Using Visual ARIA to Physically See and Learn How ARIA Works

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Problem: Why ARIA Does Not Scale

One of the greatest challenges regarding ARIA and how to reliably learn to use it, is that ARIA is an invisible technology. Mainstream observers literally cannot see where ARIA is applied, nor when issues are caused as a result of its use. As a result, the process of ARIA education is solely dictated by individuals, their singular understanding of assistive technologies, which browser they are using, which operating system they are using, and the current level of combined support between the operating system, the browser, and the assistive technology, all of which differ significantly when combined in different variations. Thus all ARIA education is skewed by personal subjectivity, perpetually propagating misinformation when key concepts are misunderstood.

This makes ARIA education impossible to scale equally across all businesses, agencies, and academic institutions, because all such education is subjective (qualitative) and not objective (quantitative) as it must be. To solve this, there needs to be a scientifically precise methodology for learning ARIA that is not based on individual subjectivity, but rather, on that of role usage conformance according to the spec in order to achieve scalable objectivity for universal education.

Solution: Visual ARIA

Visual ARIA solves this problem by reliably teaching the accessible use of ARIA through experimentation and experiential learning. Thus all mainstream observers can physically see the effects of ARIA usage equally, while also learning ARIA role usage conformance based on consistent testable mapping algorithms.

<u>Examples:</u>

- Load Visual ARIA as a publically hosted bookmarklet into any webpage to expose ARIA usage within any live web technology.
- Download Visual ARIA and host it locally for internal network usage behind corporate firewalls or within private intranets.
- Download Visual ARIA so that educators can demonstrate the effects of ARIA usage within mainstream classrooms.
- Download Visual ARIA so that students can validate and experiment with ARIA usage within offline projects.
- Download Visual ARIA so that current mainstream engineers can validate and learn about ARIA usage within agile development processes.

How Visual ARIA Works

Since proper ARIA role usage depends on specific criteria, nesting structures, and required and supported attribute combinations, it is possible to map a logical cascade to match the most common usage patterns that ensure accessibility, including the most common issues associated with focus management and accessible name and description computation.

Thus Visual ARIA is a cascading logic program written using CSS. A small JavaScript file is first loaded to monitor the page for changes within dynamic content; updating the text alternative computation for interactive widgets as needed, which then dynamically loads the Visual ARIA role CSS files, where all cascading logic for Visual ARIA is contained.

Informational CSS borders and tooltips are then displayed wherever ARIA roles are used on the page, including dynamic changes when moused over or when interacting with focusable widgets using the keyboard. Since all processing and rendering is handled by the browser, dynamic content changes are instantly recognized and displayed without impacting the functionality of web technologies.

Intended Audience

The intended audience for Visual ARIA is all mainstream sighted engineers, testers, educators, and students who wish to utilize ARIA with consistently accessible results.

There are some caveats to be aware of as a result. Since Visual ARIA relies on the use of CSS pseudo elements to convey information, this content can only be detected by some assistive technologies within some browsers, such as JAWS or NVDA using Firefox. Also, since Visual ARIA is meant to be used within any webpage within any UI, it is impossible to predict all possible usages of ARIA, so dynamic tooltips may in some cases reflow content or be obscured due to browser rendering differences.

Improvements will continue to be made in the future to account for these conditions, however Visual ARIA is currently stable as a teaching and learning tool for mainstream usage and development within all relevant sectors and industries.

Resource References

- CSUN presentation download: https://github.com/accdc/csun-2016
- Public Visual ARIA Bookmarklet: http://whatsock.com/training/matrices/visual-aria.htm
- ARIA Role Conformance Matrices download: https://github.com/accdc/aria-matrices
- Initial release: https://www.linkedin.com/pulse/visual-aria-now-allows-anyone-sight-see-how-works-from-garaventa
- Session rating: http://www.csun.edu/cod/conference/2016/sessions/index.php/public/presentations/view/351