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**Autor:** Evain, Jean-Pierre  
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# EBUCore in a nutshell

Jean-Pierre Evain, European Broadcasting Union (EBU), Principal Project Manager

**The EBUCore standard is the EBU flagship metadata specification. The EBU “Technology & Innovation” department in Geneva is a central rallying point for audiovisual experts, who have been instrumental in developing the EBUCore 1.5 standard, the so-called “Dublin Core for media”. This article provides background information on why and how EBUCore has been developed. It also provides useful information on who has implemented it.**

The EBUCore is the Dublin Core for media, i.e. based on Dublin Core, but extended for media. Version 1.5 of the EBUCore specification<sup>1</sup> has been released on 8 April 2014.

EBUCore is the fruit of well-defined requirements and developer feedback. For a standard, user friendliness, easiness, flexibility, adaptability and scalability are more important than richness and comprehensiveness. The EBUCore golden rule is “keep it simple, tailor it for media, facilitate customisation”.

Customisation means that EBUCore was designed to be a metadata specification for “users with different needs”. Implementers regularly attend EBU technical conferences in order to present why they deliberately decided to use EBUCore and how they benefit from it.

EBUCore metadata can be used to describe a variety of business objects like programmes, clips, groups of programmes, documents, pictures, locations, events, people or any combination thereof. Such business and media objects are defined in a companion specification known as the EBU Class Conceptual Data Model (CCDM)<sup>2</sup> expressed in RDF/OWL, which comes in complement to the EBUCore ontology<sup>3</sup>. The use of semantic technologies paves the way for more expressivity, richer queries and linked data (open or not). The EBUCore ontology also offers a highly scalable solution to the mapping of different metadata silos into a common format in a single repository.

Media objects are usually described by an identifier, a title, a description associated to a subject or rights as defined in Dublin Core. In the audiovisual industry, people use a variety of identifiers (ISAN, EIDR, UMID, etc.), titles (working title, original title, programme title, etc.), descriptions (summary, script, synopsis, etc.) or rights (copyright, exploitation rights, usage restrictions, etc.) in different languages. As no single standard can provide an exhaustive list of what different users may need, EBUCore extends Dublin Core with an identifier type, a title type, a description type and a rights type, which implementers can use to tailor metadata to their needs.

The two Dublin Core elements that required particular attention are the “dc:format” and “dc:type” elements. EBUCore restricts the use of dc:type to the definition of the type of object being described (e.g. a programme or a clip or a series), the genre of the content (e.g. news, or comedy or sports) and the target audience. The element “dc:format” contains technical information about the instantiation/manifestation of content (Does it contain audio, video? How is it encoded? Does it contain subtitles/captioning, sign-ing? What is the type and size of the file, where can I find it? etc.)

EBUCore adds a few elements to Dublin Core. The rating element is used for parental rating or user rating of content. The publication history element is used to collect information on when content was published, on which media and which service, in which format and under which rights. The part element supports the description of parts/segments/fragments at a very low level of granularity, either to provide an editorial analysis of the content (e.g. tracks of a record, performances in a show with appropriate contextual information on each performer), or to generate timelines of dynamic technical parameters, or to define a playlist of different files, or simply to split and organise chunks of related metadata.

EBUCore provides room for extensions for users with additional specific needs. EBUCore allows users to define their own specific technical metadata elements for audio, video, pictures and documents. The EBUCore schema is also strictly organised around XML complex types, which can be redefined and customised.

Finally, EBUCore 1.5 integrates the new EBU Audio Definition Model (ADM)<sup>4</sup> that supports current channel-based audio configurations (e.g. Dolby 5.1, NHK 22.2) and also 3D object audio. EBU audio and metadata experts are promoting this model in different international organisations, such as the AES (Audio Engineering Society), ITU (International Telecommunication Union) and SMPTE (Society of Motion Picture Engineers working on immersive audio).

## Where is EBUCore?

EBUCore covers 90% of standard user needs as illustrated by its FIMS<sup>5</sup> implementation. FIMS is a framework for file and stream-based service-oriented production architectures. It is a joint AMWA and EBU effort gathering a hundred member companies. The specification FIMS 1.1 released at NAB 2014, Las Vegas, uses EBUCore as its core

- 1 EBUCore 1.5, EBU, URL [https://tech.ebu.ch/docs/tech/tech3293v1\\_5.pdf](https://tech.ebu.ch/docs/tech/tech3293v1_5.pdf)
- 2 CCDM 1.0, EBU, URL <https://tech.ebu.ch/docs/tech/tech3351.pdf>
- 3 EBUCore RDF/OWL ontology, EBU, URL <http://www.ebu.ch/metadata/ontologies/ebucore/..ebucore.rdf>
- 4 Audio Definition Model (ADM), EBU, URL <https://tech.ebu.ch/docs/tech/tech3364.pdf>
- 5 FIMS-Framework for Interoperability Media Services, URL <http://www.fims.tv>

descriptive and technical metadata for ingest, transfer, transform and storage. SOAP interfaces use XML while REST interfaces use a JSON representation of EBUCore metadata instances. More information on FIMS implementers can be found on the FIMS website<sup>6</sup>.

EBUCore has been used by several European projects like NoTube and VisionCloud, and in particular EUScreen, the European portal to public broadcasting archives also contributing to Europeana, the European Digital Library.

In addition to FIMS implementers, like e.g. Deutsche Welle in Germany, RAI in Italy, RTP in Portugal, Bloomberg, A&E, Turner, CBC in USA and Canada, EBUCore is used by other media organisations. Mediacorp, Singapore, has adopted and adapted EBUCore in its internal operational metadata framework under the SMMCore name-space. The Nordic broadcasters (Denmark, Finland, Iceland, Norway, Sweden) also use EBUCore as a common metadata format for programme exchange. The French HD Forum also recommends its use for the same exchange purpose un-

der the impulse of France-Télévision. RTE, the Irish public broadcaster, sponsors work using the EBUCore ontology for the management of its archive metadata.

The AES (Audio Engineering Society) has published EBUCore as AES 60, and ISO/IEC MPEG supports EBUCore for media preservation. W3Cs Media Annotation ontology is based on the EBU Class Data Model and provides a direct mapping to the EBUCore ontology classes and properties. EBUCore is registered in SMPTE, where it is also taken as a reference to develop the SMPTE-Core, a project led by EBU.

There are many other places where EBUCore is used like for the archives of the Eurovision Song Contest, or for inserting International Standard Recording Codes (ISRC) in Broadcast Wave Format (BWF) audio files as recommended by the Music Producer Guild.

“egta”, the European association of sales houses, has co-developed with EBU an EBUCore-based metadata schema<sup>7</sup> for the file exchange of commercials.

In Switzerland, Memoriav has chosen EBUCore as a metadata export format and this data is accessible from the Memoriav website<sup>8</sup>.

EBUCore also comes with tools. MINT-4EBUCore (National Technical University of Athens) is a mapping tool to convert in-house schemas into EBUCore. qEBU is an intuitive editor developed by students of the University of Turin. The EBU and Limecraft have developed a MXF SDK for the insertion and extraction of EBUCore metadata in MXF files. EBU is also collaborating with Perfect Memory for the integration of the EBUCore ontology in their semantic platform. More recently, the Library of Wales has sponsored an update of the MediaInfo file parsing tool for EBUCore.

The main advantage of using a standard like EBUCore is that developers and implementers benefit from all new developments around the XML schema and the RDF/OWL ontology. The EBUCore is developed and maintained by the EBU metadata community, which is open to all metadata developers including non-EBU members. EBU-MM (Metadata Models) is a project group of the EBU MIM (Media Information Management) strategic programme.

To obtain regular updates on EBUCore developments, join the EBUCore User Group on LinkedIn or the EBU Metadata Model community<sup>9</sup>.

Contact: [evain@ebu.ch](mailto:evain@ebu.ch)

## ABSTRACT

### *Der EBUCore Standard*

Der EBUCore Standard ist die EBU Vorzeige-Spezifikation für Metadaten. Die EBU Abteilung «Technology & Innovation» in Genf ist ein zentraler Treffpunkt für audiovisuelle Experten, die massgebend an der Entwicklung des EBUCore 1.5 Standards, des sogenannten «Dublin Core for media», waren. In diesem Artikel wird dargestellt, wieso und wie EBUCore entwickelt wurde und von wem es bereits implementiert wurde.

### *La norme EBUCore*

La norme EBUCore est la spécification de métadonnées de référence à L'Union Européenne de Radio-Télédiffusion (UER/EBU). Le département Technologie & Innovation de l'UER sert de point central de ralliement pour les experts de l'audiovisuel qui ont été l'instrument du développement de la norme EBUCore 1.5, aussi nommée «le Dublin Core pour les medias». Cet article fournit un historique sur les raisons et choix techniques qui ont conduit au développement de la norme EBUCore. Il donne aussi des informations utiles sur qui l'a mis en œuvre.

6 FIMS implementer chart, URL [http://www.fims.tv/FIMS\\_implementers.shtml](http://www.fims.tv/FIMS_implementers.shtml)

7 egtaMeta, EBU & egta, URL <https://tech.ebu.ch/docs/tech/tech3340.pdf>

8 Memoriav, URL <http://en.memoriav.ch/>

9 EBU Metadata Model project, URL <https://tech.ebu.ch/groups/pmag>