



## HbbTV 2.0.3 Explained



# 3 Elements to HbbTV 2.0.3



- Errata to HbbTV 2.0.1/2
  - Latest version published July 2020
  - 2.0.3 starts from 2.0.2 with July 2020 errata integrated
  - Some new errata too ...
- No big new features
  - Goal was “low hanging fruit” that are easy to specify & test
  - Mainly updates to existing features
    - Critical ones already widely supported
  - One small new feature
- Main new element of this update is removing unused features

- Improving integration between HTML5 video element and hardware media decoders
  - #10195: media decoders and the seeked event
  - #10181: Releasing resources from HTML media elements
  - #9623: language in clause 9.6.2 about hardware video resource management and HTML5 video elements
  - #9481: Potential conflict between HbbTV 9.6.2 and HTML5 re HTML5 load() method taking video & audio decoders
  - Related discussions also in W3C - <https://github.com/w3c/media-and-entertainment/pull/34>
- Compatibility with modern soft text input (virtual keyboards)
  - #10007: Section 10.2.1: incompatibility with modern soft input (virtual keyboards) that operate on words or phrases
    - Turns out that this also enables some forms of voice input
- Future evolution and maintainability of the XML capabilities mechanism
  - #9487: Error in XML capabilities example and XSD
- Media synchronisation requirements may be unrealistic for some implementers
  - #9325: Unreasonably demanding a/v sync timing requirement
    - Relaxed from -10ms/+10ms to -35ms/+50ms
  - #10435: Unreasonable demanding of synchronization between A/V and subtitles
    - Tests assume 40ms, market expects frame accuracy at scene cuts, may not be achievable on some hardware
- Media synchronisation (video via broadcast and audio via broadband)
  - #8810: behaviour of multi-stream sync API at times when no content exists in a slave media synchroniser
  - #10719: stopping multi-stream sync and disposing of a MediaSynchroniser object
  - #10722: successful completion of initMediaSynchroniser and addMediaObject
- DASH
  - #10447: Errata to DVB-DASH
    - Update to newest version to get bug fixes – optional features remain optional, features added by DVB are all optional
  - #9315: DASH - MPD events
    - SCTE-35 ad insertion events crash some HbbTV implementations

- Updated from 2013 to 2018
  - Why 2018 not 2020?
    - To allow time for code to be ported and optimised for constrained systems
  - Why not 2016?
    - Public disclosure of security bugs in desktop browsers means that shipping TVs based on old browsers may be unwise
- Versions of standards already in the spec
  - Match the real world
- Some new standards implemented by 2018 browsers
  - Media Source Extensions (MSE)
    - Note that MSE already widely implemented in deployed HbbTV terminals
    - Apps deployed in Germany test for MSE support and use it when present
  - Service workers
    - Enable more responsive and adaptable apps
  - Recent web security specifications
  - HTTP/2
- Also TLS 1.3 – very quickly rolled out in the industry
  - <https://www.caniuse.com/tls1-3>
- Querying if persistent storage of cookies & web storage is disabled
  - Standard web feature, navigator.cookieEnabled
  - [https://www.caniuse.com/mdn-api\\_navigator\\_cookieenabled](https://www.caniuse.com/mdn-api_navigator_cookieenabled)

- **CMAF**
  - A well defined profile of ISOBMFF
    - No new features
  - Believed to be compatible with existing devices
    - No obvious reason why it wouldn't be
- **Querying which AES encryption modes are supported**
  - Industry is moving to adopt Apple's flavour of CBCS instead of CENC as previously used
    - Widevine already moved
    - PlayReady 4.0 supports Apple flavour of CBCS
  - May allow encode, package & encrypt once for Android, Apple, PC & media devices
- **Low latency**
  - Defined constraints to enable MSE to be used for delivery of low latency live services based on DVB-DASH requirements
    - Low latency not required for native DASH player

- Querying physical screen size
  - Extension to HbbTV XML capabilities mechanism

- To be dropped immediately
  - CI+ host player mode
  - HbbTV app launching an app on a companion screen (phone)
  - Teletext Subtitles in OTT content
  - 3 aspects of media sync
    - Optional SYNC\_SLAVE mode
    - Optional sync buffer
    - Use of A/V control object in media sync
- Propose to move to the OpApp spec
  - Push VoD incl. download manager
  - CI+ CICAM player mode
- Re-consider in next requirements cycle
  - PVR

- Candidates to be dropped at some time in the future
  - A/V Control Object
  - OIPF DRM Object

As these are used by apps today, plenty of notice will need to be given!

May be possibilities to replace A/V Control Object with a web “Polyfill” if there’s interest

Also stop growing these features or rewind additions made in HbbTV 2

- Web standards
  - Historically HbbTV has not tested these
    - Goal (never completed) to include a small sample of W3C Web Platform Tests to confirm that recent APIs were implemented at all
  - CTA WAVE project has done a lot of work to make W3C Web Platform Tests more suitable for Smart TVs
    - <https://github.com/cta-wave/WMAS>
    - <https://webapitests2018.ctawave.org/>
- Up to 83 new HbbTV test cases
  - 35 MSE
    - Partial overlap with other work in CTA WAVE on testing media playback via MSE
    - Also some tests for targeted advertising option become mandatory for 2.0.3
  - 18 for new version of DVB-DASH (also for 2.0.1/2 errata)
  - 14 others specific to 2.0.3
  - 16 for 2.0.1/2 errata (e.g. multi-stream sync accessibility use-cases)



- Main 2.0.3 features already in products today
  - CMAF implicitly already required
  - 2018 browser specs should be widely supported
    - Back-porting security fixes from 2020/1 browsers to forks of older versions will get more & more expensive
  - MSE widely supported
    - Becoming more widely supported with HbbTV targeted advertising option
- No obvious reason why 2.0.3 would take longer to appear in products than 2.0.1/2 + errata

Thank You