UMID and Its Applications for AV Material Management

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Outline

- What is the UMID?
- Introduction to UMID Applications
- Requirements for the UMID Applications
- UMID Application Project in SMPTE
- Conclusions
What is the UMID?

- **Unique Material IDentifier**
  - Specified by SMPTE ST 330 and RP 205 (in 2000)

![Diagram of UMID structure]

- **UL**: SMPTE Universal Label (Key)
- **L**: Length of Value part in byte (Length)
- **Inst.#**: Instance Number
- **Mat.#**: Material Number (Globally Unique ID)

\[ \text{(Value)} \]
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!
How to use UMID as an Identifier

- To associate an AV material with its metadata

```xml
<Metadata xmlns="...">
  <TargetMaterial umidRef="U_A"/>
  <Title>Major League Baseball</Title>
</Metadata>
```
Introduction to UMID Applications
UMID based Material Search

- Because of huge difference in their data sizes ...
UMID based Material Search

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

- It is "UMID='UA'" AV material.

- Which AV material captures "Ichiro Homerun"?

- Where is "UMID='UA'" AV material?

- I have it at "http://..."!

Needs

Common UMID Resolution Protocol

Uniform management of metadata associated with AV materials via UMID

Ingest Server
Near-line Material Server
Archive
Playout Server

Application
Cooperation of Multiple MAMs

- via UMID as a common AV material identifier

- Do you know material “Bob”? Underline

App.

MAMs(1)

MAMs(2)

Shared Material Server

"Taro"

"Hanako"

"Alice"

"Bob"

Do you know material “Bob”? Underline

I don’t know

“As is”

AV Material1

UB

UA

AV Material2

"Alice"

"Bob"

"Taro"

"Hanako"
Cooperation of Multiple MAMs

- via UMID as a common AV material identifier

Do you know material “UA”?

I have it at http://...!

“To be”
UMID in “Best–of–Breed” System

- When appropriately treated, UMID may be used as a common AV material identifier over the system.
UMID in “Best-of-Breed” System

- When appropriately treated, UMID may be used as a common AV material identifier over the system.
Globally Distributed Material Management by UMID

- Because of UMID as a *globally* unique identifier
Globally Distributed Material Management by UMID

- Because of UMID as a *globally* unique identifier
Globally Distributed Material Management by UMID

- Because of UMID as a *globally* unique identifier

To realize "Manage locally, Search globally"
Requirements for the UMID Applications
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**
  - AV materials representing an identical essence at their playout may share the same UMID
To implement “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 Applications Project in SMPTE
TC–30MR SG UMID Applications

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

- Chair
  - Yoshiaki Shibata
- Editor
  - Jim Wilkinson
- # of Participants
  - 43 (as of Oct.1)

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, etc.
SG Action Plan

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**Promotions**
- Bristol
- Geneva
- Burbank
- Hong Kong

**UMID App. Conference**

**Paper/patent survey**

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

**Final report**
- Future standardization
UMID Application Conference

- Held on September 13 @ Geneva
  - as a part of SMPTE Engineering Meeting in Geneva
- Following 8 titles presented
  - “Introduction to UMID”
  - “Technical Requirement for Program Package Exchange”
  - “UMID implementation in P2 MXF OP-Atom”
  - “UMID Digital Signature – Securing the Digital Media Universe”
  - “The use of UMIDs in the production of Sports related news”
  - “Why so many globally unique identifiers? And why only one?”
  - “Identification in the IP Studio”
  - “Globally distributed material management by UMID”
- More than 50 experts attended with active Q&A sessions
# SG Action Plan

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**New Activity**
Call for Participation

- Any interested parties are welcome join us!
  - To **contribute** your *experience and knowhow* on the AV material management to the industry
  - To **obtain** your *worldwide presence and new business opportunities* in the industry

- **How to join SMPTE** ([www.smpte.org/membership](http://www.smpte.org/membership))
  - **Institutional Sustaining Membership**
    - $975–$15,000/year
  - **Individual Membership**
    - $135/year for the regular membership
    - +$200/year for participating in Standard Community
Conclusions

- **UMID: the industry common AV material identifier**
  - To be the media IT infrastructure for AV material management in a global sense

- **Some additional rules are required to achieve it**
  - UMID Application Principles
  - UMID Resolution Protocols, etc.

- **UMID Application Project in SMPTE**
  - Currently studying existing practices of UMID application, etc.
  - Actual standardization activities will happen shortly
  - We need your expertise from Asia–Pacific regions!

**Contact to: info@metafrontier.jp**