

SMPTE STANDARD

Dynamic Metadata for Color Volume Transform — KLV Encoding and MXF Mapping



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Foreword

SMPTE (the Society of Motion Picture and Television Engineers) is an internationally-recognized standards developing organization. Headquartered and incorporated in the United States of America, SMPTE has members in over 80 countries on six continents. SMPTE's Engineering Documents, including Standards, Recommended Practices, and Engineering Guidelines, are prepared by SMPTE's Technology Committees. Participation in these Committees is open to all with a bona fide interest in their work. SMPTE cooperates closely with other standards-developing organizations, including ISO, IEC and ITU.

SMPTE Engineering Documents are drafted in accordance with the rules given in its Standards Operations Manual.

SMPTE ST 2094-2 was prepared by Technology Committee 31FS.

Intellectual Property

At the time of publication no notice had been received by SMPTE claiming patent rights essential to the implementation of this Engineering Document. However, attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. SMPTE shall not be held responsible for identifying any or all such patent rights.

Introduction

This section is entirely informative and does not form an integral part of this Engineering Document.

The SMPTE ST 2094 suite of documents defines metadata for use in color volume transforms of content. This document specifies:

- The encoding of SMPTE ST 2094 metadata sets using Key-Length-Value (KLV) structures,
- The MXF essence container for using this essence with MXF files.

Metadata items are encoded in data types corresponding to those used in referenced SMPTE ST 2094 documents, with some exceptions. Value ranges, array bounds, and allowed item combinations are specified in the referenced SMPTE ST 2094 documents and are not duplicated in this document.

Section 6 specifies the encoding of SMPTE ST 2094 metadata sets using the Key-Length-Value data encoding protocol (KLV), defined in SMPTE ST 336.

Section 7 defines the coding of the metadata essence element, the essence container label, and the essence descriptor, for MXF Essence Containers containing DMCVT Application Sets.

1 Scope

The SMPTE ST 2094 suite of documents defines metadata for use in color volume transforms of content.

SMPTE ST 2094-2 specifies Key-Length-Value (KLV) representations of metadata sets defined in SMPTE ST 2094-10, SMPTE ST 2094-20, SMPTE ST 2094-30, and SMPTE ST 2094-40.

SMPTE ST 2094-2 specifies frame-based mapping of KLV-encoded SMPTE ST 2094 metadata sets into the MXF generic container. SMPTE ST 2094-2 specifies the key and value fields of the essence elements, the essence container label and the essence descriptor.

2 Conformance Notation

Normative text is text that describes elements of the design that are indispensable or contains the conformance language keywords: "shall", "should", or "may". Informative text is text that is potentially helpful to the user, but not indispensable, and can be removed, changed, or added editorially without affecting interoperability. Informative text does not contain any conformance keywords.

All text in this document is, by default, normative, except: the Introduction, any section explicitly labeled as "Informative" or individual paragraphs that start with "Note:"

The keywords "shall" and "shall not" indicate requirements strictly to be followed in order to conform to the document and from which no deviation is permitted.

The keywords, "should" and "should not" indicate that, among several possibilities, one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required; or that (in the negative form) a certain possibility or course of action is deprecated but not prohibited.

The keywords "may" and "need not" indicate courses of action permissible within the limits of the document.

The keyword "reserved" indicates a provision that is not defined at this time, shall not be used, and may be defined in the future. The keyword "forbidden" indicates "reserved" and in addition indicates that the provision will never be defined in the future.

A conformant implementation according to this document is one that includes all mandatory provisions ("shall") and, if implemented, all recommended provisions ("should") as described. A conformant implementation need not implement optional provisions ("may") and need not implement them as described.

Unless otherwise specified, the order of precedence of the types of normative information in this document shall be as follows: Normative prose shall be the authoritative definition; Tables shall be next; then formal languages; then figures; and then any other language forms.

3 Normative References

The following standards contain provisions, which, through reference in this text, constitute provisions of this engineering document. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this engineering document are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE ST 336:2007, Data Encoding Protocol Using Key-Length-Value

SMPTE ST 377-1:2011, Material Exchange Format (MXF) — File Format Specification