

# Better JavaScript tooling for a changed world

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[aka.ms/better-js-tooling](https://aka.ms/better-js-tooling)



# The JavaScript debugging journey has been rough...

- alert()
- Windows script debugger/Microsoft Script Editor (Douglas Crockford only)
- Firebug
- Opera Dragonfly
- Developer Tools in browsers

```
mirror_mod = modifier_ob.  
#set mirror object to mirror.  
mirror_mod.mirror_object =  
_operation == "MIRROR_X":  
mirror_mod.use_x = True  
mirror_mod.use_y = False  
mirror_mod.use_z = False  
_operation == "MIRROR_Y":  
mirror_mod.use_x = False  
mirror_mod.use_y = True  
mirror_mod.use_z = False  
_operation == "MIRROR_Z":  
mirror_mod.use_x = False  
mirror_mod.use_y = False  
mirror_mod.use_z = True  
  
#selection at the end -add  
mirror_ob.select= 1  
modifier_ob.select=1  
context.scene.objects.active  
("Selected" + str(modifier_ob.  
mirror_ob.select = 0  
= bpy.context.selected_object  
data.objects[one.name].select  
  
print("please select exactly  
  
-- OPERATOR CLASSES ----  
  
types.Operator):  
X mirror to the selected  
object.mirror_mirror_x"  
mirror X"  
  
context):  
context.active_object is not
```



# We're in excellent shape

- Evergreen browsers
- Good Platform adoption
- Open, extensible editors
- Hosting with version control/hooks
- Framework-a-minute

Wait... what is all this???



NOVEMBER 18, 2020  
NG WORKSHOPS

NOVEMBER 19, 2020  
NG POLAND

NOVEMBER 20, 2020  
JS POLAND

NOVEMBER 21, 2020  
JS WORKSHOPS

# JS Poland Is A Premier Technology Conference In

Console >> 2 2 873

top Filter All le

Some messages have been moved to the Issues panel. [View issues](#)

- Resource interpreted as Document but transferred with MIME type image/gif: "data:image/gif;base64,R0lGODlhAQABAAAAACH5BAEKAAEALAAAAABAAEAAICTAEAOw=" (index):8
- [Intervention] Images loaded lazily and replaced with placeholders. Load events are deferred. See <https://go.microsoft.com/fwlink/?linkid=2048113> (index):1
- [Violation] 'DOMContentLoaded' jquery.js?ver=1.12.4-wp:2 handler took 2098ms
- [Violation] Forced reflow while executing JavaScript took 467ms
- Tracking Prevention blocked a Script resource from loading <https://www.google-analytics.com/analytics.js>. (index):1
- GET <https://www.google-analytics.com/analytics.js> net::ERR\_BLOCKED\_BY\_CLIENT (index):16
- GET <https://serwer65273.lh.pl/ng-poland.pl/wp-content/uploads/2020/08/1x1-black.png> 404 (index):1
- [Violation] 'readystatechange' jquery.js?ver=1.12.4-wp:4 handler took 1283ms



Disappointing considering our state  
of tooling and documentation

# Lots of reasons...

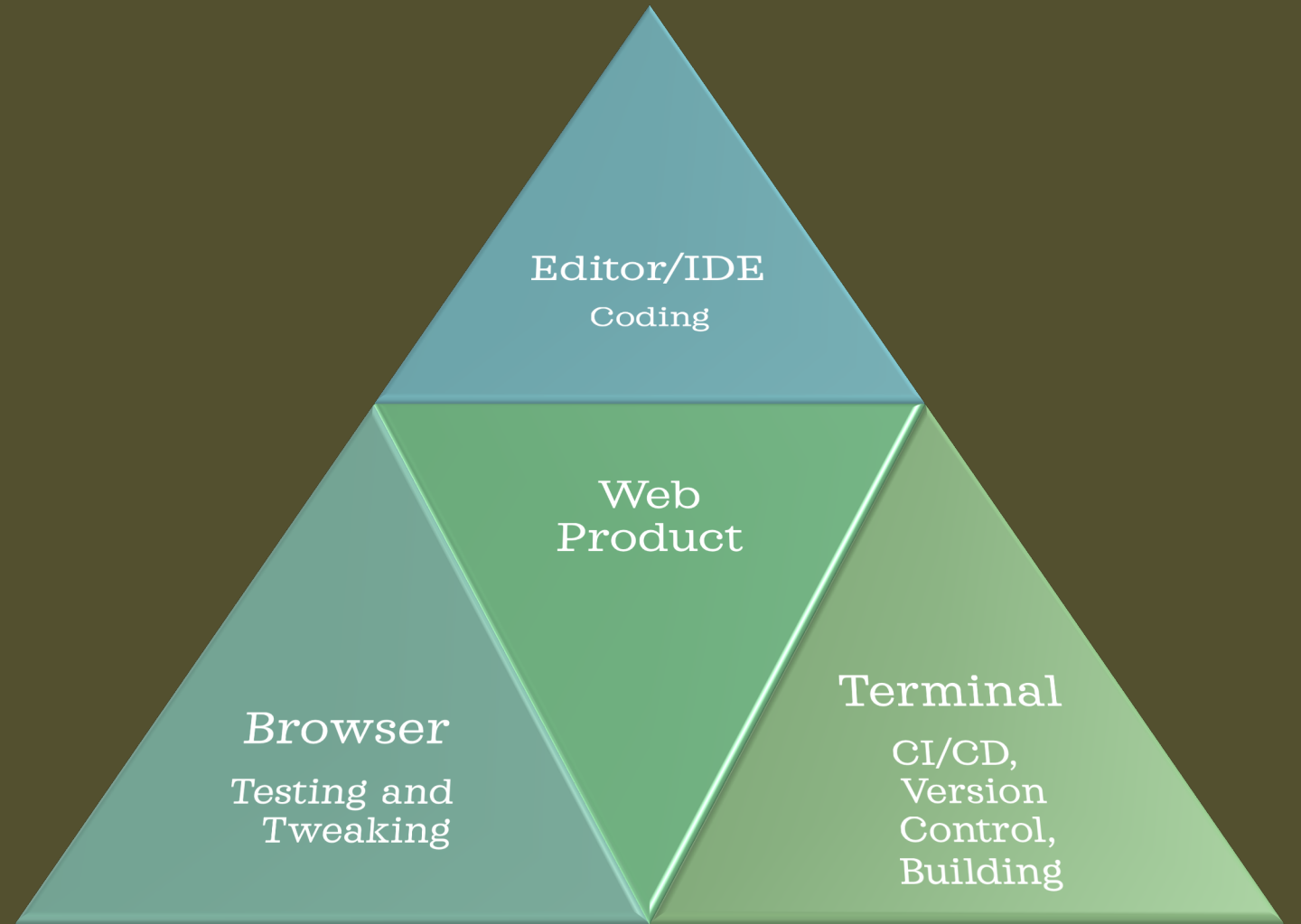
- Forging browsers
- Forging languages
- Full Stackoverflow Development
- Third party interference (ad packages, tracking)
- Platform-by-committee
- Focus on high-impact audience
- Developer tools are overwhelming



A close-up photograph of a yellow martial arts belt tied in a knot around a white gi. The background is blurred, showing a crowd of people in a gymnasium.

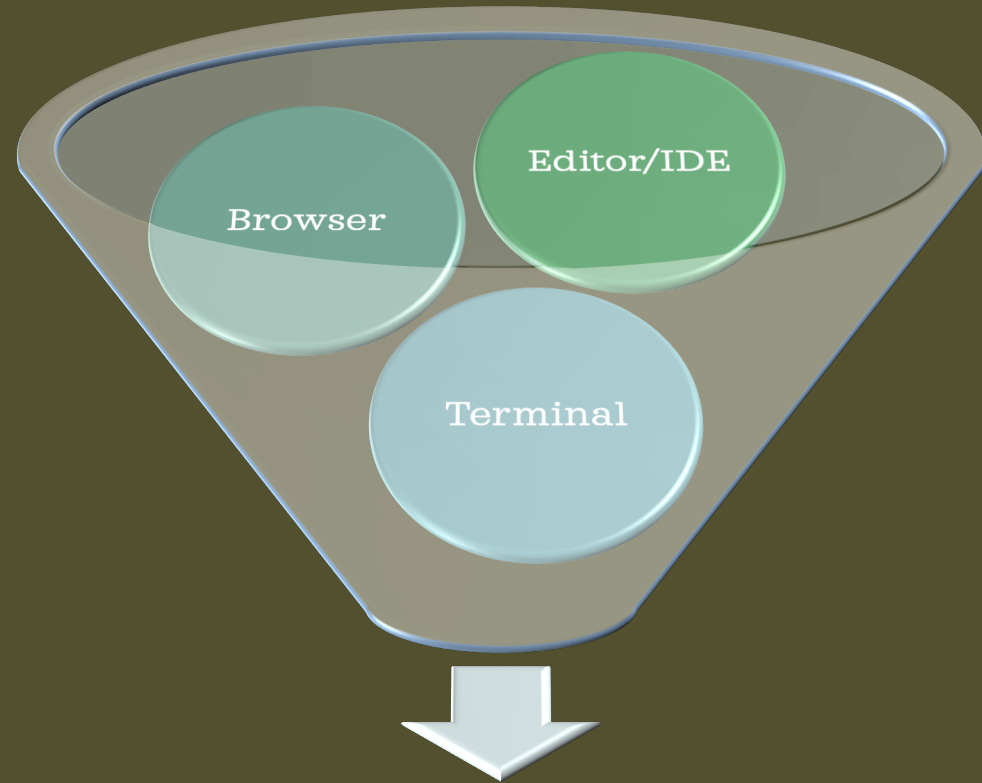
Confusing for beginners...

# The trinity of web development



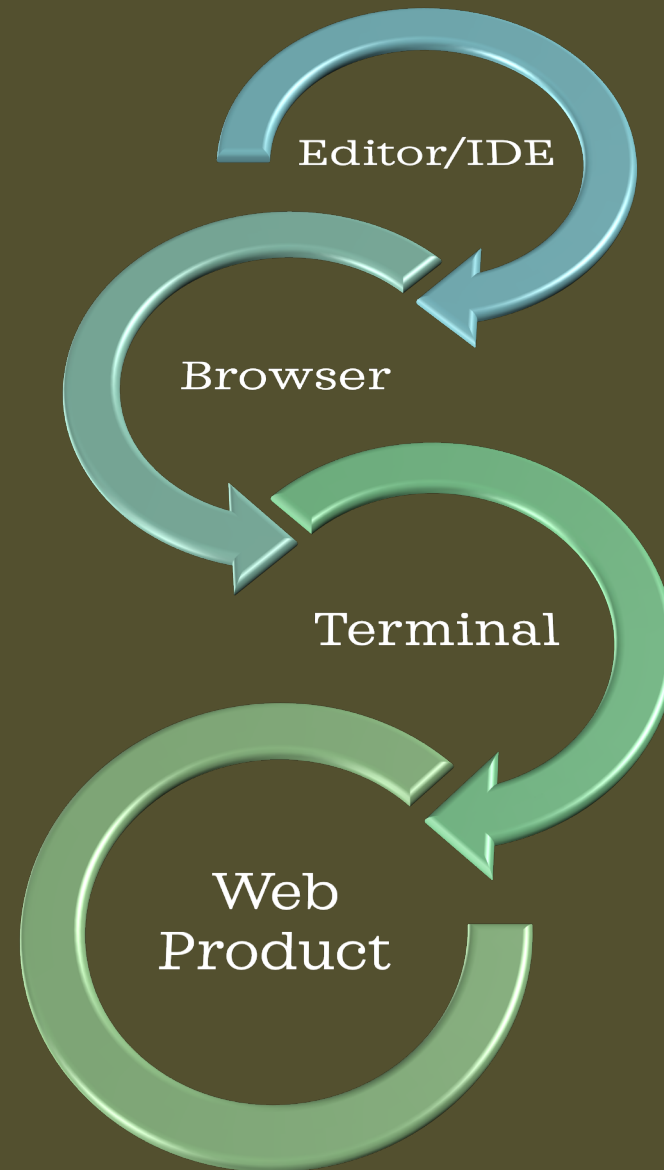


An opportunity to get bogged  
down in customisation

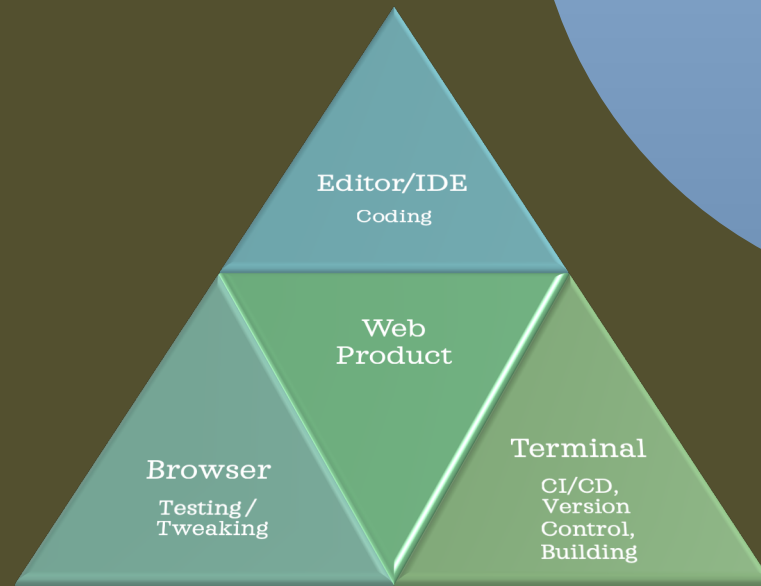


Web Product

An endless cycle of context  
switching



And the forgotten part



Learning  
(documentation,  
examples, best  
practices)

Developer tools shouldn't require expert knowledge.  
Using them should make you an expert over time.



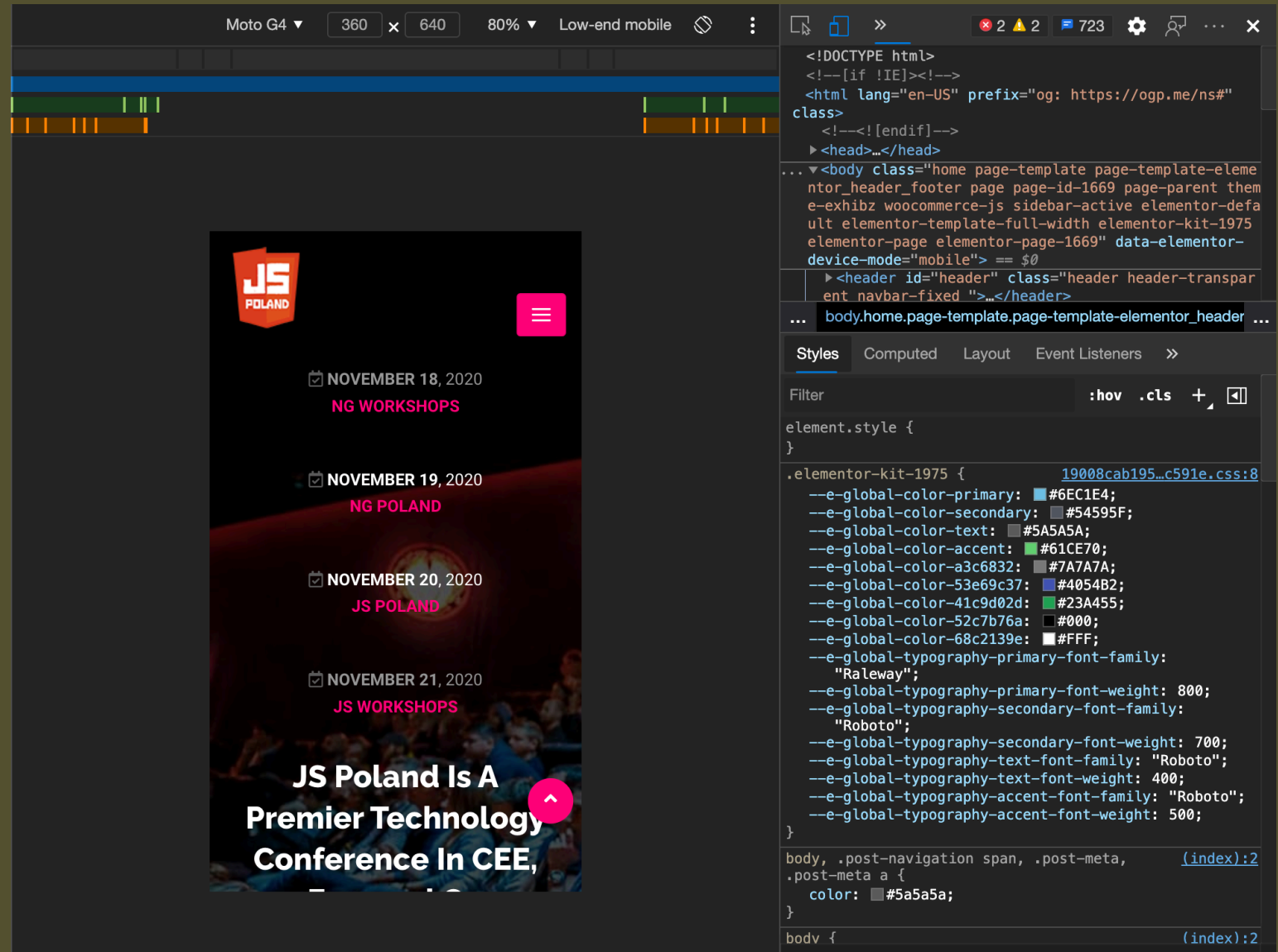
Best practices and documentation should be part of the tool, not something you need to find elsewhere.



An aerial photograph of a farm with a winding road. The road starts from the bottom left, goes up and right, then curves down and right, and finally curves down and left. The fields are in various colors: brown, green, and dark green. There are a few trees and a small blue structure near the road.

On to greener pastures...

# Emulation



The image shows a screenshot of the Microsoft Edge DevTools interface. The top bar indicates the device is a 'Moto G4' with a resolution of 360x640 pixels and a zoom level of 80%. The browser is set to 'Low-end mobile' mode. The main content area displays a mobile website with a dark theme. The website features a 'JS POLAND' logo at the top left and a hamburger menu icon at the top right. Below the logo, there is a list of events:


- NOVEMBER 18, 2020  
NG WORKSHOPS
- NOVEMBER 19, 2020  
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- NOVEMBER 20, 2020  
JS POLAND
- NOVEMBER 21, 2020  
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At the bottom of the page, there is a large text block: 'JS Poland Is A Premier Technology Conference In CEE,'. The right-hand side of the image shows the DevTools console with the HTML source code of the page. The code includes a DOCTYPE declaration, a meta tag for the language, and a body tag with various classes and data attributes. The 'Styles' panel is also visible, showing the default styles for the page.

<https://docs.microsoft.com/en-us/microsoft-edge/devtools-guide-chromium/device-mode/>

Browsers can be fully  
automated...

## Playwright

 v1.6.1  join  chromium 88.0.4316.0  firefox 83.0b8  webkit 14.0

### [Documentation](#) | [API reference](#)

Playwright is a Node.js library to automate [Chromium](#), [Firefox](#) and [WebKit](#) with a single API. Playwright is built to enable cross-browser web automation that is **ever-green**, **capable**, **reliable** and **fast**.

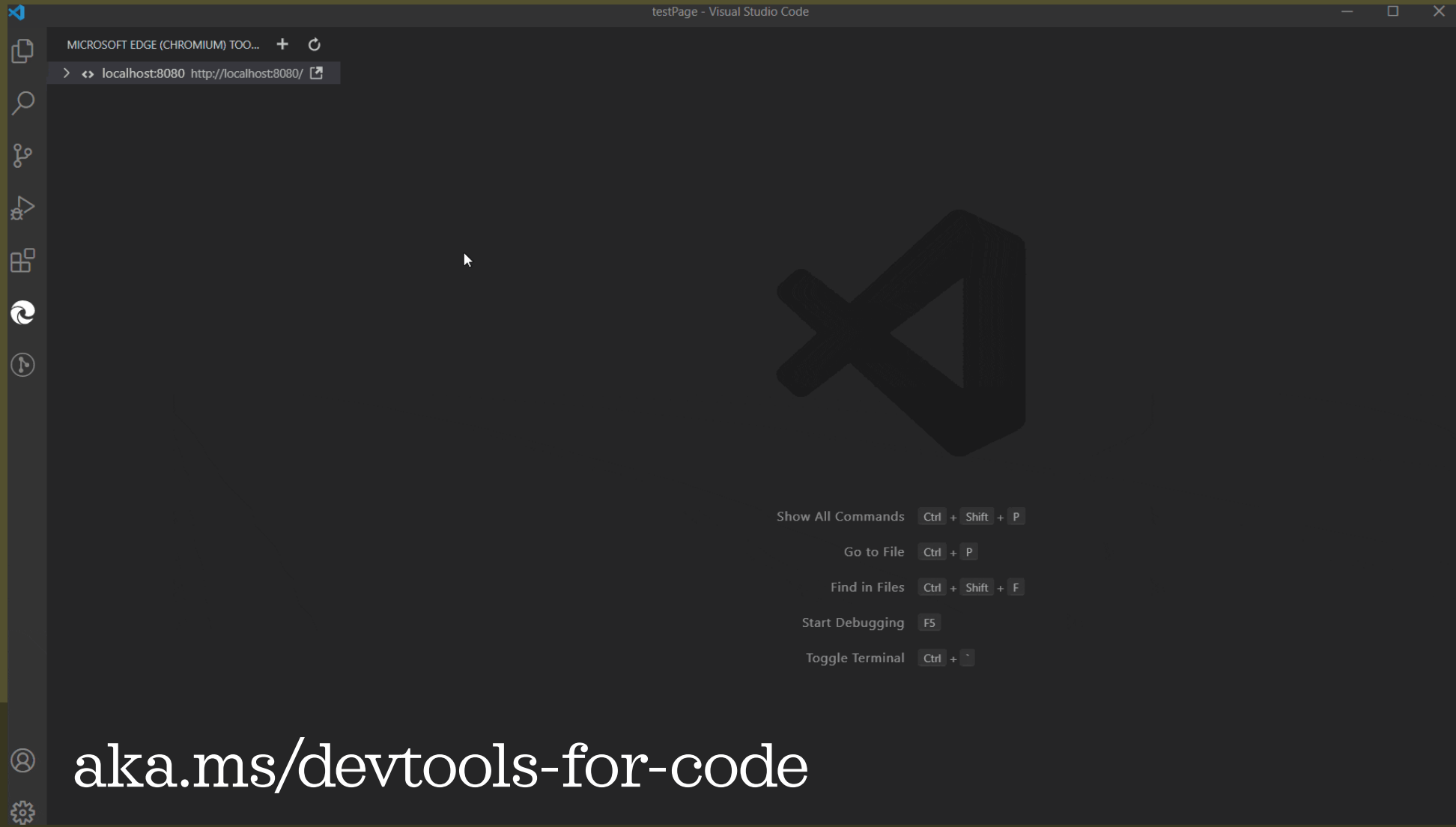
	Linux	macOS	Windows
Chromium 88.0.4316.0	✓	✓	✓
WebKit 14.0	✓	✓	✓
Firefox 83.0b8	✓	✓	✓

Headless execution is supported for all the browsers on all platforms. Check out [system requirements](#) for details.

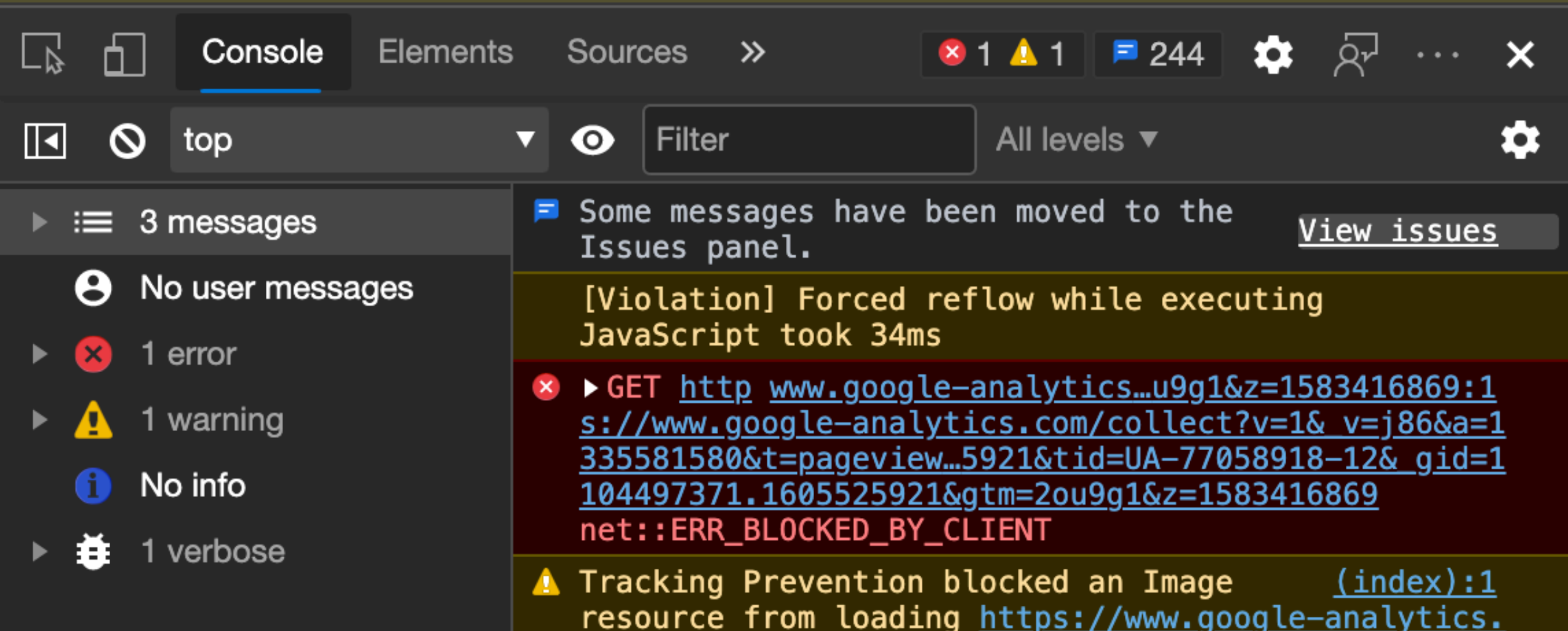
playwright.dev



# Browser Developer tools in VS Code!



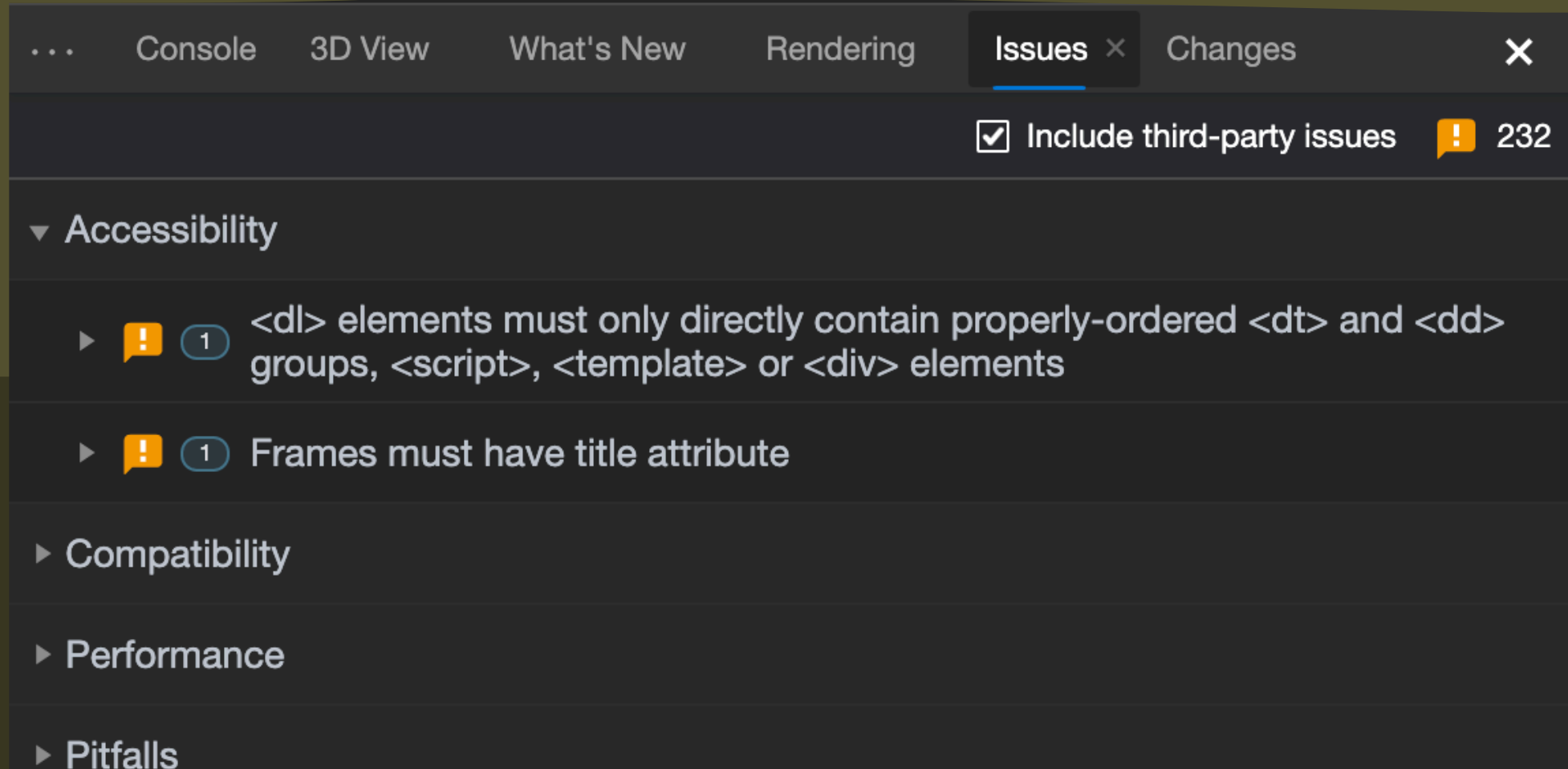
# Console filtering







The screenshot shows the Chrome DevTools Console interface. At the top, the 'Console' tab is selected, with 'Elements' and 'Sources' tabs visible. The console toolbar shows 1 error, 1 warning, and 244 messages. Below the toolbar, the 'Filter' input is empty, and the 'All levels' dropdown is set to 'All levels'. The left sidebar shows a summary of messages: 3 messages, No user messages, 1 error, 1 warning, No info, and 1 verbose. The main console area displays the following messages:

- Some messages have been moved to the Issues panel. [View issues](#)
- [Violation] Forced reflow while executing JavaScript took 34ms
- GET [http://www.google-analytics.com/collect?v=1&v=j86&a=1335581580&t=pageview...5921&tid=UA-77058918-12&\\_gid=1104497371.1605525921&gtm=2ou9g1&z=1583416869](http://www.google-analytics.com/collect?v=1&v=j86&a=1335581580&t=pageview...5921&tid=UA-77058918-12&_gid=1104497371.1605525921&gtm=2ou9g1&z=1583416869):1 net::ERR\_BLOCKED\_BY\_CLIENT
- Tracking Prevention blocked an Image [\(index\):1](#) resource from loading [https://www.google-analytics.com/collect?v=1&v=j86&a=1335581580&t=pageview...5921&tid=UA-77058918-12&\\_gid=1104497371.1605525921&gtm=2ou9g1&z=1583416869](https://www.google-analytics.com/collect?v=1&v=j86&a=1335581580&t=pageview...5921&tid=UA-77058918-12&_gid=1104497371.1605525921&gtm=2ou9g1&z=1583416869)

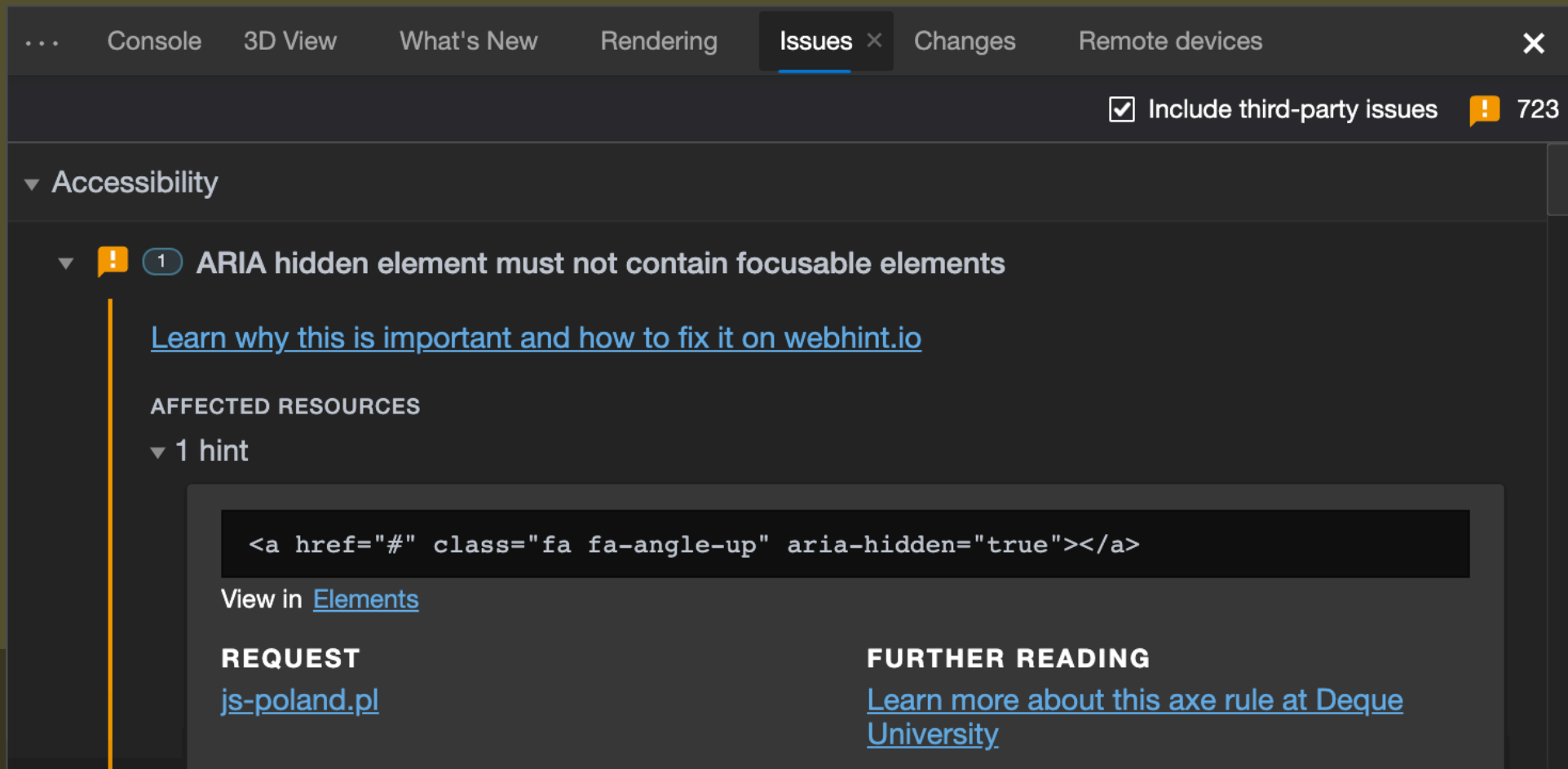
# Issues by type, option to exclude 3rd party issues



The screenshot shows the Chrome DevTools Issues panel. At the top, there are tabs for Console, 3D View, What's New, Rendering, Issues (selected), and Changes. Below the tabs, there is a checkbox labeled "Include third-party issues" which is checked, and a notification icon with the number 232. The main content area is divided into categories: Accessibility, Compatibility, Performance, and Pitfalls. Under the Accessibility category, there are two issues listed:


- ▶   <dl> elements must only directly contain properly-ordered <dt> and <dd> groups, <script>, <template> or <div> elements
- ▶   Frames must have title attribute

# In-context documentation with "learn more" links...




The screenshot shows the Chrome DevTools Issues panel. The 'Issues' tab is active, and the 'Accessibility' category is expanded. A single issue is listed: 'ARIA hidden element must not contain focusable elements'. Below the issue title, there is a blue link: 'Learn why this is important and how to fix it on webhint.io'. Underneath, the 'AFFECTED RESOURCES' section is expanded to show '1 hint'. A code snippet is displayed in a dark box: `<a href="#" class="fa fa-angle-up" aria-hidden="true"></a>`. Below the code, there are two sections: 'REQUEST' with a link to 'js-poland.pl' and 'FURTHER READING' with a link to 'Learn more about this axe rule at Deque University'.

... Console 3D View What's New Rendering **Issues** × Changes Remote devices ×

Include third-party issues  723

▼ Accessibility

▼  1 ARIA hidden element must not contain focusable elements

[Learn why this is important and how to fix it on webhint.io](#)

AFFECTED RESOURCES

▼ 1 hint

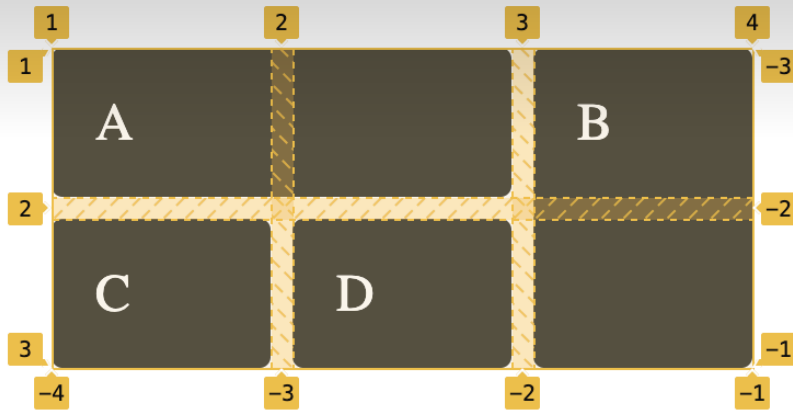
```
<a href="#" class="fa fa-angle-up" aria-hidden="true"></a>
```

View in [Elements](#)

**REQUEST**  
[js-poland.pl](#)

**FURTHER READING**  
[Learn more about this axe rule at Deque University](#)

# Visual guides and indicators in the source



```
Console Elements Sources Network >> 5
<!DOCTYPE html>
<html>
  >> <head>...</head>
  >> <body>
    ... >> <div class="wrapper"> grid == $0
      <div class="box a">A</div>
      <div class="box b">B</div>
      <div class="box c">C</div>
      <div class="box d">D</div>
    </div>
  </body>
</html>

html body div.wrapper

Styles Computed Layout Event Listeners DOM Breakpoints Properties
Filter :hov
element.style {
}
.wrapper {
  display: grid;
  grid-gap: 10px;
  grid-template-columns: [col1-start] 100px [col2-start] 100px [col3-end];
  grid-template-rows: [row1-start] auto [row2-start] auto [row2-end];
  background-color: #fff;
  color: #444;
}
```



What comes next?

