Latest Status of UMID and its Applications in File-based Workflow

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Outline

- What is the UMID?
- Goal of UMID Applications
- UMID Applications in MXF
- UMID Application Project in SMPTE
- Conclusions
What is the UMID?

- **Unique Material Identifier**
  - Specified in SMPTE ST 330 & RP 205 (in 2000)
    - Universal Label (UL): identifying as UMID (Key)
    - Length (L): Length in byte that follows, fixed to 13h (Length)
    - Instance Number (Inst.#): indicating its originality
    - Material Number (Mat.#): Globally unique value

![Diagram of UMID structure](image)
Two Distinct Uses of the UMID

- As a unique identifier
  - New value for Mat.#
  - Zero for Inst.#

- As a linking tool
  - Shared value for Mat.#
  - Non-zero for Inst.#

These uses are mutually exclusive!
What is the UMID For?

- To link an AV material to its metadata.

```
<Metadata xmlns="...">
  <TargetMaterial umidRef="U_A"/>
  <Title>Major League Baseball</Title>
</Metadata>
```
Goal of UMID Applications
UMID based AV Material Search

- Because of huge difference in their data sizes ...

**Needs**

Common UMID Resolution Protocol

- It is “UMID='UA'” AV material.
- Which AV material captures “Ichiro Homerun”?
- Where is “UMID='UA'” AV material?
- I have it at “http://...”!
When Generalized…
When Generalized...

Application Layer

Dynamic links via UMID

Media Layer
To Make it Happen in Practice

- Needs industry common **UMID resolution protocol**
  - To resolves a given UMID of AV material to its URL

- Clarifies **UMID Application Principles**
  - To realize UMID based AV material management
UMID Application Principles

- **Principle 1: UMID Integrity**
  - Different AV materials shall be identified by different UMIDs

- **Principle 2: UMID Identification**
  - What the UMID identifies is the essence representation at its playout
UMID Managed Domain

- Embodiment of “UMID Application Principles”

Material 1, 2, 4 and 5 constitute “UMID Managed Domain”
How Material Manager Behaves

- For AV material import into UMID Managed Domain
  - Attach a newly created UMID
    - Except for AV materials from other UMID Managed Domains

- For AV material modification
  - Replace existing UMID with a new UMID value
UMID as Common ID in System

- Merged UMID Managed Domains for system
UMID as Common ID in System

- Merged **UMID Managed Domains** for system
UMID Applications in MXF
MXF Overview

- **Material eXchange Format**
  - Specifies in SMPTE ST 377, etc.
  - Physically: Sequence of KLV(Key-Length-Value) packets
  - Logically: File Header, File Body and File Footer
MXF Header Metadata

- Two kinds of metadata for Header Metadata
  - Structural Metadata
  - Descriptive Metadata

- Structural Metadata tree

  - Preface
  - Identification
  - Content Storage
    - Essence Container Data
    - Material Package
    - File Package

  Describes AV material
Material Package (MP) and File Package (FP)
- FP: Describes material within a file  
- MP: Describes material at its playout  

Not always the same

UMID@MP must be a unique material ID!
UMID Applications in MXF

- **Material Package UID (MpUmId)**
  - Used to uniquely identify an AV material (MXF file)

- **File Package UID (FpUmId)**
  - May be used for other purposes
UMID Application Project in SMPTE
**TC–30MR SG UMID Applications**

- Proposed on March 8
- Approved on April 10
- Ready to go on May 15

- Chair
  - Yoshi Shibata

- Editor
  - Jim Wilkinson

SG: Study Group
Scope of the Study Group (SG)

- Explore the Best Practice of UMID applications.
  - UMID based AV Material Management, etc.

- Identify typical UMID Application Principles
  - How to implement “UMID Managed Domain”

- Identify relevant Technologies needed to be Additionally Standardized.
  - UMID Resolution Protocol, UMID App. in MXF, etc.
## SG Action Plan

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<th>2013</th>
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<tbody>
<tr>
<td><strong>Meeting</strong></td>
<td><strong>Action</strong></td>
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### Promotions
- Bristol
- Geneva
- Melbourne
- ???

### UMID App. Conference

### Paper/patent survey

### Intermediate report
- UMID app. principles
- Best practices

### Final report
- Future standardization

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**PLEASE JOIN US!**
Conclusions

- **UMID can be much more useful!**
  - Under appropriate common rules for its applications
- **MXF adopts UMID as its mandatory component**
  - To be the media IT infrastructure for the future file-based media production system
- **SMPTE TC–30MR SG UMID Applications**
  - Has just begun
  - We need your expertise!

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