

EBU-TT-D AND IMSC1

CONVERGING TTML FOR INTERNET DISTRIBUTION

2015-09-13

EBU

OPERATING EUROVISION AND EURORADIO

BBC Engineering

movie
labs

IRT

W3C

SPEAKERS

Nigel Megitt (nigel.megitt@bbc.co.uk)

- BBC
- Co-chair W3C TTWG
- Co-chair EBU XMLSubs

Pierre-Anthony Lemieux (pal@sandflow.com)

- Sandflow Consulting LLC
- Member of W3C TTWG
- IMSC1 Editor

Andreas Tai (tai@irt.de)

- IRT
- Member of W3C TTWG
- Co-chair EBU-XMLSubs

HISTORY

Historic pattern:

- First thought: “I need to put subtitles on my programme...”
- Then: “Okay that seems simple, I’ll invent a storage format and make it work for me”
- Result: n+1 formats, each one works for one organisation!

W3C:

- “How can we support timed text applications in a web friendly way?”
 - What can we build on to make this easier?
 - XML + XSL-FO + SMIL =
- Result: 1 extra format, does more than most people need!

TTML

WHAT HAPPENED NEXT

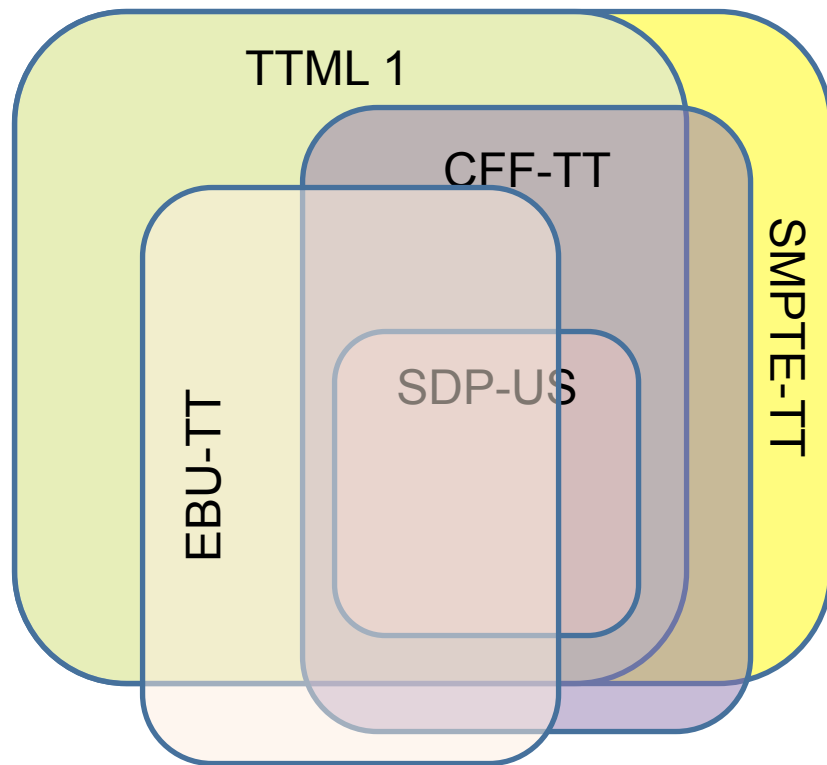
TTML is very *general* so it does more than is needed for most applications.

W3C recognised this and included a *profile* mechanism to allow more *specific* feature sets to be identified...

Then people started doing that!

DFXP, SMPTE-TT, CFF-TT, EBU-TT etc...

Result: $n+m$ formats, where the m are all flavours of TTML.



WORKING TOGETHER

W3C Timed Text Working Group (TTWG) was rechartered in March 2014 to deliver TTML2 and a text and image profile of TTML appropriate for worldwide subtitling applications, including dialog language translation, content description, captions for deaf and hard of hearing, etc.



IMSC1 BACKGROUND

Profile of SMPTE-TT ([ST 2052-1](#)) (designated safe harbor by the US Federal Communications Commission)

Superset of [CFF-TT](#) (developed by the [Ultraviolet](#) ecosystem based on study of home video titles and CEA-608/708)

Superset of EBU-TT-D ([Tech 3380](#))

Superset of [SDP-US](#)

<http://www.w3.org/TR/ttml-imsc1/>

IMSC1 TECHNICAL HIGHLIGHTS

Practical constraints to TTML, e.g. no #clockMode-gps

Independent of video frame rate, resolution and aspect ratio

Image and text subtitles

Supports left-to-right and right-to-left scripts

Forced subtitles

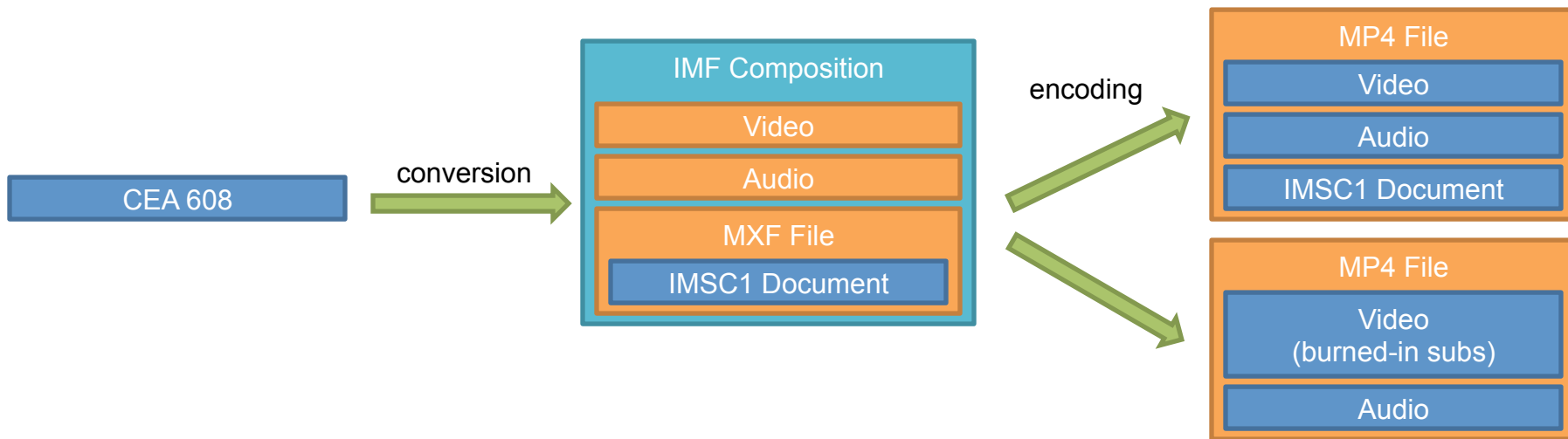
Specifies reference fonts for consistent rendering

Recommends character sets per language

Constrains document complexity using an hypothetical render model (HRM)

CASE STUDY: INTEROPERABLE MASTER FORMAT (IMF)

Component-based format for high-quality masters
(SMPTE ST 2067-2)



IMSC ROADMAP

Today: IMSC1 is a Candidate Recommendation

Q2 2016: IMSC2

- Based on TTML2
- Adds features such as text-based ruby

tō kyō
東京
ruby

IMSC



EBU-TT-D



EBU-TT HISTORY

EBU noticed that although TTML is good there is a role for a smaller easier to implement specification for subtitles and captions to replace the now ageing STL format, meeting members' requirements, mainly based in Europe.

[illegible]

```
<tt:div style="defaultStyle" xml:id="sgn1">
  <tt:p xml:id="sub1a" region="DoubleHeightRow20" begin="00:00:00:00" end="00:00:08:00">
    <tt:span style="style1">These people are amongst the <tt:br/>greatest quiz players in Britain.</tt:span>
  </tt:p>
</tt:div>
```

EBU-STL

EBU-TT

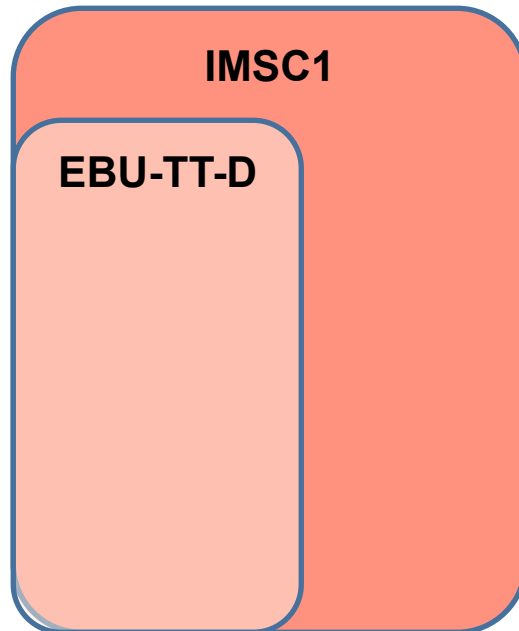
EBU-TT-D

HbbTV 2.0 / DVB DASH



EBU-TT (PART 1)

W3C AND EBU WORKING TOGETHER



WHICH FORMAT TO CHOOSE?

WHICH FORMAT TO CHOOSE – ENCODER / AUTHORIZING



- Broadest compatability
 - EBU-TT-D
- Image Subtitles, forced subtitles etc.
 - IMSC

WHICH FORMAT TO CHOOSE – DECODER/PRESENTATION



IMSC



EBU-TT-D



THANKS FOR YOUR ATTENTION!