

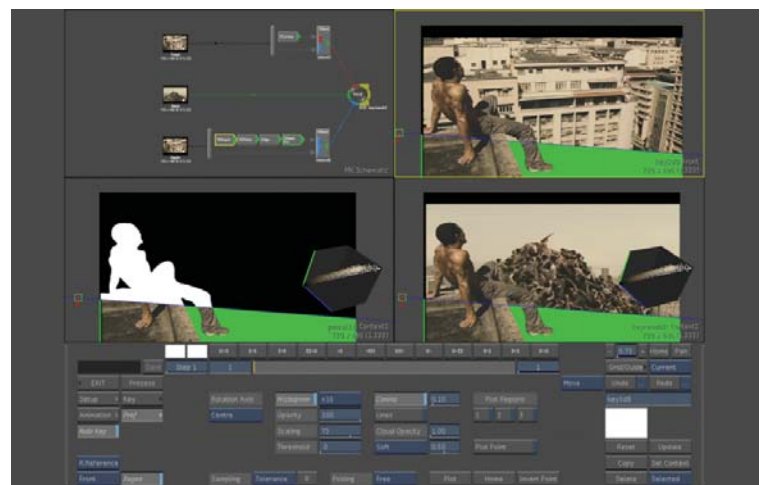
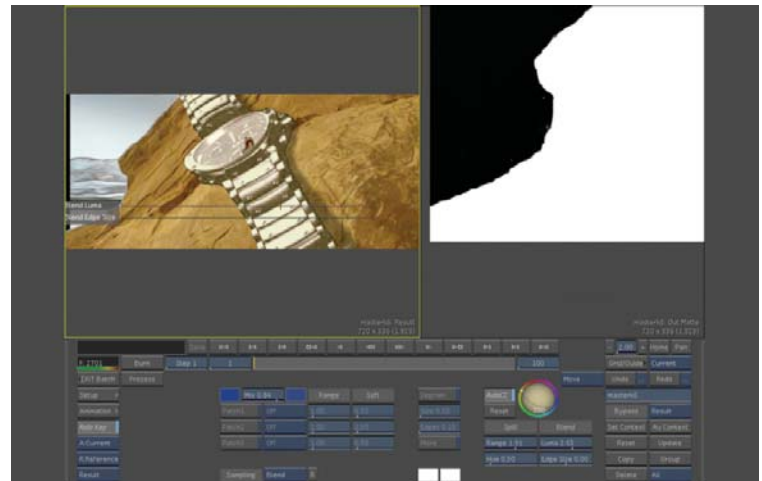


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flame is one of the most popular online visual effects systems in the post production industry, offering customers outstanding performance and Academy Award®-winning compositing tools. From national television commercials and music videos to blockbuster films, **flame** offers visual effects artists the interactivity and flexibility they require to tackle any task with success – no matter how demanding the client or complex the project.

Key features

- **Action for high performance design**
3D compositing environment for advanced visual effects creation, interactive brainstorming and client-driven design. Allows for seamless integration of live-action layers and 3D elements in an interactive 3D environment
- **Advanced 2D and 3D tracking**
High-speed, interactive tracking technology for fast, smooth image stabilisation and seamless matching of elements to moving objects. Advanced algorithms for accurate extraction of 3D camera data
- **Advanced keying**
Versatile keying toolset features Discreet's award-winning Keyer as well as the powerful and innovative Master, 3D and Modular Keyers
- **Innovative colour correction and grading**
Intuitive toolset for interactive primary and selective colour correction, including Discreet's innovative Colour Warper™, delivers superior performance for HDTV and 2K film grading
- **Interactive warping and morphing**
Interactive, intuitive tools for warping and morphing images with optimised rendering for fast results
- **Integrated paint and text**
High performance, integrated paint and text for real-time digital painting/retouching, advanced motion graphics and interactive 2D/3D text animation
- **Powerful rotoscoping tools**
Advanced rotoscoping tools include Tracer and Gmask garbage masks with 3-spline vector technology for localised feathering
- **Resolution independence**
Images of any resolution, frame rate, bit depth and aspect ratio can be combined together
- **Batch**
Advanced flowchart representation of compositing workflow and clip history to display all operations performed on a clip, allowing for easy editing of complex visual effects
- **Film tools**
Full monitor calibration tools, advanced colour look-up-table (LUT) editor and full grain management capabilities
- **Animation and expressions**
Powerful animation tools including curve editors and expressions for total control over how animated parameters behave
- **System configuration**
High performance dual or quad processor SGI® Tezro™, v12 graphics subsystem and real-time 8/10-bit 4:4:4 ITU-R 601 standard definition and SMPTE 292M HDTV I/O. Support for 2K 10- and 12-bit film



middle: Master Keyer – advanced keying technology
Image courtesy of Marchand Media
bottom: Modular Keyer – advanced pipeline keying
Image courtesy of The Mill

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
- Real-world coordinate system for reproducing physical proportions more easily; simplifies reconstruction of set locations in the 3D compositing environment
- 3D Tracker automatically analyses a clip and creates 3D camera animation. Tracks a clip on a frame-by-frame basis in the background, so you can keep working
- Texture displacement for enhancing 3D look of 2D textures
- Texture mapping with material property and shading controls. Map or project textures onto objects
- Projectors allow textures to be projected onto surfaces for greater creative control
- Integrated 3D character generator for advanced text creation

Keying and rotoscoping

- **Keyer** – Fast, accurate RGB, YUV, HLS, RGBCMYL and custom keying; linear and user-definable keying capabilities with full luminance re-mapping, softness, shrink and erode; advanced spill suppression and edge-colour replacement capabilities
- **Master Keyer** – Advanced keying technology. Intuitively refine the key by gesturally modifying the matte. Automatic colour spill removal and edge blending. Advanced grain removal, specifically tuned to blue- and greenscreens
- **Modular Keyer** – Customisable pipeline for advanced keying capability and control over the final result
- **Gmasks** – Quickly remove or extract elements from live footage with Discreet's advanced three-spline vector technology. Customise softness at each point on the spline
- **Tracer** – Discreet's 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 green- or bluescreen

Paint

- High-quality, integrated paint system for advanced motion graphics, digital matte painting, rotoscoping, wire removal, image retouching and more
- Real-time painting, includes warp brush, paint effects
- Fully customisable, user-definable brushes
- Autopaint: tracks paint strokes/filters to objects
- Record and animate brush strokes. Load mattes to protect areas of the clip during painting

Tracking and stabilisation

- Precise motion analysis for 2D tracking of position, scale and rotation
 - track up to 1000 points in a single pass
- Advanced tracking features include fully editable tracking data, reverse tracking, keyframe locking, field-based analysis and curve smoothing functions
- 3D tracking extracts original, real-world camera information from a 2D clip including data about moving objects
- Tracked data can be used to animate cameras in Action. Editing and smoothing capabilities help correct residual motion errors

Colour correction

- Colour Warper™. Performs primary and selective colour correction by warping actual colour space of an image. Allows precise fine-tuning with multiple-levels of adjustment in a single pass
- Interactive adjustment of gamma, gain, offset, hue, saturation and contrast. Apply settings to all channels or independently to R, G and B
- Intuitive hue-shift and tint colour-wheel for fast, accurate colour balancing. Visual colour sampling palette for precise colour matching. Invert, monochrome, channel rewire and suppression controls
- Interactive Histogram and Curves editing modes for subtle, precision tweaking of colour components
- Independent controls for colour correcting the image's shadow, midtone and highlight regions – features user-definable luminance ranges
- 'Match' feature for fast scene-to-scene colour correction
- 'Selective' feature for sampling up to three different colour regions for isolated correction. Soften and invert functions for selected region
- UI features include three pressure-sensitive trackballs, a high quality RGB vector scope and a 3D histogram for precise colour monitoring
- Colour Correction and Colour Warper parameters are fully animatable
- 3D text creation and animation in action module

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®, TrueType® fonts, Asian (CID) fonts, ASCII text file import, spell checking, custom dictionaries and extended font sets
- Full formatting capabilities: font size, bold, underline, italics (with user-definable slant), drop shadows, text shading, outline and more
- Full layout capabilities: tabulation ruler, justification, animatable kerning and leading
- 3D text creation and animation in action module

Warping and morphing

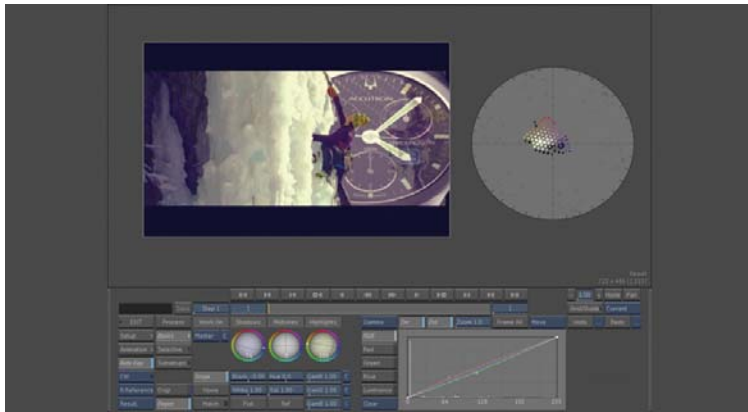
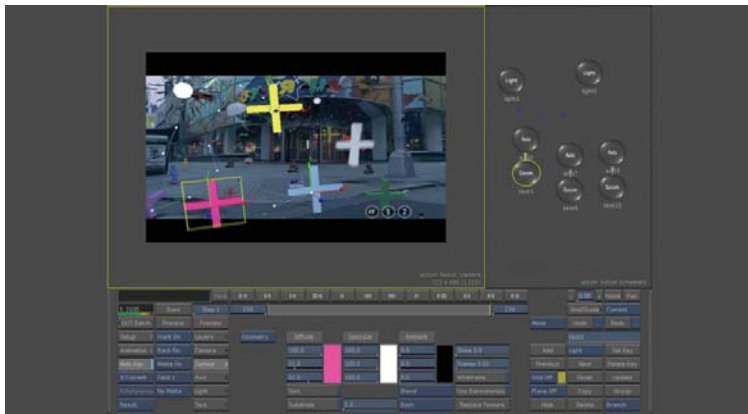
- Distort is an intuitive, interactive, spline-based warping and morphing tool that gives you incredible control and allows you to animate splines with tracking data. Includes a schematic view to display and modify splines
- Use as many independent splines as necessary
- Image or sequence warping and morphing. Mesh patches for greater localised control. Trackable mesh points

Image processing: plug-ins, filters and optics

- Filters including sharpen, soften, emboss, fabric, halo, reticulate and glow, as well as user-customisable matrices. Support for over 400 third-party sparks® plug-in filters

Infrastructure (see infrastructure data sheet for more detail)

- High performance networking and storage solutions. RAID protection
- Supports backdraft®, Discreet's powerful media management workstation



burn™ for flame®

With **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 setups in the background simultaneously freeing your online suite to continue with more creative tasks. Offering fast, cost-effective processing power, **burn** increases the processing capabilities of **flame**. A maximum of 20 nodes is supported.

top: Distort – spline-based warping

Image courtesy of a52

middle: Action – interactive 3D compositing environment

Image courtesy of a52

bottom: Colour Warper – primary and selective colour correction

Image courtesy of Marchand Media

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
- Highly interactive, visual, colour-coded UI for building/modifying composites. Quickly connect/disconnect nodes with a simple gesture of the pen/mouse
- Individual node representation for all filters and effects used to create the composite, including Action, Colour Warper, Distort and Gmasks
- Monitor downstream results with in-context viewers. Show the result at selected nodes while modifying others
- Customised node bins save custom effects that you create so you can re-apply them at will
- Integrated editing timeline with video and audio tracks offers in-context editing, time warping and synchronised audio
- Proxy processing allows for fast interaction even when working at the highest resolutions
- Proxy Cache Support lets you cache a clip at proxy resolution. Clips cached while not in proxy mode create both a full-resolution and a proxy-resolution clip
- Powerful caching and bypassing functions allow automatic or user-defined pre-rendering of parts of the composite, increasing interactivity
- Scripting with all the power of UNIX scripts can be used to automate tasks ranging from e-mail notification of render completion to generating QuickTime® previews
- Batch Log and Queue Management handle workflow by setting up and prioritising multiple-render jobs at once and monitoring progress on a web browser
- Support for Discreet's **burn**™ background rendering solution

Animation: channel editor

- Create animations for everything from 3D particles in Action to Keyer parameters in Batch using Discreet's powerful Channel Editor
- Animation capabilities include auto keyframing, motion paths, expressions and fully editable spline curves with linear, hermite, natural or mixed interpolation modes
- Unified Channel editor allows animation curves for different effects to be displayed and modified simultaneously in Batch
- Improved Multiselection allows you to select several keyframes and manipulate them simultaneously
- Improved Track Editor lets you view and slide individual keyframes on a track with multiple tracks or keyframes selected

Expressions

- Create accurate animations based on user-programmed parameters using a full library of functions including mathematical, logical and conditional operators, vectors and constants
- Parameters can be linked so that, for example, 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

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 (up to 4K) and format
- Transition effects and timewarp tools with fully animatable speed curves as well as adjustable inter-frame mixing and trailing

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Advanced media player

- Player maximises image display and minimises interface clutter for ideal viewing conditions when playing clips. Provides letterbox masking and safe title overlays for precise viewing of intended result
- Provides real-time playback of 8- and 10-bit 4:4:4 PAL, NTSC, HDTV and 2K (2048 x 1556) 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 and faster editing and A-frame timecode setting

Monitor calibration and film tools

- 3D LUTs work with your calibrated display to accurately display a clip as it will appear on its final medium, such as film. 3D LUTs also ensure consistency and precision between different products including **lustre[®]**. Choose to temporarily view a clip with a 3D LUT or apply the 3D LUT process, allowing for real-time clip playback
- Provides tools to match images displayed digitally on a computer monitor to the look of projected film. Supports X-Rite and Barco CaliTalk calibration devices for accurate colour measurement
- Import standard colour look-up tables (LUTs) or create your own using the intuitive tools provided
- Provides grain management tools to 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 etc.). Includes tools for sampling, removing and applying grain independently on each colour channel

Input/output (I/O)

- DDR and VTR control capabilities via RS-422 support for real-time frame-accurate control of video devices
- Serial digital interface for both ITU-R 601 standard (PAL/NTSC), and SMPTE 292M high definition video. Digital audio connections:
 - 1 ADAT input, 1 ADAT output
- Analog and AES/EBU I/O audio connectivity via included converter
- Analog video requires a separate conversion device
- File-based I/O for most popular graphics formats including TIFF, PICT, TARGA, JPEG, Cineon, DPX, SGI, MAX, Softimage, Maya
- Support for import of layered Adobe[®] Photoshop[®] files

Conforming and archiving

- Import/export standard EDL formats with cuts, dissolves, freeze-frames, vari-speed, reverses, split edits and comments
- 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- and 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 etc.) or (multi) videotape (SD and HDTV VTR) archiving. Creates HTML/XML table of contents for fast browsing and retrieval. Selective restore from archives

Integration and interoperability

- Integrates with **combustion[®]**, **fire[®]**, **flint[®]**, **inferno[®]**, **lustre[®]** and **smoke[®]** and provides extensive support for **3ds max[®]** and other 3D applications

flame 9 : overview of key new features

A powerful new release, **flame 9** includes new tools and new workflows, simplifying tasks and delivering more creative freedom.

- Clip history displays all operations performed on a clip in a Batch Process tree, allowing for easy modification of effects
- Distort, an intuitive spline-based warping and morphing tool
- Segment FX into create independent Batch trees on timeline segments
- 3D LUTs to emulate how a clip will appear on the final medium, such as film. 3D LUTs also ensure consistency and precision between different products including **lustre[®]**
- Automatic 3D Tracker automatically analyses a clip and positions the tracking points as a background process
- Batch improvements include: node grouping, custom node bins, schematic notes, proxy processing, and nodes for Paint, Master Keyer, Distort, Combine and Deal
- Open Access lets you work directly with non-**stonefs** clips on shared storage without making a local copy, and then Publish the results back to the shared storage
- Import Adobe Photoshop PSD files while maintaining layer structure, opacity, and transfer modes
- Resizable multi-view windows and multiple reference buffers

To purchase or obtain product information, contact Discreet:
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India: +91.22.695.2000 Japan: +81.3.6221.1818
Singapore: +65.6552.0553 Latin America: +1.305.718.3470
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

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