PROPOSED SMPTE STANDARD

SMPTE 380M

for Television —
Material Exchange Format (MXF) — Descriptive Metadata Scheme-1 (Standard, Dynamic)

1 Scope

This standard defines a number of descriptive metadata frameworks collectively called the MXF descriptive metadata scheme-1 (DMS-1). Each descriptive metadata (DM) framework is defined by a logical structure of metadata sets that allows them to be used as a 'plug-in' to the header metadata of a material exchange format (MXF) file. These descriptive metadata (DM) frameworks and their associated metadata sets may be applied to any MXF operational pattern specification.

Every DM framework in this DM scheme shares the same underlying data model. The standard defines each DM framework as a set structure and includes a definition for all individual metadata sets used in this scheme. All metadata sets are defined in tabular form including a reference to the SMPTE metadata dictionary for each metadata property. The document also defines how these DM frameworks relate to the audio-visual content of the body of an MXF file to enhance the usability of the audio-visual content of an MXF file through descriptive metadata.

NOTE – This standard is a dynamic document which allows new components to be added according to the procedures described in the SMPTE 359M. Specifically, new metadata DM frameworks, sets and individual metadata properties may be added to this standard in future revisions as requirements emerge. In order to maintain backwards compatibility, no DM framework, metadata set or metadata property defined in this document shall be removed or otherwise changed in such future revisions.

2 Normative references

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

SMPTE 336M-2000, Television — Data Encoding Protocol using Key-Length-Value

SMPTE 359M-2001, Television and Motion Pictures — Dynamic Documents

SMPTE 377M-2003, Television — MXF File Format Specification

SMPTE RP 210, Metadata Dictionary Registry of Metadata Element Descriptions

3 Glossary of acronyms, terms and data types

The general glossary of acronyms, terms and data types used in the MXF specification is given in SMPTE 377M and is not repeated here.

3.1 Acronyms used in this standard

DM: Descriptive metadata.

DMS: Descriptive metadata scheme.

3.2 Terms used in this standard

Framework: A term used to describe a collection of metadata sets with a defined function. Typically one or more frameworks may be derived from a common class model.

4 Introduction

There are several parts to the MXF specification. This part defines a collection of DM frameworks known as the descriptive metadata scheme-1 (DMS-1).

The MXF file format specification has a number of structural metadata packages in the header metadata that describe the essence data and essence containers in the file body. This standard provides a number of DM frameworks that may be 'plugged' into the structural metadata packages of the header metadata based on the mechanism defined in the MXF file format specification. These DM frameworks are a part of the header metadata and provide additional editorial value to an MXF file. Further information on using descriptive metadata in MXF is given in SMPTE EG 42.

4.1 Frameworks and context

A DM framework is a grouping of related descriptive metadata properties and sets (e.g., editorial) which describe the contents of an MXF file body. The same metadata properties and sets frequently appear in different DM frameworks because they share the underlying data model of this DM scheme. The DM framework defines the context of a metadata property or set dependent upon the framework that directly, or indirectly "owns" it.

This standard defines a number of DM frameworks as follows:

- **Production framework**: containing descriptive metadata sets and properties which provide identification and ownership details of the audio-visual content in the file body. In the context of MXF, 'production' comprises metadata that applies to a complete input or output of the MXF file as a whole and is not associated with segmentation of the timeline. Note that where an MXF file forms the input to another MXF file, this still holds true. The production framework metadata relates to the MXF file content whether it be unfinished work-in progress, a completed episode of a program, a complete series of programs or a program item.

- **Clip framework**: containing descriptive metadata sets and properties that provide capture and creation information about the individual audio-visual clips in the file body. In the context of MXF descriptive metadata, a 'clip' is a continuous essence element, or essence element interleave, in the essence container. This should not be confused with the SourceClip item from the MXF format specification which is a mechanism for linking portions of package sequences to each other. This essence container may comprise of a number of interleaved audio, video, or data essence elements.

  Individual clips are the input from which the editorial experience is created. Examples include:

  - an instance of a stereo recording of a music performance;
  - an instance of the audio and video of an interview (in this case the 'noddies' and cutaways recorded at the same interview for editing into the finished piece later would be separate clips);

- the edited interview, including noddies and cutaways, forming input to another program;
- an instance of a “take” in the movie industry – but note that one clip can contain more than one “take”.

Clips may have metadata that describes one or more ‘shots’. Note that, in the context of a clip, a shot is a description of the true nature of the audio-visual content.

- **Scene framework**: containing descriptive metadata sets and properties that describe actions and events within individual scenes of the audio-visual content of the file body. In the context of MXF, ‘scene’ is an editorial concept and describes a continuous section of content in an MXF file. Scenes are, in general, characterized by narrative or dramatic coherence. The division of the output timeline into scenes is a matter of editorial decision and, thus, varies with the criteria applied. Scenes may overlap and they may relate to a point in time rather than having a duration. Scenes may have metadata that describes one or more ‘shots’. Note that, in the context of a scene, a shot is editorial in nature and is not necessarily related to the true nature of the audio-visual content.

DM frameworks give contextual meaning to a metadata set by logically grouping metadata sets used in the same context. For example, a metadata set that describes a location can be used to describe the real location (the actual location of the camera) or the fictional location (where the scene is supposed to be set). For example, a name in the clip framework describes could be a participant’s real name, whereas a name in the scene framework could be that of a fictional character (e.g., “Falstaff”).

Figure 1 illustrates the structure of the DM frameworks contained in the header metadata and how it relates to the content of the MXF file body. Descriptions of the use of DM segments and DM SourceClips are given in the MXF descriptive metadata engineering guideline (SMPTE EG 42). This guideline also describes the use of static, event and timeline track kinds.

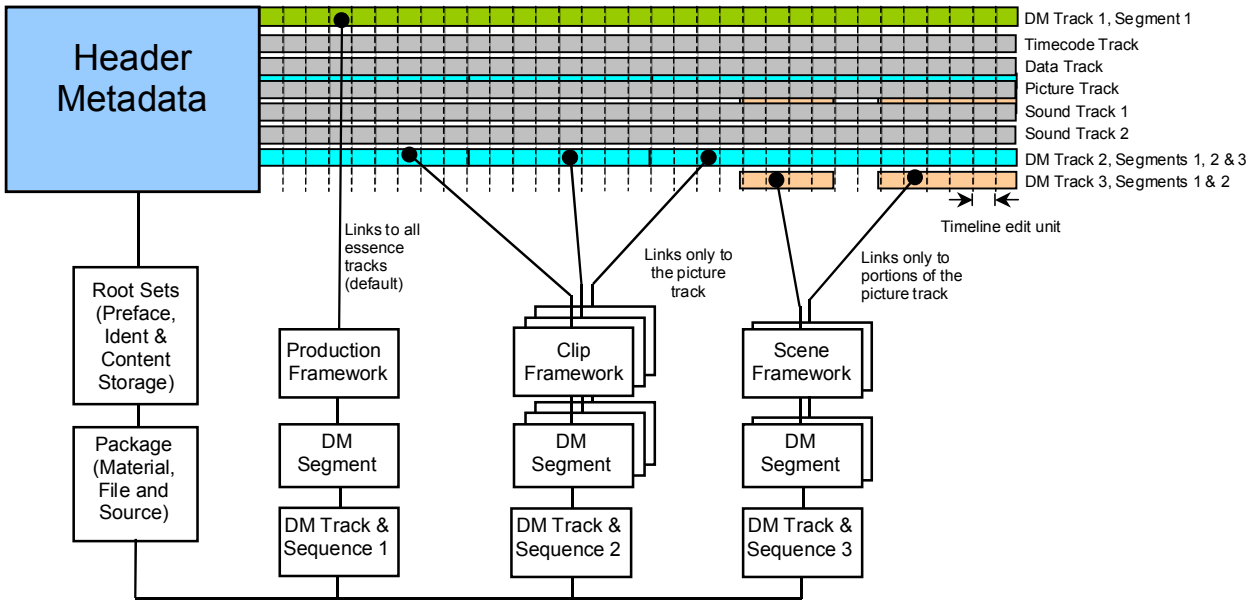

Figure 1 – Descriptive metadata frameworks and their relationship to the content of an MXF file body

4.2 Frameworks and their relationship to packages

Where a DM framework is applied to the material package, it provides descriptive metadata about the “output timeline” of the file.

Where a DM framework is applied to a file package, it provides descriptive metadata that was available for each individual input file. If there are source packages present in the file then the descriptive metadata provides historical annotation of the audio-visual content of the input files.

Clearly in the simplest case where a file has just one file package, the scene and clip frameworks relating to the file package may be copied to the material package and used directly or enhanced if desired. The production framework may be copied, or a completely new DM framework can be created if deemed necessary by the file editor.

If the essence container of a source MXF file is copied to another MXF file, either in whole or as part of a larger production, then the DM frameworks present in the material package may be copied into the new MXF file under the file package.

The mechanism for creating an audit trail of generations other than the immediately previous generation can be provided by identification through the UMID generations in the production framework.

Further information on using these frameworks in MXF files is given in annex D.

4.3 DM framework implementation

The metadata property values used in this document are defined in the SMPTE metadata dictionary (SMPTE RP 210). The implementation of these DM frameworks is optional, but where implemented, the DM frameworks shall adhere to this standard.

The metadata sets defined in this standard (including the framework sets) should be registered in the forthcoming SMPTE metadata groups registry at the earliest opportunity.

The meaning of the terms “required”, “optional” etc., as defined in SMPTE 377M, are only valid for any metadata property if the DM framework or set is implemented.

5 Descriptive metadata definition

5.1 Metadata coding

All descriptive metadata sets shall be encoded as local sets using 2-byte tags and 2-byte lengths as defined by SMPTE 336M.

With the exception of properties that are part of the structural metadata that are statically assigned, all 2-byte local tag values used for DMS-1 properties in the header metadata of a file partition shall be dynamically assigned as defined in section 8.2 of SMPTE 377M (MXF format). Each 2-byte local tag value shall provide a unique mapping to the full SMPTE UL value defined in SMPTE RP 210 (metadata dictionary).

NOTE – The dynamic assignment of DMS-1 local tag values means that all such values will lie in the range ’80.00h’ to ‘FF.FFh’. The instance UID and generation UID properties have statically assigned tags as defined in SMPTE 377M.

These local sets may be converted to Universal sets for interchange with other systems.

As per SMPTE 377M, all multi-byte property values shall be coded as most significant byte first (big-endien).

5.2 Universal label for descriptive metadata scheme

The DM schemes property of the preface set defined in SMPTE 377M is an unordered batch of Universal labels to allow more than one descriptive metadata scheme to be defined in the header metadata. Since this DM scheme defines DM frameworks that are not logically connected, but share a common data model, a Universal label is provided for each DM framework. For each framework from this DM scheme that is present in the header metadata, the ULs below shall be one of those present in the DM schemes property of the preface set.

Table 1 – Universal label for descriptive metadata frameworks — MXF descriptive metadata scheme-1

Byte No.	Description	Value (hex)	Meaning
1-12	See SMPTE 377M	-	As defined by MXF File Format Specification
13	Scheme Kind	01h	MXF Descriptive Metadata Scheme 1
14	Scheme Version	02h	Version 2
15	Framework Identification	01h, 02h or 03h	01h = Production Framework 02h = Clip Framework 03h = Scene Framework
16	Scheme Variant	01h or 02h	01h = no extensions 02h = extensions present

Byte 14 of the Universal label defines the version of the descriptive metadata scheme defined in this standard. Each new version shall increment the version number to identify normative changes to the coding of descriptive metadata sets or properties compared to a lower version number. For the purpose of maintaining backwards compatibility, any increase in the version number shall only add new metadata sets or properties and shall not change any part of any previous version.

NOTE – This DM scheme starts with a value of 02h. The value 01h was experimental and its use is deprecated.

There are cases where an encoder may wish to encode metadata sets or properties that are classed as ‘dark’ and which do not fall under the DM frameworks described in this standard. Clearly, caution must be exercised to ensure that no unexpected or deleterious effects will occur at the decoder. To define whether the encoded descriptive metadata scheme lies within, or exceeds, the version defined, the Universal label has a scheme extension word defined in byte 15. The use of this word is defined in SMPTE 377M.

5.3 Generic modeling diagrams

SMPTE 377M defines the generic modeling diagram and set specifications for the structural metadata sets required to support the DM Frameworks defined in this standard.

The production framework should use a timeline track that describes the entire timeline of all the essence tracks in the package. The production framework is typically intended to be an overall description of all the essence tracks in the package. A DM track references only one sequence which, in turn, should reference a single DM segment. Note that, as defined in SMPTE 377M, the start position shall be the same as the earliest start position of any essence track in the package and the duration shall be set to define the latest position value of any essence track in the package.

The scene and clip frameworks may be associated with particular essence tracks although, by default, they associate with all essence tracks.

The clip framework should use a timeline track with one or more DM segments which together represent a linear and contiguous timeline.

The scene framework should use an event track that references DM segments that do not have to be contiguous along the timeline; they may define instants in time, they may overlap and they may leave gaps.

5.3.1 Abstract superclasses and the DM scheme data model

For consistency with object orientated design, there are implied abstract superclasses in DMS-1. This concept is shown in the class diagram in annex C. Annex C also implies a common data model to be shared by all DM frameworks in this DM scheme.

5.3.2 DM framework data models

Models of the DM frameworks (figure 2a, figure 2b, and figure 2c) define the production, clip and scene frameworks as a grouping of logically connected sets where each set has one or more properties. Each set is defined by a set name (outlined in a bold-lined box) with a set number (as defined in annex A) and includes the set properties immediately below the set name. For clarity, the key, length, instance UID, and generation UID values of each set are not shown in figure 2a, figure 2b, and figure 2c.

The full definition of each different descriptive metadata set and its properties, together with the set key and length fields are to be found in annex A. Many of the descriptive metadata sets are common to more than one DM framework.

Metadata properties in annex A are described in abbreviated form. Every set has a column for the UL of the SMPTE metadata dictionary entry, and it is the dictionary that provides the full normative definition of each property. This column shows only the last 8 field entries of the UL in common with the SMPTE metadata dictionary definitions.

NOTES

1 Any new set or individual metadata property may be added to figure 2a, figure 2b, and figure 2c in accordance with the type 1 procedures defined in SMPTE 359M. Such new additions shall retain backwards compatibility with any earlier versions of this document.

2 Figure 2a, figure 2b, and figure 2c are originated in an Excel spreadsheet for ease of development. These figures are thus limited by the constraints imposed by the Excel capabilities, although the tool itself has been found to be very useful for the development and maintenance of the DM frameworks.

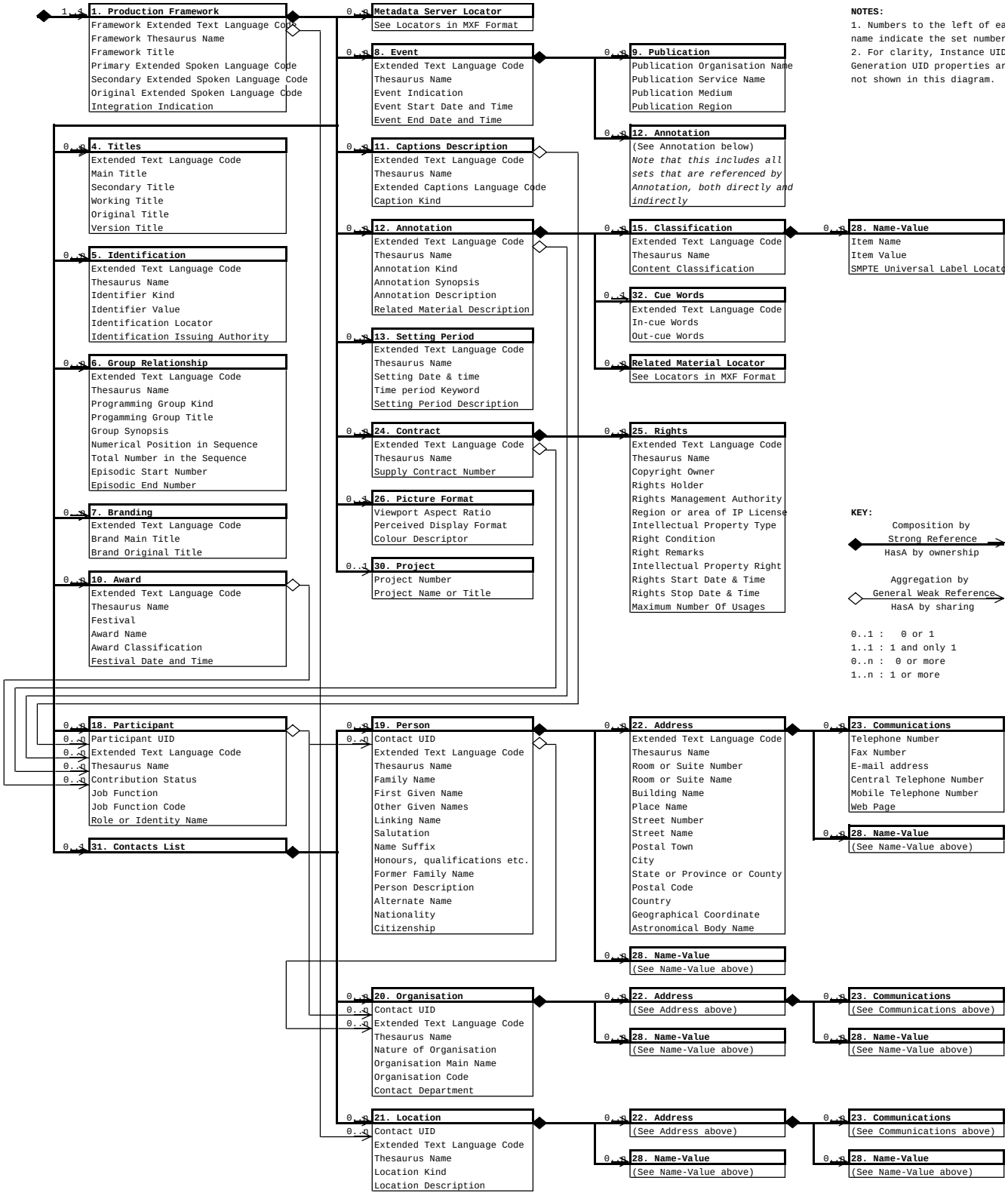

Figure 2a – Model of the production framework, sets and properties

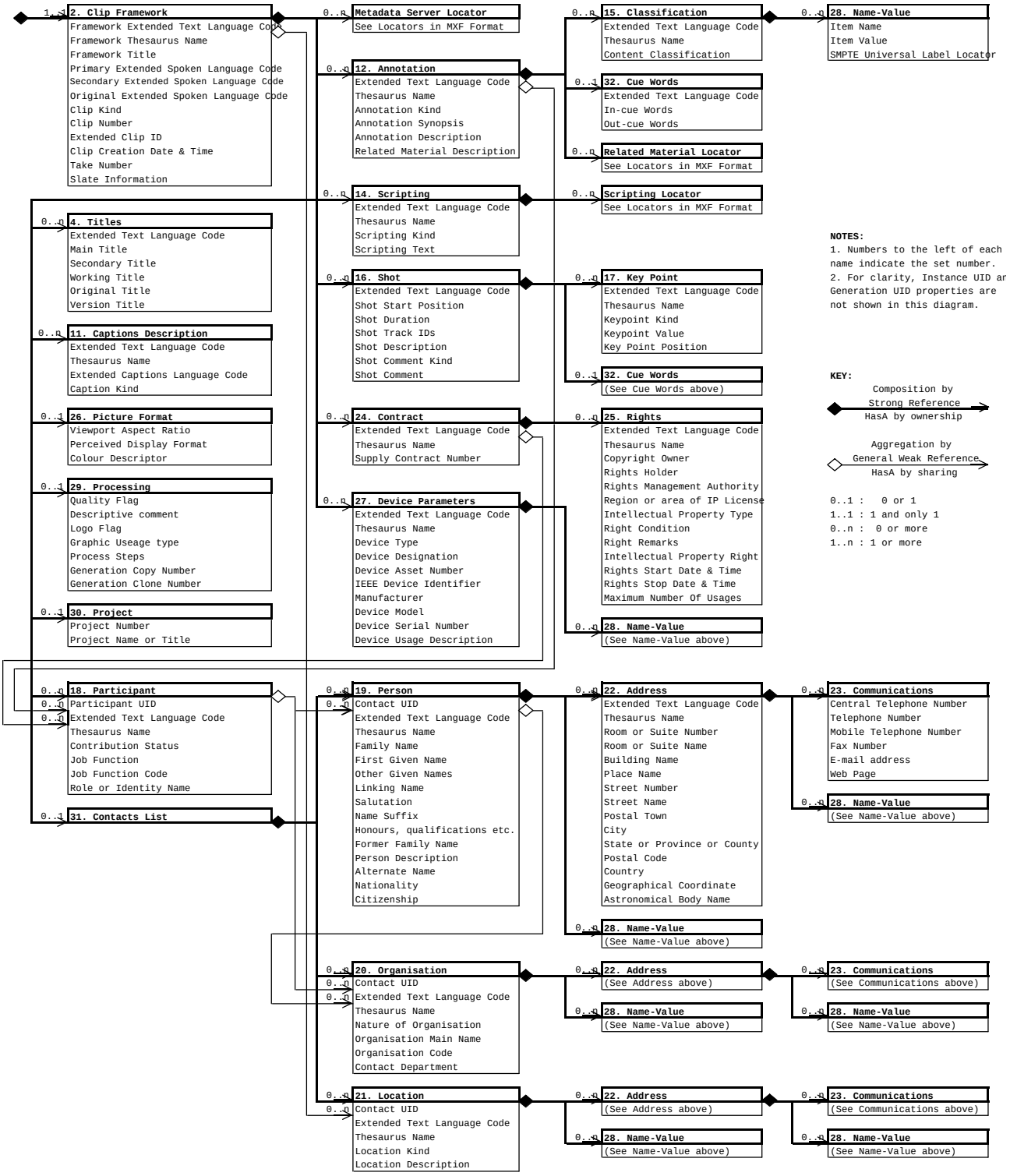

Figure 2b – Model of the clip framework, sets and properties

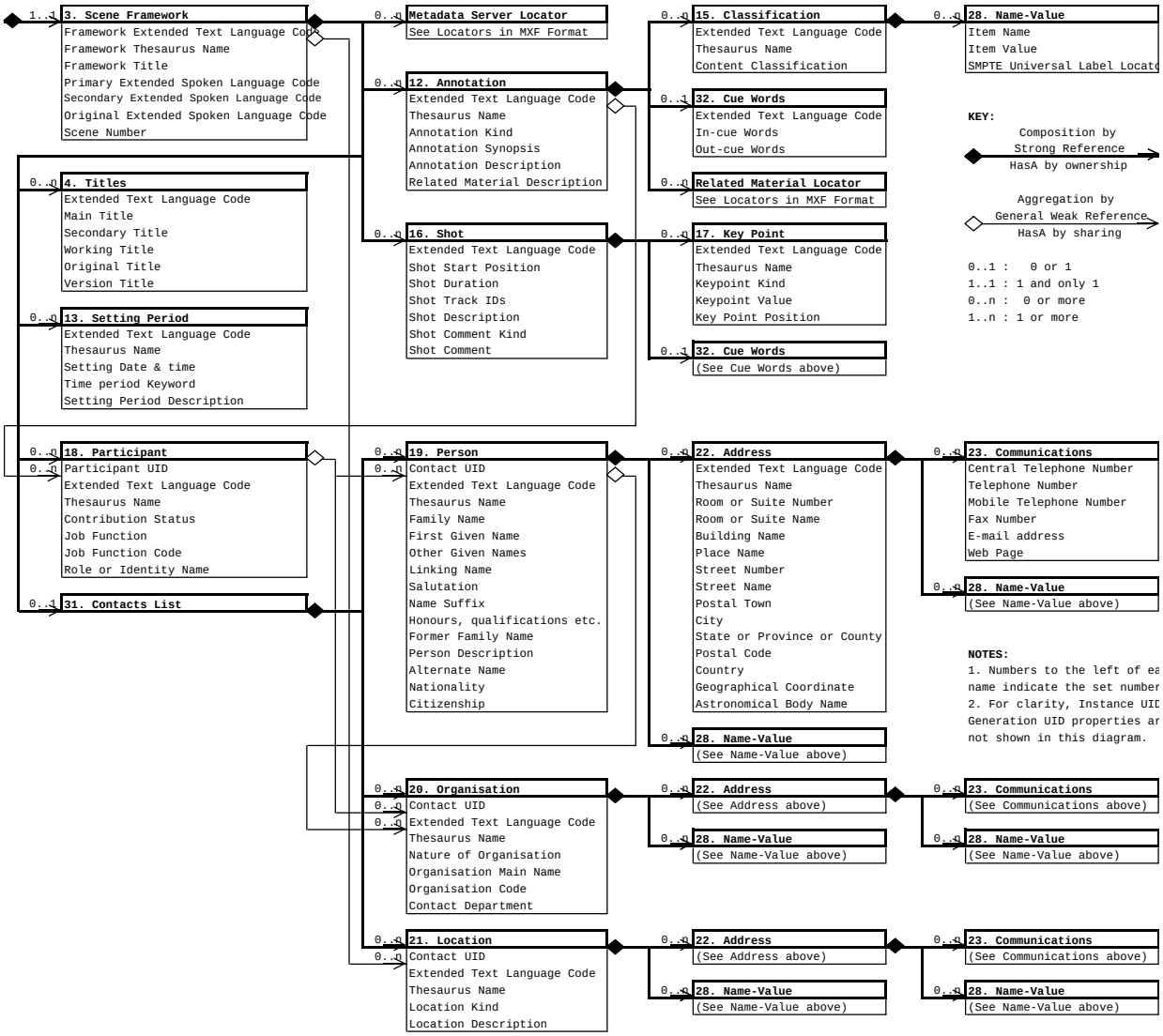

Figure 2c – Model of the scene frameworks, sets and properties

The descriptive metadata sets are defined in annex A.

Note that in annex A only one definition is provided for any set in the DM frameworks described in figure 2a, figure 2b, and figure 2c.

Each metadata set in figure 2a, figure 2b, and figure 2c is related to its respective table in the annexes by the name of each set.

5.4 Descriptive metadata set keys

All sets in this descriptive metadata scheme shall be encoded as KLV local sets using 2-byte tags and 2-byte lengths and shall have a common key structure defined as follows:

Table 2 – Common key value for all descriptive header metadata sets

Byte No.	Description	Value (hex)	Meaning
1~12	As defined in SMPTE 377M		MXF File Format Specification
13	Structure / Scheme Kind	01h	Descriptive Metadata Scheme 1
14	MXF Set Definition	xxh	See Table 3
15	MXF Set Definition	yyh	See Table 3
16	Reserved	00h	

NOTE – When a set is used for interchange with other systems, universal sets may be required and for this, the value of byte 6 must be changed to a value of '01h'. Furthermore, all local set tags should be set to the full 16-byte value based on the metadata dictionary (SMPTE RP 210). For information, the last 8-bytes of the metadata dictionary key are supplied for each metadata property in the annexes where known at the time of publication. All zero byte key values are truncated. Byte 7 of the metadata dictionary key identifies the dictionary version number and is not defined in this document. Users should investigate all versions of the metadata dictionary for the defined key value.

The definitions of bytes 14 and 15 of the keys for the descriptive metadata sets are given in table 3.

Table 3 – (Dynamic) Values for bytes 14 and 15 of the descriptive metadata set keys

Set Name	Byte 14	Byte 15	0
Production Framework	01h	01h	A1
Clip Framework	01h	02h	A2
Scene Framework	01h	03h	A3
Titles	10h	01h	A4
Identification	11h	01h	A5
Group Relationship	12h	01h	A6
Branding	13h	01h	A7
Event	14h	01h	A8
Publication	14h	02h	A9
Award	15h	01h	A10
Caption Description	16h	01h	A11
Annotation	17h	01h	A12
Setting Period	17h	02h	A13
Scripting	17h	03h	A14
Classification	17h	04h	A15
Shot	17h	05h	A16
Key Point	17h	06h	A17
Participant	18h	01h	A18
Person	1Ah	02h	A19
Organisation	1Ah	03h	A20
Location	1Ah	04h	A21
Address	1Bh	01h	A22
Communications	1Bh	02h	A23
Contract	1Ch	01h	A24
Rights	1Ch	02h	A25
Picture Format	1Dh	01h	A26
Device parameters	1Eh	01h	A27
Name-Value	1Fh	01h	A28
Processing	20h	01h	A29
Project	20h	02h	A30
Contacts List	19h	01h	A31
Cue Words	17h	08h	A32
Reserved for abstract superclasses	7Fh	xxh (>00h)	
DMS-1 Framework	7Fh	01h	See annex C
Production/Clip Framework	7Fh	02h	See annex C
DMS-1 Set	7Fh	10h	See annex C
TextLanguage	7Fh	11h	See annex C
Thesaurus	7Fh	12h	See annex C
Contact	7Fh	1Ah	See annex C

NOTE – Any new set may be added to this table in accordance with the type 1 procedures defined in SMPTE 359M. Such new additions shall retain backwards compatibility with any earlier versions of this standard.

5.5 Recommended minimum implementation

Although the DM frameworks are optional, they should be included in order to get the full benefit from a MXF file. The preferred implementations of descriptive metadata are as follows:

- For a single clip, the descriptive metadata should comprise at least the clip framework together with the clip title set and other sets for the purpose of clip identification.

- For a production entity comprising more than one clip, the descriptive metadata should comprise at least the production framework set together with the title set and other sets for the purpose of production identification, plus any clip frameworks for each clip in the production.

Annex E illustrates a minimum implementation together with the appropriate structural metadata sets to support the production and clip frameworks.

5.6 Language inheritance

For all DM frameworks, there is a ‘framework extended text language’ property in the framework set which defines the default language for all the text strings in all sets in the framework.

Many sets may have multiple instances of a set, one for each text language required. In any set that has no text language property, or an optional text language property that is not present, all the strings in that set shall inherit the text language of the antecedent set.

NOTE – Up to 12 bytes are provided for the extended language code. ISO 3166 defines both 2-byte and 3-byte language codes and optionally allows country codes for regional language variations. In this specification, only the required number of bytes are encoded. For compatibility with XML-based metadata schemes, the separator symbol between the language and country codes should be a ‘-‘ (Latin “minus”). See http://www.w3.org/TR/REC-xml#sec-lang-tag for more details.

5.7 Controlled or enumerated values

Other standards that are not a part of the MXF specification may define values or ranges of values for some of the properties specified in this document. This is most likely to affect the values of strings in which specific string values can be attributed to a specific interpretation. Some sets include a ‘thesaurus name’ property that can be used to enumerate such values. The thesaurus value is inherited in the same manner as defined for text language.

Specific text enumerations are beyond the scope of this standard.

5.8 Dynamic document requirements

Any addition of metadata properties to an existing set or addition of a new set to a framework or addition of a new framework to this scheme shall cause the version number of this document to be incremented by one. Any such additions shall be backwards compatible with any previous version.

5.8.1 Addition of new metadata sets to an existing framework

Any new metadata set together with its property values may be added to a DM framework provided it meets the requirements laid down for a type 1 entity as specified in SMPTE 359M. Any new metadata set should retain compatibility with the underlying data model of DMS-1.

Any new metadata set shall be added as a new part to the model of the frameworks of figure 2 and added to annex A. The set key shall be added to table 2, with a new value for bytes 14 and 15 in table 3. Any new

properties added by this set shall be added to annex B. Other figures, tables and annexes shall be updated as appropriate.

Any new metadata set shall use the same format as used in this standard.

5.8.2 Addition of new metadata properties to an existing set

Any new metadata property may be added to a metadata set in any DM framework provided it meets the requirements laid down for a type 1 entity as specified in SMPTE 359M. Any new metadata property should retain compatibility with the underlying data model of DMS-1.

Any new metadata property shall be added as a new part to the model of the frameworks of figure 2 and added to annex A and annex B. Other figures, tables and annexes shall be updated as appropriate.

Annex A (normative and dynamic)
Descriptive metadata set definitions

Tables used in this standard use the conventions and definitions defined in SMPTE 377M.

A.1 DMS-1 Frameworks

1. Production Framework

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	**Production Framework**	**Set UL**	**16**	**Req**	**Defines the Production Framework**
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.13.00.00	Framework Extended Text Language Code	ISO 7-bit char string	12 chars max	E/req	The ISO language code and optional country variant of the text in this set and the default language code of all sets contained in this framework
03.02.01.02.15.01.00.00	Framework Thesaurus Name	UTF-16 char string	Variable	Opt	The name of the default specialized vocabulary of selected words or concepts for a particular field used in a framework, e.g. a particular cataloguing, indexing or thesaurus system
01.05.0F.01.00.00.00.00	Framework Title	UTF-16 char string	Variable	Opt	A human readable title for this instance of the Production Framework (e.g. “Wilco Productions version 3”)
03.01.01.02.03.11.00.00	Primary Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the current primary spoken language with optional country variant
03.01.01.02.03.12.00.00	Secondary Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the current secondary spoken language with optional country variant
03.01.01.02.03.13.00.00	Original Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the original primary spoken language with optional country variant
05.01.01.01.01.00.00.00	Integration Indication	UTF-16 char string	Variable	Opt	A term that describes what the essence is as a unit status of the essence. Terms must be consistent with industry or organizational practices to be useful. Includes segment, item, programme etc.
06.01.01.04.06.0C.00.00	Metadata Server Locators	StrongReferenceArray (Metadata Server Locators)	8+16n	Opt	Specifies a vector of an ordered set of references to Locators for metadata servers
06.01.01.04.05.40.04.00	Titles Sets	StrongReferenceBatch (Titles)	8+16n	D/req	An unordered list of strong references to Titles sets
06.01.01.04.05.40.0D.00	Annotation Sets	StrongReferenceBatch (Annotation)	8+16n	D/req	An unordered list of strong references to Annotation sets

06.01.01.04.05.40.13.00	Participant Sets	StrongReferenceBatch (Participant)	8+16n	D/req	An unordered list of strong references to Participant sets
06.01.01.04.02.40.22.00	Contacts List Set	StrongReference (Contacts List)	16 bytes	D/req	A strong reference to the Contacts List set
06.01.01.04.03.40.16.00	Location Sets	GlobalReferenceBatch (Location)	8+16n	D/req	An unordered list of generalised weak (global) references to Location sets
06.01.01.04.05.40.0C.00	Captions Description Sets	StrongReferenceBatch (Captions Description)	8+16n	D/req	An unordered list of strong references to Captions Description sets
06.01.01.04.05.40.19.00	Contract Sets	StrongReferenceBatch (Contract)	8+16n	D/req	An unordered list of strong references to Contract sets
06.01.01.04.02.40.1D.00	Image Format Set	StrongReference (Image Format)	16 bytes	D/req	A strong reference to the Image Format set
06.01.01.04.02.40.21.00	Project Set	StrongReference (Project)	16 bytes	D/req	A strong reference to the Project set
06.01.01.04.05.40.06.00	Identification Sets	StrongReferenceBatch (Identification)	8+16n	D/req	An unordered list of strong references to Identification sets
06.01.01.04.05.40.05.00	Group Relationship Sets	StrongReferenceBatch (Group Relationship)	8+16n	D/req	An unordered list of strong references to Group Relationship sets
06.01.01.04.05.40.08.00	Branding Sets	StrongReferenceBatch (Branding)	8+16n	D/req	An unordered list of strong references to Branding sets
06.01.01.04.05.40.09.00	Event Sets	StrongReferenceBatch (Event)	8+16n	D/req	An unordered list of strong references to Event sets
06.01.01.04.05.40.0B.00	Award Sets	StrongReferenceBatch (Award)	8+16n	D/req	An unordered list of strong references to Award sets
06.01.01.04.05.40.0E.01	Setting Period Sets (Production)	StrongReferenceBatch (Setting Period)	8+16n	D/req	An unordered list of strong references to Setting Period sets

2. Clip Framework

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	**Clip Framework**	**Set UL**	**16**	**Req**	**Defines the Clip Framework**
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.13.00.00	Framework Extended Text Language Code	ISO 7-bit char string	12 chars max	E/req	The ISO language code and optional country variant of the text in this set and the default language code of all sets contained in this framework
03.01.01.02.02.13.00.00	Framework Extended Text Language Code	ISO 7-bit char string	12 chars max	E/req	The ISO language code and optional country variant of the text in this set and the default language code of all sets contained in this framework
03.02.01.02.15.01.00.00	Framework Thesaurus Name	UTF-16 char string	Variable	Opt	The name of the default specialized vocabulary of selected words or concepts for a particular field used in a framework, e.g. a particular cataloguing, indexing or thesaurus system

01.05.0F.01.00.00.00.00	Framework Title	UTF-16 char string	Variable	Opt	A human readable title for this instance of the Production Framework (e.g. “Wilco Productions version 3”)
03.01.01.02.03.11.00.00	Primary Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the current primary spoken language with optional country variant
03.01.01.02.03.12.00.00	Secondary Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the current secondary spoken language with optional country variant
03.01.01.02.03.13.00.00	Original Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the original primary spoken language with optional country variant
03.02.05.04.00.00.00.00	Clip Kind	UTF-16 char string	Variable	Req	The kind of clip as an enumerated string (e.g. still, graphic, moving pictures, sound etc.)
01.05.0C.00.00.00.00.00	Clip Number	ISO 7-bit char string	32 chars max	Opt	The alphanumeric number of the Clip
01.01.15.09.00.00.00.00	Extended Clip ID	UMID	32 or 64 bytes	Opt	Clip ID as a basic or extended UMID. Note that the value includes the whole UMID including the first 12 UL bytes
07.02.01.10.01.04.00.00	Clip Creation Date & Time	TimeStamp	8 bytes	Opt	Identifies date and time of creation of a clip.
01.05.07.00.00.00.00.00	Take Number	Uint16	2 bytes	Opt	Take number of the instance of the shot
03.02.05.03.00.00.00.00	Slate Information	UTF-16 char string	Variable	Opt	Slate information as a text string
06.01.01.04.06.0C.00.00	Metadata Server Locators	StrongReferenceArray (Metadata Server Locators)	8+16n	Opt	Specifies a vector of an ordered set of references to Locators for metadata servers
06.01.01.04.05.40.04.00	Titles Sets	StrongReferenceBatch (Titles)	8+16n	D/req	An unordered list of strong references to Titles sets
06.01.01.04.05.40.0D.00	Annotation Sets	StrongReferenceBatch (Annotation)	8+16n	D/req	An unordered list of strong references to Annotation sets
06.01.01.04.05.40.13.00	Participant Sets	StrongReferenceBatch (Participant)	8+16n	D/req	An unordered list of strong references to Participant sets
06.01.01.04.02.40.22.00	Contacts List Set	StrongReference (Contacts List)	16 bytes	D/req	A strong reference to the Contacts List set
06.01.01.04.03.40.16.00	Location Sets	GlobalReferenceBatch (Location)	8+16n	D/req	An unordered list of generalised weak (global) references to Location sets
06.01.01.04.05.40.0C.00	Captions Description Sets	StrongReferenceBatch (Captions Description)	8+16n	D/req	An unordered list of strong references to Captions Description sets
06.01.01.04.05.40.19.00	Contract Sets	StrongReferenceBatch (Contract)	8+16n	D/req	An unordered list of strong references to Contract sets
06.01.01.04.02.40.1D.00	Image Format Set	StrongReference (Image Format)	16 bytes	D/req	A strong reference to the Image Format set
06.01.01.04.02.40.21.00	Project Set	StrongReference (Project)	16 bytes	D/req	A strong reference to the Project set
06.01.01.04.05.40.0F.00	Scripting Sets	StrongReferenceBatch (Scripting)	8+16n	D/req	An unordered list of strong references to Scripting Metadata sets
06.01.01.04.05.40.11.02	Shot Sets (Clip)	StrongReferenceBatch (Shot)	8+16n	D/req	An unordered list of strong references to Shot sets

06.01.01.04.05.40.1E.00	Device Parameters Sets	StrongReferenceBatch (Device Parameters)	8+16n	D/req	An unordered list of strong references to Device Parameters sets
06.01.01.04.02.40.20.00	Processing Set	StrongReference (Processing)	16 bytes	D/req	A strong reference to the Processing set

3. Scene Framework

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	**Scene Framework**	**Set UL**	**16**	**Req**	**Defines the Scene Framework**
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.13.00.00	Framework Extended Text Language Code	ISO 7-bit char string	12 chars max	E/req	The ISO language code and optional country variant of the text in this set and the default language code of all sets contained in this framework
03.02.01.02.15.01.00.00	Framework Thesaurus Name	UTF-16 char string	Variable	Opt	The name of the default specialized vocabulary of selected words or concepts for a particular field used in a framework, e.g. a particular cataloguing, indexing or thesaurus system
01.05.0F.01.00.00.00.00	Framework Title	UTF-16 char string	Variable	Opt	A human readable title for this instance of the Production Framework (e.g. “Wilco Productions version 3”)
03.01.01.02.03.11.00.00	Primary Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the current primary spoken language with optional country variant
03.01.01.02.03.12.00.00	Secondary Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the current secondary spoken language with optional country variant
03.01.01.02.03.13.00.00	Original Extended Spoken Language Code	ISO 7-bit char string	12 chars max	Opt	ISO 639 Extended Language Code for the original primary spoken language with optional country variant
01.05.06.00.00.00.00.00	Scene Number	ISO 7-bit char string	32 chars max	Opt	The alphanumeric scene number
06.01.01.04.06.0C.00.00	Metadata Server Locators	StrongReferenceArray (Metadata Server Locators)	8+16n	Opt	Specifies a vector of an ordered set of references to Locators for metadata servers
06.01.01.04.05.40.04.00	Titles Sets	StrongReferenceBatch (Titles)	8+16n	D/req	An unordered list of strong references to Titles sets
06.01.01.04.05.40.0D.00	Annotation Sets	StrongReferenceBatch (Annotation)	8+16n	D/req	An unordered list of strong references to Annotation sets
06.01.01.04.05.40.13.00	Participant Sets	StrongReferenceBatch (Participant)	8+16n	D/req	An unordered list of strong references to Participant sets
06.01.01.04.02.40.22.00	Contacts List Set	StrongReference (Contacts List)	16 bytes	D/req	A strong reference to the Contacts List set

06.01.01.04.03.40.16.00	Location Sets	GlobalReferenceBatch (Location)	8+16n	D/req	An unordered list of generalized weak (global) references to Location sets
06.01.01.04.05.40.0E.02	Setting Period Sets (Scene)	StrongReferenceBatch (Setting Period)	8+16n	D/req	An unordered list of strong references to Setting Period sets
06.01.01.04.05.40.11.01	Shot Sets (Scene)	StrongReferenceBatch (Shot)	8+16n	D/req	An unordered list of strong references to Shot sets

A.2 DMS-1 Sets

4. Titles

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Titles Set	Set UL	16	Req	Defines the Titles set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field, e.g. a particular cataloguing, indexing or thesaurus system
01.05.02.01.00.00.00.00	Main Title	UTF-16 char string	Variable	Opt	Main title of the production or production component
01.05.03.01.00.00.00.00	Secondary Title	UTF-16 char string	Variable	Opt	Secondary title of the production or production component
01.05.0A.01.00.00.00.00	Working Title	UTF-16 char string	Variable	Opt	The (possibly temporary) working title of a production or a production component
01.05.0B.01.00.00.00.00	Original Title	UTF-16 char string	Variable	Opt	The original title of the production or production component
01.05.08.01.00.00.00.00	Version Title	UTF-16 char string	Variable	Opt	The version title of the production or production component

5. Identification

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Identification Set	Set UL	16	Req	Defines the Identification set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field, e.g. a particular cataloguing, indexing or thesaurus system
01.08.01.00.00.00.00.00	Identifier Kind	ISO 7-bit char string	32 chars max	Opt	Specifies the identification system used - e.g. ISO, UPN etc
01.08.02.00.00.00.00.00	Identifier Value	Uint8 String	Variable	Opt	The value of the identifier

01.02.02.02.00.00.00.00	Identification Locator	UL	16 bytes	Opt	Specifies the Universal Label that locates the identification kind in a dictionary.
02.0A.01.01.00.00.00.00	Identification Issuing Authority	UTF-16 char string	Variable	Opt	The authority that issued the identification value

6. Group Relationship

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Episodic Item Set	Set UL	16	Req	Defines the Group Relationship set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
02.02.03.01.00.00.00.00	Programming Group Kind	UTF-16 char string	Variable	Opt	The kind of program group of which the program forms a part; e.g., Anthology, Serial, Series, Themed Cluster, Repeating Series etc.
02.02.06.01.00.00.00.00	Progamming Group Title	UTF-16 char string	Variable	Opt	The title of a programming group
03.02.01.06.08.01.00.00	Group Synopsis	UTF-16 char string	Variable	Opt	Synopsis of the group, series, serial etc.
06.10.01.00.00.00.00.00	Numerical Position in Sequence	Uint32	4 bytes	Opt	Position of the group, item, series; etc as a number in a sequence; e.g. 1, 2, 3, etc.
06.10.04.00.00.00.00.00	Total Number in the Sequence	Uint32	4 bytes	Opt	Total number of group, items, series; etc in a sequence
02.02.04.00.00.00.00.00	Episodic Start Number	Uint16	2 bytes	Opt	The episodic number at the start of a series
02.02.05.00.00.00.00.00	Episodic End Number	Uint16	2 bytes	Opt	The episodic number at the end of a series

7. Branding

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Branding Set	Set UL	16	Req	Defines the Branding set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
01.05.0D.01.00.00.00.00	Brand Main Title	UTF-16 char string	Variable	Opt	Main Brand title (e.g. Horizon)
01.05.0E.01.00.00.00.00	Brand Original Title	UTF-16 char string	Variable	Opt	Any original Brand title

8. Event

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Event Set	Set UL	16	Req	Defines the Event set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
05.01.01.02.01.00.00.00	Event Indication	UTF-16 char string	Variable	Opt	A term that describes what the Event is as a part of the Process. Terms must be consistent with industry or organizational practices to be useful. Includes project, mission, scene, in-points, trigger points, license, option, publication, cataloguing, etc.
07.02.01.02.07.02.00.00	Event Start Date and Time	ISO 7-bit char string	32 chars max	Opt	The absolute start local date and time of the project, mission, scene, editing event, license, publication, etc. Default ext format is "Day YYYY-MM-DD HH:MM:SS GMT+X", e.g. Fri 2002-11-08 16:00:00 GMT+5
07.02.01.02.09.02.00.00	Event End Date and Time	ISO 7-bit char string	32 chars max	Opt	The absolute ending local date and time of the project, mission, scene, editing event, license, publication, etc. Default ext format is "Day YYYY-MM-DD HH:MM:SS GMT+X", e.g. Fri 2002-11-08 16:00:00 GMT+5
06.01.01.04.05.40.0A.00	Publication Sets	StrongReference Batch (Publication)	8+16n	D/req	An unordered list of strong references to Publication sets
06.01.01.04.05.40.0D.01	Annotation Sets (Event)	StrongReference Batch (Annotation)	8+16n	D/req	An unordered list of strong references to Annotation sets

9. Publication

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Publication Set	Set UL	16	Req	Defines the Publication set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
02.10.02.01.01.01.00.00	Publication Organization Name	UTF-16 char string	Variable	Opt	Name of the publication organization
02.10.02.01.02.01.00.00	Publication Service Name	UTF-16 char string	Variable	Opt	Name of the publication service

02.10.02.01.03.01.00.00	Publication Medium	UTF-16 char string	Variable	Opt	Publication medium, including transmission (e.g., satellite, cable, terrestrial, ...)
02.10.02.01.04.01.00.00	Publication Region	UTF-16 char string	Variable	Opt	Target region of publication

10. Award

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Award Set	Set UL	16	Req	Defines the Award set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
03.02.02.01.03.01.00.00	Festival	UTF-16 char string	Variable	Opt	The festival or award ceremony at which an award was made.
07.02.01.02.07.10.01.00	Festival Date and Time	ISO 7-bit char string	32 chars max	Opt	The beginning date and time of the festival (local time)
03.02.02.01.04.01.00.00	Award Name	UTF-16 char string	Variable	Opt	The name of the award (e.g., gold medal)
03.02.02.01.05.01.00.00	Award Classification	UTF-16 char string	Variable	Opt	Name of the award classification
03.02.02.01.06.01.00.00	Nomination Category	UTF-16 char string	Variable	Opt	Nomination category of the award (e.g. best actor, best director, etc.)
06.01.01.04.03.40.13.01	Participant Sets (Award)	GlobalReference Batch (Participant)	8+16n	D/req	An unordered list of generalized weak (global) references to Participant sets for Awards

11. Captions Description

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Captions Description Set	Set UL	16	Req	Defines the Captions Description set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system

03.01.01.02.02.12.00.00	Extended Captions Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for textual captions displayed on-screen
04.03.01.01.01.00.00.00	Caption Kind	UTF-16 char string	Variable	Opt	Specifies the kind of caption; e.g., teletext subtitles, closed captions subtitles, embedded sports scores, name captions etc.

12. Annotation

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Annotation Set	Set UL	16	Req	Defines the Annotation set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
03.02.01.06.0E.01.00.00	Annotation Kind	UTF-16 char string	Variable	Opt	Specifies the kind of annotation, e.g. Technical, Editorial, Archival etc.
03.02.01.06.09.01.00.00	Annotation Synopsis	UTF-16 char string	Variable	Opt	Synopsis of the A/V content
03.02.01.06.0A.01.00.00	Annotation Description	UTF-16 char string	Variable	Opt	A free-form textual description of the A/V content
03.02.01.06.0F.01.00.00	Related Material Description	UTF-16 char string	Variable	Opt	A freeform textual description of related material of any kind
06.01.01.04.05.40.10.00	Classification Sets	StrongReference Batch (Classification)	8+16n	D/req	An unordered list of strong references to Classification sets
06.01.01.04.02.40.23.01	Cue Words Set (Annotation)	StrongReference (Cue Words)	16 bytes	D/req	A strong reference to a Cue Words set
06.01.01.04.06.0D.00.00	Related Material Locators	StrongReference Array (Related Material Locators)	8+16n	D/req	Specifies a vector of an ordered set of references to Locators for related material of any kind
06.01.01.04.03.40.13.03	Participant Sets (Annotation)	GlobalReference Batch (Participant)	8+16n	D/req	An unordered list of generalized weak (global) references to Participant sets for Annotation

13. Setting Period

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Setting Period Set	Set UL	16	Req	Defines the Setting Period set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text

03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
07.02.01.08.02.00.00.00	Setting Date & time	Timestamp	8 bytes	Opt	The date (and time if appropriate) of the setting as a timestamp
07.02.01.08.01.01.00.00	Time period Keyword	UTF-16 char string	Variable	Opt	The name of a time period covered. Eg Cretaceous
07.02.01.08.03.01.00.00	Setting Period Description	UTF-16 char string	Variable	Opt	Free-form text description of the setting period

14. Scripting

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Scripting Set	Set UL	16	Req	Defines the Scripting set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
03.02.01.06.0B.01.00.00	Scripting Kind	UTF-16 char string	Variable	Opt	Description of the scripting kind as a text string (e.g. lighting, transcript etc)
03.02.01.06.0C.01.00.00	Scripting Text	UTF-16 char string	Variable	Opt	The scripting text string
06.01.01.04.06.0E.00.00	Scripting Locators	StrongReference Array (Scripting Locators)	8+16n	Opt	Specifies a vector of an ordered set of references to Locators for scripting resources

15. Classification

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Classification Set	Set UL	16	Req	Defines the Classification set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
03.02.01.02.04.00.00.00	Content Classification	ISO 7-bit char string	127 chars max	Opt	The value of the content classification as a (possibly subdivided) alphanumeric string

06.01.01.04.05.40.1F.01	Name-Value Sets (Classification)	StrongReference Batch (Name-Value)	8+16n	D/req	An unordered list of strong references to Name-Value sets (for categorizing)

16. Shot

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Shot Set	Set UL	16	Req	Defines the Shot set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
07.02.01.03.01.09.00.00	Shot Start Position	Position	8 bytes	Opt	Defines the first edit unit to which this shot applies
07.02.02.01.02.04.00.00	Shot Duration	Length	8 bytes	Opt	Defines the duration of this shot in edit units. A value of 1 defines a single edit unit length
01.07.01.07.00.00.00.00	Shot Track IDs	TrackIDCollection	8 + 4*n	Opt	Specifies an unordered list of ‘n’ track ID values that identify the tracks in the Package to which this set refers
03.02.01.06.0D.01.00.00	Shot Description	UTF-16 char string	Variable	Opt	A freeform textual description of the shot defined by this set
03.02.05.01.01.00.00.00	Shot Comment Kind	UTF-16 char string	Variable	Opt	The name of a descriptive comment or note; e.g., 'Josh's note' or 'Lighting Mood'
03.02.05.02.01.00.00.00	Shot Comment	UTF-16 char string	Variable	Opt	The comment or note as text; e.g., 'badly recorded' or 'sombre mood'
06.01.01.04.02.40.23.02	Cue Words Set (Shot)	StrongReference (Cue Words)	16 bytes	D/req	A strong reference to a Cue Words set
06.01.01.04.05.40.12.00	Key Point Sets	StrongReference Batch (Key Point)	8+16n	D/req	An unordered list of strong references to Key Point sets

17. Key Point

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Key Point Set	Set UL	16	Req	Defines the Key Point set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
03.02.01.02.10.01.00.00	Keypoint Kind	UTF-16 char string	Variable	Opt	The Kind of keypoint; e.g., shot category, keyword, key picture, key sound etc

03.02.01.02.11.01.00.00	Keypoint Value	UTF-16 char string	Variable	Opt	The Value of the keypoint; i.e., the kind of framing, lens effect etc or the actual keyword, key texture, key timbre etc.
07.02.01.03.01.07.00.00	Key Point Position	Position (UInt64)	8 bytes	Req	Specifies the position (in edit units) at which a key event occurs

18. Participant

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Participant Role Set	Set UL	16	Req	Defines the Participant set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
01.01.15.40.01.01.00.00	Participant UID	UID	16 bytes	Req	Unique identifier of a Participant set as the target of a generalized weak (global) reference
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
02.30.01.02.01.01.00.00	Contribution Status	UTF-16 char string	Variable	Opt	Performing talent, Non-performing talent, Production Staff, Technical staff, Specialist, etc
02.30.05.01.01.00.00.00	Job Function	UTF-16 char string	Variable	Opt	The function of the persons(s), organization or public body; e.g., Editor, Actor
02.30.05.01.02.00.00.00	Job Function Code	ISO 7-bit char string	32 chars max	Opt	Code for the function of the persons(s), organization or public body; e.g., Editor, Actor
02.30.05.02.01.00.00.00	Role or Identity Name	UTF-16 char string	Variable	Opt	Defines the role or identity of the participant (e.g., name of character played)
06.01.01.04.03.40.14.00	Person Sets	GlobalReference Batch (Person)	8+16n	D/req	An unordered list of generalized weak (global) references to Person sets
06.01.01.04.03.40.15.01	Organization Sets (Participant)	GlobalReference Batch (Organisation)	8+16n	D/req	An unordered list of generalized weak (global) references to Organization sets for Participant

19. Person

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Person Set	Set UL	16	Req	Defines the Person set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
01.01.15.40.01.02.00.00	Contact UID	UID	16 bytes	Req	Unique identifier of a Contact set as the target of a generalized weak (global) reference

03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
02.30.06.03.01.01.01.00	Family Name	UTF-16 char string	Variable	Opt	The family name of an individual
02.30.06.03.01.02.01.00	First Given Name	UTF-16 char string	Variable	Opt	The first given name for an individual
02.30.06.03.01.08.01.00	Other Given Names	UTF-16 char string	Variable	Opt	Other given names for an individual
02.30.06.03.01.0A.01.00	Linking Name	UTF-16 char string	Variable	Opt	A link used between family, given and other names (e.g. den, ten, van den, von)
02.30.06.03.01.05.01.00	Salutation	UTF-16 char string	Variable	Opt	An individual's salutation or title; e.g. Mr., Mrs., Sir
02.30.06.03.01.0B.01.00	Name Suffix	UTF-16 char string	Variable	Opt	A suffix to a name (e.g. Jr, Sr, III)
02.30.06.03.01.06.01.00	Honors, qualifications etc.	UTF-16 char string	Variable	Opt	Personal honors and qualifications
02.30.06.03.01.0C.01.00	Former Family Name	UTF-16 char string	Variable	Opt	Former name of an individual (e.g., maiden name)
02.30.06.03.01.07.01.00	Person Description	UTF-16 char string	Variable	Opt	Description of a person used to distinguish them from other persons of the same name; e.g. farmer, poet, American dentist. Also known as a person qualifier
02.30.06.03.01.09.01.00	Alternate Name	UTF-16 char string	Variable	Opt	Alternate (stage, quasi, alias etc) name for an individual
02.30.06.03.01.0D.01.00	Nationality	UTF-16 char string	Variable	Opt	Nationality of an individual by origin, birth, or naturalization
02.30.06.03.01.0E.01.00	Citizenship	UTF-16 char string	Variable	Opt	Citizenship of an individual with its attendant duties, rights, and privileges
06.01.01.04.03.40.15.02	Organization Sets (Person)	GlobalReference Batch (Organisation)	8+16n	D/req	An unordered list of generalized weak (global) references to Organization sets for Persons
06.01.01.04.05.40.1F.02	Name-Value Sets (Contact)	StrongReferenceBatch (Name-Value)	8+16n	D/req	An unordered list of strong references to Name-Value sets
06.01.01.04.05.40.17.00	Address Sets	StrongReferenceBatch (Address)	8+16n	D/req	An unordered list of strong references to Address sets

20. Organization

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Organization Set	Set UL	16	Req	Defines the Organization set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
01.01.15.40.01.02.00.00	Contact UID	UID	16 bytes	Req	Unique identifier of a Contact set as the target of a generalized weak (global) reference

03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
02.30.02.01.01.00.00.00	Nature of Organization	UTF-16 char string	Variable	Opt	The nature of an organization (e.g., limited company, government department, etc)
02.30.06.03.03.01.01.00	Organization Main Name	UTF-16 char string	Variable	Opt	The main name by which an organization is known
01.0A.02.01.01.00.00.00	Organization Code	UTF-16 char string	Variable	Opt	The identifying Code for an organization
02.30.06.02.01.00.00.00	Contact Department	UTF-16 char string	Variable	Opt	Name information for a department within an organization where contact can be made
06.01.01.04.05.40.1F.02	Name-Value Sets (Contact)	StrongReferenceBatch (Name-Value)	8+16n	D/req	An unordered list of strong references to Name-Value sets
06.01.01.04.05.40.17.00	Address Sets	StrongReferenceBatch (Address)	8+16n	D/req	An unordered list of strong references to Address sets

21. Location

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Location Set	Set UL	16	Req	Defines the Location set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
01.01.15.40.01.02.00.00	Contact UID	UID	16 bytes	Req	Unique identifier of a Contact set as the target of a generalized weak (global) reference
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
07.01.20.02.03.01.00.00	Location Kind	UTF-16 char string	Variable	Opt	The kind of location; e.g., the location of the camera, the location of the action, etc.
07.01.20.02.02.01.00.00	Location Description	UTF-16 char string	Variable	Opt	The text description of a location
06.01.01.04.05.40.1F.02	Name-Value Sets (Contact)	StrongReferenceBatch (Name-Value)	8+16n	D/req	An unordered list of strong references to Name-Value sets
06.01.01.04.05.40.17.00	Address Sets	StrongReferenceBatch (Address)	8+16n	D/req	An unordered list of strong references to Address sets

22. Address

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Address Set	Set UL	16	Req	Defines the Address set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
07.01.20.01.04.01.01.01	Room or Suite Number	UTF-16 char string	Variable	Opt	The aphanumeric room, suite or apartment number of an address
07.01.20.01.04.01.11.01	Room or Suite Name	UTF-16 char string	Variable	Opt	The room, suite or apartment name of an address
07.01.20.01.04.01.12.01	Building Name	UTF-16 char string	Variable	Opt	The building name of an address.
07.01.20.01.04.01.14.01	Place Name	UTF-16 char string	Variable	Opt	The place name of an address as a Unicode text string; e.g., "The Post Office"
07.01.20.01.04.01.02.01	Street Number	UTF-16 char string	Variable	Opt	The alphanumeric street number of an address
07.01.20.01.04.01.03.01	Street Name	UTF-16 char string	Variable	Opt	The street or thoroughfare name
07.01.20.01.04.01.04.01	Postal Town	UTF-16 char string	Variable	Opt	The postal town name
07.01.20.01.04.01.05.01	City	UTF-16 char string	Variable	Opt	The city of the address.
07.01.20.01.04.01.06.01	State or Province or County	UTF-16 char string	Variable	Opt	The state, province or county of the address.
07.01.20.01.04.01.07.01	Postal Code	UTF-16 char string	Variable	Opt	The ZIP or other postal code of the address.
07.01.20.01.04.01.08.01	Country	UTF-16 char string	Variable	Opt	The country of the address.
07.01.20.01.04.01.15.00	Geographical Coordinate	12-byte Spatial Coordinate	12 bytes	Opt	Geographic coordinate of an address as a 12-byte spatial coordinate component as defined in SMPTE 330M
07.01.20.01.04.01.16.01	Astronomical Body Name	UTF-16 char string	Variable	Opt	The name of the (non-Earth) astronomical body as a Unicode text string
06.01.01.04.05.40.18.00	Communications Sets	StrongReferenceBatch (Communications)	8+16n	D/req	An unordered list of strong references to Communications sets
06.01.01.04.05.40.1F.04	Name-Value Sets (Address)	StrongReferenceBatch (Name-Value)	8+16n	D/req	An unordered list of strong references to Name-Value sets

23. Communications

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Communications Set	Set UL	16	Req	Defines the Communications set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
07.01.20.01.10.03.04.00	Central Telephone Number	ISO 7-bit char string	32 chars max	Opt	Telephone number of a central switchboard

07.01.20.01.10.03.01.00	Telephone Number	ISO 7-bit char string	32 chars max	Opt	Telephone number
07.01.20.01.10.03.05.00	Mobile Telephone Number	ISO 7-bit char string	32 chars max	Opt	Mobile telephone number
07.01.20.01.10.03.02.00	Fax Number	ISO 7-bit char string	32 chars max	Opt	Fax number
07.01.20.01.10.03.03.01	E-mail address	UTF-16 char string	Variable	Opt	e-mail address
07.01.20.01.10.03.06.01	Web Page	UTF-16 char string	Variable	Opt	The contact's web home page address

24. Contract

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Contract Set	Set UL	16	Req	Defines the Contract set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
02.01.02.00.00.00.00.00	Supply Contract Number	ISO 7-bit char string	32 chars max	Opt	The alphanumeric number for the contract for the supply of content
06.01.01.04.05.40.1A.00	Rights Sets	StrongReferenceBatch (Rights)	8+16n	D/req	An unordered list of strong references to Rights sets
06.01.01.04.03.40.13.02	Participant Sets (Contract)	GlobalReferenceBatch (Participant)	8+16n	D/req	An unordered list of generalized weak (global) references to Participant sets for Contract

25. Rights

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Rights Set	Set UL	16	Req	Defines the Rights set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
02.05.01.02.01.00.00.00	Copyright Owner	UTF-16 char string	Variable	Opt	The name of the person/organization who owns the copyright.
02.05.03.01.01.00.00.00	Rights Holder	UTF-16 char string	Variable	Opt	A definition of who or what entity can exercise an intellectual property right

02.05.03.02.01.00.00.00	Rights Management Authority	UTF-16 char string	Variable	Opt	Entity that manages the rights for access to the material.
07.01.20.01.03.05.01.00	Region or area of IP License	UTF-16 char string	Variable	Opt	The region of a country where IP rights are licensed
02.05.02.01.01.00.00.00	Intellectual Property Type	UTF-16 char string	Variable	Opt	A definition of the intellectual property in freeform text
02.05.04.03.01.00.00.00	Right Condition	UTF-16 char string	Variable	Opt	Optional condition which restrict a Right ; e.g., embargo periods
02.05.04.04.01.00.00.00	Right Remarks	UTF-16 char string	Variable	Opt	General remarks concerning a Right
02.05.02.02.01.00.00.00	Intellectual Property Right	UTF-16 char string	Variable	Opt	A freeform text definition of what use can be made of an intellectual property
07.02.01.20.02.00.00.00	Rights Start Date & Time	Timestamp	8 bytes	Opt	Date and time of the start of a rights contract (local time)
07.02.01.20.03.00.00.00	Rights Stop Date & Time	Timestamp	8 bytes	Opt	Date and time of the completion of a rights contract (local time)
02.05.04.01.00.00.00.00	Maximum Number of Usages	Uint16	2 bytes	Opt	Maximum number of usages or repeats

26. Picture Format

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Picture Format Set	Set UL	16	Req	Defines the Picture Format set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
04.01.01.01.03.00.00.00	Viewport Aspect Ratio	Rational	8 bytes	Opt	Specifies the horizontal to vertical aspect ratio of the image viewport ; i.e., the desired shot as it is framed for capture and thus the aspect ratio at which the image must be viewed to avoid geometric distortion. May also therefore be a sub-selection of a larger image, possibly of a different aspect ratio.
04.01.01.01.08.00.00.00	Perceived Display Format	ISO 7-bit char string	32 chars max	Opt	Colloquial description of the image when viewed in its intended aspect ratio on a display of another aspect ratio; e.g., pillarbox, letterbox, mixed, etc.
03.02.01.06.04.01.00.00	Color Descriptor	UTF-16 char string	Variable	Opt	Color descriptions (e.g., color, monochrome, tinted, sepia, mixed)

27. Device Parameters

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Device Parameters Set	Set UL	16	Req	Defines the Device Parameters set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text

03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Opt	The name of a specialized vocabulary of selected words or concepts for a particular field; e.g., a particular cataloguing, indexing or thesaurus system
01.01.20.08.01.00.00.00	Device Type	UTF-16 char string	Variable	Opt	Defines the kind of device used to capture or create the content (as either a commonly known name or as a locally defined name; e.g., Radio-camera)
01.01.20.01.00.00.00.00	Device Designation	ISO 7-bit char string	32 chars max	Opt	Identifies the "house name" of the device used in capturing or generating the essence
01.01.20.0C.00.00.00.00	Device Asset Number	ISO 7-bit char string	32 chars max	Opt	Defines the asset number of the device used in capturing or generating the content
01.01.20.05.00.00.00.00	IEEE Device Identifier	String of UInt8	6 bytes	Opt	Hex number identifying a device by manufacturer and device number
01.0A.01.01.01.01.00.00	Manufacturer	UTF-16 char string	Variable	Opt	The manufacturer or maker of the Device
01.01.20.03.00.00.00.00	Device Model	ISO 7-bit char string	32 chars max	Opt	Identifies the device model used in capturing or generating the essence.
01.01.20.04.00.00.00.00	Device Serial Number	ISO 7-bit char string	32 chars max	Opt	Alphanumeric serial number identifying the individual device
03.03.03.10.01.01.00.00	Device Usage Description	UTF-16 char string	Variable	Opt	Freeform textual description of the function or use of the device in the production of a specific content item
06.01.01.04.05.40.1F.03	Name-Value Sets (Device Parameters)	StrongReferenceBatch (Name-Value)	8+16n	D/req	An unordered list of strong references to Name-Value sets

28. Name-Value

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Name-Value Set	Set UL	16	Req	Defines the Name-Value set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.02.0A.01.01.00.00	Item Name	UTF-16 char string	Variable	Opt	Defines the name of the parameter as a string
03.01.02.0A.02.01.00.00	Item Value	UTF-16 char string	Variable	Opt	Defines the value of the parameter as a string
01.02.02.01.00.00.00.00	SMPTE Universal Label Locator	Universal Label	16 bytes	Opt	SMPTE Universal Label Locators – the value is a UL in a public Registry

29. Processing

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Processing Set	Set UL	16	Req	Defines the Processing set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
05.01.01.03.00.00.00.00	Quality Flag	Boolean	1 byte	Opt	Quality or usability of a specific recording/physical copy (no good= zero, good = non zero)

03.02.03.02.02.01.00.00	Descriptive comment	UTF-16 char string	Variable	Opt	The comment or note as text; e.g., Head banding
05.01.01.04.00.00.00.00	Logo Flag	Boolean	1 byte	Opt	Flag indicates all instances of a shot (specifically) contain an on-screen logo. True=contains logo; False=no logo
05.01.01.07.01.00.00.00	Graphic Useage type	UTF-16 char string	Variable	Opt	The type of usage for which a graphic is intended; e.g., title sequence, overlay.
05.01.03.01.00.00.00.00	Process Steps	UInt16	2 bytes	Opt	This number should be incremented by one for each process that changes the audio-visual bit-streams associated with this Framework. Equipment that performs multiple processes in a single operation may be counted as a single process. The original source has a value of zero.
05.01.03.02.01.00.00.00	Generation Copy Number	Uint16	2 bytes	Req	A number that should be incremented by one for each numerically lossy generation from the source where the original source has a value of zero
05.01.03.03.01.00.00.00	Generation Clone Number	Uint16	2 bytes	Req	A number that should be incremented by one for each numerically lossless generation from the source where the original source has a value of zero

30. Project

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Project Set	Set UL	16	Req	Defines the Project set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
01.03.01.06.00.00.00.00	Project Number	ISO 7-bit char string	32 chars max	Opt	Alphanumeric identifier for a particular project or mission
01.03.01.08.01.00.00.00	Project Name or Title	UTF-16 char string	Variable	Opt	Name or title for a particular project or mission

31. Contacts List

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Contacts List Set	Set UL	16	Req	Defines the Contacts List set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
06.01.01.04.05.40.14.00	Person Sets	StrongReferenceBatch (Person)	8+16n	D/req	An unordered list of one or more strong references to Person sets
06.01.01.04.05.40.15.00	Organization Sets	StrongReferenceBatch (Organization)	8+16n	D/req	An unordered list of one or more strong references to Organization sets
06.01.01.04.05.40.16.00	Location Sets	StrongReferenceBatch (Location)	8+16n	D/req	An unordered list of strong references to Location sets

32. Cue Words

UL Designator	Name	Type	Length	Req	Definition
Defined in Table 2	Cue Words Set	Set UL	16	Req	Defines the Cue Words set
	Length	BER Length	var	Req	See SMPTE 377M
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	Req	Unique ID of the instance of this set
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	Opt	Identifier that references the Identification set for the modification
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Opt	The long code that represents the language and optional country variant used for text
03.02.01.02.0D.01.00.00	In-cue Words	UTF-16 char string	Variable	Opt	The actual words on the sound track or a textual reference to music, etc. at the in-cue point
03.02.01.02.0E.01.00.00	Out-cue Words	UTF-16 char string	Variable	Opt	The words on the sound track or a textual reference to music, etc. at the out-cue point

Annex B (informative)
Summary of set properties

This annex lists all the different properties used by the previous annexes and is provided as an informative summary. The normative definitions are provided in the previous annex.

In all tables in this annex, the columns are defined as follows:

- UL Designator: the designator part of the UL key of the item as it is defined in the SMPTE metadata dictionary;
- Name: the name of the property;
- Type: the defined type of the item;
- Len: the length of the value in bytes where known;
- Set Usage: the set or abstract class in which the property is contained.

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The instance UID and generation UID properties in the table below are structural metadata properties and use the static local tag values defined in SMPTE 377M.

UL Designator	Name	Type	Len	Set usage
Identifiers and locators				
01.01.15.02.00.00.00.00	Instance UID	UUID	16 bytes	MXF Set (abstract)
01.01.15.09.00.00.00.00	Extended Clip ID	UMID	32 or 64 bytes	2. Clip Framework
01.01.15.40.01.01.00.00	Participant UID	UID	16 bytes	18. Participant
01.01.15.40.01.02.00.00	Contact UID	UID	16 bytes	Contact (abstract)
01.01.20.01.00.00.00.00	Device Designation	ISO 7-bit char string	32 chars max	27. Device Parameters
01.01.20.03.00.00.00.00	Device Model	ISO 7-bit char string	32 chars max	27. Device Parameters
01.01.20.04.00.00.00.00	Device Serial Number	ISO 7-bit char string	32 chars max	27. Device Parameters
01.01.20.05.00.00.00.00	IEEE Device Identifier	String of UInt8	6 bytes	27. Device Parameters
01.01.20.08.01.00.00.00	Device Type	UTF-16 char string	Variable	27. Device Parameters
01.01.20.0C.00.00.00.00	Device Asset Number	ISO 7-bit char string	32 chars max	27. Device Parameters
01.02.02.01.00.00.00.00	SMPTE Universal Label Locator	Universal Label	16 bytes	28. Name-Value
01.02.02.02.00.00.00.00	Identification Locator	UL	16 bytes	5. Identification
01.03.01.06.00.00.00.00	Project Number	ISO 7-bit char string	32 chars max	30. Project
01.03.01.08.01.00.00.00	Project Name or Title	UTF-16 char string	Variable	30. Project
01.05.02.01.00.00.00.00	Main Title	UTF-16 char string	Variable	4. Titles
01.05.03.01.00.00.00.00	Secondary Title	UTF-16 char string	Variable	4. Titles
01.05.06.00.00.00.00.00	Scene Number	ISO 7-bit char string	32 chars max	3. Scene Framework
01.05.07.00.00.00.00.00	Take Number	Uint16	2 bytes	2. Clip Framework
01.05.08.01.00.00.00.00	Version Title	UTF-16 char string	Variable	4. Titles
01.05.0A.01.00.00.00.00	Working Title	UTF-16 char string	Variable	4. Titles
01.05.0B.01.00.00.00.00	Original Title	UTF-16 char string	Variable	4. Titles
01.05.0C.00.00.00.00.00	Clip Number	ISO 7-bit char string	32 chars max	2. Clip Framework
01.05.0D.01.00.00.00.00	Brand Main Title	UTF-16 char string	Variable	7. Branding
01.05.0E.01.00.00.00.00	Brand Original Title	UTF-16 char string	Variable	7. Branding
01.05.0F.01.00.00.00.00	Framework Title	UTF-16 char string	Variable	DMS-1 Framework (abstract)
01.07.01.07.00.00.00.00	Shot Track IDs	TrackIDCollection	8 + 4*n	16. Shot
01.08.01.00.00.00.00.00	Identifier Kind	ISO 7-bit char string	32 chars max	5. Identification
01.08.02.00.00.00.00.00	Identifier Value	Uint8 String	Variable	5. Identification
01.0A.01.01.01.01.00.00	Manufacturer	UTF-16 char string	Variable	27. Device Parameters
01.0A.02.01.01.00.00.00	Organization Code	UTF-16 char string	Variable	20. Organization
Administration				
02.01.02.00.00.00.00.00	Supply Contract Number	ISO 7-bit char string	32 chars max	24. Contract
02.02.03.01.00.00.00.00	Programming Group Kind	UTF-16 char string	Variable	6. Group Relationship
02.02.04.00.00.00.00.00	Episodic Start Number	Uint16	2 bytes	6. Group Relationship
02.02.05.00.00.00.00.00	Episodic End Number	Uint16	2 bytes	6. Group Relationship
02.02.06.01.00.00.00.00	Progamming Group Title	UTF-16 char string	Variable	6. Group Relationship

02.05.01.02.01.00.00.00	Copyright Owner	UTF-16 char string	Variable	25. Rights
02.05.02.01.01.00.00.00	Intellectual Property Type	UTF-16 char string	Variable	25. Rights
02.05.02.02.01.00.00.00	Intellectual Property Right	UTF-16 char string	Variable	25. Rights
02.05.03.01.01.00.00.00	Rights Holder	UTF-16 char string	Variable	25. Rights
02.05.03.02.01.00.00.00	Rights Management Authority	UTF-16 char string	Variable	25. Rights
02.05.04.01.00.00.00.00	Maximum Number Of Usages	Uint16	2 bytes	25. Rights
02.05.04.03.01.00.00.00	Right Condition	UTF-16 char string	Variable	25. Rights
02.05.04.04.01.00.00.00	Right Remarks	UTF-16 char string	Variable	25. Rights
02.0A.01.01.00.00.00.00	Identification Issuing Authority	UTF-16 char string	Variable	5. Identification
02.10.02.01.01.01.00.00	Publication Organization Name	UTF-16 char string	Variable	9. Publication
02.10.02.01.02.01.00.00	Publication Service Name	UTF-16 char string	Variable	9. Publication
02.10.02.01.03.01.00.00	Publication Medium	UTF-16 char string	Variable	9. Publication
02.10.02.01.04.01.00.00	Publication Region	UTF-16 char string	Variable	9. Publication
02.30.01.02.01.01.00.00	Contribution Status	UTF-16 char string	Variable	18. Participant
02.30.02.01.01.00.00.00	Nature of Organization	UTF-16 char string	Variable	20. Organization
02.30.05.01.01.00.00.00	Job Function	UTF-16 char string	Variable	18. Participant
02.30.05.01.02.00.00.00	Job Function Code	ISO 7-bit char string	32 chars max	18. Participant
02.30.05.02.01.00.00.00	Role or Identity Name	UTF-16 char string	Variable	18. Participant
02.30.06.02.01.00.00.00	Contact Department	UTF-16 char string	Variable	20. Organization
02.30.06.03.01.01.01.00	Family Name	UTF-16 char string	Variable	19. Person
02.30.06.03.01.02.01.00	First Given Name	UTF-16 char string	Variable	19. Person
02.30.06.03.01.05.01.00	Salutation	UTF-16 char string	Variable	19. Person
02.30.06.03.01.06.01.00	Honors, qualifications, etc.	UTF-16 char string	Variable	19. Person
02.30.06.03.01.07.01.00	Person Description	UTF-16 char string	Variable	19. Person
02.30.06.03.01.08.01.00	Other Given Names	UTF-16 char string	Variable	19. Person
02.30.06.03.01.09.01.00	Alternate Name	UTF-16 char string	Variable	19. Person
02.30.06.03.01.0A.01.00	Linking Name	UTF-16 char string	Variable	19. Person
02.30.06.03.01.0B.01.00	Name Suffix	UTF-16 char string	Variable	19. Person
02.30.06.03.01.0C.01.00	Former Family Name	UTF-16 char string	Variable	19. Person
02.30.06.03.01.0D.01.00	Nationality	UTF-16 char string	Variable	19. Person
02.30.06.03.01.0E.01.00	Citizenship	UTF-16 char string	Variable	19. Person
02.30.06.03.03.01.01.00	Organization Main Name	UTF-16 char string	Variable	20. Organization
Interpretive				
03.01.01.02.02.11.00.00	Extended Text Language Code	ISO 7-bit char string	12 chars max	Text Language (abstract)
03.01.01.02.02.12.00.00	Extended Captions Language Code	ISO 7-bit char string	12 chars max	11. Captions Description
03.01.01.02.02.13.00.00	Framework Extended Text Language Code	ISO 7-bit char string	12 chars max	DMS-1 Framework (abstract)
03.01.01.02.03.11.00.00	Primary Extended Spoken Language Code	ISO 7-bit char string	12 chars max	DMS-1 Framework (abstract)
03.01.01.02.03.12.00.00	Secondary Extended Spoken Language Code	ISO 7-bit char string	12 chars max	DMS-1 Framework (abstract)
03.01.01.02.03.13.00.00	Original Extended Spoken Language Code	ISO 7-bit char string	12 chars max	DMS-1 Framework (abstract)
03.01.02.0A.01.01.00.00	Item Name	UTF-16 char string	Variable	28. Name-Value
03.01.02.0A.02.01.00.00	Item Value	UTF-16 char string	Variable	28. Name-Value
03.02.01.02.02.01.00.00	Thesaurus Name	UTF-16 char string	Variable	Thesaurus (abstract)
03.02.01.02.04.00.00.00	Content Classification	ISO 7-bit char string	127 chars max	15. Classification
03.02.01.02.0D.01.00.00	In-cue Words	UTF-16 char string	Variable	32. Cue Words
03.02.01.02.0E.01.00.00	Out-cue Words	UTF-16 char string	Variable	32. Cue Words

03.02.01.02.10.01.00.00	Keypoint Kind	UTF-16 char string	Variable	17. Key Point
03.02.01.02.11.01.00.00	Keypoint Value	UTF-16 char string	Variable	17. Key Point
03.02.01.02.15.01.00.00	Framework Thesaurus Name	UTF-16 char string	Variable	DMS-1 Framework (abstract)
03.02.01.06.04.01.00.00	Color Descriptor	UTF-16 char string	Variable	26. Picture Format
03.02.01.06.08.01.00.00	Group Synopsis	UTF-16 char string	Variable	6. Group Relationship
03.02.01.06.09.01.00.00	Annotation Synopsis	UTF-16 char string	Variable	12. Annotation
03.02.01.06.0A.01.00.00	Annotation Description	UTF-16 char string	Variable	12. Annotation
03.02.01.06.0B.01.00.00	Scripting Kind	UTF-16 char string	Variable	14. Scripting
03.02.01.06.0C.01.00.00	Scripting Text	UTF-16 char string	Variable	14. Scripting
03.02.05.01.01.00.00.00	Shot Comment Kind	UTF-16 char string	Variable	16. Shot
03.02.05.02.01.00.00.00	Shot Comment	UTF-16 char string	Variable	16. Shot
03.02.01.06.0D.01.00.00	Shot Description	UTF-16 char string	Variable	16. Shot
03.02.01.06.0E.01.00.00	Annotation Kind	UTF-16 char string	Variable	12. Annotation
03.02.01.06.0F.01.00.00	Related Material Description	UTF-16 char string	Variable	12. Annotation
03.02.02.01.03.01.00.00	Festival	UTF-16 char string	Variable	10. Award
03.02.02.01.04.01.00.00	Award Name	UTF-16 char string	Variable	10. Award
03.02.02.01.05.01.00.00	Award Classification	UTF-16 char string	Variable	10. Award
03.02.02.01.06.01.00.00	Nomination Category	UTF-16 char string	Variable	10. Award
03.02.05.03.00.00.00.00	Slate Information	UTF-16 char string	Variable	2. Clip Framework
03.02.05.04.00.00.00.00	Clip Kind	UTF-16 char string	Variable	2. Clip Framework
03.03.03.10.01.01.00.00	Device Usage Description	UTF-16 char string	Variable	27. Device Parameters
Parametric				
04.01.01.01.03.00.00.00	Viewport Aspect Ratio	Rational	8 bytes	26. Picture Format
04.01.01.01.08.00.00.00	Perceived Display Format	ISO 7-bit char string	32 chars max	26. Picture Format
04.03.01.01.01.00.00.00	Caption Kind	UTF-16 char string	Variable	11. Captions Description
Process				
05.01.01.01.01.00.00.00	Integration Indication	UTF-16 char string	Variable	1. Production Framework
05.01.01.02.01.00.00.00	Event Indication	UTF-16 char string	Variable	8. Event
05.01.01.03.00.00.00.00	Quality Flag	Boolean	1 byte	29. Processing
05.01.01.04.00.00.00.00	Logo Flag	Boolean	1 byte	29. Processing
05.01.01.07.01.00.00.00	Graphic Usage type	UTF-16 char string	Variable	29. Processing
03.02.03.02.02.01.00.00	Descriptive comment	UTF-16 char string	Variable	29. Processing
05.01.03.01.00.00.00.00	Process Steps	UInt16	2 bytes	29. Processing
05.01.03.02.01.00.00.00	Generation Copy Number	Uint16	2 bytes	29. Processing
05.01.03.03.01.00.00.00	Generation Clone Number	Uint16	2 bytes	29. Processing
05.20.07.01.08.00.00.00	Generation UID	UUID	16 bytes	MXF Set (abstract)
Relational				
06.01.01.04.02.40.1D.00	Image Format Set	StrongReference (Image Format)	16 bytes	Production-Clip Framework (abstract)
06.01.01.04.02.40.20.00	Processing Set	StrongReference (Processing)	16 bytes	Production-Clip Framework (abstract)
06.01.01.04.02.40.21.00	Project Set	StrongReference (Project)	16 bytes	Production-Clip Framework (abstract)
06.01.01.04.02.40.22.00	Contacts List Set	StrongReference (Contacts List)	16 bytes	DMS-1 Framework (abstract)
06.01.01.04.02.40.23.01	Cue Words Set (Annotation)	StrongReference (Cue Words)	16 bytes	12. Annotation
06.01.01.04.02.40.23.02	Cue Words Set (Shot)	StrongReference (Cue Words)	16 bytes	16. Shot
06.01.01.04.03.40.13.01	Participant Sets (Award)	GlobalReferenceBatch (Participant)	8+16n	10. Award
06.01.01.04.03.40.13.02	Participant Sets (Contract)	GlobalReferenceBatch (Participant)	8+16n	24. Contract

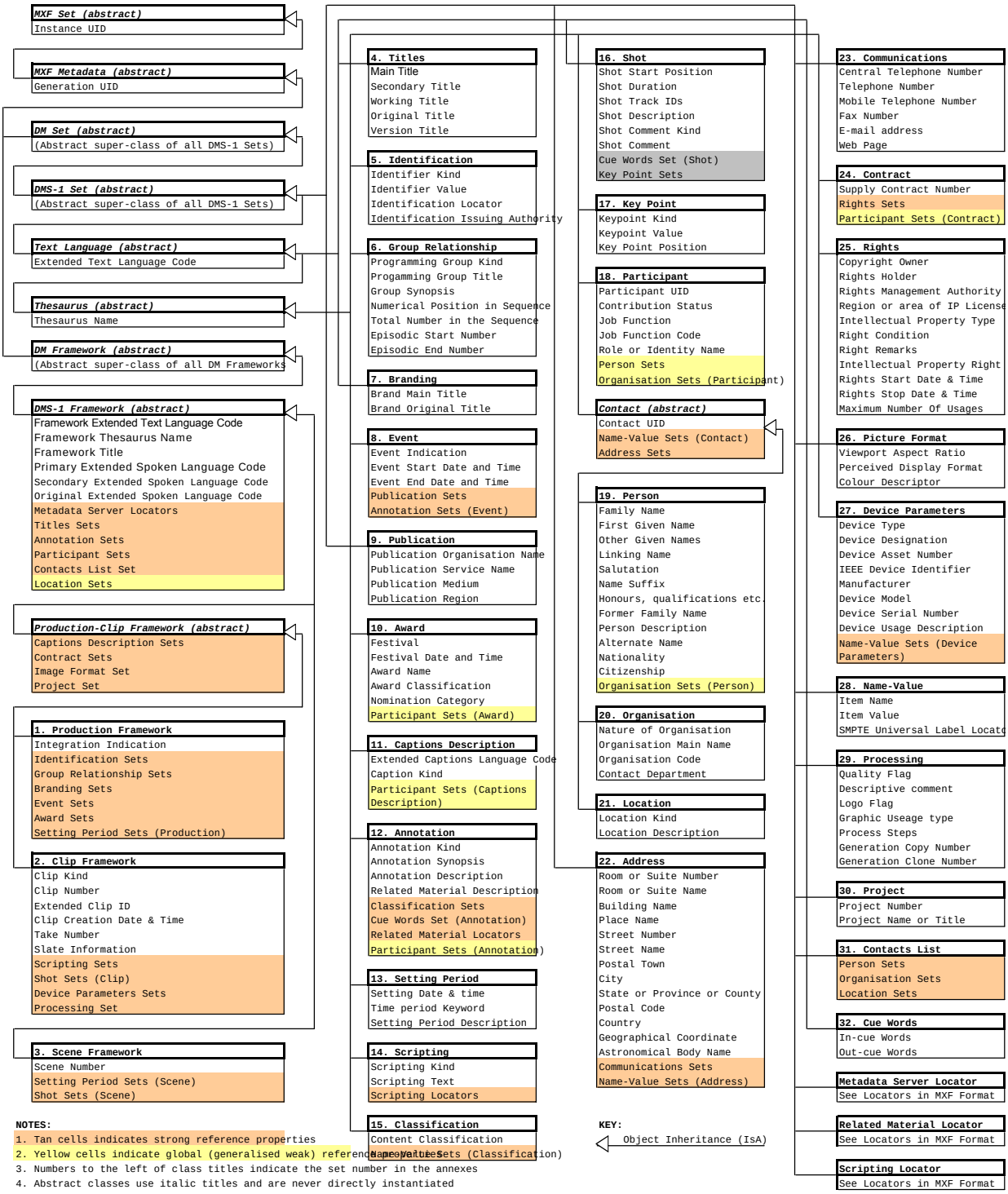
06.01.01.04.03.40.13.03	Participant Sets (Annotation)	GlobalReferenceBatch (Participant)	8+16n	12. Annotation
06.01.01.04.03.40.13.04	Participant Sets (Captions Description)	GlobalReferenceBatch (Participant)	8+16n	11. Captions Description
06.01.01.04.03.40.14.00	Person Sets	GlobalReferenceBatch (Person)	8+16n	18. Participant
06.01.01.04.03.40.15.01	Organization Sets (Participant)	GlobalReferenceBatch (Organisation)	8+16n	18. Participant
06.01.01.04.03.40.15.02	Organization Sets (Person)	GlobalReferenceBatch (Organisation)	8+16n	19. Person
06.01.01.04.03.40.16.00	Location Sets	GlobalReferenceBatch (Location)	8+16n	DMS-1 Framework (abstract)
06.01.01.04.05.40.04.00	Titles Sets	StrongReferenceBatch (Titles)	8+16n	DMS-1 Framework (abstract)
06.01.01.04.05.40.05.00	Group Relationship Sets	StrongReferenceBatch (Group Relationship)	8+16n	1. Production Framework
06.01.01.04.05.40.06.00	Identification Sets	StrongReferenceBatch (Identification)	8+16n	1. Production Framework
06.01.01.04.05.40.08.00	Branding Sets	StrongReferenceBatch (Branding)	8+16n	1. Production Framework
06.01.01.04.05.40.09.00	Event Sets	StrongReferenceBatch (Event)	8+16n	1. Production Framework
06.01.01.04.05.40.0A.00	Publication Sets	StrongReferenceBatch (Publication)	8+16n	8. Event
06.01.01.04.05.40.0B.00	Award Sets	StrongReferenceBatch (Award)	8+16n	1. Production Framework
06.01.01.04.05.40.0C.00	Captions Description Sets	StrongReferenceBatch (Captions Description)	8+16n	Production-Clip Framework (abstract)
06.01.01.04.05.40.0D.00	Annotation Sets	StrongReferenceBatch (Annotation)	8+16n	DMS-1 Framework (abstract)
06.01.01.04.05.40.0D.01	Annotation Sets (Event)	StrongReferenceBatch (Annotation)	8+16n	8. Event
06.01.01.04.05.40.0E.01	Setting Period Sets (Production)	StrongReferenceBatch (Setting Period)	8+16n	1. Production Framework
06.01.01.04.05.40.0E.02	Setting Period Sets (Scene)	StrongReferenceBatch (Setting Period)	8+16n	3. Scene Framework
06.01.01.04.05.40.0F.00	Scripting Sets	StrongReferenceBatch (Scripting)	8+16n	2. Clip Framework
06.01.01.04.05.40.10.00	Classification Sets	StrongReferenceBatch (Classification)	8+16n	12. Annotation
06.01.01.04.05.40.11.01	Shot Sets (Scene)	StrongReferenceBatch (Shot)	8+16n	3. Scene Framework
06.01.01.04.05.40.11.02	Shot Sets (Clip)	StrongReferenceBatch (Shot)	8+16n	2. Clip Framework
06.01.01.04.05.40.12.00	Key Point Sets	StrongReferenceBatch (Key Point)	8+16n	16. Shot
06.01.01.04.05.40.13.00	Participant Sets	StrongReferenceBatch (Participant)	8+16n	DMS-1 Framework (abstract)
06.01.01.04.05.40.14.00	Person Sets	StrongReferenceBatch (Person)	8+16n	31. Contacts List
06.01.01.04.05.40.15.00	Organization Sets	StrongReferenceBatch (Organisation)	8+16n	31. Contacts List
06.01.01.04.05.40.16.00	Location Sets	StrongReferenceBatch (Location)	8+16n	31. Contacts List
06.01.01.04.05.40.17.00	Address Sets	StrongReferenceBatch (Address)	8+16n	Contact (abstract)
06.01.01.04.05.40.18.00	Communications Sets	StrongReferenceBatch (Communications)	8+16n	22. Address
06.01.01.04.05.40.19.00	Contract Sets	StrongReferenceBatch (Contract)	8+16n	Production-Clip Framework (abstract)
06.01.01.04.05.40.1A.00	Rights Sets	StrongReferenceBatch	8+16n	24. Contract

		(Rights)		
06.01.01.04.05.40.1E.00	Device Parameters Sets	StrongReferenceBatch (Device Parameters)	8+16n	2. Clip Framework
06.01.01.04.05.40.1F.01	Name-Value Sets (Classification)	StrongReferenceBatch (Name-Value)	8+16n	15. Classification
06.01.01.04.05.40.1F.02	Name-Value Sets (Contact)	StrongReferenceBatch (Name-Value)	8+16n	Contact (abstract)
06.01.01.04.05.40.1F.03	Name-Value Sets (Device Parameters)	StrongReferenceBatch (Name-Value)	8+16n	27. Device Parameters
06.01.01.04.05.40.1F.04	Name-Value Sets (Address)	StrongReferenceBatch (Name-Value)	8+16n	22. Address
06.01.01.04.06.0C.00.00	Metadata Server Locators	StrongReferenceArray (Metadata Server Locators)	8+16n	DMS-1 Framework (abstract)
06.01.01.04.06.0D.00.00	Related Material Locators	StrongReferenceArray (Related Material Locators)	8+16n	12. Annotation
06.01.01.04.06.0E.00.00	Scripting Locators	StrongReferenceArray (Scripting Locators)	8+16n	12. Annotation
06.10.01.00.00.00.00.00	Numerical Position in Sequence	Uint32	4 bytes	6. Group Relationship
06.10.04.00.00.00.00.00	Total Number in the Sequence	Uint32	4 bytes	6. Group Relationship
Spatio-Temporal				
07.01.20.01.03.05.01.00	Region or area of IP License	UTF-16 char string	Variable	25. Rights
07.01.20.01.04.01.01.01	Room or Suite Number	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.02.01	Street Number	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.03.01	Street Name	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.04.01	Postal Town	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.05.01	City	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.06.01	State or Province or County	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.07.01	Postal Code	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.08.01	Country	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.11.01	Room or Suite Name	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.12.01	Building Name	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.14.01	Place Name	UTF-16 char string	Variable	22. Address
07.01.20.01.04.01.15.00	Geographical Coordinate	12-byte Spatial Coordinate	12 bytes	22. Address
07.01.20.01.04.01.16.01	Astronomical Body Name	UTF-16 char string	Variable	22. Address
07.01.20.01.10.03.01.00	Telephone Number	ISO 7-bit char string	32 chars max	23. Communications
07.01.20.01.10.03.02.00	Fax Number	ISO 7-bit char string	32 chars max	23. Communications
07.01.20.01.10.03.03.01	E-mail address	UTF-16 char string	Variable	23. Communications
07.01.20.01.10.03.04.00	Central Telephone Number	ISO 7-bit char string	32 chars max	23. Communications
07.01.20.01.10.03.05.00	Mobile Telephone Number	ISO 7-bit char string	32 chars max	23. Communications
07.01.20.01.10.03.06.01	Web Page	UTF-16 char string	Variable	23. Communications
07.01.20.02.02.01.00.00	Location Description	UTF-16 char string	Variable	21. Location
07.01.20.02.03.01.00.00	Location Kind	UTF-16 char string	Variable	21. Location
07.02.01.02.07.02.00.00	Event Start Date and Time	ISO 7-bit char string	32 chars max	8. Event
07.02.01.02.09.02.00.00	Event End Date and Time	ISO 7-bit char string	32 chars max	8. Event
07.02.01.03.01.07.00.00	Key Point Position	Position (UInt64)	8 bytes	17. Key Point
07.02.01.03.01.09.00.00	Shot Start Position	Position	8 bytes	16. Shot
07.02.01.02.07.10.01.00	Festival Date and Time	ISO 7-bit char string	32 chars max	10. Award
07.02.01.08.01.01.00.00	Time period Keyword	UTF-16 char string	Variable	13. Setting Period

07.02.01.08.02.00.00.00	Setting Date & time	Timestamp	8 bytes	13. Setting Period
07.02.01.08.03.01.00.00	Setting Period Description	UTF-16 char string	Variable	13. Setting Period
07.02.01.10.01.04.00.00	Clip Creation Date & Time	TimeStamp	8 bytes	2. Clip Framework
07.02.01.20.02.00.00.00	Rights Start Date & Time	Timestamp	8 bytes	25. Rights
07.02.01.20.03.00.00.00	Rights Stop Date & Time	Timestamp	8 bytes	25. Rights
07.02.02.01.02.04.00.00	Shot Duration	Length	8 bytes	16. Shot

Annex C (informative)
Class structure of DMS-1

The figure below gives the class structure of the scheme describe in this standard for the purpose of data modeling. This data model is an extension to the AAF Association data model (http://www.aafassociation.org). The connecting lines in this figure show the inheritance hierarchy.



Abstract classes in the figure above are only required for operation with AAF systems that are enabled for use with descriptive metadata. Those abstract classes that are not defined in table 3 of this standard are common to all descriptive metadata schemes and are defined by the AAF Association. For the convenience of the reader, the UL values of these abstract classes are replicated below. The normative definitions of these UL values remain with the AAF Association.

Abstract Class Name	Class UL Value
MXF Metadata (known as “Interchange Object” in AAF)	06.0E.2B.34.02.53.01.01.0D.01.01.01.01.01.01.00
DM Framework	06.0E.2B.34.02.53.01.01.0D.01.04.01.00.00.00.00
DM Set	06.0E.2B.34.02.53.01.01.0D.01. 04.00.00.00.00.00

Annex D (informative)
Implementing MXF DMS-1

D.1 Introduction

This annex explains how the DMS-1 can be used in MXF and AAF with particular focus on how to use the frameworks and sets in common operations. It also explains some of the underlying concepts behind some of the design aims of the frameworks, sets and properties that provide features that are not immediately obvious.

D.2 Defining a class model

The core rules defined by AAF are followed by the DMS-1 specification so that it can be read by an extended AAF toolkit as though the descriptive metadata were part of the AAF specification. These rules are described in SMPTE EG 42, but essentially revolve around a formal class model with a single inheritance class hierarchy.

The common inheritance class hierarchy is illustrated in annex C of this specification that is used by all the frameworks. The individual framework aggregation figures expand the inheritance hierarchy for clear understanding in figure 2.

Because most of the inheritance classes in the DMS-1 specification are largely independent entities, the class hierarchy is a relatively flat structure. The aggregation hierarchies tend to have a more 'tree-like' structure due to the way in which they are applied.

Wherever possible, the properties within any class have been chosen to be closely related to the intent of any particular class. In several cases, there are classes that are very generic and are widely used. In particular, individual classes were extracted wherever it was determined that the properties could be repeated within any set. Thus a 'person' can have many 'addresses' and each 'address' can have many 'communications' (e.g., telephones).

The DMS-1 class hierarchy has several abstract superclasses designed to act as the common points in the hierarchy for the purpose of spawning sub-classes.

Note that since AAF defines the individual properties of "Instance UID" and "Generation UID" at a high level, all sets that are referenced by a "DMSegment" set can include these properties and use them in the same way as used for the MXF structural metadata. However, all other properties in DMS-1 are unique within the AAF toolkit.

D.2.1 Framework diagrams

The DMS-1 specification defines the three frameworks as an aggregation of metadata sets where the structures of frameworks share a common aggregation structure wherever possible.

A key aspect about these diagrams is that the aggregation allows typically "0 or 1" or ">=0" sets to be implemented. Thus, each framework has the option to include as many sets from the aggregation tree as required by the metadata encoder. The default for each framework is to reference no sets from its framework structure thus leading to a framework that has only the root framework set. It is also perfectly acceptable to have several frameworks use different combinations of sets from the aggregation tree to separate the metadata uses as required by the application.

D.3 Using the production, clip and scene frameworks

In the DMS-1 specification, the terms "production", "clip" and "scene" were agreed with several parties after long discussions. There is no single word that can express the intent of these terms across all the industries that might use the DMS-1 specification (music, video, file, etc.) so these terms are explained in detail to ensure consistent usage.

Essentially, and summarizing the words used in section 4.1 of the DMS-1 specification:

- "Production" information provides identification, label and other metadata for the file as a whole. As such, this metadata is likely to change as each new production is created.
- "Clip" information is provided to allow material to be described from the aspect of its capture or creation. This information is likely to be persistent whatever its use.
- "Scene" information provides metadata to describe the actions and events in the material in an editorial context (e.g., the location of the scene in a drama). This information is less likely to change in different usage as, once defined, it typically represents the material as annotated in the first production.

D.3.1 Using frameworks

Each framework is referenced by a “DM segment” that associates it to particular times along certain defined tracks or all tracks (see SMPTE EG 42 for more details).

The use of each framework will typically differ on a case-by-case basis as follows:

D.3.1.1 Production framework

A production framework usually applies to all tracks of the Package timeline.

- If referenced by a material package, it will describe the file output as a complete entity. Thus, it will usually have the same duration as the output timeline and apply to all tracks. In the case of files with operational patterns having “alternate packages”, there will usually be one framework per material package.

- If referenced by a top-level file package, it will describe the file input described by the file package. Thus, it will usually have the same duration as the file essence container and apply to all tracks. In the case of files with multiple file packages, there will usually be one framework per file package.

- If referenced by a lower-level source package, it will describe the derivation of the essence as described by the source package. Thus, it will usually have the same duration as the source material and apply to all tracks. In the case of files with multiple source packages, there will typically be one framework per source package.

D.3.1.2 Clip framework

A clip framework typically applies to a particular combination of essence tracks over a defined duration. Clip frameworks are typically contiguous along the timeline and may describe the picture and sound tracks with different frameworks where this material was captured or created in different ‘shoots’. If each essence container in a file represents a single ‘take’, then there will be typically one clip framework referenced by each file package.

- If referenced by a material package, it will describe the clip information that is needed for playout. This is a case where the ‘DM SourceClip’ set is used to reference the ‘clip’ information described by file package.

- If referenced by a file package, it will describe the ‘clip’ information for the defined section of the essence container and will typically represent the information captured at the point of creating or capturing the content and copied from any source when appropriate.

- If referenced by a source package, it will describe the ‘clip’ information for the defined section of the source material which might be the original material as captured or created.

D.3.1.3 Scene framework

A scene framework typically applies to a particular combination of essence tracks over a defined duration. Scene frameworks may overlap along the timeline or may describe individual pictures. Consequently, there will typically be many scene frameworks referenced by any one package.

- If referenced by a material package, it will describe the ‘scene’ information as presented on playout. This is a case where the ‘DM SourceClip’ set is used to reference the ‘scene’ information described by file package.

- If referenced by a file package, it will describe the ‘scene’ information for the defined section of the essence container.

- If referenced by a source package, it will describe the ‘scene’ information for the defined section of the source material.

D.3.2 Using frameworks in editing operations

Editing metadata is very similar to that of editing between audio and video; it can be edited synchronously with the audio and video, or it can be stripped from the file and essentially re-built after the A/V editing process.

There are no clear rules for editing metadata at the time of writing. In general, the following can be considered as points to consider for metadata editing.

D.3.2.1 Production framework

For many operations, this is likely to be newly created or re-created during editing since most of the metadata in this framework is connected with the entire A/V content as a production entity.

D.3.2.2 Clip framework

Unlike the other frameworks, clip metadata is most likely to be automatically collected and recorded at the point of capture and creation. Since each framework is associated with a particular point or duration along the timeline, and may only apply to certain tracks, caution must be exercised in ensuring that the timing and track values are still relevant after editing. Of particular note, is that the shot set has its own timeline and track set so that individual frames and sounds can be logged for reference.

D.3.2.3 Scene framework

Metadata in this framework is most likely to be created by editorial staff for logging purposes. Otherwise, the processing of scene metadata is likely to be similar, in many ways, to the processing of metadata in the clip framework with the exception that the scene metadata resides on an event track that allows scene metadata to overlap or be discontinuous.

D.3.3 Using frameworks in file recovery and partial restore

A description of the operations needed to support file recovery and partial restore are given in SMPTE EG 42. This section describes the use of the DMS-1 frameworks to support these operations.

D.3.3.1 File recovery

SMPTE EG 42 recommends that each current top-level file package be converted into a lower-level source package and that the material package be used as the basis to create a new top-level file package. Thus a new material package will be required.

If the production framework is on a timeline track it should be adjusted to reflect the new start points and durations. Some editing of the properties in each production framework may be needed to reflect the new editorial status.

Clip frameworks that lie within the time-span of the recovered essence should be added to the new top-level file package. Clip frameworks that do not lie within the time-span of the recovered essence should not be added to the new top-level file package. Clip frameworks that lie only partially within the time-span of the recovered essence should be added to the new top-level file package but may need some editing to reflect the changed status of the essence.

Guidance for scene frameworks is the same as for clip frameworks above.

D.3.3.2 Partial restore

Per SMPTE EG 42, a file that is subject to partial restore should be closed and contain closed and complete header metadata in either in the header partition or the footer partition. From whichever partition is able to supply closed and complete header metadata, the metadata should be extracted for analysis and processing.

The production framework should be returned in full and, if the track is a timeline track, appropriate adjustments should be made to the timeline property values. Parsing the track sets will determine those clip and scene frameworks that describe the whole or part of the essence that is the subject of the partial restore. Framework metadata that does not relate to the partially restored essence may be discarded using shot information in the clip and scene frameworks.

A ‘shot’ can be considered as either ‘hard’ factual information such as “a shot of Armstrong walking on the moon” or as ‘soft’ editorial information such as “the shot of the White House under alien attack” (from the movie: Independence Day).

Since a ‘shot’ needs to have the context defined (i.e., is it editorial or factual?), it resides in the ‘scene’ and ‘clip’ frameworks in order that the context can be known. However, ‘shots’ are most often descriptions of short events, either as single frames, of a short period of video or audio. Furthermore, a ‘shot’ is most often related to a single track of video or a single sound event (a sound having >=1 audio channels) so it needs two key properties:

- A link to the track IDs that the ‘shot’ describes;
- A start position and duration of the ‘shot’.

NOTE – ‘Shot’ information is typically describing very short sections of content, often a single frame with a duration of 1.

D.3.4 Set language property

The inheritance hierarchy provides many sets with the ability to define an optional language property. The rule is that each framework has a ‘framework language’ property that sets the default language for all text-based properties both in the framework set itself and in all text-based properties in the sets used in the framework.

All sets in a framework that have one or more language-sensitive text propertied may also express the set in another language. Thus a ‘Titles’ set will be instantiated in the language of the framework (e.g., French), but may also have other instances in other languages (e.g., English, German and Japanese).

This flexibility extends to all sets where a property may be language-sensitive.

The language property is expressed as a code defined by ISO-639 as either a 2-byte code or a 3-byte code.

D.3.5 Using the thesaurus

A ‘thesaurus’ (definition: a storehouse of knowledge, especially of words, quotations, phrases) is a list of defined terms that may be applied to text, numbers, ULs or any other property that is defined as a list of recognized values.

A word with a similar meaning is ‘Lexicon’ (definition: a vocabulary of terms used in connection with a particular subject). However, the requirement here is for a term that encompasses a list of defined terms not restricted to language. However, in certain communities, the word ‘lexicon’ is used in the context that ‘thesaurus’ is used in the DMS-1.

The ‘thesaurus’ property in DMS-1 operates in a similar (but not identical) manner to the ‘language’ property described above in that a framework thesaurus is defined as a default for all sets in the framework but that individual sets can over-ride the default framework thesaurus with one specifically defined for this set.

A thesaurus, especially if text-based, is very likely to be dependent not just on language, but on the industry. Therefore, the solution was determined to be a reference to a thesaurus as a name that an application can load for the purpose of encoding or decoding. It is expected that individual thesauri be created for the language, industry, organization or even for individual productions and loaded by the application that can parse the thesaurus definition and present the user with the choices available for the operation required.

Because of the variable nature of the ‘thesaurus’ values, the definition of values is beyond the scope of the MXF DMS-1. However, a common data format is required for software to be able to parse the values and for this XML is an ideal candidate. The format should provide for unique identification of the thesaurus, the industry it serves, the language, optionally, the organization, the name of the catalogue of values and then the list of values. Note that a single thesaurus may serve many sets by listing all enumerations required by the sets in one file of composite catalogues.

D.3.5.1 Guidance for the format of the thesaurus

Since the thesaurus will be loaded into the descriptive metadata software either dynamically at run-time or statically encoded into the software file, it may be coded in any appropriate form. XML is likely to be the preferred coding format for most application software, although it should be capable of using the Unicode format to support any language as needed.

Below is a suggestion for the layers to be considered for the construction of a thesaurus in general terms:

Layer 1: Thesaurus: {Specified: e.g. DMS-1}
Layer 2: Community: {Specified: e.g Music Recording}
Layer 3: Language: {Specified: e.g. International English}
Layer 4: Set Name: {Specified: e.g. Production Framework}
Layer 5: Property Name: {Specified: e.g. Integration Indicator}
Layer 6: Property Values: {Enumerated:
e.g: “Album”, “Track”, “Compilation”}

D.3.6 Using locators

In figure 2 and annex C, references are made to “locators”. These are references to any kind of locator set defined in SMPTE 377M (MXF format). Currently, MXF only defines two such locator sets: “text locator” and “network locator”. For those interested in AAF implementations, this reference is to the AAF “locator” abstract superclass. If MXF is extended to include any new locator set, this may be added to the list of locators that may be used by DMS-1.

D.4 Sharing sets

Most descriptive metadata sets are either directly owned by the framework that references them or indirectly through a chain of sets owned by a framework. However, the MXF DMS-1 provides certain sets that can be part of a shared reference and this means that these sets can be referenced from another framework.

The definition lies within the individual set specifications which states that a set A can make a weak reference to set B. Since this reference is not bound to the framework, the reference can be made to another framework. This applies in the case of the contacts list described next. However, the rule applies generally to all weakly reference sets.

D.4.1 Scope of references

In order to keep the referencing chain manageable, the scope of references, whether strong or weak, is limited to any one instance of the header metadata per section 8.3.2.1 of the MXF format specification.

D.4.2 Using the contacts list

Each framework has a ‘contacts list’. Each framework also has ‘person’, ‘organization’ and ‘location’ sets to which can be owned by the ‘contacts list’ by using a strong reference from the ‘contacts list’ set. ‘Person’, ‘organization’ and ‘location’ are three categories of information that are widely used for contact information.

The aggregation structure allows the following combinations to be used:

- A ’participant’ may be a ‘person’ or an ‘organization’ or a ‘person’ with an ‘organization’;
- A ‘person’ may be an individual and may include an ‘organization’;
- A ‘framework’ may have a ‘location’.

D.4.3 Name-value set as a flexible list

The ‘name-value’ set is used in many places in the MXF DMS-1 as a means of extending certain sets with additional functionality by providing a list of values together with its name and a unique ID (where applicable). SMPTE properties should be used wherever they are available. However, this set is useful for providing the ability to handle properties defined in legacy systems.

Some examples of the use of the ‘name-value’ set are:

- The ‘Person’ set can be supplemented with additional values. For example:
  - Name = “Eye Color”
  - Value = “Blue”
  - Name = “Sex”
  - Value = “Female”

- Classification set – the classification set defines the thesaurus name (e.g., BIAB - British & Irish Archeological Bibliography). For this example, a name-value pair could provide the following details:

  - Name = “Classification Code”
  - Value = “6G:6H:7G:7H”

The reference to each ‘name-value’ set is ***typed*** in order to maintain the single-inheritance hierarchy so that a reference from the ‘classification’ set has a different (i.e., typed) reference from the ‘person’ set.

The specific details of this set are described in the next section.

D.5 Descriptions of the MXF DMS-1 sets

This section explains some of the characteristics and objectives of the sets used in the DMS-1 explained on a case-by-case basis.

D.5.1 Titles, group relationship and branding

These are all language-sensitive sets since most of the properties are text-based.

The ‘titles’ set is provided to give a number of different kinds of titles or names given to A/V content.

The ‘group relationship’ set is used to relate the framework with any associated groupings to which this A/V content may belong (e.g., “Onedin Line”, “The Waltons”). The “programming group kind” property allows the episodic context of the group to be defined; for example, as a program episode within a series, an item within a program or a package within an item.

The ‘branding’ set is used to define any adoptive brand to which this A/V content may belong (e.g. “Sky Sports”, “Cartoon Time”).

D.5.2 Identification

This set is generalized so that it can provide for all kinds of production identification. The key enabler is the “identifier kind” that provides a name for the identifier (e.g. V-ISAN). An “identification locator” is a SMPTE UL that locates the kind of identifier in a SMPTE registry (where applicable).

D.5.3 Event and publication

The ‘event’ set is provided to allow various different kinds of event to be defined including a start date/time and an end date/time. The ‘event indicator’ property defines the kind of event in industry-standard terms. The set can be used to define, for example, license start date/time, publication start date/time, repeat date/time, etc. The date and time format is text-based using a standardized formatting that allows the definition of specified days, specified times as well as defining a single unique date/time event.

The optional ‘publication’ set gives further details about any publication event, including publication medium (e.g. Web, terrestrial broadcast, satellite broadcast, DVD, video-cassette, etc.).

D.5.4 Award

This set provides historical evidence that the production has been awarded an honor by some institution. This provides useful information for archivists wishing to search for A/V material that has been the subject of particular awards.

D.5.5 Captions description

This is another generic set that can be used to describe any kind of captions, be they “closed caption”, “sub-titles” or any other. The kind of caption can be determined from a text string defined in the appropriate thesaurus.

D.5.6 Annotation and classification

The optional ‘annotation’ set allows A/V content to be annotated and classified according to the rules adopted by libraries and archives. The set defines basic information such as a synopsis, an outline description of the A/V content and a link to any related material. The kind of annotation can be determined from a text string defined in the appropriate thesaurus. The ‘annotation’ set can be used to provide keyword support by defining the ‘annotation kind’ as “keywords” and setting the ‘annotation description’ to be the keyword string (typically as a space separated list of words).

The annotation set can have optional ‘classification’ sets each of which can identify the use of a knowledge management scheme such as “Marc”, “BBC Lonclass”, etc. The use of the ‘name-value’ set permits a string of classifications to be made within a given scheme (each ‘name-value’ set is used to define a single entry of cataloguing or classification data within a list).

D.5.7 Setting period

The ‘scripting’ set is an optional editorial component in the scene framework that can be used to describe the period in which the scene is set. The set provides for specific dates and times fro relatively recent events and also provides a period keyword for past or future ages such as “Jurassic” or “Elizabethan”.

D.5.8 Scripting

The ‘scripting’ set is an optional component in the clip framework that can be used to contain any scripts associated with the clip. These may be camera, music, lighting or microphone scripts as well as theatrical scripts.

D.5.9 Shot and key points

The optional ‘shot’ set is used within the scene and clip frameworks to describe the scope of a shot in regard of its start and duration and the tracks with which the shot is associated. The ‘shot’ set gives only a simple high-level text description of the shot (e.g., “Shot of rider jumping Beecher’s Brook at Aintree in 1955”).

‘Key point’ sets can provide further information. The “key point kind” property is used to delineate different kinds of key points, for example: ‘key words’, ‘key sounds, ‘key actions’, ‘key frames’ and other key point kinds as needed.

D.5.10 Participant

The ‘participant’ set is used to assign a status of participation to either and individual, an organization or a group or individuals or organisations. This set relies on the ‘contacts list’ described next.

D.5.11 Contacts list: Person, organization and location

The ‘contacts list’ is an abstract set that is used to “own” a contacts database comprising ‘person’, ‘organization’ and ‘location’, the three main components of a list of individuals, groups and places.

The three sets — ‘person’, ‘organization’ and ‘location’ — are basic definitions that have similar constructs including a list of extra property values (using the ‘name-value’ set), and zero or more addresses. Note that a ‘person’ and an ‘organization’ may have multiple addresses, although a ‘location’ will typically have only one address.

Each ‘address’ set (whether used by a ‘person, ‘organization’ or ‘location’) may have multiple ‘communications’ sets. Thus, an ‘organization’ may have a list of several central telephone numbers simply by instantiating several ‘communications’ sets with the appropriate properties and values.

Furthermore, a ‘person’ may have, not just an ‘organization’ with his or her business contact details, but several instances of ‘communications’ sets each with a different mobile telephone number.

D.5.12 Contract and rights

The optional ‘contract’ set provides the minimum information needed to identify any contractual information. It is only valid for contract details associated with the production of the A/V content and that are sufficiently persistent that they can be embedded in a file and any copies that may be made of that file. Note that this set should not be used where contractual details are transitory. Any ‘rights’ sets that are aggregated with a ‘contract’ set may also be used in files where the

information is regarded as persistent and may be subject to duplication. The property values in these sets can be used to access any automated payment information where that is appropriate and agreed.

D.5.13 Image format

The aspect ratio property in the picture essence descriptor as defined in the MXF format specification defines the aspect ratio of the essence as captured together with the active format descriptor that indicates the framing of the active picture within the viewable scanning raster.

The 'image format' set is used only in the production framework to identify the viewport aspect ratio together with the display format code of the production as a whole. This may differ from the aspect ratio defined in the picture essence descriptor.

D.5.14 Device parameters

The 'device parameters' set is provided to identify the devices used in capturing or creating the A/V content in a clip. The list of property types is comprehensive, but since it can never be exhaustive, this set can reference as many 'name-value' sets as required to provide a list of additional device parameters.

D.5.15 Name-value

The 'name-value' set is a generic set used in many places to provide a list, for example, to provide a list of parameter settings for the 'device parameters' set in the clip framework. Each item in the list as represented by the 'name-value' set can have a name, a value and a locator. The locator property is a universal label that can be used to locate the definition of the item in a registry where that exists.

An example of the use of the locator property is in the 'classification' set of the 'production' framework, where each name and value of the classification list is accompanied by a SMPTE metadata dictionary UL that uniquely identifies each item in the list (e.g., genre, target audience, etc.).

D.5.16 Processing and project

These two sets provide extra information specific to the clip framework. The former identifies the number and type of processing that the clip may have undergone including logo insertion and, if a graphic, the type of graphic while the former provides the data equivalent of 'clapper board' information.

D.5.17 Cue Words

The 'cue-words' set is used to describe verbal or textual information used to help a production team correctly cue a program or program item. This will, for example, often be the closing words on a sound track.

D.5.18 Extending MXF DMS-1

The MXF DMS-1 is written as a SMPTE "dynamic document" (SMPTE 359M). Rather than, as the name implies, something that can change from day-today, the rules of a dynamic document allow any of the new components to be added:

- A new set for use within the frameworks;
- A new (and unique) property within the sets.

The rules in SMPTE 359M provide for the timely and pertinent addition of entities to the existing document without the need to reconsider all that has been established in previous versions. There are various processes by which new entities can be added from full SMPTE due process and balloting to mere registration. Any new additions to a DM scheme will be accompanied by an increment of the version number provided by the scheme UL so that a new version can be easily identified.

However, to preserve backwards compatibility with existing files, existing sets and properties cannot be deleted. However, such entities can be deprecated after due process balloting in order to prevent their continued use. This policy of deprecation is usually reserved for entities that everyone agrees is a mistake and should not be perpetuated. Entities ***can***

be deleted in time, based on due process agreement and a passage of sufficient time and notification of every party affected. Although an entity can be deleted, the use of version numbering ensures that, once a SMPTE UL or a Key has been assigned it is NEVER re-assigned to anything else and thus remains unique.

D.6 Relationship with Dublin Core Metadata

The Dublin Core Metadata Intitiative (http://dublincore.org) is widely cited by archivists as the ideal way to describe content in libraries and archives. This work is rooted in traditional libraries, but there is an expectation that the work can be used to catalogue and describe all kinds of content, including audio-visual content. DMS-1 has many parts which are close to the Dublin Core metadata and this section will identify those parts. The table below is a non-exhaustive guide only to aid the reader to understand how DMS-1 metadata may be categorized as Dublin Core elements and qualifiers.

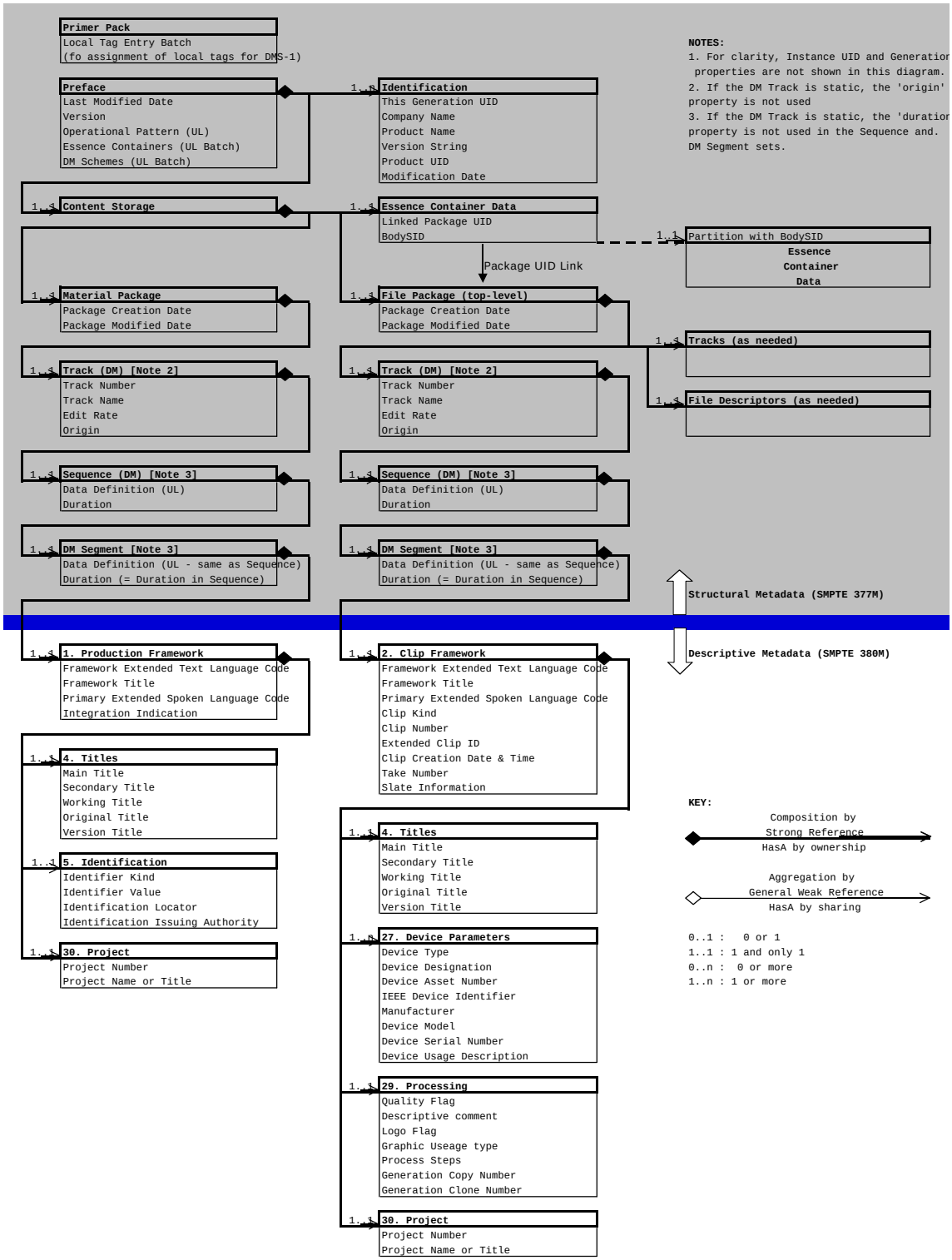
Note that the frameworks bind sets together and have no equivalent element in Dublin Core.

Set Number	DMS-1 Set	Dublin Core Element	Qualifier or Comments
4	Titles	Title	Includes ‘alternative’ qualifier
5	Identification	Identifier	
6	Group Relationship	Relation	IsReferencedBy (the Group)
7	Branding	Relation	IsPartOf (a legal entity)
8	Event	Date	Valid (with start and end dates)
9	Publication	Publisher	
10	Award	None	
11	Captions Description	Description	Captions are a specialized form of text description
12	Annotation	Subject	
13	Setting Period	Coverage	Temporal
14	Scripting	Description	There are many kinds of scripts that aid content production, such as lighting and sound stage scripts
15	Classification	Type	
16	Shot	Subject	
17	Key Point	Subject	Key Point is a part of Shot
18	Participant	Contributor or Creator	Role is defined by the Participant set
19	Person	Contributor or Creator	Person is an extension of Participant
20	Organization	Contributor or Creator	Organization is an extension of Participant
21	Location	Coverage	Spatial
22	Address	Contributor, Creator or Coverage	Address is an extension of Person, Organization and Location
23	Communications	Contributor, Creator or Coverage	Communications is an extension of Address
24	Contract	Rights	
25	Rights	Rights	AccessRights qualifier. DMS-1 Rights set is an extension of Contract.
26	Image Format	Format	Image Format only defines a very small part of the Format element (see below)
27	Device Parameters	Out of scope	Defines the parameters used by the device used to create the content

28	Name-Value	Out of scope	Used as a mechanism to add new properties to a set
29	Processing	Out of scope	Provides a record of the processing applied to the content
30	Project	Out of scope	No DC qualifier, but
31	Contacts List	Out of scope	An abstract element used to bind other elements
32	Cue Words	Subject	Cue Words is an extension of Annotation and Shot
-	-	Source	Source is covered by the hierarchy of MXF packages (Material Package references a top-level File Package references a lower-level Source Package
-	-	Audience	This element is not present in DMS-1
-	-	Format	Defined by the Essence Descriptors
-	-	Language	Many DMS-1 sets use the language element as an individual entity

Annex E (informative)
Example simple use of DMS-1

The figure illustrates a simple implementation of DMS-1 with the addition of supporting structural metadata sets.



Annex F (informative)
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