

Leveraging EIDR and Ad-ID for ATSC 3.0 Applications and Services

This document provides technical notes for the registration, usage, and carriage of EIDR IDs for content used in interactive services delivered in an ATSC 3.0 architecture. It provides particular detail for broadcast station group program production and advertising workflows.

It also provides companion technical notes for the use of Ad-ID for interactive and other advanced advertisements delivered in an ATSC 3.0 architecture and in conjunction with EIDR IDs for content.

1 Introduction

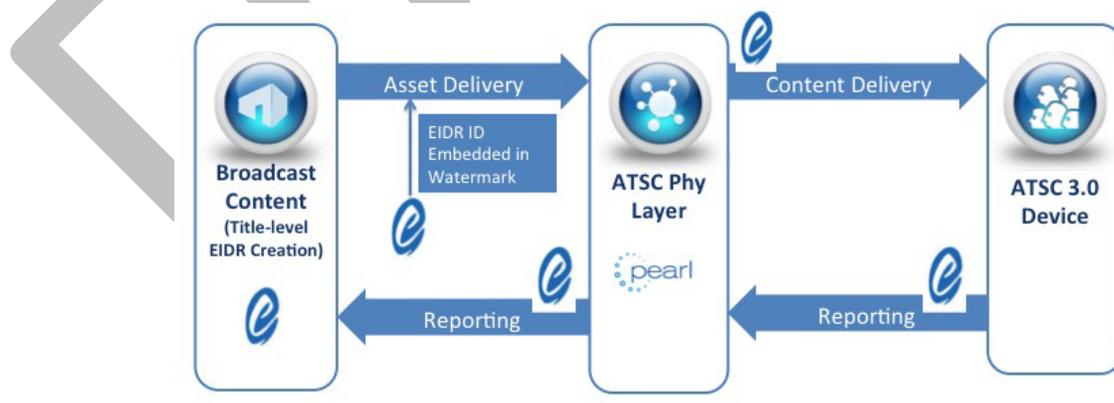
ATSC 3.0 specifications provide for a broadcast-IP hybrid architecture for interactive services. EIDR and Ad-ID play key roles.

This paper seeks to provide some business use cases in advertising, measurement, and content discovery, and define how EIDR and Ad-ID could be used to enhance the efficiency and utility of the ATSC 3.0 architecture.

2 Reference Architecture and High-Level Operations Workflow

The ATSC 3.0 architecture defines roles for the content producer, broadcast station, or network and smart television receivers. The following diagram identifies points in a high-level workflow where EIDR standard identifiers can be created or transmitted.

ATSC 3.0 - EIDR Reference Architecture



In Section 5, this document contains a high-level workflow diagram which details the

layering of Ad-IDs along with EIDRs in advertising-specific workflows.

NOTE: One piece of the ATSC 3.0 specifications covers details of signaling and delivery. The draft under review is expected to be modified to allow all signaling mechanisms to cover the same content or advertising ID functionality.¹

3 EIDR ID Creation Process: Best Practice in ATSC 3.0 Context

The general approach to the creation of EIDR IDs is covered in numerous technical documents published by EIDR, which give a good initial overview of the process and system capabilities.² Training sessions and operational support are available and recommended as broadcasters build their EIDR integrations.

Current video supply chains incorporate EIDR IDs near the point of program production, prior to content delivery. This may occur as early in the process as the core required metadata (producer, cast members, run time) is available. (There are even allowances for provisional data in some cases.)³

EIDR ID numbers are created first as title level “abstractions.” In many cases, there is a need to create a version for creative edits or other changes to the original creative work. In this case of an ATSC 3.0 work flow, a Broadcast Edit should be created (which may be different from a Home Video or other “performance” versions), with its own unique EIDR ID number, as described in EIDR documentation.⁴

For news and other local origination content, EIDR Best Practices around live events (along with provisional data) may be used for real-time content identification. EIDR content IDs then can be combined with Ad-IDs to feed into programmatic ad decision systems in support of better targeted ad delivery, or for other applications with real-time implications.⁵

4 EIDR ID Carriage and Delivery Process Options

The use of EIDR in video-on-demand workflows in the digital retail and MVPD supply chains currently reference the use of EIDR in standards-based architectures.⁶ ATSC 3.0

¹ ATSC A/331: Signaling, Delivery, Synchronization and Error Protection

² http://eidr.org/documents/EIDR_2.0_Registry_User_Guide.pdf

³ Required fields are identified here:

http://eidr.org/documents/EIDR_2.0_Data_Fields.pdf

⁴ Current practice is being revised. This reference is informative:

http://eidr.org/documents/FAQ_How_to_Use_EIDR_to_Identify_Versions_for_Distribution_Purposes_DRAFT_2014-06.pdf

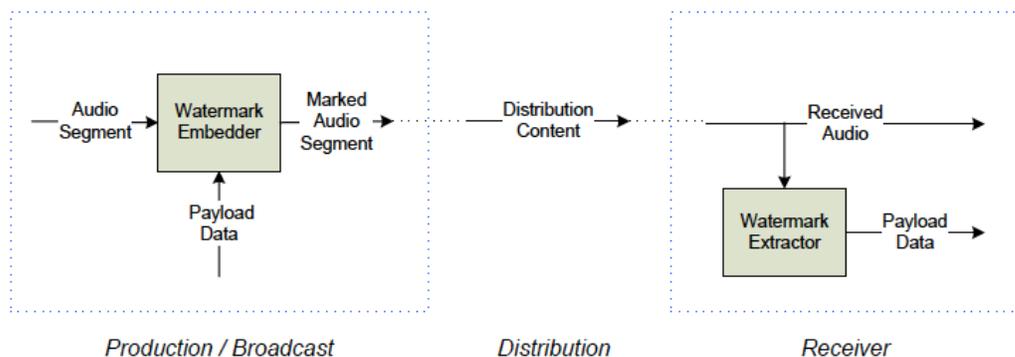
⁵ http://eidr.org/documents/EIDR_Interim_BP_Live%20Events_v4.pdf This document is under revision.

⁶ EMA Avails specification at: <http://digitalema.org>, under Resources; CableLabs VOD Metadata specification at: <http://www.cablelabs.com/wp-content/uploads/specdocs/MD-SP-CONTENTv3.0-I02-121210.pdf>; and MPEG-DASH: <http://dashif.org/wp->

can similarly provide for the use of EIDR in broadcast content delivery and local advertising workflows by leveraging standard watermark approaches. The following section defines the use of EIDR in the content delivery workflows enabled by these watermark approaches.

ATSC 3.0 defines standard watermark technology for carrying data payloads through a broadcast content delivery system:

One such method of delivering data is via watermarks that can be extracted from uncompressed audio or video in the receiver. The methods of inserting watermarks for ATSC 3.0 content recovery are normatively specified in the ATSC A/335 Video Watermark Emission specification and the ATSC A/334 Audio Watermark Emission specification.⁷



A binary format of EIDR has been defined for embedding EIDR identifiers, specific to the broadcast version of the content, in very small payload containers.⁸ (The same formats are also used, for example, in forensic watermarking for anti-piracy purposes.)

ATSC 3.0 then further defines how identifier data can be delivered or recovered in different broadcast systems. The Content Recovery in Redistribution Scenarios defines such an approach in a case where, for example, content delivered over the air may not reach an ATSC device receiving video from a set-top box.⁹

Content recovery can be achieved by delivering data to the ATSC 3.0 device via the HDMI connection, such as within the uncompressed audio or video signal. Such data minimally includes a means of identifying the content, and may include additional information depending on the capacity of the data delivery method. The ATSC 3.0 receiver may then use this data to connect via broadband to a remote server, which interprets the data and delivers the supplemental content to the receiver.

content/uploads/2015/10/DASH-IF-IOP-v3.1.pdf

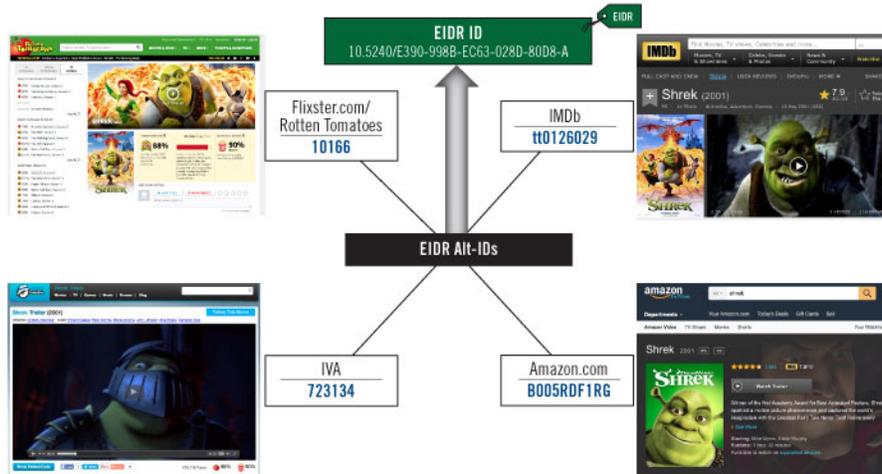
⁷ A334, Audio Watermark Emission; A335, Video Watermark Emission

⁸ http://eidr.org/documents/EIDR_ID_Format_v1.3.pdf. See section 3.1.

⁹ From A/336 - S33 178.R2 - Content Recovery in Redistribution Scenarios

To utilize EIDR in such a case, a broadband connection would make a call to the EIDR registry through APIs available to EIDR member companies (in this case, a local broadcast station) in order to identify the exact identifier for the program version being delivered (as noted in Section 3.)¹⁰

There may then be a further “recovery process” that the ATSC device goes through to get broadband access to supplementary content provided by the broadcaster of the content that the device is receiving via the cable. The EIDR Alternate ID field for that program version may already contain a mapping to identifiers used by the sources of the supplementary content.¹¹



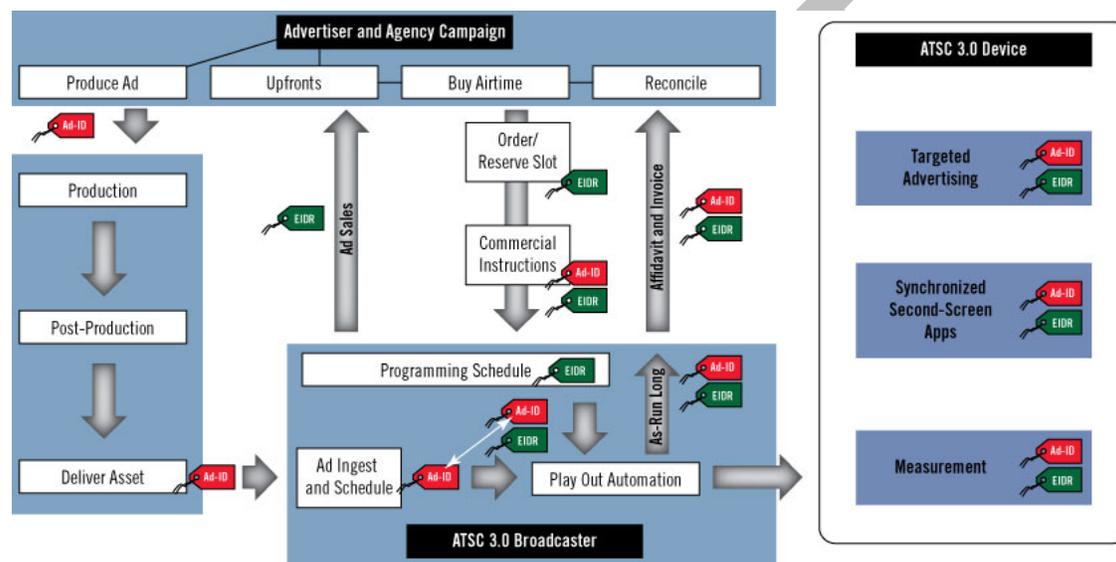
[NOTE: Such a recovery process will be demonstrated by Verance at the NAB Show 2016.]

¹⁰ http://eidr.org/documents/EIDR_2.0_REST_API.pdf

¹¹ http://eidr.org/documents/EIDR_2.0_REST_API.pdf. See section 2.6 for definition of Alternate ID field.

5 Ad-ID Creation and Delivery Process

Ad-IDs are created today to enable a variety of advertising workflows across all media channels (over the air, online, over the top, mobile, and place-based). Ad-IDs contribute added value in programmatic ad workflows as called for in the ATSC-TV Broad- cast Linear Programmatic Guidelines and Best Practices.¹² Following is a high-level systems diagram of such a workflow.



5a Ad-ID Creation

Ad-ID registration is handled by advertisers and their agencies, through either the Ad-ID web-based UI or through APIs integrated with other systems. A variety of PDF and video tutorials are available at <http://ad-id.org/user-support/help>. In addition, Ad-ID maintains a customer service team who is available during East Coast and West Coast business hours.

5b Ad-ID Delivery

Ad-ID codes are provided to media outlets, both with instructional documents (commercial instructions) and the material (currently as part of the file name, or the visual ad slate that is part of the file). There are conversations taking place to establish a digital ad slate, which will be rolling out by the end of 2016.

Ad-ID Complete External Access (CEA) is an API provided by Ad-ID to provide basic existence validation and slate information for pre-known Ad-ID codes to a select group of registered users through an API-only interface. Media outlets are

¹² Broadcast Linear Programmatic Guidelines and Best Practices, December 7, 2015; http://www.tvb.org/media/file/TVB_Broadcast_Industry_Programmatic_Guidelines.pdf Link captured March 30, 2016

guaranteed access to CEA. CEA does not provide any directory (lookup) or search services. Users of CEA must know what they are seeking.

CEA is a read-only service and will not modify Ad-IDs in any manner or form. Here is a sample of a CEA response:

```
<?xml version="1.0" encoding="UTF-8"?>
<adids>
  <status>0</status>
  <count>1</count>
  <adid>
    <adid_fullcode>ZADE0001000H</adid_fullcode>
    <guid>fb1a1dfe</guid>
    <slate>
      <media_type>Video</media_type>
      <video_format_flag>H</video_format_flag>
      <parent id="U10000160">AD EYE DEE CORP</parent>
      <advertiser id="C10000161">AD EYE DEE STORES</advertiser>
      <brand id="B10000162">EYEGASSES</brand>
      <product id="P10000165">REGULAR VISION</product>
      <ad_title>Seeing is Believing</ad_title>
      <created>2015-09-25</created>
      <copyright>2015 Ad Eye Dee Corp</copyright>
      <version>Free case</version>
      <agency_name>Ad-ID, LLC</agency_name>
      <language>English</language>
      <length>30</length>
      <bleed></bleed>
      <color_type></color_type>
      <expandable></expandable>
    </slate>
    <Brand and Product>
      <industry_group id="G700">RETAIL</industry_group>
      <major_category id="G710">RETAIL STORES</major_category>
      <sub_category id="G71E">OPTICAL GOODS AND SERVICES</sub_category>
      <product_category id="G71E">OPTICAL CTR</product_category>
    </Brand and Product>
    <commercial_delivery>
      <group>Extreme Reach</group>
    </commercial_delivery>
  </adid>
</adids>
```

6 Usage Reporting

ATSC 3.0 hybrid architectures also contemplate the use of EIDR and Ad-ID as part of a granular usage reporting capability. The ATSC Service Usage Reporting document defines a standard for usage reporting for ATSC 3.0.¹³ The standard defines a service usage data gathering system with three elements: collection, storage, and reporting of stored usage tracking information. The system further notes that a usage gathering system consists of a data client in an ATSC device and a usage data server system operated by service providers.

¹³ ATSC A/333: Service Usage Reporting

For an ATSC Device, the standard defines the functionality required for a Usage Reporting Capable Receiver, which interoperates with the server systems. The key components supported by the receiver are the Consumption Data Unit (CDU) and the Consumption Data Message (CDM). The CDU identifies a reporting interval and a service identifier, plus recording any active applications on a primary or secondary screen. The CDM defines a data message for a single or multiple services, and specifies a standard CDM Format.

EIDR and Ad-ID are specified within the CDM Logical Structure as the type of ContentID, along with fields such as device ID or service ID. The content ID is defined as follows:

ContentID.cid: A field that is required when a ContentID element which provides the content identification for this ViewInterval element is included. The type of content identifier shall be as given in the ContentID@type attribute. Either an EIDR (34-character canonical form with hyphens) or Ad-ID (12-character canonical form) can be included.

Refer to the diagram in Section 5 for a high-level view of the use of Ad-ID and EIDR identifiers in an end-to-end measurement workflow as integrated with the ATSC 3.0 architecture.