Audio, Video & Animation

Accessibility & Multi-Screen Design

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

iPlayer TV Radio

TV Favourites 0 items 0 new 0 expiring Manage

Featured

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.

MasterChef - Series 10
Episode 19

Burton and Taylor

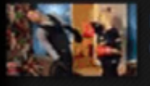
Most Popular

EastEnders
06/05/2014

MasterChef
Episode 19

When Corden Met Barlow

Happy Valley
Episode 2



EastEnders
05/05/2014

TV Channels

BBC TV Channels | Other TV Channels

BBC one
BBC TWO
BBC three

Breakfast
08/05/2014

MON TUE YESTERDAY TODAY

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

Categories

My Categories
All Categories
Latest
Children's

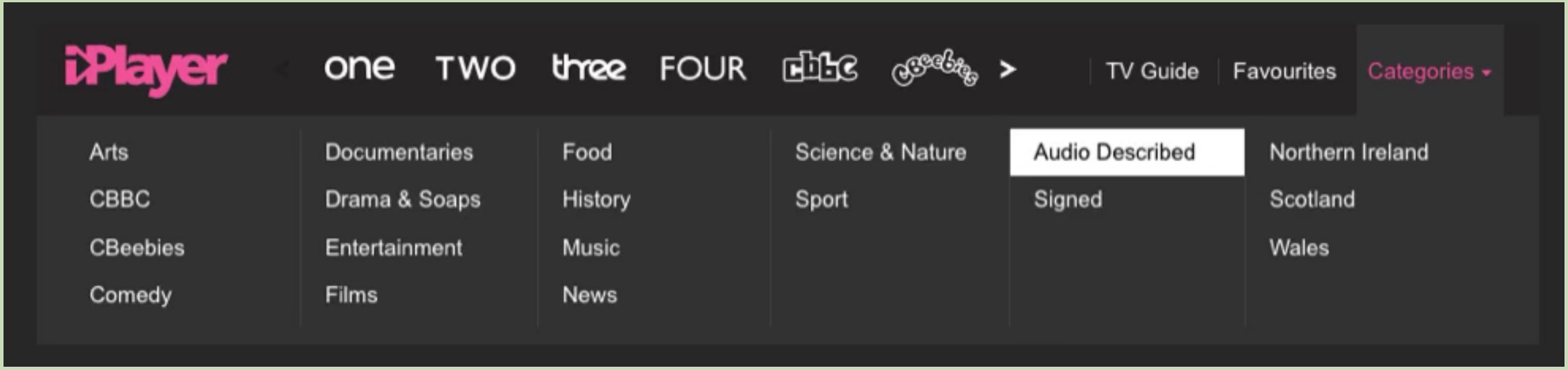
Drama & Soaps

News & Current Affairs

Primary information placed too far down the page

Four UX Principles

- Give users **choice**.
- Put users in **control**.
- Design with **familiarity** in mind.
- Prioritize features that **add value**.


iPlayer
one
TWO
three
FOUR
cbbc
cbeebies
TV Guide
Favourites
Categories
Arts
CBBC
CBeebies
Comedy
Documentaries
Drama & Soaps
Entertainment
Films
Food
History
Music
News
Science & Nature
Sport
Audio Described
Signed
Northern Ireland
Scotland
Wales

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

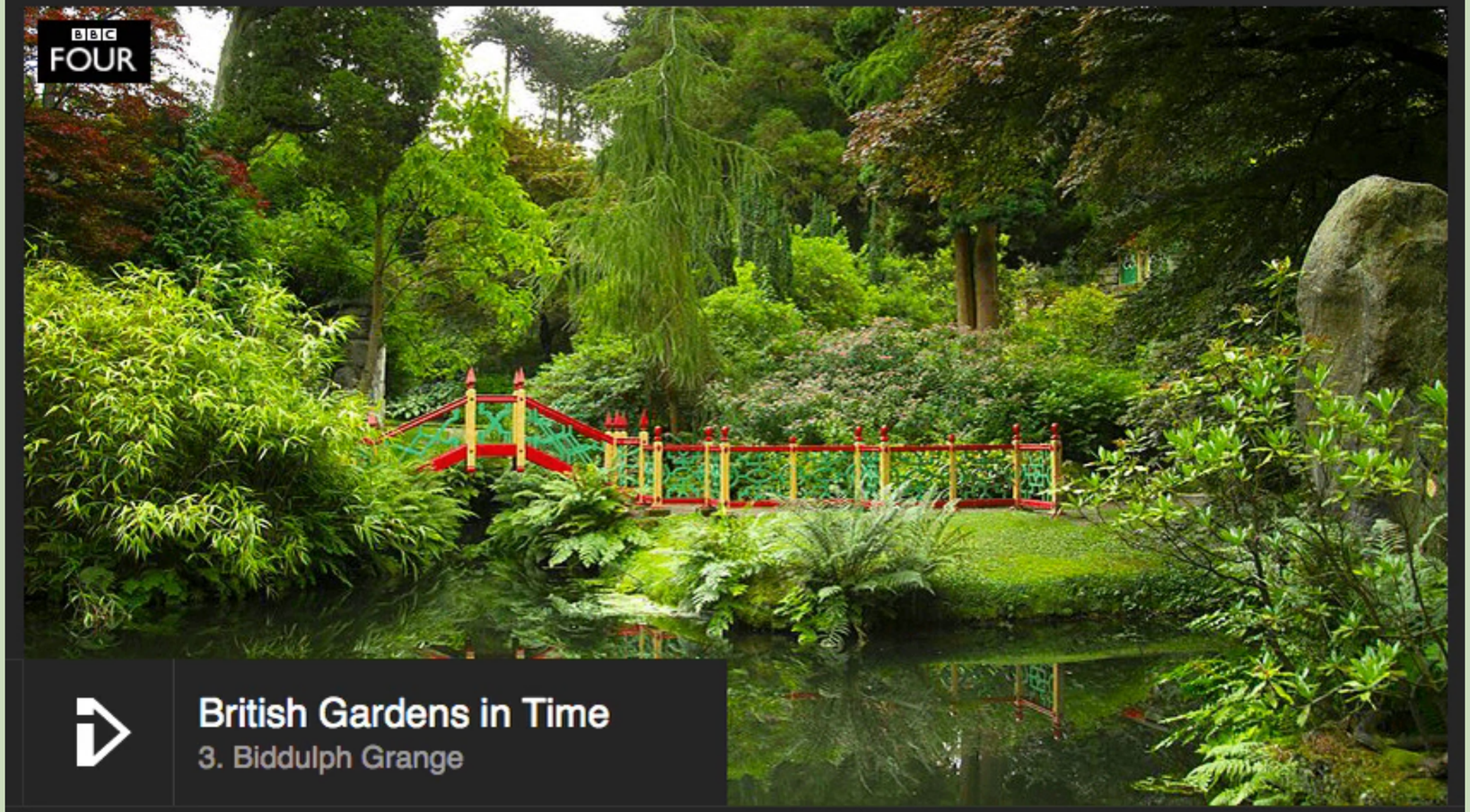
Available for 23 days

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

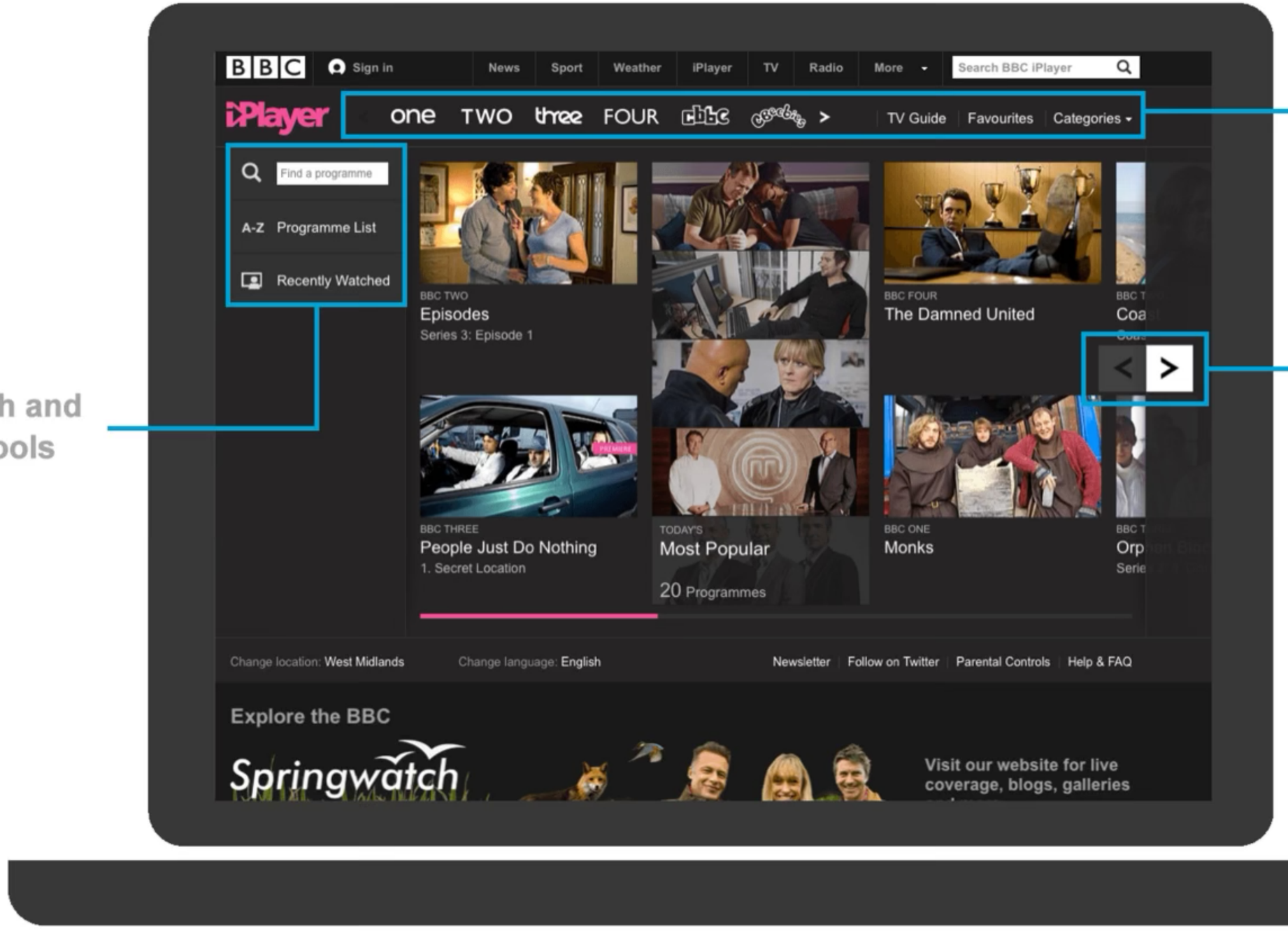
Download

AD Turn AD off

SL Watch with SL

Add to Favourites

Share this page



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

Audio

Audio element

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`

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	Android Browser	Samsung Internet
9	80	74	80	12.1	13.2			4.4	9.2
10	81	75	81	13	13.3			4.4.4	10.1
11	83	76	83	13.1	13.5	all	81	81	11.2
		77	84	TP					

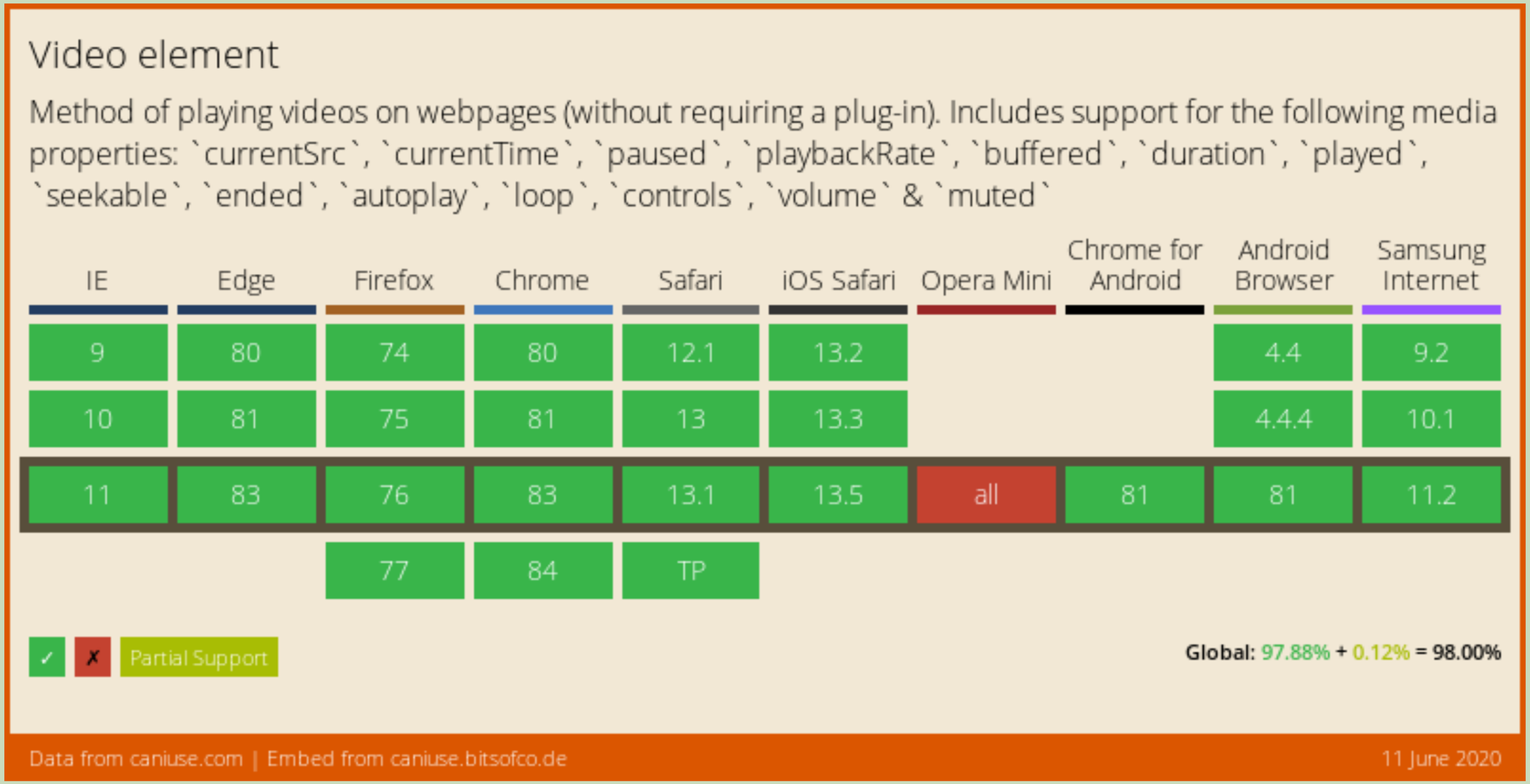
✓ ✗ Partial Support

Global: 97.87% + 0.13% = 98.00%

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

11 June 2020

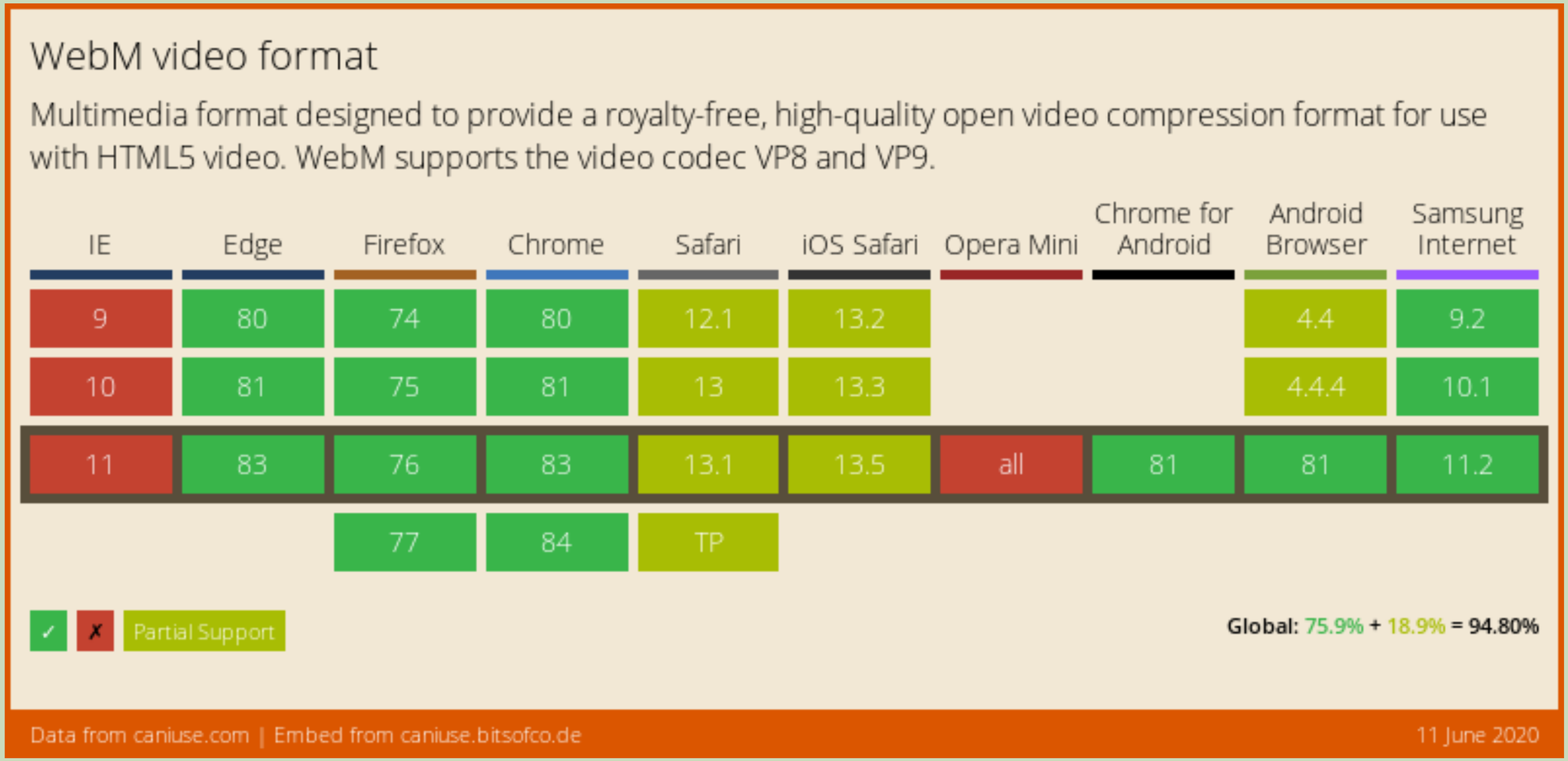
Video


Video element
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`
IE
Edge
Firefox
Chrome
Safari
iOS Safari
Opera Mini
Chrome for Android
Android Browser
Samsung Internet
9
80
74
80
12.1
13.2
4.4
9.2
10
81
75
81
13
13.3
4.4.4
10.1
11
83
76
83
13.1
13.5
all
81
81
11.2
77
84
TP
✓
✗
Partial Support
Global: 97.88% + 0.12% = 98.00%
Data from caniuse.com | Embed from caniuse.bitsofco.de
11 June 2020

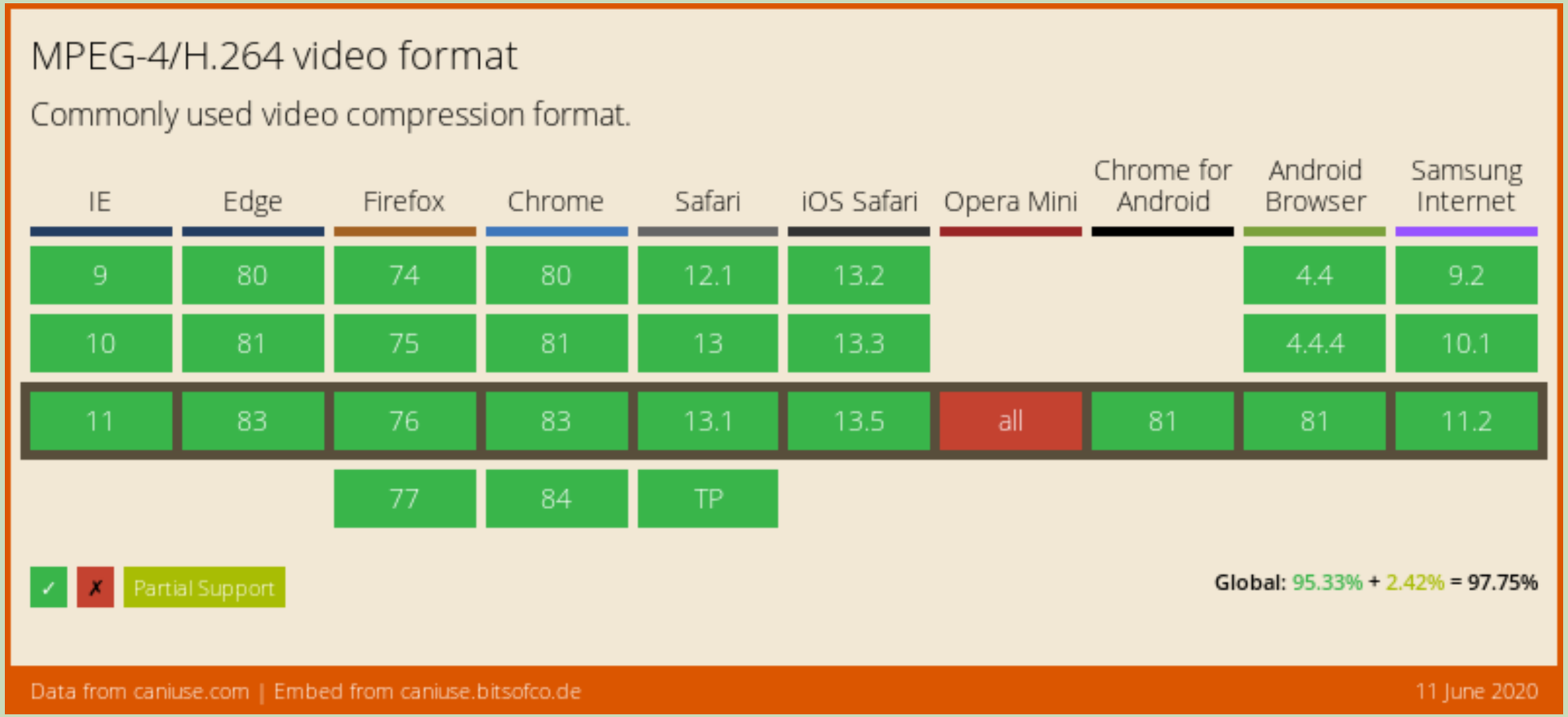
Multiple Formats

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

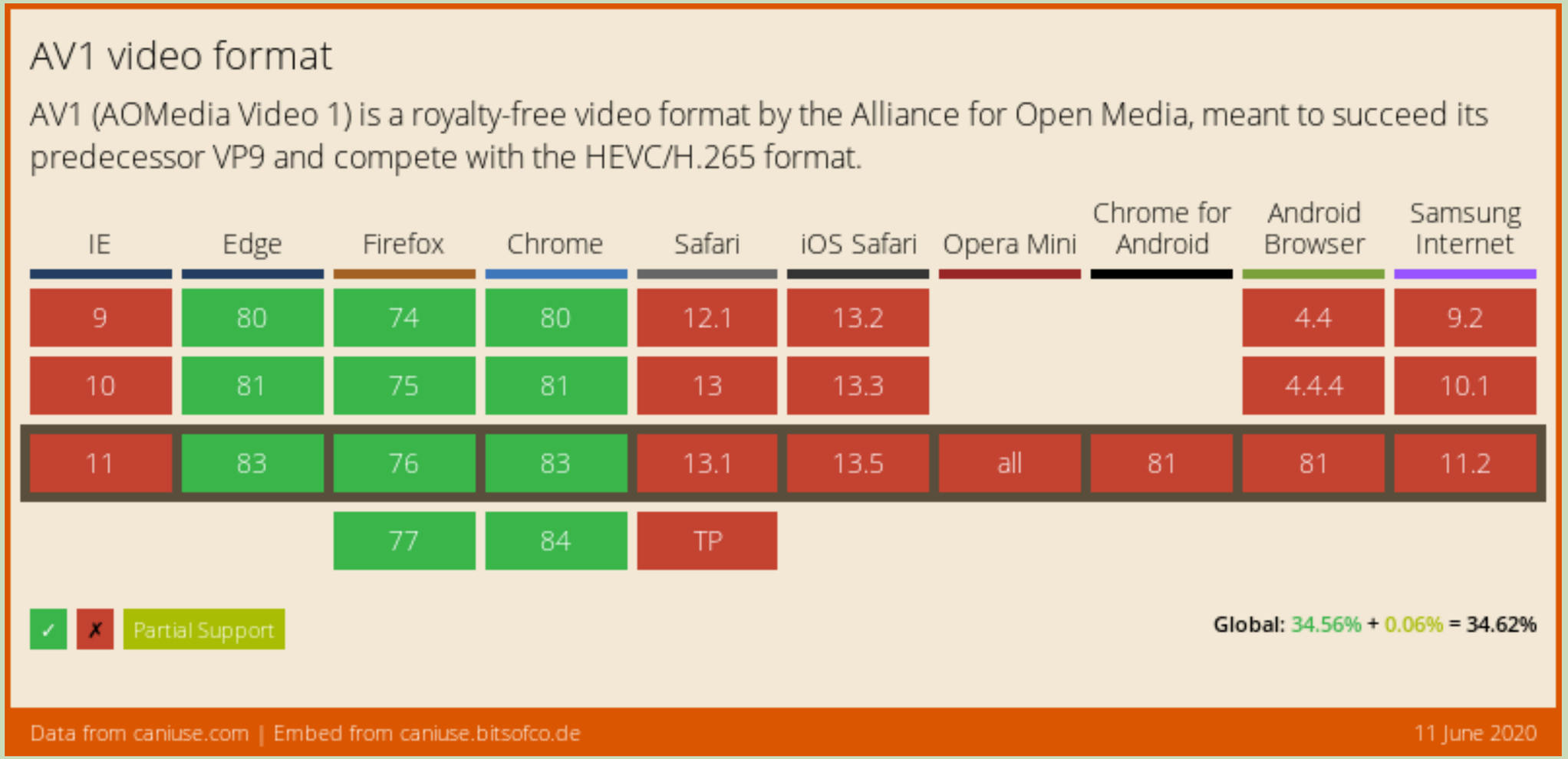
webM (open, free, current)



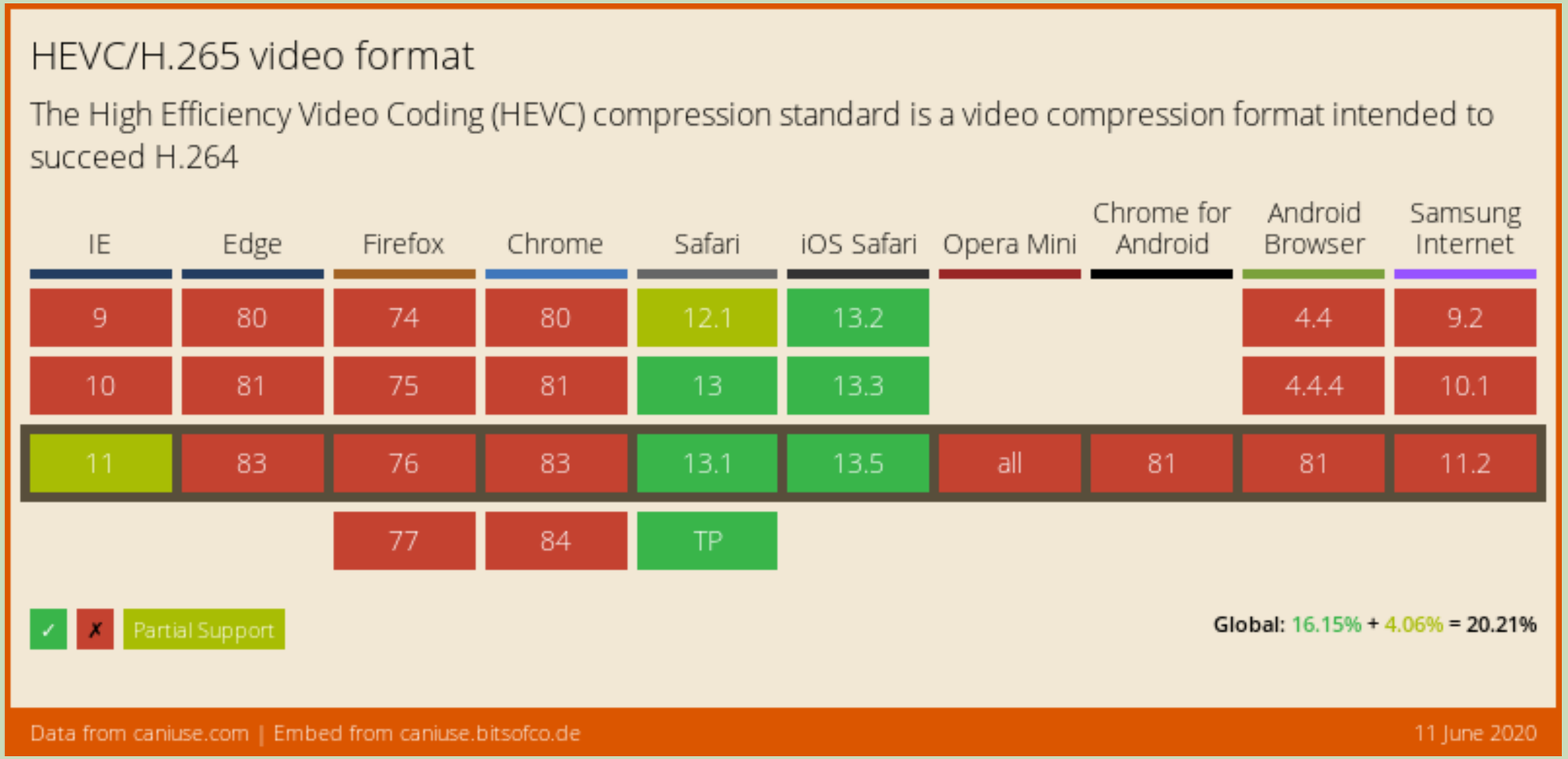
H.264 (proprietary)



AV1 (open, free, next-gen)



H.265/HEVC (proprietary, future)



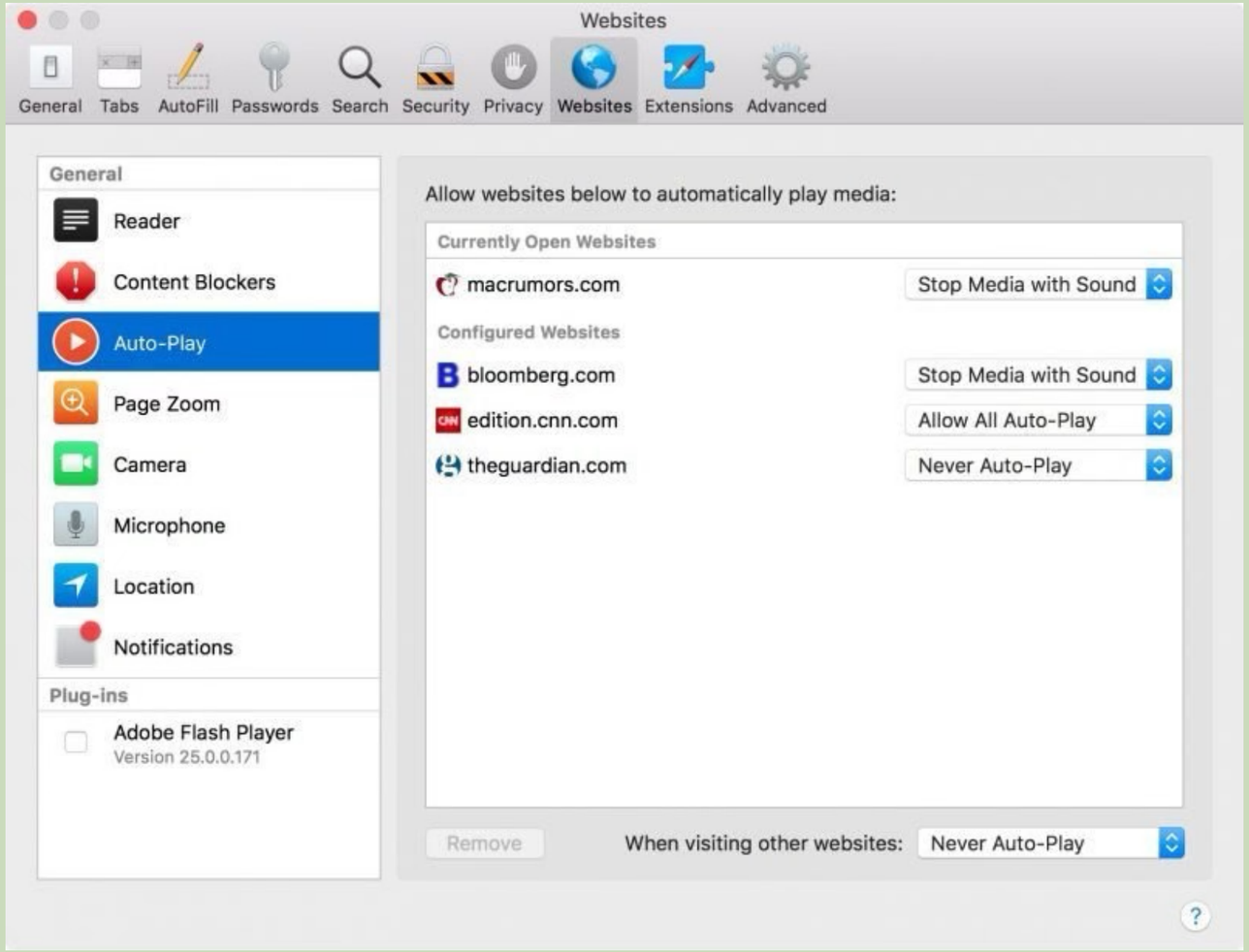
Media Queries

```
<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


Websites
General
Tabs
AutoFill
Passwords
Search
Security
Privacy
Websites
Extensions
Advanced
General
Reader
Content Blockers
Auto-Play
Page Zoom
Camera
Microphone
Location
Notifications
Plug-ins
Adobe Flash Player
Version 25.0.0.171
Allow websites below to automatically play media:
Currently Open Websites
macrumors.com
Stop Media with Sound
Configured Websites
bloomberg.com
Stop Media with Sound
edition.cnn.com
Allow All Auto-Play
theguardian.com
Never Auto-Play
Remove
When visiting other websites:
Never Auto-Play

Video Players SWS[1]

[1] “See what sucks” (videosws.praegnanz.de)

Audio works the same way

- OGG (open, free)
- MP3 (proprietary)

BREAKING
NEWS
Breaking news, for real.

THE INDUSTRY

The MP3 Is Officially Dead, According To Its Creators

May 11, 2017 · 12:25 PM ET

ANDREW FLANAGAN

E PLURIBUS UNUM

"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.

— Marco Arment

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

MP3 audio format

Popular lossy audio compression format

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	Android Browser	Samsung Internet
9	80	74	80	12.1	13.2			4.4	9.2
10	81	75	81	13	13.3			4.4.4	10.1
11	83	76	83	13.1	13.5	all	81	81	11.2
		77	84	TP					

✓ ✗ Partial Support

Global: 97.8% + 0.14% = **97.94%**

Both elements are completely scriptable.

```
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

Transcripts

- The Web Ahead
- TED – A Magna Carta for the web

Captions

→ 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

Additional Features in Media Players

W3C/WAI Perspective Videos

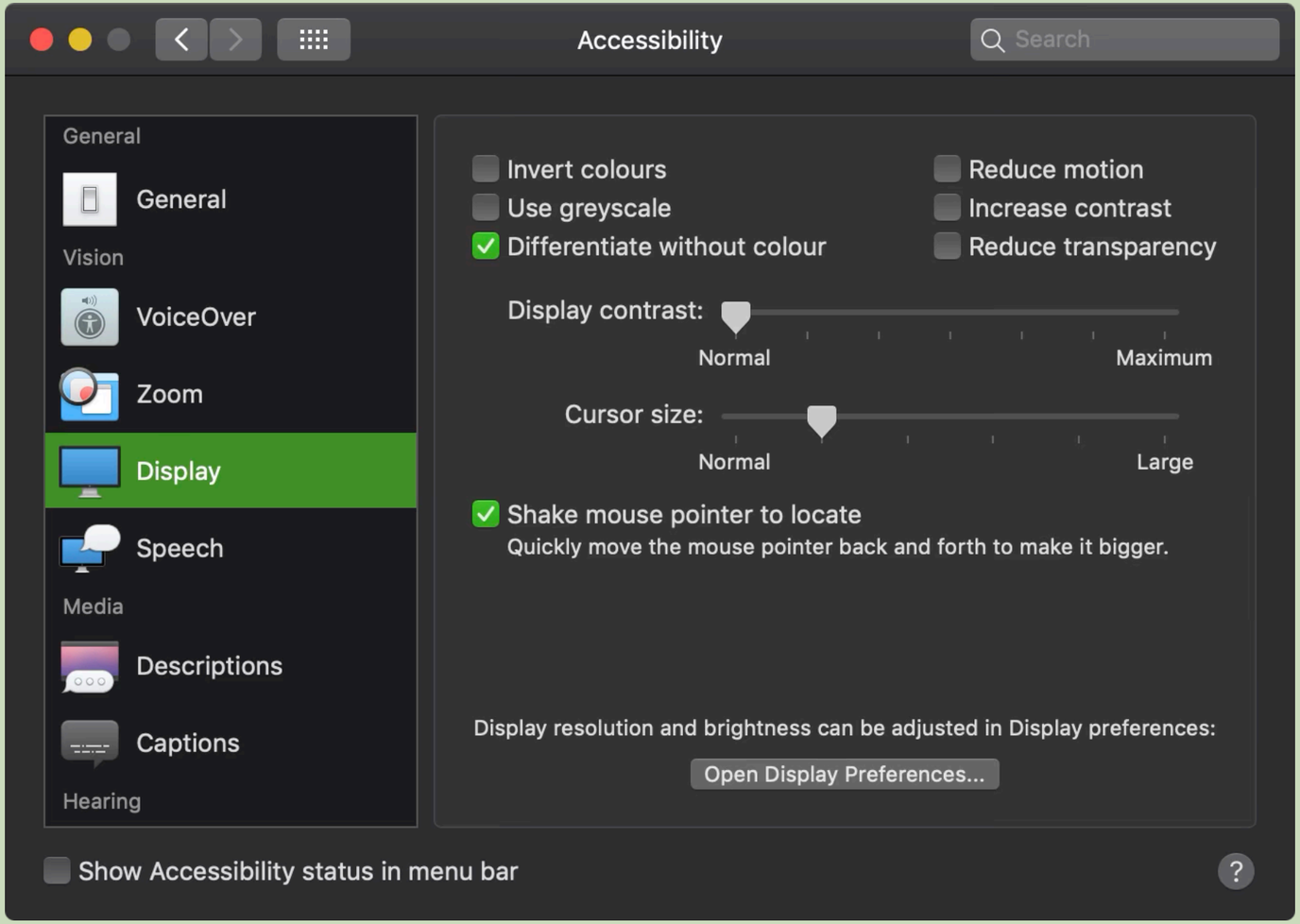
Making Audio and Video Media Accessible

5

Animation in General

Operating System

OS Settings


Accessibility
Search
General
General
Vision
VoiceOver
Zoom
Display
Speech
Media
Descriptions
Captions
Hearing
Invert colours
Use greyscale
Differentiate without colour
Reduce motion
Increase contrast
Reduce transparency
Display contrast:
Normal
Maximum
Cursor size:
Normal
Large
Shake mouse pointer to locate
Quickly move the mouse pointer back and forth to make it bigger.
Display resolution and brightness can be adjusted in Display preferences:
Open Display Preferences...
Show Accessibility status in menu bar
?

prefers-reduced-motion Media Query

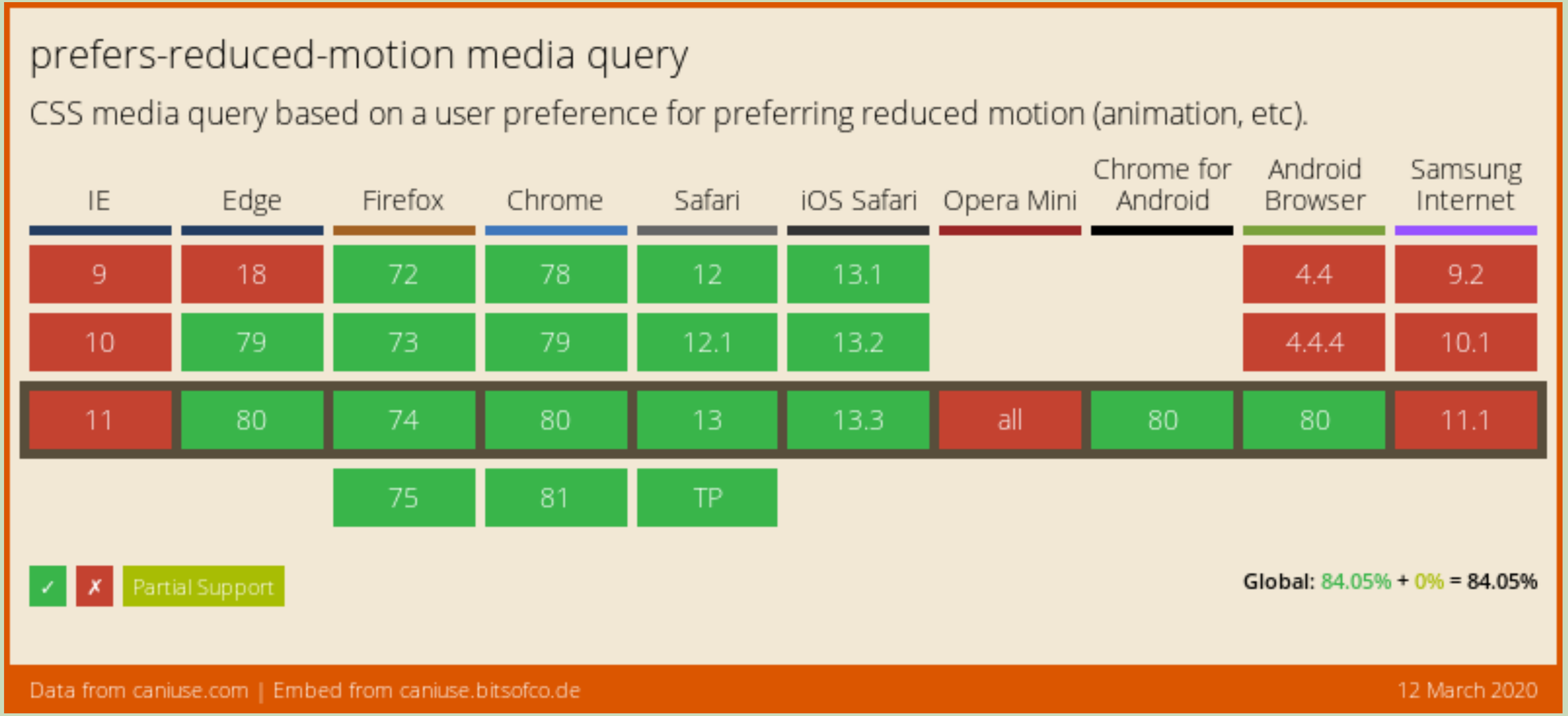
```
@media (prefers-reduced-motion: reduce) {
  * {
    transition: none !important;
    animation: none !important;
  }
}
```

Or, better, progressively enhance:

```
@media (prefers-reduced-motion: no-preference) {
  /* All animation code */
}
```

see “Defensive use of prefers-reduce-motion” à la Patrick H. Lauke

Support



Source: Can I Use

On Windows …it's complicated

Short note on prefers-reduced-motion and puzzled (Windows) users

by Patrick H. Lauke @ TPG

Responsive Design for Motion

prefers-color-scheme Media Query

```css
:root {
  --color: #333;
  --bgcolor: #eee;
}

@media (prefers-color-scheme: dark) {
  :root {
    --color: #eee;
    --bgcolor: #333;
  }
}

html {
  color: var(--color);
  background-color: var(--bgcolor);
}
```

Other, upcoming MQs

- *inverted-colors*[3]
  - none
  - inverted
- *prefers-reduced-transparency*
  - no-preference
  - reduce
- *prefers-contrast*
  - no-preference
  - high
  - low
- *forced-colors*
  - none
  - active

[3] Support in Safari macOS & iOS

The End.