# Delta Media Server

## 7TH and STH Plugins for Adobe After Effects and Nuke

User Guide

7THSENSE

# 7TH and STH Plugins for Adobe After Effects and Nuke : User Guide

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This edition is for software version Creative Cloud 64-bit for Windows/OSX; Nuke 9, 10, 11; Nuke Reader/Writer Plugin 1.1
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# Contents

# 7th and sth Plugins for Adobe After Effects and Nuke

7thSense Design has plugins for the popular design and compositing suites, Adobe® After Effects, and Nuke® from The Foundry, that convert movie media into the optimised .7th file format, which also allows for encryption using the 7thSense Content Protection System application.

The plugin for After Effects does not offer reading, only writing. After Effects can also batch export to 32-bit TGA, which can be converted to .7th format using the 7thSense DFM application.

Nuke does not recognise numeric characters in file extensions, so .7th format files are saved instead as the equivalent .sth extension.

# 7th After Effects Plugin

## Information

This plugin currently supports export of the 7th 4:2:2 8-bit and 7th 4:2:2 10-bit image sequence format only.

## Compatibility

Creative Cloud 64-bit for Windows/OSX

### Installation: Windows

For a standard Windows installation using the latest Creative Cloud release, the 7thAE.aex file should be copied to the following After Effect plugin location:

C:\Program Files\Adobe\Common\Plug-ins\7.0\MediaCore

If this does not exist, the plugin copy it to the equivalent directory for your version of After Effects.

### Installation: OSX

**Before CC 2019:**

For a Mac installation using the latest Creative Cloud release, the 7thAE.plugin package should be copied to the following After Effects plugin location:

/Library/Application Support/Adobe/Common/Plug-ins/[CS version]/MediaCore/

**CC2019, verified with Catalina 10.15.1:**

Add 7thSense plugin to path:

/Applications/Adobe After Effects CC 2019/Plug-ins/Extensions Start After Effects. It will fail, but click Cancel instead of moving it to the Bin. Shutdown After Effects.

Go to the 'Security & Privacy' panel, 'General' tab. This will show that the plugin was recently prevented from running. Click 'Allow Anyway'.

Run After Effects again. This time an extra option of 'Open' is shown, select this. After clicking open after effects will run and the plugin is seen.

Next time you start After Effects, you shouldn't see the prompt but the plugin should be available for use.

## Application

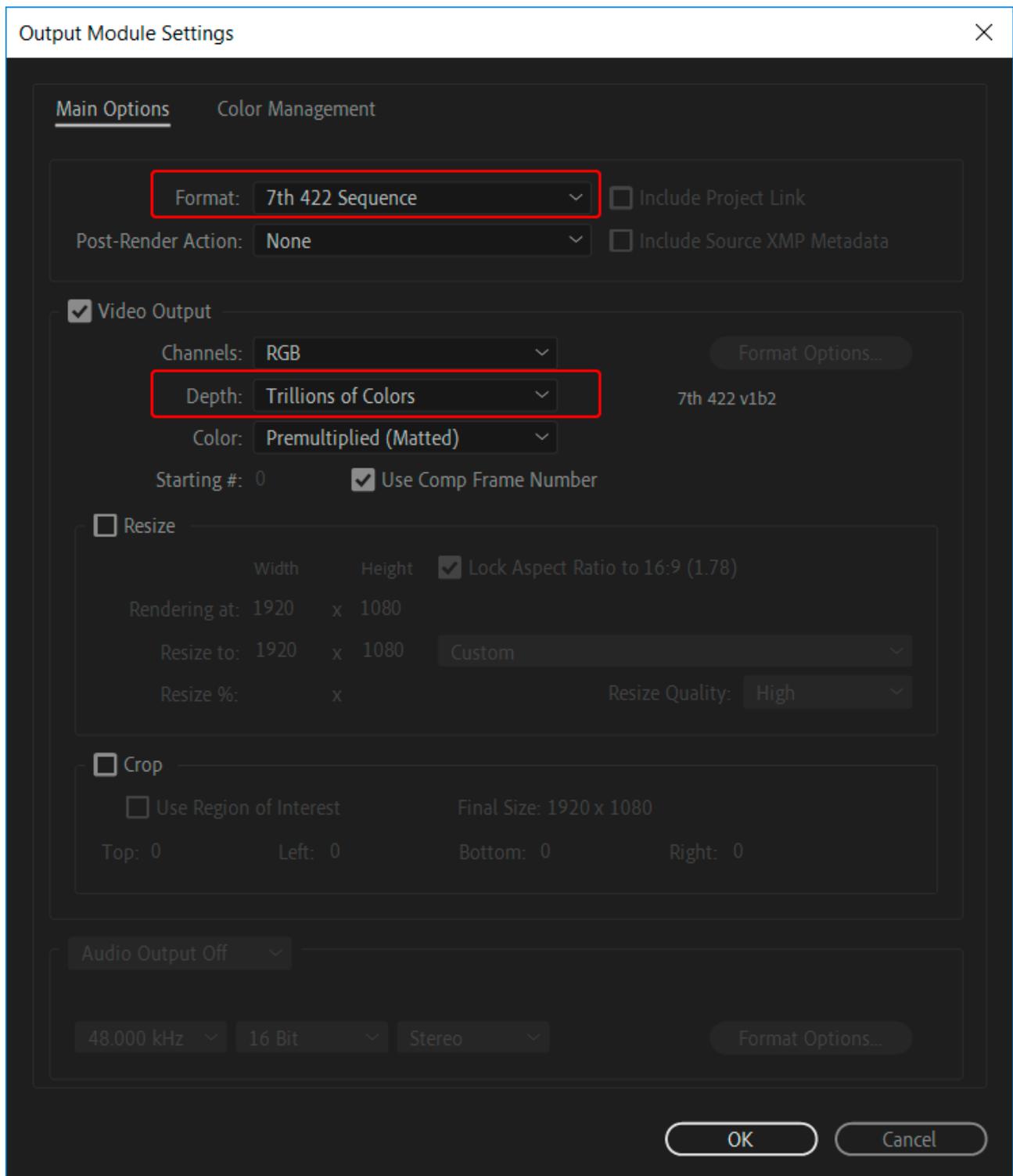For 7th 4:2:2 10-bit render output, it is important that the After Effects project 'Project Settings' are configured to output a depth higher than the default 8-bit. There is no 10 or 12bit project depth option, only 8, 16 & 32bit (float):
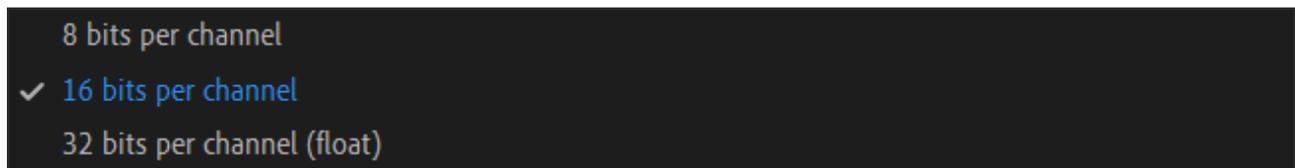


For 10-bit renders you need at least a 16 bits per channel.
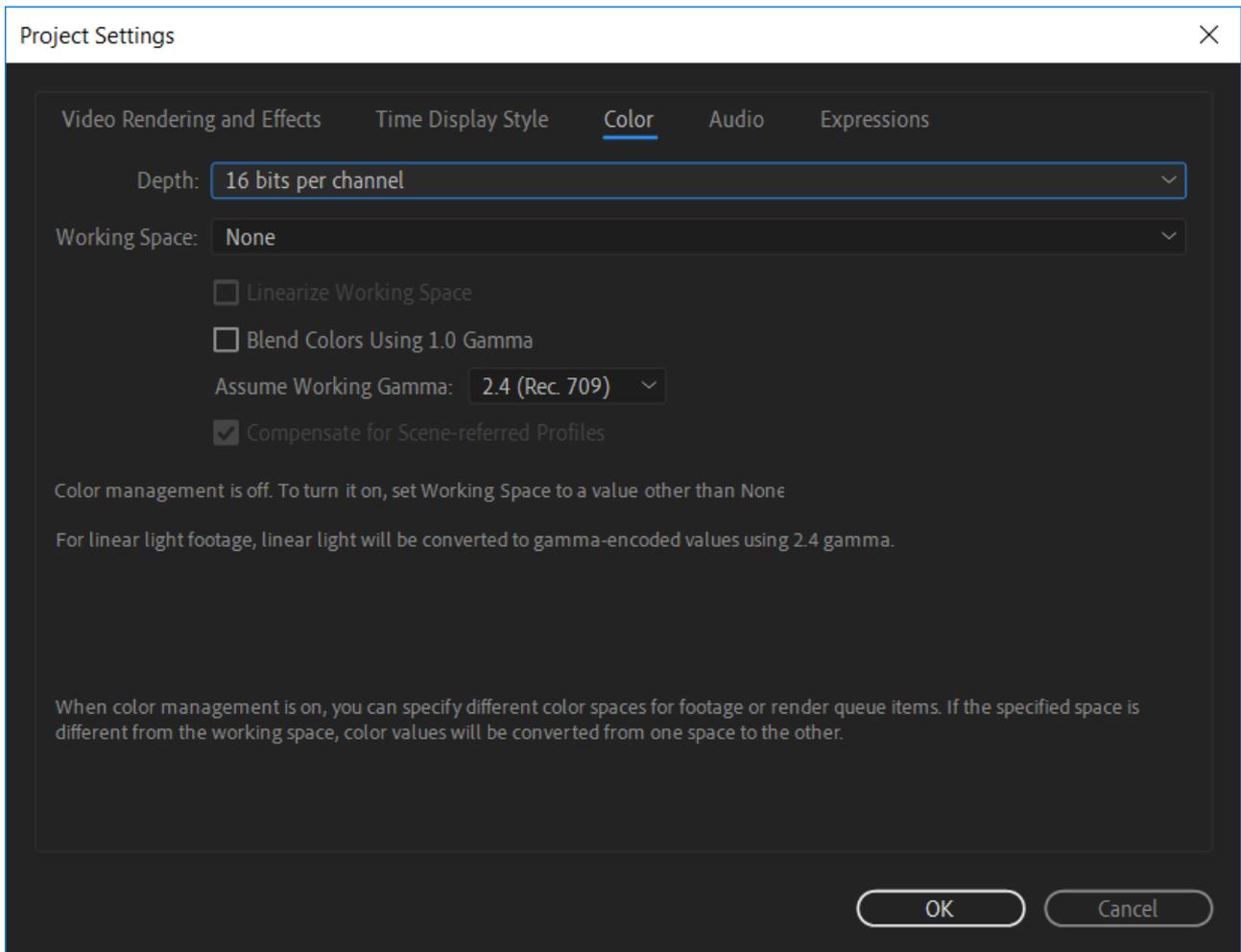
To configure the render output for 7th 4:2:2 10-bit:

**Note**: you can only do 24-bit RGB renders, not RGB+A (32-bit).
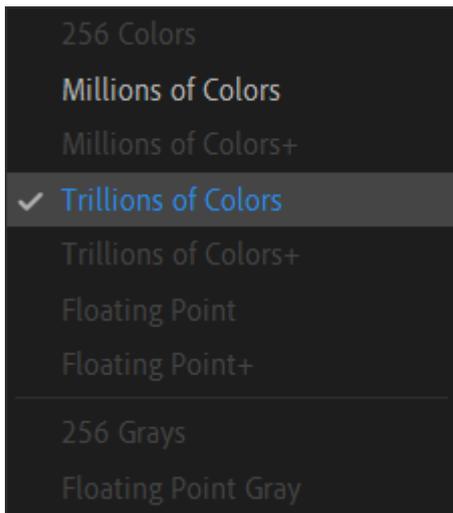
The depth of 'millions of colours' would produce 8-bit files, 'trillions of colours' gives 10-bit.

# 7th Nuke Plugin

Nuke does not recognise numeric characters in filenames. .7th format files need therefore to be saved to .sth file extensions.

## sth422Reader

This is a Nuke File Reader plugin to read 10-bit and 8-bit 4:2:2 .sth and .7th files. A .sth/.7th file represents a frame of media to be used for playback with Delta Media Servers.
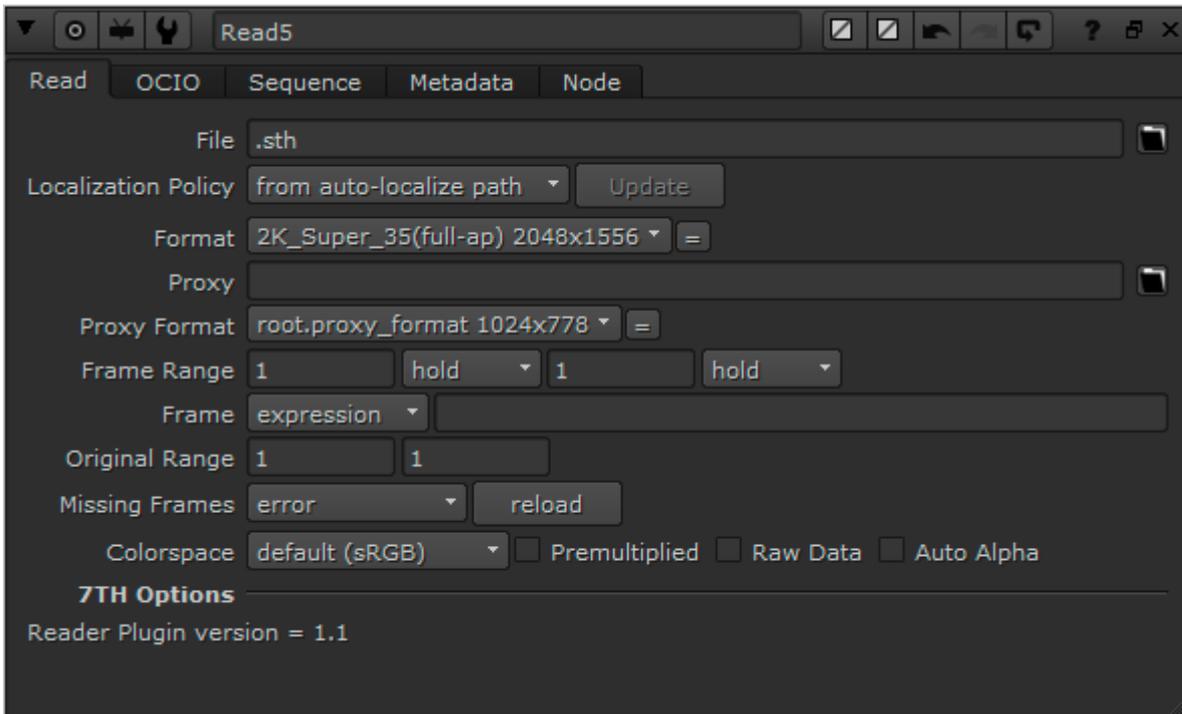
There is a 7thReader.tcl file: please place this in the .nuke directory along with the plugins. This file allows the sthReader to be loaded when a .7th file is read.

## sth422Writer

## Information

This plugin currently supports export of 4:2:2 10-bit and YCoCg, and the 7th 4:2:2 or sth 4:2:2 8-bit image sequence format.

## Compatibility

Nuke 9, 10 and 11 for Windows, OSX, Linux

## Installation

Once built, your plug-in binary (a shared library with the appropriate .dylib/.so/.dll extension depending on your platform) will need to be placed in a path where NUKE scans for plug-ins on startup. On all platforms this will be either your ~/.nuke (i.e. <user home directory>/.nuke/, where the dot prefix may mean it is hidden by default in your file browser), or somewhere in your NUKE_PATH which defaults to:

- OSX 64-bit: /Library/Application Support/NUKE/x.x/plugins/

- Linux 64-bit: /usr/local/NUKE/x.x/plugins/

- Windows 64-bit: C:Program FilesCommon FilesNUKEx.xplugins

Where <x.x> is the major.minor version of the NUKE in question. Conveniently, NUKE_PATH can be added to by setting an environment variable of the same name. This is often of use when building and testing plug-ins, because you can set an environment variable pointing at your build directory and then fire up NUKE to try it out.

It is recommended when packaging up NDK plug-ins for distribution that you use the NUKE_PATH directories, and install your bundle in an appropriately named subdirectory (since the default path is searched single level recursively).

There are several ways to add a plug-in to your current session.

- Hit x to bring up the script command and type in the name of the plug-in and hit enter. If the plug-in is found in the various paths searched for the plug-in, an instance is added to the Node Graph. This is generally of most use when first setting up plug-ins. If this fails, you may want to try the script command 'load <my plug-in name>' which tests that the plug-in can be found and that dynamic loading works. The common reasons why this might not work is that the DD::Image:::Op::Description is incorrect, or that the plug-in has been built against a different version of the NDK than that supported by the version of NUKE you're trying to load it into.

- Go to the *Other > All plug-ins* menu and hit update, or hit tab and type update-enter. Both of these add the full list of found plug-ins to the menu (and thus tab selector), allowing them to be added by the usual means. Again, this is generally of most use when first setting up plug-ins.

- You can add your own menu entry to the default toolbar by adding a menu.py file to the NUKE_PATH and following the guidelines laid out in the Python Reference Guide. This is recommended for packaging up plug-ins for distribution as it allows easy discovery of your tools. Additionally, any pre-requisite Python elements can be initialised in menu or init.py, including the usual icons and so on.

## sth Output Options from Nuke

The plugin allows selection of file extension, bit-depth and compression:
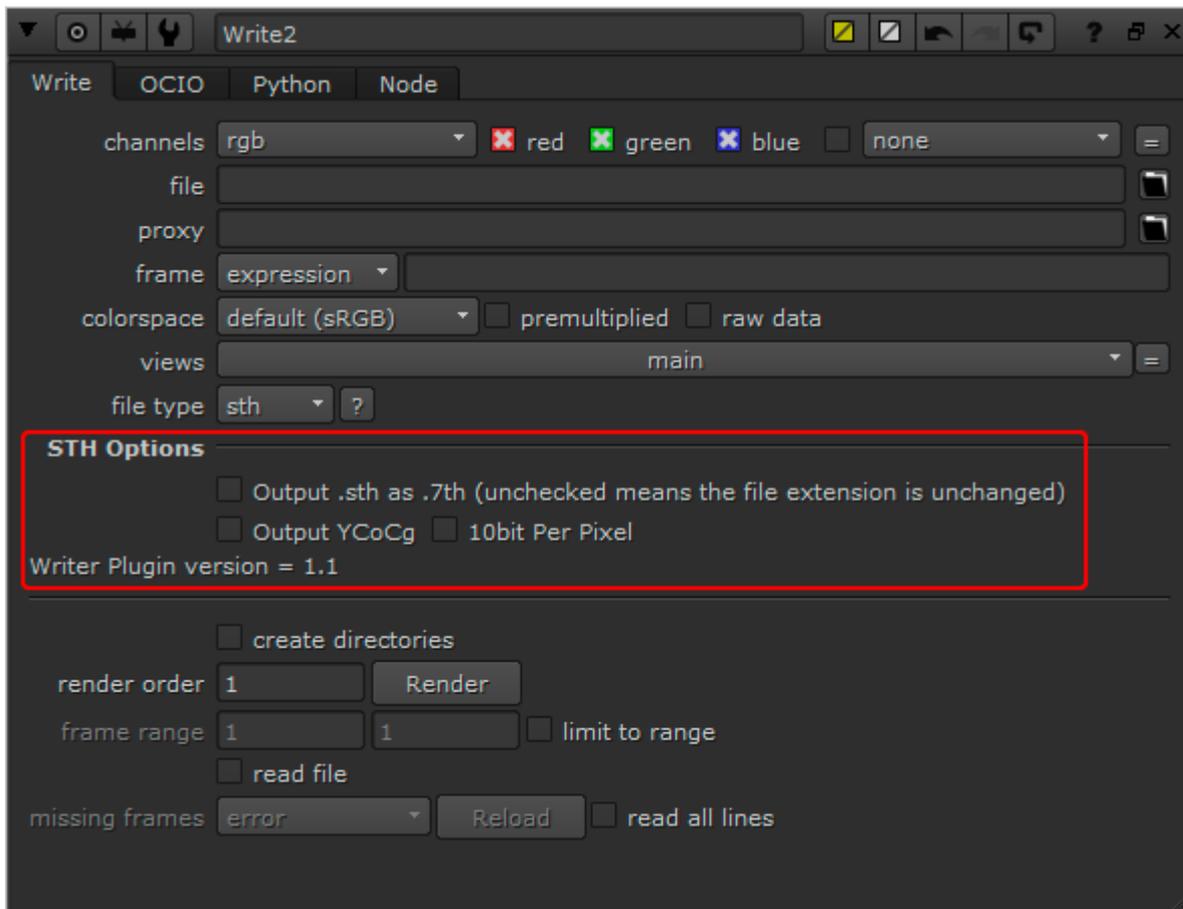
**Output .sth as .7th**

check this to rename the extension from .sth to .7th.

If neither of the two following options are ticked, output is 4:2:2 8-bit. Otherwise:

**Output YCoCg**

select to output with this compression type (8-bit only)

*or*

**Output 10bit Per Pixel**

select to output 4:2:2 10-bit

## A Point to Consider

- When using the sth422Writer and sth422Reader to write your Nuke render to a .7th or .sth format, and then subsequently read it back into Nuke, you will see a change in the RGB values compared to your original in Nuke. This is to be expected.

- The reason is that each Red, Green and Blue pixel value in Nuke is represented as a 32-bit float, and when the data is saved to file, these values are converted to 8 or 10-bit. This is necessary to make them compatible with 8 or 10-bit .sth or .7th files. This process causes the original data to be approximated so the information can be encoded within the specified number of bits. When the data is then read back using the sth422Reader, it begins its conversion process at the saved approximated value. Therefore, after the reader has done its processing and fed that information back to Nuke, it will give slightly different RGB values to those originally created in Nuke.

- For this reason, it is recommended that content creation and changes are done on the original Nuke node and not on a node that has been read from the sth422Reader. The reader should be used primarily for checking frames, not editing.

## Document Information

| Date | Document edition | Software version | Revision Details | Author/Editor |
|------|------------------|------------------|------------------|---------------|
| July 2016 | 1 | Creative Cloud 64-bit for Windows/OSX<br><br>Nuke 8 or9 for Windows, OSX, Linux | New release | Elliot Byrne |
| June 2017 | 2 | Creative Cloud 64-bit for Windows/OSX<br><br>Nuke 9 or 10 for Windows, OSX, Linux | Updated, republished | Andie Davidson |
| March 2018 | 3 | Extended to Nuke 11 | Writer can now output 4:2:2 10 bit and YCoCg, as well as original 4:2:2 8 bit, Reader can now read 4:2:2 10 bit as well as original 4:2:2 8 bit. | Andie Davidson |
| February 2019 | 4 | Nuke Reader/Writer Plugin 1.1 | Updated, republished | Andie Davidson |
| November 2019 | 5 | CC 2019 and Mac OS Catalina 10.15 | Updated, republished | Andie Davidson |

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