
- Red Hat Enterprise Linux operating system.
- NVIDIA® Quadro FX3000G graphics.
- Real-time ITU-R 601 standard definition and SMPTE 292M HDTV I/O.*

Feature Details

Keying and Rotoscoping

- Master Keyer—advanced keying technology. Intuitively refine the key by gesturally modifying the matte. Automatic color spill removal and edge blending. Advanced grain removal, specifically tuned to blue- and greenscreens.
- Keyer—fast, accurate RGB, YUV, HLS, RGBCMYL, and custom keying; linear and user-definable keying capabilities with full luminance remapping, softness, shrink, and erode; advanced spill suppression and edge-color replacement capabilities.
- GMasks—quickly remove or extract elements from live footage with advanced three-spline vector technology. Customize softness at each point on the spline.
- Tracer—accurate edge-keying tool. Based on GMasks, it is ideal for keying hair, fur, and other finely detailed object boundaries that aren't necessarily shot on greenscreen or bluescreen.

Paint

- High-quality, integrated paint system for advanced motion graphics, digital matte painting, rotoscoping, wire removal, image retouching, and more.
- Fully customizable, user-definable brushes.
- Record and animate brush strokes. Create and animate color gradients, vector shapes, and cutouts.
- Load mattes to protect areas of the clip during painting.
- Layer-based paint node integrated in batch for easy painting or touch-up of any element in a complex scene. Paint, blur, reveal or clone layers or mattes and feed the result to any downstream node while viewing in context.

Tracking and Stabilization

- Precise motion analysis for 2D tracking of position, scale, and rotation—track up to 1,000 points in a single pass.
- Advanced tracking features include fully editable tracking data, reverse tracking, keyframe locking, field-based analysis, and curve smoothing functions.
- Tracked data can be automatically applied to image layers, GMask shapes, Warper meshes, Distort splines, and Paint brush strokes.

Color Correction

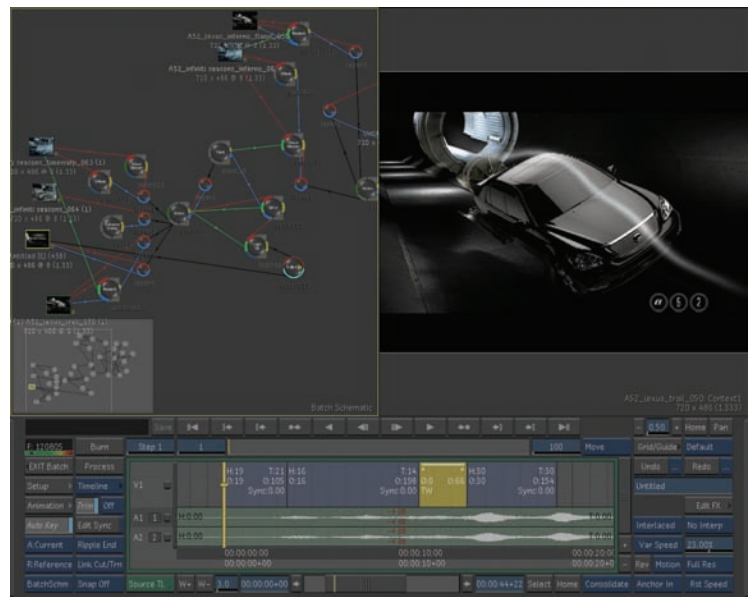
- Colour Warper performs primary and selective color correction allowing for precise fine-tuning with multiple levels of adjustment in a single pass.
- Interactive adjustment of gamma, gain, offset, hue, saturation, and contrast.
- Apply animatable settings to all channels or independently to R, G, and B.
- Intuitive hue shift and tint color wheel for fast, accurate color balancing. Visual color sampling palette for precise color matching.
- Interactive Histogram and Curves editing modes for subtle, precision tweaking of color components.
- Independent controls for color correcting the image's shadow, midtone, and highlight regions—features user-definable luminance ranges.
- “Match” feature for fast scene-to-scene color correction.
- “Selective” feature for sampling up to three different color regions for isolated correction
- UI features include three pressure-sensitive trackballs, a high-quality RGB vector scope, and a 3D histogram for precise color monitoring.

2D and 3D Text

- Create title rolls, crawls, slates, text animations, text along a path, text effects, and more.
- Support for Adobe® Type 1 PostScript®, OpenType®, TrueType®, fonts, Asian (CID) fonts, ASCII text file import, and extended Unicode font sets.
- Full formatting and layout capabilities, spell checking, custom dictionaries.
- Easy generation of matte layer.
- 3D text creation and animation in Action module.

Infrastructure (see Infrastructure Technical Specifications for details)

- Autodesk® Stone® Direct—high-speed fiber channel storage solutions for realtime access to high-resolution media.
- Autodesk® StoneFS—advanced file system guarantees performance and reduces fragmentation risks.
- Autodesk® Wiretap—API provides convenient access to StoneFS file system by third-party applications.
- RAID 5 protection from data loss of audio and video media, and nonobstructive background healing.
- Supports Autodesk® Stone® Switched—switch large volumes of data between systems instantly.
- Supports Autodesk® Stone® Shared—high bandwidth, real-time storage area network for multiuser collaboration.
- Supports Autodesk® Backdraft®—a powerful media management workstation.



Batch - integrated editing and effects workspace
Image courtesy of A52

Image Processing Filters and Plug-ins

- Filters including sharpen, soften, emboss, and glow, as well as user-customizable convolution filter matrices.
- Pixel math operators and blend modes for limitless compositing effects.
- Support for hundreds of third-party Autodesk Sparks plug-in filters.

Expressions

- Create accurate animations based on user-programmed parameters.
- Full library of functions including mathematical, logical operators, conditional operators, vectors, and constants.
- Parameters can be linked so that an object's rotation varies as a function of its distance from a light source—as you animate the object's position, its rotation is calculated automatically.

Batch

- Advanced flowchart representation of the compositing workflow and clip history to display all operations performed on a clip, allowing for easy editing of complex visual effects.
- Monitor downstream results with in-context viewers. Show the result at selected nodes while modifying others.
- Custom node bins save effects that you create so you can reapply them at will.
- Node grouping with user-definable group display settings. Cleanly organizes the schematic display while permitting rapid switching between node menus.
- Integrated editing timeline with video and audio tracks offers in-context editing, time warping, and synchronized audio.
- Segment FX permits uncommitted visual effects to be dropped into any edited timeline segment.
- Proxy processing allows for fast interaction even when working at the highest resolutions.
- Intelligent caching and bypassing functions allow automatic or user-defined prerendering of parts of the composite, increasing interactivity.
- Scripting with all the power of UNIX. Scripts can be used to automate tasks ranging from email notification of render completion to generating QuickTime® previews.
- Batch Log and Queue Management handle workflow by setting up and prioritizing multiple-render jobs at once and monitoring progress on a web browser.
- Unified channel editor allows animation curves for different effects to be displayed and modified simultaneously in Batch.
- Digital notepads can be used to annotate nodes and provide reminders and instructions for further work.
- Support for Autodesk® Burn™ background rendering solution.

Warping and Morphing

- Choice of mesh- or spline-based tools for intuitive, interactive warping and morphing.
- Distort workflow enhanced for improved control of desired result. Multiple splines can be animated independently.
- Warp and morph stationary or moving elements. Animate splines, mesh points, and axes with tracking data to automatically fit motion, scale, and rotation.

Desktop Editing

- Gestural, picture-based editing interface for easy viewing and intuitive clip manipulation. Cut, splice, trim, and play clips with fast, simple strokes.
- Prepare, preview, and compare clips in any resolution and format.
- Transition effects and timewarp tools with fully animatable speed curves as well as adjustable interframe mixing and trailing.

Action

- Intuitive and interactive 3D visual effects design environment. Ideal for in-context, creative decision making and brainstorming.
- Supports unlimited layers at any image resolution, or aspect ratio.
- Animate layers and 3D models in true 3D space.
- 3D particle systems for realistic effects ranging from rain and snow to smoke and explosions.
- 3D deformation, meshes, displacement mapping, and extended bicubics for full control and manipulation of 2D surfaces and 3D models.
- Multiple cameras with true-to-life, user-definable lens and camera properties such as depth-of-field. Animate and switch between camera views.
- Export camera data and import 3D geometry, light, and camera data from 3D animation packages using FBX format.
- Multiple animatable light sources.
- Integrated 2D tracking and stabilization.
- Texture mapping with material property and shading controls. Map or project textures onto objects.
- Integrated 3D character generator for advanced text creation.
- Import Adobe® Photoshop® PSD files directly into Action while maintaining layers, blend modes, and transparency.



Layer-based paint
Image courtesy of Reel FX

Advanced Media Player

- Player maximizes image display and minimizes interface clutter for ideal viewing conditions when playing clips.
- Provides letterbox masking and safe title overlays for precise viewing of intended result.
- Real-time playback of 8-bit 4:4:4 PAL, NTSC, HDTV, and 2K (2048x1556) resolutions at all standard frame rates with simultaneous display of SD and HDTV video to a broadcast monitor.
- Real-time 3:2 insertion and removal as well as the ability to mark in/out points and set cue marks for improved interactivity, faster editing, and A-frame timecode setting.

Film Tools

- Import standard color look-up tables (LUTs) or create your own using the intuitive tools provided.
- Grain management tools accurately match the grain of different film stocks and ensure homogenous grain across disparate elements used in the composite (CGI, scans from different film types, and so on).
- Tools for sampling, removing, and applying grain independently on each color channel.

Audio Tools

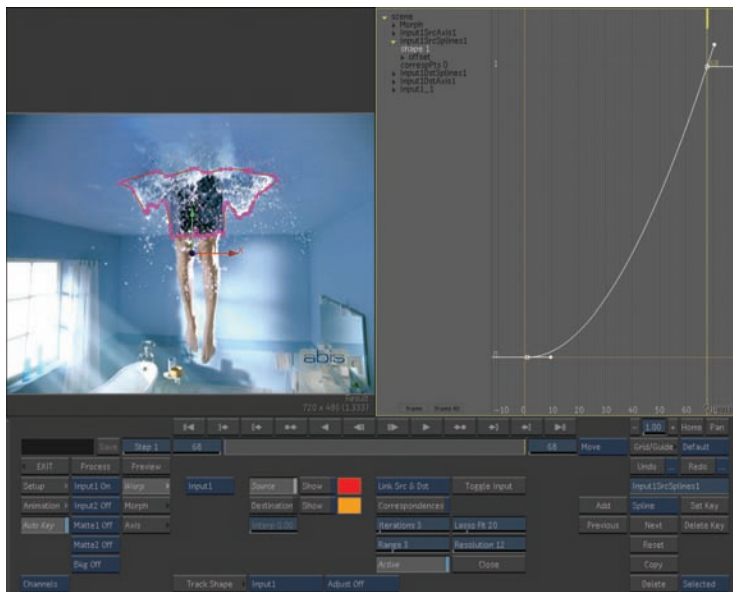
- Import, record, and playback stereo audio
- Full audio editing functions including cut, slip, timestretch, and pitch correction control
- Audio mixing capabilities with control of audio levels, pans, and EQ
- Vari-speed audio scrubbing allows for precise work
- Display audio waveform for syncing effects to sound
- VST Audio plug-in support (reverb, modulation, dynamic compression, full parametric EQ)

Input/Output (I/O)

- Send encoding tasks directly to Autodesk Cleaner XL for expanded Export Media format support.
- Serial digital interface for both ITU-R 601 standard (PAL/NTSC), and SMPTE 292M highdefinition video.
- VTR control capabilities via RS-422 support for real-time frame-accurate control of video devices.
- Two tracks of ADAT digital audio I/O: 1 ADAT input, 1 ADAT output.
- Analog and AES/EBU I/O audio connectivity via included converter.
- File-based I/O for most popular graphics formats including TIFF, PICT, TARGA, JPEG, Cineon, DPX, SGI, MAX, Softimage, and Maya.
- Import Adobe® Photoshop® PSD files with options to maintain layer structure or flatten image.

Conforming and Archiving

- Import/export standard EDL formats with cuts, dissolves, freeze-frames, vari-speed, reverses, split edits, and comments.
- Powerful conform of Apple® Final Cut Pro® timelines via Final Cut Pro XML project metadata.
- Import/export OMF files.
- Auto-capture or import files from an EDL.
- Auto assemble single or multiple (unlimited) EDLs simultaneously.
- EDL Editor for tweaking and revising EDLs. Sort EDLs for fast capture (A-, B-, C-, S-mode, and more).
- Convert EDL frame rates.
- Multi-Master Editing™—create multiple formats from a single master, including archiving to 720p tape.
- Data (DLT, DTF, and others) or (multi) videotape (SD and HDTV VTR) archiving.
- Creates HTML/ XML table of contents for fast browsing and retrieval. Selective restore from archives.



*Distort - spline-based morphing and warping
Image courtesy of Abis Studio*

Animation: Channel Editor

- Easily create and manipulate animations in the ubiquitous Channel Editor.
- Animation capabilities include auto keyframing, motion paths, expressions, and fully editable spline curves with choice of interpolation and extrapolation modes.
- Track Editor lets you view and slide individual keyframes on a track with multiple tracks or keyframes selected.
- Automatic and user-defined filters organize channel display for improved usability in large, complex setups.

Interoperability

- Interoperates smoothly with Autodesk® Combustion®, Discreet® Inferno®, Discreet® Flame®, Discreet® Fire®, Discreet® Lustre®, and Discreet® Smoke and provides extensive support for Autodesk® 3ds Max® and other 3D applications.
- Open access lets you work directly with non-Autodesk® StoneFS clips on shared storage without making a local copy, and then publish the results back to the open file system.
- Open file system applications that support Wiretap (such as Lustre and Combustion) can read/write StoneFS clips directly on Stone Direct storage.

TV Suite

The TV Suite combines the powerful editing and finishing tools of Smoke with the legendary visual effects tools of Flint to provide you with a single integrated environment for high-value TV postproduction.

With one cost-effective package, the TV Suite enables your artists to excel creatively when deadlines are looming or impatient clients are in attendance. It gives you the edge you need to deliver high-quality SD or HDTV content with all the speed and visual impact that is the signature of Autodesk's high-end solutions.

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

- Enrich the contents of your Smoke projects by creating complex effects shots in Flint for final inclusion in any complex multilayer smoke timeline.
- Smoke and 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.
- Project, user, and shot compatibility between systems ensures that you can use the right tool for the job—even when requirements change in midproject.
- Clip Library compatibility allows you to easily share footage between applications without importing or exporting media files.

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Reseller listings are available at

www.discreet.com/resellers

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* Stored as 8-bit RGB data on disk.

† 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. 0000000000015953