Fraunhofer FOKUS Institute for Open Communication Systems

dash.js – Status Update
DASH-IF Special Session

Daniel Silhavy

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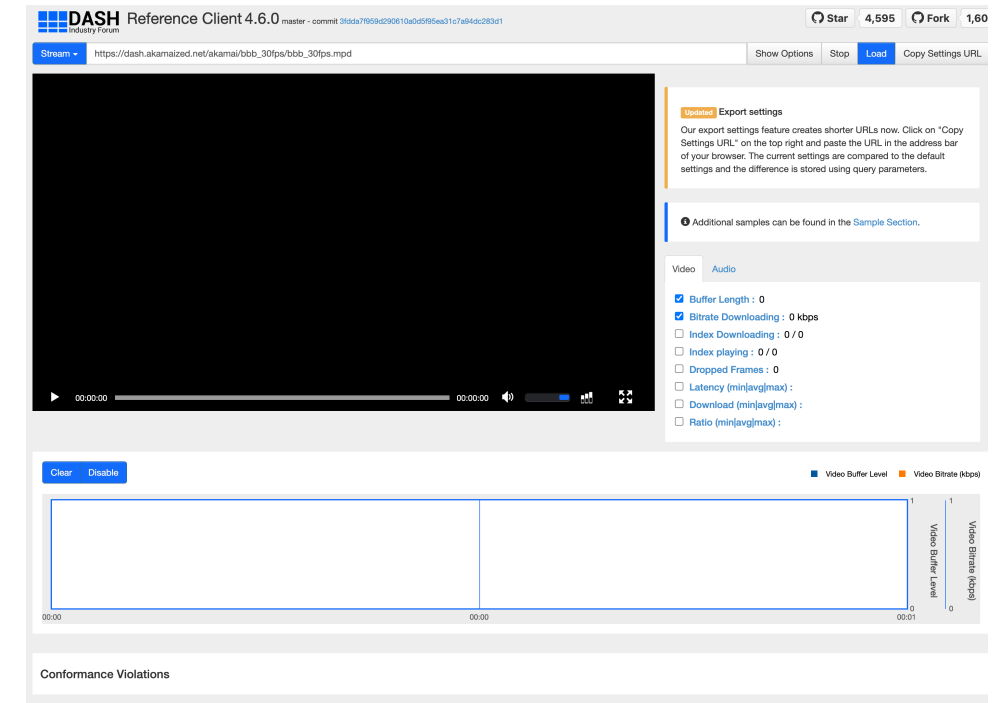
About me

Daniel Silhavy (Fraunhofer FOKUS)

- **Area of expertise**: Adaptive Media Streaming, Video Encoding, Media Player Development, Standardization, 5G Media Streaming
- **Related Open-Source Projects**:
  - Lead Developer of the dash.js project
  - 5G-MAG Reference Tools Development Team Coordinator
  - Joint Conformance Project (JCCP) Development Coordinator
- Contact
  - Email: daniel.silhavy@fokus.fraunhofer.de
  - LinkedIn: https://www.linkedin.com/feed/

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dash.js – Status Update

Overview & Status

- dash.js is the official reference player by the DASH Industry Forum for playback of MPEG-DASH content

- Maintained by Fraunhofer FOKUS, community driven development

- Open-source project on Github - https://github.com/Dash-Industry-Forum/dash.js/ , last released version 4.6.0

- Written in JavaScript uses the W3C
  Media Source Extensions (MSE) and Encrypted Media Extensions (EME)

- Works on all MSE and EME based platforms including Desktop browsers, smartphones, SmartTVs, Set-Top Boxes.

- Various features including flexible ABR logic, multiperiod, DRM support, MPD patching, Gap handling, CMCD, CMAF low latency support, support for various subtitle formats (TTML, IMSC1, WebVTT) and many more.

- More information: https://dashjs.org/

https://reference.dashif.org/dash.js/nightly/samples/dash-if-reference-player/index.html

Application areas

Reference platform

- Implements latest features from DASH-IF IOP guidelines and ISO/IEC specification.

- Used by other organizations in their reference implementations
  - CTA-WAVE
  - DVB
  - HbbTV
  - 5G-MAG

Industry

- Used in production for instance by BBC, Deutsche Telekom, Orange

- Used to compare behavior of commercial players against reference player

Research

- Used for research purposes, for instance to test and compare new ABR algorithms (Twitch challenge)

- Evaluate new features such as CMCD and CMSD

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Numbers

GitHub

- 50 releases
- > 4.600 stars
- 257 watchers
- > 1.600 forks
- Used by over 1.900 other projects
- 169 contributors

npm

- 92 dependents
- 50.000 – 80.000 downloads a week
- 2.090.885 downloads in 2022

- Monthly developer calls
- Slack (1670 members)
- Github
- Google Groups (1235 members)

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dash.js – Latest additions

Version 4.5.0

- Initial support for content steering

- Adjusted catchup logic: Adjust the liveDelay when the user seeks/pauses

- Improved language handling: Normalized format

- Async modification of requests

- Release notes: https://github.com/Dash-Industry-Forum/dash.js/releases/tag/v4.5.0

Version 4.5.1 and 4.5.2

- Enables WebVTT on platforms that do not provide native WebVTT support.

- Connection to TimingObject for synchronized playback

- Separate min and max values for playbackrate when applying catchup mode

- Release notes:
    - https://github.com/Dash-Industry-Forum/dash.js/releases/tag/v4.5.1
    - https://github.com/Dash-Industry-Forum/dash.js/releases/tag/v4.5.2

Version 4.6.0

- Add preload functionality to enable broadcast-broadband ad-insertion on HbbTV devices

- Initial support for Common Media Server Data (CMSD)

- Modify segments in callback function

- Use Karma as a testrunner to enable testing in "real" browser-based environments

- Release notes: https://github.com/Dash-Industry-Forum/dash.js/releases/tag/v4.6.0

dash.js – Status Update
What is next?

General Strategy

- Move towards a new major release 5.0.0 with features such as
  – Reworked XML parsing
  – Reworked ABR and throughput logic
  – Support for SupplementalProperty "urn:mpeg:dash:adaptation-set-switching:2016"
  – New reference UI

Upcoming Features

- Common Media Server Data
  – Support for additional paramaters
- Content Steering
  – Changes based on latest version of the specification
- Improved functional test suite based on Karma and Selenium Grid
- Support for forced subtitles
- Enhancements to track selection
- Support for mediaPresentationInsertion
- PRFT box parsing
- Find more information here: https://github.com/Dash-Industry-Forum/dash.js/discussions/4111

dash.js – Status Update

How to participate?

- Reference client: https://reference.dashif.org/dash.js/nightly/samples/dash-if-reference-player/index.html

- Samples: https://reference.dashif.org/dash.js/nightly/samples/index.html

- Github project: https://github.com/Dash-Industry-Forum/dash.js

- Wiki: https://github.com/Dash-Industry-Forum/dash.js/wiki

- API documentation: http://cdn.dashjs.org/latest/jsdoc/module-MediaPlayer.html

- Slack Channel: https://dashif-slack.azurewebsites.net/

- Google Groups: https://groups.google.com/g/dashjs

- How to contribute: https://github.com/Dash-Industry-Forum/dash.js/blob/development/CONTRIBUTING.md

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10ᵗʰ FOKUS Media Web Symposium

June 13 – 14, 2023, Berlin

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MARK YOUR CALENDAR!

Advanced Streaming Technologies: DASH, HLS, SAND, Low Latency Streaming, Content Steering, Media Delivery in 5G/6G, HbbTV, Video Player Tech, DRM, Quality of Experience, Edge and Cloud processing, Remote Rendering

Artificial Intelligence for Media: AI-based-Media-Encoding, Streaming Analytics, Content Analytics and Metadata, AI based Media Solutions, Content Provenance and Authenticity

Media Applications and Services: Metaverse, Addressable TV, Dynamic Ad Insertion/Substitution, Audience Measurement, Programmatic Advertisement, Holo Conferencing, XR

www.fokus.fraunhofer.de/go/mws

Contact

Daniel Silhavy

- Email: daniel.silhavy@fokus.fraunhofer.de
- LinkedIn: https://www.linkedin.com/in/daniel-silhavy-21650a129/

Fraunhofer FOKUS

Institute for Open Communication Systems

Kaiserin-Augusta-Allee 31

10589 Berlin, Germany

info@fokus.fraunhofer.de

www.fokus.fraunhofer.de