Accessibility for Everyone

Beth Tucker Long

Beth Tucker Long

- PHP Developer
- Stay-at-home Mom
- User Group Leader
- OSMI volunteer
  http://OSMIHelp.org

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WHAT'S ACCESSIBILITY?

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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

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What's Accessibility?

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

- Widening your audience

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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

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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/

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Main Areas of Difficulty

- Vision
- Mobility
- Hearing

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Vision

- Colorblindness
  http://www.colourblindawareness.org/colour-blindness/

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Vision

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

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Mobility

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

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Hearing

- Hearing Trouble
  https://www.cdc.gov/nchs/fastats/disability.htm

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Need More to Sell This?

- It's not just for people with disabilities.

- http://www.pewresearch.org/fact-tank/2017/12/12/nearly-half-of-americans-use-digital-voice-assistants-mostly-on-their-smartphones/
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3280373/

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WHAT CAN WE DO?

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Vision - Color

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Vision

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

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Vision

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

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Vision

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

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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.

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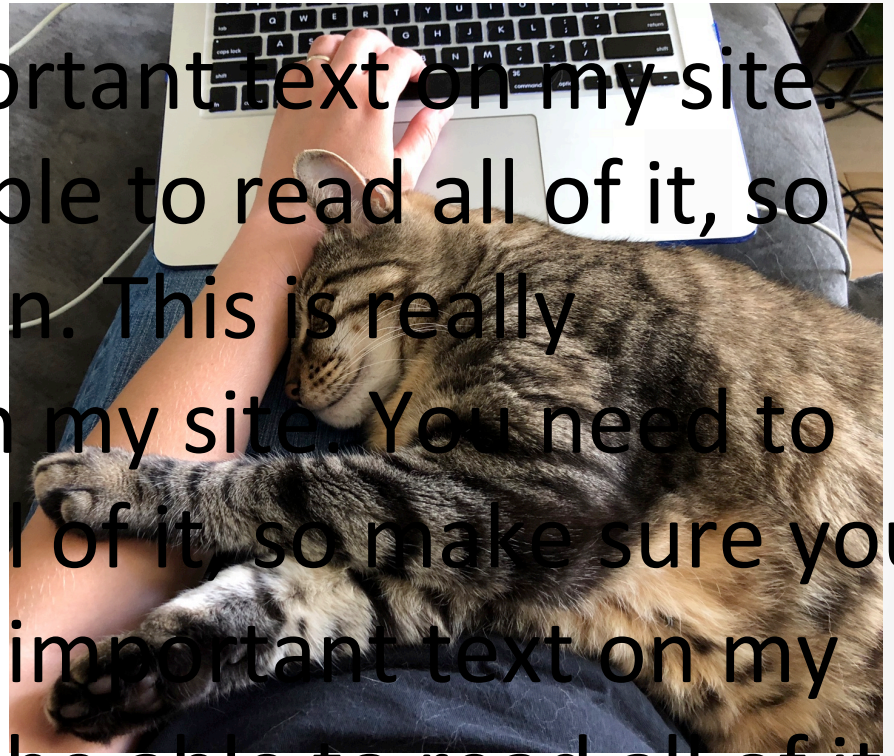
Vision

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



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Vision

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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.

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Vision

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

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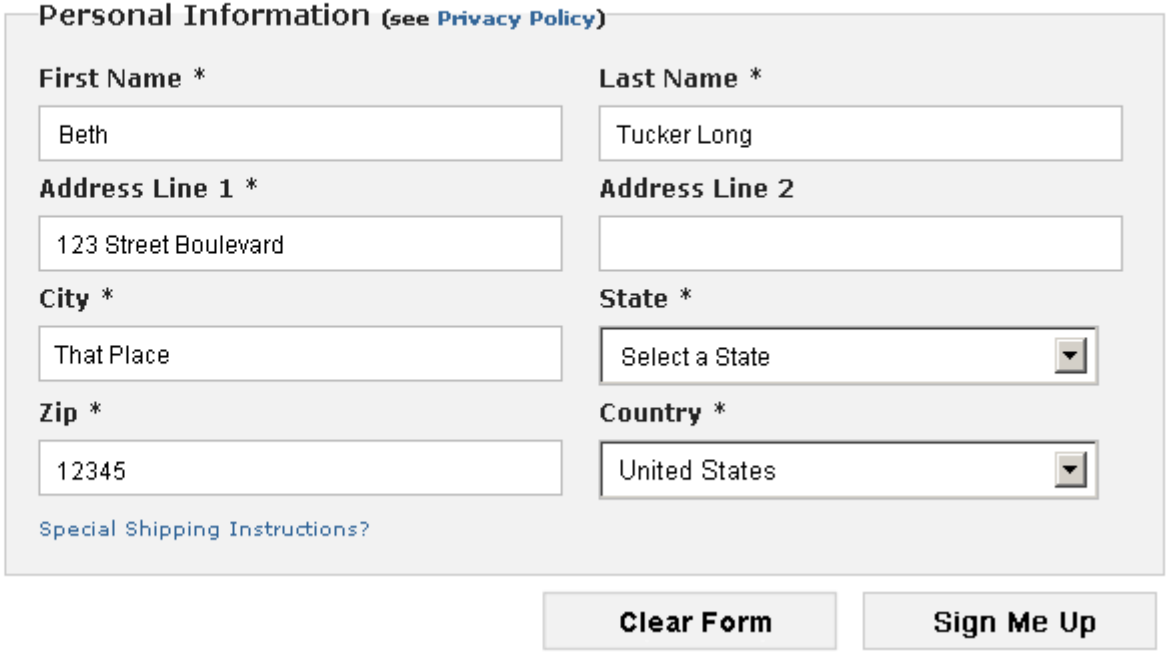
Mobility



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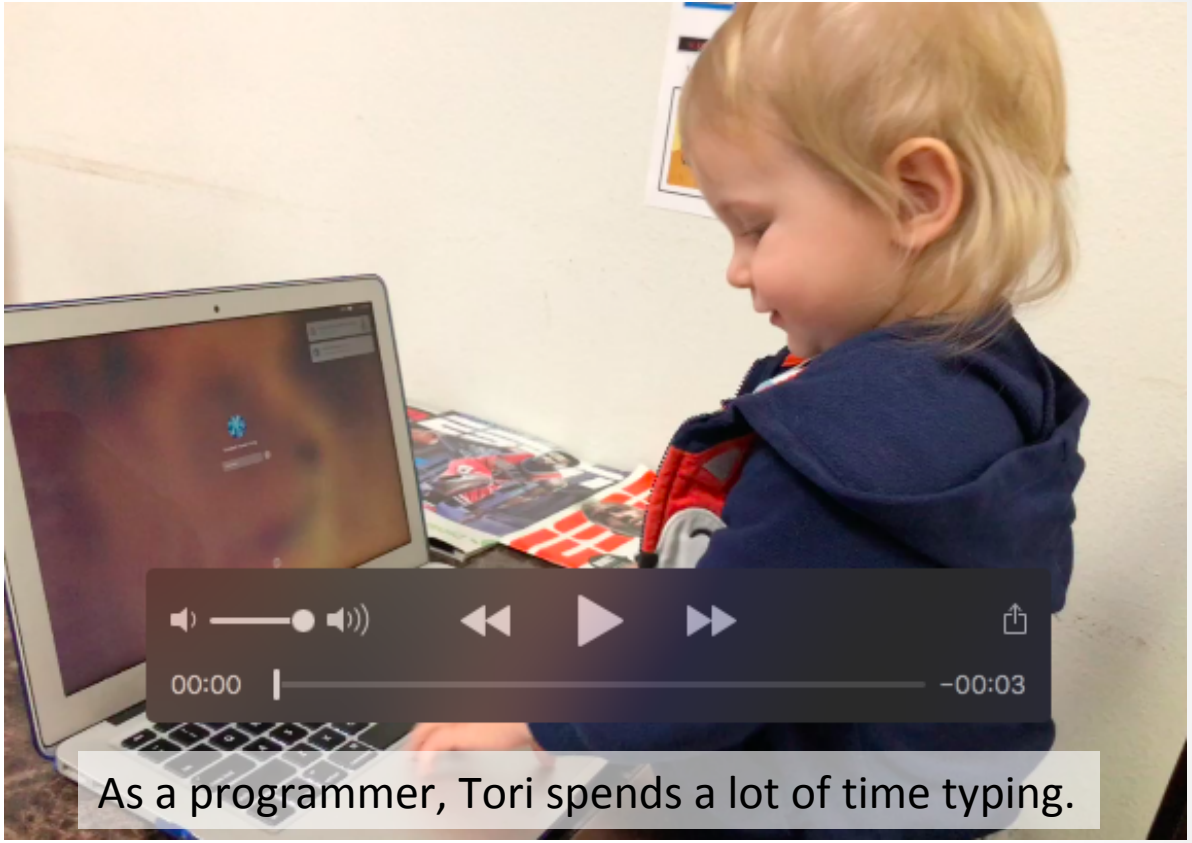
Hearing



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TESTING

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Vision

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

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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

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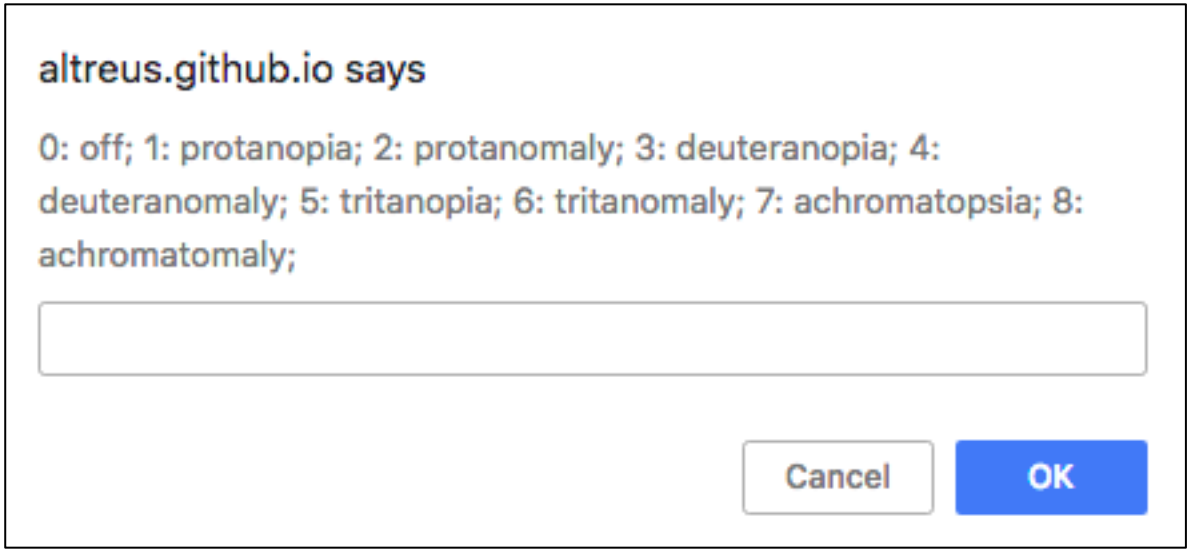
Simulate Colorblindness



Colour Blind
https://github.com/Altreus/colourblind

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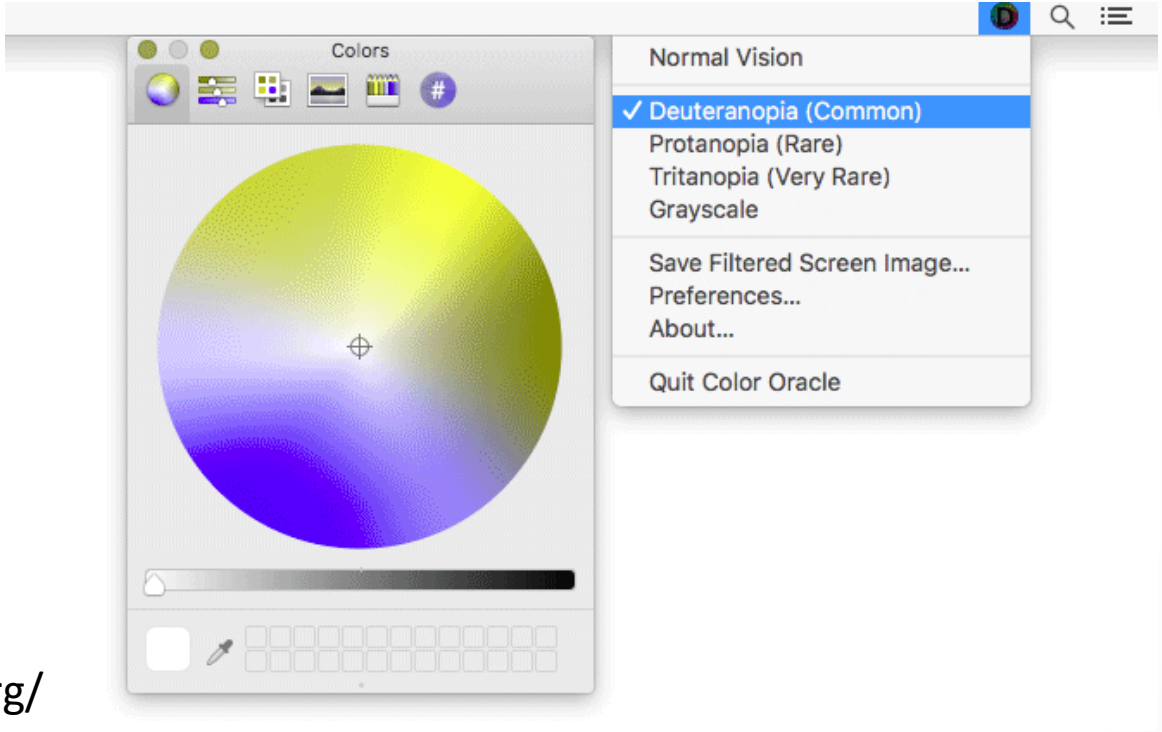
Simulate Colorblindness



Color Oracle
http://colororacle.org/

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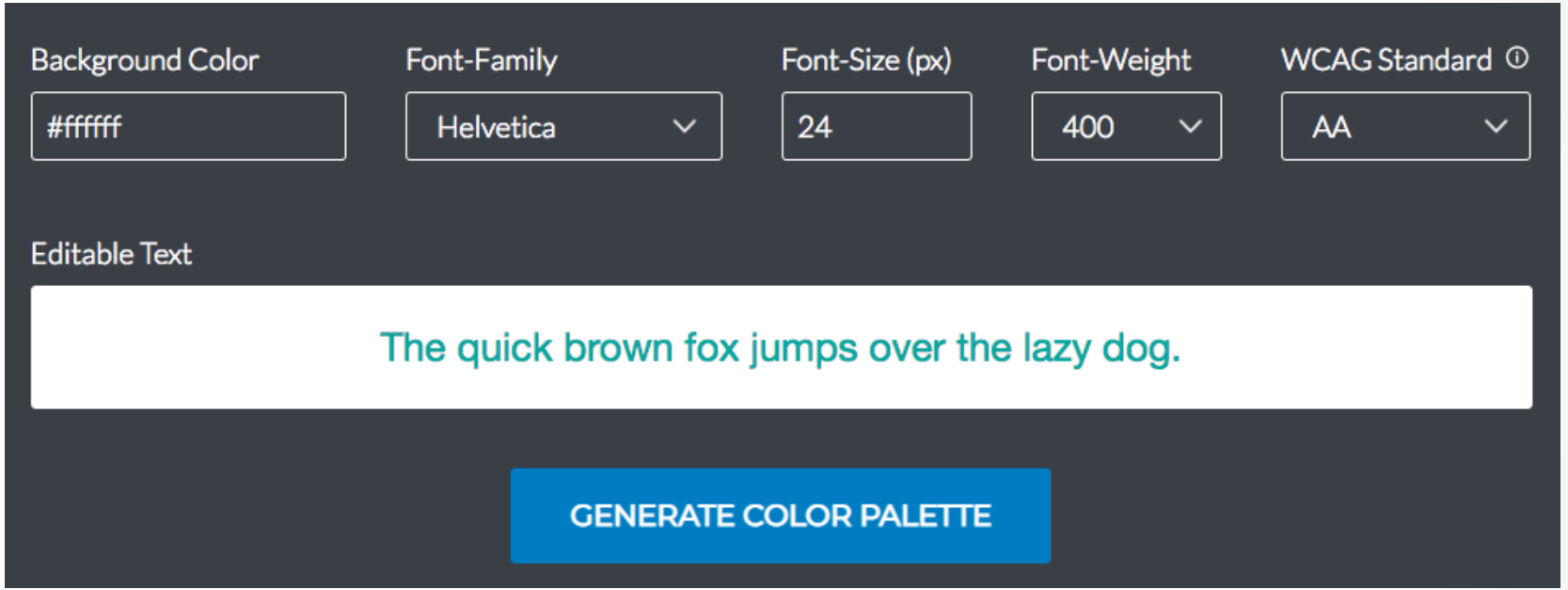
Generate a Color Palette



http://colorsafe.co/

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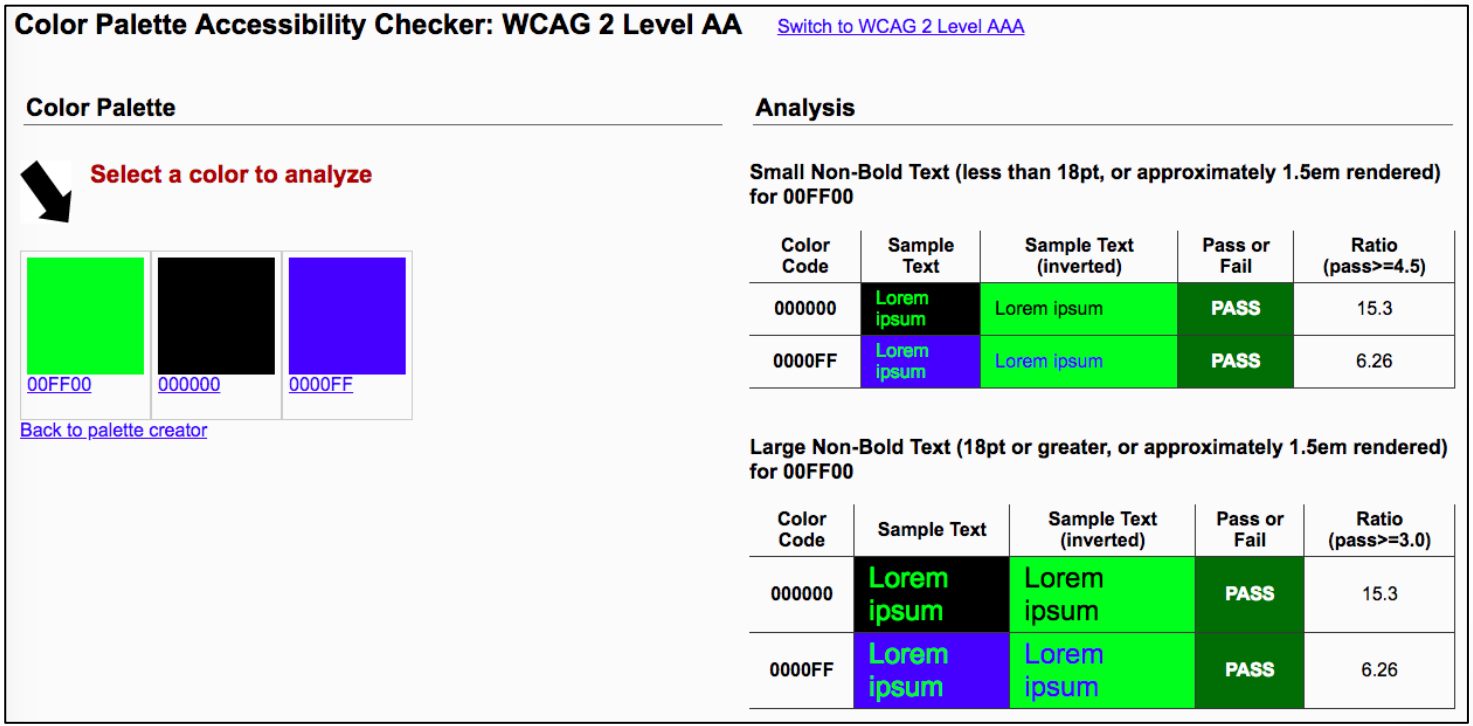
Color Palette Accessibility Evaluator



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/

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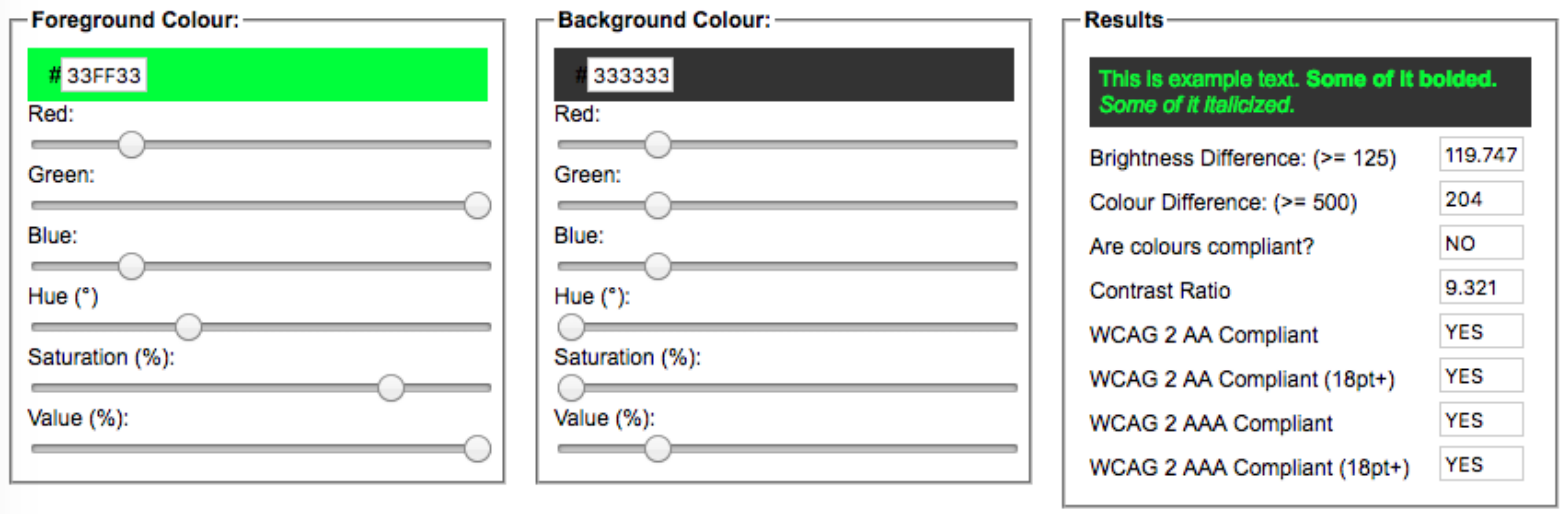
Snook.ca Color Contrast Check



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

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WebAIM- Color Contrast Checker

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

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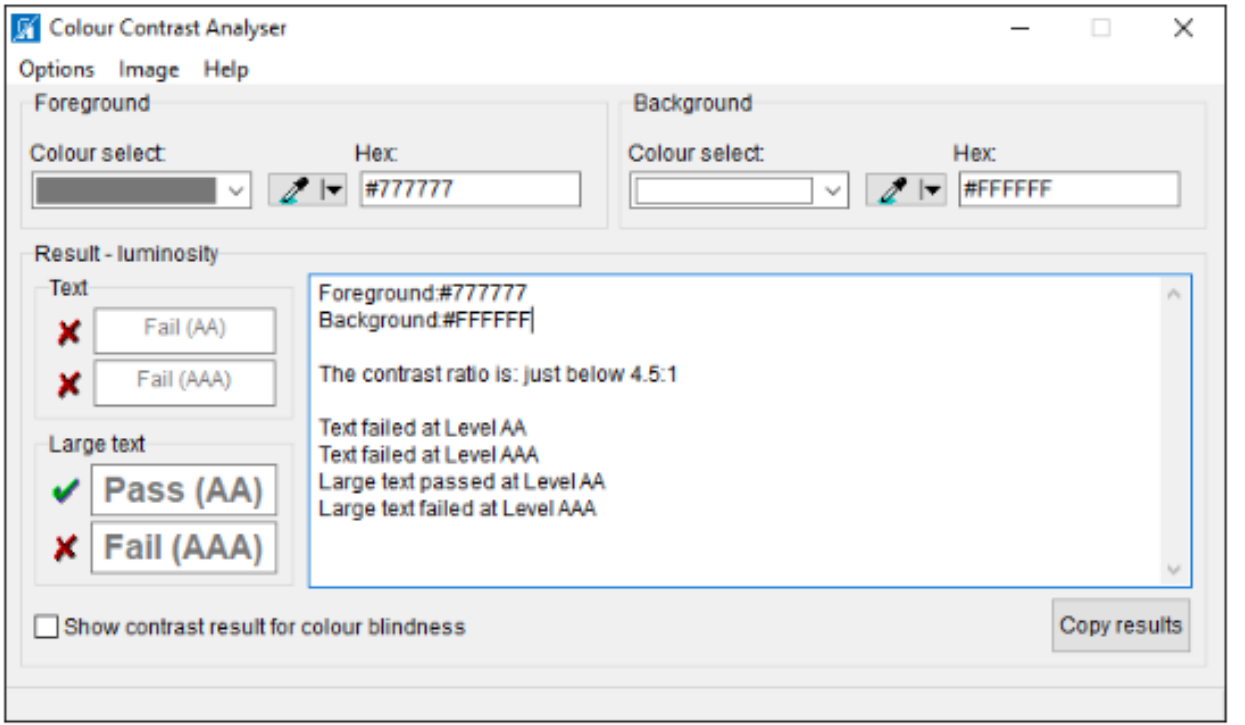
Vision - Colour Contrast Analyser



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

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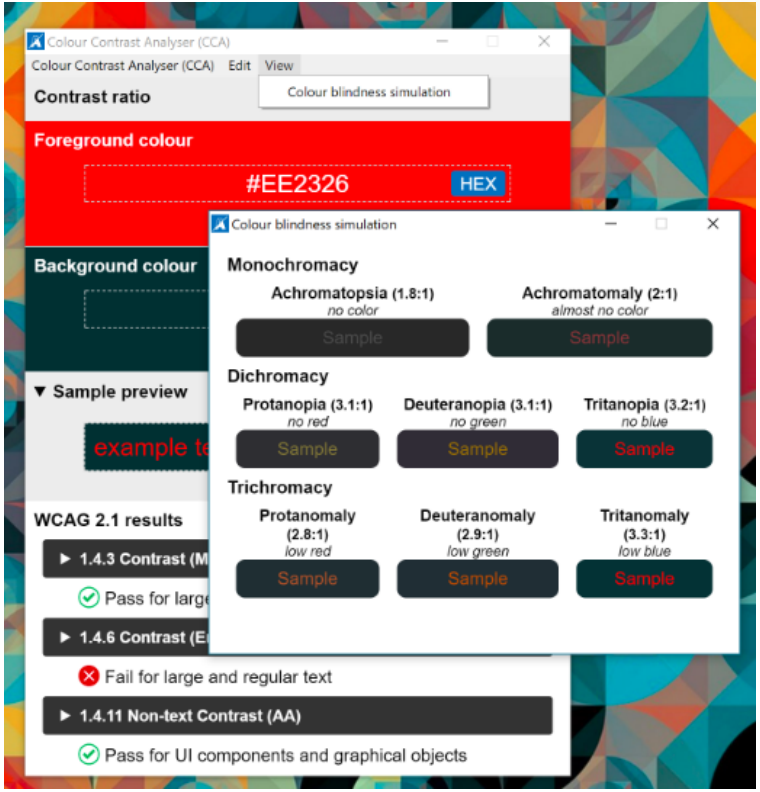
Vision

Colour Contrast Analyser from The Paciello Group



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

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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
- Use voice recognition software only to navigate your site

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Hearing

- Turn off the sound

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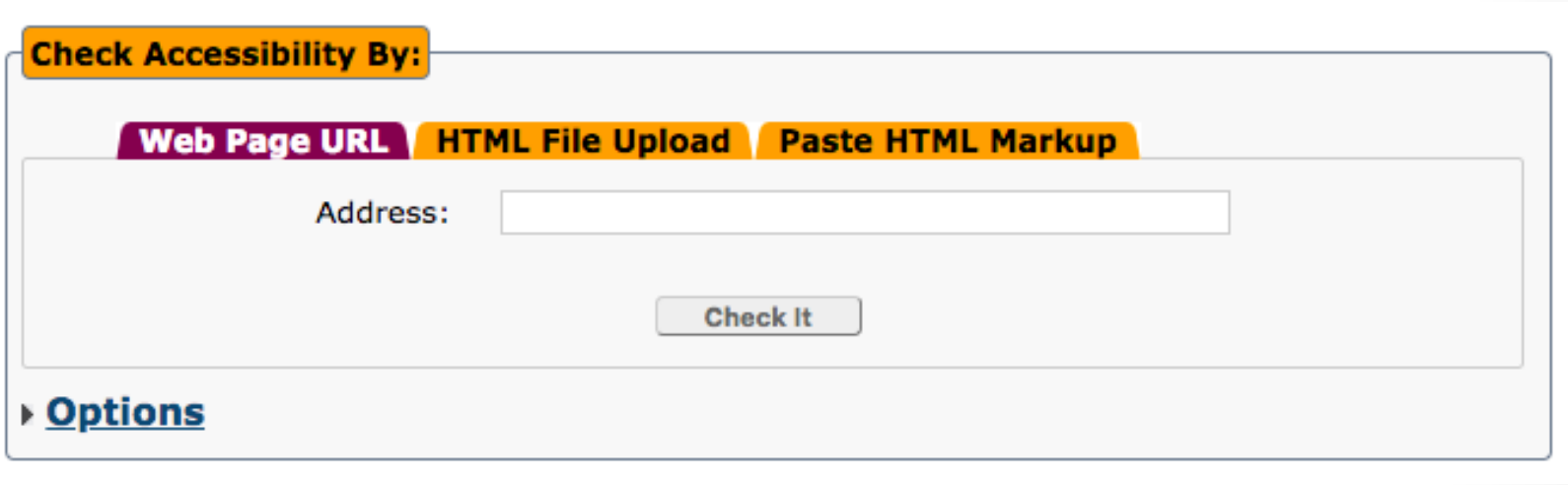
Whole Analysis

- AChecker



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

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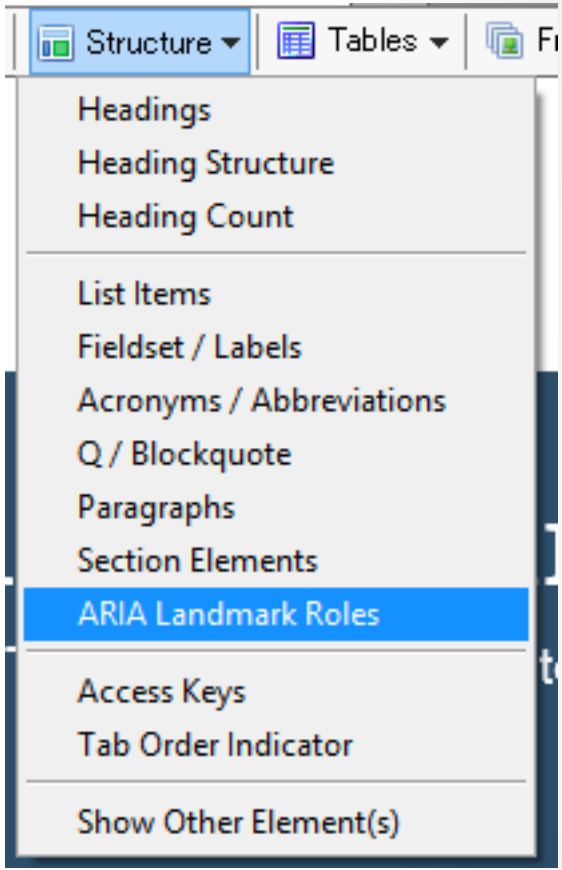
Whole Analysis

- Web Accessibility Toolbar

  The Paciello Group



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

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Whole Analysis

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

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

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

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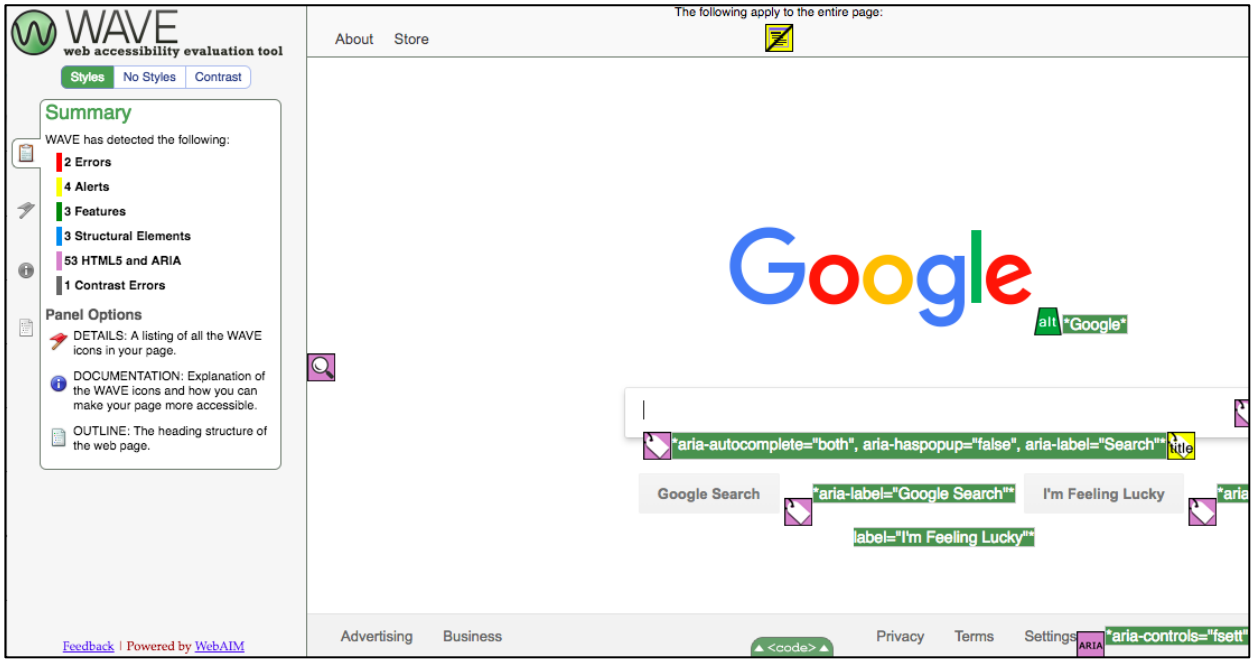
Whole Analysis

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



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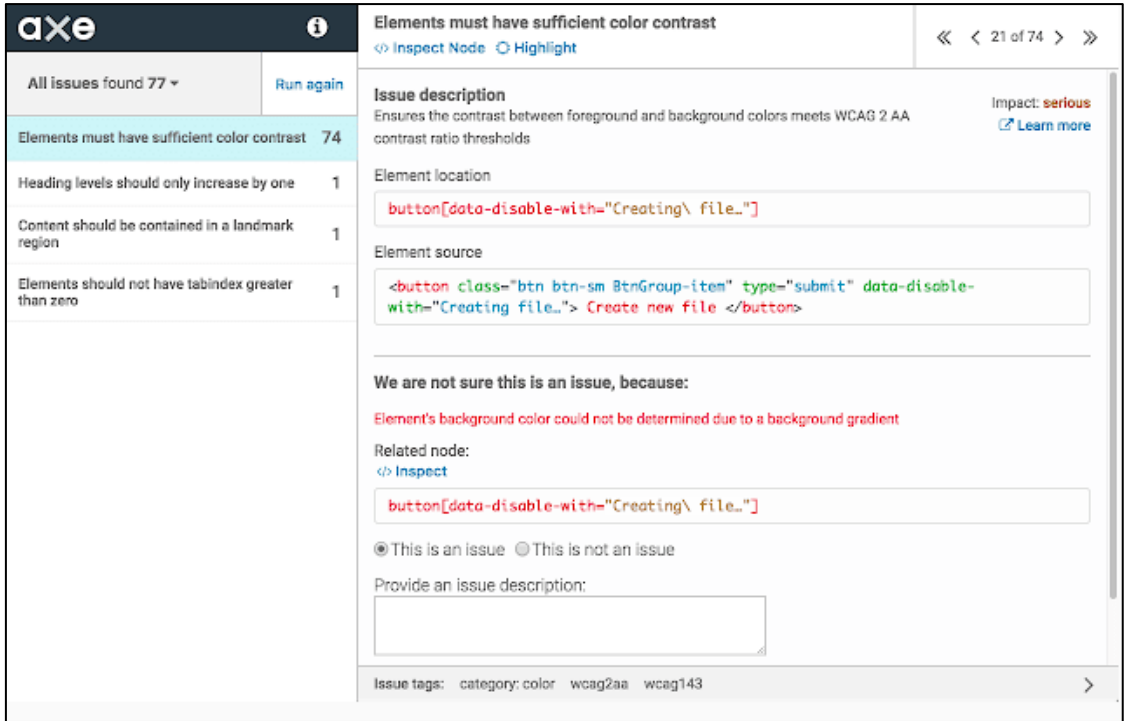
Whole Analysis

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



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Whole Analysis

SiteImprove- https://siteimprove.com/

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Automate Tests

- Unit Tests
- Integration Tests

Writing Automated Tests for Accessibility
https://www.deque.com/blog/writing-automated-tests-accessibility/

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Diverse Testers

Standard Usability Tests
https://www.usability.gov/how-to-and-tools/methods/usability-evaluation/index.html

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Live Accessibility Testing

- Accessible360
  https://accessible360.com/
- Perkins Access
  https://www.perkins.org/access
- AccessWorks
  https://access-works.com/

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/

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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/

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- Home
- Meet Our Customers
- Contact Us Today
- Reviews

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At Treeline Design, LLC, we will build you a dynamic website or custom web application to fit your business needs. We program in HTML, PHP, and MySQL/SQL as well as create custom graphics to make your site stand out. It is our goal to maximize your efficiency while keeping your costs down. Let your website do the work!

How We Work

We will get to know you, your business, and your customers. We will sit down with you and talk through your vision, your goals, and your budget for the project. Then, we will come up with a plan to get you where you need to be and discuss each step of that plan with you. Our goal is not to just work for you, but to work with you. After completing the work, we will make sure that you are not only happy with the solution, but feel comfortable using it. We will always make sure that you receive a high-quality product that fits your business needs and personality.

Our site upholds the following standards:

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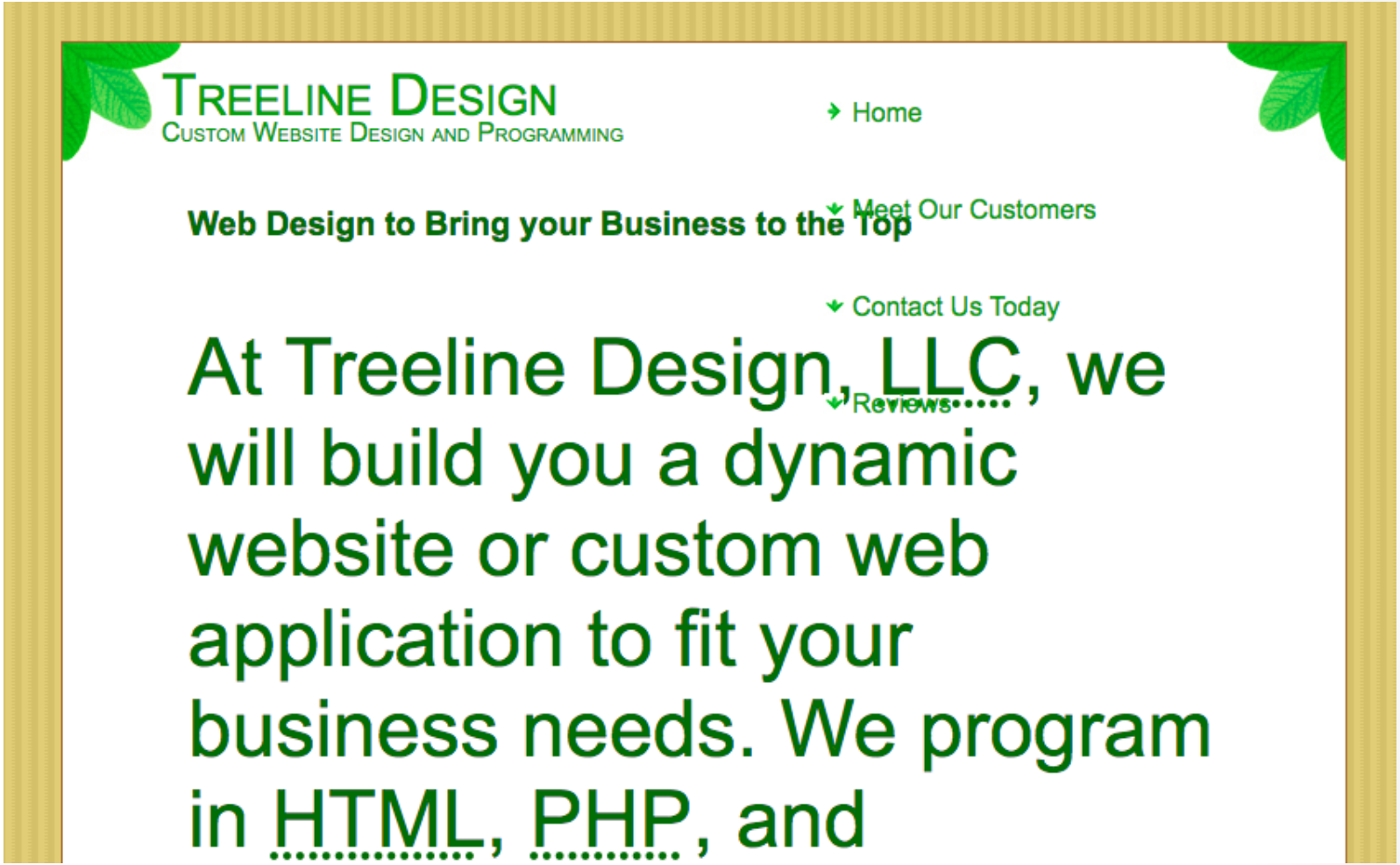
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CUSTOM WEBSITE DESIGN AND PROGRAMMING
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Meet Our Customers
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4. Reviews

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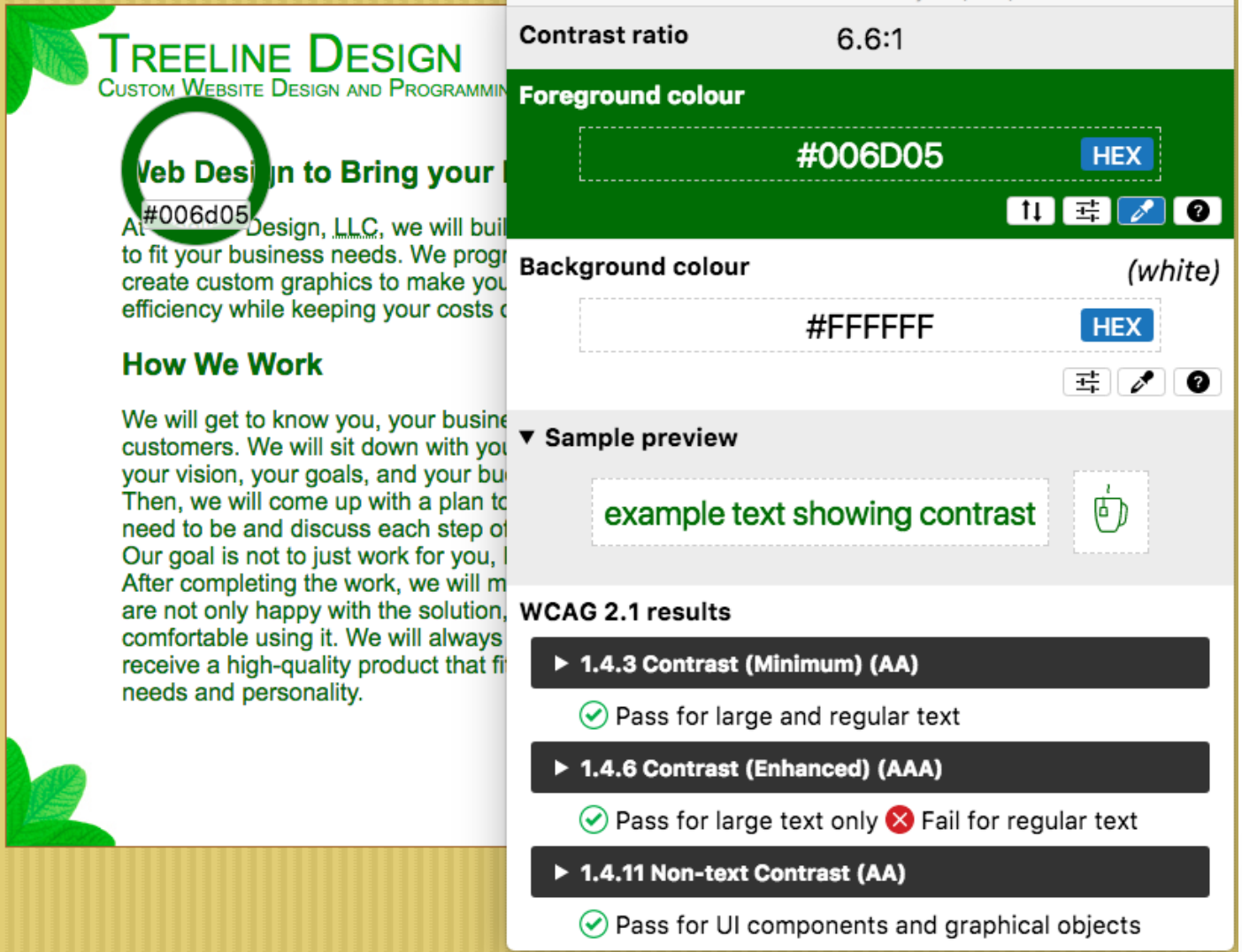
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CUSTOM WEBSITE DESIGN AND PROGRAMMIN
#006d05
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create custom graphics to make you
efficiency while keeping your costs
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customers. We will sit down with you
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Our goal is not to just work for you, l
After completing the work, we will m
are not only happy with the solution,
comfortable using it. We will always
receive a high-quality product that fi
needs and personality.
Contrast ratio
6.6:1
Foreground colour
#006D05
HEX
Background colour
(white)
#FFFFFF
HEX
Sample preview
example text showing contrast
WCAG 2.1 results
1.4.3 Contrast (Minimum) (AA)
Pass for large and regular text
1.4.6 Contrast (Enhanced) (AAA)
Pass for large text only
Fail for regular text
1.4.11 Non-text Contrast (AA)
Pass for UI components and graphical objects

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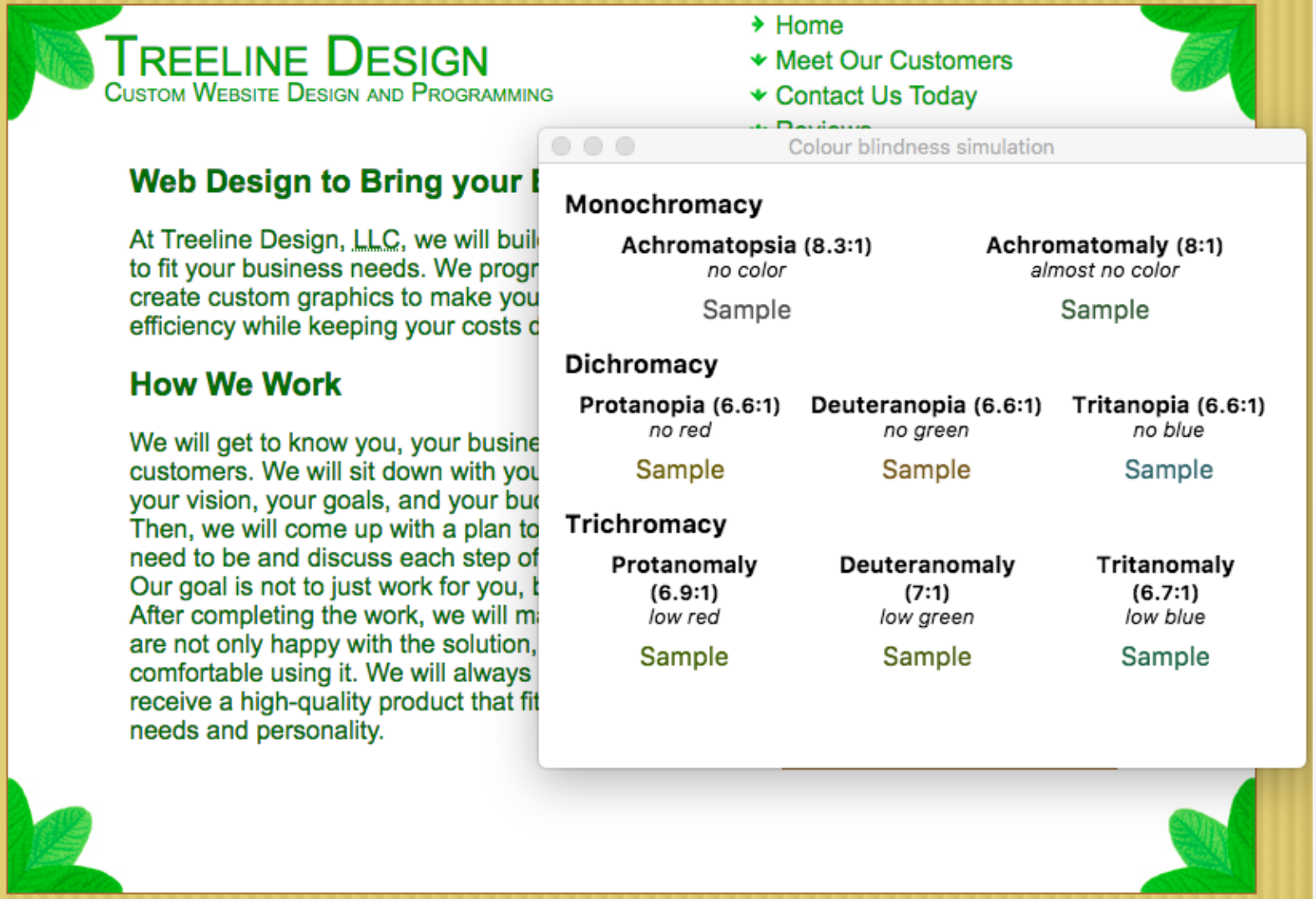
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Our goal is not to just work for you, b
After completing the work, we will m
are not only happy with the solution,
comfortable using it. We will always
receive a high-quality product that fit
needs and personality.
Colour blindness simulation
Monochromacy
Achromatopsia (8.3:1)
no color
Sample
Achromatomaly (8:1)
almost no color
Sample
Dichromacy
Protanopia (6.6:1)
no red
Sample
Deuteranopia (6.6:1)
no green
Sample
Tritanopia (6.6:1)
no blue
Sample
Trichromacy
Protanomaly (6.9:1)
low red
Sample
Deuteranomaly (7:1)
low green
Sample
Tritanomaly (6.7:1)
low blue
Sample

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Protanopia

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Deutanopia

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Tritanopia

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Achromatopsia

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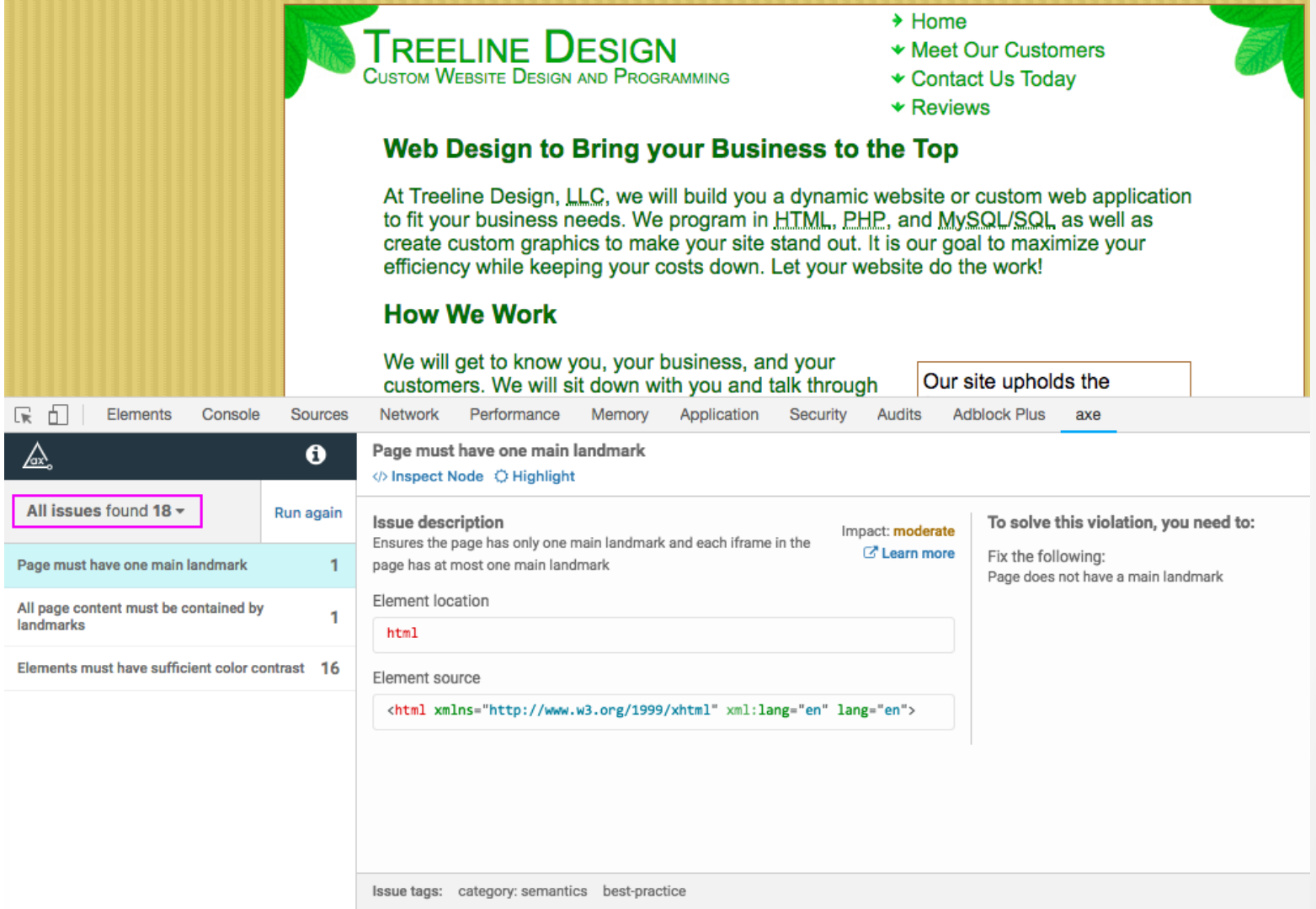
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Our site upholds the
Elements
Console
Sources
Network
Performance
Memory
Application
Security
Audits
Adblock Plus
axe
All issues found 18
Run again
Page must have one main landmark 1
All page content must be contained by landmarks 1
Elements must have sufficient color contrast 16
Page must have one main landmark
Inspect Node
Highlight
Issue description
Ensures the page has only one main landmark and each iframe in the page has at most one main landmark
Impact: moderate
Learn more
Element location
html
Element source
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
To solve this violation, you need to:
Fix the following:
Page does not have a main landmark
Issue tags: category: semantics best-practice

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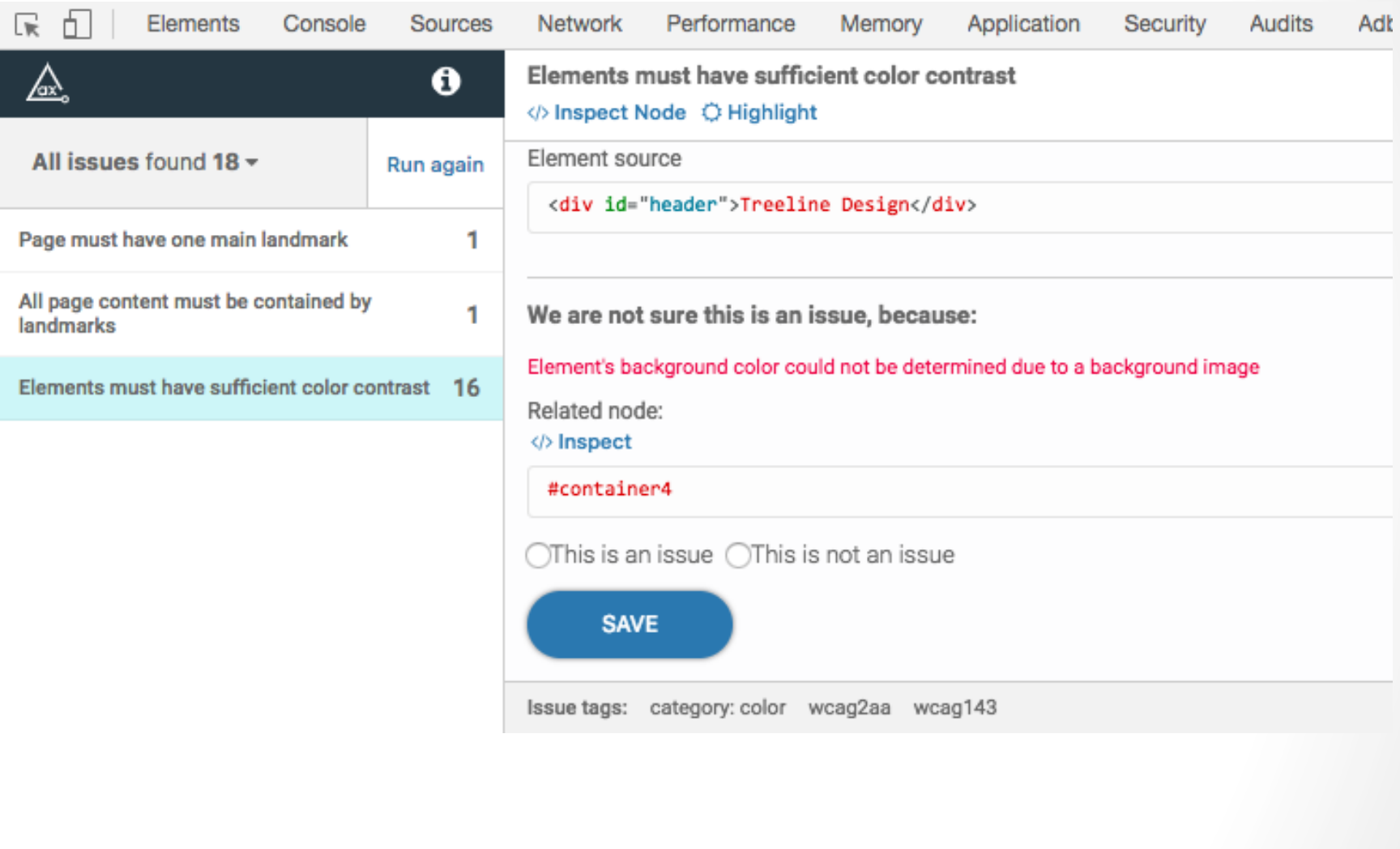
Elements
Console
Sources
Network
Performance
Memory
Application
Security
Audits
All issues found 18
Run again
Page must have one main landmark 1
All page content must be contained by landmarks 1
Elements must have sufficient color contrast 16
Elements must have sufficient color contrast
Inspect Node
Highlight
Element source
Treeline Design
We are not sure this is an issue, because:
Element's background color could not be determined due to a background image
Related node:
Inspect
#container4
This is an issue
This is not an issue
SAVE
Issue tags: category: color wcag2aa wcag143

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WAVE
web accessibility evaluation tool
Styles
No Styles
Contrast
Summary
WAVE has detected the following:
0 Errors
0 Alerts
7 Features
3 Structural Elements
0 HTML5 and ARIA
5 Contrast Errors
Panel Options
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.
OUTLINE: The heading structure of the web page.
TREELINE DESIGN
CUSTOM WEBSITE DESIGN AND PROGRAMMING
alt *You are here - image: Leaf*Home
alt *Leaf*Meet Our Customers
alt *Leaf*Contact Us Today
alt *Leaf*Reviews
h1 Web Design to Bring your Business to the Top
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Our site upholds the following standards:
W3C WAI-A WCAG 1.0
alt *Level A conformance icon, W3C-WAI Web Content Accessibility Guidelines 1.0*
W3C CSS
alt *Valid CSS!*
W3C XHTML 1.0
alt *Valid XHTML 1.0 Transitional*

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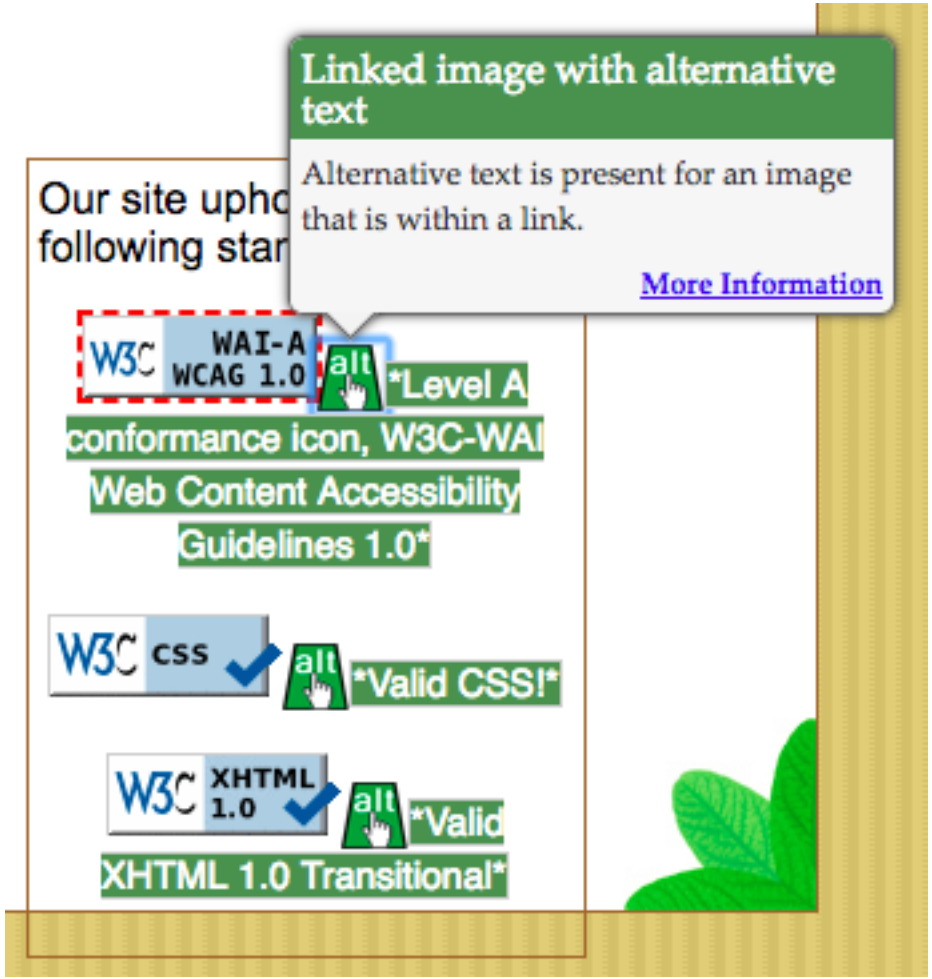
Linked image with alternative text
Alternative text is present for an image that is within a link.
More Information
Our site upho
following star
W3C WAI-A WCAG 1.0
alt
Level A conformance icon, W3C-WAI Web Content Accessibility Guidelines 1.0
W3C CSS
alt
Valid CSS!
W3C XHTML 1.0
alt
Valid XHTML 1.0 Transitional

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Learn More - Design

- Inclusive Design Principles
  https://inclusivedesignprinciples.org/
- Inclusive Design 24
  https://inclusivedesign24.org/
- The Paciello Group: cupper
  https://github.com/ThePacielloGroup/cupper
- Nutrition Cards for Accessible Components
  https://davatron5000.github.io/a11y-nutrition-cards/

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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/

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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

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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

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Resources

- Stories of Web Users
  https://www.w3.org/WAI/people-use-web/user-stories/
- WAI Tools & Techniques
  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

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Additional Articles

- "Not All Screen Reader Users Are Blind" by Adrian Roselli http://adrianroselli.com/2017/02/not-all-screen-reader-users-are-blind.html
- "The Accessibility of Styled Form Controls & Friends" https://scottaohara.github.io/a11y_styled_form_controls/
- "Lessons in iOS Voiceover Accessibility" https://medium.com/aaptiv-engineering/lessons-in-ios-voiceover-accessibility-834c5ed9a374
- "The Importance Of Manual Accessibility Testing" https://www.smashingmagazine.com/2018/09/importance-manual-accessibility-testing/
- "Involving Users in Evaluating Web Accessibility" https://www.w3.org/WAI/test-evaluate/involving-users/

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More Additional Articles

- "5 accessibility tests you can do in 5 minutes" https://openinclusion.com/blog/5-accessibility-tests/
- "The 6 Simplest Web Accessibility Tests Anyone Can Do" http://www.karlgroves.com/2013/09/05/the-6-simplest-web-accessibility-tests-anyone-can-do/
- "Easy Checks - A First Review of Web Accessibility" https://www.w3.org/WAI/test-evaluate/preliminary/
- "Handling common accessibility problems" https://developer.mozilla.org/en-US/docs/Learn/Tools_and_testing/Cross_browser_testing/Accessibility

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Takeaways

- Accessibility testing doesn't have to be expensive.
- A diverse testing group means better testing.
- Improving accessibility helps everyone.

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