

# Release Notes for CaraVR 1.0v2

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## Release Date

September 2016

## Minimum System Requirements

- A version of Nuke 9.0v9, or above, or Nuke 10.0v4, or above on:
  - Mac OS X 10.9 (Mavericks) or 10.10 (Yosemite)
  - Windows 7 or Windows 8 (64-bit only)
  - CentOS/RHEL 5 or CentOS/RHEL 6 (64-bit only)
- Foundry Licensing Tools (FLT 7.0v2 or later) for floating licenses.

## Requirements for GPU Acceleration

To take advantage of GPU acceleration, you must have, either:

- An NVIDIA GPU with compute capability 2.0 (Fermi) or above. A list of the compute capabilities of NVIDIA GPUs is available at [www.nvidia.co.uk/object/cuda\\_gpus\\_uk.html](http://www.nvidia.co.uk/object/cuda_gpus_uk.html)



**NOTE:** The compute capability is a property of the GPU hardware and can't be altered by a software update.

With graphics drivers capable of running CUDA 4.2 or above.

- On Windows and Linux, CUDA graphics drivers are bundled with the regular drivers for your NVIDIA GPU. Drivers from April 2012 onward support CUDA 4.2.  
Go to <http://www.nvidia.com/Download/Find.aspx?lang=en-us> for more information.
- On Mac, the CUDA driver is separate from the NVIDIA graphics driver and must be installed, if you don't have it already. The minimum requirement for CUDA 4.2 is driver version 4.2.5 which can be downloaded from [www.nvidia.com/drivers](http://www.nvidia.com/drivers).



**NOTE:** If your computer enters sleep mode, the CUDA drivers cannot recover and you must restart Nuke to use GPU acceleration.



**TIP:** We recommend using the latest graphics drivers, where possible, regardless of operating system.

- An AMD FirePro GPU on late 2013 Mac Pro 6.1, running OS X 10.9.3 'Mavericks', or later (see the [Blink API](#) documentation for caveats on CPU/GPU result consistency on Mac Pros).

## New Features

### C\_CameraSolver

Support has been added for multi-view inputs, allowing you to define which views to use per input, and assign them to the left or right output view for stereo stitching in C\_Stitcher.

## Feature Enhancements

### Stitching

#### C\_CameraSolver

The camera views are now created in the **knob\_changed** call, where possible, to improve script stability.

#### C\_Blender

- A new multi-blend merging option has been added to improve stitch results by matching low frequency colour changes over the course of the blend region.
- C\_Blender now includes a control to specify which views to blend together. Any set of views can be selected, provided that they match in format.

#### C\_Stitcher

- A new multi-blend merging option has been added to improve stitch results by matching low frequency colour changes over the course of the blend region.
- Enabling **Stitch** > **Enable Stereo Stitch** in C\_Stitcher's properties now generates a left and right view for each camera, allowing more export flexibility for stereo stitches.

## C\_CameraSolver/C\_ColourMatcher/C\_Stitcher

Caching has been improved to reduce memory usage, particularly on Linux platforms.

## C\_Blender/C\_CameraSolver/C\_ColourMatcher/C\_Stitcher

Various performance improvements have been implemented, including minimised code paths and improved knob handling.

## C\_CameraSolver/C\_ColourMatcher/C\_Stitcher/C\_MetaDataTransform

Global rig rotation is now written as a separate metadata key/value pair, rather than cooked into the individual rig cameras. This change allows for the separation of rig movements and camera layout, as well encoding further rig level parameters with a matching metadata name space.

# Bug Fixes

## Compositing Workflows

### C\_RayRender

Rendering in terminal mode caused Nuke to crash.

### CameraTracker

CaraVR-specific exports were not available in the **Export** dropdown in Nuke 10.

### Review

HMD review using SteamVR has been updated to the latest version 1311417.

# Known Issues and Workarounds

## Stitching

Projections in Nuke's 3D system expect rectilinear footage, which is inherently limited to a 180° field of view. As a result, C\_CameraSolver's manual 3D workflow, which relies on projections, only ever projects the central 180° from material shot on wider lenses, such as the Nokia OZO.

## Preview

- When using the Oculus Rift CV1, we recommend using the official Oculus Rift SDK rather than SteamVR or OpenVR. We recommend using the OculusVR Runtime instead of SteamVR wherever possible, as SteamVR is currently less stable for CaraVR operations.



**NOTE:** Closing SteamVR while Nuke is running with an HMD as an active Viewer causes Nuke to close. To avoid this, save and close Nuke before closing SteamVR.

- On Mac OS X, with the EoL official Oculus SDK installed, the monitor out plug-in can not open the device as the SDK locks it. Possible workarounds include uninstalling the SDK, or preventing the OVRServer being run at startup, using the launchctl load/unload commands (read up on the specifics and implications of working with the OS X launchd).
- On Windows, the monitor out plug-in routinely notifies about the health and safety implications of use of the Oculus headset. This is a function of the SDK, and in newer versions (such as the one we employ) cannot be suppressed or shortened.
- Many facilities lock down USB access for security, which impacts Oculus Rift support. Some customers found that authorising devices using a udev rule allowed them to use the DK2 on both Centos 6 and Centos 7, while still blocking USB storage devices. Thanks to Digital Domain for the following example:

```
ACTION!="add", GOTO="deauthorize_end"
SUBSYSTEM!="usb", GOTO="deauthorize_end"
TEST!="authorized", GOTO="deauthorize_end"
## make hubs deauthorize all devices by default
TEST=="authorized_default", ATTR{authorized_default}="0", GOTO="deauthorize_end"
## whitelist specific devices
ENV{ID_VENDOR_ID}=="2833", ATTR{authorized}="1", MODE="0777"
LABEL="deauthorize_end"
```

## Miscellaneous

- Nuke Write nodes, when writing multi-view **.exr** files, only write out the set of channels present in the first view for all the other views. For example, if you write out the C\_Stitcher's output, because there's only rgba in the rendered **main** view, the individual camera views do not output their vector channels.

To work around this, insert a vector channelset in the first view, even if it contains no data, using the AddChannels node.

- Nuke 9 only: When **Project Settings > Views > View selection uses buttons?** is disabled, the views dropdown menu does not allow you to change views.

As a workaround, use the keyboard shortcuts ; (semicolon) and ' (apostrophe) to cycle backwards and forwards through the available views or enable the **View selection uses buttons?** control.

# Release Notes for CaraVR 1.0v1

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## Release Date

July 2016

## Minimum System Requirements

- A version of Nuke 9.0v7, or above on:
  - Mac OS X 10.9 (Mavericks) or 10.10 (Yosemite)
  - Windows 7 or Windows 8 (64-bit only)
  - CentOS/RHEL 5 or CentOS/RHEL 6 (64-bit only)
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## Requirements for GPU Acceleration

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## New Features

This section will describe new features in later versions.

## Feature Enhancements

This section will describe feature enhancements in later versions.

## Bug Fixes

This section will describe fixed bugs in later versions.

## Known Issues and Workarounds

### Stitching

Projections in Nuke's 3D system expect rectilinear footage, which is inherently limited to a 180° field of view. As a result, C\_CameraSolver's manual 3D workflow, which relies on projections, only ever projects the central 180° from material shot on wider lenses, such as the Nokia OZO.

### Preview

- Due to recent changes in the Nuke 10 Monitor Output API, VR headsets are only supported on Nuke 10.0v1 and 10.0v2. Headsets work as normal on all Nuke 9.0 builds.
- On Mac OS X, with the EoL official Oculus SDK installed, the monitor out plug-in can not open the device as the SDK locks it. Possible workarounds include uninstalling the SDK, or preventing the OVRServer being run at startup, using the launchctl load/unload commands (read up on the specifics and implications of working with the OS X launchd).

- On Windows, the monitor out plug-in routinely notifies about the health and safety implications of use of the Oculus headset. This is a function of the SDK, and in newer versions (such as the one we employ) cannot be suppressed or shortened.
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