Technical Bulletin

TB-2014-001

Academy Color Encoding System (ACES) Version 1.0

Documentation Guide

The Academy of Motion Picture Arts and Sciences
Science and Technology Council
Academy Color Encoding System Project Committee

Version 1.0 December 19, 2014

Summary: This document describes the technical documentation provided with ACES Version 1.0 System Release

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Revision History

Version	Date	Description
1.0	12/19/14	Formatted for release

Related A.M.P.A.S Documents

Document Name	Version	Date	Description
Academy Color Encoding System (ACES) Developer Release Documentation Guide	1.0	12/19/14	ACES 1.0 developer documentation guide

Table of Contents

Introduction

The Academy Color Encoding System (ACES) is a free, open, device-independent color management and image interchange system that can be applied to almost any current or future workflow. It was developed by hundreds of the industry's top scientists, engineers and end users, working together under the auspices of the Academy of Motion Picture Arts and Sciences.

ACES technical documentation is available for product developers wishing to implement ACES concepts and specifications into their products and for workflow/pipeline designers to use ACES concepts and ACES-enabled products for their productions.

1 Scope

This document describes the technical documentation provided with the ACES Version 1.0 System Release.

2 Document Types

ACES technical documentation is a collection of Society of Motion Picture and Television Engineers (SMPTE) Specifications, Academy Specifications, Academy Procedures and Academy Technical Bulletins. These document types are described below.

2.1 SMPTE Specification

Certain ACES technical specifications have been published by SMPTE, the industry's accredited standards development organization. For more information on SMPTE standards, please visit http://www.smpte.org.

2.2 Academy Specification

An Academy Specification is a document that states basic technical specifications, dimensions or criteria that describe the form and function of a system and/or its components. Specifications may include informative text describing basic usage of the specification and other contextual information. Academy Specification numbers use the following format: S-xxxx-yyy where xxxx is the publication year and yyy is the document sequence number (a maximum of 999 Academy Specifications may be published in any year)

2.3 Academy Procedure

An Academy Procedure is a document that provides a set of recommended step-by-step instructions intended to facilitate the implementation of one or more specifications. Academy Procedure numbers use the following format: P-xxxx-yyy where xxxx is the publication year and yyy is the document sequence number (a maximum of 999 Academy Procedures may be published in any year)

2.4 Academy Technical Bulletin

An Academy Technical Bulletin is a document, often tutorial in nature, intended to provide a broad system overview, in-depth usage information, in-depth specification derivation not required to implement a specification, or any other technical information or reporting that falls outside the scope of an Academy Specification or Procedure. Academy Technical Bulletin numbers use the following format: TB-xxxx-yyy where xxxx is the publication year and yyy is the document sequence number (a maximum of 999 Academy Technical Bulletins may be published in any year)

3 ACES 1.0 Documents

3.1 Overview/General

3.1.1 ACES Versioning System Specification: S-2014-002

This Academy Specification describes the versioning of the engineering components that comprise the public release of the ACES system. These version numbers are intended to be used within ACES files such as transforms and the ACES Clip-level Metadata container. There is a separate document, the "ACES User Experience Guidelines," that deals with naming and versioning issues as they relate to end-users.

3.1.2 ACES Version 1.0 Component Names: TB-2014-012

This Technical Bulletin defines key ACES component names as a prelude to an ACES glossary.

3.1.3 ACES Version 1.0 User Experience Guidelines: TB-2014-002

This Academy Technical Bulletin provides guidelines for product developers building products that implement ACES and for others looking for guidance on how best to present ACES terminology and concepts to end-users.

3.1.4 Alternate ACES Viewing Pipeline User Experience: TB-2014-013

This DRAFT Academy Technical Bulletin describes an alternate approach to implementing and presenting the ACES viewing pipeline.

3.2 SMPTE Specifications

3.2.1 Notes on Academy Color Encoding Specification (ACES): TB-2014-004

This Academy Technical Bulletin provides background and contextual information related to SMPTE 2065-1:2012.

3.2.2 Notes on Academy Printing Density (APD) Specification and Academy Density Exchange (ADX) Specification: TB2014-005

This Academy Technical Bulletin provides background and contextual information related to SMPTE 2065-2:2012 and SMPTE 2065-3:2012.

3.2.3 Notes on Container for ACES-encoded Data: TB-2014-006

This Academy Technical Bulletin provides background and contextual information related to SMPTE 2065-4:2013.

3.2.4 Notes on Container for ADX-encoded Data: TB-2014-007

This Academy Technical Bulletin provides background and contextual information related to SMPTE 268M:2003 Am1.

3.3 ACES Encodings

3.3.1 ACES2065-1

Please see the document referenced in section 3.2.1, which specifies the fundamental colorimetric encoding in the Academy Color Encoding System.

3.3.2 ACEScc: S-2014-003

This Academy Specification defines a colorimetric encoding appropriate for final color adjustment operations.

3.3.3 ACESproxy: S-2013-001

This Academy Specification defines a colorimetric encoding appropriate for on-set preview and on-set look management applications.

3.3.4 ACEScg: S-2014-004

This DRAFT Academy Specification defines a colorimetric encoding appropriate as a “working space” for use in Computer Generated Imagery (CGI) tools such as compositors, paint and rendering systems.

3.3.5 ASC-CDL Application: TB-2014-008

This Academy Technical Bulletin describes a recommended method for applying ASC-CDL values to image data in an ACES workflow.

3.4 ACES Containers and Metadata

3.4.1 ACES Image Files

Please see the document referenced in section 3.2.3, which specifies the container format for ACES2065-1 encoded images.

3.4.2 ADX Files

Please see the document referenced in section 3.2.4, which specifies the container format for ADX-encoded images.

3.4.3 ACESclip Files: TB-2014-009

This Academy Technical Bulletin defines an XML-based file format that contains metadata to describe the viewing pipeline for a collection of image files associated with an ACES workflow.

3.4.4 Look Modification Transform Files: TB-2014-010

This Academy Technical Bulletin describes the design, integration and use of ACES Look Modification Transforms (LMTs).

3.4.5 Academy-ASC Common LUT Format Files: S-2014-006

This Academy Specification specifies an XML-based file format that contains color Look-Up Tables (LUTs). LUTs are used extensively in implementations of and workflows using the Academy Color Encoding System.

3.5 Other

3.5.1 Digital Camera Input Device Transform (IDT) Developers Guide: P-2013-001

This DRAFT Academy Procedure describes methods to create Input Device Transforms for use with the Academy Color Encoding System.