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Title **Update on GPAC tools for DASH**
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1 Introduction

In contribution [m23589](#), we have presented a set of DASH-related tools in GPAC (<http://gpac.sourceforge.net>), for both content-generation and content playback. This contribution gives an update of these tools.

2 MP4Box DASH news

Profiles: MP4Box now supports using `-dash-profile` with value `"onDemand"`, `"live"`, `"main"`, `"simple"` and `"full"`, which perform automatic selection of most options. The default behavior of MP4Box is now to produce one fragment per segment, in particular to comply with Google Chrome's Media Source API implementation.

MPD: the generation of MPD has been fixed for ISOBMF cases, to properly signal bitstream switching, frame rate, sar, par. It is also possible to specify MPD metadata `title`, `source`, `copyright` and `moreInfo` from the command line.

Adaptation Sets: MP4Box now supports generating multiple adaptation sets at once for ISOBMF; the different input files are filtered based on their media type, PAR, language and codec, and gathered in different adaptation sets. Media streams of the same type but with different properties are tagged as belonging to the same group through the `@group` attribute.

Segmentation:

MP4Box can now generate segments in both `bitstreamSwitching` and `non-bitstreamSwitching` modes.

The segment names can furthermore be configured by using a subset of the SegmentTemplate identifiers: `$RepresentationID$`, `$Number$`, `$Bandwidth$` and `$Time$`. Additional items are defined:

`$Init=VALUE$` is replaced by `VALUE` if the generated file is an initialization segment,

`$Index=VALUE$` is replaced by `VALUE` if the generated file is an index segment.

The segmentation process can now duplicate samples lasting over more than one segment and adjust their duration, as is often the case with subtitles. It supports for example 3GPP timed text segmenting.

Live simulation: MP4Box can be used to simulate an ISOBMF live content through the `-dash-ctx` option. This option stores the current timing of the DASHed representation, and for all representations except the first, shifts the timing according to this stored value. By calling MP4Box on a regular basis with new segment to append to the MPD, one can generate a live compatible MPD. All options from the regular mode are allowed in this mode, except the options related to the ISO *onDemand* profile.

TS Segmenting: The TS segmenter in MP4Box has been updated to use the same template mechanism for files as the ISOBMF segmenter. *pcrb* box is also added to the index thanks to a patch by Waqar Zia.

3 MP4Client DASH news

GPAC players (MP4Client, Osmo4...) have been updated with support for most of DASH, with the following add-ons since previous announcement:

- Support for `<Location>` in MPD, allowing for MPD update from another source than initial MPD retrieval medium,
- Better support for local (file system) and remote (http) segments,
- Support for non bitstreamSwitching Representations using separated initialization segments,
- Support for `@group` attribute, and automatic (de)selection of sets inside a group
- The dash playback engine is no longer a player module and can be used as part of libgpac to build other clients/downloaders, with the resource downloader/fetcher of your choice.

GPAC players do not yet support: onDemand profile, DASH metrics, features only included in DASH “full” profile (`xlink:href`, non-aligned segments, ...).

For the implemented profiles, GPAC now supports most DASH sources available in the wild, from DASH IF and others, as well as M3U8 sources.

4 Conclusion

Telecom ParisTech is glad to announce the availability of improved DASH tools within GPAC, and welcomes any feedback on their usage or on any conformance defect. We encourage companies and R&D labs, interested in the MPEG-DASH ecosystem to have a look at the software.