

Automated Testing Approaches with Real Time Demonstrations

**Rayianna Daniels
John Toles**

February 8, 2022

CREATING THE NEXT®

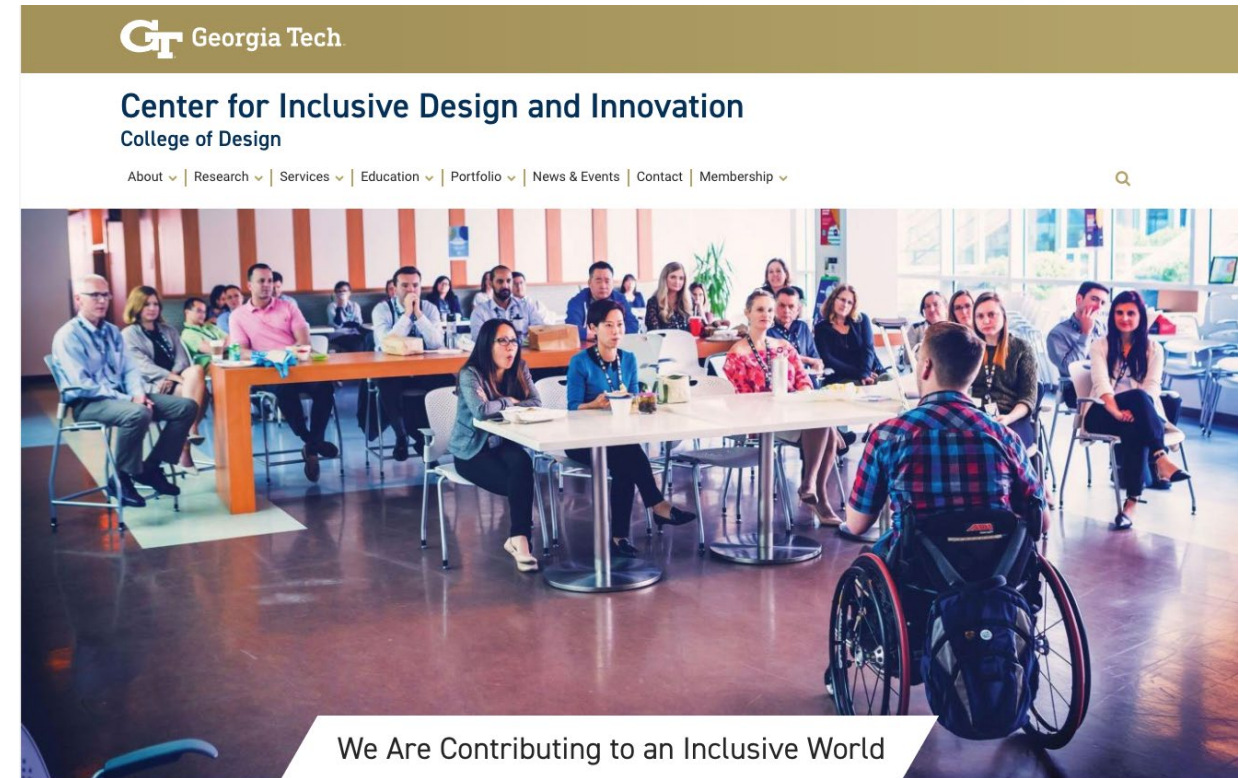
Live Captions Provided

Two Options:

1. Access StreamText link available in the “Chat” (“Chat” control in Zoom toolbar)
2. Access the “Closed Captions” option (“Closed Captions” control with “CC” above it in Zoom toolbar)



- Research (disability-related)
- Accessibility Consulting – ICT and UX
- Braille Services
- Captioning and Described Audio Services
- Professional E-Text Producers
- Certified Assistive Technology Team
 - Tools for Life is celebrating 30 years of service in 2021!



Overview

- CIDI Overview
- Description of Tools
- Tool Comparison
- Testing Methodologies
- Supplemental Resources
- Live Demonstration of Tools

Goals for Today's Presentation

1. Provide an overview of free automated testing tools
2. Provide pros and cons of each
3. Provide real-world examples of accessibility
4. Sharing of resources to assist writers, designers and developers to better understand, and create, accessible online content



Today's Presenters

Rayianna Daniels, Assistive Technology Support Specialist, CIDI

Rayianna Daniels has a BS of Science in Computer Science, along with a background in web accessibility training, web accessibility evaluations, web development and IT support. She also provides training on a variety of applications and assistive technology solutions to Higher Ed institutions across the country.

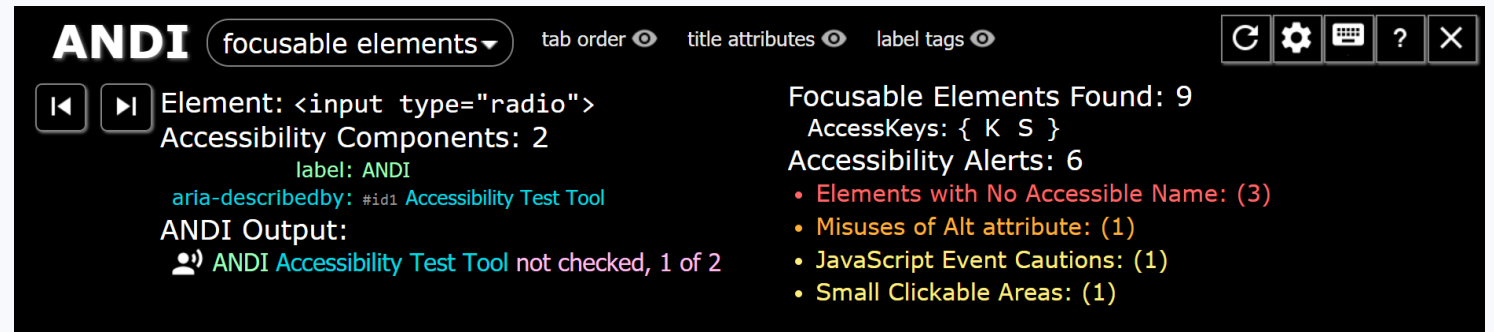


John Toles, Digital Accessibility Specialist, CIDI

John Toles has been employed with Center for Inclusive Design and Innovation (CIDI) since 2016. He provides technical assistance and services through the CIDI Customer Support team to Higher Ed institutions across the country. He also develops and maintains several of CIDI internal and public-facing applications and works closely with the ICT Accessibility team to provide web accessibility evaluations, technical assistance and training.



- ANDI = Accessible Name and Description Inspector
- Created by the Social Security Administration
- Can be saved as a bookmarklet in your browser
- When activated, it sits at the top of your active browser



ANDI (Continued)

- Anticipates screen reader output
- Provides accessibility suggestions
- Highlights problem/interest areas
- Great for ensuring the overlooked areas are addressed

The screenshot displays the gANDI (Georgia Tech Accessibility and Inclusive Design Assistant) interface. At the top, the gANDI logo is visible alongside a dropdown menu set to 'graphics/images' and a 'hide 9 inline' option. On the right, a summary of findings is shown: 'Images Found: 9', '9 inline images, 2 image links', 'Accessibility Alerts: 4', and a red bullet point indicating 'Elements with No Accessible Name: (4)'. The main content area shows a website for 'Accessible University' with a navigation bar containing 'About', 'Academics', 'Admissions', and 'Visitors'. The primary image on the page is a photograph of a person in a large, orange, mechanical mask, with a red dashed box highlighting it. To the left and right of this image are large, grey, dashed-outlined arrows pointing left and right, respectively. On the right side of the page, there is an 'Apply Now!' form with fields for Name, Email, City, and State/Province, with a note that required fields are in blue.

gANDI graphics/images▼ hide 9 inline

Element:
Accessibility Components: 1
src: au123456789.gif

ANDI Output:
⚠ Image has no accessible name, [alt], or [title].

Images Found: 9
9 inline images, 2 image links
Accessibility Alerts: 4
• Elements with No Accessible Name: (4)

Accessible University

About Academics Admissions Visitors

Apply Now!
(required fields are in blue)

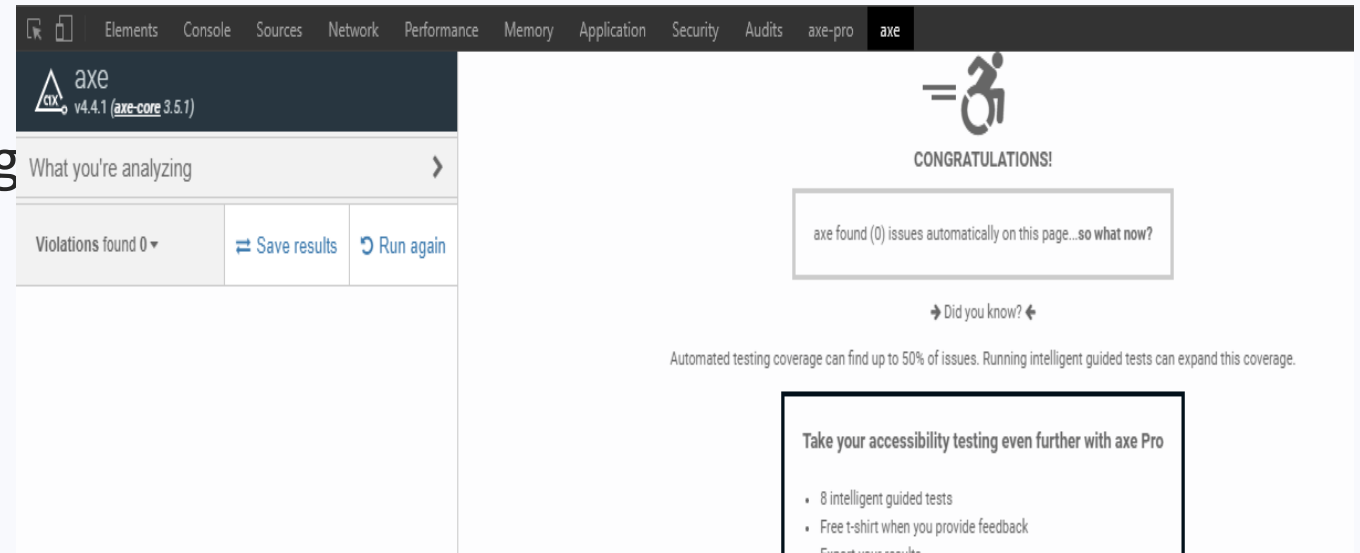
Name:

Email:

City:

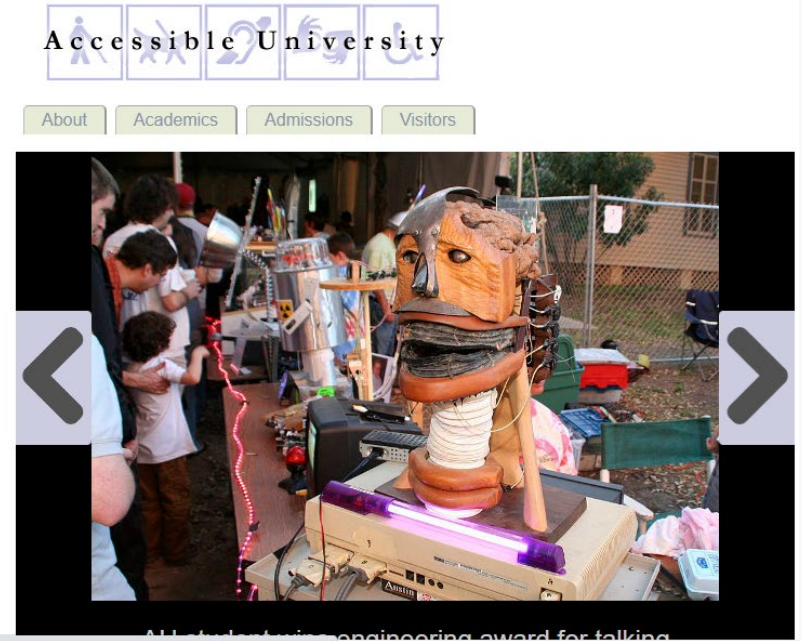
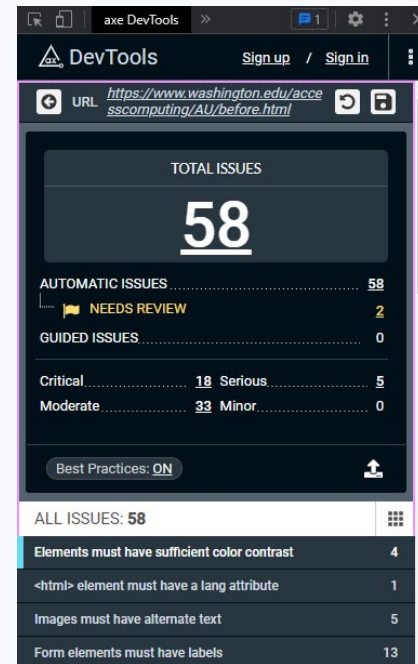
State/Province:

- Operates as an accessibility toolkit
- Built on an accessibility rules library
- Ties violations to their corresponding WCAG success criteria
- Browser extension that can be installed in Chrome and Firefox






aXe by Deque (Continued)

- Highlights and provides substantial supplemental information about violations
- Identifies which violations may require manual review
- Low percentage of false positives



Bookmarklets

- Highlights roles, states, and properties of elements
- 12 bookmarklets
- Great for spot-checking elements
- Users can pick and choose which bookmarklets they would like to add

-  Forms Bookmarklet
-  ARIA Bookmarklet
-  Lists Bookmarklet

					
About	Academics	Admissions	Visitors		
					

Apply Now!
(required fields are in blue)

Name:

Email:

City:

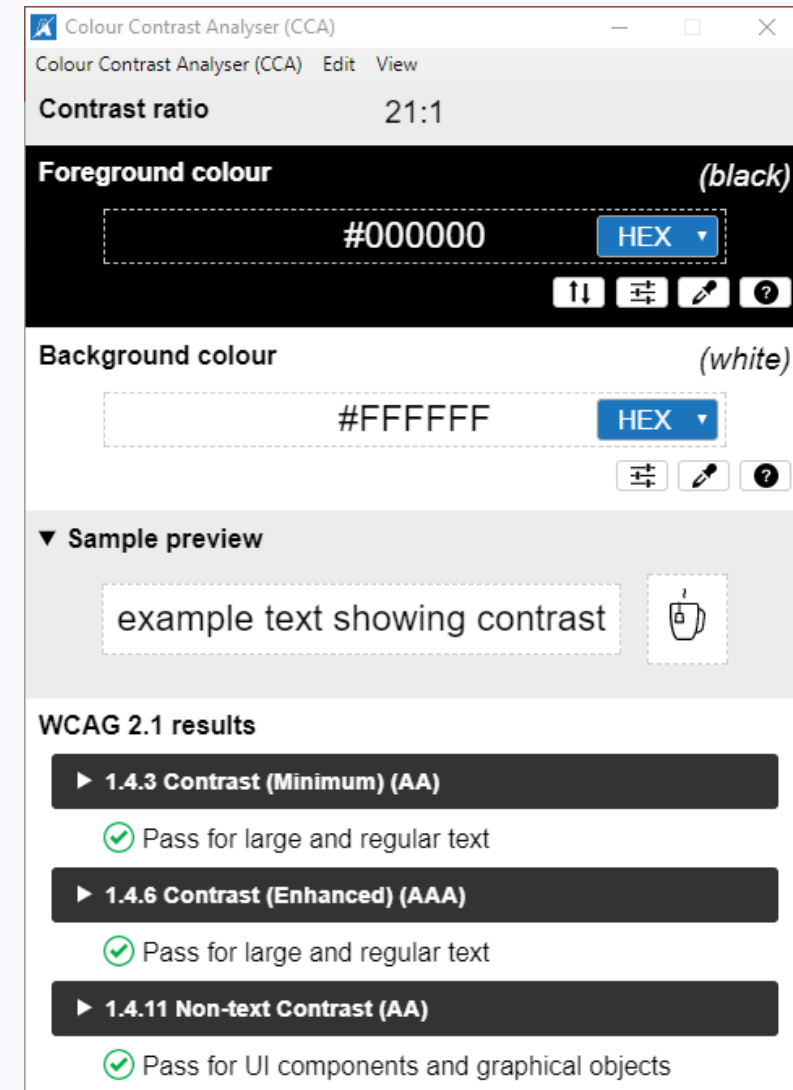
State/Province:

Zip/Postal Code:

Country:

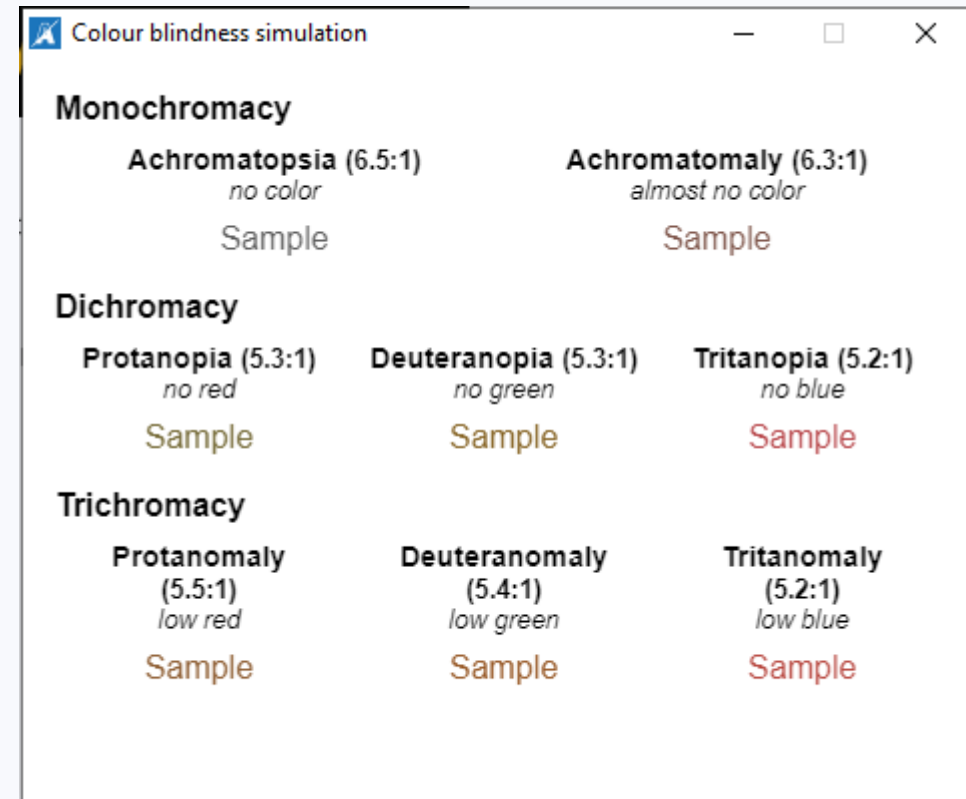
Colour Contrast Analyzer

- Determines color contrast ratio of elements and their backgrounds
- Multiple ways to input color combinations
- Contains WCAG 2.1 indicators



Colour Contrast Analyzer (Continued)

- Includes color blindness indicators
- Local application
- Great for choosing colors in the design phase of your project



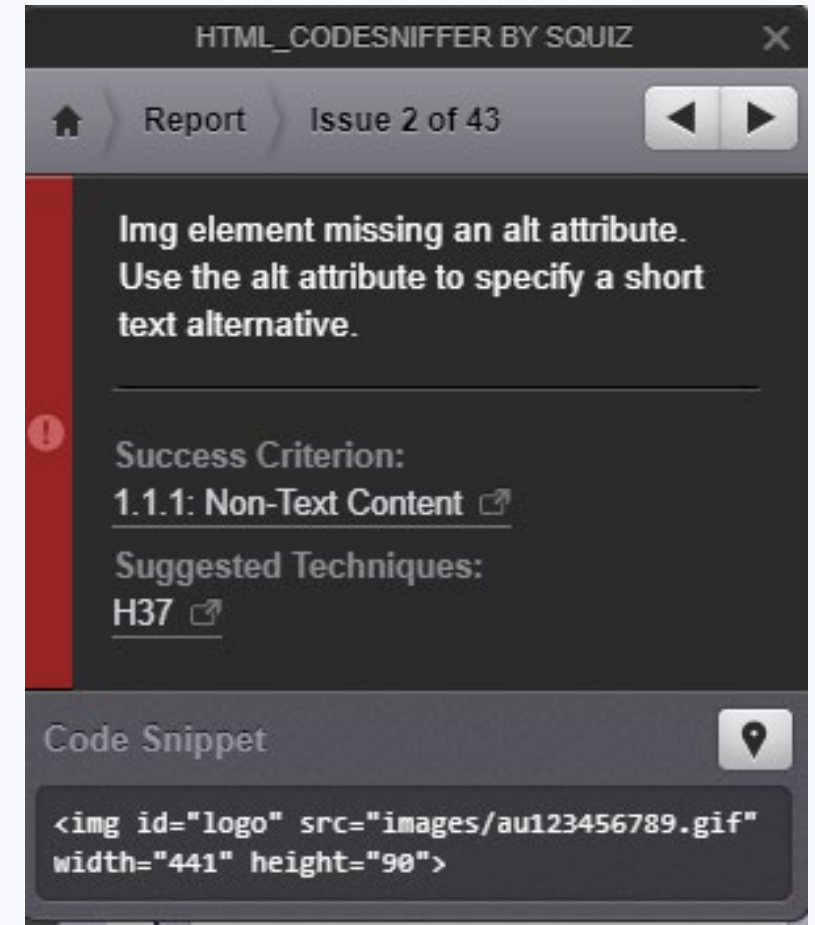
HTML Code Sniffer

- Checks HTML code and detects violations
- Ability to filter what errors are detected based on WCAG conformance levels
- Three levels of violation detection
- Brief report for each detected violation



HTML Code Sniffer (Continued)

- Completely JavaScript and can be extended by developer to create more detection points
- Notices and Warnings are great for reviewing commonly missed success criteria failures



- HTML validator
- Does not focus on accessibility
- Used in conjunction with a filtering script
 - Filters out issues that would not affect accessibility of the page

Nu Html Checker

This tool is an ongoing experiment in better HTML checking, and its behavior remains subject to change

Ready to check

Checker Input

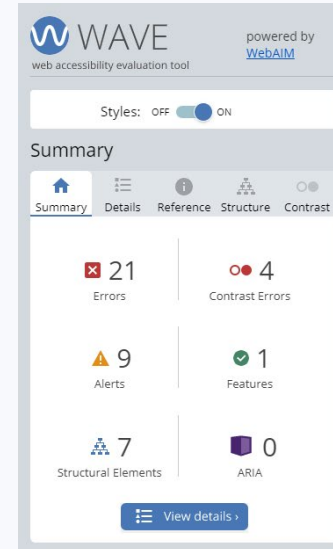
Show ☐ source ☐ outline ☐ image report

Check by

[About this checker](#) • [Report an issue](#) • Version: 20.4.23

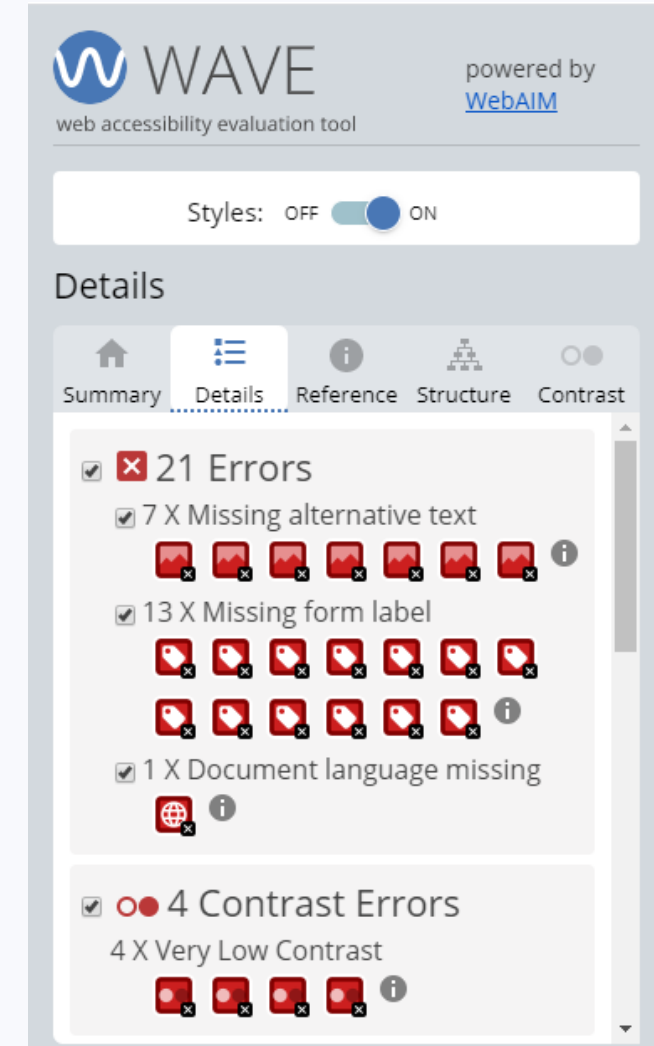
WAVE by WebAIM

- Multiple evaluation tools in one
- Specializes in identifying WCAG errors
- Promotes manual testing
- Identifies accessibility elements, features, provides alerts, and estimates color contrast ratio



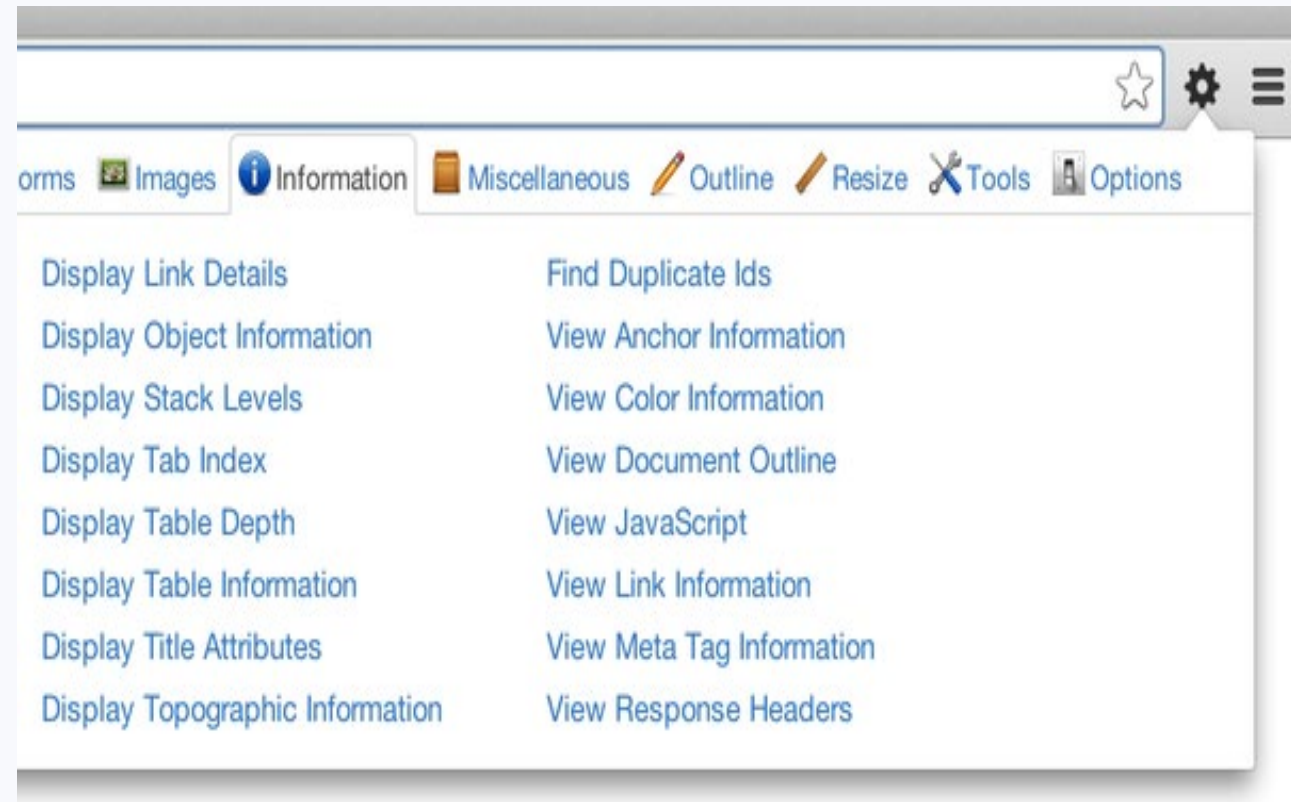
WAVE by WebAIM (Continued)

- Provides a large amount of information for each issue and their recommendation
- Has the potential to slow down browser if a large amount of errors, elements, and alerts are found

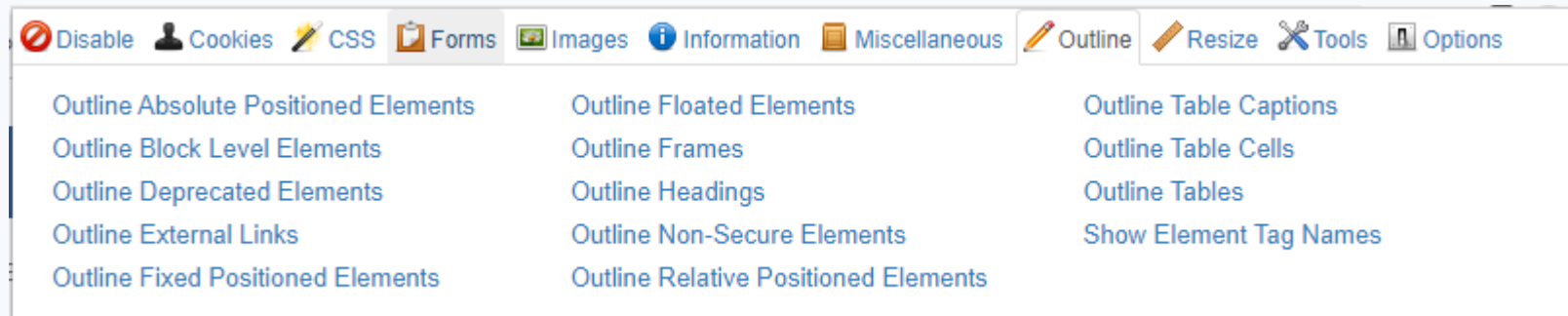
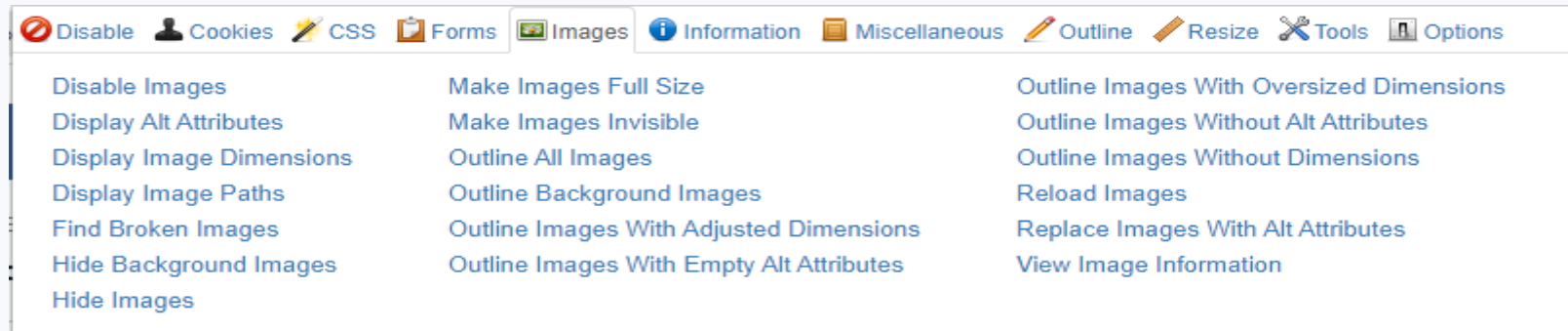
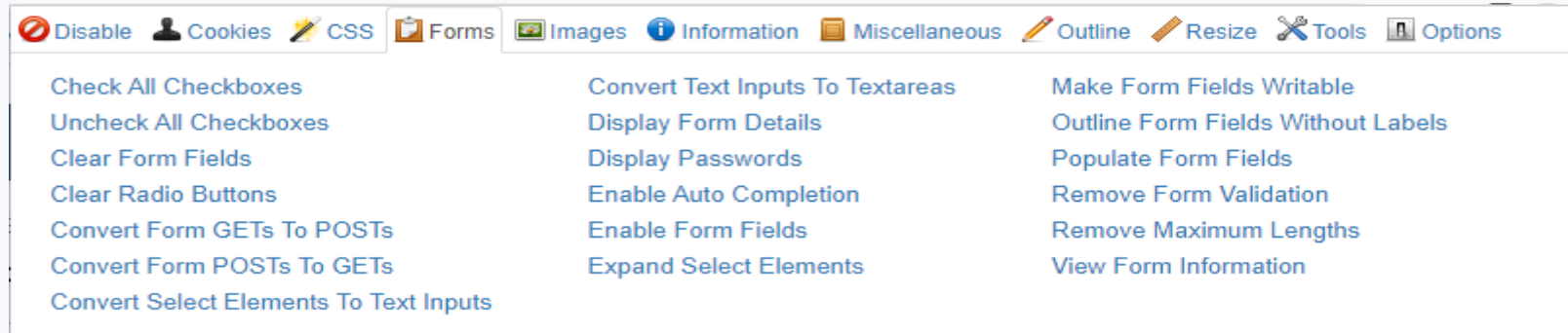


Web Developer Extension

- Provides over 100 tools
- Primary feature is the ability to highlight various elements where accessibility issues are typically found
- Includes tools that can disable certain types of content on the page



Web Developer Extension (Continued)



Nu Validator vs HTML Code Sniffer

Nu Validator

- Does not have a focus on accessibility related issues
- Highlighting is the primary function
- Requires a new tab

HTML Code Sniffer

- Checks code for accessibility errors
- Provides suggestions/recommendations
- Operates in the tab of the site being evaluated

Web Dev. vs Bookmarklets

Web Developer Extension

- Well over 100 tools
- Extension of browser
- Wide variety

Bookmarklets

- Limited but useful tools
- Option to choose between the bookmarklets

ANDI vs aXe vs WAVE

ANDI

- Anticipates what a screen reader may say
- Highlights elements with a box
- Located above content on the page

aXe

- Located in the inspector tool
- Highlights elements with a box

WAVE

- Provides detailed descriptions and recommendations
- Flags identified elements, errors, alerts with a badge
- Located to the right of the content on the page

Recommended Testing Workflow

Frequently Used:

- Bookmarklets
- HTML Code Sniffer
- Colour Contrast Analyzer
- aXe
- Nu Validator

Depends upon the site:

- WAVE
- Web Developer Extension

Supplemental Resources

- WCAG Checklist
(<https://www.w3.org/WAI/WCAG21/quickref/>)
- W3 WAI Tutorial
(<https://www.w3.org/WAI/tutorials/>)

How to Meet WCAG (Quick Reference)

A customizable quick reference to Web Content Accessibility Guidelines (WCAG) 2 requirements (success criteria) and techniques. [Show About & How to Use](#)

W3C® Web Accessibility Initiative WAI

Contents Filter Hide

Selected Filters: WCAG 2.1: all success criteria and all techniques. Clear filters Expand all sections Share

1. Perceivable

- 1.1 Text Alternatives
 - 1.1.1 Non-text Content
- 1.2 Time-based Media
 - 1.2.1 Audio-only and Video-only (Prerecorded)
 - 1.2.2 Captions (Prerecorded)
 - 1.2.3 Audio Description or Media Alternative (Prerecorded)
 - 1.2.4 Captions (Live)
 - 1.2.5 Audio Description (Prerecorded)
 - 1.2.6 Sign Language (Prerecorded)
 - 1.2.7 Extended Audio Description (Prerecorded)
 - 1.2.8 Media Alternative (Prerecorded)

Principle 1 – Perceivable

Information and user interface components must be presentable to users in ways they can perceive.

Guideline 1.1 – Text Alternatives

Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

1.1.1 Non-text Content — Level A

All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. [Show full description](#)

[Show techniques and failures for 1.1.1](#)

Understanding 1.1.1

SHARE BACK TO TOP

Web Accessibility Tutorials

Guidance on how to create websites that meet WCAG

W3C® Web Accessibility Initiative

All Tutorials

- Page Structure
- Menus
- Images
- Tables
- Forms
- Carousels

Tutorials Overview

This collection of tutorials shows you how to develop web content that is accessible to people with disabilities, and that provides a better user experience for everyone.

The tutorials are designed to be used by a variety of individuals, including:

- **Web developers** will find guidance and boilerplate solutions for many common coding challenges.
- **Web designers** will learn how to create web page components with a built-in inclusive design.
- **Web trainers** will find examples to teach people about accessible web design and development.
- **Content authors** will learn concepts and techniques for preparing their content in an accessible way.
- **Project managers** will gain an understanding of ways to integrate accessibility into their projects.

On this page

- Relationship to WCAG
- Additional Resources

Live Demonstration

Links to Tools

- ANDI
(<https://www.ssa.gov/accessibility/andi/help/install.html>)
- aXe (<https://www.deque.com/axe/>)
- Colour Contrast Analyzer
(<https://www.paciellogroup.com/resources/contrastanalyser/>)
- HTML Code Sniffer
(http://squizlabs.github.io/HTML_CodeSniffer/)
- Nu Validator
(<https://validator.w3.org/nu/>)
- WAVE (<http://wave.webaim.org/extension/>)
- Web Developer Extension
(<https://chrispederick.com/work/web-developer/>)
- Javascript Bookmarklets for Accessibility Testing
(<https://www.pauljadam.com/bookmarklets.html>)

Questions???

