Accessibility & Multi-Screen Design

Audio, Video & Animation

Disclaimer

This course is not a W3C course.

Views expressed are my own.

Dies ist kein W3C-Kurs.

Alle Ansichten sind meine Eigenen.

1

Audio

Audio Player Example

User needs to be in control

Never autostart audio

audio element

2 Video

Video Player Example

Going beyond technical accessibility

Primary information placed too far down the page

iPlayer   TV   Radio

▶ TV Favourites   0 items   0 new   0 expiring   Manage

Featured ›

MasterChef - Series 10
Episode 19

Burton and Taylor

Vertigo Roadtrip

Five people with an extreme fear of heights set off on a once-in-a lifetime adventure to cure their debilitating phobia, accompanied by presenter Mel Giedroyc.

Most Popular ›

EastEnders
06/05/2014

MasterChef
Episode 19

When Corden Met Barlow

Happy Valley
Episode 2

EastEnders
05/05/2014

TV Channels

A-Z of TV Programmes

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z 0-9

BBC TV Channels   Other TV Channels

Categories

My Categories

BBC one

WATCH LIVE
Breakfast
08/05/2014

▼ All Categories

Latest

Children's

Drama & Soaps

News & Current Affairs

BBC TWO

MON   TUE   YESTERDAY   TODAY

BBC three

Four UX Principles

◉ Give users **choice**.

◉ Put users in **control**.

◉ Design with **familiarity** in mind.

◉ Prioritize features that **add value**.

Arts	Documentaries	Food	Science & Nature	Audio Described	Northern Ireland
CBBC	Drama & Soaps	History	Sport	Signed	Scotland
CBeebies	Entertainment	Music			Wales
Comedy	Films	News			

British Gardens in Time

3. Biddulph Grange

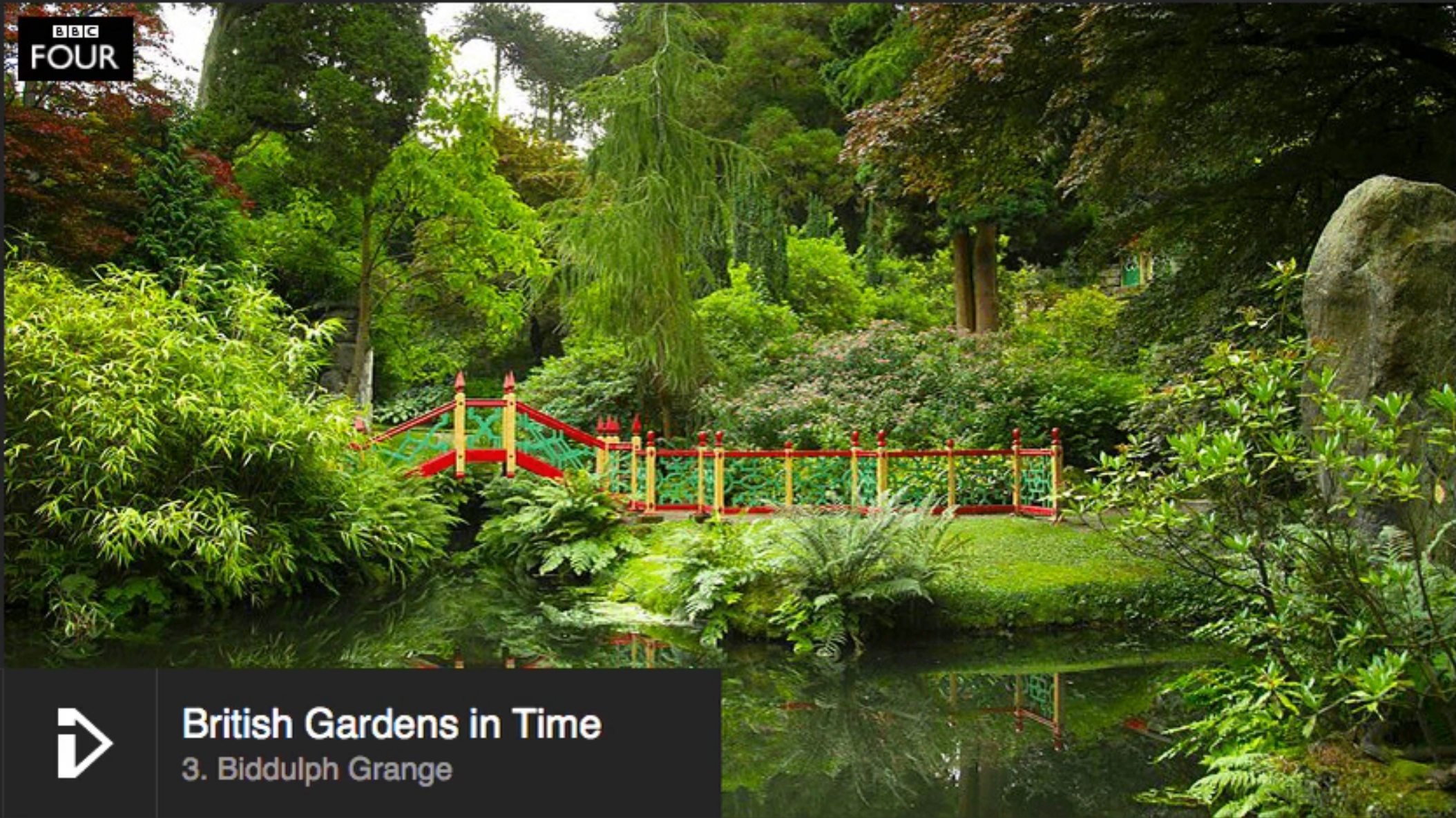Biddulph Grange takes the visitor on a journey around the world from China to Egypt.

BBC FOUR

First shown: 22 Apr 2014
Available for 23 days

🕐 60 mins

HD AD SL

3 episodes
View all

British Gardens in Time

3. Biddulph Grange

Biddulph Grange takes the visitor on a journey around the world from China to Egypt in a series of gardens connected by tunnels and subterranean passageways.

Full description | Programme website | Credits

First shown: 9pm 22 Apr 2014

Available for 23 days

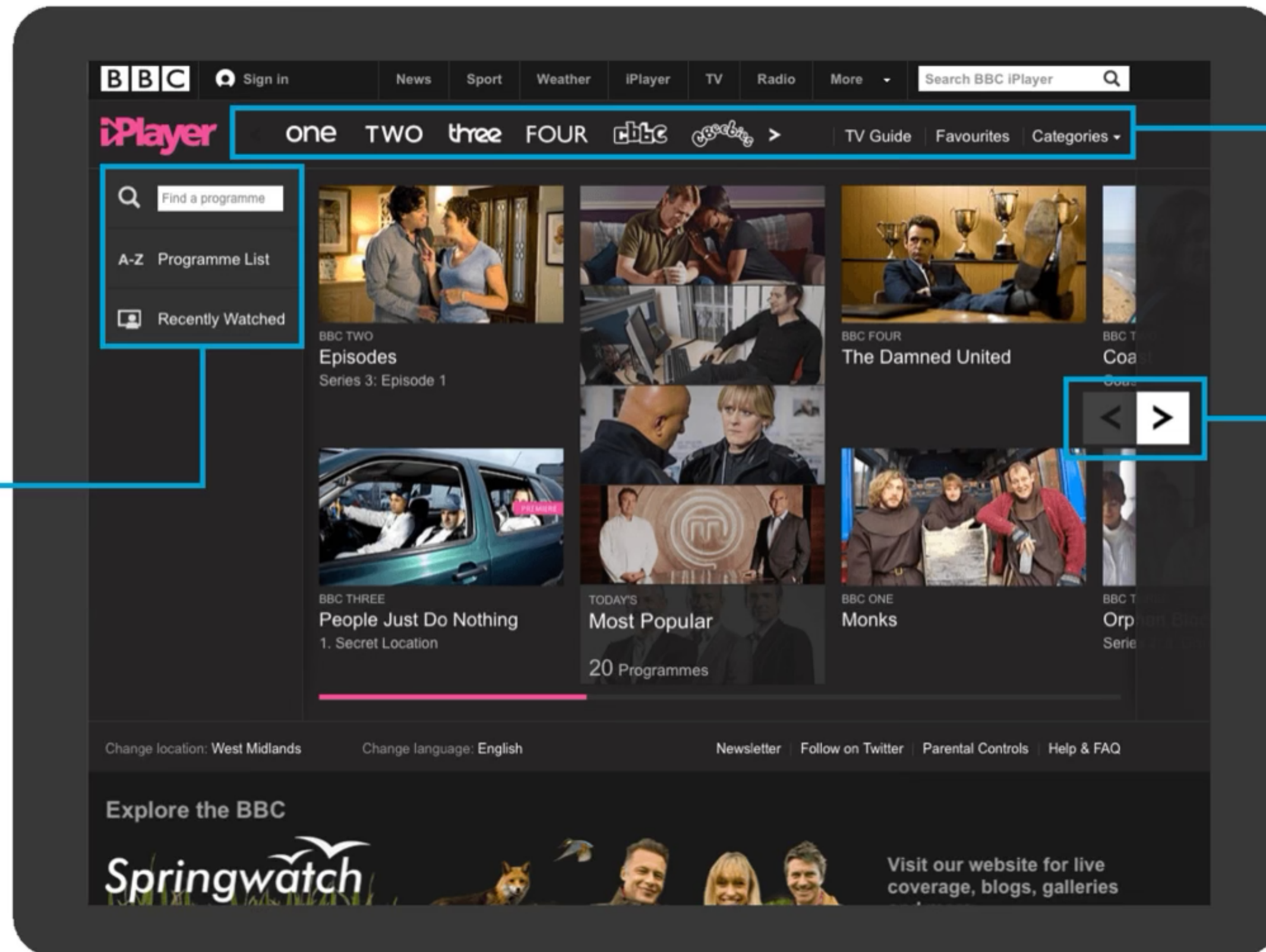🕓 60 mins

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iPlayer | one | TWO | three | FOUR | cbbc | cbeebies | > | TV Guide | Favourites | Categories ▾

🔍 Find a programme

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Episodes
Series 3: Episode 1

BBC FOUR
The Damned United

BBC THREE
People Just Do Nothing
1. Secret Location

TODAY'S
Most Popular

20 Programmes

BBC ONE
Monks

BBC TWO
Coas...

BBC T...
Orp...
Serie...

< >

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Springwatch

Visit our website for live coverage, blogs, galleries

Primary information at top of screen

Managed keyboard access

Better search and discover tools

Accessibility Originates With UX: A BBC iPlayer Case Study

by Henny Swan

video element

3

How do audio and video elements work?

Support

Video element 📄 - LS

Method of playing videos on webpages (without requiring a plug-in). Includes support for the following media properties:

`currentSrc`, `currentTime`, `paused`, `playbackRate`, `buffered`, `duration`, `played`, `seekable`, `ended`, `autoplay`, `loop`, `controls`, `volume` & `muted`

Current aligned | Usage relative | Date relative   Apply filters | Show all   ?

IE	Edge	Firefox	Chrome	Safari	Opera	iOS Safari	Opera Mini	Android Browser	Blackberry Browser	Opera Mobile	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsung Internet
		2-3		3.1-3.2											
6-8		3.5-19		4-10.1	10.1	3.2-10.3		2.1-2.2							
9-10	12-17	20-66	4-74	11-12	11.5-57	11-12.1		2.3-4.4.4	7	12-12.1			10		4-8
11	18	67	75	12.1	58	12.2	all	67	10	46	74	67	11	11.8	9.2
	76	68-69	76-78	13-TP		13									

Notes | Sub-features (5) | Known issues (1) | Resources (7) | Feedback

Different browsers have support for different video formats, see sub-features for details.

[1] The Android browser (before 2.3) requires specific handling to run the video element.

[2] Old Firefox versions were missing support for some properties: `loop` was added in v11, `played` in v15, `playbackRate` in v20.

[3] Ignores the `autoplay` attribute by default, though autoplay behavior can be enabled by users

Audio element 📄 - LS

Method of playing sound on webpages (without requiring a plug-in).
Includes support for the following media properties: `currentSrc`,
`currentTime`, `paused`, `playbackRate`, `buffered`, `duration`, `played`,
`seekable`, `ended`, `autoplay`, `loop`, `controls`, `volume` & `muted`

Current aligned | Usage relative | Date relative   Apply filters | **Show all**   ?

IE	Edge	Firefox	Chrome	Safari	Opera	iOS Safari	Opera Mini	Android Browser	Blackberry Browser	Opera Mobile	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsung Internet
		2-3													
6-8		[1] 3.5-19		3.1-3.2	10.1	3.2		2.1-2.2							
9-10	12-17	20-66	4-74	4-12	11.5-57	4-12.1		2.3-4.4.4	7	12-12.1			10		4-8
11	18	67	75	12.1	58	12.2	all	67	10	46	74	67	11	11.8	9.2
	76	68-69	76-78	13-TP		13									

Notes | Sub-features (6) | Known issues (3) | Resources (9) | Feedback

[1] Old Firefox versions were missing support for some properties: `loop` was added in v11, `played` in v15, `playbackRate` in v20.

Multiple Formats

```html
<video width="320" height="240" controls>
  <source src="video-file.mp4"  type="video/mp4">
  <source src="video-file.webm" type="video/webm">
</video>
```

webM (open, free, current)

WebM video format 📄 - OTHER

Multimedia format designed to provide a royalty-free, high-quality open video compression format for use with HTML5 video. WebM supports the video codec VP8 and VP9.

Usage	% of	all users	?
Global	76.72% + 12.27% =	88.99%	
Germany	65.86% + 18.65% =	84.51%	
U.S.A.	50.73% + 31.17% =	81.9%	

Current aligned Usage relative Date relative   Apply filters **Show all** ?

IE	Edge	Firefox	Chrome	Safari	Opera	iOS Safari	Opera Mini	Android Browser	Blackberry Browser	Opera Mobile	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsu Intern
		2 - 3.6	4 - 5		10.1										
	12 - 13	4 - 27	6 - 24		11.5 - 15			2.1 - 2.2							4
6 - 10	14 - 17	28 - 66	25 - 74	3.1 - 12	16 - 57	3.2 - 12.1		2.3 - 4.4.4	7	12 - 12.1			10		5 - 8
11	18	67	75	[1] 12.1	58	[1] 12.2	all	67	10	46	74	67	11	11.8	9.2
	76	68 - 69	76 - 78	[1] 13 - TP		[1] 13									

Notes   Known issues (0)   Resources (9)   Feedback

Will work in IE9+ and Safari/MacOSX provided the user has the WebM codecs installed. Partial support indicates that at least one codec is supported but not all. MS Edge supports VP9 from MSE sources, also progressive sources are not supported by Edge.

[1] Only supports VP8 used in WebRTC.

H.264 (proprietary)

MPEG-4/H.264 video format 📄 - OTHER

Commonly used video compression format.

Usage	% of	all users	⇕	?
Global	93.04%	+ 3.85%	=	96.89%
Germany	92.69%	+ 1.54%	=	94.23%
U.S.A.	96.68%	+ 0.95%	=	97.63%

Current aligned	Usage relative	Date relative		Apply filters	Show all	?

IE	Edge	Firefox	Chrome	Safari	Opera	iOS Safari	Opera Mini	Android Browser	Blackberry Browser	Opera Mobile	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsung Internet
								2.1-2.2							
		2-20						[1] 2.3							
6-8		21-34		3.1	10-24			3-4.3							
9-10	12-17	35-66	4-74	3.2-12	25-57	3.2-12.1		4.4-4.4.4	7	12-12.1			10		4-8
11	18	67	75	12.1	58	12.2	all	67	10	46	74	[2] 67	11	11.8	9.2
	76	68-69	76-78	13-TP		13									

Notes | Known issues (3) | Resources (3) | Feedback

Firefox supports H.264 on Windows 7 and later since version 21. Firefox supports H.264 on Linux since version 26 if the appropriate gstreamer plug-ins are installed.

Partial support for older Firefox versions refers to the lack of support in OS X & some non-Android Linux platforms.

[1] The Android 2.3 browser requires specific handling to play videos.

[2] Partial supports refers to the lack of hardware acceleration.

AV1 (open, free, future)

AV1 video format 📄 - OTHER

AV1 (AOMedia Video 1) is a royalty-free video format by the Alliance for Open Media, meant to succeed its predecessor VP9 and compete with the HEVC/H.265 format.

Usage		% of all users ⇕	?
Global	29.91% + 3.64% =	33.55%	
Germany	12.67% + 7.02% =	19.68%	
U.S.A.	15.69% + 1.86% =	17.55%	

Current aligned | Usage relative | Date relative   Apply filters | Show all   ?

IE	Edge	Firefox *	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			72						
			73	5.1	11.4				
	17	3.4 66	74	12	12.1				4
11	1 18 🚩	67	75	12.1	12.2	all	74	11.8	9.2
	76	68	76	13	13				
		69	77	TP					
			78						

Notes | Known issues (1) | Resources (6) | Feedback

1 Supported in Edge when the AV1 Video Extension (Beta) is installed from the Microsoft Store

3 Partial support in Firefox 66 refers to being enabled by default only for Windows and macOS users

4 Can be enabled in Firefox via the `media.av1.enabled` flag in `about:config`

H.265/HEVC (proprietary, future)

HEVC/H.265 video format 📄 - OTHER

The High Efficiency Video Coding (HEVC) compression standard is a video compression format intended to succeed H.264

Usage	% of	all users ⇕	?
Global	9.97%	+ 6.54% =	16.5%
Germany	18.47%	+ 6.77% =	25.24%
U.S.A.	36.02%	+ 6.49% =	42.52%

Current aligned | Usage relative | Date relative | Apply filters | Show all | ?

IE	Edge	Firefox	Chrome	Safari	Opera	iOS Safari	Opera Mini	Android Browser	Blackberry Browser	Opera Mobile	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsung Internet
				3.1-10.1		3.2-10.3									4
6-10	[1]12-17	2-66	4-74	[3]11-12	10-57	11-12.1		2.1-4.4.4	7	12-12.1			10		[2]5-8
[1]11	[1]18	67	75	[3]12.1	58	12.2	all	[2]67	10	46	[2]74	67	11	11.8	[2]9.2
	76	68-69	76-78	[3]13-TP		13									

Notes | Known issues (0) | Resources (5) | Feedback

[1] Supported only for devices with hardware support

[2] Reported to work in certain Android devices with hardware support

[3] Supported only on macOS High Sierra or later

Media Queries

```
<video>
    <source src="lowres.mp4"
            media="max-width: 500px">
    <source src="highres.mp4">
</video>
```

Interesting Attributes

- `poster` — displays an image when stopped

- `controls` – display start/stop/volume controls

- `autoplay` – starts the resource on load (don't use!)

- `loop` – loops the media resource

- `muted` – starts muted

On Autoplay
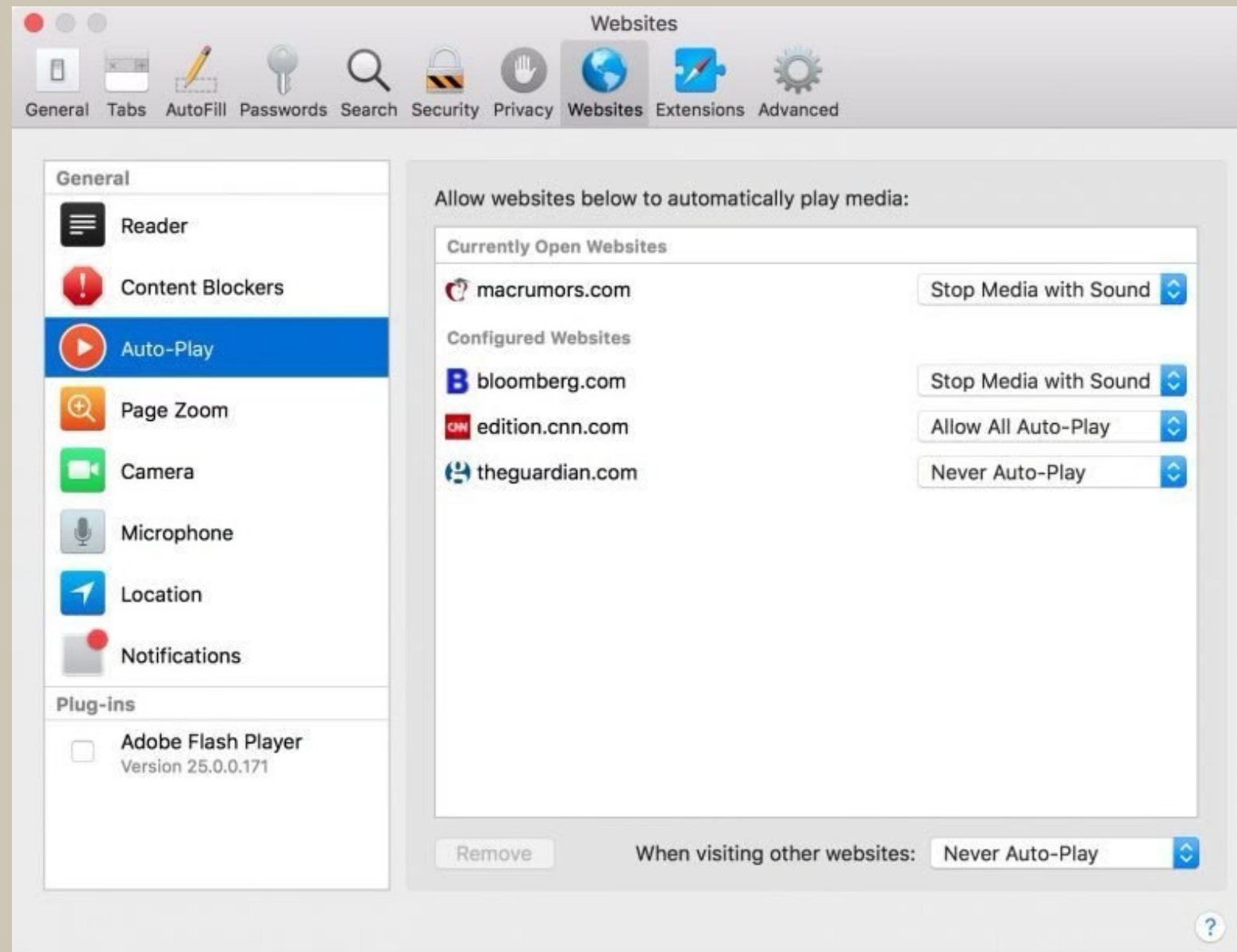
Video Players SWS[1]

Audio works the same way

◉ OGG (open, free)

◉ MP3 (proprietary)

BREAKING NEWS

Breaking news, for real.

CNN

the record
MUSIC NEWS FROM NPR

THE INDUSTRY

The MP3 Is Officially Dead, According To Its Creators

May 11, 2017 · 12:25 PM ET

ANDREW FLANAGAN

Marco.org

I'm Marco Arment: a programmer, writer, podcaster, geek, and coffee enthusiast.

Apps • Podcast • Twitter • About

"MP3 is dead" missed the real, much better story

May 15, 2017 ∞

If you read the news, you may think the MP3 file format was recently officially "killed" somehow, and any remaining MP3 holdouts should all move to AAC now. These are all simple rewrites of Fraunhofer IIS' announcement that they're terminating the MP3 patent-licensing program.

Very few people got it right. The others missed what happened last month:

> If the longest-running patent mentioned in the aforementioned references is taken as a measure, then **the MP3 technology became**

If the longest-running patent mentioned in the aforementioned references is taken as a measure, then the MP3 technology became patent-free in the United States on 16 April 2017 when U.S. Patent 6,009,399, held by and administered by Technicolor, expired.

MP3 is supported by everything, everywhere, and is now **patent-free**.

Both elements are completely scriptable.

```javascript
var video = document.getElementById('video');
var playpause = document.getElementById('playpause');

video.onpause = function(e) {
    playpause.value = 'Play';
    playpause.onclick = function(e) {
        video.play();
    }
}

video.onplay = funtion(e) {
    playpause.value = 'Pause';
    playpause.onclick = function(e) {
        video.pause();
    }
}
```

4

How to make Audio and Video accessible

Good examples: <u>The Web Ahead</u>, <u>TED – A Magna Carta for the web</u>

Captions

Good example: TED – A Magna Carta for the web

Use `<track>`[2] for captions

```
<video src="foo.ogv">
  <track kind="captions"
         label="English captions"
         src="subtitles_en.vtt"
         srclang="en" default>
  </track>
  <track kind="captions"
         label="Deutsche Untertitel"
         src="subtitles_de.vtt"
         srclang="de">
  </track>
</video>
```

[2] More information @ HTML5Rocks.com

WebVTT

```
WEBVTT FILE

railroad
00:00:10.000 --> 00:00:12.500
Left uninspired by the crust of railroad earth

manuscript
00:00:13.200 --> 00:00:16.900
that touched the lead to the pages of your manuscript.
```

Audio Descriptions

Joe's Specialty Cakes
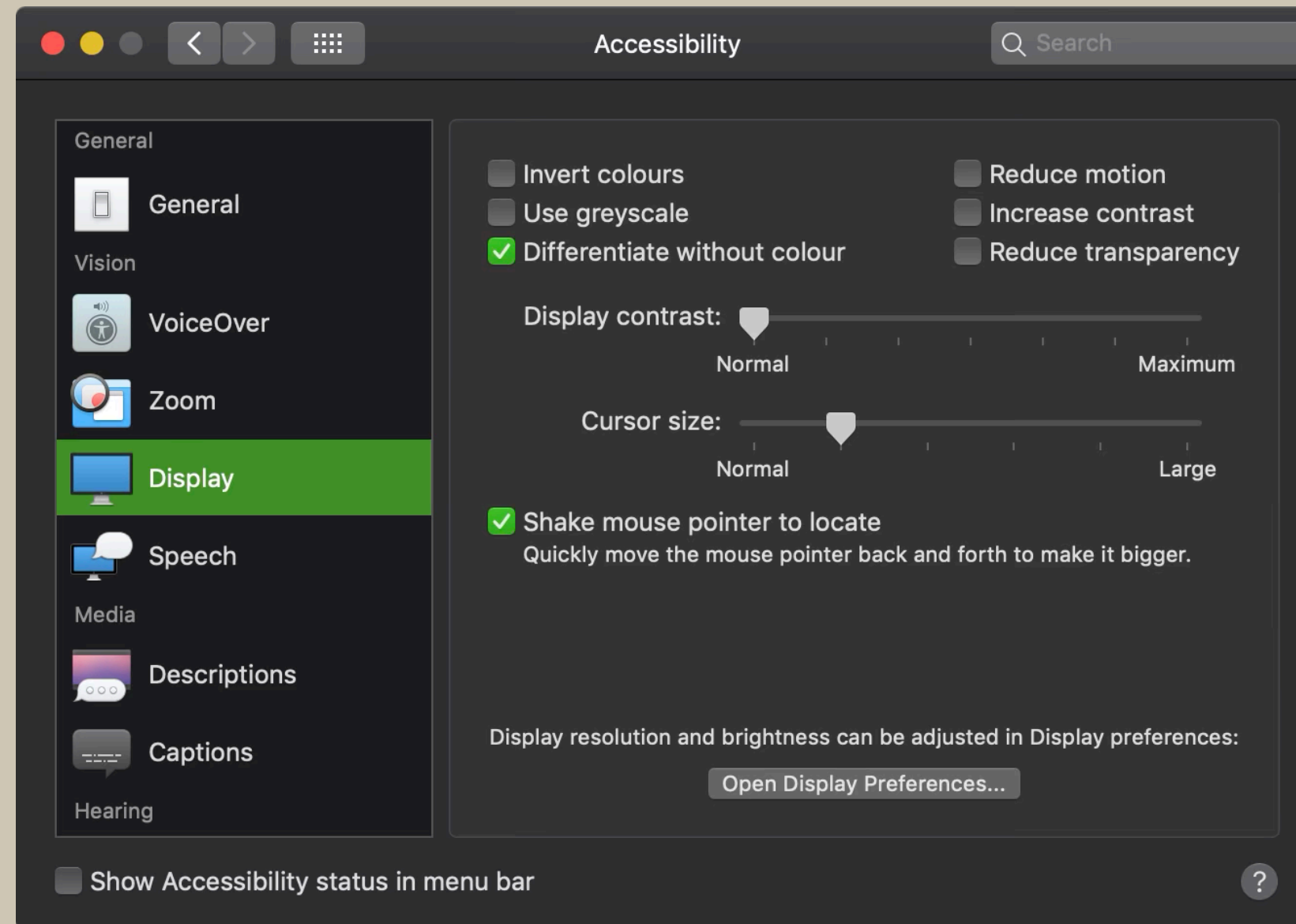
start navigation

5

Animation in General

OS

As in Operating System

OS Settings

prefers-reduced-motion
Media Query

```css
@media (prefers-reduced-motion: reduce) {
  * {
      transition: none !important;
      animation: none !important;
  }
}
```

Support

prefers-reduced-motion media query ⤴

CSS media query based on a user preference for preferring reduced motion (animation, etc).

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	Android Browser	Samsung Internet
9	16	64	72	11.1	11.4			4.4	7.4
10	17	65	73	12	12.1			4.4.4	8.2
11	18	66	74	12.1	12.2	all	74	67	9.2
	75	67	75	TP					

✓ ✗ Partial Support

Global: **16.42%** + **0%** = **16.42%**

Data from caniuse.com | Embed from caniuse.bitsofco.de

Enable accessible colours

On Windows
...it's complicated

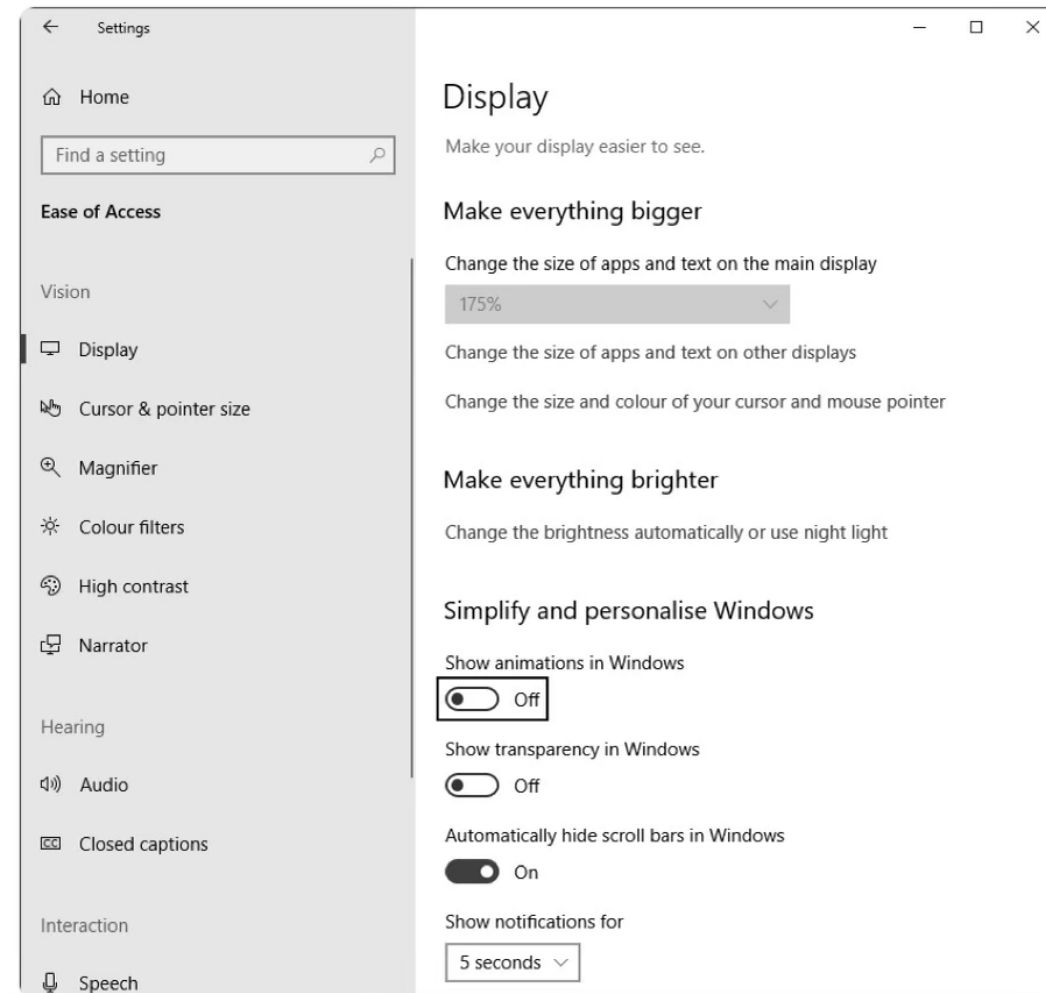prefers-reduced-motion query now in Chrome Canary

Move Ya! Or maybe, don't, if the user prefers-reduced-motion! | Web | Google Developers
The prefers-reduced-motion media query detects whether the user has requested that the system minimize the amount of animation or motion it uses. This is for users who either require or prefer minimi...

https://developers.google.com/web/updates/2019/03/prefers-reduced-motion

https://developers.google.com/web/updates/2019/03/prefers-reduced-motion

... and at this stage worth pointing out that on Windows, many users MAY have inadvertently set their accessibility preference, but did so to disable Windows' own animations...

i.e. not because they have a specific desire/need not to see animations in general, but just to disable the subtle animations for apps minimizing/maximizing etc. there's actually two/three settings in Windows (and some seem weirdly interconnected, or maybe i'm imagining things)

there's Settings > Ease of Access > Display > Show Animations - this, to my knowledge, is the big master switch for turning off Windows' own animations AND setting the preference that translates to prefers-reduced-motion opt-in...

https://pbs.twimg.com/media/D1ajs5mWkAI1mRY.png

Source: Patrick H. Lauke, Twitter, ThreadReader

Responsive Design for Motion

The End.