APPENDIX A: RELEASE NOTES

This section describes the requirements, new features, improvements, fixed bugs, and known bugs and workarounds for each release of Ocula.

Ocula 2.2v3

This release fixes one bug in O_ColourMatcher.

Release Date

December 2011

Requirements

- a version of Nuke 6.2 or 6.3 on
    - Windows XP 64-bit or Windows 7 64-bit
    - Mac OS X 10.5 "Leopard" or 10.6 "Snow Leopard", 32-bit (Nuke 6.2 only) or 64-bit
    - Linux CentOS 4.5 64-bit
- Foundry FLEXlm Tools (FFT 5.0v1 or later) for floating licenses.

New Features

There are no new features in this release.

Improvements

There are no improvements to existing features in this release.

Fixed Bugs

BUG ID 22923 – O_ColourMatcher: **Halo Correct** caused the result to be slightly different depending on how many threads were used and whether the render was from the GUI or command line.

Known Bugs and Workarounds

There are no known bugs in this release.

Ocula 2.2v2

This release adds support for Nuke 6.3 and fixes four bugs.

Release Date

July 2011

Requirements

- a version of Nuke 6.2 or 6.3 on
    - Windows XP 64-bit or Windows 7 64-bit
    - Mac OS X 10.5 "Leopard" or 10.6 "Snow Leopard", 32-bit (Nuke 6.2 only) or 64-bit
    - Linux CentOS 4.5 64-bit
- Foundry FLEXlm Tools (FFT 5.0v1 or later) for floating licenses.

New Features

There are no new features in this release.

Improvements

There are no improvements to existing features in this release.

Fixed Bugs

- BUG ID 14883 – O_ColourMatcher crashed Nuke when **halo correct** and **mask alpha** were used together.
- BUG ID 17707 – O_ColourMatcher didn't work correctly when there were more than two views.
- BUG ID 19219 – Using a mask input with O_InteraxialShifter or O_NewView crashed Nuke.
- BUG ID 19223 – Attempting to set **Vector Spacing** to zero in DisparityViewer crashed Nuke.

Known Bugs and Workarounds

There are no known bugs in this release.

Ocula 2.2v1

This release contains improvements to O_Solver and O_VerticalAligner.

Release Date

February 2011

Requirements

- a version of Nuke 6.1 or 6.2 on
  - Windows XP SP2, XP64, or (Nuke 6.2 only) Windows 7
  - Mac OS X 10.5 "Leopard" or 10.6 "Snow Leopard", 32- or 64-bit
  - Linux CentOS 4.5, 32-bit (Nuke 6.1 only) or 64-bit
- Foundry FLEXlm Tools (FFT 5.0v1 or later) for floating licenses.

New Features

There are no new features in this release.

Improvements

- **O_Solver**
  - The **Analysis Type** control that let you choose whether to **Analyse Every Frame** or **Interpolate Keyframes** has been removed. Now, O_Solver always interpolates between keyframes and you need to add at least one keyframe in order to use it.
  - Feature detection has been changed so that once O_Solver has automatically detected feature matches, they are fixed and do not update in response to changes in the node tree. You can edit them manually, however, or click the new **Re-analyse Frame** button to force O_Solver to recalculate the current frame. As before, the automatically detected feature matches are also updated if you adjust any O_Solver controls that affect the analysis.
  - The feature match display has been changed so that the features are shown in different colours for the different views: red for the left view, and green for the right view.
- **O_VerticalAligner**
  - The following new filtering options have been added for all **Alignment Methods** other than **Vertical Skew**: Impulse, Cubic, Keys, Simon, Rifman, Mitchell, Parzen, and Notch.
  - In addition to the **Transform Matrix**, the **Output** tab now includes a **Four Corner Pin** section. This represents the 2D corner pin that can be applied to the input image to create the same result as O_VerticalAligner.
  - After clicking **Analyse Sequence**, you can now click **Create Corner Pin** to create a Nuke CornerPin2D node that creates the same result as O_VerticalAligner. You can use multiple O_VerticalAligner nodes to

produce the desired alignment, and then analyse on the final node to create a single corner pin that represents the concatenated transform. This works in all alignment methods except **Vertical Skew** (the default).

Fixed Bugs

- BUG ID 13725 - O_Solver node reset feature matching when anything changes upstream.

  The workflow for O_Solver has changed. Feature matching and analysis is now performed when keyframes are added. The feature matches are then fixed unless keyframes are deleted and re-inserted or **Re-analyse Frame** is used.
- BUG ID 15308 - Deleted feature matches reappeared when new ones were added.

Known Bugs and Workarounds

There are no known bugs in this release.

Ocula 2.1v2

This release fixes a bug that only affected Ocula on Nuke 6.1. There are no other changes, so if you are running Ocula on Nuke 6.0 you should keep using Ocula 2.1v1.

Release Date

November 2010

Requirements

- a version of Nuke 6.1 on
    - Windows XP SP2, XP64
    - Mac OS X 10.5 "Leopard" and 10.6 "Snow Leopard" (32- or 64-bit)
    - Linux CentOS 4.5 (32- and 64-bit)
- Foundry FLEXlm Tools (FFT 5.0v1 or later) for floating licenses.

New Features

There are no new features in this release.

Improvements

There are no improvements to existing features in this release.

Fixed Bugs

BUG ID 14534 - O_VerticalAligner crashed Nuke when trying to analyse a sequence. This bug was introduced by an NDK change in Nuke 6.1 and only affected Nuke 6.1v1 and above. The bug has now been fixed.

Known Bugs and Workarounds

There are no known bugs in this release.

Ocula 2.1v1

This is a major new release of Ocula with one new plug-in and many improvements and bug fixes.

Release Date

October 2010

Requirements

- Nuke 6.0v7 or a version of Nuke 6.1 on
    - Windows XP SP2, XP64
    - Mac OS X 10.5 "Leopard" and 10.6 "Snow Leopard" (32- or 64-bit)
    - Linux CentOS 4.5 (32- and 64-bit)
- Foundry FLEXlm Tools (FFT 5.0v1 or later) for floating licenses.

New Features

- There is a new O_DisparityViewer plug-in, which lets you visualise the disparity vectors in your node tree. You can add it after any node in the Node Graph. As long as there is a disparity channel at that point in the tree, O_DisparityViewer produces a Viewer overlay with arrows showing the disparity vectors at regular intervals. For more information, see "DisparityViewer" on page 73.
- Ocula now has a Mac OS X 64-bit version.

Improvements

- O_Solver
    - You can now add your own feature matches to the automatically detected ones by right-clicking on the image and selecting **add feature**. This allows you to get a good solve when there aren't many good automatically detected matches. For more information, see "Solver" on page 9 and "Visualising and Editing the Results" on page 13.
    - There is a new **Luminance Correct** control, under **Features**. This matches the luminance between the two views before searching for feature matches. Where there are large differences in in luminance between the two views, this can increase the number and quality of feature matches found.
- O_DisparityGenerator
    - You can now sample over multiple disparity field detail levels (different resolutions of the images). This can help to reduce errors in the calculated disparity field. There are controls for the number of samples (**Number of Samples**), the minimum disparity field detail

to go down to (**Minimum Detail Level**), and the sample spacing (**Sample Spacing**).

- There is a new **Image Alignment** menu with the following options:

  Rectification - This is the default alignment method. The two images are resampled so that all matching pixels are on the same horizontal scanline in the second image as they are in the first.

  Vertical Alignment - The two images are aligned along the y axis using a skew, but not moved along the x axis.

  None - If the disparity between your stereo views is horizontal only (corresponding pixels lie on the same scanline in both images), you can select this option for faster processing. This is the same as **Horizontal Shift Only** in previous versions of Ocula.
- The **Occlusions** menu has been renamed **Disparity Method**. A third method, **Unconstrained Motion**, has been added to the menu. This calculates the disparity using unconstrained local motion estimation.
- There is a new **Median Filter Size** control. Increasing this value should reduce the noise on the disparity field. This control is only available when **Disparity Method** has been set to **Normal Occlusions**.

For more information on the new controls, see "Controls" on page 25.

- O_ColourMatcher
  - There is a new **Pre-blur Disparity** control, which allows you to blur the incoming disparity map before using it. If the disparity map is imperfect, this can help to reduce artefacts in the colour correction.
  - In the Block-based Matching Mode, you can now calculate the colour correction for multiple block sizes and then blend the results together. This can help to reduce errors and make the results more temporally consistent. There are controls for the number of samples (**Number of Samples**), the maximum block size to go up to (**Max Block Size**), the sample spacing (**Sample Spacing**), and the method of combining the samples (**Colour Correction Type**).
  - There is a new control, **Halo Correct**, aimed at reducing the halo effect you can get around high-contrast edges in the Block-based Matching mode. Note that where occlusions occur this correction can introduce artefacts around edges. Another new control, **Occlusion Compensate**, is designed to correct these and probably needs to be tuned to your particular footage.

  For more information on the new controls, see "Controls" on page 45.
- O_VerticalAligner

- If you have a pretracked Nuke stereo camera that describes the camera setup used to shoot the **Source** images, you can now use O_VerticalAligner to analyse the sequence and output a vertically aligned camera pair. This allows you to continue using pretracked cameras once your footage has been vertically aligned. This works in all vertical alignment modes except **Vertical Skew** (which can't be represented by a camera transform).

  Once O_VerticalAligner has analysed the sequence, you can see the analysis data in a **Transform Matrix** on the **Output** tab of the node controls. This represents a 2D corner pin that can be applied to the input image to create the same result as O_VerticalAligner. If necessary, you can take the matrix to a third-party application, such as Baselight, and align the image or camera there. There is one matrix for each view in the source.

Fixed Bugs

- BUG ID 9188 - O_ColourMatcher: In block-based matching mode, colour fringing sometimes occurred where there were high-contrast regions in the input images. You can now reduce this by using **Halo Correct**, **Occlusion Compensate**, and the sampling controls.
- BUG ID 12485 - On Mac OS X 10.6 (Snow Leopard), matching versions of Ocula for different versions of Nuke were being identified as the same package and overwrote one another.

  This has always been the case for Ocula 2 (so the bug affects matching 5.1, 5.2 and 6.0 Ocula installs as well) but was only a problem when the plug-ins were installed on Mac OS X 10.6 (Snow Leopard).

Known Bugs and Workarounds

- BUG ID 2349 - Add a standard plug-in path for Nuke plug-ins.

  Nuke 6.1 and later versions pick up the Ocula plug-ins automatically. If you're using Ocula 2.1 on Nuke 6.0, however, you need to set your NUKE_PATH environment variable to:

  On Windows:
  - C:\Program Files\Common Files\Nuke\6.0\plugins\Ocula\2.0
  - C:\Program Files (x86)\Common Files\Nuke\6.0\plugins\Ocula\2.0 (only if you're using 32-bit Ocula on 64-bit Windows)

  On Mac OS X:
  - /Library/Application Support/Nuke/6.0/plugins-32/Ocula/2.1

  On Linux:
  - /usr/local/Nuke/6.0/plugins-32/Ocula/2.1 (if you're using 32-bit Ocula)

- /usr/local/Nuke/6.0/plugins/Ocula/2.1 (if you're using 64-bit Ocula)

Ocula 2.0v2

This is a maintenance release of Ocula.

Release Date

April 2010

Requirements

- Nuke 5.2v2 or higher on
  - Windows XP SP2, XP64
  - Mac OS X 10.5 "Leopard" and 10.6 "Snow Leopard" (32-bit and x86 only)
  - Linux CentOS 4.5 (32- and 64-bit)
- Foundry FLEXlm Tools (FFT 5.0v1 or later) for floating licenses.

New Features

There are no new features in this release.

Improvements

There are no improvements to existing features in this release.

Fixed Bugs

- BUG ID 8222 - Ocula didn't obey requests to force the use of interactive licenses in render mode, that is, when Nuke is run with "-xi".
- BUG ID 9122 - Disparity channel was corrupt showing vertical striping.
- BUG ID 9165 - Disparity maps could look different on Windows XP compared to other platforms.
- BUG ID 9170 - Disparity channel was corrupt on the first frame.
- BUG ID 9960 - Ocula licenses (ocula_nuke_i) were not returned until the Nuke session was closed.
- BUG ID 10230 - O_Solver was very unstable.
- BUG ID 10565 - There was an intermittently inconsistent result from O_Solver, related to viewer framing.

Known Bugs and Workarounds

- BUG ID 2349 - Add a standard plug-in path for Nuke plug-ins.

  Later releases of Nuke will pick up the Ocula plug-ins automatically. In the meantime, you will need to set your NUKE_PATH environment variable to (replace x.x with the version of Nuke you're using, for example 5.2 or 6.0):
  - On Windows: C:\Program Files\Common Files\Nuke\x.x\plugins\Ocula\2.0

    - On Mac OS X: /Library/Application Support/Nuke/x.x/plugins/Ocula/2.0
    - On Linux: /usr/local/Nuke/x.x/plugins/Ocula/2.0
- BUG ID 9188 - O_ColourMatcher: In block-based matching mode, colour fringing can occur where there are high-contrast regions in the input images.

Ocula 2.0v1

This is a major new release of Ocula with many new features, improvements, and bug fixes.

Release Date

8 October 2009

Requirements

- Nuke 5.1v3 or higher on
    - Windows XP SP2, XP64
    - Mac OS X 10.5 "Leopard" (32-bit and x86 only)
    - Linux CentOS 4.5 (32- and 64-bit)
- Foundry FLEXlm Tools (FFT 5.0v1 or later) for floating licenses.

New Features

Ocula 2.0 includes three new plug-ins:

- O_Solver – Some of the functionality from O_DisparityGenerator has been separated out into this plug-in, to allow a more flexible workflow. O_Solver determines the geometrical relationship between a stereo pair of views by detecting feature matches. If you have more than one sequence that were filmed with the same camera rig, it is only necessary to do this calculation on one of them; the same O_Solver can then be reused for the other sequences. It also offers the following advantages over the old DisparityGenerator:
    - An **Ignore** input so you can tell it which regions to ignore when detecting features.
    - The ability to calculate the camera relationship over a temporal window, for greater robustness.
    - The ability to calculate the camera relationship at intervals and interpolate smoothly between them for better temporal stability.
    - A **Camera** input, allowing you to use pre-tracked cameras.
    - Interactive editing of feature matches in the viewport.
    - The features and camera relationship are stored as metadata, so they can be saved and reused further downstream.
- O_DepthToDisparity – a new plug-in to generate a disparity field from a stereo pair of depth maps plus a stereo camera set-up. This is intended for use with CG scenes.
- O_DisparityToDepth – a new plug-in to generate depth maps from a disparity field, given the stereo camera set-up.

There are also improvements to some of the existing plug-ins:

- O_DisparityGenerator:

    - New, improved disparity generation algorithm.
    - A **Solver** input to allow the camera solve from another sequence shot with the same rig to be reused.
    - A foreground (**Fg**) input to delineate foreground regions from background. This helps to ensure that disparities are constrained to remain within each delineated region.
- O_InteraxialShifter:
    - A foreground (**Fg**) input to delineate foreground regions from background. This helps to ensure that disparities are constrained to remain within each delineated region.
- O_NewView:
    - A foreground (**Fg**) input to delineate foreground regions from background. This helps to ensure that disparities are constrained to remain within each delineated region.
- O_VerticalAligner:
    - A **Solver** input to allow feature matches to be reused.
    - Support for transform concatenation for multiple O_VerticalAligner nodes (except when **Alignment Method** is set to **Vertical Skew**).
    - Four new alignment methods: **Scale**, **Simple Shift**, **Scale Rotate**, and **Camera Rotation**.
- O_ColourMatcher (formerly O_ColourMatch):
    - A **Mask** input to allow you to specify a region of interest for the colour transform.
    - A new, block-based matching mode for dealing with local colour differences.

Note that O_InterocularShifter has been renamed to O_InteraxialShifter to remove ambiguity.

Improvements

Ocula 2.0 has been redesigned to allow a more flexible workflow. For details of the improvements to individual plug-ins, see the "New Features" section above. It also features a completely new disparity generation algorithm for greater accuracy and speed.

Bug Fixes

BUG ID 7387 - O_ColourMatch: super black material (negative) was wrapped / clipped back from 1.0.

Known Bugs and Workarounds

- BUG ID 2349 - Add a standard plug-in path for Nuke plug-ins.

Later releases of Nuke will pick up the Ocula plug-ins automatically. In the meantime, you will need to set your NUKE_PATH environment variable to (replace 5.x with 5.1 or 5.2 according to the version of Nuke you're using):

- On Windows: C:\Program Files\Common Files\Nuke\5.x\plugins\Ocula\2.0
- On Mac OS X: /Library/Application Support/Nuke/5.x/plugins/Ocula/2.0
- On Linux: /usr/local/Nuke/5.x/plugins/Ocula/2.0

- BUG ID 8222 (Ocula) and BUG ID 8229 (Nuke) - Ocula doesn't obey requests to force the use of interactive licenses in render mode, i.e., when Nuke is run with "-xi". Instead, it will always request a render license in this mode. This is because Ocula 2.0 uses the Nuke NDK and there is currently no way for NDK plug-ins to tell the difference between this and the normal render mode. When a mechanism is provided in a later Nuke release, we will update the Ocula licensing to fix the problem.

Ocula 1.0v2

This is a maintenance release of Ocula.

Release Date

November 2008

Requirements

1. Nuke 5.1 on Windows, Mac OS X, or Linux.
2. Foundry FLEXlm Tools (FFT 4.0v1 or later) for floating licenses.

New Features

There are no new features in this release.

Improvements

There are no improvements in this release.

Bug Fixes

Fixed instability in plug-ins caused by OS incompatibility with FLEXlm 10.8 licensing module. Upgraded FLEXlm to 10.8.6 for improved Mac OS X 10.5 (Leopard) compatibility, and to 10.8.7 for improved 64-bit Linux compatibility.

Known Bugs and Workarounds

- BUG ID 5482 - Progress bar does not indicate what is being processed further up a tree when "Correlate using disparity" or "Correlate with Ocula" options are used. This will be fixed in a subsequent Nuke release.
- BUG ID 5904 - There is no progress bar when "Correlate with Ocula" option is used. This will be fixed in a subsequent Nuke release.
- BUG ID 5979 - Running out of memory with complicated stereo scripts on 32-bit Windows. This will be fixed in a subsequent Nuke release.
- BUG ID 6075- Slow processing when "Correlate with Ocula" option is used if source image is an EXR. This will be fixed in a subsequent Nuke release.
- BUG ID 6428 - ReConverge node: "Use Ocula if available" option causes a crash when reloading a script. This will be fixed in Nuke 5.1v3.

Ocula 1.0v1

This is the first release of Ocula 1.0 for Nuke.

Release Date

October 2008

Requirements

1. Nuke 5.1 on Windows, Mac OS X, or Linux.
2. Foundry FLEXlm Tools (FFT 4.0v1 or later) for floating licenses.

New Features

In this release, there are five plug-ins and a collection of tools that add extra functionality to existing Nuke features.

Improvements

This section will describe improvements to existing features in later versions.

Bug Fixes

This section will describe fixed bugs in later versions.

Known Bugs and Workarounds

- BUG ID 5482 - Progress bar does not indicate what is being processed further up a tree when "Correlate using disparity" or "Correlate with Ocula" options are used. This will be fixed in a subsequent Nuke release.
- BUG ID 5904 - There is no progress bar when "Correlate with Ocula" option is used. This will be fixed in a subsequent Nuke release.
- BUG ID 5979 - Running out of memory with complicated stereo scripts on 32-bit Windows. This will be fixed in a subsequent Nuke release.
- BUG ID 6075- Slow processing when "Correlate with Ocula" option is used if source image is an EXR. This will be fixed in a subsequent Nuke release.
- BUG ID 6428 - ReConverge node: "Use Ocula if available" option causes a crash when reloading a script. This will be fixed in Nuke 5.1v3.