HbbTV 2.0.4 Explained

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Summary

- 2.0.4 defines how HbbTV can integrate with 3 key features for the future
  - Accessibility features provided by the TV or STB
  - Live/linear services via broadband using DVB-I and DVB-DASH
  - Voice assistants such as Alexa and Google Assistant
- Also some smaller changes
  - Smaller additional features
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Accessibility integration

- Many TV operating systems provide accessibility features that the user can turn on/off and configure
  - Subtitles, user interface magnification, high contrast UI, screen reader, feedback on user actions
    - Screen reader integrates with W3C ARIA ("Accessible Rich Internet Applications")
  - Audio description, dialogue enhancement and in-vision signing
    - User preferences for stream selection decision for broadcast and broadband
- 2.0.4 enables apps to query;
  - Which features are supported
  - Detailed user settings for a supported feature
- Apps can also request a feature be supressed
  - If the app thinks it can do a better job in its context
- For more details, please see presentation from Nigel Moore in the HbbTV webinar
  - https://youtu.be/w-Q5mxsNAJc
- HbbTV doesn't make any particular accessibility feature mandatory in TVs and STBs
  - Choice of manufacturer, platform/operator, TV OS provider, …
  - Framework itself is mandatory so apps can ask the questions ..

DVB-I integration

- Goal
  - Most (ideally all) HbbTV broadcast related applications to be able to run in connection with a DVB-I broadband-delivered service with as few changes as possible (ideally none)
- Some key features
  - How a video/broadcast object can show DASH delivered content
  - How DVB-I services and service instances appear in the HbbTV ChannelList
  - How HbbTV applications are started and stopped as different DVB-I services are selected
  - How DASH MPD and inband events map to the DSMCC stream event API
  - Support for both DVB-I "application controlling media presentation" and "application in parallel with media"
- Some features cannot be supported but hopefully few apps use them

Voice assistant integration

- Enable use of voice input to HbbTV app for selected media playback features
  - e.g. "play" / "pause" / "resume" / "skip ahead X minutes" / "fast forward" / "reverse" / "search"
- Apps have to first indicate they are "voice ready"
  - App needs to tell terminal when it's playing media & which voice inputs are supported for that media at that time
  - App may also provide metadata about media being played
- Additionally
  - Speech to text supported as a text entry method for all apps
  - Standard HbbTV remote control events shall be generated for "voice ready" apps
- Choice of voice assistant is left to manufacturer or TV OS provider

Accessibility and Voice APIs

- New API design used for accessibility and voice API
  - JSON-RPC messages sent and received via websocket
  - Not a conventional Javascript API
  - Follows the same model as ATSC3 APIs
- Apps discover URL for websocket server from the XML capabilities

Smaller additions

- Audio mixing enhancements
  - Mixing between broadcast audio and audio clips via Web Audio API becomes required
- Allow analytics reporting on exit from an HbbTV app
  - Support for W3C Beacon API
- Web platform update
  - Update from alignment with 2018 desktop browsers to alignment with 2021 desktop browsers
- Properly support 1920x1080 graphics
  - 2.0.3 has partial support for 1920x1080 graphics – coordinate space is always 1280x720 even if underlying graphics are 1920x1080
  - 2.0.4 permits coordinate spaces of 1920x1080 and higher
    - App signals what coordinate spaces it can support

Deprecations

- Deprecation is not removing from the spec
  - It is announcing that something will be removed in a later version
  - Deprecated features remain mandatory until actually removed
- Partial deprecation of A/V control object
  - Properties on AVComponent which have no equivalent on HTML5 *Track
- Streaming with MPEG-2 TS as the system format
  - By implication, support for DVB subtitles in IP
- Tiresias resident font
  - No longer multiple suppliers for this
- Native on-screen keyboard
  - Evidence is that apps that need text input do this themselves

Errata

- 62 errata included, a mixture of editorial, clarifications, filling gaps and addressing inconsistencies, details on integration of web APIs
- Some more significant examples
  - Switching broadcast / broadband video not being noticeable (colour shift etc)
  - Entropy and algorithms for the WebCrypto API
  - Indication for video playback at speeds > 1.0
  - CSS transforms on video elements
  - Make IPv6 explicitly optional
  - Improve spec for how W3C Page Visibility API is used

What Next – as of March 2023

- Request for Proposals for 2.0.4 unit tests will be issued
  - 247 unit test descriptions created and reviewed
- Some tests may be delivered in time for July 2023 test suite release (2023-2)
  - Most will likely be included in Feb/Mar 2024 release (2024-1)