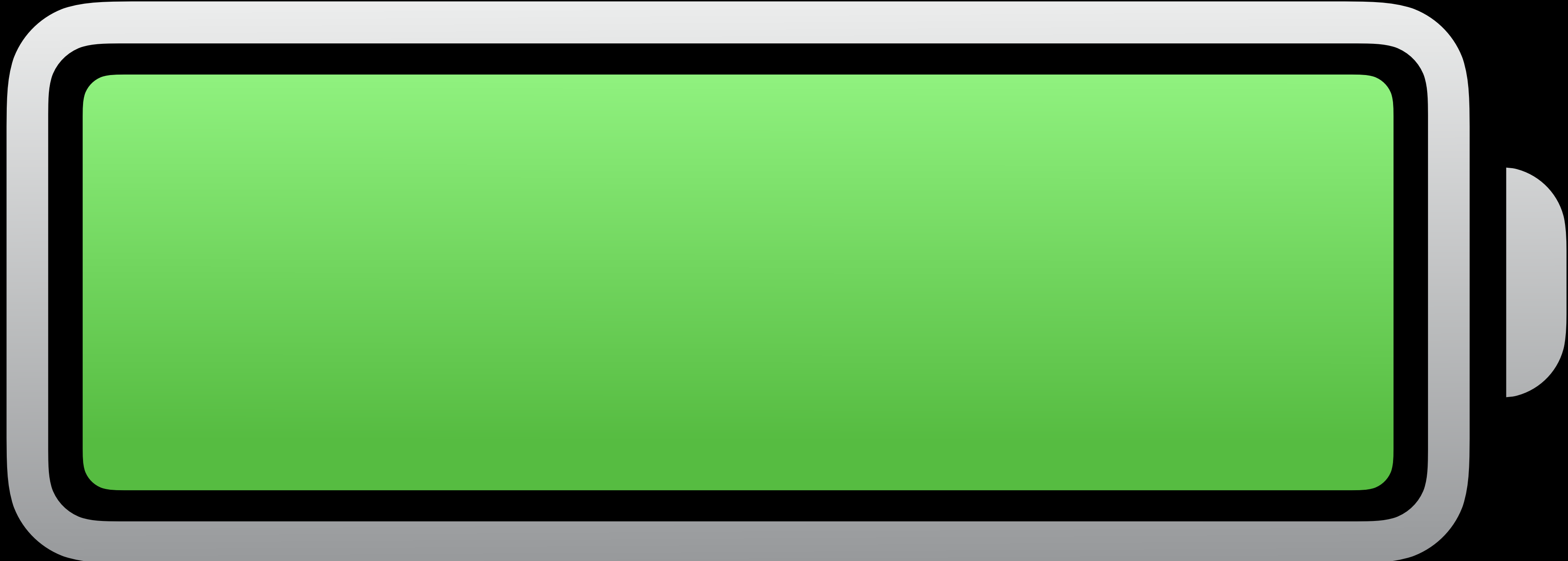


#WWDC19

# Understanding CPU Usage with Web Inspector

Jonathan Davis, Web Technologies Evangelist













Content Blockers







# Performance Best Practices

# Performance Best Practices

Improve load time

# Performance Best Practices

Improve load time

Optimize JavaScript

# Performance Best Practices

Improve load time

Optimize JavaScript

Use CSS animations and transitions



CPU Usage Timeline

NEW



# CPU Usage Timeline

Recording CPU usage



Recording CPU usage

Finding power problems

Recording CPU usage

Finding power problems

Improving power efficiency

Advanced

General Tabs AutoFill Passwords Search Security Privacy Websites Extensions Advanced

Smart Search Field:  Show full website address

Accessibility:  Never use font sizes smaller than 9  Press Tab to highlight each item on a webpage  
Option-Tab highlights each item.

Reading List:  Save articles for offline reading automatically

Internet plug-ins:  Stop plug-ins to save power

Style sheet: None Selected

Default encoding: Western (ISO Latin 1)

Proxies: Change Settings...

Show Develop menu in menu bar

?

Advanced

General Tabs AutoFill Passwords Search Security Privacy Websites Extensions **Advanced**

Smart Search Field:  Show full website address

Accessibility:  Never use font sizes smaller than 9  Press Tab to highlight each item on a webpage  
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Reading List:  Save articles for offline reading automatically

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Advanced

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Internet plug-ins:  Stop plug-ins to save power

Style sheet: None Selected

Default encoding: Western (ISO Latin 1)

Proxies: Change Settings...

Show Develop menu in menu bar

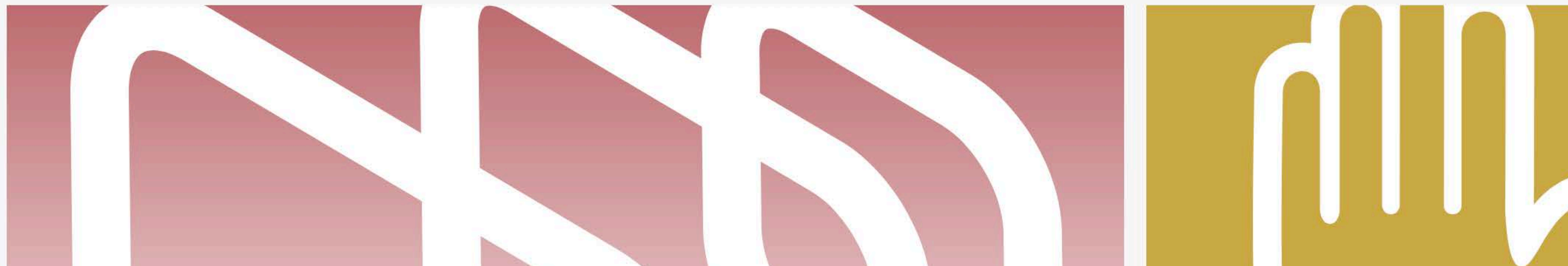
?



# A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

Web developers can [follow development](#), [check feature status](#), [download Safari Technology Preview](#) to try out the latest web technologies, and [report bugs](#).





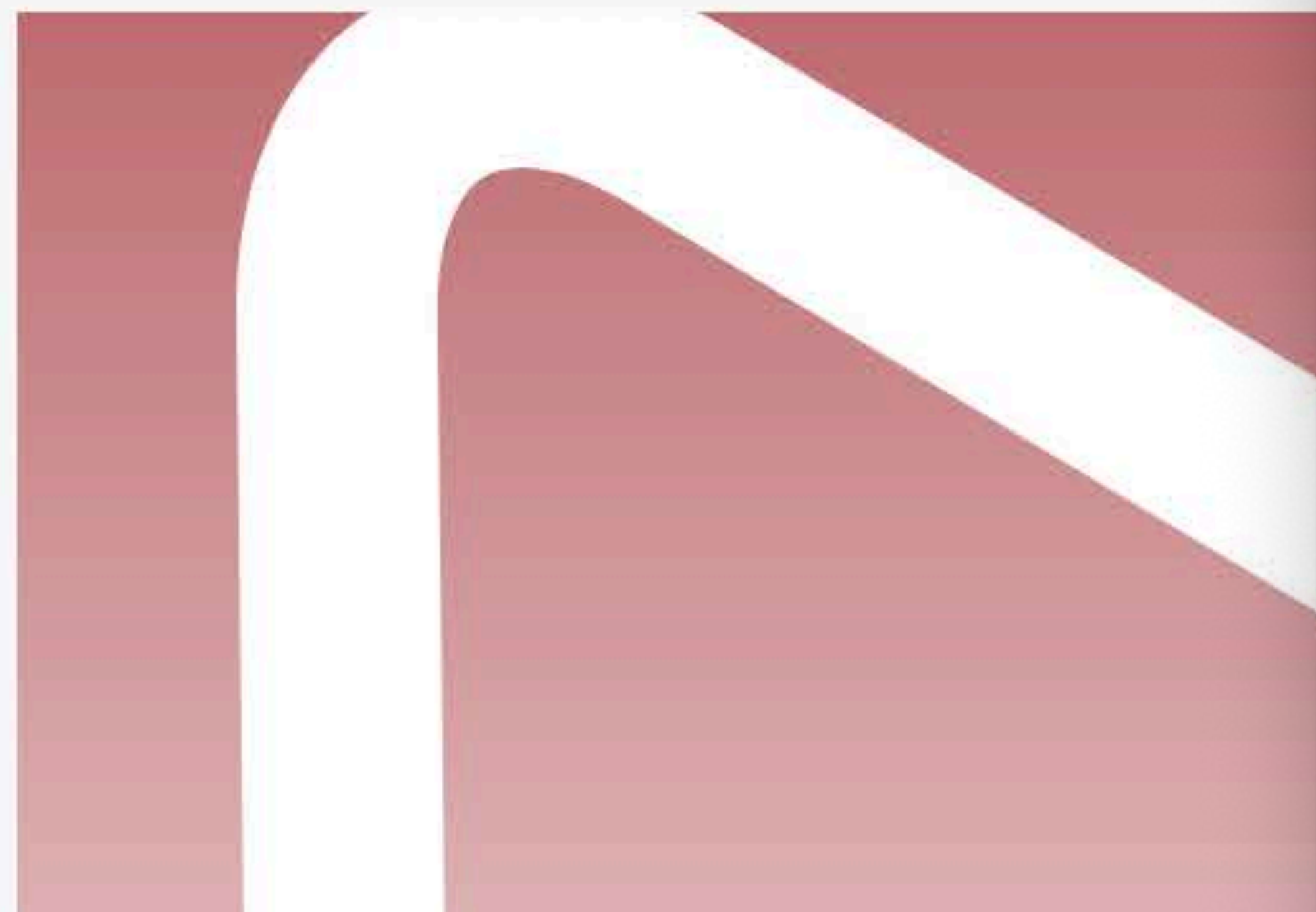
WebKit  
apps on  
Web  
Safari Te

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ting code, or reporting bugs.  
feature status, download  
chnologies, and report bugs.

- Open Page With User Agent ▶▶
- MacBook Pro ▶
- Service Workers ▶
- Experimental Features ▶
- Enter Responsive Design Mode ^⌘R
- Show Snippet Editor
- Show Extension Builder
- Show Web Inspector ⌘⌘I
- Show JavaScript Console ⌘⌘C
- Show Page Source ⌘⌘U
- Show Page Resources ⌘⌘A
- Start Timeline Recording ⌘⇧⌘T
- Start Element Selection ⇧⌘C
- Empty Caches ⌘⌘E
- Disable Images
- Disable Styles
- Disable JavaScript
- Disable Extensions
- Disable Site-specific Hacks
- Disable Local File Restrictions
- Disable Cross-Origin Restrictions





- Open Page With User Agent ▶▶
- MacBook Pro ▶
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Source engine.  
...il, App Store, and many other  
...ting code, or reporting bugs.  
...feature status, download  
...chnologies, and report bugs.





- Open Page With User Agent ▶▶
- MacBook Pro ▶
- Service Workers ▶
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Downloads Feature Status Reporting Bugs

Source engine.

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feature status, download  
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WebKit

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12 121.3 KB

Elements Network Resources Debugger Timelines Console Storage Canvas Audit

body.home.page-template-default.page.page-id-4118

```
<!DOCTYPE html>
<html>
  <head>...</head>
  <body class="home page-template-default page page-id-4118"> $0
    <!--?xml version="1.0" encoding="utf-8"?-->
    <!-- Copyright © 2018 Apple Inc. All rights reserved. -->
    <svg xmlns="http://www.w3.org/2000/svg">...</svg>
    <header aria-label="WebKit.org Header" id="header">...</header>
    <style>...</style>
    <div class="hero">...</div>
    <div class="page-layer">...</div>
    <!-- .page-layer -->
    <script type="text/javascript" src="https://webkit.org/wp-content/themes/webkit/scripts/global.js?ver=1.0"></script>
    <script type="text/javascript" src="https://webkit.org/wp/wp-includes/js/wp-embed.min.js?ver=5.1.1"></script>
    <!-- Dynamic page generated in 0.247 seconds. -->
    <!-- Cached page generated by WP-Super-Cache on 2019-05-21 20:58:50 -->
    <!-- Compression = gzip -->
  </body>
</html>
```

Styles Computed Changes Node Layers

Style Attribute { }

```
body {
  font-size: 1.7rem;
  font-weight: 400;
  line-height: 1.52947;
  letter-spacing: -0.021rem;
  background-color: hsl(203.6, 100%, 12%);
  background-color: var(--background-color);
  color: hsl(0, 0%, 20%);
  color: var(--text-color);
}
```

html, body, div, span, object, iframe, h1, h2, h3, h4, h5, h6, p, blockquote, pre, a, abbr, acronym, address, big, cite, code, del, dfn, em, img, ins, kbd, q, samp, small, strike, strong, sub, sup, tt, var, dl, dt, dd, ol, ul, li, fieldset, form, label, legend, table, caption, tbody, tfoot, thead, tr, th, td, article, aside, canvas, details, figure, figcaption, footer, header, hgroup, menu, nav, output, section, summary, time, mark, audio, video {

```
margin: 0;
padding: 0;
border: 0;
font: inherit;
vertical-align: baseline;
}
```

body {

```
display: block;
margin-top: 8px;
}
```

Inherited From html

Filter Classes

WebKit

Blog Downloads Feature Status Reporting Bugs Contribute

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    <!-- Copyright © 2018 Apple Inc. All rights reserved. -->
    <svg xmlns="http://www.w3.org/2000/svg">...</svg>
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    <style>...</style>
    <div class="hero">...</div>
    <div class="page-layer">...</div>
    <!-- .page-layer -->
    <script type="text/javascript" src="https://webkit.org/wp-content/themes/webkit/scripts/global.js?ver=1.0"></script>
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vertical-align: baseline;
}
```

body {

```
display: block;
margin-top: 8px;
}
```

Inherited From html

root

Filter Classes

Web Inspector — webkit.org

12 121.3 KB 0 0 0

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

html body.home.page-template-default.page.page-id-4118

```
<!DOCTYPE html>
<html>
  <head>...</head>
  <body class="home page-template-default page page-id-4118"> = $0
    <!--?xml version="1.0" encoding="utf-8"?-->
    <!-- Copyright © 2018 Apple Inc. All rights reserved. -->
    <svg xmlns="http://www.w3.org/2000/svg">...</svg>
    <header aria-label="WebKit.org Header" id="header">...</header>
    <style>...</style>
    <div class="hero">...</div>
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    <!-- .page-layer -->
    <script type="text/javascript" src="https://webkit.org/wp-content/themes/webkit/scripts/global.js?ver=1.0"></script>
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```

Styles Computed Changes Node Layers

Active  Focus  Hover  Visited

Style Attribute {

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```
margin: 0;
padding: 0;
border: 0;
font: inherit;
vertical-align: baseline;
}
```

body {

```
display: block;
margin-top: 8px;
}
```

Inherited From html

```
:root {
  --background-color: hsl(203.6, 100%, 12%);
  --link-color: hsl(200, 100%, 40%);
  --text-color: hsl(0, 0%, 20%);
  --text-color-light: hsl(0, 0%, 87%);
  --text-color-medium: hsl(0, 0%, 33.3%);
  --text-color-heading: hsl(0, 0%, 26.7%);
  --text-color-coolgray: hsl(240, 2.3%, 56.7%);
  --inverse-text-color: hsl(0, 0%, 100%);
  --inverse-link-color: hsl(206.7, 100%, 70%);
  --content-background-color: hsl(0, 0%, 96.9%);
  --horizontal-rule-color: hsl(0, 0%, 86.7%);
  --code-background-color: hsl(0, 0%, 94.9%);
  --code-border-color: hsl(0, 0%, 90.6%);
  --code-text-color: hsl(0, 0%, 26.7%);
  --note-background-color: hsl(50, 100%, 94%);
  --note-border-color: hsl(40, 100%, 90%);
  --note-text-color: hsl(30, 90%, 35%);
  --foreword-background-color: hsl(0, 0%, 94.1%);
  --foreword-border-color: hsl(0, 0%, 90.2%);
  --foreword-text-color: hsl(240, 2.3%, 56.7%);
  --input-border-color: hsl(0, 0%, 83.9%);
  --input-background-color: hsl(0, 0%, 100%);
  --button-background-color: hsl(0, 0%, 100%);
  --submit-button-background-color: hsl(199.8, 76.4%, 48.2%);
  --submit-button-background-gradient:
}
```

+ Filter Classes

Web Inspector — webkit.org

12 121.3 KB 0 0 0

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

html body.home.page-template-default.page.page-id-4118

```
<!DOCTYPE html>
<html>
  <head>...</head>
  <body class="home page-template-default page page-id-4118"> = $0
    <!--?xml version="1.0" encoding="utf-8"?-->
    <!-- Copyright © 2018 Apple Inc. All rights reserved. -->
    <svg xmlns="http://www.w3.org/2000/svg">...</svg>
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    <div class="hero">...</div>
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Styles Computed Changes Node Layers

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 margin: 0;
 padding: 0;
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Inherited From html

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  --inverse-text-color: hsl(0, 0%, 100%);
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  --content-background-color: hsl(0, 0%, 96.9%);
  --horizontal-rule-color: hsl(0, 0%, 86.7%);
  --code-background-color: hsl(0, 0%, 94.9%);
  --code-border-color: hsl(0, 0%, 90.6%);
  --code-text-color: hsl(0, 0%, 26.7%);
  --note-background-color: hsl(50, 100%, 94%);
  --note-border-color: hsl(40, 100%, 90%);
  --note-text-color: hsl(30, 90%, 35%);
  --foreword-background-color: hsl(0, 0%, 94.1%);
  --foreword-border-color: hsl(0, 0%, 90.2%);
  --foreword-text-color: hsl(240, 2.3%, 56.7%);
  --input-border-color: hsl(0, 0%, 83.9%);
  --input-background-color: hsl(0, 0%, 100%);
  --button-background-color: hsl(0, 0%, 100%);
  --submit-button-background-color: hsl(199.8, 76.4%, 48.2%);
  --submit-button-background-gradient:
}
```

+ Filter Classes





Web Inspector — webkit.org

12 167.7 KB 790ms 0 0 0

Q Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search +

Events Frames < > Timeline Recording 1 Entire Recording  Stop recording once page loads Import Export +

Edit 1000.0ms 2.00s 3.00s 4.00s 5.00s 6.00s 7.00s 8.00s 9.00s 10.00s 11.00s 12.00s 13.00s 14.00s 15.00s 16.00s 17.00s

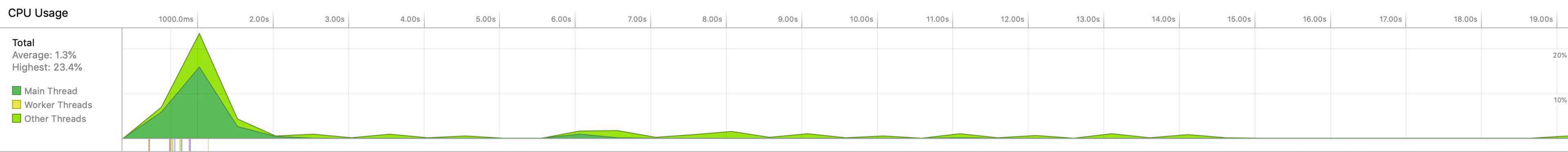
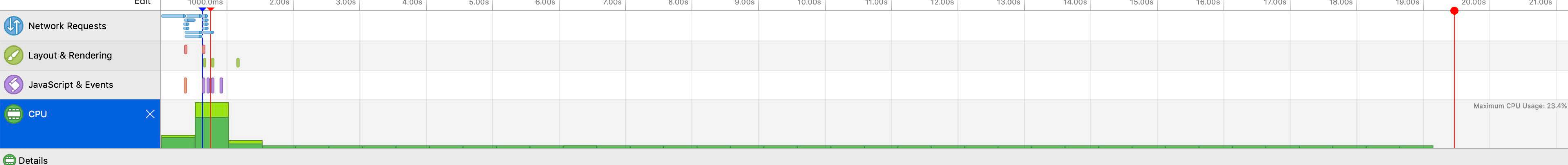
- Network Requests
- Layout & Rendering
- JavaScript & Events
- CPU

Overview  Group By Resource Filter

Name

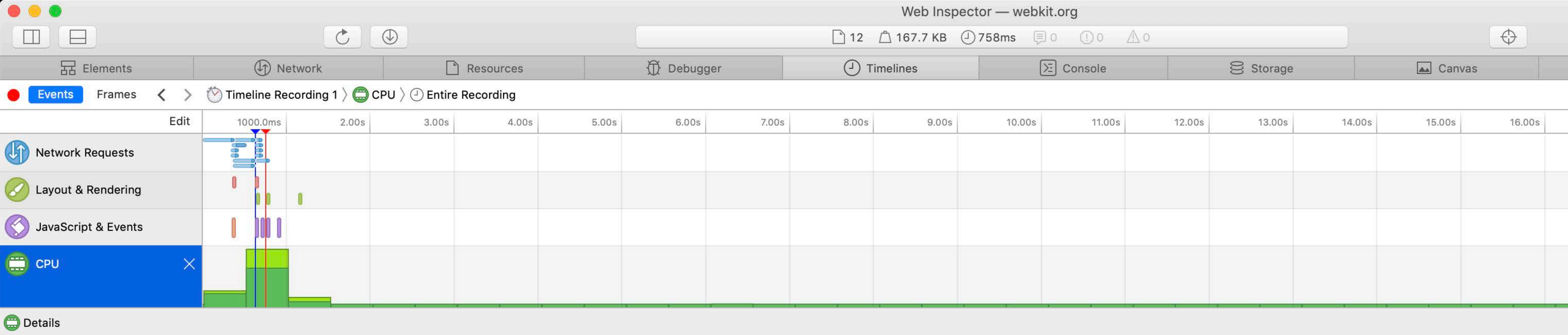




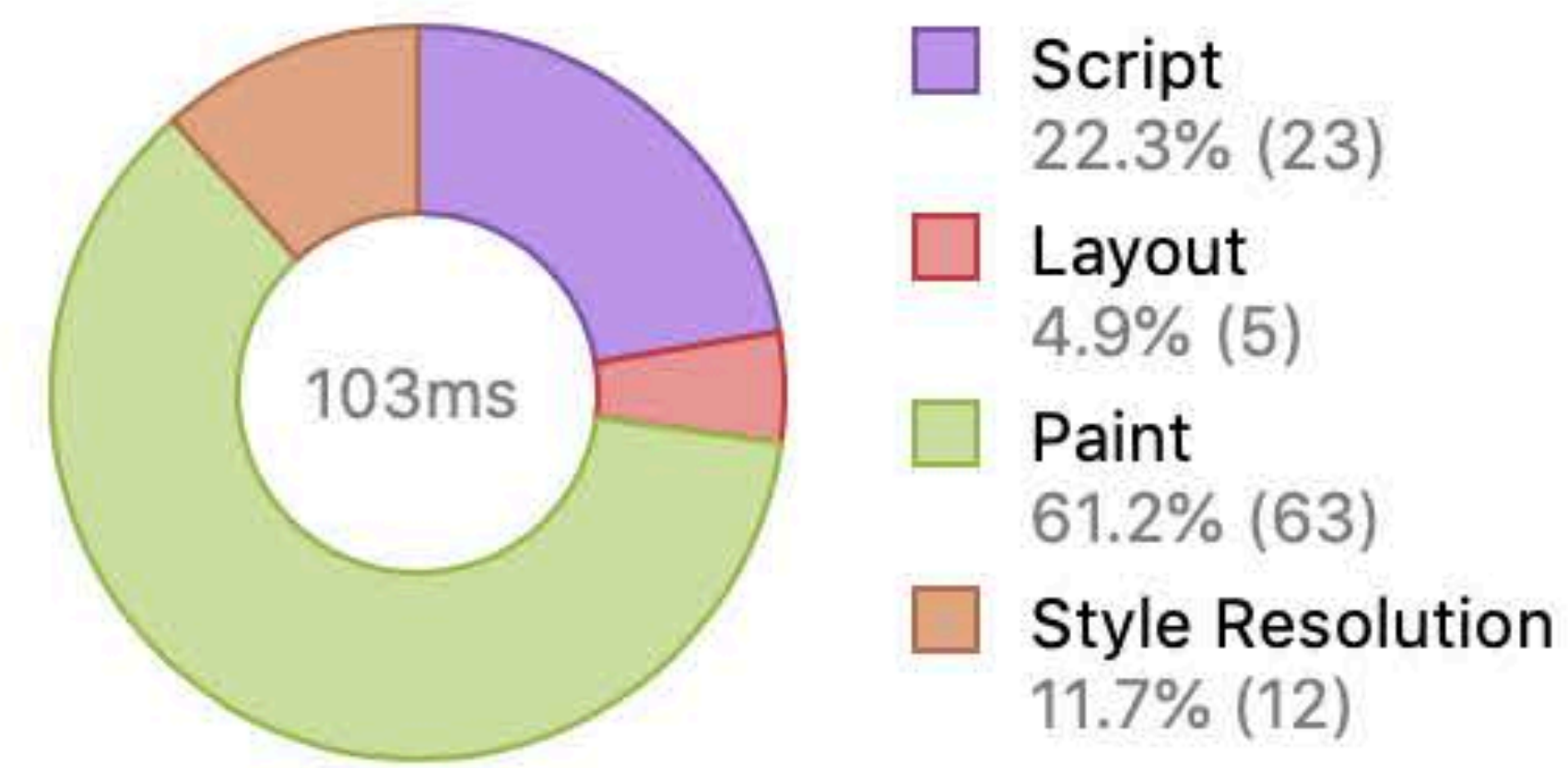


### Threads

Statistics	Sources
<b>Network Requests:</b> 12	<b>Timers:</b> —
<b>Script Entries:</b> 12	<b>Event Handlers:</b> 2 <a href="#">wp-embed.min.js:1:39</a>
<b>Events:</b> 2 <a href="#">DOMContentLoaded</a>	1 <a href="#">global.js:1:56</a>
1 <a href="#">load</a>	<b>Observer Handlers:</b> —



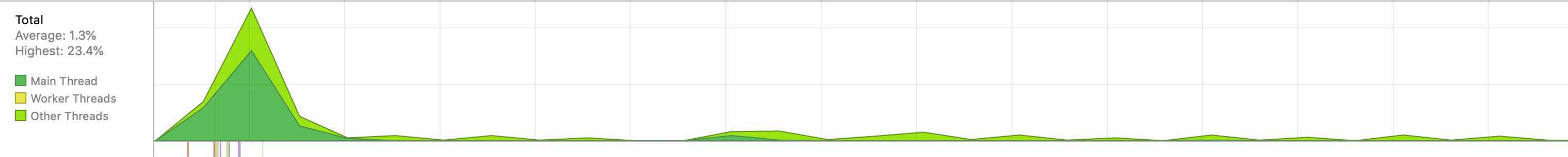
### Main Thread



### Energy Impact ?



### CPU Usage



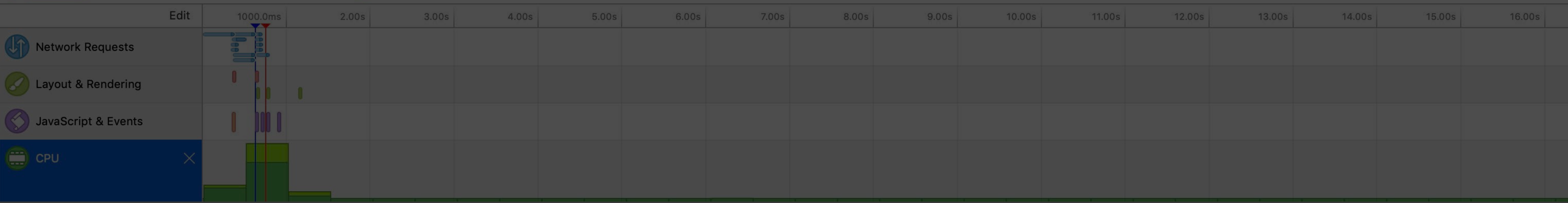
### Threads

### Statistics

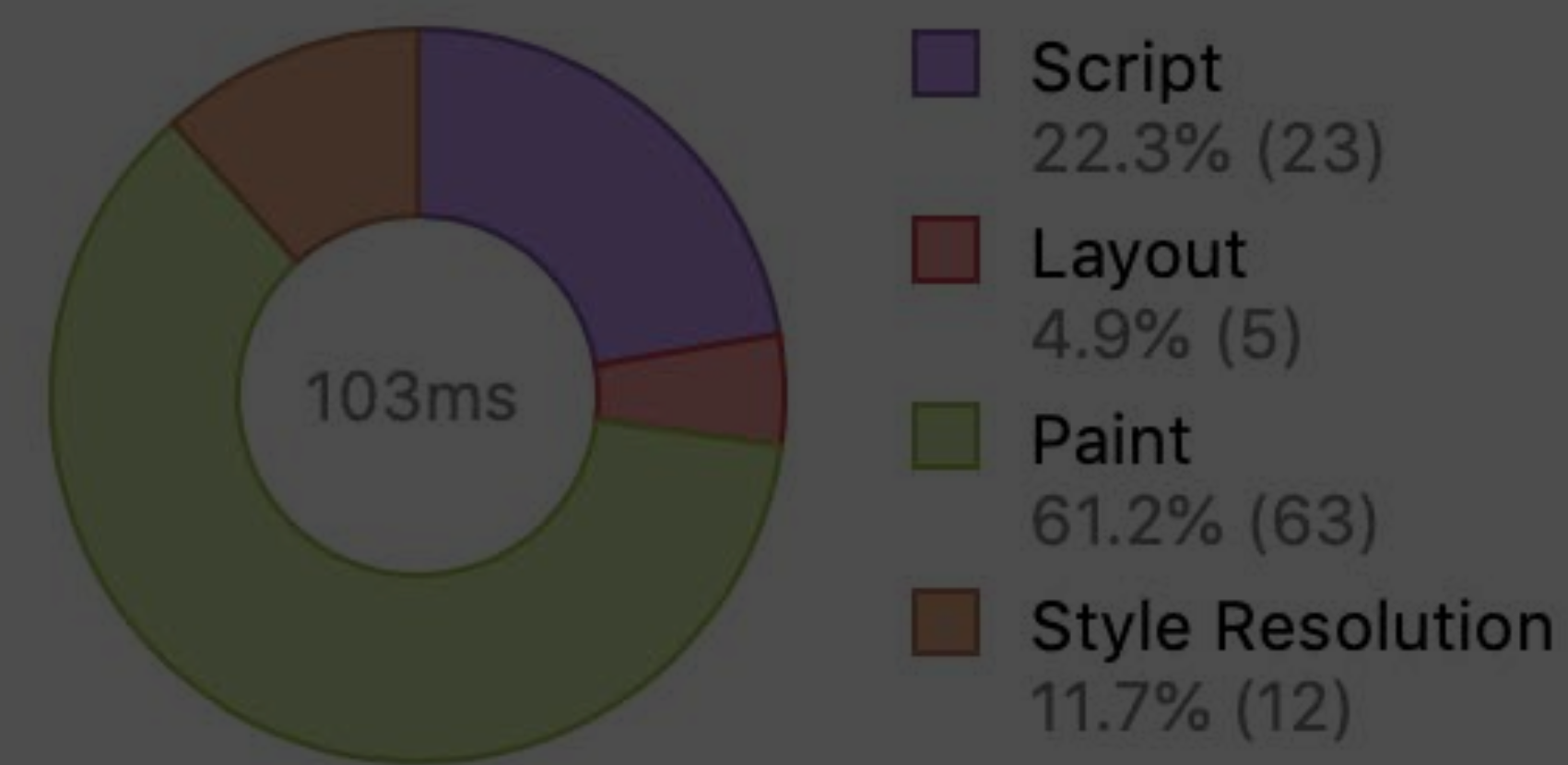
**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 DOMContentLoaded  
 1 load

### Sources

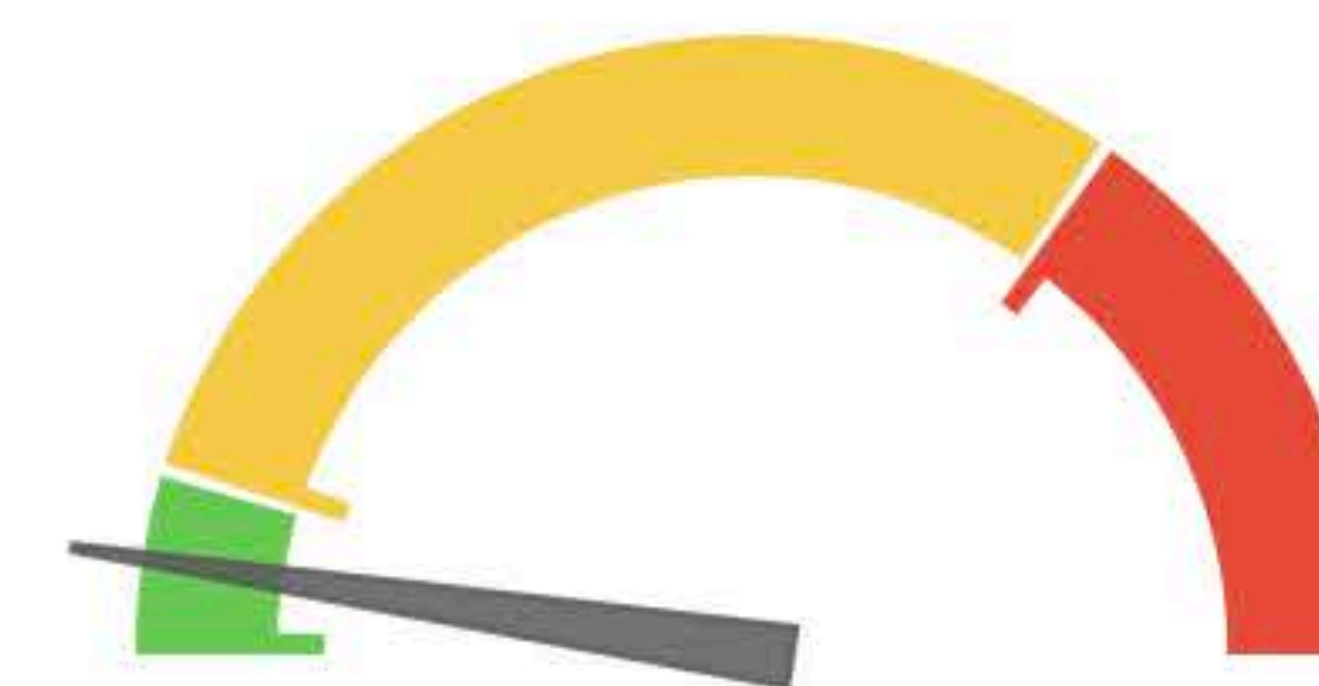
**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 1 global.js:1:56  
**Observer Handlers:** —



### Main Thread



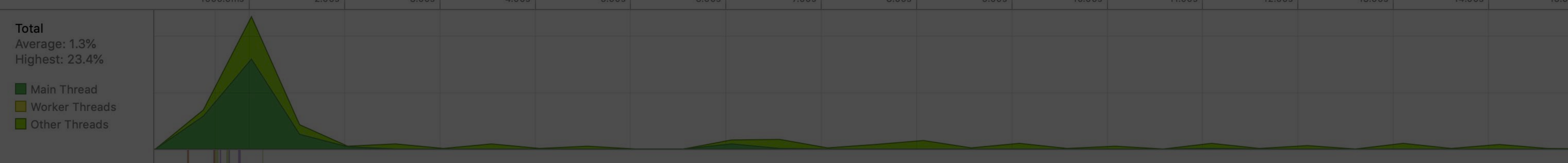
### Energy Impact ?



Low

Average CPU: 1.3%  
Duration: 19s

### CPU Usage



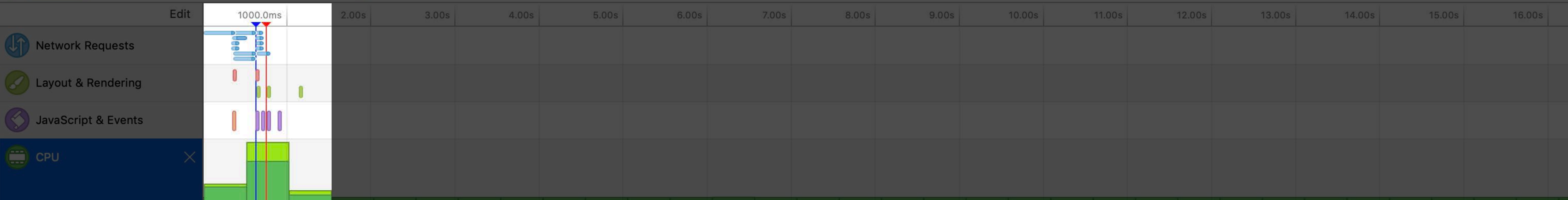
### Threads

### Statistics

**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 DOMContentLoaded  
 1 load

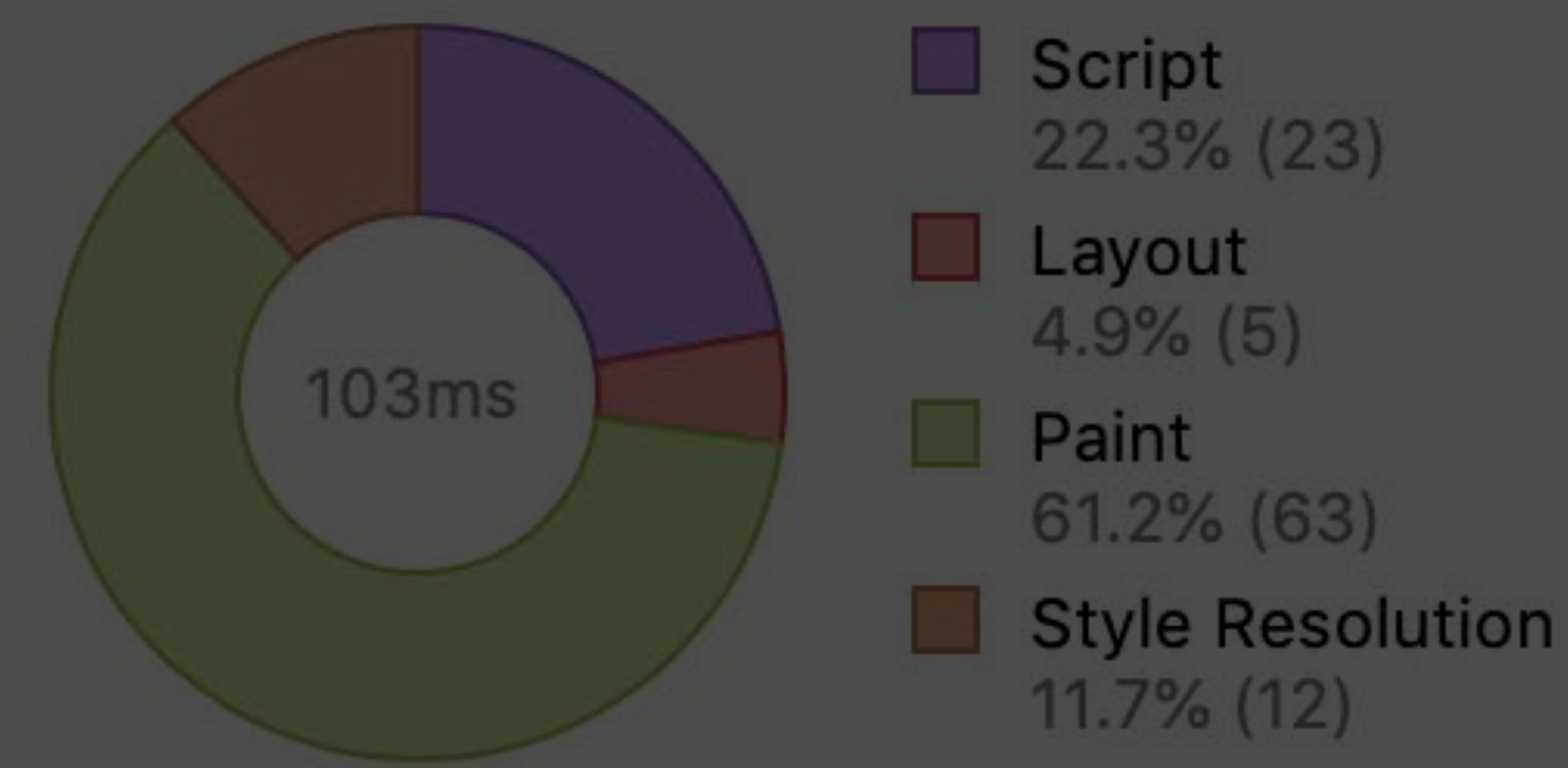
### Sources

**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 1 global.js:1:56  
**Observer Handlers:** —



Details

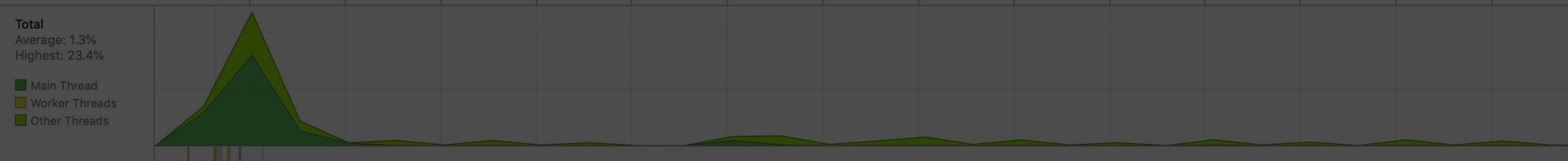
### Main Thread



### Energy Impact



### CPU Usage



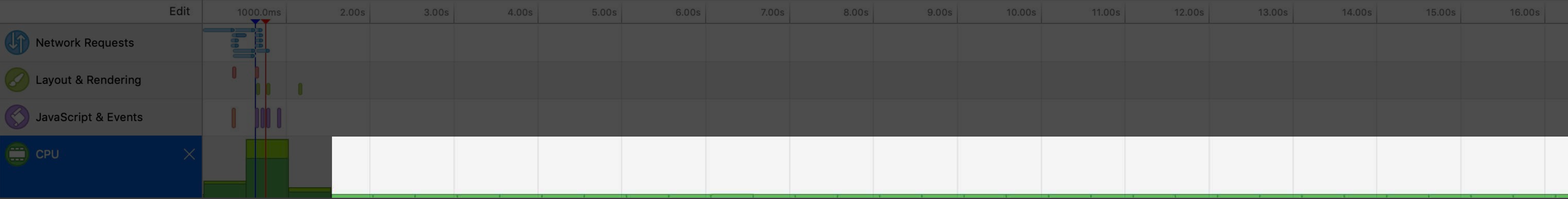
### Threads

### Statistics

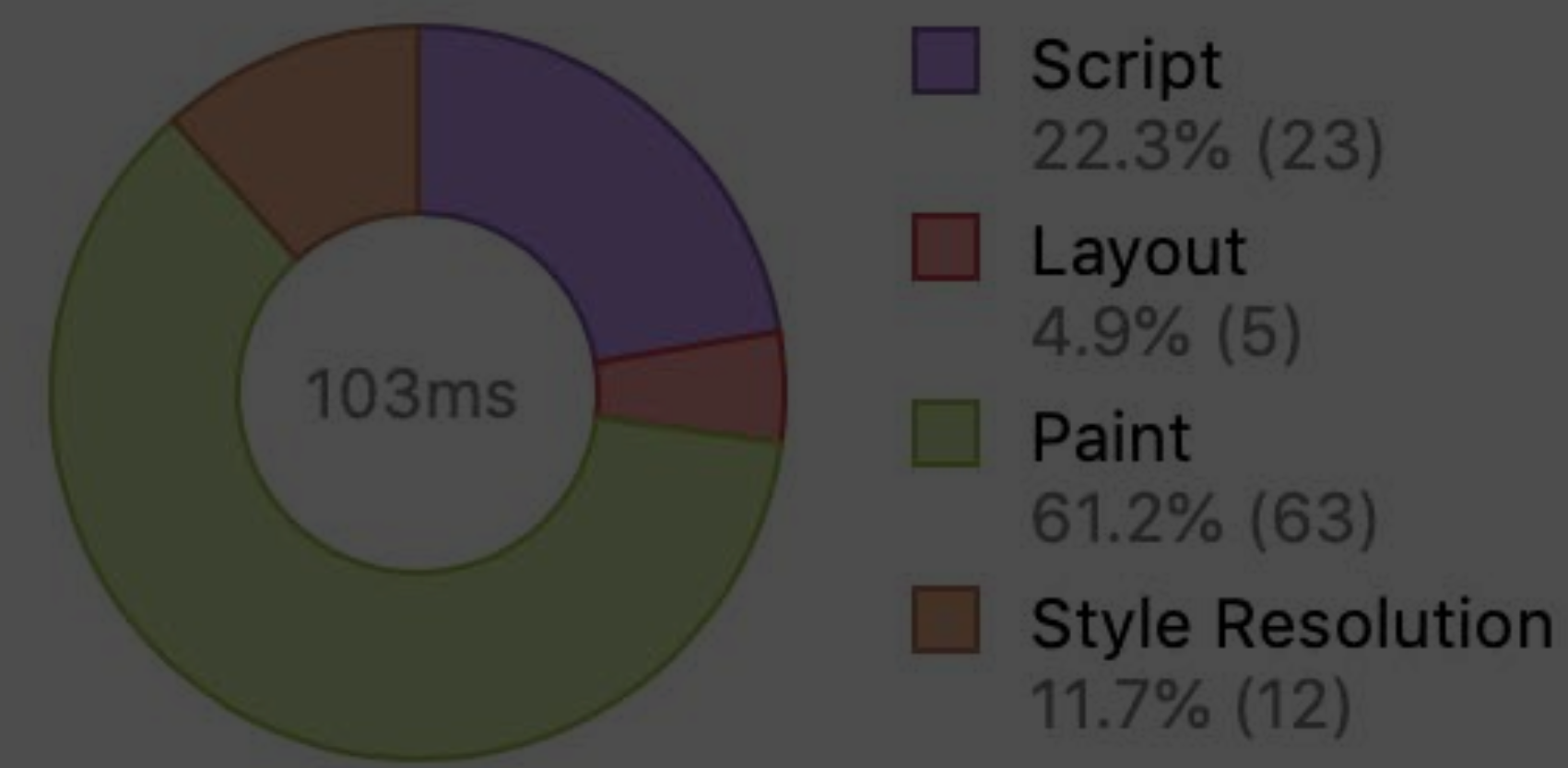
Network Requests:	12
Script Entries:	12
Events:	2 DOMContentLoaded
	1 load

### Sources

Timers:	—
Event Handlers:	2 wp-embed.min.js:1:39
	1 global.js:1:56
Observer Handlers:	—



### Main Thread



### Energy Impact



Low

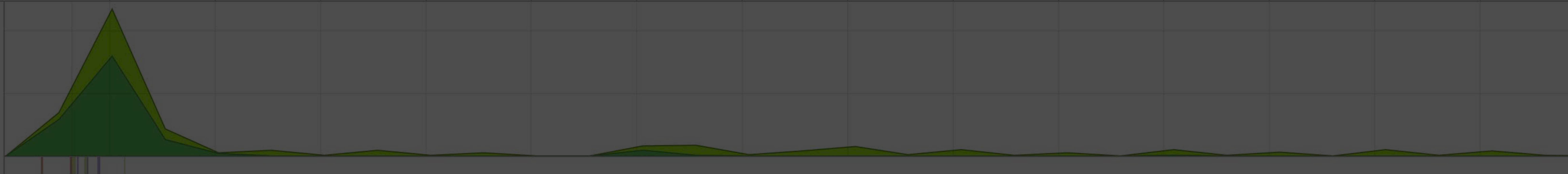
Average CPU: 1.3%  
Duration: 19s

### CPU Usage

1000.0ms 2.00s 3.00s 4.00s 5.00s 6.00s 7.00s 8.00s 9.00s 10.00s 11.00s 12.00s 13.00s 14.00s 15.00s

Total  
Average: 1.3%  
Highest: 23.4%

- Main Thread
- Worker Threads
- Other Threads



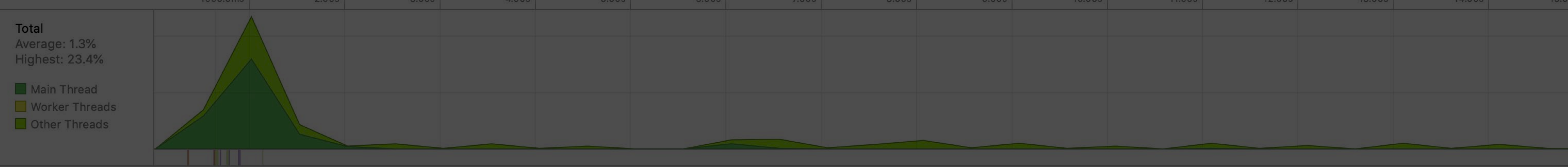
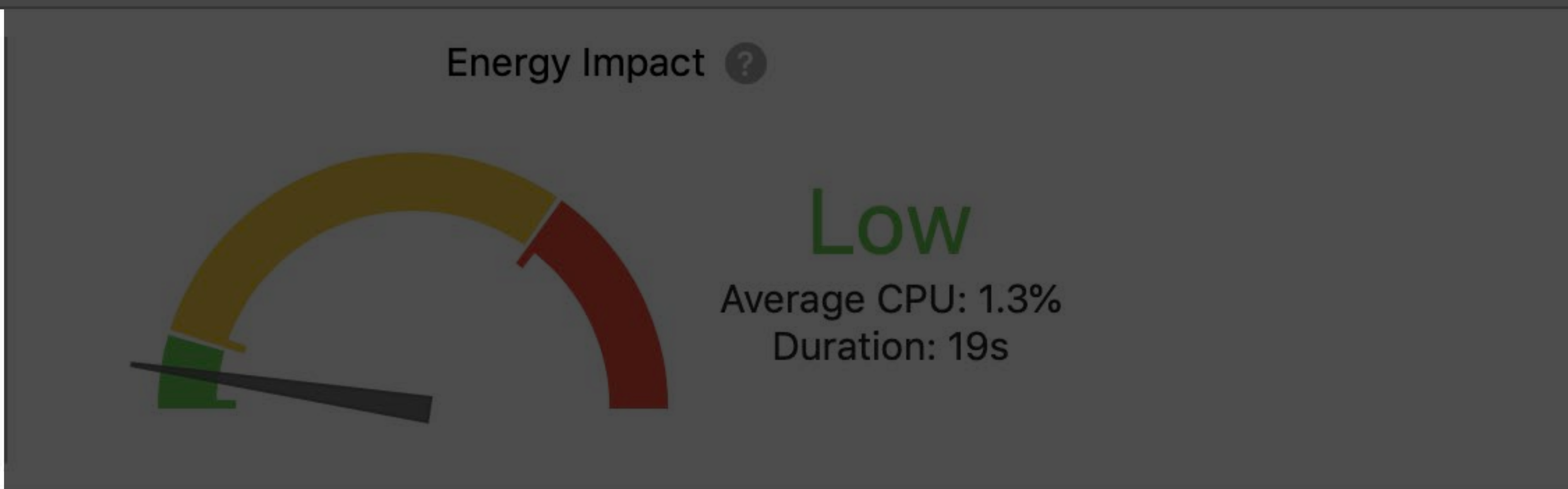
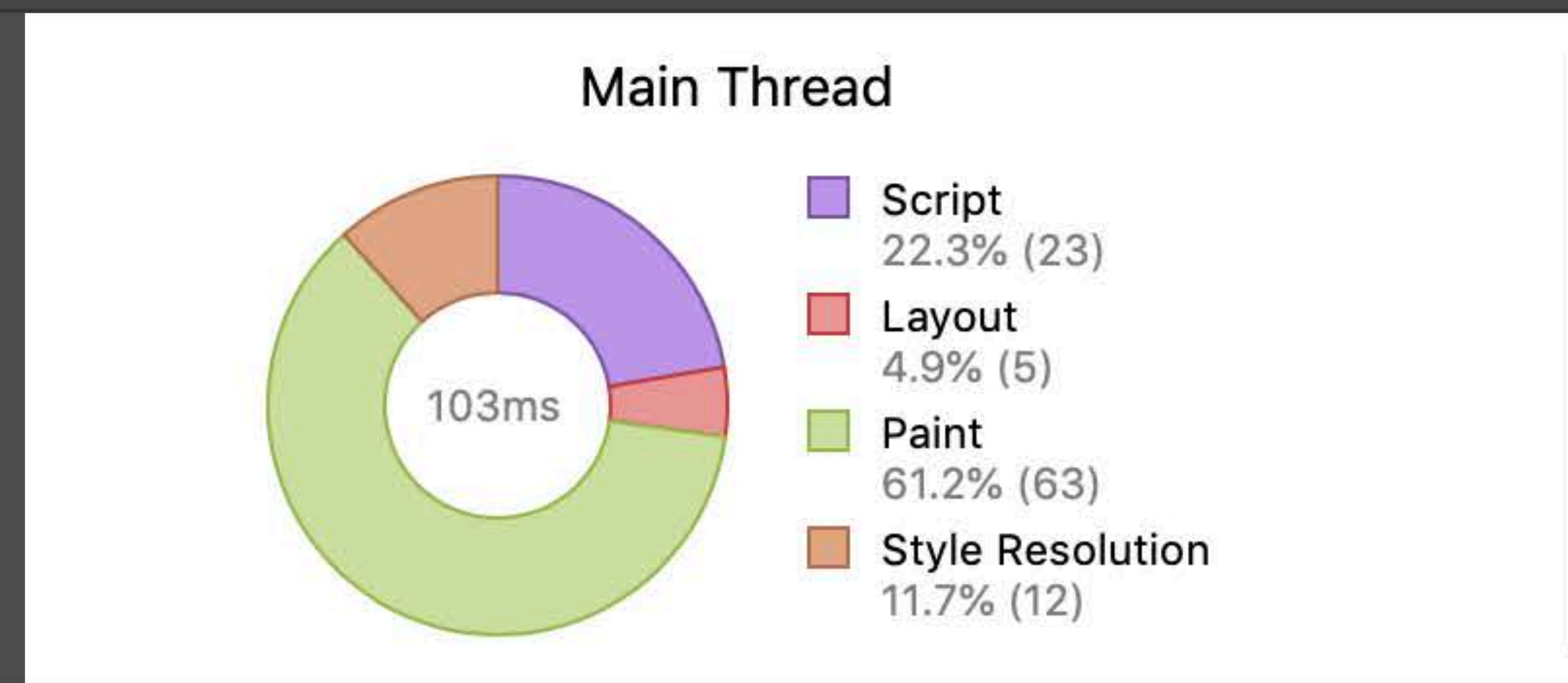
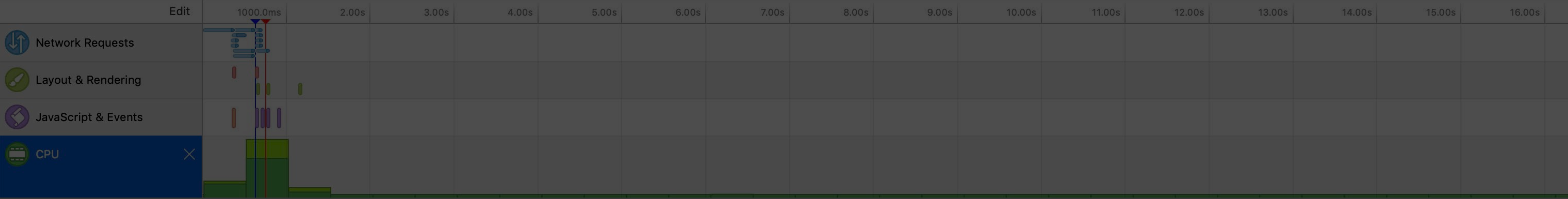
### Threads

### Statistics

**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 DOMContentLoaded  
 1 load

### Sources

**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 1 global.js:1:56  
**Observer Handlers:** —

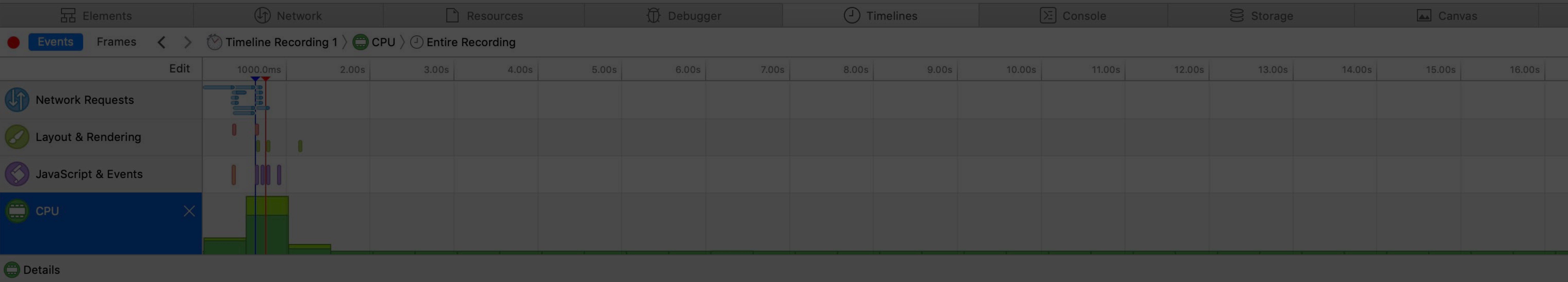


### Statistics

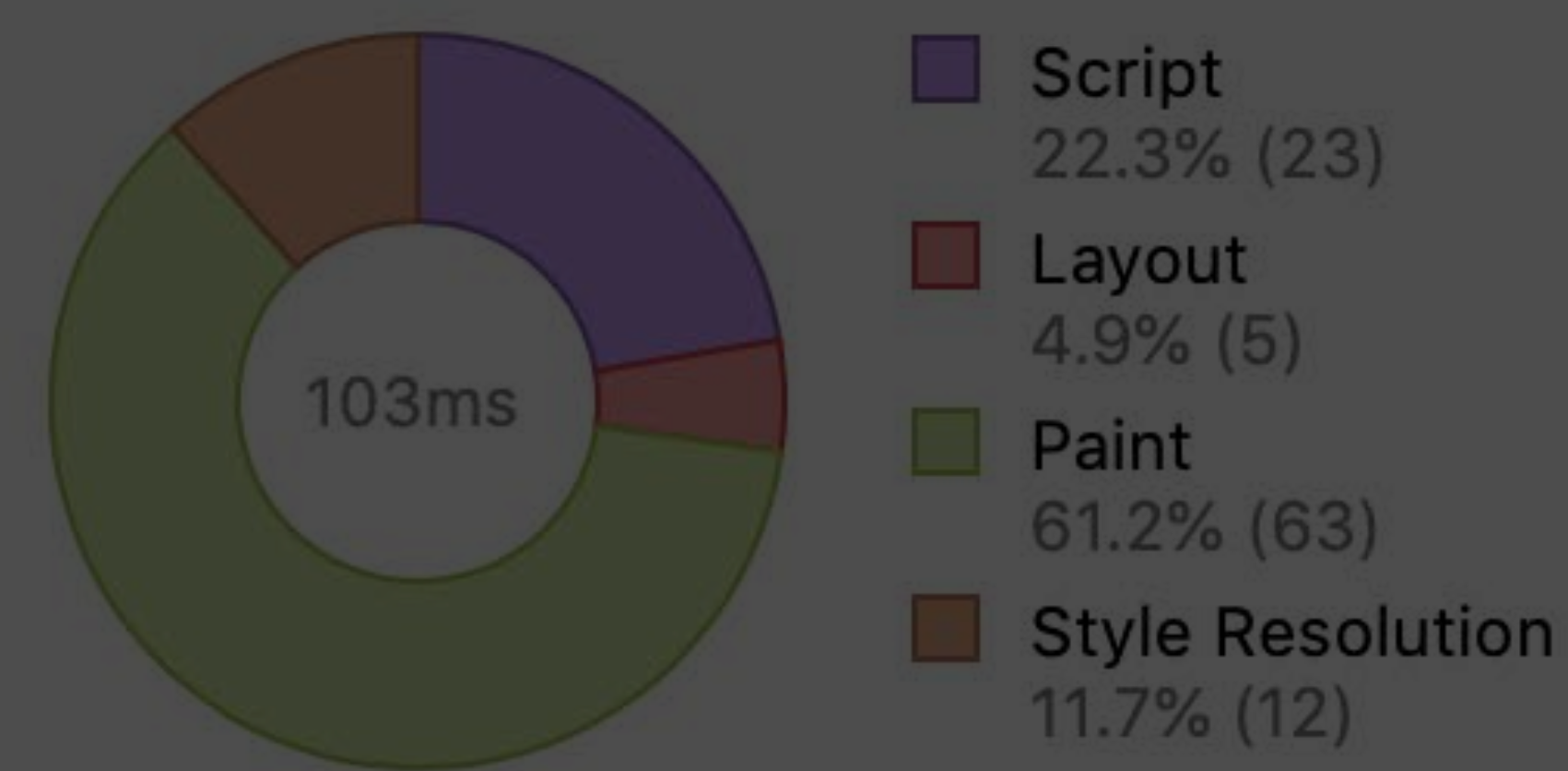
Network Requests:	12
Script Entries:	12
Events:	2 DOMContentLoaded
	1 load

### Sources

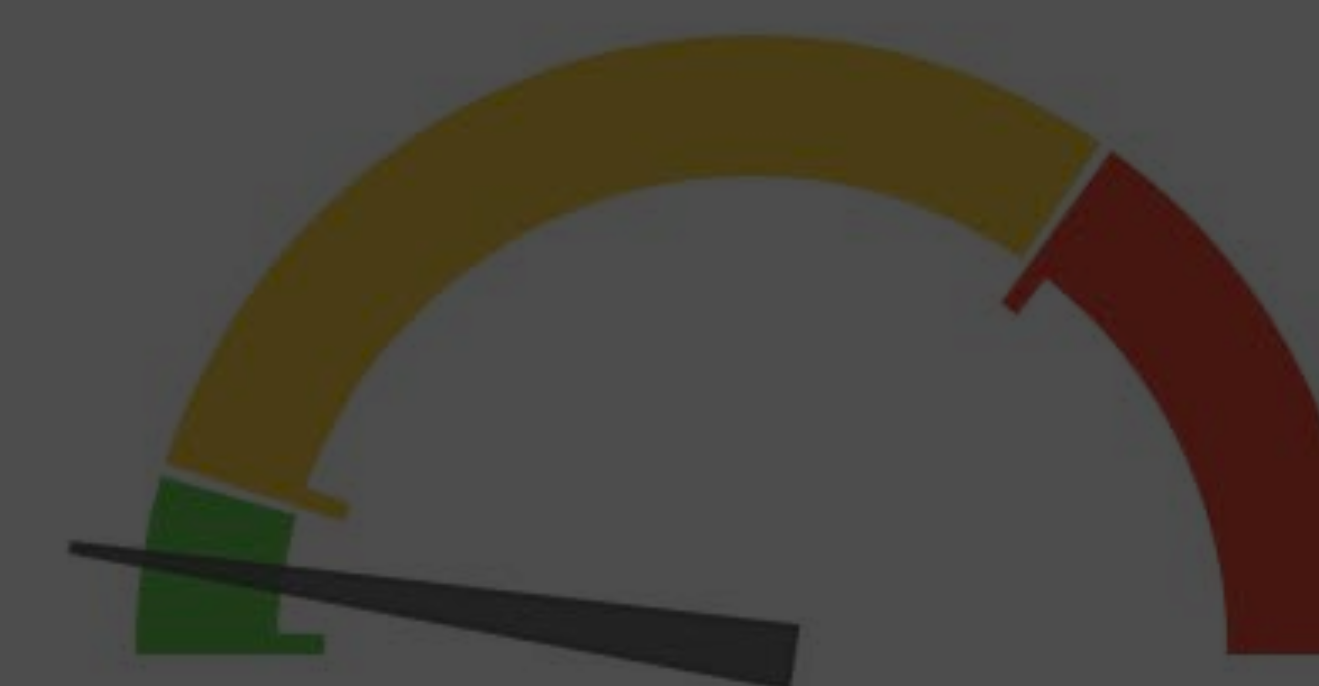
Timers:	—
Event Handlers:	2 wp-embed.min.js:1:39
	1 global.js:1:56
Observer Handlers:	—



### Main Thread

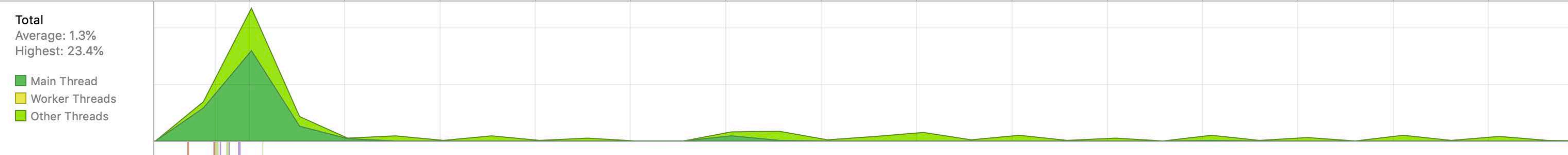


### Energy Impact ?



**Low**  
 Average CPU: 1.3%  
 Duration: 19s

### CPU Usage



### Threads

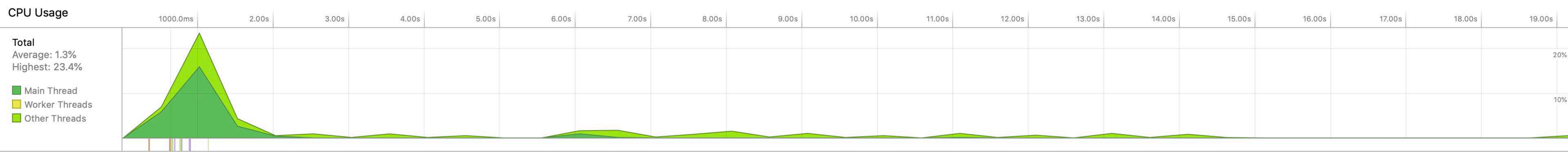
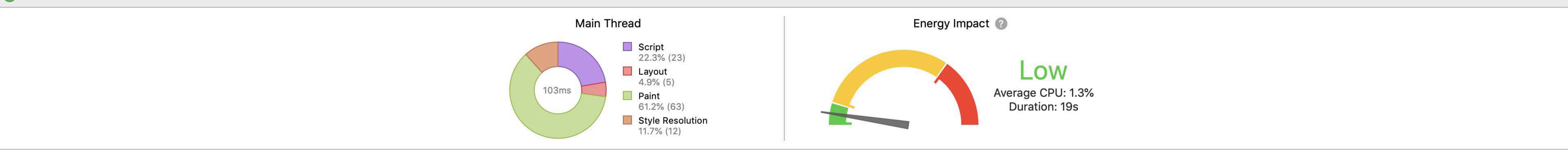
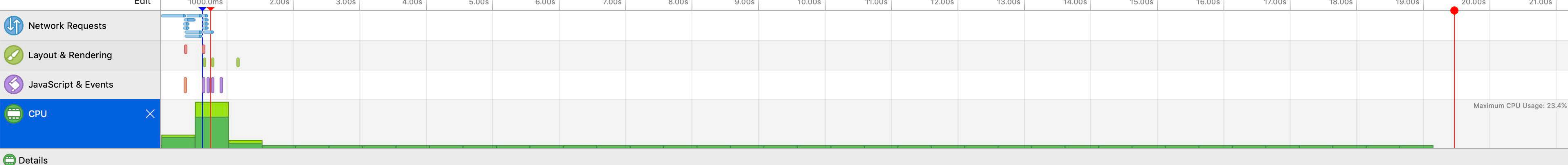
### Statistics

**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 DOMContentLoaded  
 1 load

### Sources

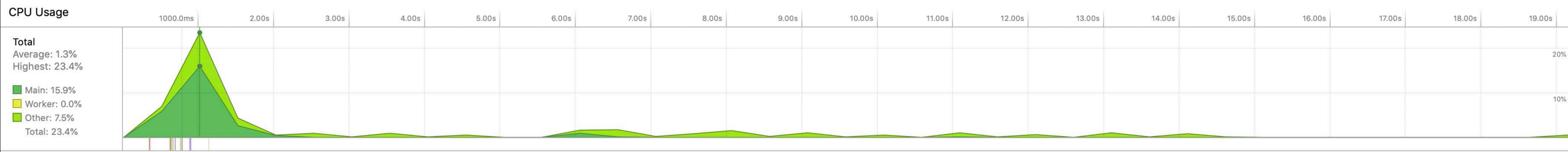
**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 1 global.js:1:56  
**Observer Handlers:** —





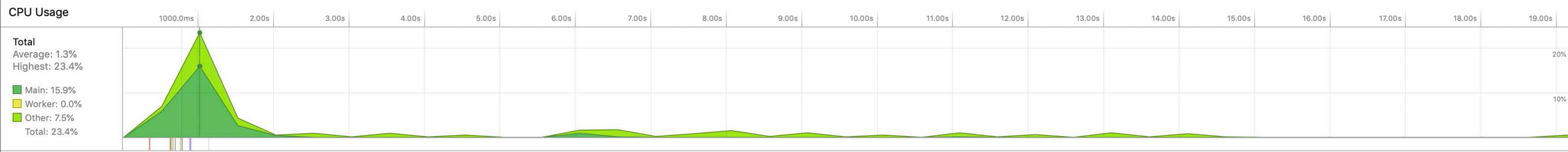
### Threads

Statistics	Sources
<b>Network Requests:</b> 12	<b>Timers:</b> —
<b>Script Entries:</b> 12	<b>Event Handlers:</b> 2 <code>wp-embed.min.js:1:39</code>
<b>Events:</b> 2 <code>DOMContentLoaded</code>	1 <code>global.js:1:56</code>
1 <code>load</code>	<b>Observer Handlers:</b> —



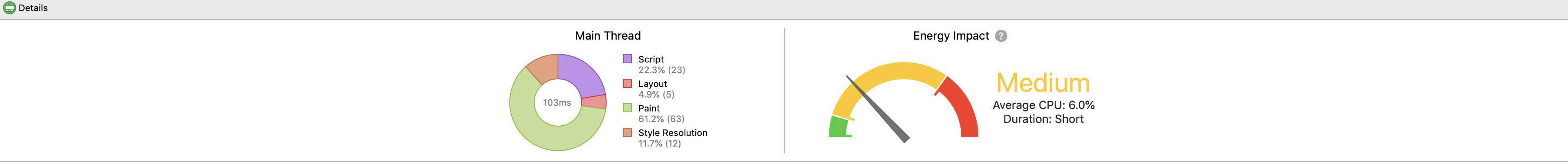
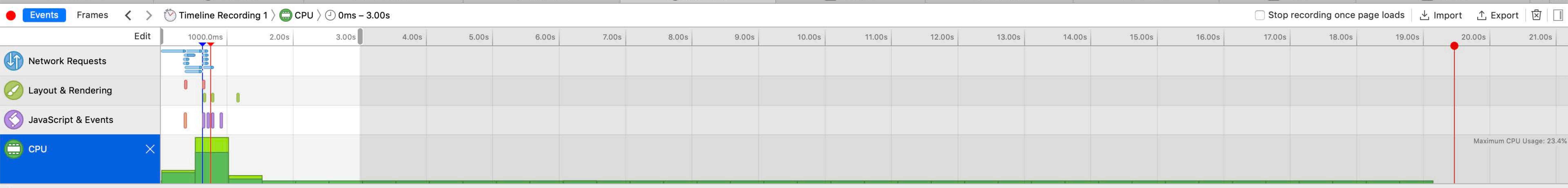
### Threads

Statistics	Sources
<b>Network Requests:</b> 12	<b>Timers:</b> —
<b>Script Entries:</b> 12	<b>Event Handlers:</b> 2 <code>wp-embed.min.js:1:39</code>
<b>Events:</b> 2 <code>DOMContentLoaded</code>	1 <code>global.js:1:56</code>
1 <code>load</code>	<b>Observer Handlers:</b> —



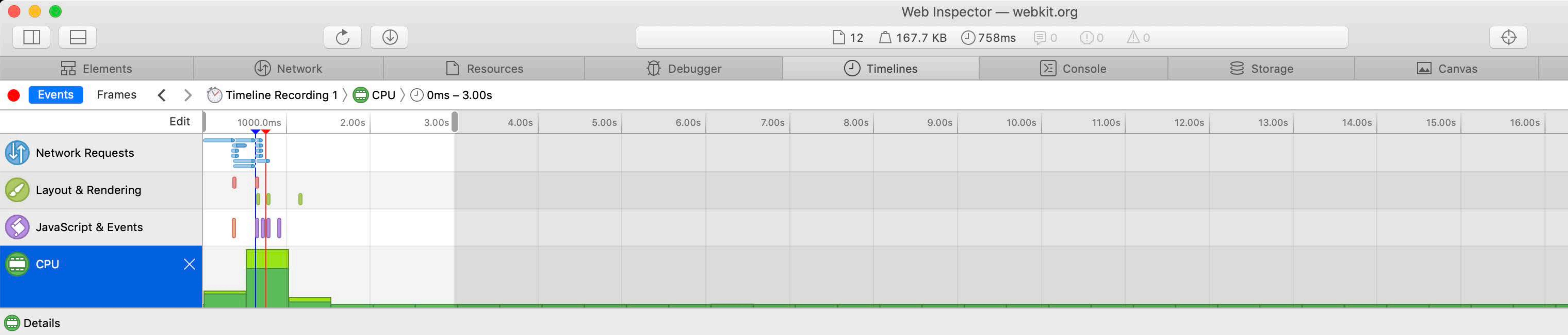
### Threads

Statistics	Sources
<b>Network Requests:</b> 12	<b>Timers:</b> —
<b>Script Entries:</b> 12	<b>Event Handlers:</b> 2 <code>wp-embed.min.js:1:39</code>
<b>Events:</b> 2 <code>DOMContentLoaded</code>	1 <code>global.js:1:56</code>
1 <code>load</code>	<b>Observer Handlers:</b> —

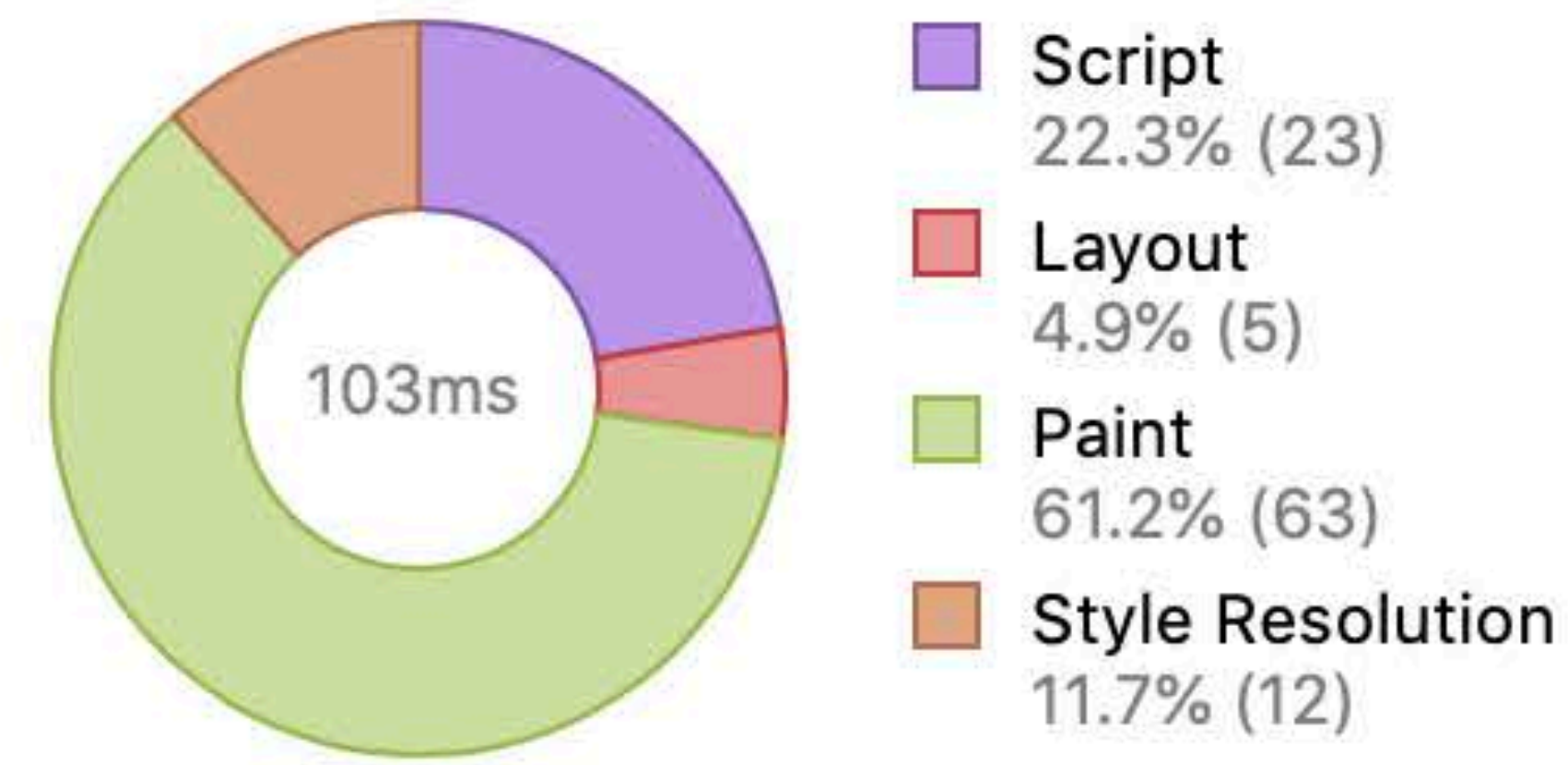


Threads

Statistics	Sources
<b>Network Requests:</b> 12 <b>Script Entries:</b> 12 <b>Events:</b> 2 DOMContentLoaded 1 load	<b>Timers:</b> — <b>Event Handlers:</b> 2 wp-embed.min.js:1:39 1 global.js:1:56 <b>Observer Handlers:</b> —



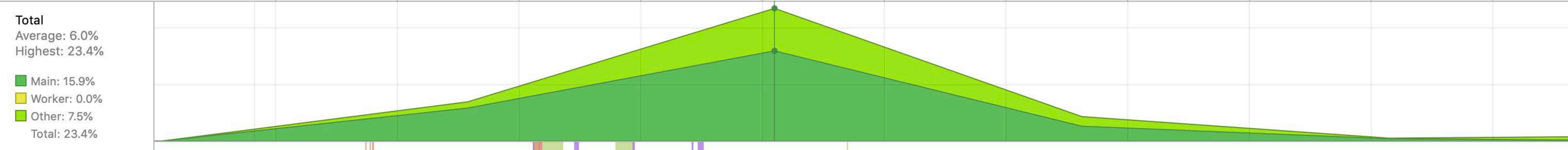
### Main Thread



### Energy Impact ?



### CPU Usage



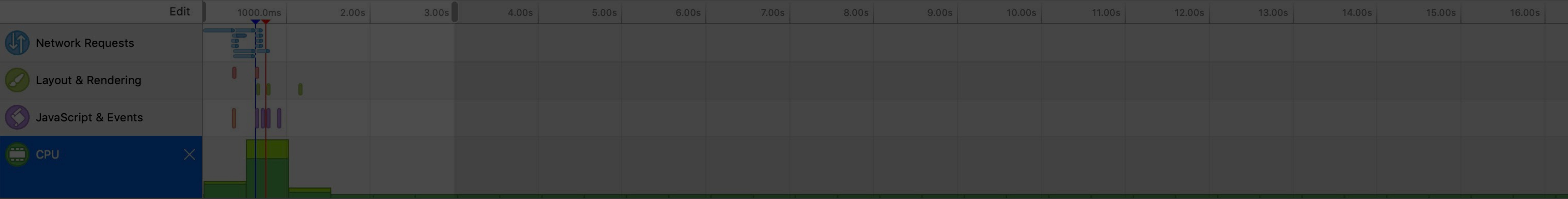
### Threads

### Statistics

**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 `DOMContentLoaded`  
 1 `load`

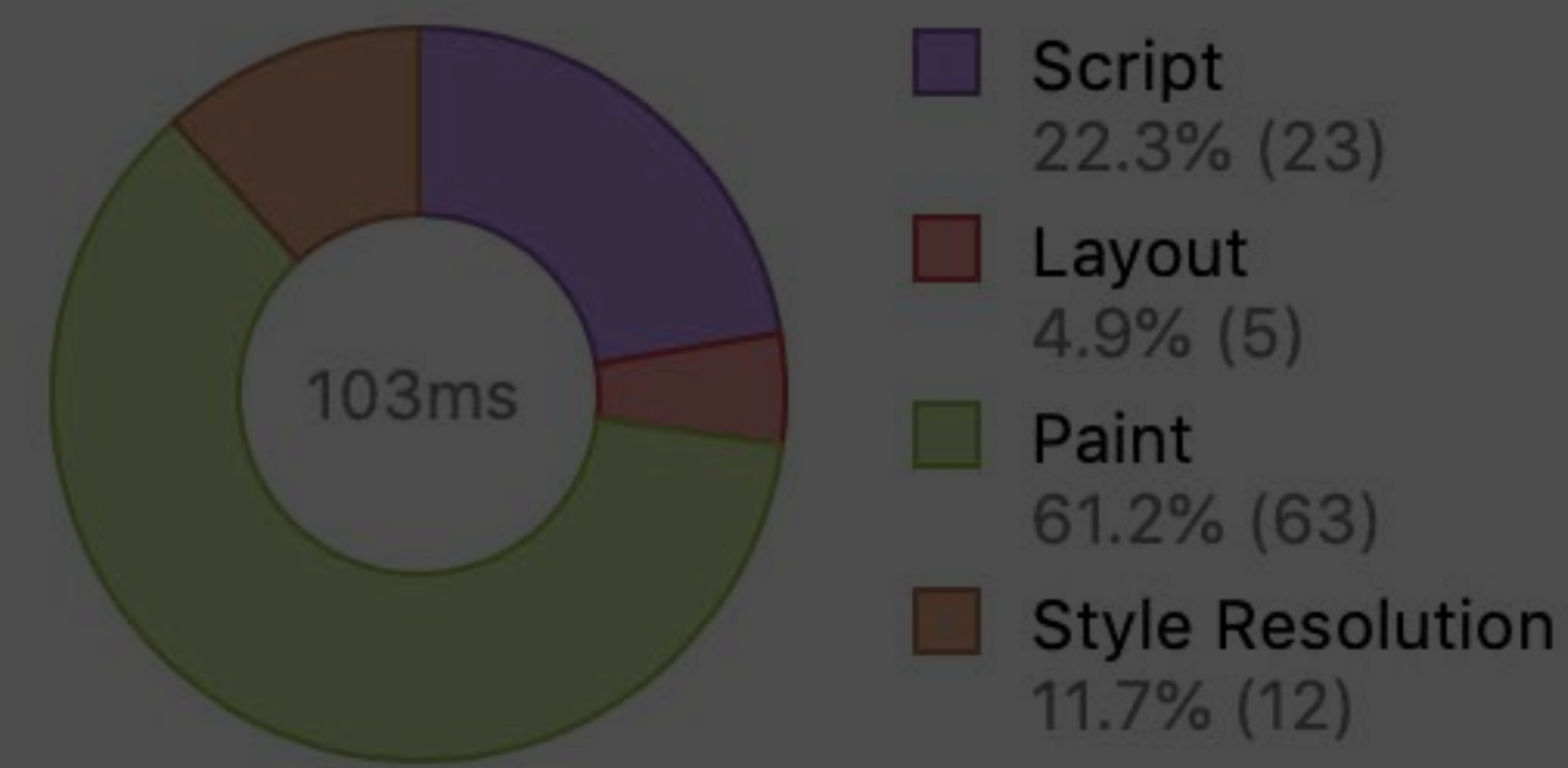
### Sources

**Timers:** —  
**Event Handlers:** 2 `wp-embed.min.js:1:39`  
 1 `global.js:1:56`  
**Observer Handlers:** —



Details

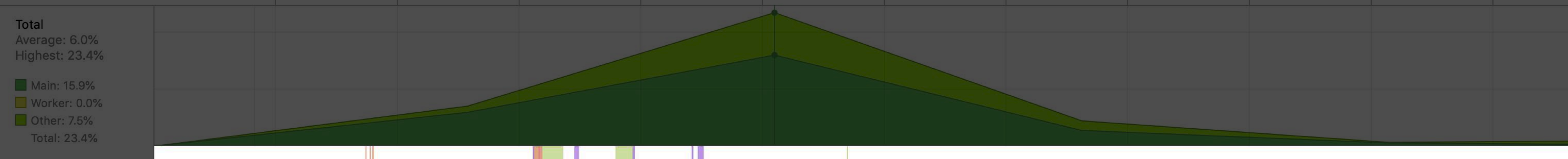
### Main Thread



### Energy Impact ?



### CPU Usage



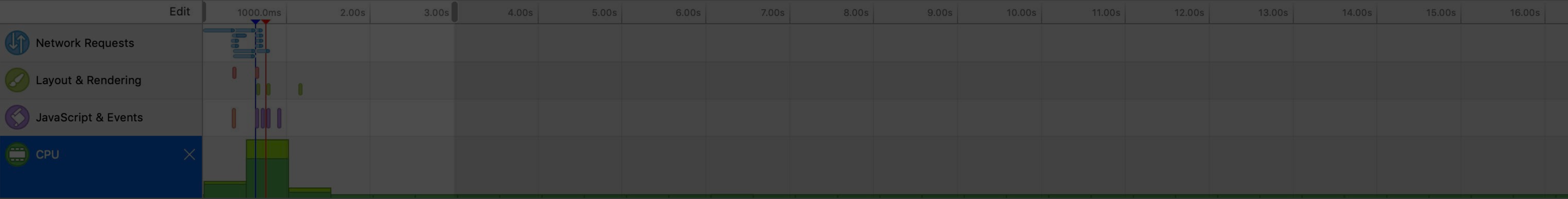
Threads

### Statistics

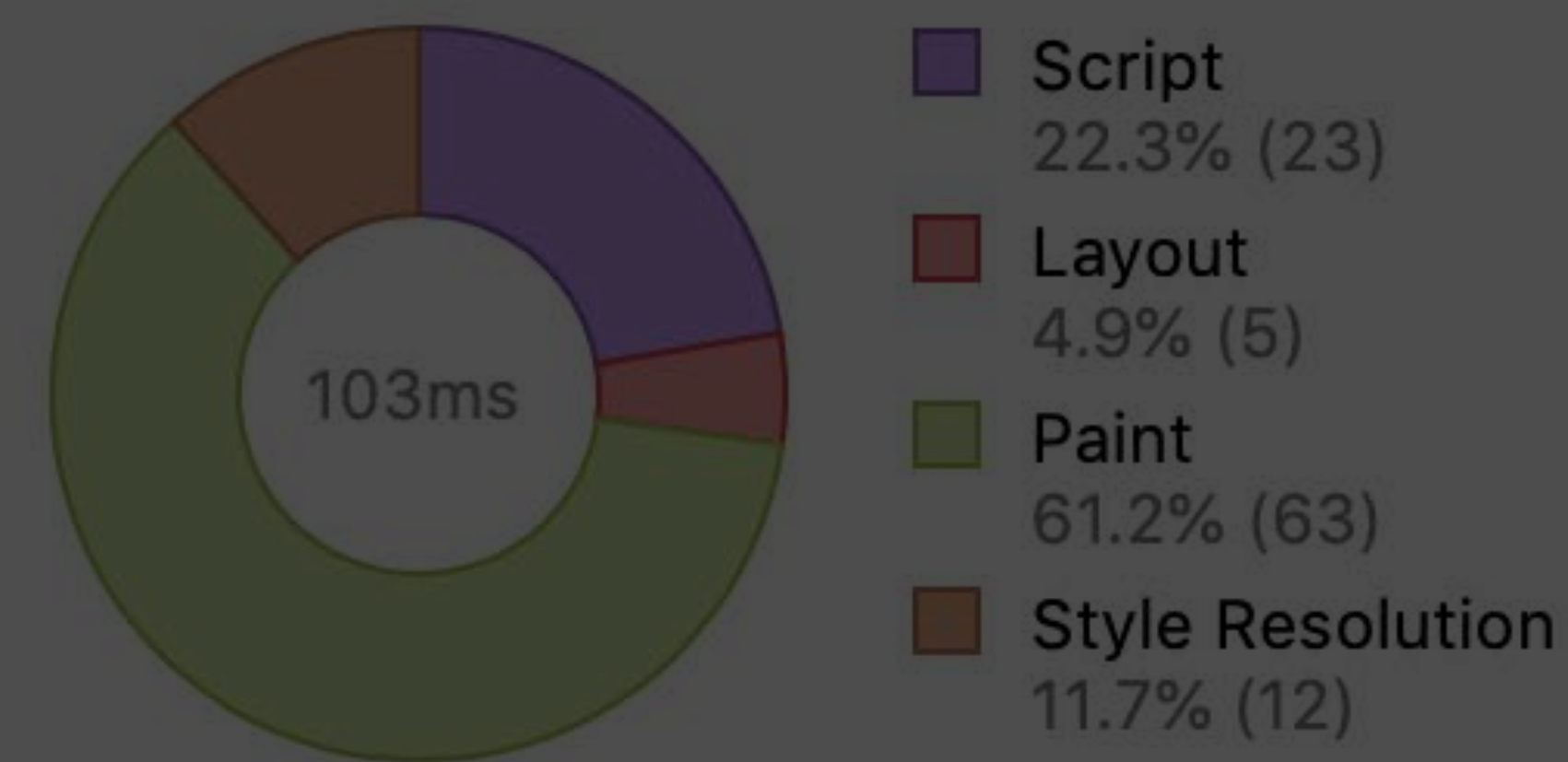
Network Requests:	12
Script Entries:	12
Events:	2 DOMContentLoaded
	1 load

### Sources

Timers:	—
Event Handlers:	2 wp-embed.min.js:1:39
	1 global.js:1:56
Observer Handlers:	—



### Main Thread



### Energy Impact ?

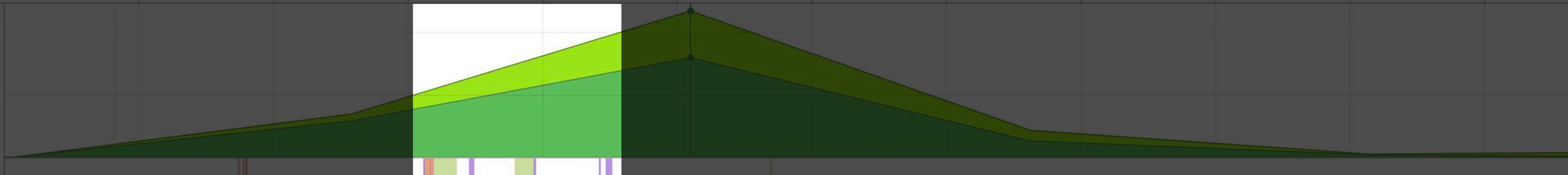


### CPU Usage

200.0ms 400.0ms 600.0ms 800.0ms 1000.0ms 1.20s 1.40s 1.60s 1.80s 2.00s 2.20s

Total  
Average: 6.0%  
Highest: 23.4%

Main: 15.9%  
 Worker: 0.0%  
 Other: 7.5%  
 Total: 23.4%



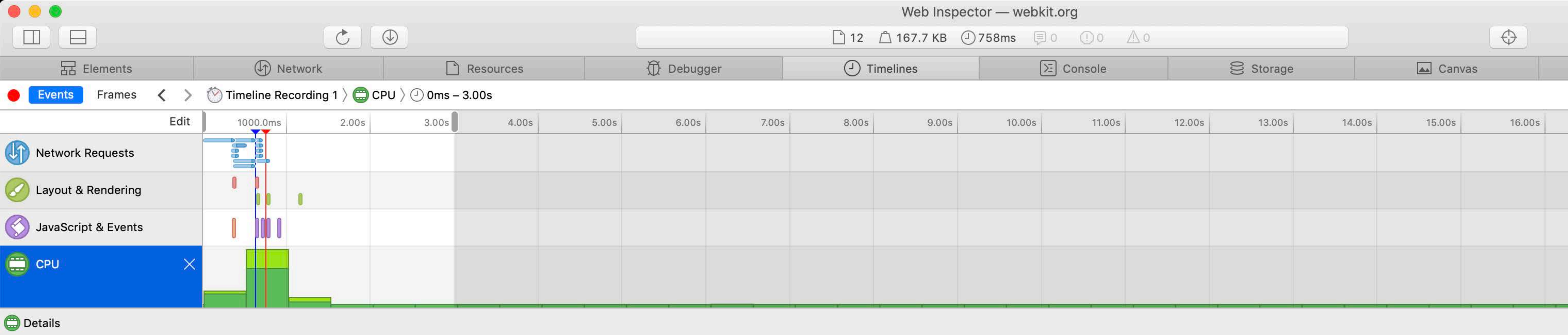
### Threads

### Statistics

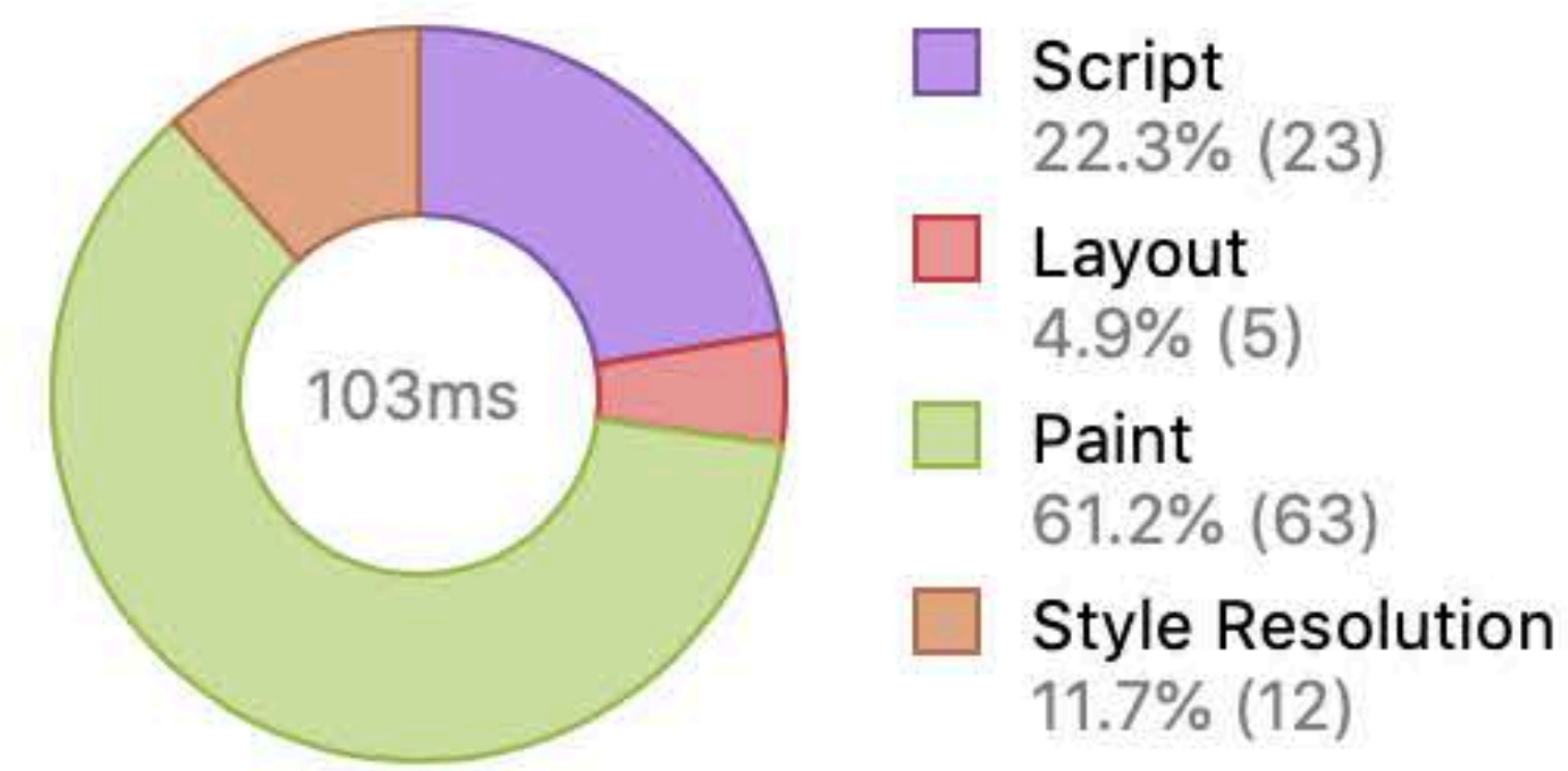
**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 DOMContentLoaded  
 1 load

### Sources

**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 1 global.js:1:56  
**Observer Handlers:** —



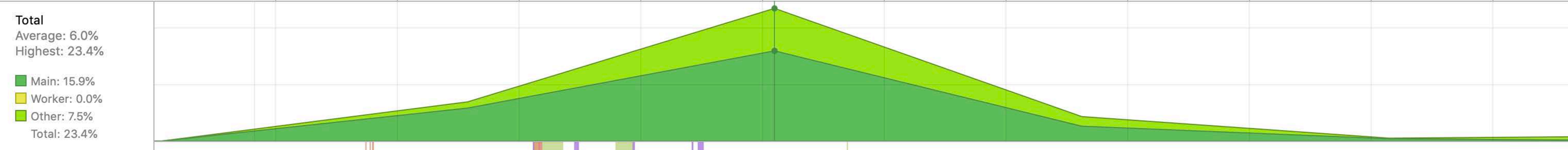
### Main Thread



### Energy Impact ?



### CPU Usage



### Threads

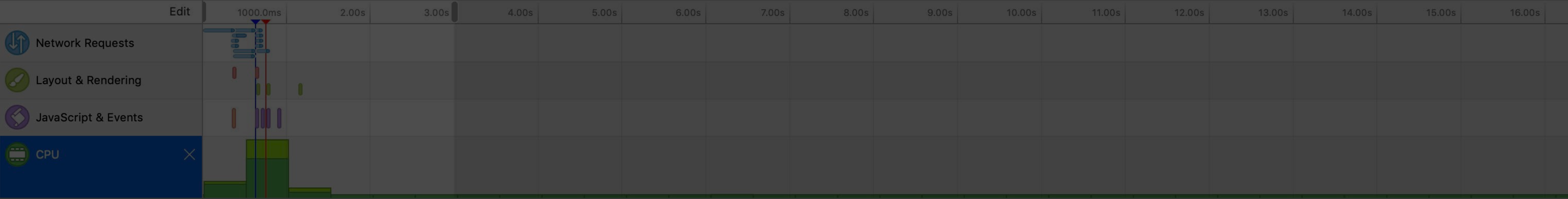
### Statistics

**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 `DOMContentLoaded`  
 1 `load`

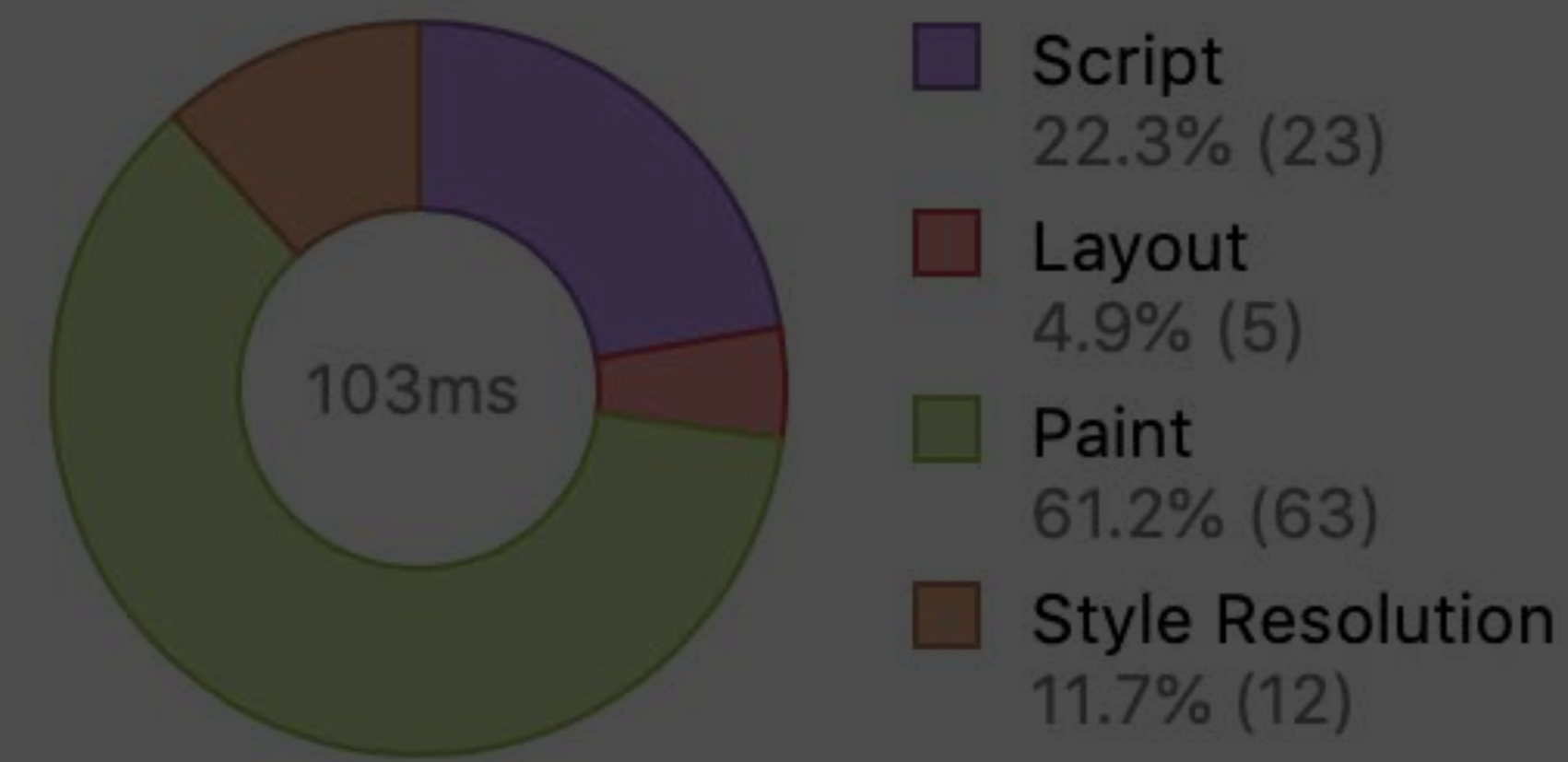
### Sources

**Timers:** —  
**Event Handlers:** 2 `wp-embed.min.js:1:39`  
 1 `global.js:1:56`  
**Observer Handlers:** —

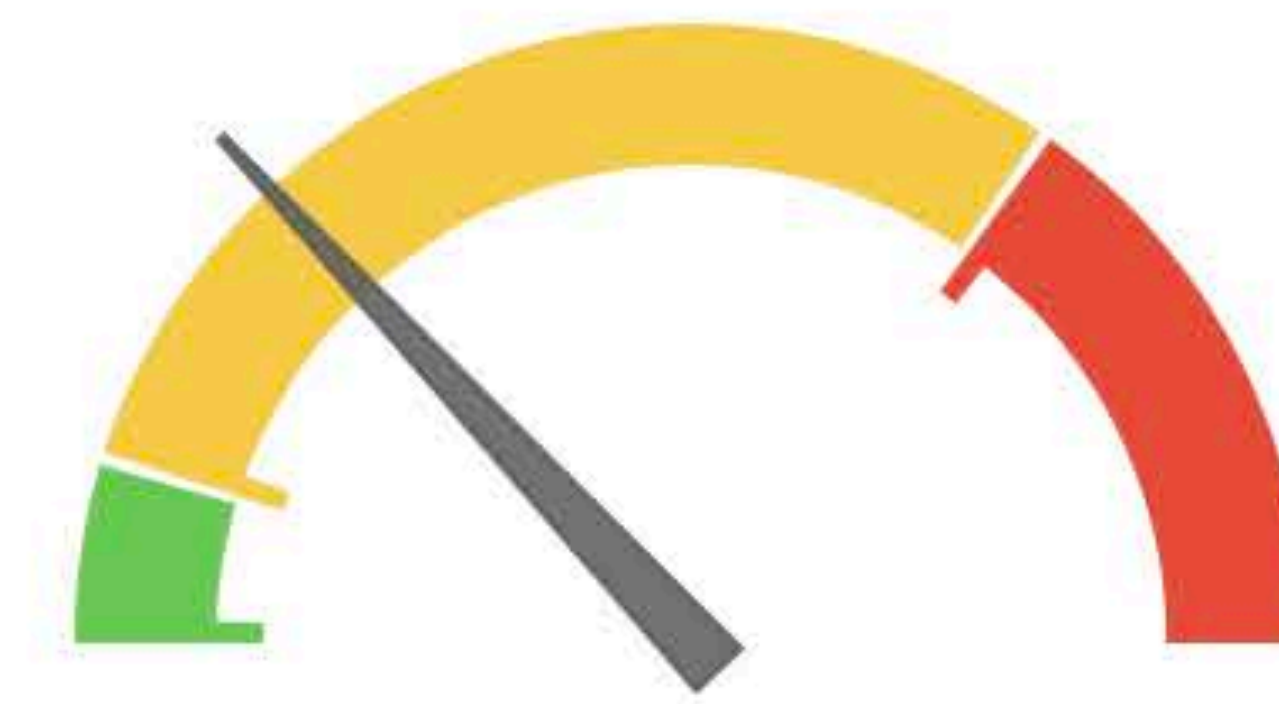




### Main Thread



### Energy Impact ?



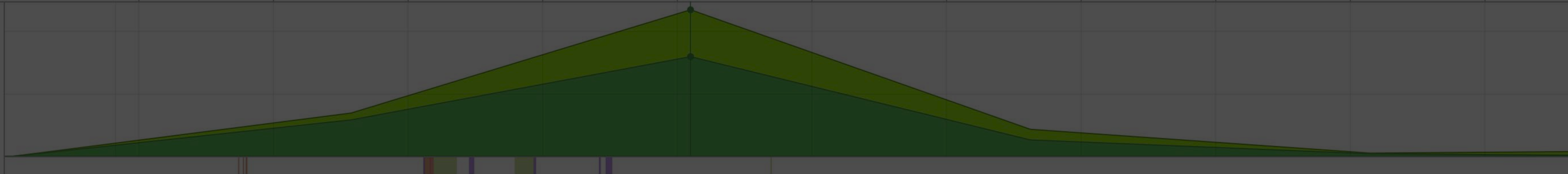
**Medium**  
 Average CPU: 6.0%  
 Duration: Short

### CPU Usage

200.0ms 400.0ms 600.0ms 800.0ms 1000.0ms 1.20s 1.40s 1.60s 1.80s 2.00s 2.20s

Total  
 Average: 6.0%  
 Highest: 23.4%

Main: 15.9%  
 Worker: 0.0%  
 Other: 7.5%  
 Total: 23.4%



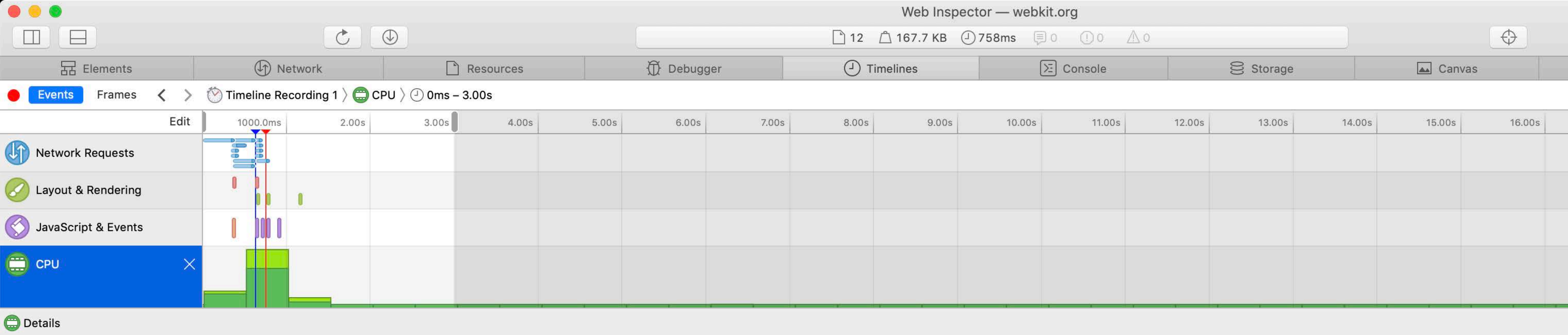
### Threads

### Statistics

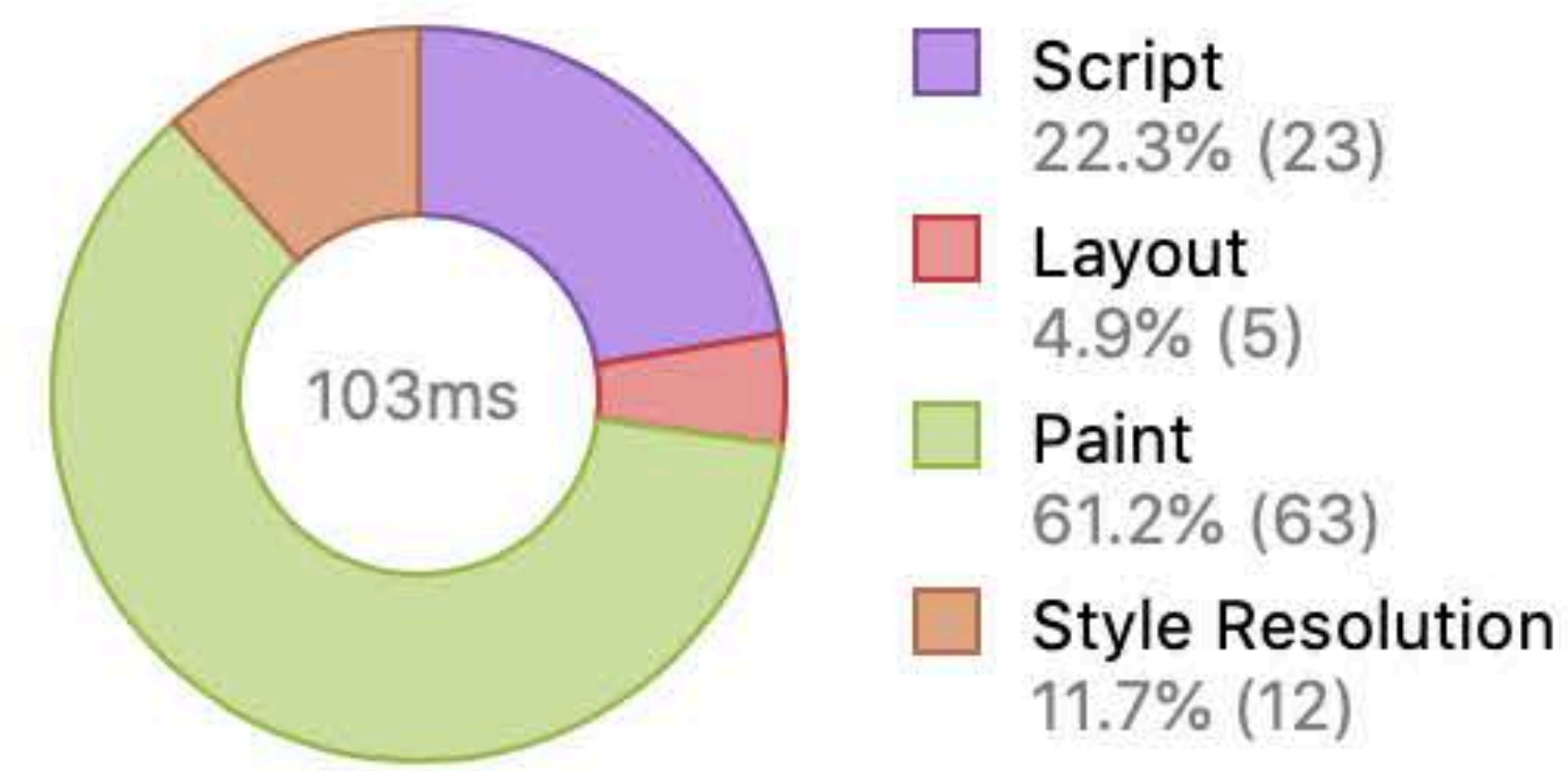
**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 DOMContentLoaded  
 1 load

### Sources

**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 1 global.js:1:56  
**Observer Handlers:** —



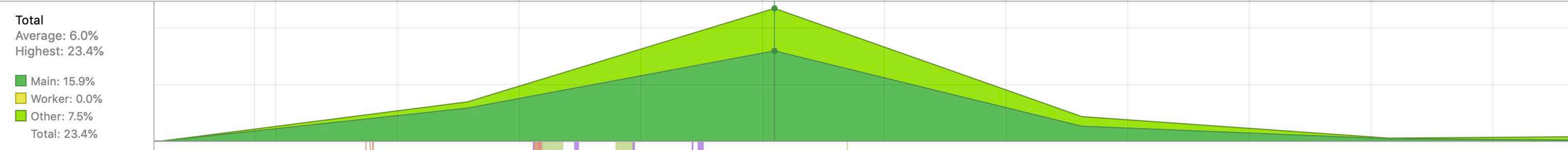
### Main Thread



### Energy Impact ?



### CPU Usage



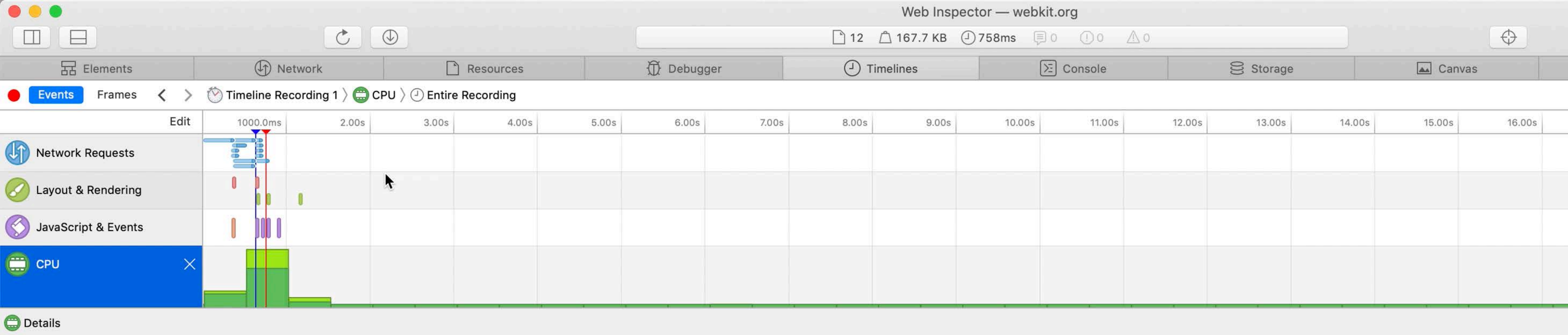
### Threads

### Statistics

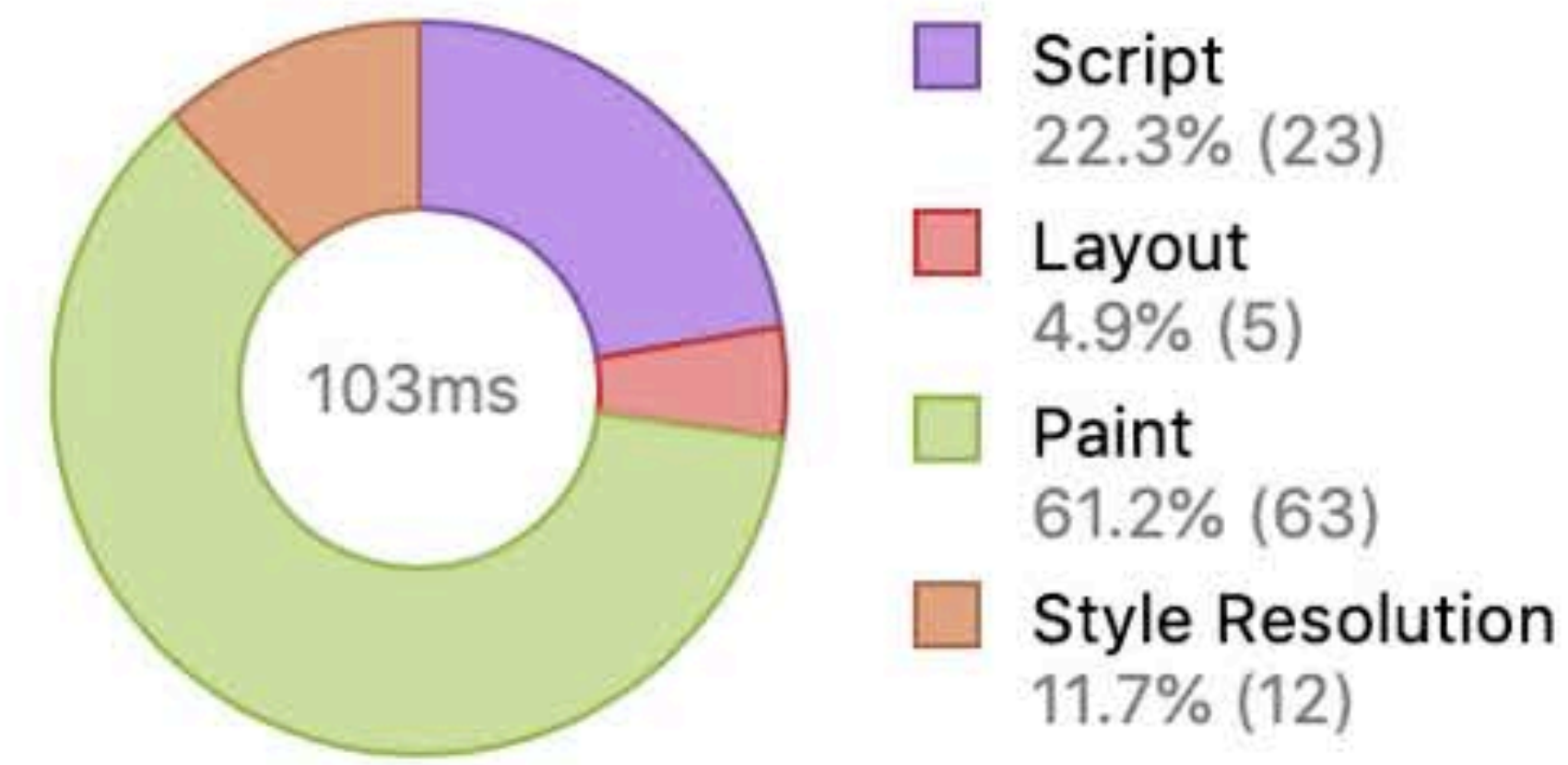
**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 `DOMContentLoaded`  
 1 `load`

### Sources

**Timers:** —  
**Event Handlers:** 2 `wp-embed.min.js:1:39`  
 1 `global.js:1:56`  
**Observer Handlers:** —



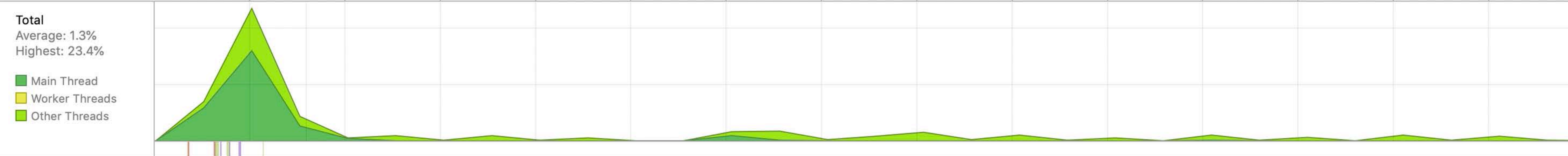
### Main Thread



### Energy Impact ?



### CPU Usage



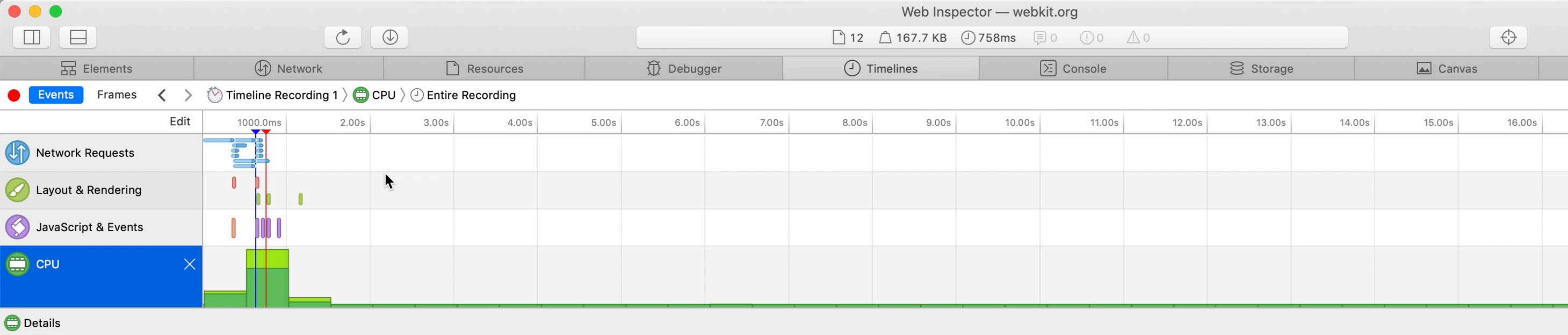
### Threads

### Statistics

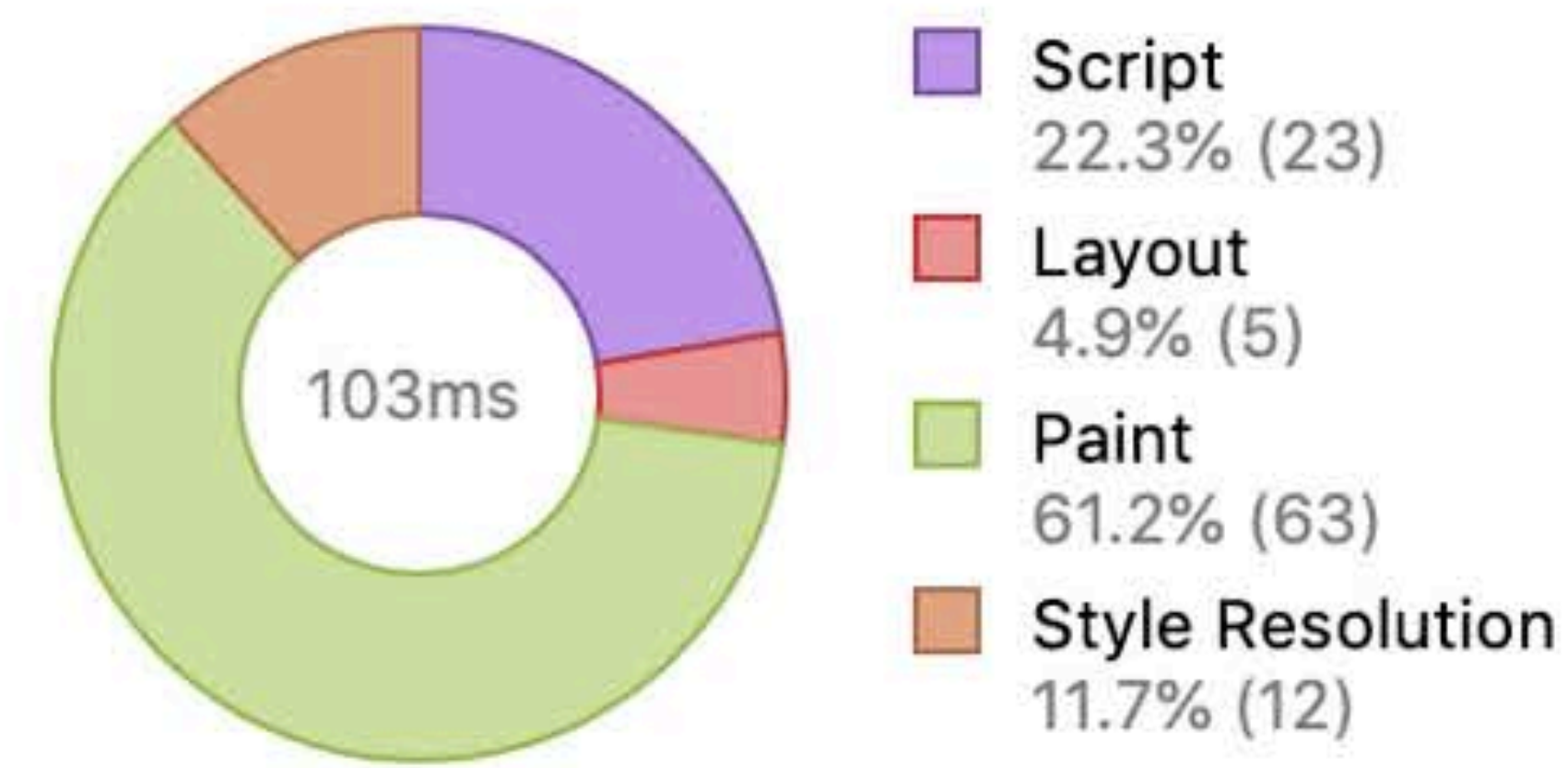
**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 DOMContentLoaded  
 1 load

### Sources

**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 1 global.js:1:56  
**Observer Handlers:** —



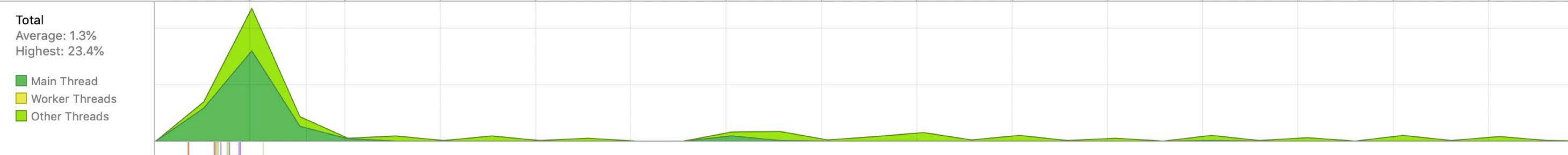
### Main Thread



### Energy Impact ?



### CPU Usage



### Threads

### Statistics

**Network Requests:** 12  
**Script Entries:** 12  
**Events:** 2 DOMContentLoaded  
 1 load

### Sources

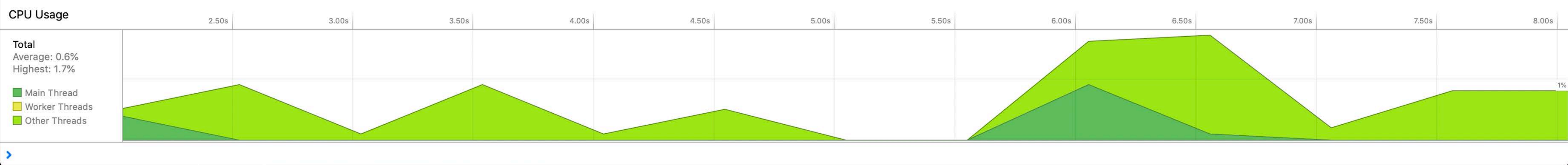
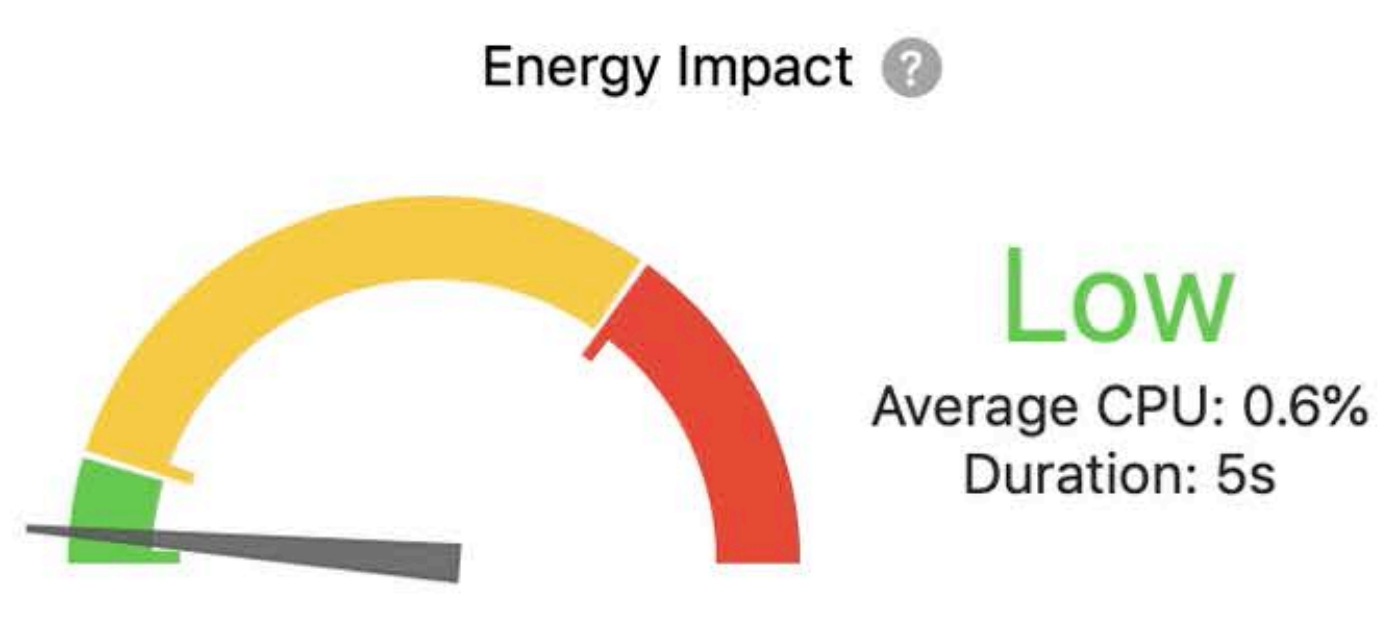
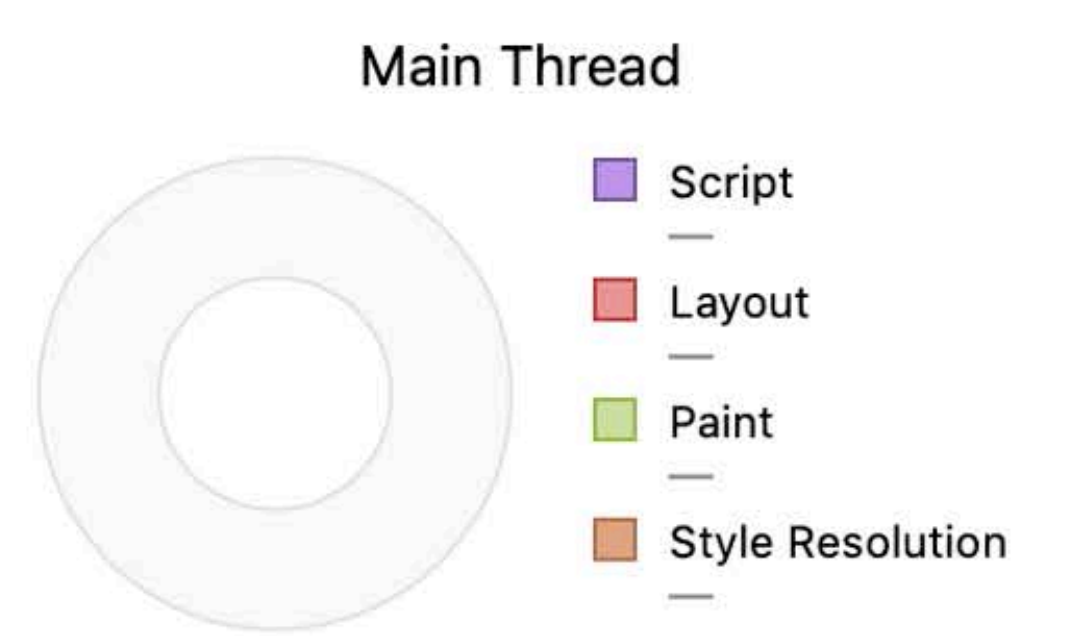
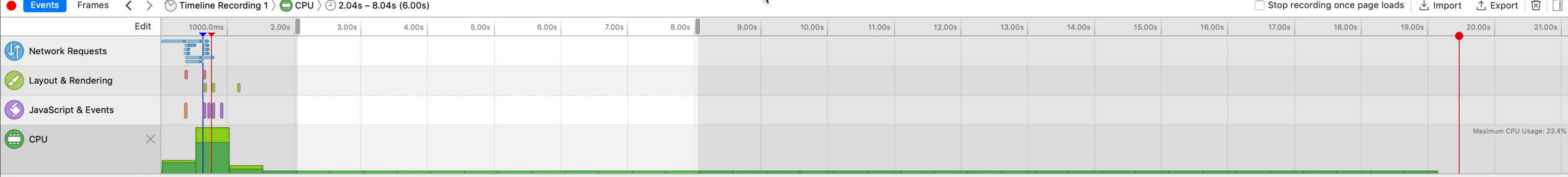
**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 1 global.js:1:56  
**Observer Handlers:** —



# A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

Web developers can [follow development](#), [check feature status](#), [download Safari Technology Preview](#) to try out the latest web technologies, and [report bugs](#).

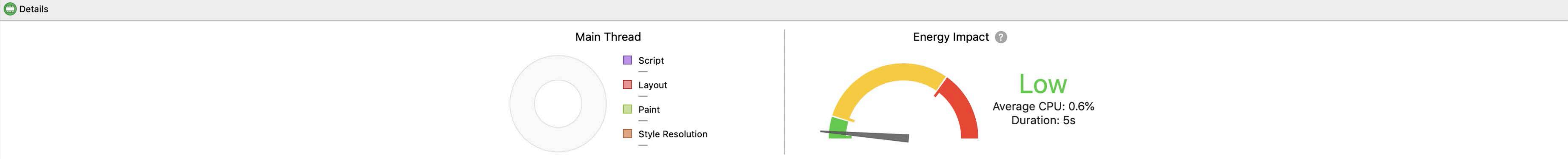
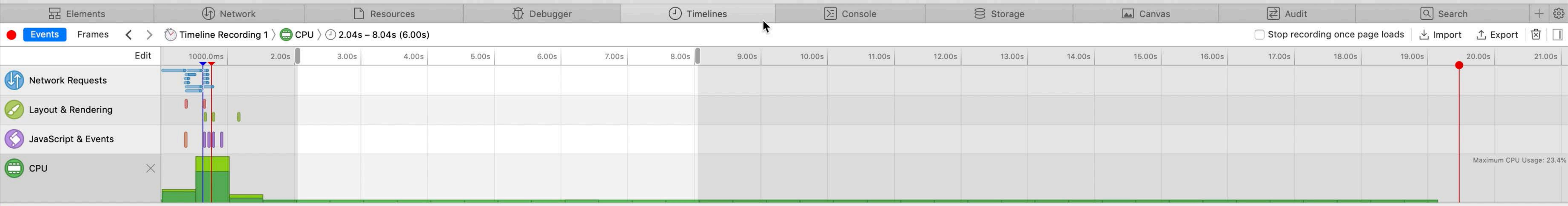




# A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

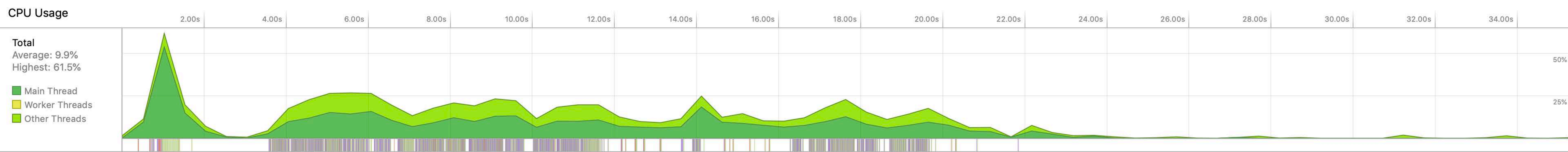
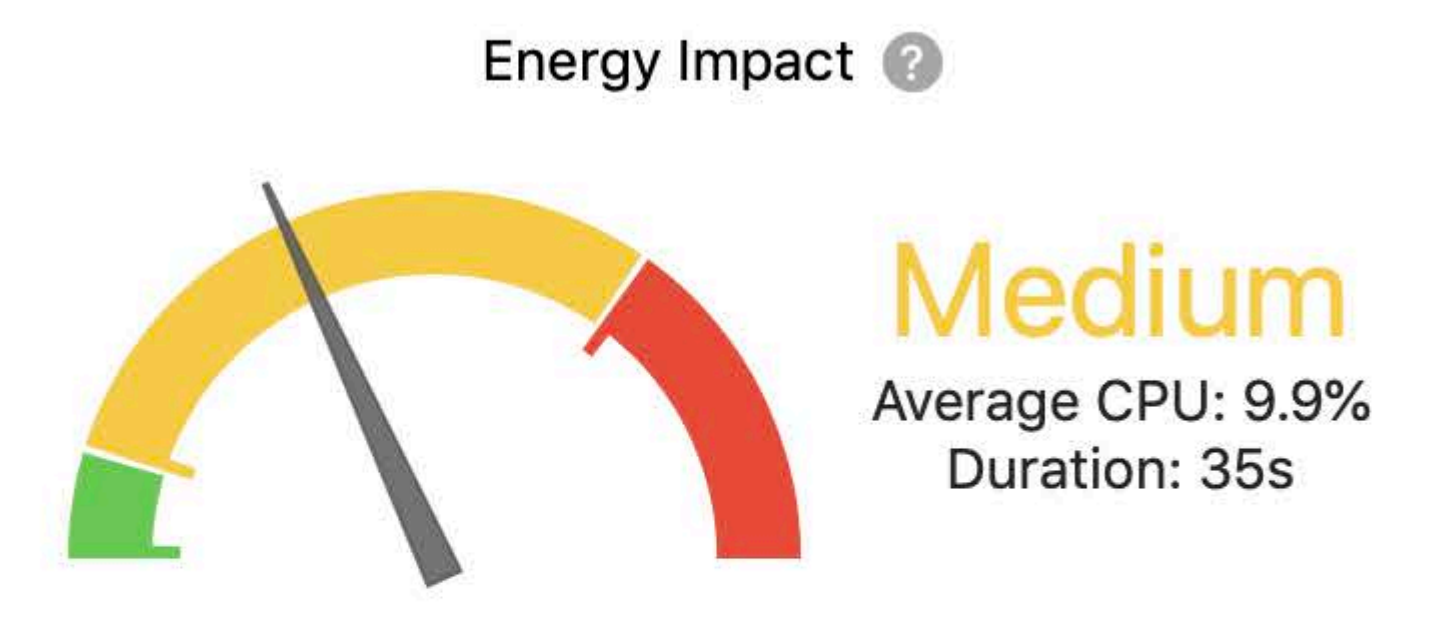
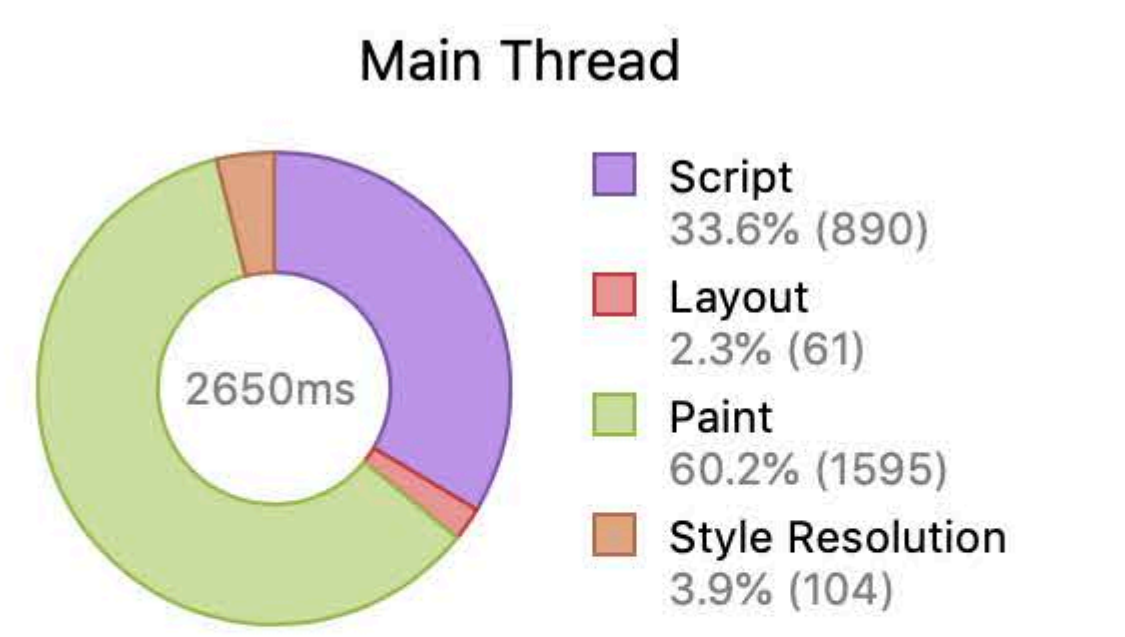
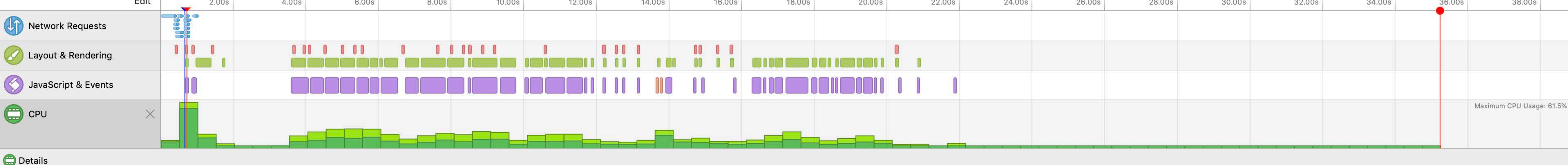
Web developers can [follow development](#), [check feature status](#), [download Safari Technology Preview](#) to try out the latest web technologies, and [report bugs](#).







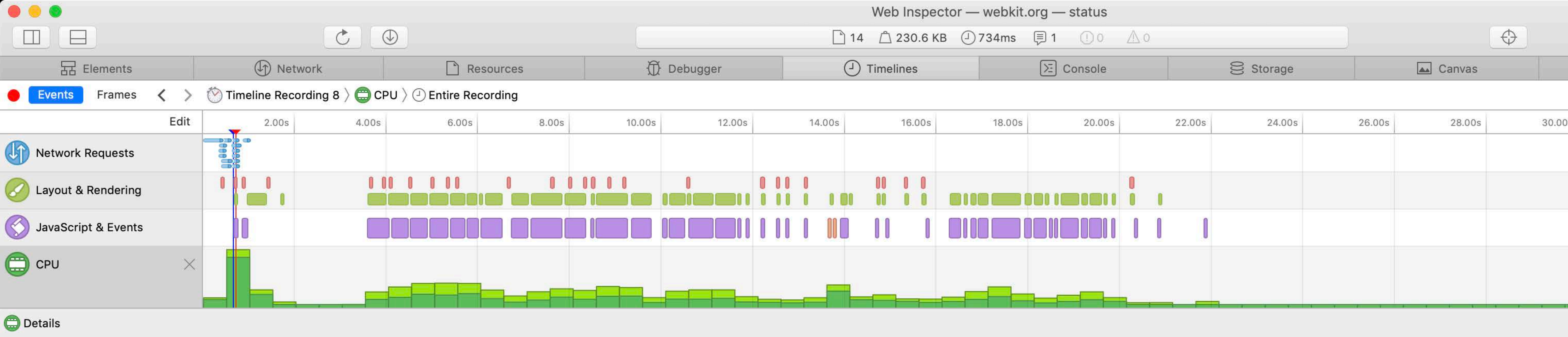




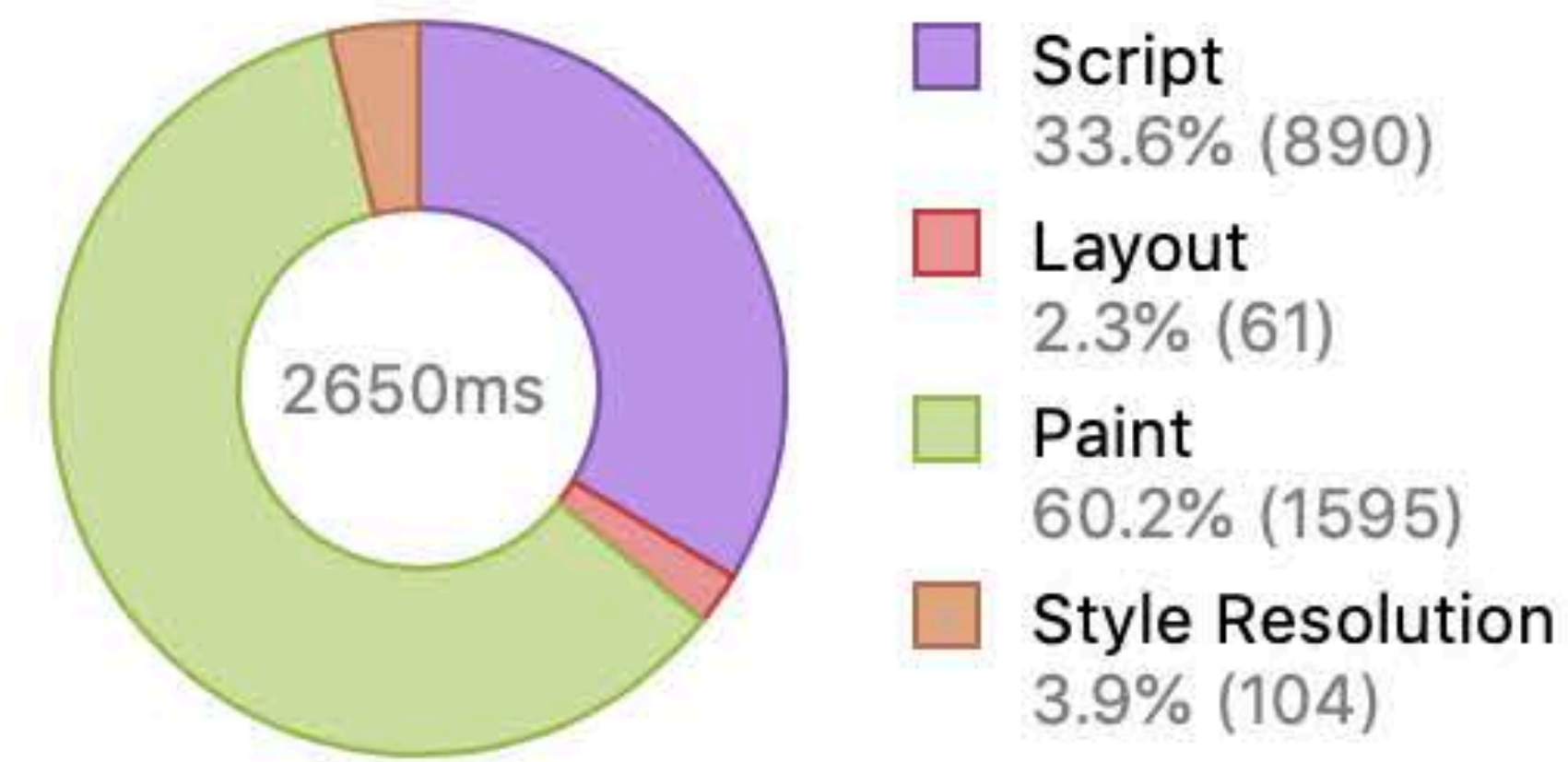
### Threads

Category	Count	Item
Network Requests	14	
Script Entries	1288	
Timers	596	requestAnimationFrame
Events	647	scroll
	4	click
	3	DOMContentLoaded
	3	load
	3	input
	...	

Category	Count	Item
Timers	596	global.js:79:35 - onMovement
Event Handlers	647	global.js:77:24
	3	status:1002:54
	3	status:997:54
	2	wp-embed.min.js:1:39
	2	status:105:37
	...	
Observer Handlers	—	



### Main Thread

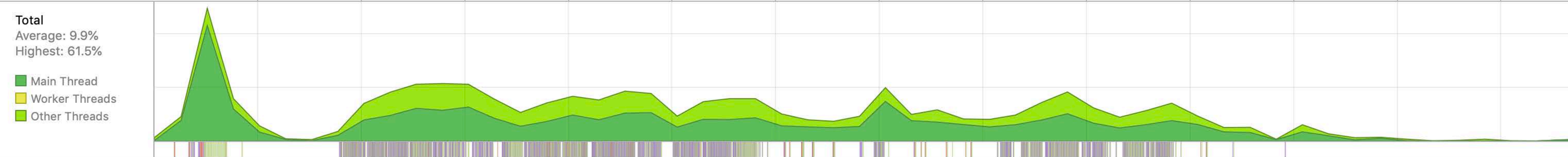


### Energy Impact ?



**Medium**  
 Average CPU: 9.9%  
 Duration: 35s

### CPU Usage



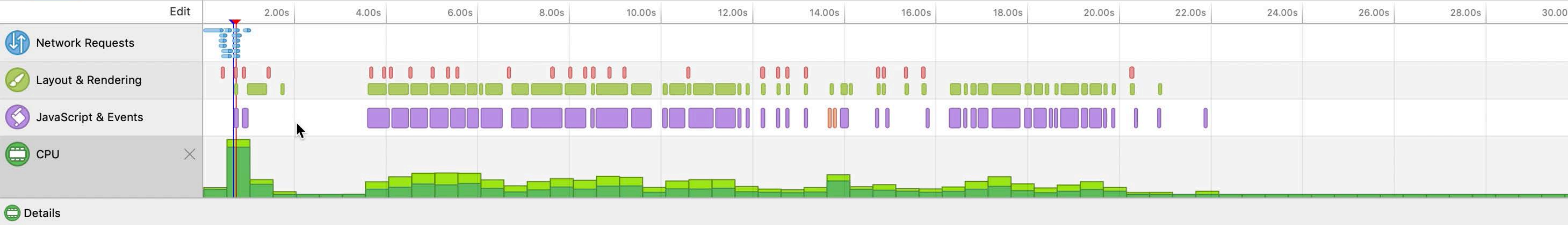
### Threads

### Statistics

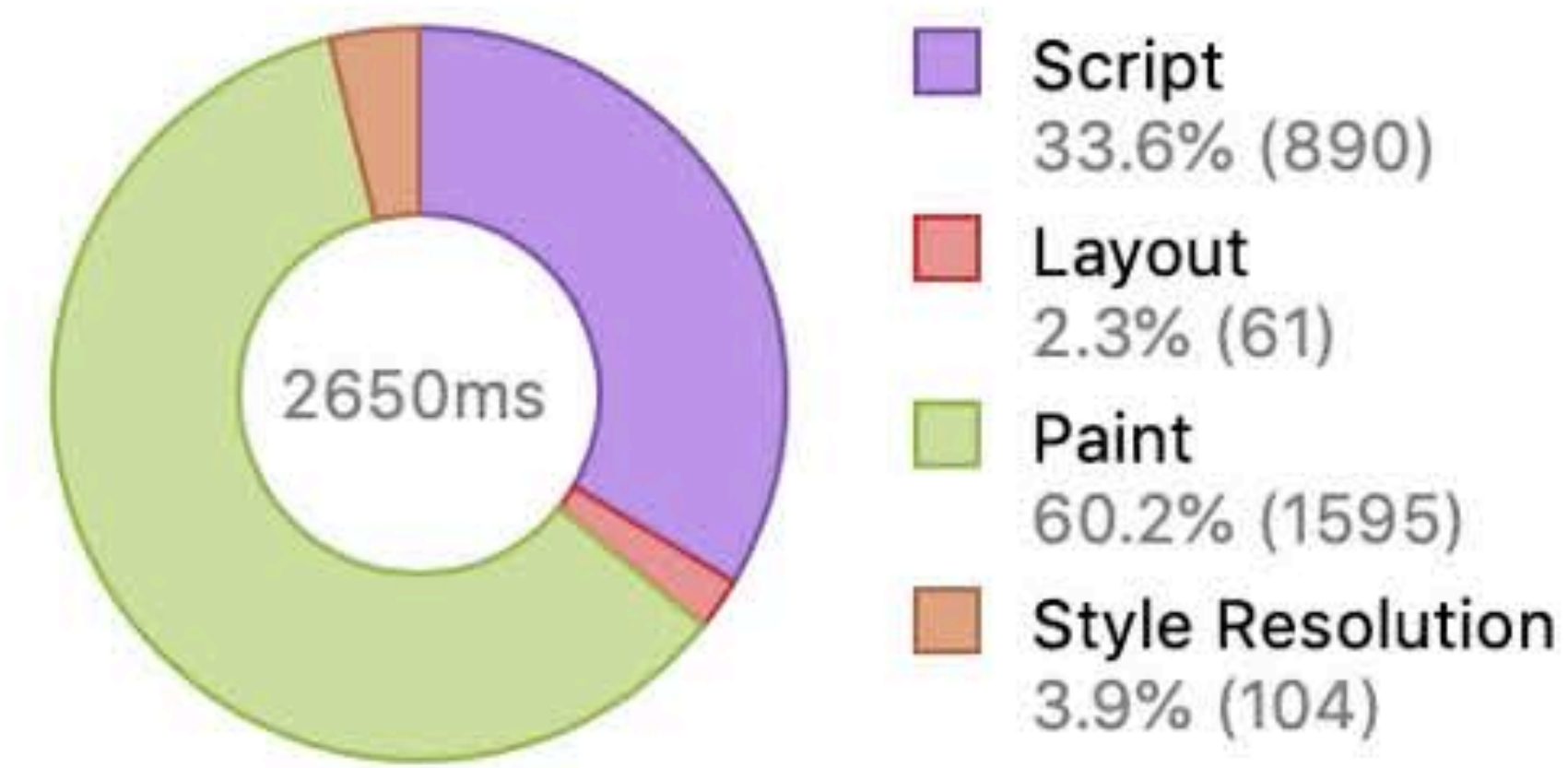
**Network Requests:** 14  
**Script Entries:** 1288  
**Timers:** 596 `requestAnimationFrame`  
**Events:** 647 `scroll`  
 4 `click`

### Sources

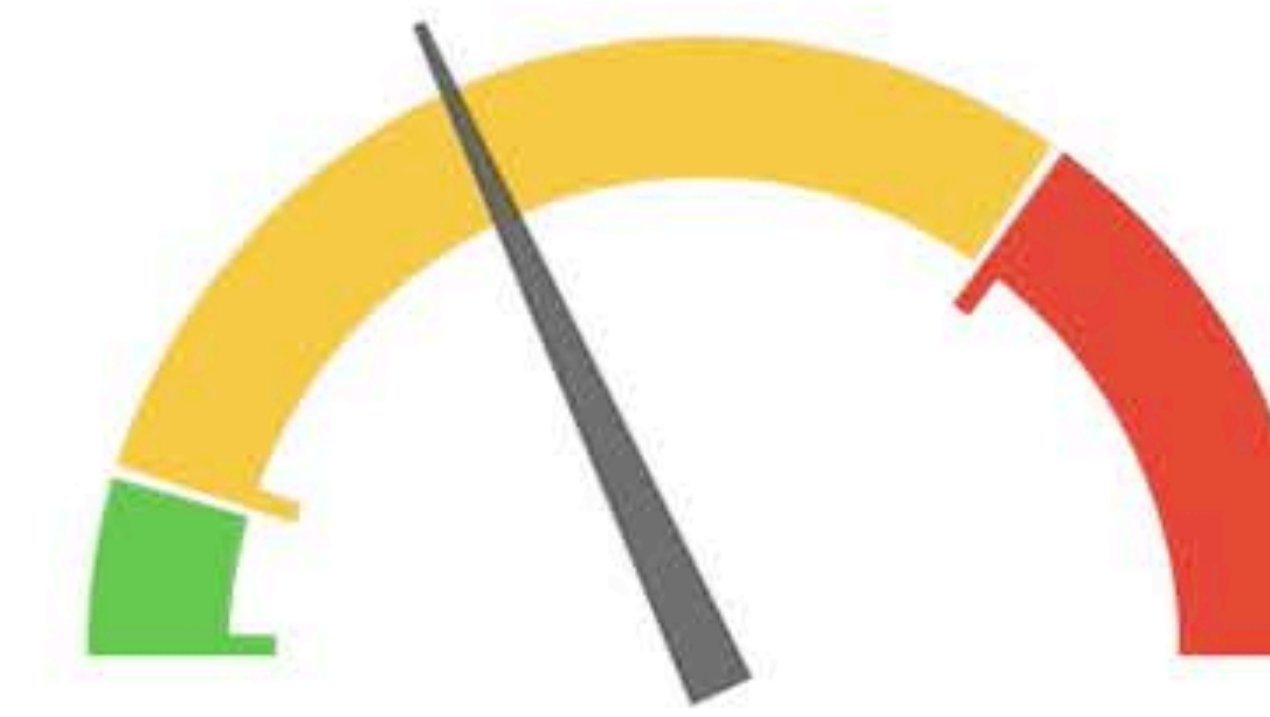
**Timers:** 596 `global.js:79:35` – `onMovement`  
**Event Handlers:** 647 `global.js:77:24`  
 3 `status:1002:54`  
 3 `status:997:54`  
 2 `wp-embed.min.js:1:39`



### Main Thread



### Energy Impact ?

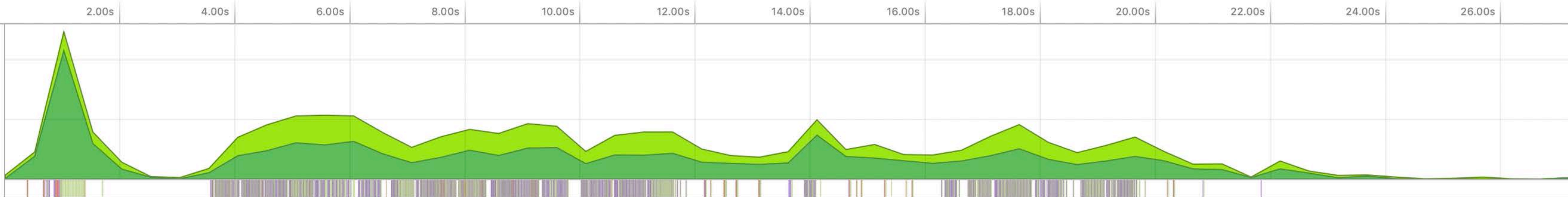


**Medium**  
 Average CPU: 9.9%  
 Duration: 35s

### CPU Usage

**Total**  
 Average: 9.9%  
 Highest: 61.5%

Legend:  
 Main Thread (Dark Green)  
 Worker Threads (Yellow)  
 Other Threads (Light Green)



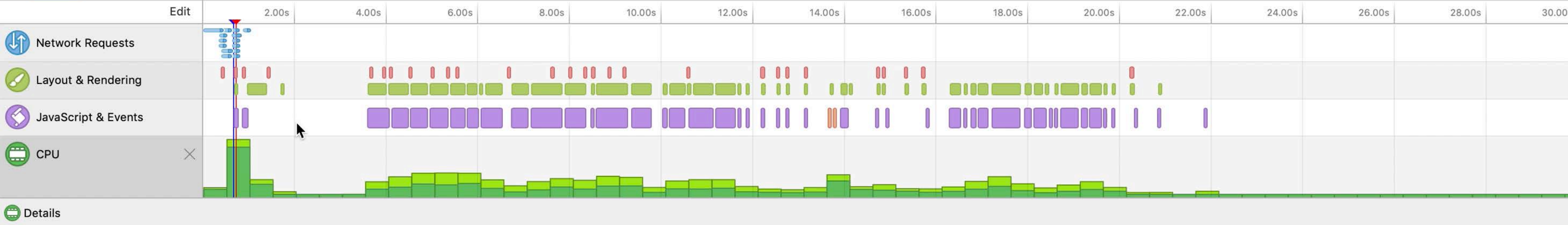
### Threads

### Statistics

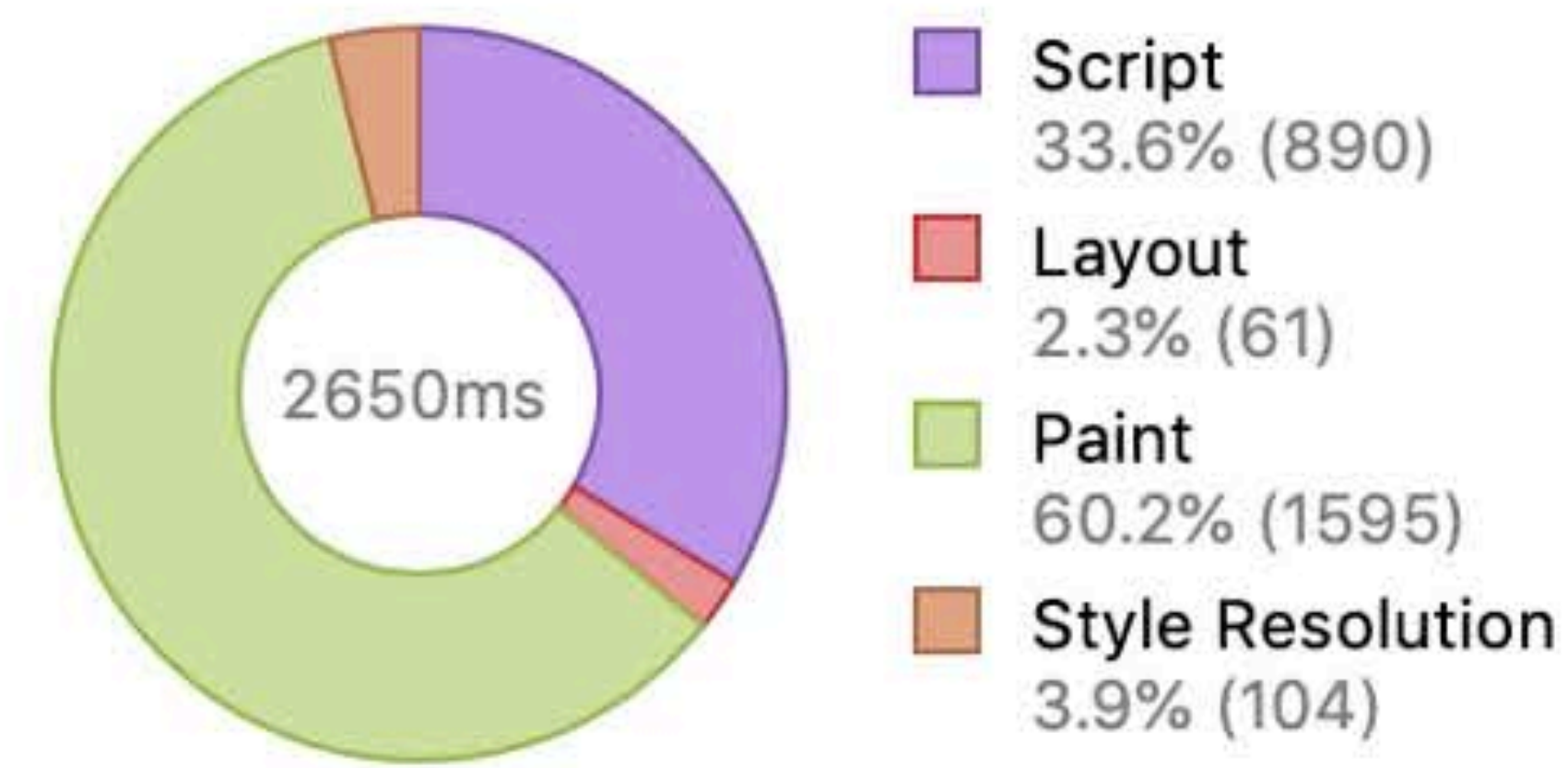
**Network Requests:** 14  
**Script Entries:** 1288  
**Timers:** 596 `requestAnimationFrame`  
**Events:** 647 `scroll`  
 4 `click`

### Sources

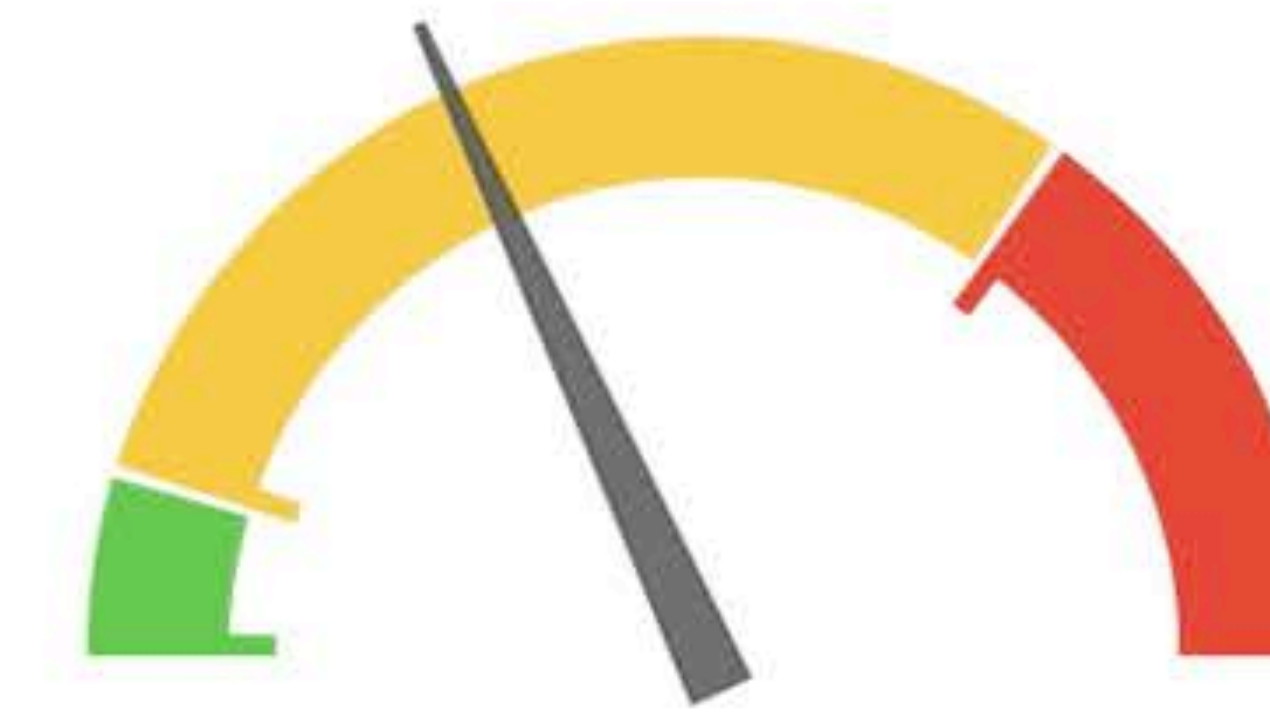
**Timers:** 596 `global.js:79:35` – `onMovement`  
**Event Handlers:** 647 `global.js:77:24`  
 3 `status:1002:54`  
 3 `status:997:54`  
 2 `wp-embed.min.js:1:39`



### Main Thread



### Energy Impact ?

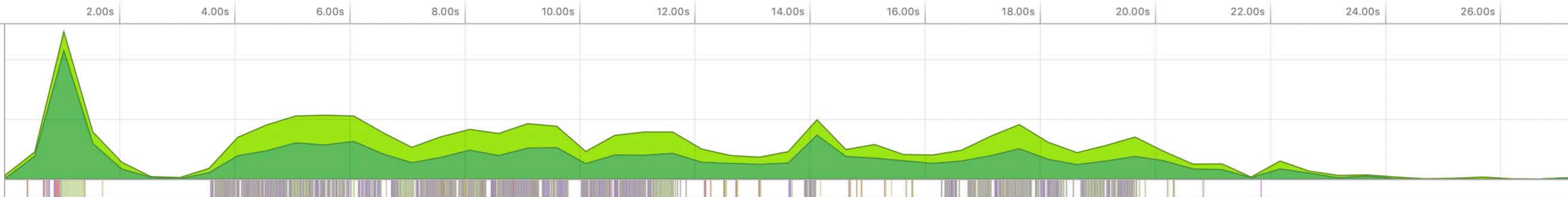


**Medium**  
 Average CPU: 9.9%  
 Duration: 35s

### CPU Usage

**Total**  
 Average: 9.9%  
 Highest: 61.5%

Legend:  
 Main Thread (Dark Green)  
 Worker Threads (Yellow)  
 Other Threads (Light Green)



### Threads

### Statistics

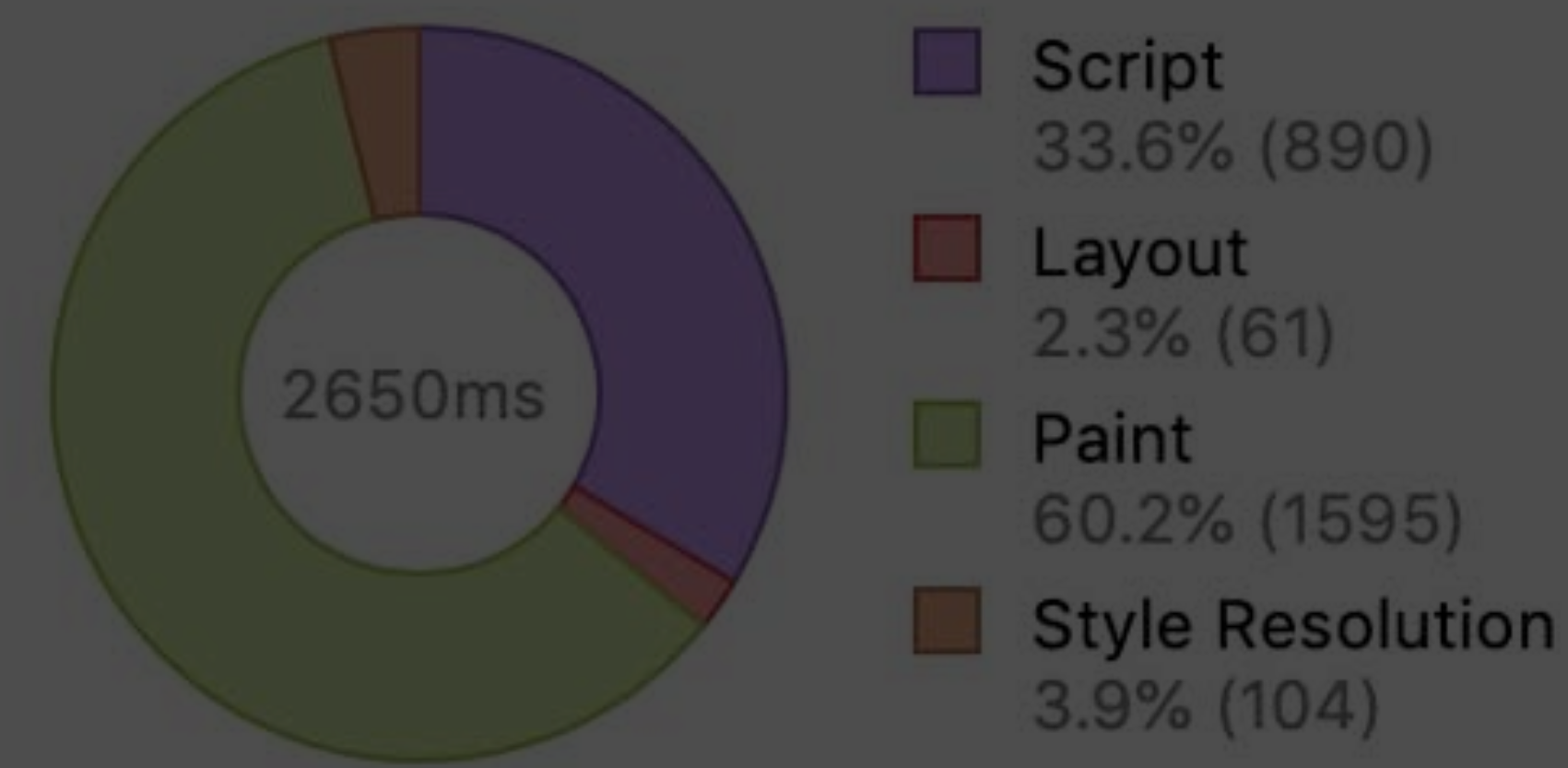
**Network Requests:** 14  
**Script Entries:** 1288  
**Timers:** 596 `requestAnimationFrame`  
**Events:** 647 `scroll`  
 4 `click`

### Sources

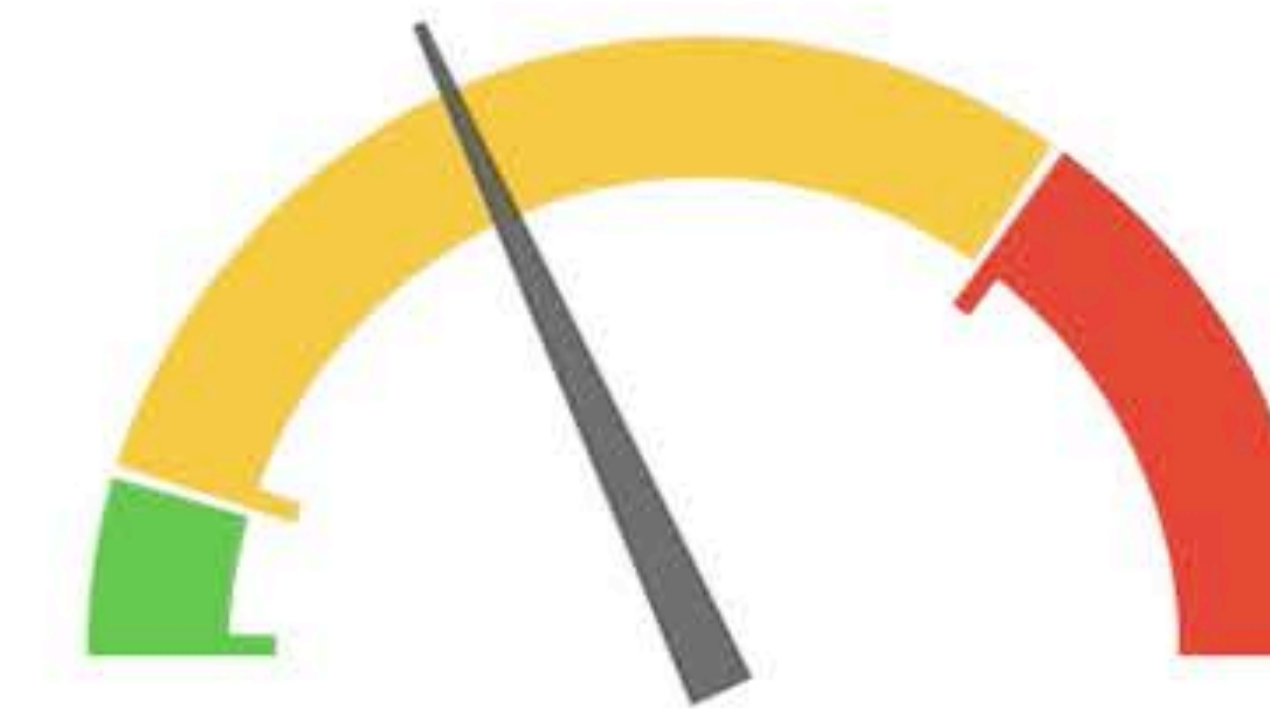
**Timers:** 596 `global.js:79:35` – `onMovement`  
**Event Handlers:** 647 `global.js:77:24`  
 3 `status:1002:54`  
 3 `status:997:54`  
 2 `wp-embed.min.js:1:39`



### Main Thread

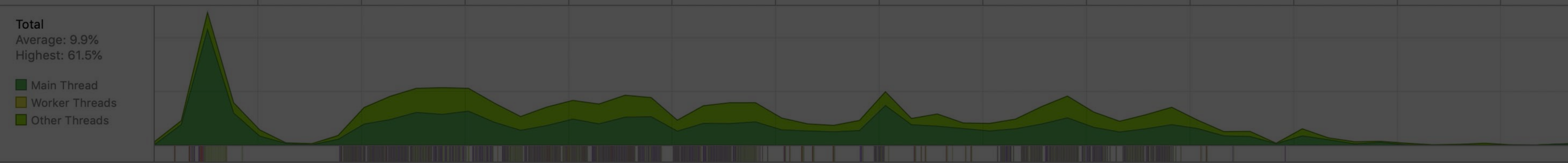


### Energy Impact ?



**Medium**  
 Average CPU: 9.9%  
 Duration: 35s

### CPU Usage



### Threads

### Statistics

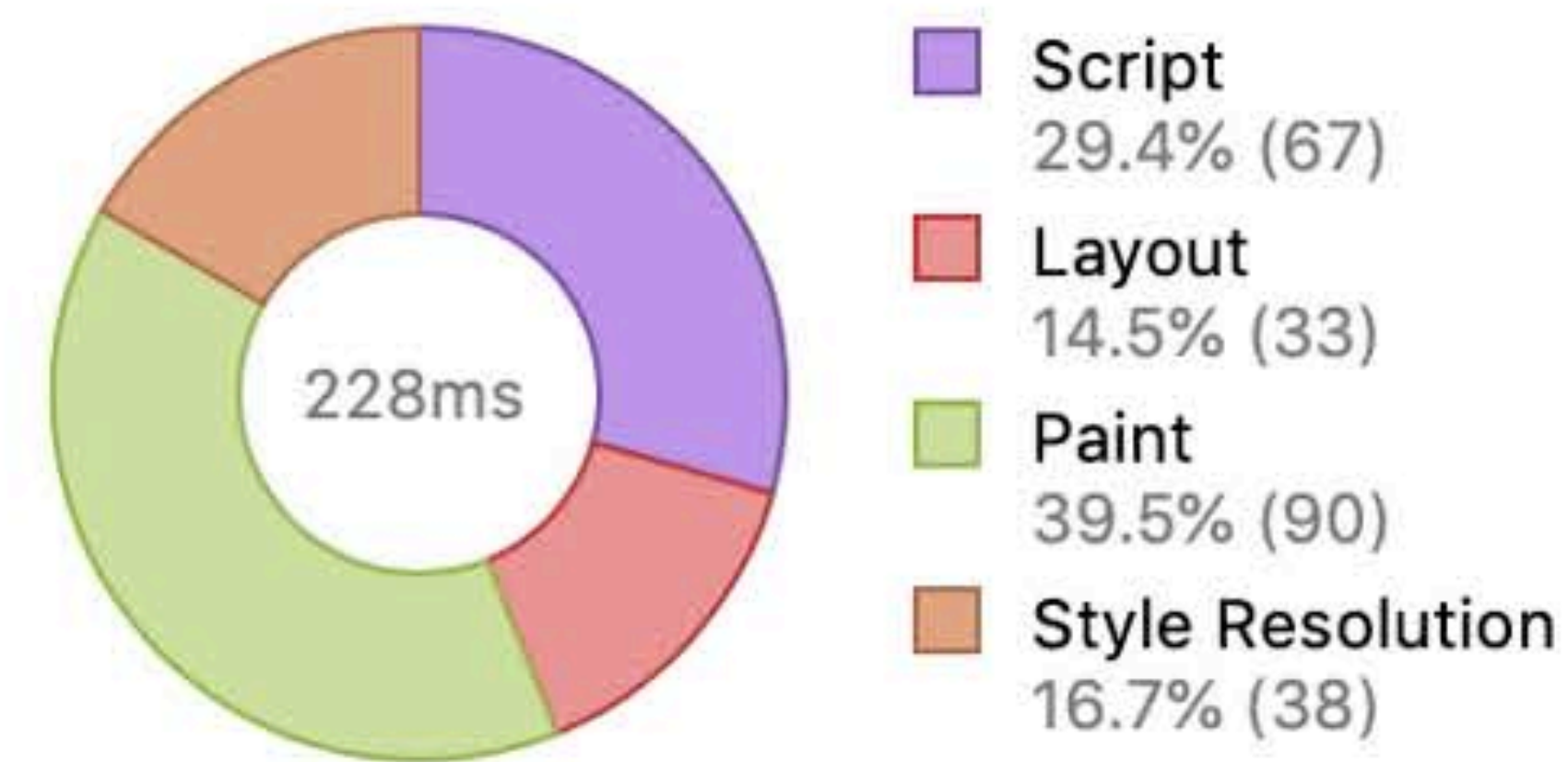
**Network Requests:** 14  
**Script Entries:** 1288  
**Timers:** 596 `requestAnimationFrame`  
**Events:** 647 `scroll`  
 4 `click`

### Sources

**Timers:** 596 `global.js:79:35` - onMovement  
**Event Handlers:** 647 `global.js:77:24`  
 3 `status:1002:54`  
 3 `status:997:54`  
 2 `wp-embed.min.js:1:39`



### Main Thread



### Energy Impact ?

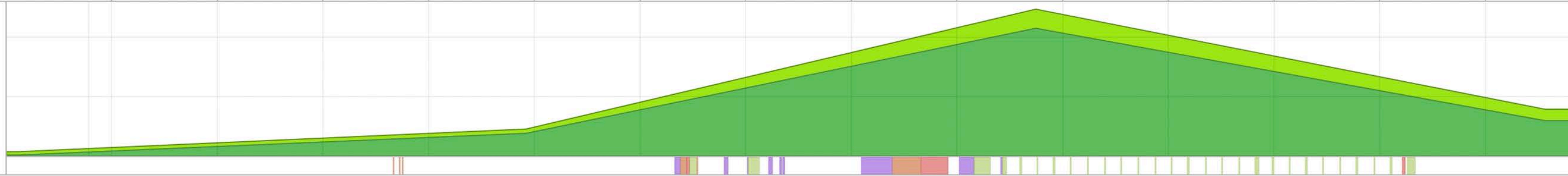


### CPU Usage

100.00ms 200.0ms 300.0ms 400.0ms 500.0ms 600.0ms 700.0ms 800.0ms 900.0ms 1000.0ms 1.10s 1.20s 1.30s 1.40s 1.50s

Total  
Average: 23.6%  
Highest: 61.5%

- Main Thread
- Worker Threads
- Other Threads



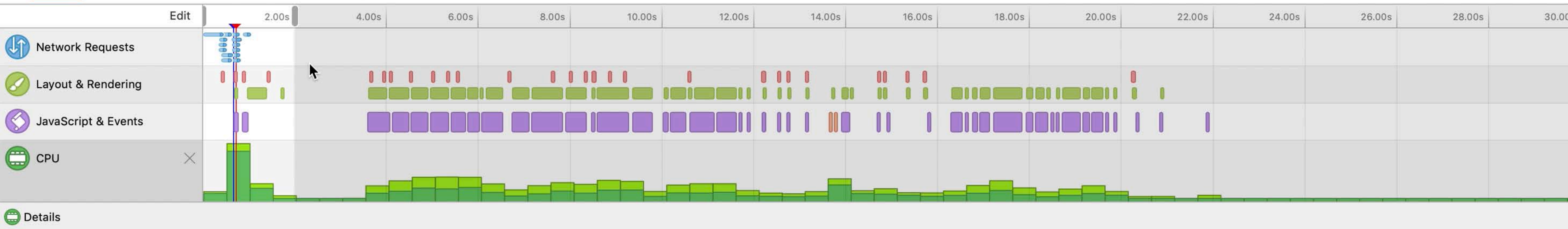
### Threads

### Statistics

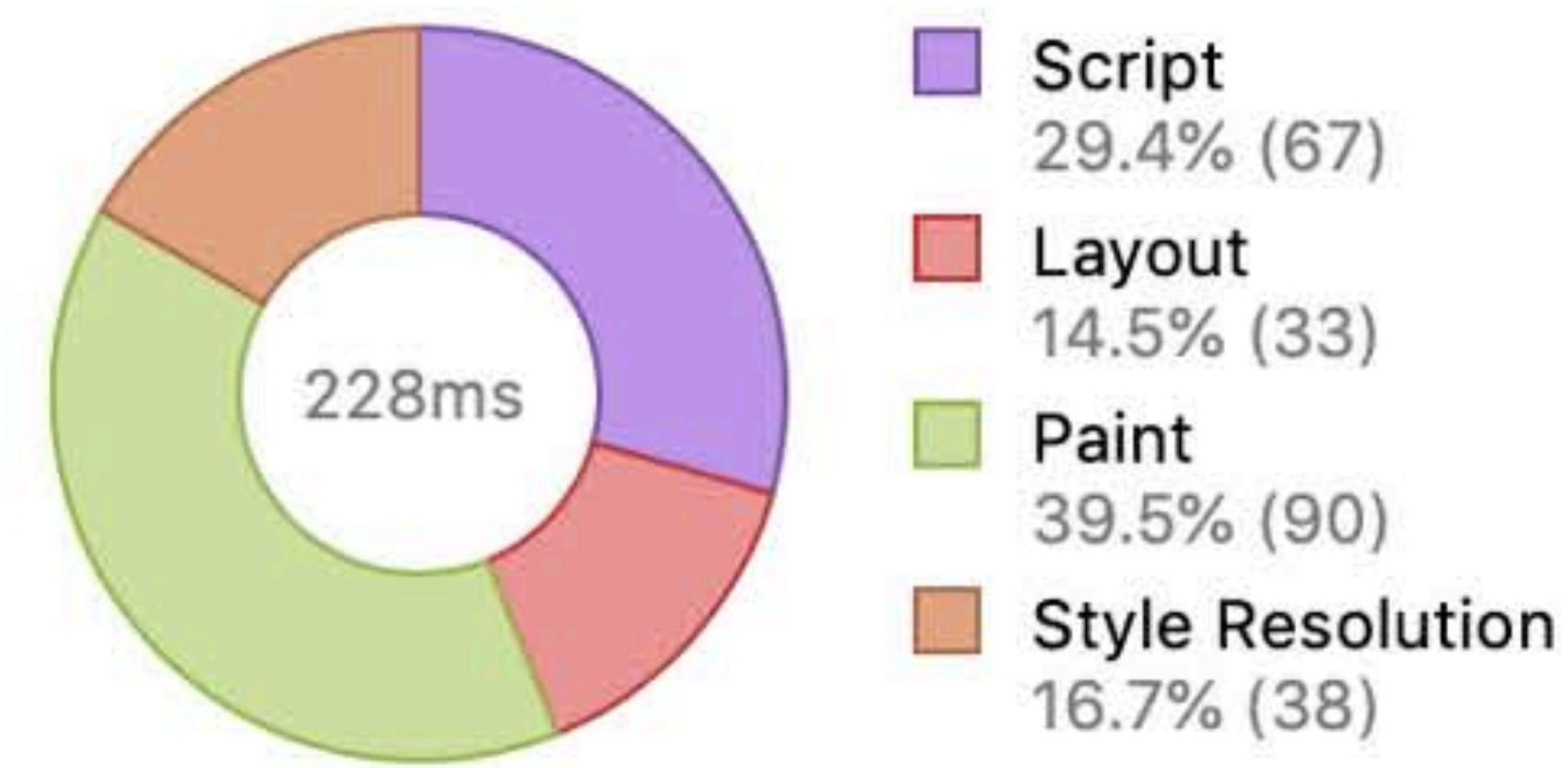
**Network Requests:** 14  
**Script Entries:** 17  
**Events:** 3 DOMContentLoaded  
 3 load

### Sources

**Timers:** —  
**Event Handlers:** 2 wp-embed.min.js:1:39  
 2 status:105:37  
 1 status:705:30  
 1 global.js:1:56



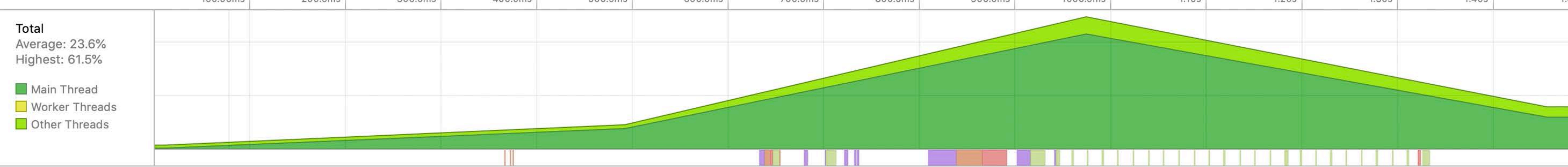
### Main Thread



### Energy Impact ?



### CPU Usage



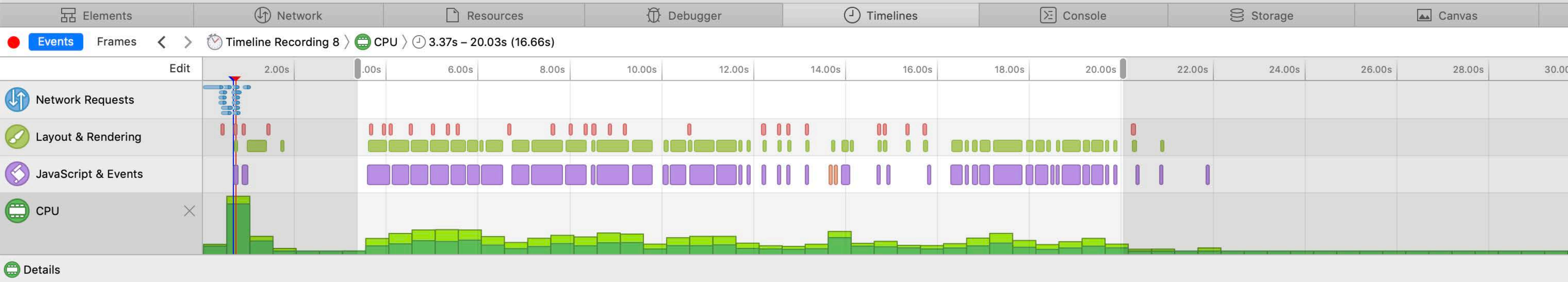
### Threads

### Statistics

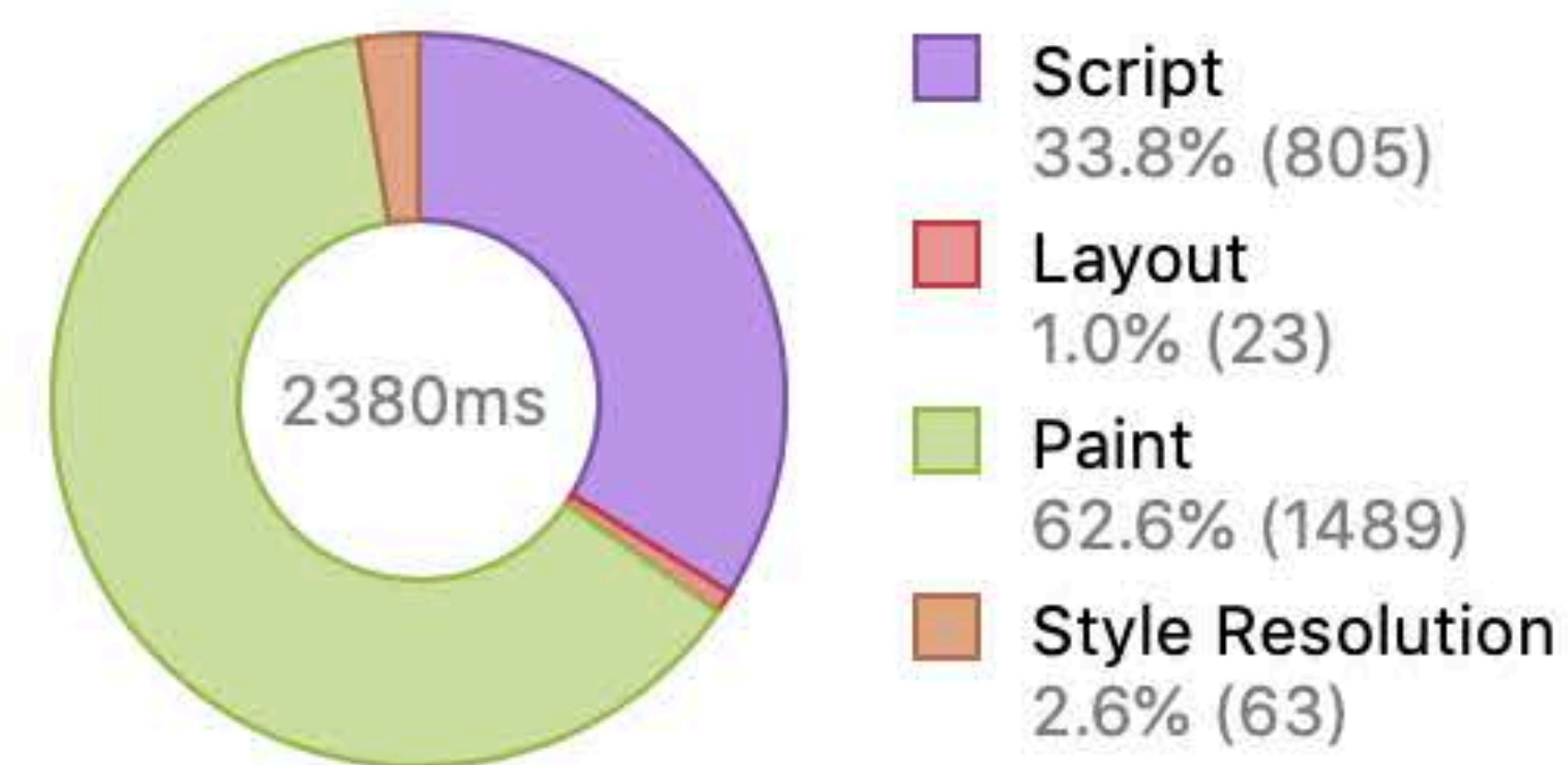
<b>Network Requests:</b>	14
<b>Script Entries:</b>	17
<b>Events:</b>	3 DOMContentLoaded
	3 load

### Sources

<b>Timers:</b>	—
<b>Event Handlers:</b>	2 wp-embed.min.js:1:39
	2 status:105:37
	1 status:705:30
	1 global.js:1:56



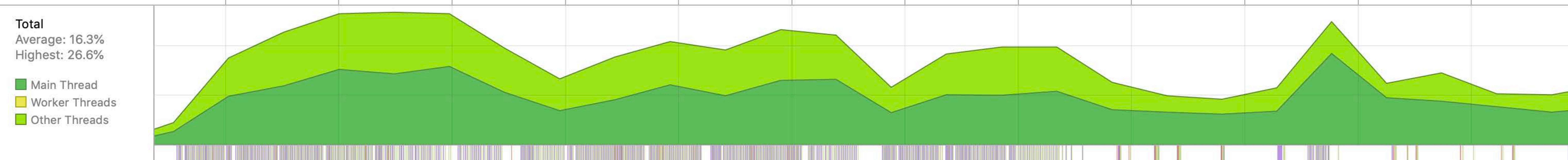
### Main Thread



### Energy Impact ?



### CPU Usage



### Threads

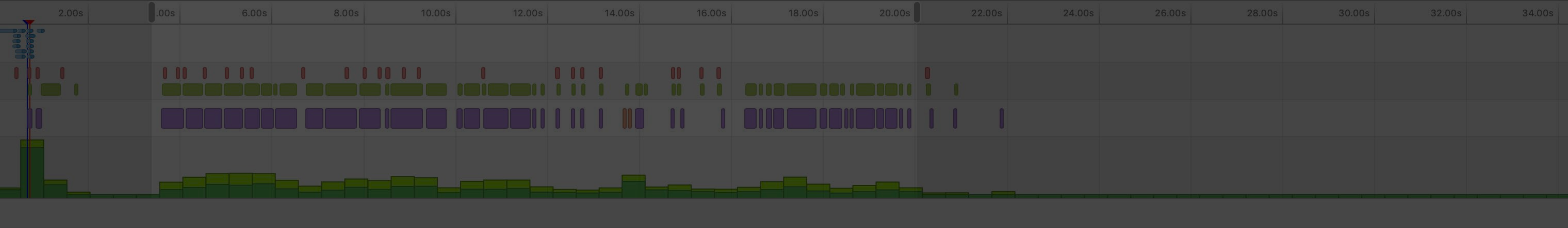
### Statistics

**Network Requests:** 0  
**Script Entries:** 1268  
**Timers:** 596 `requestAnimationFrame`  
**Events:** 647 `scroll`  
 3 `click`

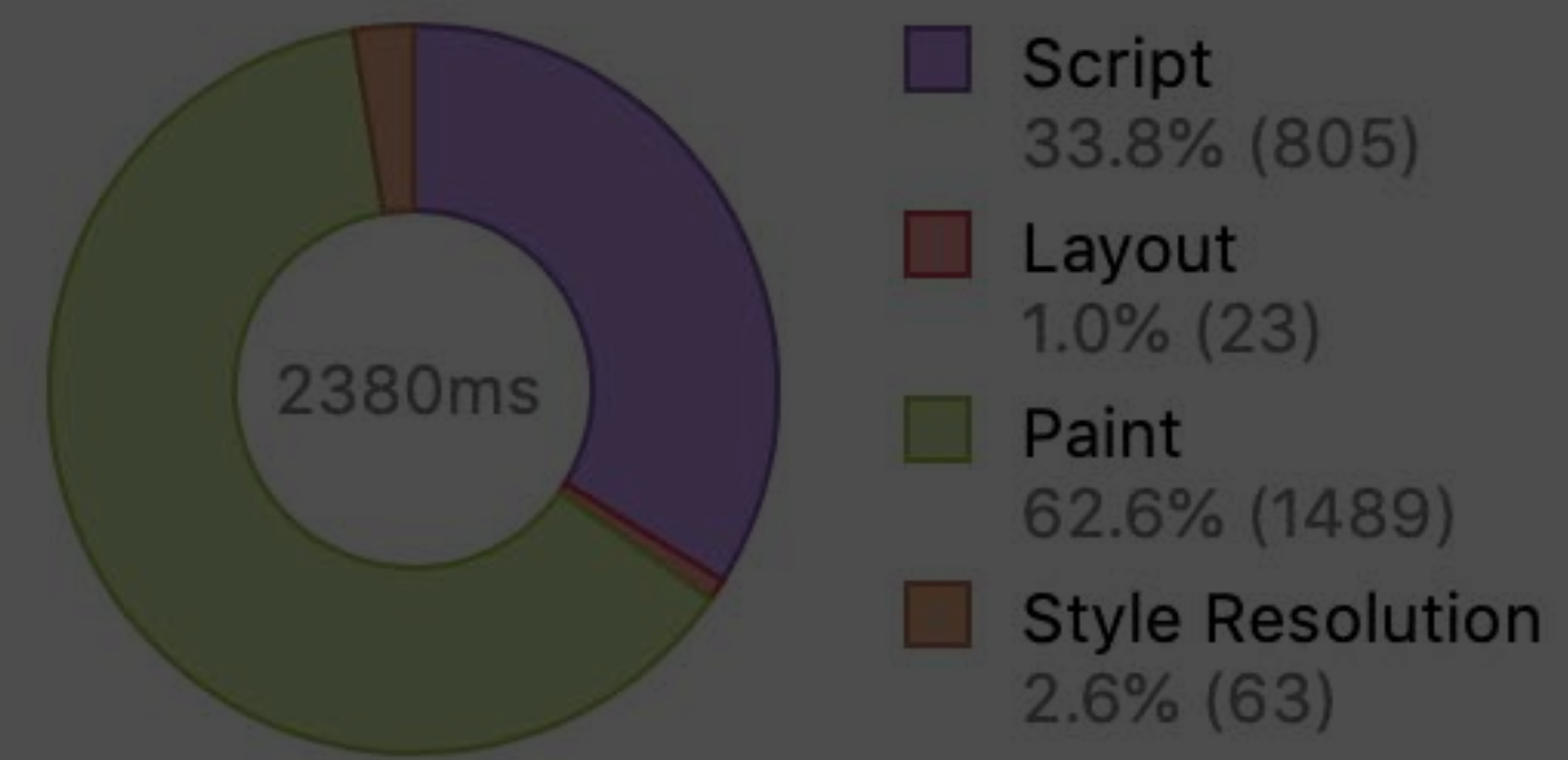
### Sources

**Timers:** 596 `global.js:79:35` - `onMovement`  
**Event Handlers:** 647 `global.js:77:24`  
 3 `status:997:54`  
 2 `status:1002:54`  
 1 `status:989:64`

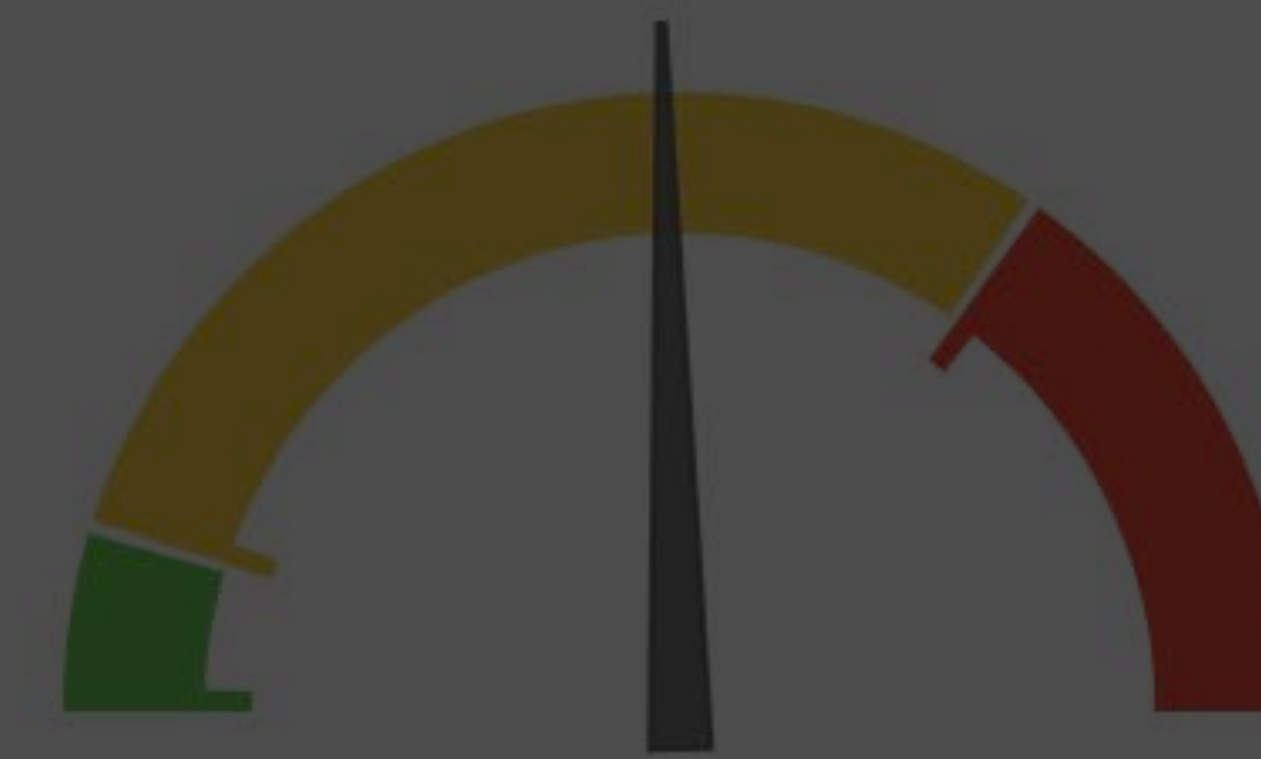




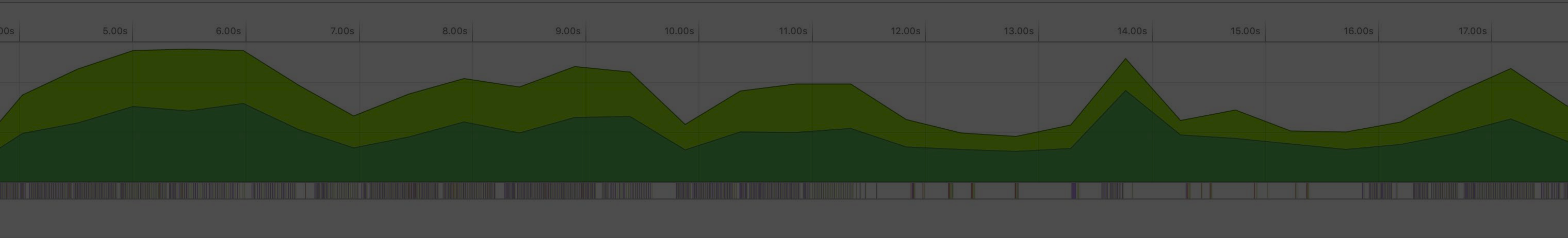
### Main Thread



### Energy Impact ?



**Medium**  
Average CPU: 16.3%  
Duration: 16s



### Statistics

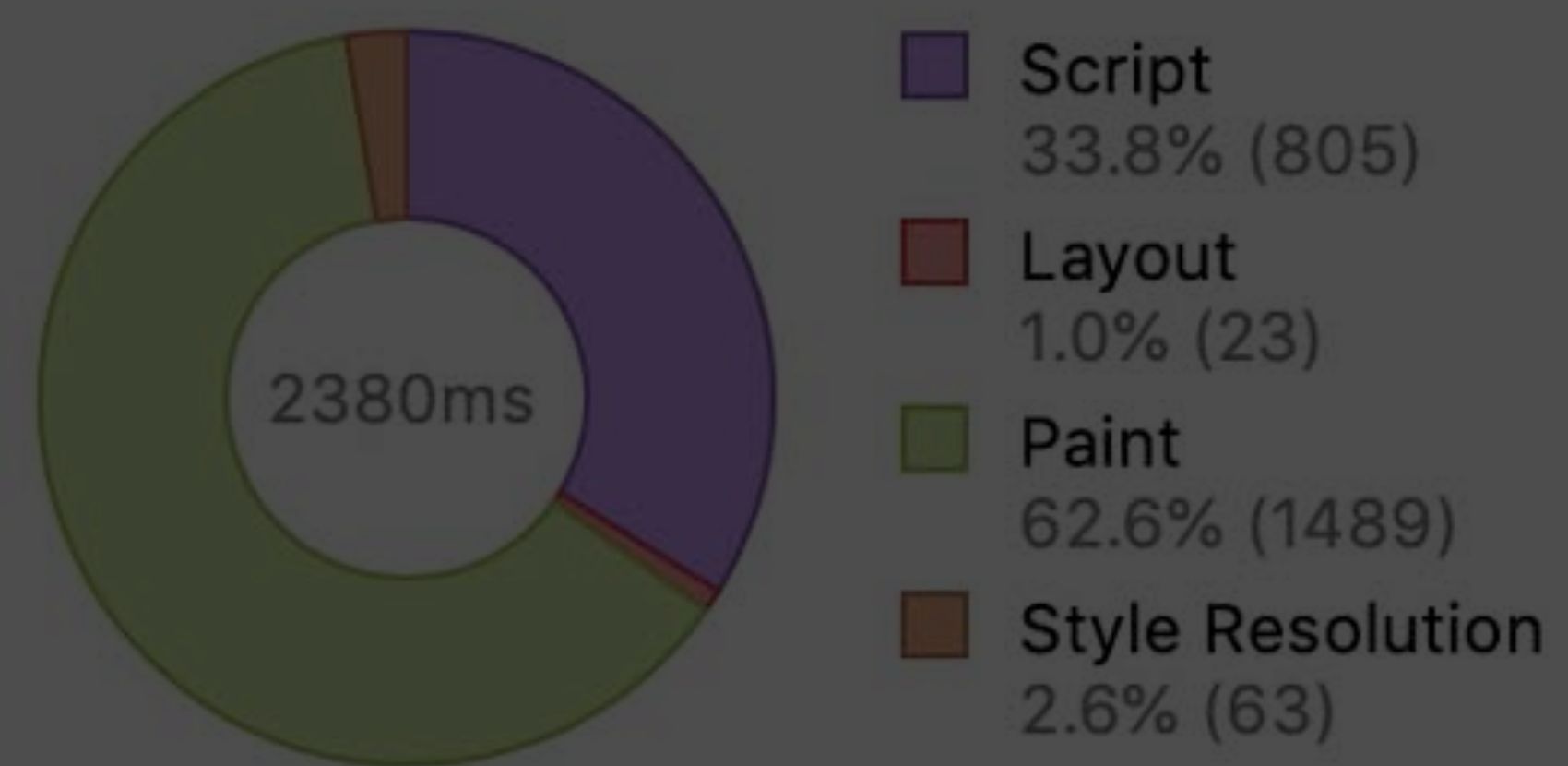
**Network Requests:** 0  
**Script Entries:** 1268  
**Timers:** 596 `requestAnimationFrame`  
**Events:** 647 `scroll`  
 3 `click`  
 3 `input`  
 1 `change`

### Sources

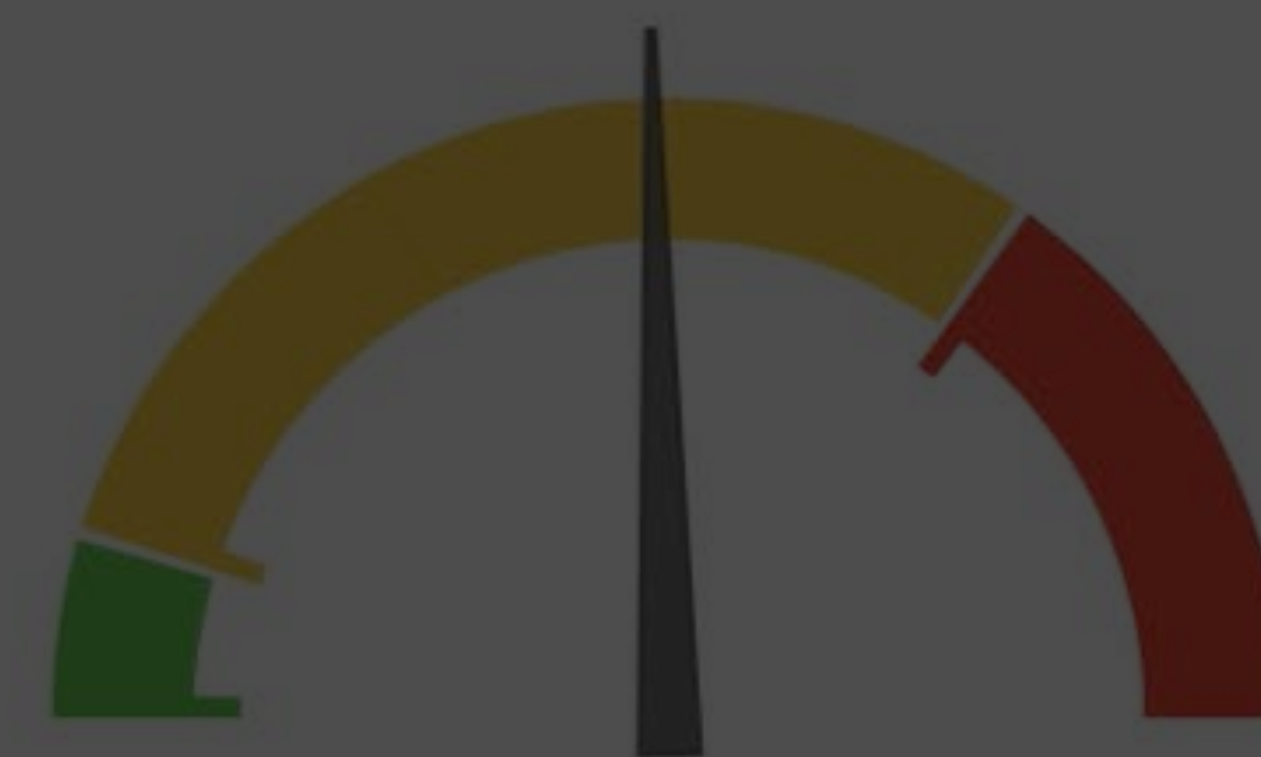
**Timers:** 596 `global.js:79:35` – onMovement  
**Event Handlers:** 647 `global.js:77:24`  
 3 `status:997:54`  
 2 `status:1002:54`  
 1 `status:989:64`  
 1 `status:972:54`  
**Observer Handlers:** —



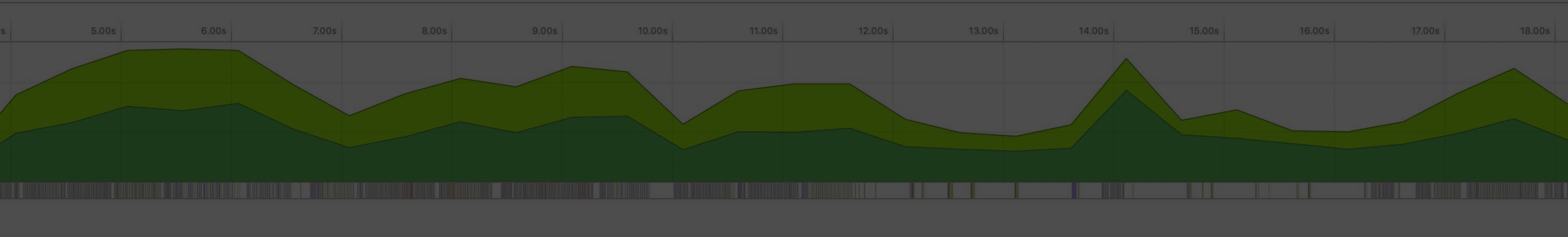
### Main Thread



### Energy Impact ?



**Medium**  
 Average CPU: 16.3%  
 Duration: 16s



### Statistics

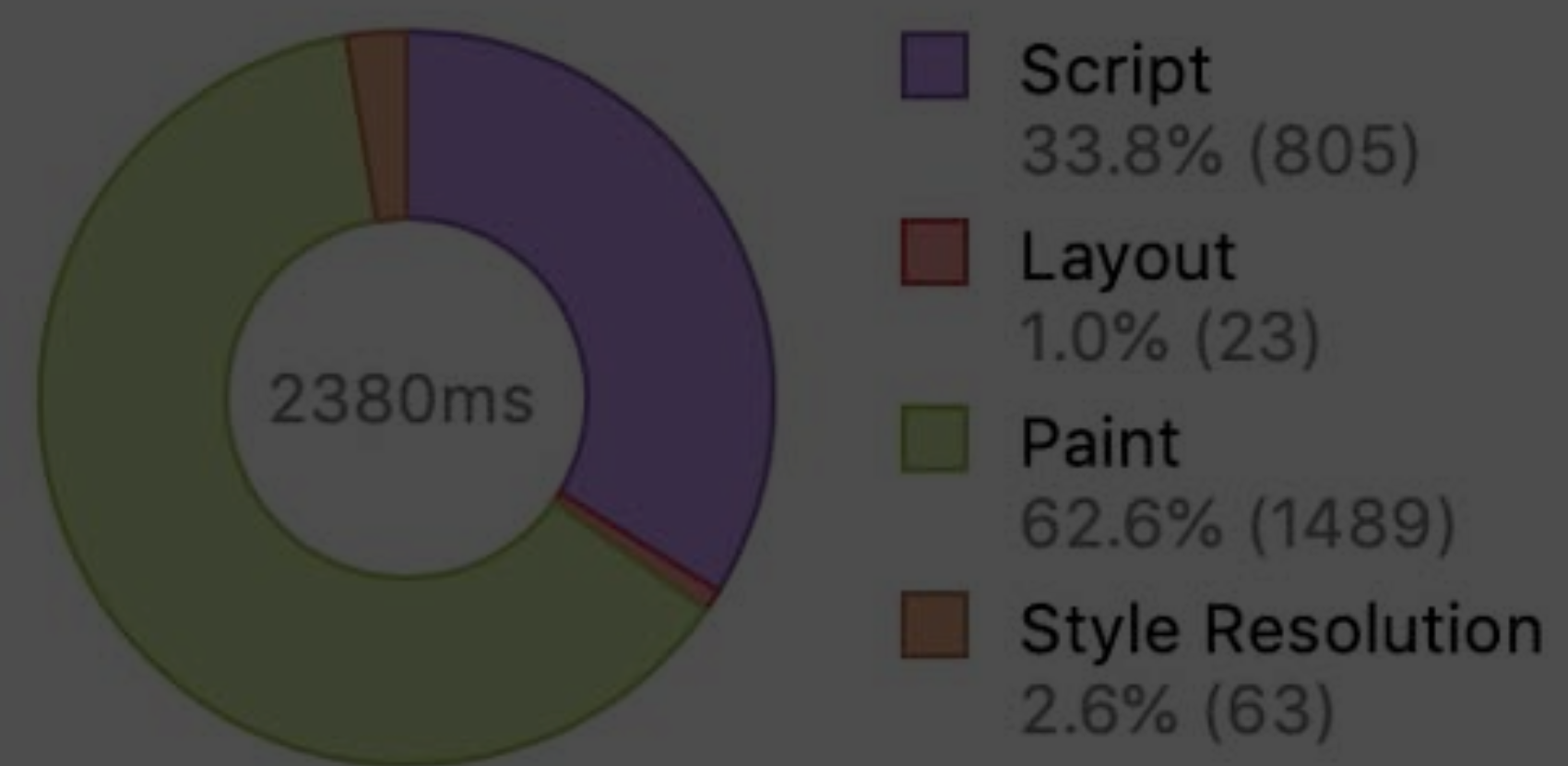
**Network Requests:** 0  
**Script Entries:** 1268  
**Timers:** 596 `requestAnimationFrame`  
**Events:** 647 `scroll`  
 3 `click`  
 3 `input`  
 1 `change`

### Sources

**Timers:** 596 `global.js:79:35` – `onMovement`  
**Event Handlers:** 647 `global.js:77:24`  
 3 `status:997:54`  
 2 `status:1002:54`  
 1 `status:989:64`  
 1 `status:972:54`  
**Observer Handlers:** —



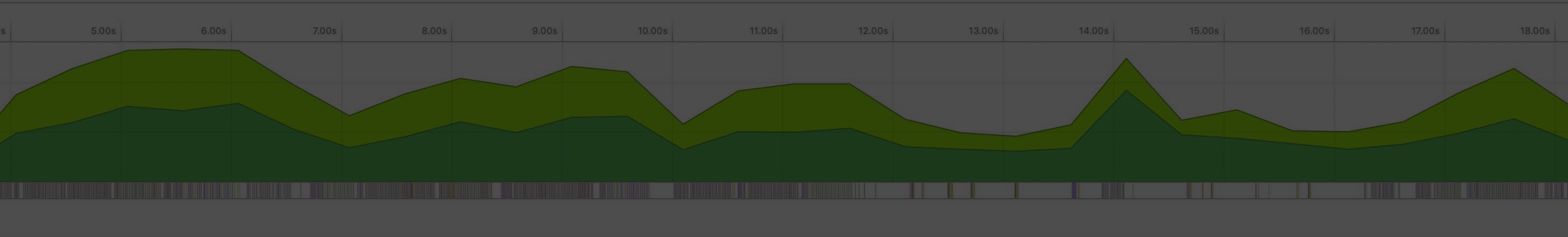
### Main Thread



### Energy Impact ?



**Medium**  
 Average CPU: 16.3%  
 Duration: 16s



### Statistics

**Network Requests:** 0  
**Script Entries:** 1268  
**Timers:** 596 `requestAnimationFrame`  
**Events:** 647 `scroll`  
 3 `click`  
 3 `input`  
 1 `change`

### Sources

**Timers:** 596 `global.js:79:35` – `onMovement`  
**Event Handlers:** 647 `global.js:77:24`  
 3 `status:997:54`  
 2 `status:1002:54`  
 1 `status:989:64`  
 1 `status:972:54`  
**Observer Handlers:** —

Web Inspector — webkit.org — status

14 230.6 KB 734ms 1 0 0

Q Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

global.js Scope Chain Resource

▼ Breakpoints +

- All Exceptions
- Uncaught Exceptions
- Assertion Failures
- All Requests

▼ Sources

- global.js
- status — webkit.org
- wp-embed.min.js

▼ Watch Expressions +

No Watch Expressions

Filter

Web Inspector — webkit.org — status

14 230.6 KB 734ms 1 0 0

Q Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

global.js Scope Chain Resource

▼ Breakpoints +

- Ex All Exceptions
- Ex Uncaught Exceptions
- A Assertion Failures
- A All Requests

▼ Sources

- global.js
- status — webkit.org
- wp-embed.min.js

▼ Watch Expressions +

No Watch Expressions

Filter

js global.js

status — webkit.org

js wp-embed.min.js

```
46 }
47 }
48
49 function stageImage(element, src) {
50     element.style.backgroundImage = 'url(' + src + ')';
51     if (!element.parentElement.classList.contains('loaded'))
52         element.parentElement.classList.add('loaded');
53 }
54
55 function loadImage(element) {
56     var src = element.getAttribute('data-url');
57
58     if (sessionStorage.getItem(src)) {
59         setTimeout(function () { stageImage(element, src); }, 1);
60     } else {
61         var img = new Image();
62         img.src = src;
63         img.onload = function() {
64             stageImage(element,src);
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66             try {
67                 sessionStorage.setItem(src, true);
68             } catch (error) {
69                 return false; // private browsing
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93 function enableScrollableTables () {
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104         scrollableDiv.appendChild(paddingDiv);
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106
107         paddingDiv.appendChild(tables[i]);
108     }
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110
111 var imgs = document.querySelectorAll('div[data-url]');
```

js global.js

status — webkit.org

js wp-embed.min.js

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js global.js

status — webkit.org

js wp-embed.min.js

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js global.js

status — webkit.org

js wp-embed.min.js

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```

# WebKit Feature Status

Search features...

Filters

145 features

Application Cache	Deprecated	▼
Array.prototype.copyWithin ES6	Supported	▼
Array.prototype.includes ES7	Supported	▼
Arrow Functions ES6	Supported	▼
Async Iteration ESNext	Supported	▼
async/await ES7	Supported	▼
Battery Status API	Removed	▼
Beacon API	Supported In Preview	▼
Block Scoping ES6	Supported	▼
Case-insensitive attribute selectors CSS Selectors Level 4	Supported	▼
Classes ES6	Supported	▼
Conic Gradients	Supported in Preview	▼

# WebKit Feature Status

Search features...

Filters

145 features

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Array.prototype.copyWithin ES6	Supported	▼
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async/await ES7	Supported	▼
Battery Status API	Removed	▼
Beacon API	Supported In Preview	▼
Block Scoping ES6	Supported	▼
Case-insensitive attribute selectors CSS Selectors Level 4	Supported	▼
Classes ES6	Supported	▼
Conic Gradients	Supported in Preview	▼

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57     src = element.getAttribute( 'data-url' );
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107         paddingDiv.appendChild(tables[i]);
108     }
109 }
110
111 {
112     var imgs = document.querySelectorAll('div[data-url]');
113     document.addEventListener('scroll', onMovement);
114     document.addEventListener('resize', onMovement);
115
116     updateImages();
117     enableScrollableTables();
118 }
119

```

```

57     src = element.getAttribute( 'data-url' );
58     if (sessionStorage.getItem(src)) {
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115
116     updateImages();
117     enableScrollableTables();
118 }
119

```

```
// Lazy Loading Images

var imgs = document.querySelectorAll('div[data-url]');
document.addEventListener('scroll', onMovement);
document.addEventListener('resize', onMovement);
```

```
// Lazy Loading Images with a conditional guard

var imgs = document.querySelectorAll('div[data-url]');
if (imgs.length > 0) {
    document.addEventListener('scroll', onMovement);
    document.addEventListener('resize', onMovement);
}
```

```
// Lazy Loading Images with a conditional guard

var imgs = document.querySelectorAll('div[data-url]');
if (imgs.length > 0) {
    document.addEventListener('scroll', onMovement);
    document.addEventListener('resize', onMovement);
}
```





WebKit Feature Status WebKit CSS Feature Status

# WebKit Feature Status

Search features...

Filters

145 features

Application Cache	Deprecated
Array.prototype.copyWithin ES6	Supported
Array.prototype.includes ES7	Supported
Arrow Functions ES6	Supported
Async Iteration	Supported

Browser developer tools interface showing:

- Breakpoints: All Exceptions, Uncaught Exceptions, Assertion Failures, All Requests
- Sources: global.js, status — webkit.org, wp-embed.min.js
- Code editor for global.js:

```
function enableScrollableTables () {
  var tables = document.querySelectorAll('.bodycopy > table');
  var tableCount = tables.length;

  for (var i = 0; i < tableCount; i++) {
    var scrollableDiv = document.createElement('div');
    var paddingDiv = document.createElement('div');

    scrollableDiv.classList.add('scrollable');
    paddingDiv.classList.add('scrollable-padding');

    scrollableDiv.appendChild(paddingDiv);
    tables[i].parentNode.insertBefore(scrollableDiv, tables[i]);

    paddingDiv.appendChild(tables[i]);
  }
}

var imgs = document.querySelectorAll('div[data-url]');
if (imgs.length > 0) {
  document.addEventListener('scroll', onMovement);
  document.addEventListener('resize', onMovement);
}

updateImages();
enableScrollableTables();
});
```
- Watch Expressions: No Watch Expressions



WebKit Feature Status WebKit CSS Feature Status

# WebKit Feature Status

Search features...

Filters

145 features

Application Cache	Deprecated
Array.prototype.copyWithin ES6	Supported
Array.prototype.includes ES7	Supported
Arrow Functions ES6	Supported
Async Iteration	Supported

Browser developer tools interface showing the Sources panel with a JavaScript file named global.js. The code includes a function enableScrollableTables() and an event listener for scroll and resize events. The interface also shows Breakpoints, Watch Expressions, and other tool panels.

```
function enableScrollableTables () {
  var tables = document.querySelectorAll('.bodycopy > table');
  var tableCount = tables.length;

  for (var i = 0; i < tableCount; i++) {
    var scrollableDiv = document.createElement('div');
    var paddingDiv = document.createElement('div');

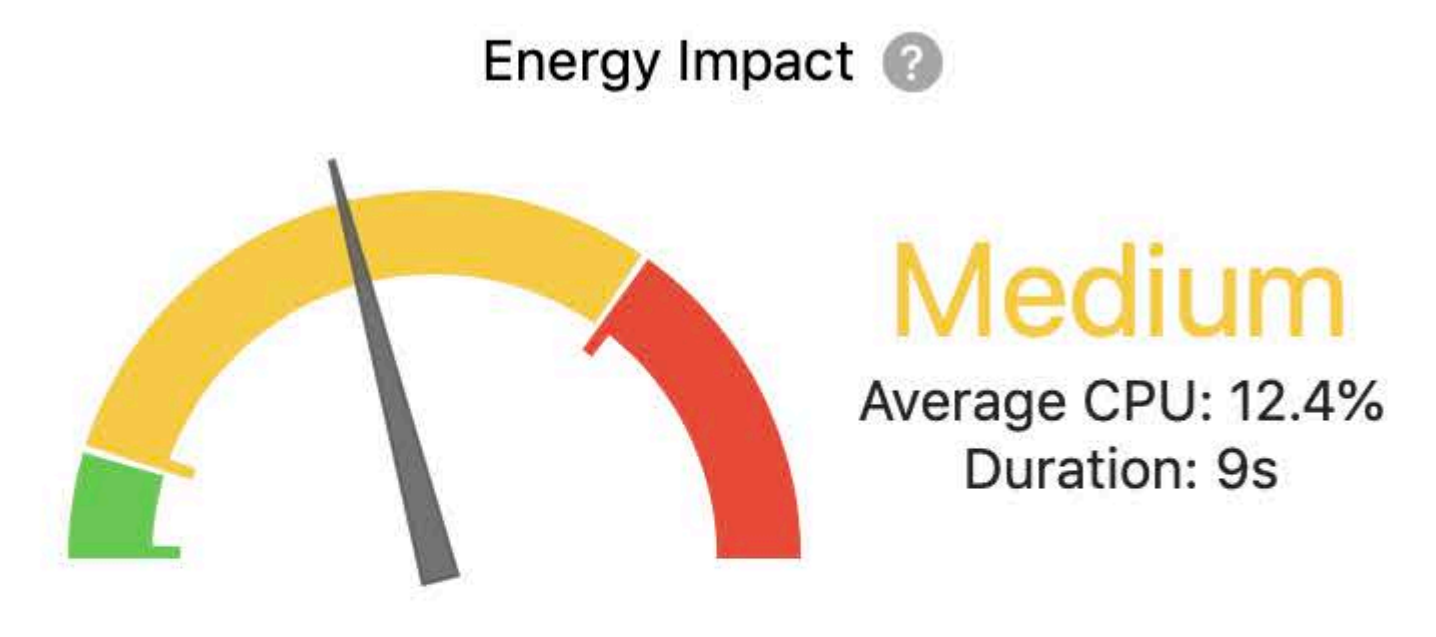
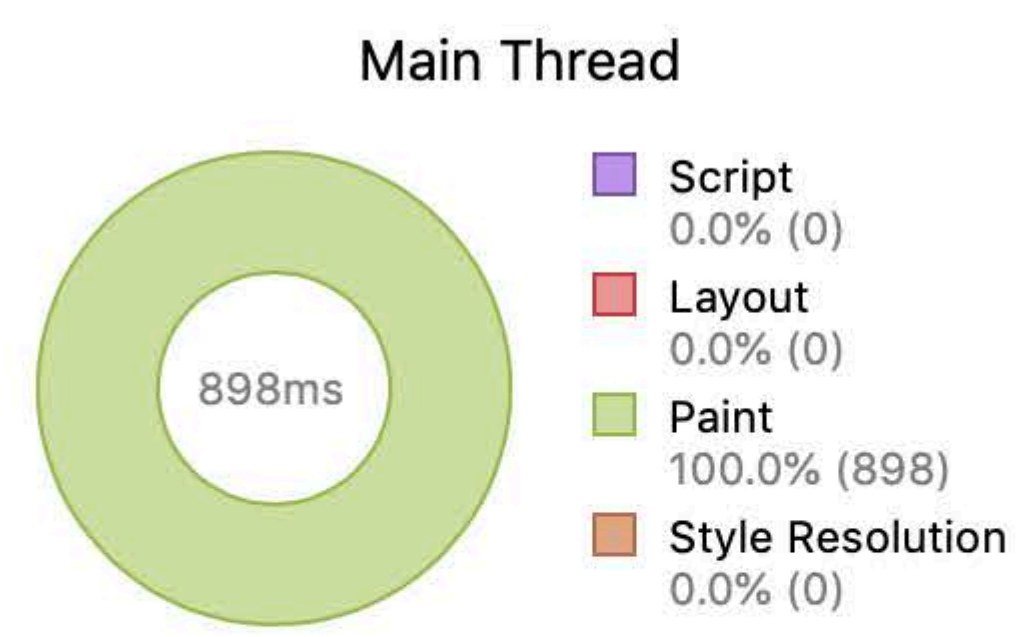
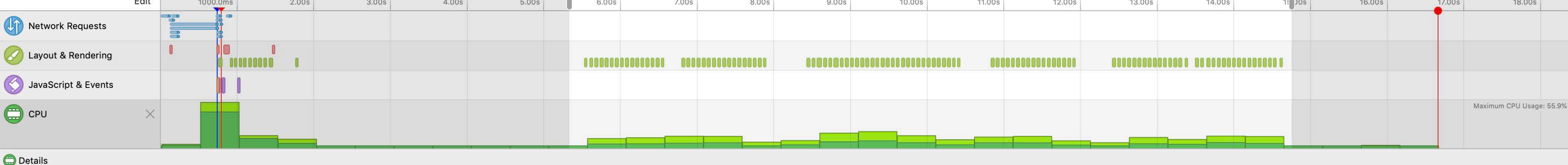
    scrollableDiv.classList.add('scrollable');
    paddingDiv.classList.add('scrollable-padding');

    scrollableDiv.appendChild(paddingDiv);
    tables[i].parentNode.insertBefore(scrollableDiv, tables[i]);

    paddingDiv.appendChild(tables[i]);
  }
}

var imgs = document.querySelectorAll('div[data-url]');
if (imgs.length > 0) {
  document.addEventListener('scroll', onMovement);
  document.addEventListener('resize', onMovement);
}

updateImages();
enableScrollableTables();
});
```



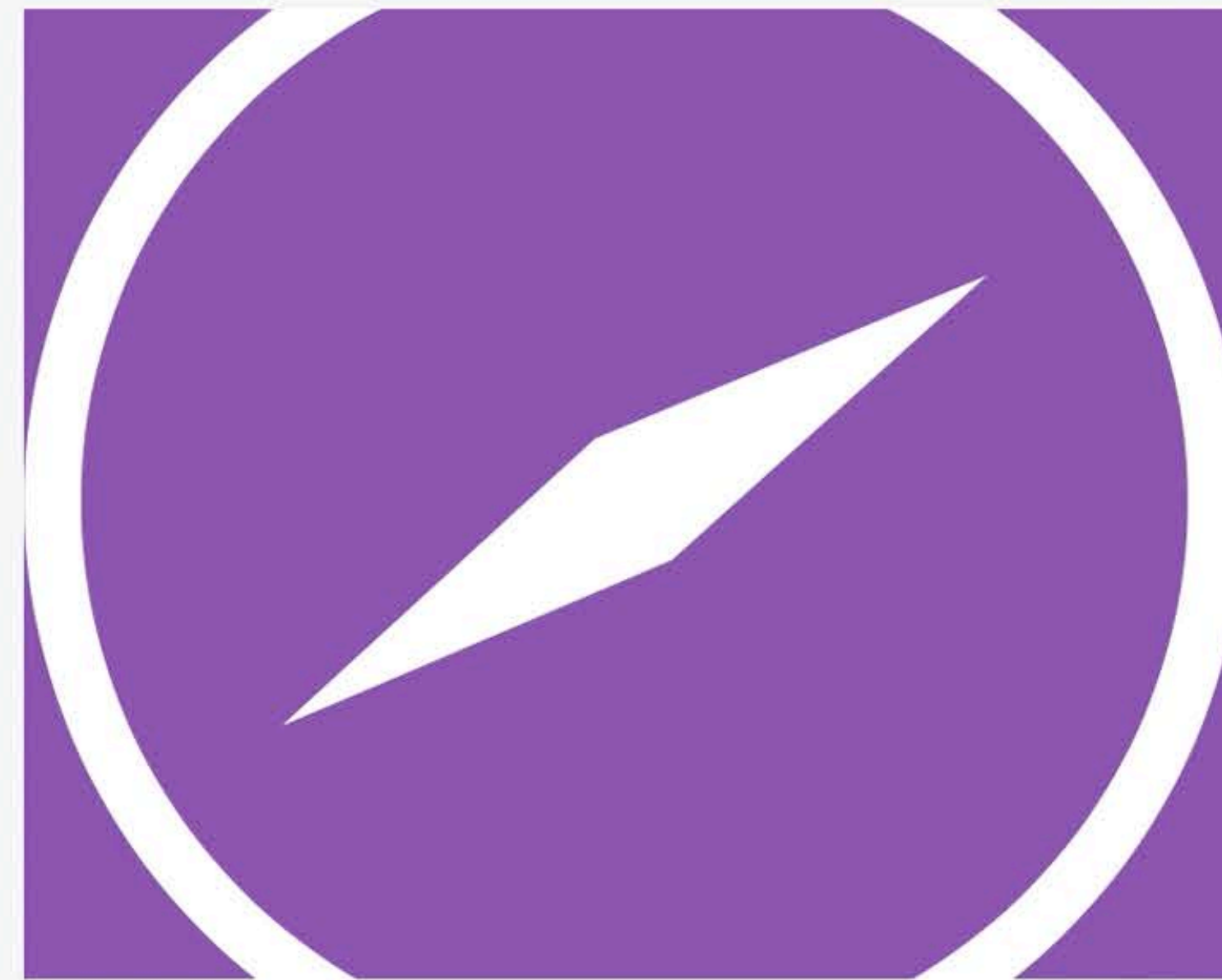
### Threads

Category	Count
Network Requests	0
Script Entries	1
Timers	—
Event Handlers	—
Observer Handlers	—



### Introducing Custom Elements

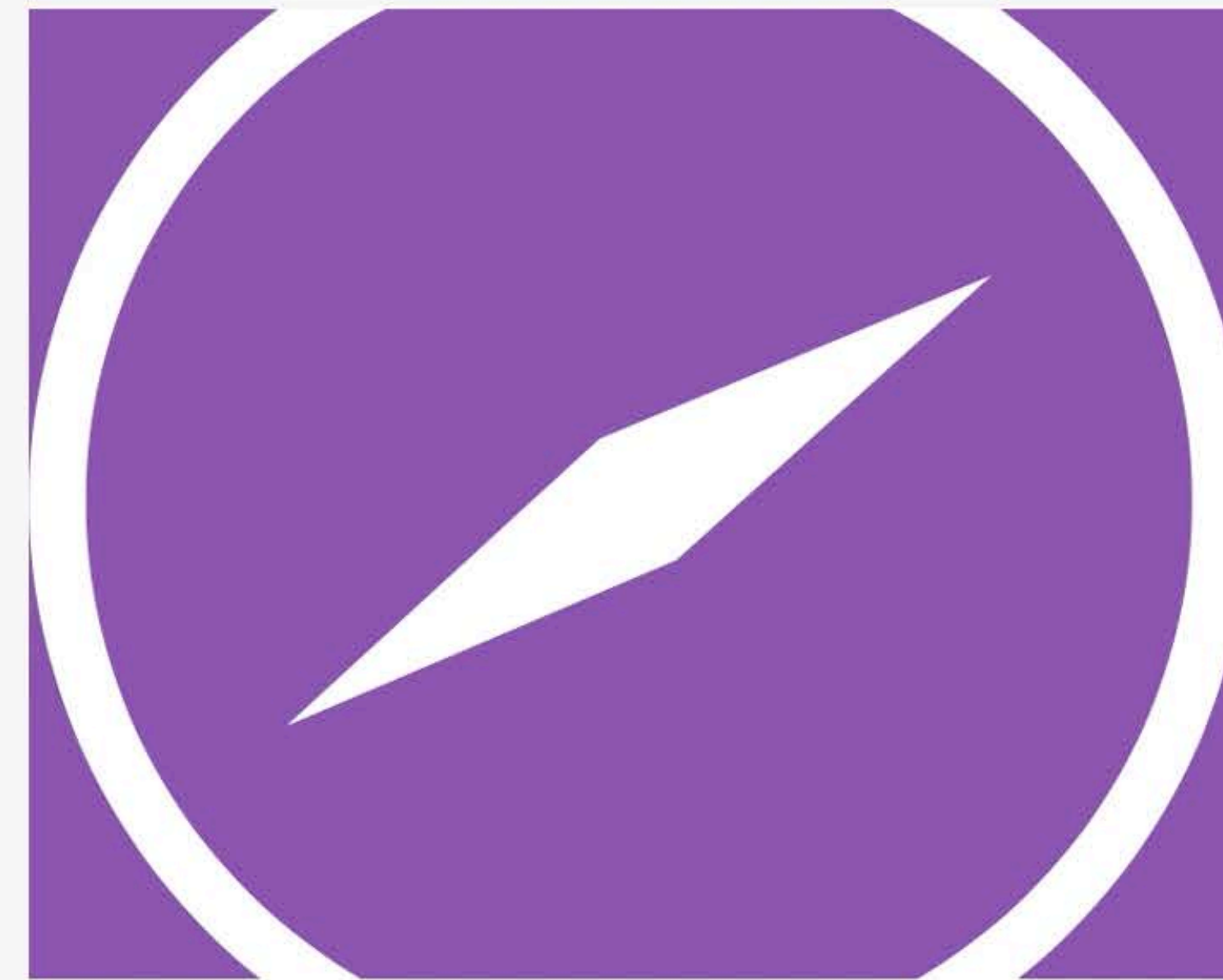
A little over a year ago, we announced the introduction of slot-based shadow DOM API, a lightweight mechanism to encapsulate a DOM tree by allowing the creation of a parallel DOM tree on an element called a "shadow tree" that replaces the rendering of the element without



### Release Notes for Safari Technology Preview 18

Input events on by default, <link> stylesheets load in Shadow DOM, Web Worker Debugging and more...

[Read more >](#)



### Release Notes for Safari Technology Preview 17

Safari Technology Preview Release 17 is now available for download for macOS Sierra.

[Read more >](#)

Timeline Recording 4

1000.0ms	2.00s	3.00s	4.00s	5.00s	6.00s	7.00s	8.00s	9.00s	10.00s	11.00s	12.00s	13.00s	14.00s	15.00s	16.00s	17.00s
Network Requests																
Layout & Rendering																
JavaScript & Events																
CPU																

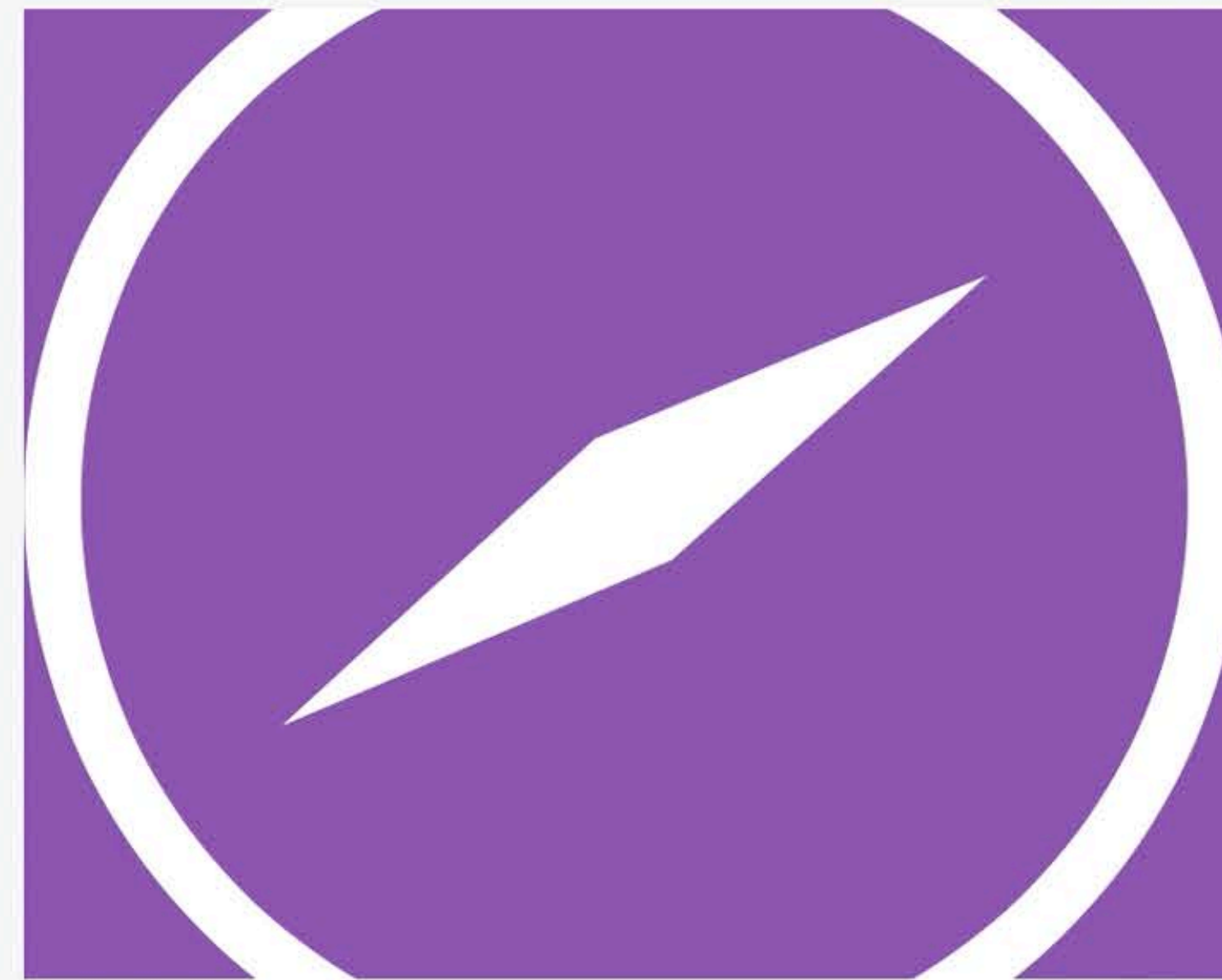
Overview

Name



### Introducing Custom Elements

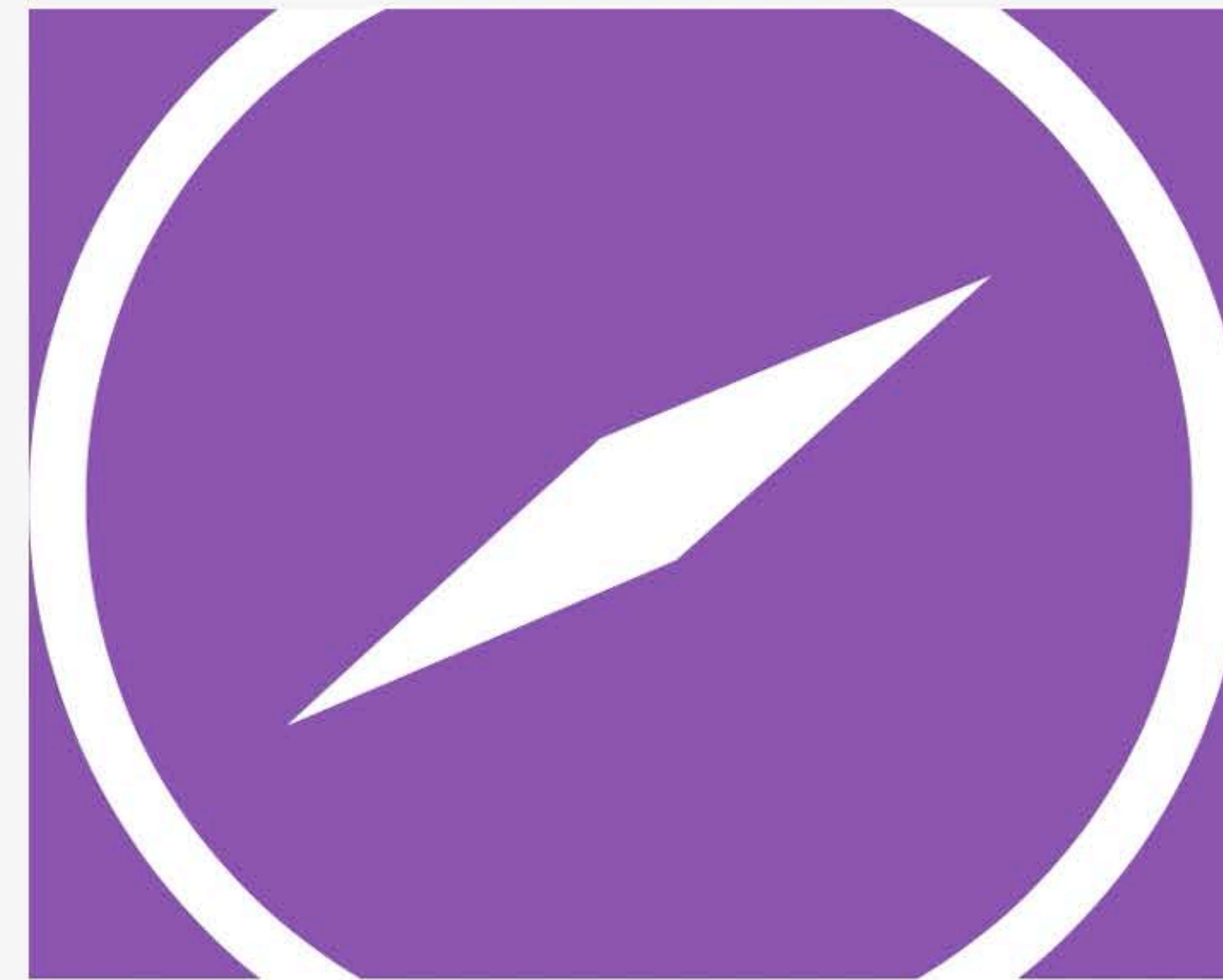
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Timeline Recording 4

1000.0ms	2.00s	3.00s	4.00s	5.00s	6.00s	7.00s	8.00s	9.00s	10.00s	11.00s	12.00s	13.00s	14.00s	15.00s	16.00s	17.00s
Network Requests																
Layout & Rendering																
JavaScript & Events																
CPU																

Overview

Name

webkit.org/blog/page/11/



### MotionMark: A New Graphics Benchmark

Today, we are pleased to introduce MotionMark, a new graphics benchmark for web browsers.

[Read more >](#)

### Release Notes for Safari Technology Preview 13

Safari Technology Preview Release 13 is now available for download for both macOS Sierra betas and OS X El Capitan 10.11.6.

[Read more >](#)

### Release Notes for Safari Technology Preview 12

Safari Technology Preview Release 12 is now available for download for both macOS Sierra betas and OS X El Capitan.

[Read more >](#)

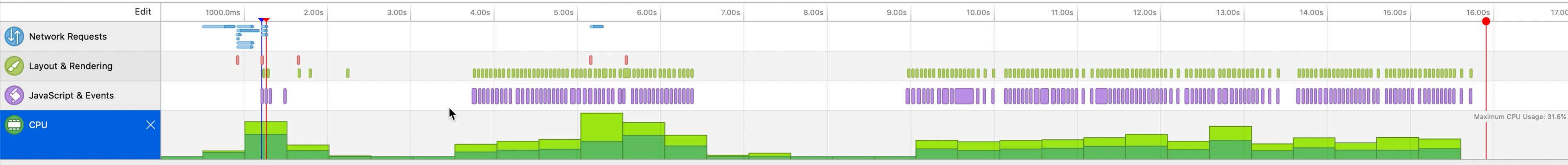
[Previous page](#) | [1](#) | ... | [10](#) | [11](#) | [12](#) | ... | [24](#) | [Next page](#)

11 211.7 KB 774ms

Elements Network Resources Timelines Debugger Storage Console

Events Frames Timeline Recording 4 CPU Entire Recording

Stop recording once page loads Import Export



#### Main Thread

1647ms


- Script 39.0% (643)
- Layout 0.9% (15)
- Paint 58.9% (970)
- Style Resolution 1.2% (19)

#### Energy Impact

**Medium**

Average CPU: 11.4%  
Duration: 15s

webkit.org/blog/page/11/



## MotionMark: A New Graphics Benchmark

Today, we are pleased to introduce MotionMark, a new graphics benchmark for web browsers.

[Read more >](#)

## Release Notes for Safari Technology Preview 13

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[Read more >](#)

## Release Notes for Safari Technology Preview 12

Safari Technology Preview Release 12 is now available for download for both macOS Sierra betas and OS X El Capitan.

[Read more >](#)

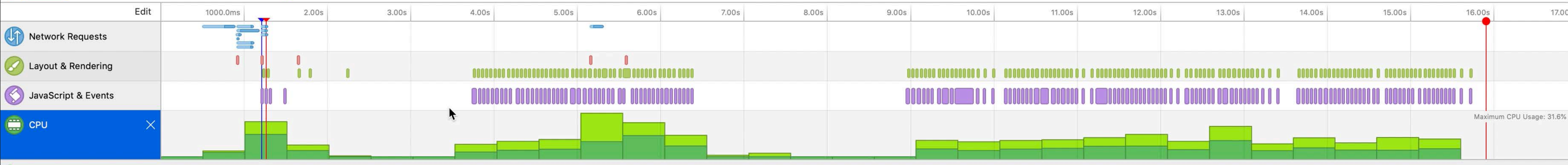
[Previous page](#) 1 ... 10 11 12 ... 24 [Next page](#)

11 211.7 KB 774ms

Elements Network Resources Timelines Debugger Storage Console

Events Frames Timeline Recording 4 CPU Entire Recording

Stop recording once page loads Import Export



Maximum CPU Usage: 31.6%

### Main Thread

1647ms

- Script 39.0% (643)
- Layout 0.9% (15)
- Paint 58.9% (970)
- Style Resolution 1.2% (19)

### Energy Impact

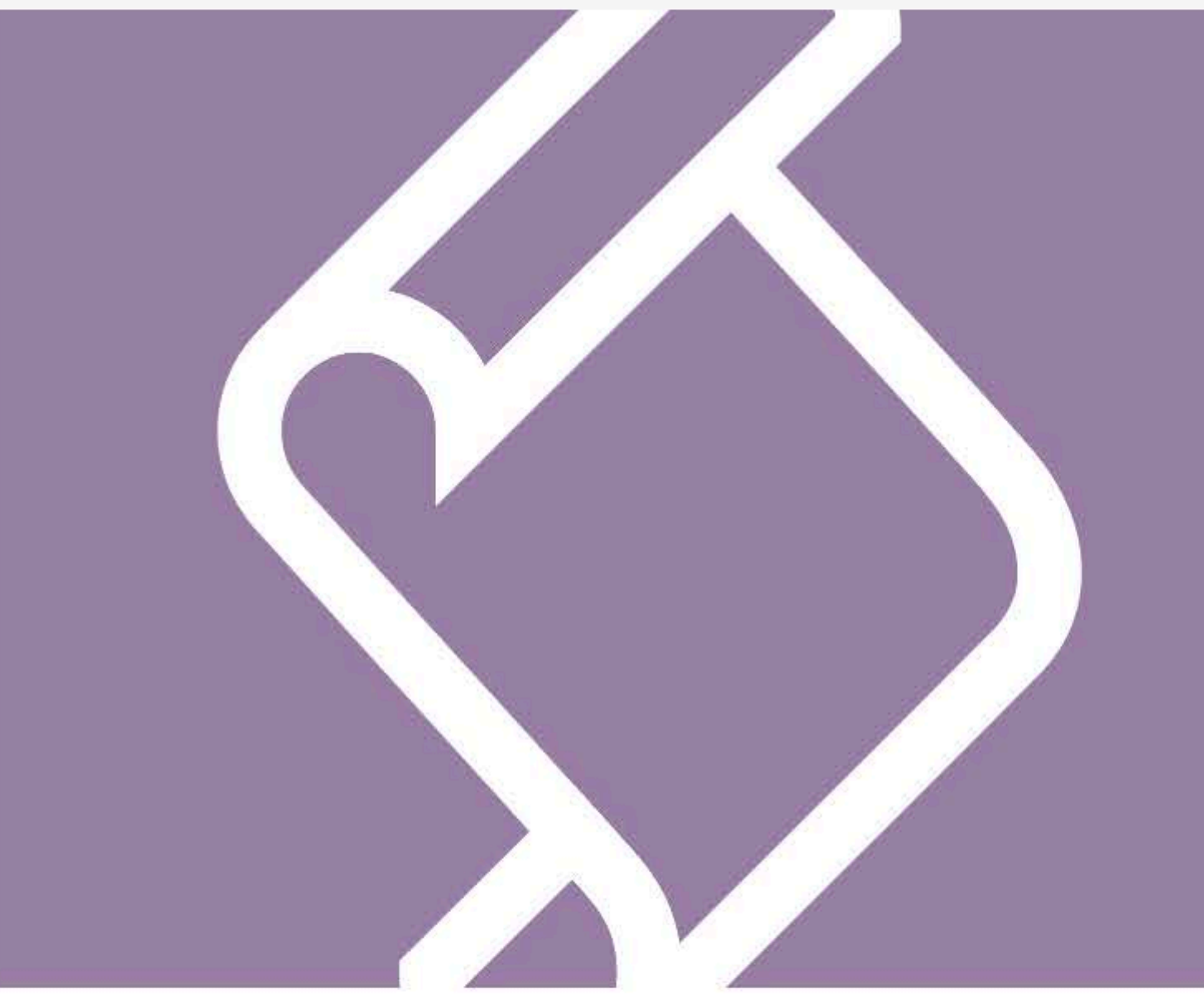
**Medium**

Average CPU: 11.4%  
Duration: 15s

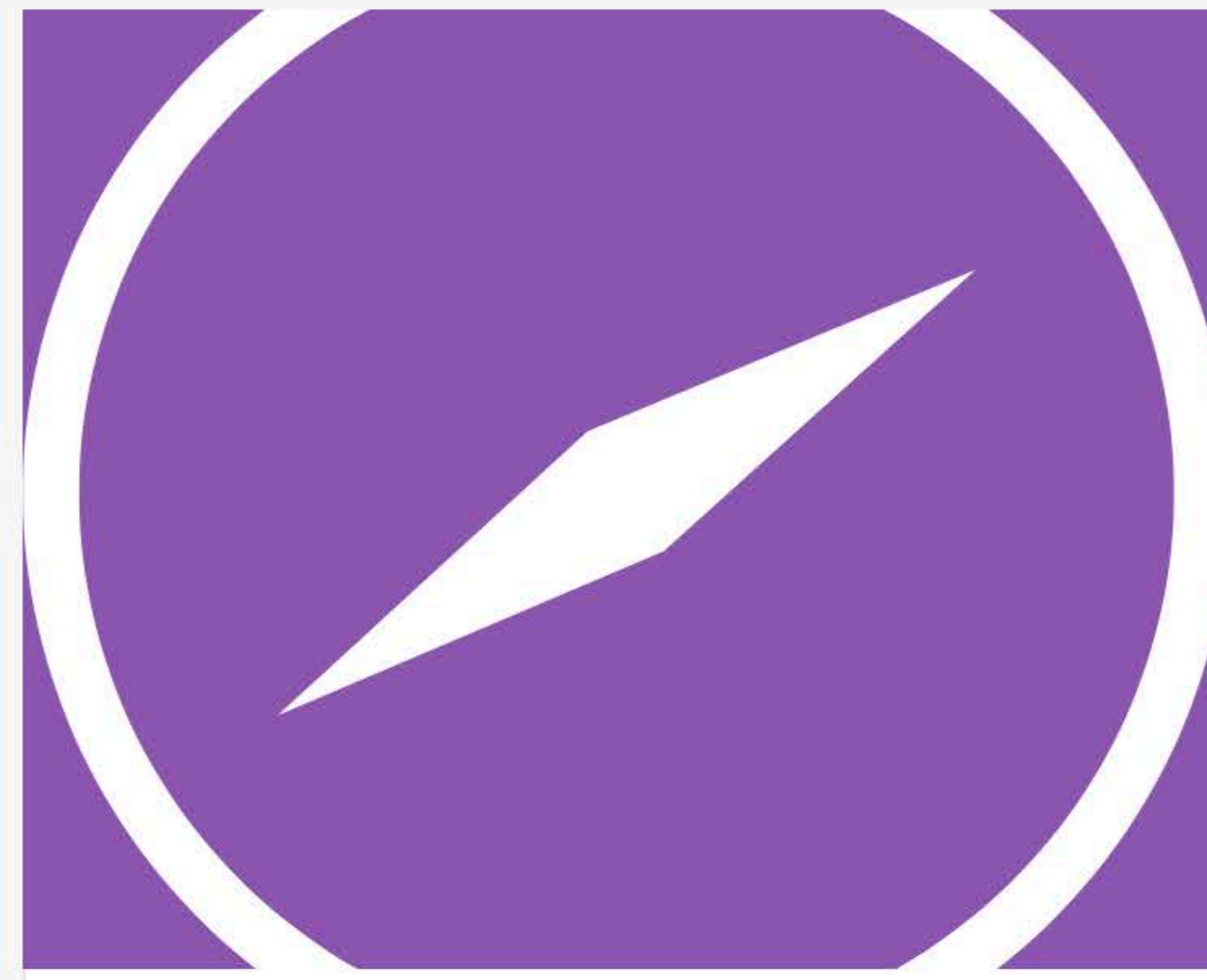
Safari Technology Preview Release 16 is now available for download for macOS Sierra.  
[Read more >](#)

Multi-Touch gestures have always been an integral part of the iPhone experience, but pinch and double tap were just the beginning of the story.  
[Read more >](#)

Safari Technology Preview Release 15 is now available for download for both macOS Sierra and OS X El Capitan 10.11.6.  
[Read more >](#)



**JavaScript Internationalization API**  
WebKit fully supports the ECMA-402 API for internationalization in JavaScript to adapt data



**Release Notes for Safari Technology Preview 14**  
Safari Technology Preview Release 14 is now available for download for both macOS Sierra



**MotionMark: A New Graphics Benchmark**  
Today, we are pleased to introduce MotionMark, a new graphics benchmark for

Breakpoints

- All Exceptions
- Uncaught Exceptions
- Assertion Failures
- All Requests

Sources

- 11 — webkit.org
- global.js
- wp-embed.min.js

Filter

```

12 scrollableDiv.appendChild(paddingDiv);
13 table.parentNode.insertBefore(scrollableDiv, table);
14
15 paddingDiv.appendChild(table);
16 }
17 }
18 }
19 }
20
21 function lazyLoadImages () {
22   let backgroundImages = document.querySelectorAll('#content div[data-url]');
23   if (backgroundImages.length == 0)
24     return;
25   let lazyloadImageObserver = new IntersectionObserver(function (changes) {
26     for (let change of changes) {
27       if (!change.isIntersecting)
28         return;
29       change.target.style.backgroundImage = 'url(' + change.target.getAttribute('data-url') + ')';
30       change.target.parentElement.classList.add('loaded');
31       lazyloadImageObserver.unobserve(change.target);
32     }
33   });
34   for (let element of backgroundImages)
35     lazyloadImageObserver.observe(element);
36 }
37
38 lazyLoadImages();
39 enableScrollableTables();
40
41 });

```

Scope Chain

Resource

Watch Expressions

No Watch Expressions







# Power Saving Tips for Web Content

# Power Saving Tips for Web Content

Investigate page interactions and idle

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Investigate page interactions and idle

Reduce CPU usage to save power

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Investigate page interactions and idle

Reduce CPU usage to save power

Use CSS animations and transitions

# Power Saving Tips for Web Content

Investigate page interactions and idle

Reduce CPU usage to save power

Use CSS animations and transitions

Avoid scroll events, use IntersectionObserver

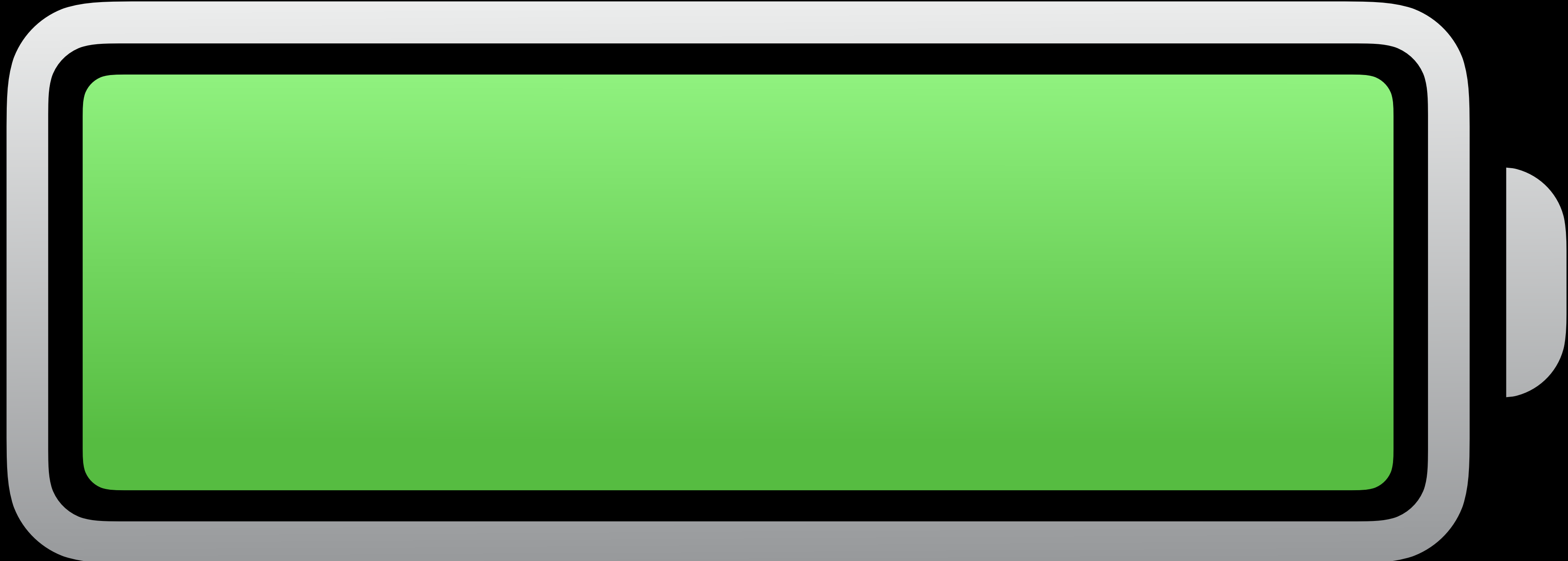


webkit.org





CPU Usage Timeline



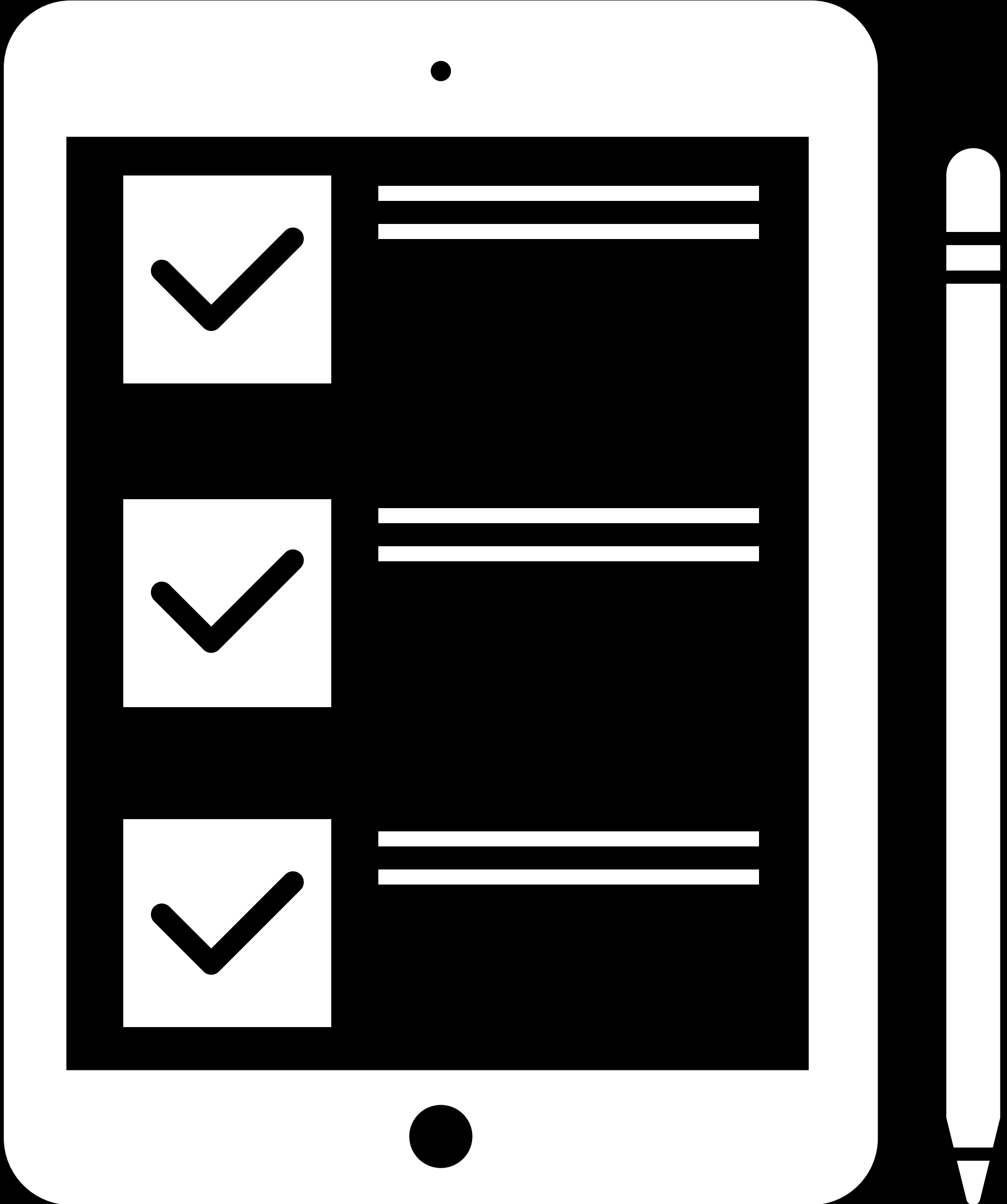
 WWDC19

#WWDC19

# Auditing Web Content with Web Inspector

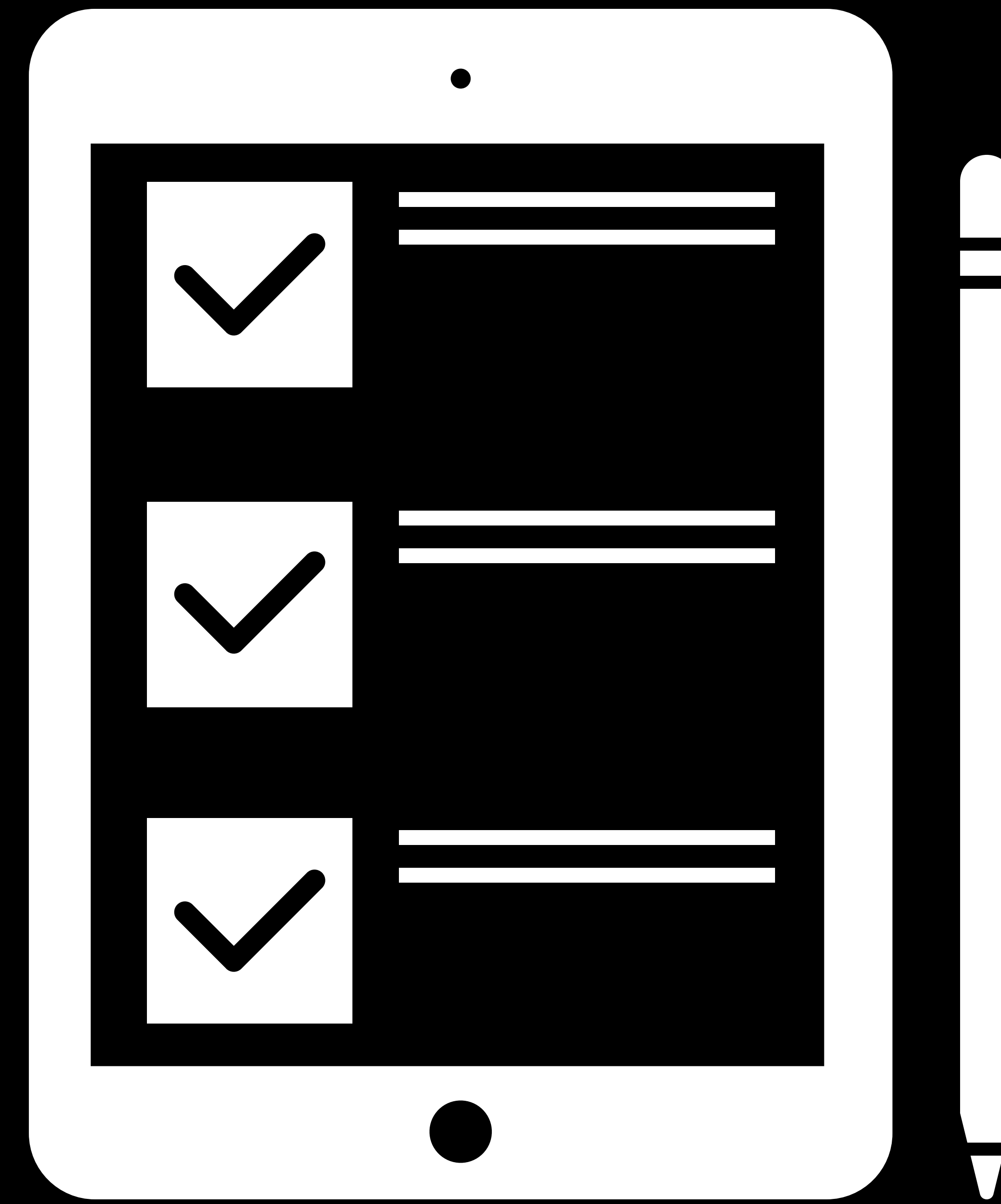
Jonathan Davis, Web Technologies Evangelist







WebDriver



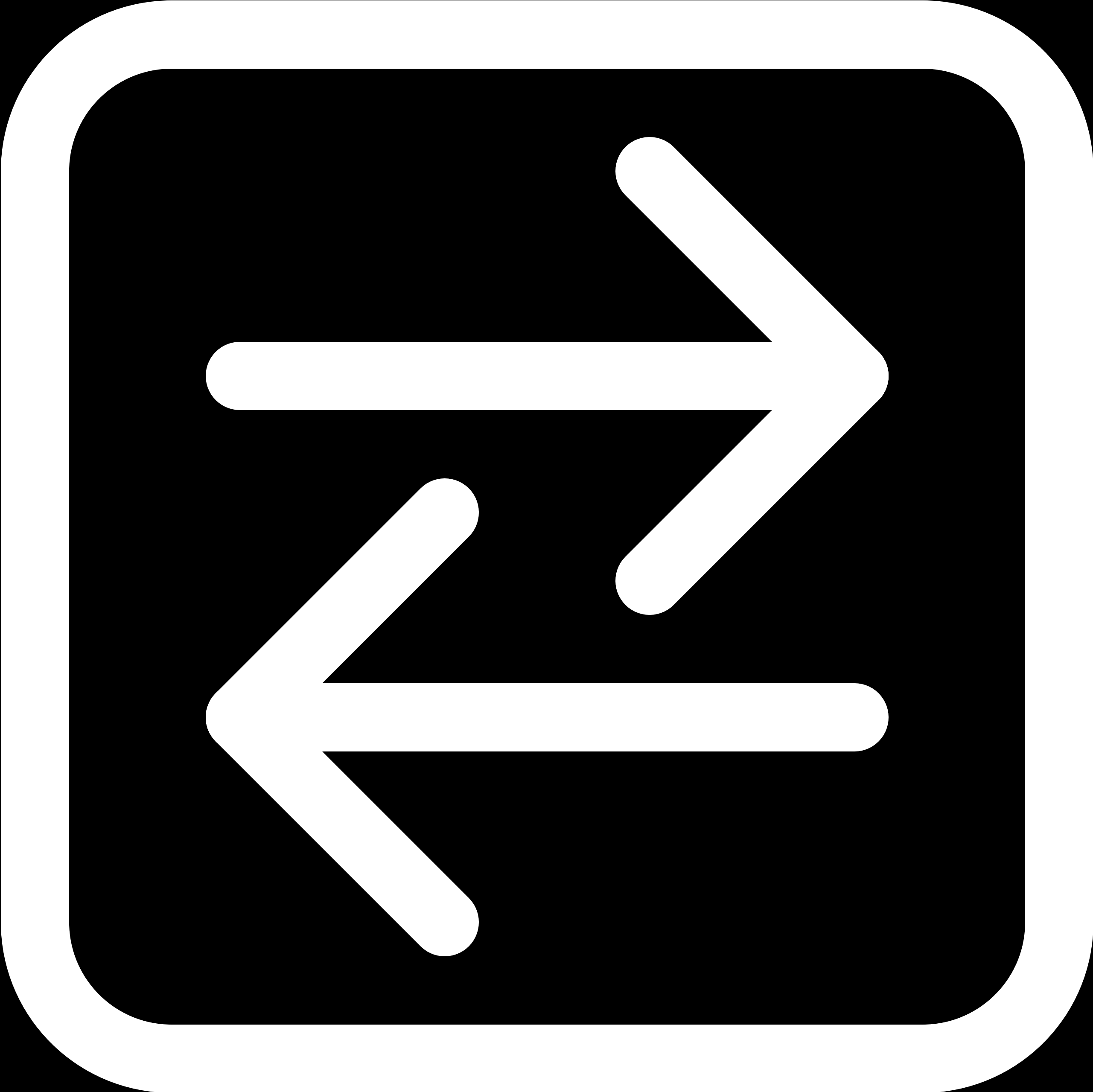
NEW



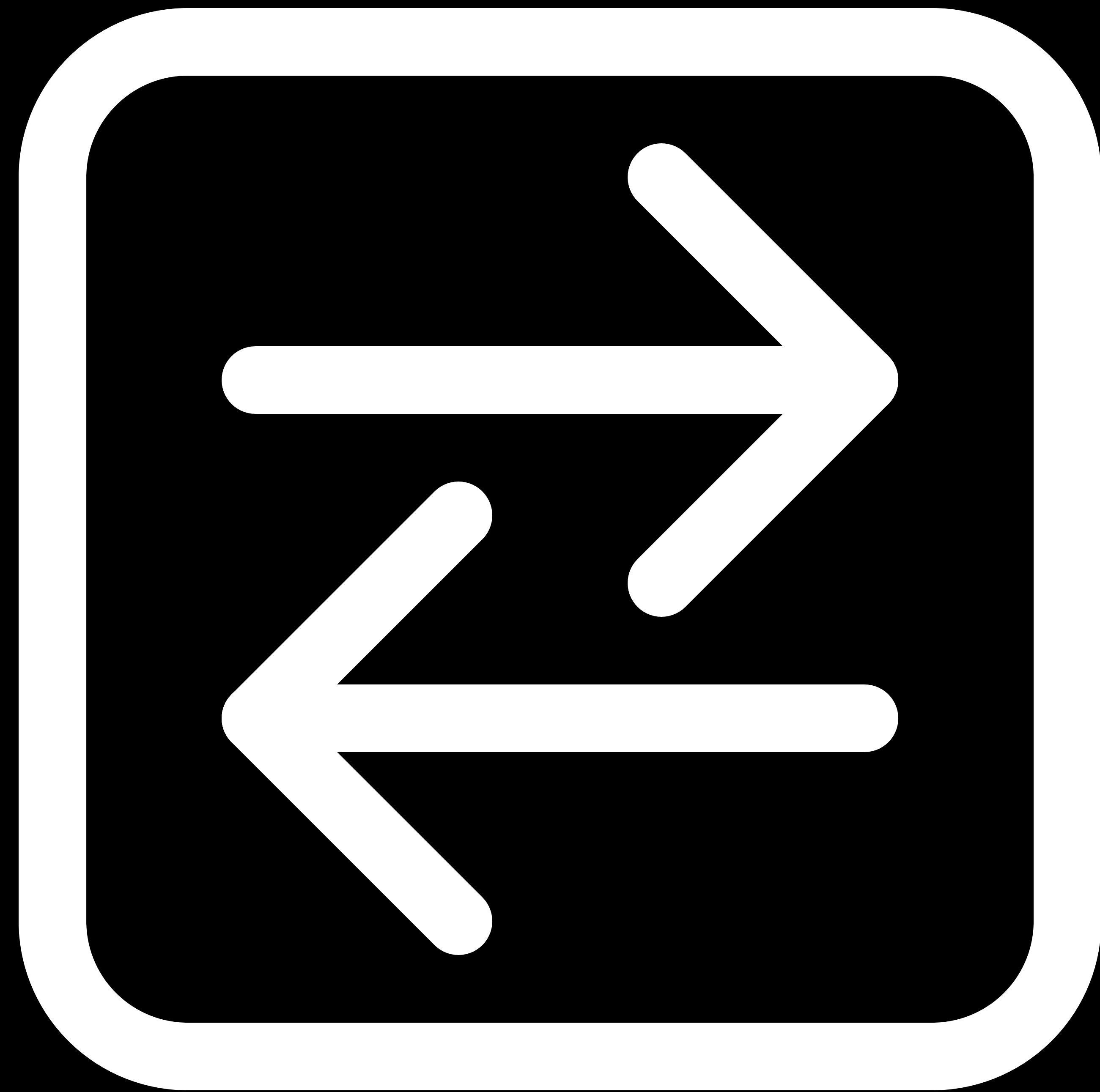
WebDriver







NEW



Audit

Using Audits

Using Audits

Working with Tests

Using Audits

Working with Tests

Creating Custom Audits

Advanced

General Tabs AutoFill Passwords Search Security Privacy Websites Extensions Advanced

Smart Search Field:  Show full website address

Accessibility:  Never use font sizes smaller than 9  Press Tab to highlight each item on a webpage  
Option-Tab highlights each item.

Reading List:  Save articles for offline reading automatically

Internet plug-ins:  Stop plug-ins to save power

Style sheet: None Selected

Default encoding: Western (ISO Latin 1)

Proxies: Change Settings...

Show Develop menu in menu bar

?

Advanced

General Tabs AutoFill Passwords Search Security Privacy Websites Extensions **Advanced**

Smart Search Field:  Show full website address

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Show Develop menu in menu bar

?





# A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

Web developers can [follow development](#), [check feature status](#), [download Safari Technology Preview](#) to try out the latest web technologies, and [report bugs](#).





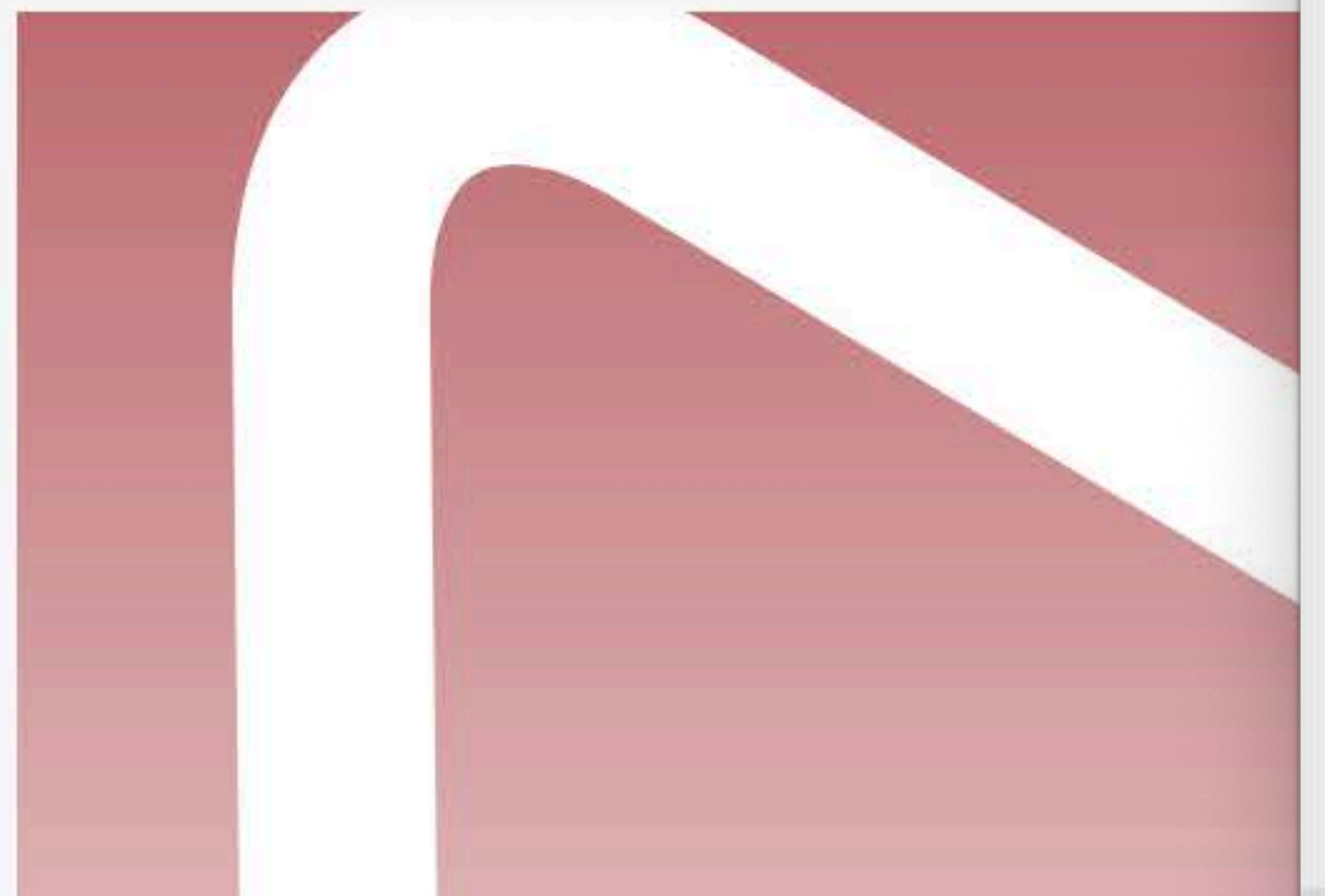
WebKit  
apps on  
Web  
Safari Te

- Open Page With User Agent
- MacBook Pro
- Service Workers
- Experimental Features
- Enter Responsive Design Mode (^⌘R)
- Show Snippet Editor
- Show Extension Builder
- Show Web Inspector (⇧⌘I)
- Show JavaScript Console (⇧⌘C)
- Show Page Source (⇧⌘U)
- Show Page Resources (⇧⌘A)
- Start Timeline Recording (⇧⌘⌥T)
- Start Element Selection (⇧⌘C)
- Empty Caches (⇧⌘E)
- Disable Images
- Disable Styles
- Disable JavaScript
- Disable Extensions
- Disable Site-specific Hacks
- Disable Local File Restrictions
- Disable Cross-Origin Restrictions

Downloads Feature Status Reporting Bugs

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ting code, or reporting bugs.  
feature status, download  
chnologies, and report bugs.



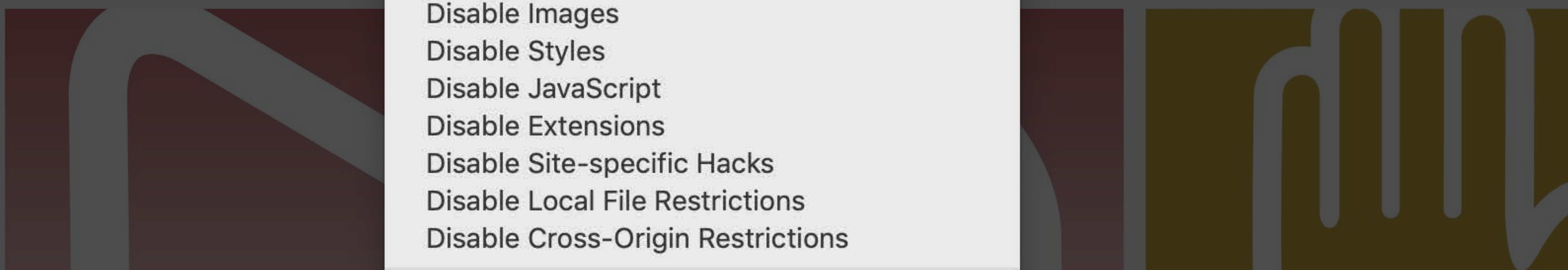


- Open Page With User Agent ▶▶
- MacBook Pro ▶
- Service Workers ▶
- Experimental Features ▶
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- Show Page Source ⌘⌘U
- Show Page Resources ⌘⌘A
- Start Timeline Recording ⌘⇧⌘T
- Start Element Selection ⇧⌘C
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- Disable Cross-Origin Restrictions

Source engine.

il, App Store, and many other  
 ting code, or reporting bugs.

feature status, download  
 chnologies, and report bugs.



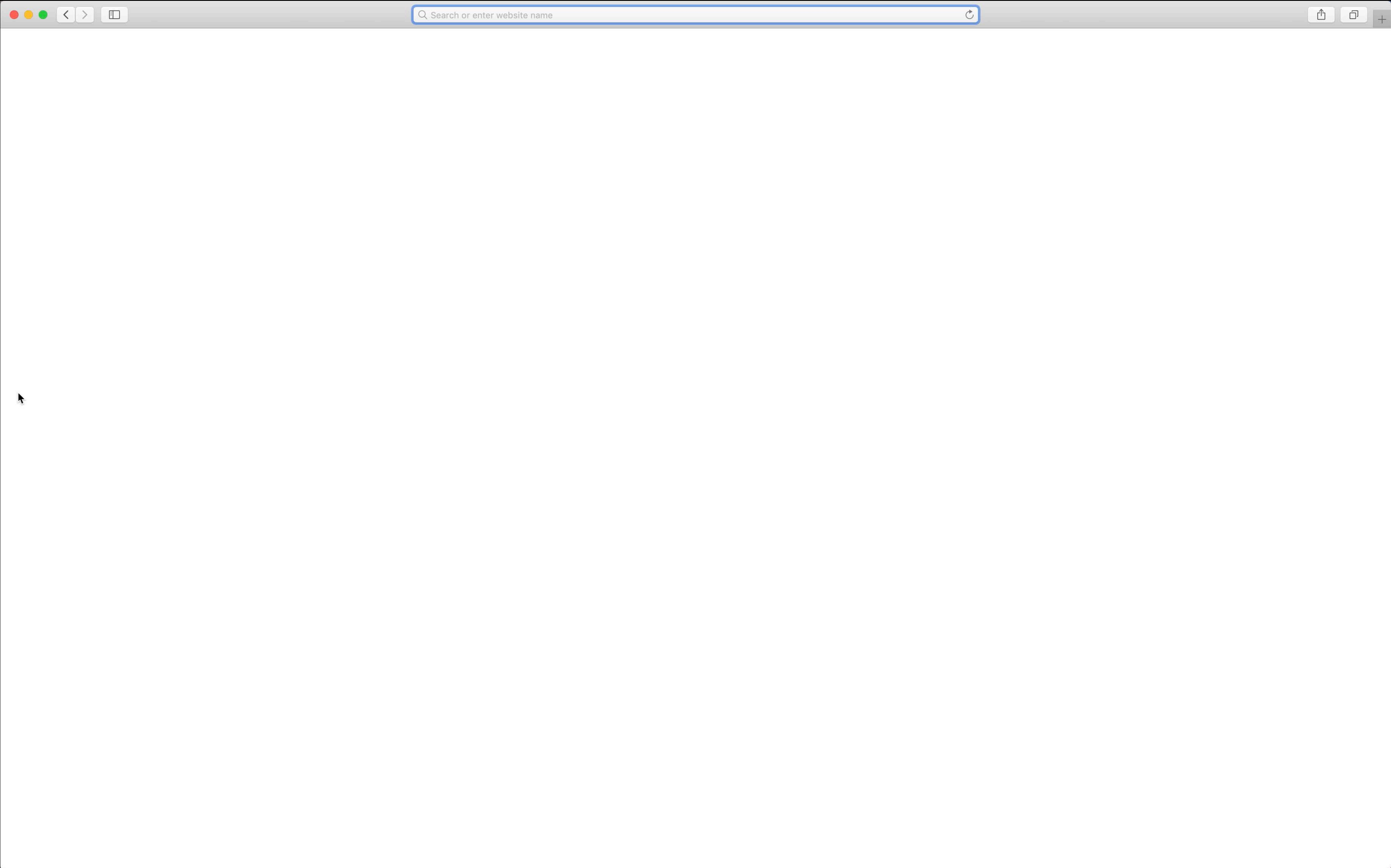


- Open Page With User Agent ▶▶
- MacBook Pro ▶
- Service Workers ▶
- Experimental Features ▶
- Enter Responsive Design Mode ^⌘R
- Show Snippet Editor
- Show Extension Builder
- Show Web Inspector** ⌘⌘I
- Show JavaScript Console ⌘⌘C
- Show Page Source ⌘⌘U
- Show Page Resources ⌘⌘A
- Start Timeline Recording ⌘⇧⌘T
- Start Element Selection ⇧⌘C
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- Disable Cross-Origin Restrictions

Downloads Feature Status Reporting Bugs

Source engine.

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feature status, download  
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Start Import

- Demo Audit
- Accessibility

No audit selected

Press [Import](#) to import a test or result file

Filter

Audit version: 2



▶ Start | ⬇️ Import

📄 | ⏪ ⏩


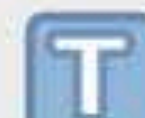
- ▶ Demo Audit
- ▶ Accessibility


# No audit selected

Press Import to import a test or result file



▶ Start | ⬇ Import

- ▶  Demo Audit
- ▶  Accessibility

Navigation icons:  | < >

# No audit selected

Press  Import to import a test or result file

▶ Start | ⬇️ Import

- ▼ **T** Demo Audit
  - ▼ **T** Result Levels
    - t** level-pass
    - t** level-warn
    - t** level-fail
    - t** level-error
    - t** level-unsupported
  - ▼ **T** Result Data
    - t** data-domNodes
    - t** data-domAttributes
    - t** data-errors
  - ▶ **T** Accessibility

# No audit selected

Press  to import a test or result file

▶ Start | ⬇️ Import

- ▼ **T** Demo Audit
  - ▼ **T** Result Levels
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    - t** data-errors
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- ▼ Demo Audit
  - ▼ Result Levels
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    - level-error
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  - ▼ Result Data
    - data-domNodes
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Press [⬇️ Import](#) to import a test or result file

▶ Start | ⬇️ Import

- ▼ Demo Audit
  - ▼ Result Levels
    - † level-pass**
    - † level-warn
    - † level-fail
    - † level-error
    - † level-unsupported
  - ▼ Result Data
    - † data-domNodes
    - † data-domAttributes
    - † data-errors
  - ▶ Accessibility

📄 | ⏪ ⏩

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[Icon] | < | >

# No audit selected

Press  to import a test or result file

**▶ Start**    ⬇️ Import

- ▼ **T** Demo Audit
  - ▼ **T** Result Levels
    - t** level-pass
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    - t** data-errors
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Navigation controls: list icon, left arrow, right arrow.

# No audit selected

Press **⬇️ Import** to import a test or result file

▶ Start | ⬇️ Import

- ▼ **T** Demo Audit
  - ▼ **T** Result Levels
    - t** level-pass
    - t** level-warn
    - t** level-fail
    - t** level-error
    - t** level-unsupported
  - ▼ **T** Result Data
    - t** data-domNodes
    - t** data-domAttributes
    - t** data-errors
  - ▶ **T** Accessibility

# No audit selected

Press [⬇️ Import](#) to import a test or result file



▶ Start | 📄 Import

- ▼ **T** Demo Audit
  - ▼ **T** Results
    - 🔍 level
    - 🔍 level
    - 🔍 level
    - 🔍 level-error
    - 🔍 level-unsupported
  - ▼ **T** Result Data
    - 🔍 data-domNodes
    - 🔍 data-domAttributes
    - 🔍 data-errors
  - ▶ **T** Accessibility

- Start
- Export Test
- Expand All
- Collapse All

📄 | < >

# No audit selected

Press 📄 Import to import a test or result file

Web Inspector — webkit.org

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass
    - level-warn
    - level-fail
    - level-error
    - level-unsupported
  - ▼ Result Data
    - data-domNodes
    - data-domAttributes
    - data-errors
  - ▶ Accessibility

No audit selected

Press [Import](#) to import a test or result file

Edit

Filter

Audit version: 2

Web Inspector — webkit.org

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass
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    - level-fail
    - level-error
    - level-unsupported
  - ▼ Result Data
    - data-domNodes
    - data-domAttributes
    - data-errors
  - ▶ Accessibility

No audit selected

Press [Import](#) to import a test or result file

Edit

Filter

Audit version: 2

- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass
    - level-warn
    - level-fail
    - level-error
    - level-unsupported
  - ▼ Result Data
    - data-domNodes
    - data-domAttributes
    - data-errors
  - ▶ Accessibility
  - ▼ Results
    - ▶ Run 1

# Demo Audit

These tests serve as a demonstration of the functionality and structure of audits.

Showing: 3 Passed 1 Warning 1 Failed 2 Errors 1 Unsupported 37%

## Result Levels

These are all of the different test result levels.

Showing: 1 Passed 1 Warning 1 Failed 1 Error 1 Unsupported 20%

<b>level-pass</b>	This is what the result of a passing test with no data looks like.	5/20/2019, 8:34:50 PM	4.00ms
<b>level-warn</b>	This is what the result of a warning test with no data looks like.	5/20/2019, 8:34:50 PM	2.00ms
<b>level-fail</b>	This is what the result of a failing test with no data looks like.	5/20/2019, 8:34:50 PM	2.00ms
<b>level-error</b>	This is what the result of a test that threw an error with no data looks like.	5/20/2019, 8:34:50 PM	2.00ms
<b>level-unsupported</b>	This is what the result of an unsupported test with no data looks like.	5/20/2019, 8:34:50 PM	15.0ms

## Result Data

These are all of the different types of data that can be returned with the test result.

Showing: 2 Passed 1 Error 66%

<b>data-domNodes</b>	This is an example of how result DOM nodes are shown. It will pass with the <body> element. <b>DOM Nodes:</b> 1 ▶ <body class="home page-template-default page page-id-4118">...</body>	5/20/2019, 8:34:50 PM	15.0ms
<b>data-domAttributes</b>	This is an example of how result DOM nodes are shown. It will pass with all elements with an id attribute. <b>DOM Nodes:</b> 1 <link rel="stylesheet" id="wp-block-library-css" href="https://webkit.org/wp/wp-includes/css/dist/block-library/style.min.css?ver=5.1.1" type="text/css" media="all">	5/20/2019, 8:34:50 PM	3.00ms

- ▼ **T** Result Data
  - t** data-domNodes
  - t** data-domAttributes
  - t** data-errors
- ▶ **T** Accessibility
- ▼ **Results**
  - ▶ **Run 1**

These are all of the different test result levels.

**level-pass**

This is what the result of a passing test with no data looks like.

**level-warn**

This is what the result of a warning test with no data looks like.

**level-fail**

This is what the result of a failing test with no data looks like.

**level-error**

This is what the result of a test that threw an error with no data looks like.

**level-unsupported**

This is what the result of an unsupported test with no data looks like.

## Result Data

These are all of the different types of data that can be returned with the test result.

Show

**data-domNodes**

This is an example of how result DOM nodes are shown. It will pass with the <body> element.

**DOM Nodes:**

```
1 ▶ <body class="home page-template-default page page-id-4118">...</body>
```

**data-domAttributes**

This is an example of how result DOM nodes are shown. It will pass with all elements with an id attribute.




**DOM Nodes:**

```
1 <link rel="stylesheet" id="wp-block-library-css" href="https://webkit.org/wp/wp-includes/css/dist/block-library/st
  media="all">
2 <filter id="invertlightness" x="0" y="0" style="color: interpolation: filter; color: #DCB48C" />
```

Edit

Filter



- ▼ **T** Result Data
  - t** data-domNodes 
  - t** data-domAttributes 
  - t** data-errors 
- ▶ **T** Accessibility
- ▼ **Results**
  - ▶ **Run 1**

These are all of the different test result levels.

 **level-pass**

This is what the result of a passing test with no data looks like.

 **level-warn**

This is what the result of a warning test with no data looks like.

 **level-fail**

This is what the result of a failing test with no data looks like.

 **level-error**

This is what the result of a test that threw an error with no data looks like.

 **level-unsupported**

This is what the result of an unsupported test with no data looks like.

## Result Data

These are all of the different types of data that can be returned with the test result.

Show

 **data-domNodes**

This is an example of how result DOM nodes are shown. It will pass with the <body> element.

**DOM Nodes:**

```
1 ▶ <body class="home page-template-default page page-id-4118">...</body>
```

 **data-domAttributes**

This is an example of how result DOM nodes are shown. It will pass with all elements with an id attribute.

**DOM Nodes:**

```
1 <link rel="stylesheet" id="wp-block-library-css" href="https://webkit.org/wp/wp-includes/css/dist/block-library/st
  media="all">
2 <filter id="invertLightness" x="0" y="0" style="color: interpolation: filter: <math>1 - \frac{v}{255}</math> </filter>
```

Edit

Filter



- ▼  Result Data
- data-domNodes
- data-domAttributes
- data-errors
- ▶  Accessibility

# Editing audits

Press  to stop editing

Done

Audit version: 2



Navigation and toolbars: Refresh, Reload, File 7, Notification, History, Messages 0, Errors 0, Warnings 0, and a search icon.

Toolbars: Elements, Network, Resources, Debugger, Timelines, Console, Storage, Canvas. Sub-toolbar: Start, Import, and navigation arrows.

- ▼ Demo Audit
- ▼ Result Levels 
  - level-pass
  - level-warn
  - level-fail
  - level-error
  - level-unsupported
- ▼ Result Data 
  - data-domNodes
  - data-domAttributes
  - data-errors
- ▶ Accessibility

# Editing audits

Press  to stop editing

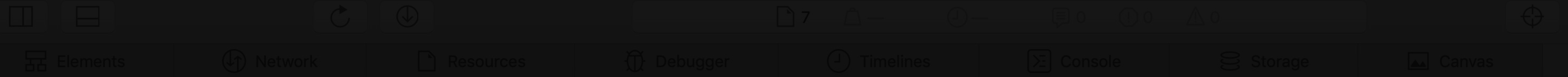


Start Import

- ▼ Demo Audit ✓
- ▼ Result Levels ✓
  - † level-pass ✓
  - † level-warn ✓
  - † level-fail ✓
  - † level-error ✓
  - † level-unsupported ✓
- ▼ Result Data ✓
  - † data-domNodes ✓
  - † data-domAttributes ✓
  - † data-errors ✓
- ▶ Accessibility ✓

# Editing audits

Press Done to stop editing



▶ Start | ⬇ Import

- ▼  Demo Audit
- ▼  Result Levels 
  - level-pass
  - level-warn
  - level-fail
  - level-error
  - level-unsupported
- ▼  Result Data 
  - data-domNodes
  - data-domAttributes
  - data-errors
- ▶  Accessibility

## Editing audits

Press  to stop editing

Start Import

- ▼ Demo Audit
- ▼ Result Levels 
  - level-pass
  - level-warn
  - level-fail
  - level-error
  - level-unsupported
- ▼ Result Data 
  - data-domNodes
  - data-domAttributes
  - data-errors
- ▶ Accessibility

Navigation icons: list, back, forward

# Editing audits

Press Done to stop editing

Start Import

- ▼ Demo Audit
- ▼ Result Levels 
  - † level-pass
  - † level-warn
  - † level-fail
  - † level-error
  - † level-unsupported
- ▼ Result Data 
  - † data-domNodes
  - † data-domAttributes
  - † data-errors
- ▶ Accessibility

Navigation icons: list, back, forward

# Editing audits

Press Done to stop editing

▶ Start | ⬇ Import

- ▼  Demo Audit
- ▼  Result Levels
  - level-pass
  - level-warn
  - level-fail
  - level-error
  - level-unsupported
- ▼  Result Data
  - data-domNodes
  - data-domAttributes
  - data-errors
- ▶  Accessibility

⏪ ⏩

# Editing audits

Press Done to stop editing

- ▶ Start | Import
- ▼ Demo Audit
- ▼ Result Levels 
  - level-pass
  - level-warn
  - level-fail
  - level-error
  - level-unsupported
- ▼ Result Data 
  - data-domNodes
  - data-domAttributes
  - data-errors
- ▶ Accessibility

## Editing audits

Press  to stop editing

Done

Filter

Audit version: 2

- ▶ Start | Import
- ▼ Demo Audit
- ▼ Result Levels 
  - level-pass
  - level-warn
  - level-fail
  - level-error
  - level-unsupported
- ▼ Result Data 
  - data-domNodes
  - data-domAttributes
  - data-errors
- ▶ Accessibility

Done

Filter



# Editing audits

Press  to stop editing

- ▶ Start | Import
- ▼ Demo Audit
- ▼ Result Levels 
  - level-pass
  - level-warn
  - level-fail
  - level-error
  - level-unsupported
- ▼ Result Data 
  - data-domNodes
  - data-domAttributes
  - data-errors
- ▶ Accessibility

## Editing audits

Press  to stop editing

Filter



- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass
    - level-warn
    - level-fail
    - level-error
    - level-unsupported
  - ▼ Result Data
    - data-domNodes
    - data-domAttributes
    - data-errors
  - Results
    - Run 1

# Demo Audit

These tests serve as a demonstration of the functionality and structure of audits.

Showing: 3 Passed 1 Warning 1 Failed 2 Errors 1 Unsupported 37%

## Result Levels

These are all of the different test result levels.

Showing: 1 Passed 1 Warning 1 Failed 1 Error 1 Unsupported 20%

<b>level-pass</b>	This is what the result of a passing test with no data looks like.	5/20/2019, 8:34:50 PM	4.00ms
<b>level-warn</b>	This is what the result of a warning test with no data looks like.	5/20/2019, 8:34:50 PM	2.00ms
<b>level-fail</b>	This is what the result of a failing test with no data looks like.	5/20/2019, 8:34:50 PM	2.00ms
<b>level-error</b>	This is what the result of a test that threw an error with no data looks like.	5/20/2019, 8:34:50 PM	2.00ms
<b>level-unsupported</b>	This is what the result of an unsupported test with no data looks like.	5/20/2019, 8:34:50 PM	15.0ms

## Result Data

These are all of the different types of data that can be returned with the test result.

Showing: 2 Passed 1 Error 66%

<b>data-domNodes</b>	This is an example of how result DOM nodes are shown. It will pass with the <body> element. <b>DOM Nodes:</b> 1 > <body class="home page-template-default page page-id-4118">...</body>	5/20/2019, 8:34:50 PM	15.0ms
<b>data-domAttributes</b>	This is an example of how result DOM nodes are shown. It will pass with all elements with an id attribute. <b>DOM Nodes:</b> 1 <link rel="stylesheet" id="wp-block-library-css" href="https://webkit.org/wp/wp-includes/css/dist/block-library/style.min.css?ver=5.1.1" type="text/css" media="all">	5/20/2019, 8:34:50 PM	3.00ms

- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass ✓
    - level-warn ⚠
    - level-fail ✖
    - level-error !
    - level-unsupported ⇅
  - ▼ Result Data
    - data-domNodes ✓
    - data-domAttributes ✓
    - data-errors !
- ▼ Results
  - ▼ Run 1
    - ▼ Demo Audit
      - ▼ Result Levels
        - level-pass ✓
        - level-warn ⚠
        - level-fail ✖
        - level-error !
        - level-unsupported ⇅
      - ▼ Result Data
        - data-domNodes ✓
        - data-domAttributes ✓
        - data-errors !

Edit

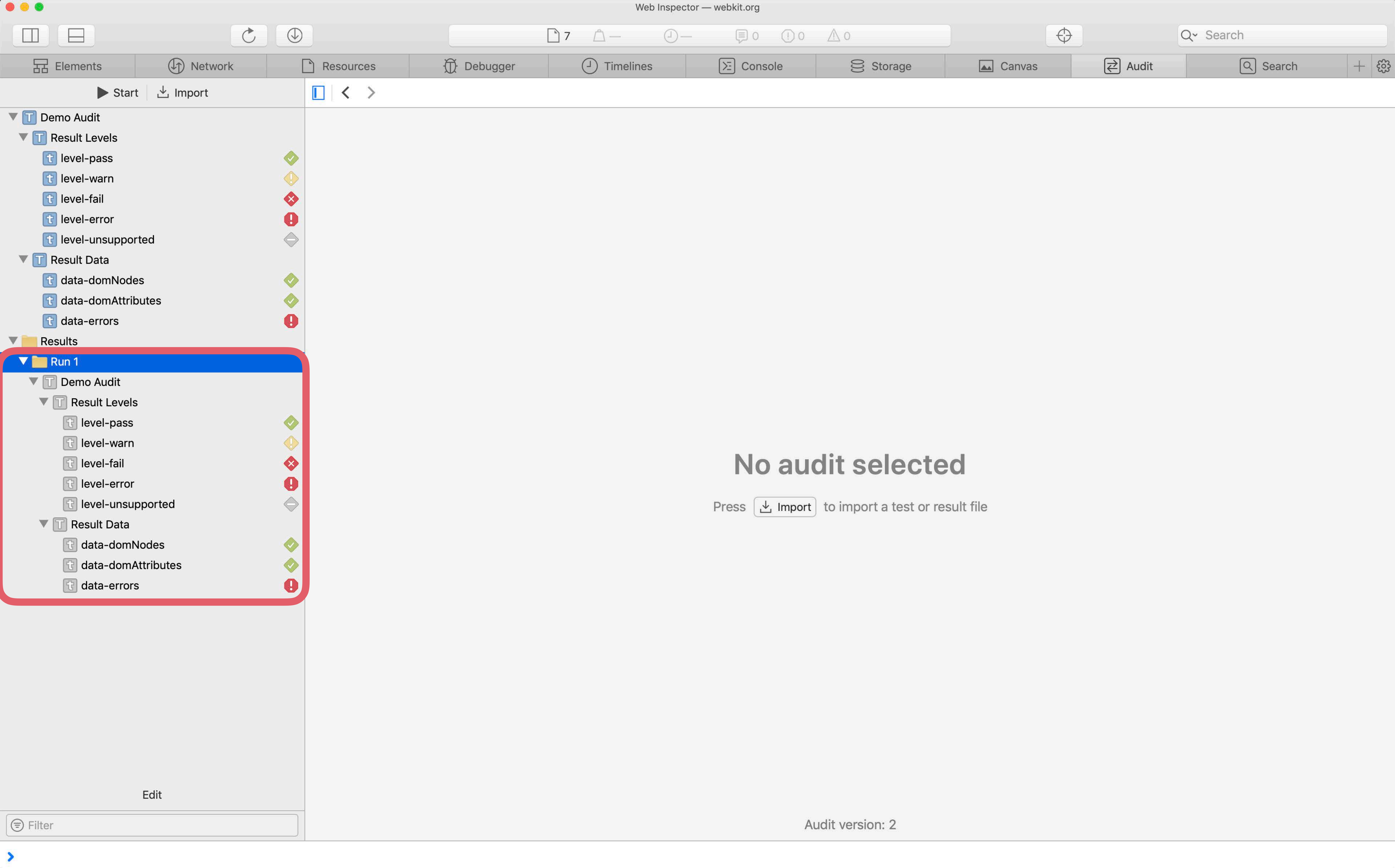
Filter

No audit selected

Press [Import](#) to import a test or result file

Audit version: 2





Start Import

- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass ✓
    - level-warn ⚠
    - level-fail ✖
    - level-error !
    - level-unsupported ⚡
  - ▼ Result Data
    - data-domNodes ✓
    - data-domAttributes ✓
    - data-errors !

- ▼ Run 1
  - ▼ Demo Audit
    - ▼ Result Levels
      - level-pass ✓
      - level-warn ⚠
      - level-fail ✖
      - level-error !
      - level-unsupported ⚡
    - ▼ Result Data
      - data-domNodes ✓
      - data-domAttributes ✓
      - data-errors !

No audit selected

Press [Import](#) to import a test or result file

Filter

Audit version: 2

- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass ✓
    - level-warn ⚠
    - level-fail ✖
    - level-error !
    - level-unsupported ⇄
  - ▼ Result Data
    - data-domNodes ✓
    - data-domAttributes ✓
    - data-errors !
- ▼ Results
  - ▼ Run 1
    - ▼ Demo Audit
      - ▼ Result Levels
        - level-pass ✓
        - level-warn ⚠
        - level-fail ✖
        - level-error !
        - level-unsupported ⇄
      - ▼ Result Data
        - data-domNodes ✓
        - data-domAttributes ✓
        - data-errors !

Edit

# No audit selected

Press [↓ Import](#) to import a test or result file

- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass
    - level-warn
    - level-fail
    - level-error
    - level-unsupported
  - ▼ Result Data
    - data-domNodes
    - data-domAttributes
    - data-errors
- ▼ Results
  - ▼ Run 1
    - ▼ Demo Audit
      - ▼ Result Levels
        - level-pass
        - level-warn
        - level-fail
        - level-error
        - level-unsupported
      - ▼ Result Data
        - data-domNodes
        - data-domAttributes
        - data-errors

# Demo Audit

These tests serve as a demonstration of the functionality and structure of audits.

Showing: 3 Passed 1 Warning 1 Failed 2 Errors 1 Unsupported

## Result Levels

These are all of the different test result levels.

Showing: 1 Passed 1 Warning 1 Failed 1 Error 1 Unsupported

### level-pass

This is what the result of a passing test with no data looks like.

5/20/2019, 8:34:50 PM  
<https://webkit.org/>

### level-warn

This is what the result of a warning test with no data looks like.

5/20/2019, 8:34:50 PM  
<https://webkit.org/>

### level-fail

This is what the result of a failing test with no data looks like.

5/20/2019, 8:34:50 PM  
<https://webkit.org/>

### level-error

This is what the result of a test that threw an error with no data looks like.

5/20/2019, 8:34:50 PM  
<https://webkit.org/>

### level-unsupported

This is what the result of an unsupported test with no data looks like.

5/20/2019, 8:34:50 PM  
<https://webkit.org/>

## Result Data

These are all of the different types of data that can be returned with the test result.

Showing: 2 Passed 1 Error

### data-domNodes

This is an example of how result DOM nodes are shown. It will pass with the <body> element.

5/20/2019, 8:34:50 PM  
<https://webkit.org/>

#### DOM Nodes:

1 ▶ `<body class="home page-template-default page page-id-4118">...</body>`

### data-domAttributes

This is an example of how result DOM nodes are shown. It will pass with all elements with an id attribute.

5/20/2019, 8:34:50 PM  
<https://webkit.org/>

#### DOM Nodes:

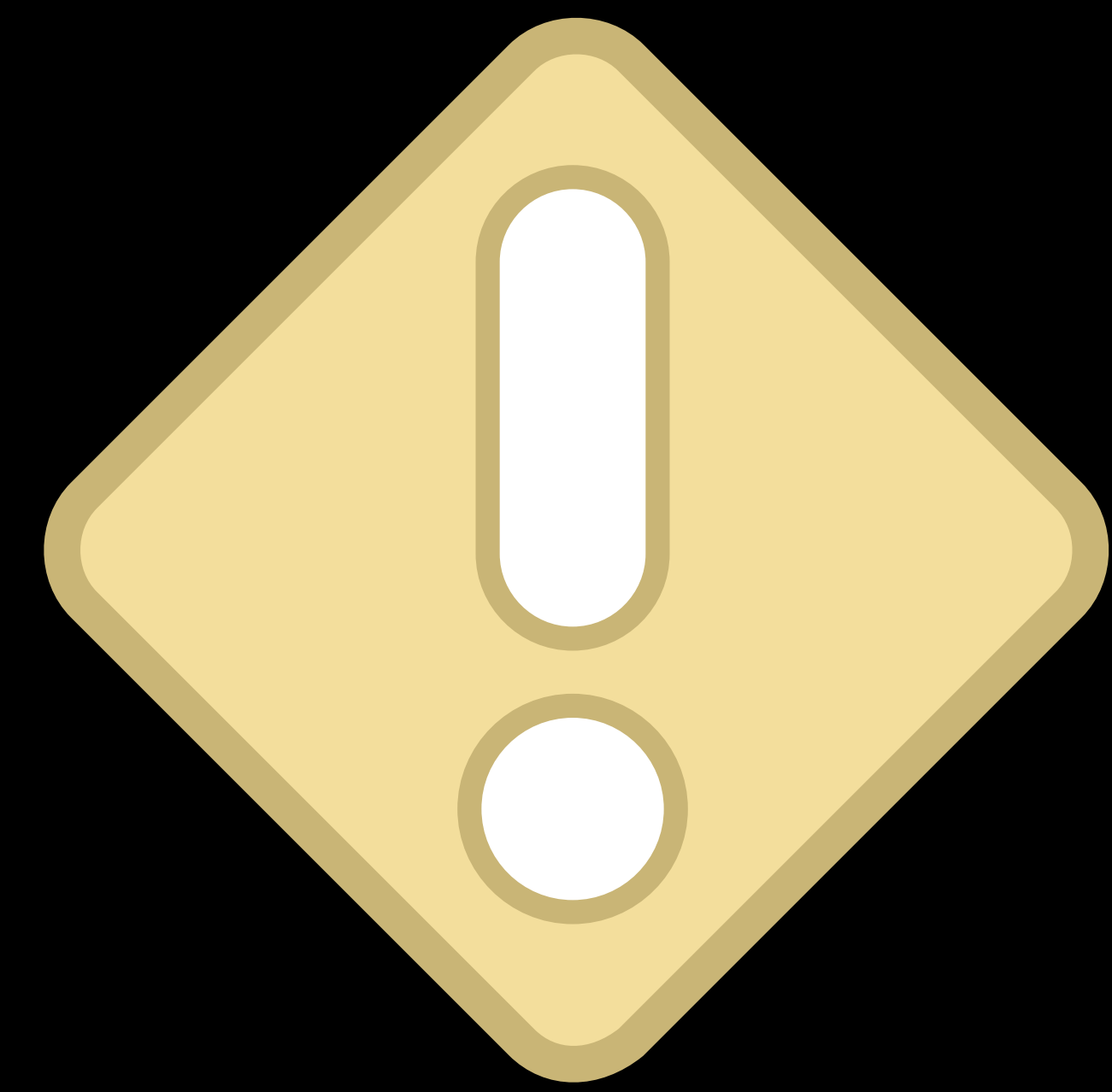
1 `<link rel="stylesheet" id="wp-block-library-css" href="https://webkit.org/wp/wp-includes/css/dist/block-library/style.min.css?ver=5.1.1" type="text/css" media="all">`

Edit

Filter



Passed



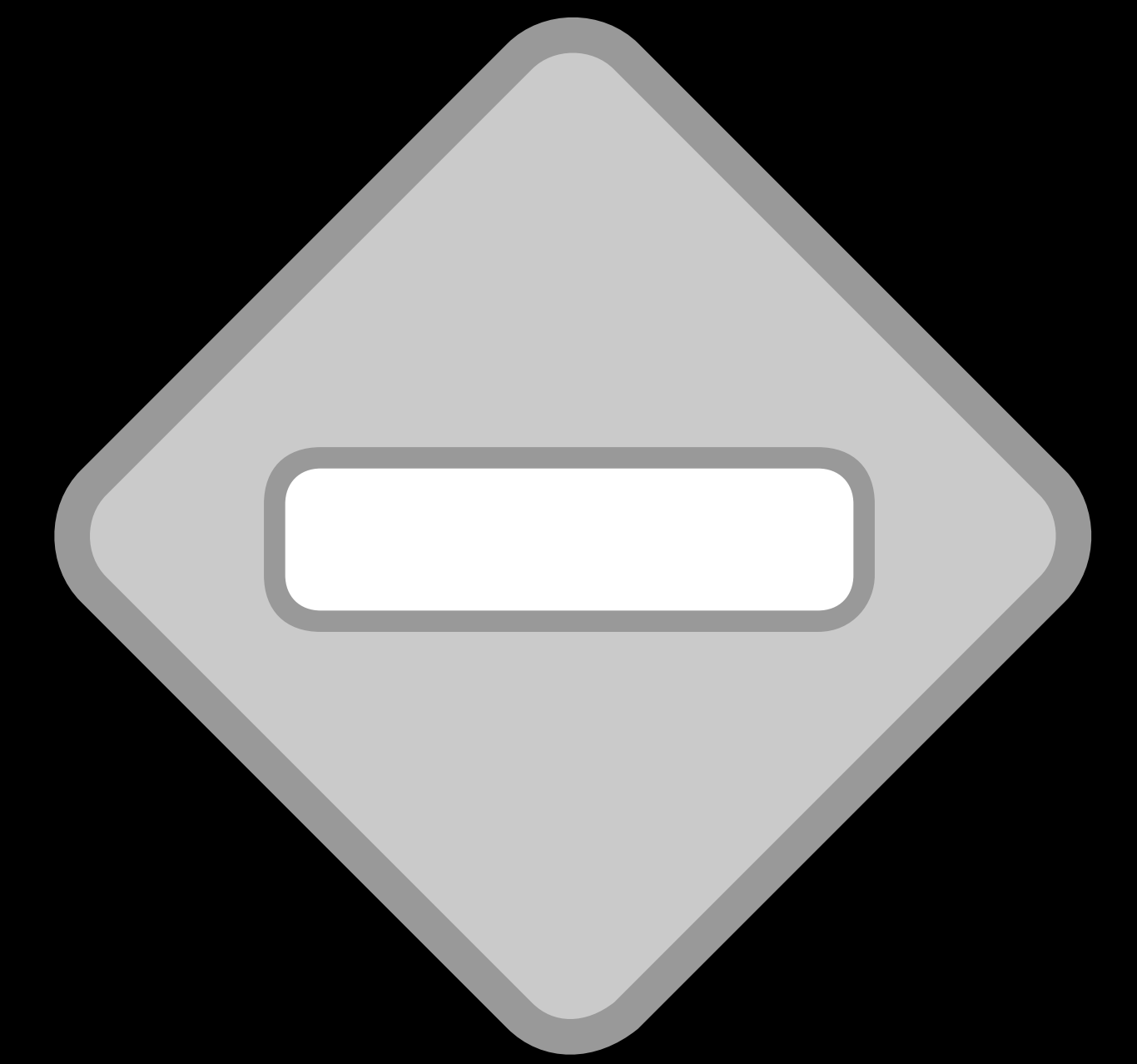
Warning



Failed



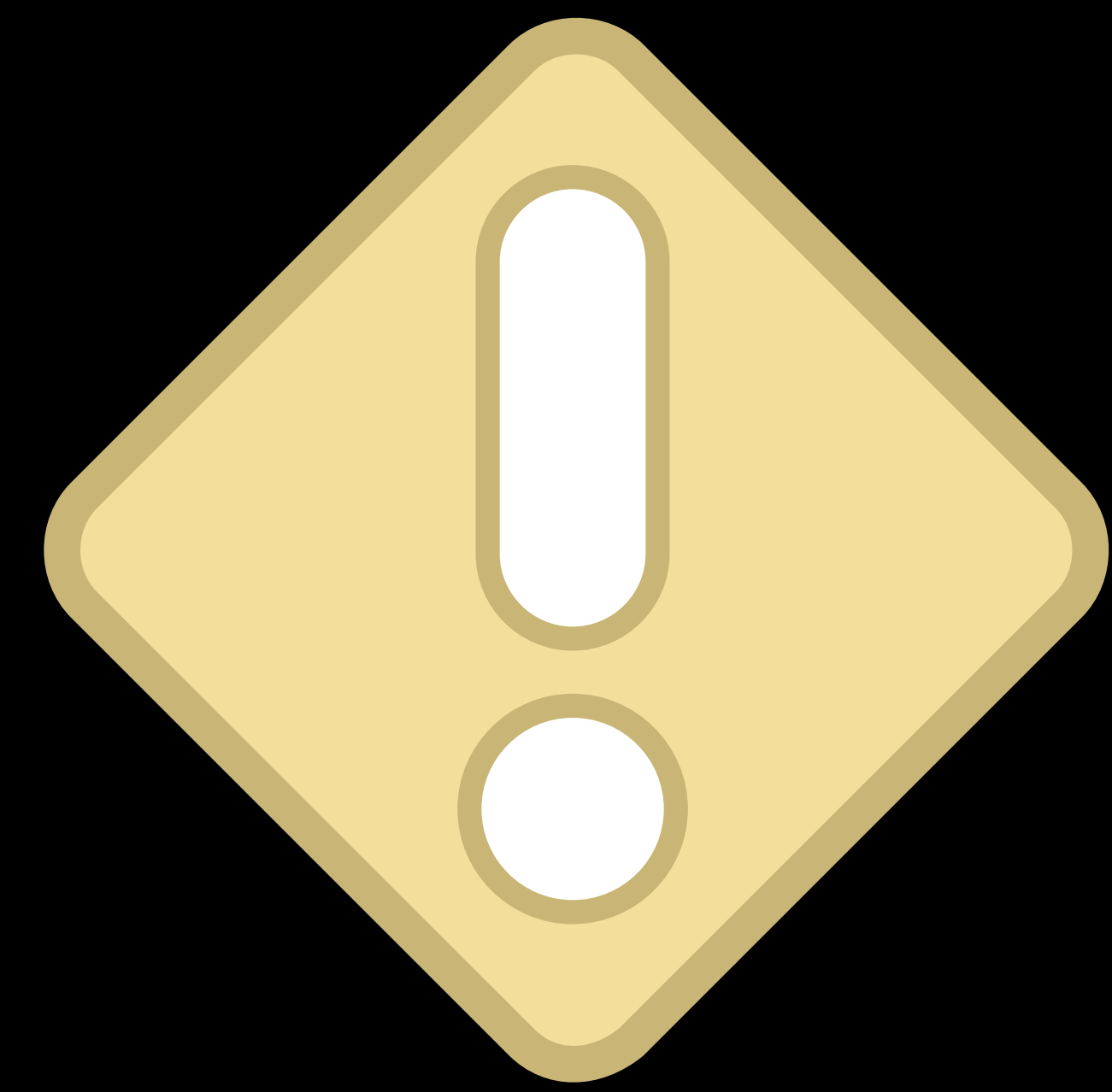
Error



Unsupported



Passed



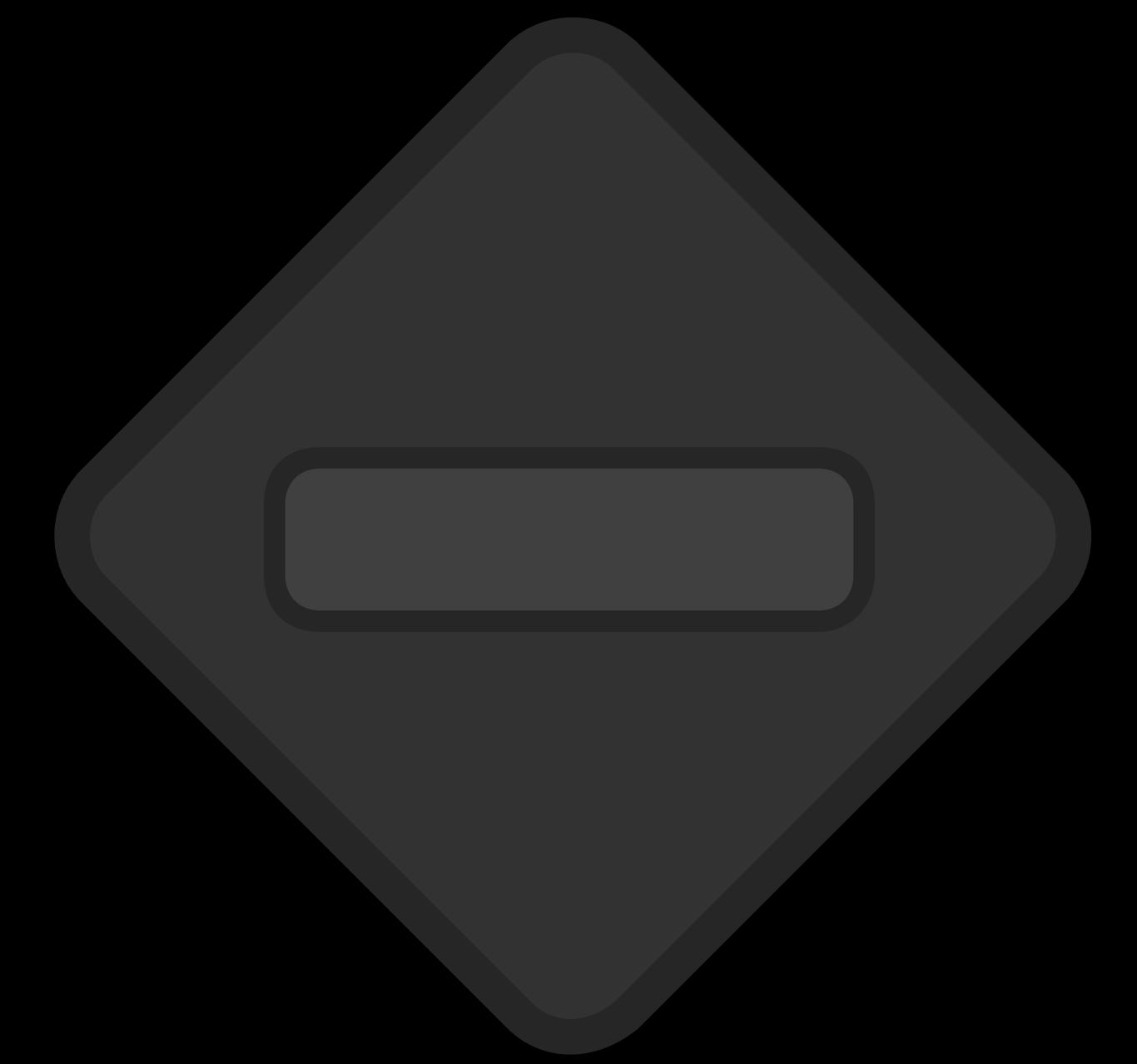
Warning



Failed



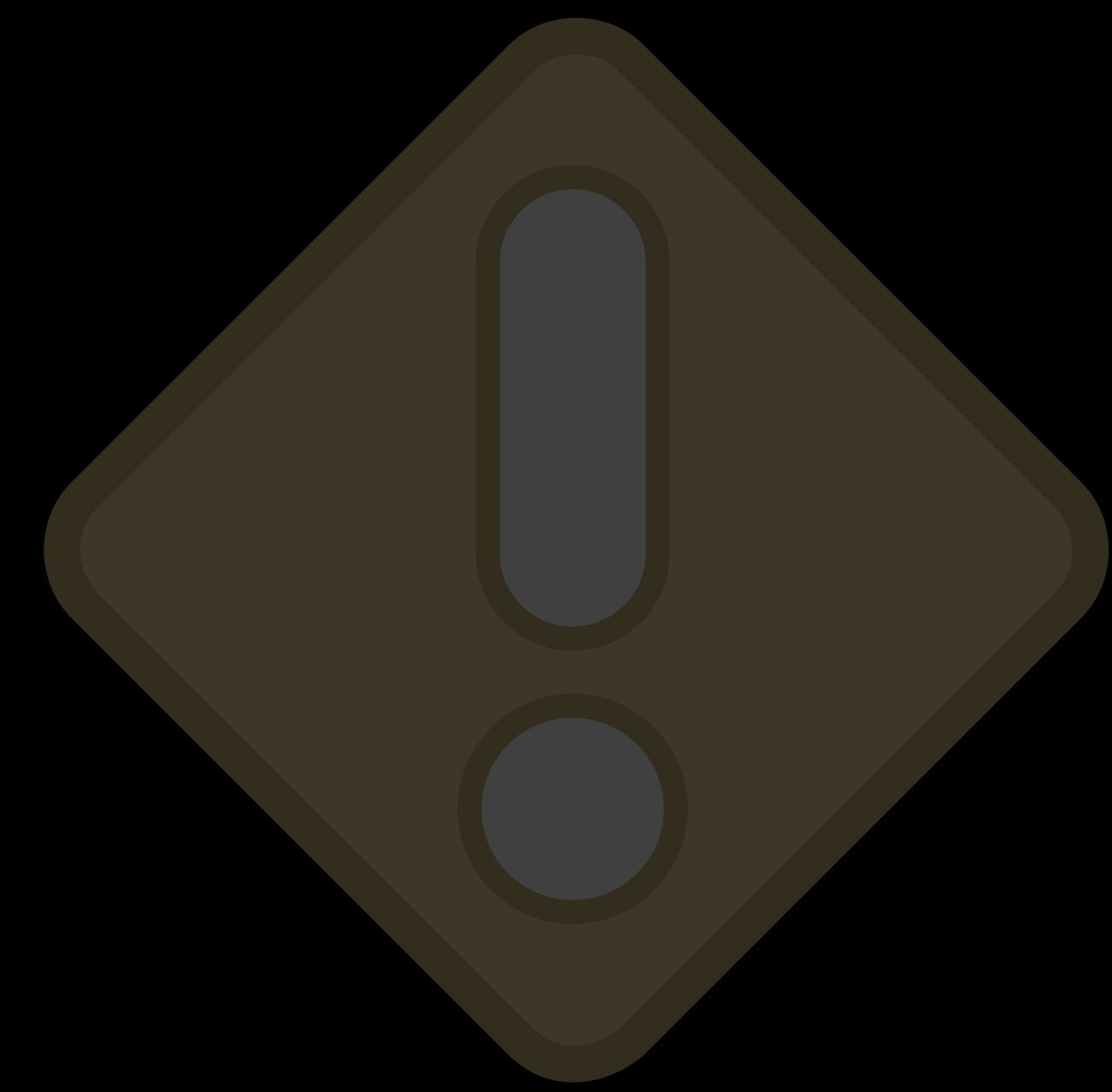
Error



Unsupported



Passed



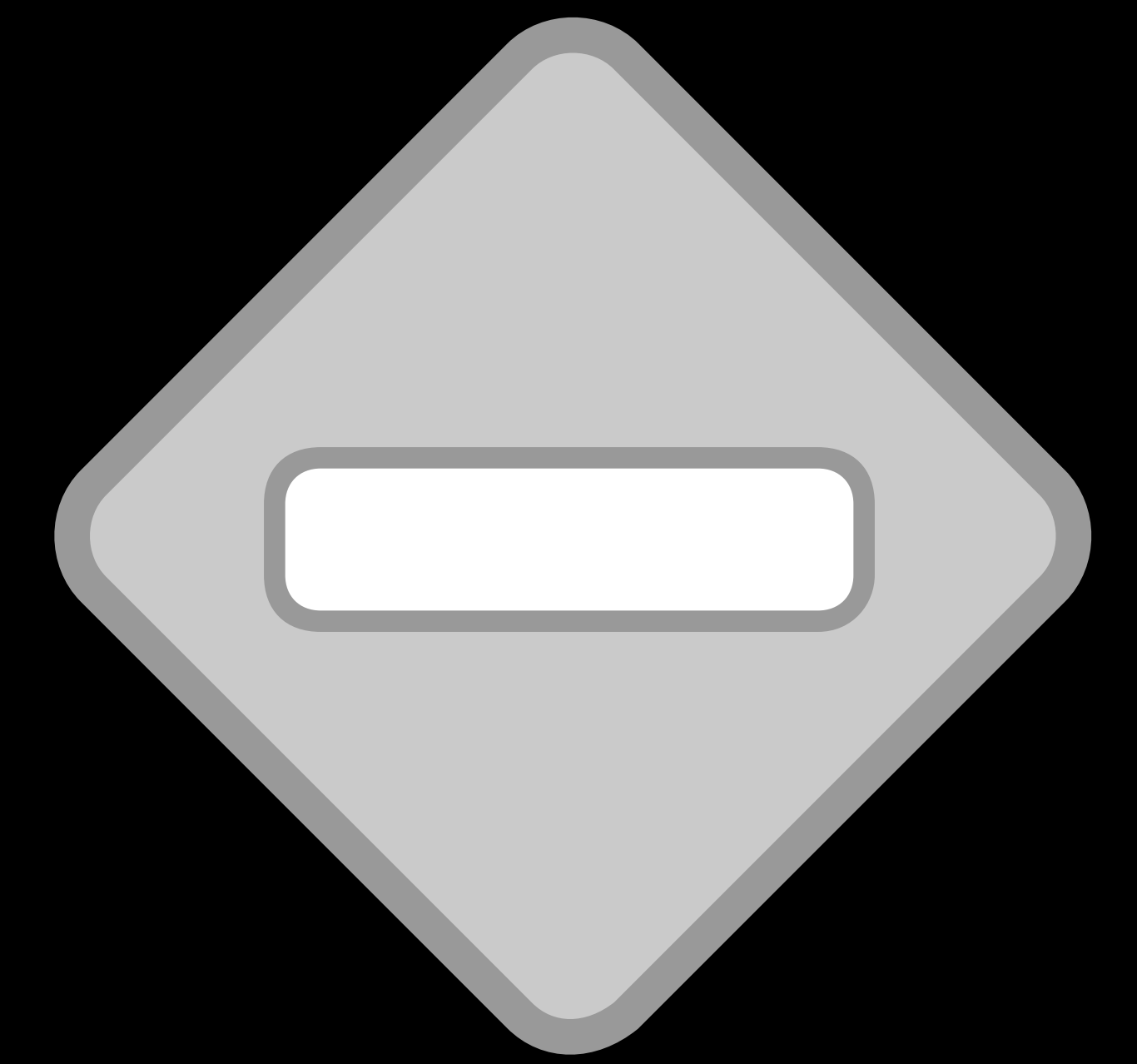
Warning



Failed



Error



Unsupported



- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass ✓
    - level-warn ⚠
    - level-fail ✖
    - level-error !
    - level-unsupported ⚡
  - ▼ Result Data
    - data-domNodes ✓
    - data-domAttributes ✓
    - data-errors !
- ▼ Results
  - ▼ Run 1
    - ▼ Demo Audit
      - ▼ Result Levels
        - level-pass ✓
        - level-warn ⚠
        - level-fail ✖
        - level-error !
        - level-unsupported ⚡
      - ▼ Result Data
        - data-domNodes ✓
        - data-domAttributes ✓
        - data-errors !

# Demo Audit

These tests serve as a demonstration of the functionality and structure of audits.

Showing: ✓ 3 Passed ⚠ 1 Warning ✖ 1 Failed

## Result Levels

These are all of the different test result levels.

Showing: ✓ 1 Passed ⚠ 1 Warning ✖ 1 Failed

### ✓ level-pass

This is what the result of a passing test with no data looks like.

### ⚠ level-warn

This is what the result of a warning test with no data looks like.

### ✖ level-fail

This is what the result of a failing test with no data looks like.

### ! level-error

This is what the result of a test that threw an error with no data looks like.

### ⚡ level-unsupported

This is what the result of an unsupported test with no data looks like.

## Result Data

These are all of the different types of data that can be returned with the test result.

Showing: ✓ 1 Passed ⚠ 1 Warning ✖ 1 Failed

### ✓ data-domNodes

This is an example of how result DOM nodes are shown. It will pass with the <body> element.

#### DOM Nodes:

1 ▶ `<body class="home page-template-default page page-id-4118">...</body>`

- ▼ Demo Audit
  - ▼ Result Levels
    - level-pass ✓
    - level-warn ⚠
    - level-fail ✖
    - level-error !
    - level-unsupported ⚡
  - ▼ Result Data
    - data-domNodes ✓
    - data-domAttributes ✓
    - data-errors !
- ▼ Results
  - ▼ Run 1
    - ▼ Demo Audit
      - ▼ Result Levels
        - level-pass ✓
        - level-warn ⚠
        - level-fail ✖
        - level-error !
        - level-unsupported ⚡
      - ▼ Result Data
        - data-domNodes ✓
        - data-domAttributes ✓
        - data-errors !

# Demo Audit

These tests serve as a demonstration of the functionality and structure of audits.

Showing: ✓ 3 Passed ⚠ 1 Warning ✖ 1 Failed

## Result Levels

These are all of the different test result levels.

Showing: ✓ 1 Passed ⚠ 1 Warning ✖ 1 Failed

### ✓ level-pass

This is what the result of a passing test with no data looks like.

### ⚠ level-warn

This is what the result of a warning test with no data looks like.

### ✖ level-fail

This is what the result of a failing test with no data looks like.

### ! level-error

This is what the result of a test that threw an error with no data looks like.

### ⚡ level-unsupported

This is what the result of an unsupported test with no data looks like.

## Result Data

These are all of the different types of data that can be returned with the test result.

Show

### ✓ data-domNodes

This is an example of how result DOM nodes are shown. It will pass with the <body> element.

#### DOM Nodes:

1 ▶ `<body class="home page-template-default page page-id-4118">...</body>`

Web Inspector — webkit.org

12

Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

Demo Audit

Export

Demo Audit

Accessibility

# Demo Audit

These tests serve as a demonstration of the functionality and structure of audits.

No Result

Press **Start** to start running the audit

Edit

Filter

>

Web Inspector — webkit.org

12

Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

Demo Audit

Export

Demo Audit

Accessibility

# Demo Audit

These tests serve as a demonstration of the functionality and structure of audits.

No Result

Press **Start** to start running the audit

Edit

Filter

Web Inspector — webkit.org

12

Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

Accessibility

Export

# Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

No Result

Press **Start** to start running the audit

Edit

Filter

Web Inspector — webkit.org

12

Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

Accessibility

Export

# Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

No Result

Press **Start** to start running the audit

Edit

Filter

Web Inspector — webkit.org

12

Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

Accessibility

Export

# Accessibility

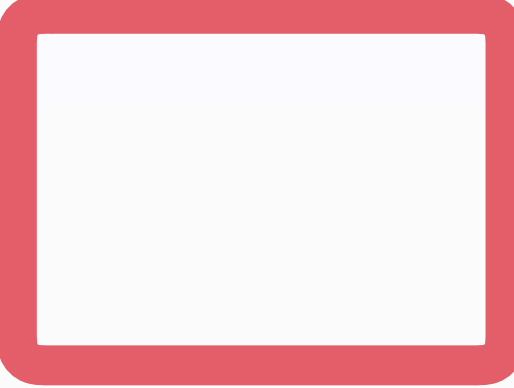
Diagnoses common accessibility problems affecting screen readers and other assistive technology.

No Result

Press **Start** to start running the audit

Edit

Filter



Web Inspector — webkit.org

12 [Navigation icons] Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import Accessibility Export

Accessibility

Results

- Run 1
  - Accessibility
    - testMenuRoleForRequiredChidren ✖
    - testGridRoleForRequiredChidren ✔
    - testForAriaLabelledBySpelling ✔
    - testForMultipleBanners ✔
    - testForLinkLabels ✔
    - testRowGroupRoleForRequiredChidren ✔
    - testTableRoleForRequiredChidren ✔
    - testForMultipleLiveRegions ✔
    - testListBoxRoleForRequiredChidren ✔
    - testImageLabels ✔
    - testForAriaHiddenFalse ✔
    - testTreeRoleForRequiredChidren ✔
    - testRadioGroupRoleForRequiredChidren ✔
    - testFeedRoleForRequiredChidren ✔
    - testTabListRoleForRequiredChidren ✔
    - testButtonLabels ✔
    - testRowRoleForRequiredChidren ✔
    - testListRoleForRequiredChidren ✔
    - testComboBoxRoleForRequiredChidren ✔
    - testForMultipleMainContentSections ✔
    - testDialogsForLabels ✔
    - testForInvalidAriaHiddenValue ✔

Edit

Filter

## Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

Showing: ✔ 21 Passed ✖ 1 Failed 95%

<p><span style="color: red;">✖</span> <b>testMenuRoleForRequiredChidren</b></p> <p>Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.</p> <p><b>DOM Nodes:</b></p> <p>1 ▶ <code>&lt;ul id="menu-main-menu" class="menu" role="menubar"&gt;...&lt;/ul&gt;</code></p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>5.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testGridRoleForRequiredChidren</b></p> <p>Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>2.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testForAriaLabelledBySpelling</b></p> <p>Ensure that "aria-labelledby" is spelled correctly.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>2.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testForMultipleBanners</b></p> <p>Ensure that only one banner is used on the page.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>26.0ms</b></p>
<p><span style="color: green;">✔</span> <b>testForLinkLabels</b></p> <p>Ensure that links have accessible labels for assistive technology.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>19.0ms</b></p>
<p><span style="color: green;">✔</span> <b>testRowGroupRoleForRequiredChidren</b></p> <p>Ensure that element of role "rowgroup" have required owned elements in accordance with WAI-ARIA.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>3.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testTableRoleForRequiredChidren</b></p> <p>Ensure that elements of role "table" have required owned elements in accordance with WAI-ARIA.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>24.0ms</b></p>
<p><span style="color: green;">✔</span> <b>testForMultipleLiveRegions</b></p> <p>Ensure that only one live region is used on the page.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>20.0ms</b></p>
<p><span style="color: green;">✔</span> <b>testListBoxRoleForRequiredChidren</b></p> <p>Ensure that elements of role "listbox" have required owned elements in accordance with WAI-ARIA.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>2.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testImageLabels</b></p> <p>Ensure that elements of role "img" have accessible labels for assistive technology.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>20.0ms</b></p>



Web Inspector — webkit.org

12 [Navigation icons] Search

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import Accessibility Export

Accessibility

Results

- Run 1
  - Accessibility
    - testMenuRoleForRequiredChidren ✘
    - testGridRoleForRequiredChidren ✔
    - testForAriaLabelledBySpelling ✔
    - testForMultipleBanners ✔
    - testForLinkLabels ✔
    - testRowGroupRoleForRequiredChidren ✔
    - testTableRoleForRequiredChidren ✔
    - testForMultipleLiveRegions ✔
    - testListBoxRoleForRequiredChidren ✔
    - testImageLabels ✔
    - testForAriaHiddenFalse ✔
    - testTreeRoleForRequiredChidren ✔
    - testRadioGroupRoleForRequiredChidren ✔
    - testFeedRoleForRequiredChidren ✔
    - testTabListRoleForRequiredChidren ✔
    - testButtonLabels ✔
    - testRowRoleForRequiredChidren ✔
    - testListRoleForRequiredChidren ✔
    - testComboBoxRoleForRequiredChidren ✔
    - testForMultipleMainContentSections ✔
    - testDialogsForLabels ✔
    - testForInvalidAriaHiddenValue ✔

Edit

Filter

## Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

Showing: ✔ 21 Passed ✘ 1 Failed 95%

<p><span style="color: red;">✘</span> <b>testMenuRoleForRequiredChidren</b></p> <p>Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.</p> <p><b>DOM Nodes:</b></p> <pre>1 ▶ &lt;ul id="menu-main-menu" class="menu" role="menubar"&gt;...&lt;/ul&gt;</pre>	<p>5/30/2019, 10:31:27 AM</p> <p><b>5.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testGridRoleForRequiredChidren</b></p> <p>Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>2.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testForAriaLabelledBySpelling</b></p> <p>Ensure that "aria-labelledby" is spelled correctly.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>2.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testForMultipleBanners</b></p> <p>Ensure that only one banner is used on the page.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>26.0ms</b></p>
<p><span style="color: green;">✔</span> <b>testForLinkLabels</b></p> <p>Ensure that links have accessible labels for assistive technology.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>19.0ms</b></p>
<p><span style="color: green;">✔</span> <b>testRowGroupRoleForRequiredChidren</b></p> <p>Ensure that element of role "rowgroup" have required owned elements in accordance with WAI-ARIA.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>3.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testTableRoleForRequiredChidren</b></p> <p>Ensure that elements of role "table" have required owned elements in accordance with WAI-ARIA.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>24.0ms</b></p>
<p><span style="color: green;">✔</span> <b>testForMultipleLiveRegions</b></p> <p>Ensure that only one live region is used on the page.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>20.0ms</b></p>
<p><span style="color: green;">✔</span> <b>testListBoxRoleForRequiredChidren</b></p> <p>Ensure that elements of role "listbox" have required owned elements in accordance with WAI-ARIA.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>2.00ms</b></p>
<p><span style="color: green;">✔</span> <b>testImageLabels</b></p> <p>Ensure that elements of role "img" have accessible labels for assistive technology.</p>	<p>5/30/2019, 10:31:27 AM</p> <p><b>20.0ms</b></p>

WebKit

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# A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

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12

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

Accessibility

Results

Run 1

Accessibility

- testMenuRoleForRequiredChidren
- testGridRoleForRequiredChidren
- testForAriaLabelledBySpelling
- testForMultipleBanners
- testForLinkLabels
- testRowGroupRoleForRequiredChidren
- testTableRoleForRequiredChidren
- testForMultipleLiveRegions
- testListBoxRoleForRequiredChidren
- testImageLabels
- testForAriaHiddenFalse
- testTreeRoleForRequiredChidren
- testRadioGroupRoleForRequiredChidren

Filter

## Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

Showing: 21 Passed 1 Failed 95%

**testMenuRoleForRequiredChidren** 5/30/2019, 10:49:54 AM 5.00ms

Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.

**DOM Nodes:**

```

1 <ul id="menu-main-menu" class="menu" role="menubar">
  <li id="menu-item-4270" class="menu-item menu-item-type-post_type menu-item-object-page menu-item-4270">...</li>
  <li id="menu-item-6091" class="menu-item menu-item-type-post_type menu-item-object-page menu-item-6091">...</li>
  <li id="menu-item-4272" class="menu-item menu-item-type-post_type menu-item-object-page menu-item-4272">...</li>
  <li id="menu-item-4273" class="menu-item menu-item-type-post_type menu-item-object-page menu-item-4273">...</li>
  <li id="menu-item-4274" class="menu-item menu-item-type-custom menu-item-object-custom menu-item-has-children menu-item-4274">...</li>
</ul>

```

**testGridRoleForRequiredChidren** 5/30/2019, 10:49:54 AM 2.00ms

Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.

**testForAriaLabelledBySpelling** 5/30/2019, 10:49:54 AM 2.00ms

Ensure that "aria-labelledby" is spelled correctly.

WebKit

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12

Elements Network Resources Debugger Timelines Console Storage Canvas Audit Search

Start Import

Accessibility

Results

Run 1

- Accessibility
  - testMenuRoleForRequiredChidren
  - testGridRoleForRequiredChidren
  - testForAriaLabelledBySpelling
  - testForMultipleBanners
  - testForLinkLabels
  - testRowGroupRoleForRequiredChidren
  - testTableRoleForRequiredChidren
  - testForMultipleLiveRegions
  - testListBoxRoleForRequiredChidren
  - testImageLabels
  - testForAriaHiddenFalse
  - testTreeRoleForRequiredChidren
  - testRadioGroupRoleForRequiredChidren

Filter

## Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

Showing: 21 Passed 1 Failed 95%

**testMenuRoleForRequiredChidren** 5/30/2019, 10:49:54 AM 5.00ms

Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.

**DOM Nodes:**

```

1 <ul id="menu-main-menu" class="menu" role="menubar">
  <li id="menu-item-4270" class="menu-item menu-item-type-post_type menu-item-object-page menu-item-4270">...</li>
  <li id="menu-item-6091" class="menu-item menu-item-type-post_type menu-item-object-page menu-item-6091">...</li>
  <li id="menu-item-4272" class="menu-item menu-item-type-post_type menu-item-object-page menu-item-4272">...</li>
  <li id="menu-item-4273" class="menu-item menu-item-type-post_type menu-item-object-page menu-item-4273">...</li>
  <li id="menu-item-4274" class="menu-item menu-item-type-custom menu-item-object-custom menu-item-has-children menu-item-4274">...</li>
</ul>

```

**testGridRoleForRequiredChidren** 5/30/2019, 10:49:54 AM 2.00ms

Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.

**testForAriaLabelledBySpelling** 5/30/2019, 10:49:54 AM 2.00ms

Ensure that "aria-labelledby" is spelled correctly.

- Accessibility
- Results
  - Run 1
  - Run 2
    - Accessibility
      - testMenuRoleForRequiredChidren
      - testGridRoleForRequiredChidren
      - testForAriaLabelledBySpelling
      - testForMultipleBanners
      - testForLinkLabels
      - testRowGroupRoleForRequiredChidren
      - testTableRoleForRequiredChidren
      - testForMultipleLiveRegions
      - testListBoxRoleForRequiredChidren
      - testImageLabels
      - testForAriaHiddenFalse
      - testTreeRoleForRequiredChidren
      - testRadioGroupRoleForRequiredChidren
      - testFeedRoleForRequiredChidren
      - testTabListRoleForRequiredChidren
      - testButtonLabels
      - testRowRoleForRequiredChidren
      - testListRoleForRequiredChidren
      - testComboBoxRoleForRequiredChidren
      - testForMultipleMainContentSections
      - testDialogsForLabels
      - testForInvalidAriaHiddenValue

Filter

# Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.








Showing: 22 Passed 100%

<b>testMenuRoleForRequiredChidren</b> Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	46.0ms
<b>testGridRoleForRequiredChidren</b> Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	2.00ms
<b>testForAriaLabelledBySpelling</b> Ensure that "aria-labelledby" is spelled correctly.	5/30/2019, 10:51:04 AM	3.00ms
<b>testForMultipleBanners</b> Ensure that only one banner is used on the page.	5/30/2019, 10:51:04 AM	27.0ms
<b>testForLinkLabels</b> Ensure that links have accessible labels for assistive technology.	5/30/2019, 10:51:04 AM	31.0ms
<b>testRowGroupRoleForRequiredChidren</b> Ensure that element of role "rowgroup" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	30.0ms
<b>testTableRoleForRequiredChidren</b> Ensure that elements of role "table" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	2.00ms
<b>testForMultipleLiveRegions</b> Ensure that only one live region is used on the page.	5/30/2019, 10:51:04 AM	29.0ms
<b>testListBoxRoleForRequiredChidren</b> Ensure that elements of role "listbox" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	2.00ms
<b>testImageLabels</b> Ensure that elements of role "img" have accessible labels for assistive technology.	5/30/2019, 10:51:04 AM	28.0ms
<b>testForAriaHiddenFalse</b> Ensure aria-hidden="false" is not used.	5/30/2019, 10:51:04 AM	27.0ms

# Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

Showing: 22 Passed **100%**

 <b>testMenuRoleForRequiredChidren</b> Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	46.0ms
 <b>testGridRoleForRequiredChidren</b> Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	2.00ms
 <b>testForAriaLabelledBySpelling</b> Ensure that "aria-labelledby" is spelled correctly.	5/30/2019, 10:51:04 AM	3.00ms
 <b>testForMultipleBanners</b> Ensure that only one banner is used on the page.	5/30/2019, 10:51:04 AM	27.0ms
 <b>testForLinkLabels</b> Ensure that links have accessible labels for assistive technology.	5/30/2019, 10:51:04 AM	31.0ms
 <b>testRowGroupRoleForRequiredChidren</b> Ensure that element of role "rowgroup" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	30.0ms
 <b>testTableRoleForRequiredChidren</b> Ensure that elements of role "table" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	2.00ms

12 [Icons] Search

Resources Debugger Timelines Console Storage Canvas Audit Search [Export]

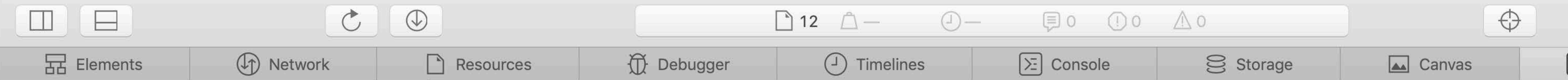
Accessibility

# Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

Showing: 22 Passed **100%**

<b>testMenuRoleForRequiredChidren</b> Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	46.0ms
<b>testGridRoleForRequiredChidren</b> Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	2.00ms
<b>testForAriaLabelledBySpelling</b> Ensure that "aria-labelledby" is spelled correctly.	5/30/2019, 10:51:04 AM	3.00ms
<b>testForMultipleBanners</b> Ensure that only one banner is used on the page.	5/30/2019, 10:51:04 AM	27.0ms
<b>testForLinkLabels</b> Ensure that links have accessible labels for assistive technology.	5/30/2019, 10:51:04 AM	31.0ms
<b>testRowGroupRoleForRequiredChidren</b> Ensure that element of role "rowgroup" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	30.0ms
<b>testTableRoleForRequiredChidren</b> Ensure that elements of role "table" have required owned elements in accordance with WAI-ARIA.	5/30/2019, 10:51:04 AM	2.00ms



▶ Start | ⬇ Import

Accessibility

## Accessibility

### Results

#### Run 1

#### Run 2

#### Accessibility

- testMenuRoleForRequiredChidren
- testGridRoleForRequiredChidren
- testForAriaLabelledBySpelling
- testForMultipleBanners
- testForLinkLabels
- testRowGroupRoleForRequiredChidren
- testTableRoleForRequiredChidren
- testForMultipleLiveRegions
- testListBoxRoleForRequiredChidren
- testImageLabels
- testForAriaHiddenFalse
- testTreeRoleForRequiredChidren
- testRadioGroupRoleForRequiredChidren
- testFeedRoleForRequiredChidren
- testTabListRoleForRequiredChidren
- testButtonLabels
- testRowRoleForRequiredChidren
- testListRoleForRequiredChidren
- testComboBoxRoleForRequiredChidren
- testForMultipleMainContentSections

# Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

## testMenuRoleForRequiredChidren

Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.

## testGridRoleForRequiredChidren

Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.

## testForAriaLabelledBySpelling

Ensure that "aria-labelledby" is spelled correctly.

## testForMultipleBanners

Ensure that only one banner is used on the page.

## testForLinkLabels

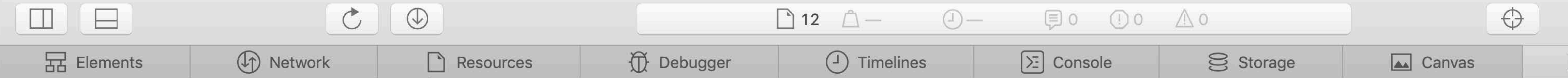
Ensure that links have accessible labels for assistive technology.

## testRowGroupRoleForRequiredChidren

Ensure that element of role "rowgroup" have required owned elements in accordance with WAI-ARIA.

## testTableRoleForRequiredChidren

Ensure that elements of role "table" have required owned elements in accordance with WAI-ARIA.



Start Import

Accessibility

Accessibility

- Results
  - Run 1
  - Run 2
    - Accessibility
      - testMenuRoleForRequiredChidren ✓
      - testGridRoleForRequiredChidren ✓
      - testForAriaLabelledBySpelling ✓
      - testForMultipleBanners ✓
      - testForLinkLabels ✓
      - testRowGroupRoleForRequiredChidren ✓
      - testTableRoleForRequiredChidren ✓
      - testForMultipleLiveRegions ✓
      - testListBoxRoleForRequiredChidren ✓
      - testImageLabels ✓
      - testForAriaHiddenFalse ✓
      - testTreeRoleForRequiredChidren ✓
      - testRadioGroupRoleForRequiredChidren ✓
      - testFeedRoleForRequiredChidren ✓
      - testTabListRoleForRequiredChidren ✓
      - testButtonLabels ✓
      - testRowRoleForRequiredChidren ✓
      - testListRoleForRequiredChidren ✓
      - testComboBoxRoleForRequiredChidren ✓
      - testForMultipleMainContentSections ✓

- Start
- Export Test
- Export Result

# Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

## testMenuRoleForRequiredChidren

Ensure that element of role "menu" and "menubar" have required owned elements in accordance with WAI-ARIA.

## testGridRoleForRequiredChidren

Ensure that elements of role "grid" have required owned elements in accordance with WAI-ARIA.

## testForAriaLabelledBySpelling

Ensure that "aria-labelledby" is spelled correctly.

## testForMultipleBanners

Ensure that only one banner is used on the page.

## testForLinkLabels

Ensure that links have accessible labels for assistive technology.

## testRowGroupRoleForRequiredChidren

Ensure that element of role "rowgroup" have required owned elements in accordance with WAI-ARIA.

## testTableRoleForRequiredChidren

Ensure that elements of role "table" have required owned elements in accordance with WAI-ARIA.



```
// Example Audit JSON Format
```

```
{  
  "type": "test-group",  
  "name": "Test Group Name",  
  "description": "Description of the test group",  
  "tests": [  
    {  
      "type": "test-case",  
      "name": "testName",  
      "description": "Your description of the test.",  
      "supports": 1,  
      "test": "function (){ return {level: 'pass'}; }"  
    },  
    ...  
  ]  
}
```

```
// Example Audit JSON Format
```

```
{  
  "type": "test-group",  
  "name": "Test Group Name",  
  "description": "Description of the test group",  
  "tests": [  
    {  
      "type": "test-case",  
      "name": "testName",  
      "description": "Your description of the test.",  
      "supports": 1,  
      "test": "function () { return {level: 'pass'}; }"  
    },  
    ...  
  ]  
}
```

# Creating Web Inspector Audits

Jun 4, 2019

by Devin Rousso

@dcrouso

This post is a followup to the Audits in Web Inspector post, and explains the capabilities of and how to write an Audit.

## Test Case Format

The actual test that is run in the page is just a stringified JavaScript function. `async` functions are allowed, as well as non-`async` functions that return a `Promise`. The only requirement is that the return value of the function (or `Promise`) conforms to the following rules:

- Returning `true / false` will translate to a *Pass/Fail* result with no additional data.
- Returning a string value will translate to the corresponding result (e.g. `"pass"` is a *Pass* result)

Accessibility

Edit

Filter

## Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

No Result

Press **Start** to start running the audit

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by Devin Rousso

@dcrouso

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## Test Case Format

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- Returning a string value will translate to the corresponding result (e.g. `"pass"` is a *Pass* result)

Accessibility

Edit

Filter

## Accessibility

Diagnoses common accessibility problems affecting screen readers and other assistive technology.

No Result

Press **Start** to start running the audit

# Summary

# Summary

Use the Audit tab to check your web content

# Summary

Use the Audit tab to check your web content

Develop custom audits for your development work

# Summary

Use the Audit tab to check your web content

Develop custom audits for your development work

File bug reports and share feedback



 WWDC19