

Chrome DevTools: what's what



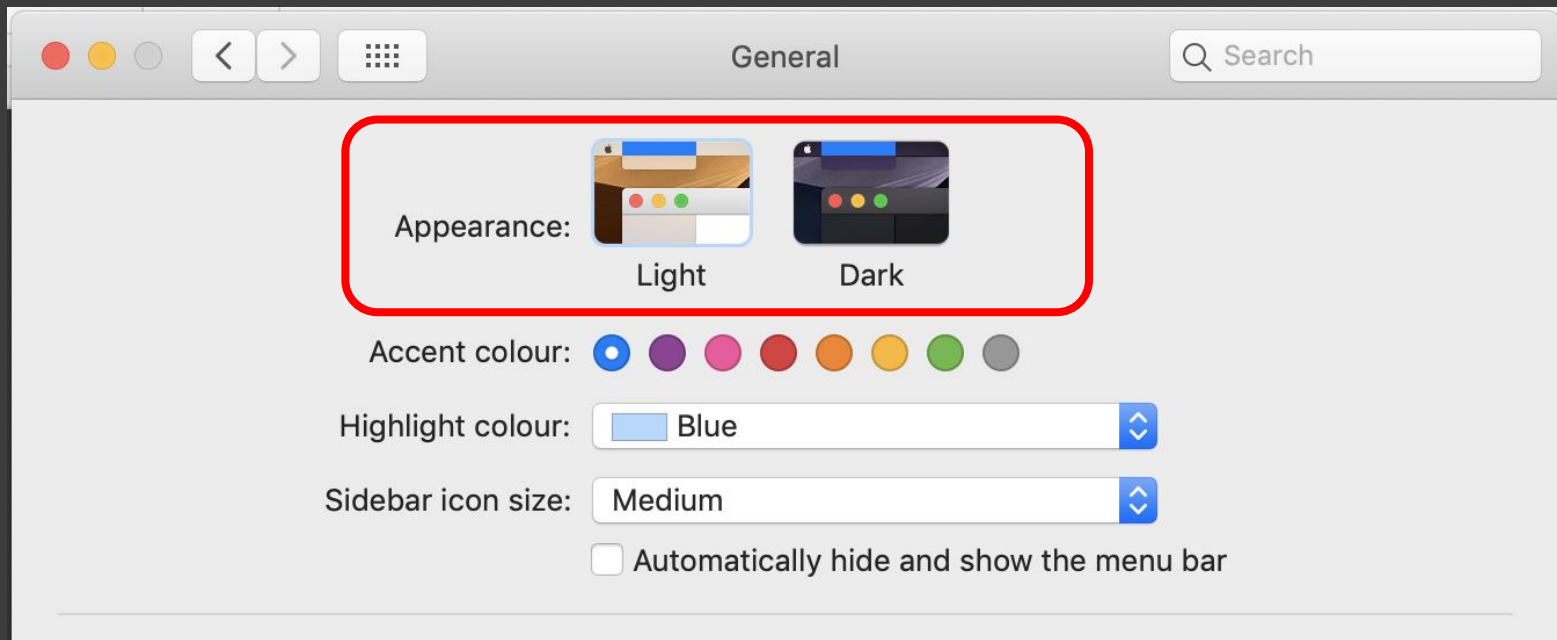
@ChromeDevTools

@nimODota

life of a feature

life of a (small) feature

color scheme emulation



Emulate CSS media type

Forces media type for testing print and screen styles

No emulation ▼

Emulate CSS media feature prefers-color-scheme

Forces CSS prefers-color-scheme media feature

✓ No emulation

prefers-color-scheme: light

prefers-color-scheme: dark

prefers-reduced-motion

Forces CSS prefers-reduced-motion media feature

No emulation ▼

architecture

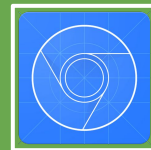
```
<!doctype html>
<html lang="en">
<head>
  <meta charset="utf-8">
  <meta http-equiv="Content-Security-Policy" content="...">
  <meta name="referrer" content="no-referrer">
  <script src="Runtime.js"></script>
  <script src="devtools_app.js"></script>
</head>
<body class="undocked" id="-blink-dev-tools"></body>
</html>
```


~300k LoC JS

~18k LoC CSS

```
{
  // ....
  "dependencies": [
    "components",
    "data_grid",
    "object_ui",
    "sdk",
    "formatter"
  ],
  "scripts": [],
  "modules": [
    "console.js", "console-legacy.js",
    "ConsoleContextSelector.js", "ConsoleFilter.js",
    "ConsolePinPane.js", "ConsoleSidebar.js",
    "ConsoleViewport.js", "ConsoleViewMessage.js", "ConsolePrompt.js",
    "ConsoleView.js", "ConsolePanel.js"
  ],
  "resources": [
    "consoleContextSelector.css",
    "consolePinPane.css",
    "consolePrompt.css",
    "consoleSidebar.css",
    "consoleView.css"
  ]
}
```

DevTools Frontend



Chrome



DevTools Frontend



Browser

Network, ...



DevTools Frontend



Browser

Network, ...



Renderer

CSS, Elements, ...



DevTools Frontend



Browser

Network, ...



Renderer

CSS, Elements, ...



V8

JS Debugger, Profiling, ...



DevTools Frontend



Browser

Network, ...



Renderer

CSS, Elements, ...



V8

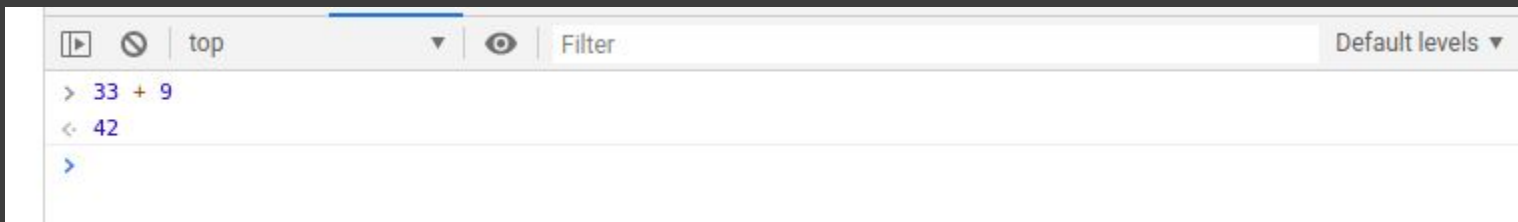
JS Debugger, Profiling, ...



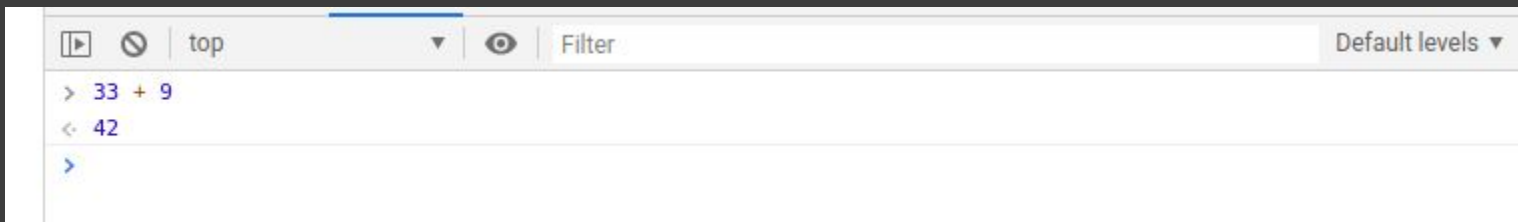
DevTools Frontend



		top			Filter	Default levels 
>	33	+	9			
<	42					
>						



```
Runtime.evaluate({  
  expression: '33 + 9',  
  objectGroup: 'console',  
  contextId: 15,  
  // ...  
});
```



```
Runtime.evaluate({  
  expression: '33 + 9',  
  objectGroup: 'console',  
  contextId: 15,  
  // ...  
});
```

```
{  
  result: {  
    type: 'number',  
    value: 42,  
    description: '42',  
  }  
}
```

Browser

Network, ...



Renderer

CSS, Elements, ...



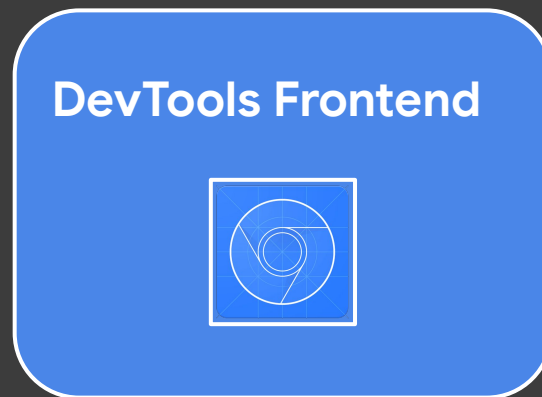
V8

JS Debugger, Profiling, ...



DevTools Frontend





Browser

Network, ...



Renderer

CSS, Elements, ...



V8

JS Debugger, Profiling, ...



Browser

Network, ...



Renderer

CSS, Elements, ...



V8

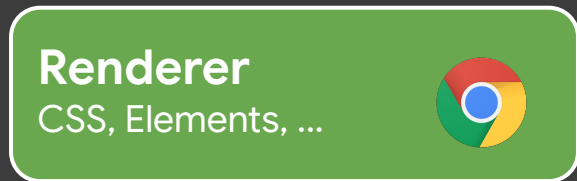
JS Debugger, Profiling, ...



Puppeteer



what about our feature?

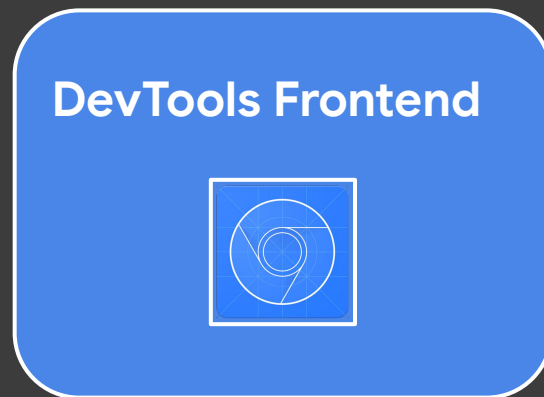
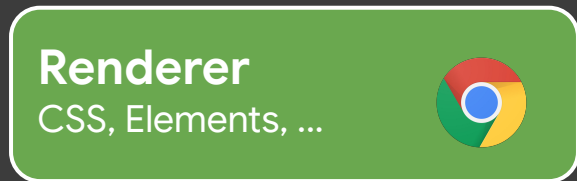


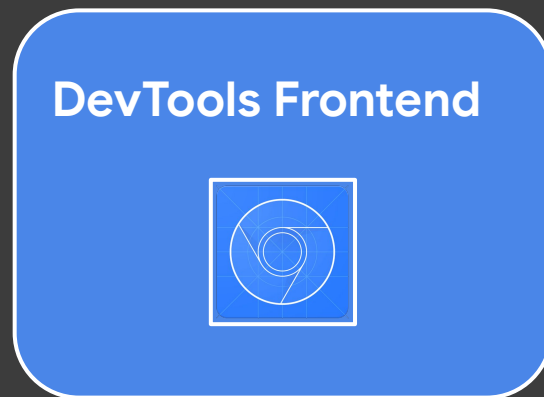
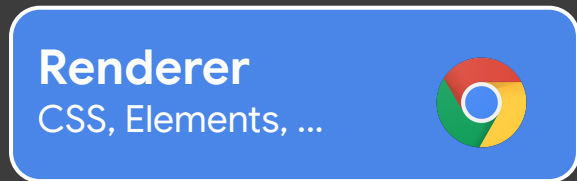
design doc

design doc

*goo.gl/devtools-dark-mode

@nimODota





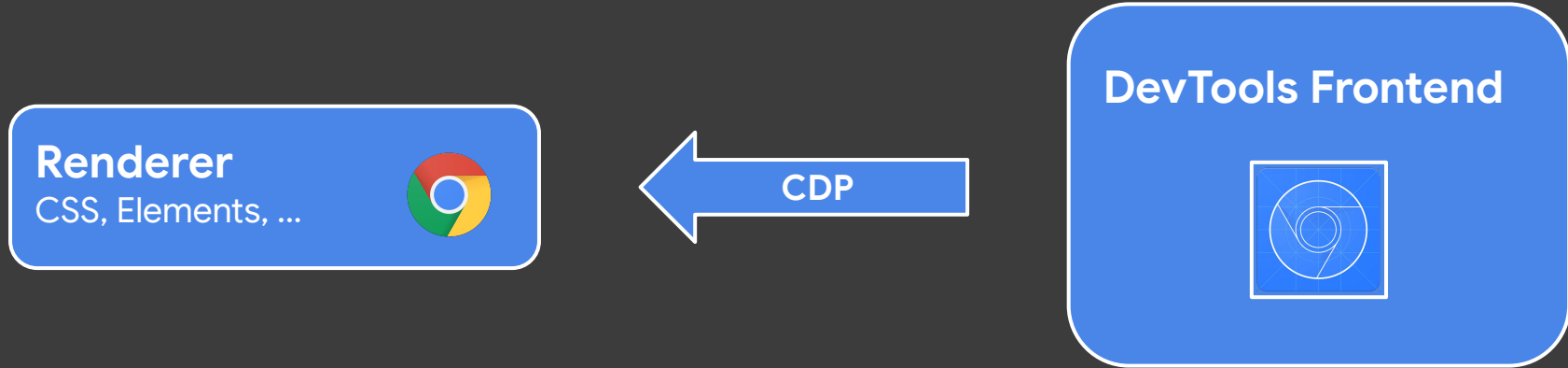
```
# Emulates the given media for CSS media queries.  
command setEmulatedMedia  
  parameters  
    # Media type to emulate.  
    string media
```

```
type MediaFeature extends object
  properties
    string name
    string value
```

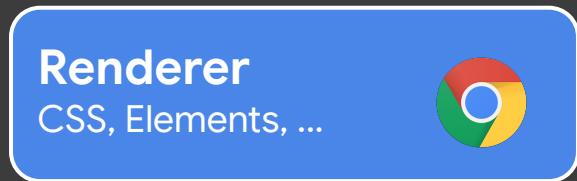
```
# Emulates the given media for CSS media queries.
command setEmulatedMedia
  parameters
    # Media type to emulate.
    string media
```

```
type MediaFeature extends object
  properties
    string name
    string value

# Emulates the given media for CSS media queries.
command setEmulatedMedia
  parameters
    # Media type to emulate.
    optional string media
    # Media features to emulate.
    optional array of MediaFeature features
```

```
Emulation.setEmulatedMedia({  
  features: [{  
    name: 'prefers-color-scheme',  
    value: 'dark',  
  }],  
});
```

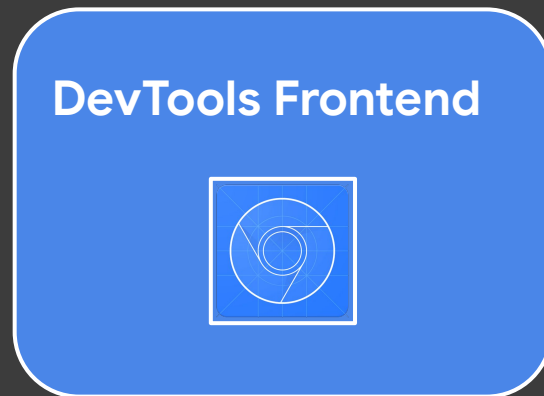
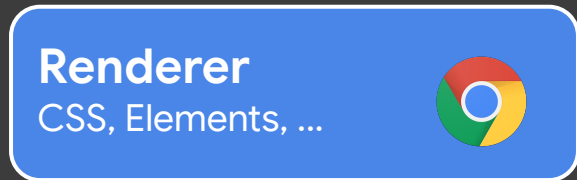


```
updateCssMedia() {
```

```
}
```

```
_updateCssMedia() {  
  const media = this._mediaConfiguration.get('type');  
  const features = [  
    {  
      name: 'prefers-color-scheme',  
      value: this._mediaConfiguration.get('prefers-color-scheme'),  
    },  
    // Other emulated features ...  
  ];  
  
}
```

```
_updateCssMedia() {  
  const media = this._mediaConfiguration.get('type');  
  const features = [  
    {  
      name: 'prefers-color-scheme',  
      value: this._mediaConfiguration.get('prefers-color-scheme'),  
    },  
    // Other emulated features ...  
  ];  
  this._emulationAgent.setEmulatedMedia(media, features);  
}
```



Demo

ⓧ Hello! x +

⏪ ⏩ ↺ dark-mode-lightning-talk.glitch.me ⭐ 🔍 🌐 🌙 🌞

Hi there!

I'm your cool new webpage. Made with [Glitch](#)!

🔍 📄

Elements

Console

Sources

Network

»

⚠️ 1

⋮

✕

... ▾ <body> == \$0

html body

Styles Event Listeners DOM Breakpoints Properties Accessibility

Filter :hov .cls +

element.style {
}

body {
font-family: "Benton Sans", "Helvetica Neue",
helvetica, arial, sans-serif;
margin: ▶ 2em;
}

style.css:10

in 32
border -
padding -
750 x 78.438 -
-
-

⋮ Console Rendering ✕

Emulate CSS media type
Forces media type for testing print and screen styles

No emulation ▾

Emulate CSS media feature prefers-color-scheme
No emulation
prefers-color-scheme: light
✓ prefers-color-scheme: dark

Emulate CSS media feature prefers-reduced-motion
Forces CSS prefers-reduced-motion media feature

No emulation ▾

V8 JavaScript engine x +

← → ↻ v8.dev

DevTools - devtools://devtools/bundled/devtools_app.html?remoteBase=https://chrome...

Elements Console Sources Network Performance >> 2

EmulationModel.js x

```
184 this._touchConfiguration.configuration === configuration.configuration
185 return;
186 }
187
188 this._touchConfiguration = configuration;
189 this._emulationAgent.setTouchEmulationEnabled(configuration.enabled, 1);
190 this._emulationAgent.setEmitTouchEventsForMouse(configuration.enabled, con
191 }
192
193 _updateCssMedia() {
194   // See the note above, where this._mediaConfiguration is defined.
195   const type = this._mediaConfiguration.get('type');
196   const features = [
197     {
198       name: 'prefers-color-scheme',
199       value: this._mediaConfiguration.get('prefers-color-scheme'),
200     },
201   ],
202   ...
203 }
```

Line 195, Column 23 Coverage: n/a

Scope Watch

	Scope	Watch
▶ _updateCssMedia	EmulationModel.js:195	
(anonymous)	EmulationModel.js:49	
dispatchEventToListeners	Object.js:128	
set	Settings.js:362	
selectChanged	SettingsUI.js:101	

Local

- features: undefined
- ▶ this: EmulationModel
- type: undefined

Module

- ▶ Global

Window

Debugger Elements Console Sources Network Performance >> 1

html.js.dark body

Styles Event Listeners DOM Breakpoints Properties Accessibility

Filter :hov .cls +

element.style {

```
}
#header, body {
  padding: 0 1em;
}
body {
  max-width: 860px;
  margin: 0 auto;
```

margin -

border -

padding -

16 798 × 1955 16

max-width: 860px;

margin: 0 auto;

Console What's New Rendering x

Emulate CSS media type

Forces media type for testing print and screen styles

No emulation

Emulate CSS media feature prefers-color-scheme

Forces CSS prefers-color-scheme media feature

prefers-color-scheme: light

Emulate CSS media feature prefers-reduced-motion

Forces CSS prefers-reduced-motion media feature

No emulation

Emulate CSS media type

Forces media type for testing print and screen styles

No emulation ▼

Emulate CSS media feature prefers-color-scheme

Forces CSS prefers-color-scheme media feature

✓ No emulation

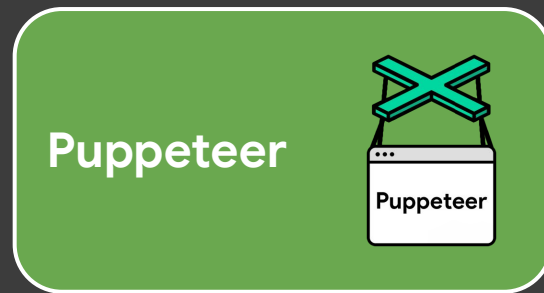
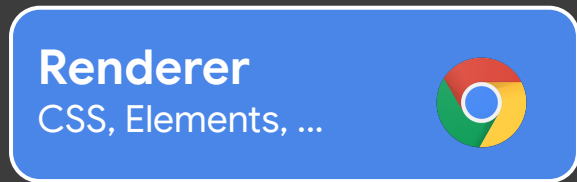
prefers-color-scheme: light

prefers-color-scheme: dark

prefers-reduced-motion

Forces CSS prefers-reduced-motion media feature

*actually implemented by @mathias



```
/**
 * @param {?Array<MediaFeature>} features
 */
async emulateMediaFeatures(features) {
  if (Array.isArray(features)) {
    features.every(mediaFeature => {
      const name = mediaFeature.name;
      assert(/^prefers-(?:color-scheme|reduced-motion)$/ .test(name),
        'Unsupported media feature: ' + name);
      return true;
    });
  }
  await this._client.send(
    'Emulation.setEmulatedMedia', {features});
}
```

```
await page.emulateMediaFeatures([{  
  name: 'prefers-color-scheme',  
  value: 'dark',  
}]);
```

```
const puppeteer = require('puppeteer');

(async () => {
  const browser = await puppeteer.launch();
  const page = await browser.newPage();
  await page.goto('https://v8.dev/blog/10-years');

  // Create screenshots of your web app in Light Mode and Dark Mode.
  // Tip: check out `npx dark-mode-screenshot` for more options!

  await page.emulateMediaFeatures([{
    name: 'prefers-color-scheme', value: 'light' }]);
  await page.screenshot({ path: 'light.png', fullPage: true });

  await page.emulateMediaFeatures([{
    name: 'prefers-color-scheme', value: 'dark' }]);
  await page.screenshot({ path: 'dark.png', fullPage: true });

  await browser.close();
})();
```

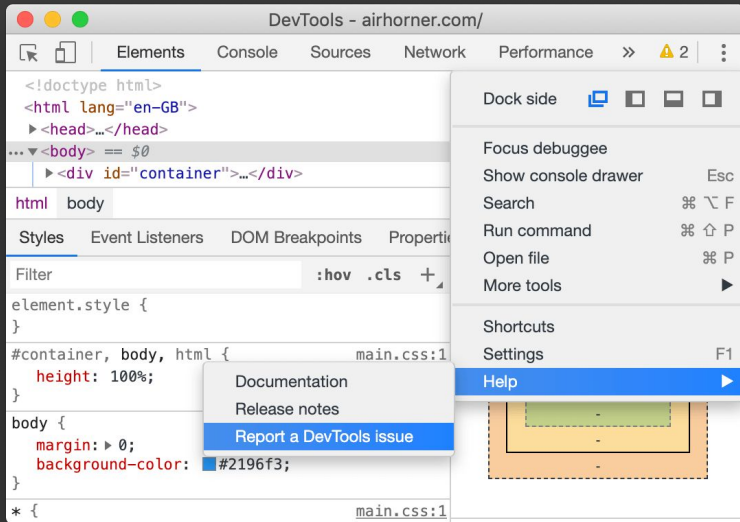
Contribute?

Source

chromium.googlesource.com/devtools/devtools-frontend

@ChromeDevTools

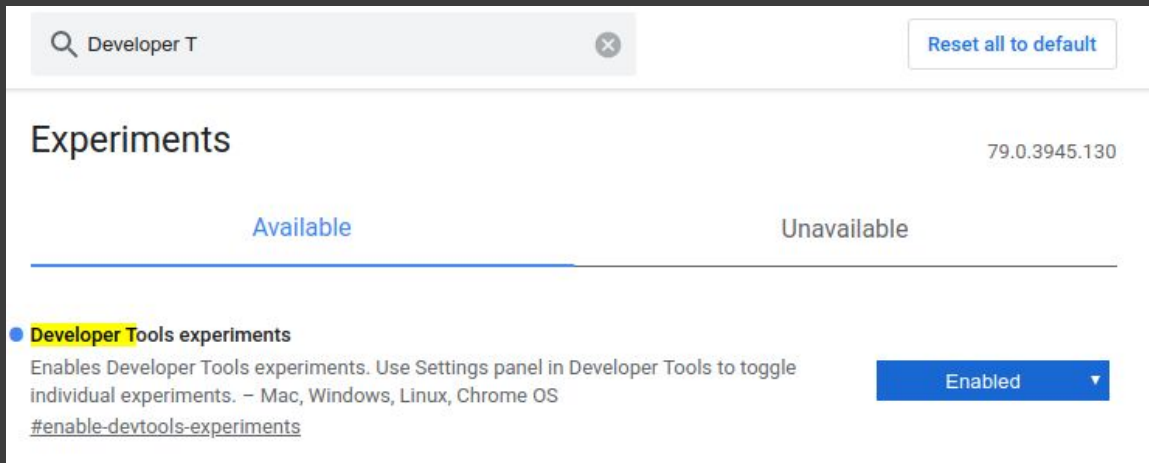
crbug.com/new



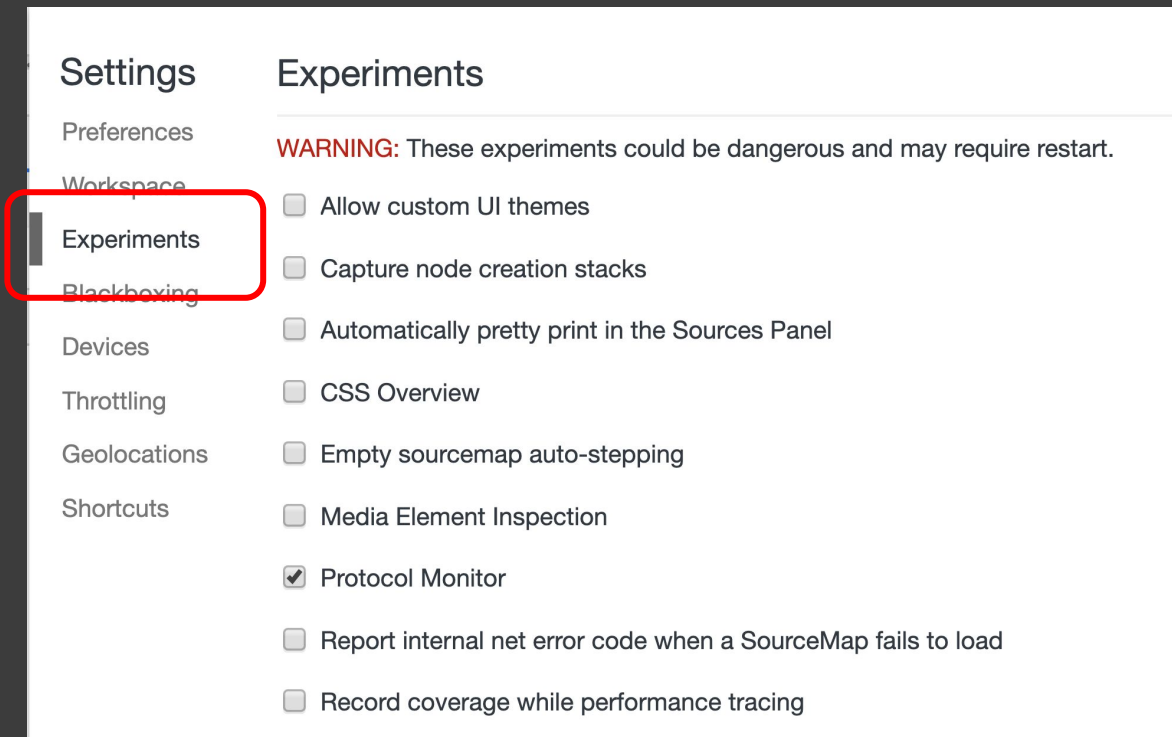
what's new?

How to turn on experimental features in DevTools

Visit `chrome:flags` or `about:flags`



How to turn on experimental features in DevTools



timezone emulation

demo

Chrome DevTools interface showing the 'Schedule' tab and the 'Sensors' panel.

Schedule

Google 2019

Get Updates

Schedule, About, Reviews, FAQs

Schedule timezone

Vehicle time (UTC-8) | Your time (UTC+8)

Nov 11

8:50 pm | 10:00

Keynote

Celebrating every aspect of the web's diversity - the technologies, the tools and the people, and talk about how we're working together to reverse the web.

[Read more](#)

Protecting users on a thriving web

New things Chrome is doing to create a secure environment for personal data that also protects user privacy and fights fingerprinting.

Sensors

Destination: Moscow [Map](#)

55.755830 Latitude

37.6173 Longitude

Europe/Moscow Timezone ID

Orientation: Off

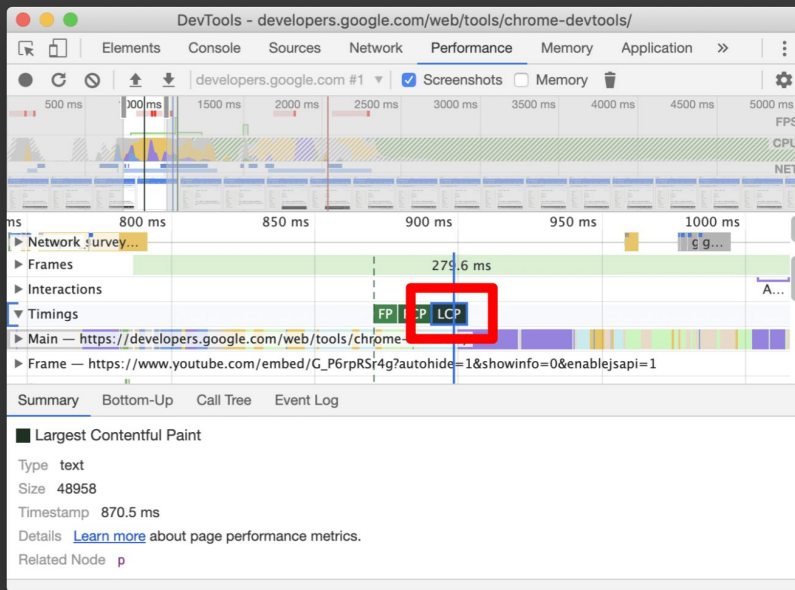
On | Off | On | Off | On | Off

Result: Device-based

Largest Contentful Paint

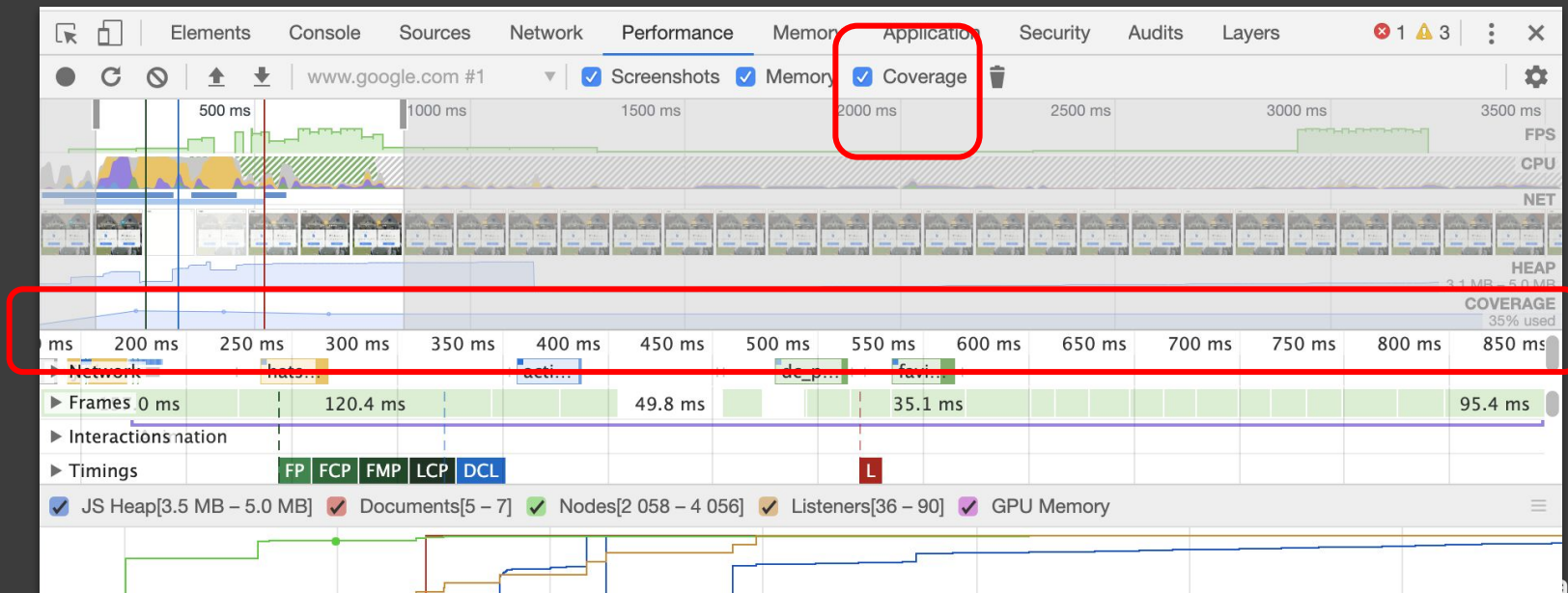
web.dev/metrics

web.dev/lcp



Code coverage on the Performance panel

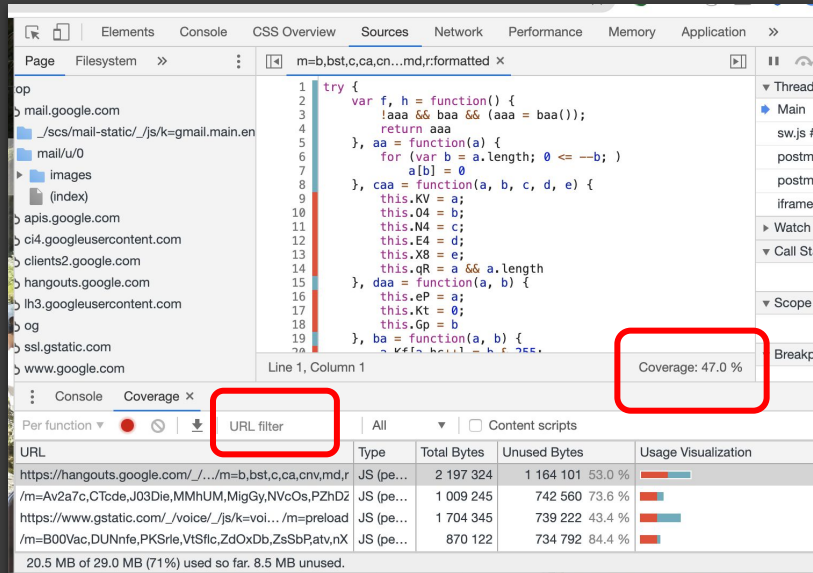
Ship the right amount of code at the right time.



Code coverage improvements

Coverage summary is displayed directly on the Source panel.

Coverage can be exported as JSON





top



Filter

Default levels ▼

```
> let doc = widow.document
```

✖ ▶ Uncaught ReferenceError: widow is not defined
at <anonymous>:1:11

```
> |
```



top



Filter

Default levels ▼

```
> let doc = widow.document
```

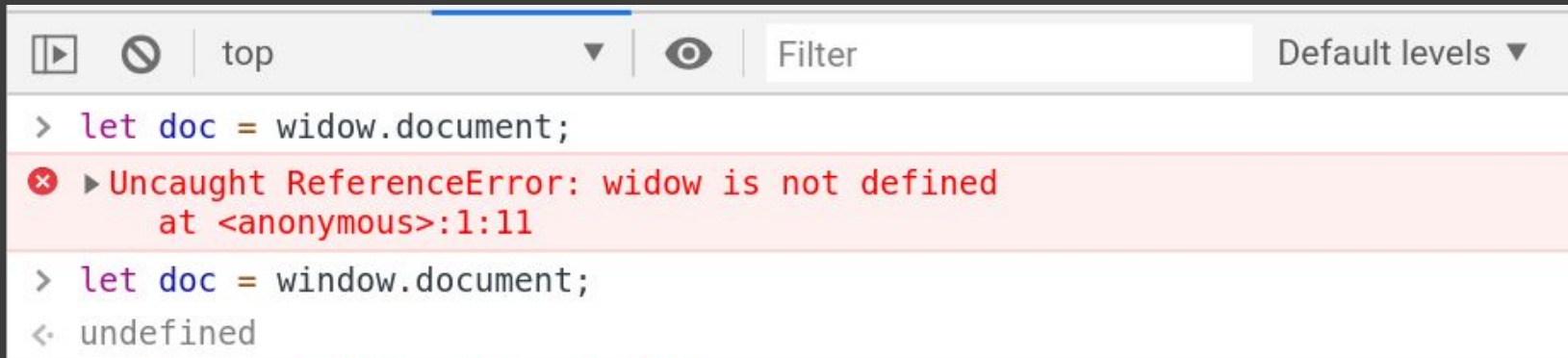
✖ ▶ Uncaught ReferenceError: widow is not defined
at <anonymous>:1:11

```
> let doc = window.document
```

✖ ▶ Uncaught SyntaxError: Identifier 'doc' has already been declared
at <anonymous>:1:1

```
>
```

let and class - redeclaration



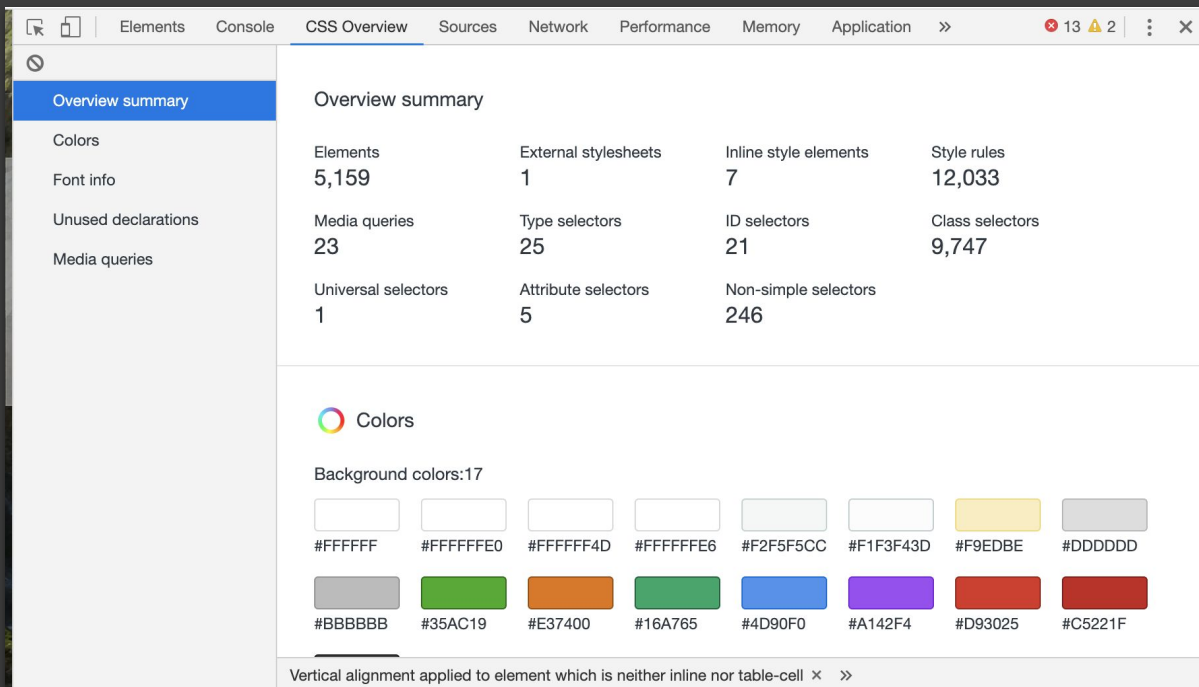
The screenshot shows a web browser's developer console. At the top, there are icons for a play button, a prohibition sign, and a dropdown menu showing 'top'. To the right of these is an eye icon and a search bar labeled 'Filter'. Further right is a dropdown menu labeled 'Default levels'. Below the toolbar, the console shows a sequence of commands and their results. The first command is `> let doc = widow.document;`. This is followed by a red error message: `✖ ▶ Uncaught ReferenceError: widow is not defined at <anonymous>:1:11`. The next command is `> let doc = window.document;`, which results in `< undefined`.

```
> let doc = widow.document;  
✖ ▶ Uncaught ReferenceError: widow is not defined  
   at <anonymous>:1:11  
> let doc = window.document;  
< undefined
```

top-level `await` improvements

```
> await fetch("https://agent.sh/");  
< ▶ Response {type: "basic", url: "https://agent.sh/", redirected: false, status: 200, ok: true, ...}  
>
```

Experimental: CSS Overview



The screenshot shows the 'CSS Overview' tool interface. The left sidebar contains a list of categories: Overview summary (selected), Colors, Font info, Unused declarations, and Media queries. The main content area displays the 'Overview summary' with a table of statistics. Below this, there is a 'Colors' section showing 'Background colors: 17' with a grid of color swatches and their corresponding hex codes. At the bottom, a status bar indicates a warning: 'Vertical alignment applied to element which is neither inline nor table-cell'.

Elements	External stylesheets	Inline style elements	Style rules
5,159	1	7	12,033
Media queries	Type selectors	ID selectors	Class selectors
23	25	21	9,747
Universal selectors	Attribute selectors	Non-simple selectors	
1	5	246	

Colors

Background colors: 17

#FFFFFF	#FFFFFFE0	#FFFFFF4D	#FFFFFFE6	#F2F5F5CC	#F1F3F43D	#F9EDBE	#DDDDDD
#BBBBBB	#35AC19	#E37400	#16A765	#4D90F0	#A142F4	#D93025	#C5221F

Vertical alignment applied to element which is neither inline nor table-cell

what's to come?

Elements Console Sources Network >> 4 3

Filter Hide data URLs

All XHR JS CSS Img Media Font Doc WS Manifest Other

☒ Has blocked cookies

1000 ms 2000 ms 3000 ms 4000 ms 5000 ms 6000 ms

Name

- iframe?widget_n...
- widget.json?wid...
- widget.json?wid...
- iframe?widget_n...
- ☐ new.gif?url=100...
- ☐ new.gif?url=100...

Headers Preview Response Cookies >>

Request Cookies ☐ show filtered out request cookies

No request cookies were sent.

Response Cookies

Name	Value	D.	P.	E.	S.	H.	S.	S.	P.
_ti_to_se...	Zk5FNGFaR1R...	t...	/	S.	3...	✓	☒	i	M...

This set-cookie didn't specify a "SameSite" attribute and was defaulted to "SameSite=Lax" and broke the same rules specified in the SameSiteLax value.

Application

- Manifest
- Service Workers
- Clear storage

Storage

- Local Storage
- Session Storage
- IndexedDB
- Web SQL
- Cookies
 - https://agent.sh
 - https://ti.to**
 - https://js.stripe.com
 - https://m.stripe.network

Cache

- Cache Storage
- Application Cache

Background Services

- Background Fetch

Name	Value	Domain	P.	E.	S.	H.	S.	S.	P.
__strip...	860acc2...	.ti.to	/	2..	4..				M..
_ti_to_s...	Sk02TF...	ti.to	/	S..	3..	✓			M..
_ti_to_s...	bIMyYm...	ti.to	/	S..	2..	✓		i	M..

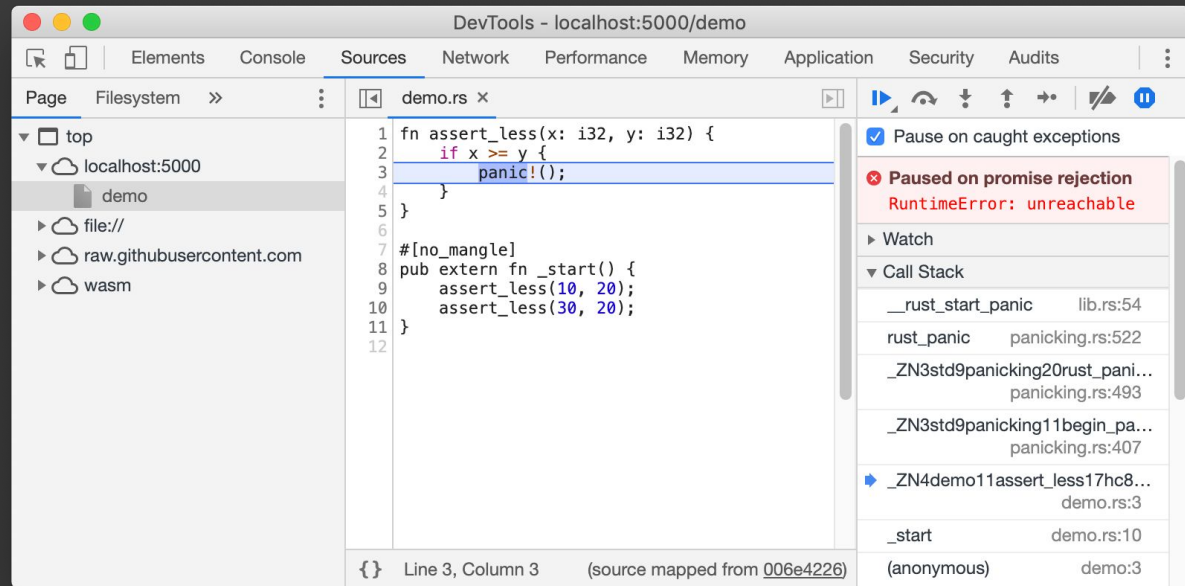
Select a cookie to preview its value

WebAssembly



Improved WebAssembly debugging

Improve end-to-end
debugging







Spielboden Dornbirn K...
Färbergasse 15
6850 Dornbirn
47.42°N, 9.74°E







Feature requests? Found a bug?

@ChromeDevTools

crbug.com/new

