

DFXP – Subtitling in XML and MXF

Introduction

There are three changes in the media industry relevant to subtitling (file) formats.

First of all HDTV allows for the presentation of subtitles in an improved way, including the use of higher resolution text. This has led to discussions regarding the design and transport of subtitles. Are the methods used still up to date?

Another change taking place is the introduction of a more Internet-oriented set of distribution platforms, such as HbbTV. This requires broadcasters to provide subtitles in a growingly diverse set of output (file) formats.

Thirdly broadcasters are switching from videotape-based to file-based workflows for the production of content. Thus also in the production domain file formats supporting subtitling are increasingly requested.

The EBU ECI-DFXP Group is investigating the possibilities of new technical formats for the creation and transport of time-synchronized subtitles. A very promising candidate to support the current subtitling requirements is DFXP (Distribution Format Exchange Profile), a profile of the TTML (Timed Text Markup Language) standardized by W3C.

The DFXP Group is evaluating the applicability of DFXP for professional subtitling applications. The EBU Group does this on behalf of several of its Members, such as the ARD and the BBC. The goal is to provide an EBU Recommendation for a follow-up format of the ageing EBU STL (EBU Tech 3264) format. Such a Recommendation could be a profiled version of an existing specification, for example a broadcast profile of DFXP.

Background

Subtitling is used extensively by broadcasters, both for foreign-language subtitling and as an access service to help people with a disability to access television programmes. The creation of subtitles has long used stand-alone file formats, including the well-known EBU Tech 3264 ('EBU STL') and many proprietary formats. Three areas requiring improvement have been identified:

- 1) EBU Tech 3264 offers limited functionality and is out-dated (e.g. characters supported).
- 2) New distribution platforms (e.g. web distribution) demand XML-based information.
- 3) Modern production file formats (MXF and AAF) lack support for TV subtitles.

The DFXP Subtitling format

DFXP (the Distribution Format Exchange Profile) is based on the Timed Text Markup Language, an XML-format, supporting the use of subtitles, including for use with web-based applications. Adobe Flash Player already has provided support for this format for some time now. But subtitles do not have to be tied to a player. Other approaches also exist. HTML 5 offers the possibility to present subtitles and videos directly in the browser without using any specialized player (such as the Flash player).

DFXP offers a more creative set of tools than legacy formats (such as EBU STL). Subtitles can be placed all over the picture, and there are several possibilities for animated text, metadata inclusion and the use of different fonts. At the same time conversion between DFXP and STL is possible.



Many subtitling equipment manufacturers already support the export of DFXP from their systems. Such conversions allow these systems to provide subtitles to Content Management Systems (CMS) and archives. In the same way, the integration of DFXP into HbbTV (to replace Teletext) is already being discussed.

The necessity to have interoperability between new platforms is pushing the EBU DFXP Group to soon provide a new recommendation that is able to cover the broadcasters' requirements.

Status

The ECI-DFXP group (currently more than 50 members from cross-industry) is drafting a Recommendation to replace the legacy STL format. User requirements have been collected and are under discussion. Also a first draft of the EBU Recommendation is available. The final Recommendation is planned to be published summer 2011.

The group's workspace can be found via <http://tech.ebu.ch/groups/pdfxp>. The Group is open to broadcasters, manufacturers and end-users. EBU Membership is not required.

W3C TTML v1.0 became a [W3C Recommendation](#) on 18 November 2010 (DFXP is part of TTML).

Several manufacturers have already implemented DFXP into their products.

Next Steps

- Discussion and re-checking of user requirements
- Validation: Does DFXP cover the needs of the broadcasters?
- Figuring out extensions and constraints
- Updating the draft Recommendation
- Publishing of the final Recommendation (planned for summer 2011)

UPCOMING MEETING: 18 January 2011 @ EBU, Geneva (CH) and online (WebEx)

Contact and further information

W3C TTML: <http://www.w3.org/AudioVideo/TT/>

EBU-DFXP group: <http://tech.ebu.ch/groups/pdfxp>

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