

Interop 2022

@rachelandrew

2022 looks like an exciting year for CSS!

- Cascade Layers
- New color functions
- subgrid
- accent-color
- Container Queries
- ...and more!

Interoperable

```
div.content {  
  width:400px;  
  voice-family: "\"}\\"";  
  voice-family:inherit;  
  width:300px;  
}
```

“ The W3C has established standards for interpreting Web-based content.

By releasing browsers which do not uniformly support those standards, browser makers are injuring Web developers, businesses and users alike. ”

Lack of uniform support for W3C standards makes using and developing Web-based technologies unnecessarily difficult and expensive.

Software has bugs, and CSS is complicated.

New to the web platform

A series of posts to keep you updated with what's landing in web browsers each month.



New to the web platform in May

Discover some of the interactive features that



New to the web platform in April

Discover some of the interactive features that



New to the web platform in March

Discover some of the interactive features that

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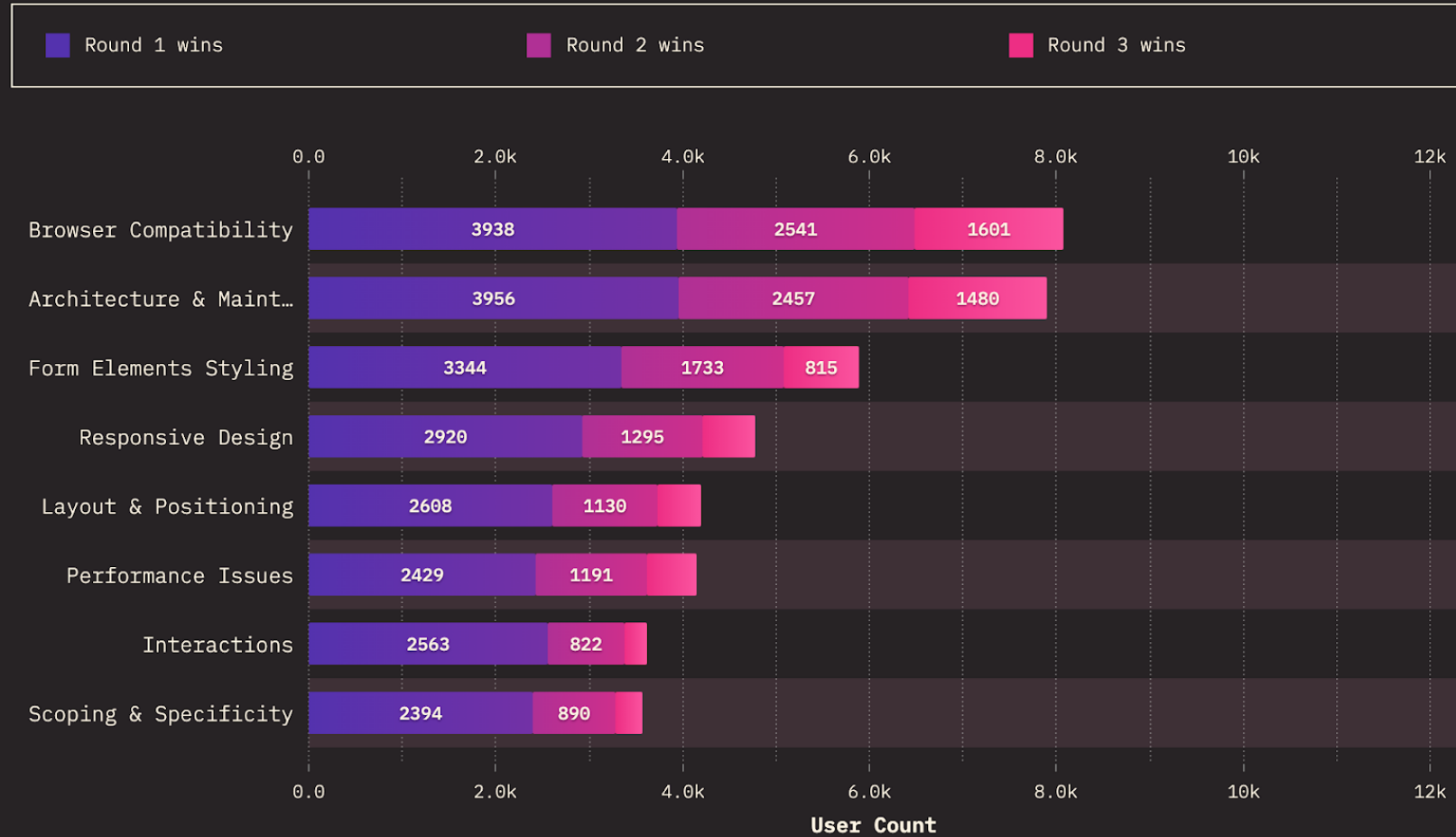
New features land quickly

Each browser has its own set of priorities.

The gap

CSS PAIN POINTS

Which aspect of CSS do you struggle with the most? Results are ranked by number of tournament rounds won.



Adoption of New Technologies

The biggest barrier developers face when adopting a new technology is broad interoperability across browsers, which is the same as last year. A close second is support for legacy browsers. Considering that having to support specific browsers is the overall number one frustration developers have when developing for the web, it's not surprising that barriers to adopting new technologies are related to browser compatibility.

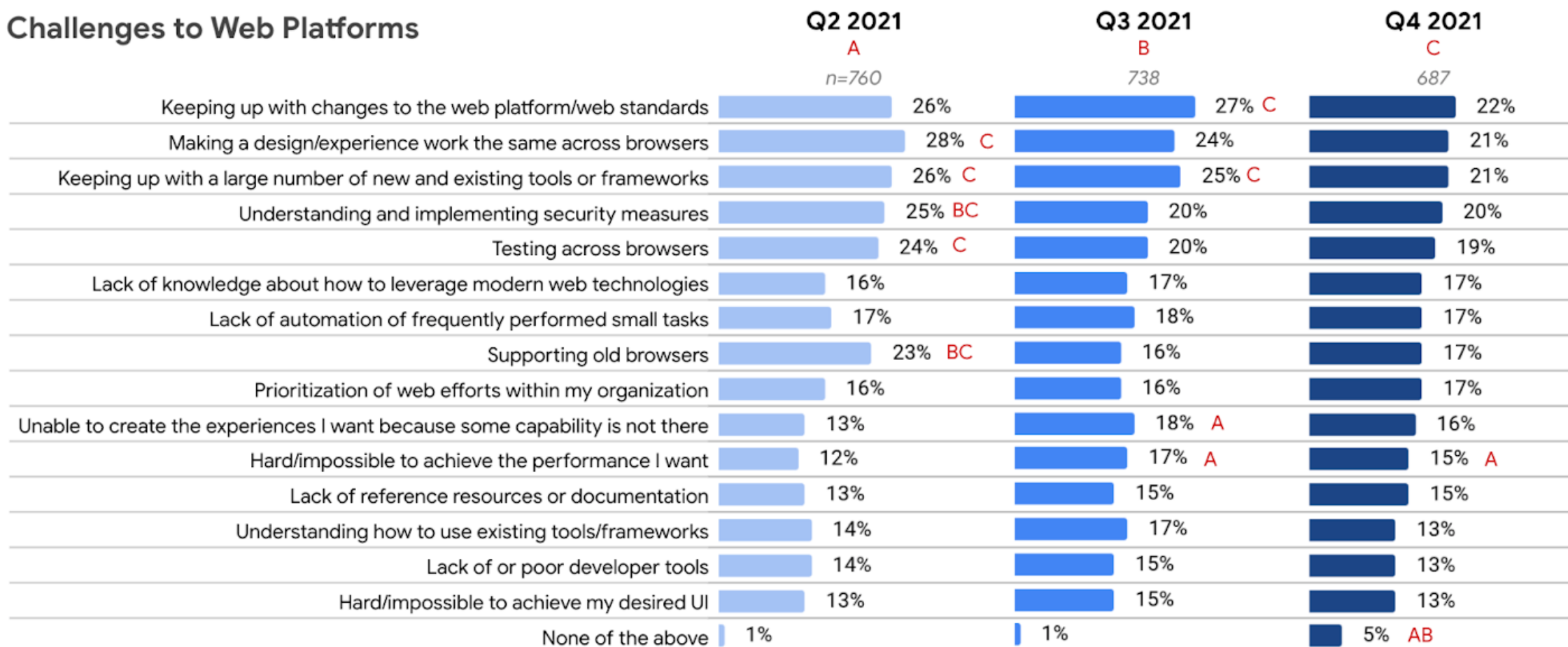
New for this year was the answer, "Organizational approval."



n = 5,526

Keeping up with changes, keeping up with number of tools and making design work the same across browsers remain as top challenges.

Challenges to Web Platforms



Every browser wants to be better, and to improve the platform for developers.

If each browser implements or fixes a different feature, the gap gets worse.

Compat 2021: Eliminating five top compatibility pain points on the web

Google is working with other browser vendors and industry partners to fix the top five browser compatibility pain points for web developers: CSS flexbox, CSS Grid, `position: sticky`, `aspect-ratio`, and CSS transforms.

Mar 22, 2021 — Updated Nov 16, 2021

Available in: [Español](#), [한국어](#), [Português](#), [中文](#), [English](#)



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Interop 2022

STABLE

EXPERIMENTAL

75

80

79



Chrome
Dev



Edge
Dev






Firefox
Nightly



Safari
Technology Preview

How are these scores calculated?

2022 Focus Areas (60%)			
Cascade Layers	96%	96%	99%
Color Spaces and Functions	51%	53%	91%
Containment	96%	84%	91%
Dialog Element	93%	92%	95%
Forms	97%	90%	87%
Scrolling	92%	74%	84%
Subgrid	17%	85%	96%
Typography and Encodings	67%	96%	78%
Viewport Units	100%	100%	66%
Web Compat	50%	96%	57%

2021 Focus Areas (30%)

Aspect Ratio	98%	97%	96%
Flexbox	97%	99%	94%
Grid	97%	91%	96%
Sticky Positioning	100%	89%	100%
Transforms	97%	94%	89%

2022 Investigation (10%)

Group Progress

























Editing, contenteditable, and execCommand	0%
Pointer and Mouse Events	0%
Viewport Measurement	0%

TOTAL 75% 80% 79%

Showing 194 tests (8222 subtests) in css/css-color from the latest master test runs for chrome[experimental], firefox[experimental], safari[experimental]

LINK

EDIT

Path	 Chrome 104 Linux 20.04 9a7bbe4 Jun 1, 2022	 Firefox 103 Linux 20.04 9a7bbe4 Jun 1, 2022	 Safari 146 preview macOS 12.4 9a7bbe4 Jun 1, 2022
a98rgb-001.html	0 / 1 	0 / 1	1 / 1
a98rgb-002.html	0 / 1 	0 / 1	1 / 1
a98rgb-003.html	0 / 1 	0 / 1	1 / 1
a98rgb-004.html	0 / 1 	0 / 1	1 / 1
color-contrast-001.html	1 / 1 	0 / 1	0 / 1
color-mix-basic-001.html	0 / 1 	1 / 1	0 / 1
color-mix-non-srgb-001.html	0 / 1 	1 / 1	0 / 1
color-mix-percents-01.html	0 / 1 	0 / 1	0 / 1
color-mix-percents-02.html	0 / 1 	0 / 1	0 / 1
color-resolving-hsl.html	3889 / 3889	3889 / 3889	3889 / 3889
color-resolving-hwb.html	37 / 37 	37 / 37	37 / 37
color-resolving.html	128 / 128	128 / 128	128 / 128
display-p3-001.html	0 / 1 	0 / 1 	1 / 1
display-p3-002.html	0 / 1 	0 / 1 	1 / 1
display-p3-003.html	0 / 1 	0 / 1	1 / 1
display-p3-004.html	0 / 1 	0 / 1 	1 / 1
display-p3-005.html	0 / 1 	0 / 1 	1 / 1
display-p3-006.html	0 / 1 	0 / 1 	1 / 1
box_001.html	1 / 1	1 / 1	1 / 1

wpt / css / css-color / color-contrast-001.html

label:interop-2022-color




For information on the search syntax, view the search documentation

- View source on GitHub (current commit) (master branch)
- Run in your browser on wpt.live

Showing the latest master test runs for chrome[experimental], firefox[experimental], safari[experimental]

LINK EDIT

Show Details

Subtest	 Chrome 104 Linux 20.04 9a7bbe4 Jun 1, 2022	 Firefox 103 Linux 20.04 9a7bbe4 Jun 1, 2022	 Safari 146 preview macOS 12.4 9a7bbe4 Jun 1, 2022
Harness status	PASS	FAIL COMPARE	FAIL COMPARE
Duration	0.482 seconds	0.141 seconds	0.096 seconds

SHOW HISTORY

Relevant links for /css/css-color/color-contrast-001.html results

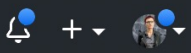
🐛 /css/css-color/color-contrast-001.html > 🌐 : https://crbug.com/1068610



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[9a7bbe4043](#) [wpt](#) / [css](#) / [css-color](#) / [color-contrast-001.html](#)

[Go to file](#)



[argyleink](#) 1st test ✓

Latest commit 1c2df74 on Dec 9, 2021 [History](#)

[1 contributor](#)

17 lines (17 sloc) | 732 Bytes

[Raw](#)

[Blame](#)



```
1 <!DOCTYPE html>
2 <meta charset="utf-8">
3 <title>CSS Color 5: color-contrast()</title>
4 <link rel="author" title="Adam Argyle" href="mailto:argyle@google.com">
5 <link rel="help" href="https://www.w3.org/TR/css-color-5/#colorcontrast">
6 <link rel="match" href="greensquare-ref.html">
7 <meta name="assert" content="green has higher contrast with red than deeppink">
8 <style>
9     .test { background-color: red; width: 12em; height: 6em; margin-top:0}
10    .ref { background-color: #008000; width: 12em; height: 6em; margin-bottom: 0}
11    .test { background-color: color-contrast(red vs deeppink, #008000)}
12 </style>
13 <body>
14     <p>Test passes if you see a green square, and no red.</p>
15     <p class="ref"> </p>
16     <p class="test"> </p>
17 </body>
```



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What can you expect?

Features from Compat 2021

2021 Focus Areas (30%)

Aspect Ratio	98%	97%	96%
Flexbox	97%	99%	94%
Grid	97%	91%	96%
Sticky Positioning	100%	89%	100%
Transforms	97%	94%	89%

The aspect-ratio property

aspect-ratio: 16 / 9;

16x9

4x3

16x9

4x3

```
.wrapper {  
  display: grid;  
  grid-template-columns: 200px 350px;  
}
```

```
.box16x9 {  
  aspect-ratio: 16/9;  
}
```

```
.box4x3 {  
  aspect-ratio: 4/3;  
}
```



Bristol is a pretty nice place to live.

1

2

3

4

1

-3



2

-2

Bristol is a pretty nice place to live

3

-1

-4

-3

-2

-1

Flexbox

```
.container {  
  display: flex;  
  gap: 1em;  
}
```



```
.container {  
  display: flex;  
  gap: 1em;  
  align-items: self-start;  
}
```

Flow-relative alignment: start and self-start

- **start**: relates to the script direction of the container.
- **self-start**: relates to the script direction of the item.

Sticky positioning



Chris Coyier ✓
@chriscoyier



I heard through the Twitter that Chrome "rewrote tables" in v91.

twitter.com/atotic/status/...

I saw it dropped, upgraded, and did a quick test. HEY LOOK STICKY TABLE HEADERS AND FOOTERS.

[@CodePen codepen.io/chriscoyier/pe...](https://codepen.io/chriscoyier/pe...)

(Works in Safari and Firefox too)

The screenshot shows a CodePen project titled "Sticky Table Headers and Footers" by Chris Coyier. The main preview area displays a table with the following structure:

Header Cell	Header Cell	Header Cell	Header Cell	Header Cell
Row Header	Cell Data	Cell Data	Cell Data	Cell Data
Row Header	Cell Data	Cell Data	Cell Data	Cell Data
Row Header	Cell Data	Cell Data	Cell Data	Cell Data
Row Header	Cell Data	Cell Data	Cell Data	Cell Data
Row Header	Cell Data	Cell Data	Cell Data	Cell Data
Row Header	Cell Data	Cell Data	Cell Data	Cell Data
Row Header	Cell Data	Cell Data	Cell Data	Cell Data
Footer Cell	Footer Cell	Footer Cell	Footer Cell	Footer Cell

The CSS code editor on the right shows the following code:

```
1 -table {
2   border-collapse: collapse;
3 }
4 th,
5 td {
6   padding: 1rem;
7 }
8 thead,
9 tfoot {
10  background: #eee;
11 }
12 head {
13   position: sticky;
14   top: 0;
15   border-bottom: 2px solid #ccc;
16 }
17 tfoot {
18   position: sticky;
19   bottom: 0;
20   border-top: 2px solid #ccc;
21 }
22
23
24
25
26
27
28 JS
```



Aleks Totic @atotic

Replying to @aardrian and @chriscoyier

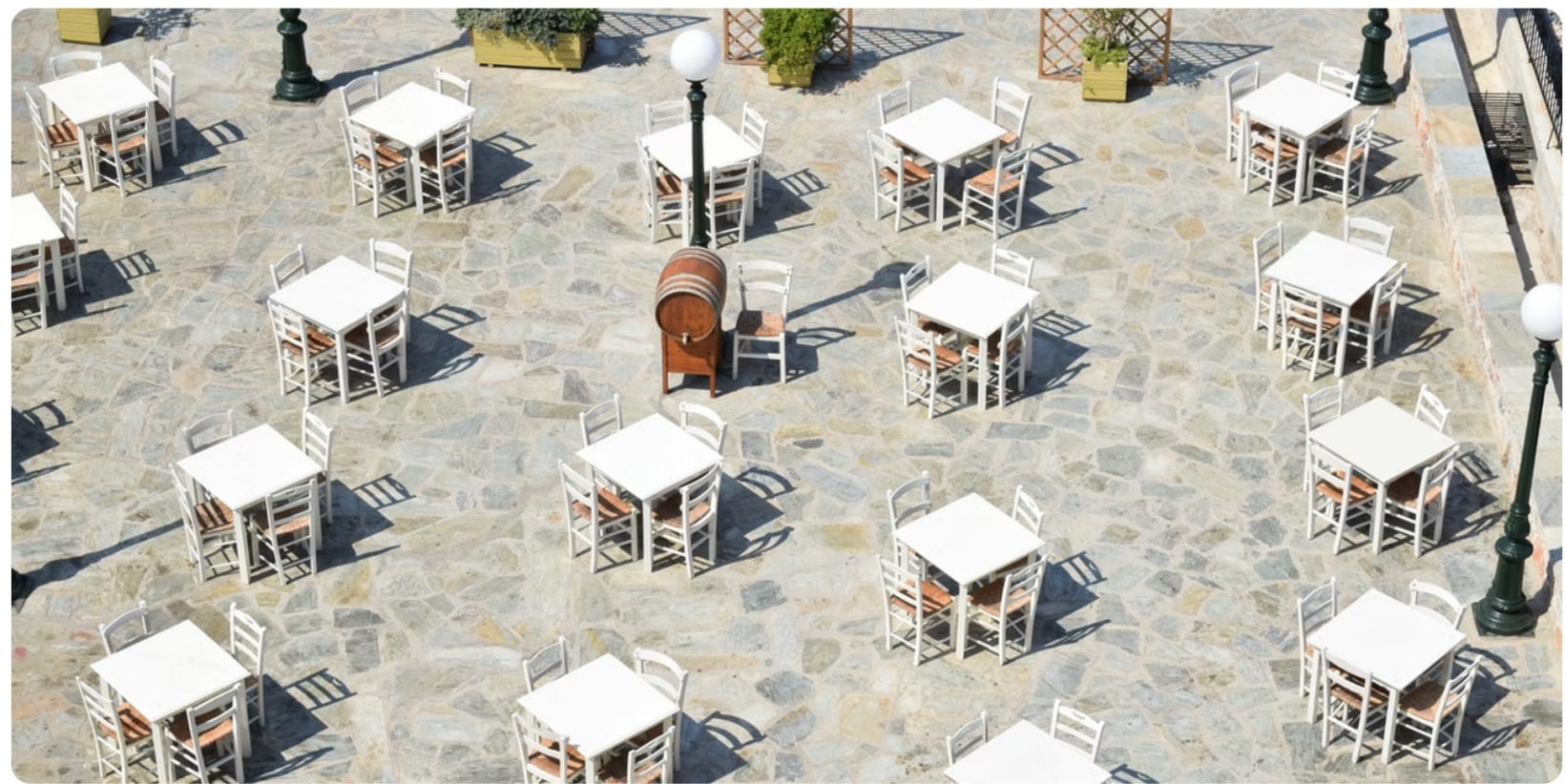
It is fixed in M91. We rewrote tables. Developer notes:
docs.google.com/document/d/16P...

8:31 PM · Jun 4, 2021



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Blog



TablesNG Resolves 72 Chromium Bugs for Better Interoperability

- Table of contents
- [The TablesNG effort](#)
- [position: sticky in rows](#)
- [Improved border painting and background painting](#)

New features for Interop 2022

2022 Focus Areas (60%)



Cascade Layers	96%	96%	99%
Color Spaces and Functions	51%	53%	91%
Containment	96%	84%	92%
Dialog Element	93%	92%	95%
Forms	96%	90%	87%
Scrolling	92%	74%	86%
Subgrid	17%	85%	96%
Typography and Encodings	67%	96%	78%
Viewport Units	100%	100%	66%
Web Compat	50%	96%	57%

Cascade Layers


```
@layer base, special;
```

```
@layer special {  
  .item {  
    color: rgb(209,54,114);  
  }  
}
```

```
@layer base {  
  .item {  
    color: black;  
  }  
}
```

Color Spaces and Functions

The 216-Color Webmaster's Palette

Here are the colors most widely supported by browsers on the world-wide web. Using colors from this set for backgrounds, fonts and graphics will give your web site the best chance of a consistent appearance across operating systems, color monitors and browser versions. This is particularly true of older computers with limited color palettes that can display only 256 different colors at a time.

Each color chip here is stamped with a hexadecimal HTML color code. These codes can be used to specify the background color of a web page: `<BODY BGCOLOR="#CCCCFF">` or table cells: `<TD BGCOLOR="#CCCCFF">`.

In color text, you could use these codes in style sheets: `H1 {color: #FFCC99} or the officially unfunctional FONT element: ` attributed by older browser demand.

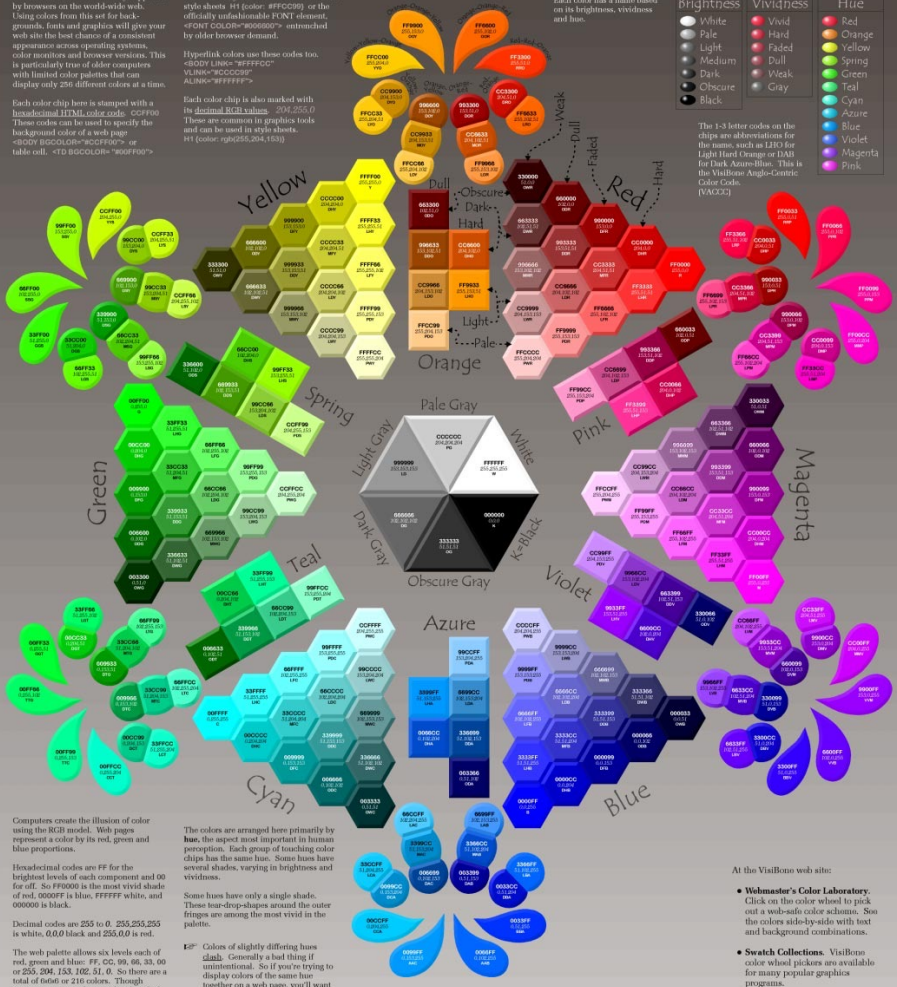
Hyperlink colors use these codes too. `<BODY LINK="#FFCCFF">` `VISITOR="#CCCCFF">` `ALINK="#FFFFFF">`

Each color chip is also marked with its decimal RGB values. These are common in graphics tools and can be used in style sheets: `H1 {color: rgb(255,255,153)}`

Each color has a name based on its brightness, vividness and hue.

Brightness	Vividness	Hue
● White	● Vivid	● Red
● Pale	● Hard	● Orange
● Light	● Faded	● Yellow
● Medium	● Dull	● Spring
● Dark	● Weak	● Green
● Obscure	● Gray	● Teal
● Black		● Cyan
		● Azure
		● Blue
		● Violet
		● Magenta
		● Pink

The 1-3 letter codes on the chips are abbreviations for the name, such as LHO for Light Hard Orange or HAD for Dark Azure-Black. This is the VisiBone Anglo-Centric Color Code (VACCC).



Computers create the illusion of color using the RGB model. Web pages represent a color by its red, green and blue proportions.

Hexadecimal codes are FF for the brightest levels of each component and 00 for off. So FF0000 is the most vivid shade of red, 0000FF is blue, FFFF is white, and 000000 is black.

Decimal codes are 255 to 0, 255,255,255 is white, 0,0,0 black and 255,0,0 is red.

The web palette allows six levels each of red, green and blue: FF, CC, 99, 66, 33, 00 or 255, 204, 153, 102, 51, 0. So there are a total of 666 or 216 colors. Though computer screen colors can be identified by these numbers, it's much more useful to deal with brightness, vividness and hue when comparing the way colors look.

The colors are arranged here primarily by hue, the aspect most important in human perception. Each group of matching color chips has the same hue. Some have several shades, varying in brightness and vividness.

Some hues have only a single shade. These are the colors around the outer fringes or among the most vivid in the palette.

Colors of slightly differing hues clank. Generally a bad thing if unintentional. So if you're trying to display colors of the same hue together on a web page, you'll want to pick them from the same group.

On many PCs, color codes with 33 or 51 in them are indistinguishable from those with 00 or 0.

At the VisiBone web site:

- **Webmaster's Color Laboratory.** Click on the color wheel to pick out a web-safe color scheme. Run the colors side-by-side with text and background combinations.
- **Swatch Collections.** VisiBone color wheel pickers are available for many popular graphics programs.
- **Posters** and other reference products for sale.

VisiBone

www.visibone.com

<https://www.visibone.com/color/poster.html>

New color functions

color-mix()

Take two colors and return the result of mixing them in a specified color space by a specified amount.

```
.box2 {  
  background-color: color-mix(in lch, white 10%, darkblue);  
}
```

```
.box3 {  
  background-color: color-mix(in lch, white 30%, darkblue);  
}
```

```
.box4 {  
  background-color: color-mix(in lch, white 50%, darkblue);  
}
```

```
.box5 {  
  background-color: color-mix(in lch, white 70%, darkblue);  
}
```

darkblue

darkblue with 10% white

darkblue with 30% white

darkblue with 50% white

darkblue with 70% white

`color-contrast()`

Select from a list of colors the color with the highest contrast to a specified single color.


```
:root {
  --background: #ccc;
}
.box {
  background-color: var(--background);
  color: color-contrast(var(--background) vs #000, #fff);
}
.box2 {
  --background: pink;
}
.box3 {
  --background: rgb(155, 23, 23);
}
.box4 {
  --background: hsl(100, 90%, 35%);
}
.box5 {
  --background: lch(19.245% 44.2 57);
}
```

Check out my contrasting text.

Check out my contrasting text.

Check out my contrasting text.

Check out my contrasting text.

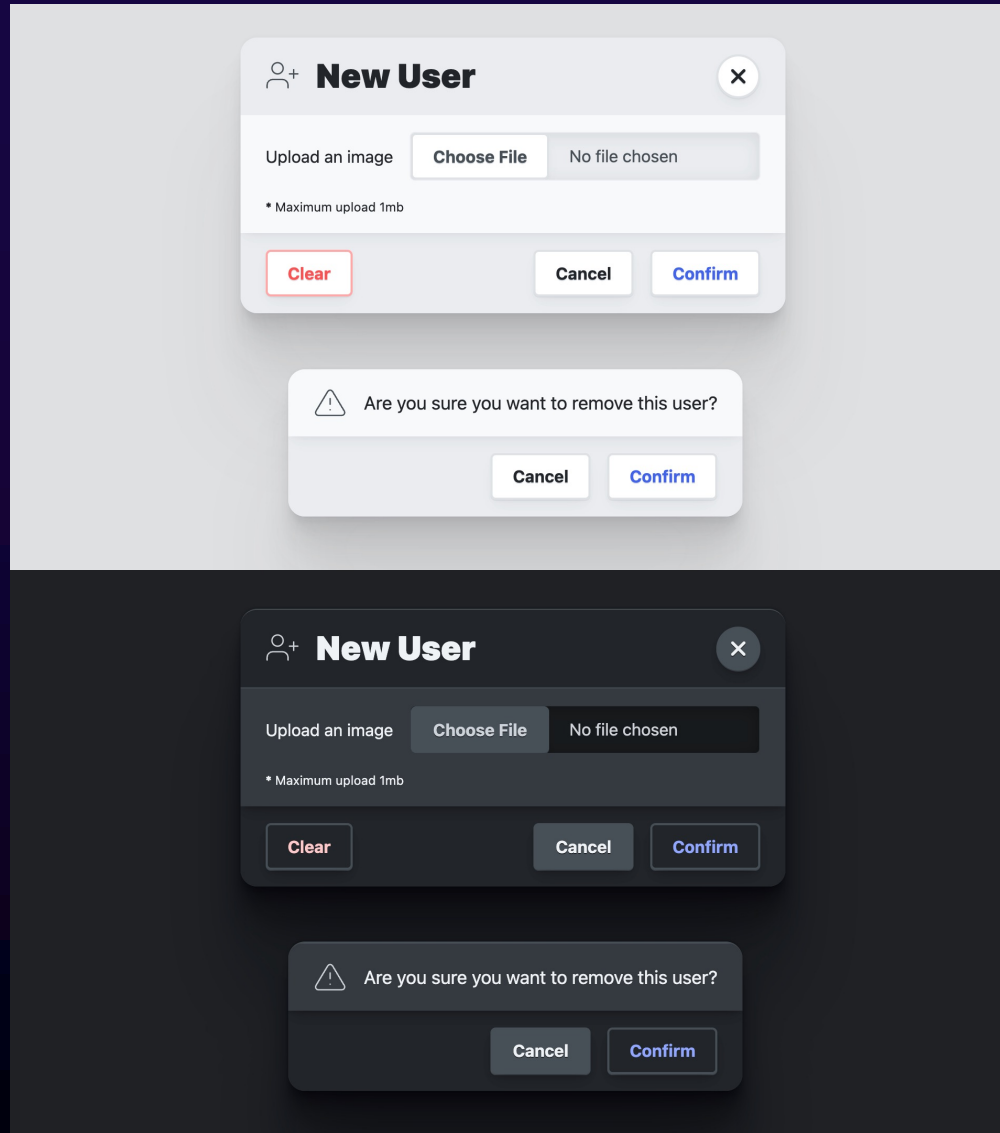
Check out my contrasting text.

Containment

```
.item {  
  contain: layout;  
}
```

The <dialog> element

	🖥️						📱					
	Chrome	Edge	Firefox	Internet Explorer	Opera	Safari	Chrome Android	Firefox for Android	Opera Android	Safari on iOS	Samsung Internet	WebView Android
dialog	✓ 37	✓ 79	✓ 98	✗ No	✓ 24	✓ 15.4	✓ 37	✓ 98	✓ 24	✓ 15.4	✓ 3.0	✓ 37
open	✓ 37	✓ 79	✓ 98	✗ No	✓ 24	✓ 15.4	✓ 37	✓ 98	✓ 24	✓ 15.4	✓ 3.0	✓ 37



Forms



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Form Controls #11

[Edit](#) [New issue](#)

[Open](#) mfreed7 opened this issue on Nov 8, 2021 · 33 comments



mfreed7 commented on Nov 8, 2021

Member

Description

Form controls are mentioned frequently as a source of developer frustration. While "form controls" is a quite general area, there are several recurring themes (e.g. see the most recent [state of css survey results](#)):

- Form element stylability, particularly for `<select>`, `<input type=checkbox>`, and `<input type=radio>`, but also generally for all input types.
- Pseudo-element interop, particularly for `<input type=range>`.
- Date/time input element support.
- CSS `accent-color` support.
- Form validation behavior.
- `appearance:none/auto` (unprefixed).

Specification

Other than `accent-color`, form element appearance is not (well) specified.

Tests

- Due to the lack of spec, there is also a lack of WPT testing for form element style-related features.
- `Accent-color` is [fairly-well tested](#), except around the actual appearance with `accent-color` applied.
- Form submission is [somewhat well tested](#), perhaps excepting validation behavior.
- [Appearance tests \(prefixed and unprefixed\)](#).

Assignees

No one—assign yourself

Labels

[accepted](#) [proposal](#)

Projects

None yet

Milestone

No milestone

Development

[Create a branch](#) for this issue or link a pull request.

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Scrolling

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2021 Scroll Survey Report

Get the 2021 Scroll Survey Report plus words from the Chrome team about how this impacts priorities and plans for Chromium and the web.

Aug 2, 2021 — Updated Sep 10, 2021



[Adam Argyle](#)

[Twitter](#) [GitHub](#) [Glitch](#) [Homepage](#)



[Sam Dutton](#)

[Twitter](#) [GitHub](#)

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In April, the Chrome team [released a scroll and touch-action survey](#) based on top reported issues from the [2019 MDN Web DNA Report](#). The [2021 Scroll Survey Report](#) is ready, and the Chrome team would like to share some thoughts and action items we've gleaned from the survey results. We hope these results will help browser vendors and standards groups understand how to improve web scrolling.

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Subgrid

```
.grid {
  display: grid;
  grid-template-columns:
    [full-start] minmax(1em, 1fr)
    [main-start] minmax(0, 40em) [main-end]
    minmax(1em, 1fr) [full-end];
}

.grid > * {
  grid-column: main ;
}

.grid > .full {
  grid-column: full;
  display: grid;
  grid-template-columns: subgrid;
}

.center {
  grid-column: main;
}
```

Content

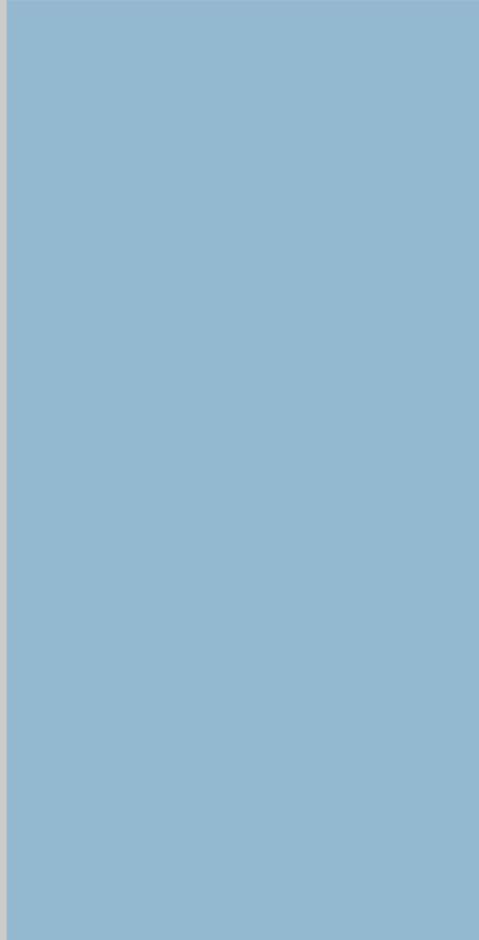
Subitem

Content

```
.wrapper {
  display: grid;
  gap: 10px;
  grid-template-columns: repeat(5, 1fr);
  /* no defined explicit rows */
  grid-auto-rows: minmax(100px, auto);
}

.items {
  grid-column: 2 / -1;
  display: grid;
  grid-template-columns: subgrid;
  grid-auto-rows: minmax(100px, auto);
}

.fullheight {
  background-color: rgb(209,54,114);
  grid-row: 1 / -1;
}
```



Item

Item

Item

Item

Item

Item

Item

Item

Item

Item

Item

Item

Item

Item

Item

Item

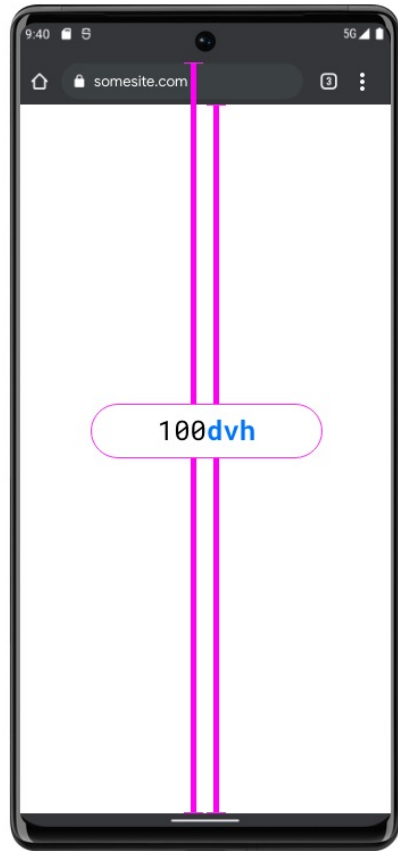
Item

Typography and Encodings

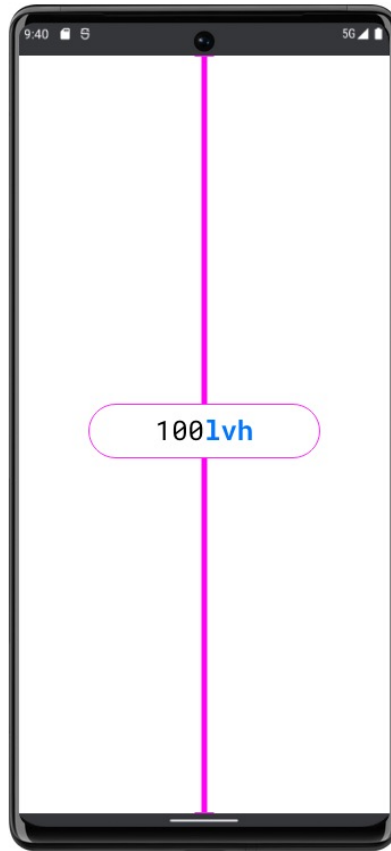
The ic unit

Equal to the used advance measure of the “水” (CJK water ideograph, U+6C34) glyph.

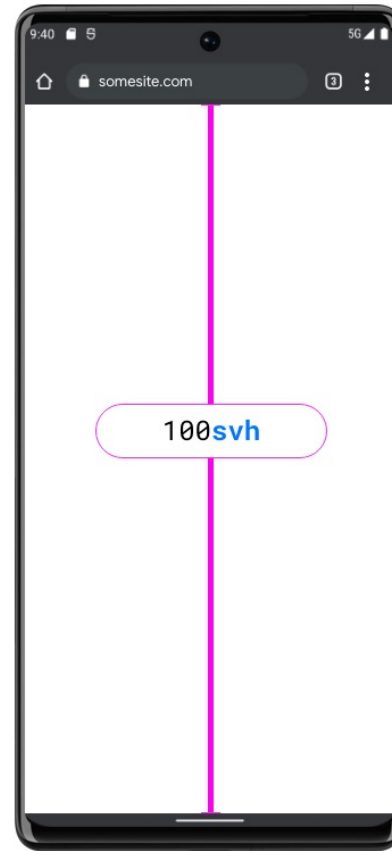
Viewport Units



dvh
dynamic
viewport height



lvh
largest
viewport height



svh
smallest
viewport height

Web Compat

2022 Investigation

Each fix is one less thing you run into.

Each new feature landing cross-browser makes
so much more possible.

Interop 2023?

<https://github.com/web-platform-tests/interop-2022/issues/78>

Thank you!

@rachelandrew