Workshop on Professional Media Production on the Web

8-19 November 2021
Closing Remarks

https://www.w3.org/2021/03/media-production-workshop/

W3C Groups

Community Group (CG)

- Open to all, limited IPR protection & commitment
- Incubation of a technical solution

Business Group (BG)

- Open to all, fees for non W3C Members
- Assess requirements for a technology space

Interest Group (IG)

- Open to W3C Members
- Set roadmap for a technology space
- Coordinate actions across groups

Working Group (WG)

- Open to W3C Members
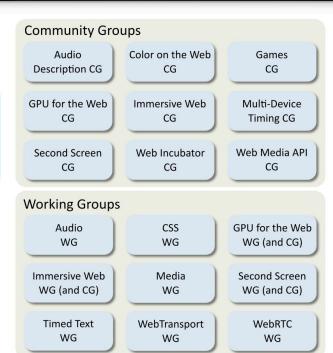- Define W3C standards under strong RF policies

Main W3C groups

W3C®

Media Groups at W3C

Media & Entertainment IG

SDO Liaisons
ATSC CTA
HbbTV
…

Community Groups

Audio Description CG	Color on the Web CG	Games CG
GPU for the Web CG	Immersive Web CG	Multi-Device Timing CG
Second Screen CG	Web Incubator CG	Web Media API CG

Working Groups

Audio WG	CSS WG	GPU for the Web WG (and CG)
Immersive Web WG (and CG)	Media WG	Second Screen WG (and CG)
Timed Text WG	WebTransport WG	WebRTC WG

Additional groups of interest

- WebAssembly WG
- WHATWG

SMPTE Technical committees

- Develop SMPTE Engineering Documents
- Review existing documents to ensure that they are current with established engineering practices and are compatible with international engineering documents, where possible

- Recommend and develop test specifications, methods, and materials
- Prepare tutorial material on engineering subjects for publication in the SMPTE Journal or for other means of dissemination benefiting the Society and the industry.

Next steps? 🔮

1. Do nothing (NOOP)

- No concrete work item or no agreement
- Already addressed in a Working Group

2. Provide input to Group (INPUT)

- Group needs to understand use cases
- Individual feedback, e.g. as GitHub issues
- Collective feedback also possible through M&E IG

3. Explore feasibility at the app level (EXPLORE)

- Doable at the app level, at least in theory
- Performance needs to be quantified
- Develop an open source library?
- ⇒ Use M&E IG as coordination group?

4. Gather community support (GATHER)

- Technical problem is understood
- Feature needs to be prioritized
- ⇒ Use M&E IG to build community?

Next steps? 🔮

5. Document fragmentation (DOCUMENT)

- More an implementation choice than a spec issue
- Need to document fragmentation and track progress
- ⇒ Use M&E IG as tracking group?

6. Incubate solution, e.g. in a CG (INCUBATE)

- Draft spec needs to be assembled
- Larger community needed

7. Develop a standard (STANDARD)

- Solution on the table already
- Enough support in the room to move it to a standards group

Getting into action 🏄

Standards are not developed in a vacuum...

We need:

- Supportive people
- People willing to drive the work
- People willing to participate

WebCodecs

Need	Next step?	Comments
(De-)Muxing API for WebCodecs (#35)	Explore	e.g. use of libavformat Data on performance / pain points
APIs in workers (#43)	Noop	Ongoing
Quality control tuning knob (#54)	Input	Encode to meet a time deadline vs a quality level. How to support codec-specific encoding quality control knobs?
Introspect whether encoding hints were applied	Explore	
SEI metadata management	Explore	Performance, Handling during both decoding and encoding

WebCodecs

Need	Next step?	Comments
Support professional codecs (#25)	Document	Open source and licensing considerations. JPEG2000? Object-based audio formats
Support for higher fidelity audio (#25)	Explore	
Get decoded frame from <video>	Input	Discussed in requestVideoFrameCallback Also, see MediaStreamTrack Insertable Media Processing using Streams
Seek to a frame when VBR is used	Explore	MP3 example was discussed
Pre-charging / priming	Explore	Is further exploration needed?

Web Audio API

Need	Next step?	Comments
Latency measurement (#31)	Input	Web Audio issue #469 re-opened. Accuracy of AudioContext outputLatency (blink-dev thread)
APIs in workers (#43)	Noop	Ongoing
Rendering capacity	Input	API proposal: issue #2444
Consistent audio rendering between browser and server	Explore	
Seek to a frame when VBR is used	Explore	MP3 example was discussed

Media synchronization

Need	Next step?	Comments
Media recording sync to clock (#33)	Explore	Investigate possible privacy implications?
Synchronization of media playback with DOM updates (#48)	Explore	Covered when output latency gets better support in browsers? Accuracy needs per use case?

WebRTC

Need	Next step?	Comments
Support professional codecs (#25)	Document	
Support for multi-channel audio	Explore	
Signaling protocol for media ingest (#34)	Gather	More an IETF item?
WebVTT in WebRTC (#41)	Explore	Recent activity in Timed Text WG issue #320, #496

WebRTC

Need	Next step?	Comments
Sync multiple WebRTC streams (#51)	Explore	
Support for videos with alpha	Document	Gather use cases
Synchronization of data with media	Input	e.g. support for abs-capture-time
Jitter buffer control	Explore	e.g. music scenarios

WebAssembly

Need	Next step?	Comments
Avoiding memory copies (#30)	Explore	Different possible mechanisms to avoid/delay copies or share memory
64-bit support (#37)	Input	Upcoming, raising precise need seems useful for prioritization
SIMD support (#38)	Input	Improving, need to converge on the right set of operations, submit concrete scenarios
Controlling where memory is allocated	Explore	Use of JavaScript or WASM memory, or GPU memory
Secure container for media playback (#26)	Explore	

File System Integration

Need	Next step?	Comments
Zero copy I/O operations (#39)	Input	Document large file needs
Reducing or optimizing number of I/O operations	Input	
Sparse file support (#23)	Input	
Transfer of very large file (#23)	Explore	Is this application level, or is browser API support needed?

Misc.

Need	Next step?	Comments
EyeDropper API	Incubate	Multiple color selection or returning screen coordinates?
Object-based audio support on the Web	Explore	Impact on Web Audio, WebRTC, WebCodecs
Synthesized speech	Explore	Integration between Web Speech and Web Audio and WebRTC?
High dynamic range and wide color gamut support	Explore	Active discussions in the Color on the Web Community Group

Metadata

Need	Next step?	Comments
Metadata management	Explore	Different types of metadata depending on needs. Some bits may be handled by WebCodecs, some in DataCue discussions.
Data models standardization (#28)	Explore	Are EBU Core, SMPTE ST-2065 enough? Define a mapping ontology?

Architectural considerations

Need	Next step?	Comments

What else?

- Collaboration between W3C and SMPTE looking forward?
- Issues that we have not had time to discuss?
- What other topics should we have covered?
- Who else should be in the room?

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