

SMPTE STANDARD

Uniform Resource Names for SMPTE Resources



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Foreword

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

SMPTE Engineering Documents are drafted in accordance with the rules given in its Standards Operations Manual. This SMPTE Engineering Document was prepared by Technology Committee 30MR.

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

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

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

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

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

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

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

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

Introduction

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

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

1 Scope

This standard defines the syntax of Uniform Resource Names (URN) for SMPTE resources. These URNs are intended to provide for the assignment of unique, permanent, and location-independent names for resources that SMPTE produces and manages.

2 Normative References

The following standard contains provisions that, through reference in this text, constitute provisions of this standard. Dated references require that the specific edition cited shall be used as the reference. Undated citations refer to the edition of the referenced document (including any amendments) current at the date of publication of this document. All standards are subject to revision, and users of this engineering document are encouraged to investigate the possibility of applying the most recent edition of any undated reference.

SMPTE ST 298:1997, Television — Universal Labels for Unique Identification of Digital Data

SMPTE ST 330:2022, Television — Unique Material Identifier (UMID)

IETF RFC 2141, Moats, R., "URN Syntax," May 1997.

IETF RFC 3406, Daigle, L., van Gulik, D.W., Iannella, R., Faltstrom, P. "Uniform Resource Names (URN) Namespace Definition Mechanisms," October 2002.

IETF RFC 4122, Leach, P., Mealling, M., and Salz, R., A Universally Unique Identifier (UUID) URN Namespace.

IETF RFC 4234, Crocker, D., Ed. and P. Overell, "Augmented BNF for Syntax Specifications: ABNF," October 2005.

3 Terms and Definitions

For the purposes of this document, the terms and definitions given in [external reference(s)] and the following apply:

3.1

Basic Unique Material Identifier

Basic UMID

as defined in SMPTE ST 330

3.2

Extended Unique Material Identifier

Extended UMID

as defined in SMPTE ST 330

3.3

Namespace ID

NID

identifies the namespace of a URN

[SOURCE: IETF RFC 2141]

3.4

Namespace Specific String

NSS

string after a NID and a colon in a URN

[SOURCE: IETF RFC 2141]

3.5

Source Pack

last 32 bytes of an Extended UMID, which contains information of “when”, “where” and “who” created a Material

[SOURCE: SMPTE ST 330]

3.6

Uniform Resource Identifier

URI

as defined by IETF RFC 3986

3.7

Unique Material Identifier

UMID

as defined in SMPTE ST 330

3.8

Unique Resource Name

URN

as defined in IETF RFC 2141

3.9

Universal Label

UL

as defined in SMPTE ST 298

3.10

Universally Unique Identifier

UUID

as defined by IETF RFC 4122

3.11

Yet Another Next Generation

YANG

data modeling language 1.1

[SOURCE: IETF RFC 7950]

4 Uniform Resource Name General Syntax (Informative)

IETF RFC 2141 defines the general syntax of URNs as:

```
<URN> ::= "urn:" <NID> ":" <NSS>
```

SMPTE URNs use the NID "smpte", which was defined by IETF RFC 5119 for registration in the IANA registry of URN NIDs.

Requirements for NSS syntax are constrained by IETF RFC 2141.

5 SMPTE URN Namespace Policies

All URNs in the SMPTE namespace shall conform to IETF RFC 3406. In particular, URNs in the SMPTE namespace shall not be reassigned, and URNs shall continue to be valid, even if the owners or registrants of the SMPTE resources identified by the URNs are no longer members or customers of SMPTE. There need not be resolution of such URNs, but they shall not resolve to false or stale information.

6 Uniform Resource Names for Universal Labels

6.1 UL URN NSS

The NSS of URNs for Universal Labels (SMPTE ST 298) shall begin with "ul:".

The identifier structure for the Universal Label subnamespace (UL-NSS) described using Augmented Backus-Naur Form (IETF RFC 4234) shall be:

```
UL-NSS = "smpte:ul:" UL
```

```
UL = QUADBYTE *(DOT QUADBYTE)
```

```
DOT = "."
```

```
QUADBYTE = 4BYTE
```

```
BYTE = 2HEXDIG
```

The hexadecimal digits in the URN representation of ULs shall be the hexadecimal representation of the UL octets. The values of "UL" shall be constrained as defined in SMPTE ST 298. Lexical equivalence of UL URNs shall be determined by an exact string match that is case-insensitive for alphabetical characters.

6.2 UL URN Examples (Informative)

The rules of Clause 6.1 result in a URN that has a defined preface of "urn:smpte:ul:" followed by a text string representation of the UL that expresses the first four bytes of the UL as a hexadecimal string, followed by one or more four-byte groups of the remainder of the UL, each represented as a hexadecimal string preceded by the "." symbol.

An example URN for a UL with three groups of four bytes is:

```
urn:smpte:ul:060a2b34.01010105.01010f20
```

An example URN for a UL with four groups of four bytes is:

```
urn:smpte:ul:060e2b34.04010103.04010202.01011100
```

7 Uniform Resource Names for Unique Material identifiers

7.1 UMID URN NSS

The NSS of URNs for the Unique Material Identifier (SMPTE ST 330) shall begin with "umid:".

The identifier structure for both the Basic and the Extended Unique Material Identifier subnamespace (UMID-NSS) described using Augmented Backus-Naur Form (IETF RFC 4234) shall be:

UMID-NSS = "smpte:umid:" UMID

UMID = QUADBYTE *(DOT QUADBYTE)

DOT = "."

QUADBYTE = 4BYTE

BYTE = 2HEXDIG

The hexadecimal digits in the URN representation of UMIDs shall be the hexadecimal representation of the UMID octets respectively. The values of "UMID" shall be constrained as defined in SMPTE ST 330. Lexical equivalence of UMID URNs shall be determined by an exact string match that is case-insensitive for alphabetical characters.

NOTE 1 There are existing files that include URN UMID values that do not contain the "." symbol. Implementers are encouraged to accept URN UMID of this form.

NOTE 2 The Basic UMID whose Material Number is created by using the UUID/UL Method, represented as urn:smpte:umid:060a2b34.01010105.01010f20.13000000.xxxxxxxx.xxxxxxxx.xxxxxxxx.xxxxxxxx, is lexically equivalent to the UUID, represented as urn:uuid:xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx.

Files conforming to ST 429, ST 2067 and related documents contain the Basic UMIDs in the urn:uuid: form. Implementers are encouraged to accept those UUIDs as the respective Basic UMIDs. Furthermore, there are also the files whose names directly include urn:uuid: values without the urn:uuid: prefix. Implementers are also encouraged to accept them.

7.2 UMID URN Examples (Informative)

In the case of the Basic UMID, the rules of Clause 7.1 result in a URN that has a defined preface of "urn:smpte:umid:" followed by a text string representation of the Basic UMID that expresses the first four bytes of the 32 bytes of the Basic UMID represented as 8 hexadecimal characters, followed by four-byte groups of the remainder of the Basic UMID, each represented as 8 hexadecimal characters preceded by the "." symbol.

An example URN for a Basic UMID is:

```
urn:smpte:umid:060A2B34.01010105.01010D20.13000000.D2C9036C.8F195343.AB7014D2.D718BFDA
```

or

```
urn:smpte:umid:060a2b34.01010105.01010d20.13000000.d2c9036c.8f195343.ab7014d2.d718bfda
```

In the case when a Basic UMID is used in ST 429-3, an example of a urn:umid: and the lexically equivalent urn:uuid: are:

```
urn:smppte:umid:060a2b34.01010105.01010f20.13000000.C9CC3CCF.2A2744AC.B6B51A2C.BDA4782C
```

and

```
urn:uuid:C9CC3CCF-2A27-44AC-B6B5-1A2CBDA4782C
```

In the case of the Extended UMID, the rules of Clause 7.1 result in a URN that has a defined preface of "urn:smppte:umid:" followed by a text string representation of the basic part of the Extended UMID that expresses the first four bytes of the 32 bytes of the basic part represented as 8 hexadecimal characters, followed by four-byte groups of the remainder of the basic part, each represented as 8 hexadecimal characters preceded by the "." symbol. This is further followed by the "." symbol which is then followed by a text string representation of the Source Pack of the Extended UMID that expresses the first four bytes of the 32 bytes of the Source Pack represented as 8 hexadecimal characters, followed by four-byte groups of the remainder of the Source Pack, each represented as 8 hexadecimal characters preceded by the "." symbol.

An example URN for an Extended UMID is:

```
urn:smppte:umid:060A2B34.01010105.01010D43.33000000.8DC70900.63430597.08004602.0118276E.47E37102.63430597.00000000.00000000.00000000.4A502020.534F4E59.50445720
```

or

```
urn:smppte:umid:060a2b34.01010105.01010d43.33000000.8dc70900.63430597.08004602.0118276e.47e37102.63430597.00000000.00000000.00000000.4a502020.534f4e59.50445720
```

8 Uniform Resource Names for YANG

8.1 Introduction (Informative)

YANG data models are defined in a structure called a module that contains a collection of related definitions. Each module is bound to a distinct namespace that is a globally unique Uniform Resource Identifier (URI). The YANG data modelling language defines a "namespace" statement where the argument to the "namespace" statement is the URI. By convention in YANG, the URI of the namespace uses a Uniform Resource Name (URN).

8.2 YANG URN NSS

The identifier structure for the YANG namespace (YANG-NSS) described using Augmented Backus-Naur Form (IETF RFC 4234) shall be:

YANG-NSS = "smpte:" %x79.61.6E.67 ":" YANGDOC

YANGDOC = TYPE DASH NUMBER DASH PART DASH YEAR DASH ELEMENT

DASH = "-"

TYPE = %x73.74 / %x72.x70 / %x65.x67

NUMBER = 5DIGIT

PART = 3DIGIT

YEAR = 4DIGIT

ELEMENT = 2DIGIT

8.3 YANG URN Examples (Informative)

In the case of a YANGDOC, the rules of Clause 8.2 result in a text string that expresses the SMPTE engineering document type (st, rp, eg) followed by a "-", followed by the decimal five digit number of the engineering document, followed by a "-", followed by the decimal three digit number of the engineering document part, followed by a "-", followed by the decimal two digit number of the element.

An example URN for YANG would be:

urn:smpte:yang:eg-01234-567-2022-89

An example URN for YANG for ST 2110-21:2017 would be:

urn:smpte:yang:st-02110-021-2017-01

An example URN for YANG for RP 2059-15:2022 would be:

urn:smpte:yang:rp-02059-015-2022-01

Bibliography (Informative)

IETF RFC 1737, Sollins, K. and L. Masinter, "Functional Requirements for Uniform Resource Names," DOI: 10.17487/RFC1737, December 1994, <https://www.rfc-editor.org/info/rfc1737>

IETF RFC 5119, Edwards, T, "A Uniform Resource Name (URN) Namespace for the Society of Motion Picture and Television Engineers (SMPTE)," DOI: 10.17487/RFC5119 February 2008, <https://www.rfc-editor.org/info/rfc5119>

IETF RFC 3986, Berners-Lee T., Fielding R., Masinter L., "Uniform Resource Identifier (URI) : Generic Syntax", DOI: 10.17487/RFC3986, January 2005, <https://www.rfc-editor.org/info/rfc3986>

IETF RFC 7950, Bjorklund M., "The YANG 1.1 Data Modeling Language", DOI: 10.17487/RFC7950, August 2016, <https://www.rfc-editor.org/info/rfc7950>