REQUEST FOR INFORMATION
Open ID Binding To Essence

An online/teleconference meeting will take place on January 13th, 2-3pm EST, to answer questions. Non-SMPTE members, please RSVP to the Study Group Chair, Chris Lennon at clennon@medianswers.tv if you plan to attend.

A publicly available description of this project can be found here:

https://kws.smpte.org/kws/public/projects/project/details?project_id=179

Questions to the group may be addressed to: 24tb-openid@lists.smpte.org

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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.

General Information

SMPTE's Technology Committee on Television and Broadband Media (24TB) has a Study Group, focused on "Open ID Binding To Essence". This Request For Information (RFI) originates from this group.

This Study Group is tasked with developing a report, recommending a way forward toward an open standard for the binding of media identifiers (such as registered EIDR and Ad-ID identifiers) to essence that will survive compression and distribution through the entire supply chain, all the way to delivery to consumers.

The problem the group is trying to solve is stated in its project outline as follows

Currently, there is no open binding technology standard (e.g., watermarks, fingerprints, metadata sidecars, etc.) for embedding persistent content identifiers into audio/video essence in a way that survives compression and distribution through the media and entertainment (M&E) supply chain.

Content creators and distributors need an effective way of reliably binding content identifiers to video/audio content that will robustly transit an end-to-end media ecosystem. Unique content identifiers, such as EIDR, Ad-ID – and others – have been important developments. However, within the supply chain, M&E entities "bind" the identifiers in file containers, to data streams in a file container or to the structural metadata of the video/audio stream itself. These types of bindings can be destroyed in video/audio processing and delivery systems along the media production, distribution and measurement supply-chain.

An open standard for essence-based video/audio binding can enable a wide range of new capabilities. Most importantly it will enable increased speed, transparency and accountability in video content and advertising measurement across a wide range of delivery systems and devices. Additional benefits are improved media workflow automation within and between M&E entities; fewer barriers to deploying cross-platform dynamic ad insertion; enablement of new anti-piracy tools and methods, broader digital locker adoption; more complete long-tail content monetization; improved accuracy in automatic content recognition and detection; better second-screen integration and improved multi-screen content discovery… the list goes on.

The Study Group has developed a set of Use Cases, and from there, Technical Requirements have emerged.

Objective

The objective of this RFI is to collect proposals for technologies that would aide this Study Group in its goal of producing a report, outlining future standards work required to enable binding of media IDs to essence.

1. Project Background

This effort had its origins within the Coalition for Innovative Media Management (CIMM). CIMM began in 2009, founded by leading television content providers, media agencies, and advertisers. Its goal is to promote innovation in audience measurement for television and cross-platform media.

One of the keys to enable cross-platform measurement of content viewing was found to be the ability to embed registered media identifiers (EIDR for program material, and Ad-ID for commercial material) into audiovisual essence in such a way that they survive processing and distribution across a variety of distribution platforms. If the content can be identified, it can then be measured, and if it can be measured, it can then be monetized, as one of our members puts it.

CIMM and several of its media and technology members engaged SMPTE to explore how this embedding of identifiers into media might be accomplished, and to develop any standard(s) required to enable this in an open way.

2. Technical Requirements

This section outlines the technical requirements that the Study Group has determined to be applicable to the end goal of creating an open technique of binding media IDs to essence.

2.1 Mandatory

The following requirements must be supported in a full solution.

2.1.1 Payload

Accommodate a payload of a minimum of 25 bytes (200 bits) to carry Ad-ID and EIDR simultaneously (each of which is 96 bits long), along with indicator(s) (such as an enumerated list) to label each ID, plus overhead.

2.1.2 Survivability Across Platforms

The proposed binding technique shall ensure that the ID survives all common distribution platforms and all associated processing.

Common distribution platforms include, but not limited to, terrestrial broadcast, cable/satellite networks, IP (managed or open) networks, and mobile. Ad-hoc distribution in consumer applications (e.g., AirPlay, WiDi, Chromecast, etc.) that access either file-based or streaming content should also be included.

Processing may include resolution change, scaling, transcoding, frame/bit rate conversion, audio sampling rate change, audio up/down mix, A-to-D/D-to-A, and so on. Proponents are requested to state any processing and/or distribution platforms that their proposed solutions may not support.

It is not anticipated that geometric transformation and/or distortion, partial/full overlay of the video imagery be considered. However, proponents are encouraged to state any additional processing that a particular proposed solution supports.

2.1.3 Recording and Playback

The proposed binding technique shall ensure that the ID survives recording and re-play at a later time in the professional and consumer space. Proponents are requested to clearly state all known limitations to their proposed solutions, including recording quality metrics such as resolution, bitrates, and/or audio sampling rates.

2.1.4 Granularity

Content identifiers in the input to the binding mechanism shall be sampled at regular intervals of no more than one second.

2.1.5 Retrievability

Identifers shall be recoverable from any continuous one-second segment of content.

2.1.6 Synchronization of Media IDs Across Platforms

The binding technique must enable retrieving of media IDs across platforms at the same time and the ability to match content simultaneously (given constraints of latency across delivery platforms).

2.1.7 ID Replacement

The ID must be removable, or capable of being overwritten, in cases where media with an ID is re-aired, used within new work, or in similar situations.

2.1.8 Insertion and Detection Points

The method shall allow the ID to be inserted and detected at any point between production and display to the consumer. The binding technique must be suitable for documentation as an open standard that allows insertion and detection to be independently implemented.

2.1.9 Codecs and Containers

The ID binding should be able to be transported by common codec and container formats.

2.1.10 Audio and Video Content

ID must be recoverable from material that does not necessarily have both audio and video present.

2.1.11 Quality

ID transport shall not degrade the quality of the audio and/or video, including lip sync, at the consumer's reception point. Respondents are encouraged to quantify any such degradations.

2.2 Desirable

The following items are not required in a proposed solution, but are desirable.

2.2.1 Co-existence

Ability to make other binding techniques, such as copy control watermarks, forensic watermarking, audience measurement watermarks, and content management watermarks aware of the presence of the embedded ID, to encourage co-existence.

2.2.2 Performance Impact

Processing needed for detecting the ID should not cause noticeable performance degradation on typical handheld devices.

3. Submission Guidelines

3.1   Introduction

This part provides the information that is needed to respond properly to this RFI. We invite you to read it carefully.

3.2   Respondents

All interested parties are invited to respond to this RFI. Interested parties do not have to be a member of SMPTE to respond.

3.3   Communications

All communications regarding this RFI should be directed to Study Group's reflector at 24tb-openid@lists.smpte.org. The Chair of the Study Group may be reached at clennon@medianswers.tv.

3.4   Single Point of Contact Required

Respondents shall provide a Single Point of Contact for all communications regarding the RFI. It is the responsibility of the Point of Contact to disseminate communications from the RFI management team appropriately within his/her organization.

3.5   Intent to Respond

We ask that you notify us by January 15, 2014, if you intend to respond. Such notification should be by e-mail to clennon@medianswers.tv, and should include the organization name and the Single Point of Contact.

3.6   Withdrawal of Responses

If you need to withdraw a previously submitted Response to this RFI, you must do this in an e-mail sent to clennon@medianswers.tv before the cut-off date (January 31, 2014). You should receive a confirmation e-mail acknowledging your withdrawal.

3.7   Respondent Meeting

The RFI Management Team will hold an online meeting with Respondents on January 13, 2014, at which time the team will discuss the RFI and address any questions that Respondents may have. Respondents should be aware that in the interest of fairness, all questions and answer may be documented and may be shared with other Respondents, whether they attend the meeting or not. Non-SMPTE members must RSVP to this meeting to clennon@medianswers.tv to obtain its coordinates. SMPTE members can find the details on the Kavi system, under the 24TB Open ID Study Group's calendar.

3.8   Queries

It is recognized that when Respondents review this RFI they might need to contact the Study Group at 24tb-openid@lists.smpte.org with points for clarification. The group will attempt to assist Respondents with background information, additional explanations, etc. Respondents should be aware that, in the interest of fairness, all questions and answers which serve to clarify the RFI or which provide additional information may be shared with other Respondents.

3.9   Sharing the RFI

This RFI is a public document. Provided that it is not modified in any way, it may be passed on to other parties who may have a bona-fide interest in responding to the RFI.

3.10 Partial Responses

We understand that it is unlikely that any single technological solution will fully address all the Technical Requirements described in this RFI. Partial responses are perfectly acceptable.

3.11 Less is More

In providing the required information, you can always provide additional details or refer to complementary documents that you can include in your submission. Be aware that considering the very aggressive timeline that will follow, it may be in the interest of Respondents to highlight the most essential information to be considered.

3.12 Intellectual Property

Respondents are advised to review SMPTE's Intellectual Property Policy, as outlined in Section 9 of the Society's [Standards Operations Manual](). Particular attention should be paid to Section 9.1.4, which is reproduced below for convenience.

> *9.1.4 Declaration of Knowledge of Relevant Intellectual Property*
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> *This Policy imposes an obligation on all Members and Guests to notify the Technology Committee Chair, as early as possible in the development process, if they are aware, based on their actual personal knowledge, of patents or patent applications that might contain Essential Claims to a technology being proposed for inclusion in an Engineering Document.*
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> *The requirement to notify the Technology Committee Chair of actual personal knowledge of actual or potential Essential Claims is an ongoing obligation that begins with becoming a Participant Member or Observer Member of a Committee, or attending a meeting as a Guest, and continues through any form of participation in the work or proceedings of the Committee, including any form of participation by electronic means such as receipt of emails. Any required notice shall be given as soon as practically possible and in all cases shall be given within 45 days after the knowledge is obtained and in advance of any vote on the Engineering Document. The notice shall be either in the form of a verbal statement at a meeting, which shall be recorded in the minutes of the meeting, or in written form to the Chair of the responsible Technology Committee. The notice shall include all relevant information available to the Member or Guest, such as patent or application number(s) and owner of the intellectual property, and shall identify as clearly as possible the part(s) of the Engineering Document believed to be subject to Essential Claims.*
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> *The receipt of such a notice shall create a Technology Committee action item for the Director of Engineering, who shall follow the procedures of section 9.1.5 to solicit a Patent Statement from the reported owner of the intellectual property.*
> *This Policy does not require any patent search and specifically recognizes that sponsorship of a Member or Guest does not create any obligation to perform a patent search.*
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> *This Policy recognizes that all Members and Guests act as individuals and that obligations imposed by this Operations Manual apply to the Member or Guest rather than to any sponsoring organization. For this reason, the obligation to disclose is created by the actual personal knowledge of the Member or Guest and applies to any potential Essential Claims known to the Member or Guest, whether or not the patent or patent application is owned by a sponsor. Nothing in this Policy shall impute knowledge of a Member or Guest by reason of employment, sponsorship, or any other association or connection with a patent applicant or holder.*
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> *This Policy does not require a Member or Guest to form a legal opinion as to the*

applicability or enforceability of Essential Claims, but does require a disclosure if the Member or Guest has actual personal knowledge of a patent or patent application that, in the good faith judgment of the Member or Guest, is likely to include Essential Claims to implementation of the proposed Engineering Document.

It is recognized that, on occasion, this obligation may conflict with terms of employment or contractual agreements. Members and Guests shall use reasonable efforts to obtain clearance to declare any relevant Essential Claims. No Member may support the adoption of an Engineering Document or technology while knowing or believing that undeclared Essential Claims exist. A Member or Guest who cannot obtain clearance to reveal an Essential Claim shall notify the Technology Committee Chair that s/he will cease to participate in discussion of, and withdraw from all Ballots concerning, the proposed document.

4. Dates

The anticipated time schedule is as follows.

- RFI issued: December 17, 2013
- Open Q&A session for respondents: January 13, 2014 (RSVP required to Chair)
- Intent To Respond Due: January 15, 2014
- RFI closes: January 31, 2014 (Responses in advance of the deadline are acceptable and encouraged)
- Invitations for technology discussions/demos: February 4, 2014
- Meeting in NY for evaluation of submissions: February 11, 2014
- Final Report Complete: March 1, 2014

5. Submission Procedure

5.1 Submission Format

- Title Page
- Table of Contents
- Experience and Qualifications of Respondent
- Technology Proposal
- Maturity of Technology
- Listing of Technical Requirements from this document with indication as to support (or not) of each requirement, and any pertinent details relating to each requirement
- Intellectual Property Disclosure (if applicable)

5.2 Submission Steps

1. Respondents should contact the Study Group Chair at clennon@medianswers.tv as described in §3.5, to indicate their intent to respond.

2. When ready, please email your submission to 24tb-openid@lists.smpte.org.

NOTE: To be considered as valid all Responses to this RFI must be submitted per the process described in this RFI. Verbal or written submissions which are not made per the submission guidelines described here will NOT be accepted.