

NETFLIX HDR プロダクション 対応 OpenColorIOv2.1によるカラーマネージメント

株式会社ロゴスコープ 代表取締役 / テクニカルアーティスト 亀村文彦

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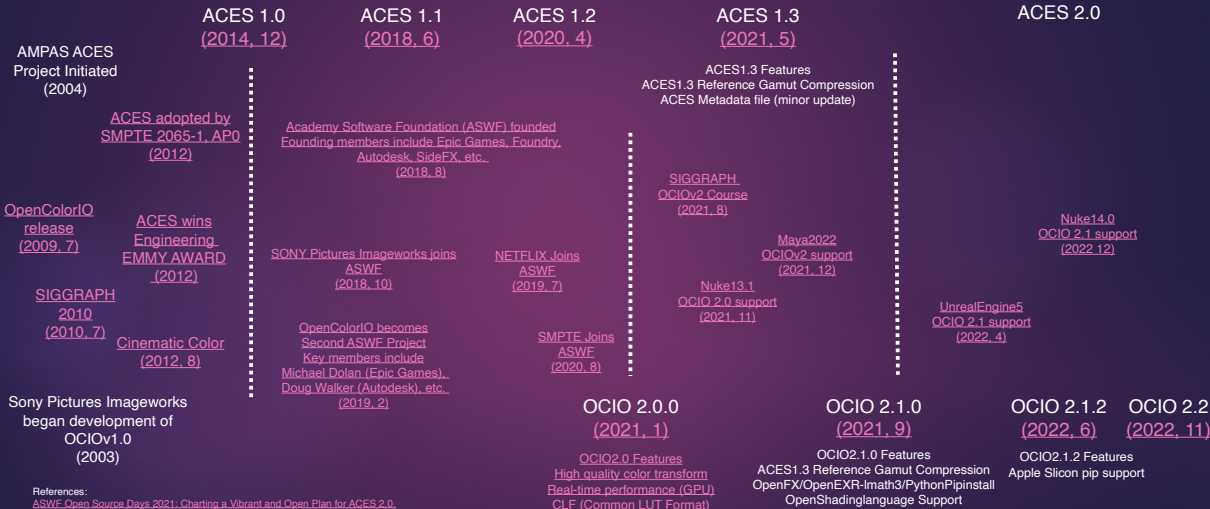
2003 年に Sony Pictures Imageworks が開発を開始したオープンソースソフトウェア OpenColorIOv1.0 は、昨今、VFX・CG業界に広く普及しました。そして、2019 年には、AMPAS (Academy of Motion Picture Arts and Sciences) が開発するカラーマネジメントシステムである ACES (Academy Color Encoding System) と共に、OpenColorIO は ASWF (Academy Software Foundation) のオープンソースプロジェクトに採択されました。2022 年、ASWF よりリリースされたオープンソースソフトウェア OpenColorIOv2.1 には、NETFLIX や Disney+ などの OTT (Over The Top) のための HDR コンテンツ制作に不可欠な高精度なカラーマネジメント機能が備わっています。

本講演では、はじめに、2000 年前後から個別に並行して開発が進められてきた OpenColorIO と ACES のバージョンが、現在に至るまでの歴史を振り返ります。また、同時に両ソフトウェアに迅速に対応してきたコンポジットソフトウェア The Foundry Nuke の対応状況についてまとめます。次に、最新の OpenColorIOv2.0, v2.1 で新たに備わった機能 (Reference Gamut Compression, LogCameraTransform, etc) を中心に、HDR コンテンツにおける OpenColorIOv2.1 コンフィグ開発事例を紹介します。また、国内における HDR プロダクションを促進するため、本講演のために開発した OpenColorIOv2.1 コンフィグファイルは無償配布します。

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ACES & OCIO Recent Status



References:

[ASWF Open Source Days 2021: Charting a Vibrant and Open Plan for ACES 2.0](#)
[ASWF Open Source Days 2021: \[OCIO\] Consistent Color Management for VFX](#)
[AcademySoftwareFoundation.OpenColorIO.Github](#)

Sony Pictures Imageworks: SIGGRAPH 2010

A Birds of a Feather: OpenColorIO Jeremy Selan

https://www.sony.com/content/sony/en/en_us/SCA/company-news/press-releases/sony-pictures-digital-network/2010/sony-pictures-imageworks-siggraph-2010.html

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Sony Pictures Imageworks: SIGGRAPH 2010

Sony Pictures Digital Network - 07/27/2010

BOOTH 1018, SIGGRAPH 2010 -- Sony Pictures Imageworks, the Academy Award® winning visual effects and digital character animation unit of Sony Pictures Digital Productions, will feature its latest artistic and technical achievements at SIGGRAPH 2010, the 37th International Conference on Computer Graphics and Interactive Techniques. Presentations around the art and technology of Disney's ALICE IN WONDERLAND are on the program, including technical sessions, a Computer Animation Festival production session on Wednesday afternoon and a Siggraph Evening Theater entry. Imageworks will be recruiting for current and upcoming productions, notably Warner Bros GREEN LANTERN, the Aardman Animation production ARTHUR CHRISTMAS, Sony Pictures Animation's HOTEL TRANSYLVANIA, THE SMURFS, in association with Columbia Pictures, and several other projects soon to be announced.

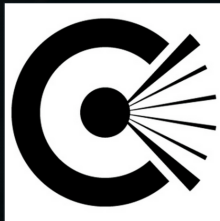
Imageworks adds to its Open Source initiative, announced at Siggraph09, with the release of its sixth program, OpenColorIO, which provides a framework for sharing color transformations across computer graphics workflows. Imageworks has also scheduled a press conference with Industrial Light & Magic on Tuesday morning to announce another important Open Source development.

"SIGGRAPH gathers the leading artists, innovators and educators to the computer graphics world's most influential meeting," observes Randy Lake, executive vice president and general manager of Sony Pictures Imageworks. "The conference gives us an opportunity to share our latest technical developments, meet talent, and showcase our best work of the year."

IPAX, Imageworks and Sony Pictures Animation's innovative academic outreach program will convene an Educators Forum gathering member schools and a select group of new institutions. The IPAX program was created in 2004 to connect faculty and students from leading academic institutions with Imageworks and Sony Pictures Animation to further develop future talent and enhance academic programs.

Imageworks can be found on the exhibit floor at SIGGRAPH in booth 1018.

Details of Imageworks participation at SIGGRAPH 2010 include the following:



OpenColorIO (OCIO) enables color transforms and image display to be handled in a consistent manner across multiple graphics applications. Unlike other color management solutions, OCIO is geared towards motion-picture post production, with an emphasis on visual effects and animation color pipelines. OpenColorIO has been used since 2003 to address the challenges of working with multiple common image-processing applications that have different approaches to color management.

The OpenColorIO project includes a core C++ library (CPU and GPU), python bindings, and plug-in support for popular graphics applications. Example color profiles -- which have been used on released visual effects & animated motion-pictures -- are also included as references. But these profiles are merely a guide; as customization is an essential part of post-production, OCIO was developed with flexibility in mind. New profiles are easily created from the atomic operators common to post-production color processing (1D luts, 3D luts, HDR processing conversions, etc), and can then be used (and shared) just as easily as the included defaults.

By providing a unified color environment, OpenColorIO greatly simplifies the task of creating and validating multiple-application color workflows.

<http://www.opencolorio.org>

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imageworks.com



OSL
Open Shading Language



ALEMBIC
Open Interchange Format



OPENCOLORIO
Color Management



PYP
Python Power at the Prompt



ALL PROJECTS
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Cinematic Color

From Your Monitor to the Big Screen

by Jeremy Selan (SIGGRAPH 2012 Course)

<https://cinematiccolor.org/>

Cinematic Color

From Your Monitor to the Big Screen

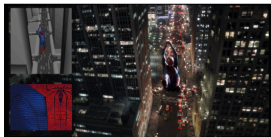
A VES TECHNOLOGY COMMITTEE WHITE PAPER
OCT 17, 2012



1. Introduction

Practitioners of visual effects and animation encounter color management challenges which are not covered in either traditional color-management textbooks or online resources. This leaves digital artists and computer graphics developers to fend for themselves; best practices are unfortunately often passed along by word-of-mouth, user forums, or scripts copied between facilities.

This document attempts to draw attention to the color pipeline challenges in modern visual effects and animation production, and presents techniques currently in use at major production facilities. We also touch upon open-source color management solutions available for use at home (OpenColorIO) and an industry attempt to standardize a color framework based upon floating-point interchange (ACES).

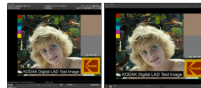


This fully computer-generated image touches upon many render techniques in color management, including a scene-linear approach to rendering, shading, and illumination, in addition to on-set lighting reconstruction and scene management¹. Visual effects by Sony Pictures Imageworks. Image from "The Amazing Spider-Man" Courtesy of Columbia Pictures. © 2012 Columbia Pictures Industries, Inc. All rights reserved.

¹ This image, though dark, has good detail in the shadows. If these shadow areas appear flat black, please confirm your display calibration and gamma.

3.7. OpenColorIO

OpenColorIO (OCIO) is an open-source color pipeline created by the author and sponsored by Sony Picture Imageworks. OpenColorIO has two major goals: **consistent color transforms**, and **consistent image display**, across multi-application cinematic color pipelines.



On the left is a "tag" DDP image loaded in a compositing application. On the right, a scene-linear OpenColorIO representation of the same image is loaded in a different application. Both applications utilize OpenColorIO to provide matched image display and color space conversions, reflecting an externally defined color configuration.

The design goal behind OCIO is to decouple the color pipeline API from the specific color transforms selected, allowing supervisors to tightly manage (and experiment) with color pipelines from a single location. Unlike other color management solutions such as ICC, OpenColorIO is natively designed to handle both scene-oriented and display-oriented imagery. All color transforms are loaded at runtime, from a color configuration external to any individual application. OCIO does not make any assumptions about the imagery; all color transformations are "tag" in. This is different from the color management often built-in to applications, where it is often difficult to track down the specific LUTs / gamma transforms automatically applied without the user awareness.

OCIO color configuration files define all of the conversions that may be used. For example, if you are using a particular camera's color space, one would define the conversion from the camera's color encoding to scene-linear. You can also specify the display transforms (for multiple displays) in a similar manner. OCIO transforms can rely on a variety of built-in building-blocks, including all common math operations and the majority of common lookup table formats. OCIO also has full support for both CPU and GPU paths, in addition to full support for CMAA and per-shade look.

The OCIO project also includes some of the real color configurations for film productions, such as those used in Cloudy with a Chance of Meatballs and Spider-Man, enabling users to experiment with validated color pipelines. OCIO also ships with a configuration compatible with the Academy's ACES effort, allowing for experimentation with this next-generation color pipeline in existing applications.

OpenColorIO is in use at many of the major visual effects and animation studios, and is also supported out of the box in a variety of commercial software. See github.com/jeremysel/ocio for up-to-date information on supported software, and to download the source code for use at home.

http://github.com/jeremysel/cinematiccolor/raw/master/ves/Cinematic_Color_VES.pdf

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Academy Color Encoding Specification (ACES): The Academy of Motion Picture Arts and Sciences Science and Technology Council Image Interchange Framework Subcommittee

<https://www.oscars.org/learn/science-technology>



Specification

S-2008-001

Academy Color Encoding Specification (ACES)

The Academy of Motion Picture Arts and Sciences
Science and Technology Council
Image Interchange Framework Subcommittee

Version 1.0.1 August 05, 2011

Summary: The Academy Color Encoding Specification (ACES) is the common color encoding for the Academy's Image Interchange Framework. The specification defines the ACES RGB color encoding method, the ACES neutral axis, the matrices used for converting ACES values to CIE XYZ values and CIE XYZ values to ACES values, and the ACES floating-point color encoding metric. It describes how ACES RGB colors can be used to capture the creative intent of the cinematographer and relates the encoded colors to other components of the Image Interchange Framework and to imaging system components expecting radiometrically linear inputs.

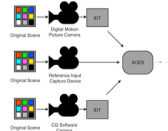
Charles Poynton	Arjun Ramamurthy	Karl Rasche	Rick Sayre
Jeremy Selan	Kimball Thurston	Hitoshi Urabe	Douglas Walker
Kevin Wines	Makoto Yamada	Raymond Yeung	

Introduction

The Academy Color Encoding Specification (ACES) defines a digital color image encoding appropriate for both photographed and computer-generated images. It is the common color encoding for the Academy Image Interchange Framework. In the flow of image data from scene capture to theatrical presentation, ACES data encode imagery in a form suitable for creative manipulation. Later points in the workflow provide forms suitable for critical viewing.



Based on the definition of the ACES virtual RGB primaries, and on the color matching functions of the CIE 1931 Standard Colorimetric Observer, ACES derives an ideal recording device against which actual recording device behavior can be compared: the Reference Input Capture Device (RICD). As an ideal device, the RICD would be capable of distinguishing and recording all visible colors, and of capturing a luminance range exceeding that of any contemporary or anticipated physical camera. The RICD's purpose is to provide a documented, unambiguous, fixed relationship between scene colors and encoded RGB values. When a real camera records a physical scene, or a virtual camera (i.e. a CGI rendering program) creates an image of a virtual scene, an Input Device Transform (IDT) converts the resulting image data into the ACES RGB relative exposure values the RICD would have recorded of that same subject matter.



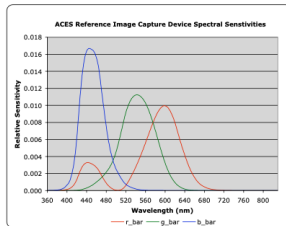
ACES images are not directly viewable for final image evaluation, much as film negative or film containing images encoded as printing density are not directly viewable as final images. As an intermediate image representation, ACES images can be examined directly for identification of image orientation, cropping region or resolution; or, as an examination of the amount of shadow or highlight detail captured; or comparison with other directly viewed ACES images. Such direct viewing cannot be used for final color evaluation. Instead, a Reference Rendering Transform (RRT) and a selected Output Device Transform (ODT) are used to produce a viewable image when that image is presented on the selected output device. Practical conversion of photographic or synthetic exposures to ACES RGB relative exposure values requires procedures for characterizing the color response of a real or virtual image capture system. These procedures are described in other documents detailing the Image Interchange Framework.

Annex C (informative)

ACES Reference Input Capture Device spectral sensitivities

The ACES RICD spectral sensitivities are linear combinations of the color matching functions of the CIE 1931 Standard Colorimetric Observer. These spectral sensitivities were chosen such that the RICD captures color exactly as a colorimeter would, but expressed in terms of the ACES RGB primaries instead of the CIE XYZ primaries.

NOTE: The RICD spectral sensitivities listed below are area normalized. When calculating the values the RICD would capture for a particular illuminant, separate scaling factors will typically be applied to each of the red, green and blue sensitivities, such that the scalar product of each scaled spectral sensitivity with the captured spectrum of a perfect reflecting diffuser under that particular illuminant would produce values of 1.0. A comparable capture of an 'ideal' 18% gray card (isotropic, non-fluorescing and spectrally non-selective) would produce values of 0.18/0.09 for each scalar product (after the flare addition and the scaling operations specified in section 4.1.1).



SMPTE ST2065-1(APO)

<https://ieeexplore.ieee.org/document/7289895>

SMPTE ST 2065-1:2012

SMPTE STANDARD

Academy Color Encoding Specification (ACES)

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Approved
March 12, 2012

SMPTE ST 2065-1:2012

Figure 1 – Creation of ACES images from various image capture devices

ACES images are not directly viewable for final image evaluation, such as film negative or files containing images encoded as printing density are not directly viewable as final images. As an intermediate image representation, ACES images can be examined directly for identification of image orientation, cropping region or sequencing, or examination of the amount of shadow or highlight detail captured, or comparison with other directly viewed ACES images. Such direct viewing cannot be used for final color evaluation. Instead, a Reference Rendering Transform (RRT) and a selected Output Device Transform (ODT) are used to produce a viewable image when that image is presented on the selected output device. Figure 2 illustrates the ACES image capture and reproduction pipeline using the RICD.

Figure 2 – ACES Capture and Reproduction using the RICD

Practical conversion of photographic or synthetic exposures to ACES RGB relative exposure values requires procedures for characterizing the color response of a real or virtual image capture system. These procedures are outside the scope of this standard.

The Image Interchange Framework of which ACES is a part provides theoretical and practical structure for color correction and artistic adjustment. Encoding in ACES does not obsolesce creative judgment, rather, it facilitates it.

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SMPTE ST 2065-1:2012

Annex A ACES Reference Input Capture Device Spectral Sensitivities (Normative)

The ACES RICD spectral sensitivities are linear combinations of the color matching functions of the CIE 1931 Standard Colorimetric Observer. These spectral sensitivities were chosen such that the RICD captures color exactly as a colorimeter would, but expressed in terms of the ACES RGB primaries instead of the CIE XYZ primaries. The tabulated values of the ACES RICD spectral sensitivities are listed in Table A.1 and illustrated in Figure A.1.

The RICD spectral sensitivities listed below are area normalized. When calculating the values the RICD would capture for a particular illuminant, separate scaling factors shall be applied to each of the red, green and blue sensitivities, such that the scalar product of each scaled spectral sensitivity with the captured spectrum of a perfect reflecting diffuser under that particular illuminant shall produce values of 1.0 (prior to the flare addition and the scaling operation specified in Section 5.2.2). A comparable capture of an 'ideal' 18% gray card (isotropic, non-fluorescing and spectrally nonselective) shall produce values of 0.18000 for each scalar product (after the flare addition and the scaling operations specified in Section 5.2.2).

Figure A.1 – ACES RICD Spectral Sensitivities

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ACES wins Engineering EMMY AWARD 2012

[https://www.emmys.com/awards/engineering-
emmys/winners](https://www.emmys.com/awards/engineering-
emmys/winners)



https://area.autodesk.jp/column/trend_tech/scene_linear_workflow/04_fujifilm/

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トレンド&テクノロジー / Scene-linear Workflow/ACES

第4回：富士フィルムとRRT - フィルムルックの継承と展開

2014.06.27

著者：亀村文彦

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シーンリニアワークフロー / ACESでは、シーンに存在する光を正確に記録したイメージに対して、人間の知覚に忠実な色再現を定義すべく開発されたRRT (Reference Rendering Transform) を介してビューイングすることで理想的なワークフローを実現する。この RRT は、AMPAS の ACES (Academy Color Encoding System) の一要素として2005年より開発されてきた。一方で2012年9月、富士フィルム株式会社 (以降、富士フィルム) は、映画業界で長年愛されてきた上映用ポジフィルム及び撮影用ネガフィルムの生産を中止することを発表した。RRT には、映画フィルムの特性と、富士フィルムが培ってきた基礎研究の技術が大いに含まれている。この RRT にまつわるストーリーについて富士フィルムを軸に見ていきたい。

2004年の SIGGRAPH をきっかけに始まった AMPAS の IIF プロジェクト (The Image Interchange Framework、現在は ACES に呼称変更) は、プロジェクトを推進するために早い段階でカラーサイエンスの専門家やポストプロダクションなどの各方面へ協力要請をおこなった。集められたのは、元 KODAK のカラーサイエンティストである Ed Giorgianni 氏や、SONY Pictures Entertainment の Jim Houston 氏など錚々たるメンバーであった。富士フィルムも、2006年2月に当時の足柄研究所長の原氏一行が AMPAS を訪問し、AMPAS STC 部長の Andy Maltz 氏、アカデミーメンバーの Ray Feeney 氏と協力関係を約束した。2005年から2008年にかけて、KODAK の技術者を中心となり ACES の技術構築に取り組んだ結果、ある離間が浮き彫りになった。それは、現実世界を忠実に

ACES1.0 Release (2014, 12)

<https://community.acescentral.com/>

<https://github.com/ampas/aces-dev>

ampas / aces-dev Public

Code Issues Pull requests Actions Projects Security Insights

dev 3 branches 20 tags

Go to file Code

scotttlyer Merge pull request #131 from scopsyzy/feature/arni-logof-kt 56x (83) on Sep 21 490 commits

Commit	Message	Author	Date
formatstent	update AMP schemas	formatstent	2 years ago
images	update Images readme with revised transform names	formatstent	last year
transforms	Merge pull request #131 from scopsyzy/feature/arni-logof-kt	scotttlyer	3 months ago
CHANGELOG.md	update README and CHANGELOG	formatstent	2 years ago
LICENSE.md	update README and CHANGELOG	formatstent	7 years ago
README.md	update README and CHANGELOG	formatstent	2 years ago

Academy Color Encoding System Developer Resources

The Academy Color Encoding System (ACES) is a set of components that facilitates a wide range of motion picture and television workflows while eliminating the ambiguity of legacy file formats. The system is designed to support

2014, 12

ACES CENTRAL

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Color variation in Nuke using ACEScg and P3-D65 ODT		Color variation in Nuke using ACEScg and P3-D65 ODT Discussions - Using ACES

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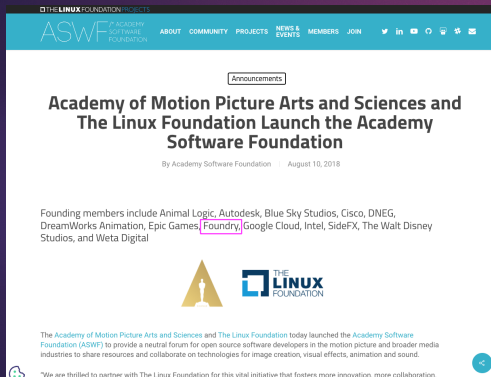
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Academy Software Foundation (ASWF)

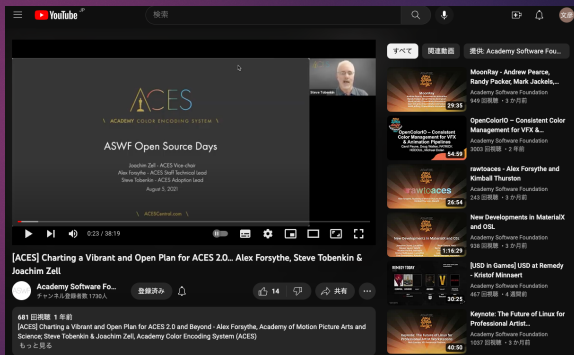
<https://www.aswf.io/news/academy-of-motion-picture-arts-and-sciences-and-the-linux-foundation-launch-the-academy-software-foundation/>



The screenshot shows the ASWF website with a teal header. The main content area features an announcement titled "Academy of Motion Picture Arts and Sciences and The Linux Foundation Launch the Academy Software Foundation" dated August 10, 2018. It lists founding members and includes logos for ASWF and The Linux Foundation. A quote at the bottom states: "We are thrilled to partner with The Linux Foundation for this vital initiative that fosters more innovation, more collaboration."

2018, 8

<https://www.youtube.com/watch?v=chx1FCxMeuQ>



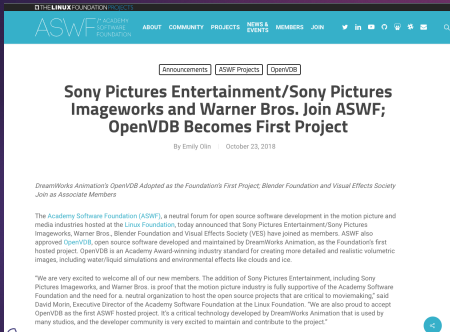
The screenshot shows a YouTube video player with a dark theme. The video title is "ASWF Open Source Days" and the thumbnail features the ACES logo. The video player includes a progress bar at 0:23 / 38:19 and a list of related videos on the right side, such as "MoonRay - Andrew Pearce, Randy Packer, Mark Jackels..." and "OpenColorIO - Consistent Color Management for VFX & Animation Pipelines".

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Academy Software Foundation (ASWF) OpenColorIO Project

<https://www.aswf.io/news/sony-pictures-entertainment-sony-pictures-imageworks-and-warner-bros-join-academy-software-foundation-at-the-linux-foundation/>

<https://www.aswf.io/news/ocio-joins-aswf/>



The screenshot shows the ASWF website with a teal header. The main navigation includes 'ABOUT', 'COMMUNITY', 'PROJECTS', 'NEWS & EVENTS', 'MEMBERS', and 'JOIN'. There are social media icons for Twitter, LinkedIn, Facebook, YouTube, and GitHub. The article title is 'Sony Pictures Entertainment/Sony Pictures Imageworks and Warner Bros. Join ASWF; OpenVDB Becomes First Project'. The author is Emily Olin, dated October 23, 2018. The article text discusses the Academy Software Foundation (ASWF) and the adoption of OpenVDB as the first project.

Announcements ASWF Projects OpenVDB

Sony Pictures Entertainment/Sony Pictures Imageworks and Warner Bros. Join ASWF; OpenVDB Becomes First Project

By Emily Olin | October 23, 2018

DreamWorks Animation's OpenVDB Adopted as the Foundation's First Project; Blender Foundation and Visual Effects Society Join as Associate Members

The Academy Software Foundation (ASWF), a neutral forum for open source software development in the motion picture and media industries hosted at the Linux Foundation, today announced that Sony Pictures Entertainment/Sony Pictures Imageworks, Warner Bros., Blender Foundation and Visual Effects Society (VES) have joined as members. ASWF also approved OpenVDB, open source software developed and maintained by DreamWorks Animation, as the Foundation's first hosted project. OpenVDB is an Academy Award-winning industry standard for creating more detailed and realistic volumetric images, including water/liquid simulations and environmental effects like clouds and ice.

"We are very excited to welcome all of our new members. The addition of Sony Pictures Entertainment, including Sony Pictures Imageworks, and Warner Bros. is proof that the motion picture industry is fully supportive of the Academy Software Foundation and the need for a neutral organization to host the open source projects that are critical to moviemaking," said David Morin, Executive Director of the Academy Software Foundation at the Linux Foundation. "We are also proud to accept OpenVDB as the first ASWF hosted project. It's a critical technology developed by DreamWorks Animation that is used by many studios, and the developer community is very excited to maintain and contribute to the project."

2018, 10



The screenshot shows the ASWF website with a teal header. The main navigation includes 'ABOUT', 'COMMUNITY', 'PROJECTS', 'NEWS & EVENTS', 'MEMBERS', and 'JOIN'. There are social media icons for Twitter, LinkedIn, Facebook, YouTube, and GitHub. The article title is 'OpenColorIO Becomes Second Academy Software Foundation Project'. The author is Emily Olin, dated February 8, 2019. The article text discusses the Academy Software Foundation (ASWF) and the adoption of OpenColorIO as the second project.

Announcements ASWF Projects OpenColorIO

OpenColorIO Becomes Second Academy Software Foundation Project

By Emily Olin | February 8, 2019


Open Source Color Management Solution Developed by Sony Pictures Imageworks Becomes Second Academy Software Foundation Project

The Academy Software Foundation (ASWF), a neutral forum for open source software development in the motion picture and media industries hosted at the Linux Foundation, today announced that OpenColorIO (OCIO) has been approved as the Foundation's second hosted project. Initially developed by Sony Pictures Imageworks, OCIO is an Academy Scientific and Technical Award winning color management solution for creating and displaying consistent images across multiple content creation applications during visual effects and animation production.

"OpenColorIO is one of the fundamental open source projects in the motion picture industry, and it has become a critical resource for the entire visual effects (VFX) and animation community," said David Morin, Executive Director of the Academy Software Foundation at the Linux Foundation. "Many developers across the industry already contribute to OpenColorIO, and we hope to make it easier for them to do so."

OCIO is a fundamental tool for animation and VFX production and has been used on dozens of feature films including Spider-Man™, Into the Spider-Verse, Spider-Man™: Homecoming, Hotel Transylvania 3, Ghostbusters, Alice in Wonderland, Cloudy with a Chance of Meatballs, Surf's Up, and Watchmen.

"OpenColorIO has always been a resource for the entire VFX/animation community, with many outside contributions and commits," said Michael Ford, Vice President, Head of



2019, 2

Logoscope
www.logoscope.co.jp

NETFLIX and SMPTE join Academy Software Foundation (ASWF)

<https://www.aswf.io/news/netflix-joins-aswf/>

The screenshot shows the ASWF website header with navigation links: ABOUT, COMMUNITY, PROJECTS, NEWS & EVENTS, MEMBERS, JOIN. A sub-header 'Announcements' is visible. The main title is 'Netflix Joins the Academy Software Foundation' by Academy Software Foundation, dated July 29, 2019. The article text states: 'The Academy Software Foundation (ASWF), a neutral forum for open source software development in the motion picture and media industries, today announced that Netflix has joined the Foundation as a member.' A large red 'NETFLIX' logo is on the right. The article continues: 'The Academy Software Foundation also announced today that OpenTimelineIO has been accepted as a Foundation-hosted project and is one of the first projects Netflix will contribute to as a member of the Foundation. Initially created by Pixar Animation Studios, OpenTimelineIO (OTIO) is an Open Source API and interchange format that facilitates collaboration and communication of editorial data and timeline information between a studio's Story, Editorial, and Production departments all the way through Post-Production. You can read more about the announcement here.' A quote from David Morin, Executive Director of the Academy Software Foundation, is included: 'Netflix's deep expertise in streaming media needs no introduction, but it is lesser known that Netflix also has a strong commitment to open source software, having open sourced many projects already, and contributing to many more.' Another quote from Erik Strauss, Netflix Director of Post-Production Engineering, is at the bottom: 'We're thrilled to join the Academy Software Foundation and look forward to extending our collaboration with peers and partners on innovative software projects, such as OTIO, which are the cornerstone of digital production.'

2019, 7

https://www.aswf.io/news/unity_conductor_smpte/

The screenshot shows the ASWF website header with navigation links: ABOUT, COMMUNITY, PROJECTS, NEWS & EVENTS, MEMBERS, JOIN. A sub-header 'Announcements' is visible. The main title is 'Unity Technologies, Conductor Technologies and SMPTE Join Academy Software Foundation' by Emily Olin, dated August 19, 2020. The article text states: 'Academy Software Foundation Announces Unity Technologies as a New Premier Member' and 'Conductor Technologies and SMPTE join as General and Associate members'. The article continues: 'The Academy Software Foundation (ASWF), a collaborative effort to advance open source software development in the motion picture and media industries, today announced that Unity Technologies has joined the Foundation as a Premier member, Conductor Technologies as a General member, and SMPTE as an Associate member.' A quote from David Morin, Executive Director of Academy Software Foundation, is included: 'We are delighted to welcome Unity Technologies, Conductor and SMPTE to the Academy Software Foundation,' said David Morin, Executive Director of Academy Software Foundation. 'They join a strong group of member companies focused on developing our open source platform and projects for the motion picture industry. Their commitment to the Foundation in this time of Covid-19 demonstrates a steady hand; it also highlights open source as a proven model for collaborative and remote software development, in a time when we have no choice but to reinvent how we work together.'

2020, 8

OpenColorIO v2.0 Release (2021, 1)

SIGGRAPH Course 2021

Color management with OpenColorIO V2

<https://dl.acm.org/doi/10.1145/3450508.3464600>

The screenshot shows the ACM Digital Library interface. At the top, there are logos for ACM Digital Library and the Association for Computing Machinery. Below the navigation bar, the article title "Color management with OpenColorIO V2" is prominently displayed. The authors listed are Doug Walker, Carol Payne, Patrick Hodou, and Michael Dolan. The article is part of SIGGRAPH '21: ACM SIGGRAPH 2021 Courses, published in August 2021. A sidebar on the left provides navigation options like "Previous" and "Next", and links to "Supplemental Material", "References", and "Comments". A large yellow banner at the bottom of the article features a blue-tinted 3D head model and the text "SIGGRAPH 2021 COLOR MANAGEMENT WITH OPENCOLORIO V2".

ACM DIGITAL LIBRARY

Association for Computing Machinery

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Conference Proceedings Upcoming Events Authors Affiliations Award Winners

Color management with OpenColorIO V2

Authors: Doug Walker, Carol Payne, Patrick Hodou, Michael Dolan [Authors Info & Claims](#)

SIGGRAPH '21: ACM SIGGRAPH 2021 Courses • August 2021 • Article No.: 8 • Pages 1–226 • <https://doi.org/10.1145/3450508.3464600>

Published: 21 July 2021 [Publication History](#)

0 219

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SIGGRAPH '21: ACM SIGGRAPH 2021...
Color management with OpenColorIO V2
Pages 1–226

[← Previous](#) [Next →](#)

Supplemental Material

References

Comments

ACM DIGITAL LIBRARY

SIGGRAPH 2021

COLOR MANAGEMENT WITH OPENCOLORIO V2

Nuke13.1 (2021, 11)

https://learn.foundry.com/nuke/content/release_notes/nuke_13.1.html

FOUNDRY.


NUKE > Search documentation

Nuke 14.0v1 docs: [Resources](#) > [Release Notes](#) > [What's New in Nuke, Nuke Studio, and Hiero 13.1](#)

What's New in Nuke, Nuke Studio, and Hiero 13.1

OCIO v2

This release introduces support for OCIO v2. We have updated the whole Nuke family to use the new OpenColorIO v2.0 library which was released earlier this year.



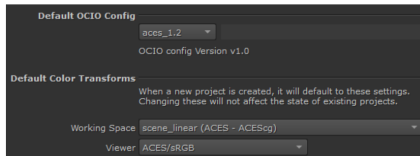
- Support for **.clf** (Academy Common LUT Format) and **.ctf** (Autodesk Color Transform LUT Format).

ACES 1.2

This release introduces support for ACES 1.2 using a new OCIO V1 config.

ACES 1.2 features (Nuke, Nuke Studio, and Hiero)

A new ACES 1.2 v1 config has been added, which can be selected in the **Preferences** and **Project Settings** > **Default OCIO config** dropdown.



Maya 2022 (2021, 12)

<https://knowledge.autodesk.com/ja/support/maya/learn-explore/caas/CloudHelp/cloudhelp/2022/JPN/Maya-WhatsNewPR/files/GUID-25BEB90D-E7ED-4635-8440-D530B8554889-hfm.html>

AUTODESK

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Maya 2022 の新機能

Maya 2022.3 Update の新機能

Maya 2022.2 Update の新機能

Maya 2022.1 Update の新機能

Maya 2022 の新機能

- キャッシュされた再生(Cached Playback)の改善点
- 新しいソリッド化デフォーマ
- OpenColorIO v2**
- 起動時の操作性の改善
- 新しいモーフ デフォーマ

+ さらに表示

完全な目次を表示 [製品ヘルプ](#)

OpenColorIO v2 (Maya 2022 の新機能)

対象となる製品とバージョン

投稿者: **AUTODESK** Help
2021年12月7日 | [製品ヘルプ](#)

共有 **<** [コレクションに追加](#) **>**



Maya は、最新のカラー管理を実現するために OpenColorIO v2 と統合されています。OCIO v2 は、視覚的エフェクトとコンピュータアニメーションを重視したモーションピクチャ制作を対象とする、完全なカラー管理ソリューションです。

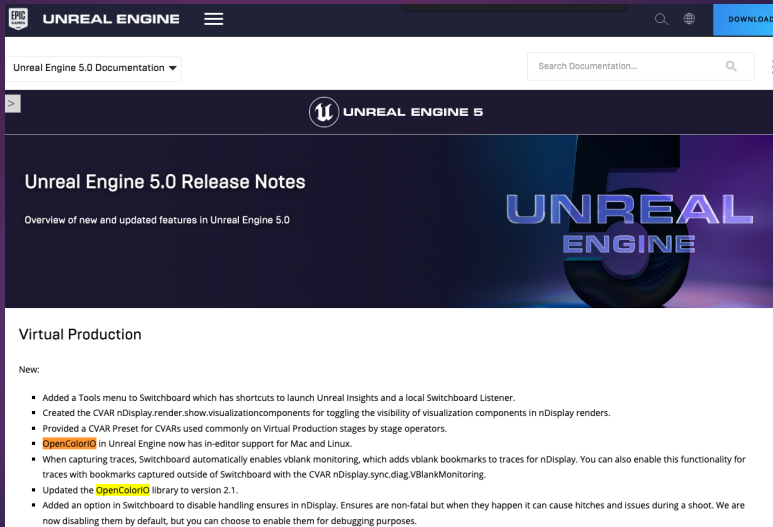
- Maya での OCIO の使用に関する一般情報については、「[カラー管理を使い始める](#)」を参照してください。
- OCIO の背景情報については、opencolorio.org を参照してください。

OCIO v2 は、OCIO v1 用に作成された設定ファイルもサポートしています。OCIO v1 を使用する旧バージョンの Maya のシーンを開くと、同じ設定ファイルが引き続き使用されます。ただし、v1 設定ファイルを使用している場合は、OCIO v1 で使用できる機能のみがサポートされます。

Maya 2022 で作成された新しいシーンは、業界標準のアカデミーカラーエンコーディングシステム(ACES)に従う、カラー管理の新しい既定の設定に基づいています。

Unreal Engine 5 (2022, 4)

<https://docs.unrealengine.com/5.0/en-US/unreal-engine-5.0-release-notes/>



EPIC GAMES UNREAL ENGINE

UNREAL ENGINE 5.0 Documentation

Search Documentation...

UNREAL ENGINE 5

Unreal Engine 5.0 Release Notes

Overview of new and updated features in Unreal Engine 5.0

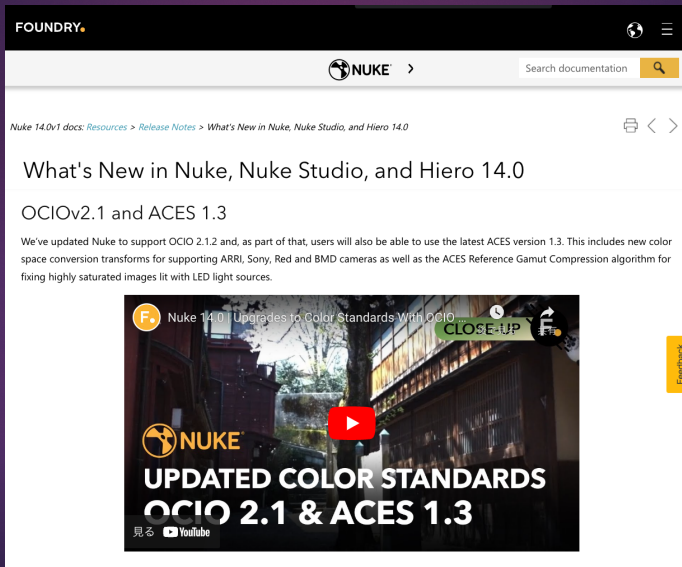
Virtual Production

New:

- Added a Tools menu to Switchboard which has shortcuts to launch Unreal Insights and a local Switchboard Listener.
- Created the CVAR `nDisplay.render.show.visualizationcomponents` for toggling the visibility of visualization components in nDisplay renders.
- Provided a CVAR Preset for CVARs used commonly on Virtual Production stages by stage operators.
- **OpenColorIO** in Unreal Engine now has in-editor support for Mac and Linux.
- When capturing traces, Switchboard automatically enables vblank monitoring, which adds vblank bookmarks to traces for nDisplay. You can also enable this functionality for traces with bookmarks captured outside of Switchboard with the CVAR `nDisplay.sync.diag.VBlankMonitoring`.
- Updated the **OpenColorIO** library to version 2.1.
- Added an option in Switchboard to disable handling ensures in nDisplay. Ensures are non-fatal but when they happen it can cause hitches and issues during a shoot. We are now disabling them by default, but you can choose to enable them for debugging purposes.

Nuke14.0 (2022, 14)

https://learn.foundry.com/nuke/content/release_notes/nuke_14.0.html



The screenshot shows the Foundry website's release notes for Nuke 14.0. The page has a dark header with the Foundry logo and navigation icons. Below the header is a search bar and a breadcrumb trail: "Nuke 14.0v1 docs: Resources > Release Notes > What's New in Nuke, Nuke Studio, and Hiero 14.0". The main heading is "What's New in Nuke, Nuke Studio, and Hiero 14.0", followed by a sub-heading "OCIOv2.1 and ACES 1.3". A paragraph of text describes the updates to color standards. Below the text is a video player with a thumbnail image of a city street at night. The video title is "Nuke 14.0 | Upgrades to Color Standards With OCIO". The thumbnail features the Nuke logo and the text "UPDATED COLOR STANDARDS OCIO 2.1 & ACES 1.3". A red play button is centered on the video. To the right of the video is a yellow "Feedback" button.

FOUNDRY

NUKE >

Search documentation

Nuke 14.0v1 docs: [Resources](#) > [Release Notes](#) > [What's New in Nuke, Nuke Studio, and Hiero 14.0](#)

What's New in Nuke, Nuke Studio, and Hiero 14.0

OCIOv2.1 and ACES 1.3

We've updated Nuke to support OCIO 2.1.2 and, as part of that, users will also be able to use the latest ACES version 1.3. This includes new color space conversion transforms for supporting ARRI, Sony, Red and BMD cameras as well as the ACES Reference Gamut Compression algorithm for fixing highly saturated images lit with LED light sources.

Nuke 14.0 | Upgrades to Color Standards With OCIO

UPDATED COLOR STANDARDS
OCIO 2.1 & ACES 1.3

見る YouTube

Feedback

VFX Reference Platform 2021 & 2022

https://vfxplatform.com/platform_history.html

VFX Reference Platform CY2020
OCIO1.1.x / ACES1.1

ACES 1.1
[\(2018, 6\)](#)

OCIO 1.1.0
[\(2018, 1\)](#)

VFX Reference Platform CY2021
OCIO2.0.x / ACES1.2

OCIO 2.0.0
[\(2021, 1\)](#)

OCIO2.0 Features
High quality color transform
Real-time performance (GPU)
CLF (Common LUT Format)

ACES 1.2
[\(2020, 4\)](#)

ACES1.2 Features
A new specification for the ACES Metadata File (AMF)
An updated Common LUT Format (CLF) specification
Additional color space conversion transforms (ACEScsc)
Updated ACES system versioning

VFX Reference Platform CY2022
OCIO2.1.x / ACES1.3

OCIO 2.1.0
[\(2021, 9\)](#)

OCIO2.1.0 Features
[ACES1.3 Reference Gamut Compression](#)
OpenFX/OpenEXR-Imath3/PythonPipinstall
OpenShadinglanguage Support

ACES 1.3
[\(2021, 5\)](#)

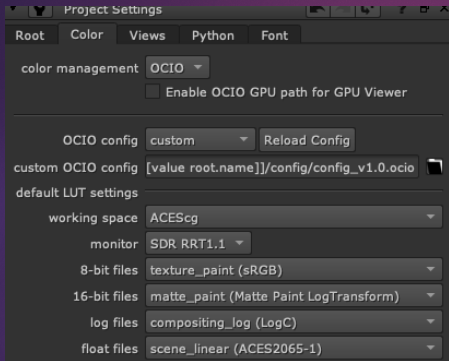
ACES1.3 Features
[ACES1.3 Reference Gamut Compression](#)
ACES Metadata file (minor update)

<https://www.colour.training/gamut-compression-seminar/>

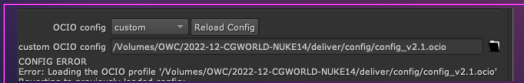
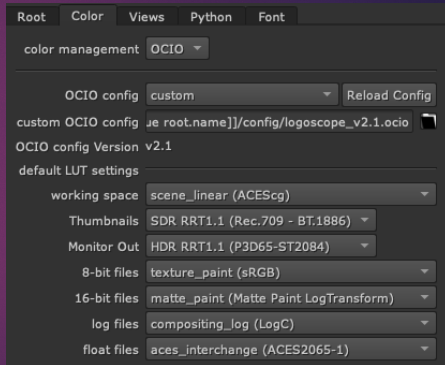
	CY2023	CY2022	CY2021	CY2020	CY2019	CY2018	CY2017	CY2016	CY2015	CY2014
OpenColorIO	2.2.x	2.1.x	2.0.x	1.1.x	1.1.0	1.0.9	1.0.9	1.0.9	1.0.9	1.0.7
ACES	1.3	1.3	1.2	1.1	1.1	1.0.3 - 1.0.latest	1.0.x	1.0		

OpenColorIO Config

Nuke12.2, OCIOv1.0



Nuke14.0, OCIOv2.1



OpenColorIO Config

Nuke14.0, OCIOv2.1

Nuke13.2 aces1.2 コンフィグ : 464MB

配布用 OCIOv2.1 コンフィグ

18KB

Name	Size
aces1.2	--
config.ocio	176 KB
luts	--
ACEScc_to_linear.spi1d	78 KB
ACEScct_to_linear.spi1d	79 KB
ACESproxy_to_linear.spi1d	78 KB
ADX_CID_to_RLE.spi1d	80 KB
Canon-Log_to_linear.spi1d	78 KB
Canon-Log2_to_flinear.spi1d	78 KB
Canon-Log3_to_flinear.spi1d	78 KB
CineonLog_to_linear.spi1d	78 KB
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Dolby_PQ_1000_nits_Sha...2084_1000_nits_spi3d	10.5 MB
Dolby_PQ_1000_nits_Sha...HLG_1000_nits_spi3d	9.6 MB
Dolby_PQ_1000_nits_Sha...2084_1000_nits_spi3d	10.1 MB
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InvRRT.Rec709.Log2_48_nits_Shaper.spi3d	9.9 MB
InvRRT.Rec2020.Log2_48_nits_Shaper.spi3d	9.7 MB
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Log2_48_nits_Shaper.RRT.Rec709.spi3d	7.1 MB
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Log2_48_nits_Shaper.RRT.Rec2020.spi3d	8.7 MB
Log2_48_nits_Shaper.RRT.sRGB_D60_sim_spi3d	8.1 MB
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S-Log2_to_linear.spi1d	78 KB
S-Log2_to_linear.spi1d	78 KB
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V3_LogC.160_to_linear.spi1d	1.3 MB
V3_LogC.200_to_linear.spi1d	1.3 MB
V3_LogC.250_to_linear.spi1d	1.3 MB
V3_LogC.320_to_linear.spi1d	1.3 MB
V3_LogC.400_to_linear.spi1d	1.3 MB
V3_LogC.500_to_linear.spi1d	1.3 MB
V3_LogC.640_to_linear.spi1d	1.3 MB
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V3_LogC.1600_to_linear.spi1d	1.3 MB
V3_LogC.2000_to_linear.spi1d	1.3 MB
V3_LogC.2560_to_linear.spi1d	1.3 MB

Name	Size
config	--
logoscope_v2.1.ocio	18 KB

```
ocio_profile_version: 2.1

environment:
  {}
  search_path: ./luts
  strictparsing: true
  luna: [0.2126, 0.7152, 0.0722]
  description: This OpenColorIO config was exported by PyOpenColorIO 2.1.2.

roles:
  aces_interchange: ACES2065-1
  color_timing: ACEScct
  compositing_log: LogC
  data: Raw
  default: ACES2065-1
  matte_paint: Matte Paint LogTransform
  reference: ACES RRT - Rec.709-BT.1886
  scene_linear: ACES2065-1
  texture_paint: sRGB

file_names:
  - !<Rule> {name: Default, colorspace: default}

displays:
  Rec.709 - BT.1886:
    - !<View> {name: SDR ART1.1, colorspace: ACES RRT - Rec.709-BT.1886}
  No Display:
    - !<View> {name: Raw, colorspace: Raw}
  P3D65-ST2084:
    - !<View> {name: HDR ART1.1, colorspace: ACES RRT - P3D65-ST2084}
```

OCIO2.0 Features

High Quality Builtin Transform

OCIOv1.0コンフィグ

```
OCIO.ColorSpace(  
  name='sRGB',  
  family='Cg',  
  aliases=[],  
  encoding='sdr-video',  
  equalityGroup='',  
  bitDepth=OCIO.BIT_DEPTH_F32,  
  allocation=OCIO.Allocation.ALLOCATION_UNIFORM,  
  allocationVars=[-0.125, 4.875],  
  isData=False,  
  description='The sRGB - Texture color space',  
  referenceSpace=OCIO.ReferenceSpaceType(OCIO.REFERENCE_SPACE_SCENE),  
  fromReference=OCIO.GroupTransform(  
    transforms=[  
      OCIO.MatrixTransform(  
        [  
          0.952552, 0, 9.36786e-05, 0,  
          0.343966, 0.728166, -0.0721325, 0,  
          0, 0, 1.00883, 0,  
          0, 0, 0, 1  
        ]  
      ),  
      OCIO.MatrixTransform(  
        [  
          3.2096, -1.55743, -0.495805, 0,  
          -0.970989, 1.88517, 0.0394894, 0,  
          0.0597193, -0.210104, 1.14312, 0,  
          0, 0, 0, 1  
        ]  
      ),  
      OCIO.FileTransform(  
        src='nkd/srgb.spild',  
        direction=OCIO.TransformDirection(OCIO.TRANSFORM_DIR_INVERSE),  
      ),  
    ],  
  )  
)
```

```
Version 1  
From -0.125 4.875  
Length 65561  
Components 1  
{  
  -0.00967492260062  
  -0.00966901965821  
  -0.00966311671581  
  -0.00965721377341  
  -0.009651310831  
  -0.0096454078886  
  -0.00963950494619  
  -0.00963360200379  
  -0.00962769906138  
  -0.00962179611898  
  -0.00961589317658  
  -0.00960999023417  
  -0.00960408729177  
  -0.00959818434936  
  -0.00959228140696  
  -0.00958637846455  
  -0.00958047552215  
  -0.00957457257975  
  -0.00956866963734  
  -0.00956276669494  
  -0.00955686375253  
  -0.00955096081013  
  -0.00954505786772  
  -0.00953915492532  
  -0.00953325190292  
  -0.00952734904051  
  -0.00952144609811  
  -0.0095155431557
```

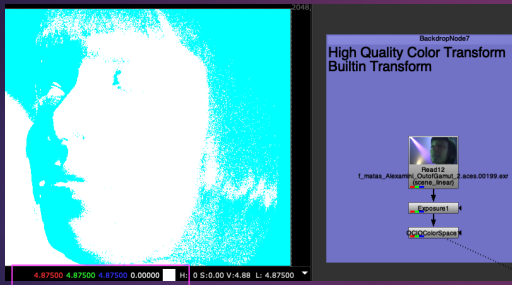
配布用 OCIOv2.1コンフィグ

```
OCIO.ColorSpace(  
  name='sRGB',  
  family='Cg',  
  aliases=[],  
  encoding='sdr-video',  
  equalityGroup='',  
  bitDepth=OCIO.BIT_DEPTH_F32,  
  allocation=OCIO.Allocation.ALLOCATION_UNIFORM,  
  allocationVars=[0, 1.0],  
  isData=False,  
  description='The sRGB - Texture color space',  
  referenceSpace=OCIO.ReferenceSpaceType(OCIO.REFERENCE_SPACE_SCENE),  
  fromReference=OCIO.GroupTransform(  
    transforms=[  
      OCIO.BuiltinTransform(  
        style='UTILITY - ACES-AP0_to_CIE-XYZ-D65_BFD',  
      ),  
      OCIO.BuiltinTransform(  
        style='DISPLAY - CIE-XYZ-D65_to_sRGB',  
      ),  
    ],  
  )  
)
```

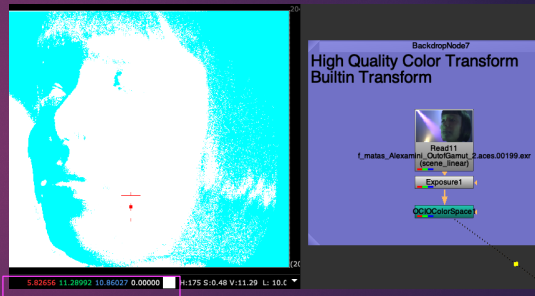
OCIO2.0 Features

High Quality Builtin Transform

OCIOv1.0コンフィグ



配布用 OCIOv2.1コンフィグ



NETFLIX HDR P3D65 ST2084-PQ

<https://partnerhelp.netflixstudios.com/hc/ja/articles/360000599948-%E3%82%AB%E3%83%A9%E3%83%BC%E3%82%B0%E3%83%AC%E3%83%BC%E3%83%87%E3%82%A3%E3%83%B3%E3%82%B0-%E3%83%B9%E3%83%AB%E3%88%93%E3%83%BC%E3%83%93%E3%82%B8%E3%83%A7%E3%83%B3-HDR>

カラースタリキティング：ドルビービジョン/ HDR

NETFLIX

NETFLIX

パートナーヘルプセンター

	HDRのモニタリング	SDRのモニタリング
色域	P3	Rec.709
ホワイトポイント	D65	D65
EOTF	PQ / ST.2084	BT.1886 (2.4 ガンマ)
ホワイトピーク	1000 / 2000 / 4000 nit (モデルによる)	100 cd/m2

ACESを使用していますが、どの出力変換を使用すべきですか？

ご使用のモニターに応じて、次のODTを使用してください。

- P3-D65 ST.2084 (1,000 nit)
- P3-D65 ST.2084 (4,000 nit)

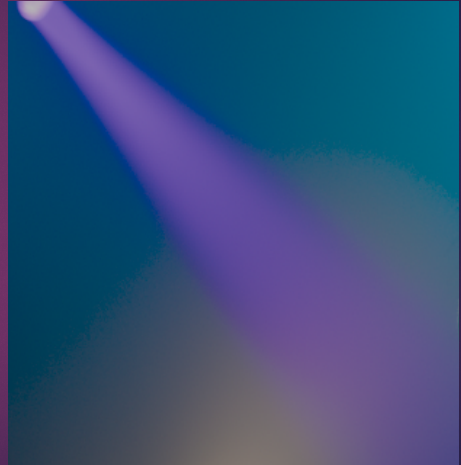
OCIO2.0 Features

High Quality Builtin Transform

OCIO1.0 / ACES1.2 RRT P3-D65 ST2084 with ShaperLUT



OCIO2.0 / ACES1.2 RRT P3-D65 ST2084



References Images:

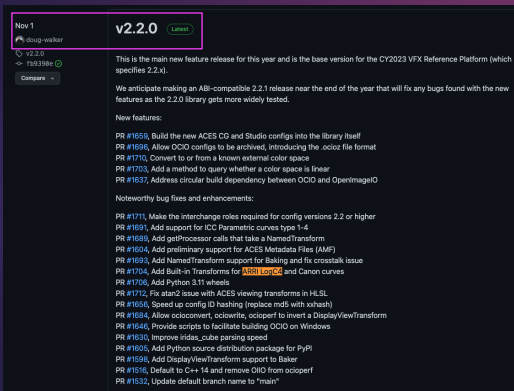
<https://github.com/colour-science/gamut-mapping-ramblings/tree/4102e4ce000c80fbb261f311e792e7a246787bd5>

OCIO2.2 Features

Builtin Transform for LogC4

<https://github.com/AcademySoftwareFoundation/OpenColorIO/releases>

Nuke14.0, OCIOv2.1



Nov 1 **v2.2.0** Latest

[Compare](#)

v2.2.0
f5939be

This is the main new feature release for this year and is the base version for the CY2023 VFX Reference Platform (which specifies 2.2.x).

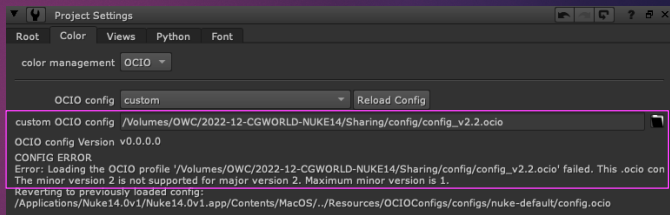
We anticipate making an ABI-compatible 2.2.1 release near the end of the year that will fix any bugs found with the new features as the 2.2.0 library gets more widely tested.

New features:

- PR #1659, Build the new ACES CG and Studio configs into the library itself
- PR #1696, Allow OCIO configs to be archived, introducing the .ocioz file format
- PR #1710, Convert to or from a known external color space
- PR #1703, Add a method to query whether a color space is linear
- PR #1637, Address circular build dependency between OCIO and OpenImageIO

Noteworthy bug fixes and enhancements:

- PR #1711, Make the interchange roles required for config versions 2.2 or higher
- PR #1691, Add support for ICC Parametric curves type 1-4
- PR #1689, Add getProcessor calls that take a NamedTransform
- PR #1604, Add preliminary support for ACES Metadata Files (AMF)
- PR #1693, Add NamedTransform support for Baking and fix crosstalk issue
- PR #1704, Add Built-in Transforms for **ABRI LogC4** and Canon curves
- PR #1706, Add Python 3.11 wheels
- PR #1712, Fix atan2 issue with ACES viewing transforms in HSL
- PR #1656, Speed up config ID hashing (replace md5 with xxhash)
- PR #1684, Allow ocioconvert, ociowrite, ociopeer to invert a DisplayViewTransform
- PR #1646, Provide scripts to facilitate building OCIO on Windows
- PR #1630, Improve iridas_cube parsing speed
- PR #1605, Add Python source distribution package for PyPI
- PR #1598, Add DisplayViewTransform support to Baker
- PR #1516, Default to C++ 14 and remove OIO from ociopeer
- PR #1632, Update default branch name to "main"



Project Settings

Root Color Views Python Font

color management OCIO

OCIO config custom Reload Config

custom OCIO config /Volumes/OWC/2022-12-CGWORLD-NUKE14/Sharing/config/config_v2.2.ocio

OCIO config Version v0.0.0.0

CONFIG ERROR

Error: Loading the OCIO profile '/Volumes/OWC/2022-12-CGWORLD-NUKE14/Sharing/config/config_v2.2.ocio' failed. This .ocio con
The minor version 2 is not supported for major version 2. Maximum minor version is 1.

Reverting to previously loaded config:
/Applications/Nuke14.0v1/Nuke14.0v1.app/Contents/MacOS/./Resources/OCIOConfigs/configs/nuke-default/config.ocio

OCIO2.0 Features

Builtin Transform for Camera Log

<https://opencolorio.readthedocs.io/en/latest/api/transforms.html#logcameratransform>

LogCameraTransform

Python C++

class PyOpenColorIO.LogCameraTransform

Same as LogAffineTransform but with the addition of a linear segment near black. This formula is used for many camera logs (e.g., LogC) as well as ACEScct.

- The `linSideBreak` specifies the point on the linear axis where the log and linear segments meet. It must be set (there is no default).
- The `linSideSlope` specifies the slope of the linear segment of the forward (linToLog) transform. By default it is set equal to the slope of the log curve at the break point.

LogCameraTransform () → None

`linSideBreak` must be set for the transform to be valid (there is no default).

equals (other:PyOpenColorIO.LogCameraTransform) → bool

Checks if this exactly equals other.

getBase () → float

getDirection () → PyOpenColorIO.TransformDirection

getFormatMetadata () → PyOpenColorIO.FormatMetadata

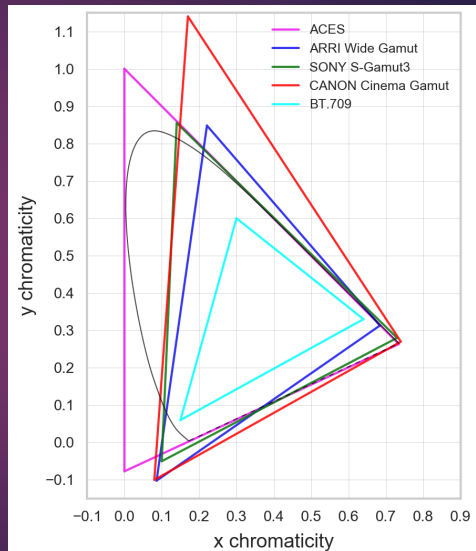
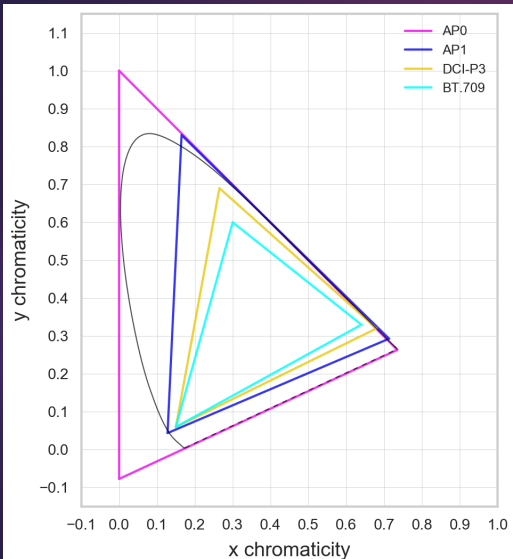
getLinSideBreakValue () → List[float[3]]

getLinSideOffsetValue () → List[float[3]]

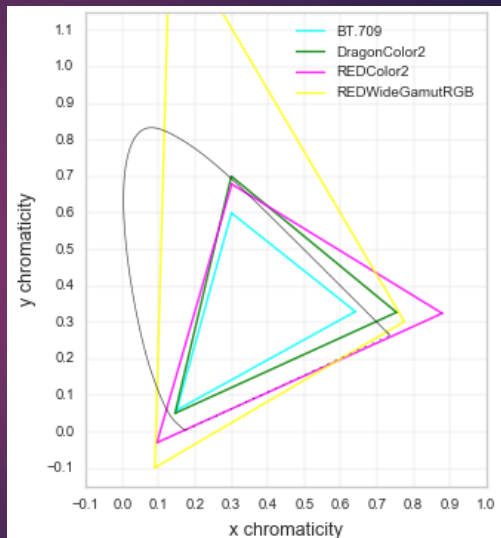
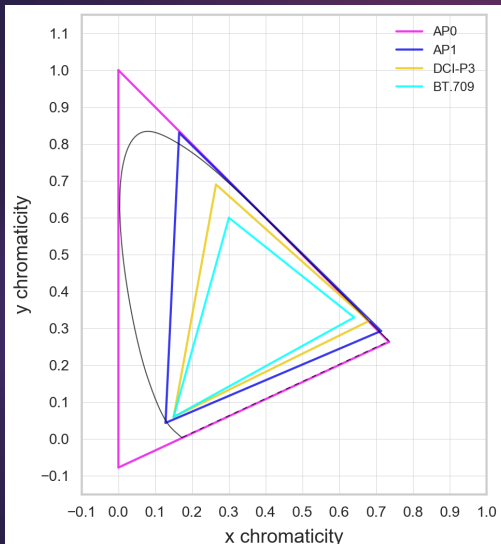
配布用 OCIOv2.1 コンフィグ

```
OCIO.ColorSpace(  
    name='CURVE - LogC4',  
    family='Cameras/ARRI',  
    aliases=[],  
    encoding='log',  
    equalityGroup='',  
    bitDepth=OCIO.BIT_DEPTH_F32,  
    allocation=OCIO.Allocation.ALLOCATION_UNIFORM,  
    allocationVars=[0, 1],  
    isData=False,  
    description='ARRI LogC4, released at 1st May 2022, is a direct successor to  
referenceSpace=OCIO.ReferenceSpaceType(OCIO.REFERENCE_SPACE_SCENE),  
toReference=OCIO.LogCameraTransform(  
    base=logc4_param['base'],  
    logSideSlope=logc4_param['logSideSlope'],  
    logSideOffset=logc4_param['logSideOffset'],  
    linSideSlope=logc4_param['linSideSlope'],  
    linSideOffset=logc4_param['linSideOffset'],  
    linSideBreak=logc4_param['linSideBreak'],  
    linearSlope=logc4_param['linearSlope'],  
    direction=OCIO.TransformDirection(OCIO.TRANSFORM_DIR_INVERSE)  
),
```

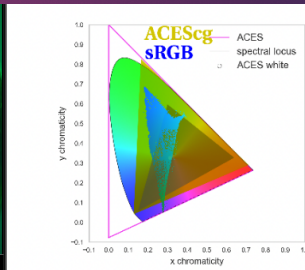
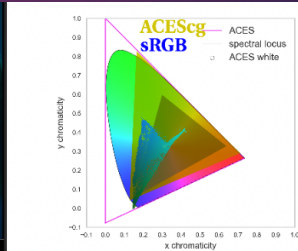
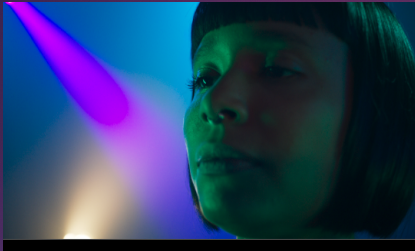
ARRI Wide Gamut



REDWideGamutRGB



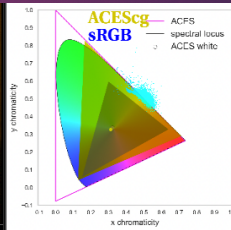
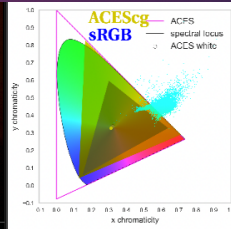
Negative Value in ACEScsg (ARRI Wide Gamut)



References Images:

<https://github.com/colour-science/gamut-mapping-ramblings/tree/4102e4ce000c80fbb261f311e792e7a246787bd5>

Negative Value in ACEScsg (REDWideGamutRGB)



References Images:

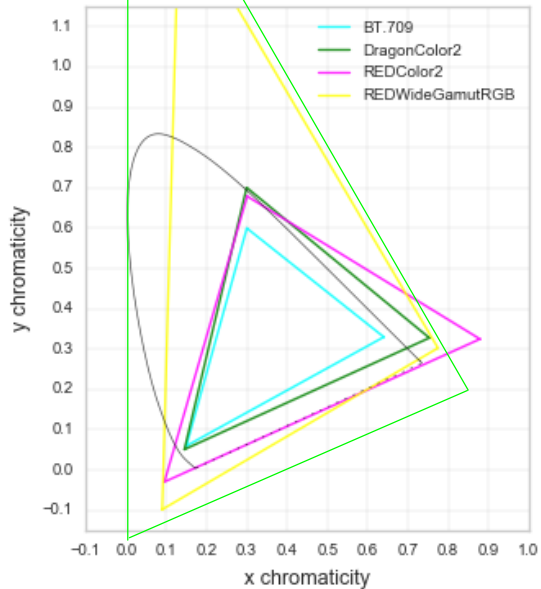
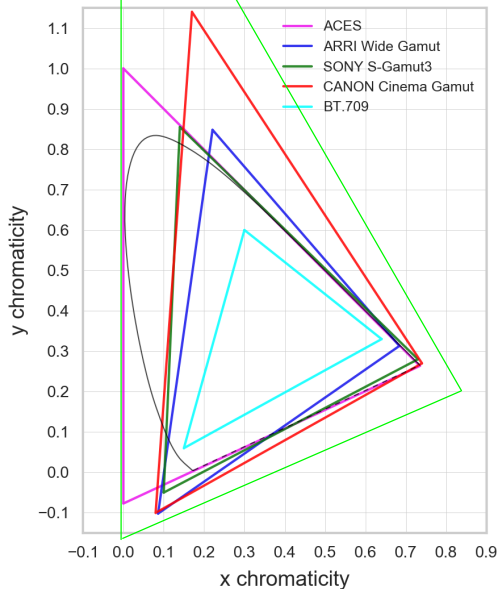
Martial Arts Tokyo | Takuro Ishizaka | KOMODO @ RED Digital Cinema

<https://www.youtube.com/watch?v=0icV7vxyEE>

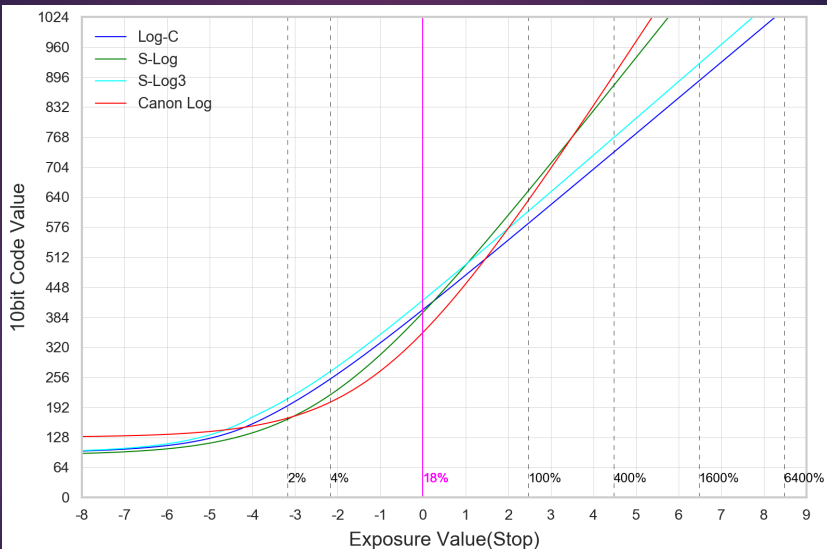
Logoscope

www.logoscope.co.jp

Camera Wide Gamut for Matte Paint



LogC Curve and Dynamic Range



OCIO2.0 Features

Matte Paint LogTransform (Camera Wide Gamut)

Matte Paint LogTransform

MatrixTransform

CDLTransform

LogCameraTransform

LogAffineTransform

ExponentWithLinearTransform

配布用 OCIOv2.1コンフィグ

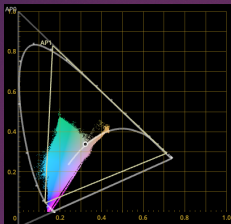
```
OCIO.ColorSpace(  
  name='Matte Paint LogTransform',  
  family='Cg',  
  aliases=[],  
  encoding='sdr-video',  
  equalityGroup='',  
  bitDepth=OCIO.BIT_DEPTH_F32,  
  allocation=OCIO.Allocation.ALLOCATION_UNIFORM,  
  allocationVars=[0, 1.0],  
  isData=False,  
  description='Convert matte paint gamma',  
  referenceSpace=OCIO.ReferenceSpaceType(OCIO.REFERENCE_SPACE_SCENE),  
  fromReference=OCIO.GroupTransform(  
    transforms=[  
      # AP0 to matte_paint gamut R(0.82, 0.2), G(0, 1.04), B(0, -0.2)  
      OCIO.MatrixTransform(  
        [  
          0.9871892242, -0.0046834847, 0.0174942605, 0,  
          0.1180110020, 0.7655257762, 0.1164632219, 0,  
          0.0470306774, 0.1992154871, 0.7537538655, 0,  
          0, 0, 0, 1  
        ]  
      ),  
      OCIO.CDLTransform(  
        offset=[0.015, 0.015, 0.015],  
      ),  
      OCIO.LogCameraTransform(  
        base=log_matte['base'],  
        logSideSlope=log_matte['logSideSlope'],  
        logSideOffset=log_matte['logSideOffset'],  
        linSideSlope=log_matte['linSideSlope'],  
        linSideOffset=log_matte['linSideOffset'],  
        linSideBreak=log_matte['linSideBreak'],  
        linearSlope=log_matte['linearSlope'],  
      ),  
      log_sffin,  
      OCIO.ExponentWithLinearTransform(  
        gamma=[2.4, 2.4, 2.4, 1],  
        offset=[0.0, 0.0, 0.0, 0.0],  
      ),  
    ],  
  ),  
)
```

Logoscope

v.logoscope.co.jp

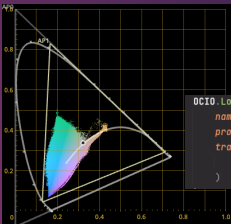
OCIO2.1 Features Builtin Transform ACES 1.3 Reference Gamut Compression

VFX Reference Platform CY2021
OCIO2.0.x / ACES1.2



VFX Reference Platform CY2022
OCIO2.1.x / ACES1.3

```
OCIO.Look(  
  name='RGC',  
  processSpace='ACES2065-1',  
  transform=OCIO.BuiltinTransform(  
    style='ACES-LMT - ACES 1.3 Reference Gamut Compression',  
  )  
)
```



References Images:

<https://github.com/colour-science/gamut-mapping-ramblings/tree/4102e4ce000c80fbb261f311e792e7a246787bd5>

Logoscope

www.logoscope.co.jp

Fixed Transform

Creative Intent

Look Modification Transform (LMT) for SHOW LUT

RAW
ISO/White

OpenEXR
(ACES)

White
Balance

Gamut
Compression

LMT

ACES
RRT

HDR
PQ-P3-
D65-1000nit

SDR
Rec.709



```
class PyOpenColorIO.LookTransform
```

```
LookTransform (*args, **kwargs)
```

```
Overloaded function.
```

```
1. __init__(self: PyOpenColorIO.LookTransform) -> None
```

```
2. __init__(self: PyOpenColorIO.LookTransform, src: str, dst: str, looks: str = "", skipColorSpaceConversion: bool = False, direction: PyOpenColorIO.TransformDirection = <TransformDirection.TRANSFORM_DIR_FORWARD: 0>) -> None
```

```
getDirection () -> PyOpenColorIO.TransformDirection
```

```
getDst () -> str
```

```
getLooks () -> str
```

```
getSkipColorSpaceConversion () -> bool
```

```
getSrc () -> str
```

```
getTransformType () -> PyOpenColorIO.TransformType
```

```
setDirection (direction: PyOpenColorIO.TransformDirection) -> None
```

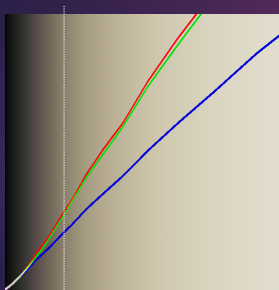
```
Note that this only affects the evaluation and not the values stored in the object.
```

Logoscope

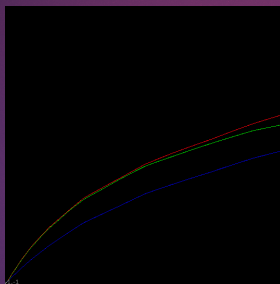
www.logoscope.co.jp

Look Modification Transform (LMT) for SHOW LUT

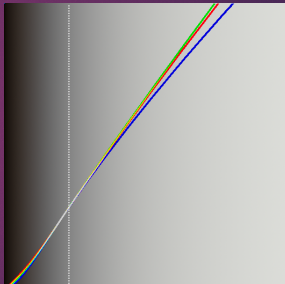
Bad Example



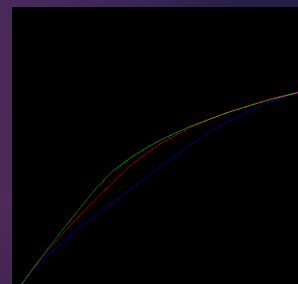
18%
Grey



1000%
White



18%
Grey

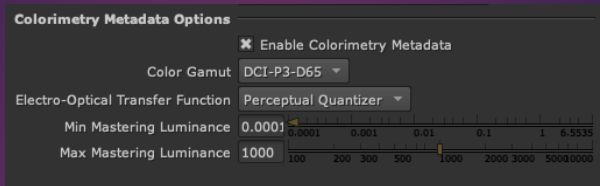


1000%
White

Logoscope

www.logoscope.co.jp

Colorimetry Metadata in Monitor Out



Colorimetry Metadata in Monitor Out

For artists working with HDR data, we are including colorimetry metadata support to allow for users to have an easier and quicker setup for their monitoring devices. You can now enable and control metadata passed over HDMI or SDI, so that their video content is automatically displayed in HDR on their appropriate monitor, helping to reduce setup time and providing greater workflow efficiencies.

New USD-Bas

UnrealReader

CopyCat Perf

Introducing th

Timeline Upd

まとめ

OCIO2.0にアップデートすると、以下のメリット有り

- HDRからSDRの変換可能
- 色変換時の階調の精度向上（NETFLIX HDR制作に有利）
- UE、Mayaも対応するため、CGや、InCameraVFXでのLED Wallのカラーマネージメントにも使用可能
- VFX Reference PlatformのCY2021に対応

OCIO2.1にアップデートすると、以下のメリット有り

- **BuiltinTransform**でReference Gamut Compressionが使用可能
- VFX Reference PlatformのCY2022に対応

推奨の導入方法

1. OCIO 1.0、OCIO 2.0 の両対応のカラーマネジメント環境作成。
2. 全てのソフトウェアがOCIO2.1に対応した時に、OCIO2.1にバージョンアップ。

旧バージョン(OCIO1.0)対応、一眼レフやドローンのIDT、HDRテレビ導入、作品ごとの個別カスタムコンフィグなど、ご相談受けたくまります！

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