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| **Source** | **Telecom ParisTech, Monotype Imaging** |
| **Status** | **For consideration at the 104nd MPEG meeting** |
| **Title** | **Font Data Tracks** |
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# 1 Introduction

During the 103rd MPEG Meeting, it was noticed that font data streams could be used together with new extensions for subtitle carriage using WebVTT or TTML in ISOBMF. Furthermore, the AhG has called for conformance sequences on various parts of the ISOBMF standard and its derivatives. This contribution reviews both the Font Data Stream carriage in its existing form (ISO/IEC 14496-18) and proposes a generic storage for font streams in ISOBMF.

# 2 Review of ISO/IEC 14496-18

While creating conformance sequences for ISOBMF font data streams, we noticed some issues as listed in the following sections.

## 2.1 Syntax of DecoderSpecificInfo

The syntax of the decoderSpecificInfo for font data streams includes the *fontSubsetID* and *storeFont*. It looks however that these fields can only apply to an access unit, and not the entire stream (as specified in the semantics). We therefore suggest issuing a COR in order to fix the semantics for these fields. If possible, these fields should be removed from the decoderSpecificInfo.

## 2.2 ISOBMF Handler for font data streams

It appears that no handler for font data stream in ISOBMF is defined. If we follow the design of ISO/IEC 14496-14, we should use a specific handler for font streams. We propose defining a new handler type 'fdsm' in section 5.4 of ISO/IEC 14496-14.

## 2.3 Stream Dependencies

ISO/IEC 14496-18 does not indicate how other streams using text may signal their dependency on the font data stream. ISO/IEC 14496-17 signals this dependency using the dependsOn_ESID of the text stream. However, this approach may not be sufficient for other streams, such as WebVTT or TTML which don't use MPEG-4 systems signaling; or for streams such as BIFS or LASeR which may already have semantics assigned to the dependsOn_ESID field. We suggest adding a new, generic track dependency in the file format to indicate a font stream dependency:

"a track reference of type 'font' may be used to indicate that a track uses fonts carried/defined in the referred track.

The 'font' reference type may also be used for item referencing in the 'iref' box".

## 3  Carriage in ISOBMF

New formats hosted in the file format, such as WebVTT or TTML, may benefit from font data streams. However, such tools are typically unaware of MPEG-4 Systems, and using this signaling may not be the most efficient. We therefore propose to add the following tools to ISOBMF or to ISO/IEC 14496-18

```
class FontSampleEntry(codingname) extends SampleEntry (codingname){
//other boxes from derived specifications
BitRateBox (); // optional
}
```

Box Type: fds1
Container: stbl
Mandatory: no
Quantity: One or more sample entries may be present

```
class FondDataStreamSampleEntry extends FontSampleEntry('fnt1')
{
     FontDataStreamConfigurationBox fontConfig;
}
```

```
class FontDataStreamConfigurationBox extends Box('fntC')
{
 bit(7) fontFormat;
 bit(1) reserved;
 if (fontFormat != 0x00) {
  bit(8) fontNameLength;
  bit(8) fontName[fontNameLength];
  bit(8) fontSpecInfo ; // to end of the box
 }
}
```

## 4  Sample Sequences

In the electronic attachments of this contribution, we have provided draft conformance sequences for font data streams and extended font data streams. The storage mode uses fdsm as a media handler, and each come in two flavor:
- using mp4s sample entry and a esds box (current design in part 18)
- using fnt1 sample entry and a fntC

The sequences have been generated using MP4Box from GPAC[1], and can be played back using GPAC clients.

## 5  Conclusion

We suggest starting a new amendment to Part18 to integrate the new proposals presented in this contribution.

[1] GPAC, http://gpac.sourceforge.net