SMPTE RECOMMENDED PRACTICE

Carriage of EIDR Identifiers in MXF Files

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Approved
September 16, 2014

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 RP 2089 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 Entertainment ID Registry (EIDR) Identifier (as specified in SMPTE RP 2079) is used for global unique identification of movie and TV content. It is desirable to associate EIDR Identifiers with essence across applications of the MXF file format, without modifications to these applications, and both at and after initial file creation. This can be achieved using the Descriptive Metadata Scheme plug-in mechanism specified in SMPTE ST 377-1.

A Basic Application, specified in Section 5, is used when a single EIDR Identifier is associated with an output timeline of an MXF file. More complex applications, specified elsewhere, can associate multiple EIDR Identifiers with a file. For instance, a distinct EIDR DM Framework Set, and hence EIDR Identifier, can be associated with individual File Packages if the MXF file is a composite of multiple individual programs.

1 Scope

This Recommended Practice specifies a Descriptive Metadata Scheme (as specified in SMPTE ST 377-1 and SMPTE ST 377) that allows an EIDR Identifier (as specified in SMPTE RP 2079) to be associated with essence contained in an MXF file. It also specifies a set of constraints to be used when a single EIDR Identifier is associated with an entire MXF file.

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; followed by 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 recommended practice. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this recommended practice are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below.

SMPTE ST 377-1:2009, Material Exchange Format (MXF) — File Format Specification

SMPTE ST 377:2004, Material Exchange Format (MXF) — File Format Specification

SMPTE RP 2079:2013, Digital Object Identifier (DOI) Name and Entertainment ID Registry (EIDR) Identifier Representations

4 EIDR DM Scheme

4.1 General

The EIDR DM Scheme may be used in any MXF file as long as Descriptive Metadata Plug-ins are supported, including MXF Files conforming to earlier revisions of SMPTE ST 377-1 such as SMPTE ST 377:2004.

4.2 EIDR DM Scheme Label

If one or more EIDR DM Framework Sets are present in an MXF file, the DM Schemes item of the Preface Set shall include exactly one instance of the UL defined in Table 1.

Table 1 – EIDR DM Scheme Label

Byte No.	Description	Value (hex)	Meaning
1~7	See Table 21 of SMPTE ST 377-1		Generic Universal Label for MXF Descriptive Metadata Schemes
8	Version Number	0Dh	Registry Version in which the specific key first appeared
9~12	See Table 21 of SMPTE ST 377-1		Generic Universal Label for MXF Descriptive Metadata Schemes
13	Structure / Scheme Kind	05h	EIDR Descriptive Metadata Scheme
14	Version	01h	EIDR Descriptive Metadata Scheme Version 1
15	Reserved	00h	–
16	Reserved	00h	–

4.3 EIDR Framework Set

4.3.1 Key

The Set Key of the EIDR DM Framework Set shall be as specified in Table 2.

Table 2 – EIDR DM Framework Set Key

Byte No.	Description	Value (hex)	Meaning
1~7	See Table 22 of SMPTE ST 377-1		Generic Key for MXF Descriptive Metadata Schemes
8	Version Number	01h	Registry Version in which the specific key first appeared
9~12	See Table 22 of SMPTE ST 377-1		Generic Key for MXF Descriptive Metadata Schemes
13	Structure / Scheme Kind	05h	EIDR Descriptive Metadata Scheme
14	Set	01h	EIDR DM Framework
15	Reserved	00h	–
16	Reserved	00h	–

4.3.2 Set

The EIDR DM Framework Set shall be as specified in Table 3.

Table 3 – DM Framework Set

Item Name	Type	Item Designator	Local Tag	Length	Req	Value
EIDR DM Framework	Set Key	–		16	Req	As specified in Table 2
Length	BER Length			var	Req	
All items in the Descriptive Framework specified in SMPTE ST 377-1						
EIDR DMS Essence ID	Canonical EIDR Identifier Type (see SMPTE RP 2079)	06.0E.2B.34. 01.01.01.0E. 01.01.15.14. 00.00.00.00	Dyn	var	Req	EIDR Identifier for the essence associated with the DM Framework

The EIDR DM Framework Set may be extended by the addition of items, including Strong or Weak References to one or more Descriptive Metadata Objects (DM Object.)

Note: Canonical EIDR Identifier Type is specified in SMPTE RP 2079. It is derived from CanonicalDOINameType, which is itself derived from UTF16String type.

5 Basic Application

This Section specifies the Basic Application of the EIDR DM Scheme that applies when a single EIDR Identifier is associated with an output timeline of an MXF file. Other specifications or future revisions of this specification may specify additional applications of the EIDR DM Scheme.

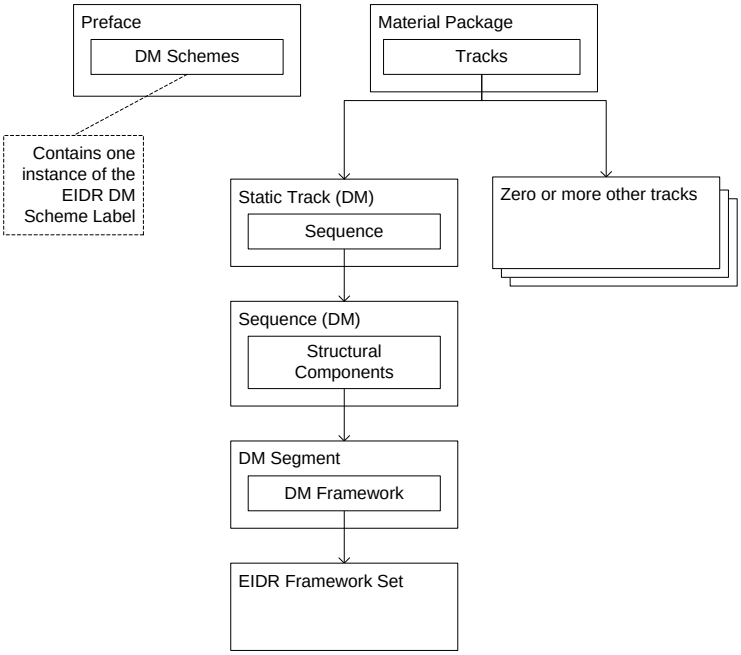

Figure 1 – Basic Application of the EIDR DM Scheme (Informative)

As illustrated in Figure 1, if a single EIDR Identifier is associated with an output timeline of an MXF file, the Tracks items of the corresponding Material Package shall reference a Static Track (DM) conforming to the following:

- The Sequence item of the Static Track (DM) shall reference a Sequence (DM).
- The Structural Components item of the Sequence (DM) shall reference one and only one DM Segment.
- The DM Segment shall conform to the following:
    - The Track IDs item shall be omitted;
    - The DM Framework item shall reference one and only one EIDR DM Framework Set as specified in Section 4.3.

Note: The Simple DM Plug-In Instance Removability specified in SMPTE ST 377-1 can be used to facilitate removal of the EIDR DM Framework instances.

Additional EIDR DM Framework Sets, and hence EIDR Identifiers, may be associated with other aspects of the file, as provided in SMPTE ST 377-1.