



# Release Notes, 4.7v5

This is a maintenance release of Nuke with a number of bug fixes.

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## Version

Nuke 4.7v5

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## Release Date

12 November 2007

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## Requirements

Supported operating systems

- Mac OS X (10.4).
- Windows XP SP2.
- Linux Fedora Core 4.

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## Improvements

These are the improvements made to existing features in Nuke 4.7v4.

- Fixed glitch where cursor wasn't getting drawn.

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## Bug Fixes

- Fixed a crash at startup on OSX 10.5 Leopard.
- BUG ID 2739 - Fixed File > TCL file menu command.
- BUG ID 2845 - Fixed Filter > Emboss node.

- BUG ID 2920 - Nuke not releasing memory correctly on some scripts.
- BUG ID 2923 - Renders fail on large formats.
- BUG ID 2939 - SplineWarp + Primatte: SplineWarp can't draw curves when a Primatte node is in the DAG. Note that if there is a control in the control panel bin with an active color picker, it will still take precedence over other manipulations, like drawing SplineWarp curves.
- BUG ID 2972 - Bezier + Primatte : Beziers won't draw after adding Primatte, and Nuke crashes. Fixed the crash. However, if there is a control in the control panel bin with an active color picker, it will still take precedence over other manipulations, like laying down Bezier points.
- BUG ID 2992 - MacPro XP Bootcamp - crashes on some machines on opening Nuke, then opening Viewer.
- BUG ID 3001 - OFX cache always rebuilding in non-interactive mode.
- BUG ID 3021 - Removed TCL function `t 0` from the documentation.

# Release Notes, 4.7v4

This is a maintenance release of Nuke with a number of bug fixes.

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## Version

Nuke 4.7v4

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## Release Date

24 October 2007

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## Requirements

Supported operating systems

- Mac OS X (10.4).
- Windows XP SP2.
- Linux Fedora Core 4.

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## New Features

- Added the long-requested Keymix operator.
- Added CameraShake gizmo.

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## Improvements

These are the improvements made to existing features in Nuke 4.7v3.

- Small speedup (about 3%) when 2D transform is fed directly in as a 3D texture map.
- Viewer time range in/out point markers now drag on Ctrl+click to avoid confusion with changing current frame.
- Small speed improvement on filtering/sampling.
- Improved OFX support for single channel images.

- Colour knobs on OFX plugins can now have viewer handles.
- Added IBKGizmoV3 and IBKColourV3, deprecated IBKSplit (in favor of Key-mix).
- Viewer and postage stamp images use BGRA buffers on little-endian machines. This should be somewhat faster on most modern machines.
- Added ofx\_plugin\_path command to list paths searched for OFX plugins.
- Added some more examples to NDK and updated compile instructions.

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## Bug Fixes

- Draw Nuke's handles in Viewer for OFX parameters if no overlay is set.
- OFX: now `getPremult()` returns state set by plug-in for output clip.
- Fixed some uninitialized variables in Read and Bezier.
- Fixed a double-free `()` bug that caused crashes when rendering a frame attempting to use non-existent input files.
- Fixed another instance of "coding error in an op".
- Fixed an uninitialized inverse transform matrix that could cause Bezier handle to stick at origin.
- Viewer no longer filters anamorphic images when expanding 2:1 aspect.
- Renamed "race\_panel.tcl" TCL script example to "renderfarm\_example.tcl".
- "Set key" menu item on multi-number knob is no longer disabled when some, but not all, of the fields have a key set.
- Colorspace conversions to HSL could return NaN for saturation on gray or white.
- Fixed knob not updating when the frame is changed.
- IBKEdge was removed from the menu as it is not relevant to current versions of IBK.
- No longer push preferences or root nodes onto the stack. This fixes the ability to open the results of the `node_copy` command, and may fix several other bugs as well, such as occasional connection of things to the preferences node.
- The LUT converters no longer clamp to the 0-1 range when converting float to float.

- Fixed Viewer sometimes taking the format and frame range of disabled operators, which would be random garbage.
- Format Knob never wrote any format settings to a group/gizmo that tried to link a Format Knob from an internal Reformat operator. The individual formats now write as separate strings (which also makes the saved scripts more sensible).
- Reformat node's "to box" pixel aspect knob can be animated again.
- Fixed NukeWrapper-based nodes getting a badly formed initial display name.
- Expressions are automatically updated when nodes are renamed. This will only deal with Nuke native expressions: that is, the use of [ and \$ will cause an expression not to be updated.
- Fixed a potential deadlock in FLEXIm heartbeat timeout.
- Multiple instances of file writer plugins no longer create duplicate items in the file type list.
- Fixed plugin\_path command changing the order of the path and including directories it didn't actually search for Nuke plugins.
- Control panels now go to the top of the bin when a node is double-clicked the first time.
- OFX single channel selector is now only presented on inputs that ask only for alpha and no other type.
- OFX support identified streams as single channel if there were more channels than RGB/A. Nuke now correctly reports RGBA back to OFX plugins if RGBA channels are present and reports single channel otherwise.
- Fixed crashing when plugins execute arbitrary tcl commands, for example:  

```
lop::default_input((Op*)0)->script_command("puts TESTING");
```
- If selection area in curve editor was zero sized in one direction, you could not move it.
- BUG ID 1281 - Write nodes don't update filename displayed in the DAG when switching proxy mode.
- BUG ID 1610 - Crop node doesn't respect reformat node when a script is first loaded. Autoscale was depending on op's output rather than input. Also, knob hash now depends on the actual values stored in the knob, so updates should "catch" more reliably.

- BUG ID 1941 - Viewer : Alt + <left or right arrow> doesn't jump to the previous or next keyframe. We have restored pre-4.7 viewer increment/keyframe hotkeys and buttons.
- BUG ID 2066 - Grade: keys on the 'disable' attribute are deleted when toggling the disable mode by pressing the DAG hotkey "D".
- BUG ID 2069 - Broken lookups in FrameCycler fixed with an updated build of FrameCycler 2007 from Iridas.
- BUG ID 2077 - Paint: display the frame number(s) of a selected stroke. Also added a new toggle to make the list only show the strokes that are visible on the current frame.
- BUG ID 2092 - DAG: DAG: Viewer input connect behavior is confusing. Reverted to previous behaviour so that pressing a buffer hotkey in the DAG always connects the corresponding Viewer input.
- BUG ID 2095 - Read: 'premultiplied' does not work on targa files.
- BUG ID 2101 - Text node crashes in Linux.
- BUG ID 2115 - The script\_save command in the terminal mode is failing.
- BUG ID 2116 - Import and Export ASCII LUT fails.
- BUG ID 2121 - Add support for OfxInteractPropPenViewportPosition extension.
- BUG ID 2126 - Nodes that use an incoming frame range also include frame range from unconnected inputs (which take the default script frame range) so the range is not what users expect.
- BUG ID 2129 - Favourites do not appear like they used to. Added an optional parameter to get\_filename, which can be "script", "image", or "font", to specify which set of favourites to pick up.
- BUG ID 2131 - TCL documentation error: \$NUKE\_PATH is inserted between the ~/.nuke and the <programdir>/plugins directory, it does not replace it.
- BUG ID 2133 - Tracker: translate.x curve is shifted incorrectly when the reference frame is set to current.
- BUG ID 2134 - The load\_icon command doesn't seem to work. Filename is now passed through script\_expand so that ~ (homedir) is expanded as expected.
- BUG ID 2137 - Added support for begin/end instance edit actions to the OFX host.

- BUG ID 2141 - Terminal mode (-t) should take a render license unless -i is also specified (as with -x for batch renders).
- BUG ID 2161 - Drag and drop of parameters is not producing relative references.
- BUG ID 2170 - When a viewer first opens, it should be parked on the first frame of the input clip.
- BUG ID 2172 - OFX menu seems to grab the old F\_WireRemoval in preference to the new one if both are installed.
- BUG ID 2175 - The pixel values given in a viewer are offset from the actual cursor position.
- BUG ID 2182 - F\_FrameRepair: unable to set an invalid frame.
- BUG ID 2206 - OFX seems to check out OFX\_I license when rendering off command line.
- BUG ID 2215 - OFX plugins assume linear sliders (rather than log) by default.
- BUG ID 2221 - ColorExpression crashing on OS X if expression used non-existing second input alpha.
- BUG ID 2230 - Allow user to categorize favorite directories on create so that they appear (or do not appear) in other browsers. Added a specific "misc" category for directories that should only appear when no other category is specified, and added a "geo" category for geometry read/write file browsing.
- BUG ID 2237 - 3D viewer not updating animated Group/Gizmo content.
- BUG ID 2238 - The knob for animated control in a group does not update when node is in viewer.
- BUG ID 2239 - OFX String parameters not able to be file paths.
- BUG ID 2255 - Arbitrary limit on inputs to a MergeGeo/Scene node too low. The limit was raised to 99999.
- BUG ID 2256 - FloodFill ignoring mask. An examination of the code shows that this is broken in many ways. It is being removed from the menus to discourage its use until it can be properly rewritten.
- BUG ID 2263 - Color > 3D > 3D LUT won't load on clean Red Hat Fedora Core 4 install.
- BUG ID 2283 - An expression in a pasted node doesn't update when it refers to another node in the paste buffer.

- BUG ID 2284 - Changing a node name to one that already exists needs to detect and error.
- BUG ID 2301 - Script 'Save as..' doesn't append .nk extension if there are dots in the name.
- BUG ID 2324 - OFX single channel alpha request gets RGBA.
- BUG ID 2344 - EXR reading crashes on some Fedora Core 4 machines.
- BUG ID 2354 - Tcl script using frame command called from script button not evaluating time as expected (as console does).
- BUG ID 2359 - Fixed several more cases of Ctrl + click on OSX not raising right mouse menu.
- BUG ID 2372 - Write - File > Execute this... only executes first selected, not all.
- BUG ID 2376 - Viewer time bar doesn't update to show range when text field is set.
- BUG ID 2378 - Viewer layer/channel pulldowns still show disabled node's added channels.
- BUG ID 2395 - Crash reading Softimage .pic files.
- BUG ID 2403 - Inaccurate hotkey info in Nuke User Guide.
- BUG ID 2416 - Setting a node's name to itself erroneously detected as a name collision.
- BUG ID 2425 - Nuke GUI crashes at startup on windows with default MS OpenGL support. Check for minimum required OpenGL was not happening soon enough in some cases; it now exits cleanly with an error message.
- BUG ID 2427 - Increase size of Viewer frame range box.
- BUG ID 2437 - Copy and pasting nodes with expressions doesn't update the node references.
- BUG ID 2469 - Expression knobs don't evaluate animation; only the value of the first keyframe is used.
- BUG ID 2481 - HistEQ crashes as soon as applied.
- BUG ID 2498 - Paint - selecting multiple strokes changes offset value.

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## Known Bugs & Workarounds

- On OS X, renaming the Nuke .app application directory from the command line makes Nuke unable to find its startup script files when launched from the Finder (although it still starts up correctly when launched from a Terminal command line). Rename it through the Finder to avoid this problem.

# Release Notes, 4.7v3

This is a maintenance release of Nuke with a number of bug fixes.

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## Version

Nuke 4.7v3

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## Release Date

31 July 2007

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## Requirements

Supported operating systems

- Mac OS X (10.4).
- Windows XP SP2.
- Linux Fedora Core 4.

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## New Features

- No new features since the 4.7v1 release.

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## Improvements

These are the improvements made to existing features in Nuke 4.7v2.

- Tracker.gizmo added to provide a place for pre-Tracker3 scripts' Tracker data to load into. Note this is not the old Tracker node just a container to provide access to the channel data.
- Paint's "transparency" knob label changed to "opacity" to match how the value is actually applied.
- Tool tips are now dismissed when mousewheel moves.

- BUG ID 1984 - Added an option to Paint "comp" knob to draw into alpha channel only. Note that paint won't add the channel if it doesn't exist, so there must be an alpha channel coming in.
- Splash screen indicates when OFX bundles are being queried, which can be slow on OSX the first time the libraries are opened after a restart.
- Microsoft VC8 redistributable is now called silently, so that Windows installer can be run silently. From the command line, use /sp- and /silent arguments to run with no user interaction.

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## Bug Fixes

- We now check for OpenGL version 1.4 and exit with error message if drivers are not sufficient rather than crashing.
- Fixed a bug where the scanline renderer produced the wrong request calls to the background image.
- Curve Editor no longer crashes when doing import-ascii from popup menu in Color lookup.
- Curve Editor commands operate just on selected curves, not all in the list.
- Fixed Read/Write nodes not switching appropriately when proxy setting changed.
- Fixed Multiline text editor deleting the selection if you hit the right-side ctrl key.
- Fixed "request not called" error occurring as a result of requests for input at multiple times.
- Draw operators' panels could fail to initialize correctly if "ramp" was active.
- Fixed a giant memory leak on deletion of groups and gizmos.
- Fixed cache leak on Read nodes that don't have postage stamps.
- Curve plotting fix so that functions with large constant areas are not automatically assumed to be straight lines.
- Fixed an uninitialized variable in Flare that may have caused random errors related to chroma shift settings.
- Fixed 4-color color knob not initializing correctly if the value had alpha different than the gray level. This was most visible in the CheckerBoard where you got a slider even though the alpha was one.

- Although Windows generally handles forward or backward slashes equivalently, QuickTime on Windows does not seem to like filenames that begin with double forward slashes. We now always pass paths to QuickTime with backward slashes on Windows. (Windows only)
- JPEG reader uses header x/y density to determine aspect ratio. Some other applications leave this at 1.0 even for PAL/NTSC images so nuke was not matching the image to its PAL/NTSC format definition. We now try to match these to a format by width/height before assuming it's really meant to be 1.0.
- Fixed leaking shared memory segments that eventually lead to the X server crashing. (Linux only)
- Fixed crashing at save when Nuke was installed on a network drive accessed via UNC path. (Windows only)
- Fixed bug in the curve editor where shift+clicking on a point and then trying to move/scale the selection would move that last point to the mouse cursor.
- Fixed some jumpiness in curve editor drawing.
- Updated OFlow, including fixes for "extreme filtering" crashes.
- BUG ID 1335 - Some Discreet ASCII channel data files not loading.
- BUG ID 1386 - An input request for no channels received a degenerate 1x1 tile rather than the actual size, causing strange results in nodes that made use of the size values. This would manifest as inconsistent results when some channels were removed or not used by other operators, for instance Transform.
- BUG ID 1518 - Crash changing values in nodegraph root settings.
- BUG ID 1590 - Crash on exit when OFX plug-ins are installed (Windows only).
- BUG ID 1723 - Crash while Viewer drawing and layout is changed.
- BUG ID 1798 - Tracking data applied to Bezier incorrectly.
- BUG ID 1811 - Text node created from toolbar had incorrect font path.
- BUG ID 1840 - Command drag on mac between parameter boxes does not create an expression link.
- BUG ID 1853 - OFX plug-in cache no rebuilding on every startup when running from a temporary license.
- BUG ID 1863 - Reformat and proxy mode not refreshing correctly.

- BUG ID 1882 - Images are now clipped to a maximum area of 32K square, rather than having each dimension clipped to 32K. This allows for very long and narrow images.
- BUG ID 1893 - Code for loading a cache was returning success even if aborted. Some rewrite so that it can return clearly the 3 results: the lines were in the cache, the lines were loaded into the cache, or it aborted while trying to load the lines.
- BUG ID 1912 - Ctrl+click for right mouse menu doesn't work in Viewer and Curve Editor (Mac OS X).
- BUG ID 1918 - Integer knobs not animatable.
- BUG ID 1920 - PointsTo3D node crashing.
- BUG ID 1923, 1927, 1932 - Copy operator crashing if source set to channel that doesn't exist in input. This appeared to be at the root of many of the recent crash bugs, as this operation is used internally by many nodes.
- BUG ID 1929 - An incorrect assert() was triggered when a node's user-controlled cache was turned on and rendering was interrupted.
- BUG ID 1938 - Backdrop node colours loading from saved script incorrectly.
- BUG ID 1939 - Declone erroneously gives an error if the node has no input.
- BUG ID 1941 - Alt+arrow shortcut for next/previous keyframe fixed (along with shift for back-compatibility).
- BUG ID 1942 - Paint color slider switches back to 4 channels (from single) when slider moved.
- BUG ID 1943 - Paint crashing when painting in reveal mode after reverting node.
- BUG ID 1946 - Executing disconnected Write gives confusing error.
- BUG ID 1951 - Browser lists project files as sequence.
- BUG ID 1966, 1996 - Postage stamps compute while Viewer is playing and slow down playback. Now, if an image exists, it updates but they are prevented from trying to compute while Viewer is playing.
- BUG ID 1974 - Keying a 3/4 value knob in single-channel mode and then switching to four channel view and adjusting a channel wipes out previous animation on other channels.
- BUG ID 1976 - ReadGeo node sometimes forgets error status. Also involved a fix to viewer dropping error state before realizing that errored input had not changed.

- BUG ID 1979 - Crash on undo of deleting Viewer.
- BUG ID 1990 - Viewer step size param (and various others in prefs, DAG root, etc) erroneously show animation options.
- BUG ID 1998 - The "C" for clone only appears on the first instance.
- BUG ID 1999 - Animation curve handle length can't be changed in new curve editor. (Now works when you hold down ctrl/command key while dragging handle.)
- BUG ID 2004 - DAG link lines for expressions between nodes aren't drawn on nodes pasted in.
- BUG ID 2022 - Merge could incorrectly request mask channel when that channel was not among those being output. Details of bug indicate this is potentially a cause of many random crashes and/or incorrect output.
- BUG ID 2023 - "frame" tcl command not always returning an integer on very large frame numbers.
- BUG ID 2033 - Extract failing with a confusing error on nodes with no input.
- BUG ID 2036 - Read node doesn't notice when filename is changed.
- BUG ID 2049 - DAG Animation menu copy links doesn't work, whilst curve editor one does.
- BUG ID 2062 - When scrubbing past last keyframe, ColorCorrect panel field remains green although not on a key.
- BUG ID 2070 - A case of "This is probably a coding error in an Op connected to this one's output" related to PostageStamps.

# Release Notes, 4.7v2

This is a maintenance release of Nuke with a number of bug fixes.

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## Version

Nuke 4.7v2

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## Release Date

9 July 2007

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## Requirements

Supported operating systems

- Mac OS X (10.4).
- Windows XP SP2.
- Linux Fedora Core 4.

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## New Features

- No new features since the 4.7v1 release.

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## Improvements

These are the improvements made to existing features in Nuke 4.7v1.

- BUG ID 1574 - The input buttons on the control panel for OFX nodes now display the full input and source node name in tool tip.
- BUG ID 1689 - Framecycle This, when run on a viewer node, now takes in to account the currently selected viewer input.
- BUG ID 1703 - Incorporated both floating in/out wedges on the timeline and the ability to lock the playhead range to a specific region. To lock to a range, click on the checkbox to the left of the range box in the viewer. If the playhead is out of the current range, move it into the range, and playback will now lock between in and out points.

- BUG ID 1749 - The file browser will now parse sequences without a dot between the name and frame #.
- 3D view uses the node's colour for a 3D object's wireframe, except when the object is solid-shaded (and there is no lighting).
- Pressing ESC in the viewer now cancels the running operation. If no operation is running, ESC closes the viewer, as before.

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## Bug Fixes

These are the fixed bugs since Nuke 4.7v1.

- BUG ID 1280 - Fixed crash when writing proxies when no file name specified.
- BUG ID 1337 - Further fixes for "validate not called" halt when rendering for all known test cases.
- BUG ID 1477 - Fixed OFX plug-ins with inappropriate knobs inheriting Nuke overlays.
- BUG ID 1538 - Hide params hidden on the control panel on the curve editor.
- BUG ID 1626 - Fixed Grid warp and Spline warp not showing keys on the timeline.
- BUG ID 1681 - Tweaked the max number of input arrows on top of node down to 4 (from 8).
- BUG ID 1688 - Fixed extract function not disconnecting all inputs.
- BUG ID 1710 & 1715 - Flop viewer shift+ behaviour so all inputs are affected by default, or only the current one when shift+ is pressed.
- BUG ID 1712 - Fixed DAG animation icon appearing on node once animation has been removed.
- BUG ID 1713 - Fixed a crash in Primatte when opening a script created with an earlier version.
- BUG ID 1716 - New version of OFlow to fix minor memory leak.
- BUG ID 1717 - Fixed deadlock in Op generation.
- BUG ID 1718 - Fixed paint node crashing on first stroke in Windows XP.
- BUG ID 1721 - Fixed crash at exit on Windows.
- BUG ID 1750 - Fixed Spline warp crashing on first spline in Windows XP.

- BUG ID 1752 - Fixed progress bar not appearing in Furnace 4 OFX plugins.
- BUG ID 1753 - Fixed updates not triggering when input connections changing on OFX plugins.
- BUG ID 1754 - Cosmetic tweak to internal param names printing on tooltips.
- BUG ID 1760 - Nuke can now start up in background mode on Mac OS X when the user does not have admin privileges and no user is logged into the console.
- BUG ID 1784 - OFX plug-ins that have a parameter called "output" (such as F\_SmartPlate) would write the value of this parameter on the node in the node (DAG) view. This has been fixed.
- BUG ID 1791 - Paint node now sets values on multiple selected strokes correctly.
- BUG ID 1799 - In the paint node if you selected the clone tool and then switched back to the paint tool, the cursor would still display the double circle clone overlay cursor. This bug has been fixed.
- BUG ID 1800 - The "Various" option in the paint node was not correctly implemented and has been removed.
- BUG ID 1802 - Fixed the transform preview drawing overlaid on cached playback.
- BUG ID 1830 - On Mac OS X, pressing the command key (apple) does not display a dot on the arrows between nodes that allow you to "elbow" these node connections. This has been fixed.
- BUG ID 1839 - On Windows, drag selecting multiple paint strokes in the paint node would cause crashes. This has been fixed.
- BUG ID 1859 - On Windows, the Film Grain Scans (ScannedGrain) node would crash if the proxy filename had not been set. This parameter has been removed as it was of no practical use anyway. Exposed a control for the minimum size (min. width) at which grain will be applied. This had been internally set to 720. Added an option to flip the grain image horizontally and vertically to effectively quadruple the number of grain samples. Grain is now centered when resize is off, rather than placed at the lower left corner.
- BUG ID 1869 - paint brush settings don't update when changing the stroke selection. This has been fixed.
- Tweaked .exr reader to ignore aspect ratios of 1 on input, and use the client chosen one. This is because older versions of Nuke would always write 1 to this field.
- Returned the "geometric" merge type to Merge2.

- Fixed viewer crash bug when multiple input viewers had their individual controls modified.
- Fixed some missing cache in Primatte.
- Fixed a viewer crash when controls were changed immediately after opening a viewer.
- Fixed a viewer crash when the viewer was closed while tracking a sequence.
- Merge node now supports a different set of output channels from the A and B input channels.
- Various memory leaks found and fixed.
- Curve editor curve list updates when a control panel is closed.
- Paint node keyframes draw/update in timeline properly.
- Fixed node colour getting applied to the node shadow when drawing DAG.
- Viewer handles now follow the handle colour set in the node and fall back on the viewer default handle colour (rather than the node colour which was confusing).
- OFX viewer overlays now pick up the handle colour specified in the node.

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## Known Bugs & Workarounds

Bug ID 1511 - If "FrameCycler this" is run on the viewer we write out the viewer's current input to temp (or use the file path for a Read or Write node) rather than crashing. However, there appear to be some cases where this still crashes on Windows but it is not reliably reproducible. We advise running "FrameCycler this" on the node whose output you want to view, rather than the viewer as a safe way to avoid this until it can be isolated and resolved.

# Release Notes, 4.7v1

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**Version** Nuke 4.7v1

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**Release Date** 19 June 2007

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**Requirements** Supported operating systems

- Mac OS X (10.4).
- Windows XP SP2.
- Linux Fedora Core 4.

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**New Features**

- Support for OFX Plug-ins.
- Updated Primatte Library.
- Updated FrameCycler to 2007 Professional.

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**Improvements** These are the improvements made to existing features in Nuke 4.6.

- Updated Primatte library and documentation.
- Updated FrameCycler to 2007 Professional.
- Improved curve editor functionality allowing for easy scaling, translation and sketching of animation curves.
- Rewritten optical flow engine based on the Foundry's motion estimation technology available as the OFlow node.

- BUG ID 1271 - Auto append .nk extension when saving Nuke scripts with no extension specified.
- BUG ID 1237 - Ctrl-click on Mac is now mapped to right-click to match Mac OS X interface conventions. All keyboard shortcuts previously mapped to ctrl-click now mapped to apple-click. This allows access to right-click menus via ctrl-click on single button mouse or Mac Book.
- BUG ID 1345 - Improved warning messages on FLEXlm licensing dialogs.
- BUG ID 1393 - Preferences now relate to a specific version of Nuke. This file is called preferences4.7.nk. Previously there was only one preference file for all versions of Nuke, called preferences.nk.

Nuke 4.7 searches for the preferences4.7.nk file on startup. If it can't find one it will look for a preferences.nk file and if found, read, convert and write to preferences4.7.nk.

- Variety of user interface improvements for node inputs.
  - Checkmarks and Radio buttons no longer act like Windows 3.1. Instead of previewing their upcoming state, they draw in their own "pushed" state.
  - Building with Intel optimizing compiler for all Intel releases now.
  - Adding aspect ratio to Reader/Writer formats that support it. If aspect is in header file, nuke will read it and apply in viewer.
  - Fixed the help menu to have a direct link to tutorial page. Added another color set preset to the preferences, for a dark ui without the yellow highlighting. Also fixed "standard" to really revert to how it defaults to.
  - BUG ID 1265 - Give the 'knob' command an option, -t, which will make it print out the type of the named knob.
  - And add a -c to the knob command, for a string output type.
  - Toolbars default to on to give new users some context for getting started. Uses Rob Nederhorst's original icons, which work better with different color schemes, but with optional text below them. Options in prefs panel to set size of text, you can set zero to remove the text.
  - TCL commands 'plugins' and 'plugin\_path' now include the OFX plug-in paths as well.
  - A couple of Preferences tweaks:.
1. Obsolete knobs with the same name will prevent old user knobs with that name from appearing.

2. Added a "preset chooser" at the top. All this does is select from any of the plug-ins whose names start with "UI\_" and source that file. But this allows the set of presets to be added to easily.
  - Added velocity vector output to 3D render.
  - Updated to a newer Primatte library with better thread safety. This version also updates the `remove_grain` operation to work in float removing the need for an internal conversion to 16 bit when that is used.
  - Removed the "uv" layer, for back-compatibility scripts that load it will instead get the "forward" layer. This avoids using up more channel slots for separate forward and backward.
  - Frame changes update while the mouse is dragged on the viewer timeline.
  - Each input to the viewer has it's own settings for layer, shuffle, gain, gamma, cliptest, and input process. The widgets normally only change the current one, to change all of them to the new value hold down shift while changing them (note this is the reverse of how the shuffle was done before, but it matches how pause was done).

PageUp/PageDown in the viewer change to the next/previous layer for the current input (or hold down shift to change all inputs).

- Uses `$NUKE_TEMP_DIR` environment variable to set location to write temporary files to. It already uses `NUKE_DISK_CACHE` for the flipbook cache.

Added missing `plugins/user/README` to the distribution.

- Little angle widget to show what angle the angle slider corresponds to.
- Always draws numbers at the first/last tickmarks of slider, and puts them on the other side of tickmark so they don't go off the end.
- `.3dl VectorField` readability improved.
- `.3dl` were written from `GenerateLUT` with only scratch in mind.
- Added compatibility switch to `GenerateLUT`.
- Added switch to normalize x on `Sampler`.

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## Viewer

- Camera selection, homing and locking behavior updated, simplifying the behaviors. 'k' locks and unlocks the selected camera. The camera menu tracks the selected camera when unlocked.
- Don't conform the lens if not locked to a camera.

- Pan/zoom in 3D won't track the 2D pan/zoom unless the view is locked. This makes switching back and forth between 2D and 3D more intuitive.
- The selected color of 3D objects is now light green rather than white so they show up better when selected (like Maya).
- When 3D viewer's camera is locked, the viewer acts like a 2D view, panning and zooming keeping the 2D view matched for comparison between scene and Render node output.

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### Curve Editor

- Undo/Redo bug fixes.
- OpenGL drawing with antialiased curves and points.
- Frame to selection and frame all keyframes.
- Ability to freehand sketch a curve.
- Ability to select one curve. It turns yellow and others dim a little bit.
- If there's a selected curve, Ctrl+A selects all key frames on that curve. Otherwise, it selects on all curves.
- Clicking on key frame handles to adjust tangents.
- Scrolling view (it only works when dragging the current frame).
- Scaling selected keyframes.
- Draws a box around 2 or more selected points. Shows a crosshair in the middle. Click right on the center to move in both axis. Click on the right-hand side of the crosshair to translate on X. Click on the upper side of the crosshair to translate on Y.
- Scaling selected points by clicking and dragging corner points of selection area. Same strong-snap behaviour to the axis with the most motion. Hold down CTRL key to scale in both axis.

Care is taken to prevent negative scaling to would make points swap directions. Also, scaling selected points do not cross non-selected points that might be in the selection area.

### Transform Jack

The transform jack behaves like the one in the Viewer. That is, click on the end points of the crosshair to scale on X, or Y with respect to the center of the jack.

- Click and drag on the center of the crosshair to translate. Hold CTRL down to move in both axis.
- Click and drag on a corner point to scale with respect to the opposite corner, e.g. dragging lower-left corner will scale keeping upper-right 'locked'.
- Added scaling handles at the mid-points on the selection box. Like the corner points, these scale with respect to the opposite edge.
- Corner points - scale with respect to the opposite corner. Hold down the SHIFT key to constraint to axis with the most movement.
- Middle edge points - scale with respect to the opposite edge. Hold down the SHIFT key to constraint to axis with the most movement.
- Center of crosshair - translate all selected points. Hold down the SHIFT key to constraint to axis with the most movement.
- End points of crosshair - scale with respect to the center, either horizontally or vertically. Movement is always constrained to one axis.

### Mouse and Keyboard combinations

#### Curve manipulation

- left click = select
- left click + drag = selects point and moves it while dragging. Movement is constrained to one axis. Hold down ctrl to move in both axis.
- left + drag = select area
- left + (shift or ctrl) + drag = Adds to selection if at least one keyframe inside the drag area is not selected. Removes from selection otherwise
- left click + ctrl + alt = insert keyframe
- left + ctrl + alt + shift + drag = sketch curve inserting keyframes while dragging

#### View manipulation

- left + alt + drag = pan
- middle + alt + drag = zoom in both axis without keeping the aspect ratio
- middle click = frame all keyframes
- middle + drag = zoom area

- wheel up/down = zoom in/out
- + = zoom in
- - = zoom out
- f = frame selected keyframes if any. otherwise it frames all keyframes in selected curve, if any, or in all curves.
- a = frame all keyframes

Added widget at the bottom of the curve editor to quickly edit the expression of the currently selected animation.

- Enables and disables automatically.
- Detects errors in expression.
- Evaluates expression at current frame.
- Revert button sets the expression widget to the last valid expression set on the animation.
- Plays nicely with focus/unfocus and undo/redo.
- Curve editor now does "frame all" when initially opened.

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## FrameCycler

New FrameCycler 2007 for Nuke builds from Iridas.

- Linux builds are only supported on the specific platform they are built for.
- We don't recommend using FrameCycler on any 64 bit build due to the various driver and lib issues (under linux LibQuicktime won't work, ALSA is almost impossible to integrate...)
- The user interface is slightly simplified, we've thrown out the buttons or ReviewLink, Versions and some more.
- The render can only be activated from the gui.
- Linux packages contain FrameCycler versions for both Fedora Core 4 and CentOS 4.4. By default the FC4 version is used (in the Nuke distribution under the directory FrameCycler). If you are on CentOS 4.4 set your fc path to the FrameCyclerCentOS4.4 directory instead.
- Framacycler docs now available from main docs page.

## Bug Fixes

These are the fixed bugs since Nuke 4.6.

- BUG ID 1191 - Quicktime read to Quicktime write, writing single frame output has been fixed.
- BUG ID 1263 - Fixed add\_favorite\_dir TCL function to differentiate between script image and font options.
- BUG ID 1269 - Deleting input node would make Nuke hang. This has been fixed.
- BUG ID 1270 - Browser returning zero on cancel has been fixed.
- BUG ID 1275 - Linking knobs within the same node no longer causes a crash.
- BUG ID 1279 - SimpleDegrain node added back into Nuke.
- BUG ID 1280 - Fixed crash when writing proxies when no file name specified.
- BUG ID 1282 - Fixed crash in ScannedGrain node on Mac and Linux.
- BUG ID 1286 - Write node now observes knob\_default. Also, allow knob\_default command to specify multiple values, the first of which will be used. This means several different compression types etc. can be specified in order of preference.
- BUG ID 1290 - Fixed quicktime error -50, when reading Quicktimes on PPC Mac.
- BUG ID 1292 - Fixed Merge node connect to A or B preference. Removed its impact on keyer nodes (keyers should connect to A by default)
- BUG ID 1294 - Fixed GridWarp bounding box crop distortion.
- BUG ID 1300 - Reinstated ColorSpace node YUV conversions named as YPbPr YCbCr. YPbPr produces P channels centered around 0. YCbCr produces formatting used for most compression schemes, based on the HDTV standard. This is dependent on primaries and white point so direct conversion according to this standard is obtained through sRGB and D65 modes.
- BUG ID 1306 - Issue with the Append node writing out single frames has been fixed.
- BUG ID 1324 - Fixed bug with high frame numbers and animation keys not appearing on the user interface timeline.
- BUG ID 1325 - Fixed Paint node sampling incorrect colours.
- BUG ID 1334 - Fixed disconnected CylinderObj.gizmo pipes.

- BUG ID 1335 - Fixed a bug so that ASCII import now grabs columns in the order they are listed on the curved editor list.
  - BUG ID 1337 - Fixed "validate not called" halt when rendering.
  - BUG ID 1355 - TIFF write not observing colorspace parameter has been fixed.
  - BUG ID 1359 - Expressions in first and last frame of a Read node did not work. This has been fixed.
  - BUG ID 1375 - Missing MSVC files for FrameCycler fixed.
  - BUG ID 1416 - Intermittent Tracker node crash has been fixed.
  - BUG ID 1453 - Primatte sliders not unlocking when required has been fixed.
  - Setting a boolean or enumeration knob to a constant value with tcl did not get rid of the animation. Bitmask knob (not currently used) also fixed to have animation support, though there is no gui to set it.
  - Default number of threads is equal to the number of cpus if it is 8 or greater. This appears to be the fastest option on newer machines.
  - The tracker was not displaying the progress meter.
  - Renderer reported the wrong output channel set.
  - BUG ID 1327 - Fix bug in Linear::to\_short. TIF & SGI Write : 16-bit incorrectly writes out alpha (8, 32 are OK).
  - Fix for a crash in undo.
  - Previous version was going into a continuous loop of redraws during playback resulting in some strange behavior and lots of wasted time.
  - BUG ID 1274 - Fix problem with invalid memory accesses where simple and upwind gradient are called with width=1. in this case, it was still trying to output the left-hand pixel (then no pixels in the middle) and the right-hand pixel, which was clobbering memory and causing random crashes in the tracker.
  - Fixed bad transformation matrix for Quartz image transforms.
  - BUG ID 1293 - Fixed a couple of crashing bugs in the bezier editor. These were.
1. Animations weren't getting remove from the editor on destruction (visible by recreating an animation after having just deleted it)

2. Setting keyframes when there were no points crashed these were found while investigating 1293
  - Put cache file in /var/tmp (or equivalent on windows), not in ~/.nuke
  - BUG ID 1409 - Add .nk to the filename when saving if no extension is specified.
  - Changes so if you set the background color to dark, you don't get glaring white edges on the widgets.
  - Postage stamps did not draw on startup, instead appearing the first time the DAG was redrawn.
  - Primatte and Shuffle were not triggering new undo states when you changed things on them.
  - BUG ID 1458 - Animation editor was hanging around after being destroyed, using memory and causing crashes.
  - Previous versions gave all user knobs that had no name a name of "knob", this allowed links to be made to these knobs in gizmos and those gizmos do not load into new versions. Restored this default name of "knob" for buttons, which is what the sample gizmo wanted, and also changed the user knob editing panel so you can change the name of a button.
  - When installing Nuke under sudo ensure that the Desktop link has the user and the group id of the invoking user.
  - BUG ID 1425 - Made both the Windows (META) and the Alt key work the same in the curve editor, like it already does in the rest of Nuke. Necessary if your system eats one or the other of these keys.
  - BUG ID 1457 - New code acted differently if knobs() passed null for the name. It was searching for the next knob with a null name, while old one just took the next knob and ignored the name. This broke bezier. I restored the old behavior, but also fixed Bezier to work with the new one.
  - Viewer did not update immediately when the channel shuffle control was changed.
  - Channel selector in viewer was not always returning to the correct setting as you switched inputs.
  - Replaced "bullseye" drawing with a monochrome image to work better in dark colors.
  - BUG ID 1426 - Curve editor reverse will now toggle.

- Changing the node inputs no longer causes the control panels to be destroyed and rebuilt (this was causing the cursor to move or disappear, and the curve editors to blink).
- BUG ID 1290 - QuickTime Read -50 bug on Mac OS X PPC
- BUG ID 1483 - Have the curve tool shove non-colour information into the colour channels of the intensitydata knob rather than crash.
- BUG ID 1319 - QuickTime image incorrectly shows scattered white pixels in dark areas.
- BUG ID 1417 - If the "transfer" field is set to zero, which is supposed to mean "user defined" it defaults to doing Cineon conversion. Previous versions defaulted to sRGB and even earlier it defaulted to Linear.
- BUG ID 1303 - QuickTime rendering: option to ignore source plate pixel aspect ratio.
- BUG ID 1492 - Opening a new script whilst the viewer is playing through on the current one pops up a box detailing the frame that the viewer is playing.

Autolabel was leaving strings in the tcl result buffer, causing any command that was running that did not set a result to appear to return some random string. Visible also when you create a Truelight node.

Also found another string left in tcl result buffer that leaked out. This appeared if the GeoRead node was created and then connected to a new viewer.

- BUG ID 1507 - Crash in geowriter when viewer not open.
- BUG ID 1520 - Update keyframes on the frame slider when curve editor altered the curve.
- Made textured+lines display of 3D objects work when there is no texture. Before it drew the solid and lines the same color so the lines were not visible.
- BUG ID 1472 - WriteGeo node doesn't seem to be writing full geo info. Vertex numbers don't restart within each group, so remember an offset for each group and use this as the origin within it.
- BUG ID 1462 - New layer panel is prefilled with red, green, blue, alpha channel names.
- Introduces GLEW to better manage OpenGL calls and OpenGL extensions. (See also BUG ID 1348)
- BUG ID 1293 - Bezier autokey re-enabling itself and also creating keyframe at frame 0.

- Multiple monitors on Mac OS X save and restore layouts properly now and behave same as linux/windows.
- Bug fix. First and last keyframes in HUE editor should synchronize y values, right and left slopes so that curve wraps around.
- BUG ID 1501 - The terminal is too verbose with quicktime files.
- Bug ID 1511 - If "FrameCycler this" is run on the viewer we write out the viewer's current input to temp (or use the file path for a Read or Write node) rather than crashing.
- Bug ID 1517 - Problems reading TIFF files on Mac OS X PPC fixed (bad endian-ness).
- Mac OS X text fields now correctly use command-cxv rather than ctrl.
- Bug ID 1224 - Warning: Error "Two knobs named "mask" in Emboss fixed.
- Bug ID 1587 - Settings | Root option now has a browse button.
- If viewer camera is locked, viewer now stays with it as the frame or camera's position is changed.
- Mac OS X panels and viewer no longer vanish when Nuke loses focus.
- Write node now deletes old knobs when format is changed.
- Some cleanup of control panel layout so that the initial size is correct, without unnecessary scrollbars or mysterious empty areas at the bottom.
- Bad drawing when viewer first opened on Mac OS X PPC fixed.
- Render node's XYZ and normal outputs were multiplied by w, they are now the values computed by the renderer.
- Render node's motion vector output is now generated even when antialiasing is on. Turning on multisampling is still a problem as there is not a clear answer for what should be output in this case.
- Bezier: manipulating transform handle undoes previous point move. This has been fixed.
- Licensing checks on Windows correctly locate system drive and program files folder in international Windows install.

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## Bugs found in Nuke4.7v1b1 and fixed

These are the bugs reported in Nuke4.7v1b1 that have been fixed in Nuke4.7v1b4.

- Running with -x or -t no longer tries to open X display.
- Primatte menu item now works.
- Fixed Primatte bad output/crashing when using RT or RT+ mode.
- Fixed Mac OS X color chips in preferences not setting correctly.
- Changing format on input nodes sometimes didn't set correctly. This has been fixed.
- Bug ID 1608 - Tracker position resetting in beta1 has been fixed.
- Bug ID 1626 - Grid warp and spline warp not showing keys on timeline in beta1. This has been fixed.
- Fixed primatte picking from background when both bg and fg connected in beta1.
- Autosave location had been changed to temp dir, put back to same location as current file.

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## Known Bugs & Workarounds

- Bug ID 1511 - If "FrameCycler this" is run on the viewer we write out the viewer's current input to temp (or use the file path for a Read or Write node) rather than crashing. However, there appear to be some cases where this still crashes on Windows but it is not reliably reproducible. We advise running "FrameCycler this" on the node whose output you want to view, rather than the viewer as a safe way to avoid this until it can be isolated and resolved.

# Developer Notes

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## Changes

Here are the changes relevant to developers.

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Implement get and set for RGBA knobs.  
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Major changes so that calculating the hash is done separately from `Knob::store()`. Also implemented a Hash object, and changed the hash to 64 bits. Also located a bug: Nuke was assuming that two uninitialized variables were always not equal to each other! This could be the source of some of the validate-not-called errors or other random non-reproducible bugs. The default constructor for Hash sets it to a different value each time so all hashes are unequal, thus fixing this bug.

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Separated the progress code from the execute code, made it so that any plug-in can show the progress indicator, and the progress indicator goes away when it is done calculating. It is thread safe and multiple-operator safe. Any operator from any thread can call this, as another timer interrupt in the main thread actually watches the data and updates the gui. Hitting cancel when the progress display is updating the viewer causes it to turn on the pause on the viewer. Made a cancel menu item with Escape as the shortcut.

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Fixes to base Symbol object so it is easier to use images as box types. The insets are fields that can be set, rather than a virtual function. The focusbox style is removed, instead Symbol has a virtual function to draw the overlay image.

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Removed references to focusbox and obsolete fltk functions.  
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Added 2 new methods to Op and Knob.

1. `autoscale()` : returns a reference to the new Autoscale object. This contains the transformation from full size to the current proxy size.

2. `input_format()` : returns a reference to the `full_size_format()` of the input (or to the Nuke root format if the input is not an `lop`).

These replace a lot of code that retrieved the same information in various ways. The `to_proxy_x()` and similar functions are all changed to call this. Also added `input_pixel_aspect()` and `proxy_pixel_aspect()` methods as these were pretty common sequences and hard to get right.

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Export specialized versions of the `fetchProperty()` function for all of the 4 types.

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Removed `Knob::next_key` and similar functions, replaced them with new `Knob::getNumKeys`, `Knob::getKeyIndex`, and `Knob::getKeyTime`, to match the api OFX needs. Also added `Knob::integrate` and `Knob::derivative` but these are not yet implemented.

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Added new `progressXYZ()` methods to `Op`.

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Add `getFaveType()`.

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New Thread api that matches how OpenFX uses threads. This also reuses threads a lot more and in general is a lot more convenient.

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Added method so a thread can find out all the arguments passed to `spawn()`, as well as its index number.

Added api to create groups in the control panels. The `BeginGroup` and `EndGroup knobs()` calls now create some non-functional widgets. Checking this in as it appears to work and is harmless as long as they are not used. The obsolete `CCorrect` plug-ins is modified to call them for testing.

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Changed `RenderWindow` arguments to be integers to match OpenFX api.

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`get_key_list` signature changed for `ShapeKnob`

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Renamed `Op::frame(n)` to `Op::gotoFrame(n)` to make it easier to find, and added a boolean argument to indicate that the viewer should be updated.

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Changed Nuke version number to Foundry style of Nuke 4.7v1a1.

The floating point version number is now:

if an internal pre-release:

```
major+.1*minor+.01*(release-1)+.0001*internal
```

if not an internal release:

```
major+.1*minor+.01*release
```

This makes sure they always increase.

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Unsupported 3D System improvements.

- Added vertex\_shader to Project3D.
  - Updated lighting methods.
  - The light list in the context wasn't updating properly because it wasn't being cleared.
  - Viewer automatically enables lighting if the scene has lights present.
  - Updated the lighting knob tooltip to reflect the new behavior.
  - Reset some lighting parameters that would get changed by custom lights and left that way causing anomalous draw states.
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Added Op::firstOp() method to return the first Op that belonged to the same Node. This is the one the initial knobs() was called on.

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Added callback for Op::firstOp()

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Op::firstOp() and Op::node() are correct during the constructor for Op subclasses. Also removed a similar but unused clone() method (it produced a ring of all matching ops but no indication which one was first).

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In Format::find(w,h,pa) pa==0 now means "don't care" while other pixel aspects are matched.

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If an op's name ends with a number, the auto-generated name is ClassN\_M instead of replacing the number. Ops that don't want the automatic name to look like this should define `displayName()` to be a string without the trailing number.