

Accessibility for Everyone

Beth Tucker Long



Beth Tucker Long

- PHP Developer
- Stay-at-home Mom
- User Group Leader
- OSMI volunteer



WHAT'S ACCESSIBILITY?

What's Accessibility?

The measure of a web page's usability by persons with one or more disabilities.

--Usability.gov

<https://www.usability.gov/what-and-why/glossary/accessibility.html>

What's Accessibility?

- Improving your usability
 - Following government mandates
 - Improve customer satisfaction
 - Increase customer diversity
 - Be fair
-
- Widening your audience

How much bigger?

The United Nations estimates:

- 10% of the world's population has a disability

<http://www.un.org/en/sections/issues-depth/persons-disabilities/index.html>

All Age Issue

Regardless of age, disabled Americans are adopting tech at lower rates

% of U.S. adults who say they have ...

	Ages 65+			Ages 18-64		
	Any disability	No disability	Diff	Any disability	No disability	Diff
Desktop/laptop computer	50	66	-16	67	84	-17
Smartphone	32	45	-13	70	87	-17
Home broadband	36	57	-21	66	80	-14
Tablet	21	36	-15	44	57	-13

Source: Survey conducted Sept. 29-Nov. 6, 2016.

PEW RESEARCH CENTER

<http://www.pewresearch.org/fact-tank/2017/04/07/disabled-americans-are-less-likely-to-use-technology/>

Main Areas of Difficulty

- Vision
- Mobility
- Hearing

Vision

- Colorblindness

<http://www.colourblindawareness.org/colour-blindness/>

Vision

- Vision Impairment

<http://www.who.int/news-room/fact-sheets/detail/blindness-and-visual-impairment>

Mobility

- Movement

https://ftp.cdc.gov/pub/Health_Statistics/NCHS/NHIS/SHS/2016_SHS_Table_A-10.pdf

Hearing

- Hearing Trouble

<https://www.cdc.gov/nchs/fastats/disability.htm>

Need More to Sell This?

- It's not just for people with disabilities.

WHAT CAN WE DO?

Vision - Color

Last Name *
Tucker Long

Address Line 2

State *

Country *
United States

Sign Me Up

Last Name *
Tucker Long

Address Line 2

State *

Country *
United States

Sign Me Up

Vision

- Here is some text that does not have high enough contrast.

Vision

- Here is some text that does not have high enough contrast.
- High contrast is important.

Vision

- Here is some text that does not have high enough contrast.
- High contrast is important.
- High contrast makes a difference.

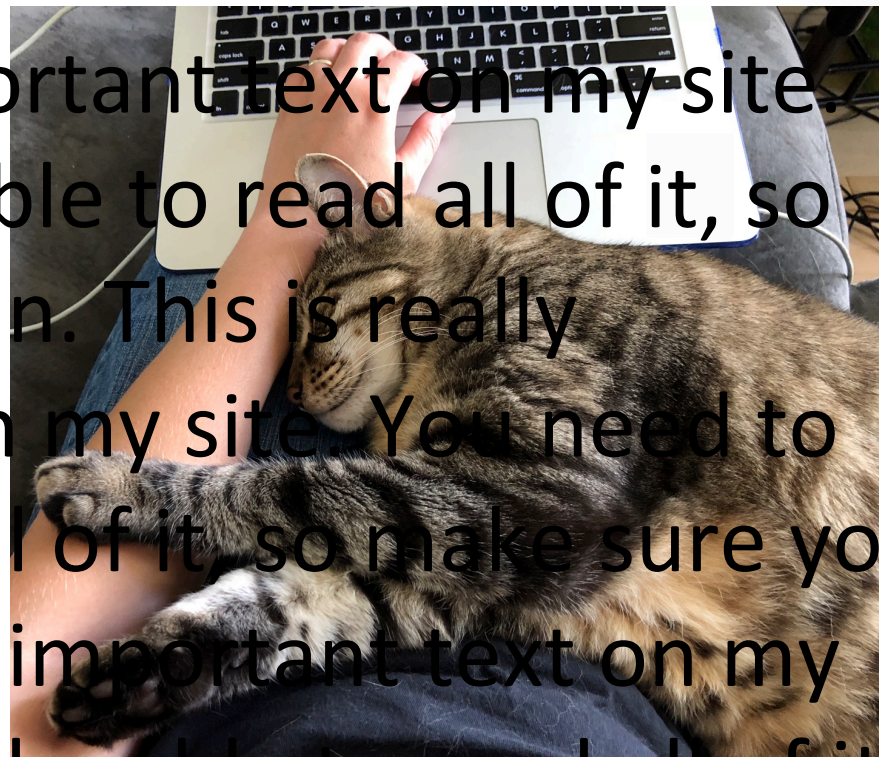
Vision

This is really important text on my site. You need to be able to read all of it, so make sure you can. This is really important text on my site. You need to be able to read all of it, so make sure you can. This is really important text on my site. You need to be able to read all of it, so make sure you can. This is really important text on my site. You need to be able to read all of it, so make sure you can.



Vision

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Vision



Vision

This is the great description of my website. You can click [here](#) to get to some great content or you could click [here](#) to get to our newsletter or you could click [here](#) to send us an email.

Vision

1. Enter your name.
2. Enter your email.
3. Click Continue.
4. Choose an item.
5. Click Continue.
6. Choose the color.
7. Click Continue.
8. Enter payment info.

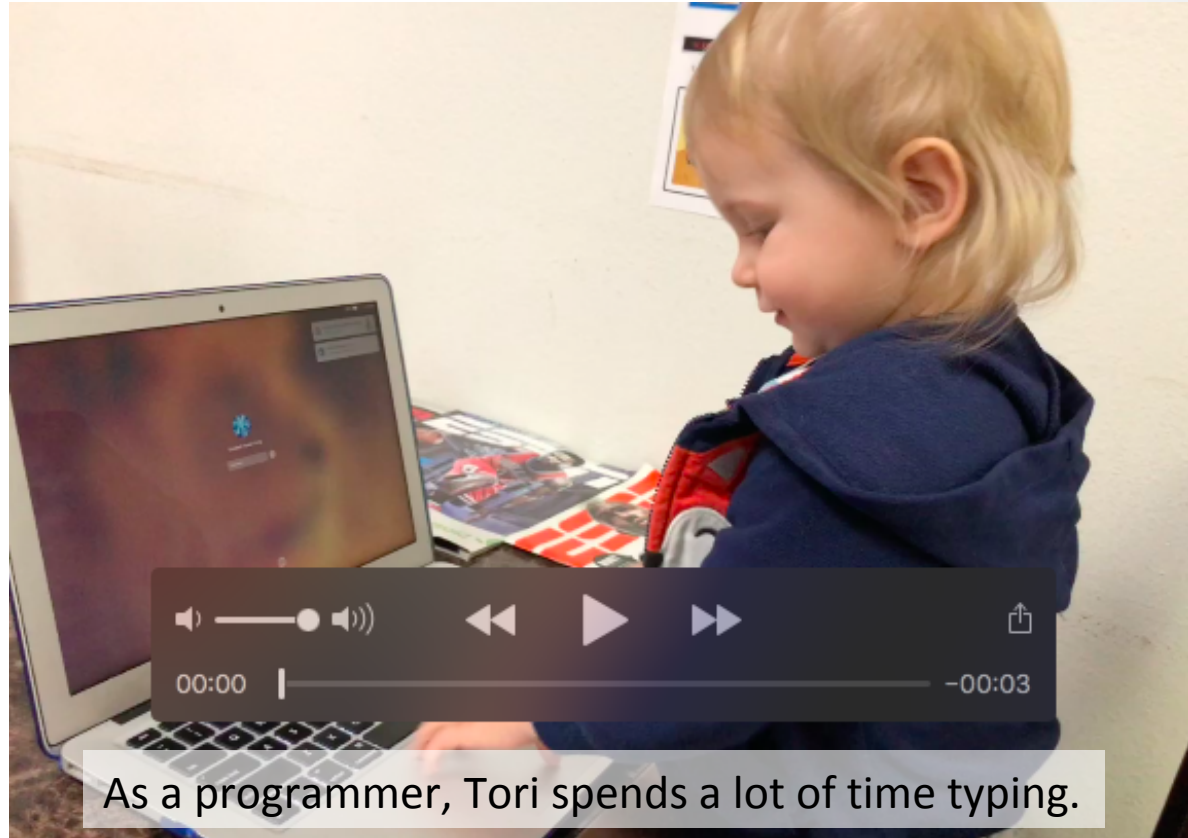
Mobility

Personal Information (see [Privacy Policy](#))

First Name *	Last Name *
<input type="text" value="Beth"/>	<input type="text" value="Tucker Long"/>
Address Line 1 *	Address Line 2
<input type="text" value="123 Street Boulevard"/>	<input type="text"/>
City *	State *
<input type="text" value="That Place"/>	<input type="text" value="Select a State"/>
Zip *	Country *
<input type="text" value="12345"/>	<input type="text" value="United States"/>

[Special Shipping Instructions?](#)

Hearing



TESTING

Vision

- Enlarge your fonts
- Turn down your screen brightness
- Adjust the color saturation on your screen
- Disable your stylesheets

Vision

- Turn your monitor around and use

VoiceOver

<https://help.apple.com/voiceover/info/guide/>

Narrator

<https://support.microsoft.com/en-us/help/17173/windows-10-hear-text-read-aloud>

Simulate Colorblindness

alтреus.github.io says

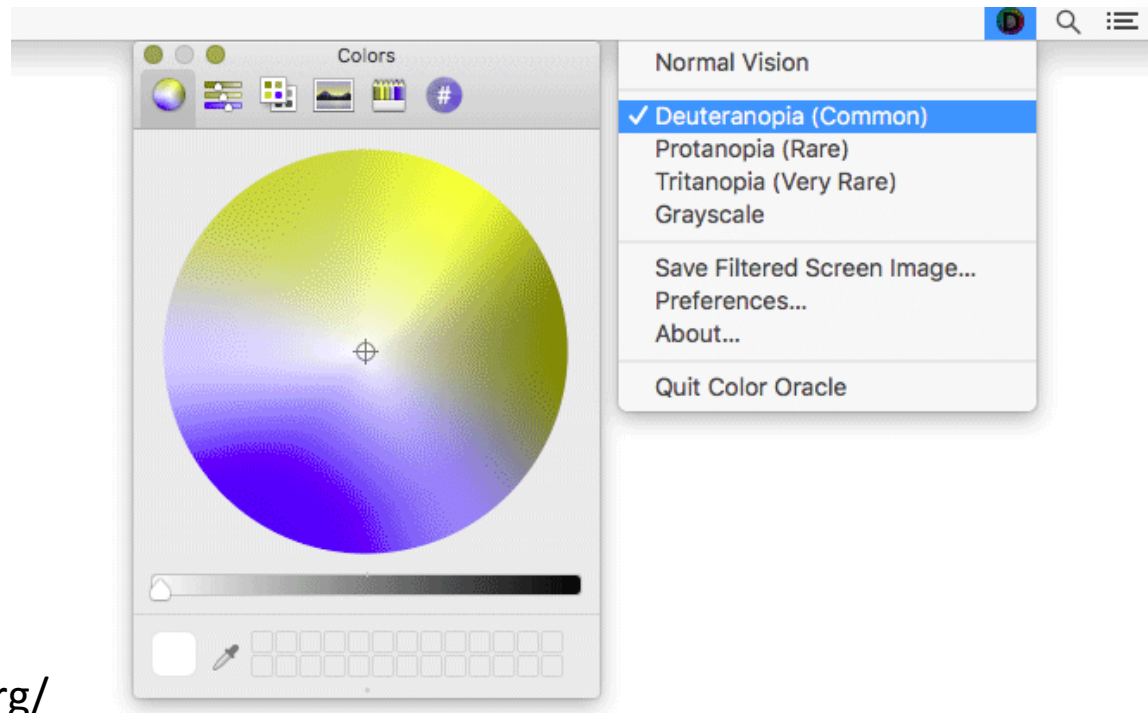
0: off; 1: protanopia; 2: protanomaly; 3: deuteranopia; 4: deuteranomaly; 5: tritanopia; 6: tritanomaly; 7: achromatopsia; 8: achromatomaly;

Cancel OK

Colour Blind

<https://github.com/Altreus/colourblind>

Simulate Colorblindness



Color Oracle
<http://colororacle.org/>

Generate a Color Palette

Background Color

Font-Family

Font-Size (px)

Font-Weight

WCAG Standard ⓘ

Editable Text

The quick brown fox jumps over the lazy dog.


GENERATE COLOR PALETTE

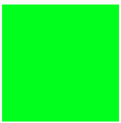


<http://colorsafe.co/>

Color Palette Accessibility Evaluator

Color Palette Accessibility Checker: WCAG 2 Level AA [Switch to WCAG 2 Level AAA](#)

Color Palette

 **Select a color to analyze**

 00FF00	 000000	 0000FF
---	---	---

[Back to palette creator](#)

Analysis

Small Non-Bold Text (less than 18pt, or approximately 1.5em rendered) for 00FF00

Color Code	Sample Text	Sample Text (inverted)	Pass or Fail	Ratio (pass>=4.5)
000000	Lorem ipsum	Lorem ipsum	PASS	15.3
0000FF	Lorem ipsum	Lorem ipsum	PASS	6.26

Large Non-Bold Text (18pt or greater, or approximately 1.5em rendered) for 00FF00

Color Code	Sample Text	Sample Text (inverted)	Pass or Fail	Ratio (pass>=3.0)
000000	Lorem ipsum	Lorem ipsum	PASS	15.3
0000FF	Lorem ipsum	Lorem ipsum	PASS	6.26

<https://accessibility.oit.ncsu.edu/tools/color-contrast/>

Snook.ca Color Contrast Check

Foreground Colour:

33FF33

Red:

Green:

Blue:

Hue (°):

Saturation (%):

Value (%):

Background Colour:

333333

Red:

Green:

Blue:

Hue (°):

Saturation (%):

Value (%):

Results

**This is example text. Some of it bolded.
Some of it italicized.**

Brightness Difference: (≥ 125)	119.747
Colour Difference: (≥ 500)	204
Are colours compliant?	NO
Contrast Ratio	9.321
WCAG 2 AA Compliant	YES
WCAG 2 AA Compliant (18pt+)	YES
WCAG 2 AAA Compliant	YES
WCAG 2 AAA Compliant (18pt+)	YES

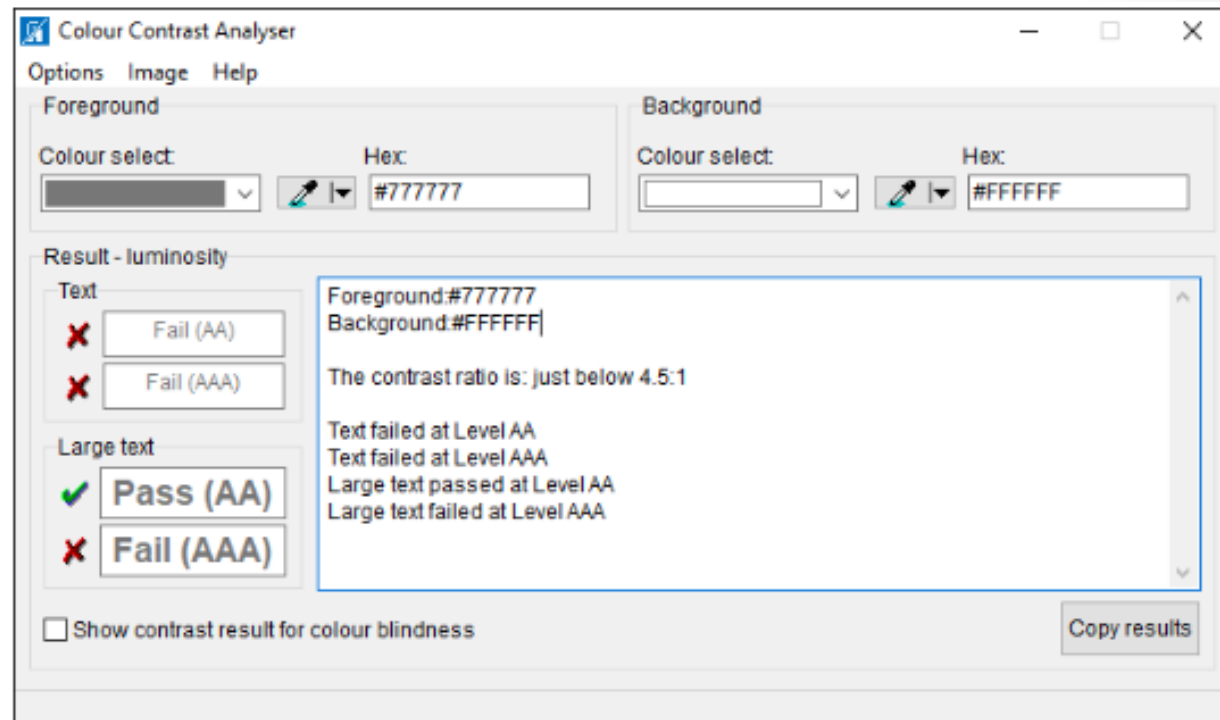
https://snook.ca/technical/colour_contrast/colour.html

WebAIM- Color Contrast Checker

The screenshot shows the WebAIM Color Contrast Checker interface. It features two color selection panels: 'Foreground Color' with a hex code of #0000FF and a lightness slider, and 'Background Color' with a hex code of #FFFFFF and a lightness slider. A green-bordered box displays the 'Contrast Ratio' as 8.59:1, with a 'permalink' link below it. Below these panels, there are two sections for text contrast: 'Normal Text' and 'Large Text'. Each section shows 'WCAG AA: Pass' and 'WCAG AAA: Pass' next to a sample text box containing the sentence 'The five boxing wizards jump quickly.' in blue font.

<https://webaim.org/resources/contrastchecker/>

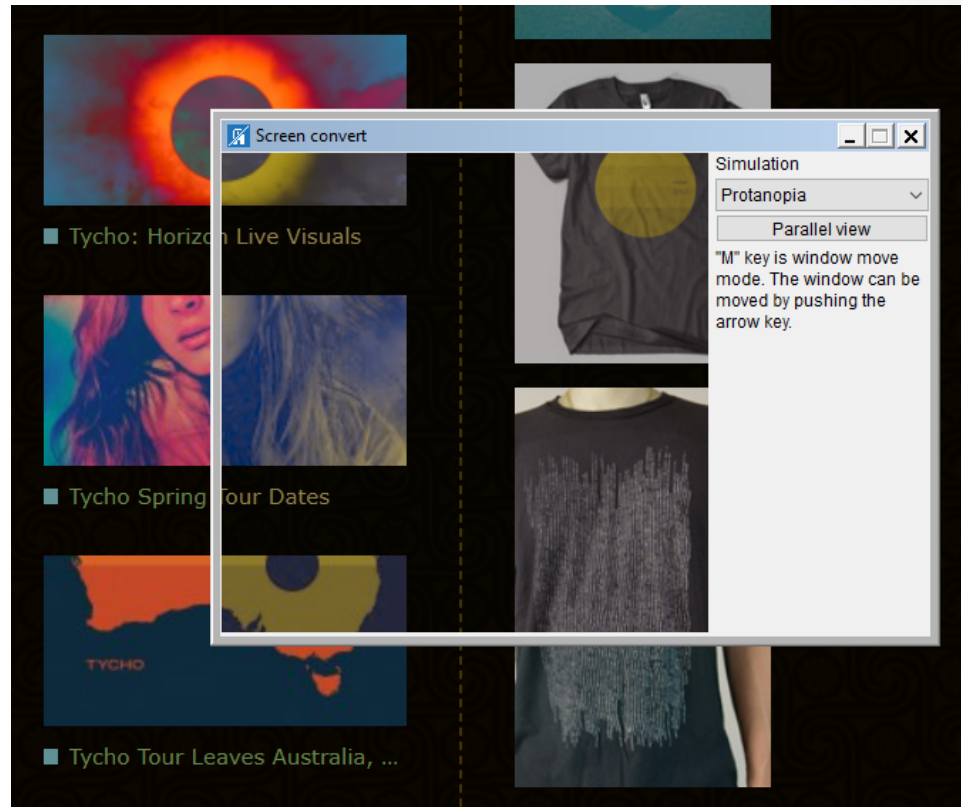
Vision - Colour Contrast Analyser



<https://developer.paciellogroup.com/resources/contrastanalyser/>

Vision

Colour Contrast
Analyser from The
Paciello Group



<https://developer.paciellogroup.com/resources/contrastanalyser/>

Mobility

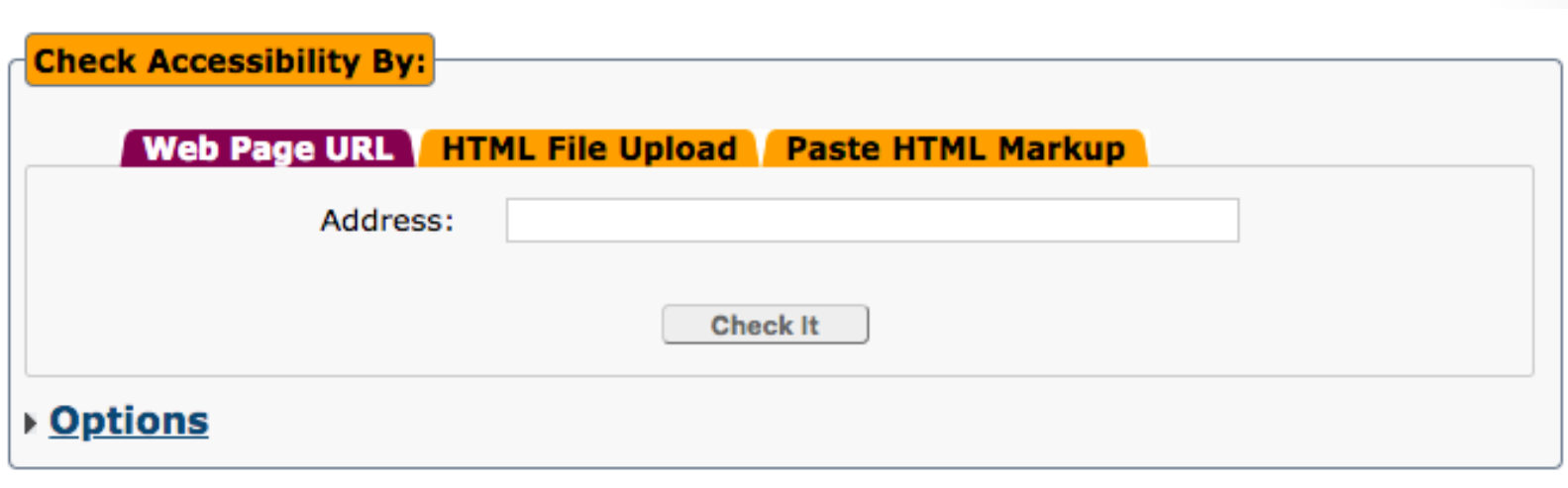
- Disable your mouse/trackpad
- Interact with a touch screen using a stylus you hold with tweezers, chopsticks, or in your mouth
- Use your website one-handed
- Install eye tracking navigation software

Hearing

- Turn off the sound

Whole Analysis

- AChecker



The screenshot shows the AChecker web accessibility checker interface. At the top, there is a section titled "Check Accessibility By:" with three tabs: "Web Page URL" (selected), "HTML File Upload", and "Paste HTML Markup". Below the tabs is a form with a label "Address:" and an empty text input field. A "Check It" button is positioned below the input field. At the bottom left of the form, there is a link labeled "Options" with a right-pointing arrow.

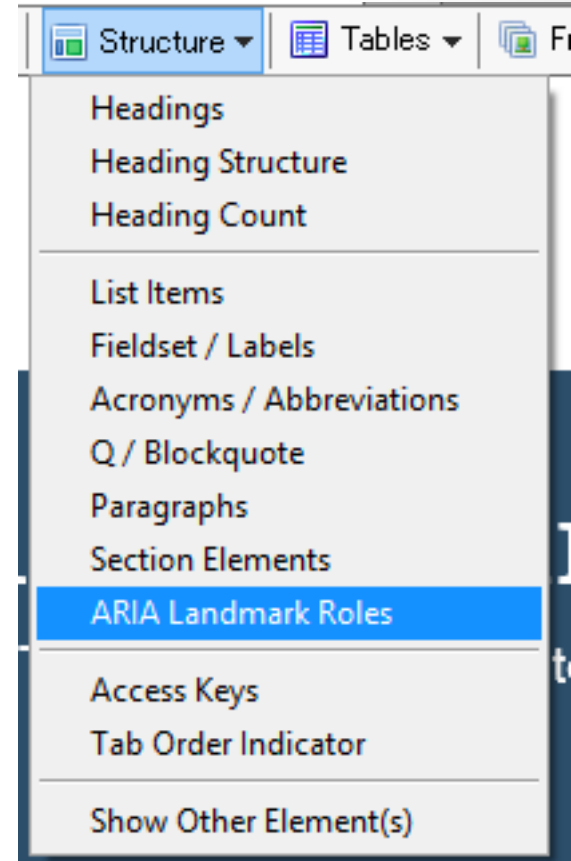
<https://achecker.ca/checker/index.php>

Whole Analysis

- Web Accessibility Toolbar

The Paciello Group

<https://developer.paciellogroup.com/resources/wat/>



Whole Analysis

- WAVE API
<http://wave.webaim.org/api/>

Dinolytics front-end for WAVE
<https://dinolytics.com/>

WAVE Runner
<http://wave.webaim.org/waverunner>

Whole Analysis

WAVE Browser Extension - <http://wave.webaim.org/extension/>

The screenshot displays the WAVE web accessibility evaluation tool interface. On the left, a sidebar contains the WAVE logo and navigation options: 'Styles', 'No Styles', and 'Contrast'. Below this is a 'Summary' section with a red arrow icon, stating 'WAVE has detected the following:'. The summary lists: 2 Errors (red), 4 Alerts (yellow), 3 Features (green), 3 Structural Elements (blue), 53 HTML5 and ARIA (purple), and 1 Contrast Error (grey). Under 'Panel Options', there are three items: 'DETAILS: A listing of all the WAVE icons in your page.', 'DOCUMENTATION: Explanation of the WAVE icons and how you can make your page more accessible.', and 'OUTLINE: The heading structure of the web page.'

The main content area shows a Google search page with the following apply to the entire page: . The Google logo is highlighted with a green box and the text 'alt="Google"'. The search input field is highlighted with a green box and the text 'aria-autocomplete="both", aria-haspopup="false", aria-label="Search" title'. The 'Google Search' button is highlighted with a green box and the text 'aria-label="Google Search"'. The 'I'm Feeling Lucky' button is highlighted with a green box and the text 'label="I'm Feeling Lucky"'. The footer of the page is highlighted with a green box and the text 'aria-controls="fsett"'. The footer also contains links for 'Advertising', 'Business', 'Privacy', 'Terms', and 'Settings'.

Whole Analysis

aXe Browser Extension - <https://www.deque.com/axe/>

The screenshot displays the aXe browser extension interface. On the left, a sidebar shows a list of issues found: 'All issues found 77', 'Elements must have sufficient color contrast 74', 'Heading levels should only increase by one 1', 'Content should be contained in a landmark region 1', and 'Elements should not have tabindex greater than zero 1'. The main panel shows the details for the 'Elements must have sufficient color contrast' issue. It includes an 'Issue description' stating that the contrast between foreground and background colors must meet WCAG 2 AA thresholds, with an impact of 'serious'. The 'Element location' is shown as a button with the text 'Creating file...'. The 'Element source' is a code snippet: `<button class="btn btn-sm BtnGroup-item" type="submit" data-disable-with="Creating file..."> Create new file </button>`. Below this, a note says 'We are not sure this is an issue, because: Element's background color could not be determined due to a background gradient'. There is a 'Related node' section with an 'Inspect' link and a checkbox to mark the issue as 'This is an issue' (which is selected) or 'This is not an issue'. At the bottom, there is a text input field for 'Provide an issue description:' and 'Issue tags: category: color wcag2aa wcag143'.

Whole Analysis

SiteImprove- <https://siteimprove.com/>



Automate Tests

- Unit Tests
- Integration Tests

Writing Automated Tests for Accessibility

<https://www.deque.com/blog/writing-automated-tests-accessibility/>

Diverse Testers

Standard Usability Tests

<https://www.usability.gov/how-to-and-tools/methods/usability-evaluation/index.html>

Lots More Tools

Web Accessibility Evaluation Tools List

<https://www.w3.org/WAI/ER/tools/>

18F Accessibility Guide – Resources

<https://accessibility.18f.gov/>

18F Accessibility Guide – Tools

<https://accessibility.18f.gov/tools/>

GAAD

The purpose of GAAD is to get everyone talking, thinking and learning about digital (web, software, mobile, etc.) access/inclusion and people with different disabilities.

<http://www.globalaccessibilityawarenessday.org/>

Learn More - Design

- Inclusive Design Principles
<https://inclusivedesignprinciples.org/>
- Inclusive Design 24
<https://inclusivedesign24.org/>
- The Paciello Group: copper
<https://github.com/ThePacielloGroup/copper>

Learn More - Tools

- An Introduction to Screen Readers (Webinar)
<https://accessibility.deque.com/live-webinar-introduction-to-screen-readers>
- Facebook's Alt Tag AI
<https://newsroom.fb.com/news/2016/04/using-artificial-intelligence-to-help-blind-people-see-facebook/>

Status of Platforms

- HTML5 Accessibility
<https://www.html5accessibility.com/>
- HTML5 Implementation Status
<http://stevefaulkner.github.io/html-mapping-tests/>
- Android and iOS Mobile Testing Guide
https://developer.paciellogroup.com/downloads/TPG_Mobile_Testing_Guide.pdf
- Windows Accessibility Options
<https://www.microsoft.com/en-us/accessibility/windows>
Apple Accessibility Options
<https://www.apple.com/accessibility/>

Standards

- Section 508 Guidelines and Resources
<https://www.section508.gov/>
- United States Laws relating to 508 Standards
<https://www.w3.org/WAI/policies/united-states/>
- VFO Standards
<https://github.com/FreedomScientific/VFO-standards-support>
- Web Content Accessibility Guidelines
<https://www.w3.org/WAI/standards-guidelines/wcag/>
- ADA Standards for Accessible Design
https://www.ada.gov/2010ADAstandards_index.htm

Standards Help

- Use Assistive Technology to Comply with Section 508
<https://www.youtube.com/watch?v=4XJcswWmmAw>
- HTML 508 Checklist
<https://www.hhs.gov/web/section-508/making-files-accessible/checklist/html/index.html>

Resources

- Stories of Web Users
<https://www.w3.org/WAI/people-use-web/user-stories/>
<https://www.w3.org/WAI/people-use-web/tools-techniques/>
- Mythbuster's Guide to Accessibility
<https://medium.com/the-u-s-digital-service/mythbusters-guide-to-accessibility-92ccd88655c6>
- Usability.gov's Accessibility Page
<https://www.usability.gov/accessibility>

Find Me

- Twitter: e3betht
- Madison PHP User Group (Meetup)
<http://www.MadisonPHP.com> (@MadisonPHP)
- Madison Web Design & Development Meetup
<http://www.MadWebDev.com> (@MadWebDev)

Find Me

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<http://www.TreelineDesign.com/slides>