

WebAssembly, WebComponents and media filters all at once

A proposal to open the Web to
variety of formats

Who are we?



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PostDoc



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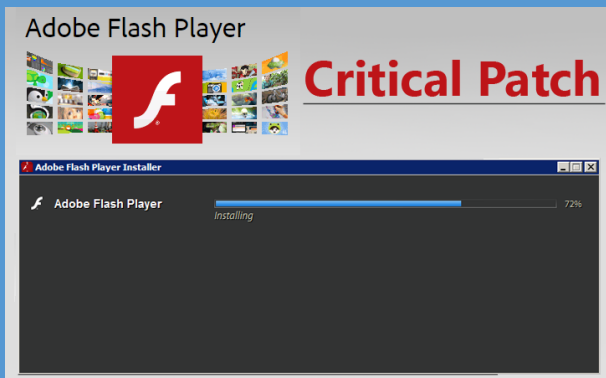


Former
Co-Director
OneCodec



Media content on the web

Before HTML 5



With HTML 5

```
<video controls>
  <source src="rabbit320.mp4" type="video/mp4" />
  <source src="rabbit320.webm" type="video/webm" />
  <p>
    Your browser doesn't support this video. Here
    is a <a href="rabbit320.mp4">link to the video</a>
    instead.
  </p>
</video>
```

Browsers are gate keepers



Browser format support

Ogg/Theora video format - OTHER Usage % of all users Global 37.85%

Free lossy video compression format.

Current aligned Usage relative Date relative Filtered All

Chrome	Edge*	Safari	Firefox	Opera	IE	Chrome for Android	Safari on iOS*	Samsung Internet	Opera Mini*	Opera Mobile*	UC Browser for Android	Android Browser*	Firefox for Android	QQ Browser	Baidu Browser	KaiOS Browser
	12-16		2-3	10.1												
4-119	17-119	3.1-17.1	3.5-120	11.5-103	6-10		3.2-17.0	4-22		12-12.1		2.1-4.4.4				2.5
120	120	17.2	121	104	11	120	17.1	23	all	73	15.5	120	119	13.1	13.18	3.1
121-123		17.3-TP	122-124				17.2									

Notes Test on a real browser Known issues (0) Resources (4) Feedback

¹ Chrome is deprecating and removing Theora support, see [this platform status entry](#).

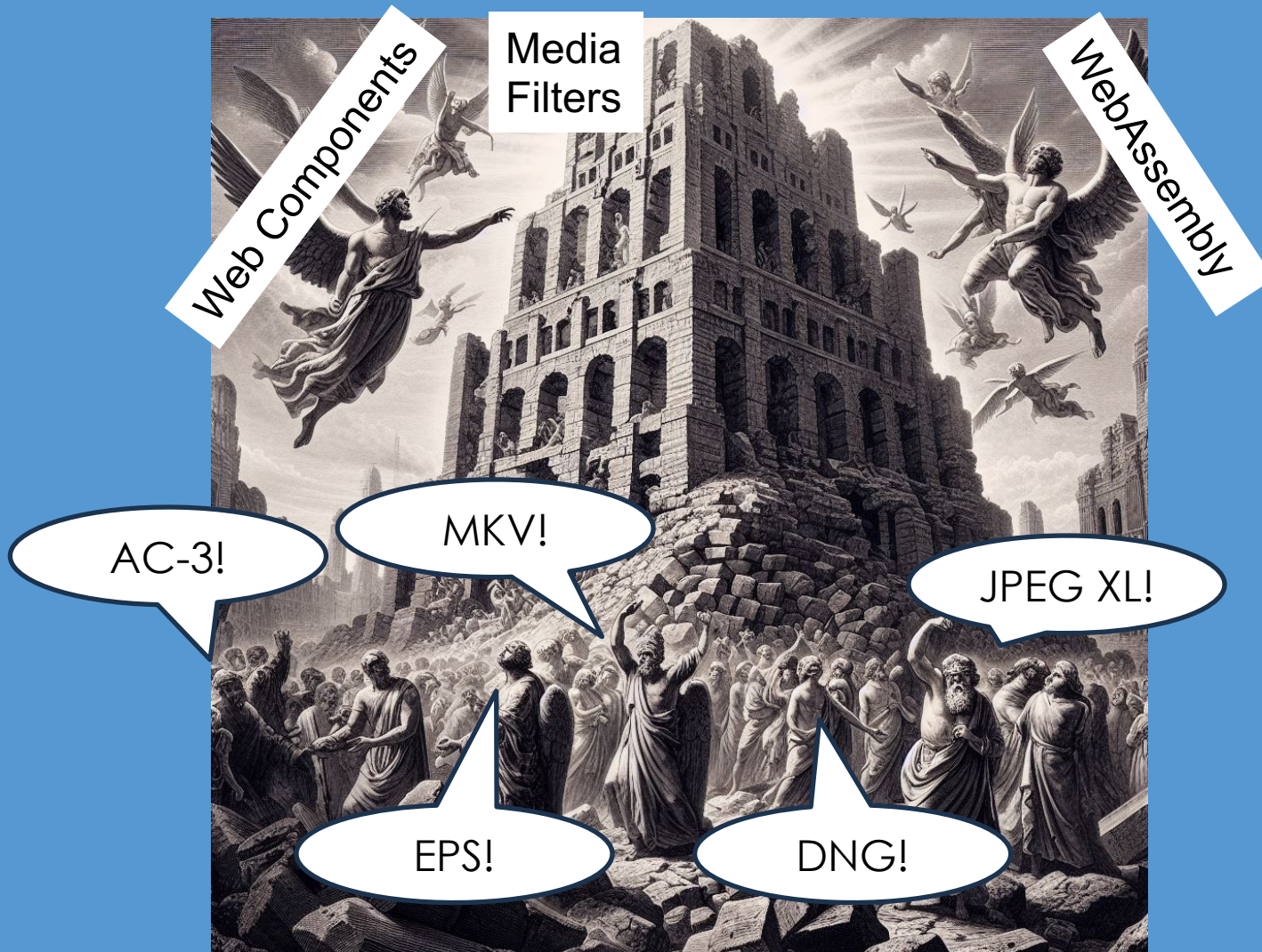
JPEG XL image format - OTHER Usage % of all users Global 9.6%

A modern image format optimized for web environments. JPEG XL generally has better compression than WebP, JPEG, PNG and GIF and is designed to supersede them. JPEG XL competes with AVIF which has similar compression quality but fewer features overall.

Current aligned Usage relative Date relative Filtered All

Chrome	Edge*	Safari	Firefox	Opera	IE	Chrome for Android	Safari on iOS*	Samsung Internet	Opera Mini*	Opera Mobile*	UC Browser for Android	Android Browser*	Firefox for Android	QQ Browser	Baidu Browser	KaiOS Browser
4-90	12-90															
91-109	91-109	3.1-16.6	2-89	10-76			3.2-16.7									
110-119	110-119	7.0-17.1	90-120	77-105	6-10		17.0-17.1	4-22		12-12.1		2.1-4.4.4				2.5
120	120	17.2	121	106	11	120	17.2	23	all	73	15.5	120	119	13.1	13.18	3.1
121-123		17.3-TP	122-124				17.3									

What we propose



How it works: new elements

```
<video is="universal-video" src="rabbit320.mp4" controls />
```

WebComponents



```
class UniversalVideo extends HTMLVideoElement {  
  (...)  
}  
  
if (!customElements.get('universal-video')) {  
  customElements.define('universal-video', UniversalVideo,  
    {extends: 'video'});  
}
```

universal-video.js

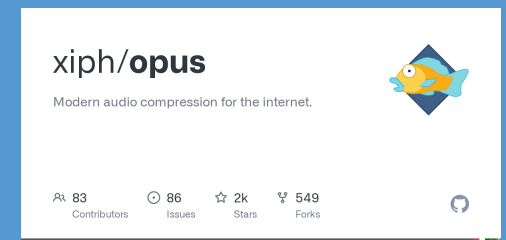
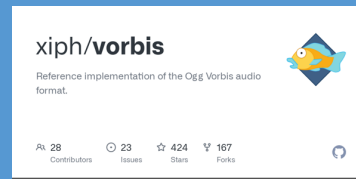
How it works: Wasm filters

```
<video is="universal-video" using="xiph.org"  
src="rabbit320.ogv" controls />
```

WA

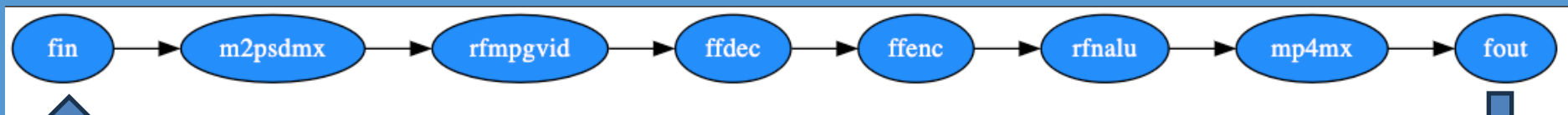


Theora
video codec



How it works: multi-filter chain

```
<video is="universal-video" using="solver" |  
with="libmpeg1;libx264" src="medical_demo.mpg" controls />
```



An upward-pointing blue arrow leads to an icon of an MPEG-1 video file. Below it are three browser icons: Chrome with a green checkmark, and Firefox with two red X marks.

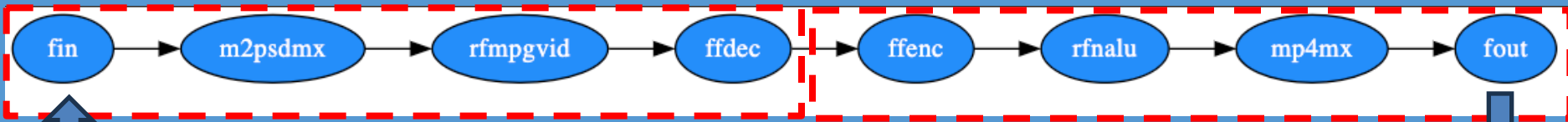
A downward-pointing blue arrow leads to an icon of an H.264 video file. To its left are three browser icons: Chrome with a green checkmark, and Firefox with a green checkmark.

How it works: transcode for playback

```
<video_is="universal-video" using="solver"  
with="libmpeg1;libx264" src="medical_demo.mpg" controls />
```

libmpeg1

libx264



MPEG-1

H.264

Demo with/without universal tags

<https://bevara.com/home-demo-no-accessors/>

<https://bevara.com>

Experience Universal Access

Easily embed formats unsupported by many browsers, like this JPEG-2000 image. It is shown from its native format, without the typical transcoding to JPEG-1. Open-source codecs let you handle a wide range of formats.

Shoreline image

J2k image



JXL image

Develop and host your own experimental format like this JPEG-XL image – without concern about whether browsers will provide or drop support.



Dolby digital ac3

Support formats on your website that would otherwise require a plug-in. Tailor the interface to be as simple or as detailed as needed.



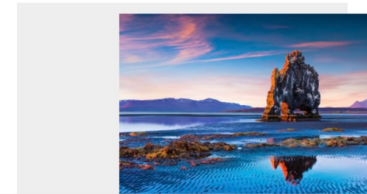
MPEG-1 video

The Bevara development environment lets you use default controls to exactly what this legacy MPEG-1 video.



Experience Universal Access

Easily embed formats unsupported by many browsers, like this JPEG-2000 image. It is shown from its native format, without the typical transcoding to JPEG-1. Open-source codecs let you handle a wide range of formats.

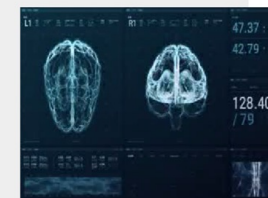


Develop and host your own experimental format like this JPEG-XL image – without concern about whether browsers will provide or drop support.

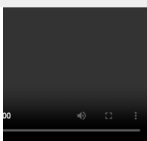
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Support formats on your website that would otherwise require a plug-in. Tailor the interface to be as simple or as detailed as needed.

0:00 / 0:24



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Bevara access

The screenshot displays the Bevara application interface. On the left is a file explorer (EXPLORATEUR) showing a directory structure under 'TEST_SIGNALS'. The main area features a video player with two brain MRI slices (L1 and R1) and a 'Bevara' logo. Below the video player is a pipeline diagram with the following steps: `fin` → `m2psdmx` → `rfmpgvid` → `ffdec` → `ffenc` → `rfnalu` → `mp4mx` → `fout`. The interface also includes a sidebar with 'Preview', 'Accessor', 'Help', and 'Develop' options, and a bottom status bar showing 'master' and system icons.

Where to find us

Site

<https://bevara.com>

Repos

<https://github.com/Bevara/Editor>



VS Code plugins

<https://github.com/Bevara/Interface>



Testing interface

<https://github.com/Bevara/filters>



Filters SDK

See https://bevara.com/terms_of_service/ for open-source Developer's EULA and repo README.md and LICENSE.md files for license information

Questions?